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August 15, 2008

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  
July 2008 Monitoring Report**

Dear Mr. Perdue:

Enclosed is the Board Order R7-2007-0015 July 2008 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 July 2008 Monitoring Report for the Upland Reductive Zone  
In Situ Pilot Test.

cc: Abdi Haile, Water Board  
Aaron Yue, DTSC (2 copies)

**Pacific Gas and Electric Company**

**July 2008 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 August 2008

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



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Senior Scientist



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Staff Engineer



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Principal Geologist  
Certified Project Manager

**July 2008 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 August 2008

*This document is intended only for the use 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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EMAX	EMAX 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
RWQCB	California Regional Water Quality Control Board, Colorado River Basin Region
SAFPM	<i>Sampling, Analysis, and Field Procedures Manual, PG&amp;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
Work Plan	<i>In-Situ Hexavalent Chromium Reduction Pilot Test Plan – Upland Plume Treatment (September 2006)</i>

**1.0 Introduction**

Pacific Gas and Electric (PG&E) is implementing 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 is to evaluate the efficacy of using a reagent mixture to reduce hexavalent chromium in groundwater to form stable, insoluble trivalent chromium. The Upland ISPT consists 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 (RWQCB), Order No. R7-2007-0015 authorizes PG&E to inject approximately 100 gallons of reagent into each well each day at an instantaneous rate of approximately 5 gallons per minute (gpm) per well for a total of approximately 38,000 gallons through the duration of the test. An automated reagent dosing system meters the reagent injections at regular intervals during each day of the pilot test.

The Monitoring and Reporting Program (MRP) under Order No. R7-2007-0015 requires monthly monitoring reports to be submitted by the 15<sup>th</sup> day of the following month. This report describes monitoring activities related to the Upland ISPT for July 2008.

## **2.0 In-Situ Pilot Test Sampling Locations**

Table 1 summarizes the well construction details of 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 July 2008, ARCADIS operated the Upland system and completed three weekly sampling events and the fifth monthly sampling event. 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.

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 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 gpm. The system has been operating at 30 gpm since March 5, 2008. During system operation, approximately 100 gallons of reagent was injected into each well each day at a rate of approximately 5 gpm, as authorized by the RWQCB Order No. R7-2007-0015. The injected reagent is a forty 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 recirculation systems' ability to distribute TOC sufficiently through the recirculation cell. No change to the recirculation pumping rate was planned for the period that dosing was to be discontinued. To evaluate the TOC distribution, periodic sampling of TOC was planned to be 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 July 16, 2008, a system alarm went off notifying ARCADIS that the system was not operating. On July 17, 2008 the system was inspected, but the alarm could not be turned off. It is suspected that the alarm was triggered after a heavy rain storm in the area produced standing water in the well vault, submerging a water level switch which resulted in a malfunction and system shutdown. As a result, groundwater was not

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recirculated from July 16 through July 22, when the system was brought back on-line. The water level switches were also replaced to reduce the potential for another malfunction.

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### 3.2 Sampling Activities

Weekly sampling events were performed on July 1, July 8, and July 15, 2008. The fifth monthly sampling event was conducted July 22 through 24, 2008. The sampling events were 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 June 10 through 12 bi-weekly sampling event, the June 19 weekly sampling event, the June 24 through 26 monthly sampling event, and the three weekly sampling events in July (July 1, July 8, and July 15, 2008). The results from the fifth monthly sampling event are not included in this report because final lab reports will not be received in time to submit the report; however, they will be reported in the August 2008 monthly report.

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.

According to the MRP, groundwater samples from bi-weekly events were analyzed for hexavalent chromium (United States Environmental Protection Agency [USEPA] Method 218.6 SM 2500-Cr) by Truesdail Laboratories (Truesdail); for dissolved iron, total dissolved chromium (USEPA 200.7), total iron (USEPA 200.8), sulfate (USEPA 300), total organic carbon (TOC) (USEPA Method 5310B), and sulfide (USEPA Method 4500-S<sup>2-</sup>) by EMAX Laboratories, Inc. (EMAX); and for fluorescein and rhodamine by Ozark Underground Laboratories, Inc. (OZARK). Groundwater samples from monthly events were analyzed for all of the above as well as dissolved calcium, dissolved potassium, dissolved sodium and dissolved manganese (USEPA 200.7), total arsenic and total manganese (USEPA 200.8), and anions chloride, nitrate, nitrite and phosphorous (as phosphate) (USEPA 300). In addition, groundwater samples were analyzed for dissolved arsenic during the monthly event (USEPA 200.7). Hexavalent chromium was also analyzed in the field at the Interim Measures 3 facility using HACH Method 8023 - program 1560, during the monthly sampling event. The weekly sampling events were analyzed solely for TOC, except for the July 15 event which was also analyzed for fluorescein and rhodamine tracer.

