



**Pacific
Gas and
Electric Company**

Curt Russell
Topock Site Manager
GT&D Remediation

Topock Compressor Station
145453 National Trails Hwy
Needles, CA 92363

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

760.326.5582
Fax: 760.326.5542
Email: gcr4@pge.com

July 14, 2017

Pamela S. Innis
Topock Remedial Project Manager
U.S. Department of the Interior
Office of Environmental Policy and Compliance
P.O. Box 2507 (D-108)
Denver Federal Center, Building 56
Denver, CO 80225-0007

Robert Perdue
Executive Officer
California Regional Water Quality Control Board
Colorado River Basin Region
73-720 Fred Waring Drive, Suite 100
Palm Desert, CA 92260

**Subject: Topock IM-3 Combined Second Quarter 2017 Monitoring, Semiannual January – June 2017
Operation and Maintenance Report
PG&E Topock Compressor Station, Needles, California
Interim Measure No. 3 Groundwater Treatment System
(Document ID: PGE20170715A)**

Dear Ms. Innis and Mr. Perdue:

Enclosed is the Second Quarter 2017 Monitoring, Semiannual January – June 2017 Operation and Maintenance Report for the Pacific Gas and Electric Company (PG&E) Topock Compressor Station, Interim Measure No. 3 (IM-3) Groundwater Treatment System.

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

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

Sustainable remediation is a corporate commitment internally monitored by PG&E. IM-3 is operated in a manner that has resulted in sustainable reductions in electrical use, greenhouse gas (GHG) emissions, and generation of solid and liquid waste. Examples include: (1) reduced electricity use and associated GHG emissions due to use of photocells to manage outdoor lighting at IM-3 and the injection area

Pamela S. Innis
Robert Perdue
July 14, 2017
Page 2

wellhead data collection system is solar-powered; (2) process optimization initiatives (within constraints of the injection permit) have reduced brine production, treatment sludge production, and treatment chemical use, and (3) these efforts also reduce the fuel consumption and GHG emissions from chemical deliveries and waste disposal.

The IM-3 groundwater extraction and treatment system has extracted and treated approximately 792,650,984 gallons of water and removed approximately 7,140 pounds of total chromium from August 1, 2005 through June 30, 2017.

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

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

Sincerely,

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

Curt Russell
Topock Site Manager

Enclosures:

Topock IM-3 Combined Second Quarter 2017 Monitoring, Semiannual January – June 2017 Operation and Maintenance Report

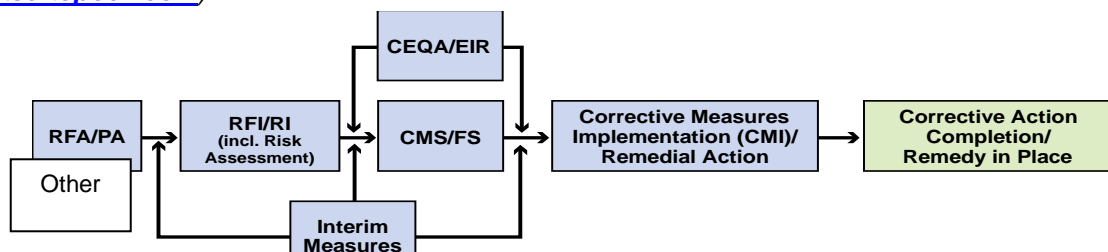
cc: Jose Cortez, Colorado River Basin Regional Water Board
Thomas Vandenberg, Colorado River Basin Regional Water Board
Aaron Yue, California Department of Toxic Substances Control

Topock Project Executive Abstract

<p>Document Title: Topock IM-3 Second Quarter 2017 Monitoring, Semiannual January - June 2017 Operation and Maintenance Report Submitting Agency/Author: U.S. Department of the Interior and Regional Water Quality Control Board Final Document? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Date of Document: July 14, 2017 Who Created this Document?: (i.e. PG&E, DTSC, DOI, Other) PG&E Document ID Number: PGE20170715A</p>
<p>Priority Status: <input type="checkbox"/> HIGH <input type="checkbox"/> MED <input checked="" type="checkbox"/> LOW Is this time critical? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>Action Required: <input checked="" type="checkbox"/> Information Only <input type="checkbox"/> Review & Comment Return to: _____ By Date: _____ <input type="checkbox"/> Other / Explain:</p>
<p>Type of Document: <input type="checkbox"/> Draft <input checked="" type="checkbox"/> Report <input type="checkbox"/> Letter <input type="checkbox"/> Memo <input type="checkbox"/> Other / Explain:</p>	
<p>What does this information pertain to? <input type="checkbox"/> Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA)/Preliminary Assessment (PA) <input type="checkbox"/> RCRA Facility Investigation (RFI)/Remedial Investigation (RI) (including Risk Assessment) <input type="checkbox"/> Corrective Measures Study (CMS)/Feasibility Study (FS) <input type="checkbox"/> Corrective Measures Implementation (CMI)/Remedial Action <input type="checkbox"/> California Environmental Quality Act (CEQA)/Environmental Impact Report (EIR) <input checked="" type="checkbox"/> Interim Measures <input type="checkbox"/> Other / Explain:</p>	<p>Is this a Regulatory Requirement? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If no, why is the document needed?</p>
<p>What is the consequence of NOT doing this item? What is the consequence of DOING this item? Submittal of this report is a compliance requirement of the Applicable or Relevant and Appropriate Requirements (ARARs) for waste discharge as documented in Attachment A to the Letter Agreement issued July 26, 2011.</p>	<p>Other Justification/s: <input type="checkbox"/> Permit <input type="checkbox"/> Other / Explain:</p>
<p>Brief Summary of attached document:</p> <p>This report covers the Interim Measures No. 3 (IM-3) groundwater treatment system monitoring activities during the Second Quarter 2017 period, and the operation and maintenance activities during the January 1, 2017 to June 30, 2017 semiannual period. The groundwater monitoring results for wells OW-1S/M/D, OW-2S/M/D, OW-5S/M/D, CW-1M/D, CW-2M/D, CW-3M/D, and CW-4M/D will be submitted under separate cover as part of the Compliance Monitoring Program.</p> <p>Written by: PG&E</p>	
<p>Recommendations: This report is for your information only.</p>	
<p>How is this information related to the Final Remedy or Regulatory Requirements?</p> <p>The Topock IM-3 Second Quarter 2017 Monitoring, Semiannual January - June 2017 Operation and Maintenance Report is related to the Interim Measure. PG&E is currently operating the IM-3 groundwater treatment system as authorized by the U.S. Department of the Interior (DOI) Waste Discharge 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? 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).



Legend

RFA/PA – RCRA Facility Assessment/Preliminary Assessment

RFI/RI – RCRA Facility Investigation/CERCLA Remedial Investigation (including Risk Assessment)

CMS/FS – RCRA Corrective Measure Study/CERCLA Feasibility Study

Version 9

Combined Second Quarter 2017 Monitoring, Semiannual January – June 2017 Operation and Maintenance Report Interim Measure No. 3 Groundwater Treatment System

Document ID: PGE20170715A

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

July 14, 2017



155 Grand Avenue, Suite 800
Oakland, CA 94612

Combined Second Quarter 2017 Monitoring, Semiannual January - June 2017
Operation and Maintenance Report
for Interim Measure No. 3 Groundwater Treatment System

PG&E Topock Compressor Station
Needles, California

Prepared for

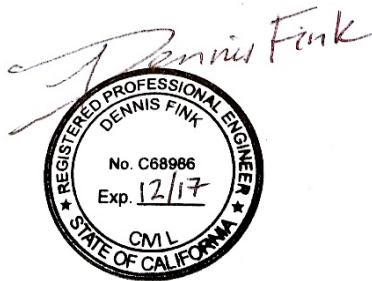
United States Department of the Interior
and
Colorado River Basin Regional Water Quality Control Board

on behalf of

Pacific Gas and Electric Company

July 14, 2017

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



Dennis Fink, P.E.
Project Engineer

Contents

Section	Page
Acronyms and Abbreviations	vii
1 Introduction	1-1
2 Sampling Station Locations	2-1
3 Description of Activities	3-1
3.1 Groundwater Treatment System	3-1
3.2 Groundwater Treatment System Flow Rates for Second Quarter 2017	3-1
3.3 Sampling and Analytical Procedures	3-2
4 Analytical Results	4-1
5 Semiannual Operation and Maintenance	5-1
5.1 Flowmeter Calibration Records	5-1
5.2 Volumes of Groundwater Treated	5-1
5.3 Residual Solids Generated (Sludge)	5-2
5.4 Reverse Osmosis Concentrate Generated	5-2
5.5 Summary of ARARs Compliance	5-2
5.6 Operation and Maintenance – Required Shutdowns	5-2
5.7 Treatment Facility Modifications	5-3
6 Conclusions	6-1
7 Certification	7-1

Tables

1	Sampling Station Descriptions
2	Flow Monitoring Results
3	Sample Collection Dates
4	Topock IM-3 Waste Discharge ARARs Influent Monitoring Results
5	Topock IM-3 Waste Discharge ARARs Effluent Monitoring Results
6	Topock IM-3 Waste Discharge ARARs Reverse Osmosis Concentrate Monitoring Results
7	Topock IM-3 Waste Discharge ARARs Sludge Monitoring Results
8	Topock IM-3 Waste Discharge ARARs Monitoring Information

Figures

1	IM-3 Project Site Features
TP-PR-10-10-04	Raw Water Storage and Treated Water Storage Tanks and Sampling Locations
PR-10-03	Reverse Osmosis System Sampling and Metering Locations (1 of 2)
PR-10-04	Reverse Osmosis System Sampling and Metering Locations (2 of 2)
TP-PR-10-10-06	Sludge Storage Tanks Sampling Locations
TP-PR-10-10-03	Extraction Wells - Influent Metering Locations
TP-PR-10-10-11	Injection Wells - Effluent Metering Locations

Appendixes

- A Semiannual Operations and Maintenance Log, January 1, 2017 through June 30, 2017
- B Daily Volumes of Groundwater Treated
- C Flowmeter Calibration Records
- D Second Quarter 2017 Laboratory Analytical Reports

Acronyms and Abbreviations

ARARs	Applicable or Relevant and Appropriate Requirements
ASSET	ASSET Laboratories
DOI	United States Department of the Interior
gpm	gallons per minute
IM	Interim Measure
IM-3	Interim Measure No. 3
IW	injection well
MRP	Monitoring and Reporting Program
PG&E	Pacific Gas and Electric Company
PST	Pacific Standard Time
RCRA	Resource Conservations and Recovery Act
Regional Water Board	Colorado River Basin Regional Water Quality Control Board
RO	reverse osmosis
Truesdail	Truesdail Laboratories, Inc.
WDR	Waste Discharge Requirements

Introduction

Pacific Gas and Electric Company (PG&E) is implementing an Interim Measure (IM) to address chromium concentrations in groundwater at the Topock Compressor Station near Needles, California. The IM consists of groundwater extraction for hydraulic control of the plume boundaries in the Colorado River floodplain, treatment of extracted groundwater, and treated groundwater injection into injection wells located on San Bernardino County Assessor's Parcel No. 650-151-06. The groundwater extraction, treatment, and injection systems collectively are referred to as Interim Measure No. 3 (IM-3). Figure 1 provides a map of the project area. All figures are located at the end of this report.

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

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

This report covers monitoring activities related to operation of the IM-3 groundwater treatment system during the Second Quarter 2017 and the operation and maintenance activities during the January 1, 2017 to June 30, 2017 semiannual period. The groundwater monitoring results for wells OW-1S/M/D, OW-2S/M/D, OW-5S/M/D, CW-1M/D, CW-2M/D, CW-3M/D, and CW-4M/D will be submitted under separate cover, as part of the Compliance Monitoring Program.

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

This report describes Second Quarter 2017 monitoring activities and the January 1, 2017 through June 30, 2017 (First and Second Quarters) operation and maintenance activities related to the IM-3 groundwater treatment system. IM-3 monitoring activities from January 1, 2017 through March 31, 2017 (First Quarter) were presented in the First Quarter 2017 Monitoring Report for IM-3 submitted to the DOI and Regional Water Board April 15, 2017.

This report, therefore, serves as the Semiannual January – June 2017 Operation and Maintenance Report for IM-3.

3.1 Groundwater Treatment System

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

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

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

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

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

3.2 Groundwater Treatment System Flow Rates for Second Quarter 2017

Downtime is defined as any periods when all extraction wells are not operating so that no groundwater is being extracted and piped into IM-3 as influent. Periods of planned and unplanned extraction system downtime are summarized in the Semiannual Operations and Maintenance Log provided in Appendix A. The times shown are in Pacific Standard Time to be consistent with other data collected (e.g., water level data) at the site. Periods of planned and unplanned extraction system downtime during the months January 2017 through March 2017 were originally reported in the First Quarter 2017 Monitoring Report for IM-3 submitted to the DOI and Regional Water Board on April 15, 2017, and are also included in Appendix A of this report.

Data regarding daily volumes of groundwater treated and discharged are provided in Appendix B. The IM-3 groundwater treatment system flowmeter calibration records are included in Appendix C.

3.2.1 Treatment System Influent

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

- 85.1 percent during April 2017
- 98.4 percent during May 2017
- 97.6 percent during June 2017

The Second Quarter 2017 treatment system monthly average flow rates (influent, effluent, and RO concentrate) are presented in Table 2. The system influent flow rate was measured by flowmeters at groundwater extraction wells TW-2S, TW-2D, TW-3D, and PE-1 (Figure TP-PR-10-10-03).

The IM-3 facility treated approximately 16,727,229 gallons of extracted groundwater during Second Quarter 2017.

In addition to extracted groundwater, during Second Quarter 2017 the IM-3 facility treated 1,450 gallons of water generated from the groundwater monitoring program and 27,550 gallons of injection well development water from Groundwater Partners.

3.2.2 Effluent Streams

The treatment system effluent flow rate was measured by flowmeters in the piping leading to injection wells IW-2 and IW-3 (Figure TP-PR-10-10-11) and in the piping running from the treated water tank T-700 to the injection wells (Figure TP-PR-10-10-04). The IM-3 facility injected 16,436,621 gallons of treatment system effluent during Second Quarter 2017. The monthly average flow rate to injection wells is shown in Table 2.

The RO concentrate flow rate was measured by a flowmeter at the piping carrying water from RO concentrate tank T-701 to the truck load-out station (Figure PR-10-04). The IM-3 facility generated 143,026 gallons of RO concentrate during Second Quarter 2017. The monthly average RO concentrate flow rate is shown in Table 2.

The sludge flow rate is measured by the size and weight of containers shipped offsite. Two sludge containers were shipped offsite from the IM-3 facility during Second Quarter 2017. The shipment dates and approximate weights are provided in Section 5.3.

3.3 Sampling and Analytical Procedures

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

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

ASSET is certified by the California Department of Health Services (Certification No. 2676) under the State of California's Environmental Laboratory Accreditation Program. Truesdail is certified by the California Department of Health Services (Certification No. 1237) under the State of California's Environmental Laboratory Accreditation Program. California-certified laboratory analyses were performed in accordance with the latest edition of the *Guidelines Establishing Test Procedures for*

Analysis of Pollutants (40 Code of Federal Regulations Part 136), promulgated by the U.S. Environmental Protection Agency.

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

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

Influent, effluent, RO concentrate, and sludge sampling frequency were in accordance with the MRP. The Second Quarter 2017 sample collection schedule is shown in Table 3.

Groundwater quality is being monitored in observation and compliance wells according to Attachment A, Waste Discharge ARARs, to the Letter Agreement issued July 26, 2011, and the procedures and schedules approved in the *Groundwater Compliance Monitoring Plan for Interim 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

The analytical results and laboratory reports for the IM-3 groundwater treatment system monitoring program were previously reported for the First Quarter of 2017 in the First Quarter 2017 Monitoring Report submitted to the DOI and Regional Water Board on April 15, 2017.

Laboratory reports for samples collected in Second Quarter 2017 were prepared by certified analytical laboratories, and are presented in Appendix D. The Second Quarter 2017 analytical results are presented in Tables 4, 5, 6, and 7:

- Influent analytical results are presented in Table 4.
- Effluent analytical results are presented in Table 5. There were no exceedances of effluent limitations during the reporting period.
- RO concentrate analytical results are presented in Table 6.
- Sludge analytical results are presented in Table 7.

The sludge is required to have an aquatic bioassay test annually. The most recent aquatic bioassay test was conducted on a Third Quarter 2016 sample. The next sludge aquatic bioassay test is scheduled for the Third Quarter 2017 sampling event.

Table 8 identifies the following information for each analysis:

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

Semiannual Operation and Maintenance

This section includes the Semiannual Operation and Maintenance Report for the IM-3 groundwater treatment system for the period January 1, 2017 through June 30, 2017.

All operation and maintenance records are maintained at the facility, including site inspection forms, process monitoring records, hazardous waste generator records (i.e., waste manifests), and self-monitoring reports. These records will be maintained onsite for a period of at least 5 years. Operational programmable logic controller data (flow rates, system alarms, process monitoring data, etc.) are maintained electronically via data historian software. Operation and maintenance records are also archived using maintenance software. The subsections below summarize the operation and maintenance activities during this semiannual reporting period.

5.1 Flowmeter Calibration Records

The IM-3 groundwater treatment system flowmeter calibration records are included in Appendix C. Flowmeter calibrations are performed in a timely manner consistent with the use, flow, material, and manufacturer recommendations. The following flowmeters are used at the facility to measure groundwater flow:

Location	Flowmeter Location ID	Current Flowmeter Serial No.	Date of Calibration	Date of Installation
Extraction well PE-1	FIT-103	6A021F16000	9/16/2015	1/6/2016
Extraction well TW-3D	FIT-102	6C037116000	9/17/2015	1/6/2016
Extraction well TW-2D	FIT-101	6C037016000	9/19/2014	11/1/2015
Extraction well TW-2S	FIT-100	6A022116000	9/20/2014	7/8/2015
Injection well IW-02	FIT-1202	6C037216000	9/20/2013	10/1/2013
Injection well IW-03	FIT-1203	7700F216000	3/22/2014	4/14/2015
Combined IW-02 and IW-03	FIT-700	7700F316000	6/19/2012	8/31/2015
Reverse osmosis concentrate	FIT-701	6A022016000	9/19/2014	7/8/2015

5.2 Volumes of Groundwater Treated

Data regarding daily volumes of groundwater treated between January 1, 2017 through June 30, 2017 are provided in Appendix B.

Approximately 33,718,248 gallons of groundwater were extracted and treated between January 1, 2017 and June 30, 2017. Treatment of this water at the IM-3 facility is being performed in accordance with the conditions of ARARs.

Additionally, approximately 29,950 gallons of well purge water (generated during well development, monitoring well sampling, and/or aquifer testing) and 27,550 gallons of injection well re-development water from Groundwater Partners were treated at the IM-3 facility during the January 1, 2017 through June 30, 2017 semiannual period.

A total of approximately 34,068,247 gallons of treated groundwater were injected back into the Alluvial Aquifer between January 1, 2017 and June 30, 2017.

5.3 Residual Solids Generated (Sludge)

During the January 1, 2017 through June 30, 2017 reporting period, six containers of sludge were shipped offsite for disposal. The sludge was shipped to U.S. Ecology in Beatty, Nevada for disposal. A listing of each shipment during the reporting period is provided below.

Date Sludge Bin Removed from Site	Approximate Quantity from Waste Manifests (cubic yards)	Type of Shipment
2/13/17	8	Non-RCRA hazardous waste
2/13/17	8	Non-RCRA hazardous waste
3/30/17	8	Non-RCRA hazardous waste
3/30/17	8	Non-RCRA hazardous waste
6/7/17	8	Non-RCRA hazardous waste
6/7/17	8	Non-RCRA hazardous waste

Note:

RCRA = Resource Conservation and Recovery Act

5.4 Reverse Osmosis Concentrate Generated

Data regarding daily volumes of RO concentrate generated are provided in Appendix B, as measured by flowmeter FIT-701 (Figures PR-10-03 and PR-10-04). From January 1, 2017 through June 30, 2017, approximately 143,026 gallons of RO concentrate were transported to Liquid Environmental Solutions in Phoenix, Arizona for disposal.

5.5 Summary of ARARs Compliance

No ARAR violations were identified during the January 1, 2017 through June 30, 2017 semiannual reporting period.

5.6 Operation and Maintenance – Required Shutdowns

Records of routine maintenance are kept onsite.

Appendix A contains a summary of the operation or maintenance issues that required the groundwater extraction system to be shut down during the January 1, 2017 through June 30, 2017 semiannual reporting period.

Activities during the Second Quarter 2017 included one extended shutdown. The extraction well system was offline from 6:42 a.m. on April 3, 2017 to 2:52 p.m. on April 6, 2017, and from 6:26 p.m. on April 6, 2017 to 10:54 a.m. on April 7, 2017 for semiannual scheduled maintenance. The extraction wells were operated intermittently during the end of the outage to confirm piping re-assembly and pump operation. Total extraction system downtime during the extended shutdown was 4 days, 38 minutes.

PG&E notified DOI, DTSC, the San Bernardino County Fire Department (the CUPA), the State Office of Emergency Service (OES), the Colorado River Regional Water Quality Control Board, and the Fort Mojave Indian Tribe on May 30, 2017 of a small release of 25% caustic soda solution (NaOH) outside of the IM-3 containment structure from a transport tote.

More specific information on the release notification includes:

- Date and time: Tuesday, 5/30/2017, at 10:30 a.m.

- Estimated quantity of release: A total of approximately 250 gallons released into containment, about 3 to 5 gallons to the nearby gravel surface
- Location: At the IM-3 treatment facility, on the containment pad with the sludge bins; and on the gravel surface adjacent to the containment pad
- Released material: 25% caustic soda solution, NaOH

A forklift was being use to pick up the caustic tote to move it to a new position on containment. As the tote was being picked up, one of the fork tines punctured the plastic container wall. The container was set down on the concrete containment surface, and most of the liquid drained onto the concrete and down into the moat. A small portion (approximately 3 – 5 gallons) of the caustic reached the adjacent gravel surface. The IM-3 staff proceeded to excavate all the affected gravel and soil and will dispose of this material as a waste. The material in the moat was reclaimed and used for microfilter cleaning (the intended function).

5.7 Treatment Facility Modifications

No modifications were made to the IM-3 treatment facility that resulted in a material change in the quality or quantity of wastewater treated or discharged, nor resulted in a material change in the location of discharge, during the January 1, 2017 through June 30, 2017 semiannual period.

Conclusions

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

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

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: _____ July 14, 2017

Tables

Table 1. Sampling Station Descriptions*Second Quarter 2017 Monitoring Report for Interim Measure No. 3 Groundwater Treatment System*

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

Notes:

= Sequential sample identification number at each sample station

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

Table 2. Flow Monitoring Results*Second Quarter 2017 Monitoring Report for Interim Measure No. 3 Groundwater Treatment System*

Parameter	System Influent^{a,b} (gpm)	System Effluent^b (gpm)	Reverse Osmosis Concentrate^b (gpm)
April 2017 Average Monthly Flowrate	115.3	115.0	0.7
May 2017 Average Monthly Flowrate	136.5	132.1	0.5
June 2017 Average Monthly Flowrate	130.9	128.9	1.0

Notes:

gpm: gallons per minute

^a Extraction wells TW-3D and PE-1 were operated during the Second Quarter 2017. Extraction wells TW-2D and TW-2S did not operate during Second Quarter 2017.

^b The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during the Second Quarter 2017 is approximately 1.2 percent.

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

Parameter	Sample Collection Dates	Results
Influent	April 3, 2017 May 2, 2017 June 6, 2017	See Table 4
Effluent	April 3, 2017 April 7, 2017 May 2, 2017 June 6, 2017	See Table 5
Reverse Osmosis Concentrate	April 3, 2017	See Table 6
Sludge ^a	Composite collected from each bin sent off-site during the previous calendar Quarter	See Table 7

Notes:^a Sludge samples analysis is required quarterly by composite.

TABLE 4
Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Influent Monitoring Results ^a
Second Quarter 2017 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	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	0.160	0.0250	0.0700	0.0380	0.260	0.0170	0.180	0.0560	0.190	0.0400	0.110	0.640	1.80	0.270
SC-100B-WDR-556	4/3/2017		4200	0.370	7300	7.2	480 J	480	ND (50.0)	ND (0.0500)	ND (2.50)	3.20	29.0	1.10	ND (1.00)J	2.40	ND (5.00)	19.0	21.0	ND (1.00)	2.80	530	ND (20.0)	39.0 J
RL			50.0	0.100	0.100	---	5.00	20.0	50.0	0.0500	2.50	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-100B-WDR-558	5/2/2017		4200	0.250	7900	7.1	520	540	---	---	---	---	---	---	---	---	---	9.30	---	---	---	---	---	---
RL			50.0	0.100	0.100	---	5.00	20.0	---	---	---	---	---	---	---	---	---	0.500	---	---	---	---	---	---
SC-100B-WDR-559	6/6/2017		4600	0.220	7700	6.9	520	530	---	---	---	---	---	---	---	---	---	5.70	---	---	---	---	---	---
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
Second Quarter 2017 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Effluent Limits ^b	Ave. Monthly	NA	NA	NA	6.5-8.4	25	8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	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>		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	0.0170	0.0370	0.0560	0.0390	0.0400	0.110	0.640	1.80
Sample ID	Date																						
SC-700B-WDR-556	4/3/2017	4100	0.320	7400	7.0	ND (1.00)	ND (0.200)	ND (50.0)	ND (0.0500)	ND (0.500)	0.110	16.0	1.10	ND (1.00)	2.30	ND (5.00)	7.60	23.0	1.80	2.70	530	24.0	23.0
	RL	50.0	0.100	0.100	---	1.00	0.200	50.0	0.0500	0.500	0.100	1.00	0.100	1.00	0.500	5.00	0.500	2.50	1.00	0.250	25.0	20.0	10.0
SC-700B-WDR-557	4/7/2017	4000	0.820 J	7600	7.4	2.10	1.20	ND (50.0)	ND (0.0500)	ND (2.50)	0.300	5.70	0.860	ND (1.00)	2.10	ND (5.00)	22.0	30.0	ND (1.00)	2.60	510	370 J	ND (10.0)
	RL	50.0	0.100	0.100	---	1.00	0.200	50.0	0.0500	2.50	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-558	5/2/2017	4100	0.200	7600	7.0	ND (1.00)	ND (0.200)	ND (50.0)	ND (0.0500)	ND (0.500)	0.110	14.0	1.10	ND (1.00)	2.50	ND (1.00)	3.70	22.0	ND (1.00)	3.00	490	ND (20.0)	ND (10.0)
	RL	50.0	0.100	0.100	---	1.00	0.200	50.0	0.0500	0.500	0.100	1.00	0.100	1.00	0.500	1.00	0.500	0.500	1.00	0.250	25.0	20.0	10.0
SC-700B-WDR-559	6/6/2017	4300	0.240	7700	6.6	ND (1.00)	ND (1.00)	ND (50.0)	ND (0.0500)	ND (0.500)	ND (0.100)	12.0	1.20	ND (1.00)	2.40	ND (1.00)	2.50	23.0	ND (1.00)	3.00 J	500	68.0 J	ND (10.0)
	RL	50.0	0.100	0.100	---	1.00	1.00	50.0	0.0500	0.500	0.100	1.00	0.100	1.00	0.500	1.00	0.500	0.500	1.00	0.250	25.0	20.0	10.0

NOTES:

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

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

Sampling Frequency		Quarterly																						
<div>Sample ID</div>	<div>Date</div>	<div>Analytes</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
		<div>Units^b</div>	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
		<div>MDL</div>	500	0.100	---	0.00048	0.0016	0.00079	0.00062	0.0017	0.0011	0.0012	0.00066	0.0013	0.0680	0.00092	0.00097	0.000087	0.00099	0.00069	0.0015	0.00074	0.00053	0.0067
SC-701-WDR-556	4/3/2017		41000	56000	8.1	ND (0.0250)	ND (0.0050)	ND (0.0120)	ND (0.0025)	0.220	ND (0.0120)	ND (0.0120)	ND (0.0120)	ND (0.0050)	22.0	ND (0.0250)	0.180	ND (0.00020)	ND (0.0250)	0.0390	ND (0.0120)	ND (0.0120)	ND (0.0250)	ND (0.250)
RL			500	0.100	---	0.0250	0.0050	0.0120	0.0025	0.0250	0.0120	0.0120	0.0120	0.0050	2.00	0.0250	0.0120	0.00020	0.0250	0.0120	0.0120	0.0120	0.0250	0.250

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

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

Sampling Frequency		Quarterly																		
<div><div></div><div>Analytes</div><div>Units^b</div><div>MDL</div></div>	Date	Chromium	Hexavalent Chromium	Antimony	Arsenic	Barium	Beryllium	Cadmium	Cobalt	Copper	Fluoride	Lead	Molybdenum	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
		0.0920	0.470	0.420	0.490	0.0970	0.0860	0.0830	0.0830	0.0910	0.0780	0.0910	0.0810	0.0270	0.0960	0.350	0.0930	0.370	0.0830	0.140
Sample ID																				
Phase Separator-556-Sludge	4/3/2017	4000	92.0 J	ND (4.60)	21.0	68.0	ND (2.30)	2.80	3.50	150	18.0	ND (2.30)	ND (2.30)	ND (0.230)	23.0	ND (2.30)	ND (2.30)	4.60	50.0	48.0
RL		2.30	4.60	4.60	2.30	2.30	2.30	2.30	2.30	4.60	2.30	2.30	2.30	0.230	2.30	2.30	2.30	4.60	2.30	2.30

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

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

TABLE 8

Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Monitoring Information
Second Quarter 2017 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-100B	SC-100B-WDR-556	Josh Rosenberg	4/3/2017	5:30:00 AM	ASSET	EPA 120.1	SC	4/4/2017	Lilia Ramit
					ASSET	EPA 200.7	AL	4/7/2017	Claire Ignacio
					ASSET	EPA 200.7	B	4/7/2017	Claire Ignacio
					ASSET	EPA 200.7	FE	4/7/2017	Claire Ignacio
					ASSET	EPA 200.8	AS	4/5/2017	Claire Ignacio
					ASSET	EPA 200.8	BA	4/5/2017	Claire Ignacio
					ASSET	EPA 200.8	CR	4/5/2017	Claire Ignacio
					ASSET	EPA 200.8	CU	4/6/2017	Claire Ignacio
					ASSET	EPA 200.8	MN	4/5/2017	Claire Ignacio
					ASSET	EPA 200.8	MO	4/5/2017	Claire Ignacio
					ASSET	EPA 200.8	NI	4/5/2017	Claire Ignacio
					ASSET	EPA 200.8	PB	4/6/2017	Claire Ignacio
					ASSET	EPA 200.8	SB	4/5/2017	Claire Ignacio
					ASSET	EPA 200.8	ZN	4/5/2017	Claire Ignacio
					ASSET	EPA 218.6	CR6	4/4/2017	Ria Abes
					ASSET	EPA 300.0	FL	4/4/2017	Ria Abes
					ASSET	EPA 300.0	SO4	4/4/2017	Ria Abes
					Field	HACH	PH	4/3/2017	Josh Rosenberg
					ASSET	SM 2540C	TDS	4/4/2017	Lilia Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	4/11/2017	Ryan Balilu
					ASSET	SM2130B	TRB	4/4/2017	Lilia Ramit
					TLI	SM4500NH3D	NH3N	4/12/2017	Ryan Balilu
SC-100B	SC-100B-WDR-558	Ryan Phelps	5/2/2017	1:00:00 PM	ASSET	EPA 120.1	SC	5/3/2017	Lilia Ramit
					ASSET	EPA 200.8	CR	5/12/2017	Claire Ignacio
					ASSET	EPA 200.8	MN	5/12/2017	Claire Ignacio
					ASSET	EPA 218.6	CR6	5/4/2017	Ria Abes
					Field	HACH	PH	5/2/2017	Ryan Phelps
					ASSET	SM 2540C	TDS	5/3/2017	Lilia Ramit
					ASSET	SM2130B	TRB	5/3/2017	Lilia Ramit
SC-100B	SC-100B-WDR-559	George Gloria	6/6/2017	12:30:00 PM	Field	HACH	PH	6/6/2017	G. Gloria
				12:40:00 PM	ASSET	EPA 120.1	SC	6/7/2017	Lilia Ramit
					ASSET	EPA 200.8	CR	6/12/2017	Claire Ignacio
					ASSET	EPA 200.8	MN	6/12/2017	Claire Ignacio
					ASSET	EPA 218.6	CR6	6/7/2017	Ria Abes
					ASSET	SM 2540C	TDS	6/7/2017	Lilia Ramit

TABLE 8

Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)
Monitoring Information
Second Quarter 2017 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-100B	SC-100B-WDR-559	George Gloria	6/6/2017	12:40:00 PM	ASSET	SM2130B	TRB	6/7/2017	Lilia Ramit
SC-700B	SC-700B-WDR-556	Josh Rosenberg	4/3/2017	5:35:00 AM	ASSET	EPA 120.1	SC	4/4/2017	Lilia Ramit
					ASSET	EPA 200.7	AL	4/7/2017	Claire Ignacio
					ASSET	EPA 200.7	B	4/7/2017	Claire Ignacio
					ASSET	EPA 200.7	FE	4/7/2017	Claire Ignacio
					ASSET	EPA 200.8	AS	4/5/2017	Claire Ignacio
					ASSET	EPA 200.8	BA	4/5/2017	Claire Ignacio
					ASSET	EPA 200.8	CR	4/5/2017	Claire Ignacio
					ASSET	EPA 200.8	CU	4/6/2017	Claire Ignacio
					ASSET	EPA 200.8	MN	4/5/2017	Claire Ignacio
					ASSET	EPA 200.8	MO	4/5/2017	Claire Ignacio
					ASSET	EPA 200.8	NI	4/5/2017	Claire Ignacio
					ASSET	EPA 200.8	PB	4/6/2017	Claire Ignacio
					ASSET	EPA 200.8	SB	4/5/2017	Claire Ignacio
					ASSET	EPA 200.8	ZN	4/5/2017	Claire Ignacio
					ASSET	EPA 218.6	CR6	4/4/2017	Ria Abes
					ASSET	EPA 300.0	FL	4/4/2017	Ria Abes
					ASSET	EPA 300.0	SO4	4/4/2017	Ria Abes
					Field	HACH	PH	4/3/2017	Josh Rosenberg
					ASSET	SM 2540C	TDS	4/4/2017	Lilia Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	4/11/2017	Ryan Balilu
SC-700B	SC-700B-WDR-557	Ryan Phelps	4/7/2017	4:21:00 PM	ASSET	SM2130B	TRB	4/4/2017	Lilia Ramit
					TLI	SM4500NH3D	NH3N	4/12/2017	Ryan Balilu
					ASSET	EPA 120.1	SC	4/10/2017	Lilia Ramit
					ASSET	EPA 200.7	AL	4/18/2017	Claire Ignacio
					ASSET	EPA 200.7	B	4/18/2017	Claire Ignacio
					ASSET	EPA 200.7	FE	4/18/2017	Claire Ignacio
					ASSET	EPA 200.8	AS	4/11/2017	Claire Ignacio
					ASSET	EPA 200.8	BA	4/12/2017	Claire Ignacio
					ASSET	EPA 200.8	CR	4/11/2017	Claire Ignacio
					ASSET	EPA 200.8	CU	4/11/2017	Claire Ignacio
SC-700B	SC-700B-WDR-557	Ryan Phelps	4/7/2017	4:21:00 PM	ASSET	EPA 200.8	MN	4/11/2017	Claire Ignacio
					ASSET	EPA 200.8	MO	4/12/2017	Claire Ignacio
					ASSET	EPA 200.8	NI	4/11/2017	Claire Ignacio
					ASSET	EPA 200.8	PB	4/11/2017	Claire Ignacio

TABLE 8

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

Monitoring Information

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

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-700B	SC-700B-WDR-557	Ryan Phelps	4/7/2017	4:21:00 PM	ASSET	EPA 200.8	SB	4/11/2017	Claire Ignacio
					ASSET	EPA 200.8	ZN	4/11/2017	Claire Ignacio
					ASSET	EPA 218.6	CR6	4/10/2017	Ryan Balilu
					ASSET	EPA 300.0	FL	4/11/2017	Ria Abes
					ASSET	EPA 300.0	SO4	4/11/2017	Ria Abes
					Field	HACH	PH	4/7/2017	Ryan Phelps
					ASSET	SM 2540C	TDS	4/10/2017	Lilia Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	4/11/2017	Ryan Balilu
					ASSET	SM2130B	TRB	4/10/2017	Lilia Ramit
					TLI	SM4500NH3D	NH3N	4/12/2017	Ryan Balilu
SC-700B	SC-700B-WDR-558	Ryan Phelps	5/2/2017	1:10:00 PM	ASSET	EPA 120.1	SC	5/3/2017	Lilia Ramit
					ASSET	EPA 200.7	AL	5/13/2017	Claire Ignacio
					ASSET	EPA 200.7	B	5/13/2017	Claire Ignacio
					ASSET	EPA 200.7	FE	5/13/2017	Claire Ignacio
					ASSET	EPA 200.8	AS	5/15/2017	Claire Ignacio
					ASSET	EPA 200.8	BA	5/12/2017	Claire Ignacio
					ASSET	EPA 200.8	CR	5/12/2017	Claire Ignacio
					ASSET	EPA 200.8	CU	5/12/2017	Claire Ignacio
					ASSET	EPA 200.8	MN	5/12/2017	Claire Ignacio
					ASSET	EPA 200.8	MO	5/12/2017	Claire Ignacio
					ASSET	EPA 200.8	NI	5/12/2017	Claire Ignacio
					ASSET	EPA 200.8	PB	5/12/2017	Claire Ignacio
					ASSET	EPA 200.8	SB	5/12/2017	Claire Ignacio
					ASSET	EPA 200.8	ZN	5/12/2017	Claire Ignacio
					ASSET	EPA 218.6	CR6	5/4/2017	Ria Abes
					ASSET	EPA 300.0	FL	5/3/2017	Ria Abes
					ASSET	EPA 300.0	SO4	5/3/2017	Ria Abes
					Field	HACH	PH	5/2/2017	Ryan Phelps
					ASSET	SM 2540C	TDS	5/3/2017	Lilia Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	5/14/2017	Ryan Balilu
					ASSET	SM2130B	TRB	5/3/2017	Lilia Ramit
					TLI	SM4500NH3D	NH3N	5/8/2017	Ryan Balilu
SC-700B	SC-700B-WDR-559	George Gloria	6/6/2017	12:30:00 PM	Field	HACH	PH	6/6/2017	G. Gloria
				12:46:00 PM	ASSET	EPA 120.1	SC	6/7/2017	Lilia Ramit
					ASSET	EPA 200.7	AL	6/13/2017	Claire Ignacio

