

October 14, 2016

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**Subject: Topock IM-3 Third Quarter 2016 Monitoring Report
PG&E Topock Compressor Station, Needles, California
Interim Measure No. 3 Groundwater Treatment System
(Document ID: PGE20161014A)**

Dear Ms. Innis and Mr. Perdue:

Enclosed is the Third Quarter 2016 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.

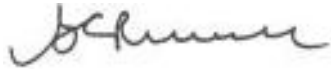
The IM-3 groundwater extraction and treatment system has extracted and treated approximately 741,192,793 gallons of water and removed approximately 6,904 pounds of total chromium from August 1, 2005 through September 30, 2016.

Pamela S. Innis
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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,

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

Curt Russell
Topock Site Manager

Enclosures:

Topock IM-3 Third Quarter 2016 Monitoring Report

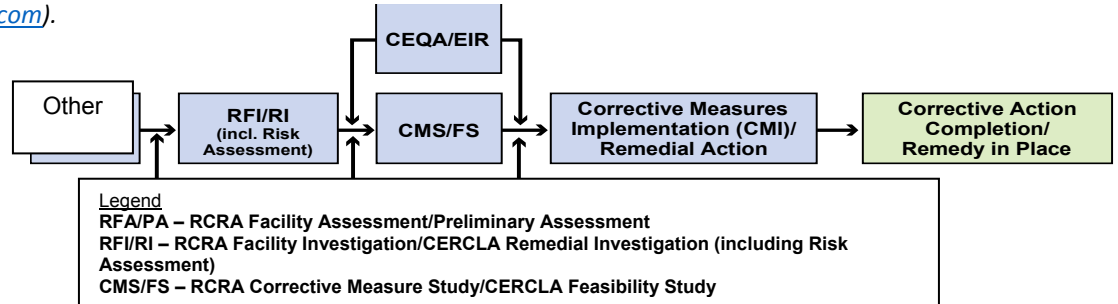
cc: José Cortez, Colorado River Basin Regional Water Board
Thomas Vandenberg, Colorado River Basin Regional Water Board
Aaron Yue, California Department of Toxic Substances Control

Topock Project Executive Abstract

<p>Document Title:</p> <p>Topock IM-3 Third Quarter 2016 Monitoring Report</p> <p>Submitting Agency/Author: 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 14, 2016</p> <p>Who Created this Document?: (i.e. PG&E, DTSC, DOI, Other)</p> <p>PG&E</p> <p>Document ID Number:</p> <p>PGE20161014A</p>
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<p>Type of Document:</p> <p><input type="checkbox"/> Draft <input checked="" type="checkbox"/> Report <input type="checkbox"/> Letter <input type="checkbox"/> Memo</p> <p><input type="checkbox"/> Other / Explain:</p>	<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>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>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>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 2016 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 2016 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 2016 Monitoring Report Interim Measure No. 3 Groundwater Treatment System

Document ID: PGE20161014A

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 14, 2016



CH2M HILL, Inc.
155 Grand Avenue
Suite 800
Oakland, CA 94612

Third Quarter 2016 Monitoring Report
for Interim Measure No. 3 Groundwater Treatment System

PG&E Topock Compressor Station
Needles, California

Prepared for

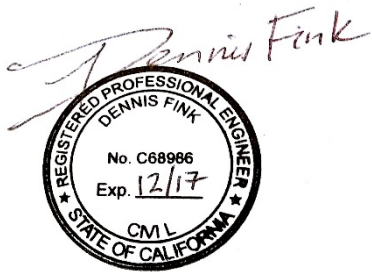
United States Department of the Interior
and
Colorado River Basin Regional Water Quality Control Board

on behalf of

Pacific Gas and Electric Company

October 14, 2016

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



Dennis Fink, P.E.
Project Engineer

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A	Third Quarter 2016 Laboratory Analytical Reports
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Acronyms and Abbreviations

ARARs	Applicable or Relevant and Appropriate Requirements
ASSET	ASSET Laboratories
DOI	United States Department of the Interior
gpm	gallons per minute
IM	Interim Measure
IW	injection well
MRP	Monitoring and Reporting Program
PG&E	Pacific Gas and Electric Company
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

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 2016. 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.

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.

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 2016, extraction wells TW-2D, 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 well TW-2S was not operating during 3Q 2016. The recorded operational run time for the IM-3 groundwater extraction system (combined or individual pumping), by month, was approximately:

- 98.7 percent during July 2016
- 83.5 percent during August 2016
- 99.1 percent during September 2016

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 2016 are detailed in Section 4.

Groundwater Treatment System Flow Rates

The Third Quarter 2016 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 16,922,323 gallons of extracted groundwater during the Third Quarter 2016. Seven containers of solids (sludge) were transported offsite from the IM-3 facility during Third Quarter 2016.

Periods of planned and unplanned extraction system downtime (that together resulted in approximately 6.3 percent downtime during Third Quarter 2016) 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 2016

During July 2016, extraction wells PE-1, TW-3D and TW-2D operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction well TW-2S was not operated during July 2016. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 98.7 percent during the July 2016 reporting period.

The IM-3 facility treated approximately 6,043,434 gallons of extracted groundwater during July 2016. Two containers of solids from the IM-3 facility were transported offsite during July 2016.

Periods of planned and unplanned extraction system down time (that together resulted in approximately 1.3 percent downtime during July 2016) are summarized below.

- **July 1, 2016 (unplanned):** The extraction well system was offline from 1:40 a.m. to 1:42 a.m. due to issues with the primary RO system. Extraction system downtime was 2 minutes.
- **July 1, 2016 (unplanned):** The extraction well system was offline from 11:56 a.m. to 12:04 p.m. to return to power from the City of Needles. Extraction system downtime was 8 minutes.
- **July 2, 2016 (unplanned):** The extraction well system was offline from 1:56 a.m. to 1:58 a.m. due to loss of power from the City of Needles. Plant was switched to generator power at this time. Extraction system downtime was 4 minutes.
- **July 2, 2016 (unplanned):** The extraction well system was offline from 6:30 a.m. to 6:38 a.m. to return to power from the City of Needles. The power was still out and the plant was returned to generator power at this time. Extraction system downtime was 8 minutes.
- **July 2, 2016 (unplanned):** The extraction well system was offline from 12:36 p.m. to 12:38 p.m. to return to power from the City of Needles. Extraction system downtime was 2 minutes.
- **July 5, 2016 (unplanned):** The extraction well system was offline from 6:00 p.m. to 7:46 p.m. due to an air compressor failure. Extraction system downtime was 1 hour, 46 minutes.

- **July 6, 2016 (planned):** The extraction well system was offline from 7:38 a.m. to 7:58 am, from 8:00 a.m. to 8:14 am, and from 8:18 a.m. to 8:22 a.m. for testing of critical alarms and the leak detection system. Extraction system downtime was 38 minutes.
- **July 6, 2016 (unplanned):** The extraction well system was offline from 9:48 a.m. to 10:58 a.m. to replace the microfilter modules. Extraction system downtime was 1 hour, 10 minutes.
- **July 6, 2016 (planned):** The extraction well system was offline from 1:54 p.m. to 1:56 p.m., 2:06 p.m. to 2:08 p.m., and 2:12 p.m. to 2:18 p.m. for extraction well sampling. Extraction system downtime was 10 minutes.
- **July 18, 2016 (unplanned):** The extraction well system was offline from 12:02 p.m. to 4:04 p.m. to replace the microfilter modules and repair the polymer transfer pump. Extraction system downtime was 4 hours, 2 minutes.
- **July 20, 2016 (unplanned):** The extraction well system was offline from 11:52 a.m. to 12:14 p.m. due to failure of the Clarifier Feed Pump (P-400). Extraction system downtime was 22 minutes.
- **July 26, 2016 (unplanned):** The extraction well system was offline from 10:32 p.m. to 10:36 p.m. and from 10:48 a.m. to 10:52 p.m. due to loss of power from the City of Needles. Plant was switched to generator power at this time. Extraction system downtime was 8 minutes.
- **July 27, 2016 (unplanned):** The extraction well system was offline from 8:56 a.m. to 9:00 a.m. to return to power from the City of Needles. Extraction system downtime was 4 minutes.
- **July 29, 2016 (unplanned):** The extraction well system was offline from 11:48 a.m. to 12:48 p.m. to replace the microfilter modules. Extraction system downtime was 1 hour.
- **July 30, 2016 (unplanned):** The extraction well system was offline from 2:58 a.m. to 3:02 a.m. due to loss of power from the City of Needles. Plant was switched to generator power at this time. Extraction system downtime was 4 minutes.
- **July 30, 2016 (unplanned):** The extraction well system was offline from 12:24 p.m. to 12:26 p.m. to return to power from the City of Needles. Extraction system downtime was 2 minutes.
- **July 30, 2016 (unplanned):** The extraction well system was offline from 12:42 p.m. to 12:48 p.m. due to loss of power from the City of Needles. Plant was switched to generator power at this time. Extraction system downtime was 6 minutes.
- **July 31, 2016 (unplanned):** The extraction well system was offline from 6:24 a.m. to 6:30 a.m. to return to power from the City of Needles. Extraction system downtime was 6 minutes.

4.2 August 2016

During August 2016, extraction wells TW-3D and PE-1 operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction well TW-2S and TW-2D were not operated during August 2016. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 83.5 percent during the August 2016 reporting period.

The IM-3 facility treated approximately 5,091,476 gallons of extracted groundwater during August 2016. Two containers of solids from the IM-3 facility were transported offsite during August 2016.

Periods of planned and unplanned extraction system down time (that together resulted in approximately 16.5 percent downtime during August 2016) are summarized below.

- **August 2, 2016 (unplanned):** The extraction well system was offline from 2:24 a.m. to 6:36 a.m. due to loss of power from the City of Needles. Extraction system downtime was 4 hours, 12 minutes.
- **August 2, 2016 (unplanned):** The extraction well system was offline from 11:40 a.m. to 4:24 p.m. and from 6:18 p.m. to 7:40 p.m. to put the plant in recirculation due to low system pH readings. Extraction system downtime was 6 hours, 6 minutes.
- **August 3, 2016 (planned):** The extraction well system was offline from 9:02 a.m. to 9:06 a.m., from 9:10 a.m. to 9:14 a.m., from 9:22 a.m. to 9:32 a.m., from 9:34 a.m. to 9:40 a.m., and from 9:42 a.m. to 9:44 a.m. for testing of critical alarms and the leak detection system. Extraction system downtime was 26 minutes.
- **August 3, 2016 (unplanned):** The extraction well system was offline from 10:24 a.m. to 10:36 a.m. to perform a check of the extraction well vault leak detection systems. Extraction system downtime was 12 minutes.
- **August 3, 2016 (unplanned):** The extraction well system was offline from 7:00 p.m. to 7:20 p.m. due to loss of power from the City of Needles. The plant was switched to generator power at this time. Extraction system downtime was 20 minutes.
- **August 4, 2016 (unplanned):** The extraction well system was offline from 10:24 a.m. to 10:28 a.m. to return to power from the City of Needles. Extraction system downtime was 4 minutes.
- **August 7-11, 2016 (planned):** The extraction well system was offline from 4:18 a.m. on August 7, 2016 to 2:48 p.m. on August 10, 2016, from 3:50 p.m. on August 10, 2016 to 6:58 a.m. on August 11, 2016, and from 8:44 a.m. to 2:10 p.m. on August 11, 2016 for semiannual scheduled maintenance. Extraction system downtime was 4 days, 7 hours, and 4 minutes.
- **August 14, 2016 (unplanned):** The extraction well system was offline from 2:50 p.m. to 3:10 p.m. due to failure of a pump in the ferrous injection system. The pump was adjusted and restarted. Extraction system downtime was 20 minutes.
- **August 15, 2016 (unplanned):** The extraction well system was offline from 2:12 a.m. to 2:34 a.m. due to failure of a pump in the ferrous injection system. The back pressure valve was replaced. Extraction system downtime was 22 minutes.
- **August 15, 2016 (unplanned):** The extraction well system was offline from 11:56 a.m. to 3:20 p.m. to replace the microfilter modules and replace the impeller in the Clarifier Feed Pump (P-400). Extraction system downtime was 3 hours, 24 minutes.
- **August 16, 2016 (unplanned):** The extraction well system was offline from 11:58 a.m. to 2:00 p.m. to replace a seal in the Clarifier Feed Pump (P-400). Extraction system downtime was 3 hours, 24 minutes.
- **August 16, 2016 (unplanned):** The extraction well system was offline from 10:56 p.m. to 10:58 p.m. due to failure of a pump in the ferrous injection system. The pump was adjusted and restarted. Extraction system downtime was 2 minutes.
- **August 25, 2016 (unplanned):** The extraction well system was offline from 12:30 p.m. to 1:28 p.m. to replace the microfilter modules. Extraction system downtime was 58 minutes.
- **August 26, 2016 (unplanned):** The extraction well system was offline from 9:56 p.m. to 10:00 p.m. to switch plant to generator power due to storms in the area. Extraction system downtime was 4 minutes.

- **August 28, 2016 (unplanned):** The extraction well system was offline from 12:14 a.m. to 12:30 a.m. due to loss of power from the City of Needles. Plant was switched to generator power at this time. Extraction system downtime was 16 minutes.
- **August 30, 2016 (unplanned):** The extraction well system was offline from 5:06 p.m. to 5:18 p.m. due to loss of power from the City of Needles. Extraction system downtime was 12 minutes.
- **August 31, 2016 (unplanned):** The extraction well system was offline from 7:56 a.m. to 8:26 a.m. due to a high-level alarm in the Raw Water Storage Tank (T-100). Extraction system downtime was 30 minutes.

4.3 September 2016

During September 2016, 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 2016. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 99.1 percent during the September 2016 reporting period.

The IM-3 facility treated approximately 5,787,413 gallons of extracted groundwater during September 2016. The IM-3 facility treated 420 gallons of purge water from groundwater sampling activities. Three containers of solids from the IM-3 facility were transported offsite during September 2016.

Periods of planned and unplanned extraction system down time (that together resulted in approximately 0.9 percent downtime during September 2016) are summarized below.

- **September 3, 2016 (unplanned):** The extraction well system was offline from 6:28 a.m. to 6:50 a.m. to replace the Reverse Osmosis system pre-filters. Extraction system downtime was 22 minutes.
- **September 14, 2016 (unplanned):** The extraction well system was offline from 7:54 a.m. to 9:30 a.m. to replace the microfilter modules. Extraction system downtime was 1 hour, 36 minutes.
- **September 16, 2016 (unplanned):** The extraction well system was offline from 3:38 a.m. to 3:40 a.m. due to loss of power from the City of Needles. Extraction system downtime was 2 minutes.
- **September 21, 2016 (unplanned):** The extraction well system was offline from 7:34 a.m. to 9:18 a.m. to replace the microfilter modules. Extraction system downtime was 1 hour, 44 minutes.
- **September 28, 2016 (unplanned):** The extraction well system was offline from 7:10 a.m. to 7:28 a.m. for Needles Power to replace the electrical taps at the transformer. Extraction system downtime was 18 minutes.
- **September 28, 2016 (unplanned):** The extraction well system was offline from 3:36 p.m. to 5:16 p.m. due to a high-level alarm in the Raw Water Storage Tank (T-100). Extraction system downtime was 1 hour, 40 minutes.
- **September 29, 2016 (unplanned):** The extraction well system was offline from 7:04 p.m. to 7:16 p.m. due to a high level alarm in the Raw Water Storage Tank (T-100). Extraction system downtime was 12 minutes.
- **September 30, 2016 (unplanned):** The extraction well system was offline from 6:20 p.m. to 7:02 p.m. due to a high-level alarm in the Raw Water Storage Tank (T-100). Extraction system downtime was 42 minutes.

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 2016, 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.

Analytical Results

Laboratory reports for samples collected in the Third Quarter 2016 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

Conclusions

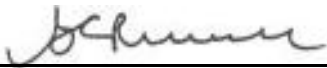
There were no exceedances of effluent limitations during the reporting period.

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.

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 14, 2016

Tables

Table 1. Sampling Station Descriptions*Third Quarter 2016 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 2016 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 2016 Average Monthly Flowrate	135.38	133.68	1.27
August 2016 Average Monthly Flowrate	114.06	114.86	0.87
September 2016 Average Monthly Flowrate	133.97	134.89	0.48

Notes:

gpm: gallons per minute

^a Extraction wells TW-2D, TW-3D and PE-1 were operated during the Third Quarter 2016.^b The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during the Third Quarter 2016 is approximately 0.69 percent.

Table 3. Sample Collection Dates*Third Quarter 2016 Monitoring Report for Interim Measure No. 3 Groundwater Treatment System*

Parameter	Sample Collection Dates	Results
Influent	July 5, 2016	See Table 4
	August 3, 2016	
	September 6, 2016	
Effluent	July 5, 2016	See Table 5
	August 3, 2016	
	August 11, 2016	
	September 6, 2016	
Reverse Osmosis Concentrate	July 5, 2016	See Table 6
Sludge ^a	July 5, 2016	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 2016 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Sampling Frequency		Monthly						Quarterly																	
Sample ID	Date	Analytes Units ^b MDL	TDS	Turbidity	Specific Conductance	Field ^c pH	Chromium	Hexavalent Chromium	Aluminium	Ammonia (as N)	Antimony	Arsenic	Barium	Boron	Copper	Fluoride	Lead	Manganese	Molybdenum	Nickel	Nitrate/Nitrite (as N)	Sulfate	Iron	Zinc	
			mg/L	NTU	µmhos/cm	pH units	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	µg/L	µg/L
			50.0	0.100	0.100	---	0.0960	6.60	2.70	0.0111	0.0310	0.0250	0.0700	0.0380	0.260	0.0870	0.180	0.0560	0.0390	0.0400	0.110	3.30	1.80	0.270	
SC-100B-WDR-542	7/5/2016		4500	0.160	7400	7.3	600	590	ND (50.0)	ND (0.0500)	ND (0.500)	3.00	29.0	1.00	ND (1.00)	3.10	ND (5.00)	6.50	24.0	ND (1.00)	2.90	490	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	5.00	0.500	0.500	1.00	0.250	25.0	20.0	10.0	
SC-100B-WDR-543	8/3/2016		4200	0.170	6800	7.3	520	470	---	---	---	---	---	---	---	---	---	23.0	---	---	---	---	---	---	
RL			50.0	0.100	0.100	---	5.00	20.0	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---	
SC-100B-WDR-545	9/6/2016		4600	0.340	7800	7.9	590	600	---	---	---	---	---	---	---	---	---	6.40	---	---	---	---	---	---	
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 2016 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
	Max Daily	NA	NA	NA	6.5-8.4	50	16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sampling Frequency		Monthly																					
<div> </div> <div>Analytes Units^c</div> <div>MDL^d</div>	<div> </div> <div> </div> <div> </div>	TDS	Turbidity	Specific Conductance	Field pH ^e	Chromium	Hexavalent Chromium	Aluminium	Ammonia (as N)	Antimony	Arsenic	Barium	Boron	Copper	Fluoride	Lead	Manganese	Molybdenum	Nickel	Nitrate/Nitrite (as N)	Sulfate	Iron	Zinc
		mg/L	NTU	µmhos/cm	pH units	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	µg/L	µg/L
		50.0	0.100	0.100	---	0.0190	0.0660	2.70	0.0111	0.0310	0.0250	0.0700	0.0380	0.260	0.0870	0.180	0.0560	0.0390	0.0400	0.110	3.30	1.80	0.270
Sample ID	Date																						
SC-700B-WDR-542	7/5/2016	4100	0.160	7100	7.2	ND (1.00)	ND (0.200)	ND (50.0)	ND (0.0500)	ND (0.500)	ND (0.100)	16.0	1.10	ND (1.00)	2.60	ND (5.00)	2.70	21.0	1.30	2.90	450	ND (20.0)	ND (10.0)
		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	5.00	0.500	0.500	1.00	0.250	25.0	20.0	10.0
SC-700B-WDR-543	8/3/2016	4200	0.210	7000	7.3	ND (1.00)	ND (0.200)	ND (50.0)	0.0609	ND (0.500)	ND (0.100)	16.0	1.10	ND (1.00)J	2.20	ND (5.00)	10.0	21.0	ND (1.00)	2.50	440	ND (20.0)	ND (10.0)
		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	5.00	0.500	2.50	1.00	0.250	25.0	20.0	10.0
SC-700B-WDR-544	8/11/2016	3900	0.490	6500	---	1.40	0.250	ND (50.0)	0.360	ND (2.50)	0.110	14.0	1.10	ND (1.00)	2.30	ND (25.0)	93.0	25.0	2.60	2.50	400	60.0	ND (10.0)
		50.0	0.100	0.100	---	1.00	0.200	50.0	0.0500	2.50	0.100	5.00	0.100	1.00	0.500	25.0	0.500	2.50	1.00	0.250	25.0	20.0	10.0
SC-700B-WDR-545	9/6/2016	4000	0.450 J	7400	7.4	1.40	ND (0.200)	84.0	ND (0.0500)	ND (2.50)	ND (0.100)	19.0	1.10	ND (1.00)J	2.50	ND (5.00)	16.0	21.0	2.40	2.80	460	72.0 J	ND (10.0)
		50.0	0.100	0.100	---	1.00	0.200	50.0	0.0500	2.50	0.100	5.00	0.100	1.00	0.500	5.00	0.500	2.50	1.00	0.250	25.0	20.0	10.0

NOTES:

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

^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 2016 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Sampling Frequency		Quarterly																						
<div>Sample ID</div>	<div>Date</div>	<div>Analytes Units^b MDL</div>	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	mg/L
			500	0.100	---	0.000096	0.0016	0.00079	0.00012	0.0017	0.0011	0.0012	0.00013	0.0013	0.350	0.00092	0.00097	0.000087	0.00020	0.00069	0.0015	0.00074	0.00011	0.0013
SC-701-WDR-542	7/5/2016		38000	52000	9.7	ND (0.0050)	ND (0.0050)	ND (0.0120)	0.000830	0.150	ND (0.0120)	ND (0.0120)	ND (0.0025)	ND (0.0050)	20.0	ND (0.0250)	0.200	ND (0.00020)	0.0170	0.0350	ND (0.0120)	ND (0.0120)	ND (0.0050)	ND (0.0500)
RL			500	0.100	---	0.0050	0.0050	0.0120	0.00050	0.0250	0.0120	0.0120	0.0025	0.0050	2.00	0.0250	0.0120	0.00020	0.0050	0.0120	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 2016 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Sampling Frequency		Quarterly																			Annually
<div> </div>	<div>Analytes Units^b MDL</div>	Chromium	Hexavalent Chromium	Antimony	Arsenic	Barium	Beryllium	Cadmium	Cobalt	Copper	Fluoride	Lead	Molybdenum	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Bioassay
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	% Survival
		0.0820	0.250	0.370	0.440	0.0860	0.0770	0.0740	0.0740	0.0810	0.350	0.0810	0.0720	0.0240	0.0850	0.310	0.0830	0.330	0.0750	0.130	at 750 mg/L ^c
Sample ID	Date																				
																					100
Phase Separator-542-Sludge	7/5/2016	2800	82.0	4.80	11.0	57.0	ND (2.00)	ND (2.00)	5.40	150	21.0	ND (2.00)	4.00	ND (0.200)	29.0	ND (2.00)	ND (2.00)	ND (4.10)	30.0	14.0	100
RL		2.00	2.00	4.10	2.00	2.00	2.00	2.00	2.00	4.10	2.00	2.00	2.00	0.200	2.00	2.00	2.00	4.10	2.00	2.00	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 2016 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-542	Ryan Phelps	7/5/2016	10:50:00 AM	ASSET	EPA 120.1	SC	7/6/2016	Lilia Ramit
					ASSET	EPA 200.7	AL	7/7/2016	Claire Ignacio
					ASSET	EPA 200.7	B	7/7/2016	Claire Ignacio
					ASSET	EPA 200.7	FE	7/7/2016	Claire Ignacio
					ASSET	EPA 200.8	AS	7/8/2016	Claire Ignacio
					ASSET	EPA 200.8	BA	7/7/2016	Claire Ignacio
					ASSET	EPA 200.8	CR	7/7/2016	Claire Ignacio
					ASSET	EPA 200.8	CU	7/7/2016	Claire Ignacio
					ASSET	EPA 200.8	MN	7/7/2016	Claire Ignacio
					ASSET	EPA 200.8	MO	7/7/2016	Claire Ignacio
					ASSET	EPA 200.8	NI	7/7/2016	Claire Ignacio
					ASSET	EPA 200.8	PB	7/7/2016	Claire Ignacio
					ASSET	EPA 200.8	SB	7/7/2016	Claire Ignacio
					ASSET	EPA 200.8	ZN	7/7/2016	Claire Ignacio
					ASSET	EPA 218.6	CR6	7/6/2016	Quennie Manimtim
					ASSET	EPA 300.0	FL	7/6/2016	Quennie Manimtim
					ASSET	EPA 300.0	SO4	7/6/2016	Quennie Manimtim
					Field	HACH	PH	7/5/2016	Ron Phelps
					ASSET	SM 2540C	TDS	7/6/2016	Lilia Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	7/11/2016	Ryan Balilu
					ASSET	SM2130B	TRB	7/6/2016	Lilia Ramit
					TLI	SM4500NH3D	NH3N	7/11/2016	Alexander Luna
SC-100B	SC-100B-WDR-543	Ryan Phelps	8/3/2016	7:25:00 AM	ASSET	EPA 120.1	SC	8/4/2016	Lilia Ramit
					ASSET	EPA 200.8	CR	8/8/2016	Claire Ignacio
					ASSET	EPA 200.8	MN	8/8/2016	Claire Ignacio
					ASSET	EPA 218.6	CR6	8/8/2016	Quennie Manimtim
					Field	HACH	PH	8/3/2016	Ron P.
					ASSET	SM 2540C	TDS	8/4/2016	Lilia Ramit
					ASSET	SM2130B	TRB	8/4/2016	Lilia Ramit
SC-100B	SC-100B-WDR-545	George Gloria	9/6/2016	1:30:00 PM	ASSET	EPA 120.1	SC	9/7/2016	Lilia Ramit
					ASSET	EPA 200.8	CR	9/8/2016	Claire Ignacio
					ASSET	EPA 200.8	MN	9/8/2016	Claire Ignacio
					ASSET	EPA 218.6	CR6	9/7/2016	Ria Abes
					Field	HACH	PH	9/6/2016	G. Gloria
					ASSET	SM 2540C	TDS	9/7/2016	Lilia Ramit

TABLE 8

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

Monitoring Information

Third Quarter 2016 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-545	George Gloria	9/6/2016	1:30:00 PM	ASSET	SM2130B	TRB	9/7/2016	Lilia Ramit
SC-700B	SC-700B-WDR-542	Ryan Phelps	7/5/2016	10:42:00 AM	ASSET	EPA 120.1	SC	7/6/2016	Lilia Ramit
					ASSET	EPA 200.7	AL	7/7/2016	Claire Ignacio
					ASSET	EPA 200.7	B	7/7/2016	Claire Ignacio
					ASSET	EPA 200.7	FE	7/7/2016	Claire Ignacio
					ASSET	EPA 200.8	AS	7/8/2016	Claire Ignacio
					ASSET	EPA 200.8	BA	7/7/2016	Claire Ignacio
					ASSET	EPA 200.8	CR	7/7/2016	Claire Ignacio
					ASSET	EPA 200.8	CU	7/7/2016	Claire Ignacio
					ASSET	EPA 200.8	MN	7/7/2016	Claire Ignacio
					ASSET	EPA 200.8	MO	7/7/2016	Claire Ignacio
					ASSET	EPA 200.8	NI	7/7/2016	Claire Ignacio
					ASSET	EPA 200.8	PB	7/7/2016	Claire Ignacio
					ASSET	EPA 200.8	SB	7/7/2016	Claire Ignacio
					ASSET	EPA 200.8	ZN	7/7/2016	Claire Ignacio
					ASSET	EPA 218.6	CR6	7/6/2016	Quennie Manimtim
					ASSET	EPA 300.0	FL	7/6/2016	Quennie Manimtim
					ASSET	EPA 300.0	SO4	7/6/2016	Quennie Manimtim
					Field	HACH	PH	7/5/2016	Ron Phelps
					ASSET	SM 2540C	TDS	7/6/2016	Lilia Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	7/11/2016	Ryan Balilu
SC-700B	SC-700B-WDR-543	Ryan Phelps	8/3/2016	7:25:00 AM	ASSET	SM2130B	TRB	7/6/2016	Lilia Ramit
					TLI	SM4500NH3D	NH3N	7/11/2016	Alexander Luna
					ASSET	EPA 120.1	SC	8/4/2016	Lilia Ramit
					ASSET	EPA 200.7	AL	8/10/2016	Claire Ignacio
					ASSET	EPA 200.7	B	8/15/2016	Claire Ignacio
					ASSET	EPA 200.7	FE	8/10/2016	Claire Ignacio
					ASSET	EPA 200.8	AS	8/8/2016	Claire Ignacio
					ASSET	EPA 200.8	BA	8/10/2016	Claire Ignacio
					ASSET	EPA 200.8	CR	8/8/2016	Claire Ignacio
					ASSET	EPA 200.8	CU	8/10/2016	Claire Ignacio
					ASSET	EPA 200.8	MN	8/8/2016	Claire Ignacio
					ASSET	EPA 200.8	MO	8/8/2016	Claire Ignacio
					ASSET	EPA 200.8	NI	8/8/2016	Claire Ignacio
					ASSET	EPA 200.8	PB	8/8/2016	Claire Ignacio

TABLE 8

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

Monitoring Information

Third Quarter 2016 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-543	Ryan Phelps	8/3/2016	7:25:00 AM	ASSET	EPA 200.8	SB	8/8/2016	Claire Ignacio
					ASSET	EPA 200.8	ZN	8/8/2016	Claire Ignacio
					ASSET	EPA 218.6	CR6	8/8/2016	Quennie Manimtim
					ASSET	EPA 300.0	FL	8/9/2016	Quennie Manimtim
					ASSET	EPA 300.0	SO4	8/9/2016	Quennie Manimtim
					Field	HACH	PH	8/3/2016	Ron P.
					ASSET	SM 2540C	TDS	8/4/2016	Lilia Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	8/15/2016	Ryan Balilu
					ASSET	SM2130B	TRB	8/4/2016	Lilia Ramit
					TLI	SM4500NH3D	NH3N	8/15/2016	Alexander Luna
SC-700B	SC-700B-WDR-544	Brian Terhume	8/11/2016	3:25:00 PM	ASSET	EPA 120.1	SC	8/12/2016	Lilia Ramit
					ASSET	EPA 200.7	AL	8/18/2016	Claire Ignacio
					ASSET	EPA 200.7	B	8/19/2016	Claire Ignacio
					ASSET	EPA 200.7	FE	8/18/2016	Claire Ignacio
					ASSET	EPA 200.8	AS	8/17/2016	Claire Ignacio
					ASSET	EPA 200.8	BA	8/17/2016	Claire Ignacio
					ASSET	EPA 200.8	CR	8/17/2016	Claire Ignacio
					ASSET	EPA 200.8	CU	8/17/2016	Claire Ignacio
					ASSET	EPA 200.8	MN	8/17/2016	Claire Ignacio
					ASSET	EPA 200.8	MO	8/17/2016	Claire Ignacio
					ASSET	EPA 200.8	NI	8/17/2016	Claire Ignacio
					ASSET	EPA 200.8	PB	8/17/2016	Claire Ignacio
					ASSET	EPA 200.8	SB	8/17/2016	Claire Ignacio
					ASSET	EPA 200.8	ZN	8/17/2016	Claire Ignacio
					ASSET	EPA 218.6	CR6	8/12/2016	Ryan Balilu
					ASSET	EPA 300.0	FL	8/16/2016	Quennie Manimtim
					ASSET	EPA 300.0	SO4	8/15/2016	Quennie Manimtim
					ASSET	SM 2540C	TDS	8/15/2016	Lilia Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	8/15/2016	Ryan Balilu
					ASSET	SM2130B	TRB	8/12/2016	Lilia Ramit
					TLI	SM4500NH3D	NH3N	8/22/2016	Alexander Luna
SC-700B	SC-700B-WDR-545	George Gloria	9/6/2016	1:30:00 PM	ASSET	EPA 120.1	SC	9/7/2016	Lilia Ramit
					ASSET	EPA 200.7	AL	9/9/2016	Claire Ignacio
					ASSET	EPA 200.7	B	9/9/2016	Claire Ignacio
					ASSET	EPA 200.7	FE	9/9/2016	Claire Ignacio