#### 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.

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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<sup>®</sup> 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 into 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 and EMAX (and then from EMAX to Ozark) via a courier service under chain-of-custody documentation. Truesdail and EMAX are certified by the California Department of Health Services (Certification #1247 and #02116CA, respectively) under the State of California's Environmental Laboratory Accreditation Program.

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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## 5.0 Analytical Results

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

The data through July shows a continuation of trends that developed during previous months. Tracer detections and hexavalent chromium concentration trends at PT-8S and PT-8D continue to demonstrate the effective recirculation of groundwater 75 feet from the recirculation wells. Complete reduction of Cr(VI) continues to be observed at PT-7M, PT-7D, MW-24A and PT8S, even through the periods when ethanol was not injected.

With continued circulation of groundwater, naturally-occurring dissolved oxidants (oxygen, nitrate, Cr(VI)) that consume organic carbon are continually being circulated through the upper screen at PTR-2 from the lower portion of the aquifer, and through the deeper screen at PTR-1 from the upper portion of the aquifer. During the period while ethanol was not injected, consumption of organic carbon was expected from the aquifer area adjacent to the injection screens. This has now been observed in PTR-2 and MW-24A, indicating a zone around the recirculation well has now largely consumed all of the available organic carbon in that area. In PTR-1 and PT-7M, a decreasing trend of TOC can be observed, indicating consumption of the injected ethanol is occurring. PT-7D does not yet show this decreasing trend, perhaps indicating a slower flow path of groundwater from PTR-1, which is now recirculating minimal concentrations of TOC. Based on these trends, restarting ethanol injections in PTR-2 will begin sooner than at PTR-1. Because the concentrations of TOC achieved in the groundwater during the first three months of circulation was higher than was necessary to achieve the desired reductive reactions, a lower concentration of ethanol will be used during the restart phase of the pilot test. TOC consumption trends are one type of information that was desired to be obtained from this pilot test. Operation of the pilot test at a lower dosage rate will provide a comparative carbon consumption rate and geochemical signatures for two different dosages.

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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Additional data trends will be assessed as more data are available, in subsequent monthly monitoring reports.

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## **6.0 Conclusions**

This report summarizes the activities and results for July 2008 activities, which consisted of the continued operation of the groundwater recirculation, three weekly groundwater sampling events and the fifth monthly groundwater sampling event.

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

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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.

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.

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.

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**8.0 Certification**

PG&E submitted a signature delegation letter to the RWQCB 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: August 15, 2008

**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	162-182	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	10	6	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	10	6	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

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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-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
	<b>11-Jun-08</b>	<b>N</b>		<b>41.6</b>	<b>7.27</b>	<b>5,694</b>	<b>29.95</b>	<b>0.72</b>	<b>103.64</b>	<b>1,800</b>
	<b>24-Jun-08</b>	<b>N</b>		<b>0.2</b>	<b>6.83</b>	<b>5,044</b>	<b>30.11</b>	<b>0.16</b>	<b>103.55</b>	<b>1,060</b>
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
	<b>11-Jun-08</b>	<b>N</b>		<b>-199.3</b>	<b>6.77</b>	<b>6,879</b>	<b>31.07</b>	<b>0.27</b>	<b>83.83</b>	<b>27</b>
	<b>19-Jun-08</b>	<b>N</b>		<b>-239.1</b>	<b>6.74</b>	<b>8,241</b>	<b>31.02</b>	<b>0.08</b>	<b>102.84</b>	<b>---</b>
	<b>25-Jun-08</b>	<b>N</b>		<b>-161.8</b>	<b>6.66</b>	<b>7,973</b>	<b>31.11</b>	<b>0.13</b>	<b>79.51</b>	<b>35</b>
<b>01-Jul-08</b>	<b>N</b>	<b>-217.2</b>	<b>6.61</b>	<b>7,604</b>	<b>31.41</b>	<b>0.04</b>	<b>97.30</b>	<b>---</b>		
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
	<b>11-Jun-08</b>	<b>N</b>		<b>-274.9</b>	<b>6.78</b>	<b>8,920</b>	<b>31.38</b>	<b>0.29</b>	<b>84.54</b>	<b>23</b>
	<b>19-Jun-08</b>	<b>N</b>		<b>-372.1</b>	<b>6.70</b>	<b>10,173</b>	<b>31.44</b>	<b>0.09</b>	<b>102.18</b>	<b>---</b>
	<b>24-Jun-08</b>	<b>N</b>		<b>-248.9</b>	<b>6.51</b>	<b>8,952</b>	<b>31.2</b>	<b>0.1</b>	<b>86.30</b>	<b>54</b>
<b>01-Jul-08</b>	<b>N</b>	<b>-290.4</b>	<b>6.65</b>	<b>9,071</b>	<b>31.44</b>	<b>0.05</b>	<b>102.94</b>	<b>---</b>		