TABLE 8

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

Monitoring Information

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

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-700B	SC-700B-WDR-559	George Gloria	6/6/2017	12:46:00 PM	ASSET	EPA 200.7	B	6/13/2017	Claire Ignacio
					ASSET	EPA 200.7	FE	6/13/2017	Claire Ignacio
					ASSET	EPA 200.8	AS	6/12/2017	Claire Ignacio
					ASSET	EPA 200.8	BA	6/12/2017	Claire Ignacio
					ASSET	EPA 200.8	CR	6/12/2017	Claire Ignacio
					ASSET	EPA 200.8	CU	6/12/2017	Claire Ignacio
					ASSET	EPA 200.8	MN	6/12/2017	Claire Ignacio
					ASSET	EPA 200.8	MO	6/12/2017	Claire Ignacio
					ASSET	EPA 200.8	NI	6/12/2017	Claire Ignacio
					ASSET	EPA 200.8	PB	6/13/2017	Claire Ignacio
					ASSET	EPA 200.8	SB	6/12/2017	Claire Ignacio
					ASSET	EPA 200.8	ZN	6/12/2017	Claire Ignacio
					ASSET	EPA 218.6	CR6	6/7/2017	Ria Abes
					ASSET	EPA 300.0	FL	6/8/2017	Ria Abes
					ASSET	EPA 300.0	SO4	6/8/2017	Ria Abes
					ASSET	SM 2540C	TDS	6/7/2017	Lilia Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	6/19/2017	Ryan Balilu
					ASSET	SM2130B	TRB	6/7/2017	Lilia Ramit
					TLI	SM4500NH3D	NH3N	6/15/2017	Ryan Balilu
SC-701	SC-701-WDR-556	Josh Rosenberg	4/3/2017	5:40:00 AM	ASSET	EPA 120.1	SC	4/4/2017	Lilia Ramit
					ASSET	EPA 200.8	AG	4/5/2017	Claire Ignacio
					ASSET	EPA 200.8	AS	4/5/2017	Claire Ignacio
					ASSET	EPA 200.8	BA	4/5/2017	Claire Ignacio
					ASSET	EPA 200.8	BE	4/6/2017	Claire Ignacio
					ASSET	EPA 200.8	CD	4/5/2017	Claire Ignacio
					ASSET	EPA 200.8	CO	4/5/2017	Claire Ignacio
					ASSET	EPA 200.8	CR	4/5/2017	Claire Ignacio
					ASSET	EPA 200.8	CU	4/6/2017	Claire Ignacio
					ASSET	EPA 200.8	MN	4/5/2017	Claire Ignacio
					ASSET	EPA 200.8	MO	4/5/2017	Claire Ignacio
					ASSET	EPA 200.8	NI	4/5/2017	Claire Ignacio
					ASSET	EPA 200.8	PB	4/6/2017	Claire Ignacio
					ASSET	EPA 200.8	SB	4/5/2017	Claire Ignacio
					ASSET	EPA 200.8	SE	4/7/2017	Claire Ignacio
					ASSET	EPA 200.8	TL	4/5/2017	Claire Ignacio
					ASSET	EPA 200.8	V	4/5/2017	Claire Ignacio

TABLE 8

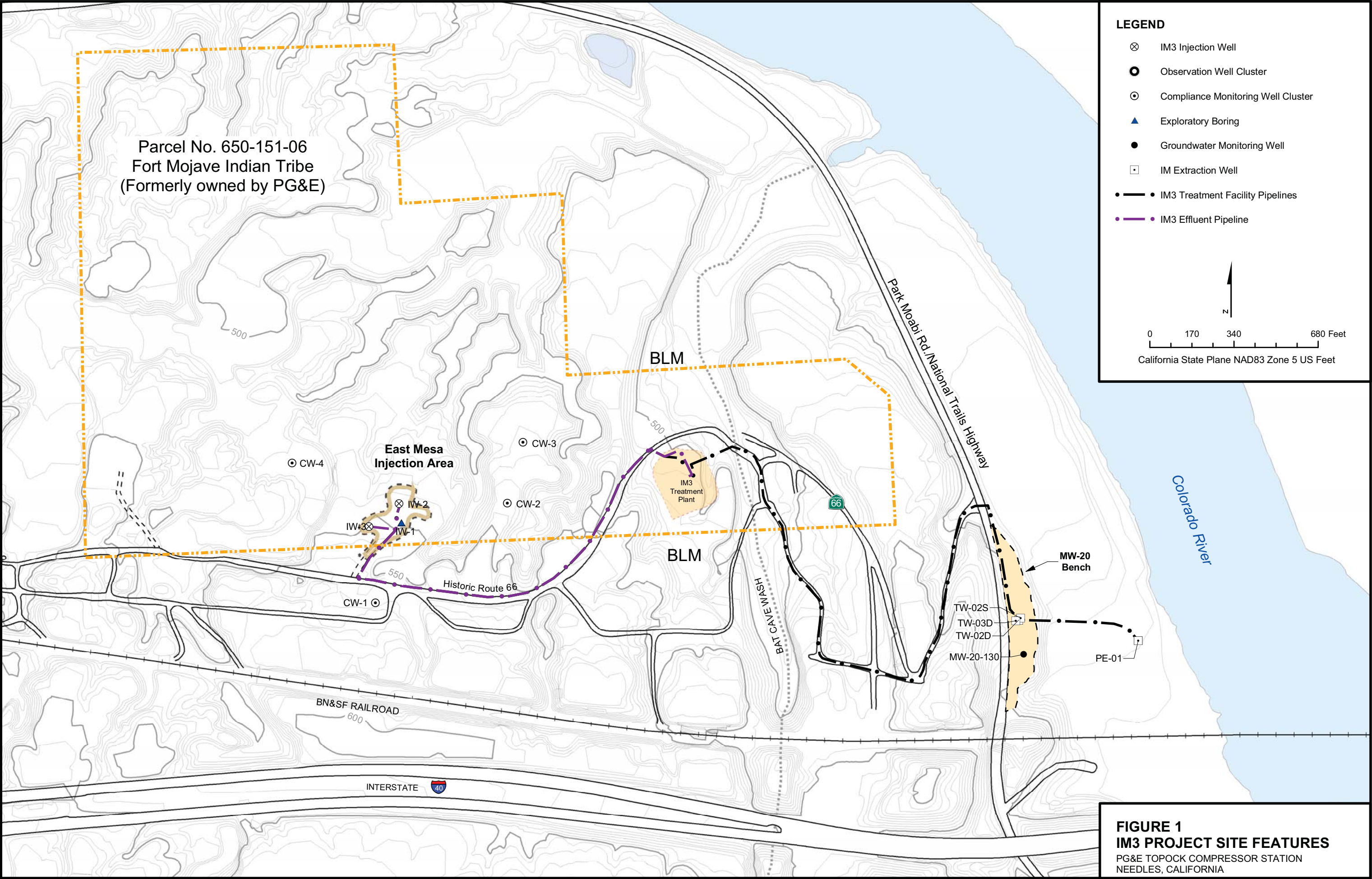
Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs)

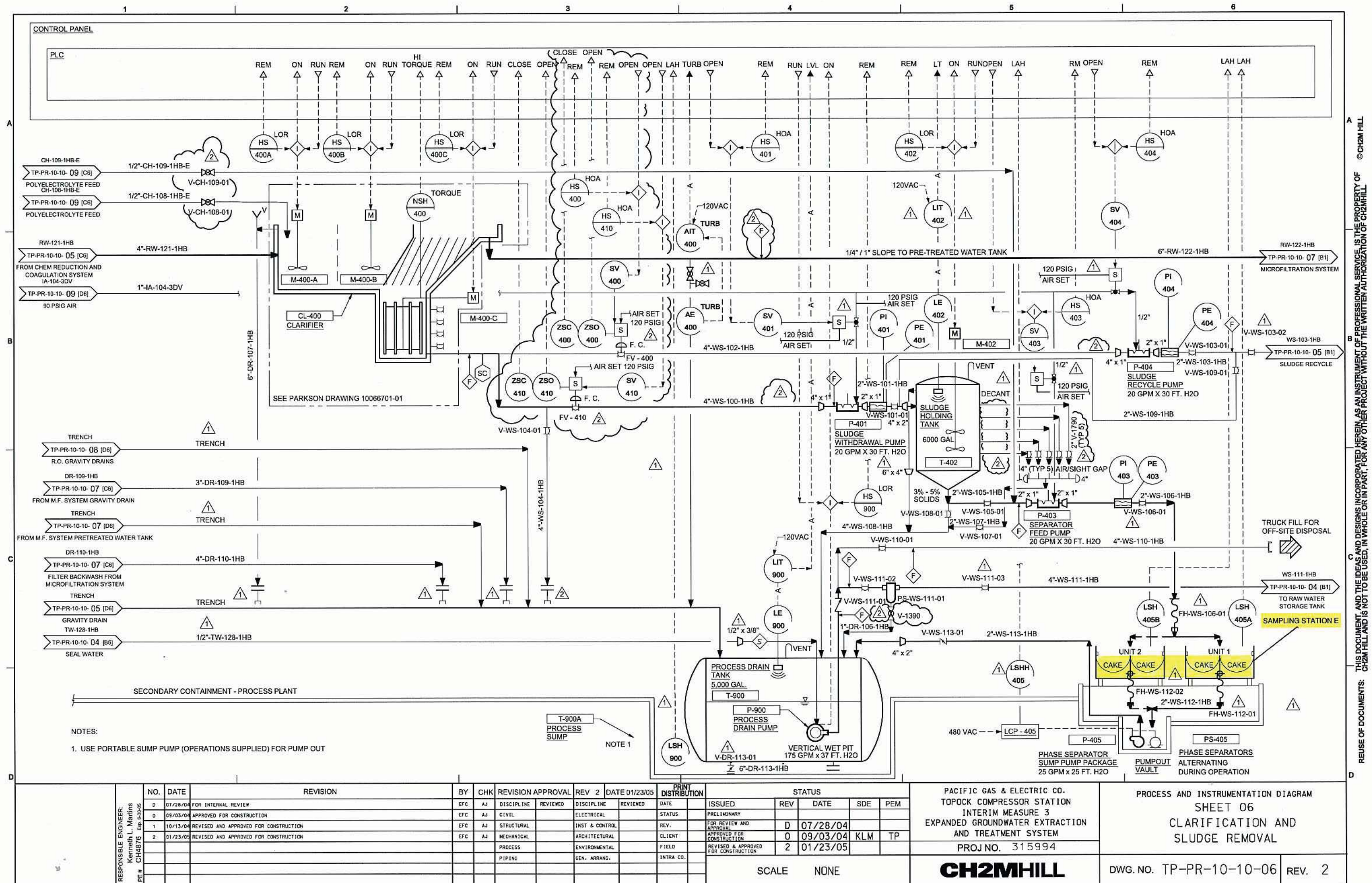
Monitoring Information

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

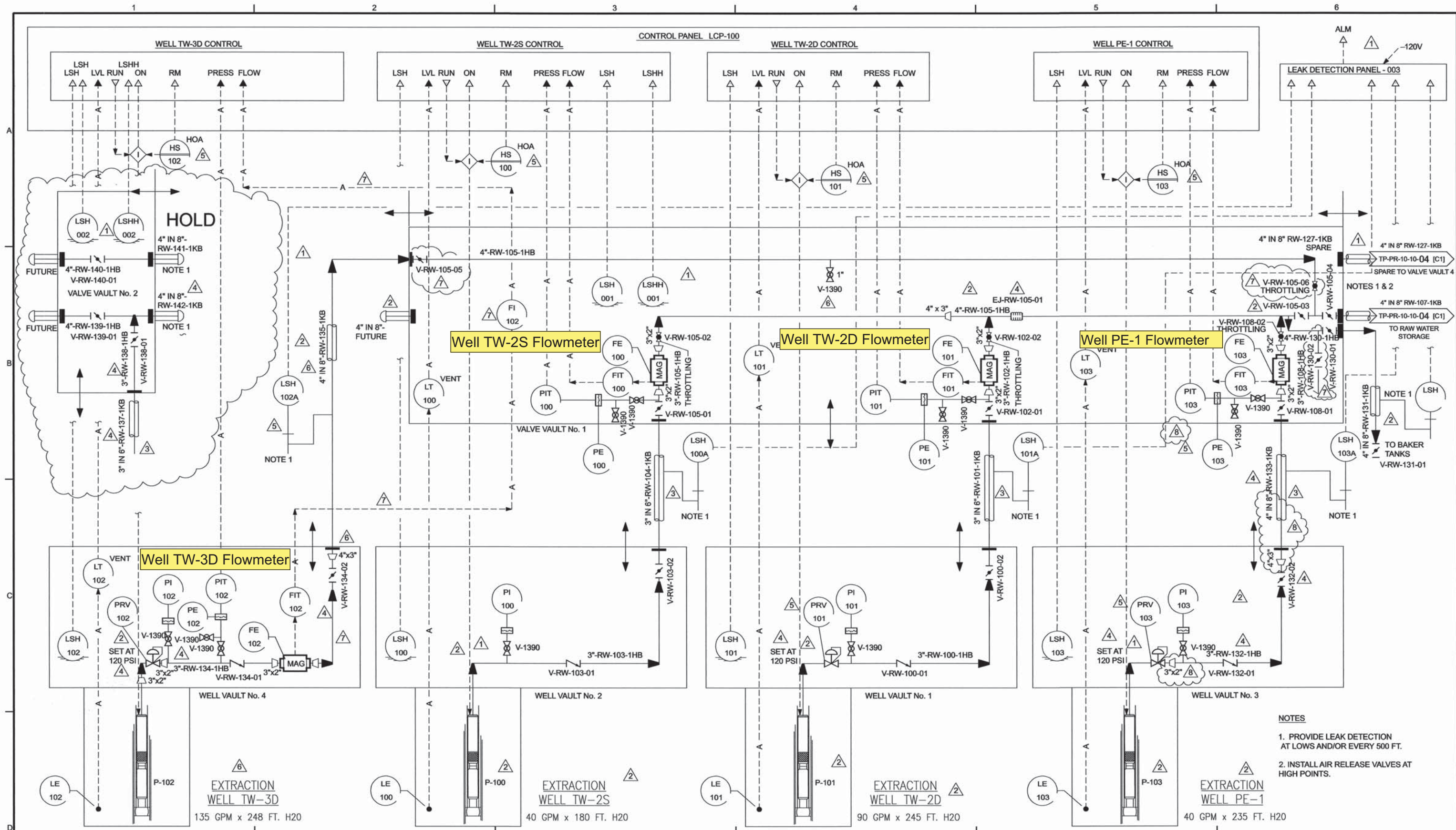
Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-701	SC-701-WDR-556	Josh Rosenberg	4/3/2017	5:40:00 AM	ASSET	EPA 200.8	ZN	4/5/2017	Claire Ignacio
					ASSET	EPA 218.6	CR6	4/4/2017	Ria Abes
					ASSET	EPA 245.1	HG	4/6/2017	Mark Gesmundo
					ASSET	EPA 300.0	FL	4/4/2017	Ria Abes
					Field	HACH	PH	4/3/2017	Josh Rosenberg
					ASSET	SM 2540C	TDS	4/4/2017	Lilia Ramit
Phase Separator	Phase Separator-556-Sludge	George Gloria	4/3/2017	5:50:00 AM	ASSET	EPA 300.0	FL	4/10/2017	Ria Abes
					ASSET	EPA 6010B	AG	4/4/2017	Claire Ignacio
					ASSET	EPA 6010B	AS	4/5/2017	Claire Ignacio
					ASSET	EPA 6010B	BA	4/4/2017	Claire Ignacio
					ASSET	EPA 6010B	BE	4/4/2017	Claire Ignacio
					ASSET	EPA 6010B	CD	4/4/2017	Claire Ignacio
					ASSET	EPA 6010B	CO	4/4/2017	Claire Ignacio
					ASSET	EPA 6010B	CR	4/4/2017	Claire Ignacio
					ASSET	EPA 6010B	CU	4/4/2017	Claire Ignacio
					ASSET	EPA 6010B	MN	4/4/2017	Claire Ignacio
					ASSET	EPA 6010B	MO	4/4/2017	Claire Ignacio
					ASSET	EPA 6010B	NI	4/4/2017	Claire Ignacio
					ASSET	EPA 6010B	PB	4/4/2017	Claire Ignacio
					ASSET	EPA 6010B	SB	4/4/2017	Claire Ignacio
					ASSET	EPA 6010B	SE	4/4/2017	Claire Ignacio
					ASSET	EPA 6010B	TL	4/5/2017	Claire Ignacio
					ASSET	EPA 6010B	V	4/4/2017	Claire Ignacio
					ASSET	EPA 6010B	ZN	4/4/2017	Claire Ignacio
					ASSET	EPA 7471A	HG	4/4/2017	Mark Gesmundo
					ASSET	SW 7199	CR6	4/4/2017	Ria Abes

Figures





REUSE OF DOCUMENTS:
THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2M HILL AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2MHILL.



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

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

SCALE NONE

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

CH2MHILL

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

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

FILENAME: tpr101003.dwg

PLOT DATE: 19-OCT-2005

PLOT TIME:

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

Appendix A
Semiannual Operations and
Maintenance Log,
January 1, 2017 through June 30, 2017

Semiannual Operations and Maintenance Log, January 1, 2017 through June 30, 2017

Downtime is defined as any period when all extraction wells are not operating, so that no groundwater is being extracted and piped into IM-3 as influent. Periods of planned and unplanned extraction system downtime are summarized here. The times shown are in Pacific Standard Time to be consistent with other data (e.g., water level data) collected at the site.

January 2017

During January 2017, extraction wells TW-3D and PE-1 operated at a target pump rate of 135 gallons per minute (gpm) excluding periods of planned and unplanned downtime. Extraction wells TW-2S and TW-2D were not operated during January 2017. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 97.0 percent during the January 2017 reporting period.

The IM-3 facility treated approximately 5,827,818 gallons of extracted groundwater during January 2017. The IM-3 facility treated 28,500 gallons of injection well backwash water during January 2017. Periods of planned and unplanned extraction system downtime (that together resulted an approximately 3.0 percent downtime during January 2017) are summarized below.

- **January 1, 2017 (unplanned):** The extraction well system was offline from 4:58 a.m. to 6:34 a.m. for managing water levels in the Raw Water Storage tank (T-100). Extraction system downtime was 1 hour 36 minutes.
- **January 2, 2017 (unplanned):** The extraction well system was offline from 2:00 p.m. to 3:40 p.m. for managing water levels in the Raw Water Storage tank (T-100). Extraction system downtime was 1 hour 40 minutes.
- **January 3, 2017 (unplanned):** The extraction well system was offline from 10:16 p.m. to 11:50 p.m. for managing water levels in the Raw Water Storage tank (T-100). Extraction system downtime was 1 hour 34 minutes.
- **January 4, 2017 (planned):** The extraction well system was offline from 11:40 a.m. to 11:46 a.m. for extraction well sample collection by Blaine Tech at extraction well PE-1. Extraction system downtime was 6 minutes.
- **January 5, 2017 (unplanned):** The extraction well system was offline from 11:46 a.m. to 11:52 a.m., from 11:58 a.m. to 12:00 p.m., from 12:04 p.m. to 12:06 p.m., from 12:18 p.m. to 12:24 p.m., and from 12:34 p.m. to 12:36 p.m. to perform a check of the extraction well vault leak detection systems. Extraction system downtime was 20 minutes.
- **January 8, 2017 (unplanned):** The extraction well system was offline from 10:16 p.m. to 10:40 p.m. to change pre-filters on the primary reverse osmosis system. Extraction system downtime was 24 minutes.
- **January 11, 2017 (unplanned):** The extraction well system was offline from 9:12 a.m. to 1:54 p.m. due to a blockage requiring maintenance in the iron oxidation tanks (T-301A, B and C). Extraction system downtime was 4 hours 42 minutes.

- **January 12, 2017 (unplanned):** The extraction well system was offline from 8:46 a.m. to 2:08 p.m. to replace the microfilter modules and repair the primary reverse osmosis unit. Extraction system downtime was 5 hours 22 minutes.
- **January 18, 2017 (unplanned):** The extraction well system was offline from 9:34 a.m. to 10:04 a.m. due to maintenance for leaking valves and fittings on reverse osmosis unit and the anti-scalant pump. Extraction system downtime was 30 minutes.
- **January 19, 2017 (unplanned):** The extraction well system was offline from 2:24 a.m. to 7:20 a.m. due to plant maintenance on the blower for the iron oxidation tanks (T-301A, B, and C). Extraction system downtime was 4 hours 56 minutes.
- **January 30, 2017 (planned):** The extraction well system was offline from 10:16 p.m. to 10:40 p.m. to replace the microfilter modules. Extraction system downtime was 1 hour 12 minutes.

February 2017

During February 2017, extraction wells TW-3D and PE-1 operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2S and TW-2D were not operated during February 2017. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 97.6 percent during the February 2017 reporting period.

The IM-3 facility treated approximately 5,299,068 gallons of extracted groundwater during February 2017. The IM-3 facility treated 800 gallons of purge water during February 2017. Two containers of solids from the IM-3 facility were transported offsite during February 2017.

Periods of planned and unplanned extraction system downtime (that together resulted an approximately 2.4 percent downtime during February 2017) are summarized below.

- **February 1, 2017 (unplanned):** The extraction well system was offline from 7:32 a.m. to 7:38 a.m., from 7:40 a.m. to 7:56 a.m., from 7:58 a.m. to 8:04 a.m., and from 8:10 a.m. to 8:12 a.m. for managing water levels in the Raw Water Storage tank (T-100). Extraction system downtime was 30 minutes.
- **February 14, 2017 (unplanned):** The extraction well system was offline from 11:30 a.m. to 2:22 p.m. to replace the microfilter modules. Extraction system downtime was 2 hours 52 minutes.
- **February 16, 2017 (unplanned):** The extraction well system was offline from 2:26 a.m. to 8:00 a.m. for pneumatic valve repair for the Microfilter Feed Tank (T-501). Extraction system downtime was 5 hours 34 minutes.
- **February 16, 2017 (planned):** The extraction well system was offline from 8:44 a.m. to 9:34 a.m. due to maintenance on the human-machine interface (HMI) system. Extraction system downtime was 50 minutes.
- **February 22, 2017 (unplanned):** The extraction well system was offline from 8:12 a.m. to 12:48 p.m. and again from 1:00 p.m. to 2:48 p.m. to replace the microfilter modules. Extraction system downtime was 6 hours 4 minutes.

March 2017

During March 2017, extraction wells TW-3D and PE-1 operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2S and TW-2D were not

operated during March 2017. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 97.7 percent during the March 2017 reporting period.

The IM-3 facility treated approximately 5,864,133 gallons of extracted groundwater during March 2017. Two containers of solids from the IM-3 facility were transported offsite during March 2017.

Periods of planned and unplanned extraction system downtime (that together resulted an approximately 2.3 percent downtime during March 2017) are summarized below.

- **March 8, 2017 (planned):** The extraction well system was offline from 12:44 p.m. to 12:46 p.m. and again from 1:48 p.m. to 2:00 p.m. for managing water levels in the Raw Water Storage tank (T-100) and for Blaine Tech sampling at extraction well TW-2D. Extraction system downtime was 14 minutes.
- **March 13, 2017 (unplanned):** The extraction well system was offline from 12:54 pm. to 3:12 p.m. and again from 5:20 p.m. to 5:56 p.m. for managing water levels in the Raw Water Storage tank (T-100). Extraction system downtime was 2 hours 54 minutes.
- **March 14, 2017 (unplanned):** The extraction well system was offline from 9:34 a.m. to 4:06 p.m. for managing water levels in the Raw Water Storage tank (T-100). Extraction system downtime was 6 hours 32 minutes.
- **March 16, 2017 (unplanned):** The extraction well system was offline from 11:00 a.m. to 11:54 a.m. for microfilter module replacement. Extraction system downtime was 54 minutes.
- **March 21, 2017 (unplanned):** The extraction well system was offline from 2:06 p.m. to 2:08 p.m. due to power failure from the City of Needles. Extraction system downtime was 2 minutes.
- **March 22, 2017 (unplanned):** The extraction well system was offline from 9:58 a.m. to 10:00 a.m. due to power failure from the City of Needles. Extraction system downtime was 2 minutes.
- **March 23, 2017 (unplanned):** The extraction well system was offline from 12:40 p.m. to 1:12 p.m. and again from 1:18 p.m. to 1:46 p.m. for repairs to the acid pump. Extraction system downtime was 1 hour.
- **March 25, 2017 (unplanned):** The extraction well system was offline from 9:42 a.m. to 12:42 p.m., from 12:46 p.m. to 1:00 p.m., from 1:10 p.m. to 1:20 p.m., and from 2:02 p.m. to 2:18 p.m. to replace the pump and motor in P-500. Extraction system downtime was 3 hours 40 minutes.
- **March 25, 2017 (unplanned):** The extraction well system was offline from 2:32 p.m. to 3:30 p.m. for managing water levels in the Raw Water Storage tank (T-100). Extraction system downtime was 58 minutes.
- **March 30, 2017 (unplanned):** The extraction well system was offline from 4:40 p.m. to 5:18 p.m. and again from 5:50 p.m. to 5:54 p.m. due to power failure from the City if Needles. Extraction system downtime 42 minutes.

April 2017

During April 2017, extraction wells TW-3D and PE-1 operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2S and TW-2D were not operated during April 2017. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 85.1 percent during the April 2017 reporting period.

The IM-3 facility treated approximately 4,980,557 gallons of extracted groundwater during April 2017. The IM-3 facility treated 27,550 gallons of water from injection well backwashing/re-development from Groundwater Partners.

Periods of planned and unplanned extraction system downtime (that together resulted an approximately 14.9 percent downtime during April 2017) are summarized below.

- **April 3 - 7, 2017 (planned):** The extraction well system was offline from 6:42 a.m. on April 3, 2017 to 2:52 p.m. on April 6, 2017, and from 6:26 p.m. on April 6, 2017 to 10:54 a.m. on April 7, 2017 for semiannual scheduled maintenance. Extraction system downtime was 4 days, 38 minutes.
- **April 8, 2017 (unplanned):** The extraction well system was offline from 1:08 p.m. to 2:22 p.m. to replace microfilter modules. Extraction system downtime was 1 hour 14 minutes.
- **April 12, 2017 (planned):** The extraction well system was offline from 12:08 p.m. to 12:24 p.m. due to testing of the pipeline critical alarms and leak detection system. Extraction system downtime was 16 minutes.
- **April 14, 2017 (unplanned):** The extraction well system was offline from 6:50 a.m. to 1:10 p.m. for ferrous flow problems due to an air lock in the chemical injection line. Extraction system downtime was 6 hours 20 minutes.
- **April 18, 2017 (unplanned):** The extraction well system was offline from 7:52 p.m. to 8:44 p.m. due to a high level alarm in Iron Oxidation Tank #3 (T-301C) caused by a malfunction in the Clarifier Feed Pump (P-400). Extraction system downtime was 52 minutes.
- **April 24, 2017 (unplanned):** The extraction well system was offline from 1:10 p.m. to 1:40 p.m. due to a high level alarm in Iron Oxidation Tank #3 (T-301C). Extraction system downtime was 30 minutes.
- **April 28, 2017 (unplanned):** The extraction well system was offline from 5:30 p.m. to 5:44 p.m. due to loss of power from the City of Needles. Extraction system downtime was 14 minutes.
- **April 29, 2017 (planned):** The extraction well system was offline from 5:58 a.m. to 7:14 a.m. to maintain appropriate levels in the Raw Water Storage Tank (T-100) due to the large amount of injection well backwashing water produced during the Aquagard cleaning process performed by Groundwater Partners. Extraction system downtime was 1 hour 16 minutes.

May 2017

During May 2017, extraction wells TW-3D and PE-1 operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2S and TW-2D were not operated during May 2017. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 98.4 percent during the May 2017 reporting period.

The IM-3 facility treated approximately 6,092,448 gallons of extracted groundwater during May 2017. The IM-3 facility treated 1,450 gallons of purge water during May 2017.

Periods of planned and unplanned extraction system downtime (that together resulted an approximately 1.6 percent downtime during May 2017) are summarized below.

- **May 2, 2017 (unplanned):** The extraction well system was offline from 6:32 p.m. to 6:52 p.m. to change out the microfilter modules due to high transmembrane pressure at clarifier feed pump (P-400). Extraction system downtime was 20 minutes.

- **May 3, 2017 (unplanned):** The extraction well system was offline from 7:06 a.m. to 11:10 a.m. for work done at the clarifier feed pump (P-400). P-400 was over-heating due to built-up material on the impeller. The system was shut-down so the impeller could be cleaned off and returned to service. Extraction system downtime was 4 hours 4 minutes.
- **May 4, 2017 (planned):** The extraction well system was offline from 8:04 a.m. to 8:06 a.m. and from 8:18 a.m. to 8:20 a.m. due to testing of the pipeline critical alarms and leak detection system. Extraction system downtime was 4 minutes.
- **May 18, 2017 (unplanned):** The extraction well system was offline from 5:58 p.m. to 6:10 p.m. due to loss of power from the City of Needles. Extraction system downtime was 12 minutes.
- **May 19, 2017 (unplanned):** The extraction well system was offline from 7:04 p.m. to 10:42 p.m. due to loss of power from the City of Needles, which caused a computer failure. Extraction system downtime was 3 hours 38 minutes.
- **May 20, 2017 (unplanned):** The extraction well system was offline from 11:40 a.m. to 12:26 p.m. because an influent valve failed in the open position causing a microfilter failure from the microfilter feed tank overflowing. Extraction system downtime was 46 minutes.
- **May 22, 2017 (unplanned):** The extraction well system was offline from 7:22 p.m. to 7:52 p.m. due to a polymer pump failure. Extraction system downtime was 30 minutes.
- **May 23, 2017 (unplanned):** The extraction well system was offline from 6:38 p.m. to 10:20 p.m. because the blower lost a belt. Extraction system downtime was 1 hour 42 minutes.
- **May 25, 2017 (unplanned):** The extraction well system was offline from 5:46 p.m. to 6:32 p.m. due to ferrous flow problems from a chemical injection failure, which caused the Raw Water Storage Tank (T-100) to go to a low level and oxidation tanks to go to high levels. Extraction system downtime was 46 minutes.

June 2017

During June 2017, extraction wells TW-3D and PE-1 operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2S and TW-2D were not operated during June 2017. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 97.6 percent during the June 2017 reporting period.

The IM-3 facility treated approximately 5,654,224 gallons of extracted groundwater during June 2017. Two containers of solids from the IM-3 facility were transported offsite during June 2017.

Periods of planned and unplanned extraction system downtime (that together resulted an approximately 2.4 percent downtime during June 2017) are summarized below.

- **June 1, 2017 (unplanned):** The extraction well system was offline from 7:06 a.m. to 7:16 a.m. due to loss of power from the City of Needles. Extraction system downtime was 10 minutes.
- **June 2, 2017 (planned):** The extraction well system was offline from 7:40 a.m. to 7:50 a.m., from 7:58 a.m. to 8:00 a.m., and from 8:02 a.m. to 8:04 a.m. due to testing of the pipeline critical alarms and leak detection system. Extraction system downtime was 14 minutes.
- **June 7, 2017 (unplanned):** The extraction well system was offline from 7:54 a.m. to 9:50 a.m. to change out the microfilter modules due to high transmembrane pressure. The plant was shut down to replace the plugged modules with clean ones. Extraction system downtime was 1 hour 56 minutes.

- **June 11, 2017 to June 12, 2017 (unplanned):** The extraction well system was offline from 9:50 p.m. on June 11, 2017 to 12:16 a.m. on June 12, 2017 due to a leaking microfilter basket strainer. The plant was shut down to make repairs. Extraction system downtime was 2 hour 26 minutes.
- **June 14, 2017 (unplanned):** The extraction well system was offline from 8:28 a.m. to 8:34 a.m. and from 8:36 a.m. to 10:40 a.m. due to the need to have the plant computer worked on and a battery replaced at the panel. Extraction system downtime was 2 hours 10 minutes.
- **June 20, 2017 (unplanned):** The extraction well system was offline from 8:26 a.m. to 10:46 a.m. to change out the microfilter modules due to high transmembrane pressure. The plant was shut down to replace the plugged modules with clean ones. Extraction system downtime was 2 hours 20 minutes.
- **June 21, 2017 (unplanned):** The extraction well system was offline from 10:48 a.m. to 2:20 p.m. and from 2:24 p.m. to 3:30 p.m. due to a high voltage reading on the incoming power from the transformer. The plant was shut down while the City of Needles Power worker made a power tap adjustment. Extraction system downtime was 4 hours 38 minutes.
- **June 22, 2017 (unplanned):** The extraction well system was offline from 8:30 a.m. to 9:00 a.m. to replace a valve. The plant was shut down due to an air controlled valve failing on the microfilter. Extraction system downtime was 30 minutes.
- **June 22, 2017 to June 23, 2017 (unplanned):** The extraction well system was offline from 11:54 p.m. on June 22, 2017 to 12:40 a.m. on June 23, 2017 due to a breaker at post-treated reverse osmosis permeate pump (P605) being tripped. The breaker was reset and the pump turned back on. Extraction system downtime was 46 minutes.
- **June 28, 2017 (unplanned):** The extraction well system was offline from 8:52 a.m. to 11:14 a.m. to change out the microfilter modules due to high transmembrane pressure. The plant was shut down to replace the plugged modules with clean ones, check the backup filter system, and clean the clarifier. Extraction system downtime was 2 hours 22 minutes.
- **June 30, 2017 (unplanned):** The extraction well system was offline from 4:46 a.m. to 4:50 a.m. due to loss of power from the City of Needles. Extraction system downtime was 4 minutes.

Appendix B
Daily Volumes of Groundwater
Treated

January 2017 Operational Data

IM-3 Groundwater Extraction and Treatment System

PG&E Topock Compressor Station, Needles, California

Month	Day	Year	Extraction Well System					Injection Well System		Total (gallons)	RO Brine (gallons)
			TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)		
January	1	2017	--	--	184,803	0	184,803	195,935	0	195,935	4,125
January	2	2017	--	--	184,285	0	184,285	196,330	0	196,330	0
January	3	2017	--	--	185,393	0	185,393	196,916	0	196,916	4,152
January	4	2017	--	--	195,744	657	196,401	196,494	0	196,494	0
January	5	2017	--	--	193,423	0	193,423	204,292	0	204,292	4,057
January	6	2017	--	--	194,964	0	194,964	198,028	0	198,028	3,613
January	7	2017	--	--	194,135	0	194,135	198,693	0	198,693	0
January	8	2017	--	--	190,642	0	190,642	193,989	0	193,989	4,000
January	9	2017	--	--	193,802	0	193,802	199,120	0	199,120	4,038
January	10	2017	--	--	193,648	0	193,648	198,775	0	198,775	0
January	11	2017	--	--	156,376	2,170	158,546	156,422	0	156,422	3,796
January	12	2017	--	--	154,067	0	154,067	164,007	0	164,007	1,693
January	13	2017	--	--	197,313	0	197,313	205,903	0	205,903	1,701
January	14	2017	--	--	197,047	0	197,047	200,130	0	200,130	4,107
January	15	2017	--	--	196,776	0	196,776	198,902	0	198,902	3,791
January	16	2017	--	--	196,412	0	196,412	198,650	0	198,650	0
January	17	2017	--	--	196,138	0	196,138	197,910	0	197,910	3,972
January	18	2017	--	--	191,504	0	191,504	196,540	0	196,540	3,976
January	19	2017	--	--	117,652	25,679	143,331	150,966	0	150,966	0
January	20	2017	--	--	160,107	34,209	194,316	203,052	0	203,052	0
January	21	2017	--	--	159,668	33,126	192,794	201,909	0	201,909	0
January	22	2017	--	--	159,733	32,650	192,383	200,280	0	200,280	0
January	23	2017	--	--	159,566	32,461	192,028	193,968	6,230	200,198	0
January	24	2017	--	--	159,200	32,262	191,462	201,591	0	201,591	0
January	25	2017	--	--	159,024	32,081	191,105	197,496	0	197,496	3,180
January	26	2017	--	--	159,108	32,490	191,598	193,600	0	193,600	0
January	27	2017	--	--	152,578	27,853	180,431	134,756	56,768	191,524	0
January	28	2017	--	--	152,655	31,660	184,315	61,752	135,913	197,665	0
January	29	2017	--	--	163,170	30,586	193,755	198,838	0	198,838	0
January	30	2017	--	--	154,598	30,830	185,428	192,174	0	192,174	0
January	31	2017	--	--	163,040	32,530	195,570	204,753	0	204,753	0
Total Monthly Volumes (gallons)			0	0	5,416,573	411,245	5,827,818	5,832,170	198,911	6,031,081	50,202
Average Pump/Injection Rates (gpm)			0.0	0.0	121.3	9.2	130.6	130.6	4.5	135.1	1.1

NOTES: gpm: gallons per minute RO: Reverse Osmosis

- Extraction wells TW-3D and PE-1 were operated during January 2017 at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2D and TW-2S were not operated during January 2017.
- Effluent was discharged into injection wells IW-02 and IW-03.
- The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during January 2017 is approximately 4.35 percent. This percentage difference includes instrument noise in the system, but is within the accuracy of the flow meters. A well is considered to be offline if the daily reported flow is 140 gallons per day or less.

February 2017 Operational Data

IM-3 Groundwater Extraction and Treatment System

PG&E Topock Compressor Station, Needles, California

Month	Day	Year	Extraction Well System					Injection Well System		RO Brine	
			TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)	Total (gallons)	(gallons)
February	1	2017	--	--	160,544	31,015	191,559	203,645	0	203,645	0
February	2	2017	--	--	163,059	32,575	195,634	203,968	0	203,968	0
February	3	2017	--	--	161,630	32,736	194,366	202,649	0	202,649	0
February	4	2017	--	--	161,590	32,574	194,164	202,862	0	202,862	0
February	5	2017	--	--	161,626	32,432	194,058	202,514	0	202,514	0
February	6	2017	--	--	161,801	32,350	194,151	197,094	0	197,094	0
February	7	2017	--	--	161,819	32,257	194,076	197,186	0	197,186	0
February	8	2017	--	--	161,757	32,191	193,948	203,435	0	203,435	0
February	9	2017	--	--	161,619	32,100	193,719	203,762	0	203,762	0
February	10	2017	--	--	161,528	32,087	193,615	203,828	0	203,828	0
February	11	2017	--	--	161,366	32,029	193,395	197,402	0	197,402	0
February	12	2017	--	--	161,265	31,972	193,237	203,036	0	203,036	0
February	13	2017	--	--	161,100	31,945	193,045	195,650	0	195,650	0
February	14	2017	--	--	142,367	27,747	170,114	176,282	0	176,282	0
February	15	2017	--	--	171,846	21,575	193,422	202,067	0	202,067	0
February	16	2017	--	--	117,434	21,497	138,931	143,414	0	143,414	0
February	17	2017	--	--	162,890	32,291	195,181	198,632	0	198,632	0
February	18	2017	--	--	162,556	31,741	194,297	199,644	0	199,644	0
February	19	2017	--	--	162,182	31,460	193,642	201,469	0	201,469	0
February	20	2017	--	--	162,017	31,339	193,356	204,450	0	204,450	0
February	21	2017	--	--	160,927	31,917	192,843	203,807	0	203,807	0
February	22	2017	--	--	120,647	24,578	145,224	147,129	0	147,129	0
February	23	2017	--	--	162,702	31,925	194,627	201,490	0	201,490	0
February	24	2017	--	--	162,397	31,513	193,910	202,253	0	202,253	0
February	25	2017	--	--	162,422	31,330	193,753	202,769	0	202,769	0
February	26	2017	--	--	162,436	31,213	193,649	201,880	0	201,880	0
February	27	2017	--	--	162,560	31,005	193,565	200,841	0	200,841	0
February	28	2017	--	--	162,729	30,857	193,586	201,165	0	201,165	0
Total Monthly Volumes (gallons)			0	0	4,438,816	860,252	5,299,068	5,504,323	0	5,504,323	0
Average Pump/Injection Rates (gpm)			0.0	0.0	110.1	21.3	131.4	136.5	0.0	136.5	0.0

NOTES: gpm: gallons per minute RO: Reverse Osmosis

- Extraction wells TW-3D and PE-1 were operated during February 2017 at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2D and TW-2S were not operated during February 2017.
- Effluent was discharged into injection well IW-02.
- The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during February 2017 is approximately 3.87 percent. This percentage difference includes instrument noise in the system, and exceeds the accuracy of the flow meters. Based on the injection well flowmeter readings, these flowmeters will be removed from service and sent for factory calibration and adjustment. A well is considered to be offline if the daily reported flow is 140 gallons per day or less.

