



**Pacific Gas and
Electric Company**

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August 15, 2006

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
WDID No. 7B 36 2033 001
PG&E Topock Compressor Station, Needles, California
Interim Measure No. 3 Groundwater Treatment System
Discharge to Injection Well(s)
July 2006 Monitoring Report**

Dear Mr. Perdue:

Enclosed is the Board Order R7-2004-0103 July 2006 Monitoring Report for the Pacific Gas and Electric Company (PG&E) Topock Compressor Station, Interim Measure (IM) No. 3 Groundwater Treatment System. This report is being submitted in compliance with the Waste Discharge Requirements (WDRs) issued by the Colorado River Basin Regional Water Quality Control Board (Water Board) 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, 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). Reporting of Board Order R7-2004-0080 and Board Order R7-2004-0100 activities are submitted under separate covers.

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 July 2006 Monitoring Report for the IM No. 3 Groundwater Treatment System.

Robert Perdue
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August 15, 2006

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

July 2006 Monitoring Report for Interim Measure No. 3 Groundwater Treatment System

**Waste Discharge Requirements
Board 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

August 15, 2006

CH2MHILL
155 Grand Avenue, Suite 1000
Oakland, CA 94612

**July 2006 Monitoring Report
Interim Measure No. 3 Groundwater Treatment System
Waste Discharge Requirements Order No. R7-2004-0103
PG&E Topock Compressor Station
Needles, California**

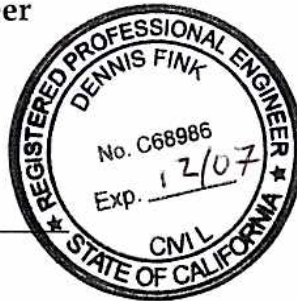
Prepared for
Pacific Gas and Electric Company

August 15, 2006

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



Dennis Fink, P.E. No. 68986
Project Engineer



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Acronyms and Abbreviations

HMI	human-machine interface
IM	Interim Measure
MRP	Monitoring and Reporting Program
PG&E	Pacific Gas and Electric Company
STL	Severn Trent Laboratories, Inc.
Truesdil	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. (All figures are located at the end of this report.)

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 fifteenth day of the following month.

This report covers monitoring activities related to operation of the IM No. 3 groundwater treatment system during July 2006.

In addition to Board Order No. R7-2004-0103, the Water Board issued Waste Discharge Requirements (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. (All tables are located at the end of this report.) Sampling station locations are provided in the process and instrumentation diagrams: Figures TP-PR-10-10-04, TP-PR-10-10-08, and TP-PR-10-10-06.

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 July 2006, groundwater was pumped from extraction wells TW-3D and PE-1. The target groundwater extraction system pump rate was 135 gallons per minute during July 2006 (excluding planned and unplanned downtime, which is described in Section 4.0).

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

- **Treated Effluent:** Treated water that is discharged to the injection well(s).
- **Reverse Osmosis Concentrate:** Treatment byproduct that is transported and disposed of offsite.
- **Sludge:** Treatment byproduct that is transported offsite for disposal each time a sludge waste storage bin reaches capacity or within 90 days of the start date for accumulation in the storage container.

4.0 Groundwater Treatment System Flow Rates

The July 2006 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-2S, TW-2D, TW-3D, and PE-1 (Figure TP-RP-10-10-03). 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).

The IM No. 3 facility also treated approximately 980 gallons of water generated from monitoring well development and aquifer testing during July 2006. Treatment of this water at the IM No. 3 facility was approved by the Water Board on January 26, 2006, according to the conditions of Board Order No. R7-2004-0103.

Periods of planned and unplanned extraction system downtime during July 2006 are summarized below. The times shown are in Pacific Standard Time to be consistent with other data collected (e.g., water level data) at the site.

- **July 1, 2006 (unplanned):** The extraction well system was shut down from 4:24 p.m. until 5:01 p.m. to switch to generator power after a weather-caused power failure. Extraction system downtime was 37 minutes.
- **July 2, 2006 (unplanned):** The extraction well system was shut down from 6:06 a.m. until 6:11 a.m. to return operations to Needles power. Extraction system downtime was 5 minutes.
- **July 3, 2006 (unplanned):** The extraction well system was shut down from 10:45 a.m. until 10:54 a.m. due to a Needles power imbalance (non-weather related). Extraction system downtime was 5 minutes.
- **July 4, 2006 (unplanned):** The extraction well system was shut down from 2:18 p.m. until 2:34 p.m. to switch to generator power after a weather-caused power failure. Extraction system downtime was 16 minutes.
- **July 5, 2006 (unplanned):** The extraction well system was shut down from 6:37 a.m. until 6:53 a.m. to return operations to Needles power. Extraction system downtime was 16 minutes.
- **July 6, 2006 (unplanned):** The extraction well system was shut down from 9:27 p.m. until 9:47 p.m. to switch to generator power after a weather-caused power failure. Extraction system downtime was 20 minutes.
- **July 9, 2006 (unplanned):** The extraction well system was shut down from 2:15 p.m. until 2:20 p.m. to return operations to Needles power. Extraction system downtime was 5 minutes.

-
- **July 10, 2006 (unplanned):** The extraction well system was shut down from 7:01 a.m. until 7:24 p.m. to replace the uninterruptible power supply to the human-machine interface (HMI). Extraction system downtime was 23 minutes.
 - **July 11, 2006 (unplanned):** The extraction well system was shut down from 9:11 p.m. until 12:07 p.m. for replacement of the polymer system feed pump P-804 that failed with a temporary oversized shelf spare. Extraction system downtime was 2 hours 54 minutes.
 - **July 14, 2006 (unplanned):** The extraction well system was shut down from 1:40 p.m. until 2:23 p.m. to replace polymer pump P-804 with correct-sized pump. Extraction system downtime was 43 minutes.
 - **July 15, 2006 (unplanned):** The extraction well system was shut down from 6:43 p.m. until 7:11 p.m. to switch to generator power after a weather-caused power failure. Extraction system downtime was 28 minutes.
 - **July 16, 2006 (unplanned):** The extraction well system was shut down from 5:51 a.m. until 6:01 a.m. to return operations to Needles power. Extraction system downtime was 10 minutes.
 - **July 24, 2006 (unplanned):** The extraction well system was shut down from 6:10 p.m. until 6:22 p.m. to switch to generator power after a weather-caused power failure and from 10:24 p.m. until 10:28 p.m. to return operations to Needles power. Extraction system downtime was 16 minutes.
 - **July 25, 2006 (unplanned):** The extraction well system was shut down from 3:52 p.m. until 4:09 p.m., 8:18 p.m. until 8:23 p.m., 10:02 to 10:07 p.m., and 10:27 to 10:29 p.m. due to a Needles power imbalance (non-weather related) and eventual switch to generator power. Extraction system downtime was 29 minutes.
 - **July 26, 2006 (unplanned):** The extraction well system was shut down from 4:50 a.m. until 4:53 a.m. to return operations to Needles power. Extraction system downtime was 3 minutes.
 - **July 28, 2006 (planned):** The extraction well system was shut down from 11:10 am until 4:21 pm to complete maintenance (i.e. backwashing) of Injection Well IW-02. Approximately 1,800 gallons of purge water were generated during the maintenance and returned to the IM-3 facility for treatment. Extraction system downtime was 5 hours 12 minutes.
 - **July 28, 2006 (unplanned):** The extraction well system was shut down from 9:23 p.m. until 10:53 p.m. due to a Needles power outage caused by electrical storms in the area. Extraction system downtime was 1 hour 30 minutes.
 - **July 30, 2006 (unplanned):** The extraction well system was shut down from 4:25 a.m. until 4:34 a.m. to return operations to Needles power. Extraction system downtime was 9 minutes.

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

Truesdail is certified by the California Department of Health Services (Certification No. 1237) under the State of California's Environmental Laboratory Accreditation Program. STL is certified by the California Department of Health Services (Certification No. 1118) under the Environmental Laboratory Accreditation Program. Truesdail forwarded the sludge sample to MBC Laboratory. MBC Laboratory conducted the sludge bioassay test, and is certified by the California Department of Health Services (Certification No. 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 Code of Federal Regulations 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* submitted to the Water Board June 17, 2005. Quarterly groundwater monitoring analytical results for the injection area are reported in a separate document, in conjunction with groundwater level maps of the same monitoring wells.

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, the following sampling frequency schedule was followed:

- The influent was sampled monthly; sample date July 5, 2006.
- The effluent was sampled weekly; sample dates July 5, 12, 19, and 26, 2006.
- The reverse osmosis concentrate was sampled monthly; sample date July 5, 2006.
- The sludge was sampled monthly; sample date July 5, 2006. WDR requirements state that sludge is to be sampled each time it is transported offsite unless sludge is transported offsite more frequently than monthly, in which case, the sampling frequency shall be monthly.
- The sludge is required to have an aquatic bioassay test quarterly; the 3rd Quarter 2006 aquatic bioassay test was conducted with a sludge sample from the July 5, 2006 sampling event; the results are presented in Table 6.

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 effluent limitations during the reporting period.

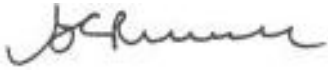
In addition, no incidents of non-compliance were identified during the reporting period, and no events that caused an immediate or potential threat to human health or the environment, or new releases of hazardous waste or hazardous waste constituents, or new solid waste management units were identified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

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: _____ August 15, 2006 _____

Tables

TABLE 1
Sampling Station Descriptions
July 2006 Report for Interim Measure No. 3 Groundwater Treatment System

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

Note:

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

TABLE 2
Flow Monitoring Results
July 2006 Report for Interim Measure No. 3 Groundwater Treatment System

Parameter	System Influent ^{a,b}	System Effluent ^{c,b}	Reverse Osmosis Concentrate ^{d,b}
Average Monthly Flowrate (gpm)	133.0	119.2	13.8

Notes:

gpm: gallons per minute.

^aExtraction wells TW-3D and PE-1 were operated during July 2006.

^bThe difference between influent flow rate and the sum of the effluent and reverse osmosis concentrate flow rates is less than 0.1 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.

^cAll effluent was discharged into injection well IW-02 during July 2006.

^dReverse Osmosis Concentrate flow meter reading from FIT-701.

TABLE 3
Board Order No. R7-2004-0103 Waste Discharge Requirements (WDRs)
Influent Monitoring Results ^a
July 2006 Monthly Report for Interim Measures No.3 Groundwater Treatment System

Required Sampling Frequency		Monthly																						
<div>Sample ID</div> <div>Date</div>	Analytes Units ^b	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
		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	µg/L	mg/L	mg/L	mg/L	µg/L
SC-100B-WDR-054	7/5/2006	5590	ND (0.1)	10800	7.40	1740	1840	ND (52)	ND (0.5)	ND (3.0)	ND (5.0)	ND (300)	1.26	59.2	2.57	ND (2.0)	ND (500)	14.3	ND (20)	3.08	0.0148	662	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
July 2006 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	NA		
	Max Daily	NA	NA	NA	6.5-8.4	50	16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Required Sampling Frequency		Weekly						Monthly																		
<div><div></div><div>Analytes Units ^c</div></div>	Date	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		
		mg/L	NTU	µmhos/cm	pHunits	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	µg/L	µg/L	
Sample ID	Date	SC-700B-WDR-054	7/5/2006	3830	ND (0.1)	8140	8.23	ND (1.0)	ND (1.0)	ND (52)	ND (0.5)	ND (3.0)	ND (5.0)	ND (300)	1.04	49.8	1.95	ND (2.0)	ND (500)	7.00	ND (20)	2.29	0.0082	464	ND (300)	ND (20)
SC-700B-WDR-055	7/12/2006	4220	ND (0.1)	7280	8.22	1.40	ND (1.0)J	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
SC-700B-WDR-056	7/19/2006	4150	ND (0.1)	7380	8.13	ND (1.0)	ND (1.0)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
SC-700B-WDR-057	7/26/2006	3850	ND (0.1)	7350	8.09	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
July 2006 Monthly Report for Interim Measures No.3 Groundwater Treatment System

Required Sampling Frequency		Monthly																						
<div>Sample ID</div>	<div>Analytes Units ^b Date</div>	TDS	Specific Conductance	pH	Chromium	Hexavalent Chromium	Antimony	Arsenic	Barium	Beryllium	Cadmium	Cobalt	Copper	Fluoride	Lead	Molybdenum	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	
		mg/L	µmhos/cm	pHUnits	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
SC-701-WDR-054	7/5/2006	20200	32600	8.04	ND (0.001)	ND (0.005)J	ND (0.01)	0.0365	ND (0.3)	ND (0.0052)	ND (0.0052)	ND (0.01)	0.375	2.10	ND (0.0052)	0.0708	0.00028	ND (0.02)	0.0296	ND (0.01)	ND (0.0052)	0.0221	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
July 2006 Monthly Report for Interim Measures No.3 Groundwater Treatment System

Required Sampling Frequency			Monthly ^c																		Quarterly ^d			
Sample ID	Date	Analytes Units ^b	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 ^e	Bioassay % Survival at 500 mg/L ^e	Bioassay % Survival at 250 mg/L ^e
SC-Sludge-WDR-054	7/5/2006		21000	70.0 J	ND (540)J	ND (90)	ND (180)	ND (45)	ND (45)J	ND (450)	ND (230)	8.41	ND (45)	ND (360)	1.70 J	ND (360)	ND (45)	ND (90)	ND (90)	ND (450)	ND (180)	100	100	100

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 killogram
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 Sludge shall be tested for the listed constituents each time sludge is transported offsite, unless transport is more frequent than monthly, in which case the sampling frequency shall be monthly.
^d Sludge shall have an aquatic bioassay test performed each time sludge is transported offsite, unless transport is more frequent than quaterly, in which case the sampling frequency shall be quarterly.
^e Concentration of sludge per 1 liter of water.

TABLE 7

Board Order No. R7-2004-0103 Waste Discharge Requirements (WDRs)

Monitoring Information

July 2006 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-054	Gary Sibble	7/5/2006	1:09:00 PM	TLI	EPA 120.1	SC	7/6/2006	Tina Acquiat
					TLI	EPA 150.1	PH	7/6/2006	Tina Acquiat
					TLI	EPA 160.1	TDS	7/7/2006	Tina Acquiat
					TLI	EPA 180.1	TRB	7/6/2006	Gautam Savani
					TLI	EPA 200.7	NI	7/6/2006	Victoria Than\Riddhi Patel
					TLI	EPA 200.7	ZN	7/13/2006	Victoria Than\Riddhi Patel
					TLI	EPA 200.7	MN	7/6/2006	Victoria Than\Riddhi Patel
					TLI	EPA 200.7	FET	7/6/2006	Victoria Than\Riddhi Patel
					TLI	EPA 200.7	CRT	7/6/2006	Victoria Than\Riddhi Patel
					TLI	EPA 200.7	BA	7/6/2006	Victoria Than\Riddhi Patel
					TLI	EPA 200.7	B	7/6/2006	Victoria Than\Riddhi Patel
					TLI	EPA 200.7	AL	7/6/2006	Victoria Than\Riddhi Patel
					TLI	EPA 200.8	CU	7/6/2006	Victoria Than
					TLI	EPA 200.8	MO	7/6/2006	Victoria Than
					TLI	EPA 200.8	PB	7/6/2006	Victoria Than
					TLI	EPA 200.8	SB	7/6/2006	Victoria Than
					TLI	EPA 200.8	AS	7/6/2006	Victoria Than
					TLI	EPA 300.0	SO4	7/7/2006	Giawad Ghenniwa
					TLI	EPA 300.0	FL	7/7/2006	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	7/7/2006	Giawad Ghenniwa
					TLI	EPA 350.2	NH3N	7/11/2006	Alex Hernandez
					TLI	EPA 354.1	NO2N	7/6/2006	Tina Acquiat
					TLI	EPA Method 218.6	CR6	7/6/2006	Jorge Arriaga
SC-700B	SC-700B-WDR-054	Gary Sibble	7/5/2006	1:11:00 PM	TLI	EPA 120.1	SC	7/6/2006	Tina Acquiat
					TLI	EPA 150.1	PH	7/6/2006	Tina Acquiat
					TLI	EPA 160.1	TDS	7/7/2006	Tina Acquiat
					TLI	EPA 180.1	TRB	7/6/2006	Gautam Savani
					TLI	EPA 200.7	ZN	7/13/2006	Victoria Than\Riddhi Patel
					TLI	EPA 200.7	FET	7/6/2006	Victoria Than\Riddhi Patel
					TLI	EPA 200.7	MN	7/6/2006	Victoria Than\Riddhi Patel
					TLI	EPA 200.7	NI	7/6/2006	Victoria Than\Riddhi Patel
					TLI	EPA 200.7	AL	7/6/2006	Victoria Than\Riddhi Patel
					TLI	EPA 200.7	CRT	7/10/2006	Victoria Than\Riddhi Patel
					TLI	EPA 200.7	B	7/6/2006	Victoria Than\Riddhi Patel
					TLI	EPA 200.7	BA	7/6/2006	Victoria Than\Riddhi Patel
					TLI	EPA 200.8	CU	7/6/2006	Victoria Than
					TLI	EPA 200.8	MO	7/6/2006	Victoria Than

TABLE 7

Board Order No. R7-2004-0103 Waste Discharge Requirements (WDRs)