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**Summary of Field Parameters**  
 PG&E Topock  
 Needles, California

July 2008 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-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
	<b>11-Jun-08</b>	<b>N</b>		<b>-252.7</b>	<b>6.61</b>	<b>9,212</b>	<b>29.63</b>	<b>0.36</b>	<b>105.41</b>	<b>18</b>
	<b>19-Jun-08</b>	<b>N</b>		<b>-296.4</b>	<b>6.90</b>	<b>9,079</b>	<b>29.68</b>	<b>0.11</b>	<b>105.41</b>	<b>---</b>
<b>25-Jun-08</b>	<b>N</b>	<b>-217.8</b>	<b>6.66</b>	<b>10,733</b>	<b>30.1</b>	<b>0.14</b>	<b>105.29</b>	<b>46</b>		
<b>01-Jul-08</b>	<b>N</b>	<b>-178.9</b>	<b>6.85</b>	<b>9,835</b>	<b>29.97</b>	<b>0.09</b>	<b>105.33</b>	<b>---</b>		
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
	<b>11-Jun-08</b>	<b>N</b>		<b>-38.0</b>	<b>7.06</b>	<b>6,769</b>	<b>29.95</b>	<b>2.23</b>	<b>105.35</b>	<b>3,860</b>
	<b>19-Jun-08</b>	<b>N</b>		<b>-75.5</b>	<b>7.02</b>	<b>7,437</b>	<b>29.99</b>	<b>0.15</b>	<b>105.73</b>	<b>---</b>
<b>25-Jun-08</b>	<b>N</b>	<b>23</b>	<b>6.89</b>	<b>6,634</b>	<b>30.19</b>	<b>0.85</b>	<b>76.50</b>	<b>4,140</b>		
<b>01-Jul-08</b>	<b>N</b>	<b>-22.2</b>	<b>6.98</b>	<b>6,438</b>	<b>30.03</b>	<b>0.07</b>	<b>105.30</b>	<b>---</b>		
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
	<b>11-Jun-08</b>	<b>N</b>		<b>-89.7</b>	<b>7.75</b>	<b>15,420</b>	<b>30.36</b>	<b>0.43</b>	<b>106.56</b>	<b>3,960</b>
	<b>19-Jun-08</b>	<b>N</b>		<b>-129.8</b>	<b>7.76</b>	<b>16,400</b>	<b>30.4</b>	<b>0.26</b>	<b>105.63</b>	<b>---</b>
<b>25-Jun-08</b>	<b>N</b>	<b>-163.9</b>	<b>7.49</b>	<b>14,750</b>	<b>30.38</b>	<b>0.23</b>	<b>104.57</b>	<b>2,920</b>		
<b>01-Jul-08</b>	<b>N</b>	<b>-155.5</b>	<b>7.71</b>	<b>15,337</b>	<b>30.47</b>	<b>0.18</b>	<b>105.20</b>	<b>---</b>		