TABLE 8

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

Monitoring Information

Third Quarter 2016 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-545	George Gloria	9/6/2016	1:30:00 PM	ASSET	EPA 200.8	AS	9/9/2016	Claire Ignacio
					ASSET	EPA 200.8	BA	9/8/2016	Claire Ignacio
					ASSET	EPA 200.8	CR	9/8/2016	Claire Ignacio
					ASSET	EPA 200.8	CU	9/8/2016	Claire Ignacio
					ASSET	EPA 200.8	MN	9/8/2016	Claire Ignacio
					ASSET	EPA 200.8	MO	9/8/2016	Claire Ignacio
					ASSET	EPA 200.8	NI	9/8/2016	Claire Ignacio
					ASSET	EPA 200.8	PB	9/8/2016	Claire Ignacio
					ASSET	EPA 200.8	SB	9/8/2016	Claire Ignacio
					ASSET	EPA 200.8	ZN	9/8/2016	Claire Ignacio
					ASSET	EPA 218.6	CR6	9/7/2016	Ria Abes
					ASSET	EPA 300.0	FL	9/7/2016	Ria Abes
					ASSET	EPA 300.0	SO4	9/7/2016	Ria Abes
					Field	HACH	PH	9/6/2016	G. Gloria
					ASSET	SM 2540C	TDS	9/7/2016	Lilia Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	9/17/2016	Ryan Balilu
					ASSET	SM2130B	TRB	9/12/2016	Lilia Ramit
					TLI	SM4500NH3D	NH3N	9/14/2016	Alexander Luna
SC-701	SC-701-WDR-542	Ryan Phelps	7/5/2016	10:30:00 AM	ASSET	EPA 120.1	SC	7/6/2016	Lilia Ramit
					ASSET	EPA 200.8	AG	7/7/2016	Claire Ignacio
					ASSET	EPA 200.8	AS	7/8/2016	Claire Ignacio
					ASSET	EPA 200.8	BA	7/7/2016	Claire Ignacio
					ASSET	EPA 200.8	BE	7/7/2016	Claire Ignacio
					ASSET	EPA 200.8	CD	7/7/2016	Claire Ignacio
					ASSET	EPA 200.8	CO	7/7/2016	Claire Ignacio
					ASSET	EPA 200.8	CR	7/7/2016	Claire Ignacio
					ASSET	EPA 200.8	CU	7/7/2016	Claire Ignacio
					ASSET	EPA 200.8	MN	7/7/2016	Claire Ignacio
					ASSET	EPA 200.8	MO	7/7/2016	Claire Ignacio
					ASSET	EPA 200.8	NI	7/7/2016	Claire Ignacio
					ASSET	EPA 200.8	PB	7/7/2016	Claire Ignacio
					ASSET	EPA 200.8	SB	7/7/2016	Claire Ignacio
					ASSET	EPA 200.8	SE	7/7/2016	Claire Ignacio
					ASSET	EPA 200.8	TL	7/7/2016	Claire Ignacio
					ASSET	EPA 200.8	V	7/7/2016	Claire Ignacio
					ASSET	EPA 200.8	ZN	7/7/2016	Claire Ignacio

TABLE 8

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

Monitoring Information

Third Quarter 2016 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-542	Ryan Phelps	7/5/2016	10:30:00 AM	ASSET	EPA 218.6	CR6	7/6/2016	Quennie Manimtim
					ASSET	EPA 245.1	HG	7/12/2016	Amy Mata
					ASSET	EPA 300.0	FL	7/6/2016	Quennie Manimtim
					Field	HACH	PH	7/5/2016	Ron Phelps
					ASSET	SM 2540C	TDS	7/6/2016	Lilia Ramit
Phase Separator	Phase Separator-542-Sludge	Ryan Phelps	7/5/2016	10:00:00 AM	ASSET	EPA 300.0	FL	7/11/2016	Quennie Manimtim
					ASSET	EPA 6010B	AG	7/13/2016	Claire Ignacio
					ASSET	EPA 6010B	AS	7/13/2016	Claire Ignacio
					ASSET	EPA 6010B	BA	7/13/2016	Claire Ignacio
					ASSET	EPA 6010B	BE	7/13/2016	Claire Ignacio
					ASSET	EPA 6010B	CD	7/13/2016	Claire Ignacio
					ASSET	EPA 6010B	CO	7/13/2016	Claire Ignacio
					ASSET	EPA 6010B	CR	7/13/2016	Claire Ignacio
					ASSET	EPA 6010B	CU	7/13/2016	Claire Ignacio
					ASSET	EPA 6010B	MN	7/13/2016	Claire Ignacio
					ASSET	EPA 6010B	MO	7/13/2016	Claire Ignacio
					ASSET	EPA 6010B	NI	7/13/2016	Claire Ignacio
					ASSET	EPA 6010B	PB	7/13/2016	Claire Ignacio
					ASSET	EPA 6010B	SB	7/13/2016	Claire Ignacio
					ASSET	EPA 6010B	SE	7/13/2016	Claire Ignacio
					ASSET	EPA 6010B	TL	7/13/2016	Claire Ignacio
					ASSET	EPA 6010B	V	7/13/2016	Claire Ignacio
					ASSET	EPA 6010B	ZN	7/13/2016	Claire Ignacio
					ASSET	EPA 7471A	HG	7/7/2016	Amy Mata
					ASSET	SW 7199	CR6	7/13/2016	Quennie Manimtim

TABLE 8

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

Monitoring Information

*Third Quarter 2016 Monitoring Report for Interim Measure No.3 Groundwater Treatment System***NOTES:**

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

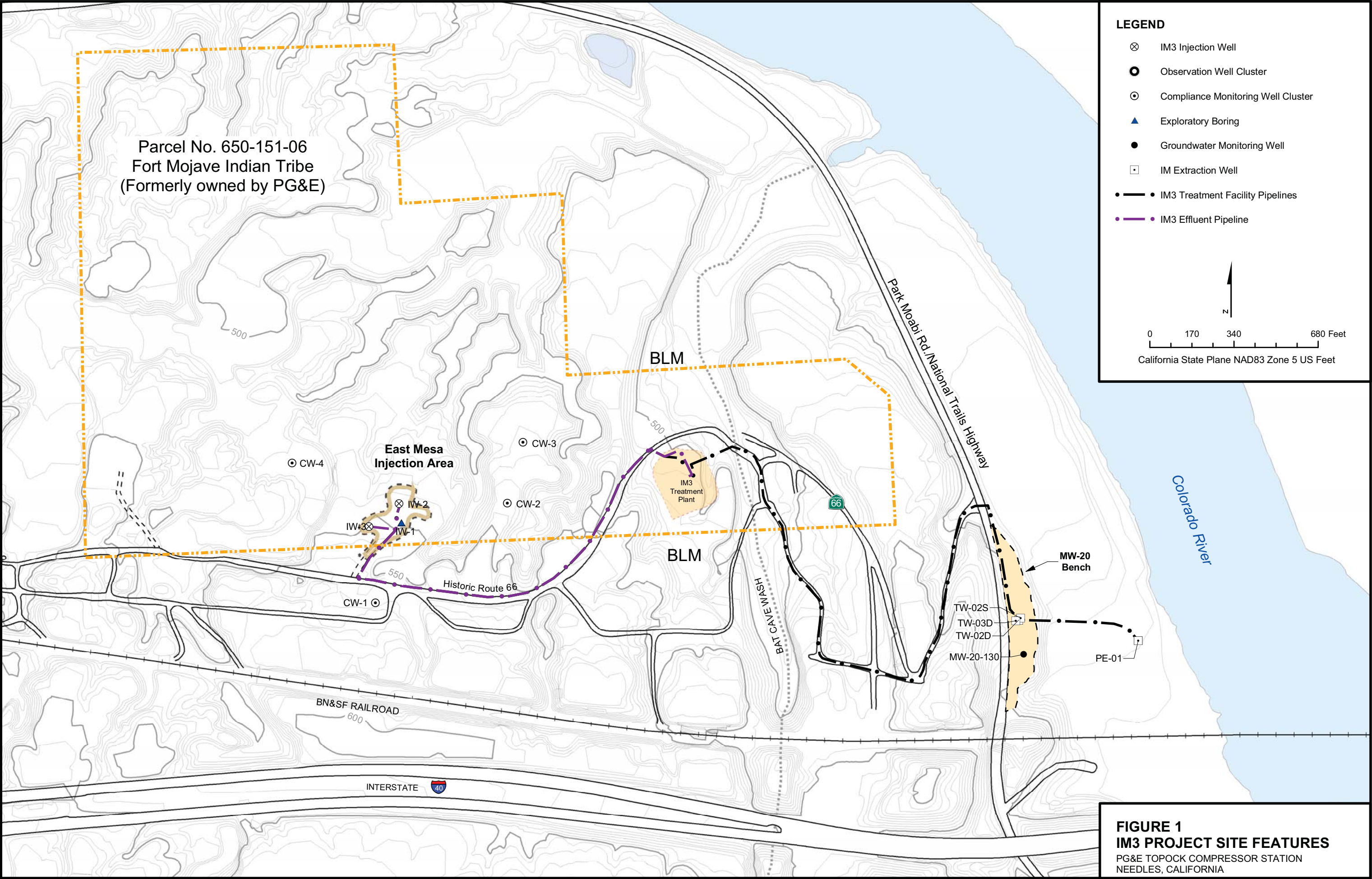
SC-100B = Sampling location for all influent samples is tap on pipe from extraction wells into tank T-100 (see attached P&ID TP-PR-10-10-04).

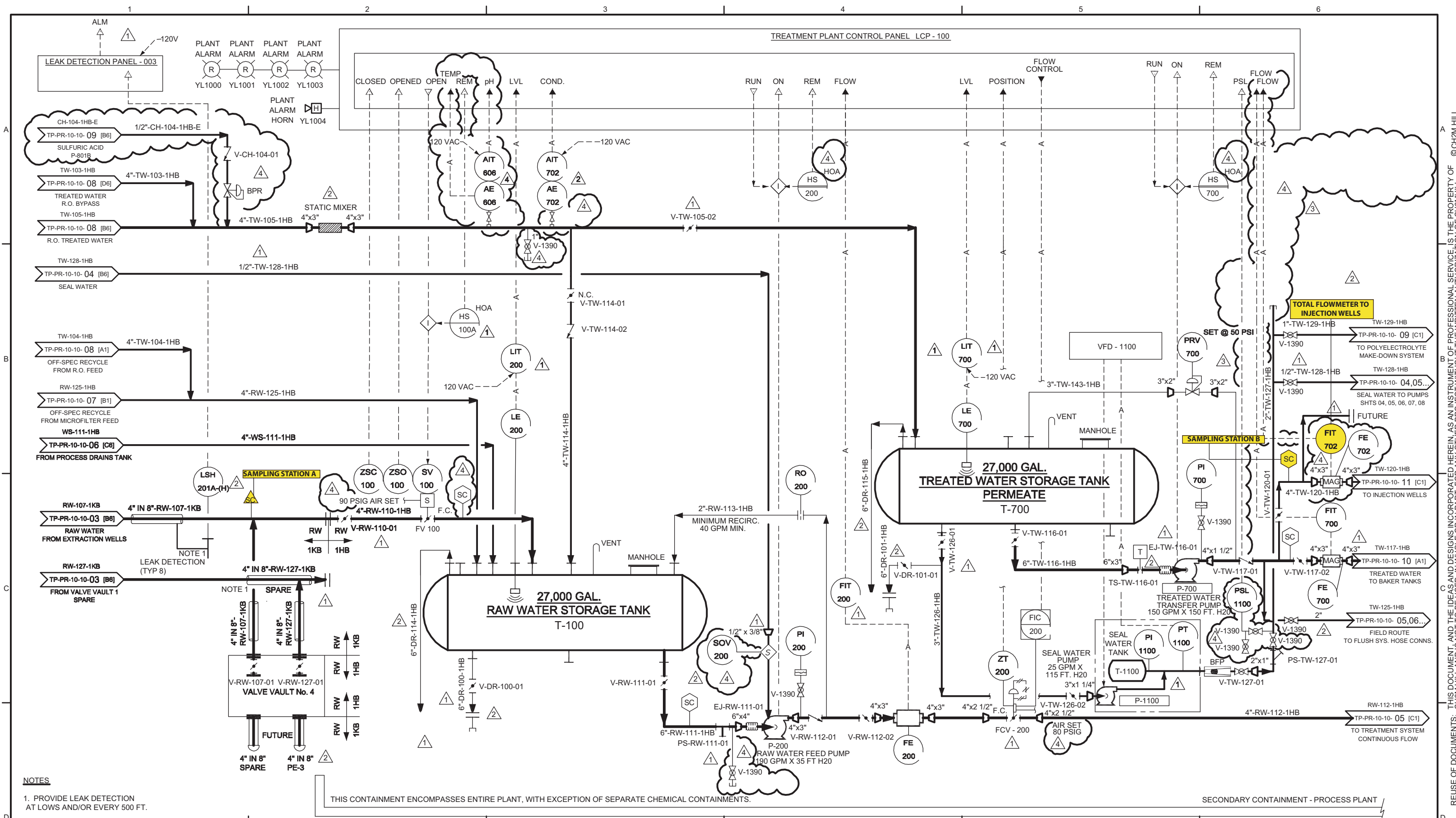
SC-701 = Sampling location for all reverse osmosis samples is tap on pipe T-701 (see attached P&ID PR-10-04).

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

ALKB =	alkalinity, bicarb as CaCO ₃	MO =	molybdenum
ALKC =	alkalinity, carb as CaCO ₃	MOIST =	moisture
AL =	aluminum	NH ₃ N =	ammonia (as N)
Ag =	silver	NI =	nickel
AS =	arsenic	NO ₃ NO ₂ N =	nitrate/nitrite (as N)
B =	boron	PB =	lead
BA =	barium	PH =	pH
BE =	beryllium	SB =	antimony
CD =	cadmium	SC =	specific conductance
CO =	cobalt	SE =	selenium
CR =	chromium	SO ₄ =	sulfate
CR ₆ =	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



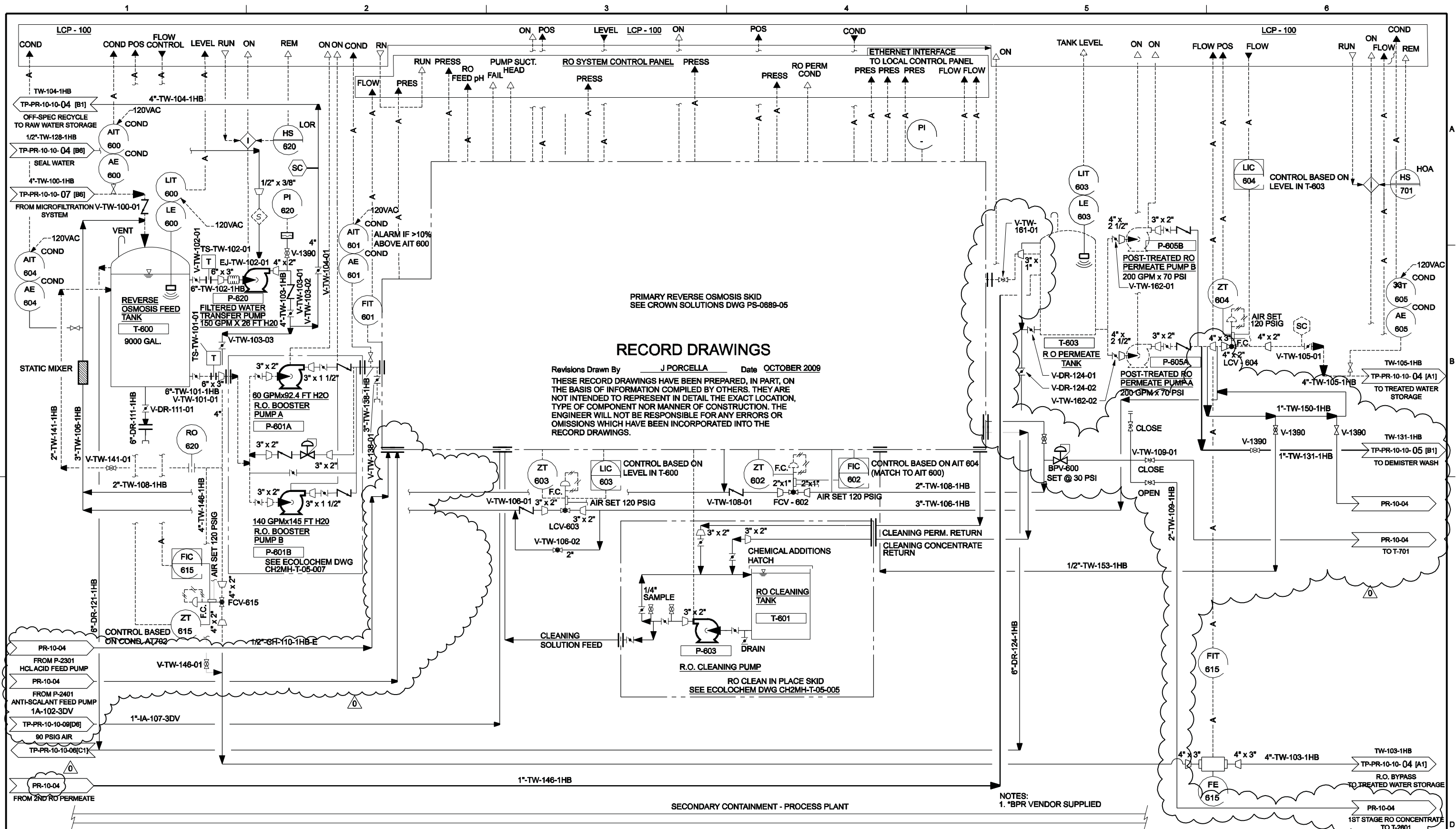


NOTES
1. PROVIDE LEAK DETECTION AT LOWS AND/OR EVERY 500 FT.

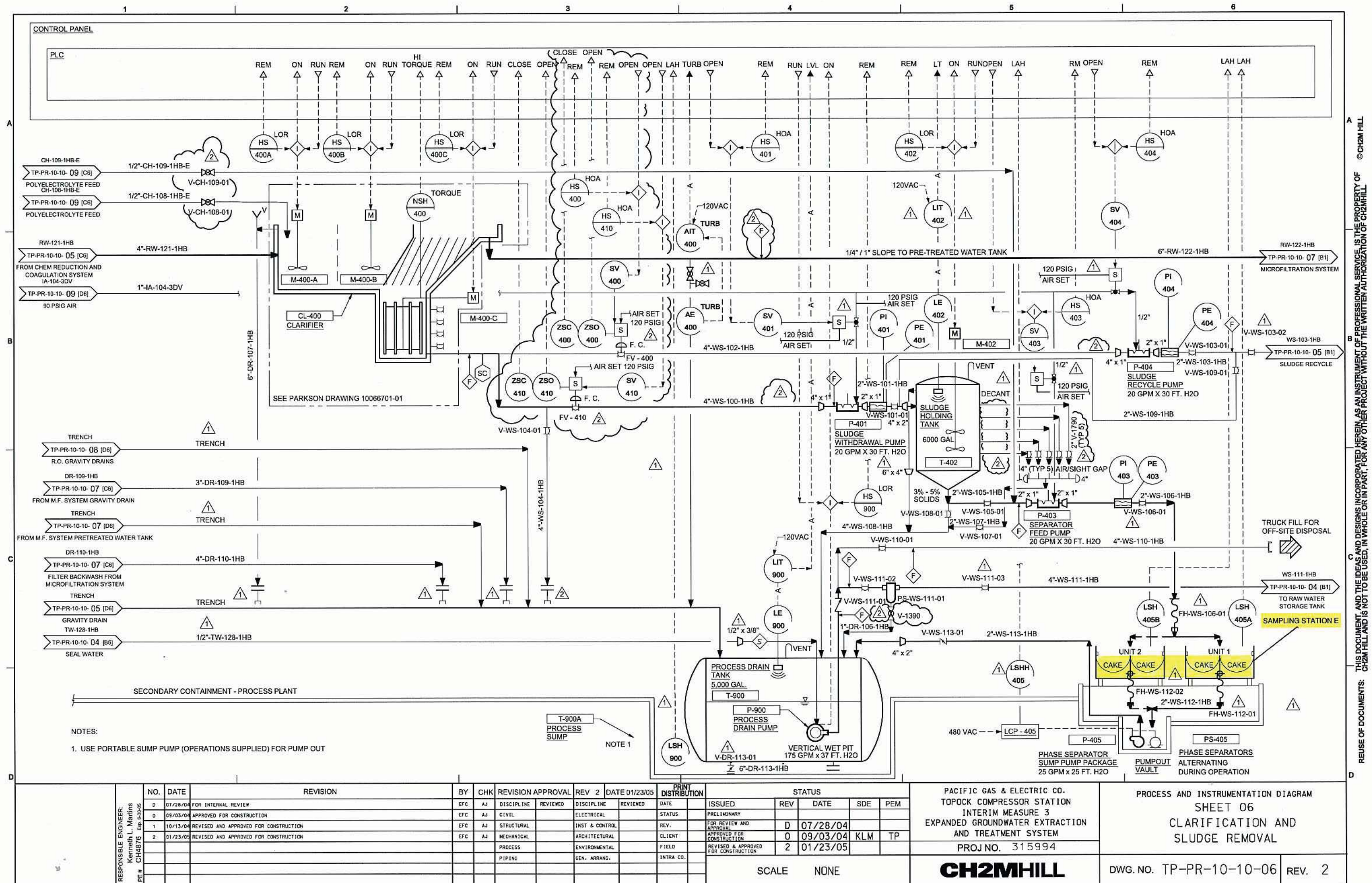
THIS CONTAINMENT ENCOMPASSES ENTIRE PLANT, WITH EXCEPTION OF SEPARATE CHEMICAL CONTAINMENTS.

SECONDARY CONTAINMENT - PROCESS PLANT

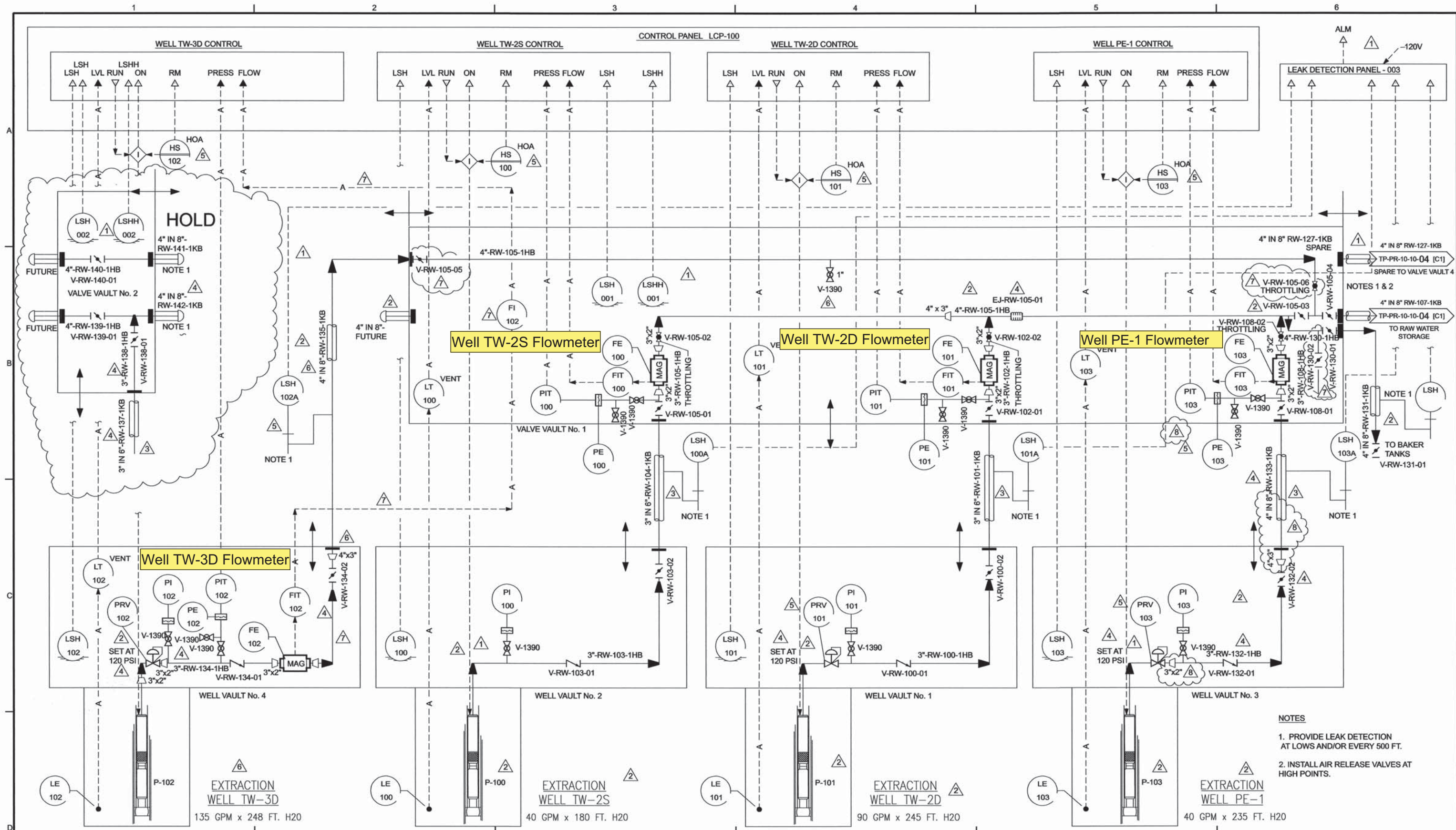
RESPONSIBLE ENGINEER: Kenneth L. Martins CH4876 PE #	NO.	DATE	REVISION	BY	CHK	REVISION APPROVAL	REV 4	DATE 09/21/05	PRINT DISTRIBUTION	STATUS					PACIFIC GAS & ELECTRIC CO. TOPOCK COMPRESSOR STATION INTERIM MEASURE 3 EXPANDED GROUNDWATER EXTRACTION AND TREATMENT SYSTEM PROJ NO. 315994	PROCESS AND INSTRUMENTATION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



** ORIGINALLY STAMPED AND SIGNED BY: JOHN PORCELLA CALIFORNIA PE NO. C70145 ON 04-01-2009 **	RESPONSIBLE ENGINEER: John Porcella C70145 PE#	NO.	DATE	REVISION	BY	CHK	REVISION APPROVAL		REV 0	DATE 10/02/09	PRINT DISTRIBUTION	STATUS					PACIFIC GAS & ELECTRIC CO. TOPOCK COMPRESSOR STATION INTERIM MEASURE 3 PLANT PERFORMANCE IMPROVEMENTS	PROCESS AND INSTRUMENTATION DIAGRAM REVERSE OSMOSIS SYSTEM SHEET ONE OF TWO			
		A	2/12/09	INTERNAL REVIEW			DISCIPLINE	REVIEWED	DISCIPLINE	REVIEWED	DATE		ISSUED	REV	DATE	SDE					PEM
		B	2/12/09	CLIENT REVIEW			CIVIL	SJ	ELECTRICAL	FH	STATUS		PRELIMINARY	A	2/12/09	JP					JP
		C	4/01/09	FOR REVIEW AND APPROVAL	JR	JP	STRUCTURAL		INST & CONTROL	JG	REV.		FOR REVIEW AND APPROVAL	C	4/01/09	JP					JP
		D	11/17/09	FINAL RECORD ISSUE	JR	JP	MECHANICAL	SJ	ARCHITECTURAL		CLIENT		APPROVED FOR CONSTRUCTION								
							PROCESS	DF	ENVIRONMENTAL		FIELD		REVISED & APPROVED FOR CONSTRUCTION	0	10/02/09	JP	JP	PROJ NO. 362032			
							PIPING	SJ	GEN. ARRANG.	SJ	INTRA CO.										



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

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

SCALE NONE

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

CH2MHILL

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

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

FILENAME: tpr101003.dwg

PLOT DATE: 19-OCT-2005

PLOT TIME:

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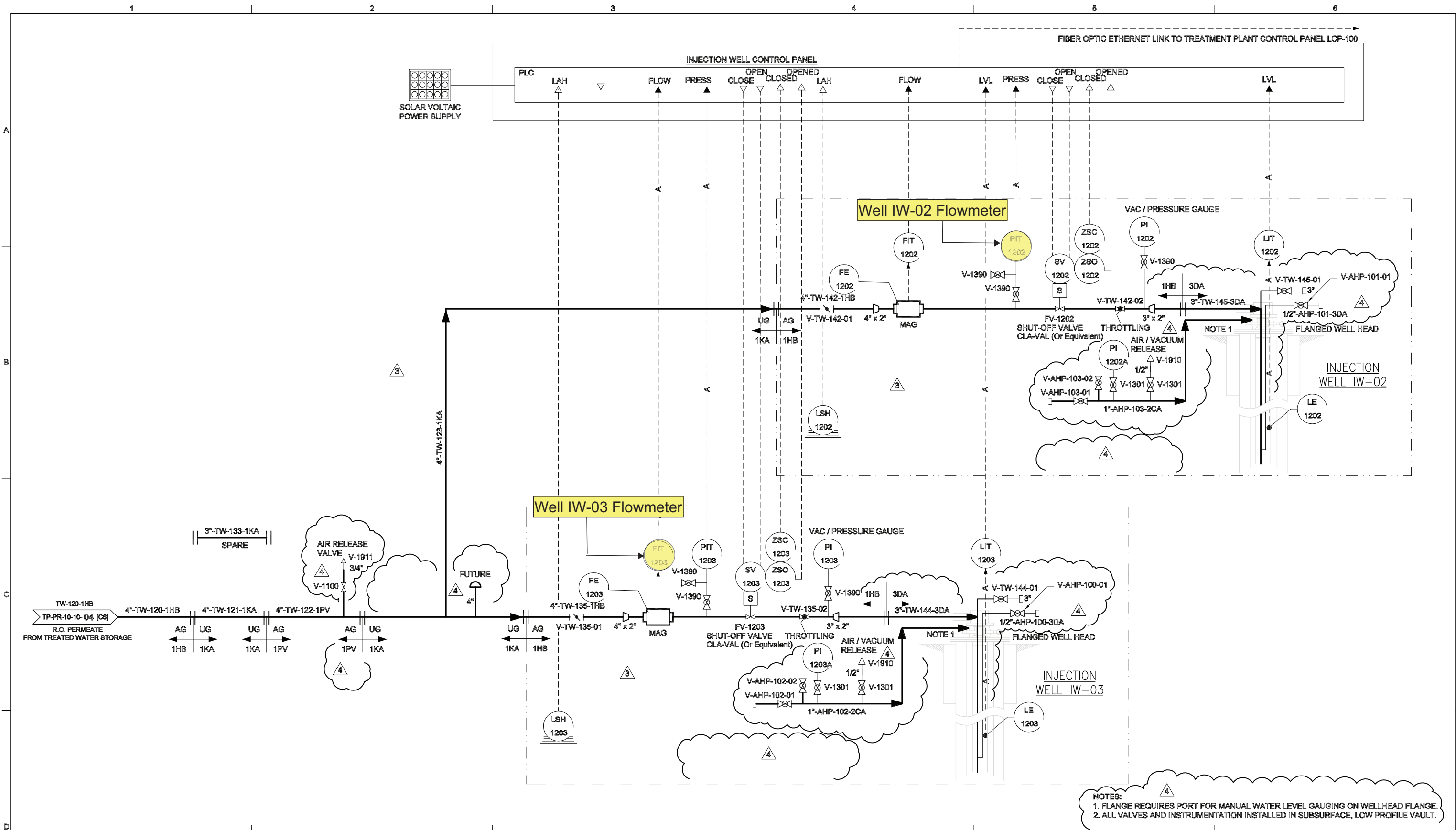
D

C

B

A

© CH2M HILL



NOTES:
1. FLANGE REQUIRES PORT FOR MANUAL WATER LEVEL GAUGING ON WELLHEAD FLANGE.
2. ALL VALVES AND INSTRUMENTATION INSTALLED IN SUBSURFACE, LOW PROFILE VAULT.

RESPONSIBLE ENGINEER: Kenneth L. Martins PE # CH44876 Exp. 6-30-06	NO.	DATE	REVISION	BY	CHK	REVISION APPROVAL	REV 4	DATE 03/10/05	PRINT DISTRIBUTION		STATUS					PACIFIC GAS & ELECTRIC CO. TOPOCK COMPRESSOR STATION INTERIM MEASURE 3 EXPANDED GROUNDWATER EXTRACTION AND TREATMENT SYSTEM PROJ NO. 315994				PROCESS AND INSTRUMENTATION DIAGRAM SHEET 11 INJECTION WELLS		
											ISSUED	REV	DATE	SDE	PEM							
	A	07/28/04	FOR INTERNAL REVIEW	EFC	AJ	DISCIPLINE	REVIEWED	DISCIPLINE	REVIEWED	DATE												
	0	09/03/04	APPROVED FOR CONSTRUCTION	EFC	AJ	CIVIL		ELECTRICAL		STATUS		PRELIMINARY										
	1	10/13/04	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	STRUCTURAL		INST & CONTROL		REV.		FOR REVIEW AND APPROVAL	A	07/28/04								
	2	01/23/05	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	MECHANICAL		ARCHITECTURAL		CLIENT		APPROVED FOR CONSTRUCTION	0	09/03/04	KLM	TP						
	3	02/14/05	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	PROCESS		ENVIRONMENTAL		FIELD		REVISED & APPROVED FOR CONSTRUCTION	4	/ /								
	4	03/10/05	REMOVED HOLD AND APPROVED FOR CONSTRUCTION	EFC	AJ	PIPING		GEN. ARRANG.		INTRA CO.												
											SCALE NONE					CH2MHILL				DWG. NO. TP-PR-10-10-11		REV. 4

Appendix A
Third Quarter 2016 Laboratory
Analytical Reports

July 20, 2016

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

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

CA-ELAP No.: 2676
NV Cert. No.: NV-00922

Workorder No.: N020223

RE: PG&E Topock, 658274.01.IM.OP.00

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on July 05, 2016 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,

 Nancy Libucano

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.



