Pacific Gas and Electric Company

Curt Russell
Topock Onsite Project Manager
Environmental Affairs

Topock Compressor Station
145453 National Trails Hwy
Needles, CA 92363

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

760.326.5582
Fax: 760.326.5542
Email: gcr4@pge.com

December 15, 2005

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: Board Order R7-2004-0103 November 2005 Monthly Report
Interim Measure No. 3 Groundwater Treatment System at the PG&E Topock Compressor Station, Needles, California

Dear Mr. Perdue:

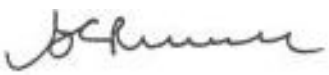
Enclosed is the Board Order R7-2004-0103 November 2005 Monthly Report for the Pacific Gas and Electric Company (PG&E) Topock Compressor Station, Interim Measure (IM) No. 3 Groundwater Treatment System. This Report is submitted in compliance with the Waste Discharge Requirements (WDRs) issued by the Colorado River Basin Regional Water Quality Control Board (CRBRWQCB) under Board Order R7-2004-0103.

WDRs under Board Order R7-2004-0103 apply to IM No. 3 Treatment System discharge by subsurface injection wells only. In addition to Board Order No. R7-2004-0103, the CRBRWQCB issued WDRs for IM No. 3 Treatment System discharge to the Colorado River (Board Order R7-2004-0100) and IM No. 3 Treatment System discharge to the PG&E Compressor Station (Board Order R7-2004-0080).

To date, there has been no IM No. 3 Treatment System discharge to the Colorado River or the PG&E Compressor Station. PG&E has no plans to discharge IM No. 3 Treatment System effluent to the Colorado River or the PG&E Compressor Station at this time. Reporting of Board Order R7-2004-0080 and Board Order R7-2004-0100 activities will be submitted under separate cover.

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

Sincerely,



Curt Russell
Topock Onsite Project Manager

Enclosures:

Board Order R7-2004-0103 November 2005 Monthly Report for the IM No. 3 Groundwater Treatment System

cc: José Cortez, RWQCB
Liann Chavez, RWQCB
Tom Vandenberg, RWQCB
Norman Shopay, DTSC

November 2005 Monthly Report for Interim Measure No. 3 Groundwater Treatment System

Waste Discharge Requirements
Order No. R7-2004-0103
PG&E Topock Compressor Station
Needles, California

Prepared for

California Regional Water Quality Control Board
Colorado River Basin Region

on behalf of

Pacific Gas and Electric Company

December 15, 2005

CH2MHILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

November 2005 Monthly Report
Interim Measures No. 3 Groundwater Treatment System
Waste Discharge Requirements Order No. R7-2004-0103
PG&E Topock Compressor Station
Needles, California

Prepared for
Pacific Gas and Electric Company

December 15, 2005

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

Dennis Fink, PE No. 68986
Project Engineer

Contents

Tables

Figures

Process and Instrumentation Diagrams

Appendix

Acronyms and Abbreviations

DTSC	California Department of Toxic Substances Control
gpm	gallons per minute
IM	Interim Measure
mg/kg	milligram per kilogram
mg/L	milligram per liter
MBC	MBC Applied Environmental Sciences Laboratories
MRP	Monitoring and Reporting Program
PG&E	Pacific Gas and Electric Company
STL	Severn Trent Laboratories, Inc.
Truesdail	Truesdail Laboratories, Inc.
Water Board	California Regional Water Quality Control Board, Colorado River Basin Region
WDR	Waste Discharge Requirements

1.0 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 and management of extracted groundwater. The groundwater extraction, treatment, and injection systems collectively are referred to as IM No. 3. Figure 1 provides a map of the project area.

California Regional Water Quality Control Board, Colorado River Basin Region (Water Board) Board Order No. R7-2004-0103 authorizes PG&E to inject treated groundwater into injection wells located on San Bernardino County Assessor's Parcel No. 650-151-06. The Monitoring and Reporting Program (MRP) under the order requires monthly monitoring reports to be submitted by the 15th day of the following month. **This report covers monitoring activities related to operation of the IM No. 3 groundwater treatment system for the month of November 2005.**

In addition to Board Order No. R7-2004-0103, the Water Board issued WDRs for IM No. 3 Treatment System discharge to the Colorado River (Board Order R7-2004-0100) and IM No. 3 Treatment System discharge to the PG&E Compressor Station (Board Order R7-2004-0080). To date, there has been no IM No. 3 Treatment System discharge to the Colorado River or the PG&E Compressor Station. PG&E has no plans to discharge IM No. 3 Treatment System effluent to the Colorado River or the PG&E Compressor Station at this time. Reporting of Board Order R7-2004-0080 and Board Order R7-2004-0100 activities will be submitted under separate cover.

2.0 Sampling Station Locations

Table 1 lists the locations of sampling stations. The locations of the sampling stations are provided in process and instrumentation diagrams TP-PR-10-10-04, TP-PR-10-10-08, and TP-PR-10-10-06, which were previously provided in PG&E's Sampling Locations letter to the Water Board Executive Officer, dated June 29, 2005. These diagrams are provided again at the end of this report.

3.0 Description of Activities

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

During November 2005, groundwater was extracted from extraction well TW-2D and discharged to injection well IW-2 (Figure 1). The target pump rate was 90 gpm during November 2005 (excluding downtime, which is described in Section 4.0).

Approximately 10,000 gallons of well development and test water generated from the installation of extraction well TW-3D was treated at the IM-3 facility. This activity was authorized by the Water Board in a letter dated November 1, 2005. Approximately 20,000 gallons of additional groundwater from the installation of TW-3D will be treated at the IM-3 facility in December 2005 after separate authorization is obtained by the Water Board.

4.0 Groundwater Treatment System Flow Rates

The November 2005 treatment system monthly average flow rates are presented in Table 2. System influent flow rate was measured by flow meters at groundwater extraction wells TW-2D and TW-2S (Figure TP-RP-10-10-3). The treatment system effluent flow rate was measured by flow meters in the piping into injection well IW-2 and IW-3 (Figure TP-RP-10-10-11). The reverse osmosis concentrate flow rate was measured by a flow meter at the piping carrying water from reverse osmosis concentrate tank T-701 to the truck load-out station (Figure TP-RP-10-10-08).

Periods of extraction system downtime during November 2005 are summarized below. The majority of downtime was related to development and testing of newly installed extraction well TW-3D and chemical cleaning of the microfilter membranes. Multiple cleanings of the microfilter membranes were required to develop the appropriate site-specific procedure to effectively clean the membranes.

- **November 1, 2005:** Extraction well TW-2D was shut down to replace pump P-201. Extraction system downtime was 7 hours 5 minutes.
- **November 2 to 4, 2005:** Extraction well TW-2D was shut down to complete a chemical cleaning of the microfilter membranes and further development of extraction well TW-3D. Extraction system downtime was 48 hours 52 minutes.
- **November 5, 2005:** Extraction well TW-2D was shut down to conduct a pump test from extraction well TW-3D. Extraction system downtime was 8 hours 2 minutes.
- **November 9, 2005:** Extraction well TW-2D was shut-down to remove an in-line static mixer. Extraction system downtime was 52 minutes.
- **November 11, 2005:** Extraction well TW-2D was shut-down to switch to back-up generator power during a power failure and return to Needles Power after power was restored. Extraction system downtime was 29 minutes.
- **November 14 and 15, 2005:** Extraction well TW-2D was shut down to complete further development and testing of extraction well TW-3D. Extraction system downtime was 27 hours 1 minute.
- **November 22 to 24, 2005:** Extraction well TW-2D was shut down to complete a chemical cleaning of the microfilter membranes. Extraction system downtime was 32 hours.

5.0 Sampling and Analytical Procedures

All samples were collected at the designated sampling locations and placed directly into containers provided by Truesdail Laboratories, Inc. (Truesdail) or Severn Trent Laboratories, Inc. (STL). Sample containers were labeled and packaged according to standard sampling procedures.

The samples were stored in a cooler at 4° Celsius and transported to Truesdail or STL via courier service under chain-of-custody documentation. Truesdail transported a portion of the sludge sample to MBC Applied Environmental Sciences Laboratories (MBC) for the aquatic bioassay analysis.

Truesdail is certified by the California Department of Health Services (Certification #1237) under the State of California's Environmental Laboratory Accreditation Program. STL is certified by the California Department of Health Services (Certification #1118) under the Environmental Laboratory Accreditation Program. MBC is certified by the California Department of Health Services (Certification # 1788) under the State of California's Environmental Laboratory Accreditation Program.

All analyses were performed in accordance with the latest edition of the "Guidelines Establishing Test Procedures for Analysis of Pollutants" (40 CFR Part 136), promulgated by the United States Environmental Protection Agency.

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, reverse osmosis concentrate, and sludge sampling was conducted in accordance with the sampling frequency required by the MRP. The sampling analytical results are shown in Tables 3, 4, 5 and 6, respectively.

Groundwater quality is being monitored in observation and compliance wells according to procedures and schedules approved in the *Groundwater Compliance Monitoring Plan for Interim Measures No. 3 Injection Area* (CH2M HILL 2005). Reporting of quarterly groundwater monitoring analytical results will be in a separate document, in conjunction with groundwater level maps of the same monitoring wells. The next groundwater monitoring report (Fourth Quarter 2005) is scheduled for release in January 2006.

6.0 Analytical Results

Laboratory reports prepared by the certified analytical laboratory(ies) are presented in Appendix A. The analytical results from groundwater treatment system influent, effluent, reverse osmosis concentrate, and sludge samples are presented in Tables 3, 4, 5, and 6 respectively.

In accordance with the WDR reporting requirements for the fourth month of treatment system operation, the following sampling frequency schedule was followed:

- The influent was sampled monthly, date November 2, 2005.
- The effluent was sampled weekly, dates November 2, 9, 16, 21, and 30, 2005.
- The reverse osmosis concentrate was sampled monthly, date November 2, 2005.
- The sludge was sampled on November 16, 2005 (quarterly sample). WDR requirements state that sludge is scheduled to be sampled each time sludge is transported offsite unless sludge is transported offsite more frequently than quarterly, in which case the sampling frequency will be quarterly.

The sludge sample collected November 16, 2005 was sent for analysis, including an aquatic bioassay test in accordance with the WDRs reporting requirements. As stated above, the sludge analytical results are presented in Table 6. The aquatic bioassay results indicate 100 percent survivability at 500 milligram per liter (mg/L) concentration, and 100 percent survivability at 750 mg/L concentration.

Table 7 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

7.0 Conclusions

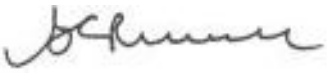
There were no exceedances of the effluent limitations during the reporting period.

8.0 Certification

PG&E submitted a signature delegation letter to the Water Board on August 12, 2005. The letter delegated PG&E signature authority to Mr. Curt Russell and Ms. Yvonne Meeks for correspondence regarding Board Order R7-2004-0103.

Certification Statement:

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

Signature: 

Name: Curt Russell

Company: Pacific Gas and Electric Company

Title: Topock Onsite Project Manager

Date: 12/15/2005

Tables

TABLE 1
Sampling Station Descriptions
November 2005 Report for IM No. 3 Groundwater Treatment System

Sample Station	Sample ID[a]	Location
Sampling Station A: Groundwater Treatment System Influent	SC-100B-WDR-###	Sample collected from tap on pipe into T-100 (see Figure TP-RP-10-10-04).
Sampling Station B: Groundwater Treatment System Effluent	SC-700B-WDR-###	Sample collected from tap on pipe downstream from T-700 (see Figure TP-RP-10-10-04).
Sampling Station D: Groundwater Treatment System Reverse Osmosis Concentrate	SC-701-WDR-###	Sample collected from tap on pipe into T-701 (see Figure TP-RP-10-10-08).
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).

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

TABLE 2
Flow Monitoring Results
November 2005 Report for IM No. 3 Groundwater Treatment System

Parameter	System Influent[a,d]	System Effluent[b,d]	Reverse Osmosis Concentrate[c,d]
Average Monthly Flowrate (gpm)	80.9	74.5	5.7

gpm: gallons per minute.
[a] Only extraction well TW-2D was operated during November 2005.
[b] System effluent flow meter readings taken from FIT-702 during November 2005. All effluent was discharged into injection well IW-2.
[c] Reverse Osmosis flow meter reading from FIT-701.
[d] The difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates is approximately 0.9 percent, which is within the range of acceptable accuracy considering the margin of error for onsite instrumentation, the water contained within the sludge, and differences in the inventory of water in the treatment system between the beginning and end of the reporting period.

TABLE 3
Board Order No. R7-2004-0103 Waste Discharge Requirements (WDRs)
Influent Monitoring Results [a]
November 2005 Monthly Report for Interim Measures No.3 Groundwater Treatment System

Required Sampling Frequency		**Monthly**																					
Analytes		TDS	Turbidity	Specific Conductance	pH	Chromium	Hexavalent Chromium	Aluminium	Ammonia (as N)	Antimony	Arsenic	Barium	Boron	Copper	Fluoride	Lead	Manganese	Molybdenum	Nickel	Nitrate (as N)	Nitrite (as N)	Sulfate	Iron	Zinc
Units [b]		mg/L	NTU	µmhos/cm	pHunits	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	µg/L	µg/L
Sample ID	**Date**																							
SC-100B-WDR-019	11/2/2005	5950	0.101	10300	7.41	3630	3750	ND (52)	ND (0.5)	ND (3.0)	ND (5.0)	ND (300)	1.36	ND (10)	2.86	ND (2.0)	ND (500)	21.4	ND (20)	4.92	ND (0.005)	700	ND (300)	ND (20)

NOTES:

(---) = not required by the WDR Monitoring and Reporting Program
µg/L = micrograms per liter
mg/L = milligrams per liter
NTU = nephelometric turbidity units
µmhos/cm = micromhos per centimeter
ND = parameter not detected at the listed reporting limit
J = concentration or reporting limits estimated by laboratory or validation

[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 WDRs

TABLE 4
Board Order No. R7-2004-0103 Waste Discharge Requirements (WDRs)
Effluent Monitoring Results[a]
November 2005 Monthly Report for Interim Measures No.3 Groundwater Treatment System

WDRs Effluent Limits [b]	Ave. Monthly	NA	NA	NA	6.5-8.4	25	8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Max Daily	NA	NA	NA	6.5-8.4	50	16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Required Sampling Frequency		**Weekly**						**Monthly**															
Analytes		TDS	Turbidity	Specific Conductance	pH	Chromium	Hexavalent Chromium	Aluminium	Ammonia (as N)	Antimony	Arsenic	Barium	Boron	Copper	Fluoride	Lead	Manganese	Molybdenum	Nickel	Nitrate (as N)	Nitrite (as N)	Sulfate	Iron	Zinc
Units [c]		mg/L	NTU	µmhos/cm	pHunits	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	µg/L	µg/L
Sample ID	**Date**																						
SC-700B-WDR-019	11/2/2005	4610	ND (0.1)	8140	7.83	ND (1.0)	0.25 J	ND (52)	7.84	ND (3.0)	ND (5.0)	ND (300)	1.62	ND (10)	2.09	ND (2.0)	ND (500)	10.2	ND (20)	3.93	0.0065	518	ND (300)	ND (20)
SC-700B-WDR-020	11/9/2005	4510	0.122	7410	8.06	ND (1.0)	ND (1.0)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
SC-700B-WDR-021	11/16/2005	4620	0.125	7390	7.57	ND (1.0)	ND (1.0)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
SC-700B-WDR-022	11/21/2005	4250	ND (0.1)	6980	7.75	ND (1.0)	ND (1.0)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
SC-700B-WDR-023	11/30/2005	4610	ND (0.1)	7280	7.79	ND (1.0)	ND (1.0)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

NOTES:

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

a 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)

b In addition to the listed effluent limits, the WDRs 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 WDRs

TABLE 5
Board Order No. R7-2004-0103 Waste Discharge Requirements (WDRs)
Reverse Osmosis Concentrate Results [a]
November 2005 Monthly Report for Interim Measures No.3 Groundwater Treatment System

Required Sampling Frequency		**Monthly**																				
Analytes / **Units** [b] / **Sample ID** / **Date**		TDS mg/L	Specific Conductance µmhos/cm	pH pHunits	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	Molybdenum mg/L	Mercury mg/L	Nickel mg/L	Selenium mg/L	Silver mg/L	Thallium mg/L	Vanadium mg/L	Zinc mg/L
SC-701-WDR-019	11/2/2005	25800	42100	7.83	0.0015	ND (0.002)	ND (0.01)	ND (0.01)	ND (0.3)	ND (0.0052)	ND (0.0052)	ND (0.01)	ND (0.01)	12.3	ND (0.0052)	0.0695	ND (0.0002)	ND (0.02)	ND (0.021)	ND (0.01)	ND (0.0052)	0.0332	ND (0.02)

NOTES:

(---) = not required by the WDR Monitoring and Reporting Program
µg/L = micrograms per liter
mg/L = milligrams per liter
µmhos/cm = micromhos per centimeter
ND = parameter not detected at the listed reporting limit
J = concentration or reporting limits estimated by laboratory or validation

[a] Sampling Location for all Reverse Osmosis Samples is tap on pipe T-701 (see attached P&ID TP-PR-10-10-08)

[b] Units reported in this table are those units required in the WDRs

TABLE 6
Board Order No. R7-2004-0103 Waste Discharge Requirements (WDRs)
Sludge Monitoring Results[a]
November 2005 Monthly Report for Interim Measures No.3 Groundwater Treatment System

Required Sampling Frequency		Each Time Sludge is Transported Offsite [c]																					
Sample ID / Analytes / Units [b]	Date	Chromium mg/kg	Hexavalent Chromium mg/kg	Antimony mg/kg	Arsenic mg/kg	Barium mg/kg	Beryllium mg/kg	Cadmium mg/kg	Cobalt mg/kg	Copper mg/kg	Fluoride mg/kg	Lead mg/kg	Molybdenum mg/kg	Mercury mg/kg	Nickel mg/kg	Selenium mg/kg	Silver mg/kg	Thallium mg/kg	Vanadium mg/kg	Zinc mg/kg	Bioassay % Survival at 750 mg/L [d]	Bioassay % Survival at 500 mg/L [d]	Bioassay % Survival at 250 mg/L [d]
SC-Sludge-WDR-021	11/16/2005	38000	82.0	ND (67)J	37.0	93.0	ND (5.6)	ND (5.6)	ND (56)	84.0	13.4	ND (5.6)	100	1.60	46.0	ND (5.6)	ND (11)	14.0	120	ND (22)	100	100	95

NOTES:

(---) = not required by the WDR Monitoring and Reporting Program
ND = parameter not detected at the listed reporting limit
J = concentration or reporting limits estimated by laboratory or validation
mg/kg = milligrams per kilogram
mg/L = milligrams per liter

[a] Sampling Location for all Sludge Samples is the Sludge Collection Tanks (see attached P&ID TP-PR-10-10-06)

[b] Units reported in this table are those units required in the WDR

[c] Unless transport is more frequent than monthly, in which case the sampling frequency shall be monthly

[d] Concentration of sludge per 1 Liter of water.

TABLE 7
Board Order No. R7-2004-0103 Waste Discharge Requirements (WDRs)
Monitoring Information
November 2005 Monthly Report for Interim Measures No.3 Groundwater Treatment System

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-100B	SC-100B-WDR-019	Bill Dehuff	11/2/2005	3:56:00 AM	TLI	EPA 120.1	SC	11/4/2005	Alex Hernandez
					TLI	EPA 150.1	PH	11/3/2005	Alex Hernandez
					TLI	EPA 160.1	TDS	11/3/2005	Emilia Haley
					TLI	EPA 180.1	TRB	11/3/2005	Gautam Savani
					TLI	EPA 300.0	FL	11/3/2005	Jordan Stavrev
					TLI	EPA 300.0	NO3N	11/3/2005	Jordan Stavrev
					TLI	EPA 300.0	SO4	11/3/2005	Jordan Stavrev
					TLI	EPA 350.2	NH3N	11/3/2005	Alex Hernandez
					TLI	EPA 354.1	NO2N	11/3/2005	Hope Trinidad
					TLI	EPA 6010B	NI	11/7/2005	Riddhi Patel
					TLI	EPA 6010B	MN	11/7/2005	Riddhi Patel
					TLI	EPA 6010B	FE	11/7/2005	Riddhi Patel
					TLI	EPA 6010B	CRT	11/7/2005	Riddhi Patel
					TLI	EPA 6010B	BA	11/7/2005	Riddhi Patel
					TLI	EPA 6010B	AL	11/7/2005	Riddhi Patel
					TLI	EPA 6010B	ZN	11/8/2005	Riddhi Patel
					TLI	EPA 6010B	B	11/8/2005	Riddhi Patel
					TLI	SW 6020A	SB	11/7/2005	Victoria Than
					TLI	SW 6020A	PB	11/7/2005	Victoria Than
					TLI	SW 6020A	MO	11/7/2005	Victoria Than
					TLI	SW 6020A	AS	11/7/2005	Victoria Than
					TLI	SW 6020A	CU	11/7/2005	Victoria Than
					TLI	SW 7199	CR6	11/4/2005	Jorge Arriaga
SC-700B	SC-700B-WDR-019	Bill Dehuff	11/2/2005	3:56:00 AM	TLI	EPA 120.1	SC	11/4/2005	Alex Hernandez
					TLI	EPA 150.1	PH	11/3/2005	Alex Hernandez
					TLI	EPA 160.1	TDS	11/3/2005	Emilia Haley
					TLI	EPA 180.1	TRB	11/3/2005	Gautam Savani
					TLI	EPA 300.0	FL	11/3/2005	Jordan Stavrev
					TLI	EPA 300.0	NO3N	11/3/2005	Jordan Stavrev
					TLI	EPA 300.0	SO4	11/3/2005	Jordan Stavrev
					TLI	EPA 350.2	NH3N	11/3/2005	Alex Hernandez
					TLI	EPA 354.1	NO2N	11/3/2005	Hope Trinidad
					TLI	EPA 6010B	B	11/8/2005	Riddhi Patel
					TLI	EPA 6010B	NI	11/7/2005	Riddhi Patel
					TLI	EPA 6010B	ZN	11/8/2005	Riddhi Patel
					TLI	EPA 6010B	AL	11/7/2005	Riddhi Patel

TABLE 7
Board Order No. R7-2004-0103 Waste Discharge Requirements (WDRs)
Monitoring Information
November 2005 Monthly Report for Interim Measures 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-019	Bill Dehuff	11/2/2005	3:56:00 AM	TLI	EPA 6010B	BA	11/7/2005	Riddhi Patel
					TLI	EPA 6010B	CRT	11/7/2005	Riddhi Patel
					TLI	EPA 6010B	MN	11/7/2005	Riddhi Patel
					TLI	EPA 6010B	FE	11/7/2005	Riddhi Patel
					TLI	SW 6020A	SB	11/7/2005	Victoria Than
					TLI	SW 6020A	PB	11/7/2005	Victoria Than
					TLI	SW 6020A	MO	11/7/2005	Victoria Than
					TLI	SW 6020A	CU	11/7/2005	Victoria Than
					TLI	SW 6020A	AS	11/7/2005	Victoria Than
					TLI	SW 7199	CR6	11/4/2005	Jorge Arriaga
SC-700B	SC-700B-WDR-020	Bill Dehuff	11/9/2005	12:30:00 PM	TLI	EPA 120.1	SC	11/10/2005	Alex Hernandez
					TLI	EPA 150.1	PH	11/10/2005	Alex Hernandez
					TLI	EPA 160.1	TDS	11/10/2005	Emilia Haley
					TLI	EPA 180.1	TRB	11/10/2005	Gautam Savani
					TLI	EPA 6010B	CRT	11/14/2005	Riddhi Patel
					TLI	SW 7199	CR6	11/10/2005	Jorge Arriaga
SC-700B	SC-700B-WDR-021	Harley Booth	11/16/2005	8:30:00 AM	TLI	EPA 120.1	SC	11/18/2005	Alex Hernandez
					TLI	EPA 150.1	PH	11/17/2005	Alex Hernandez
					TLI	EPA 160.1	TDS	11/17/2005	Emilia Haley
					TLI	EPA 180.1	TRB	11/17/2005	Gautam Savani
					TLI	EPA 6010B	CRT	11/18/2005	Riddhi Patel
					TLI	SW 7199	CR6	11/17/2005	Jorge Arriaga
SC-700B	SC-700B-WDR-022	Brian Dobbs	11/21/2005	12:25:00 PM	TLI	EPA 120.1	SC	11/22/2005	Alex Hernandez
					TLI	EPA 150.1	PH	11/22/2005	Alex Hernandez
					TLI	EPA 160.1	TDS	11/22/2005	Emilia Haley
					TLI	EPA 180.1	TRB	11/22/2005	Gautam Savani
					TLI	EPA 6010B	CRT	11/23/2005	Riddhi Patel
					TLI	SW 7199	CR6	11/22/2005	Jorge Arriaga
SC-700B	SC-700B-WDR-023	Gary Sibble	11/30/2005	7:30:00 AM	TLI	EPA 120.1	SC	12/1/2005	Alex Hernandez
					TLI	EPA 150.1	PH	12/1/2005	Alex Hernandez
					TLI	EPA 160.1	TDS	12/1/2005	Emilia Haley
					TLI	EPA 180.1	TRB	12/1/2005	Gautam Savani
					TLI	SW 6020A	CRT	12/6/2005	Victoria Than
					TLI	SW 7199	CR6	12/1/2005	Jorge Arriaga
SC-701	SC-701-WDR-019	Chris Knight	11/2/2005	3:56:00 AM	TLI	EPA 120.1	SC	11/4/2005	Alex Hernandez

TABLE 7
Board Order No. R7-2004-0103 Waste Discharge Requirements (WDRs)
Monitoring Information
November 2005 Monthly Report for Interim Measures No.3 Groundwater Treatment System

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-701	SC-701-WDR-019	Chris Knight	11/2/2005	3:56:00 AM	TLI	EPA 150.1	PH	11/3/2005	Alex Hernandez
					TLI	EPA 160.1	TDS	11/3/2005	Emilia Haley
					TLI	EPA 300.0	FL	11/3/2005	Jordan Stavrev
					TLI	EPA 6010B	BA	11/7/2005	Riddhi Patel
					TLI	EPA 6010B	CRT	11/7/2005	Riddhi Patel
					TLI	EPA 6010B	NI	11/7/2005	Riddhi Patel
					TLI	EPA 6010B	ZN	11/8/2005	Riddhi Patel
					TLI	EPA 7470A	HG	11/9/2005	Victoria Than
					TLI	SW 6020A	TL	11/7/2005	Victoria Than
					TLI	SW 6020A	AG	11/7/2005	Victoria Than
					TLI	SW 6020A	AS	11/7/2005	Victoria Than
					TLI	SW 6020A	V	11/7/2005	Victoria Than
					TLI	SW 6020A	SE	11/7/2005	Victoria Than
					TLI	SW 6020A	SB	11/7/2005	Victoria Than
					TLI	SW 6020A	PB	11/7/2005	Victoria Than
					TLI	SW 6020A	BE	11/8/2005	Victoria Than
					TLI	SW 6020A	CU	11/7/2005	Victoria Than
					TLI	SW 6020A	CO	11/7/2005	Victoria Than
					TLI	SW 6020A	CD	11/7/2005	Victoria Than
					TLI	SW 6020A	MO	11/7/2005	Victoria Than
					TLI	SW 7199	CR6	11/4/2005	Jorge Arriaga
SC-Sludge	SC-Sludge-WDR-021	Haley Booth	11/16/2005	5:50:00 PM	STL	EPA 160.3	MOIST	11/19/2005	Florian Zimmermann
					TLI	EPA 300.0	FL	11/22/2005	Jordan Stavrev
					STL	EPA 6010B	PB	11/22/2005	Josephine Asuncion
					STL	EPA 6010B	SB	11/22/2005	Josephine Asuncion
					STL	EPA 6010B	SE	11/22/2005	Josephine Asuncion
					STL	EPA 6010B	TL	11/22/2005	Josephine Asuncion
					STL	EPA 6010B	ZN	11/22/2005	Josephine Asuncion
					STL	EPA 6010B	NI	11/22/2005	Josephine Asuncion
					STL	EPA 6010B	AS	11/22/2005	Josephine Asuncion
					STL	EPA 6010B	V	11/22/2005	Josephine Asuncion
					STL	EPA 6010B	MO	11/22/2005	Josephine Asuncion
					STL	EPA 6010B	CU	11/22/2005	Josephine Asuncion
					STL	EPA 6010B	CRT	11/22/2005	Josephine Asuncion
					STL	EPA 6010B	CO	11/22/2005	Josephine Asuncion
					STL	EPA 6010B	CD	11/22/2005	Josephine Asuncion

TABLE 7
Board Order No. R7-2004-0103 Waste Discharge Requirements (WDRs)
Monitoring Information
November 2005 Monthly Report for Interim Measures No.3 Groundwater Treatment System

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
SC-Sludge	SC-Sludge-WDR-021	Haley Booth	11/16/2005	5:50:00 PM	STL	EPA 6010B	BA	11/22/2005	Josephine Asuncion
					STL	EPA 6010B	AG	11/22/2005	Josephine Asuncion
					STL	EPA 6010B	BE	11/22/2005	Josephine Asuncion
					STL	EPA 7471A	HG	11/22/2005	Hao Ton
					STL	SW 7199	CR6	11/22/2005	Yuriy Zakhrabov
SC-Sludge	SC-Sludge-WDR-021	Haley Booth	11/16/2005	05:50:00 P.M	MBC	96-Hour Acute Aquatic Toxicity Screening Test	BIO	11/19/2005 - 11/23/2005	Sonia Beck

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 TP-PR-10-10-08)

TLI = Truesdail Laboratories, Inc.
MBC = MBC Applied Environmental Sciences Laboratory
STL = Severn Trent Laboratories, Inc.

