

Topock Project Executive Abstract

Document Title: First Quarter 2009 Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test

Submitting Agency/Authoried by: PG&E

Final Document? ☐ Yes ☒ No

Date of Document: April 15, 2009

Who Created this Document?: (i.e. PG&E, DTSC, DOI, Other)

PG&E

Priority Status: ☐ **HIGH** ☐ **MED** ☒ **LOW**

Is this time critical? ☐ Yes ☒ No

Type of Document:

☐ Draft ☒ Report ☐ Letter ☐ Memo

☐ Other / Explain:

Action Required:

☒ Information Only ☐ Review & Comment

Return to: _____

By Date: _____

☐ Other / Explain:

What does this information pertain to?

- ☐ Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA)/Preliminary Assessment (PA)
- ☐ RCRA Facility Investigation (RFI)/Remedial Investigation (RI) (including Risk Assessment)
- ☐ Corrective Measures Study (CMS)/Feasibility Study (FS)
- ☐ Corrective Measures Implementation (CMI)/Remedial Action
- ☐ California Environmental Quality Act (CEQA)/Environmental Impact Report (EIR)
- ☐ Interim Measures
- ☒ Other / Explain: Regional Water Quality Control Board (RWQCB)

Is this a Regulatory Requirement?

☒ Yes

☐ No

If no, why is the document needed?

What is the consequence of NOT doing this item? What is the consequence of DOING this item? Permit required monitoring report

Other Justification/s:

☒ Permit

☐ Other / Explain:

Brief Summary of attached document:

The report summarizes the activities conducted during the first quarter of 2009 for the Uplands In-Situ Pilot Test per the Waste Discharge Requirements (WDR). The report presents data received since the last report was submitted and details any operational changes to the pilot test as allowed by the WDR.

Written by: ARCADIS on behalf of PG&E

Recommendations: None

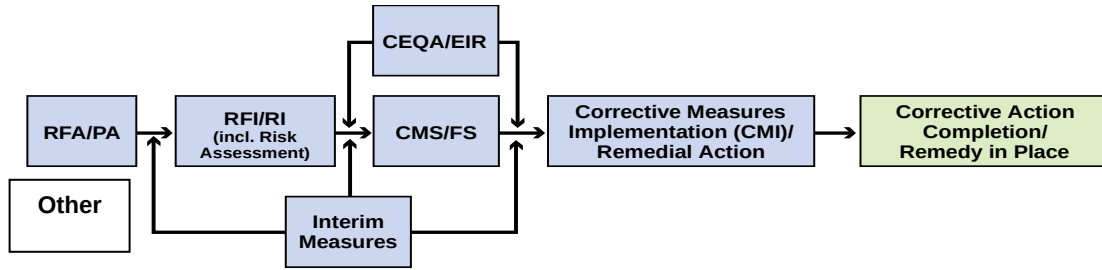
How is this information related to the Final Remedy or Regulatory Requirements: The report is required under the Waste Discharge Requirement Permit Order No. R7-2007-0015. The results of the pilot test conducted under that Order will be used in the evaluation of in situ remedies as a potential component of the final groundwater remedy.

Other requirements of this information?

None.

Related Reports and Documents:

Click any boxes in the Regulatory Road Map (below) to be linked to the Documents Library on the DTSC Topock Web Site (www.dtsc-topock.com). The link to the Documents Library is currently UNDER CONSTRUCTION.



Version 8

Legend

RFA/PA – RCRA Facility Assessment/Preliminary Assessment

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

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

CEQA/EIR – California Environmental Quality Act/Environmental Impact Report



**Pacific Gas and
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April 15, 2009

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

**Subject: Board Order R7-2007-0015
PG&E Topock Compressor Station, Needles, California
Upland In-Situ Pilot Test
First Quarter 2009 Monitoring Report**

Dear Mr. Perdue:

Enclosed is the Board Order R7-2007-0015 First Quarter 2009 Monitoring Report for the Pacific Gas and Electric Company (PG&E) Topock Compressor Station, upland reductive zone in situ pilot test. 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 R7-2007-0015. WDRs under Board Order R7-2009-0015 apply to the upland reductive zone in situ pilot test only.

If you have any questions regarding this report, please call me at (805) 234-2257.

Sincerely,

Yvonne Meeks
Topock Project Manager

Enclosures:

Board Order R7-2007-0015 First Quarter 2009 Monitoring Report for the Upland Reductive Zone In Situ Pilot Test.

cc: Cliff Raley, Water Board
Robert Perdue, CA RWQCB
Aaron Yue, DTSC (2 copies)

Pacific Gas and Electric Company

**First Quarter 2009 Monitoring
Report for the Upland Reductive
Zone In-Situ Pilot Test**

Waste Discharge Requirements
Order No. R7-2007-0015
PG&E Topock Compressor Station
San Bernardino County, California

15 April 2009



This report was prepared under the supervision of a California
licensed Professional Geologist (PG)

A handwritten signature in black ink that reads "Janis Lutrick".

Janis Lutrick
Senior Scientist

A handwritten signature in black ink that reads "Margaret Gentile".

Margaret Gentile, PhD
Staff Engineer

A handwritten signature in blue ink that reads "Lisa R. Kellogg".

Lisa Kellogg, PG, CEM
Principal Geologist
Certified Project Manager

**First Quarter 2009 Monitoring
Report for the Upland
Reductive Zone In-Situ Pilot
Test**

Waste Discharge Requirements
Order No. R7-2007-0015
PG&E Topock Compressor
Station
San Bernardino County,
California

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Our Ref.:
RC000689.0004.00009

Date:
15 April 2009

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of the individual or entity for which it was
prepared and may contain information that
is privileged, confidential, and exempt from
disclosure under applicable law.*

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- B Calibration Logs for Field Monitoring Instruments
- C Groundwater Sampling Logs
- D Analytical Reports and Chain-of-Custody Documentation (on Compact Disc)

Calscience	Calscience Environmental Laboratories, Inc.
gpm	Gallons per minute
ISPT	In-Situ Pilot Test
µg/L	Micrograms per liter
mg/L	Milligrams per liter
MRP	Monitoring and Reporting Program
OZARK	Ozark Underground Laboratories, Inc.
PG&E	Pacific Gas and Electric Company
SAFPM	<i>Sampling, Analysis, and Field Procedures Manual, PG&E Topock Program, Revision 1</i>
S/M/D	Shallow/Middle/Deep
TOC	Total Organic Carbon
Truesdail	Truesdail Laboratories
USEPA	United States Environmental Protection Agency
Water Board	California Regional Water Quality Control Board, Colorado River Basin Region
Work Plan	<i>In-Situ Hexavalent Chromium Reduction Pilot Test Plan – Upland Plume Treatment (September 2006)</i>

1.0 Introduction

Pacific Gas and Electric Company (PG&E) implemented an Upland reductive zone in-situ pilot test (ISPT) to address chromium concentrations in groundwater at the Topock Compressor Station (the Site) near Needles, California. The purpose of the Upland ISPT was to evaluate the efficacy of using a reagent mixture to remove hexavalent chromium from groundwater using chemical reduction to form stable, insoluble trivalent chromium. The Upland ISPT consisted of the recirculation of the reagent mixture between the two recirculation wells (PTR-1 and PTR-2) and monitoring the results in surrounding groundwater monitoring wells (PT-7Shallow/Middle/Deep [S/M/D] through PT-9S/M/D, MW-11, MW-24A/B, and MW-38S/D). Figure 1 provides a map of the PG&E Topock Compressor Station and ISPT area. (All figures are provided at the end of the report).

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California Regional Water Quality Control Board, Colorado River Basin Region (Water Board), Order No. R7-2007-0015 authorized PG&E to inject a total of approximately 38,000 gallons of reagent through the duration of the test. An automated reagent dosing system metered the reagent injections at regular intervals during each day of the pilot test. The pilot test concluded activities on December 3, 2008, at the end of the nine month period allowed in Order No. R7-2007-0015.

The Monitoring and Reporting Program (MRP) under Order No. R7-2008-0015 required a final report to be submitted within 90 days of the completion of the ISPT. The *Upland Reductive Zone In-Situ Pilot Test, Final Completion Report* (ARCADIS 2009) was submitted on March 3, 2009 and summarizes the activities and results related to the Upland ISPT from March 2008 through December 3, 2008.

The Monitoring and Reporting Program (MRP) under Order No. R7-2007-0015 required monthly monitoring reports to be submitted by the 15th day of the following month. A letter requesting the Order be rescinded was submitted to the Water Board on March 20, 2009 (Appendix A). ARCADIS will continue to monitor the Upland ISPT area on a quarterly basis through 2009 and will submit quarterly monitoring reports on the 15th day of the month immediately following the conclusion of each quarter. This report describes monitoring activities related to the Upland ISPT for the first quarter 2009 (January through March) ; all activities regarding the Upland ISPT concluded in November 2008.

2.0 In-Situ Pilot Test Sampling Locations

Table 1 summarizes the well construction details for the recirculation wells (PTR-1 and PTR-2) and monitoring wells (PT-7S/M/D through PT-9S/M/D, MW-11, MW-24A/B, and MW-38S/D). Figure 2 provides a map of the sampling locations. Figure 3 presents the well construction and cross section information for the monitoring wells sampled in the Upland ISPT.

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3.0 Description of Activities

The procedures of the Upland ISPT are outlined in the *In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan – Upland Plume Treatment* (Work Plan; ARCADIS 2006). During February 2009, field activities were performed in accordance with the Work Plan and the applicable procedures contained within the *Sampling, Analysis, and Field Procedures Manual, PG&E Topock Program, Revision 1* (SAFPM) (CH2M Hill, 2005) and the MRP. The Upland system ceased operation on December 3, 2008.

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This section summarizes the Upland ISPT operation and sampling activities.

3.1 Upland ISPT Operations

On March 5, 2008, ARCADIS began recirculation of groundwater and daily injection of reagent at the upland ISPT. As discussed in the *February 2008 Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test* (ARCADIS, 2008), the aquifer test results demonstrated that the recirculation system could sustain recirculation at 30 gallons per minute (gpm). The system had been operating at 30 gpm since March 5, 2008. During system operation, approximately 100 gallons of reagent were injected into each well each day at a rate of approximately 5 gpm, as authorized by the Water Board Order No. R7-2007-0015. The injected reagent was a 40 percent ethanol solution in accordance with the Work Plan.

On May 29, 2008, PG&E (PG&E, 2008) requested approval of the Water Board to temporarily discontinue ethanol dosing in order to monitor the systems' ability to distribute TOC sufficiently through the recirculation cell. No change to the pumping rate was planned for the period that dosing was to be discontinued. To evaluate the TOC distribution, periodic sampling of TOC was conducted from monitoring wells PT-7M, PT-7D, PT-8S, PT-8M, PT-8D, MW-24A, PTR-1, and PTR-2 during this period. Written approval for the temporary cessation of ethanol dosing was received on May 29, 2008 (ARCADIS, 2008), and the ethanol dosing was discontinued on June 2, 2008. Copies of the request and approval letters are provided in Appendix A.

On August 4, 2008, PG&E notified the Water Board of their intent to resume ethanol dosing in recirculation well PTR-2 (Appendix A). The decision to resume ethanol dosing was based on data collected at nearby well MW-24A which showed declining TOC trends due to the temporary cessation of ethanol dosing. In order to maintain the reducing zone that was already created around MW-24A, ethanol dosing resumed in

well PTR-2 on August 6, 2008. Based on the data collected the ethanol dose in PTR-2 was resumed at approximately 25 gallons per day.

On October 14, 2008, the dosing rate in PTR-2 was increased to approximately 45 gallons per day. In addition, an increase in the recirculation rate to approximately 25 gpm was made at PTR-2 to improve horizontal distribution through the system. On October 23, 2008, PG&E notified the Water Board (Appendix A) of their intent to increase the dosing rate to approximately 100 gallons per day in both PTR-1 and PTR-2. This was the original dosing rate originally specified in Board Order No. R7-2007-0015.

The primary ethanol dosing was completed November 1, 2008. The ethanol tank rinse procedure commenced on November 4, 2008, by removing excess solution from the tank and injecting into PTR-1 and PTR-2. A triple-rinse was completed on the fill lines and the tank itself. The rinse procedure was completed on November 6, 2008, and the tank remains empty onsite.

Recirculation continued through the month of November in PTR-1 and PTR-2, with the Uplands Reductive Zone In-Situ Pilot Test recirculation phase concluding at the beginning of December. On November 24, 2008, PG&E notified the Water Board of their intent to modify the flow pattern in PTR-2 to perform a hydraulic extraction test the first week of December. The notification letter is included in Appendix A. This short hydraulic extraction test was conducted to evaluate sustainable extraction rates from the shallow screen interval which had previously been used for injection. The results of the hydraulic extraction test were presented in the 90-Day Final Report (ARCADIS, 2009). On December 2 and 3, the hydraulic extraction test described in Appendix A was completed and on December 3, 2008 the In-Situ Pilot Test was considered complete. The system was subsequently shut down and secured in place.

A letter was sent to the Water Board on March 20, 2009, requesting that Board Order No. R7-2007-0015 be rescinded; a copy of the letter is included in Appendix A.

3.2 Sampling Activities

The first quarter 2009 sampling event was conducted February 3 through 5, 2009. The sampling event was performed in accordance with the Work Plan and the applicable procedures contained within the SAFPM (CH2M Hill, 2005) and the MRP. The new data included in this report is from the first quarter sampling event of 2009.

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Samples were collected, labeled, and packaged according to the SAFPM, as summarized in Section 4.0. Table 2 presents the field parameter results. Tables 3 and 4 present the groundwater analytical results, including historical data from July 2007 to present. As required under the MRP, calibration logs for field-monitoring instruments are included in Appendix B. Groundwater sampling logs are included in Appendix C.

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In accordance with the MRP, groundwater samples from the sampling events were analyzed for hexavalent chromium (United States Environmental Protection Agency [USEPA] Method 218.6 SM 2500-Cr) and total dissolved chromium (USEPA Method SW 6020) by Truesdail Laboratories (Truesdail); for total iron and total manganese (USEPA 200.7), dissolved iron, dissolved manganese, dissolved arsenic, dissolved calcium, dissolved potassium, and dissolved sodium (USEPA 200.8), sulfate and anions chloride, nitrate, nitrite and phosphorous (as phosphate) (USEPA 300), alkalinity bicarbonate (USEPA Method 2320B), total organic carbon (TOC) (USEPA Method 5310B), and sulfide (USEPA Method 4500-S²⁻) by Calscience Environmental Laboratories, Inc. (Calscience); and for fluorescein and rhodamine WT by Ozark Underground Laboratories, Inc. (fluorescence spectroscopy according to Ozark standard operating procedures). Hexavalent chromium was also analyzed in the field at the Interim Measures 3 facility using HACH Method 8023 - program 1560, during the monthly sampling events.

4.0 Sampling and Analytical Procedures

Groundwater sampling and associated tasks were performed in accordance with the applicable procedures contained in the SAFPM (CH2M Hill, 2005) and as summarized below.

Monitoring wells were purged and sampled. Prior to groundwater sampling, the depth to water was recorded for each well. These data were used to evaluate the volume of standing water in the well. The monitoring wells were purged using a WaTerra[®] purge pump with dedicated polyethylene tubing. Purging continued until three casing volumes had been removed. The field parameters, such as pH, specific conductance, and temperature were recorded (Table 2). After completion of purging, the groundwater samples were collected in the appropriate containers.

Recirculation wells (PTR-1 and PTR-2) samples were collected from dedicated sampling ports. Water was purged from the sample port prior to sampling the recirculation well to remove any stagnant water from the port.

The samples were stored in coolers at 4 degrees Celsius and transported to Truesdail, Calscience, and Ozark via a courier service under chain-of-custody documentation. Truesdail and Calscience are certified by the California Department of Health Services (Certification #1237 and #1230, respectively) under the State of California's Environmental Laboratory Accreditation Program.

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Analyses were performed in accordance with the latest edition of the "Guidelines Establishing Test Procedures for Analysis of Pollutants" (40 CFR Part 136), or equivalent methods promulgated by the USEPA.

Sampling was conducted in accordance with the sampling frequency required by the MRP. Sample results are summarized in Tables 3 and 4. Calibration logs for field-monitoring instruments are presented in Appendix B. Sampling logs are presented in Appendix C. Copies of laboratory analytical results are presented on compact disc in Appendix D.

Table 5 identifies the laboratory that performed each analysis and lists the following required monitoring information:

- Sample Location
- Sample identification
- Sampler name
- Sample date
- Sample time
- Laboratory performing the analysis
- Analysis method
- Analysis date
- Laboratory technician

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Monitoring wells PT-7M and PT-7D were not sampled during the first quarter 2009 groundwater sampling event because of complications during the well purge process. Higher doses of carbon in the vicinity of these wells resulted in the temporary generation of carbon dioxide gas beyond the ability of the aquifer to diffuse the gas naturally. Resulting elevated levels of gas in the well casing prevented the well from being effectively purged. Samples from wells PT-7M and PT-7D will be collected during the second quarter 2009 groundwater sampling event.

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There were no incidents of non-compliance with respect to Order No. R7-2007-0015.

5.0 Analytical Results

Summaries of the field test parameters, primary parameters, and secondary parameters are presented in Tables 2, 3, and 4, respectively.

Two months after the pilot test ended, results from the February sampling event indicate that chromium continues to be reduced to non-detect levels at MW-24A and PT-8S. Organic carbon was effectively delivered and organic carbon distribution was sustained during the pilot test at these locations. Complete chromium reduction was sustained at MW-24A and PT-8S, despite decreases in total organic carbon concentrations to baseline concentrations following the pilot test. Chromium concentrations increased, but remained below baseline (pre-study) levels, in locations where less TOC was distributed during pilot test operations (794 µg/L in PT-7S, 982 µg/L PT-8D in February 2009).

Arrival of treated groundwater downgradient of the recirculation system was evident at PT-9S (approximately 115 feet downgradient) during October and November 2008, and continued in February 2009 with a Cr(VI) concentration below baseline. A decrease in total organic carbon indicates that the initial carbon dose passed at PT-9S in February 2009. This is also supported by the decrease observed in dissolved manganese which is expected when carbon levels decline. It is expected that the organic carbon will be completely consumed and manganese will attenuate downgradient of PT-9S.

With the use of in-situ technology, the creation of the desired reducing environment may cause temporary solubilization and mobilization of reducible metals that naturally reside in the aquifer matrix, such as manganese, iron, and arsenic. The dissolved metals are expected to attenuate downgradient of the reducing zone created by the Upland ISPT, as was observed during the Floodplain ISPT (ARCADIS, 2008).

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6.0 Conclusions

This report summarizes the groundwater sampling activities for the first quarter. Monitoring and reporting will be performed on a quarterly basis throughout 2009. The second post-pilot sampling event will occur in May 2009; the results will be reported in July 2009.

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7.0 References

ARCADIS, 2006. In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan, Upland Plume Treatment (Work Plan), Waste Discharge Requirements, Order No. R7-2006-0015, PG&E Topock Compressor Station, San Bernardino County, California, September 29.

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California

ARCADIS, 2008. PG&E, Floodplain Reductive Zone In-Situ Pilot Test, Final Completion Report, PG&E Topock Compressor Station, San Bernardino County, California, March 5.

ARCADIS, 2009. PG&E, Upland Reductive Zone In-Situ Pilot Test, Final Completion Report, PG&E Topock Compressor Station, San Bernardino County, California, March 3.

California Regional Water Quality Control Board, Colorado River Basing Region, 2008. Letter to Yvonne J. Meeks, Project Manager, Pacific Gas & Electric Company, May 29, 2008.

CH2M Hill, 2005. Sampling, Analysis, and Field Procedures Manual (SAFPM), PG&E Topock Program, PG&E Topock Compressor Station Needles, California, March 31, 2005.

Pacific Gas & Electric Company, 2008. Letter to Robert Perdue. Executive Officer. California Regional Water Quality Control Board, Colorado River Basin Region, May 29, 2008.

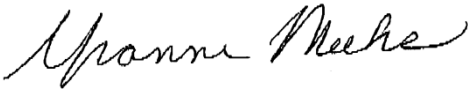
8.0 Certification

PG&E submitted a signature delegation letter to the Water Board on July 5, 2006. The letter delegated PG&E's signature authority to Mr. Curt Russell and Ms. Yvonne Meeks.

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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: Yvonne Meeks
Company: PG&E
Title: Project Manager
Date: April 15, 2009

Table 1
Boring and Well Construction Detail Summary
PG&E Topock
Needles, California

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Well or Boring Designation	Date Completed	Aquifer Zone	Ground Elevation* (feet msl)	TOC Elevation** (feet msl)	Total Depth of Boring (feet bgs)	Casing Diameter (inches)	Boring Diameter (inches)	Well Completion Depth (feet bgs)	Well Completion Elevation (feet msl)	Screen Depth Interval (feet bgs)	Screen Elevation Interval (feet msl)	Sand Pack Depth Interval (feet bgs)	Sand Pack Elevation Interval (feet msl)	Bentonite Depth Interval (feet bgs)	Bentonite Elevation Interval (feet msl)	Well Permit Number	Distance From PTR-1 (feet)	Distance From PTR-2 (feet)	Latitude	Longitude
PT-7S	11-May-07	S	-	561.04	155	2	6	230	330.54	130-150	431-411	129-155	432-406	127-129	434-432	2007040400	17	122	34.71663	-114.49390
PT-7M	11-May-07	M	-	560.66***	187.5	2	6	187.5	373.66	165-185	396-376	164-187	397-374	162-164	399-397	2007040401	20	118	34.71662	-114.49391
PT-7D	11-May-07	D	-	560.46	221.5	2	6	230	330.42	197-217	363-343	196-221.5	364-338.5	194-196	366-364	2007040402	17	122	34.71663	-114.49390
PT-8S	21-May-07	S	-	562.60	152	2	6	225	337.60	127-147	436-416	126-152	437-411	124-126	439-437	2007040403	68	70	34.71650	-114.49382
PT-8M	21-May-07	M	562.47	562.59	184.5	2	6	184.5	378.09	162-182	401-381	161-184.5	402-378.5	159-161	404-402	2007040404	67	71	34.71651	-114.49381
PT-8D	21-May-07	D	-	562.07	212.5	2	6	225	337.07	190-210	373-353	189-212.5	374-350.5	187-189	376-374	2007040405	68	70	34.71650	-114.49382
PT-9S	6-Jun-07	S	-	559.68	153	2	6	218	341.67	128-148	432-412	126-153	434-407	120-126	440-434	2007040406	119	180	34.71684	-114.49362
PT-9M	6-Jun-07	M	559.50	559.67	187	2	6	187	372.67	162-182	398-378	158-187	402-373	155-158	405-402	2007040407	116	181	34.71684	-114.49364
PT-9D	6-Jun-07	D	559.56	559.66	212.5	2	6	218	341.66	190-210	370-350	188-212.5	372-347.5	156-188	404-372	2007040408	120	181	34.71684	-114.49362
MW-11	30-Jun-97	S	-	522.19	86.5	4	6	84	438.19	62-82	460-480	59-83	522.83-509.83	55-59	467.19-463.19	-	179	282	-	-
MW-24A	13-May-96	S	-	567.44	124.5	4	-	124.5	441.50	104-124	443-463	99-124.5	441.5-416.5	91-99	475-467	-	131	12	-	-
MW-24B	16-May-98	M	-	565.18	217.5	4	-	217.5	348.50	193-213	373-393	188-217.5	378-348.5	182.5-188	383.5-378	-	127	59	-	-
MW-38S	11-Apr-04	S	522.8	526.66	130	2	-	130	400.00	75-95	455-475	70-95.3	460-434.7	65-70	465-460	-	308	270	34.718640	-114.494285
MW-38D	10-Apr-04	D	523.0	526.74	195	2	-	195	335.00	166-188	364-384	152.8 - 188.3	377.2-341.7	147-152.8	383-377.2	-	323	280	34.715851	-114.494402
PTR-1	2-May-07	S/D	554***	560.21	225	6	10	225	335.21	125-160	435-470	123-162	442-403	118-123	442-437	2007040409	0	138	34.71666	-114.49395
PTR-2	2-May-07	S/D	554***	564.94	223	6	10	223	341.94	175-220	385-340	173-225	392-340	162-173	398-387	2007040410	138	0	34.71634	-114.49369
										173-218	392-347	172-223	393-218	159-172	406-393					

Notes:

feet bgs	Feet below ground surface
feet msl	Feet mean sea level
PTI-	Pilot test injection well
PT-	Pilot test monitoring well
S	Shallow
M	Middle
D	Deep
TOC	Top of casing
*	Elevations are in feet, North American Vertical Datum of 1988 (NAVD 88), NGS data sheet EU0763.
**	Reference elevation
***	Elevations are approximate, resurvey in progress
-	Not available

Table 2
Summary of Field Parameters
PG&E Topock
Needles, California

First Quarter 2009 Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test

Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	ORP (mV)	pH	Specific Conductance (µS/cm)	Temperature (°C)	DO (mg/L)	Depth to Water (feet below TOC)	Hexavalent Chromium Field (µg/L)
PT-7S	18-Jul-07	N	130-150	-62.7	7.67	5,697	31.25	4.13	103.58	920
	22-Jan-08	N		132	7.60	4,369	23.5	4.12	105.75	1,760
	06-Mar-08	N		-70.4	7.26	5,514	29.47	0.54	105.11	1,800
	13-Mar-08	N		-112.4	7.32	4,860	29.6	0.15	104.98	1,400
	18-Mar-08	N		-114.1	7.42	5,328	29.6	0.075	104.89	1,280
	25-Mar-08	N		-55.9	7.43	5,235	29.69	0.87	104.66	1,680
	02-Apr-08	N		-179.1	7.50	5,577	29.68	0.41	104.78	1,700
	17-Apr-08	N		-161.8	7.37	5,682	27.01	0.66	104.26	1,340
	29-Apr-08	N		-210.6	7.37	4,804	29.75	0.35	103.33	220
	15-May-08	N		-155.6	7.35	5,090	30.1	0.38	103.72	1,040
	29-May-08	N		-143	7.33	5,781	29.88	0.33	103.77	1,440
	11-Jun-08	N		41.6	7.27	5,694	29.95	0.72	103.64	1,800
	24-Jun-08	N		0.2	6.83	5,044	30.11	0.16	103.55	1,060
	23-Jul-08	N		22.8	7.47	5,503	30.13	0.18	103.59	201
	21-Aug-08	N		-92.0	7.39	6,500	30.15	0.67	103.53	820
	18-Sep-08	N		-165.8	7.54	5,479	28.63	0.79	104.22	489
	15-Oct-08	N		5363.0	7.20	5,362	29.97	0.32	104.48	<10
	12-Nov-08	N		-109.4	7.60	5,897	29.93	0.17	104.78	280
	05-Feb-09	N		-18.2	7.54	5,791	30.50	0.39	105.39	166
PT-7M	19-Jul-07	N	165-185	-40.2	7.76	7,224	33.99	3.75	103.90	1,480
	24-Jan-08	N		10.6	7.17	9,257	30.06	0.85	105.79	2,840
	06-Mar-08	N		-487	7.34	6,818	29.91	0.07	105.48	22
	13-Mar-08	N		-280.12	6.99	6,650	29.99	0.08	105.06	240
	18-Mar-08	N		-324.9	6.85	6,870	30.21	0.057	105.07	86
	25-Mar-08	N		-320.6	6.75	6,806	30.25	0.46	104.67	37
	02-Apr-08	N		-338.3	7.01	7,208	30.20	0.13	104.83	220
	17-Apr-08	N		-231.4	6.85	6,980	28.00	0.55	104.31	80
	29-Apr-08	N		-278.6	6.89	6,610	30.55	0.36	101.26	1,020
	14-May-08	N		-254.3	6.72	7,802	30.82	0.13	103.80	80
	29-May-08	N		-213.9	6.76	7,526	30.81	0.22	103.72	60
	11-Jun-08	N		-199.3	6.77	6,879	31.07	0.27	83.83	27
	19-Jun-08	N		-239.1	6.74	8,241	31.02	0.08	102.84	---
	25-Jun-08	N		-161.8	6.66	7,973	31.11	0.13	79.51	35
	01-Jul-08	N		-217.2	6.61	7,604	31.41	0.04	97.30	---
	23-Jul-08	N		-187.9	6.68	7,417	31.48	0.13	88.72	14
	21-Aug-08	N		-189.2	6.72	8,498	31.49	0.32	103.48	160
	18-Sep-08	N		-231.0	6.78	7,506	31.57	0.57	104.51	37
	15-Oct-08	N		-199.3	7.29	7,931	25.91	1.05	103.89	419
	12-Nov-08	N		-35.9	6.82	5,974	22.76	0.94	104.77	<10