Monitoring Information

July 2006 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-054	Gary Sibble	7/5/2006	1:11:00 PM	TLI	EPA 200.8	PB	7/6/2006	Victoria Than
					TLI	EPA 200.8	SB	7/6/2006	Victoria Than
					TLI	EPA 200.8	AS	7/6/2006	Victoria Than
					TLI	EPA 300.0	FL	7/7/2006	Giawad Ghenniwa
					TLI	EPA 300.0	SO4	7/7/2006	Giawad Ghenniwa
					TLI	EPA 300.0	NO3N	7/7/2006	Giawad Ghenniwa
					TLI	EPA 350.2	NH3N	7/11/2006	Alex Hernandez
					TLI	EPA 354.1	NO2N	7/6/2006	Tina Acquiati
					TLI	EPA Method 218.6	CR6	7/6/2006	Jorge Arriaga
SC-700B	SC-700B-WDR-055	Gary Sibble	7/12/2006	10:55:00 AM	TLI	EPA 120.1	SC	7/13/2006	Tina Acquiati
					TLI	EPA 150.1	PH	7/13/2006	Tina Acquiati
					TLI	EPA 160.1	TDS	7/14/2006	Tina Acquiati
					TLI	EPA 180.1	TRB	7/12/2006	Gautam Savani
					TLI	EPA 200.7	CRT	7/20/2006	Riddhi Patel
					TLI	EPA Method 218.6	CR6	7/13/2006	Faisal Raihan
SC-700B	SC-700B-WDR-056	Chris Knight	7/19/2006	12:00:00 PM	TLI	EPA 120.1	SC	7/20/2006	Tina Acquiati
					TLI	EPA 150.1	PH	7/20/2006	Tina Acquiati
					TLI	EPA 160.1	TDS	7/20/2006	Tina Acquiati
					TLI	EPA 180.1	TRB	7/20/2006	Gautam Savani
					TLI	EPA 200.7	CRT	7/28/2006	Riddhi Patel
					TLI	EPA Method 218.6	CR6	7/20/2006	Faisal Raihan
SC-700B	SC-700B-WDR-057	David Chaney	7/26/2006	2:30:00 PM	TLI	EPA 120.1	SC	7/27/2006	Tina Acquiati
					TLI	EPA 150.1	PH	7/27/2006	Tina Acquiati
					TLI	EPA 160.1	TDS	7/27/2006	Tina Acquiati
					TLI	EPA 180.1	TRB	7/27/2006	Gautam Savani
					TLI	EPA 200.7	CRT	7/28/2006	Riddhi Patel
					TLI	EPA Method 218.6	CR6	7/27/2006	Stanley Hsieh
SC-701	SC-701-WDR-054	Gary Sibble	7/5/2006	1:08:00 PM	TLI	EPA 120.1	SC	7/6/2006	Tina Acquiati
					TLI	EPA 150.1	PH	7/6/2006	Tina Acquiati
					TLI	EPA 160.1	TDS	7/7/2006	Tina Acquiati
					TLI	EPA 200.7	ZN	7/13/2006	Victoria Than\Riddhi Patel
					TLI	EPA 200.7	CRT	7/20/2006	Victoria Than\Riddhi Patel
					TLI	EPA 200.7	NI	7/6/2006	Victoria Than\Riddhi Patel
					TLI	EPA 200.7	BA	7/6/2006	Victoria Than\Riddhi Patel
					TLI	EPA 200.8	SE	7/6/2006	Victoria Than
					TLI	EPA 200.8	AG	7/6/2006	Victoria Than

TABLE 7

Board Order No. R7-2004-0103 Waste Discharge Requirements (WDRs)

Monitoring Information

July 2006 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-054	Gary Sibble	7/5/2006	1:08:00 PM	TLI	EPA 200.8	TL	7/6/2006	Victoria Than
					TLI	EPA 200.8	SB	7/6/2006	Victoria Than
					TLI	EPA 200.8	PB	7/6/2006	Victoria Than
					TLI	EPA 200.8	MO	7/6/2006	Victoria Than
					TLI	EPA 200.8	AS	7/6/2006	Victoria Than
					TLI	EPA 200.8	CO	7/6/2006	Victoria Than
					TLI	EPA 200.8	CD	7/6/2006	Victoria Than
					TLI	EPA 200.8	V	7/6/2006	Victoria Than
					TLI	EPA 200.8	BE	7/6/2006	Victoria Than
					TLI	EPA 200.8	CU	7/6/2006	Victoria Than
					TLI	EPA 245.1	HG	7/14/2006	Aksiniya Dimitrova
					TLI	EPA 300.0	FL	7/7/2006	Giawad Ghenniwa
SC-Sludge	SC-Sludge-WDR-054	Chris Knight	7/5/2006	1:10:00 PM	TLI	EPA Method 218.6	CR6	7/6/2006	Jorge Arriaga
					STL	EPA 160.3	MOIST	7/7/2006	Florian Zimmermann
					TLI	EPA 300.0	FL	7/10/2006	Giawad Ghenniwa
					STL	EPA 6010B	NI	7/11/2006	Josephine Asuncion
					STL	EPA 6010B	V	7/11/2006	Josephine Asuncion
					STL	EPA 6010B	TL	7/11/2006	Josephine Asuncion
					STL	EPA 6010B	SE	7/11/2006	Josephine Asuncion
					STL	EPA 6010B	SB	7/11/2006	Josephine Asuncion
					STL	EPA 6010B	PB	7/11/2006	Josephine Asuncion
					STL	EPA 6010B	ZN	7/11/2006	Josephine Asuncion
					STL	EPA 6010B	MO	7/11/2006	Josephine Asuncion
					STL	EPA 6010B	CU	7/11/2006	Josephine Asuncion
					STL	EPA 6010B	CRT	7/11/2006	Josephine Asuncion
					STL	EPA 6010B	CO	7/11/2006	Josephine Asuncion
					STL	EPA 6010B	CD	7/11/2006	Josephine Asuncion
					STL	EPA 6010B	BE	7/11/2006	Josephine Asuncion
					STL	EPA 6010B	BA	7/11/2006	Josephine Asuncion
					STL	EPA 6010B	AG	7/11/2006	Josephine Asuncion
					STL	EPA 6010B	AS	7/11/2006	Josephine Asuncion
					STL	EPA 7471A	HG	7/11/2006	Hao Ton
					STL	SW 7199	CR6	7/17/2006	Yuriy Zakhrabov

TABLE 7

Board Order No. R7-2004-0103 Waste Discharge Requirements (WDRs)

Monitoring Information

July 2006 Monthly Report for Interim Measures No.3 Groundwater Treatment System

NOTES:

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

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

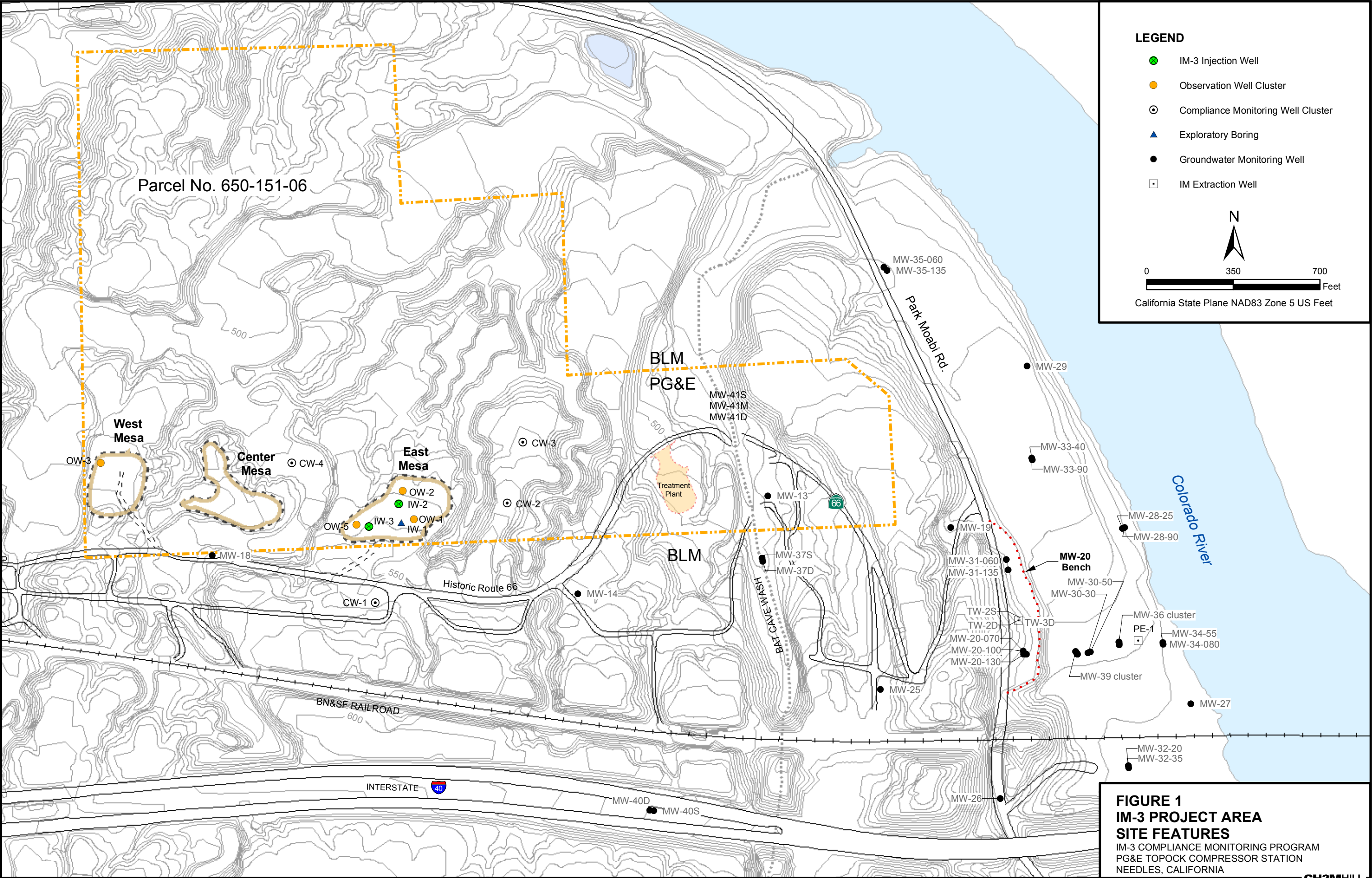
SC-701 = Sampling Location for all Reverse Osmosis Samples is tap on pipe T-701 (see attached P&ID TP-PR-10-10-08)

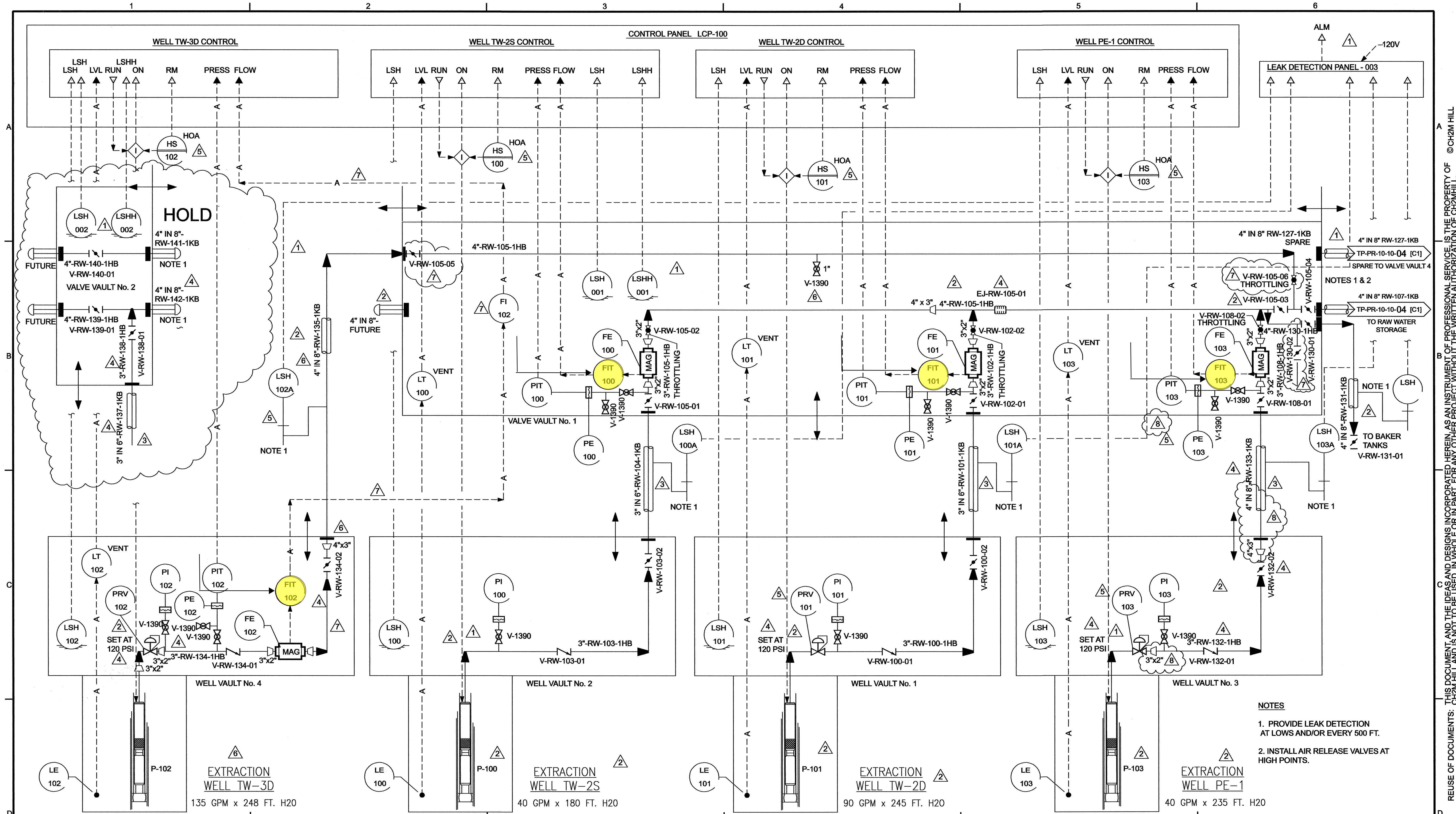
TLI = Truesdail Laboratories, Inc.

STL = Severn Trent Laboratories, Inc.

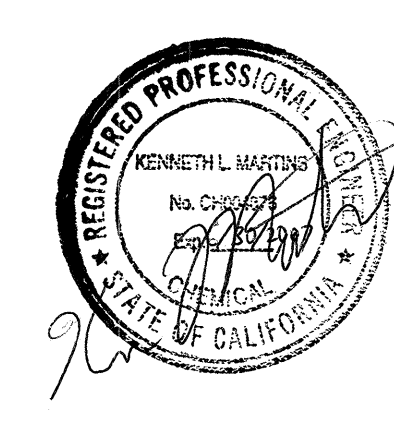
SC =	specific conductance	MO =	molybdenum
PH =	pH	NI =	nickel
TDS =	total dissolved solids	PB =	lead
TRB =	turbidity	HG =	mercury
CRT =	chromium	SE =	selenium
CR6 =	hexavalent chromium	TL =	thallium
FL =	fluoride	CO =	cobalt
AL =	aluminum	CD =	cadmium
B =	boron	BE =	beryllium
FE =	iron	AG =	silver
MN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

Figures





- NOTES**
1. PROVIDE LEAK DETECTION AT LOWS AND/OR EVERY 500 FT.
 2. INSTALL AIR RELEASE VALVES AT HIGH POINTS.