SC = specific conductance
PH = pH
TDS = total dissolved solids
TRB = turbidity
CRT = chromium
CR6 = hexavalent chromium
FL = fluoride
AL = aluminum
B = boron
FE = iron
MN = manganese
ZN = zinc
SB = antimony
AS = arsenic
BA = barium
CU = copper
MO = molybdenum
NI = nickel
PB = lead
HG = mercury
SE = selenium
TL = thallium
CO = cobalt
CD = cadmium
BE = beryllium
AG = silver
V = vanadium
NO3N = nitrate (as N)
NH3N = ammonia (as N)
NO2N = nitrite (as N)
SO4 = sulfate

Figures

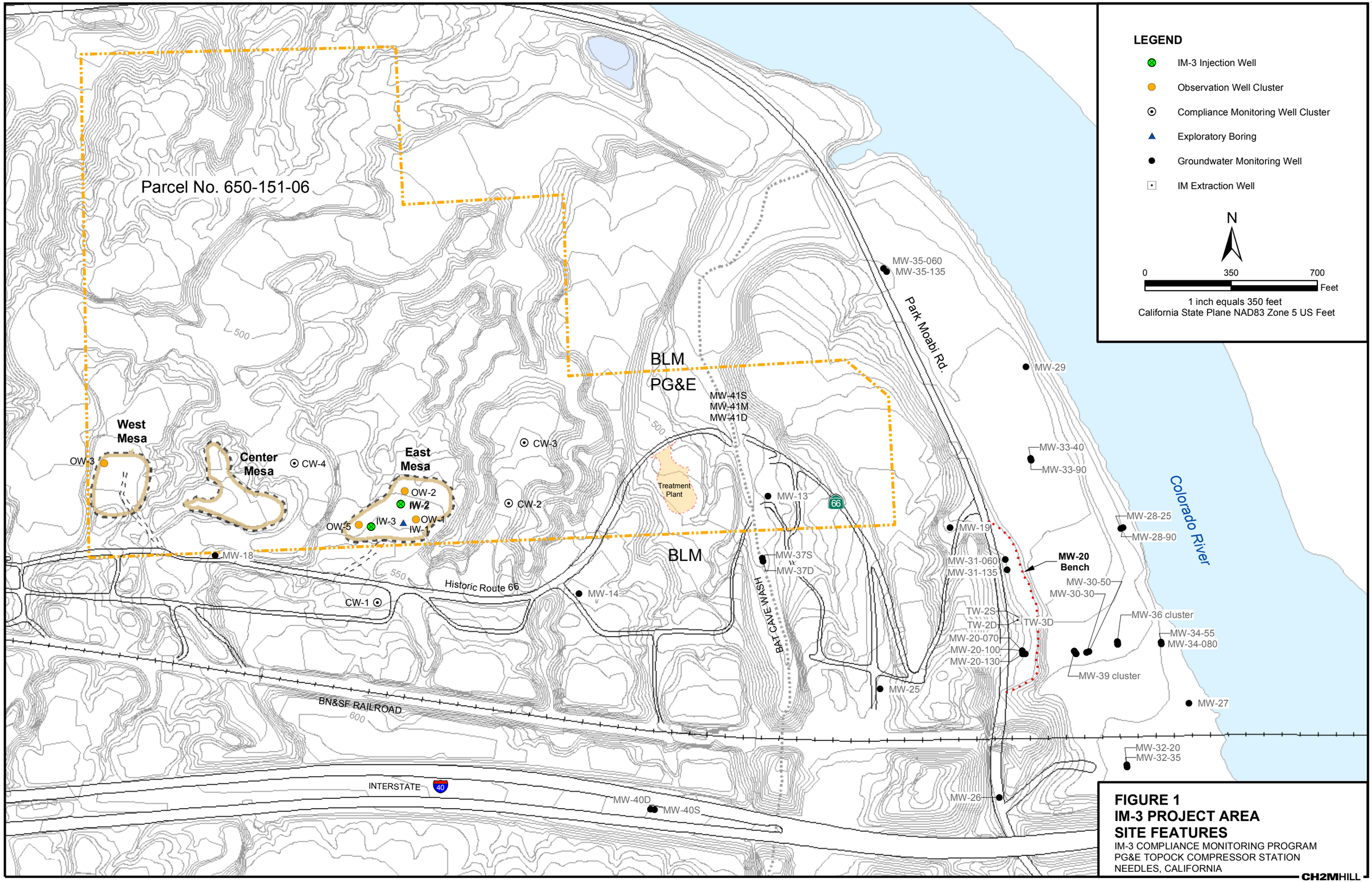
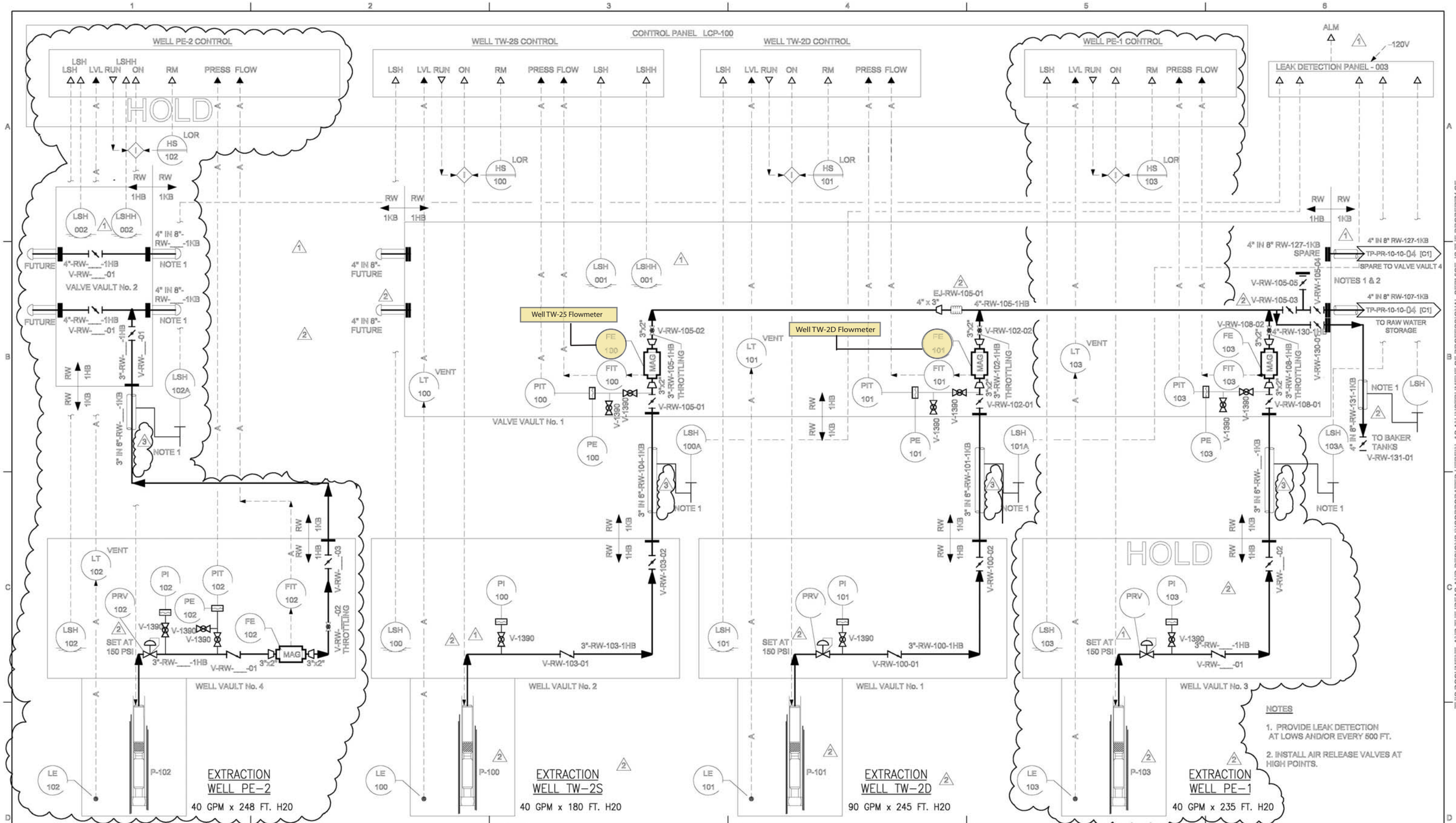


FIGURE 1
IM-3 PROJECT AREA
SITE FEATURES
IM-3 COMPLIANCE MONITORING PROGRAM
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

CH2MHILL

BAO \\ZINFANDEL\PROJ\PACIFICGASELECTRICCO\TOPOCKPROGRAM\GIS\MXD\2005\IM3_PROJECT_AREA.MXD IM3_PROJECT_AREA.PDF 10/14/2005 13:56:42



NO.	DATE	REVISION	BY	CHK
0	07/28/04	FOR INTERNAL REVIEW	EFC	AJ
0	09/03/04	APPROVED FOR CONSTRUCTION	EFC	AJ
1	10/13/04	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ
2	01/23/05	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ
3	03/16/05	DELETED NOTES. APPROVED FOR CONSTRUCTION	EFC	AJ

REVISION APPROVAL		REV 3	DATE 03/16/05	PRINT DISTRIBUTION
DISCIPLINE	REVIEWED	DISCIPLINE	REVIEWED	DATE
CIVIL		ELECTRICAL		STATUS
STRUCTURAL		INST & CONTROL		REV.
MECHANICAL		ARCHITECTURAL		CLIENT
PROCESS		ENVIRONMENTAL		FIELD
PIPING		GEN. ARRANG.		INTRA CO.

STATUS	REV	DATE	SIDE	PEM
ISSUED				
PRELIMINARY				
FOR REVIEW AND APPROVAL	D	07/28/04		
APPROVED FOR CONSTRUCTION	0	09/03/04	KLM	TP
REVISED & APPROVED FOR CONSTRUCTION	3	03/16/05		

SCALE NONE

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

PACIFIC GAS & ELECTRIC CO.
TOPOCK COMPRESSOR STATION
INTERIM MEASURE 3
EXPANDED GROUNDWATER EXTRACTION AND TREATMENT SYSTEM

PROJ NO. 315994

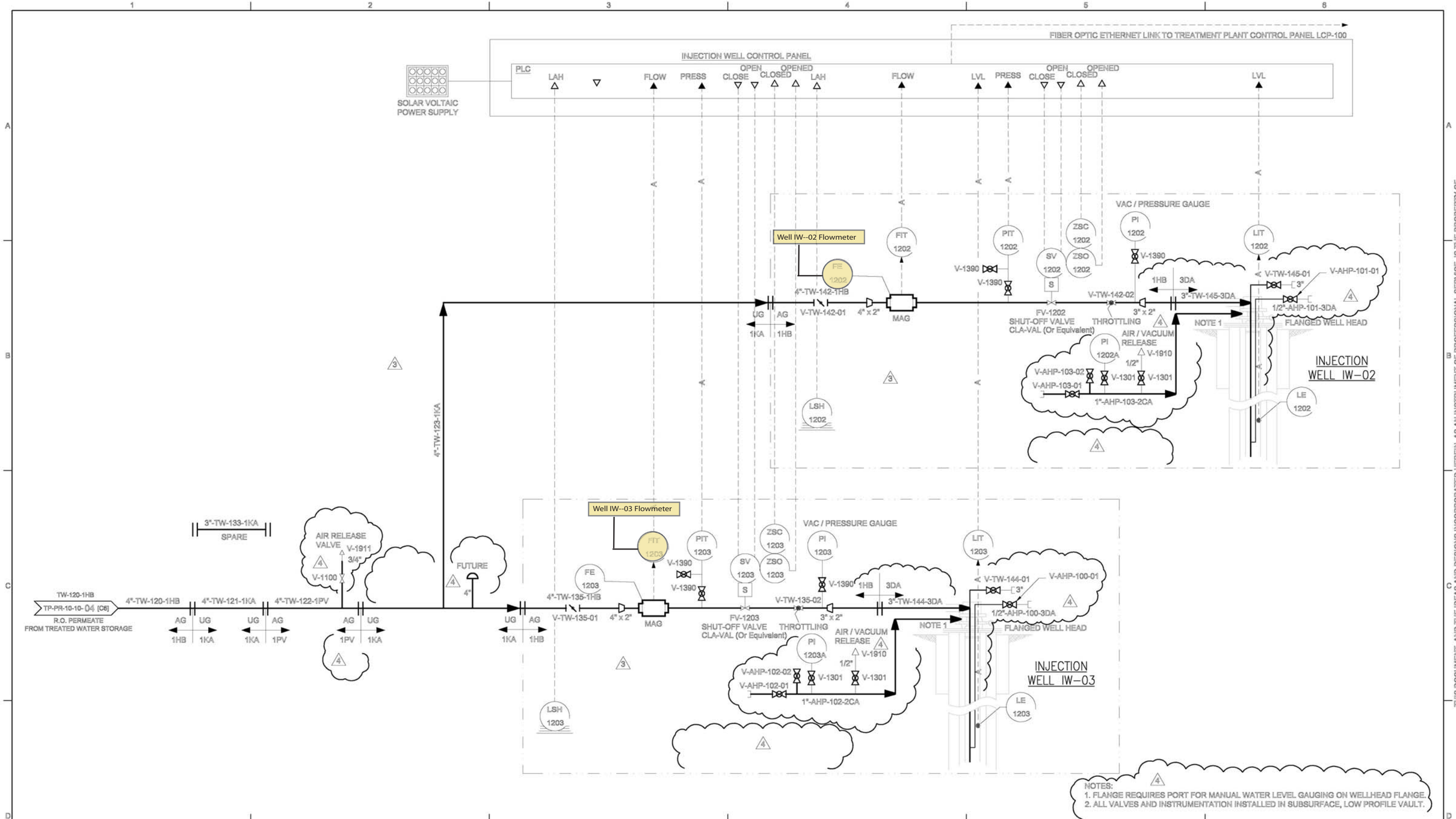
CH2MHILL

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

DWG. NO. TP-PR-10-10-03 REV. 3

BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

FILENAME: tppr101003.dwg PLOT DATE: 18-MAR-2005 PLOT TIME:



NO.	DATE	REVISION	BY	CHK	REVISION APPROVAL		REV 4	DATE 03/10/05	PRINT DISTRIBUTION
					DISCIPLINE	REVIEWED	DISCIPLINE	REVIEWED	DATE
A	07/28/04	FOR INTERNAL REVIEW	EFC	AJ	CIVIL		ELECTRICAL		STATUS
0	09/03/04	APPROVED FOR CONSTRUCTION	EFC	AJ	STRUCTURAL		INST & CONTROL		REV.
1	10/13/04	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	MECHANICAL		ARCHITECTURAL		CLIENT
2	01/23/05	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	PROCESS		ENVIRONMENTAL		FIELD
3	02/14/05	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	PIPING		GEN. ARRANG.		INTRA CO.
4	03/10/05	REMOVED HOLD AND APPROVED FOR CONSTRUCTION	EFC	AJ					

RESPONSIBLE ENGINEER: Kenneth L. Martins CH4878 Exp. 6-30-06 PE #

STATUS	REV	DATE	SDE	PEM
PRELIMINARY				
FOR REVIEW AND APPROVAL	A	07/28/04		
APPROVED FOR CONSTRUCTION	0	09/03/04	KLM	TP
REVISED & APPROVED FOR CONSTRUCTION	4	/ /		

SCALE NONE

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

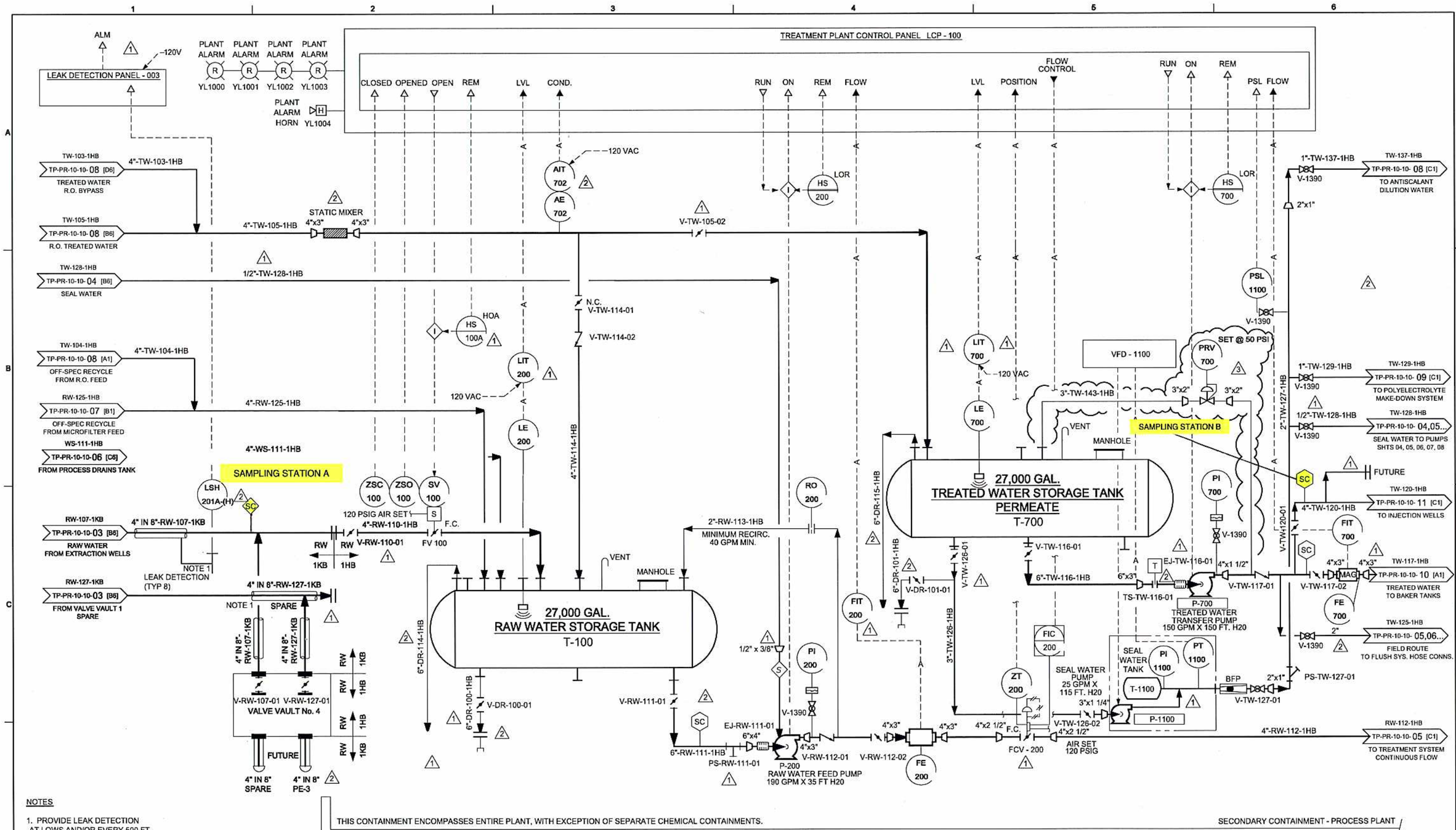
CH2MHILL

PROCESS AND INSTRUMENTATION DIAGRAM
SHEET 11
INJECTION WELLS

DWG. NO. TP-PR-10-10-11 REV. 4

FILENAME: tppr101011.dwg PLOT DATE: 10-MAR-2005 PLOT TIME:

BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"



NO.	DATE	REVISION	BY	CHK	REVISION APPROVAL		REV 3	DATE 02/14/05	PRINT DISTRIBUTION
0	07/28/04	FOR INTERNAL REVIEW	EFC	AJ	DISCIPLINE	REVIEWED	DISCIPLINE	REVIEWED	DATE
0	09/03/04	APPROVED FOR CONSTRUCTION	EFC	AJ	CIVIL		ELECTRICAL		STATUS
1	10/13/04	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	STRUCTURAL		INST & CONTROL		REV.
2	01/23/05	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	MECHANICAL		ARCHITECTURAL		CLIENT
3	02/14/05	ADDED RECIRC. LINE AND PRV VALVE TO T-700 – APPROVED FOR CONSTRUCTION	EFC	AJ	PROCESS		ENVIRONMENTAL		FIELD
					PIPING		GEN. ARRANG.		INTRA CO.