Table 2
Summary of Field Parameters
PG&E Topock
Needles, California

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Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	ORP (mV)	pH	Specific Conductance (µS/cm)	Temperature (°C)	DO (mg/L)	Depth to Water (feet below TOC)	Hexavalent Chromium Field (µg/L)
PT-7D	18-Jul-07	N	197-217	-76.7	7.91	16,327	31.46	1.9	103.65	6,240
	24-Jan-08	N		10.9	7.86	19,260	30.35	0.58	105.90	9,280
	06-Mar-08	N		-322.8	7.97	12,840	30.3	0.05	105.53	568
	13-Mar-08	N		-189.4	7.76	1,138	30.43	0.07	105.04	360
	18-Mar-08	N		-379.8	7.28	12,933	30.46	0.58	105.00	58
	25-Mar-08	N		-320.4	7.19	13,090	30.53	0.74	104.75	35
	02-Apr-08	N		-313	7.50	13,818	30.53	0.05	104.83	140
	17-Apr-08	N		-310.1	7.01	10,406	28.2	0.42	104.11	360
	29-Apr-08	N		-311.3	7.05	9,035	30.79	0.63	94.86	260
	15-May-08	N		-424.7	6.68	10,224	31.02	0.36	103.76	100
	29-May-08	N		-330.7	6.68	10,985	31.03	0.32	101.80	100
	11-Jun-08	N		-274.9	6.78	8,920	31.38	0.29	84.54	23
	19-Jun-08	N		-372.1	6.70	10,173	31.44	0.09	102.18	---
	24-Jun-08	N		-248.9	6.51	8,952	31.2	0.1	86.30	54
	01-Jul-08	N		-290.4	6.65	9,071	31.44	0.05	102.94	---
	23-Jul-08	N		-189.2	6.67	8,509	31.72	0.12	80.54	18
	21-Aug-08	N		-256.3	7.00	8,647	32.01	0.15	103.69	180
	18-Sep-08	N		-258.8	6.65	9,188	30.00	0.28	103.66	<10
	14-Oct-08	N		-205.6	6.14	8,508	28.54	0.45	103.64	78
	12-Nov-08	N		-195.0	7.71	8,290	21.15	0.33	104.58	18
PT-8S	16-Jul-07	N	127-147	-66.4	7.90	5,389	31.07	7.02	105.29	1,670
	23-Jan-08	N		109.1	7.49	5,890	29.44	5.68	107.38	1,980
	05-Mar-08	N		-68.6	7.71	5,440	29.61	2.77	107.00	1,040
	13-Mar-08	N		131	7.34	4,969	29.72	0.26	106.61	390
	18-Mar-08	N		-145.9	7.64	5,024	29.61	0.48	106.47	162
	25-Mar-08	N		-43	7.51	4,795	29.54	0.49	106.39	306
	02-Apr-08	N		-176.3	7.53	5,101	29.57	0.08	106.31	1,080
	16-Apr-08	N		44.8	7.48	5,251	27.89	0.56	105.91	667
	29-Apr-08	N		-132.9	7.19	6,017	29.58	0.26	106.87	180
	14-May-08	N		-204.5	7.11	6,480	29.78	0.21	105.41	60
	28-May-08	N		-276.3	7.72	6,949	29.58	0.46	105.45	32
	11-Jun-08	N		-252.7	6.61	9,212	29.63	0.36	105.41	18
	19-Jun-08	N		-296.4	6.90	9,079	29.68	0.11	105.41	---
	25-Jun-08	N		-217.8	6.66	10,733	30.1	0.14	105.29	46
	01-Jul-08	N		-178.9	6.85	9,835	29.97	0.09	105.33	---
	23-Jul-08	N		-204.0	6.99	10,853	30	0.13	105.16	500
	20-Aug-08	N		-188.9	6.94	9,860	30	1.89	105.41	12
	17-Sep-08	N		-165.6	6.79	9,114	30	6.79	103.60	<10
	15-Oct-08	N		-145.7	6.92	9,055	28	0.49	106.10	28
	12-Nov-08	N		-82.3	7.08	9,443	25	0.99	106.44	11
	04-Feb-09	N		-146.0	7.02	8,421	28	2.91	106.93	<10

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Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	ORP (mV)	pH	Specific Conductance (µS/cm)	Temperature (°C)	DO (mg/L)	Depth to Water (feet below TOC)	Hexavalent Chromium Field (µg/L)
PT-8M	18-Jul-07	N	162-182	54.9	7.18	6,698	29.67	2.9	105.18	3,740
	23-Jan-08	N		36.1	7.17	8,047	29.95	1.72	107.30	4,660
	05-Mar-08	N		-96.4	7.40	7,930	29.89	1.68	107.10	3,680
	13-Mar-08	N		145.3	7.14	6,886	29.84	2.52	106.72	4,060
	19-Mar-08	N		164.5	7.34	7,238	29.87	3.64	106.65	3,340
	25-Mar-08	N		-6.1	7.19	6,955	29.99	2.77	106.30	4,100
	02-Apr-08	N		-129.7	7.23	7,308	29.81	1.47	106.24	4,100
	16-Apr-08	N		8.7	7.14	7,230	28.4	1.55	105.98	4,080
	29-Apr-08	N		-49.6	7.04	6,453	29.81	3.02	103.26	4,120
	14-May-08	N		-35.1	6.98	6,939	30.00	2.90	105.59	3,820
	28-May-08	N		-69.4	7.13	7,094	29.93	3.95	105.37	4,220
	11-Jun-08	N		-38.0	7.06	6,769	29.95	2.23	105.35	3,860
	19-Jun-08	N		-75.5	7.02	7,437	29.99	0.15	105.73	---
	25-Jun-08	N		23	6.89	6,634	30.19	0.85	76.50	4,140
	01-Jul-08	N		-22.2	6.98	6,438	30.03	0.07	105.30	---
	23-Jul-08	N		-0.6	7.13	6,511	29.93	0.31	105.47	4,000
	20-Aug-08	N		-37.0	7.22	6,769	29.97	0.32	105.71	3,140
	17-Sep-08	N		-80.1	7.01	6,884	29.87	1.11	105.93	2,460
	15-Oct-08	N		-101.0	6.99	6,277	29.99	0.24	106.19	2,940
	12-Nov-08	N		15.6	6.93	6,507	29.77	0.16	106.46	2,200
	04-Feb-09	N		3.9	6.77	7,084	29.94	1.22	106.90	1,660
PT-8D	16-Jul-07	N	190-210	-54.6	7.99	16,042	33.76	6.39	105.09	6,120
	23-Jan-08	N		24.1	7.86	17,790	30.23	0.97	107.34	6,980
	05-Mar-08	N		-128.4	8.13	18,118	30.18	0.78	107.09	6,220
	13-Mar-08	N		195	7.85	1,589	30.3	1.21	106.80	5,740
	18-Mar-08	N		-57.3	7.93	17,392	30.28	1.34	106.77	5,460
	25-Mar-08	N		-34	7.87	16,250	30.32	0.77	106.45	5,700
	02-Apr-08	N		-169.2	7.90	16,964	30.15	0.29	107.17	4,800
	16-Apr-08	N		-39.1	7.85	17,458	28.44	0.90	106.13	6,480
	29-Apr-08	N		-108.1	7.74	15,000	30.39	0.71	105.91	4,940
	14-May-08	N		-99.5	7.57	14,622	30.37	0.32	105.89	3,800
	28-May-08	N		-52.9	7.79	16,139	30.24	0.39	105.50	1,220
	11-Jun-08	N		-89.7	7.75	15,420	30.36	0.43	106.56	3,960
	19-Jun-08	N		-129.8	7.76	16,400	30.4	0.26	105.63	---
	25-Jun-08	N		-163.9	7.49	14,750	30.38	0.23	104.57	2,920
	01-Jul-08	N		-155.5	7.71	15,337	30.47	0.18	105.20	
	23-Jul-08	N		-110.3	7.93	15,325	30.41	0.20	104.97	3,660
	20-Aug-08	N		-156.0	8.04	16,099	30.35	0.38	105.69	4,100
	17-Sep-08	N		-192.7	7.86	15,196	30.24	0.42	106.06	3,820
	15-Oct-08	N		-244.3	7.25	13,194	30.10	0.73	106.76	512
	12-Nov-08	N		-109.4	7.44	15,128	30.13	0.16	106.34	596
	04-Feb-09	N		-236.0	8.02	15,755	29.38	1.32	107.11	1,340

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Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	ORP (mV)	pH	Specific Conductance (µS/cm)	Temperature (°C)	DO (mg/L)	Depth to Water (feet below TOC)	Hexavalent Chromium Field (µg/L)
PT-9S	17-Jul-07	N	128-148	-61.5	7.86	4,919	33.28	4.97	102.33	2,620
	22-Jan-08	N		157.1	7.53	4,784	27.16	3.97	104.50	1,580
	05-Mar-08	N		41.8	7.71	4,942	25.95	4.21	104.08	1,360
	12-Mar-08	N		144.6	7.62	4,280	27.81	3.12	103.80	1,480
	19-Mar-08	N		125.6	7.73	4,819	27.07	2.68	103.71	1,200
	26-Mar-08	N		25.1	7.54	4,106	27.92	3.1	103.47	1,580
	02-Apr-08	N		-34.4	7.60	4,822	27.91	3.2	103.38	1,540
	16-Apr-08	N		149.3	7.50	4,800	27.79	2.79	103.09	1,640
	29-Apr-08	N		180.4	7.44	4,350	28.55	5.99	107.00	1,360
	14-May-08	N		-57.5	7.44	4,369	28.23	2.91	102.56	1,240
	28-May-08	N		2.0	7.52	4,840	28.61	2.78	102.48	1,540
	11-Jun-08	N		146.1	7.50	4,511	26.51	4.74	102.50	1,540
	25-Jun-08	N		21.4	7.30	4,778	28.86	3.91	102.27	1,420
	24-Jul-08	N		123.4	7.63	4,490	29.7	4.79	102.54	1,740
	20-Aug-08	N		-9.6	7.74	4,499	29.97	4.54	102.87	1,760
	17-Sep-08	N		154.4	7.43	4,908	27.72	2.86	103.00	1,880
	15-Oct-08	N		114.0	7.47	4,660	28.37	4.94	103.32	1,100
	12-Nov-08	N		-2.3	7.37	5,912	25.66	3.15	103.53	760
	05-Feb-09	N		-53.6	7.51	5,907	26.4	2.49	104.08	1,060
PT-9M	17-Jul-07	N	162-182	-57.0	7.34	6,605	31.74	4.09	102.34	3,460
	22-Jan-08	N		58.8	7.03	7,963	30.05	3.34	104.49	3,000
	05-Mar-08	N		-41.7	7.37	7,982	29.99	3.06	104.10	2,100
	12-Mar-08	N		120.5	7.14	7,080	29.87	3.46	103.86	2,740
	19-Mar-08	N		48.9	7.28	7,710	30.08	3.03	103.69	2,420
	26-Mar-08	N		110.2	7.10	6,572	29.88	3.56	103.48	2,480
	02-Apr-08	N		55.7	7.08	7,798	29.81	2.34	77.22	2,800
	16-Apr-08	N		40.3	7.09	7,653	29.28	2.07	78.96	2,940
	29-Apr-08	N		-1.2	7.04	6,791	29.96	3.95	98.07	2,760
	14-May-08	N		-17.0	6.94	7,633	30.13	3.59	102.80	2,760
	28-May-08	N		-6.8	7.09	7,593	29.99	3.65	102.40	2,640
	11-Jun-08	N		70.1	7.00	7,238	30.13	4	90.56	2,980
	25-Jun-08	N		23.1	6.91	6,977	30.08	4.1	102.75	2,800
	24-Jul-08	N		198.7	7.27	6,706	30.01	4.57	102.47	2,800
	20-Aug-08	N		6.3	7.20	7,282	30.02	3.83	102.82	2,800
	17-Sep-08	N		111.3	7.07	7,304	29.85	4.04	103.06	2,860
	15-Oct-08	N		66.9	7.11	6,726	29.73	3.73	103.27	3,280
	12-Nov-08	N		71.3	7.14	7,152	29.85	2.95	103.36	3,180
	05-Feb-09	N		55.3	7.17	7,950	29.79	1.88	104.20	3,260

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Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	ORP (mV)	pH	Specific Conductance (µS/cm)	Temperature (°C)	DO (mg/L)	Depth to Water (feet below TOC)	Hexavalent Chromium Field (µg/L)
PT-9D	17-Jul-07	N	190-210	-74.8	7.87	14,027	31.46	1.14	102.18	10,050
	22-Jan-07	N		47.9	7.76	17,070	30.4	1.23	104.38	17,080
	05-Mar-08	N		-85.7	8.05	17,396	30.44	0.98	104.12	15,820
	12-Mar-08	N		198.4	7.78	1,541	30.16	1.52	103.89	14,060
	19-Mar-08	N		71.3	7.94	16,747	30.35	0.97	103.80	13,580
	26-Mar-08	N		35.2	7.81	13,975	30.39	0.98	103.50	12,220
	02-Apr-08	N		-93	7.83	16,109	30.41	0.51	105.17	13,980
	16-Apr-08	N		44.1	7.76	12,223	29.4	1.25	103.31	14,130
	29-Apr-08	N		-53.9	7.60	14,014	30.31	0.96	102.82	10,790
	14-May-08	N		-89.2	7.56	15,231	30.44	0.7	102.92	10,850
	28-May-08	N		101.2	7.68	15,667	30.34	0.8	102.51	14,450
	11-Jun-08	N		107.6	7.62	15,590	30.11	1.15	85.69	13,660
	25-Jun-08	N		14.2	7.45	14,474	30.46	0.68	102.49	10,400
	24-Jul-08	N		162.4	7.65	14,681	30.34	0.77	102.05	10,780
	20-Aug-08	N		17.7	7.84	16,555	30.46	1.15	102.87	14,400
	17-Sep-08	N		136.6	7.73	15,588	30.32	1.2	103.11	15,180
	15-Oct-08	N		80.0	7.52	13,691	30.06	2.56	103.36	9,300
	12-Nov-08	N		80.7	7.64	16,534	30.19	0.69	103.42	13,900
	05-Feb-09	N		37.1	7.73	16,997	30.48	0.99	104.10	15,860
MW-11	17-Jul-07	N	63-88	-23.7	7.56	2,176	30.15	8.81	65.60	260
	24-Jan-08	N		137.3	7.40	2,312	28710	7.61	67.67	342
	04-Mar-08	N		51.6	7.47	2,262	28.79	0.93	67.09	350
	11-Mar-08	N		149.2	7.44	2,169	29.81	7.1	66.97	319
	19-Mar-08	N		29.5	7.61	2,279	29.27	5.59	66.85	340
	26-Mar-08	N		110.2	7.37	2,205	29.52	7.91	66.62	360
	01-Apr-08	N		-48.8	7.47	4,194	29.17	6.44	66.60	334
	15-Apr-08	N		66.5	7.24	2,097	30.06	5.66	66.06	326
	28-Apr-08	N		-23.2	7.41	20	29.86	9.03	65.82	322
	13-May-08	N		-35.9	7.24	2,351	30.04	6.76	65.83	420
	27-May-08	N		32.1	7.24	2,208	29.87	9.66	65.64	380
	10-Jun-08	N		-11.3	7.20	2,196	30.73	8.14	65.49	302
	24-Jun-08	N		54.6	7.01	2,287	29.17	8.96	65.54	252
	22-Jul-08	N		125.8	7.40	2,370	29.35	6.71	65.63	299
	21-Aug-08	N		151.7	7.43	2,210	29.49	8.68	65.84	285
	16-Sep-08	N		-43.3	7.32	2,203	29.37	7.51	66.10	269
	14-Oct-08	N		43.0	7.42	2,120	29.37	6.43	66.36	337
	11-Nov-08	N		144.3	7.69	2,161	29.21	5.87	66.78	343
	03-Feb-09	N		39.2	7.00	2,229	29.22	6.48	67.30	330

Table 2
Summary of Field Parameters
PG&E Topock
Needles, California

First Quarter 2009 Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test

Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	ORP (mV)	pH	Specific Conductance (µS/cm)	Temperature (°C)	DO (mg/L)	Depth to Water (feet below TOC)	Hexavalent Chromium Field (µg/L)
MW-24A	18-Jul-07	N	104-124	-43.9	7.67	2,707	32.20	2.89	110.05	1,100
	24-Jan-08	N		79.8	7.51	3,090	28.51	1.95	112.20	2,980
	06-Mar-08	N		-119.7	7.45	10,486	29.02	0.61	111.33	325
	12-Mar-08	N		-201.4	7.44	9,758	31.2	0.2	111.50	14,060
	19-Mar-08	N		-250.7	7.04	9,950	30.13	0.16	111.48	111
	26-Mar-08	N		-299.6	6.54	8,402	30.7	0.39	111.25	173
	01-Apr-08	N		-299.1	7.06	1,638	30.6	0.04	---	440
	17-Apr-08	N		-285.9	6.62	10,291	30.9	1.39	110.85	160
	30-Apr-08	N		-315.7	6.45	10,294	32.03	1.46	110.15	220
	30-Apr-08	FD		-315.7	6.45	10,294	32.03	1.46	110.15	220
	15-May-08	N		-350.1	6.54	10,940	33.47	0.44	109.82	120
	27-May-08	N		-278.1	6.33	10,759	32.8	1.29	110.20	<10
	12-Jun-08	N		-259.9	6.70	10,910	32.6	0.8	111.66	<10
	19-Jun-08	N		-222.4	6.49	11,469	32.81	1.28	110.28	---
	26-Jun-08	N		-228.5	7.20	107	30.84	0.17	110.13	18
	01-Jul-08	N		-320.4	6.82	10,282	31.3	0.07	109.73	---
	24-Jul-08	N		-224.9	7.57	10,670	32.38	0.32	110.26	180
	19-Aug-08	N		-302.5	7.20	10,311	33.74	2.06	110.53	17
	16-Sep-08	N		-343.8	6.54	9,799	30.03	0.31	110.78	50
	16-Oct-08	N		-259.4	7.01	10,626	30.91	0.70	111.11	123
	13-Nov-08	N		-284.9	7.57	10,952	27.05	0.44	111.33	<10
	03-Feb-09	N		-360.6	6.66	10,894	28.14	1.13	111.92	<10
MW-24B	18-Jul-07	N	193-213	-57.9	7.86	15,371	31.40	3.02	107.92	2,340
	24-Jan-08	N		-9.7	7.74	17,450	29.91	0.85	109.75	5,400
	06-Mar-08	N		28.1	7.73	17,751	28.05	1.49	110.20	4,400
	12-Mar-08	N		-19.4	7.78	1,669	30.62	1.11	109.47	4,800
	19-Mar-08	N		-32.7	7.90	17,369	30.16	0.78	109.22	4,460
	26-Mar-08	N		-28	7.77	14,547	30.91	88	109.23	4,700
	02-Apr-08	N		-292.2	7.77	17,340	30.13	0.54	109.00	4,420
	17-Apr-08	N		-141.4	7.77	16,429	30.42	1.09	108.60	4,640
	30-Apr-08	N		-222.7	7.79	15,539	30.45	0.85	105.82	3,800
	15-May-08	N		-82.0	7.65	17,017	30.36	0.80	108.57	3,860
	28-May-08	N		-105.4	7.76	16,854	30.25	2.54	108.14	3,940
	12-Jun-08	N		-66.6	7.72	16,160	30.23		111.23	3,980
	26-Jun-08	N		24.7	7.68	10,275	30.09	0.49	108.06	3,400
	24-Jul-08	N		-22.0	7.82	16,374	30.19	0.39	108.29	3,240
	19-Aug-08	N		-25.7	7.61	16,302	30.51	0.48	108.31	3,400
	17-Sep-08	N		-64.4	7.76	15,433	29.49	0.79	108.56	3,360
	16-Oct-08	N		88.6	7.60	15,816	31.18	1.18	109.03	3,380
	13-Nov-08	N		9.3	7.66	16,049	31.12	0.47	109.14	3,000
	04-Feb-09	N		-18.6	7.69	16,432	31.64	1.29	109.90	3,000

Table 2
Summary of Field Parameters
PG&E Topock
Needles, California

First Quarter 2009 Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test

Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	ORP (mV)	pH	Specific Conductance (µS/cm)	Temperature (°C)	DO (mg/L)	Depth to Water (feet below TOC)	Hexavalent Chromium Field (µg/L)
MW-38S	17-Jul-07	N	75-95	27.2	7.52	3,306	29.00	6.02	69.04	720
	23-Jan-08	N		36.6	7.56	3,175	27.08	5.33	71.05	1,140
	04-Mar-08	N		150	7.59	3,194	27.72	0.57	70.71	1,200
	11-Mar-08	N		56	7.70	3,094	28.37	2.95	70.40	1,300
	20-Mar-08	N		117.6	7.71	3,218	27.3	5.31	70.43	1,140
	26-Mar-08	N		24.1	7.39	2,687	28.36	4.2	70.18	1,260
	01-Apr-08	N		-16.4	7.57	5,892	28.48	4.6	70.10	1,280
	15-Apr-08	N		116.4	7.41	2,958	28.64	3.89	69.66	1,180
	28-Apr-08	N		-88.8	7.70	2,875	29.05	5.22	69.45	1,340
	13-May-08	N		-41.3	7.38	3,213	28.62	4.18	69.27	1,120
	27-May-08	N		-20.0	7.43	3,035	28.39	4.82	69.17	1,180
	10-Jun-08	N		-14.1	7.50	2,569	28.8	1.59	66.62	1,320
	24-Jun-08	N		10.7	7.20	3,041	28.65	4.82	69.12	1,140
	22-Jul-08	N		185.1	7.54	3,045	29.33	2.85	69.10	1,280
	20-Aug-08	N		7.2	7.71	2,832	28.88	1.49	65.66	1,340
	16-Sep-08	N		80.9	7.46	2,811	29.00	1.54	69.50	1,360
	14-Oct-08	N		141.6	7.43	2,684	28.63	0.67	69.94	1,540
	11-Nov-08	N		136.7	7.77	2,701	27.87	3.71	70.18	1,440
	03-Feb-09	N		40.1	7.28	2,816	28.41	3.33	70.83	1,600
MW-38D	17-Jul-07	N	166-188	-62.9	7.81	20,894	30.63	1.2	69.37	1,410
	23-Jan-08	N		-32.8	7.78	23,020	30.28	0.14	71.29	69
	04-Mar-08	N		-39	7.86	23,367	30.09	0.11	71.01	77
	11-Mar-08	N		-54.0	7.80	2,260	30.28	0.3	70.86	72
	20-Mar-08	N		174.8	7.95	234	30.18	0.14	70.79	54
	26-Mar-08	N		-47.9	7.77	19,673	30.4	0.18	70.53	54
	01-Apr-08	N		-79.7	8.10	42,680	30.22	0.10	67.43	53
	15-Apr-08	N		-56.2	7.65	21,852	30.06	0.50	70.83	62
	15-Apr-08	FD		-56.2	7.65	21,852	30.06	0.50	70.83	62
	28-Apr-08	N		-2.1	7.79	21,005	30.26	0.45	69.96	62
	13-May-08	N		-106.5	7.62	23,691	30.27	0.18	188.30	<10
	27-May-08	N		10.2	7.68	2,246	30.27	0.57	69.63	189
	10-Jun-08	N		36.9	7.74	21,879	30.49	0.5	69.22	64
	24-Jun-08	N		-80.4	7.80	22,824	30.32	0.17	69.58	53
	22-Jul-08	N		110.6	7.81	23,605	30.41	0.15	69.50	69
	20-Aug-08	N		89.0	7.93	22,069	30.33	0.20	69.81	66
	16-Sep-08	N		-118.3	7.73	21,191	29.29	0.39	70.07	70
	14-Oct-08	N		86.3	7.72	21,347	30.19	2.56	70.38	87
	11-Nov-08	N		159.3	7.82	21,866	30.24	0.33	68.70	71
	03-Feb-09	N		58.4	7.64	23,061	30.12	0.55	71.15	59

Table 2
Summary of Field Parameters
PG&E Topock
Needles, California

First Quarter 2009 Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test

Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	ORP (mV)	pH	Specific Conductance (µS/cm)	Temperature (°C)	DO (mg/L)	Depth to Water (feet below TOC)	Hexavalent Chromium Field (µg/L)
PTR-1	19-Jul-07	N	*	-50.9	7.91	8,927	31.2	1.6	102.65	201
	25-Jan-08	N		228.7	7.48	7,093	22.52	2.09	---	920
	06-Mar-08	N		23.2	7.77	4,750	26.9	1.2	---	641
	11-Mar-08	N		114.3	6.74	4,453	32.84	1.99	---	380
	20-Mar-08	N		-139.7	7.97	3,105	37.50	1.54	---	62
	27-Mar-08	N		185.1	7.46	1,489	31.28	3.7	---	654
	01-Apr-08	N		-215.3	7.97	10,980	33.58	1.39	---	240
	16-Apr-08	N		-42.4	7.63	4,019	33.01	0.92	---	52
	29-Apr-08	N		-232.9	7.23	4,479	28.91	0.54	---	22
	15-May-08	N		-221.6	6.98	5,158	32.1	0.60	---	120
	29-May-08	N		-107.5	7.34	4,640	36.35	0.80	---	25
	12-Jun-08	N		-159.4	7.69	5,661	33.60	1.34	---	1
	19-Jun-08	N		-119.7	7.79	6,231	38.28	0.78	---	---
	26-Jun-08	N		-113.6	7.58	5,640	38.43	1.10	---	<10
	01-Jul-08	N		-1115	7.62	5,868	39.84	1.24	---	---
	24-Jul-08	N		90.5	7.46	5,365	37.00	1.24	---	480
	19-Aug-08	N		40.8	7.44	5,752	36.86	1.60	---	<10
	18-Sep-08	N		-33.3	7.57	5,804	31.94	0.96	---	<10
	16-Oct-08	N		-74.8	7.28	6,139	38.5	1.35	---	11
	13-Nov-08	N		-23.3	7.33	4,410	33.2	1.09	---	<10
	04-Feb-09	N		-227.9	7.25	5,702	32.15	0.50	102.73	<10
PTR-2	18-Jul-07	N	*	-56.7	7.40	9,367	30.52	1.01	110.34	2,020
	25-Jan-08	N		167.8	7.31	9,122	28.41	2.37	---	4,920
	06-Mar-08	N		33.8	7.31	1,007	28.7	1.27	---	4,800
	11-Mar-08	N		125	6.92	9,837	28.21	1.59	---	5,660
	20-Mar-08	N		-27.2	7.70	4,116	37.18	3.66	---	19,500
	27-Mar-08	N		52.8	7.76	2,146	32.21	4.4	---	8,700
	01-Apr-08	N		-46.9	7.45	1,953	36.75	1.56	---	4,240
	15-Apr-08	N		-79.1	7.42	50	33.21	2.24	---	552
	29-Apr-08	N		-82.4	7.20	10,168	26.61	2.07	---	5,320
	15-May-08	N		45.0	7.30	11,203	29.69	1.43	---	5,060
	28-May-08	N		-60.0	7.73	8,988	32.73	1.95	---	4,280
	10-Jun-08	N		69.0	7.54	10,684	37.77	1.46	---	196
	19-Jun-08	N		170.6	7.55	9,106	38.22	1.4	---	---
	26-Jun-08	N		20.9	7.32	10,484	31.34	0.79	---	4,280
	01-Jul-08	N		-54.3	7.20	10,163	37.45	0.81	---	---
	24-Jul-08	N		281.5	7.26	10,747	33.07	1.18	---	4,900
	19-Aug-08	N		-19.6	7.30	5,956	37.04	---	---	2,000
	18-Sep-08	N		128.9	7.37	5,782	30.6	1.49	---	2,160
	16-Oct-08	N		-154.8	7.14	10,131	28.5	0.85	---	4,440
	13-Nov-08	N		16.5	7.09	11,109	33.11	0.88	---	4,360
	05-Feb-09	N		-40.7	7.29	12,167	29.83	0.29	107.7	2,060

Table 2
Summary of Field Parameters
PG&E Topock
Needles, California

First Quarter 2009 Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test

Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	ORP (mV)	pH	Specific Conductance (µS/cm)	Temperature (°C)	DO (mg/L)	Depth to Water (feet below TOC)	Hexavalent Chromium Field (µg/L)
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Notes:

Most recent data indicated in **BOLD**

Depth to water recorded prior to any sampling activities. Recirculation wells PTR-1 and PTR-2 cannot be gauged post-construction due to necessary piping and well caps

ft bgs Feet below ground surface

mV Millivolts

µS/cm Microsiemens per centimeter

°C Degrees Celsius

µg/L Micrograms per liter

mg/L Milligrams per liter

ORP Oxidation Reduction Potential

N Normal

DO Dissolved oxygen

TOC Top of Casing

--- Not analyzed/Not available

* PTR-1 Screen: 125-160 and 175-220 ft bgs. PTR-2 Screen: 118-158 and 173-218 ft bgs.

Oct result for PT-7M & PT-7D are grab samples. Unable to effectively purge well because of gas buildup in the well.

Oct ORP value for PT-7S is under review; likely a mis-reading was recorded.

