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April 15, 2015

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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 First Quarter 2015 Monitoring Report PG&E Topock Compressor Station, Needles, California Interim Measure No. 3 Groundwater Treatment System (Document ID: PGE20150415A)

Dear Ms. Innis and Mr. Perdue:

Enclosed is the First Quarter 2015 Monitoring Report for the Pacific Gas and Electric Company (PG&E) Topock Compressor Station, Interim Measure No. 3 (IM-3) Groundwater Treatment System.

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

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

The IM-3 groundwater extraction and treatment system has extracted and treated approximately 17,097,717 gallons of water and removed approximately 6,418 pounds of total chromium from August 1, 2005 through March 31, 2015.

Pamela S. Innis Robert Perdue April 15, 2015 Page 2

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,

func

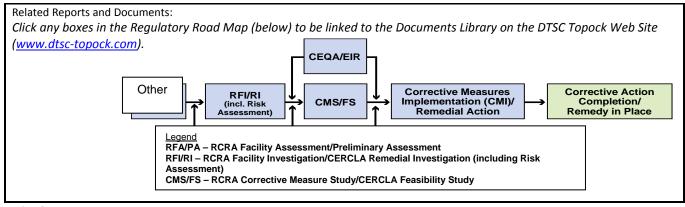
Curt Russell Topock Site Manager

Enclosures:

Topock IM-3 First Quarter 2015 Monitoring Report

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

Topock Project Executive Abstract									
Document Title:	Date of Document: April 15, 2015								
Topock IM-3 First Quarter 2015 Monitoring Report	Who Created this Document?: (i.e. PG&E, DTSC, DOI, Other)								
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Interior and Regional Water Quality Control Board	Document ID Number:								
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Priority Status: HIGH MED LOW Is this time critical? Yes No Type of Document: Draft Report Letter Memo Other / Explain: Other / Explain: Draft Draft Draft Draft	Action Required: Information Only Review & Comment Return to: By Date: Other / Explain:								
What does this information pertain to? Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA)/Preliminary Assessment (PA) RCRA Facility Investigation (RFI)/Remedial Investigation (RI) (including Risk Assessment) Corrective Measures Study (CMS)/Feasibility Study (FS) Corrective Measures Implementation (CMI)/Remedial Action California Environmental Quality Act (CEQA)/Environmental Impact Report (EIR) Interim Measures Other / Explain:	Is this a Regulatory Requirement? Yes No If no, why is the document needed?								
What is the consequence of NOT doing this item? What is the consequence of DOING this item?	Other Justification/s: Permit Other / Explain:								
Submittal of this report is a compliance requirement of the ARARs for waste discharge as documented in Attachment A to the Letter Agreement issued July 26, 2011.									
Quarter 2015 period. The groundwater monitoring results for CW-2M/D, CW-3M/D, and CW-4M/D will be submitted under Program. Written by: PG&E									
Recommendations: This report is for your information only.									
How is this information related to the Final Remedy or Regulatory R The Topock IM-3 First Quarter 2015 Monitoring Report is rela IM-3 groundwater treatment system as authorized by the U.S Applicable or Relevant and Appropriate Requirements (ARAR issued July 26, 2011 from the Colorado River Basin Regional V and the subsequent Letter of Concurrence issued August 18, Other requirements of this information?	ated to the Interim Measure. PG&E is currently operating the 5. Department of the Interior (DOI) Waste Discharge s) as documented in Attachment A to the Letter Agreement Water Quality Control Board (Regional Water Board) to DOI,								
None.									



Version 9

First Quarter 2015 Monitoring Report Interim Measure No. 3 Groundwater Treatment System

Document ID: PGE20150415A

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

April 15, 2015

CH2MHILL.

155 Grand Avenue, Suite 800 Oakland, CA 94612

First Quarter 2015 Monitoring Report for Interim Measure No. 3 Groundwater Treatment System

PG&E Topock Compressor Station Needles, California

Prepared for

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

on behalf of

Pacific Gas and Electric Company

April 15, 2015

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



Dennis Fink, P.E. Project Engineer

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Appendix

A First Quarter 2015 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
IW	injection well
MRP	Monitoring and Reporting Program
PG&E	Pacific Gas and Electric Company
PST	Pacific Standard Time
Regional Water Board	Colorado River Basin Regional Water Quality Control Board
RO	reverse osmosis
Truesdail	Truesdail Laboratories, Inc.
WDR	Waste Discharge Requirements

Introduction

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

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

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

This report covers monitoring activities related to operation of the IM-3 groundwater treatment system during the First Quarter 2015. The groundwater monitoring results for wells OW-1S/M/D, OW-2S/M/D, OW-5S/M/D, CW-1M/D, CW-2M/D, CW-3M/D, and CW-4M/D will be submitted under separate cover, as part of the Compliance Monitoring Program.

Sampling Station Locations

Table 1 lists the locations of sampling stations. (All tables are located at the end of this report.) Sampling station locations are shown on the process and instrumentation diagrams (Figures TP-PR-10-10-04, PR-10-03, PR-10-04 and TP-PR-10-10-06) provided at the end of this report.

Description of Activities

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

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

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

During the First Quarter 2015, extraction wells TW-3D and PE-1 operated at a target pumping rate of 135 gallons per minute (gpm), excluding periods of planned and unplanned downtime. Extraction well TW-2D was operated on March 10, 2015. Extraction well TW-2S was not operated during First Quarter 2015. The recorded operational run time for the IM-3 groundwater extraction system (combined or individual pumping), by month, was approximately:

- 97.1 percent during January 2015
- 99.9 percent during February 2015
- 96.0 percent during March 2015

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

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

Activities during the First Quarter 2015 are detailed in Section 4.

Groundwater Treatment System Flow Rates

The First Quarter 2015 treatment system monthly average flow rates (influent, effluent, and reverse osmosis concentrate) are presented in Table 2.

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

The IM-3 facility treated approximately 17,097,717 gallons of extracted groundwater during the First Quarter 2015. The IM-3 facility also treated approximately 150 gallons of water generated from the groundwater monitoring program and approximately 9,000 gallons of injection well backwashing/ re-development water.

Eight containers of solids (sludge) were transported offsite from the IM-3 facility during First Quarter 2015.

Periods of planned and unplanned extraction system downtime (that, together, resulted in approximately 2.4 percent downtime during First Quarter 2015) are summarized below. The times shown are in Pacific Standard Time (PST) to be consistent with other data collected (for example, water level data) at the site.

4.1 January 2015

During January 2015, 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-2D and TW-2S were not operated during January 2015. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 97.1 percent during the January 2015 reporting period.

The IM-3 facility treated approximately 5,839,161 gallons of extracted groundwater during January 2015. The IM-3 facility treated 2,700 gallons of injection well backwashing/re-development. Two containers of solids from the IM No. 3 facility were transported offsite during January 2015.

Periods of planned and unplanned extraction system downtime (that together resulted in approximately 2.9 percent downtime during January 2015) are summarized below. The times shown are in PST to be consistent with other data collected (for example, water level data) at the site.

- January 5, 2015 (unplanned): The extraction well system was offline from 1:20 a.m. to 3:08 a.m. due to the failure of a belt on the air compressor. Extraction system downtime was 1 hour, 48 minutes.
- January 7, 2015 (planned): The extraction well system was offline from 2:40 p.m. to 2:42 p.m., 2:50 p.m. to 2:52 p.m., 3:00 p.m. to 3:02 p.m., 3:08 p.m. to 3:10 p.m., 3:12 p.m. to 3:14 p.m., 3:16 p.m. to 3:18 p.m., and 3:22 p.m. to 3:24 p.m. due to testing of critical alarms and leak detection system. Extraction system downtime was 14 minutes.
- January 10, 2015 (unplanned): The extraction well system was offline from 12:42 a.m. to 1:56 a.m., 2:44 a.m. to 3:46 a.m., and 4:10 a.m. to 7:00 a.m. to clean the microfilter and process drain tank (T-900) strainers and adjust pH levels in the flow to the treated water storage tank (T-700). Extraction system downtime was 5 hours, 6 minutes.
- January 15, 2015 (unplanned): The extraction well system was offline from 3:16 a.m. to 3:38 a.m. and 4:04 a.m. to 4:22 a.m. due to high-level alarms in the reverse osmosis feed tank (T-600). Extraction system downtime was 40 minutes.

- January 16, 2015 (unplanned): The extraction well system was offline from 2:22 a.m. to 2:26 a.m. due to the shutdown of the air compressor. Extraction system downtime was 4 minutes.
- January 21, 2015 (unplanned): The extraction well system was offline from 8:54 a.m. to 7:52 p.m. and 8:12 p.m. to 9:50 p.m. to replace the microfilter actuator valve and a seal in the recirculation pump (P-501). Extraction system downtime was 12 hours, 36 minutes.
- January 31, 2015 (unplanned): The extraction well system was offline from 6:04 p.m. to 7:06 p.m. due to loss of power from the City of Needles. Extraction system downtime was 1 hour, 2 minutes.

4.2 February 2015

During February 2015, 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-2D and TW-2S were not operated during February 2015. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 99.9 percent during the February 2015 reporting period.

The IM-3 facility treated approximately 5,431,317 gallons of extracted groundwater during February 2015. The IM-3 facility treated 2,700 gallons of injection well backwashing/re-development and 150 gallons from groundwater monitoring well sampling. Two containers of solids from the IM No. 3 facility were transported offsite during February 2015.

Periods of planned and unplanned extraction system downtime (that together resulted in approximately 0.1 percent downtime during February 2015) are summarized below. The times shown are in PST to be consistent with other data collected (for example, water level data) at the site.

- February 5, 2015 (planned): The extraction well system was offline from 9:20 a.m. to 9:26 a.m., from 9:40 to 9:42 a.m., from 9:54 to 9:56 a.m., and from 10:08 to 10:10 a.m. due to testing of critical alarms and leak detection system. Extraction system downtime was 12 minutes.
- **February 5, 2015 (planned):** The extraction well system was offline from 12:58 p.m. to 1:06 p.m. to run specific capacity and injectivity tests on the injection wells. Extraction system downtime was 8 minutes.
- February 10, 2015 (unplanned): The extraction well system was offline from 10:24 a.m. to 10:52 a.m. to clean the raw water storage tank (T-100) strainer and the ferrous flow meter (FSL-201). Extraction system downtime was 28 minutes.

4.3 March 2015

During March 2015, extraction wells TW-3D and PE-1 operated at a target pump rate of 135 gpm, excluding periods of planned and unplanned downtime. Extraction well TW-2D was run for a brief time on March 10, 2015 to test a newly installed groundwater pump. Extraction well TW-2S was not operated during March 2015. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 96.0 percent during the March 2015 reporting period.

The IM-3 facility treated approximately 5,827,239 gallons of extracted groundwater during March 2015. The IM-3 facility treated 3,600 gallons of injection well backwashing/re-development. Four containers of solids from the IM No. 3 facility was transported offsite during March 2015.

Periods of planned and unplanned extraction system downtime (that together resulted in approximately 4.0 percent downtime during March 2015) are summarized below. The times shown are in PST to be consistent with other data collected (for example, water level data) at the site.

• March 8, 2015 (unplanned): The extraction well system was offline from 8:50 p.m. to 10:56 p.m. due to shutdown of the air compressor. Extraction system downtime was 2 hour, 6 minutes.

- March 10, 2015 (planned): The extraction well system was offline from 11:08 a.m. to 11:10 am, 11:16 a.m. to 11:18 am, and 11:34 a.m. to 11:36 a.m. due to testing of critical alarms and leak detection system. Extraction system downtime was 6 minutes.
- March 11, 2015 (planned): The extraction well system was offline from 5:56 a.m. to 1:04 p.m. for maintenance activities, including removal of a blockage in the piping between the chromium reduction reactor (T-300) and the first iron oxidation reactor (T-301A), installation of a new microfilter pump (P-501), repair of a microfilter pump (P-502), and repair of the clarifier feed pump (P-400). Extraction system downtime was 7 hours, 8 minutes.
- March 11, 2015 (unplanned): The extraction well system was offline from 9:34 p.m. to 9:46 a.m. due to a high-level alarm in the raw water storage tank (T-100). Extraction system downtime was 12 minutes.
- March 11, 2015 (unplanned): The extraction well system was offline from 11:16 p.m. to 11:38 p.m. due to failure of the raw water feed pump (P-200). Extraction system downtime was 22 minutes.
- March 12, 2015 (unplanned): The extraction well system was offline from 4:52 a.m. to 5:04 a.m. due to a high-level alarm in the raw water storage tank (T-100). Extraction system downtime was 12 minutes.
- March 12, 2015 (planned): The extraction well system was offline from 9:56 a.m. to 12:34 p.m. to perform maintenance at on the clarifier feed pump (P-400). Extraction system downtime was 2 hours, 38 minutes.
- March 13, 2015 (unplanned): The extraction well system was offline from 8:28 a.m. to 10:00 a.m. due to a high-level alarm in the third iron oxidation reactor (T-301C). Extraction system downtime was 1 hour, 32 minutes.
- March 13, 2015 (unplanned): The extraction well system was offline from 1:08 p.m. to 1:34 p.m. due to a high-level alarm in the third iron oxidation reactor (T-301C). Extraction system downtime was 26 minutes.
- March 14, 2015 (unplanned): The extraction well system was offline from 1:48 a.m. to 3:06 a.m. due to a high-level alarm in the third iron oxidation reactor (T-301C). Extraction system downtime was 1 hour, 18 minutes.
- March 14, 2015 (unplanned): The extraction well system was offline from 7:00 a.m. to 8:54 a.m. to repair the clarifier feed pump (P-400). Extraction system downtime was 1 hour, 54 minutes.
- March 15, 2015 (unplanned): The extraction well system was offline from 9:58 a.m. to 11:46 a.m. to change the microfilter modules. Extraction system downtime was 1 hour, 48 minutes.
- March 15, 2015 (unplanned): The extraction well system was offline from 10:54 p.m. to 11:12 p.m. due to a high-level alarm in the third iron oxidation reactor (T-301C). Extraction system downtime was 18 minutes.
- March 16, 2015 (unplanned): The extraction well system was offline from 9:20 a.m. to 3:44 p.m. to replace the clarifier feed pump (P-400). Extraction system downtime was 6 hours, 24 minutes.
- March 17, 2015 (unplanned): The extraction well system was offline from 10:28 a.m. to 11:00 a.m. due to a high-level alarm in the third iron oxidation reactor (T-301C). Extraction system downtime was 32 minutes.
- March 17-18, 2015 (unplanned): The extraction well system was offline from 11:46 p.m. on March 17, 2015 to 12:56 a.m. on March 18, 2015 due to a high level alarm in the third iron oxidation reactor (T-301C) and the raw water storage tank (T-100). Extraction system downtime was 1 hour, 10 minutes.

- March 24, 2015 (unplanned): The extraction well system was offline from 9:22 a.m. to 9:34 a.m. to clean the microfilter strainer. Extraction system downtime was 12 minutes.
- March 25, 2015 (unplanned): The extraction well system was offline from 8:22 a.m. to 8:36 a.m. and from 12:10 p.m. to 12:22 p.m. to repair the clarifier feed pump (P-400). Extraction system downtime was 26 minutes.
- March 30, 2015 (unplanned): The extraction well system was offline from 7:46 a.m. to 8:48 a.m. to change the microfilter modules. Extraction system downtime was 1 hour, 2 minutes.

Sampling and Analytical Procedures

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

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

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

During the First Quarter 2015, analysis of pH was conducted by field method pursuant to the Regional Water Board letter dated October 16, 2007 (subject: Clarification of Monitoring and Reporting Program Requirements), authorizing pH measurements to be conducted in the field. The field method pH samples were collected at the designated sampling locations and field tested within 15 minutes of sampling.

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

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

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

SECTION 6 Analytical Results

Laboratory reports for samples collected in the First Quarter 2015 were prepared by certified analytical laboratories, and are presented in Appendix A.

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

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

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

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

SECTION 7 Conclusions

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

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

SECTION 8 Certification

Certification Statement:

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

Signature:	behumn
Name:	Curt Russell
Company:	Pacific Gas and Electric Company
Title:	Topock Site Manager
Date:	April 15. 2015

Tables

TABLE 1 Sampling Station Descriptions

First Quarter 2015 Monitoring Report for Interim Measure No. 3 Groundwater Treatment System

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

Note:

= Sequential sample identification number at each sample station.

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

TABLE 2 Flow Monitoring Results

First Quarter 2015 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)
January 2015 Average Monthly Flow Rate	130.81	129.64	0.77
February 2015 Average Monthly Flow Rate	134.71	132.74	0.93
March 2015 Average Monthly Flow Rate	130.54	129.45	0.76

Notes:

^a Extraction wells TW-3D and PE-1 were operated during the First Quarter 2015. Extraction well TW-2D was operated on March 10, 2015. Extraction well TW-2S was not operated during the First Quarter 2015.

^b The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates during the First Quarter 2015 is approximately 0.43 percent.

TABLE 3 Sample Collection Dates

First Quarter 2015 Monitoring Report for Interim Measure No. 3 Groundwater Treatment System

Parameter	Sample Collection Dates	Results
Influent	January 6, 2015	See Table 4
	February 3, 2015	
	March 3, 2015	
Effluent	January 6, 2015	See Table 5
	January 13, 2015	
	January 20, 2015	
	January 27, 2015	
	February 3, 2015	
	February 10, 2015	
	February 17, 2015	
	February 24, 2015	
	March 3, 2015	
	March 10, 2015	
	March 17, 2015	
	March 24, 2015	
	March 31, 2015	
Reverse Osmosis Concentrate	January 6, 2015	See Table 6
Sludge ^a	January 6, 2015	See Table 7

Notes:

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

TABLE 4

Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs) Influent Monitoring Results ^a

First Quarter 2015 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Sampling Frequency										Мс	nthly											
Analytes Units ^b	TDS mg/L	Turbidity NTU	Specific Conductance µmhos/cm	Field ^c pH pH units	Chromium µg/L	Hexavalent Chromium µg/L	Aluminium µg/L	Ammonia (as N) mg/L	Antimony µg/L	Arsenic µg/L	Barium µg/L	Boron mg/L	Copper µg/L	Fluoride mg/L	e Lead μg/L	Manganese µg/L	Molybdenum µg/L	ι Nickel μg/L	Nitrate/Nitrite (as N) mg/L	Sulfate mg/L	lron μg/L	Zinc µg/L
MDL Sample ID Date	50.0	0.100	0.100		0.150	1.60	6.20	0.0318	0.180	0.0270	0.0300	0.0190	0.0400	0.220	0.0530	0.0260	0.150	0.0320	0.110	1.60	1.30	0.230
SC-100B-WDR-502 1/6/2015	4200	0.110	7500	7.5	580	640	ND (50.0)	ND (0.500)	ND (0.500)	3.00	24.0	0.910	ND (1.00)	6.20	ND (5.00)	ND (0.500)	21.0	ND (1.00)	2.80	480 N	D (20.0)	ND (10.0)
RL	50.0	0.100	0.100		5.00	20.0	50.0	0.500	0.500	0.100	1.00	0.100	1.00	2.00	5.00	0.500	0.500	1.00	0.250	25.0	20.0	10.0
SC-100B-WDR-506 2/3/2015	4100	0.140	6700	7.3	560	640	ND (50.0)	ND (0.500)	ND (0.500)	2.90	24.0	1.10 J	ND (1.00)	7.20	ND (5.00)	ND (0.500)	22.0	ND (1.00)	2.60	480 N	D (20.0)	ND (10.0)
RL	50.0	0.100	0.100		5.00	20.0	50.0	0.500	0.500	0.100	1.00	0.100	1.00	2.00	5.00	0.500	0.500	1.00	0.250	25.0	20.0	10.0
SC-100B-WDR-510 3/3/2015	4200	0.240	8000	7.4	560	590	ND (50.0)	ND (0.500)	ND (0.500)	2.90	26.0	1.20	ND (1.00)	4.20	ND (5.00)	ND (0.500)	19.0	ND (1.00)	2.60	500 N	D (20.0)	ND (10.0)
RL	50.0	0.100	0.100		5.00	40.0	50.0	0.500	0.500	0.100	1.00	0.100	1.00	2.00	5.00	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

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.

Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs) Effluent Monitoring Results^a

Effluent Limits ^b	Ave. Monthly	NA	NA	NA	6.5-8.4	25	8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Max Daily	NA	NA	NA	6.5-8.4	50	16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Samp	ling Frequency			Weekly												Monthl	у							
	• • · ·			Specific	Field ^e		Hexavalent		Ammonia											Nitrate/				
	Analytes	TDS	Turbidity	Conductance		Chromium	Chromium	Aluminium	(as N)	Antimony	Arsenic	Barium	Boron	Copper	Fluoride	Lead	•	Molybdenum	Nickel	(as	-	Sulfate	Iron	Zinc
	Units ^c	mg/L	NTU	µmhos/cm	pH units	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	mg		mg/L	µg/L	µg/L
		50.0	0.100	0.100		0.0300	0.0150	6.20	0.0318	0.180	0.0270	0.0300	0.0190	0.0400	0.220	0.0530	0.0260	0.150	0.0320	0.1	10	1.60	1.30	0.230
Sample ID	Date																							
SC-700B-WDR-5	502 1/6/2015	4100	0.180	7500	7.47	ND (1.00)	ND (0.200)	ND (50.0)	ND (0.500)	ND (0.500)	ND (0.100) 15.0	0.890	ND (1.00).	J 6.40	ND (5.00) ND (0.500)J	21.0	2.00	2.0	60	460	ND (20.0)) ND (10.0
RL		50.0	0.100	0.100		1.00	0.200	50.0	0.500	0.500	0.100	1.00	0.100	1.00	2.00	5.00	0.500	0.500	1.00	0.2	250	25.0	20.0	10.0
SC-700B-WDR-5	503 1/13/2015	4000	0.140	6700	7.41	ND (1.00)	ND (0.200)										ND (0.500)J			-				
RL		50.0	0.100	0.100		1.00	0.200										0.500			-				
SC-700B-WDR-5	504 1/20/2015	4000	ND (0.100)	6700	7.26	ND (1.00)	ND (0.200)										ND (0.500)J			-				
RL		50.0	0.100	0.100		1.00	0.200										0.500			-				
SC-700B-WDR-5	505 1/27/2015	3800	0.220	6700	6.76	ND (1.00)	ND (0.200)										5.50			-				
RL		50.0	0.100	0.100		1.00	0.200										0.500			-				
SC-700B-WDR-5	506 2/3/2015	4100	0.240	6700	7.06	ND (1.00)	ND (0.200)	ND (50.0)	ND (0.500)	ND (0.500)	ND (0.100) 13.0	1.10	ND (1.00)	J 7.00 J	ND (5.00) 9.40	24.0	4.10	2.1	70	480	ND (20.0))ND (10.0)
RL		50.0	0.100	0.100		1.00	0.200	50.0	0.500	0.500	0.100	1.00	0.100	1.00	2.00	5.00	0.500	0.500	1.00	0.2	250	25.0	20.0	10.0
SC-700B-WDR-5	507 2/10/2015	4000	0.170	7000	7.00	ND (1.00)	ND (0.200)										ND (0.500)J			-				
RL		50.0	0.100	0.100		1.00	0.200										0.500			-				
SC-700B-WDR-5	508 2/17/2015	4200	0.220	7100	6.97	ND (1.00)	ND (0.200)										ND (0.500)			-				
RL		50.0	0.100	0.100		1.00	0.200										0.500			-				
SC-700B-WDR-5	509 2/24/2015	4200	0.170	6800	7.12	ND (1.00)	0.210										ND (0.500)J			-				
RL		50.0	0.100	0.100		1.00	0.200										0.500			-				
SC-700B-WDR-5	510 3/3/2015	4100	0.140	8000	7.00	ND (1.00)	ND (0.200)	ND (50.0)	ND (0.500)	ND (0.500)	ND (0.100) 10.0	1.10	ND (1.00)	J 3.80	ND (5.00) ND (0.500)J	17.0	1.00	2.1	70	480	ND (20.0)) ND (10.0
RL		50.0	0.100	0.100		1.00	0.200	50.0	0.500	0.500	0.100	1.00	0.100	1.00	2.00	5.00	0.500	0.500	1.00	0.2	250	25.0	20.0	10.0
SC-700B-WDR-5	511 3/10/2015	5500	0.130	7300	7.00	ND (1.00)	ND (0.200)										ND (0.500)			-				
RL		50.0	0.100	0.100		1.00	0.200										0.500			-				
SC-700B-WDR-5	512 3/17/2015	4400	0.140	7400	7.34	ND (1.00)	ND (0.200)										ND (0.500)			-				
RL		50.0	0.100	0.100		1.00	0.200										0.500			-				
SC-700B-WDR-5	513 3/24/2015	4300	0.160	7200	7.00	ND (1.00)	ND (0.200)										ND (0.500)J			-				
RL		50.0	0.100	0.100		1.00	0.200										0.500			-				
SC-700B-WDR-5	514 3/31/2015	4400	0.200	7300	7.21	ND (1.00)	ND (0.200)										ND (0.500)			-				
RL		50.0	0.100	0.100		1.00	0.200										0.500			-				

Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs) Effluent Monitoring Results^a *First Quarter 2015 Monitoring Report for Interim Measure No.3 Groundwater Treatment System*

NOTES:

 $\begin{array}{l} (---) = not required by the ARARs Monitoring and Reporting Program \\ J = concentration or reporting limits estimated by laboratory or validation \\ MDL = method detection limit \\ mg/L = milligrams per liter \\ N = nitrogen \\ NA = not applicable \\ ND = parameter not detected at the listed value \\ NTU = nephelometric turbidity units \\ RL = project reporting limit \\ \mu g/L = micrograms per liter \\ \mu mhos/cm = micromhos per centimeter \end{array}$

^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.

Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs) Reverse Osmosis Concentrate Monitoring Results ^a First Quarter 2015 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Sampling Frequency	у										Quarterl	у										
Analytes Units ^b	TDS mg/L	Specific Conductance µmhos/cm	Field ^c pH pH units	Chromium mg/L	Hexavalent Chromium mg/L	Antimony mg/L	Arsenic mg/L	Barium mg/L	Beryllium mg/L	Cadmium mg/L	Cobalt mg/L	Copper mg/L	Fluoride mg/L	Lead mg/L	Molybdenur mg/L	n Mercury mg/L	Nickel mg/L	Selenium mg/L	Silver mg/L	Thallium mg/L	Vanadium mg/L	Zinc mg/L
MDL Sample ID Date	200	0.100		0.000030	0.000080	0.00092	0.00013	0.00015	0.000051	0.000066	0.000017	0.00020	1.10	0.000053	0.00076	0.000015	0.00016	0.00034	0.00047	0.000040	0.00016	0.0012
SC-701-WDR-502 1/6/2015	15000	22000	8.1	0.00190	ND (0.0010) N	ID (0.0025)	0.000530	0.0570	ND (0.0025)	ND (0.0025)	0.000700	ND (0.005	0) 22.0	ND (0.0050	0) 0.0750	ND (0.00020)	0.0130	0.0140	ND (0.0025	5) ND (0.002	5) ND (0.0010)) ND (0.0500)
RL	200	0.100		0.0010	0.0010	0.0025	0.00050	0.0050	0.0025	0.0025	0.00050	0.0050	10.0	0.0050	0.0025	0.00020	0.0050	0.0025	0.0025	0.0025	0.0010	0.0500

NOTES:

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

MDL = method detection limit

mg/L = milligrams per liter

ND = parameter not detected at the listed value

RL = project reporting limit $\mu g/L$ = 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.

Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs) Sludge Monitoring Results^a First Quarter 2015 Monitoring Report for Interim Measure No.3 Groundwater Treatment System

Sampling	Frequency									(Quarterly									
Sample ID	Analytes Units ^b MDL Date	Chromium mg/kg 0.370	Hexavalent Chromium mg/kg 0.270	Antimony mg/kg 0.560	Arsenic mg/kg 0.270	Barium mg/kg 0.370	Beryllium mg/kg 0.330	Cadmium mg/kg 0.350	Cobalt mg/kg 0.370	Copper mg/kg 0.280	Fluoride mg/kg 0.630	Lead mg/kg 0.310	Molybdenum mg/kg 0.340	Mercury mg/kg 0.0110	Nickel mg/kg 0.340	Selenium mg/kg 0.450	Silver mg/kg 0.340	Thallium mg/kg 0.420	Vanadium mg/kg 0.370	Zinc mg/kg 0.350
SC-Sludge-WDR-502 RL	1/6/2015	2700 2.60	110 5.30	ND (5.30) 5.30	12.0 2.60	47.0 2.60	ND (2.60) 2.60	ND (2.60) 2.60	3.70 2.60	79.0 5.30	28.0 2.60	ND (2.60) 2.60	5.40 2.60	ND (0.260) 0.260	26.0 2.60	9.00 2.60	ND (2.60) 2.60	ND (5.30) 5.30	29.0 2.60	11.0 2.60

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.

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

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-100B	SC-100B-WDR-502	Josh Rosenberg	1/6/2015	2:20:00 PM	ASSET	EPA 120.1	SC	1/7/2015	Lilia Ramit
		-			ASSET	EPA 200.7	AL	1/12/2015	Claire Ignacio
					ASSET	EPA 200.7	В	1/12/2015	Claire Ignacio
					ASSET	EPA 200.7	FE	1/12/2015	Claire Ignacio
					ASSET	EPA 200.8	AS	1/8/2015	Claire Ignacio
					ASSET	EPA 200.8	BA	1/8/2015	Claire Ignacio
					ASSET	EPA 200.8	CR	1/8/2015	Claire Ignacio
					ASSET	EPA 200.8	CU	1/8/2015	Claire Ignacio
					ASSET	EPA 200.8	MN	1/8/2015	Claire Ignacio
					ASSET	EPA 200.8	MO	1/8/2015	Claire Ignacio
					ASSET	EPA 200.8	NI	1/8/2015	Claire Ignacio
					ASSET	EPA 200.8	PB	1/8/2015	Claire Ignacio
					ASSET	EPA 200.8	SB	1/8/2015	Claire Ignacio
					ASSET	EPA 200.8	ZN	1/8/2015	Claire Ignacio
					ASSET	EPA 218.6	CR6	1/7/2015	Ryan Balilu
					ASSET	EPA 300.0	FL	1/12/2015	Quennie Manimtim
					ASSET	EPA 300.0	SO4	1/12/2015	Quennie Manimtim
					FIELD	HACH	PH	1/6/2015	Josh Rosenberg
					ASSET	SM 2540C	TDS	1/7/2015	Lilia Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	1/16/2015	Quennie Manimtim
					ASSET	SM2130B	TRB	1/8/2015	Lilia Ramit
					TLI	SM4500NH3D	NH3N	2/3/2015	Maksim Gorbunov
SC-100B	SC-100B-WDR-506	Ron Phelps	2/3/2015	1:15:00 PM	ASSET	EPA 120.1	SC	2/4/2015	Lilia Ramit
					ASSET	EPA 200.7	AL	2/18/2015	Claire Ignacio
					ASSET	EPA 200.7	В	2/18/2015	Claire Ignacio
					ASSET	EPA 200.7	FE	2/18/2015	Claire Ignacio
					ASSET	EPA 200.7	FETD	2/11/2015	Claire Ignacio
					ASSET	EPA 200.8	AS	2/10/2015	Claire Ignacio
					ASSET	EPA 200.8	BA	2/11/2015	Claire Ignacio
					ASSET	EPA 200.8	CR	2/10/2015	Claire Ignacio
					ASSET	EPA 200.8	CU	2/10/2015	Claire Ignacio
					ASSET	EPA 200.8	MN	2/10/2015	Claire Ignacio
					ASSET	EPA 200.8	MND	2/10/2015	Claire Ignacio
					ASSET	EPA 200.8	MO	2/10/2015	Claire Ignacio
					ASSET	EPA 200.8	NI	2/10/2015	Claire Ignacio
					ASSET	EPA 200.8	PB	2/10/2015	Claire Ignacio

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

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-100B	SC-100B-WDR-506	Ron Phelps	2/3/2015	1:15:00 PM	ASSET	EPA 200.8	SB	2/10/2015	Claire Ignacio
					ASSET	EPA 200.8	ZN	2/10/2015	Claire Ignacio
					ASSET	EPA 218.6	CR6	2/4/2015	Ryan Balilu
					ASSET	EPA 300.0	FL	2/10/2015	Quennie Manimtim
					ASSET	EPA 300.0	SO4	2/10/2015	Quennie Manimtim
					FIELD	HACH	PH	2/3/2015	Josh Rosenberg
					ASSET	SM 2320B	ALKB	2/10/2015	Quennie Manimtim
					ASSET	SM 2320B	ALKC	2/10/2015	Quennie Manimtim
					ASSET	SM 2320B	HYDX	2/10/2015	Quennie Manimtim
					ASSET	SM 2540C	TDS	2/5/2015	Lilia Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	2/16/2015	Quennie Manimtim
					ASSET	SM2130B	TRB	2/4/2015	Lilia Ramit
					TLI	SM4500NH3D	NH3N	2/19/2015	Naheed Eidinejad
SC-100B	SC-100B-WDR-510	Ron Phelps	3/3/2015	1:18:00 PM	ASSET	EPA 120.1	SC	3/4/2015	Lilia Ramit
					ASSET	EPA 200.7	AL	3/16/2015	Claire Ignacio
					ASSET	EPA 200.7	В	3/16/2015	Claire Ignacio
					ASSET	EPA 200.7	FE	3/16/2015	Claire Ignacio
					ASSET	EPA 200.7	FETD	3/16/2015	Claire Ignacio
					ASSET	EPA 200.8	AS	3/6/2015	Claire Ignacio
					ASSET	EPA 200.8	BA	3/6/2015	Claire Ignacio
					ASSET	EPA 200.8	CR	3/6/2015	Claire Ignacio
					ASSET	EPA 200.8	CU	3/6/2015	Claire Ignacio
					ASSET	EPA 200.8	MN	3/6/2015	Claire Ignacio
					ASSET	EPA 200.8	MND	3/6/2015	Claire Ignacio
					ASSET	EPA 200.8	MO	3/6/2015	Claire Ignacio
					ASSET	EPA 200.8	NI	3/6/2015	Claire Ignacio
					ASSET	EPA 200.8	PB	3/6/2015	Claire Ignacio
					ASSET	EPA 200.8	SB	3/6/2015	Claire Ignacio
					ASSET	EPA 200.8	ZN	3/6/2015	Claire Ignacio
					ASSET	EPA 218.6	CR6	3/4/2015	Ryan Balilu
					ASSET	EPA 300.0	FL	3/5/2015	Quennie Manimtim
					ASSET	EPA 300.0	SO4	3/5/2015	Quennie Manimtim
					FIELD	HACH	PH	3/3/2015	R.Phelps
					ASSET	SM 2320B	ALKB	3/8/2015	Quennie Manimtim
					ASSET	SM 2320B	ALKC	3/8/2015	Quennie Manimtim
					ASSET	SM 2320B	HYDX	3/8/2015	Quennie Manimtim

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

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-100B	SC-100B-WDR-510	Ron Phelps	3/3/2015	1:18:00 PM	ASSET	SM 2540C	TDS	3/4/2015	Lilia Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	3/10/2015	Quennie Manimtim
					ASSET	SM2130B	TRB	3/4/2015	Lilia Ramit
					TLI	SM4500NH3D	NH3N	3/13/2015	Naheed Eidinejad
SC-700B	SC-700B-WDR-502	Josh Rosenberg	1/6/2015	1:00:00 PM	ASSET	EPA 120.1	SC	1/7/2015	Lilia Ramit
					ASSET	EPA 200.7	AL	1/12/2015	Claire Ignacio
					ASSET	EPA 200.7	В	1/12/2015	Claire Ignacio
					ASSET	EPA 200.7	FE	1/12/2015	Claire Ignacio
					ASSET	EPA 200.8	AS	1/8/2015	Claire Ignacio
					ASSET	EPA 200.8	BA	1/8/2015	Claire Ignacio
					ASSET	EPA 200.8	CR	1/8/2015	Claire Ignacio
					ASSET	EPA 200.8	CU	1/8/2015	Claire Ignacio
					ASSET	EPA 200.8	MN	1/8/2015	Claire Ignacio
					ASSET	EPA 200.8	MO	1/8/2015	Claire Ignacio
					ASSET	EPA 200.8	NI	1/8/2015	Claire Ignacio
					ASSET	EPA 200.8	PB	1/8/2015	Claire Ignacio
					ASSET	EPA 200.8	SB	1/8/2015	Claire Ignacio
					ASSET	EPA 200.8	ZN	1/8/2015	Claire Ignacio
					ASSET	EPA 218.6	CR6	1/7/2015	Ryan Balilu
					ASSET	EPA 300.0	FL	1/12/2015	Quennie Manimtim
					ASSET	EPA 300.0	SO4	1/12/2015	Quennie Manimtim
					FIELD	HACH	PH	1/6/2015	Josh Rosenberg
					ASSET	SM 2540C	TDS	1/7/2015	Lilia Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	1/16/2015	Quennie Manimtim
					ASSET	SM2130B	TRB	1/8/2015	Lilia Ramit
					TLI	SM4500NH3D	NH3N	2/3/2015	Maksim Gorbunov
SC-700B	SC-700B-WDR-503	Scott O Donnell	1/13/2015	12:26:00 PM	ASSET	EPA 120.1	SC	1/14/2015	Lilia Ramit/Ryan Balilu
					ASSET	EPA 200.8	CR	1/15/2015	Claire Ignacio
					ASSET	EPA 200.8	MN	1/15/2015	Claire Ignacio
					ASSET	EPA 218.6	CR6	1/14/2015	Ryan Balilu
					FIELD	HACH	PH	1/13/2015	Scott Donell
					ASSET	SM 2540C	TDS	1/14/2015	Lilia Ramit/Ryan Balilu
					ASSET	SM2130B	TRB	1/15/2015	Lilia Ramit/Ryan Balilu
SC-700B	SC-700B-WDR-504	Scott O Donnell	1/20/2015	12:51:00 PM	ASSET	EPA 120.1	SC	1/21/2015	Lilia Ramit/Ryan Balilu
					ASSET	EPA 200.8	CR	1/22/2015	Claire Ignacio

Topock IM-3 Waste Discharge Applicable or Relevant and Appropriate Requirements (ARARs) Monitoring Information *First Quarter 2015 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-504	Scott O Donnell	1/20/2015	12:51:00 PM	ASSET	EPA 200.8	MN	1/22/2015	Claire Ignacio
					ASSET	EPA 218.6	CR6	1/21/2015	Ryan Balilu
					FIELD	HACH	PH	1/20/2015	Ryan Phelps
					ASSET	SM 2540C	TDS	1/21/2015	Lilia Ramit/Ryan Balilu
					ASSET	SM2130B	TRB	1/22/2015	Ryan Balilu
SC-700B	SC-700B-WDR-505	Chris Lentz	1/27/2015	11:05:00 AM	ASSET	EPA 120.1	SC	1/28/2015	Lilia Ramit/Ryan Balilu
					ASSET	EPA 200.8	CR	2/2/2015	Claire Ignacio
					ASSET	EPA 200.8	MN	2/2/2015	Claire Ignacio
					ASSET	EPA 218.6	CR6	1/28/2015	Ryan Balilu
					FIELD	HACH	PH	1/27/2015	Chris Lentz
					ASSET	SM 2540C	TDS	2/2/2015	Lilia Ramit/Ryan Balilu
					ASSET	SM2130B	TRB	1/28/2015	Lilia Ramit/Ryan Balilu
SC-700B	SC-700B-WDR-506	Ron Phelps	2/3/2015	1:15:00 PM	ASSET	EPA 120.1	SC	2/4/2015	Lilia Ramit
					ASSET	EPA 200.7	AL	2/18/2015	Claire Ignacio
					ASSET	EPA 200.7	В	2/18/2015	Claire Ignacio
					ASSET	EPA 200.7	FE	2/18/2015	Claire Ignacio
					ASSET	EPA 200.8	AS	2/10/2015	Claire Ignacio
					ASSET	EPA 200.8	BA	2/11/2015	Claire Ignacio
					ASSET	EPA 200.8	CR	2/10/2015	Claire Ignacio
					ASSET	EPA 200.8	CU	2/10/2015	Claire Ignacio
					ASSET	EPA 200.8	MN	2/10/2015	Claire Ignacio
					ASSET	EPA 200.8	MO	2/10/2015	Claire Ignacio
					ASSET	EPA 200.8	NI	2/10/2015	Claire Ignacio
					ASSET	EPA 200.8	PB	2/10/2015	Claire Ignacio
					ASSET	EPA 200.8	SB	2/10/2015	Claire Ignacio
					ASSET	EPA 200.8	ZN	2/10/2015	Claire Ignacio
					ASSET	EPA 218.6	CR6	2/4/2015	Ryan Balilu
					ASSET	EPA 300.0	FL	2/10/2015	Quennie Manimtim
					ASSET	EPA 300.0	SO4	2/10/2015	Quennie Manimtim
					FIELD	HACH	PH	2/3/2015	Josh Rosenberg
					ASSET	SM 2540C	TDS	2/5/2015	Lilia Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	2/16/2015	Quennie Manimtim
					ASSET	SM2130B	TRB	2/4/2015	Lilia Ramit
					TLI	SM4500NH3D	NH3N	2/19/2015	Naheed Eidinejad
SC-700B	SC-700B-WDR-507	Ryan Phelps	2/10/2015	1:50:00 PM	ASSET	EPA 120.1	SC	2/11/2015	Lilia Ramit

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

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-700B	SC-700B-WDR-507	Ryan Phelps	2/10/2015	1:50:00 PM	ASSET	EPA 200.8	CR	2/12/2015	Claire Ignacio
					ASSET	EPA 200.8	MN	2/12/2015	Claire Ignacio
					ASSET	EPA 218.6	CR6	2/11/2015	Ryan Balilu
					FIELD	HACH	PH	2/10/2015	Ryan Phelps
					ASSET	SM 2540C	TDS	2/11/2015	Lilia Ramit
					ASSET	SM2130B	TRB	2/11/2015	Lilia Ramit
SC-700B	SC-700B-WDR-508	Chris Lentz	2/17/2015	12:00:00 PM	ASSET	EPA 120.1	SC	2/18/2015	Lilia Ramit
					ASSET	EPA 200.8	CR	2/20/2015	Claire Ignacio
					ASSET	EPA 200.8	MN	2/20/2015	Claire Ignacio
					ASSET	EPA 218.6	CR6	2/18/2015	Ryan Balilu
					FIELD	HACH	PH	2/17/2015	Chris Lentz
					ASSET	SM 2540C	TDS	2/18/2015	Lilia Ramit
					ASSET	SM2130B	TRB	2/18/2015	Lilia Ramit
SC-700B	SC-700B-WDR-509	Chris Lentz	2/24/2015	12:30:00 PM	ASSET	EPA 120.1	SC	2/25/2015	Lilia Ramit
					ASSET	EPA 200.8	CR	2/26/2015	Claire Ignacio
					ASSET	EPA 200.8	MN	2/26/2015	Claire Ignacio
					ASSET	EPA 218.6	CR6	2/26/2015	Ryan Balilu
					FIELD	HACH	PH	2/24/2015	Chris Lentz
					ASSET	SM 2540C	TDS	2/25/2015	Lilia Ramit
					ASSET	SM2130B	TRB	2/25/2015	Lilia Ramit
SC-700B	SC-700B-WDR-510	Ron Phelps	3/3/2015	1:15:00 PM	ASSET	EPA 120.1	SC	3/4/2015	Lilia Ramit
					ASSET	EPA 200.7	AL	3/16/2015	Claire Ignacio
					ASSET	EPA 200.7	В	3/16/2015	Claire Ignacio
					ASSET	EPA 200.7	FE	3/16/2015	Claire Ignacio
					ASSET	EPA 200.8	AS	3/6/2015	Claire Ignacio
					ASSET	EPA 200.8	BA	3/6/2015	Claire Ignacio
					ASSET	EPA 200.8	CR	3/6/2015	Claire Ignacio
					ASSET	EPA 200.8	CU	3/6/2015	Claire Ignacio
					ASSET	EPA 200.8	MN	3/6/2015	Claire Ignacio
					ASSET	EPA 200.8	MO	3/6/2015	Claire Ignacio
					ASSET	EPA 200.8	NI	3/6/2015	Claire Ignacio
					ASSET	EPA 200.8	PB	3/6/2015	Claire Ignacio
					ASSET	EPA 200.8	SB	3/6/2015	Claire Ignacio
					ASSET	EPA 200.8	ZN	3/6/2015	Claire Ignacio
					ASSET	EPA 218.6	CR6	3/4/2015	Ryan Balilu

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

_ocation	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-700B	SC-700B-WDR-510	Ron Phelps	3/3/2015	1:15:00 PM	ASSET	EPA 300.0	FL	3/5/2015	Quennie Manimtim
					ASSET	EPA 300.0	SO4	3/5/2015	Quennie Manimtim
					FIELD	HACH	PH	3/3/2015	R.Phelps
					ASSET	SM 2540C	TDS	3/4/2015	Lilia Ramit
					ASSET	SM 4500-NO3F	NO3NO2N	3/10/2015	Quennie Manimtim
					ASSET	SM2130B	TRB	3/4/2015	Lilia Ramit
					TLI	SM4500NH3D	NH3N	3/13/2015	Naheed Eidinejad
SC-700B	SC-700B-WDR-511	Ryan Phelps	3/10/2015	11:50:00 AM	ASSET	EPA 120.1	SC	3/11/2015	Lilia Ramit
					ASSET	EPA 200.8	CR	3/18/2015	Claire Ignacio
					ASSET	EPA 200.8	MN	3/18/2015	Claire Ignacio
					ASSET	EPA 218.6	CR6	3/11/2015	Ryan Balilu
					FIELD	HACH	PH	3/10/2015	Ryan Phelps
					ASSET	SM 2540C	TDS	3/16/2015	Lilia Ramit
					ASSET	SM2130B	TRB	3/11/2015	Lilia Ramit
SC-700B	SC-700B-WDR-512	Chris Lentz	3/17/2015	12:00:00 PM	ASSET	EPA 120.1	SC	3/18/2015	Lilia Ramit
					ASSET	EPA 200.8	CR	3/21/2015	Claire Ignacio
					ASSET	EPA 200.8	MN	3/21/2015	Claire Ignacio
					ASSET	EPA 218.6	CR6	3/18/2015	Ryan Balilu
					FIELD	HACH	PH	3/17/2015	Chris Lentz
					ASSET	SM 2540C	TDS	3/18/2015	Lilia Ramit
					ASSET	SM2130B	TRB	3/18/2015	Lilia Ramit
SC-700B	SC-700B-WDR-513	Ryan Phelps	3/24/2015	12:00:00 PM	ASSET	EPA 120.1	SC	3/25/2015	Lilia Ramit
					ASSET	EPA 200.8	CR	3/27/2015	Claire Ignacio
					ASSET	EPA 200.8	MN	3/27/2015	Claire Ignacio
					ASSET	EPA 218.6	CR6	3/26/2015	Ryan Balilu
					FIELD	HACH	PH	3/24/2015	Chris Lentz
					ASSET	SM 2540C	TDS	3/25/2015	Lilia Ramit
					ASSET	SM2130B	TRB	3/25/2015	Lilia Ramit
SC-700B	SC-700B-WDR-514	Josh Rosenberg	3/31/2015	1:12:00 PM	ASSET	EPA 120.1	SC	4/1/2015	Lilia Ramit
					ASSET	EPA 200.8	CR	4/2/2015	Claire Ignacio
					ASSET	EPA 200.8	MN	4/2/2015	Claire Ignacio
					ASSET	EPA 218.6	CR6	4/1/2015	Ryan Balilu
					FIELD	HACH	PH	3/31/2015	Josh Rosenberg
					ASSET	SM 2540C	TDS	4/1/2015	Lilia Ramit
					ASSET	SM2130B	TRB	4/1/2015	Lilia Ramit

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

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-701	SC-701-WDR-502	Josh Rosenberg	1/6/2015	2:20:00 PM	ASSET	EPA 120.1	SC	1/7/2015	Lilia Ramit
					ASSET	EPA 200.8	AG	1/8/2015	Claire Ignacio
					ASSET	EPA 200.8	AS	1/8/2015	Claire Ignacio
					ASSET	EPA 200.8	BA	1/8/2015	Claire Ignacio
					ASSET	EPA 200.8	BE	1/12/2015	Claire Ignacio
					ASSET	EPA 200.8	CD	1/8/2015	Claire Ignacio
					ASSET	EPA 200.8	CO	1/8/2015	Claire Ignacio
					ASSET	EPA 200.8	CR	1/8/2015	Claire Ignacio
					ASSET	EPA 200.8	CU	1/8/2015	Claire Ignacio
					ASSET	EPA 200.8	MN	1/8/2015	Claire Ignacio
					ASSET	EPA 200.8	MO	1/8/2015	Claire Ignacio
					ASSET	EPA 200.8	NI	1/8/2015	Claire Ignacio
					ASSET	EPA 200.8	PB	1/12/2015	Claire Ignacio
					ASSET	EPA 200.8	SB	1/8/2015	Claire Ignacio
					ASSET	EPA 200.8	SE	1/8/2015	Claire Ignacio
					ASSET	EPA 200.8	TL	1/12/2015	Claire Ignacio
					ASSET	EPA 200.8	V	1/8/2015	Claire Ignacio
					ASSET	EPA 200.8	ZN	1/8/2015	Claire Ignacio
					ASSET	EPA 218.6	CR6	1/7/2015	Ryan Balilu
					ASSET	EPA 245.1	HG	1/12/2015	Claire Ignacio
					ASSET	EPA 300.0	FL	1/12/2015	Quennie Manimtim
					FIELD	HACH	PH	1/6/2015	Josh Rosenberg
					ASSET	SM 2540C	TDS	1/7/2015	Lilia Ramit
Phase Separator	SC-Sludge-WDR-502	Josh Rosenberg	1/6/2015	1:40:00 PM	ASSET	EPA 300.0	FL	1/19/2015	Quennie Manimtim
					ASSET	EPA 6010B	AG	1/13/2015	Claire Ignacio
					ASSET	EPA 6010B	AS	1/13/2015	Claire Ignacio
					ASSET	EPA 6010B	BA	1/13/2015	Claire Ignacio
					ASSET	EPA 6010B	BE	1/13/2015	Claire Ignacio
					ASSET	EPA 6010B	CD	1/13/2015	Claire Ignacio
					ASSET	EPA 6010B	CO	1/13/2015	Claire Ignacio
					ASSET	EPA 6010B	CR	1/13/2015	Claire Ignacio
					ASSET	EPA 6010B	CU	1/13/2015	Claire Ignacio
					ASSET	EPA 6010B	MN	1/13/2015	Claire Ignacio
					ASSET	EPA 6010B	MO	1/13/2015	Claire Ignacio
					ASSET	EPA 6010B	NI	1/13/2015	Claire Ignacio

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

First Quarter 2015 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
Phase Separator	SC-Sludge-WDR-502	Josh Rosenberg	1/6/2015	1:40:00 PM	ASSET	EPA 6010B	PB	1/13/2015	Claire Ignacio
					ASSET	EPA 6010B	SB	1/13/2015	Claire Ignacio
					ASSET	EPA 6010B	SE	1/13/2015	Claire Ignacio
					ASSET	EPA 6010B	TL	1/13/2015	Claire Ignacio
					ASSET	EPA 6010B	V	1/13/2015	Claire Ignacio
					ASSET	EPA 6010B	ZN	1/13/2015	Claire Ignacio
					ASSET	EPA 7471A	HG	1/13/2015	Claire Ignacio
					ASSET	SW 7199	CR6	1/12/2015	Ryan Balilu

NOTES:

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

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

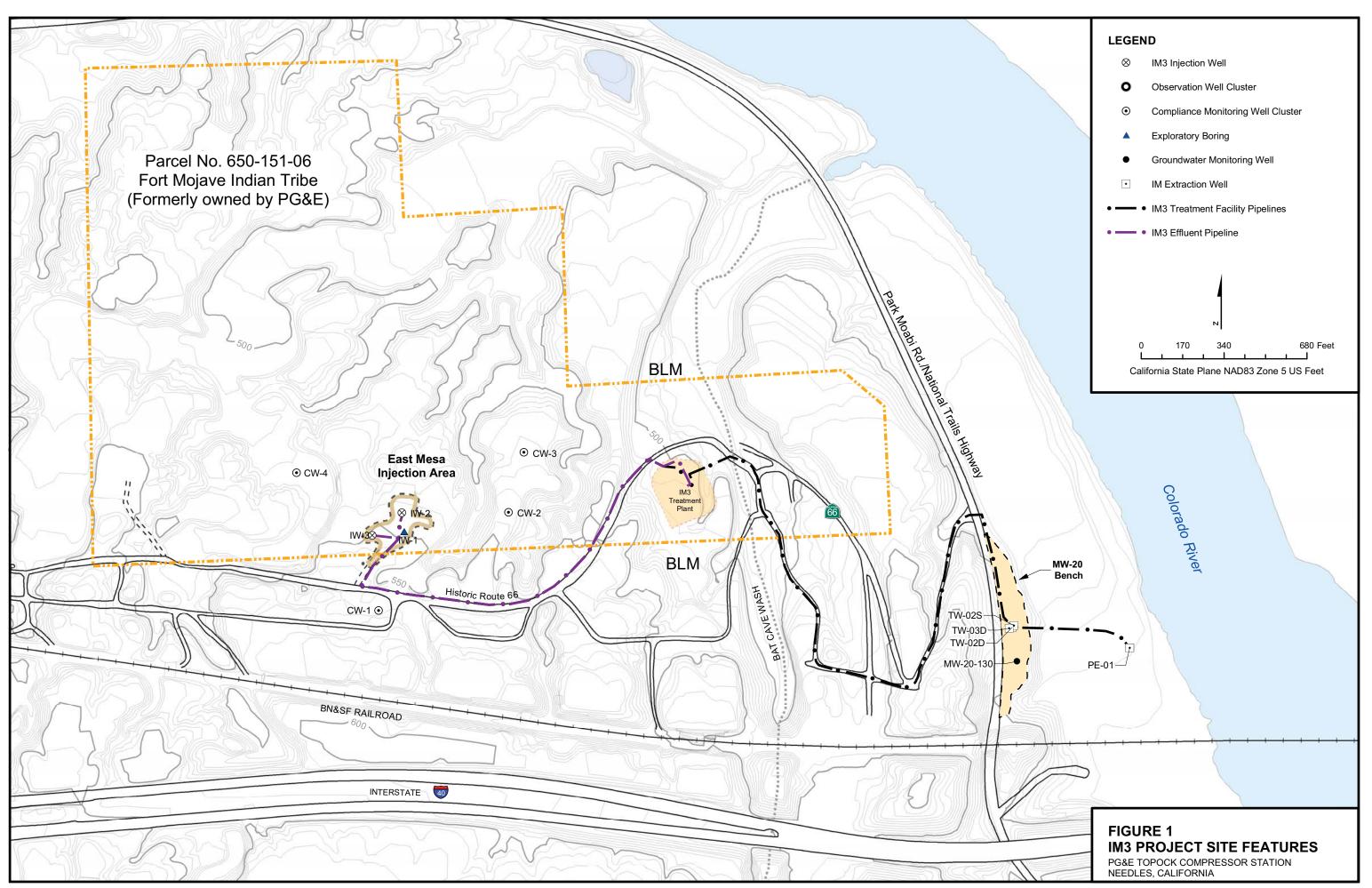
SC-701 = Sampling location for all reverse osmosis samples is tap on pipe T-701 (see attached P&ID PR-10-04).

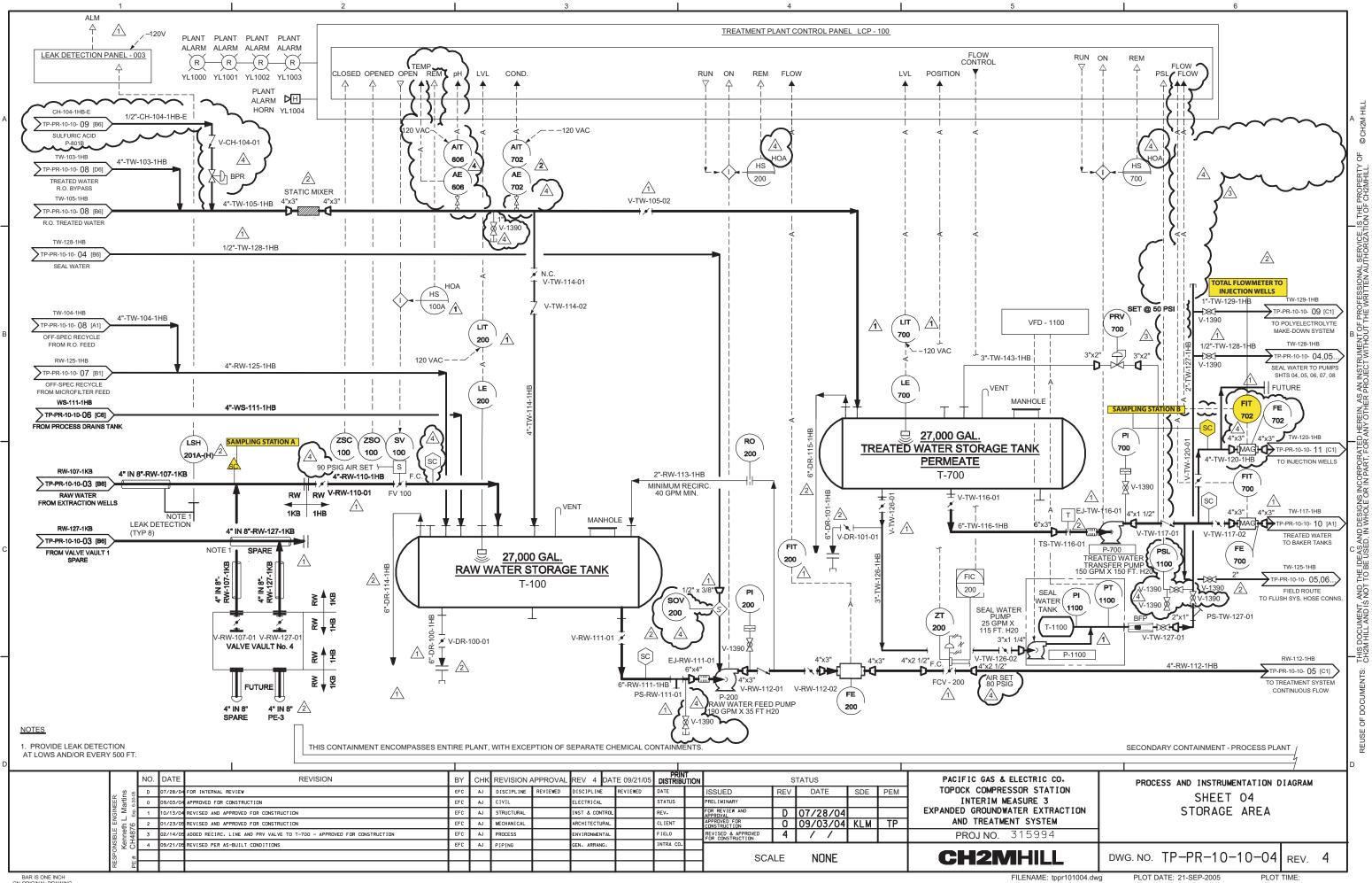
Prior to April 11, 2007 the analytical methods listed in the 40 CFR Part 136 for pH and TDS were E150.1 and E160.1, respectively. Per EPA and Department of Health Services guidelines, the analytical methods listed in the current 40 CFR Part 136 have changed to SM4500-H B and SM2540C as shown on the table.

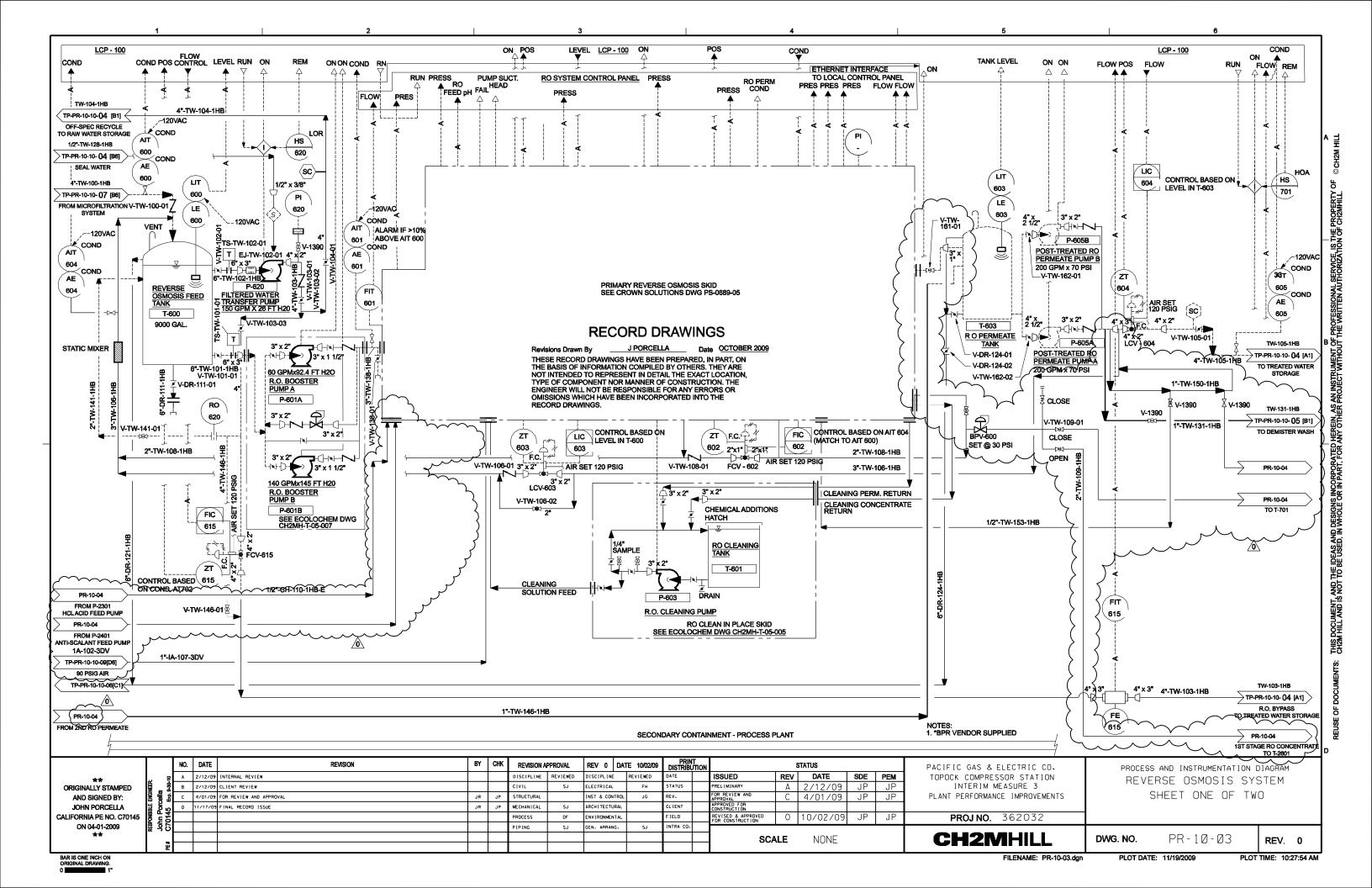
ALKB =	alkalinity, bicarb as CaCO3	MO =	molybdenum
ALKC =	alkalinity, carb as CaCO3	MOIST =	moisture
AL =	aluminum	NH3N =	ammonia (as N)
Ag =	silver	NI =	nickel
AS =	arsenic	NO3NO2N =	nitrate/nitrite (as N)
B =	boron	PB =	lead
BA =	barium	PH =	рН
BE =	beryllium	SB =	antimony
CD =	cadmium	SC =	specific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

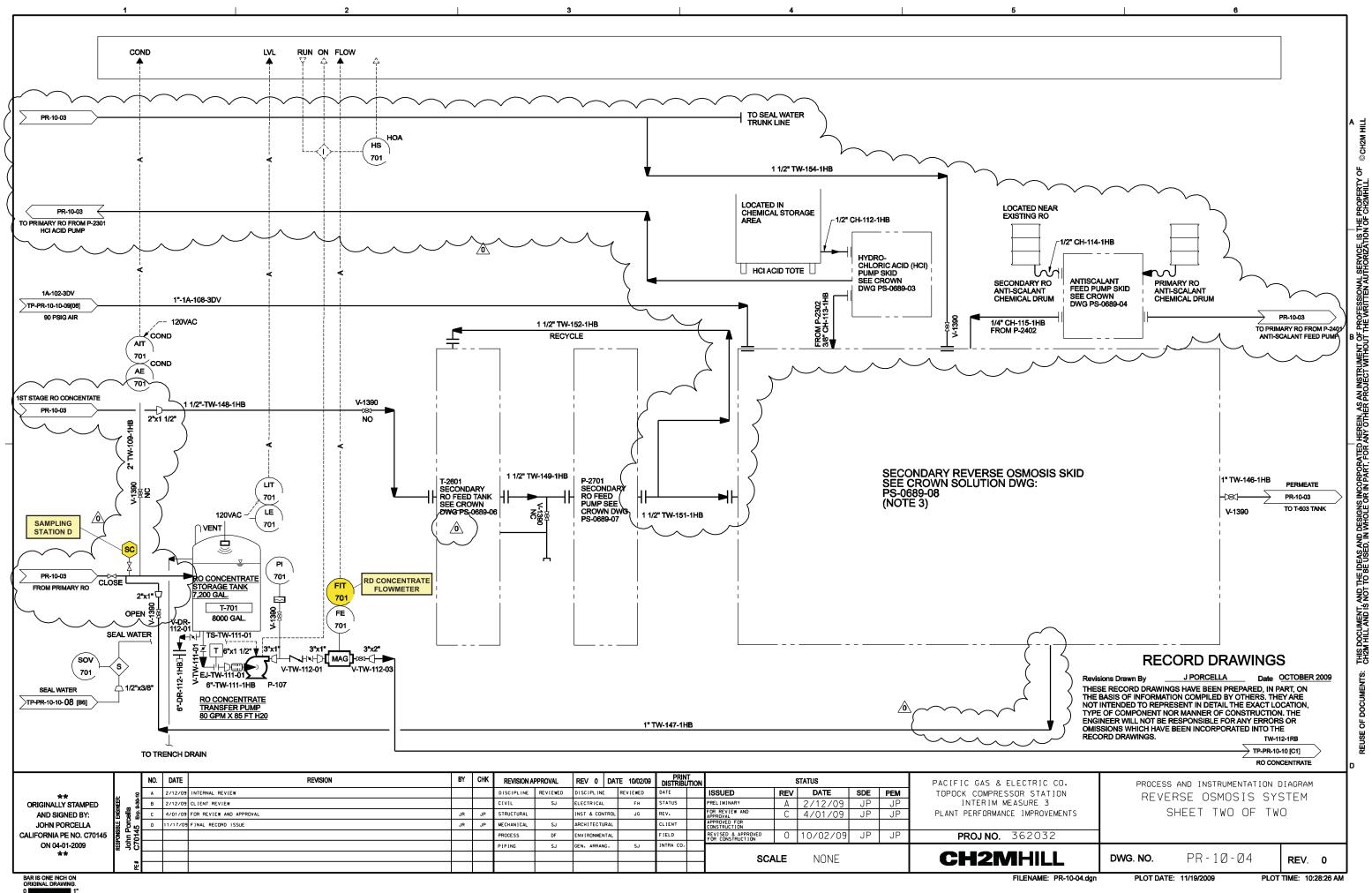
MND = manganese, dissolved

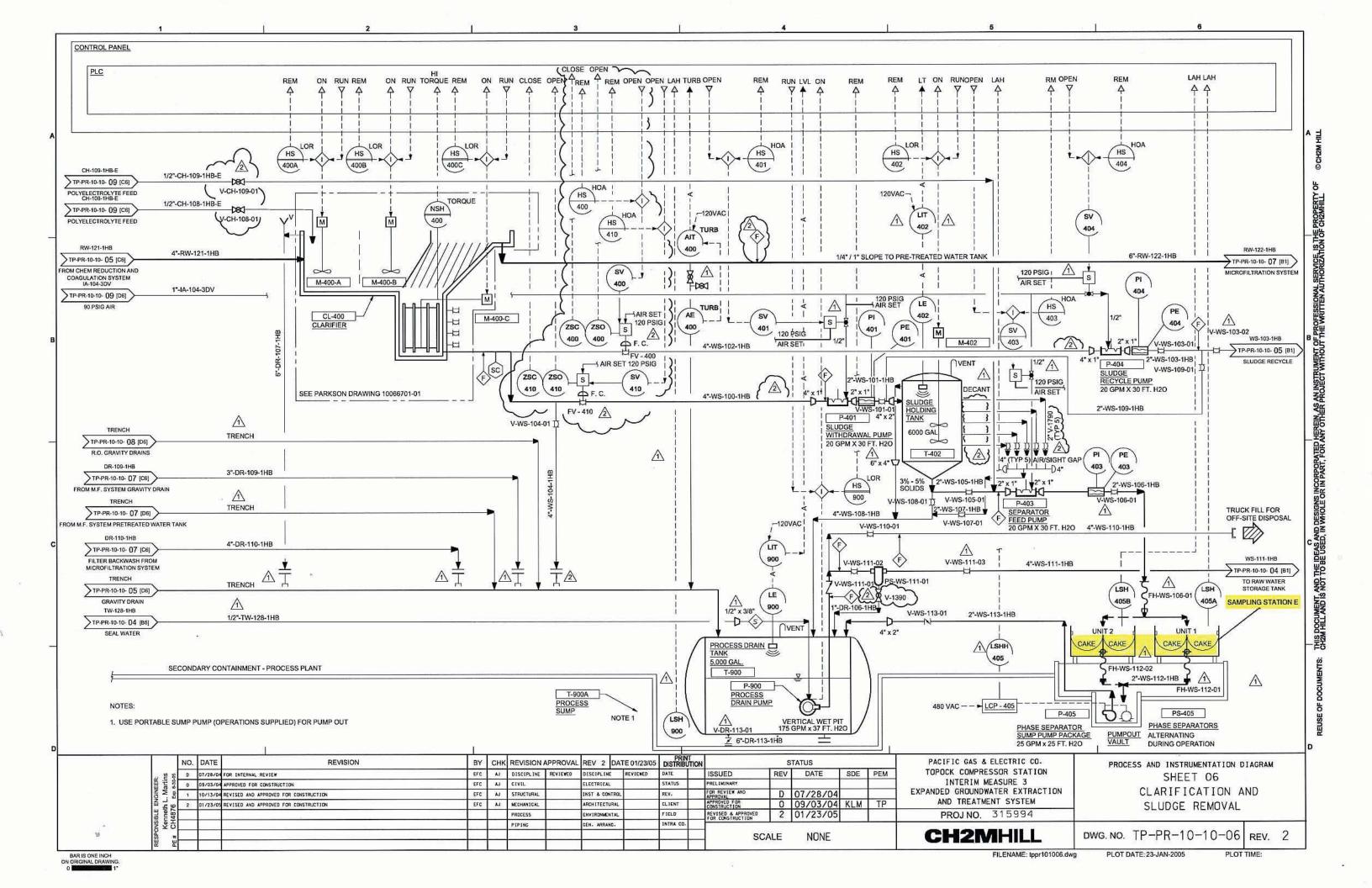
Figures

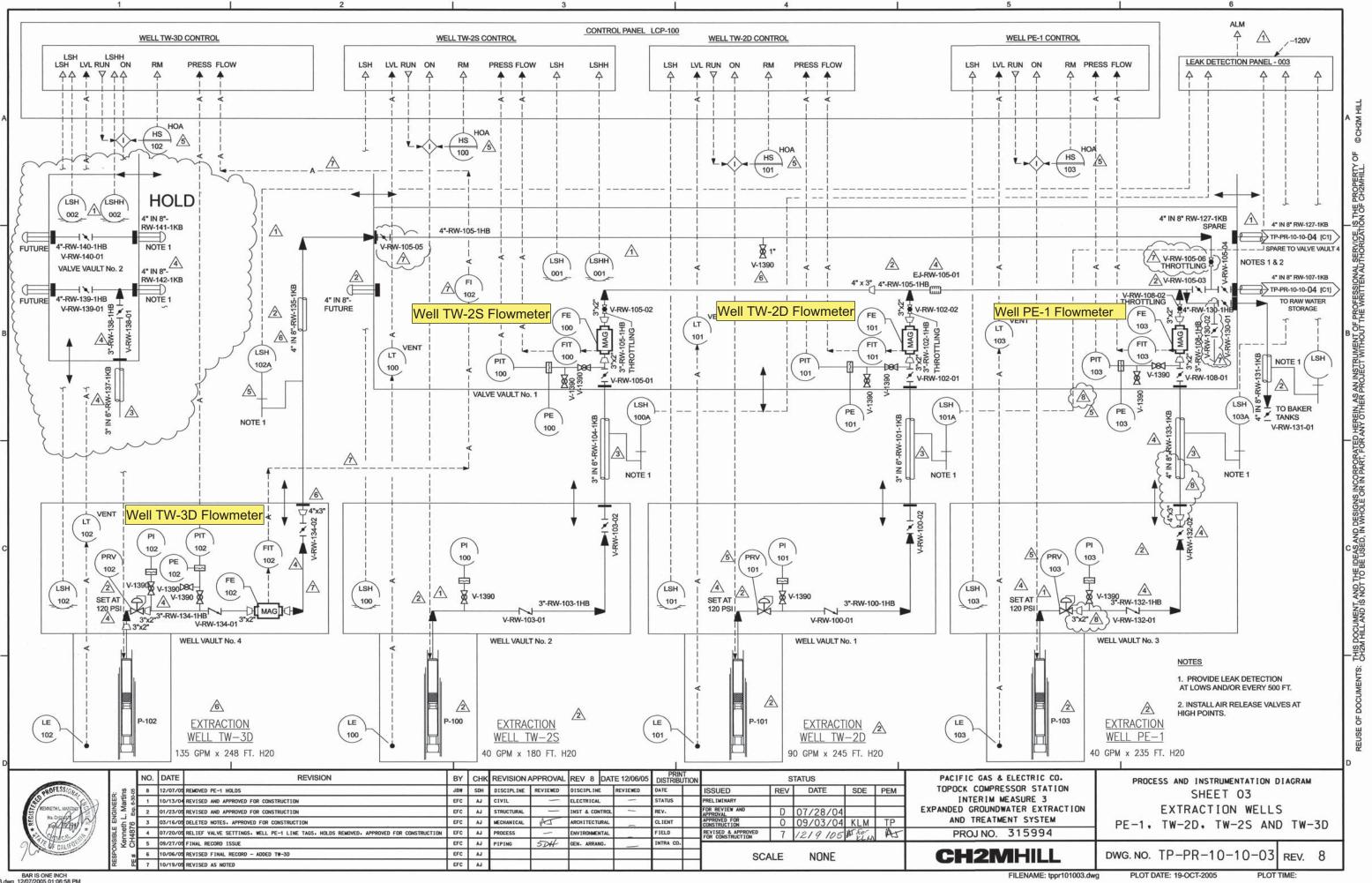


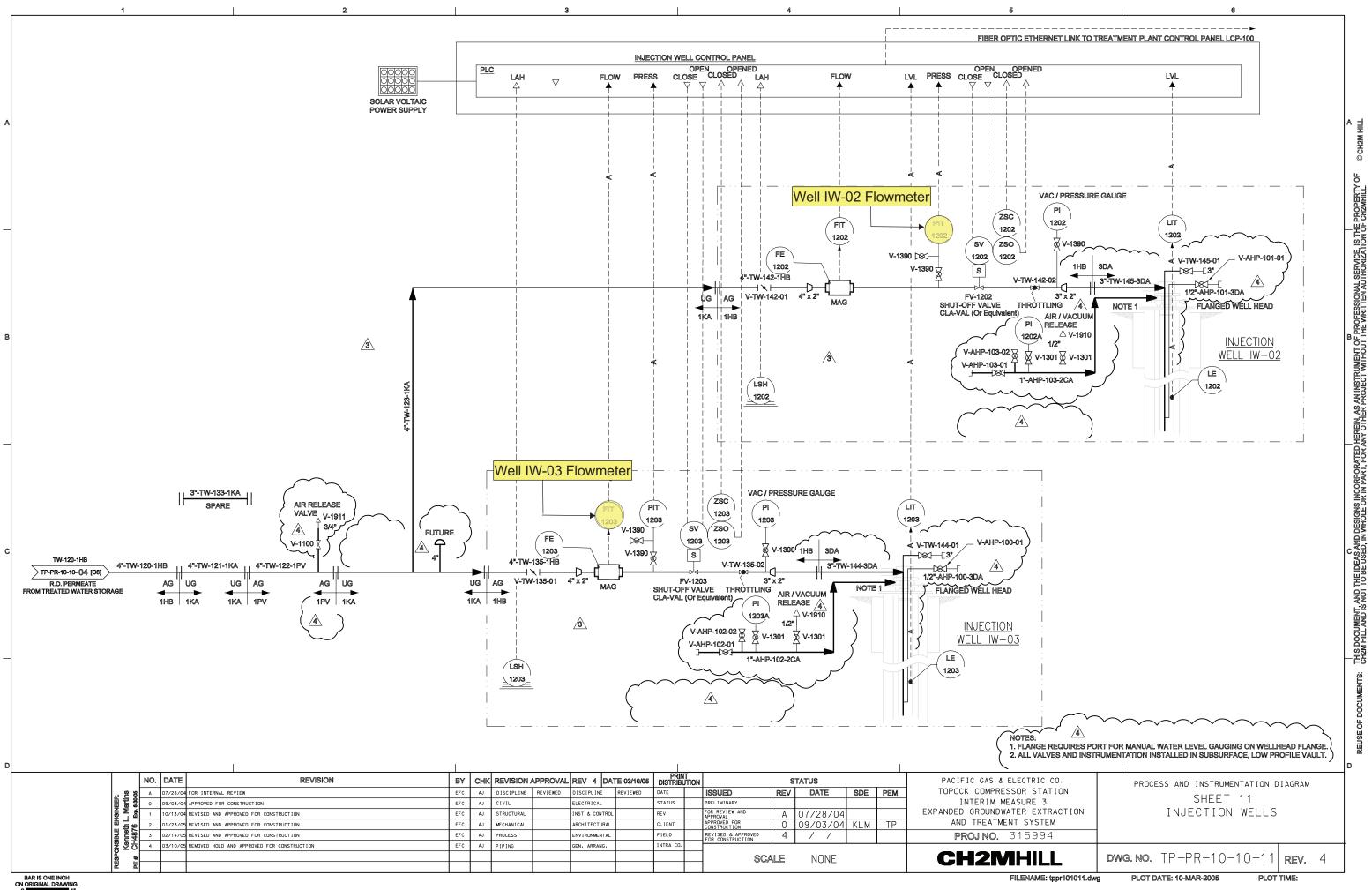












Appendix A First Quarter 2015 Laboratory Analytical Reports

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

14201 FRANKLIN AVENUE TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 www.truesdail.com

February 11, 2015

ASSET Laboratories

Mr. Marlon Cartin 3151 W Post Road Las Vegas, NV 89118

Dear Mr. Cartin:

SUBJECT: CASE NARRATIVE; PG&E TOPOCK PROJECT;

TLI NO.: 815125

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Ammonia results. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, wet chemistry raw data, quality control data and chain of custody forms are included in Sections 3 and 4.

The samples were received and delivered with the chain of custody on January 8, 2015, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter they will either be disposed or kept in warm storage for an additional 2 months.

The samples were analyzed and recorded in the raw data as SDG 15A0082 but are reported as SDG 815125 in all final report pages.

No violations or nonconformance actions occurred for this data package. If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 200.

Respectfully Submitted, TRUESPAIL LABORATORIES, INC.

Laureen Tan,

Project Manager

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

14201 FRANKLIN AVENUE TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 www.truesdail.com

Client: ASSET Laboratories 3151 W Post Road Las Vegas, NV 89118 Attention: Marlon Cartin Sample: Two (2) Water Samples Project Name: PG&E Topock Project Project No.: N/A

Laboratory No.: 815125 Date: February 11, 2015 Collected: January 6, 2015 Received: January 8, 2015

ANALYST LIST

METHOD	PARAMETER	ANALYST
SM 4500-NH3 D	Ammonia	Maksim Gorbunov
SM 4500-Si D	Soluble Silica	Jenny Tankunakorn

	viA 92780-7008 w.truesdail.com 5 y 8, 2015			s RL	0.500		lients, the public, ny advertising or
1931	11, CALIFORI 30-6462 · wv 3.: 81512 d: Januar			Units	mg/L mg/L		otection to cl in part, in a
Established 1931	14201 FRANKLIN AVENUE - TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com Laboratory No.: 815125 Date Received: January 8, 2015			Result	22		tts. As a mutual pr e used, in whole or
	14201 FRAN (714) 730-0		к	Parameter	Ammonia-N Ammonia-N		al or similar produc in that it is not to be
- -			Summary	Sample Time			arently identic
			<u>esults Su</u>	Sample Date	1/6/2015 1/6/2015		y or condition of app
	_		<u>Analytical Results</u>	Extraction Method	NONE NONE		licative of the qualit e client to whom it i
NC.			Ana	Analysis Method	SM4500NH3D SM4500NH3D	lied to all results: igures. significant figures. icant figures.	and is not necessarily inc or the exclusive use of th Laboratories.
LABORATORIES, UDENT TESTING	Client: ASSET Laboratories 3151 W Post Road Las Vegas, NV 89118 Attention: Marlon Cartin	oject No.: N/A P.O. No.: N14305A		D Field ID	SC-700B-WDR-502 SC-100B-WDR-502	ND: Non Detected (below reporting limit) mg/L: Milligrams per liter. Note: The following "Significant Figures" rule has been applied to all results: Results below 0.01ppm will have two (2) significant figures. Result above or equal to 0.01ppm will have three (3) significant figures. Quality Control data will always have three (3) significant figures.	This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from Truesdail Laboratories.
TRUESDAIL Excellence in Indepen	Clien	Project No.: N/A P.O. No.: N14		Lab Sample ID	815125-001 815125-002	NE M agu	This report applies and these laboratc publicity matter wit

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



REPORT

14201 FRANKLIN AVENUE TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 www.truesdail.com

Established 1931

Client: ASSET Laboratories 3151 W Post Road Las Vegas, NV 89118 Attention: Marlon Cartin Project Name: PG&E Topock Project Project Number: N/A P.O. Number: N14305A

Laboratory No. 815125 Page 1 of 2 Printed 2/11/2015

Samples Received on 1/8/2015 10:30:00 AM

Field ID				Lab ID	Colle	octed	Matr	iv
SC-700B-WDR-502 SC-100B-WDR-502			815125-001 815125-002		01/06/2015 01/06/2015		Water Water Water	
Ammonia Nitrogen by SI Parameter	M4500-NH	I3D Unit		02NH315A	DF	MDL	Ы	Desult
815125-001 Ammonia as N		mg/L	Analyzed 02/03/2015		····		RL 0.500	Result
815125-002 Ammonia as N		mg/L	02/03/2015			0.0318	0.500	ND ND
Method Blank				1		0.0010	0.000	
Parameter Ammonia as N Lab Control Sample	Unit mg/L	DF 1.00	Result ND					
Parameter Ammonia as N Lab Control Sample D	Unit mg/L uplicate	DF 1.00	Result 7.80	Expected 8.00	•		Accepta 90 - 110	nce Range
Parameter Ammonia as N Matrix Spike	Unit mg/L	DF 1.00	Result 7.65	Expected 8.00		Recovery Acceptance I 95.6 90 - 110 Lab ID = 81513		Ū
Parameter Ammonia as N MRCCS - Secondary	Unit mg/L	DF 1.00	Result 10.5	Expected/Adde 10.2(10.0)		covery 03	Acceptance Range 75 - 125	
Parameter Ammonia as N MRCVS - Primary	Unit mg/L	DF 1.00	Result 6.50	Expected 6.00		covery 08	Acceptance Range 90 - 110	
Parameter Ammonia as N	Unit mg/L	DF 1.00	Result 6.11	Expected 6.00		covery 02	Acceptai 90 - 110	nce Range

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from Truesdail Laboratories.

Report Continued

Client: ASSET Laboratories

Project Name: PG&E Topock Project Project Number: N/A

Page 2 of 2 Printed 2/11/2015

Respectfully submitted, TRUESDAIL LABORATORIES, INC.

Laureen Tan Project Manager

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from Truesdail Laboratories.

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

GISTZS/154 0022 CHAIN-OF-CUSTODY RECORD

Page 1 of 1

QC Level: Level IV

	TEL:	FAX:	Acct #:	
Subcontractor:	Truesdail	14201 Franklin Ave.	Tustin, CA 92680	

(714) 730-6239 (714) 730-6462

Field Sampler: None Specified

07-Jan-15

					Requested Tests
Sample ID	Matrix	Date Collected	Bottle Type	SM4500-NH3C	
N014305-001D / SC-700B-WDR-502	Water	1/6/2015	160ZP	~	
N014305-002D / SC-100B-WDR-502	Water	1/6/2015	160ZP	~	



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

Please use PO#: N14305A For questions, call Marlon at (702)-307-2659. Please e-mail results to <u>reports.lv@assettaboratories.com</u> by: Normal TAT

Please analyze for Ammonia by SM4500.

Q, ŝ Date/Time e So 1.7.7 werda GSO# 526578283 Received by: Received by: Date/Time 17:00 Relinquished by: deal 01/07/14 Relinquished by:

WORK ORDER

15A0082

Truesdail Laboratories, Inc

Client: Advanced Technology Project: ATL-NV	Laboratories-NV		Project Manager: Project Number:	Laureen Tan [none]
Report To:			Invoice To:	
Advanced Technology Laborator	ies-NV			ology Laboratories-NV
Marlon Cartin			Marlon Cartin	
3151 W Post Rd			3151 W Post Rd	
Las Vegas, NV 89118			Las Vegas, NV 89	0118
Phone: 702-307-2659			Phone :702-307-2	659
Fax: 702-307-2691			Fax: 702-307-269	1
Date Due: 01/20/2015 16	30 (7 day TAT)		······	
Received By: Luda Shabunin	a		Date Received:	01/08/2015 10:30
Logged In By: Luda Shabunin	а		Date Logged In:	01/08/2015 14:03
			Dute Bogged III,	01/08/2013 14.05
Samples Received at: 4.1°C				
Chain of Custody re Yes Samples intact	Yes			
Letter (if sent) mate No Custody seals (•			
Requested analyses Yes Analyses within Samples received in Yes	1 hol Yes			
L				
Analysis	Due	TAT	Expires	Comments
15A0082-01 SC-700B-WDR-50 (GMT-08:00) Pacific Time (US	2 [Water] Sample &	d 01/06/201	15 12:00	
Ammonia E	01/22/2015 12:00	7	02/03/2015 12:00	
15A0082-02 SC-100B-WDR-50 (GMT-08:00) Pacific Time (US		d 01/06/201	15 12:00	
Ammonia E	01/22/2015 12:00	7	02/03/2015 12:00	
The Contract of Longer and Longer and Contract of Longer and Contrac			·····	

Reviewed By

2 15 m Date

Page 1 of 1

EXCELLENCE IN INDEPENDENT TESTING

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14201 FRANKLIN AVENUE TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 www.truesdail.com

February 24, 2015

ASSET Laboratories

Mr. Marlon Cartin 3151 W Post Road Las Vegas, NV 89118

Dear Mr. Cartin:

SUBJECT: CASE NARRATIVE; PG&E TOPOCK PROJECT;

TLI NO.: 815129

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Ammonia and Reactive Silica results. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, wet chemistry raw data, quality control data and chain of custody forms are included in Sections 3 and 4.