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

STATUS	REV	DATE	SDE	PEM
PRELIMINARY				
FOR REVIEW AND APPROVAL	D	07/28/04		
APPROVED FOR CONSTRUCTION	0	09/03/04	KLM	TP
REVISED & APPROVED FOR CONSTRUCTION	3	/ /		

SCALE NONE

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

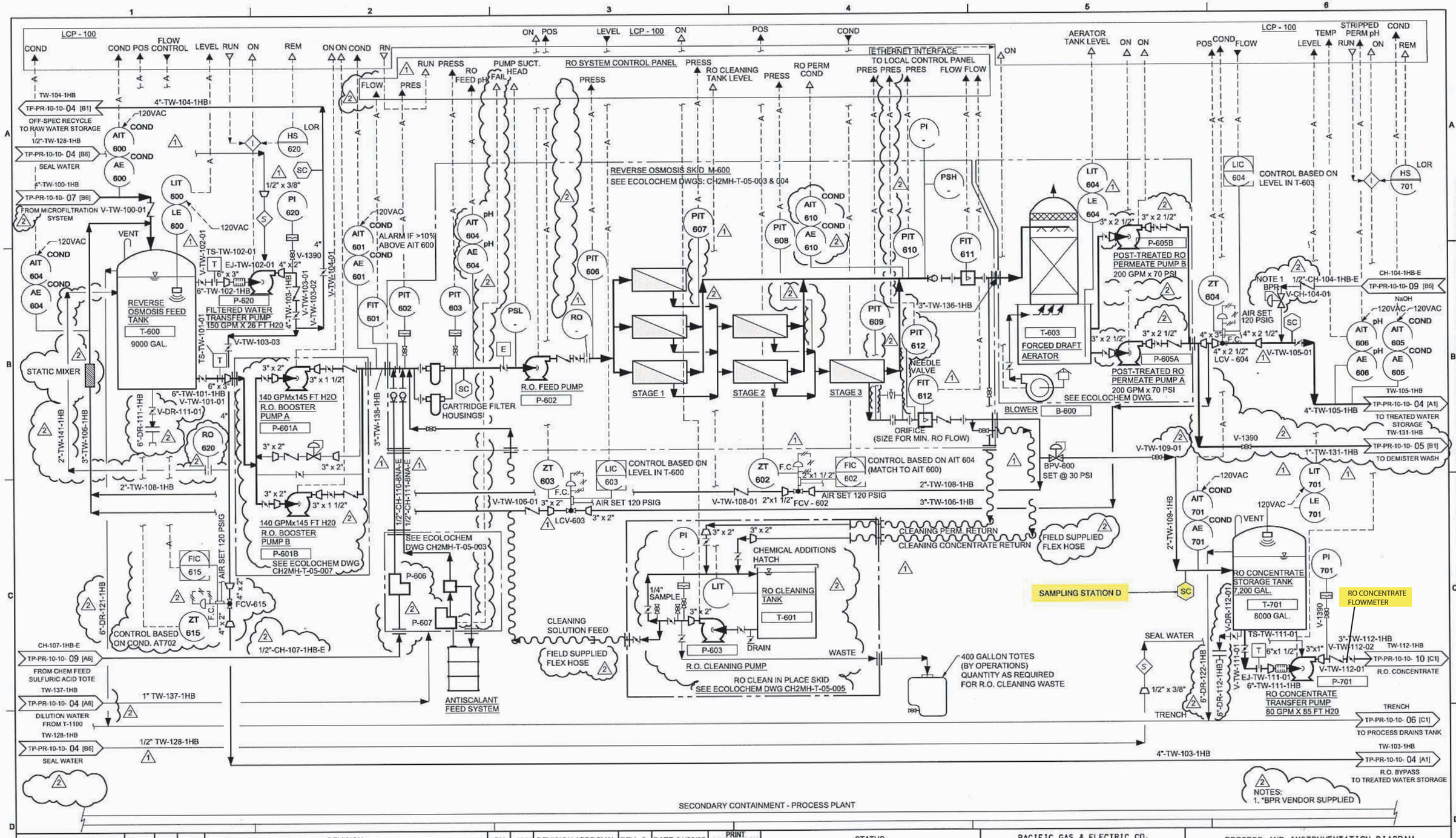
CH2MHILL

PROCESS AND INSTRUMENTATION DIAGRAM
SHEET 04
STORAGE AREA

DWG. NO. TP-PR-10-10-04 REV. 3

BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

FILENAME: tppr101004.dwg PLOT DATE: 14-FEB-2005 PLOT TIME:



NO.	DATE	REVISION	BY	CHK
0	07/28/04	FOR INTERNAL REVIEW	EFC	AJ
0	09/03/04	APPROVED FOR CONSTRUCTION	EFC	AJ
1	10/13/04	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ
2	01/23/05	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ

REVISION APPROVAL	REVIEWED	REV 2	DATE 01/23/05	REVIEWED	PRINT DISTRIBUTION
DISCIPLINE		DISCIPLINE			DATE
ELECTRICAL		ELECTRICAL			STATUS
CIVIL		INST & CONTROL			REV.
STRUCTURAL		ARCHITECTURAL			CLIENT
MECHANICAL		ENVIRONMENTAL			FIELD
PROCESS		GEN. ARRANG.			INTRA CO.
PIPING					

STATUS	REV	DATE	SDE	PEM
PRELIMINARY				
FOR REVIEW AND APPROVAL	D	07/28/04		
APPROVED FOR CONSTRUCTION	0	09/03/04	KLM	TP
REVISED & APPROVED FOR CONSTRUCTION	2	01/23/05		

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

SCALE NONE

PACIFIC GAS & ELECTRIC CO.
TOPOCK COMPRESSOR STATION
INTERIM MEASURE 3
EXPANDED GROUNDWATER EXTRACTION AND TREATMENT SYSTEM

PROJ NO. 315994

CH2MHILL

PROCESS AND INSTRUMENTATION DIAGRAM
SHEET 08
REVERSE OSMOSIS SYSTEM

DWG. NO. TP-PR-10-10-08 REV. 2

FILENAME: tppr101008.dwg PLOT DATE: 23-JAN-2005 PLOT TIME:

BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

CONTROL PANEL

PLC

REM ON RUN REM ON RUN HI TORQUE REM ON RUN CLOSE OPEN CLOSE OPEN REM REM OPEN OPEN LAH TURB OPEN REM RUN LVL ON REM REM LT ON RUNOPEN LAH RM OPEN REM LAH LAH

HS 400A LOR | HS 400B LOR | HS 400C LOR | HS 401 HOA | HS 402 LOR | HS 404 HOA

CH-109-1HB-E
TP-PR-10-10- 09 [C6]
POLYELECTROLYTE FEED CH-108-1HB-E
1/2"-CH-109-1HB-E
V-CH-109-01

TP-PR-10-10- 09 [C6]
POLYELECTROLYTE FEED
1/2"-CH-108-1HB-E
V-CH-108-01

HS 400 HOA | HS 410 HOA | NSH 400 TORQUE | AIT 400 TURB 120VAC | LIT 402 120VAC | SV 404

RW-121-1HB
TP-PR-10-10- 05 [C6]
FROM CHEM REDUCTION AND COAGULATION SYSTEM IA-104-3DV
4"-RW-121-1HB

TP-PR-10-10- 09 [D6]
90 PSIG AIR
1"-IA-104-3DV

M-400-A | M-400-B | M-400-C

CL-400 CLARIFIER

6"-DR-107-1HB

SEE PARKSON DRAWING 10066701-01

SV 400 | ZSC 400 ZSO 400 AIR SET 120 PSIG F. C. FV - 400 | AE 400 TURB | SV 401 120 PSIG AIR SET | PI 401 PE 401 | LE 402 | M-402

4"-WS-102-1HB

1/4" / 1" SLOPE TO PRE-TREATED WATER TANK

6"-RW-122-1HB

RW-122-1HB
TP-PR-10-10- 07 [B1]
MICROFILTRATION SYSTEM

120 PSIG AIR SET | HS 403 HOA | SV 403 | PI 404 | PE 404 | V-WS-103-01 | V-WS-103-02

WS-103-1HB
TP-PR-10-10- 05 [B1]
SLUDGE RECYCLE

P-404 SLUDGE RECYCLE PUMP 20 GPM X 30 FT. H2O

2"-WS-103-1HB | V-WS-109-01 | 2"-WS-109-1HB

ZSC 410 ZSO 410 AIR SET 120 PSIG F. C. FV - 410 | SV 410

V-WS-104-01

4"-WS-100-1HB

2"-WS-101-1HB | V-WS-101-01 | P-401 SLUDGE WITHDRAWAL PUMP 20 GPM X 30 FT. H2O

SLUDGE HOLDING TANK 6000 GAL T-402 | VENT | DECANT

2" V-1790 (TYP 5) | 4" (TYP 5) AIR/SIGHT GAP 4"

PI 403 PE 403

3% - 5% SOLIDS | 2"-WS-105-1HB | V-WS-105-01 | P-403 SEPARATOR FEED PUMP 20 GPM X 30 FT. H2O | 2"-WS-106-1HB | V-WS-106-01

HS 900 LOR | V-WS-108-01 | 4"-WS-108-1HB | 2"-WS-107-1HB | V-WS-107-01

4"-WS-110-1HB

TRUCK FILL FOR OFF-SITE DISPOSAL

V-WS-110-01

LIT 900 120VAC | LE 900 | 1/2" x 3/8" | VENT

V-WS-111-02 | V-WS-111-03 | 4"-WS-111-1HB | V-WS-111-01 | PS-WS-111-01 | V-1390 | 1"-DR-106-1HB

WS-111-1HB
TP-PR-10-10- 04 [B1]
TO RAW WATER STORAGE TANK

LSH 405B | FH-WS-106-01 | LSH 405A | SAMPLING STATION E

V-WS-113-01 | 2"-WS-113-1HB | 4" x 2"

UNIT 2 CAKE CAKE | UNIT 1 CAKE CAKE

FH-WS-112-02 | 2"-WS-112-1HB | FH-WS-112-01

LSHH 405

480 VAC | LCP - 405

P-405 PHASE SEPARATOR SUMP PUMP PACKAGE 25 GPM x 25 FT. H2O

PUMPOUT VAULT

PS-405 PHASE SEPARATORS ALTERNATING DURING OPERATION

TRENCH
TP-PR-10-10- 08 [D6]
R.O. GRAVITY DRAINS
TRENCH

DR-109-1HB
TP-PR-10-10- 07 [C6]
FROM M.F. SYSTEM GRAVITY DRAIN
3"-DR-109-1HB

TRENCH
TP-PR-10-10- 07 [D6]
FROM M.F. SYSTEM PRETREATED WATER TANK
TRENCH

4"-WS-104-1HB

DR-110-1HB
TP-PR-10-10- 07 [C6]
FILTER BACKWASH FROM MICROFILTRATION SYSTEM
4"-DR-110-1HB

TRENCH
TP-PR-10-10- 05 [D6]
GRAVITY DRAIN
TRENCH

TW-128-1HB
TP-PR-10-10- 04 [B6]
SEAL WATER
1/2"-TW-128-1HB

SECONDARY CONTAINMENT - PROCESS PLANT

T-900A PROCESS SUMP NOTE 1

PROCESS DRAIN TANK 5,000 GAL. T-900 | P-900 PROCESS DRAIN PUMP | LSH 900 | V-DR-113-01 | VERTICAL WET PIT 175 GPM x 37 FT. H2O | 6"-DR-113-1HB

NOTES:

1. USE PORTABLE SUMP PUMP (OPERATIONS SUPPLIED) FOR PUMP OUT

NO.	DATE	REVISION	BY	CHK
0	07/28/04	FOR INTERNAL REVIEW	EFC	AJ
0	09/03/04	APPROVED FOR CONSTRUCTION	EFC	AJ
1	10/13/04	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ
2	01/23/05	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ

REVISION APPROVAL		REV 2	DATE 01/23/05
DISCIPLINE	REVIEWED	DISCIPLINE	REVIEWED
CIVIL		ELECTRICAL	
STRUCTURAL		INST & CONTROL	
MECHANICAL		ARCHITECTURAL	
PROCESS		ENVIRONMENTAL	
PIPING		GEN. ARRANG.	

PRINT DISTRIBUTION: DATE | STATUS | FIELD | CLIENT | INTRA CO.

STATUS	REV	DATE	SDE	PEM
PRELIMINARY				
FOR REVIEW AND APPROVAL	D	07/28/04		
APPROVED FOR CONSTRUCTION	0	09/03/04	KLM	TP
REVISED & APPROVED FOR CONSTRUCTION	2	01/23/05		

SCALE NONE

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

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

CH2MHILL

PROCESS AND INSTRUMENTATION DIAGRAM
SHEET 06
CLARIFICATION AND SLUDGE REMOVAL

DWG. NO. TP-PR-10-10-06 REV. 2

FILENAME: tppr101006.dwg PLOT DATE: 23-JAN-2005 PLOT TIME:

BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

Appendix A
Laboratory Analytical Reports

TRUESDAIL LABORATORIES, INC.
INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES

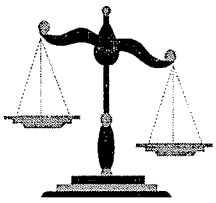
Established 1931

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

CH2M HILL
PG&E Topock Project

Laboratory Number: 948462
Received: November 2, 2005

IM3 Plant-WDR-019
Project No.: 334168.IM.04.00
P.O. No.: 911248



Prepared for:

CH2M HILL
Attn: Mark Cichy
2525 Airpark Dr.
Redding, CA 96001

Prepared by:

TRUESDAIL LABORATORIES, INC.
TUSTIN, CALIFORNIA

Table of Contents
TLI Laboratory Data Package

For Laboratory Number: 948462

Section 1.0

Case Narrative

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES

Established 1931

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

November 17, 2005

CH2M HILL
Mr. Shawn Duffy
155 Grand Ave., Suite 1000
Oakland, California 94612

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT –WDR-019 PROJECT, GROUNDWATER MONITORING,

TLI NO.: 948462

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3 Plant-WDR-019 project groundwater monitoring for Hexavalent and Total Chromium, Turbidity, Specific Conductivity, pH, Anions, Ammonia, Total Dissolved Solids, Title 22 and metals according to the list provided. A summary table for this laboratory number is included in Section 2. Complete laboratory reports, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data have been included under Section 5.

The samples were received and delivered with the chain of custody on November 2, 2005, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

During the metals analysis by SW6020, for the sample identified as SC-701-WDR-019, due to very high salt content and possible matrix and transportation interference, 10X dilution needed to be applied in order to keep analysis in control.

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,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg
Manager, Analytical Services

K.R.P. Iyer
Quality Assurance/Quality Control Officer

CC: Mr. Mark Cichy, CH2M HILL Redding CA

Section 2.0

Summary Table of Final Results

TRUESDAIL LABORATORIES, INC.
INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES
Established 1931
14201 FRANKLIN AVENUE · TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Laboratory No.: 948462
Date Received: November 2, 2005

Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248

Analytical Results Summary

Lab I.D.	Sample I.D.	Sample Time	EPA 120.1 *EC*	EPA 350.2 *Ammonia*	EPA 160.1 *TDS*	EPA 150.1 *pH*	EPA 300 *Fluoride*	SW 7199 *Hexavalent Chromium*
			µmhos/cm	*mg/L*	*mg/L*	*Units*	*mg/L*	***mg/L***
948462-1	SC-100B-WDR-019	15:56	10300	ND	5950	7.41	2.86	3.75
948462-2	SC-700B-WDR-019	15:56	8140	7.84	4610	7.83	2.09	0.00025
948462-3	SC-701-WDR-019	15:56	42100	---	25800	7.83	12.3	ND

Lab I.D.	Sample I.D.	Sample Time	EPA 180.1 *Turbidity*	EPA 300.0 *Sulfate*	EPA 300.0 *Nitrate as N*	EPA 354.1 *Nitrite as N*
			NTU	*mg/L*	*mg/L*	*mg/L*
948462-1	SC-100B-WDR-019	15:56	0.101	700	4.92	ND
948462-2	SC-700B-WDR-019	15:56	ND	518	3.93	0.0065

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.

TRUESDAIL LABORATORIES, INC.
INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES
Established 1931
14201 FRANKLIN AVENUE · TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248

Laboratory No.: 948462
Date Received: November 2, 2005

Analytical Results Summary

METALS ANALYSIS

Lab I.D.	Sample ID	Date of Analysis: / Time Coll.	Aluminum EPA 6010B 11/07/05 mg/L	Antimony EPA 6020 11/07/05 mg/L	Arsenic EPA 6020 11/07/05 mg/L	Barium EPA 6010B 11/07/05 mg/L	Beryllium EPA 6020 11/08/05 mg/L	Cadmium EPA 6020 11/07/05 mg/L	Chromium EPA 6010B 11/08/05 mg/L	Cobalt EPA 6020 11/07/05 mg/L	Copper EPA 6020 11/07/05 mg/L	Lead EPA 6020 11/07/05 mg/L
948462-1	SC-100B-WDR-019	15:56	ND	ND	ND	ND	---	---	3.63	---	ND	ND
948462-2	SC-700B-WDR-019	15:56	ND	ND	ND	ND	---	---	ND	---	ND	ND
948462-3	SC-701-WDR-019	15:56	---	ND	ND	ND	ND	ND	0.0015	ND	ND	ND

Lab I.D.	Sample ID	Date of Analysis: / Time Coll.	Boron EPA 6020 11/08/05 mg/L	Manganese EPA 6010B 11/07/05 mg/L	Mercury EPA 7470A 11/09/05 mg/L	Molybdenum EPA 6020 11/07/05 mg/L	Nickel EPA 6010B 11/07/05 mg/L	Selenium EPA 6020 11/07/05 mg/L	Silver EPA 6020 11/07/05 mg/L	Thallium EPA 6020 11/07/05 mg/L	Vanadium EPA 6020 11/07/05 mg/L	Zinc EPA 6010B 11/08/05 mg/L	Iron EPA 6010B 11/07/05 mg/L
948462-1	SC-100B-WDR-019	15:56	1.36	ND	---	0.0214	ND	---	---	---	---	ND	ND
948462-2	SC-700B-WDR-019	15:56	1.62	ND	---	0.0102	ND	---	---	---	---	ND	ND
948462-3	SC-701-WDR-019	15:56	---	---	ND	0.0695	ND	ND	ND	ND	0.0332	ND	---

NOTES:
ND: Not detected, or below limit of detection

Section 3.0

Final Reports

TRUESDAIL LABORATORIES, INC.
INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES
Established 1931
14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

REPORT

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Sample: Three (3) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248

Laboratory No.: 948462
Date: November 14, 2005
Collected: November 2, 2005
Received: November 2, 2005
Prep/ Analyzed: November 4, 2005
Analytical Batch: 11EC05A

Investigation:

Specific Conductivity by EPA 120.1

Analytical Results Specific Conductivity

TLI I.D.	Field I.D.	Units	Method	MDL	RL	Results
948462-1	SC-100B-WDR-019	µmhos/cm	EPA 120.1	0.143	20.0	10300
948462-2	SC-700B-WDR-019	µmhos/cm	EPA 120.1	0.143	20.0	8140
948462-3	SC-701-WDR-019	µmhos/cm	EPA 120.1	0.143	20.0	42100

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	948412	1710	1720	0.58%	≤ 10%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
CCS	712	706	101%	90% - 110%	Yes
CVS#1	925	996	92.9%	90% - 110%	Yes
CVS#2	918	996	92.2%	90% - 110%	Yes
LCS	720	706	102%	90% - 110%	Yes
LCSD	718	706	102%	90% - 110%	Yes

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES

Established 1931

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

REPORT

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: Three (3) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248

Laboratory No.: 948462
Date: November 14, 2005
Collected: November 2, 2005
Received: November 2, 2005
Prep/ Analyzed: November 3, 2005
Analytical Batch: 11NH305A

Investigation: Ammonia as N by Method EPA 350.2

Analytical Results Ammonia as N

TLI I.D.	Field I.D.	Sample Time	Method	Units	DF	RL	Results
948462-1	SC-100B-WDR-019	15:56	EPA 350.2	mg/L	1.00	0.500	ND
948462-2	SC-700B-WDR-019	15:56	EPA 350.2	mg/L	1.00	0.500	7.84

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	948462-2	7.84	7.56	3.6%	≤ 20%	Yes

QC Std I.D.	Lab Number	Conc.of unspiked sample	Dilution Factor	Added Spike Conc.	MS Amount	Measured Conc. of spiked sample	Theoretical Conc. of spiked sample	MS% Recovery	Acceptance limits	QC Within Control
MS	948462-1	0.00	1.00	10.0	10.0	8.82	10.0	88.2%	75-125%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
LCS	9.61	10.0	96.1%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).
DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.
INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES

Established 1931

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

REPORT

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: Three (3) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248

Laboratory No.: 948462
Date: November 14, 2005
Collected: November 2, 2005
Received: November 2, 2005
Prep/ Analyzed: November 3, 2005
Analytical Batch: 11TDS05BB

Investigation: Total Dissolved Solids by EPA 160.1

Analytical Results Total Dissolved Solids

TLI I.D.	Field I.D.	Units	Method	RL	Results
948462-1	SC-100B-WDR-019	mg/L	EPA 160.1	312	5950
948462-2	SC-700B-WDR-019	mg/L	EPA 160.1	250	4610
948462-3	SC-701-WDR-019	mg/L	EPA 160.1	1250	25800

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Percent Difference	Acceptance limits	QC Within Control
Duplicate	948462-2	4610	4600	0.11%	≤ 5%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
LCS 1	494	500	98.8%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).
RL: Reporting Limit.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES

Established 1931

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

REPORT

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Sample: Three (3) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248

Laboratory No.: 948462
Date: November 14, 2005
Collected: November 2, 2005
Received: November 2, 2005
Prep/ Analyzed: November 3, 2005
Analytical Batch: 11PH05C

Investigation: **pH by EPA 150.1**

Analytical Results pH

TLI I.D.	Field I.D.	Run Time	Units	MDL	RL	Results
948462-1	SC-100B-WDR-019	07:10	pH Units	0.0140	0.100	7.41
948462-2	SC-700B-WDR-019	07:15	pH Units	0.0140	0.100	7.83
948462-3	SC-701-WDR-019	07:20	pH Units	0.0140	0.100	7.83

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Difference (Units)	Acceptance limits	QC Within Control
Duplicate	948462-3	7.83	7.84	0.01	± 0.100 Units	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Difference (Units)	Acceptance Limits	QC Within Control
LCS	6.99	7.00	0.01	± 0.100 Units	Yes
LCS #1	7.01	7.00	0.01	± 0.100 Units	Yes

ND: Below the reporting limit (Not Detected).
RL: Reporting Limit.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.
INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES

Established 1931

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

REPORT

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Sample: Three (3) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248

Laboratory No.: 948462
Date: November 14, 2005
Collected: November 2, 2005
Received: November 2, 2005
Prep/ Analyzed: November 3, 2005
Analytical Batch: 11TUC05D

Investigation: **Turbidity by Method EPA 180.1**

Analytical Results Turbidity

TLI I.D.	Field I.D.	Sample Time	Units	DF	RL	Results
948462-1	SC-100B-WDR-019	15:56	NTU	1.00	0.100	0.101
948462-2	SC-700B-WDR-005	15:56	NTU	1.00	0.100	ND

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	948457-68	0.313	0.315	0.6%	≤ 20%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
LCS	8.00	8.00	100%	90% - 110%	Yes
LCS	8.20	8.00	103%	90% - 110%	Yes
LCS	8.10	8.00	101%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).
DF: Dilution Factor

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

Julia Nayberg, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES

Established 1931

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

REPORT

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: Three (3) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248

Laboratory No.: 948462
Date: November 14, 2005
Collected: November 2, 2005
Received: November 2, 2005
Prep/ Analyzed: November 3, 2005
Analytical Batch: 11AN05D

Investigation: Sulfate by Method EPA 300.0

Analytical Results Sulfate

TLI I.D.	Field I.D.	Sample Time	Run Time	Units	DF	RL	Results
948462-1	SC-100B-WDR-019	15:56	11:38	mg/L	25.0	12.5	700
948462-2	SC-700B-WDR-019	15:56	11:49	mg/L	25.0	12.5	518

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	948462-2	518	518	0.00%	≤ 20%	Yes

QC Std I.D.	Lab Number	Conc.of unspiked sample	Dilution Factor	Added Spike Conc.	MS Amount	Measured Conc. of spiked sample	Theoretical Conc. of spiked sample	MS% Recovery	Acceptance limits	QC Within Control
MS	948462-2	518	50.0	10.0	500	1010	1018	98.4%	75-125%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
MRCCS	20.0	20.0	100%	90% - 110%	Yes
MRCVS#1	15.0	15.0	100%	90% - 110%	Yes
MRCVS#2	15.0	15.0	100%	90% - 110%	Yes
MRCVS#3	15.1	15.0	101%	90% - 110%	Yes
LCS	20.5	20.0	103%	90% - 110%	Yes

85-115

ND: Below the reporting limit (Not Detected).
DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES

Established 1931

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

REPORT

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: Three (3) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248

Laboratory No.: 948462
Date: November 14, 2005
Collected: November 2, 2005
Received: November 2, 2005
Prep/ Analyzed: November 3, 2005
Analytical Batch: 11AN05D

Investigation: Fluoride by Ion Chromatography using EPA 300.0

Analytical Results Fluoride

TLI I.D.	Field I.D.	Sample Time	Run Time	Units	DF	RL	Results
948462-1	SC-100B-WDR-019	15:56	9:54	mg/L	1.00	0.200	2.86
948462-2	SC-700B-WDR-019	15:56	10:05	mg/L	1.00	0.200	2.09
948462-3	SC-701-WDR-019	15:56	11:59	mg/L	25.0	5.00	12.3

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	948403-11	2.10	2.16	2.82%	≤ 20%	Yes

QC Std I.D.	Lab Number	Conc.of unspiked sample	Dilution Factor	Added Spike Conc.	MS Amount	Measured Conc. of spiked sample	Theoretical Conc. of spiked sample	MS% Recovery	Acceptance limits	QC Within Control
MS	948403-11	2.10	1.00	2.00	2.00	4.18	4.10	104%	75-125%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
MRCCS	4.06	4.00	102%	90% - 110%	Yes
MRCVS#1	3.09	3.00	103%	90% - 110%	Yes
MRCVS#2	3.12	3.00	104%	90% - 110%	Yes
LCS	4.06	4.00	102%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).
DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES

Established 1931

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

REPORT

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: Three (3) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248

Laboratory No.: 948462
Date: November 14, 2005
Collected: November 2, 2005
Received: November 2, 2005
Prep/ Analyzed: November 3, 2005
Analytical Batch: 11AN05D

Investigation: Nitrate as N by Ion Chromatography using EPA 300.0

Analytical Results Nitrate as N

TLI I.D.	Field I.D.	Sample Time	Run Time	Units	DF	RL	Results
948462-1	SC-100B-WDR-019	15:56	9:54	mg/L	1.00	0.200	4.92
948462-2	SC-700B-WDR-019	15:56	10:05	mg/L	1.00	0.200	3.93

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	948457 R/D	0.342	0.359	4.85%	≤ 20%	Yes

QC Std I.D.	Lab Number	Conc.of unspiked sample	Dilution Factor	Added Spike Conc.	MS Amount	Measured Conc. of spiked sample	Theoretical Conc. of spiked sample	MS% Recovery	Acceptance limits	QC Within Control
MS	948457 R/D	0.342	1.00	2.00	2.00	2.38	2.34	102%	75-125%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
MRCCS	3.95	4.00	98.8%	90% - 110%	Yes
MRCVS#1	2.98	3.00	99.3%	90% - 110%	Yes
MRCVS#2	2.98	3.00	99.3%	90% - 110%	Yes
MRCVS#3	3.00	3.00	100%	90% - 110%	Yes
LCS	3.95	4.00	98.8%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).
DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES

Established 1931

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

REPORT

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: Three (3) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248
Prep. Batch: 11CrH05C

Laboratory No.: 948462
Date: November 14, 2005
Collected: November 2, 2005
Received: November 2, 2005
Prep/ Analyzed: November 4, 2005
Analytical Batch: 11CrH05C

Investigation: Hexavalent Chromium by IC Using Method SW 7199.