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

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

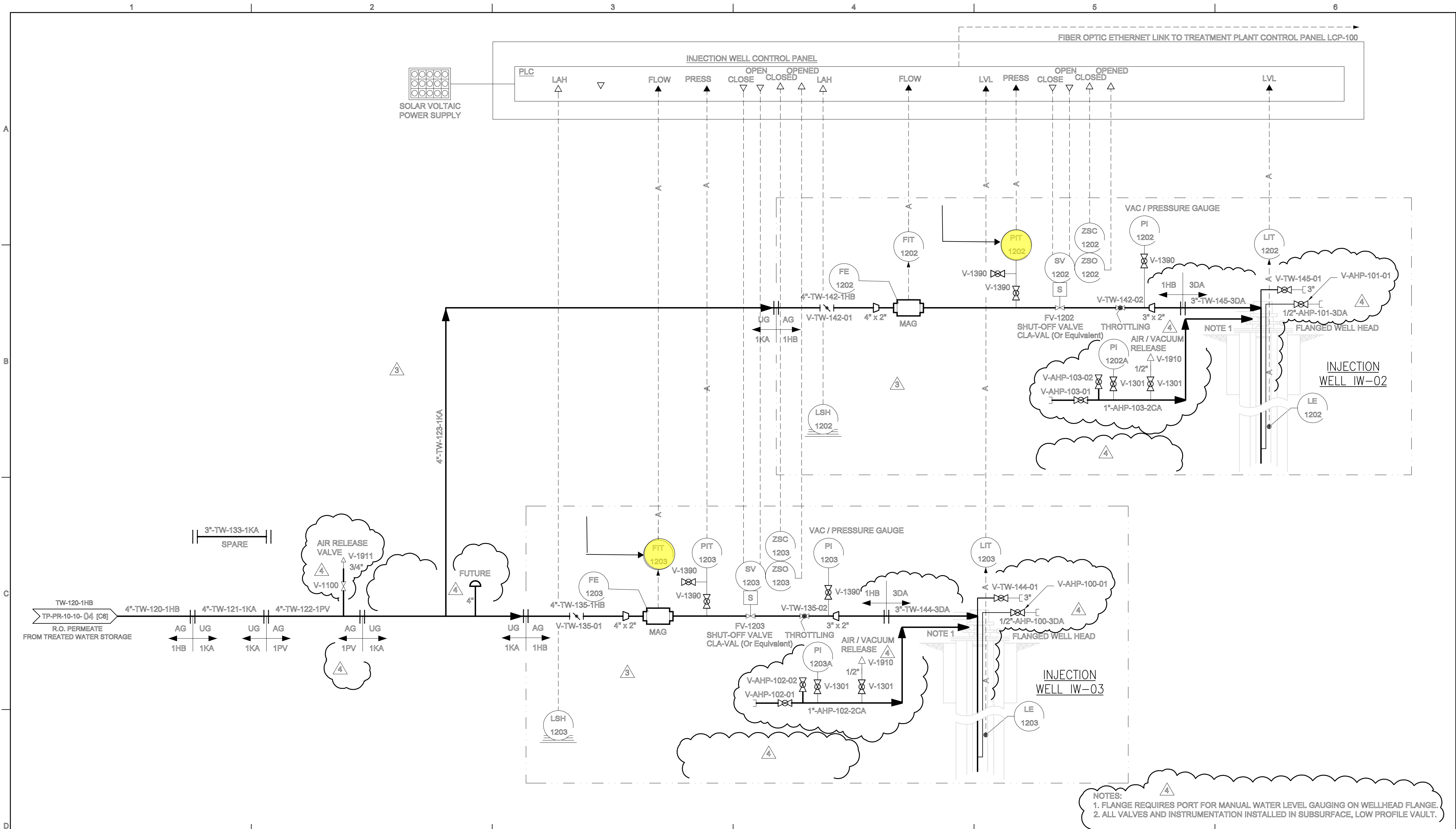
PROCESS AND INSTRUMENTATION DIAGRAM
SHEET 03
EXTRACTION WELLS
PE-1, TW-2D, TW-2S AND TW-3D

SCALE NONE

CH2MHILL

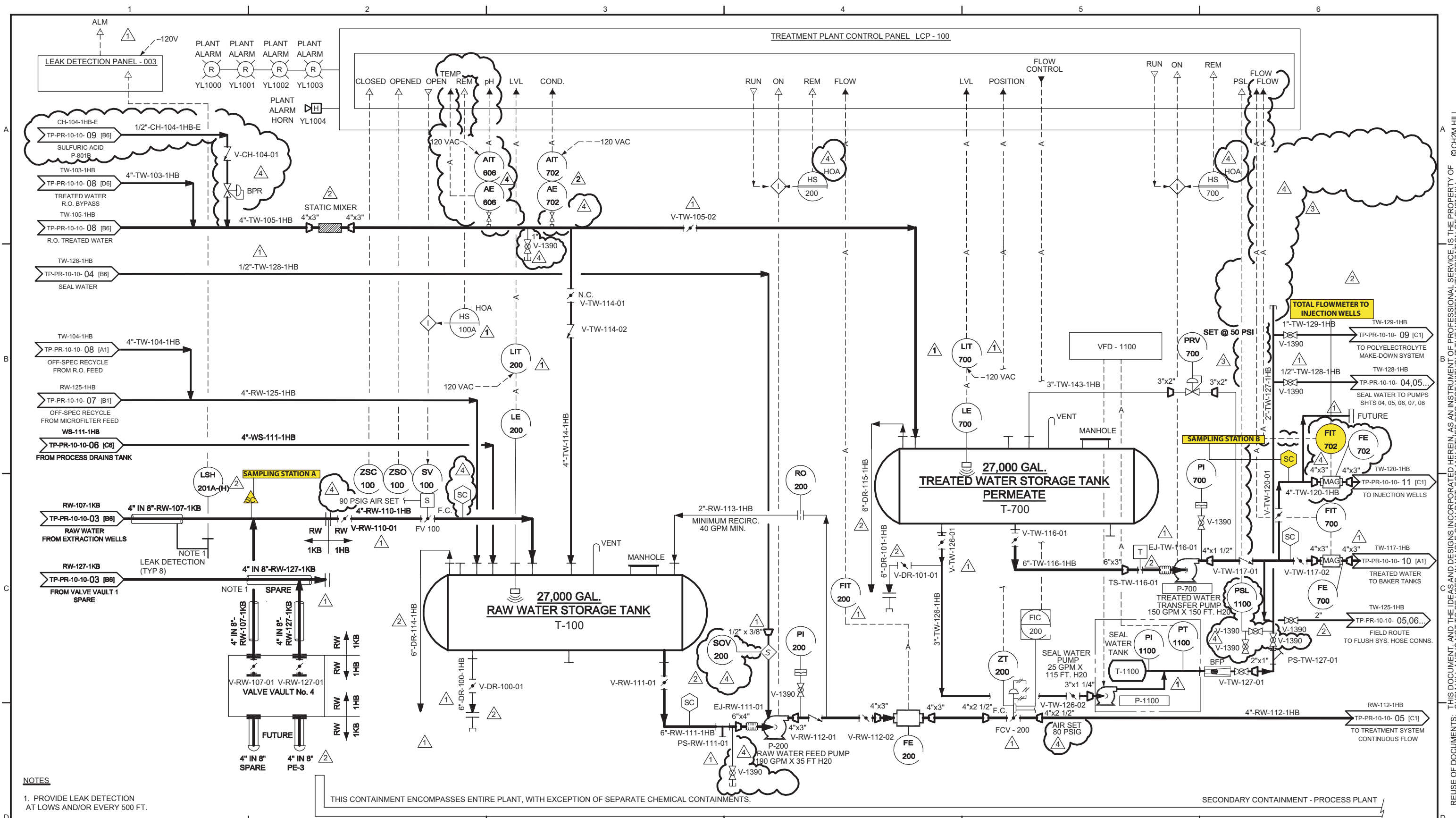
DWG. NO. TP-PR-10-10-03 REV. 8

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



RESPONSIBLE ENGINEER: Kenneth L. Martins PE # CH4876 Exp. 5-30-05	NO.	DATE	REVISION	BY	CHK	REVISION APPROVAL	REV 4	DATE 03/10/05	PRINT DISTRIBUTION	STATUS					PACIFIC GAS & ELECTRIC CO. TOPOCK COMPRESSOR STATION INTERIM MEASURE 3 EXPANDED GROUNDWATER EXTRACTION AND TREATMENT SYSTEM PROJ NO. 315994	PROCESS AND INSTRUMENTATION DIAGRAM SHEET 11 INJECTION WELLS	
	A	07/28/04	FOR INTERNAL REVIEW	EFC	AJ	DISCIPLINE REVIEWED	DISCIPLINE	REVIEWED	DATE	ISSUED	REV	DATE	SDE	PEM			
	0	09/03/04	APPROVED FOR CONSTRUCTION	EFC	AJ	CIVIL	ELECTRICAL	STATUS	PRELIMINARY								
	1	10/13/04	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	STRUCTURAL	INST & CONTROL	REV.	FOR REVIEW AND APPROVAL	A	07/28/04						
	2	01/23/05	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	MECHANICAL	ARCHITECTURAL	CLIENT	APPROVED FOR CONSTRUCTION	0	09/03/04	KLM	TP				
	3	02/14/05	REVISED AND APPROVED FOR CONSTRUCTION	EFC	AJ	PROCESS	ENVIRONMENTAL	FIELD	REVISED & APPROVED FOR CONSTRUCTION	4	/ /						
	4	03/10/05	REMOVED HOLD AND APPROVED FOR CONSTRUCTION	EFC	AJ	PIPING	GEN. ARRANG.	INTRA CO.									

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

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

E2 Consulting Engineers, Inc. PG&E Topock Project

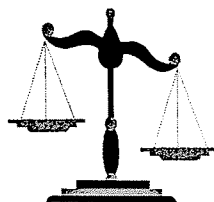
Laboratory Number: 956442

Received: July 5, 2006

IM3Plant-WDR-054

Project No.: NA

P.O. No.: NA



RECEIVED
JUL 27 2006
CH2M HILL
REDDING

Prepared for:

E2 Consulting Engineers, Inc.

Attn: Shawn Duffy

2525 Airpark Dr.

Redding, CA 96001

Prepared by:

TRUESDAIL LABORATORIES, INC.
TUSTIN, CALIFORNIA

Table of Contents

TLI Laboratory Data Package

For Laboratory Number: 956442

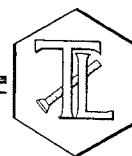
<u>ITEM</u>	<u>Section</u>
Case Narrative	1.0
Summary Table of Final Results	2.0
Final Reports	3.0
Wet Chem Analysis/ Raw Data, Standard, Quality Control and Chain of Custody Records	4.0
Established Retention Time Window and Analytical Raw Data	5.0

Section 1.0

Case Narrative

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



Established 1931

July 21, 2006

E2 Consulting Engineers, In.
Mr. Shawn Duffy
155 Grand Ave., Suite 1000
Oakland, California 94612

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-054 PROJECT, GROUNDWATER
MONITORING,
TLI No.: 956442

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-054 project groundwater monitoring for Hexavalent and Total Chromium, Turbidity, Specific Conductivity, pH, Anions, Ammonia, Total Dissolved Solids, and Title 22 Metals. A summary table for this sample delivery group 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 July 5, 2006, 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.

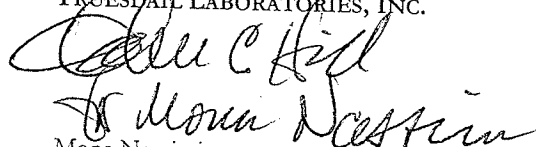
During Hexavalent Chromium analysis by EPA 218.6, due to the large number of samples and dilutions required, the reported run for SDG 956442-3 at a dilution of 25X was analyzed past the holding time, as was the associated matrix spike. The straight run and dilutions at 5X and 10X were analyzed within holding time.

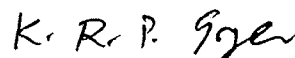
Based on the historical data on the site, Total Chromium was re-analyzed for SDG 956442-3 to confirm the original result (0.0053 mg/L). The result for the re-analysis was below the detection limit and is the reported result. The discrepancy between the two runs may be due to a problem during the digestion of the sample for the first run.

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.


Mona Nassimi
Manager, Analytical Services

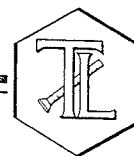


K.R.P. Iyer
Quality Assurance/Quality Control Officer

CC: Mr. Mark Cichy, CH2M HILL Redding CA

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



Established 1931

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Sample: Three (3) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: NA

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

Laboratory No.: 956442

Date: July 21, 2006

Collected: July 5, 2006

Received: July 5, 2006

ANALYST LIST

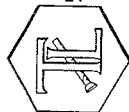
METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Tina Acquiat
EPA 150.1	pH	Tina Acquiat
EPA 160.1	Total Dissolved Solids	Tina Acquiat
EPA 180.1	Turbidity	Gautam Savani
EPA 300.0	Anions	Giawad Ghenniwa
EPA 350.2	Ammonia	Alex Hernandez
EPA 354.1	Nitrite as N	Tina Acquiat
EPA 200.7	Metals by ICP	Victoria Than / Riddhi Patel
EPA 200.8	Metals by ICP/MS	Victoria Than
EPA 245.1	Mercury	Aksiniya Dimitrova
EPA 218.6	Hexavalent Chromium	Jorge Arriaga

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: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project
Project No.: NA
P.O. No.: NA

Laboratory No.: 956442
Date Received: July 5, 2006

Analytical Results Summary

Lab I.D.	Sample I.D.	Sample Time	EPA 150.1 pH	EPA 120.1 EC	EPA 160.1 TDS	EPA 180.1 Turbidity	EPA 218.6 Hexavalent Chromium	EPA 350.2 Ammonia
956442-1	SC-100B-WDR-054	13:09	Units 7.40	$\mu\text{mhos/cm}$ 10800	mg/L 5590	NTU ND	mg/L 1.84	mg/L ND
956442-2	SC-700B-WDR-054	13:11	8.23	8140	3830	ND	ND	ND
956442-3	SC-701-WDR-054	13:08	8.04	32600	20200	---	ND J	---

Lab I.D.	Sample I.D.	Sample Time	EPA 300.0 Fluoride	EPA 300.0 Sulfate	EPA 300.0 Nitrate as N	EPA 354.1 Nitrite as N
956442-1	SC-100B-WDR-054	13:09	mg/L 2.57	mg/L 662	mg/L 3.08	mg/L 0.0148
956442-2	SC-700B-WDR-054	13:11	1.95	464	2.29	0.0082
956442-3	SC-701-WDR-054	13:08	2.10	---	---	---

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.

005

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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: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy
Project Name: PG&E Topock Project
Project No.: NA
P.O. No.: NA

Laboratory No.: 956442
Date Received: July 5, 2006

Analytical Results Summary

METALS ANALYSIS: Total Metal Analyses as Requested

Lab I.D.	Sample ID	Date of Analysis:	Time Coll.	Aluminum EPA 200.7	Antimony EPA 200.8	Arsenic EPA 200.8	Barium EPA 200.7	Beryllium EPA 200.8	Cadmium EPA 200.8	Chromium EPA 200.7	Cobalt EPA 200.8	Copper EPA 200.8	Lead EPA 200.8
956442-1	SC-100B-WDR-054	13:09	ND	ND	ND	ND	ND	---	---	1.74	---	0.0592	ND
956442-2	SC-700B-WDR-054	13:11	ND	ND	ND	ND	ND	---	---	ND	---	0.0498	ND
956442-3	SC-701-WDR-054	13:08	---	ND	ND	0.0365	ND	ND	ND	ND	ND	0.375	ND

Lab I.D.	Sample ID	Date of Analysis:	Time Coll.	Manganese EPA 200.7	Mercury EPA 245.1	Molybdenum EPA 200.8	Nickel EPA 200.7	Selenium EPA 200.8	Silver EPA 200.8	Thallium EPA 200.8	Vanadium EPA 200.8	Zinc EPA 200.7
956442-1	SC-100B-WDR-054	13:09	ND	ND	---	0.0143	ND	---	---	---	---	ND
956442-2	SC-700B-WDR-054	13:11	ND	ND	---	0.0070	ND	---	---	---	---	ND
956442-3	SC-701-WDR-054	13:08	---	---	0.00028	0.0708	ND	0.0296	ND	ND	0.0221	ND

Lab I.D.	Sample ID	Date of Analysis:	Time Coll.	Boron EPA 200.7	Iron EPA 200.7
956442-1	SC-100B-WDR-054	13:09	1:26	ND	ND
956442-2	SC-700B-WDR-054	13:11	1:04	ND	ND
956442-3	SC-701-WDR-054	13:08	---	---	---

NOTES:

ND: Not detected, or below limit of detection

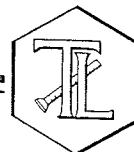
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Section 3.0

Final Reports

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



Established 1931

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

REPORT

14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
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www.truesdail.com

Laboratory No.: 956442

Date: July 21, 2006

Collected: July 5, 2006

Received: July 5, 2006

Prep/ Analyzed: July 6, 2006

Analytical Batch: 07PH06C

Attention: Shawn Duffy
Sample: Three (3) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: NA
P.O. No.: NA

Investigation:

pH by EPA 150.1

Analytical Results pH

<u>TLI I.D.</u>	<u>Field I.D.</u>	<u>Run Time</u>	<u>Units</u>	<u>MDL</u>	<u>RL</u>	<u>Results</u>
956442-1	SC-100B-WDR-054	07:49	pH Units	0.0570	2.00	7.40
956442-2	SC-700B-WDR-054	07:51	pH Units	0.0570	2.00	8.23
956442-3	SC-701-WDR-054	07:53	pH Units	0.0570	2.00	8.04

QA/QC Summary

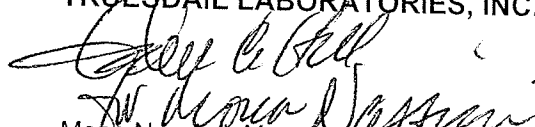
<u>QC STD I.D.</u>	<u>Laboratory Number</u>	<u>Concentration</u>	<u>Duplicate Concentration</u>	<u>Difference (Units)</u>	<u>Acceptance limits</u>	<u>QC Within Control</u>
Duplicate	956442-3	8.04	8.04	0.00	± 0.100 Units	Yes

<u>QC Std I.D.</u>	<u>Measured Concentration</u>	<u>Theoretical Concentration</u>	<u>Difference (Units)</u>	<u>Acceptance Limits</u>	<u>QC Within Control</u>
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	7.00	7.00	0.00	± 0.100 Units	Yes

ND: Below the reporting limit (Not Detected).

RL: Reporting Limit.