March 2017 Operational Data

IM-3 Groundwater Extraction and Treatment System

PG&E Topock Compressor Station, Needles, California

			Extraction Well System					Injection Well System			RO Brine
Month	Day	Year	TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)	Total (gallons)	(gallons)
March	1	2017	--	--	162,713	30,711	193,425	201,375	0	201,375	0
March	2	2017	--	--	162,526	30,737	193,263	201,119	0	201,119	0
March	3	2017	--	--	162,204	30,645	192,849	201,195	0	201,195	0
March	4	2017	--	--	161,812	30,574	192,386	200,535	0	200,535	0
March	5	2017	--	--	162,512	31,713	194,225	200,241	0	200,241	0
March	6	2017	--	--	162,875	32,076	194,951	201,227	0	201,227	0
March	7	2017	--	--	162,967	31,643	194,611	201,251	0	201,251	0
March	8	2017	--	33	160,877	32,787	193,697	200,200	0	200,200	0
March	9	2017	--	--	158,869	35,911	194,779	201,242	0	201,242	0
March	10	2017	--	--	157,889	34,569	192,459	200,697	0	200,697	0
March	11	2017	--	--	157,849	34,126	191,975	200,402	0	200,402	0
March	12	2017	--	--	157,790	33,827	191,617	201,057	0	201,057	0
March	13	2017	--	--	139,765	27,065	166,830	180,016	0	180,016	0
March	14	2017	--	--	118,482	17,474	135,956	141,029	0	141,029	0
March	15	2017	--	--	160,701	35,256	195,957	206,545	0	206,545	0
March	16	2017	--	--	152,963	33,979	186,941	192,353	0	192,353	0
March	17	2017	--	--	158,915	35,039	193,954	202,494	0	202,494	0
March	18	2017	--	--	158,894	34,687	193,581	202,018	0	202,018	0
March	19	2017	--	--	158,954	34,258	193,212	202,626	0	202,626	0
March	20	2017	--	--	158,991	34,071	193,062	205,825	0	205,825	0
March	21	2017	--	--	158,783	33,815	192,598	200,630	0	200,630	0
March	22	2017	--	--	158,919	33,828	192,747	198,591	0	198,591	0
March	23	2017	--	--	152,725	32,972	185,697	192,230	0	192,230	0
March	24	2017	--	--	159,785	34,905	194,691	200,176	0	200,176	0
March	25	2017	--	--	129,520	27,908	157,428	163,073	0	163,073	0
March	26	2017	--	--	161,188	34,298	195,486	202,451	0	202,451	0
March	27	2017	--	--	160,711	33,919	194,630	204,565	0	204,565	0
March	28	2017	--	--	160,512	33,748	194,260	199,931	0	199,931	0
March	29	2017	--	--	160,255	33,659	193,914	200,454	0	200,454	0
March	30	2017	--	--	155,986	33,153	189,139	189,170	0	189,170	0
March	31	2017	--	--	158,531	35,283	193,814	201,505	0	201,505	0
Total Monthly Volumes (gallons)			0	33	4,855,462	1,008,638	5,864,133	6,096,222	0	6,096,222	0
Average Pump/Injection Rates (gpm)			0.0	0.0	108.8	22.6	131.4	136.6	0.0	136.6	0.0

NOTES: gpm: gallons per minute RO: Reverse Osmosis

- Extraction wells TW-3D and PE-1 were operated during March 2017 at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction well TW-2S was not operated during March 2017.
- Effluent was discharged into injection well IW-02.
- The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during March 2017 is approximately 3.96 percent. This percentage difference includes instrument noise in the system, and exceeds the accuracy of the flow meters. Based on the injection well flowmeter readings, these flowmeters will be removed from service and sent for factory calibration and adjustment. A well is considered to be offline if the daily reported flow is 140 gallons per day or less.

April 2017 Operational Data

IM-3 Groundwater Extraction and Treatment System

PG&E Topock Compressor Station, Needles, California

Month	Day	Year	Extraction Well System					Injection Well System		RO Brine	
			TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)	Total (gallons)	(gallons)
April	1	2017	--	--	157,493	34,931	192,424	202,015	0	202,015	0
April	2	2017	--	--	157,454	34,493	191,947	197,857	0	197,857	0
April	3	2017	--	--	43,970	9,598	53,568	77,176	0	77,176	0
April	4	2017	--	--	0	0	0	4,411	0	4,411	0
April	5	2017	--	--	0	0	0	5,071	0	5,071	0
April	6	2017	--	--	23,968	4,138	28,106	2,771	0	2,771	0
April	7	2017	--	--	87,628	17,024	104,652	0	91,074	91,074	0
April	8	2017	--	--	170,838	13,845	184,683	0	188,422	188,422	0
April	9	2017	--	--	195,485	0	195,485	0	198,155	198,155	0
April	10	2017	--	--	195,329	0	195,329	0	195,743	195,743	2,136
April	11	2017	--	--	195,420	0	195,420	0	193,680	193,680	0
April	12	2017	--	--	193,284	0	193,284	0	194,789	194,789	4,226
April	13	2017	--	--	195,406	0	195,406	0	191,793	191,793	0
April	14	2017	--	--	144,027	0	144,027	0	136,777	136,777	0
April	15	2017	--	--	195,557	0	195,557	0	192,166	192,166	3,984
April	16	2017	--	--	195,543	0	195,543	0	192,617	192,617	0
April	17	2017	--	--	191,260	4,832	196,092	0	195,032	195,032	3,756
April	18	2017	--	--	154,787	36,656	191,443	0	195,283	195,283	0
April	19	2017	--	--	181,516	14,821	196,337	0	195,266	195,266	0
April	20	2017	--	--	195,374	0	195,374	0	186,463	186,463	0
April	21	2017	--	--	195,409	0	195,409	0	196,833	196,833	3,836
April	22	2017	--	--	195,509	0	195,509	0	197,909	197,909	0
April	23	2017	--	--	195,332	0	195,332	0	196,153	196,153	3,708
April	24	2017	--	--	191,235	0	191,235	0	188,542	188,542	0
April	25	2017	--	--	195,255	0	195,255	0	190,165	190,165	0
April	26	2017	--	--	195,096	0	195,096	0	192,774	192,774	4,792
April	27	2017	--	--	194,830	0	194,830	72,997	120,568	193,566	0
April	28	2017	--	--	192,775	0	192,775	130,869	62,535	193,404	0
April	29	2017	--	--	185,044	0	185,044	0	190,445	190,445	0
April	30	2017	--	--	195,398	0	195,398	0	193,201	193,201	3,874
Total Monthly Volumes (gallons)			0	0	4,810,219	170,338	4,980,557	693,167	4,276,385	4,969,552	30,312
Average Pump/Injection Rates (gpm)			0.0	0.0	111.3	3.9	115.3	16.0	99.0	115.0	0.7

NOTES: gpm: gallons per minute RO: Reverse Osmosis

- Extraction wells TW-3D and PE-1 were operated during April 2017 at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2D and TW-2S were not operated during April 2017.
- Effluent was discharged into injection wells IW-02 and IW-03.
- The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during April 2017 is approximately 0.39 percent. This percentage difference includes instrument noise in the system, but is within the accuracy of the flow meters. A well is considered to be offline if the daily reported flow is 140 gallons per day or less.

May 2017 Operational Data

IM-3 Groundwater Extraction and Treatment System

PG&E Topock Compressor Station, Needles, California

Month	Day	Year	Extraction Well System					Injection Well System			RO Brine
			TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)	Total (gallons)	
May	1	2017	--	--	194,965	0	194,965	0	193,667	193,667	0
May	2	2017	--	--	191,797	0	191,797	0	196,434	196,434	0
May	3	2017	--	--	162,202	0	162,202	0	162,022	162,022	3,801
May	4	2017	--	--	194,811	0	194,811	0	195,079	195,079	0
May	5	2017	--	--	195,394	0	195,394	0	190,705	190,705	0
May	6	2017	--	--	195,143	0	195,143	0	191,215	191,215	0
May	7	2017	--	--	195,251	0	195,251	0	191,587	191,587	4,040
May	8	2017	--	--	195,007	0	195,007	0	191,091	191,091	0
May	9	2017	--	--	194,848	0	194,848	0	194,142	194,142	0
May	10	2017	--	--	194,538	0	194,538	0	193,350	193,350	0
May	11	2017	--	--	194,185	0	194,185	0	193,450	193,450	3,748
May	12	2017	--	--	193,835	0	193,835	0	194,218	194,218	1,842
May	13	2017	--	--	193,619	0	193,619	0	195,855	195,855	0
May	14	2017	--	--	193,702	0	193,702	0	196,380	196,380	0
May	15	2017	--	--	193,591	0	193,591	0	193,818	193,818	0
May	16	2017	--	--	193,489	0	193,489	0	175,372	175,372	3,532
May	17	2017	--	--	193,278	0	193,278	0	191,997	191,997	170
May	18	2017	--	--	191,791	0	191,791	0	194,587	194,587	0
May	19	2017	--	--	165,731	0	165,731	0	163,128	163,128	0
May	20	2017	--	--	189,690	0	189,690	0	180,272	180,272	0
May	21	2017	--	--	196,264	0	196,264	0	193,971	193,971	0
May	22	2017	--	--	192,045	0	192,045	0	196,063	196,063	0
May	23	2017	--	--	167,262	28,449	195,711	0	185,792	185,792	0
May	24	2017	--	--	167,233	48,815	216,048	0	194,438	194,438	4,043
May	25	2017	--	--	161,483	44,763	206,245	0	190,428	190,428	0
May	26	2017	--	--	167,675	42,886	210,561	0	190,552	190,552	0
May	27	2017	--	--	167,452	42,663	210,115	0	195,115	195,115	0
May	28	2017	--	--	167,559	42,373	209,933	0	195,474	195,474	0
May	29	2017	--	--	167,845	42,265	210,110	0	194,626	194,626	0
May	30	2017	--	--	167,957	42,039	209,995	0	194,259	194,259	0
May	31	2017	--	--	157,765	60,787	218,552	0	188,552	188,552	0
Total Monthly Volumes (gallons)			0	0	5,697,408	395,040	6,092,448	0	5,897,639	5,897,639	21,176
Average Pump/Injection Rates (gpm)			0.0	0.0	127.6	8.8	136.5	0.0	132.1	132.1	0.5

NOTES: gpm: gallons per minute RO: Reverse Osmosis

- Extraction wells TW-3D and PE-1 were operated during May 2017 at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2D and TW-2S were not operated during May 2017.
- Effluent was discharged into injection well IW-03.
- The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during May 2017 is approximately 2.85 percent. This percentage difference includes instrument noise in the system, but is within the accuracy of the flow meters. A well is considered to be offline if the daily reported flow is 140 gallons per day or less.

June 2017 Operational Data

IM-3 Groundwater Extraction and Treatment System

PG&E Topock Compressor Station, Needles, California

			Extraction Well System					Injection Well System			RO Brine
Month	Day	Year	TW-2S (gallons)	TW-2D (gallons)	TW-3D (gallons)	PE-1 (gallons)	Total (gallons)	IW-02 (gallons)	IW-03 (gallons)	Total (gallons)	(gallons)
June	1	2017	--	--	172,566	33,125	205,691	0	187,473	187,473	0
June	2	2017	--	--	191,572	0	191,572	0	189,217	189,217	0
June	3	2017	--	--	193,066	0	193,066	0	188,648	188,648	0
June	4	2017	--	--	193,017	0	193,017	0	191,512	191,512	0
June	5	2017	--	--	192,988	0	192,988	0	193,120	193,120	0
June	6	2017	--	--	192,580	0	192,580	0	193,129	193,129	0
June	7	2017	--	--	176,720	0	176,720	0	178,555	178,555	0
June	8	2017	--	--	192,482	0	192,482	0	193,725	193,725	824
June	9	2017	--	--	192,180	0	192,180	0	191,532	191,532	0
June	10	2017	--	--	191,770	0	191,770	0	185,831	185,831	0
June	11	2017	--	--	174,300	0	174,300	0	180,349	180,349	3,836
June	12	2017	--	--	189,763	0	189,763	0	173,686	173,686	0
June	13	2017	--	--	191,452	0	191,452	0	188,808	188,808	0
June	14	2017	--	--	174,093	0	174,093	0	175,152	175,152	4,355
June	15	2017	--	--	191,426	0	191,426	0	193,098	193,098	0
June	16	2017	--	--	190,715	0	190,715	0	190,764	190,764	3,628
June	17	2017	--	--	191,433	0	191,433	0	190,288	190,288	0
June	18	2017	--	--	191,660	0	191,660	0	177,162	177,162	3,867
June	19	2017	--	--	192,483	0	192,483	0	198,147	198,147	0
June	20	2017	--	--	175,593	0	175,593	0	162,066	162,066	0
June	21	2017	--	--	156,643	0	156,643	0	163,865	163,865	5,166
June	22	2017	--	--	188,656	0	188,656	0	178,903	178,903	0
June	23	2017	--	--	188,183	0	188,183	0	184,314	184,314	4,127
June	24	2017	--	--	193,425	0	193,425	0	188,467	188,467	0
June	25	2017	--	--	193,424	0	193,424	0	191,074	191,074	3,727
June	26	2017	--	--	193,567	0	193,567	0	196,011	196,011	4,022
June	27	2017	--	--	193,744	0	193,744	0	196,221	196,221	0
June	28	2017	--	--	174,544	0	174,544	0	169,630	169,630	3,778
June	29	2017	--	--	193,808	0	193,808	0	189,044	189,044	2,766
June	30	2017	--	--	193,246	0	193,246	0	189,638	189,638	1,241
Total Monthly Volumes (gallons)			0	0	5,621,099	33,125	5,654,224	0	5,569,430	5,569,430	41,336
Average Pump/Injection Rates (gpm)			0.0	0.0	130.1	0.8	130.9	0.0	128.9	128.9	1.0

NOTES: gpm: gallons per minute RO: Reverse Osmosis

- Extraction wells TW-3D and PE-1 were operated during June 2017 at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction wells TW-2D and TW-2S were not operated during June 2017.
- Effluent was discharged into injection well IW-03.
- The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during June 2017 is approximately 0.77 percent. This percentage difference includes instrument noise in the system, but is within the accuracy of the flow meters. A well is considered to be offline if the daily reported flow is 140 gallons per day or less.

Appendix C

Flowmeter Calibration Records

Endress+Hauser 
People for Process Automation

Flow Calibration with Adjustment

92009500-1304707

WWRA017112F

Purchase order number

US-3601532757-200 / Endress+Hauser Inc.

Order N°/Manufacturer

23P50-AL1A1AA022AW

Order code

PROMAG 23 P 2"

Transmitter/Sensor

6C037116000

Serial N°

-

Tag N°

FCP-8.2 US

Calibration rig

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

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9164

Calibration factor

5

Zero point

77 °F

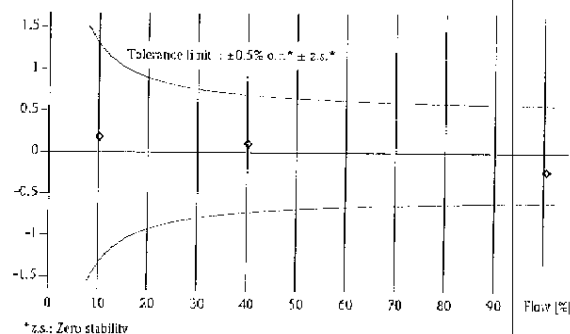
Water temperature

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

*o.p.: of rate

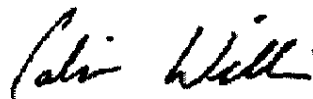
**Calculated value [4 - 20 mA]

Measured error % o.r.



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

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



Calvin Williams
Operator

09-17-2015

Date of calibration

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

Endress+Hauser 

People for Process Automation

Flow Calibration without Adjustment

92000404-1275100

WWRA017112F

Purchase order number

US-3601532757-100 / Endress+Hauser Inc.

Order N°/Manufacturer

23P50-AL1A1RA022AW

Order code

PROMAG 23 P 2"

Transmitter/Sensor

6A021F16000

Serial N°

FIT-100

Tag N°

FCP-8.2 US

Calibration rig

155 us.gal/min

($\pm 100\%$)

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9159

Calibration factor

-17

Zero point

76.5 °F

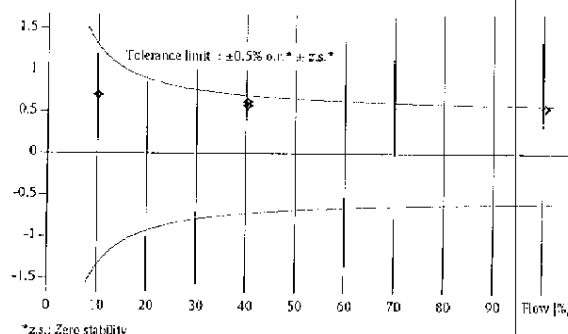
Water temperature

Flow [%]	Flow [us.gal/min]	Duration [sec]	V target [us.gal]	V meas. [us.gal]	Δ o.r.* [%]	Outp.** [mA]
10.0	15.496	60.0	15.507	15.616	0.70	5.61
40.1	62.217	60.1	62.277	62.664	0.62	10.46
40.2	62.237	60.0	62.285	62.643	0.58	10.46
100.4	155.557	60.0	155.665	156.522	0.55	20.15
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of rate

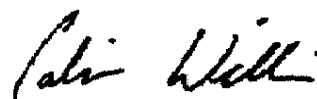
**Calculated value (4-20 mA)

Measured error % o.r.



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

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



Calvin Williams
Operator

09-16-2015

Date of calibration

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

Flow Calibration without Adjustment

92010359-1304705

WWRA-017895-F

Purchase order number

US-3601533868-100 / Endress+Hauser Inc.

Order N°/Manufacturer

23P50-AL1A1AA022AW

Order code

PROMAG 23 P 2"

Transmitter/Sensor

6C036F16000

Serial N°

FIT-1201

Tag N°

FCP-7.1.6 US

Calibration rig

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

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9101

Calibration factor

-34

Zero point

70.4 °F

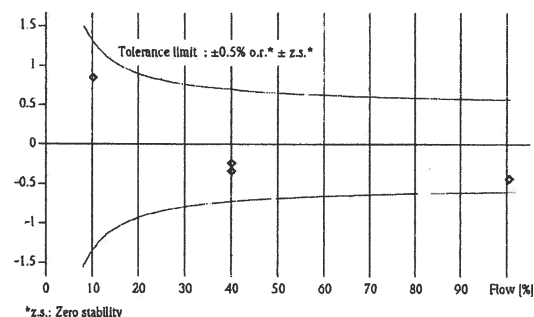
Water temperature

Flow [%]	Flow [us.gal/min]	Duration [sec]	V target [us.gal]	V meas. [us.gal]	Δ o.r.* [%]	Outp.** [mA]
9.9	15.450	60.2	15.502	15.635	0.85	5.60
39.9	62.130	60.2	62.334	62.134	-0.32	10.37
39.9	62.139	60.2	62.352	62.214	-0.22	10.38
100.4	156.155	60.2	156.670	156.016	-0.42	19.99
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of rate

**Calculated value (4 - 20 mA)

Measured error % o.r.



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

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

John Davis

John Davis
Operator

01-15-2016

Date of calibration

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

Endress+Hauser 
People for Process Automation

Flow Calibration without Adjustment

92004356-1275192

4017515743

Purchase order number

US-3601525789-100 / Endress+Hauser Inc.

Order N°/Manufacturer

23P50-AL1A1RA022AW

Order code

PROMAG 23 P 2"

Transmitter/Sensor

6A022116000

Serial N°

FIT-102

Tag N°

FCP-8.2 US

Calibration rig

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

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9082

Calibration factor

0

Zero point

72.3 °F

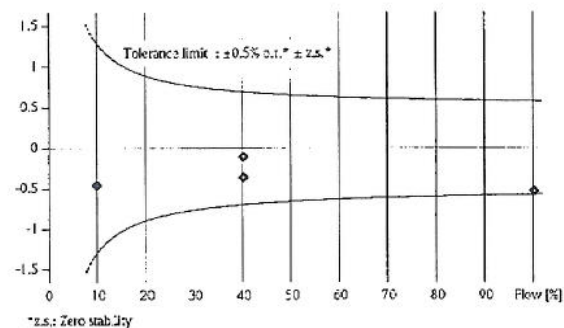
Water temperature

Flow [%]	Flow [us.gal/min]	Duration [sec]	V target [us.gal]	V meas. [us.gal]	Δ o.r.* [%]	Outp.** [mA]
10.0	15.643	60.0	15.654	15.582	-0.46	5.60
40.1	62.618	60.0	62.665	62.440	-0.36	10.40
40.2	62.628	60.0	62.673	62.607	-0.11	10.42
100.3	156.535	60.0	156.646	155.804	-0.54	19.97
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of race

**Calculated value (4 - 20 mA)

Measured error % o.r.



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

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

09-20-2013

Date of calibration

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



W. Watkins

Operator

Flow Calibration with Adjustment

92010358-1304709

WWRA-017895-F

Purchase order number

US-3601533868-200 / Endress+Hauser Inc.

Order N°/Manufacturer

23P50-AL1A1AA022AW

Order code

PROMAG 23 P 2"

Transmitter/Sensor

6C037316000

Serial N°

FIT-1205

Tag N°

FCP-7.1.6 US

Calibration rig

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

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9189

Calibration factor

0

Zero point

70.5 °F

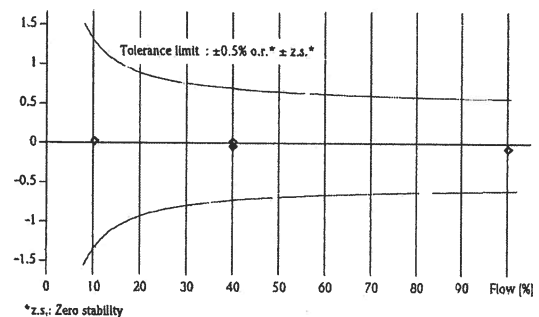
Water temperature

Flow [%]	Flow [us.gal/min]	Duration [sec]	V target [us.gal]	V meas. [us.gal]	Δ o.r.* [%]	Outp.** [mA]
10.1	15.712	60.2	15.764	15.770	0.04	5.62
39.9	62.125	60.2	62.338	62.323	-0.02	10.39
39.9	62.118	60.2	62.330	62.347	0.03	10.39
100.0	155.573	60.2	156.107	156.027	-0.05	19.99
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of rate

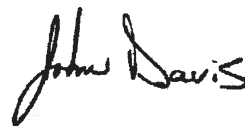
**Calculated value (4 - 20 mA)

Measured error % o.r.



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

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



John Davis
Operator

01-15-2016

Date of calibration

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

Endress+Hauser 

People for Process Automation

Flow Calibration without Adjustment

92005412-1385272

4017522194

Purchase order number

US-3601527563-100 / Endress+Hauser Inc.

Order N°/Manufacturer

23P50-AL1A1AA022AW

Order code

PROMAG 23 P 2"

Transmitter/Sensor

7700F216000

Serial N°

-

Tag N°

FCP-8.2 US

Calibration rig

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

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9215

Calibration factor

0

Zero point

75.4 °F

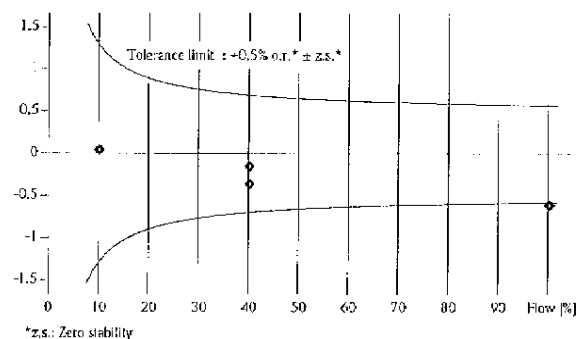
Water temperature

Flow [%]	Flow [us.gal/min]	Duration [sec]	V target [us.gal]	V meas. [us.gal]	Δ o.r.* [%]	Outp.** [mA]
10.1	15.699	60.0	15.710	15.717	0.04	5.61
40.2	62.675	60.0	62.718	62.490	-0.36	10.40
40.2	62.681	60.0	62.724	62.627	-0.15	10.42
100.4	156.590	60.0	156.696	155.730	-0.62	19.96
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*out of rate

**Calculated value (4 - 20 mA)

Measured error % o.r.



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

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

03-22-2014

Date of calibration

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



W. Watkins

Operator

Flow Calibration with Adjustment

30361270-3757980

3800196517

Purchase order number

US-3005497039-10 / Endress+Hauser Flowtec

Order N°/Manufacturer

5P2B80-1CX9/0

Order code

Promag P 200 3"

Sensor/Transmitter

L200E016000

Serial N°

-

Tag N°

FCP-8.B

Calibration rig

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

Calibrated full scale

Service interface

Calibrated output

1.1823

Calibration factor

-5

Zero point

80.3 °F

Water temperature

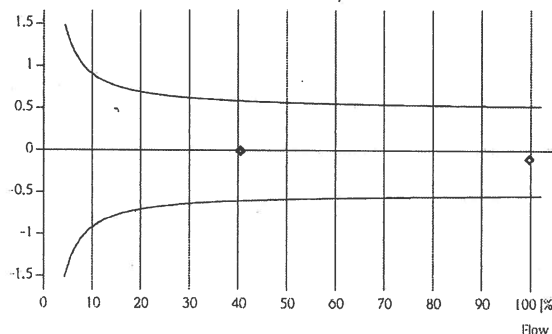
Flow [%]	Flow [us.gal/min]	Duration [s]	V target [us.gal]	V meas. [us.gal]	Δ o.r.* [%]	Outp.** [mA]
40.2	160.154	65.1	173.658	173.655	0.00	10.43
40.2	160.198	65.1	173.705	173.717	0.01	10.43
99.6	396.900	65.1	430.394	430.000	-0.09	19.93
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of reading

**Calculated value (4 - 20 mA)

Measured error % o.r.

Tolerance limit: $\pm 0.5\%$ o.r.* \pm Zero stability



For detailed data concerning output specifications of the unit under test, see Technical Information (TI), chapter Performance characteristics.

The calibration is traceable to the N.I.S.T. through standards certified at preset intervals.

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

Travis Burdette

Travis Burdette

Operator

Certified acc. to

ISO 9001, Reg.-N° 030502.2

ISO 14001, Reg.-N° EMS561046

02-05-2016

Date of calibration

Endress+Hauser Flowtec, Division USA

2330 Endress Place

Greenwood, IN 46143

Endress+Hauser 

People for Process Automation

Flow Calibration with Adjustment

92006682-1275191

WWRA015491F

Purchase order number

US-3601529220-100 / Endress+Hauser Inc.

Order N°/Manufacturer

23P50-AL1A1RA022AW

Order code

PROMAG 23 P 2"

Transmitter/Sensor

6A022016000

Serial N°

FIT-101

Tag N°

FCP-7.1.6 US

Calibration rig

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

Calibrated full scale

Current 4 - 20 mA

Calibrated output

0.9193

Calibration factor

0

Zero point

72.7 °F

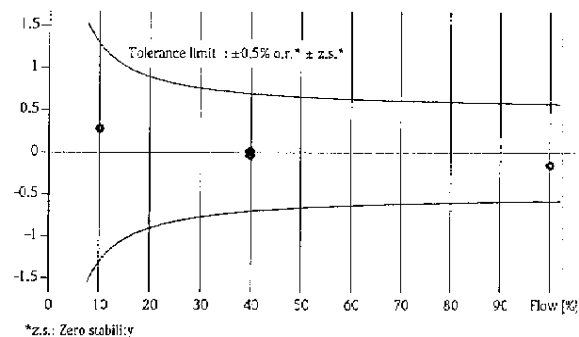
Water temperature

Flow [%]	Flow [us.gal/min]	Duration [sec]	V target [us.gal]	V meas. [us.gal]	Δ o.r.* [%]	Outp.** [mA]
10.0	15.596	60.1	15.612	15.657	0.29	5.61
39.9	62.142	60.1	62.207	62.221	0.02	10.39
40.0	62.171	60.1	62.236	62.217	-0.03	10.39
100.1	155.761	60.1	155.922	155.691	-0.15	19.99
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

*o.r.: of rate

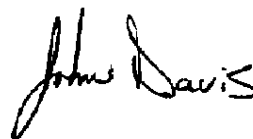
**Calculated value (4 - 20 mA)

Measured error % o.r.



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

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



John Davis
Operator

09-19-2014

Date of calibration

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

Appendix D
Second Quarter 2017
Laboratory Analytical Reports

Analytical Bench Log Book

WDR pH Results

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

Sample Name	Date of sampling	Time of sampling	Date of analysis	Time of analysis	pH Meter #1, #2, or #3 etc. See cover Sheet for Serial Number	Date pH meter Calibrated	Time pH meter Calibrated	Slope of the Curve	Analyst Name (for the pH result)	pH Result
1 SC-700B	4-3-17	0535	4-3-17	0545	HQ440D	04-3-17	0030	-54.89	Josh R	7.07

Notes:

2 SC-100B	4-3-17	0530	4-3-17	0545	HQ440D	4-3-17	0030	-54.89	Josh R	7.25
-----------	--------	------	--------	------	--------	--------	------	--------	--------	------

Notes:

3 SC-701	4-3-17	0540	4-3-17	0550	HQ440D	4-3-17	0030	-54.89	Josh R	8.13
----------	--------	------	--------	------	--------	--------	------	--------	--------	------

Notes:

4 SC-700B	4-7-17	14:21	4-7-17	16:26	HQ440D	4-7-17	11:55 12:00 AM	-54.21	Ryan Phelps	7.42
-----------	--------	-------	--------	-------	--------	--------	------------------------------	--------	-------------	------

Notes:

5										
---	--	--	--	--	--	--	--	--	--	--

Notes:

6										
---	--	--	--	--	--	--	--	--	--	--

Notes:

7										
---	--	--	--	--	--	--	--	--	--	--

Notes:

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

Analytical Bench Log Book

WDR pH Results

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

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

Notes:

2: 100B	06-06-17	1230	06-06-17	1250	HQ4400	06-06-17	0030	55.54	G. GLORIA	6.93
---------	----------	------	----------	------	--------	----------	------	-------	-----------	------

Notes:

3:										
----	--	--	--	--	--	--	--	--	--	--

Notes:

4:										
----	--	--	--	--	--	--	--	--	--	--

Notes:

5:										
----	--	--	--	--	--	--	--	--	--	--

Notes:

6:										
----	--	--	--	--	--	--	--	--	--	--

Notes:

7:										
----	--	--	--	--	--	--	--	--	--	--

Notes:

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

Analytical Bench Log Book

WDR pH Results

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

Sample Name	Date of sampling	Time of sampling	Date of analysis	Time of analysis	pH Meter #1, #2, or #3 etc. See cover Sheet for Serial Number	Date pH meter Calibrated	Time pH meter Calibrated	Slope of the Curve	Analyst Name (for the pH result)	pH Result
1 SC-700B	4-3-17	0535	4-3-17	0545	HQ440D	04-3-17	0030	-54.89	Josh R	7.07

Notes:

2 SC-100B	4-3-17	0530	4-3-17	0545	HQ440D	4-3-17	0030	-54.89	Josh R	7.25
-----------	--------	------	--------	------	--------	--------	------	--------	--------	------

Notes:

3 SC-701	4-3-17	0540	4-3-17	0550	HQ440D	4-3-17	0030	-54.89	Josh R	8.13
----------	--------	------	--------	------	--------	--------	------	--------	--------	------

Notes:

4 SC-700B	4-7-17	16:21	4-7-17	16:26	HQ440D	4-7-17	11:55 12:00 AM	-54.21	Ryan Phelps	7.42
-----------	--------	-------	--------	-------	--------	--------	-------------------	--------	-------------	------

Notes:

5 SC-100B	5-2-17	13:00	5-2-17	13:05	HQ440D	5-2-17	01:30	-54.24	Ryan Phelps	7.19
-----------	--------	-------	--------	-------	--------	--------	-------	--------	-------------	------

Notes:

6 SC-700B	5-2-17	13:10	5-2-17	13:15	HQ440D	5-2-17	01:30	-54.24	Ryan Phelps	7.08
-----------	--------	-------	--------	-------	--------	--------	-------	--------	-------------	------

Notes:

7										
---	--	--	--	--	--	--	--	--	--	--

Notes:

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

Extraction/Injection Well Downtime Log

Month: May 2017

Date	Pump Stop Time	Pump Start Time	Well Effected	Detailed Reason for Downtime	Initials
05-02-17	1932	1950	<input type="checkbox"/> IW-02 <input type="checkbox"/> PE-1 <input type="checkbox"/> IW-03 <input checked="" type="checkbox"/> TW-3D <input type="checkbox"/> TW-2D	HIGH TMP @ VFD FOR P-400	GH
5-3-17			<input checked="" type="checkbox"/> IW-02 <input type="checkbox"/> PE-1 <input type="checkbox"/> IW-03 <input type="checkbox"/> TW-3D <input type="checkbox"/> TW-2D	Noticed IW2 flow rate jumping between 0 & 200 gpm well is off NO flow Investigating Cause	SB
5/3/17	8:05	11:09 HMI #2	<input type="checkbox"/> IW-02 <input type="checkbox"/> PE-1 <input checked="" type="checkbox"/> TW-03 <input checked="" type="checkbox"/> TW-3D <input type="checkbox"/> TW-2D	work ON P-400 Working Planned Maintenance	C
5-4-17	8:10 HMI #1	8:30 HMI #1	<input type="checkbox"/> IW-02 <input checked="" type="checkbox"/> PE-1 <input type="checkbox"/> IW-03 <input checked="" type="checkbox"/> TW-3D <input type="checkbox"/> TW-2D	OFF & ON for perm alert testing	PPP
5-4-17	1958 2030	2030	<input type="checkbox"/> IW-02 <input type="checkbox"/> PE-1 <input checked="" type="checkbox"/> IW-03 <input checked="" type="checkbox"/> TW-3D <input type="checkbox"/> TW-2D	Power outage, PIC Failure, Fixed Restarted Plant 2030	SB
5-20-17	1140	1225	<input type="checkbox"/> IW-02 <input type="checkbox"/> PE-1 <input type="checkbox"/> IW-03 <input checked="" type="checkbox"/> TW-3D <input type="checkbox"/> TW-2D	MICROFILTER FAILURE Influent Valve failed open	GH
5-22-17	2030	2040	<input type="checkbox"/> IW-02 <input type="checkbox"/> PE-1 <input checked="" type="checkbox"/> IW-03 <input checked="" type="checkbox"/> TW-3D <input type="checkbox"/> TW-2D	Polymer problems Polymer pump failed - reset on started plant	CS
5-23-17		9:52 HMI #2	<input type="checkbox"/> IW-02 <input checked="" type="checkbox"/> PE-1 <input type="checkbox"/> IW-03 <input type="checkbox"/> TW-3D <input type="checkbox"/> TW-2D	Advised by Engineers to return PE-1 on for Gradient - PE-1 Flow meter = 21.5 HMI - Showing 153 total - TW-3D - Flow meter = 115.5	PPP
5-24-17	1930	2120	<input type="checkbox"/> IW-02 <input checked="" type="checkbox"/> PE-1 <input type="checkbox"/> IW-03 <input checked="" type="checkbox"/> TW-3D <input type="checkbox"/> TW-2D	Blower lost a belt - installed new belts returned to service	CS
5-25-17	1845 (1745 HMI #1)	(1830 HMI #1)	<input type="checkbox"/> IW-02 <input type="checkbox"/> PE-1 <input type="checkbox"/> IW-03 <input checked="" type="checkbox"/> TW-3D <input type="checkbox"/> TW-2D	Task management due to plant shutting down from chemical injection failure	JL
			<input type="checkbox"/> IW-02 <input type="checkbox"/> PE-1 <input type="checkbox"/> IW-03 <input type="checkbox"/> TW-3D <input type="checkbox"/> TW-2D		
			<input type="checkbox"/> IW-02 <input type="checkbox"/> PE-1 <input type="checkbox"/> IW-03 <input type="checkbox"/> TW-3D <input type="checkbox"/> TW-2D		

PURGE WATER ACCUMULATION LOG

DATE	TIME	GALLONS OF WATER	OPERATOR ON DUTY	REMARKS
4-28-17	1350	950	Jamie G. / Chris L	IW-3 Back wash
4-28-17	1420	950	Jamie G. / Chris L	IW-3 Back wash
4-28-17	1450	950	Jamie G. / Chris L	IW-3 Back wash
4-28-17	1525	950	Jamie G. / Josh R	IW-3 Back wash
4-28-17	1600	950	Jamie G. / Josh R	IW-3 Back wash
4-28-17	1645	950	Jamie G. / Josh R	IW-3 Back wash
4-29-17	0800	950	Jamie G. / Josh R	IW-3 Back wash
4-29-17	0840	950	Jamie G. / Josh R	IW-2 Back wash
4-29-17	0915	950	Jamie G. / Josh R	IW-2 Back wash
4-29-17	0950	950	Jamie G. / Josh R	IW-2 Back wash
4-29-17	1020	950	Jamie G. / Josh R	IW-2 Back wash
4-29-17	1055	950	Jamie G. / Josh R	IW-2 Back wash
4-29-17	1125	950	Jamie G. / Josh R	IW-2 Back wash
4-29-17	1155	950	Jamie G. / Josh R	IW-2 Back wash
4-29-17	1245	950	Jamie G. / Josh R	IW-2 Back wash
4-29-17	1320	950	Jamie G. / Josh R	IW-2 Back wash
4-29-17	1350	950	G. GLORIA / Josh R	IW-2 Back wash
4-29-17	1430	950	G. GLORIA / Josh R	IW-2 Back wash
4-29-17	1515	950	G. GLORIA / Josh R	IW-2 Back wash
4-29-17	1555	950	G. GLORIA / Josh R	IW-2 Back wash
05-01-17	1640	100	G. GLORIA	BLANK TECH
05-02-17	1040	100	Scott	Blane Tech Well Sample
05-02-17	1630	550	G. GLORIA	BLANK TECH
05-03-17	1600	400	G. GLORIA	BLANK TECH
5/4/17	1300	300	CLONE	BLANK TECH

CH2M HILL

Project: PG&E Topock
Project No.: 680375.02.IM.OP.00

ASSET Laboratories Work Order:
N023691

ANALYTICAL and QC RESULTS SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL



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”

April 18, 2017

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

TEL: (970) 731-0636

FAX: (510) 622-9129

Workorder No.: N023691

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

Attention: Doug Scott

Enclosed are the results for sample(s) received on April 03, 2017 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,

Nancy Libucaw 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.