Analytical Results Hexavalent Chromium

TLI I.D.	Field I.D.	Sample Time	Run Time	Units	DF	RL	Results
948462-1	SC-100B-WDR-019	15:56	11:07	mg/L	200	0.0400	3.75
948462-2	SC-700B-WDR-019	15:56	11:26	mg/L	1.05	0.00020	0.00025
948462-3	SC-701-WDR-019	15:56	11:35	mg/L	10.0	0.0020	ND

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	948461-1	0.0210	0.0212	0.95%	≤ 20%	Yes

QC Std I.D.	Lab Number	Conc.of unspiked sample	Dilution Factor	Added Spike Conc.	MS Amount	Measured Conc. of spiked sample	Theoretical Conc. of spiked sample	MS% Recovery	Acceptance limits	QC Within Control
MS	948462-1	3.75	200	0.0200	4.00	7.50	7.75	93.8%	75-125%	Yes
MS	948462-2	0.00025	1.06	0.00100	0.00106	0.00138	0.00131	107%	75-125%	Yes
MS	948462-3	0.00	10.0	0.00100	0.0100	0.0110	0.0100	110%	75-125%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
MRCCS	0.00487	0.00500	97.4%	90% - 110%	Yes
MRCVS#1	0.00991	0.0100	99.1%	90% - 110%	Yes
MRCVS#2	0.00973	0.0100	97.3%	90% - 110%	Yes
MRCVS#3	0.00974	0.0100	97.4%	90% - 110%	Yes
MRCVS#4	0.00983	0.0100	98.3%	90% - 110%	Yes
MRCVS#5	0.00978	0.0100	97.8%	90% - 110%	Yes
LCS	0.00491	0.00500	98.2%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES

Established 1931

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

REPORT

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: Three (3) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248

Laboratory No.: 948462
Date: November 14, 2005
Collected: November 2, 2005
Received: November 2, 2005
Prep/ Analyzed: November 3, 2005
Analytical Batch: 11NO205B

Investigation: Nitrite as N by Method EPA 354.1

Analytical Results for Nitrite as N

TLI I.D.	Field I.D.	Sample Time	Run Time	Units	DF	RL	Results
948462-1	SC-100B-WDR-019	15:56	10:44	mg/L	1.00	0.0050	ND
948462-2	SC-700B-WDR-019	15:56	10:45	mg/L	1.00	0.0050	0.0065

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	948462-3	0.0222	0.0225	1.3%	< 20%	Yes

QC Std I.D.	Lab Number	Conc.of unspiked sample	Dilution Factor	Added Spike Conc.	MS Amount	Measured Conc. of spiked sample	Theoretical Conc. of spiked sample	MS% Recovery	Acceptance limits	QC Within Control
MS	948462-2	0.0065	1.00	0.100	0.100	0.109	0.107	103%	75-125%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
MRCCS	0.104	0.100	104%	90% - 110%	Yes
MRCVS#1	0.0957	0.100	95.7%	90% - 110%	Yes
LCS	0.218	0.200	109%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).
DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES

Established 1931

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

REPORT

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Sample: Three (3) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248

Investigation: California Title 22, Section 26 Metals

Laboratory No.: 948462
Date: November 14, 2005
Collected: November 2, 2005
Received: November 2, 2005
Analyzed: November 7, 2005

Analytical Results

SAMPLE ID: SC-100B-WDR-019 **Time Collected:** 15:56 **LAB ID:** 948462-1

Parameter	Method	Reported Value	DF	Units	RL	Batch	Date Analyzed	Time Analyzed
Aluminum	EPA 6010B	ND	1.04	mg/L	0.0520	110705B	11/07/05	18:05
Antimony	EPA 6020	ND	2.08	mg/L	0.0030	110705B	11/07/05	16:20
Arsenic	EPA 6020	ND	2.08	mg/L	0.0050	110705B	11/07/05	16:20
Barium	EPA 6010B	ND	1.04	mg/L	0.300	110705B	11/07/05	18:05
Chromium	EPA 6010B	3.63	1.04	mg/L	0.0104	110705B	11/07/05	18:05
Copper	EPA 6020	ND	2.08	mg/L	0.0100	110705B	11/07/05	16:20
Lead	EPA 6020	ND	2.08	mg/L	0.0020	110705B	11/07/05	16:20
Manganese	EPA 6010B	ND	1.04	mg/L	0.500	110705B	11/07/05	18:05
Molybdenum	EPA 6020	0.0214	2.08	mg/L	0.0050	110705B	11/07/05	16:20
Nickel	EPA 6010B	ND	1.04	mg/L	0.0200	110705B	11/07/05	18:05
Zinc	EPA 6010B	ND	1.04	mg/L	0.0200	110805B	11/08/05	12:52
Boron	EPA 6010B	1.36	1.04	mg/L	0.200	110805B	11/08/05	12:52
Iron	EPA 6010B	ND	1.04	mg/L	0.300	110705B	11/07/05	18:05

SAMPLE ID: SC-700B-WDR-019 **Time Collected:** 15:56 **LAB ID:** 948462-2

Parameter	Method	Reported Value	DF	Units	RL	Batch	Date Analyzed	Time Analyzed
Aluminum	EPA 6010B	ND	1.04	mg/L	0.0520	110705B	11/07/05	18:17
Antimony	EPA 6020	ND	2.08	mg/L	0.0030	110705B	11/07/05	16:32
Arsenic	EPA 6020	ND	2.08	mg/L	0.0050	110705B	11/07/05	16:32
Barium	EPA 6010B	ND	1.04	mg/L	0.300	110705B	11/07/05	18:17
Chromium	EPA 6010B	ND	1.04	mg/L	0.0010	110705A	11/07/05	14:37
Copper	EPA 6020	ND	2.08	mg/L	0.0100	110705B	11/07/05	16:32
Lead	EPA 6020	ND	2.08	mg/L	0.0020	110705B	11/07/05	16:32
Manganese	EPA 6010B	ND	1.04	mg/L	0.500	110705B	11/07/05	18:17
Molybdenum	EPA 6020	0.0102	2.08	mg/L	0.0050	110705B	11/07/05	16:32
Nickel	EPA 6010B	ND	1.04	mg/L	0.0200	110705B	11/07/05	18:17
Zinc	EPA 6010B	ND	1.04	mg/L	0.0200	110805B	11/08/05	13:09
Boron	EPA 6010B	1.62	1.04	mg/L	0.200	110805B	11/08/05	13:09
Iron	EPA 6010B	ND	1.04	mg/L	0.300	110705B	11/07/05	18:17

SAMPLE ID: SC-701-WDR-019		Time Collected:	15:56			LAB ID:	948462-3	
Parameter	Method	Reported Value	DF	Units	RL	Batch	Date Analyzed	Time Analyzed
Antimony	EPA 6020	ND	10.4	mg/L	0.0104	110705B	11/07/05	17:55
Arsenic	EPA 6020	ND	10.4	mg/L	0.0104	110705B	11/07/05	17:55
Barium	EPA 6010B	ND	1.04	mg/L	0.300	110705B	11/07/05	18:21
Beryllium	EPA 6020	ND	10.4	mg/L	0.0052	110805A	11/08/05	14:27
Cadmium	EPA 6020	ND	10.4	mg/L	0.0052	110705B	11/07/05	17:55
Chromium	EPA 6010B	0.0015	1.04	mg/L	0.0010	110705A	11/07/05	14:41
Cobalt	EPA 6020	ND	10.4	mg/L	0.0104	110705B	11/07/05	17:55
Copper	EPA 6020	ND	10.4	mg/L	0.0104	110705B	11/07/05	17:55
Lead	EPA 6020	ND	10.4	mg/L	0.0052	110705B	11/07/05	17:55
Mercury	EPA 7470A	ND	1.00	mg/L	0.00020	110905A	11/09/05	NA
Molybdenum	EPA 6020	0.0695	10.4	mg/L	0.0104	110705B	11/07/05	17:55
Nickel	EPA 6010B	ND	1.04	mg/L	0.0200	110705B	11/07/05	18:21
Selenium	EPA 6020	ND	10.4	mg/L	0.0208	110705B	11/07/05	17:55
Silver	EPA 6020	ND	10.4	mg/L	0.0104	110705B	11/07/05	17:55
Thallium	EPA 6020	ND	10.4	mg/L	0.0052	110705B	11/07/05	17:55
Vanadium	EPA 6020	0.0332	10.4	mg/L	0.0104	110705B	11/07/05	17:55
Zinc	EPA 6010B	ND	1.04	mg/L	0.0200	110805B	11/08/05	13:13

ND: Not detected,or below limit of detection.

DF: Dilution factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES

Established 1931

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

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: Three (3) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248
Investigation: California Title 22, Section 26 Metals

Laboratory No.: 948462
Date: November 14, 2005
Collected: November 2, 2005
Received: November 2, 2005

Quality Control/Quality Assurance Report

				BLANK		MRCCS				MRCVS			
Parameter	Method	Batch	Units	Blank	RL	Observed Value	TRUE Value	% Rec	Control Limits	Observed Value	TRUE Value	% Rec	Control Limits %
Aluminum	EPA 6010B	110705B	mg/L	ND	0.0500	5.04	5.00	101%	90-110%	4.65	5.00	93.0%	90-110%
Antimony	EPA 6020	110705B	mg/L	ND	0.0030	0.0521	0.0500	104%	90-110%	0.0541	0.0500	108%	90-110%
Arsenic	EPA 6020	110705B	mg/L	ND	0.0050	0.0514	0.0500	103%	90-110%	0.0502	0.0500	100%	90-110%
Barium	EPA 6010B	110705B	mg/L	ND	0.300	5.11	5.00	102%	90-110%	4.71	5.00	94.2%	90-110%
Beryllium	EPA 6020	110805A	mg/L	ND	0.0010	0.0506	0.0500	101%	90-110%	0.0466	0.0500	93.2%	90-110%
Cadmium	EPA 6020	110705B	mg/L	ND	0.0020	0.0460	0.0500	92.0%	90-110%	0.0488	0.0500	97.6%	90-110%
Chromium	EPA 6010B	110705B	mg/L	ND	0.0100	5.13	5.00	103%	90-110%	4.73	5.00	94.6%	90-110%
Cobalt	EPA 6020	110705B	mg/L	ND	0.0050	0.0494	0.0500	98.8%	90-110%	0.0470	0.0500	94.0%	90-110%
Copper	EPA 6020	110705B	mg/L	ND	0.0100	0.0492	0.0500	98.4%	90-110%	0.0476	0.0500	95.2%	90-110%
Lead	EPA 6020	110705B	mg/L	ND	0.0020	0.0494	0.0500	98.8%	90-110%	0.0489	0.0500	97.8%	90-110%
Manganese	EPA 6010B	110705B	mg/L	ND	0.500	5.25	5.00	105%	90-110%	4.70	5.00	94.0%	90-110%
Mercury	EPA 7470A	110905A	mg/L	ND	0.00020	0.00106	0.00100	106%	90-110%	0.00102	0.00100	102%	80-120%
Molybdenum	EPA 6020	110705B	mg/L	ND	0.0050	0.0510	0.0500	102%	90-110%	0.0498	0.0500	99.6%	90-110%
Nickel	EPA 6010B	110705B	mg/L	ND	0.0200	5.11	5.00	102%	90-110%	4.63	5.00	92.6%	90-110%
Selenium	EPA 6020	110705B	mg/L	ND	0.0050	0.0500	0.0500	100%	90-110%	0.0506	0.0500	101%	90-110%
Silver	EPA 6020	110705B	mg/L	ND	0.0050	0.0500	0.0500	100%	90-110%	0.0485	0.0500	97.0%	90-110%
Thallium	EPA 6020	110705B	mg/L	ND	0.0010	0.0512	0.0500	102%	90-110%	0.0506	0.0500	101%	90-110%
Vanadium	EPA 6020	110705B	mg/L	ND	0.0050	0.0497	0.0500	99.4%	90-110%	0.0516	0.0500	103%	90-110%
Zinc	EPA 6010B	110805B	mg/L	ND	0.0200	4.92	5.00	98.4%	90-110%	5.04	5.00	101%	90-110%
Boron	EPA 6010B	110805B	mg/L	ND	0.200	4.97	5.00	99.4%	90-110%	4.95	5.00	99.0%	90-110%
Iron	EPA 6010B	110705B	mg/L	ND	0.300	5.17	5.00	103%	90-110%	4.74	5.00	94.8%	90-110%

			LABORATORY CONTROL SAMPLES				SAMPLE DUPLICATES				
Parameter	**Method**	**Units**	**LCS Obs.**	**LCS Theo.**	**% Rec.**	**Control Limits**	**SAMPLE ID**	**SAMPLE RESULT**	**DUP RESULT**	**% RPD**	**Precision Control Limits %**
Aluminum	EPA 6010B	mg/L	5.07	5.00	101%	90-110%	948462-1	ND	ND	0.00%	≤20
Antimony	EPA 6020	mg/L	0.0512	0.0500	102%	90-110%	948462-3	ND	ND	0.00%	≤20
Arsenic	EPA 6020	mg/L	0.0515	0.0500	103%	90-110%	948462-3	ND	ND	0.00%	≤20
Barium	EPA 6010B	mg/L	5.14	5.00	103%	90-110%	948462-1	ND	ND	0.00%	≤20
Beryllium	EPA 6020	mg/L	0.0479	0.0500	95.8%	90-110%	948462-3	ND	ND	0.00%	≤20
Cadmium	EPA 6020	mg/L	0.0455	0.0500	91.0%	90-110%	948462-3	ND	ND	0.00%	≤20
Chromium	EPA 6010B	mg/L	5.22	5.00	104%	90-110%	948462-1	3.63	3.60	0.83%	≤20
Cobalt	EPA 6020	mg/L	0.0498	0.0500	99.6%	90-110%	948462-3	ND	ND	0.00%	≤20
Copper	EPA 6020	mg/L	0.0500	0.0500	100%	90-110%	948462-3	ND	ND	0.0%	≤20
Lead	EPA 6020	mg/L	0.0495	0.0500	99.0%	90-110%	948462-3	ND	ND	0.00%	≤20
Manganese	EPA 6010B	mg/L	5.17	5.00	103%	90-110%	948462-1	ND	ND	0.00%	≤20
Mercury	EPA 7470A	mg/L	0.00112	0.00100	112%	80-120%	948550	0.00043	0.00039	9.76%	≤20
Molybdenum	EPA 6020	mg/L	0.0523	0.0500	105%	90-110%	948462-3	0.0695	0.0630	9.81%	≤20
Nickel	EPA 6010B	mg/L	5.06	5.00	101%	90-110%	948462-1	ND	ND	0.00%	≤20
Selenium	EPA 6020	mg/L	0.0518	0.0500	104%	90-110%	948462-3	ND	ND	0.00%	≤20
Silver	EPA 6020	mg/L	0.0495	0.0500	99.0%	90-110%	948462-3	ND	ND	0.00%	≤20
Thallium	EPA 6020	mg/L	0.0498	0.0500	99.6%	90-110%	948462-2	ND	ND	0.0%	≤20
Vanadium	EPA 6020	mg/L	0.0499	0.0500	100%	90-110%	948462-3	0.0332	0.0314	5.57%	≤20
Zinc	EPA 6010B	mg/L	5.41	5.00	108%	90-110%	948462-1	ND	ND	0.00%	≤20
Boron	EPA 6010B	mg/L	5.08	5.00	102%	90-110%	948462-1	1.36	1.35	0.74%	≤20
Iron	EPA 6010B	mg/L	5.27	5.00	105%	90-110%	948462-1	ND	ND	0.00%	≤20

MATRIX SPIKE

Sample ID	Parameter	Method	Units	Sample Result	DF	Spike Level	Total Amt. of Spike	Theo. Value	MS Obs.	% Rec.	Accuracy Control Limits %
948462-1	Aluminum	EPA 6010B	mg/L	0.00	1.04	2.50	2.60	2.60	2.60	100%	75-125%
948462-3	Antimony	EPA 6020	mg/L	0.00	10.4	0.0500	0.520	0.520	0.570	110%	75-125%
948462-3	Arsenic	EPA 6020	mg/L	0.00	10.4	0.0500	0.520	0.520	0.471	90.6%	75-125%
948462-1	Barium	EPA 6010B	mg/L	0.00	1.04	2.50	2.60	2.60	2.39	91.9%	75-125%
948462-3	Beryllium	EPA 6020	mg/L	0.00	10.4	0.0400	0.416	0.416	0.337	81.0%	75-125%
948462-3	Cadmium	EPA 6020	mg/L	0.00	10.4	0.0500	0.520	0.520	0.490	94.2%	75-125%
948462-1	Chromium	EPA 6010B	mg/L	3.62	1.04	2.50	2.60	6.22	6.02	92.3%	75-125%
948462-3	Cobalt	EPA 6020	mg/L	0.00	10.4	0.0500	0.520	0.520	0.453	87.1%	75-125%
948462-3	Copper	EPA 6020	mg/L	0.00	10.4	0.0500	0.520	0.520	0.475	91.3%	75-125%
948462-3	Lead	EPA 6020	mg/L	0.00	10.4	0.0500	0.520	0.520	0.469	90.2%	75-125%
948462-1	Manganese	EPA 6010B	mg/L	0.00	1.04	2.50	2.60	2.60	2.36	90.8%	75-125%
948462-3	Mercury	EPA 7470A	mg/L	0.00	1.00	0.00100	0.00100	0.00100	0.00102	102%	75-125%
948462-3	Molybdenum	EPA 6020	mg/L	0.0695	10.4	0.0500	0.520	0.590	0.600	102%	75-125%
948462-1	Nickel	EPA 6010B	mg/L	0.00	1.04	2.50	2.60	2.60	2.24	86.2%	75-125%
948462-3	Selenium	EPA 6020	mg/L	0.00	10.4	0.0500	0.520	0.520	0.543	104%	75-125%
948462-3	Silver	EPA 6020	mg/L	0.00	10.4	0.0500	0.520	0.520	0.468	90.0%	75-125%
948462-3	Thallium	EPA 6020	mg/L	0.00	10.4	0.0500	0.520	0.520	0.469	90.2%	75-125%
948462-3	Vanadium	EPA 6020	mg/L	0.0332	10.4	0.0500	0.520	0.553	0.519	93.4%	75-125%
948462-1	Zinc	EPA 6010B	mg/L	0.00	1.04	2.50	2.60	2.60	2.86	110%	75-125%
948462-1	Boron	EPA 6010B	mg/L	1.36	1.04	2.50	2.60	3.96	4.16	108%	75-125%
948462-1	Iron	EPA 6010B	mg/L	0.00	1.04	2.50	2.60	2.60	2.37	91.2%	75-125%

ND: Not detected, or below limit of detection.
DF: Dilution Factor

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES

Established 1931

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

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: Three (3) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248
Investigation: California Title 22, Section 26 Metals

Laboratory No.: 948462
Date: November 14, 2005
Collected: November 2, 2005
Received: November 2, 2005

Quality Control/Quality Assurance Report

				BLANK		MRCCS				MRCVS			
Parameter	Method	Batch	Units	Blank	RL	Observed Value	TRUE Value	% Rec	Control Limits	Observed Value	TRUE Value	% Rec	Control Limits %
Chromium	EPA 6010B	110705A	mg/L	ND	0.0010	0.01010	0.0100	101%	90-110%	0.01100	0.0100	110%	90-110%

			LABORATORY CONTROL SAMPLES				SAMPLE DUPLICATES				
Parameter	Method	Units	LCS Obs.	LCS Theo.	% Rec.	Control Limits	SAMPLE ID	SAMPLE RESULT	DUP RESULT	% RPD	Precision Control Limits %
Chromium	EPA 6010B	mg/L	0.00972	0.0100	97.2%	90-110%	948460-6	0.0047	0.0050	6.19%	≤20

MATRIX SPIKE

Sample ID	Parameter	Method	Units	Sample Result	DF	Spike Level	Total Amt. of Spike	Theo. Value	MS Obs.	% Rec.	Accuracy Control Limits %
948460-6	Chromium	EPA 6010B	mg/L	0.0047	1.04	0.0100	0.0104	0.0151	0.0143	92.3%	75-125%

ND: Not detected, or below limit of detection.
DF: Dilution Factor

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.
14201 Franklin Avenue, Tustin, CA 92780-7008
(714)730-6239 FAX: (714) 730-6462
www.truesdail.com

CHAIN OF CUSTODY RECORD

[IM3Plant-WDR-019] 948462

COC Number
TURNAROUND TIME 5 Days
DATE 11-2-05 PAGE 1 OF 1

COMPANY: CH2M HILL
PROJECT NAME: PG&E Topock
PHONE: (510) 251-2888 FAX: (510) 622-7086
ADDRESS: 155 Grand Ave Ste 1000
Oakland, CA 94612
P.O. NUMBER: 334168.IM.04.00
SAMPLERS (SIGNATURE: [signature]

Rec'd 11/02/05
sbb 948462

	SAMPLE I.D.	DATE	TIME	DESCRIPTION	CR6 (7199) Lab Filtered	Total Met (6010B) Title 22	Total Met (6010B) Total Al, Ba,B, Cr, Cu, Pb, Mn, Mo, Ni, Fe, Zn,Sb	Metals (7470A)	Specific Conductance (120.1)	pH (150.1)	TDS (160.1)	Anions (300) Fl	Anions (300) Fl, SO4, NO2, NO3	Ammonia (350.2)	Turbidity (180.1)	NUMBER OF CONTAINERS	COMMENTS
-1	SC-100B-WDR-019	11-2-05	356	Groundwater	x		x		x	x	x		x	x	x	4	pH=2
-2	SC-700B-WDR-019	11-2-05	356	Groundwater	x		x		x	x	x		x	x	x	4	pH=2
-3	SC-701-WDR-019	11-2-05	356	Groundwater	x	x		x	x	x	x	x				4	pH=2
																12	TOTAL NUMBER OF CONTAINERS

RUSH

ALERT!! Level III QC

For Sample Conditions See Form Attached

CHAIN OF COUSTODY SIGNATURE RECORD

Signature	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished) [signature]	BAIAW OODUS	OMI	11-2-05 356
Signature (Received) [signature]	MP Buskirk	Excalibur	11-2-05 1556
Signature (Relinquished) [signature]	MP Buskirk	Excalibur	11-2-05 2020
Signature (Received) [signature]	L. Shakeminie	TLI	11/2/05 20:25
Signature (Relinquished)			
Signature (Received)			

SAMPLE CONDITIONS
RECEIVED COOL ☐ WARM ☐ _____ °F
CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

TRUESDAIL LABORATORIES, INC.
INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES

Established 1931

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

CH2M HILL

PG&E Topock Project

Laboratory Number: 948737
Received: November 9, 2005

IM3Plant-WDR-020
Project No.: 334168.IM.04.00
P.O. No.: 911248

Prepared for:

CH2M HILL
Attn: Mark Cichy
2525 Airpark Dr.
Redding, CA 96001

Prepared by:

TRUESDAIL LABORATORIES, INC.
TUSTIN, CALIFORNIA

Table of Contents
TLI Laboratory Data Package

For Laboratory Number: 948737

Section 1.0

Case Narrative

TRUESDAIL LABORATORIES, INC.
INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES
Established 1931
14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

November 16, 2005

CH2M HILL
Mr. Shawn Duffy
155 Grand Ave., Suite 1000
Oakland, California 94612

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT –WDR-020 PROJECT, GROUNDWATER MONITORING,

TLI NO.: 948737

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3 Plant-WDR-020 project groundwater monitoring for Hexavalent and Total Chromium, Turbidity, Specific Conductivity, pH, and Total Dissolved Solids. A summary table for this laboratory number is included in Section 2. Complete laboratory reports, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data have been included under Section 5.

The sample was received and delivered with the chain of custody on November 9, 2005, intact and in chilled condition. The sample will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg
Manager, Analytical Services

K.R.P. Iyer
Quality Assurance/Quality Control Officer

CC: Mr. Mark Cichy, CH2M HILL Redding CA

Section 2.0

Summary Table of Final Results

TRUESDAIL LABORATORIES, INC.
INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES
Established 1931
14201 FRANKLIN AVENUE · TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Laboratory No.: 948737
Date Received: November 9, 2005

Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248

Analytical Results Summary

Lab I.D.	Sample I.D.	Sample Time	SW 6010B *Chromium Total* mg/L	SW 7199 *Chromium Hexavalent* mg/L	EPA 180.1 *Turbidity* NTU	EPA 150.1 *pH* Unit	EPA 120.1 *EC* µmhos/cm	EPA 160.1 *TDS* mg/L
948737	SC-700B-WDR-020	12:30	ND	ND	0.122	8.06	7410	4510

ND: Non Detected (below reporting limit)

Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01 will have two (2) significant figures.
Result above or equal to 0.01 will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

Section 3.0

Final Reports

TRUESDAIL LABORATORIES, INC.
INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES
Established 1931
14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

REPORT

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Laboratory No.: 948737

Sample: One (1) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248

Date: November 16, 2005
Collected: November 9, 2005
Received: November 9, 2005
Prep/ Analyzed: November 10, 2005
Analytical Batch: 11CrH05J

Investigation: **Hexavalent Chromium by SW 7199**

Analytical Results Hexavalent Chromium

TLI I.D.	Field I.D.	Sample Time	Run Time	Units	DF	RL	Results
948737	SC-700B-WDR-020	12:30	09:50	mg/L	5.00	0.00100	ND

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	948737	ND	ND	0.00%	≤ 20%	Yes

QC Std I.D.	Lab Number	Conc.of unspiked sample	Dilution Factor	Added Spike Conc.	MS Amount	Measured Conc. of spiked sample	Theoretical Conc. of spiked sample	MS% Recovery	Acceptance limits	QC Within Control
MS	948737	0.00	5.00	0.00100	0.00500	0.00504	0.00500	101%	75-125%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
MRCCS	0.00482	0.00500	96.4%	90% - 110%	Yes
MRCVS#1	0.00974	0.0100	97.4%	90% - 110%	Yes
MRCVS#2	0.00989	0.0100	98.9%	90% - 110%	Yes
MRCVS#3	0.00981	0.0100	98.1%	90% - 110%	Yes
LCS	0.00487	0.00500	97.4%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).
DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.
INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES
Established 1931
14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

REPORT

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Sample: One (1) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248
Prep. Batch: 111405A

Laboratory No.: 948737
Date: November 16, 2005
Collected: November 9, 2005
Received: November 9, 2005
Prep/ Analyzed: November 14, 2005
Analytical Batch: 111405A

Investigation: Total Chromium by Inductively Coupled Argon Plasma Using Method SW 6010B

Analytical Results Total Chromium

TLI I.D.	Field I.D.	Units	Method	Run Time	DF	RL	Results
948737	SC-700B-WDR-020	mg/L	SW 6010B	13:44	1.04	0.0010	ND

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	948685-1	ND	ND	0.00%	≤20%	Yes

QC Std I.D.	Lab Number	Conc.of unspiked sample	Dilution Factor	Added Spike Conc.	MS Amount	Measured Conc. of spiked sample	Theoretical Conc. of spiked sample	MS% Recovery	Acceptance limits	QC Within Control
MS	948685-1	0.00	1.04	0.0100	0.0104	0.00949	0.0104	91.3%	75-125%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
MRCCS	0.00993	0.0100	99.3%	90% - 110%	Yes
MRCVS#1	0.0100	0.0100	100%	90% - 110%	Yes
MRCVS#2	0.00943	0.0100	94.3%	90% - 110%	Yes
ICS	0.00910	0.0100	91.0%	80% - 120%	Yes
LCS	0.00990	0.0100	99.0%	90% - 110%	Yes

ND: Not detected at reporting limit

DF: Dilution Factor

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.
INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES
Established 1931
14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

REPORT

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: One (1) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248

Laboratory No.: 948737
Date: November 16, 2005
Collected: November 9, 2005
Received: November 9, 2005
Prep/ Analyzed: November 10, 2005
Analytical Batch: 11TDS05D

Investigation: Total Dissolved Solids by EPA 160.1

Analytical Results Total Dissolved Solids

TLI I.D.	Field I.D.	Units	Method	RL	Results
948737	SC-700B-WDR-020	mg/L	EPA 160.1	250	4510

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Percent Difference	Acceptance limits	QC Within Control
Duplicate	948737	4510	4440	0.78%	≤ 5%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
LCS 1	504	500	100.8%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).
RL: Reporting Limit.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.
INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES
Established 1931
14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

REPORT

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: One (1) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248

Laboratory No.: 948737
Date: November 16, 2005
Collected: November 9, 2005
Received: November 9, 2005
Prep/ Analyzed: November 10, 2005
Analytical Batch: 11TUC05J

Investigation: Turbidity by Method EPA 180.1

Analytical Results Turbidity

TLI I.D.	Field I.D.	Sample Time	Units	DF	RL	Results
948737	SC-700B-WDR-020	12:30	NTU	1.00	0.100	0.122