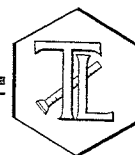
Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


Mona Nassimi, Manager
Analytical Services

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TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



Established 1931

Client: E2 Consulting Engineers, Inc.
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REPORT

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

Attention: Shawn Duffy

Laboratory No.: 956442

Sample: Three (3) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: NA
P.O. No.: NA

Date: July 21, 2006
Collected: July 5, 2006
Received: July 5, 2006
Prep/ Analyzed: July 6, 2006
Analytical Batch: 07EC06B

Investigation:

Specific Conductivity by EPA 120.1

Analytical Results Specific Conductivity

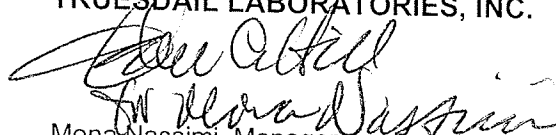
TLI I.D.	Field I.D.	Units	Method	DF	RL	Results
956442-1	SC-100B-WDR-054	μmhos/cm	EPA 120.1	10.0	20.0	10800
956442-2	SC-700B-WDR-054	μmhos/cm	EPA 120.1	10.0	20.0	8140
956442-3	SC-701-WDR-054	μmhos/cm	EPA 120.1	10.0	20.0	32600

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	956442-3	32600	32600	0.00%	≤ 10%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
CCS	675	706	95.6%	90% - 110%	Yes
CVS#1	936	1000	93.6%	90% - 110%	Yes
LCS	675	706	95.6%	90% - 110%	Yes

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


Mona Nassimi, Manager
Analytical Services

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www.truesdail.com

Attention: Shawn Duffy

Sample: Three (3) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: NA

P.O. No.: NA

Laboratory No.: 956442

Date: July 21, 2006

Collected: July 5, 2006

Received: July 5, 2006

Prep/ Analyzed: July 7, 2006

Analytical Batch: 07TDS06B

Investigation:

Total Dissolved Solids by EPA 160.1

Analytical Results Total Dissolved Solids

<u>TLI I.D.</u>	<u>Field I.D.</u>	<u>Units</u>	<u>Method</u>	<u>RL</u>	<u>Results</u>
956442-1	SC-100B-WDR-054	mg/L	EPA 160.1	250	5590
956442-2	SC-700B-WDR-054	mg/L	EPA 160.1	250	3830
956442-3	SC-701-WDR-054	mg/L	EPA 160.1	1250	20200

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Percent Difference	Acceptance limits	QC Within Control
Duplicate	956419-1	672	662	0.75%	≤ 5%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
LCS 1	476	500	95.2%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

RL: Reporting Limit.

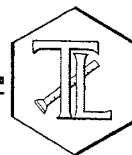
Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


Mona Nassimi, Manager
Analytical Services

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(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

Attention: Shawn Duffy

Laboratory No.: 956442

Sample: Three (3) Groundwater Samples

Date: July 21, 2006

Project Name: PG&E Topock Project

Collected: July 5, 2006

Project No.: NA

Received: July 5, 2006

P.O. No.: NA

Prep/ Analyzed: July 6, 2006

Analytical Batch: 07TUC06D

Investigation:

Turbidity by Method EPA 180.1

Analytical Results Turbidity

<u>TLI I.D.</u>	<u>Field I.D.</u>	<u>Sample Time</u>	<u>Units</u>	<u>DF</u>	<u>RL</u>	<u>Results</u>
956442-1	SC-100B-WDR-054	13:09	NTU	1.00	0.100	ND
956442-2	SC-700B-WDR-054	13:11	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	956405-5	ND	ND	0.00%	≤ 20%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
LCS	7.63	8.00	95.4%	90% - 110%	Yes
LCS	7.71	8.00	96.4%	90% - 110%	Yes
LCS	7.70	8.00	96.3%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor

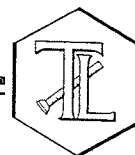
Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


Mona Nassimi, Manager
Analytical Services

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Established 1931

REPORT

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Sample: Three (3) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: NA

P.O. No.: NA

Prep. Batch: 07CrH06A

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www.truesdail.com

Laboratory No.: 956442

Date: July 21, 2006

Collected: July 5, 2006

Received: July 5, 2006

Prep/ Analyzed: July 6, 2006

Analytical Batch: 07CrH06A

Investigation: Hexavalent Chromium by IC Using Method EPA 218.6

Analytical Results Hexavalent Chromium

TLI I.D.	Field I.D.	Sample Time	Run Time	Units	DF	RL	Results
956442-1	SC-100B-WDR-054	13:09	10:46	mg/L	100	0.0200	1.84
956442-2	SC-700B-WDR-054	13:11	12:07	mg/L	5.00	0.0010	ND
956442-3	SC-701-WDR-054	13:08	13:28	mg/L	25.0	0.0050	ND J

QA/QC Summary

QC STD I.D.	Laboratory Number	Sample Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	956442-1	1.84	1.82	1.09%	≤ 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	956442-1	1.84	100	0.02000	2.00	3.69	3.84	92.5%	90-110%	Yes
MS	956442-2	0.00	5.00	0.00100	0.00500	0.00540	0.00500	108%	90-110%	Yes
MS	956442-3	0.00	10.0	0.00100	0.0100	0.0112	0.0100	112%	90-110%	No
MS	956442-3	0.00	10.0	0.00100	0.0100	0.0101	0.0100	101%	90-110%	Yes
MS	956442-3	0.00	25.0	0.00100	0.0250	0.0264	0.0250	106%	90-110%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
MRCCS	0.00520	0.00500	104%	90% - 110%	Yes
MRCVS#1	0.00994	0.0100	99.4%	95% - 105%	Yes
MRCVS#2	0.00954	0.0100	95.4%	95% - 105%	Yes
MRCVS#3	0.0104	0.0100	104%	95% - 105%	Yes
LCS	0.00508	0.00500	102%	90% - 110%	Yes
LCSD	0.00511	0.00500	102%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Mona Nassimi
Mona Nassimi, Manager
Analytical Services

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Established 1931

REPORT

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Sample: Three (3) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: NA

P.O. No.: NA

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TUSTIN, CALIFORNIA 92780-7008
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Laboratory No.: 956442

Date: July 21, 2006

Collected: July 5, 2006

Received: July 5, 2006

Prep/ Analyzed: July 11, 2006

Analytical Batch: 07NH306C

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
956442-1	SC-100B-WDR-054	13:09	EPA 350.2	mg/L	1.00	0.500	ND
956442-2	SC-700B-WDR-054	13:11	EPA 350.2	mg/L	1.00	0.500	ND

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	956442-1	ND	ND	0.0%	≤ 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	956442-2	0.00	1.00	10.0	10.0	9.45	10.0	94.5%	75-125%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
LCS	9.71	10.0	97.1%	90% - 110%	Yes
LCSD	9.90	10.0	99.0%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Monna Nassimi
Monna Nassimi, Manager
Analytical Services

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REPORT

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Sample: Three (3) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: NA

P.O. No.: NA

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

Laboratory No.: 956442

Date: July 21, 2006

Collected: July 5, 2006

Received: July 5, 2006

Prep/ Analyzed: July 7, 2006

Analytical Batch: 07AN06E

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
956442-1	SC-100B-WDR-054	13:09	10:20	mg/L	1.00	0.200	2.57
956442-2	SC-700B-WDR-054	13:11	10:32	mg/L	1.00	0.200	1.95
956442-3	SC-701-WDR-054	13:08	10:43	mg/L	1.00	0.200	2.10

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	956442-1	2.57	2.69	4.56%	≤ 20%	Yes

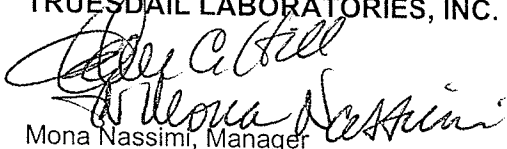
QC Std I.D.	Lab Number	Conc. of unspiked sample	Dilution Factor	Added Spike Conc.	MS Amount	Measured Conc. of spiked sample	Theoretical Conc. of spiked sample	MS% Recovery	Acceptance limits	QC Within Control
MS	956442-1	2.57	1.00	4.00	4.00	6.28	6.57	92.8%	75-125%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
MRCCS	4.10	4.00	103%	90% - 110%	Yes
MRCVS#1	3.12	3.00	104%	90% - 110%	Yes
MRCVS#2	3.11	3.00	104%	90% - 110%	Yes
MRCVS#3	3.11	3.00	104%	90% - 110%	Yes
MRCVS#4	3.11	3.00	104%	90% - 110%	Yes
LCS	4.13	4.00	103%	90% - 110%	Yes
LCSD	4.11	4.00	103%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


Mona Nassimi, Manager
Analytical Services

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INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



Established 1931

REPORT

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Sample: Three (3) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: NA

P.O. No.: NA

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TUSTIN, CALIFORNIA 92780-7008
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Laboratory No.: 956442

Date: July 21, 2006

Collected: July 5, 2006

Received: July 5, 2006

Prep/ Analyzed: July 7, 2006

Analytical Batch: 07AN06E

Investigation:

Sulfate by Method EPA 300.0

Analytical Results Sulfate

TLI I.D.	Field I.D.	Sample Time	Run Time	Units	DF	RL	Results
956442-1	SC-100B-WDR-054	13:09	12:14	mg/L	50.0	25.0	662
956442-2	SC-700B-WDR-054	13:11	11:40	mg/L	50.0	25.0	464

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	956442-2	464	471	1.50%	≤ 20%	Yes

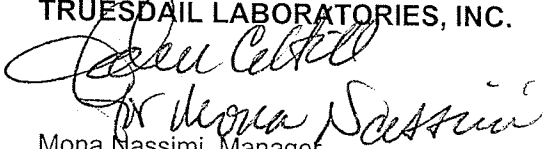
QC Std I.D.	Lab Number	Conc. of unspiked sample	Dilution Factor	Added Spike Conc.	MS Amount	Measured Conc. of spiked sample	Theoretical Conc. of spiked sample	MS% Recovery	Acceptance limits	QC Within Control
MS	956442-2	464	50.0	10.0	500	910	964	89.2%	75-125%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
MRCCS	19.6	20.0	98.0%	90% - 110%	Yes
MRCVS#1	15.1	15.0	101%	90% - 110%	Yes
MRCVS#2	15.0	15.0	100%	90% - 110%	Yes
LCS	19.7	20.0	98.5%	90% - 110%	Yes
LCSD	19.6	20.0	98.0%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

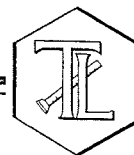

Mona Nassimi, Manager
Analytical Services

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015

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



Established 1931

REPORT

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

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

Attention: Shawn Duffy

Sample: Three (3) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: NA

P.O. No.: NA

Laboratory No.: 956442

Date: July 21, 2006

Collected: July 5, 2006

Received: July 5, 2006

Prep/ Analyzed: July 7, 2006

Analytical Batch: 07AN06E

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
956442-1	SC-100B-WDR-054	13:09	10:20	mg/L	1.00	0.200	3.08
956442-2	SC-700B-WDR-054	13:11	10:32	mg/L	1.00	0.200	2.29

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	956442-1	3.08	3.11	0.97%	≤ 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	956442-1	3.08	1.00	4.00	4.00	7.05	7.08	99.3%	75-125%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
MRCCS	3.98	4.00	100%	90% - 110%	Yes
MRCVS#1	3.01	3.00	100%	90% - 110%	Yes
MRCVS#2	2.96	3.00	98.7%	90% - 110%	Yes
MRCVS#3	2.96	3.00	98.7%	90% - 110%	Yes
LCS	4.01	4.00	100%	90% - 110%	Yes
LCSD	3.99	4.00	99.8%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

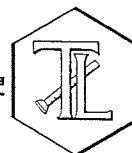


Mona Nassimi, Manager
Analytical Services

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TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



Established 1931

REPORT

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Sample: Three (3) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: NA

P.O. No.: NA

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

Laboratory No.: 956442

Date: July 21, 2006

Collected: July 5, 2006

Received: July 5, 2006

Prep/ Analyzed: July 6, 2006

Analytical Batch: 07NO206C

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
956442-1	SC-100B-WDR-054	13:09	10:55	mg/L	1.00	0.0050	0.0148
956442-2	SC-700B-WDR-054	13:11	10:56	mg/L	1.00	0.0050	0.0082

QA/QC Summary

QC STD I.D.		Laboratory Number		Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control	
Duplicate		956442-2		0.0082	0.0079	3.73%	< 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	956442-2	0.0082	1.00	0.100	0.100	0.110	0.108	102%	75-125%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
MRCCS	0.0921	0.0900	102%	90% - 110%	Yes
MRCVS#1	0.0995	0.100	99.5%	90% - 110%	Yes
MRCVS#2	0.0990	0.100	99.0%	90% - 110%	Yes
LCS	0.186	0.180	103%	90% - 110%	Yes
LCSD	0.186	0.180	103%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

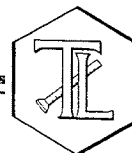


Mona Nassimi, Manager
Analytical Services

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TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



Established 1931

REPORT

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Samples: Three (3) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: NA
P.O. No.: NA

Investigation: Total Metal Analyses as Requested

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

Laboratory No.: 956442

Reported: July 21, 2006

Collected: July 5, 2006

Received: July 5, 2006

Analyzed: July 6 - July 20, 2006

Analytical Results

SAMPLE ID: SC-100B-WDR-054		Time Collected: 13:09		LAB ID: 956442-1				
Parameter	Method	Reported		Units	RL	Batch	Date	Time
		Value	DF				Analyzed	Analyzed
Aluminum	EPA 200.7	ND	1.04	mg/L	0.0520	070606A	07/06/06	18:22
Antimony	EPA 200.8	ND	2.08	mg/L	0.0030	070606A	07/06/06	15:50
Arsenic	EPA 200.8	ND	2.08	mg/L	0.0050	070606A	07/06/06	15:50
Barium	EPA 200.7	ND	1.04	mg/L	0.300	070606A	07/06/06	18:22
Chromium	EPA 200.7	1.74 ✓	1.04	mg/L	0.0104	070606A	07/06/06	18:22
Copper	EPA 200.8	0.0592 ✓	2.08	mg/L	0.0100	070606A	07/06/06	15:50
Lead	EPA 200.8	ND	2.08	mg/L	0.0020	070606A	07/06/06	15:50
Manganese	EPA 200.7	ND	1.04	mg/L	0.500	070606A	07/06/06	18:22
Molybdenum	EPA 200.8	0.0143 ✓	2.08	mg/L	0.0050	070606A	07/06/06	15:50
Nickel	EPA 200.7	ND	1.04	mg/L	0.0200	070606A	07/06/06	18:22
Zinc	EPA 200.7	ND	1.04	mg/L	0.0200	071306A	07/13/06	19:10
Boron	EPA 200.7	1.26 ✓	1.04	mg/L	0.200	070606A	07/06/06	18:22
Iron	EPA 200.7	ND	1.04	mg/L	0.300	070606A	07/06/06	18:22

SAMPLE ID: SC-700B-WDR-054		Time Collected: 13:11		LAB ID: 956442-2				
Parameter	Method	Reported		Units	RL	Batch	Date	Time
		Value	DF				Analyzed	Analyzed
Aluminum	EPA 200.7	ND	1.04	mg/L	0.0520	070606A	07/06/06	18:26
Antimony	EPA 200.8	ND	2.08	mg/L	0.0030	070606A	07/06/06	15:56
Arsenic	EPA 200.8	ND	2.08	mg/L	0.0050	070606A	07/06/06	15:56
Barium	EPA 200.7	ND	1.04	mg/L	0.300	070606A	07/06/06	18:26
Chromium	EPA 200.7	ND	1.04	mg/L	0.0010	071006A	07/10/06	13:30
Copper	EPA 200.8	0.0498 ✓	2.08	mg/L	0.0100	070606A	07/06/06	15:56
Lead	EPA 200.8	ND	2.08	mg/L	0.0020	070606A	07/06/06	15:56
Manganese	EPA 200.7	ND	1.04	mg/L	0.500	070606A	07/06/06	18:26
Molybdenum	EPA 200.8	0.0070 ✓	2.08	mg/L	0.0050	070606A	07/06/06	15:56
Nickel	EPA 200.7	ND	1.04	mg/L	0.0200	070606A	07/06/06	18:26
Zinc	EPA 200.7	ND	1.04	mg/L	0.0200	071306A	07/13/06	19:27
Boron	EPA 200.7	1.04	1.04	mg/L	0.200	070606A	07/06/06	18:26
Iron	EPA 200.7	ND	1.04	mg/L	0.300	070606A	07/06/06	18:26

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TRUESDAIL LABORATORIES, INC.

Report Continued

SAMPLE ID: SC-701-WDR-054		Time Collected: 13:08		LAB ID: 956442-3				
Parameter	Method	Reported Value	DF	Units	RL	Batch	Date Analyzed	Time Analyzed
Antimony	EPA 200.8	ND	10.4	mg/L	0.0104	070606A	07/06/06	16:01
Arsenic	EPA 200.8	0.0365	10.4	mg/L	0.0104	070606A	07/06/06	16:01
Barium	EPA 200.7	ND	1.04	mg/L	0.300	070606A	07/06/06	18:31
Beryllium	EPA 200.8	ND	10.4	mg/L	0.0052	070606A	07/06/06	16:01
Cadmium	EPA 200.8	ND	10.4	mg/L	0.0052	070606A	07/06/06	16:01
Chromium	EPA 200.7	ND	1.04	mg/L	0.0010	072006A	07/20/06	12:26
Cobalt	EPA 200.8	ND	10.4	mg/L	0.0104	070606A	07/06/06	16:01
Copper	EPA 200.8	0.375	10.4	mg/L	0.0104	070606A	07/06/06	16:01
Lead	EPA 200.8	ND	10.4	mg/L	0.0052	070606A	07/06/06	16:01
Mercury	EPA 245.1	0.00028	1.00	mg/L	0.00020	07Hg06D	07/14/06	NA
Molybdenum	EPA 200.8	0.0708	10.4	mg/L	0.0104	070606A	07/06/06	16:01
Nickel	EPA 200.7	ND	1.04	mg/L	0.0200	070606A	07/06/06	18:31
Selenium	EPA 200.8	0.0296	10.4	mg/L	0.0208	070606A	07/06/06	16:01
Silver	EPA 200.8	ND	10.4	mg/L	0.0104	070606A	07/06/06	16:01
Thallium	EPA 200.8	ND	10.4	mg/L	0.0052	070606A	07/06/06	16:01
Vanadium	EPA 200.8	0.0221	10.4	mg/L	0.0104	070606A	07/06/06	16:01
Zinc	EPA 200.7	ND	1.04	mg/L	0.0200	071306A	07/13/06	19:31

ND: Not detected, or below limit of detection.