The samples were received and delivered with the chain of custody on February 5, 2015, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter they will either be disposed or kept in warm storage for an additional 2 months.

The samples were analyzed and recorded in the raw data as SDG 15B0112 but are reported as SDG 815129 in all final report pages.

An LCS and LCSD were analyzed in lieu of the sample duplicate and matrix spike for ammonia due to insufficient sample volume.

No other violations or nonconformance actions occurred for this data package. If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 200.

Respectfully Submitted, TRUESPAIL LABORATORIES, INC. L'aureen Tan,

Project Manager

EXCELLENCE IN INDEPENDENT TESTING

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14201 FRANKLIN AVENUE TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 www.truesdail.com

Client: ASSET Laboratories 3151 W Post Road Las Vegas, NV 89118 Attention: Marlon Cartin Sample: Two (2) Water Samples Project Name: PG&E Topock Project Project No.: N/A

Laboratory No.: 815129 Date: February 24, 2015 Collected: February 3, 2015 Received: February 5, 2015

ANALYST LIST

METHOD	PARAMETER	ANALYST
SM 4500-NH3 D	Ammonia	Naheed Eidinejad
SM 4500-Si D	Soluble Silica	Jenny Tankunakorn

Established 1931	14201 FRANKLIN AVENUE · TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com Laboratory No.: 815129 Date Received: February 5, 2015			Result Units RL	00`				a mutual protection to clients, the public, , in whole or in part, in any advertising or
-	14201 FRANKLIN AN (714) 730-6239 - Lab o Dati		Ы	Parameter	Ammonia-N Ammonia-N Soluble Silica				cal or similar products. As on that it is not to be used
			Summary	Sample Time	13:15 13:15 13:15				rrently idention the condition
			Results Su	Sample Date	2/3/2015 2/3/2015 2/3/2015				y or condition of appa s addressed and upo
	_		Analytical R	Extraction Method	NONE NONE LABFLT				licative of the quality e client to whom it is
Ľ.			Ana	Analysis Method	SM4500NH3D SM4500NH3D SM4500SI SM4500SI	lied to all results: gures. significant figures. cant figures.	• • •		and is not necessarily inc r the exclusive use of th Laboratories.
LABORATORIES, UDENT TESTING	Client: ASSET Laboratories 3151 W Post Road Las Vegas, NV 89118 Attention: Marlon Cartin	ject No.: N/A P.O. No.: N14575A) Field ID	SC-700B-WDR-506 SC-100B-WDR-506 SC-100B-WDR-506	 Non Detected (below reporting limit) mg/L: Milligrams per liter. Note: The following "Significant Figures" rule has been applied to all results: Results below 0.01ppm will have two (2) significant figures. Result above or equal to 0.01ppm will have three (3) significant figures. Quality Control data will always have three (3) significant figures. 			This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from Truesdail Laboratories.
T RUESDAIL Excellence in Indepen	Client	Project No.: N/A P.O. No.: N14		Lab Sample ID	815129-001 815129-002 815129-002	ND: MOte: Note:		004	This report applies and these laboratc publicity matter wit

EXCELLENCE IN INDEPENDENT TESTING

Established 1931

REPORT

14201 FRANKLIN AVENUE TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 www.truesdail.com

Client: ASSET Laboratories 3151 W Post Road Las Vegas, NV 89118 Attention: Marlon Cartin Project Name: PG&E Topock Project Project Number: N/A P.O. Number: N14575A

Laboratory No. 815129 Page 1 of 2 Printed 2/24/2015

Samples Received on 2/5/2015 8:15:00 AM

Field ID	Lab ID	Collected	Matrix	
SC-700B-WDR-506	815129-001	02/03/2015 13:15	Water	
SC-100B-WDR-506	815129-002	02/03/2015 13:15	Water	

Reactive Silica by SM450	0-Si D		Batch	1502152				
Parameter	anna a' fair a' faire a' faire a' faire a' f	Unit	Ana	lyzed	DF	MDL	RL	Result
815129-002 Silica		mg/L	02/13	8/2015 2	25.0	0.252	1.00	17.8
Method Blank								
Parameter	Unit	DF	Result					
Silica	mg/L	1.00	ND					
Duplicate							Lab ID =	815129-002
Parameter	Unit	DF	Result	Expected	F	RPD	Accepta	ance Range
Silica	mg/L	25.0	18.0	17.8		1.10	0 - 20	
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
Silica	mg/L	1.00	0.341	0.376		90.6	90 - 110)
Matrix Spike							Lab ID =	815129-002
Parameter	Unit	DF	Result	Expected/Adde	ed F	Recovery	Accepta	ance Range
Silica	mg/L	25.0	27.8	27.2(9.40)		107	75 - 12	5
MRCCS - Secondary								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
Silica	mg/L	1.00	0.341	0.376		90.6	90 - 11(כ
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	ance Range
Silica	mg/L	1.00	0.378	0.400		94.5	90 - 11(כ

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from Truesdail Laboratories.



Report Continued

Client: ASSET Laboratories	Project Name:	PG&E Topock Project	Page 2 of 2
	Project Number	:: N/A	Printed 2/24/2015

Ammonia Nitrogen by SI	M4500-NH	H3D	Batch	1502347				
Parameter		Unit	Ana	llyzed	DF	MDL	RL	Result
815129-001 Ammonia as N		mg/L	02/19	9/2015	1.00	0.0318	0.500	ND
815129-002 Ammonia as N		mg/L	02/19	9/2015	1.00	0.0318	0.500	ND
Method Blank							· .	
Parameter Ammonia as N	Unit mg/L	DF 1.00	Result ND					
Lab Control Sample	ing/L	1.00	ND					
Parameter Ammonia as N	Unit mg/L	DF 1.00	Result 8.34	Expected 8.00	F	Recovery 104	Accepta 90 - 110	nce Range
Lab Control Sample D	uplicate							
Parameter Ammonia as N MRCCS - Secondary	Unit mg/L	DF 1.00	Result 8.64	Expected 8.00	F	Recovery 108	Accepta 90 - 110	nce Range
Parameter Ammonia as N MRCVS - Primary	Unit mg/L	DF 1.00	Result 5.46	Expected 6.00	F	Recovery 91.1	Accepta 90 - 110	nce Range
Parameter Ammonia as N	Unit mg/L	DF 1.00	Result 6.01	Expected 6.00	F	Recovery 100	Accepta 90 - 110	nce Range

Respectfully submitted, TRUE\$ØAIL LABOBATORIES, INC.

Laureen Tan

Laureen Tan Project Manager

	RECORD Page 1 of 1	2	04-Feb-15	Rennested Tests	SM4500-NH3C		-	ALERT !!			tories.com by:		Date/Time	2-5-15 08:15		
2/10951	CHAIN-OF-CUSTODY RECORD	QC Level: Level IV	Field Sampler.		Bottle Type SM 4500-SiO2 C SN	160ZP 160ZP	160ZP 1				nail results to <u>reports.lv@assettabora</u>	s GSO# 526853589		: Suda, TEI		
	CHA		(714) 730-6239 (714) 730-6462		Date Collected Bottle	2/3/2015 1:15:00 PM 16C				to the PM.	Please use PO#: N14575A For questions, call Marlon at (702)-307-2659. Please e-mail results to <u>reports ly@assetlaboratories.com</u> by: Normal TAT	Please analyze for Ammonia and Soluable Silica-Reactive. CH2MHill Samples	Date/Time	Received by:	Received by:	a a a a a a a a a a a a a a a a a a a
	r ries Vegas, NV 89118 FAX: 7023072691		TEL: (714) FAX: (714) Acct #:		Matrix	Water	Water			Please email sample receipt acknowledgement to the PM.	1575A For questions, call	monia and Soluable Silic				
	ASSET Laboratories 3151-3153 W Post Rd., Las Vegas, NV <u>www attlabs.com</u> TEL: 7023072659 FAX: 7023	-	n Ave. 680		Sample ID	/ SC-700B-WDR-506 / SC-100B-WDR-506	/ SC-100B-WDR-506		 2	 . •	•	Please analyze for Am		by: 159-02/04/15	jy:	
) 	Subcontractor: Truesdail 14201 Franklin Ave. Tustin, CA 92680			N014575-001D N014575-002D	N014575-002H			General Comments:	, -			Relinquished by:	Relinquished by:	

Survey and the State of States and

017

WORK ORDER

15B0112

Truesdail Laboratories, Inc

Client: Advanced Technology Laboratories-NV Project: ATL-NV		Project Manager: Project Number:	Laureen Tan [none]
Report To:		Invoice To:	······································
Advanced Technology Laboratories-NV		Advanced Technol	logy Laboratories-NV
Marlon Cartin		Marlon Cartin	
3151 W Post Rd		3151 W Post Rd	
Las Vegas, NV 89118		Las Vegas, NV 891	118
Phone: 702-307-2659		Phone :702-307-26	
Fax: 702-307-2691		Fax: 702-307-269	1
Date Due: 02/17/2015 16:30 (7 day TAT)			
Received By: Luda Shabunina		Date Received:	02/05/2015 08:15
Logged In By: Luda Shabunina		Date Logged In:	02/05/2015 10:11
		Dute Degged III	02/03/2013 10.11
Samples Received at: 4.2°C			
Chain of Custody re Yes Samples intact? Yes			
Letter (if sent) mate No Custody seals (if an No Requested analyses Yes Analyses within hol Yes			
Samples received in Yes			
Analysis Due T	AT	Expires	Comments
15B0112-01 SC-700B-WDR-506 [Water] Sampled 02 (GMT-08:00) Pacific Time (US &	2/03/201	5 13:15	
Ammonia-N 02/23/2015 12:00	7	03/03/2015 13:15	
15B0112-02 SC-100B-WDR-506 [Water] Sampled 02 (GMT-08:00) Pacific Time (US &	2/03/201	5 13:15	
Silica 02/23/2015 12:00	7	03/03/2015 13:15	
Ammonia-N 02/23/2015 12:00	7	03/03/2015 13:15	·

Reviewed By

15 Date

Page 1 of 1 018

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14201 FRANKLIN AVENUE TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 www.truesdail.com

March 20, 2015

ASSET Laboratories

Mr. Marlon Cartin 3151 W Post Road Las Vegas, NV 89118

Dear Mr. Cartin:

SUBJECT: CASE NARRATIVE; PG&E TOPOCK PROJECT;

TLI NO.: 815130

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Ammonia and Reactive Silica results. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, wet chemistry raw data, quality control data and chain of custody forms are included in Sections 3 and 4.

The samples were received and delivered with the chain of custody on March 5, 2015, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter they will either be disposed or kept in warm storage for an additional 2 months.

The samples were analyzed and recorded in the raw data as SDG 15C0137 but are reported as SDG 815130 in all final report pages.

An LCS and LCSD were analyzed in lieu of the sample duplicate and matrix spike for ammonia due to insufficient sample volume.

No other violations or nonconformance actions occurred for this data package. If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 206.

Respectfully Submitted, 'RUESDAIL LABORATORIES, INC.

Laureen Tan, Project Manager

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14201 FRANKLIN AVENUE TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 www.truesdail.com

Client: ASSET Laboratories 3151 W Post Road Las Vegas, NV 89118 Attention: Marlon Cartin Sample: Two (2) Water Samples Project Name: PG&E Topock Project Project No.: N/A

Laboratory No.: 815130 Date: March 20, 2015 Collected: March 3, 2015 Received: March 5, 2015

ANALYST LIST

METHOD	PARAMETER	ANALYST
SM 4500-NH3 D	Ammonia	Naheed Eidinejad
SM 4500-Si D	Soluble Silica	Jenny Tankunakorn

Established 1931	14201 FRANKLIN AVENUE · TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com Laboratory No.: 815130 Date Received: March 5, 2015			Result Units RL	ND mg/L 0.500 ND mg/L 0.500 18.6 mg/L 1.00			As a mutual protection to clients, the public, ed, in whole or in part, in any advertising or
	14201 FRANKLIN (714) 730-623' La		Я	Parameter	Ammonia-N Ammonia-N Soluble Silica			al or similar products. , on that it is not to be us
			Summary	Sample Time	13:15 13:18 13:18			arently identic in the condition
			esults Su	Sample Date	3/3/2015 3/3/2015 3/3/2015			' or condition of apps addressed and upo
			Analytical Results	Extraction Method	NONE NONE LABFLT			icative of the quality client to whom it is
NC.			Ana	Analysis Method	SM4500NH3D SM4500NH3D SM4500SI SM4500SI	pplied to all results: tt figures. 3) significant figures. hificant figures.		d and is not necessarily indi or the exclusive use of the il Laboratories.
LABORATORIES, UDENT TESTING	Client: ASSET Laboratories 3151 W Post Road Las Vegas, NV 89118 Attention: Marlon Cartin	oject No.: N/A P.O. No.: N14575A		D Field ID	SC-700B-WDR-510 SC-100B-WDR-510 SC-100B-WDR-510	 ND: Non Detected (below reporting limit) mg/L: Milligrams per liter. Note: The following "Significant Figures" rule has been applied to all results: Results below 0.01ppm will have two (2) significant figures. Result above or equal to 0.01ppm will have three (3) significant figures Quality Control data will always have three (3) significant figures. 		This report applies only to the samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from Truesdail Laboratories.
TRUESDAIL EXCELLENCE IN INDEPER	Client Attention	Project No.: N/A P.O. No.: N14		Lab Sample ID	815130-001 815130-002 815130-002	ND: mg/L: Note:	004	This report applies and these laborator publicity matter with

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

14201 FRANKLIN AVENUE TUSTIN, CALIFORNIA 92780-7008 (714) 730-6239 · FAX (714) 730-6462 www.truesdail.com

REPORT

Client: ASSET Laboratories 3151 W Post Road Las Vegas, NV 89118 Attention: Marlon Cartin Project Name: PG&E Topock Project Project Number: N/A P.O. Number: N14859A

Laboratory No. 815130 Page 1 of 2 Printed 3/19/2015

Samples Received on 3/5/2015 8:00:00 AM

Field ID				Lab ID	Col	lected	Matr	ix
SC-700B-WDR-510				815130-001	03/03/2015 13:1		Wate	ər
SC-100B-WDR-510				815130-002	03/03	/2015 13:18	Wate	ər
Reactive Silica by SM450	0-Si D		Batch	1502484				
Parameter		Unit Ana		alyzed	DF	MDL	RL	Result
815130-002 Silica		mg/L	03/06	3/2015	25.0	0.252	1.00	18.6
Method Blank								
Parameter	Unit	DF	Result					
Silica	mg/L	1.00	ND					
Duplicate							Lab ID =	815131-001
Parameter	Unit	DF	Result	Expected RPD		Accepta	nce Range	
Silica	mg/L	1.00	ND	0		0	0 - 20	
Lab Control Sample								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce Range
Silica	mg/L	1.00	0.341	0.376		90.6	90 - 110	
Matrix Spike							Lab ID =	815130-002
Parameter	Unit	DF	Result	Expected/Ad	ded F	Recovery	Accepta	nce Range
Silica	mg/L	25.0	26.9	28.0(9.40)		88.5	75 - 125	
MRCCS - Secondary								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce Range
Silica	mg/L	1.00	0.341	0.376		90.6	90 - 110	
MRCVS - Primary								
Parameter	Unit	DF	Result	Expected	F	Recovery	Accepta	nce Range
Silica	mg/L	1.00	0.378	0.400		94.5	90 - 110	1

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from Truesdail Laboratories.

Report Continued

Client: ASSET Laboratori	es		oject Name: oject Numbe	Page 2 of 2 Printed 3/19/2015				
Ammonia Nitrogen by SM								
Parameter		Unit	Ana	lyzed	DF	MDL	RL	Result
815130-001 Ammonia as N		mg/L	mg/L 03/13/2015		1.00	0.0318	0.500	ND
815130-002 Ammonia as N		mg/L	03/13/2015		1.00	0.0318	0.500	ND
Method Blank								
Parameter Ammonia as N Lab Control Sample	Unit mg/L	DF 1.00	Result ND					
Parameter Ammonia as N Lab Control Sample Di	Unit mg/L uplicate	DF 1.00	Result 7.72	Expected 8.00	Я	ecovery 96.4	Accepta 90 - 110	nce Range
Parameter Ammonia as N MRCCS - Secondary	Unit mg/L	DF 1.00	Result 8.18	Expected 8.00	F	ecovery 102	Acceptance Ra 90 - 110	
Parameter Ammonia as N MRCVS - Primary	Unit mg/L	DF 1.00	Result 6.00	Expected 6.00	F	ecovery 100	Accepta 90 - 110	nce Range
Parameter Ammonia as N	Unit mg/L	DF 1.00	Result 6.00	Expected 6.00	R	Recovery 100	Accepta 90 - 110	nce Range

Respectfully submitted,

TRUESDAIL LABORATORIES, INC. Laureen Tan

Project Manager

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from Truesdail Laboratories.

BIST30/15C 0137	CHAIN-OF-CUSTODY RECORD Page 1 of 1	QC Level: Level IV	(714) 730-6239 Field Sampler: SIGNED (714) 730-6462 04-Mar-15	Requested Tests	Date Collected Bottle Type SM 4500-SiO2 C SM4500-NH3C	3/3/2015 1:15:00 PM3202P 1	-320ZP-	3/3/2015 1:18:00 PM	862P #SE 3/4/15	Level IV QC	ment to the PM.	call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assettaboratories.com by:Normal TAT s Silica - Reactive. CH2MHILL Sample.	Date/Time Date/Time	O Received by: GSO #: 527131174 Received by: Nuule 77 0	
	ASSET Laboratories 3151-3153 W Post Rd., Las Vegas, NV 89118 www.att-labs.com TEL: 7023072659 FAX: 7023072691	Subcontractor	Truesdall TEL: (714) 14201 Franklin Ave. FAX: (714) Tustin, CA 92680 Acct #: Acct #:		Matrix	(N014859-001D // SC-700B-WDR-510	/ 80	N014859-002H / SC-100B-WDR-510				Please use PO#:N14859A For questions, call Ma Please analyze for Ammonia and Soluable Silica		Relinquished by: A Wr 7 ~ 3 Relinquished by:	

WORK ORDER

15C0137

Truesdail Laboratories, Inc

Client: Advanced Technology Laboratories-NV Project: ATL-NV		Project Manager: Project Number:	Laureen Tan [none]	
Report To:		Invoice To:		
Advanced Technology Laboratories-NV		Advanced Technol	ogy Laboratories-NV	
Marlon Cartin		Marlon Cartin		
3151 W Post Rd		3151 W Post Rd		
Las Vegas, NV 89118		Las Vegas, NV 891	18	
Phone: 702-307-2659		Phone :702-307-26		
Fax: 702-307-2691		Fax: 702-307-2691		
Date Due: 03/16/2015 16:30 (7 day TAT)				
Received By: Luda Shabunina		Date Received:	03/05/2015 08:00	
Logged In By: Luda Shabunina		Date Logged In:	03/05/2015 13:18	
		Dute Dogged III.	05/05/2015 15,18	
Samples Received at: 4.2°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	
15C0137-01 SC-700B-WDR-510 [Water] Sampled 03/0 (GMT-08:00) Pacific Time (US &	3/2015 13:15			
Ammonia-N 03/16/2015 12:00	7	03/31/2015 13:15		
15C0137-02 SC-100B-WDR-510 [Water] Sampled 03/0 (GMT-08:00) Pacific Time (US &	3/2015 13:18			
Silica 03/16/2015 12:00	7	03/31/2015 13:18		
Ammonia-N 03/16/2015 12:00				

3 20 15 Date

Reviewed By

Page 1 of 1

January 20, 2015

Shawn P. Duffy CH2M HILL 155 Grand Avenue, Suite 1000 Oakland, CA 94612 TEL: (530) 229-3303 FAX: (530) 339-3303

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

Workorder No.: N014305

RE: PG&E Topock IM3, 652547.PT.0P.00

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on January 06, 2015 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,

grycomundo

Glen Gesmundo QA Manager

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.



CALIFORNIA 11060 Artesia Blvd., Ste C, 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

 CLIENT:
 CH2M HILL

 Project:
 PG&E Topock IM3, 652547.PT.0P.00

 Lab Order:
 N014305

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

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

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

Samples were analyzed within method holding time.

Subcontracted Analyses:

Ammonia was subcontracted to Truesdail-Tustin,CA.

Analytical Comments for EPA 200.8:

Because the results for total chromium (1.9 ug/L) and hexavalent chromium (0.30 ug/L) for sample N014305-003 (SC-701-WDR-502) are discrepant, sample from both the total chromium and hexavalent chromium containers were redigested and analyzed for total chromium. The results from the redigested samples were 1.76 and 0.804 ug/L, respectively. Since these data confirmed the original result for total chromium, the original result is reported.

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

Dilution was necessary for some analytes on samples N014305-001, N014305-002 and N014305-003 due to failed Internal Standard when samples were analyzed at no dilution.

Analytical Comments for EPA 218.6:

Dilution was necessary for sample N014305-003 due to matrix interference. Sample was analyzed at lower dilution however matrix spike was not recovered indicating possible matrix interference. Sample was reported at dilution that meet matrix spike recovery limit.



CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436 N**Page 1 of 1** 3151 W. Post Rd., Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.2691

CLIENT:	CH2M HILL
Project:	PG&E Topock IM3, 652547.PT.0P.00
Lab Order:	N014305
Contract No:	IM3Plant-WDR-

Work Order Sample Summary

Lab Sample ID Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
Lab Sample ID Chent Sample ID	Wattix	Concetion Date	Date Received	Date Reported
N014305-001A SC-700B-WDR-502	Water	1/6/2015 1:00:00 PM	1/6/2015	1/20/2015
N014305-001B SC-700B-WDR-502	Water	1/6/2015 1:00:00 PM	1/6/2015	1/20/2015
N014305-001C SC-700B-WDR-502	Water	1/6/2015 1:00:00 PM	1/6/2015	1/20/2015
N014305-001D SC-700B-WDR-502	Water	1/6/2015 1:00:00 PM	1/6/2015	1/20/2015
N014305-001E SC-700B-WDR-502	Water	1/6/2015 1:00:00 PM	1/6/2015	1/20/2015
N014305-002A SC-100B-WDR-502	Water	1/6/2015 2:20:00 PM	1/6/2015	1/20/2015
N014305-002B SC-100B-WDR-502	Water	1/6/2015 2:20:00 PM	1/6/2015	1/20/2015
N014305-002C SC-100B-WDR-502	Water	1/6/2015 2:20:00 PM	1/6/2015	1/20/2015
N014305-002D SC-100B-WDR-502	Water	1/6/2015 2:20:00 PM	1/6/2015	1/20/2015
N014305-002E SC-100B-WDR-502	Water	1/6/2015 2:20:00 PM	1/6/2015	1/20/2015
N014305-003A SC-701-WDR-502	Water	1/6/2015 2:20:00 PM	1/6/2015	1/20/2015
N014305-003B SC-701-WDR-502	Water	1/6/2015 2:20:00 PM	1/6/2015	1/20/2015
N014305-003C SC-701-WDR-502	Water	1/6/2015 2:20:00 PM	1/6/2015	1/20/2015



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ANALYTICAL RESULTS

					TTIM D	ate: 20 5	ian 15			
CLIENT:	CH2M HILL		Client Sample ID: SC-700B-WDR-502							
Lab Order:	N014305		Collection Date: 1/6/2015 1:00:00 PM							
Project:	PG&E Topock	IM3, 652547.PT.0P.00		Ma	trix: WATE	ER				
Lab ID:	N014305-001									
Analyses		Result MDL	PQL	Qual	Units	DF	Date Analyzed			
SPECIFIC C	ONDUCTANCE									
			EP	A 120.1						
RunID: WET	TCHEM_150107C	QC Batch: R97449		PrepDa	ate		Analyst: RB			
Specific Co	nductance	7500 0.10	0.10		umhos/cm	1	1/7/2015 12:00 PM			

Print Date: 20-Jan-15

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

DO Surrogate Diluted Out

ASSET LABORATORIES

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ANALYTICAL RESULTS

					Time Dute: 20	5un 15				
CLIENT:	CH2M HILL		С	Client Sample ID: SC-100B-WDR-502						
Lab Order:	N014305		Collection Date: 1/6/2015 2:20:00 PM							
Project:	PG&E Topock	IM3, 652547.PT.0P.00		Matrix	: WATER					
Lab ID:	N014305-002									
Analyses		Result MDL	PQL	Qual U	nits DF	Date Analyzed				
SPECIFIC C	ONDUCTANCE									
			EP	A 120.1						
RunID: WE	TCHEM_150107C	QC Batch: R97449		PrepDate		Analyst: RB				
Specific Co	onductance	7500 0.10	0.10	uml	nos/cm 1	1/7/2015 12:00 PI				

Print Date: 20-Jan-15

Qualifiers:

В

Analyte detected in the associated Method Blank

- Н Holding times for preparation or analysis exceeded S
 - Spike/Surrogate outside of limits due to matrix interference
- Е Value above quantitation range
- ND Not Detected at the Reporting Limit Results are wet unless otherwise specified

DO Surrogate Diluted Out



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ANALYTICAL RESULTS Print Date: 20-Jan-15

					T TIME D	ate: 20 5	un 15				
CLIENT:	CH2M HILL			Client Sample ID: SC-701-WDR-502							
Lab Order:	N014305			Collection Date: 1/6/2015 2:20:00 PM							
Project:	PG&E Topock	IM3, 652547.PT.0P.00		Μ	atrix: WATE	ER					
Lab ID:	N014305-003										
Analyses		Result MI	DL PQL	Qual	Units	DF	Date Analyzed				
SPECIFIC CO	ONDUCTANCE										
				EPA 120.1							
RunID: WET	CHEM_150107C	QC Batch: R97449		Prep	Date		Analyst: RB				
Specific Con	ductance	22000 0.	10 0.10		umhos/cm	1	1/7/2015 12:00 P				

Qualifiers:

В

Analyte detected in the associated Method Blank

- Н Holding times for preparation or analysis exceeded S
 - Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Е Value above quantitation range ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

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Date: 20-Jan-15

CLIENT: CH2M HILL

Work Order: N014305

Project: PG&E Topock IM3, 652547.PT.0P.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID N014305-001BDUP	SampType: DUP	TestCode: 120.1_WPGE Units: umhos/cn			ios/cm	Prep Date:			RunNo: 97449		
Client ID: ZZZZZZ	Batch ID: R97449	TestNo: EPA 120.1				Analysis Date: 1/7/2015				SeqNo: 1903549	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	7510.000	0.10						7530	0.266	10	

Qualifiers:

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

ASSET LABORATORIES

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

Calculations are based on raw values NEVADA 3151 W. Post Rd., Las Vegas, NV 89118

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

ANALYTICAL RESULTS

ASSET Lab	Print Date: 20-Jan-15							
CLIENT:	CH2M HILL	Client Sample ID: SC-700B-WDR-502						
Lab Order:	N014305	N014305			Collection	Date: 1/	6/2015 1:00:0	00 PM
Project:	PG&E Topock	IM3, 652547.PT.0	P.00	Matrix: WATER				
Lab ID:	N014305-001							
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTE	RABLE RESIDUE							
				SN	12540C			
RunID: WETC	CHEM_150107D	QC Batch: 48	346		PrepD	ate	1/7/2015	Analyst: RB
Total Dissolve Filterable)	tal Dissolved Solids (Residue, 4100 50 terable)		50		mg/L	1	1/7/2015 02:40 PM	

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

DO Surrogate Diluted Out

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ASSET LABORATORIES

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ANALYTICAL RESULTS

ASSET Lab	Print Date: 20-Jan-15							
CLIENT:	CH2M HILL	Client Sample ID: SC-100B-WDR-502						
Lab Order:	N014305	N014305			Collection	Date: 1/	6/2015 2:20:0	00 PM
Project:	PG&E Topock 1	M3, 652547.PT.0	P.00	Matrix: WATER				
Lab ID:	N014305-002							
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTE	RABLE RESIDUE							
				SN	12540C			
RunID: WETC	CHEM_150107D	QC Batch: 48	346		PrepD	ate	1/7/2015	Analyst: RB
Total Dissolve Filterable)	Total Dissolved Solids (Residue, 4200 50 Filterable)		50		mg/L	1	1/7/2015 02:40 PM	

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range

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

DO Surrogate Diluted Out

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ANALYTICAL RESULTS

ASSET Lab	Print Date: 20-Jan-15								
CLIENT:	CH2M HILL	Client Sample ID: SC-701-WDR-502							
Lab Order:	N014305	N014305			Collection Date: 1/6/2015 2:20:00 PM				
Project:	PG&E Topock	PG&E Topock IM3, 652547.PT.0P.00 Matrix: WATER		Matrix: WATER					
Lab ID:	N014305-003								
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed	
TOTAL FILTE	RABLE RESIDUE								
				SM	12540C				
RunID: WETC	CHEM_150107D	QC Batch: 483	346		PrepD	ate	1/7/2015	Analyst: RB	
Total Dissolve Filterable)	Total Dissolved Solids (Residue, 15000 200 Filterable)		200		mg/L	1	1/7/2015 02:40 PM		

Qualifiers:

В

Analyte detected in the associated Method Blank

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

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

DO Surrogate Diluted Out

ASSET LABORATORIES

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CLIENT: CH2M HILL

Work Order: N014305

ANALYTICAL QC SUMMARY REPORT

Project: PG&E Topock IM3, 652547.PT.0P.00

TestCode: 160.1_2540C_W

Sample ID MB-48346	SampType: MBLK	TestCode: 160.1_2540C Units: mg/L	Prep Date: 1/7/2015	RunNo: 97465
Client ID: PBW	Batch ID: 48346	TestNo: SM2540C	Analysis Date: 1/7/2015	SeqNo: 1904116
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	due, Filtera ND	10		
Sample ID LCS-48346	SampType: LCS	TestCode: 160.1_2540C Units: mg/L	Prep Date: 1/7/2015	RunNo: 97465
Client ID: LCSW	Batch ID: 48346	TestNo: SM2540C	Analysis Date: 1/7/2015	SeqNo: 1904117
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	due, Filtera 1000.000	10 1000 0	100 80 120	
Sample ID N014305-001B-E	DUP SampType: DUP	TestCode: 160.1_2540C Units: mg/L	Prep Date: 1/7/2015	RunNo: 97465
Client ID: ZZZZZZ	Batch ID: 48346	TestNo: SM2540C	Analysis Date: 1/7/2015	SeqNo: 1904119
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	due, Filtera 4115.000	50	4085	0.732 5

Qualifiers:

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

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E Value above quantitation rangeR RPD outside accepted recovery limits

Calculations are based on raw values

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

ANALYTICAL RESULTS

Print Date: 20-Jan-15

CLIENT:	CH2M HILL			Client Sample ID: SC-700B-WDR-502					
Lab Order:	N014305 PG&E Topock IM3, 652547.PT.0P.00			Collection Date: 1/6/2015 1:00:00 PM					
Project:				Matrix: WATER					
Lab ID:	N014305-001								
Analyses		Result	MDL	PQL	Qual Unit	s DF	Date Analyzed		
TOTAL META	LS BY ICP								
				EP	A 200.7				
RunID: ICP2_	150112B	QC Batch: 483	64		PrepDate	1/8/2015	Analyst: CEI		
Aluminum		ND	6.2	50	µg/L	1	1/12/2015 02:02 PM		
Boron		890	19	100 µg/L 1 1/12/2015 02:02 PM					
Iron		ND							

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е ND Not Detected at the Reporting Limit

- DO Surrogate Diluted Out ASSET LABORATORIES

Results are wet unless otherwise specified

Value above quantitation range

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ANALYTICAL RESULTS

Print Date: 20-Jan-15

CLIENT:	CH2M HILL	Client Sample ID: SC-100B-WDR-502							
Lab Order:	N014305 PG&E Topock IM3, 652547.PT.0P.00			Collection Date: 1/6/2015 2:20:00 PM					
Project:				Matrix: WATER					
Lab ID:	N014305-002								
Analyses		Result	MDL	PQL	Qual U	nits DF	Date Analyzed		
TOTAL META	LS BY ICP								
				EP/	A 200.7				
RunID: ICP2_	150112B	QC Batch: 483	64		PrepDate	1/8/2015	Analyst: CEI		
Aluminum		ND	6.2	50	hð\	L 1	1/12/2015 02:28 PM		
Boron		910	19	100 µg/L 1 1/12/2015 02:28 PM					
Iron		ND							

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

DO Surrogate Diluted Out



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Project:

CLIENT: CH2M HILL

Work Order: N014305

PG&E Topock IM3, 652547.PT.0P.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WPGEPPB

Sample ID	LCS1-48364	SampType: LCS	TestCode: 200.7 WPGE Units:	ug/L Prep Date: 1/8/2015	RunNo: 97502
Client ID:		Batch ID: 48364	 TestNo: EPA 200.7	Analysis Date: 1/12/2015	SeqNo: 1906653
Analyte		Result	PQL SPK value SPK Ref Va	I %REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Aluminum		9607.657	50 10000 0		
Boron		4925.021	100 5000 0		
Iron		111.418	20 100.0		
Sample ID	N014305-001C-MS1	SampType: MS	TestCode: 200.7_WPGE Units:	ug/L Prep Date: 1/8/2015	RunNo: 97502
Client ID:	ZZZZZZ	Batch ID: 48364	TestNo: EPA 200.7	Analysis Date: 1/12/2015	SeqNo: 1906657
Analyte		Result	PQL SPK value SPK Ref Va	I %REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Aluminum		10531.964	50 10000 0	0 105 75 125	
Boron		5870.239	100 5000 890.7	7 99.6 75 125	
Iron		100.677	20 100.0 9.588	3 91.1 75 125	
Sample ID	N014305-001C-MSD	SampType: MSD	TestCode: 200.7_WPGE Units:	Jg/L Prep Date: 1/8/2015	RunNo: 97502
Client ID:	ZZZZZZ	Batch ID: 48364	TestNo: EPA 200.7	Analysis Date: 1/12/2015	SeqNo: 1906658
Analyte		Result	PQL SPK value SPK Ref Va	I %REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Analyte Aluminum		Result 10611.972	PQL SPK value SPK Ref Va	5	%RPD RPDLimit Qual
) 106 75 125 10530	
Aluminum		10611.972	50 10000 0) 106 75 125 10530 7 101 75 125 5870	0.757 20
Aluminum Boron	MB-48364	10611.972 5929.486	50 10000 (100 5000 890.7	0 106 75 125 10530 7 101 75 125 5870 3 92.8 75 125 100.7	0.757 20 1.00 20
Aluminum Boron Iron		10611.972 5929.486 102.411	50 10000 0 100 5000 890.7 20 100.0 9.588	0 106 75 125 10530 7 101 75 125 5870 3 92.8 75 125 100.7	0.757 20 1.00 20 1.71 20
Aluminum Boron Iron Sample ID		10611.972 5929.486 102.411 SampType: MBLK	50 10000 0 100 5000 890.7 20 100.0 9.588 TestCode: 200.7_WPGE Units: 1	0 106 75 125 10530 7 101 75 125 5870 3 92.8 75 125 100.7 Jg/L Prep Date: 1/8/2015 Analysis Date: 1/12/2015	0.757 20 1.00 20 1.71 20 RunNo: 97502
Aluminum Boron Iron Sample ID Client ID:		10611.972 5929.486 102.411 SampType: MBLK Batch ID: 48364	50 10000 0 100 5000 890.7 20 100.0 9.588 TestCode: 200.7_WPGE Units: µ TestNo: EPA 200.7	0 106 75 125 10530 7 101 75 125 5870 3 92.8 75 125 100.7 Jg/L Prep Date: 1/8/2015 Analysis Date: 1/12/2015	0.757 20 1.00 20 1.71 20 RunNo: 97502 SeqNo: 1906664
Aluminum Boron Iron Sample ID Client ID: Analyte		10611.972 5929.486 102.411 SampType: MBLK Batch ID: 48364 Result	50 10000 0 100 5000 890.7 20 100.0 9.588 TestCode: 200.7_WPGE Units: I TestNo: EPA 200.7 PQL SPK value SPK Ref Value	0 106 75 125 10530 7 101 75 125 5870 3 92.8 75 125 100.7 Jg/L Prep Date: 1/8/2015 Analysis Date: 1/12/2015	0.757 20 1.00 20 1.71 20 RunNo: 97502 SeqNo: 1906664

Qualifiers:

ND

B Analyte detected in the associated Method Blank

Not Detected at the Reporting Limit

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

Calculations are based on raw values NEVADA

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

DO Surrogate Diluted Out ASSET LABORATORIES

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ANALYTICAL RESULTS

Print Date: 20-Jan-15

CLIENT: Lab Order: Project: Lab ID:	CH2M HILL N014305 PG&E Topod N014305-00	ck IM3, 652547.PT.0	Client Sample ID: SC-700B-WDR-502 Collection Date: 1/6/2015 1:00:00 PM Matrix: WATER					
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL META	LS BY ICPMS			EP	A 200.8			
RunID: ICP7_	150108A	QC Batch: 48	372		PrepD	ate	1/8/2015	Analyst: CEI
Antimony		ND	0.18	0.50		µg/L	1	1/8/2015 02:04 PM
Arsenic		ND	0.027	0.10		µg/L	1	1/8/2015 02:04 PM
Barium		15	0.030	1.0		µg/L	1	1/8/2015 02:04 PM
Copper		ND	0.040	1.0		µg/L	1	1/8/2015 02:04 PM
Lead		ND	0.053	5.0		µg/L	5	1/8/2015 02:31 PM
Manganese		ND	0.026	0.50		µg/L	1	1/8/2015 02:04 PM
Molybdenum		21	0.15	0.50		µg/L	1	1/8/2015 02:04 PM
Nickel		2.0	0.032	1.0		µg/L	1	1/8/2015 02:04 PM
Zinc		ND	0.23	10		µg/L	1	1/8/2015 02:04 PM

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range

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

DO Surrogate Diluted Out

ASSET LABORATORIES

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ANALYTICAL RESULTS

Print Date: 20-Jan-15

CLIENT: Lab Order: Project: Lab ID:	CH2M HILL N014305 PG&E Topo N014305-00	ck IM3, 652547.PT.0)P.00		Client Sample ID: SC-100B-WDR-502 Collection Date: 1/6/2015 2:20:00 PM Matrix: WATER				
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed	
TOTAL META	LS BY ICPMS			EP	A 200.8				
RunID: ICP7_	150108A	QC Batch: 48	372		PrepD	Date	1/8/2015	Analyst: CEI	
Antimony		ND	0.18	0.50		µg/L	1	1/8/2015 02:09 PM	
Arsenic		3.0	0.027	0.10		µg/L	1	1/8/2015 02:09 PM	
Barium		24	0.030	1.0		µg/L	1	1/8/2015 02:09 PM	
Copper		ND	0.040	1.0		µg/L	1	1/8/2015 02:09 PM	
Lead		ND	0.053	5.0		µg/L	5	1/8/2015 02:15 PM	
Manganese		ND	0.026	0.50		µg/L	1	1/8/2015 02:09 PM	
Molybdenum		21	0.15	0.50		µg/L	1	1/8/2015 02:09 PM	
Nickel		ND	0.032	1.0		µg/L	1	1/8/2015 02:09 PM	
Zinc		ND	0.23	10		µg/L	1	1/8/2015 02:09 PM	

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range

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

DO Surrogate Diluted Out

ASSET LABORATORIES

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ANALYTICAL RESULTS

Print Date: 20-Jan-15

CLIENT:	CH2M HILL				-		C-701-WDR-5				
Lab Order:	N014305				Collection	Date: 1/	6/2015 2:20:0	0 PM			
Project:	PG&E Topock	IM3, 652547.PT.0	P.00		Μ	atrix: W	ATER				
Lab ID:	N014305-003										
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed			
TOTAL META	LS BY ICPMS										
				EP	A 200.8						
RunID: ICP7_	150108A	QC Batch: 48	372		PrepD	Date	1/8/2015	Analyst: CEI			
Antimony		ND	0.92	2.5		µg/L	5	1/8/2015 02:26 PM			
Arsenic		0.53	0.13	0.50		µg/L	5	1/8/2015 02:26 PM			
Barium		57	0.15	5.0		µg/L	5	1/8/2015 02:26 PM			
Beryllium		ND	0.051	2.5		µg/L	5	1/12/2015 12:51 PM			
Cadmium		ND	0.066	2.5		µg/L	5	1/8/2015 02:26 PM			
Cobalt		0.70	0.017	0.50		µg/L	1	1/8/2015 02:20 PM			
Copper		ND	0.20	5.0		µg/L	5	1/8/2015 02:26 PM			
Lead		ND	0.053	5.0		µg/L	5	1/12/2015 12:51 PM			
Manganese		140	0.026	0.50		µg/L	1	1/8/2015 02:20 PM			
Molybdenum		75	0.76	2.5		µg/L	5	1/8/2015 02:26 PM			
Nickel		13	0.16	5.0		µg/L	5	1/8/2015 02:26 PM			
Selenium		14	0.34	2.5		µg/L	5	1/8/2015 02:26 PM			
Silver		ND	0.47	2.5		µg/L	5	1/8/2015 02:26 PM			
Thallium		ND	0.040	2.5		µg/L	5	1/12/2015 12:51 PM			
Vanadium		ND	0.16	1.0		µg/L	1	1/8/2015 02:20 PM			
Zinc		ND	1.2	50		µg/L	5	1/8/2015 02:26 PM			

Qualifiers:

В

Analyte detected in the associated Method Blank

- Н Holding times for preparation or analysis exceeded S
 - Spike/Surrogate outside of limits due to matrix interference
- Е Value above quantitation range
- ND Not Detected at the Reporting Limit Results are wet unless otherwise specified

DO Surrogate Diluted Out ASSET LABORATORIES

CALIFORNIA 11060 Artesia Blvd., Ste C, 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

Date: 20-Jan-15

CLIENT: CH2M HILL

Work Order: N014305

Project: PG&E Topock IM3, 652547.PT.0P.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID MB-48372	SampType: MBLK	TestCode: 200.8_W	Units: µg/L		Prep Date:	1/8/2015	RunNo: 974	477	
Client ID: PBW	Batch ID: 48372	TestNo: EPA 200	.8		Analysis Date:	1/8/2015	SeqNo: 19	05763	
Analyte	Result	PQL SPK value	SPK Ref Val	%REC	LowLimit F	lighLimit RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	0.50							
Arsenic	ND	0.10							
Barium	ND	1.0							
Cadmium	ND	0.50							
Cobalt	ND	0.50							
Copper	ND	1.0							
Lead	ND	1.0							
Manganese	ND	0.50							
Molybdenum	ND	0.50							
Nickel	ND	1.0							
Selenium	ND	0.50							
Silver	ND	0.50							
Thallium	ND	0.50							
Vanadium	ND	1.0							
Zinc	ND	10							
Sample ID LCS-48372	SampType: LCS	TestCode: 200.8_W	Units: µg/L		Prep Date:	1/8/2015	RunNo: 974	477	
Client ID: LCSW	Batch ID: 48372	TestNo: EPA 200	.8		Analysis Date:	1/8/2015	SeqNo: 19	05764	
Analyte	Result	PQL SPK value	SPK Ref Val	%REC	LowLimit H	lighLimit RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.771	0.50 10.00	0	108	85	115			
Arsenic	10.634	0.10 10.00	0	106	85	115			
Barium	102.895	1.0 100.0	0	103	85	115			
Cadmium	10.817	0.50 10.00	0	108	85	115			
Cobalt	10.003	0.50 10.00	0	100	85	115			
Copper	10.551	1.0 10.00	0	106	85	115			
Lead	10.927	1.0 10.00	0	109	85	115			
	100.878	0.50 100.0	0	101	85	115			

Qualifiers:

ND

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

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

Calculations are based on raw values NEVADA 3151 W. Post Rd., Las Vegas, NV 89118

P: 702.307.2659 F: 702.307.2691

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S

ASSET LABORATORIES

CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

CH2M HILL **CLIENT:**

Work Order: N014305

Project: PG&E Topock IM3, 652547.PT.0P.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID LCS-48372	SampType: LCS	TestCode	e: 200.8_W	Units: µg/L		Prep Da	te: 1/8/201	15	RunNo: 974	¥77	
Client ID: LCSW	Batch ID: 48372	TestN	o: EPA 200.8	3		Analysis Da	te: 1/8/201	15	SeqNo: 190)5764	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	9.904	0.50	10.00	0	99.0	85	115				
Nickel	10.384	1.0	10.00	0	104	85	115				
Selenium	10.892	0.50	10.00	0	109	85	115				
Silver	10.813	0.50	10.00	0	108	85	115				
Thallium	10.966	0.50	10.00	0	110	85	115				
Vanadium	10.271	1.0	10.00	0	103	85	115				
Zinc	110.103	10	100.0	0	110	85	115				
Sample ID N014305-001C-MS	SampType: MS	TestCod	e: 200.8_W	Units: µg/L		Prep Da	te: 1/8/201	15	RunNo: 974	\$77	
Client ID: ZZZZZZ	Batch ID: 48372	TestN	o: EPA 200.8	3		Analysis Da	te: 1/8/201	15	SeqNo: 190)5777	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.811	0.50	10.00	0	108	75	125				
Arsenic	10.719	0.10	10.00	0.06069	107	75	125				
Barium	114.604	1.0	100.0	14.66	99.9	75	125				
Cadmium	8.269	0.50	10.00	0	82.7	75	125				
Cobalt	8.562	0.50	10.00	0	85.6	75	125				
Copper	3.687	1.0	10.00	0	36.9	75	125				S
Manganese	74.057	0.50	100.0	0	74.1	75	125				S
Molybdenum	33.563	0.50	10.00	20.99	126	75	125				S
Nickel	11.794	1.0	10.00	2.038	97.6	75	125				
Selenium	13.925	0.50	10.00	3.685	102	75	125				
Silver	9.828	0.50	10.00	0	98.3	75	125				
Vanadium	10.314	1.0	10.00	0.2212	101	75	125				
Zinc	84.132	10	100.0	0	84.1	75	125				
Sample ID N014305-001C-MS	SampType: MS	TestCode	e: 200.8_W	Units: µg/L		Prep Da	te: 1/8/201	5	RunNo: 974	177	
Client ID: ZZZZZZ	Batch ID: 48372	TestN	o: EPA 200.8	3		Analysis Da	te: 1/8/201	15	SeqNo: 190)5778	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- ASSET LABORATORIES
- CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436
- E Value above quantitation range R
- RPD outside accepted recovery limits

Calculations are based on raw values NEVADA 3151 W. Post Rd., Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.2691 H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S

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21

CLIENT: CH2M HILL

Work Order: N014305

Project: PG&E Topock IM3, 652547.PT.0P.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID N014305-001C-MS	SampType: MS	TestCo	ode: 200.8_W	Units: µg/L		Prep Date	: 1/8/201	5	RunNo: 97	477	
Client ID: ZZZZZZ	Batch ID: 4837	2 Test	No: EPA 200.	8		Analysis Date	: 1/8/201	5	SeqNo: 19	05778	
Analyte	Res	ult PQL	SPK value	SPK Ref Val	%REC	LowLimit I	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	11.4	70 5.0	10.00	0	115	75	125				
Thallium	11.8	00 2.5	10.00	0.04256	118	75	125				
Sample ID N014305-001C-MSD	SampType: MSC	TestCo	ode: 200.8_W	Units: µg/L		Prep Date	: 1/8/201	5	RunNo: 974	477	
Client ID: ZZZZZZ	Batch ID: 4837	2 Test	No: EPA 200.	8		Analysis Date	: 1/8/201	5	SeqNo: 19	05779	
Analyte	Res	ult PQL	SPK value	SPK Ref Val	%REC	LowLimit I	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.7	09 0.50	10.00	0	107	75	125	10.81	0.948	20	
Arsenic	10.4	63 0.10	10.00	0.06069	104	75	125	10.72	2.42	20	
Barium	114.2	82 1.0	100.0	14.66	99.6	75	125	114.6	0.281	20	
Cadmium	8.2	63 0.50	10.00	0	82.6	75	125	8.269	0.0689	20	
Cobalt	8.7	30 0.50	10.00	0	87.3	75	125	8.562	1.94	20	
Copper	3.5	72 1.0	10.00	0	35.7	75	125	3.687	3.17	20	S
Manganese	74.8	26 0.50	100.0	0	74.8	75	125	74.06	1.03	20	S
Molybdenum	33.7	37 0.50	10.00	20.99	127	75	125	33.56	0.517	20	S
Nickel	11.6	76 1.0	10.00	2.038	96.4	75	125	11.79	1.00	20	
Selenium	14.0	34 0.50	10.00	3.685	103	75	125	13.93	0.775	20	
Silver	9.7	94 0.50	10.00	0	97.9	75	125	9.828	0.352	20	
Vanadium	10.3	20 1.0	10.00	0.2212	101	75	125	10.31	0.0639	20	
Zinc	82.9	94 10	100.0	0	83.0	75	125	84.13	1.36	20	
Sample ID N014305-001C-MSD	SampType: MSC	TestCo	ode: 200.8_W	Units: µg/L		Prep Date	: 1/8/201	5	RunNo: 974	477	
Client ID: ZZZZZZ	Batch ID: 4837	2 Test	No: EPA 200.	8		Analysis Date	: 1/8/201	5	SeqNo: 19	05780	
Analyte	Res	ult PQL	SPK value	SPK Ref Val	%REC	LowLimit I	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	11.4	27 5.0	10.00	0	114	75	125	11.47	0.368	20	
Thallium	11.8	27 2.5	10.00	0.04256	118	75	125	11.80	0.226	20	

Qualifiers:

ND

- B Analyte detected in the associated Method Blank
 - Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- ASSET LABORATORIES
- CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

3151 W. Post Rd., Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.2691 H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference



CLIENT: CH2M HILL

Work Order: N014305

Project: PG&E Topock IM3, 652547.PT.0P.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID MB-48372	SampType: MBLK	TestCode: 200.8_W Uni	ts: µg/L Prep Date	e: 1/8/2015	RunNo: 97521	
Client ID: PBW	Batch ID: 48372	TestNo: EPA 200.8	Analysis Date	e: 1/12/2015	SeqNo: 1907774	
Analyte	Result	PQL SPK value SPK Re	f Val %REC LowLimit	HighLimit RPD Ref Val	%RPD RPDLimit	Qual
Beryllium	ND	0.50				
Sample ID LCS-48372	SampType: LCS	TestCode: 200.8_W Uni	ts: µg/L Prep Date	e: 1/8/2015	RunNo: 97521	
Client ID: LCSW	Batch ID: 48372	TestNo: EPA 200.8	Analysis Date	e: 1/12/2015	SeqNo: 1907775	
Analyte	Result	PQL SPK value SPK Re	f Val %REC LowLimit	HighLimit RPD Ref Val	%RPD RPDLimit	Qual
Beryllium	10.316	0.50 10.00	0 103 85	115		
Sample ID N014305-001C-MS	SampType: MS	TestCode: 200.8_W Uni	ts: μ g/L Prep Date	e: 1/8/2015	RunNo: 97521	
Sample ID N014305-001C-MS Client ID: ZZZZZZ	SampType: MS Batch ID: 48372	TestCode: 200.8_W Uni TestNo: EPA 200.8	10	e: 1/8/2015 e: 1/12/2015	RunNo: 97521 SeqNo: 1907779	
		-	Analysis Date			Qual
Client ID: ZZZZZZ	Batch ID: 48372	TestNo: EPA 200.8	Analysis Date	e: 1/12/2015	SeqNo: 1907779	Qual
Client ID: ZZZZZZ	Batch ID: 48372 Result 10.263	TestNo: EPA 200.8 PQL SPK value SPK Re 0.50 10.00	Analysis Date f Val %REC LowLimit 0 103 75	e: 1/12/2015 HighLimit RPD Ref Val	SeqNo: 1907779	Qual
Client ID: ZZZZZZ Analyte Beryllium	Batch ID: 48372 Result 10.263	TestNo: EPA 200.8 PQL SPK value SPK Re 0.50 10.00	Analysis Date f Val %REC LowLimit 0 103 75 ts: µg/L Prep Date	e: 1/12/2015 HighLimit RPD Ref Val 125	SeqNo: 1907779 %RPD RPDLimit	Qual
Client ID: ZZZZZZ Analyte Beryllium Sample ID N014305-001C-MSD	Batch ID: 48372 Result 10.263 SampType: MSD	TestNo: EPA 200.8 PQL SPK value SPK Re 0.50 10.00 TestCode: 200.8_W Uni	Analysis Date f Val %REC LowLimit 0 103 75 ts: µg/L Prep Date Analysis Date	e: 1/12/2015 HighLimit RPD Ref Val 125 e: 1/8/2015	SeqNo: 1907779 %RPD RPDLimit RunNo: 97521	Qual

E Value above quantitation range

RPD outside accepted recovery limits

Calculations are based on raw values

NEVADA

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

Qualifiers:

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

CALIFORNIA

11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

R

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S

ANALYTICAL RESULTS

Print Date: 20-Jan-15

CLIENT:	CH2M HILL						C-700B-WDR	
Lab Order:	N014305							
Project:	PG&E Topock	G&E Topock IM3, 652547.PT.0P.00 Matrix: WATER						
Lab ID:	N014305-001							
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALEN	IT CHROMIUM BY I	С						
				EP	A 218.6			
RunID: IC6_1	150107A	QC Batch: R9	7458		PrepD	ate		Analyst: RB
Hexavalent C	Chromium	ND	0.016	0.20		µg/L	1	1/7/2015 03:06 PM
TOTAL META	ALS BY ICPMS							
				EP	A 200.8			
RunID: ICP7	_150108A	QC Batch: 483	372		PrepD	ate	1/8/2015	Analyst: CEI
Chromium		ND	0.030	1.0		µg/L	1	1/8/2015 02:04 PM

Qualifiers:

В Analyte detected in the associated Method Blank

- Н Holding times for preparation or analysis exceeded S
 - Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out ASSET LABORATORIES

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

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CALIFORNIA

Е

Value above quantitation range

ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

ANALYTICAL RESULTS

Print Date: 20-Jan-15

CLIENT: Lab Order Project:								
Lab ID:	N014305-002							
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVAL	ENT CHROMIUM BY IC	;						
				EP.	A 218.6			
RunID: IC	6_150107A	QC Batch: R97	7458		PrepD	ate		Analyst: RB
Hexavaler	nt Chromium	640	1.6	20		µg/L	100	1/7/2015 04:15 PM
TOTAL ME	ETALS BY ICPMS							
				EP	A 200.8			
RunID: IC	P7_150108A	QC Batch: 483	372		PrepD	ate	1/8/2015	Analyst: CEI
Chromium	n	580	0.15	5.0		µg/L	5	1/8/2015 02:15 PM

Qualifiers:

Analyte detected in the associated Method Blank

- Н Holding times for preparation or analysis exceeded S
 - Spike/Surrogate outside of limits due to matrix interference
- Е Value above quantitation range
- ND Not Detected at the Reporting Limit Results are wet unless otherwise specified

DO Surrogate Diluted Out

В

ASSET LABORATORIES

CALIFORNIA 11060 Artesia Blvd., Ste C, 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

ANALYTICAL RESULTS

Print Date: 20-Jan-15

CLIENT: Lab Order Project:								
Lab ID:	N014305-003							
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVAL	ENT CHROMIUM BY IC							
				EP	A 218.6			
RunID: IC	C6_150107A	QC Batch: R9	7458		PrepD	ate		Analyst: RB
Hexavale	nt Chromium	ND	0.080	1.0		µg/L	5	1/7/2015 05:19 PM
TOTAL ME	ETALS BY ICPMS							
				EP	A 200.8			
RunID: IC	CP7_150108A	QC Batch: 483	372		PrepD	ate	1/8/2015	Analyst: CEI
Chromiun	n	1.9	0.030	1.0		µg/L	1	1/8/2015 02:20 PM

Qualifiers:

В

Analyte detected in the associated Method Blank

- Н Holding times for preparation or analysis exceeded S
 - Spike/Surrogate outside of limits due to matrix interference
- Е Value above quantitation range
- ND Not Detected at the Reporting Limit Results are wet unless otherwise specified

DO Surrogate Diluted Out



CALIFORNIA 11060 Artesia Blvd., Ste C, 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

Project:

CLIENT: CH2M HILL

Work Order: N014305

PG&E Topock IM3, 652547.PT.0P.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W_CRPGE

Sample ID MB-48372 Client ID: PBW	SampType: MBLK Batch ID: 48372	TestCode: 200.8_W_CR Units: µg/L TestNo: EPA 200.8	Prep Date: 1/8/2015 Analysis Date: 1/8/2015	RunNo: 97477 SeqNo: 1904612
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Chromium	ND	1.0		
Sample ID LCS-48372 Client ID: LCSW Analyte	SampType: LCS Batch ID: 48372 Result	TestCode: 200.8_W_CR Units: µg/L TestNo: EPA 200.8 PQL SPK value SPK Ref Val	Prep Date: 1/8/2015 Analysis Date: 1/8/2015 %REC LowLimit HighLimit RPD Ref Val	RunNo: 97477 SeqNo: 1904613 %RPD RPDLimit Qual
Chromium	10.200	1.0 10.00 0	102 85 115	
Sample ID N014305-001C-MS Client ID: ZZZZZZ	SampType: MS Batch ID: 48372	TestCode: 200.8_W_CR Units: µg/L TestNo: EPA 200.8	Prep Date: 1/8/2015 Analysis Date: 1/8/2015	RunNo: 97477 SeqNo: 1904626
		= =	• • • • • •	-
Client ID: ZZZZZZ	Batch ID: 48372	TestNo: EPA 200.8	Analysis Date: 1/8/2015	SeqNo: 1904626
Client ID: ZZZZZZ Analyte	Batch ID: 48372 Result 9.592	TestNo: EPA 200.8	Analysis Date: 1/8/2015 %REC LowLimit HighLimit RPD Ref Val	SeqNo: 1904626
Client ID: ZZZZZZ Analyte Chromium Sample ID N014305-001C-MSD	Batch ID: 48372 Result 9.592 SampType: MSD	PQL SPK value SPK Ref Val 1.0 10.00 0.1781 TestCode: 200.8_W_CR Units: µg/L	Analysis Date: 1/8/2015 %REC LowLimit HighLimit RPD Ref Val 94.1 75 125 Prep Date: 1/8/2015	SeqNo: 1904626 %RPD RPDLimit Qual RunNo: 97477

Qualifiers:

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

CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

E Value above quantitation range

R RPD outside accepted recovery limits

Calculations are based on raw values

3151 W. Post Rd., Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.2691 H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL

Work Order: N014305

Project: PG&E Topock IM3, 652547.PT.0P.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID MB-R97458	SampType: MBLK	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97458
Client ID: PBW	Batch ID: R97458	TestNo: EPA 218.6	Analysis Date: 1/7/2015	SeqNo: 1903991
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-R97458	SampType: LCS	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97458
Client ID: LCSW	Batch ID: R97458	TestNo: EPA 218.6	Analysis Date: 1/7/2015	SeqNo: 1903992
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	5.066	0.20 5.000 0	101 90 110	
Sample ID N014302-002A-DUP	SampType: DUP	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97458
Client ID: ZZZZZZ	Batch ID: R97458	TestNo: EPA 218.6	Analysis Date: 1/7/2015	SeqNo: 1904002
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	524.000	10	527.7	0.699 20
Sample ID N014302-002A-MS	SampType: MS	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97458
Client ID: ZZZZZZ	Batch ID: R97458	TestNo: EPA 218.6	Analysis Date: 1/7/2015	SeqNo: 1904003
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	772.845	10 250.0 527.7	98.1 90 110	
Sample ID N014302-002A-MSD	SampType: MSD	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97458
Client ID: ZZZZZZ	Batch ID: R97458	TestNo: EPA 218.6	Analysis Date: 1/7/2015	SeqNo: 1904004
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	774.650	10 250.0 527.7	98.8 90 110 772.8	0.233 20

Qualifiers:

ND

- B Analyte detected in the associated Method Blank
 - Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- ASSET LABORATORIES
- 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

CALIFORNIA

R

Calculations are based on raw values NEVADA

E Value above quantitation range

RPD outside accepted recovery limits

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

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

CLIENT: CH2M HILL

Work Order: N014305

Project: PG&E Topock IM3, 652547.PT.0P.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID N014305-001A-MS	SampType: MS	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97458
Client ID: ZZZZZZ	Batch ID: R97458	TestNo: EPA 218.6	Analysis Date: 1/7/2015	SeqNo: 1904014
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	1.221	0.20 1.000 0.1371	108 90 110	
Sample ID N014306-001C-MS	SampType: MS	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97458
Client ID: ZZZZZZ	Batch ID: R97458	TestNo: EPA 218.6	Analysis Date: 1/7/2015	SeqNo: 1904016
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	10.284	0.20 5.000 5.139	103 90 110	
Sample ID N014305-002A-MS	SampType: MS	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97458
Sample ID N014305-002A-MS Client ID: ZZZZZZ	SampType: MS Batch ID: R97458	TestCode: 218.6_WPGE Units: µg/L TestNo: EPA 218.6	Prep Date: Analysis Date: 1/7/2015	RunNo: 97458 SeqNo: 1904018
			·	
Client ID: ZZZZZZ	Batch ID: R97458	TestNo: EPA 218.6	Analysis Date: 1/7/2015	SeqNo: 1904018
Client ID: ZZZZZZ	Batch ID: R97458 Result	TestNo: EPA 218.6 PQL SPK value SPK Ref Val	Analysis Date: 1/7/2015 %REC LowLimit HighLimit RPD Ref Val	SeqNo: 1904018
Client ID: ZZZZZZ Analyte Hexavalent Chromium	Batch ID: R97458 Result 1139.260	TestNo: EPA 218.6 PQL SPK value SPK Ref Val 20 500.0 643.0	Analysis Date: 1/7/2015 %REC LowLimit HighLimit RPD Ref Val 99.2 90 110	SeqNo: 1904018 %RPD RPDLimit Qual
Client ID: ZZZZZZ Analyte Hexavalent Chromium Sample ID N014305-003A-MS	Batch ID: R97458 Result 1139.260 SampType: MS	TestNo: EPA 218.6 PQL SPK value SPK Ref Val 20 500.0 643.0 TestCode: 218.6_WPGE Units: µg/L	Analysis Date: 1/7/2015 %REC LowLimit HighLimit RPD Ref Val 99.2 90 110 Image: Compare the second s	SeqNo: 1904018 %RPD RPDLimit Qual RunNo: 97458

Qualifiers:

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

CALIFORNIA

11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

R

RPD outside accepted recovery limits S

Calculations are based on raw values NEVADA

E Value above quantitation range

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

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

ANALYTICAL RESULTS

ASSET Lab	ooratories			Print Date: 20-Jan-15						
CLIENT:	CH2M HILL			C	lient Sampl	e ID: SC-7	00B-WDR	-502		
Lab Order:	N014305				Collection	Date: 1/6/20	015 1:00:0	0 PM		
Project:	PG&E Topock	IM3, 652547.PT.01	P.00		M	atrix: WAT	ER			
Lab ID:	N014305-001									
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed		
TURBIDITY				SN	I 2130B					
RunID: WET	CHEM_150108F	QC Batch: R97	486		PrepD	ate		Analyst: RB		
Turbidity		0.18	0.10	0.10		NTU	1	1/8/2015 09:30 AM		

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

DO Surrogate Diluted Out

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

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CALIFORNIA

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ANALYTICAL RESULTS

ASSET Lab	oratories			Print Date: 20-Jan-15					
CLIENT:	CH2M HILL			C	lient Sampl	e ID: SC-1	00B-WDR	-502	
Lab Order:	N014305	5 Collection Date: 1/6/2015 2:20:00 PM							
Project:	PG&E Topock	IM3, 652547.PT.01	P.00		M	atrix: WAT	ER		
Lab ID:	N014305-002								
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed	
TURBIDITY				SN	1 2130B				
RunID: WETC	CHEM_150108F	QC Batch: R97	486		PrepD	ate		Analyst: RB	
Turbidity		0.11	0.10	0.10		NTU	1	1/8/2015 09:30 AM	

Qualifiers:

В

Analyte detected in the associated Method Blank

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

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

DO Surrogate Diluted Out

ASSET LABORATORIES

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

Date: 20-Jan-15

CLIENT: CH2M HILL

Work Order: N014305

Project: PG&E Topock IM3, 652547.PT.0P.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 2130_W

Sample ID N014305-001B DUP	SampType: DUP	TestCod	le: 2130_W	Units: NTU		Prep Da	te:		RunNo: 974	486	
Client ID: ZZZZZZ	Batch ID: R97486	TestN	o: SM 2130E	3		Analysis Da	te: 1/8/201	15	SeqNo: 190	05991	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity	0.190	0.10						0.1800	5.41	30	

Qualifiers:

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

ASSET LABORATORIES

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

Calculations are based on raw values NEVADA 3151 W. Post Rd., Las Vegas, NV 89118

P: 702.307.2659 F: 702.307.2691

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

ANALYTICAL RESULTS

Print Date: 20-Jan-15

CLIENT:	CH2M HILL			Cl	lient Sampl	e ID: SO	C-701-WDR-:	502	
Lab Order:	N014305	Collection Date: 1/6/2015 2:20:00 PM							
Project:	PG&E Topoc	k IM3, 652547.PT.0	P.00		Ma	atrix: W	ATER		
Lab ID:	N014305-003	3							
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed	
TOTAL MERC	URY BY COLD	APOR TECHNIQUE							
				EP	A 245.1				
RunID: AA1_	150112A	QC Batch: 483	375		PrepD	ate	1/9/2015	Analyst: CEI	
Mercury		ND	0.015	0.20		µg/L	1	1/12/2015 12:24 PI	

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

DO Surrogate Diluted Out

ASSET LABORATORIES

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CLIENT: CH2M HILL

Work Order: N014305

ANALYTICAL QC SUMMARY REPORT

Project: PG&E Topock IM3, 652547.PT.0P.00

TestCode: 245.1_W

Sample ID MB-48375	SampType: MBLK	TestCode: 245.1_W Units: µg/L	Prep Date: 1/9/2015	RunNo: 97498
Client ID: PBW	Batch ID: 48375	TestNo: EPA 245.1	Analysis Date: 1/12/2015	SeqNo: 1906515
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Mercury	ND	0.20		
Sample ID LCS-48375	SampType: LCS	TestCode: 245.1_W Units: µg/L	Prep Date: 1/9/2015	RunNo: 97498
Client ID: LCSW	Batch ID: 48375	TestNo: EPA 245.1	Analysis Date: 1/12/2015	SeqNo: 1906518
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Mercury	5.689	0.20 5.000 0	114 85 115	
Sample ID N014305-003B-MS	SampType: MS	TestCode: 245.1_W Units: µg/L	Prep Date: 1/9/2015	RunNo: 97498
Sample ID N014305-003B-MS Client ID: ZZZZZZ	SampType: MS Batch ID: 48375	TestCode: 245.1_W Units: μg/L TestNo: EPA 245.1	Prep Date: 1/9/2015 Analysis Date: 1/12/2015	RunNo: 97498 SeqNo: 1906519
			·	
Client ID: ZZZZZZ	Batch ID: 48375	TestNo: EPA 245.1	Analysis Date: 1/12/2015	SeqNo: 1906519
Client ID: ZZZZZZ	Batch ID: 48375 Result 5.300	TestNo: EPA 245.1 PQL SPK value SPK Ref Val	Analysis Date: 1/12/2015 %REC LowLimit HighLimit RPD Ref Val 106 75 125	SeqNo: 1906519
Client ID: ZZZZZZ Analyte Mercury	Batch ID: 48375 Result 5.300	TestNo: EPA 245.1 PQL SPK value SPK Ref Val 0.20 5.000 0	Analysis Date: 1/12/2015 %REC LowLimit HighLimit RPD Ref Val 106 75 125	SeqNo: 1906519 %RPD RPDLimit Qual
Client ID: ZZZZZZ Analyte Mercury Sample ID N014305-003B-MSD	Batch ID: 48375 Result 5.300 SampType: MSD	TestNo: EPA 245.1 PQL SPK value SPK Ref Val 0.20 5.000 0 TestCode: 245.1_W Units: µg/L	Analysis Date: 1/12/2015 %REC LowLimit HighLimit RPD Ref Val 106 75 125 Prep Date: 1/9/2015	SeqNo: 1906519 %RPD RPDLimit Qual RunNo: 97498

Qualifiers:

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

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E Value above quantitation range

R RPD outside accepted recovery limits

> Calculations are based on raw values NEVADA

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H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S

ANALYTICAL RESULTS

Print Date: 20-Jan-15

CLIENT:	CH2M HILL			C	lient Sampl	e ID: SC-7	00B-WDR	-502	
Lab Order:	N014305				Collection	Date: 1/6/20	015 1:00:0	0 PM	
Project:	PG&E Topock I	M3, 652547.PT.0	P.00	Matrix: WATER					
Lab ID:	N014305-001								
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed	
ANIONS BY I	ON CHROMATOGR	APHY							
				EP	A 300.0				
RunID: IC2_1	150112A	QC Batch: R9	7505		PrepD	ate		Analyst: QBM	
Fluoride		6.4	0.22	2.0		mg/L	20	1/12/2015 05:48 PM	
ANIONS BY I	ON CHROMATOGR	APHY							
				EP	A 300.0				
RunID: IC2_1	150112A	QC Batch: R9	7505		PrepD	ate		Analyst: QBM	
Sulfate		460	1.6	25		mg/L	50	1/12/2015 03:16 PM	

Qualifiers:

В

Analyte detected in the associated Method Blank

- Н Holding times for preparation or analysis exceeded S
 - Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

ASSET LABORATORIES

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Е

Value above quantitation range

ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

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

Е

Value above quantitation range

ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: 20-Jan-15

CLIENT:	CH2M HILL		(Client Sample ID: SC-	100B-WDR	-502		
Lab Order:	N014305			Collection Date: 1/6/2	2015 2:20:0	0 PM		
Project:	PG&E Topock II	Topock IM3, 652547.PT.0P.00 Matrix: WATER						
Lab ID:	N014305-002							
Analyses		Result MD	L PQL	Qual Units	DF	Date Analyzed		
ANIONS BY	ION CHROMATOGRA	APHY						
			E	PA 300.0				
RunID: IC2_	150112A	QC Batch: R97505		PrepDate		Analyst: QBM		
Fluoride		6.2 0.2	22 2.0	mg/L	20	1/12/2015 06:00 PM		
ANIONS BY	ION CHROMATOGRA	APHY						
			E	PA 300.0				
RunID: IC2_	150112A	QC Batch: R97505		PrepDate		Analyst: QBM		
Sulfate		480 1.0	6 25	mg/L	50	1/12/2015 03:29 PM		

Qualifiers:

В

Analyte	detected	in the	associated	Method	Blank
TT 1 1'					

- Н Holding times for preparation or analysis exceeded S
 - Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out



ASSET LABORATORIES

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

ANALYTICAL RESULTS

CLIENT:	CH2M HILL		С	lient Sample ID	: SC-701-WDR-5	502	
Lab Order:	N014305		Collection Date: 1/6/2015 2:20:00 PM				
Project:	PG&E Topocl	K IM3, 652547.PT.0P.00		Matrix	: WATER		
Lab ID:	N014305-003						
Analyses		Result MDL	PQL	Qual U	nits DF	Date Analyzed	
ANIONS BY I	ON CHROMATOO	RAPHY					
			EF	A 300.0			
RunID: IC2_1	50112A	QC Batch: R97505		PrepDate		Analyst: QBN	
Fluoride		22 1.1	10	mg/	L 100	1/12/2015 08:32 P	

Print Date: 20-Jan-15

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range

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

DO Surrogate Diluted Out



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

CLIENT: CH2M HILL

Work Order: N014305

Project: PG&E Topock IM3, 652547.PT.0P.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_FPGE

Sample ID MB-R97505_F	SampType: MBLK	TestCode: 300_W_FPG Units: mg/L	Prep Date:	RunNo: 97505
Client ID: PBW	Batch ID: R97505	TestNo: EPA 300.0	Analysis Date: 1/12/2015	SeqNo: 1906803
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride	ND	0.10		
Sample ID LCS-R97505_F	SampType: LCS	TestCode: 300_W_FPG Units: mg/L	Prep Date:	RunNo: 97505
Client ID: LCSW	Batch ID: R97505	TestNo: EPA 300.0	Analysis Date: 1/12/2015	SeqNo: 1906804
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride	2.434	0.10 2.500 0	97.4 90 110	
Sample ID N014305-002BMS	SampType: MS	TestCode: 300_W_FPG Units: mg/L	Prep Date:	RunNo: 97505
Client ID: ZZZZZZ	Batch ID: R97505	TestNo: EPA 300.0	Analysis Date: 1/12/2015	SeqNo: 1906813
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride	23.180	2.0 20.00 6.220	84.8 80 120	
Sample ID N014305-002BMSD	SampType: MSD	TestCode: 300_W_FPG Units: mg/L	Prep Date:	RunNo: 97505
Client ID: ZZZZZZ	Batch ID: R97505	TestNo: EPA 300.0	Analysis Date: 1/12/2015	SeqNo: 1906814
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride	23.300	2.0 20.00 6.220	85.4 80 120 23.18	0.516 20
Sample ID N014305-001BDUP	SampType: DUP	TestCode: 300_W_FPG Units: mg/L	Prep Date:	RunNo: 97505
Client ID: ZZZZZZ	Batch ID: R97505	TestNo: EPA 300.0	Analysis Date: 1/12/2015	SeqNo: 1907676
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual

Qualifiers:

ND

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values NEVADA

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

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S

DO Surrogate Diluted Out ASSET LABORATORIES

11060 Artesia Blvd., Ste C, Cerritos, CA 90703

Not Detected at the Reporting Limit

P: 562.219.7435 F: 562.219.7436 "Serving Clients with Passion and Professionalism"

CALIFORNIA

CLIENT: CH2M HILL

Work Order: N014305

Project: PG&E Topock IM3, 652547.PT.0P.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID MB-R97505_SO4	SampType: MBLK	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: 97505
Client ID: PBW	Batch ID: R97505	TestNo: EPA 300.0	Analysis Date: 1/12/2015	SeqNo: 1906747
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Sulfate	ND	0.50		
Sample ID LCS-R97505_SO4	SampType: LCS	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: 97505
Client ID: LCSW	Batch ID: R97505	TestNo: EPA 300.0	Analysis Date: 1/12/2015	SeqNo: 1906748
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Sulfate	4.959	0.50 5.000 0	99.2 90 110	
Sample ID N014302-003CDUP	SampType: DUP	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: 97505
Client ID: ZZZZZZ	Batch ID: R97505	TestNo: EPA 300.0	Analysis Date: 1/12/2015	SeqNo: 1906759
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Sulfate	118.040	10	120.6	2.16 20
Sample ID N014302-002CMS	SampType: MS	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: 97505
Client ID: ZZZZZZ	Batch ID: R97505	TestNo: EPA 300.0	Analysis Date: 1/12/2015	SeqNo: 1906760
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Sulfate	129.030	5.0 50.00 81.38	95.3 80 120	
Sample ID N014302-002CMSD	SampType: MSD	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: 97505
Client ID: ZZZZZZ	Batch ID: R97505	TestNo: EPA 300.0	Analysis Date: 1/12/2015	SeqNo: 1906761
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Sulfate	131.760	5.0 50.00 81.38	101 80 120 129.0	2.09 20

Qualifiers:

ND

- B Analyte detected in the associated Method Blank
 - Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- ASSET LABORATORIES
- CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

R RPD outside accepted recovery limits

Calculations are based on raw values

E Value above quantitation range

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

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

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39

CLIENT: CH2M HILL Work Order: N014305 Project: PG&E Topock IM3, 652547.PT.0P.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID N014302-008CMS	SampType: MS	TestCoo	le: 300_W_S	04P Units: mg/L		Prep Da	te:		RunNo: 975	505	
Client ID: ZZZZZZ	Batch ID: R97505	TestN	lo: EPA 300.0)		Analysis Da	te: 1/12/20	15	SeqNo: 190	6762	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	55.375	2.5	25.00	30.74	98.5	80	120				

Qualifiers:

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

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

Calculations are based on raw values NEVADA 3151 W. Post Rd., Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.2691

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

40

ANALYTICAL RESULTS

ASSET Lab	oratories			Print Date: 20-Jan-15					
CLIENT:	CH2M HILL			С	lient Sampl	e ID: SC-70	00B-WDR	-502	
Lab Order:	der: N014305 Collection Date: 1/6/2015 1:00:0							0 PM	
Project:	ct: PG&E Topock IM3, 652547.PT.0P.00 Matrix: WATER								
Lab ID:	N014305-001								
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed	
NITRATE/NIT	RITE-N BY CADM	UM REDUCTION		SMA	500-NO3F				
				31114	500-NO3F				
RunID: WETC	CHEM_150116A	QC Batch: R9	7598		PrepD	ate		Analyst: QBM	
Nitrate/Nitrite	Nitrate/Nitrite as N 2.6 0.11 0.25 mg/L 5 1/16/2015							1/16/2015	

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

DO Surrogate Diluted Out

ASSET LABORATORIES

CALIFORNIA 11060 Artesia Blvd., Ste C, 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

ANALYTICAL RESULTS

ASSET La	boratories		Print Date: 20-Jan-15							
CLIENT:	CH2M HILL			C	lient Sampl	e ID: SC-1	00B-WDR	-502		
Lab Order:	N014305				Collection	Date: 1/6/20	015 2:20:0	0 PM		
Project:	PG&E Topock	IM3, 652547.PT.0	P.00		M	atrix: WAT	ER			
Lab ID:	N014305-002									
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed		
NITRATE/NI	TRITE-N BY CADM	UM REDUCTION								
				SM4	500-NO3F					
RunID: WET	CHEM_150116A	QC Batch: R97	7598		PrepD	ate		Analyst: QBM		
Nitrate/Nitrite	e as N	2.8	0.11	0.25		mg/L	5	1/16/2015		

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range

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

DO Surrogate Diluted Out

ASSET LABORATORIES

CALIFORNIA 11060 Artesia Blvd., Ste C, 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

CLIENT: CH2M HILL

Work Order: N014305

Project: PG&E Topock IM3, 652547.PT.0P.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID N014305-001EDUP	SampType: DUP	TestCode: 4500N03F_W Units: mg/L	Prep Date:	RunNo: 97598
Client ID: ZZZZZZ	Batch ID: R97598	TestNo: SM4500-NO3	Analysis Date: 1/16/2015	SeqNo: 1911401
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Nitrate/Nitrite as N	2.432	0.25	2.639	8.15 20
Sample ID N014305-001EMS	SampType: MS	TestCode: 4500N03F_W Units: mg/L	Prep Date:	RunNo: 97598
Client ID: ZZZZZZ	Batch ID: R97598	TestNo: SM4500-NO3	Analysis Date: 1/16/2015	SeqNo: 1911402
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Nitrate/Nitrite as N	7.142	0.25 5.000 2.639	90.1 75 125	
Sample ID N014305-001EMSD	SampType: MSD	TestCode: 4500N03F_W Units: mg/L	Prep Date:	RunNo: 97598
Client ID: ZZZZZZ	Batch ID: R97598	TestNo: SM4500-NO3	Analysis Date: 1/16/2015	SeqNo: 1911403
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Nitrate/Nitrite as N	7.420	0.25 5.000 2.639	95.6 75 125 7.142	3.82 20
Sample ID MB-R97598	SampType: MBLK	TestCode: 4500N03F_W Units: mg/L	Prep Date:	RunNo: 97598
Client ID: PBW	Batch ID: R97598	TestNo: SM4500-NO3	Analysis Date: 1/16/2015	SeqNo: 1911407
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-R97598	SampType: LCS	TestCode: 4500N03F_W Units: mg/L	Prep Date:	RunNo: 97598
Client ID: LCSW	Batch ID: R97598	TestNo: SM4500-NO3	Analysis Date: 1/16/2015	SeqNo: 1911408
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Nitrate/Nitrite as N	0.962	0.050 1.000 0	96.2 85 115	

Qualifiers:

ND

B Analyte detected in the associated Method Blank

Not Detected at the Reporting Limit

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

Calculations are based on raw values NEVADA

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

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S

DO Surrogate Diluted Out ASSET LABORATORIES

11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

"Serving Clients with Passion and Professionalism"

CALIFORNIA

WORK ORDER: N014305

ANALYST LIST

NAME	TEST METHOD
Quennie Manimtim	EPA 300, SM 4500NO3F
Claire Ignacio	EPA 200.7, EPA 200.8, EPA 245.1
Ryan Balilu	EPA 218.6
Lilia Ramit	EPA 120.1, SM 2540C, EPA 2130B



CALIFORNIA 11060 Artesia Blvd., Ste C, 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



6 6 6 6	ANALYTICAL SUPPORT SERVIC	DES FOR ENVIRONMENTAL T	ECHNOLOGIES		CHA	IN O	FC	UST	ODY	RE(COR	D													
	3151W. Post Roa (702) 307-2659 F					1	[IM3	Plant	-WD	R-50	2]								OUNE 1/06/	TIME		0 Days		OF	1
COMPANY	CH2M HILL				1		/	7	(1)		7	7	elow/	1	•]	7	7	7	/		Γ.	7	COMM	IENTS	
PROJECT NAME	PG&E Topock	IM3							₹/			list D	Molec	/							/ /	, ,	COMIN	IEN I S	
PHONE	530-229-3	3303 F	ax <u>5</u> 30	-339-3303		,		200.8	/ ,	/ ,	/ /	l &	1,	/ /	204	/ /	/ /								
ADDRESS	155 Grand Ave Oakland, CA 9				Marking the second supplication of the second	Title 30 (278.6) Lab Em	EC 110 Metals List 10	2.00×			240	(8)	(?)	TOC 150 (300.0) F, MOS	5) 5	8)				THER OF CONTAINERS					
P.O. NUMBER	652547.PT.0P	.00				8.6) Lat	stals Lis		(00)	 (0)	Ammon (200.7, 200	(4500-1	Anion (300.0) F	TOC / 100 (300.0) H	() () ()	NO2 (11 (200.8) 11	(4500-NO2B)	/ /		OF COW					
SAMPLERS (SIGNA	TURE			Manual Contraction of the Contra		12/2	× ×	0. 2 / 3	Turh (<540 c)	(<13) M21		ejun.	S / S	8 4	1001		(420			EFA					
SAMPLE I.D.		DATE	TIME	DESCRIPTION	/ È			12		Total	Ami	Anic		/2	Tota	/ ?									
SC-700B-W	/DR-502	01/06/15			X		X	X	X	X	X		х			Х			4		2/43	<u>305</u>	45000 10000 10000	0]	
SC-100B-V	VDR-502	01/06/15			X		X	X	х	Х	X		х			Х			4		un com del Victoria da		egettik.	· 62	
SC-701-WI	DR-502	01/06/15			x	x	×	X				X			х				4					Ó3	
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																			12	τοτα	L NUMB	ER OF	CONT	AINERS	3

ALLAND ALLANABLE BEAR

CH	IAIN OF CUSTODY SIG	GNATURE RECORD		SAMPLE CONDITIONS
(Relinquished)	Printed Name Josh Rosenberg	Company/ Agency CH2MH;LL	Date/ 1-6-15 Time 145 (
Signature (Received)	Printed Philander Gala	Company/ ASSET ANS	Date/ 1-6-15 Time 1451	CUSTODY SEALED YES D NO
Signature (Relinquished)		Company , 1 1 ht	Date/ / - 6 - /5 Time - 2043	SPECIAL REQUIREMENTS:
Signature () (Received)	Printer Mander Golan	Company/ ASET LAKS	Date/ 1/6745 Time 2015	The metals include: Cr, Al, Sb, As, Ba, B, Cu, Pb, Mn, Mo, Ni, Fe, Zn
Signature	Printed Name	Company/ Agency	Date/ Time	Please Provide a preliminary Result for the Cr6 and
Signature (Received)	Printed Name	Company/ Agency	Date/ Time	TDS ASAP.

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:	1/6/2015				Workorder:	N014305		
Rep sample Temp (Deg C):	1.5				IR Gun ID:	2		
Temp Blank:	✔ Yes	🗌 No						
Carrier name:	ATL							
Last 4 digits of Tracking No.:	NA			Packing	Material Used:	None		
Cooling process:	✓ Ice	Ice Pack	Dry Ice	Other	None			
			ample Receip	ot Checklist		N 🗆		
1. Shipping container/cooler in	good condi	lion?			Yes 🗹	No 🗌	Not Present	
2. Custody seals intact, signed	, dated on s	hippping containe	er/cooler?		Yes 🗌	No 🗌	Not Present	
3. Custody seals intact on sam	ple bottles?				Yes 🗌	No 🗌	Not Present	✓
4. Chain of custody present?					Yes 🗹	No 🗌		
5. Sampler's name present in C	COC?				Yes	No 🗹		
6. Chain of custody signed whe	en relinquish	ned and received?	?		Yes 🗹	No 🗌		
7. Chain of custody agrees with	n sample lat	pels?			Yes 🗹	No 🗌		
8. Samples in proper container,	/bottle?				Yes 🗹	No 🗌		
9. Sample containers intact?					Yes 🗹	No 🗌		
10. Sufficient sample volume for	or indicated	test?			Yes 🗹	No 🗌		
11. All samples received within	holding tim	e?			Yes 🗹	No 🗌		
12. Temperature of rep sample	or Temp B	lank within accep	table limit?		Yes 🗹	No 🗌	NA	
13. Water - VOA vials have zer	o headspac	ce?			Yes	No	NA	✓
14. Water - pH acceptable upon Example: pH > 12 for (Ct		for Metals			Yes	No 🗹	NA	
15. Did the bottle labels indicate	e correct pr	eservatives used	?		Yes	No 🗌	NA	✓
16. Were there Non-Conformar	nce issues a	at login?			Yes 🗹	No	NA	
Wa	as Client no	tified?			Yes 🗹	No 🗌	NA	
Comments: Sample was filter	red and lab	preserved. Samp	ler's initial taken	from Sample of	containers.			

JPG 199-01/08/15





Sample Control

From: Sent:	Marlon B. Cartin [<u>marlon@assetlaboratories.com]</u> Wednesday, January 07, 2015 11:49 AM
То:	Shawn.Duffy@CH2M.com
Cc:	'SampleControl.LV@assetlaboratories.com'; 'John Paolo Gumawid'; 'Glen Gesmundo'
Subject:	Topock Weekly sample

Hi Shawn!