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

"Serving Clients with Passion and Professionalism"

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

CLIENT: CH2M HILL
Project: PG&E Topock, 680375.02.IM.OP.00
Lab Order: N023691

CASE NARRATIVE**SAMPLE RECEIVING/GENERAL COMMENTS**

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

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

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

Samples were analyzed within method holding time.

Analytical Comments for EPA 6010B:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for some analytes on QC samples N023625-001A-MS and N023625-001A-MSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 7199:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria on QC samples N023691-001C-MS and N023691-001C-MSD since the analyte concentration in the sample is disproportionate to the spike level. N023691-001C-MS Insoluble and Post Spike met acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 7471A:

Matrix Spike (MS) is outside recovery criteria on QC sample N023685-005A-MS possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.



ASSET Laboratories

Date: 18-Apr-17

CLIENT: CH2M HILL
Project: PG&E Topock, 680375.02.IM.OP.00
Lab Order: N023691
Contract No: IM3PLANT-AR

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N023691-001A	Phase Separator-556-Sludge	Soil	4/3/2017 5:50:00 PM	4/3/2017	4/18/2017
N023691-001B	Phase Separator-556-Sludge	Soil	4/3/2017 5:50:00 PM	4/3/2017	4/18/2017
N023691-001C	Phase Separator-556-Sludge	Soil	4/3/2017 5:50:00 PM	4/3/2017	4/18/2017



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

"Serving Clients with Passion and Professionalism"

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

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 18-Apr-17

CLIENT:	CH2M HILL	Client Sample ID:	Phase Separator-556-Sludge
Lab Order:	N023691	Collection Date:	4/3/2017 5:50:00 PM
Project:	PG&E Topock, 680375.02.IM.OP.00	Matrix:	SOIL
Lab ID:	N023691-001		

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

ANIONS BY ION CHROMATOGRAPHY
EPA 300.0

RunID: NV00922-IC8_170410B	QC Batch: R114576	PrepDate	Analyst: RAB
Fluoride	18 0.078	2.3	mg/Kg-dry 1 4/10/2017 10:11 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		


ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

CLIENT: CH2M HILL
Work Order: N023691
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID MB-R114576	SampType: MBLK	TestCode: 300_S	Units: mg/Kg	Prep Date:	RunNo: 114576
Client ID: PBS	Batch ID: R114576	TestNo: EPA 300.0		Analysis Date: 4/10/2017	SeqNo: 2613224
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Fluoride ND 1.0

Sample ID LCS-R114576	SampType: LCS	TestCode: 300_S	Units: mg/Kg	Prep Date:	RunNo: 114576
Client ID: LCSS	Batch ID: R114576	TestNo: EPA 300.0		Analysis Date: 4/10/2017	SeqNo: 2613225
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Fluoride 12.407 1.0 12.50 0 99.3 90 110

Sample ID N023691-001ADUP	SampType: DUP	TestCode: 300_S	Units: mg/Kg-dry	Prep Date:	RunNo: 114576
Client ID: ZZZZZZ	Batch ID: R114576	TestNo: EPA 300.0		Analysis Date: 4/10/2017	SeqNo: 2613238
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Fluoride 18.614 2.3 17.81 4.40 20

Sample ID N023691-001AMS	SampType: MS	TestCode: 300_S	Units: mg/Kg-dry	Prep Date:	RunNo: 114576
Client ID: ZZZZZZ	Batch ID: R114576	TestNo: EPA 300.0		Analysis Date: 4/10/2017	SeqNo: 2613239
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Fluoride 43.341 2.3 28.71 17.81 88.9 80 120

Sample ID N023691-001AMSD	SampType: MSD	TestCode: 300_S	Units: mg/Kg-dry	Prep Date:	RunNo: 114576
Client ID: ZZZZZZ	Batch ID: R114576	TestNo: EPA 300.0		Analysis Date: 4/10/2017	SeqNo: 2613240
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Fluoride 43.012 2.3 28.71 17.81 87.8 80 120 43.34 0.761 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 THE CONSTRUCTION INDUSTRY

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"

ASSET Laboratories
ANALYTICAL RESULTS

Print Date: 18-Apr-17

CLIENT:	CH2M HILL	Client Sample ID:	Phase Separator-556-Sludge
Lab Order:	N023691	Collection Date:	4/3/2017 5:50:00 PM
Project:	PG&E Topock, 680375.02.IM.OP.00	Matrix:	SOIL
Lab ID:	N023691-001		

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

TOTAL METALS BY ICP
EPA 3050B
EPA 6010B

RunID: NV00922-ICP2_170404C	QC Batch: 61783	PrepDate	4/4/2017	Analyst: CEI
Antimony	ND	0.42	4.6	mg/Kg-dry
Arsenic	21	0.49	2.3	mg/Kg-dry
Barium	68	0.097	2.3	mg/Kg-dry
Beryllium	ND	0.086	2.3	mg/Kg-dry
Cadmium	2.8	0.083	2.3	mg/Kg-dry
Chromium	4000	0.092	2.3	mg/Kg-dry
Cobalt	3.5	0.083	2.3	mg/Kg-dry
Copper	150	0.091	4.6	mg/Kg-dry
Lead	ND	0.091	2.3	mg/Kg-dry
Manganese	500	0.19	2.3	mg/Kg-dry
Molybdenum	ND	0.081	2.3	mg/Kg-dry
Nickel	23	0.096	2.3	mg/Kg-dry
Selenium	ND	0.35	2.3	mg/Kg-dry
Silver	ND	0.093	2.3	mg/Kg-dry
Thallium	4.6	0.37	4.6	mg/Kg-dry
Vanadium	50	0.083	2.3	mg/Kg-dry
Zinc	48	0.14	2.3	mg/Kg-dry

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
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"

CLIENT: CH2M HILL
Work Order: N023691
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	MB-61783	SampType:	MBLK	TestCode:	6010_SPGE	Units:	mg/Kg	Prep Date:	4/4/2017	RunNo:	114463	
Client ID:	PBS	Batch ID:	61783	TestNo:	EPA 6010B	EPA 3050B		Analysis Date:	4/4/2017	SeqNo:	2608915	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony		0.330	2.0									
Arsenic		ND	1.0									
Barium		ND	1.0									
Beryllium		ND	1.0									
Cadmium		ND	1.0									
Chromium		ND	1.0									
Cobalt		ND	1.0									
Copper		ND	2.0									
Lead		ND	1.0									
Manganese		ND	1.0									
Molybdenum		0.071	1.0									
Nickel		ND	1.0									
Selenium		0.322	1.0									
Silver		0.259	1.0									
Thallium		ND	2.0									
Vanadium		ND	1.0									
Zinc		ND	1.0									

Sample ID	LCS-61783	SampType:	LCS	TestCode:	6010_SPGE	Units:	mg/Kg	Prep Date:	4/4/2017	RunNo:	114463			
Client ID:	LCSS	Batch ID:	61783	TestNo:	EPA 6010B	EPA 3050B		Analysis Date:	4/4/2017	SeqNo:	2608916			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony		25.004		2.0	25.00	0		100	85	115				
Arsenic		24.851		1.0	25.00	0		99.4	85	115				
Barium		25.129		1.0	25.00	0		101	85	115				
Beryllium		25.019		1.0	25.00	0		100	85	115				
Cadmium		25.018		1.0	25.00	0		100	85	115				
Chromium		25.008		1.0	25.00	0		100	85	115				

Qualifiers:

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



ASSET LABORATORIES
ANALYTICAL SERVICES • PROCESS CONTROL • ENVIRONMENTAL • REGULATORY

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"

CLIENT: CH2M HILL
Work Order: N023691
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPGE

Sample ID	LCS-61783	SampType:	LCS	TestCode:	6010_SPGE	Units:	mg/Kg	Prep Date:	4/4/2017	RunNo:	114463
Client ID:	LCSS	Batch ID:	61783	TestNo:	EPA 6010B EPA 3050B			Analysis Date:	4/4/2017	SeqNo:	2608916
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cobalt	24.774	1.0	25.00	0	99.1	85	115				
Copper	24.418	2.0	25.00	0	97.7	85	115				
Lead	25.420	1.0	25.00	0	102	85	115				
Manganese	49.965	1.0	50.00	0	99.9	85	115				
Molybdenum	24.691	1.0	25.00	0	98.8	85	115				
Nickel	25.045	1.0	25.00	0	100	85	115				
Selenium	25.017	1.0	25.00	0	100	85	115				
Silver	25.704	1.0	25.00	0	103	85	115				
Thallium	24.567	2.0	25.00	0	98.3	85	115				
Vanadium	24.338	1.0	25.00	0	97.4	85	115				
Zinc	25.361	1.0	25.00	0	101	85	115				

Sample ID	N023625-001A-MS	SampType:	MS	TestCode:	6010_SPGE	Units:	mg/Kg	Prep Date:	4/4/2017	RunNo:	114463
Client ID:	ZZZZZZ	Batch ID:	61783	TestNo:	EPA 6010B EPA 3050B			Analysis Date:	4/4/2017	SeqNo:	2608924
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	21.161	2.0	24.89	0	85.0	75	125				
Arsenic	21.118	1.0	24.89	0	84.9	75	125				
Barium	168.287	1.0	24.89	142.3	105	75	125				
Beryllium	17.195	1.0	24.89	0	69.1	75	125				S
Cadmium	24.555	1.0	24.89	0.7093	95.8	75	125				
Chromium	32.237	1.0	24.89	11.05	85.1	75	125				
Cobalt	38.571	1.0	24.89	16.35	89.3	75	125				
Copper	76.176	2.0	24.89	53.51	91.1	75	125				
Lead	25.782	1.0	24.89	4.393	85.9	75	125				
Manganese	707.223	1.0	49.78	646.1	123	75	125				
Molybdenum	19.867	1.0	24.89	0	79.8	75	125				
Nickel	33.919	1.0	24.89	13.02	84.0	75	125				
Selenium	14.334	1.0	24.89	0	57.6	75	125				S
Silver	18.754	1.0	24.89	0	75.4	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			



ASSET LABORATORIES
ANALYTICAL SERVICES FOR PETROLEUM, ENVIRONMENTAL, AND INDUSTRIAL

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"

CLIENT: CH2M HILL
Work Order: N023691
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPGE

Sample ID	N023625-001A-MS	SampType:	MS	TestCode:	6010_SPGE	Units:	mg/Kg	Prep Date:	4/4/2017	RunNo:	114463
Client ID:	ZZZZZZ	Batch ID:	61783	TestNo:	EPA 6010B EPA 3050B			Analysis Date:	4/4/2017	SeqNo:	2608924
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Thallium	19.009	2.0	24.89	0	76.4	75	125				
Vanadium	110.671	1.0	24.89	84.45	105	75	125				
Zinc	51.529	1.0	24.89	30.55	84.3	75	125				

Sample ID	N023625-001A-MSD	SampType:	MSD	TestCode:	6010_SPGE	Units:	mg/Kg	Prep Date:	4/4/2017	RunNo:	114463
Client ID:	ZZZZZZ	Batch ID:	61783	TestNo:	EPA 6010B EPA 3050B			Analysis Date:	4/4/2017	SeqNo:	2608927
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	20.678	2.0	24.94	0	82.9	75	125	21.16	2.31	20	
Arsenic	21.438	1.0	24.94	0	86.0	75	125	21.12	1.50	20	
Barium	167.162	1.0	24.94	142.3	99.9	75	125	168.3	0.671	20	
Beryllium	17.240	1.0	24.94	0	69.1	75	125	17.19	0.262	20	S
Cadmium	25.550	1.0	24.94	0.7093	99.6	75	125	24.56	3.97	20	
Chromium	32.286	1.0	24.94	11.05	85.1	75	125	32.24	0.153	20	
Cobalt	37.661	1.0	24.94	16.35	85.5	75	125	38.57	2.39	20	
Copper	78.548	2.0	24.94	53.51	100	75	125	76.18	3.07	20	
Lead	25.173	1.0	24.94	4.393	83.3	75	125	25.78	2.39	20	
Manganese	707.429	1.0	49.88	646.1	123	75	125	707.2	0.0291	20	
Molybdenum	19.773	1.0	24.94	0	79.3	75	125	19.87	0.476	20	
Nickel	34.808	1.0	24.94	13.02	87.4	75	125	33.92	2.59	20	
Selenium	14.569	1.0	24.94	0	58.4	75	125	14.33	1.63	20	S
Silver	18.529	1.0	24.94	0	74.3	75	125	18.75	1.21	20	S
Thallium	19.719	2.0	24.94	0	79.1	75	125	19.01	3.67	20	
Vanadium	108.400	1.0	24.94	84.45	96.0	75	125	110.7	2.07	20	
Zinc	50.132	1.0	24.94	30.55	78.5	75	125	51.53	2.75	20	

Qualifiers:

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



ASSET LABORATORIES
ANALYTICAL SERVICES • PROJECTS • ENVIRONMENTAL • TECHNOLOGIES

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"

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 18-Apr-17

CLIENT:	CH2M HILL	Client Sample ID:	Phase Separator-556-Sludge
Lab Order:	N023691	Collection Date:	4/3/2017 5:50:00 PM
Project:	PG&E Topock, 680375.02.IM.OP.00	Matrix:	SOIL
Lab ID:	N023691-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
	EPA 3060A			EPA 7199			
RunID: NV00922-IC6_170404A	QC Batch: 61788			PrepDate	4/4/2017	Analyst: RAB	
Hexavalent Chromium	92	0.47	4.6		mg/Kg-dry	10	4/4/2017 04:03 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		


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

CLIENT: CH2M HILL
Work Order: N023691
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	MB-61788	SampType:	MBLK	TestCode:	7199_S_PGE	Units:	mg/Kg	Prep Date:	4/4/2017	RunNo:	114459		
Client ID:	PBS	Batch ID:	61788	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	4/4/2017	SeqNo:	2608828		
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-61788	SampType:	LCS	TestCode:	7199_S_PGE	Units:	mg/Kg	Prep Date:	4/4/2017	RunNo:	114459		
Client ID:	LCSS	Batch ID:	61788	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	4/4/2017	SeqNo:	2608829		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium		4.002		0.20	4.000	0	100	80	120				

Sample ID	N023691-001C-DUP	SampType:	DUP	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	4/4/2017	RunNo:	114459		
Client ID:	ZZZZZZ	Batch ID:	61788	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	4/4/2017	SeqNo:	2608831		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium		81.062		4.6						92.08	12.7	20	

Sample ID	N023691-001C-REP	SampType:	DUP	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	4/4/2017	RunNo:	114459		
Client ID:	ZZZZZZ	Batch ID:	61788	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	4/4/2017	SeqNo:	2608832		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium		90.707		4.6						92.08	1.50	20	

Sample ID	N023691-001C-MS	SampType:	MS	TestCode:	7199_S_PGE	Units:	mg/Kg-dry	Prep Date:	4/4/2017	RunNo:	114459		
Client ID:	ZZZZZZ	Batch ID:	61788	TestNo:	EPA 7199	EPA 3060A		Analysis Date:	4/4/2017	SeqNo:	2608833		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium		91.960		4.6	91.61	92.08	-0.131	75	125				S

Qualifiers:

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



ASSET LABORATORIES
ANALYTICAL SERVICES PROVIDED BY PROFESSIONAL SCIENTISTS

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"

CLIENT: CH2M HILL
Work Order: N023691
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 7199_S_PGE

Sample ID	N023691-001C-MSD	SampType: MSD	TestCode: 7199_S_PGE	Units: mg/Kg-dry	Prep Date: 4/4/2017	RunNo: 114459					
Client ID: ZZZZZZ	Batch ID: 61788	TestNo: EPA 7199	EPA 3060A	Analysis Date: 4/4/2017	SeqNo: 2608834						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	93.221	4.6	91.68	92.08	1.25	75	125	91.96	1.36	20	S
---------------------	--------	-----	-------	-------	------	----	-----	-------	------	----	---

Sample ID	N023691-001C-MS I	SampType: MS	TestCode: 7199_S_PGE	Units: mg/Kg-dry	Prep Date: 4/4/2017	RunNo: 114459					
Client ID: ZZZZZZ	Batch ID: 61788	TestNo: EPA 7199	EPA 3060A	Analysis Date: 4/4/2017	SeqNo: 2608835						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	1328.683	23	1492	92.08	82.9	75	125				
---------------------	----------	----	------	-------	------	----	-----	--	--	--	--

Sample ID	N023691-001C-PS	SampType: MS	TestCode: 7199_S_PGE	Units: mg/Kg-dry	Prep Date:	RunNo: 114459					
Client ID:	ZZZZZZ	Batch ID: 61788	TestNo: EPA 7199	EPA 3060A	Analysis Date: 4/4/2017	SeqNo: 2608844					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	183.532	4.6	91.83	92.08	99.6	75	125				
---------------------	---------	-----	-------	-------	------	----	-----	--	--	--	--

Qualifiers:

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



ASSET LABORATORIES

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

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"

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 18-Apr-17

CLIENT:	CH2M HILL	Client Sample ID:	Phase Separator-556-Sludge
Lab Order:	N023691	Collection Date:	4/3/2017 5:50:00 PM
Project:	PG&E Topock, 680375.02.IM.OP.00	Matrix:	SOIL
Lab ID:	N023691-001		

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

TOTAL MERCURY BY COLD VAPOR TECHNIQUE
EPA 7471A

RunID: NV00922-AA1_170404A	QC Batch: 61784	PrepDate	4/4/2017	Analyst: MG
Mercury	ND	0.027	0.23	mg/Kg-dry 1 4/4/2017 11:00 AM

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


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

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

CLIENT: CH2M HILL
Work Order: N023691
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT**TestCode: 7471_S_PGE**

Sample ID MB-61784	SampType: MBLK	TestCode: 7471_S_PGE	Units: mg/Kg	Prep Date: 4/4/2017	RunNo: 114455
Client ID: PBS	Batch ID: 61784	TestNo: EPA 7471A		Analysis Date: 4/4/2017	SeqNo: 2608673
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Mercury ND 0.10

Sample ID LCS-61784	SampType: LCS	TestCode: 7471_S_PGE	Units: mg/Kg	Prep Date: 4/4/2017	RunNo: 114455
Client ID: LCSS	Batch ID: 61784	TestNo: EPA 7471A		Analysis Date: 4/4/2017	SeqNo: 2608674
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Mercury 0.433 0.10 0.4167 0 104 75 125

Sample ID N023685-005A-MS	SampType: MS	TestCode: 7471_S_PGE	Units: mg/Kg	Prep Date: 4/4/2017	RunNo: 114455
Client ID: ZZZZZZ	Batch ID: 61784	TestNo: EPA 7471A		Analysis Date: 4/4/2017	SeqNo: 2608675
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Mercury 0.413 0.099 0.4105 0.1100 73.8 75 125 S

Sample ID N023685-005A-MSD	SampType: MSD	TestCode: 7471_S_PGE	Units: mg/Kg	Prep Date: 4/4/2017	RunNo: 114455
Client ID: ZZZZZZ	Batch ID: 61784	TestNo: EPA 7471A		Analysis Date: 4/4/2017	SeqNo: 2608676
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Mercury 0.478 0.10 0.4160 0.1100 88.4 75 125 0.4128 14.6 20

Qualifiers:

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

Calculations are based on raw values



ASSET LABORATORIES
 ANALYTICAL SERVICES FOR THE CONSTRUCTION INDUSTRY

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"

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 18-Apr-17

CLIENT:	CH2M HILL	Client Sample ID:	Phase Separator-556-Sludge
Lab Order:	N023691	Collection Date:	4/3/2017 5:50:00 PM
Project:	PG&E Topock, 680375.02.IM.OP.00	Matrix:	SOIL
Lab ID:	N023691-001		

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

PERCENT MOISTURE
D2216

RunID: NV00922-WC_170404C	QC Batch: R114440	PrepDate	Analyst: LR
Percent Moisture	56.46	0.1000	0.1000
		wt%	1
			4/4/2017 09:20 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		


ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

CLIENT: CH2M HILL
Work Order: N023691
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT**TestCode: PMOIST**

Sample ID	MB-R114440	SampType:	MBLK	TestCode:	PMOIST	Units:	wt%	Prep Date:		RunNo:	114440	
Client ID:	PBS	Batch ID:	R114440	TestNo:	D2216			Analysis Date:	4/4/2017	SeqNo:	2608330	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture		ND	0.1000									

Sample ID	N023691-001BDUP	SampType:	DUP	TestCode:	PMOIST	Units:	wt%	Prep Date:		RunNo:	114440	
Client ID:	ZZZZZZ	Batch ID:	R114440	TestNo:	D2216			Analysis Date:	4/4/2017	SeqNo:	2608332	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture		56.456	0.1000						56.46	0.000886	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			


ASSET LABORATORIES
ANALYTICAL SERVICES IN PROGRESS FOR ENVIRONMENTAL TECHNOLOGIES

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"

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-556-SLUDGE Turnaround Time 10 Days Shipping Date: COC Number: 556-S			Container: Glass Jar(8 oz) Glass Jar(8 oz) 4 oz jar Preservatives: none none 4°C Filtered: NA NA NA Holding Time: NA NA 180 Anions (E300, Soil) FI Metals (601 OB, Soil) Title 22, Mercury, Mn Metals (7199)			Number of Containers	COMMENTS		
DATE	TIME	Matrix							
Phase Separator-556-Sludge	4-3-17	5:50	Soil	X	X	X	N023691 - 01	5	
TOTAL NUMBER OF CONTAINERS							5		

Signatures		Date/Time	Shipping Details		ATTN: Sample Custody and Marlon Cartin	Special Instructions:
Approved by		4-3-17 5:00	Method of Shipment:	FedEx		Report Copy to Doug Scott (970) 731-0636
Sampled by		4-3-17 5:50	On Ice:	yes / no 2.2°C		
Relinquished by		4-3-17 13:30	Airbill No:	1242		
Received by		4/3/17 18:00	Lab Name:	ASSET Laboratories		
Relinquished by		4/3/17 18:00	Lab Phone:	(702) 307-2659		

ASSET Laboratories

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

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

Cooler Received/Opened On: 4/3/2017 Workorder: N023691
 Rep sample Temp (Deg C): 2.2 IR Gun ID: 2
 Temp Blank: ☒ Yes ☐ No
 Carrier name: ASSET
 Last 4 digits of Tracking No.: NA Packing Material Used: None
 Cooling process: ☒ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

- | | | | |
|---|---|-----------------------------|---|
| 1. Shipping container/cooler in good condition? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/> |
| 2. Custody seals intact, signed, dated on shipping container/cooler? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 3. Custody seals intact on sample bottles? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 4. Chain of custody present? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 5. Sampler's name present in COC? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 6. Chain of custody signed when relinquished and received? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 7. Chain of custody agrees with sample labels? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 8. Samples in proper container/bottle? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 9. Sample containers intact? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 10. Sufficient sample volume for indicated test? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 11. All samples received within holding time? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 13. Water - VOA vials have zero headspace? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| 14. Water - pH acceptable upon receipt?
Example: pH > 12 for (CN,S); pH<2 for Metals | Yes <input type="checkbox"/> | No <input 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: YR YR 4/06/2017

Reviewed By: ABC 4/7/2017

List of Analysts

ASSET Laboratories Work Order: **N023691**

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



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"

CH2M HILL

Project: PG&E Topock
Project No.: 680375.02.IM.OP.00

ASSET Laboratories Work Order:
N023692

ANALYTICAL and QC RESULTS SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL



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”

April 18, 2017

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

TEL: (970) 731-0636

FAX: (510) 622-9129

Workorder No.: N023692

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

Attention: Doug Scott

Enclosed are the results for sample(s) received on April 03, 2017 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,



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

"Serving Clients with Passion and Professionalism"

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

CLIENT: CH2M HILL
Project: PG&E Topock, 680375.02.IM.OP.00
Lab Order: N023692

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 samples N023692-001 and N023692-002 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.

Dilution was necessary on all analytes for sample N023692-003 due to associated internal standard not meeting method criteria possibly due to matrix interference. Sample was analyzed with further 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 Chromium on QC samples N023692-001E-MS and N023692-001E-MSD since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for some analytes on QC samples N023692-001E-MS and N023692-001E-MSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 218.6:

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

"Serving Clients with Passion and Professionalism"

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

Page 1 of 2

CLIENT: CH2M HILL

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

Lab Order: N023692

CASE NARRATIVE

Dilution was necessary for sample N023692-003 due to matrix interference. Sample was analyzed at lower dilution however matrix spike recovery and retention time criteria were not met indicating possible matrix interference. Sample was reported at dilution that meet matrix spike recovery limit and the detected peak within retention time window.

Analytical Comments for EPA 245.1:

RPD for Matrix Spike(MS) and Matrix Spike Duplicate(MSD) is outside criteria ; however, the analytical batch was validated by the Laboratory Control Sample (LCS).



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

Page 2 of 2

ASSET Laboratories

Date: 18-Apr-17

CLIENT: CH2M HILL
Project: PG&E Topock, 680375.02.IM.OP.00
Lab Order: N023692
Contract No: IM3PLANT-AR

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N023692-001A	SC-100B-WDR-556	Water	4/3/2017 5:30:00 PM	4/3/2017	4/18/2017
N023692-001B	SC-100B-WDR-556	Water	4/3/2017 5:30:00 PM	4/3/2017	4/18/2017
N023692-001C	SC-100B-WDR-556	Water	4/3/2017 5:30:00 PM	4/3/2017	4/18/2017
N023692-001D	SC-100B-WDR-556	Water	4/3/2017 5:30:00 PM	4/3/2017	4/18/2017
N023692-001E	SC-100B-WDR-556	Water	4/3/2017 5:30:00 PM	4/3/2017	4/18/2017
N023692-001F	SC-100B-WDR-556	Water	4/3/2017 5:30:00 PM	4/3/2017	4/18/2017
N023692-002A	SC-700B-WDR-556	Water	4/3/2017 5:35:00 PM	4/3/2017	4/18/2017
N023692-002B	SC-700B-WDR-556	Water	4/3/2017 5:35:00 PM	4/3/2017	4/18/2017
N023692-002C	SC-700B-WDR-556	Water	4/3/2017 5:35:00 PM	4/3/2017	4/18/2017
N023692-002D	SC-700B-WDR-556	Water	4/3/2017 5:35:00 PM	4/3/2017	4/18/2017
N023692-002E	SC-700B-WDR-556	Water	4/3/2017 5:35:00 PM	4/3/2017	4/18/2017
N023692-002F	SC-700B-WDR-556	Water	4/3/2017 5:35:00 PM	4/3/2017	4/18/2017
N023692-003A	SC-701-WDR-556	Water	4/3/2017 5:40:00 PM	4/3/2017	4/18/2017
N023692-003B	SC-701-WDR-556	Water	4/3/2017 5:40:00 PM	4/3/2017	4/18/2017
N023692-003C	SC-701-WDR-556	Water	4/3/2017 5:40:00 PM	4/3/2017	4/18/2017
N023692-003D	SC-701-WDR-556	Water	4/3/2017 5:40:00 PM	4/3/2017	4/18/2017



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

"Serving Clients with Passion and Professionalism"

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

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 18-Apr-17

CLIENT: CH2M HILL
Lab Order: N023692
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N023692-001

Client Sample ID: SC-100B-WDR-556
Collection Date: 4/3/2017 5:30:00 PM
Matrix: WATER

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

SPECIFIC CONDUCTANCE
EPA 120.1

RunID: NV00922-WC_170404A	QC Batch: R114438			PrepDate		Analyst: LR
Specific Conductance	7300	0.10	0.10	umhos/cm	1	4/4/2017 09:00 AM

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



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

ASSET Laboratories**ANALYTICAL RESULTS**

Print Date: 18-Apr-17

CLIENT: CH2M HILL
Lab Order: N023692
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N023692-002

Client Sample ID: SC-700B-WDR-556
Collection Date: 4/3/2017 5:35:00 PM
Matrix: WATER

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

SPECIFIC CONDUCTANCE**EPA 120.1**

RunID: NV00922-WC_170404A	QC Batch: R114438			PrepDate			Analyst: LR
Specific Conductance	7400	0.10	0.10	umhos/cm	1		4/4/2017 09:00 AM

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



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

"Serving Clients with Passion and Professionalism"

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

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 18-Apr-17

CLIENT: CH2M HILL
Lab Order: N023692
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N023692-003

Client Sample ID: SC-701-WDR-556
Collection Date: 4/3/2017 5:40:00 PM
Matrix: WATER

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

SPECIFIC CONDUCTANCE
EPA 120.1

RunID: NV00922-WC_170404A	QC Batch: R114438			PrepDate		Analyst: LR
Specific Conductance	56000	0.10	0.10	umhos/cm	1	4/4/2017 09:00 AM

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



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

CLIENT: CH2M HILL
Work Order: N023692
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	N023692-003ADUP	SampType:	DUP	TestCode:	120.1_WPGE	Units:	umhos/cm	Prep Date:		RunNo:	114438
Client ID:	ZZZZZZ	Batch ID:	R114438	TestNo:	EPA 120.1			Analysis Date:	4/4/2017	SeqNo:	2607866
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Specific Conductance		56000.000		0.10						55800	0.358 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		

**ASSET LABORATORIES**

ANALYTICAL SERVICES IN CALIFORNIA, NEVADA, AND IOWA

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"

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 18-Apr-17

CLIENT: CH2M HILL
Lab Order: N023692
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N023692-001

Client Sample ID: SC-100B-WDR-556
Collection Date: 4/3/2017 5:30:00 PM
Matrix: WATER

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

TOTAL FILTERABLE RESIDUE
SM2540C

RunID: NV00922-WC_170404H	QC Batch: 61793			PrepDate	4/4/2017	Analyst: LR
Total Dissolved Solids (Residue, Filterable)	4200	50	50	mg/L	1	4/4/2017 12:48 PM

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



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 18-Apr-17

CLIENT: CH2M HILL
Lab Order: N023692
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N023692-002

Client Sample ID: SC-700B-WDR-556
Collection Date: 4/3/2017 5:35:00 PM
Matrix: WATER

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

TOTAL FILTERABLE RESIDUE
SM2540C

RunID: NV00922-WC_170404H	QC Batch: 61793			PrepDate	4/4/2017	Analyst: LR
Total Dissolved Solids (Residue, Filterable)	4100	50	50	mg/L	1	4/4/2017 12:48 PM

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



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 18-Apr-17

CLIENT: CH2M HILL
Lab Order: N023692
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N023692-003

Client Sample ID: SC-701-WDR-556
Collection Date: 4/3/2017 5:40:00 PM
Matrix: WATER

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

TOTAL FILTERABLE RESIDUE
SM2540C

RunID: NV00922-WC_170404H	QC Batch: 61793			PrepDate	4/4/2017	Analyst: LR
Total Dissolved Solids (Residue, Filterable)	41000	500	500	mg/L	1	4/4/2017 12:48 PM

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



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

CLIENT: CH2M HILL
Work Order: N023692
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	LCS-61793	SampType:	LCS	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	4/4/2017	RunNo:	114473		
Client ID:	LCSW	Batch ID:	61793	TestNo:	SM2540C			Analysis Date:	4/4/2017	SeqNo:	2609332		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		956.000		10	1000	0	95.6	80	120				

Sample ID	MB-61793	SampType:	MBLK	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	4/4/2017	RunNo:	114473		
Client ID:	PBW	Batch ID:	61793	TestNo:	SM2540C			Analysis Date:	4/4/2017	SeqNo:	2609333		
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	N023692-003ADUP	SampType:	DUP	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	4/4/2017	RunNo:	114473		
Client ID:	ZZZZZZ	Batch ID:	61793	TestNo:	SM2540C			Analysis Date:	4/4/2017	SeqNo:	2609337		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		42800.000		500						41100	4.05	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			


ASSET LABORATORIES
ANALYTICAL SERVICES • PROCESS CONTROL • ENVIRONMENTAL • TECHNOLOGIES

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"

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 18-Apr-17

CLIENT: CH2M HILL
Lab Order: N023692
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N023692-001

Client Sample ID: SC-100B-WDR-556
Collection Date: 4/3/2017 5:30:00 PM
Matrix: WATER

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

TOTAL METALS BY ICP
EPA 200.7

RunID: NV00922-ICP2_170407B	QC Batch: 61786	PrepDate	4/4/2017	Analyst: CEI		
Aluminum	ND	2.7	50	µg/L	1	4/7/2017 11:40 AM
Boron	1100	38	100	µg/L	1	4/7/2017 11:40 AM
Iron	ND	1.8	20	µg/L	1	4/7/2017 11:40 AM

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



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 18-Apr-17

CLIENT: CH2M HILL
Lab Order: N023692
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N023692-002

Client Sample ID: SC-700B-WDR-556
Collection Date: 4/3/2017 5:35:00 PM
Matrix: WATER

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

TOTAL METALS BY ICP
EPA 200.7

RunID: NV00922-ICP2_170407B	QC Batch: 61786	PrepDate	4/4/2017	Analyst: CEI		
Aluminum	ND	2.7	50	µg/L	1	4/7/2017 12:10 PM
Boron	1100	38	100	µg/L	1	4/7/2017 12:10 PM
Iron	24	1.8	20	µg/L	1	4/7/2017 12:10 PM

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



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

CLIENT: CH2M HILL
Work Order: N023692
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID MB-61786	SampType: MBLK	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 4/4/2017	RunNo: 114538
Client ID: PBW	Batch ID: 61786	TestNo: EPA 200.7		Analysis Date: 4/7/2017	SeqNo: 2612198
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Aluminum	18.603	50			
Boron	ND	100			
Iron	15.331	20			

Sample ID LCS-61786	SampType: LCS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 4/4/2017	RunNo: 114538
Client ID: LCSW	Batch ID: 61786	TestNo: EPA 200.7		Analysis Date: 4/7/2017	SeqNo: 2612199
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Aluminum	9485.800	50	10000	0	94.9	85	115			
Boron	4623.559	100	5000	0	92.5	85	115			
Iron	110.742	20	100.0	0	111	85	115			

Sample ID N023692-001E-MS	SampType: MS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 4/4/2017	RunNo: 114538
Client ID: ZZZZZZ	Batch ID: 61786	TestNo: EPA 200.7		Analysis Date: 4/7/2017	SeqNo: 2612203
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Aluminum	10074.302	50	10000	0	101	75	125			
Boron	5958.754	100	5000	1085	97.5	75	125			
Iron	103.073	20	100.0	2.430	101	75	125			

Sample ID N023692-001E-MSD	SampType: MSD	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 4/4/2017	RunNo: 114538
Client ID: ZZZZZZ	Batch ID: 61786	TestNo: EPA 200.7		Analysis Date: 4/7/2017	SeqNo: 2612204
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Aluminum	10047.802	50	10000	0	100	75	125	10070	0.263	20
Boron	5915.654	100	5000	1085	96.6	75	125	5959	0.726	20
Iron	103.486	20	100.0	2.430	101	75	125	103.1	0.399	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 IN CALIFORNIA, NEVADA, AND IDAHO
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"

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 18-Apr-17

CLIENT: CH2M HILL
Lab Order: N023692
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N023692-001

Client Sample ID: SC-100B-WDR-556
Collection Date: 4/3/2017 5:30:00 PM
Matrix: WATER

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

TOTAL METALS BY ICPMS
EPA 200.8

RunID: NV00922-ICP7_170405D	QC Batch: 61804	PrepDate	4/5/2017	Analyst: CEI		
Antimony	ND	0.16	2.5	µg/L	5	4/5/2017 07:56 PM
Arsenic	3.2	0.025	0.10	µg/L	1	4/5/2017 07:51 PM
Barium	29	0.070	1.0	µg/L	1	4/5/2017 07:51 PM
Copper	ND	0.26	1.0	µg/L	1	4/6/2017 11:41 AM
Lead	ND	0.18	5.0	µg/L	5	4/6/2017 11:47 AM
Manganese	19	0.056	0.50	µg/L	1	4/5/2017 07:51 PM
Molybdenum	21	0.19	2.5	µg/L	5	4/5/2017 07:56 PM
Nickel	ND	0.040	1.0	µg/L	1	4/5/2017 07:51 PM
Zinc	39	0.27	10	µg/L	1	4/5/2017 07:51 PM

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



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 18-Apr-17

CLIENT: CH2M HILL
Lab Order: N023692
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N023692-002

Client Sample ID: SC-700B-WDR-556
Collection Date: 4/3/2017 5:35:00 PM
Matrix: WATER

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

TOTAL METALS BY ICPMS
EPA 200.8

RunID: NV00922-ICP7_170405D	QC Batch: 61804	PrepDate	4/5/2017	Analyst: CEI		
Antimony	ND	0.031	0.50	µg/L	1	4/5/2017 08:52 PM
Arsenic	0.11	0.025	0.10	µg/L	1	4/5/2017 08:52 PM
Barium	16	0.070	1.0	µg/L	1	4/5/2017 08:52 PM
Copper	ND	0.26	1.0	µg/L	1	4/6/2017 12:43 PM
Lead	ND	0.18	5.0	µg/L	5	4/6/2017 12:48 PM
Manganese	7.6	0.056	0.50	µg/L	1	4/5/2017 08:52 PM
Molybdenum	23	0.19	2.5	µg/L	5	4/5/2017 08:58 PM
Nickel	1.8	0.040	1.0	µg/L	1	4/5/2017 08:52 PM
Zinc	23	0.27	10	µg/L	1	4/5/2017 08:52 PM

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



ASSET LABORATORIES
 ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 18-Apr-17

CLIENT: CH2M HILL
Lab Order: N023692
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N023692-003

Client Sample ID: SC-701-WDR-556
Collection Date: 4/3/2017 5:40:00 PM
Matrix: WATER