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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NEVADA
3151 W. Post Rd., Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691

"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Project: PG&E Topock, 658274.01.IM.OP.00
Lab Order: N020223

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 300.0:

Dilution was necessary for Fluoride in all samples due to precipitation with eluent.

Analytical Comments for EPA 200.7:

Matrix Spike (MS) is outside recovery criteria for Iron in QC sample N020232-006B-MS1 possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 200.8:

Dilution was necessary on some analytes for all samples due to associated internal standard not meeting method criteria possibly due to matrix interference. Samples were analyzed with dilution and internal standard met method criteria. Affected analytes for this failed internal standard were reported at dilution that meet internal standard recovery limit.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Silver in N020232-001B-MS and Molybdenum in N020224-001B-MSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.



CLIENT: CH2M HILL

Project: PG&E Topock, 658274.01.IM.OP.00

Lab Order: N020223

CASE NARRATIVE

Analytical Comments for EPA 218.6:

Dilution was necessary for sample N020223-003 due to matrix interference. Sample was analyzed at lower dilution however retention time criteria and matrix spike were not met indicating possible matrix interference. Sample was reported at dilution that meet matrix spike recovery limit and the detected peak within retention time window.



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3151 W. Post Road, Suite 200, Las Vegas, NV 89118
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ASSET Laboratories

Date: 20-Jul-16

CLIENT: CH2M HILL
Project: PG&E Topock, 658274.01.IM.OP.00
Lab Order: N020223
Contract No: IM3PLANT-AR

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N020223-001A	SC-100B-WDR-542	Water	7/5/2016 10:50:00 AM	7/5/2016	7/20/2016
N020223-001B	SC-100B-WDR-542	Water	7/5/2016 10:50:00 AM	7/5/2016	7/20/2016
N020223-001C	SC-100B-WDR-542	Water	7/5/2016 10:50:00 AM	7/5/2016	7/20/2016
N020223-001D	SC-100B-WDR-542	Water	7/5/2016 10:50:00 AM	7/5/2016	7/20/2016
N020223-001E	SC-100B-WDR-542	Water	7/5/2016 10:50:00 AM	7/5/2016	7/20/2016
N020223-002A	SC-700B-WDR-542	Water	7/5/2016 10:42:00 AM	7/5/2016	7/20/2016
N020223-002B	SC-700B-WDR-542	Water	7/5/2016 10:42:00 AM	7/5/2016	7/20/2016
N020223-002C	SC-700B-WDR-542	Water	7/5/2016 10:42:00 AM	7/5/2016	7/20/2016
N020223-002D	SC-700B-WDR-542	Water	7/5/2016 10:42:00 AM	7/5/2016	7/20/2016
N020223-002E	SC-700B-WDR-542	Water	7/5/2016 10:42:00 AM	7/5/2016	7/20/2016
N020223-003A	SC-701-WDR-542	Water	7/5/2016 10:30:00 AM	7/5/2016	7/20/2016
N020223-003B	SC-701-WDR-542	Water	7/5/2016 10:30:00 AM	7/5/2016	7/20/2016
N020223-003C	SC-701-WDR-542	Water	7/5/2016 10:30:00 AM	7/5/2016	7/20/2016



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Page 1 of 1

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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 20-Jul-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-100B-WDR-542
Lab Order:	N020223	Collection Date:	7/5/2016 10:50:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N020223-001		

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

RunID: WETCHEM_160706C	QC Batch: R109270	PrepDate:	Analyst: LR
Specific Conductance	7400	0.10	0.10
		umhos/cm	1
			7/6/2016 10:40 AM

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


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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 20-Jul-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-700B-WDR-542
Lab Order:	N020223	Collection Date:	7/5/2016 10:42:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N020223-002		

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

RunID: WETCHEM_160706C	QC Batch: R109270	PrepDate:	Analyst: LR
Specific Conductance	7100	0.10	0.10
		umhos/cm	1
			7/6/2016 10:40 AM

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


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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 20-Jul-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-701-WDR-542
Lab Order:	N020223	Collection Date:	7/5/2016 10:30:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N020223-003		

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

RunID: WETCHEM_160706C	QC Batch: R109270	PrepDate:	Analyst: LR
Specific Conductance	52000	0.10	0.10
		umhos/cm	1
			7/6/2016 10:40 AM

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


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CLIENT: CH2M HILL
Work Order: N020223
Project: PG&E Topock, 658274.01.IM.OP.00

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

Sample ID: N020224-002ADUP	SampType: DUP	TestCode: 120.1_WPGE	Units: umhos/cm	Prep Date:	RunNo: 109270						
Client ID: ZZZZZZ	Batch ID: R109270	TestNo: EPA 120.1		Analysis Date: 7/6/2016	SeqNo: 2364230						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	7510.000	0.10						7540	0.399	10	

Qualifiers:

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

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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 20-Jul-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-100B-WDR-542
Lab Order:	N020223	Collection Date:	7/5/2016 10:50:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N020223-001		

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

RunID: WETCHEM_160706F	QC Batch: 58925	PrepDate: 7/6/2016	Analyst: LR
Total Dissolved Solids (Residue, Filterable)	4500	50	50
		mg/L	1
			7/6/2016 01:34 PM

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


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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 20-Jul-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-700B-WDR-542
Lab Order:	N020223	Collection Date:	7/5/2016 10:42:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N020223-002		

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

RunID: WETCHEM_160706F	QC Batch: 58925	PrepDate: 7/6/2016	Analyst: LR
Total Dissolved Solids (Residue, Filterable)	4100	50	50
		mg/L	1
			7/6/2016 01:34 PM

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


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ANALYTICAL RESULTS
Print Date: 20-Jul-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-701-WDR-542
Lab Order:	N020223	Collection Date:	7/5/2016 10:30:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N020223-003		

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

RunID: WETCHEM_160706F	QC Batch: 58925	PrepDate: 7/6/2016	Analyst: LR
Total Dissolved Solids (Residue, Filterable)	38000	500	500
		mg/L	1
			7/6/2016 01:34 PM

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


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CLIENT: CH2M HILL
Work Order: N020223
Project: PG&E Topock, 658274.01.IM.OP.00

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

Sample ID: LCS-58925	SampType: LCS	TestCode: 160.1_2540C_ Units: mg/L				Prep Date: 7/6/2016			RunNo: 109282		
Client ID: LCSW	Batch ID: 58925	TestNo: SM2540C				Analysis Date: 7/6/2016			SeqNo: 2364677		
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: MBLK-58925	SampType: MBLK	TestCode: 160.1_2540C_ Units: mg/L				Prep Date: 7/6/2016			RunNo: 109282		
Client ID: PBW	Batch ID: 58925	TestNo: SM2540C				Analysis Date: 7/6/2016			SeqNo: 2364678		
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: N020223-003ADUP	SampType: DUP	TestCode: 160.1_2540C_ Units: mg/L				Prep Date: 7/6/2016			RunNo: 109282		
Client ID: ZZZZZZ	Batch ID: 58925	TestNo: SM2540C				Analysis Date: 7/6/2016			SeqNo: 2364684		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	40200.000	500						38300	4.84	5	

Qualifiers:

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



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 20-Jul-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-100B-WDR-542
Lab Order:	N020223	Collection Date:	7/5/2016 10:50:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N020223-001		

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

RunID: ICP2_160707C	QC Batch: 58920	PrepDate: 7/7/2016	Analyst: CEI
Aluminum	ND 2.7	50	µg/L 1 7/7/2016 06:53 PM
Boron	1000 38	100	µg/L 1 7/7/2016 06:53 PM
Iron	ND 1.8	20	µg/L 1 7/7/2016 06:53 PM

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


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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 20-Jul-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-700B-WDR-542
Lab Order:	N020223	Collection Date:	7/5/2016 10:42:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N020223-002		

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

RunID: ICP2_160707C	QC Batch: 58920	PrepDate: 7/7/2016	Analyst: CEI
Aluminum	ND 2.7	50	µg/L 1 7/7/2016 07:24 PM
Boron	1100 38	100	µg/L 1 7/7/2016 07:24 PM
Iron	ND 1.8	20	µg/L 1 7/7/2016 07:24 PM

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


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CLIENT: CH2M HILL
Work Order: N020223
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WPGEPB

Sample ID: MB-58920	SampType: MBLK	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 7/7/2016	RunNo: 109302						
Client ID: PBW	Batch ID: 58920	TestNo: EPA 200.7		Analysis Date: 7/7/2016	SeqNo: 2365395						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	4.676	50									
Boron	ND	100									
Iron	4.339	20									

Sample ID: LCS1-58920	SampType: LCS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 7/7/2016	RunNo: 109302						
Client ID: LCSW	Batch ID: 58920	TestNo: EPA 200.7		Analysis Date: 7/7/2016	SeqNo: 2365396						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	10743.538	50	10000	0	107	85	115				
Boron	5022.558	100	5000	0	100	85	115				
Iron	99.058	20	100.0	0	99.1	85	115				

Sample ID: N020232-006B-MS1	SampType: MS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 7/7/2016	RunNo: 109302						
Client ID: ZZZZZZ	Batch ID: 58920	TestNo: EPA 200.7		Analysis Date: 7/7/2016	SeqNo: 2365398						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	10837.622	50	10000	0	108	75	125				
Boron	5612.002	100	5000	394.8	104	75	125				
Iron	157.814	20	100.0	32.12	126	75	125				S

Sample ID: N020223-001E-MS1	SampType: MS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 7/7/2016	RunNo: 109302						
Client ID: ZZZZZZ	Batch ID: 58920	TestNo: EPA 200.7		Analysis Date: 7/7/2016	SeqNo: 2365402						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	11942.293	50	10000	0	119	75	125				
Boron	6447.824	100	5000	1044	108	75	125				
Iron	88.478	20	100.0	0	88.5	75	125				

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N020223
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WPGEPPB

Sample ID: N020223-001E-MSD	SampType: MSD	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 7/7/2016	RunNo: 109302						
Client ID: ZZZZZZ	Batch ID: 58920	TestNo: EPA 200.7	Analysis Date: 7/7/2016	SeqNo: 2365403							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	12204.234	50	10000	0	122	75	125	11940	2.17	20	
Boron	6465.837	100	5000	1044	108	75	125	6448	0.279	20	
Iron	90.325	20	100.0	0	90.3	75	125	88.48	2.07	20	

Qualifiers:

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

Print Date: 20-Jul-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-100B-WDR-542
Lab Order:	N020223	Collection Date:	7/5/2016 10:50:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N020223-001		

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

RunID: ICP7_160707D	QC Batch: 58913	PrepDate: 7/7/2016	Analyst: CEI			
Antimony	ND	0.031	0.50	µg/L	1	7/7/2016 02:30 PM
Arsenic	3.0	0.025	0.10	µg/L	1	7/8/2016 03:50 PM
Barium	29	0.070	1.0	µg/L	1	7/7/2016 02:30 PM
Copper	ND	0.26	1.0	µg/L	1	7/7/2016 02:30 PM
Lead	ND	0.18	5.0	µg/L	5	7/7/2016 02:36 PM
Manganese	6.5	0.056	0.50	µg/L	1	7/7/2016 02:30 PM
Molybdenum	24	0.039	0.50	µg/L	1	7/7/2016 02:30 PM
Nickel	ND	0.040	1.0	µg/L	1	7/7/2016 02:30 PM
Zinc	ND	0.27	10	µg/L	1	7/7/2016 02:30 PM

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


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ASSET Laboratories
ANALYTICAL RESULTS

Print Date: 20-Jul-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-700B-WDR-542
Lab Order:	N020223	Collection Date:	7/5/2016 10:42:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N020223-002		

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

RunID: ICP7_160707D	QC Batch: 58913	PrepDate: 7/7/2016	Analyst: CEI			
Antimony	ND	0.031	0.50	µg/L	1	7/7/2016 02:41 PM
Arsenic	ND	0.025	0.10	µg/L	1	7/8/2016 03:55 PM
Barium	16	0.070	1.0	µg/L	1	7/7/2016 02:41 PM
Copper	ND	0.26	1.0	µg/L	1	7/7/2016 02:41 PM
Lead	ND	0.18	5.0	µg/L	5	7/7/2016 02:47 PM
Manganese	2.7	0.056	0.50	µg/L	1	7/7/2016 02:41 PM
Molybdenum	21	0.039	0.50	µg/L	1	7/7/2016 02:41 PM
Nickel	1.3	0.040	1.0	µg/L	1	7/7/2016 02:41 PM
Zinc	ND	0.27	10	µg/L	1	7/7/2016 02:41 PM

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


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ASSET Laboratories
ANALYTICAL RESULTS

Print Date: 20-Jul-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-701-WDR-542
Lab Order:	N020223	Collection Date:	7/5/2016 10:30:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N020223-003		

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

RunID: ICP7_160707D	QC Batch: 58913	PrepDate: 7/7/2016	Analyst: CEI			
Antimony	ND	0.79	12	µg/L	25	7/7/2016 04:10 PM
Arsenic	0.83	0.12	0.50	µg/L	5	7/8/2016 04:06 PM
Barium	150	1.7	25	µg/L	25	7/7/2016 04:10 PM
Beryllium	ND	1.1	12	µg/L	25	7/7/2016 04:10 PM
Cadmium	ND	1.2	12	µg/L	25	7/7/2016 04:10 PM
Cobalt	ND	0.13	2.5	µg/L	5	7/7/2016 02:58 PM
Copper	ND	1.3	5.0	µg/L	5	7/7/2016 02:58 PM
Lead	ND	0.92	25	µg/L	25	7/7/2016 04:10 PM
Manganese	ND	0.28	2.5	µg/L	5	7/7/2016 02:58 PM
Molybdenum	200	0.97	12	µg/L	25	7/7/2016 04:10 PM
Nickel	17	0.20	5.0	µg/L	5	7/7/2016 02:58 PM
Selenium	35	0.69	12	µg/L	25	7/7/2016 04:10 PM
Silver	ND	1.5	12	µg/L	25	7/7/2016 04:10 PM
Thallium	ND	0.74	12	µg/L	25	7/7/2016 04:10 PM
Vanadium	ND	0.11	5.0	µg/L	5	7/7/2016 02:58 PM
Zinc	ND	1.3	50	µg/L	5	7/7/2016 02:58 PM

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


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CLIENT: CH2M HILL
Work Order: N020223
Project: PG&E Topock, 658274.01.IM.OP.00

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

Sample ID: MB-58913	SampType: MBLK	TestCode: 200.8_W	Units: µg/L	Prep Date: 7/7/2016	RunNo: 109308						
Client ID: PBW	Batch ID: 58913	TestNo: EPA 200.8		Analysis Date: 7/7/2016	SeqNo: 2366112						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	0.50									
Barium	ND	1.0									
Beryllium	ND	0.50									
Cadmium	ND	0.50									
Cobalt	ND	0.50									
Copper	ND	1.0									
Lead	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Nickel	ND	1.0									
Selenium	ND	0.50									
Silver	ND	0.50									
Thallium	ND	0.50									
Vanadium	0.070	1.0									
Zinc	ND	10									

Sample ID: LCS-58913	SampType: LCS	TestCode: 200.8_W	Units: µg/L	Prep Date: 7/7/2016	RunNo: 109308						
Client ID: LCSW	Batch ID: 58913	TestNo: EPA 200.8		Analysis Date: 7/7/2016	SeqNo: 2366113						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.044	0.50	10.00	0	100	85	115				
Barium	102.071	1.0	100.0	0	102	85	115				
Beryllium	9.943	0.50	10.00	0	99.4	85	115				
Cadmium	10.184	0.50	10.00	0	102	85	115				
Cobalt	9.412	0.50	10.00	0	94.1	85	115				
Copper	10.305	1.0	10.00	0	103	85	115				
Lead	10.172	1.0	10.00	0	102	85	115				
Manganese	96.432	0.50	100.0	0	96.4	85	115				

Qualifiers:

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

Calculations are based on raw values



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"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Work Order: N020223
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID: LCS-58913	SampType: LCS	TestCode: 200.8_W	Units: µg/L	Prep Date: 7/7/2016	RunNo: 109308						
Client ID: LCSW	Batch ID: 58913	TestNo: EPA 200.8		Analysis Date: 7/7/2016	SeqNo: 2366113						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	9.924	0.50	10.00	0	99.2	85	115				
Nickel	10.265	1.0	10.00	0	103	85	115				
Selenium	9.723	0.50	10.00	0	97.2	85	115				
Silver	9.587	0.50	10.00	0	95.9	85	115				
Thallium	9.402	0.50	10.00	0	94.0	85	115				
Vanadium	10.015	1.0	10.00	0	100	85	115				
Zinc	102.445	10	100.0	0	102	85	115				

Sample ID: N020232-001B-MS	SampType: MS	TestCode: 200.8_W		Units: µg/L	Prep Date: 7/7/2016			RunNo: 109308			
Client ID: ZZZZZZ	Batch ID: 58913	TestNo: EPA 200.8		Analysis Date: 7/7/2016			SeqNo: 2366115				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.104	0.50	10.00	0	101	75	125				
Barium	138.406	1.0	100.0	40.61	97.8	75	125				
Beryllium	9.911	0.50	10.00	0	99.1	75	125				
Cadmium	9.631	0.50	10.00	0	96.3	75	125				
Cobalt	8.651	0.50	10.00	0.03167	86.2	75	125				
Copper	8.914	1.0	10.00	0	89.1	75	125				
Lead	10.399	1.0	10.00	0	104	75	125				
Manganese	101.155	0.50	100.0	7.925	93.2	75	125				
Molybdenum	12.907	0.50	10.00	1.731	112	75	125				
Nickel	9.368	1.0	10.00	0	93.7	75	125				
Selenium	8.963	0.50	10.00	0.2570	87.1	75	125				
Silver	4.764	0.50	10.00	0	47.6	75	125				S
Thallium	9.601	0.50	10.00	0.1418	94.6	75	125				
Vanadium	13.394	1.0	10.00	3.789	96.0	75	125				
Zinc	91.273	10	100.0	3.210	88.1	75	125				

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N020223
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID: N020224-001B-MS	SampType: MS	TestCode: 200.8_W	Units: µg/L	Prep Date: 7/7/2016	RunNo: 109308						
Client ID: ZZZZZZ	Batch ID: 58913	TestNo: EPA 200.8		Analysis Date: 7/7/2016	SeqNo: 2366131						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.058	0.50	10.00	0	101	75	125				
Barium	117.921	1.0	100.0	19.23	98.7	75	125				
Beryllium	10.430	0.50	10.00	0	104	75	125				
Cadmium	9.087	0.50	10.00	0	90.9	75	125				
Cobalt	8.126	0.50	10.00	0.05184	80.7	75	125				
Copper	12.051	1.0	10.00	3.331	87.2	75	125				
Lead	10.612	1.0	10.00	0	106	75	125				
Manganese	169.506	0.50	100.0	80.95	88.6	75	125				
Molybdenum	29.142	0.50	10.00	16.69	125	75	125				
Nickel	10.051	1.0	10.00	1.058	89.9	75	125				
Selenium	8.731	0.50	10.00	0.07369	86.6	75	125				
Silver	9.727	0.50	10.00	0	97.3	75	125				
Thallium	9.535	0.50	10.00	0.2679	92.7	75	125				
Vanadium	17.214	1.0	10.00	7.494	97.2	75	125				
Zinc	80.606	10	100.0	0	80.6	75	125				

Sample ID: N020224-001B-MSD	SampType: MSD	TestCode: 200.8_W	Units: µg/L	Prep Date: 7/7/2016	RunNo: 109308						
Client ID: ZZZZZZ	Batch ID: 58913	TestNo: EPA 200.8		Analysis Date: 7/7/2016	SeqNo: 2366133						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.005	0.50	10.00	0	100	75	125	10.06	0.526	20	
Barium	118.133	1.0	100.0	19.23	98.9	75	125	117.9	0.180	20	
Beryllium	10.417	0.50	10.00	0	104	75	125	10.43	0.129	20	
Cadmium	9.007	0.50	10.00	0	90.1	75	125	9.087	0.888	20	
Cobalt	8.144	0.50	10.00	0.05184	80.9	75	125	8.126	0.225	20	
Copper	12.058	1.0	10.00	3.331	87.3	75	125	12.05	0.0568	20	
Lead	10.636	1.0	10.00	0	106	75	125	10.61	0.223	20	
Manganese	169.852	0.50	100.0	80.95	88.9	75	125	169.5	0.204	20	
Molybdenum	29.271	0.50	10.00	16.69	126	75	125	29.14	0.445	20	S
Nickel	10.145	1.0	10.00	1.058	90.9	75	125	10.05	0.931	20	

Qualifiers:

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



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"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Work Order: N020223
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID: N020224-001B-MSD	SampType: MSD	TestCode: 200.8_W		Units: µg/L	Prep Date: 7/7/2016			RunNo: 109308			
Client ID: ZZZZZZ	Batch ID: 58913	TestNo: EPA 200.8		Analysis Date: 7/7/2016			SeqNo: 2366133				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	8.829	0.50	10.00	0.07369	87.6	75	125	8.731	1.12	20	
Silver	9.728	0.50	10.00	0	97.3	75	125	9.727	0.00253	20	
Thallium	9.610	0.50	10.00	0.2679	93.4	75	125	9.535	0.788	20	
Vanadium	17.305	1.0	10.00	7.494	98.1	75	125	17.21	0.525	20	
Zinc	80.299	10	100.0	0	80.3	75	125	80.61	0.382	20	

Sample ID: MB-58913	SampType: MBLK	TestCode: 200.8_W	Units: µg/L	Prep Date: 7/7/2016	RunNo: 109323						
Client ID: PBW	Batch ID: 58913	TestNo: EPA 200.8		Analysis Date: 7/8/2016	SeqNo: 2366699						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: LCS-58913	SampType: LCS	TestCode: 200.8_W	Units: µg/L	Prep Date: 7/7/2016	RunNo: 109323						
Client ID: LCSW	Batch ID: 58913	TestNo: EPA 200.8		Analysis Date: 7/8/2016	SeqNo: 2366700						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.038	0.10	10.00	0	100	85	115				

Sample ID: N020232-001B-MS	SampType: MS	TestCode: 200.8_W	Units: µg/L	Prep Date: 7/7/2016	RunNo: 109323						
Client ID: ZZZZZZ	Batch ID: 58913	TestNo: EPA 200.8		Analysis Date: 7/8/2016	SeqNo: 2366712						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.370	0.10	10.00	0.7760	95.9	75	125				

Sample ID: N020224-001B-MS	SampType: MS	TestCode: 200.8_W	Units: µg/L	Prep Date: 7/7/2016	RunNo: 109323						
Client ID: ZZZZZZ	Batch ID: 58913	TestNo: EPA 200.8		Analysis Date: 7/8/2016	SeqNo: 2367106						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.306	0.10	10.00	2.608	97.0	75	125				

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N020223
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID: N020224-001B-MSD	SampType: MSD	TestCode: 200.8_W	Units: µg/L	Prep Date: 7/7/2016	RunNo: 109323						
Client ID: ZZZZZZ	Batch ID: 58913	TestNo: EPA 200.8	Analysis Date: 7/8/2016	SeqNo: 2367107							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.306	0.10	10.00	2.608	97.0	75	125	12.31	0.000182	20	

Qualifiers:

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



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 20-Jul-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-100B-WDR-542
Lab Order:	N020223	Collection Date:	7/5/2016 10:50:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N020223-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 218.6							
RunID: IC6_160706A	QC Batch: R109280			PrepDate:		Analyst: QBM	
Hexavalent Chromium	590	6.6	20		µg/L	100	7/6/2016 02:07 PM
TOTAL METALS BY ICPMS							
EPA 200.8							
RunID: ICP7_160707D	QC Batch: 58913			PrepDate:	7/7/2016	Analyst: CEI	
Chromium	600	0.096	5.0		µg/L	5	7/7/2016 02:36 PM

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


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ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 20-Jul-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-700B-WDR-542
Lab Order:	N020223	Collection Date:	7/5/2016 10:42:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N020223-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 218.6							
RunID: IC6_160706A	QC Batch: R109280				PrepDate:		Analyst: QBM
Hexavalent Chromium	ND	0.066	0.20		µg/L	1	7/6/2016 02:29 PM
TOTAL METALS BY ICPMS							
EPA 200.8							
RunID: ICP7_160707D	QC Batch: 58913				PrepDate: 7/7/2016		Analyst: CEI
Chromium	ND	0.019	1.0		µg/L	1	7/7/2016 02:41 PM

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


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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 20-Jul-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-701-WDR-542
Lab Order:	N020223	Collection Date:	7/5/2016 10:30:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N020223-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 218.6							
RunID: IC6_160706A	QC Batch: R109280				PrepDate:		Analyst: QBM
Hexavalent Chromium	ND	1.6	5.0		µg/L	25	7/6/2016 05:32 PM
TOTAL METALS BY ICPMS							
EPA 200.8							
RunID: ICP7_160707D	QC Batch: 58913				PrepDate: 7/7/2016		Analyst: CEI
Chromium	ND	0.096	5.0		µg/L	5	7/7/2016 02:58 PM

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


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CLIENT: CH2M HILL
Work Order: N020223
Project: PG&E Topock, 658274.01.IM.OP.00

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

Sample ID: MB-58913	SampType: MBLK	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 7/7/2016	RunNo: 109308						
Client ID: PBW	Batch ID: 58913	TestNo: EPA 200.8		Analysis Date: 7/7/2016	SeqNo: 2366022						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID: LCS-58913	SampType: LCS	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 7/7/2016	RunNo: 109308						
Client ID: LCSW	Batch ID: 58913	TestNo: EPA 200.8		Analysis Date: 7/7/2016	SeqNo: 2366023						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.919	1.0	10.00	0	99.2	85	115				

Sample ID: N020232-001B-MS	SampType: MS	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 7/7/2016	RunNo: 109308						
Client ID: ZZZZZZ	Batch ID: 58913	TestNo: EPA 200.8		Analysis Date: 7/7/2016	SeqNo: 2366025						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	16.801	1.0	10.00	7.462	93.4	75	125				

Sample ID: N020224-001B-MS	SampType: MS	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 7/7/2016	RunNo: 109308						
Client ID: ZZZZZZ	Batch ID: 58913	TestNo: EPA 200.8		Analysis Date: 7/7/2016	SeqNo: 2366041						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	11.548	1.0	10.00	2.530	90.2	75	125				

Sample ID: N020224-001B-MSD	SampType: MSD	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 7/7/2016	RunNo: 109308						
Client ID: ZZZZZZ	Batch ID: 58913	TestNo: EPA 200.8		Analysis Date: 7/7/2016	SeqNo: 2366043						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	11.597	1.0	10.00	2.530	90.7	75	125	11.55	0.423	20	

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N020223
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID: MB-R109280	SampType: MBLK	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 109280						
Client ID: PBW	Batch ID: R109280	TestNo: EPA 218.6		Analysis Date: 7/6/2016	SeqNo: 2365127						
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-R109280	SampType: LCS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 109280						
Client ID: LCSW	Batch ID: R109280	TestNo: EPA 218.6		Analysis Date: 7/6/2016	SeqNo: 2365128						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 5.056 0.20 5.000 0 101 90 110

Sample ID: N020221-001ADUP	SampType: DUP	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 109280						
Client ID: ZZZZZZ	Batch ID: R109280	TestNo: EPA 218.6		Analysis Date: 7/6/2016	SeqNo: 2365130						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 0.069 0.20 0.07730 0 20

Sample ID: N020221-002AMS	SampType: MS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 109280						
Client ID: ZZZZZZ	Batch ID: R109280	TestNo: EPA 218.6		Analysis Date: 7/6/2016	SeqNo: 2365133						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 1.973 0.20 1.000 0.8875 108 90 110

Sample ID: N020221-002AMSD	SampType: MSD	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 109280						
Client ID: ZZZZZZ	Batch ID: R109280	TestNo: EPA 218.6		Analysis Date: 7/6/2016	SeqNo: 2365134						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 1.867 0.20 1.000 0.8875 97.9 90 110 1.973 5.51 20

Qualifiers:

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



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"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Work Order: N020223
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID: N020223-001CMS	SampType: MS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 109280						
Client ID: ZZZZZZ	Batch ID: R109280	TestNo: EPA 218.6		Analysis Date: 7/6/2016	SeqNo: 2365142						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1097.780	20	500.0	588.4	102	90	110				
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Sample ID: N020223-002CMS	SampType: MS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 109280						
Client ID: ZZZZZZ	Batch ID: R109280	TestNo: EPA 218.6		Analysis Date: 7/6/2016	SeqNo: 2365144						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1.151	0.20	1.000	0.07180	108	90	110				
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Sample ID: N020223-003BMS	SampType: MS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 109280						
Client ID: ZZZZZZ	Batch ID: R109280	TestNo: EPA 218.6		Analysis Date: 7/6/2016	SeqNo: 2365151						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	29.028	5.0	25.00	2.562	106	90	110				
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Qualifiers:

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



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 20-Jul-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-100B-WDR-542
Lab Order:	N020223	Collection Date:	7/5/2016 10:50:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N020223-001		

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

RunID: WETCHEM_160706B	QC Batch: R109269	PrepDate:	Analyst: LR
Turbidity	0.16 0.10	0.10	NTU 1 7/6/2016 09:45 AM

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


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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 20-Jul-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-700B-WDR-542
Lab Order:	N020223	Collection Date:	7/5/2016 10:42:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N020223-002		

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

RunID: WETCHEM_160706B	QC Batch: R109269	PrepDate:	Analyst: LR
Turbidity	0.16	0.10	0.10
			NTU
			1
			7/6/2016 09:45 AM

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


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CLIENT: CH2M HILL
Work Order: N020223
Project: PG&E Topock, 658274.01.IM.OP.00

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

Sample ID: MB-R109269	SampType: MBLK	TestCode: 2130_W	Units: NTU	Prep Date:	RunNo: 109269						
Client ID: PBW	Batch ID: R109269	TestNo: SM 2130B	Analysis Date: 7/6/2016	SeqNo: 2364218							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity	ND	0.10									

Sample ID: N020223-001BDUP	SampType: DUP	TestCode: 2130_W	Units: NTU	Prep Date:	RunNo: 109269						
Client ID: ZZZZZZ	Batch ID: R109269	TestNo: SM 2130B	Analysis Date: 7/6/2016	SeqNo: 2364220							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity	0.170	0.10						0.1600	6.06	30	

Sample ID: N020223-002BDUP	SampType: DUP	TestCode: 2130_W	Units: NTU	Prep Date:	RunNo: 109269						
Client ID: ZZZZZZ	Batch ID: R109269	TestNo: SM 2130B	Analysis Date: 7/6/2016	SeqNo: 2364222							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity	0.150	0.10						0.1600	6.45	30	

Qualifiers:

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



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 20-Jul-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-701-WDR-542
Lab Order:	N020223	Collection Date:	7/5/2016 10:30:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N020223-003		

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

RunID: AA1_160712E	QC Batch: 58967	PrepDate: 7/11/2016	Analyst: AM
Mercury	ND 0.087 0.20	µg/L	1 7/12/2016 09:53 AM

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


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CLIENT: CH2M HILL
Work Order: N020223
Project: PG&E Topock, 658274.01.IM.OP.00

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

Sample ID: MB-58967	SampType: MBLK	TestCode: 245.1_W	Units: µg/L	Prep Date: 7/11/2016	RunNo: 109375						
Client ID: PBW	Batch ID: 58967	TestNo: EPA 245.1	Analysis Date: 7/12/2016	SeqNo: 2369960							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.20									

Sample ID: LCS-58967	SampType: LCS	TestCode: 245.1_W	Units: µg/L	Prep Date: 7/11/2016	RunNo: 109375						
Client ID: LCSW	Batch ID: 58967	TestNo: EPA 245.1	Analysis Date: 7/12/2016	SeqNo: 2369961							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	5.073	0.20	5.000	0	101	85	115				

Sample ID: N020223-003C-MS	SampType: MS	TestCode: 245.1_W	Units: µg/L	Prep Date: 7/11/2016	RunNo: 109375						
Client ID: ZZZZZZ	Batch ID: 58967	TestNo: EPA 245.1	Analysis Date: 7/12/2016	SeqNo: 2369963							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	3.868	0.20	5.000	0	77.4	75	125				

Sample ID: N020223-003C-MSD	SampType: MSD	TestCode: 245.1_W	Units: µg/L	Prep Date: 7/11/2016	RunNo: 109375						
Client ID: ZZZZZZ	Batch ID: 58967	TestNo: EPA 245.1	Analysis Date: 7/12/2016	SeqNo: 2369964							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	4.036	0.20	5.000	0	80.7	75	125	3.868	4.23	20	

Qualifiers:

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



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 20-Jul-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-100B-WDR-542
Lab Order:	N020223	Collection Date:	7/5/2016 10:50:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N020223-001		

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

RunID: IC2_160706A	QC Batch: R109273	PrepDate:	Analyst: QBM
Fluoride	3.1 0.087 0.50	mg/L	5 7/6/2016 12:06 PM

ANIONS BY ION CHROMATOGRAPHY
EPA 300.0

RunID: IC2_160706A	QC Batch: R109273	PrepDate:	Analyst: QBM
Sulfate	490 3.3 25	mg/L	50 7/6/2016 01:24 PM

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


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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 20-Jul-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-700B-WDR-542
Lab Order:	N020223	Collection Date:	7/5/2016 10:42:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N020223-002		