Per our conversation this morning, below are what we discussed and agreed upon on the initial weekly samples that we got from Topock yesterday;

- A. For samples 700B, 100B and 701
 - 1. Cr+6 we will filter and preserve the sample accordingly.
 - 2. Metals we will report Totals so we will only preserve the sample.
 - 3. NO3/NO2 we will transfer and preserve sample and analyzed using SM4500NO3F as N.
 - 4. NO3 will no longer be reported by 300.0
 - 5. NH3 send to TLI
 - 6. Sampling Time We will take this from the sample container.
 - 7. Prelims/Verbal result (Cr+6, TDs, T. Cr) will be ready by Thursday.
- B. For samples PE-01 and TW-03D
 - 1. Cr+6 we will filter and preserve the sample accordingly.
 - 2. Metals we will filter and preserve the sample accordingly.
 - 3. Sampling Time We will take this from the sample container.
- C. Sludge
 - 1. We will report in dry weight.

Please let me know if I missed something. Please send a revised COC at your most convenient time.

Thanks,

Marlon Cartin

Project Manager California: 11060 Artesia Blvd., Ste. C, Cerritos, CA 90703 | P: 562.219.7435 | F: 562.219.7436 Nevada: 3151 W. Post Road, Las Vegas, NV 89118 | P: 702.307.2659 Ext. 410 | F: 702.307.2691 | M: 702.882.3289 www.assetlaboratories.com



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Subcontractor:

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

QC Level: Level IV

Truesdail	TEL:	(714) 730-6239	Field Sampler:	None Specified	
14201 Franklin Ave.	FAX:	(714) 730-6462			
Tustin, CA 92680	Acct #:				07-Jan-15

					Requested Tests	
Sample ID	Matrix	Date Collected	Bottle Type	SM4500-NH3C		
N014305-001D / SC-700B-WDR-502	Water	1/6/2015	16OZP	1		
N014305-002D / SC-100B-WDR-502	Water	1/6/2015	16OZP	1		

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

Please use PO#: N14305A For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: Normal TAT

Please analyze for Ammonia by SM4500.

GSO# 526578283

	Date/Time		Date/Time
Relinquished by:01/07/14 Relinquished by:	17:00	Received by:	

SAMPLE CALCULATION

METHOD: SM 2540C TEST NAME: Total Filterable Residue MATRIX: Water

FORMULA:

Calculate TDS concentration in mg/L, in the original sample as follows:

TDS, mg/L =
$$(A-B)*1000000$$

C

Where:

A = weight in g of dish + residue after drying B = weight of dish in g C = volume of sample used in mL

For N014305-001B, TDS concentration in mg/L is calculated as follows:

TDS, mg/L = <u>(60.4208-60.3391) *1000000</u> 20

= 4085 mg/L

Reporting result in two significant figures,

Julia Ramit 1/9/2015

WHERE: A = weight in grams of dish + residue after drying B = weight of dish in grams C = volume of sample used in mL

Date Finished: 1/8/2014	vol	initial	final	calc	prep fact	TDS, mg/L	CONDUCTIVITY	RATIO
MB-48346	100	55.5515	55.552	5	1	5		
LCS-48346	100	64.2612	64.3612	1000	1	1000		
N014305-001B	20	60.3391	60.4208	817	5	4085	7530	0.542
N014305-001B DUP	20	59.8962	59.9785	823	5	4115	7530	0.546
N014305-002B	20	64.2459	64.3301	842	5	4210	7480	0.563
N014305-003C	5	61.1219	61.1965	746	20	14920	22500	0.663
N014306-001B	30	61.0151	61.0875	724	3.33333	2413.33092	4300	0.561
N014306-002C	20	60.31	60.4059	959	5	4795	8380	0.572
N014309-001D	75	63.5017	63.5692	675	1.33333	899.99775	1539	0.585
N014309-002D	100	53.6748	53.741	662	1	662	935	0.708
N014310-001C	100	55.7305	55.7917	612	1	612	793	0.772
N014310-002C	100	62.9833	63.0453	620	1	620	812	0.764
N014310-003C	100	56.0295	56.0873	578	1	578	729	0.793

Sample Calculation

METHOD: EPA 200.7 TEST NAME: Heavy Metals by ICP MATRIX: Water

FORMULA:

Calculate the Boron concentration, in ug/L, in the original sample as follows:

Boron, ug/L = A * DF * PF * 1000

where:

A = mg/L, calculated concentration DF = dilution factor PF = Final Vol. of Digestate in mL / Amt. of Sample mL

For Sample N014305-002C, the concentration in ug/L is calculated as follows:

Boron, ug/L = 0.91422 * 1 * (25/25) * 1000 = 914.2198

Reporting results in two significant figures,

Boron, ug/L = 910



ICP-Metals in Water

Dilution Test Summary

ork Order No.:	N014305	Matrix:	Water
Test Method:	EPA 200.7	Batch No.:	48364
Analysis Date:	01/12/15		

Instrument ID: ICP-02 Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Al, B & Fe. The calculated concentrations are <25RL

Sample ID	Analyte	Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N014305-001C DT 5X	Aluminum	ug/L	0	NA	0		10
N014305-001C DT 5X	Boron	ug/L	1100.491604	NA	890.669555	23.56%	10
N014305-001C DT 5X	Iron	ug/L	0	NA	9.588467	100.00%	10

Note: NA - Not Applicable

CLIENT:CH2M HILLWork Order:N014305

Project: PG&E Topock IM3, 652547.PT.0P.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WPGEPPB

Sample ID N014305-0010	C-PS SampType: PS	TestCo	TestCode: 200.7_WPGE Units: µg/L		Prep Date:			RunNo: 97502			
Client ID: ZZZZZZ	Batch ID: 48364	TestN	TestNo: EPA 200.7		Analysis Date: 1/12/2015			SeqNo: 1906656			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	11049.643	50	10000	0	110	80	120				
Boron	6043.602	100	5000	890.7	103	80	120				
Iron	133.072	20	100.0	9.588	123	80	120				S

Qualifiers:

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

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

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference
- 94

Sample Calculation

METHOD: EPA 200.8 TEST NAME: Heavy Metals by ICP-MS MATRIX: Water

FORMULA:

Calculate the Chromium concentration, in ug/L, in the original sample as follows:

Chromium, ug/L = A * DF * PF

where:

A = ug/L, calculated concentration DF = dilution factor PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample N014305-002C, the concentration in ug/L is calculated as follows:

Chromium, ug/L = 115.694 * 5 * (25/25) = 578.4710

Reporting results in two significant figures,

Chromium, ug/L = 580

ICP-MS-Metals in Water

Dilution Test Summary

der No.:	N014305	Matrix:	N
Test Method:	EPA 200.8	Batch No.:	483
Analysis Date:	1/8/2015		

Instrument ID: ICP-MS #2 Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to all analytes except Mo. The calculated values are <25X RL.

	A 1.	11.14					
Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N014305-001C-DT-5X	Antimony	µg/L	0	NA	0.05583		10
N014305-001C-DT-5X	Arsenic	μg/L	0.00895	NA	0.06069	85.25%	10
N014305-001C-DT-5X	Barium	µg/L	15.78846	NA	14.65798	7.71%	10
N014305-001C-DT-5X	Cadmium	µg/L	0	NA	0		10
N014305-001C-DT-5X	Chromium	µg/L	0.24275	NA	0.17814	36.27%	10
N014305-001C-DT-5X	Cobalt	µg/L	0	NA	0		10
N014305-001C-DT-5X	Copper	µg/L	0	NA	0		10
N014305-001C-DT-25X	Lead	µg/L	0	NA	0 0.03030		10
N014305-001C-DT-5X	Manganese	µg/L	0	NA	0		10
N014305-001C-DT-5X	Molybdenum	µg/L	20.94535	PASS	20.98926	0.21%	10
N014305-001C-DT-5X	Nickel	µg/L	2.32704	NA	2.03761	14.20%	10
N014305-001C-DT-5X	Selenium	µg/L	3.32944	NA	3.68515	9.65%	10
N014305-001C-DT-5X	Silver	µg/L	0	NA	0		10
N014305-001C-DT-25X	Thallium	µg/L	0	NA	0.04256		10
N014305-001C-DT-5X	Vanadium	µg/L	0.33110	NA	0.22115	49.72%	10
N014305-001C-DT-5X	Zinc	µg/L	0	NA	0		10

Note: NA - Not applicable

ICP-MS-Metals in Water

Dilution Test Summary

r No.:	N014305	Matrix:	Water
t Method:	EPA 200.8	Batch No.:	48372
lysis Date:	1/12/2015		

Instrument ID: ICP-MS #2 Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Be. The calculated value is <25X RL.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N014305-001C-DT-5X	Beryllium	µg/L	0	NA	0		10

Note: NA - Not applicable

 CLIENT:
 CH2M HILL

 Work Order:
 N014305

 Project:
 PG&E Topock IM3, 652547.PT.0P.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W_CRPGE

Sample ID N014305-001C-PS	SampType: PS	TestCoo	de: 200.8_W_	CR Units: µg/L		Prep Dat	te:		RunNo: 974	177	
Client ID: ZZZZZZ	Batch ID: 48372	TestN	lo: EPA 200.8	3		Analysis Dat	te: 1/8/201	5	SeqNo: 190	4624	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.470	1.0	10.00	0.1781	92.9	80	120				

Qualifiers:

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

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

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

CLIENT: CH2M HILL

Work Order: N014305

Project: PG&E Topock IM3, 652547.PT.0P.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

	Sample ID N014305-001C-PS	SampType: PS	TestCod	le: 200.8_W	Units: µg/L		Prep Da	te:		RunNo: 974	477	
	Client ID: ZZZZZZ	Batch ID: 48372	TestN	lo: EPA 200.8	3		Analysis Da	te: 1/8/201	15	SeqNo: 19)5775	
	Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
	Antimony	10.711	0.50	10.00	0	107	80	120				
	Arsenic	10.477	0.10	10.00	0.06069	104	80	120				
	Barium	115.603	1.0	100.0	14.66	101	80	120				
NR	B erylliu m	10.566	0.50	10.00	0	106	80	120				
	Cadmium	8.111	0.50	10.00	0	81.1	80	120				
	Cobalt	8.458	0.50	10.00	0	84.6	80	120				
	Copper	3.261	1.0	10.00	0	32.6	80	120				S
	Manganese	74.331	0.50	100.0	0	74.3	80	120				S
	Molybdenum	34.688	0.50	10.00	20.99	137	80	120				S
	Nickel	11.516	1.0	10.00	2.038	94.8	80	120				
	Selenium	14.085	0.50	10.00	3.685	104	80	120				
	Silver	9.778	0.50	10.00	0	97.8	80	120				
	Vanadium	10.269	1.0	10.00	0.2212	100	80	120				
	Zinc	82.562	10	100.0	0	82.6	80	120				
	Sample ID N014305-001C-PS	SampType: PS	TestCod	le: 200.8_W	Units: µg/L		Prep Da	te:		RunNo: 97	477	
	Client ID: ZZZZZZ	Batch ID: 48372	TestN	lo: EPA 200.8	3		Analysis Da	te: 1/8/201	15	SeqNo: 19)5776	
	Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
	Lead	11.721	5.0	10.00	0	117	80	120				
	Thallium	12.009	2.5	10.00	0.04256	120	80	120				
	Sample ID N014305-001C-PS	SampType: PS	TestCod	le: 200.8_W	Units: µg/L		Prep Da	te:		RunNo: 97	521	
	Client ID: ZZZZZZ	Batch ID: 48372	TestN	lo: EPA 200.8	3		Analysis Da	te: 1/12/20)15	SeqNo: 19	07778	
	Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
	Beryllium	10.474	0.50	10.00	0	105	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

DO Surrogate Diluted Out

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

Calculations are based on raw values

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

Sample Calculation

METHOD: EPA 218.6 TEST NAME: HEXAVALENT CHROMIUM BY IC MATRIX: Water

FORMULA:

Calculate the Hexavalent Chromium concentration, in μ g/L, in the original sample as follows:

$$Cr^{+6}$$
, $\mu g/L = A * DF$

where:

A = μ g/L, IC Cr⁺⁶ calculated concentration DF = dilution factor

For N014305-002A concentration in μ g/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 6.4302 * 100$$

= 643.02

Reporting result in two significant figures,

 $Cr^{+6}, \mu g/L = 640$



Sample Calculation

Work Order No.:	N014305
Test Method:	EPA 245.1
Matrix:	Water

FORMULA:

Calculate the Mercury concentration in ug/L in the original sample as follows:

Hg = [A][DF]

where:

A = ug/L, instrument calculated concentration DF = dilution factor

For: **N014305-003B**

The concentration in ug/L is calculated as follows:

Hg =		0.01193	I	ug/L	
Hg =	[0.01193][1]
Hg =	[Α][DF]

Since result is less than 0.2 ug/L reporting limit.

Hg =	ND	ug/L
------	----	------

Sample Calculation

METHOD: EPA 300.0 TEST NAME: INORGANIC ANIONS BY IC MATRIX: Water

FORMULA:

Calculate the Fluoride concentration, in mg/L, in the original sample as follows:

Fluoride, mg/L = A * DF

where:

А	=	mg/L, IC calculated concentration
DF	=	dilution factor

For N014305-001B concentration in mg/L is calculated as follows:

Fluoride, mg/L	=	0.321 * 20
	=	6.42

Reporting result in two significant figures,

Fluoride, mg/L = 6.4 pln

SAMPLE CALCULATION

METHOD: SM 4500_NO3F TEST NAME: Nitrate by Automated Cadmium Reduction Method MATRIX: Water

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L = A * DF

Where:

A= mg/L, Nitrate/Nitrite-N instrument calculated concentration

DF= dilution factor

For N014305-001E, concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N, mg/L = 0.5277 *5

= 2.6385 ug/L

Reporting result in 2 significant figures,

Nitrate/Nitrite-N, mg/L = 2.6

January 21, 2015

Shawn P. Duffy CH2M HILL 155 Grand Avenue, Suite 1000 Oakland, CA 94612 TEL: (530) 229-3303 FAX: (530) 339-3303

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

Workorder No.: N014307

RE: PG&E Topock IM3, 652547.PT.0P.00

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on January 06, 2015 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,

gigesmundo

Glen Gesmundo QA Manager

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.



CALIFORNIA 11060 Artesia Blvd., Ste C, 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

 CLIENT:
 CH2M HILL

 Project:
 PG&E Topock IM3, 652547.PT.0P.00

 Lab Order:
 N014307

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

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

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

Samples were analyzed within method holding time.

Analytical Comments for EPA 300.0:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 6010B:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) on QC samples N014320-002A-MS and N014320-002A-MSD are outside recovery criteria for Chromium 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 possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

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).



CLIENT: Project: Lab Order: Contract No:	CH2M HILL PG&E Topock IM3, 65 N014307 IM3plant-WDR-	2547.PT.0P.00	Work Order Sample Summ				
Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported		
N014307-001A	SC-Sludge-WDR-502	Sludge	1/6/2015 1:40:00 PM	1/6/2015	1/21/2015		
N014307-001B	SC-Sludge-WDR-502	Sludge	1/6/2015 1:40:00 PM	1/6/2015	1/21/2015		
N014307-001C	SC-Sludge-WDR-502	Sludge	1/6/2015 1:40:00 PM	1/6/2015	1/21/2015		



ANALYTICAL RESULTS Print Date: 21-Jan-15

			Time Date: 21-Jun-15							
CLIENT:	CH2M HILL		Client Sample ID: SC-Sludge-WDR-502							
Lab Order:	N014307		Collection Date: 1/6/2015 1:40:00 PM							
Project:	PG&E Topock II	M3, 652547.PT.0P.00	Matrix: SLUDGE							
Lab ID:	N014307-001									
Analyses		Result MDL	PQL	Qual	Units	DF	Date Analyzed			
ANIONS BY I	ON CHROMATOGRA	APHY								
			EP	A 300.0						
RunID: IC2_1	150119A	QC Batch: R97611		PrepDat	e		Analyst: QBN			
Fluoride		28 0.63	2.6	r	mg/Kg-dry	1	1/19/2015 11:21 A			

Qualifiers:

В

Analyte detected in the associated Method Blank

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

ND Not Detected at the Reporting Limit

Е

Results are wet unless otherwise specified

Value above quantitation range

DO Surrogate Diluted Out

ASSET LABORATORIES

CALIFORNIA 11060 Artesia Blvd., Ste C, 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

Work Order:

Project:

CLIENT: CH2M HILL

N014307

PG&E Topock IM3, 652547.PT.0P.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_S

MB-R97611	SampType:	MBLK	TestCod	le: 300_S	Units: mg/Kg		Prep Dat	e:		RunNo: 97	611	
PBS	Batch ID:	R97611	TestN	o: EPA 300.0	D		Analysis Dat	e: 1/19/20	15	SeqNo: 19	12688	
		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
		ND	1.0									
LCS-R97611	SampType:	LCS	TestCod	le: 300_S	Units: mg/Kg		Prep Date	e:		RunNo: 97	611	
LCSS	Batch ID:	R97611	TestN	o: EPA 300.0	D		Analysis Dat	e: 1/19/20	15	SeqNo: 19	12689	
		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
		24.650	1.0	25.00	0	98.6	90	110				
N014307-001ADUP	SampType:	DUP	TestCod	le: 300_S	Units: mg/Kg-	dry	Prep Dat	e:		RunNo: 97	611	
ZZZZZZ	Batch ID:	R97611	TestN	o: EPA 300.0	D		Analysis Dat	e: 1/19/20	15	SeqNo: 19	12691	
		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
		26.823	2.6						28.09	4.62	20	
N014307-001AMS	SampType:	MS	TestCod	le: 300_S	Units: mg/Kg-	dry	Prep Dat	e:		RunNo: 97	611	
ZZZZZZ	Batch ID:	R97611	TestN	o: EPA 300.0	D		Analysis Dat	e: 1/19/20	15	SeqNo: 19	12692	
		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
		78.885	2.6	66.00	28.09	77.0	80	120				S
N014307-001AMSD	SampType:	MSD	TestCod	le: 300_S	Units: mg/Kg-	dry	Prep Dat	e:		RunNo: 97	611	
ZZZZZZ	Batch ID:	R97611	TestN	o: EPA 300.0)		Analysis Dat	e: 1/19/20	15	SeqNo: 19	12693	
		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
	PBS LCS-R97611 LCSS N014307-001ADUP ZZZZZZ N014307-001AMS ZZZZZZ	PBS Batch ID: LCS-R97611 SampType: LCSS Batch ID: N014307-001ADUP SampType: ZZZZZZ Batch ID: N014307-001AMS SampType: ZZZZZZ Batch ID: N014307-001AMS SampType:	PBS Batch ID: R97611 Result LCS-R97611 SampType: LCS Batch ID: R97611 Result 24.650 N014307-001ADUP SampType: UUP ZZZZZZ Batch ID: R97611 Result 26.823 N014307-001AMS SampType: MS ZZZZZZ Batch ID: R97611 Result	PBSBatch ID:R97611TestNResultPQLND1.0LCS-R97611SampType:LCSTestCodLCSSBatch ID:R97611TestNResultPQL24.6501.0N014307-001ADUPSampType:DUPTestCodZZZZZZBatch ID:R97611TestNN014307-001AMUPSampType:DUPTestCodZZZZZZBatch ID:R97611TestNResultPQL26.8232.6N014307-001AMSSampType:MSTestCodZZZZZZBatch ID:R97611TestNResultPQL78.8852.6N014307-001AMSDSampType:MSDTestCodZZZZZZBatch ID:R97611TestNResultPQL78.8852.6N014307-001AMSDSampType:MSDTestCodZZZZZZBatch ID:R97611TestNZZZZZBatch ID:R97611TestNZZZZZBatch ID:R97611TestNZZZZZZBatch ID:R97611TestNZZZZZBatch ID:R97611TestNZZZZZBatch ID:R97611TestNZZZZZBatch ID:R97611TestNZZZZZBatch ID:R97611TestNZZZZZBatch ID:R97611TestNZZZZZBatch ID:R97611TestNZZZZZBatch ID:R97611TestNZZZZBatch ID:R97611TestN <td>PBS Batch ID: R97611 TestNo: EPA 300.0 Result PQL SPK value ND 1.0 1.0 LCS-R97611 SampType: LCS TestCode: 300_S LCSS Batch ID: R97611 TestNo: EPA 300.0 LCSS Batch ID: R97611 TestNo: EPA 300.0 Result PQL SPK value SPK value 24.650 1.0 25.00 25.00 N014307-001ADUP SampType: DUP TestCode: 300_S ZZZZZZ Batch ID: R97611 TestNo: EPA 300.0 Result PQL SPK value 26.823 2.6 N014307-001AMS SampType: MS TestNo: EPA 300.0 ZZZZZZ Batch ID: R97611 TestNo: EPA 300.0 Result PQL SPK value 2.6 66.00 N014307-001AMSD SampType: MSD TestNo: EPA 300.0 Result PQL</td> <td>PBS Batch ID: R97611 TestNo: EPA 300.0 Result PQL SPK value SPK Ref Val ND 1.0 1.0 LCS-R97611 SampType: LCS TestCode: 300.0 SPK Ref Val LCSS Batch ID: R97611 TestCode: 300.0 Units: mg/Kg LCSS Batch ID: R97611 TestNo: EPA 300.0 O LCSS Batch ID: R97611 TestNo: EPA 300.0 O ND14307-001ADUP SampType: DUP TestCode: 300_S Units: mg/Kg - ZZZZZZ Batch ID: R97611 TestNo: EPA 300.0 POL SPK Ref Val ZZZZZZ Batch ID: R97611 TestCode: 300_S Units: mg/Kg - Result PQL SPK value SPK Ref Val SPK SPK SPK Result PQL SPK value SPK Ref Val SPK SPK SPK</td> <td>PBS Batch ID: R97611 TestNo: EPA 300.0 Result PQL SPK value SPK Ref Val %REC ND 1.0 1.0 1.0 1.0 1.0 LCS-R97611 SampType: LCS TestCode: 300_S Units: mg/Kg LCSS Batch ID: R97611 TestNo: EPA 300.0 %REC LCSS Batch ID: R97611 TestNo: EPA 300.0 %REC 24.650 1.0 25.00 0 98.6 N014307-001ADUP SampType: DUP TestCode: 300_S Units: mg/Kg-dry ZZZZZ Batch ID: R97611 TestNo: EPA 300.0 %REC 26.823 2.6 Value SPK Ref Val %REC ZZZZZ Batch ID: R97611 TestNo: EPA 300.0 XZZZZZ Batch ID: R97611 TestNo: SPK value SPK Ref Val %REC N014307-001AMSD SampType: <t< td=""><td>PBS Batch ID: R97611 TestNo: EPA 300.0 Analysis Date Result PQL SPK value SPK ref Val %REC LowLimit ND 1.0 1.0 Inits: mg/Kg Prep Date LCS-R97611 SampType: LCS TestCode: 300_S Units: mg/Kg Prep Date LCSS Batch ID: R97611 TestNo: EPA 300.0 Analysis Date LCSS Batch ID: R97611 TestNo: EPA 300.0 Analysis Date LCSS Batch ID: R97611 TestNo: EPA 300.0 Analysis Date Result PQL SPK value SPK Ref Val %REC LowLimit ZZZZZZ Batch ID: R97611 TestNo: EPA 300.0 Analysis Date N014307-001AMS SampType: MS TestNo: EPA 300.0 Analysis Date Result PQL SPK value SPK Ref Val %REC LowLimit ZZZZZZ Batch ID: R97611 TestNo: EPA 300.0 Analysis Date Result PQL SPK value<</td><td>PBS Batch ID: R97611 TestNo: EPA 300.0 Analysis Date: 1/19/20 Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit ND 1.0 </td><td>PBS Batch ID: R97611 TestNo: EPA 300.0 Analysis Date: 1/19/2015 Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val LCS.R97611 SampType: LCS TestNo: EPA 300.0 Units: mg/Kg Prep Date: Analysis Date: 1/19/2015 LCS.R97611 SampType: LCS TestNo: EPA 300.0 Analysis Date: 1/19/2015 LCSS Batch ID: R97611 TestNo: EPA 300.0 Analysis Date: 1/19/2015 LCSS Batch ID: R97611 TestNo: EPA 300.0 0 98.6 90 110 N014307-001ADUP SampType: DUP TestNo: EPA 300.0 Prep Date: Internet Internet RPD Ref Val ZZZZZZ Batch ID: R97611 TestNo: EPA 300.0 Prep Date: 28.09 N014307-001AMS SampType: MS TestNo: EPA 300.0 Prep Date: 28.09 N014307-001AMS SampType: MSD TestNo: EPA 300.0 Ref Val %REC LowLimit HighLimit RPD Ref Val</td><td>PBS Batch ID: R97611 TestNo: EPA 300.0 Analysis Date: 1/19/2015 SeqNo: 19 ND 1.0 ND 1.0 ND ND</td><td>PBS Batch ID: R97611 TestNo: EPA 300.0 Analysis Date: 1/19/2015 SeqNo: 1912688 LCS.R97611 ND 1.0 1.0 ND 1.0 Result Properties RunNo: 9761 RPDLimit RPD Ref Val %RPD Ref Val %RPD</td></t<></td>	PBS Batch ID: R97611 TestNo: EPA 300.0 Result PQL SPK value ND 1.0 1.0 LCS-R97611 SampType: LCS TestCode: 300_S LCSS Batch ID: R97611 TestNo: EPA 300.0 LCSS Batch ID: R97611 TestNo: EPA 300.0 Result PQL SPK value SPK value 24.650 1.0 25.00 25.00 N014307-001ADUP SampType: DUP TestCode: 300_S ZZZZZZ Batch ID: R97611 TestNo: EPA 300.0 Result PQL SPK value 26.823 2.6 N014307-001AMS SampType: MS TestNo: EPA 300.0 ZZZZZZ Batch ID: R97611 TestNo: EPA 300.0 Result PQL SPK value 2.6 66.00 N014307-001AMSD SampType: MSD TestNo: EPA 300.0 Result PQL	PBS Batch ID: R97611 TestNo: EPA 300.0 Result PQL SPK value SPK Ref Val ND 1.0 1.0 LCS-R97611 SampType: LCS TestCode: 300.0 SPK Ref Val LCSS Batch ID: R97611 TestCode: 300.0 Units: mg/Kg LCSS Batch ID: R97611 TestNo: EPA 300.0 O LCSS Batch ID: R97611 TestNo: EPA 300.0 O ND14307-001ADUP SampType: DUP TestCode: 300_S Units: mg/Kg - ZZZZZZ Batch ID: R97611 TestNo: EPA 300.0 POL SPK Ref Val ZZZZZZ Batch ID: R97611 TestCode: 300_S Units: mg/Kg - Result PQL SPK value SPK Ref Val SPK SPK SPK Result PQL SPK value SPK Ref Val SPK SPK SPK	PBS Batch ID: R97611 TestNo: EPA 300.0 Result PQL SPK value SPK Ref Val %REC ND 1.0 1.0 1.0 1.0 1.0 LCS-R97611 SampType: LCS TestCode: 300_S Units: mg/Kg LCSS Batch ID: R97611 TestNo: EPA 300.0 %REC LCSS Batch ID: R97611 TestNo: EPA 300.0 %REC 24.650 1.0 25.00 0 98.6 N014307-001ADUP SampType: DUP TestCode: 300_S Units: mg/Kg-dry ZZZZZ Batch ID: R97611 TestNo: EPA 300.0 %REC 26.823 2.6 Value SPK Ref Val %REC ZZZZZ Batch ID: R97611 TestNo: EPA 300.0 XZZZZZ Batch ID: R97611 TestNo: SPK value SPK Ref Val %REC N014307-001AMSD SampType: <t< td=""><td>PBS Batch ID: R97611 TestNo: EPA 300.0 Analysis Date Result PQL SPK value SPK ref Val %REC LowLimit ND 1.0 1.0 Inits: mg/Kg Prep Date LCS-R97611 SampType: LCS TestCode: 300_S Units: mg/Kg Prep Date LCSS Batch ID: R97611 TestNo: EPA 300.0 Analysis Date LCSS Batch ID: R97611 TestNo: EPA 300.0 Analysis Date LCSS Batch ID: R97611 TestNo: EPA 300.0 Analysis Date Result PQL SPK value SPK Ref Val %REC LowLimit ZZZZZZ Batch ID: R97611 TestNo: EPA 300.0 Analysis Date N014307-001AMS SampType: MS TestNo: EPA 300.0 Analysis Date Result PQL SPK value SPK Ref Val %REC LowLimit ZZZZZZ Batch ID: R97611 TestNo: EPA 300.0 Analysis Date Result PQL SPK value<</td><td>PBS Batch ID: R97611 TestNo: EPA 300.0 Analysis Date: 1/19/20 Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit ND 1.0 </td><td>PBS Batch ID: R97611 TestNo: EPA 300.0 Analysis Date: 1/19/2015 Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val LCS.R97611 SampType: LCS TestNo: EPA 300.0 Units: mg/Kg Prep Date: Analysis Date: 1/19/2015 LCS.R97611 SampType: LCS TestNo: EPA 300.0 Analysis Date: 1/19/2015 LCSS Batch ID: R97611 TestNo: EPA 300.0 Analysis Date: 1/19/2015 LCSS Batch ID: R97611 TestNo: EPA 300.0 0 98.6 90 110 N014307-001ADUP SampType: DUP TestNo: EPA 300.0 Prep Date: Internet Internet RPD Ref Val ZZZZZZ Batch ID: R97611 TestNo: EPA 300.0 Prep Date: 28.09 N014307-001AMS SampType: MS TestNo: EPA 300.0 Prep Date: 28.09 N014307-001AMS SampType: MSD TestNo: EPA 300.0 Ref Val %REC LowLimit HighLimit RPD Ref Val</td><td>PBS Batch ID: R97611 TestNo: EPA 300.0 Analysis Date: 1/19/2015 SeqNo: 19 ND 1.0 ND 1.0 ND ND</td><td>PBS Batch ID: R97611 TestNo: EPA 300.0 Analysis Date: 1/19/2015 SeqNo: 1912688 LCS.R97611 ND 1.0 1.0 ND 1.0 Result Properties RunNo: 9761 RPDLimit RPD Ref Val %RPD Ref Val %RPD</td></t<>	PBS Batch ID: R97611 TestNo: EPA 300.0 Analysis Date Result PQL SPK value SPK ref Val %REC LowLimit ND 1.0 1.0 Inits: mg/Kg Prep Date LCS-R97611 SampType: LCS TestCode: 300_S Units: mg/Kg Prep Date LCSS Batch ID: R97611 TestNo: EPA 300.0 Analysis Date LCSS Batch ID: R97611 TestNo: EPA 300.0 Analysis Date LCSS Batch ID: R97611 TestNo: EPA 300.0 Analysis Date Result PQL SPK value SPK Ref Val %REC LowLimit ZZZZZZ Batch ID: R97611 TestNo: EPA 300.0 Analysis Date N014307-001AMS SampType: MS TestNo: EPA 300.0 Analysis Date Result PQL SPK value SPK Ref Val %REC LowLimit ZZZZZZ Batch ID: R97611 TestNo: EPA 300.0 Analysis Date Result PQL SPK value<	PBS Batch ID: R97611 TestNo: EPA 300.0 Analysis Date: 1/19/20 Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit ND 1.0	PBS Batch ID: R97611 TestNo: EPA 300.0 Analysis Date: 1/19/2015 Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val LCS.R97611 SampType: LCS TestNo: EPA 300.0 Units: mg/Kg Prep Date: Analysis Date: 1/19/2015 LCS.R97611 SampType: LCS TestNo: EPA 300.0 Analysis Date: 1/19/2015 LCSS Batch ID: R97611 TestNo: EPA 300.0 Analysis Date: 1/19/2015 LCSS Batch ID: R97611 TestNo: EPA 300.0 0 98.6 90 110 N014307-001ADUP SampType: DUP TestNo: EPA 300.0 Prep Date: Internet Internet RPD Ref Val ZZZZZZ Batch ID: R97611 TestNo: EPA 300.0 Prep Date: 28.09 N014307-001AMS SampType: MS TestNo: EPA 300.0 Prep Date: 28.09 N014307-001AMS SampType: MSD TestNo: EPA 300.0 Ref Val %REC LowLimit HighLimit RPD Ref Val	PBS Batch ID: R97611 TestNo: EPA 300.0 Analysis Date: 1/19/2015 SeqNo: 19 ND 1.0 ND 1.0 ND ND	PBS Batch ID: R97611 TestNo: EPA 300.0 Analysis Date: 1/19/2015 SeqNo: 1912688 LCS.R97611 ND 1.0 1.0 ND 1.0 Result Properties RunNo: 9761 RPDLimit RPD Ref Val %RPD Ref Val %RPD

Qualifiers:

ND

B Analyte detected in the associated Method Blank

Not Detected at the Reporting Limit

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

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

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

DO Surrogate Diluted Out
ASSET LABORATORIES

CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

CLIENT: CH2M HILL Work Order: N014307 Project: PG&E Topock IM3, 652547.PT.0P.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_S

Sample ID N014307-001APS	SampType: MS	TestCod	le: 300_S	Units: mg/Kg-c	lry	Prep Da	te:		RunNo: 976	611	
Client ID: ZZZZZZ	Batch ID: R97611	TestN	o: EPA 300.0)		Analysis Da	te: 1/19/20	15	SeqNo: 19	12696	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	88.336	2.6	66.00	28.09	91.3	80	120				

Qualifiers:

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

ASSET LABORATORIES

CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

"Serving Clients with Passion and Professionalism"

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

Calculations are based on raw values NEVADA 3151 W. Post Rd., Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.2691

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

8

ANALYTICAL RESULTS

Print Date: 21-Jan-15

CLIENT:	CH2M HILL
Lab Order:	N014307
Project:	PG&E Topock IM3, 652547.PT.0P.00
Lab ID:	N014307-001
Project:	PG&E Topock IM3, 652547.PT.0P.00

Client Sample ID: SC-Sludge-WDR-502 Collection Date: 1/6/2015 1:40:00 PM Matrix: SLUDGE

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL METALS BY ICP							
	EPA 3050B		EP	A 6010B			
RunID: ICP2_150113B	QC Batch: 48	395		PrepD	ate 1 /*	12/2015	Analyst: CEI
Antimony	ND	0.56	5.3		mg/Kg-dry	1	1/13/2015 04:35 PM
Arsenic	12	0.27	2.6		mg/Kg-dry	1	1/13/2015 04:35 PM
Barium	47	0.37	2.6		mg/Kg-dry	1	1/13/2015 04:35 PM
Beryllium	ND	0.33	2.6		mg/Kg-dry	1	1/13/2015 04:35 PM
Cadmium	ND	0.35	2.6		mg/Kg-dry	1	1/13/2015 04:35 PM
Chromium	2700	0.37	2.6		mg/Kg-dry	1	1/13/2015 04:35 PM
Cobalt	3.7	0.37	2.6		mg/Kg-dry	1	1/13/2015 04:35 PM
Copper	79	0.28	5.3		mg/Kg-dry	1	1/13/2015 04:35 PM
Lead	ND	0.31	2.6		mg/Kg-dry	1	1/13/2015 04:35 PM
Manganese	290	0.68	2.6		mg/Kg-dry	1	1/13/2015 04:35 PM
Molybdenum	5.4	0.34	2.6		mg/Kg-dry	1	1/13/2015 04:35 PM
Nickel	26	0.34	2.6		mg/Kg-dry	1	1/13/2015 04:35 PM
Selenium	9.0	0.45	2.6		mg/Kg-dry	1	1/13/2015 04:35 PM
Silver	ND	0.34	2.6		mg/Kg-dry	1	1/13/2015 04:35 PM
Thallium	ND	0.42	5.3		mg/Kg-dry	1	1/13/2015 04:35 PM
Vanadium	29	0.37	2.6		mg/Kg-dry	1	1/13/2015 04:35 PM
Zinc	11	0.35	2.6		mg/Kg-dry	1	1/13/2015 04:35 PM

Qualifiers:

Analyte detected in the associated Method Blank

- Н Holding times for preparation or analysis exceeded S
 - Spike/Surrogate outside of limits due to matrix interference
- Е Value above quantitation range
- ND Not Detected at the Reporting Limit Results are wet unless otherwise specified

DO

В

Surrogate Diluted Out



CALIFORNIA 11060 Artesia Blvd., Ste C, 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

Date: 21-Jan-15

CLIENT: CH2M HILL

Work Order: N014307

Project: PG&E Topock IM3, 652547.PT.0P.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPGE

Sample ID MB-48395	SampType: MBLK	TestCode: 6010_SPGE	Units: mg/Kg		Prep Da	te: 1/12/20)15	RunNo: 975	516	
Client ID: PBS	Batch ID: 48395	TestNo: EPA 6010B	EPA 3050B		Analysis Da	te: 1/13/20)15	SeqNo: 190	7686	
Analyte	Result	PQL SPK value SI	PK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	2.0								
Arsenic	ND	1.0								
Barium	ND	1.0								
Beryllium	ND	1.0								
Cadmium	ND	1.0								
Chromium	ND	1.0								
Cobalt	ND	1.0								
Copper	0.170	2.0								
Lead	ND	1.0								
Manganese	ND	1.0								
Molybdenum	ND	1.0								
Nickel	ND	1.0								
Selenium	ND	1.0								
Silver	ND	1.0								
Thallium	ND	2.0								
Vanadium	ND	1.0								
Zinc	ND	1.0								
Sample ID LCS-48395	SampType: LCS	TestCode: 6010_SPGE	Units: mg/Kg		Prep Da	te: 1/12/20)15	RunNo: 975	516	
Client ID: LCSS	Batch ID: 48395	TestNo: EPA 6010B	EPA 3050B		Analysis Da	te: 1/13/20)15	SeqNo: 190	07687	
Analyte	Result	PQL SPK value SI	PK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	24.938	2.0 25.00	0	99.8	85	115				
Arsenic	23.858	1.0 25.00	0	95.4	85	115				
Barium	24.589	1.0 25.00	0	98.4	85	115				
Beryllium	22.995	1.0 25.00	0	92.0	85	115				
Cadmium	23.917	1.0 25.00	0	95.7	85	115				
Chromium	24.508	1.0 25.00	0	98.0	85	115				

Qualifiers:

ND

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

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

Calculations are based on raw values NEVADA 3151 W. Post Rd., Las Vegas, NV 89118

P: 702.307.2659 F: 702.307.2691

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S

ASSET LABORATORIES

11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

CALIFORNIA

CLIENT: CH2M HILL

Work Order: N014307

Project: PG&E Topock IM3, 652547.PT.0P.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPGE

Sample ID LCS-48395	SampType: LCS	TestCo	de: 6010_SPGE	Units: mg/Kg		Prep Date	: 1/12/201	5	RunNo: 97	516	
Client ID: LCSS	Batch ID: 48395	Test	lo: EPA 6010B	EPA 3050B		Analysis Date	e: 1/13/201	5	SeqNo: 19	07687	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cobalt	23.013	1.0	25.00	0	92.1	85	115				
Copper	24.483	2.0	25.00	0	97.9	85	115				
Lead	24.705	1.0	25.00	0	98.8	85	115				
Manganese	220.275	1.0	250.0	0	88.1	85	115				
Molybdenum	23.872	1.0	25.00	0	95.5	85	115				
Nickel	22.881	1.0	25.00	0	91.5	85	115				
Selenium	21.387	1.0	25.00	0	85.5	85	115				
Silver	23.256	1.0	25.00	0	93.0	85	115				
Thallium	23.199	2.0	25.00	0	92.8	85	115				
Vanadium	24.861	1.0	25.00	0	99.4	85	115				
Zinc	22.879	1.0	25.00	0	91.5	85	115				
Sample ID N014320-002A-MS	SampType: MS	TestCo	de: 6010_SPGE	Units: mg/Kg-	dry	Prep Date	e: 1/12/201	5	RunNo: 97	516	
Client ID: ZZZZZZ	Batch ID: 48395	Test	lo: EPA 6010B	EPA 3050B		Analysis Date	: 1/13/201	5	SeqNo: 19	07694	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	30.155	2.6	32.90	0	91.7	75	125				
Arsenic	33.909	1.3	32.90	3.104	93.6	75	125				
Barium	103.910	1.3	32.90	75.74	85.6	75	125				
Beryllium	29.044	1.3	32.90	0.1773	87.7	75	125				
Cadmium	30.026	1.3	32.90	0	91.3	75	125				
Chromium	79.429	1.3	32.90	54.82	74.8	75	125				S
Cobalt	37.027	1.3	32.90	7.402	90.1	75	125				
Copper	41.167	2.6	32.90	7.810	101	75	125				
Lead	34.638	1.3	32.90	5.245	89.3	75	125				
Manganese	375.629	1.3	329.0	104.7	82.4	75	125				
Molybdenum	29.606	1.3	32.90	0	90.0	75	125				
Nickel	68.275	1.3	32.90	33.82	105	75	125				
Selenium	30.523	1.3	32.90	1.827	87.2	75	125				
Silver	27.086	1.3	32.90	0	82.3	75	125				

Qualifiers:

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

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

ASSET LABORATORIES

CALIFORNIA 11060 Artesia Blvd., Ste C, 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

CLIENT: CH2M HILL

Work Order: N014307

Project: PG&E Topock IM3, 652547.PT.0P.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPGE

Sample ID N014320-002A-MS	SampType: MS	TestCo	de: 6010_SPGI	E Units: mg/K	g-dry	Prep Da	te: 1/12/20)15	RunNo: 97	516	
Client ID: ZZZZZZ	Batch ID: 48395	Test	lo: EPA 6010B	EPA 3050B		Analysis Da	te: 1/13/20)15	SeqNo: 19	07694	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Thallium	28.563	2.6	32.90	0	86.8	75	125				
Vanadium	63.141	1.3	32.90	38.02	76.3	75	125				
Zinc	57.482	1.3	32.90	24.63	99.9	75	125				
Sample ID N014320-002A-MSD	SampType: MSD	TestCo	de: 6010_SPGI	Units: mg/K	g-dry	Prep Da	te: 1/12/20)15	RunNo: 97	516	
Client ID: ZZZZZZ	Batch ID: 48395	Test	lo: EPA 6010B	EPA 3050B		Analysis Da	te: 1/13/20)15	SeqNo: 19	07695	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	29.777	2.6	32.95	0	90.4	75	125	30.16	1.26	20	
Arsenic	33.723	1.3	32.95	3.104	92.9	75	125	33.91	0.551	20	
Barium	103.961	1.3	32.95	75.74	85.7	75	125	103.9	0.0491	20	
Beryllium	29.052	1.3	32.95	0.1773	87.6	75	125	29.04	0.0291	20	
Cadmium	29.905	1.3	32.95	0	90.8	75	125	30.03	0.403	20	
Chromium	79.453	1.3	32.95	54.82	74.8	75	125	79.43	0.0308	20	S
Cobalt	36.829	1.3	32.95	7.402	89.3	75	125	37.03	0.536	20	
Copper	41.190	2.6	32.95	7.810	101	75	125	41.17	0.0544	20	
Lead	34.637	1.3	32.95	5.245	89.2	75	125	34.64	0.00238	20	
Manganese	375.057	1.3	329.5	104.7	82.1	75	125	375.6	0.153	20	
Molybdenum	29.564	1.3	32.95	0	89.7	75	125	29.61	0.142	20	
Nickel	68.475	1.3	32.95	33.82	105	75	125	68.27	0.293	20	
Selenium	30.327	1.3	32.95	1.827	86.5	75	125	30.52	0.645	20	
Silver	27.177	1.3	32.95	0	82.5	75	125	27.09	0.336	20	
Thallium	28.711	2.6	32.95	0	87.1	75	125	28.56	0.518	20	
Vanadium	63.254	1.3	32.95	38.02	76.6	75	125	63.14	0.179	20	
Zinc	57.207	1.3	32.95	24.63	98.9	75	125	57.48	0.479	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- ASSET LABORATORIES
- CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

E Value above quantitation range

R RPD outside accepted recovery limits

Calculations are based on raw values

3151 W. Post Rd., Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.2691 H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

ANALYTICAL RESULTS Print Date: 21-Jan-15

							n Dutti 21	fan 15	
CLIENT:	CH2M HI	LL		C	lient Samp	le ID: SO	C-Sludge-WD	DR-502	
Lab Order:	N014307				Collection	Date: 1/	6/2015 1:40:0	00 PM	
Project:	PG&E Top	pock IM3, 652547.PT.0	P.00	Matrix: SLUDGE					
Lab ID:	N014307-0	001							
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed	
HEXAVALE	NT CHROMIUM	BYIC							
		EPA 3060A		EF	PA 7199				
RunID: IC1_	_150112A	QC Batch: 483	378		PrepD	ate	1/9/2015	Analyst: RB	
Hexavalent	Chromium	110	0.27	5.3		mg/Kg-di	ry 10	1/12/2015 04:58 PI	

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

DO Surrogate Diluted Out

ASSET LABORATORIES

CALIFORNIA 11060 Artesia Blvd., Ste C, 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

CLIENT: CH2M HILL

Work Order:

N014307

Project: PG&E Topock IM3, 652547.PT.0P.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 7199_S_PGE

Sample ID MB-48378	SampType: MBLK	TestCode: 7199_S_PGE Units: mg/Kg Prep Date: 1/9/2015	RunNo: 97533
Client ID: PBS	Batch ID: 48378	TestNo: EPA 7199 EPA 3060A Analysis Date: 1/12/2015	SeqNo: 1908484
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-48378	SampType: LCS	TestCode: 7199_S_PGE Units: mg/Kg Prep Date: 1/9/2015	RunNo: 97533
Client ID: LCSS	Batch ID: 48378	TestNo: EPA 7199 EPA 3060A Analysis Date: 1/12/2015	SeqNo: 1908485
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	3.982	0.20 4.000 0 99.5 80 120	
Sample ID N014320-002AREP	SampType: DUP	TestCode: 7199_S_PGE Units: mg/Kg-dry Prep Date: 1/9/2015	RunNo: 97533
Client ID: ZZZZZZ	Batch ID: 48378	TestNo: EPA 7199 EPA 3060A Analysis Date: 1/12/2015	SeqNo: 1908487
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	0.081	0.26 0.05222	0 20
Sample ID N014320-002A-DUP	SampType: DUP	TestCode: 7199_S_PGE Units: mg/Kg-dry Prep Date: 1/9/2015	RunNo: 97533
Client ID: ZZZZZZ	Batch ID: 48378	TestNo: EPA 7199 EPA 3060A Analysis Date: 1/12/2015	SeqNo: 1908488
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	0.127	0.26 0.05222	0 20
Sample ID N014320-002A-MS	SampType: MS	TestCode: 7199_S_PGE Units: mg/Kg-dry Prep Date: 1/9/2015	RunNo: 97533
Client ID: ZZZZZZ	Batch ID: 48378	TestNo: EPA 7199 EPA 3060A Analysis Date: 1/12/2015	SeqNo: 1908489
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	1.069	0.26 5.255 0.05222 19.4 75 125	S

Qualifiers:

ND

B Analyte detected in the associated Method Blank

Not Detected at the Reporting Limit

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

Calculations are based on raw values NEVADA

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

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S

DO Surrogate Diluted Out ASSET LABORATORIES

11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

"Serving Clients with Passion and Professionalism"

CALIFORNIA

CLIENT: CH2M HILL

Work Order: N014307

Project: PG&E Topock IM3, 652547.PT.0P.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 7199_S_PGE

	-		
Sample ID N014320-002A-MSD	SampType: MSD	TestCode: 7199_S_PGE Units: mg/Kg-dry Prep Date: 1/9/2015	RunNo: 97533
Client ID: ZZZZZZ	Batch ID: 48378	TestNo: EPA 7199 EPA 3060A Analysis Date: 1/12/2015	SeqNo: 1908490
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	0.698	0.26 5.269 0.05222 12.3 75 125 1.069	42.0 20 SR
Sample ID N014320-002A-MS_I	SampType: MS	TestCode: 7199_S_PGE Units: mg/Kg-dry Prep Date: 1/9/2015	RunNo: 97533
Client ID: ZZZZZZ	Batch ID: 48378	TestNo: EPA 7199 EPA 3060A Analysis Date: 1/12/2015	SeqNo: 1908491
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	516.160	13 918.5 0.05222 56.2 75 125	S
Sample ID N014320-003AREP	SampType: DUP	TestCode: 7199_S_PGE Units: mg/Kg-dry Prep Date: 1/9/2015	RunNo: 97533
Client ID: ZZZZZZ	Batch ID: 48378	TestNo: EPA 7199 EPA 3060A Analysis Date: 1/12/2015	SeqNo: 1908493
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	0.177	0.25 0.1801	0 20
Sample ID N014320-004AREP	SampType: DUP	TestCode: 7199_S_PGE Units: mg/Kg-dry Prep Date: 1/9/2015	RunNo: 97533
Client ID: ZZZZZZ	Batch ID: 48378	TestNo: EPA 7199 EPA 3060A Analysis Date: 1/12/2015	SeqNo: 1908497
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	0.761	0.27 0.7906	3.87 20
Sample ID N014307-001CREP	SampType: DUP	TestCode: 7199_S_PGE Units: mg/Kg-dry Prep Date: 1/9/2015	RunNo: 97533
Client ID: ZZZZZZ	Batch ID: 48378	TestNo: EPA 7199 EPA 3060A Analysis Date: 1/12/2015	SeqNo: 1908501
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	104.124	5.3 110.0	5.45 20

Qualifiers:

ND

B Analyte detected in the associated Method Blank

Not Detected at the Reporting Limit

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

Calculations are based on raw values NEVADA

3151 W. Post Rd., Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.2691 H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference



DO Surrogate Diluted Out

P: 562.219.7435 F: 562.219.7436 "Serving Clients with Passion and Professionalism"

CALIFORNIA

11060 Artesia Blvd., Ste C, Cerritos, CA 90703

ANALYTICAL RESULTS Print Date: 21-Jan-15

						11	Int Date. 21	-jun-1J	
CLIENT:	CH2M HILL			Client Sample ID: SC-Sludge-WDR-502					
Lab Order:	N014307		Collection	Date: 1	/6/2015 1:40):00 PM			
Project:	PG&E Topock 1	0P.00		Ma	atrix: S	LUDGE			
Lab ID:	N014307-001								
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed	
TOTAL MERC	URY BY COLD VA	POR TECHNIQUE	=						
				EP	A 7471A				
RunID: AA1_	150113A	QC Batch: 48	400		PrepD	ate	1/13/2015	Analyst: CEI	
Mercury		ND	0.011	0.26		mg/Kg-o	dry 1	1/13/2015 04:37 PI	

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range

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

DO Surrogate Diluted Out

ASSET LABORATORIES

CALIFORNIA 11060 Artesia Blvd., Ste C, 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

CLIENT: CH2M HILL

Work Order:

N014307

Project: PG&E Topock IM3, 652547.PT.0P.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 7471_S_PGE

Sample ID MB1	-48400 SampType	BLK	TestCode:	: 7471_S_PC	GE Units: mg/Kg		Prep Date:	1/13/201	15	RunNo: 97	523	
Client ID: PBS	Batch ID	: 48400	TestNo	: EPA 7471A			Analysis Date:	: 1/13/201	15	SeqNo: 190	07811	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit H	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		ND	0.097									
Sample ID LCS	48400 SampType	LCS	TestCode:	: 7471_S_PC	GE Units: mg/Kg		Prep Date:	: 1/13/201	15	RunNo: 97	523	
Client ID: LCS	B Batch ID	48400	TestNo	EPA 7471A	L .		Analysis Date:	1/13/201	15	SeqNo: 190	07813	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit H	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.479	0.096	0.4013	0	119	75	125				
Sample ID N014	307-001B-MS SampType	: MS	TestCode	: 7471_S_PC	GE Units: mg/Kg	dry	Prep Date:	1/13/201	15	RunNo: 97	523	
Client ID: ZZZZ	ZZ Batch ID	: 48400	TestNo	EPA 7471A	۱.		Analysis Date:	1/13/201	15	SeqNo: 190	07814	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit H	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		1.222	0.25	1.059	0.1044	105	75	125				
Sample ID N014	307-001B-MSD SampType	MSD	TestCode	: 7471_S_PC	GE Units: mg/Kg	dry	Prep Date:	: 1/13/201	15	RunNo: 97	523	
Client ID: ZZZZ	Batch ID	48400	TestNo	EPA 7471A	L .		Analysis Date:	: 1/13/201	15	SeqNo: 190	07815	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit H	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		1.262	0.25	1.056	0.1044	110	75	125	1.222	3.26	20	
Sample ID N014	307-001B-DUP SampType	: DUP	TestCode	: 7471_S_PC	GE Units: mg/Kg	dry	Prep Date:	1/13/201	15	RunNo: 97	523	
Client ID: ZZZZ	Batch ID	: 48400	TestNo	EPA 7471A	۱.		Analysis Date:	: 1/13/201	15	SeqNo: 19 0	07817	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit H	lighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.104	0.26						0.1044	0	20	

Qualifiers:

ND

B Analyte detected in the associated Method Blank

Not Detected at the Reporting Limit

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

Calculations are based on raw values NEVADA

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

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S

DO Surrogate Diluted Out ASSET LABORATORIES

CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

ANALYTICAL RESULTS Print Date: 21-Jan-15

						I I IIII I	Jate: 21-J	un-15
CLIENT:	CH2M HILL		Client Sample ID: SC-Sludge-WDR-502					
Lab Order:	N014307		Coll	ection	Date: 1/6/20	015 1:40:0	0 PM	
Project:	PG&E Topock IM3, 652547.PT.0P.00				Ma	trix: SLUE	DGE	
Lab ID:	N014307-001							
Analyses		ADL P	QL	Qual	Units	DF	Date Analyzed	
PERCENT MO	DISTURE							
				D221	6			
RunID: WETC	CHEM_150112A	QC Batch: R975	26		PrepD	ate		Analyst: RB
Percent Moisture 62.12 0.1000).1000 0	0.1000 wt% 1			1	1/12/2015 09:30 A

Qualifiers:

В

Analyte detected in the associated Method Blank

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

- Е Value above quantitation range
 - Results are wet unless otherwise specified

DO Surrogate Diluted Out

ND Not Detected at the Reporting Limit

ASSET LABORATORIES

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

CLIENT: CH2M HILL

Work Order: N014307

Project: PG&E Topock IM3, 652547.PT.0P.00

ANALYTICAL QC SUMMARY REPORT

TestCode: PMOIST

Sample ID MB-R97526 Client ID: PBS	SampType: MBLK Batch ID: R97526	TestCode: PMOIST TestNo: D2216	Units: wt%	Prep Date: Analysis Date: 1/12/2015	RunNo: 97526 SegNo: 1908017
Analyte	Result		SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Percent Moisture	ND	0.1000			
Sample ID N014320-001A-DUP Client ID: ZZZZZZ	SampType: DUP Batch ID: R97526	TestCode: PMOIST TestNo: D2216	Units: wt%	Prep Date: Analysis Date: 1/12/2015	RunNo: 97526 SeqNo: 1908020
		TestNo: D2216	Units: wt%	·	

Qualifiers:

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

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E Value above quantitation range R RPD outside accepted recovery limits

Calculations are based on raw values NEVADA

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

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19

WORKORDER: N014307

ANALYST LIST

NAME	TEST METHOD
Quennie Manimtim	EPA 300
Claire Ignacio	EPA 6010, EPA 7471
Ryan Balilu	EPA 7199, ASTM D2216



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ASSET LABORATORIES

CHAIN OF CUSTODY RECORD 10 Days TURNAROUND TIME 3151W. Post Road, Las Vegas, NV 89118 [IM3plant-WDR-502] PAGE 1 (702) 307-2659 FAX: (702) 307-2691 DATE 01/06/15 OF 1 Metals (6010B) Title 22, (includes Mercury) CH2M HILL COMPANY COMMENTS PROJECT NAME PG&E Topock IM3 PHONE FAX 530-339-3303 NUMBER OF CONTAINERS 530-229-3303 155 Grand Ave Ste 1000 ADDRESS Bioassay 96hr Acute Oakland, CA 94612 Metals (6070B) Mn Anions (300.0) F 652547.PT.0P.00 P.O. NUMBER SAMPLERS (SIGNATURE DESCRIPTION SAMPLE I.D. DATE TIME NO14307-01 4 Sludge Х SC-Sludge-WDR-502 01/06/15 Х Х Х 4 TOTAL NUMBER OF CONTAINERS

Cł	AIN OF CUSTODY SI	IEEZ SAMPLE CONDITIONS		
Signature (Relinquished)	Printed Name Josh Rosenbug	Company/ Agency CHJMH;LL	Date/ 1-6-15 Time 145(
Signature (Received)	Printed Name Philander Gal	Company/ Agency A554 Labo		CUSTODY SEALED YES 🔲 NO 🐙
Signature (Relinquished)	Printed Mandy G.	Agency ASTET LABS	Date/ (- GLG- Time 2443	SPECIAL REQUIREMENTS:
Signature (Received)	Printed Marth Galog	Company/ ASST LABS	Date/ (- G+ () Time 2443	
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time	
Signature (Received)	Printed Name	Company/ Agency	Date/ Time	

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:	1/6/2015				Workorder:	N014307	
Rep sample Temp (Deg C):	1.9				IR Gun ID:	2	
Temp Blank:	✔ Yes	🗌 No					
Carrier name:	ATL						
Last 4 digits of Tracking No.:	NA			Packing	Material Used:	None	
Cooling process:	✓ Ice	Ice Pack	Dry Ice	Other	None None		
		6	omplo Docoir	t Che aldiat			
1. Shipping container/cooler in	good condit		ample Receip	DT CHECKIIST	Yes 🗹	No 🗌	Not Present
 Custody seals intact, signed 	•		or/opplor?		Yes		Not Present
,							Not Present
3. Custody seals intact on sam	pie botties?				Yes ∟ Yes ✔		Not Present
4. Chain of custody present?							
5. Sampler's name present in C			_		Yes	No 🗹	
6. Chain of custody signed whe	en relinquish	ned and received	?		Yes 🗹	No 🗌	
7. Chain of custody agrees with	n sample lat	bels?			Yes 🖌	No	
8. Samples in proper container	/bottle?				Yes 🗹	No 🗌	
9. Sample containers intact?					Yes 🗹	No 🗌	
10. Sufficient sample volume for	or indicated	test?			Yes 🗹	No 🗌	
11. All samples received within	holding tim	le?			Yes 🗹	No 🗌	
12. Temperature of rep sample	or Temp B	lank within accep	table limit?		Yes 🗹	No 🗌	NA 🗌
13. Water - VOA vials have zer	o headspac	ce?			Yes	No 🗌	NA 🔽
14. Water - pH acceptable upo Example: pH > 12 for (CI			Yes	No 🗌	NA 🗹		
15. Did the bottle labels indicat	e correct pr	eservatives used	?		Yes	No 🗌	NA 🔽
16. Were there Non-Conformar Wa		Yes ✓ Yes ✓	No 🗌 No 🗌	NA 🗌 NA 🗍			
Comments: Sampler's initial	taken from	Sample containe	rs.				

Reviewed By:



Sample Control

From: Sent:	Marlon B. Cartin [<u>marlon@assetlaboratories.com]</u> Wednesday, January 07, 2015 11:49 AM
То:	Shawn.Duffy@CH2M.com
Cc:	'SampleControl.LV@assetlaboratories.com'; 'John Paolo Gumawid'; 'Glen Gesmundo'
Subject:	Topock Weekly sample

Hi Shawn!

Per our conversation this morning, below are what we discussed and agreed upon on the initial weekly samples that we got from Topock yesterday;

- A. For samples 700B, 100B and 701
 - 1. Cr+6 we will filter and preserve the sample accordingly.
 - 2. Metals we will report Totals so we will only preserve the sample.
 - 3. NO3/NO2 we will transfer and preserve sample and analyzed using SM4500NO3F as N.
 - 4. NO3 will no longer be reported by 300.0
 - 5. NH3 send to TLI
 - 6. Sampling Time We will take this from the sample container.
 - 7. Prelims/Verbal result (Cr+6, TDs, T. Cr) will be ready by Thursday.
- B. For samples PE-01 and TW-03D
 - 1. Cr+6 we will filter and preserve the sample accordingly.
 - 2. Metals we will filter and preserve the sample accordingly.
 - 3. Sampling Time We will take this from the sample container.
- C. Sludge
 - 1. We will report in dry weight.

Please let me know if I missed something. Please send a revised COC at your most convenient time.

Thanks,

Marlon Cartin

Project Manager California: 11060 Artesia Blvd., Ste. C, Cerritos, CA 90703 | P: 562.219.7435 | F: 562.219.7436 Nevada: 3151 W. Post Road, Las Vegas, NV 89118 | P: 702.307.2659 Ext. 410 | F: 702.307.2691 | M: 702.882.3289 www.assetlaboratories.com



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Sample Calculation

METHOD: EPA 300.0 TEST NAME: INORGANIC ANIONS BY IC MATRIX: Soil Sludge

FORMULA:

Calculate the Fluoride concentration, in mg/kg-dry, in the original sample as follows:

Fluoride, mg/kg-dry = $\frac{(A * DF * PF)x100}{(100-\%Moisture)}$

where:

A = mg/L, IC calculated concentration DF = dilution factor PF = prep factor, 5 g to 50 mL =10

For N014307-001A, concentration in mg/kg-dry are calculated as follows:

Fluoride, mg/kg-dry = $\frac{1.064 * 1 * 10 * 100}{(100 - 62.122)}$ = 28.0902 mg/kg-dry

Reporting N014307-001A results in two significant figures,

Fluoride, mg/kg-dry = 28 mg/kg-dry

Sample Calculation

METHOD: EPA 6010 TEST NAME: Heavy Metals by ICP MATRIX: Sludge

FORMULA:

Calculate the Chromium concentration, in mg/Kg-dry, in the original sample as follows:

Chromium, mg/ Kg-dry = A * DF * PF * 100/ (100-PMOIST)

where:

A = mg/L, calculated concentration DF = dilution factor PF = Final Vol. of Digestate, mL / Amt. of Sample, grams

For Sample **N014307-001B**, the concentration in mg/Kg-dry is calculated as follows:

Chromium, mg/Kg-dry = 20.2687 * 1 * (100/2.002) * 100/(100-62.122)= 2672.85 = 2675.526 mg/Kg-dry

Reporting results in two significant figures,

Chromium, mg/Kg-dry = 2700



ICP-Metals in Soil

Dilution Test Summary

Work Order No.:	N014307	Matrix:	Sludge
Test Method:	EPA 6010	Batch No.:	48395
Analysis Date:	01/13/15		

Instrument ID: ICP-02 Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Sb, As, Be, Cd, Co, Cu, Pb, Mo, S, Ag, & Tl. The calculated concentrations are <25RL. Dilution test failed for Ba, Cr, Mn, Ni, V & Zn. However, PS passed criteria for all analytes.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N014320-002A DT 5X	Antimony	mg/Kg-dry	0	NA	0		10
N014320-002A DT 5X	Arsenic	mg/Kg-dry	3.966925893	NA	3.103814415	27.81%	10
N014320-002A DT 5X	Barium	mg/Kg-dry	87.3925608	FAIL	75.74100221	15.38%	10
N014320-002A DT 5X	Beryllium	mg/Kg-dry	0	NA	0.177348888		10
N014320-002A DT 5X	Cadmium	mg/Kg-dry	0	NA	0		10
N014320-002A DT 5X	Chromium	mg/Kg-dry	63.7654737	FAIL	54.81838212	16.32%	10
N014320-002A DT 5X	Cobalt	mg/Kg-dry	8.477740357	NA	7.401606675	14.54%	10
N014320-002A DT 5X	Copper	mg/Kg-dry	9.359536743	NA	7.809807599	19.84%	10
N014320-002A DT 5X	Lead	mg/Kg-dry	6.207742647	NA	5.245097271	18.35%	10
N014320-002A DT 5X	Manganese	mg/Kg-dry	117.1897309	FAIL	104.6503903	11.98%	10
N014320-002A DT 5X	Molybdenum	mg/Kg-dry	0	NA	0		10
N014320-002A DT 5X	Nickel	mg/Kg-dry	42.30395901	FAIL	33.81920459	25.09%	10
N014320-002A DT 5X	Selenium	mg/Kg-dry	1.742670396	NA	1.827162181	4.62%	10
N014320-002A DT 5X	Silver	mg/Kg-dry	0	NA	0		10
N014320-002A DT 5X	Thallium	mg/Kg-dry	0	NA	0		10
N014320-002A DT 5X	Vanadium	mg/Kg-dry	43.90752445	FAIL	38.02490545	15.47%	10
N014320-002A DT 5X	Zinc	mg/Kg-dry	30.31671212	FAIL	24.63406348	23.07%	10

Note: NA - Not Applicable

Date: 15-Jan-15

CLIENT: CH2M HILL

Work Order: N014307

Project: PG&E Topock IM3, 652547.PT.0P.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_SPGE

Sample ID N014320-002A-PS	SampType: PS	TestCoo	de: 6010_SPGI	E Units: mg/Kg	g-dry	Prep Dat	te:		RunNo: 97	516	
Client ID: ZZZZZZ	Batch ID: 48395	TestN	No: EPA 6010B	EPA 3050B		Analysis Da	te: 1/13/20	15	SeqNo: 19	07693	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	30.431	2.6	32.93	0	92.4	80	120				
Arsenic	34.583	1.3	32.93	3.104	95.6	80	120				
Barium	105.237	1.3	32.93	75.74	89.6	80	120				
Beryllium	29.628	1.3	32.93	0.1773	89.4	80	120				
Cadmium	30.534	1.3	32.93	0	92.7	80	120				
Chromium	82.754	1.3	32.93	54.82	84.8	80	120				
Cobalt	37.906	1.3	32.93	7.402	92.6	80	120				
Copper	41.138	2.6	32.93	7.810	101	80	120				
Lead	35.359	1.3	32.93	5.245	91.4	80	120				
Manganese	377.267	1.3	329.3	104.7	82.8	80	120				
Molybdenum	30.042	1.3	32.93	0	91.2	80	120				
Nickel	62.402	1.3	32.93	33.82	86.8	80	120				
Selenium	31.413	1.3	32.93	1.827	89.8	80	120				
Silver	27.444	1.3	32.93	0	83.3	80	120				
Thallium	29.122	2.6	32.93	0	88.4	80	120				
Vanadium	67.296	1.3	32.93	38.02	88.9	80	120				
Zinc	56.270	1.3	32.93	24.63	96.1	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

DO Surrogate Diluted Out

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

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

Sample Calculation

METHOD: EPA 7199 TEST NAME: HEXAVALENT CHROMIUM BY IC MATRIX: Sludge

FORMULA:

Calculate the Hexavalent Chromium concentration, in mg/Kg, in the original sample as follows:

 Cr^{+6} , mg/Kg-dry = $(A * DF * 0.1*20) \times 100$ B (100-%Moisture) 1000

where:

A = ug/L, IC Cr⁺⁶ calculated concentration DF = dilution factor B = weight of sample in kg 20 = dilution due to the matrix of the digestate

For N014307-001C, concentration in mg/Kg is calculated as follows:

 Cr^{+6} , mg/Kg-dry = $(5.21640*10*0.1*20) \times 100$ 0.002505 (100-62.122) 1000 = 109.9528= 109.947

Reporting results in two significant figures,

 Cr^{+6} , mg/Kg-dry = 110

Sample Calculation

Work Order No.:	N014307
Test Method:	EPA 7471
Test Name:	Mercury in Solid by Cold-Vapor Technique
Matrix:	SLUDGE

FORMULA:

Mercury, mg/Kg-dry = A * DF * PF * (100/100-Pmoist)

Where,

A = ug/L, calculated concentration of the Sample
DF = dilution factor used
PF = Final Volume of Digestate / Wt. Of Sample used in Grams.
Pmoist = Percent Moisture content of the Sample

To calculate the Mercury concentration in mg/Kg-Dry in the sample is as follows:

For Sample: N014307-001B

<i>A</i> =	<u>0.48742</u>	ug/L
DF =	<u>1</u>	unit less
Wt. Of Sample =	- <u>0.6</u> 0.616	grams
Final Vol. =	<u>0.05</u>	liters
Pmoist =	<u>62.122</u>	%

Using the formula:

Mercury, mg/Kg-dry = A * DF * PF * (100/100-Pmoist)

The concentration in mg/Kg-dry will be equal to:

0.104449 Mercury, mg/Kg-dry = <u>0.10723</u>

Since results is less than reporting limit,

Mercury, mg/Kg-dry = <u>ND</u>



MI/ AA-01 1/13/2015 11:59 PM

SAMPLE CALCULATION

METHOD: ASTM D 2216-05 TEST NAME: Determination of Water Content MATRIX: SOIL SLUDGE

FORMULA:

Calculate the % Moisture in the original sample as follows:

% Moisture = ((A-B) / (A-C)) * 100

where:

A = mass of aluminum dish + sample before drying, g, B = mass of aluminum dish + sample after drying, g, C = mass of aluminum dish, g,

For N014307-001B, % Moisture are calculated as follows:

% Moisture = ((2.3257-1.6992) / (2.3257-1.3172)) * 100 % Moisture = 62.122%

Julia Ramit 1/14/2015

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA



3151 W. Post Road, Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.265 www.assetlaboratories.com Percent moisture (%)

QC Batch No.:

R77526

Date Prepared: Time Prepared:	<u>i 12/15</u> 930 (Start Time)		T		(112115 1220 (Start time)	-	Oven Tempe	rature: <u>110 °C</u>
Prepared By:	USR		Weighing	s performed by:	LSR.			
Sample ID	Pan 1st Final Tare Wt.(g)	Pan 2nd Final Tare Wt.(g)	Pan + Sample Initial (g)	Pan+Sample 1st Final Wt(g)	Pan+Sample 2nd Final Wt(g)	% Moisture	% Solid	Comments
Blank MB	1.3186	1.3186	1.3186	1.3185	1.3185	or construction of the second se		
NO14307-001B	13172	1.3172	2.3257	1.6992	1.6992	62.122	37. 878	
NO14320-001A	1.3163	1.3163	2. 3217	2.0990	2.0990	22.150	77.558	
-001A-DUP	1.3221	1.3221	2.3280	2.1074	2.1074	21.931	78.069	
-002 A	1.3198	1.3198	2.3265	2.0837	2.0837	24.118	JG. 887	
- 603 A	1.3198	1.3198	2.3306	2.1152	3.1152	21.310	78.690	
J-004A	1.3125	1.3125	2.3164	2.0637	7.0637	25.172	341.828	
\$								
	-							
			% MORTIRE			_		
			% MOISTURE	F(A-B)	K100			
				(A-C)				
			Where A =	wt a dish	+ comme	before dry	try (gr)	
				.L				
Julia Ramit	1/14/2015		<u>B=</u> C=	wt g dish wt g dish	+ sample	after dry	10 41	
	1117/2010			Ι				

1/12/2014	WT PAN	PAN+SAMPLE	WT SAMPLE	WT PAN+SAMPLE	WT OF DRY SAMPLE	%SOLID	%MOISTURE
MB	1.3186	1.3186	0 1.318 6	1.3185		0	0
N014307-001B	1.3172	2.3257	1.0085	1.6992	0.382	37.878	62.122
N014320-001A	1.3163	2.3217	1.0054	2.099	0.7827	77.850	22.150
N014320-001A DUP	1.3221	2.328	1.0059	2.1074	0.7853	78.069	21.931
N014320-002A	1.3198	2.3265	1.0067	2.0837	0.7639	75.882	24.118
N014320-003A	1.3198	2.3306	1.0108	2.1152	0.7954	78.690	21.310
N014320-004A	1.3125	2.3164	1.0039	2.0637	0.7512	74.828	25.172



January 28, 2015

Shawn P. Duffy CH2M HILL 155 Grand Avenue, Suite 1000 Oakland, CA 94612 TEL: (530) 229-3303 FAX: (530) 339-3303

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

Workorder No.: N014371

RE: PG&E Topock

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on January 13, 2015 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,

gregeomendo

Glen Gesmundo QA Manager

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CLIENT:CH2M HILLProject:PG&E TopockLab Order:N014371

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

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

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

Samples were analyzed within method holding time.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Manganese possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.



CLIENT: Project: Lab Order: Contract No:	CH2M HILL PG&E Topock N014371 IM3Plant-WDR-		Work O	order Sampl	e Summary
Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N014371-001A	SC-700B-WDR-503	Water	1/13/2015 12:26:00 PM	1/13/2015	1/28/2015
N014371-001B	SC-700B-WDR-503	Water	1/13/2015 12:26:00 PM	1/13/2015	1/28/2015
N014371-001C	SC-700B-WDR-503	Water	1/13/2015 12:26:00 PM	1/13/2015	1/28/2015



ANALYTICAL RESULTS

Print Date: 28-Jan-15

CLIENT:	CH2M HILL		ſ	liont Comple II	D. SC 700P	WDD	502
CLIENI:	CH2M HILL		C C	Client Sample II	D: SC-700B	-wDR	-305
Lab Order:	N014371	Collection Date: 1/13/2015 12:26:00 PM					5:00 PM
Project:	PG&E Topock			Matri	x: WATER		
Lab ID:	N014371-001						
Analyses		Result MD	L PQL	Qual U	J nits	DF	Date Analyzed
SPECIFIC CC	ONDUCTANCE						
			EF	PA 120.1			
				DresDete			Analyst DD
RunID: WET	CHEM_150114B	QC Batch: R97464		PrepDate			Analyst: RB

Qualifiers:

В

Analyte detected in the associated Method Blank

- Н Holding times for preparation or analysis exceeded S
 - Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

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

ASSET LABORATORIES

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

CLIENT: CH2M HILL

Work Order: N014371

Project: PG&E Topock

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Date: 28-Jan-15

Sample ID N014325-001CDUP	SampType: DUP	TestCoo	le: 120.1_WF	GE Units: umh	os/cm	Prep Da	te:		RunNo: 974	464	
Client ID: ZZZZZZ	Batch ID: R97464	TestN	lo: EPA 120.4	1		Analysis Da	te: 1/14/20	15	SeqNo: 190	09021	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	17370.000	0.10						17360	0.0576	10	

Qualifiers:

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

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

Calculations are based on raw values

- NEVADA 3151 W. Post Rd., Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.2691
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

ANALYTICAL RESULTS

Print Date: 28-Jan-15

CLIENT:	CH2M HILL			C	lient Sampl	e ID: S	C-700B-WDR	R-503
Lab Order:	N014371		Collection Date: 1/13/2015 12:26:00 PM					
Project:	PG&E Topock	Matrix: WATER						
Lab ID:	N014371-001							
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FIL	TERABLE RESIDUE							
				S	M2540C			
RunID: WE	TCHEM_150114D	QC Batch: 4842	23		PrepD	ate	1/14/2015	Analyst: RB
Total Disso Filterable)	olved Solids (Residue,	4000	50	50		mg/L	1	1/14/2015 01:00 PM

Qualifiers:

В

Analyte detected in the associated Method Blank

- Н Holding times for preparation or analysis exceeded S
 - Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Е Value above quantitation range

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

ASSET LABORATORIES

CALIFORNIA 11060 Artesia Blvd., Ste C, 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

CLIENT: CH2M HILL

Work Order: N014371

Project: PG&E Topock

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID MB-48423	SampType: MBLK	TestCode: 160.1_2540C Units: mg/L	Prep Date: 1/14/2015	RunNo: 97682
Client ID: PBW	Batch ID: 48423	TestNo: SM2540C	Analysis Date: 1/14/2015	SeqNo: 1917131
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	lue, Filtera ND	10		
Sample ID LCS-48423	SampType: LCS	TestCode: 160.1_2540C Units: mg/L	Prep Date: 1/14/2015	RunNo: 97682
Client ID: LCSW	Batch ID: 48423	TestNo: SM2540C	Analysis Date: 1/14/2015	SeqNo: 1917132
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	lue, Filtera 1017.000	10 1000 0	102 80 120	
Sample ID N014369-001DD	UP SampType: DUP	TestCode: 160.1_2540C Units: mg/L	Prep Date: 1/14/2015	RunNo: 97682
Client ID: ZZZZZZ	Batch ID: 48423	TestNo: SM2540C	Analysis Date: 1/14/2015	SeqNo: 1917138
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	lue, Filtera 3189.968	33	3120	2.22 5

Qualifiers:

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

ASSET LABORATORIES

CALIFORNIA

11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

R

E Value above quantitation range

RPD outside accepted recovery limits

Calculations are based on raw values NEVADA

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

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S

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9

ANALYTICAL RESULTS

Print Date: 28-Jan-15

CLIENT:	CH2M HILL			С	lient Sampl	e ID: S	C-700B-WDF	R-503
Lab Order:	N014371	Collection Date: 1/13/2015 12:26:00 PM						
Project:	PG&E Topock	Matrix: WATER						
Lab ID:	N014371-001							
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL ME	TALS BY ICPMS							
				EP	A 200.8			
RunID: ICF	P7_150115B	QC Batch: 484	28		PrepD	ate	1/15/2015	Analyst: CEI
Manganes	е	ND	0.026	0.50		µg/L	1	1/15/2015 05:00 P

Qualifiers:

В

Analyte detected in the associated Method Blank

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

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

DO Surrogate Diluted Out

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

11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

CALIFORNIA

CLIENT: CH2M HILL

Work Order: N014371

Project: PG&E Topock

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Completion ID MID 40400		TestOsday and a Million in		Durbles 07500
Sample ID MB-48428	SampType: MBLK	TestCode: 200.8_W Units: µg/L	Prep Date: 1/15/2015	RunNo: 97588
Client ID: PBW	Batch ID: 48428	TestNo: EPA 200.8	Analysis Date: 1/15/2015	SeqNo: 1911940
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Manganese	ND	0.50		
Sample ID LCS-48428	SampType: LCS	TestCode: 200.8_W Units: µg/L	Prep Date: 1/15/2015	RunNo: 97588
Client ID: LCSW	Batch ID: 48428	TestNo: EPA 200.8	Analysis Date: 1/15/2015	SeqNo: 1911941
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Manganese	102.843	0.50 100.0 0	103 85 115	
Sample ID N014371-001B-MS	SampType: MS	TestCode: 200.8_W Units: µg/L	Prep Date: 1/15/2015	RunNo: 97588
Sample ID N014371-001B-MS Client ID: ZZZZZZ	SampType: MS Batch ID: 48428	TestCode: 200.8_W Units: μg/L TestNo: EPA 200.8	Prep Date: 1/15/2015 Analysis Date: 1/15/2015	RunNo: 97588 SeqNo: 1911951
Client ID: ZZZZZZ	Batch ID: 48428	TestNo: EPA 200.8	Analysis Date: 1/15/2015	SeqNo: 1911951
Client ID: ZZZZZZ	Batch ID: 48428 Result 59.514	TestNo: EPA 200.8 PQL SPK value SPK Ref Val	Analysis Date: 1/15/2015 %REC LowLimit HighLimit RPD Ref Val	SeqNo: 1911951 %RPD RPDLimit Qual
Client ID: ZZZZZZ Analyte Manganese	Batch ID: 48428 Result 59.514	TestNo: EPA 200.8 PQL SPK value SPK Ref Val 0.50 100.0 0	Analysis Date: 1/15/2015 %REC LowLimit HighLimit RPD Ref Val 59.5 75 125	SeqNo: 1911951 %RPD RPDLimit Qual S
Client ID: ZZZZZZ Analyte Manganese Sample ID N014371-001B-MSD	Batch ID: 48428 Result 59.514 SampType: MSD	TestNo: EPA 200.8 PQL SPK value SPK Ref Val 0.50 100.0 0 TestCode: 200.8_W Units: µg/L	Analysis Date: 1/15/2015 %REC LowLimit HighLimit RPD Ref Val 59.5 75 125 Prep Date: 1/15/2015	SeqNo: 1911951 %RPD RPDLimit Qual S RunNo: 97588

Qualifiers:

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

CALIFORNIA

11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

E Value above quantitation range

R RPD outside accepted recovery limits

> Calculations are based on raw values NEVADA

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

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S

ANALYTICAL RESULTS

Print Date: 28-Jan-15

CLIENT:	CH2M HILL			Cl	ient Sampl	e ID: S	C-700B-WDR	R-503
Lab Order:	N014371			(Collection	Date: 1	/13/2015 12:2	6:00 PM
Project:	PG&E Topock		Matrix: WATER					
Lab ID:	N014371-001							
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALE	NT CHROMIUM BY IC							
				EP	A 218.6			
RunID: IC6	_150114A	QC Batch: R9	7572		PrepD	ate		Analyst: RB
Hexavalent	Chromium	ND	0.016	0.20		µg/L	1	1/14/2015 01:06 PM
TOTAL MET	TALS BY ICPMS							
				EP	A 200.8			
RunID: ICP	7_150115A	QC Batch: 484	428		PrepD	ate	1/15/2015	Analyst: CEI
Chromium		ND	0.030	1.0		µg/L	1	1/15/2015 05:00 PM

Qualifiers:

В

Analyte detected in the associated Method Blank

- Н Holding times for preparation or analysis exceeded S
 - Spike/Surrogate outside of limits due to matrix interference
- Е Value above quantitation range
- ND Not Detected at the Reporting Limit Results are wet unless otherwise specified

DO Surrogate Diluted Out

ASSET LABORATORIES

CALIFORNIA 11060 Artesia Blvd., Ste C, 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

CLIENT: CH2M HILL

Work Order: N014371

Project: PG&E Topock

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W_CRPGE

Sample ID MB-48428	SampType: MBLK	TestCode: 200.8_W_CR Units: µg/L	Prep Date: 1/15/2015	RunNo: 97559
Client ID: PBW	Batch ID: 48428	TestNo: EPA 200.8	Analysis Date: 1/15/2015	SeqNo: 1911733
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Chromium	ND	1.0		
Sample ID LCS-48428	SampType: LCS	TestCode: 200.8_W_CR Units: µg/L	Prep Date: 1/15/2015	RunNo: 97559
Client ID: LCSW	Batch ID: 48428	TestNo: EPA 200.8	Analysis Date: 1/15/2015	SeqNo: 1911734
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Chromium	10.032	1.0 10.00 0	100 85 115	
		10 10100 0	100 00 110	
Sample ID N014371-001B-MS	SampType: MS	TestCode: 200.8_W_CR Units: µg/L	Prep Date: 1/15/2015	RunNo: 97559
				RunNo: 97559 SeqNo: 1911744
Sample ID N014371-001B-MS	SampType: MS	TestCode: 200.8_W_CR Units: µg/L	Prep Date: 1/15/2015	
Sample ID N014371-001B-MS Client ID: ZZZZZ	SampType: MS Batch ID: 48428	TestCode: 200.8_W_CR Units: µg/L TestNo: EPA 200.8	Prep Date: 1/15/2015 Analysis Date: 1/15/2015	SeqNo: 1911744
Sample ID N014371-001B-MS Client ID: ZZZZZZ Analyte	SampType: MS Batch ID: 48428 Result 9.277	TestCode: 200.8_W_CR Units: µg/L TestNo: EPA 200.8 PQL SPK value SPK Ref Val	Prep Date: 1/15/2015 Analysis Date: 1/15/2015 %REC LowLimit HighLimit RPD Ref Val	SeqNo: 1911744
Sample ID N014371-001B-MS Client ID: ZZZZZZ Analyte Chromium	SampType: MS Batch ID: 48428 Result 9.277	TestCode: 200.8_W_CR Units: µg/L TestNo: EPA 200.8 PQL SPK value SPK Ref Val 1.0 10.00 0 0	Prep Date: 1/15/2015 Analysis Date: 1/15/2015 %REC LowLimit HighLimit RPD Ref Val 92.8 75 125	SeqNo: 1911744 %RPD RPDLimit Qual
Sample ID N014371-001B-MS Client ID: ZZZZZZ Analyte Chromium Sample ID N014371-001B-MSD	SampType: MS Batch ID: 48428 Result 9.277 SampType: MSD	TestCode: 200.8_W_CR Units: µg/L TestNo: EPA 200.8 <	Prep Date: 1/15/2015 Analysis Date: 1/15/2015 %REC LowLimit HighLimit RPD Ref Val 92.8 75 125 Prep Date: 1/15/2015	SeqNo: 1911744 %RPD RPDLimit Qual RunNo: 97559

Qualifiers:

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

CALIFORNIA

11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

R

RPD outside accepted recovery limits S

Calculations are based on raw values NEVADA

E Value above quantitation range

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

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

CH2M HILL **CLIENT:**

Work Order: N014371 **Project:** PG&E Topock

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Hexavalent Chromium ND 0.20 Sample ID LCS. R97572 SampType: LCS TestCode: 218.6_WPGE Units: µg/L Prep Date: RunNo: 97572 Client ID: LCSW Batch ID: R97572 TestNo: EPA 218.6 Analysis Date: 1/14/2015 SeqNo: 1910241 Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Q Sample ID N014353-010A-DUP SampType: DUP TestCode: 218.6_WPGE Units: µg/L Prep Date: RunNo: 97572 Glient ID: ZZZZZZ Batch ID: R97572 TestNo: EPA 218.6 Analysis Date: 1/14/2015 SeqNo: 1910243 Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Q Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Q Sample ID N014353-010A-MS SampType: MS TestCode: 218.6_WPGE Units: µg/L <th< th=""><th></th><th></th><th></th><th></th><th></th></th<>					
Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Q Hexavalent Chromium ND 0.20	Sample ID MB-R97572	SampType: MBLK	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97572
ND 0.20 Sample ID LCS.R97572 SampType: LCS TestCode: 218.6_WPGE Units: µg/L Prep Date: RunNo: 97572 Client ID: LCSW Batch ID: R97572 TestNo: EPA 218.6 Analysis Date: 1/14/2015 SeqNo: 1910241 Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Q Hexavalent Chromium 5.007 0.20 5.000 0 100 90 110 RunNo: 97572 RunNo: 97572 RunNo: 97572 RunNo: 97572 RunNo: 97572 RunNo: 97572	Client ID: PBW	Batch ID: R97572	TestNo: EPA 218.6	Analysis Date: 1/14/2015	SeqNo: 1910240
Sample ID LCS. SampType: LCS TestCode: 218.6_WPGE Units: µg/L Prep Date: RunNo: 97572 Client ID: LCSW Batch ID: R97572 TestNo: EPA 218.6 Analysis Date: 1/14/2015 SeqNo: 1910241 Q Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Q Hexavalent Chromium 5.007 0.20 5.000 0 100 90 110 SampType: Q SampType: Prep Date: RunNo: 97572 SeqNo: 1910243 V	Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Client ID: LCSW Batch ID: R97572 TestNo: EPA 218.6 Analysis Date: 1/14/2015 SeqNo: 1910241 Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Q Hexavalent Chromium 5.007 0.20 5.000 0 100 90 110 V	Hexavalent Chromium	ND	0.20		
Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Q Hexavalent Chromium 5.007 0.20 5.000 0 100 90 110 100 90 110 100 90 110 100 90 110 100 90 110 100 90 110 100 90 110 100 90 110 100 90 110 100 90 110 100 90 110 100 90 110 100 90 110 100 90 110 100 90 110 100 100 90 110 100 <td>Sample ID LCS-R97572</td> <td>SampType: LCS</td> <td>TestCode: 218.6_WPGE Units: µg/L</td> <td>Prep Date:</td> <td>RunNo: 97572</td>	Sample ID LCS-R97572	SampType: LCS	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97572
Hexavalent Chromium 5.007 0.20 5.000 0 100 90 110 Sample ID N014353-010A-DUP SampType: DUP TestCode: 218.6_WPGE Units: µg/L Prep Date: RunNo: 97572 Client ID: ZZZZZZ Batch ID: R97572 TestNo: EPA 218.6 Analysis Date: 1/14/2015 SeqNo: 1910243 Analyste Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Q Hexavalent Chromium 2.343 0.20 2.312 1.34 20 2.312 1.34 20 2.312 1.34 20 2.312 1.34 20 2.312 1.34 20 2.312 1.34 20 2.312 1.34 20 2.312 1.34 20 2.312 1.34 20 2.312 1.34 20 2.312 1.34 20 2.312 1.34 20 2.312 1.34	Client ID: LCSW	Batch ID: R97572	TestNo: EPA 218.6	Analysis Date: 1/14/2015	SeqNo: 1910241
Sample ID N014353-010A-DUP SampType: DUP TestCode: 218.6_WPGE Units: µg/L Prep Date: RunNo: 97572 Client ID: ZZZZZ Batch ID: R97572 TestNo: EPA 218.6 Analysis Date: 1/14/2015 SeqNo: 1910243 Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Q Hexavalent Chromium 2.343 0.20 2.312 1.34 20 2.312 1.34 20 2.312 1.34 20 2.312 1.34 20 2.312 1.34 20 2.312 1.34 20 2.312 1.34 20 2.312 1.34 20 2.312 1.34 20 2.312 1.34 20 2.312 1.34 20 2.312 1.34 20 2.312 1.34 20 2.312 1.34 20 2.312 1.34 20 2.312 1.34 20	Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Client ID: ZZZZZZ Batch ID: R97572 TestNo: EPA 218.6 Analysis Date: 1/14/2015 SeqNo: 1910243 Analyte Result PQL SPK value SPK Ref Val % REC LowLimit HighLimit RPD RPD Imit Q Hexavalent Chromium 2.343 0.20 2.312 1.34 20 Sample ID N014353-010A-MS SampType: MS TestCode: 218.6_WPGE Units: µg/L Prep Date: RunNo: 97572 Client ID: ZZZZZZ Batch ID: R97572 TestCode: 218.6_WPGE Units: µg/L Prep Date: RunNo: 97572 Client ID: ZZZZZZ Batch ID: R97572 TestNo: EPA 218.6 Analysis Date: 1/14/2015 SeqNo: 1910244 Analyte Result PQL SPK value SPK Ref Val % REC LowLimit HighLimit RPD Ref Val % RPD RPDLimit Q Hexavalent Chromium 3.388 0.20 1.000 2.312 108 90 110 Intercore SeqNo: 1910245	Hexavalent Chromium	5.007	0.20 5.000 0	100 90 110	
AnalyteResultPQLSPK valueSPK Ref Val%RECLowLimitHighLimitRPD Ref Val%RPDRPDLimitQHexavalent Chromium2.3430.202.3121.3420Sample IDN014353-010A-MSSampType:MSTestCode:218.6_WPGEUnits:µg/LPrep Date:RunNo:97572Client ID:ZZZZZZBatch ID:R97572TestNo:EPA 218.6MRECLowLimitHighLimitRPD Ref Val%RPDRPDLimitQAnalyteResultPQLSPK valueSPK Ref Val%RECLowLimitHighLimitRPD Ref Val%RPDRPDLimitQHexavalent Chromium3.3880.201.0002.31210890110InterventionSampType:MSDTestCode:218.6_WPGEUnits:µg/LPrep Date:RunNo:97572InterventionSampType:ResultPQLSPK valueSPK Ref Val%RECLowLimitHighLimitRPD Ref Val%RPDRPDLimitQSample IDN014353-010A-MSDSampType:MSDTestCode:218.6_WPGEUnits:µg/LPrep Date:RunNo:97572InterventionSeqNo:1910245Client ID:ZZZZZZBatch ID:R97572TestNo:EPA 218.6Analysis Date:1/14/2015SeqNo:1910245AnalyteResultPQLSPK valueSPK Ref Val%RECLowLimitHighLimitRPD Ref Val%RPDRPDLimitQ <td>Sample ID N014353-010A-DUR</td> <td>SampType: DUP</td> <td>TestCode: 218.6_WPGE Units: µg/L</td> <td>Prep Date:</td> <td>RunNo: 97572</td>	Sample ID N014353-010A-DUR	SampType: DUP	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97572
Hexavalent Chromium 2.343 0.20 2.312 1.34 20 Sample ID N014353-010A-MS SampType: MS TestCode: 218.6_WPGE Units: µg/L Prep Date: RunNo: 97572 Client ID: ZZZZZZ Batch ID: R97572 TestNo: EPA 218.6 Analysis Date: 1/14/2015 SeqNo: 1910244 Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Q Hexavalent Chromium 3.388 0.20 1.000 2.312 108 90 110 V	Client ID: ZZZZZZ	Batch ID: R97572	TestNo: EPA 218.6	Analysis Date: 1/14/2015	SeqNo: 1910243
Sample ID N014353-010A-MS SampType: MS TestCode: 218.6_WPGE Units: µg/L Prep Date: RunNo: 97572 Client ID: ZZZZZZ Batch ID: R97572 TestNo: EPA 218.6 Analysis Date: 1/14/2015 SeqNo: 1910244 Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Q Hexavalent Chromium 3.388 0.20 1.000 2.312 108 90 110 V	Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Client ID: ZZZZZZ Batch ID: R97572 TestNo: EPA 218.6 Analysis Date: 1/14/2015 SeqNo: 1910244 Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Q Hexavalent Chromium 3.388 0.20 1.000 2.312 108 90 110	Hexavalent Chromium	2.343	0.20	2.312	1.34 20
Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Q Hexavalent Chromium 3.388 0.20 1.000 2.312 108 90 110 Image: constraint of the second secon	Sample ID N014353-010A-MS	SampType: MS	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97572
Hexavalent Chromium 3.388 0.20 1.000 2.312 108 90 110 Sample ID N014353-010A-MSD SampType: MSD TestCode: 218.6_WPGE Units: µg/L Prep Date: RunNo: 97572 Client ID: ZZZZZZ Batch ID: R97572 TestNo: EPA 218.6 Analysis Date: 1/14/2015 SeqNo: 1910245 Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD RPD Limit Q	Client ID: ZZZZZZ	Batch ID: R97572	TestNo: EPA 218.6	Analysis Date: 1/14/2015	SeqNo: 1910244
Sample ID N014353-010A-MSD SampType: MSD TestCode: 218.6_WPGE Units: µg/L Prep Date: RunNo: 97572 Client ID: ZZZZZZ Batch ID: R97572 TestNo: EPA 218.6 Analysis Date: 1/14/2015 SeqNo: 1910245 Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD RPD Limit Q	Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Client ID: ZZZZZZ Batch ID: R97572 TestNo: EPA 218.6 Analysis Date: 1/14/2015 SeqNo: 1910245 Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD RPD Limit Q	Hexavalent Chromium	3.388	0.20 1.000 2.312	108 90 110	
Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Q	Sample ID N014353-010A-MSI	D SampType: MSD	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97572
	Client ID: ZZZZZZ	Batch ID: R97572	TestNo: EPA 218.6	Analysis Date: 1/14/2015	SeqNo: 1910245
Hexavalent Chromium 3.324 0.20 1.000 2.312 101 90 110 3.388 1.91 20	Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
	Hexavalent Chromium	3.324	0.20 1.000 2.312	101 90 110 3.388	1.91 20

Qualifiers:

ND

B Analyte detected in the associated Method Blank

Not Detected at the Reporting Limit

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

Calculations are based on raw values NEVADA

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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out ASSET LABORATORIES

11060 Artesia Blvd., Ste C, Cerritos, CA 90703

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CALIFORNIA

P: 562.219.7435 F: 562.219.7436



CLIENT: CH2M HILL

Work Order:N014371Project:PG&E Topock

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID N014353-004A-MS	SampType: MS	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97572
Client ID: ZZZZZZ	Batch ID: R97572	TestNo: EPA 218.6	Analysis Date: 1/14/2015	SeqNo: 1910247
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	1.077	0.20 1.000 0	108 90 110	
Sample ID N014353-012A-MS	SampType: MS	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97572
Client ID: ZZZZZZ	Batch ID: R97572	TestNo: EPA 218.6	Analysis Date: 1/14/2015	SeqNo: 1910249
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	3.326	0.20 1.000 2.252	107 90 110	
Sample ID N014371-001A-MS	SampType: MS	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97572
Client ID: ZZZZZZ	Batch ID: R97572	TestNo: EPA 218.6	Analysis Date: 1/14/2015	SeqNo: 1910253
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	1.055	0.20 1.000 0.03860	102 90 110	

Qualifiers:

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

ASSET LABORATORIES

CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

E Value above quantitation range

R RPD outside accepted recovery limits

Calculations are based on raw values

3151 W. Post Rd., Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.2691 H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

ASSET Laboratories Print Date: 28-Jan-15 CLIENT. CH2M HILL Client Sample ID: SC-700B-WDR-503

ANALYTICAL RESULTS

CLIENT:	CH2M HILL			Client Sampl	e ID: SC-/	00B-WDR	-503
Lab Order:	N014371			Collection	Date: 1/13/2	2015 12:20	5:00 PM
Project:	PG&E Topock			M	atrix: WAT	ER	
Lab ID:	N014371-001						
Analyses		Result MI	DL PQL	Qual	Units	DF	Date Analyzed
TURBIDITY							
			5	SM 2130B			
RunID: WETC	CHEM_150115A	QC Batch: R97547	,	PrepD	ate		Analyst: RB
Turbidity		0.14 0	.10 0.10		NTU	1	1/15/2015 11:00 AM

Qualifiers:

Analyte detected in the associated Method Blank

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

Е Value above quantitation range

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

DO Surrogate Diluted Out



В

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CLIENT: CH2M HILL

Work Order: N014371

Project: PG&E Topock

ANALYTICAL QC SUMMARY REPORT

Date: 28-Jan-15

TestCode: 2130_W

Sample ID N014371-001C DUP	SampType: DUP	TestCod	de: 2130_W	Units: NTU		Prep Da	te:		RunNo: 975	547	
Client ID: ZZZZZZ	Batch ID: R97547	TestN	lo: SM 2130E	3		Analysis Da	te: 1/15/20	15	SeqNo: 190	09048	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity	0.150	0.10						0.1400	6.90	30	

Qualifiers:

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

ASSET LABORATORIES

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

Calculations are based on raw values NEVADA 3151 W. Post Rd., Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.2691

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

WORKORDER: N014371

ANALYST LIST

NAME	TEST METHOD
Claire Ignacio	EPA 200.8
Ryan Balilu	EPA 218.6
Lilia Ramit / Ryan Balilu	EPA 120.1, SM 2540C, SM 2130B



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S.	ASSET LAB	Carbon were to All 2019 with 710 to 7000 with the balance with a base of the		OILAIN OF OUT				COC Number		
	3151W. Post Road, L			CHAIN OF CUSTO		κυ		TURNAROUND T	IME	10 Days
	(702) 307-2659 FAX:	: (702) 307-2691		[IM3Plant-WI	DR-503]			DATE 01/13/1	5 PA	GE 1 OF 1
COMPANY	CH2M HILL	na na serie de la constante de Internet de la constante de la c	anderen den konke internetiering in sektoren open allen sektoren open open open open open open open op	1 / /	11	111	111	111	///	7
PROJECT NAME	PG&E Topock				/ / /				/ / /	COMMENTS
PHONE	(530) 229-3303	FAX ((530) 339-3303					/ / / /		
ADDRESS	155 Grand Ave	Ste 1000	and for the and a for the second s	14					IERS	
	Oakland, CA 94	612		0.8) (120, 1					NINE I	
P.O. NUMBER	652547.PT.OP.0	0 1	TEAM	Cr6 (218.6) Lab Fillered Total Metals (EPA 200.8) Cr, Mn TDS (SMDS.)	1 / 8				OFCONTAINERS	
SAMPLERS (SIGN/		Sol		Cr6 (218.6) Lab F. Total Metals (EP) Specific Conducta TDS (SM25.)	Turbidity (SM22130)				5	
	<u> </u>	<u> </u>	eye ayından başarda direm değinen vi kara men dara dara direm direm direm direm direm direm direm direm direm d -	S (Shr)	pieity.			MBE	/	
SAMPLE I.D.		DATE TIN		8 2 8 2						
SC-700B-WDF	<u>-503</u>	01/13/15 122	<u>ن Water</u>				5/437/+	-0/ 3		
								3	TOTAL NUMB	ER OF CONTAINERS
	a preliminary Res									
	Cł		TODY SIGNATU		-	5100	1-6-0	SAMPLE	CONDITIONS	
Signature (Relinquished)	ratil Sold	Printed Name Scott	ODERNel Company Agency	Champill	Date/ (-17 Time 12-	3-195	RECEIVED	COOL 1	WARM 🗖	۰Ę
Signature (Received)	life	Printed Name Pur lan	der-Gelen Company	" JOSET LABS	Date/ -13 Time 124	40	CUSTODY SE	ALED YES		
Signature (Relinguished)		Printed Name Night	T Galan Company	"ASJET LARI	Date/ /// Time 2	3/15-2/5	SPECIAL REQUIR	EMENTS:	nana parte de la completant processante parte de la completa de la completa de la completa de la completa de la	
Signature (Received)	PPMI	Printed Jan Name Man	Company Agency		Date/ / /	3/15 215-				
Signature (Relinquished)	JJ	Printed Name	Company Agency	1	Date/ Time					
Signature (Received)		Printed Name	Company Agency	// ;	Date/ Time	n fille fan ferste fan ferste fers				
	Sir Brenden Hinde in Lande in Lande and Standard and Standard and Standard Standard Standard Standard Standard : :		การการการสาราชาวิทยา (1999) (1999) (1999) (1999) (1999) (1999) (1999) (1999) (1999) (1999) (1999) (1999) (1999)	nin den bij in steren minden in minderet en gebijden te konstruktion op steren fan de steren fan steren skonsek I		a de la companya de l	Annonencer		ininduselinek issoissa ininin sinni pana sajat pj	21

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:	1/13/2015	i i			Workorder:	N014371		
Rep sample Temp (Deg C):	1.6				IR Gun ID:	2		
Temp Blank:	✔ Yes	🗌 No						
Carrier name:	ATL							
Last 4 digits of Tracking No.:	NA			Packing N	laterial Used:	None		
Cooling process:	✓ Ice	Ice Pack	Dry Ice	Other	None None			
			omula Docoin					
			ample Receip			N 🗆		
1. Shipping container/cooler in	good condit	lion?			Yes 🗹	No 🗌	Not Present	
2. Custody seals intact, signed,	, dated on s	hippping contain	er/cooler?		Yes	No 🗌	Not Present	\checkmark
3. Custody seals intact on sample	ple bottles?				Yes 🗌	No 🗌	Not Present	\checkmark
4. Chain of custody present?					Yes 🗹	No 🗌		
5. Sampler's name present in C	COC?				Yes 🗹	No 🗌		
6. Chain of custody signed whe	en relinquish	ned and received	?		Yes 🗹	No 🗌		
7. Chain of custody agrees with	n sample lat	oels?			Yes 🗹	No 🗌		
8. Samples in proper container/	/bottle?				Yes 🗹	No 🗌		
9. Sample containers intact?					Yes 🗹	No 🗌		
10. Sufficient sample volume for	or indicated	test?			Yes 🗹	No 🗌		
11. All samples received within	holding tim	e?			Yes 🗹	No 🗌		
12. Temperature of rep sample	or Temp B	lank within accep	table limit?		Yes 🗹	No 🗌	NA	
13. Water - VOA vials have zer	o headspac	ce?			Yes 🗌	No 🗌	NA	\checkmark
14. Water - pH acceptable upor Example: pH > 12 for (CN		for Metals			Yes 🗹	No 🗌	NA	
15. Did the bottle labels indicate	e correct pr	eservatives used	?		Yes 🗹	No 🗌	NA	
16. Were there Non-Conformar Wa	nce issues a as Client no	-			Yes 🗌 Yes 🗌	No 🗌 No 🗌	NA NA	✓

Comments:





SAMPLE CALCULATION

METHOD: SM 2540C TEST NAME: Total Filterable Residue MATRIX: Water

FORMULA:

Calculate TDS concentration in mg/L, in the original sample as follows:

TDS, mg/L =
$$(A-B)*1000000$$

C

Where:

A = weight in g of dish + residue after drying B = weight of dish in g C = volume of sample used in mL

For N014371-001C, TDS concentration in mg/L is calculated as follows:

TDS, mg/L = <u>(60.7091-60.6295) *1000000</u> 20

= 3980 mg/L

Reporting result in two significant figures,

WHERE: A = weight in grams of dish + residue after drying B = weight of dish in grams C = volume of sample used in mL

Date Finished: 1/15/2014	vol	initial	final	calc	prep fact	TDS, mg/L	CONDUCTIVITY	RATIO
MB-48423	100	63.9735	63.974	5	1	5		
LCS-48423	100	77.0998	77.2015	1017	1	1017		
N014354-005C	100	63.791	63.834	430	1	430	536	0.802
N014354-005C	50	53.9305	54.0315	1010	2	2020	2760	0.732
N014367-001C	100	60.7718	60.8368	650	1	650	857	0.758
N014367-002C	100	62.4501	62.4982	481	1	481	579	0.831
N014369-001D	30	59.9071	60.0007	936	3.33333	3119.99688	4030	0.774
N014369-001D DUP	30	60.3205	60.4162	957	3.33333	3189.99681	4030	0.792
N014369-002D	40	61.1279	61.2405	1126	2.5	2815	3580	0.786
N014369-003D	30	64.2555	64.3698	1143	3.33333	3809.99619	4490	0.849
N014371-001C	20	60.6295	60.7091	796	5	3980	6670	0.597

Sample Calculation

METHOD: EPA 200.8 TEST NAME: Heavy Metals by ICP-MS MATRIX: Water

FORMULA:

Calculate the Chromium concentration, in ug/L, in the original sample as follows:

Chromium, ug/L = A * DF * PF

where:

A = ug/L, calculated concentration DF = dilution factor PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample N014371-001B, the concentration in ug/L is calculated as follows:

Chromium, ug/L = 0.0000 * 1 * (25/25) = 0.0000

Since results is less than reporting limit,

Chromium, ug/L = ND



ICP-MS-Metals in Water

Dilution Test Summary

r No.:	N014371	Matrix:	Water
st Method:	EPA 200.8	Batch No.:	48428
nalysis Date:	1/15/2015		

Instrument ID: ICP-MS #2 Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Cr & Mn. The calculated values are <25X RL.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N014371-001B DT 5X	Chromium	µg/L	0	NA	0		10
N014371-001B DT 5X	Manganese	µg/L	0	NA	0		10

Note: NA - Not applicable

CLIENT:	CH2M HILL
Work Order:	N014371
Project:	PG&E Topock

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID N014371-001B-PS	SampType: PS	TestCo	de: 200.8_W	Units: µg/L		Prep Dat	te:		RunNo: 97	588	
Client ID: ZZZZZZ	Batch ID: 48428	TestN	lo: EPA 200.8	\$		Analysis Da	te: 1/15/20	15	SeqNo: 19	11950	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	59.681	0.50	100.0	0	59.7	80	120				S

Qualifiers:

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

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

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

CLIENT: CH2M HILL ANALYTICAL QC SUMMARY REPORT Work Order: N014371 TestCode: 200.8_W_CRPGE **Project:** PG&E Topock TestCode: 200.8_W_CR Units: µg/L Sample ID N014371-001B-PS SampType: PS Prep Date: RunNo: 97559 Client ID: ZZZZZZ Batch ID: 48428 TestNo: EPA 200.8 Analysis Date: 1/15/2015 SeqNo: 1911743 Analyte Result PQL SPK value SPK Ref Val LowLimit HighLimit RPD Ref Val %REC %RPD RPDLimit Qual

0

92.9

80

120

Qualifiers:

Chromium

B Analyte detected in the associated Method Blank

9.290

1.0

10.00

- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out

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

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

Sample Calculation

METHOD: EPA 218.6 TEST NAME: HEXAVALENT CHROMIUM BY IC MATRIX: Water

FORMULA:

Calculate the Hexavalent Chromium concentration, in μ g/L, in the original sample as follows:

$$Cr^{+6}$$
, $\mu g/L = A * DF$

where:

A = μ g/L, IC Cr⁺⁶ calculated concentration DF = dilution factor

For N014371-001A, concentration in μ g/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 0.0386 * 1$$

= 0.0386

Since PQL is 0.20 μ g/L,

 Cr^{+6} , $\mu g/L = ND$, since result <RL



February 04, 2015

Shawn P. Duffy CH2M HILL 155 Grand Avenue, Suite 1000 Oakland, CA 94612 TEL: (530) 229-3303 FAX: (530) 339-3303

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

Workorder No.: N014434

RE: PG&E Topock, 652547.PT.OP.00

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on January 20, 2015 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,

gracemendo

Glen Gesmundo QA Manager

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.



CALIFORNIA 11060 Artesia Blvd., Ste C, 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

 CLIENT:
 CH2M HILL

 Project:
 PG&E Topock, 652547.PT.OP.00

 Lab Order:
 N014434

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

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

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

Samples were analyzed within method holding time.

Analytical Comments for EPA 200.8:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Manganese possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.



N014434-001C SC-700B-WDR-504

1/20/2015

2/4/2015

CLIENT: Project: Lab Order: Contract No:	CH2M HILL PG&E Topock, 65254 N014434 IM3Plant-WDR-	7.PT.OP.00	Work Order Sample Summary					
Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported			
	Client Sample ID SC-700B-WDR-504	Matrix Water	Collection Date 1/20/2015 12:51:00 PM	Date Received 1/20/2015	Date Reported 2/4/2015			

1/20/2015 12:51:00 PM

Water



CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

ANALYTICAL RESULTS

ASSET Lab	oratories					Print D	ate: 04-F	Seb-15		
CLIENT:	CH2M HILL			Client Sample ID: SC-700B-WDR-504						
Lab Order:	N014434			Collection Date: 1/20/2015 12:51:00 PM						
Project:	PG&E Topock	Topock, 652547.PT.OP.00			Matrix: WATER					
Lab ID:	N014434-001									
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed		
SPECIFIC CO	NDUCTANCE									
				EP	EPA 120.1					
RunID: WETC	CHEM_150121D	QC Batch: R97	679		PrepD	Date		Analyst: RB		
Specific Cond	ductance	6700	0.10	0.10		umhos/cm	1	1/21/2015 02:30 PM		

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Value above quantitation range ND Not Detected at the Reporting Limit

Е

Results are wet unless otherwise specified

DO Surrogate Diluted Out



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Date: 04-Feb-15

CLIENT: CH2M HILL

Work Order: N014434

Project: PG&E Topock, 652547.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID N014434-001CDUP	SampType: DUP	TestCoo	le: 120.1_WF	GE Units: umh	os/cm	Prep Da	te:		RunNo: 976	679	
Client ID: ZZZZZZ	Batch ID: R97679	TestN	lo: EPA 120.4	I		Analysis Da	te: 1/21/20)15	SeqNo: 19 1	17117	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	6700.000	0.10						6710	0.149	10	

Qualifiers:

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

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

Calculations are based on raw values NEVADA 3151 W. Post Rd., Las Vegas, NV 89118

P: 702.307.2659 F: 702.307.2691

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

ANALYTICAL RESULTS

ASSET Lab	oratories					Pr	int Date: 04-	Feb-15	
CLIENT:	CH2M HILL	Client Sample ID: SC-700B-WDR-504							
Lab Order:	N014434		Collection Date: 1/20/2015 12:51:00 PM						
Project:	PG&E Topock,	Matrix: WATER							
Lab ID:	N014434-001								
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed	
TOTAL FILTE	RABLE RESIDUE								
			SM2540C						
RunID: WETC	CHEM_150121H	QC Batch: 484	489		PrepD	ate	1/21/2015	Analyst: RB	
Total Dissolve Filterable)	ed Solids (Residue,	4000	50	50		mg/L	1	1/21/2015 01:30 PM	

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

DO Surrogate Diluted Out

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Project:

CLIENT: CH2M HILL

Work Order: N014434

PG&E Topock, 652547.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID MB-48489	SampType: MBLK	TestCode: 160.1_2540C Units: mg/L	Prep Date: 1/21/2015	RunNo: 97761
Client ID: PBW	Batch ID: 48489	TestNo: SM2540C	Analysis Date: 1/21/2015	SeqNo: 1921000
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	ue, Filtera ND	10		
Sample ID LCS-48489	SampType: LCS	TestCode: 160.1_2540C Units: mg/L	Prep Date: 1/21/2015	RunNo: 97761
Client ID: LCSW	Batch ID: 48489	TestNo: SM2540C	Analysis Date: 1/21/2015	SeqNo: 1921001
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	lue, Filtera 921.000	10 1000 0	92.1 80 120	
Sample ID N014434-001CD	UP SampType: DUP	TestCode: 160.1_2540C Units: mg/L	Prep Date: 1/21/2015	RunNo: 97761
Client ID: ZZZZZZ	Batch ID: 48489	TestNo: SM2540C	Analysis Date: 1/21/2015	SeqNo: 1921012
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	ue, Filtera 4155.000	50	3965	4.68 5

Qualifiers:

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

CALIFORNIA

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E Value above quantitation range

R RPD outside accepted recovery limits

> Calculations are based on raw values NEVADA

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

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S

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ANALYTICAL RESULTS

Print Date: 04-Feb-15

CLIENT:	CH2M HILL			Client Sample ID: SC-700B-WDR-504					
Lab Order:	N014434			Collection Date: 1/20/2015 12:51:00 PM					
Project:	PG&E Topock,	652547.PT.OP.00		Matrix: WATER					
Lab ID:	N014434-001								
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed	
TOTAL META	LS BY ICPMS								
				EP	A 200.8				
RunID: ICP7_	150122A	QC Batch: 4849	5		PrepD	ate	1/22/2015	Analyst: CEI	
Manganese		ND 0.026 0.50 µg/L 1 1/22/2015 12:31				1/22/2015 12:31 P			

Qualifiers:

В

Analyte detected in the associated Method Blank

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

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

DO Surrogate Diluted Out

ASSET LABORATORIES

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Project:

CLIENT: CH2M HILL

Work Order: N014434

PG&E Topock, 652547.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID MB-48495 Client ID: PBW	SampType: Batch ID:			e: 200.8_W o: EPA 200.8	Units: µg/L		Prep Date			RunNo: 97 SegNo: 19		
Client ID: PBW	Batch ID:	40495	Testin	0: EPA 200.0)		Analysis Date	1/22/20	15	Sequo: 19	17700	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit H	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		ND	0.50									
Manganese		ND	0.50									
Sample ID LCS-48495	SampType:	LCS	TestCod	e: 200.8_W	Units: µg/L		Prep Date	: 1/22/20	15	RunNo: 97	703	
Client ID: LCSW	Batch ID:	48495	TestN	o: EPA 200.8	3		Analysis Date	: 1/22/20	15	SeqNo: 19	17767	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit H	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		10.049	0.50	10.00	0	100	85	115				
Manganese		98.792	0.50	100.0	0	98.8	85	115				
Sample ID N014434-001B-MS	SampType:	MS	TestCod	e: 200.8_W	Units: µg/L		Prep Date	: 1/22/20	15	RunNo: 97	703	
Client ID: ZZZZZZ	Batch ID:	48495	TestN	o: EPA 200.8	}		Analysis Date	: 1/22/20	15	SeqNo: 19	17771	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit H	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese		56.017	0.50	100.0	0	56.0	75	125				S
Sample ID N014434-001B-MSD	SampType:	MSD	TestCod	e: 200.8_W	Units: µg/L		Prep Date	: 1/22/20	15	RunNo: 97	703	
Client ID: ZZZZZZ	Batch ID:	48495	TestN	o: EPA 200.8	3		Analysis Date	1/22/20	15	SeqNo: 19	17772	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit H	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese		54.255	0.50	100.0	0	54.3	75	125	56.02	3.19	20	S
Sample ID N014434-001B-MS	SampType:	MS	TestCod	e: 200.8_W	Units: µg/L		Prep Date	: 1/22/20)15	RunNo: 97	703	
Client ID: ZZZZZZ	Batch ID:	48495	TestN	o: EPA 200.8	}		Analysis Date	: 1/22/20	15	SeqNo: 19	17775	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit H	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		9.810	2.5	10.00	0	98.1	75	125				

Qualifiers:

ND

B Analyte detected in the associated Method Blank

Not Detected at the Reporting Limit

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

Calculations are based on raw values

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

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

DO Surrogate Diluted Out
ASSET LABORATORIES

CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

CLIENT: CH2M HILL

Work Order: N014434

Project: PG&E Topock, 652547.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID N014434-001B-MSD	SampType: MSD	TestCode: 200.8_W	Units: µg/L		Prep Dat	e: 1/22/20	15	RunNo: 977	703	
Client ID: ZZZZZZ	Batch ID: 48495	TestNo: EPA 200	.8		Analysis Dat	e: 1/22/20	15	SeqNo: 19 4	17778	
Analyte	Result	PQL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.957	2.5 10.00	0	99.6	75	125	9.810	1.49	20	
Sample ID N014420-009B-MS	SampType: MS	TestCode: 200.8_W	Units: µg/L		Prep Dat	e: 1/22/20	15	RunNo: 977	703	
Sample ID N014420-009B-MS Client ID: ZZZZZZ	SampType: MS Batch ID: 48495	TestCode: 200.8_W TestNo: EPA 200	10		Prep Dat Analysis Dat			RunNo: 977 SeqNo: 194		
		– TestNo: EPA 200	10	%REC	Analysis Dat	e: 1/22/20				Qual
Client ID: ZZZZZZ	Batch ID: 48495	– TestNo: EPA 200	8 SPK Ref Val		Analysis Dat	e: 1/22/20	15	SeqNo: 19*	17792	Qual

Qualifiers:

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

ASSET LABORATORIES

CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

"Serving Clients with Passion and Professionalism"

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

Calculations are based on raw values NEVADA 3151 W. Post Rd., Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.2691

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

ANALYTICAL RESULTS

Print Date: 04-Feb-15

CLIENT: Lab Order:	CH2M HILL N014434				Client Sample ID: SC-700B-WDR-504 Collection Date: 1/20/2015 12:51:00 PM				
Project:		652547.PT.OP.00							
Lab ID:	N014434-001								
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed	
HEXAVALEN	T CHROMIUM BY IC	;							
				EP	A 218.6				
RunID: IC6_1	50121A	QC Batch: R9	7669		PrepD	ate		Analyst: RB	
Hexavalent C	hromium	ND	0.016	0.20		µg/L	1	1/21/2015 10:49 AM	
TOTAL META	LS BY ICPMS								
				EP	A 200.8				
RunID: ICP7_	150122A	QC Batch: 484	195		PrepD	ate	1/22/2015	Analyst: CEI	
Chromium		ND	0.030	1.0		µg/L	1	1/22/2015 12:31 PM	

Qualifiers:

В

Analyte detected in the associated Method Blank

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

DO Surrogate Diluted Out

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

ASSET LABORATORIES

CALIFORNIA 11060 Artesia Blvd., Ste C, 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

Project:

CLIENT: CH2M HILL

Work Order: N014434

PG&E Topock, 652547.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W_CRPGE

Sample ID	MB-48495	SampType:	MBLK	TestCode: 200.8_W_CR Units: µg/L	Prep Date: 1/22/2015	RunNo: 97703
Client ID:	PBW	Batch ID:	48495	TestNo: EPA 200.8	Analysis Date: 1/22/2015	SeqNo: 1918960
Analyte			Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Chromium			ND	1.0		
Sample ID	LCS-48495	SampType:	LCS	TestCode: 200.8_W_CR Units: µg/L	Prep Date: 1/22/2015	RunNo: 97703
Client ID:	LCSW	Batch ID:	48495	TestNo: EPA 200.8	Analysis Date: 1/22/2015	SeqNo: 1918961
Analyte			Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Chromium			10.049	1.0 10.00 0	100 85 115	
Sample ID	N014434-001B-MS	SampType:	MS	TestCode: 200.8_W_CR Units: µg/L	Prep Date: 1/22/2015	RunNo: 97703
Client ID:	ZZZZZZ	Batch ID:	48495	TestNo: EPA 200.8	Analysis Date: 1/22/2015	SeqNo: 1918965
Analyte			Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Chromium			8.932	1.0 10.00 0	89.3 75 125	
Sample ID	N014434-001B-MSD	SampType:	MSD	TestCode: 200.8_W_CR Units: µg/L	Prep Date: 1/22/2015	RunNo: 97703
Client ID:	ZZZZZZ	Batch ID:	48495	TestNo: EPA 200.8	Analysis Date: 1/22/2015	SeqNo: 1918966
Analyte			Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Chromium			8.970	1.0 10.00 0	89.7 75 125 8.932	0.429 20
Sample ID	N014420-009B-MS	SampType:	MS	TestCode: 200.8_W_CR Units: µg/L	Prep Date: 1/22/2015	RunNo: 97703
Client ID:	ZZZZZZ	Batch ID:	48495	TestNo: EPA 200.8	Analysis Date: 1/22/2015	SeqNo: 1918986
Analyte			Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Chromium			11.197	5.0 10.00 0.5888	106 75 125	

Qualifiers:

ND

B Analyte detected in the associated Method Blank

Not Detected at the Reporting Limit

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

Calculations are based on raw values NEVADA

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

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S



11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

"Serving Clients with Passion and Professionalism"

CALIFORNIA

CH2M HILL **CLIENT:**

Work Order: N014434

Project: PG&E Topock, 652547.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID MB-R97669	SampType: MBLK	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97669
Client ID: PBW	Batch ID: R97669	TestNo: EPA 218.6	Analysis Date: 1/21/2015	SeqNo: 1916628
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-R97669	SampType: LCS	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97669
Client ID: LCSW	Batch ID: R97669	TestNo: EPA 218.6	Analysis Date: 1/21/2015	SeqNo: 1916629
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	5.081	0.20 5.000 0	102 90 110	
Sample ID N014422-006A-DUP	SampType: DUP	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97669
Client ID: ZZZZZZ	Batch ID: R97669	TestNo: EPA 218.6	Analysis Date: 1/21/2015	SeqNo: 1916631
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	0.576	0.20	0.5767	0.121 20
Sample ID N014422-006A-MS	SampType: MS	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97669
Client ID: ZZZZZZ	Batch ID: R97669	TestNo: EPA 218.6	Analysis Date: 1/21/2015	SeqNo: 1916632
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	1.590	0.20 1.000 0.5767	101 90 110	
Sample ID N014422-006A-MSD	SampType: MSD	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97669
Client ID: ZZZZZZ	Batch ID: R97669	TestNo: EPA 218.6	Analysis Date: 1/21/2015	SeqNo: 1916633
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	1.644	0.20 1.000 0.5767	107 90 110 1.590	3.32 20

Qualifiers:

ND

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

CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

E Value above quantitation range

RPD outside accepted recovery limits

Calculations are based on raw values NEVADA

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

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S

CLIENT: CH2M HILL Work Order: N014434 Project: PG&E Topock, 652547.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID N014434-001A-MS	SampType: MS	TestCoo	le: 218.6_WP	GE Units: µg/L		Prep Da	te:		RunNo: 976	69	
Client ID: ZZZZZZ	Batch ID: R97669	TestN	lo: EPA 218.6	6		Analysis Da	te: 1/21/20	15	SeqNo: 19 4	6635	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.097	0.20	1.000	0.05150	105	90	110				

Qualifiers:

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

ASSET LABORATORIES

CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

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

Calculations are based on raw values

- 3151 W. Post Rd., Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.2691
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

ANALYTICAL RESULTS

Print Date: 04-Feb-15

					-		
CLIENT	CH2M HILL		С	lient Sample I	D: SC-70	00B-WDR	-504
Lab Ord	ler: N014434		Collection Date: 1/20/2015 12:51:00 PM				
Project:	PG&E Topock,	, 652547.PT.OP.00	Matrix: WATER				
Lab ID:	N014434-001						
Analyses	1	Result MDL	PQL	Qual I	Units	DF	Date Analyzed
TURBID	ΝΤΥ						
			SN	1 2130B			
RunID:	WETCHEM_150122F	QC Batch: R97855		PrepDate			Analyst: RB
Turbidi	ty	ND 0.10 0.10			TU	1	1/22/2015

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

DO Surrogate Diluted Out

CALIFORNIA

11060 Artesia Blvd., Ste C, Cerritos, CA 90703

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

P: 562.219.7435 F: 562.219.7436 "Serving Clients with Passion and Professionalism"

Date: 04-Feb-15

CLIENT: CH2M HILL

Work Order: N014434

Project: PG&E Topock, 652547.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 2130_W

Sample ID N014434-001CDUP	SampType: DUP	TestCode:	2130_W	Units: NTU		Prep Dat	te:		RunNo: 978	355	
Client ID: ZZZZZZ	Batch ID: R97855	TestNo:	SM 2130B			Analysis Dat	te: 1/22/20)15	SeqNo: 192	25354	
Analyte	Result	PQL S	PK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity	ND	0.10						0	0	30	

Qualifiers:

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



CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

"Serving Clients with Passion and Professionalism"

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

Calculations are based on raw values NEVADA 3151 W. Post Rd., Las Vegas, NV 89118

P: 702.307.2659 F: 702.307.2691

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

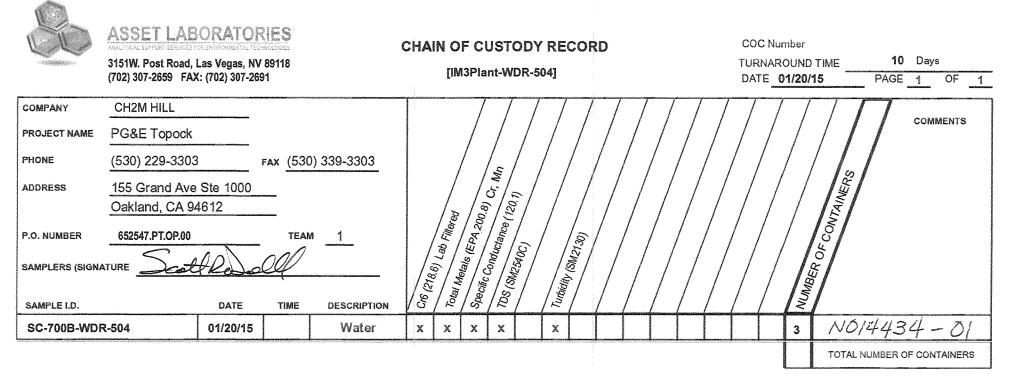
WORKORDER: N014434

ANALYST LIST

NAME	TEST METHOD
Claire Ignacio	EPA 200.8
Ryan Balilu	EPA 218.6, SM 2130B
Lilia Ramit/Ryan Balilu	EPA 120.1, SM 2540C



CALIFORNIA 11060 Artesia Blvd., Ste C, 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



Please Provide a preliminary Result for the TDS ASAP

CH	IAIN OF CUSTODY SIG	GNATURE RECORD	ана на стани и на стани и на стани на стани и на стани н Стани на стани на стан	1-6 sample conditions
Signature (Relinquished) Soft Refreel	Printed Name Scotto Donnell	Company/ Agency CHam Hill	Date/ 1-20-15 Time 1,350	
Signature (Received)	Printed Wander Galan	, Company/ Agency ASET LAB	Date/ 1-20-51 Time 135	CUSTODY SEALED YES D NO D
Signature (Relinquished)	Printed (Name MMdr Galam	Company/ ASTET LABS	Date/ /-20-17 Time / 400	SPECIAL REQUIREMENTS:
Signature (Received)	Printed Wandy Galang	Company/ AUET LAD	Date/ 1-20-15- Time / 9251	
Signature () (Relinquished)	Printed Name	Company/ Agency	Date/ Time	
Signature (Received)	Printed Name	Company/ Agency	Date/ Time	

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:	1/20/2015				Workorder:	N014434
Rep sample Temp (Deg C):	1.6				IR Gun ID:	2
Temp Blank:	Yes	No				
Carrier name:	ATL					
Last 4 digits of Tracking No.:	NA			Packing N	laterial Used:	None
Cooling process:	✓ Ice	Ice Pack	Dry Ice	Other	None	

Sample Receipt Checklist

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

Comments collection time was obtain from Sample Bottle

JPG **199 01/27/15**



SAMPLE CALCULATION

METHOD: SM 2540C TEST NAME: Total Filterable Residue MATRIX: Water

FORMULA:

Calculate TDS concentration in mg/L, in the original sample as follows:

TDS, mg/L =
$$(A-B)*1000000$$

C

Where:

A = weight in g of dish + residue after drying B = weight of dish in g C = volume of sample used in mL

For N014434-001C, TDS concentration in mg/L is calculated as follows:

TDS, mg/L = <u>(57.1662-57.0869) *1000000</u> 20

= 3965 mg/L

Reporting result in two significant figures,

WHERE: A = weight in grams of dish + residue after drying B = weight of dish in grams C = volume of sample used in mL

Date Finished: 1/22/2014	vol	initial	final	calc	prep fact	TDS, mg/L	CONDUCTIVITY	RATIO
MB-48489	100	54.6235	54.6236	1	1	1		
LCS-48489	100	75.746	75.8381	921	1	921		
N014423-001C	100	55.6272	55.6723	451	1	451	767	0.588
N014423-002C	20	55.2152	55.2896	744	5	3720	5110	0.728
N014430-002D	30	54.958	55.0597	1017	3.33333	3389.99661	4370	0.776
N014430-003D	60	63.031	63.1271	961	1.66666	1601.66026	2330	0.687
N014430-004D	75	53.9644	54.039	746	1.33333	994.66418	1534	0.648
N014432-001C	100	55.5701	55.635	649	1	649	987	0.658
N014432-002C	100	64.1078	64.17	622	1	622	989	0.629
N014432-003C	100	53.8498	53.8961	463	1	463	730	0.634
N014432-004C	100	61.242	61.2675	255	1	255	375	0.680
N014434-001C	20	57.0869	57.1662	793	5	3965	6710	0.591
N014434-001C DUP	20	64.2928	64.3759	831	5	4155	6710	0.619

Sample Calculation

METHOD: EPA 6020 TEST NAME: Heavy Metals by ICP-MS MATRIX: Water

FORMULA:

Calculate the Chromium concentration, in ug/L, in the original sample as follows:

Chromium, ug/L = A * DF * PF

where:

A = ug/L, calculated concentration DF = dilution factor PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample N014434-001B, the concentration in ug/L is calculated as follows:

Chromium, ug/L = 0 * 1 * (25/25)= 0

Since results is less than reporting limit,

Chromium, ug/L = ND



ICP-MS-Metals in Water

Dilution Test Summary

No.:	N014434	Matrix:	Water
lethod:	EPA 200.8	Batch No.:	48495
sis Date:	1/22/2015		

Instrument ID: ICP-MS #2 Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Cr & Mn. The calculated values are <25X RL.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N014434-001B DT 5X	Chromium	ug/L	0	NA	0		10
N014434-001B DT 5X	Manganese	ug/L	0	NA	0		10

Note: NA - Not applicable

CLIENT: CH2M HILL Work Order: N014434

Project: PG&E Topock, 652547.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID N014434-001B-PS	SampType: PS	TestCoo	de: 200.8_W	Units: µg/L		Prep Da	te:		RunNo: 977	703	
Client ID: ZZZZZZ	Batch ID: 48495	TestN	lo: EPA 200.8	;		Analysis Da	te: 1/22/20	15	SeqNo: 19'	17770	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	54.838	0.50	100.0	0	54.8	80	120				S

Qualifiers:

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

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

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

CLIENT: CH2M HILL Work Order: N014434 Project: PG&E Topock, 652547.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W_CRPGE

Sample ID N014434-001B-PS	SampType: PS	TestCoo	de: 200.8_W_	CR Units: µg/L		Prep Dat	te:		RunNo: 977	703	
Client ID: ZZZZZZ	Batch ID: 48495	TestN	lo: EPA 200.8	8		Analysis Da	te: 1/22/20	15	SeqNo: 19'	18964	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.767	1.0	10.00	0	87.7	80	120				

Qualifiers:

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

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

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

Sample Calculation

METHOD: EPA 218.6 TEST NAME: HEXAVALENT CHROMIUM BY IC MATRIX: Water

FORMULA:

Calculate the Hexavalent Chromium concentration, in μ g/L, in the original sample as follows:

$$Cr^{+6}$$
, $\mu g/L = A * DF$

where:

A = μ g/L, IC Cr⁺⁶ calculated concentration DF = dilution factor

For N014434-001A, concentration in μ g/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 0.0515 * 1$$

= 0.0515

Since PQL is 0.20 µg/L,

 $Cr^{+6}, \mu g/L = ND$

REB / IC-06 1/22/2015 6:07 PM

February 10, 2015

Shawn P. Duffy CH2M HILL 155 Grand Avenue, Suite 1000 Oakland, CA 94612 TEL: (530) 229-3303 FAX: (530) 339-3303

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

Workorder No.: N014502

RE: PG&E Topock, XXXXXX.PT.OP.00

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on January 27, 2015 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,

gigesmunds

Glen Gesmundo QA Manager

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.



CALIFORNIA 11060 Artesia Blvd., Ste C, 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

CLIENT:CH2M HILLProject:PG&E Topock, XXXXX.PT.OP.00Lab Order:N014502

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS

Samples were received intact with proper chain of custody documentation.

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

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

Samples were analyzed within method holding time.



CLIENT: Project: Lab Order: Contract No:	CH2M HILL PG&E Topock, XXXX N014502 IM3Plant-WDR-	XXX.PT.OP.00	Work Order Sample Sum					
Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported			
N014502-001A	SC-700B-WDR-505	Water	1/27/2015 11:05:00 AM	1/27/2015	2/10/2015			
N014502-001B	SC-700B-WDR-505	Water	1/27/2015 11:05:00 AM	1/27/2015	2/10/2015			
N014502-001C	SC-700B-WDR-505	Water	1/27/2015 11:05:00 AM	1/27/2015	2/10/2015			



ANALYTICAL RESULTS

ASSET Lab	oratories			Print Date: 10-Feb-15						
CLIENT:	CH2M HILL			Client Sample ID: SC-700B-WDR-505						
Lab Order:	N014502	Collection Date: 1/27/2015 11:05:00 AM								
Project:	PG&E Topock	XXXXXX.PT.OP.00 Matrix: WATER								
Lab ID:	N014502-001									
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed		
SPECIFIC CO	NDUCTANCE									
				EP	A 120.1					
RunID: WETC	CHEM_150128B	QC Batch: R9	7777		PrepD	Date		Analyst: RB		
Specific Cond	luctance	6700	0.10	0.10		umhos/cm	1	1/28/2015 12:10 PM		

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

DO Surrogate Diluted Out

ASSET LABORATORIES

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

Date: 10-Feb-15

CLIENT: CH2M HILL

Work Order: N014502

Project: PG&E Topock, XXXXXX.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID N014502-001CDUP	SampType: DUP	TestCo	le: 120.1_WF	GE Units: umh	os/cm	Prep Da	te:		RunNo: 97	777	
Client ID: ZZZZZZ	Batch ID: R97777	TestN	lo: EPA 120.4	1		Analysis Da	te: 1/28/20)15	SeqNo: 192	21527	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	6670.000	0.10						6700	0.449	10	

Qualifiers:

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

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

Calculations are based on raw values

- NEVADA 3151 W. Post Rd., Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.2691
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

ANALYTICAL RESULTS

ASSET Lab	oratories			Print Date: 10-Feb-15						
CLIENT:	CH2M HILL			Client Sample ID: SC-700B-WDR-505						
Lab Order:	N014502				Collection	Date: 1/	27/2015 11:0	5:00 AM		
Project:	PG&E Topock,	XXXXXX.PT.OF	P.00		M	atrix: W	ATER			
Lab ID:	N014502-001									
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed		
TOTAL FILTE	RABLE RESIDUE									
				SI	M2540C					
RunID: WETC	CHEM_150202C	QC Batch: 48	586		PrepD	ate	2/2/2015	Analyst: RB		
Total Dissolve Filterable)	ed Solids (Residue,	3800	50	50		mg/L	1	2/2/2015 02:00 PM		

Qualifiers:

В

Analyte detected in the associated Method Blank

- Н Holding times for preparation or analysis exceeded S
 - Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

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



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

CLIENT: CH2M HILL

Work Order: N014502

ANALYTICAL QC SUMMARY REPORT

Project: PG&E Topock, XXXXXX.PT.OP.00

TestCode: 160.1_2540C_W

Sample ID MB-48586	SampType: MBLK	TestCode: 160.1_2540C Units: mg/L	Prep Date: 2/2/2015	RunNo: 97845
Client ID: PBW	Batch ID: 48586	TestNo: SM2540C	Analysis Date: 2/2/2015	SeqNo: 1924965
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	ue, Filtera ND	10		
Sample ID LCS-48586	SampType: LCS	TestCode: 160.1_2540C Units: mg/L	Prep Date: 2/2/2015	RunNo: 97845
Client ID: LCSW	Batch ID: 48586	TestNo: SM2540C	Analysis Date: 2/2/2015	SeqNo: 1924966
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	ue, Filtera 950.000	10 1000 0	95.0 80 120	
Sample ID N014502-001C-D	UP SampType: DUP	TestCode: 160.1_2540C Units: mg/L	Prep Date: 2/2/2015	RunNo: 97845
Client ID: ZZZZZZ	Batch ID: 48586	TestNo: SM2540C	Analysis Date: 2/2/2015	SeqNo: 1924968
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	ue, Filtera 4030.000	50	3835	4.96 5

Qualifiers:

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

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E Value above quantitation range

R RPD outside accepted recovery limits

Calculations are based on raw values

3151 W. Post Rd., Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.2691 H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

ANALYTICAL RESULTS

ASSET Lab	Print Date: 10-Feb-15							
CLIENT:	CH2M HILL			Cl	ient Sampl	e ID: SC	C-700B-WDR	R-505
Lab Order:	N014502			(Collection	Date: 1/2	27/2015 11:0	5:00 AM
Project:	PG&E Topock	, XXXXXX.PT.OP	.00		Ma	atrix: W	ATER	
Lab ID:	N014502-001							
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL META	LS BY ICPMS							
				EP	A 200.8			
RunID: ICP7_	150202C	QC Batch: 485	575		PrepD	ate	1/31/2015	Analyst: CEI
Manganese		5.5	0.026	0.50		µg/L	1	2/2/2015 07:13 AM

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

DO Surrogate Diluted Out

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Project:

CLIENT: CH2M HILL

Work Order: N014502

PG&E Topock, XXXXXX.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

		TastOsday eee a w	Dese Deter 4/04/0045	Durbler 07000
Sample ID MB-48575	SampType: MBLK	TestCode: 200.8_W Units: µg/L	Prep Date: 1/31/2015	RunNo: 97828
Client ID: PBW	Batch ID: 48575	TestNo: EPA 200.8	Analysis Date: 2/2/2015	SeqNo: 1923836
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Chromium	ND	0.50		
Manganese	ND	0.50		
Sample ID LCS-48575	SampType: LCS	TestCode: 200.8_W Units: µg/L	Prep Date: 1/31/2015	RunNo: 97828
Client ID: LCSW	Batch ID: 48575	TestNo: EPA 200.8	Analysis Date: 2/2/2015	SeqNo: 1923837
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Chromium	10.244	0.50 10.00 0	102 85 115	
Manganese	99.385	0.50 100.0 0	99.4 85 115	
Sample ID N014502-001B-MS	SampType: MS	TestCode: 200.8_W Units: µg/L	Prep Date: 1/31/2015	RunNo: 97828
Sample ID N014502-001B-MS Client ID: ZZZZZZ	SampType: MS Batch ID: 48575	TestCode: 200.8_W Units: μg/L TestNo: EPA 200.8	Prep Date: 1/31/2015 Analysis Date: 2/2/2015	RunNo: 97828 SeqNo: 1923841
	1 51			
Client ID: ZZZZZZ	Batch ID: 48575	TestNo: EPA 200.8	Analysis Date: 2/2/2015	SeqNo: 1923841
Client ID: ZZZZZZ	Batch ID: 48575 Result	TestNo: EPA 200.8	Analysis Date: 2/2/2015 %REC LowLimit HighLimit RPD Ref Val	SeqNo: 1923841
Client ID: ZZZZZZ Analyte Chromium	Batch ID: 48575 Result 9.458 95.145	TestNo: EPA 200.8 PQL SPK value SPK Ref Val 0.50 10.00 0	Analysis Date: 2/2/2015 %REC LowLimit HighLimit RPD Ref Val 94.6 75 125	SeqNo: 1923841
Client ID: ZZZZZZ Analyte Chromium Manganese	Batch ID: 48575 Result 9.458 95.145	PQL SPK value SPK Ref Val 0.50 10.00 0 0.50 100.0 5.536	Analysis Date:2/2/2015%RECLowLimitHighLimitRPD Ref Val94.67512589.675125	SeqNo: 1923841 %RPD RPDLimit Qual
Client ID: ZZZZZZ Analyte Chromium Manganese Sample ID N014502-001B-MSC	Batch ID: 48575 Result 9.458 95.145 D SampType: MSD	PQL SPK value SPK Ref Val 0.50 10.00 0 0.50 100.0 5.536	Analysis Date: 2/2/2015 %REC LowLimit HighLimit RPD Ref Val 94.6 75 125 89.6 75 125 Prep Date: 1/31/2015	SeqNo: 1923841 %RPD RPDLimit Qual RunNo: 97828
Client ID: ZZZZZZ Analyte Chromium Manganese Sample ID N014502-001B-MSE Client ID: ZZZZZZ	Batch ID: 48575 Result 9.458 95.145 D SampType: MSD Batch ID: 48575	TestNo: EPA 200.8 PQL SPK value SPK Ref Val 0.50 10.00 0 0.50 100.0 5.536 TestCode: 200.8_W Units: μg/L TestNo: EPA 200.8	Analysis Date: 2/2/2015 %REC LowLimit HighLimit RPD Ref Val 94.6 75 125 89.6 75 125 Prep Date: 1/31/2015 Analysis Date: 2/2/2015	SeqNo: 1923841 %RPD RPDLimit Qual RunNo: 97828 SeqNo: 1923842

Qualifiers:

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

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R

E Value above quantitation range

RPD outside accepted recovery limits

Calculations are based on raw values NEVADA

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H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S

ANALYTICAL RESULTS

Print Date: 10-Feb-15

CLIENT: Lab Order: Project:	CH2M HILL N014502 PG&E Topock, XXXXXX.PT.OP.00			Client Sample ID: SC-700B-WDR-505 Collection Date: 1/27/2015 11:05:00 AM Matrix: WATER						
Lab ID:	N014502-001									
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed		
HEXAVALEN	T CHROMIUM BY IC									
				EP	A 218.6					
RunID: IC6_1	50128A	QC Batch: R9	7808		PrepD	ate		Analyst: RB		
Hexavalent C	hromium	ND	0.016	0.20		µg/L	1	1/28/2015 11:24 AM		
TOTAL META	LS BY ICPMS									
				EP	A 200.8					
RunID: ICP7_	150202C	QC Batch: 48	575		PrepD	ate	1/31/2015	Analyst: CEI		
Chromium		ND	0.030	1.0		µg/L	1	2/2/2015 07:13 AM		

Qualifiers:

В

Analyte detected in the associated Method Blank

- Н Holding times for preparation or analysis exceeded S
 - Spike/Surrogate outside of limits due to matrix interference
- Е Value above quantitation range
- ND Not Detected at the Reporting Limit Results are wet unless otherwise specified

DO Surrogate Diluted Out



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

CLIENT: CH2M HILL

Work Order: N014502

Project: PG&E Topock, XXXXX.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W_CRPGE

Sample ID MB-48575	SampType: MBLK	TestCode: 200.8_W_CR Units: µg/L	Prep Date: 1/31/2015	RunNo: 97828
Client ID: PBW	Batch ID: 48575	TestNo: EPA 200.8	Analysis Date: 2/2/2015	SeqNo: 1924082
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Chromium	ND	1.0		
Sample ID LCS-48575	SampType: LCS	TestCode: 200.8_W_CR Units: µg/L	Prep Date: 1/31/2015	RunNo: 97828
Client ID: LCSW	Batch ID: 48575	TestNo: EPA 200.8	Analysis Date: 2/2/2015	SeqNo: 1924083
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Chromium	10.244	1.0 10.00 0	102 85 115	
Sample ID N014502-001B-MS	SampType: MS	TestCode: 200.8_W_CR Units: µg/L	Prep Date: 1/31/2015	RunNo: 97828
Sample ID N014502-001B-MS Client ID: ZZZZZZ	SampType: MS Batch ID: 48575	TestCode: 200.8_W_CR Units: µg/L TestNo: EPA 200.8	Prep Date: 1/31/2015 Analysis Date: 2/2/2015	RunNo: 97828 SeqNo: 1924087
		= =	·	
Client ID: ZZZZZZ	Batch ID: 48575	TestNo: EPA 200.8	Analysis Date: 2/2/2015	SeqNo: 1924087
Client ID: ZZZZZZ	Batch ID: 48575 Result	TestNo: EPA 200.8	Analysis Date: 2/2/2015 %REC LowLimit HighLimit RPD Ref Val	SeqNo: 1924087
Client ID: ZZZZZZ Analyte Chromium	Batch ID: 48575 Result 9.458	TestNo: EPA 200.8 PQL SPK value SPK Ref Val 1.0 10.00 0	Analysis Date: 2/2/2015 %REC LowLimit HighLimit RPD Ref Val 94.6 75 125	SeqNo: 1924087 %RPD RPDLimit Qual
Client ID: ZZZZZZ Analyte Chromium Sample ID N014502-001B-MSD	Batch ID: 48575 Result 9.458 SampType: MSD	TestNo: EPA 200.8 PQL SPK value SPK Ref Val 1.0 10.00 0 TestCode: 200.8_W_CR Units: μg/L	Analysis Date: 2/2/2015 %REC LowLimit HighLimit RPD Ref Val 94.6 75 125 Prep Date: 1/31/2015	SeqNo: 1924087 %RPD RPDLimit Qual RunNo: 97828

Qualifiers:

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

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11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

E Value above quantitation range

R RPD outside accepted recovery limits

Calculations are based on raw values

3151 W. Post Rd., Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.2691 H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

"Serving Clients with Passion and Professionalism"

CLIENT: CH2M HILL

Work Order: N014502

Project: PG&E Topock, XXXXXX.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID MB-R97808	SampType: MBLK	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97808
Client ID: PBW	Batch ID: R97808	TestNo: EPA 218.6	Analysis Date: 1/28/2015	SeqNo: 1922190
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-R97808	SampType: LCS	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97808
Client ID: LCSW	Batch ID: R97808	TestNo: EPA 218.6	Analysis Date: 1/28/2015	SeqNo: 1922191
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	5.148	0.20 5.000 0	103 90 110	
Sample ID N014502-001A-MS	SampType: MS	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97808
Client ID: ZZZZZZ	Batch ID: R97808	TestNo: EPA 218.6	Analysis Date: 1/28/2015	SeqNo: 1922193
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	1.096	0.20 1.000 0.07920	102 90 110	
Sample ID N014502-001A-MSD	SampType: MSD	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97808
Client ID: ZZZZZZ	Batch ID: R97808	TestNo: EPA 218.6	Analysis Date: 1/28/2015	SeqNo: 1922194
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	1.133	0.20 1.000 0.07920	105 90 110 1.096	3.27 20
Sample ID N014430-016A-MS	SampType: MS	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97808
Client ID: ZZZZZZ	Batch ID: R97808	TestNo: EPA 218.6	Analysis Date: 1/28/2015	SeqNo: 1922196
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	3.117	0.40 2.000 0.9356	109 90 110	

Qualifiers:

ND

B Analyte detected in the associated Method Blank

Not Detected at the Reporting Limit

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

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

DO Surrogate Diluted Out
ASSET LABORATORIES

ASSET L

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CALIFORNIA

CLIENT:CH2M HILLWork Order:N014502Project:PG&E Topock, XXXXX.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID N014431-021A-DUP	SampType: DUP	TestCode: 218.6_WPGE Units: µg/L		Prep Date:				RunNo: 97808			
Client ID: ZZZZZZ	Batch ID: R97808	TestNo: EPA 218.6		Analysis Date: 1/28/2015				SeqNo: 1922198			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	3.805	0.20						3.830	0.660	20	

Qualifiers:

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

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

Calculations are based on raw values NEVADA

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

ANALYTICAL RESULTS

Print Date: 10-Feb-15

CLIENT:	CH2M HILL		Client Sample ID: SC-700B-WDR-505						
Lab Orde	r: N014502	N014502 PG&E Topock, XXXXXX.PT.OP.00			Collection	Date: 1/27/2	2015 11:05	5:00 AM	
Project:	PG&E Topock				Matrix: WATER				
Lab ID:	N014502-001								
Analyses		Result M	1DL	PQL	Qual	Units	DF	Date Analyzed	
TURBIDI	ГҮ								
				SN	2130B				
RunID: V	WETCHEM_150128D	QC Batch: R9778	80		PrepD	ate		Analyst: RB	
Turbidity	,	0.22	0.10	0.10		NTU	1	1/28/2015 02:30 P	

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

DO Surrogate Diluted Out

ASSET LABORATORIES

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Date: 10-Feb-15

CLIENT: CH2M HILL

Work Order: N014502

Project: PG&E Topock, XXXXXX.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 2130_W

Sample ID N014502-001C DUP	SampType: DUP	TestCode	e: 2130_W	Units: NTU		Prep Da	te:		RunNo: 977	780	
Client ID: ZZZZZZ	Batch ID: R97780	TestNo	D: SM 2130E	3		Analysis Da	te: 1/28/20)15	SeqNo: 192	21533	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity	0.200	0.10						0.2200	9.52	30	

Qualifiers:

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

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

Calculations are based on raw values NEVADA 3151 W. Post Rd., Las Vegas, NV 89118

P: 702.307.2659 F: 702.307.2691

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

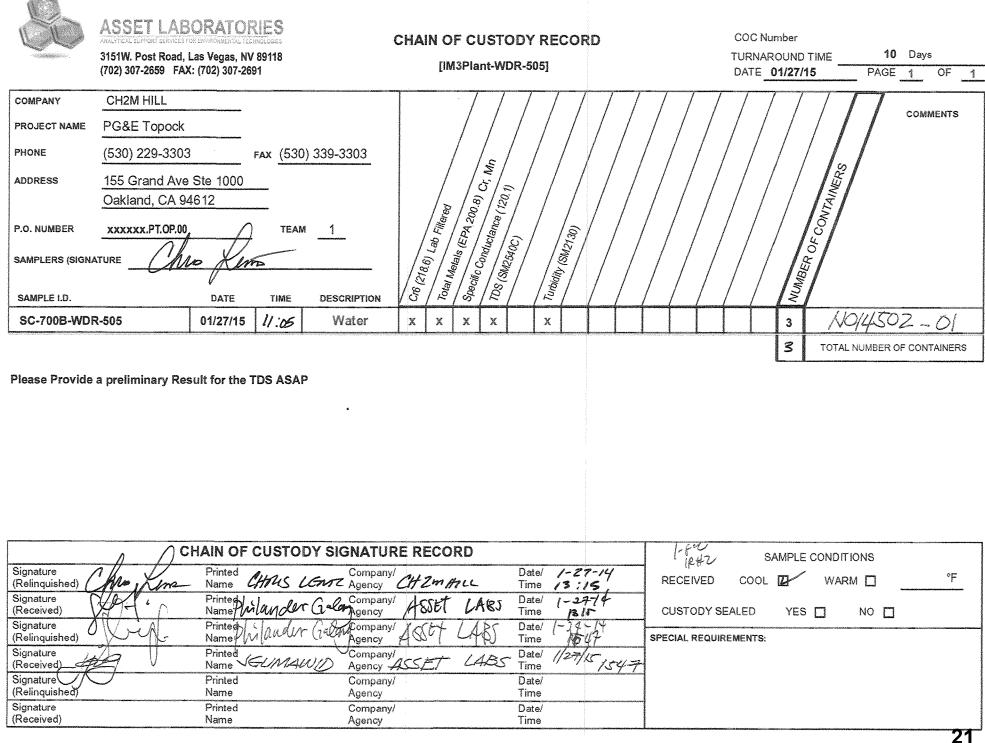
WORKORDER: N014502

ANALYST LIST

NAME	TEST METHOD
Lilia S. Ramit and Ryan E. Balilu	EPA 120.1, SM 2540C and SM 2130B
Claire E. Ignacio	EPA 200.8
Ryan E. Balilu	EPA 218.6



CALIFORNIA 11060 Artesia Blvd., Ste C, 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



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:	1/27/2015				Workorder:	N014502
Rep sample Temp (Deg C):	1.8				IR Gun ID:	2
Temp Blank:	Yes	🗌 No				
Carrier name:	ATL					
Last 4 digits of Tracking No.:	NA			Packing N	laterial Used:	None
Cooling process:	✓ Ice	lce Pack	Dry Ice	Other	None	

Sample Receipt Checklist

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

Comments

Checklist Completed B

JPG 01/28/15





SAMPLE CALCULATION

METHOD: SM 2540C TEST NAME: Total Filterable Residue MATRIX: Water

FORMULA:

Calculate TDS concentration in mg/L, in the original sample as follows:

TDS, mg/L =
$$(A-B)*1000000$$

C

Where:

A = weight in g of dish + residue after drying B = weight of dish in g C = volume of sample used in mL

For N014502-001C, TDS concentration in mg/L is calculated as follows:

TDS, mg/L = <u>(54.0284-53.9517) *1000000</u> 20

= 3835 mg/L

Reporting result in two significant figures,

Julia Ramit 2/3/2015

TOTAL DISSOLVED SOLIDS, TDS

A =

TDS, mg/L =

(A-B) X 10000*PF

where:

weight in grams of dish + residue after drying

B = weight of dish in grams

PF = 100/volume of sample used in mL

	vol of sample (mL)	weight of dish in grams (B)	weight in grams of dish + residue after drying (A)	(A-B)*10000	prep fact (PF)	TDS, mg/L	CONDUCTIVITY	RATIO
Date Finished:2/3/15								
MB-48586	100	54.8494	54.8497	3	1	3		
LCS-48586	100	75.7453	75.8403	950	1	950		
N014502-001C	20	53.9517	54.0284	767	5	3835	6690	0.573
N014502-001C DUP	20	53.7073	53.7879	806	5	4030	6690	0.602
N014523-001F	30	53.7638	53.8198	560	3.33333333	1866.66667	4460	0.419

Sample Calculation

METHOD: EPA 200.8 TEST NAME: Heavy Metals by ICP-MS MATRIX: Water

FORMULA:

Calculate the Manganese concentration, in ug/L, in the original sample as follows:

Manganese, ug/L = A * DF * PF

where:

A = ug/L, calculated concentration DF = dilution factor PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample N014502-001B, the concentration in ug/L is calculated as follows:

Manganese, ug/L = 5.53556350643568 * 1 * (25/25) = 5.53556350643568

Reporting results in two significant figures,

Manganese, ug/L = 5.5



ICP-MS-Metals in Water

Dilution Test Summary

der No.:	N014502	Matrix:	Wate
est Method:	EPA 200.8	Batch No.:	48575
Analysis Date:	2/2/2015		

Instrument ID: ICP-MS #2 Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Cr & Mn. The calculated values are <25X RL.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N014502-001B DT 5X	Chromium	ug/L	0	NA	0		10
N014502-001B DT 5X	Manganese	ug/L	7.716769322	NA	5.535563506	39.40%	10

Note: NA - Not applicable

CLIENT:CH2M HILLWork Order:N014502

Project: PG&E Topock, XXXXXX.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID N014502-001B-PS	SampType: PS	TestCode: 200.8_W		Units: µg/L		Prep Date:		RunNo: 97828			
Client ID: ZZZZZZ	Batch ID: 48575	TestN	TestNo: EPA 200.8		Analysis Date: 2/2/2015			SeqNo: 1923840			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	94.151	0.50	100.0	5.536	88.6	80	120				

Qualifiers:

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

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

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

CLIENT: CH2M HILL Work Order: N014502

Project: PG&E Topock, XXXXXX.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W_CRPGE

Sample ID N014502-001B-PS	SampType: PS	TestCode: 200.8_W_CR Units: µg/L			Prep Date:				RunNo: 97828		
Client ID: ZZZZZZ	Batch ID: 48575	TestNo: EPA 200.8			Analysis Date: 2/2/2015				SeqNo: 1924086		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.310	1.0	10.00	0	93.1	80	120				

Qualifiers:

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

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

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

Sample Calculation

METHOD: EPA 218.6 TEST NAME: HEXAVALENT CHROMIUM BY IC MATRIX: Water

FORMULA:

Calculate the Hexavalent Chromium concentration, in μ g/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = μ g/L, IC Cr⁺⁶ calculated concentration DF = dilution factor

For N014502-001A concentration in μ g/L is calculated as follows:

$$Cr^{*6}, \mu g/L = 0.0792 * 1$$

= 0.0792

Since PQL is 0.20 μ g/L ,

 Cr^{+6} , $\mu g/L = ND$

February 23, 2015

Shawn P. Duffy CH2M HILL 155 Grand Avenue, Suite 1000 Oakland, CA 94612 TEL: (530) 229-3303 FAX: (530) 339-3303

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

Workorder No.: N014575

RE: PG&E Topock IM3, XXXXXX.01.IM.OP.00

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on February 03, 2015 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,

grycomundo

Glen Gesmundo QA Manager

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.





CLIENT:CH2M HILLProject:PG&E Topock IM3, XXXXX.01.IM.OP.00Lab Order:N014575

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS

Samples were received intact with proper chain of custody documentation.

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

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

Samples were analyzed within method holding time.

Subcontracted Analyses:

Ammonia and Soluble Silica were subcontracted to Truesdail-Tustin,CA.

Analytical Comments for EPA 200.7_Total:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Boron possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 200.8_Total:

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

Dilution was necessary on Lead for samples N014575-001 and N014575-002 due to associated internal standard not meeting method criteria possibly due to matrix interference.

Analytical Comments for EPA 300.0:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Fluoride possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.



CLIENT:	CH2M HILL
Project:	PG&E Topock IM3, XXXXXX.01.IM.OP.00
Lab Order:	N014575
Contract No:	IM3Plant-WDR-

Work Order Sample Summary

Lab Sample ID Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N014575-001A SC-700B-WDR-506	Water	2/3/2015 1:15:00 PM	2/3/2015	2/23/2015
N014575-001B SC-700B-WDR-506	Water	2/3/2015 1:15:00 PM	2/3/2015	2/23/2015
N014575-001C SC-700B-WDR-506	Water	2/3/2015 1:15:00 PM	2/3/2015	2/23/2015
N014575-001D SC-700B-WDR-506	Water	2/3/2015 1:15:00 PM	2/3/2015	2/23/2015
N014575-001E SC-700B-WDR-506	Water	2/3/2015 1:15:00 PM	2/3/2015	2/23/2015
N014575-002A SC-100B-WDR-506	Water	2/3/2015 1:15:00 PM	2/3/2015	2/23/2015
N014575-002B SC-100B-WDR-506	Water	2/3/2015 1:15:00 PM	2/3/2015	2/23/2015
N014575-002C SC-100B-WDR-506	Water	2/3/2015 1:15:00 PM	2/3/2015	2/23/2015
N014575-002D SC-100B-WDR-506	Water	2/3/2015 1:15:00 PM	2/3/2015	2/23/2015
N014575-002E SC-100B-WDR-506	Water	2/3/2015 1:15:00 PM	2/3/2015	2/23/2015
N014575-002F SC-100B-WDR-506	Water	2/3/2015 1:15:00 PM	2/3/2015	2/23/2015
N014575-002G SC-100B-WDR-506	Water	2/3/2015 1:15:00 PM	2/3/2015	2/23/2015
N014575-002H SC-100B-WDR-506	Water	2/3/2015 1:15:00 PM	2/3/2015	2/23/2015
N014575-002I SC-100B-WDR-506	Water	2/3/2015 1:15:00 PM	2/3/2015	2/23/2015
N014575-002J SC-100B-WDR-506	Water	2/3/2015 1:15:00 PM	2/3/2015	2/23/2015





ANALYTICAL RESULTS Print Date: 23-Feb-15

							att. 25-1	60-15
CLIENT:	CH2M HILL			С	lient Samp	le ID: SC-70	0B-WDR	-506
Lab Order	: N014575				Collection	Date: 2/3/20	15 1:15:0	0 PM
Project:	PG&E Topock	IM3, XXXXXX.0	I.IM.OP.0	00	M	atrix: WATE	ER	
Lab ID:	N014575-001							
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC	CONDUCTANCE							
				EP	A 120.1			
RunID: W	ETCHEM_150204B	QC Batch: R9	7873		PrepD	ate		Analyst: LR
Specific C	Conductance	6700	0.10	0.10		umhos/cm	1	2/4/2015 11:00 Al

Qualifiers:

B Analyte detected in the associated Method Blank

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



E Value above quantitation range

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

ANALYTICAL RESULTS Print Date: 23-Feb-15

							att. 25-1	0-15
CLIENT:	CH2M HILL			С	lient Samp	le ID: SC-10	0B-WDR	-506
Lab Order:	N014575		Date: 2/3/20	15 1:15:0	0 PM			
Project:	PG&E Topock	IM3, XXXXXX.0	1.IM.OP.(00	M	atrix: WATE	ER	
Lab ID:	N014575-002							
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC C	ONDUCTANCE							
				EP	A 120.1			
RunID: WE	TCHEM_150204B	QC Batch: R9	7873		PrepD	ate		Analyst: LR
Specific Co	nductance	6700	0.10	0.10		umhos/cm	1	2/4/2015 11:00 A

Qualifiers:

B Analyte detected in the associated Method Blank

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



E Value above quantitation range

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

Date: 23-Feb-15

CLIENT: CH2M HILL

Work Order: N014575

Project: PG&E Topock IM3, XXXXXX.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID N014575-001B DUP	SampType: DUP	TestCode: 120.1_WPGE Units: umhos/cm			s/cm	Prep Date:			RunNo: 97873		
Client ID: ZZZZZZ	Batch ID: R97873	TestNo: EPA 120.1				Analysis Date: 2/4/2015			SeqNo: 1926327		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	6670.000	0.10						6680	0.150	10	

Qualifiers:

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



ASSET LABORATORIES

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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

ANALYTICAL RESULTS

ASSET Lab	ASSET Laboratories					Print Date: 23-Feb-15					
CLIENT:	CH2M HILL			Client Sample ID: SC-700B-WDR-506							
Lab Order:	N014575				Collection	Date: 2/	3/2015 1:15:0	00 PM			
Project:	PG&E Topock	IM3, XXXXXX.0	1.IM.OP.(00) Matrix: WATER						
Lab ID:	N014575-001										
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed			
TOTAL FILTE	RABLE RESIDUE										
				SI	M2540C						
RunID: WETC	CHEM_150205C	QC Batch: 48	621		PrepD	ate	2/5/2015	Analyst: LR			
Total Dissolve Filterable)	ed Solids (Residue,	4100	50	50		mg/L	1	2/5/2015 01:00 PN			

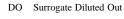
Qualifiers:

В Analyte detected in the associated Method Blank

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

Е 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

ANALYTICAL RESULTS

ASSET Lab	ooratories		Print Date: 23-Feb-15							
CLIENT:	CH2M HILL			Client Sample ID: SC-100B-WDR-506						
Lab Order:	N014575				Collection	Date: 2/	3/2015 1:15:0	00 PM		
Project:	PG&E Topock	IM3, XXXXXX.0	1.IM.OP.0	00	Ma	atrix: W	ATER			
Lab ID:	N014575-002									
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed		
TOTAL FILTE	RABLE RESIDUE									
				SI	M2540C					
RunID: WETC	CHEM_150205C	QC Batch: 48	621		PrepD	ate	2/5/2015	Analyst: LR		
Total Dissolve Filterable)	ed Solids (Residue,	4100	50	50		mg/L	1	2/5/2015 01:00 PN		

Qualifiers:

В Analyte detected in the associated Method Blank

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

Surrogate Diluted Out DO



Е Value above quantitation range

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

CLIENT: CH2M HILL

Work Order: N014575

Project: PG&E Topock IM3, XXXXXX.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID MB-48621	SampType: MBLK	TestCode: 160.1_2540C Units: mg/L	Prep Date: 2/5/2015	RunNo: 97899
Client ID: PBW	Batch ID: 48621	TestNo: SM2540C	Analysis Date: 2/5/2015	SeqNo: 1927374
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	lue, Filtera ND	10		
Sample ID LCS-48621	SampType: LCS	TestCode: 160.1_2540C Units: mg/L	Prep Date: 2/5/2015	RunNo: 97899
Client ID: LCSW	Batch ID: 48621	TestNo: SM2540C	Analysis Date: 2/5/2015	SeqNo: 1927375
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	lue, Filtera 961.000	10 1000 0	96.1 80 120	
Sample ID N014582-004A D	DUP SampType: DUP	TestCode: 160.1_2540C Units: mg/L	Prep Date: 2/5/2015	RunNo: 97899
Client ID: ZZZZZZ	Batch ID: 48621	TestNo: SM2540C	Analysis Date: 2/5/2015	SeqNo: 1927382
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	lue, Filtera 5160.000	50	5140	0.388 5

Qualifiers:

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



ASSET LABORATORIES

E Value above quantitation range

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

www.assetlaboratories.com

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

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

ANALYTICAL RESULTS

Print Date:	23-Feb-15
-------------	-----------

CLIENT:	CH2M HILL			Cl	Client Sample ID: SC-700B-WDR-506					
Lab Order:	N014575			(Collection Date: 2/3/2015 1:15:00 PM					
Project:	PG&E Topock I	PG&E Topock IM3, XXXXXX.01.IM.OP.00			Matrix: WATER					
Lab ID:	N014575-001									
Analyses		Result	MDL	PQL	Qual	U nits	DF	Date Analyzed		
TOTAL META	ALS BY ICP									
				EP	A 200.7					
RunID: ICP2	_150218A	QC Batch: 490	657		PrepDate	2/10/	/2015	Analyst: CEI		
Aluminum		ND	6.2	50	μç	ı/L	1	2/18/2015 10:55 AM		
Boron		1100	19	100	μç	J/L	1	2/18/2015 10:55 AN		
Iron		ND	1.3	20	μ	ı∕L	1	2/18/2015 10:55 AN		

Qualifiers:

В

Analyte detected in the associated Method Blank

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

DO Surrogate Diluted Out



E Value above quantitation range

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

ANALYTICAL RESULTS

Print Date: 23-Feb-15

CLIENT: Lab Order:	CH2M HILL N014575				Client Sample ID: SC-100B-WDR-506 Collection Date: 2/3/2015 1:15:00 PM Matrix: WATER					
Project:	PG&E Topoc	k IM3, XXXXXX.01	.IM.OP.	00						
Lab ID:	N014575-002	2								
Analyses		Result	MDL	PQL	Qual U	nits DF	Date Analyzed			
DISSOLVED	METALS BY ICP									
				EPA	A 200.7					
RunID: ICP2	_150211C	QC Batch: 496	58		PrepDate	2/10/2015	Analyst: CEI			
Iron		ND	1.3	20	µg/L	. 1	2/11/2015 05:45 PM			
TOTAL META	ALS BY ICP									
				EPA	A 200.7					
RunID: ICP2	_150218A	QC Batch: 496	57		PrepDate	2/10/2015	Analyst: CEI			
Aluminum		ND	6.2	50	µg/L	. 1	2/18/2015 11:00 AM			
Boron		1100	19	100	µg/L	. 1	2/18/2015 11:00 AM			
Iron		ND	1.3	20	µg/L	. 1	2/18/2015 11:00 AM			

Qualifiers:

В

Analyte detected in the associated Method Blank

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

DO Surrogate Diluted Out



E Value above quantitation range

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

CLIENT: CH2M HILL

Work Order: N014575

Project: PG&E Topock IM3, XXXXXX.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID MB-49658	SampType: MBLK	TestCode: 200.7_WDPG Units: µg/L	Prep Date: 2/10/2015	RunNo: 97975
Client ID: PBW	Batch ID: 49658	TestNo: EPA 200.7	Analysis Date: 2/11/2015	SeqNo: 1931798
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Iron	5.956	20		
Sample ID LCS-49658	SampType: LCS	TestCode: 200.7_WDPG Units: µg/L	Prep Date: 2/10/2015	RunNo: 97975
Client ID: LCSW	Batch ID: 49658	TestNo: EPA 200.7	Analysis Date: 2/11/2015	SeqNo: 1931799
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Iron	111.031	20 100.0 0	111 85 115	
Sample ID N014575-002G-MS		TestCode: 200.7_WDPG Units: µg/L	Prep Date: 2/10/2015	RunNo: 97975
				RunNo: 97975 SeqNo: 1931803
Sample ID N014575-002G-MS	SampType: MS	TestCode: 200.7_WDPG Units: µg/L	Prep Date: 2/10/2015	
Sample ID N014575-002G-MS Client ID: ZZZZZ	SampType: MS Batch ID: 49658	TestCode: 200.7_WDPG Units: µg/L TestNo: EPA 200.7	Prep Date: 2/10/2015 Analysis Date: 2/11/2015	SeqNo: 1931803
Sample ID N014575-002G-MS Client ID: ZZZZZZ Analyte	SampType: MS Batch ID: 49658 Result 98.610	TestCode: 200.7_WDPG Units: µg/L TestNo: EPA 200.7 PQL SPK value SPK Ref Val	Prep Date: 2/10/2015 Analysis Date: 2/11/2015 %REC LowLimit HighLimit RPD Ref Val	SeqNo: 1931803
Sample ID N014575-002G-MS Client ID: ZZZZZZ Analyte Iron	SampType: MS Batch ID: 49658 Result 98.610	TestCode: 200.7_WDPG Units: µg/L TestNo: EPA 200.7 PQL SPK value SPK Ref Val 20 100.0 0	Prep Date: 2/10/2015 Analysis Date: 2/11/2015 %REC LowLimit HighLimit RPD Ref Val 98.6 75 125	SeqNo: 1931803 %RPD RPDLimit Qual
Sample ID N014575-002G-MS Client ID: ZZZZZZ Analyte Iron Sample ID N014575-002G-MS	SampType: MS Batch ID: 49658 Result 98.610 D SampType: MSD	TestCode: 200.7_WDPG Units: µg/L TestNo: EPA 200.7 PQL SPK value SPK Ref Val 20 100.0 0 TestCode: 200.7_WDPG Units: µg/L	Prep Date: 2/10/2015 Analysis Date: 2/11/2015 %REC LowLimit HighLimit RPD Ref Val 98.6 75 125 Prep Date: 2/10/2015	SeqNo: 1931803 %RPD RPDLimit Qual RunNo: 97975

Qualifiers:

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



ASSET LABORATORIES

E Value above quantitation range

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

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

CH2M HILL **CLIENT:**

Work Order: N014575

Project: PG&E Topock IM3, XXXXXX.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WPGEPPB

Sample ID	MB-49657	SampType: MBLK	TestCo	de: 200.7_WF	GE Units: µg/L	Prep Date: 2/10/2015				RunNo: 98075			
Client ID:	PBW	Batch ID: 49657	Test	lo: EPA 200.	7		Analysis Dat	e: 2/18/20 [,]	15	SeqNo: 193	SeqNo: 1936931		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Aluminum		ND	50										
Boron		ND	100										
Iron		2.137	20										
Sample ID	LCS1-49657	SampType: LCS	TestCo	de: 200.7_WF	GE Units: µg/L		Prep Dat	e: 2/10/20	15	RunNo: 980)75		
Client ID:	LCSW	Batch ID: 49657	Test	lo: EPA 200.	7		Analysis Dat	e: 2/18/20	15	SeqNo: 193	36932		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Aluminum		9464.032	50	10000	0	94.6	85	115					
Boron		5171.506	100	5000	0	103	85	115					
Iron		106.807	20	100.0	0	107	85	115					
Sample ID	N014575-002C-MS1	SampType: MS	TestCoo	de: 200.7_WF	GE Units: µg/L		Prep Dat	e: 2/10/20 [,]	15	RunNo: 980)75		
Sample ID Client ID:		SampType: MS Batch ID: 49657		de: 200.7_WF			Prep Dat Analysis Dat			RunNo: 980 SeqNo: 193			
		1 31		lo: EPA 200.		%REC	Analysis Dat	e: 2/18/20 [,]				Qual	
Client ID:		Batch ID: 49657	TestN	lo: EPA 200.	7		Analysis Dat	e: 2/18/20 [,]	15	SeqNo: 19 3	86939	Qual	
Client ID: Analyte		Batch ID: 49657 Result	TestN PQL	lo: EPA 200. SPK value	7 SPK Ref Val	%REC	Analysis Dat	e: 2/18/20 HighLimit	15	SeqNo: 19 3	86939	Qual	
Client ID: Analyte Aluminum		Batch ID: 49657 Result 11143.425	TestM PQL 50	- lo: EPA 200. SPK value 10000	7 SPK Ref Val 0	%REC 111	Analysis Dat LowLimit 75	e: 2/18/20 HighLimit 125	15	SeqNo: 19 3	86939		
Client ID: Analyte Aluminum Boron Iron		Batch ID: 49657 Result 11143.425 7515.917 112.110	TestN PQL 50 100 20	No: EPA 200. SPK value 10000 5000 100.0	7 SPK Ref Val 0 1093	%REC 111 128	Analysis Dat LowLimit 75 75 75	e: 2/18/20 HighLimit 125 125	15 RPD Ref Val	SeqNo: 19 3	86939 RPDLimit		
Client ID: Analyte Aluminum Boron Iron	ZZZZZZ N014575-002C-MSD	Batch ID: 49657 Result 11143.425 7515.917 112.110	TestN PQL 50 100 20 TestCoo	No: EPA 200. SPK value 10000 5000 100.0	7 SPK Ref Val 0 1093 0 PGE Units: μg/L	%REC 111 128 112	Analysis Dat LowLimit 75 75 75	e: 2/18/20 HighLimit 125 125 125 e: 2/10/20	15 RPD Ref Val	SeqNo: 193 %RPD	36939 RPDLimit		
Client ID: Analyte Aluminum Boron Iron Sample ID	ZZZZZZ N014575-002C-MSD	Batch ID: 49657 Result 11143.425 7515.917 112.110 SampType: MSD	TestN PQL 50 100 20 TestCoo	No: EPA 200. SPK value 10000 5000 100.0 de: 200.7_WF	7 SPK Ref Val 0 1093 0 PGE Units: μg/L	%REC 111 128 112	Analysis Dat LowLimit 75 75 75 Prep Dat Analysis Dat	e: 2/18/20 HighLimit 125 125 125 e: 2/10/20 e: 2/18/20	15 RPD Ref Val	SeqNo: 193 %RPD RunNo: 98(36939 RPDLimit		
Client ID: Analyte Aluminum Boron Iron Sample ID Client ID:	ZZZZZZ N014575-002C-MSD	Batch ID: 49657 Result 11143.425 7515.917 112.110 SampType: MSD Batch ID: 49657	TestN PQL 50 100 20 TestCoo TestN	No: EPA 200. SPK value 10000 5000 100.0 de: 200.7_WF	7 SPK Ref Val 0 1093 0 PGE Units: μg/L 7	%REC 111 128 112	Analysis Dat LowLimit 75 75 75 Prep Dat Analysis Dat	e: 2/18/20 HighLimit 125 125 125 e: 2/10/20 e: 2/18/20	15 RPD Ref Val 15 15	SeqNo: 193 %RPD RunNo: 980 SeqNo: 193	86939 RPDLimit 775 86940	S	
Client ID: Analyte Aluminum Boron Iron Sample ID Client ID: Analyte	ZZZZZZ N014575-002C-MSD	Batch ID: 49657 Result 11143.425 7515.917 112.110 SampType: MSD Batch ID: 49657 Result	TestM PQL 50 100 20 TestCoo TestM PQL	Ao: EPA 200. SPK value 10000 5000 100.0 de: 200.7_WF Ao: EPA 200. SPK value	7 SPK Ref Val 0 1093 0 PGE Units: μg/L 7 SPK Ref Val	%REC 111 128 112 %REC	Analysis Dat LowLimit 75 75 75 Prep Dat Analysis Dat LowLimit	e: 2/18/20 HighLimit 125 125 125 e: 2/10/20 e: 2/18/20 HighLimit	15 RPD Ref Val 15 RPD Ref Val	SeqNo: 193 %RPD RunNo: 98(SeqNo: 193 %RPD	36939 RPDLimit 775 36940 RPDLimit	S	
Client ID: Analyte Aluminum Boron Iron Sample ID Client ID: Analyte Aluminum	ZZZZZZ N014575-002C-MSD	Batch ID: 49657 Result 11143.425 7515.917 112.110 SampType: MSD Batch ID: 49657 Result 10946.037	TestM PQL 50 100 20 TestCoo TestM PQL 50	Ao: EPA 200. SPK value 10000 5000 100.0 de: 200.7_WF Ao: EPA 200. SPK value 10000	7 SPK Ref Val 0 1093 0 PGE Units: μg/L 7 SPK Ref Val 0	%REC 111 128 112 %REC 109	Analysis Dat LowLimit 75 75 75 Prep Dat Analysis Dat LowLimit 75	e: 2/18/201 HighLimit 125 125 e: 2/10/201 e: 2/18/201 HighLimit 125	15 RPD Ref Val 15 RPD Ref Val 11140	SeqNo: 193 %RPD RunNo: 980 SeqNo: 193 %RPD 1.79	36939 RPDLimit 775 36940 RPDLimit 20	S Qual	