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

TOTAL METALS BY ICPMS
EPA 200.8

RunID: NV00922-ICP7_170405D	QC Batch: 61804	PrepDate	4/5/2017	Analyst: CEI		
Antimony	ND	0.79	12	µg/L	25	4/5/2017 09:15 PM
Arsenic	ND	0.62	2.5	µg/L	25	4/5/2017 09:15 PM
Barium	220	1.7	25	µg/L	25	4/5/2017 09:15 PM
Beryllium	ND	1.1	12	µg/L	25	4/6/2017 01:05 PM
Cadmium	ND	1.2	12	µg/L	25	4/5/2017 09:15 PM
Cobalt	ND	0.66	12	µg/L	25	4/5/2017 09:15 PM
Copper	ND	1.3	5.0	µg/L	5	4/6/2017 12:59 PM
Lead	ND	0.92	25	µg/L	25	4/6/2017 01:05 PM
Manganese	ND	1.4	12	µg/L	25	4/5/2017 09:15 PM
Molybdenum	180	0.97	12	µg/L	25	4/5/2017 09:15 PM
Nickel	ND	0.99	25	µg/L	25	4/5/2017 09:15 PM
Selenium	39	0.69	12	µg/L	25	4/7/2017 06:43 PM
Silver	ND	1.5	12	µg/L	25	4/5/2017 09:15 PM
Thallium	ND	0.74	12	µg/L	25	4/5/2017 09:15 PM
Vanadium	ND	0.53	25	µg/L	25	4/5/2017 09:15 PM
Zinc	ND	6.7	250	µg/L	25	4/5/2017 09:15 PM

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



ASSET LABORATORIES
 ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

CLIENT: CH2M HILL
Work Order: N023692
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	MB-61804	SampType:	MBLK	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/5/2017	RunNo:	114515	
Client ID:	PBW	Batch ID:	61804	TestNo:	EPA 200.8			Analysis Date:	4/5/2017	SeqNo:	2610805	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony		0.045	0.50									
Arsenic		ND	0.10									
Barium		ND	1.0									
Cadmium		ND	0.50									
Cobalt		ND	0.50									
Manganese		ND	0.50									
Molybdenum		0.079	0.50									
Nickel		ND	1.0									
Silver		0.211	0.50									
Thallium		ND	0.50									
Vanadium		ND	1.0									
Zinc		ND	10									

Sample ID	LCS-61804	SampType: LCS	TestCode: 200.8_W	Units: µg/L	Prep Date: 4/5/2017				RunNo: 114515		
Client ID:	LCSW	Batch ID: 61804	TestNo: EPA 200.8	Analysis Date: 4/5/2017				SeqNo: 2610806			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.448	0.50	10.00	0	104	85	115				
Arsenic	10.637	0.10	10.00	0	106	85	115				
Barium	105.745	1.0	100.0	0	106	85	115				
Cadmium	10.560	0.50	10.00	0	106	85	115				
Cobalt	9.983	0.50	10.00	0	99.8	85	115				
Manganese	102.331	0.50	100.0	0	102	85	115				
Molybdenum	10.073	0.50	10.00	0	101	85	115				
Nickel	10.558	1.0	10.00	0	106	85	115				
Silver	10.311	0.50	10.00	0	103	85	115				
Thallium	9.461	0.50	10.00	0	94.6	85	115				
Vanadium	10.263	1.0	10.00	0	103	85	115				

Qualifiers:

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



ASSET LABORATORIES
ANALYTICAL SERVICES IN PROGRESS FOR ENVIRONMENTAL TESTING LABOR

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"

CLIENT: CH2M HILL
Work Order: N023692
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	LCS-61804	SampType:	LCS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/5/2017	RunNo:	114515
Client ID:	LCSW	Batch ID:	61804	TestNo:	EPA 200.8			Analysis Date:	4/5/2017	SeqNo:	2610806
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Zinc	105.825	10	100.0	0	106	85	115				
------	---------	----	-------	---	-----	----	-----	--	--	--	--

Sample ID	N023692-001E-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/5/2017	RunNo:	114515
Client ID:	ZZZZZZ	Batch ID:	61804	TestNo:	EPA 200.8			Analysis Date:	4/5/2017	SeqNo:	2610812
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	13.471	0.10	10.00	3.185	103	75	125				
Barium	127.088	1.0	100.0	28.51	98.6	75	125				
Cobalt	8.288	0.50	10.00	0	82.9	75	125				
Manganese	113.493	0.50	100.0	19.22	94.3	75	125				
Nickel	8.649	1.0	10.00	0	86.5	75	125				
Vanadium	17.226	1.0	10.00	7.760	94.7	75	125				
Zinc	100.150	10	100.0	38.84	61.3	75	125				S

Sample ID	N023692-001E-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/5/2017	RunNo:	114515
Client ID:	ZZZZZZ	Batch ID:	61804	TestNo:	EPA 200.8			Analysis Date:	4/5/2017	SeqNo:	2610813
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Antimony	11.062	2.5	10.00	0	111	75	125				
Cadmium	10.565	2.5	10.00	0	106	75	125				
Molybdenum	33.495	2.5	10.00	21.16	123	75	125				
Silver	10.427	2.5	10.00	0	104	75	125				
Thallium	8.940	2.5	10.00	0.3312	86.1	75	125				

Sample ID	N023692-001E-MSD	SampType:	MSD	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/5/2017	RunNo:	114515
Client ID:	ZZZZZZ	Batch ID:	61804	TestNo:	EPA 200.8			Analysis Date:	4/5/2017	SeqNo:	2610814
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	13.079	0.10	10.00	3.185	98.9	75	125	13.47	2.96	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 BY PROFESSIONAL, INDEPENDENT, TESTED LABS

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"

CLIENT: CH2M HILL
Work Order: N023692
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	N023692-001E-MSD	SampType:	MSD	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/5/2017	RunNo:	114515
Client ID:	ZZZZZZ	Batch ID:	61804	TestNo:	EPA 200.8			Analysis Date:	4/5/2017	SeqNo:	2610814
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	128.226	1.0	100.0	28.51	99.7	75	125	127.1	0.891	20	
Cobalt	8.137	0.50	10.00	0	81.4	75	125	8.288	1.84	20	
Manganese	111.898	0.50	100.0	19.22	92.7	75	125	113.5	1.42	20	
Nickel	8.604	1.0	10.00	0	86.0	75	125	8.649	0.524	20	
Vanadium	17.031	1.0	10.00	7.760	92.7	75	125	17.23	1.14	20	
Zinc	97.697	10	100.0	38.84	58.9	75	125	100.2	2.48	20	S

Sample ID	N023692-001E-MSD	SampType:	MSD	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/5/2017	RunNo:	114515
Client ID:	ZZZZZZ	Batch ID:	61804	TestNo:	EPA 200.8			Analysis Date:	4/5/2017	SeqNo:	2610817
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	11.148	2.5	10.00	0	111	75	125	11.06	0.776	20	
Molybdenum	33.173	2.5	10.00	21.16	120	75	125	33.49	0.964	20	
Silver	9.513	2.5	10.00	0	95.1	75	125	10.43	9.16	20	
Thallium	8.431	2.5	10.00	0.3312	81.0	75	125	8.940	5.86	20	

Sample ID	MB-61804	SampType:	MBLK	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/5/2017	RunNo:	114517
Client ID:	PBW	Batch ID:	61804	TestNo:	EPA 200.8			Analysis Date:	4/6/2017	SeqNo:	2613859
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium	ND	0.50									
Copper	ND	1.0									
Lead	0.043	1.0									
Selenium	ND	0.50									

Sample ID	LCS-61804	SampType:	LCS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/5/2017	RunNo:	114517
Client ID:	LCSW	Batch ID:	61804	TestNo:	EPA 200.8			Analysis Date:	4/6/2017	SeqNo:	2613860
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			



ASSET LABORATORIES
ANALYTICAL SERVICES FOR PETROLEUM, ENVIRONMENTAL, AND INDUSTRIAL

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"

CLIENT: CH2M HILL
Work Order: N023692
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	LCS-61804	SampType:	LCS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/5/2017	RunNo:	114517
Client ID:	LCSW	Batch ID:	61804	TestNo:	EPA 200.8			Analysis Date:	4/6/2017	SeqNo:	2613860
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium	9.075	0.50	10.00	0	90.7	85	115				
Copper	10.274	1.0	10.00	0	103	85	115				
Lead	9.678	1.0	10.00	0	96.8	85	115				
Selenium	9.948	0.50	10.00	0	99.5	85	115				

Sample ID	N023692-001E-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/5/2017	RunNo:	114517
Client ID:	ZZZZZZ	Batch ID:	61804	TestNo:	EPA 200.8			Analysis Date:	4/6/2017	SeqNo:	2613866
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	5.591	1.0	10.00	0	55.9	75	125				S

Sample ID	N023692-001E-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/5/2017	RunNo:	114517
Client ID:	ZZZZZZ	Batch ID:	61804	TestNo:	EPA 200.8			Analysis Date:	4/6/2017	SeqNo:	2613867
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium	10.794	2.5	10.00	0	108	75	125				
Lead	10.128	5.0	10.00	0	101	75	125				
Selenium	13.248	2.5	10.00	3.630	96.2	75	125				

Sample ID	N023692-001E-MSD	SampType:	MSD	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/5/2017	RunNo:	114517
Client ID:	ZZZZZZ	Batch ID:	61804	TestNo:	EPA 200.8			Analysis Date:	4/6/2017	SeqNo:	2613868
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	5.367	1.0	10.00	0	53.7	75	125	5.591	4.08	20	S

Sample ID	N023692-001E-MSD	SampType:	MSD	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/5/2017	RunNo:	114517
Client ID:	ZZZZZZ	Batch ID:	61804	TestNo:	EPA 200.8			Analysis Date:	4/6/2017	SeqNo:	2613871
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			



ASSET LABORATORIES
ANALYTICAL SERVICES PROVIDER FOR ENVIRONMENTAL TECHNOLOGIES

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"

CLIENT: CH2M HILL
Work Order: N023692
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	N023692-001E-MSD	SampType: MSD	TestCode: 200.8_W	Units: µg/L	Prep Date: 4/5/2017	RunNo: 114517					
Client ID: ZZZZZZ	Batch ID: 61804	TestNo: EPA 200.8	Analysis Date: 4/6/2017	SeqNo: 2613871							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Beryllium	10.462	2.5	10.00	0	105	75	125	10.79	3.12	20	
Lead	10.105	5.0	10.00	0	101	75	125	10.13	0.227	20	
Selenium	13.885	2.5	10.00	3.630	103	75	125	13.25	4.70	20	

Sample ID	N023692-001E-MSD	SampType:	MSD	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/5/2017	RunNo:	114517		
Client ID:	ZZZZZZ	Batch ID:	61804	TestNo:	EPA 200.8			Analysis Date:	4/6/2017	SeqNo:	2621667		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium		10.405		2.5	10.00	0	104	75	125	10.56	1.52	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

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"

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 18-Apr-17

CLIENT: CH2M HILL
Lab Order: N023692
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N023692-001

Client Sample ID: SC-100B-WDR-556
Collection Date: 4/3/2017 5:30:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 218.6							
RunID: NV00922-IC7_170404A	QC Batch: R114457				PrepDate		Analyst: RAB
Hexavalent Chromium	480	6.6	20		µg/L	100	4/4/2017 10:43 AM
TOTAL METALS BY ICPMS							
EPA 200.8							
RunID: NV00922-ICP7_170405D	QC Batch: 61804				PrepDate	4/5/2017	Analyst: CEI
Chromium	480	0.096	5.0		µg/L	5	4/5/2017 07:56 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



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

"Serving Clients with Passion and Professionalism"

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

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 18-Apr-17

CLIENT: CH2M HILL
Lab Order: N023692
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N023692-002

Client Sample ID: SC-700B-WDR-556
Collection Date: 4/3/2017 5:35:00 PM
Matrix: WATER

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

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: NV00922-IC7_170404A	QC Batch: R114457				PrepDate		Analyst: RAB
Hexavalent Chromium	ND	0.066	0.20		µg/L	1	4/4/2017 11:13 AM

TOTAL METALS BY ICPMS
EPA 200.8

RunID: NV00922-ICP7_170405D	QC Batch: 61804				PrepDate	4/5/2017	Analyst: CEI
Chromium	ND	0.019	1.0		µg/L	1	4/5/2017 08:52 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		



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 18-Apr-17

CLIENT: CH2M HILL
Lab Order: N023692
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N023692-003

Client Sample ID: SC-701-WDR-556
Collection Date: 4/3/2017 5:40:00 PM
Matrix: WATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 218.6							
RunID: NV00922-IC7_170404A	QC Batch: R114457			PrepDate		Analyst: RAB	
Hexavalent Chromium	ND	1.6	5.0		µg/L	25	4/4/2017 12:29 PM
TOTAL METALS BY ICPMS							
EPA 200.8							
RunID: NV00922-ICP7_170405D	QC Batch: 61804			PrepDate	4/5/2017	Analyst: CEI	
Chromium	ND	0.48	25		µg/L	25	4/5/2017 09:15 PM

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



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

CLIENT: CH2M HILL
Work Order: N023692
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID MB-61804	SampType: MBLK	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 4/5/2017	RunNo: 114515
Client ID: PBW	Batch ID: 61804	TestNo: EPA 200.8		Analysis Date: 4/5/2017	SeqNo: 2610716
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chromium	ND	1.0			

Sample ID LCS-61804	SampType: LCS	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 4/5/2017	RunNo: 114515
Client ID: LCSW	Batch ID: 61804	TestNo: EPA 200.8		Analysis Date: 4/5/2017	SeqNo: 2610717
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chromium	10.240	1.0	10.00	0	102 85 115

Sample ID N023692-001E-MS	SampType: MS	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 4/5/2017	RunNo: 114515
Client ID: ZZZZZZ	Batch ID: 61804	TestNo: EPA 200.8		Analysis Date: 4/5/2017	SeqNo: 2610724
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chromium	495.684	5.0	10.00	482.4	133 75 125 S

Sample ID N023692-001E-MSD	SampType: MSD	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 4/5/2017	RunNo: 114515
Client ID: ZZZZZZ	Batch ID: 61804	TestNo: EPA 200.8		Analysis Date: 4/5/2017	SeqNo: 2610728
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chromium	499.612	5.0	10.00	482.4	172 75 125 495.7 0.789 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			


ASSET LABORATORIES
ANALYTICAL SERVICES PROVIDED BY PROFESSIONAL TECHNOLOGISTS

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"

CLIENT: CH2M HILL
Work Order: N023692
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID	MB-R114457	SampType:	MBLK	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	114457			
Client ID:	PBW	Batch ID:	R114457	TestNo:	EPA 218.6			Analysis Date:	4/4/2017	SeqNo:	2608773			
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-R114457	SampType:	LCS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	114457			
Client ID:	LCSW	Batch ID:	R114457	TestNo:	EPA 218.6			Analysis Date:	4/4/2017	SeqNo:	2608774			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 5.062 0.20 5.000 0 101 90 110

Sample ID	N023692-001CMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	114457			
Client ID:	ZZZZZZ	Batch ID:	R114457	TestNo:	EPA 218.6			Analysis Date:	4/4/2017	SeqNo:	2608776			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 979.150 20 500.0 480.8 99.7 90 110

Sample ID	N023692-001CMSD	SampType:	MSD	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	114457			
Client ID:	ZZZZZZ	Batch ID:	R114457	TestNo:	EPA 218.6			Analysis Date:	4/4/2017	SeqNo:	2608777			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 978.680 20 500.0 480.8 99.6 90 110 979.2 0.0480 20

Sample ID	N023692-002CMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	114457			
Client ID:	ZZZZZZ	Batch ID:	R114457	TestNo:	EPA 218.6			Analysis Date:	4/4/2017	SeqNo:	2608779			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 1.120 0.20 1.000 0.07180 105 90 110

Qualifiers:

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



ASSET LABORATORIES

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

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"

CLIENT: CH2M HILL
Work Order: N023692
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID	N023692-003BMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	114457		
Client ID:	ZZZZZZ	Batch ID:	R114457	TestNo:	EPA 218.6			Analysis Date:	4/4/2017	SeqNo:	2608783		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	29.370	5.0	25.00	3.072	105	90	110						
---------------------	--------	-----	-------	-------	-----	----	-----	--	--	--	--	--	--

Sample ID	N023694-001ADUP	SampType:	DUP	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	114457		
Client ID:	ZZZZZZ	Batch ID:	R114457	TestNo:	EPA 218.6			Analysis Date:	4/4/2017	SeqNo:	2608793		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium	0.750	0.20								0.7254	3.31	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

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"

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: 18-Apr-17

CLIENT: CH2M HILL
 Lab Order: N023692
 Project: PG&E Topock, 680375.02.IM.OP.00
 Lab ID: N023692-001

Client Sample ID: SC-100B-WDR-556
 Collection Date: 4/3/2017 5:30:00 PM
 Matrix: WATER

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

TURBIDITY

SM 2130B

RunID: NV00922-WC_170404B	QC Batch: R114439	PrepDate	Analyst: LR
Turbidity	0.37 0.10 0.10	NTU	1 4/4/2017 09:45 AM

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



ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: 18-Apr-17

CLIENT: CH2M HILL
 Lab Order: N023692
 Project: PG&E Topock, 680375.02.IM.OP.00
 Lab ID: N023692-002

Client Sample ID: SC-700B-WDR-556
 Collection Date: 4/3/2017 5:35:00 PM
 Matrix: WATER

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

TURBIDITY

SM 2130B

RunID: NV00922-WC_170404B	QC Batch: R114439	PrepDate	Analyst: LR
Turbidity	0.32 0.10 0.10	NTU	1 4/4/2017 09:45 AM

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



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

CLIENT: CH2M HILL
Work Order: N023692
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	MB-R114439	SampType:	MBLK	TestCode:	2130_W	Units:	NTU	Prep Date:		RunNo:	114439			
Client ID:	PBW	Batch ID:	R114439	TestNo:	SM 2130B			Analysis Date:	4/4/2017	SeqNo:	2607867			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity		ND		0.10										

Sample ID	N023692-002BDUP	SampType:	DUP	TestCode:	2130_W	Units:	NTU	Prep Date:		RunNo:	114439			
Client ID:	ZZZZZZ	Batch ID:	R114439	TestNo:	SM 2130B			Analysis Date:	4/4/2017	SeqNo:	2607881			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity		0.310		0.10							0.3200	3.17	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			



ASSET LABORATORIES
ANALYTICAL SERVICES IN PROCESS FOR ENVIRONMENTAL TECHNOLOGIES

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"

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 18-Apr-17

CLIENT: CH2M HILL
Lab Order: N023692
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N023692-003

Client Sample ID: SC-701-WDR-556
Collection Date: 4/3/2017 5:40:00 PM
Matrix: WATER

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

TOTAL MERCURY BY COLD VAPOR TECHNIQUE
EPA 245.1

RunID: NV00922-AA1_170406A	QC Batch: 61802	PrepDate	4/5/2017	Analyst: MG
Mercury	ND	0.087	0.20	µg/L
			1	4/6/2017 11:24 AM

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



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

CLIENT: CH2M HILL
Work Order: N023692
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID MB-61802	SampType: MBLK	TestCode: 245.1_W	Units: µg/L	Prep Date: 4/5/2017	RunNo: 114505
Client ID: PBW	Batch ID: 61802	TestNo: EPA 245.1		Analysis Date: 4/6/2017	SeqNo: 2610528
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Mercury ND 0.20

Sample ID LCS-61802	SampType: LCS	TestCode: 245.1_W	Units: µg/L	Prep Date: 4/5/2017	RunNo: 114505
Client ID: LCSW	Batch ID: 61802	TestNo: EPA 245.1		Analysis Date: 4/6/2017	SeqNo: 2610531
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Mercury 5.086 0.20 5.000 0 102 85 115

Sample ID N023692-003C-MS	SampType: MS	TestCode: 245.1_W	Units: µg/L	Prep Date: 4/5/2017	RunNo: 114505
Client ID: ZZZZZZ	Batch ID: 61802	TestNo: EPA 245.1		Analysis Date: 4/6/2017	SeqNo: 2610532
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Mercury 4.418 0.20 5.000 0 88.4 75 125

Sample ID N023692-003C-MSD	SampType: MSD	TestCode: 245.1_W	Units: µg/L	Prep Date: 4/5/2017	RunNo: 114505
Client ID: ZZZZZZ	Batch ID: 61802	TestNo: EPA 245.1		Analysis Date: 4/6/2017	SeqNo: 2610533
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Mercury 5.472 0.20 5.000 0 109 75 125 4.418 21.3 20 R

Qualifiers:

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

Calculations are based on raw values



ASSET LABORATORIES
ANALYTICAL SERVICES PROVIDED BY PROFESSIONAL TECHNOLOGISTS

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"

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 18-Apr-17

CLIENT: CH2M HILL
Lab Order: N023692
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N023692-001

Client Sample ID: SC-100B-WDR-556
Collection Date: 4/3/2017 5:30:00 PM
Matrix: WATER

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

ANIONS BY ION CHROMATOGRAPHY
EPA 300.0

RunID: NV00922-IC8_170404A	QC Batch: R114460				PrepDate		Analyst: RAB
Fluoride	2.4	0.017	0.50		mg/L	5	4/4/2017 10:13 AM

ANIONS BY ION CHROMATOGRAPHY
EPA 300.0

RunID: NV00922-IC8_170404A	QC Batch: R114460				PrepDate		Analyst: RAB
Sulfate	530	0.64	25		mg/L	50	4/4/2017 11:45 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		



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 18-Apr-17

CLIENT: CH2M HILL
Lab Order: N023692
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N023692-002

Client Sample ID: SC-700B-WDR-556
Collection Date: 4/3/2017 5:35:00 PM
Matrix: WATER

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

ANIONS BY ION CHROMATOGRAPHY
EPA 300.0

RunID: NV00922-IC8_170404A	QC Batch: R114460				PrepDate		Analyst: RAB
Fluoride	2.3	0.017	0.50		mg/L	5	4/4/2017 10:29 AM

ANIONS BY ION CHROMATOGRAPHY
EPA 300.0

RunID: NV00922-IC8_170404A	QC Batch: R114460				PrepDate		Analyst: RAB
Sulfate	530	0.64	25		mg/L	50	4/4/2017 12:01 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		



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 18-Apr-17

CLIENT: CH2M HILL
Lab Order: N023692
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N023692-003

Client Sample ID: SC-701-WDR-556
Collection Date: 4/3/2017 5:40:00 PM
Matrix: WATER

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

ANIONS BY ION CHROMATOGRAPHY
EPA 300.0

RunID: NV00922-IC8_170404A	QC Batch: R114460	PrepDate	Analyst: RAB
Fluoride	22 0.068	2.0 mg/L	20 4/4/2017 10:44 AM

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



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

CLIENT: CH2M HILL
Work Order: N023692
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	MB-R114460_F	SampType:	MBLK	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	114460			
Client ID:	PBW	Batch ID:	R114460	TestNo:	EPA 300.0			Analysis Date:	4/4/2017	SeqNo:	2609099			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride ND 0.10

Sample ID	LCS-R114460_F	SampType:	LCS	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	114460			
Client ID:	LCSW	Batch ID:	R114460	TestNo:	EPA 300.0			Analysis Date:	4/4/2017	SeqNo:	2609100			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride 1.272 0.10 1.250 0 102 90 110

Sample ID	N023692-002BDUP	SampType:	DUP	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	114460			
Client ID:	ZZZZZZ	Batch ID:	R114460	TestNo:	EPA 300.0			Analysis Date:	4/4/2017	SeqNo:	2609104			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride 2.313 0.50 2.258 2.41 20

Sample ID	N023692-002BMS	SampType:	MS	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	114460		
Client ID:	ZZZZZZ	Batch ID:	R114460	TestNo:	EPA 300.0			Analysis Date:	4/4/2017	SeqNo:	2609105		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride 8.600 0.50 6.250 2.258 101 80 120

Sample ID	N023692-002BMSD	SampType:	MSD	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	114460			
Client ID:	ZZZZZZ	Batch ID:	R114460	TestNo:	EPA 300.0			Analysis Date:	4/4/2017	SeqNo:	2609106			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride 8.493 0.50 6.250 2.258 99.8 80 120 8.600 1.25 20

Qualifiers:

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



ASSET LABORATORIES
ANALYTICAL SERVICES FOR THE CONSTRUCTION INDUSTRY

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/NEAP Cert 4046

"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Work Order: N023692
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	MB-R114460_SO4	SampType:	MBLK	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	114460
Client ID:	PBW	Batch ID:	R114460	TestNo:	EPA 300.0			Analysis Date:	4/4/2017	SeqNo:	2609115
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Sulfate ND 0.50

Sample ID	LCS-R114460_SO4	SampType:	LCS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	114460
Client ID:	LCSW	Batch ID:	R114460	TestNo:	EPA 300.0			Analysis Date:	4/4/2017	SeqNo:	2609116
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Sulfate 4.037 0.50 4.000 0 101 90 110

Sample ID	N023692-002BDUP	SampType:	DUP	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	114460
Client ID:	ZZZZZZ	Batch ID:	R114460	TestNo:	EPA 300.0			Analysis Date:	4/4/2017	SeqNo:	2609121
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Sulfate 526.790 25 531.2 0.826 20

Sample ID	N023692-002BMS	SampType:	MS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	114460
Client ID:	ZZZZZZ	Batch ID:	R114460	TestNo:	EPA 300.0			Analysis Date:	4/4/2017	SeqNo:	2609122
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Sulfate 736.300 25 200.0 531.2 103 80 120

Sample ID	N023692-002BMSD	SampType:	MSD	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	114460
Client ID:	ZZZZZZ	Batch ID:	R114460	TestNo:	EPA 300.0			Analysis Date:	4/4/2017	SeqNo:	2609123
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Sulfate 737.390 25 200.0 531.2 103 80 120 736.3 0.148 20

Qualifiers:

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



ASSET LABORATORIES
ANALYTICAL SERVICES FOR THE CONSTRUCTION INDUSTRY

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"

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 18-Apr-17

CLIENT: CH2M HILL
Lab Order: N023692
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N023692-001

Client Sample ID: SC-100B-WDR-556
Collection Date: 4/3/2017 5:30:00 PM
Matrix: WATER

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

NITRATE/NITRITE-N BY CADMIUM REDUCTION
SM4500-NO3F

RunID: NV00922-WC_170411G	QC Batch: R114631			PrepDate		Analyst: RB
Nitrate/Nitrite as N	2.8	0.11	0.25	mg/L	5	4/11/2017

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



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 18-Apr-17

CLIENT: CH2M HILL
Lab Order: N023692
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N023692-002

Client Sample ID: SC-700B-WDR-556
Collection Date: 4/3/2017 5:35:00 PM
Matrix: WATER

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

NITRATE/NITRITE-N BY CADMIUM REDUCTION
SM4500-NO3F

RunID: NV00922-WC_170411G	QC Batch: R114631			PrepDate		Analyst: RB
Nitrate/Nitrite as N	2.7	0.11	0.25	mg/L	5	4/11/2017

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



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

CLIENT: CH2M HILL
Work Order: N023692
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	MB-R114631	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	114631		
Client ID:	PBW	Batch ID:	R114631	TestNo:	SM4500-NO3			Analysis Date:	4/11/2017	SeqNo:	2615851		
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-R114631	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	114631		
Client ID:	LCSW	Batch ID:	R114631	TestNo:	SM4500-NO3			Analysis Date:	4/11/2017	SeqNo:	2615852		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N		0.503		0.050	0.5000	0	101	85	115				

Sample ID	N023692-001DDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	114631		
Client ID:	ZZZZZZ	Batch ID:	R114631	TestNo:	SM4500-NO3			Analysis Date:	4/11/2017	SeqNo:	2615854		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N		2.750		0.25						2.846	3.45	20	

Sample ID	N023692-001DMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	114631		
Client ID:	ZZZZZZ	Batch ID:	R114631	TestNo:	SM4500-NO3			Analysis Date:	4/11/2017	SeqNo:	2615855		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N		5.079		0.25	2.500	2.846	89.3	75	125				

Sample ID	N023692-001DMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	114631		
Client ID:	ZZZZZZ	Batch ID:	R114631	TestNo:	SM4500-NO3			Analysis Date:	4/11/2017	SeqNo:	2615856		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N		5.325		0.25	2.500	2.846	99.1	75	125	5.079	4.72	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			



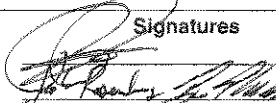
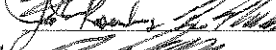

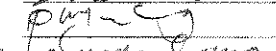
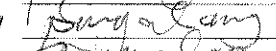
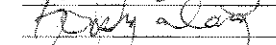
ASSET LABORATORIES
ANALYTICAL SERVICES FOR THE CONSTRUCTION INDUSTRY

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-556 Turnaround Time 10 Days Shipping Date: COC Number: 556			Container: 1 Liter Poly Preservatives: 4°C Lab H2SO4 Filtered: NA Holding Time: 28	1 Liter Poly 4°C NA 7	1 Liter Poly 4°C NA 7	1 Liter Poly 4°C NA 7	1 Liter Poly 4°C NA 7	250 ml Poly 4°C NA 1	1 Liter Poly 4°C Lab H2SO4 NA 28	1 Liter Poly 4°C NA 7	500 ml Poly 4°C NA 180	500 ml Poly 4°C NA 180	500 ml Poly 4°C NA 180	1 Liter Poly 4°C NA 7	Number of Containers	COMMENTS
			AMMONIA (SM4500NH3D)	Anions (E300.0) FI & SO4	Anions (E300.0) Fluoride	CONDUCTIVITY (E120.1)	E218.6 Lab Filtered	Nitrate/Nitrite (SM4500NO3-E)	TDS (SM2540C)	Total Metals (E200.8 Mn)	Total Metals (E200.7 and E200.8)	Total Titrated Metals	Turbidity (SM2130)			
DATE	TIME	Matrix														
SC-100B-WDR-556	5:30	Water	X	X		X	X	X	X		X		X	N023692 - 01		
SC-700B-WDR-556	5:35	Water	X	X		X	X	X	X		X		X	- 02	4	
SC-701-WDR-556	5:40	Water			X	X	X		X	X		X		- 03	3	
TOTAL NUMBER OF CONTAINERS														11		

Signatures Approved by  Sampled by  Relinquished by  Received by  Relinquished by  Received by 		Date/Time 4-3-17 5:00 4-3-17 5:50 4-3-17 13:30 4/3/17 1330 4/3/17 1330 4/3/17 1330	Shipping Details Method of Shipment: FedEx On Ice: yes / no 2.2 ac 1242 Airbill No: Lab Name: ASSET Laboratories Lab Phone: (702) 307-2659	ATTN: Sample Custody and Marlon Cartin	Special Instructions: Report Copy to Doug Scott (970) 731-0636
--	--	---	---	--	---

ASSET Laboratories

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

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

Cooler Received/Opened On: 4/3/2017 Workorder: N023692
 Rep sample Temp (Deg C): 2.2 IR Gun ID: 2
 Temp Blank: ☒ Yes ☐ No
 Carrier name: ASSET
 Last 4 digits of Tracking No.: NA Packing Material Used: None
 Cooling process: ☒ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
2. Custody seals intact, signed, dated on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
3. Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
4. Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
5. Sampler's name present in COC?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
6. Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
7. Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
8. Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
9. Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
10. Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
11. All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>
13. Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	NA <input type="checkbox"/>
15. Did the bottle labels indicate correct preservatives used?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
16. Were there Non-Conformance issues at login?	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 was taken from sample labels.
 Samples for Cr 6+ were lab filtered and preserved with Ammonium buffer. Samples for Total Metals and NO3/ Ammonia were lab preserved with HNO3 and H2SO4 respectively.

Checklist Completed By: YR YR 4/06/2017

Reviewed By: ABC 4/7/2017

**ASSET Laboratories**

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

www.atl-labs.com

TEL: 7023072659

FAX: 7023072691

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

QC Level: Level IV**Subcontractor:**

Truesdail
3337 Michelson Drive, Suite CN750
Irvine, CA 92612

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

Field Sampler: SIGNED

04-Apr-17


Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests		
				SM4500-NH3D		
N023692-001A / SC-100B-WDR-556	Water	4/3/2017 5:30:00 PM	32OZP	1		
N023692-002A / SC-700B-WDR-556	Water	4/3/2017 5:35:00 PM	32OZP	1		

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

Please use PO#:N23692A 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 Samples.

GSO #: 535628311

	Date/Time		Date/Time
Relinquished by: 	4/04/2017 17:00	Received by: _____	
Relinquished by: _____		Received by: _____	

List of Analysts

ASSET Laboratories Work Order: **N023692**

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



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.: 17D0110

Printed: 05/01/2017

CASE NARRATIVE

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

The samples were received and delivered with the chain of custody on April 5th, 2017, 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
N023692-001A / SC-100B-WDR-556	17D0110-01	Water		04/03/2017 17:30	04/05/2017 14:30
N023692-002A / SC-700B-WDR-556	17D0110-02	Water		04/03/2017 17:35	04/05/2017 14:30

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
Project Number: [none]

Printed: 05/01/2017

N023692-001A / SC-100B-WDR-556
17D0110-01 (Water)

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

Truesdail Laboratories, Inc

Wet Chemistry

Ammonia	ND	0.0500	mg/L	1	1704234	04/12/2017 17:42	Alexander Luna	SM 4500-NH3 D M	
---------	----	--------	------	---	---------	------------------	----------------	-----------------	--

N023692-002A / SC-700B-WDR-556
17D0110-02 (Water)

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

Truesdail Laboratories, Inc

Wet Chemistry

Ammonia	ND	0.0500	mg/L	1	1704234	04/12/2017 17:44	Alexander Luna	SM 4500-NH3 D M	
---------	----	--------	------	---	---------	------------------	----------------	-----------------	--



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

Printed: 05/01/2017

QUALITY CONTROL
Wet Chemistry
Truesdail Laboratories, Inc

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

Batch: 1704234 - SM 4500-NH3 D M

Blank (1704234-BLK1)

Prepared & Analyzed: 4/12/2017

Ammonia ND 0.0500 mg/L

LCS (1704234-BS1)

Prepared & Analyzed: 4/12/2017

Ammonia 0.408 0.0500 mg/L 0.400 102 90-110

Duplicate (1704234-DUP1)

Source: 17D0167-01

Prepared & Analyzed: 4/12/2017

Ammonia 0.0486 0.0500 mg/L 0.0463 5 20

Matrix Spike (1704234-MS1)

Source: 17D0057-02

Prepared & Analyzed: 4/12/2017

Ammonia 3.82 0.250 mg/L 2.00 1.58 112 75-125

Matrix Spike Dup (1704234-MSD1)

Source: 17D0057-02

Prepared & Analyzed: 4/12/2017

Ammonia 3.68 0.250 mg/L 2.00 1.58 105 75-125 4 20

ANALYSIS DATA SHEET

Inorganics

Client: Advanced Technology Laboratories-NV
Client Sample ID: N023692-001A / SC-100B-WDR-556
Lab Sample ID: 17D0110-01
Project: ATL-NV

Date Sampled: 04/03/17 17:30

Matrix: Water

CAS NO.	Analyte	Concentration (mg/L)	MDL	RL	DF	Q	Analyst	Analyzed	Method
7664-41-7	Ammonia	ND	0.0111	0.0500	1		AxL	04/12/17 17:42	SM 4500-NH3 D M

ANALYSIS DATA SHEET

Inorganics

Client: Advanced Technology Laboratories-NV
Client Sample ID: N023692-002A / SC-700B-WDR-556
Lab Sample ID: 17D0110-02
Project: ATL-NV

Date Sampled: 04/03/17 17:35 **Matrix:** Water

CAS NO.	Analyte	Concentration (mg/L)	MDL	RL	DF	Q	Analyst	Analyzed	Method
7664-41-7	Ammonia	ND	0.0111	0.0500	1		AxL	04/12/17 17:44	SM 4500-NH3 D M

METHOD BLANK DATA SHEET

SM 4500-NH3 D M

Client: Advanced Technology Laboratories-NV

Project: ATL-NV

Laboratory ID: 1704234-BLK1

Prepared: 04/12/17 13:22

Preparation: SM 4500-NH3 D M

Matrix: Water

Analyzed: 04/12/17 16:45

Instrument: TL01

File ID: 7D12002-023

Batch: 1704234

Sequence: 7D12002

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: 17D0110

Matrix: Water
Prep Batch: 1704234

Prep Method: SM 4500-NH3 D M
Lab Sample ID: 1704234-BS1

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Ammonia	0.400	0.408	102	90 - 110

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

Matrix Spike

Client: Advanced Technology Laboratories-NV
Project: ATL-NV
Work Order: 17D0110

Matrix: Water
Prep Batch: 1704234
Analysis Method: SM 4500-NH3 D M
Prep Method: SM 4500-NH3 D M
Laboratory ID: 1704234-MS1
Source Sample ID: 17D0057-02

ANALYTE	SPIKE ADDED (mg/L)	SAMPLE CONCENTRATION (mg/L)	MS CONCENTRATION (mg/L)	MS % REC.	QC LIMITS REC.
Ammonia	2.00	1.58	3.82	112	75 - 125

ANALYTE	SPIKE ADDED (mg/L)	MSD CONCENTRATION (mg/L)	MSD % REC. #	% RPD	QC LIMITS RPD	REC.
Ammonia	2.00	3.68	105	4	20	75 - 125

* Values outside of QC limits

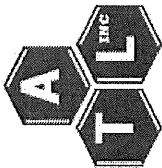
DUPLICATES

Duplicate

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

Matrix:	Water	Laboratory ID:	1704234-DUP1
Prep Batch:	1704234	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	0.0463	0.0486			20



ASSET Laboratories

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

www.afl-labs.com

TEL: 7023072659

FAX: 7023072691

CHAIN-OF-CUSTODY RECORD

QC Level: Level IV

Subcontractor:

Truesdail

3337 Michelson Drive, Suite CN750

Invine, CA 92612

TEL: (714) 730-6239

FAX: (714) 730-6462

Acct #:

Field Sampler: SIGNED

04-Apr-17

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests	
				SM4500-NH3D	
N023692-001A / SC-100B-WDR-556	Water	4/3/2017 5:30:00 PM	32OZP	1	
N023692-002A / SC-700B-WDR-556	Water	4/3/2017 5:35:00 PM	32OZP	1	

ALERT!!
Level IV QC

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

Please use PO#: N23692A 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 Samples.