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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
	<b>11-Jun-08</b>	<b>N</b>		<b>146.1</b>	<b>7.50</b>	<b>4,511</b>	<b>26.51</b>	<b>4.74</b>	<b>102.50</b>	<b>1,540</b>
<b>25-Jun-08</b>	<b>N</b>	<b>21.4</b>	<b>7.30</b>	<b>4,778</b>	<b>28.86</b>	<b>3.91</b>	<b>102.27</b>	<b>1,420</b>		
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
	<b>11-Jun-08</b>	<b>N</b>		<b>70.1</b>	<b>7.00</b>	<b>7,238</b>	<b>30.13</b>	<b>4</b>	<b>90.56</b>	<b>2,980</b>
<b>25-Jun-08</b>	<b>N</b>	<b>23.1</b>	<b>6.91</b>	<b>6,977</b>	<b>30.08</b>	<b>4.1</b>	<b>102.75</b>	<b>2,800</b>		
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
	<b>11-Jun-08</b>	<b>N</b>		<b>107.6</b>	<b>7.62</b>	<b>15,590</b>	<b>30.11</b>	<b>1.15</b>	<b>85.69</b>	<b>13,660</b>
<b>25-Jun-08</b>	<b>N</b>	<b>14.2</b>	<b>7.45</b>	<b>14,474</b>	<b>30.46</b>	<b>0.68</b>	<b>102.49</b>	<b>10,400</b>		

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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)
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
	<b>10-Jun-08</b>	<b>N</b>		<b>-11.3</b>	<b>7.20</b>	<b>2,196</b>	<b>30.73</b>	<b>8.14</b>	<b>65.49</b>	<b>302</b>
	<b>24-Jun-08</b>	<b>N</b>		<b>54.6</b>	<b>7.01</b>	<b>2,287</b>	<b>29.17</b>	<b>8.96</b>	<b>65.54</b>	<b>252</b>
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
	<b>12-Jun-08</b>	<b>N</b>		<b>-259.9</b>	<b>6.70</b>	<b>10,910</b>	<b>32.6</b>	<b>0.8</b>	<b>111.66</b>	<b>&lt;10</b>
	<b>19-Jun-08</b>	<b>N</b>		<b>-222.4</b>	<b>6.49</b>	<b>11,469</b>	<b>32.81</b>	<b>1.28</b>	<b>110.28</b>	<b>---</b>
	<b>26-Jun-08</b>	<b>N</b>		<b>-228.5</b>	<b>7.20</b>	<b>107</b>	<b>30.84</b>	<b>0.17</b>	<b>110.13</b>	<b>18</b>
<b>01-Jul-08</b>	<b>N</b>	<b>-320.4</b>	<b>6.82</b>	<b>10,282</b>	<b>31.3</b>	<b>0.07</b>	<b>109.73</b>	<b>---</b>		
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
	<b>12-Jun-08</b>	<b>N</b>		<b>-66.6</b>	<b>7.72</b>	<b>16,160</b>	<b>30.23</b>		<b>111.23</b>	<b>3,980</b>
	<b>26-Jun-08</b>	<b>N</b>		<b>24.7</b>	<b>7.68</b>	<b>10,275</b>	<b>30.09</b>	<b>0.49</b>	<b>108.06</b>	<b>3,400</b>

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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)
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
	<b>10-Jun-08</b>	<b>N</b>		<b>-14.1</b>	<b>7.50</b>	<b>2,569</b>	<b>28.8</b>	<b>1.59</b>	<b>66.62</b>	<b>1,320</b>
	<b>24-Jun-08</b>	<b>N</b>		<b>10.7</b>	<b>7.20</b>	<b>3,041</b>	<b>28.65</b>	<b>4.82</b>	<b>69.12</b>	<b>1,140</b>
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
	<b>10-Jun-08</b>	<b>N</b>		<b>36.9</b>	<b>7.74</b>	<b>21,879</b>	<b>30.49</b>	<b>0.5</b>	<b>69.22</b>	<b>64</b>
	<b>24-Jun-08</b>	<b>N</b>		<b>-80.4</b>	<b>7.80</b>	<b>22,824</b>	<b>30.32</b>	<b>0.17</b>	<b>69.58</b>	<b>53</b>
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
	<b>12-Jun-08</b>	<b>N</b>		<b>-159.4</b>	<b>7.69</b>	<b>5,661</b>	<b>33.60</b>	<b>1.34</b>	<b>---</b>	<b>1</b>
	<b>19-Jun-08</b>	<b>N</b>		<b>-119.7</b>	<b>7.79</b>	<b>6,231</b>	<b>38.28</b>	<b>0.78</b>	<b>---</b>	<b>---</b>
<b>26-Jun-08</b>	<b>N</b>		<b>-113.6</b>	<b>7.58</b>	<b>5,640</b>	<b>38.43</b>	<b>1.10</b>	<b>---</b>	<b>&lt;10</b>	
<b>01-Jul-08</b>	<b>N</b>		<b>-1115</b>	<b>7.62</b>	<b>5,868</b>	<b>39.84</b>	<b>1.24</b>	<b>---</b>	<b>---</b>	