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	948672-7	ND	ND	0.00%	≤ 20%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
LCS	8.22	8.00	103%	90% - 110%	Yes
LCS	8.25	8.00	103%	90% - 110%	Yes
LCS	8.23	8.00	103%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).
DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.
INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES
Established 1931
14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

REPORT

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: One (1) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248

Laboratory No.: 948737
Date: November 16, 2005
Collected: November 9, 2005
Received: November 9, 2005
Prep/ Analyzed: November 10, 2005
Analytical Batch: 11EC05E

Investigation: Specific Conductivity by EPA 120.1

Analytical Results Specific Conductivity

TLI I.D.	Field I.D.	Units	Method	DF	RL	Results
948737	SC-700B-WDR-020	µmhos/cm	EPA 120.1	10.0	20.0	7410

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	948735-1	372	379	1.86%	≤ 10%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
CCS	723	706	102%	90% - 110%	Yes
CVS#1	925	996	92.9%	90% - 110%	Yes
CVS#2	914	996	91.8%	90% - 110%	Yes
LCS	705	706	99.9%	90% - 110%	Yes
LCSD	703	706	99.6%	90% - 110%	Yes

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.
INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES
Established 1931
14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

REPORT

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Sample: One (1) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248

Laboratory No.: 948737
Date: November 16, 2005
Collected: November 9, 2005
Received: November 9, 2005
Prep/ Analyzed: November 10, 2005
Analytical Batch: 11PH05K

Investigation:

pH by EPA 150.1

Analytical Results pH

TLI I.D.	Field I.D.	Sample Time	Run Time	Units	MDL	RL	Results
948737	SC-700B-WDR-020	12:30	07:10	pH Units	0.0140	0.100	8.06

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Difference (Units)	Acceptance limits	QC Within Control
Duplicate	948737	8.06	8.06	0.0000	± 0.100 Units	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Difference (Units)	Acceptance Limits	QC Within Control
LCS	7.00	7.00	0.000	± 0.100 Units	Yes
LCS #1	7.00	7.00	0.000	± 0.100 Units	Yes
LCS #2	7.01	7.00	0.01	± 0.100 Units	Yes

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg, Manager
Analytical Services

948737

CHAIN OF CUSTODY RECORD

[IM3Plant-WDR-020]

COC Number

TURNAROUND TIME 5 Days

DATE 11.9.05 PAGE 1 OF 1

TRUESDAIL LABORATORIES, INC.
14201 Franklin Avenue, Tustin, CA 92780-7008
(714)730-6239 FAX: (714) 730-6462
www.truesdail.com

COMPANY CH2M HILL

PROJECT NAME PG&E Topock FAX (510) 622-7086

PHONE (510) 251-2888

ADDRESS 155 Grand Ave Ste 1000
Oakland, CA 94612

P.O. NUMBER 334168.IM.04.00

SAMPLERS (SIGNATURE) Will H DeHuff IK

ALERT!! Level III QC

SAMPLE I.D.	DATE	TIME	DESCRIPTION	CR6 (7199) Lab Filtered	Total Met (6010B) Total Chromium	Specific Conductance (120.1)	pH (150.1)	TDS (160.1)	Turbidity (180.1)	NUMBER OF CONTAINERS	COMMENTS
SC-700B-WDR-020	11.9.05	12:30	Groundwater	x	x	x	x	x	x	4	pH= 2
										4	TOTAL NUMBER OF CONTAINERS

Rec'd 11/09/05
948737

For Sample Conditions
See Form Attached

RUSH

CHAIN OF CUSTODY SIGNATURE RECORD

Signature (Relinquished) Will H DeHuff	Printed Name BILL DEHUFF	Company/ Agency OMI, Inc	Date/ Time 11.9.05 12:30
Signature (Received) Sparrow 8779	Printed Name SPARROW 8779	Company/ Agency EXECUTIVE COURIER	Date/ Time 11/9/05 1530
Signature Sparrow 8779	Printed Name SPARROW 8779	Company/ Agency EXECUTIVE COURIER	Date/ Time 11-9-05 1930
Signature	Printed Name	Company/ Agency TCI	Date/ Time
Signature	Printed Name	Company/ Agency	Date/

SAMPLE CONDITIONS

RECEIVED COOL ☐ WARM ☐ °F

CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

TRUESDAIL LABORATORIES, INC.
INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES

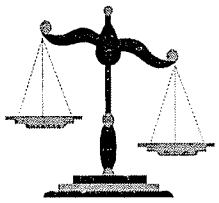
Established 1931

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

CH2M HILL
PG&E Topock Project

Laboratory Number: 948968
Received: November 16, 2005

IM3Plant-WDR-021
Project No.: 334168.IM.04.00
P.O. No.: 911248



Prepared for:

CH2M HILL
Attn: Mark Cichy
2525 Airpark Dr.
Redding, CA 96001

Prepared by:

TRUESDAIL LABORATORIES, INC.
TUSTIN, CALIFORNIA

Table of Contents
TLI Laboratory Data Package

For Laboratory Number: 948968

Section 1.0

Case Narrative

TRUESDAIL LABORATORIES, INC.
INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES
Established 1931
14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

November 22, 2005

CH2M HILL
Mr. Shawn Duffy
155 Grand Ave., Suite 1000
Oakland, California 94612

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT –WDR-021 PROJECT, GROUNDWATER MONITORING,

TLI NO.: 948968

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3 Plant-WDR-021 project groundwater monitoring for Hexavalent and Total Chromium, Turbidity, Specific Conductivity, pH, and Total Dissolved Solids. A summary table for this laboratory number is included in Section 2. Complete laboratory reports, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data have been included under Section 5.

The samples were received and delivered with the chain of custody on November 16, 2005, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg
Manager, Analytical Services

K.R.P. Iyer
Quality Assurance/Quality Control Officer

CC: Mr. Mark Cichy, CH2M HILL Redding CA

Section 2.0

Summary Table of Final Results

TRUESDAIL LABORATORIES, INC.
INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES
Established 1931
14201 FRANKLIN AVENUE · TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Laboratory No.: 948968
Date Received: November 16, 2005

Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248

Analytical Results Summary

Lab I.D.	Sample I.D.	Sample Time	SW 6010B *Chromium Total* mg/L	SW 7199 *Chromium Hexavalent* mg/L	EPA 180.1 *Turbidity* NTU	EPA 150.1 *pH* Unit	EPA 120.1 *EC* µmhos/cm	EPA 160.1 *TDS* mg/L
948968	SC-700B-WDR-021	08:30	ND	ND	0.125	7.57	7390	4620

ND: Non Detected (below reporting limit)

Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01 will have two (2) significant figures.
Result above or equal to 0.01 will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

Section 3.0

Final Reports

TRUESDAIL LABORATORIES, INC.
INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES
Established 1931
14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

REPORT

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Laboratory No.: 948968

Sample: One (1) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248

Date: November 21, 2005
Collected: November 16, 2005
Received: November 16, 2005
Prep/ Analyzed: November 17, 2005
Analytical Batch: 11CrH05M

Investigation: **Hexavalent Chromium by SW 7199**

Analytical Results Hexavalent Chromium

TLI I.D.	Field I.D.	Sample Time	Run Time	Units	DF	RL	Results
948968	SC-700B-WDR-021	08:30	06:52	mg/L	5.00	0.0010	ND

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	948969	19.4	19.1	1.56%	≤ 20%	Yes

QC Std I.D.	Lab Number	Conc.of unspiked sample	Dilution Factor	Added Spike Conc.	MS Amount	Measured Conc. of spiked sample	Theoretical Conc. of spiked sample	MS% Recovery	Acceptance limits	QC Within Control
MS	948968	0.00	5.00	0.00100	0.00500	0.00538	0.00500	108%	75-125%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
MRCCS	0.00488	0.00500	97.6%	90% - 110%	Yes
MRCVS#1	0.00981	0.0100	98.1%	90% - 110%	Yes
MRCVS#2	0.00980	0.0100	98.0%	90% - 110%	Yes
LCS	0.00540	0.00500	108%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).
DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.
INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES
Established 1931
14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

REPORT

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Laboratory No.: 948968

Sample: One (1) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248
Prep. Batch: 111805A

Date: November 21, 2005
Collected: November 16, 2005
Received: November 16, 2005
Prep/ Analyzed: November 18, 2005
Analytical Batch: 111805A

Investigation: **Total Chromium by Inductively Coupled Argon Plasma Using Method SW 6010B**

Analytical Results Total Chromium

TLI I.D.	Field I.D.	Units	Method	Run Time	DF	RL	Results
948968	SC-700B-WDR-021	mg/L	SW 6010B	12:23	1.04	0.0010	ND

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	948925-4	0.0388	0.0392	1.03%	≤20%	Yes

QC Std I.D.	Lab Number	Conc.of unspiked sample	Dilution Factor	Added Spike Conc.	MS Amount	Measured Conc. of spiked sample	Theoretical Conc. of spiked sample	MS% Recovery	Acceptance limits	QC Within Control
MS	948925-2	0.00	1.04	0.0100	0.0104	0.0153	0.0153	99.8%	75-125%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
MRCCS	0.0103	0.0100	103%	90% - 110%	Yes
MRCVS#1	0.0101	0.0100	101%	90% - 110%	Yes
MRCVS#2	0.0105	0.0100	105%	90% - 110%	Yes
ICS	0.0103	0.0100	103%	80% - 120%	Yes
LCS	0.0102	0.0100	102%	90% - 110%	Yes

ND: Not detected at reporting limit

DF: Dilution Factor

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.
INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES
Established 1931
14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

REPORT

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: One (1) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248

Laboratory No.: 948968
Date: November 21, 2005
Collected: November 16, 2005
Received: November 16, 2005
Prep/ Analyzed: November 17, 2005
Analytical Batch: 11TUC05Q

Investigation: **Turbidity by Method EPA 180.1**

Analytical Results Turbidity

TLI I.D.	Field I.D.	Sample Time	Units	DF	RL	Results
948968	SC-700B-WDR-021	08:30	NTU	1.00	0.100	0.125

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	948964-62	ND	ND	0.00%	≤ 20%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
LCS	7.89	8.00	98.6%	90% - 110%	Yes
LCS	8.15	8.00	102%	90% - 110%	Yes
LCS	8.00	8.00	100%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).
DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.
INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES
Established 1931
14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

REPORT

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Laboratory No.: 948968

Sample: One (1) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248

Date: November 21, 2005
Collected: November 16, 2005
Received: November 16, 2005
Prep/ Analyzed: November 17, 2005
Analytical Batch: 11PH05Q

Investigation: pH by EPA 150.1

Analytical Results pH

TLI I.D.	Field I.D.	Sample Time	Run Time	Units	MDL	RL	Results
948968	SC-700B-WDR-021	08:30	07:05	pH Units	0.0140	0.100	7.57

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Difference (Units)	Acceptance limits	QC Within Control
Duplicate	948997	8.38	8.38	0.00	± 0.100 Units	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Difference (Units)	Acceptance Limits	QC Within Control
LCS	7.01	7.00	0.01	± 0.100 Units	Yes
LCS #1	7.00	7.00	0.00	± 0.100 Units	Yes

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.
INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES
Established 1931
14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

REPORT

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Laboratory No.: 948968

Sample: One (1) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248

Date: November 21, 2005
Collected: November 16, 2005
Received: November 16, 2005
Prep/ Analyzed: November 18, 2005
Analytical Batch: 11EC05I

Investigation:

Specific Conductivity by EPA 120.1

Analytical Results Specific Conductivity

TLI I.D.	Field I.D.	Units	Method	DF	RL	Results
948968	SC-700B-WDR-021	µmhos/cm	EPA 120.1	1.00	2.00	7390

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	949005-7	457	462	1.09%	≤ 10%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
CCS	721	706	102%	90% - 110%	Yes
CVS#1	923	996	92.7%	90% - 110%	Yes
LCS	701	706	99.3%	90% - 110%	Yes
LCSD	704	706	99.7%	90% - 110%	Yes

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.
INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES
Established 1931

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

REPORT

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Laboratory No.: 948968

Sample: One (1) Groundwater Samples
roject Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248

Date: November 21, 2005
Collected: November 16, 2005
Received: November 16, 2005
Prep/ Analyzed: November 17, 2005
Analytical Batch: 11TDS05FFF

ıvestigation: Total Dissolved Solids by EPA 160.1

Analytical Results Total Dissolved Solids

TLI I.D.	Field I.D.	Units	Method	RL	Results
948968	SC-700B-WDR-021	mg/L	EPA 160.1	250	4620

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Percent Difference	Acceptance limits	QC Within Control
Duplicate	948968	4620	4670	0.54%	≤ 5%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
LCS 1	489	500	97.8%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).
RL: Reporting Limit.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.
14201 Franklin Avenue, Tustin, CA 92780-7008
(714)730-6239 FAX: (714) 730-6462
www.truesdail.com

CHAIN OF CUSTODY RECORD

[IM3Plant-WDR-021]

948968

888 Number

TURNAROUND TIME 5 Days

DATE 11/16/05 PAGE 1 OF 1

COMPANY	CH2M HILL
PROJECT NAME	PG&E Topock
PHONE	(510) 251-2888 FAX (510) 622-7086
ADDRESS	155 Grand Ave Ste 1000, Oakland, CA 94612
P.O. NUMBER	334168.IM.04.00
SAMPLERS (SIGNATURE	

Rec'd 11/16/05
948968

SAMPLE I.D.	DATE	TIME	DESCRIPTION	CR6 (7199) Lab Filtered	Total Met (6010B) Total Chromium	Specific Conductance (120.1)	pH (150.1)	TDS (160.1)	Turbidity (180.1)	NUMBER OF CONTAINERS	COMMENTS
SC-700B-WDR-021	11.16.05	08.30	Groundwater	x	x	x	x	x	x	3	pH=2
										3	TOTAL NUMBER OF CONTAINERS

RUSH

ALERT!!
Level III QC

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Hilary L. Booth	OMI	11.16.05 14:36
Signature (Received) Sharon 8779	SPARROW 8779	EXECUTIVE COURIER	11/16/05 1436
Signature (Relinquished) Sharon 8779	SPARROW 8779	EXECUTIVE COURIER	11/16/05 7:20 PM
Signature (Received) L. Shakespeare	L. Shakespeare	TLI	11/16/05 19:20
Signature (Relinquished)			
Signature (Received)			

SAMPLE CONDITIONS

RECEIVED COOL ☐ WARM ☐ °F

CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

For Sample Conditions See Form Attached

TRUESDAIL LABORATORIES, INC.
INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES

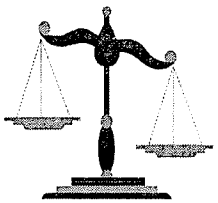
Established 1931

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

CH2M HILL
PG&E Topock Project

Laboratory Number: 949109
Received: November 21, 2005

IM3Plant-WDR-022
Project No.: 334168.IM.04.00
P.O. No.: 911248



Prepared for:

CH2M HILL
Attn: Mark Cichy
2525 Airpark Dr.
Redding, CA 96001

Prepared by:

TRUESDAIL LABORATORIES, INC.
TUSTIN, CALIFORNIA

Table of Contents
TLI Laboratory Data Package

For Laboratory Number: 949109

Section 1.0

Case Narrative

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES

Established 1931

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

November 28, 2005

CH2M HILL
Mr. Shawn Duffy
155 Grand Ave., Suite 1000
Oakland, California 94612

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT –WDR-022 PROJECT, GROUNDWATER MONITORING,

TLI NO.: 949109

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3 Plant-WDR-022 project groundwater monitoring for Hexavalent and Total Chromium, Turbidity, Specific Conductivity, pH, and Total Dissolved Solids. A summary table for this laboratory number is included in Section 2. Complete laboratory reports, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data have been included under Section 5.

The sample was received and delivered with the chain of custody on November 21, 2005, intact and in chilled condition. The sample will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg
Manager, Analytical Services

for K.R.P. Iyer
Quality Assurance/Quality Control Officer

CC: Mr. Mark Cichy, CH2M HILL Redding CA

Section 2.0

Summary Table of Final Results

TRUESDAIL LABORATORIES, INC.
INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES
Established 1931
14201 FRANKLIN AVENUE · TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Laboratory No.: 949109
Date Received: November 21, 2005

Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248

Analytical Results Summary

Lab I.D.	Sample I.D.	Sample Time	SW 6010B *Chromium Total* mg/L	SW 7199 *Chromium Hexavalent* mg/L	EPA 180.1 *Turbidity* NTU	EPA 150.1 *pH* Unit	EPA 120.1 *EC* µmhos/cm	EPA 160.1 *TDS* mg/L
949109	SC-700B-WDR-022	12:25	ND	ND	ND	7.75	6980	4250

ND: Non Detected (below reporting limit)

Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01 will have two (2) significant figures.
Result above or equal to 0.01 will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

Section 3.0

Final Reports

TRUESDAIL LABORATORIES, INC.
INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES
Established 1931
14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

REPORT

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Sample: One (1) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248

Laboratory No.: 949109
Date: November 28, 2005
Collected: November 21, 2005
Received: November 21, 2005
Prep/ Analyzed: November 22, 2005
Analytical Batch: 11PH05S

Investigation:

pH by EPA 150.1

Analytical Results pH

TLI I.D.	Field I.D.	Sample Time	Run Time	Units	MDL	RL	Results
949109	SC-700B-WDR-022	12:25	07:05	pH Units	0.0140	0.100	7.75

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Difference (Units)	Acceptance limits	QC Within Control
Duplicate	949109	7.75	7.76	0.01	± 0.100 Units	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Difference (Units)	Acceptance Limits	QC Within Control
LCS	7.00	7.00	0.00	± 0.100 Units	Yes
LCS #1	7.00	7.00	0.00	± 0.100 Units	Yes
LCS #2	7.01	7.00	0.01	± 0.100 Units	Yes

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.
INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES
Established 1931
14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

REPORT

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Sample: One (1) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248

Laboratory No.: 949109
Date: November 28, 2005
Collected: November 21, 2005
Received: November 21, 2005
Prep/ Analyzed: November 22, 2005
Analytical Batch: 11EC05J

Investigation:

Specific Conductivity by EPA 120.1

Analytical Results Specific Conductivity

TLI I.D.	Field I.D.	Units	Method	DF	RL	Results
949109	SC-700B-WDR-022	µmhos/cm	EPA 120.1	1.00	2.00	6980

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	30'949174-19	808	810	0.25%	≤ 10%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
CCS	722	706	102%	90% - 110%	Yes
CVS#1	924	996	92.8%	90% - 110%	Yes
CVS#2	920	996	92.4%	90% - 110%	Yes
LCS	702	706	99.4%	90% - 110%	Yes
LCSD	703	706	99.6%	90% - 110%	Yes

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.
INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES
Established 1931
14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

REPORT

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: One (1) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248

Laboratory No.: 949109
Date: November 28, 2005
Collected: November 21, 2005
Received: November 21, 2005
Prep/ Analyzed: November 22, 2005
Analytical Batch: 11TDS05G

Investigation: **Total Dissolved Solids by EPA 160.1**

Analytical Results Total Dissolved Solids

TLI I.D.	Field I.D.	Units	Method	RL	Results
949109	SC-700B-WDR-022	mg/L	EPA 160.1	250	4250

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Percent Difference	Acceptance limits	QC Within Control
Duplicate	949109	4250	4220	0.35%	≤ 5%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
LCS 1	481	500	96.2%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).
RL: Reporting Limit.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.
INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES
Established 1931
14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

REPORT

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: One (1) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248

Laboratory No.: 949109
Date: November 28, 2005
Collected: November 21, 2005
Received: November 21, 2005
Prep/ Analyzed: November 22, 2005
Analytical Batch: 11TUC05T

Investigation: **Turbidity by Method EPA 180.1**

Analytical Results Turbidity

TLI I.D.	Field I.D.	Sample Time	Units	DF	RL	Results
949109	SC-700B-WDR-022	12:25	NTU	1.00	0.100	ND

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	949083-2	0.215	0.210	2.35%	≤ 20%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
LCS	7.30	8.00	91.3%	90% - 110%	Yes
LCS	7.35	8.00	91.9%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).
DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.
INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES
Established 1931
14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

REPORT

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Laboratory No.: 949109

Sample: One (1) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248

Date: November 28, 2005
Collected: November 21, 2005
Received: November 21, 2005
Prep/ Analyzed: November 22, 2005
Analytical Batch: 11CrH05P

Investigation: **Hexavalent Chromium by SW 7199**

Analytical Results Hexavalent Chromium

TLI I.D.	Field I.D.	Sample Time	Run Time	Units	DF	RL	Results
949109	SC-700B-WDR-022	12:25	06:42	mg/L	5.00	0.0010	ND

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	949109	ND	ND	0.00%	≤ 20%	Yes

QC Std I.D.	Lab Number	Conc.of unspiked sample	Dilution Factor	Added Spike Conc.	MS Amount	Measured Conc. of spiked sample	Theoretical Conc. of spiked sample	MS% Recovery	Acceptance limits	QC Within Control
MS	949109	0.00	5.00	0.00100	0.00500	0.00546	0.00500	109%	75-125%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
MRCCS	0.00512	0.00500	102%	90% - 110%	Yes
MRCVS#1	0.00990	0.0100	99.0%	90% - 110%	Yes
LCS	0.00493	0.00500	98.6%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).
DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.
INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES
Established 1931
14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

REPORT

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Sample: One (1) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248
Prep. Batch: 112305A

Laboratory No.: 949109

Date: November 28, 2005
Collected: November 21, 2005
Received: November 21, 2005
Prep/ Analyzed: November 23, 2005
Analytical Batch: 112305A

Investigation: Total Chromium by Inductively Coupled Argon Plasma Using Method SW 6010B

Analytical Results Total Chromium

TLI I.D.	Field I.D.	Units	Method	Run Time	DF	RL	Results
949109	SC-700B-WDR-022	mg/L	SW 6010B	13:20	1.04	0.0010	ND

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	949109	ND	ND	0.00%	≤20%	Yes

QC Std I.D.	Lab Number	Conc.of unspiked sample	Dilution Factor	Added Spike Conc.	MS Amount	Measured Conc. of spiked sample	Theoretical Conc. of spiked sample	MS% Recovery	Acceptance limits	QC Within Control
MS	949109	0.00	1.04	0.0100	0.0104	0.0104	0.0104	100%	75-125%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
MRCCS	0.0102	0.0100	102%	90% - 110%	Yes
MRCVS#1	0.00977	0.0100	97.7%	90% - 110%	Yes
ICS	0.00969	0.0100	96.9%	80% - 120%	Yes
LCS	0.0100	0.0100	100%	90% - 110%	Yes

ND: Not detected at reporting limit

DF: Dilution Factor

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg, Manager
Analytical Services

944109

TRUESDAIL LABORATORIES, INC.
14201 Franklin Avenue, Tustin, CA 92780-7008
(714)730-6239 FAX: (714) 730-6462
www.truesdail.com

CHAIN OF CUSTODY RECORD

[IM3Plant-WDR-022]

COC Number

TURNAROUND TIME 5 Days

DATE _____ PAGE 1 OF 1

COMPANY	CH2M HILL
PROJECT NAME	PG&E Topock
PHONE	(510) 251-2888 FAX (510) 622-7086
ADDRESS	155 Grand Ave Ste 1000 Oakland, CA 94612
P.O. NUMBER	334168.IM.04.00
SAMPLERS (SIGNATURE	

SAMPLE I.D.	DATE	TIME	DESCRIPTION	CR6 (7199) Lab Filtered	Total Met (6010B) Total Chromium	Specific Conductance (120.1)	pH (150.1)	TDS (160.1)	Turbidity (180.1)	NUMBER OF CONTAINERS	COMMENTS
SC-700B-WDR-022	11-21-05	12:25	Groundwater	x	x	x	x	x	x	3	pH=2
										3	TOTAL NUMBER OF CONTAINERS

Rec'd 11/21/05
SDG# 944109

ALERT!!
Level III QC

RUSH

For Sample Conditions
See Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD

	Signature	Printed Name	Company/ Agency	Date/ Time
Relinquished		BRIAN Dodds	CH2M	11-21-05 12:25
Received	Spencer 8779	SPENCER	EXECUTIVE COURIER	11-21-05 12:25
Relinquished	Spencer 8779			11-21-05 18:05
Received	Rafael Davila	Rafael Davila	T-L-I	11-21-05 18:45
Relinquished				
Received				

SAMPLE CONDITIONS

RECEIVED COOL ☐ WARM ☐ °F

CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

CH2M HILL

PG&E Topock Project

Laboratory Number: 949382
Received: November 30, 2005

IM3Plant-WDR-023
Project No.: 334168.IM.04.00
P.O. No.: 911248

Prepared for:

CH2M HILL
Attn:Shawn Duffy
155 Grand Ave., Suite 1000
Oakland, CA 94612

Prepared by:

TRUESDAIL LABORATORIES, INC.
TUSTIN, CALIFORNIA

Table of Contents
TLI Laboratory Data Package

For Laboratory Number: 949382

Section 1.0

Case Narrative

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES

Established 1931

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

December 7, 2005

CH2M HILL
Mr. Shawn Duffy
155 Grand Ave., Suite 1000
Oakland, California 94612

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT –WDR-023 PROJECT, GROUNDWATER MONITORING,

TLI NO.: 949382

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3 Plant-WDR-023 project groundwater monitoring for Hexavalent and Total Chromium, Turbidity, Specific Conductivity, pH, and Total Dissolved Solids. A summary table for this laboratory number is included in Section 2. Complete laboratory reports, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data have been included under Section 5.

The samples were received and delivered with the chain of custody on November 30, 2005, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

Total Chromium, was analyzed by method SW6020 (ICPMS) instead of requested SW6010B due to our ICP instrument failure.