Table 3
Summary of Primary Analytical Parameters
PG&E Topock
Needles, California

First Quarter 2009 Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test

Location Name	Sample Date	Sample Type	Hexavalent Chromium (µg/L)	Total Dissolved Chromium (µg/L)	Total Chromium (µg/L)	Fluorescein (ppb dye)	Rhodamine (ppb dye)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Total Iron (µg/L)	Dissolved Iron (µg/L)	Dissolved Manganese (µg/L)	Total Manganese (µg/L)	Sulfate (mg/L)	Total Organic Carbon (mg/L)
PT-7S	18-Jul-07	N	1,200	1,260	1,080	---	---	22.0	<0.1	6,160	<500	55.6	1,050	674	1.18
	23-Jan-08	N	1,400	1,390	---	---	---	18.7	<0.1	558	<2,500	<2,500	462	608	2.99
	06-Mar-08	N	1,420	1,270	---	---	ND	18.6	<0.1	<500	<500	<500	34	637	<1
	13-Mar-08	N	1,100	1,070	---	0.02	ND	15.4	<0.1	<500	<2,500	<2,500	<10	588	1.25
	18-Mar-08	N	1,300	1,280	---	0.64	ND	17.7	<0.1	<500	<2,500	---	11	606	1.17
	25-Mar-08	N	1,420	1,410	---	0.96	ND	19.3	<0.2	<500	<2,500	<2,500	23	630	1.88
	02-Apr-08	N	1,490	1,510	---	0.24	ND	---	---	<500	<2,500	---	---	665	<1
	17-Apr-08	N	1,320	1,280	---	2.42	ND	---	---	<500	<2,500	---	---	737	<1
	29-Apr-08	N	812	855	---	5.71	ND	13.5	0.95	<500	<500	<500	189	567	1.84
	15-May-08	N	876	868	---	2.89	ND	---	---	<500	<500	---	---	563	<1
	29-May-08	N	1,230	1,190	---	0.07	ND	18.9	<0.5	<500	<500	<500	47.9	675	<1
	11-Jun-08	N	1,580	1,350	---	0.17	ND	---	---	<500	<500	---	---	764	---
	24-Jun-08	N	927	801	---	1.04	ND	13.2	<0.5	<500	<500	<500	134	599	1.88
	23-Jul-08	N	182	190	---	25.28	3.00	4.38	<1	<500	<500	1,450	1,650	547	14.3
	21-Aug-08	N	401	398	---	338.25	0.37	9.00	<1	<500	<500	2,230	2,620	486	896
	18-Sep-08	N	429	502	---	2.18	0.12	15.00	<0.5	<500	<500	690	855	629	3.21
	15-Oct-08	N	<0.2	39	---	31.73	2.80	2.93	<0.5	604	<500	1,470	1,710	381	47.8
	12-Nov-08	N	152	316	---	15.30	1.71	11.30	<0.5	<500	<500	945	1,380	543	15.9
	05-Feb-09	N	794	729	---	8.18	ND	10.00	<0.1	<100	102	366	369	770	1.5
PT-7M	19-Jul-07	N	2,320	2,240	2,110	---	---	25.2	<0.1	6,260	<500	31.6	1,150	1,250	1.02
	24-Jan-08	N	2,440	2,340	---	---	---	30.4	<0.5	<500	<1,000	<1,000	<10	1,280	<1
	06-Mar-08	N	30	16.5	---	ND	ND	<0.5	<0.1	<500	<500	702	711	846	216
	06-Mar-08	FD	33.3	18.0	---	0.03	ND	<0.5	<0.1	<500	<500	703	714	832	213
	13-Mar-08	N	<0.2	<5	---	1,193	ND	<0.5	<0.1	<500	<2,500	3,320	3,540	656	446
	18-Mar-08	N	<0.2	<5	---	3,390	ND	<5	<1	1,040	<2,500	---	6,290	205	1,550
	25-Mar-08	N	6.9	<5	---	3,030	ND	<2.5	<0.5	1,740	<2,500	8,690	9,500	144	1,500
	02-Apr-08	N	2	<5	---	2,820	ND	---	---	2,660	<2,500	---	---	105	1,270
	17-Apr-08	N	<1	<5	---	7,650	ND	---	---	6,320	3,700	---	---	<10	4,640
	29-Apr-08	N	<1	1.08	---	8,175	ND	<10	<2	1,680	1,300	11,300	14,100	<10	8,050
	14-May-08	N	<1.1	1.52	---	7,725	ND	---	---	9,070	6,900	---	---	<20	8,040
	29-May-08	N	<1	1.34	---	4,163	ND	<10	<10	12,400	11,000	18,600	18,400	<10	10,700
	11-Jun-08	N	1.4	1.98	---	3,000	ND	---	---	15,100	10,900	---	---	11.2	8,530
	19-Jun-08	N	---	---	---	---	---	---	---	---	---	---	---	---	9,340
	25-Jun-08	N	<1	1.02	---	1,898	ND	<2.5	<2.5	18,500	13,200	21,900	26,300	<2.5	8,630
	01-Jul-08	N	---	---	---	---	---	---	---	---	---	---	---	---	8,180
	08-Jul-08	N	---	---	---	---	---	---	---	---	---	---	---	---	6,980
	15-Jul-08	N	---	---	---	---	---	---	---	---	---	---	---	---	1,810
	23-Jul-08	N	<0.2	<1	---	12.375	ND	<2.5	<2.5	27,100	19,100	24,400	26,500	3.11	5,180
	28-Jul-08	N	---	---	---	---	---	---	---	---	---	---	---	---	4,930
	21-Aug-08	N	<0.2	<1	---	1,088	ND	<2.5	<2.5	38,600	34,400	31,400	31,300	11.8	5,530
	03-Sep-08	N	---	---	---	---	---	---	---	---	---	---	---	---	2,870
	18-Sep-08	N	<0.2	<1	---	1,088	ND	<1	<1	13,600	25,100	22,900	29,200	6.65	2,930
	15-Oct-08	N	<0.2	<1	---	990	ND	<2.5	<2.5	33,600	27,800	16,100	16,300	57.8	2,210
	12-Nov-08	N	<0.2	<1	---	404	ND	<1	<1	4,090	2,690	1,100	1,190	17.5	395

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Needles, California

First Quarter 2009 Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test

Location Name	Sample Date	Sample Type	Hexavalent Chromium (µg/L)	Total Dissolved Chromium (µg/L)	Total Chromium (µg/L)	Fluorescein (ppb dye)	Rhodamine (ppb dye)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Total Iron (µg/L)	Dissolved Iron (µg/L)	Dissolved Manganese (µg/L)	Total Manganese (µg/L)	Sulfate (mg/L)	Total Organic Carbon (mg/L)
PT-7D	18-Jul-07	N	7,260	7,890	7,750	---	---	7.4	<0.1	<500	<500	48.3	54	1,140	<1
	24-Jan-08	N	8,010	7,920	---	---	---	9.9	<0.5	<500	<1,000	<1,000	14	1,150	<1
	06-Mar-08	N	506	499	---	ND	ND	<0.5	<0.1	<500	<500	<500	193	903	234
	13-Mar-08	N	80.6	160	---	1,185	ND	<0.5	<0.2	<500	<2,500	<2,500	1,050	903	313
	18-Mar-08	N	<2.1	69.3	---	780	ND	<1	<0.2	<500	<2,500	---	2,220	621	309
	25-Mar-08	N	4	17.8	---	645	ND	<1	<0.5	<500	<2,500	4,080	4,320	612	313
	02-Apr-08	N	<0.2	<5	---	578	ND	---	---	<500	<2,500	---	---	633	256
	17-Apr-08	N	22.6	7.64	---	4,163	ND	---	---	<500	<2,500	---	---	179	1,410
	29-Apr-08	N	<0.2	17.2	---	5,010	ND	<10	<2	<500	<500	2,960	3,380	98	2,920
	15-May-08	N	<1.1	1.48	---	4,088	ND	---	---	2,280	1,730	---	---	96	2,780
	29-May-08	N	<1	1.14	---	3,945	ND	<10	<10	2,660	2,000	8,860	8,850	100	1,690
	11-Jun-08	N	1.5	1.48	---	6,293	ND	---	---	4,920	2,740	---	---	50.5	4,620
	19-Jun-08	N	---	---	---	---	---	---	---	---	---	---	---	---	4,520
	24-Jun-08	N	<1	49.2	---	5,250	ND	<10	<10	10,600	1,280	9,700	11,400	12.7	4,450
	01-Jul-08	N	---	---	---	---	---	---	---	---	---	---	---	---	5,850
	08-Jul-08	N	---	---	---	---	---	---	---	---	---	---	---	---	4,580
	15-Jul-08	N	---	---	---	---	---	---	---	---	---	---	---	---	5,430
	23-Jul-08	N	<0.2	2.18	---	2,048	ND	<5	<5	7,870	5,380	18,100	19,900	<5	5,140
	28-Jul-08	N	---	---	---	---	---	---	---	---	---	---	---	---	5,140
	21-Aug-08	N	<0.2	1.13	---	1,658	ND	<2.5	<2.5	7,130	6,140	19,100	20,300	30.1	4,500
	03-Sep-08	N	---	---	---	---	---	---	---	---	---	---	---	---	5,110
	18-Sep-08	N	<0.2	3.07	---	758	ND	<1	<1	25,900	10,000	27,000	20,100	11.3	2,890
	15-Oct-08	N	<0.2	7.37	---	528	ND	<1	<1	14,300	6,150	23,700	25,400	17.0	1,640
	12-Nov-08	N	<0.2	2.8	---	318	ND	<2.5	<2.5	4,460	<500	18,200	22,100	7.8	791

Table 3
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PG&E Topock
Needles, California

First Quarter 2009 Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test

Location Name	Sample Date	Sample Type	Hexavalent Chromium (µg/L)	Total Dissolved Chromium (µg/L)	Total Chromium (µg/L)	Fluorescein (ppb dye)	Rhodamine (ppb dye)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Total Iron (µg/L)	Dissolved Iron (µg/L)	Dissolved Manganese (µg/L)	Total Manganese (µg/L)	Sulfate (mg/L)	Total Organic Carbon (mg/L)
PT-8S	16-Jul-07	N	1,750	1,660	1,620	---	---	25.1	<0.1	2,670	<500	25.1	269	869	1.35
	23-Jan-08	N	1,620	1,680	---	---	---	24.9	<0.1	<500	<2,500	<2,500	<10	734	1.03
	05-Mar-08	N	1,430	1,340	---	ND	ND	22.6	<0.1	<500	<500	<500	<10	727	1.10
	13-Mar-08	N	657	657	---	ND	ND	8.4	1.61	<500	<2,500	<2,500	333	618	12.5
	18-Mar-08	N	160	164	---	ND	ND	1.7	0.82	<500	<2,500	---	1,050	561	7.18
	25-Mar-08	N	455	438	---	0.07	ND	6.2	2.42	<500	<2,500	<2,500	973	591	4.16
	02-Apr-08	N	877	884	---	ND	ND	---	---	<500	<2,500	---	---	634	1.39
	16-Apr-08	N	775	747	---	0.15	ND	---	---	<500	<2,500	---	---	408	<1
	29-Apr-08	N	76.7	95.7	---	18.60	ND	1.4	<0.2	<500	<500	2,300	2,910	560	74.3
	14-May-08	N	<0.2	18.1	---	9.60	0.35	---	---	<500	<500	---	---	481	36.0
	28-May-08	N	<0.2	2.68	---	60.00	6.92	<0.5	<2.5	532	<500	3,560	3,930	161	49.6
	28-May-08	FD	<0.2	3.05	---	62.10	6.72	<0.5	<2.5	544	<500	3,520	3,950	162	91.6
	11-Jun-08	N	1.8	4.97	---	322.5	42.6	---	---	5,530	4,210	---	---	12.7	1,100
	19-Jun-08	N	---	---	---	---	---	---	---	---	---	---	---	---	842
	25-Jun-08	N	<1	1.8	---	123	97.4	<1	<1	6,600	5,540	15,600	17,600	2.6	1,710
	01-Jul-08	N	---	---	---	---	---	---	---	---	---	---	---	---	1,740
	08-Jul-08	N	---	---	---	---	---	---	---	---	---	---	---	---	1,090
	15-Jul-08	N	---	---	---	---	---	---	---	---	---	---	---	---	1,230
	23-Jul-08	N	<0.2	<1	---	83.25	97.20	<5	<5	6,380	5,050	17,200	18,100	<5	1,210
	28-Jul-08	N	---	---	---	---	---	---	---	---	---	---	---	---	1,020
	20-Aug-08	N	<0.2	16.0	---	89.25	69.20	<1	<2.5	13,600	11,200	9,560	10,700	3.9	439
	17-Sep-08	N	<0.2	3.7	---	72.83	51.40	<1	<1	12,800	10,300	4,700	5,380	4.1	189
	15-Oct-08	N	<0.2	1.0	---	135.75	69.00	<1	<2.5	9,240	8,200	2,720	3,040	5.5	164
	12-Nov-08	N	<0.2	<1	---	83.25	49.60	<1	<1	19,700	8,090	1,640	3,030	5.2	5.41
	04-Feb-09	N	<0.2	<1	---	159.75	35.6	1.4	<0.5	7,100	6,150	2,600	2,880	100.0	3.90

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Location Name	Sample Date	Sample Type	Hexavalent Chromium (µg/L)	Total Dissolved Chromium (µg/L)	Total Chromium (µg/L)	Fluorescein (ppb dye)	Rhodamine (ppb dye)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Total Iron (µg/L)	Dissolved Iron (µg/L)	Dissolved Manganese (µg/L)	Total Manganese (µg/L)	Sulfate (mg/L)	Total Organic Carbon (mg/L)
PT-8M	18-Jul-07	N	3,960	4,120	4,140	---	---	31.8	<0.5	<500	<500	15.5	22.7	1,330	1.40
	23-Jan-08	N	4,050	4,030	---	---	---	34.9	<0.1	<500	<2,500	<2,500	<10	1,210	1.31
	05-Mar-08	N	3,820	3,910	---	ND	ND	33.9	<0.1	<500	<500	<500	<10	1,290	1.39
	13-Mar-08	N	3,870	3,870	---	ND	ND	32.4	<0.1	<500	<2,500	<2,500	<10	1,250	1.34
	19-Mar-08	N	4,030	3,850	---	ND	ND	32.6	<0.2	<500	<2,500	---	<10	1,230	1.15
	25-Mar-08	N	3,890	3,820	---	ND	ND	32.8	<0.2	<500	<2,500	<2,500	<10	1,230	1.02
	02-Apr-08	N	3,880	3,810	---	ND	ND	---	---	<500	<2,500	---	---	1,290	1.11
	16-Apr-08	N	3,670	3,730	---	ND	ND	---	---	<500	<2,500	---	---	1,280	<1
	29-Apr-08	N	3,570	3,760	---	ND	ND	31.5	<0.2	<500	<500	<500	<10	1,250	<1
	14-May-08	N	3,880	3,760	---	ND	ND	---	---	<500	<500	---	---	1,220	1.42
	28-May-08	N	3,830	3,660	---	ND	ND	12.6	<2.5	<500	<500	<500	12.8	1,010	<1
	11-Jun-08	N	2,720	3,500	---	0.32	ND	---	---	<500	<500	---	---	1,220	1.38
	19-Jun-08	N	---	---	---	---	---	---	---	---	---	---	---	---	<2
	25-Jun-08	N	3,710	3,540	---	0.02	ND	30.2	<1	<500	<500	<500	<10	1,190	1.53
	25-Jun-08	FD	3,550	3,470	---	0.02	ND	30.9	<1	<500	<500	<500	<10	1,190	1.46
	01-Jul-08	N	---	---	---	---	---	---	---	---	---	---	---	---	1.58
	23-Jul-08	N	3,620	3,480	---	0.027	ND	29.4	<1	<500	<500	<500	<10	1,130	1.55
	20-Aug-08	N	2,770	2,740	---	1.92	ND	21.8	<1	<500	<500	<500	80	1,090	2.21
	17-Sep-08	N	1,950	2,310	---	0.49	0.07	18.5	<1	<500	<500	<500	231	1,040	2.40
	15-Oct-08	N	2,900	2,780	---	0.50	0.99	26.5	<1	<500	<500	<500	16	1,110	1.64
	12-Nov-08	N	1,660	1,650	---	2.05	2.82	12.0	1.21	<500	<500	<500	314	878	2.34
	04-Feb-09	N	1,170	1,350	---	68.63	2.92	11.0	<0.5	300	179	554	532	890	3.80

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PT-8D	16-Jul-07	N	6,540	7,260	7,290	---	---	9.72	<0.2	2,620	<500	23.5	186	1,110	<1
	23-Jan-08	N	6,210	6,340	---	---	---	11.4	<0.5	<500	<5,000	<5,000	<10	1,080	<1
	05-Mar-08	N	6,510	6,600	---	ND	ND	10.7	<0.2	<500	<2,500	<2,500	<10	1,110	<1
	13-Mar-08	N	6,560	5,030	---	ND	ND	12.7	<0.5	<500	<2,500	<2,500	<10	1,270	<1
	18-Mar-08	N	5,750	5,280	---	ND	ND	11.8	<0.5	<500	<2,500	---	<10	1,130	<1
	25-Mar-08	N	5,380	5,310	---	ND	ND	12.3	<0.5	<500	<2,500	<2,500	<10	1,160	<1
	02-Apr-08	N	2,640	5,180	---	ND	ND	---	---	<500	<2,500	---	---	1,180	<1
	16-Apr-08	N	6,340	6,270	---	ND	ND	---	---	<500	<2,500	---	---	1,100	<1
	29-Apr-08	N	4,570	4,380	---	2.20	ND	12.9	<0.5	<500	<500	<500	<10	1,240	<1
	14-May-08	N	2,300	3,470	---	10.58	ND	---	---	<500	<500	---	---	1,210	8.24
	28-May-08	N	3,940	3,790	---	4.52	ND	11.2	<2.5	<500	<500	<500	82.1	1,170	<1
	11-Jun-08	N	3,310	3,530	---	6.92	ND	---	---	<500	<500	---	---	1,190	1.5
	19-Jun-08	N	---	---	---	---	---	---	---	---	---	---	---	---	2.26
	25-Jun-08	N	2,120	2,550	---	48.68	ND	7.2	<2.5	<500	<500	929	975	1,140	91.1
	01-Jul-08	N	---	---	---	---	---	---	---	---	---	---	---	---	4.17
	08-Jul-08	N	---	---	---	---	---	---	---	---	---	---	---	---	50.9
	15-Jul-08	N	---	---	---	---	---	---	---	---	---	---	---	---	1.67
	23-Jul-08	N	3,000	2,700	---	8.78	ND	9.6	<2.5	<500	<500	<500	72.4	1,170	2.42
	28-Jul-08	N	---	---	---	---	---	---	---	---	---	---	---	---	24.6
	20-Aug-08	N	3,710	3,550	---	4.67	ND	9.3	<2.5	<500	<500	<500	107.0	1,130	1.39
	17-Sep-08	N	3,130	3,430	---	ND	ND	10.1	<2.5	<500	<2,500	<2,500	45.0	1,180	<1
	15-Oct-08	N	18	1,420	---	65.48	ND	7.0	<2.5	<500	<2,500	<2,500	1,410	1,120	58.1
	12-Nov-08	N	714	802	---	33.23	ND	5.5	<1	<500	<2,500	<2,500	952	1,120	1.64
	04-Feb-09	N	982	1,180	---	18.30	ND	9.3	<1	<100	152	406	532	1,400	0.6
	04-Feb-09	FD	966	1,170	---	20.03	ND	8.9	<1	<100	198	424	490	1,300	<0.5
PT-9S	17-Jul-07	N	1,180	1,150	1,170	---	---	16.4	<0.1	1,080	<500	29.0	125	689	1.24
	22-Jan-08	N	1,380	1,250	---	---	---	17.3	<0.5	917	1,000	<500	36.7	644	<1
	05-Mar-08	N	1,380	1,340	---	0.01	ND	17.7	<0.1	1,060	<500	<500	145	718	<1
	12-Mar-08	N	1,140	1,010	---	ND	ND	16.3	<0.1	<500	<500	<500	12.5	525	<1
	19-Mar-08	N	1,390	1,380	---	ND	ND	17.6	<0.1	<500	<2,500	---	21.7	633	<1
	26-Mar-08	N	1,350	1,310	---	ND	ND	17.5	<0.1	<500	<2,500	<2,500	16.5	668	<1
	02-Apr-08	N	1,340	1,300	---	ND	ND	---	---	<500	<2,500	---	---	670	<1
	16-Apr-08	N	1,410	1,350	---	0.04	ND	---	---	<500	<2,500	---	---	424	<1
	29-Apr-08	N	1,050	1,080	---	ND	ND	17.3	<0.1	<500	<500	<500	16.6	559	<1
	14-May-08	N	1,060	1,030	---	ND	ND	---	---	<500	<500	---	---	563	<1
	28-May-08	N	1,280	1,210	---	ND	ND	17.5	<0.5	635	<500	<500	52.1	643	<1
	11-Jun-08	N	1,270	1,180	---	ND	ND	---	---	719	<500	---	---	678	---
	25-Jun-08	N	1,030	1,060	---	0.02	ND	15.9	<0.5	<500	<500	<500	33.3	595	<1
	24-Jul-08	N	1,450	1,240	---	ND	ND	16.6	<1	1,310	<500	<500	194.0	627	1.25
	20-Aug-08	N	1,460	1,390	---	1.55	2.2	17.0	<1	1,240	<500	<500	164.0	667	1.25
	17-Sep-08	N	1,290	1,400	---	4.36	ND	16.0	<0.5	<500	<500	<500	22.2	689	1.22
	15-Oct-08	N	929	889	---	2.93	0.81	11.4	<0.5	<500	<500	<500	28.3	558	1.15
	12-Nov-08	N	530	484	---	56.33	1.84	8.9	<0.5	1,480	<500	1,280	1,820	377	146
	05-Feb-09	N	633	458	---	25.20	3.54	14.0	<0.1	5,850	<100	893	973	720	7.0

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Location Name	Sample Date	Sample Type	Hexavalent Chromium (µg/L)	Total Dissolved Chromium (µg/L)	Total Chromium (µg/L)	Fluorescein (ppb dye)	Rhodamine (ppb dye)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Total Iron (µg/L)	Dissolved Iron (µg/L)	Dissolved Manganese (µg/L)	Total Manganese (µg/L)	Sulfate (mg/L)	Total Organic Carbon (mg/L)
PT-9M	17-Jul-07	N	2,340	2,270	2,250	---	---	24.4	<0.1	<500	<500	18.7	27.2	1,410	1.17
	17-Jul-07	FD	2,240	2,270	2,220	---	---	24.6	<0.1	<500	<500	18.2	32.3	1,410	1.21
	22-Jan-08	N	2,940	2,400	---	---	---	24.3	<0.5	<500	<500	<500	<10	1,390	1.02
	05-Mar-08	N	2,310	2,400	---	ND	ND	24.5	<0.1	<500	<500	<500	<10	1,460	<1
	12-Mar-08	N	2,590	2,360	---	ND	ND	22.3	<0.1	<500	<500	<500	<10	1,370	<1
	19-Mar-08	N	2,660	2,570	---	0.06	ND	23.0	<0.2	<500	<2,500	---	<10	1,430	<1
	26-Mar-08	N	2,610	2,490	---	0.13	ND	23.5	<0.2	<500	<2,500	<2,500	<10	1,340	<1
	26-Mar-08	FD	2,500	2,500	---	ND	ND	23.5	<0.2	<500	<2,500	<2,500	<10	1,340	<1
	02-Apr-08	N	2,520	2,510	---	ND	ND	---	---	1,260	<2,500	---	---	1,510	<1
	16-Apr-08	N	2,550	2,570	---	ND	ND	---	---	<500	<2,500	---	---	908	<1
	29-Apr-08	N	2,370	2,360	---	ND	ND	22.2	<0.2	<500	<500	<500	<10	1,460	<1
	14-May-08	N	2,550	2,430	---	ND	ND	---	---	<500	<500	---	---	1,450	<1
	28-May-08	N	2,500	2,300	---	0.05	ND	23.6	<1	<500	<500	<500	<10	1,410	<1
	11-Jun-08	N	2,500	2,330	---	ND	ND	---	---	<500	<500	---	---	1,460	---
	25-Jun-08	N	2,460	2,260	---	ND	ND	21.3	<1	<500	<500	<500	<10	1,450	1.28
	24-Jul-08	N	2,620	2,230	---	ND	ND	20.7	<1	<500	<500	<500	<10	1,400	1.47
	20-Aug-08	N	2,500	2,400	---	0.06	ND	21.5	<1	<500	<500	<500	<10	1,420	1.38
	17-Sep-08	N	2,260	2,590	---	ND	0.04	22.1	<1	<500	<2,500	<2,500	<10	1,480	<1
	15-Oct-08	N	2,660	2,630	---	ND	ND	26.1	<1	<500	<500	<500	<10	1,490	1.07
	12-Nov-08	N	2,590	2,800	---	ND	ND	23.6	<0.5	<500	<2,500	<2,500	<10	1,450	1.00
	05-Feb-09	N	2,680	2,590	---	0.03	ND	23.0	<0.2	1,480	134	1.06	24.6	1,800	0.63
PT-9D	17-Jul-07	N	15,700	15,600	<1	---	---	9.3	<0.2	<500	<500	29.4	33.8	1,260	1.14
	22-Jan-08	N	17,400	15,300	---	---	---	11.8	<0.5	<500	<5,000	<5,000	<10	1,390	<1
	22-Jan-08	FD	16,400	15,500	---	---	---	10.9	<0.5	<500	<5,000	<5,000	<10	1,310	<1
	05-Mar-08	N	16,000	15,600	---	ND	ND	9.9	<0.2	<500	<2,500	<2,500	15.8	1,470	<1
	12-Mar-08	N	13,500	12,500	---	ND	ND	12.5	<0.5	<500	<2,500	<2,500	<10	1,390	<1
	19-Mar-08	N	14,800	14,300	---	ND	ND	12.4	<0.5	<500	<2,500	---	<10	1,370	<1
	26-Mar-08	N	14,600	14,100	---	ND	ND	12.4	<0.5	<500	<2,500	<2,500	<10	1,320	<1
	02-Apr-08	N	13,900	14,400	---	ND	ND	---	---	<500	<2,500	---	---	1,430	<1
	16-Apr-08	N	14,900	15,400	---	ND	ND	---	---	<500	<2,500	---	---	1,350	<1
	29-Apr-08	N	11,000	10,600	---	ND	ND	12.9	<1	<500	<500	<500	<10	1,400	<1
	14-May-08	N	10,600	10,700	---	ND	ND	---	---	<500	<500	---	---	1,340	<1
	28-May-08	N	12,000	11,700	---	ND	ND	12.9	<2.5	<500	<500	<500	<10	1,330	<10
	11-Jun-08	N	13,600	12,300	---	ND	ND	---	---	<500	<500	---	---	1,400	<2
	11-Jun-08	FD	14,500	12,200	---	0.29	ND	---	---	<500	<500	---	---	1,380	<2
	25-Jun-08	N	10,500	9,680	---	ND	ND	13.6	<2.5	<500	<500	<500	<10	1,330	<5
	24-Jul-08	N	10,900	9,920	---	ND	ND	13.1	<2.5	<500	<500	<500	<10	1,320	11.9
	20-Aug-08	N	13,000	14,900	---	0.02	ND	10.7	<2.5	<500	<500	<500	<10	1,320	1.15
	20-Aug-08	FD	7,090	14,800	---	---	---	10.8	<2.5	<500	<500	<500	<10	1,310	1.17
	17-Sep-08	N	12,100	14,000	---	ND	ND	11.4	<2.5	<500	<2,500	<2,500	<10	1,440	<1
	15-Oct-08	N	9,920	9,650	---	ND	ND	14.6	<1	<500	<2,500	<2,500	<10	1,440	<2
	12-Nov-08	N	13,500	13,400	---	ND	ND	12.5	<2.5	<500	<2,500	<2,500	<10	1,380	1.82
	05-Feb-09	N	15,300	13,400	---	ND	ND	14	<0.5	335	527	<5	8.12	1,800	<2.5