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

July 2008 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-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	
	<b>10-Jun-08</b>	<b>N</b>			<b>69.0</b>	<b>7.54</b>	<b>10,684</b>	<b>37.77</b>	<b>1.46</b>	---	<b>196</b>
	<b>19-Jun-08</b>	<b>N</b>			<b>170.6</b>	<b>7.55</b>	<b>9,106</b>	<b>38.22</b>	<b>1.4</b>	---	---
	<b>26-Jun-08</b>	<b>N</b>			<b>20.9</b>	<b>7.32</b>	<b>10,484</b>	<b>31.34</b>	<b>0.79</b>	---	<b>4,280</b>
<b>01-Jul-08</b>	<b>N</b>			<b>-54.3</b>	<b>7.20</b>	<b>10,163</b>	<b>37.45</b>	<b>0.81</b>	---	---	

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.

**Table 3**  
**Summary of Primary Analytical Parameters**

PG&E Topock  
 Needles, California

July 2008 Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test

Location Name	Sample Date	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	1,200	1,260	1,080	---	---	22.0	<0.1	6,160	<500	55.6	1,050	674	1.18
	23-Jan-08	1,400	1,390	---	---	---	18.7	<0.1	558	<2,500	<2,500	462	608	2.99
	06-Mar-08	1,420	1,270	---	---	ND	18.6	<0.1	<500	<500	<500	34	637	<1
	13-Mar-08	1,100	1,070	---	0.02	ND	15.4	<0.1	<500	<2,500	<2,500	<10	588	1.25
	18-Mar-08	1,300	1,280	---	0.64	ND	17.7	<0.1	<500	<2,500	---	11	606	1.17
	25-Mar-08	1,420	1,410	---	0.96	ND	19.3	<0.2	<500	<2,500	<2,500	23	630	1.88
	02-Apr-08	1,490	1,510	---	0.24	ND	---	---	<500	<2,500	---	---	665	<1
	17-Apr-08	1,320	1,280	---	2.42	ND	---	---	<500	<2,500	---	---	737	<1
	29-Apr-08	812	855	---	5.71	ND	13.5	0.95	<500	<500	<500	189	567	1.84
	15-May-08	876	868	---	2.89	ND	---	---	<500	<500	---	---	563	<1
	29-May-08	1,230	1,190	---	0.07	ND	18.9	<0.5	<500	<500	<500	47.9	675	<1
	<b>11-Jun-08</b>	<b>1,580</b>	<b>1,350</b>	---	<b>0.17</b>	<b>ND</b>	---	---	<b>&lt;500</b>	<b>&lt;500</b>	---	---	<b>764</b>	---
	<b>24-Jun-08</b>	<b>927</b>	<b>801</b>	---	<b>1.04</b>	<b>ND</b>	<b>13.2</b>	<b>&lt;0.5</b>	<b>&lt;500</b>	<b>&lt;500</b>	<b>&lt;500</b>	<b>134</b>	<b>599</b>	<b>1.88</b>
	PT-7M	19-Jul-07	2,320	2,240	2,110	---	---	25.2	<0.1	6,260	<500	31.6	1,150	1,250
24-Jan-08		2,440	2,340	---	---	---	30.4	<0.5	<500	<1,000	<1,000	<10	1,280	<1
06-Mar-08		30	16.5	---	ND	ND	<0.5	<0.1	<500	<500	702	711	846	216
06-Mar-08		33.3	18.0	---	0.03	ND	<0.5	<0.1	<500	<500	703	714	832	213
13-Mar-08		<0.2	<5	---	1,193	ND	<0.5	<0.1	<500	<2,500	3,320	3,540	656	446
18-Mar-08		<0.2	<5	---	3,390	ND	<5	<1	1,040	<2,500	---	6,290	205	1,550
25-Mar-08		6.9	<5	---	3,030	ND	<2.5	<0.5	1,740	<2,500	8,690	9,500	144	1,500
02-Apr-08		2	<5	---	2,820	ND	---	---	2,660	<2,500	---	---	105	1,270
17-Apr-08		<1	<5	---	7,650	ND	---	---	6,320	3,700	---	---	<10	4,640
29-Apr-08		<1	1.08	---	8,175	ND	<10	<2	1,680	1,300	11,300	14,100	<10	8,050
14-May-08		<1.1	1.52	---	7,725	ND	---	---	9,070	6,900	---	---	<20	8,040
29-May-08		<1	1.34	---	4,163	ND	<10	<10	12,400	11,000	18,600	18,400	<10	10,700
<b>11-Jun-08</b>		<b>1.4</b>	<b>1.98</b>	---	<b>3,000</b>	<b>ND</b>	---	---	<b>15,100</b>	<b>10,900</b>	---	---	<b>11.2</b>	<b>8,530</b>
<b>19-Jun-08</b>		---	---	---	---	---	---	---	---	---	---	---	---	<b>9,340</b>
<b>25-Jun-08</b>		<b>&lt;1</b>	<b>1.02</b>	---	<b>1,898</b>	<b>ND</b>	<b>&lt;2.5</b>	<b>&lt;2.5</b>	<b>18,500</b>	<b>13,200</b>	<b>21,900</b>	<b>26,300</b>	<b>&lt;2.5</b>	<b>8,630</b>
<b>01-Jul-08</b>		---	---	---	---	---	---	---	---	---	---	---	---	<b>8,180</b>
<b>08-Jul-08</b>	---	---	---	---	---	---	---	---	---	---	---	---	<b>6,980</b>	
<b>15-Jul-08</b>	---	---	---	<b>427.5</b>	<b>ND</b>	---	---	---	---	---	---	---	<b>1,810</b>	