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

RunID: IC2_160706A	QC Batch: R109273	PrepDate:	Analyst: QBM
Fluoride	2.6 0.087 0.50	mg/L	5 7/6/2016 12:21 PM

ANIONS BY ION CHROMATOGRAPHY
EPA 300.0

RunID: IC2_160706A	QC Batch: R109273	PrepDate:	Analyst: QBM
Sulfate	450 3.3 25	mg/L	50 7/6/2016 01:39 PM

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


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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 20-Jul-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-701-WDR-542
Lab Order:	N020223	Collection Date:	7/5/2016 10:30:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N020223-003		

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

RunID: IC2_160706A	QC Batch: R109273	PrepDate:	Analyst: QBM
Fluoride	20 0.35 2.0	mg/L	20 7/6/2016 12:37 PM

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


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CLIENT: CH2M HILL
Work Order: N020223
Project: PG&E Topock, 658274.01.IM.OP.00

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

Sample ID: MB-R109273_F	SampType: MBLK	TestCode: 300_W_FPGE Units: mg/L				Prep Date:			RunNo: 109273		
Client ID: PBW	Batch ID: R109273	TestNo: EPA 300.0				Analysis Date: 7/6/2016			SeqNo: 2364249		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	ND	0.10									

Sample ID: LCS-R109273_F	SampType: LCS	TestCode: 300_W_FPGE Units: mg/L				Prep Date:			RunNo: 109273		
Client ID: LCSW	Batch ID: R109273	TestNo: EPA 300.0				Analysis Date: 7/6/2016			SeqNo: 2364250		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	2.536	0.10	2.500	0	101	90	110				

Sample ID: N020216-001BMS	SampType: MS	TestCode: 300_W_FPGE Units: mg/L				Prep Date:			RunNo: 109273		
Client ID: ZZZZZZ	Batch ID: R109273	TestNo: EPA 300.0				Analysis Date: 7/6/2016			SeqNo: 2364252		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	12.730	0.50	12.50	1.320	91.3	80	120				

Sample ID: N020216-001BMSD	SampType: MSD	TestCode: 300_W_FPGE Units: mg/L				Prep Date:			RunNo: 109273		
Client ID: ZZZZZZ	Batch ID: R109273	TestNo: EPA 300.0				Analysis Date: 7/6/2016			SeqNo: 2364253		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	12.755	0.50	12.50	1.320	91.5	80	120	12.73	0.196	20	

Sample ID: N020216-001BDUP	SampType: DUP	TestCode: 300_W_FPGE Units: mg/L				Prep Date:			RunNo: 109273		
Client ID: ZZZZZZ	Batch ID: R109273	TestNo: EPA 300.0				Analysis Date: 7/6/2016			SeqNo: 2364512		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	1.155	0.50						1.320	13.3	20	

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N020223
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: MB-R109273_SO4	SampType: MBLK	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 109273						
Client ID: PBW	Batch ID: R109273	TestNo: EPA 300.0	Analysis Date: 7/6/2016	SeqNo: 2364284							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate ND 0.50

Sample ID: LCS-R109273_SO4	SampType: LCS	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 109273						
Client ID: LCSW	Batch ID: R109273	TestNo: EPA 300.0	Analysis Date: 7/6/2016	SeqNo: 2364285							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 4.967 0.50 5.000 0 99.3 90 110

Sample ID: N020223-001BDUP	SampType: DUP	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 109273						
Client ID: ZZZZZZ	Batch ID: R109273	TestNo: EPA 300.0	Analysis Date: 7/6/2016	SeqNo: 2364290							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 488.900 25 491.4 0.510 20

Sample ID: N020223-002BMS	SampType: MS	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 109273						
Client ID: ZZZZZZ	Batch ID: R109273	TestNo: EPA 300.0	Analysis Date: 7/6/2016	SeqNo: 2364291							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 717.150 25 250.0 450.3 107 80 120

Sample ID: N020223-002BMSD	SampType: MSD	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 109273						
Client ID: ZZZZZZ	Batch ID: R109273	TestNo: EPA 300.0	Analysis Date: 7/6/2016	SeqNo: 2364292							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 722.500 25 250.0 450.3 109 80 120 717.2 0.743 20

Qualifiers:

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



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P: 562.219.7435 F: 562.219.7436

3151 W. Post Rd., Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691

"Serving Clients with Passion and Professionalism"

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 20-Jul-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-100B-WDR-542
Lab Order:	N020223	Collection Date:	7/5/2016 10:50:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N020223-001		

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

NITRATE/NITRITE-N BY CADMIUM REDUCTION
SM4500-NO3F

RunID: WETCHEM_160711F	QC Batch: R109368	PrepDate:	Analyst: RB
Nitrate/Nitrite as N	2.9 0.11 0.25	mg/L	5 7/11/2016

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


ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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 3151 W. Post Rd., Las Vegas, NV 89118
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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 20-Jul-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-700B-WDR-542
Lab Order:	N020223	Collection Date:	7/5/2016 10:42:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N020223-002		

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

NITRATE/NITRITE-N BY CADMIUM REDUCTION
SM4500-NO3F

RunID: WETCHEM_160711F	QC Batch: R109368	PrepDate:	Analyst: RB
Nitrate/Nitrite as N	2.9 0.11 0.25	mg/L	5 7/11/2016

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


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NEVADA
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"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Work Order: N020223
Project: PG&E Topock, 658274.01.IM.OP.00

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

Sample ID: MB-R109368	SampType: MBLK	TestCode: 4500N03F_W	Units: mg/L	Prep Date:				RunNo: 109368			
Client ID: PBW	Batch ID: R109368	TestNo: SM4500-NO3		Analysis Date: 7/11/2016				SeqNo: 2369507			
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-R109368	SampType: LCS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:				RunNo: 109368			
Client ID: LCSW	Batch ID: R109368	TestNo: SM4500-NO3		Analysis Date: 7/11/2016				SeqNo: 2369508			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.493	0.050	0.5000	0	98.6	85	115				

Sample ID: N020223-001DDUP	SampType: DUP	TestCode: 4500N03F_W	Units: mg/L	Prep Date:				RunNo: 109368			
Client ID: ZZZZZZ	Batch ID: R109368	TestNo: SM4500-NO3		Analysis Date: 7/11/2016				SeqNo: 2369510			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	3.010	0.25						2.858	5.16	20	

Sample ID: N020223-001DMS	SampType: MS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:				RunNo: 109368			
Client ID: ZZZZZZ	Batch ID: R109368	TestNo: SM4500-NO3		Analysis Date: 7/11/2016				SeqNo: 2369511			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.712	0.25	2.500	2.858	114	75	125				

Sample ID: N020223-001DMSD	SampType: MSD	TestCode: 4500N03F_W	Units: mg/L	Prep Date:				RunNo: 109368			
Client ID: ZZZZZZ	Batch ID: R109368	TestNo: SM4500-NO3		Analysis Date: 7/11/2016				SeqNo: 2369512			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.677	0.25	2.500	2.858	113	75	125	5.712	0.623	20	

Qualifiers:

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



ASSET LABORATORIES
 ANALYTICAL SERVICES FOR ENVIRONMENTAL PROTECTION

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

3151 W. Post Rd., Las Vegas, NV 89118
 P: 702.307.2659 F: 702.307.2691

"Serving Clients with Passion and Professionalism"

Project Name PG&E Topock			Container:	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	250 ml Poly	1 Liter Poly	1 Liter Poly	500 ml Poly	500 ml Poly	500 ml Poly	1 Liter Poly		Number of Containers	COMMENTS
Location PG&E Topock			Preservatives:	4°C Lab H2SO4	4°C	4°C	4°C	4°C	4°C Lab H2SO4	4°C	4°C	4°C	4°C	4°C			
Project Number 658274.01.IM.OP.00			Filtered:	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			
Project Manager Scott O'Donnell			Holding Time:	28	7	7	7	1	28	7	180	180	180	7			
Sample Manager Shawn Duffy				AMMONIA (SM4500NH3D)	Anions (E300.0)	Anions (E300.0) Fluoride	CONDUCTIVITY (E120.1)	E218.6 Lab Filtered	Nitrate/Nitrite (SM4500NO3-E)	TDS (SM2540C)	Total Metals (E200.7 and E200.8)	Total Metals (E200.7 and E200.8 Mn)	Total Trace Metals	Turbidity (SM2130)			
Task Order			DATE	TIME	Matrix												
Project IM3PLANT-ARAR-WDR-542			SC-100B-WDR-542	7-5-16	1050	Water	X	X		X	X		X		X	N020223 - 01	4
Turnaround Time 10 Days			SC-700B-WDR-542	7-5-16	1040	Water	X	X		X	X		X		X	- 02	4
Shipping Date:			SC-701-WDR-542	7-5-16	1030	Water			X	X	X		X			- 03	3
COC Number: 542			TOTAL NUMBER OF CONTAINERS												11		

Approved by	<i>Scott O'Donnell</i>	Signatures	Date/Time
Sampled by	<i>[Signature]</i>		7-5-16
Relinquished by	<i>[Signature]</i>		7-5-16 1300
Received by	<i>[Signature]</i>		7/5/16 800
Relinquished by	<i>[Signature]</i>		7/5/16 240
Received by	<i>[Signature]</i>		

Shipping Details

Method of Shipment: FedEx

On Ice: ☒ yes / no *2-62*

Airbill No: *1042*

Lab Name: ASSET Laboratories

Lab Phone: (702) 307-2659

ATTN:

Sample Custody

and

Glen Gesmundo

Special Instructions:

Total metals List:
Cr,Al,Sb,As,Ba,B,Cu,Pb,Mn,Mo,Ni,Fe,Zn

Report Copy to
Shawn Duffy
(530) 229-3303

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: 7/5/2016 Workorder: N020223
 Rep sample Temp (Deg C): 2.6 IR Gun ID: 2
 Temp Blank: ☒ Yes ☐ No
 Carrier name: ASSET
 Last 4 digits of Tracking No.: NA Packing Material Used: None
 Cooling process: ☒ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
2. Custody seals intact, signed, dated on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
3. Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
4. Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
5. Sampler's name present in COC?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
6. Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
7. Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
8. Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
9. Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
10. Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
11. All samples received within holding time?	Yes <input 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 checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>
16. Were there Non-Conformance issues at login? Was Client notified?	Yes <input checked="" type="checkbox"/> Yes <input type="checkbox"/>	No <input type="checkbox"/> No <input type="checkbox"/>	NA <input type="checkbox"/> NA <input checked="" type="checkbox"/>

Comments: Samples for Ammonia, Metals and Nitrate/Nitrite were lab preserved.
 Samples for Hex Chrom were lab filtered and preserved.

Checklist Completed By: HG  7/12/2016

Reviewed By:  7/13/2016

**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 #:

Field Sampler: SIGNED

06-Jul-16

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests		
				SM4500-NH3D		
N020223-001A / SC-100B-WDR-542	Water	7/5/2016 10:50:00 AM	32OZA	1		
N020223-002A / SC-700B-WDR-542	Water	7/5/2016 10:42:00 AM	32OZA	1		

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

Please use PO#: N20223A Please email Invoices and Account Receivable Statements to AssetAP@assetlaboratories.com. For questions, call Molky at (562)-219-7435. Please e-mail results to reports@assetlaboratories.com by: Normal TAT.

Please analyze for Ammonia by SM4500NH3D. CH2M HILL samples.

GSO #: 532491715

	Date/Time		Date/Time
Relinquished by: <u> </u>	<u>7/6/2016 17:00</u>	Received by: <u> </u>	<u> </u>
Relinquished by: <u> </u>	<u> </u>	Received by: <u> </u>	<u> </u>

List of Analysts

ASSET Laboratories Work Order: **N020223**

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



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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NEVADA
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P: 702.307.2659 F: 702.307.2691

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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

Attention: Marlon Cartin

Project Name: ATL-NV

Work Order No.: 16G0081

Printed: 07/19/2016

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 7th, 2016, intact and in chilled condition. The samples 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
N020223-001A/SC-100B-WDR-542	16G0081-01	Water	Grab	07/05/2016 10:50	07/07/2016 10:30
N020223-002A/SC-700B-WDR-542	16G0081-02	Water	Grab	07/05/2016 10:42	07/07/2016 10:30

DEFINITIONS

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

Respectfully yours,

Shelly Brady
Customer Service Manager



Client: Advanced Technology Laboratories-N

Project Name: ATL-NV

Printed: 07/19/2016

N020223-001A/SC-100B-WDR-542

16G0081-01 (Water)

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

Truesdail Laboratories, Inc

Wet Chemistry

Ammonia	ND	0.0500	mg/L	1	1607163	07/11/2016 15:48	Alexander Luna	SM 4500-NH3 D M	
---------	----	--------	------	---	---------	------------------	----------------	-----------------	--

N020223-002A/SC-700B-WDR-542

16G0081-02 (Water)

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

Truesdail Laboratories, Inc

Wet Chemistry

Ammonia	ND	0.0500	mg/L	1	1607163	07/11/2016 15:52	Alexander Luna	SM 4500-NH3 D M	
---------	----	--------	------	---	---------	------------------	----------------	-----------------	--



Client: Advanced Technology Laboratories-N

Project Name: ATL-NV

Printed: 07/19/2016

QUALITY CONTROL
Wet Chemistry
Truesdail Laboratories, Inc

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

Batch: 1607163 - SM 4500-NH3 B**Blank (1607163-BLK1)**

Prepared & Analyzed: 7/11/2016

Ammonia	ND	0.0500	mg/L
---------	----	--------	------

LCS (1607163-BS1)

Prepared & Analyzed: 7/11/2016

Ammonia	0.367	0.0500	mg/L	0.400	92	90-110
---------	-------	--------	------	-------	----	--------

Duplicate (1607163-DUP1)**Source: 16G0081-01**

Prepared & Analyzed: 7/11/2016

Ammonia	0.0369	0.0500	mg/L	0.0400	8	20
---------	--------	--------	------	--------	---	----

Matrix Spike (1607163-MS1)**Source: 16G0081-02**

Prepared & Analyzed: 7/11/2016

Ammonia	0.386	0.0500	mg/L	0.400	0.0395	87	75-125
---------	-------	--------	------	-------	--------	----	--------

Matrix Spike Dup (1607163-MSD1)**Source: 16G0081-02**

Prepared & Analyzed: 7/11/2016

Ammonia	0.384	0.0500	mg/L	0.400	0.0395	86	75-125	0.5	20
---------	-------	--------	------	-------	--------	----	--------	-----	----

ANALYSIS DATA SHEET

Inorganics

Client: Advanced Technology Laboratories-NV
Client Sample ID: N020223-001A/SC-100B-WDR-542
Lab Sample ID: 16G0081-01
Project: ATL-NV

Date Sampled: 07/05/16 10:50 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		AL	07/11/16 15:48	SM 4500-NH3 D M

ANALYSIS DATA SHEET

Inorganics

Client: Advanced Technology Laboratories-NV
Client Sample ID: N020223-002A/SC-700B-WDR-542
Lab Sample ID: 16G0081-02
Project: ATL-NV

Date Sampled: 07/05/16 10:42 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		AL	07/11/16 15:52	SM 4500-NH3 D M

METHOD BLANK DATA SHEET

SM 4500-NH3 D M

Client: Advanced Technology Laboratories-NV

Project: ATL-NV

Laboratory ID: 1607163-BLK1

Prepared: 07/11/16 13:53

Preparation: SM 4500-NH3 B

Matrix: Water

Analyzed: 07/11/16 15:38

Instrument: TL01

File ID: 6G11002-009

Batch: 1607163

Sequence: 6G11002

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: 16G0081

Matrix: Water
Prep Batch: 1607163
Prep Method: SM 4500-NH3 B
Lab Sample ID: 1607163-BS1

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Ammonia	0.400	0.367	92	90 - 110

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

N020223-002A/SC-700B-WDR-542

Client: Advanced Technology Laboratories-NV
 Project: ATL-NV
 Work Order: 16G0081

Matrix: Water
 Prep Batch: 1607163
 Analysis Method: SM 4500-NH3 D M
 Prep Method: SM 4500-NH3 B
 Laboratory ID: 1607163-MS1
 Source Sample ID: 16G0081-02

ANALYTE	SPIKE ADDED (mg/L)	SAMPLE CONCENTRATION (mg/L)	MS CONCENTRATION (mg/L)	MS % REC.	QC LIMITS REC.
Ammonia	0.400	0.0395	0.386	87	75 - 125

ANALYTE	SPIKE ADDED (mg/L)	MSD CONCENTRATION (mg/L)	MSD % REC. #	% RPD	QC LIMITS RPD	REC.
Ammonia	0.400	0.384	86	0.5	20	75 - 125

DUPLICATES

N020223-001A/SC-100B-WDR-542

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

Matrix:	Water	Laboratory ID:	1607163-DUP1
Prep Batch:	1607163	Initial/Final:	50 mL / 50 mL
Prep Method:	SM 4500-NH3 B	Analysis:	SM 4500-NH3 D M

ANALYTE	SAMPLE CONCENTRATION (mg/L)	DUPLICATE CONCENTRATION (mg/L)	RPD %	Q	CONTROL LIMIT
Ammonia	0.0400	0.0369			20

16 G0081

**ASSET Laboratories**

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

www.asset-labs.com

TEL: 7023072659

FAX: 7023072691

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

QC Level: Level IV

Subcontractor:

Truesdail
3337 Michelson Drive, Suite CN750
Irvine, CA 92612

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

Field Sampler: SIGNED

06-Jul-16

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests		
				SM4500-NH3D		
N020223-001A / SC-100B-WDR-542	Water	7/5/2016 10:50:00 AM	32OZA	1		
N020223-002A / SC-700B-WDR-542	Water	7/5/2016 10:42:00 AM	32OZA	1		

ALERT !!
Level III QC

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

Please use PO#: N20223A Please email Invoices and Account Receivable Statements to AssetAP@assetlaboratories.com. For questions, call Molky at (562)-219-7435. Please e-mail results to reports@assetlaboratories.com by: Normal TAT.

Please analyze for Ammonia by SM4500NH3D. CH2M HILL samples.

GSO #: 532491715

Date/Time		Date/Time	
Relinquished by: <u>YH</u>	7/6/2016 17:00	Received by: <u>Michelle Reed</u>	7/7/16 10:30
Relinquished by: _____	_____	Received by: _____	_____

4.4°C

Log-in check list For level III data package

Client: *Advanced Technology Laboratories NV* Lab Number: *16 G0081*

Received Date: *7/7/16*

Sample receiving review

	Yes	No	N/A	Comment
Was special login form received by login personnel?	<i>X</i>			
Was COC received and signed by client and login personnel?	<i>X</i>			
Were all samples temperature measured and recorded on COC?	<i>X</i>			
Did you measure and record the pH on all metals samples on COC?			<i>X</i>	
Has sample integrity and analysis discrepancy form been filled out completely?	<i>X</i>			
Were all intercompany yellow forms generated and stamped with "alert level III QC" note?	<i>X</i>			
Have check-in and check out lists been filled out and attached to appropriate form?	<i>X</i>			
Were sample containers labeled with TLI numbers, date, and time sampled?	<i>X</i>			
Did you notify analyst or group leader about short holding time?			<i>X</i>	
Was a copy of COC attached to all yellow intracompany form?	<i>X</i>			
For special clients, have all their samples been logged into the internal COC book?	<i>X</i>			
Were samples locked in fridge or special storage area?	<i>X</i>			
Was temperature recorded in the log book?	<i>X</i>			
Sample receiving Signature: <i>Michelle Reed</i> <i>7/7/16</i> <i>10:30</i>				

ALERT !!
Level III QC

WORK ORDER

Printed: 7/7/2016 10:44:45AM

16G0081

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: 07/18/2016 16:30 (7 day TAT)

Received By: Michelle Reed

Date Received: 07/07/2016 10:30

Logged In By: Michelle Reed

Date Logged In: 07/07/2016 10:37

Samples Received at: 4.4°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
----------	-----	-----	---------	----------

16G0081-01 N020223-001A/SC-100B-WDR-542 [Water] Sampled 07/05/2016
10:50 (GMT-08:00) Pacific Time (US &

Ammonia E	07/18/2016 08:00	7	08/02/2016 10:50	
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16G0081-02 N020223-002A/SC-700B-WDR-542 [Water] Sampled 07/05/2016
10:42 (GMT-08:00) Pacific Time (US &

Ammonia E	07/18/2016 08:00	7	08/02/2016 10:42	
-----------	------------------	---	------------------	--

Reviewed By

Date

July 20, 2016

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

TEL: (530) 229-3303

FAX: (530) 339-3303

CA-ELAP No.: 2676

NV Cert. No.: NV-00922

Workorder No.: N020225

RE: PG&E Topock, 658274.01.IM.OP.00

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on July 05, 2016 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,

Nancy Libucano for

Puri Romualdo
Laboratory Director

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



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"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Project: PG&E Topock, 658274.01.IM.OP.00
Lab Order: N020225

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 Analysis:

Bioassay was subcontracted to ABC Laboratories, CA

Analytical Comments for EPA 6010B:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for several analytes in QC samples N020233-001A-MS and N020233-001A-MSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.



ASSET Laboratories

Date: 20-Jul-16

CLIENT: CH2M HILL
Project: PG&E Topock, 658274.01.IM.OP.00
Lab Order: N020225
Contract No: IM3PLANT-AR

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N020225-001A	Phase Separator-542-Sludge	Soil	7/5/2016 10:00:00 AM	7/5/2016	7/20/2016
N020225-001B	Phase Separator-542-Sludge	Soil	7/5/2016 10:00:00 AM	7/5/2016	7/20/2016
N020225-001C	Phase Separator-542-Sludge	Soil	7/5/2016 10:00:00 AM	7/5/2016	7/20/2016
N020225-001D	Phase Separator-542-Sludge	Soil	7/5/2016 10:00:00 AM	7/5/2016	7/20/2016



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Page 1 of 1

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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 20-Jul-16

CLIENT:	CH2M HILL	Client Sample ID:	Phase Separator-542-Sludge
Lab Order:	N020225	Collection Date:	7/5/2016 10:00:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	SOIL
Lab ID:	N020225-001		

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

RunID: IC2_160711A	QC Batch: R109345	PrepDate:	Analyst: QBM
Fluoride	21 0.35	2.0	mg/Kg-dry 1 7/11/2016 11:49 AM

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


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CLIENT: CH2M HILL
Work Order: N020225
Project: PG&E Topock, 658274.01.IM.OP.00

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

Sample ID: MB-R109345_F	SampType: MBLK	TestCode: 300_S	Units: mg/Kg	Prep Date:	RunNo: 109345						
Client ID: PBS	Batch ID: R109345	TestNo: EPA 300.0	Analysis Date: 7/11/2016	SeqNo: 2367860							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride ND 1.0

Sample ID: LCS-R109345_F	SampType: LCS	TestCode: 300_S	Units: mg/Kg	Prep Date:	RunNo: 109345						
Client ID: LCSS	Batch ID: R109345	TestNo: EPA 300.0		Analysis Date: 7/11/2016	SeqNo: 2367861						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride 24.630 1.0 25.00 0 98.5 90 110

Sample ID: N020225-001ADUP		SampType: DUP		TestCode: 300_S		Units: mg/Kg-dry		Prep Date:		RunNo: 109345	
Client ID: ZZZZZZ		Batch ID: R109345		TestNo: EPA 300.0				Analysis Date: 7/11/2016		SeqNo: 2367863	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride 21.532 2.0 21.33 0.950 20

Sample ID: N020225-001AMS	SampType: MS	TestCode: 300_S	Units: mg/Kg-dry	Prep Date:	RunNo: 109345						
Client ID: ZZZZZZ	Batch ID: R109345	TestNo: EPA 300.0		Analysis Date: 7/11/2016	SeqNo: 2367864						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride 64.230 2.0 50.88 21.33 84.3 80 120

Sample ID: N020225-001AMSD	SampType: MSD	TestCode: 300_S	Units: mg/Kg-dry	Prep Date:	RunNo: 109345						
Client ID: ZZZZZZ	Batch ID: R109345	TestNo: EPA 300.0		Analysis Date: 7/11/2016	SeqNo: 2367865						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride 63.131 2.0 50.88 21.33 82.2 80 120 64.23 1.73 20

Qualifiers:

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



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 20-Jul-16

CLIENT: CH2M HILL
Lab Order: N020225
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N020225-001

Client Sample ID: Phase Separator-542-Sludge
Collection Date: 7/5/2016 10:00:00 AM
Matrix: SOIL

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

RunID: ICP2_160713D	QC Batch: 58989	PrepDate: 7/13/2016	Analyst: CEI			
Antimony	4.8	0.37	4.1	mg/Kg-dry	1	7/13/2016 06:01 PM
Arsenic	11	0.44	2.0	mg/Kg-dry	1	7/13/2016 06:01 PM
Barium	57	0.086	2.0	mg/Kg-dry	1	7/13/2016 06:01 PM
Beryllium	ND	0.077	2.0	mg/Kg-dry	1	7/13/2016 06:01 PM
Cadmium	ND	0.074	2.0	mg/Kg-dry	1	7/13/2016 06:01 PM
Chromium	2800	0.082	2.0	mg/Kg-dry	1	7/13/2016 06:01 PM
Cobalt	5.4	0.074	2.0	mg/Kg-dry	1	7/13/2016 06:01 PM
Copper	150	0.081	4.1	mg/Kg-dry	1	7/13/2016 06:01 PM
Lead	ND	0.081	2.0	mg/Kg-dry	1	7/13/2016 06:01 PM
Manganese	460	0.17	2.0	mg/Kg-dry	1	7/13/2016 06:01 PM
Molybdenum	4.0	0.072	2.0	mg/Kg-dry	1	7/13/2016 06:01 PM
Nickel	29	0.085	2.0	mg/Kg-dry	1	7/13/2016 06:01 PM
Selenium	ND	0.31	2.0	mg/Kg-dry	1	7/13/2016 06:01 PM
Silver	ND	0.083	2.0	mg/Kg-dry	1	7/13/2016 06:01 PM
Thallium	ND	0.33	4.1	mg/Kg-dry	1	7/13/2016 06:01 PM
Vanadium	30	0.075	2.0	mg/Kg-dry	1	7/13/2016 06:01 PM
Zinc	14	0.13	2.0	mg/Kg-dry	1	7/13/2016 06:01 PM

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



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CLIENT: CH2M HILL
 Work Order: N020225
 Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPGE

Sample ID: MB-58989	SampType: MBLK	TestCode: 6010_SPGE	Units: mg/Kg	Prep Date: 7/13/2016	RunNo: 109400						
Client ID: PBS	Batch ID: 58989	TestNo: EPA 6010B	EPA 3050B	Analysis Date: 7/13/2016	SeqNo: 2372179						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	2.0									
Arsenic	ND	1.0									
Barium	ND	1.0									
Beryllium	ND	1.0									
Cadmium	0.070	1.0									
Chromium	0.044	1.0									
Cobalt	ND	1.0									
Copper	ND	2.0									
Lead	ND	1.0									
Manganese	0.196	1.0									
Molybdenum	ND	1.0									
Nickel	0.048	1.0									
Selenium	ND	1.0									
Silver	ND	1.0									
Thallium	ND	2.0									
Vanadium	ND	1.0									
Zinc	0.077	1.0									

Sample ID: LCS-58989	SampType: LCS	TestCode: 6010_SPGE	Units: mg/Kg	Prep Date: 7/13/2016	RunNo: 109400						
Client ID: LCSS	Batch ID: 58989	TestNo: EPA 6010B	EPA 3050B	Analysis Date: 7/13/2016	SeqNo: 2372180						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	24.805	2.0	25.00	0	99.2	85	115				
Arsenic	24.415	1.0	25.00	0	97.7	85	115				
Barium	24.628	1.0	25.00	0	98.5	85	115				
Beryllium	24.292	1.0	25.00	0	97.2	85	115				
Cadmium	24.483	1.0	25.00	0	97.9	85	115				
Chromium	24.660	1.0	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

Calculations are based on raw values


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CLIENT: CH2M HILL
Work Order: N020225
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPGE

Sample ID: LCS-58989	SampType: LCS	TestCode: 6010_SPGE		Units: mg/Kg	Prep Date: 7/13/2016			RunNo: 109400			
Client ID: LCSS	Batch ID: 58989	TestNo: EPA 6010B		EPA 3050B	Analysis Date: 7/13/2016			SeqNo: 2372180			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cobalt	25.212	1.0	25.00	0	101	85	115				
Copper	24.235	2.0	25.00	0	96.9	85	115				
Lead	24.533	1.0	25.00	0	98.1	85	115				
Manganese	49.110	1.0	50.00	0	98.2	85	115				
Molybdenum	24.081	1.0	25.00	0	96.3	85	115				
Nickel	25.517	1.0	25.00	0	102	85	115				
Selenium	24.373	1.0	25.00	0	97.5	85	115				
Silver	24.643	1.0	25.00	0	98.6	85	115				
Thallium	24.515	2.0	25.00	0	98.1	85	115				
Vanadium	24.479	1.0	25.00	0	97.9	85	115				
Zinc	25.469	1.0	25.00	0	102	85	115				

Sample ID: N020233-001A-MS	SampType: MS	TestCode: 6010_SPGE		Units: mg/Kg-dry	Prep Date: 7/13/2016			RunNo: 109400			
Client ID: ZZZZZZ	Batch ID: 58989	TestNo: EPA 6010B		EPA 3050B	Analysis Date: 7/13/2016			SeqNo: 2372185			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	17.731	2.0	25.02	0	70.9	75	125				S
Arsenic	30.765	1.0	25.02	6.960	95.1	75	125				
Barium	101.693	1.0	25.02	67.82	135	75	125				S
Beryllium	22.858	1.0	25.02	0.2529	90.3	75	125				
Cadmium	21.245	1.0	25.02	0	84.9	75	125				
Chromium	29.981	1.0	25.02	6.631	93.3	75	125				
Cobalt	26.343	1.0	25.02	3.085	93.0	75	125				
Copper	33.311	2.0	25.02	8.035	101	75	125				
Lead	25.780	1.0	25.02	4.236	86.1	75	125				
Manganese	262.783	1.0	50.04	182.5	160	75	125				S
Molybdenum	20.982	1.0	25.02	0	83.9	75	125				
Nickel	27.815	1.0	25.02	4.397	93.6	75	125				
Selenium	20.218	1.0	25.02	0	80.8	75	125				
Silver	20.369	1.0	25.02	0	81.4	75	125				

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N020225
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPGE

Sample ID: N020233-001A-MS	SampType: MS	TestCode: 6010_SPGE	Units: mg/Kg-dry	Prep Date: 7/13/2016	RunNo: 109400						
Client ID: ZZZZZZ	Batch ID: 58989	TestNo: EPA 6010B	EPA 3050B	Analysis Date: 7/13/2016	SeqNo: 2372185						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Thallium	19.913	2.0	25.02	0	79.6	75	125				
Vanadium	42.711	1.0	25.02	15.34	109	75	125				
Zinc	54.466	1.0	25.02	27.20	109	75	125				

Sample ID: N020233-001A-MSD	SampType: MSD	TestCode: 6010_SPGE		Units: mg/Kg-dry		Prep Date: 7/13/2016			RunNo: 109400		
Client ID: ZZZZZZ	Batch ID: 58989	TestNo: EPA 6010B		EPA 3050B		Analysis Date: 7/13/2016			SeqNo: 2372186		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	17.770	2.0	24.92	0	71.3	75	125	17.73	0.221	20	S
Arsenic	31.108	1.0	24.92	6.960	96.9	75	125	30.77	1.11	20	
Barium	105.387	1.0	24.92	67.82	151	75	125	101.7	3.57	20	S
Beryllium	23.311	1.0	24.92	0.2529	92.5	75	125	22.86	1.97	20	
Cadmium	21.568	1.0	24.92	0	86.5	75	125	21.24	1.51	20	
Chromium	30.516	1.0	24.92	6.631	95.8	75	125	29.98	1.77	20	
Cobalt	27.096	1.0	24.92	3.085	96.3	75	125	26.34	2.82	20	
Copper	34.307	2.0	24.92	8.035	105	75	125	33.31	2.95	20	
Lead	26.578	1.0	24.92	4.236	89.6	75	125	25.78	3.05	20	
Manganese	269.298	1.0	49.84	182.5	174	75	125	262.8	2.45	20	S
Molybdenum	21.478	1.0	24.92	0	86.2	75	125	20.98	2.33	20	
Nickel	28.771	1.0	24.92	4.397	97.8	75	125	27.82	3.38	20	
Selenium	20.640	1.0	24.92	0	82.8	75	125	20.22	2.07	20	
Silver	20.854	1.0	24.92	0	83.7	75	125	20.37	2.35	20	
Thallium	20.211	2.0	24.92	0	81.1	75	125	19.91	1.48	20	
Vanadium	43.902	1.0	24.92	15.34	115	75	125	42.71	2.75	20	
Zinc	55.327	1.0	24.92	27.20	113	75	125	54.47	1.57	20	

Qualifiers:

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



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 20-Jul-16

CLIENT:	CH2M HILL	Client Sample ID:	Phase Separator-542-Sludge
Lab Order:	N020225	Collection Date:	7/5/2016 10:00:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	SOIL
Lab ID:	N020225-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
	EPA 3060A		EPA 7199				
RunID: IC1_160713A	QC Batch: 58986			PrepDate: 7/12/2016		Analyst: QBM	
Hexavalent Chromium	82	0.25	2.0		mg/Kg-dry	5	7/13/2016 01:07 PM