Table 3
Summary of Primary Analytical Parameters
PG&E Topock
Needles, California

First Quarter 2009 Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test

Location Name	Sample Date	Sample Type	Hexavalent Chromium (µg/L)	Total Dissolved Chromium (µg/L)	Total Chromium (µg/L)	Fluorescein (ppb dye)	Rhodamine (ppb dye)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Total Iron (µg/L)	Dissolved Iron (µg/L)	Dissolved Manganese (µg/L)	Total Manganese (µg/L)	Sulfate (mg/L)	Total Organic Carbon (mg/L)
MW-11	17-Jul-07	N	321	314	339	---	---	8.4	<0.1	<500	<500	<5	<10	251	1.06
	24-Jan-08	N	321	310	---	---	---	8.7	<0.1	<500	<500	<500	<10	241	<1
	04-Mar-08	N	299	290	---	ND	---	9.7	<0.1	<500	<500	<500	<10	236	<1
	11-Mar-08	N	289	288	---	ND	ND	8.9	<0.1	<500	<500	<500	<10	240	<1
	11-Mar-08	FD	286	285	---	ND	ND	9.0	<0.1	<500	<500	<500	<10	248	<1
	19-Mar-08	N	340	332	---	ND	ND	9.3	<0.1	<500	<2,500	---	<10	231	<1
	27-Mar-08	N	331	308	---	0.04	ND	8.9	<0.1	<500	<500	<500	<10	238	<1
	01-Apr-08	N	316	306	---	0.03	ND	---	---	<500	<500	---	---	237	<1
	15-Apr-08	N	311	319	---	ND	ND	---	---	<500	<500	---	---	222	<1
	28-Apr-08	N	284	266	---	ND	ND	8.6	<0.1	<500	<500	<500	<10	226	<1
	13-May-08	N	280	281	---	ND	ND	---	---	<500	<500	---	---	229	<1
	27-May-08	N	286	238	---	ND	ND	8.6	<0.5	<500	<500	<500	<10	220	<1
	10-Jun-08	N	275	265	---	ND	ND	---	---	<500	<500	---	---	227	<1
	24-Jun-08	N	286	244	---	0.02	ND	8.7	<0.5	<500	<500	<500	<10	226	<1
	22-Jul-08	N	296	256	---	ND	ND	8.6	<0.5	<500	<500	<500	<10	220	<1
	21-Aug-08	N	281	240	---	ND	ND	8.3	<0.5	<500	<500	<500	<10	223	<1
	16-Sep-08	N	262	256	---	ND	ND	8.5	<0.5	<500	<500	<500	<10	227	<1
	14-Oct-08	N	264	312	---	ND	ND	8.4	<0.5	<500	<500	<500	<10	217	<1
	11-Nov-08	N	305	303	---	ND	ND	8.6	<0.5	<500	<500	<500	<10	266	<1
	03-Feb-09	N	299	336	---	0.02	ND	9.8	<0.1	<100	<100	<1	<1	290	0.58
MW-24A	18-Jul-07	N	2,480	2,550	2,600	---	---	18.3	<0.1	<500	<500	<5	<10	372	3.82
	24-Jan-08	N	2,620	2,570	---	---	---	18.5	<0.1	<500	<500	<500	<10	380	3.79
	06-Mar-08	N	3,890	4,190	---	ND	ND	13.5	<1	<500	<500	<500	401	1,210	367
	12-Mar-08	N	1,650	2,510	---	8.55	458	<10	<2	<500	<2,500	<2,500	417	1,170	1,160
	19-Mar-08	N	1.6	5.76	---	1,320	296	<2.5	<0.5	<500	<2,500	---	1,280	854	2,460
	26-Mar-08	N	10.6	12.90	---	9,450	776	<5	<1	1,030	<2,500	<2,500	2,380	347	4,890
	01-Apr-08	N	<1	5.46	---	10,650	1,994	---	---	2,080	<2,500	---	---	129	12,900
	17-Apr-08	N	15.7	9.79	---	190.5	496	---	---	1,820	<2,500	---	---	46.1	3,690
	30-Apr-08	N	<1	7.18	---	21.5	38.80	<5	<1	670	<500	1,320	1,360	624	1,160
	30-Apr-08	FD	<1	8.19	---	21.5	53	<5	<1	680	<500	1,330	1,350	624	1,160
	15-May-08	N	<0.2	5.04	---	41.0	42.80	---	---	1,520	853	---	---	831	1,650
	15-May-08	FD	<0.2	4.88	---	42	39	---	---	1,540	861	---	---	821	1,660
	27-May-08	N	<2.1	5.42	---	14	70.60	<1	<2.5	2,160	1,560	3,550	3,740	21	1,350
	12-Jun-08	N	2.3	4.56	---	21.23	65.20	---	---	2,440	671	---	---	267	1,130
	19-Jun-08	N	---	---	---	---	---	---	---	---	---	---	---	---	1,500
	26-Jun-08	N	<0.2	26.00	---	2.41	2.98	5.4	<2.5	1,890	758	1,550	1,630	1,110	42.6
	01-Jul-08	N	---	---	---	---	---	---	---	---	---	---	---	---	<400
	24-Jul-08	N	<1.0	39.10	---	2.74	4.08	4.2	<2.5	2,370	527	647	653	1,230	<1
	24-Jul-08	FD	<1.0	43.40	---	2.55	4.66	3.2	<2.5	2,350	560	672	768	1,190	12.1
	19-Aug-08	N	1.5	1.46	---	5.38	73.0	<1	<1	548	<500	1,430	1,670	982	9.4
	16-Sep-08	N	<0.2	4.38	---	2.62	41.6	<1	<1	<500	<500	1,510	1,720	16	800.0
	16-Oct-08	N	5.8	6.72	---	1.61	0.7	<0.5	<1	2,380	519	1,100	1,330	868	89.5
	13-Nov-08	N	<0.2	9.10	---	1.57	3.8	<0.5	<1	2,010	<2,500	<2,500	1,140	644	51.6
	13-Nov-08	FD	<0.2	7.19	---	1.48	2.8	<2.5	<2.5	3,490	<2,500	<2,500	1,020	690	79.7
	03-Feb-09	N	<0.2	4.30	---	4.48	32.6	<0.5	<0.5	2,410	156	964	863	1,200	4.0

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Location Name	Sample Date	Sample Type	Hexavalent Chromium (µg/L)	Total Dissolved Chromium (µg/L)	Total Chromium (µg/L)	Fluorescein (ppb dye)	Rhodamine (ppb dye)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Total Iron (µg/L)	Dissolved Iron (µg/L)	Dissolved Manganese (µg/L)	Total Manganese (µg/L)	Sulfate (mg/L)	Total Organic Carbon (mg/L)
MW-24B	18-Jul-07	N	5,540	6,020	5,680	---	---	12.1	<0.1	<500	<500	22.7	25.1	1,060	<1
	24-Jan-08	N	4,870	4,760	---	---	---	11.3	<0.5	<500	<1,000	<1,000	20.3	1,050	<1
	06-Mar-08	N	4,510	4,110	---	ND	ND	11.2	<0.2	<500	<500	<500	15.4	1,030	<1
	12-Mar-08	N	4,530	4,310	---	ND	ND	12.0	<0.2	<500	<2,500	<2,500	12.9	996	<1
	19-Mar-08	N	4,690	4,470	---	ND	ND	12.6	<0.5	<500	<2,500	---	15.7	1,010	<1
	26-Mar-08	N	4,160	4,220	---	ND	ND	12.0	<0.5	<500	<2,500	<2,500	13.6	1,020	<1
	03-Apr-08	N	4,310	4,240	---	0.15	ND	---	---	<500	<2,500	---	15	1,040	<1
	17-Apr-08	N	4,180	4,260	---	0.02	ND	---	---	<500	<2,500	---	---	1,120	<1
	30-Apr-08	N	3,400	3,790	---	ND	ND	9.96	<0.2	<500	<500	<500	14.2	1,050	4.42
	15-May-08	N	3,580	3,780	---	ND	ND	---	---	<500	<500	---	---	1,050	<1
	28-May-08	N	3,620	3,530	---	0.07	ND	31.0	<1	<500	<500	<500	<10	1,180	1.02
	12-Jun-08	N	3,690	3,730	---	ND	ND	---	---	<500	<500	---	---	1,080	<1
	26-Jun-08	N	3,720	3,280	---	0.03	ND	12.5	<2.5	<500	<500	<500	14.7	995	<1
	24-Jul-08	N	3,180	2,690	---	ND	ND	12.2	<5	<500	<500	<500	13.5	1,010	1.03
	19-Aug-08	N	3,200	2,730	---	ND	ND	11.9	<1	<500	<500	<500	11.3	1,020	1.21
	17-Sep-08	N	2,680	2,820	---	ND	ND	11.8	<2.5	<500	<2,500	<2,500	19.5	1,070	1.09
	16-Oct-08	N	2,700	2,640	---	ND	ND	13.0	<2.5	<500	<2,500	<2,500	13.4	1,060	<1
	16-Oct-08	FD	2,560	2,610	---	ND	ND	13.0	<2.5	<500	<2,500	<2,500	13.9	1,060	<1
	13-Nov-08	N	2,470	2,540	---	ND	ND	13.2	<2.5	<500	<2,500	<2,500	17.4	1,120	2.56
	04-Feb-09	N	2,480	2,210	---	ND	ND	13.0	<0.2	<100	246	17.1	17.9	1,300	3.10
MW-38S	17-Jul-07	N	911	920	948	---	---	10.5	<0.1	1,910	<500	<5	234	465	1.07
	23-Jan-08	N	899	885	---	---	---	10.7	<0.1	<500	<500	<500	<10	366	<1
	04-Mar-08	N	900	912	---	ND	ND	11.5	<0.1	<500	<500	<500	14.7	399	<1
	11-Mar-08	N	948	942	---	ND	ND	11.2	<0.1	<500	<500	<500	12.6	429	<1
	20-Mar-08	N	993	1,040	---	0.05	0.05	10.9	<0.1	<500	<2,500	---	<10	404	<1
	26-Mar-08	N	958	984	---	ND	ND	10.9	<0.1	<500	<2,500	<2,500	<10	404	<1
	01-Apr-08	N	999	852	---	0.08	ND	---	---	<500	<500	---	---	419	<1
	15-Apr-08	N	995	987	---	ND	ND	---	---	<500	<500	---	---	396	<1
	28-Apr-08	N	1,020	956	---	0.17	ND	10.7	<0.1	<500	<500	<500	<10	414	<1
	13-May-08	N	1,000	977	---	ND	ND	---	---	<500	<500	---	---	404	<1
	27-May-08	N	984	895	---	ND	ND	10.7	<0.5	<500	<500	<500	<10	399	<1
	10-Jun-08	N	992	959	---	ND	ND	---	---	1,140	<500	---	---	410	<1
	24-Jun-08	N	1,040	942	---	0.02	ND	10.4	<0.5	<500	<500	<500	<10	396	<1
	22-Jul-08	N	1,020	945	---	ND	ND	10.1	<0.5	<500	<500	<500	<10	390	<1
	20-Aug-08	N	1,020	1,020	---	0.02	ND	9.9	<0.5	<500	<500	<500	<10	371	<1
	16-Sep-08	N	987	999	---	ND	ND	9.9	<0.5	<500	<500	<500	<10	391	<1
	14-Oct-08	N	1,100	1,090	---	ND	ND	9.6	0.60	<500	<500	<500	<10	383	<1
	11-Nov-08	N	1,050	1,000	---	0.13	ND	10.1	<0.5	566	<500	<500	45.5	381	<1
	03-Feb-09	N	1,140	1,080	---	ND	ND	11.0	<0.1	425	269	10.4	15.5	490	0.97

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Location Name	Sample Date	Sample Type	Hexavalent Chromium (µg/L)	Total Dissolved Chromium (µg/L)	Total Chromium (µg/L)	Fluorescein (ppb dye)	Rhodamine (ppb dye)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Total Iron (µg/L)	Dissolved Iron (µg/L)	Dissolved Manganese (µg/L)	Total Manganese (µg/L)	Sulfate (mg/L)	Total Organic Carbon (mg/L)
MW-38D	17-Jul-07	N	104	72.1	66.2	---	---	0.70	<0.5	<500	<500	10.4	20.4	724	<1
	23-Jan-08	N	58.8	67.7	---	---	---	<2.5	<0.5	<500	<10,000	<10,000	<10	723	<1
	04-Mar-08	N	49.8	47.0	---	ND	ND	0.56	<0.5	<500	<500	<500	<10	735	<1
	11-Mar-08	N	50.4	53.8	---	ND	ND	0.58	<0.5	<500	<2,500	<2,500	<10	734	<1
	20-Mar-08	N	49.6	50.7	---	ND	ND	<2.5	<0.5	<500	<2,500	---	13	724	<1
	20-Mar-08	FD	51	50.9	---	ND	ND	<2.5	<0.5	<500	<2,500	---	11.9	711	<1
	26-Mar-08	N	48.7	50.1	---	ND	ND	<1	<0.5	<500	<2,500	<2,500	12.5	723	<1
	01-Apr-08	N	45.6	42.4	---	ND	ND	---	---	<500	<500	---	---	746	<1
	01-Apr-08	FD	47.6	41.8	---	0.02	ND	---	---	<500	<500	---	---	746	<1
	15-Apr-08	N	43.8	45.8	---	ND	ND	---	---	<500	<500	---	---	738	<1
	15-Apr-08	FD	46.1	45.8	---	0.04	ND	---	---	<500	<500	---	---	748	<1
	28-Apr-08	N	48	46.2	---	ND	ND	0.54	<0.5	<500	<2,500	<2,500	16.6	734	<1
	13-May-08	N	53	50.1	---	ND	ND	---	---	<500	<500	---	---	743	<1
	27-May-08	N	53	48.3	---	ND	ND	0.59	<5	<500	<500	<500	12.7	748	<1
	10-Jun-08	N	50.9	47.7	---	0.05	ND	---	---	<500	<500	---	---	741	<1
	24-Jun-08	N	55.5	48.3	---	ND	ND	0.57	<0.5	<500	<500	<500	13.3	737	<1
	22-Jul-08	N	56.3	52.3	---	ND	ND	<0.5	<5	<500	<500	<500	<10	734	<1
	20-Aug-08	N	54.1	47.2	---	ND	ND	<2.5	<2.5	<500	<500	6,950	<10	721	<1
	16-Sep-08	N	48.8	52.5	---	ND	ND	<0.5	<2.5	<500	<500	<500	<10	763	<1
	16-Sep-08	FD	50.5	57.0	---	ND	ND	0.54	<2.5	<500	<2,500	<2,500	<10	760	<1
	14-Oct-08	N	71.7	70.2	---	ND	ND	0.68	<2.5	<500	<2,500	<2,500	<10	672	<1
	11-Nov-08	N	55.8	53.4	---	ND	ND	0.77	<2.5	<500	<500	<500	<10	655	<1
	03-Feb-09	N	45.4	52.4	---	0.02	ND	<0.5	<0.5	<100	<100	4.16	5.95	940	<0.5
PTR-1	19-Jul-07	N	538	713	1,240	---	---	18.4	<0.1	6,010	<500	92.2	119	983	<1
	25-Jan-08	N	904	991	---	---	---	20.4	<0.1	2,920	<500	<500	25.8	742	3.82
	06-Mar-08	N	356	334	---	333,750	ND	<500	<100	<500	<2,500	<2,500	1,070	1,460	11,200
	11-Mar-08	N	945	846	---	2,070	ND	11.4	<1	<500	<2,500	<2,500	633	671	29,700
	20-Mar-08	N	76.8	125	---	30,375	ND	<50	<10	540	<2,500	---	437	440	63,400
	27-Mar-08	N	<1	<5	---	8,700	ND	<20	<4	1,660	<2,500	<2,500	867	122	122,000
	01-Apr-08	N	<1	<5	---	12,525	ND	---	---	2,160	<2,500	---	---	356	2,890
	16-Apr-08	N	20.2	99.2	---	84	ND	---	---	750	<2,500	---	---	386	37,200
	28-Apr-08	N	---	---	---	---	---	---	---	---	---	---	---	---	208,000
	29-Apr-08	N	<0.2	93.9	---	1,320	ND	5.9	<1	<500	<500	5,350	5,890	359	205,000
	15-May-08	N	<2.1	170	---	364	ND	---	---	524	<500	---	---	428	2,360
	29-May-08	N	<2	3.1	---	24	ND	1.5	<0.5	2,670	<500	708	919	520	27,900
	12-Jun-08	N	<2	1.8	---	31.8	---	---	---	2,310	1,040	---	---	644	80.30
	19-Jun-08	N	---	---	---	---	---	---	---	---	---	---	---	---	107
	26-Jun-08	N	<0.2	5.2	---	25.95	ND	5.3	6.04	718	<500	1,050	1,200	658	28.20
	01-Jul-08	N	---	---	---	---	---	---	---	---	---	---	---	---	12.30
	24-Jul-08	N	<1.0	49.3	---	29.55	ND	3.5	7.44	998	<500	1,770	2,200	586	18.70
	19-Aug-08	N	<0.2	30.9	---	8.33	ND	2.0	0.72	5,210	<500	507	623	659	968.0
	18-Sep-08	N	1.2	96.0	---	4.66	ND	9.3	0.71	8,970	<500	<500	519	731	6.46
	16-Oct-08	N	0.3	16.5	---	4.75	ND	11.1	<1	15,400	<500	<500	322	713	3.45
	13-Nov-08	N	0.4	16.0	---	12.08	ND	<0.5	<0.5	7,530	<500	528	764	161	12,400
	04-Feb-09	N	<0.2	<1	---	8.03	ND	0.7	<0.5	6,550	4,250	12,800	14,000	280	740

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Location Name	Sample Date	Sample Type	Hexavalent Chromium (µg/L)	Total Dissolved Chromium (µg/L)	Total Chromium (µg/L)	Fluorescein (ppb dye)	Rhodamine (ppb dye)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Total Iron (µg/L)	Dissolved Iron (µg/L)	Dissolved Manganese (µg/L)	Total Manganese (µg/L)	Sulfate (mg/L)	Total Organic Carbon (mg/L)
PTR-2	18-Jul-07	N	3,190	3,380	4,020	---	---	25.8	<0.1	3,720	<500	68.7	73.6	1,200	1.63
	25-Jan-08	N	4,240	4,310	---	---	---	32.8	<0.1	6,920	<1,000	<1,000	29.4	1,280	6.35
	06-Mar-08	N	4,960	5,120	---	4,118	ND	29.1	<0.2	<500	<2,500	<2,500	<10	1,220	675
	11-Mar-08	N	5,120	5,150	---	0	0.16	29.6	<0.2	<500	<500	<500	<10	1,280	1,060
	20-Mar-08	N	3,170	3,160	---	2,228	96,400	<250	<50	<500	<2,500	---	55.1	514	83,000
	27-Mar-08	N	1,800	1,720	---	1,403	39,000	<500	<100	<500	<2,500	<2,500	131	<500	117,000
	01-Apr-08	N	4,190	4,370	---	848	81.80	---	---	<500	<2,500	---	---	1,190	3,090
	15-Apr-08	N	2,030	2,080	---	20	39.00	---	---	<500	<2,500	---	---	762	31,900
	28-Apr-08	N	---	---	---	---	---	---	---	---	---	---	---	---	220,000
	29-Apr-08	N	4,900	4,870	---	3.49	21.40	26.9	<0.2	<500	<500	<500	95.3	1,250	206,000
	15-May-08	N	4,790	4,840	---	0.86	8.88	---	---	<500	<500	---	---	1,240	8.38
	28-May-08	N	3,870	3,920	---	0.33	16.98	10.7	<1	<500	<500	<500	183	1,010	25,200
	10-Jun-08	N	4,350	4,970	---	0.36	8.58	---	---	<500	<500	---	---	1,200	201
	19-Jun-08	N	---	---	---	---	---	---	---	---	---	---	---	---	39
	26-Jun-08	N	4,570	4,240	---	1.06	1.54	26.1	<2.5	<500	<500	<500	31.2	1,160	<20
	01-Jul-08	N	---	---	---	---	---	---	---	---	---	---	---	---	<10
	24-Jul-08	N	4,620	4,420	---	2.02	1.41	24.4	<2.5	<500	<500	<500	18.6	1,160	54
	19-Aug-08	N	1,620	1,900	---	ND	4.90	<0.5	<1	2,370	<5,000	<5,000	79.8	782	29,100
	18-Sep-08	N	719	2,070	---	0.87	3.44	8.9	0.83	1,110	<500	<500	145	654	47,400
	16-Oct-08	N	3,900	3,780	---	1.19	0.38	19.7	<2.5	<500	<2,500	<2,500	49.3	1,180	2,690
	13-Nov-08	N	3,900	4,220	---	0.11	0.60	14.9	5.25	<500	<2,500	<2,500	43.4	1,080	3.74
	05-Feb-09	N	1,670	1,600	---	1.42	0.47	14.0	<0.2	594	167	557	534	1,300	0.56
Equipment Banks	17-Jul-07	EB	<0.2	<1	<1	---	---	<0.5	<0.1	<500	<500	<5	<10	<0.5	<1
	22-Jan-08	EB	<0.2	<1	---	---	---	<0.5	<0.1	<500	<500	<500	<10	<0.5	<1
	05-Mar-08	EB	<0.2	1.70	---	ND	ND	<0.5	<0.1	<500	<500	<500	<10	0.63	<1
	11-Mar-08	EB	<0.2	<1	---	ND	ND	<0.5	<0.1	<500	<500	<500	<10	0.69	<1
	18-Mar-08	EB	<1	<1	---	ND	ND	<0.5	<0.1	<500	<500	---	<10	<0.5	<1
	25-Mar-08	EB	<42	3.31	---	0.02	ND	<0.5	<0.1	<500	<500	<500	<10	<0.5	<1
	03-Apr-08	EB	<0.2	<1	---	ND	ND	---	---	<500	<500	---	<10	<0.5	<1
	15-Apr-08	EB	<0.2	<1	---	ND	ND	---	---	<500	<500	---	---	<0.5	1.40
	28-Apr-08	EB	<0.2	<1	---	ND	ND	<0.5	<0.1	<500	<500	<500	<10	<0.5	<1
	13-May-08	EB	<0.2	<1	---	ND	ND	---	---	<500	<500	---	---	<0.5	<1
	28-May-08	EB	<0.2	<1	---	ND	ND	<0.5	<0.5	<500	<500	<500	<10	<0.5	<1
	10-Jun-08	EB	<0.2	<1	---	---	---	---	---	<500	<500	---	---	<0.5	<1
	19-Jun-08	EB	---	---	---	---	---	---	---	---	---	---	---	---	<1
	24-Jun-08	EB	<0.2	<1	---	ND	ND	<0.5	<0.5	<500	<500	<500	<10	<0.5	<1
	01-Jul-08	EB	---	---	---	---	---	---	---	---	---	---	---	---	<1
	22-Jul-08	EB	<0.2	<1	---	ND	ND	<0.5	<0.5	<500	<500	<500	<10	<0.5	<1
	19-Aug-08	EB	<0.2	---	---	---	---	---	---	---	---	---	---	---	---
	20-Aug-08	EB	---	<1	---	ND	ND	1.13	<0.5	<500	<500	<500	<10	<0.5	<1
	16-Sep-08	EB	<0.2	<1	---	ND	ND	<0.5	<0.5	<500	<500	<500	<10	<0.5	<1
	14-Oct-08	EB	<0.2	<1	---	ND	ND	<0.5	<0.5	<500	<500	<500	<10	<0.5	<1
	11-Nov-08	EB	<0.2	<1	---	ND	ND	<0.5	<0.5	<500	<500	<500	<10	<0.5	<1
	03-Feb-09	EB	<0.2	<1	---	ND	ND	<0.1	<0.1	<100	<100	<1	<1	1.1	<0.5

Table 3
Summary of Primary Analytical Parameters

PG&E Topock
Needles, California

First Quarter 2009 Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test

Location Name	Sample Date	Sample Type	Hexavalent Chromium (µg/L)	Total Dissolved Chromium (µg/L)	Total Chromium (µg/L)	Fluorescein (ppb dye)	Rhodamine (ppb dye)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Total Iron (µg/L)	Dissolved Iron (µg/L)	Dissolved Manganese (µg/L)	Total Manganese (µg/L)	Sulfate (mg/L)	Total Organic Carbon (mg/L)
Field Blanks	17-Jul-07	FB	<0.2	<1	<1	---	---	<0.5	<0.1	<500	<500	<5	<10	<0.5	<1
	22-Jan-08	FB	<0.2	<1	---	---	---	<0.5	<0.1	<500	<500	<500	<10	36.4	<1
	05-Mar-08	FB	<0.2	<1	---	ND	ND	<0.5	<0.1	<500	<500	<500	<10	0.63	<1
	11-Mar-08	FB	<0.2	1.15	---	ND	ND	<0.5	<0.1	<500	<500	<500	<10	<0.5	<1
	18-Mar-08	FB	<0.2	<1	---	ND	ND	<0.5	<0.1	<500	<500	---	<10	<0.5	<1
	25-Mar-08	FB	<0.2	<1	---	0.02	ND	<0.5	<0.1	<500	<500	<500	<10	<0.5	<1
	03-Apr-08	FB	<0.2	<1	---	0.03	ND	---	---	<500	<500	---	<10	<0.5	<1
	15-Apr-08	FB	<0.2	<1	---	ND	ND	---	---	<500	<500	---	---	<0.5	<1
	28-Apr-08	FB	<0.2	<1	---	ND	ND	<0.5	<0.1	<500	<500	<500	<10	<0.5	<1
	13-May-08	FB	<0.2	<1	---	ND	ND	---	---	<500	<500	---	---	<0.5	<1
	28-May-08	FB	<0.2	---	---	ND	ND	<0.5	<0.5	<500	<500	<500	<10	<0.5	<1
	10-Jun-08	FB	---	<1	---	---	---	---	---	<500	<500	---	---	<0.5	<1
	19-Jun-08	FB	---	---	---	---	---	---	---	---	---	---	---	---	<1
	24-Jun-08	FB	<0.2	<1	1	ND	ND	<0.5	<0.5	<500	<500	<500	<10	<0.5	<1
	01-Jul-08	FB	---	---	---	---	---	---	---	---	---	---	---	---	<1
	22-Jul-08	FB	<0.2	<1	---	0.34	ND	<0.5	<0.5	<500	<500	<500	<10	<0.5	<1
	19-Aug-08	FB	<.02	<1	---	0.024	ND	<0.5	<0.5	<500	<500	<500	<10	<0.5	1.03
	16-Sep-08	FB	<0.2	<1	---	ND	ND	<0.5	<0.5	<500	<500	<500	<10	<0.5	<1
	14-Oct-08	FB	<0.2	<1	---	ND	ND	<0.5	<0.5	<500	<500	<500	<10	<0.5	<1
	11-Nov-08	FB	<0.2	<1	---	ND	ND	0.517	<0.5	<500	<500	<500	<10	<0.5	<1
	04-Feb-09	FB	<0.2	<1	---	0.02	ND	3.300	<0.5	<100	<100	<1	<5	<5	<0.5

Notes:

Most recent data indicated in **BOLD**

- a Samples were diluted in the laboratory
- Dissolved Samples were field filtered with a 0.45 micron filter.
- ft bgs Feet below ground surface
- mg/L Milligrams per liter
- µg/L Micrograms per liter
- < Symbol indicates not detected at or above laboratory detection limit as noted
- N Normal
- ND Non-detect
- EB Equipment blank
- FB Field blank
- FD Field duplicate
- Nitrate-N Nitrate as Nitrogen
- Nitrite-N Nitrite as Nitrogen
- Not analyzed/Not available
- * PTR-1 Screen: 125-160 and 175-220 ft bgs. PTR-2 Screen: 118-158 and 173-218 ft bgs.
- ** Sample IDs were transcribed in the field. Data here are presented with the appropriate ID.