DF: Dilution factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

[Signature]
[Signature]
Mona Nassimi, Manager
Analytical Services

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TRUESDAIL LABORATORIES, INC.
14201 Franklin Avenue, Tustin, CA 92780-7008
(714) 730-8239 FAX: (714) 730-6462
www.truesdail.com

956442
CHAIN OF CUSTODY RECORD
[IM3Plant-WDR-054]

COC Number

10 Days

TURNAROUND TIME

DATE 7-05-06 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					
SAMPLERS (SIGNATURE) 		Rec'd 07/05/06 956442					
SAMPLE I.D.	DATE	TIME	DESCRIPTION	COMMENTS			
SC-100B-WDR-054	7/05/06	1309	Groundwater	ALERT!! Level III QC			
SC-700B-WDR-054	7/05/06	1311	Groundwater	pH = 2			
SC-701-WDR-054	7/05/06	1308	Groundwater				
				TOTAL NUMBER OF CONTAINERS 12			

COMMENTS

Rec'd 07/05/06

956442

CR6 (218.6) Lab Filtered
Total Metals (200.7) Time 22
Al, As, Ba, B, Cd, Cu, Pb, Mn, Mo, Ni, Sb, Fe, Zn
Specific Conductance (120.1)
pH (150.1)
TDS (160.1)
Anions (300) FI
Anions (300) FI, SO4, NO2, NO3
Ammonia (350.2)
Turbidity (180.1)

COMMENTS

Rec'd 07/05/06

956442

CR6 (218.6) Lab Filtered
Total Metals (200.7) Time 22
Al, As, Ba, B, Cd, Cu, Pb, Mn, Mo, Ni, Sb, Fe, Zn
Specific Conductance (120.1)
pH (150.1)
TDS (160.1)
Anions (300) FI
Anions (300) FI, SO4, NO2, NO3
Ammonia (350.2)
Turbidity (180.1)

CHAIN OF CUSTODY SIGNATURE RECORD				For Sample Conditions See Form Attached			
Signature (Relinquished)	Printed Name Gayle Sipple	Company/ Agency Topock	Date/ Time 7-5-06 1421	RECEIVED	COOL	WARM	SPECIAL REQUIREMENTS:
Signature (Received)	Printed Name Jane Blum	Company/ Agency CH2M	Date/ Time 7-5-06 22:00	CUSTOMY SEALED	YES	NO	
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				

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES

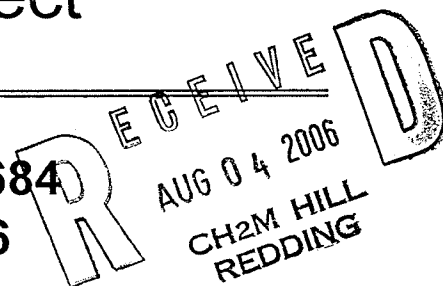


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E2 Consulting Engineers, Inc. **PG&E Topock Project**

Laboratory Number: 956684
Received: July 12, 2006



IM3Plant-WDR-055
Project No.: 346129.IM.02.00
P.O. No.: TBD



Prepared for:

E2 Consulting Engineers, Inc.
Attn: Shawn Duffy
2525 Airpark Dr.
Redding, CA 96001

Prepared by:

TRUESDAIL LABORATORIES, INC.
TUSTIN, CALIFORNIA

Table of Contents
TLI Laboratory Data Package
For Laboratory Number: 956684

<u>ITEM</u>	<u>Section</u>
Case Narrative and Analyst List	1.0
Summary Table of Final Results	2.0
Final Reports	3.0
Wet Chem Analysis/ Raw Data, Standard, Quality Control and Chain of Custody Records	4.0
Established Retention Time Window and Analytical Raw Data	5.0

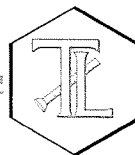
Section 1.0

Case Narrative

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES

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July 25, 2006

E2 Consulting Engineers, Inc.
Mr. Shawn Duffy
155 Grand Ave., Suite 1000
Oakland, California 94612

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-055 PROJECT, GROUNDWATER
MONITORING,

TLI No.: 956684

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-055 project groundwater monitoring for Hexavalent and Total Chromium, Turbidity, Specific Conductivity, pH, and Total Dissolved Solids. A summary table for this sample delivery group 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.

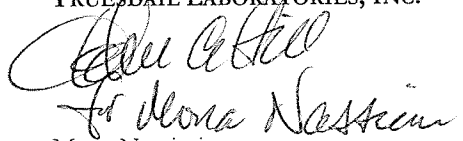
The samples were received and delivered with the chain of custody on July 12, 2006, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

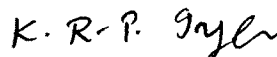
Due to the large number of samples received and instrumental problems, sample 956684-1 went past holding time when testing for Hexavalent Chromium.

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.


Mona Nassimi
Manager, Analytical Services



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

Section 2.0

Summary Table of Final Results



Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Laboratory No.: 956684
Date Received: July 12, 2006

Project Name: PG&E Topock Project
Project No.: 346129.IM.02.00
P.O. No.: TBD

Analytical Results Summary

<u>Lab I.D.</u>	<u>Sample I.D.</u>	<u>Sample Time</u>	<u>EPA 200.7</u> Chromium Total mg/L	<u>EPA 218.6</u> Chromium Hexavalent mg/L	<u>EPA 180.1</u> Turbidity NTU	<u>EPA 150.1</u> pH	<u>EPA 120.1</u> EC µmhos/cm	<u>EPA 160.1</u> TDS mg/L
956684	SC-700B-WDR-055	10:55	0.00141	ND	ND	8.22	7280	4220

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



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REPORT

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

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Laboratory No.: 956684

Sample: One (1) Groundwater Sample
Project Name: PG&E Topock Project
Project No.: 346129.IM.02.00
P.O. No.: TBD
Prep. Batch: 072006A

Date: July 25, 2006
Collected: July 12, 2006
Received: July 12, 2006
Prep/ Analyzed: July 20, 2006
Analytical Batch: 072006A

Investigation: Total Dissolved Chromium by Inductively Coupled Argon Plasma Atomic Emission Spectrometer using EPA 200.7

Analytical Results Total Chromium

<u>TLI I.D.</u>	<u>Field I.D.</u>	<u>Units</u>	<u>Method</u>	<u>Run Time</u>	<u>DF</u>	<u>RL</u>	<u>Results</u>
956684	SC-700B-WDR-055	mg/L	EPA 200.7	12:13	1.04	0.0010	0.0014

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	956684	0.0014	0.0012	17.8%	≤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	956684	0.00141	1.04	0.0100	0.0104	0.0103	0.0118	85.5%	75-125%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
MRCCS	0.0104	0.0100	104%	90% - 110%	Yes
MRCVS#1	0.0103	0.0100	103%	90% - 110%	Yes
MRCVS#2	0.00954	0.0100	95.4%	90% - 110%	Yes
ICS	0.00987	0.0100	98.7%	80% - 120%	Yes
LCS	0.0103	0.0100	103%	90% - 110%	Yes

ND: Not detected at reporting limit

DF: Dilution Factor

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


Mona Nassimi, Manager
Analytical Services

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TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



Established 1931

REPORT

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

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Laboratory No.: 956684

Sample: One (1) Groundwater Sample
Project Name: PG&E Topock Project
Project No.: 346129.IM.02.00
P.O. No.: TBD

Date: July 25, 2006
Collected: July 12, 2006
Received: July 12, 2006
Prep/ Analyzed: July 13, 2006
Analytical Batch: 06CrH06D

Investigation:

Hexavalent Chromium by EPA 218.6

Analytical Results Hexavalent Chromium

<u>TLI I.D.</u>	<u>Field I.D.</u>	<u>Sample Time</u>	<u>Run Time</u>	<u>Units</u>	<u>DF</u>	<u>RL</u>	<u>Results</u>
956684	SC-700B-WDR-055	10:55	12:40	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		956684		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	956684	0.00041	5.00	0.00100	0.00500	0.00589	0.00541	110%	90-110%	Yes
MSD	956684	0.00041	5.00	0.00100	0.00500	0.00589	0.00541	110%	90-110%	Yes

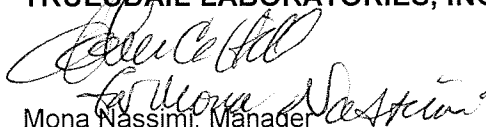
QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
MRCCS	0.00494	0.00500	98.8%	90% - 110%	Yes
MRCVS#2	0.00976	0.0100	97.6%	95% - 105%	Yes
MRCVS#3	0.0101	0.0100	101%	95% - 105%	Yes
MRCVS#4	0.00973	0.0100	97.3%	95% - 105%	Yes
MRCVS#5	0.00966	0.0100	96.6%	95% - 105%	Yes
LCS	0.00483	0.00500	96.6%	90% - 110%	Yes
LCSD	0.00482	0.00500	96.4%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor

Respectfully submitted,

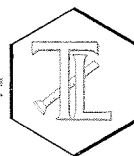
TRUESDAIL LABORATORIES, INC.


Mona Nassimi, Manager
Analytical Services

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Client: E2 Consulting Engineers, Inc.
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Oakland, CA 94612

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Attention: Shawn Duffy

Laboratory No.: 956684

Sample: One (1) Groundwater Sample

Date: July 25, 2006

Project Name: PG&E Topock Project

Collected: July 12, 2006

Project No.: 346129.IM.02.00

Received: July 12, 2006

P.O. No.: TBD

Prep/ Analyzed: July 14, 2006

Analytical Batch: 07TDS06F

Investigation:

Total Dissolved Solids by EPA 160.1

Analytical Results Total Dissolved Solids

<u>TLI I.D.</u>	<u>Field I.D.</u>	<u>Units</u>	<u>Method</u>	<u>RL</u>	<u>Results</u>
956684	SC-700B-WDR-055	mg/L	EPA 160.1	250	4220

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Percent Difference	Acceptance limits	QC Within Control
Duplicate	956684	4220	4130	1.08%	≤ 5%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
LCS 1	508	500	102%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

RL: Reporting Limit.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


Mona Nassimi, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



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REPORT

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Sample: One (1) Groundwater Sample

Project Name: PG&E Topock Project

Project No.: 346129.IM.02.00

P.O. No.: TBD

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

Laboratory No.: 956684

Date: July 25, 2006

Collected: July 12, 2006

Received: July 12, 2006

Prep/ Analyzed: July 13, 2006

Analytical Batch: 07EC06G

Investigation:

Specific Conductivity by EPA 120.1

Analytical Results Specific Conductivity

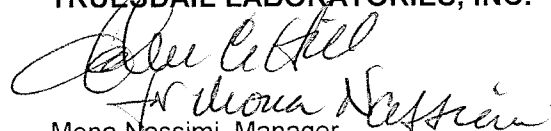
<u>TLI I.D.</u>	<u>Field I.D.</u>	<u>Units</u>	<u>Method</u>	<u>DF</u>	<u>RL</u>	<u>Results</u>
956684	SC-700B-WDR-055	µmhos/cm	EPA 120.1	10.0	20.0	7280

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	956683-2	9570	9580	0.104%	≤ 10%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
CCS	676	706	95.8%	90% - 110%	Yes
CVS#1	920	1000	92.0%	90% - 110%	Yes
LCS	674	706	95.5%	90% - 110%	Yes

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


Mona Nassimi, Manager
Analytical Services

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155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Sample: One (1) Groundwater Sample
Project Name: PG&E Topock Project
Project No.: 346129.IM.02.00
P.O. No.: TBD

Laboratory No.: 956684

Date: July 25, 2006
Collected: July 12, 2006
Received: July 12, 2006
Prep/ Analyzed: July 13, 2006
Analytical Batch: 07PH06J

Investigation:

pH by EPA 150.1

Analytical Results pH

<u>TLI I.D.</u>	<u>Field I.D.</u>	<u>Sample Time</u>	<u>Run Time</u>	<u>Units</u>	<u>MDL</u>	<u>RL</u>	<u>Results</u>
956684	SC-700B-WDR-055	10:55	08:38	pH Units	0.0570	2.00	8.22

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Difference (Units)	Acceptance limits	QC Within Control
Duplicate	956684	8.22	8.22	0.00	+ 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

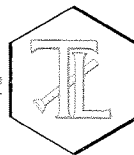
Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


Mona Nassimi, Manager
Analytical Services

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

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Sample: One (1) Groundwater Sample

Project Name: PG&E Topock Project

Project No.: 346129.IM.02.00

P.O. No.: TBD

Laboratory No.: 956684

Date: July 25, 2006

Collected: July 12, 2006

Received: July 12, 2006

Prep/ Analyzed: July 13, 2006

Analytical Batch: 07TUC06K

Investigation:

Turbidity by Method EPA 180.1

Analytical Results Turbidity

<u>TLI I.D.</u>	<u>Field I.D.</u>	<u>Sample Time</u>	<u>Units</u>	<u>DF</u>	<u>RL</u>	<u>Results</u>
956684	SC-700B-WDR-055	10:55	NTU	1.00	0.100	ND

QA/QC Summary

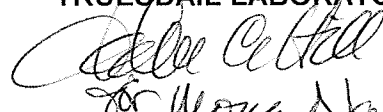
QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	956681-32	ND	ND	0.00%	≤ 20%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
LCS	7.54	8.00	94.3%	90% - 110%	Yes
LCS	7.55	8.00	94.4%	90% - 110%	Yes
LCS	7.52	8.00	94.0%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


for Mona Nassimi, Manager
Analytical Services

0156684

TRUESDAIL LABORATORIES, INC.
14201 Franklin Avenue, Tustin, CA 92780-7008
(714) 730-6239 FAX: (714) 730-6462
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CHAIN OF CUSTODY RECORD

[IM3Plant-WDR-055]

COC Number
TURNAROUND TIME 10 Days
DATE 7-12-06 PAGE 1 OF 1

COMPANY E2	PROJECT NAME PG&E Topock	PHONE (530) 229-3303	FAX (530) 243-1654	ADDRESS 155 Grand Ave Ste 1000 Oakland, CA 94612	P.O. NUMBER 346129.IM.02.00	SAMPLERS (SIGNATURE) <i>J.M. J. J. J.</i>	COMMENTS Rec'd 07/12/06 slb 956684 pH = 2																		
SAMPLE I.D. SC-700B-WDR-055	DATE 7-12-06	TIME 1055	DESCRIPTION Groundwater	<table border="1"> <tr> <td>CRC (218.6) Lab Filtered</td> <td>X</td> <td>TDS (150.1)</td> <td>X</td> <td>Turbidity (180.1)</td> <td>X</td> </tr> <tr> <td>Total Metals (200.7) Total Chromium</td> <td>X</td> <td>pH (150.1)</td> <td>X</td> <td></td> <td></td> </tr> <tr> <td>Specific Conductance (120.1)</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>				CRC (218.6) Lab Filtered	X	TDS (150.1)	X	Turbidity (180.1)	X	Total Metals (200.7) Total Chromium	X	pH (150.1)	X			Specific Conductance (120.1)	X				
CRC (218.6) Lab Filtered	X	TDS (150.1)	X	Turbidity (180.1)	X																				
Total Metals (200.7) Total Chromium	X	pH (150.1)	X																						
Specific Conductance (120.1)	X																								
NUMBER OF CONTAINERS				TOTAL NUMBER OF CONTAINERS																					

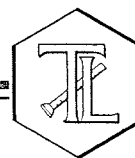
on Sample Conditions
See Form Attached

CHAIN OF CUSTODY SIGNATURE RECORD

Signature (Relinquished)	Printed Name	Company/Agency	Date/Time	SAMPLE CONDITIONS RECEIVED COOL <input type="checkbox"/> WARM <input type="checkbox"/> CUSTODY SEALED YES <input type="checkbox"/> NO <input type="checkbox"/>
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	SPECIAL REQUIREMENTS: <div style="border: 1px solid black; padding: 5px; text-align: center;"> ALERT!! Level III QC </div>
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	

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



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www.truesdail.com

E2 Consulting Engineers, Inc. **PG&E Topock Project**

Laboratory Number: 956909

Received: July 19, 2006

IM3Plant-WDR-056

Project No.: 346129.IM.02.00

P.O. No.: 911248

RECEIVED
AUG 04 2006
CH2M HILL
REDDING



Prepared for:

E2 Consulting Engineers, Inc.

Attn: Shawn Duffy

2525 Airpark Dr.

Redding, CA 96001

Prepared by:

TRUESDAIL LABORATORIES, INC.

TUSTIN, CALIFORNIA

Table of Contents
TLI Laboratory Data Package
For Laboratory Number: 956909

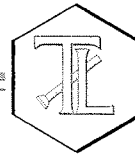
<u>ITEM</u>	<u>Section</u>
Case Narrative and Analyst List	1.0
Summary Table of Final Results	2.0
Final Reports	3.0
Wet Chem Analysis/ Raw Data, Standard, Quality Control and Chain of Custody Records	4.0
Established Retention Time Window and Analytical Raw Data	5.0

Section 1.0

Case Narrative

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



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August 2, 2006

E2 Consulting Engineers, Inc.
Mr. Shawn Duffy
155 Grand Ave., Suite 1000
Oakland, California 94612

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-056 PROJECT, GROUNDWATER
MONITORING,
TLI No.: 956909

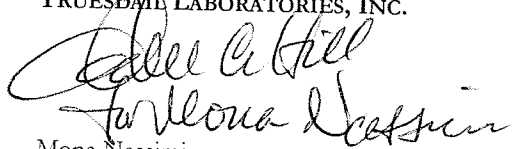
Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-056 project groundwater monitoring for Hexavalent and Total Chromium, Turbidity, Specific Conductivity, pH, and Total Dissolved Solids. A summary table for this sample delivery group is included in Section 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.