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,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg
Manager, Analytical Services

K. R. P. Iyer

K.R.P. Iyer
Quality Assurance/Quality Control Officer

CC: Mr. Mark Cichy, CH2M HILL Redding CA

Section 2.0

Summary Table of Final Results

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Laboratory No.: 949382
Date Received: November 30, 2005

Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248

Analytical Results Summary

Lab I.D.	Sample I.D.	Sample Time	SW 6020 *Chromium Total* mg/L	SW 7199 *Chromium Hexavalent* mg/L	EPA 180.1 *Turbidity* NTU	EPA 150.1 *pH* Unit	EPA 120.1 *EC* µmhos/cm	EPA 160.1 *TDS* mg/L
949382	SC-700B-WDR-023	07:30	ND	ND	ND	7.79	7280	4610

ND: Non Detected (below reporting limit)

Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01 will have two (2) significant figures.
Result above or equal to 0.01 will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

Section 3.0

Final Reports

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Laboratory No.: 949382

Sample: One (1) Groundwater Sample
Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248
Prep. Batch: 120605A

Date: December 5, 2005
Collected: November 30, 2005
Received: November 30, 2005
Prep/ Analyzed: December 6, 2005
Analytical Batch: 120605A

Investigation: **Total Chromium by Inductively Coupled Argon Plasma Mass Spectrometer Using Method SW 6020**

Analytical Results Total Chromium

TLI I.D.	Field I.D.	Units	Method	Run Time	DF	RL	Results
949382	SC-700B-WDR-023	mg/L	SW 6020	13:46	2.08	0.0010	ND

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	949504-5	0.0189	0.0195	3.13%	≤20%	Yes

QC Std I.D.	Lab Number	Conc.of unspiked sample	Dilution Factor	Added Spike Conc.	MS Amount	Measured Conc. of spiked sample	Theoretical Conc. of spiked sample	MS% Recovery	Acceptance limits	QC Within Control
MS	949504-3	0.0184	2.08	0.0500	0.104	0.130	0.122	107%	75-125%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
MRCCS	0.0475	0.0500	95.0%	90% - 110%	Yes
MRCVS#1	0.0466	0.0500	93.2%	90% - 110%	Yes
MRCVS#2	0.0481	0.0500	96.2%	90% - 110%	Yes
ICS	0.0413	0.0400	103%	80% - 120%	Yes
LCS	0.0485	0.0500	97.0%	90% - 110%	Yes

ND: Not detected at reporting limit

DF: Dilution Factor

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg, Manager
Analytical Services

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Laboratory No.: 949382

Sample: One (1) Groundwater Sample
Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248

Date: December 5, 2005
Collected: November 30, 2005
Received: November 30, 2005
Prep/ Analyzed: December 1, 2005
Analytical Batch: 12CrH05A

Investigation: **Hexavalent Chromium by SW 7199**

Analytical Results Hexavalent Chromium

TLI I.D.	Field I.D.	Sample Time	Run Time	Units	DF	RL	Results
949382	SC-700B-WDR-023	07:30	05:30	mg/L	5.00	0.0010	ND

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	949384	0.0031	0.0031	0.00%	≤ 20%	Yes

QC Std I.D.	Lab Number	Conc.of unspiked sample	Dilution Factor	Added Spike Conc.	MS Amount	Measured Conc. of spiked sample	Theoretical Conc. of spiked sample	MS% Recovery	Acceptance limits	QC Within Control
MS	949382	0.00	5.00	0.00100	0.00500	0.00549	0.00500	110%	75-125%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
MRCCS	0.00514	0.00500	103%	90% - 110%	Yes
MRCVS#1	0.00999	0.0100	99.9%	90% - 110%	Yes
MRCVS#2	0.00994	0.0100	99.4%	90% - 110%	Yes
LCS	0.00488	0.00500	97.6%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).
DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg, Manager
Analytical Services

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: One (1) Groundwater Sample
Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248

Laboratory No.: 949382
Date: December 5, 2005
Collected: November 30, 2005
Received: November 30, 2005
Prep/ Analyzed: December 1, 2005
Analytical Batch: 12TUC05A

Investigation: **Turbidity by Method EPA 180.1**

Analytical Results Turbidity

TLI I.D.	Field I.D.	Sample Time	Units	DF	RL	Results
949382	SC-700B-WDR-023	07:30	NTU	1.00	0.100	ND

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	949386-5	0.184	0.175	5.01%	≤ 20%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
LCS	8.70	8.00	109%	90% - 110%	Yes
LCS	8.75	8.00	109%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).
DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg, Manager
Analytical Services

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Laboratory No.: 949382

Sample: One (1) Groundwater Sample
Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248

Date: December 5, 2005
Collected: November 30, 2005
Received: November 30, 2005
Prep/ Analyzed: December 1, 2005
Analytical Batch: 12PH05A

Investigation:

pH by EPA 150.1

Analytical Results pH

TLI I.D.	Field I.D.	Sample Time	Run Time	Units	MDL	RL	Results
949382	SC-700B-WDR-023	07:30	07:05	pH Units	0.0140	0.100	7.79

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Difference (Units)	Acceptance limits	QC Within Control
Duplicate	949382	7.79	7.80	0.01	± 0.100 Units	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Difference (Units)	Acceptance Limits	QC Within Control
LCS	7.01	7.00	0.01	± 0.100 Units	Yes
LCS #1	7.01	7.00	0.01	± 0.100 Units	Yes

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg, Manager
Analytical Services

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Laboratory No.: 949382

Sample: One (1) Groundwater Sample
Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248

Date: December 5, 2005
Collected: November 30, 2005
Received: November 30, 2005
Prep/ Analyzed: December 1, 2005
Analytical Batch: 12EC05A

Investigation:

Specific Conductivity by EPA 120.1

Analytical Results Specific Conductivity

TLI I.D.	Field I.D.	Units	Method	DF	RL	Results
949382	SC-700B-WDR-023	µmhos/cm	EPA 120.1	1.00	2.00	7280

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	949382	7280	7310	0.41%	≤ 10%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
CCS	721	706	102%	90% - 110%	Yes
CVS#1	925	996	92.9%	90% - 110%	Yes
LCS	702	706	99.4%	90% - 110%	Yes
LCSD	703	706	99.6%	90% - 110%	Yes

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg, Manager
Analytical Services

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Sample: One (1) Groundwater Sample
Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 911248

Laboratory No.: 949382
Date: December 5, 2005
Collected: November 30, 2005
Received: November 30, 2005
Prep/ Analyzed: December 1, 2005
Analytical Batch: 12TDS05A

Investigation: **Total Dissolved Solids by EPA 160.1**

Analytical Results Total Dissolved Solids

TLI I.D.	Field I.D.	Units	Method	RL	Results
949382	SC-700B-WDR-023	mg/L	EPA 160.1	250	4610

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Percent Difference	Acceptance limits	QC Within Control
Duplicate	949382	4610	4540	0.765%	≤ 5%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
LCS 1	498	500	99.6%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).
RL: Reporting Limit.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg, Manager
Analytical Services

SEVERN TRENT STL

STL Los Angeles
1721 South Grand Avenue
Santa Ana, CA 92705

Tel: 714 258 8610 Fax: 714 258 0921
www.stl-inc.com

November 30, 2005

STL LOT NUMBER: **E5K180345**
PO/CONTRACT: 334168.IM.04.00

Shawn Duffy
CH2M Hill Inc
2525 Air Park
Redding, CA 96001

Dear Mr. Duffy,

This report contains the analytical results for the sample received under chain of custody by STL Los Angeles on November 18, 2005. This sample is associated with your PG & E Topock GWM project.

STL Los Angeles certifies that the test results provided in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in the case narrative. The case narrative is an integral part of the report. NELAP Certification Number for STL Los Angeles is 01118CA.

Any matrix related anomaly is footnoted within the report. A cooler receipt temperature between 2-6 degrees Celsius is within EPA acceptance criteria. The temperature(s) of the cooler received for this project can be found on the Project Receipt Checklist. Historical control limits for the LCS are used to define the estimate of uncertainty for a method. All applicable quality control procedures met method-specified acceptance criteria.

Preliminary results were sent via facsimile on November 28, 2005.

This report contains 000190 pages.

If you have any questions, please feel free to call me at (714) 258-8610.

Sincerely,

Marisol Tabirara
Project Manager

cc: Project File

TRUESDAIL LABORATORIES, INC.
14201 Franklin Avenue, Tustin, CA 92780-7008
(714)730-6239 FAX: (714) 730-6462
www.truesdail.com

CHAIN OF CUSTODY RECORD

[Sludge Sample-2] E5K180345

COC Number
TURNAROUND TIME 5 Days
DATE 11.17.05 PAGE 1 OF 1

COMPANY: CH2M HILL
PROJECT NAME: PG&E Topock
PHONE: (510) 251-2888 FAX: (510) 622-7086
ADDRESS: 155 Grand Ave Ste 1000, Oakland, CA 94612
P.O. NUMBER: 334168.IM.04.00
SAMPLERS (SIGNATURE

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Anions (300) FI	Bioassay, 96hr Acute	NUMBER OF CONTAINERS	COMMENTS
SC-Sludge-WDR-	11.16.05	17:50	Soil	x	x	3	
						3	TOTAL NUMBER OF CONTAINERS

* Wrong COC – see attached
MT 11/30/05

000003

CHAIN OF CUSTODY SIGNATURE RECORD

Signature	Printed Name	Company/Agency	Date/Time
Signature (Relinquished) [signature]	Hailey Booth	OMI	11.17.05
Signature (Received) [signature]	Chris Abrenio	STL	11/18/05 1030
Signature (Relinquished)			
Signature (Received)			
Signature (Relinquished)			
Signature (Received)			

SAMPLE CONDITIONS
RECEIVED COOL ☐ WARM ☐ ____ °F
CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

6.7°C - .8°C = 5.9°C

Severn Trent Laboratories
1721 Grand Ave, Santa Ana, CA 92705
(714)258-8610

CHAIN OF CUSTODY RECORD

[Sludge Sample-2]

E5K180345

COC Number
TURNAROUND TIME 5 Days
DATE 11-16-05 PAGE 1 OF 1

COMPANY CH2M HILL
PROJECT NAME PG&E Topock GWM
PHONE (510) 251-2888 FAX (510) 622-7086
ADDRESS 155 Grand Ave Ste 1000
Oakland, CA 94612
P.O. NUMBER 334168.IM.04.00 TEAM 1
SAMPLERS (SIGNATURE

MJ 11/28/05 per Shawn Duffy

SAMPLE I.D.	DATE	TIME	DESCRIPTION	CR6 (7199) ~~Lab Filtered~~	Total Met (6010B) Title 22	Metals (7470A)	NUMBER OF CONTAINERS	COMMENTS
SC-Sludge-WDR-021	11-16-05	1750	Soil	X	X	X	2	
							2	TOTAL NUMBER OF CONTAINERS

CHAIN OF CUSTODY SIGNATURE RECORD

Signature (Relinquished) [signature]	Printed Name Haley Booth	Company/ Agency OMI	Date/ Time 11-16-05
Signature (Received)	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time
Signature (Received)	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time
Signature (Received)	Printed Name	Company/ Agency	Date/ Time

SAMPLE CONDITIONS

RECEIVED COOL ☐ WARM ☐ ______ °F

CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

000004

STL LOS ANGELES - PROJECT RECEIPT CHECKLIST Date: 11/18/05

Single Cooler Only

LIMS Lot #: ESK180345 Quote #: ~~58403~~ 58027

Client Name: CH2M Hill Project: PG&E Topock

Received by: CA Date/Time Received: 11/18/05 1030

Delivered by : ☐ Client ☐ STL ☐ DHL ☒ Fed Ex ☐ UPS ☐ Other _____

	Initial / Date
Custody Seal Status Cooler: ☐Intact ☐Broken ☒None	CA 11/18/05
Custody Seal Status Samples: ☐Intact ☐Broken ☒None	
Custody Seal #(s): _____ ☒No Seal #	
Sampler Signature on COC ☐ Yes ☒ No ☐N/A	
IR Gun # A Correction Factor -.8 °C IR passed daily verification ☒ Yes ☐No	
Temperature - BLANK 6.7 °C - .8 CF = 5.9 °C	
Temperature – COOLER (____ °C ____ °C ____ °C ____ °C) = ____ avg °C - .8 CF = ____ °C	
Samples outside temperature criteria but received within 6 hours of final sampling ☐ Yes ☒N/A	
Sample Container(s): ☒STL-LA ☐ Client	
pH measured: ☐ Yes ☐ Anomaly (if checked, notify lab and file NCM) ☒N/A	
Anomalies: ☒No ☐Yes – complete CUR and Create NCM	

11-13-05 BV

Complete shipment received in good condition with correct temperatures, containers, labels, volumes preservatives and within method specified holding times. ☒Yes ☐No

Labeled by: CA

Turn Around Time: ☐RUSH–24HR ☐RUSH–48HR ☐RUSH–72HR ☒NORMAL CA 11/18/05

********** LEAVE NO BLANK SPACES ; USE N/A **********

Headspace Anomaly ☐YES ☒N/A CA 11/18/05

Lab ID	Container(s) #	Headspace	Lab ID	Container(s) #	Headspace
		☐ > 6mm			☐ > 6mm
		☐ > 6mm			☐ > 6mm
		☐ > 6mm			☐ > 6mm
		☐ > 6mm			☐ > 6mm
		☐ > 6mm			☐ > 6mm
		☐ > 6mm			☐ > 6mm
		☐ > 6mm			☐ > 6mm

LIMS Lot # E5K180345

PROJECT RECEIPT CHECKLIST Cont'd

Fraction	1													
VOAH														
4oz CGT	3													

H: HCL, S: H2SO4, N: HNO3, V: VOA, SL, Sleeve, E: Encore, PB: Poly Bottle, CGB: Clear Glass Bottle, AGJ: Amber Glass Jar, T: Terracore AGB: Amber Glass Bottle, n/f/l:HNO3-Lab filtered, n/f:HNO3-Field filtered, znna: Zinc Acetate/Sodium Hydroxide, Na2s2o3: sodium thiosulfate

Condition Upon Receipt Anomaly Form

11-18-05

Anomalies ☑ YES ☒ N/A CA 11/18/05

- **COOLERS**
  - ☐ Not Received (received COC only)
  - ☐ Leaking
  - ☐ Other:
- **TEMPERATURE (SPECS 4 ± 2°C)**
  - ☐ Cooler Temp(s)
  - ☐ Temperature Blank(s)
- **CONTAINERS**
  - ☐ Leaking ☐ Voa Vials with Bubbles > 6mm
  - ☐ Broken
  - ☐ Extra
  - ☐ Without Labels
  - ☐ Other:
- **SAMPLES**
  - ☐ Samples NOT RECEIVED but listed on COC
  - ☐ Samples received but NOT LISTED on COC
  - ☐ Logged based on Label Information
  - ☐ Logged based on info from other samples on COC
  - ☐ Logged according to Work Plan
  - ☐ Logged on HOLD UNTIL FURTHER NOTICE
- **CUSTODY SEALS (COOLER(S))** CONTAINER(S)
  - ☐ None ☐ None
  - ☐ Not Intact ☐ Not Intact
  - ☐ Other ☐ Other
- **CHAIN OF CUSTODY (COC)**
  - ☐ Not relinquished by Client; No date/time relinquished
  - ☐ Incomplete information provided
  - ☑ Other ☐ COC not received – notify PM
- **LABELS**
  - ☐ Not the same ID/info as in COC
  - ☐ Incomplete Information
  - ☐ Markings/Info illegible
  - ☐ Torn
- ☐ Will be noted on COC--Client to send samples with new COC
- ☐ Mislabeled as to tests, preservatives, etc.
- ☐ Holding time expired – list sample ID and test
- ☐ Improper container used
- ☐ Not preserved/Improper preservative used
- ☐ Improper pH _____ Lab to preserve sample and document
- ☐ Insufficient quantities for analysis ☐ Other

Comments:

According to the client they sent us the wrong C.O.C. They have faxed us the correct C-OC.

☐ Corrective Action Implemented:

☐ Client Informed: verbally on _____ By: _____ ☐ In writing on _____ By: _____

☐ Sample(s) on hold until: _____ ☐ Sample(s) processed "as is."

Logged by/Date: Logged in by other STL ☐ ____ **PM Review/Date:**

Allen Runyan 11-18-05 AMT 11/28/05

SEVERN TRENT STL

Analytical Report

ANALYTICAL REPORT

PG & E Topock GWM

Lot #: E5K180345

Shawn Duffy

CH2M Hill Inc

SEVERN TRENT LABORATORIES, INC.

Marisol Tabirara
Project Manager

November 28, 2005

EXECUTIVE SUMMARY - Detection Highlights

E5K180345

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
SC-SLUDGE-WDR-021 11/16/05 17:50 001				
Mercury	1.6	0.56	mg/kg	SW846 7471A
Arsenic	37	11	mg/kg	SW846 6010B
Barium	93	22	mg/kg	SW846 6010B
Chromium	38000	11	mg/kg	SW846 6010B
Copper	84	28	mg/kg	SW846 6010B
Molybdenum	100	45	mg/kg	SW846 6010B
Nickel	46	45	mg/kg	SW846 6010B
Thallium	14	11	mg/kg	SW846 6010B
Vanadium	120	56	mg/kg	SW846 6010B
Percent Moisture	82	0.10	%	MCAWW 160.3 MOD
Hexavalent Chromium	82	2.2	mg/kg	SW846 7199

METHODS SUMMARY

E5K180345

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Hexavalent Chromium	SW846 7199	
Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 3050B
Mercury in Solid Waste (Manual Cold-Vapcr)	SW846 7471A	SW846 7471A
Percent Moisture	MCAWW 160.3 MOD	MCAWW 160.3 MOD

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

E5K180345

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
HQKME	001	SC-SLUDGE-WDR-021	11/16/05	17:50

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CH2M Hill Inc

Client Sample ID: SC-SLUDGE-WDR-021

TOTAL Metals

Lot-Sample #...: E5K180345-001 **Matrix.....:** SO
Date Sampled...: 11/16/05 17:50 **Date Received..:** 11/18/05 10:30
% Moisture.....: 82

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 5322197						
Mercury	**1.6**	**0.56**	**mg/kg**	**SW846 7471A**	**11/21-11/22/05**	**HQKME1AW**
		Dilution Factor: 1		Analysis Time..: 14:33	Analyst ID.....: 000023	
		Instrument ID..: M04		MS Run #.....: 5322121		
Prep Batch #...: 5325213						
Arsenic	**37**	**11**	**mg/kg**	**SW846 6010B**	**11/21-11/22/05**	**HQKME1AD**
		Dilution Factor: 2		Analysis Time..: 18:57	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5325113		
Antimony	ND	67	mg/kg	SW846 6010B	11/21-11/22/05	HQKME1AE
		Dilution Factor: 2		Analysis Time..: 18:57	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5325113		
Barium	**93**	**22**	**mg/kg**	**SW846 6010B**	**11/21-11/22/05**	**HQKME1AF**
		Dilution Factor: 2		Analysis Time..: 18:57	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5325113		
Cadmium	ND	5.6	mg/kg	SW846 6010B	11/21-11/22/05	HQKME1AG
		Dilution Factor: 2		Analysis Time..: 18:57	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5325113		
Chromium	**38000**	**11**	**mg/kg**	**SW846 6010B**	**11/21-11/22/05**	**HQKME1AH**
		Dilution Factor: 2		Analysis Time..: 18:57	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5325113		
Beryllium	ND	5.6	mg/kg	SW846 6010B	11/21-11/22/05	HQKME1AJ
		Dilution Factor: 2		Analysis Time..: 18:57	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5325113		
Lead	ND	5.6	mg/kg	SW846 6010B	11/21-11/22/05	HQKME1AK
		Dilution Factor: 2		Analysis Time..: 18:57	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5325113		
Selenium	ND	5.6	mg/kg	SW846 6010B	11/21-11/22/05	HQKME1AL
		Dilution Factor: 2		Analysis Time..: 18:57	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5325113		

(Continued on next page)

CH2M Hill Inc

Client Sample ID: SC-SLUDGE-WDR-021

TOTAL Metals

Lot-Sample #...: E5K180345-001 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Silver	ND	11	mg/kg	SW846 6010B	11/21-11/22/05	HQKME1AM
		Dilution Factor: 2		Analysis Time..: 18:57	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5325113		
Cobalt	ND	56	mg/kg	SW846 6010B	11/21-11/22/05	HQKME1AN
		Dilution Factor: 2		Analysis Time..: 18:57	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5325113		
Copper	**84**	**28**	**mg/kg**	**SW846 6010B**	**11/21-11/22/05**	**HQKME1AP**
		Dilution Factor: 2		Analysis Time..: 18:57	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5325113		
Molybdenum	**100**	**45**	**mg/kg**	**SW846 6010B**	**11/21-11/22/05**	**HQKME1AQ**
		Dilution Factor: 2		Analysis Time..: 18:57	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5325113		
Nickel	**46**	**45**	**mg/kg**	**SW846 6010B**	**11/21-11/22/05**	**HQKME1AR**
		Dilution Factor: 2		Analysis Time..: 18:57	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5325113		
Thallium	**14**	**11**	**mg/kg**	**SW846 6010B**	**11/21-11/22/05**	**HQKME1AT**
		Dilution Factor: 2		Analysis Time..: 18:57	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5325113		
Vanadium	**120**	**56**	**mg/kg**	**SW846 6010B**	**11/21-11/22/05**	**HQKME1AU**
		Dilution Factor: 2		Analysis Time..: 18:57	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5325113		
Zinc	ND	22	mg/kg	SW846 6010B	11/21-11/22/05	HQKME1AV
		Dilution Factor: 2		Analysis Time..: 18:57	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5325113		

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

CH2M Hill Inc

Client Sample ID: SC-SLUDGE-WDR-021

General Chemistry

Lot-Sample #...: E5K180345-001 **Work Order #...:** HQKME **Matrix.....:** SO
Date Sampled...: 11/16/05 17:50 **Date Received..:** 11/18/05 10:30
% Moisture.....: 82

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Hexavalent Chromium	**82**	**2.2**	**mg/kg**	**SW846 7199**	**11/21-11/22/05**	**5325067**
	Dilution Factor: 1		Analysis Time..: 09:22		Analyst ID.....: 000022	
	Instrument ID..: W18		MS Run #.....: 5325048			
Percent Moisture	**82**	**0.10**	**%**	**MCAWW 160.3 MOD**	**11/18-11/19/05**	**5322608**
	Dilution Factor: 1		Analysis Time..: 15:00		Analyst ID.....: 0000648	
	Instrument ID..: W15		MS Run #.....: 5325262			

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

TRUESDAIL LABORATORIES, INC.
INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES

Established 1931

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

CH2M HILL
PG&E Topock Project

Laboratory Number: 949028
Received: November 17, 2005

WDR-021-Sludge Sumple-2
Project No.: 334168.IM.04.00
P.O. No.: 801799

Prepared for:

CH2M HILL
Attn: Shawn Duffy
155 Grand Ave., Suite 1000
Oakland, CA 94612

Prepared by:

TRUESDAIL LABORATORIES, INC.
TUSTIN, CALIFORNIA

Table of Contents
TLI Laboratory Data Package

For Laboratory Number: 949028

Section 1.0

Case Narrative

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES

Established 1931

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

November 23, 2005

CH2M HILL
Mr. Shawn Duffy
155 Grand Ave., Suite 1000
Oakland, California 94612

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3 PLANT–WDR-021 PROJECT, SLUDGE SAMPLE-2, SOIL MONITORING,

TLI NO.: 949028

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3 Plant-WDR-021 project, Sludge Sample-2, soil monitoring. A summary table for this laboratory number is included in Section 2. Complete laboratory report, quality control data and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data have been included under Section 5.

The sample was received and delivered with the chain of custody on November 18, 2005, intact and in chilled condition. The sample will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg
Manager, Analytical Services

K.R.P. Iyer
Quality Assurance/Quality Control Officer

CC: Mr. Mark Cichy, CH2M HILL Redding CA

TRUESDAIL LABORATORIES, INC.

LABORATORY No. 949028 DATE RECEIVED 11-16-05

CLIENT: CH2M Hill DATE REPORTED 11-22-05

SAMPLE Soil

METHODS USED

DATA & CALCULATIONS:

SAMPLE WEIGHT - 10.02g / 200 ml

200ml / 10.02g = 19.96

F = 0.658 x 19.96 = 13.37

SUMMARY OF RESULTS:

DATE				Total Time
HRS.				Hrs

Signed DC

Section 2.0

Summary Table of Final Results

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES

Established 1931

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

REPORT

Laboratory No.: 949028
Date Received: November 17, 2005

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Brian House

Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 801799

Analytical Results Summary

Lab I.D.	Sample I.D.	EPA 300.0 *Fluoride* *mg/kg*
949028	SC-Sludge-WDR-021	13.4

ND: Non Detected (below reporting limit)
Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.01ppm will have two (2) significant figures.
Results above or equal to 0.01ppm will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

Section 3.0

Final Report

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES

Established 1931

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

REPORT

Client: CH2M HILL
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy
Sample: One (1) Soil Sample
Project Name: PG&E Topock Project
Project No.: 334168.IM.04.00
P.O. No.: 801799

Laboratory No.: 949028
Date: November 23, 2005
Collected: November 17, 2005
Received: November 17, 2005
Prep/ Analyzed: November 22, 2005
Analytical Batch: 11AN05P

Fluoride by Ion Chromatography using EPA 300.0

Investigation:

Analytical Results Fluoride

TLI I.D.	Field I.D.	Units	Method	Run Time	DF	RL	Results
949028	SC-Sludge-WDR-021	mg/kg	EPA 300.0	9:17	20.0	4.00	13.4

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	948028	13.4	13.4	0.00%	≤20%	Yes

QC Std I.D.	Lab Number	Conc.of unspiked sample	Dilution Factor	Added Spike Conc.	MS Amount	Measured Conc. of spiked sample	Theoretical Conc. of spiked sample	MS% Recovery	Acceptance limits	QC Within Control
MS	948028	13.4	20.0	2.00	40.0	56.5	53.4	108%	75-125%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
MRCCS	4.05	4.00	101%	90% - 110%	Yes
MRCVS#1	3.12	3.00	104%	90% - 110%	Yes
MRCVS#2	3.12	3.00	104%	90% - 110%	Yes
MRCVS#3	3.13	3.00	104%	90% - 110%	Yes
LCS	4.04	4.00	101%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).
DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Julia Nayberg, Manager
Analytical Services

Section 4.0

Standard, Quality Control and Chain of Custody Records

TRUESDAIL LABORATORIES, INC.