Table 4
Summary of Secondary Analytical Parameters
PG&E Topock
Needles, California
First Quarter 2009 Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test

Location Name	Sample Date	Notes	Sample Type	Dissolved Calcium (µg/L)	Dissolved Magnesium (µg/L)	Dissolved Arsenic (µg/L)	Total Arsenic (µg/L)	Dissolved Potassium (µg/L)	Dissolved Sodium (µg/L)	Alkalinity bicarbonate (mg/L)	Alkalinity carbonate (mg/L)	Chloride (mg/L)	Orthophosphate-p (mg/L)	Sulfide (mg/L)
PT-7S	18-Jul-07	a	N	159,000	---	<5	9.65	14,500	999,000	125	<5	1,250	<0.5	<2
	23-Jan-08	a	N	259,000	42,400	<25	---	13,600	942,000	135	---	1,060	<0.5	<2
	06-Mar-08	a	N	147,000	30,000	<5	---	12,300	931,000	153	---	1,170	<0.5	<2
	13-Mar-08	a	N	141,000	28,100	<25	---	11,900	844,000	153	---	1,110	<0.5	<2
	18-Mar-08	a	N	179,000	30,100	---	---	12,900	885,000	160	<5	1,230	<0.5	<2
	25-Mar-08	a	N	160,000	30,600	<25	---	12,900	903,000	153	---	1,240	<0.5	<2
	02-Apr-08	a	N	163,000	34,900	---	---	13,400	982,000	135	<5	---	---	<2
	17-Apr-08	a	N	172,000	35,400	---	---	13,900	1,010,000	140	<5	---	---	<2
	29-Apr-08	a **	N	141,000	30,300	<5	---	12,800	897,000	170	<5	---	<0.5	<2
	15-May-08		N	140,000	28,900	---	---	12,300	873,000	175	<5	---	---	<2
	29-May-08	a	N	166,000	34,000	<5	---	13,600	1,010,000	145	---	1,270	<0.5	<2
	11-Jun-08	a	N	170,000	37,000	---	---	13,600	1,110,000	128	<5	---	---	<2
	24-Jun-08	a	N	139,000	27,100	<5	---	12,100	872,000	158	---	1,150	<0.5	<2
	23-Jul-08	a	N	154,000	36,200	<5	---	13,200	96,700	173	---	1,310	<0.5	<2
	21-Aug-08	a	N	221,000	42,800	5.61	---	15,400	1,330,000	580	---	1,310	<1	4
	18-Sep-08		N	149,000	31,400	<5	---	12,900	983,000	130	---	1,260	<0.5	<2
	15-Oct-08		N	151,000	33,100	12.1	---	11,900	918,000	352	---	1,420	<0.5	<2
	12-Nov-08		N	158,000	33,600	8.0	---	13,100	1,020,000	211	---	1,340	<0.5	<2
	05-Feb-09		N	153,000	40,400	5.3	---	14,000	1,220,000	162	---	1,500	<0.1	<0.05
PT-7M	19-Jul-07	a	N	419,000	---	<5	7.01	23,900	1,350,000	97.5	<5	1,920	<0.5	<2
	24-Jan-08	a	N	434,000	58,100	<10	---	24,600	1,460,000	80	---	2,180	<0.5	<2
	06-Mar-08	a	N	236,000	32,200	10.1	---	19,200	1,170,000	138	---	1,520	<0.5	<2
	06-Mar-08	a	FD	236,000	32,500	10.8	---	19,200	1,170,000	145	<5	1,490	<0.5	<2
	13-Mar-08	a	N	275,000	37,500	53	---	18,600	1,150,000	360	---	1,530	<0.5	<2
	18-Mar-08	a	N	273,000	37,900	---	---	17,300	1,140,000	650	<5	1,570	<0.5	8.0
	25-Mar-08	a	N	333,000	42,400	<25	---	18,000	1,170,000	920	---	1,560	<2.5	<2
	02-Apr-08	a	N	340,000	47,500	---	---	17,200	1,210,000	1,010	<5	---	---	8.0
	17-Apr-08	a	N	457,000	59,500	---	---	19,500	1,310,000	1,380	<5	---	---	<2
	29-Apr-08	a**	N	503,000	62,400	16.3	---	19,400	1,220,000	1,460	<5	---	<10	<2
	14-May-08		N	614,000	75,200	---	---	20,300	1,230,000	1,930	<5	---	---	<2
	29-May-08	a	N	697,000	71,200	28.6	---	19,900	1,180,000	1,720	---	1,090	<10	<2
	11-Jun-08	a	N	769,000	87,900	---	---	20,800	1,220,000	1,400	<5	---	---	<2
	19-Jun-08		N	---	---	---	---	---	---	---	---	---	---	---
	25-Jun-08	a	N	874,000	81,100	35.4	---	20,800	1,110,000	1,800	---	1,110	<2.5	<2
	01-Jul-08		N	---	---	---	---	---	---	---	---	---	---	---
	08-Jul-08		N	---	---	---	---	---	---	---	---	---	---	---
	15-Jul-08		N	---	---	---	---	---	---	---	---	---	---	---
	23-Jul-08	a	N	1,030,000	97,700	29.7	---	20,200	984,000	1,980	---	863	<2.5	<2
	21-Aug-08	a	N	1,380,000	133,000	31.4	---	22,900	1,290,000	2,780	---	1,020	<2.5	8
	18-Sep-08		N	994,000	82,600	46.9	---	20,600	1,100,000	2,160	---	1,080	<1	<2
	15-Oct-08		N	849,000	80,200	46.7	---	21,200	1,090,000	2,040	---	1,280	<2.5	<2
	12-Nov-08		N	225,000	52,800	54.8	---	16,800	1,020,000	1,010	---	1,230	<1	<2

Table 4
Summary of Secondary Analytical Parameters
PG&E Topock
Needles, California
First Quarter 2009 Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test

Location Name	Sample Date	Notes	Sample Type	Dissolved Calcium (µg/L)	Dissolved Magnesium (µg/L)	Dissolved Arsenic (µg/L)	Total Arsenic (µg/L)	Dissolved Potassium (µg/L)	Dissolved Sodium (µg/L)	Alkalinity bicarbonate (mg/L)	Alkalinity carbonate (mg/L)	Chloride (mg/L)	Orthophosphate-p (mg/L)	Sulfide (mg/L)
PT-7D	18-Jul-07	a	N	321,000	---	8.0	8.12	38,600	3,630,000	52.5	<5	5,490	<0.5	<2
	24-Jan-08	a	N	339,000	9,350	<10	---	39,100	3,890,000	47.5	---	5,540	<1	<2
	06-Mar-08	a	N	153,000	4,530	18.8	---	25,200	2,660,000	85	---	3,480	<0.5	<2
	13-Mar-08	a	N	141,000	<5,000	<25	---	23,400	2,460,000	150	---	3,540	<0.5	<2
	18-Mar-08	a	N	174,000	5,650	---	---	24,100	2,620,000	280	<5	3,690	<1	10.4
	25-Mar-08	a	N	217,000	6,970	97.4	---	25,400	2,940,000	360	---	3,980	<1	17.6
	02-Apr-08	a	N	210,000	7,980	---	---	25,500	3,030,000	340	<5	---	---	6.8
	17-Apr-08	a	N	178,000	5,700	---	---	19,800	2,340,000	840	<5	---	---	20.8
	29-Apr-08	a	N	155,000	4,780	41.9	---	18,100	2,130,000	805	<5	---	<10	4.4
	15-May-08		N	188,000	6,370	---	---	19,300	2,110,000	920	<5	---	---	5.6
	29-May-08	a	N	215,000	6,640	27.7	---	20,400	2,280,000	1,040	---	2,670	<10	7.2
	11-Jun-08	a	N	286,000	7,090	---	---	19,300	2,170,000	1,330	<5	---	---	<2
	19-Jun-08		N	---	---	---	---	---	---	---	---	---	---	---
	24-Jun-08	a	N	257,000	6,700	17.5	---	21,400	2,110,000	1,370	---	2,030	<10	5.6
	01-Jul-08		N	---	---	---	---	---	---	---	---	---	---	---
	08-Jul-08		N	---	---	---	---	---	---	---	---	---	---	---
	15-Jul-08		N	---	---	---	---	---	---	---	---	---	---	---
	23-Jul-08	a	N	400,000	11,000	23.2	---	19,800	1,940,000	1,640	---	1,480	<5	<2
	21-Aug-08	a	N	472,000	14,300	33.0	---	21,200	2,270,000	2,080	---	1,480	<2.5	40
	18-Sep-08		N	433,000	11,400	23.3	---	21,600	198,000	1,960	---	1,460	<1	<2
	15-Oct-08		N	320,000	11,000	31.6	---	20,300	1,780,000	1,490	---	1,650	<1	6.4
	12-Nov-08		N	236,000	10,700	46.6	---	20,000	1,700,000	1,380	---	1,560	<2.5	26.0
PT-8S	16-Jul-07	a	N	132,000	---	<5	5.13	12,500	955,000	125	<5	1,190	<0.5	<2
	23-Jan-08	a	N	141,000	30,000	<25	---	12,600	1,040,000	128	---	1,220	<0.5	2.0
	05-Mar-08	a	N	120,000	26,000	<5	---	11,400	1,060,000	158	---	1,100	<0.5	<2
	13-Mar-08	a	N	114,000	23,900	<25	---	11,100	934,000	215	---	1,110	<0.5	<2
	18-Mar-08	a	N	97,500	21,500	---	---	10,600	894,000	225	<5	1,010	<0.5	<2
	25-Mar-08	a	N	101,000	21,300	<25	---	10,600	876,000	230	---	1,070	<0.5	<2
	02-Apr-08	a	N	110,000	25,200	---	---	11,400	965,000	200	<5	---	---	<2
	16-Apr-08	a	N	125,000	26,700	---	---	11,700	1,010,000	205	<5	---	---	<2
	29-Apr-08	a	N	160,000	35,500	10.4	---	13,000	1,130,000	283	<5	---	<0.5	<2
	14-May-08		N	148,000	34,100	---	---	12,300	1,140,000	323	<5	---	---	<2
	28-May-08	a	N	155,000	33,300	25.6	---	11,200	1,220,000	550	---	1,760	<0.5	2.0
	11-Jun-08	a	N	402,000	72,100	---	---	15,600	1,840,000	950	<5	---	---	<2
	19-Jun-08		N	---	---	---	---	---	---	---	---	---	---	---
	25-Jun-08	a	N	502,000	77,100	18.6	---	17,400	1,940,000	1,370	---	2,440	<1	<2
	01-Jul-08		N	---	---	---	---	---	---	---	---	---	---	---
	08-Jul-08		N	---	---	---	---	---	---	---	---	---	---	---
	15-Jul-08		N	---	---	---	---	---	---	---	---	---	---	---
	23-Jul-08	a	N	459,000	84,800	21.4	---	16,200	1,910,000	1,150	---	2,660	<5	<2
	20-Aug-08	a	N	358,000	62,500	27.9	---	14,500	1,780,000	1,000	---	2,640	<1	40
	17-Sep-08		N	264,000	58,600	30.7	---	14,500	1,750,000	830	---	2,580	<1	<2
	15-Oct-08		N	251,000	57,500	27.2	---	13,900	1,700,000	1,180	---	2,550	<1	<2
	12-Nov-08		N	212,000	49,200	43.8	---	14,200	1,740,000	914	---	2,510	<1	2.0
	04-Feb-09	a	N	178,000	48,700	17.8	---	11,700	1,300,000	754	---	2,400	<0.5	<0.05

Table 4
Summary of Secondary Analytical Parameters
PG&E Topock
Needles, California

First Quarter 2009 Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test

Location Name	Sample Date	Notes	Sample Type	Dissolved Calcium (µg/L)	Dissolved Magnesium (µg/L)	Dissolved Arsenic (µg/L)	Total Arsenic (µg/L)	Dissolved Potassium (µg/L)	Dissolved Sodium (µg/L)	Alkalinity bicarbonate (mg/L)	Alkalinity carbonate (mg/L)	Chloride (mg/L)	Orthophosphate-p (mg/L)	Sulfide (mg/L)
PT-8M	18-Jul-07	a	N	353,000	---	<5	1.53	22,200	1,130,000	103	<5	1,510	<2.5	<2
	23-Jan-08	a	N	403,000	41,800	<25	---	24,100	1,230,000	100	---	1,700	<0.5	4.0
	05-Mar-08	a	N	422,000	42,200	<5	---	24,000	1,350,000	108	---	1,650	<0.5	<2
	13-Mar-08	a	N	364,000	44,100	<25	---	22,300	1,130,000	120	---	1,400	<0.5	<2
	19-Mar-08	a	N	362,000	43,000	---	---	22,400	1,120,000	123	<5	1,400	<0.5	<2
	25-Mar-08	a	N	376,000	41,500	<25	---	22,200	1,110,000	130	---	1,570	<0.5	4.0
	02-Apr-08	a	N	367,000	45,400	---	---	22,900	1,160,000	130	<5	---	---	<2
	16-Apr-08	a	N	392,000	45,100	---	---	23,200	1,190,000	125	<5	---	---	<2
	29-Apr-08	a	N	356,000	43,900	<5	---	22,000	1,070,000	145	<5	---	<1	<2
	14-May-08		N	350,000	42,900	---	---	21,800	1,040,000	135	<5	---	---	<2
	28-May-08	a	N	321,000	6,750	7.0	---	34,000	3,200,000	50	---	4,820	<1	<2
	11-Jun-08	a	N	381,000	48,900	---	---	21,400	1,160,000	110	<5	---	---	<2
	19-Jun-08	---	N	---	---	---	---	---	---	---	---	---	---	---
	25-Jun-08	a	N	362,000	42,600	<5	---	21,200	104,000	113	---	1,360	<0.5	<2
	01-Jul-08		N	---	---	---	---	---	---	---	---	---	---	---
	23-Jul-08	a	N	356,000	49,300	<5	---	20,100	1,020,000	115	---	1,300	<1	<2
	20-Aug-08	a	N	364,000	43,900	<5	---	20,000	1,050,000	155	---	1,510	<0.5	80
	17-Sep-08		N	371,000	47,400	<5	---	21,800	1,120,000	180	---	1,650	<0.5	<2
	15-Oct-08		N	357,000	45,000	<5	---	20,400	978,000	168	---	1,480	<1	<2
	12-Nov-08		N	338,000	44,500	<5	---	20,400	990,000	258	---	1,400	<0.5	<2
	04-Feb-09	a	N	366,000	51,700	6.3	---	21,100	1,180,000	314	---	2,000	<0.5	<0.05
PT-8D	16-Jul-07	a	N	281,000	---	7.1	9	35,100	3,300,000	45	<5	5,360	<0.5	<2
	23-Jan-08	a	N	325,000	11,800	<50	---	35,200	3,420,000	50	---	5,190	<1	<2
	05-Mar-08	a	N	322,000	10,000	<25	---	37,700	3,850,000	50	---	5,240	<0.5	<2
	13-Mar-08	a	N	284,000	9,560	<25	---	32,900	3,340,000	55	---	5,090	<2.5	<2
	18-Mar-08	a	N	292,000	9,470	---	---	33,900	3,480,000	48	<5	5,480	<2.5	<2
	25-Mar-08	a	N	306,000	10,200	<25	---	34,300	3,550,000	50	---	5,010	<0.5	<2
	02-Apr-08	a	N	298,000	10,700	---	---	33,800	3,550,000	52.5	<5	---	---	<2
	16-Apr-08	a	N	312,000	9,020	---	---	36,000	3,840,000	50	<5	---	---	<2
	29-Apr-08	a	N	292,000	9,830	7.7	---	33,500	3,290,000	60	<5	---	<1	<2
	14-May-08		N	281,000	13,300	---	---	32,000	2,820,000	87.5	<5	---	---	<2
	28-May-08	a	N	267,000	9,020	6.8	---	32,100	3,050,000	57.5	---	4,530	<1	<2
	11-Jun-08	a	N	288,000	11,100	---	---	32,200	3,390,000	55.0	<5	---	---	<2
	19-Jun-08	---	N	---	---	---	---	---	---	---	---	---	---	---
	25-Jun-08	a	N	280,000	12,100	11.6	---	30,600	2,960,000	143	---	4,200	<0.5	<2
	01-Jul-08		N	---	---	---	---	---	---	---	---	---	---	---
	08-Jul-08		N	---	---	---	---	---	---	---	---	---	---	---
	15-Jul-08		N	---	---	---	---	---	---	---	---	---	---	---
	23-Jul-08	a	N	264,000	11,000	8.9	---	30,700	3,080,000	60	---	4,390	<1	<2
	20-Aug-08	a	N	284,000	10,500	7.2	---	31,400	3,220,000	46.3	---	4,870	<1	40
	17-Sep-08		N	286,000	10,000	<25	---	34,000	3,250,000	47.5	---	4,730	<1	<2
	15-Oct-08		N	333,000	24,200	<25	---	31,300	2,530,000	197	---	4,140	<0.5	<2
	12-Nov-08		N	312,000	17,400	<25	---	33,600	3,020,000	85.9	---	4,250	<0.5	<2
	04-Feb-09	a	N	332,000	14,400	3.4	---	32,900	2,780,000	56.0	---	5,200	<1	0.5
	04-Feb-09	a	FD	327,000	13,400	<0.5	---	32,400	2,890,000	55.0	---	5,400	1.4	0.5

Table 4
Summary of Secondary Analytical Parameters
PG&E Topock
Needles, California

First Quarter 2009 Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test

Location Name	Sample Date	Notes	Sample Type	Dissolved Calcium (µg/L)	Dissolved Magnesium (µg/L)	Dissolved Arsenic (µg/L)	Total Arsenic (µg/L)	Dissolved Potassium (µg/L)	Dissolved Sodium (µg/L)	Alkalinity bicarbonate (mg/L)	Alkalinity carbonate (mg/L)	Chloride (mg/L)	Orthophosphate-p (mg/L)	Sulfide (mg/L)
PT-9S	17-Jul-07	a	N	108,000	---	<5	5.36	11,800	820,000	155	<5	895	<0.5	<2
	22-Jan-08	a	N	107,000	21,100	5.6	---	9,140	848,000	205	---	924	<0.5	<2
	05-Mar-08	a	N	120,000	24,500	5.2	---	9,990	962,000	168	---	977	<0.5	<2
	12-Mar-08	a	N	87,500	17,800	5.5	---	8,270	836,000	190	---	916	<0.5	<2
	19-Mar-08	a	N	115,000	23,100	---	---	9,930	884,000	163	<5	889	<0.5	<2
	26-Mar-08	a	N	116,000	23,000	<25	---	9,370	843,000	175	---	977	<0.5	<2
	02-Apr-08	a	N	118,000	25,100	---	---	9,570	871,000	178	<5	---	---	<2
	16-Apr-08	a	N	126,000	25,100	---	---	9,980	891,000	170	<5	---	---	<2
	29-Apr-08	a	N	113,000	24,900	5.3	---	9,590	837,000	185	<5	---	<0.5	<2
	14-May-08		N	101,000	21,000	---	---	8,940	821,000	168	<5	---	---	<2
	28-May-08	a	N	111,000	22,000	<5	---	9,420	825,000	158	---	917	<0.5	<2
	11-Jun-08	a	N	107,000	23,500	---	---	9,150	867,000	160	<5	---	---	<2
	25-Jun-08	a	N	102,000	20,000	<5	---	8,910	820,000	163	---	908	<0.5	<2
	24-Jul-08	a	N	105,000	22,600	5.1	---	9,070	855,000	165	---	890	<0.5	<2
	20-Aug-08	a	N	99,200	21,100	5.1	---	9,050	844,000	160	---	922	<0.5	320
	17-Sep-08		N	114,000	23,500	<5	---	9,930	920,000	155	---	989	<0.5	<2
	15-Oct-08		N	103,000	21,400	5.2	---	9,180	849,000	188	---	1,090	<0.5	<2
	12-Nov-08		N	127,000	27,100	13.2	---	9,840	993,000	427	---	1,290	<0.5	<2
	05-Feb-09	a	N	141,000	33,500	14.7	---	10,100	1,070,000	316	---	1,400	<0.1	0.2
PT-9M	17-Jul-07	a	N	485,000	---	<5	1.4	30,200	1,030,000	97.5	<5	1,400	<0.5	<2
	17-Jul-07	a	FD	476,000	---	<5	1.42	29,800	1,020,000	100	<5	1,400	<0.5	<2
	22-Jan-08	a	N	525,000	22,700	<5	---	29,800	1,140,000	97.5	---	1,640	<0.5	<2
	05-Mar-08	a	N	553,000	25,100	<5	---	32,100	1,220,000	100	---	1,650	<0.5	<2
	12-Mar-08	a	N	483,000	22,800	<5	---	30,700	1,140,000	113	---	1,520	<0.5	<2
	19-Mar-08	a	N	517,000	26,400	---	---	32,100	1,190,000	97.5	<5	1,510	<0.5	<2
	26-Mar-08	a	N	526,000	26,200	<25	---	31,900	1,160,000	100	---	1,610	<0.5	<2
	26-Mar-08	a	FD	543,000	26,400	<25	---	33,200	1,190,000	103	---	1,600	<0.5	<2
	02-Apr-08	a	N	513,000	27,700	---	---	31,800	1,150,000	105	<5	---	---	<2
	16-Apr-08	a	N	556,000	28,000	---	---	32,900	1,220,000	105	<5	---	---	<2
	29-Apr-08	a	N	475,000	23,900	<5	---	30,900	1,100,000	120	<5	---	<1	<2
	14-May-08		N	496,000	26,100	---	---	33,500	1,130,000	120	<5	---	---	<2
	28-May-08	a	N	479,000	22,800	<5	---	29,800	1,070,000	108	---	1,530	<0.5	<2
	11-Jun-08	a	N	492,000	25,900	---	---	31,200	1,150,000	97.5	<5	---	---	<2
	25-Jun-08	a	N	452,000	21,800	<5	---	29,900	1,090,000	103	---	1,380	<1	<2
	24-Jul-08	a	N	426,000	22,700	<5	---	26,600	1,050,000	108	---	1,240	<0.5	<2
	20-Aug-08	a	N	488,000	23,500	<5	---	28,900	1,100,000	97.5	---	1,530	<0.5	40
	17-Sep-08		N	504,000	26,100	<25	---	32,300	1,110,000	92.5	---	1,660	<0.5	<2
	15-Oct-08		N	431,000	22,300	<5	---	27,600	1,010,000	105	---	1,450	<1	<2
	12-Nov-08		N	468,000	24,700	<25	---	30,700	1,090,000	100	---	1,420	<0.5	<2
	05-Feb-09	a	N	507,000	32,300	11.3	---	30,400	1,310,000	114	---	2,000	<0.2	<0.05

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Location Name	Sample Date	Notes	Sample Type	Dissolved Calcium (µg/L)	Dissolved Magnesium (µg/L)	Dissolved Arsenic (µg/L)	Total Arsenic (µg/L)	Dissolved Potassium (µg/L)	Dissolved Sodium (µg/L)	Alkalinity bicarbonate (mg/L)	Alkalinity carbonate (mg/L)	Chloride (mg/L)	Orthophosphate-p (mg/L)	Sulfide (mg/L)
PT-9D	17-Jul-07	a	N	368,000	---	6.3	6.11	34,200	2,840,000	52.5	<5	4,350	<1	<2
	22-Jan-08	a	N	399,000	8,380	<50	---	35,500	3,230,000	50	---	4,790	<1	<2
	22-Jan-08	a	FD	404,000	9,160	<50	---	35,400	3,260,000	55	---	4,940	<1	<2
	05-Mar-08	a	N	438,000	9,240	<25	---	37,000	3,540,000	41	---	4,890	<0.5	<2
	12-Mar-08	a	N	407,000	10,100	<25	---	35,000	3,210,000	52.5	---	4,920	<2.5	<2
	19-Mar-08	a	N	432,000	10,400	---	---	36,800	3,320,000	42	<5	4,650	<1	<2
	26-Mar-08	a	N	436,000	10,100	<25	---	36,700	3,300,000	52.5	---	4,810	<1	12
	02-Apr-08	a	N	419,000	10,400	---	---	36,000	3,320,000	50	<5	---	---	<2
	16-Apr-08	a	N	445,000	10,300	---	---	36,600	3,440,000	55	<5	---	---	<2
	29-Apr-08	a	N	431,000	11,900	7.3	---	35,500	2,940,000	57.5	<5	---	<5	<2
	14-May-08		N	408,000	12,400	---	---	35,800	2,750,000	65	<5	---	---	<2
	28-May-08	a	N	421,000	11,200	6.8	---	35,100	2,800,000	55.0	---	4,320	<1	<2
	11-Jun-08	a	N	460,000	12,800	---	---	37,300	3,270,000	47.5	<5	---	---	<2
	11-Jun-08	a	FD	466,000	13,200	---	---	37,100	3,340,000	47.5	<5	---	---	<2
	25-Jun-08	a	N	439,000	12,500	7.4	---	35,000	2,830,000	52.5	---	4,050	<1	<2
	24-Jul-08	a	N	452,000	15,200	6.5	---	33,600	2,910,000	53.8	---	4,090	<2.5	8
	20-Aug-08	a	N	451,000	11,900	7.3	---	36,700	3,250,000	47.5	---	4,810	<2.5	40
	20-Aug-08	a	FD	451,000	12,000	7.2	---	36,200	3,280,000	47.5	---	4,820	<2.5	160
	17-Sep-08		N	431,000	11,200	<25	---	36,900	3,250,000	47.5	---	4,880	<2.5	<2
	15-Oct-08		N	458,000	18,400	<25	---	36,300	2,640,000	55.5	---	3,990	<1	<2
	12-Nov-08		N	523,000	17,000	<25	---	40,300	3,110,000	47.9	---	4,680	<2.5	<2
	05-Feb-09	a	N	441,000	13,700	11.8	---	36,700	3,560,000	44.0	---	5,700	<0.5	<0.05
MW-11	17-Jul-07	a	N	125,000	---	<5	1.54	8,330	280,000	87.5	<5	470	<0.5	<2
	24-Jan-08	a	N	122,000	16,100	<5	---	8,160	280,000	103	---	442	<0.5	<2
	04-Mar-08	a	N	123,000	17,700	<5	---	8,300	302,000	92.5	---	434	<0.5	<2
	11-Mar-08	a	N	116,000	16,100	<5	---	7,990	278,000	110	---	439	<0.5	<2
	11-Mar-08	a	FD	120,000	16,700	<5	---	8,160	296,000	105	---	453	<0.5	<2
	19-Mar-08	a	N	125,000	17,400	---	---	8,800	302,000	103	<5	427	<0.5	<2
	27-Mar-08	a	N	124,000	15,900	<5	---	8,480	295,000	110	---	467	<0.5	<2
	01-Apr-08		N	118,000	15,800	---	---	8,340	283,000	103	<5	---	---	<2
	15-Apr-08		N	122,000	16,400	---	---	8,260	299,000	108	<5	---	---	4.0
	28-Apr-08		N	116,000	16,100	<5	---	8,230	276,000	140	<5	---	<0.5	<2
	13-May-08		N	120,000	16,800	---	---	8,290	289,000	113	<5	---	---	2.4
	27-May-08	a	N	117,000	16,100	<5	---	8,220	272,000	100.0	---	466	<0.5	<2
	10-Jun-08		N	119,000	17,600	---	---	8,230	282,000	90.0	<5	---	---	<2
	24-Jun-08	a	N	120,000	16,700	<5	---	8,560	284,000	90.0	---	477	<0.5	<2
	22-Jul-08	a	N	114,000	17,900	<5	---	8,120	275,000	92.5	---	473	<0.5	<2
	21-Aug-08	a	N	116,000	19,000	<5	---	8,450	300,000	92.5	---	465	<0.5	<2
	16-Sep-08		N	114,000	16,500	<5	---	8,360	268,000	87.5	---	474	<0.5	<2
	14-Oct-08		N	120,000	16,300	<5	---	8,140	278,000	94.3	---	459	<0.5	<2
	11-Nov-08		N	116,000	15,100	<5	---	8,210	280,000	91.5	---	551	<0.5	<2
	03-Feb-09	a	N	113,000	16,600	2.6	---	7,790	277,000	96.0	---	510	<0.1	<0.05

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Location Name	Sample Date	Notes	Sample Type	Dissolved Calcium (µg/L)	Dissolved Magnesium (µg/L)	Dissolved Arsenic (µg/L)	Total Arsenic (µg/L)	Dissolved Potassium (µg/L)	Dissolved Sodium (µg/L)	Alkalinity bicarbonate (mg/L)	Alkalinity carbonate (mg/L)	Chloride (mg/L)	Orthophosphate-p (mg/L)	Sulfide (mg/L)
MW-24A	18-Jul-07	a	N	42,000	---	5.4	5.58	5,610	565,000	310	<5	410	<0.5	<2
	24-Jan-08	a	N	46,300	8,660	5.1	---	5,860	585,000	365	---	452	<0.5	<2
	06-Mar-08	a	N	367,000	46,000	8.0	---	19,900	1,840,000	118	---	2,450	<5	<2
	12-Mar-08	a	N	387,000	39,900	<25	---	22,700	1,680,000	198	---	2,680	<10	<2
	19-Mar-08	a	N	407,000	46,200	---	---	21,200	1,710,000	423	<5	2,370	<2.5	<2
	26-Mar-08	a	N	491,000	50,500	82.8	---	18,900	1,690,000	970	---	2,380	<5	4.8
	01-Apr-08	a	N	423,000	47,700	---	---	18,100	1,620,000	1,020	<5	---	---	<2
	17-Apr-08	a	N	517,000	43,400	---	---	23,100	2,030,000	1,110	<5	---	---	10.4
	30-Apr-08	a	N	432,000	37,200	72.2	---	24,700	1,860,000	590	<5	---	<5	<2
	30-Apr-08	a	FD	437,000	35,800	70.4	---	23,700	1,860,000	570	<5	---	<5	<2
	15-May-08		N	494,000	59,900	---	---	24,000	1,750,000	450	<5	---	---	<2
	15-May-08		FD	502,000	59,100	---	---	24,800	1,780,000	480	<5	---	---	<2
	27-May-08	a	N	493,000	42,200	9.8	---	24,300	1,870,000	880	---	2,790	<1	11.2
	12-Jun-08	a	N	521,000	45,900	---	---	25,300	1,960,000	970	<5	---	---	4.0
	19-Jun-08		N	---	---	---	---	---	---	---	---	---	---	---
	26-Jun-08	a	N	398,000	29,700	23.7	---	23,700	192,000	153	---	2,780	<0.5	<2
	01-Jul-08		N	---	---	---	---	---	---	---	---	---	---	---
	24-Jul-08	a	N	384,000	27,800	24.5	---	24,000	1,980,000	115	---	2,730	<1	6.4
	24-Jul-08	a	FD	397,000	28,300	25.7	---	24,300	2,020,000	118	---	2,670	<1	<2
	19-Aug-08	a	N	376,000	34,500	21.0	---	22,400	1,800,000	288	---	2,690	<1	2
	16-Sep-08		N	355,000	29,100	8.1	---	23,100	1,930,000	670	---	2,720	<1	117.0
	16-Oct-08		N	353,000	30,400	25.9	---	24,300	1,940,000	353	---	2,870	<0.5	22.0
	13-Nov-08		N	348,000	26,500	<25	---	26,500	1,980,000	340	---	2,800	<0.5	102.0
	13-Nov-08		FD	349,000	27,400	<25	---	26,000	2,010,000	310	---	2,800	<2.5	94.4
	03-Feb-09	a	N	322,000	28,500	10.9	---	24,700	2,140,000	334	---	3,400	<0.5	8.1
MW-24B	18-Jul-07	a	N	329,000	---	7.1	7.08	34,500	3,270,000	50	<5	4,820	<0.5	<2
	24-Jan-08	a	N	341,000	8,050	<10	---	36,400	3,470,000	50	---	5,270	<1	2.0
	06-Mar-08	a	N	338,000	7,970	8.8	---	37,200	3,430,000	42	---	5,160	<1	<2
	12-Mar-08	a	N	332,000	7,610	<25	---	34,800	3,290,000	52.5	---	5,870	<1	<2
	19-Mar-08	a	N	351,000	8,410	---	---	37,100	3,650,000	44	<5	5,120	<0.5	<2
	26-Mar-08	a	N	358,000	8,240	<25	---	37,200	3,580,000	42	---	5,150	<0.5	<2
	03-Apr-08	a	N	345,000	8,130	---	---	36,200	3,470,000	44	<5	---	---	3.2
	17-Apr-08	a	N	345,000	8,280	---	---	36,700	3,530,000	50	<5	---	---	<2
	30-Apr-08	a	N	304,000	7,020	6.8	---	68,200	3,420,000	57.5	<5	---	<1	<2
	15-May-08		N	338,000	8,130	---	---	37,100	3,350,000	55	<5	---	---	<2
	28-May-08	a	N	360,000	38,900	<5	---	20,800	1,050,000	118.0	---	1,420	<1	<2
	12-Jun-08	a	N	336,000	7,570	---	---	34,800	3,340,000	45.0	<5	---	---	<2
	26-Jun-08	a	N	326,000	6,960	8.3	---	35,400	3,300,000	46.3	---	4,950	<1	<2
	24-Jul-08	a	N	323,400	7,730	7.4	---	33,000	3,420,000	46.3	---	4,860	<2.5	3.2
	19-Aug-08	a	N	296,000	7,150	7.6	---	31,900	3,210,000	46.3	---	4,910	<1	2
	17-Sep-08		N	308,000	7,770	<25	---	34,900	3,260,000	45.0	---	4,950	<0.5	<2
	16-Oct-08		N	307,000	7,990	<25	---	34,700	3,130,000	47.6	---	4,870	<0.5	<2
	16-Oct-08		FD	310,000	7,880	<25	---	34,700	3,190,000	47.8	---	4,880	<0.5	<2
	13-Nov-08		N	302,000	7,600	<25	---	35,000	3,380,000	46.0	---	5,260	<0.5	<2
	04-Feb-09	a	N	310,000	7,200	3.6	---	34,100	3,060,000	48.0	---	4,000	1.0	<0.05