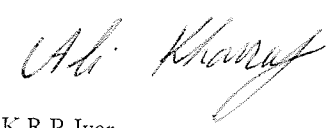
The samples were received and delivered with the chain of custody on July 19, 2006, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

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.

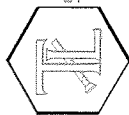
Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.


Mona Nassimi
Manager, Analytical Services


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

Section 2.0

Summary Table of Final Results



Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Project Name: PG&E Topock Project
Project No.: 346129.IM.02.00
P.O. No.: 911248

Laboratory No.: 956909
Date Received: July 19, 2006

Analytical Results Summary

<u>Lab I.D.</u>	<u>Sample I.D.</u>	<u>Sample Time</u>	<u>EPA 200.7</u> Chromium Total mg/L	<u>EPA 218.6</u> Chromium Hexavalent mg/L	<u>EPA 180.1</u> Turbidity NTU	<u>EPA 150.1</u> pH Unit	<u>EPA 120.1</u> EC µmhos/cm	<u>EPA 160.1</u> TDS mg/L
956909	SC-700B-WDR-056	12:00	ND	ND	ND	8.13	7380	4150

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.

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TUSTIN, CALIFORNIA 92780-7008
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Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Laboratory No.: 956909

Date: August 2, 2006

Sample: One (1) Groundwater Sample
Project Name: PG&E Topock Project

Collected: July 19, 2006

Project No.: 346129.IM.02.00

Received: July 19, 2006

P.O. No.: 911248

Prep/ Analyzed: July 28, 2006

Prep. Batch: 072806A

Analytical Batch: 072806A

Investigation: Total Dissolved Chromium by Inductively Coupled Argon Plasma Atomic Emission Spectrometer using EPA 200.7

Analytical Results Total Chromium

<u>TLI I.D.</u>	<u>Field I.D.</u>	<u>Units</u>	<u>Method</u>	<u>Run Time</u>	<u>DF</u>	<u>RL</u>	<u>Results</u>
956909	SC-700B-WDR-056	mg/L	EPA 200.7	13:10	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	956909	ND	ND	0%	≤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	956909	0.00	1.04	0.0100	0.0104	0.00836	0.0104	80.4%	75-125%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
MRCCS	0.0104	0.0100	104%	90% - 110%	Yes
MRCVS#1	0.0103	0.0100	103%	90% - 110%	Yes
ICS	0.0106	0.0100	106%	80% - 120%	Yes
LCS	0.0105	0.0100	105%	90% - 110%	Yes

ND: Not detected at reporting limit

DF: Dilution Factor

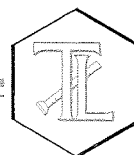
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155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Laboratory No.: 956909

Sample: One (1) Groundwater Sample
Project Name: PG&E Topock Project
Project No.: 346129.IM.02.00
P.O. No.: 911248

Date: August 2, 2006
Collected: July 19, 2006
Received: July 19, 2006
Prep/ Analyzed: July 20, 2006
Analytical Batch: 07CrH06J

Investigation:

Hexavalent Chromium by EPA 218.6

Analytical Results Hexavalent Chromium

<u>TLI I.D.</u>	<u>Field I.D.</u>	<u>Sample Time</u>	<u>Run Time</u>	<u>Units</u>	<u>DF</u>	<u>RL</u>	<u>Results</u>
956909	SC-700B-WDR-056	12:00	11:40	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	956909	ND	ND	0.00%	≤ 20%	Yes

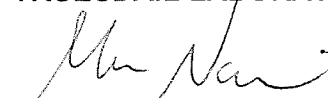
QC Std I.D.	Lab Number	Conc. of unspiked sample	Dilution Factor	Added Spike Conc.	MS Amount	Measured Conc. of spiked sample	Theoretical Conc. of spiked sample	MS% Recovery	Acceptance limits	QC Within Control
MS	956909	0.00021	1.06	0.00100	0.00106	0.00126	0.00127	99.1%	90-110%	Yes
MS	956909	0.00	5.00	0.00100	0.00500	0.00514	0.00510	101%	90-110%	Yes
MSD	956909	0.00	5.00	0.00100	0.00500	0.00534	0.00510	105%	90-110%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
MRCCS	0.00492	0.00500	98.4%	90% - 110%	Yes
MRCVS#1	0.00901	0.0100	90.1%	95% - 105%	No
MRCVS#2	0.00975	0.0100	97.5%	95% - 105%	Yes
MRCVS#3	0.0103	0.0100	103%	95% - 105%	Yes
MRCVS#4	0.0104	0.0100	104%	95% - 105%	Yes
LCS	0.00494	0.00500	98.8%	90% - 110%	Yes
LCSD	0.00502	0.00500	100%	90% - 110%	Yes

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

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.


Mona Nassimi, Manager

Analytical Services

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

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INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



Established 1931

REPORT

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Sample: One (1) Groundwater Sample

Project Name: PG&E Topock Project

Project No.: 346129.IM.02.00

P.O. No.: 911248

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

Laboratory No.: 956909

Date: August 2, 2006

Collected: July 19, 2006

Received: July 19, 2006

Prep/ Analyzed: July 20, 2006

Analytical Batch: 07TUC06R

Investigation:

Turbidity by Method EPA 180.1

Analytical Results Turbidity

<u>TLI I.D.</u>	<u>Field I.D.</u>	<u>Sample Time</u>	<u>Units</u>	<u>DF</u>	<u>RL</u>	<u>Results</u>
956909	SC-700B-WDR-056	12:00	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	956900-35	ND	ND	0.00%	≤ 20%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
LCS	7.45	8.00	93.1%	90% - 110%	Yes
LCS	7.40	8.00	92.5%	90% - 110%	Yes
LCS	7.48	8.00	93.5%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


Mona Nassimi, Manager
Analytical Services

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REPORT

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

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Sample: One (1) Groundwater Sample

Project Name: PG&E Topock Project

Project No.: 346129.IM.02.00

P.O. No.: 911248

Laboratory No.: 956909

Date: August 2, 2006

Collected: July 19, 2006

Received: July 19, 2006

Prep/ Analyzed: July 20, 2006

Analytical Batch: 07PH06N

Investigation:

pH by EPA 150.1

Analytical Results pH

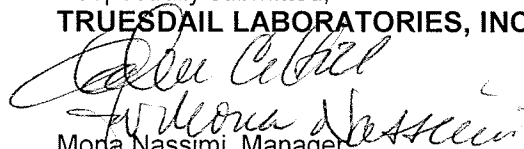
<u>TLI I.D.</u>	<u>Field I.D.</u>	<u>Sample Time</u>	<u>Run Time</u>	<u>Units</u>	<u>MDL</u>	<u>RL</u>	<u>Results</u>
956909	SC-700B-WDR-056	12:00	08:14	pH Units	0.0570	2.00	8.13

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Difference (Units)	Acceptance limits	QC Within Control
Duplicate	956909	8.13	8.13	0.00	+ 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

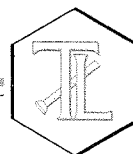
Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


Mona Nassimi, Manager
Analytical Services

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REPORT

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

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Sample: One (1) Groundwater Sample

Project Name: PG&E Topock Project

Project No.: 346129.IM.02.00

P.O. No.: 911248

Laboratory No.: 956909

Date: August 2, 2006

Collected: July 19, 2006

Received: July 19, 2006

Prep/ Analyzed: July 20, 2006

Analytical Batch: 07EC061

Investigation:

Specific Conductivity by EPA 120.1

Analytical Results Specific Conductivity



<u>TLI I.D.</u>	<u>Field I.D.</u>	<u>Units</u>	<u>Method</u>	<u>DF</u>	<u>RL</u>	<u>Results</u>
956909	SC-700B-WDR-056	µmhos/cm	EPA 120.1	10.0	20.0	7380

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	956909	7380	7380	0.00%	≤ 10%	Yes

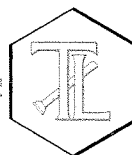
QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
CCS	678	706	96.0%	90% - 110%	Yes
CVS#1	920	1000	92.0%	90% - 110%	Yes
LCS	678	706	96.0%	90% - 110%	Yes

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.



Mona Nassimi, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.

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REPORT

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

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

Attention: Shawn Duffy

Laboratory No.: 956909

Sample: One (1) Groundwater Sample

Date: August 2, 2006

Project Name: PG&E Topock Project

Collected: July 19, 2006

Project No.: 346129.IM.02.00

Received: July 19, 2006

P.O. No.: 911248

Prep/ Analyzed: July 20, 2006

Analytical Batch: 07TDS06I

Investigation:

Total Dissolved Solids by EPA 160.1

Analytical Results Total Dissolved Solids

<u>TLI I.D.</u>	<u>Field I.D.</u>	<u>Units</u>	<u>Method</u>	<u>RL</u>	<u>Results</u>
956909	SC-700B-WDR-056	mg/L	EPA 160.1	250	4150

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Percent Difference	Acceptance limits	QC Within Control
Duplicate	956909	4150	4170	0.240%	≤ 5%	Yes

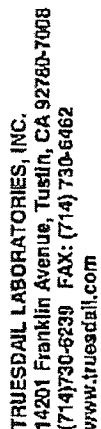
QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
LCS 1	484	500	96.8%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

RL: Reporting Limit.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

[Signature]
[Signature]
Mona Nassimi, Manager
Analytical Services



TRUESDAIL LABORATORIES, INC.
14201 Franklin Avenue, Tustin, CA 92780-7008
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CHAIN OF CUSTODY RECORD

[IM3Plant-WDH-056]

COC Number

10 Days

TURNAROUND TIME
DATE 7-18-06

PAGE 1 OF 1

[illegible]

**For Sample Conditions
See Form Attached**

ALERT!!

Level III OC

Rec'd 07/19/06
SL6a 956909

CHAIN OF CUSTODY SIGNATURE RECORD				SAMPLE CONDITIONS			
Signature (Relinquished)	Printed Name	Company/ Agency	Date/ Time	RECEIVED	COOL <input type="checkbox"/>	WARM <input type="checkbox"/>	°F
Signature (Received)	Printed Name	Company/ Agency	Date/ Time	CUSTODY SEALED	YES <input type="checkbox"/>	NO <input type="checkbox"/>	
				SPECIAL REQUIREMENTS:			
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				

031

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INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



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E2 Consulting Engineers, Inc. **PG&E Topock Project**

Laboratory Number: 957164

Received: July 26, 2006

IM3Plant-WDR-057

Project No.: 346129.IM.02.E2

P.O. No.: 346129.IM.02.E2

RECEIVED
AUG 04 2006
CH2M HILL
REDDING



Prepared for:

E2 Consulting Engineers, Inc.

Attn: Shawn Duffy

2525 Airpark Dr.

Redding, CA 96001

Prepared by:

TRUESDAIL LABORATORIES, INC.

TUSTIN, CALIFORNIA

Table of Contents
TLI Laboratory Data Package
For Laboratory Number: 957164

<u>ITEM</u>	<u>Section</u>
Case Narrative and Analyst List	1.0
Summary Table of Final Results	2.0
Final Reports	3.0
Wet Chem Analysis/ Raw Data, Standard, Quality Control and Chain of Custody Records	4.0
Established Retention Time Window and Analytical Raw Data	5.0

Section 1.0

Case Narrative

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



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August 2, 2006

E2 Consulting Engineers, Inc.
Mr. Shawn Duffy
155 Grand Ave., Suite 1000
Oakland, California 94612

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK IM3PLANT-WDR-057 PROJECT, GROUNDWATER
MONITORING,
TLI NO.: 957164

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock IM3Plant-WDR-057 project groundwater monitoring for Hexavalent and Total Chromium, Turbidity, Specific Conductivity, pH, and Total Dissolved Solids. A summary table for this sample delivery group 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.

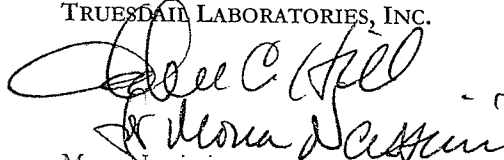
The samples were received and delivered with the chain of custody on July 26, 2006, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

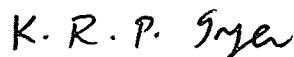
Due to the dilution of the Hexavalent Chromium sample, the result at a 5X dilution is below the detection limit of 0.001 mg/L. The result of 0.00039 mg/L is reported in the QC to pass the matrix spike.

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.

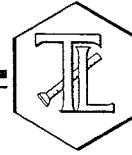

Mona Nassimi
Manager, Analytical Services



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

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



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www.truesdail.com

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Sample: One (1) Groundwater Sample

Project Name: PG&E Topock Project

Project No.: 346129.IM.02.E2

Laboratory No.: 957164

Date: August 2, 2006

Collected: July 26, 2006

Received: July 26, 2006

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Tina Acquiat
EPA 150.1	pH	Tina Acquiat
EPA 160.1	Total Dissolved Solids	Tina Acquiat
EPA 180.1	Turbidity	Gautam Savani
EPA 200.7	Total Chromium	Riddhi Patel
EPA 218.6	Hexavalent Chromium	Stanley Hsieh

Section 2.0

Summary Table of Final Results

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



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(714) 730-6239 · FAX (714) 730-6462 · www.truesdail.com

Client: E2 Consulting Engineers, Inc.

155 Grand Ave. Suite 1000

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project

Project No.: 346129.IM.02.E2

P.O. No.: 346129.IM.02.E2

Laboratory No.: 957164

Date Received: July 26, 2006

Analytical Results Summary

<u>Lab I.D.</u>	<u>Sample I.D.</u>	<u>Sample Time</u>	<u>EPA 200.7</u> Chromium Total mg/L	<u>EPA 218.6</u> Chromium Hexavalent mg/L	<u>EPA 180.1</u> Turbidity NTU	<u>EPA 150.1</u> pH Unit	<u>EPA 120.1</u> EC µmhos/cm	<u>EPA 160.1</u> TDS mg/L
957164	SC-700B-WDR-057	14:30	ND	ND	ND	8.09	7350	3850

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.

005

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Section 3.0

Final Reports

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



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REPORT

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

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Laboratory No.: 957164

Sample: One (1) Groundwater Sample
Project Name: PG&E Topock Project
Project No.: 346129.IM.02.E2
P.O. No.: 346129.IM.02.E2
Prep. Batch: 072806A

Date: August 2, 2006
Collected: July 26, 2006
Received: July 26, 2006
Prep/ Analyzed: July 28, 2006
Analytical Batch: 072806A

Investigation: Total Dissolved Chromium by Inductively Coupled Argon Plasma Atomic Emission Spectrometer using EPA 200.7

Analytical Results Total Chromium

TLI I.D.	Field I.D.	Units	Method	Run Time	DF	RL	Results
957164	SC-700B-WDR-057	mg/L	EPA 200.7	13:23	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	956909	ND	ND	0.00%	≤20%	Yes

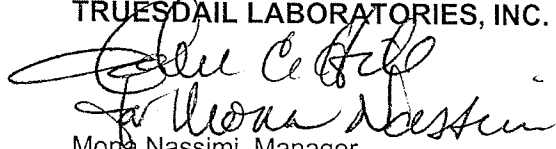
QC Std I.D.	Lab Number	Conc. of unspiked sample	Dilution Factor	Added Spike Conc.	MS Amount	Measured Conc. of spiked sample	Theoretical Conc. of spiked sample	MS% Recovery	Acceptance limits	QC Within Control
MS	956909	0.00	1.04	0.0100	0.0104	0.00836	0.0104	80.4%	75-125%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
MRCCS	0.0104	0.0100	104%	90% - 110%	Yes
MRCVS#1	0.0103	0.0100	103%	90% - 110%	Yes
ICS	0.0106	0.0100	106%	80% - 120%	Yes
LCS	0.0105	0.0100	105%	90% - 110%	Yes

ND: Not detected at reporting limit

DF: Dilution Factor

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

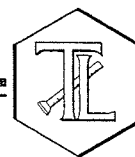

Mona Nassimi, Manager
Analytical Services

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TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



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REPORT

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Sample: One (1) Groundwater Sample
Project Name: PG&E Topock Project
Project No.: 346129.IM.02.E2
P.O. No.: 346129.IM.02.E2

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

Laboratory No.: 957164

Date: August 2, 2006
Collected: July 26, 2006
Received: July 26, 2006
Prep/ Analyzed: July 27, 2006
Analytical Batch: 07CrH06N

Investigation:

Hexavalent Chromium by EPA 218.6

Analytical Results Hexavalent Chromium

TLI I.D.	Field I.D.	Sample Time	Run Time	Units	DF	RL	Results
957164	SC-700B-WDR-057	14:30	10:33	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	957164	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	957164	0.00039	5.00	0.00100	0.00500	0.00580	0.00539	108%	90-110%	Yes

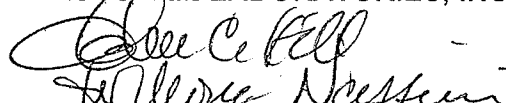
QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
MRCCS	0.00454	0.00500	90.8%	90% - 110%	Yes
MRCVS#2	0.0103	0.0100	103%	95% - 105%	Yes
MRCVS#3	0.0101	0.0100	101%	95% - 105%	Yes
LCS	0.00479	0.00500	95.8%	90% - 110%	Yes
LCSD	0.00496	0.00500	99.2%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.