QC/QA SUMMARY REPORT

Batch: 11AN05 P
Date: 11/22/05

Test: Fluoride by EPA 300.0

Blank Summary

All units are in ppm

Reporting Limit (RL)
0.200

QC Std I.D.	Measured Concentration	Acceptance Limits	QC Within Control
Method Blk	0.000	< 0.2	Yes
Calib Blk. #1	0.000	< 0.2	Yes
Calib Blk. #2	0.000	< 0.2	Yes
Calib Blk. #3	0.000	< 0.2	Yes
Calib Blk. #4	0.000	<0.2	Yes

Mid Range Calibration Check Standard Verification Standard Summary

All units are in ppm

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
MRCCS	4.047	4.000	101%	90% - 110%	Yes
MRCVS#1	3.118	3.000	104%	90% - 110%	Yes
MRCVS#2	3.119	3.000	104%	90% - 110%	Yes
MRCVS#3	3.129	3.000	104%	90% - 110%	Yes

Laboratory Control Sample (LCS/LCSD) Summary

All units are in ppm

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control	Relative Percent Difference	Acceptance Limits	QC Within Control
LCS	4.045	4.000	101.1%	90% - 110%	Yes		≤20%	
LCS				90% - 110%				

Duplicate Relative Percent Difference Summary

All units are in ppm

QC STD I.D.	Laboratory Number	Sample Conc.	Sample Duplicate Conc.	Relative Percent Difference	Acceptance limits	QC Within Control
DUP	949028	0.658	0.672	2.1%	≤20%	Yes

Sample Matrix Spike (MS/MSD) Summary

All units are in ppm

QC Std I.D.	Lab Number	Conc.of unspiked sample	Dilution Factor	Added Spike Conc.	MS/MSD Amount	Measured Conc. of spiked sample	Theoret. Conc. of spiked sample	MS/MSD% Recovery	Accept. Limits	QC in Control	Relative Percent Difference	Accept. Limits	QC Within Control
MS	949028	0.658	1	2.00	2.00	2.827	2.66	108.5%	75-125%	Yes	0.0%	≤20%	
MSD									75-125%				

Calculation:

Relative Percent Difference

$$RPD = \left| \frac{(R_1 - R_2)}{\left(\frac{(R_1 + R_2)}{2}\right)} \right| x\ 100$$

Spike Recovery

$$P = \left(\frac{S - R}{\left(\left(c\ x\ \frac{a}{b}\right) + R\right) - R} \right) x\ 100$$

LCS Recovery

$$P = \left(\frac{LC}{LT}\right) x\ 100$$

Where:

R_1 = First sample value.
R_2 = Second sample value (duplicate).
P = Percent recovery.
S = Measured concentration of spike sample.
R = Measured concentration of un-spiked sample.

c = Concentration of standard used to spike sample,ppm
a = Amount of spike added to sample in mL.
b = Total volume of sample used in mL.
LC = Measured LCS concentration.
LT = Theoretical LCS concentration where: $LT = c\ x\ \frac{a}{b}$

Iordan Stavrev	I St	Ali Kharrazi	Ali Kh
Analyst Printed Name	Analyst Signature	Reviewer Printed Name	Reviewer Signature

v.1

14201 Franklin Ave.
Tustin, CA 92780
Ph: (714) 730-6239
Fax:(714) 730-6462

Dept. Name: General Chemistry

Method Detection Limit Summary

Department No. 3

Analyte	Method	Date Analyzd	Spike mg/L	IDL mg/L	MDL mg/L	PQL mg/L	Date Analyzd	Spike mg/L	IDL mg/L	MDL mg/L	PQL mg/L	Date Analyzd	Spike mg/L	IDL mg/L	MDL mg/L	PQL mg/L
Bromide ***	EPA 300.0	3/20/03	0.6mg/L	0	0.04	0.5	3/1/04	0.6mg/L	0	0.018	0.5	2/23/05	0.2 mg/L	0	0.0423	0.2
Chloride ***	EPA 300.0	3/20/03	0.2 mg/L	0	0.022	0.2	3/1/04	0.2 mg/L	0	0.025	0.2	2/23/05	0.2 mg/L	0	0.0439	0.2
Fluoride ***	EPA 300.0	3/20/03	0.2 mg/L	0	0.025	0.2	3/1/04	0.2 mg/L	0	0.012	0.1	2/23/05	0.2 mg/L	0	0.0181	0.1
Nitrate-N ***	EPA 300.0	3/20/03	0.2 mg/L	0	0.012	0.2	3/1/04	0.2 mg/L	0	0.017	0.2	2/23/05	0.2 mg/L	0	0.0168	0.2
Sulphate ***	EPA 300.0	3/20/03	1 mg/L	0	0.057	0.5	3/1/04	1 mg/L	0	0.017	0.5	2/23/05	0.5 mg/L	0	0.0307	0.5
Chromium VI (ug/L) *	EPA 218.6	3/8/04	0.15	0	0.076	0.15	3/8/04	0.15	0	0.076	0.15	2/23/05	0.15 ppb	0	0.0356	0.15
Chromium VI (ug/L) **	EPA 218.6	3/8/04	0.15	0	0.038	0.15	3/8/04	0.15	0	0.038	0.15	2/23/05	0.20 ppb	0	0.0175	0.15
Perchlorate (ug/L)	EPA 314.0	11/25/03	1 ug/L	0	0.0073	1.0	11/25/03	1 ug/L	0	0.0073	1.0					
BOD	EPA 405.1	7/7/03	5 mg/L	0	1.2	5	10/26/04	5 mg/L	0	1.43	5.00	3/11/05	5 mg/L	0	1.85	5.00
UV254	SM 5910	2/11/04	0.5 mg/L	NA	0.0024	0.008	2/11/04	0.5 mg/L	0	0.0024	0.008	4/5/05	0.65 mg/L	0	0.0042	0.0080
Bromide **	EPA 300.0											2/11/05	0.2 mg/L	0	0.0316	0.2000
Chloride **	EPA 300.0											2/11/05	0.2 mg/L	0	0.0729	0.2000
Fluoride **	EPA 300.0											2/11/05	0.2 mg/L	0	0.0256	0.1000
Nitrate-N **	EPA 300.0											2/11/05	0.2 mg/L	0	0.0097	0.2000
Nitrite-N **	EPA 300.0											8/22/05	0.1 mg/L	0	0.020	0.10
Sulphate **	EPA 300.0											2/11/05	1.00 mg/L	0	0.0134	0.5000
Inst. ID : * DX 100																
Inst. ID : ** DX 600																
Inst. ID : *** Dionex 4000i																

TRUESDAIL LABORATORIES, INC.

Anions; EPA 300.0

Standard and Check Standards Preparation Logbook

Batch: 11AN05 P

Date: 11/22/05

STANDARD PREPARATION

Calibration Stock Standard (SSa)

Manufacturer:	Inorganic Ventures	
Catalog Number:	N/A	
Lot Number.:	Y-ION16018	
Expiration Date:	9/1/06	
Anions:	F,Cl,Br,NO_3-N	SO_4
Concentration (ppm):	**1000**	**5000**
TLI I.D.:	SS a Y-ION16018	

Primary Std:

Standard Used:	SS a Y-ION16018	
Anions:	F,Cl,Br,NO_3-N	SO4
	1000	5000
Amount Used (ml):	10	
Final Volume (ml)	100	
	100	**500**
TLI I.D.:	PS 1105 B	

Working Std. ppm:

Standard Used:	PS 1105 B				PS 1105 B		PS 1105 B		PS 1105 B		PS 1105 B	
Amt Used (ml):	1		1		2		6		10		16	
Final Volume(ml):	500		200		200		200		200		200	
Anions.:	F,Cl,Br,NO_3-N	SO_4	F,Cl,Br,NO_3-N	SO_4	F,Cl,Br,NO_3-N	SO_4	F,Cl,Br,NO_3-N	SO_4	F,Cl,Br,NO_3-N	SO_4	F,Cl,Br,NO3-N	SO4
Std. Conc.(ppm):	100	500	100	500	100	500	100	500	100	500	100	500
WS (ppm):	**0.2**	**1**	**0.5**	**2.5**	**1**	**5**	**3**	**15**	**5**	**25**	**8**	**40**
TLI I.D.:	WS(1)PS 1105 D				WS(3)PS 1105 D		WS(4)PS 1105 D		WS(5)PS 1105 D		WS(6)PS 1105 D	

MRCCS, MRCVS, LCS/LCSD, and MS/MSD STANDARD PREPARATION

Stock MRCCS Standard (SSb)

Manufacturer:	Inorganic Ventures	
Catalog Number:	N/A	
Lot Number:	Y-ION16019	
Expiration Date:	9/1/06	
Anions:	F,Cl,Br,NO_3-N	SO_4
Conc. (ppm):	1000	5000
TLI I.D.:	SS b Y-ION16019	

MRCCS Conc.,(ppm):

MRCCS Primary

Standard Used:	SS b Y-ION16019	
Anions.:	F,Cl,Br,NO_3-N	SO_4
Stock Standard Conc.(ppm):	1000	5000
Amount Used (ml):	10	
Final Volume(ml):	100	
MRCCS conc.,(ppm):	**100**	**500**
TLI I.D.:	MC(p) 1105 B	

MRCCS Working

MC(p) 1105 B		
F,Cl,Br,NO_3-N	SO_4	
100	500	
8		
200		
4	**20**	
MC(w) 1105 D		

Stock MRCVS Standard (SSa)

Manufacturer:	Inorganic Ventures	
Catalog Number:	N/A	
Lot Number:	Y-ION16018	
Expiration Date:	9/1/06	
Anions:	F,Cl,Br,NO_3-N	SO_4
Conc. (ppm):	1000	5000
TLI I.D.:	SS a Y-ION16018	

MRCVS Conc., (ppm):

MRCVS Primary

Standard Used:	SS a Y-ION16018	
Anions.:	F,Cl,Br,NO_3-N	SO_4
Stock Standard Conc.(ppm):	1000	5000
Amount Used (ml):	10	
Final Volume(ml):	100	
MRCCS conc.,(ppm):	**100**	**500**
TLI I.D.:	MV(p) 1105 B	

MRCVS Working

MV(p) 1105 B		
F,Cl,Br,NO_3-N	SO_4	
100	500	
6		
200		
3	**15**	
MC(w) 1105 D		

Stock LCS/LCSD Standard (SSb)

Manufacturer:	Inorganic Ventures	
Catalog Number:	N/A	
Lot Number:	Y-ION16019	
Expiration Date:	9/1/06	
Anions:	F,Cl,Br,NO_3-N	SO_4
Conc. (ppm):	1000	5000
TLI I.D.:	SS b Y-ION16019	

LCS/LCSD Conc., (ppm)

LCS/LCSD Primary

Standard Used:	SS b Y-ION16019	
Laboratory Control Stds.:	LCS,LCSD(p)	
Anions:	F,Cl,Br,NO3-N	SO_4
Stock Standard Conc.(ppm):	1000	5,000
Amount Used (ml):	10	
Final volume(ml):	100	
LCS,LCSD conc.,(ppm):	**100**	**500**
TLI I.D.:	LCS,LCSD(p) 1105 B	

LCS/LCSD Working

LCS,LCSD(p) 1105 B		
LCS,LCSD(w)		
F,Cl,Br,NO_3-N	SO_4	
100	500	
4		
100		
4	**20**	
LCS,LCSD(w) 1105 M		

Stock MS/MSD Standard (MSSS)

Manufacturer:	EMD SCIENCE
Catalog Number:	19814-1
Lot Number:	43303
Expiration Date:	3/31/06
Anions:	F
Conc. (ppm):	1000
TLI I.D.:	MSSS 43303

MS/MSD Conc. (ppm)

MS/MSD Primary

Standard Used:	MSSS 43303
Matrix Spike Stds.:	MS,MSD(p)
Anions:	F
Stock Standard Conc.(ppm):	1000
Amount Used (ml):	10
Final volume(ml):	100
MS,MSD conc.,(ppm):	**100**
TLI I.D.:	MS/MSD(p) 1105 B

MS/MSD Working

MSSS 1105 B	
MS,MSD(w)	
F	
100	
1	
50	
2	
MS/MSD(w) 1105 P	
Lab #	949028 MS

Iordan Stavrev		Ali Kharrazi	
Analyst Printed Name	Analyst Signature	Reviewer Printed Name	Reviewer Signature

TRUESDAIL LABORATORIES, INC.
14201 Franklin Avenue, Tustin, CA 92780-7008
(714)730-6239 FAX: (714) 730-6462
www.truesdail.com

CHAIN OF CUSTODY RECORD

[Sludge Sample-2]

COC Number 949028

TURNAROUND TIME 5 Days

DATE 11-17-05 PAGE 1 OF 1

COMPANY	CH2M HILL
PROJECT NAME	PG&E Topock
PHONE	(510) 251-2888 FAX (510) 622-7086
ADDRESS	155 Grand Ave Ste 1000 Oakland, CA 94612
P.O. NUMBER	334168.IM.04.00
SAMPLERS (SIGNATURE	

SAMPLE I.D.	DATE	TIME	DESCRIPTION	Anions (300) FI	Bioassay, 96hr Acute	NUMBER OF CONTAINERS	COMMENTS
SC-Sludge-WDR- 021	11/16/05	17:50	Soil	x	x	3	
						3	TOTAL NUMBER OF CONTAINERS

RUSH!

RUSH!

RUSH!

ALERT!!
Level III QC

CHAIN OF CUSTODY SIGNATURE RECORD

	Printed Name	Company/ Agency	Date/ Time
Signature (Relinquished)	Hayley Booth	OMI	11-17-05
Signature (Received)	Chris Aborning	STL	11/18/05 1030
Signature (Relinquished)			
Signature (Received) L. Shabunina	L. Shabunina	T2	11/18/05 11:00
Signature (Relinquished)			
Signature (Received)			

SAMPLE CONDITIONS

RECEIVED COOL ☐ WARM ☐ °F

CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

For Sample Conditions
See Form Attached

6.7°C - 8°C = 5.9°C

Internal Chain of Custody Logbook

Exhibit 4

Lab Number: 949028
Client Name: CH2MHill

Storage Temperature: 4°C

Bottle I.D.	Analysis Done	Date Out	Time Out	Date In	Time In	Amount Taken (g or ml)	Printed Name	Signature
				11/18/05	11:10		Lida	[signature]
	Fluoride	11-21-05	08:00	11-21-05	16:00	10 g	DORDAI	DS

Storage Date	Shelf No. For Storage	Printed Name	Initials

Discharge Date	Printed Name	Initials

Bottle I.D.	Analysis Done	Date Out	Time Out	Date In	Time In	Amount Taken (g or ml)	Printed Name	Signature

Storage Date	Shelf No. For Storage	Printed Name	Initials

Discharge Date	Printed Name	Initials

Bottle I.D.	Analysis Done	Date Out	Time Out	Date In	Time In	Amount Taken (g or ml)	Printed Name	Signature

Storage Date	Shelf No. For Storage	Printed Name	Initials

Discharge Date	Printed Name	Initials

Bottle I.D.	Analysis Done	Date Out	Time Out	Date In	Time In	Amount Taken (g or ml)	Printed Name	Signature

Storage Date	Shelf No. For Storage	Printed Name	Initials

Discharge Date	Printed Name	Initials

Section 5.0

Established Retention Time Window and Analytical Raw Data

TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: CH2M HILL **Lab #** 949028

Date Delivered: 11 / 18 / 05 **Time:** 11:00 **By:** ☑Mail ☐Field Service ☐Client

1.	Was a Chain of Custody received and signed?	☑Yes	☐No	☐N/A
2.	Does Customer require an acknowledgement of the COC?	☐Yes	☐No	☑N/A
3.	Are there any special requirements or notes on the COC?	☐Yes	☐No	☑N/A
4.	If a letter was sent with the COC, does it match the COC?	☐Yes	☐No	☑N/A
5.	Were all requested analyses understood and acceptable?	☑Yes	☐No	☐N/A
6.	Were samples received in a chilled condition? Temperature (if yes)? 5 °C	☑Yes	☐No	☐N/A
7.	Were samples received intact (i.e. broken bottles, leaks, air bubbles, etc..)?	☑Yes	☐No	☐N/A
8.	Were sample custody seals intact?	☐Yes	☐No	☑N/A
9.	Does the number of samples received agree with COC?	☑Yes	☐No	☐N/A
10.	Did sample labels correspond with the client ID's?	☑Yes	☐No	☐N/A
11.	Did sample labels indicate proper preservation? Preserved (if yes) by: ☐Truesdail ☐Client	☐Yes	☐No	☑N/A
12.	Were samples pH checked? pH = _____	☐Yes	☐No	☑N/A
13.	Were all analyses within holding time at time of receipt? If not, notify the Project Manager.	☑Yes	☐No	☐N/A
14.	Have Project due dates been checked and accepted? Turn Around Time (TAT): ☑ RUSH ☐ Std	☑Yes	☐No	☐N/A

ALERT II Level III QC

RUSH!

15. **Sample Matrix:** ☐Liquid ☐Drinking Water ☐Ground Water ☐Waste Water ☐Sludge ☑Soil ☐Wipe ☐Paint ☐Solid ☐Other _____

16. Comments: Received 2 jar

17. Sample Check-In completed by **Truesdail** Log-In/Receiving: L. Shabunina

RUSH!

Client: CH2MHILL - Topock
PO BOX 241329
Denver, CO 80224

Attention: Priya Kumar

Laboratory No.: 949028

Project Name: PG&E Topock 2005-GMP-083-M11a
Project No.: 328225.GM.02.00
P.O. No.: 908093

Date Received: November 18, 2005

Instrument: Dionex 600

Flouride Established Retention Time Window

Replicate Number	Retention Time	Date/Time
1	2.950	11/22/05:1306
2	2.947	11/22/05:0736
3	2.947	11/22/05:0757
4	2.947	11/22/05:0808
5	2.944	11/22/05:0747
6	2.944	11/22/05:0907
7	2.940	11/22/05:1101

Average: 2.946

σ: 0.0032

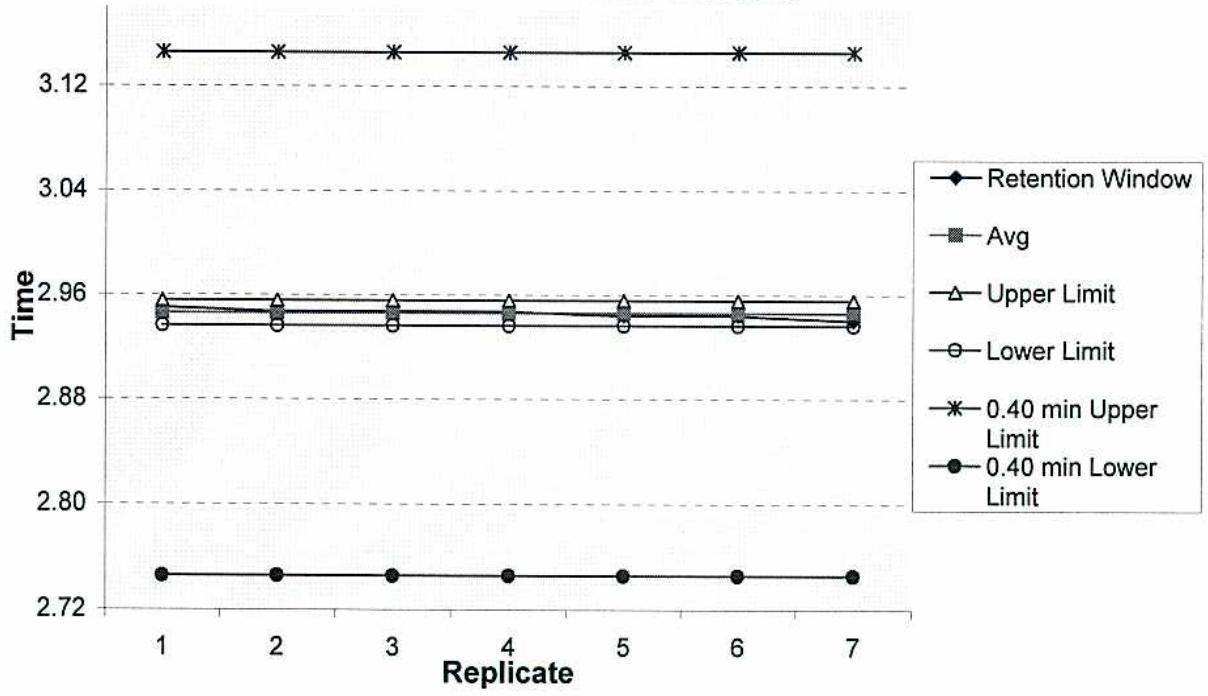
3σ: 0.0096

Upper Limit: 2.9552
Lower Limit: 2.9360

0.40 min Upper Limit: 3.1456
0.40 min Lower Limit: 2.7456

applied

Retention Time Window



ali

DEPARTMENT OF HEALTH SERVICES TITLE 22 96-HOUR ACUTE AQUATIC TOXICITY SCREEN TESTING

Prepared For:

Truesdail Laboratories, Inc.

Prepared By:

MBC *Applied Environmental Sciences*
3000 Redhill Avenue
Costa Mesa, California 92626

November 2005

DEPARTMENT OF HEALTH SERVICES
TITLE 22
96-HOUR ACUTE AQUATIC TOXICITY SCREEN TESTING

Prepared For:

Truesdail Laboratories, Inc.

Prepared By:

MBC *Applied Environmental Sciences*
3000 Redhill Avenue
Costa Mesa, California 92626

November 2005

TABLE OF CONTENTS

INTRODUCTION

Title 22, Article 3, Section 66261.24 (6) of the California Code of Regulations (CCR) establishes the criteria for the identification of hazardous and extremely hazardous waste. The Department of Health Services (DOHS) compiles and evaluates analytical data for compliance with the toxicity criteria for potentially hazardous waste.

These analytical data have been derived from water and environmental samples submitted to laboratories certified by the DOHS for analysis. The California DOHS 96-Hour Acute Aquatic Toxicity testing assures CCR compliance and minimizes risk to the environment or threat to public health.

Laboratory certification by the DOHS standardized the toxicity testing program by requiring certification of testing laboratories and by utilizing the procedures set forth by Dr. James Polisini, Department of Fish and Game, Water Pollution Control Laboratory (Polisini 1988). Following this methodology, a waste can be evaluated for potential hazardous waste declassification.

Currently; CCR, Title 22, Section 66261.24, Article 6 requires wastes to pass the 96-hour aquatic toxicity screen testing with greater than 50% survival at the 500 mg/l concentration. In addition to this regulation, the DOHS protocol requires wastes to pass the 96-hour aquatic toxicity screen testing with greater than 50% survival at the 500 mg/l concentration and a minimum of 60% survival at the 750 mg/l concentration for compliance. When these screening criteria are not achieved, the DOHS test protocol requires additional definitive serial dilution toxicity testing with a minimum of five test concentrations prior to making a hazardous waste compliance determination.

Toxicity testing conducted by MBC for this report is a static non-renewal acute toxicity screen test following Standard Methods and the procedures of Dr. James Polisini. Death is the effect measured and toxicity is reported as percent survivorship at 250 mg/l, 500 mg/l and 750 mg/l concentrations and a LC_{50} calculated from these data. Original data worksheets will remain on file at MBC.

MATERIALS AND METHODS

Facilities

The toxicity tests are conducted in a laboratory located away from disturbances of non-laboratory personnel or other laboratory or heavy equipment. The laboratory, measuring approximately 20 x 20 ft, is insulated to protect it from rapid temperature changes. Shelves and water tables are provided which allow a capacity of 200 or more 5-gallon aquaria, as well as bench space for laboratory equipment and instruments.

Lighting is provided by five evenly spaced two lamp 4-foot cool white fluorescent fixtures that are regulated by a 24-hour timer. The lighting remains on for 16 hours and is off for 8 hours.

The temperature of the toxicity testing laboratory is maintained by a commercial climate controlled unit controlled by wall-mounted thermostat which provide accuracy to $\pm 2\ ^{0}C$.

A Rustrak Model 2066 continuous recording thermograph monitored the laboratory's temperature 24 hours per day. The Rustrak is calibrated annually by the manufacturer to insure accuracy. Maximum-minimum thermometers are maintained within the laboratory to provide "back-up" temperature variation information.

Low pressure air is supplied to the laboratory for the purpose of slowly bubbling air into the exposure tanks to maintain an acceptable dissolved oxygen concentration. Filtered air is supplied via a Sutor-bilt oil-less blower that provides up to 340 l/min at 0.35 kg/cm^2. The blower is equipped with a pressure equalizing expansion chamber and an adjustable pressure relief valve to maintain a constant delivery pressure and volume. Air is delivered to the laboratory through PVC piping with numerous individual flow valves. Individual aquaria receive air through commercial plastic aquarium air tubing and a 3 mm inside diameter by 30 cm long soft glass tube which reaches the bottom of the test container. Air is bubbled into the aquaria at a rate of approximately 30 ml /min following the guidelines of Kopperdahl (1976) and Peltier and Weber (1985).

Test Containers

The toxicity tests are conducted in 5-gallon glass aquaria, approximately 26 cm high, 21 cm wide, and 41 cm long. For the definitive test, the aquaria contain a total of 10 liters of waste material and/or dilution softwater which provides a water depth within the test aquaria of approximately 14 cm.

Test containers are cleaned thoroughly with Liqui-Nox brand commercial glassware detergent and warm tap water, rinsed five times with warm tap water, rinsed with reagent grade acetone, rinsed five times with deionized water, rinsed with 5% HCl, and then rinsed three times with deionized water.

Determination of Water Quality Parameters

Water quality measurements are taken and recorded for pH, dissolved oxygen and temperature after dosage of the appropriate concentration of waste sample to the test aquaria, and at 24, 48, 72, and 96 hours subsequent to initiation of the toxicity test exposures. The following instrumentation and methods are utilized to determine water quality parameters for each of the test and control aquaria. Total alkalinity and hardness, both expressed as mg/l $CaCO_3$, are determined from sub-samples of dilution water and the 750 mg/l concentration obtained immediately prior to initiation and at the completion of toxicity testing.

A Horiba U-10 Water Quality Checker is utilized for determining the pH of the exposure solutions. After stabilization of the reading, the pH is recorded on the static toxicity test worksheet to the nearest 0.1 pH unit.

Dissolved oxygen concentrations (mg/l) are determined by gently swirling the Horiba U-10 Water Quality Checker in the aquarium to be monitored. Dissolved oxygen concentrations are recorded on the static toxicity test worksheet to the nearest 0.1 mg/l, only after stabilization of the reading.

Exposure temperature is determined by the Horiba U-10 Water Quality Checker calibrated by a mercury bulb thermometer graduated to 0.1°C with calibration traceable to the National Institute of Standards and Technology (NIST).

Alkalinity values are calculated by potentiometric titration to a pre-selected pH of 4.6 utilizing Method 2320B, *Standard Methods* (18th Edition).

Hardness values are calculated by EDTA titration utilizing Method 2340C, *Standard Methods* (18th Edition).

TOXICITY TEST PREPARATION

Receiving and Acclimating Fish

The fathead minnows, *Pimephales promelas*, are received from the supplier at least 10 days prior to initiation of toxicity testing. Shipment of the test fish in insulated containers with hard freshwater and an atmosphere of bottled oxygen from Aquatic Biosystems located in Fort Collins, Colorado is via Federal Express overnight to MBC. Upon receipt of the test fish, the plastic bags containing the fathead minnows are floated on the surface of an appropriately sized aquarium containing aged local (hard) drinking water in the temperature controlled toxicity test laboratory. When the temperature of the water in the shipping water is within 0.5°C of the holding tank, each plastic bag is opened and the fish are gently eased into the initial acclimation water containing penicillin. This antibiotic is effective against both gram-negative and gram-positive bacteria as well as fungus. The antibiotic is maintained in the acclimation water for 24 hours while the hardness is slowly decreased to that of the reconstituted moderately hardwater utilizing a reservoir and siphons to slowly change over the water following guidelines in *Standard Methods* (18th Edition). The test fish are subsequently gently transferred using a fine mesh dip net to the maintenance tank for further acclimation until initiation of the toxicity testing.