Table 4
Summary of Secondary Analytical Parameters
 PG&E Topock
 Needles, California

First Quarter 2009 Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test

Location Name	Sample Date	Notes	Sample Type	Dissolved Calcium (µg/L)	Dissolved Magnesium (µg/L)	Dissolved Arsenic (µg/L)	Total Arsenic (µg/L)	Dissolved Potassium (µg/L)	Dissolved Sodium (µg/L)	Alkalinity bicarbonate (mg/L)	Alkalinity carbonate (mg/L)	Chloride (mg/L)	Orthophosphate-p (mg/L)	Sulfide (mg/L)
MW-38S	17-Jul-07	a	N	84,200	---	<5	6.1	8,710	627,000	175	<5	680	<0.5	<2
	23-Jan-08	a	N	63,900	12,200	<5	---	7,400	546,000	175	---	546	<0.5	<2
	04-Mar-08	a	N	67,600	13,300	<5	---	7,910	607,000	185	---	534	<0.5	<2
	11-Mar-08	a	N	66,100	13,300	<5	---	7,920	586,000	175	---	571	<0.5	<2
	20-Mar-08	a	N	70,900	13,400	---	---	8,190	593,000	200	200	---	<0.5	<2
	26-Mar-08	a	N	71,000	13,500	<25	---	8,160	583,000	183	---	583	<0.5	<2
	01-Apr-08	a	N	60,500	11,600	---	---	7,010	57,500	290	<5	---	---	<2
	15-Apr-08	a	N	67,100	13,000	---	---	7,710	590,000	190	<5	---	---	<2
	28-Apr-08	a	N	67,000	13,000	<5	---	8,030	575,000	200	<5	---	<0.5	<2
	13-May-08		N	63,400	12,700	---	---	7,780	571,000	185	<5	---	---	<2
	27-May-08	a	N	62,600	12,200	<5	---	7,420	540,000	193	---	551	<0.5	<2
	10-Jun-08	a	N	63,000	12,400	---	---	7,670	620,000	180	<5	---	---	<2
	24-Jun-08	a	N	65,700	12,200	<5	---	7,690	570,000	185	---	533	<0.5	<2
	22-Jul-08	a	N	59,700	12,600	<5	---	7,270	534,000	183	---	523	<0.5	<2
	20-Aug-08	a	N	56,400	11,200	<5	---	7,160	540,000	175	---	487	<0.5	160
	16-Sep-08		N	54,200	10,900	<5	---	7,150	560,000	160	---	496	<0.5	<2
	14-Oct-08		N	53,700	10,400	<5	---	6,840	535,000	189	---	467	<0.5	<2
	11-Nov-08		N	53,000	9,220	<5	---	6,930	516,000	182	---	471	<0.5	<2
	03-Feb-09	a	N	58,400	9,600	5.9	---	8,570	488,000	187	---	530	<0.1	<0.05
MW-38D	17-Jul-07	a	N	352,000	---	7.9	7.49	45,600	4,710,000	35	<5	7,240	<0.5	<2
	23-Jan-08	a	N	353,000	<20,000	<100	---	43,100	4,560,000	40	---	7,690	<2.5	<2
	04-Mar-08	a	N	343,000	7,150	8.6	---	44,500	5,070,000	31	---	7,390	<0.5	<2
	11-Mar-08	a	N	363,000	7,580	<25	---	47,000	4,970,000	32	---	7,710	<0.5	<2
	20-Mar-08	a	N	361,000	7,720	---	---	44,900	5,020,000	32	32	---	<2.5	<2
	20-Mar-08	a	FD	359,000	7,720	---	---	45,100	4,920,000	33	33	---	<2.5	<2
	26-Mar-08	a	N	362,000	7,580	<25	---	44,700	4,940,000	31	---	7,830	<1	<2
	01-Apr-08	a	N	353,000	7,040	---	---	46,100	4,870,000	31	<5	---	---	<2
	01-Apr-08	a	FD	335,000	6,680	---	---	44,000	4,900,000	32	<5	---	---	<2
	15-Apr-08	a	N	38,500	7,440	---	---	45,200	5,010,000	31	<5	---	---	<2
	15-Apr-08	a	FD	405,000	7,500	---	---	46,300	5,330,000	32	<5	---	---	<2
	28-Apr-08	a	N	346,000	7,700	<25	---	43,700	4,740,000	32	<5	---	<0.5	<2
	13-May-08		N	360,000	7,020	---	---	46,400	4,690,000	36	<5	---	---	2.0
	27-May-08	a	N	337,000	6,670	7.7	---	44,500	4,600,000	32.0	---	7,580	<0.5	<2
	10-Jun-08	a	N	352,000	6,960	---	---	44,900	4,860,000	---	---	---	---	<2
	24-Jun-08	a	N	377,000	6,610	9.0	---	45,200	5,000,000	32.5	---	7,420	<0.5	<2
	22-Jul-08	a	N	369,000	7,300	8.5	---	45,100	4,900,000	32.5	---	7,490	<0.5	<2
	20-Aug-08	a	N	364,000	6,950	8.9	---	43,200	3,200,000	31.3	---	7,230	<2.5	80
	16-Sep-08		N	367,000	7,240	8.6	---	44,700	4,870,000	32.0	---	7,390	<0.5	<2
	16-Sep-08		FD	339,000	7,750	<25	---	44,400	4,910,000	33.0	---	7,430	<0.5	<2
	14-Oct-08		N	361,000	8,180	<25	---	45,100	5,080,000	33.3	---	7,360	<0.5	<2
	11-Nov-08		N	365,000	6,670	8.1	---	42,400	487,000	32.4	---	7,210	<0.5	<2
	03-Feb-09	a	N	388,000	8,450	<0.5	---	48,300	5,320,000	33.0	---	8,500	<0.5	<0.05

Table 4
Summary of Secondary Analytical Parameters
PG&E Topock
Needles, California
First Quarter 2009 Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test

Location Name	Sample Date	Notes	Sample Type	Dissolved Calcium (µg/L)	Dissolved Magnesium (µg/L)	Dissolved Arsenic (µg/L)	Total Arsenic (µg/L)	Dissolved Potassium (µg/L)	Dissolved Sodium (µg/L)	Alkalinity bicarbonate (mg/L)	Alkalinity carbonate (mg/L)	Chloride (mg/L)	Orthophosphate-p (mg/L)	Sulfide (mg/L)
PTR-1	19-Jul-07	a	N	254,000	---	<5	1.94	21,500	1,500,000	97.5	<5	1,940	<0.5	<2
	25-Jan-08	a	N	206,000	37,500	<5	---	16,400	1,190,000	123	---	1,610	<0.5	<2
	06-Mar-08	a	N	171,000	36,500	<25	---	12,800	882,000	208	---	1,360	<500	<2
	11-Mar-08	a	N	166,000	36,100	<25	---	13,000	872,000	158	---	1,190	<5	<2
	20-Mar-08	a	N	155,000	32,800	---	---	11,500	758,000	203	203	---	<50	<2
	27-Mar-08	a	N	112,000	21,600	<25	---	6,680	461,000	185	---	608	<20	3.2
	01-Apr-08	a	N	254,000	47,500	---	---	15,600	1,050,000	600	<5	---	---	<2
	16-Apr-08	a	N	175,000	40,900	---	---	12,500	833,000	138	<5	---	---	<2
	29-Apr-08	a	N	170,000	35,100	13.4	---	11,300	767,000	298	<5	---	<5	4.8
	15-May-08		N	188,000	37,800	---	---	11,800	818,000	300	<5	---	---	3.6
	29-May-08	a	N	157,000	35,700	<5	---	13,800	856,000	183	---	1,190	<0.5	4.0
	12-Jun-08	a	N	171,000	38,900	---	---	14,200	965,000	148	<5	---	---	<2
	19-Jun-08		N	---	---	---	---	---	---	---	---	---	---	---
	26-Jun-08	a	N	173,000	36,100	7.5	---	13,600	942,000	150	---	1,290	<0.5	<2
	01-Jul-08		N	---	---	---	---	---	---	---	---	---	---	---
	24-Jul-08	a	N	163,000	37,700	<5	---	12,300	916,000	160	---	1,180	<0.5	16.0
	19-Aug-08	a	N	170,000	37,500	6.0	---	14,200	979,000	140	---	1,330	<0.5	320
	18-Sep-08		N	182,000	40,200	8.5	---	15,000	1,040,000	115	---	1,450	<0.5	<2
	16-Oct-08		N	176,000	40,600	<5	---	16,300	992,000	106	---	1,440	<0.5	2.0
	13-Nov-08		N	209,000	32,300	<5	---	11,900	686,000	330	---	967	<0.5	<2
	04-Feb-09	a	N	323,000	53,800	2.9	---	12,500	925,000	592	---	1,300	2.0	0.3
PTR-2	18-Jul-07	a	N	335,000	---	<5	1.99	23,200	1,610,000	92.5	<5	2,200	<0.5	<2
	25-Jan-08	a	N	427,000	34,400	<10	---	25,000	1,450,000	103	---	2,060	<0.5	2.0
	06-Mar-08	a	N	407,000	29,200	<25	---	26,800	1,780,000	92.5	---	2,460	<1	<2
	11-Mar-08	a	N	393,000	27,200	<5	---	26,300	1,770,000	92.5	---	2,470	<0.5	<2
	20-Mar-08	a	N	151,000	18,000	---	---	17,300	1,220,000	148	148	---	<250	<2
	27-Mar-08	a	N	88,500	13,000	<25	---	11,100	830,000	120	---	1,090	<500	<2
	01-Apr-08	a	N	404,000	28,900	---	---	28,500	2,120,000	145	<5	---	---	<2
	15-Apr-08	a	N	241,000	23,900	---	---	13,900	919,000	143	<5	---	---	<2
	29-Apr-08	a	N	410,000	25,300	5.6	---	26,200	1,920,000	120	<5	---	<1	<2
	15-May-08		N	396,000	26,900	---	---	28,800	1,970,000	105	<5	---	---	<2
	28-May-08	a	N	302,000	19,700	7.7	---	22,800	1,730,000	82.5	---	2,620	<1	<2
	10-Jun-08	a	N	397,000	25,200	---	---	26,200	203,000	95.0	<5	---	---	<2
	19-Jun-08		N	---	---	---	---	---	---	---	---	---	---	---
	26-Jun-08	a	N	397,000	24,000	<5	---	26,700	1,910,000	82.5	---	2,650	<1	<2
	01-Jul-08		N	---	---	---	---	---	---	---	---	---	---	---
	24-Jul-08	a	N	396,000	26,400	<5	---	25,900	1,960,000	95	---	2,660	<2.5	4
	19-Aug-08	a	N	254,000	26,100	<25	---	17,800	1,050,000	125	---	1,580	<0.5	80
	18-Sep-08		N	281,000	23,400	7.8	---	21,000	1,520,000	75.0	---	1,380	<0.5	<2
	16-Oct-08		N	354,000	26,600	<25	---	26,100	1,740,000	86.9	---	2,630	<0.5	<2
	13-Nov-08		N	364,000	22,700	<25	---	28,300	2,060,000	92.5	---	2,770	<1	<2
	05-Feb-09	a	N	330,000	24,800	2.5	---	27,800	2,370,000	94.0	---	3,700	<0.2	<0.05

Table 4
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Location Name	Sample Date	Notes	Sample Type	Dissolved Calcium (µg/L)	Dissolved Magnesium (µg/L)	Dissolved Arsenic (µg/L)	Total Arsenic (µg/L)	Dissolved Potassium (µg/L)	Dissolved Sodium (µg/L)	Alkalinity bicarbonate (mg/L)	Alkalinity carbonate (mg/L)	Chloride (mg/L)	Orthophosphate-p (mg/L)	Sulfide (mg/L)
Equipment Blank	17-Jul-07		EB	<1,000	---	<5	<1	<1,000	<1,000	<5	<5	<0.5	<0.5	<2
	22-Jan-08		EB	<1,000	<1,000	<5	---	<1,000	<1,000	<5	---	<0.5	<0.5	<2
	05-Mar-08		EB	<1,000	<1,000	<5	---	<1,000	<1,000	<5	---	<0.5	<0.5	<2
	11-Mar-08		EB	<1,000	<1,000	<5	---	<1,000	<1,000	<5	---	<0.5	<0.5	<2
	18-Mar-08		EB	<1,000	<1,000	---	---	<1,000	<1,000	<5	<5	<0.5	<0.5	<2
	25-Mar-08		EB	<1,000	<1,000	<5	---	<1,000	<1,000	<5	---	<0.5	<0.5	<2
	03-Apr-08		FB	<1,000	<1,000	---	---	<1,000	<1,000	<5	<5	---	---	<2
	15-Apr-08		EB	<1,000	<1,000	---	---	<1,000	<1,000	<5	<5	---	---	<2
	28-Apr-08		EB	<1,000	<1,000	<5	---	<1,000	<1,000	<5	<5	---	<0.5	<2
	13-May-08		EB	<1,000	<1,000	---	---	<1,000	<1,000	<5	<5	---	---	<2
	28-May-08		EB	<1,000	<1,000	---	---	<1,000	<1,000	<5	---	<0.5	<0.5	<2
	10-Jun-08		EB	<1,000	<1,000	---	---	<1,000	<1,000	<5	<5	---	---	<2
	24-Jun-08		EB	<1,000	<1,000	<5	---	<1,000	<1,000	<5	---	<0.5	<0.5	2.0
	22-Jul-08		EB	<1,000	<1,000	<5	---	<1,000	<1,000	<5	---	1.38	<0.5	<2
	20-Aug-08		EB	<1,000	<1,000	<5	---	<1,000	<1,000	<5	---	1.77	<0.5	<2
	16-Sep-08		EB	<1,000	<1,000	<5	---	<1,000	<1,000	<5	---	<0.5	<0.5	<2
	14-Oct-08		EB	<1,000	<1,000	<5	---	<1,000	<1,000	<5	---	<0.5	<0.5	<2
	11-Nov-08		EB	<1,000	<1,000	<5	---	<1,000	<1,000	<5	---	1.54	<0.5	<2
	03-Feb-09		EB	<100	<100	0.623	---	<50	<100	<1	---	<1	<0.1	<0.05
Field Blank	17-Jul-07		FB	<1,000	---	<5	<1	<1,000	<1,000	<5	<5	<0.5	<0.5	<2
	22-Jan-08		FB	<1,000	<1,000	<5	---	<1,000	<1,000	<5	---	116	<0.5	<2
	05-Mar-08		FB	<1,000	<1,000	<5	---	<1,000	<1,000	<5	---	<0.5	<0.5	<2
	11-Mar-08		FB	<1,000	<1,000	<5	---	<1,000	1,590	<5	---	<0.5	<0.5	<2
	18-Mar-08		FB	<1,000	<1,000	---	---	<1,000	<1,000	<5	<5	0.78	<0.5	<2
	25-Mar-08		FB	<1,000	<1,000	<5	---	<1,000	<1,000	<5	---	<0.5	<0.5	<2
	03-Apr-08		FB	<1,000	<1,000	---	---	<1,000	<1,000	<5	<5	---	---	<2
	15-Apr-08		FB	<1,000	<1,000	---	---	<1,000	<1,000	<5	<5	---	---	<2
	28-Apr-08		FB	<1,000	<1,000	<5	---	<1,000	<1,000	<5	<5	---	<0.5	<2
	13-May-08		FB	<1,000	<1,000	---	---	<1,000	<1,000	1.0	<5	---	---	<2
	28-May-08		FB	<1,000	<1,000	---	---	<1,000	<1,000	<5	---	<0.5	<0.5	<2
	10-Jun-08		FB	<1,000	<1,000	---	---	<1,000	<1,000	<5	<5	---	---	<2
	24-Jun-08		FB	<1,000	<1,000	<5	---	<1,000	<1,000	<5	---	1.15	<0.5	<2
	22-Jul-08		FB	<1,000	<1,000	<5	---	<1,000	<1,000	<5	---	1.45	<0.5	<2
	19-Aug-08		FB	<1,000	<1,000	<5	---	<1,000	<1,000	<5	---	<0.5	<0.5	<2
	16-Sep-08		FB	<1,000	<1,000	<5	---	<1,000	<1,000	<5	---	<0.5	<0.5	<2
	14-Oct-08		FB	<1,000	<1,000	<5	---	<1,000	<1,000	<5	---	<0.5	<0.5	<2
	11-Nov-08		FB	<1,000	<1,000	<5	---	<1,000	<1,000	<5	---	2.13	<0.5	<2
	04-Feb-09		FB	<100	<100	<0.5	---	<50	<100	<1	---	<5	<0.5	<0.05

Table 4
Summary of Secondary Analytical Parameters

PG&E Topock
Needles, California

First Quarter 2009 Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test

Location Name	Sample Date	Notes	Sample Type	Dissolved Calcium (µg/L)	Dissolved Magnesium (µg/L)	Dissolved Arsenic (µg/L)	Total Arsenic (µg/L)	Dissolved Potassium (µg/L)	Dissolved Sodium (µg/L)	Alkalinity bicarbonate (mg/L)	Alkalinity carbonate (mg/L)	Chloride (mg/L)	Orthophosphate-p (mg/L)	Sulfide (mg/L)
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Notes:

Most recent data indicated in **BOLD**

- a Samples were diluted in the laboratory
- ft bgs Feet below ground surface
- mg/L Milligrams per liter
- µg/L Micrograms per liter
- < Symbol indicates not detected at or above laboratory detection limit as noted.
- EB Equipment blank
- FB Field blank
- FD Field duplicate
- J Reported value is estimated.
- N Normal
- NA Not applicable
- Dissolved Samples were field filtered with a 0.45 micron filter.
- Not analyzed/not sampled
- * PTR-1 Screen: 125-160 and 175-220 ft bgs. PTR-2 Screen: 118-158 and 173-218 ft bgs.

Table 5
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Location	Sample ID	Sampler	Sample Date	Sample Time	Laboratory	Test Method	Analyte	Analysis Date	Analyst Name/ Analyst ID #
PT-7S	PT-7S-090205	Gary Clift	2/5/2009	11:15	Calscience	E200.7	Iron-Total	2/17/2009	598
					Calscience	E200.7	Manganese-Total	2/17/2009	598
					Calscience	E200.8	Arsenic	2/11/2009	43
					Calscience	E200.8	Calcium	2/11/2009	43
					Calscience	E200.8	Sodium	2/11/2009	43
					Calscience	E200.8	Iron-Dissolved	2/11/2009	43
					Calscience	E200.8	Magnesium	2/11/2009	43
					Calscience	E200.8	Manganese	2/11/2009	43
					Calscience	E200.8	Potassium	2/11/2009	43
					Truesdail	SW6020	Chromium, Total Dissolved	2/24/2009	Romuel Chaves
					Truesdail	E218.6	Chromium, hexavalent	2/19/2009	Michael Nonezyan
					Calscience	E300.0	Chloride-cl	2/10/2009	606
					Calscience	E300.0	Nitrate-n	2/10/2009	606
					Calscience	E300.0	Nitrite-n	2/10/2009	606
					Calscience	E300.0	Orthophosphate-p	2/10/2009	606
					Calscience	E300.0	Sulfate	2/10/2009	606
						IM-3	Chromium, hexavalent-Field	2/5/2009	
					Ozark	OHM In-House	Fluorescein-clc	2/10/2009	Margaret Ridinger
					Ozark	OHM In-House	Rhodamine-clc	2/10/2009	Margaret Ridinger
					Calscience	SM2320B	Alkalinity bicarbonate	2/13/2009	688
					Calscience	SM4500S	Sulfide	2/11/2009	689
					Calscience	SW5310B	Total Organic Carbon	2/12/2009	64
PT-8S	PT-8S-090204	Gary Clift	2/4/2009	13:55	Calscience	E200.7	Iron-Total	2/17/2009	309
					Calscience	E200.7	Manganese-Total	2/17/2009	309
					Calscience	E200.8	Arsenic	2/6/2009	43
					Calscience	E200.8	Calcium	2/6/2009	43
					Calscience	E200.8	Sodium	2/6/2009	43
					Calscience	E200.8	Iron-Dissolved	2/6/2009	43
					Calscience	E200.8	Magnesium	2/6/2009	43
					Calscience	E200.8	Manganese	2/6/2009	43
					Calscience	E200.8	Potassium	2/6/2009	43
					Truesdail	SW6020	Chromium, Total Dissolved	2/12/2009	Romuel Chaves
					Truesdail	E218.6	Chromium, hexavalent	2/5/2009	Michael Nonezyan
					Calscience	E300.0	Chloride-cl	2/7/2009	650
					Calscience	E300.0	Nitrate-n	2/7/2009	650
					Calscience	E300.0	Nitrite-n	2/7/2009	650
					Calscience	E300.0	Orthophosphate-p	2/7/2009	650
					Calscience	E300.0	Sulfate	2/7/2009	650
						IM-3	Chromium, hexavalent-Field	2/4/2009	
					Ozark	OHM In-House	Fluorescein-clc	2/10/2009	Margaret Ridinger
					Ozark	OHM In-House	Rhodamine-clc	2/10/2009	Margaret Ridinger
					Calscience	SM2320B	Alkalinity bicarbonate	2/12/2009	688
					Calscience	SM4500S	Sulfide	2/9/2009	689
					Calscience	SW5310B	Total Organic Carbon	2/7/2009	64

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Location	Sample ID	Sampler	Sample Date	Sample Time	Laboratory	Test Method	Analyte	Analysis Date	Analyst Name/ Analyst ID #
PT-8M	PT-8M-090204	Gary Clift	2/4/2009	14:25	Calscience	E200.7	Iron-Total	2/17/2009	309
					Calscience	E200.7	Manganese-Total	2/17/2009	309
					Calscience	E200.8	Arsenic	2/6/2009	43
					Calscience	E200.8	Calcium	2/6/2009	43
					Calscience	E200.8	Sodium	2/6/2009	43
					Calscience	E200.8	Iron-Dissolved	2/6/2009	43
					Calscience	E200.8	Magnesium	2/6/2009	43
					Calscience	E200.8	Manganese	2/6/2009	43
					Calscience	E200.8	Potassium	2/6/2009	43
					Truesdail	SW6020	Chromium, Total Dissolved	2/12/2009	Romuel Chaves
					Truesdail	E218.6	Chromium, hexavalent	2/5/2009	Michael Nonezyan
					Calscience	E300.0	Chloride-cl	2/9/2009	650
					Calscience	E300.0	Nitrate-n	2/9/2009	650
					Calscience	E300.0	Nitrite-n	2/9/2009	650
					Calscience	E300.0	Orthophosphate-p	2/9/2009	650
					Calscience	E300.0	Sulfate	2/9/2009	650
						IM-3	Chromium, hexavalent-Field	2/4/2009	
					Ozark	OHM In-House	Fluorescein-clc	2/10/2009	Margaret Ridinger
					Ozark	OHM In-House	Rhodamine-clc	2/10/2009	Margaret Ridinger
					Calscience	SM2320B	Alkalinity bicarbonate	2/12/2009	688
					Calscience	SM4500S	Sulfide	2/9/2009	689
					Calscience	SW5310B	Total Organic Carbon	2/7/2009	64
PT-8D	PT-8D-090204	Gary Clift	2/4/2009	13:10	Calscience	E200.7	Iron-Total	2/17/2009	309
					Calscience	E200.7	Manganese-Total	2/17/2009	309
					Calscience	E200.8	Arsenic	2/6/2009	43
					Calscience	E200.8	Calcium	2/6/2009	43
					Calscience	E200.8	Sodium	2/6/2009	43
					Calscience	E200.8	Iron-Dissolved	2/6/2009	43
					Calscience	E200.8	Magnesium	2/6/2009	43
					Calscience	E200.8	Manganese	2/6/2009	43
					Calscience	E200.8	Potassium	2/6/2009	43
					Truesdail	SW6020	Chromium, Total Dissolved	2/12/2009	Romuel Chaves
					Truesdail	E218.6	Chromium, hexavalent	2/5/2009	Michael Nonezyan
					Calscience	E300.0	Chloride-cl	2/9/2009	650
					Calscience	E300.0	Nitrate-n	2/9/2009	650
					Calscience	E300.0	Nitrite-n	2/9/2009	650
					Calscience	E300.0	Orthophosphate-p	2/9/2009	650
					Calscience	E300.0	Sulfate	2/9/2009	650
						IM-3	Chromium, hexavalent-Field	2/4/2009	
					Ozark	OHM In-House	Fluorescein-clc	2/10/2009	Margaret Ridinger
					Ozark	OHM In-House	Rhodamine-clc	2/10/2009	Margaret Ridinger
					Calscience	SM2320B	Alkalinity bicarbonate	2/12/2009	688
					Calscience	SM4500S	Sulfide	2/9/2009	689
					Calscience	SW5310B	Total Organic Carbon	2/7/2009	64

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Location	Sample ID	Sampler	Sample Date	Sample Time	Laboratory	Test Method	Analyte	Analysis Date	Analyst Name/ Analyst ID #
PT-8D	PT-8D-090204D	Gary Clift	2/4/2009		Calscience	E200.7	Iron-Total	2/17/2009	309
					Calscience	E200.7	Manganese-Total	2/17/2009	309
					Calscience	E200.8	Arsenic	2/6/2009	43
					Calscience	E200.8	Calcium	2/6/2009	43
					Calscience	E200.8	Sodium	2/6/2009	43
					Calscience	E200.8	Iron-Dissolved	2/6/2009	43
					Calscience	E200.8	Magnesium	2/6/2009	43
					Calscience	E200.8	Manganese	2/6/2009	43
					Calscience	E200.8	Potassium	2/6/2009	43
					Truesdail	SW6020	Chromium, Total Dissolved	2/12/2009	Romuel Chaves
					Truesdail	E218.6	Chromium, hexavalent	2/5/2009	Michael Nonezyan
					Calscience	E300.0	Chloride-cl	2/9/2009	650
					Calscience	E300.0	Nitrate-n	2/9/2009	650
					Calscience	E300.0	Nitrite-n	2/9/2009	650
					Calscience	E300.0	Orthophosphate-p	2/9/2009	650
					Calscience	E300.0	Sulfate	2/9/2009	650
						IM-3	Chromium, hexavalent-Field	2/4/2009	
					Ozark	OHM In-House	Fluorescein-clc	2/10/2009	Margaret Ridinger
					Ozark	OHM In-House	Rhodamine-clc	2/10/2009	Margaret Ridinger
					Calscience	SM2320B	Alkalinity bicarbonate	2/12/2009	688
					Calscience	SM4500S	Sulfide	2/9/2009	689
					Calscience	SW5310B	Total Organic Carbon	2/7/2009	64
PT-9S	PT-9S-090205	Gary Clift	2/5/2009	8:25	Calscience	E200.7	Iron-Total	2/17/2009	598
					Calscience	E200.7	Manganese-Total	2/17/2009	598
					Calscience	E200.8	Arsenic	2/11/2009	43
					Calscience	E200.8	Calcium	2/11/2009	43
					Calscience	E200.8	Sodium	2/11/2009	43
					Calscience	E200.8	Iron-Dissolved	2/11/2009	43
					Calscience	E200.8	Magnesium	2/11/2009	43
					Calscience	E200.8	Manganese	2/11/2009	43
					Calscience	E200.8	Potassium	2/11/2009	43
					Truesdail	SW6020	Chromium, Total Dissolved	2/24/2009	Romuel Chaves
					Truesdail	E218.6	Chromium, hexavalent	2/19/2009	Michael Nonezyan
					Calscience	E300.0	Chloride-cl	2/9/2009	606
					Calscience	E300.0	Nitrate-n	2/9/2009	606
					Calscience	E300.0	Nitrite-n	2/9/2009	606
					Calscience	E300.0	Orthophosphate-p	2/9/2009	606
					Calscience	E300.0	Sulfate	2/9/2009	606
						IM-3	Chromium, hexavalent-Field	2/5/2009	
					Ozark	OHM In-House	Fluorescein-clc	2/10/2009	Margaret Ridinger
					Ozark	OHM In-House	Rhodamine-clc	2/10/2009	Margaret Ridinger
					Calscience	SM2320B	Alkalinity bicarbonate	2/13/2009	688
					Calscience	SM4500S	Sulfide	2/11/2009	689
					Calscience	SW5310B	Total Organic Carbon	2/12/2009	64