Qualifiers:

ND

- B Analyte detected in the associated Method Blank
 - Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- ASSE ABORATORIES
- 3151 W. Post Road, Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.2691 ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES
- E Value above quantitation range
- R RPD outside accepted recovery limits

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

ANALYTICAL RESULTS

Print Date: 23-Feb-15

CLIENT:	CH2M HILL			Client Sample ID: SC-700B-WDR-506					
Lab Order:	N014575			(Collection Date: 2/3/2015 1:15:00 PM				
Project:	PG&E Topoc	PG&E Topock IM3, XXXXXX.01.IM.OP.0			Matrix: WATER				
Lab ID:	N014575-001								
Analyses		Result	MDL	PQL	Qual U	nits DF	Date Analyzed		
TOTAL META	LS BY ICPMS								
				EP	A 200.8				
RunID: ICP7_	150210B	QC Batch: 49	655		PrepDate	2/10/2015	Analyst: CEI		
Antimony		ND	0.18	0.50	hð/	∟ 1	2/10/2015 03:32 PM		
,			0.027	0.10	µg/	∟ 1	2/10/2015 03:32 PM		
Arsenic		ND	0.027	0.10	1.0				
,		ND 13	0.030	1.0	hð\		2/11/2015 02:03 PM		

Barium	13	0.030	1.0	µg/L	1	2/11/2015 02:03 PM
Copper	ND	0.040	1.0	µg/L	1	2/10/2015 03:32 PM
Lead	ND	0.053	5.0	µg/L	5	2/10/2015 04:28 PM
Manganese	9.4	0.026	0.50	µg/L	1	2/10/2015 03:32 PM
Molybdenum	24	0.15	0.50	µg/L	1	2/10/2015 03:32 PM
Nickel	4.1	0.032	1.0	µg/L	1	2/10/2015 03:32 PM
Zinc	ND	0.23	10	µg/L	1	2/10/2015 03:32 PM

Qualifiers:

В

Analyte detected in the associated Method Blank

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

DO Surrogate Diluted Out



E Value above quantitation range

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

ANALYTICAL RESULTS

Print Date: 23-Feb-15

CLIENT:	CH2M HILL			Cl	Client Sample ID: SC-100B-WDR-506						
Lab Order:	N014575			(Collection Date: 2/3/2015 1:15:00 PM						
Project:	PG&E Topock II	M3, XXXXXX.0	1.IM.OP.0	0	Matrix: WATER						
Lab ID:	N014575-002										
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed			
TOTAL META	LS BY ICPMS										
				EP	A 200.8						
RunID: ICP7_	150210B	QC Batch: 49	655		PrepD	ate	2/10/2015	Analyst: CEI			
Antimony		ND	0.18	0.50		µg/L	1	2/10/2015 03:38 PN			
Arsenic		2.9	0.027	0.10		µg/L	1	2/10/2015 03:38 PN			
Barium		24	0.030	1.0		µg/L	1	2/11/2015 02:08 PM			
Copper		ND	0.040	1.0		µg/L	1	2/10/2015 03:38 PM			
Lead		ND	0.053	5.0		µg/L	5	2/10/2015 06:12 PM			
Manganese		ND	0.026	0.50		µg/L	1	2/10/2015 03:38 PM			
Molybdenum		22	0.15	0.50		µg/L	1	2/10/2015 03:38 PM			
Nickel		ND	0.032	1.0		µg/L	1	2/10/2015 03:38 PM			
Zinc		ND	0.23	10		µg/L	1	2/10/2015 03:38 PM			
	IETALS BY ICPMS										
				EP	A 200.8						
RunID: ICP7_	150210B	QC Batch: 49	656		PrepD	ate	2/10/2015	Analyst: CEI			
Manganese		ND	0.026	0.50		µg/L	1	2/10/2015 05:45 PM			

Qualifiers:

В

Analyte detected in the associated Method Blank

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

DO Surrogate Diluted Out



E Value above quantitation range

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

CLIENT: CH2M HILL

Work Order: N014575

Project: PG&E Topock IM3, XXXXXX.01.IM.OP.00

Date: 23-Feb-15

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID MB-49655	SampType: MBLK	TestCode: 200.8_W	Units: µg/L	Prep	Date: 2/10/2015	RunNo: 97952	
Client ID: PBW	Batch ID: 49655	TestNo: EPA 200.	8	Analysis	Date: 2/10/2015	SeqNo: 1929913	
Analyte	Result	PQL SPK value	SPK Ref Val	%REC LowLin	nit HighLimit RPD Ref Val	%RPD RPDLimit	Qual
Antimony	ND	0.50					
Arsenic	ND	0.10					
Copper	0.124	1.0					
Lead	ND	1.0					
Manganese	ND	0.50					
Molybdenum	ND	0.50					
Nickel	ND	1.0					
Zinc	ND	10					
Sample ID LCS-49655	SampType: LCS	TestCode: 200.8_W	Units: µg/L	Prep	Date: 2/10/2015	RunNo: 97952	
Client ID: LCSW	Batch ID: 49655	TestNo: EPA 200.	8	Analysis	Date: 2/10/2015	SeqNo: 1929914	
Analyte	Result	PQL SPK value	SPK Ref Val	%REC LowLin	nit HighLimit RPD Ref Val	%RPD RPDLimit	Qual
Antimony	10.859	0.50 10.00	0	109 8	35 115		
Arsenic	10.242	0.10 10.00	0	102 8	35 115		
Copper	9.638	1.0 10.00	0	96.4 8	35 115		
Lead	11.256	1.0 10.00	0	113 8	35 115		
Manganese	101.453	0.50 100.0	0	101 8	35 115		
Molybdenum	10.158	0.50 10.00	0	102 8	35 115		
Nickel	9.738	1.0 10.00	0	97.4 8	35 115		
Zinc	95.082	10 100.0	0	95.1 8	35 115		
Sample ID N014575-001C-MS	SampType: MS	TestCode: 200.8_W	Units: µg/L	Prep	Date: 2/10/2015	RunNo: 97952	
Client ID: ZZZZZZ	Batch ID: 49655	TestNo: EPA 200.	8	Analysis	Date: 2/10/2015	SeqNo: 1929927	
Analyte	Result	PQL SPK value	SPK Ref Val	%REC LowLin	nit HighLimit RPD Ref Val	%RPD RPDLimit	Qual
Antimony	10.830	0.50 10.00	0	108 7	75 125		
Arsenic	9.798	0.10 10.00	0.06611	97.3 7	75 125		

Qualifiers:

ND

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
 - R RPD outside accepted recovery limits

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Calculations are based on raw values

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

ASSET LABORATORIES

Not Detected at the Reporting Limit

DO Surrogate Diluted Out

CH2M HILL **CLIENT:**

Work Order: N014575

Project: PG&E Topock IM3, XXXXXX.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID N014575-001C-MS	SampType: MS	TestCoo	le: 200.8_W	Units: µg/L		Prep Dat	e: 2/10/20)15	RunNo: 979	952	
Client ID: ZZZZZZ	Batch ID: 49655	TestN	lo: EPA 200.8	3		Analysis Dat	e: 2/10/20)15	SeqNo: 192	29927	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	3.025	1.0	10.00	0	30.3	75	125				S
Manganese	100.847	0.50	100.0	9.436	91.4	75	125				
Molybdenum	35.407	0.50	10.00	23.95	115	75	125				
Nickel	12.516	1.0	10.00	4.065	84.5	75	125				
Zinc	68.122	10	100.0	0	68.1	75	125				S
Sample ID N014575-001C-MSD	SampType: MSD	TestCoo	le: 200.8_W	Units: µg/L		Prep Dat	e: 2/10/20)15	RunNo: 979	952	
Client ID: ZZZZZZ	Batch ID: 49655	TestN	lo: EPA 200.8	3		Analysis Dat	e: 2/10/20)15	SeqNo: 192	29928	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.747	0.50	10.00	0	107	75	125	10.83	0.767	20	
Arsenic	9.605	0.10	10.00	0.06611	95.4	75	125	9.798	1.98	20	
Copper	3.268	1.0	10.00	0	32.7	75	125	3.025	7.71	20	S
Manganese	101.582	0.50	100.0	9.436	92.1	75	125	100.8	0.726	20	
Molybdenum	35.342	0.50	10.00	23.95	114	75	125	35.41	0.185	20	
Nickel	12.638	1.0	10.00	4.065	85.7	75	125	12.52	0.968	20	
Zinc	69.002	10	100.0	0	69.0	75	125	68.12	1.28	20	S
Sample ID N014575-001C-MS	SampType: MS	TestCoo	le: 200.8_W	Units: µg/L		Prep Dat	e: 2/10/20)15	RunNo: 979	952	
Client ID: ZZZZZZ	Batch ID: 49655	TestN	lo: EPA 200.8	3		Analysis Dat	e: 2/10/20)15	SeqNo: 192	29942	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	11.453	5.0	10.00	0	115	75	125				
Sample ID N014575-001C-MSD	SampType: MSD	TestCoc	le: 200.8_W	Units: µg/L		Prep Dat	e: 2/10/20)15	RunNo: 979	952	
Client ID: ZZZZZZ	Batch ID: 49655	TestN	lo: EPA 200.8	3		Analysis Dat	e: 2/10/20)15	SeqNo: 192	29943	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

ND

- B Analyte detected in the associated Method Blank
- E Value above quantitation range

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

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



ASSE ABORATORIES ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Not Detected at the Reporting Limit

CLIENT: CH2M HILL

Work Order: N014575

Project: PG&E Topock IM3, XXXXXX.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID MB-49655	SampType: MBLK	TestCode: 200.8_W	Units: µg/L	Prep [Date: 2/10/2015	RunNo: 97989	
Client ID: PBW	Batch ID: 49655	TestNo: EPA 200.8		Analysis [Date: 2/11/2015	SeqNo: 1932047	
Analyte	Result	PQL SPK value SF	PK Ref Val	%REC LowLimi	t HighLimit RPD Ref Val	%RPD RPDLimit	Qual
Barium	ND	1.0					
Sample ID LCS-49655	SampType: LCS	TestCode: 200.8_W	Units: µg/L	Prep [Date: 2/10/2015	RunNo: 97989	
Client ID: LCSW	Batch ID: 49655	TestNo: EPA 200.8		Analysis [Date: 2/11/2015	SeqNo: 1932048	
Analyte	Result	PQL SPK value SF	PK Ref Val	%REC LowLimi	t HighLimit RPD Ref Val	%RPD RPDLimit	Qual
Barium	108.745	1.0 100.0	0	109 85	5 115		
		110 10010	0	103 00	113		
Sample ID N014575-001C-MS		TestCode: 200.8_W	Units: µg/L		Date: 2/10/2015	RunNo: 97989	
				Prep [RunNo: 97989 SeqNo: 1932053	
Sample ID N014575-001C-MS	SampType: MS	TestCode: 200.8_W	Units: µg/L	Prep [Date: 2/10/2015 Date: 2/11/2015		Qual
Sample ID N014575-001C-MS Client ID: ZZZZZ	SampType: MS Batch ID: 49655	TestCode: 200.8_W TestNo: EPA 200.8	Units: µg/L	Prep [Analysis [Date: 2/10/2015 Date: 2/11/2015 t HighLimit RPD Ref Val	SeqNo: 1932053	Qual
Sample ID N014575-001C-MS Client ID: ZZZZZZ Analyte	SampType: MS Batch ID: 49655 Result 119.409	TestCode: 200.8_W TestNo: EPA 200.8 PQL SPK value SF	Units: µg/L PK Ref Val	Prep E Analysis E %REC LowLimi 106 75	Date: 2/10/2015 Date: 2/11/2015 t HighLimit RPD Ref Val	SeqNo: 1932053	Qual
Sample ID N014575-001C-MS Client ID: ZZZZZZ Analyte Barium	SampType: MS Batch ID: 49655 Result 119.409	TestCode: 200.8_W TestNo: EPA 200.8 PQL SPK value SF 1.0 100.0	Units: µg/L PK Ref Val 13.31	Prep D Analysis D %REC LowLimi 106 75 Prep D	Date: 2/10/2015 Date: 2/11/2015 t HighLimit RPD Ref Val 5 125	SeqNo: 1932053 %RPD RPDLimit	Qual
Sample ID N014575-001C-MS Client ID: ZZZZZZ Analyte Barium Sample ID N014575-001C-MS	SampType: MS Batch ID: 49655 Result 119.409 D SampType: MSD	TestCode: 200.8_W TestNo: EPA 200.8 PQL SPK value 1.0 100.0 TestCode: 200.8_W	Units: µg/L PK Ref Val 13.31 Units: µg/L	Prep [Analysis] %REC LowLimi 106 75 Prep [Analysis]	Date: 2/10/2015 Date: 2/11/2015 t HighLimit RPD Ref Val 5 125 Date: 2/10/2015	SeqNo: 1932053 %RPD RPDLimit RunNo: 97989	Qual

Qualifiers:

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



ASSET LABORATORIES

E Value above quantitation range

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

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

CLIENT: CH2M HILL

Work Order: N014575

Project: PG&E Topock IM3, XXXXXX.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID MB-49656	SampType: MBLK	TestCode: 200.8_WDISS Units: µg/L	Prep Date: 2/10/2015	RunNo: 97952
Client ID: PBW	Batch ID: 49656	TestNo: EPA 200.8	Analysis Date: 2/10/2015	SeqNo: 1930284
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Manganese	ND	0.50		
Sample ID LCS-49656	SampType: LCS	TestCode: 200.8_WDISS Units: µg/L	Prep Date: 2/10/2015	RunNo: 97952
Client ID: LCSW	Batch ID: 49656	TestNo: EPA 200.8	Analysis Date: 2/10/2015	SeqNo: 1930285
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Manganese	102.966	0.50 100.0 0	103 85 115	
Sample ID N014574-001A-MS	SampType: MS	TestCode: 200.8_WDISS Units: µg/L	Prep Date: 2/10/2015	RunNo: 97952
Sample IDN014574-001A-MSClient ID:ZZZZZZ	SampType: MS Batch ID: 49656	TestCode: 200.8_WDISS Units: µg/L TestNo: EPA 200.8	Prep Date: 2/10/2015 Analysis Date: 2/10/2015	RunNo: 97952 SeqNo: 1930289
•			·	
Client ID: ZZZZZZ	Batch ID: 49656	TestNo: EPA 200.8	Analysis Date: 2/10/2015	SeqNo: 1930289
Client ID: ZZZZZZ	Batch ID: 49656 Result 129.097	TestNo: EPA 200.8	Analysis Date: 2/10/2015 %REC LowLimit HighLimit RPD Ref Val	SeqNo: 1930289
Client ID: ZZZZZZ Analyte Manganese	Batch ID: 49656 Result 129.097	TestNo: EPA 200.8 PQL SPK value SPK Ref Val 0.50 100.0 36.34	Analysis Date: 2/10/2015 %REC LowLimit HighLimit RPD Ref Val 92.8 75 125	SeqNo: 1930289 %RPD RPDLimit Qual
Client ID: ZZZZZZ Analyte Manganese Sample ID N014574-001A-MSD	Batch ID: 49656 Result 129.097 SampType: MSD	TestNo: EPA 200.8 PQL SPK value SPK Ref Val 0.50 100.0 36.34 TestCode: 200.8_WDISS Units: µg/L	Analysis Date: 2/10/2015 %REC LowLimit HighLimit RPD Ref Val 92.8 75 125 Prep Date: 2/10/2015	SeqNo: 1930289 %RPD RPDLimit Qual RunNo: 97952

Qualifiers:

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



ASSET LABORATORIES

E Value above quantitation range

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

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

ANALYTICAL RESULTS

Print Date: 23-Feb-15

CLIENT:	CH2M HILL	C	Client Sample ID: SC-700B-WDR-506					
Lab Order:	N014575	N014575 Collection Date: 2/3/2015 1:15:00					00 PM	
Project:	PG&E Topock	IM3, XXXXXX.0	1.IM.OP.0	0	Ma	atrix: W	ATER	
Lab ID:	N014575-001							
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALEN		0						
				EP	A 218.6			
RunID: IC6_1	50204A	QC Batch: R9	7877		PrepD	ate		Analyst: RB
Hexavalent Cl	hromium	ND	0.016	0.20		µg/L	1	2/4/2015 06:17 PM
TOTAL META	LS BY ICPMS							
				EP	A 200.8			
RunID: ICP7_	150210B	QC Batch: 49	655		PrepD	ate	2/10/2015	Analyst: CEI
Chromium		ND	0.030	1.0		µg/L		2/10/2015 03:32 PM

Qualifiers:

В

Analyte detected in the associated Method Blank

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



E Value above quantitation range

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

ANALYTICAL RESULTS

Print Date: 23-Feb-15

CLIENT: Lab Order:	CH2M HILL Client Sample ID: SC-100B-W N014575 Collection Date: 2/3/2015 1:1							
Project:	PG&E Topock	IM3, XXXXXX.0	1.IM.OP.(00	M	atrix: W	ATER	
Lab ID:	N014575-002							
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALEN)						
				EP.	A 218.6			
RunID: IC6_1	50204A	QC Batch: R9	7877		PrepD	Date		Analyst: RB
Hexavalent Cl	hromium	640	1.6	20		µg/L	100	2/4/2015 05:57 PM
TOTAL META	LS BY ICPMS							
				EP	A 200.8			
RunID: ICP7_	150210B	QC Batch: 490	655		PrepD	Date	2/10/2015	Analyst: CEI
Chromium		560	0.15	5.0		µg/L	5	2/10/2015 06:12 PM

Qualifiers:

В

Analyte detected in the associated Method Blank

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



E Value above quantitation range

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

CLIENT: CH2M HILL

Work Order: N014575

Project: PG&E Topock IM3, XXXXXX.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W_CRPGE

Sample ID MB-49655 Client ID: PBW	SampType: MBLK Batch ID: 49655	TestCode: 200.8_W_CR Units: µg/L TestNo: EPA 200.8	Prep Date: 2/10/2015 Analysis Date: 2/10/2015	RunNo: 97952 SeaNo: 1930339
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Chromium	ND	1.0		
Sample ID LCS-49655 Client ID: LCSW Analyte	SampType: LCS Batch ID: 49655 Result	TestCode: 200.8_W_CR Units: µg/L TestNo: EPA 200.8 PQL SPK value SPK Ref Val	Prep Date: 2/10/2015 Analysis Date: 2/10/2015 %REC LowLimit HighLimit RPD Ref Val	RunNo: 97952 SeqNo: 1930340 %RPD RPDLimit Qual
Chromium	9.861	1.0 10.00 0	98.6 85 115	
Sample ID N014575-001C-MS Client ID: ZZZZZZ	SampType: MS Batch ID: 49655	TestCode: 200.8_W_CR Units: µg/L TestNo: EPA 200.8	Prep Date: 2/10/2015 Analysis Date: 2/10/2015	RunNo: 97952 SeqNo: 1930353
		= = 10	·	
Client ID: ZZZZZZ	Batch ID: 49655	TestNo: EPA 200.8	Analysis Date: 2/10/2015	SeqNo: 1930353
Client ID: ZZZZZZ	Batch ID: 49655 Result 8.925	TestNo: EPA 200.8	Analysis Date: 2/10/2015 %REC LowLimit HighLimit RPD Ref Val	SeqNo: 1930353
Client ID: ZZZZZZ Analyte Chromium Sample ID N014575-001C-MSD	Batch ID: 49655 Result 8.925 SampType: MSD	TestNo: EPA 200.8 PQL SPK value SPK Ref Val 1.0 10.00 0 TestCode: 200.8_W_CR Units: µg/L	Analysis Date: 2/10/2015 %REC LowLimit HighLimit RPD Ref Val 89.3 75 125 Prep Date: 2/10/2015	SeqNo: 1930353 %RPD RPDLimit Qual RunNo: 97952

Qualifiers:

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



ASSET LABORATORIES

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

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

CLIENT: CH2M HILL

Work Order: N014575

Project: PG&E Topock IM3, XXXXXX.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID MB-R97877	SampType: MBLK	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97877
Client ID: PBW	Batch ID: R97877	TestNo: EPA 218.6	Analysis Date: 2/4/2015	SeqNo: 1926432
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-R97877	SampType: LCS	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97877
Client ID: LCSW	Batch ID: R97877	TestNo: EPA 218.6	Analysis Date: 2/4/2015	SeqNo: 1926433
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	5.074	0.20 5.000 0	101 90 110	
Sample ID N014572-001A-DUP	SampType: DUP	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97877
Client ID: ZZZZZZ	Batch ID: R97877	TestNo: EPA 218.6	Analysis Date: 2/4/2015	SeqNo: 1926435
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	1.798	0.20	1.742	3.19 20
Sample ID N014572-001A-MS	SampType: MS	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97877
Client ID: ZZZZZZ	Batch ID: R97877	TestNo: EPA 218.6	Analysis Date: 2/4/2015	SeqNo: 1926436
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	6.904	0.20 5.000 1.742	103 90 110	
Sample ID N014572-001A-MSD	SampType: MSD	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97877
Client ID: ZZZZZZ	Batch ID: R97877	TestNo: EPA 218.6	Analysis Date: 2/4/2015	SeqNo: 1926437
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	6.897	0.20 5.000 1.742	103 90 110 6.904	0.113 20

Qualifiers:

ND

- B Analyte detected in the associated Method Blank

 - Not Detected at the Reporting Limit
- DO Surrogate Diluted Out



ASSET LABORATORIES

E Value above quantitation range

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

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

CH2M HILL **CLIENT:**

Work Order: N014575

Project: PG&E Topock IM3, XXXXXX.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID N014575-001A-MS	SampType: MS	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97877
Client ID: ZZZZZZ	Batch ID: R97877	TestNo: EPA 218.6	Analysis Date: 2/4/2015	SeqNo: 1926441
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	1.141	0.20 1.000 0.1799	96.1 90 110	
Sample ID N014574-001D-MS	SampType: MS	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97877
Client ID: ZZZZZZ	Batch ID: R97877	TestNo: EPA 218.6	Analysis Date: 2/4/2015	SeqNo: 1926443
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	9.770	0.20 5.000 4.737	101 90 110	
Sample ID N014575-002A-MS	SampType: MS	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97877
Client ID: ZZZZZZ	Batch ID: R97877	TestNo: EPA 218.6	Analysis Date: 2/4/2015	SeqNo: 1926445
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	1134.670	20 500.0 644.3	98.1 90 110	

Qualifiers:

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



ASSE ABORATORIES ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES E Value above quantitation range

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

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

ANALYTICAL RESULTS

ASSET La	ASSET Laboratories					Print Date: 23-Feb-15					
CLIENT:	CH2M HILL			С	lient Samp	le ID: SC-7	00B-WDR	-506			
Lab Order:	N014575	N014575			Collection	Date: 2/3/20	015 1:15:0	0 PM			
Project:	PG&E Topock	PG&E Topock IM3, XXXXXX.01.IM.OP.00			M	atrix: WAT	ER				
Lab ID:	N014575-001										
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed			
TURBIDITY				SN	I 2130B						
RunID: WET	CHEM_150204C	QC Batch: R97	7874		PrepD	ate		Analyst: LR			
Turbidity		0.24	0.10	0.10		NTU	1	2/4/2015 11:30 AM			

Qualifiers:

В Analyte detected in the associated Method Blank

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

DO Surrogate Diluted Out



Е Value above quantitation range

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

ANALYTICAL RESULTS

ASSET	ASSET Laboratories					Print Date: 23-Feb-15					
CLIENT:	CH2M HILL			С	lient Samp	le ID: SC-10	00B-WDR	-506			
Lab Orde	r: N014575	N014575			Collection	Date: 2/3/20	015 1:15:0	0 PM			
Project:	PG&E Topock	PG&E Topock IM3, XXXXXX.01.IM.OP.00			Μ	atrix: WAT	ER				
Lab ID:	N014575-002										
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed			
TURBIDIT	Y			SN	1 2130B						
RunID: V	VETCHEM_150204C	QC Batch: R9	7874		PrepD	ate		Analyst: LR			
Turbidity		0.14	0.10	0.10		NTU	1	2/4/2015 11:30 AM			

Qualifiers:

В Analyte detected in the associated Method Blank

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

Surrogate Diluted Out DO



Е Value above quantitation range

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

Date: 23-Feb-15

CLIENT: CH2M HILL

Work Order: N014575

Project: PG&E Topock IM3, XXXXXX.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 2130_W

Sample ID N014575-001BDUP	SampType: DUP	TestCod	e: 2130_W	Units: NTU		Prep Da	te:		RunNo: 978	374	
Client ID: ZZZZZZ	Batch ID: R97874	TestN	o: SM 2130E	3		Analysis Da	te: 2/4/201	15	SeqNo: 192	26350	
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
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out



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E Value above quantitation range

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S Spike/Surrogate outside of limits due to matrix interference

ANALYTICAL RESULTS

Print Date: 23-Feb-15

CLIENT:	CH2M HILL			С	lient Samp	le ID: SC-1	00B-WDR	-506
Lab Order:	N014575				Collection	Date: 2/3/20	015 1:15:0	0 PM
Project:	PG&E Topock IM3, XXXXXX.01.IM.OP.00 Matrix: WATER							
Lab ID:	N014575-002							
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY,	SPECIATED			SM	2320 B			
	SPECIATED	QC Batch: R9	8034	SM	2320 B PrepD	ate		Analyst: QBN
RunID: WETC		QC Batch: R9 150	8034 1.2	SM 5.0		ate mg/L	1	Analyst: QBN 2/10/2015
RunID: WETC Alkalinity, Bica	HEM_150210C						1 1	
RunID: WETC Alkalinity, Bica Alkalinity, Car	CHEM_150210C arbonate (As CaCO3)	150	1.2	5.0		mg/L	1 1 1	2/10/2015

Qualifiers:

В

Analyte detected in the associated Method Blank

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

DO Surrogate Diluted Out



E Value above quantitation range

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

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CLIENT: CH2M HILL

Work Order: N014575

Project: PG&E Topock IM3, XXXXXX.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID LCS-R98034	SampType: LCS	TestCode: 2320_W_SP Units: mg/		RunNo: 98034
Client ID: LCSW	Batch ID: R98034	TestNo: SM 2320 B	Analysis Date: 2/10/2015	SeqNo: 1934662
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref V	al %RPD RPDLimit Qual
Alkalinity, Bicarbonate (As CaCO3) 100.000	5.0 100.0 0	100 85 115	
Alkalinity, Total (As CaCO3)	100.000	5.0 100.0 0	100 85 115	
Sample ID MB-R98034	SampType: MBLK	TestCode: 2320_W_SP Units: mg/	L Prep Date:	RunNo: 98034
Client ID: PBW	Batch ID: R98034	TestNo: SM 2320 B	Analysis Date: 2/10/2015	SeqNo: 1934663
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref V	al %RPD RPDLimit Qual
Alkalinity, Bicarbonate (As CaCO3) ND	5.0		
Alkalinity, Carbonate (As CaCO3)	ND	5.0		
Alkalinity, Hydroxide (As CaCO3)	ND	5.0		
Alkalinity, Total (As CaCO3)	ND	5.0		
Sample ID N014574-001CDUP	SampType: DUP	TestCode: 2320_W_SP Units: mg/	L Prep Date:	RunNo: 98034
Sample ID N014574-001CDUP Client ID: ZZZZZZ	SampType: DUP Batch ID: R98034	TestCode: 2320_W_SP Units: mg/I TestNo: SM 2320 B	L Prep Date: Analysis Date: 2/10/2015	RunNo: 98034 SeqNo: 1934665
			,	SeqNo: 1934665
Client ID: ZZZZZZ	Batch ID: R98034 Result	TestNo: SM 2320 B	Analysis Date: 2/10/2015	SeqNo: 1934665 al %RPD RPDLimit Qual
Client ID: ZZZZZZ	Batch ID: R98034 Result	TestNo: SM 2320 B PQL SPK value SPK Ref Val	Analysis Date: 2/10/2015 %REC LowLimit HighLimit RPD Ref V	SeqNo: 1934665 al %RPD RPDLimit Qual
Client ID: ZZZZZZ Analyte Alkalinity, Bicarbonate (As CaCO3	Batch ID: R98034 Result	TestNo: SM 2320 B PQL SPK value SPK Ref Val	Analysis Date: 2/10/2015 %REC LowLimit HighLimit RPD Ref V	SeqNo: 1934665 al %RPD RPDLimit Qual .0 0.489 30
Client ID: ZZZZZ Analyte Alkalinity, Bicarbonate (As CaCO3 Alkalinity, Carbonate (As CaCO3)	Batch ID: R98034 Result) 218.085 ND	TestNo: SM 2320 B PQL SPK value SPK Ref Val 5.0 5.0	Analysis Date: 2/10/2015 %REC LowLimit HighLimit RPD Ref V	SeqNo: 1934665 al %RPD RPDLimit Qual .0 0.489 30 0 0 30 0 0 30 0 0 30
Client ID: ZZZZZ Analyte Alkalinity, Bicarbonate (As CaCO3 Alkalinity, Carbonate (As CaCO3) Alkalinity, Hydroxide (As CaCO3)	Batch ID: R98034 Result) 218.085 ND ND	TestNo: SM 2320 B PQL SPK value SPK Ref Val 5.0 5.0 5.0	Analysis Date: 2/10/2015 %REC LowLimit HighLimit RPD Ref V 217 217	SeqNo: 1934665 al %RPD RPDLimit Qual .0 0.489 30 0 0 30 0 0 30 0 0 30
Client ID: ZZZZZ Analyte Alkalinity, Bicarbonate (As CaCO3 Alkalinity, Carbonate (As CaCO3) Alkalinity, Hydroxide (As CaCO3) Alkalinity, Total (As CaCO3)	Batch ID: R98034 Result) 218.085 ND ND 218.085	TestNo: SM 2320 B PQL SPK value SPK Ref Val 5.0 5.0 5.0 5.0 5.0	Analysis Date: 2/10/2015 %REC LowLimit HighLimit RPD Ref V 217 217	SeqNo: 1934665 al %RPD RPDLimit Qual .0 0.489 30 0 0 30 0 0 30 0 0 30 0 0 30 0 0 30 .0 0.489 30
Client ID: ZZZZZ Analyte Alkalinity, Bicarbonate (As CaCO3) Alkalinity, Carbonate (As CaCO3) Alkalinity, Hydroxide (As CaCO3) Alkalinity, Total (As CaCO3) Sample ID N014574-002DMS	Batch ID: R98034 Result) 218.085 ND ND 218.085 SampType: MS	TestNo: SPK 2320 B PQL SPK value SPK Ref Val 5.0 5.0 5.0 5.0 TestCode: 2320_W_SP Units: mg/l	Analysis Date: 2/10/2015 %REC LowLimit HighLimit RPD Ref V 217 217 L Prep Date:	SeqNo: 1934665 al % RPD RPDLimit Qual .0 0.489 30 0 0 30 0 0 30 .0 0.489 30 .0 0.489 30 .0 0.489 30 .0 0.489 30 .0 0.489 30 .0 0.489 30
Client ID: ZZZZZZ Analyte Alkalinity, Bicarbonate (As CaCO3) Alkalinity, Carbonate (As CaCO3) Alkalinity, Hydroxide (As CaCO3) Alkalinity, Total (As CaCO3) Sample ID N014574-002DMS Client ID: ZZZZZZ	Batch ID: R98034 Result) 218.085 ND ND 218.085 SampType: MS Batch ID: R98034 Result	TestNo: SM 2320 B PQL SPK value 5.0 5.0 5.0 5.0 5.0 TestCode: 2320_W_SP Units: mg/l TestNo: SM 2320 B	Analysis Date: 2/10/2015 %REC LowLimit HighLimit RPD Ref V 217 217 L Prep Date: Analysis Date: 2/10/2015	SeqNo: 1934665 al % RPD RPDLimit Qual .0 0.489 30 0 0 30 0 0 30 .0 0.489 30 .0 0.489 30 .0 0.489 30 .0 0.489 30 .0 0.489 30 .0 0.489 30

Qualifiers:

ND

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

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E Value above quantitation range

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

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

CLIENT: CH2M HILL

Work Order: N014575

Project: PG&E Topock IM3, XXXXXX.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID N014574-002DMSD	SampType: MSD	TestCod	e: 2320_W_S	P Units: mg/L		Prep Da	te:		RunNo: 98	034	
Client ID: ZZZZZZ	Batch ID: R98034	TestN	o: SM 2320 E	3		Analysis Da	te: 2/10/20	15	SeqNo: 19:	34668	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3) Alkalinity, Total (As CaCO3)) 235.106 235.106	5.0 5.0	100.0 100.0	138.3 138.3	96.8 96.8	75 75	125 125	235.1 235.1	0	20 20	

Qualifiers:

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



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E Value above quantitation range

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R RPD outside accepted recovery limits Calculations are based on raw values H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

ANALYTICAL RESULTS

Print Date: 23-Feb-15

CLIENT Lab Ord					•	e ID: SC-7 Date: 2/3/2		
Project:	PG&E Topocl	k IM3, XXXXXX.01	.IM.OP.0	00	Ma	trix: WAT	ER	
Lab ID:	N014575-001							
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS	BY ION CHROMATOG	RAPHY						
				EPA	300.0			
RunID:	IC2_150210A	QC Batch: R97	948		PrepD	ate		Analyst: QBM
Fluoride	е	7.0	0.22	2.0		mg/L	20	2/10/2015 04:18 PM
ANIONS	BY ION CHROMATOO	RAPHY						
				EPA	300.0			
RunID:	IC2_150210A	QC Batch: R97	948		PrepD	ate		Analyst: QBM
Sulfate		480	1.6	25		mg/L	50	2/10/2015 02:55 PM

Qualifiers:

В

Analyte detected in the associated Method Blank

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

DO Surrogate Diluted Out



E Value above quantitation range

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

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ANALYTICAL RESULTS

Print Date: 23	8-Feb-15
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CLIENT:	CH2M HILL			С	lient Samp	le ID: SC-1	00B-WDR	-506
Lab Order:	N014575 Collection Date: 2/3/201					015 1:15:0	0 PM	
Project:	PG&E Topock IN	PG&E Topock IM3, XXXXXX.01.IM.OP.00 Matrix: WATER						
Lab ID:	N014575-002							
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY I	ON CHROMATOGRA							
	ON CHROMATOGRA							
				EP	A 300.0			
	50210A	QC Batch: R9	7948	EP	A 300.0 PrepD	Date		Analyst: QBM
			7948 0.22	EP 2.0		Date mg/L	20	
RunID: IC2_1 Fluoride		QC Batch: R9 7.2					20	Analyst: QBM 2/10/2015 04:28 PM
RunID: IC2_1 Fluoride	50210A	QC Batch: R9 7.2		2.0			20	2
RunID: IC2_1 Fluoride ANIONS BY I	50210A	QC Batch: R9 7.2	0.22	2.0	PrepD	mg/L	20	

Qualifiers:

В

Analyte detected in the associated Method Blank

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

DO Surrogate Diluted Out



E Value above quantitation range

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

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CLIENT: CH2M HILL

Work Order: N014575

Project: PG&E Topock IM3, XXXXXX.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_FPGE

Sample ID MB-R97948_F	SampType: MBLK	TestCode: 300_W_FPG Units: mg/L	Prep Date:	RunNo: 97948
Client ID: PBW	Batch ID: R97948	TestNo: EPA 300.0	Analysis Date: 2/10/2015	SeqNo: 1929531
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride	ND	0.10		
Sample ID LCS-R97948_F	SampType: LCS	TestCode: 300_W_FPG Units: mg/L	Prep Date:	RunNo: 97948
Client ID: LCSW	Batch ID: R97948	TestNo: EPA 300.0	Analysis Date: 2/10/2015	SeqNo: 1929532
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride	2.270	0.10 2.500 0	90.8 90 110	
Sample ID N014575-002BDUP	SampType: DUP	TestCode: 300_W_FPG Units: mg/L	Prep Date:	RunNo: 97948
Client ID: ZZZZZZ	Batch ID: R97948	TestNo: EPA 300.0	Analysis Date: 2/10/2015	SeqNo: 1929541
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride	6.980	2.0	7.180	2.82 20
Sample ID N014575-001BMS	SampType: MS	TestCode: 300_W_FPG Units: mg/L	Prep Date:	RunNo: 97948
Client ID: ZZZZZZ	Batch ID: R97948	TestNo: EPA 300.0	Analysis Date: 2/10/2015	SeqNo: 1929542
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride	22.180	2.0 20.00 7.000	75.9 80 120	S
Sample ID N014575-001BMSD	SampType: MSD	TestCode: 300_W_FPG Units: mg/L	Prep Date:	RunNo: 97948
Client ID: ZZZZZZ	Batch ID: R97948	TestNo: EPA 300.0	Analysis Date: 2/10/2015	SeqNo: 1929543
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride	22.420	2.0 20.00 7.000	77.1 80 120 22.18	1.08 20 S

Qualifiers:

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



ND

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E Value above quantitation range

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

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

CH2M HILL **CLIENT:**

Work Order: N014575

Project: PG&E Topock IM3, XXXXXX.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

SampType: MBLK	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: 97948
Batch ID: R97948	TestNo: EPA 300.0	Analysis Date: 2/10/2015	SeqNo: 1929550
Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
ND	0.50		
SampType: LCS	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: 97948
Batch ID: R97948	TestNo: EPA 300.0	Analysis Date: 2/10/2015	SeqNo: 1929551
Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
4.730	0.50 5.000 0	94.6 90 110	
SampType: DUP	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: 97948
Batch ID: R97948	TestNo: EPA 300.0	Analysis Date: 2/10/2015	SeqNo: 1929572
Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
66.280	5.0	68.56	3.38 20
SampType: MS	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: 97948
Batch ID: R97948	TestNo: EPA 300.0	Analysis Date: 2/10/2015	SeqNo: 1929573
Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
99.380	5.0 50.00 47.05	105 80 120	
SampType: MS	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: 97948
Datab ID: DOTO 10	TestNo: FPA 300 0	Analysis Date: 2/10/2015	SeqNo: 1929574
Batch ID: R9/948			
Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
	Batch ID: R97948 Result ND SampType: LCS Batch ID: R97948 Result 4.730 SampType: DUP Batch ID: R97948 Result 66.280 SampType: MS Batch ID: R97948 Result 99.380 SampType: MS	Batch ID: R97948 TestNo: EPA 300.0 Result PQL SPK value SPK Ref Val ND 0.50	Batch ID: R97948 TestNo:: EPA 300.0 Analysis Date: 2/10/2015 Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit RPD Ref Val ND 0.50

Qualifiers:

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



ABORATORIES ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES E Value above quantitation range

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

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

CLIENT: CH2M HILL

Work Order: N014575

Project: PG&E Topock IM3, XXXXXX.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID N014571-016CMSD	SampType: MSD	TestCode: 300_W_SO4P Units: mg/L			Prep Date:				RunNo: 97948		
Client ID: ZZZZZZ	Batch ID: R97948	TestNo: EPA 300.0			Analysis Date: 2/10/2015				SeqNo: 1929575		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	230.660	10	100.0	133.3	97.4	80	120	244.2	5.69	20	

Qualifiers:

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



ASSET LABORATORIES

E Value above quantitation range

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

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R RPD outside accepted recovery limits Calculations are based on raw values H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

ANALYTICAL RESULTS Print Date: 23-Feb-15

						111	nt Date: 25-1	10-15
CLIENT:	CH2M HILL		le ID: S	C-100B-WDR	R-506			
Lab Order:	N014575			Collection	Date: 2/	/3/2015 1:15:0	00 PM	
Project:	PG&E Topock	PG&E Topock IM3, XXXXXX.01.IM.OP.00 Matrix: WATER						
Lab ID:	N014575-002							
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL PHOS	PHORUS							
				EP	A 365.3			
RunID: WETC	CHEM_150213B	QC Batch: 490	697		PrepD	ate	2/13/2015	Analyst: QBN
Phosphorus,	Total (As P)	ND	0.0030	0.020		mg/L	1	2/13/2015

Qualifiers:

B Analyte detected in the associated Method Blank

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

DO Surrogate Diluted Out



E Value above quantitation range

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

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CLIENT: CH2M HILL

Work Order: N014575

Project: PG&E Topock IM3, XXXXXX.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 365.3_W_T

Sample ID LCS-49697	SampType: LCS	TestCode: 365.3_W_T Units: mg/L	Prep Date: 2/13/2015	RunNo: 97999
Client ID: LCSW	Batch ID: 49697	TestNo: EPA 365.3	Analysis Date: 2/13/2015	SeqNo: 1933007
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Phosphorus, Total (As P)	0.411	0.020 0.4000 0	103 80 120	
Sample ID MB-49697	SampType: MBLK	TestCode: 365.3_W_T Units: mg/L	Prep Date: 2/13/2015	RunNo: 97999
Client ID: PBW	Batch ID: 49697	TestNo: EPA 365.3	Analysis Date: 2/13/2015	SeqNo: 1933008
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Phosphorus, Total (As P)	ND	0.020		
Sample ID N014575-002EMS	SampType: MS	TestCode: 365.3_W_T Units: mg/L	Prep Date: 2/13/2015	RunNo: 97999
Client ID: ZZZZZZ	Batch ID: 49697	TestNo: EPA 365.3	Analysis Date: 2/13/2015	SeqNo: 1933010
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Phosphorus, Total (As P)	0.419	0.020 0.4000 0	105 80 120	
Sample ID N014575-002EMSD	SampType: MSD	TestCode: 365.3_W_T Units: mg/L	Prep Date: 2/13/2015	RunNo: 97999
Client ID: ZZZZZZ	Batch ID: 49697	TestNo: EPA 365.3	Analysis Date: 2/13/2015	SeqNo: 1933011
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Phosphorus, Total (As P)	0.423	0.020 0.4000 0	106 80 120 0.4190	0.950 20
Sample ID N014631-003DDUP	SampType: DUP	TestCode: 365.3_W_T Units: mg/L	Prep Date: 2/13/2015	RunNo: 97999
Client ID: ZZZZZZ	Batch ID: 49697	TestNo: EPA 365.3	Analysis Date: 2/13/2015	SeqNo: 1933014
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Phosphorus, Total (As P)	ND	0.020	0	0 20

Qualifiers:

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



ND

ABORATORIES

E Value above quantitation range

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

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

ANALYTICAL RESULTS

ASSET	Laboratories				Print Date: 23-Feb-15						
CLIENT	: CH2M HILL			С	lient Samp	le ID: SC-7	00B-WDR	-506			
Lab Ord	er: N014575				Collection	Date: 2/3/20	015 1:15:0	0 PM			
Project:	PG&E Topock	IM3, XXXXXX.0	1.IM.OP.(00	M	atrix: WAT	ER				
Lab ID:	N014575-001										
Analyses	1	Result	MDL	PQL	Qual	Units	DF	Date Analyzed			
NITRAT	E/NITRITE-N BY CADMI	UM REDUCTION		SM4	500-NO3F						
RunID:	WETCHEM_150216B	QC Batch: R9	8020		PrepD	ate		Analyst: QBM			
Nitrate/	Nitrite as N	2.7	0.11	0.25		mg/L	5	2/16/2015			

Qualifiers:

В Analyte detected in the associated Method Blank

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

Surrogate Diluted Out DO



Е Value above quantitation range

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

3151 W. Post Road, Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.2691 www.assetlaboratories.com

ANALYTICAL RESULTS

ASSET La	aboratories			Print Date: 23-Feb-15							
CLIENT:	CH2M HILL			С	lient Samp	e ID: SC-1	00B-WDR	-506			
Lab Order:	N014575				Collection	Date: 2/3/2	015 1:15:0	0 PM			
Project:	PG&E Topock	IM3, XXXXXX.01	.IM.OP.0	00	Ma	atrix: WAT	ER				
Lab ID:	N014575-002										
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed			
NITRATE/N	ITRITE-N BY CADM	UM REDUCTION		SM4	500-NO3F						
RunID: WE	TCHEM_150216B	QC Batch: R98	020		PrepD	ate		Analyst: QBM			
Nitrate/Nitri	te as N	2.6	0.11	0.25		mg/L	5	2/16/2015			

Qualifiers:

В Analyte detected in the associated Method Blank

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

DO Surrogate Diluted Out



Е Value above quantitation range

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

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CLIENT: CH2M HILL

Work Order: N014575

Project: PG&E Topock IM3, XXXXXX.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID MB-R98020	SampType: MBLK	TestCode: 4500N03F_W Units: mg/L	Prep Date:	RunNo: 98020
Client ID: PBW	Batch ID: R98020	TestNo: SM4500-NO3	Analysis Date: 2/16/2015	SeqNo: 1933641
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-R98020	SampType: LCS	TestCode: 4500N03F_W Units: mg/L	Prep Date:	RunNo: 98020
Client ID: LCSW	Batch ID: R98020	TestNo: SM4500-NO3	Analysis Date: 2/16/2015	SeqNo: 1933642
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Nitrate/Nitrite as N	0.981	0.050 1.000 0	98.1 85 115	
Sample ID N014575-001EDUP	SampType: DUP	TestCode: 4500N03F_W Units: mg/L	Prep Date:	RunNo: 98020
Client ID: ZZZZZZ	Batch ID: R98020	TestNo: SM4500-NO3	Analysis Date: 2/16/2015	SeqNo: 1933644
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Nitrate/Nitrite as N	2.615	0.25	2.666	1.93 20
Sample ID N014575-002IMS	SampType: MS	TestCode: 4500N03F_W Units: mg/L	Prep Date:	RunNo: 98020
Client ID: ZZZZZZ	Batch ID: R98020	TestNo: SM4500-NO3	Analysis Date: 2/16/2015	SeqNo: 1933646
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Nitrate/Nitrite as N	7.643	0.25 5.000 2.563	102 75 125	
Sample ID N014575-002IMSD	SampType: MSD	TestCode: 4500N03F_W Units: mg/L	Prep Date:	RunNo: 98020
Client ID: ZZZZZZ	Batch ID: R98020	TestNo: SM4500-NO3	Analysis Date: 2/16/2015	SeqNo: 1933647
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Nitrate/Nitrite as N	7.407	0.25 5.000 2.563	96.9 75 125 7.643	3.14 20

Qualifiers:

ND

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



ASSET LABORATORIES

E Value above quantitation range

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

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

ANALYTICAL RESULTS

ASSET Lab	ooratories				Print Date: 23-Feb-15							
CLIENT:	CH2M HILL			C	lient Samp	le ID: SC-1	00B-WDR	-506				
Lab Order:	N014575				Collection	Date: 2/3/20	015 1:15:0	0 PM				
Project:	PG&E Topock	IM3, XXXXXX.0	1.IM.OP.0	00	Μ	atrix: WAT	ER					
Lab ID:	N014575-002											
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed				
TOTAL ORGA	ANIC CARBON											
				SN	1 5310C							
RunID: TOC2	_150206A	QC Batch: R9	7918		PrepD	Date		Analyst: QBM				
Organic Carb	on, Total	ND	0.041	1.0		mg/L	1	2/7/2015 04:52 AM				

Qualifiers:

В Analyte detected in the associated Method Blank

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

DO Surrogate Diluted Out



Е Value above quantitation range

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

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CLIENT: CH2M HILL

Work Order: N014575

Project: PG&E Topock IM3, XXXXXX.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 5310C_W_T

Sample ID MB-R97918 Client ID: PBW	SampType: MBLK Batch ID: R97918	TestCode: 5310C_W_T Units: mg/L TestNo: SM 5310C	Prep Date: Analysis Date: 2/6/2015	RunNo: 97918 SeqNo: 1928142
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Organic Carbon, Total	ND	1.0		
Sample ID LCS-R97918 Client ID: LCSW	SampType: LCS Batch ID: R97918	TestCode: 5310C_W_T Units: mg/L TestNo: SM 5310C	Prep Date: Analysis Date: 2/6/2015	RunNo: 97918 SeqNo: 1928143
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Organic Carbon, Total	5.001	1.0 5.000 0	100 85 115	
Sample ID N014571-017DMS	SampType: MS	TestCode: 5310C_W_T Units: mg/L	Prep Date:	RunNo: 97918
Sample ID N014571-017DMS Client ID: ZZZZZZ	SampType: MS Batch ID: R97918	TestCode: 5310C_W_T Units: mg/L TestNo: SM 5310C	Prep Date: Analysis Date: 2/6/2015	RunNo: 97918 SeqNo: 1928144
Client ID: ZZZZZZ	Batch ID: R97918	TestNo: SM 5310C	Analysis Date: 2/6/2015	SeqNo: 1928144
Client ID: ZZZZZZ	Batch ID: R97918 Result	TestNo: SM 5310C PQL SPK value SPK Ref Val	Analysis Date: 2/6/2015 %REC LowLimit HighLimit RPD Ref Val	SeqNo: 1928144
Client ID: ZZZZZZ Analyte Organic Carbon, Total	Batch ID: R97918 Result 5.445	TestNo: SM 5310C PQL SPK value SPK Ref Val 1.0 5.000 0.5468	Analysis Date: 2/6/2015 %REC LowLimit HighLimit RPD Ref Val 98.0 75 125	SeqNo: 1928144 %RPD RPDLimit Qual
Client ID: ZZZZZZ Analyte Organic Carbon, Total Sample ID N014571-017DMSD	Batch ID: R97918 Result 5.445 SampType: MSD	PQL SPK value SPK Ref Val 1.0 5.000 0.5468 TestCode: 5310C_W_T Units: mg/L	Analysis Date: 2/6/2015 %REC LowLimit HighLimit RPD Ref Val 98.0 75 125 Prep Date:	SeqNo: 1928144 %RPD RPDLimit Qual RunNo: 97918

Qualifiers:

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



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E Value above quantitation range

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

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

WORKORDER: N014575

ANALYST LIST

NAME	TEST METHOD
Quennie Manimtim	EPA 300.0, SM 2320B, SM 5310C, EPA 365.3, SM 4500-NO3F
Claire Ignacio	EPA 200.7, EPA 200.8
Lilia Ramit	EPA 120.1, SM 2540C, SM 2130B
Ryan Balilu	EPA 218.6



CALIFORNIA 11060 Artesia Blvd., Ste C, 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

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C AC	ANALYTICAL SUPPORT SERVICE	S FOR ENVIRONMENTAL 1	TECHNOLOGIES		CHA	IN O	FC	UST	ODY	RE	COR	RD												
	3151W. Post Road (702) 307-2659 FA						[IM3	Plant	t-WD	R-50)6]								OUNE	D TIME	10 D PAGI	ays E_1_	OF	1
COMPANY	CH2M HILL				T		/					7			7			Pa	<u> </u>	/ /	\overline{T}			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
PROJECT NAME	PG&E Topock	IM3											\$		/		1		ග්/ බ		' /	CON	IMENTS	
PHONE	530-229-3	303	fax <u>5</u> 30	,339-3303				/ .			/ ,	List Below		/ ,	/	/	-44 's	(500	5/					
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	Oakland, CA 9	4612				p 11		$\langle $			12) 	$\hat{\boldsymbol{z}}$	4		100			5	NTA II				
P.O. NUMBER	xxxxxx.01.IM.OP.	.00	5 ⁴			6) La	3204		101	//	102 5	4500	400	0.00	0	Metal	, [[ca]	SIMA						
SAMPLERS (SIGNA				*****		1518	2) È	(j.) 20. 20. 20. 20. 20. 20. 20. 20. 20. 20.	224	130	Weta		2 (42)	8 / 3	0100 V	/pen/		ð/		ER O				
SAMPLE I.D.		DATE	TIME	DESCRIPTION	0 Sel	Alkalin (218.6) Lab E.	EC/10 (2320-B)	(1:02) SQ1	Turh (c)	Total 1.2	Ammod (200.7) C	Total P. (4500-NH2)	Anjon (4500-P)	TOC / (300.0) F. S	Disso	Soll	NO3AL Silica - R. No.2) Fe, Mn 1.		- NUMA	MUSER OF CONTAINERS				
SC-700B-V	VDR-506	02/03/15	13:15		X		x	x	x	x	x		x				X		4	\mathcal{N}	0143	.73	-0	,/
SC-100B-V	VDR-506	02/03/15	1375		X	X	X	X	х	x	X	х	x	Х	Х	x	X		9		0145		-0	Z
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																			B	TOTAL	NUMBER	OF CO	TAINER	₹S

PUAIN OF CHETODY BECODD

1-0100 CHAIN OF CUSTODY SIGNATURE RECORD SAMPLE CONDITIONS RHV Signature 2-3-15 Printed Company/ Date/ °F (Relinguished) RECEIVED COOL 🔲 WARM 🔲 Name Agency UN Time / 3:20 7700 7 Printed 2/3/15 Signature "Company/ Date/ Λ. 6 465 (706 Name Maraw Ć (Received) Time 0V Agency 1 CUSTODY SEALED YES 🗖 NO 🔲 Signature 2/3/15 Printed Company/ Date/ (Relinquished) Name/ manus () alap 300 2045 SPECIAL REQUIREMENTS: Agency Time Signature Printed Company/ 2/3/45 ഷ ASTO Date/ The metals include: Cr, Al, Sb, As, Ba, B, Cu, Pb, Mn, K. (Received) mando Agency Name Time Mo, Ni, Fe, Zn Signature Printed Company/ Date/ (Relinquished) Name Agency Time U Signature Printed Company/ Date/ (Received) Name Agency Time

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:	2/3/2015				Workorder:	N014575
Rep sample Temp (Deg C):	1.9				IR Gun ID:	2
Temp Blank:	✔ Yes	🗌 No				
Carrier name:	ATL					
Last 4 digits of Tracking No.:	NA			Packing N	Aaterial Used:	None
Cooling process:	✓ Ice	Ice Pack	Dry Ice	Other	None	

Sample Receipt Checklist

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

Comments

For: Checklist Completed B

JPG MB 2/4/2015





Subcontractor:

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

QC Level: Level IV

Truesdail 14201 Franklin Ave. Tustin, CA 92680		730-6239 730-6462		Field Sampler:		04-Feb-15
Sample ID	Motrix	Data Collected	Pottlo Type	SM 4500 SiO2 C	Requested Tests	

Sample ID	Matrix	Date Collected	Bottle Type	SM 4500-SiO2 C	SM4500-NH3C	
N014575-001D / SC-700B-WDR-506	Water	2/3/2015 1:15:00 PM	16OZP		4	
N014575-001D / SC-700B-W DR-506	water	2/3/2015 1:15:00 PM	1602P		I	
N014575-002D / SC-100B-WDR-506	Water	2/3/2015 1:15:00 PM	16OZP		1	
N014575-002H / SC-100B-WDR-506	Water	2/3/2015 1:15:00 PM	16OZP	1		

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

Please use PO#: N14575A For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: Normal TAT

Please analyze for Ammonia and Soluable Silica-Reactive. CH2MHill Samples GSO# 526853589

	Date/Time	[Date/Time
Relinquished by: 02/04/15		Received by:	
Relinquished by:		Received by:	

SAMPLE CALCULATION

METHOD: SM 2540C TEST NAME: Total Filterable Residue MATRIX: Water

FORMULA:

Calculate TDS concentration in mg/L, in the original sample as follows:

TDS, mg/L =
$$(A-B)*1000000$$

C

Where:

A = weight in g of dish + residue after drying B = weight of dish in g C = volume of sample used in mL

For N014575-001B, TDS concentration in mg/L is calculated as follows:

TDS, mg/L = <u>(61.5080-61.4257) *1000000</u> 20

= 4115 mg/L

Reporting result in two significant figures,

filia Ramit 2/6/2015

TOTAL DISSOLVED SOLIDS, TDS

A =

TDS, mg/L =

(A-B) X 10000*PF

where:

weight in grams of dish + residue after drying

B = weight of dish in grams

PF = 100/volume of sample used in mL

	vol of sample (mL)	weight of dish in grams (B)	weight in grams of dish + residue after drying (A)	(A-B)*10000	prep fact (PF)	TDS, mg/L	CONDUCTIVITY	RATIO
Date Finished:2/6/15								
MB-48621	100	61.3428	61.3429	1	1	1		
LCS-48621	100	63.8037	63.8998	961	1	961		
N014575-001B	20	61.4257	61.508	823	5	4115	6790	0.606
N014575-002B	20	59.9133	59.995	817	5	4085	6720	0.608
N014582-001A	1	62.4615	62.5738	1123	100	112300	204000	0.550
N014582-002A	2	61.0008	61.1306	1298	50	64900	39200	1.656
N014582-003A	2	60.913	61.022	1090	50	54500	62400	0.873
N014582-004A	20	60.6295	60.7323	1028	5	5140	7880	0.652
N014582-004A DUP	20	61.0451	61.1483	1032	5	5160	7880	0.655
N014582-005 A	1	59.9269	60.0595	1326	100	132600	105000	1.263
N014582-006D A	20	60.8712	60.9177	465	5	2325	5810	0.400
N014583-009D	100	60.5151	60.5647	496	1	496	765	0.648
N014583-010D	100	60.3753	60.4522	769	1	769	1259	0.611

Sample Calculation

METHOD: EPA 200.7 TEST NAME: Heavy Metals by ICP MATRIX: Water

FORMULA:

Calculate the Iron concentration, in ug/L, in the original sample as follows:

Iron, ug/L = A * DF * PF * 1000

where:

A = mg/L, calculated concentration DF = dilution factor PF = Final Vol. of Digestate in mL / Amt. of Sample mL

For Sample N014575-002G, the concentration in ug/L is calculated as follows:

Iron, ug/L = -0.01191048818 * 1 * (25/25) * 1000 = -0.01191048818

Since results is less than reporting limit,

Iron, ug/L = ND



ICP-Metals in Water

Dilution Test Summary

 Work Order No.:
 N014575

 Test Method:
 EPA 200.7

 Analysis Date:
 02/11/15

Matrix: Water Batch No.: 49658

Instrument ID: ICP-02 Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Fe. The calculated concentration is <25RL.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N014575-002G Dt 5X	Iron	ug/L	0	NA	0		10

Note: NA - Not Applicable

CLIENT: CH2M HILL

Work Order: N014575

Project: PG&E Topock IM3, XXXXXX.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID N014575-002G-PS	SampType: PS	TestCode: 200.7_WDPG Units: µg/L			Prep Date:				RunNo: 979		
Client ID: ZZZZZZ	Batch ID: 49658	TestNo: EPA 200.7			Analysis Date: 2/11/2015				SeqNo: 1931802		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	97.408	20	100.0	0	97.4	80	120				

Qualifiers:

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

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

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

Sample Calculation

METHOD: EPA 6010 TEST NAME: Heavy Metals by ICP MATRIX: Water

FORMULA:

Calculate the Boron concentration, in ug/L, in the original sample as follows:

Boron, ug/L = A * DF * PF * 1000

where:

A = mg/L, calculated concentration DF = dilution factor PF = Final Vol. of Digestate in mL / Amt. of Sample mL

For Sample N014575-001C, the concentration in ug/L is calculated as follows:

Boron, ug/L = 1.124548596 * 1 * (25/25) * 1000 = 1124.548596

Reporting results in two significant figures,

Boron, ug/L = 1100



ICP-Metals in Water

Dilution Test Summary

 Work Order No.:
 N014575

 Test Method:
 EPA 200.7

 Analysis Date:
 02/18/15

Matrix: Water Batch No.: 49657

Instrument ID: ICP-02 Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to AI, B & Fe. The calculated concentrations are <25RL.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N014575-002C DT 5X	Aluminum	ug/L	0	NA	0		10
N014575-002C DT 5X	Boron	ug/L	1157.9248	NA	1093.479997	5.89%	10
N014575-002C DT 5X	Iron	ug/L	0	NA	0		10

Note: NA - Not Applicable

CLIENT: CH2M HILL

Work Order: N014575

PG&E Topock IM3, XXXXXX.01.IM.OP.00 **Project:**

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WPGEPPB

Sample ID N014575-002C-PS	SampType: PS	TestCode: 200.7_WPGE Units: µg/L			Prep Date:				RunNo: 980		
Client ID: ZZZZZZ	Batch ID: 49657	TestN	lo: EPA 200.7	,		Analysis Da	te: 2/18/20	15	SeqNo: 193	36938	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	10897.725	50	10000	0	109	80	120				
Boron	7374.938	100	5000	1093	126	80	120				S
Iron	109.398	20	100.0	0	109	80	120				

DT @5x of B is within criteria



Qualifiers:

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

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

Holding times for preparation or analysis exceeded Η

S Spike/Surrogate outside of limits due to matrix interference

Sample Calculation

METHOD: EPA 200.8 TEST NAME: Heavy Metals by ICP-MS MATRIX: Water

FORMULA:

Calculate the Chromium concentration, in ug/L, in the original sample as follows:

Chromium, ug/L = A * DF * PF

where:

A = ug/L, calculated concentration DF = dilution factor PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample N014575-002C, the concentration in ug/L is calculated as follows:

Chromium, ug/L = 111.122597472077 * 5 * (25/25) = 555.612987360385

Reporting results in two significant figures,

Chromium, ug/L = 560

ICP-MS-Metals in Water

Dilution Test Summary

er No.:	N014575	Matrix:	Water
t Method:	EPA 200.8	Batch No.:	49655
nalysis Date:	2/10/2015		

Instrument ID:	ICP-MS #2
Instrument Description:	Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Sb, As, Cr, Cu, Pb & Zn. The calculated values are <25X RL. Dilution test failed for Mn. However, PS passed criteria.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N014575-001C DT 5X	Antimony	ug/L	0	NA	0		10
N014575-001C DT 5X	Arsenic	ug/L	0	NA	0.066112624		10
N014575-001C DT 25X	Chromium	ug/L	0	NA	0		10
N014575-001C DT 5X	Copper	ug/L	0	NA	0		10
N014575-001C DT 25X	Lead	ug/L	0	NA	0		
N014575-001C DT 5X	Manganese	ug/L	14.68088217	FAIL	9.435573987	55.59%	10
N014575-001C DT 5X	Molybdenum	ug/L	22.9397938	PASS	23.94533002	4.20%	10
N014575-001C DT 5X	Nickel	ug/L	4.442573198	PASS	4.064747166	9.30%	10
N014575-001C DT 5X	Zinc	ug/L	0	NA	0		10

Note: NA - Not applicable

ICP-MS-Metals in Water

Dilution Test Summary

Order No.:	N014575	Matrix:	
Test Method:	EPA 200.8	Batch No.:	2
Analysis Date:	2/11/2015	_	

Instrument ID: ICP-MS #2 Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Ba. The calculated value is <25X RL.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N014575-001C DT 5X	Barium	ug/L	14.68315725	NA	13.30682448	10.34%	10

Note: NA - Not applicable

CLIENT: CH2M HILL

Work Order: N014575

Project: PG&E Topock IM3, XXXXXX.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID N014575-001C-PS	SampType: PS	TestCoo	de: 200.8_W	Units: µg/L	Prep Date:			RunNo: 979			
Client ID: ZZZZZZ	Batch ID: 49655	TestN	lo: EPA 200.8	3		Analysis Dat	e: 2/10/20	15	SeqNo: 192	29926	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.871	0.50	10.00	0	109	80	120				
Arsenic	9.793	0.10	10.00	0.06611	97.3	80	120				
Copper	3.029	1.0	10.00	0	30.3	80	120				S
Manganese	100.216	0.50	100.0	9.436	90.8	80	120				
Molybdenum	35.817	0.50	10.00	23.95	119	80	120				
Nickel	12.601	1.0	10.00	4.065	85.4	80	120				
Zinc	69.609	10	100.0	0	69.6	80	120				S
Sample ID N014575-001C-PS		TaatCar	de: 200.8 W	Units: µg/L		Prep Dat	0.		RunNo: 979	952	
	SampType: PS	TestCot	ie. 200.0_VV			T Tep Dai	е.		Tunito. 57.	JJ2	
Client ID: ZZZZZZ	Batch ID: 49655		le: 200.8_VV lo: EPA 200.8			Analysis Dat		15	SeqNo: 192		
•			lo: EPA 200.8		%REC	Analysis Dat	e: 2/10/20	15 RPD Ref Val			Qual
Client ID: ZZZZZZ	Batch ID: 49655	TestN	lo: EPA 200.8	3		Analysis Dat	e: 2/10/20		SeqNo: 192	29941	Qual
Client ID: ZZZZZZ	Batch ID: 49655 Result	TestM PQL 5.0	lo: EPA 200.8 SPK value	SPK Ref Val	%REC	Analysis Dat	e: 2/10/20 HighLimit 120		SeqNo: 192	29941 RPDLimit	Qual
Client ID: ZZZZZZ Analyte Lead	Batch ID: 49655 Result 11.438	TestN PQL 5.0 TestCoo	lo: EPA 200.8 SPK value 10.00	SPK Ref Val 0 Units: μg/L	%REC 114	Analysis Dat LowLimit 80	e: 2/10/20 HighLimit 120 e:	RPD Ref Val	SeqNo: 192 %RPD	29941 RPDLimit	Qual
Client ID: ZZZZZZ Analyte Lead Sample ID N014575-001C-PS	Batch ID: 49655 Result 11.438 SampType: PS	TestN PQL 5.0 TestCoo	lo: EPA 200.8 SPK value 10.00 de: 200.8_W lo: EPA 200.8	SPK Ref Val 0 Units: μg/L	%REC 114	Analysis Dat LowLimit 80 Prep Dat Analysis Dat	e: 2/10/20 HighLimit 120 e: e: 2/11/20	RPD Ref Val	SeqNo: 192 %RPD RunNo: 97	29941 RPDLimit	Qual

Qualifiers:

B Analyte detected in the associated Method Blank

ND Not Detected at the Reporting Limit

DO Surrogate Diluted Out

E Value above quantitation range

R RPD outside accepted recovery limits

Calculations are based on raw values

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL

N014575

ANALYTICAL QC SUMMARY REPORT

Work Order: Project:

PG&E Topock IM3, XXXXXX.01.IM.OP.00

TestCode: 200.8_W_CRPGE

Sample ID N014575-001C-PS	SampType: PS	TestCode: 200.8_W_CR Units: µg/L			Prep Date:				RunNo: 979		
Client ID: ZZZZZZ	Batch ID: 49655	TestNo: EPA 200.8			Analysis Date: 2/10/2015				SeqNo: 1930352		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.970	1.0	10.00	0	89.7	80	120				

Qualifiers:

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

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

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

Sample Calculation

METHOD: EPA 200.8 TEST NAME: Heavy Metals by ICP-MS MATRIX: Water

FORMULA:

Calculate the Manganese concentration, in ug/L, in the original sample as follows:

Manganese, ug/L = A * DF * PF

where:

A = ug/L, calculated concentration DF = dilution factor PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample N014575-002G, the concentration in ug/L is calculated as follows:

Manganese, ug/L = 0 * 1 * (25/25) = 0

Since results is less than reporting limit,

Manganese, ug/L = ND



ICP-MS-Metals in Water

Dilution Test Summary

Order No.:	N014575	Matrix:	Water
Test Method:	EPA 200.8	Batch No.:	49656
Analysis Date:	2/10/2015		

Instrument ID: ICP-MS #2 Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N014574-001A DT 5X	Manganese	ug/L	37.8581511	PASS	36.34294532	4.17%	10

Note: NA - Not applicable

CLIENT:CH2M HILLWork Order:N014575

Project: PG&E Topock IM3, XXXXXX.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID N014574-001A-PS	SampType: PS	TestCode: 200.8_WDISS Units: µg/L		Prep Date:			RunNo: 97952				
Client ID: ZZZZZZ	Batch ID: 49656	TestNo: EPA 200.8		Analysis Date: 2/10/2015			SeqNo: 1930288				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	125.375	0.50	100.0	36.34	89.0	80	120				

Qualifiers:

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

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

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

Sample Calculation

METHOD: EPA 218.6 TEST NAME: HEXAVALENT CHROMIUM BY IC MATRIX: Water

FORMULA:

Calculate the Hexavalent Chromium concentration, in $\mu\text{g/L},$ in the original sample as follows:

$$Cr^{+6}$$
, $\mu g/L = A * DF$

where:

A = μ g/L, IC Cr⁺⁶ calculated concentration DF = dilution factor

For N014575-002A, concentration in μ g/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 6.4429 * 100$$

= 644.29

Reporting result in two significant figures,

$$Cr^{+6}, \mu g/L = 640$$

 \checkmark

Sample ID: N014575-002B @ pH 7.85

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A)(B)/(53.00)(C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution) B, mL Na2CO3 solution taken for titration, and C, ml of sulfuric acid used to inflection point

Spike Standards

 Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as CaCO₃): Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock NaHCO₃, ACS Grade (1.00 ml = 5000 ug as CaCO₃): Dissolve 0.8398 grams of NaHCO₃ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (11.75mL)

= 0.0212766 N

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as CaCO₃), mg/L = $M_{vol.}$ * N H₂SO₄ * DF * 1000

Where:

 $M_{vol.}$, volume titrant used to reach pH 4.5, ml N, Normality of H_2SO_4 DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (7.20) (0.0212766 N) (1) * 1000

=153.19152 mg/L

Reporting results in two significant figures,

= 150 mg/L as CaCO3

- 2/16/2015

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as CaCO₃ =
$$P_{vol.} * N H_2SO_4 * DF * 1000$$

= (0) (0.0212766 N) (1) * 1000

= 0

Total Alkalinity

T alkalinity, mg/L as $CaCO_3 = M_{vol.} * N H_2SO_4 * DF * 1000$

= (7.20 mL) (0.0212766N) (1) * 1000

= 153.19152 **mg/L** as CaCO3

Where:

P _{vol.}	 volume titrant used to reach pH 8.3, ml
M _{vol.}	- volume titrant used to reach pH 4.5, ml
Ν	- Normality of H ₂ SO ₄
DF	- Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO₃, HCO₃ alkalinities as CaCO₃ will be calculated as follows:

Result of Titration	OH Alkalinity as CaCO ₃	CO ₃ Alkalinity as CaCO ₃	HCO ₃ Alkalinity as CaCO ₃
P = 0	0	0	Т
P < ½ T	0	2P	T – 2P
$P = \frac{1}{2} T$	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	Т	0	0

Therefore,

OH Alkalinity as $CaCO_3 = 0$

 CO_3 Alkalinity as $CaCO_3 = 0$

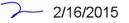
HCO₃ Alkalinity as CaCO₃ = 153.19152 mg/L

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3 = 0$

 CO_3 Alkalinity as $CaCO_3 = 0$

 HCO_3 Alkalinity as $CaCO_3 = 150$ mg/L



Sample Calculation

METHOD:EPA 300.0TEST NAME:INORGANIC ANIONS BY ICMATRIX:Water

FORMULA:

Calculate the Sulfate concentration, in mg/L, in the original sample as follows:

Sulfate, mg/L = A * DF

where:

A	=	mg/L, IC calculated concentration
DF	=	dilution factor

For N014575-002B concentration in mg/L is calculated as follows:

Sulfate, mg/L	=	9.686 * 50
	=	484.3

Reporting result in two significant figures,

Sulfate, mg/L = 480

SAMPLE CALCULATION

METHOD: EPA 365.3 TEST NAME: Total Phosphorus MATRIX: WATER

FORMULA:

Calculate the Total Phosphorus as P concentration, in mg/L, in the original sample as follows:

Total Phosphorus as P, mg/L = A * DF

Where:

A= mg/L, UV-VIS calculated concentration

DF= dilution factor

For N014575-002E, concentration in mg/L is calculated as follows:

Total Phosphorus as P, mg/L = -0.005 *1

= 0 mg/L

Since the reporting limit is 0.02 mg/L therefore,

Total Phosphorus as P = ND

2/19/2015

SAMPLE CALCULATION

METHOD: SM 4500_NO3F TEST NAME: Nitrate/Nitrite-N by Automated Cadmium Reduction Method MATRIX: Water

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L = A * DF

Where:

A= mg/L, Nitrate/Nitrite-N instrument calculated concentration

DF= dilution factor

For N014575-001E, concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N, mg/L = 0.5331 * 5

= 2.6655 mg/L

Reporting result in 2 significant figures,

Nitrate/Nitrite-N, mg/L = 2.7

Sample Calculation

METHOD: SM5310C TEST NAME: TOTAL ORGANIC CARBON MATRIX: WATER

FORMULA:

Calculate the TOC concentration, in mg/L, in the original sample as follows:

TOC = [A] [DF] - B

where:

A = mg/L, instrument calculated concentrationDF = dilution factorB = mg/L, TOC concentration in the calibration blank

For: **N014575-002F**

The concentration in mg/L is calculated as follows:

TOC = [0.13960] [1] - 0.02420

TOC = 0.11540

Reporting results in two significant figures,

 TOC =
 0.12
 mg/L

 Since PQL is 1.0 mg/L

TOC = ND

February 24, 2015

Shawn P. Duffy CH2M HILL 155 Grand Avenue, Suite 1000 Oakland, CA 94612 TEL: (530) 229-3303

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

Workorder No.: N014636

RE: PG&E Topock, XXXXXX.PT.OP.00

Attention: Shawn P. Duffy

FAX: (530) 339-3303

Enclosed are the results for sample(s) received on February 10, 2015 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,

gigesmundo

Glen Gesmundo QA Manager

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CALIFORNIA 11060 Artesia Blvd., Ste C, 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

CLIENT:CH2M HILLProject:PG&E Topock, XXXXX.PT.OP.00Lab Order:N014636

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS

Samples were received intact with proper chain of custody documentation.

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

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

Samples were analyzed within method holding time.

Analytical Comments for EPA 200.8:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Manganese possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.



CLIENT: Project: Lab Order: Contract No:	CH2M HILL PG&E Topock, XXXX N014636 IM3Plant-WDR-	XXX.PT.OP.00	Work C)rder Sampl	e Summary
Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N014636-001A	SC-700B-WDR-507	Water	2/10/2015 1:50:00 PM	2/10/2015	2/24/2015
N014636-001B	SC-700B-WDR-507	Water	2/10/2015 1:50:00 PM	2/10/2015	2/24/2015
N014636-001C	SC-700B-WDR-507	Water	2/10/2015 1:50:00 PM	2/10/2015	2/24/2015



CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436 Page 1 of EYADA 3151 W. Post Rd., Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.2691

ANALYTICAL RESULTS

ASSET Lab	oratories	Print Date: 24-Feb-15						
CLIENT:	CH2M HILL			С	lient Sampl	e ID: SC-70	0B-WDR	2-507
Lab Order:	N014636		Collection Date: 2/10/2015 1:50:00 PM					:00 PM
Project:	PG&E Topock	, XXXXXX.PT.OP	2.00	Matrix: WATER				
Lab ID:	N014636-001							
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CO	NDUCTANCE							
				EP	A 120.1			
RunID: WET	CHEM_150211B	QC Batch: R9	7959		PrepD	late		Analyst: LR
Specific Cond	ductance	7000	0.10 0.10 umhos/cm 1 2/11/2015 10:00					2/11/2015 10:00 AN

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range

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

DO Surrogate Diluted Out



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Date: 24-Feb-15

CLIENT: CH2M HILL

Work Order: N014636

Project: PG&E Topock, XXXXXX.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID N014636-001CDUP	SampType: DUP	TestCoo	de: 120.1_WF	GE Units: umho	os/cm	Prep Da	te:		RunNo: 979	959	
Client ID: ZZZZZZ	Batch ID: R97959	TestN	lo: EPA 120.4	I		Analysis Da	te: 2/11/20	15	SeqNo: 193	30519	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	6970.000	0.10						6990	0.287	10	

Qualifiers:

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

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

Calculations are based on raw values

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

7

ANALYTICAL RESULTS Print Date: 24-Feb-15

							Int Dute: 27	00 15
CLIENT:	CH2M HILL			Cl	ient Sample	ID: S	C-700B-WDR	2-507
Lab Order:	N014636	Collection Date: 2/10/2015 1:50:00 PM					:00 PM	
Project:	PG&E Topock,	XXXXXX.PT.OP	2.00		Ma	trix: W	VATER	
Lab ID:	N014636-001							
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTE	RABLE RESIDUE							
				SN	2540C			
RunID: WETC	CHEM_150211D	QC Batch: 496	672		PrepDa	te	2/11/2015	Analyst: LR
Total Dissolve Filterable)	ed Solids (Residue,	4000	50	50		mg/L	1	2/11/2015 01:00 PM

Qualifiers:

В

Analyte detected in the associated Method Blank

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

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DO Surrogate Diluted Out



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Project:

CLIENT: CH2M HILL

Work Order: N014636

ANALYTICAL QC SUMMARY REPORT

PG&E Topock, XXXXXX.PT.OP.00

TestCode: 160.1_2540C_W

Sample ID MB-49672	SampType: MBLK	TestCode: 160.1_2540C Units: mg/L	Prep Date: 2/11/2015	RunNo: 97992
Client ID: PBW	Batch ID: 49672	TestNo: SM2540C	Analysis Date: 2/11/2015	SeqNo: 1932488
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	ue, Filtera ND	10		
Sample ID LCS-49672	SampType: LCS	TestCode: 160.1_2540C Units: mg/L	Prep Date: 2/11/2015	RunNo: 97992
Client ID: LCSW	Batch ID: 49672	TestNo: SM2540C	Analysis Date: 2/11/2015	SeqNo: 1932489
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	ue, Filtera 949.000	10 1000 0	94.9 80 120	
Sample ID N014636-001C D	UP SampType: DUP	TestCode: 160.1_2540C Units: mg/L	Prep Date: 2/11/2015	RunNo: 97992
Client ID: ZZZZZZ	Batch ID: 49672	TestNo: SM2540C	Analysis Date: 2/11/2015	SeqNo: 1932497
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	ue, Filtera 4230.000	50	4040	4.59 5

Qualifiers:

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

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Calculations are based on raw values

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E Value above quantitation range

RPD outside accepted recovery limits

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

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ANALYTICAL RESULTS

ASSET Lab	oratories			Print Date: 24-Feb-15					
CLIENT:	CH2M HILL			Cl	ient Sampl	e ID: S	C-700B-WDF	R-507	
Lab Order:	N014636		Collection Date: 2/10/2015 1:50:00 PM					:00 PM	
Project:	PG&E Topocl	K, XXXXXX.PT.OP	2.00	Matrix: WATER					
Lab ID:	N014636-001								
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed	
TOTAL META	LS BY ICPMS								
				EP	A 200.8				
RunID: ICP7_	150212A	QC Batch: 496	683		PrepD	ate	2/12/2015	Analyst: CEI	
Manganese		ND	0.026	δ 0.50 μg/L 1 2/12/2015 03:37 PM					

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range

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

DO Surrogate Diluted Out

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Project:

CLIENT: CH2M HILL

Work Order: N014636

PG&E Topock, XXXXXX.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID MB-49683 Client ID: PBW	SampType: MBLK Batch ID: 49683	TestCode: 200.8_W Units: μg/L TestNo: EPA 200.8	Prep Date: 2/12/2015 Analysis Date: 2/12/2015	RunNo: 97994 SeqNo: 1932626
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Manganese	ND	0.50		
Sample ID LCS-49683 Client ID: LCSW Analyte	SampType: LCS Batch ID: 49683 Result	TestCode: 200.8_W Units: µg/L TestNo: EPA 200.8 PQL SPK value SPK Ref Val	Prep Date: 2/12/2015 Analysis Date: 2/12/2015 %REC LowLimit HighLimit RPD Ref Val	RunNo: 97994 SeqNo: 1932627 %RPD RPDLimit Qual
Manganese	99.809	0.50 100.0 0	99.8 85 115	
Sample ID N014636-001B-MS Client ID: ZZZZZZ	SampType: MS Batch ID: 49683	TestCode: 200.8_W Units: μg/L TestNo: EPA 200.8	Prep Date: 2/12/2015 Analysis Date: 2/12/2015	RunNo: 97994 SeqNo: 1932631
Client ID: ZZZZZZ	Batch ID: 49683	TestNo: EPA 200.8	Analysis Date: 2/12/2015	SeqNo: 1932631
Client ID: ZZZZZZ	Batch ID: 49683 Result	TestNo: EPA 200.8 PQL SPK value SPK Ref Val	Analysis Date: 2/12/2015 %REC LowLimit HighLimit RPD Ref Val	SeqNo: 1932631 %RPD RPDLimit Qual
Client ID: ZZZZZZ Analyte Manganese Sample ID N014636-001B-MSD	Batch ID: 49683 Result 56.510 SampType: MSD	TestNo: EPA 200.8 PQL SPK value SPK Ref Val 0.50 100.0 0 TestCode: 200.8_W Units: µg/L	Analysis Date: 2/12/2015 %REC LowLimit HighLimit RPD Ref Val 56.5 75 125 Prep Date: 2/12/2015	SeqNo: 1932631 %RPD RPDLimit Qual S RunNo: 97994

Qualifiers:

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

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E Value above quantitation range

R RPD outside accepted recovery limits

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H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S

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ANALYTICAL RESULTS

Print Date: 24-Feb-15

CLIENT: Lab Order: Project:	CH2M HILL N014636 PG&E Topock,							/10/2015 1:50:00 PM		
Lab ID:	N014636-001				111					
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed		
HEXAVALEN	T CHROMIUM BY IC	;								
				EP	A 218.6					
RunID: IC6_1	50211A	QC Batch: R9	7978		PrepD	ate		Analyst: RB		
Hexavalent C	Chromium	ND	0.016	0.20		µg/L	1	2/11/2015 03:06 PM		
TOTAL META	LS BY ICPMS									
				EP	A 200.8					
RunID: ICP7_	_150212A	QC Batch: 496	683		PrepD	ate	2/12/2015	Analyst: CEI		
Chromium		ND	0.030	1.0		µg/L	1	2/12/2015 03:37 PM		

Qualifiers:

Analyte detected in the associated Method Blank

- Н Holding times for preparation or analysis exceeded S
 - Spike/Surrogate outside of limits due to matrix interference
- Е Value above quantitation range
- ND Not Detected at the Reporting Limit Results are wet unless otherwise specified

В

DO Surrogate Diluted Out

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Project:

CLIENT: CH2M HILL

Work Order: N014636

PG&E Topock, XXXXXX.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W_CRPGE

Sample ID MB-49683	SampType: MBLK	TestCode: 200.8_W_CR Units: µg/L	Prep Date: 2/12/2015	RunNo: 97994
Client ID: PBW	Batch ID: 49683	TestNo: EPA 200.8	Analysis Date: 2/12/2015	SeqNo: 1932513
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Chromium	ND	1.0		
Sample ID LCS-49683	SampType: LCS	TestCode: 200.8_W_CR Units: µg/L	Prep Date: 2/12/2015	RunNo: 97994
Client ID: LCSW	Batch ID: 49683	TestNo: EPA 200.8	Analysis Date: 2/12/2015	SeqNo: 1932514
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
	0.070			
Chromium	9.870	1.0 10.00 0	98.7 85 115	
Chromium Sample ID N014636-001B-MS	9.870 SampType: MS	1.0 10.00 0 TestCode: 200.8_W_CR Units: μg/L	98.7 85 115 Prep Date: 2/12/2015	RunNo: 97994
				RunNo: 97994 SeqNo: 1932518
Sample ID N014636-001B-MS	SampType: MS	TestCode: 200.8_W_CR Units: µg/L	Prep Date: 2/12/2015	
Sample ID N014636-001B-MS Client ID: ZZZZZZ	SampType: MS Batch ID: 49683	TestCode: 200.8_W_CR Units: µg/L TestNo: EPA 200.8	Prep Date: 2/12/2015 Analysis Date: 2/12/2015	SeqNo: 1932518
Sample ID N014636-001B-MS Client ID: ZZZZZZ Analyte	SampType: MS Batch ID: 49683 Result 9.100	TestCode: 200.8_W_CR Units: µg/L TestNo: EPA 200.8 PQL SPK value SPK Ref Val	Prep Date: 2/12/2015 Analysis Date: 2/12/2015 %REC LowLimit HighLimit RPD Ref Val	SeqNo: 1932518
Sample ID N014636-001B-MS Client ID: ZZZZZZ Analyte Chromium	SampType: MS Batch ID: 49683 Result 9.100	TestCode: 200.8_W_CR Units: µg/L TestNo: EPA 200.8 PQL SPK value SPK Ref Val 1.0 10.00 0 0	Prep Date: 2/12/2015 Analysis Date: 2/12/2015 %REC LowLimit HighLimit RPD Ref Val 91.0 75 125	SeqNo: 1932518 %RPD RPDLimit Qual
Sample ID N014636-001B-MS Client ID: ZZZZZZ Analyte Chromium Sample ID N014636-001B-MSD	SampType: MS Batch ID: 49683 Result 9.100 SampType: MSD	TestCode: 200.8_W_CR Units: µg/L TestNo: EPA 200.8 <	Prep Date: 2/12/2015 Analysis Date: 2/12/2015 %REC LowLimit HighLimit RPD Ref Val 91.0 75 125 Prep Date: 2/12/2015	SeqNo: 1932518 %RPD RPDLimit Qual RunNo: 97994

Qualifiers:

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

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E Value above quantitation range

R RPD outside accepted recovery limits

> Calculations are based on raw values NEVADA

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H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S

CLIENT: CH2M HILL

Work Order: N014636

Project: PG&E Topock, XXXXXX.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID LCS-R97978	SampType: LCS Batch ID: R97978	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97978 SegNo: 1931274		
Client ID: LCSW	Balch ID: R9/9/8	TestNo: EPA 218.6	Analysis Date: 2/11/2015			
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual		
Hexavalent Chromium	5.042	0.20 5.000 0	101 90 110			
Sample ID MB-R97978	SampType: MBLK	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97978		
Client ID: PBW	Batch ID: R97978	TestNo: EPA 218.6	Analysis Date: 2/11/2015	SeqNo: 1931275		
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual		
Hexavalent Chromium	ND	0.20				
Sample ID N014584-002A-DUP	SampType: DUP	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97978		
Client ID: ZZZZZZ	Batch ID: R97978	TestNo: EPA 218.6	Analysis Date: 2/11/2015	SeqNo: 1931277		
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual		
Hexavalent Chromium	1.107	0.20	1.101	0.544 20		
Sample ID N014584-002A-MS	SampType: MS	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97978		
Client ID: ZZZZZZ	Batch ID: R97978	TestNo: EPA 218.6	Analysis Date: 2/11/2015	SeqNo: 1931280		
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual		
Hexavalent Chromium	6.260	0.20 5.000 1.101	103 90 110			
Sample ID N014584-002A-MSD	SampType: MSD	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97978		
Client ID: ZZZZZZ	Batch ID: R97978	TestNo: EPA 218.6	Analysis Date: 2/11/2015	SeqNo: 1931281		
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual		
Hexavalent Chromium	6.219	0.20 5.000 1.101	102 90 110 6.260	0.646 20		

Qualifiers:

ND

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

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

Calculations are based on raw values NEVADA

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H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S

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CLIENT: CH2M HILL

Work Order: N014636

Project: PG&E Topock, XXXXXX.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID N014584-004A-MS	SampType: MS	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97978		
Client ID: ZZZZZZ	Batch ID: R97978	TestNo: EPA 218.6	Analysis Date: 2/11/2015	SeqNo: 1931300		
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual		
Hexavalent Chromium	1.079	0.20 1.000 0.06470	101 90 110			
Sample ID N014636-001A-MS	SampType: MS	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 97978		
Sample ID N014636-001A-MS Client ID: ZZZZZZ	SampType: MS Batch ID: R97978	TestCode: 218.6_WPGE Units: µg/L TestNo: EPA 218.6	Prep Date: Analysis Date: 2/11/2015	RunNo: 97978 SeqNo: 1931302		
			·			

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
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- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

ANALYTICAL RESULTS

ASSET La	boratories	ries Print Date: 24-Feb-15						
CLIENT:	CH2M HILL			Client Sample ID: SC-700B-WDR-507				
Lab Order:	N014636			Collection Date: 2/10/2015 1:50:00 PM Matrix: WATER				
Project:	PG&E Topock	, XXXXXX.PT.OP	.00					
Lab ID:	N014636-001							
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TURBIDITY				SN	1 2130B			
RunID: WET	CHEM_150211A	QC Batch: R97	7958		PrepD	Date		Analyst: LR
Turbidity		0.17	0.10	0.10 NTU 1				2/11/2015 09:30 AM

Qualifiers:

В

Analyte detected in the associated Method Blank

- Н Holding times for preparation or analysis exceeded S
 - Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

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Е

Value above quantitation range

ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

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

Date: 24-Feb-15

CLIENT: CH2M HILL

Work Order: N014636

Project: PG&E Topock, XXXXXX.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 2130_W

Sample ID N014636-001CDUP	SampType: DUP	TestCode: 2130_W		Units: NTU	Prep Date:			RunNo: 97958			
Client ID: ZZZZZZ	Batch ID: R97958	TestNo:	TestNo: SM 2130B		Analysis Date: 2/11/2015			SeqNo: 1930517			
Analyte	Result	PQL S	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity	0.190	0.10						0.1700	11.1	30	

Qualifiers:

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

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- R RPD outside accepted recovery limits

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

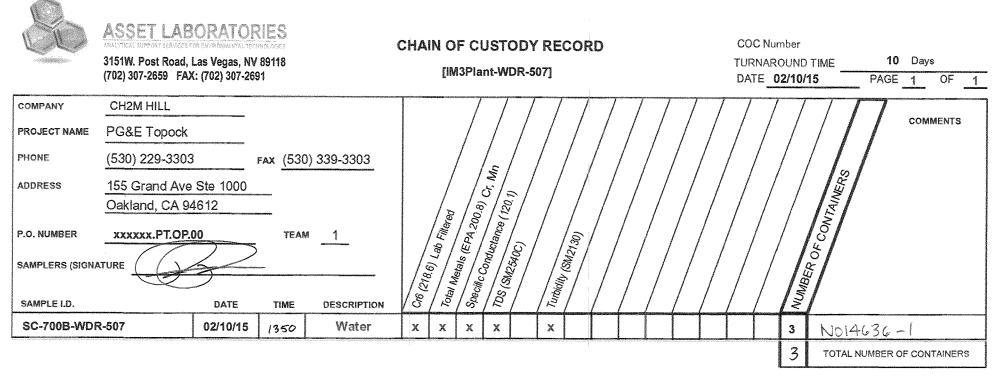
WORKORDER: N014636

ANALYST LIST

NAME	TEST METHOD
Claire Ignacio	EPA 200.8
Lilia Ramit	EPA 120.1, SM 2540C, SM 2130B
Ryan Balilu	EPA 218.6



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Please Provide a preliminary Result for the TDS ASAP

	CHAIN OF CUSTODY SI	GNATURE RECORD		SAMPLE CONDITIONS
Signature (Relinquished)	Printed Name Ryon Phelos	Company/ Agency CH2MHill	Date/ 2-10-15 Time (5:30	RECEIVED COOL WARM C
Signature (Received)	Printed Philader Gal	Agency AJJOT LABJ	Date $2/10/15$ Time 1530	CUSTODY SEALED YES D NO
Signature (Relinquished)	Printed Ander Gala	Agency ASSET LABS	Date/ 2/10/15- Time 1716	SPECIAL REQUIREMENTS:
Signature (Received)	Printed Wilander Gav	Agency ASSET LARS	Date/ 2/10/15 Time 1744	
Signature (Relinquished)		Company/ Agency	Date/ Time	
Signature (Received)	Printed Name	Company/ Agency	Date/ Time	
	nan den de la da la da da da de entre constructión de para da	na na na sana an ann an ann an ann an ann an		^{*************************************}

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:	2/10/2015				Workorder:	N014636				
Rep sample Temp (Deg C):	1.8				IR Gun ID:	2				
Temp Blank:	✔ Yes	🗆 No								
Carrier name:	ATL									
Last 4 digits of Tracking No .:	NA			Packing	Material Used:	None				
Cooling process:	✓ Ice	lce Pack	Dry Ice	Other	None					
		Sa	mple Receip	ot Checklis	t					
1. Shipping container/cooler in good condition? Yes ✓ No Not Present										
2. Custody seals intact, signed,	dated on shi	ippping container/	cooler?		Yes	No 🗌	Not Present			
3. Custody seals intact on samp	le bottles?				Yes	No 🗌	Not Present			
4. Chain of custody present?					Yes 🗹	No 🗌				
5. Sampler's name present in Co	OC?				Yes 🗹	No 🗌				
6. Chain of custody signed wher	n relinquishe	d and received?			Yes 🗹	No 🗌				
7. Chain of custody agrees with	sample labe	ls?			Yes 🗹	No 🗌				
8. Samples in proper container/b	oottle?				Yes 🗹	No 🗌				
9. Sample containers intact?					Yes 🖌	No 🗌				
10. Sufficient sample volume for	indicated te	st?			Yes 🖌	No 🗌				
11. All samples received within h	nolding time?	2			Yes 🖌	No 🗌				
12. Temperature of rep sample of	or Temp Bla	nk within acceptab	le limit?		Yes 🗹	No 🗌	NA 🗌			
13. Water - VOA vials have zero	headspace	?			Yes	No 🗌	NA 🔽			
14. Water - pH acceptable upon		An Motolo			Yes	No 🗹	NA 🗌			
Example: pH > 12 for (CN					Yes 🗸	No 🗌	NA 🗆			
15. Did the bottle labels indicate16. Were there Non-Conformance					Yes		NA 🗹			
	as Client not	0			Yes		NA V			
Comments: Sample for metal	analysis was	s lab preserved.								