Mona Nassimi, Manager
Analytical Services

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REPORT

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

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Sample: One (1) Groundwater Sample

Project Name: PG&E Topock Project

Project No.: 346129.IM.02.E2

P.O. No.: 346129.IM.02.E2

Laboratory No.: 957164

Date: August 2, 2006

Collected: July 26, 2006

Received: July 26, 2006

Prep/ Analyzed: July 27, 2006

Analytical Batch: 07TUC06W

Investigation:

Turbidity by Method EPA 180.1

Analytical Results Turbidity

<u>TLI I.D.</u>	<u>Field I.D.</u>	<u>Sample Time</u>	<u>Units</u>	<u>DF</u>	<u>RL</u>	<u>Results</u>
957164	SC-700B-WDR-057	14:30	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	957158-37	ND	ND	0.00%	≤ 20%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
LCS	7.41	8.00	92.6%	90% - 110%	Yes
LCS	7.40	8.00	92.5%	90% - 110%	Yes
LCS	7.45	8.00	93.1%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.



Mona Nassimi, Manager
Analytical Services

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TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



Established 1931

REPORT

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

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Sample: One (1) Groundwater Sample

Project Name: PG&E Topock Project

Project No.: 346129.IM.02.E2

P.O. No.: 346129.IM.02.E2

Laboratory No.: 957164

Date: August 2, 2006

Collected: July 26, 2006

Received: July 26, 2006

Prep/ Analyzed: July 27, 2006

Analytical Batch: 07PH06S

Investigation:

pH by EPA 150.1

Analytical Results pH

<u>TLI I.D.</u>	<u>Field I.D.</u>	<u>Sample Time</u>	<u>Run Time</u>	<u>Units</u>	<u>MDL</u>	<u>RL</u>	<u>Results</u>
957164	SC-700B-WDR-057	14:30	08:22	pH Units	0.0570	2.00	8.09

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Difference (Units)	Acceptance limits	QC Within Control
Duplicate	957164	8.09	8.09	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

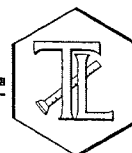
Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


Mona Nassimi, Manager
Analytical Services

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Project No.: 346129.IM.02.E2

P.O. No.: 346129.IM.02.E2

Laboratory No.: 957164

Date: August 2, 2006

Collected: July 26, 2006

Received: July 26, 2006

Prep/ Analyzed: July 27, 2006

Analytical Batch: 07EC06L

Investigation:

Specific Conductivity by EPA 120.1

Analytical Results Specific Conductivity

<u>TLI I.D.</u>	<u>Field I.D.</u>	<u>Units</u>	<u>Method</u>	<u>DF</u>	<u>RL</u>	<u>Results</u>
957164	SC-700B-WDR-057	µmhos/cm	EPA 120.1	10.0	20.0	7350

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	957164	7350	7420	0.95%	≤ 10%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
CCS	675	706	95.6%	90% - 110%	Yes
CVS#1	928	1000	92.8%	90% - 110%	Yes
LCS	675	706	95.6%	90% - 110%	Yes

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.



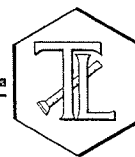
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155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Sample: One (1) Groundwater Sample

Project Name: PG&E Topock Project

Project No.: 346129.IM.02.E2

P.O. No.: 346129.IM.02.E2

Laboratory No.: 957164

Date: August 2, 2006

Collected: July 26, 2006

Received: July 26, 2006

Prep/ Analyzed: July 27, 2006

Analytical Batch: 07TDS06L

Investigation: Total Dissolved Solids by EPA 160.1

Analytical Results Total Dissolved Solids

<u>TLI I.D.</u>	<u>Field I.D.</u>	<u>Units</u>	<u>Method</u>	<u>RL</u>	<u>Results</u>
957164	SC-700B-WDR-057	mg/L	EPA 160.1	312	3850

QA/QC Summary

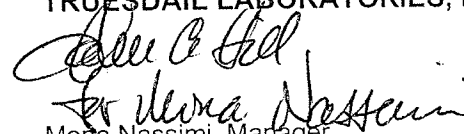
QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Percent Difference	Acceptance limits	QC Within Control
Duplicate	957164	3850	3810	0.52%	≤ 5%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
LCS 1	493	500	98.6%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

RL: Reporting Limit.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


Mona Nassimi, Manager
Analytical Services

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CHAIN OF CUSTODY RECORD

957164

☐ TURNAROUND TIME

10 Day

PAGE

OF

DATE

METHODS

COMPANY OMI
PROJECT NAME PG+E Topock
PHONE 530-229-3303 FAX
ADDRESS 155 Grand Ave Ste 1000
Oakland CA 94612
P.O. NUMBER 346229-FM-P2.00
SAMPLERS (SIGNATURE) [Signature]

SAMPLE ID. DATE TIME DESCRIPTION
SC-700B-WDR-57-7-16-1430 Groundwater

COMMENTS
NUMBER OF CONTAINERS
4

PH=24

Rec'd 07/26/06
SLT 957164

ALERT!!
Level III QC

CHAIN OF CUSTODY SIGNATURE RECORD

Signature (Relinquished)	Printed Name	Company/Agency	Date/Time
<u>[Signature]</u>	<u>Dwight Chavez</u>	<u>OMI</u>	<u>7-26-06 15:30</u>
Signature (Received)	Printed Name	Company/Agency	Date/Time
<u>[Signature]</u>	<u>L. Shabazz</u>	<u>Shabazz</u>	<u>7/26/06 20:00</u>
Signature (Relinquished)	Printed Name	Company/Agency	Date/Time
<u>[Signature]</u>	<u>[Signature]</u>	<u>[Signature]</u>	<u>[Signature]</u>
Signature (Received)	Printed Name	Company/Agency	Date/Time
<u>[Signature]</u>	<u>[Signature]</u>	<u>[Signature]</u>	<u>[Signature]</u>
Signature (Relinquished)	Printed Name	Company/Agency	Date/Time
<u>[Signature]</u>	<u>[Signature]</u>	<u>[Signature]</u>	<u>[Signature]</u>
Signature (Received)	Printed Name	Company/Agency	Date/Time
<u>[Signature]</u>	<u>[Signature]</u>	<u>[Signature]</u>	<u>[Signature]</u>

TOTAL NUMBER OF CONTAINERS
4

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

SPECIAL REQUIREMENTS:

For Sample Conditions
See Form Attached



STL

STL Los Angeles

1721 South Grand Avenue
Santa Ana, CA 92705

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

August 3, 2006

STL LOT NUMBER: E6G060328

PO/CONTRACT: 805515

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 July 6, 2006. This sample is associated with your PG&E TOPOCK 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 E87652.

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 except as noted on the following page.

Preliminary results were sent via facsimile on July 24, 2006.

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This report contains **000156** pages.

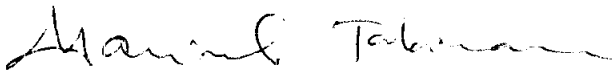


CASE NARRATIVE

The sample for Hexavalent Chromium was analyzed on a new column, different from the calibration. The retention time was updated to the new column.

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

Sincerely,



Marisol Tabirara
Project Manager

cc: Project File

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

CHAIN OF CUSTODY RECORD

[Sludge Sample-10]

COC Number

10 Days

TURNAROUND TIME

DATE 7/5/06

PAGE 1 OF 1

COMPANY	CH2M HILL /E2	PROJECT NAME		PG&E Topock	PHONE		530-229-3303	FAX	530-339-3303	ADDRESS		155 Grand Ave Ste 1000 Oakland, CA 94612	P.O. NUMBER		TEAM	1	SAMPLERS (SIGNATURE)				SAMPLE I.D.		SC-Sludge-WDR-054	DATE	7/5/06	TIME	13:10	DESCRIPTION	Soil	CR6 (7189)		X	Total Met (6010B) Title 22		X	Metals (7470A)		X	STLC Cr (7199) and (6010B)		X	TCLP Cr (6010B)		X	NUMBER OF CONTAINERS		2	COMMENTS	
TOTAL NUMBER OF CONTAINERS																												2																					

CHAIN OF CUSTODY SIGNATURE RECORD

Signature (Relinquished)	Cham Leung	Printed Name	Cham Leung	Company/ Agency	TOPOCK	Date/ Time	7-5-06 14:20
Signature (Received)		Printed Name	Perry Swart	Company/ Agency	STC LA	Date/ Time	7-5-06 13:13
Signature (Relinquished)		Printed Name	Perry Swart	Company/ Agency	STC LA	Date/ Time	7-5-06 13:45
Signature (Received)		Printed Name	Perry Swart	Company/ Agency	STC LA	Date/ Time	7-5-06 13:45
Signature (Relinquished)		Printed Name	Perry Swart	Company/ Agency	STC LA	Date/ Time	7-5-06 13:45
Signature (Received)		Printed Name	Perry Swart	Company/ Agency	STC LA	Date/ Time	7-5-06 13:45

SAMPLE CONDITIONS

RECEIVED COOL ☐ WARM ☐ °F _____

CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

STL LOS ANGELES - PROJECT RECEIPT CHECKLIST Date: 7/6/06

Single Cooler Only

LIMS Lot #: E6G060328

Quote #: 58027

Client Name: CH2M Hill

Project: Plate Topock

Received by: SG

Date/Time Received: 7/6/06 1345

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

***** Initial / Date SG 7/6/06

Custody Seal Status Cooler: ☐ Intact ☐ Broken ☒ None

Custody Seal Status Samples: ☐ Intact ☐ Broken ☒ None

Custody Seal #(s): N/A ☒ No Seal #

Sampler Signature on COC ☒ Yes ☐ No N/A

IR Gun # A Correction Factor -3 °C IR passed daily verification ☒ Yes ☐ No

Temperature - BLANK 6.2 °C - .3 CF = 5.9 °C Cooler #1 ID N/A

Temperature - COOLER (°C °C °C °C) = avg °C - .3 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

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

Labeled by: SG

Turn Around Time: ☐ RUSH-24HR ☐ RUSH-48HR ☐ RUSH-72HR ☒ NORMAL SG 7/6/06

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

Headspace Anomaly			<input type="checkbox"/> YES <input checked="" type="checkbox"/> N/A <u>SG 7/6/06</u>		
Lab ID	Container(s) #	Headspace	Lab ID	Container(s) #	Headspace
		<input type="checkbox"/> > 6mm			<input type="checkbox"/> > 6mm
		<input type="checkbox"/> > 6mm			<input type="checkbox"/> > 6mm
		<input type="checkbox"/> > 6mm			<input type="checkbox"/> > 6mm
		<input type="checkbox"/> > 6mm			<input type="checkbox"/> > 6mm
		<input type="checkbox"/> > 6mm			<input type="checkbox"/> > 6mm
		<input type="checkbox"/> > 6mm			<input type="checkbox"/> > 6mm
		<input type="checkbox"/> > 6mm			<input type="checkbox"/> > 6mm
		<input type="checkbox"/> > 6mm			<input type="checkbox"/> > 6mm

LIMS Lot #

PROJECT RECEIPT CHECKLIST Cont'd

Fraction																			
VOAH																			
6/02/97	2																		
[Handwritten signature] 7/6/98																			

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		Anomalies <input type="checkbox"/> YES <input checked="" type="checkbox"/> N/A <i>7/6/06</i>	
COOLERS <input type="checkbox"/> Not Received (received COC only) <input type="checkbox"/> Leaking <input type="checkbox"/> Other:	CUSTODY SEALS (COOLER(S) CONTAINER(S)) <input type="checkbox"/> None <input type="checkbox"/> Not Intact <input type="checkbox"/> Other	<input type="checkbox"/> None <input type="checkbox"/> Not Intact <input type="checkbox"/> Other	
TEMPERATURE (SPECS 4 ± 2°C) <input type="checkbox"/> Cooler Temp(s) <input type="checkbox"/> Temperature Blank(s)	CHAIN OF CUSTODY (COC) <input type="checkbox"/> Not relinquished by Client; No date/time relinquished <input type="checkbox"/> Incomplete information provided <input type="checkbox"/> Other <input type="checkbox"/> COC not received – notify PM		
CONTAINERS <input type="checkbox"/> Leaking <input type="checkbox"/> Voa Vials with Bubbles > 6mm <input type="checkbox"/> Broken <input type="checkbox"/> Extra <input type="checkbox"/> Without Labels <input type="checkbox"/> Other:	LABELS <input type="checkbox"/> Not the same ID/info as in COC <input type="checkbox"/> Incomplete Information <input type="checkbox"/> Markings/Info illegible <input type="checkbox"/> Torn		
SAMPLES <input type="checkbox"/> Samples NOT RECEIVED but listed on COC <input type="checkbox"/> Samples received but NOT LISTED on COC <input type="checkbox"/> Logged based on Label Information <input type="checkbox"/> Logged based on info from other samples on COC <input type="checkbox"/> Logged according to Work Plan <input type="checkbox"/> Logged on HOLD UNTIL FURTHER NOTICE	<input type="checkbox"/> Will be noted on COC--Client to send samples with new COC <input type="checkbox"/> Mislabeled as to tests, preservatives, etc. <input type="checkbox"/> Holding time expired – list sample ID and test <input type="checkbox"/> Improper container used <input type="checkbox"/> Not preserved/Improper preservative used <input type="checkbox"/> Improper pH _____ Lab to preserve sample and document <input type="checkbox"/> Insufficient quantities for analysis <input type="checkbox"/> Other		
Comments: 			
<input type="checkbox"/> Corrective Action Implemented: <input type="checkbox"/> Client Informed: verbally on _____ By: _____ <input type="checkbox"/> In writing on _____ By: _____ <input type="checkbox"/> Sample(s) on hold until: _____ <input type="checkbox"/> Sample(s) processed "as is."			
Logged by/Date: <i>Walter Longen 7-6-06</i>		PM Review/Date: <i>WMC 7/7/06</i>	

Analytical Report

ANALYTICAL REPORT

PG&E TOPOCK

Lot #: E6G060328

Shawn Duffy

CH2M Hill Inc

SEVERN TRENT LABORATORIES, INC.

Marisol Tabirara
Project Manager

August 3, 2006

EXECUTIVE SUMMARY - Detection Highlights

E6G060328

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
SC-SLUDGE-WDR-054 07/05/06 13:10 001				
Mercury	1.7	0.90	mg/kg	SW846 7471A
Chromium	21000	90	mg/kg	SW846 6010B
Percent Moisture	89	0.10	%	MCAWW 150.3 MOD
Hexavalent Chromium	70	1.8	mg/kg	SW846 7199

METHODS SUMMARY

E6G060328

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Hexavalent Chromium	SW846 7199	SW846 3063A
Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 3053E
Mercury in Solid Waste (Manual Cold-Vapor)	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.