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Location	Sample ID	Sampler	Sample Date	Sample Time	Laboratory	Test Method	Analyte	Analysis Date	Analyst Name/ Analyst ID #
PT-9M	PT-9M-090205	Gary Clift	2/5/2009	9:30	Calscience	E200.7	Iron-Total	2/17/2009	598
					Calscience	E200.7	Manganese-Total	2/17/2009	598
					Calscience	E200.8	Arsenic	2/11/2009	43
					Calscience	E200.8	Calcium	2/11/2009	43
					Calscience	E200.8	Sodium	2/11/2009	43
					Calscience	E200.8	Iron-Dissolved	2/11/2009	43
					Calscience	E200.8	Magnesium	2/11/2009	43
					Calscience	E200.8	Manganese	2/11/2009	43
					Calscience	E200.8	Potassium	2/11/2009	43
					Truesdail	SW6020	Chromium, Total Dissolved	2/24/2009	Romuel Chaves
					Truesdail	E218.6	Chromium, hexavalent	2/19/2009	Michael Nonezyan
					Calscience	E300.0	Chloride-cl	2/9/2009	606
					Calscience	E300.0	Nitrate-n	2/9/2009	606
					Calscience	E300.0	Nitrite-n	2/9/2009	606
					Calscience	E300.0	Orthophosphate-p	2/9/2009	606
					Calscience	E300.0	Sulfate	2/9/2009	606
						IM-3	Chromium, hexavalent-Field	2/5/2009	
					Ozark	OHM In-House	Fluorescein-clc	2/10/2009	Margaret Ridinger
					Ozark	OHM In-House	Rhodamine-clc	2/10/2009	Margaret Ridinger
					Calscience	SM2320B	Alkalinity bicarbonate	2/13/2009	688
					Calscience	SM4500S	Sulfide	2/11/2009	689
					Calscience	SW5310B	Total Organic Carbon	2/12/2009	64
PT-9D	PT-9D-090205	Gary Clift	2/5/2009	9:00	Calscience	E200.7	Iron-Total	2/17/2009	598
					Calscience	E200.7	Manganese-Total	2/17/2009	598
					Calscience	E200.8	Arsenic	2/11/2009	43
					Calscience	E200.8	Calcium	2/11/2009	43
					Calscience	E200.8	Sodium	2/11/2009	43
					Calscience	E200.8	Iron-Dissolved	2/11/2009	43
					Calscience	E200.8	Magnesium	2/11/2009	43
					Calscience	E200.8	Manganese	2/11/2009	43
					Calscience	E200.8	Potassium	2/11/2009	43
					Truesdail	SW6020	Chromium, Total Dissolved	2/24/2009	Romuel Chaves
					Truesdail	E218.6	Chromium, hexavalent	2/19/2009	Michael Nonezyan
					Calscience	E300.0	Chloride-cl	2/6/2009	606
					Calscience	E300.0	Nitrate-n	2/6/2009	606
					Calscience	E300.0	Nitrite-n	2/6/2009	606
					Calscience	E300.0	Orthophosphate-p	2/6/2009	606
					Calscience	E300.0	Sulfate	2/6/2009	606
						IM-3	Chromium, hexavalent-Field	2/5/2009	
					Ozark	OHM In-House	Fluorescein-clc	2/10/2009	Margaret Ridinger
					Ozark	OHM In-House	Rhodamine-clc	2/10/2009	Margaret Ridinger
					Calscience	SM2320B	Alkalinity bicarbonate	2/13/2009	688
					Calscience	SM4500S	Sulfide	2/11/2009	689
					Calscience	SW5310B	Total Organic Carbon	2/12/2009	64

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Location	Sample ID	Sampler	Sample Date	Sample Time	Laboratory	Test Method	Analyte	Analysis Date	Analyst Name/ Analyst ID #
MW-11	MW-11-090203	Gary Clift	2/3/2009	13:50	Calscience	E200.7	Iron-Total	2/18/2009	309
					Calscience	E200.7	Manganese-Total	2/18/2009	309
					Calscience	E200.8	Arsenic	2/6/2009	43
					Calscience	E200.8	Calcium	2/6/2009	43
					Calscience	E200.8	Sodium	2/6/2009	43
					Calscience	E200.8	Iron-Dissolved	2/6/2009	43
					Calscience	E200.8	Magnesium	2/6/2009	43
					Calscience	E200.8	Manganese	2/6/2009	43
					Calscience	E200.8	Potassium	2/6/2009	43
					Truesdail	SW6020	Chromium, Total Dissolved	2/17/2009	Romuel Chaves
					Truesdail	E218.6	Chromium, hexavalent	2/4/2009	Michael Nonezyan
					Calscience	E300.0	Chloride-cl	2/8/2009	650
					Calscience	E300.0	Nitrate-n	2/8/2009	650
					Calscience	E300.0	Nitrite-n	2/8/2009	650
					Calscience	E300.0	Orthophosphate-p	2/8/2009	650
					Calscience	E300.0	Sulfate	2/8/2009	650
						IM-3	Chromium, hexavalent-Field	2/3/2009	
					Ozark	OHM In-House	Fluorescein-clc	2/10/2009	Margaret Ridinger
					Ozark	OHM In-House	Rhodamine-clc	2/10/2009	Margaret Ridinger
					Calscience	SM2320B	Alkalinity bicarbonate	2/10/2009	688
Calscience	SM4500S	Sulfide	2/9/2009	689					
Calscience	SW5310B	Total Organic Carbon	2/5/2009	64					
MW-24A	MW-24A-090203	Gary Clift	2/3/2009	14:30	Calscience	E200.7	Iron-Total	2/18/2009	309
					Calscience	E200.7	Manganese-Total	2/18/2009	309
					Calscience	E200.8	Arsenic	2/6/2009	43
					Calscience	E200.8	Calcium	2/6/2009	43
					Calscience	E200.8	Sodium	2/6/2009	43
					Calscience	E200.8	Iron-Dissolved	2/6/2009	43
					Calscience	E200.8	Magnesium	2/6/2009	43
					Calscience	E200.8	Manganese	2/6/2009	43
					Calscience	E200.8	Potassium	2/6/2009	43
					Truesdail	SW6020	Chromium, Total Dissolved	2/17/2009	Romuel Chaves
					Truesdail	E218.6	Chromium, hexavalent	2/5/2009	Michael Nonezyan
					Calscience	E300.0	Chloride-cl	2/8/2009	650
					Calscience	E300.0	Nitrate-n	2/8/2009	650
					Calscience	E300.0	Nitrite-n	2/8/2009	650
					Calscience	E300.0	Orthophosphate-p	2/8/2009	650
					Calscience	E300.0	Sulfate	2/8/2009	650
						IM-3	Chromium, hexavalent-Field	2/3/2009	
					Ozark	OHM In-House	Fluorescein-clc	2/10/2009	Margaret Ridinger
					Ozark	OHM In-House	Rhodamine-clc	2/10/2009	Margaret Ridinger
					Calscience	SM2320B	Alkalinity bicarbonate	2/10/2009	688
Calscience	SM4500S	Sulfide	2/9/2009	689					
Calscience	SW5310B	Total Organic Carbon	2/5/2009	64					

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MW-24B	MW-24B-090204	Gary Clift	2/4/2009	15:40	Calscience	E200.7	Iron-Total	2/17/2009	309
					Calscience	E200.7	Manganese-Total	2/17/2009	309
					Calscience	E200.8	Arsenic	2/6/2009	43
					Calscience	E200.8	Calcium	2/6/2009	43
					Calscience	E200.8	Sodium	2/6/2009	43
					Calscience	E200.8	Iron-Dissolved	2/6/2009	43
					Calscience	E200.8	Magnesium	2/6/2009	43
					Calscience	E200.8	Manganese	2/6/2009	43
					Calscience	E200.8	Potassium	2/6/2009	43
					Truesdail	SW6020	Chromium, Total Dissolved	2/12/2009	Romuel Chaves
					Truesdail	E218.6	Chromium, hexavalent	2/5/2009	Michael Nonezyan
					Calscience	E300.0	Chloride-cl	2/9/2009	650
					Calscience	E300.0	Nitrate-n	2/9/2009	650
					Calscience	E300.0	Nitrite-n	2/9/2009	650
					Calscience	E300.0	Orthophosphate-p	2/9/2009	650
					Calscience	E300.0	Sulfate	2/9/2009	650
						IM-3	Chromium, hexavalent-Field	2/4/2009	
					Ozark	OHM In-House	Fluorescein-clc	2/10/2009	Margaret Ridinger
					Ozark	OHM In-House	Rhodamine-clc	2/10/2009	Margaret Ridinger
					Calscience	SM2320B	Alkalinity bicarbonate	2/12/2009	688
MW-38S	MW-38S-090203	Gary Clift	2/3/2009	13:00	Calscience	SM4500S	Sulfide	2/9/2009	689
					Calscience	SW5310B	Total Organic Carbon	2/7/2009	64
					Calscience	E200.7	Iron-Total	2/18/2009	309
					Calscience	E200.7	Manganese-Total	2/18/2009	309
					Calscience	E200.8	Arsenic	2/6/2009	43
					Calscience	E200.8	Calcium	2/6/2009	43
					Calscience	E200.8	Sodium	2/6/2009	43
					Calscience	E200.8	Iron-Dissolved	2/6/2009	43
					Calscience	E200.8	Magnesium	2/6/2009	43
					Calscience	E200.8	Manganese	2/6/2009	43
					Calscience	E200.8	Potassium	2/6/2009	43
					Truesdail	SW6020	Chromium, Total Dissolved	2/17/2009	Romuel Chaves
					Truesdail	E218.6	Chromium, hexavalent	2/4/2009	Michael Nonezyan
					Calscience	E300.0	Chloride-cl	2/8/2009	650
					Calscience	E300.0	Nitrate-n	2/8/2009	650
					Calscience	E300.0	Nitrite-n	2/8/2009	650
					Calscience	E300.0	Orthophosphate-p	2/8/2009	650
					Calscience	E300.0	Sulfate	2/8/2009	650
						IM-3	Chromium, hexavalent-Field	2/3/2009	
					Ozark	OHM In-House	Fluorescein-clc	2/10/2009	Margaret Ridinger
					Ozark	OHM In-House	Rhodamine-clc	2/10/2009	Margaret Ridinger
					Calscience	SM2320B	Alkalinity bicarbonate	2/10/2009	688
					Calscience	SM4500S	Sulfide	2/9/2009	689
					Calscience	SW5310B	Total Organic Carbon	2/5/2009	64

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PG&E Topock
Needles, California

First Quarter 2009 Monitoring Report for the Uplands Reductive Zone In-Situ Pilot Test

Location	Sample ID	Sampler	Sample Date	Sample Time	Laboratory	Test Method	Analyte	Analysis Date	Analyst Name/ Analyst ID #
MW-38D	MW-38D-090203	Gary Clift	2/3/2009	12:25	Calscience	E200.7	Iron-Total	2/18/2009	309
					Calscience	E200.7	Manganese-Total	2/18/2009	309
					Calscience	E200.8	Arsenic	2/6/2009	43
					Calscience	E200.8	Calcium	2/6/2009	43
					Calscience	E200.8	Sodium	2/6/2009	43
					Calscience	E200.8	Iron-Dissolved	2/6/2009	43
					Calscience	E200.8	Magnesium	2/6/2009	43
					Calscience	E200.8	Manganese	2/6/2009	43
					Calscience	E200.8	Potassium	2/6/2009	43
					Truesdail	SW6020	Chromium, Total Dissolved	2/17/2009	Romuel Chaves
					Truesdail	E218.6	Chromium, hexavalent	2/4/2009	Michael Nonezyan
					Calscience	E300.0	Chloride-cl	2/5/2009	650
					Calscience	E300.0	Nitrate-n	2/8/2009	650
					Calscience	E300.0	Nitrite-n	2/8/2009	650
					Calscience	E300.0	Orthophosphate-p	2/8/2009	650
					Calscience	E300.0	Sulfate	2/8/2009	650
						IM-3	Chromium, hexavalent-Field	2/3/2009	
					Ozark	OHM In-House	Fluorescein-clc	2/10/2009	Margaret Ridinger
					Ozark	OHM In-House	Rhodamine-clc	2/10/2009	Margaret Ridinger
					Calscience	SM2320B	Alkalinity bicarbonate	2/10/2009	688
					Calscience	SM4500S	Sulfide	2/9/2009	689
					Calscience	SW5310B	Total Organic Carbon	2/5/2009	64
PTR-1	PTR-01-090204	Gary Clift	2/4/2009	11:25	Calscience	E200.7	Iron-Total	2/17/2009	309
					Calscience	E200.7	Manganese-Total	2/17/2009	309
					Calscience	E200.8	Arsenic	2/6/2009	43
					Calscience	E200.8	Calcium	2/6/2009	43
					Calscience	E200.8	Sodium	2/6/2009	43
					Calscience	E200.8	Iron-Dissolved	2/6/2009	43
					Calscience	E200.8	Magnesium	2/6/2009	43
					Calscience	E200.8	Manganese	2/6/2009	43
					Calscience	E200.8	Potassium	2/6/2009	43
					Truesdail	SW6020	Chromium, Total Dissolved	2/12/2009	Romuel Chaves
					Truesdail	E218.6	Chromium, hexavalent	2/5/2009	Michael Nonezyan
					Calscience	E300.0	Chloride-cl	2/9/2009	650
					Calscience	E300.0	Nitrate-n	2/9/2009	650
					Calscience	E300.0	Nitrite-n	2/9/2009	650
					Calscience	E300.0	Orthophosphate-p	2/9/2009	650
					Calscience	E300.0	Sulfate	2/9/2009	650
						IM-3	Chromium, hexavalent-Field	2/4/2009	
					Ozark	OHM In-House	Fluorescein-clc	2/10/2009	Margaret Ridinger
					Ozark	OHM In-House	Rhodamine-clc	2/10/2009	Margaret Ridinger
					Calscience	SM2320B	Alkalinity bicarbonate	2/12/2009	688
					Calscience	SM4500S	Sulfide	2/9/2009	689
					Calscience	SW5310B	Total Organic Carbon	2/7/2009	64

Table 5
Summary of Monitoring Information

PG&E Topock
Needles, California

First Quarter 2009 Monitoring Report for the Uplands Reductive Zone In-Situ Pilot Test

Location	Sample ID	Sampler	Sample Date	Sample Time	Laboratory	Test Method	Analyte	Analysis Date	Analyst Name/ Analyst ID #
PTR-2	PTR-02-090205	Gary Clift	2/5/2009	10:45	Calscience	E200.7	Iron-Total	2/17/2009	598
					Calscience	E200.7	Manganese-Total	2/17/2009	598
					Calscience	E200.8	Arsenic	2/11/2009	43
					Calscience	E200.8	Calcium	2/11/2009	43
					Calscience	E200.8	Sodium	2/11/2009	43
					Calscience	E200.8	Iron-Dissolved	2/11/2009	43
					Calscience	E200.8	Magnesium	2/11/2009	43
					Calscience	E200.8	Manganese	2/11/2009	43
					Calscience	E200.8	Potassium	2/11/2009	43
					Truesdail	SW6020	Chromium, Total Dissolved	2/24/2009	Romuel Chaves
					Truesdail	E218.6	Chromium, hexavalent	2/6/2009	Michael Nonezyan
					Calscience	E300.0	Chloride-cl	2/10/2009	606
					Calscience	E300.0	Nitrate-n	2/10/2009	606
					Calscience	E300.0	Nitrite-n	2/10/2009	606
					Calscience	E300.0	Orthophosphate-p	2/10/2009	606
					Calscience	E300.0	Sulfate	2/10/2009	606
						IM-3	Chromium, hexavalent-Field	2/5/2009	
					Ozark	OHM In-House	Fluorescein-clc	2/10/2009	Margaret Ridinger
					Ozark	OHM In-House	Rhodamine-clc	2/10/2009	Margaret Ridinger
					Calscience	SM2320B	Alkalinity bicarbonate	2/13/2009	688
					Calscience	SM4500S	Sulfide	2/11/2009	689
					Calscience	SW5310B	Total Organic Carbon	2/12/2009	64
EB-Upland Wells	EB-090203	Gary Clift	2/3/2009	15:10	Calscience	E200.7	Iron-Total	2/18/2009	309
					Calscience	E200.7	Manganese-Total	2/18/2009	309
					Calscience	E200.8	Arsenic	2/6/2009	43
					Calscience	E200.8	Calcium	2/6/2009	43
					Calscience	E200.8	Sodium	2/6/2009	43
					Calscience	E200.8	Iron-Dissolved	2/6/2009	43
					Calscience	E200.8	Magnesium	2/6/2009	43
					Calscience	E200.8	Manganese	2/6/2009	43
					Calscience	E200.8	Potassium	2/6/2009	43
					Truesdail	SW6020	Chromium, Total Dissolved	2/17/2009	Romuel Chaves
					Truesdail	E218.6	Chromium, hexavalent	2/4/2009	Michael Nonezyan
					Calscience	E300.0	Chloride-cl	2/5/2009	650
					Calscience	E300.0	Nitrate-n	2/5/2009	650
					Calscience	E300.0	Nitrite-n	2/5/2009	650
					Calscience	E300.0	Orthophosphate-p	2/5/2009	650
					Calscience	E300.0	Sulfate	2/5/2009	650
					Ozark	OHM In-House	Fluorescein-clc	2/10/2009	Margaret Ridinger
					Ozark	OHM In-House	Rhodamine-clc	2/10/2009	Margaret Ridinger
					Calscience	SM2320B	Alkalinity bicarbonate	2/10/2009	688
					Calscience	SM4500S	Sulfide	2/9/2009	689
					Calscience	SW5310B	Total Organic Carbon	2/5/2009	64

Table 5
Summary of Monitoring Information

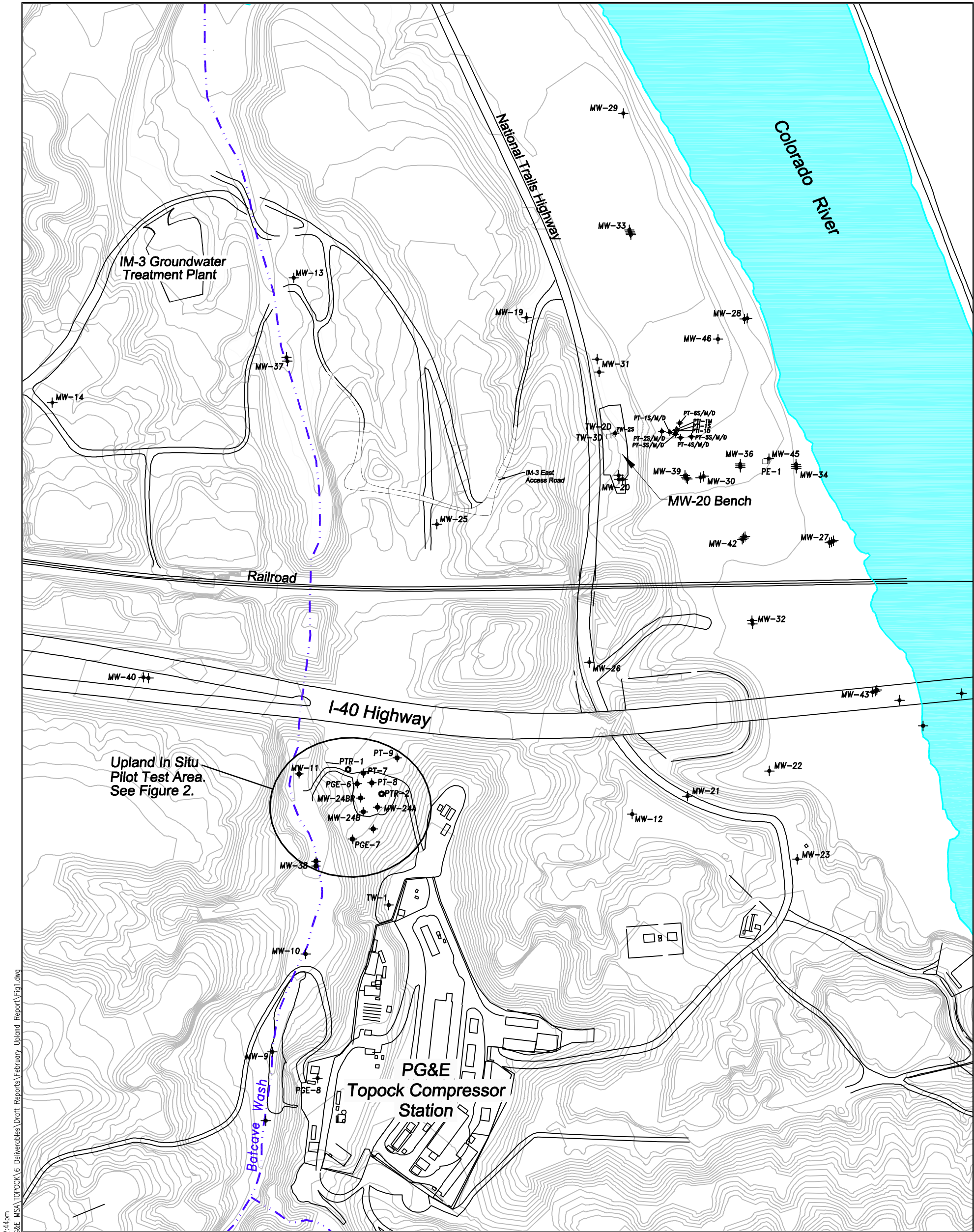
PG&E Topock
Needles, California

First Quarter 2009 Monitoring Report for the Uplands Reductive Zone In-Situ Pilot Test

Location	Sample ID	Sampler	Sample Date	Sample Time	Laboratory	Test Method	Analyte	Analysis Date	Analyst Name/ Analyst ID #
FB-Upland Wells	FB-090204	Gary Clift	2/4/2009	9:30	Calscience	E200.7	Iron-Total	2/17/2009	309
					Calscience	E200.7	Manganese-Total	2/17/2009	309
					Calscience	E200.8	Arsenic	2/7/2009	43
					Calscience	E200.8	Calcium	2/7/2009	43
					Calscience	E200.8	Sodium	2/7/2009	43
					Calscience	E200.8	Iron-Dissolved	2/7/2009	43
					Calscience	E200.8	Magnesium	2/7/2009	43
					Calscience	E200.8	Manganese	2/7/2009	43
					Calscience	E200.8	Potassium	2/7/2009	43
					Truesdail	SW6020	Chromium, Total Dissolved	2/12/2009	Romuel Chaves
					Truesdail	E218.6	Chromium, hexavalent	2/5/2009	Michael Nonezyan
					Calscience	E300.0	Chloride-cl	2/6/2009	650
					Calscience	E300.0	Nitrate-n	2/6/2009	650
					Calscience	E300.0	Nitrite-n	2/6/2009	650
					Calscience	E300.0	Orthophosphate-p	2/6/2009	650
					Calscience	E300.0	Sulfate	2/6/2009	650
					Ozark	OHM In-House	Fluorescein-clc	2/10/2009	Margaret Ridinger
					Ozark	OHM In-House	Rhodamine-clc	2/10/2009	Margaret Ridinger
					Calscience	SM2320B	Alkalinity bicarbonate	2/12/2009	688
					Calscience	SM4500S	Sulfide	2/9/2009	689
					Calscience	SW5310B	Total Organic Carbon	2/7/2009	64

Notes:

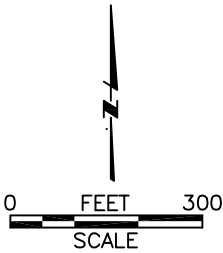
The change from EMAX Laboratories, Inc to Calscience Environmental Laboratories, Inc was implemented for the first quarter 2009 sampling event. The analyst ID numbers provided are unique to the employee and therefore are traceable through Calscience records.



Date/Time : Wed, 05 Mar 2008 - 2:44pm
User Name : mchiu
Path Name : G:\Projects- Active\PG&E MSA\TOPOCK\6 Deliverables\Draft Reports\February Upland Report\Fig1.dwg
© 2008 ARCADIS, Inc.

Legend

- ✚ Monitoring Well Locations
- Extraction Well Locations
- ✦ Injection Well Locations
- Recirculation Well Locations



Project Director	Area Manager
L. KELLOGG	J. PETERS
Task Manager	Technical Review
J. ELY	J. GILLOW
Drawing Date	Drawn By
4 MAR 08	M. CHIU

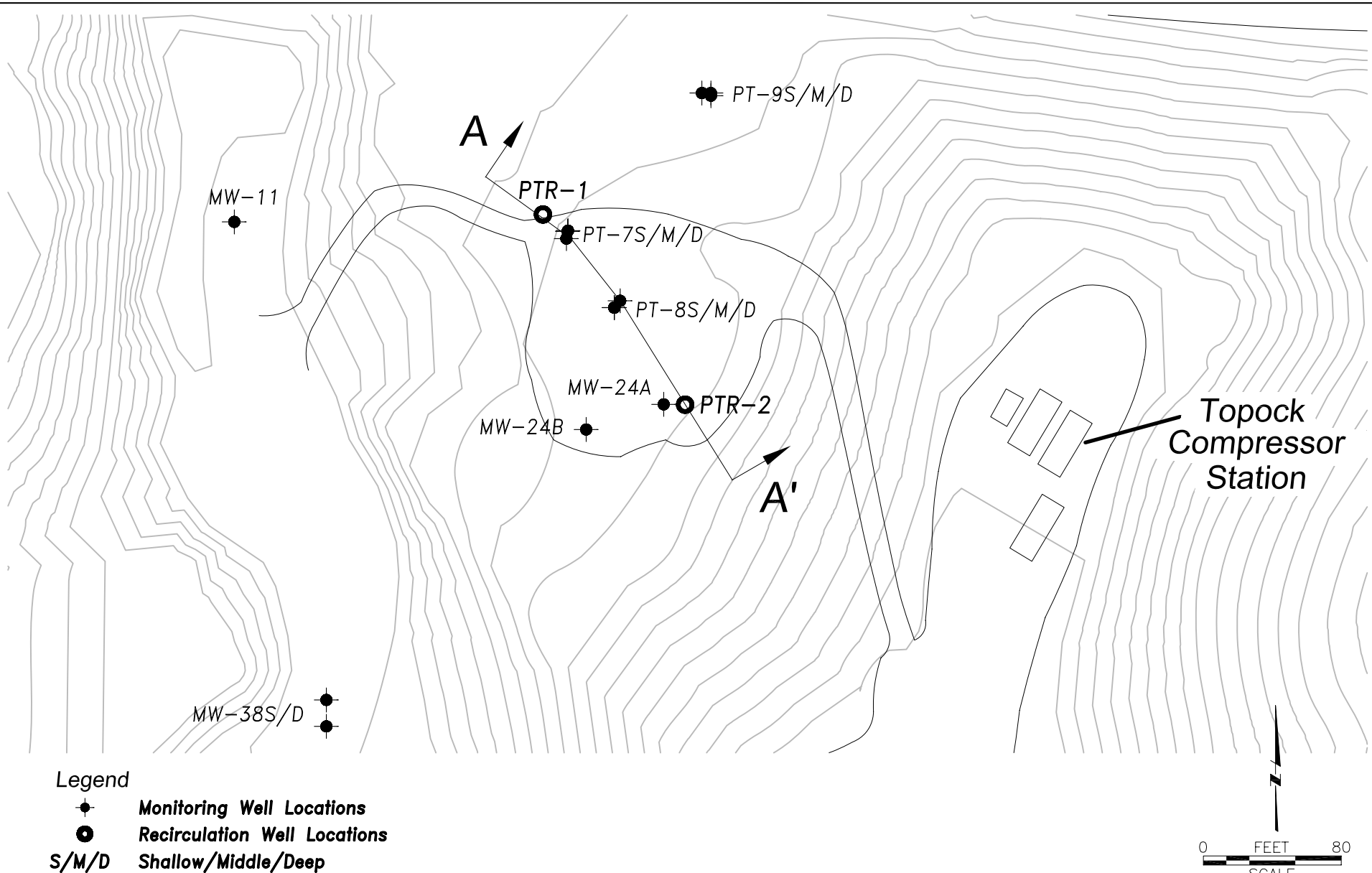
**ARCADIS**

ARCADIS, Inc.
1050 Marina Way South
Richmond, CA 94804
Tel: 510-233-3200 Fax: 510-233-3204
www.arcadis-us.com

SITE PLAN
PG&E TOPOCK FACILITY
NEEDLES, CALIFORNIA

Project Number
RC000689.0001
Figure
1

Acad Version : R17.0a (LMS Tech)
 User Name : Mfoster
 Date/Time : Tue, 06 May 2008 - 1:55pm
 Path/Name : G:\Project\PG&E - Topock\Topock_Fig2.dwg



Project Director	Area Manager
L. KELLOGG	J. PETERS
Task Manager	Technical Review
J. LUTRICK	M. GENTILE
Drawing Date	Drawn By
29 APR 08	M. CHIU



UPLAND ISPT AREA
PG&E TOPOCK FACILITY
NEEDLES, CALIFORNIA

Project Number
RC000689.0004
Figure
2

Appendix A

Communications



**Pacific Gas and
Electric
Company**

Yvonne Meeks
Manager

Environmental Remediation
Gas T&D Department

Mailing Address
4325 South Higuera Sreet
San Luis Obispo, CA 93401
Location
6588 Ontario Road
San Luis Obispo, CA 93405
Tel: (805) 234-2257
Email: yjm1@pge.com

May 29, 2008

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

**Subject: Board Order R7-2007-0015
PG&E Topock Compressor Station, Needles, California
Upland In-Situ Pilot Test
Changes in Pilot Test Operations**

Dear Mr. Purdue:

As we discussed yesterday, PG&E is submitting this letter is to notify the Regional Water Quality Control Board (RWQCB) that PG&E would like to temporarily discontinue injection of reagent for the Upland In-Situ Pilot Test (ISPT) operating under Board Order No. R7-2007-0015. Currently, the concentration of total dissolved carbon (TOC) within the aquifer is sufficient to sustain a viable in-situ reactive zone (IRZ). The plan is to withhold treatment discharge (reagent dosing via the recirculation wells) for approximately one month to monitor the recirculation systems ability to distribute the TOC sufficiently through the recirculation cell. There will be no change in the recirculation rate - the system will continue to circulate water during this time period.