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


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CLIENT: CH2M HILL
 Work Order: N020225
 Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 7199_S_PGE

Sample ID: MB-58986	SampType: MBLK	TestCode: 7199_S_PGE	Units: mg/Kg	Prep Date: 7/12/2016	RunNo: 109409						
Client ID: PBS	Batch ID: 58986	TestNo: EPA 7199	EPA 3060A	Analysis Date: 7/13/2016	SeqNo: 2372493						
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-58986	SampType: LCS	TestCode: 7199_S_PGE	Units: mg/Kg	Prep Date: 7/12/2016	RunNo: 109409						
Client ID: LCSS	Batch ID: 58986	TestNo: EPA 7199	EPA 3060A	Analysis Date: 7/13/2016	SeqNo: 2372494						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 4.020 0.20 4.000 0 100 80 120

Sample ID: N020225-001DREP	SampType: DUP	TestCode: 7199_S_PGE	Units: mg/Kg-dry	Prep Date: 7/12/2016	RunNo: 109409						
Client ID: ZZZZZZ	Batch ID: 58986	TestNo: EPA 7199	EPA 3060A	Analysis Date: 7/13/2016	SeqNo: 2372498						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 82.429 2.0 81.55 1.08 20

Sample ID: N020225-001D-DUP	SampType: DUP	TestCode: 7199_S_PGE	Units: mg/Kg-dry	Prep Date: 7/12/2016	RunNo: 109409						
Client ID: ZZZZZZ	Batch ID: 58986	TestNo: EPA 7199	EPA 3060A	Analysis Date: 7/13/2016	SeqNo: 2372499						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 80.220 2.0 81.55 1.64 20

Sample ID: N020233-001AREP	SampType: DUP	TestCode: 7199_S_PGE	Units: mg/Kg-dry	Prep Date: 7/12/2016	RunNo: 109409						
Client ID: ZZZZZZ	Batch ID: 58986	TestNo: EPA 7199	EPA 3060A	Analysis Date: 7/13/2016	SeqNo: 2372501						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 0.065 0.20 0.06380 0 20

Qualifiers:

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



ASSET LABORATORIES
 ANALYTICAL SERVICES FOR ENVIRONMENTAL PROTECTION

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3151 W. Post Rd., Las Vegas, NV 89118
 P: 702.307.2659 F: 702.307.2691

"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Work Order: N020225
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 7199_S_PGE

Sample ID: N020233-001A-MS	SampType: MS	TestCode: 7199_S_PGE	Units: mg/Kg-dry	Prep Date: 7/12/2016	RunNo: 109409						
Client ID: ZZZZZZ	Batch ID: 58986	TestNo: EPA 7199	EPA 3060A	Analysis Date: 7/13/2016	SeqNo: 2372502						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	3.848	0.20	3.977	0.06380	95.2	75	125				
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Sample ID: N020233-001A-MSD	SampType: MSD	TestCode: 7199_S_PGE	Units: mg/Kg-dry	Prep Date: 7/12/2016	RunNo: 109409						
Client ID: ZZZZZZ	Batch ID: 58986	TestNo: EPA 7199	EPA 3060A	Analysis Date: 7/13/2016	SeqNo: 2372505						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	3.758	0.20	3.990	0.06380	92.6	75	125	3.848	2.36	20	
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Sample ID: N020233-001A-MS_I	SampType: MS	TestCode: 7199_S_PGE	Units: mg/Kg-dry	Prep Date: 7/12/2016	RunNo: 109409						
Client ID: ZZZZZZ	Batch ID: 58986	TestNo: EPA 7199	EPA 3060A	Analysis Date: 7/13/2016	SeqNo: 2372506						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	595.530	10	657.4	0.06380	90.6	75	125				
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Sample ID: N020233-002AREP	SampType: DUP	TestCode: 7199_S_PGE	Units: mg/Kg-dry	Prep Date: 7/12/2016	RunNo: 109409						
Client ID: ZZZZZZ	Batch ID: 58986	TestNo: EPA 7199	EPA 3060A	Analysis Date: 7/13/2016	SeqNo: 2372518						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	0.068	0.20						0.06833	0	20	
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Sample ID: N020233-003AREP	SampType: DUP	TestCode: 7199_S_PGE	Units: mg/Kg-dry	Prep Date: 7/12/2016	RunNo: 109409						
Client ID: ZZZZZZ	Batch ID: 58986	TestNo: EPA 7199	EPA 3060A	Analysis Date: 7/13/2016	SeqNo: 2372520						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	0.076	0.20						0.07258	0	20	
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Qualifiers:

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



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3151 W. Post Rd., Las Vegas, NV 89118
 P: 702.307.2659 F: 702.307.2691

"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Work Order: N020225
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 7199_S_PGE

Sample ID: N020233-004AREP	SampType: DUP	TestCode: 7199_S_PGE	Units: mg/Kg-dry	Prep Date: 7/12/2016	RunNo: 109409						
Client ID: ZZZZZZ	Batch ID: 58986	TestNo: EPA 7199	EPA 3060A	Analysis Date: 7/13/2016	SeqNo: 2372522						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	0.100	0.20						0.1009	0	20
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Sample ID: N020233-005AREP	SampType: DUP	TestCode: 7199_S_PGE	Units: mg/Kg-dry	Prep Date: 7/12/2016	RunNo: 109409						
Client ID: ZZZZZZ	Batch ID: 58986	TestNo: EPA 7199	EPA 3060A	Analysis Date: 7/13/2016	SeqNo: 2372524						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	0.072	0.20						0.07129	0	20
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Sample ID: N020233-006AREP	SampType: DUP	TestCode: 7199_S_PGE	Units: mg/Kg-dry	Prep Date: 7/12/2016	RunNo: 109409						
Client ID: ZZZZZZ	Batch ID: 58986	TestNo: EPA 7199	EPA 3060A	Analysis Date: 7/13/2016	SeqNo: 2372526						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	0.078	0.21						0.08254	0	20
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Sample ID: N020233-007AREP	SampType: DUP	TestCode: 7199_S_PGE	Units: mg/Kg-dry	Prep Date: 7/12/2016	RunNo: 109409						
Client ID: ZZZZZZ	Batch ID: 58986	TestNo: EPA 7199	EPA 3060A	Analysis Date: 7/13/2016	SeqNo: 2372530						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	0.051	0.20						0.05064	0	20
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Sample ID: N020233-008AREP	SampType: DUP	TestCode: 7199_S_PGE	Units: mg/Kg-dry	Prep Date: 7/12/2016	RunNo: 109409						
Client ID: ZZZZZZ	Batch ID: 58986	TestNo: EPA 7199	EPA 3060A	Analysis Date: 7/13/2016	SeqNo: 2372532						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	0.061	0.20						0.07277	0	20
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Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N020225
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 7199_S_PGE

Sample ID: N020233-009AREP	SampType: DUP	TestCode: 7199_S_PGE	Units: mg/Kg-dry	Prep Date: 7/12/2016	RunNo: 109409						
Client ID: ZZZZZZ	Batch ID: 58986	TestNo: EPA 7199	EPA 3060A	Analysis Date: 7/13/2016	SeqNo: 2372534						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.040	0.20						0.02938	0	20	

Qualifiers:

- | | | | | | |
|----|---|--------------------------------------|--------------------------------------|---|--|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 20-Jul-16

CLIENT:	CH2M HILL	Client Sample ID:	Phase Separator-542-Sludge
Lab Order:	N020225	Collection Date:	7/5/2016 10:00:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	SOIL
Lab ID:	N020225-001		

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

RunID: AA1_160707A	QC Batch: 58921	PrepDate: 7/6/2016	Analyst: AM
Mercury	ND	0.024	0.20
		mg/Kg-dry	1
			7/7/2016 11:12 AM

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


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"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
 Work Order: N020225
 Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 7471_S_PGE

Sample ID: MB-58921	SampType: MBLK	TestCode: 7471_S_PGE	Units: mg/Kg	Prep Date: 7/6/2016	RunNo: 109283						
Client ID: PBS	Batch ID: 58921	TestNo: EPA 7471A	Analysis Date: 7/7/2016	SeqNo: 2364779							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.10									

Sample ID: LCS-58921	SampType: LCS	TestCode: 7471_S_PGE	Units: mg/Kg	Prep Date: 7/6/2016	RunNo: 109283						
Client ID: LCSS	Batch ID: 58921	TestNo: EPA 7471A	Analysis Date: 7/7/2016	SeqNo: 2364780							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.464	0.10	0.4153	0	112	75	125				

Sample ID: N020206-012B-MS	SampType: MS	TestCode: 7471_S_PGE	Units: mg/Kg	Prep Date: 7/6/2016	RunNo: 109283						
Client ID: ZZZZZZ	Batch ID: 58921	TestNo: EPA 7471A	Analysis Date: 7/7/2016	SeqNo: 2364781							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.474	0.10	0.4167	0.02773	107	75	125				

Sample ID: N020206-012B-MSD	SampType: MSD	TestCode: 7471_S_PGE	Units: mg/Kg	Prep Date: 7/6/2016	RunNo: 109283						
Client ID: ZZZZZZ	Batch ID: 58921	TestNo: EPA 7471A	Analysis Date: 7/7/2016	SeqNo: 2364782							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.466	0.099	0.4139	0.02773	106	75	125	0.4741	1.64	20	

Qualifiers:

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



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 20-Jul-16

CLIENT:	CH2M HILL	Client Sample ID:	Phase Separator-542-Sludge
Lab Order:	N020225	Collection Date:	7/5/2016 10:00:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	SOIL
Lab ID:	N020225-001		

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

RunID: WETCHEM_160706D	QC Batch: R109271	PrepDate:	Analyst: LR
Percent Moisture	50.86	0.1000	0.1000
		wt%	1
			7/6/2016 12:10 PM

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


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CLIENT: CH2M HILL
Work Order: N020225
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: PMOIST

Sample ID: MB-R109271	SampType: MBLK	TestCode: PMOIST	Units: wt%	Prep Date:	RunNo: 109271						
Client ID: PBS	Batch ID: R109271	TestNo: D2216		Analysis Date: 7/6/2016	SeqNo: 2364234						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	ND	0.1000									

Sample ID: N020225-001CDUP	SampType: DUP	TestCode: PMOIST	Units: wt%	Prep Date:	RunNo: 109271						
Client ID: ZZZZZZ	Batch ID: R109271	TestNo: D2216		Analysis Date: 7/6/2016	SeqNo: 2364236						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	51.542	0.1000						50.86	1.33	30	

Qualifiers:

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


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"Serving Clients with Passion and Professionalism"

Project Name PG&E Topock Location PG&E Topock Project Number 658274.01.IM.OP.00 Project Manager Scott O'Donnell Sample Manager Shawn Duffy Task Order Project IM3PLANT-ARAR-WDR-542-SLUDGE Turnaround Time 10 Days Shipping Date: COC Number: 542-s			Container: Glass Jar(8 oz) none Preservatives: 4°C Filtered: NA Holding Time: NA	250ml Glass 4°C NA 14 Anions (E300, Soil) FI Bioassay (Bioassay, 96hr Acute) Metals (5010B, Soil) Title 22, Mercury, Mn Metals (7199)	4 oz jar 4°C NA 180 Metals (7199)	Number of Containers COMMENTS
DATE TIME Matrix						
Phase Separator-542-Sludge 7-5-16 10:00 Soil X X X X N020225 - 01						
TOTAL NUMBER OF CONTAINERS				6		

Approved by	<i>Shawn Duffy</i>	Signatures	Date/Time	Shipping Details
Sampled by	<i>Shawn Duffy</i>		7-5-16 0800	Method of Shipment: FedEx
Relinquished by	<i>Shawn Duffy</i>		7-5-16 10:00	On Ice: <input checked="" type="radio"/> yes <input type="radio"/> no 2.6 gal
Received by	<i>Shawn Duffy</i>		7-5-16 1300	Airbill No: 1A12
Relinquished by	<i>Shawn Duffy</i>		7-5-16 1300	Lab Name:
Received by	<i>Shawn Duffy</i>		7-5-16 2000	Lab Phone:

ATTN:

Sample Custody

Special Instructions:

 Report Copy to
 Shawn Duffy
 530-229-3303

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: 7/5/2016 Workorder: N020225
 Rep sample Temp (Deg C): 2.6 IR Gun ID: 2
 Temp Blank: ☒ Yes ☐ No
 Carrier name: ASSEt
 Last 4 digits of Tracking No.: NA Packing Material Used: None
 Cooling process: ☒ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

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

Comments:

Checklist Completed By: HG For: YJ 7/8/2016

Reviewed By: HS 7/13/2016

**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:**ABC Laboratories
29 North Olive Street
Ventura, CA 93001TEL: (805) 643-5621
FAX: (805) 643-2930
Acct #: 21027

Field Sampler: SIGNED

06-Jul-16

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests			
				Bioassay			
N020225-001B / Phase Separator-542-Sludge	Soil	7/5/2016 10:00:00 AM	4OZG	1			

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

Please use PO#: N20225A 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 Bioassay. CH2M HILL Sample.
(Bioassay, 96 hr Acute).**GSO #: 532493494**

Date/Time		Date/Time	
Relinquished by: <u>RL</u>	7/6/2016 17:00	Received by: _____	_____
Relinquished by: _____	_____	Received by: _____	_____

List of Analysts

ASSET Laboratories Work Order: **N020225**

NAME	TEST METHOD
Quennie Manimtim	EPA 300.0, EPA 7199
Claire Ignacio	EPA 6010B
Lilia Ramit	ASTM D2216
Amy Mata	EPA 7471A



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July 12, 2016

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.:	N020225-001B
DATE RECEIVED:	07/07/16
ABC LAB. NO.:	AST0716.028

DOHS (TITLE 22) HAZARDOUS WASTE BIOASSAY USING FATHEAD MINNOWS

96 HOUR LC50 = >750 mg/l

STATUS = Pass

Respectfully yours,


Per: 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:	07/07/16
SAMPLE I.D.:	N020225-001B	LAB #	AST0716.028

WATER QUALITY

DILUTION WATER	Reconst. Fresh	AERATION:	Single Bubble Air
CONTROL HARDNESS		CONTROL ALKALINITY	
Beg:	45 mg/l	End:	46 mg/l
Beg:	33 mg/l	End:	34 mg/l
SAMPLE HARDNESS		SAMPLE ALKALINITY	
Beg:	48 mg/l	End:	86 mg/l
Beg:	35 mg/l	End:	66 mg/l

ORGANISM INFORMATION

SPECIES:	Pimephales promelas	DATE REC'D:	06/24/16
COMMON NAME	Fathead Minnow	AVERAGE LNTH:	37 mm
SOURCE:	Thomas Fish Co.	AVERAGE WT:	0.69 gm
CARRIER:	California Overnight	NO. FISH / TANK:	10

TEST DATA

DATE: TIME:	INITIAL				24 HOURS				48 HOURS				72 HOURS				96 HOURS			
	07/08/16 1319				07/09/16 1400				07/10/16 1438				07/11/16 1215				07/12/16 1356			
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	Dis. Oxy.	Temp. dg.C	pH	#Fish Dead
0 (Con.)	8.4	19.3	7.8		9.0	18.1	8.1	0	8.3	18.2	8.1	0	7.1	18.6	7.8	0	7.6	18.6	7.5	0
400 mg/l	8.4	19.3	7.5		8.6	18.3	7.1	0	7.7	18.4	7.3	0	7.9	18.9	7.0	0	8.5	18.7	7.1	0
400 mg/l	8.4	19.3	7.5		8.5	18.3	7.1	0	7.4	18.3	7.3	0	7.9	18.6	7.0	0	8.5	18.6	7.1	0
750 mg/l	8.4	19.3	7.5		8.6	18.1	7.1	0	7.5	18.2	7.2	0	8.2	18.5	7.0	0	8.8	18.5	7.1	0
750 mg/l	8.4	19.3	7.5		8.5	18.1	7.2	0	7.5	18.1	7.2	0	8.2	18.4	6.9	0	8.7	18.5	7.0	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

7/13/16



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:

ABC Laboratories
29 North Olive Street
Ventura, CA 93001

TEL: (805) 643-5621

FAX: (805) 643-2930

Acct #: 21027

Field Sampler: SIGNED

06-Jul-16

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests		
				Bioassay		
N020225-001B / Phase Separator-542-Sludge	Soil	7/5/2016 10:00:00 AM	4OZG	1		

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

Please use PO#: N20225A 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 Biossay. CH2M HILL Sample.
(Bioassay, 96 hr Acute).

GSO #: 532493494

	Date/Time		Date/Time
Relinquished by: <u>[Signature]</u>	7/6/2016 17:00	Received by: <u>[Signature]</u>	7-7-16/1535
Relinquished by: _____	_____	Received by: _____	_____

August 18, 2016

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

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

CA-ELAP No.: 2676
NV Cert. No.: NV-00922

Workorder No.: N020534

RE: PG&E Topock, 658274.01.IM.OP.00

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on August 03, 2016 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,

Nancy Libucano for

Puri Romualdo
Laboratory Director

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



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"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Project: PG&E Topock, 658274.01.IM.OP.00
Lab Order: N020534

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 on some analytes for sample N020534-002 due to associated internal standard not meeting method criteria possibly due to matrix interference. Sample was analyzed with dilution and internal standard met method criteria. Affected analytes for this failed internal standard were reported at dilution that meet internal standard recovery limit.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Copper on QC samples N020534-002E-MS and N020534-002E-MSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 300:

Dilution was necessary for sample N020534-002 due to precipitation upon the addition of eluent.



ASSET Laboratories

Date: 18-Aug-16

CLIENT: CH2M HILL
Project: PG&E Topock, 658274.01.IM.OP.00
Lab Order: N020534
Contract No: IM3PLANT-AR

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N020534-001A	SC-100B-WDR-543	Water	8/3/2016 7:25:00 AM	8/3/2016	8/18/2016
N020534-001B	SC-100B-WDR-543	Water	8/3/2016 7:25:00 AM	8/3/2016	8/18/2016
N020534-001C	SC-100B-WDR-543	Water	8/3/2016 7:25:00 AM	8/3/2016	8/18/2016
N020534-002A	SC-700B-WDR-543	Water	8/3/2016 7:25:00 AM	8/3/2016	8/18/2016
N020534-002B	SC-700B-WDR-543	Water	8/3/2016 7:25:00 AM	8/3/2016	8/18/2016
N020534-002C	SC-700B-WDR-543	Water	8/3/2016 7:25:00 AM	8/3/2016	8/18/2016
N020534-002D	SC-700B-WDR-543	Water	8/3/2016 7:25:00 AM	8/3/2016	8/18/2016
N020534-002E	SC-700B-WDR-543	Water	8/3/2016 7:25:00 AM	8/3/2016	8/18/2016



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 18-Aug-16

CLIENT: CH2M HILL

Client Sample ID: SC-100B-WDR-543

Lab Order: N020534

Collection Date: 8/3/2016 7:25:00 AM

Project: PG&E Topock, 658274.01.IM.OP.00

Matrix: WATER

Lab ID: N020534-001

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

RunID: WETCHEM_160804B

QC Batch: R109817

PrepDate

Analyst: LR

Specific Conductance

6800

0.10

0.10

umhos/cm

1

8/4/2016 09:15 AM

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

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

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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 18-Aug-16

CLIENT: CH2M HILL
Lab Order: N020534
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N020534-002

Client Sample ID: SC-700B-WDR-543
Collection Date: 8/3/2016 7:25:00 AM
Matrix: WATER

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

RunID: WETCHEM_160804B	QC Batch: R109817			PrepDate		Analyst: LR
Specific Conductance	7000	0.10	0.10	umhos/cm	1	8/4/2016 09:15 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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CLIENT: CH2M HILL
Work Order: N020534
Project: PG&E Topock, 658274.01.IM.OP.00

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

Sample ID	N020534-002BDUP	SampType:	DUP	TestCode:	120.1_WPGE	Units:	umhos/cm	Prep Date:		RunNo:	109817
Client ID:	ZZZZZZ	Batch ID:	R109817	TestNo:	EPA 120.1			Analysis Date:	8/4/2016	SeqNo:	2392745
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Specific Conductance		6950.000		0.10						6960	0.144 10

Qualifiers:

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



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 18-Aug-16

CLIENT: CH2M HILL
Lab Order: N020534
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N020534-001

Client Sample ID: SC-100B-WDR-543
Collection Date: 8/3/2016 7:25:00 AM
Matrix: WATER

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

RunID: WETCHEM_160804H	QC Batch: 59293			PrepDate	8/4/2016	Analyst: LR
Total Dissolved Solids (Residue, Filterable)	4200	50	50	mg/L	1	8/4/2016 01:07 PM

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



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 18-Aug-16

CLIENT: CH2M HILL
Lab Order: N020534
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N020534-002

Client Sample ID: SC-700B-WDR-543
Collection Date: 8/3/2016 7:25:00 AM
Matrix: WATER

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

TOTAL FILTERABLE RESIDUE
SM2540C

RunID: WETCHEM_160804H	QC Batch: 59293			PrepDate	8/4/2016	Analyst: LR
Total Dissolved Solids (Residue, Filterable)	4200	50	50	mg/L	1	8/4/2016 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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CLIENT: CH2M HILL
Work Order: N020534
Project: PG&E Topock, 658274.01.IM.OP.00

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

Sample ID	LCS-59293	SampType:	LCS	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	8/4/2016	RunNo:	109849			
Client ID:	LCSW	Batch ID:	59293	TestNo:	SM2540C			Analysis Date:	8/4/2016	SeqNo:	2394000			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		971.000		10	1000	0		97.1	80	120				

Sample ID	MB-59293	SampType:	MBLK	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	8/4/2016	RunNo:	109849			
Client ID:	PBW	Batch ID:	59293	TestNo:	SM2540C			Analysis Date:	8/4/2016	SeqNo:	2394001			
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	N020533-002ADUP	SampType:	DUP	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	8/4/2016	RunNo:	109849			
Client ID:	ZZZZZZ	Batch ID:	59293	TestNo:	SM2540C			Analysis Date:	8/4/2016	SeqNo:	2394006			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		4455.000		50							4480	0.560	5	

Qualifiers:

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



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 18-Aug-16

CLIENT: CH2M HILL
Lab Order: N020534
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N020534-002

Client Sample ID: SC-700B-WDR-543
Collection Date: 8/3/2016 7:25:00 AM
Matrix: WATER

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

RunID: ICP2_160810A	QC Batch: 59301	PrepDate	8/6/2016	Analyst: CEI
Aluminum	ND 2.7	50	µg/L	1 8/10/2016 03:57 PM
Boron	1100 38	100	µg/L	1 8/15/2016 12:54 PM
Iron	ND 1.8	20	µg/L	1 8/10/2016 03:57 PM

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



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CLIENT: CH2M HILL
Work Order: N020534
Project: PG&E Topock, 658274.01.IM.OP.00

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

Sample ID MB-59301	SampType: MBLK	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 8/6/2016	RunNo: 109957
Client ID: PBW	Batch ID: 59301	TestNo: EPA 200.7		Analysis Date: 8/10/2016	SeqNo: 2399829
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Aluminum	ND	50			
Iron	ND	20			

Sample ID LCS1-59301	SampType: LCS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 8/6/2016	RunNo: 109957
Client ID: LCSW	Batch ID: 59301	TestNo: EPA 200.7		Analysis Date: 8/10/2016	SeqNo: 2399830
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Aluminum	10494.798	50	10000	0	105 85 115
Iron	92.401	20	100.0	0	92.4 85 115

Sample ID N020533-001B-MS1	SampType: MS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 8/6/2016	RunNo: 109957
Client ID: ZZZZZZ	Batch ID: 59301	TestNo: EPA 200.7		Analysis Date: 8/10/2016	SeqNo: 2399836
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Aluminum	11303.223	50	10000	0	113 75 125
Iron	90.377	20	100.0	3.468	86.9 75 125

Sample ID N020533-001B-MSD	SampType: MSD	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 8/6/2016	RunNo: 109957
Client ID: ZZZZZZ	Batch ID: 59301	TestNo: EPA 200.7		Analysis Date: 8/10/2016	SeqNo: 2399837
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Aluminum	11248.372	50	10000	0	112 75 125 11300 0.486 20
Iron	87.518	20	100.0	3.468	84.1 75 125 90.38 3.21 20

Sample ID MB-59301	SampType: MBLK	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 8/6/2016	RunNo: 110029
Client ID: PBW	Batch ID: 59301	TestNo: EPA 200.7		Analysis Date: 8/15/2016	SeqNo: 2404079
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N020534
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WPGEPBB

Sample ID	MB-59301	SampType:	MBLK	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	8/6/2016	RunNo:	110029			
Client ID:	PBW	Batch ID:	59301	TestNo:	EPA 200.7			Analysis Date:	8/15/2016	SeqNo:	2404079			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Boron ND 100

Sample ID	LCS1-59301	SampType:	LCS	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	8/6/2016	RunNo:	110029			
Client ID:	LCSW	Batch ID:	59301	TestNo:	EPA 200.7			Analysis Date:	8/15/2016	SeqNo:	2404080			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Boron 5343.896 100 5000 0 107 85 115

Sample ID	N020533-001B-MS1	SampType: MS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 8/6/2016	RunNo: 110029					
Client ID: ZZZZZZ	Batch ID: 59301	TestNo: EPA 200.7	Analysis Date: 8/15/2016	SeqNo: 2404084							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Boron 6216.491 100 5000 576.1 113 75 125

Sample ID	N020533-001B-MSD	SampType:	MSD	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	8/6/2016	RunNo:	110029			
Client ID:	ZZZZZZ	Batch ID:	59301	TestNo:	EPA 200.7			Analysis Date:	8/15/2016	SeqNo:	2404085			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Boron 6163.303 100 5000 576.1 112 75 125 6216 0.859 20

Qualifiers:

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



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 18-Aug-16

CLIENT: CH2M HILL

Client Sample ID: SC-100B-WDR-543

Lab Order: N020534

Collection Date: 8/3/2016 7:25:00 AM

Project: PG&E Topock, 658274.01.IM.OP.00

Matrix: WATER

Lab ID: N020534-001

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

RunID: ICP7_160808C

QC Batch: 59299

PrepDate

8/6/2016

Analyst: CEI

Manganese

23

0.056

0.50

µg/L

1

8/8/2016 02:56 PM

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

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

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P: 702.307.2659 F: 702.307.2691**"Serving Clients with Passion and Professionalism"**

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 18-Aug-16

CLIENT: CH2M HILL
Lab Order: N020534
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N020534-002

Client Sample ID: SC-700B-WDR-543
Collection Date: 8/3/2016 7:25:00 AM
Matrix: WATER

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

RunID: ICP7_160808C	QC Batch: 59299	PrepDate	8/6/2016	Analyst: CEI		
Antimony	ND	0.031	0.50	µg/L	1	8/8/2016 03:08 PM
Arsenic	ND	0.025	0.10	µg/L	1	8/8/2016 03:08 PM
Barium	16	0.070	1.0	µg/L	1	8/10/2016 04:42 PM
Copper	ND	0.26	1.0	µg/L	1	8/10/2016 04:42 PM
Lead	ND	0.18	5.0	µg/L	5	8/8/2016 03:13 PM
Manganese	10	0.056	0.50	µg/L	1	8/8/2016 03:08 PM
Molybdenum	21	0.19	2.5	µg/L	5	8/8/2016 03:13 PM
Nickel	ND	0.040	1.0	µg/L	1	8/8/2016 03:08 PM
Zinc	ND	0.27	10	µg/L	1	8/8/2016 03:08 PM

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



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"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Work Order: N020534
Project: PG&E Topock, 658274.01.IM.OP.00

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

Sample ID MB-59299	SampType: MBLK	TestCode: 200.8_W	Units: µg/L	Prep Date: 8/6/2016	RunNo: 109918
Client ID: PBW	Batch ID: 59299	TestNo: EPA 200.8		Analysis Date: 8/8/2016	SeqNo: 2398157
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									
Lead	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Nickel	ND	1.0									
Zinc	3.058	10									

Sample ID LCS-59299	SampType: LCS	TestCode: 200.8_W	Units: µg/L	Prep Date: 8/6/2016	RunNo: 109918
Client ID: LCSW	Batch ID: 59299	TestNo: EPA 200.8		Analysis Date: 8/8/2016	SeqNo: 2398158
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Antimony	10.239	0.50	10.00	0	102	85	115				
Arsenic	10.057	0.10	10.00	0	101	85	115				
Lead	10.600	1.0	10.00	0	106	85	115				
Manganese	99.289	0.50	100.0	0	99.3	85	115				
Molybdenum	10.021	0.50	10.00	0	100	85	115				
Nickel	10.410	1.0	10.00	0	104	85	115				
Zinc	99.647	10	100.0	0	99.6	85	115				

Sample ID N020534-002E-MS	SampType: MS	TestCode: 200.8_W	Units: µg/L	Prep Date: 8/6/2016	RunNo: 109918
Client ID: ZZZZZZ	Batch ID: 59299	TestNo: EPA 200.8		Analysis Date: 8/8/2016	SeqNo: 2398182
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Antimony	10.139	0.50	10.00	0	101	75	125				
Arsenic	10.565	0.10	10.00	0.08053	105	75	125				
Manganese	96.490	0.50	100.0	10.08	86.4	75	125				
Nickel	10.647	1.0	10.00	0.6330	100	75	125				

Qualifiers:

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



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"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Work Order: N020534
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	N020534-002E-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	8/6/2016	RunNo:	109918			
Client ID:	ZZZZZZ	Batch ID:	59299	TestNo:	EPA 200.8			Analysis Date:	8/8/2016	SeqNo:	2398182			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Zinc	83.732	10	100.0	0	83.7	75	125
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Sample ID	N020534-002E-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	8/6/2016	RunNo:	109918			
Client ID:	ZZZZZZ	Batch ID:	59299	TestNo:	EPA 200.8			Analysis Date:	8/8/2016	SeqNo:	2398183			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead	10.115	5.0	10.00	0	101	75	125
Molybdenum	30.697	2.5	10.00	21.44	92.6	75	125

Sample ID	N020534-002E-MSD	SampType: MSD	TestCode: 200.8_W	Units: µg/L	Prep Date: 8/6/2016	RunNo: 109918					
Client ID: ZZZZZZ	Batch ID: 59299	TestNo: EPA 200.8	Analysis Date: 8/8/2016	SeqNo: 2398184							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Antimony	10.172	0.50	10.00	0	102	75	125	10.14	0.322	20
Arsenic	10.419	0.10	10.00	0.08053	103	75	125	10.57	1.39	20
Manganese	96.867	0.50	100.0	10.08	86.8	75	125	96.49	0.390	20
Nickel	10.781	1.0	10.00	0.6330	101	75	125	10.65	1.25	20
Zinc	84.024	10	100.0	0	84.0	75	125	83.73	0.348	20

Sample ID	N020534-002E-MSD	SampType:	MSD	TestCode:	200.8_W	Units:	µg/L	Prep Date:	8/6/2016	RunNo:	109918			
Client ID:	ZZZZZZ	Batch ID:	59299	TestNo:	EPA 200.8			Analysis Date:	8/8/2016	SeqNo:	2398185			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead	10.242	5.0	10.00	0	102	75	125	10.11	1.25	20
Molybdenum	30.670	2.5	10.00	21.44	92.3	75	125	30.70	0.0883	20

Qualifiers:

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CLIENT: CH2M HILL
Work Order: N020534
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	MB-59299	SampType:	MBLK	TestCode:	200.8_W	Units:	µg/L	Prep Date:	8/6/2016	RunNo:	109950		
Client ID:	PBW	Batch ID:	59299	TestNo:	EPA 200.8			Analysis Date:	8/10/2016	SeqNo:	2400922		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Barium	ND	1.0											
Copper	ND	1.0											

Sample ID	LCS-59299	SampType:	LCS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	8/6/2016	RunNo:	109950		
Client ID:	LCSW	Batch ID:	59299	TestNo:	EPA 200.8			Analysis Date:	8/10/2016	SeqNo:	2400923		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Barium	104.391	1.0	100.0	0	104	85	115						
Copper	9.808	1.0	10.00	0	98.1	85	115						

Sample ID	N020534-002E-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	8/6/2016	RunNo:	109950		
Client ID:	ZZZZZZ	Batch ID:	59299	TestNo:	EPA 200.8			Analysis Date:	8/10/2016	SeqNo:	2400927		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Barium	118.856	1.0	100.0	16.14	103	75	125						
Copper	3.574	1.0	10.00	0	35.7	75	125						S

Sample ID	N020534-002E-MSD	SampType: MSD	TestCode: 200.8_W	Units: µg/L	Prep Date: 8/6/2016	RunNo: 109950					
Client ID: ZZZZZZ	Batch ID: 59299	TestNo: EPA 200.8	Analysis Date: 8/10/2016	SeqNo: 2400928							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Barium	118.127	1.0	100.0	16.14	102	75	125	118.9	0.615	20			
Copper	3.521	1.0	10.00	0	35.2	75	125	3.574	1.49	20	S		

Qualifiers:

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



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 18-Aug-16

CLIENT: CH2M HILL
Lab Order: N020534
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N020534-001

Client Sample ID: SC-100B-WDR-543
Collection Date: 8/3/2016 7:25:00 AM
Matrix: WATER