5.4°C

GSO #: 535628311

Relinquished by: <u>RL</u>	Date/Time: <u>4/04/2017 17:00</u>	Date/Time: <u>4/5/17 14:30</u>
Relinquished by: _____	Received by: <u>LB</u>	Received by: _____

Log-in check list For level III data package

Client:

ATL

Lab Number:

17 D0110

Received Date:

4/5/17

Sample receiving review

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

Sample receiving Signature:

Brown



WORK ORDER

Printed: 4/5/2017 3:02:22PM

17D0110

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: 04/14/2017 16:30 (7 day TAT)

Received By: Jacqueline Brown

Date Received: 04/05/2017 14:30

Logged In By: Jacqueline Brown

Date Logged In: 04/05/2017 14:44

Samples Received at: 5.4°C
Chain of Custody rece Yes Samples intact? Yes
Letter (if sent) matche No Custody seals (if any) No
Requested analyses ac Yes Analyses within hold t Yes
Samples received in a Yes

Analysis	Due	TAT	Expires	Comments
----------	-----	-----	---------	----------

17D0110-01 N023692-001A / SC-100B-WDR-556 [Water] Sampled 04/03/2017
17:30 (GMT-08:00) Pacific Time (US &

Ammonia E	04/14/2017 08:00	7	05/01/2017 17:30	
-----------	------------------	---	------------------	--

17D0110-02 N023692-002A / SC-700B-WDR-556 [Water] Sampled 04/03/2017
17:35 (GMT-08:00) Pacific Time (US &

Ammonia E	04/14/2017 08:00	7	05/01/2017 17:35	
-----------	------------------	---	------------------	--

Reviewed By

Date

Page 1 of 1

Page 23 of 29

CH2M HILL

Project: PG&E Topock
Project No.: 680375.02.IM.OP.00

ASSET Laboratories Work Order:
N023766

ANALYTICAL and QC RESULTS SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL



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”

April 21, 2017

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

TEL: (970) 731-0636

FAX: (510) 622-9129

Workorder No.: N023766

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

Attention: Doug Scott

Enclosed are the results for sample(s) received on April 07, 2017 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,

Nancy Libucos 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.



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

"Serving Clients with Passion and Professionalism"

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

CLIENT: CH2M HILL
Project: PG&E Topock, 680375.02.IM.OP.00
Lab Order: N023766

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 200.7:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Iron on QC samples N023766-001E-MS and N023766-001E-MSD 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 sample N023766-001 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.



ASSET Laboratories

Date: 21-Apr-17

CLIENT: CH2M HILL
Project: PG&E Topock, 680375.02.IM.OP.00
Lab Order: N023766
Contract No: IM3PLANT-AR

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N023766-001A	SC-700B-WDR-557	Water	4/7/2017 4:21:00 PM	4/7/2017	4/21/2017
N023766-001B	SC-700B-WDR-557	Water	4/7/2017 4:21:00 PM	4/7/2017	4/21/2017
N023766-001C	SC-700B-WDR-557	Water	4/7/2017 4:21:00 PM	4/7/2017	4/21/2017
N023766-001D	SC-700B-WDR-557	Water	4/7/2017 4:21:00 PM	4/7/2017	4/21/2017
N023766-001E	SC-700B-WDR-557	Water	4/7/2017 4:21:00 PM	4/7/2017	4/21/2017
N023766-001F	SC-700B-WDR-557	Water	4/7/2017 4:21:00 PM	4/7/2017	4/21/2017



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

"Serving Clients with Passion and Professionalism"

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

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: 21-Apr-17

CLIENT: CH2M HILL
Lab Order: N023766
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N023766-001

Client Sample ID: SC-700B-WDR-557
Collection Date: 4/7/2017 4:21:00 PM
Matrix: WATER

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

SPECIFIC CONDUCTANCE

EPA 120.1

RunID: NV00922-WC_170410A	QC Batch: R114557	PrepDate	Analyst: LR
Specific Conductance	7600 0.10 0.10	umhos/cm	1 4/10/2017 08:40 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		



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

CLIENT: CH2M HILL
Work Order: N023766
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	N023766-001BDUP	SampType:	DUP	TestCode:	120.1_WPGE	Units:	umhos/cm	Prep Date:		RunNo:	114557		
Client ID:	ZZZZZZ	Batch ID:	R114557	TestNo:	EPA 120.1			Analysis Date:	4/10/2017	SeqNo:	2612786		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance		7600.000		0.10						7580	0.264	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		

**ASSET LABORATORIES**

ANALYTICAL SERVICES IN CALIFORNIA, NEVADA, AND ARIZONA

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"

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 21-Apr-17

CLIENT: CH2M HILL
Lab Order: N023766
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N023766-001

Client Sample ID: SC-700B-WDR-557
Collection Date: 4/7/2017 4:21:00 PM
Matrix: WATER

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

TOTAL FILTERABLE RESIDUE
SM2540C

RunID: NV00922-WC_170410E	QC Batch: 61849			PrepDate	4/10/2017	Analyst: LR
Total Dissolved Solids (Residue, Filterable)	4000	50	50	mg/L	1	4/10/2017 01:01 PM

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



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

CLIENT: CH2M HILL
Work Order: N023766
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	LCS-61849	SampType:	LCS	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	4/10/2017	RunNo:	114561		
Client ID:	LCSW	Batch ID:	61849	TestNo:	SM2540C			Analysis Date:	4/10/2017	SeqNo:	2613478		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		1007.000		10	1000	0	101	80	120				

Sample ID	MB-61849	SampType:	MBLK	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	4/10/2017	RunNo:	114561		
Client ID:	PBW	Batch ID:	61849	TestNo:	SM2540C			Analysis Date:	4/10/2017	SeqNo:	2613479		
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	N023766-001BDUP	SampType:	DUP	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	4/10/2017	RunNo:	114561		
Client ID:	ZZZZZZ	Batch ID:	61849	TestNo:	SM2540C			Analysis Date:	4/10/2017	SeqNo:	2613489		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		4080.000		50						4030	1.23	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		



ASSET LABORATORIES
ANALYTICAL SERVICES • PROCESS CONTROL • ENVIRONMENTAL • TECHNOLOGIES

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"

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 21-Apr-17

CLIENT: CH2M HILL
Lab Order: N023766
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N023766-001

Client Sample ID: SC-700B-WDR-557
Collection Date: 4/7/2017 4:21:00 PM
Matrix: WATER

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

TOTAL METALS BY ICP
EPA 200.7

RunID: NV00922-ICP2_170418E	QC Batch: 61852	PrepDate	4/11/2017	Analyst: CEI		
Aluminum	ND	2.7	50	µg/L	1	4/18/2017 08:03 PM
Boron	860	38	100	µg/L	1	4/18/2017 08:03 PM
Iron	370	1.8	20	µg/L	1	4/18/2017 08:03 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



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

"Serving Clients with Passion and Professionalism"

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

CLIENT: CH2M HILL
Work Order: N023766
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	LCS-61852	SampType: LCS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 4/11/2017	RunNo: 114733					
Client ID:	LCSW	Batch ID: 61852	TestNo: EPA 200.7		Analysis Date: 4/18/2017	SeqNo: 2621892					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	9580.907	50	10000	0	95.8	85	115				
Boron	4605.095	100	5000	0	92.1	85	115				
Iron	102.414	20	100.0	0	102	85	115				

Sample ID	MB-61852	SampType:	MBLK	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	4/11/2017	RunNo:	114733		
Client ID:	PBW	Batch ID:	61852	TestNo:	EPA 200.7			Analysis Date:	4/18/2017	SeqNo:	2621893		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum		ND		50									
Boron		ND		100									
Iron		ND		20									

Sample ID	N023766-001E-MS	SampType:	MS	TestCode:	200.7_WPGE	Units:	µg/L	Prep Date:	4/11/2017	RunNo:	114733		
Client ID:	ZZZZZZ	Batch ID:	61852	TestNo:	EPA 200.7			Analysis Date:	4/18/2017	SeqNo:	2621897		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum		10187.641		50	10000	0	102	75	125				
Boron		5827.547		100	5000	857.5	99.4	75	125				
Iron		436.659		20	100.0	370.8	65.9	75	125				S

Sample ID	N023766-001E-MSD	SampType: MSD	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 4/11/2017	RunNo: 114733					
Client ID:	ZZZZZZ	Batch ID: 61852	TestNo: EPA 200.7		Analysis Date: 4/18/2017	SeqNo: 2621898					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	10201.193	50	10000	0	102	75	125	10190	0.133	20	
Boron	5816.229	100	5000	857.5	99.2	75	125	5828	0.194	20	
Iron	431.257	20	100.0	370.8	60.5	75	125	436.7	1.24	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			



ASSET LABORATORIES
ANALYTICAL SERVICES IN PROGRESS FOR ENVIRONMENTAL TECHNOLOGY GROUP

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"

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 21-Apr-17

CLIENT: CH2M HILL
Lab Order: N023766
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N023766-001

Client Sample ID: SC-700B-WDR-557
Collection Date: 4/7/2017 4:21:00 PM
Matrix: WATER

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

TOTAL METALS BY ICPMS
EPA 200.8

RunID: NV00922-ICP7_170411C	QC Batch: 61857	PrepDate	4/11/2017	Analyst: CEI		
Antimony	ND	0.16	2.5	µg/L	5	4/11/2017 02:35 PM
Arsenic	0.30	0.025	0.10	µg/L	1	4/11/2017 01:43 PM
Barium	5.7	0.070	1.0	µg/L	1	4/12/2017 01:09 PM
Copper	ND	0.26	1.0	µg/L	1	4/11/2017 01:43 PM
Lead	ND	0.18	5.0	µg/L	5	4/11/2017 02:35 PM
Manganese	22	0.056	0.50	µg/L	1	4/11/2017 01:43 PM
Molybdenum	30	0.19	2.5	µg/L	5	4/12/2017 01:15 PM
Nickel	ND	0.040	1.0	µg/L	1	4/11/2017 01:43 PM
Zinc	ND	0.27	10	µg/L	1	4/11/2017 01:43 PM

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



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

CLIENT: CH2M HILL
Work Order: N023766
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	MB-61857	SampType:	MBLK	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/11/2017	RunNo:	114600		
Client ID:	PBW	Batch ID:	61857	TestNo:	EPA 200.8			Analysis Date:	4/11/2017	SeqNo:	2614597		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony		ND		0.50									
Arsenic		ND		0.10									
Copper		ND		1.0									
Lead		ND		1.0									
Manganese		ND		0.50									
Nickel		ND		1.0									
Zinc		ND		10									

Sample ID	LCS-61857	SampType:	LCS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/11/2017	RunNo:	114600	
Client ID:	LCSW	Batch ID:	61857	TestNo:	EPA 200.8			Analysis Date:	4/11/2017	SeqNo:	2614600	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony		9.946	0.50	10.00	0	99.5	85	115				
Arsenic		10.387	0.10	10.00	0	104	85	115				
Copper		10.304	1.0	10.00	0	103	85	115				
Lead		9.612	1.0	10.00	0	96.1	85	115				
Manganese		103.077	0.50	100.0	0	103	85	115				
Nickel		10.498	1.0	10.00	0	105	85	115				
Zinc		105.906	10	100.0	0	106	85	115				

Sample ID	N023764-001C-DUP	SampType:	DUP	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/11/2017	RunNo:	114600		
Client ID:	ZZZZZZ	Batch ID:	61857	TestNo:	EPA 200.8			Analysis Date:	4/11/2017	SeqNo:	2614602		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony		0.184		0.50						0.1837	0	20	
Arsenic		13.006		0.10						12.81	1.51	20	
Copper		ND		1.0						0	0	20	
Lead		ND		1.0						0	0	20	

Qualifiers:

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



ASSET LABORATORIES
ANALYTICAL SERVICES FOR CHEMICAL, ENVIRONMENTAL, AND TOXICOLOGICAL

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/NEELAP Cert 4046

"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL
Work Order: N023766
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	N023764-001C-DUP	SampType:	DUP	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/11/2017	RunNo:	114600
Client ID:	ZZZZZZ	Batch ID:	61857	TestNo:	EPA 200.8			Analysis Date:	4/11/2017	SeqNo:	2614602
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50						0	0	20	
Nickel	0.102	1.0						0.05236	0	20	
Zinc	10.616	10						10.27	3.31	20	

Sample ID	N023764-001C-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/11/2017	RunNo:	114600
Client ID:	ZZZZZZ	Batch ID:	61857	TestNo:	EPA 200.8			Analysis Date:	4/11/2017	SeqNo:	2614604
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.014	0.50	10.00	0.1837	98.3	75	125				
Arsenic	22.871	0.10	10.00	12.81	101	75	125				
Copper	8.048	1.0	10.00	0	80.5	75	125				
Lead	8.987	1.0	10.00	0	89.9	75	125				
Manganese	89.169	0.50	100.0	0	89.2	75	125				
Nickel	9.096	1.0	10.00	0.05236	90.4	75	125				
Zinc	101.256	10	100.0	10.27	91.0	75	125				

Sample ID	N023764-001C-MSD	SampType:	MSD	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/11/2017	RunNo:	114600
Client ID:	ZZZZZZ	Batch ID:	61857	TestNo:	EPA 200.8			Analysis Date:	4/11/2017	SeqNo:	2614605
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.004	0.50	10.00	0.1837	98.2	75	125	10.01	0.101	20	
Arsenic	23.102	0.10	10.00	12.81	103	75	125	22.87	1.01	20	
Copper	8.060	1.0	10.00	0	80.6	75	125	8.048	0.141	20	
Lead	9.003	1.0	10.00	0	90.0	75	125	8.987	0.181	20	
Manganese	89.336	0.50	100.0	0	89.3	75	125	89.17	0.187	20	
Nickel	9.245	1.0	10.00	0.05236	91.9	75	125	9.096	1.62	20	
Zinc	102.051	10	100.0	10.27	91.8	75	125	101.3	0.782	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 THE CONSTRUCTION INDUSTRY

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"

CLIENT: CH2M HILL
Work Order: N023766
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	MB-61857	SampType:	MBLK	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/11/2017	RunNo:	114622			
Client ID:	PBW	Batch ID:	61857	TestNo:	EPA 200.8			Analysis Date:	4/12/2017	SeqNo:	2615574			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Barium
Molybdenum

ND
0.049

1.0
0.50

Sample ID	LCS-61857	SampType:	LCS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/11/2017	RunNo:	114622			
Client ID:	LCSW	Batch ID:	61857	TestNo:	EPA 200.8			Analysis Date:	4/12/2017	SeqNo:	2615575			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Barium
Molybdenum

101.628
9.861

1.0
0.50

100.0
10.00

0
0

102
98.6

85
85

115
115

Sample ID	N023764-001C-DUP	SampType:	DUP	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/11/2017	RunNo:	114622			
Client ID:	ZZZZZZ	Batch ID:	61857	TestNo:	EPA 200.8			Analysis Date:	4/12/2017	SeqNo:	2615577			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Barium
Molybdenum

80.059
4.732

1.0
0.50

79.07
4.607

1.24
2.68

20
20

Sample ID	N023764-001C-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/11/2017	RunNo:	114622			
Client ID:	ZZZZZZ	Batch ID:	61857	TestNo:	EPA 200.8			Analysis Date:	4/12/2017	SeqNo:	2615580			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Barium
Molybdenum

175.864
16.345

1.0
0.50

100.0
10.00

79.07
4.607

96.8
117

75
75

125
125

Sample ID	N023764-001C-MSD	SampType:	MSD	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/11/2017	RunNo:	114622			
Client ID:	ZZZZZZ	Batch ID:	61857	TestNo:	EPA 200.8			Analysis Date:	4/12/2017	SeqNo:	2615581			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Barium

176.121

1.0

100.0

79.07

97.0

75

125

175.9

0.146

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, INDUSTRIAL, AND FOOD USES

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"

CLIENT: CH2M HILL
Work Order: N023766
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	N023764-001C-MSD	SampType:	MSD	TestCode:	200.8_W	Units:	µg/L	Prep Date:	4/11/2017	RunNo:	114622		
Client ID:	ZZZZZZ	Batch ID:	61857	TestNo:	EPA 200.8			Analysis Date:	4/12/2017	SeqNo:	2615581		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum		16.370		0.50	10.00	4.607	118	75	125	16.35	0.154	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

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"

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 21-Apr-17

CLIENT: CH2M HILL
Lab Order: N023766
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N023766-001

Client Sample ID: SC-700B-WDR-557
Collection Date: 4/7/2017 4:21:00 PM
Matrix: WATER

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

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: NV00922-IC7_170410A	QC Batch: R114583				PrepDate		Analyst: RAB
Hexavalent Chromium	1.2	0.066	0.20		µg/L	1	4/10/2017 01:03 PM

TOTAL METALS BY ICPMS
EPA 200.8

RunID: NV00922-ICP7_170411C	QC Batch: 61857				PrepDate	4/11/2017	Analyst: CEI
Chromium	2.1	0.019	1.0		µg/L	1	4/11/2017 01:43 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		



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

CLIENT: CH2M HILL
Work Order: N023766
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID MB-61857	SampType: MBLK	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 4/11/2017	RunNo: 114600
Client ID: PBW	Batch ID: 61857	TestNo: EPA 200.8		Analysis Date: 4/11/2017	SeqNo: 2614525
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Chromium ND 1.0

Sample ID LCS-61857	SampType: LCS	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 4/11/2017	RunNo: 114600
Client ID: LCSW	Batch ID: 61857	TestNo: EPA 200.8		Analysis Date: 4/11/2017	SeqNo: 2614528
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Chromium 10.304 1.0 10.00 0 103 85 115

Sample ID N023764-001C-DUP	SampType: DUP	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 4/11/2017	RunNo: 114600
Client ID: ZZZZZZ	Batch ID: 61857	TestNo: EPA 200.8		Analysis Date: 4/11/2017	SeqNo: 2614530
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Chromium 0.055 1.0 0.05958 0 20

Sample ID N023764-001C-MS	SampType: MS	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 4/11/2017	RunNo: 114600
Client ID: ZZZZZZ	Batch ID: 61857	TestNo: EPA 200.8		Analysis Date: 4/11/2017	SeqNo: 2614532
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Chromium 9.261 1.0 10.00 0.05958 92.0 75 125

Sample ID N023764-001C-MSD	SampType: MSD	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 4/11/2017	RunNo: 114600
Client ID: ZZZZZZ	Batch ID: 61857	TestNo: EPA 200.8		Analysis Date: 4/11/2017	SeqNo: 2614533
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Chromium 9.124 1.0 10.00 0.05958 90.6 75 125 9.261 1.48 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 THE CONSTRUCTION INDUSTRY

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"

CLIENT: CH2M HILL
Work Order: N023766
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID	MB-R114583	SampType:	MBLK	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	114583			
Client ID:	PBW	Batch ID:	R114583	TestNo:	EPA 218.6			Analysis Date:	4/10/2017	SeqNo:	2613352			
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-R114583	SampType:	LCS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	114583			
Client ID:	LCSW	Batch ID:	R114583	TestNo:	EPA 218.6			Analysis Date:	4/10/2017	SeqNo:	2613353			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 4.999 0.20 5.000 0 100 90 110

Sample ID	N023758-001AMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	114583			
Client ID:	ZZZZZZ	Batch ID:	R114583	TestNo:	EPA 218.6			Analysis Date:	4/10/2017	SeqNo:	2613355			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 1.477 0.20 1.000 0.4932 98.3 90 110

Sample ID	N023758-001AMSD	SampType: MSD	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 114583					
Client ID: ZZZZZZ	Batch ID: R114583	TestNo: EPA 218.6	Analysis Date: 4/10/2017	SeqNo: 2613356							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 1.493 0.20 1.000 0.4932 100 90 110 1.476 1.10 20

Sample ID	N023758-002ADUP	SampType:	DUP	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	114583			
Client ID:	ZZZZZZ	Batch ID:	R114583	TestNo:	EPA 218.6			Analysis Date:	4/10/2017	SeqNo:	2613358			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 1.423 0.20 1.440 1.20 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 |
| DO | Surrogate Diluted Out | Calculations are based on raw values | | | |



ASSET LABORATORIES
ANALYTICAL SERVICES FOR THE CONSTRUCTION INDUSTRY

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"

CLIENT: CH2M HILL
Work Order: N023766
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID	N023766-001CMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	114583
Client ID:	ZZZZZZ	Batch ID:	R114583	TestNo:	EPA 218.6	Analysis Date:	4/10/2017	SeqNo:	2613373		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium		2.159		0.20	1.000	1.182	97.6	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			



ASSET LABORATORIES

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

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"

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: 21-Apr-17

CLIENT: CH2M HILL
 Lab Order: N023766
 Project: PG&E Topock, 680375.02.IM.OP.00
 Lab ID: N023766-001

Client Sample ID: SC-700B-WDR-557
 Collection Date: 4/7/2017 4:21:00 PM
 Matrix: WATER

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

TURBIDITY

SM 2130B

RunID: NV00922-WC_170410B	QC Batch: R114558	PrepDate	Analyst: LR
Turbidity	0.82 0.10 0.10	NTU	1 4/10/2017 08:55 AM

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



ASSET LABORATORIES
 ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

CLIENT: CH2M HILL
Work Order: N023766
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	MB-R114558	SampType:	MBLK	TestCode:	2130_W	Units:	NTU	Prep Date:		RunNo:	114558		
Client ID:	PBW	Batch ID:	R114558	TestNo:	SM 2130B			Analysis Date:	4/10/2017	SeqNo:	2612787		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity		ND		0.10									

Sample ID	N023766-001BDUP	SampType:	DUP	TestCode:	2130_W	Units:	NTU	Prep Date:		RunNo:	114558		
Client ID:	ZZZZZZ	Batch ID:	R114558	TestNo:	SM 2130B			Analysis Date:	4/10/2017	SeqNo:	2612789		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity		0.800		0.10						0.8200	2.47	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			



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 21-Apr-17

CLIENT: CH2M HILL
Lab Order: N023766
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N023766-001

Client Sample ID: SC-700B-WDR-557
Collection Date: 4/7/2017 4:21:00 PM
Matrix: WATER

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

ANIONS BY ION CHROMATOGRAPHY
EPA 300.0

RunID: NV00922-IC8_170411A	QC Batch: R114599				PrepDate		Analyst: RAB
Fluoride	2.1	0.017	0.50		mg/L	5	4/11/2017 01:04 PM

ANIONS BY ION CHROMATOGRAPHY
EPA 300.0

RunID: NV00922-IC8_170411A	QC Batch: R114599				PrepDate		Analyst: RAB
Sulfate	510	0.64	25		mg/L	50	4/11/2017 02:05 PM

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



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

CLIENT: CH2M HILL
Work Order: N023766
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	MB-R114599_F	SampType:	MBLK	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	114599			
Client ID:	PBW	Batch ID:	R114599	TestNo:	EPA 300.0			Analysis Date:	4/11/2017	SeqNo:	2614384			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride ND 0.10

Sample ID	LCS-R114599_F	SampType:	LCS	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	114599		
Client ID:	LCSW	Batch ID:	R114599	TestNo:	EPA 300.0			Analysis Date:	4/11/2017	SeqNo:	2614385		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride 1.250 0.10 1.250 0 100 90 110

Sample ID	N023766-001BDUP	SampType:	DUP	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	114599			
Client ID:	ZZZZZZ	Batch ID:	R114599	TestNo:	EPA 300.0			Analysis Date:	4/11/2017	SeqNo:	2614389			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride 1.984 0.50 2.051 3.32 20

Sample ID	N023766-001BMS	SampType:	MS	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	114599			
Client ID:	ZZZZZZ	Batch ID:	R114599	TestNo:	EPA 300.0			Analysis Date:	4/11/2017	SeqNo:	2614390			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride 8.502 0.50 6.250 2.051 103 80 120

Sample ID	N023766-001BMSD	SampType:	MSD	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	114599			
Client ID:	ZZZZZZ	Batch ID:	R114599	TestNo:	EPA 300.0			Analysis Date:	4/11/2017	SeqNo:	2614391			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride 8.379 0.50 6.250 2.051 101 80 120 8.502 1.46 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 BY PROFESSIONAL SCIENTISTS

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"

CLIENT: CH2M HILL
Work Order: N023766
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	MB-R114599_SO4	SampType:	MBLK	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	114599		
Client ID:	PBW	Batch ID:	R114599	TestNo:	EPA 300.0			Analysis Date:	4/11/2017	SeqNo:	2614398		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate ND 0.50

Sample ID	LCS-R114599_SO4	SampType: LCS	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 114599					
Client ID: LCSW	Batch ID: R114599	TestNo: EPA 300.0	Analysis Date: 4/11/2017	SeqNo: 2614399							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 4.011 0.50 4.000 0 100 90 110

Sample ID	N023766-001BDUP	SampType:	DUP	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	114599		
Client ID:	ZZZZZZ	Batch ID:	R114599	TestNo:	EPA 300.0			Analysis Date:	4/11/2017	SeqNo:	2614403		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 513.925 25 511.6 0.463 20

Sample ID	N023766-001BMS	SampType: MS	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 114599					
Client ID: ZZZZZZ	Batch ID: R114599	TestNo: EPA 300.0	Analysis Date: 4/11/2017	SeqNo: 2614404							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 724.105 25 200.0 511.6 106 80 120

Sample ID	N023766-001BMSD	SampType:	MSD	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	114599		
Client ID:	ZZZZZZ	Batch ID:	R114599	TestNo:	EPA 300.0			Analysis Date:	4/11/2017	SeqNo:	2614405		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 724.535 25 200.0 511.6 106 80 120 724.1 0.0594 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 PROCESS AND ENVIRONMENTAL TECHNOLOGIES

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"

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 21-Apr-17

CLIENT: CH2M HILL
Lab Order: N023766
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N023766-001

Client Sample ID: SC-700B-WDR-557
Collection Date: 4/7/2017 4:21:00 PM
Matrix: WATER

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

NITRATE/NITRITE-N BY CADMIUM REDUCTION
SM4500-NO3F

RunID: NV00922-WC_170411G	QC Batch: R114631			PrepDate		Analyst: RB
Nitrate/Nitrite as N	2.6	0.11	0.25	mg/L	5	4/11/2017

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



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

CLIENT: CH2M HILL
Work Order: N023766
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	MB-R114631	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	114631		
Client ID:	PBW	Batch ID:	R114631	TestNo:	SM4500-NO3			Analysis Date:	4/11/2017	SeqNo:	2615851		
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-R114631	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	114631		
Client ID:	LCSW	Batch ID:	R114631	TestNo:	SM4500-NO3			Analysis Date:	4/11/2017	SeqNo:	2615852		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N		0.503		0.050	0.5000	0	101	85	115				

Sample ID	N023692-001DDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	114631		
Client ID:	ZZZZZZ	Batch ID:	R114631	TestNo:	SM4500-NO3			Analysis Date:	4/11/2017	SeqNo:	2615854		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N		2.750		0.25						2.846	3.45	20	

Sample ID	N023692-001DMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	114631		
Client ID:	ZZZZZZ	Batch ID:	R114631	TestNo:	SM4500-NO3			Analysis Date:	4/11/2017	SeqNo:	2615855		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N		5.079		0.25	2.500	2.846	89.3	75	125				

Sample ID	N023692-001DMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	114631		
Client ID:	ZZZZZZ	Batch ID:	R114631	TestNo:	SM4500-NO3			Analysis Date:	4/11/2017	SeqNo:	2615856		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N		5.325		0.25	2.500	2.846	99.1	75	125	5.079	4.72	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 THE ENVIRONMENTAL SCIENCE INDUSTRY

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

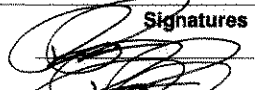
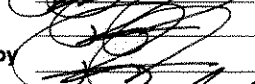
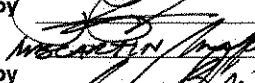
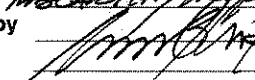
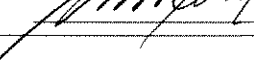

"Serving Clients with Passion and Professionalism"

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-557 Turnaround Time 10 Days Shipping Date: COC Number: 557			Container: 1 Liter Poly Preservatives: 4°C Lab H2SO4 Filtered: NA Holding Time: 28	1 Liter Poly 4°C	1 Liter Poly 4°C	1 Liter Poly 4°C	250 ml Poly 4°C	1 Liter Poly 4°C Lab H2SO4	1 Liter Poly 4°C	500 ml Poly 4°C	1 Liter Poly 4°C		Number of Containers	COMMENTS
			AMMONIA (SM4500NH3D)	Anions (E300.0) FI, SO4	CONDUCTIVITY (E120.1)	E218.6 Lab Filtered	Nitrate/Nitrite (SM4500NO3-E)	TDS (SM2540C)	Total Metals (E200.7 and E200.8) See list below	Turbidity (SM2130)				
SC-700B-WDR-557	4-7-17	16:21	Water	X	X	X	X	X	X	X	X	N023766 - 01	4	
TOTAL NUMBER OF CONTAINERS											4			

Signatures Approved by  Sampled by  Relinquished by  Received by  Relinquished by  Received by 		Date/Time 4-7-17 16:10 4-7-17 16:21 4-7-17 17:00 4/7/17 @ 1659 4/7/17 @ 1907	Shipping Details Method of Shipment: FedEx On Ice: yes / no ICE 1.4°C Airbill No: 1R42 Lab Name: ASSET Laboratories Lab Phone: (702) 307-2659	ATTN: Sample Custody and Marlon Cartin	Special Instructions: SC-700B Total metals List: Cr,Al,Sb,As,Ba,B,Cu,Pb,Mn,Mo,Ni,Fe,Zn Report Copy to Doug Scott (970) 731-0636
--	--	--	---	--	--

ASSET Laboratories

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

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

Cooler Received/Opened On: 4/7/2017 Workorder: N023766
 Rep sample Temp (Deg C): 1.4 IR Gun ID: 2
 Temp Blank: ☒ Yes ☐ No
 Carrier name: ASSET
 Last 4 digits of Tracking No.: NA Packing Material Used: None
 Cooling process: ☒ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
2. Custody seals intact, signed, dated on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
3. Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
4. Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
5. Sampler's name present in COC?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
6. Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
7. Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
8. Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
9. Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
10. Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
11. All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>
13. Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	NA <input type="checkbox"/>
15. Did the bottle labels indicate correct preservatives used?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
16. Were there Non-Conformance issues at login?	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: Sample for Hex Cr was lab filtered and preserved with Ammonium Buffer.
 Samples for Metals and Ammonia/NO3 were lab preserved with HNO3 and H2SO4 respectively.

For:
 Checklist Completed By: MBC  4/10/2017

Reviewed By:  4/13/2017



ASSET Laboratories

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

www.atl-labs.com

TEL: 7023072659

FAX: 7023072691

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

QC Level: Level IV

Subcontractor:

Truesdail
3337 Michelson Drive, Suite CN750
Irvine, CA 92612

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

Field Sampler: SIGNED

10-Apr-17

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests		
				SM4500-NH3D		
N023766-001A / SC-700B-WDR-557	Water	4/7/2017 4:21:00 PM	32OZP	1		

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

Please use PO#:N23766A 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 #: 535694532

Date/Time		Date/Time	
Relinquished by: <u> </u>	<u>4/10/2017 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: **N023766**

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



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.: 17D0167

Printed: 05/01/2017

CASE NARRATIVE

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

The sample was received and delivered with the chain of custody on April 11th, 2017, intact and in chilled condition. The sample will be kept in a locked refrigerator for 30 days; thereafter will be kept in warm storage for additional 2 months before disposal.

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

SAMPLE RECEIPT SUMMARY

Sample ID	Laboratory ID	Matrix	Type	Date Sampled	Date Received
N023766-001A / SC-700B-WDR-557	17D0167-01	Water		04/07/2017 16:21	04/11/2017 15:15

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
Project Number: [none]

Printed: 05/01/2017

N023766-001A / SC-700B-WDR-557

17D0167-01 (Water)

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

Truesdail Laboratories, Inc

Wet Chemistry

Ammonia	ND	0.0500	mg/L	1	1704234	04/12/2017 17:46	Alexander Luna	SM 4500-NH3 D M	
---------	----	--------	------	---	---------	------------------	----------------	-----------------	--



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

Printed: 05/01/2017

QUALITY CONTROL
Wet Chemistry
Truesdail Laboratories, Inc

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

Batch: 1704234 - SM 4500-NH3 D M

Blank (1704234-BLK1)

Prepared & Analyzed: 4/12/2017

Ammonia ND 0.0500 mg/L

LCS (1704234-BS1)

Prepared & Analyzed: 4/12/2017

Ammonia 0.408 0.0500 mg/L 0.400 102 90-110

Duplicate (1704234-DUP1)

Source: 17D0167-01

Prepared & Analyzed: 4/12/2017

Ammonia 0.0486 0.0500 mg/L 0.0463 5 20

Matrix Spike (1704234-MS1)

Source: 17D0057-02

Prepared & Analyzed: 4/12/2017

Ammonia 3.82 0.250 mg/L 2.00 1.58 112 75-125

Matrix Spike Dup (1704234-MSD1)

Source: 17D0057-02

Prepared & Analyzed: 4/12/2017

Ammonia 3.68 0.250 mg/L 2.00 1.58 105 75-125 4 20

ANALYSIS DATA SHEET

Inorganics

Client: Advanced Technology Laboratories-NV
Client Sample ID: N023766-001A / SC-700B-WDR-557
Lab Sample ID: 17D0167-01
Project: ATL-NV

Date Sampled: 04/07/17 16:21

Matrix: Water

CAS NO.	Analyte	Concentration (mg/L)	MDL	RL	DF	Q	Analyst	Analyzed	Method
7664-41-7	Ammonia	ND	0.0111	0.0500	1		AxL	04/12/17 17:46	SM 4500-NH3 D M

METHOD BLANK DATA SHEET

SM 4500-NH3 D M

Client: Advanced Technology Laboratories-NV

Project: ATL-NV

Laboratory ID: 1704234-BLK1

Prepared: 04/12/17 13:22

Preparation: SM 4500-NH3 D M

Matrix: Water

Analyzed: 04/12/17 16:45

Instrument: TL01

File ID: 7D12002-023

Batch: 1704234

Sequence: 7D12002

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: 17D0167

Matrix: Water
Prep Batch: 1704234

Prep Method: SM 4500-NH3 D M
Lab Sample ID: 1704234-BS1

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Ammonia	0.400	0.408	102	90 - 110

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

Matrix Spike

Client: Advanced Technology Laboratories-NV
Project: ATL-NV
Work Order: 17D0167

Matrix: Water
Prep Batch: 1704234
Analysis Method: SM 4500-NH3 D M
Prep Method: SM 4500-NH3 D M
Laboratory ID: 1704234-MS1
Source Sample ID: 17D0057-02

ANALYTE	SPIKE ADDED (mg/L)	SAMPLE CONCENTRATION (mg/L)	MS CONCENTRATION (mg/L)	MS % REC.	QC LIMITS REC.
Ammonia	2.00	1.58	3.82	112	75 - 125

ANALYTE	SPIKE ADDED (mg/L)	MSD CONCENTRATION (mg/L)	MSD % REC. #	% RPD	QC LIMITS RPD	REC.
Ammonia	2.00	3.68	105	4	20	75 - 125

* Values outside of QC limits

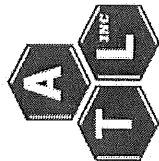
DUPLICATES

N023766-001A / SC-700B-WDR-557

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

Matrix:	Water	Laboratory ID:	1704234-DUP1
Prep Batch:	1704234	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	0.0463	0.0486			20



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

17D0167

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

10-Apr-17

Sample ID	Matrix	Date Collected	Bottle Type	SM4500-NH3D	Requested Tests
N023766-001A / SC-700B-WDR-557	Water	4/7/2017 4:21:00 PM	32OZP	1	

ALERT !!
Level IV QC

General Comments:

Please email sample receipt acknowledgement to the PM.

Please use PO# N23766A 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 #: 535694532

Date/Time	Date/Time
Relinquished by: <u>JB</u>	4/10/2017 17:00
Relinquished by: _____	Received by: <u>J. Brown</u>
	Received by: _____
	4/11/17 15:15

75°C

Log-in check list For level III data package

Client:

ATL

Lab Number:

17D0167

Received Date:

4/11/17

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 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:

J Brown



WORK ORDER

Printed: 4/11/2017 4:05:05PM

17D0167

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: 04/20/2017 16:30 (7 day TAT)

Received By: Jacqueline Brown

Date Received: 04/11/2017 15:15

Logged In By: Jacqueline Brown

Date Logged In: 04/11/2017 15:18

Samples Received at: 7.5°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
----------	-----	-----	---------	----------

17D0167-01 N023766-001A/ SC-700B-WDR-557 [Water] Sampled 04/07/2017

16:21 (GMT-08:00) Pacific Time (US &

Ammonia E	04/20/2017 08:00	7	05/05/2017 16:21	
-----------	------------------	---	------------------	--



Reviewed By



Date

CH2M HILL

Project: PG&E Topock

Project: 680375.02.IM.OP.00

ASSET Laboratories Work Order:
N024075_Amended

ANALYTICAL and QC RESULTS SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL



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”

May 30, 2017

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

TEL: (970) 731-0636

FAX: (510) 622-9129

Workorder No.: N024075

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

Attention: Doug Scott

Enclosed are the results for sample(s) received on May 02, 2017 by ASSET Laboratories . The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

This is an amended report. Please disregard all previous documentation that corresponds to the page(s) enclosed.

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

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

Sincerely,



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

"Serving Clients with Passion and Professionalism"

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

CLIENT: CH2M HILL
Project: PG&E Topock, 680375.02.IM.OP.00
Lab Order: N024075

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

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

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

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

Samples were analyzed within method holding time.

Subcontracted Analyses:

Ammonia was subcontracted to Truesdail-Irvine,CA.

Analytical Comments for EPA 200.8:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium on QC samples N024075-001C-MS and N024075-001C-MSD since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for some analytes on QC samples N024075-001CMS, N024075-001C-MSD and N024107-001B-MS possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.