To evaluate the TOC distribution, PG&E is recommending that weekly sampling of TOC be collected from eight wells: PT-7M, PT-7D, PT-8S, PT-8M, PT-8D, MW-24A, PTR-1, and PTR-2 during the one month evaluation period. After the evaluation period, PG&E will identify a path forward to continue the dosing of the Upland ISPT, potentially at a reduced rate, or will discuss other options with the RWQCB. All supplemental data collected and the plan for continued dosing the Upland ISPT will be communicated to the RWQCB.

From an engineering perspective, because of the continual evaluation inherent in any pilot test, the optimal approach to the Upland ISPT was anticipated to be conducted in a semi-continuous manner, with breaks as needed to assess progress or fine-tune approaches. PG&E discussed this type of phasing with the RWQCB during the preparation of the Waste Discharge Requirement (WDR), e.g. as described in Finding II.A.1, the pilot test "...is expected to take up to six months and will be conducted within a nine-month calendar period".

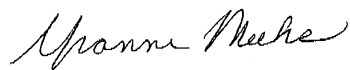
Based on our review of the Waste Discharge Requirements, it does not appear as though the proposed actions fall under the Effluent Limitations and Discharge Specifications IV.A.5 that states, "Any changes in the type of amount of treatment chemicals added to the process water, duration of the pilot test, or other specific design elements as described in this Board Order shall be made with prior written approval of the Regional Water Board's Executive Officer." or Provision V.A.1.e that states, "Prior to modifications in this facility, which would results in material change in the quality or quantity of wastewater treated or discharged, or any material change in the location of discharge, the Discharger shall report all pertinent information in writing to the RWQCB and obtain revised requirements before modifications are implemented."

We understand however that you will determine if the proposal to temporarily discontinue discharge, and subsequent restart requires a simple notification to the RWQCB or if the permit requires that Board or Executive Officer approval is necessary. If such approval is necessary, please consider this letter our request for approval.

We have a scheduled ethanol delivery on June 2nd that we may be able to reschedule if we are allowed to cease the dosing operation per the information provided above. We appreciate your timely consideration of this letter.

If you have any questions regarding this information, please call me at (805) 234-2257.

Sincerely,



Yvonne Meeks
Topock Project Manager

cc: Cliff Raley, Water Board
Tom Vandenberg, Water Board
Aaron Yue, DTSC



California Regional Water Quality Control Board

Colorado River Basin Region



Linda S. Adams
Secretary for
Environmental Protection

73-720 Fred Waring Drive, Suite 100, Palm Desert, California 92260
(760) 346-7491 • Fax (760) 341-6820
<http://www.waterboards.ca.gov/coloradoriver>

Arnold Schwarzenegger
Governor

May 29, 2008

Yvonne J. Meeks, Project Manager
Pacific Gas & Electric Company
4325 S. Higuera Street
San Luis Obispo, CA 93401

SUBJECT: APPROVAL OF A CESSATION IN THE REAGENT INJECTION PROCESS, WASTE DISCHARGE REQUIREMENTS BOARD ORDER NO. R7-2007-0015 (WDRs), PG&E TOPOCK COMPRESSOR STATION

We received your letter, dated May 29, 2008 (Letter), requesting approval to temporarily discontinue reagent injections while continuing to pump and monitor recirculation wells associated with the Upland In-situ Pilot Test (Upland ISPT) at the subject facility. You explain the reason for your request by stating: "Currently, the concentration of total dissolved carbon (TOC) within the aquifer is sufficient to sustain a viable in-situ reactive zone (IRZ)." You explain further that PG&E would like "to withhold treatment discharge for approximately one month to monitor the recirculation systems ability to distribute the TOC sufficiently through the recirculation cell." You add that no change in the recirculation rate will occur during this time period. Also, you indicate that to evaluate the TOC distribution, weekly sampling of TOC will be conducted from eight specified monitoring wells. Following this one-month evaluation period, you state that PG&E would continue the dosing of the Upland ISPT, potentially at a reduced rate, or would discuss other options with the Colorado River Basin Regional Water Quality Control Board (Board), and that the monitoring data and continued dosing plans would be communicated to the Board.

The latter part of your letter discusses your view that the proposed temporary cessation of reagent injection appears to be the type of testing approach to the Upland ISPT that was anticipated to be conducted in a semi-continuous manner, with breaks as needed to assess progress or fine-tune approaches. You point out that this type of phasing was discussed with Board staff during the drafting of the subject Board Order, as reflected in Finding II.A.1, which provides that the Upland ISPT "is expected to take up to six months and will be conducted within a nine-month calendar period." Based on this Finding, you conclude that the proposed temporary cessation and subsequent "fine-tuning" for determining the optimal dosing rate for the reagent injections do not appear to fall under Effluent Limitations and Discharge Specifications IV.A.5 to require

May 29, 2008

formal written approval by the Regional Board's Executive Officer.¹ In the event that the Executive Officer does not share this conclusion, you requested that your letter be considered a request for the Executive Officer's approval.

I have concluded that the temporary cessation of reagent injection for one month in a testing protocol that envisions that the injection portion of the pilot test would take up to six months and be conducted within a nine-month calendar period (Finding II.A.1) is a significant enough delay to be considered a "change[] in the amount of treatment chemicals added to the process water" or, at a minimum, a "change[] in ... other specific design elements as described in [the Board Order]." (Specification IV.A.5.) Thus, the proposed temporary cessation of reagent injection is subject to Specification IV.A.5. As such, my written approval is required. Accordingly, I have treated your letter as requesting that approval, which is hereby granted.

As for the "fine-tuning" of the dosing rate, which is proposed to occur upon restart of the reagent injection process, I agree that the starts/stops and breaks involved for this fine-tuning work are of a short-term nature and thus, would not rise to the level of specific design element changes that would require my written approval. Therefore, with respect to the fine-tuning phase of the Upland ISPT, your notice regarding this phase of the work is sufficient.

Please keep in mind, however, that it is necessary that you keep the Regional Board and the Department of Toxic Substances Control staff apprised, at the earliest practicable time, of all design and operational parameters involved in the Upland ISPT.

The subject Board Order remains in full effect and is not modified by this letter. If you have any questions, or require additional information regarding this matter, please call Cliff Raley at (760) 776-8962.



ROBERT PERDUE
Executive Officer

CR/tab

¹ Specification IV.A.5 states: "Any changes in the type or amount of treatment chemicals added to the process water, duration of the pilot test, or other specific design elements as described in this Board Order shall be made with prior written approval of the Regional Water Board's Executive Officer."

May 29, 2008

cc: Curt Russell, Onsite Project Manager, PG&E Topock
Julie Eakins, PE, CH2M HILL,
Lisa Kellogg, PE, ARCADIS, Inc.,
Aaron Yue, Project Manager, DTSC

File: WDID No. 7B 36 2186 001, PG&E Topock Compressor Station,
Board Order No. R7-2007-0015

-----Original Message-----

From: Meeks, Yvonne J [mailto:YJM1@pge.com]

Sent: Monday, August 04, 2008 4:12 PM

To: Robert Perdue; Cliff Raley; Tom Vandenberg

Cc: Gilbert, David; Doss, Robert; Jayo, Juan (Law); Kellogg, Lisa; Robert Lucas

Subject: PGE Uplands ISPT Reagent Dosing

Robert and all -- Per the attached letter from the RWQCB, we are providing this notice that PG&E intends to re-start ethanol dosing in uplands pilot study well PTR-2 at a rate of between 15 and 45 gallons per day (a reduction from the 100 gallons per day specified in the WDR).

As you recall, with your approval, we temporarily discontinued reagent injection in both injection wells in late May. At that time, we proposed to evaluate the data results and make a recommendation for the restarting reagent dosing. PG&E has evaluated the recent monitoring data and intends to begin recirculation with ethanol dosing in PTR-2 within the next week. PG&E will continue to review the data and plans to make a recommendation regarding dosing in PTR-1 at the end of August.

We will continue to keep the RWQCB informed. Let me know if you have any questions.

Yvonne Meeks

From: Meeks, Yvonne J [mailto:YJM1@pge.com]

Sent: Thursday, October 23, 2008 4:07 PM

To: Robert Perdue; Tom Vandenberg; Cliff Raley

Cc: Gilbert, David; Doss, Robert; Robert Lucas; Ayue@dtsc.ca.gov; Christopher Guerre

Subject: Topock - Notification request to the RWQCB regarding Uplands dosing

Robert --

In accordance with the attached letter from the RWQCB, we are providing this notice that tomorrow, October 24, PG&E intends to increase the ethanol dosing in uplands pilot study wells, PTR-1 and PTR-2, to a rate of 100 gallons per day for each well. We are essentially going back to the injection rate as was originally specified in Board Order No. R7-2007-0015. You will recall that we had decreased the rate back in August to 15-45 gallons per day.

Looking ahead, we plan to complete the ethanol dosing on November 6, the final day per the WDR permit. After that we will just be recirculating groundwater until December 3rd, also consistent with the WDR. Since these timeframes are consistent with the timeframes in the WDR permit, these completion activities didn't require notification, but I thought you might like to know that we are finishing up another (successful) pilot test.

Let me know if you have any questions, Yvonne

Preston, Kelli Jo

From: Meeks, Yvonne J [YJM1@pge.com]
Sent: Monday, November 24, 2008 8:57 PM
To: Robert Perdue; Tom Vandenberg; Cliff Raley
Cc: Aaron Yue; Kellogg, Lisa; Sullivan, Kevin M; Doss, Robert; Gilbert, David
Subject: Notification regarding PG&E Topock Uplands pilot test
Attachments: Appendix A-Communications.pdf

Robert --

In accordance with the attached letter from the RWQCB, we are providing this notice that PG&E intends to modify the flow pattern in uplands pilot study well PTR-2 to perform a hydraulic extraction test. PTR-1 will be brought off-line and the recirculation pattern in PTR-2 will be reversed. This reversal will be allowed to run for 4-6 hours to evaluate the extraction capacity of the well. Once the 4-6 hour test is complete, the downhole equipment will be removed. As specified within Board Order No. R7-2007-0015, the pilot will be concluded on December 3rd, after 9 months of operation.

Let me me know if you have any questions regarding this email or any other aspect of the uplands test.

Yvonne Meeks



**Pacific Gas and
Electric
Company**

Yvonne Meeks
Manager

Environmental Remediation
Gas T&D Department

Mailing Address
4325 South Higuera Sreet
San Luis Obispo, CA 93401
Location
6588 Ontario Road
San Luis Obispo, CA 93405
Tel: (805) 234-2257
Email: yjm1@pge.com

March 20, 2009

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

**Subject: Request to Rescind the Waste Discharge Requirements under Board Order
R7-2007-0015
PG&E Topock Compressor Station, Needles, California**

Dear Mr. Perdue:

Pacific Gas and Electric Company (PG&E) is requesting to rescind the Waste Discharge Requirements (WDRs) issued by the Colorado River Basin Regional Water Quality Control Board (Water Board) under Board Order R7-2007-0015 related to the PG&E Topock Compressor Station upland reductive zone in situ pilot test.

Reagent injections were completed in November 2008 followed by monitoring events as required in the Monitoring and Reporting Program (MRP) Attachment C. The in situ pilot test was deemed to be complete in December 2008 and the *Upland Reductive Zone In-Situ Pilot Test, Final Completion Report* was submitted on March 3, 2009. Since March 3, 2009, activity has consisted solely of quarterly sampling of sixteen upland pilot study wells. No additional injections are planned in this area. Therefore, it is PG&E's understanding that the WDR need not be renewed, and instead rescinded.

If you have any questions regarding this report, please call me at (805) 234-2257.

Sincerely,

Yvonne Meeks
Topock Project Manager

cc: Cliff Raley, Water Board
Aaron Yue, DTSC

Appendix B

Calibration Logs for Field Monitoring
Instruments

ARCADIS

MULTIPARAMETER INSTRUMENT CALIBRATION RECORD

Project No.: RC000689.0004.00008

Location: TOPOCK, CA

Instrument: YSI-556 mps

Serial Number: 06F136ZAS

[illegible]

Appendix C

Groundwater Sampling Logs

Groundwater Sampling Form

Task: 00008 Well ID: PT-85
 Sampled By: GC
 Recorded By: JA
 Coded Duplicate No.: 1

	PID	Water Quality Meter(s)
Model	11	YSI-556
Serial #:		06F1362AS

Purge Technique (circle one): Low-Flow Remove 3 Well Volumes Bail Dry
Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailor
Screen Interval: From: 127' To: 147'
Pump Intake Setting: 2 gpm
Volumes to be Purged: 3 casing
Total Volume Purged: 20 ga
Pump on: 1840 Off: 1350

CIT6
(1560) 0.008 mg/L

Well Casing Volumes (gal/ft):

2" = 0.16	3" = 0.37
3 1/2" = 0.50	4" = 0.65
6" = 1.46	

[illegible]

Purge Water Disposal: TANK
Turbidity(qualitative): clear
Other (OVA, HNU etc.): —

Sample Date & Time: 2/4/9, 1355

Groundwater Sampling Form

Task: 00008 Well ID: PT-8D
 Sampled By: GC
 Recorded By: JA
 Coded Duplicate No.: DUP-1

	PID	Water Quality Meter(s)
Model:	—	YSI-556
Serial #:	—	06F1362AS

Casing Material:	PVC
Casing Diameter:	2"
Total Depth:	210'
Depth to Water:	107.11
Water Column:	102.89
Gallons/Foot:	0.16
Gallons in Well:	16.47

Purge Technique (circle one): Low-Flow Remove 3 Well Volumes Bail Dry
Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailor
Screen Interval: From: 190' To: 210'
Pump Intake Setting: 490m
Volumes to be Purged: 3 casing
Total Volume Purged: 52 ga
Pump on: 1353 Off: 1310

Well Casing Volumes (gal/ft):	2" = 0.16	3" = 0.37
	3 1/2" = 0.50	4" = 0.65
	6" = 1.46	

[illegible]

Well Condition: Good
Color: None
Odor: None

Purge Water Disposal: TANK
Turbidity(qualitative): Clear
Other (OVA, HNU, etc.): —

Sample ID: PT-8D
 Samples Analyzed For: See the COC

Sample Date & Time: 2/4/9, 1310

DUP-1, 1313

Groundwater Sampling Form

Weather: WARM

Recorded By: JA

Coded Duplicate No.: _____

	PID	Water Quality Meter(s)
Model	—	YSI-556
Serial #:	—	06F1302 AS

Gallons in Well: 16.95

Pump on: 0845 Off: 0900

Cr+6 (1500) 15.86 ng/L

[illegible]

Odor: None

Other (OVA, HNU, etc.): _____

Sample Date & Time: 2/5/9, 0900

I:\Active\Lompoc\QAPP\Field Forms\WTR forms.xlsx
1/27/2009 5:58

Groundwater Sampling Form

Task: 00008 Well ID: MW-24B
 Sampled By: GC
 Recorded By: JA
 Coded Duplicate No.: —

	PID	Water Quality Meter(s)
Model	—	XSI-556
Serial #:	—	06 F1362 AS

Purge Technique (circle one): Low-Flow Remove 3 Well Volumes Bail Dry

Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailor

Screen Interval: From: 193' 213'

Pump Intake Setting: 5 gpm

Volumes to be Purged: 3 CABS/mg

Total Volume Purged: 205 gal

Pump on: 1455 Off: 1540

C176
(1560) 3.00 mg/L

Well Casing Volumes (gal/ft):

2" = 0.16	3" = 0.37
3 1/2" = 0.50	4" = 0.65
6" = 1.46	

[illegible]

Purge Water Disposal: TANK
Turbidity(qualitative): Clear
Other (OVA, HNU, etc.): —

Sample Date & Time: 2/4/9, 1540

ARCADIS

Groundwater Sampling Form

Project Number: RC000689.0004.

Task: 00008

Well ID: PTR-1

Date: 02- 4 -09

Sampled By: GC

Weather: WARM

Recorded By: JA

Coded Duplicate No.: —

Instrument Identification

	PID	Water Quality Meter(s)
Model	—	YSI-556
Serial #:	—	06F1362 AS

Purging Information

Casing Material: steel

Casing Diameter: 6"

Total Depth: 216.90

Depth to Water: 102.73

Water Column: 114.17

Gallons/Foot: 1.46

Gallons in Well: 166.69

Purge Technique (circle one): Low-Flow Remove 3 Well Volumes Bail DryPurge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic BailerScreen Interval: From: ~~10~~ ~~10~~

Pump Intake Setting: 5 gpm

Volumes to be Purged: 3 casing

Total Volume Purged: 505 gal

Pump on: 0920 Off: 1030

1050 1125

Well Casing Volumes (gal/ft):

2" = 0.16

3" = 0.37

3 1/2" = 0.50

4" = 0.65

6" = 1.46

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Flow Rate (gpm)	Volume Purged (gal)	DTW (ft bwc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
0920	0	5	0	102.73	66	-294.8	7.73	6446	22.16	1.29	Black
0930	10	5	100		29	-287.2	7.64	6409	32.46	0.18	Sweet odor
1000	40	5	200		24	-234.4	7.41	6305	32.20	0.30	
1020	60	5	300		20	-231.3	7.28	6049	32.16	0.40	
1100	80	5	400		8	-222.2	7.26	5800	32.20	0.49	
1110	900	5	450		7	-227.5	7.26	5776	32.10	0.46	
1120	101	5	505		5	-227.9	7.25	5702	32.15	0.50	
1030	Purge Paused to offload water, 1050 Resume Purge										

Observations During Sampling

Well Condition: Good

Color: None

Odor: None

Purge Water Disposal: TANK

Turbidity(qualitative): Clear

Other (OVA, HNU, etc.): —

Sample ID: PTR-1

Sample Date & Time: 2/4/09, 1125

Samples Analyzed For: See the COC

Groundwater Sampling Form

38D

Recorded By: J A

Recorded By: J A

Coded Duplicate No.:

	PID	Water Quality Meter(s)
Model	1	YSI 556
Serial #:	1	06F1362 AS

Gallons in Well:

PUL

21

190.70

71.15

119.55

76

19.13

C 176
(1560)

4059

Mg/L

Pump on:

4000

57.9

h2

Off: 1725

Well Casing Volumes (gal/ft):

$$2^{\pi} \Rightarrow 0.16$$
$$3'' \approx 0,37$$
$$3^{1/2}'' = 0.50$$
$$4'' = 0.65$$
$$6'' = 1.46$$
[illegible]

Odor:

6002

None

Noni

Other (OVA, HNU, etc.):

Tan K.

Clear



Sample ID: MW-38D

Sample Date & Time: 2/3/09, 1225

Samples Analyzed For: See the COC

Groundwater Sampling Form

Task: 00008 Well ID: MW-24A
 Sampled By: GC
 Recorded By: JA
 Coded Duplicate No.: —

	PID	Water Quality Meter(s)
Model:	—	YSI 556
Serial #:	—	06F1362 AS

Purge Technique (circle one): Low-Flow Remove 3 Well Volumes Bail Dry
Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailer
Screen Interval: From: 104' 124'
Pump Intake Setting: 29 ppm
Volumes to be Purged: 23.58
Total Volume Purged: 24 gal
Pump on: 1416 Off: 1430

Well Casing Volumes (gal/ft):

2" = 0.16	3" = 0.37
3 1/2" = 0.50	4" = 0.65
6" = 1.46	

[illegible]

Purge Water Disposal: Tank
Turbidity(qualitative): Clear
Other (OVA, HNU, etc.): —

Sample Date & Time: 2/3/9, 1430

Groundwater Sampling Form

Task: 00008 Well ID: ~~11111~~
 Sampled By: GC
 Recorded By: JA
 Coded Duplicate No.: 1

	PID	Water Quality Meter(s)
Model	—	YSI 556
Serial #:	—	06F1362 AS

Casing Material:	PVC
Casing Diameter:	2"
Total Depth:	98
Depth to Water:	70.63
Water Column:	27.17
Gallons/Foot:	.16
Gallons in Well:	4.35

Purge Technique (circle one): Low-Flow Remove 3 Well Volumes Bail Dry
Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailer Waterman
Screen Interval: From: ~~10~~ ~~10~~
Pump Intake Setting: 1 gpm
Volumes to be Purged: 13.05
Total Volume Purged: 14
Pump on: 1244 Off: 1258

Well Casing Volumes (gal/ft):

2" = 0.16	3" = 0.37
3 1/2" = 0.50	4" = 0.65
6" = 1.46	

Time	Minutes Elapsed	Flow Rate (gpm)	Volume Purged (gal)	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
1244	0	↓	0	70.43	129	33.3	7.23	2753	28.07	3.75	
1247	3	↓	3		9	36.4	7.19	2770	28.35	3.21	
1250	6	↓	6		6	38.0	7.25	2795	28.40	3.25	
1253	9	↓	9		5	38.6	7.26	2800	28.38	3.30	
1256	12	↓	12		5	39.9	7.27	2809	28.46	3.33	
1258	14	↓	14		4	40.1	7.28	2816	28.41	3.33	
Transducer out			1225								
			13008								

Well Condition: Good
Color: None
Odor: None

Purge Water Disposal: Tank
Turbidity(qualitative): Clear
Other (OVA, HNU, etc.): —

Sample ID: MLW-385
Samples Analyzed For: See the COC

Sample Date & Time: 2/3/9, 1300

Groundwater Sampling Form

Task: 00008 Well ID: MW-11
 Sampled By: GC
 Recorded By: JA
 Coded Duplicate No.: —

	PID	Water Quality Meter(s)
Model	11	43-556
Serial #:		06F1362 AS

Purge Technique (circle one): Low-Flow Remove 3 Well Volumes Bail Dry
Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailor
Screen Interval: From: 63' 88'
Pump Intake Setting: 4 gpm
Volumes to be Purged: 40.38
Total Volume Purged: 44
Pump on: 1936 Off: 1350

Well Casing Volumes (gal/ft):	2" = 0.16	3" = 0.37
	3 1/2" = 0.50	4" = 0.65
	6" = 1.46	

[illegible]

Purge Water Disposal: 1 tank
Turbidity(qualitative): clear
Other (OVA, HNU, etc.):

Sample Date & Time: 2/3/9, 1350

Groundwater Sampling Form

Task: 00008 Well ID: PT-8M
 Sampled By: GC
 Recorded By: JA
 Coded Duplicate No.: —

	PID	Water Quality Meter(s)
Model	11	YSI-556
Serial #:	11	06F1362 AS

Purge Technique (circle one): Low-Flow Remove 3 Well Volumes Bail Dry
Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailor
Screen Interval: From: 162' To: 182'
Pump Intake Setting: 4 gpm
Volumes to be Purged: 3 CAS/1g
Total Volume Purged: 40 g
Pump on: 1413 Off: 1425

CR+6 1.66 mgL
(1560)

Well Casing Volumes (gal/ft):

2" = 0.16	3" = 0.37
3 1/2" = 0.50	4" = 0.65
6" = 1.46	

[illegible]

Purge Water Disposal: Tank
Turbidity(qualitative): clear
Other (OVA, HNU, etc.):

Sample ID: PT-8m
 Samples Analyzed For: See the COC

Sample Date & Time: 2/4/9, 1425

Groundwater Sampling Form

Task: 00008 Well ID: PT-9S
 Sampled By: GC
 Recorded By: JA
 Coded Duplicate No.: _____

	PID	Water Quality Meter(s)
Model	—	YSF 556
Serial #:	—	06F1362 AS

Purge Technique (circle one): Low-Flow Remove 3 Well Volumes Bail Dry

Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailor *Water*

Screen Interval: From: 128' To: 147'

Pump Intake Setting: 2 gpm

Volumes to be Purged: 3 CASING

Total Volume Purged: 22 gal

Pump on: 0610 Off: 0625

CAT6
(1560) 1.06 mg/L

[illegible]

Purge Water Disposal: TANK
Turbidity(qualitative): 0.99
Other (OVA, HNU, etc.): —

Sample ID: PT-95
 Samples Analyzed For: See the COC

Sample Date & Time: 2/5/9, 0825

Groundwater Sampling Form

Task:	00008	Well ID:	PT-9M
Sampled By:	GC		
Recorded By:	JH		
Coded Duplicate No.:	—		

	PID	Water Quality Meter(s)
Model	—	YSD-556
Serial #:	—	06F1362 AS

Casing Material:	PVC
Casing Diameter:	2"
Total Depth:	182'
Depth to Water:	104.20
Water Column:	77.6
Gallons/Foot:	.16
Gallons in Well:	12.45

Purge Technique (circle one): Low-Flow Remove 3 Well Volumes Bail Dry
Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailor
Screen Interval: From: 162' To: 182'
Pump Intake Setting: 4 gpm
Volumes to be Purged: 3 casing
Total Volume Purged: 40 gal
Pump on: 0915 Off: 0930

Crtb
(1560) 3.26 mg/L

Well Casing Volumes (gal/ft): 2" = 0.16 3" = 0.37
3 1/2" = 0.50 4" = 0.65
6" = 1.46

[illegible]

Well Condition: Good
Color: Brown
Odor: NO

Purge Water Disposal: TANK
Turbidity(qualitative): Clear
Other (OVA, HNU, etc.): —

Sample ID: PT-9M
 Samples Analyzed For: See the COC

Sample Date & Time: 2/5/9, 0930

ARCADIS

Groundwater Sampling Form

PTR-2

Project Number: RC000689.0004.

Task: 00008

Well ID: ~~XXXX~~

Date: 02- 5 -09

Sampled By: GC

Weather: WARM

Recorded By: JA

Coded Duplicate No.: —

Instrument Identification

	PID	Water Quality Meter(s)
Model	—	YSI-556
Serial #:	—	06F1362 AS

Purging Information

Casing Material: metal
Casing Diameter: 6
Total Depth: 223
Depth to Water: 107.70
Water Column: 115.30
Gallons/Foot: 1.46
Gallons in Well: 169.50

Purge Technique (circle one): Low-Flow Remove 3 Well Volumes Bail Dry
Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailer
Screen Interval: From: ~~6~~ ~~8~~
Pump Intake Setting: 10 gpm, Variable 10-30 gpm
Volumes to be Purged: 3 CASING
Total Volume Purged: 510
Pump on: 0949 Off: 1045

Well Casing Volumes (gal/ft): 2" = 0.16 3" = 0.37
3 1/2" = 0.50 4" = 0.65
6" = 1.46

C 1.46 (1560) 2.06 nyl

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Flow Rate (gpm)	Volume Purged (gal)	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (umhos/cm)	Temp (°C)	DO (mg/L)	Comments
0949	0		0	107.70	137	-193.0	7.07	9768	30.15	0.35	
0953	4		100		66	-123.0	7.13	10645	30.05	0.34	
0956	7		200		35	-111.0	7.16	11997	29.77	0.33	
1000	11		300		24	-49.0	7.21	12022	29.80	0.32	
1035	16		400		20	-44.7	7.24	12049	29.80	0.30	
1041	21		510		17	-40.7	7.27	12167	29.83	0.29	
1000	stop Purge										for offload, 1030 Resume

Observations During Sampling

Well Condition: good
Color: none
Odor: none

Purge Water Disposal: TANK
Turbidity(qualitative): Clear
Other (OVA, HNU, etc.):

Sample ID: PTR-2
Samples Analyzed For: See the COC

Sample Date & Time: 2/5/9, 1045

Groundwater Sampling Form

Task: 00008 Well ID: PT-7S
 Sampled By: GC
 Recorded By: JA
 Coded Duplicate No.: —

	PID	Water Quality Meter(s)
Model	11	YSI-556
Serial #:	11	06F1362 AS

Purge Technique (circle one): Low-Flow Remove 3 Well Volumes Bail Dry
Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailer
Screen Interval: From: 130' To: 150'
Pump Intake Setting: 2gpm
Volumes to be Purged: 3 Casing
Total Volume Purged: 24 ga
Pump on: 1100 Off: 1115

Cr+6
(1560) .166 mg/L

Well Casing Volumes (gal/ft):

2" = 0.16	3" = 0.37
3 1/2" = 0.50	4" = 0.65
6" = 1.46	

[illegible]

Purge Water Disposal: TANK
Turbidity(qualitative): clear
Other (OVA, HNU, etc.):

Sample Date & Time: 2/5/9, 1115

Groundwater Sampling Form

Weather: WARM

Coded Duplicate No.:

	PID	Water Quality Meter(s)
Model	—	YSI-556
Serial #:	—	06F1362AS

Gallons in Well: 17.75

Pump on: _____ Off: 0

Well Casing Volumes (gal/ft):	2" = 0.16	3" = 0.37
	3 1/2" = 0.50	4" = 0.65
	6" = 1.46	

[illegible]

Odor: _____

Other (OVA, HNU, etc.):

Sample Date & Time: _____

Samples Analyzed For: See the COC

Groundwater Sampling Form

Task: 00008 Well ID: PT-7D
 Sampled By: GC
 Recorded By: JA
 Coded Duplicate No.: _____

	PID	Water Quality Meter(s)
Model:	—	YSI-556
Serial #:	—	06F1362 AS

Purge Technique (circle one): Low-Flow Remove 3 Well Volumes Bail Dry
Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailer
Screen Interval: From: 197' To: 217'
Pump Intake Setting: 4 gpm
Volumes to be Purged: 3 casing
Total Volume Purged: 53.67 56
Pump on: Off:

Field Parameter Measurements Taken During Purging

[illegible]

Purge Water Disposal: TANK
Turbidity(qualitative): _____
Other (OVA, HNU, etc.): —

Sample Date & Time: _____

Appendix D

Analytical Reports and Chain-of-Custody Documentation (on Compact Disc)