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

RunID: IC7_160808A	QC Batch: R109919				PrepDate		Analyst: QBM
Hexavalent Chromium	470	6.6	20		µg/L	100	8/8/2016 12:41 PM

TOTAL METALS BY ICPMS
EPA 200.8

RunID: ICP7_160808C	QC Batch: 59299				PrepDate	8/6/2016	Analyst: CEI
Chromium	520	0.096	5.0		µg/L	5	8/8/2016 03:02 PM

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



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 18-Aug-16

CLIENT: CH2M HILL
Lab Order: N020534
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N020534-002

Client Sample ID: SC-700B-WDR-543
Collection Date: 8/3/2016 7:25:00 AM
Matrix: WATER

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

RunID: IC7_160808A	QC Batch: R109919				PrepDate		Analyst: QBM
Hexavalent Chromium	ND	0.066	0.20		µg/L	1	8/8/2016 01:00 PM

TOTAL METALS BY ICPMS
EPA 200.8

RunID: ICP7_160808C	QC Batch: 59299				PrepDate	8/6/2016	Analyst: CEI
Chromium	ND	0.019	1.0		µg/L	1	8/8/2016 03:08 PM

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



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CLIENT: CH2M HILL
Work Order: N020534
Project: PG&E Topock, 658274.01.IM.OP.00

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

Sample ID	MB-59299	SampType:	MBLK	TestCode:	200.8_W_CR	Units:	µg/L	Prep Date:	8/6/2016	RunNo:	109918		
Client ID:	PBW	Batch ID:	59299	TestNo:	EPA 200.8			Analysis Date:	8/8/2016	SeqNo:	2398037		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		ND		1.0									

Sample ID	LCS-59299	SampType:	LCS	TestCode:	200.8_W_CR	Units:	µg/L	Prep Date:	8/6/2016	RunNo:	109918		
Client ID:	LCSW	Batch ID:	59299	TestNo:	EPA 200.8			Analysis Date:	8/8/2016	SeqNo:	2398038		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		9.784		1.0	10.00	0	97.8	85	115				

Sample ID	N020534-002E-MS	SampType:	MS	TestCode:	200.8_W_CR	Units:	µg/L	Prep Date:	8/6/2016	RunNo:	109918		
Client ID:	ZZZZZZ	Batch ID:	59299	TestNo:	EPA 200.8			Analysis Date:	8/8/2016	SeqNo:	2398062		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		9.807		1.0	10.00	0.4500	93.6	75	125				

Sample ID	N020534-002E-MSD	SampType:	MSD	TestCode:	200.8_W_CR	Units:	µg/L	Prep Date:	8/6/2016	RunNo:	109918		
Client ID:	ZZZZZZ	Batch ID:	59299	TestNo:	EPA 200.8			Analysis Date:	8/8/2016	SeqNo:	2398064		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		9.841		1.0	10.00	0.4500	93.9	75	125	9.807	0.350	20	

Qualifiers:

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CLIENT: CH2M HILL
Work Order: N020534
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	MB-R109919	SampType:	MBLK	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	109919			
Client ID:	PBW	Batch ID:	R109919	TestNo:	EPA 218.6			Analysis Date:	8/8/2016	SeqNo:	2398113			
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-R109919	SampType:	LCS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	109919			
Client ID:	LCSW	Batch ID:	R109919	TestNo:	EPA 218.6			Analysis Date:	8/8/2016	SeqNo:	2398114			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 4.965 0.20 5.000 0 99.3 90 110

Sample ID	N020532-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	109919			
Client ID:	ZZZZZZ	Batch ID:	R109919	TestNo:	EPA 218.6			Analysis Date:	8/8/2016	SeqNo:	2398116			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 1.799 0.20 1.000 0.8047 99.4 90 110

Sample ID	N020534-001BMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	109919		
Client ID:	ZZZZZZ	Batch ID:	R109919	TestNo:	EPA 218.6			Analysis Date:	8/8/2016	SeqNo:	2398118		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 976.870 20 500.0 470.5 101 90 110

Sample ID	N020534-002CMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	109919			
Client ID:	ZZZZZZ	Batch ID:	R109919	TestNo:	EPA 218.6			Analysis Date:	8/8/2016	SeqNo:	2398120			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 1.188 0.20 1.000 0.1375 105 90 110

Qualifiers:

- | | | | | | |
|----|---|--------------------------------------|--------------------------------------|---|--|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
| ND | Not Detected at the Reporting Limit | R | RPD outside accepted recovery limits | S | Spike/Surrogate outside of limits due to matrix interference |
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CLIENT: CH2M HILL
Work Order: N020534
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N020532-001ADUP	SampType:	DUP	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	109919		
Client ID:	ZZZZZZ	Batch ID:	R109919	TestNo:	EPA 218.6			Analysis Date:	8/8/2016	SeqNo:	2398125		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	0.814	0.20								0.8047	1.11	20	
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Sample ID	N020534-001BMSD	SampType:	MSD	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	109919		
Client ID:	ZZZZZZ	Batch ID:	R109919	TestNo:	EPA 218.6			Analysis Date:	8/8/2016	SeqNo:	2398147		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	982.070	20	500.0	470.5	102	90	110	976.9	0.531	20			
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Qualifiers:

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



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ANALYTICAL RESULTS
Print Date: 18-Aug-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-100B-WDR-543
Lab Order:	N020534	Collection Date:	8/3/2016 7:25:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N020534-001		

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

TURBIDITY
SM 2130B

RunID: WETCHEM_160804C	QC Batch: R109818	PrepDate	Analyst: LR
Turbidity	0.17 0.10	0.10	NTU 1 8/4/2016 09:45 AM

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


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 P: 702.307.2659 F: 702.307.2691

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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 18-Aug-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-700B-WDR-543
Lab Order:	N020534	Collection Date:	8/3/2016 7:25:00 AM
Project:	PG&E Topock, 658274.01.IM.OP.00	Matrix:	WATER
Lab ID:	N020534-002		

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

TURBIDITY
SM 2130B

RunID: WETCHEM_160804C	QC Batch: R109818	PrepDate	Analyst: LR
Turbidity	0.21 0.10 0.10	NTU	1 8/4/2016 09:45 AM

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


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CLIENT: CH2M HILL
Work Order: N020534
Project: PG&E Topock, 658274.01.IM.OP.00

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

Sample ID	MB-R109818	SampType:	MBLK	TestCode:	2130_W	Units:	NTU	Prep Date:		RunNo:	109818	
Client ID:	PBW	Batch ID:	R109818	TestNo:	SM 2130B			Analysis Date:	8/4/2016	SeqNo:	2392746	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity		ND	0.10									

Sample ID	N020534-001ADUP	SampType:	DUP	TestCode:	2130_W	Units:	NTU	Prep Date:		RunNo:	109818	
Client ID:	ZZZZZZ	Batch ID:	R109818	TestNo:	SM 2130B			Analysis Date:	8/4/2016	SeqNo:	2392748	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity		0.180	0.10						0.1700	5.71	30	

Sample ID	N020534-002BDUP	SampType:	DUP	TestCode:	2130_W	Units:	NTU	Prep Date:		RunNo:	109818	
Client ID:	ZZZZZZ	Batch ID:	R109818	TestNo:	SM 2130B			Analysis Date:	8/4/2016	SeqNo:	2392750	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity		0.200	0.10						0.2100	4.88	30	

Qualifiers:

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



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 18-Aug-16

CLIENT: CH2M HILL
Lab Order: N020534
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N020534-002

Client Sample ID: SC-700B-WDR-543
Collection Date: 8/3/2016 7:25:00 AM
Matrix: WATER

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

ANIONS BY ION CHROMATOGRAPHY
EPA 300.0

RunID: IC2_160809A	QC Batch: R109934				PrepDate		Analyst: QBM
Fluoride	2.2	0.087	0.50		mg/L	5	8/9/2016 10:56 AM

ANIONS BY ION CHROMATOGRAPHY
EPA 300.0

RunID: IC2_160809A	QC Batch: R109934				PrepDate		Analyst: QBM
Sulfate	440	3.3	25		mg/L	50	8/9/2016 02:40 PM

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



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CLIENT: CH2M HILL
Work Order: N020534
Project: PG&E Topock, 658274.01.IM.OP.00

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

Sample ID MB-R109934_F	SampType: MBLK	TestCode: 300_W_FPG	Units: mg/L	Prep Date:	RunNo: 109934
Client ID: PBW	Batch ID: R109934	TestNo: EPA 300.0		Analysis Date: 8/9/2016	SeqNo: 2399121
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Fluoride ND 0.10

Sample ID LCS-R109934_F	SampType: LCS	TestCode: 300_W_FPG	Units: mg/L	Prep Date:	RunNo: 109934
Client ID: LCSW	Batch ID: R109934	TestNo: EPA 300.0		Analysis Date: 8/9/2016	SeqNo: 2399122
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Fluoride 2.372 0.10 2.500 0 94.9 90 110

Sample ID N020534-002BDUP	SampType: DUP	TestCode: 300_W_FPG	Units: mg/L	Prep Date:	RunNo: 109934
Client ID: ZZZZZZ	Batch ID: R109934	TestNo: EPA 300.0		Analysis Date: 8/9/2016	SeqNo: 2399124
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Fluoride 2.240 0.50 2.250 0.445 20

Sample ID N020534-002BMS	SampType: MS	TestCode: 300_W_FPG	Units: mg/L	Prep Date:	RunNo: 109934
Client ID: ZZZZZZ	Batch ID: R109934	TestNo: EPA 300.0		Analysis Date: 8/9/2016	SeqNo: 2399125
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Fluoride 14.005 0.50 12.50 2.250 94.0 80 120

Sample ID N020534-002BMSD	SampType: MSD	TestCode: 300_W_FPG	Units: mg/L	Prep Date:	RunNo: 109934
Client ID: ZZZZZZ	Batch ID: R109934	TestNo: EPA 300.0		Analysis Date: 8/9/2016	SeqNo: 2399126
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Fluoride 14.000 0.50 12.50 2.250 94.0 80 120 14.00 0.0357 20

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
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DO	Surrogate Diluted Out	Calculations are based on raw values			



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CLIENT: CH2M HILL
Work Order: N020534
Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	MB-R109934_SO4	SampType:	MBLK	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	109934			
Client ID:	PBW	Batch ID:	R109934	TestNo:	EPA 300.0			Analysis Date:	8/9/2016	SeqNo:	2399176			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate ND 0.50

Sample ID	LCS-R109934_SO4	SampType:	LCS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	109934			
Client ID:	LCSW	Batch ID:	R109934	TestNo:	EPA 300.0			Analysis Date:	8/9/2016	SeqNo:	2399177			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 4.732 0.50 5.000 0 94.6 90 110

Sample ID	N020544-001ADUP	SampType:	DUP	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	109934			
Client ID:	ZZZZZZ	Batch ID:	R109934	TestNo:	EPA 300.0			Analysis Date:	8/9/2016	SeqNo:	2399189			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 49.140 5.0 48.90 0.490 20

Sample ID	N020544-002AMS	SampType: MS	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 109934					
Client ID: ZZZZZZ	Batch ID: R109934	TestNo: EPA 300.0	Analysis Date: 8/9/2016	SeqNo: 2399190							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 109.070 5.0 50.00 59.32 99.5 80 120

Sample ID	N020544-002AMSD	SampType:	MSD	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	109934			
Client ID:	ZZZZZZ	Batch ID:	R109934	TestNo:	EPA 300.0			Analysis Date:	8/9/2016	SeqNo:	2399191			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 112.150 5.0 50.00 59.32 106 80 120 109.1 2.78 20

Qualifiers:

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



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 18-Aug-16

CLIENT: CH2M HILL
Lab Order: N020534
Project: PG&E Topock, 658274.01.IM.OP.00
Lab ID: N020534-002

Client Sample ID: SC-700B-WDR-543
Collection Date: 8/3/2016 7:25:00 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: WETCHEM_160815G	QC Batch: R110062				PrepDate		Analyst: RB
Nitrate/Nitrite as N	2.5	0.11	0.25		mg/L	5	8/15/2016

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



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CLIENT: CH2M HILL
Work Order: N020534
Project: PG&E Topock, 658274.01.IM.OP.00

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

Sample ID MB-R110062	SampType: MBLK	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 110062
Client ID: PBW	Batch ID: R110062	TestNo: SM4500-NO3		Analysis Date: 8/15/2016	SeqNo: 2405909
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-R110062	SampType: LCS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 110062
Client ID: LCSW	Batch ID: R110062	TestNo: SM4500-NO3		Analysis Date: 8/15/2016	SeqNo: 2405910
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nitrate/Nitrite as N 0.511 0.050 0.5000 0 102 85 115

Sample ID N020532-001DDUP	SampType: DUP	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 110062
Client ID: ZZZZZZ	Batch ID: R110062	TestNo: SM4500-NO3		Analysis Date: 8/15/2016	SeqNo: 2405912
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nitrate/Nitrite as N 0.044 0.050 0.03350 0 20

Sample ID N020532-001DMS	SampType: MS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 110062
Client ID: ZZZZZZ	Batch ID: R110062	TestNo: SM4500-NO3		Analysis Date: 8/15/2016	SeqNo: 2405913
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nitrate/Nitrite as N 0.541 0.050 0.5000 0.03350 102 75 125

Sample ID N020532-001DMSD	SampType: MSD	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 110062
Client ID: ZZZZZZ	Batch ID: R110062	TestNo: SM4500-NO3		Analysis Date: 8/15/2016	SeqNo: 2405915
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nitrate/Nitrite as N 0.528 0.050 0.5000 0.03350 98.9 75 125 0.5410 2.47 20

Qualifiers:

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




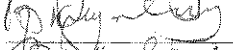
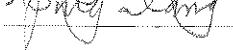



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Project Name PG&E Topock Location PG&E Topock Project Number 658274.01.IM.OP.00 Project Manager Scott O'Donnell Sample Manager Shawn Duffy Task Order Project IM3PLANT-ARAR-WDR-543 Turnaround Time 10 Days Shipping Date: COC Number: 543			Container: 1 Liter Poly 1 Liter Poly 1 Liter Poly 250 ml Poly 1 Liter Poly 1 Liter Poly 500 ml Poly 500 ml Poly 1 Liter Poly	Preservatives: 4°C Lab H2SO4 4°C 4°C 4°C 4°C Lab H2SO4 4°C 4°C 4°C 4°C	Filtered: NA NA NA NA NA NA NA NA NA	Holding Time: 28 7 7 1 28 7 180 180 7	AMMONIA (SM4500NH3D) Anions (E300.0) FI, SO4 CONDUCTIVITY (E120.1) E218.6 Lab Filtered Nitrate/Nitrite (SM4500NO3-E) TDS (SM2540C) Total Metals(E200.7 and E200.8) Total Metals(E200.8) Cr & Mn Turbidity (SM2130)	Number of Containers	COMMENTS					
DATE TIME Matrix														
SC-100B-WDR-543	8-3-16	7:25	Water			X	X		X		X	N020534 - 01	3	
SC-700B-WDR-543	8-3-16	7:25	Water	X	X	X	X	X	X		X	- 02	4	
TOTAL NUMBER OF CONTAINERS													7	

Approved by		Signatures	Date/Time	8-3-16 7:25	Shipping Details
Sampled by			8-3-16 7:25		Method of Shipment: FedEx
Relinquished by			8-3-16 12:30		On Ice: <input checked="" type="checkbox"/> yes / no <input type="checkbox"/> 8-16
Received by			8/3/16 12:30		Airbill No:
Relinquished by			8/3/16 22:40		Lab Name: ASSET Laboratories
Received by					Lab Phone: (702) 307-2659

ATTN:

Sample Custody and
Glen Gesmundo

Special Instructions:
Total metals List:
Cr,Al,Sb,As,Ba,B,Cu,Pb,Mn,Mo,Ni,Fe,Zn

Report Copy to
Shawn Duffy
(530) 229-3303

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.

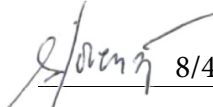
Cooler Received/Opened On: 8/3/2016 Workorder: N020534
 Rep sample Temp (Deg C): 3.1 IR Gun ID: 2
 Temp Blank: ☒ Yes ☐ No
 Carrier name: ASSET
 Last 4 digits of Tracking No.: NA Packing Material Used: None
 Cooling process: ☒ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

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

Comments: Samples for Cr 6+ were lab filtered and preserved.
 Samples for Ammonia, Nitrate/Nitrite and Metals were lab preserved.

For:
 Checklist Completed By: HG  8/4/2016

Reviewed By:  8/4/2016

**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 #:

Field Sampler:

04-Aug-16


Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests		
				SM4500-NH3D		
N020534-002A / SC-700B-WDR-543	Water	8/3/2016 7:25:00 AM	32OZP	1		

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

Please use PO#: N20534A 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.

GSO #: 532827592

		Date/Time			Date/Time
Relinquished by:		8/4/2016 17:00	Received by:		
Relinquished by:			Received by:		

List of Analysts

ASSET Laboratories Work Order: **N020534**

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



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REPORT

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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.: 16H0117

Printed: 08/30/2016

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 August 5, 2016, intact and in chilled condition. The samples 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
N020534-002A / SC-700B-WDR-543	16H0117-01	Water	Grab	08/03/2016 07:25	08/05/2016 10:25

DEFINITIONS

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

Respectfully yours,

Shelly Brady
Customer Service Manager



Client: Advanced Technology Laboratories-N

Project Name: ATL-NV

Printed: 08/30/2016

N020534-002A / SC-700B-WDR-543

16H0117-01 (Water)

Analyte	Result	RL	Units	DF	Batch	Analyzed	Analyst	Method	Notes
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Truesdail Laboratories, Inc

Wet Chemistry

Ammonia	0.0609	0.0500	mg/L	1	1608292	08/15/2016 14:00	Alexander Luna	SM 4500-NH3 D M	
---------	--------	--------	------	---	---------	------------------	----------------	-----------------	--



Client: Advanced Technology Laboratories-N

Project Name: ATL-NV

Printed: 08/30/2016

QUALITY CONTROL
Wet Chemistry
Truesdail Laboratories, Inc

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

Batch: 1608292 - SM 4500-NH3 D M**Blank (1608292-BLK1)**

Prepared & Analyzed: 8/15/2016

Ammonia	ND	0.0500	mg/L
---------	----	--------	------

LCS (1608292-BS1)

Prepared & Analyzed: 8/15/2016

Ammonia	0.409	0.0500	mg/L	0.400	102	90-110
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Duplicate (1608292-DUP1)**Source: 16H0117-01**

Prepared & Analyzed: 8/15/2016

Ammonia	0.0575	0.0500	mg/L	0.0609	6	20
---------	--------	--------	------	--------	---	----

Matrix Spike (1608292-MS1)**Source: 16H0117-01**

Prepared & Analyzed: 8/15/2016

Ammonia	0.492	0.0500	mg/L	0.400	0.0609	108	75-125
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Matrix Spike Dup (1608292-MSD1)**Source: 16H0117-01**

Prepared & Analyzed: 8/15/2016

Ammonia	0.499	0.0500	mg/L	0.400	0.0609	109	75-125	1	20
---------	-------	--------	------	-------	--------	-----	--------	---	----

ANALYSIS DATA SHEET

Inorganics

Client: Advanced Technology Laboratories-NV
Client Sample ID: N020534-002A / SC-700B-WDR-543
Lab Sample ID: 16H0117-01
Project: ATL-NV

Date Sampled: 08/03/16 07:25 Matrix: Water

CAS NO.	Analyte	Concentration (mg/L)	MDL	RL	DF	Q	Analyst	Analyzed	Method
7664-41-7	Ammonia	0.0609	0.0111	0.0500	1		AL	08/15/16 14:00	SM 4500-NH3 D M

METHOD BLANK DATA SHEET

SM 4500-NH3 D M

Client: Advanced Technology Laboratories-NV

Project: ATL-NV

Laboratory ID: 1608292-BLK1

Prepared: 08/15/16 11:12

Preparation: SM 4500-NH3 D M

Matrix: Water

Analyzed: 08/15/16 13:51

Instrument: TL01

File ID: 6H15001-008

Batch: 1608292

Sequence: 6H15001

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: 16H0117

Matrix: Water
Prep Batch: 1608292
Prep Method: SM 4500-NH3 D M
Lab Sample ID: 1608292-BS1

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Ammonia	0.400	0.409	102	90 - 110

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

N020534-002A / SC-700B-WDR-543

Client: Advanced Technology Laboratories-NV
Project: ATL-NV
Work Order: 16H0117

Matrix: Water
Prep Batch: 1608292
Analysis Method: SM 4500-NH3 D M
Prep Method: SM 4500-NH3 D M
Laboratory ID: 1608292-MS1
Source Sample ID: 16H0117-01

ANALYTE	SPIKE ADDED (mg/L)	SAMPLE CONCENTRATION (mg/L)	MS CONCENTRATION (mg/L)	MS % REC.	QC LIMITS REC.
Ammonia	0.400	0.0609	0.492	108	75 - 125

ANALYTE	SPIKE ADDED (mg/L)	MSD CONCENTRATION (mg/L)	MSD % REC. #	% RPD	QC LIMITS RPD	REC.
Ammonia	0.400	0.499	109	1	20	75 - 125

* Values outside of QC limits

DUPLICATES

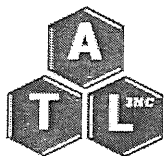
N020534-002A / SC-700B-WDR-543

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

Matrix:	Water	Laboratory ID:	1608292-DUP1
Prep Batch:	1608292	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	0.0609	0.0575	6		20

1640117


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:

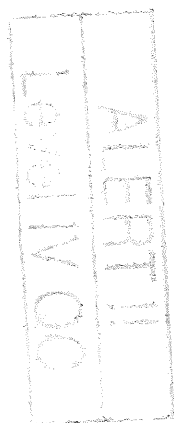
 Truesdail
 3337 Michelson Drive, Suite CN750
 Irvine, CA 92612

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

Field Sampler:

04-Aug-16

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests		
				SM4500-NH3D		
N020534-002A / SC-700B-WDR-543	Water	8/3/2016 7:25:00 AM	32OZP	1		



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

Please use PO#: N20534A 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.

GSO #: 532827592

		Date/Time			Date/Time
Relinquished by:	<i>YR</i>	8/4/2016 17:00	Received by:	<i>Stephane Reed</i>	8/5/16 10:25
Relinquished by:			Received by:		

Wet Ice 64°C

Log-in check list For level III data package

Client: ATLLab Number: 1640117

Received Date: _____

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>Michelle Reed</u>				

16H0117

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: 08/16/2016 16:30 (7 day TAT)

Received By: Michelle Reed

Logged In By: Michelle Reed

Date Received: 08/05/2016 10:25

Date Logged In: 08/05/2016 10:26

Samples Received at: 6.4°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
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16H0117-01 N020534-002A / SC-700B-WDR-543 [Water] Sampled 08/03/2016
07:25 (GMT-08:00) Pacific Time (US &

Ammonia E	08/16/2016 08:00	7	08/31/2016 07:25	
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Reviewed By

Date

August 29, 2016

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

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

CA-ELAP No.: 2676
NV Cert. No.: NV-00922

Workorder No.: N020647

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

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on August 12, 2016 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,



Puri Romualdo
Laboratory Director

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



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NEVADA
3151 W. Post Rd., Las Vegas, NV 89118
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"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Project: PG&E Topock, 680375.02.IM.OP.00
Lab Order: N020647

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:

Because the results for total chromium (1.4 ug/L) and hexavalent chromium (0.25 ug/L) for sample N020647-001 (SC-700B-WDR-544) are discrepant, sample from both the total chromium and hexavalent chromium containers were redigested and analyzed for total chromium. The results from the redigested samples were 1.4 and 0.36 ug/L, respectively. Since these data confirmed the original result for total chromium, the original result is reported.

Dilution was necessary on some analytes for sample N020647-001 and QC samples N020654-001B-MS, N020654-001B-MSD due to associated internal standard not meeting method criteria possibly due to matrix interference. Sample and QC samples were analyzed with dilution and internal standard met method criteria. Affected analytes for this failed internal standard were reported at dilution that meet internal standard recovery limit.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for some analytes on QC samples N020654-001B-MS and N020654-001B-MSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 218.6

Because the results for total chromium (1.4 ug/L) and hexavalent chromium (0.25 ug/L) for sample



CLIENT: CH2M HILL
Project: PG&E Topock, 680375.02.IM.OP.00
Lab Order: N020647

CASE NARRATIVE

N020647-001 (SC-700B-WDR-544) are discrepant, sample re-analysis and Matrix Spike protocol were performed and result confirmed initial analysis.



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Page 3 of 5
N020647-001
3151 W. Post Rd., Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691

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ASSET Laboratories

Date: 29-Aug-16

CLIENT: CH2M HILL
Project: PG&E Topock, 680375.02.IM.OP.00
Lab Order: N020647
Contract No: IM3PLANT-AR

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N020647-001A	SC-700B-WDR-544	Water	8/11/2016 3:25:00 PM	8/12/2016	8/29/2016
N020647-001B	SC-700B-WDR-544	Water	8/11/2016 3:25:00 PM	8/12/2016	8/29/2016
N020647-001C	SC-700B-WDR-544	Water	8/11/2016 3:25:00 PM	8/12/2016	8/29/2016
N020647-001D	SC-700B-WDR-544	Water	8/11/2016 3:25:00 PM	8/12/2016	8/29/2016
N020647-001E	SC-700B-WDR-544	Water	8/11/2016 3:25:00 PM	8/12/2016	8/29/2016



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 29-Aug-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-700B-WDR-544
Lab Order:	N020647	Collection Date:	8/11/2016 3:25:00 PM
Project:	PG&E Topock, 680375.02.IM.OP.00	Matrix:	WATER
Lab ID:	N020647-001		

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

RunID: WETCHEM_160812C	QC Batch: R109988	PrepDate	Analyst: LR			
Specific Conductance	6500	0.10	0.10	umhos/cm	1	8/12/2016 09:25 AM

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

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CLIENT: CH2M HILL
Work Order: N020647
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	N020647-001BDUP	SampType:	DUP	TestCode:	120.1_WPGE	Units:	umhos/cm	Prep Date:		RunNo:	109988		
Client ID:	ZZZZZZ	Batch ID:	R109988	TestNo:	EPA 120.1			Analysis Date:	8/12/2016	SeqNo:	2401705		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance		6540.000		0.10						6520	0.306	10	

Qualifiers:

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



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 29-Aug-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-700B-WDR-544
Lab Order:	N020647	Collection Date:	8/11/2016 3:25:00 PM
Project:	PG&E Topock, 680375.02.IM.OP.00	Matrix:	WATER
Lab ID:	N020647-001		

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

RunID: WETCHEM_160815E	QC Batch: 59383	PrepDate	8/15/2016	Analyst: LR
Total Dissolved Solids (Residue, Filterable)	3900	50	50	mg/L
			1	8/15/2016 01:04 PM

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


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CLIENT: CH2M HILL
Work Order: N020647
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	LCS-59383	SampType:	LCS	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	8/15/2016	RunNo:	110043			
Client ID:	LCSW	Batch ID:	59383	TestNo:	SM2540C			Analysis Date:	8/15/2016	SeqNo:	2405181			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		960.000		10	1000	0		96.0	80	120				

Sample ID	MBLK-59383	SampType:	MBLK	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	8/15/2016	RunNo:	110043			
Client ID:	PBW	Batch ID:	59383	TestNo:	SM2540C			Analysis Date:	8/15/2016	SeqNo:	2405182			
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	N020647-001BDUP	SampType:	DUP	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	8/15/2016	RunNo:	110043			
Client ID:	ZZZZZZ	Batch ID:	59383	TestNo:	SM2540C			Analysis Date:	8/15/2016	SeqNo:	2405192			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		3825.000		50							3890	1.69	5	

Qualifiers:

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



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 29-Aug-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-700B-WDR-544
Lab Order:	N020647	Collection Date:	8/11/2016 3:25:00 PM
Project:	PG&E Topock, 680375.02.IM.OP.00	Matrix:	WATER
Lab ID:	N020647-001		

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

TOTAL METALS BY ICP
EPA 200.7

RunID: ICP2_160818C	QC Batch: 59418	PrepDate	8/18/2016	Analyst: CEI
Aluminum	ND	2.7	50	µg/L
Boron	1100	38	100	µg/L
Iron	60	1.8	20	µg/L

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


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CLIENT: CH2M HILL
 Work Order: N020647
 Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WPGEPBP

Sample ID	N020647-001E-MS	SampType:	MS	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	8/18/2016	RunNo:	110110
Client ID:	ZZZZZZ	Batch ID:	59418	TestNo:	EPA 200.7			Analysis Date:	8/18/2016	SeqNo:	2408185
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aluminum	11655.752	50	10000	0	117	75	125				
Iron	171.501	20	100.0	60.24	111	75	125				

Sample ID	N020647-001E-MSD	SampType:	MSD	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	8/18/2016	RunNo:	110110
Client ID:	ZZZZZZ	Batch ID:	59418	TestNo:	EPA 200.7			Analysis Date:	8/18/2016	SeqNo:	2408186
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aluminum	11515.584	50	10000	0	115	75	125	11660	1.21	20	
Iron	167.622	20	100.0	60.24	107	75	125	171.5	2.29	20	

Sample ID	MB-59418	SampType:	MBLK	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	8/18/2016	RunNo:	110110
Client ID:	PBW	Batch ID:	59418	TestNo:	EPA 200.7			Analysis Date:	8/18/2016	SeqNo:	2408187
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aluminum	ND	50									
Iron	1.818	20									

Sample ID	LCS-59418	SampType:	LCS	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	8/18/2016	RunNo:	110110
Client ID:	LCSW	Batch ID:	59418	TestNo:	EPA 200.7			Analysis Date:	8/18/2016	SeqNo:	2408188
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Aluminum	9943.367	50	10000	0	99.4	85	115				
Iron	106.395	20	100.0	0	106	85	115				

Sample ID	MB-59418	SampType:	MBLK	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	8/18/2016	RunNo:	110131
Client ID:	PBW	Batch ID:	59418	TestNo:	EPA 200.7			Analysis Date:	8/19/2016	SeqNo:	2409387
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

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



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"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Work Order: N020647
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WPGEPBB

Sample ID	MB-59418	SampType:	MBLK	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	8/18/2016	RunNo:	110131			
Client ID:	PBW	Batch ID:	59418	TestNo:	EPA 200.7			Analysis Date:	8/19/2016	SeqNo:	2409387			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Boron ND 100

Sample ID	LCS-59418	SampType:	LCS	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	8/18/2016	RunNo:	110131			
Client ID:	LCSW	Batch ID:	59418	TestNo:	EPA 200.7			Analysis Date:	8/19/2016	SeqNo:	2409388			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Boron 5150.457 100 5000 0 103 85 115

Sample ID	N020647-001E-MS	SampType: MS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 8/18/2016	RunNo: 110131					
Client ID:	ZZZZZZ	Batch ID: 59418	TestNo: EPA 200.7		Analysis Date: 8/19/2016	SeqNo: 2409392					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Boron 6727.930 100 5000 1075 113 75 125

Sample ID	N020647-001E-MSD	SampType:	MSD	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	8/18/2016	RunNo:	110131		
Client ID:	ZZZZZZ	Batch ID:	59418	TestNo:	EPA 200.7			Analysis Date:	8/19/2016	SeqNo:	2409393		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Boron 6741.352 100 5000 1075 113 75 125 6728 0.199 20

Qualifiers:

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



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 29-Aug-16

CLIENT: CH2M HILL
Lab Order: N020647
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N020647-001

Client Sample ID: SC-700B-WDR-544
Collection Date: 8/11/2016 3:25:00 PM
Matrix: WATER

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

RunID: ICP7_160817A	QC Batch: 59410	PrepDate	8/17/2016	Analyst: CEI
Antimony	ND 0.16	2.5	µg/L	5 8/17/2016 03:30 PM
Arsenic	0.11 0.025	0.10	µg/L	1 8/17/2016 02:46 PM
Barium	14 0.35	5.0	µg/L	5 8/17/2016 03:30 PM
Copper	ND 0.26	1.0	µg/L	1 8/17/2016 02:46 PM
Lead	ND 0.92	25	µg/L	25 8/17/2016 03:36 PM
Manganese	93 0.056	0.50	µg/L	1 8/17/2016 02:46 PM
Molybdenum	25 0.19	2.5	µg/L	5 8/17/2016 03:30 PM
Nickel	2.6 0.040	1.0	µg/L	1 8/17/2016 02:46 PM
Zinc	ND 0.27	10	µg/L	1 8/17/2016 02:46 PM

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



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CLIENT: CH2M HILL
Work Order: N020647
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	MB-59410	SampType:	MBLK	TestCode:	200.8_W	Units:	µg/L	Prep Date:	8/17/2016	RunNo:	110085		
Client ID:	PBW	Batch ID:	59410	TestNo:	EPA 200.8			Analysis Date:	8/17/2016	SeqNo:	2407137		
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	0.887	10									