ASSET Laboratories

Date: 17-May-17

CLIENT: CH2M HILL
Project: PG&E Topock, 680375.02.IM.OP.00
Lab Order: N024075
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N024075-001A	SC-100B-WDR-558	Water	5/2/2017 1:00:00 PM	5/2/2017	5/17/2017
N024075-001B	SC-100B-WDR-558	Water	5/2/2017 1:00:00 PM	5/2/2017	5/17/2017
N024075-001C	SC-100B-WDR-558	Water	5/2/2017 1:00:00 PM	5/2/2017	5/17/2017
N024075-001D	SC-100B-WDR-558	Water	5/2/2017 1:00:00 PM	5/2/2017	5/17/2017
N024075-002A	SC-700B-WDR-558	Water	5/2/2017 1:10:00 PM	5/2/2017	5/17/2017
N024075-002B	SC-700B-WDR-558	Water	5/2/2017 1:10:00 PM	5/2/2017	5/17/2017
N024075-002C	SC-700B-WDR-558	Water	5/2/2017 1:10:00 PM	5/2/2017	5/17/2017
N024075-002D	SC-700B-WDR-558	Water	5/2/2017 1:10:00 PM	5/2/2017	5/17/2017
N024075-002E	SC-700B-WDR-558	Water	5/2/2017 1:10:00 PM	5/2/2017	5/17/2017
N024075-002F	SC-700B-WDR-558	Water	5/2/2017 1:10:00 PM	5/2/2017	5/17/2017



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

"Serving Clients with Passion and Professionalism"

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

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 17-May-17

CLIENT: CH2M HILL
Lab Order: N024075
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N024075-001

Client Sample ID: SC-100B-WDR-558
Collection Date: 5/2/2017 1:00:00 PM
Matrix: WATER

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

SPECIFIC CONDUCTANCE
EPA 120.1

RunID: NV00922-WC_170503A	QC Batch: R115014			PrepDate		Analyst: LR
Specific Conductance	7900	0.10	0.10	umhos/cm	1	5/3/2017 10:15 AM

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



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: 17-May-17

CLIENT: CH2M HILL
 Lab Order: N024075
 Project: PG&E Topock, 680375.02.IM.OP.00
 Lab ID: N024075-002

Client Sample ID: SC-700B-WDR-558
 Collection Date: 5/2/2017 1:10:00 PM
 Matrix: WATER

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

SPECIFIC CONDUCTANCE

EPA 120.1

RunID: NV00922-WC_170503A	QC Batch: R115014			PrepDate		Analyst: LR
Specific Conductance	7600	0.10	0.10	umhos/cm	1	5/3/2017 10:15 AM

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



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

CLIENT: CH2M HILL
Work Order: N024075
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	N024075-001ADUP	SampType:	DUP	TestCode:	120.1_WPGE	Units:	umhos/cm	Prep Date:		RunNo:	115014		
Client ID:	ZZZZZZ	Batch ID:	R115014	TestNo:	EPA 120.1			Analysis Date:	5/3/2017	SeqNo:	2635469		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance		7900.000		0.10						7880	0.253	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		

**ASSET LABORATORIES**

ANALYTICAL SERVICES IN CALIFORNIA, NEVADA, AND IOWA

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"

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 17-May-17

CLIENT: CH2M HILL
Lab Order: N024075
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N024075-001

Client Sample ID: SC-100B-WDR-558
Collection Date: 5/2/2017 1:00:00 PM
Matrix: WATER

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

TOTAL FILTERABLE RESIDUE
SM2540C

RunID: NV00922-WC_170503H	QC Batch: 62125				PrepDate	5/3/2017	Analyst: LR
Total Dissolved Solids (Residue, Filterable)	4200	50	50		mg/L	1	5/3/2017 12:54 PM

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



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 17-May-17

CLIENT: CH2M HILL
Lab Order: N024075
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N024075-002

Client Sample ID: SC-700B-WDR-558
Collection Date: 5/2/2017 1:10:00 PM
Matrix: WATER

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

TOTAL FILTERABLE RESIDUE
SM2540C

RunID: NV00922-WC_170503H	QC Batch: 62125			PrepDate	5/3/2017	Analyst: LR
Total Dissolved Solids (Residue, Filterable)	4100	50	50	mg/L	1	5/3/2017 12:54 PM

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



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

CLIENT: CH2M HILL
Work Order: N024075
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	LCS-62125	SampType:	LCS	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	5/3/2017	RunNo:	115035			
Client ID:	LCSW	Batch ID:	62125	TestNo:	SM2540C			Analysis Date:	5/3/2017	SeqNo:	2636252			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		974.000		10	1000	0		97.4	80	120				

Sample ID	MB-62125	SampType:	MBLK	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	5/3/2017	RunNo:	115035			
Client ID:	PBW	Batch ID:	62125	TestNo:	SM2540C			Analysis Date:	5/3/2017	SeqNo:	2636253			
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	N024075-001ADUP	SampType:	DUP	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	5/3/2017	RunNo:	115035			
Client ID:	ZZZZZZ	Batch ID:	62125	TestNo:	SM2540C			Analysis Date:	5/3/2017	SeqNo:	2636255			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera		4355.000		50							4205	3.50	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			



ASSET LABORATORIES
ANALYTICAL SERVICES IN CALIFORNIA, NEVADA, AND IDAHO

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"

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 17-May-17

CLIENT: CH2M HILL
Lab Order: N024075
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N024075-002

Client Sample ID: SC-700B-WDR-558
Collection Date: 5/2/2017 1:10:00 PM
Matrix: WATER

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

TOTAL METALS BY ICP
EPA 200.7

RunID: NV00922-ICP2_170513A	QC Batch: 62172	PrepDate	5/10/2017	Analyst: CEI
Aluminum	ND 2.7	50	µg/L	1 5/13/2017 11:29 AM
Boron	1100 38	100	µg/L	1 5/13/2017 11:29 AM
Iron	ND 1.8	20	µg/L	1 5/13/2017 11:29 AM

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



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

"Serving Clients with Passion and Professionalism"

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

CLIENT: CH2M HILL
Work Order: N024075
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID MB-62172	SampType: MBLK	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 5/10/2017	RunNo: 115214
Client ID: PBW	Batch ID: 62172	TestNo: EPA 200.7		Analysis Date: 5/13/2017	SeqNo: 2643191
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Aluminum	7.874	50			
Boron	ND	100			
Iron	12.866	20			

Sample ID LCS1-62172	SampType: LCS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 5/10/2017	RunNo: 115214
Client ID: LCSW	Batch ID: 62172	TestNo: EPA 200.7		Analysis Date: 5/13/2017	SeqNo: 2643192
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Aluminum	9916.162	50	10000	0	99.2 85 115
Boron	4798.940	100	5000	0	96.0 85 115
Iron	110.524	20	100.0	0	111 85 115

Sample ID N024075-002E-MS	SampType: MS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 5/10/2017	RunNo: 115214
Client ID: ZZZZZZ	Batch ID: 62172	TestNo: EPA 200.7		Analysis Date: 5/13/2017	SeqNo: 2643196
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Aluminum	10541.291	50	10000	0	105 75 125
Boron	6374.659	100	5000	1117	105 75 125
Iron	108.749	20	100.0	16.41	92.3 75 125

Sample ID N024075-002E-MSD	SampType: MSD	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 5/10/2017	RunNo: 115214
Client ID: ZZZZZZ	Batch ID: 62172	TestNo: EPA 200.7		Analysis Date: 5/13/2017	SeqNo: 2643197
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Aluminum	10515.791	50	10000	0	105 75 125 10540 0.242 20
Boron	6418.723	100	5000	1117	106 75 125 6375 0.689 20
Iron	108.537	20	100.0	16.41	92.1 75 125 108.7 0.195 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 THE ENVIRONMENTAL, INDUSTRIAL, AND GEOTECHNICAL

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"

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 17-May-17

CLIENT: CH2M HILL
Lab Order: N024075
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N024075-001

Client Sample ID: SC-100B-WDR-558
Collection Date: 5/2/2017 1:00:00 PM
Matrix: WATER

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

TOTAL METALS BY ICPMS
EPA 200.8

RunID: NV00922-ICP7_170512J	QC Batch: 62182			PrepDate	5/11/2017	Analyst: CEI
Manganese	9.3	0.056	0.50	µg/L	1	5/12/2017 01:09 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



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

"Serving Clients with Passion and Professionalism"

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

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 17-May-17

CLIENT: CH2M HILL
Lab Order: N024075
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N024075-002

Client Sample ID: SC-700B-WDR-558
Collection Date: 5/2/2017 1:10:00 PM
Matrix: WATER

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

TOTAL METALS BY ICPMS
EPA 200.8

RunID: NV00922-ICP7_170512J	QC Batch: 62182	PrepDate	5/11/2017	Analyst: CEI		
Antimony	ND	0.031	0.50	µg/L	1	5/12/2017 02:11 PM
Arsenic	0.11	0.025	0.10	µg/L	1	5/15/2017 04:43 PM
Barium	14	0.070	1.0	µg/L	1	5/12/2017 02:11 PM
Copper	ND	0.26	1.0	µg/L	1	5/12/2017 02:11 PM
Lead	ND	0.037	1.0	µg/L	1	5/12/2017 02:11 PM
Manganese	3.7	0.056	0.50	µg/L	1	5/12/2017 02:11 PM
Molybdenum	22	0.039	0.50	µg/L	1	5/12/2017 02:11 PM
Nickel	ND	0.040	1.0	µg/L	1	5/12/2017 02:11 PM
Zinc	ND	0.27	10	µg/L	1	5/12/2017 02:11 PM

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



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

CLIENT: CH2M HILL
Work Order: N024075
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	MB-62182	SampType:	MBLK	TestCode:	200.8_W	Units:	µg/L	Prep Date:	5/11/2017	RunNo:	115229		
Client ID:	PBW	Batch ID:	62182	TestNo:	EPA 200.8			Analysis Date:	5/12/2017	SeqNo:	2644445		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Antimony	ND	0.50									
Arsenic	ND	0.10									
Barium	ND	1.0									
Copper	ND	1.0									
Lead	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Nickel	ND	1.0									
Zinc	ND	10									

Sample ID	LCS-62182	SampType:	LCS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	5/11/2017	RunNo:	115229		
Client ID:	LCSW	Batch ID:	62182	TestNo:	EPA 200.8			Analysis Date:	5/12/2017	SeqNo:	2644446		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Antimony	9.952	0.50	10.00	0	99.5	85	115				
Arsenic	9.992	0.10	10.00	0	99.9	85	115				
Barium	100.726	1.0	100.0	0	101	85	115				
Copper	10.443	1.0	10.00	0	104	85	115				
Lead	9.608	1.0	10.00	0	96.1	85	115				
Manganese	98.871	0.50	100.0	0	98.9	85	115				
Molybdenum	9.706	0.50	10.00	0	97.1	85	115				
Nickel	10.364	1.0	10.00	0	104	85	115				
Zinc	103.861	10	100.0	0	104	85	115				

Sample ID	N024075-001C-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	5/11/2017	RunNo:	115229		
Client ID:	ZZZZZZ	Batch ID:	62182	TestNo:	EPA 200.8			Analysis Date:	5/12/2017	SeqNo:	2644452		
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			


ASSET LABORATORIES
ANALYTICAL SERVICES FOR THE CONSTRUCTION INDUSTRY

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"

CLIENT: CH2M HILL
Work Order: N024075
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	N024075-001C-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	5/11/2017	RunNo:	115229
Client ID:	ZZZZZZ	Batch ID:	62182	TestNo:	EPA 200.8			Analysis Date:	5/12/2017	SeqNo:	2644452
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Antimony	9.710	0.50	10.00	0	97.1	75	125				
Arsenic	12.282	0.10	10.00	2.837	94.4	75	125				
Barium	122.097	1.0	100.0	27.45	94.6	75	125				
Copper	4.123	1.0	10.00	0	41.2	75	125				S
Manganese	93.441	0.50	100.0	9.251	84.2	75	125				
Nickel	7.972	1.0	10.00	0	79.7	75	125				
Zinc	71.833	10	100.0	0	71.8	75	125				S

Sample ID	N024075-001C-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	5/11/2017	RunNo:	115229
Client ID:	ZZZZZZ	Batch ID:	62182	TestNo:	EPA 200.8			Analysis Date:	5/12/2017	SeqNo:	2644453
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead	9.213	5.0	10.00	0	92.1	75	125				
Molybdenum	31.839	2.5	10.00	21.57	103	75	125				

Sample ID	N024075-001C-MSD	SampType:	MSD	TestCode:	200.8_W	Units:	µg/L	Prep Date:	5/11/2017	RunNo:	115229
Client ID:	ZZZZZZ	Batch ID:	62182	TestNo:	EPA 200.8			Analysis Date:	5/12/2017	SeqNo:	2644454
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Antimony	9.688	0.50	10.00	0	96.9	75	125	9.710	0.232	20	
Arsenic	12.366	0.10	10.00	2.837	95.3	75	125	12.28	0.685	20	
Barium	121.096	1.0	100.0	27.45	93.6	75	125	122.1	0.824	20	
Copper	4.139	1.0	10.00	0	41.4	75	125	4.123	0.372	20	S
Manganese	92.568	0.50	100.0	9.251	83.3	75	125	93.44	0.939	20	
Nickel	8.025	1.0	10.00	0	80.3	75	125	7.972	0.668	20	
Zinc	73.014	10	100.0	0	73.0	75	125	71.83	1.63	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 | | | |



ASSET LABORATORIES
ANALYTICAL SERVICES FOR THE CONSTRUCTION INDUSTRY

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"

CLIENT: CH2M HILL
Work Order: N024075
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	N024075-001C-MSD	SampType:	MSD	TestCode:	200.8_W	Units:	µg/L	Prep Date:	5/11/2017	RunNo:	115229
Client ID:	ZZZZZZ	Batch ID:	62182	TestNo:	EPA 200.8			Analysis Date:	5/12/2017	SeqNo:	2644457
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	9.397	5.0	10.00	0	94.0	75	125	9.213	1.97	20	
Molybdenum	30.530	2.5	10.00	21.57	89.6	75	125	31.84	4.20	20	

Sample ID	N024107-001B-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	5/11/2017	RunNo:	115229
Client ID:	ZZZZZZ	Batch ID:	62182	TestNo:	EPA 200.8			Analysis Date:	5/12/2017	SeqNo:	2644462
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	9.752	0.50	10.00	0	97.5	75	125				
Arsenic	12.201	0.10	10.00	2.737	94.6	75	125				
Barium	110.513	1.0	100.0	15.57	94.9	75	125				
Copper	7.063	1.0	10.00	0	70.6	75	125				S
Lead	9.287	1.0	10.00	0	92.9	75	125				
Molybdenum	26.599	0.50	10.00	14.87	117	75	125				
Nickel	9.062	1.0	10.00	0.5786	84.8	75	125				
Zinc	80.326	10	100.0	0	80.3	75	125				

Sample ID	N024107-001B-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	5/11/2017	RunNo:	115229
Client ID:	ZZZZZZ	Batch ID:	62182	TestNo:	EPA 200.8			Analysis Date:	5/12/2017	SeqNo:	2644463
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	206.046	2.5	100.0	118.4	87.7	75	125				

Qualifiers:

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



ASSET LABORATORIES

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"

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 17-May-17

CLIENT: CH2M HILL
Lab Order: N024075
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N024075-001

Client Sample ID: SC-100B-WDR-558
Collection Date: 5/2/2017 1:00:00 PM
Matrix: WATER

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

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: NV00922-IC7_170504A	QC Batch: R115079				PrepDate		Analyst: RAB
Hexavalent Chromium	540	6.6	20		µg/L	100	5/4/2017 11:12 AM

TOTAL METALS BY ICPMS
EPA 200.8

RunID: NV00922-ICP7_170512J	QC Batch: 62182				PrepDate	5/11/2017	Analyst: CEI
Chromium	520	0.096	5.0		µg/L	5	5/12/2017 01:15 PM

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



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

"Serving Clients with Passion and Professionalism"

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

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 17-May-17

CLIENT: CH2M HILL
Lab Order: N024075
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N024075-002

Client Sample ID: SC-700B-WDR-558
Collection Date: 5/2/2017 1:10:00 PM
Matrix: WATER

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

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: NV00922-IC7_170504A	QC Batch: R115079			PrepDate		Analyst: RAB
Hexavalent Chromium	ND	0.066	0.20	µg/L	1	5/4/2017 11:31 AM

TOTAL METALS BY ICPMS
EPA 200.8

RunID: NV00922-ICP7_170512J	QC Batch: 62182			PrepDate	5/11/2017	Analyst: CEI
Chromium	ND	0.019	1.0	µg/L	1	5/12/2017 02:11 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		



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

CLIENT: CH2M HILL
Work Order: N024075
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID MB-62182	SampType: MBLK	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 5/11/2017	RunNo: 115229
Client ID: PBW	Batch ID: 62182	TestNo: EPA 200.8		Analysis Date: 5/12/2017	SeqNo: 2644391
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chromium	ND	1.0			

Sample ID LCS-62182	SampType: LCS	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 5/11/2017	RunNo: 115229
Client ID: LCSW	Batch ID: 62182	TestNo: EPA 200.8		Analysis Date: 5/12/2017	SeqNo: 2644392
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chromium	9.976	1.0	10.00	0	99.8 85 115

Sample ID N024075-001C-MS	SampType: MS	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 5/11/2017	RunNo: 115229
Client ID: ZZZZZZ	Batch ID: 62182	TestNo: EPA 200.8		Analysis Date: 5/12/2017	SeqNo: 2644399
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chromium	515.103	5.0	10.00	520.8	-56.6 75 125 S

Sample ID N024075-001C-MSD	SampType: MSD	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 5/11/2017	RunNo: 115229
Client ID: ZZZZZZ	Batch ID: 62182	TestNo: EPA 200.8		Analysis Date: 5/12/2017	SeqNo: 2644403
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chromium	522.751	5.0	10.00	520.8	19.8 75 125 515.1 1.47 20 S

Sample ID N024107-001B-MS	SampType: MS	TestCode: 200.8_W_CR	Units: µg/L	Prep Date: 5/11/2017	RunNo: 115229
Client ID: ZZZZZZ	Batch ID: 62182	TestNo: EPA 200.8		Analysis Date: 5/12/2017	SeqNo: 2644408
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chromium	9.055	1.0	10.00	0.2146	88.4 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			



ASSET LABORATORIES
ANALYTICAL QUALITY SERVICES FOR THE ENVIRONMENTAL, INDUSTRIAL, AND WATER MARKETS

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"

ASSET Laboratories

Date: 30-May-17

CLIENT: CH2M HILL
Work Order: N024075
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID MB-R115079	SampType: MBLK	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 115079
Client ID: PBW	Batch ID: R115079	TestNo: EPA 218.6		Analysis Date: 5/4/2017	SeqNo: 2637158
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-R115079	SampType: LCS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 115079
Client ID: LCSW	Batch ID: R115079	TestNo: EPA 218.6		Analysis Date: 5/4/2017	SeqNo: 2637159
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Hexavalent Chromium	4.975	0.20	5.000	0	99.5 90 110

Sample ID N024075-001BMS	SampType: MS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 115079
Client ID: ZZZZZZ	Batch ID: R115079	TestNo: EPA 218.6		Analysis Date: 5/4/2017	SeqNo: 2637165
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Hexavalent Chromium	1042.550	20	500.0	539.4	101 90 110

Sample ID N024064-003AMS	SampType: MS	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 115079
Client ID: ZZZZZZ	Batch ID: R115079	TestNo: EPA 218.6		Analysis Date: 5/4/2017	SeqNo: 2637174
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Hexavalent Chromium	50.296	1.0	25.00	24.86	102 90 110

Sample ID N024064-001ADUP	SampType: DUP	TestCode: 218.6_WU_P	Units: µg/L	Prep Date:	RunNo: 115079
Client ID: ZZZZZZ	Batch ID: R115079	TestNo: EPA 218.6		Analysis Date: 5/4/2017	SeqNo: 2637181
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Hexavalent Chromium	75.106	4.0			76.47 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
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 QUALITY ASSURANCE CORPORATION

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"

CLIENT: CH2M HILL
Work Order: N024075
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT**TestCode: 218.6_WU_PGE**

Sample ID	N024064-003AMSD	SampType:	MSD	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	115079			
Client ID:	ZZZZZZ	Batch ID:	R115079	TestNo:	EPA 218.6			Analysis Date:	5/4/2017	SeqNo:	2637182			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium		50.053		1.0	25.00	24.86		101	90	110	50.30	0.484	20	

Sample ID	N024075-002CMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	115079			
Client ID:	ZZZZZZ	Batch ID:	R115079	TestNo:	EPA 218.6			Analysis Date:	5/4/2017	SeqNo:	2637199			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium		1.177		0.20	1.000	0.1674		101	90	110				

Qualifiers:

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

**ASSET LABORATORIES**

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

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"

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 17-May-17

CLIENT: CH2M HILL
Lab Order: N024075
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N024075-001

Client Sample ID: SC-100B-WDR-558
Collection Date: 5/2/2017 1:00:00 PM
Matrix: WATER

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

TURBIDITY
SM 2130B

RunID: NV00922-WC_170503B	QC Batch: R115015			PrepDate		Analyst: LR
Turbidity	0.25	0.10	0.10	NTU	1	5/3/2017 10:30 AM

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



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: 17-May-17

CLIENT: CH2M HILL
 Lab Order: N024075
 Project: PG&E Topock, 680375.02.IM.OP.00
 Lab ID: N024075-002

Client Sample ID: SC-700B-WDR-558
 Collection Date: 5/2/2017 1:10:00 PM
 Matrix: WATER

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

TURBIDITY

SM 2130B

RunID: NV00922-WC_170503B	QC Batch: R115015	PrepDate	Analyst: LR
Turbidity	0.20 0.10 0.10	NTU	1 5/3/2017 10:30 AM

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



ASSET LABORATORIES
 ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

CLIENT: CH2M HILL
Work Order: N024075
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	MB-R115015	SampType:	MBLK	TestCode:	2130_W	Units:	NTU	Prep Date:		RunNo:	115015		
Client ID:	PBW	Batch ID:	R115015	TestNo:	SM 2130B			Analysis Date:	5/3/2017	SeqNo:	2635472		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity		ND		0.10									

Sample ID	N024075-002BDUP	SampType:	DUP	TestCode:	2130_W	Units:	NTU	Prep Date:		RunNo:	115015		
Client ID:	ZZZZZZ	Batch ID:	R115015	TestNo:	SM 2130B			Analysis Date:	5/3/2017	SeqNo:	2635475		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity		0.210		0.10						0.2000	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			


ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 17-May-17

CLIENT: CH2M HILL
Lab Order: N024075
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N024075-002

Client Sample ID: SC-700B-WDR-558
Collection Date: 5/2/2017 1:10:00 PM
Matrix: WATER

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

ANIONS BY ION CHROMATOGRAPHY
EPA 300.0

RunID: NV00922-IC8_170503A	QC Batch: R115024			PrepDate		Analyst: RAB
Fluoride	2.5	0.017	0.50	mg/L	5	5/3/2017 10:25 AM

ANIONS BY ION CHROMATOGRAPHY
EPA 300.0

RunID: NV00922-IC8_170503A	QC Batch: R115024			PrepDate		Analyst: RAB
Sulfate	490	0.64	25	mg/L	50	5/3/2017 11:26 AM

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



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

CLIENT: CH2M HILL
Work Order: N024075
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	MB-R115024_F	SampType:	MBLK	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	115024			
Client ID:	PBW	Batch ID:	R115024	TestNo:	EPA 300.0			Analysis Date:	5/3/2017	SeqNo:	2635300			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride 0.036 0.10

Sample ID	LCS-R115024_F	SampType:	LCS	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	115024		
Client ID:	LCSW	Batch ID:	R115024	TestNo:	EPA 300.0			Analysis Date:	5/3/2017	SeqNo:	2635301		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride 1.201 0.10 1.250 0 96.0 90 110

Sample ID	N024075-002BDUP	SampType:	DUP	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	115024		
Client ID:	ZZZZZZ	Batch ID:	R115024	TestNo:	EPA 300.0			Analysis Date:	5/3/2017	SeqNo:	2635303		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride 2.310 0.50 2.458 6.23 20

Sample ID	N024075-002BMS	SampType:	MS	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	115024		
Client ID:	ZZZZZZ	Batch ID:	R115024	TestNo:	EPA 300.0			Analysis Date:	5/3/2017	SeqNo:	2635304		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride 8.639 0.50 6.250 2.458 98.9 80 120

Sample ID	N024075-002BMSD	SampType:	MSD	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	115024			
Client ID:	ZZZZZZ	Batch ID:	R115024	TestNo:	EPA 300.0			Analysis Date:	5/3/2017	SeqNo:	2635305			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride 8.521 0.50 6.250 2.458 97.0 80 120 8.638 1.38 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 THE CONSTRUCTION INDUSTRY

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"

CLIENT: CH2M HILL
Work Order: N024075
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	MB-R115024_SO4	SampType:	MBLK	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	115024
Client ID:	PBW	Batch ID:	R115024	TestNo:	EPA 300.0			Analysis Date:	5/3/2017	SeqNo:	2635349
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Sulfate ND 0.50

Sample ID	LCS-R115024_SO4	SampType:	LCS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	115024
Client ID:	LCSW	Batch ID:	R115024	TestNo:	EPA 300.0			Analysis Date:	5/3/2017	SeqNo:	2635350
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Sulfate 3.906 0.50 4.000 0 97.7 90 110

Sample ID	N024075-002BDUP	SampType:	DUP	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	115024
Client ID:	ZZZZZZ	Batch ID:	R115024	TestNo:	EPA 300.0			Analysis Date:	5/3/2017	SeqNo:	2635352
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Sulfate 484.030 25 485.9 0.387 20

Sample ID	N024075-002BMS	SampType:	MS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	115024
Client ID:	ZZZZZZ	Batch ID:	R115024	TestNo:	EPA 300.0			Analysis Date:	5/3/2017	SeqNo:	2635353
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Sulfate 689.010 25 200.0 485.9 102 80 120

Sample ID	N024075-002BMSD	SampType:	MSD	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	115024
Client ID:	ZZZZZZ	Batch ID:	R115024	TestNo:	EPA 300.0			Analysis Date:	5/3/2017	SeqNo:	2635354
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Sulfate 690.235 25 200.0 485.9 102 80 120 689.0 0.178 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 PETROLEUM, ENVIRONMENTAL, AND FOODS

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"

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 17-May-17

CLIENT: CH2M HILL
Lab Order: N024075
Project: PG&E Topock, 680375.02.IM.OP.00
Lab ID: N024075-002

Client Sample ID: SC-700B-WDR-558
Collection Date: 5/2/2017 1:10:00 PM
Matrix: WATER

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

NITRATE/NITRITE-N BY CADMIUM REDUCTION
SM4500-NO3F

RunID: NV00922-WC_170514A	QC Batch: R115239			PrepDate		Analyst: RB
Nitrate/Nitrite as N	3.0	0.11	0.25	mg/L	5	5/14/2017

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



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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"

CLIENT: CH2M HILL
Work Order: N024075
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID MB-R115239	SampType: MBLK	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 115239
Client ID: PBW	Batch ID: R115239	TestNo: SM4500-NO3		Analysis Date: 5/14/2017	SeqNo: 2645347
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-R115239	SampType: LCS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 115239
Client ID: LCSW	Batch ID: R115239	TestNo: SM4500-NO3		Analysis Date: 5/14/2017	SeqNo: 2645348
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nitrate/Nitrite as N 0.514 0.050 0.5000 0 103 85 115

Sample ID N024154-001DDUP	SampType: DUP	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 115239
Client ID: ZZZZZZ	Batch ID: R115239	TestNo: SM4500-NO3		Analysis Date: 5/14/2017	SeqNo: 2645350
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nitrate/Nitrite as N 0.186 0.050 0.1915 2.97 20

Sample ID N024154-001DMS	SampType: MS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 115239
Client ID: ZZZZZZ	Batch ID: R115239	TestNo: SM4500-NO3		Analysis Date: 5/14/2017	SeqNo: 2645351
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nitrate/Nitrite as N 0.642 0.050 0.5000 0.1915 90.2 75 125

Sample ID N024154-001DMSD	SampType: MSD	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 115239
Client ID: ZZZZZZ	Batch ID: R115239	TestNo: SM4500-NO3		Analysis Date: 5/14/2017	SeqNo: 2645352
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Nitrate/Nitrite as N 0.654 0.050 0.5000 0.1915 92.5 75 125 0.6424 1.82 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


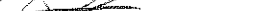



NEVADA | P: 702.307.2659 F: 702.307.2691
3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

"Serving Clients with Passion and Professionalism"

CHAIN OF CUSTODY RECORD

Page 11 OF 11

Project Name PG&E Topock				Container:	1 Liter Poly	1 Liter Poly	1 Liter Poly	250 ml Poly	1 Liter Poly	1 Liter Poly	500 ml Poly	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 Lab H2SO4	4°C	4°C	4°C	4°C												
Project Number 680375.02.IM.OP.00				Filtered:	NA	NA	NA	NA	NA	NA	NA	NA													
Project Manager Scott O'Donnell				Holding Time:	28	7	7	1	28	7	180	180	7												
Sample Manager Shawn Duffy				Task Order Project IM3PLANT-ARAR-WDR-558 Turnaround Time 10 Days Shipping Date: COC Number: 558	AMMONIA (SM450NH-30)	Anions (E300.0) FI, SO4	CONDUCTIVITY (E120.1)	E218.6 Lab Filtered	Nitrate/Nitrite (SM450NO3-B)	TDS (SM2540C)	Total Metals(E200.7 and E200.8)	Total Metals(E200.8) Cr & Mn	Turbidity (SM2130)												
DATE														TIME	Matrix										
SC-100B-WDR-558														5-2-17	1300	Water		X	X		X	X	N024075 - 01	3	
SC-700B-WDR-558														5-2-17	1310	Water	X	X	X	X	X	X	- 02	4	
TOTAL NUMBER OF CONTAINERS														7											

Signatures Approved by  Sampled by  QM. QW Relinquished by QM. QW Received by  Relinquished by  Received by 		Date/Time 5-2-17 13:00 5-2-17 13:30 5-2-17 15:30 5/2/17 1530 5/2/17 1537		Shipping Details Method of Shipment: FedEx On Ice: yes / no 2-6 ice Airbill No: 7212 Lab Name: ASSET Laboratories Lab Phone: (702) 307-2659		Special Instructions: ATTN: Sample Custody and Marlon Cartin SC-700B Total metals List: Cr, Al, Sb, As, Ba, B, Cu, Pb, Mn, Mo, Ni, Fe, Zn Report Copy to Doug Scott (970) 731-0636	
--	--	--	--	---	--	--	--

ASSET Laboratories

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

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

Cooler Received/Opened On: 5/2/2017 Workorder: N024075
 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 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 Hex Cr were lab filtered and preserved with Ammonium Buffer.
 Samples for Total Metals and NO3/Ammonia were lab preserved with HNO3 and H2SO4 respectively.

Checklist Completed By: YR  5/4/2017

Reviewed By:  5/4/2017



ASSET Laboratories

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

www.atl-labs.com

TEL: 7023072659

FAX: 7023072691

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

QC Level: Level IV

Subcontractor:

Truesdail
3337 Michelson Drive, Suite CN750
Irvine, CA 92612

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

Field Sampler: SIGNED

04-May-17

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests		
				SM4500-NH3D		
N024075-002A / SC-700B-WDR-558	Water	5/2/2017 1:10:00 PM	32OZP	1		

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

Please use PO#:N24075A 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 #: 535999791

	Date/Time		Date/Time
Relinquished by: <u> </u>	<u>5/4/2017 17:00</u>	Received by: <u> </u>	<u> </u>
Relinquished by: <u> </u>	<u> </u>	Received by: <u> </u>	<u> </u>

List of Analyst

ASSET Laboratories Work Order: **N024075**

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



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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

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

"Serving Clients with Passion and Professionalism"



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.: 17E0123

Printed: 05/28/2017

CASE NARRATIVE

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

The sample was received and delivered with the chain of custody on May 5th, 2017, intact and in chilled condition. The sample will be kept in a locked refrigerator for 30 days; thereafter will be kept in warm storage for additional 2 months before disposal.

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

SAMPLE RECEIPT SUMMARY

Sample ID	Laboratory ID	Matrix	Type	Date Sampled	Date Received
N024075-002A / SC-700B-WDR-558	17E0123-01	Water		05/02/2017 13:10	05/05/2017 09:15

DEFINITIONS

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

Respectfully yours,

Shelly Brady
Customer Service Manager



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

Printed: 05/28/2017

N024075-002A / SC-700B-WDR-558
17E0123-01 (Water)

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

Truesdail Laboratories, Inc

Wet Chemistry

Ammonia	ND	0.0500	mg/L	1	1705151	05/08/2017 16:55	Alexander Luna	SM 4500-NH3 D M	
---------	----	--------	------	---	---------	------------------	----------------	-----------------	--



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

Printed: 05/28/2017

QUALITY CONTROL
Wet Chemistry
Truesdail Laboratories, Inc

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

Batch: 1705151 - SM 4500-NH3 D M

Blank (1705151-BLK1)

Prepared & Analyzed: 5/8/2017

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

LCS (1705151-BS1)

Prepared & Analyzed: 5/8/2017

Ammonia	0.417	0.0500	mg/L	0.400	104	90-110
---------	-------	--------	------	-------	-----	--------

Duplicate (1705151-DUP1)

Source: 17E0123-01

Prepared & Analyzed: 5/8/2017

Ammonia	0.0299	0.0500	mg/L	0.0246	19	20
---------	--------	--------	------	--------	----	----

Matrix Spike (1705151-MS1)

Source: 17E0014-02

Prepared & Analyzed: 5/8/2017

Ammonia	0.850	0.0500	mg/L	0.400	0.403	112	75-125
---------	-------	--------	------	-------	-------	-----	--------

Matrix Spike Dup (1705151-MSD1)

Source: 17E0014-02

Prepared & Analyzed: 5/8/2017

Ammonia	0.850	0.0500	mg/L	0.400	0.403	112	75-125	0.03	20
---------	-------	--------	------	-------	-------	-----	--------	------	----

ANALYSIS DATA SHEET

Inorganics

Client: Advanced Technology Laboratories-NV
Client Sample ID: N024075-002A / SC-700B-WDR-558
Lab Sample ID: 17E0123-01
Project: ATL-NV

Date Sampled: 05/02/17 13:10 Matrix: Water

CAS NO.	Analyte	Concentration (mg/L)	MDL	RL	DF	Q	Analyst	Analyzed	Method
7664-41-7	Ammonia	ND	0.0111	0.0500	1		AXL	05/08/17 16:55	SM 4500-NH3 D M

METHOD BLANK DATA SHEET

SM 4500-NH3 D M

Client: Advanced Technology Laboratories-NV

Project: ATL-NV

Laboratory ID: 1705151-BLK1

Prepared: 05/08/17 14:39

Preparation: SM 4500-NH3 D M

Matrix: Water

Analyzed: 05/08/17 16:41

Instrument: TL01

File ID: 7E08002-010

Batch: 1705151

Sequence: 7E08002

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: 17E0123

Matrix: Water
Prep Batch: 1705151
Prep Method: SM 4500-NH3 D M
Lab Sample ID: 1705151-BS1

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Ammonia	0.400	0.417	104	90 - 110

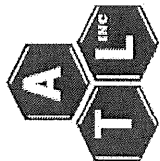
DUPLICATES

N024075-002A / SC-700B-WDR-558

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

Matrix:	Water	Laboratory ID:	1705151-DUP1
Prep Batch:	1705151	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	0.0246	0.0299			20



ASSET Laboratories

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

17ED0123

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

04-May-17

Sample ID	Matrix	Date Collected	Bottle Type	SM4500-NH3D	Requested Tests
N024075-002A / SC-700B-WDR-558	Water	5/2/2017 1:10:00 PM	32OZP	1	

ALERT !!
Level IV QC

General Comments:

Please email sample receipt acknowledgement to the PM.

Please use PO#: N24075A 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.W@assetlaboratories.com by: Normal TAT.

Please analyze for Ammonia. CH2M Hill Sample.

GSO #: 535999791

Date/Time	Date/Time
Relinquished by: <u>RL</u>	Received by: <u>Bruce</u>
Relinquished by: _____	Received by: _____
	5/5/17 9:15

7.5°C

Log-in check list For level III data package

Client: ATL Lab Number: 17ED123

Received Date: 5/5/17

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 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: Brown

ALERT !!
Level IV QC

WORK ORDER

Printed: 5/5/17 9:32:51AM

17E0123

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: 05/16/2017 16:30 (7 day TAT)

Received By: Jacqueline Brown

Date Received: 05/05/2017 09:15

Logged In By: Jacqueline Brown

Date Logged In: 05/05/2017 09:27

Samples Received at: 7.5°C
Chain of Custody rece Yes Samples intact? Yes
Letter (if sent) matche No Custody seals (if any) No
Requested analyses ac Yes Analyses within hold t Yes
Samples received in a No

Analysis	Due	TAT	Expires	Comments
✓ 17E0123-01 N024075-002A / SC-700B-WDR-558 [Water] Sampled 05/02/2017 13:10 (GMT-08:00) Pacific Time (US & ✓ Ammonia E	05/16/2017 08:00	7	05/30/2017 13:10	

Reviewed By

Date

Page 1 of 1

Page 20 of 25

CH2M HILL

Project: PG&E Topock
Project No.: 680375.02.IM.OP.00

ASSET Laboratories Work Order:
N024499

ANALYTICAL and QC RESULTS SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL



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"

June 20, 2017

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

TEL: (970) 731-0636

FAX: (510) 622-9129

Workorder No.: N024499

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

Attention: Doug Scott

Enclosed are the results for sample(s) received on June 06, 2017 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,



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

Serving Clients with Passion and Professionalism™

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: 702.307.2659
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: N024499

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 200.7:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Iron on QC samples N024499-002D-MS and N024499-002D-MSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 200.8:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium on QC samples N024499-001C-MS and N024499-001C-MSD since the analyte concentration in the sample is disproportionate to the spike level. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Copper on QC samples N024499-001C-MS and N024499-001C-MSD possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 218.6:

Dilution was necessary for sample N024499-002 due to matrix interference. Sample was analyzed at



CLIENT: CH2M HILL

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

Lab Order: N024499

CASE NARRATIVE

lower dilution however matrix spike was not recovered indicating possible matrix interference. Sample was reported at dilution that meet matrix spike recovery limit and the detected peak within retention time window.