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

July 2008 Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test

Location Name	Sample Date	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	7,260	7,890	7,750	---	---	7.4	<0.1	<500	<500	48.3	54	1,140	<1
	24-Jan-08	8,010	7,920	---	---	---	9.9	<0.5	<500	<1,000	<1,000	14	1,150	<1
	06-Mar-08	506	499	---	ND	ND	<0.5	<0.1	<500	<500	<500	193	903	234
	13-Mar-08	80.6	160	---	1,185	ND	<0.5	<0.2	<500	<2,500	<2,500	1,050	903	313
	18-Mar-08	<2.1	69.3	---	780	ND	<1	<0.2	<500	<2,500	---	2,220	621	309
	25-Mar-08	4	17.8	---	645	ND	<1	<0.5	<500	<2,500	4,080	4,320	612	313
	02-Apr-08	<0.2	<5	---	578	ND	---	---	<500	<2,500	---	---	633	256
	17-Apr-08	22.6	7.64	---	4,163	ND	---	---	<500	<2,500	---	---	179	1,410
	29-Apr-08	<0.2	17.2	---	5,010	ND	<10	<2	<500	<500	2,960	3,380	98	2,920
	15-May-08	<1.1	1.48	---	4,088	ND	---	---	2,280	1,730	---	---	96	2,780
	29-May-08	<1	1.14	---	3,945	ND	<10	<10	2,660	2,000	8,860	8,850	100	1,690
	11-Jun-08	1.5	1.48	---	6,293	ND	---	---	4,920	2,740	---	---	50.5	4,620
	19-Jun-08	---	---	---	---	---	---	---	---	---	---	---	---	4,520
	24-Jun-08	<1	49.2	---	5,250	ND	<10	<10	10,600	1,280	9,700	11,400	12.7	4,450
	01-Jul-08	---	---	---	---	---	---	---	---	---	---	---	---	5,850
	08-Jul-08	---	---	---	---	---	---	---	---	---	---	---	---	4,580
15-Jul-08	---	---	---	8,475	ND	---	---	---	---	---	---	---	5,430	
PT-8S	16-Jul-07	1,750	1,660	1,620	---	---	25.1	<0.1	2,670	<500	25.1	269	869	1.35
	23-Jan-08	1,620	1,680	---	---	---	24.9	<0.1	<500	<2,500	<2,500	<10	734	1.03
	05-Mar-08	1,430	1,340	---	ND	ND	22.6	<0.1	<500	<500	<500	<10	727	1.10
	13-Mar-08	657	657	---	ND	ND	8.4	1.61	<500	<2,500	<2,500	333	618	12.5
	18-Mar-08	160	164	---	ND	ND	1.7	0.82	<500	<2,500	---	1,050	561	7.18
	25-Mar-08	455	438	---	0.07	ND	6.2	2.42	<500	<2,500	<2,500	973	591	4.16
	02-Apr-08	877	884	---	ND	ND	---	---	<500	<2,500	---	---	634	1.39
	16-Apr-08	775	747	---	0.15	ND	---	---	<500	<2,500	---	---	408	<1
	29-Apr-08	76.7	95.7	---	18.60	ND	1.4	<0.2	<500	<500	2,300	2,910	560	74.3
	14-May-08	<0.2	18.1	---	9.60	0.35	---	---	<500	<500	---	---	481	36.0
	28-May-08	<.2	2.68	---	60.00	6.92	<0.5	<2.5	532	<500	3,560	3,930	161	49.6
	11-Jun-08	1.8	4.97	---	322.5	42.6	---	---	5,530	4,210	---	---	12.7	1,100
	19-Jun-08	---	---	---	---	---	---	---	---	---	---	---	---	842
	25-Jun-08	<1	1.8	---	123	97.4	<1	<1	6,600	5,540	15,600	17,600	2,630	1,710
	01-Jul-08	---	---	---	---	---	---	---	---	---	---	---	---	1,740
	08-Jul-08	---	---	---	---	---	---	---	---	---	---	---	---	1,090
15-Jul-08	---	---	---	152.3	52.8	---	---	---	---	---	---	---	1,230	