Sample ID	LCS-59410	SampType:	LCS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	8/17/2016	RunNo:	110085		
Client ID:	LCSW	Batch ID:	59410	TestNo:	EPA 200.8			Analysis Date:	8/17/2016	SeqNo:	2407138		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Antimony	10.153	0.50	10.00	0	102	85	115				
Arsenic	10.146	0.10	10.00	0	101	85	115				
Barium	106.345	1.0	100.0	0	106	85	115				
Copper	9.954	1.0	10.00	0	99.5	85	115				
Lead	10.294	1.0	10.00	0	103	85	115				
Manganese	99.801	0.50	100.0	0	99.8	85	115				
Molybdenum	10.156	0.50	10.00	0	102	85	115				
Nickel	10.229	1.0	10.00	0	102	85	115				
Zinc	104.448	10	100.0	0	104	85	115				

Sample ID	N020654-001B-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	8/17/2016	RunNo:	110085		
Client ID:	ZZZZZZ	Batch ID:	59410	TestNo:	EPA 200.8			Analysis Date:	8/17/2016	SeqNo:	2407145		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N020647
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	N020654-001B-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	8/17/2016	RunNo:	110085
Client ID:	ZZZZZZ	Batch ID:	59410	TestNo:	EPA 200.8			Analysis Date:	8/17/2016	SeqNo:	2407145
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Antimony	9.223	0.50	10.00	0.1183	91.0	75	125				
Arsenic	11.719	0.10	10.00	2.344	93.8	75	125				
Barium	105.383	1.0	100.0	8.837	96.5	75	125				
Copper	6.960	1.0	10.00	0	69.6	75	125				S
Manganese	79.514	0.50	100.0	0	79.5	75	125				
Nickel	8.750	1.0	10.00	0.7282	80.2	75	125				
Zinc	84.672	10	100.0	20.50	64.2	75	125				S

Sample ID	N020654-001B-MSD	SampType:	MSD	TestCode:	200.8_W	Units:	µg/L	Prep Date:	8/17/2016	RunNo:	110085
Client ID:	ZZZZZZ	Batch ID:	59410	TestNo:	EPA 200.8			Analysis Date:	8/17/2016	SeqNo:	2407146
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Antimony	9.154	0.50	10.00	0.1183	90.4	75	125	9.223	0.755	20	
Arsenic	11.797	0.10	10.00	2.344	94.5	75	125	11.72	0.659	20	
Barium	105.421	1.0	100.0	8.837	96.6	75	125	105.4	0.0362	20	
Copper	6.874	1.0	10.00	0	68.7	75	125	6.960	1.25	20	S
Manganese	79.498	0.50	100.0	0	79.5	75	125	79.51	0.0200	20	
Nickel	8.865	1.0	10.00	0.7282	81.4	75	125	8.750	1.30	20	
Zinc	83.255	10	100.0	20.50	62.8	75	125	84.67	1.69	20	S

Sample ID	N020654-001B-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	8/17/2016	RunNo:	110085
Client ID:	ZZZZZZ	Batch ID:	59410	TestNo:	EPA 200.8			Analysis Date:	8/17/2016	SeqNo:	2407151
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead	7.656	5.0	10.00	0	76.6	75	125				
Molybdenum	35.951	2.5	10.00	27.57	83.8	75	125				

Qualifiers:

- | | | | | | |
|----|---|--------------------------------------|--------------------------------------|---|--|
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CLIENT: CH2M HILL
Work Order: N020647
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	N020654-001B-MSD	SampType:	MSD	TestCode:	200.8_W	Units:	µg/L	Prep Date:	8/17/2016	RunNo:	110085		
Client ID:	ZZZZZZ	Batch ID:	59410	TestNo:	EPA 200.8			Analysis Date:	8/17/2016	SeqNo:	2407154		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum		36.223		2.5	10.00	27.57	86.5	75	125	35.95	0.753	20	

Sample ID	N020654-001B-MSD	SampType: MSD	TestCode: 200.8_W	Units: µg/L	Prep Date: 8/17/2016	RunNo: 110160					
Client ID: ZZZZZZ	Batch ID: 59410	TestNo: EPA 200.8	Analysis Date: 8/19/2016	SeqNo: 2410357							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	7.795	5.0	10.00	0	77.9	75	125	7.656	1.79	20	

Qualifiers:

- | | | | | | |
|----|---|--------------------------------------|--------------------------------------|---|--|
| B | Analyte detected in the associated Method Blank | E | Value above quantitation range | H | Holding times for preparation or analysis exceeded |
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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 29-Aug-16

CLIENT: CH2M HILL
Lab Order: N020647
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N020647-001

Client Sample ID: SC-700B-WDR-544
Collection Date: 8/11/2016 3:25:00 PM
Matrix: WATER

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

RunID: IC7_160812B	QC Batch: R110008				PrepDate		Analyst: RB
Hexavalent Chromium	0.25	0.066	0.20		µg/L	1	8/12/2016 07:55 AM

TOTAL METALS BY ICPMS
EPA 200.8

RunID: ICP7_160817A	QC Batch: 59410				PrepDate	8/17/2016	Analyst: CEI
Chromium	1.4	0.019	1.0		µg/L	1	8/17/2016 02:46 PM

Qualifiers: B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
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 DO Surrogate Diluted Out
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CLIENT: CH2M HILL
Work Order: N020647
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	MB-59410	SampType:	MBLK	TestCode:	200.8_W_CR	Units:	µg/L	Prep Date:	8/17/2016	RunNo:	110085		
Client ID:	PBW	Batch ID:	59410	TestNo:	EPA 200.8			Analysis Date:	8/17/2016	SeqNo:	2407078		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		ND		1.0									

Sample ID	LCS-59410	SampType:	LCS	TestCode:	200.8_W_CR	Units:	µg/L	Prep Date:	8/17/2016	RunNo:	110085		
Client ID:	LCSW	Batch ID:	59410	TestNo:	EPA 200.8			Analysis Date:	8/17/2016	SeqNo:	2407079		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		9.928		1.0	10.00	0	99.3	85	115				

Sample ID	N020654-001B-MS	SampType:	MS	TestCode:	200.8_W_CR	Units:	µg/L	Prep Date:	8/17/2016	RunNo:	110085		
Client ID:	ZZZZZZ	Batch ID:	59410	TestNo:	EPA 200.8			Analysis Date:	8/17/2016	SeqNo:	2407086		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		8.452		1.0	10.00	0.5481	79.0	75	125				

Sample ID	N020654-001B-MSD	SampType:	MSD	TestCode:	200.8_W_CR	Units:	µg/L	Prep Date:	8/17/2016	RunNo:	110085		
Client ID:	ZZZZZZ	Batch ID:	59410	TestNo:	EPA 200.8			Analysis Date:	8/17/2016	SeqNo:	2407087		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		8.494		1.0	10.00	0.5481	79.5	75	125	8.452	0.497	20	

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N020647
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID	MB-R110008	SampType:	MBLK	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	110008			
Client ID:	PBW	Batch ID:	R110008	TestNo:	EPA 218.6			Analysis Date:	8/12/2016	SeqNo:	2402513			
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-R110008	SampType:	LCS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	110008			
Client ID:	LCSW	Batch ID:	R110008	TestNo:	EPA 218.6			Analysis Date:	8/12/2016	SeqNo:	2402514			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 4.918 0.20 5.000 0 98.4 90 110

Sample ID	N020643-002CDUP	SampType:	DUP	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	110008			
Client ID:	ZZZZZZ	Batch ID:	R110008	TestNo:	EPA 218.6			Analysis Date:	8/12/2016	SeqNo:	2402531			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 7.594 0.20 7.626 0.424 20

Sample ID	N020643-002CMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	110008			
Client ID:	ZZZZZZ	Batch ID:	R110008	TestNo:	EPA 218.6			Analysis Date:	8/12/2016	SeqNo:	2402533			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 12.682 0.20 5.000 7.626 101 90 110

Sample ID	N020643-002CMSD	SampType: MSD	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 110008					
Client ID: ZZZZZZ	Batch ID: R110008	TestNo: EPA 218.6	Analysis Date: 8/12/2016	SeqNo: 2402534							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 12.663 0.20 5.000 7.626 101 90 110 12.68 0.148 20

Qualifiers:

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



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"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Work Order: N020647
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID	N020647-001CMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	110008			
Client ID:	ZZZZZZ	Batch ID:	R110008	TestNo:	EPA 218.6			Analysis Date:	8/12/2016	SeqNo:	2402552			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium		1.248		0.20	1.000	0.2489		99.9	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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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 29-Aug-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-700B-WDR-544
Lab Order:	N020647	Collection Date:	8/11/2016 3:25:00 PM
Project:	PG&E Topock, 680375.02.IM.OP.00	Matrix:	WATER
Lab ID:	N020647-001		

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

RunID: WETCHEM_160812B	QC Batch: R109987	PrepDate	Analyst: LR
Turbidity	0.49 0.10 0.10	NTU	1 8/12/2016 09:35 AM

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

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P: 562.219.7435 F: 562.219.7436NEVADA
3151 W. Post Rd., Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691**"Serving Clients with Passion and Professionalism"**

CLIENT: CH2M HILL
Work Order: N020647
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	MB-R109987	SampType:	MBLK	TestCode:	2130_W	Units:	NTU	Prep Date:		RunNo:	109987		
Client ID:	PBW	Batch ID:	R109987	TestNo:	SM 2130B			Analysis Date:	8/12/2016	SeqNo:	2401701		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity		ND		0.10									

Sample ID	N020647-001BDUP	SampType:	DUP	TestCode:	2130_W	Units:	NTU	Prep Date:		RunNo:	109987		
Client ID:	ZZZZZZ	Batch ID:	R109987	TestNo:	SM 2130B			Analysis Date:	8/12/2016	SeqNo:	2401703		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity		0.490		0.10						0.4900	0	30	

Qualifiers:

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



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 29-Aug-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-700B-WDR-544
Lab Order:	N020647	Collection Date:	8/11/2016 3:25:00 PM
Project:	PG&E Topock, 680375.02.IM.OP.00	Matrix:	WATER
Lab ID:	N020647-001		

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

ANIONS BY ION CHROMATOGRAPHY
EPA 300.0

RunID: IC2_160816A	QC Batch: R110059	PrepDate	Analyst: QBM
Fluoride	2.3 0.087	0.50	mg/L 5 8/16/2016 03:14 PM

ANIONS BY ION CHROMATOGRAPHY
EPA 300.0

RunID: IC2_160815A	QC Batch: R110038	PrepDate	Analyst: QBM
Sulfate	400 3.3	25	mg/L 50 8/15/2016 03:48 PM

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


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CLIENT: CH2M HILL
Work Order: N020647
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID MB-R110059_F	SampType: MBLK	TestCode: 300_W_FPG	Units: mg/L	Prep Date:	RunNo: 110059
Client ID: PBW	Batch ID: R110059	TestNo: EPA 300.0		Analysis Date: 8/16/2016	SeqNo: 2405661
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Fluoride ND 0.10

Sample ID LCS-R110059_F	SampType: LCS	TestCode: 300_W_FPG	Units: mg/L	Prep Date:	RunNo: 110059
Client ID: LCSW	Batch ID: R110059	TestNo: EPA 300.0		Analysis Date: 8/16/2016	SeqNo: 2405662
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Fluoride 2.423 0.10 2.500 0 96.9 90 110

Sample ID N020647-001BDUP	SampType: DUP	TestCode: 300_W_FPG	Units: mg/L	Prep Date:	RunNo: 110059
Client ID: ZZZZZZ	Batch ID: R110059	TestNo: EPA 300.0		Analysis Date: 8/16/2016	SeqNo: 2405677
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Fluoride 2.165 0.50 2.275 4.95 20

Sample ID N020647-001BMS	SampType: MS	TestCode: 300_W_FPG	Units: mg/L	Prep Date:	RunNo: 110059
Client ID: ZZZZZZ	Batch ID: R110059	TestNo: EPA 300.0		Analysis Date: 8/16/2016	SeqNo: 2405678
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Fluoride 13.820 0.50 12.50 2.275 92.4 80 120

Sample ID N020666-001BMS	SampType: MS	TestCode: 300_W_FPG	Units: mg/L	Prep Date:	RunNo: 110059
Client ID: ZZZZZZ	Batch ID: R110059	TestNo: EPA 300.0		Analysis Date: 8/16/2016	SeqNo: 2405679
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Fluoride 14.185 0.50 12.50 2.700 91.9 80 120

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N020647
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_FPGE

Sample ID	N020666-001BMSD	SampType:	MSD	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	110059	
Client ID:	ZZZZZZ	Batch ID:	R110059	TestNo:	EPA 300.0			Analysis Date:	8/16/2016	SeqNo:	2405680	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride		14.500	0.50	12.50	2.700	94.4	80	120	14.18	2.20	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
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CLIENT: CH2M HILL
Work Order: N020647
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	MB-R110038_SO4	SampType:	MBLK	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	110038	
Client ID:	PBW	Batch ID:	R110038	TestNo:	EPA 300.0			Analysis Date:	8/15/2016	SeqNo:	2404544	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate ND 0.50

Sample ID	LCS-R110038_SO4	SampType:	LCS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	110038	
Client ID:	LCSW	Batch ID:	R110038	TestNo:	EPA 300.0			Analysis Date:	8/15/2016	SeqNo:	2404545	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 4.700 0.50 5.000 0 94.0 90 110

Sample ID	N020623-004AMS	SampType:	MS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	110038	
Client ID:	ZZZZZZ	Batch ID:	R110038	TestNo:	EPA 300.0			Analysis Date:	8/15/2016	SeqNo:	2404550	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 187.300 10 100.0 90.78 96.5 80 120

Sample ID	N020623-004AMSD	SampType: MSD	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 110038					
Client ID: ZZZZZZ	Batch ID: R110038	TestNo: EPA 300.0	Analysis Date: 8/15/2016	SeqNo: 2404551							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 192.800 10 100.0 90.78 102 80 120 187.3 2.89 20

Sample ID	N020647-001BMS	SampType:	MS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	110038	
Client ID:	ZZZZZZ	Batch ID:	R110038	TestNo:	EPA 300.0			Analysis Date:	8/15/2016	SeqNo:	2404562	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 675.950 25 250.0 400.8 110 80 120

Qualifiers:

- | | | | | | |
|----|---|---|--------------------------------------|---|--|
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CLIENT: CH2M HILL
Work Order: N020647
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	N020623-002ADUP	SampType:	DUP	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	110038		
Client ID:	ZZZZZZ	Batch ID:	R110038	TestNo:	EPA 300.0			Analysis Date:	8/15/2016	SeqNo:	2404829		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate		9772.000		500						10140	3.71	20	

Qualifiers:

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

Print Date: 29-Aug-16

CLIENT:	CH2M HILL	Client Sample ID:	SC-700B-WDR-544
Lab Order:	N020647	Collection Date:	8/11/2016 3:25:00 PM
Project:	PG&E Topock, 680375.02.IM.OP.00	Matrix:	WATER
Lab ID:	N020647-001		

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

RunID: WETCHEM_160815G	QC Batch: R110062	PrepDate	Analyst: RB
Nitrate/Nitrite as N	2.5 0.11	0.25 mg/L	5 8/15/2016

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

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CLIENT: CH2M HILL
Work Order: N020647
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID MB-R110062	SampType: MBLK	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 110062
Client ID: PBW	Batch ID: R110062	TestNo: SM4500-NO3		Analysis Date: 8/15/2016	SeqNo: 2405909
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-R110062	SampType: LCS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 110062
Client ID: LCSW	Batch ID: R110062	TestNo: SM4500-NO3		Analysis Date: 8/15/2016	SeqNo: 2405910
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nitrate/Nitrite as N 0.511 0.050 0.5000 0 102 85 115

Sample ID N020532-001DDUP	SampType: DUP	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 110062
Client ID: ZZZZZZ	Batch ID: R110062	TestNo: SM4500-NO3		Analysis Date: 8/15/2016	SeqNo: 2405912
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nitrate/Nitrite as N 0.044 0.050 0.03350 0 20

Sample ID N020532-001DMS	SampType: MS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 110062
Client ID: ZZZZZZ	Batch ID: R110062	TestNo: SM4500-NO3		Analysis Date: 8/15/2016	SeqNo: 2405913
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nitrate/Nitrite as N 0.541 0.050 0.5000 0.03350 102 75 125

Sample ID N020532-001DMSD	SampType: MSD	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 110062
Client ID: ZZZZZZ	Batch ID: R110062	TestNo: SM4500-NO3		Analysis Date: 8/15/2016	SeqNo: 2405915
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nitrate/Nitrite as N 0.528 0.050 0.5000 0.03350 98.9 75 125 0.5410 2.47 20

Qualifiers:

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



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CH2MHILL

CHAIN OF CUSTODY RECORD

Page 1 OF 1

Project Name PG&E Topock Location PG&E Topock Project Number 680375.02.IM.OP.00 Project Manager Scott O'Donnell Sample Manager Shawn Duffy Task Order Project IM3PLANT-ARAR-WDR-544 Turnaround Time 10 Days Shipping Date: COC Number: 544				Container: 1 Liter Poly 1 Liter Poly 1 Liter Poly 250 ml Poly 1 Liter Poly 1 Liter Poly 500 ml Poly 1 Liter Poly	Preservatives: 4°C Lab H2SO4 4°C 4°C 4°C 4°C Lab H2SO4 4°C 4°C 4°C	Filtered: NA NA NA NA NA NA NA NA	Holding Time: 28 7 7 1 28 7 180 7	AMMONIA (SM4500NH3D) Anions (E300.0) FL SO4 CONDUCTIVITY (E120.1) E218.6 Lab Filtered Nitrate/Nitrite (SM4500NO3-E) TDS (SM2540C) Total Metals (E200.7 and E200.8) Turbidity (SM2130)	Number of Containers COMMENTS				
DATE SC-700B-WDR-544	TIME 8-11-16	Matrix 15:25 Water	X	X	X	X	X	X	X	X	N020646 - 01	4	
TOTAL NUMBER OF CONTAINERS											4		

Signatures	Date/Time	Shipping Details
Approved by		
Sampled by <i>Ba Tern</i>	8-11-16 2300	Method of Shipment: Lab Courier
Relinquished by		On Ice: <u>yes</u> / no <i>ICE</i> <i>NA#2</i>
Received by <i>[Signature]</i>	8/11/16 2259	Airbill No: <i>4100</i>
Relinquished by <i>[Signature]</i>	8/21/16 0501	Lab Name: ASSET Laboratories
Received by		Lab Phone: (702) 307-2659

ATTN:

Sample Custody
and
Marlon Cartin

Special Instructions:

Report Copy to
Shawn Duffy
(530) 229-3303

ASSET Laboratories

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

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

Cooler Received/Opened On: 6/12/2016 Workorder: N020647
 Rep sample Temp (Deg C): 4.1 IR Gun ID: 2
 Temp Blank: ☒ Yes ☐ No
 Carrier name: ASSET
 Last 4 digits of Tracking No.: NA Packing Material Used: None
 Cooling process: ☒ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

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

Comments: Samples for Ammonia, NO₂/NO₃ and Total Metals were lab preserved.
 Sample for Hex Chrom was lab filtered and preserved.

Checklist Completed By: MBC For: [Signature] 8/12/2016

Reviewed By: [Signature] 8/15/2016



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 #:

Field Sampler:

12-Aug-16

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests		
				SM4500-NH3D		
N020647-001A / SC-700B-WDR-544	Water	8/11/2016 3:25:00 PM	32OZP	1		

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

Please use PO#:N20647A 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 #: 532935980

Date/Time		Date/Time	
Relinquished by: <u> </u>	<u>8/15/2016 16:00</u>	Received by: <u> </u>	<u> </u>
Relinquished by: <u> </u>	<u> </u>	Received by: <u> </u>	<u> </u>

List of Analysts

ASSET Laboratories Work Order: **N020647**

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



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REPORT

14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(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.: 16H0253

Printed: 08/31/2016

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 August 16, 2016, intact and in chilled condition. The samples 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
N020647-001A / SC-700B-WDR-544	16H0253-01	Water		08/11/2016 15:25	08/16/2016 09:30

DEFINITIONS

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

Respectfully yours,

Shelly Brady
Customer Service Manager



Client: Advanced Technology Laboratories-N

Project Name: ATL-NV

Printed: 08/31/2016

N020647-001A / SC-700B-WDR-544

16H0253-01 (Water)

Analyte	Result	RL	Units	DF	Batch	Analyzed	Analyst	Method	Notes
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Truesdail Laboratories, Inc

Wet Chemistry

Ammonia	0.360	0.0500	mg/L	1	1608458	08/22/2016 15:38	Alexander Luna	SM 4500-NH3 D M	
---------	-------	--------	------	---	---------	------------------	----------------	-----------------	--



Client: Advanced Technology Laboratories-N

Project Name: ATL-NV

Printed: 08/31/2016

QUALITY CONTROL
Wet Chemistry
Truesdail Laboratories, Inc

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

Batch: 1608458 - SM 4500-NH3 D M**Blank (1608458-BLK1)**

Prepared & Analyzed: 8/22/2016

Ammonia	ND	0.0500	mg/L
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LCS (1608458-BS1)

Prepared & Analyzed: 8/22/2016

Ammonia	0.382	0.0500	mg/L	0.400	96	90-110
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Duplicate (1608458-DUP1)**Source: 16H0253-01**

Prepared & Analyzed: 8/22/2016

Ammonia	0.356	0.0500	mg/L	0.360	1	20
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Matrix Spike (1608458-MS1)**Source: 16H0253-01**

Prepared & Analyzed: 8/22/2016

Ammonia	0.813	0.0500	mg/L	0.400	0.360	113	75-125
---------	-------	--------	------	-------	-------	-----	--------

Matrix Spike Dup (1608458-MSD1)**Source: 16H0253-01**

Prepared & Analyzed: 8/22/2016

Ammonia	0.800	0.0500	mg/L	0.400	0.360	110	75-125	2	20
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ANALYSIS DATA SHEET

Inorganics

Client: Advanced Technology Laboratories-NV
Client Sample ID: N020647-001A / SC-700B-WDR-544
Lab Sample ID: 16H0253-01
Project: ATL-NV

Date Sampled: 08/11/16 15:25 Matrix: Water

CAS NO.	Analyte	Concentration (mg/L)	MDL	RL	DF	Q	Analyst	Analyzed	Method
7664-41-7	Ammonia	0.360	0.0111	0.0500	1		AL	08/22/16 15:38	SM 4500-NH3 D M

METHOD BLANK DATA SHEET

SM 4500-NH3 D M

Client: Advanced Technology Laboratories-NV

Project: ATL-NV

Laboratory ID: 1608458-BLK1

Prepared: 08/22/16 14:09

Preparation: SM 4500-NH3 D M

Matrix: Water

Analyzed: 08/22/16 15:30

Instrument: TL01

File ID: 6H22002-008

Batch: 1608458

Sequence: 6H22002

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: 16H0253

Matrix: Water
Prep Batch: 1608458
Prep Method: SM 4500-NH3 D M
Lab Sample ID: 1608458-BS1

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Ammonia	0.400	0.382	96	90 - 110

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

N020647-001A / SC-700B-WDR-544

Client: Advanced Technology Laboratories-NV
Project: ATL-NV
Work Order: 16H0253

Matrix: Water
Prep Batch: 1608458
Analysis Method: SM 4500-NH3 D M
Prep Method: SM 4500-NH3 D M
Laboratory ID: 1608458-MS1
Source Sample ID: 16H0253-01

ANALYTE	SPIKE ADDED (mg/L)	SAMPLE CONCENTRATION (mg/L)	MS CONCENTRATION (mg/L)	MS % REC.	QC LIMITS REC.
Ammonia	0.400	0.360	0.813	113	75 - 125

ANALYTE	SPIKE ADDED (mg/L)	MSD CONCENTRATION (mg/L)	MSD % REC. #	% RPD	QC LIMITS RPD	REC.
Ammonia	0.400	0.800	110	2	20	75 - 125

* Values outside of QC limits

DUPLICATES

N020647-001A / SC-700B-WDR-544

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

Matrix:	Water	Laboratory ID:	1608458-DUP1
Prep Batch:	1608458	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	0.360	0.356	1		20



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www.atl-labs.com

TEL: 7023072659

FAX: 7023072691

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

16 H0253

QC Level: Level IV

Subcontractor:

Truesdail
3337 Michelson Drive, Suite CN750
Irvine, CA 92612

TEL: (714) 730-6239

FAX: (714) 730-6462

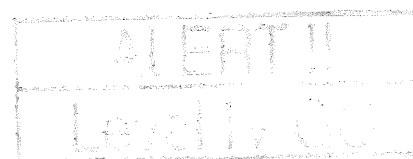
Acct #:

Field Sampler:

12-Aug-16

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests		
				SM4500-NH3D		
N020647-001A / SC-700B-WDR-544	Water	8/11/2016 3:25:00 PM	32OZP	1		

* Bottle came in without
label void (SB)



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

Please use PO#:N20647A 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 #: 532935980

6.0°C

Relinquished by: <u>RA</u>	Date/Time: <u>8/15/2016 16:00</u>	Received by: <u>Amber Brady</u>	Date/Time: <u>8/16/16 @ 0930</u>
Relinquished by: _____	Date/Time: _____	Received by: _____	Date/Time: _____

Log-in check list For level III data package

Client:

ATL

Lab Number:

16H0253

Received Date:

8/16/16

Sample receiving review

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



WORK ORDER

Printed: 8/16/16 9:37:51AM

16H0253

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: 09/15/2016 16:30 (21 day TAT)

Received By: Shelly Brady

Date Received: 08/16/2016 09:30

Logged In By: Shelly Brady

Date Logged In: 08/16/2016 09:35

Samples Received at: 6°C
All containers intact: No
Sample labels/COC agree: Yes
Samples Preserved Properly: Yes
Custody Seals Present: Yes

Analysis	Due	TAT	Expires	Comments
----------	-----	-----	---------	----------

16H0253-01 N020647-001A / SC-700B-WDR-544 [Water] Sampled 08/11/2016
15:25 (GMT-08:00) Pacific Time (US &

A = Poly, 1 L

Ammonia E	08/25/2016 08:00	7	09/08/2016 15:25	
-----------	------------------	---	------------------	--

Reviewed By

Date

Page 1 of 1

Page 1 of 1

Page 20 of 24

September 21, 2016

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

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

CA-ELAP No.: 2676
NV Cert. No.: NV-00922

Workorder No.: N020842

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

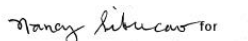
Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on September 06, 2016 by ASSET Laboratories .
The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in
accordance with the applicable laboratory certifications.

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

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

Sincerely,

Puri Romualdo

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
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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, 680375.02.IM.OP.00
Lab Order: N020842

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 except for Turbidity on sample SC-700B-WDR-545 (N020842-002). Sample was inadvertently ticked on hold.

Subcontracted Analyses:

Ammonia was subcontracted to Truesdail-Irvine, CA.

Analytical Comments for EPA 200.7:

Matrix Spike (MS) is outside recovery criteria for Iron on QC sample N020842-002E-MS1 possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 200.8:

Because the results for total chromium (1.4 ug/L) and hexavalent chromium (0 ug/L) for sample N020842-002 (SC-700B-WDR-545) are discrepant, sample from both the total chromium and hexavalent chromium containers were redigested and analyzed for total chromium. The results from the redigested samples were 1.2 and 0 ug/L, respectively. Since these data confirmed the original result for total chromium, the original result is reported.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Copper on QC samples N020842-002E-MS and N020842-002E-MSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Dilution was necessary on some analytes for sample N020842-002 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



CLIENT: CH2M HILL

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

Lab Order: N020842

CASE NARRATIVE

dilution that meet internal standard recovery limit.

Analytical Comments for EPA 218.6:

Since Matrix Spike protocol was performed and recovery is within criteria for sample N020842-002 (SC-700B-WDR-545) though results of total chromium (1.4 ug/L) differs with hexavalent chromium (0 ug/L), reanalysis of the sample was not necessary.

Analytical Comments for EPA 300:

Dilution was necessary due to precipitation of sample upon the addition of eluent.



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Page 2 of 2

ASSET Laboratories

Date: 21-Sep-16

CLIENT: CH2M HILL
Project: PG&E Topock, 680375.02.IM.OP.00
Lab Order: N020842
Contract No: IM3PLANT-AR

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N020842-001A	SC-100B-WDR-545	Water	9/6/2016 1:30:00 PM	9/6/2016	9/21/2016
N020842-001B	SC-100B-WDR-545	Water	9/6/2016 1:30:00 PM	9/6/2016	9/21/2016
N020842-001C	SC-100B-WDR-545	Water	9/6/2016 1:30:00 PM	9/6/2016	9/21/2016
N020842-002A	SC-700B-WDR-545	Water	9/6/2016 1:30:00 PM	9/6/2016	9/21/2016
N020842-002B	SC-700B-WDR-545	Water	9/6/2016 1:30:00 PM	9/6/2016	9/21/2016
N020842-002C	SC-700B-WDR-545	Water	9/6/2016 1:30:00 PM	9/6/2016	9/21/2016
N020842-002D	SC-700B-WDR-545	Water	9/6/2016 1:30:00 PM	9/6/2016	9/21/2016
N020842-002E	SC-700B-WDR-545	Water	9/6/2016 1:30:00 PM	9/6/2016	9/21/2016



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 21-Sep-16

CLIENT: CH2M HILL
Lab Order: N020842
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N020842-001

Client Sample ID: SC-100B-WDR-545
Collection Date: 9/6/2016 1:30:00 PM
Matrix: WATER

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

SPECIFIC CONDUCTANCE
EPA 120.1

RunID: WETCHEM_160907C	QC Batch: R110413			PrepDate		Analyst: LR
Specific Conductance	7800	0.10	0.10	umhos/cm	1	9/7/2016 09:20 AM

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



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 21-Sep-16

CLIENT: CH2M HILL
Lab Order: N020842
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N020842-002

Client Sample ID: SC-700B-WDR-545
Collection Date: 9/6/2016 1:30:00 PM
Matrix: WATER

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

RunID: WETCHEM_160907C	QC Batch: R110413			PrepDate		Analyst: LR
Specific Conductance	7400	0.10	0.10	umhos/cm	1	9/7/2016 09:20 AM

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



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CLIENT: CH2M HILL
Work Order: N020842
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	N020842-001ADUP	SampType:	DUP	TestCode:	120.1_WPGE	Units:	umhos/cm	Prep Date:		RunNo:	110413
Client ID:	ZZZZZZ	Batch ID:	R110413	TestNo:	EPA 120.1			Analysis Date:	9/7/2016	SeqNo:	2421604
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Specific Conductance		7810.000		0.10						7830	0.256 10

Qualifiers:

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

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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 21-Sep-16

CLIENT: CH2M HILL
Lab Order: N020842
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N020842-001

Client Sample ID: SC-100B-WDR-545
Collection Date: 9/6/2016 1:30:00 PM
Matrix: WATER

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

TOTAL FILTERABLE RESIDUE
SM2540C

RunID: WETCHEM_160907D	QC Batch: 59589			PrepDate	9/7/2016	Analyst: LR
Total Dissolved Solids (Residue, Filterable)	4600	50	50	mg/L	1	9/7/2016 11:06 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-16

CLIENT: CH2M HILL
Lab Order: N020842
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N020842-002

Client Sample ID: SC-700B-WDR-545
Collection Date: 9/6/2016 1:30:00 PM
Matrix: WATER

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

TOTAL FILTERABLE RESIDUE
SM2540C

RunID: WETCHEM_160907D	QC Batch: 59589			PrepDate	9/7/2016	Analyst: LR
Total Dissolved Solids (Residue, Filterable)	4000	50	50	mg/L	1	9/7/2016 11:06 AM

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



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CLIENT: CH2M HILL
Work Order: N020842
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	LCS-59589	SampType:	LCS	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	9/7/2016	RunNo:	110448			
Client ID:	LCSW	Batch ID:	59589	TestNo:	SM2540C			Analysis Date:	9/7/2016	SeqNo:	2423112			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		967.000		10	1000	0		96.7	80	120				

Sample ID	MB-59589	SampType:	MBLK	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	9/7/2016	RunNo:	110448			
Client ID:	PBW	Batch ID:	59589	TestNo:	SM2540C			Analysis Date:	9/7/2016	SeqNo:	2423113			
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	N020842-001ADUP	SampType:	DUP	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	9/7/2016	RunNo:	110448			
Client ID:	ZZZZZZ	Batch ID:	59589	TestNo:	SM2540C			Analysis Date:	9/7/2016	SeqNo:	2423119			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		4385.000		50							4565	4.02	5	

Qualifiers:

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



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 21-Sep-16

CLIENT: CH2M HILL
Lab Order: N020842
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N020842-002

Client Sample ID: SC-700B-WDR-545
Collection Date: 9/6/2016 1:30:00 PM
Matrix: WATER

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

RunID: ICP2_160909A	QC Batch: 59600	PrepDate	9/8/2016	Analyst: CEI		
Aluminum	84	2.7	50	µg/L	1	9/9/2016 10:28 AM
Boron	1100	38	100	µg/L	1	9/9/2016 01:49 PM
Iron	72	1.8	20	µg/L	1	9/9/2016 10:28 AM

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



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"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Work Order: N020842
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID MB-59600	SampType: MBLK	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 9/8/2016	RunNo: 110474
Client ID: PBW	Batch ID: 59600	TestNo: EPA 200.7		Analysis Date: 9/9/2016	SeqNo: 2424150
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Aluminum	ND	50			
Iron	ND	20			