SAMPLE CALCULATION

METHOD: SM 2540C TEST NAME: Total Filterable Residue MATRIX: Water

FORMULA:

Calculate TDS concentration in mg/L, in the original sample as follows:

TDS, mg/L =
$$(A-B)*1000000$$

C

Where:

A = weight in g of dish + residue after drying B = weight of dish in g C = volume of sample used in mL

For N014636-001C, TDS concentration in mg/L is calculated as follows:

TDS, mg/L = <u>(61.3350-61.2542) *1000000</u> 20

= 4040 mg/L

Reporting result in two significant figures,

Julia Ramit 2/13/2015

TOTAL DISSOLVED SOLIDS, TDS

A =

TDS, mg/L =

(A-B) X 10000*PF

where:

weight in grams of dish + residue after drying

B = weight of dish in grams

PF = 100/volume of sample used in mL

	vol of sample (mL)	weight of dish in grams (B)	weight in grams of dish + residue after drying (A)	(A-B)*10000	prep fact (PF)	TDS, mg/L	CONDUCTIVITY	RATIO
Date Finished:2/12/15								
MB-49672	100	77.101	77.1015	5	1	5		
LCS-49672	100	75.7444	75.8393		1	949		
N014631-001B	20	63.8045	63.918	1135	5	5675	5860	0.968
N014631-002D	20	55.6511	55.7636	1125	5	5625	5900	0.953
N014631-003B	20	53.7836	53.8899	1063	5	5315	5750	0.924
N014631-004D	20	54.8598	54.9651	1053	5	5265	5780	0.911
N014632-001A	75	54.9526	55.0179	653	1.333333333	870.666667	1698	0.513
N014632-002A	100	64.0525	64.1137	612	1	612	969	0.632
N014636-001C	20	61.2542	61.335	808	5	4040	6970	0.580
N014636-001C DUP	20	54.3906	54.4752	846	5	4230	6970	0.607

Sample Calculation

METHOD: EPA 200.8 TEST NAME: Heavy Metals by ICP-MS MATRIX: Water

FORMULA:

Calculate the Chromium concentration, in ug/L, in the original sample as follows:

Chromium, ug/L = A * DF * PF

where:

A = ug/L, calculated concentration DF = dilution factor PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample N014636-001B, the concentration in ug/L is calculated as follows:

Chromium, ug/L = 0 * 1 * (25/25)= 0

Since results is less than reporting limit,

Chromium, ug/L = ND

ICP-MS-Metals in Water

Dilution Test Summary

No.:	N014636	Matrix:	Water
lethod:	EPA 200.8	Batch No.:	49683
sis Date:	2/12/2015		

Instrument ID: ICP-MS #2 Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Cr & Mn. The calculated values are <25X RL.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N014636-001B DT 5X	Chromium	ug/L	0	NA	0		10
N014636-001B DT 5X	Manganese	ug/L	0	NA	0		10

Note: NA - Not applicable

CLIENT:CH2M HILLWork Order:N014636

Project: PG&E Topock, XXXXXX.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID N014636-001B-PS Client ID: ZZZZZZ	SampType: PS Batch ID: 49683	TestCode: 200.8_W Units: TestNo: EPA 200.8		Units: µg/L	Prep Date: Analysis Date: 2/12/2015		v	2372015 RunNo: 97994 SeqNo: 1932630			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	56.453	0.50	100.0	0	56.5	80	120				S

Qualifiers:

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

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

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

CLIENT: CH2M HILL Work Order: N014636

ANALYTICAL QC SUMMARY REPORT

Project: PG&E Topock, XXXXXX.PT.OP.00

TestCode: 200.8_W_CRPGE

Sample ID N014636-001B-PS	SampType: PS	de: 200.8_W_	200.8_W_CR Units: µg/L			Prep Date:			RunNo: 97994		
Client ID: ZZZZZZ	Batch ID: 49683	TestNo: EPA 200.8			Analysis Date: 2/12/2015			SeqNo: 1932517			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.063	1.0	10.00	0	90.6	80	120				

Qualifiers:

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

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

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference
- 70

Sample Calculation

METHOD: EPA 218.6 TEST NAME: HEXAVALENT CHROMIUM BY IC MATRIX: Water

FORMULA:

Calculate the Hexavalent Chromium concentration, in μ g/L, in the original sample as follows:

$$Cr^{+6}$$
, $\mu g/L = A * DF$

where:

A = μ g/L, IC Cr⁺⁶ calculated concentration DF = dilution factor

For N014636-001A, concentration in μ g/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 0.0984 * 1$$

= 0.0984

Since PQL is 0.2 μ g/L ,

$$Cr^{+6}, \mu g/L = ND$$

REB / IC-06 2/13/2015 2:12 AM

March 03, 2015

Shawn P. Duffy CH2M HILL 155 Grand Avenue, Suite 1000 Oakland, CA 94612 TEL: (530) 229-3303

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

Workorder No.: N014694

RE: PG&E Topock, XXXXXX.PT.OP.00

Attention: Shawn P. Duffy

FAX: (530) 339-3303

Enclosed are the results for sample(s) received on February 17, 2015 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,

gracemendo

Glen Gesmundo QA Manager

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.



CALIFORNIA 11060 Artesia Blvd., Ste C, 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

CLIENT:CH2M HILLProject:PG&E Topock, XXXXX.PT.OP.00Lab Order:N014694

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

Samples were received intact with proper chain of custody documentation.

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

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

Samples were analyzed within method holding time.



CLIENT: Project: Lab Order: Contract No:	CH2M HILL PG&E Topock, XXXX N014694 IM3Plant-WDR-	XXX.PT.OP.00	Work C	Order Sampl	e Summary
Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N014694-001A	SC-700B-WDR-508	Water	2/17/2015 12:00:00 PM	2/17/2015	3/3/2015
N014694-001B	SC-700B-WDR-508	Water	2/17/2015 12:00:00 PM	2/17/2015	3/3/2015
N014694-001C	SC-700B-WDR-508	Water	2/17/2015 12:00:00 PM	2/17/2015	3/3/2015



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ANALYTICAL RESULTS Print Date: 03-Mar-15

						I I III D	att. 05-1	147-15		
CLIENT:	CH2M HILL			С	lient Samp	le ID: SC-70	0B-WDR	-508		
Lab Order	r: N014694			Collection Date: 2/17/2015 12:00:00 PM						
Project:	PG&E Topock	, XXXXXX.PT.OP.0	0		Ma	atrix: WATE	ER			
Lab ID:	N014694-001									
Analyses		Result M	ADL	PQL	Qual	Units	DF	Date Analyzed		
SPECIFIC	CONDUCTANCE									
				EP	A 120.1					
RunID: V	VETCHEM_150218A	QC Batch: R980	67		PrepD	ate		Analyst: LR		
Specific	Conductance	7100	0.10	0.10		umhos/cm	1	2/18/2015 10:00 A		

Qualifiers:

В

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

Е Value above quantitation range ND Not Detected at the Reporting Limit

- Results are wet unless otherwise specified

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



P: 562.219.7435 F: 562.219.7436

Date: 03-Mar-15

CLIENT: CH2M HILL

Work Order: N014694

Project: PG&E Topock, XXXXXX.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID N014694-001C DUP	SampType: DUP	TestCoo	de: 120.1_WF	GE Units: um I	nos/cm	Prep Da	te:		RunNo: 980	067	
Client ID: ZZZZZZ	Batch ID: R98067	TestN	lo: EPA 120.4	1		Analysis Da	te: 2/18/20	15	SeqNo: 193	36573	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	7150.000	0.10						7110	0.561	10	

Qualifiers:

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

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

Calculations are based on raw values

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

7

ANALYTICAL RESULTS Print Date: 03-Mar-15

CLIENT:	CH2M HILL			Client Sample ID: SC-700B-WDR-508						
Lab Order:	N014694			Collection Date: 2/17/2015 12:00:00 PM						
Project:	PG&E Topock,	XXXXXX.PT.OP	.00	Matrix: WATER						
Lab ID:	N014694-001									
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed		
TOTAL FILTE	RABLE RESIDUE									
				SN	2540C					
RunID: WET	CHEM_150218F	QC Batch: 497	'31		PrepDa	ate	2/18/2015	Analyst: LR		
Total Dissolve Filterable)	ed Solids (Residue,	4200	50	50		mg/L	1	2/18/2015 01:30 PM		

Qualifiers:

В

- Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded S
 - Spike/Surrogate outside of limits due to matrix interference

CALIFORNIA

DO Surrogate Diluted Out

ASSET LABORATORIES

Е Value above quantitation range

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

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Project:

CLIENT: CH2M HILL

Work Order: N014694

PG&E Topock, XXXXXX.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID MB-49731 Client ID: PBW	SampType: MBLK Batch ID: 49731	TestCode: 160.1_2540C Units: mg/L TestNo: SM2540C	Prep Date: 2/18/2015 Analysis Date: 2/18/2015	RunNo: 98087 SeqNo: 1937182
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	due, Filtera ND	10		
Sample ID LCS-49731 Client ID: LCSW	SampType: LCS Batch ID: 49731	TestCode: 160.1_2540C Units: mg/L TestNo: SM2540C	Prep Date: 2/18/2015 Analysis Date: 2/18/2015	RunNo: 98087 SeqNo: 1937183
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	lue, Filtera 998.000	10 1000 0	99.8 80 120	
Sample ID N014694-001C-E Client ID: ZZZZZZ	DUP SampType: DUP Batch ID: 49731	TestCode: 160.1_2540C Units: mg/L TestNo: SM2540C	Prep Date: 2/18/2015 Analysis Date: 2/18/2015	RunNo: 98087 SeqNo: 1937185
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	lue, Filtera 4315.000	50	4165	3.54 5

Qualifiers:

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

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R

E Value above quantitation range

RPD outside accepted recovery limits

Calculations are based on raw values NEVADA

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

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

ANALYTICAL RESULTS

ASSET Lab	oratories		Print Date: 03-Mar-15							
CLIENT:	CH2M HILL			Client Sample ID: SC-700B-WDR-508						
Lab Order:	N014694				Collection	Date: 2/	/17/2015 12:0	0:00 PM		
Project:	PG&E Topock	x, XXXXXX.PT.OP	XXXXX.PT.OP.00 Matrix: WATER							
Lab ID:	N014694-001									
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed		
TOTAL META	LS BY ICPMS									
				EP	A 200.8					
RunID: ICP7_	150220B	QC Batch: 497	52		PrepD	ate	2/20/2015	Analyst: CEI		
Manganese		ND	0.026	0.50		µg/L	1	2/20/2015 04:40 PM		

Qualifiers:

В

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

ASSET LABORATORIES

CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

Е

Value above quantitation range

ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

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

Project:

CLIENT: CH2M HILL

Work Order: N014694

PG&E Topock, XXXXXX.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

98149 1940098
940098
D RPDLimit Qual
98149
1940099
D RPDLimit Qual
98149
1940104
D RPDLimit Qual
98149
1940107
D RPDLimit Qual
8 20
7 20
98149
1940110

Qualifiers:

ND

B Analyte detected in the associated Method Blank

Not Detected at the Reporting Limit

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

- Calculations are based on raw values NEVADA
 - 3151 W. Post Rd., Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.2691

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S

DO Surrogate Diluted Out ASSET LABORATORIES

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CLIENT: CH2M HILL Work Order: N014694

Project: PG&E Topock, XXXXXX.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID N014670-003A-MS	SampType: MS	TestCod	e: 200.8_W	Units: µg/L		Prep Da	te: 2/20/20	15	RunNo: 98'	49	
Client ID: ZZZZZZ	Batch ID: 49752	TestN	o: EPA 200.8	3	Analysis Date: 2/20/2015				SeqNo: 1940110		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.033	0.50	10.00	0.1218	99.1	75	125				
Manganese	100.923	0.50	100.0	0	101	75	125				

Qualifiers:

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

ASSET LABORATORIES

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

Calculations are based on raw values

- 3151 W. Post Rd., Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.2691
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

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ANALYTICAL RESULTS

Print Date: 03-Mar-15

CLIENT:	CH2M HILL			C	lient Samp	le ID: S	C-700B-WDR	-508			
Lab Order:	N014694			Collection Date: 2/17/2015 12:00:00 PM							
Project:	PG&E Topock,	XXXXXX.PT.OF	XXX.PT.OP.00 Matrix: WATER								
Lab ID:	N014694-001										
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed			
HEXAVALEN	CHROMIUM BY IC	;									
				EP.	A 218.6						
RunID: IC6_1	50218A	QC Batch: R9	8101		PrepD	ate		Analyst: RB			
Hexavalent Cl	hromium	ND	0.016	0.20		µg/L	1	2/18/2015 01:43 PM			
TOTAL META	LS BY ICPMS										
				EP	A 200.8						
RunID: ICP7_	150220B	QC Batch: 49	752		PrepD	ate	2/20/2015	Analyst: CEI			
Chromium		ND	0.030	1.0				2/20/2015 04:40 PM			

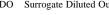
Qualifiers:

В

Analyte detected in the associated Method Blank

- Н Holding times for preparation or analysis exceeded S
 - Spike/Surrogate outside of limits due to matrix interference
- Е Value above quantitation range
- ND Not Detected at the Reporting Limit Results are wet unless otherwise specified

DO Surrogate Diluted Out



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

CLIENT: CH2M HILL

Work Order: N014694

Project: PG&E Topock, XXXXXX.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W_CRPGE

Sample ID MB-49752	SampType: MBLK	TestCode: 200.8_W_CR Units: µg/L	Prep Date: 2/20/2015	RunNo: 98149
Client ID: PBW	Batch ID: 49752	TestNo: EPA 200.8	Analysis Date: 2/20/2015	SeqNo: 1939988
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Chromium	ND	1.0		
Sample ID LCS-49752	SampType: LCS	TestCode: 200.8_W_CR Units: µg/L	Prep Date: 2/20/2015	RunNo: 98149
Client ID: LCSW	Batch ID: 49752	TestNo: EPA 200.8	Analysis Date: 2/20/2015	SeqNo: 1939989
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Chromium	10.321	1.0 10.00 0	103 85 115	
Sample ID N014706-007	1A-MS SampType: MS	TestCode: 200.8_W_CR Units: µg/L	Prep Date: 2/20/2015	RunNo: 98149
Client ID: ZZZZZZ	Batch ID: 49752	TestNo: EPA 200.8	Analysis Date: 2/20/2015	SeqNo: 1939994
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Chromium	14.421	1.0 10.00 5.553	88.7 75 125	
Sample ID N014706-007	1A-MSD SampType: MSD	TestCode: 200.8_W_CR Units: µg/L	Prep Date: 2/20/2015	RunNo: 98149
Client ID: ZZZZZZ	Batch ID: 49752	TestNo: EPA 200.8	Analysis Date: 2/20/2015	SeqNo: 1939997
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Chromium	14.769	1.0 10.00 5.553	92.2 75 125 14.42	2.38 20
Sample ID N014670-003	3A-MS SampType: MS	TestCode: 200.8_W_CR Units: µg/L	Prep Date: 2/20/2015	RunNo: 98149
Client ID: ZZZZZZ	Batch ID: 49752	TestNo: EPA 200.8	Analysis Date: 2/20/2015	SeqNo: 1940000
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Chromium	10.033	1.0 10.00 0.1218	99.1 75 125	

Qualifiers:

ND

B Analyte detected in the associated Method Blank

Not Detected at the Reporting Limit

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

Calculations are based on raw values

3151 W. Post Rd., Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.2691 H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out
ASSET LABORATORIES

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CLIENT: CH2M HILL

Work Order: N014694

Project: PG&E Topock, XXXXXX.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID MB-R98101	SampType: MBLK	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 98101
Client ID: PBW	Batch ID: R98101	TestNo: EPA 218.6	Analysis Date: 2/18/2015	SeqNo: 1937358
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-R98101	SampType: LCS	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 98101
Client ID: LCSW	Batch ID: R98101	TestNo: EPA 218.6	Analysis Date: 2/18/2015	SeqNo: 1937359
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	4.988	0.20 5.000 0	99.8 90 110	
Sample ID N014694-001A-MS	SampType: MS	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 98101
Client ID: ZZZZZZ	Batch ID: R98101	TestNo: EPA 218.6	Analysis Date: 2/18/2015	SeqNo: 1937360
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	1.136	0.20 1.000 0.09940	104 90 110	
Sample ID N014691-001A-DUP	SampType: DUP	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 98101
Client ID: ZZZZZZ	Batch ID: R98101	TestNo: EPA 218.6	Analysis Date: 2/18/2015	SeqNo: 1937362
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	13.448	0.20	13.42	0.201 20
Sample ID N014691-002A-MS	SampType: MS	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 98101
Client ID: ZZZZZZ	Batch ID: R98101	TestNo: EPA 218.6	Analysis Date: 2/18/2015	SeqNo: 1937368
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	8.981	0.20 5.000 4.016	99.3 90 110	

Qualifiers:

ND

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

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E Value above quantitation range

R RPD outside accepted recovery limits

> Calculations are based on raw values NEVADA

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

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S

CLIENT:CH2M HILLWork Order:N014694Project:PG&E Topock, XXXXX.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID N014691-002A-MSD	SampType: MSD	TestCode: 218.6_WPGE Units: µg/L			Prep Date:				RunNo: 98101			
Client ID: ZZZZZZ	Batch ID: R98101	TestN	TestNo: EPA 218.6			Analysis Date: 2/18/2015				SeqNo: 1937369		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Hexavalent Chromium	8.868	0.20	5.000	4.016	97.0	90	110	8.981	1.27	20		

Qualifiers:

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

ASSET LABORATORIES

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

Calculations are based on raw values NEVADA 3151 W. Post Rd., Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.2691

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

16

ANALYTICAL RESULTS

ASSET L	aboratories					Print I	Date: 03-M	1ar-15
CLIENT:	CH2M HILL			С	lient Samp	le ID: SC-7	00B-WDR	-508
Lab Order:	N014694				Collection	Date: 2/17/2	2015 12:00):00 PM
Project:	PG&E Topock	, XXXXXX.PT.OP.0	00		M	atrix: WAT	ER	
Lab ID:	N014694-001							
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TURBIDITY	,							
				SN	I 2130B			
RunID: W	ETCHEM_150218B	QC Batch: R980	68		PrepD	ate		Analyst: LR
Turbidity		0.22	0.10	0.10		NTU	1	2/18/2015 10:30 AM

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

DO Surrogate Diluted Out



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Date: 03-Mar-15

CLIENT: CH2M HILL

Work Order: N014694

Project: PG&E Topock, XXXXXX.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 2130_W

Sample ID N014694-001CDUP	SampType: DUP	TestCode:	2130_W	Units: NTU		Prep Da	te:		RunNo: 980)68	
Client ID: ZZZZZZ	Batch ID: R98068	TestNo:	SM 2130B	•		Analysis Da	te: 2/18/20	15	SeqNo: 193	86575	
Analyte	Result	PQL S	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity	0.210	0.10						0.2200	4.65	30	

Qualifiers:

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

ASSET LABORATORIES

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

Calculations are based on raw values NEVADA 3151 W. Post Rd., Las Vegas, NV 89118

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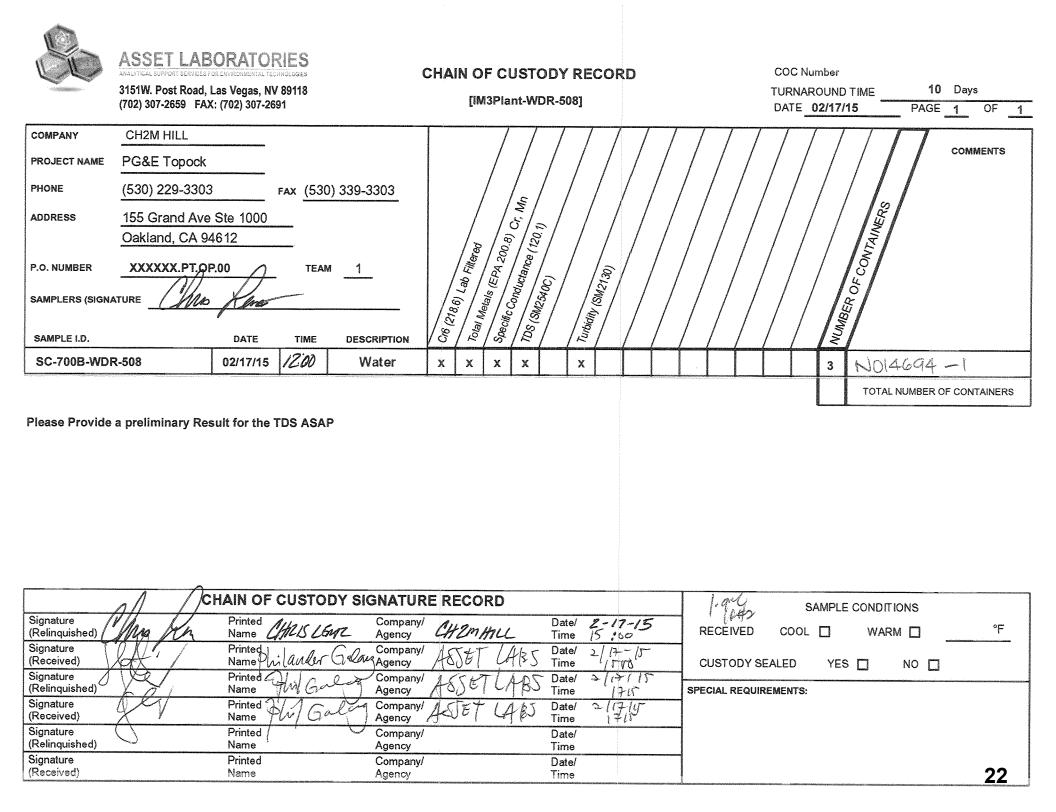
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

WORKORDER: N

ANALYST LIST

NAME	TEST METHOD
0 k	···-h° oU # oU "
Claire Ignacio	EPA 200.8
k "	···EPA





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/O	pened On:	2/17/2015				Workorder:	N014694		
Rep sample Temp	(Deg C):	1.9				IR Gun ID:	2		
Temp Blank:		Yes	□ No						
Carrier name:		ATL							
Last 4 digits of Tra	cking No.:	NA			Packing	Material Used:	None		
Cooling process:		✓ Ice	lce Pack	Dry Ice	Other	None			
			Sa	mple Receip	t Checklis	t			
1. Shipping contain	er/cooler in go	ood condition				Yes 🗹	No 🗌	Not Present	
2. Custody seals in	ntact, signed, c	dated on shi	ppping container/o	cooler?		Yes	No 🗌	Not Present	
3. Custody seals in	itact on sample	e bottles?				Yes	No 🗌	Not Present	
4. Chain of custody	/ present?					Yes 🗹	No 🗌		
5. Sampler's name	present in CC	C?				Yes 🗹	No 🗌		
6. Chain of custody	signed when	relinquished	d and received?			Yes 🖌	No 🗌		
7. Chain of custody	/ agrees with s	sample label	ls?			Yes 🗹	No 🗌		
8. Samples in prop	er container/b	ottle?				Yes 🗹	No 🗌		
9. Sample containe	ers intact?					Yes 🖌	No 🗌		
10. Sufficient samp	le volume for	indicated te	st?			Yes 🖌	No 🗌		
11. All samples rec	eived within h	olding time?)			Yes 🖌	No 🗌		
12. Temperature of	f rep sample o	r Temp Blar	nk within acceptab	le limit?		Yes 🗹	No 🗌	NA	
13. Water - VOA vi	als have zero	headspace	?			Yes	No 🗌	NA	
14. Water - pH acc	eptable upon I > 12 for (CN		nr Metals			Yes	No 🗹	NA	
15. Did the bottle la						Yes	No 🗌	NA	
16. Were there Nor						Yes 🖌	No 🗌	NA	
		as Client not	-			Yes	No 🗌	NA	
Comments: Sam	ple for metal a	analysis was	s lab preserved.						



SAMPLE CALCULATION

METHOD: SM 2540C TEST NAME: Total Filterable Residue MATRIX: Water

FORMULA:

Calculate TDS concentration in mg/L, in the original sample as follows:

TDS, mg/L =
$$(A-B)*1000000$$

C

Where:

A = weight in g of dish + residue after drying B = weight of dish in g C = volume of sample used in mL

For N014694-001C, TDS concentration in mg/L is calculated as follows:

TDS, mg/L = <u>(53.7428-53.6595) *1000000</u> 20

= 4165 mg/L

Reporting result in two significant figures,

TOTAL DISSOLVED SOLIDS, TDS

A =

TDS, mg/L =

(A-B) X 10000*PF

where:

weight in grams of dish + residue after drying

B = weight of dish in grams

PF = 100/volume of sample used in mL

	vol of sample (mL)	weight of dish in grams (B)	weight in grams of dish + residue after drying (A)	(A-B)*10000	prep fact (PF)	TDS, mg/L	CONDUCTIVITY	RATIO
Date Finished:2/19/15								
MB-49731	100	53.7345	53.7348	3	1	3		
LCS-49731	100	77.0998	77.1996	998	1	998		
N014694-001C	20	53.6595	53.7428	833	5	4165	7110	0.586
N014694-001C DUP	20	57.0867	57.173	863	5	4315	7110	0.607
N014700-004A	200	53.9327	53.9332	5	0.5	2.5	13.44	0.186
N014700-005A	200	63.0706	63.0722	16	0.5	8	1.55	5.161
N014700-006A	200	54.3885	54.3901	16	0.5	8	15.88	0.504

Sample Calculation

METHOD: EPA 6020 TEST NAME: Heavy Metals by ICP-MS MATRIX: Water

FORMULA:

Calculate the Chromium concentration, in ug/L, in the original sample as follows:

Chromium, ug/L = A * DF * PF

where:

A = ug/L, calculated concentration DF = dilution factor PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample N014694-001B, the concentration in ug/L is calculated as follows:

Chromium, ug/L = 0.0603582201467905 * 1 * (25/25) = 0.0603582201467905

Since results is less than reporting limit,

Chromium, ug/L = ND

My 3/2/2015

ICP-MS-Metals in Water

Dilution Test Summary

No.:	N014694	Matrix:	Water
Nethod:	EPA 200.8	Batch No.:	49741
is Date:	2/20/2015		

Instrument ID: ICP-MS #2 Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Cr & Mn. The calculated values are <25X RL.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N014706-001A DT 5X	Chromium	ug/L	5.822775854	NA	5.552692808	4.86%	10
N014706-001A DT 5X	Manganese	ug/L	0	NA	0		10

Note: NA - Not applicable

CLIENT:CH2M HILLWork Order:N014694

Project: PG&E Topock, XXXXXX.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID N014706-001A-PS	SampType: PS	TestCo	de: 200.8_W	Units: µg/L		Prep Da	te:		RunNo: 98'	149	
Client ID: ZZZZZZ	Batch ID: 49752	TestN	lo: EPA 200.8	3		Analysis Da	te: 2/20/20	15	SeqNo: 194	40103	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	89.899	0.50	100.0	0	89.9	80	120				

Qualifiers:

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

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

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

CLIENT: CH2M HILL

Work Order: N014694

Project: PG&E Topock, XXXXXX.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W_CRPGE

Sample ID N014706-001A-PS	SampType: PS	TestCo	de: 200.8_W_	CR Units: µg/L		Prep Dat	te:		RunNo: 98'	149	
Client ID: ZZZZZZ	Batch ID: 49752	Test	lo: EPA 200.8	8		Analysis Da	te: 2/20/20	15	SeqNo: 193	39993	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	14.632	1.0	10.00	5.553	90.8	80	120				

Qualifiers:

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

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

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

Sample Calculation

METHOD: EPA 218.6 TEST NAME: HEXAVALENT CHROMIUM BY IC MATRIX: Water

FORMULA:

Calculate the Hexavalent Chromium concentration, in $\mu\text{g/L},$ in the original sample as follows:

$$Cr^{+6}$$
, $\mu g/L = A * DF$

where:

A = μ g/L, IC Cr⁺⁶ calculated concentration DF = dilution factor

For **N014694-001**, concentration in μ g/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 0.0994 * 1$$

= 0.0994

Since PQL is 0.20 μ g/L,

 $Cr^{+6}, \mu g/L = ND$

 \checkmark

March 10, 2015

Shawn P. Duffy CH2M HILL 155 Grand Avenue, Suite 1000 Oakland, CA 94612 TEL: (530) 229-3303

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

Workorder No.: N014761

RE: PG&E Topock, 658274.PT.OP.00

Attention: Shawn P. Duffy

FAX: (530) 339-3303

Enclosed are the results for sample(s) received on February 24, 2015 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,

gregeomendo

Glen Gesmundo QA Manager

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.



CALIFORNIA 11060 Artesia Blvd., Ste C, 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

CLIENT:CH2M HILLProject:PG&E Topock, 658274.PT.OP.00Lab Order:N014761

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS

Samples were received intact with proper chain of custody documentation.

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

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

Samples were analyzed within method holding time.

Analytical Comments for EPA 200.8:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Manganese possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.



N014761-001C SC-700B-WDR-509

2/24/2015

3/10/2015

CLIENT: Project: Lab Order: Contract No:	CH2M HILL PG&E Topock, 65827 N014761 IM3Plant-WDR-	4.PT.OP.00	Work O	order Sampl	e Summary
Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N014761-001A	SC-700B-WDR-509	Water	2/24/2015 12:30:00 PM	2/24/2015	3/10/2015
N014761-001B	SC-700B-WDR-509	Water	2/24/2015 12:30:00 PM	2/24/2015	3/10/2015

2/24/2015 12:30:00 PM

Water



ANALYTICAL RESULTS Print Date: 10-Mar-15

					T TIME D	att. 10-1	101-15
CLIENT:	CH2M HILL			Client Samp	le ID: SC-70	0B-WDR	-509
Lab Order:	N014761			Collection	Date: 2/24/2	015 12:30	0:00 PM
Project:	PG&E Topock	, 658274.PT.OP.00		Μ	atrix: WATH	ER	
Lab ID:	N014761-001						
Analyses		Result MI	DL PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CO	NDUCTANCE						
				EPA 120.1			
RunID: WETC	CHEM_150225A	QC Batch: R99183		Prep[Date		Analyst: LR
Specific Cond	ductance	6800 0.	10 0.10)	umhos/cm	1	2/25/2015 03:30 P

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range

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

DO Surrogate Diluted Out

ASSET LABORATORIES

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

Work Order:

CLIENT: CH2M HILL

ANALYTICAL QC SUMMARY REPORT

Project: PG&E Topock, 658274.PT.OP.00

N014761

TestCode: 120.1_WPGE

Sample ID N014760-001D DUP	SampType: DUP	TestCode: 120.1_WPGE Units: umhos/cm	Prep Date:	RunNo: 99183
Client ID: ZZZZZZ	Batch ID: R99183	TestNo: EPA 120.1	Analysis Date: 2/25/2015	SeqNo: 1942826
Analyte	Result	PQL SPK value SPK Ref Val %RE	C LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Specific Conductance	893.000	0.10	898.0	0.558 10
Sample ID N014761-001C DUP	SampType: DUP	TestCode: 120.1_WPGE Units: umhos/cm	Prep Date:	RunNo: 99183
Sample ID N014761-001C DUP Client ID: ZZZZZZ	SampType: DUP Batch ID: R99183	TestCode: 120.1_WPGE Units: umhos/cm TestNo: EPA 120.1	Prep Date: Analysis Date: 2/25/2015	RunNo: 99183 SeqNo: 1942843
		-	Analysis Date: 2/25/2015	

Qualifiers:

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

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E Value above quantitation range R

RPD outside accepted recovery limits

Calculations are based on raw values NEVADA

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

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S

ANALYTICAL RESULTS

ASSET Laboratories				Print Date: 10-Mar-15					
CLIENT:	NT: CH2M HILL				Client Sample ID: SC-700B-WDR-509				
Lab Order:				Collection Date: 2/24/2015 12:30:00 PM Matrix: WATER					
Project:									
Lab ID:	N014761-001	51-001							
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed	
TOTAL FILTE	RABLE RESIDUE								
		SM2540C							
RunID: WETC	CHEM_150225H	QC Batch: 49	783		PrepD	ate	2/25/2015	Analyst: LR	
Total Dissolve Filterable)	ed Solids (Residue,	4200	50	50		mg/L	1	2/25/2015 03:15 PM	

Qualifiers:

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

В

DO Surrogate Diluted Out

ASSET LABORATORIES

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Project:

CLIENT: CH2M HILL

Work Order: N014761

PG&E Topock, 658274.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID MB-49783	SampType: MBLK	TestCode: 160.1_2540C Units: mg/L	Prep Date: 2/25/2015	RunNo: 99196
Client ID: PBW	Batch ID: 49783	TestNo: SM2540C	Analysis Date: 2/25/2015	SeqNo: 1943146
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	lue, Filtera ND	10		
Sample ID LCS-49783	SampType: LCS	TestCode: 160.1_2540C Units: mg/L	Prep Date: 2/25/2015	RunNo: 99196
Client ID: LCSW	Batch ID: 49783	TestNo: SM2540C	Analysis Date: 2/25/2015	SeqNo: 1943147
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	lue, Filtera 986.000	10 1000 0	98.6 80 120	
Sample ID N014761-001C-D	OUP SampType: DUP	TestCode: 160.1_2540C Units: mg/L	Prep Date: 2/25/2015	RunNo: 99196
Client ID: ZZZZZZ	Batch ID: 49783	TestNo: SM2540C	Analysis Date: 2/25/2015	SeqNo: 1943151
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	lue, Filtera 4220.000	50	4210	0.237 5

Qualifiers:

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

P: 562.219.7435 F: 562.219.7436

CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703

R

RPD outside accepted recovery limits Calculations are based on raw values

E Value above quantitation range

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

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S

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9

ANALYTICAL RESULTS

ASSET Laboratories				Print Date: 10-Mar-15					
CLIENT:	CH2M HILL	Client Sample ID: SC-700B-WDR-509 Collection Date: 2/24/2015 12:30:00 PM Matrix: WATER							
Lab Order:	roject: PG&E Topock, 658274.PT.OP.00								
Project:									
Lab ID:									
Analyses Result MDL			PQL	Qual	Units	DF	Date Analyzed		
TOTAL META	LS BY ICPMS								
					EPA 200.8				
RunID: ICP7_	150226A	QC Batch: 497	/94		PrepD	ate	2/26/2015	Analyst: CEI	
Manganese ND 0.026				0.50		µg/L	1	2/26/2015 12:48 PM	

Qualifiers:

В

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

ASSET LABORATORIES

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Е

Value above quantitation range

ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

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

Project:

CLIENT: CH2M HILL

Work Order: N014761

PG&E Topock, 658274.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID MB-49794	SampType: MBLK	TestCode: 200.8_W Units: µg/L	Prep Date: 2/26/2015	RunNo: 99198
Client ID: PBW	Batch ID: 49794	TestNo: EPA 200.8	Analysis Date: 2/26/2015	SeqNo: 1943165
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Manganese	0.086	0.50		
Sample ID LCS-49794	SampType: LCS	TestCode: 200.8_W Units: µg/L	Prep Date: 2/26/2015	RunNo: 99198
Client ID: LCSW	Batch ID: 49794	TestNo: EPA 200.8	Analysis Date: 2/26/2015	SeqNo: 1943166
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Manganese	94.683	0.50 100.0 0	94.7 85 115	
manganooo	0 11000	0.00 100.0 0	01.1 00 110	
Sample ID N014761-001B-MS	SampType: MS	TestCode: 200.8_W Units: µg/L	Prep Date: 2/26/2015	RunNo: 99198
				RunNo: 99198 SeqNo: 1943170
Sample ID N014761-001B-MS	SampType: MS	TestCode: 200.8_W Units: µg/L	Prep Date: 2/26/2015	
Sample ID N014761-001B-MS Client ID: ZZZZZZ	SampType: MS Batch ID: 49794	TestCode: 200.8_W Units: μg/L TestNo: EPA 200.8	Prep Date: 2/26/2015 Analysis Date: 2/26/2015	SeqNo: 1943170
Sample ID N014761-001B-MS Client ID: ZZZZZZ Analyte	SampType: MS Batch ID: 49794 Result 64.148	TestCode: 200.8_W Units: μg/L TestNo: EPA 200.8 PQL SPK value SPK Ref Val	Prep Date: 2/26/2015 Analysis Date: 2/26/2015 %REC LowLimit HighLimit RPD Ref Val	SeqNo: 1943170 %RPD RPDLimit Qual
Sample ID N014761-001B-MS Client ID: ZZZZZZ Analyte Manganese	SampType: MS Batch ID: 49794 Result 64.148	TestCode: 200.8_W Units: μg/L TestNo: EPA 200.8 PQL SPK value SPK Ref Val 0.50 100.0 0 0	Prep Date: 2/26/2015 Analysis Date: 2/26/2015 %REC LowLimit HighLimit RPD Ref Val 64.1 75 125	SeqNo: 1943170 %RPD RPDLimit Qual S
Sample ID N014761-001B-MS Client ID: ZZZZZZ Analyte Manganese Sample ID N014761-001B-MSD	SampType: MS Batch ID: 49794 Result 64.148 SampType: MSD	TestCode: 200.8_W Units: μg/L TestNo: EPA 200.8 PQL SPK value SPK Ref Val 0.50 100.0 0 TestCode: 200.8_W Units: μg/L	Prep Date: 2/26/2015 Analysis Date: 2/26/2015 %REC LowLimit HighLimit RPD Ref Val 64.1 75 125 Prep Date: 2/26/2015	SeqNo: 1943170 %RPD RPDLimit Qual S RunNo: 99198

Qualifiers:

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

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E Value above quantitation range

R RPD outside accepted recovery limits

> Calculations are based on raw values NEVADA

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

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S

ANALYTICAL RESULTS

Print Date: 10-Mar-15

CLIENT: Lab Order:	CH2M HILL N014761	Client Sample ID: SC-700B-WDR-509 Collection Date: 2/24/2015 12:30:00 PM						
Project:	PG&E Topock,	658274.PT.OP.00	Matrix: WATER					
Lab ID:	N014761-001							
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALEN		C						
				EP	A 218.6			
RunID: IC6_1	50226A	QC Batch: R9	9212		PrepD	Date		Analyst: RB
Hexavalent Cl	hromium	0.21	0.016	0.20		µg/L	1	2/26/2015 04:52 PM
TOTAL META	LS BY ICPMS							
				EP	A 200.8			
RunID: ICP7_	150226A	QC Batch: 497	794		PrepD	Date	2/26/2015	Analyst: CEI
Chromium		ND	0.030	1.0		µg/L	1	2/26/2015 12:48 PM

Qualifiers:

В

Analyte detected in the associated Method Blank

- Н Holding times for preparation or analysis exceeded S
 - Spike/Surrogate outside of limits due to matrix interference
- Е Value above quantitation range
- ND Not Detected at the Reporting Limit Results are wet unless otherwise specified

DO Surrogate Diluted Out

ASSET LABORATORIES

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

Project:

CLIENT: CH2M HILL

Work Order: N014761

PG&E Topock, 658274.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W_CRPGE

Sample ID MB-49794 Client ID: PBW	SampType: MBLK Batch ID: 49794	TestCode: 200.8_W_CR Units: µg/L TestNo: EPA 200.8	Prep Date: 2/26/2015 Analysis Date: 2/26/2015	RunNo: 99198 SeqNo: 1943184
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Chromium	ND	1.0		
Sample ID LCS-49794 Client ID: LCSW Analyte	SampType: LCS Batch ID: 49794 Result	TestCode: 200.8_W_CR Units: µg/L TestNo: EPA 200.8 PQL SPK value SPK Ref Val	Prep Date: 2/26/2015 Analysis Date: 2/26/2015 %REC LowLimit HighLimit RPD Ref Val	RunNo: 99198 SeqNo: 1943185 %RPD RPDLimit Qual
Chromium	9.305	1.0 10.00 0	93.0 85 115	
Sample ID N014761-001B-MS Client ID: ZZZZZZ	SampType: MS Batch ID: 49794	TestCode: 200.8_W_CR Units: µg/L TestNo: EPA 200.8	Prep Date: 2/26/2015 Analysis Date: 2/26/2015	RunNo: 99198 SeqNo: 1943189
			Prep Date: 2/26/2015	
Client ID: ZZZZZZ	Batch ID: 49794	TestNo: EPA 200.8	Prep Date: 2/26/2015 Analysis Date: 2/26/2015	SeqNo: 1943189
Client ID: ZZZZZZ Analyte	Batch ID: 49794 Result 9.365	TestNo: EPA 200.8 PQL SPK value SPK Ref Val	Prep Date: 2/26/2015 Analysis Date: 2/26/2015 %REC LowLimit HighLimit RPD Ref Val	SeqNo: 1943189
Client ID: ZZZZZZ Analyte Chromium Sample ID N014761-001B-MSD	Batch ID: 49794 Result 9.365 SampType: MSD	TestNo: EPA 200.8 PQL SPK value SPK Ref Val 1.0 10.00 0.06893 TestCode: 200.8_W_CR Units: µg/L	Prep Date: 2/26/2015 Analysis Date: 2/26/2015 %REC LowLimit HighLimit RPD Ref Val 93.0 75 125 Prep Date: 2/26/2015	SeqNo: 1943189 %RPD RPDLimit Qual RunNo: 99198

Qualifiers:

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

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

Calculations are based on raw values NEVADA

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

CLIENT: CH2M HILL

Work Order: N014761

Project: PG&E Topock, 658274.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID MB-R99212	SampType: MBLK	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 99212
Client ID: PBW	Batch ID: R99212	TestNo: EPA 218.6	Analysis Date: 2/26/2015	SeqNo: 1943486
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-R99212	SampType: LCS	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 99212
Client ID: LCSW	Batch ID: R99212	TestNo: EPA 218.6	Analysis Date: 2/26/2015	SeqNo: 1943487
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	2.543	0.20 2.500 0	102 90 110	
Sample ID N014761-001A-MS	SampType: MS	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 99212
Client ID: ZZZZZZ	Batch ID: R99212	TestNo: EPA 218.6	Analysis Date: 2/26/2015	SeqNo: 1943497
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	1.241	0.20 1.000 0.2123	103 90 110	
Sample ID N014761-001A-MSI	D SampType: MSD	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 99212
Client ID: ZZZZZZ	Batch ID: R99212	TestNo: EPA 218.6	Analysis Date: 2/26/2015	SeqNo: 1943498
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	1.298	0.20 1.000 0.2123	109 90 110 1.241	4.51 20
Sample ID N014761-001A-DUF	SampType: DUP	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 99212
Client ID: ZZZZZZ	Batch ID: R99212	TestNo: EPA 218.6	Analysis Date: 2/26/2015	SeqNo: 1943499
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	0.245	0.20	0.2123	14.3 20

Qualifiers:

ND

- B Analyte detected in the associated Method Blank
 - Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- ASSET LABORATORIES
- CALIFORNIA
 - 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

R

E Value above quantitation range

RPD outside accepted recovery limits

Calculations are based on raw values NEVADA

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

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

ANALYTICAL RESULTS

ASSET La	Print Date: 10-Mar-15									
CLIENT:	CH2M HILL			Client Sample ID: SC-700B-WDR-509						
Lab Order:	N014761			Collection Date: 2/24/2015 12:30:00 PM						
Project:	PG&E Topock		Μ	atrix: WAT	ER					
Lab ID:	N014761-001									
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed		
TURBIDITY				SM	1 2130B					
RunID: WE	TCHEM_150225C	QC Batch: R99	185		PrepD	ate		Analyst: LR		
Turbidity		0.17	0.10	0.10		NTU	1	2/25/2015 04:20 PM		

Qualifiers:

В

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

ASSET LABORATORIES

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Е

Value above quantitation range

ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

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

Date: 10-Mar-15

CLIENT: CH2M HILL

Work Order: N014761

Project: PG&E Topock, 658274.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 2130_W

Sample ID N014761-001C DUP	SampType: DUP	TestCoc	le: 2130_W	Units: NTU		Prep Da	te:		RunNo: 99	185	
Client ID: ZZZZZZ	Batch ID: R99185	TestN	o: SM 2130E	3		Analysis Da	te: 2/25/20	15	SeqNo: 194	42861	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity	0.160	0.10						0.1700	6.06	30	

Qualifiers:

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

ASSET LABORATORIES

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"Serving Clients with Passion and Professionalism"

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

Calculations are based on raw values

- 3151 W. Post Rd., Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.2691
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

WORKORDER: N014761

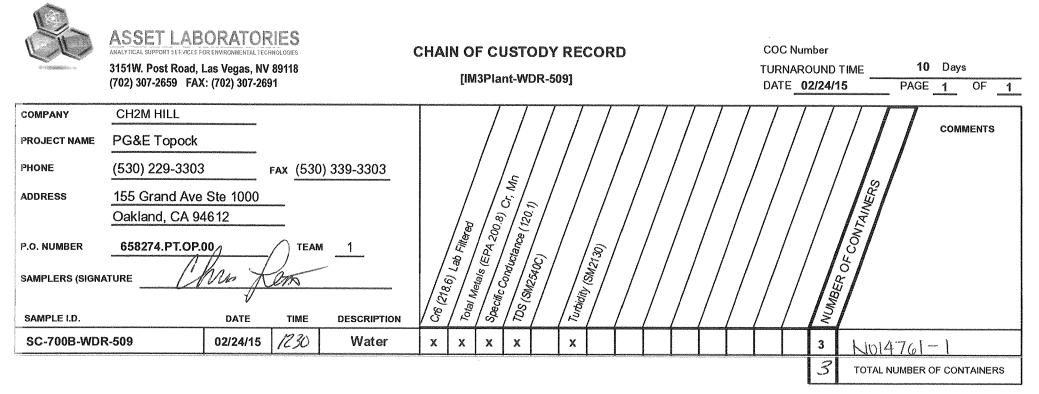
ANALYST LIST

NAME	TEST METHOD
Lilia Ramit	EPA 120.1, SM 2540C, SM 2130B
Claire Ignacio	EPA 200.8
Ryan Balilu	EPA 218.6



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



Please Provide a preliminary Result for the TDS ASAP

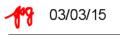
л Л СН	AIN OF CUSTODY SIGNATU	JRE RECORD		1000 SAMPLE CONDITIONS
Signature (Relinquished)	Printed CHRIS LEWE Agency		Date/ 2-24-15 Time 15:30	
Signature (Received)	Printed Inlander G laggency	" ASSET LASS !	Date/ 2/24/14	CUSTODY SEALED YES 🔲 NO 🔲
Signature (Relinquished)	Printed Compar Name Wander Galang Agency		Date/ 1/24/15 Time /742	SPECIAL REQUIREMENTS:
Signature (Received)	Printed HANAH GLoDOVI24Agency	ny ASSET LABS	Date/ Time 3/24/15 14	742
Signature // (Relinquished)	Printed Compar Name Agency		Date/ Time	
Signature (Received)	Printed Compar Name Agency	ny/	Date/ Time	20

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:	2/24/2015				Workorder:	N014761				
Rep sample Temp (Deg C):	1.9				IR Gun ID:	2				
Temp Blank:	Yes	🗌 No								
Carrier name:	ATL									
Last 4 digits of Tracking No.:	NA			Packing	Material Used:	None				
Cooling process:	✓ Ice	lce Pack	Dry Ice	Other	None					
Sample Receipt Checklist										
1. Shipping container/cooler in g	ood conditio				Yes 🗹	No 🗌	Not Present			
2. Custody seals intact, signed,	dated on shi	ppping container/	cooler?		Yes	No 🗌	Not Present			
3. Custody seals intact on samp	le bottles?				Yes	No 🗌	Not Present			
4. Chain of custody present?					Yes 🔽	No 🗌				
5. Sampler's name present in C			Yes 🗹	No 🗌						
6. Chain of custody signed wher			Yes 🖌	No 🗌						
7. Chain of custody agrees with			Yes 🖌	No 🗌						
8. Samples in proper container/b	oottle?				Yes 🗹	No 🗌				
9. Sample containers intact?					Yes 🖌	No 🗌				
10. Sufficient sample volume for	indicated te	st?			Yes 🖌	No 🗌				
11. All samples received within h	nolding time?)			Yes 🖌	No 🗌				
12. Temperature of rep sample of	or Temp Blar	nk within acceptab	le limit?		Yes 🗹	No 🗌	NA			
13. Water - VOA vials have zero	headspace	?			Yes	No 🗌	NA 🕨			
14. Water - pH acceptable upon	receipt?				Yes	No 🗹	na [
Example: pH > 12 for (CN	I,S); pH<2 fc	or Metals			_	_	_	_		
15. Did the bottle labels indicate	correct pres	ervatives used?			Yes 🗌	No 🗌	NA 🖢	_		
16. Were there Non-Conformance	ce issues at as Client not	0			Yes 🗌 Yes 🗌	No 🗌 No 🗌	NA NA NA			
Comments: Sample for metal										
Comments. Sample for metal	analysis was	s lab preserveu.								





SAMPLE CALCULATION

METHOD: SM 2540C TEST NAME: Total Filterable Residue MATRIX: Water

FORMULA:

Calculate TDS concentration in mg/L, in the original sample as follows:

TDS, mg/L =
$$(A-B)*1000000$$

C

Where:

A = weight in g of dish + residue after drying B = weight of dish in g C = volume of sample used in mL

For N014761-001C, TDS concentration in mg/L is calculated as follows:

TDS, mg/L = $\frac{(54.0059-53.9217)*1000000}{20}$ = 4210 mg/L

Reporting result in two significant figures,

Julia Ramit 2/26/2015

TOTAL DISSOLVED SOLIDS, TDS

A =

TDS, mg/L =

(A-B) X 10000*PF

where:

weight in grams of dish + residue after drying

B = weight of dish in grams

PF = 100/volume of sample used in mL

	vol of sample (mL)	weight of dish in grams (B)	weight in grams of dish + residue after drying (A)	(A-B)*10000	prep fact (PF)	TDS, mg/L	CONDUCTIVITY	RATIO
Date Finished:2/26/15								
MB-49783	100	63.9513	63.9515	2	1	2		
LCS-49783	100	64.2277	64.3263	986	1	986		
N014756-001B	100	61.2605	61.3045	440	1	440	537	0.819
N014756-002B	100	64.1595	64.215	555	1	555	649	0.855
N014761-001C	20	53.9217	54.0059	842	5	4210	6840	0.615
N014761-001C DUP	20	54.8579	54.9423	844	5	4220	6840	0.617

Julia Ramit 2/26/2015

Sample Calculation

METHOD: EPA 6020 / 200.8 TEST NAME: Heavy Metals by ICP-MS MATRIX: Water

FORMULA:

Calculate the Chromium concentration, in ug/L, in the original sample as follows:

Chromium, ug/L = A * DF * PF

where:

A = ug/L, calculated concentration DF = dilution factor PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample N014761-001B, the concentration in ug/L is calculated as follows:

Chromium, ug/L = 0.068929632237 * 1 * (25/25) = 0.068929632237

Since results is less than reporting limit,

Chromium, ug/L = ND

ICP-MS-Metals in Water

Dilution Test Summary

No.: I	N014761	Matrix:	Water
lethod: E	PA 200.8	Batch No.:	49794
ate: 2	2/26/2015		

Instrument ID: ICP-MS #2 Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Mn & Cr. The calculated values are <25X RL.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N014761-001B DT 5X	Chromium	ug/L	0	NA	0.068929632	100.00%	10
N014761-001B DT 5X	Manganese	ug/L	0	NA	0		10

Note: NA - Not applicable

CLIENT:	CH2M HILL
Work Order:	N014761
Project:	PG&E Topock, 658274.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID N014761-001B-PS	SampType: PS	TestCoo	le: 200.8_W	Units: µg/L		Prep Dat	te:		RunNo: 99'	198	
Client ID: ZZZZZZ	Batch ID: 49794	TestN	lo: EPA 200.8	3		Analysis Da	te: 2/26/20	15	SeqNo: 194	43169	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	63.023	0.50	100.0	0	63.0	80	120				S

Qualifiers:

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

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

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

CLIENT: CH2M HILL Work Order: N014761 Project: PG&E Topock, 658274.PT.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W_CRPGE

Sample ID N014761-001B-PS	SampType: PS	TestCo	de: 200.8_W_	CR Units: µg/L		Prep Dat	te:		RunNo: 99'	198	
Client ID: ZZZZZZ	Batch ID: 49794	Test	lo: EPA 200.8	8		Analysis Da	te: 2/26/20	15	SeqNo: 194	43188	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.134	1.0	10.00	0.06893	90.7	80	120				

Qualifiers:

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

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

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

Sample Calculation

METHOD: EPA 218.6 TEST NAME: HEXAVALENT CHROMIUM BY IC MATRIX: Water

FORMULA:

Calculate the Hexavalent Chromium concentration, in μ g/L, in the original sample as follows:

$$Cr^{+6}$$
, $\mu g/L = A * DF$

where:

A = μ g/L, IC Cr⁺⁶ calculated concentration DF = dilution factor

For N014761-001A, concentration in μ g/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 0.2123 * 1$$

= 0.2123

Reporting result in two significant figures,

$$Cr^{+6}, \mu g/L = 0.21$$

 \checkmark

March 18, 2015

Shawn P. Duffy CH2M HILL 155 Grand Avenue, Suite 1000 Oakland, CA 94612 TEL: (530) 229-3303 FAX: (530) 339-3303

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

Workorder No.: N014859

RE: PG&E Topock IM3, 658274.01.IM.OP.00

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on March 03, 2015 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,

grgesmunds

Glen Gesmundo QA Manager

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.



CALIFORNIA 11060 Artesia Blvd., Ste C, 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

 CLIENT:
 CH2M HILL

 Project:
 PG&E Topock IM3, 658274.01.IM.OP.00

 Lab Order:
 N014859

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS

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

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

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

Samples were analyzed within method holding time.

Subcontracted Analyses:

Ammonia and Soluble Silica were subcontracted to Truesdail-Tustin,CA.

Analytical Comments for EPA 200.8_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Manganese possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 200.8_Total:

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

Dilution was necessary on Lead for samples N014859-001 and N014859-002 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 analyte for this failed internal standard were reported at dilution that meet internal standard recovery limit.



CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436 NEPage 2 of 5 3151 W. Post Rd., Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.2691

CLIENT:	CH2M HILL
Project:	PG&E Topock IM3, 658274.01.IM.OP.00
Lab Order:	N014859
Contract No:	IM3Plant-WDR-

Work Order Sample Summary

Lab Sample ID Cl	ient Sample ID	Matrix	Collection Date	Date Received	Date Reported
N014859-001A SC-	700B-WDR-510	Water	3/3/2015 1:15:00 PM	3/3/2015	3/18/2015
N014859-001B SC-	700B-WDR-510	Water	3/3/2015 1:15:00 PM	3/3/2015	3/18/2015
N014859-001C SC-	700B-WDR-510	Water	3/3/2015 1:15:00 PM	3/3/2015	3/18/2015
N014859-001D SC-	700B-WDR-510	Water	3/3/2015 1:15:00 PM	3/3/2015	3/18/2015
N014859-001E SC-	700B-WDR-510	Water	3/3/2015 1:15:00 PM	3/3/2015	3/18/2015
N014859-002A SC-	100B-WDR-510	Water	3/3/2015 1:18:00 PM	3/3/2015	3/18/2015
N014859-002B SC-	100B-WDR-510	Water	3/3/2015 1:18:00 PM	3/3/2015	3/18/2015
N014859-002C SC-	100B-WDR-510	Water	3/3/2015 1:18:00 PM	3/3/2015	3/18/2015
N014859-002D SC-	100B-WDR-510	Water	3/3/2015 1:18:00 PM	3/3/2015	3/18/2015
N014859-002E SC-	100B-WDR-510	Water	3/3/2015 1:18:00 PM	3/3/2015	3/18/2015
N014859-002F SC-	100B-WDR-510	Water	3/3/2015 1:18:00 PM	3/3/2015	3/18/2015
N014859-002G SC-	100B-WDR-510	Water	3/3/2015 1:18:00 PM	3/3/2015	3/18/2015
N014859-002H SC-	100B-WDR-510	Water	3/3/2015 1:18:00 PM	3/3/2015	3/18/2015
N014859-002I SC-	100B-WDR-510	Water	3/3/2015 1:18:00 PM	3/3/2015	3/18/2015
N014859-002J SC-	100B-WDR-510	Water	3/3/2015 1:18:00 PM	3/3/2015	3/18/2015



ANALYTICAL RESULTS Print Date: 18-Mar-15

					I I III D	atc. 10-1	147-15
CLIENT:	CH2M HILL		Client Sample ID: SC-700B-WDR-510				
Lab Orde	er: N014859		Collection Date: 3/3/2015 1:15:00 PM				
Project:	PG&E Topock	PG&E Topock IM3, 658274.01.IM.OP.00 Matrix: WATER					
Lab ID:	N014859-001						
Analyses		Result MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFI	C CONDUCTANCE						
			EP	A 120.1			
RunID:	WETCHEM_150304C	QC Batch: R99286		PrepDa	ate		Analyst: LR
Specific	c Conductance	uctance 8000 0.10 0.10 umhos/cm 1 3/4/2015 10:45					

Qualifiers:

В

Analyte detected in the associated Method Blank

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

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

DO Surrogate Diluted Out

ASSET LABORATORIES

CALIFORNIA 11060 Artesia Blvd., Ste C, 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

ANALYTICAL RESULTS Print Date: 18-Mar-15

						att. 10-1	101-15
CLIENT:	CH2M HILL		Client Sample ID: SC-100B-WDR-510				
Lab Order:	N014859		Collection Date: 3/3/2015 1:18:00 PM				
Project:	PG&E Topock	Γοροck IM3, 658274.01.IM.OP.00Matrix: WATER					
Lab ID:	N014859-002						
Analyses		Result MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC	CONDUCTANCE						
			EP	A 120.1			
RunID: W	ETCHEM_150304C	QC Batch: R99286		PrepD	ate		Analyst: LR
Specific C	onductance	اردtance 8000 0.10 0.10 umhos/cm 1 3/4/2015 10:45 ا					

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

DO Surrogate Diluted Out

ASSET LABORATORIES

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

Date: 18-Mar-15

CLIENT: CH2M HILL

Work Order: N014859

Project: PG&E Topock IM3, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID N014860-001B DUP	SampType: DUP	TestCoo	le: 120.1_WF	GE Units: umho	s/cm	Prep Da	te:		RunNo: 992	286	
Client ID: ZZZZZZ	Batch ID: R99286	TestN	lo: EPA 120.4	I		Analysis Da	te: 3/4/201	5	SeqNo: 194	46057	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	8890.000	0.10						8850	0.451	10	

Qualifiers:

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

ASSET LABORATORIES

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

Calculations are based on raw values

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

ANALYTICAL RESULTS

ASSET Lab	oratories			Print Date: 18-Mar-15					
CLIENT:	CH2M HILL			Client Sample ID: SC-700B-WDR-510					
Lab Order:	N014859			Collection Date: 3/3/2015 1:15:00 PM					
Project:	PG&E Topock	IM3, 658274.01.I	M.OP.00		M	atrix: W	ATER		
Lab ID:	N014859-001								
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed	
TOTAL FILTE	RABLE RESIDUE								
				SI	M2540C				
RunID: WETC	CHEM_150304F	QC Batch: 49	833		PrepD	ate	3/4/2015	Analyst: LR	
Total Dissolve Filterable)	ed Solids (Residue,	4100	50	50 mg/L 1 3/4/2015 02					

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range

Results are wet unless otherwise specified

DO Surrogate Diluted Out

- ND Not Detected at the Reporting Limit

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ASSET LABORATORIES

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ANALYTICAL RESULTS Print Date: 18-Mar-15

					1111	Date: 10-1	101-15
CLIENT:	CH2M HILL		С	lient Sample	ID: SC	C-100B-WDR	R-510
Lab Order:	N014859		Collection Date: 3/3/2015 1:18:00 PM				
Project:	PG&E Topock	IM3, 658274.01.IM.OP.00		Mat	rix: W	ATER	
Lab ID:	N014859-002						
Analyses		Result MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTE	RABLE RESIDUE						
			SN	12540C			
RunID: WETC	CHEM_150304F	QC Batch: 49833		PrepDat	te	3/4/2015	Analyst: LR
Total Dissolve Filterable)	ed Solids (Residue,	4200 50	50	r	mg/L	1	3/4/2015 02:00 PN

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

DO Surrogate Diluted Out

ASSET LABORATORIES

CALIFORNIA

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10

CLIENT: CH2M HILL

Work Order: N014859

Project: PG&E Topock IM3, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID MB-49833	SampType: MBLK	TestCode: 160.1_2540C Units: mg/L	Prep Date: 3/4/2015	RunNo: 99291
Client ID: PBW	Batch ID: 49833	TestNo: SM2540C	Analysis Date: 3/4/2015	SeqNo: 1946113
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	lue, Filtera ND	10		
Sample ID LCS-49833	SampType: LCS	TestCode: 160.1_2540C Units: mg/L	Prep Date: 3/4/2015	RunNo: 99291
Client ID: LCSW	Batch ID: 49833	TestNo: SM2540C	Analysis Date: 3/4/2015	SeqNo: 1946114
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	lue, Filtera 960.000	10 1000 0	96.0 80 120	
Sample ID N014859-001B D	OUP SampType: DUP	TestCode: 160.1_2540C Units: mg/L	Prep Date: 3/4/2015	RunNo: 99291
Client ID: ZZZZZZ	Batch ID: 49833	TestNo: SM2540C	Analysis Date: 3/4/2015	SeqNo: 1946117
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	lue, Filtera 4275.000	50	4130	3.45 5

Qualifiers:

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

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CALIFORNIA

R

E Value above quantitation range

RPD outside accepted recovery limits

Calculations are based on raw values NEVADA

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

ANALYTICAL RESULTS

Print Date: 18-Mar-15

CLIENT:	CH2M HILL			Cl	ient Sample	ID: SO	C-700B-WDR	-510
Lab Order:	N014859			Collection Date: 3/3/2015 1:15:00 PM				
Project:	PG&E Topock II	M3, 658274.01.IN	M.OP.00		Mat	rix: W	ATER	
Lab ID:	N014859-001							
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL META	LS BY ICP							
				EP/	A 200.7			
RunID: ICP2_	150316B	QC Batch: 498	342		PrepDat	e	3/5/2015	Analyst: CEI
Aluminum		ND	6.2	50	I	ug/L	1	3/16/2015 08:15 PM
Boron		1100	19	100	I	ug/L	1	3/16/2015 08:15 PM
Iron		ND 1.3 20 μg/L 1 3/16/2015 08:15 PM						

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

DO Surrogate Diluted Out

ASSET LABORATORIES

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ANALYTICAL RESULTS

Print Date: 18-Mar-15

CLIENT:	CH2M HILL			Cl	ient Sample	e ID: SC	C-100B-WDR	-510	
Lab Order:	N014859			Collection Date: 3/3/2015 1:18:00 PM					
Project:	PG&E Topock II	M3, 658274.01.IN	1.OP.00		Ma	trix: W	ATER		
Lab ID:	N014859-002								
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed	
DISSOLVED N	IETALS BY ICP								
				EP/	A 200.7				
RunID: ICP2_	150316B	QC Batch: 498	42		PrepDa	ate	3/5/2015	Analyst: CEI	
Iron		ND	1.3	20		µg/L	1	3/16/2015 08:47 PM	
TOTAL META	LS BY ICP								
				EP/	A 200.7				
RunID: ICP2_	150316B	QC Batch: 498	42		PrepDa	ate	3/5/2015	Analyst: CEI	
Aluminum		ND	6.2	50		µg/L	1	3/16/2015 08:42 PM	
Boron		1200	19	100		µg/L	1	3/16/2015 08:42 PM	
Iron		ND	1.3	20		µg/L	1	3/16/2015 08:42 PM	

Qualifiers:

В

Analyte detected in the associated Method Blank

- Н Holding times for preparation or analysis exceeded S
 - Spike/Surrogate outside of limits due to matrix interference
- Е Value above quantitation range
- ND Not Detected at the Reporting Limit Results are wet unless otherwise specified

DO Surrogate Diluted Out

ASSET LABORATORIES

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CLIENT: CH2M HILL

Work Order: N014859

Project: PG&E Topock IM3, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID MB-4984 Client ID: PBW	SampType: MBLK Batch ID: 49842	TestCode: 200.7_W TestNo: EPA 200			Prep Date: Analysis Date:	3/5/2015 3/16/2015		RunNo: 994 SeqNo: 19		
Analyte	Result	PQL SPK value	e SPK Ref Val	%REC	LowLimit F	lighLimit RPD	Ref Val	%RPD	RPDLimit	Qual
Iron	ND	20								
Sample ID LCS1-49 Client ID: LCSW	Batch ID: 49842	TestCode: 200.7_W TestNo: EPA 200).7		Analysis Date:			RunNo: 994 SeqNo: 19	54313	
Analyte	Result		e SPK Ref Val	%REC		lighLimit RPD	Ref Val	%RPD	RPDLimit	Qual
Iron	99.515	20 100.0) 0	99.5	85	115				
			, ,	00.0						
Sample ID N014859		TestCode: 200.7_W			Prep Date:			RunNo: 994	468	
Sample ID N014859 Client ID: ZZZZZZ			DPG Units: µg/L			3/5/2015		RunNo: 994 SeqNo: 19		
	-001C-MS1 SampType: MS	TestCode: 200.7_W TestNo: EPA 200	DPG Units: µg/L		Prep Date: Analysis Date:	3/5/2015	Ref Val			Qual
Client ID: ZZZZZZ	-001C-MS1 SampType: MS Batch ID: 49842	TestCode: 200.7_W TestNo: EPA 200	IDPG Units: µg/L 9.7 9 SPK Ref Val		Prep Date: Analysis Date:	3/5/2015 3/16/2015	Ref Val	SeqNo: 19	54317	Qual
Client ID: ZZZZZZ	-001C-MS1 SampType: MS Batch ID: 49842 Result 98.338	TestCode: 200.7_W TestNo: EPA 200 PQL SPK value	ADPG Units: µg/L D.7 De SPK Ref Val	%REC	Prep Date: Analysis Date: LowLimit H 75	3/5/2015 3/16/2015 HighLimit RPD	Ref Val	SeqNo: 19	54317 RPDLimit	Qual
Client ID: ZZZZZZ Analyte Iron	-001C-MS1 SampType: MS Batch ID: 49842 Result 98.338	TestCode: 200.7_W TestNo: EPA 20 PQL SPK value 20 100.	/DPG Units: µg/L D.7 e SPK Ref Val d 0 /DPG Units: µg/L	%REC 98.3	Prep Date: Analysis Date: LowLimit H 75	3/5/2015 3/16/2015 HighLimit RPD 125 3/5/2015	Ref Val	SeqNo: 19	64317 RPDLimit	Qual
Client ID: ZZZZZZ Analyte Iron Sample ID N014859	-001C-MS1 SampType: MS Batch ID: 49842 Result 98.338 -001C-MSD SampType: MSD	TestCode: 200.7_W TestNo: EPA 200 PQL SPK value 20 100.1 TestCode: 200.7_W TestNo: EPA 200	/DPG Units: µg/L D.7 e SPK Ref Val d 0 /DPG Units: µg/L	%REC 98.3	Prep Date: Analysis Date: LowLimit H 75 Prep Date: Analysis Date:	3/5/2015 3/16/2015 HighLimit RPD 125 3/5/2015		SeqNo: 19 %RPD RunNo: 99	64317 RPDLimit	Qual

E Value above quantitation range

RPD outside accepted recovery limits

Calculations are based on raw values

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Qualifiers:

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

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R

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S

CLIENT: CH2M HILL

Work Order: N014859

Project: PG&E Topock IM3, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WPGEPPB

Sample ID MB-49842	SampType: MBLK	TestCode: 200.7_V	/PGE Units: µg/L		Prep Date	e: 3/5/2015	RunNo: 994	168	
Client ID: PBW	Batch ID: 49842	TestNo: EPA 20	0.7		Analysis Date	e: 3/16/2015	SeqNo: 19	54258	
Analyte	Result	PQL SPK valu	e SPK Ref Val	%REC	LowLimit	HighLimit RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	ND	50							
Boron	ND	100							
Iron	ND	20							
Sample ID LCS1-49842	SampType: LCS	TestCode: 200.7_V	/PGE Units: µg/L		Prep Date	: 3/5/2015	RunNo: 994	168	
Client ID: LCSW	Batch ID: 49842	TestNo: EPA 20	0.7		Analysis Date	e: 3/16/2015	SeqNo: 19	54259	
Analyte	Result	PQL SPK valu	e SPK Ref Val	%REC	LowLimit	HighLimit RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	10202.748	50 1000	0 0	102	85	115			
Boron	4982.815	100 500	0 0	99.7	85	115			
Iron	99.515	20 100.	0 0	99.5	85	115			
Sample ID N014859-001C-MS	1 SampType: MS	TestCode: 200.7_V	/PGE Units: µg/L		Prep Date	e: 3/5/2015	RunNo: 994	168	
Client ID: ZZZZZZ	Batch ID: 49842	TestNo: EPA 20	0.7		Analysis Date	e: 3/16/2015	SeqNo: 19	54263	
Client ID: ZZZZZZ	1 21).7 e SPK Ref Val	%REC		e: 3/16/2015 HighLimit RPD Ref Val	SeqNo: 19 %RPD	54263 RPDLimit	Qual
	Batch ID: 49842		e SPK Ref Val				·		Qual
Analyte	Batch ID: 49842 Result	PQL SPK valu	e SPK Ref Val	%REC	LowLimit	HighLimit RPD Ref Val	·		Qual
Analyte Aluminum	Batch ID: 49842 Result 11984.332	PQL SPK valu	e SPK Ref Val 0 0 0 1067	%REC 120	LowLimit 75	HighLimit RPD Ref Val	·		Qual
Analyte Aluminum Boron	Batch ID: 49842 Result 11984.332 6680.472 98.338	PQL SPK valu 50 1000 100 500 20 100.	e SPK Ref Val 0 0 0 1067	%REC 120 112	LowLimit 75 75	HighLimit RPD Ref Val 125 125 125	·	RPDLimit	Qual
Analyte Aluminum Boron Iron	Batch ID: 49842 Result 11984.332 6680.472 98.338	PQL SPK valu 50 1000 100 500 20 100.	e SPK Ref Val 0 0 0 1067 0 0 7PGE Units: μg/L	%REC 120 112 98.3	LowLimit 75 75 75	HighLimit RPD Ref Val 125 125 125 :: 3/5/2015	%RPD	RPDLimit	Qual
Analyte Aluminum Boron Iron Sample ID N014859-001C-MS	Batch ID: 49842 Result 11984.332 6680.472 98.338 D SampType: MSD	PQL SPK valu 50 1000 100 500 20 100. TestCode: 200.7_V TestNo: EPA 200	e SPK Ref Val 0 0 0 1067 0 0 7PGE Units: μg/L	%REC 120 112 98.3	LowLimit 75 75 75 Prep Date Analysis Date	HighLimit RPD Ref Val 125 125 125 :: 3/5/2015	%RPD RunNo: 99 4	RPDLimit	Qual
Analyte Aluminum Boron Iron Sample ID N014859-001C-MS Client ID: ZZZZZZ	Batch ID: 49842 Result 11984.332 6680.472 98.338 D SampType: MSD Batch ID: 49842	PQL SPK valu 50 1000 100 500 20 100. TestCode: 200.7_V TestNo: EPA 200	e SPK Ref Val 0 0 1067 0 0 VPGE Units: µg/L 0.7 e SPK Ref Val	%REC 120 112 98.3	LowLimit 75 75 75 Prep Date Analysis Date	HighLimit RPD Ref Val 125 125 225 225 225 225 225 225	%RPD RunNo: 994 SeqNo: 198	RPDLimit 168 54264	
Analyte Aluminum Boron Iron Sample ID N014859-001C-MS Client ID: ZZZZZZ Analyte	Batch ID: 49842 Result 11984.332 6680.472 98.338 D SampType: MSD Batch ID: 49842 Result	PQL SPK valu 50 1000 100 500 20 100. TestCode: 200.7_V TestNo: EPA 20 PQL SPK valu	e SPK Ref Val 0 0 1067 0 0 /PGE Units: µg/L 0.7 e SPK Ref Val 0 0	%REC 120 112 98.3 %REC	LowLimit 75 75 75 Prep Date Analysis Date LowLimit	HighLimit RPD Ref Val 125 125 125 23/5/2015 23/16/2015 HighLimit RPD Ref Val	%RPD RunNo: 99 4 SeqNo: 19 %RPD	RPDLimit 168 54264 RPDLimit	
Analyte Aluminum Boron Iron Sample ID N014859-001C-MS Client ID: ZZZZZZ Analyte Aluminum	Batch ID: 49842 Result 11984.332 6680.472 98.338 D SampType: MSD Batch ID: 49842 Result 12030.944	PQL SPK valu 50 1000 100 500 20 100. TestCode: 200.7_V TestNo: EPA 20 PQL SPK valu 50 1000	e SPK Ref Val 0 0 1067 0 0 /PGE Units: μg/L 0.7 e SPK Ref Val 0 0 1067	%REC 120 112 98.3 %REC 120	LowLimit 75 75 Prep Date Analysis Date LowLimit 75	HighLimit RPD Ref Val 125 125 125 225 225 225 225 225	%RPD RunNo: 994 SeqNo: 198 %RPD 0.388	RPDLimit 168 54264 RPDLimit 20	

Qualifiers:

ND

B Analyte detected in the associated Method Blank

Not Detected at the Reporting Limit

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

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

DO Surrogate Diluted Out



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ANALYTICAL RESULTS

Print Date: 18-Mar-15

CLIENT:	CH2M HILL			C	lient Samp	le ID: SC	C-700B-WDR	-510
Lab Order:	N014859				Collection	Date: 3/2	3/2015 1:15:0	0 PM
Project:	PG&E Topock	K IM3, 658274.01.II	M.OP.00		Μ	atrix: W	ATER	
Lab ID:	N014859-001							
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL META	LS BY ICPMS							
				EP	A 200.8			
RunID: ICP7_	150306A	QC Batch: 49	852		PrepD	ate	3/5/2015	Analyst: CEI
Antimony		ND	0.18	0.50		µg/L	1	3/6/2015 07:51 AN
Arsenic		ND	0.027	0.10		µg/L	1	3/6/2015 07:51 AN
Barium		10	0.030	1.0		µg/L	1	3/6/2015 07:51 AN
Copper		ND	0.040	1.0		µg/L	1	3/6/2015 07:51 AN
Lead		ND	0.053	5.0		µg/L	5	3/6/2015 07:56 AN
Manganese		ND	0.026	0.50		µg/L	1	3/6/2015 07:51 AN
Molybdenum		17	0.15	0.50		µg/L	1	3/6/2015 07:51 AN
Nickel		1.0	0.032	1.0		µg/L	1	3/6/2015 07:51 AN
Zinc		ND	0.23	10		µg/L	1	3/6/2015 07:51 AN

Qualifiers:

В

Analyte detected in the associated Method Blank

- Н Holding times for preparation or analysis exceeded S
 - Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Е Value above quantitation range

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

ASSET LABORATORIES

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ANALYTICAL RESULTS

Print Date: 18-Mar-15

CLIENT:	CH2M HILL			C	lient Samp	le ID: SC	C-100B-WDR	-510
Lab Order:	N014859				Collection	Date: 3/3	3/2015 1:18:0	0 PM
Project:	PG&E Topock I	M3, 658274.01.I	M.OP.00		Μ	atrix: W	ATER	
Lab ID:	N014859-002							
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL META	LS BY ICPMS							
				EP	A 200.8			
RunID: ICP7_	150306A	QC Batch: 49	852		PrepD	Date	3/5/2015	Analyst: CEI
Antimony		ND	0.18	0.50		µg/L	1	3/6/2015 08:18 AM
Arsenic		2.9	0.027	0.10		µg/L	1	3/6/2015 08:18 AM
Barium		26	0.030	1.0		µg/L	1	3/6/2015 08:18 AM
Copper		ND	0.040	1.0		µg/L	1	3/6/2015 08:18 AM
Lead		ND	0.053	5.0		µg/L	5	3/6/2015 09:57 AM
Manganese		ND	0.026	0.50		µg/L	1	3/6/2015 08:18 AM
Molybdenum		19	0.15	0.50		µg/L	1	3/6/2015 08:18 AM
Nickel		ND	0.032	1.0		µg/L	1	3/6/2015 08:18 AM
Zinc		ND	0.23	10		µg/L	1	3/6/2015 08:18 AM
DISSOLVED	METALS BY ICPMS							
				EP	A 200.8			
RunID: ICP7_	150306A	QC Batch: 49	851		PrepD	Date	3/5/2015	Analyst: CEI
Manganese		ND	0.026	0.50		µg/L	1	3/6/2015 08:45 AM
Manganese		ND	0.026	0.50		µg/L	1	3/6/2015

Qualifiers:

В

Analyte detected in the associated Method Blank

- Н Holding times for preparation or analysis exceeded S
 - Spike/Surrogate outside of limits due to matrix interference
- Е Value above quantitation range
- ND Not Detected at the Reporting Limit Results are wet unless otherwise specified

DO Surrogate Diluted Out



CALIFORNIA

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"Serving Clients with Passion and Professionalism"

11060 Artesia Blvd., Ste C, Cerritos, CA 90703

P: 562.219.7435 F: 562.219.7436

CLIENT: CH2M HILL

Work Order: N014859

Project: PG&E Topock IM3, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID MB-49852	SampType: MBLK	TestCode: 200.8_W	Units: µg/L	Prep Date: 3/5/2015	RunNo: 99321
Client ID: PBW	Batch ID: 49852	TestNo: EPA 200.8		Analysis Date: 3/6/2015	SeqNo: 1953698
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-49852	SampType: LCS	TestCode: 200.8_W	Units: µg/L	Prep Date: 3/5/2015	RunNo: 99321
Client ID: LCSW	Batch ID: 49852	TestNo: EPA 200.8		Analysis Date: 3/6/2015	SeqNo: 1953699
Analyte	Result	PQL SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD	Ref Val %RPD RPDLimit Qual
Antimony	10.765	0.50 10.00	0	108 85 115	
Arsenic	9.914	0.10 10.00	0	99.1 85 115	
Barium	98.896	1.0 100.0	0	98.9 85 115	
Copper	9.935	1.0 10.00	0	99.3 85 115	
Lead	10.448	1.0 10.00	0	104 85 115	
Manganese	100.218	0.50 100.0	0	100 85 115	
Molybdenum	9.626	0.50 10.00	0	96.3 85 115	
Nickel	9.730	1.0 10.00	0	97.3 85 115	
Zinc	102.107	10 100.0	0	102 85 115	
		TestCode: 200.8_W	Units: µg/L	Prep Date: 3/5/2015	RunNo: 99321
Sample ID N014859-001C-MS	SampType: MS			•	
Sample ID N014859-001C-MS Client ID: ZZZZZZ	SampType: MS Batch ID: 49852	TestNo: EPA 200.8		Analysis Date: 3/6/2015	SeqNo: 1953703

Qualifiers:

ND

B Analyte detected in the associated Method Blank

Not Detected at the Reporting Limit

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

NEVADA

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

P: 702.307.2659 F: 702.307.2691

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

- DO Surrogate Diluted Out
 ASSET LABORATORIES
- CALIFORNIA 11060 Artesia Blvd., Ste C, Cerri