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Serving Clients with Passion and Professionalism™

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: 702.307.2697
3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

Page 3 of 6

ASSET Laboratories

Date: 20-Jun-17

CLIENT: CH2M HILL
Project: PG&E Topock, 680375.02.IM.OP.00
Lab Order: N024499
Contract No: IM3PLANT-AR

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N024499-001A	SC-100B-WDR-559	Water	6/6/2017 12:40:00 PM	6/6/2017	6/20/2017
N024499-001B	SC-100B-WDR-559	Water	6/6/2017 12:40:00 PM	6/6/2017	6/20/2017
N024499-001C	SC-100B-WDR-559	Water	6/6/2017 12:40:00 PM	6/6/2017	6/20/2017
N024499-001D	SC-100B-WDR-559	Water	6/6/2017 12:40:00 PM	6/6/2017	6/20/2017
N024499-002A	SC-700B-WDR-559	Water	6/6/2017 12:46:00 PM	6/6/2017	6/20/2017
N024499-002B	SC-700B-WDR-559	Water	6/6/2017 12:46:00 PM	6/6/2017	6/20/2017
N024499-002C	SC-700B-WDR-559	Water	6/6/2017 12:46:00 PM	6/6/2017	6/20/2017
N024499-002D	SC-700B-WDR-559	Water	6/6/2017 12:46:00 PM	6/6/2017	6/20/2017
N024499-002E	SC-700B-WDR-559	Water	6/6/2017 12:46:00 PM	6/6/2017	6/20/2017
N024499-002F	SC-700B-WDR-559	Water	6/6/2017 12:46:00 PM	6/6/2017	6/20/2017



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Serving Clients with Passion and Professionalism™

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:702.307.2697
3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: 20-Jun-17

CLIENT:	CH2M HILL	Client Sample ID:	SC-100B-WDR-559
Lab Order:	N024499	Collection Date:	6/6/2017 12:40:00 PM
Project:	PG&E Topock, 680375.02.IM.OP.00	Matrix:	WATER
Lab ID:	N024499-001		

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

SPECIFIC CONDUCTANCE

EPA 120.1

RunID: NV00922-WC_170607A	QC Batch: R115629	PrepDate	Analyst: LR
Specific Conductance	7700	0.10	0.10
		umhos/cm	1
			6/7/2017 10:30 AM

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



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Servina Clients with Passion and Professionalism™

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:702.307.2697
3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: 20-Jun-17

CLIENT:	CH2M HILL	Client Sample ID:	SC-700B-WDR-559
Lab Order:	N024499	Collection Date:	6/6/2017 12:46:00 PM
Project:	PG&E Topock, 680375.02.IM.OP.00	Matrix:	WATER
Lab ID:	N024499-002		

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

SPECIFIC CONDUCTANCE

EPA 120.1

RunID: NV00922-WC_170607A	QC Batch: R115629	PrepDate	Analyst: LR
Specific Conductance	7700	0.10	0.10
		umhos/cm	1
			6/7/2017 10:30 AM

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



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Servina Clients with Passion and Professionalism™

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:702.307.2697
3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

CLIENT: CH2M HILL
Work Order: N024499
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	N024499-002BDUP	SampType:	DUP	TestCode:	120.1_WPGE	Units:	umhos/cm	Prep Date:		RunNo:	115629
Client ID:	ZZZZZZ	Batch ID:	R115629	TestNo:	EPA 120.1			Analysis Date:	6/7/2017	SeqNo:	2661468
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Specific Conductance		7710.000		0.10						7690	0.260 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		

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 20-Jun-17

CLIENT:	CH2M HILL	Client Sample ID:	SC-100B-WDR-559
Lab Order:	N024499	Collection Date:	6/6/2017 12:40:00 PM
Project:	PG&E Topock, 680375.02.IM.OP.00	Matrix:	WATER
Lab ID:	N024499-001		

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

TOTAL FILTERABLE RESIDUE
SM2540C

RunID: NV00922-WC_170607C	QC Batch: 62459	PrepDate	6/7/2017	Analyst: LR
Total Dissolved Solids (Residue, Filterable)	4600	50	50	mg/L
			1	6/7/2017 01:00 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		


ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES
Serving Clients with Passion and Professionalism™

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:702.307.2697
 3151 W. Post Rd., Las Vegas, NV 89118
 ELAP Cert 2676 | NV Cert NV00922
 ORELAP/NELAP Cert 4046

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 20-Jun-17

CLIENT:	CH2M HILL	Client Sample ID:	SC-700B-WDR-559
Lab Order:	N024499	Collection Date:	6/6/2017 12:46:00 PM
Project:	PG&E Topock, 680375.02.IM.OP.00	Matrix:	WATER
Lab ID:	N024499-002		

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

TOTAL FILTERABLE RESIDUE
SM2540C

RunID: NV00922-WC_170607C	QC Batch: 62459	PrepDate	6/7/2017	Analyst: LR
Total Dissolved Solids (Residue, Filterable)	4300	50	50	mg/L
			1	6/7/2017 01:00 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		


ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES
Serving Clients with Passion and Professionalism™

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:702.307.2697
 3151 W. Post Rd., Las Vegas, NV 89118
 ELAP Cert 2676 | NV Cert NV00922
 ORELAP/NELAP Cert 4046

CLIENT: CH2M HILL
Work Order: N024499
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID LCS-62459	SampType: LCS	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 6/7/2017	RunNo: 115631
Client ID: LCSW	Batch ID: 62459	TestNo: SM2540C		Analysis Date: 6/7/2017	SeqNo: 2663334
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Total Dissolved Solids (Residue, Filtera	988.000	10	1000	0	98.8 80 120

Sample ID MB-62459	SampType: MBLK	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 6/7/2017	RunNo: 115631
Client ID: PBW	Batch ID: 62459	TestNo: SM2540C		Analysis Date: 6/7/2017	SeqNo: 2663335
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 N024499-002BDUP	SampType: DUP	TestCode: 160.1_2540C	Units: mg/L	Prep Date: 6/7/2017	RunNo: 115631
Client ID: ZZZZZZ	Batch ID: 62459	TestNo: SM2540C		Analysis Date: 6/7/2017	SeqNo: 2663338
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Total Dissolved Solids (Residue, Filtera	4345.000	50			4340 0.115 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			

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 20-Jun-17

CLIENT:	CH2M HILL	Client Sample ID:	SC-700B-WDR-559
Lab Order:	N024499	Collection Date:	6/6/2017 12:46:00 PM
Project:	PG&E Topock, 680375.02.IM.OP.00	Matrix:	WATER
Lab ID:	N024499-002		

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

TOTAL METALS BY ICP
EPA 200.7

RunID: NV00922-ICP2_170613C	QC Batch: 62507		PrepDate	6/12/2017	Analyst: CEI
Aluminum	ND	2.7	50	µg/L	1 6/13/2017 03:51 PM
Boron	1200	38	100	µg/L	1 6/13/2017 03:51 PM
Iron	68	1.8	20	µg/L	1 6/13/2017 03:51 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		


ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES
Serving Clients with Passion and Professionalism™
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:702.307.2697
 3151 W. Post Rd., Las Vegas, NV 89118
 ELAP Cert 2676 | NV Cert NV00922
 ORELAP/NELAP Cert 4046

CLIENT: CH2M HILL
Work Order: N024499
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID MB-62507	SampType: MBLK	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 6/12/2017	RunNo: 115751
Client ID: PBW	Batch ID: 62507	TestNo: EPA 200.7		Analysis Date: 6/13/2017	SeqNo: 2666210
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Aluminum	5.688	50			
Boron	ND	100			
Iron	17.944	20			

Sample ID LCS-62507	SampType: LCS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 6/12/2017	RunNo: 115751
Client ID: LCSW	Batch ID: 62507	TestNo: EPA 200.7		Analysis Date: 6/13/2017	SeqNo: 2666211
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Aluminum	10371.258	50	10000	0	104	85	115			
Boron	5043.187	100	5000	0	101	85	115			
Iron	113.323	20	100.0	0	113	85	115			

Sample ID N024499-002D-MS	SampType: MS	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 6/12/2017	RunNo: 115751
Client ID: ZZZZZZ	Batch ID: 62507	TestNo: EPA 200.7		Analysis Date: 6/13/2017	SeqNo: 2666215
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Aluminum	10420.266	50	10000	0	104	75	125			
Boron	6437.036	100	5000	1160	106	75	125			
Iron	119.739	20	100.0	68.20	51.5	75	125			S

Sample ID N024499-002D-MSD	SampType: MSD	TestCode: 200.7_WPGE	Units: µg/L	Prep Date: 6/12/2017	RunNo: 115751
Client ID: ZZZZZZ	Batch ID: 62507	TestNo: EPA 200.7		Analysis Date: 6/13/2017	SeqNo: 2666216
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Aluminum	10460.121	50	10000	0	105	75	125	10420	0.382	20	
Boron	6438.130	100	5000	1160	106	75	125	6437	0.0170	20	
Iron	119.698	20	100.0	68.20	51.5	75	125	119.7	0.0342	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			

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: 20-Jun-17

CLIENT:	CH2M HILL	Client Sample ID:	SC-100B-WDR-559
Lab Order:	N024499	Collection Date:	6/6/2017 12:40:00 PM
Project:	PG&E Topock, 680375.02.IM.OP.00	Matrix:	WATER
Lab ID:	N024499-001		

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

TOTAL METALS BY ICPMS

EPA 200.8

RunID: NV00922-ICP7_170612C	QC Batch: 62493	PrepDate	6/9/2017	Analyst: CEI		
Manganese	5.7	0.056	0.50	µg/L	1	6/12/2017 08:03 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		



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Serving Clients with Passion and Professionalism™

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:702.307.2697
3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 20-Jun-17

CLIENT:	CH2M HILL	Client Sample ID:	SC-700B-WDR-559
Lab Order:	N024499	Collection Date:	6/6/2017 12:46:00 PM
Project:	PG&E Topock, 680375.02.IM.OP.00	Matrix:	WATER
Lab ID:	N024499-002		

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

TOTAL METALS BY ICPMS
EPA 200.8

RunID: NV00922-ICP7_170612C	QC Batch: 62493	PrepDate	6/9/2017	Analyst: CEI
Antimony	ND	0.031	0.50	µg/L
Arsenic	ND	0.025	0.10	µg/L
Barium	12	0.070	1.0	µg/L
Copper	ND	0.26	1.0	µg/L
Lead	ND	0.037	1.0	µg/L
Manganese	2.5	0.056	0.50	µg/L
Molybdenum	23	0.039	0.50	µg/L
Nickel	ND	0.040	1.0	µg/L
Zinc	ND	0.27	10	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		


ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES
Serving Clients with Passion and Professionalism™
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:702.307.2697
 3151 W. Post Rd., Las Vegas, NV 89118
 ELAP Cert 2676 | NV Cert NV00922
 ORELAP/NELAP Cert 4046

CLIENT: CH2M HILL
Work Order: N024499
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	MB-62493	SampType:	MBLK	TestCode:	200.8_W	Units:	µg/L	Prep Date:	6/9/2017	RunNo:	115743		
Client ID:	PBW	Batch ID:	62493	TestNo:	EPA 200.8			Analysis Date:	6/12/2017	SeqNo:	2666002		
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									
Chromium	ND	0.50									
Copper	ND	1.0									
Manganese	ND	0.50									
Molybdenum	0.127	0.50									
Nickel	ND	1.0									
Zinc	ND	10									

Sample ID	LCS-62493	SampType:	LCS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	6/9/2017	RunNo:	115743		
Client ID:	LCSW	Batch ID:	62493	TestNo:	EPA 200.8			Analysis Date:	6/12/2017	SeqNo:	2666003		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Antimony	8.973	0.50	10.00	0	89.7	85	115				
Arsenic	9.937	0.10	10.00	0	99.4	85	115				
Barium	92.100	1.0	100.0	0	92.1	85	115				
Chromium	9.932	0.50	10.00	0	99.3	85	115				
Copper	9.975	1.0	10.00	0	99.7	85	115				
Manganese	92.432	0.50	100.0	0	92.4	85	115				
Molybdenum	9.459	0.50	10.00	0	94.6	85	115				
Nickel	10.068	1.0	10.00	0	101	85	115				
Zinc	92.936	10	100.0	0	92.9	85	115				

Sample ID	N024499-001C-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	6/9/2017	RunNo:	115743		
Client ID:	ZZZZZZ	Batch ID:	62493	TestNo:	EPA 200.8			Analysis Date:	6/12/2017	SeqNo:	2666009		
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			


ASSET LABORATORIES
ANALYTICAL SERVICES FOR PROJECTS OF ENVIRONMENTAL SIGNIFICANCE

Serving Clients with Passion and Professionalism™

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: 702.307.2697
 3151 W. Post Rd., Las Vegas, NV 89118
 ELAP Cert 2676 | NV Cert NV00922
 ORELAP/NELAP Cert 4046

CLIENT: CH2M HILL
Work Order: N024499
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	N024499-001C-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	6/9/2017	RunNo:	115743
Client ID:	ZZZZZZ	Batch ID:	62493	TestNo:	EPA 200.8			Analysis Date:	6/12/2017	SeqNo:	2666009
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	9.476	0.50	10.00	0.04028	94.4	75	125				
Arsenic	12.644	0.10	10.00	2.782	98.6	75	125				
Barium	123.914	1.0	100.0	25.67	98.2	75	125				
Copper	4.598	1.0	10.00	0	46.0	75	125				S
Manganese	91.341	0.50	100.0	5.746	85.6	75	125				
Molybdenum	32.086	0.50	10.00	20.92	112	75	125				
Nickel	8.567	1.0	10.00	0	85.7	75	125				
Zinc	78.525	10	100.0	0	78.5	75	125				

Sample ID	N024499-001C-MSD	SampType:	MSD	TestCode:	200.8_W	Units:	µg/L	Prep Date:	6/9/2017	RunNo:	115743
Client ID:	ZZZZZZ	Batch ID:	62493	TestNo:	EPA 200.8			Analysis Date:	6/12/2017	SeqNo:	2666010
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	8.767	0.50	10.00	0.04028	87.3	75	125	9.476	7.77	20	
Arsenic	12.278	0.10	10.00	2.782	95.0	75	125	12.64	2.94	20	
Barium	113.641	1.0	100.0	25.67	88.0	75	125	123.9	8.65	20	
Copper	4.327	1.0	10.00	0	43.3	75	125	4.598	6.06	20	S
Manganese	93.015	0.50	100.0	5.746	87.3	75	125	91.34	1.82	20	
Molybdenum	31.655	0.50	10.00	20.92	107	75	125	32.09	1.35	20	
Nickel	8.366	1.0	10.00	0	83.7	75	125	8.567	2.37	20	
Zinc	79.225	10	100.0	0	79.2	75	125	78.52	0.887	20	

Sample ID	MB-62493	SampType:	MBLK	TestCode:	200.8_W	Units:	µg/L	Prep Date:	6/9/2017	RunNo:	115753
Client ID:	PBW	Batch ID:	62493	TestNo:	EPA 200.8			Analysis Date:	6/13/2017	SeqNo:	2666294
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	ND	1.0									

Qualifiers:

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

CLIENT: CH2M HILL
Work Order: N024499
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID	N024499-001C-MS	SampType:	MS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	6/9/2017	RunNo:	115753
Client ID:	ZZZZZZ	Batch ID:	62493	TestNo:	EPA 200.8			Analysis Date:	6/13/2017	SeqNo:	2666299
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Lead	9.120	1.0	10.00	0	91.2	75	125				
------	-------	-----	-------	---	------	----	-----	--	--	--	--

Sample ID	N024499-001C-MSD	SampType:	MSD	TestCode:	200.8_W	Units:	µg/L	Prep Date:	6/9/2017	RunNo:	115753
Client ID:	ZZZZZZ	Batch ID:	62493	TestNo:	EPA 200.8			Analysis Date:	6/13/2017	SeqNo:	2666300
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Lead	9.219	1.0	10.00	0	92.2	75	125	9.120	1.08	20
------	-------	-----	-------	---	------	----	-----	-------	------	----

Sample ID	LCS-62493	SampType:	LCS	TestCode:	200.8_W	Units:	µg/L	Prep Date:	6/9/2017	RunNo:	115753
Client ID:	LCSW	Batch ID:	62493	TestNo:	EPA 200.8			Analysis Date:	6/13/2017	SeqNo:	2666311
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Lead	9.863	1.0	10.00	0	98.6	85	115			
------	-------	-----	-------	---	------	----	-----	--	--	--

Qualifiers:

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

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 20-Jun-17

CLIENT:	CH2M HILL	Client Sample ID:	SC-100B-WDR-559
Lab Order:	N024499	Collection Date:	6/6/2017 12:40:00 PM
Project:	PG&E Topock, 680375.02.IM.OP.00	Matrix:	WATER
Lab ID:	N024499-001		

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

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: NV00922-IC7_170607A	QC Batch: R115632	PrepDate	Analyst: RAB
Hexavalent Chromium	530 6.6	20 µg/L	100 6/7/2017 10:25 AM

TOTAL METALS BY ICPMS
EPA 200.8

RunID: NV00922-ICP7_170612C	QC Batch: 62493	PrepDate	6/9/2017	Analyst: CEI
Chromium	520 0.096	5.0 µg/L	5	6/12/2017 08:08 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		


ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES
Serving Clients with Passion and Professionalism™

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:702.307.2697
 3151 W. Post Rd., Las Vegas, NV 89118
 ELAP Cert 2676 | NV Cert NV00922
 ORELAP/NELAP Cert 4046

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 20-Jun-17

CLIENT:	CH2M HILL	Client Sample ID:	SC-700B-WDR-559
Lab Order:	N024499	Collection Date:	6/6/2017 12:46:00 PM
Project:	PG&E Topock, 680375.02.IM.OP.00	Matrix:	WATER
Lab ID:	N024499-002		

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

HEXAVALENT CHROMIUM BY IC
EPA 218.6

RunID: NV00922-IC7_170607A	QC Batch: R115632	PrepDate	Analyst: RAB
Hexavalent Chromium	ND	0.33	1.0
		µg/L	5
			6/7/2017 02:09 PM

TOTAL METALS BY ICPMS
EPA 200.8

RunID: NV00922-ICP7_170612C	QC Batch: 62507	PrepDate	6/12/2017	Analyst: CEI
Chromium	ND	0.019	1.0	
		µg/L	1	
				6/12/2017 08:31 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		


ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES
Serving Clients with Passion and Professionalism™
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:702.307.2697
 3151 W. Post Rd., Las Vegas, NV 89118
 ELAP Cert 2676 | NV Cert NV00922
 ORELAP/NELAP Cert 4046

CLIENT: CH2M HILL
Work Order: N024499
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	MB-62493	SampType:	MBLK	TestCode:	200.8_W_CR	Units:	µg/L	Prep Date:	6/9/2017	RunNo:	115743		
Client ID:	PBW	Batch ID:	62493	TestNo:	EPA 200.8			Analysis Date:	6/12/2017	SeqNo:	2666063		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		ND		1.0									

Sample ID	LCS-62493	SampType:	LCS	TestCode:	200.8_W_CR	Units:	µg/L	Prep Date:	6/9/2017	RunNo:	115743		
Client ID:	LCSW	Batch ID:	62493	TestNo:	EPA 200.8			Analysis Date:	6/12/2017	SeqNo:	2666064		
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	N024499-001C-MS	SampType:	MS	TestCode:	200.8_W_CR	Units:	µg/L	Prep Date:	6/9/2017	RunNo:	115753		
Client ID:	ZZZZZZ	Batch ID:	62493	TestNo:	EPA 200.8			Analysis Date:	6/13/2017	SeqNo:	2666277		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		534.339		5.0	10.00	516.0	183	75	125				S

Sample ID	N024499-001C-MSD	SampType:	MSD	TestCode:	200.8_W_CR	Units:	µg/L	Prep Date:	6/9/2017	RunNo:	115753		
Client ID:	ZZZZZZ	Batch ID:	62493	TestNo:	EPA 200.8			Analysis Date:	6/13/2017	SeqNo:	2666278		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		537.226		5.0	10.00	516.0	212	75	125	534.3	0.539	20	S

Qualifiers:

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

CLIENT: CH2M HILL
Work Order: N024499
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID	MB-R115632	SampType:	MBLK	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	115632			
Client ID:	PBW	Batch ID:	R115632	TestNo:	EPA 218.6			Analysis Date:	6/7/2017	SeqNo:	2661563			
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-R115632	SampType:	LCS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	115632			
Client ID:	LCSW	Batch ID:	R115632	TestNo:	EPA 218.6			Analysis Date:	6/7/2017	SeqNo:	2661564			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 4.949 0.20 5.000 0 99.0 90 110

Sample ID	N024499-001BMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	115632			
Client ID:	ZZZZZZ	Batch ID:	R115632	TestNo:	EPA 218.6			Analysis Date:	6/7/2017	SeqNo:	2661570			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 1057.350 20 500.0 532.5 105 90 110

Sample ID	N024499-001BMSD	SampType:	MSD	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	115632			
Client ID:	ZZZZZZ	Batch ID:	R115632	TestNo:	EPA 218.6			Analysis Date:	6/7/2017	SeqNo:	2661571			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 1054.130 20 500.0 532.5 104 90 110 1057 0.305 20

Sample ID	N024498-001ADUP	SampType:	DUP	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	115632			
Client ID:	ZZZZZZ	Batch ID:	R115632	TestNo:	EPA 218.6			Analysis Date:	6/7/2017	SeqNo:	2661574			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Hexavalent Chromium 2.490 0.20 2.519 1.18 20

Qualifiers:

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

CLIENT: CH2M HILL
Work Order: N024499
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID	N024499-002CMS	SampType:	MS	TestCode:	218.6_WU_P	Units:	µg/L	Prep Date:		RunNo:	115632	
Client ID:	ZZZZZZ	Batch ID:	R115632	TestNo:	EPA 218.6			Analysis Date:	6/7/2017	SeqNo:	2661582	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium		4.913	1.0	5.000	0	98.3	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		

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: 20-Jun-17

CLIENT:	CH2M HILL	Client Sample ID:	SC-100B-WDR-559
Lab Order:	N024499	Collection Date:	6/6/2017 12:40:00 PM
Project:	PG&E Topock, 680375.02.IM.OP.00	Matrix:	WATER
Lab ID:	N024499-001		

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

TURBIDITY

SM 2130B

RunID: NV00922-WC_170607B	QC Batch: R115630	PrepDate	Analyst: LR
Turbidity	0.22 0.10 0.10	NTU	1 6/7/2017 10:50 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		



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Serving Clients with Passion and Professionalism™

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:702.307.2697
3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: 20-Jun-17

CLIENT:	CH2M HILL	Client Sample ID:	SC-700B-WDR-559
Lab Order:	N024499	Collection Date:	6/6/2017 12:46:00 PM
Project:	PG&E Topock, 680375.02.IM.OP.00	Matrix:	WATER
Lab ID:	N024499-002		

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

TURBIDITY

SM 2130B

RunID: NV00922-WC_170607B	QC Batch: R115630	PrepDate	Analyst: LR
Turbidity	0.24 0.10 0.10	NTU	1 6/7/2017 10:50 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		



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Serving Clients with Passion and Professionalism™

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:702.307.2697
3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

CLIENT: CH2M HILL
Work Order: N024499
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID MB-R115630	SampType: MBLK	TestCode: 2130_W	Units: NTU	Prep Date:	RunNo: 115630
Client ID: PBW	Batch ID: R115630	TestNo: SM 2130B		Analysis Date: 6/7/2017	SeqNo: 2661469
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Turbidity ND 0.10

Sample ID N024499-002BDUP	SampType: DUP	TestCode: 2130_W	Units: NTU	Prep Date:	RunNo: 115630
Client ID: ZZZZZZ	Batch ID: R115630	TestNo: SM 2130B		Analysis Date: 6/7/2017	SeqNo: 2661472
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Turbidity 0.230 0.10 0.2400 4.26 30

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 IN PROCESS FOR ENVIRONMENTAL TECHNOLOGIES

Serving Clients with Passion and Professionalism™

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: 702.307.2697
 3151 W. Post Rd., Las Vegas, NV 89118
 ELAP Cert 2676 | NV Cert NV00922
 ORELAP/NELAP Cert 4046

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 20-Jun-17

CLIENT:	CH2M HILL	Client Sample ID:	SC-700B-WDR-559
Lab Order:	N024499	Collection Date:	6/6/2017 12:46:00 PM
Project:	PG&E Topock, 680375.02.IM.OP.00	Matrix:	WATER
Lab ID:	N024499-002		

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

ANIONS BY ION CHROMATOGRAPHY
EPA 300.0

RunID: NV00922-IC8_170608A	QC Batch: R115671	PrepDate	Analyst: RAB
Fluoride	2.4 0.017	0.50	mg/L 5 6/8/2017 05:27 PM

ANIONS BY ION CHROMATOGRAPHY
EPA 300.0

RunID: NV00922-IC8_170608A	QC Batch: R115671	PrepDate	Analyst: RAB
Sulfate	500 0.64	25	mg/L 50 6/8/2017 02:08 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		


ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES
Serving Clients with Passion and Professionalism™

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:702.307.2697
 3151 W. Post Rd., Las Vegas, NV 89118
 ELAP Cert 2676 | NV Cert NV00922
 ORELAP/NELAP Cert 4046

CLIENT: CH2M HILL
Work Order: N024499
Project: PG&E Topock, 680375.02.IM.OP.00

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

Sample ID	MB-R115671_F	SampType:	MBLK	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	115671			
Client ID:	PBW	Batch ID:	R115671	TestNo:	EPA 300.0			Analysis Date:	6/8/2017	SeqNo:	2663209			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride ND 0.10

Sample ID	LCS-R115671_F	SampType:	LCS	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	115671		
Client ID:	LCSW	Batch ID:	R115671	TestNo:	EPA 300.0			Analysis Date:	6/8/2017	SeqNo:	2663210		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride 1.217 0.10 1.250 0 97.3 90 110

Sample ID	N024499-002BDUP	SampType:	DUP	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	115671			
Client ID:	ZZZZZZ	Batch ID:	R115671	TestNo:	EPA 300.0			Analysis Date:	6/8/2017	SeqNo:	2663224			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride 2.463 0.50 2.441 0.897 20

Sample ID	N024499-002BMS	SampType:	MS	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	115671		
Client ID:	ZZZZZZ	Batch ID:	R115671	TestNo:	EPA 300.0			Analysis Date:	6/8/2017	SeqNo:	2663227		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride 8.608 0.50 6.250 2.441 98.7 80 120

Sample ID	N024499-002BMSD	SampType:	MSD	TestCode:	300_W_FPG	Units:	mg/L	Prep Date:		RunNo:	115671			
Client ID:	ZZZZZZ	Batch ID:	R115671	TestNo:	EPA 300.0			Analysis Date:	6/8/2017	SeqNo:	2663228			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Fluoride 8.605 0.50 6.250 2.441 98.6 80 120 8.608 0.0290 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 THE CONSTRUCTION INDUSTRY

Serving Clients with Passion and Professionalism™

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: 702.307.2697
3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

CLIENT: CH2M HILL
Work Order: N024499
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	MB-R115671_SO4	SampType:	MBLK	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	115671			
Client ID:	PBW	Batch ID:	R115671	TestNo:	EPA 300.0			Analysis Date:	6/8/2017	SeqNo:	2663305			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 0.174 0.50

Sample ID	LCS-R115671_SO4	SampType: LCS	TestCode: 300_W_SO4P	Units: mg/L	Prep Date:	RunNo: 115671					
Client ID: LCSW	Batch ID: R115671	TestNo: EPA 300.0	Analysis Date: 6/8/2017	SeqNo: 2663306							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 3.936 0.50 4.000 0 98.4 90 110

Sample ID	N024516-001CMS	SampType:	MS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	115671			
Client ID:	ZZZZZZ	Batch ID:	R115671	TestNo:	EPA 300.0			Analysis Date:	6/8/2017	SeqNo:	2663317			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 600.465 25 200.0 395.0 103 80 120

Sample ID	N024516-001CMSD	SampType:	MSD	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	115671			
Client ID:	ZZZZZZ	Batch ID:	R115671	TestNo:	EPA 300.0			Analysis Date:	6/8/2017	SeqNo:	2663318			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 598.475 25 200.0 395.0 102 80 120 600.5 0.332 20

Sample ID	N024516-001CDUP	SampType:	DUP	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	115671			
Client ID:	ZZZZZZ	Batch ID:	R115671	TestNo:	EPA 300.0			Analysis Date:	6/8/2017	SeqNo:	2663319			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate 394.580 25 395.0 0.108 20

Qualifiers:

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

ASSET Laboratories
ANALYTICAL RESULTS
Print Date: 20-Jun-17

CLIENT:	CH2M HILL	Client Sample ID:	SC-700B-WDR-559
Lab Order:	N024499	Collection Date:	6/6/2017 12:46:00 PM
Project:	PG&E Topock, 680375.02.IM.OP.00	Matrix:	WATER
Lab ID:	N024499-002		

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

NITRATE/NITRITE-N BY CADMIUM REDUCTION
SM4500-NO3F

RunID: NV00922-WC_170619F	QC Batch: R115850	PrepDate	Analyst: RB
Nitrate/Nitrite as N	3.0 0.11	0.25 mg/L	5 6/19/2017

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
Serving Clients with Passion and Professionalism™

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:702.307.2697
 3151 W. Post Rd., Las Vegas, NV 89118
 ELAP Cert 2676 | NV Cert NV00922
 ORELAP/NELAP Cert 4046

CLIENT: CH2M HILL
Work Order: N024499
Project: PG&E Topock, 680375.02.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R115850	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	115850			
Client ID:	PBW	Batch ID:	R115850	TestNo:	SM4500-NO3			Analysis Date:	6/19/2017	SeqNo:	2669885			
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-R115850	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	115850			
Client ID:	LCSW	Batch ID:	R115850	TestNo:	SM4500-NO3			Analysis Date:	6/19/2017	SeqNo:	2669886			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate/Nitrite as N 0.492 0.050 0.5000 0 98.4 85 115

Sample ID	N024516-002DDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	115850			
Client ID:	ZZZZZZ	Batch ID:	R115850	TestNo:	SM4500-NO3			Analysis Date:	6/19/2017	SeqNo:	2669888			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate/Nitrite as N 2.946 0.25 2.838 3.75 20

Sample ID	N024516-002DMS	SampType: MS	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 115850						
Client ID:	ZZZZZZ	Batch ID: R115850	TestNo: SM4500-NO3		Analysis Date: 6/19/2017	SeqNo: 2669889						
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate/Nitrite as N 4.880 0.25 2.500 2.838 81.7 75 125

Sample ID	N024516-002DMSD	SampType: MSD	TestCode: 4500N03F_W	Units: mg/L	Prep Date:	RunNo: 115850					
Client ID:	ZZZZZZ	Batch ID: R115850	TestNo: SM4500-NO3		Analysis Date: 6/19/2017	SeqNo: 2669890					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Nitrate/Nitrite as N 5.095 0.25 2.500 2.838 90.3 75 125 4.880 4.31 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 | | | |

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-559 Turnaround Time 10 Days Shipping Date: COC Number: 559				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			4°C
				Filtered:		NA	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) F-, SO4		CONDUCTIVITY (E120.1)		E218.6 Lab Filtered	Nitrate/Nitrite (SM4500NO3-E)	TDS (SM2540C)	Total Metals (E200.8) and E200.8)			Total Metals (E200.8) Cr & Mn
DATE	TIME	Matrix												Number of Containers	COMMENTS		
SC-100B-WDR-559		Water			X	X		X		X		X	N024499 - 01	3			
SC-700B-WDR-559		Water	X	X	X	X	X	X	X	X		X	- 02	4			
TOTAL NUMBER OF CONTAINERS													7				

Signatures		Date/Time	Shipping Details		ATTN: Sample Custody and Marion Cartin	Special Instructions: SC-700B Total metals List: Cr,Al,Sb,As,Ba,B,Cu,Pb,Mn,Mo,Ni,Fe,Zn Report Copy to Doug Scott (970) 731-0636
Approved by		6-6-17 12:00	Method of Shipment: FedEx			
Sampled by		06-06-17 12:30	On Ice: <input checked="" type="checkbox"/> yes <input type="checkbox"/> no 54°C			
Relinquished by		06-06-17 15:20	Airbill No: ICE IRA#2			
Received by		6/6/17 15:20	Lab Name: ASSET Laboratories			
Relinquished by		6/6/17 17:48	Lab Phone: (702) 307-2659			
Received by		6/6/17 17:48				

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: 6/6/2017 Workorder: N024499
 Rep sample Temp (Deg C): 5.4 IR Gun ID: 2
 Temp Blank: ☒ Yes ☐ No
 Carrier name: ASSET
 Last 4 digits of Tracking No.: NA Packing Material Used: None
 Cooling process: ☒ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

- | | | | |
|---|---|--|---|
| 1. Shipping container/cooler in good condition? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/> |
| 2. Custody seals intact, signed, dated on shipping container/cooler? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 3. Custody seals intact on sample bottles? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 4. Chain of custody present? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 5. Sampler's name present in COC? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 6. Chain of custody signed when relinquished and received? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 7. Chain of custody agrees with sample labels? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 8. Samples in proper container/bottle? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 9. Sample containers intact? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 10. Sufficient sample volume for indicated test? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 11. All samples received within holding time? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| 12. Temperature of rep sample or Temp Blank within acceptable limit? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| 13. Water - VOA vials have zero headspace? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| 14. Water - pH acceptable upon receipt?
Example: pH > 12 for (CN,S); pH<2 for Metals | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> | NA <input type="checkbox"/> |
| 15. Did the bottle labels indicate correct preservatives used? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |
| 16. Were there Non-Conformance issues at login? | 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 taken from labels.
 Samples for Hex Cr were lab filtered and preserved with Ammonium Buffer.
 Samples for Total Metals and NO3/Ammonia were lab preserved with HNO3 and H2SO4 respectively.

Checklist Completed By: YR YR 6/8/2017

Reviewed By: TH 6/09/2017

**ASSET Laboratories**

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

www.atl-labs.com

TEL: 7023072659

FAX: 7023072691

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

QC Level: Level IV**Subcontractor:**

Truesdail
3337 Michelson Drive, Suite CN750
Irvine, CA 92612

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

Field Sampler: SIGNED

08-Jun-17

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests		
				SM4500-NH3D		
N024499-002A / SC-700B-WDR-559	Water	6/6/2017 12:46:00 PM	16OZP	1		

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

Please use PO#:N24499A 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 #: 536431997

	Date/Time		Date/Time
Relinquished by: <u> </u>	<u>6/8/2017 17:00</u>	Received by: <u> </u>	<u> </u>
Relinquished by: <u> </u>	<u> </u>	Received by: <u> </u>	<u> </u>

List of Analyst

ASSET Laboratories Work Order: **N024499**

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

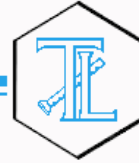


ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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

Project Number: NO24499

Work Order No.: 17F0178

Printed: 06/23/2017

CASE NARRATIVE

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

The sample was received and delivered with the chain of custody on June 9, 2017, intact and in chilled condition. The sample will be kept in a locked refrigerator for 30 days; thereafter will be kept in warm storage for additional 2 months before disposal.

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

SAMPLE RECEIPT SUMMARY

Sample ID	Laboratory ID	Matrix	Type	Date Sampled	Date Received
N024499-002A / SC-700B-WDR-559	17F0178-01	Water		06/06/2017 12:46	06/09/2017 09:45

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
Project Number: NO24499

Printed: 06/23/2017

N024499-002A / SC-700B-WDR-559
17F0178-01 (Water)

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

Truesdail Laboratories, Inc

Wet Chemistry

Ammonia	ND	0.0500	mg/L	1	1706282	06/15/2017 13:05	Alexander Luna	SM 4500-NH3 D M	
---------	----	--------	------	---	---------	------------------	----------------	-----------------	--



Client: Advanced Technology Laboratories-N
Project Name: ATL-NV
Project Number: NO24499

Printed: 06/23/2017

QUALITY CONTROL
Wet Chemistry
Truesdail Laboratories, Inc

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

Batch: 1706282 - SM 4500-NH3 D M

Blank (1706282-BLK1)

Prepared & Analyzed: 6/15/2017

Ammonia ND 0.0500 mg/L

LCS (1706282-BS1)

Prepared & Analyzed: 6/15/2017

Ammonia 0.428 0.0500 mg/L 0.400 107 90-110

Duplicate (1706282-DUP1)

Source: 17F0079-01

Prepared & Analyzed: 6/15/2017

Ammonia 0.516 0.0500 mg/L 0.531 3 20

Matrix Spike (1706282-MS1)

Source: 17F0082-01

Prepared & Analyzed: 6/15/2017

Ammonia 0.521 0.0500 mg/L 0.400 0.0913 107 75-125

Matrix Spike Dup (1706282-MSD1)

Source: 17F0082-01

Prepared & Analyzed: 6/15/2017

Ammonia 0.521 0.0500 mg/L 0.400 0.0913 107 75-125 0.1 20

ANALYSIS DATA SHEET

Inorganics

Client: Advanced Technology Laboratories-NV
Client Sample ID: N024499-002A / SC-700B-WDR-559
Lab Sample ID: 17F0178-01
Project: ATL-NV

Date Sampled: 06/06/17 12:46 Matrix: Water

CAS NO.	Analyte	Concentration (mg/L)	MDL	RL	DF	Q	Analyst	Analyzed	Method
7664-41-7	Ammonia	ND	0.0111	0.0500	1		AxL	06/15/17 13:05	SM 4500-NH3 D M

METHOD BLANK DATA SHEET

SM 4500-NH3 D M

Client: Advanced Technology Laboratories-NV

Project: ATL-NV

Laboratory ID: 1706282-BLK1

Prepared: 06/15/17 07:57

Preparation: SM 4500-NH3 D M

Matrix: Water

Analyzed: 06/15/17 11:04

Instrument: TL01

File ID: 7F14001-029

Batch: 1706282

Sequence: 7F14001

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: 17F0178

Matrix: Water **Prep Method:** SM 4500-NH3 D M
Prep Batch: 1706282 **Lab Sample ID:** 1706282-BS1

ANALYTE	SPIKE ADDED (mg/L)	LCS CONCENTRATION (mg/L)	LCS % REC.	QC LIMITS REC.
Ammonia	0.400	0.428	107	90 - 110

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

Matrix Spike

Client: Advanced Technology Laboratories-NV
Project: ATL-NV
Work Order: 17F0178

Matrix: Water
Prep Batch: 1706282
Analysis Method: SM 4500-NH3 D M
Prep Method: SM 4500-NH3 D M
Laboratory ID: 1706282-MS1
Source Sample ID: 17F0082-01

ANALYTE	SPIKE ADDED (mg/L)	SAMPLE CONCENTRATION (mg/L)	MS CONCENTRATION (mg/L)	MS % REC.	QC LIMITS REC.
Ammonia	0.400	0.0913	0.521	107	75 - 125

ANALYTE	SPIKE ADDED (mg/L)	MSD CONCENTRATION (mg/L)	MSD % REC. #	% RPD	QC LIMITS RPD	REC.
Ammonia	0.400	0.521	107	0.1	20	75 - 125

* Values outside of QC limits

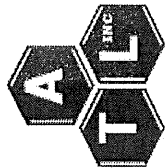
DUPLICATES

Duplicate

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

Matrix: Water Laboratory ID: 1706282-DUP1
 Prep Batch: 1706282 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	0.531	0.516	3		20



ASSET Laboratories

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

17F0178

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Subcontractor:

Truesdail
3337 Michelson Drive, Suite CN750
Irvine, CA 92612

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

QC Level: Level IV

Field Sampler: SIGNED

08-Jun-17

Sample ID	Matrix	Date Collected	Bottle Type	SM4500-NH3D	Requested Tests
N024499-002A / SC-700B-WDR-559	Water	6/6/2017 12:46:00 PM	16OZP	1	

ALERT!!
Level IV QC

General Comments:

Please email sample receipt acknowledgement to the PM.

Please use PO# N24499A 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 #: 536431997

Relinquished by:	Date/Time	Received by:	Date/Time
<i>BA</i>	6/8/2017 17:00	<i>f Brown</i>	6/8/17 9:45
Relinquished by:		Received by:	

2.8°C

Log-in check list For level III data package

Client:

ATL

Lab Number:

17F0178

Received Date:

6/9/17

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:

J. Brown

ALERT !!
Level IV QC

WORK ORDER

Printed: 6/9/17 10:53:57AM

17F0178

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: 06/20/2017 16:30 (7 day TAT)

Received By: Jacqueline Brown

Date Received: 06/09/2017 09:45

Logged In By: Jacqueline Brown

Date Logged In: 06/09/2017 10:47

Samples Received at: 2.8°C
Chain of Custody rece Yes Samples intact? Yes
Letter (if sent) matche No Custody seals (if any) No
Requested analyses ac Yes Analyses within hold t Yes
Samples received in a Yes

Analysis	Due	TAT	Expires	Comments
----------	-----	-----	---------	----------

17F0178-01 N024499-002A / SC-700B-WDR-559 [Water] Sampled 06/06/2017
12:46 (GMT-08:00) Pacific Time (US &

Ammonia E	06/20/2017 08:00	7	07/04/2017 12:46	
-----------	------------------	---	------------------	--

Reviewed By

Date

Page 1 of 1

Page 23 of 30