Sample ID LCS1-59600	SampType: LCS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 9/8/2016	RunNo: 110474
Client ID: LCSW	Batch ID: 59600	TestNo: EPA 200.7		Analysis Date: 9/9/2016	SeqNo: 2424151
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Aluminum	10284.095	50	10000	0	103 85 115
Iron	103.162	20	100.0	0	103 85 115

Sample ID N020842-002E-MS1	SampType: MS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 9/8/2016	RunNo: 110474
Client ID: ZZZZZZ	Batch ID: 59600	TestNo: EPA 200.7		Analysis Date: 9/9/2016	SeqNo: 2424156
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Aluminum	10666.757	50	10000	83.88	106 75 125
Iron	145.852	20	100.0	72.09	73.8 75 125 S

Sample ID N020842-002E-MSD	SampType: MSD	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 9/8/2016	RunNo: 110474
Client ID: ZZZZZZ	Batch ID: 59600	TestNo: EPA 200.7		Analysis Date: 9/9/2016	SeqNo: 2424157
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Aluminum	10652.196	50	10000	83.88	106 75 125 10670 0.137 20
Iron	149.382	20	100.0	72.09	77.3 75 125 145.9 2.39 20

Sample ID MB-59600	SampType: MBLK	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 9/8/2016	RunNo: 110480
Client ID: PBW	Batch ID: 59600	TestNo: EPA 200.7		Analysis Date: 9/9/2016	SeqNo: 2424391
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Qualifiers:

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



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"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Work Order: N020842
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WPGEPBB

Sample ID	MB-59600	SampType:	MBLK	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	9/8/2016	RunNo:	110480			
Client ID:	PBW	Batch ID:	59600	TestNo:	EPA 200.7			Analysis Date:	9/9/2016	SeqNo:	2424391			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Boron ND 100

Sample ID	LCS1-59600	SampType:	LCS	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	9/8/2016	RunNo:	110480			
Client ID:	LCSW	Batch ID:	59600	TestNo:	EPA 200.7			Analysis Date:	9/9/2016	SeqNo:	2424392			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Boron 5038.872 100 5000 0 101 85 115

Sample ID	N020842-002E-MS1	SampType: MS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 9/8/2016	RunNo: 110480					
Client ID: ZZZZZZ	Batch ID: 59600	TestNo: EPA 200.7	Analysis Date: 9/9/2016	SeqNo: 2424396							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Boron 6444.101 100 5000 1060 108 75 125

Sample ID	N020842-002E-MSD	SampType:	MSD	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	9/8/2016	RunNo:	110480			
Client ID:	ZZZZZZ	Batch ID:	59600	TestNo:	EPA 200.7			Analysis Date:	9/9/2016	SeqNo:	2424399			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Boron 6502.725 100 5000 1060 109 75 125 6444 0.906 20

Qualifiers:

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



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 21-Sep-16

CLIENT: CH2M HILL
Lab Order: N020842
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N020842-001

Client Sample ID: SC-100B-WDR-545
Collection Date: 9/6/2016 1:30:00 PM
Matrix: WATER

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

RunID: ICP7_160908C	QC Batch: 59601			PrepDate	9/8/2016	Analyst: CEI
Manganese	6.4	0.056	0.50	µg/L	1	9/8/2016 06:03 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-16

CLIENT: CH2M HILL
Lab Order: N020842
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N020842-002

Client Sample ID: SC-700B-WDR-545
Collection Date: 9/6/2016 1:30:00 PM
Matrix: WATER

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

RunID: ICP7_160908C	QC Batch: 59601	PrepDate	9/8/2016	Analyst: CEI		
Antimony	ND	0.16	2.5	µg/L	5	9/8/2016 06:14 PM
Arsenic	ND	0.025	0.10	µg/L	1	9/9/2016 11:52 AM
Barium	19	0.35	5.0	µg/L	5	9/8/2016 06:14 PM
Copper	ND	0.26	1.0	µg/L	1	9/8/2016 06:09 PM
Lead	ND	0.18	5.0	µg/L	5	9/8/2016 06:14 PM
Manganese	16	0.056	0.50	µg/L	1	9/8/2016 06:09 PM
Molybdenum	21	0.19	2.5	µg/L	5	9/8/2016 06:14 PM
Nickel	2.4	0.040	1.0	µg/L	1	9/8/2016 06:09 PM
Zinc	ND	0.27	10	µg/L	1	9/8/2016 06:09 PM

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



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CLIENT: CH2M HILL
Work Order: N020842
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID MB-59601	SampType: MBLK	TestCode: 200.8_W	Units: µg/L	Prep Date: 9/8/2016	RunNo: 110479
Client ID: PBW	Batch ID: 59601	TestNo: EPA 200.8		Analysis Date: 9/8/2016	SeqNo: 2424319
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Antimony	ND	0.50									
Barium	ND	1.0									
Copper	0.357	1.0									
Lead	ND	1.0									
Manganese	ND	0.50									
Molybdenum	0.126	0.50									
Nickel	ND	1.0									
Zinc	ND	10									

Sample ID LCS-59601	SampType: LCS	TestCode: 200.8_W	Units: µg/L	Prep Date: 9/8/2016	RunNo: 110479
Client ID: LCSW	Batch ID: 59601	TestNo: EPA 200.8		Analysis Date: 9/8/2016	SeqNo: 2424320
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Antimony	9.937	0.50	10.00	0	99.4	85	115				
Barium	103.392	1.0	100.0	0	103	85	115				
Copper	10.329	1.0	10.00	0	103	85	115				
Lead	9.833	1.0	10.00	0	98.3	85	115				
Manganese	101.115	0.50	100.0	0	101	85	115				
Molybdenum	9.485	0.50	10.00	0	94.9	85	115				
Nickel	10.369	1.0	10.00	0	104	85	115				
Zinc	103.097	10	100.0	0	103	85	115				

Sample ID N020842-002E-MS	SampType: MS	TestCode: 200.8_W	Units: µg/L	Prep Date: 9/8/2016	RunNo: 110479
Client ID: ZZZZZZ	Batch ID: 59601	TestNo: EPA 200.8		Analysis Date: 9/8/2016	SeqNo: 2424325
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Copper	4.929	1.0	10.00	0	49.3	75	125				S
Manganese	105.370	0.50	100.0	16.10	89.3	75	125				

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N020842
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	N020842-002E-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	9/8/2016	RunNo:	110479
Client ID:	ZZZZZZ	Batch ID:	59601	TestNo:	EPA 200.8			Analysis Date:	9/8/2016	SeqNo:	2424325
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nickel	12.159	1.0	10.00	2.445	97.1	75	125				
Zinc	79.666	10	100.0	0	79.7	75	125				

Sample ID	N020842-002E-MSD	SampType:	MSD	TestCode:	200.8_W	Units:	µg/L	Prep Date:	9/8/2016	RunNo:	110479
Client ID:	ZZZZZZ	Batch ID:	59601	TestNo:	EPA 200.8			Analysis Date:	9/8/2016	SeqNo:	2424326
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	4.858	1.0	10.00	0	48.6	75	125	4.929	1.44	20	S
Manganese	104.968	0.50	100.0	16.10	88.9	75	125	105.4	0.382	20	
Nickel	12.339	1.0	10.00	2.445	98.9	75	125	12.16	1.48	20	
Zinc	82.316	10	100.0	0	82.3	75	125	79.67	3.27	20	

Sample ID	N020842-002E-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	9/8/2016	RunNo:	110479
Client ID:	ZZZZZZ	Batch ID:	59601	TestNo:	EPA 200.8			Analysis Date:	9/8/2016	SeqNo:	2424334
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	9.963	2.5	10.00	0	99.6	75	125				
Barium	117.903	5.0	100.0	19.34	98.6	75	125				
Lead	9.789	5.0	10.00	0	97.9	75	125				
Molybdenum	30.782	2.5	10.00	21.09	96.9	75	125				

Sample ID	N020842-002E-MSD	SampType:	MSD	TestCode:	200.8_W	Units:	µg/L	Prep Date:	9/8/2016	RunNo:	110479
Client ID:	ZZZZZZ	Batch ID:	59601	TestNo:	EPA 200.8			Analysis Date:	9/8/2016	SeqNo:	2424335
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	9.911	2.5	10.00	0	99.1	75	125	9.963	0.529	20	
Barium	118.026	5.0	100.0	19.34	98.7	75	125	117.9	0.104	20	
Lead	9.792	5.0	10.00	0	97.9	75	125	9.789	0.0304	20	
Molybdenum	30.698	2.5	10.00	21.09	96.1	75	125	30.78	0.274	20	

Qualifiers:

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



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"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Work Order: N020842
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	MB-59601	SampType:	MBLK	TestCode:	200.8_W	Units:	µg/L	Prep Date:	9/8/2016	RunNo:	110482			
Client ID:	PBW	Batch ID:	59601	TestNo:	EPA 200.8			Analysis Date:	9/9/2016	SeqNo:	2424367			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic ND 0.10

Sample ID	LCS-59601	SampType:	LCS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	9/8/2016	RunNo:	110482			
Client ID:	LCSW	Batch ID:	59601	TestNo:	EPA 200.8			Analysis Date:	9/9/2016	SeqNo:	2424368			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic 8.872 0.10 10.00 0 88.7 85 115

Sample ID	N020842-002E-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	9/8/2016	RunNo:	110482		
Client ID:	ZZZZZZ	Batch ID:	59601	TestNo:	EPA 200.8			Analysis Date:	9/9/2016	SeqNo:	2424372		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic 8.761 0.10 10.00 0.09904 86.6 75 125

Sample ID	N020842-002E-MSD	SampType:	MSD	TestCode:	200.8_W	Units:	µg/L	Prep Date:	9/8/2016	RunNo:	110482			
Client ID:	ZZZZZZ	Batch ID:	59601	TestNo:	EPA 200.8			Analysis Date:	9/9/2016	SeqNo:	2424373			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic 8.987 0.10 10.00 0.09904 88.9 75 125 8.761 2.55 20

Qualifiers:

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



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 21-Sep-16

CLIENT: CH2M HILL
Lab Order: N020842
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N020842-001

Client Sample ID: SC-100B-WDR-545
Collection Date: 9/6/2016 1:30:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 218.6							
RunID: IC7_160907A	QC Batch: R110418			PrepDate		Analyst: RAB	
Hexavalent Chromium	600	6.6	20		µg/L	100	9/7/2016 12:52 PM
TOTAL METALS BY ICPMS							
EPA 200.8							
RunID: ICP7_160908C	QC Batch: 59601			PrepDate	9/8/2016	Analyst: CEI	
Chromium	590	0.096	5.0		µg/L	5	9/8/2016 06:59 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-16

CLIENT: CH2M HILL
Lab Order: N020842
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N020842-002

Client Sample ID: SC-700B-WDR-545
Collection Date: 9/6/2016 1:30:00 PM
Matrix: WATER

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

RunID: IC7_160907A	QC Batch: R110418			PrepDate		Analyst: RAB
Hexavalent Chromium	ND	0.066	0.20	µg/L	1	9/7/2016 12:05 PM

TOTAL METALS BY ICPMS
EPA 200.8

RunID: ICP7_160908C	QC Batch: 59601			PrepDate	9/8/2016	Analyst: CEI
Chromium	1.4	0.019	1.0	µg/L	1	9/8/2016 06:09 PM

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



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CLIENT: CH2M HILL
Work Order: N020842
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	MB-59601	SampType:	MBLK	TestCode:	200.8_W_CR	Units:	µg/L	Prep Date:	9/8/2016	RunNo:	110479			
Client ID:	PBW	Batch ID:	59601	TestNo:	EPA 200.8			Analysis Date:	9/8/2016	SeqNo:	2424290			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		ND		1.0										

Sample ID	LCS-59601	SampType:	LCS	TestCode:	200.8_W_CR	Units:	µg/L	Prep Date:	9/8/2016	RunNo:	110479			
Client ID:	LCSW	Batch ID:	59601	TestNo:	EPA 200.8			Analysis Date:	9/8/2016	SeqNo:	2424291			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		9.932		1.0	10.00	0		99.3	85	115				

Sample ID	N020842-002E-MS	SampType:	MS	TestCode:	200.8_W_CR	Units:	µg/L	Prep Date:	9/8/2016	RunNo:	110479			
Client ID:	ZZZZZZ	Batch ID:	59601	TestNo:	EPA 200.8			Analysis Date:	9/8/2016	SeqNo:	2424296			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		10.418		1.0	10.00	1.417		90.0	75	125				

Sample ID	N020842-002E-MSD	SampType:	MSD	TestCode:	200.8_W_CR	Units:	µg/L	Prep Date:	9/8/2016	RunNo:	110479			
Client ID:	ZZZZZZ	Batch ID:	59601	TestNo:	EPA 200.8			Analysis Date:	9/8/2016	SeqNo:	2424297			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		10.430		1.0	10.00	1.417		90.1	75	125	10.42	0.114	20	

Qualifiers:

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



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"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Work Order: N020842
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID	MB-R110418	SampType:	MBLK	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	110418
Client ID:	PBW	Batch ID:	R110418	TestNo:	EPA 218.6			Analysis Date:	9/7/2016	SeqNo:	2421827
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-R110418	SampType:	LCS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	110418
Client ID:	LCSW	Batch ID:	R110418	TestNo:	EPA 218.6			Analysis Date:	9/7/2016	SeqNo:	2421828
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Hexavalent Chromium 5.036 0.20 5.000 0 101 90 110

Sample ID	N020842-002CMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	110418
Client ID:	ZZZZZZ	Batch ID:	R110418	TestNo:	EPA 218.6			Analysis Date:	9/7/2016	SeqNo:	2421836
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Hexavalent Chromium 0.972 0.20 1.000 0 97.2 90 110

Sample ID	N020835-001ADUP	SampType:	DUP	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	110418
Client ID:	ZZZZZZ	Batch ID:	R110418	TestNo:	EPA 218.6			Analysis Date:	9/7/2016	SeqNo:	2421839
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Hexavalent Chromium 1.710 0.20 1.704 0.363 20

Sample ID	N020842-001BMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	110418
Client ID:	ZZZZZZ	Batch ID:	R110418	TestNo:	EPA 218.6			Analysis Date:	9/7/2016	SeqNo:	2421841
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Hexavalent Chromium 1098.430 20 500.0 601.3 99.4 90 110

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N020842
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID	N020842-001BMSD	SampType:	MSD	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	110418		
Client ID:	ZZZZZZ	Batch ID:	R110418	TestNo:	EPA 218.6			Analysis Date:	9/7/2016	SeqNo:	2421842		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium		1097.180		20	500.0	601.3	99.2	90	110	1098	0.114	20	

Qualifiers:

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



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ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 21-Sep-16

CLIENT: CH2M HILL
Lab Order: N020842
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N020842-001

Client Sample ID: SC-100B-WDR-545
Collection Date: 9/6/2016 1:30:00 PM
Matrix: WATER

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

RunID: WETCHEM_160907B	QC Batch: R110412			PrepDate			Analyst: LR
Turbidity	0.34	0.10	0.10		NTU	1	9/7/2016 09:40 AM

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



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 21-Sep-16

CLIENT: CH2M HILL
Lab Order: N020842
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N020842-002

Client Sample ID: SC-700B-WDR-545
Collection Date: 9/6/2016 1:30:00 PM
Matrix: WATER

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

RunID: WETCHEM_160912A	QC Batch: R110497			PrepDate		Analyst: LR
Turbidity	0.45	0.10	0.10	H NTU	1	9/12/2016 09:05 AM

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



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CLIENT: CH2M HILL
Work Order: N020842
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	MB-R110412	SampType:	MBLK	TestCode:	2130_W	Units:	NTU	Prep Date:		RunNo:	110412		
Client ID:	PBW	Batch ID:	R110412	TestNo:	SM 2130B			Analysis Date:	9/7/2016	SeqNo:	2421600		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Turbidity ND 0.10

Sample ID	N020842-001ADUP	SampType:	DUP	TestCode:	2130_W	Units:	NTU	Prep Date:		RunNo:	110412		
Client ID:	ZZZZZZ	Batch ID:	R110412	TestNo:	SM 2130B			Analysis Date:	9/7/2016	SeqNo:	2421602		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Turbidity 0.320 0.10 0.3400 6.06 30

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N020842
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 2130_W

Sample ID	MB-R110497	SampType:	MBLK	TestCode:	2130_W	Units:	NTU	Prep Date:		RunNo:	110497		
Client ID:	PBW	Batch ID:	R110497	TestNo:	SM 2130B			Analysis Date:	9/12/2016	SeqNo:	2424798		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Turbidity ND 0.10

Sample ID	N020842-002BDUP	SampType:	DUP	TestCode:	2130_W	Units:	NTU	Prep Date:		RunNo:	110497		
Client ID:	ZZZZZZ	Batch ID:	R110497	TestNo:	SM 2130B			Analysis Date:	9/12/2016	SeqNo:	2424800		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Turbidity 0.420 0.10 0.4500 6.90 30 H

Qualifiers:

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



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 21-Sep-16

CLIENT: CH2M HILL
Lab Order: N020842
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N020842-002

Client Sample ID: SC-700B-WDR-545
Collection Date: 9/6/2016 1:30:00 PM
Matrix: WATER

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

RunID: IC2_160907A	QC Batch: R110442				PrepDate		Analyst: RAB
Fluoride	2.5	0.087	0.50		mg/L	5	9/7/2016 01:37 PM

ANIONS BY ION CHROMATOGRAPHY
EPA 300.0

RunID: IC2_160907A	QC Batch: R110442				PrepDate		Analyst: RAB
Sulfate	460	3.3	25		mg/L	50	9/7/2016 02:55 PM

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



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CLIENT: CH2M HILL
Work Order: N020842
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	MB-R110442_F	SampType:	MBLK	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	110442		
Client ID:	PBW	Batch ID:	R110442	TestNo:	EPA 300.0			Analysis Date:	9/7/2016	SeqNo:	2422880		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride ND 0.10

Sample ID	LCS-R110442_F	SampType:	LCS	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	110442		
Client ID:	LCSW	Batch ID:	R110442	TestNo:	EPA 300.0			Analysis Date:	9/7/2016	SeqNo:	2422881		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride 2.433 0.10 2.500 0 97.3 90 110

Sample ID	N020842-002BDUP	SampType:	DUP	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	110442			
Client ID:	ZZZZZZ	Batch ID:	R110442	TestNo:	EPA 300.0			Analysis Date:	9/7/2016	SeqNo:	2422885			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride 2.565 0.50 2.545 0.783 20

Sample ID	N020842-002BMS	SampType:	MS	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	110442			
Client ID:	ZZZZZZ	Batch ID:	R110442	TestNo:	EPA 300.0			Analysis Date:	9/7/2016	SeqNo:	2422886			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride 14.330 0.50 12.50 2.545 94.3 80 120

Sample ID	N020842-002BMSD	SampType:	MSD	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	110442			
Client ID:	ZZZZZZ	Batch ID:	R110442	TestNo:	EPA 300.0			Analysis Date:	9/7/2016	SeqNo:	2422887			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride 14.220 0.50 12.50 2.545 93.4 80 120 14.33 0.771 20

Qualifiers:

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



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CLIENT: CH2M HILL
Work Order: N020842
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	MB-R110442_SO4	SampType:	MBLK	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	110442			
Client ID:	PBW	Batch ID:	R110442	TestNo:	EPA 300.0			Analysis Date:	9/7/2016	SeqNo:	2422859			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate ND 0.50

Sample ID	LCS-R110442_SO4	SampType:	LCS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	110442	
Client ID:	LCSW	Batch ID:	R110442	TestNo:	EPA 300.0			Analysis Date:	9/7/2016	SeqNo:	2422860	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 4.888 0.50 5.000 0 97.8 90 110

Sample ID	N020834-001CDUP	SampType:	DUP	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	110442			
Client ID:	ZZZZZZ	Batch ID:	R110442	TestNo:	EPA 300.0			Analysis Date:	9/7/2016	SeqNo:	2422871			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 151.780 10 140.1 8.00 20

Sample ID	N020834-003CMS	SampType:	MS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	110442			
Client ID:	ZZZZZZ	Batch ID:	R110442	TestNo:	EPA 300.0			Analysis Date:	9/7/2016	SeqNo:	2422872			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 257.240 10 100.0 142.5 115 80 120

Sample ID	N020834-003CMSD	SampType:	MSD	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	110442			
Client ID:	ZZZZZZ	Batch ID:	R110442	TestNo:	EPA 300.0			Analysis Date:	9/7/2016	SeqNo:	2422873			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 255.400 10 100.0 142.5 113 80 120 257.2 0.718 20

Qualifiers:

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



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ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 21-Sep-16

CLIENT: CH2M HILL
Lab Order: N020842
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N020842-002

Client Sample ID: SC-700B-WDR-545
Collection Date: 9/6/2016 1:30:00 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_160917A	QC Batch: R110590			PrepDate		Analyst: RB
Nitrate/Nitrite as N	2.8	0.11	0.25	mg/L	5	9/17/2016

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



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CLIENT: CH2M HILL
Work Order: N020842
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	MB-R110590	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	110590		
Client ID:	PBW	Batch ID:	R110590	TestNo:	SM4500-NO3			Analysis Date:	9/17/2016	SeqNo:	2427864		
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-R110590	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	110590		
Client ID:	LCSW	Batch ID:	R110590	TestNo:	SM4500-NO3			Analysis Date:	9/17/2016	SeqNo:	2427867		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N		0.490		0.050	0.5000	0	98.0	85	115				

Sample ID	N020842-002DDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	110590		
Client ID:	ZZZZZZ	Batch ID:	R110590	TestNo:	SM4500-NO3			Analysis Date:	9/17/2016	SeqNo:	2427869		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N		2.837		0.25						2.803	1.21	20	

Sample ID	N020842-002DMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	110590		
Client ID:	ZZZZZZ	Batch ID:	R110590	TestNo:	SM4500-NO3			Analysis Date:	9/17/2016	SeqNo:	2427870		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N		5.112		0.25	2.500	2.803	92.3	75	125				

Sample ID	N020842-002DMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	110590		
Client ID:	ZZZZZZ	Batch ID:	R110590	TestNo:	SM4500-NO3			Analysis Date:	9/17/2016	SeqNo:	2427871		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N		5.514		0.25	2.500	2.803	108	75	125	5.112	7.58	20	

Qualifiers:

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



ASSET LABORATORIES
ANALYTICAL SERVICES PROVIDED FOR ENVIRONMENTAL MONITORING

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

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

"Serving Clients with Passion and Professionalism"

Project Name PG&E Topock Location PG&E Topock Project Number 680375.02.IM.OP.00 Project Manager Scott O'Donnell Sample Manager Shawn Duffy Task Order Project IM3PLANT-ARAR-WDR-545 Turnaround Time 10 Days Shipping Date: COC Number: 545				Container: 1 Liter Poly 1 Liter Poly 1 Liter Poly 250 ml Poly 1 Liter Poly 1 Liter Poly 500 ml Poly 500 ml Poly 1 Liter Poly	Preservatives: 4°C Lab H2SO4 4°C 4°C 4°C 4°C Lab H2SO4 4°C 4°C 4°C 4°C	Filtered: NA NA NA NA NA NA NA NA NA	Holding Time: 28 7 7 1 28 7 180 180 7	AMMONIA (SM4500NH3D) Anions (E300.0) FI, SO4 CONDUCTIVITY (E120.1) E218.6 Lab Filtered Nitrate/Nitrite (SM4500NO3-E) TDS (SM2540C) Total Metals(E200.7 and E200.8) Total Metals(E200.8) Cr & Mn Turbidity (SM2130)	Number of Containers	COMMENTS				
SC-100B-WDR-545			Water			X	X		X		X	N020842 - 01	3	
SC-700B-WDR-545			Water	X	X	X	X	X	X	X	X	- 02	4	
TOTAL NUMBER OF CONTAINERS												7		

Approved by	Signatures	Date/Time
Sampled by	G. GLORIA	9-6-16 1345
Relinquished by	Am. J. [Signature]	9-6-16 1535
Received by	MS [Signature]	9/6/16 @ 1535
Relinquished by	[Signature]	9/6/16 @ 1535
Received by	[Signature]	9/6/16 @ 1535

Shipping Details

Method of Shipment: Lab Courier

On Ice: yes no 1.8" 2, 10E

Airbill No:

Lab Name:

Lab Phone:

Special Instructions:

ATTN:

Sample Custody

Report Copy to
Shawn Duffy
(530) 229-3303

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: 9/6/2016 Workorder: N020842
 Rep sample Temp (Deg C): 1.8 IR Gun ID: 2
 Temp Blank: ☒ Yes ☐ No
 Carrier name: ASSET
 Last 4 digits of Tracking No.: NA Packing Material Used: None
 Cooling process: ☒ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

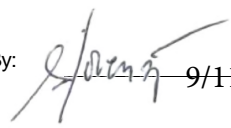
Sample Receipt Checklist

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

Comments: Collection date/time was taken from sample labels.
 Samples for Metals were lab preserved. Samples for Cr 6+ were lab filtered and preserved.

For:

Checklist Completed By: MBC  9/7/2016

Reviewed By:  9/11/2016



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 #:

Field Sampler: G.GLORIA

07-Sep-16


Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests		
				SM4500-NH3D		
N020842-002A / SC-700B-WDR-545	Water	9/6/2016 1:30:00 PM	32OZP	1		

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

Please use PO#: N20842A 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 #: 533199777

	Date/Time		Date/Time
Relinquished by: 	9/7/2016 17:00	Received by: _____	_____
Relinquished by: _____	_____	Received by: _____	_____

List of Analysts

ASSET Laboratories Work Order: **N020842**

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



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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

NEVADA
3151 W. Post Rd., Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691

"Serving Clients with Passion and Professionalism"



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.: 1610117

Printed: 09/27/2016

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 8, 2016, intact and in chilled condition. The samples 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
N020842-002A/SC-700B-WDR-545	1610117-01	Water		09/06/2016 13:30	09/08/2016 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



TRUESDAIL LABORATORIES, INC.

Client: Advanced Technology Laboratories-N

Project Name: ATL-NV

Printed: 09/19/2016

N020842-002A/SC-700B-WDR-545

16I0117-01 (Water)

Analyte	Result	RL	Units	DF	Batch	Analyzed	Analyst	Method	Notes
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Truesdail Laboratories, Inc

Wet Chemistry

Ammonia	ND	0.0500	mg/L	1	1609272	09/14/2016 17:52	Alexander Luna	SM 4500-NH3 D M	
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This report applies only to the sample, or samples, 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 and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from Truesdail Laboratories.



Client: Advanced Technology Laboratories-N

Project Name: ATL-NV

Printed: 09/19/2016

QUALITY CONTROL
Wet Chemistry
Truesdail Laboratories, Inc

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	% Rec Limits	RPD	RPD Limit	Note
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Batch: 1609272 - SM 4500-NH3 D M**Blank (1609272-BLK1)**

Prepared & Analyzed: 9/14/2016

Ammonia	ND	0.0500	mg/L
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LCS (1609272-BS1)

Prepared & Analyzed: 9/14/2016

Ammonia	0.371	0.0500	mg/L	0.400	93	90-110
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Duplicate (1609272-DUP1)**Source: 16I0117-01**

Prepared & Analyzed: 9/14/2016

Ammonia	0.0463	0.0500	mg/L	0.0435	6	20
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Matrix Spike (1609272-MS1)**Source: 16I0050-05**

Prepared & Analyzed: 9/14/2016

Ammonia	7.10	0.500	mg/L	4.00	3.06	101	75-125
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Matrix Spike Dup (1609272-MSD1)**Source: 16I0050-05**

Prepared & Analyzed: 9/14/2016

Ammonia	7.00	0.500	mg/L	4.00	3.06	98	75-125	1	20
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ANALYSIS DATA SHEET

Inorganics

Client: Advanced Technology Laboratories-NV
Client Sample ID: N020842-002A/SC-700B-WDR-545
Lab Sample ID: 16I0117-01
Project: ATL-NV

Date Sampled: 09/06/16 13:30 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		AL	09/14/16 17:52	SM 4500-NH3 D M

METHOD BLANK DATA SHEET

SM 4500-NH3 D M

Client: Advanced Technology Laboratories-NV

Project: ATL-NV

Laboratory ID: 1609272-BLK1

Prepared: 09/14/16 16:34

Preparation: SM 4500-NH3 D M

Matrix: Water

Analyzed: 09/14/16 17:42

Instrument: TL01

File ID: 6I14002-009

Batch: 1609272

Sequence: 6I14002

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: 16I0117

Matrix: Water
Prep Batch: 1609272
Prep Method: SM 4500-NH3 D M
Lab Sample ID: 1609272-BS1

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Ammonia	0.400	0.371	93	90 - 110

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

Matrix Spike

Client: Advanced Technology Laboratories-NV
Project: ATL-NV
Work Order: 16I0117

Matrix: Water
Prep Batch: 1609272

Analysis Method: SM 4500-NH3 D M
Prep Method: SM 4500-NH3 D M
Laboratory ID: 1609272-MS1
Source Sample ID: 16I0050-05

ANALYTE	SPIKE ADDED (mg/L)	SAMPLE CONCENTRATION (mg/L)	MS CONCENTRATION (mg/L)	MS % REC.	QC LIMITS REC.
Ammonia	4.00	3.06	7.10	101	75 - 125

ANALYTE	SPIKE ADDED (mg/L)	MSD CONCENTRATION (mg/L)	MSD % REC. #	% RPD	QC LIMITS RPD	REC.
Ammonia	4.00	7.00	98	1	20	75 - 125

DUPLICATES

N020842-002A/SC-700B-WDR-545

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

Matrix:	Water	Laboratory ID:	1609272-DUP1
Prep Batch:	1609272	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	0.0435	0.0463			20

**ASSET Laboratories**

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

www.atl-labs.com

TEL: 7023072659

FAX: 7023072691

16 I 0017

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

QC Level: Level IV

Subcontractor:

Truesdail
3337 Michelson Drive, Suite CN750
Irvine, CA 92612TEL: (714) 730-6239
FAX: (714) 730-6462
Acct #:

Field Sampler: G.GLORIA

07-Sep-16

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests		
				SM4500-NH3D		
N020842-002A / SC-700B-WDR-545	Water	9/6/2016 1:30:00 PM	32OZP	1		



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

Please use PO#: N20842A 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 #: 533199777

Date/Time		Date/Time	
Relinquished by: <u>BL</u>	9/7/2016 17:00	Received by: <u>Fargulian Brown</u>	9/8/16 8:30 AM
Relinquished by: _____	_____	Received by: _____	_____

65C

Log-in check list For level III data package

Client: ATLLab Number: 1610117Received Date: 9/8/16**Sample receiving review**

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

Sample receiving Signature: Michael Trud

ATL
Level III QC

WORK ORDER

Printed: 9/8/2016 9:42:35AM

16I0117

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: 09/19/2016 16:30 (7 day TAT)

Received By: Jacqueline Brown

Date Received: 09/08/2016 08:30

Logged In By: Michelle Reed

Date Logged In: 09/08/2016 09:38

Samples Received at: 6.5°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
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16I0117-01 N020842-002A/SC-700B-WDR-545 [Water] Sampled 09/06/2016
13:30 (GMT-08:00) Pacific Time (US &

Ammonia E	09/19/2016 08:00	7	10/04/2016 13:30	
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Reviewed By

Date

Page 1 of 1

Page 20 of 25

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 PE-01	8/3/16	07:00	8/3/16	07:14	HQ440D	8/3/16	00:05	-60.95	Josh R	7.54

Notes:

2 TW-03D	8/3/16	07:00	8/3/16	07:16	HQ440D	8/3/16	00:05	-60.95	Josh R.	7.38
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Notes:

3 SC-700B	8/3/16	07:25	8/3/16	07:30	HQ440D	8/3/16	00:05	-60.95	Josh R	7.38
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Notes:

4 SC-100B	8/3/16	07:25	8/3/16	07:30	HQ440D	8/3/16	00:05	-60.95	Josh R	7.39
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Notes:

5										
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Notes:

6										
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Notes:

7										
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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 SC-701	7-5-16	10:30	7-5-16	10:33	HQ440D	7-5-16	0014	-57.12		9.75


Notes:

2 SC-700B	7-5-16	10:42	7-5-16	10:44	HQ440D	7-5-16	0014	-57.12		7.25
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Notes:

3 SC-701 SC-100B	7-5-16	10:50	7-5-16	10:50	HQ440D	7-5-16	0014	-57.12		7.35
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Notes:

4 PE-1	7-5-16	11:45	7-5-16	11:48	HQ440D	7-5-16	0014	-57.12		7.47
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Notes:

5 TW-3D	7-5-16	11:45	7-5-16	11:50	HQ440D	7-5-16	0014	-57.12		7.42
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Notes:

6										
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Notes:

7										
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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 TW-3D	9-6-16	13:15	9-6-16	13:25	HQ4400	9-16-16	00:30	-55.32	G. GLORIA	7.21
Notes:										
2 SC-700 B	09-6-16	13:30	9-6-16	13:40	HQ4400	9-16-16	00:30	-55.32	G. GLORIA	7.45
Notes:										
3 SC-100 B	9-6-16	13:30	9-6-16	13:40	HQ4400	9-16-16	00:30	-55.32	G. GLORIA	7.44
Notes:										
4 TW ^W PE-1	9/23/16	8:40	9/23/16	8:50	HQ 4400	9/23/16	04:30	-54.18	CHRIS LENTZ	7.58
Notes:										
5										
Notes:										
Notes:										
Notes:										
Notes:										

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