11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

CLIENT: CH2M HILL

Work Order: N014859

Project: PG&E Topock IM3, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID N014859-001C-MS	SampType: MS	TestCod	e: 200.8_W	Units: µg/L		Prep Da	te: 3/5/201	5	RunNo: 99:	321	
Client ID: ZZZZZZ	Batch ID: 49852	TestN	o: EPA 200.8	3		Analysis Da	te: 3/6/201	5	SeqNo: 19	53703	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.309	0.50	10.00	0	103	75	125				
Arsenic	9.405	0.10	10.00	0.05360	93.5	75	125				
Barium	103.474	1.0	100.0	10.33	93.1	75	125				
Copper	4.627	1.0	10.00	0	46.3	75	125				S
Manganese	63.813	0.50	100.0	0	63.8	75	125				S
Molybdenum	26.085	0.50	10.00	16.80	92.8	75	125				
Nickel	9.567	1.0	10.00	1.048	85.2	75	125				
Zinc	77.660	10	100.0	0	77.7	75	125				
Sample ID N014859-001C-MSD	SampType: MSD	TestCod	e: 200.8_W	Units: µg/L		Prep Da	te: 3/5/201	5	RunNo: 99:	321	
Client ID: ZZZZZZ	Batch ID: 49852	TestN	o: EPA 200.8	3		Analysis Da	te: 3/6/201	5	SeqNo: 19	53704	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.282	0.50	10.00	0	103	75	125	10.31	0.269	20	
Arsenic	9.310	0.10	10.00	0.05360	92.6	75	125	9.405	1.01	20	
Barium	102.402	1.0	100.0	10.33	92.1	75	125	103.5	1.04	20	
Copper	4.586	1.0	10.00	0	45.9	75	125	4.627	0.882	20	S
Manganese	64.056	0.50	100.0	0	64.1	75	125	63.81	0.380	20	S
Molybdenum	26.277	0.50	10.00	16.80	94.7	75	125	26.08	0.735	20	
Nickel	9.507	1.0	10.00	1.048	84.6	75	125	9.567	0.637	20	
Zinc	77.281	10	100.0	0	77.3	75	125	77.66	0.490	20	
Sample ID N014859-001C-MS	SampType: MS	TestCod	e: 200.8_W	Units: µg/L		Prep Da	te: 3/5/201	5	RunNo: 99:	321	
Client ID: ZZZZZZ	Batch ID: 49852	TestN	o: EPA 200.8	3		Analysis Da	te: 3/6/201	5	SeqNo: 19	53719	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	10.752	5.0	10.00	0	108	75	125				

Qualifiers:

ND

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values NEVADA

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

H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out ASSET LABORATORIES

Not Detected at the Reporting Limit

P: 562.219.7435 F: 562.219.7436

CALIFORNIA

11060 Artesia Blvd., Ste C, Cerritos, CA 90703

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19

CLIENT: CH2M HILL

Work Order: N014859

Project: PG&E Topock IM3, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID N014859-001C-MSD	SampType: MSD	TestCoo	de: 200.8_W	Units: µg/L		Prep Da	te: 3/5/201	5	RunNo: 993	321	
Client ID: ZZZZZZ	Batch ID: 49852	TestN	lo: EPA 200.8	3		Analysis Da	te: 3/6/201	5	SeqNo: 198	53722	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	10.735	5.0	10.00	0	107	75	125	10.75	0.157	20	

Qualifiers:

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

ASSET LABORATORIES

CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

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

Calculations are based on raw values NEVADA 3151 W. Post Rd., Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.2691

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

CLIENT: CH2M HILL

Work Order: N014859

Project: PG&E Topock IM3, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID MB-49851	SampType: MBLK	TestCode: 200.8_WDISS Units: µg/L	Prep Date: 3/5/2015	RunNo: 99321
Client ID: PBW	Batch ID: 49851	TestNo: EPA 200.8	Analysis Date: 3/6/2015	SeqNo: 1953961
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Manganese	ND	0.50		
Sample ID LCS-49851	SampType: LCS	TestCode: 200.8_WDISS Units: µg/L	Prep Date: 3/5/2015	RunNo: 99321
Client ID: LCSW	Batch ID: 49851	TestNo: EPA 200.8	Analysis Date: 3/6/2015	SeqNo: 1953962
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Manganese	99.342	0.50 100.0 0	99.3 85 115	
Sample ID N014859-002I-MS	SampType: MS	TestCode: 200.8_WDISS Units: µg/L	Prep Date: 3/5/2015	RunNo: 99321
Sample ID N014859-002I-MS Client ID: ZZZZZZ	SampType: MS Batch ID: 49851	TestCode: 200.8_WDISS Units: µg/L TestNo: EPA 200.8	Prep Date: 3/5/2015 Analysis Date: 3/6/2015	RunNo: 99321 SeqNo: 1953968
			• • • • • • • • • • • • • • • • • • • •	
Client ID: ZZZZZZ	Batch ID: 49851	TestNo: EPA 200.8	Analysis Date: 3/6/2015	SeqNo: 1953968
Client ID: ZZZZZZ	Batch ID: 49851 Result	TestNo: EPA 200.8	Analysis Date: 3/6/2015 %REC LowLimit HighLimit RPD Ref Val	SeqNo: 1953968 %RPD RPDLimit Qual
Client ID: ZZZZZZ Analyte Manganese	Batch ID: 49851 Result 64.630	TestNo: EPA 200.8 PQL SPK value SPK Ref Val 0.50 100.0 0	Analysis Date: 3/6/2015 %REC LowLimit HighLimit RPD Ref Val 64.6 75 125	SeqNo: 1953968 %RPD RPDLimit Qual S
Client ID: ZZZZZZ Analyte Manganese Sample ID N014859-002I-MSD	Batch ID: 49851 Result 64.630 SampType: MSD	TestNo: EPA 200.8 PQL SPK value SPK Ref Val 0.50 100.0 0 TestCode: 200.8_WDISS Units: µg/L	Analysis Date: 3/6/2015 %REC LowLimit HighLimit RPD Ref Val 64.6 75 125 Prep Date: 3/5/2015	SeqNo: 1953968 %RPD RPDLimit Qual S S RunNo: 99321

Qualifiers:

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

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E Value above quantitation range

R RPD outside accepted recovery limits

> Calculations are based on raw values NEVADA

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H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S

ANALYTICAL RESULTS

Print Date: 18-Mar-15

CLIENT:	CH2M HILL			C	lient Samp	le ID: SC	C-700B-WDR	-510		
Lab Order:	N014859			Collection Date: 3/3/2015 1:15:00 PM						
Project:	PG&E Topock 1	IM3, 658274.01.IN	M.OP.00		Μ	atrix: W	ATER			
Lab ID:	N014859-001									
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed		
HEXAVALEN		C								
				EP	A 218.6					
RunID: IC6_1	50304A	QC Batch: R9	9304		PrepD	Date		Analyst: RB		
Hexavalent C	hromium	ND	0.015	0.20		µg/L	1	3/4/2015 11:11 AM		
TOTAL META	LS BY ICPMS									
				EP	A 200.8					
RunID: ICP7_	150306A	QC Batch: 498	852		PrepD	Date	3/5/2015	Analyst: CEI		

Qualifiers:

Analyte detected in the associated Method Blank

- Н Holding times for preparation or analysis exceeded S
 - Spike/Surrogate outside of limits due to matrix interference
- Е Value above quantitation range
- ND Not Detected at the Reporting Limit Results are wet unless otherwise specified

ASSET LABORATORIES

В

DO Surrogate Diluted Out

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

ANALYTICAL RESULTS

Print Date: 18-Mar-15

CLIENT: Lab Order:	CH2M HILL			Client Sample ID: SC-100B-WDR-510								
Project:	N014859 PG&E Topock 1	IM3, 658274.01.IN	1.OP.00		Collection Date: 3/3/2015 1:18:00 PM Matrix: WATER							
Lab ID:	N014859-002											
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed				
HEXAVALEN	IT CHROMIUM BY IC	C										
				EP	A 218.6							
RunID: IC6_	150304A	QC Batch: R99	304		PrepD	Date		Analyst: RB				
Hexavalent (Chromium	590	3.0	40		µg/L	200	3/4/2015 12:11 PM				
TOTAL MET	ALS BY ICPMS											
				EP	A 200.8							
RunID: ICP7	_150306A	QC Batch: 498	52		PrepD	Date	3/5/2015	Analyst: CEI				
Chromium		560	0.15	5.0		µg/L	5	3/6/2015 09:57 AM				

Qualifiers:

В

Analyte detected in the associated Method Blank

- Н Holding times for preparation or analysis exceeded S
 - Spike/Surrogate outside of limits due to matrix interference
- Е Value above quantitation range
- ND Not Detected at the Reporting Limit Results are wet unless otherwise specified

DO Surrogate Diluted Out



CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

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CLIENT: CH2M HILL

Work Order: N014859

Project: PG&E Topock IM3, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W_CRPGE

Sample ID MB-49852	SampType: MBLK	TestCode: 200.8_W_CR Units: µg/L	Prep Date: 3/5/2015	RunNo: 99321
Client ID: PBW	Batch ID: 49852	TestNo: EPA 200.8	Analysis Date: 3/6/2015	SeqNo: 1953863
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Chromium	ND	1.0		
Sample ID LCS-49852	SampType: LCS	TestCode: 200.8_W_CR Units: µg/L	Prep Date: 3/5/2015	RunNo: 99321
Client ID: LCSW	Batch ID: 49852	TestNo: EPA 200.8	Analysis Date: 3/6/2015	SeqNo: 1953864
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Chromium	10.288	1.0 10.00 0	103 85 115	
			100 00 110	
Sample ID N014859-001C-MS	SampType: MS	TestCode: 200.8_W_CR Units: µg/L	Prep Date: 3/5/2015	RunNo: 99321
Sample ID N014859-001C-MS Client ID: ZZZZZZ				RunNo: 99321 SeqNo: 1953868
	SampType: MS	TestCode: 200.8_W_CR Units: µg/L	Prep Date: 3/5/2015	
Client ID: ZZZZZZ	SampType: MS Batch ID: 49852	TestCode: 200.8_W_CR Units: µg/L TestNo: EPA 200.8	Prep Date: 3/5/2015 Analysis Date: 3/6/2015	SeqNo: 1953868
Client ID: ZZZZZZ	SampType: MS Batch ID: 49852 Result 8.973	TestCode: 200.8_W_CR Units: µg/L TestNo: EPA 200.8 PQL SPK value SPK Ref Val	Prep Date: 3/5/2015 Analysis Date: 3/6/2015 %REC LowLimit HighLimit RPD Ref Val	SeqNo: 1953868
Client ID: ZZZZZZ Analyte Chromium	SampType: MS Batch ID: 49852 Result 8.973	TestCode: 200.8_W_CR Units: µg/L TestNo: EPA 200.8 PQL SPK value SPK Ref Val 1.0 10.00 0 0	Prep Date: 3/5/2015 Analysis Date: 3/6/2015 %REC LowLimit HighLimit RPD Ref Val 89.7 75 125	SeqNo: 1953868 %RPD RPDLimit Qual
Client ID: ZZZZZZ Analyte Chromium Sample ID N014859-001C-MSD	SampType: MS Batch ID: 49852 Result 8.973 SampType: MSD	TestCode: 200.8_W_CR Units: µg/L TestNo: EPA 200.8 PQL SPK value SPK Ref Val 1.0 10.00 0 0 TestCode: 200.8_W_CR Units: µg/L	Prep Date: 3/5/2015 Analysis Date: 3/6/2015 %REC LowLimit HighLimit RPD Ref Val 89.7 75 125 Prep Date: 3/5/2015	SeqNo: 1953868 %RPD RPDLimit Qual RunNo: 99321

Qualifiers:

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

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E Value above quantitation range

R RPD outside accepted recovery limits

Calculations are based on raw values

3151 W. Post Rd., Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.2691 H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

CLIENT: CH2M HILL

Work Order: N014859

Project: PG&E Topock IM3, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID MB-R99304	SampType: MBLK	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 99304
Client ID: PBW	Batch ID: R99304	TestNo: EPA 218.6	Analysis Date: 3/4/2015	SeqNo: 1946816
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-R99304	SampType: LCS	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 99304
Client ID: LCSW	Batch ID: R99304	TestNo: EPA 218.6	Analysis Date: 3/4/2015	SeqNo: 1946817
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	4.859	0.20 5.000 0	97.2 90 110	
Sample ID N014853-001I-DUP	SampType: DUP	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 99304
Client ID: ZZZZZZ	Batch ID: R99304	TestNo: EPA 218.6	Analysis Date: 3/4/2015	SeqNo: 1946819
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	1.134	0.20	1.117	1.51 20
Sample ID N014859-001A-MS	SampType: MS	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 99304
Client ID: ZZZZZZ	Batch ID: R99304	TestNo: EPA 218.6	Analysis Date: 3/4/2015	SeqNo: 1946821
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	1.058	0.20 1.000 0.02770	103 90 110	
Sample ID N014859-002A-MS	SampType: MS	TestCode: 218.6_WPGE Units: µg/L	Prep Date:	RunNo: 99304
Client ID: ZZZZZZ	Batch ID: R99304	TestNo: EPA 218.6	Analysis Date: 3/4/2015	SeqNo: 1946825
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	808.000	40 200.0 594.7	107 90 110	

Qualifiers:

ND

B Analyte detected in the associated Method Blank

Not Detected at the Reporting Limit

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

Calculations are based on raw values

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

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

DO Surrogate Diluted Out
ASSET LABORATORIES

CALIFORNIA 1060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

CLIENT: CH2M HILL

Work Order: N014859

Project: PG&E Topock IM3, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID N014860-001A-MS	SampType: MS	TestCode: 218.6_WF	PGE Units: µg/L		Prep Date	: :		RunNo: 99:	304	
Client ID: ZZZZZZ	Batch ID: R99304	TestNo: EPA 218.0	6		Analysis Date	e: 3/4/201	5	SeqNo: 194	46827	
Analyte	Result	PQL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	990.720	40 200.0	783.7	104	90	110				
Sample ID N014860-001A-MSD	SampType: MSD	TestCode: 218.6_WF	PGE Units: µg/L		Prep Date):		RunNo: 99:	304	
Client ID: ZZZZZZ	Batch ID: R99304	TestNo: EPA 218.0	6		Analysis Date	e: 3/4/201	5	SeqNo: 194	46828	
Analyte	Result	PQL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	979.380	40 200.0	783.7	97.9	90	110	990.7	1.15	20	
Sample ID N014857-004A-MS	SampType: MS	TestCode: 218.6_WF	PGE Units: µg/L		Prep Date	e:		RunNo: 99	304	
Sample ID N014857-004A-MS Client ID: ZZZZZZ	SampType: MS Batch ID: R99304	TestCode: 218.6_WF TestNo: EPA 218 .			Prep Date Analysis Date		5	RunNo: 99: SeqNo: 194		
		– TestNo: EPA 218.0		%REC	Analysis Date	e: 3/4/201	5 RPD Ref Val			Qual
Client ID: ZZZZZZ	Batch ID: R99304	– TestNo: EPA 218.0	6		Analysis Date	e: 3/4/201		SeqNo: 194	16843	Qual
Client ID: ZZZZZZ	Batch ID: R99304 Result	TestNo: EPA 218. PQL SPK value	6 SPK Ref Val 1.691	%REC	Analysis Date	e: 3/4/201 HighLimit 110		SeqNo: 194	46843 RPDLimit	Qual
Client ID: ZZZZZZ Analyte Hexavalent Chromium	Batch ID: R99304 Result 2.735	TestNo: EPA 218. PQL SPK value 0.20 1.000	6 SPK Ref Val 1.691 PGE Units: μg/L	%REC 104	Analysis Date LowLimit 90	e: 3/4/201 HighLimit 110 e:	RPD Ref Val	SeqNo: 19 %RPD	46843 RPDLimit	Qual
Client ID: ZZZZZZ Analyte Hexavalent Chromium Sample ID N014857-005A-MS	Batch ID: R99304 Result 2.735 SampType: MS	TestNo: EPA 218.4 PQL SPK value 0.20 1.000 TestCode: 218.6_WF TestNo: EPA 218.4	6 SPK Ref Val 1.691 PGE Units: μg/L	%REC 104	Analysis Date LowLimit 90 Prep Date Analysis Date	e: 3/4/201 HighLimit 110 e: e: 3/4/201	RPD Ref Val	SeqNo: 19 , %RPD RunNo: 99 ;	46843 RPDLimit	Qual

Qualifiers:

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

CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

R RPD outside accepted recovery limits

E Value above quantitation range

Calculations are based on raw values NEVADA

3151 W. Post Rd., Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.2691 H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

ANALYTICAL RESULTS

ASSET	Laboratories		Print Date: 18-Mar-15						
CLIENT:	CH2M HILL		Client Sample ID: SC-700B-WDR-510						
Lab Orde	r: N014859		Collection Date: 3/3/2015 1:15:00 PM						
Project:	PG&E Topock	IM3, 658274.01.IM.OP.00		Matrix: WA	ATER				
Lab ID:	N014859-001								
Analyses		Result MDL	PQL	Qual Units	DF	Date Analyzed			
TURBIDI	ΓY		SM	I 2130B					
RunID: N	VETCHEM_150304E	QC Batch: R99289		PrepDate		Analyst: LR			
Turbidity	,	0.14 0.10	0.10	NTU	1	3/4/2015 01:30 PM			

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

DO Surrogate Diluted Out



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ANALYTICAL RESULTS

ASSET I	Laboratories		Print Date: 18-Mar-15						
CLIENT:	CH2M HILL		Client Sample ID: SC-100B-WDR-510						
Lab Ordei	N014859		Collection Date: 3/3/2015 1:18:00 PM						
Project:	PG&E Topock	IM3, 658274.01.IM.OP.00	Matrix: WATER						
Lab ID:	N014859-002								
Analyses		Result MDL	PQL	Qual Units	DF	Date Analyzed			
TURBIDIT	Ϋ́		SN	I 2130B					
RunID: V	VETCHEM_150304E	QC Batch: R99289		PrepDate		Analyst: LR			
Turbidity		0.24 0.10	0.10	NTU	1	3/4/2015 01:30 PM			

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

DO Surrogate Diluted Out

ASSET LABORATORIES

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

Date: 18-Mar-15

CLIENT: CH2M HILL

Work Order: N014859

Project: PG&E Topock IM3, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 2130_W

Sample ID N014859-001B DUP	SampType: DUP	TestCode: 2	2130_W	Units: NTU		Prep Dat	te:		RunNo: 992	289	
Client ID: ZZZZZZ	Batch ID: R99289	TestNo: S	SM 2130B			Analysis Dat	te: 3/4/201	5	SeqNo: 194	16093	
Analyte	Result	PQL SF	PK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity	0.130	0.10						0.1400	7.41	30	

Qualifiers:

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

ASSET LABORATORIES

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

Calculations are based on raw values NEVADA 3151 W. Post Rd., Las Vegas, NV 89118

P: 702.307.2659 F: 702.307.2691

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

ANALYTICAL RESULTS

Print Date: 18-Mar-15

OL TENTE				C	P			510	
CLIENT:	CH2M HILL			Client Sample ID: SC-100B-WDR-510					
Lab Order:	N014859			Collection Date: 3/3/2015 1:18:00 PM					
Project:	PG&E Topock IN	M3, 658274.01.IN	M.OP.00	Matrix: WATER					
Lab ID:	N014859-002								
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed	
ALKALINITY,	SPECIATED								
				SM	2320 B				
RunID: WETC	CHEM_150308A	QC Batch: R9	9348	SM	2320 B PrepD	ate		Analyst: QBN	
	CHEM_150308A arbonate (As CaCO3)	QC Batch: R9 150	9348 1.2	SM 5.0		ate mg/L	1	Analyst: QBN 3/8/2015	
Alkalinity, Bica	-			-			1 1	,	
Alkalinity, Bica Alkalinity, Car	arbonate (As CaCO3)	150	1.2	5.0		mg/L	1 1 1	3/8/2015	

Qualifiers:

В

Analyte detected in the associated Method Blank

- Н Holding times for preparation or analysis exceeded S
 - Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Е Value above quantitation range

Results are wet unless otherwise specified

ASSET LABORATORIES

- ND Not Detected at the Reporting Limit

CALIFORNIA

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Project:

CLIENT: CH2M HILL

Work Order: N014859

PG&E Topock IM3, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID LCS-R99348	SampType:	LCS	TestCoo	le: 2320_W_	SP Units: mg/L		Prep Dat	te:		RunNo: 99	348	
Client ID: LCSW	Batch ID:	R99348	TestN	lo: SM 2320	B		Analysis Dat	te: 3/8/201	15	SeqNo: 194	48181	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO	3)	98.517	5.0	100.0	0	98.5	85	115				
Alkalinity, Total (As CaCO3)		98.517	5.0	100.0	0	98.5	85	115				
Sample ID MB-R99348	SampType:	MBLK	TestCoo	le: 2320_W_	SP Units: mg/L		Prep Dat	te:		RunNo: 99	348	
Client ID: PBW	Batch ID:	R99348	TestN	lo: SM 2320	В		Analysis Dat	te: 3/8/201	15	SeqNo: 194	48182	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO	3)	ND	5.0									
Alkalinity, Carbonate (As CaCO3)		ND	5.0									
Alkalinity, Hydroxide (As CaCO3)		ND	5.0									
Alkalinity, Total (As CaCO3)		ND	5.0									
Sample ID N014859-002BDUP	SampType:	DUP	TestCoo	de: 2320_W_	SP Units: mg/L		Prep Dat	te:		RunNo: 99	348	
Sample ID N014859-002BDUP Client ID: ZZZZZZ	SampType: Batch ID:			de: 2320_W_: lo: SM 2320	-		Prep Dat Analysis Dat		15	RunNo: 99: SeqNo: 194		
·				lo: SM 2320	-	%REC	•	te: 3/8/201	15 RPD Ref Val			Qual
Client ID: ZZZZZZ	Batch ID:	R99348	TestN	lo: SM 2320	В		Analysis Dat	te: 3/8/201		SeqNo: 194	48190	Qual
Client ID: ZZZZZZ	Batch ID:	R99348 Result	TestN PQL	lo: SM 2320	В		Analysis Dat	te: 3/8/201	RPD Ref Val	SeqNo: 194 %RPD	18190 RPDLimit	Qual
Client ID: ZZZZZZ Analyte Alkalinity, Bicarbonate (As CaCO	Batch ID: 3) 1	R99348 Result 52.542	TestN PQL 5.0	lo: SM 2320	В		Analysis Dat	te: 3/8/201	RPD Ref Val 152.5	SeqNo: 19 %RPD 0	48190 RPDLimit 30	Qual
Client ID: ZZZZZZ Analyte Alkalinity, Bicarbonate (As CaCO Alkalinity, Carbonate (As CaCO3)	Batch ID: 3) 1	R99348 Result 52.542 ND	TestN PQL 5.0 5.0	lo: SM 2320	В		Analysis Dat	te: 3/8/201	RPD Ref Val 152.5 0	SeqNo: 19 %RPD 0 0	48190 RPDLimit 30 30	Qual
Client ID: ZZZZZZ Analyte Alkalinity, Bicarbonate (As CaCO Alkalinity, Carbonate (As CaCO3) Alkalinity, Hydroxide (As CaCO3)	Batch ID: 3) 1	R99348 Result 52.542 ND ND 52.542	TestN PQL 5.0 5.0 5.0 5.0	lo: SM 2320	B SPK Ref Val		Analysis Dat	te: 3/8/207 HighLimit	RPD Ref Val 152.5 0 0	SeqNo: 194 %RPD 0 0	48190 RPDLimit 30 30 30 30	Qual
Client ID: ZZZZZZ Analyte Alkalinity, Bicarbonate (As CaCO Alkalinity, Carbonate (As CaCO3) Alkalinity, Hydroxide (As CaCO3) Alkalinity, Total (As CaCO3)	Batch ID: 3) 1 1	R99348 Result 52.542 ND 52.542 52.542 MS	TestN PQL 5.0 5.0 5.0 5.0 TestCoo	lo: SM 2320 SPK value	B SPK Ref Val	%REC	Analysis Dat	te: 3/8/204 HighLimit	RPD Ref Val 152.5 0 0 152.5	SeqNo: 19/ %RPD 0 0 0 0	RPDLimit 30 30 30 30 30	Qual
Client ID: ZZZZZZ Analyte Alkalinity, Bicarbonate (As CaCO Alkalinity, Carbonate (As CaCO3) Alkalinity, Hydroxide (As CaCO3) Alkalinity, Total (As CaCO3) Sample ID N014860-002CMS	Batch ID: 3) 1 SampType:	R99348 Result 52.542 ND 52.542 52.542 MS	TestN PQL 5.0 5.0 5.0 5.0 TestCoo	lo: SM 2320 SPK value	B SPK Ref Val	%REC	Analysis Dat LowLimit Prep Dat	te: 3/8/204 HighLimit te: te: 3/8/204	RPD Ref Val 152.5 0 0 152.5	SeqNo: 194 %RPD 0 0 0 0 RunNo: 993	RPDLimit 30 30 30 30 30	Qual
Client ID: ZZZZZZ Analyte Alkalinity, Bicarbonate (As CaCO Alkalinity, Carbonate (As CaCO3) Alkalinity, Hydroxide (As CaCO3) Alkalinity, Total (As CaCO3) Sample ID N014860-002CMS Client ID: ZZZZZZ	Batch ID: 3) 1 SampType: Batch ID:	R99348 Result 52.542 ND 52.542 S2.542 MS R99348	TestN PQL 5.0 5.0 5.0 5.0 5.0 TestCoo TestN	lo: SM 2320 SPK value	B SPK Ref Val SP Units: mg/L B	%REC	Analysis Dai LowLimit Prep Dai Analysis Dai	te: 3/8/204 HighLimit te: te: 3/8/204	RPD Ref Val 152.5 0 152.5	SeqNo: 194 %RPD 0 0 0 0 RunNo: 99 SeqNo: 194	48190 RPDLimit 30 30 30 348 48193	

Qualifiers:

ND

B Analyte detected in the associated Method Blank

Not Detected at the Reporting Limit

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

Calculations are based on raw values NEVADA

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H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S



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CLIENT: CH2M HILL

Work Order: N014859

Project: PG&E Topock IM3, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID N014860-002CMSD	SampType: MSD	TestCod	le: 2320_W_S	SP Units: mg/L		Prep Da	te:		RunNo: 993	348	
Client ID: ZZZZZZ	Batch ID: R99348	TestN	lo: SM 2320 E	В		Analysis Da	te: 3/8/201	5	SeqNo: 194	48194	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3) Alkalinity, Total (As CaCO3)	311.441 311.441	5.0 5.0	100.0 100.0	215.0 215.0	96.4 96.4	75 75	125 125	312.5 312.5	0.340 0.340	20 20	

E Value above quantitation range

RPD outside accepted recovery limits

Calculations are based on raw values

NEVADA

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R

Qualifiers:

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

ASSET LABORATORIES

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

ANALYTICAL RESULTS

Print Date: 18-Mar-15

CLIENT: Lab Orde Project:	r: N014859 PG&E Topock	IM3, 658274.01.IN	1.OP.00	Client Sample ID: SC-700B-WDR-510 Collection Date: 3/3/2015 1:15:00 PM Matrix: WATER							
Lab ID: Analyses	N014859-001	Result	MDL	PQL	Qual	Units	DF	Date Analyzed			
ANIONS	BY ION CHROMATOG	RAPHY		EP	A 300.0						
RunID: I	C2_150305A	QC Batch: R99	317		PrepD	ate		Analyst: QBM			
Fluoride		3.8	0.22	2.0		mg/L	20	3/5/2015 12:46 PM			
ANIONS	BY ION CHROMATOG	RAPHY									
		EPA 300.0									
RunID: I	C2_150305A	QC Batch: R99	317		PrepD	ate		Analyst: QBM			
Sulfate						mg/L	50	3/5/2015 01:11 PM			

Qualifiers:

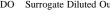
В

Analyte detected in the associated Method Blank

- Н Holding times for preparation or analysis exceeded
 - Spike/Surrogate outside of limits due to matrix interference
- Е Value above quantitation range

- S
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out

Results are wet unless otherwise specified



ASSET LABORATORIES

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ANALYTICAL RESULTS

Print Date: 18-Mar-15

CLIENT: Lab Orde Project:	r: N014859 PG&E Topock	IM3, 658274.01.IM	.OP.00	Client Sample ID: SC-100B-WDR-510 Collection Date: 3/3/2015 1:18:00 PM Matrix: WATER						
Lab ID: Analyses	N014859-002	Result	MDL	PQL	Qual	Units	DF	Date Analyzed		
ANIONS	BY ION CHROMATOG	RAPHY		EP/	A 300.0					
RunID: I	C2_150305A	QC Batch: R993	17		PrepD	ate		Analyst: QBM		
Fluoride		4.2	0.22	2.0 mg/L 20				3/5/2015 12:58 PM		
ANIONS	BY ION CHROMATOGE	RAPHY								
		EPA 300.0								
RunID: I	C2_150305A	QC Batch: R993	517		PrepD	Analyst: QBM				
Sulfate		1.6	25		mg/L	50	3/5/2015 01:24 PM			

Qualifiers:

В

Analyte detected in the associated Method Blank

- Н Holding times for preparation or analysis exceeded S
 - Spike/Surrogate outside of limits due to matrix interference
- Е Value above quantitation range
- ND Not Detected at the Reporting Limit Results are wet unless otherwise specified

DO Surrogate Diluted Out



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CLIENT: CH2M HILL

Work Order: N014859

Project: PG&E Topock IM3, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_FPGE

Sample ID MB-R99317_F	SampType: MBLK	TestCode: 300_W_FPG Units: mg/L	Prep Date:	RunNo: 99317
Client ID: PBW	Batch ID: R99317	TestNo: EPA 300.0	Analysis Date: 3/5/2015	SeqNo: 1946952
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride	ND	0.10		
Sample ID LCS-R99317_F	SampType: LCS	TestCode: 300_W_FPG Units: mg/L	Prep Date:	RunNo: 99317
Client ID: LCSW	Batch ID: R99317	TestNo: EPA 300.0	Analysis Date: 3/5/2015	SeqNo: 1946953
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride	2.385	0.10 2.500 0	95.4 90 110	
Sample ID N014859-001BDUP Client ID: ZZZZZZ	SampType: DUP Batch ID: R99317	TestCode: 300_W_FPG Units: mg/L TestNo: EPA 300.0	Prep Date: Analysis Date: 3/5/2015	RunNo: 99317 SeqNo: 1946960
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride	4.060	2.0	3.780	7.14 20
Sample ID N014859-002BMS Client ID: ZZZZZZ	SampType: MS Batch ID: R99317	TestCode: 300_W_FPG Units: mg/L TestNo: EPA 300.0	Prep Date: Analysis Date: 3/5/2015	RunNo: 99317 SeqNo: 1946961
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride	51.480	2.0 50.00 4.160	94.6 80 120	
Sample ID N014859-002BMSD Client ID: ZZZZZZ	SampType: MSD Batch ID: R99317	TestCode: 300_W_FPG Units: mg/L TestNo: EPA 300.0	Prep Date: Analysis Date: 3/5/2015	RunNo: 99317 SeqNo: 1946962
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Fluoride	50.760	2.0 50.00 4.160	93.2 80 120 51.48	1.41 20

Qualifiers:

ND

B Analyte detected in the associated Method Blank

Not Detected at the Reporting Limit

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

Calculations are based on raw values

3151 W. Post Rd., Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.2691 H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out
ASSET LABORATORIES

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CLIENT: CH2M HILL

Work Order: N014859

Project: PG&E Topock IM3, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID MB-R99317_SO4	SampType: MBLK	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: 99317		
Client ID: PBW	Batch ID: R99317	TestNo: EPA 300.0	Analysis Date: 3/5/2015	SeqNo: 1947009		
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual		
Sulfate	ND	0.50				
Sample ID LCS-R99317_SO4	SampType: LCS	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: 99317		
Client ID: LCSW	Batch ID: R99317	TestNo: EPA 300.0	Analysis Date: 3/5/2015	SeqNo: 1947010		
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual		
Sulfate	4.884	0.50 5.000 0	97.7 90 110			
Sample ID N014859-001BDUP	SampType: DUP	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: 99317		
Client ID: ZZZZZZ	Batch ID: R99317	TestNo: EPA 300.0	Analysis Date: 3/5/2015	SeqNo: 1947019		
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual		
Sulfate	505.450	25	484.8	4.17 20		
Sample ID N014859-002BMS	SampType: MS	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: 99317		
Client ID: ZZZZZZ	Batch ID: R99317	TestNo: EPA 300.0	Analysis Date: 3/5/2015	SeqNo: 1947020		
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual		
Sulfate	773.550	25 250.0 499.0	110 80 120			
Sample ID N014859-002BMSD	SampType: MSD	TestCode: 300_W_SO4P Units: mg/L	Prep Date:	RunNo: 99317		
Client ID: ZZZZZZ	Batch ID: R99317	TestNo: EPA 300.0	Analysis Date: 3/5/2015	SeqNo: 1947021		
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual		
Sulfate	784.500	25 250.0 499.0	114 80 120 773.6	1.41 20		

Qualifiers:

ND

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

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

Calculations are based on raw values NEVADA

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H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S

ANALYTICAL RESULTS Print Date: 18-Mar-15

					Time Date: 10-2	mui -15			
CLIENT:	CH2M HILL		Client Sample ID: SC-100B-WDR-510						
Lab Order:	N014859		Collection Date: 3/3/2015 1:18:00 PM						
Project:	PG&E Topock	IM3, 658274.01.IM.OP.00	Matrix: WATER						
Lab ID:	N014859-002								
Analyses		Result MDL	PQL	Qual U	nits DF	Date Analyzed			
TOTAL PHOS	SPHORUS								
			EP.	A 365.3					
RunID: WET	CHEM_150316C	QC Batch: 49929		PrepDate	3/16/2015	Analyst: QBN			
Phosphorus, Total (As P) ND 0.0030			0.020	mg	3/16/2015				

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

DO Surrogate Diluted Out

ASSET LABORATORIES

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

Project:

CLIENT: CH2M HILL

Work Order: N014859

PG&E Topock IM3, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 365.3_W_T

Sample ID	LCS-49929	SampType: LC	S TestCo	ode: 365.3_W_	T Units: mg/L		Prep Dat	te: 3/16/2	015	RunNo: 99	459	
Client ID:	LCSW	Batch ID: 499	929 Tes	No: EPA 365.	3		Analysis Dat	te: 3/16/2	015	SeqNo: 19	53526	
Analyte		Re	esult PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphoru	s, Total (As P)	0.	.376 0.020	0.4000	0	94.0	80	120				
Sample ID	MB-49929	SampType: MB	BLK TestCo	ode: 365.3_W_	T Units: mg/L		Prep Dat	te: 3/16/2	015	RunNo: 99	459	
Client ID:	PBW	Batch ID: 499	929 Tes	No: EPA 365.	3		Analysis Dat	te: 3/16/2	015	SeqNo: 19	53527	
Analyte		Re	esult PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphoru	s, Total (As P)		ND 0.020									
Sample ID	N014859-002F-DUP	SampType: DU	P TestC	ode: 365.3_W_	T Units: mg/L		Prep Dat	te: 3/16/2	015	RunNo: 99	459	
Client ID:	ZZZZZZ	Batch ID: 499	929 Tes	No: EPA 365.	3		Analysis Dat	te: 3/16/2	015	SeqNo: 19	53529	
Analyte		Re	esult PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphoru	s, Total (As P)		ND 0.020						0	0	20	
Sample ID	N014859-002F-MS	SampType: MS	TestCo	ode: 365.3_W_	T Units: mg/L		Prep Dat	te: 3/16/2	015	RunNo: 99	459	
Client ID:	ZZZZZZ	Batch ID: 499	929 Tes	No: EPA 365.	3		Analysis Dat	te: 3/16/2	015	SeqNo: 19	53530	
Analyte		Re	esult PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus	s, Total (As P)	0.	.380 0.020	0.4000	0	95.0	80	120				
Sample ID	N014859-002F-MSD	SampType: MS	D TestCo	ode: 365.3_W_	T Units: mg/L		Prep Dat	te: 3/16/2	015	RunNo: 99	459	
Client ID:	ZZZZZZ	Batch ID: 499	929 Tes	No: EPA 365.	3		Analysis Dat	te: 3/16/2	015	SeqNo: 19	53531	
Analyte		Re	esult PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphoru	s, Total (As P)	0.	.378 0.020	0.4000	0	94.5	80	120	0.3800	0.528	20	

Qualifiers:

ND

B Analyte detected in the associated Method Blank

Not Detected at the Reporting Limit

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

Calculations are based on raw values NEVADA

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

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S

DO Surrogate Diluted Out ASSET LABORATORIES

CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

ANALYTICAL RESULTS

ASSET	Laboratories		Print Date: 18-Mar-15							
CLIENT:	CH2M HILL		С	lient Sample ID: SO	C-700B-WDF	R-510				
Lab Orde	r: N014859			Collection Date: 3/	3/2015 1:15:0	00 PM				
Project:	PG&E Topock	IM3, 658274.01.IM.OP.00		Matrix: W	ATER					
Lab ID:	N014859-001									
Analyses		Result MDL	PQL	Qual Units	DF	Date Analyzed				
NITRATE	/NITRITE-N BY CADMI	UM REDUCTION	SM4	500-NO3F						
RunID: N	VETCHEM_150310C	QC Batch: R99360		PrepDate		Analyst: QBM				
Nitrate/N	litrite as N	2.7 0.11	0.25	mg/L	5	3/10/2015				

Qualifiers:

В

Analyte detected in the associated Method Blank

- Н Holding times for preparation or analysis exceeded S
 - Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out ASSET LABORATORIES

Е Value above quantitation range ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

CALIFORNIA

11060 Artesia Blvd., Ste C, 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

ANALYTICAL RESULTS Print Date: 18-Mar-15

						111110	Juic: 101	1147 115
CLIENT:	CH2M HILL			С	lient Samp	le ID: SC-1	00B-WDR	-510
Lab Order:	N014859				Collection	Date: 3/3/2	015 1:18:0	00 PM
Project:	PG&E Topock	IM3, 658274.01.I	M.OP.00		Μ	atrix: WAT	'ER	
Lab ID:	N014859-002							
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NIT	RITE-N BY CADM	IUM REDUCTION						
				SM4	500-NO3F			
RunID: WET	CHEM_150310C	QC Batch: R9	9360		PrepD	ate		Analyst: QB
Nitrate/Nitrite	as N	2.6	0.11	0.25		mg/L	5	3/10/2015

Qualifiers:

В

Analyte detected in the associated Method Blank

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

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

DO Surrogate Diluted Out

ASSET LABORATORIES

CALIFORNIA 11060 Artesia Blvd., Ste C, 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

CLIENT: CH2M HILL

Work Order: N014859

Project: PG&E Topock IM3, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID MB-R99360	SampType:	MBLK	TestCode: 4500N03F_W Units: mg	L Prep Date:	RunNo: 99360
Client ID: PBW	Batch ID:	R99360	TestNo: SM4500-NO3	Analysis Date: 3/10/2015	SeqNo: 1948570
Analyte		Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Nitrate/Nitrite as N		0.024	0.050		
Sample ID LCS-R99360	SampType:	LCS	TestCode: 4500N03F_W Units: mg	L Prep Date:	RunNo: 99360
Client ID: LCSW	Batch ID:	R99360	TestNo: SM4500-NO3	Analysis Date: 3/10/2015	SeqNo: 1948571
Analyte		Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Nitrate/Nitrite as N		0.977	0.050 1.000 0	97.7 85 115	
Sample ID N014777-001EDUP	SampType:	DUP	TestCode: 4500N03F_W Units: mg	Prep Date:	RunNo: 99360
Client ID: ZZZZZZ	Batch ID:	R99360	TestNo: SM4500-NO3	Analysis Date: 3/10/2015	SeqNo: 1948573
Analyte		Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Nitrate/Nitrite as N		0.433	0.050	0.4485	3.52 20
Sample ID N014777-002EMS	SampType:	MS	TestCode: 4500N03F_W Units: mg	L Prep Date:	RunNo: 99360
Client ID: ZZZZZZ	Batch ID:	R99360	TestNo: SM4500-NO3	Analysis Date: 3/10/2015	SeqNo: 1948575
Analyte		Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Nitrate/Nitrite as N		1.470	0.050 1.000 0.4555	101 75 125	
Sample ID N014777-002EMSD	SampType:	MSD	TestCode: 4500N03F_W Units: mg	L Prep Date:	RunNo: 99360
Client ID: ZZZZZZ	Batch ID:	R99360	TestNo: SM4500-NO3	Analysis Date: 3/10/2015	SeqNo: 1948576
Analyte		Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Nitrate/Nitrite as N		1.449	0.050 1.000 0.4555	99.4 75 125 1.470	1.42 20

Qualifiers:

ND

B Analyte detected in the associated Method Blank

Not Detected at the Reporting Limit

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

Calculations are based on raw values

3151 W. Post Rd., Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.2691 H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

DO Surrogate Diluted Out
ASSET LABORATORIES

CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

ANALYTICAL RESULTS Print Date: 18-Mar-15

					111110 1	Jucc: 10 h	10 15
CLIENT:	CH2M HILL		(Client Samp	le ID: SC-1	00B-WDR	-510
Lab Order:	N014859			Collection	Date: 3/3/2	015 1:18:0	00 PM
Project:	PG&E Topock	IM3, 658274.01.IM.OP.	00	Μ	atrix: WAT	'ER	
Lab ID:	N014859-002						
Analyses		Result MDI	L PQL	Qual	Units	DF	Date Analyzed
TOTAL ORGA	NIC CARBON						
			SI	M 5310C			
RunID: TOC2	2_150304A	QC Batch: R99302		PrepD	ate		Analyst: QBI
Organic Carb	on, Total	ND 0.04	1 1.0		mg/L	1	3/4/2015 05:18 P

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range

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

DO Surrogate Diluted Out

ASSET LABORATORIES

CALIFORNIA 11060 Artesia Blvd., Ste C, 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

CLIENT: CH2M HILL

Work Order: N014859

Project: PG&E Topock IM3, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 5310C_W_T

Sample ID MB-R99302 Client ID: PBW	SampType: MBLK Batch ID: R99302	TestCode: 5310C_W_T Units: mg/L TestNo: SM 5310C	Prep Date: Analysis Date: 3/4/2015	RunNo: 99302 SeqNo: 1946642
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Organic Carbon, Total	ND	1.0		
Sample ID LCS-R99302 Client ID: LCSW	SampType: LCS Batch ID: R99302	TestCode: 5310C_W_T Units: mg/L TestNo: SM 5310C	Prep Date: Analysis Date: 3/4/2015	RunNo: 99302 SeqNo: 1946643
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Organic Carbon, Total	5.008	1.0 5.000 0	100 85 115	
Sample ID N014814-001DMS	SampType: MS	TestCode: 5310C_W_T Units: mg/L	Prep Date:	RunNo: 99302
Sample ID N014814-001DMS Client ID: ZZZZZZ	SampType: MS Batch ID: R99302	TestCode: 5310C_W_T Units: mg/L TestNo: SM 5310C	Prep Date: Analysis Date: 3/4/2015	RunNo: 99302 SeqNo: 1946644
			·	
Client ID: ZZZZZZ	Batch ID: R99302	TestNo: SM 5310C	Analysis Date: 3/4/2015	SeqNo: 1946644
Client ID: ZZZZZZ Analyte Organic Carbon, Total Sample ID N014814-001DMS	Batch ID: R99302 Result 4.914 SampType: MSD	TestNo: SM 5310C PQL SPK value SPK Ref Val 1.0 5.000 0.09860 TestCode: 5310C_W_T Units: mg/L	Analysis Date: 3/4/2015 %REC LowLimit HighLimit RPD Ref Val 96.3 75 125 Prep Date:	SeqNo: 1946644 %RPD RPDLimit Qual RunNo: 99302
Client ID: ZZZZZZ Analyte Organic Carbon, Total	Batch ID: R99302 Result 4.914	TestNo: SM 5310C PQL SPK value SPK Ref Val 1.0 5.000 0.09860	Analysis Date: 3/4/2015 %REC LowLimit HighLimit RPD Ref Val 96.3 75 125	SeqNo: 1946644 %RPD RPDLimit Qual

Qualifiers:

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

P: 562.219.7435 F: 562.219.7436

CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703

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

Calculations are based on raw values NEVADA

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

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S

"Serving Clients with Passion and Professionalism"

43

WORKORDER: N014859

ANALYST LIST

NAME	TEST METHOD
Quennie Manimtim	EPA 300, EPA 365.3, SM 2320B, SM 4500-NO3-F, SM 5310C
Claire Ignacio	EPA 200.7, EPA 200.8
Ryan Balilu	EPA 218.6
Lilia Ramit	EPA 120.1, SM 2540C, SM 2130B



CALIFORNIA 11060 Artesia Blvd., Ste C, 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



de contra	ABJOEILAN ANALYTICAL SUPPORT SERVICES 3151W. Post Road (702) 307-2659 FA	s for environmental 1 , Las Vegas, M	VV 89118		CHAI			JST(Plant				D					DAT	E_03	3/03/*	TIME) Days		OF	1
COMPANY PROJECT NAME PHONE ADDRESS	CH2M HILL PG&E Topock 530-229-33 155 Grand Ave Oakland, CA 94	303 Ste 1000	fax <u>530-</u>	-339-3303		Hill .	mered			/	Amman Roo. 71 c	VH3. VH3. Below	M- (61-	80.	5	(200-	NO3/NG Silica - Reaction Fe, Mn lab an	00. A. (4500. St	(Quon 10) (EON-0	TAINERS	2	1	СОММ	ENTS	
P.O. NUMBER SAMPLERS (SIGNA SAMPLE I.D.	658274.01.IM.OP		TIME	DESCRIPTION	Cr(M) 2	Alkalin: (218.6) Lab File	EC (12) (2320-B)	(1-0-1) TDS (Turb (c)	Total A.	Ammond (200.	Total C 4500-NH2	Anion (4500-P)	TOC / FC (300.0) F, S	Dissolut C)	Soluar. Netals	NO3MS Silica - R		NUMP	THE OF CONTAINERS					
SC-700B-V	VDR-510	03/03/15	13:15		X		X	Х	х	х	x		X				Х		4		1014	850	ŋ —	1	
SC-100B-V	VDR-510	03/03/15	13:18		X	X	×	×	x	X	×	X	X	Х	х	X	X		9		1		4000.	2	
																			13	τοτ	AL NUME	BER OF	CONT	AINER	*******

CH	AIN OF CUSTODY SI	GNATURE RECORD		1. 10 SAMPLE CONDITIONS
Signature (Relinquished)	Printed Name How HELDS	Company/ 5 Agency <i>Open</i> /	Date/ 3-3-15 Time 13:40	
Signature (Received)	Printed Name Dri lander Galan	Company/ ASSET LAGS	Date/ 3/3//) Time /340	CUSTODY SEALED YES 🔲 NO 🗍
Signature (Relinquished)	Printed Willauto Carl	Agency ASJET LABS	Date/ ^お (う/()- Time (似)	SPECIAL REQUIREMENTS:
Signature (Received)	Printed Willach Gale	Agency ASSET (AB)	Date/ 3/3//[Time / 44	The metals include: Cr, Al, Sb, As, Ba, B, Cu, Pb, Mn, Mo, Ni, Fe, Zn
Signature U V (Relinquished)	Printed V Name	Company/ Agency	Date/ Time	
Signature (Received)	Printed Name	Company/ Agency	Date/ Time	

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:	3/3/2015				W	orkorder:	N014859		
Rep sample Temp (Deg C):	1.9				IR	Gun ID:	2		
Temp Blank:	Yes	🗌 No							
Carrier name:	ATL								
Last 4 digits of Tracking No.:	NA			Packing	Mater	ial Used:	None		
Cooling process:	✓ Ice	lce Pack	Dry Ice	Other		None			
					_				
			ample Receip	t Checklis					
1. Shipping container/cooler in g							No 🗌	Not Present	
2. Custody seals intact, signed,		ppping container/	cooler?		Yes		No 🗌	Not Present	
3. Custody seals intact on sample	le bottles?				Yes		No 🗌	Not Present	
4. Chain of custody present?							No 🗌		
5. Sampler's name present in Co	OC?				Yes		No 🗌		
6. Chain of custody signed when	n relinquished	and received?			Yes	\checkmark	No 🗌		
7. Chain of custody agrees with	sample label	s?			Yes	\checkmark	No 🗌		
8. Samples in proper container/b	oottle?				Yes	\checkmark	No 🗌		
9. Sample containers intact?					Yes	\checkmark	No 🗌		
10. Sufficient sample volume for	indicated tes	st?			Yes	\checkmark	No 🗌		
11. All samples received within h	nolding time?				Yes	\checkmark	No 🗌		
12. Temperature of rep sample of	or Temp Blan	k within acceptat	ole limit?		Yes		No 🗌	NA	
13. Water - VOA vials have zero	headspace?	,			Yes		No 🗌	NA	\checkmark
14. Water - pH acceptable upon	receipt?				Yes	✓	No 🗌	NA	
Example: pH > 12 for (CN	I,S); pH<2 fo	r Metals				_	_		_
15. Did the bottle labels indicate	correct pres	ervatives used?			Yes	\checkmark	No 🗌	NA	
16. Were there Non-Conformance		-			Yes		No 🗌	NA	
	as Client noti	ned?			Yes		No	NA	
Comments:									





Subcontractor:

CHAIN-OF-CUSTODY RECORD

QC Level: Level IV

Truesdail	TEL:	(714) 730-6239	Field Sampler:	SIGNED	
14201 Franklin Ave.	FAX:	(714) 730-6462			
Tustin, CA 92680	Acct #:				04-Mar-15

					Requested Tests	
Sample ID	Matrix	Date Collected	Bottle Type	SM 4500-SiO2 C	SM4500-NH3C	
N014859-001D / SC-700B-WDR-510	Water	3/3/2015 1:15:00 PM	32OZP		1	
N014859-002D / SC-100B-WDR-510	Water	3/3/2015 1:18:00 PM	32OZP		1	
N014859-002H / SC-100B-WDR-510	Water	3/3/2015 1:18:00 PM	32OZP	1		

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

Please use PO#:N14859A For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by:Normal TAT

Please analyze for Ammonia and Soluable Silica - Reactive. CH2MHILL Sample.

	Date/Time			Date/Time
Relinquished by:	3/4/2015 17:00	Received by:	GSO #: 527131174	
Relinquished by:		Received by:		

SAMPLE CALCULATION

METHOD: SM 2540C TEST NAME: Total Filterable Residue MATRIX: Water

FORMULA:

Calculate TDS concentration in mg/L, in the original sample as follows:

TDS, mg/L =
$$(A-B)*1000000$$

C

Where:

A = weight in g of dish + residue after drying B = weight of dish in g C = volume of sample used in mL

For N014859-001B, TDS concentration in mg/L is calculated as follows:

TDS, mg/L = $\frac{(55.0262-54.9436)*1000000}{20}$ = 4130 mg/L

Reporting result in two significant figures,

Julia Ramit 3/5/2015

TOTAL DISSOLVED SOLIDS, TDS

A =

TDS, mg/L =

(A-B) X 10000*PF

where:

weight in grams of dish + residue after drying

B = weight of dish in grams

PF = 100/volume of sample used in mL

	vol of sample (mL)	weight of dish in grams (B)	weight in grams of dish + residue after drying (A)	(A-B)*10000	prep fact (PF)	TDS, mg/L	CONDUCTIVITY	RATIO
Date Finished:3/5/15								
MB-49833	100	76.848	76.8482	2	1	2		
LCS-49833	100	75.7425	75.8385	960	1	960		
N014851-001E	40	63.782	63.9105	1285	2.5	3212.5	3970	0.809
N014859-001B	20	54.9436	55.0262	826	5	4130	8050	0.513
N014859-001B DUP	20	53.7295	53.815	855	5	4275	8050	0.531
N014859-002B	20	57.0978	57.1812	834	5	4170	8030	0.519
N014860-001C	20	55.5564	55.6475	911	5	4555	8710	0.523
N014860-002C	30	55.7341	55.8066	725	3.33333333	2416.66667	4340	0.557

Julia Ramit 3/5/2015

Sample Calculation

METHOD: EPA 6010- 200.7 TEST NAME: Heavy Metals by ICP MATRIX: Water

FORMULA:

Calculate the Iron concentration, in ug/L, in the original sample as follows:

Iron, ug/L = A * DF * PF * 1000

where:

A = mg/L, calculated concentration DF = dilution factor PF = Final Vol. of Digestate in mL / Amt. of Sample mL

For Sample N014859-002I, the concentration in ug/L is calculated as follows:

Iron, ug/L = -0.004010511317 * 1 * (25/25) * 1000 = 0

Since results is less than reporting limit 20 ug/L,

Iron, ug/L = ND

ICP-Metals in Water

Dilution Test Summary

 Work Order No.:
 N014859

 Test Method:
 EPA 200.7

 Analysis Date:
 03/16/15

Matrix: Water Batch No.: 49842

Instrument ID: ICP-02 Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Fe. The calculated value is <25RL.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N014859-001C DT 5X	Iron	ug/L	0	NA	0		10

Note: NA - Not Applicable

CLIENT:CH2M HILLWork Order:N014859

Project: PG&E Topock IM3, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID N014859-001C-PS	SampType: PS	TestCoo	de: 200.7_WD	PG Units: µg/L		Prep Da	te:		RunNo: 99 4	168	
Client ID: ZZZZZZ	Batch ID: 49842	TestN	lo: EPA 200.7	,		Analysis Da	te: 3/16/20	15	SeqNo: 19	54316	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	100.589	20	100.0	0	101	80	120				

Qualifiers:

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

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

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

Sample Calculation

METHOD: EPA 6010 200.7 TEST NAME: Heavy Metals by ICP MATRIX: Water

FORMULA:

Calculate the Boron concentration, in ug/L, in the original sample as follows:

Boron, ug/L = A * DF * PF * 1000

where:

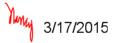
A = mg/L, calculated concentration DF = dilution factor PF = Final Vol. of Digestate in mL / Amt. of Sample mL

For Sample N014859-001C, the concentration in ug/L is calculated as follows:

Boron, ug/L = 1.066695075 * 1 * (25/25) * 1000 = 1066.695075

Reporting results in two significant figures,

Boron, ug/L = 1100



ICP-Metals in Water

Dilution Test Summary

 Work Order No.:
 N014859

 Test Method:
 EPA 200.7

 Analysis Date:
 03/16/15

Matrix: Water Batch No.: 49842

Instrument ID: ICP-02 Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Al, B & Fe. The calculated values are <25RL.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPrefval	%DIFF	%DIFFlimit
N014859-001C DT 5X	Aluminum	ug/L	0	NA	0		10
N014859-001C DT 5X	Boron	ug/L	1217.4715	NA	1066.695075	14.13%	10
N014859-001C DT 5X	Iron	ug/L	0	NA	0		10

Note: NA - Not Applicable

CLIENT: CH2M HILL

Work Order: N014859

Project: PG&E Topock IM3, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WPGEPPB

Sample ID N014859-0	01C-PS SampType: PS	TestCo	ode: 200.7_WP	GE Units: µg/L		Prep Da	te:		RunNo: 99 4	468	
Client ID: ZZZZZZ	Batch ID: 49842	Test	tNo: EPA 200.7	7		Analysis Da	te: 3/16/20	15	SeqNo: 19	54262	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	12200.367	50	10000	0	122	80	120				S
Boron	6719.867	100	5000	1067	113	80	120				
Iron	100.589	20	100.0	0	101	80	120				

Qualifiers:

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

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

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

Sample Calculation

METHOD: EPA 200.8 TEST NAME: Heavy Metals by ICP-MS MATRIX: Water

FORMULA:

Calculate the Chromium concentration, in ug/L, in the original sample as follows:

Chromium, ug/L = A * DF * PF

where:

A = ug/L, calculated concentration DF = dilution factor PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample N014859-002C, the concentration in ug/L is calculated as follows:

Chromium, ug/L = 111.742607912712 * 5 * (25/25) = 558.71303956356

Reporting results in two significant figures,

Chromium, ug/L = 560

ICP-MS-Metals in Water

Dilution Test Summary

No.:	N014859	Matrix:	١
st Method:	EPA 200.8	Batch No.:	498
nalysis Date:	3/6/2015		

Instrument ID:	ICP-MS #2
Instrument Description:	Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to all analytes except Mo. The calculated values are<25X RL. Dilution test failed for Mo. However, PS passed criteria.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N014859-001C DT 5X	Antimony	ug/L	0	NA	0		10
N014859-001C DT 5X	Arsenic	ug/L	0	NA	0.053603724	100.00%	10
N014859-001C DT 5X	Barium	ug/L	11.24172142	NA	10.33402268	8.78%	10
N014859-001C DT 5X	Copper	ug/L	0	NA	0		10
N014859-001C DT 25X	Lead	ug/L	0	NA	0		10
N014859-001C DT 5X	Manganese	ug/L	0	NA	0		10
N014859-001C DT 5X	Molybdenum	ug/L	18.8150433	FAIL	16.80227731	11.98%	10
N014859-001C DT 5X	Nickel	ug/L	1.275663802	NA	1.047649006	21.76%	10
N014859-001C DT 5X	Zinc	ug/L	0	NA	0		10
N014859-001C DT 5X	Chromium	ug/L	0	NA	0		10

Note: NA - Not applicable

CLIENT: CH2M HILL

Work Order: N014859

Project: PG&E Topock IM3, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID N014859-001C-PS	SampType: PS	TestCode	e: 200.8_W	Units: µg/L		Prep Dat	te:		RunNo: 99:	321	
Client ID: ZZZZZZ	Batch ID: 49852	TestNo	: EPA 200.8	}		Analysis Dat	te: 3/6/201	15	SeqNo: 19	53702	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	10.425	0.50	10.00	0	104	80	120				
Arsenic	9.605	0.10	10.00	0.05360	95.5	80	120				
Barium	103.938	1.0	100.0	10.33	93.6	80	120				
Copper	4.409	1.0	10.00	0	44.1	80	120				S
Manganese	63.493	0.50	100.0	0	63.5	80	120				S
Molybdenum	27.081	0.50	10.00	16.80	103	80	120				
Nickel	9.655	1.0	10.00	1.048	86.1	80	120				
Zinc	77.767	10	100.0	0	77.8	80	120				S
Sample ID N014859-001C-PS	SampType: PS	TestCode	e: 200.8_W	Units: µg/L		Prep Dat	te:		RunNo: 99	321	
Client ID: ZZZZZZ	Batch ID: 49852	TestNo	: EPA 200.8	3		Analysis Dat	te: 3/6/201	5	SeqNo: 19	53718	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	10.450	5.0	10.00	0	105	80	120				

Qualifiers:

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

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

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

CLIENT: CH2M HILL

Work Order: N014859

Project: PG&E Topock IM3, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W_CRPGE

Sample ID N014859-001C-PS	SampType: PS	TestCo	de: 200.8_W_	CR Units: µg/L		Prep Dat	te:		RunNo: 993	321	
Client ID: ZZZZZZ	Batch ID: 49852	Test	No: EPA 200.8	3		Analysis Da	te: 3/6/201	5	SeqNo: 19	53867	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.033	1.0	10.00	0	90.3	80	120				

Qualifiers:

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

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

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

Sample Calculation

METHOD: EPA 6020 200.8 TEST NAME: Heavy Metals by ICP-MS MATRIX: Water

FORMULA:

Calculate the Manganese concentration, in ug/L, in the original sample as follows:

Manganese, ug/L = A * DF * PF

where:

A = ug/L, calculated concentration DF = dilution factor PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample N014859-002I, the concentration in ug/L is calculated as follows:

Manganese, ug/L = 0 * 1 * (25/25) = 0

Since results is less than reporting limit,

Manganese, ug/L = ND



ICP-MS-Metals in Water

Dilution Test Summary

der No.:	N014859	Matrix:	Water
est Method:	EPA 200.8	Batch No.:	49851
sis Date:	3/6/2015		

Instrument ID: ICP-MS #2 Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Mn. The calculated value is <25X RL

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N014859-002I DT 5X	Manganese	ug/L	0	NA	0		10

Note: NA - Not applicable

CLIENT:CH2M HILLWork Order:N014859

Project: PG&E Topock IM3, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID N014859-002I-PS	SampType: PS	TestCode: 200.8_WDISS Units: µg/L			Prep Date:			RunNo: 99321			
Client ID: ZZZZZZ	Batch ID: 49851	TestNo: EPA 200.8			Analysis Date: 3/6/2015				SeqNo: 1953967		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	67.331	0.50	100.0	0	67.3	80	120				S

Qualifiers:

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

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

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

Sample Calculation

METHOD:EPA 218.6TEST NAME:HEXAVALENT CHROMIUM BY ICMATRIX:Water

FORMULA:

Calculate the Hexavalent Chromium concentration, in μ g/L, in the original sample as follows:

$$Cr^{+6}$$
, $\mu g/L = A * DF$

where:

A = μ g/L, IC Cr⁺⁶ calculated concentration DF = dilution factor

For N014859-002A, concentration in μ g/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 2.9734^* 200$$

= 594.68

Reporting result in two significant figures,

Sample ID: N014859-002B @ pH 7.61

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A)(B)/(53.00)(C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution) B, mL Na2CO3 solution taken for titration, and C, ml of sulfuric acid used to inflection point

Spike Standards

 Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as CaCO₃): Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock NaHCO₃, ACS Grade (1.00 ml = 5000 ug as CaCO₃): Dissolve 0.8398 grams of NaHCO₃ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65g/L) (5mL) / (53.00) (11.80mL)

= 0.021186 N

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as CaCO₃), mg/L = $M_{vol.}$ * N H₂SO₄ * DF * 1000

Where:

 $M_{vol.}$, volume titrant used to reach pH 4.5, ml N, Normality of H_2SO_4 DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as CaCO₃), mg/L = (7.20) (0.021186 N) (1) * 1000

=152.5392 mg/L

Reporting results in two significant figures,

= 150 mg/L as CaCO3

- 3/12/2015

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as
$$CaCO_3 = P_{vol.} * N H_2SO_4 * DF * 1000$$

= (0) (0.021186 N) (1) * 1000

= 0

Total Alkalinity

T alkalinity, mg/L as $CaCO_3 = M_{vol.} * N H_2SO_4 * DF * 1000$

= (7.20 mL) (0.021186 N) (1) * 1000

= 152.5392 **mg/L** as CaCO3

Where:

P _{vol.}	 volume titrant used to reach pH 8.3, ml
M _{vol.}	- volume titrant used to reach pH 4.5, ml
Ν	- Normality of H ₂ SO ₄
DF	- Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO₃, HCO₃ alkalinities as CaCO₃ will be calculated as follows:

Result of Titration	OH Alkalinity as CaCO ₃	CO ₃ Alkalinity as CaCO ₃	HCO ₃ Alkalinity as CaCO ₃
P = 0	0	0	Т
P < ½ T	0	2P	T – 2P
$P = \frac{1}{2} T$	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	Т	0	0

Therefore,

OH Alkalinity as $CaCO_3 = 0$

 CO_3 Alkalinity as $CaCO_3 = 0$

HCO₃ Alkalinity as CaCO₃ = 152.5392 mg/L

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3 = 0$

 CO_3 Alkalinity as $CaCO_3 = 0$

HCO₃ Alkalinity as CaCO₃ = 150 mg/L

3/12/2015

Sample Calculation

METHOD: EPA 300 TEST NAME: INORGANIC ANIONS BY IC MATRIX: WATER

FORMULA:

Calculate the Fluoride concentration, in mg/L, in the original sample as follows:

Fluoride, mg/L = A * DF

where:

A = mg/L, IC calculated concentration DF = dilution factor

For N014859-001B, concentration in mg/L are calculated as follows:

Fluoride, mg/L = 0.189 * 20 = 3.78

Reporting N014859-001B results in two significant figures,

Fluoride, mg/L = 3.8

SAMPLE CALCULATION

METHOD: EPA 365.3 TEST NAME: Total Phosphorus MATRIX: WATER

FORMULA:

Calculate the Total Phosphorus concentration, in mg/L, in the original sample as follows:

Total Phosphorus, mg/L = A * DF

Where:

A= mg/L, UV-VIS Total Phosphorus calculated concentration

DF= dilution factor

For N014859-002F, concentration in mg/L is calculated as follows:

Total Phosphorus, mg/L = -0.002 *1

= 0 mg/L

Since the reporting limit is 0.02 mg/L therefore,

Total Phosphorus = ND

SAMPLE CALCULATION

METHOD: SM 4500_NO3F TEST NAME: Nitrate/Nitrite-N by Automated Cadmium Reduction Method MATRIX: Water

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L = A * DF

Where:

A= mg/L, Nitrate/Nitrite-N instrument calculated concentration

DF= dilution factor

For N014859-001E, concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N, mg/L = 0.5329 * 5

= 2.6645 mg/L

Reporting result in 2 significant figures,

Nitrate/Nitrite-N, mg/L = 2.7

Sample Calculation

METHOD: SM5310C TEST NAME: TOTAL ORGANIC CARBON MATRIX: WATER

FORMULA:

Calculate the TOC concentration, in mg/L, in the original sample as follows:

TOC = [A] [DF] - B

where:

A = mg/L, instrument calculated concentration DF = dilution factor B = mg/L, TOC concentration in the calibration blank

For: **N014859-002G**

The concentration in mg/L is calculated as follows:

 TOC =
 [
 0.10430
]
 [
 1
]
 0.03970

TOC = 0.06460

Reporting results in two significant figures,

TOC = 0.065 mg/L

Since PQL is 1.0 mg/L,

TOC = ND

March 26, 2015

Shawn P. Duffy CH2M HILL 155 Grand Avenue, Suite 1000 Oakland, CA 94612 TEL: (530) 229-3303 FAX: (530) 339-3303

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

Workorder No.: N014939

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

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on March 10, 2015 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,

gigesmunds

Glen Gesmundo QA Manager

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.



CALIFORNIA 11060 Artesia Blvd., Ste C, 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

CASE NARRATIVE

Date: 26-Mar-15

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.



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N014939-001C SC-700B-WDR-511

3/10/2015

3/26/2015

CLIENT: Project: Lab Order: Contract No:	CH2M HILL PG&E Topock, 6582 N014939 IM3PLANT-AR	74.01.IM.OP.00	Work O	Order Sample Summary			
Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported		
N014939-001A	SC-700B-WDR-511	Water	3/10/2015 11:50:00 AM	3/10/2015	3/26/2015		
N014939-001B	SC-700B-WDR-511	Water	3/10/2015 11:50:00 AM	3/10/2015	3/26/2015		

3/10/2015 11:50:00 AM

Water



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ANALYTICAL RESULTS Print Date: 26-Mar-15

CLIENT:	CH2M HILL			Client Sample ID: SC-700B-WDR-511							
Lab Order:	N014939			Collection Date: 3/10/2015 11:50:00 AM							
Project:	PG&E Topock	, 658274.01.IM.OP.00)	Matrix: WATER							
Lab ID:	N014939-001										
Analyses		Result M	1DL	PQL	Qual	Units	DF	Date Analyzed			
SPECIFIC CO	NDUCTANCE										
				EP	A 120.1						
RunID: WETC	CHEM_150311A	QC Batch: R9937	78		PrepD	ate		Analyst: LR			
Specific Cond	ductance	7300	0.10	0.10		umhos/cm	1	3/11/2015 10:00 AI			

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

DO Surrogate Diluted Out

ASSET LABORATORIES

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6

Date: 26-Mar-15

CLIENT: CH2M HILL

Work Order: N014939

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID N014939-001B DUP	SampType: DUP	TestCode: 120.1_WPGE Units: umhos/cm			hos/cm	Prep Date:			RunNo: 99378			
Client ID: ZZZZZZ	Batch ID: R99378	TestNo: EPA 120.1				Analysis Date: 3/11/2015				SeqNo: 1949921		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Specific Conductance	7310.000	0.10						7280	0.411	10		

Qualifiers:

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

ASSET LABORATORIES

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

Calculations are based on raw values NEVADA 3151 W. Post Rd., Las Vegas, NV 89118

P: 702.307.2659 F: 702.307.2691

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

ANALYTICAL RESULTS

ASSET Lab	oratories			Print Date: 26-Mar-15						
CLIENT:	CH2M HILL			Client Sample ID: SC-700B-WDR-511						
Lab Order:	N014939			Collection Date: 3/10/2015 11:50:00 AM						
Project:	PG&E Topock,	658274.01.IM.OF	P.00		Ma	atrix: W	ATER			
Lab ID:	N014939-001									
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed		
TOTAL FILTE	RABLE RESIDUE									
				SI	M2540C					
RunID: WETC	CHEM_150316F	QC Batch: 49	930		PrepD	ate	3/16/2015	Analyst: LR		
Total Dissolve Filterable)	ed Solids (Residue,	5500	50	50		mg/L	1	3/16/2015 02:20 PM		

Qualifiers:

В

Analyte detected in the associated Method Blank

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

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

DO Surrogate Diluted Out

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CLIENT: CH2M HILL

Work Order: N014939

ANALYTICAL QC SUMMARY REPORT

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

TestCode: 160.1_2540C_W

Sample ID MB-49930	SampType: MBLK	TestCode: 160.1_2540C Units: mg/L	Prep Date: 3/16/2015	RunNo: 99476
Client ID: PBW	Batch ID: 49930	TestNo: SM2540C	Analysis Date: 3/16/2015	SeqNo: 1954737
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	ue, Filtera ND	10		
Sample ID LCS-49930	SampType: LCS	TestCode: 160.1_2540C Units: mg/L	Prep Date: 3/16/2015	RunNo: 99476
Client ID: LCSW	Batch ID: 49930	TestNo: SM2540C	Analysis Date: 3/16/2015	SeqNo: 1954738
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	lue, Filtera 1015.000	10 1000 0	102 80 120	
Sample ID N014939-001B-D	OUP SampType: DUP	TestCode: 160.1_2540C Units: mg/L	Prep Date: 3/16/2015	RunNo: 99476
Client ID: ZZZZZZ	Batch ID: 49930	TestNo: SM2540C	Analysis Date: 3/16/2015	SeqNo: 1954740
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	ue, Filtera 5750.000	50	5510	4.26 5

Qualifiers:

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

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E Value above quantitation range

R RPD outside accepted recovery limits

Calculations are based on raw values

3151 W. Post Rd., Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.2691 H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference

ANALYTICAL RESULTS

ASSET Lab	oratories			Print Date: 26-Mar-15						
CLIENT:	CH2M HILL			Client Sample ID: SC-700B-WDR-511						
Lab Order:	N014939			Collection Date: 3/10/2015 11:50:00 AM						
Project:	PG&E Topocl	к, 658274.01.IM.OP	.00	Matrix: WATER						
Lab ID:	N014939-001									
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed		
TOTAL META	LS BY ICPMS									
				EP	A 200.8					
RunID: ICP7_	150318A	QC Batch: 499	943		PrepD	ate	3/17/2015	Analyst: CEI		
Manganese	Manganese ND 0.026					μg/L 1		3/18/2015 12:56 PM		

Qualifiers:

В

Analyte detected in the associated Method Blank

- Н Holding times for preparation or analysis exceeded S
 - Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

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



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Project:

CLIENT: CH2M HILL

Work Order: N014939

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID MB-49943	SampType: MBLK	TestCode: 200.8_W Units: µg/L	Prep Date: 3/17/2015	RunNo: 99507		
Client ID: PBW	Batch ID: 49943	TestNo: EPA 200.8	Analysis Date: 3/18/2015	SeqNo: 1956290		
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual		
Manganese	ND	0.50				
Sample ID LCS-49943	SampType: LCS	TestCode: 200.8_W Units: µg/L	Prep Date: 3/17/2015	RunNo: 99507		
Client ID: LCSW	Batch ID: 49943	TestNo: EPA 200.8	Analysis Date: 3/18/2015	SeqNo: 1956291		
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual		
Manganese	101.722	0.50 100.0 0	102 85 115			
Sample ID N014937-001B-MS	SampType: MS	TestCode: 200.8_W Units: µg/L	Prep Date: 3/17/2015	RunNo: 99624		
Sample ID N014937-001B-MS Client ID: ZZZZZZ	SampType: MS Batch ID: 49943	TestCode: 200.8_W Units: µg/L TestNo: EPA 200.8	Prep Date: 3/17/2015 Analysis Date: 3/24/2015	RunNo: 99624 SeqNo: 1964164		
Client ID: ZZZZZZ	Batch ID: 49943	TestNo: EPA 200.8	Analysis Date: 3/24/2015	SeqNo: 1964164		
Client ID: ZZZZZZ	Batch ID: 49943 Result 299.268	TestNo: EPA 200.8 PQL SPK value SPK Ref Val	Analysis Date: 3/24/2015 %REC LowLimit HighLimit RPD Ref Val	SeqNo: 1964164		
Client ID: ZZZZZZ Analyte Manganese	Batch ID: 49943 Result 299.268	TestNo: EPA 200.8 PQL SPK value SPK Ref Val 2.5 100.0 202.2	Analysis Date: 3/24/2015 %REC LowLimit HighLimit RPD Ref Val 97.0 75 125	SeqNo: 1964164 %RPD RPDLimit Qual		
Client ID: ZZZZZZ Analyte Manganese Sample ID N014937-001B-MSD	Batch ID: 49943 Result 299.268 SampType: MSD	PQL SPK value SPK Ref Val 2.5 100.0 202.2 TestCode: 200.8_W Units: µg/L	Analysis Date: 3/24/2015 %REC LowLimit HighLimit RPD Ref Val 97.0 75 125 Prep Date: 3/17/2015	SeqNo: 1964164 %RPD RPDLimit Qual RunNo: 99624		

E Value above quantitation range

RPD outside accepted recovery limits

Calculations are based on raw values

NEVADA

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Qualifiers:

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

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R

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S

ANALYTICAL RESULTS

Print Date: 26-Mar-15

CLIENT: Lab Order: Project:	CH2M HILL N014939 PG&E Topock, 6	58274.01.IM.OF	2.00	Client Sample ID: SC-700B-WDR-511 Collection Date: 3/10/2015 11:50:00 AM Matrix: WATER					
Lab ID:	N014939-001	N014939-001							
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed	
HEXAVALE	ENT CHROMIUM BY IC								
				EP	A 218.6				
RunID: ICE	6_150311A	QC Batch: R9	9402		PrepDate			Analyst: RB	
Hexavalen	t Chromium	ND	0.015	0.20		µg/L	1	3/11/2015 11:28 AM	
TOTAL ME	TALS BY ICPMS								
				EP	A 200.8				
RunID: ICF	P7_150318A	QC Batch: 49	943		PrepD)ate	3/17/2015	Analyst: CEI	
Chromium		ND	0.030	1.0		µg/L	1	3/18/2015 12:56 PM	

Qualifiers:

В

Analyte detected in the associated Method Blank

- Н Holding times for preparation or analysis exceeded S
 - Spike/Surrogate outside of limits due to matrix interference
- Е Value above quantitation range
- ND Not Detected at the Reporting Limit Results are wet unless otherwise specified

DO Surrogate Diluted Out

ASSET LABORATORIES

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

Project:

CLIENT: CH2M HILL

Work Order: N014939

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W_CRPGE

Sample ID MB-49943 Client ID: PBW	SampType: MBLK Batch ID: 49943	TestCode: 200.8_W_CR Units: µg/L TestNo: EPA 200.8	Prep Date: 3/17/2015 Analysis Date: 3/18/2015	RunNo: 99507 SeqNo: 1956335
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Chromium	ND	1.0		
Sample ID LCS-49943 Client ID: LCSW Analyte Chromium	SampType: LCS Batch ID: 49943 Result 10.225	TestCode: 200.8_W_CR Units: µg/L TestNo: EPA 200.8 PQL SPK value SPK Ref Val 1.0 10.00 0 0	Prep Date: 3/17/2015 Analysis Date: 3/18/2015 %REC LowLimit HighLimit RPD Ref Val	RunNo: 99507 SeqNo: 1956336 %RPD RPDLimit Qual
Sample ID N014937-001B-MS Client ID: ZZZZZZ	SampType: MS Batch ID: 49943	TestCode: 200.8_W_CR Units: µg/L TestNo: EPA 200.8	Prep Date: 3/17/2015 Analysis Date: 3/18/2015	RunNo: 99507 SeqNo: 1956340
		= =		
Client ID: ZZZZZZ	Batch ID: 49943	TestNo: EPA 200.8	Analysis Date: 3/18/2015	SeqNo: 1956340
Client ID: ZZZZZZ	Batch ID: 49943 Result 10.147	TestNo: EPA 200.8	Analysis Date: 3/18/2015 %REC LowLimit HighLimit RPD Ref Val	SeqNo: 1956340
Client ID: ZZZZZZ Analyte Chromium Sample ID N014937-001B-MSD	Batch ID: 49943 Result 10.147 SampType: MSD	PQL SPK value SPK Ref Val 1.0 10.00 0.4989 TestCode: 200.8_W_CR Units: µg/L	Analysis Date: 3/18/2015 %REC LowLimit HighLimit RPD Ref Val 96.5 75 125 Prep Date: 3/17/2015	SeqNo: 1956340 %RPD RPDLimit Qual RunNo: 99507

Qualifiers:

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

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E Value above quantitation range

R RPD outside accepted recovery limits

> Calculations are based on raw values NEVADA

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

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S

CLIENT: CH2M HILL

Work Order: N014939

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID MB-	R99402	SampType:	MBLK	TestCod	e: 218.6_WP	GE Units: µg/L		Prep Dat	e:		RunNo: 99	402	
Client ID: PBW	v	Batch ID:	R99402	TestN	o: EPA 218.6	6		Analysis Dat	te: 3/11/2	015	SeqNo: 19	50769	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chro	mium		ND	0.20									
Sample ID LCS	-R99402	SampType:	LCS	TestCod	e: 218.6_WP	GE Units: µg/L		Prep Dat	e:		RunNo: 99	402	
Client ID: LCS	w	Batch ID:	R99402	TestN	o: EPA 218.6	6		Analysis Dat	te: 3/11/2	015	SeqNo: 19	50770	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chro	mium		4.883	0.20	5.000	0	97.7	90	110				
Sample ID N014	4939-001A-MS	SampType:	MS	TestCod	e: 218.6_WP	GE Units: µg/L		Prep Dat	e:		RunNo: 99	402	
Client ID: ZZZ	ZZZ	Batch ID:	R99402	TestN	o: EPA 218.6	6		Analysis Dat	te: 3/11/2	015	SeqNo: 19	50772	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chro	mium		1.106	0.20	1.000	0.03080	108	90	110				
Sample ID N014	4938-001A-DUP	SampType:	DUP	TestCod	e: 218.6_WP	GE Units: µg/L		Prep Dat	e:		RunNo: 99	402	
Client ID: ZZZ	ZZZ	Batch ID:	R99402	TestN	o: EPA 218.6	6		Analysis Dat	ie: 3/11/2	015	SeqNo: 19	50774	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chro	mium		13.033	0.20						13.07	0.276	20	
Sample ID N014	4941-001A-MS	SampType:	MS	TestCod	e: 218.6_WP	GE Units: µg/L		Prep Dat	e:		RunNo: 99	402	
Client ID: ZZZ	ZZZ	Batch ID:	R99402	TestN	o: EPA 218.6	6		Analysis Dat	te: 3/11/2	015	SeqNo: 19	50782	
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chro	mium		8.429	0.20	5.000	3.574	97.1	90	110				

Qualifiers:

ND

B Analyte detected in the associated Method Blank

Not Detected at the Reporting Limit

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

Calculations are based on raw values NEVADA

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

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

DO Surrogate Diluted Out
ASSET LABORATORIES

ASSET LA

CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

CLIENT: CH2M HILL Work Order: N014939 Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID N014941-001A-MSD	SampType: MSD	TestCode: 218.6_WPGE Units: µg/L				Prep Dat	te:	RunNo: 994			
Client ID: ZZZZZZ	Batch ID: R99402	TestNo: EPA 218.6			Analysis Date: 3/11/2015				SeqNo: 1950783		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	8.564	0.20	5.000	3.574	99.8	90	110	8.429	1.58	20	

Qualifiers:

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

ASSET LABORATORIES

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

Calculations are based on raw values NEVADA 3151 W. Post Rd., Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.2691

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

15

ANALYTICAL RESULTS

Print Date: 26-Mar-15

CLIENT:	CH2M HILL			Client Sample ID: SC-700B-WDR-511							
Lab Order:	N014939			Collection Date: 3/10/2015 11:50:00 AM							
Project:	PG&E Topock	, 658274.01.IM.OP.00		Matrix: WATER							
Lab ID:	N014939-001										
Analyses		Result MI	DL PQ	QL Qual	Units	DF	Date Analyzed				
TURBIDITY	(
				SM 2130B							
RunID: WE	ETCHEM_150311B	QC Batch: R99379		Prep	Date		Analyst: LR				
Turbidity		0.13 0.	10 0	.10	NTU	1	3/11/2015 10:15 A				

Qualifiers:

В

Analyte detected in the associated Method Blank

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

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

DO Surrogate Diluted Out

ASSET LABORATORIES

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

Date: 26-Mar-15

CLIENT: CH2M HILL

Work Order: N014939

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 2130_W

Sample ID N014939-001B DUP	SampType: DUP	TestCode: 2130_W		Units: NTU	Prep Date:				RunNo: 993		
Client ID: ZZZZZZ	Batch ID: R99379	TestNo	TestNo: SM 2130B			Analysis Da	te: 3/11/20	SeqNo: 194			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity	0.150	0.10						0.1300	14.3	30	

Qualifiers:

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

ASSET LABORATORIES

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

Calculations are based on raw values NEVADA 3151 W. Post Rd., Las Vegas, NV 89118

P: 702.307.2659 F: 702.307.2691

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

WORKORDER: N014939

ANALYST LIST

NAME	TEST METHOD
Claire Ignacio	EPA 200.8
Lilia Ramit	EPA 120.1, SM 2540C, SM 2130B
Ryan Balilu	EPA 218.6



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CH2MHILL

CHAIN OF CUSTODY RECORD

3/3/2015 6:47:22 PM

Page 1 OF 1

Project Name PG&E Topock	Container	1 Liter Poly	250 ml Poly	1 Liter Poly	500 ml Poly	1 Liter Poly			Contraction of the local division of the loc
Location PG&E Topock Project Number 658274.01.IM.OF	Preservatives:	4°C	4°C	4°C	4°C	4°C			CONTRACTOR OF TAXABLE PARTY OF TAXABLE P
Project Manager Scott O'Donnell	Filtered:	NA	NA	NA	NA	NA			The statement of the st
Sample Manager Shawn Duffy	Holding Time:	2	1	2	180	2			
Task Order Project IM3PLANT-ARAR-WDR-51 Turnaround Time 10 Days Shipping Date: 3/10/2015 COC Number: 511	11 DATE TIME Matrix	CONDUCTIVITY (E120.1)	E218.6 Lab Filtered	TDS (SM2540C)	Total Metals(E200.8) Cr & Mn	Turbidity (SM2130)		Number of Containers	
SC-700B-WDR-511 3.	/10/2015 //:50 Water	Х	х	х	х	х	N014939-1	3	The second se
					and a second second second		TOTAL NUMBER OF CONTAINERS	3	1

Approved by	Signatures	Date/Time	Shipping Details		Special Instructions:
Sampled by	Kyan Phelps)	3-10-15	Method of Shipment: EedEx	ATTN:	
Relinquished by		. 13:15	On Ice: Ves / no 1-0100	Sample Custody	
Received by	propala	3/10/17 1315	Airbill No:	and	
Relinquished by	provaland	8/10/15 1934	Lab Name: ASSET Laboratories	Glen Gesmundo	Report Copy to Shawn Duffy
Received by	pergalan	8/10/15 1934	Lab Phone: (702) 307-2659	Skin Standingo	530-229-3303
	$(\bigcirc \bigcirc$	i U			ł

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:	3/10/2015				Workorder:	N014939	
Rep sample Temp (Deg C):	1.9				IR Gun ID:	2	
Temp Blank:	Yes	🗌 No					
Carrier name:	ATL						
Last 4 digits of Tracking No .:	NA			Packing	Material Used:	None	
Cooling process:	✓ Ice	Ice Pack	Dry Ice	Other	None		
			ample Receip				
1. Shipping container/cooler in g	ood conditio	n?			Yes 🗹	No	Not Present
2. Custody seals intact, signed,	dated on shi	ippping container/	cooler?		Yes 🗋	No	Not Present
3. Custody seals intact on samp	le bottles?				Yes 🗌	No 🗌	Not Present
4. Chain of custody present?					Yes 🗹	No 🗌	
5. Sampler's name present in CO	C?				Yes 🗹	No 🗌	
6. Chain of custody signed when	n relinquishe	ed and received?			Yes 🗹	No 🗌	
7. Chain of custody agrees with	sample labe	els?			Yes 🗹	No 🗌	
8. Samples in proper container/b	oottle?				Yes 🗹	No 🗌	
9. Sample containers intact?					Yes 🗹	No 🗌	
10. Sufficient sample volume for	indicated te	est?			Yes 🗹	No 🗌	
11. All samples received within h	nolding time	?			Yes 🗹	No 🗌	
12. Temperature of rep sample of	or Temp Bla	nk within acceptat	ole limit?		Yes 🗹	No 🗌	NA 🗌
13. Water - VOA vials have zero	headspace	?			Yes 🗌	No 🗌	NA 🔽
14. Water - pH acceptable upon Example: pH > 12 for (CN	•	or Metals			Yes	No 🗹	NA 🗌
15. Did the bottle labels indicate	correct pres	servatives used?			Yes 🗹	No 🗌	NA 🗌
16. Were there Non-Conforman	ce issues at as Client not	-			Yes 🗹	No 🗌 No 🗌	NA 🗌 NA 🗹
					Yes 🗌		
Comments: Samples for meta	us are lab pr	eservea.					