METHOD / ANALYST SUMMARY

E6G060328

ANALYTICAL METHOD	ANALYST	ANALYST ID
MCAWW 160.3 MOD	FLORIAN ZIMMERMANN	000064
SW846 6010B	Josephine Asuncion	021088
SW846 7199	Yuriy Zakhrabov	000022
SW846 7471A	Hao Ton	000023

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

E6G060328

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
H8RF9	001	SC-SLUDGE-WDR-054	07/05/06	13:10

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-054

TOTAL Metals

Lot-Sample #...: E6G060328-001

Matrix.....: SO

Date Sampled...: 07/05/06 13:10 Date Received...: 07/06/06 13:45

% Moisture.....: 89

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 6191157						
Arsenic	ND G	90	mg/kg	SW846 6010B	07/10-07/11/06	H8RF91AA
		Dilution Factor: 10		Analysis Time...: 16:39	Analyst ID.....: 021088	
		Instrument ID...: M01		MS Run #.....: 6193206		
Antimony	ND G	540	mg/kg	SW846 6010B	07/10-07/11/06	H8RF91AC
		Dilution Factor: 10		Analysis Time...: 16:39	Analyst ID.....: 021088	
		Instrument ID...: M01		MS Run #.....: 6193206		
Barium	ND G	180	mg/kg	SW846 6010B	07/10-07/11/06	H8RF91AD
		Dilution Factor: 10		Analysis Time...: 16:39	Analyst ID.....: 021088	
		Instrument ID...: M01		MS Run #.....: 6193206		
Cadmium	ND G	45	mg/kg	SW846 6010B	07/10-07/11/06	H8RF91AE
		Dilution Factor: 10		Analysis Time...: 16:39	Analyst ID.....: 021088	
		Instrument ID...: M01		MS Run #.....: 6193206		
Chromium	21000	90	mg/kg	SW846 6010B	07/10-07/11/06	H8RF91AF
		Dilution Factor: 10		Analysis Time...: 16:39	Analyst ID.....: 021088	
		Instrument ID...: M01		MS Run #.....: 6193206		
Beryllium	ND G	45	mg/kg	SW846 6010B	07/10-07/11/06	H8RF91AG
		Dilution Factor: 10		Analysis Time...: 16:39	Analyst ID.....: 021088	
		Instrument ID...: M01		MS Run #.....: 6193206		
Lead	ND G	45	mg/kg	SW846 6010B	07/10-07/11/06	H8RF91AH
		Dilution Factor: 10		Analysis Time...: 16:39	Analyst ID.....: 021088	
		Instrument ID...: M01		MS Run #.....: 6193206		
Selenium	ND G	45	mg/kg	SW846 6010B	07/10-07/11/06	H8RF91AJ
		Dilution Factor: 10		Analysis Time...: 16:39	Analyst ID.....: 021088	
		Instrument ID...: M01		MS Run #.....: 6193206		
Silver	ND G	90	mg/kg	SW846 6010B	07/10-07/11/06	H8RF91AK
		Dilution Factor: 10		Analysis Time...: 16:39	Analyst ID... : 021088	
		Instrument ID...: M01		MS Run #.....: 6193206		

(Continued on next page)

CH2M Hill Inc

Client Sample ID: SC-SLUDGE-WDR-054

TOTAL Metals

Lot-Sample #...: E6G060328-001

Matrix.....: SO

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Cobalt	ND G	450	mg/kg	SW846 6010B	07/10-07/11/06	H8RF91AL
		Dilution Factor: 10		Analysis Time...: 16:39	Analyst ID.....: 021088	
		Instrument ID...: M01		MS Run #.....: 6193206		
Copper	ND G	230	mg/kg	SW846 6010B	07/10-07/11/06	H8RF91AM
		Dilution Factor: 10		Analysis Time...: 16:39	Analyst ID.....: 021088	
		Instrument ID...: M01		MS Run #.....: 6193206		
Molybdenum	ND G	360	mg/kg	SW846 6010B	07/10-07/11/06	H8RF91AN
		Dilution Factor: 10		Analysis Time...: 16:39	Analyst ID.....: 021088	
		Instrument ID...: M01		MS Run #.....: 6193206		
Nickel	ND G	360	mg/kg	SW846 6010B	07/10-07/11/06	H8RF91AP
		Dilution Factor: 10		Analysis Time...: 16:39	Analyst ID.....: 021088	
		Instrument ID...: M01		MS Run #.....: 6193206		
Thallium	ND G	90	mg/kg	SW846 6010B	07/10-07/11/06	H8RF91AQ
		Dilution Factor: 10		Analysis Time...: 16:39	Analyst ID.....: 021088	
		Instrument ID...: M01		MS Run #.....: 6193206		
Vanadium	ND G	450	mg/kg	SW846 6010B	07/10-07/11/06	H8RF91AR
		Dilution Factor: 10		Analysis Time...: 16:39	Analyst ID.....: 021088	
		Instrument ID...: M01		MS Run #.....: 6193206		
Zinc	ND G	180	mg/kg	SW846 6010B	07/10-07/11/06	H8RF91AT
		Dilution Factor: 10		Analysis Time...: 16:39	Analyst ID.....: 021088	
		Instrument ID...: M01		MS Run #.....: 6193206		

Prep Batch #...: 6191177

Mercury	1.7	0.90	mg/kg	SW846 7471A	07/11/06	H8RF91AU
		Dilution Factor: 1		Analysis Time...: 14:03	Analyst ID.....: 000023	
		Instrument ID...: M04		MS Run #.....: 6192287		

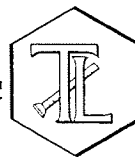
NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

G Elevated reporting limit. The reporting limit is elevated due to matrix interference.

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

E2 Consulting Engineers, Inc. PG&E Topock Project

Laboratory Number: 956444

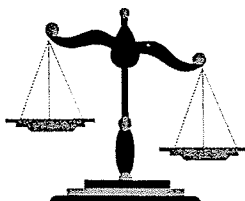
Received: July 5, 2006

Sludge Sample-10

Project No.: NA

P.O. No.: NA

R **E C E I V E** **D**
JUL 27 2006
CH2M HILL
REDDING



Prepared for:

E2 Consulting Engineers, Inc.
Attn: Shawn Duffy
2525 Airpark Dr.
Redding, CA 96001

Prepared by:

TRUESDAIL LABORATORIES, INC.
TUSTIN, CALIFORNIA

Table of Contents

TLI Laboratory Data Package

For Laboratory Number: 956444

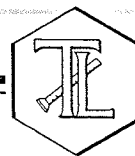
<u>ITEM</u>	<u>Section</u>
Case Narrative	1.0
Summary Table of Final Results	2.0
Final Report	3.0
Standard, Quality Control and Chain of Custody Records	4.0
Established Retention Time Window and Analytical Raw Data	5.0

Section 1.0

Case Narrative

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



Established 1931

July 19, 2006

E2 Consulting Engineers, Inc.
Mr. Shawn Duffy
155 Grand Ave., Suite 1000
Oakland, California 94612

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK PROJECT, SLUDGE SAMPLE-10,
TLI No.: 956444

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock project, Sludge Sample-10. A summary table for this sample delivery group 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 July 5, 2006, 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.

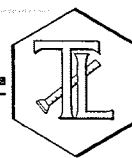
Mona Nassimi
Manager, Analytical Services

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

CC: Mr. Mark Cichy, CH2M HILL Redding CA

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



Established 1931

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Sample: One (1) Soil Sample

Project Name: PG&E Topock Project

Project No.: NA

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

Laboratory No.: 956444

Date: July 19, 2006

Collected: July 5, 2006

Received: July 5, 2006

ANALYST LIST

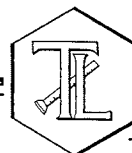
METHOD	PARAMETER	ANALYST
EPA 300.0	Fluoride	Giawad Ghenniwa

Section 2.0

Summary Table of Final Results

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



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REPORT

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

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project

Project No.: NA

P.O. No.: NA

Laboratory No.: 956444

Date Received: July 5, 2006

Analytical Results Summary

<u>Lab I.D.</u>	<u>Sample I.D.</u>	<u>Time Sampled</u>	<u>EPA 300.0</u> Fluoride mg/kg
956444	SC-Sludge-WDR-054	13:10	8.41

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.

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

Section 3.0

Final Report

TRUESDAIL LABORATORIES, INC.

INDEPENDENT TESTING, FORENSIC SCIENCE, AND ENVIRONMENTAL ANALYSES



Established 1931

REPORT

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

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy
Sample: One (1) Soil Sample
Project Name: PG&E Topock Project
Project No.: NA
P.O. No.: NA

Laboratory No.: 956444
Date: July 19, 2006
Collected: July 5, 2006
Received: July 5, 2006
Prep/ Analyzed: July 10, 2006
Analytical Batch: 07AN06F

Investigation:

Fluoride by Ion Chromatography Using EPA 300.0

Analytical Results Fluoride

TLI I.D.	Field I.D.	Units	Method	Run Time	DF	RL	Results
956444	SC-Sludge-WDR-054	mg/kg	EPA 300.0	12:43	19.6	3.92	8.41

QA/QC Summary

QA/QC Summary

QC STD I.D.		Laboratory Number		Concentration	Duplicate Concentration		Relative Percent Difference	Acceptance limits	QC Within Control	
Duplicate		956446-8		2.31	2.31		0.00%	≤20%	Yes	

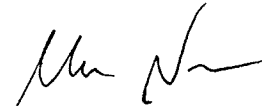
QC Std I.D.	Lab Number	Conc.of unspiked sample	Dilution Factor	Added Spike Conc.	MS Amount	Measured Conc. of spiked sample	Theoretical Conc. of spiked sample	MS% Recovery	Acceptance limits	QC Within Control
MS	956446-8	2.31	1.00	4.00	4.00	6.20	6.31	97.3%	85-115%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
MRCCS	4.14	4.00	104%	90% - 110%	Yes
MRCVS#1	3.17	3.00	106%	90% - 110%	Yes
MRCVS#2	3.16	3.00	105%	90% - 110%	Yes
MRCVS#3	3.18	3.00	106%	90% - 110%	Yes
LCS	4.11	4.00	103%	90% - 110%	Yes
LCSD	4.11	4.00	103%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


Mona Nassimi, Manager
Analytical Services

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

956444



TRUESDAIL LABORATORIES, INC.
14201 Franklin Avenue, Tustin, CA 92780-7008
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www.truesdail.com

CHAIN OF CUSTODY RECORD

[Sludge Sample -10]

COC Number

TURNAROUND TIME 10 Days

DATE 7/5/06

PAGE 1 OF 1

COMPANY CH2M HILL		PROJECT NAME PG&E Topack IM3		PHONE 530-229-3303 FAX 530-339-3303		ADDRESS 155 Grand Ave Ste 1000 Oakland, CA 94612		P.O. NUMBER E2		SAMPLERS SIGNATURE <i>[Signature]</i>		COMMENTS	
SAMPLE ID.	DATE	TIME	DESCRIPTION	NUMBER OF CONTAINERS									
SC-Sludge-WDR-054	7/5/06	13:10	Sludge	4									
				Anlons (300.0) F									
				Bioassay 96hr Acute									
				TOTAL NUMBER OF CONTAINERS 4									

ALERT!!
Level III QC

CHAIN OF CUSTODY SIGNATURE RECORD

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
<i>[Signature]</i>	Chris Wright	CH2M Hill	7/5/06 14:20	<i>[Signature]</i>	Shane McHenry	CH2M Hill	7/5/06 22:00	<i>[Signature]</i>				<i>[Signature]</i>			
<i>[Signature]</i>				<i>[Signature]</i>				<i>[Signature]</i>				<i>[Signature]</i>			
<i>[Signature]</i>				<i>[Signature]</i>				<i>[Signature]</i>				<i>[Signature]</i>			
<i>[Signature]</i>				<i>[Signature]</i>				<i>[Signature]</i>				<i>[Signature]</i>			
<i>[Signature]</i>				<i>[Signature]</i>				<i>[Signature]</i>				<i>[Signature]</i>			

SAMPLE CONDITIONS

RECEIVED COOL ☐ WARM ☐ °F

CUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

Sample Contained
Soil from Attached

24 July 2006

Truesdail Laboratories, Inc.
14201 Franklin Avenue
Tustin, CA 92780

Attention: Sean Condon

Dear Mr. Condon,

The following are the results of the DOHS 96-hour Acute Aquatic Toxicity Screening test performed on the sample labeled 956444 submitted on 6 July 2006.

The sample **PASSED** the DOHS 96-hour Acute Aquatic Toxicity Screening test. Currently, California Code of Regulations (CCR), Title 22, Section 66261.24, Article 6 requires wastes to pass the 96-hour aquatic toxicity testing with greater than 50% survival at the 500 mg/l. In addition to this regulation, the DOHS protocol requires wastes to pass the 96-hour aquatic toxicity testing with greater than 50% survival at the 500 mg/l concentration and 60% survival at the 750 mg/l concentration for compliance of hazardous waste declassification.

MBC Sample Number 06-362 - Client Identification: 956444

PERCENT SURVIVAL

Control	100%
250 mg/l	100%
500 mg/l	100%
750 mg/l	100%

LC50 > 750 mg/l

If you have any questions or require further information, please contact me at your convenience.

Cordially,

MBC Applied Environmental Sciences

for 

Sonja M. Beck
Bioassay Manager



TRUESDAIL LABORATORIES, INC.

14201 FRANKLIN AVENUE, TUSTIN, CALIFORNIA 92780

ALERT!!
Level III QC

Laboratory Transmittal Form

Date: 07/06/06 Page: 1 of 1

Laboratory: MBC Applied Environmental Sciences

Attention: Sonia M. Beck

Address: 3000 Redhill Ave.

City: Costa Mesa State: CA Zip: 92626-4524

Please sign, date & return this form with the results, to:

TRUESDAIL LABORATORIES, INC.

Attn: Sean Condon

14201 Franklin Avenue, Tustin, California 92780

Please include **Truesdail Sample ID** on your invoice

Sample ID	Date	Time	Matrix	Tests/Methods Required										Container Qty.	Comments/Container Type
				Acute Aquatic Toxicity, 96 hr Acute											
956444	7/5/06	13:10	Sludge	X										2	Glass /Jar 4 oz Level 3
														2	Containers Total

Type of Service:

- ☒ Normal (5-10 day TAT) ☐ RUSH (5 day TAT)
☐ URGENT (24-48 hr. TAT) ☐ Results needed by: _____

Sample Conditions:

Received on Ice? Yes/No Sealed? Yes/No
 Special Shipment/Handling or Storage Requirements: _____

Relinquished by: Nicholle Bleffel Signature Nicholle Bleffel Printed Name Nicholle Bleffel Company TLI Date 7/6/06 Time 10:00

Received by: Christopher Lim Signature Christopher Lim Printed Name Christopher Lim Company MBC Date 7/6/06 Time 1000



**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

July 2006

**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

July 2006

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B	Fish Length and Weight Measurements
C	Sample Analysis Information

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 $\pm 2^{\circ}\text{C}$.

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-built oil-less blower that provides up to 340 l/min at 0.35 kg/cm². 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 CaCO₃, 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 ₂ O:	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* (18th 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* (18th 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.
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APPENDIX A
DAILY WATER QUALITY PARAMETERS AND LIVE ORGANISM
ENUMERATION DATA

DEPARTMENT OF HEALTH SERVICES ACUTE AQUATIC SCREENING TOXICITY TEST

MBC Job # 06415X
 Date/Time Sampled: 07/05/06, 13:10
 Client: Truesdail Laboratories
 MBC Sample # 06-362
 Date/Time Started: 07/20/06, 15:30
 Sample Identification: 956444
 Date/Time Terminated: 07/24/06, 15:00

Aquar. #	Test	0 Hours					24 Hours					48 Hours					72 Hours					96 Hours				
		pH	DO	Temp	Live		pH	DO	Temp	Live		pH	DO	Temp	Live		pH	DO	Temp	Live		pH	DO	Temp	Live	
1	Control	7.6	8.8	21.6	10		7.4	8.1	21.8	10		7.8	8.3	21.3	10		7.7	8.5	20.8	10		7.5	8.2	21.7	10	
2	250 mg/l	7.7	8.8	21.7	10		7.6	8.2	21.8	10		7.8	8.3	21.5	10		7.8	8.4	20.9	10		7.7	8.3	21.7	10	
3	250 mg/l	7.8	8.8	21.9	10		7.7	8.3	21.9	10		7.8	8.3	21.7	10		7.8	8.4	21.1	10		7.7	8.3	21.8	10	
4	500 mg/l	7.8	8.8	21.8	10		7.7	8.3	21.8	10		7.8	8.3	21.7	10		7.8	8.4	21.0	10		7.7	8.3	21.8	10	
5	500 mg/l	7.8	8.8	21.8	10		7.7	8.4	21.9	10		7.8	8.2	22.0	10		7.8	8.4	21.3	10		7.7	8.3	21.9	10	
6	750 mg/l	7.9	8.8	21.8	10		7.7	8.2	21.8	10		7.8	8.1	21.7	10		7.8	8.2	21.1	10		7.7	8.0	21.8	10	
7	750 mg/l	7.9	8.8	21.8	10		7.7	8.2	21.9	10		7.8	8.2	21.9	10		7.8	8.2	21.3	10		7.7	8.1	21.9	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

Acclimatization: 36 days at 20°C

Dilution Water Source: Reconstituted softwater

RANGE
 pH Range: 7.4 7.9
 DO Range: 8.0 8.8
 Temp Range: 20.8 22.0

Results:
Concentration
 Control
 250 mg/l
 500 mg/l
 750 mg/l
% Survival
 100%
 100%
 100%
 100%
 LC50 > 750 mg/l

ALKALINITY (A)		HARDNESS (H)		
0 Hours		96 Hours		
A	H	A	H	
Control	32	47	32	49
750 mg/l	25	45	34	51

NOTES: Normal.

Reviewed By: *Mm*

APPENDIX B
FISH LENGTH AND WEIGHT MEASUREMENTS

Bioassay Fish Length/Weight Measurements

MBC JOB #: 06415X

CLIENT: Truesdail Laboratories

MBC SAMPLE #: 06-362

DATE OF TEST: 7/20/06

SPECIES: Fathead minnow
(*Pimephales promelas*)


SAMPLE IDENTIFICATION: 956444

	Standard Length mm	Weight g		Standard Length mm	Weight g
1.	30	0.37	11.	31	0.39
2.	30	0.34	12.	31	0.36
3.	29	0.33	13.	28	0.32
4.	31	0.47	14.	31	0.46
5.	29	0.31	15.	28	0.36
6.	33	0.50	16.	29	0.27
7.	32	0.54	17.	32	0.41
8.	32	0.47	18.	30	0.37
9.	33	0.52	19.	31	0.39
10.	32	0.38	20.	30	0.38

	<u>Length (mm)</u>	<u>Weight (g)</u>
Average:	31	0.40
Maximum:	33	0.54
Minimum:	28	0.27

Technician: YY

Date: 07/24/06

Reviewed By: 

APPENDIX C
SAMPLE ANALYSIS INFORMATION

SAMPLE ANALYSIS INFORMATION

CLIENT: Truesdail Laboratories

SAMPLE IDENTIFICATION: 956444

MBC JOB NUMBER: 06415X

MBC SAMPLE NUMBER: 06-362

SAMPLE DATE/TIME: 07/05/06, 13:10

DATE SAMPLE RECEIVED BY MBC: 07/06/06

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

DATE/TIME ANALYSIS INITIATED: 07/20/06, 15:30

DATE/TIME ANALYSIS TERMINATED: 07/24/06, 15:00

AMOUNT OF SAMPLE: 500 gm

QUALITATIVE DESCRIPTION OF SAMPLE: brown sludge

SPECIAL SAMPLE PREPARATION: Shake for 6 hours.

SAMPLE ADJUSTMENTS DURING ANALYSIS: Air added at 0 hours.

RESULTS:

<u>Concentration</u>	<u>% Survival</u>
Control	100%
250mg/l	100%
500 mg/l	100%
750 mg/l	100%
LC ₅₀ > 750 mg/l	

NOTES: Normal.

Reviewed By: 