During the acclimation period, up until 48 hours prior to initiation of the toxicity testing, the fathead minnows are maintained on a diet of Tetramin brand flake food and San Francisco Bay Brand frozen brine shrimp. Tetramin flake food is fed in the morning and brine shrimp in the evening, while observing the behavior and monitoring the quality of the acclimating fish. The quantity of food delivered at each feeding is based upon the quantity that the tank population would completely consume within approximately five minutes of feeding. During these observations, any sick or dead fish are removed and the numbers of each, as well as any observations, are noted in the acclimation tank log book.

Dilution Water Preparation

Dilution water for the toxicity tests is prepared following the formulation of Kopperdahl (1976) and Horning and Weber (1985) for artificially reconstituted softwater. Table I indicates the quantities of reagent grade chemicals utilized in preparing the synthetic freshwater. Reconstituted softwater is prepared in 208 liter linear polyethylene barrels by addition of the salts to deionized (resin exchange column) water followed by thorough mechanical mixing at least 48 hours prior to initiation of the toxicity testing. The reconstituted softwater is maintained in a isolated area of the same temperature-controlled laboratory in which the test fish are acclimated and the toxicity tests are performed to ensure against any significant difference between acclimation and test water temperature that might induce additional stress in the test fish.

Table I. Quantities of reagent grade chemicals required to prepare reconstituted softwater and expected water qualities.

$NaHCO_3$:	48.0 mg/l
$CaSO_4$ $2H_2O$:	30.0 mg/l
$MgSO_4$:	30.0 mg/l
KCl:	2.0 mg/l
pH:	7.2-7.8
Total Hardness:	40-48 mg/l $CaCO_3$
Total Alkalinity:	30-35 mg/l $CaCO_3$

Handling and Storage of the Waste Samples

Upon arrival at MBC, the samples are listed in the Toxicity Test Sample Log Book located in the toxicity testing laboratory by the Toxicity Laboratory Coordinator. The samples are stored at 4°C in a designated area of the cold storage locker labeled "SAMPLES FOR HAZARDOUS WASTE TESTING", until the initiation of toxicity testing. The remaining portion of each sample is returned to the cold storage locker.

WASTE SAMPLE PREPARATION

Dry Waste Material

Each sample is identified as a Type i, Type ii or Type iii material. The samples are weighed into pre-tared Erlenmeyer flasks to yield final replicate sample concentrations of 250 mg/l, 500 mg/l, and 750 mg/l. Approximately 200 ml of dilution water is added to each flask. The flasks are capped with parafilm, a neoprene stopper and aluminum foil and are mechanically shaken for six hours.

Liquid Waste of Low Viscosity

To determine the volume of a low viscosity liquid sample needed to dose the toxicity test, the specific gravity is measured.

The waste sample to be used in the toxicity test is first mechanically shaken or homogenized so as to evenly distribute any particulate matter in the sample. A known amount of sample, usually 20 ml, is drawn up through a volumetric pipette and dispensed into a 100 ml beaker that has previously been weighed on a Mettler balance to four decimal places. The beaker containing the known volume of sample is then re-weighed on the Mettler balance. The difference in weight of the beaker with the sample and the weight of the beaker when it is empty is divided by the known volume of the sample (in milliliters) to determine the specific gravity. This process is repeated in triplicate and the mean specific gravity is used in subsequent dosage determinations.

The sample is measured by pipette into pre-tared Erlenmeyer flasks to yield final replicate sample concentrations of 250 mg/l, 500 mg/l, and 750 mg/l. Approximately 200 ml of dilution water is added to each flask. The flasks are capped with parafilm, a neoprene stopper and aluminum foil and mechanically shaken for six hours.

TOXICITY TESTING

Dosing Test Aquaria

After shaking, the samples are dosed into the appropriately marked aquaria containing approximately 9 liters of dilution water. Dilution water is then added to the 10 liter mark to yield a final volume of 10 liters for all test conditions.

Reconstituted softwater (dilution water only) controls are established as a quality assurance measure. All test conditions and controls are run concurrently.

Initial Water Quality Measurements

Prior to the addition of the test fish, preliminary water quality measurements are taken for dissolved oxygen and pH to determine if adjustment is necessary (Polisini 1988).

An initial hardness and alkalinity test analysis is performed on the control and the 750 mg/l concentrations.

Addition of Test Fish

The test fish (fathead minnows) are gently corralled and dip netted in small groups from the plexiglass maintenance tank into smaller aquaria to confirm species identity and the healthy condition of each individual fish to be utilized in the test. Fish exhibiting any abnormalities, disease, wounds, or unusual behavior or color patterns are removed and destroyed. Those fish that passed the individual screening inspection are randomly allocated to test aquaria and controls.

Ten fathead minnows are gently released into each of the test aquaria replicate and the control, taking care not to allow the dip nets to contact the exposure media.

Observations

Water quality parameters, enumeration of live organisms and any ancillary observations pertinent to the conduct of the toxicity tests are taken and recorded on the toxicity test worksheets at initiation and subsequently at 24, 48, 72, and 96 hours after initiation of the toxicity test exposures. Daily water quality parameters, live organism enumeration, and ancillary observations are recorded on individual toxicity testing worksheets. The worksheets are presented in Appendix A.

Alkalinity and Hardness Analysis

Total alkalinity and hardness, both expressed as mg/l $CaCO_3$, are determined by replicate samples utilizing the procedures in Method 2320B and 2340C, *Standard Methods* (18^{th} Edition). Sub-samples of the dilution water control and the 750 mg/l concentration are obtained immediately prior to initiation and at the completion of toxicity testing and the results are presented on the toxicity test worksheets.

Determination of Test Fish Lengths and Weights

At the conclusion of testing, 20 of the surviving fish are wet weighed to the nearest 0.1 gram on an analytical balance and measured to the nearest millimeter. The data are recorded on a Fish Weight/Length Measurements form and presented in Appendix B. All surviving fish are then destroyed following the procedures in *Standard Methods* (18^{th} Edition).

RESULTS

Standard DOHS Toxicity Screen Testing

Toxicity testing conducted by MBC for this report is a static non-renewal acute toxicity screen test following Standard Methods and the procedures of Dr. James Polisini. Death is the effect measured and toxicity is reported as percent survivorship at 250 mg/l, 500 mg/l and 750 mg/l concentrations and a LC_{50} calculated from these data. Original data worksheets will remain on file at MBC.

REFERENCES

American Public Health Association (APHA), American Water Works Association (AWWA) and Water Pollution Control Federation (WPCF). 1992. 18th Edition. Standard methods for examination of water and wastewater.

American Society for Testing and Materials (ASTM). 1982. Parts 23 and 24.

Environmental Protection Agency. 1979b. Methods for chemical analysis of water and wastes. EPA-600/4-79-020.

Horning II, W. B., and C. I. Weber. 1985. Short-term methods for estimating the chronic toxicity of effluents and receiving waters to freshwater organisms. EPA/600/4-85/014. 162 pp.

Kopperdahl, F. R. 1976. Guidelines for performing static acute toxicity fish bioassays in municipal and industrial wastewaters. Report to California State Water Resources Control Board by Department of Fish and Game. 65 pp.

Peltier, W. H., and C. I. Weber. 1985. Methods for measuring the acute toxicity of effluents to freshwater and marine organisms (Third Edition), EPA/600/4-85/013. 216 pp.

Plumb, R. H., Jr. 1981. Procedure for handling and chemical analysis of sediment and water samples. Technical report EPA/CE-81-1 prepared by Great Lakes Laboratory, State University College at Buffalo, Buffalo, New York for the U.S. Environmental Protection Agency/Corps of Engineers Technical Committee on Criteria for Dredged and Fill Material. Published by the U.S. Army Engineer Waterways Experiment Station, CE, Vicksburg, Mississippi.

Polisini, J. M. 1988. Static acute bioassay procedures for hazardous waste samples. California Fish and Game, Water Pollution Control Laboratory.

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW - 846, 2nd edition, U.S. Environmental Protection Agency, 1982.

APPENDIX A
DAILY WATER QUALITY PARAMETERS AND LIVE ORGANISM ENUMERATION DATA

DEPARTMENT OF HEALTH SERVICES ACUTE AQUATIC SCREENING TOXICITY TEST

Date/Time Sampled: 11/16/05, 1750 hours

MBC Job # 06415X

Client: Truesdail Laboratories

Date/Time Started: 11/19/05, 1519 hours

MBC Sample # 06-061

Sample Identification: 949028

Date/Time Terminated: 11/23/05, 1319 hours

Aquar.	Test	0 Hours				24 Hours				48 Hours				72 Hours				96 Hours			
#	Conc.	pH	DO	Temp	Live	pH	DO	Temp	Live	pH	DO	Temp	Live	pH	DO	Temp	Live	pH	DO	Temp	Live
1	Control	7.1	6.4	20.3	10	7.0	5.8	22.0	10	7.2	5.3	21.9	10	7.2	6.0	22.4	10	7.1	5.5	22.0	10
2	250 mg/l	7.5	7.2	20.5	10	7.4	5.9	21.8	10	7.4	6.2	21.6	9	7.4	7.1	22.3	9	7.4	6.8	21.9	9
3	250 mg/l	7.6	7.1	20.5	10	7.4	6.3	21.9	10	7.4	6.8	21.7	10	7.4	7.2	22.3	10	7.4	6.7	21.9	10
4	500 mg/l	7.6	6.9	20.5	10	7.5	6.7	21.9	10	7.4	7.1	21.6	10	7.5	7.4	22.2	10	7.5	6.7	22.0	10
5	500 mg/l	7.6	6.1	20.5	10	7.2	5.6	21.9	10	7.3	6.7	21.7	10	7.4	6.9	22.3	10	7.4	6.5	22.0	10
6	750 mg/l	7.7	6.8	20.5	10	7.4	6.3	21.9	10	7.3	6.0	21.6	10	7.4	7.1	22.2	10	7.4	6.3	21.9	10
7	750 mg/l	7.6	6.2	20.5	10	7.2	5.8	22.0	10	7.2	6.4	21.8	10	7.3	6.7	22.3	10	7.3	5.8	22.1	10

Species: Fathead Minnow *(Pimephales promelas)*

Percent dead in acclimatization tank: <1%

Type Aeration: as per Polisini (1988)

Number of fish/replicate concentration: 10

Volume of test solution: 10L

Dilution Water Source: Reconstituted softwater

Acclimatization: 16 days at 20°C

RANGE	MIN.	MAX.
pH Range:	7.0	7.7
DO Range:	5.3	7.4
Temp Range:	20.3	22.4

Results:

Concentration	% Survival
Control	100%
250 mg/l	95%
500 mg/l	100%
750 mg/l	100%

LC50 > 750 mg/l

	ALKALINITY (A)	HARDNESS (H)		
	0 Hours		96 Hours	
	A	H	A	H
Control	33	48	33	67
750 mg/l	51	60	23	72

NOTES: Normal.

Reviewed By:

APPENDIX B
FISH LENGTH AND WEIGHT MEASUREMENTS

Bioassay Fish Length/Weight Measurements

MBC JOB #: 06415X

CLIENT: Truesdail Laboratories

MBC SAMPLE #: 06-061

DATE OF TEST: 11/19/05

SPECIES: Fathead minnow
(Pimephales promelas)

SAMPLE IDENTIFICATION: 949028

	Standard Length mm	Weight g		Standard Length mm	Weight g
1.	36	0.58	11.	35	0.51
2.	31	0.25	12.	30	0.32
3.	32	0.41	13.	35	0.45
4.	36	0.58	14.	36	0.48
5.	37	0.73	15.	35	0.47
6.	35	0.59	16.	36	0.64
7.	35	0.47	17.	39	0.75
8.	31	0.40	18.	37	0.68
9.	34	0.45	19.	36	0.61
10.	30	0.33	20.	37	0.62

	Length (mm)	Weight (g)
Average:	35	0.52
Maximum:	39	0.75
Minimum:	30	0.25

Technician: CLG

Date: 11/23/05

Reviewed By:

APPENDIX C
SAMPLE ANALYSIS INFORMATION

SAMPLE ANALYSIS INFORMATION

CLIENT: Truesdail Laboratories

SAMPLE IDENTIFICATION: 949028

MBC JOB NUMBER: 06415X MBC SAMPLE NUMBER: 06-061

SAMPLE DATE/TIME: 11/16/05, 1750 hours

DATE SAMPLE RECEIVED BY MBC: 11/18/05

ANALYSIS REQUIRED: Title 22 DOHS 96-hour Acute Aquatic Toxicity Test

DATE/TIME ANALYSIS INITIATED: 11/19/05, 1519 hours

DATE/TIME ANALYSIS TERMINATED: 11/23/05, 1319 hours

AMOUNT OF SAMPLE: 8 ounces

QUALITATIVE DESCRIPTION OF SAMPLE: A wet brown/rust colored mud, very fine with a slight odor undefined.

SPECIAL SAMPLE PREPARATION: Shake for 6 hours.

SAMPLE ADJUSTMENTS DURING ANALYSIS: Air added at 0 hours.

RESULTS:

Concentration	% Survival
Control	100%
250mg/l	95%
500 mg/l	100%
750 mg/l	100%

LC_{50} > 750 mg/l

NOTES: Normal.

Reviewed By:

ANALYTICAL REPORT

PG&E TOPOCK GWM

Lot #: E5K280186

Shawn Duffy

CH2M Hill Inc

SEVERN TRENT LABORATORIES, INC.

Marisol Tabirara
Project Manager

December 6, 2005

EXECUTIVE SUMMARY - Detection Highlights

E5K280186

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
SC-SLUDGE-WDR-021 11/16/05 17:50 001				
Chromium	85	0.10	mg/L	SW846 6010B
Zinc	1.5	1.0	mg/L	SW846 6010B

METHODS SUMMARY

E5K280186

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 CAM TITLE
Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 1311/3010
Mercury in Liquid Waste (Manual Cold-Vapor)	SW846 7470A	SW846 CAM TITLE
Mercury in Liquid Waste (Manual Cold-Vapor)	SW846 7470A	SW846 1311/7470

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

E5K280186

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
HQ14Q	001	SC-SLUDGE-WDR-021	11/16/05	17:50

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CH2M Hill Inc

Client Sample ID: SC-SLUDGE-WDR-021

TCLP Metals

Lot-Sample #...: E5K280186-001 **Matrix.....:** SO
Date Sampled...: 11/16/05 17:50 **Date Received..:** 11/18/05 10:00
Leach Date.....: 11/28/05 **Leach Batch #..:** P533213

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 5333503						
Arsenic	ND	0.50	mg/L	SW846 6010B	11/29-11/30/05	HQ14Q1AV
		Dilution Factor: 1		Analysis Time..: 16:15	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5333315		
Barium	ND	10	mg/L	SW846 6010B	11/29-11/30/05	HQ14Q1AW
		Dilution Factor: 1		Analysis Time..: 16:15	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5333315		
Cadmium	ND	0.10	mg/L	SW846 6010B	11/29-11/30/05	HQ14Q1AX
		Dilution Factor: 1		Analysis Time..: 16:15	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5333315		
Chromium	ND	0.50	mg/L	SW846 6010B	11/29-11/30/05	HQ14Q1A0
		Dilution Factor: 1		Analysis Time..: 16:15	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5333315		
Lead	ND	0.50	mg/L	SW846 6010B	11/29-11/30/05	HQ14Q1A1
		Dilution Factor: 1		Analysis Time..: 16:15	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5333315		
Selenium	ND	0.25	mg/L	SW846 6010B	11/29-11/30/05	HQ14Q1A2
		Dilution Factor: 1		Analysis Time..: 16:15	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5333315		
Silver	ND	0.50	mg/L	SW846 6010B	11/29-11/30/05	HQ14Q1A3
		Dilution Factor: 1		Analysis Time..: 16:15	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5333315		
Prep Batch #...: 5334175						
Mercury	ND	0.0020	mg/L	SW846 7470A	11/30/05	HQ14Q1A4
		Dilution Factor: 1		Analysis Time..: 14:13	Analyst ID.....: 000023	
		Instrument ID..: M04		MS Run #.....: 5334087		

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

CH2M Hill Inc

Client Sample ID: SC-SLUDGE-WDR-021

STLC Metals

Lot-Sample #...: E5K280186-001 **Matrix.....:** SO
Date Sampled...: 11/16/05 17:50 **Date Received..:** 11/18/05 10:00
Leach Date.....: 11/28/05 **Leach Batch #..:** P533212

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 5334586						
Antimony	ND	1.0	mg/L	SW846 6010B	11/30-12/02/05	HQ14Q1AA
		Dilution Factor: 1		Analysis Time..: 21:01	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5334342		
Arsenic	ND	1.0	mg/L	SW846 6010B	11/30-12/02/05	HQ14Q1AC
		Dilution Factor: 1		Analysis Time..: 21:01	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5334342		
Barium	ND	10	mg/L	SW846 6010B	11/30-12/02/05	HQ14Q1AD
		Dilution Factor: 1		Analysis Time..: 21:01	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5334342		
Beryllium	ND	0.10	mg/L	SW846 6010B	11/30-12/02/05	HQ14Q1AE
		Dilution Factor: 1		Analysis Time..: 21:01	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5334342		
Cadmium	ND	0.10	mg/L	SW846 6010B	11/30-12/02/05	HQ14Q1AF
		Dilution Factor: 1		Analysis Time..: 21:01	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5334342		
Chromium	**85**	**0.10**	**mg/L**	**SW846 6010B**	**11/30-12/02/05**	**HQ14Q1AG**
		Dilution Factor: 1		Analysis Time..: 21:01	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5334342		
Cobalt	ND	1.0	mg/L	SW846 6010B	11/30-12/02/05	HQ14Q1AH
		Dilution Factor: 1		Analysis Time..: 21:01	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5334342		
Copper	ND	1.0	mg/L	SW846 6010B	11/30-12/02/05	HQ14Q1AJ
		Dilution Factor: 1		Analysis Time..: 21:01	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5334342		
Lead	ND	1.0	mg/L	SW846 6010B	11/30-12/02/05	HQ14Q1AK
		Dilution Factor: 1		Analysis Time..: 21:01	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5334342		

(Continued on next page)

CH2M Hill Inc

Client Sample ID: SC-SLUDGE-WDR-021

STLC Metals

Lot-Sample #...: E5K280186-001 **Matrix.....:** SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Molybdenum	ND	1.0	mg/L	SW846 6010B	11/30-12/02/05	HQ14Q1AL
		Dilution Factor: 1		Analysis Time..: 21:01	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5334342		
Nickel	ND	1.0	mg/L	SW846 6010B	11/30-12/02/05	HQ14Q1AM
		Dilution Factor: 1		Analysis Time..: 21:01	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5334342		
Selenium	ND	1.0	mg/L	SW846 6010B	11/30-12/02/05	HQ14Q1AN
		Dilution Factor: 1		Analysis Time..: 21:01	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5334342		
Silver	ND	0.10	mg/L	SW846 6010B	11/30-12/02/05	HQ14Q1AP
		Dilution Factor: 1		Analysis Time..: 21:01	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5334342		
Thallium	ND	1.0	mg/L	SW846 6010B	11/30-12/02/05	HQ14Q1AQ
		Dilution Factor: 1		Analysis Time..: 21:01	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5334342		
Vanadium	ND	1.0	mg/L	SW846 6010B	11/30-12/02/05	HQ14Q1AR
		Dilution Factor: 1		Analysis Time..: 21:01	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5334342		
Zinc	**1.5**	**1.0**	**mg/L**	**SW846 6010B**	**11/30-12/02/05**	**HQ14Q1AT**
		Dilution Factor: 1		Analysis Time..: 21:01	Analyst ID.....: 021088	
		Instrument ID..: M01		MS Run #.....: 5334342		

Prep Batch #...: 5335437

Mercury	ND	0.0020	mg/L	SW846 7470A	12/02/05	HQ14Q1AU
		Dilution Factor: 1		Analysis Time..: 15:23	Analyst ID.....: 000023	
		Instrument ID..: M04		MS Run #.....: 5335236		

NOTE(S):

Soluable Threshold Limit Concentration (STLC) done in accordance with App II: Waste Extraction procedures. CCR Title 22.

QC DATA ASSOCIATION SUMMARY

E5K280186

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	SO	SW846 7470A	P533212	5335437	5335236
	SO	SW846 7470A	P533213	5334175	5334087
	SO	SW846 6010B	P533212	5334586	5334342
	SO	SW846 6010B	P533213	5333503	5333315

METHOD BLANK REPORT

TCLP Metals

Client Lot #...: E5K280186 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: E5K290000-503 **Prep Batch #...:** 5333503						
Arsenic	ND	0.50	mg/L	SW846 6010B	11/29-11/30/05	HQ4HG1AA
		Dilution Factor: 1				
		Analysis Time..: 15:11	Analyst ID.....: 021088	Instrument ID..: M01		
Barium	ND	10	mg/L	SW846 6010B	11/29-11/30/05	HQ4HG1AC
		Dilution Factor: 1				
		Analysis Time..: 15:11	Analyst ID.....: 021088	Instrument ID..: M01		
Cadmium	ND	0.10	mg/L	SW846 6010B	11/29-11/30/05	HQ4HG1AD
		Dilution Factor: 1				
		Analysis Time..: 15:11	Analyst ID.....: 021088	Instrument ID..: M01		
Chromium	ND	0.50	mg/L	SW846 6010B	11/29-11/30/05	HQ4HG1AE
		Dilution Factor: 1				
		Analysis Time..: 15:11	Analyst ID.....: 021088	Instrument ID..: M01		
Lead	ND	0.50	mg/L	SW846 6010B	11/29-11/30/05	HQ4HG1AF
		Dilution Factor: 1				
		Analysis Time..: 15:11	Analyst ID.....: 021088	Instrument ID..: M01		
Selenium	ND	0.25	mg/L	SW846 6010B	11/29-11/30/05	HQ4HG1AG
		Dilution Factor: 1				
		Analysis Time..: 15:11	Analyst ID.....: 021088	Instrument ID..: M01		
Silver	ND	0.50	mg/L	SW846 6010B	11/29-11/30/05	HQ4HG1AH
		Dilution Factor: 1				
		Analysis Time..: 15:11	Analyst ID.....: 021088	Instrument ID..: M01		
MB Lot-Sample #: E5K300000-175 **Prep Batch #...:** 5334175						
Mercury	ND	0.0020	mg/L	SW846 7470A	11/30/05	HQ4XK1AA
		Dilution Factor: 1				
		Analysis Time..: 13:55	Analyst ID.....: 000023	Instrument ID..: M04		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

STLC Metals

Client Lot #...: E5K280186 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: E5K300000-586 **Prep Batch #...:** 5334586						
Antimony	ND	1.0	mg/L	SW846 6010B	11/30-12/02/05	HQ6NG1AA
		Dilution Factor: 1				
		Analysis Time..: 19:58	Analyst ID.....: 021088	Instrument ID..: M01		
Arsenic	ND	1.0	mg/L	SW846 6010B	11/30-12/02/05	HQ6NG1AC
		Dilution Factor: 1				
		Analysis Time..: 19:58	Analyst ID.....: 021088	Instrument ID..: M01		
Barium	ND	10	mg/L	SW846 6010B	11/30-12/02/05	HQ6NG1AD
		Dilution Factor: 1				
		Analysis Time..: 19:58	Analyst ID.....: 021088	Instrument ID..: M01		
Beryllium	ND	0.10	mg/L	SW846 6010B	11/30-12/02/05	HQ6NG1AE
		Dilution Factor: 1				
		Analysis Time..: 19:58	Analyst ID.....: 021088	Instrument ID..: M01		
Cadmium	ND	0.10	mg/L	SW846 6010B	11/30-12/02/05	HQ6NG1AF
		Dilution Factor: 1				
		Analysis Time..: 19:58	Analyst ID.....: 021088	Instrument ID..: M01		
Chromium	ND	0.10	mg/L	SW846 6010B	11/30-12/02/05	HQ6NG1AG
		Dilution Factor: 1				
		Analysis Time..: 19:58	Analyst ID.....: 021088	Instrument ID..: M01		
Cobalt	ND	1.0	mg/L	SW846 6010B	11/30-12/02/05	HQ6NG1AH
		Dilution Factor: 1				
		Analysis Time..: 19:58	Analyst ID.....: 021088	Instrument ID..: M01		
Copper	ND	1.0	mg/L	SW846 6010B	11/30-12/02/05	HQ6NG1AJ
		Dilution Factor: 1				
		Analysis Time..: 19:58	Analyst ID.....: 021088	Instrument ID..: M01		
Lead	ND	1.0	mg/L	SW846 6010B	11/30-12/02/05	HQ6NG1AK
		Dilution Factor: 1				
		Analysis Time..: 19:58	Analyst ID.....: 021088	Instrument ID..: M01		
Molybdenum	ND	1.0	mg/L	SW846 6010B	11/30-12/02/05	HQ6NG1AL
		Dilution Factor: 1				
		Analysis Time..: 19:58	Analyst ID.....: 021088	Instrument ID..: M01		
Nickel	ND	1.0	mg/L	SW846 6010B	11/30-12/02/05	HQ6NG1AM
		Dilution Factor: 1				
		Analysis Time..: 19:58	Analyst ID.....: 021088	Instrument ID..: M01		

(Continued on next page)

METHOD BLANK REPORT

STLC Metals

Client Lot #...: E5K280186 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Selenium	ND	1.0	mg/L	SW846 6010B	11/30-12/02/05	HQ6NG1AN
		Dilution Factor: 1				
		Analysis Time..: 19:58	Analyst ID.....: 021088	Instrument ID..: M01		
Silver	ND	0.10	mg/L	SW846 6010B	11/30-12/02/05	HQ6NG1AP
		Dilution Factor: 1				
		Analysis Time..: 19:58	Analyst ID.....: 021088	Instrument ID..: M01		
Thallium	ND	1.0	mg/L	SW846 6010B	11/30-12/02/05	HQ6NG1AQ
		Dilution Factor: 1				
		Analysis Time..: 19:58	Analyst ID.....: 021088	Instrument ID..: M01		
Vanadium	ND	1.0	mg/L	SW846 6010B	11/30-12/02/05	HQ6NG1AR
		Dilution Factor: 1				
		Analysis Time..: 19:58	Analyst ID.....: 021088	Instrument ID..: M01		
Zinc	ND	1.0	mg/L	SW846 6010B	11/30-12/02/05	HQ6NG1AT
		Dilution Factor: 1				
		Analysis Time..: 19:58	Analyst ID.....: 021088	Instrument ID..: M01		

MB Lot-Sample #: E5L010000-437 **Prep Batch #...:** 5335437

Mercury	ND	0.0020	mg/L	SW846 7470A	12/02/05	HQ8T41AA
		Dilution Factor: 1				
		Analysis Time..: 15:13	Analyst ID.....: 000023	Instrument ID..: M04		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.