7 03/18/15 Reviewed By:

SAMPLE CALCULATION

METHOD: SM 2540C TEST NAME: Total Filterable Residue MATRIX: Water

FORMULA:

Calculate TDS concentration in mg/L, in the original sample as follows:

TDS, mg/L =
$$(A-B)*1000000$$

C

Where:

A = weight in g of dish + residue after dryingB = weight of dish in gC = volume of sample used in mL

For N014939-001B, TDS concentration in mg/L is calculated as follows:

TDS, mg/L = $\frac{(53.9412-53.8310)*1000000}{20}$ = 5,510 mg/L

Reporting result in two significant figures,

Julia Ramit 3/18/2015

TOTAL DISSOLVED SOLIDS, TDS

A =

TDS, mg/L =

(A-B) X 10000*PF

where:

weight in grams of dish + residue after drying

В= weight of dish in grams

PF = 100/volume of sample used in mL

	vol of sample (mL)	weight of dish in grams (B)	weight in grams of dish + residue after drying (A)	(A-B)*10000	prep fact (PF)	TDS, mg/L	CONDUCTIVITY	RATIO
Date Finished:3/17/15								
MB-49930	100	76.8445	76.8451	6	1	6		
LCS-49930	100	77.097	77.1985	1015	1	1015		
N014939-001B	20	53.831	53.9412	1102	5	5510	7340	0.751
N014939-001B DUP	20	57.0801	57.1951	1150	5	5750	7340	0.783
N014967-001F	100	55.5485	55.5888	403	1	403	638	0.632
N014967-002F	100	55.7233	55.775	517	1	517	823	0.628
N014967-001C N014969-001C	100	53.7251	53.7647	396	1	396	646	0.613
N014992-003C	75	53.9182	53.9901	719	1.33333333	958.666667	1553	0.617



for

Julia Ramit 3/18/2015

Sample Calculation

METHOD: EPA 200.8 TEST NAME: Heavy Metals by ICP-MS MATRIX: Water

FORMULA:

Calculate the Chromium concentration, in ug/L, in the original sample as follows:

Chromium, ug/L = A * DF * PF

where:

A = ug/L, calculated concentration DF = dilution factor PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample N014939-001C, the concentration in ug/L is calculated as follows:

Chromium, ug/L = 0 * 1 * (25/25)= 0

Since results is less than reporting limit,

Chromium, ug/L = ND

ICP-MS-Metals in Water

Dilution Test Summary

r No.: N	N014939	Matrix:	Water
Method: El	PA 200.8	Batch No.:	49943
sis Date: 3/	/18/2015		

Instrument ID: ICP-MS #2 Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Cr. The calculated value is <25X RL.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N014937-001B DT 5X	Chromium	ug/L	0.374316625	NA	0.498863816	24.97%	10

Note: NA - Not applicable

CLIENT:CH2M HILLWork Order:N014939

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID: N014937-001B-PS Client ID: ZZZZZZ	SampType: PS Batch ID: 49943	TestCode: 200.8_W Units: μg/L TestNo: EPA 200.8			Prep Dat Analysis Dat		15	RunNo: 99624 SeqNo: 1964163			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	302.777	2.5	100.0	202.2	101	80	120				

Qualifiers:

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

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

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

CLIENT: CH2M HILL

Work Order: N014939

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W_CRPGE

Sample ID: N014937-001B-PS	SampType: PS	TestCode: 200.8_W_CR Units: µg/L				Prep Da	te:		RunNo: 995		
Client ID: ZZZZZZ	Batch ID: 49943	TestNo: EPA 200.8				Analysis Da	te: 3/18/20	SeqNo: 1956339			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.038	1.0	10.00	0.4989	95.4	80	120				

Qualifiers:

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

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

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

Sample Calculation

METHOD: EPA 218.6 TEST NAME: HEXAVALENT CHROMIUM BY IC MATRIX: WATER

FORMULA:

Calculate the Hexavalent Chromium concentration, in $\mu\text{g/L},$ in the original sample as follows:

$$Cr^{+6}$$
, $\mu g/L = A * DF$

where:

A = μ g/L, IC Cr⁺⁶ calculated concentration DF = dilution factor

For N014939-001A concentration in μ g/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 0.0308 * 1$$

= 0.0308

Since PQL is 0.20 μ g/L,

$$Cr^{+6}$$
, $\mu g/L = ND$

IC-06 / REB 3/12/2015 7:01 PM

March 31, 2015

Shawn P. Duffy CH2M HILL 155 Grand Avenue, Suite 1000 Oakland, CA 94612 TEL: (530) 229-3303 FAX: (530) 339-3303

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

Workorder No.: N015013

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

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on March 17, 2015 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,

gragesmunds

Glen Gesmundo QA Manager

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



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Date: 31-Mar-15

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.



CLIENT: Project: Lab Order: Contract No:	CH2M HILL PG&E Topock, 65827 N015013 IM3PLANT-AR	4.01.IM.OP.00	Work C	order Sampl	e Summary
Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N015013-001A	SC-700B-WDR-512	Water	3/17/2015 12:00:00 PM	3/17/2015	3/31/2015
N015013-001B	SC-700B-WDR-512	Water	3/17/2015 12:00:00 PM	3/17/2015	3/31/2015
N015013-001C	SC-700B-WDR-512	Water	3/17/2015 12:00:00 PM	3/17/2015	3/31/2015



CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

ANALYTICAL RESULTS Print Date: 31-Mar-15

						Time D	att. 51-0	141-15
CLIENT:	CH2M HILL			С	lient Samp	le ID: SC-70	0B-WDR	-512
Lab Order:	N015013				Collection	Date: 3/17/2	015 12:00	0:00 PM
Project:	PG&E Topock	, 658274.01.IM.OP	.00		M	atrix: WATE	ER	
Lab ID:	N015013-001							
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CO	NDUCTANCE							
				EP	A 120.1			
RunID: WETC	CHEM_150318C	QC Batch: R9	9498		PrepD	ate		Analyst: LR
Specific Cond	ductance	7400	0.10	0.10		umhos/cm	1	3/18/2015 11:45 A

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range

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

DO Surrogate Diluted Out



CALIFORNIA 11060 Artesia Blvd., Ste C, 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

Date: 31-Mar-15

CLIENT: CH2M HILL

Work Order: N015013

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID N015014-002A DUP	SampType: DUP	TestCo	de: 120.1_WF	GE Units: um I	nos/cm	Prep Da	te:		RunNo: 994	198	
Client ID: ZZZZZZ	Batch ID: R99498	Test	lo: EPA 120.4	1		Analysis Da	te: 3/18/20	015	SeqNo: 19	55792	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	7870.000	0.10						7840	0.382	10	

Qualifiers:

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

ASSET LABORATORIES

CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

"Serving Clients with Passion and Professionalism"

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

Calculations are based on raw values NEVADA 3151 W. Post Rd., Las Vegas, NV 89118

P: 702.307.2659 F: 702.307.2691

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

ANALYTICAL RESULTS

ASSET Lab	oratories					Pri	nt Date: 31-1	Mar-15
CLIENT:	CH2M HILL			С	lient Sampl	e ID: S	C-700B-WDR	8-512
Lab Order:	N015013				Collection	Date: 3	/17/2015 12:0	0:00 PM
Project:	PG&E Topock,	658274.01.IM.OI	P.00		Ma	atrix: W	ATER	
Lab ID:	N015013-001							
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTE	RABLE RESIDUE							
				SI	//2540C			
RunID: WETC	CHEM_150318H	QC Batch: 49	962		PrepD	ate	3/18/2015	Analyst: LR
Total Dissolve Filterable)	ed Solids (Residue,	4400	50	50		mg/L	1	3/18/2015 02:30 PM

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range

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

DO Surrogate Diluted Out

ASSET LABORATORIES

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

Project:

CLIENT: CH2M HILL

N015013 Work Order:

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID MB-49962	SampType: MBLK	TestCode: 160.1_2540C Units: mg/L	Prep Date: 3/18/2015	RunNo: 99519
Client ID: PBW	Batch ID: 49962	TestNo: SM2540C	Analysis Date: 3/18/2015	SeqNo: 1957165
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	ue, Filtera ND	10		
Sample ID LCS-49962	SampType: LCS	TestCode: 160.1_2540C Units: mg/L	Prep Date: 3/18/2015	RunNo: 99519
Client ID: LCSW	Batch ID: 49962	TestNo: SM2540C	Analysis Date: 3/18/2015	SeqNo: 1957166
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	ue, Filtera 983.000	10 1000 0	98.3 80 120	
Sample ID N015014-002A-D	UP SampType: DUP	TestCode: 160.1_2540C Units: mg/L	Prep Date: 3/18/2015	RunNo: 99519
Client ID: ZZZZZZ	Batch ID: 49962	TestNo: SM2540C	Analysis Date: 3/18/2015	SeqNo: 1957171
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	ue, Filtera 4660.000	50	4890	4.82 5

Qualifiers:

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

CALIFORNIA

11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

R

E Value above quantitation range

RPD outside accepted recovery limits

Calculations are based on raw values NEVADA

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

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

ANALYTICAL RESULTS

ASSET Lab	oratories					Pri	nt Date: 31-	Mar-15
CLIENT:	CH2M HILL			C	lient Sampl	e ID: S	C-700B-WDF	R-512
Lab Order:	N015013				Collection	Date: 3/	/17/2015 12:0	0:00 PM
Project:	PG&E Topock	, 658274.01.IM.OP	.00		Ma	atrix: W	ATER	
Lab ID:	N015013-001							
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL META	LS BY ICPMS							
				EP.	A 200.8			
RunID: ICP7_	150321A	QC Batch: 499	982		PrepD	ate	3/20/2015	Analyst: CEI
Manganese		ND	0.026	0.50		µg/L	1	3/21/2015 10:29 AM

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range

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

DO Surrogate Diluted Out

CALIFORNIA 11060 Artesia Blvd., Ste C, 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

Project:

CLIENT: CH2M HILL

Work Order: N015013

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID MB-49982	SampType:	MBLK	TestCod	e: 200.8_W	Units: µg/L		Prep Dat	te: 3/20/20	015	RunNo: 99	565	
Client ID: PBW	Batch ID:	49982	TestN	o: EPA 200.8	3		Analysis Dat	te: 3/21/20	015	SeqNo: 19	60174	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		ND	0.50									
Manganese		ND	0.50									
Sample ID LCS-49982	SampType:	LCS	TestCod	e: 200.8_W	Units: µg/L		Prep Dat	te: 3/20/20	015	RunNo: 99	565	
Client ID: LCSW	Batch ID:	49982	TestN	o: EPA 200.8	3		Analysis Dat	te: 3/21/20	015	SeqNo: 19	60175	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		9.745	0.50	10.00	0	97.5	85	115				
Manganese		94.206	0.50	100.0	0	94.2	85	115				
Sample ID N014937-001B-	MS SampType:	MS	TestCod	e: 200.8_W	Units: µg/L		Prep Dat	te: 3/20/20)15	RunNo: 99	565	
Client ID: ZZZZZZ	Batch ID:	49982	TestN	o: EPA 200.8	3		Analysis Dat	te: 3/21/20	015	SeqNo: 19	60179	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		10.981	0.50	10.00	0.6049	104	75	125				
Sample ID N014937-001B-	MSD SampType:	MSD	TestCod	e: 200.8_W	Units: µg/L		Prep Dat	te: 3/20/20)15	RunNo: 99	565	
Client ID: ZZZZZZ	Batch ID:	49982	TestN	o: EPA 200.8	3		Analysis Dat	te: 3/21/20	015	SeqNo: 19	60180	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		10.852	0.50	10.00	0.6049	102	75	125	10.98	1.19	20	
Sample ID N015012-002C-	MS SampType:	MS	TestCod	e: 200.8_W	Units: µg/L		Prep Dat	te: 3/20/20)15	RunNo: 99	565	
Client ID: ZZZZZZ	Batch ID:	49982	TestN	o: EPA 200.8	3		Analysis Dat	te: 3/21/20	015	SeqNo: 19	60187	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium		26.959	0.50	10.00	16.52	104	75	125				
Manganese		89.812	0.50	100.0	0	89.8	75	125				

Qualifiers:

ND

B Analyte detected in the associated Method Blank

Not Detected at the Reporting Limit

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

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

DO Surrogate Diluted Out

ASSET LABORATORIES

CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703

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

"Serving Clients with Passion and Professionalism"

P: 562.219.7435 F: 562.219.7436

CLIENT: CH2M HILL

Work Order: N015013

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID N014937-001B-MS	SampType: MS	TestCode: 200.8_W	Units: µg/L		Prep Dat	e: 3/20/20	15	RunNo: 99	565	
Client ID: ZZZZZZ	Batch ID: 49982	TestNo: EPA 200.8			Analysis Dat	te: 3/21/20	15	SeqNo: 19	60227	
Analyte	Result	PQL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	297.239	2.5 100.0	190.0	107	75	125				
Sample ID N014937-001B-MSD	SampType: MSD	TestCode: 200.8_W	Units: µg/L		Prep Dat	e: 3/20/20	15	RunNo: 99	565	
Sample ID N014937-001B-MSD Client ID: ZZZZZZ	SampType: MSD Batch ID: 49982	TestCode: 200.8_W TestNo: EPA 200.8			Prep Dat Analysis Dat			RunNo: 99 SeqNo: 19		
		TestNo: EPA 200.8		%REC	Analysis Dat	ie: 3/21/20				Qual

Qualifiers:

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

ASSET LABORATORIES

CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

"Serving Clients with Passion and Professionalism"

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

Calculations are based on raw values NEVADA 3151 W. Post Rd., Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.2691

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

ANALYTICAL RESULTS

Print Date: 31-Mar-15

CLIENT: Lab Order:	CH2M HILL N015013				-		C-700B-WDR	
Project:		658274.01.IM.OP	2.00			atrix: W	/17/2015 12:0 /ATER	0:00 PM
Lab ID:	N015013-001							
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALEN	IT CHROMIUM BY IC	;			-			
				EP.	A 218.6			
RunID: IC7_1	150318A	QC Batch: R9	9501		PrepD	Date		Analyst: RB
Hexavalent C	Chromium	ND	0.015	0.20		µg/L	1	3/18/2015 11:23 AM
TOTAL META	ALS BY ICPMS							
				EP	A 200.8			
RunID: ICP7	_150321B	QC Batch: 499	982		PrepD	Date	3/20/2015	Analyst: CEI
Chromium		ND	0.030	1.0		µg/L	1	3/21/2015 10:29 AM

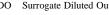
Qualifiers:

В

Analyte detected in the associated Method Blank

- Н Holding times for preparation or analysis exceeded S
 - Spike/Surrogate outside of limits due to matrix interference
- Е Value above quantitation range
- ND Not Detected at the Reporting Limit Results are wet unless otherwise specified

DO Surrogate Diluted Out





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

Project:

CLIENT: CH2M HILL

N015013 Work Order:

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W_CRPGE

Sample ID	MB-49982	SampType:	MBLK	TestCode: 200.8_	W_CR Units: µg/L		Prep Date:	3/20/2015		RunNo: 99	566	
Client ID:	PBW	Batch ID:	49982	TestNo: EPA 2	00.8		Analysis Date:	3/21/2015		SeqNo: 196	60659	
Analyte			Result	PQL SPK val	ue SPK Ref Val	%REC	LowLimit H	lighLimit RPD f	Ref Val	%RPD	RPDLimit	Qual
Chromium			ND	1.0								
Sample ID	LCS-49982	SampType:	LCS	TestCode: 200.8_	W_CR Units: µg/L		Prep Date:	3/20/2015		RunNo: 99	566	
Client ID:	LCSW	Batch ID:	49982	TestNo: EPA 2	00.8		Analysis Date:	3/21/2015		SeqNo: 196	60660	
Analyte			Result	PQL SPK val	ue SPK Ref Val	%REC	LowLimit H	lighLimit RPD f	Ref Val	%RPD	RPDLimit	Qual
Chromium			9.745	1.0 10.	00 0	97.5	85	115				
Sample ID	N014937-001B-MS	SampType:	MS	TestCode: 200.8_	W_CR Units: µg/L		Prep Date:	3/20/2015		RunNo: 99	566	
Client ID:	ZZZZZZ	Batch ID:	49982	TestNo: EPA 2	00.8		Analysis Date:	3/21/2015		SeqNo: 196	60664	
Analyte			Result	PQL SPK val	ue SPK Ref Val	%REC	LowLimit F	lighLimit RPD I	Ref Val	%RPD	RPDLimit	Qual
Chromium			10.981	1.0 10.	00 0.6049	104	75	125				
Sample ID	N014937-001B-MSD	SampType:	MSD	TestCode: 200.8_	W_CR Units: µg/L		Prep Date:	3/20/2015		RunNo: 99	566	
Client ID:	ZZZZZZ	Batch ID:	49982	TestNo: EPA 2	00.8		Analysis Date:	3/21/2015		SeqNo: 196	60665	
Analyte			Result	PQL SPK val	ue SPK Ref Val	%REC	LowLimit H	lighLimit RPD I	Ref Val	%RPD	RPDLimit	Qual
Chromium			10.852	1.0 10.	00 0.6049	102	75	125	10.98	1.19	20	
Sample ID	N015012-002C-MS	SampType:	MS	TestCode: 200.8_	W_CR Units: µg/L		Prep Date:	3/20/2015		RunNo: 99	566	
Client ID:	ZZZZZZ	Batch ID:	49982	TestNo: EPA 2	00.8		Analysis Date:	3/21/2015		SeqNo: 196	60672	
Analyte			Result	PQL SPK val	ue SPK Ref Val	%REC	LowLimit H	lighLimit RPD f	Ref Val	%RPD	RPDLimit	Qual
Chromium			26.959	1.0 10.	00 16.52	104	75	125				

Qualifiers:

ND

B Analyte detected in the associated Method Blank

Not Detected at the Reporting Limit

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

Calculations are based on raw values NEVADA

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

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S

DO Surrogate Diluted Out ASSET LABORATORIES

CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

CH2M HILL **CLIENT:**

Work Order: N015013

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID MB-R99501	SampType: MBLK	TestCode: 218.6_WU_P Units: µg/L	Prep Date:	RunNo: 99501
Client ID: PBW	Batch ID: R99501	TestNo: EPA 218.6	Analysis Date: 3/18/2015	SeqNo: 1955918
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-R99501	SampType: LCS	TestCode: 218.6_WU_P Units: µg/L	Prep Date:	RunNo: 99501
Client ID: LCSW	Batch ID: R99501	TestNo: EPA 218.6	Analysis Date: 3/18/2015	SeqNo: 1955919
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	4.960	0.20 5.000 0	99.2 90 110	
Sample ID N015013-001B-MS	SampType: MS	TestCode: 218.6_WU_P Units: µg/L	Prep Date:	RunNo: 99501
Client ID: ZZZZZZ	Batch ID: R99501	TestNo: EPA 218.6	Analysis Date: 3/18/2015	SeqNo: 1955921
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	1.028	0.20 1.000 0.06150	96.6 90 110	
Sample ID N015014-001C-MS	SampType: MS	TestCode: 218.6_WU_P Units: µg/L	Prep Date:	RunNo: 99501
Client ID: ZZZZZZ	Batch ID: R99501	TestNo: EPA 218.6	Analysis Date: 3/18/2015	SeqNo: 1955923
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	8.829	0.20 5.000 4.002	96.5 90 110	
Sample ID N015009-001A-DUP	SampType: DUP	TestCode: 218.6_WU_P Units: µg/L	Prep Date:	RunNo: 99501
Client ID: ZZZZZZ	Batch ID: R99501	TestNo: EPA 218.6	Analysis Date: 3/18/2015	SeqNo: 1955925
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	9.641	0.20	9.581	0.627 20

Qualifiers:

ND

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

11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

R

- RPD outside accepted recovery limits
- Calculations are based on raw values NEVADA

E Value above quantitation range

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

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

CLIENT: CH2M HILL

Work Order: N015013

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID N015009-001A-MS	SampType: MS	TestCode: 218.6_WU_P Units: µg/L	Prep Date:	RunNo: 99501
Client ID: ZZZZZZ	Batch ID: R99501	TestNo: EPA 218.6	Analysis Date: 3/18/2015	SeqNo: 1955928
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	14.648	0.20 5.000 9.581	101 90 110	
Sample ID N015009-001A-MSD	SampType: MSD	TestCode: 218.6_WU_P Units: µg/L	Prep Date:	RunNo: 99501
Sample ID N015009-001A-MSD Client ID: ZZZZZZ	SampType: MSD Batch ID: R99501	TestCode: 218.6_WU_P Units: µg/L TestNo: EPA 218.6	Prep Date: Analysis Date: 3/18/2015	RunNo: 99501 SeqNo: 1955929
		· · ·	·	

Qualifiers:

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

ASSET LABORATORIES

CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

"Serving Clients with Passion and Professionalism"

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

Calculations are based on raw values NEVADA 3151 W. Post Rd., Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.2691

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

ANALYTICAL RESULTS

ASSET Lab	oratories					Print I	Date: 31-N	1ar-15			
CLIENT:	CH2M HILL			Client Sample ID: SC-700B-WDR-512							
Lab Order:	N015013			Collection Date: 3/17/2015 12:00:00 PM							
Project:	PG&E Topock	, 658274.01.IM.OP	.00	Matrix: WATER							
Lab ID:	N015013-001										
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed			
TURBIDITY											
				SN	2130B						
RunID: WETC	CHEM_150318A	QC Batch: R99	9496		PrepD	ate		Analyst: LR			
Turbidity		0.14	0.10	0.10		NTU	1	3/18/2015 11:30 AM			

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range

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

DO Surrogate Diluted Out

CALIFORNIA 11060 Artesia Blvd., Ste C, 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

Date: 31-Mar-15

CLIENT: CH2M HILL

Work Order: N015013

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 2130_W

Sample ID N015013-001A DUP	SampType: DUP	TestCode	e: 2130_W	Units: NTU		Prep Da	te:		RunNo: 994	196	
Client ID: ZZZZZZ	Batch ID: R99496	TestNo	o: SM 2130E	3		Analysis Da	te: 3/18/20	15	SeqNo: 19	55785	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Turbidity	0.150	0.10						0.1400	6.90	30	

Qualifiers:

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

ASSET LABORATORIES

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

Calculations are based on raw values NEVADA 3151 W. Post Rd., Las Vegas, NV 89118

P: 702.307.2659 F: 702.307.2691

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

WORKORDER: N015013

ANALYST LIST

NAME	TEST METHOD
Claire Ignacio	EPA 200.8
Lilia Ramit	EPA 120.1, SM 2540C, SM 2130B
Ryan Balilu	EPA 218.6



CALIFORNIA 11060 Artesia Blvd., Ste C, 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

CH2MHILL						i	CHAIN	OF C	USTODY RECORD	3/9/2015 3:16:25 PM	Page	1	OF 1
Project Name PG&E Topock		с	ontainer	1 Liter Poly	250 ml Poly	1 Liter Poly	500 ml Poly	1 Liter Poly					Para a construction of the data
Location PG&E Topock Project Number 658274.01.IM.C	0P.00	Prese	rvatives:	4°C	4°C	4°C	4°C	4°C					
Project Manager Scott O'Donne			Filtered:	NA	NA	NA	NA	NA					
Sample Manager Shawn Duffy		Holdi	ng Time:	2	1	2	180	2					
Task Order Project IM3PLANT-ARAR-WDR-5 Turnaround Time 10 Days Shipping Date: 3/17/2015 COC Number: 512	512 DATE	TIME	Matrix	CONDUCTIVITY (E120.1)	E218.6 Lab Filtered	TDS (SM2540C)	Total Metals(E200.8) Cr & Mn	Turbidity (SM2130)			Number of Containers	со	MMENT
SC-700B-WDR-512	3/17/2015	1200	Water	х	х	ж	х	x	NO15013-1		3		*******
					MONTATIONAL		****		٢	TOTAL NUMBER OF CONTAINERS	3		

Approved by Sampled by Relinquished by Received by Relinquished by Received by	pryalto	13:40 3/17/1540	Shipping Details Method of Shipment: FedEx On Ice: (ves) no (-9°C) Airbill No: (EHC) Lab Name: ASSET Laboratories Lab Phone: (702) 307-2659	ATTN: Sample Custody and Glen Gesmundo	Special Instructions: Report Copy to Shawn Duffy 530-229-3303
---	---------	--------------------	--	---	--

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:	3/17/2015				Workorder:	N015013	
Rep sample Temp (Deg C):	1.9				IR Gun ID:	2	
Temp Blank:	Yes	🗌 No					
Carrier name:	ATL						
Last 4 digits of Tracking No.:	NA			Packing	Material Used:	None	
Cooling process:	✓ Ice	lce Pack	Dry Ice	Other	None None		
		Sa	ample Receip	ot Checklist	ł		
1. Shipping container/cooler in g	ood conditio		p-op		Yes 🗹	No 🗌	Not Present
2. Custody seals intact, signed,	dated on shi	ppping container/	cooler?		Yes	No 🗌	Not Present
3. Custody seals intact on samp	le bottles?				Yes	No 🗌	Not Present
4. Chain of custody present?					Yes 🗹	No 🗌	
5. Sampler's name present in CO	CC?				Yes 🗹	No 🗌	
6. Chain of custody signed when	n relinquishe	d and received?			Yes 🗹	No 🗌	
7. Chain of custody agrees with	sample labe	ls?			Yes 🗹	No 🗌	
8. Samples in proper container/b	oottle?				Yes 🗹	No 🗌	
9. Sample containers intact?					Yes 🗹	No 🗌	
10. Sufficient sample volume for	indicated te	est?			Yes 🗹	No 🗌	
11. All samples received within h	nolding time?	?			Yes 🗹	No 🗌	
12. Temperature of rep sample of	or Temp Blar	nk within acceptab	ole limit?		Yes 🗹	No 🗌	NA 🗌
13. Water - VOA vials have zero	headspace	?			Yes	No 🗌	NA 🔽
14. Water - pH acceptable upon Example: pH > 12 for (CN	•	or Metals			Yes	No 🗹	NA 🗌
15. Did the bottle labels indicate	correct pres	servatives used?			Yes	No 🗌	NA 🔽
16. Were there Non-Conformance	ce issues at	login?			Yes 🗹	No 🗌	
Wa	as Client not	ified?			Yes 🗌	No 🗌	NA 🔽
Comments: Sample for metals	s is lab prese	erved.					



SAMPLE CALCULATION

METHOD: SM 2540C TEST NAME: Total Filterable Residue MATRIX: Water

FORMULA:

Calculate TDS concentration in mg/L, in the original sample as follows:

TDS, mg/L =
$$(A-B)*1000000$$

C

Where:

A = weight in g of dish + residue after dryingB = weight of dish in gC = volume of sample used in mL

For N015013-001A, TDS concentration in mg/L is calculated as follows:

TDS, mg/L = $\frac{(54.0126-53.9248)*1000000}{20}$

= 4,390 mg/L

Reporting result in two significant figures,

Julia Ramit 3/20/2015

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TOTAL DISSOLVED SOLIDS, TDS

A =

TDS, mg/L =

(A-B) X 10000*PF

where:

weight in grams of dish + residue after drying

B = weight of dish in grams

PF = 100/volume of sample used in mL

	vol of sample (mL)	weight of dish in grams (B)	weight in grams of dish + residue after drying (A)	(A-B)*10000	prep fact (PF)	TDS, mg/L	CONDUCTIVITY	RATIO
Date Finished:3/19/15								
MB-49962	100	75.7441	75.7444	3	1	3		
LCS-49962	100	77.1004	77.1987		1	983		
N015000-001E	30	53.6565	53.7832	1267	3.33333333	4223.33333	4230	0.998
N015013-001A	20	53.9248	54.0126	878	5	4390	7380	0.595
N015014-001A	40	57.0811	57.1801	990	2.5	2475	3680	0.673
N015014-002A	20	55.5522	55.65	978	5	4890	7840	0.624
N015014-002A DUP	20	63.7816	63.8748	932	5	4660	7840	0.594
N015017-001C	100	55.5388	55.5705	317	1	317	372	0.852
N015017-002C	100	55.7369	55.7719	350	1	350	413	0.847
N015017-003B	200	54.9416	54.9496	80	0.5	40	51.2	0.781

Sample Calculation

METHOD: EPA 200.8 TEST NAME: Heavy Metals by ICP-MS MATRIX: Water

FORMULA:

Calculate the Manganese concentration, in ug/L, in the original sample as follows:

Manganese, ug/L = A * DF * PF

where:

A = ug/L, calculated concentration DF = dilution factor PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample N015013-001C, the concentration in ug/L is calculated as follows:

Manganese, ug/L = 0 * 1 * (25/25) = 0

Since PQL is 0.5 ug/L,

Manganese, ug/L = ND

ICP-MS-Metals in Water

Dilution Test Summary

Matrix:	Water
Batch No .:	49982

 Work Order No.:
 N015013

 Test Method:
 EPA 200.8

 Analysis Date:
 3/21/2015

Instrument ID: ICP-MS #2 Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Cr. The calculated value is <25X RL.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N014937-001B DT 25X	Manganese	ug/L	194.5077906	PASS	190.0437141	2.35%	10
N014937-001B DT 5X	Chromium	ug/L	0.706071802	NA	0.604881749	16.73%	10

Note: NA - Not applicable

CLIENT:CH2M HILLWork Order:N015013

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID: N014937-001B-PS	SampType: PS	TestCoo	le: 200.8_W	Units: µg/L		Prep Da	te:		RunNo: 995	565	
Client ID: ZZZZZZ	Batch ID: 49982	TestN	lo: EPA 200.8			Analysis Da	te: 3/21/20	15	SeqNo: 196	60226	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	291.760	2.5	100.0	190.0	102	80	120				

Qualifiers:

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

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

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

CLIENT: CH2M HILL

Work Order:

ANALYTICAL QC SUMMARY REPORT

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

N015013

TestCode: 200.8_W_CRPGE

Sample ID: N014937-001B-PS	SampType: PS	TestCoo	le: 200.8_W_0	CR Units: µg/L		Prep Da	te:		RunNo: 995	566	
Client ID: ZZZZZZ	Batch ID: 49982	TestN	lo: EPA 200.8			Analysis Da	te: 3/21/20	15	SeqNo: 196	60663	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.901	1.0	10.00	0.7081	10 2	80	120				
				0.60488	103						

Juny 3/31/2015

Qualifiers:

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

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

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

Sample Calculation

METHOD: EPA 218.6 TEST NAME: HEXAVALENT CHROMIUM BY IC MATRIX: Water

FORMULA:

Calculate the Hexavalent Chromium concentration, in μ g/L, in the original sample as follows:

$$Cr^{+6}$$
, $\mu g/L = A * DF$

where:

A = μ g/L, IC Cr⁺⁶ calculated concentration DF = dilution factor

For N015013-001B concentration in μ g/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 0.0615 * 1$$

= 0.0615

Since PQL is 0.20 µg/L,

$$Cr^{+6}$$
, $\mu g/L = ND$

April 07, 2015

Shawn P. Duffy CH2M HILL 155 Grand Avenue, Suite 1000 Oakland, CA 94612 TEL: (530) 229-3303 FAX: (530) 339-3303

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

Workorder No.: N015092

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

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on March 24, 2015 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,

gregesmindo

Glen Gesmundo QA Manager

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.



CALIFORNIA 11060 Artesia Blvd., Ste C, 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

 CLIENT:
 CH2M HILL

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

 Lab Order:
 N015092

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 200.8:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) on QC samples N015092-001C-MS and N015092-001C-MSD are outside recovery criteria for Manganese possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.



N015092-001C SC-700B-WDR-513

3/24/2015

4/7/2015

CLIENT: Project: Lab Order: Contract No:	CH2M HILL PG&E Topock, 6582 N015092 IM3PLANT-AR	74.01.IM.OP.00	Work (Work Order Sample Summar					
Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported				
N015092-001A	SC-700B-WDR-513	Water	3/24/2015	3/24/2015	4/7/2015				
				3/24/2015	4/7/2015				

3/24/2015

Water



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ANALYTICAL RESULTS

ASSET Lab	Print Date: 07-Apr-15							
CLIENT:	CH2M HILL	Client Sample ID: SC-700B-WDR-513 Collection Date: 3/24/2015 Matrix: WATER						
Lab Order:	N015092 PG&E Topock, 658274.01.IM.OP.00							
Project:								
Lab ID:	N015092-001							
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CO	NDUCTANCE							
				EP	A 120.1			
RunID: WETC	CHEM_150325B	QC Batch: R99	9617		PrepD	Date		Analyst: LR
Specific Cond	ductance	7200	0.10	0.10		umhos/cm	1	3/25/2015 11:30 AM

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

DO Surrogate Diluted Out



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Date: 07-Apr-15

CLIENT: CH2M HILL

Work Order: N015092

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID N015092-001A DUP	SampType: DUP	TestCoo	de: 120.1_WP	GE Units: um	hos/cm	Prep Da	te:		RunNo: 99	617	
Client ID: ZZZZZZ	Batch ID: R99617	TestN	lo: EPA 120.1	l		Analysis Da	te: 3/25/20	015	SeqNo: 19	64069	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	7260.000	0.10						0	0	10	

Qualifiers:

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

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

Calculations are based on raw values NEVADA 3151 W. Post Rd., Las Vegas, NV 89118

P: 702.307.2659 F: 702.307.2691

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

ANALYTICAL RESULTS

			211110 2 4000 07 11.pr 10					
CLIENT:	CH2M HILL	Client Sample ID: SC-700B-WDR-513						
Lab Order:	N015092 PG&E Topock, 658274.01.IM.OP.00			Collection Date: 3/24/2015				
Project:				Matrix: WATER				
Lab ID:	N015092-001							
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTE	RABLE RESIDUE							
				SN	12540C			
RunID: WETC	CHEM_150325H	QC Batch: 50	034		PrepD	ate	3/25/2015	Analyst: LR
Total Dissolve Filterable)	ed Solids (Residue,	4300	50	50		mg/L	1	3/25/2015 02:04 PM

Print Date: 07-Apr-15

Qualifiers:

В

Analyte detected in the associated Method Blank

- Н Holding times for preparation or analysis exceeded S
 - Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Е Value above quantitation range

Results are wet unless otherwise specified

ASSET LABORATORIES

ND Not Detected at the Reporting Limit

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Project:

CLIENT: CH2M HILL

Work Order: N015092

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID MB-50034	SampType: MBLK	TestCode: 160.1_2540C Units: mg/L	Prep Date: 3/25/2015	RunNo: 99635
Client ID: PBW	Batch ID: 50034	TestNo: SM2540C	Analysis Date: 3/25/2015	SeqNo: 1965074
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	ue, Filtera ND	10		
Sample ID LCS-50034	SampType: LCS	TestCode: 160.1_2540C Units: mg/L	Prep Date: 3/25/2015	RunNo: 99635
Client ID: LCSW	Batch ID: 50034	TestNo: SM2540C	Analysis Date: 3/25/2015	SeqNo: 1965075
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	ue, Filtera 969.000	10 1000 0	96.9 80 120	
Sample ID N015092-001A D	OUP SampType: DUP	TestCode: 160.1_2540C Units: mg/L	Prep Date: 3/25/2015	RunNo: 99635
Client ID: ZZZZZZ	Batch ID: 50034	TestNo: SM2540C	Analysis Date: 3/25/2015	SeqNo: 1965080
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	ue, Filtera 4105.000	50	4275	4.06 5

Qualifiers:

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

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R Calculations are based on raw values

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

E Value above quantitation range

RPD outside accepted recovery limits

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

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9

ANALYTICAL RESULTS

CLIENT:	CH2M HILL	Client Sample ID: SC-700B-WDR-513						
Lab Order:	N015092				Collection	Date: 3	/24/2015	
Project:	PG&E Topock,		Ma	atrix: W	VATER			
Lab ID:	N015092-001							
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL META	LS BY ICPMS							
				EP	A 200.8			
RunID: ICP7_	150327B	QC Batch: 500	051		PrepD	ate	3/27/2015	Analyst: CEI
Manganese	ND 0.026 0.50 µg/L 1 3/27/2015 05:02							

Print Date: 07-Apr-15

Qualifiers:

В

Analyte detected in the associated Method Blank

- Н Holding times for preparation or analysis exceeded S
 - Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Е Value above quantitation range ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

ASSET LABORATORIES

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Project:

CLIENT: CH2M HILL

N015092 Work Order:

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID MB-50051 Client ID: PBW	SampType: MBLK Batch ID: 50051	TestCode: 200.8_W Units: μg/L TestNo: EPA 200.8	Prep Date: 3/27/2015 Analysis Date: 3/27/2015	RunNo: 99685 SegNo: 1967071
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Manganese	ND	0.50		
Sample ID LCS-50051 Client ID: LCSW	SampType: LCS Batch ID: 50051	TestCode: 200.8_W Units: μg/L TestNo: EPA 200.8	Prep Date: 3/27/2015 Analysis Date: 3/27/2015	RunNo: 99685 SeqNo: 1967074
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Manganese	89.428	0.50 100.0 0	89.4 85 115	
Sample ID N015092-001C-MS Client ID: ZZZZZZ	SampType: MS Batch ID: 50051	TestCode: 200.8_W Units: μg/L TestNo: EPA 200.8	Prep Date: 3/27/2015 Analysis Date: 3/27/2015	RunNo: 99685 SeqNo: 1967078
		13.		
Client ID: ZZZZZZ	Batch ID: 50051	TestNo: EPA 200.8	Analysis Date: 3/27/2015	SeqNo: 1967078
Client ID: ZZZZZZ Analyte	Batch ID: 50051 Result 70.888	TestNo: EPA 200.8 PQL SPK value SPK Ref Val	Analysis Date: 3/27/2015 %REC LowLimit HighLimit RPD Ref Val	SeqNo: 1967078 %RPD RPDLimit Qual
Client ID: ZZZZZZ Analyte Manganese Sample ID N015092-001C-MSD	Batch ID: 50051 Result 70.888 SampType: MSD	TestNo: EPA 200.8 PQL SPK value SPK Ref Val 0.50 100.0 0 TestCode: 200.8_W Units: µg/L	Analysis Date: 3/27/2015 %REC LowLimit HighLimit RPD Ref Val 70.9 75 125 Prep Date: 3/27/2015	SeqNo: 1967078 %RPD RPDLimit Qual S RunNo: 99685

Qualifiers:

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

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E Value above quantitation range R

RPD outside accepted recovery limits

Calculations are based on raw values NEVADA

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

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S

ANALYTICAL RESULTS

Print Date: 07-Apr-15

CLIENT: Lab Order: Project:	CH2M HILL N015092 PG&E Topock,				Client Sample ID: SC-700B-WDR-513 Collection Date: 3/24/2015 Matrix: WATER				
Lab ID:	N015092-001								
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed	
HEXAVALE	NT CHROMIUM BY IC	;			-				
				EP	A 218.6				
RunID: IC7	_150326A	QC Batch: R9	9647		PrepD	Date		Analyst: RB	
Hexavalent	Chromium	ND	0.015	0.20		µg/L	1	3/26/2015 12:02 PM	
TOTAL MET	TALS BY ICPMS								
				EP	A 200.8				
RunID: ICP	P7_150327B	QC Batch: 50	051		PrepD	Date	3/27/2015	Analyst: CEI	
Chromium		ND	0.030	1.0		µg/L	1	3/27/2015 05:02 PM	

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range ND

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

DO ASSET LABORATORIES

CALIFORNIA

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11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

CLIENT: CH2M HILL

Work Order: N015092

ANALYTICAL QC SUMMARY REPORT

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

TestCode: 200.8_W_CRPGE

Sample ID MB-50051 Client ID: PBW	SampType: MBLK	TestCode: 200.8_W_CR Units: µg/L	Prep Date: 3/27/2015	RunNo: 99685
Client ID: PBW Analyte	Batch ID: 50051 Result	TestNo: EPA 200.8 PQL SPK value SPK Ref Val	Analysis Date: 3/27/2015 %REC LowLimit HighLimit RPD Ref Val	SeqNo: 1967119 %RPD RPDLimit Qual
Chromium	ND	1.0	%REC LOWLINIL HighLinit RPD Kei vai	%RFD RFDLIIIII Quai
Sample ID LCS-50051	SampType: LCS	TestCode: 200.8_W_CR Units: µg/L	Prep Date: 3/27/2015	RunNo: 99685
Client ID: LCSW	Batch ID: 50051	TestNo: EPA 200.8	Analysis Date: 3/27/2015	SeqNo: 1967122
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Chromium	9.371	1.0 10.00 0	93.7 85 115	
Sample ID N015092-001C-MS	SampType: MS	TestCode: 200.8_W_CR Units: µg/L	Prep Date: 3/27/2015	RunNo: 99685
Sample ID N015092-001C-MS Client ID: ZZZZZZ	SampType: MS Batch ID: 50051	TestCode: 200.8_W_CR Units: µg/L TestNo: EPA 200.8	Prep Date: 3/27/2015 Analysis Date: 3/27/2015	RunNo: 99685 SeqNo: 1967126
Client ID: ZZZZZZ	Batch ID: 50051	TestNo: EPA 200.8	Analysis Date: 3/27/2015	SeqNo: 1967126
Client ID: ZZZZZZ Analyte	Batch ID: 50051 Result 9.980	TestNo: EPA 200.8 PQL SPK value SPK Ref Val	Analysis Date: 3/27/2015 %REC LowLimit HighLimit RPD Ref Val	SeqNo: 1967126
Client ID: ZZZZZZ Analyte Chromium	Batch ID: 50051 Result 9.980	TestNo: EPA 200.8 PQL SPK value SPK Ref Val 1.0 10.00 0	Analysis Date: 3/27/2015 %REC LowLimit HighLimit RPD Ref Val 99.8 75 125	SeqNo: 1967126 %RPD RPDLimit Qual
Client ID: ZZZZZZ Analyte Chromium Sample ID N015092-001C-MSD	Batch ID: 50051 Result 9.980 O SampType: MSD	TestNo: EPA 200.8 PQL SPK value SPK Ref Val 1.0 10.00 0 TestCode: 200.8_W_CR Units: µg/L	Analysis Date: 3/27/2015 %REC LowLimit HighLimit RPD Ref Val 99.8 75 125 Prep Date: 3/27/2015	SeqNo: 1967126 %RPD RPDLimit Qual RunNo: 99685

Qualifiers:

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

CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

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

Calculations are based on raw values NEVADA

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

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S

CH2M HILL **CLIENT:**

Work Order: N015092

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID MB-R99647	SampType: MBLK	TestCode: 218.6_WU_P Units: µg/L	Prep Date:	RunNo: 99647
Client ID: PBW	Batch ID: R99647	TestNo: EPA 218.6	Analysis Date: 3/26/2015	SeqNo: 1965659
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-R99647	SampType: LCS	TestCode: 218.6_WU_P Units: µg/L	Prep Date:	RunNo: 99647
Client ID: LCSW	Batch ID: R99647	TestNo: EPA 218.6	Analysis Date: 3/26/2015	SeqNo: 1965660
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	4.842	0.20 5.000 0	96.8 90 110	
Sample ID N015101-001A-DUP	SampType: DUP	TestCode: 218.6_WU_P Units: µg/L	Prep Date:	RunNo: 99647
Client ID: ZZZZZZ	Batch ID: R99647	TestNo: EPA 218.6	Analysis Date: 3/26/2015	SeqNo: 1965662
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	1.710	0.20	1.701	0.540 20
Sample ID N015101-001A-MS	SampType: MS	TestCode: 218.6_WU_P Units: µg/L	Prep Date:	RunNo: 99647
Client ID: ZZZZZZ	Batch ID: R99647	TestNo: EPA 218.6	Analysis Date: 3/26/2015	SeqNo: 1965663
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	6.758	0.20 5.000 1.701	101 90 110	
Sample ID N015101-001A-MSD	SampType: MSD	TestCode: 218.6_WU_P Units: µg/L	Prep Date:	RunNo: 99647
Client ID: ZZZZZZ	Batch ID: R99647	TestNo: EPA 218.6	Analysis Date: 3/26/2015	SeqNo: 1965664
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	6.825	0.20 5.000 1.701	102 90 110 6.758	0.987 20

Qualifiers:

B Analyte detected in the associated Method Blank

Not Detected at the Reporting Limit

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

Calculations are based on raw values NEVADA

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

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S



ND

DO

CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

CLIENT: CH2M HILL Work Order: N015092 Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID N015092-001B-MS	SampType: MS	TestCode: 218.6_WU_P Units: µg/L			Prep Date:				RunNo: 996			
Client ID: ZZZZZZ	Batch ID: R99647	TestN	TestNo: EPA 218.6			Analysis Date: 3/26/2015				SeqNo: 1965670		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Hexavalent Chromium	1.084	0.20	1.000	0.09030	99.4	90	110					

Qualifiers:

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

ASSET LABORATORIES

CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

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

Calculations are based on raw values NEVADA 3151 W. Post Rd., Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.2691

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

15

ANALYTICAL RESULTS

Print Date: 07-Apr-15

				1							
CLIENT:	CH2M HILL		Client Sample ID: SC-700B-WDR-513								
Lab Order:	N015092			Collection Date: 3/24/2015							
Project:	PG&E Topock	, 658274.01.IM.OP.00		Μ	atrix: WAT	TER					
Lab ID:	N015092-001										
Analyses		Result MD	DL PQI	. Qual	Units	DF	Date Analyzed				
TURBIDITY											
				SM 2130B							
RunID: WETC	CHEM_150325F	QC Batch: R99623		Prepl	Date		Analyst: LR				
Turbidity		0.16 0.	10 0.1	0	NTU	1	3/25/2015 05:30 PM				

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

DO Surrogate Diluted Out

ASSET LABORATORIES

CALIFORNIA 11060 Artesia Blvd., Ste C, 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

Date: 07-Apr-15

CLIENT: CH2M HILL

Work Order: N015092

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 2130_W

Sample ID N015092-001A DUP	SampType: DUP	TestCode: 2130_W		Units: NTU	Prep Date:				RunNo: 996			
Client ID: ZZZZZZ	Batch ID: R99623	TestNo:	TestNo: SM 2130B			Analysis Date: 3/25/2015				SeqNo: 1964119		
Analyte	Result	PQL S	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Turbidity	0.180	0.10						0.1600	11.8	30		

Qualifiers:

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

ASSET LABORATORIES

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"Serving Clients with Passion and Professionalism"

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

Calculations are based on raw values NEVADA 3151 W. Post Rd., Las Vegas, NV 89118

P: 702.307.2659 F: 702.307.2691

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

WORK ORDER: N015092

ANALYST LIST

NAME	TEST METHOD
Ryan Balilu	EPA 218.6
Claire Ignacio	EPA 200.8
Lilia Ramit	EPA 120.1, SM 2540C, SM 2130B



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CH2MHILL						(CHAIN	I OF (SUSTODY RECORD	3/23/2015 1:02:49 PM	Page	1 0	OF 1
Project Name PG&E Topock	*******	Co	ntainer	1 Liter Poly	250 ml Poly	1 Liter Poly	500 ml Poly	1 Liter Poly			Τ	Ī	
Location PG&E Topock Project Number 658274.01.1M.OP.	'. 00	Preser	vatives:	4°C	4°C	4°C	4°C	4°C			Approximate the second s		
Project Manager Scott O'Donnell		F	Filtered:	NA	NA	NA	NA	NA					
Sample Manager Shawn Duffy		Holdin	g Time:	7	1	7	180	7					
Task Order Project IM3PLANT-ARAR-WDR-51: Turnaround Time 10 Days Shipping Date: 3/24/2015 COC Number: 513		TIME	Matrix	CONDUCTIVITY (E120.1)	E218,6 Lab Fillered	TOS (SM2540C)	Total Metals(E200.8) Cr & Mn	Turbidity (SM2130)			Number of Containers	0.014	MENTS
SC-700B-WDR-513 3/2	24/2015		Water	X	X	x	X	X	NO15792-1	₩₩₩₩₽₩₩₩₩₩₽₩₽₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩	3		
		*****			******				konneren fan Sieldin in de Kannen fan sieder in de Kannen fan sieder in de Kannen fan sieder in de Kannen fan s	TOTAL NUMBER OF CONTAINERS	3		ürrint görinerne inder dag

Approved by	Signatures	Date/Time 3.24-15	Shipping Details	a mentana a	Special Instructions:
Sampled by	King Philos	13:05	Method of Shipment: FedEx	ATTN:	
Relinguished by (On Ice: (es) / no / - Meter	Sample Custody	
Received by	porgalan	3/24/15 1305	Airbill No:	and	
Relinquished by	propalle		- Lab Name: ASSET Laboratories	Glen Gesmundo	Report Copy to Shawn Duffy
Received by	1-16hollovs	3/24)15 1923	Lab Phone: (702) 307-2659	WATERST SALESTERATION	530-229-3303
	/	, , , ,			

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:	3/24/2015	i			Workorder:	N015092	
Rep sample Temp (Deg C):	1.9				IR Gun ID:	2	
Temp Blank:	Yes	🗌 No					
Carrier name:	ATL						
Last 4 digits of Tracking No.:	NA			Packing	Material Used:	None	
Cooling process:	✓ Ice	Ice Pack	Dry Ice	Other	None None		
		6	ample Bessin	t Cheatline			
1. Shipping container/cooler in c	lood conditic		ample Receip		Yes 🗹	No 🗌	Not Present
 Custody seals intact, signed, 			cooler?		Yes		Not Present
 Custody seals intact, signed, Custody seals intact on samp 					Yes		Not Present
4. Chain of custody present?					Yes 🗹		
 Sampler's name present in C 	002				Yes 🗹		
 6. Chain of custody signed when 		ad and received?			Yes 🗹		
 Chain of custody agrees with 					Yes 🗹		
8. Samples in proper container/		10 :			Yes 🗹		
9. Sample containers intact?	Joure :						
10. Sufficient sample volume for	indiacted to	ant?				_	
						No 🗌	
11. All samples received within I	Ū				Yes ✔ Yes ✔	No 🗌	
12. Temperature of rep sample			Die limit?				
13. Water - VOA vials have zero		?			Yes	No 🗌	NA 🗹
14. Water - pH acceptable upon Example: pH > 12 for (CN	•	or Metals			Yes 🗀	No 🗹	NA 🗔
15. Did the bottle labels indicate	correct pres	servatives used?			Yes 🗹	No 🗌	NA 🗌
16. Were there Non-Conforman W	ce issues at as Client not	•			Yes 🗌 Yes 🗌	No 🗌 No 🗌	NA 🗹 NA 🗹
Comments: Sample for total r	netals is lab	preserved.					

Reviewed By:

03/30/15

SAMPLE CALCULATION

METHOD: SM 2540C TEST NAME: Total Filterable Residue MATRIX: Water

FORMULA:

Calculate TDS concentration in mg/L, in the original sample as follows:

TDS, mg/L =
$$(A-B)*1000000$$

C

Where:

A = weight in g of dish + residue after drying B = weight of dish in g C = volume of sample used in mL

For **N015092-001A**, TDS concentration in mg/L is calculated as follows:

TDS, mg/L = $\frac{(55.6382-55.5527)*1000000}{20}$

= 4,275 mg/L

Reporting result in two significant figures,

Julia Ramit 3/30/2015

TOTAL DISSOLVED SOLIDS, TDS

A =

TDS, mg/L =

(A-B) X 10000*PF

where:

weight in grams of dish + residue after drying

B = weight of dish in grams

PF = 100/volume of sample used in mL

	vol of sample (mL)	weight of dish in grams (B)	weight in grams of dish + residue after drying (A)	(A-B)*10000	prep fact (PF)	TDS, mg/L	CONDUCTIVITY	RATIO
Date Finished:3/26/15								
MB-50034	100	76.8474	76.8479	5	1	5		
LCS-50034	100	75.7443	75.8412	969	1	969		
N015079-001B	100	55.5436	55.6071	635	1	635	951	0.668
N015089-001E	30	53.7239	53.8555	1316	3.33333333	4386.66667	4350	1.008
N015092-001A	20	55.5527	55.6382	855	5	4275	7230	0.591
N015092-001A DUP	20	55.1306	55.2127	821	5	4105	7230	0.568

Julia Ramit 3/30/2015

Sample Calculation

METHOD: EPA 6020 TEST NAME: Heavy Metals by ICP-MS MATRIX: Water

FORMULA:

Calculate the Chromium concentration, in ug/L, in the original sample as follows:

Chromium, ug/L = A * DF * PF

where:

A = ug/L, calculated concentration DF = dilution factor PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample N015092-001C, the concentration in ug/L is calculated as follows:

Chromium, ug/L = 0 * 1 * (25/25)= 0

Since result is less than reporting limit,

Chromium, ug/L = ND

ICP-MS-Metals in Water

Dilution Test Summary

No.:	N015092	Matrix:	Water
Nethod:	EPA 200.8	Batch No.:	50051
ate:	3/27/2015		

Instrument ID: ICP-MS #2 Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Mn & Cr. The calculated values are <25X RL.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N015092-001C DT 5X	Manganese	ug/L	0	NA	0		10
N015092-001C DT 5X	Chromium	ug/L	0	NA	0		10

Note: NA - Not applicable

CLIENT: CH2M HILL Work Order: N015092

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID N015092-001C-PS	SampType: PS	TestCode: 200.8_W		Units: µg/L		Prep Date:			RunNo: 996		
Client ID: ZZZZZZ	Batch ID: 50051	TestN	lo: EPA 200.8	3	Analysis Date: 3/27/2015				SeqNo: 196		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	69.079	0.50	100.0	0	69.1	80	120				S

Qualifiers:

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

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

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

CLIENT: CH2M HILL Work Order: N015092

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W_CRPGE

Sample ID N015092-001C-PS	SampType: PS	TestCode: 200.8_W_CR Units: µg/L			Prep Date:				RunNo: 99			
Client ID: ZZZZZZ	Batch ID: 50051	TestN	TestNo: EPA 200.8			Analysis Date: 3/27/2015				SeqNo: 1967125		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Chromium	9.561	1.0	10.00	0	95.6	80	120					

Qualifiers:

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

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

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

Sample Calculation

METHOD: EPA 218.6 TEST NAME: HEXAVALENT CHROMIUM BY IC MATRIX: Water

FORMULA:

Calculate the Hexavalent Chromium concentration, in μ g/L, in the original sample as follows:

$$Cr^{+6}$$
, $\mu g/L = A * DF$

where:

A = μ g/L, IC Cr⁺⁶ calculated concentration DF = dilution factor

For N015092-001B concentration in μ g/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 0.0903 * 1$$

= 0.0903

Since PQL is 0.20 µg/L,

 Cr^{+6} , $\mu g/L = ND$

April 07, 2015

Shawn P. Duffy CH2M HILL 155 Grand Avenue, Suite 1000 Oakland, CA 94612 TEL: (530) 229-3303 FAX: (530) 339-3303

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

Workorder No.: N015151

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

Attention: Shawn P. Duffy

Enclosed are the results for sample(s) received on March 31, 2015 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,

gragesmundo

Glen Gesmundo QA Manager

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.



CALIFORNIA 11060 Artesia Blvd., Ste C, 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

Date: 07-Apr-15

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.



N015151-001C SC-700B-WDR-514

3/31/2015

4/7/2015

CLIENT: Project: Lab Order: Contract No:	CH2M HILL PG&E Topock, 6582 N015151 IM3PLANT-AR	74.01.IM.OP.00	Work Order Sample Summary					
Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported			
N015151-001A	SC-700B-WDR-514	Water	3/31/2015 1:12:00 PM	3/31/2015	4/7/2015			
N015151-001B	SC-700B-WDR-514	Water	3/31/2015 1:12:00 PM	3/31/2015	4/7/2015			

3/31/2015 1:12:00 PM

Water



CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436 Page 1 0^{HEYADA} 3151 W. Post Rd., Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.2691

ANALYTICAL RESULTS

ASSET Lab	oratories			Print Date: 07-Apr-15					
CLIENT:	CH2M HILL			C	lient Sampl	e ID: SC-70	0B-WDR	-514	
Lab Order:	N015151				Collection	Date: 3/31/20	015 1:12:	00 PM	
Project:	PG&E Topock	, 658274.01.IM.OP	.00		M	atrix: WATE	ER		
Lab ID:	N015151-001								
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed	
SPECIFIC CO	NDUCTANCE								
				EP	A 120.1				
RunID: WETC	CHEM_150401B	QC Batch: R99	9713		PrepD	ate		Analyst: LR	
Specific Cond	ductance	7300 0.10 0.10 umhos/cm 1 4/1/2015 01:30						4/1/2015 01:30 PN	

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range

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

DO Surrogate Diluted Out

CALIFORNIA 11060 Artesia Blvd., Ste C, 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

Date: 07-Apr-15

CLIENT: CH2M HILL

Work Order: N015151

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID N015151-001A DUP	SampType: DUP	TestCoo	le: 120.1_WF	GE Units: umhos	/cm	Prep Dat	te:		RunNo: 997	713	
Client ID: ZZZZZZ	Batch ID: R99713	TestN	lo: EPA 120.4	I		Analysis Dat	te: 4/1/201	5	SeqNo: 196	68441	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	7380.000	0.10						7340	0.543	10	

Qualifiers:

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

ASSET LABORATORIES

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"Serving Clients with Passion and Professionalism"

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

Calculations are based on raw values NEVADA 3151 W. Post Rd., Las Vegas, NV 89118

P: 702.307.2659 F: 702.307.2691

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

ANALYTICAL RESULTS

ASSET Lab	oratories			Print Date: 07-Apr-15						
CLIENT:	CH2M HILL			С	lient Sampl	e ID: SO	C-700B-WDR	2-514		
Lab Order:	N015151				Collection	Date: 3/	31/2015 1:12:	:00 PM		
Project:	PG&E Topock,	658274.01.IM.OI	P.00		Ma	atrix: W	ATER			
Lab ID:	N015151-001									
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed		
TOTAL FILTE	RABLE RESIDUE									
				SI	M2540C					
RunID: WETC	CHEM_150401G	QC Batch: 50	087		PrepD	ate	4/1/2015	Analyst: LR		
Total Dissolve Filterable)	ed Solids (Residue,	4400	50	50 mg/L 1 4/1/20				4/1/2015 01:38 PM		

Qualifiers:

В Analyte detected in the associated Method Blank

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

Е Value above quantitation range ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

DO Surrogate Diluted Out

ASSET LABORATORIES

CALIFORNIA 11060 Artesia Blvd., Ste C, 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

CLIENT: CH2M HILL

Work Order: N015151

ANALYTICAL QC SUMMARY REPORT

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

TestCode: 160.1_2540C_W

Sample ID MB-50087	SampType: MBLK	TestCode: 160.1_2540C Units: mg/L	Prep Date: 4/1/2015	RunNo: 99737
Client ID: PBW	Batch ID: 50087	TestNo: SM2540C	Analysis Date: 4/1/2015	SeqNo: 1969526
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	lue, Filtera ND	10		
Sample ID LCS-50087	SampType: LCS	TestCode: 160.1_2540C Units: mg/L	Prep Date: 4/1/2015	RunNo: 99737
Client ID: LCSW	Batch ID: 50087	TestNo: SM2540C	Analysis Date: 4/1/2015	SeqNo: 1969527
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	lue, Filtera 962.000	10 1000 0	96.2 80 120	
Sample ID N015151-001A D	OUP SampType: DUP	TestCode: 160.1_2540C Units: mg/L	Prep Date: 4/1/2015	RunNo: 99737
Client ID: ZZZZZZ	Batch ID: 50087	TestNo: SM2540C	Analysis Date: 4/1/2015	SeqNo: 1969530
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Resid	lue, Filtera 4300.000	50	4400	2.30 5

Qualifiers:

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

CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

E Value above quantitation range

R RPD outside accepted recovery limits

> Calculations are based on raw values NEVADA

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

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S

ANALYTICAL RESULTS

Print Date: 07-Apr-15

								Γ
CLIENT:	CH2M HILL			C	lient Sampl	e ID: So	C-700B-WDR	-514
Lab Order:	N015151	Collection Date: 3/31/2015 1:12:00 PM						
Project:	PG&E Topock,	658274.01.IM.OF	P.00		M	atrix: W	ATER	
Lab ID:	N015151-001							
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL META	ALS BY ICPMS							
				EP	A 200.8			
RunID: ICP7	_150402A	QC Batch: 50	096		PrepD	ate	4/2/2015	Analyst: CEI
Manganese		ND 0.026 0.50 µg/L 1 4/2/2015 02:05						4/2/2015 02:09 P

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range

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

DO Surrogate Diluted Out



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

Work Order:

Project:

CLIENT: CH2M HILL

N015151

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID MB-50096	SampType: MBLK	TestCode: 200.8_W Units: µg/L	Prep Date: 4/2/2015	RunNo: 99758
Client ID: PBW	Batch ID: 50096	TestNo: EPA 200.8	Analysis Date: 4/2/2015	SeqNo: 1970730
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Manganese	ND	0.50		
Sample ID LCS-50096	SampType: LCS	TestCode: 200.8_W Units: µg/L	Prep Date: 4/2/2015	RunNo: 99758
Client ID: LCSW	Batch ID: 50096	TestNo: EPA 200.8	Analysis Date: 4/2/2015	SeqNo: 1970731
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Manganese	113.202	0.50 100.0 0	113 85 115	
Sample ID N015151-001C-MS	SampType: MS	TestCode: 200.8_W Units: µg/L	Prep Date: 4/2/2015	RunNo: 99758
				RunNo: 99758 SeqNo: 1970735
Sample ID N015151-001C-MS	SampType: MS	TestCode: 200.8_W Units: µg/L	Prep Date: 4/2/2015	
Sample ID N015151-001C-MS Client ID: ZZZZZZ	SampType: MS Batch ID: 50096	TestCode: 200.8_W Units: μg/L TestNo: EPA 200.8	Prep Date: 4/2/2015 Analysis Date: 4/2/2015	SeqNo: 1970735
Sample ID N015151-001C-MS Client ID: ZZZZZZ Analyte	SampType: MS Batch ID: 50096 Result 76.614	TestCode: 200.8_W Units: µg/L TestNo: EPA 200.8 PQL SPK value SPK Ref Val	Prep Date: 4/2/2015 Analysis Date: 4/2/2015 %REC LowLimit HighLimit RPD Ref Val	SeqNo: 1970735
Sample ID N015151-001C-MS Client ID: ZZZZZZ Analyte Manganese	SampType: MS Batch ID: 50096 Result 76.614	TestCode: 200.8_W Units: μg/L TestNo: EPA 200.8 PQL SPK value SPK Ref Val 0.50 100.0 0 0	Prep Date: 4/2/2015 Analysis Date: 4/2/2015 %REC LowLimit HighLimit RPD Ref Val 76.6 75 125	SeqNo: 1970735 %RPD RPDLimit Qual
Sample ID N015151-001C-MS Client ID: ZZZZZZ Analyte Manganese Sample ID N015151-001C-MSD	SampType: MS Batch ID: 50096 Result 76.614 SampType: MSD	TestCode: 200.8_W Units: μg/L TestNo: EPA 200.8 PQL SPK value SPK Ref Val 0.50 100.0 0 0 TestCode: 200.8_W Units: μg/L	Prep Date: 4/2/2015 Analysis Date: 4/2/2015 %REC LowLimit HighLimit RPD Ref Val 76.6 75 125 Prep Date: 4/2/2015	SeqNo: 1970735 %RPD RPDLimit Qual RunNo: 99758

Qualifiers:

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

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E Value above quantitation range R

RPD outside accepted recovery limits

Calculations are based on raw values NEVADA

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

H Holding times for preparation or analysis exceeded

Spike/Surrogate outside of limits due to matrix interference S

ANALYTICAL RESULTS

Print Date: 07-Apr-15

CLIENT: Lab Order:	CH2M HILL N015151		Client Sample ID: SC-700B-WDR-514 Collection Date: 3/31/2015 1:12:00 PM Matrix: WATER					
Project:	PG&E Topock,	658274.01.IM.OP						
Lab ID:	N015151-001							
Analyses		Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALEN		C						
				EP	A 218.6			
RunID: IC7_1	50401A	QC Batch: R99	9717		PrepD	ate		Analyst: RB
Hexavalent Cl	hromium	ND	0.015	0.20		µg/L	1	4/1/2015 01:19 PM
TOTAL META	LS BY ICPMS							
				EP	A 200.8			
RunID: ICP7_	150402A	QC Batch: 500	96		PrepD	ate	4/2/2015	Analyst: CEI
Chromium		ND	0.030	1.0		µg/L	1	4/2/2015 02:09 PM

Qualifiers:

Analyte detected in the associated Method Blank

- Н Holding times for preparation or analysis exceeded S
 - Spike/Surrogate outside of limits due to matrix interference
- Е Value above quantitation range
- ND Not Detected at the Reporting Limit Results are wet unless otherwise specified

Surrogate Diluted Out DO



В

CALIFORNIA 11060 Artesia Blvd., Ste C, 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

Project:

CLIENT: CH2M HILL

Work Order: N015151

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W_CRPGE

Sample ID MB-50096	SampType: MBLK	TestCode: 200.8_W_CR Units: µg/L	Prep Date: 4/2/2015	RunNo: 99758
Client ID: PBW	Batch ID: 50096	TestNo: EPA 200.8	Analysis Date: 4/2/2015	SeqNo: 1970648
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Chromium	ND	1.0		
Sample ID LCS-50096	SampType: LCS	TestCode: 200.8_W_CR Units: µg/L	Prep Date: 4/2/2015	RunNo: 99758
Client ID: LCSW	Batch ID: 50096	TestNo: EPA 200.8	Analysis Date: 4/2/2015	SeqNo: 1970649
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Chromium	11.194	1.0 10.00 0	112 85 115	
Sample ID N015151-001C-MS	SampType: MS	TestCode: 200.8_W_CR Units: µg/L	Prep Date: 4/2/2015	RunNo: 99758
Sample ID N015151-001C-MS Client ID: ZZZZZZ	SampType: MS Batch ID: 50096	TestCode: 200.8_W_CR Units: µg/L TestNo: EPA 200.8	Prep Date: 4/2/2015 Analysis Date: 4/2/2015	RunNo: 99758 SeqNo: 1970653
Client ID: ZZZZZZ	Batch ID: 50096	TestNo: EPA 200.8	Analysis Date: 4/2/2015	SeqNo: 1970653
Client ID: ZZZZZZ	Batch ID: 50096 Result 10.016	TestNo: EPA 200.8 PQL SPK value SPK Ref Val	Analysis Date: 4/2/2015 %REC LowLimit HighLimit RPD Ref Val	SeqNo: 1970653
Client ID: ZZZZZZ Analyte Chromium	Batch ID: 50096 Result 10.016	TestNo: EPA 200.8 PQL SPK value SPK Ref Val 1.0 10.00 0	Analysis Date: 4/2/2015 %REC LowLimit HighLimit RPD Ref Val 100 75 125	SeqNo: 1970653 %RPD RPDLimit Qual
Client ID: ZZZZZZ Analyte Chromium Sample ID N015151-001C-MSD	Batch ID: 50096 Result 10.016 SampType: MSD	TestNo: EPA 200.8 PQL SPK value SPK Ref Val 1.0 10.00 0 TestCode: 200.8_W_CR Units: µg/L	Analysis Date: 4/2/2015 %REC LowLimit HighLimit RPD Ref Val 100 75 125 Prep Date: 4/2/2015	SeqNo: 1970653 %RPD RPDLimit Qual RunNo: 99758

Qualifiers:

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

CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

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

Calculations are based on raw values NEVADA

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

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

CLIENT: CH2M HILL

Work Order: N015151

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID MB-R99717	SampType: MBLK	TestCode: 218.6_WU_P Units: µg/L	Prep Date:	RunNo: 99717
Client ID: PBW	Batch ID: R99717	TestNo: EPA 218.6	Analysis Date: 4/1/2015	SeqNo: 1968482
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-R99717	SampType: LCS	TestCode: 218.6_WU_P Units: µg/L	Prep Date:	RunNo: 99717
Client ID: LCSW	Batch ID: R99717	TestNo: EPA 218.6	Analysis Date: 4/1/2015	SeqNo: 1968483
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 N015150-001A-DUP	SampType: DUP	TestCode: 218.6_WU_P Units: µg/L	Prep Date:	RunNo: 99717
Client ID: ZZZZZZ	Batch ID: R99717	TestNo: EPA 218.6	Analysis Date: 4/1/2015	SeqNo: 1968485
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	5.745	0.20	5.788	0.739 20
Sample ID N015150-001A-MS	SampType: MS	TestCode: 218.6_WU_P Units: µg/L	Prep Date:	RunNo: 99717
Client ID: ZZZZZZ	Batch ID: R99717	TestNo: EPA 218.6	Analysis Date: 4/1/2015	SeqNo: 1968486
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	10.786	0.20 5.000 5.788	100 90 110	
Sample ID N015150-001A-MSD	SampType: MSD	TestCode: 218.6_WU_P Units: µg/L	Prep Date:	RunNo: 99717
Client ID: ZZZZZZ	Batch ID: R99717	TestNo: EPA 218.6	Analysis Date: 4/1/2015	SeqNo: 1968487
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Hexavalent Chromium	10.856	0.20 5.000 5.788	101 90 110 10.79	0.647 20

Qualifiers:

ND

DO

B Analyte detected in the associated Method Blank

Not Detected at the Reporting Limit

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

Calculations are based on raw values NEVADA

3151 W. Post Rd., Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.2691 H Holding times for preparation or analysis exceeded

S Spike/Surrogate outside of limits due to matrix interference



Surrogate Diluted Out

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"Serving Clients with Passion and Professionalism"

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CLIENT: CH2M HILL Work Order: N015151 Project: PG&E Topock, 658274.01.IM.OP.00

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WU_PGE

Sample ID N015151-001B-MS	SampType: MS	TestCoo	de: 218.6_WL	I_P Units: µg/L		Prep Da	te:		RunNo: 997	717	
Client ID: ZZZZZZ	Batch ID: R99717	TestN	lo: EPA 218.6	6		Analysis Da	te: 4/1/201	5	SeqNo: 196	68491	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.083	0.20	1.000	0.1083	97.5	90	110				

Qualifiers:

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

CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

"Serving Clients with Passion and Professionalism"

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

Calculations are based on raw values NEVADA 3151 W. Post Rd., Las Vegas, NV 89118 P: 702.307.2659 F: 702.307.2691

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

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ANALYTICAL RESULTS

Print Date: 07-Apr-15

						-		I ·
CLIENT:	CH2M HILL			C	lient Sampl	e ID: SC-7	00B-WDR	-514
Lab Order:	N015151	Collection Date: 3/31/2015 1:12:00 PM						00 PM
Project:	PG&E Topock	, 658274.01.IM.OP.0	00		Ma	atrix: WAT	ER	
Lab ID:	N015151-001							
Analyses		Result I	MDL	PQL	Qual	Units	DF	Date Analyzed
TURBIDITY								
				SN	2130B			
RunID: WET	ГCHEM_150401A	QC Batch: R997	/12		PrepD	ate		Analyst: LR
Turbidity		0.20	0.10	0.10		NTU	1	4/1/2015 02:00 PI

Qualifiers:

В

Analyte detected in the associated Method Blank

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

Е Value above quantitation range ND Not Detected at the Reporting Limit

Results are wet unless otherwise specified

DO Surrogate Diluted Out

ASSET LABORATORIES

CALIFORNIA 11060 Artesia Blvd., Ste C, 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

CLIENT: CH2M HILL

Work Order: N015151

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 2130_W

Sample ID MB-R99712 Client ID: PBW	SampType: MBLK Batch ID: R99712	TestCode: 2130_W Units: NTU TestNo: SM 2130B	Prep Date: Analysis Date: 4/1/2015	RunNo: 99712 SeqNo: 1968436
Analyte	Result	PQL SPK value SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val	%RPD RPDLimit Qual
Turbidity	ND	0.10		
Sample ID N015151-001A DUP Client ID: ZZZZZZ	SampType: DUP Batch ID: R99712	TestCode: 2130_W Units: NTU TestNo: SM 2130B	Prep Date: Analysis Date: 4/1/2015	RunNo: 99712 SeqNo: 1968438
•	1 31	-	·	

Qualifiers:

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

ASSET LABORATORIES

CALIFORNIA 11060 Artesia Blvd., Ste C, Cerritos, CA 90703 P: 562.219.7435 F: 562.219.7436

"Serving Clients with Passion and Professionalism"

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

Calculations are based on raw values NEVADA

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

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

WORK ORDER: N015151

ANALYST LIST

NAME	TEST METHOD
Ryan Balilu	EPA 218.6
Claire Ignacio	EPA 200.8
Lilia Ramit	EPA 120.1, SM 2540C, SM 2130B



CALIFORNIA 11060 Artesia Blvd., Ste C, 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

CH2MHILL				I	CHAIN	I OF C	USTODY RECORD 3/23/2015 2:	<i>13:03 PM</i> Pa	ge 1 OF 1
Project Name PG&E Topock	Container	1 Liter Poly	250 ml Poly	1 Liter Poly	500 ml Poly	1 Liter Poly			
Location PG&E Topock	Preservatives:	4°C	4°C	4°C	4°C	4°C			
Project Number 658274.01.IM.OP.00 Project Manager Scott O'Donnell	Filtered:	 NA	NA	NA	NA	NA			
Sample Manager Shawn Duffy	Holding Time:		1	7	180	7			
Task Order Project IM3PLANT-ARAR-WDR-514 Turnaround Time 5 Days Shipping Date: 3/31/2015 COC Number: 514 DATE	TIME Matrix	CONDUCTIVITY (E120.1)	E218.6 Lab Filtered	TDS (SM2540C)	Total Metals(E200.8) Cr & Mn	Turbidity (SM2130)			Number of Containers
SC-700B-WDR-514 3/31/201	5 1312 Water	Х	х	х	х	х	NO15757-1	nonenteen oo ayaa kaasaa aa gaa ah zi kaasaa ah gaa ah zi kaasaa ah a	3 00
							TOTAL NUME	ER OF CONTAINERS	3

Approved by	Signatures	Date/Time	Shipping Details		Special Instructions:
Sampled by	Josh Rosenberg	3-31-15 1312	Method of Shipment: FedEx	ATTN:	
Relinquished	by Josh Kouling J	3-31-15 1322	On Ice: ves / no 1-19-0	Sample Custody	
Received by	Fund along	3/3/115 1322	Airbill No: ICH 2	and	Denert
Relinguished	by the try - and	ship int	Lab Name: ASSET Laboratories	Glen Gesmundo	Report Copy to Shawn Duffy
Received by	- And weter	OP8/10 1880	Lab Phone: (702) 307-2659		530-229-3303
r	$1 \cup 1 \cup 1$	t V		Ť	**

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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:	3/31/2015				Workorder:	N015151		
Rep sample Temp (Deg C):	1.6				IR Gun ID:	2		
Temp Blank:	✓ Yes	🗌 No						
Carrier name:	ATL							
Last 4 digits of Tracking No.:	NA			Packing	g Material Used:	None		
Cooling process:	✓ Ice	Ice Pack	Dry Ice	Other	None None			
		Si	ample Receip	t Checklis	st			
1. Shipping container/cooler in g	ood conditic				Yes 🗹	No 🗌	Not Present	
2. Custody seals intact, signed,	dated on shi	ippping container/	cooler?		Yes	No 🗌	Not Present	
3. Custody seals intact on samp	le bottles?				Yes	No 🗌	Not Present	
4. Chain of custody present?					Yes 🗸	No 🗌		
5. Sampler's name present in Co	OC?				Yes 🗹	No 🗌		
6. Chain of custody signed when	n relinquishe	ed and received?			Yes 🗹	No 🗌		
7. Chain of custody agrees with	sample labe	els?			Yes 🗹	No 🗌		
8. Samples in proper container/k	oottle?				Yes 🗹	No 🗌		
9. Sample containers intact?					Yes 🗹	No 🗌		
10. Sufficient sample volume for	indicated te	est?			Yes 🗹	No 🗌		
11. All samples received within h	nolding time	?			Yes 🗹	No 🗌		
12. Temperature of rep sample of	or Temp Bla	nk within acceptal	ble limit?		Yes 🗹	No 🗌	NA	
13. Water - VOA vials have zero	headspace	?			Yes	No 🗌	NA	\checkmark
14. Water - pH acceptable upon Example: pH > 12 for (CN	•	or Metals			Yes	No 🗹	NA	
15. Did the bottle labels indicate					Yes	No 🗌	NA	
16. Were there Non-Conforman	ce issues at as Client not	0			Yes 🗌 Yes 🔲	No 🗌 No 🗌	NA NA	
Comments: Sample for Hex C	r is lab filter	ed. Sample for 1 c	otal Metals is lab p	reserved.				



SAMPLE CALCULATION

METHOD: SM 2540C TEST NAME: Total Filterable Residue MATRIX: Water

FORMULA:

Calculate TDS concentration in mg/L, in the original sample as follows:

TDS, mg/L =
$$(A-B)*1000000$$

C

Where:

A = weight in g of dish + residue after dryingB = weight of dish in gC = volume of sample used in mL

For **N015151-001A**, TDS concentration in mg/L is calculated as follows:

TDS, mg/L = (64.0545 - 63.9665) * 100000020

= 4400 mg/L

Reporting result in two significant figures,

Julia Ramit 4/3/2015

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TOTAL DISSOLVED SOLIDS, TDS

A =

TDS, mg/L =

(A-B) X 10000*PF

where:

weight in grams of dish + residue after drying

B = weight of dish in grams

PF = 100/volume of sample used in mL

	vol of sample (mL)	weight of dish in grams (B)	weight in grams of dish + residue after drying (A)	(A-B)*10000	prep fact (PF)	TDS, mg/L	CONDUCTIVITY	RATIO
Date Finished:4/2/15								
MB-50087	100	63.5055	63.5057	2	1	2		
LCS-50087	100	54.353	54.4492	962	1	962		
N015145-001F	100	61.3415	61.3825	410	1	410	636	0.645
N015151-001A	20	63.9665	64.0545	880	5	4400	7340	0.599
N015151-001A DUP	20	63.9487	64.0347	860	5	4300	7340	0.586

Julia Ramit 4/3/2015

Sample Calculation

METHOD: EPA 200.8 TEST NAME: Heavy Metals by ICP-MS MATRIX: Water

FORMULA:

Calculate the Chromium concentration, in ug/L, in the original sample as follows:

Chromium, ug/L = A * DF * PF

where:

A = ug/L, calculated concentration DF = dilution factor PF = Final Vol. of Digestate in mL / Vol. of Sample used in mL

For Sample N015151-001C, the concentration in ug/L is calculated as follows:

Chromium, ug/L = 0.0000 * 1 * (25/25) = 0.0000

Since the reporting limit is 1 ug/L therefore,

Chromium, ug/L = ND



ICP-Metals in Water

Dilution Test Summary

Work Order No.:	N015151	Matrix:	Water
Test Method:	EPA 200.8	Batch No.:	50096
Analysis Date:	4/2/2015		

Instrument ID: ICP-MS #2 Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Cr and Mn. The calculated concentrations are < 25X RL's.

Sample ID	Analyte	Units	Calc Val	OQual	SAMPRefVal	%DIFF	%DIFFlimit
N015151-001C-DT 5X	Chromium	µg/L	0	NA	0		10
N015151-001C-DT 5X	Manganese	μg/L	0	NA	0		10

Note: NA - Not applicable

 CLIENT:
 CH2M HILL

 Work Order:
 N015151

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W

Sample ID N015151-001C-PS	SampType: PS	TestCoo	de: 200.8_W	Units: µg/L		Prep Dat	te:		RunNo: 997	758	
Client ID: ZZZZZZ	Batch ID: 50096	TestN	lo: EPA 200.8	3		Analysis Da	te: 4/2/201	5	SeqNo: 197	70734	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	80.318	0.50	100.0	0	80.3	80	120				

Qualifiers:

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

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

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

CLIENT:CH2M HILLWork Order:N015151

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

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_W_CRPGE

Sample ID N015151-001C-PS	SampType: PS	TestCo	de: 200.8_W_	CR Units: µg/L		Prep Dat	te:		RunNo: 997	758	
Client ID: ZZZZZZ	Batch ID: 50096	Test	lo: EPA 200.8	3		Analysis Da	te: 4/2/201	5	SeqNo: 197	70652	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.326	1.0	10.00	0	103	80	120				

Qualifiers:

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

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

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

Sample Calculation

METHOD: EPA 218.6 TEST NAME: HEXAVALENT CHROMIUM BY IC MATRIX: Water

FORMULA:

Calculate the Hexavalent Chromium concentration, in $\mu\text{g/L},$ in the original sample as follows:

$$Cr^{+6}$$
, $\mu g/L = A * DF$

where:

A = μ g/L, IC Cr⁺⁶ calculated concentration DF = dilution factor

For N015151-001B concentration in μ g/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 0.1083 * 1$$

= 0.1083

Since PQL is 0.20 μ g/L,

$$Cr^{+6}$$
, $\mu g/L = ND$

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. Date pH Meter Time Date Time Date Time Slope **Sample Name** #1, #2, or #3 etc. of of **Analyst Name** of pH of pH meter pH meter of the See cover Sheet sampling sampling analysis (for the pH result) analysis Result Calibrated Calibrated Curve for Serial Number 1 SC-700B 10-15 300 Ha440d -10-15 1310 1-10-14 (404 -58.59 7.47 h stes: 21SC-1003 1-6-14 1420 1-6-15 Ha440d 1425 1-6-14 0404 -58.59 7.55 1 otes: 35C-701 1-6-14 1420 HQ4400 1-6-15 1426 1-6-14 0404 -53.59 8.15 an notes: 450 700B Hayyod -13-15 1-13-15 1230 1-13-15 0410 -58.59 7.4 1 (V.95 1-20-15 55C- 700B 12:55 1-20-15 12:58 H0440D 1-20-15 0355 -57.17 Ryan Philps 726 > stes: SC-700B 1-27-15 11:00 1-27-15 11:05 HQ 4400 1-27-15 0411 -57.84 CHARS LENTZ 6.76 Notes: 15 Antes: 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.

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
2-3-15	1315	2-3-15	1318	A HQ4400D	2-3-15	0342	-53 . A	Josh R	7.0Le
2-3-15	1315	2-3-15	1318	HQ4400D	2-3-15	0347	-58.19	Josh R.	7.32
£.									
2-10-15	1350	2-10-15	1355	HQ4400D	2-10-15	0357	-58.03	Ryan Phelps	7.00
								-	
2-17-15	11:55	2-17-15	12:00	HQ 4400 D	2-17-15	0351	-58.19	CHRIS LENTZ	6,97
		-							
2-24-15	12:25	2-24-15	1230	HQ4400P	2-24-15	0407	-58.39	CHRISLENTE	7.12
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	<u> </u>		·	1		1	. /	\	
<u> </u>	Ren	hinder: WD	R Require	ed pH Range for the	e Effluent (SC	C-700B) is: 6.	5 - 8.4	<u> </u>	
	of sampling 2-3-15 2-3-15 2-10-15 2-17-15	of of sampling sampling 2-3-15 1315 2-3-15 1315 2-3-15 1350 2-17-15 1350 2-24-15 12:25	of sampling of sampling of analysis 2-3-15 1315 2-3-15 2-3-15 1315 2-3-15 2-3-15 1350 2-10-15 2-10-15 1350 2-10-15 2-24-15 12:25 2-24-15	of sampling of sampling of analysis of analysis 2-3-15 1315 2-3-15 1318 2-3-15 1315 2-3-15 1318 2-10-15 1350 2-10-15 1355 2-17-15 11:55 2-17-15 12:00 2-24-15 12:25 2-24-15 12:30	Date Inne of of of of of analysis analysis analysis for Serial Number 2-3-15 1315 2-3-15 1318 An HQ4465 2-10-15 1350 2-10-15 1355 HQ4400D 2-10-15 1350 2-10-15 1355 HQ4400D 2-2415 12:25 2-24-15 12:30 HQ4400D	Date Inne Date Inne of of of of of secover Sheet pH meter sampling sampling analysis analysis analysis for Serial Number Calibrated 2-3-15 1315 2-3-15 1318 14044000 2-3-15 2-3-15 1315 2-3-15 1318 10444000 2-3-15 2-3-15 1350 2-10-15 1355 14044000 2-10-15 2-10-15 1350 2-10-15 1355 14044000 2-10-15 2-17-15 11:55 2-17-15 12:00 Ha 44000 2-17-15 2-24-15 12:25 2-24-15 12:30 Ha4400 2-24-15	Date Inite of of of of analysis analysis $ii, #2, or #3$ etc. See cover Sheet for Serial Number pH meter Calibrated pH meter Calibrated 2.3.15 1315 2.3.15 1318 $A_1 HQ4400D$ 23.15 034/2 2.3.15 1315 2.3.15 1318 $A_1 HQ4400D$ 23.15 034/2 2.3.15 1315 2.3.15 1378 $A_0 HQ4400D$ 23.15 034/2 23.15 1350 210.15 1350 210.15 0357 210-15 1350 210.15 1355 $HQ4400D$ 210.15 0351 217-15 11:55 217.15 12:00 $Ha 4400D$ 2.17.15 0351 2-24-15 12:25 224-15 12:30 $HQ4400P$ 224-15 0407	Date Inne Date Inne μ and μ of of analysis μ analysis <td>Date of of sampling sampling analysis analysis for Serial Number pH meter Calibrated Calibrated Curve Analysi Name (for the pH result) 2-3-15 1315 2-3-15 1318 1414/4400D 2-3-15 0342 -58+19 Josh R. 2-3-15 1315 2-3-15 1318 1414/4400D 2-3-15 0342 -58+19 Josh R. 2-3-15 1315 2-3-15 1318 1404/400D 2-3-15 0342 -58+19 Josh R. 2-3-15 1315 2-3-15 1318 1404/400D 2-3-15 0342 -58+19 Josh R. 2-3-15 1350 2-10-15 1355 HQ4400D 2-10-15 0357 -58+03 Ryan Philps 2-10-15 1350 2-10-15 12:00 Ha 4400D 2-17-15 0351 -58+19 CHRIS LEATZ 2-24-15 12:25 2-24+15 12:30 Ha 4400D 2-24-15 0407 -58:39 CHRIS LEATZ</td>	Date of of sampling sampling analysis analysis for Serial Number pH meter Calibrated Calibrated Curve Analysi Name (for the pH result) 2-3-15 1315 2-3-15 1318 1414/4400D 2-3-15 0342 -58+19 Josh R. 2-3-15 1315 2-3-15 1318 1414/4400D 2-3-15 0342 -58+19 Josh R. 2-3-15 1315 2-3-15 1318 1404/400D 2-3-15 0342 -58+19 Josh R. 2-3-15 1315 2-3-15 1318 1404/400D 2-3-15 0342 -58+19 Josh R. 2-3-15 1350 2-10-15 1355 HQ4400D 2-10-15 0357 -58+03 Ryan Philps 2-10-15 1350 2-10-15 12:00 Ha 4400D 2-17-15 0351 -58+19 CHRIS LEATZ 2-24-15 12:25 2-24+15 12:30 Ha 4400D 2-24-15 0407 -58:39 CHRIS LEATZ

Analytical Bench Log Book

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760-326-3329

CH2MHILL Topock

WDR pH Results

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 Resul
159-700B-	3-3-15	13:15	+3:+7	13:17	HQ4400 D	3-3-15	3:38	-53.08	1 Jusini	7.0
>tes:			3-3-15						1.11093	110
10 100-	3-3-15	14. 0	3-3-15							
2 5C-10073	3-3-15	13:18	13-20	13:20	HQ 4400 D	3-3-15	3:38	-58.08	5. THELMS	7.47
1 Sc- 700 B	3-10-15	11:50	3-10-15	11:55	HQ44000	3.10-15	04:16	- 57.50		·
otes:			I		// / / / / / / / / / / / / / / / / / / /	3.10.10	07.10	-01.00	Ryan Phelps	7.0
1 SC-700B	3/17/15	11:50	3/17/15	12:00	HQ 44000	3/17/15	04:08	-57.87	CHIZIS LENTZ	7.34
otes:								<u>. </u>		1
01-7-0-18	3/24/15	R.ac	2/2/10	R . n .		<u> </u>				
		0/22	3/24/5	8:30	H0.44000	3/24/15	03143	-57.61	CHRIS LENZ	7.00
SL-700-B	<u></u>									
6 : 3C-700-D	101240		I				•			
etes:	· · ·			1314	40,4400	·				1
	3-31-15		3-31-15	1314	HQ 4400D	· · · · · · · · · · · · · · · · · · ·			Josh Rosenberg	1
6. <u>SC-700B</u>	· · ·			1314	HQ 4400D	·				7, 21
6. <u>SC-700B</u>	· · ·			1314	HQ 4400D	·				1
etes: 6. <u>SC-700B</u> tes:	· · ·			1314	HQ 4400D	·				1