**Table 3**  
**Summary of Primary Analytical Parameters**

PG&E Topock  
 Needles, California

July 2008 Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test

Location Name	Sample Date	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	3,960	4,120	4,140	---	---	31.8	<0.5	<500	<500	15.5	22.7	1,330	1.40
	23-Jan-08	4,050	4,030	---	---	---	34.9	<0.1	<500	<2,500	<2,500	<10	1,210	1.31
	05-Mar-08	3,820	3,910	---	ND	ND	33.9	<0.1	<500	<500	<500	<10	1,290	1.39
	13-Mar-08	3,870	3,870	---	ND	ND	32.4	<0.1	<500	<2,500	<2,500	<10	1,250	1.34
	19-Mar-08	4,030	3,850	---	ND	ND	32.6	<0.2	<500	<2,500	---	<10	1,230	1.15
	25-Mar-08	3,890	3,820	---	ND	ND	32.8	<0.2	<500	<2,500	<2,500	<10	1,230	1.02
	02-Apr-08	3,880	3,810	---	ND	ND	---	---	<500	<2,500	---	---	1,290	1.11
	16-Apr-08	3,670	3,730	---	ND	ND	---	---	<500	<2,500	---	---	1,280	<1
	29-Apr-08	3,570	3,760	---	ND	ND	31.5	<0.2	<500	<500	<500	<10	1,250	<1
	14-May-08	3,880	3,760	---	ND	ND	---	---	<500	<500	---	---	1,220	1.42
	28-May-08	3,830	3,660	---	ND	ND	12.6	<2.5	<500	<500	<500	12.8	1,010	<1
	11-Jun-08	<b>2,720</b>	<b>3,500</b>	---	<b>0.32</b>	<b>ND</b>	---	---	<b>&lt;500</b>	<b>&lt;500</b>	---	---	<b>1,220</b>	<b>1.38</b>
	19-Jun-08	---	---	---	---	---	---	---	---	---	---	---	---	<b>&lt;2</b>
	25-Jun-08	<b>3,710</b>	<b>3,540</b>	---	<b>0.02</b>	<b>ND</b>	<b>30.2</b>	<b>&lt;1</b>	<b>&lt;500</b>	<b>&lt;500</b>	<b>&lt;500</b>	<b>&lt;10</b>	<b>1,190</b>	<b>1.53</b>
	01-Jul-08	---	---	---	---	---	---	---	---	---	---	---	---	<b>1.58</b>
	PT-8D	16-Jul-07	6,540	7,260	7,290	---	---	9.72	<0.2	2,620	<500	23.5	186	1,110
23-Jan-08		6,210	6,340	---	---	---	11.4	<0.5	<500	<5,000	<5,000	<10	1,080	<1
05-Mar-08		6,510	6,600	---	ND	ND	10.7	<0.2	<500	<2,500	<2,500	<10	1,110	<1
13-Mar-08		6,560	5,030	---	ND	ND	12.7	<0.5	<500	<2,500	<2,500	<10	1,270	<1
18-Mar-08		5,750	5,280	---	ND	ND	11.8	<0.5	<500	<2,500	---	<10	1,130	<1
25-Mar-08		5,380	5,310	---	ND	ND	12.3	<0.5	<500	<2,500	<2,500	<10	1,160	<1
02-Apr-08		2,640	5,180	---	ND	ND	---	---	<500	<2,500	---	---	1,180	<1
16-Apr-08		6,340	6,270	---	ND	ND	---	---	<500	<2,500	---	---	1,100	<1
29-Apr-08		4,570	4,380	---	2.20	ND	12.9	<0.5	<500	<500	<500	<10	1,240	<1
14-May-08		2,300	3,470	---	10.58	ND	---	---	<500	<500	---	---	1,210	8.24
28-May-08		3,940	3,790	---	4.52	ND	11.2	<2.5	<500	<500	<500	82.1	1,170	<1
11-Jun-08		<b>3,310</b>	<b>3,530</b>	---	<b>6.92</b>	<b>ND</b>	---	---	<b>&lt;500</b>	<b>&lt;500</b>	---	---	<b>1,190</b>	<b>1.5</b>
19-Jun-08		---	---	---	---	---	---	---	---	---	---	---	---	<b>2.26</b>
25-Jun-08		<b>2,120</b>	<b>2,550</b>	---	<b>48.68</b>	<b>ND</b>	<b>7.2</b>	<b>&lt;2.5</b>	<b>&lt;500</b>	<b>&lt;500</b>	<b>929</b>	<b>975</b>	<b>1,140</b>	<b>91.1</b>
01-Jul-08		---	---	---	---	---	---	---	---	---	---	---	---	<b>4.17</b>
08-Jul-08		---	---	---	---	---	---	---	---	---	---	---	---	<b>50.9</b>
15-Jul-08	---	---	---	<b>42.7</b>	<b>0.04</b>	---	---	---	---	---	---	---	<b>1.67</b>	

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

July 2008 Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test

Location Name	Sample Date	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-9S	17-Jul-07	1,180	1,150	1,170	---	---	16.4	<0.1	1,080	<500	29.0	125	689	1.24
	22-Jan-08	1,380	1,250	---	---	---	17.3	<0.5	917	1,000	<500	36.7	644	<1
	05-Mar-08	1,380	1,340	---	0.01	ND	17.7	<0.1	1,060	<500	<500	145	718	<1
	12-Mar-08	1,140	1,010	---	ND	ND	16.3	<0.1	<500	<500	<500	12.5	525	<1
	19-Mar-08	1,390	1,380	---	ND	ND	17.6	<0.1	<500	<2,500	---	21.7	633	<1
	26-Mar-08	1,350	1,310	---	ND	ND	17.5	<0.1	<500	<2,500	<2,500	16.5	668	<1
	02-Apr-08	1,340	1,300	---	ND	ND	---	---	<500	<2,500	---	---	670	<1
	16-Apr-08	1,410	1,350	---	0.04	ND	---	---	<500	<2,500	---	---	424	<1
	29-Apr-08	1,050	1,080	---	ND	ND	17.3	<0.1	<500	<500	<500	16.6	559	<1
	14-May-08	1,060	1,030	---	ND	ND	---	---	<500	<500	---	---	563	<1
	28-May-08	1,280	1,210	---	ND	ND	17.5	<0.5	635	<500	<500	52.1	643	<1
	<b>11-Jun-08</b>	<b>1,270</b>	<b>1,180</b>	---	<b>ND</b>	<b>ND</b>	---	---	<b>719</b>	<b>&lt;500</b>	---	---	<b>678</b>	---
	<b>25-Jun-08</b>	<b>1,030</b>	<b>1,060</b>	---	<b>0.02</b>	<b>ND</b>	<b>15.9</b>	<b>&lt;0.5</b>	<b>&lt;500</b>	<b>&lt;500</b>	<b>&lt;500</b>	<b>33.3</b>	<b>595</b>	<b>&lt;1</b>
PT-9M	17-Jul-07	2,340	2,270	2,250	---	---	24.4	<0.1	<500	<500	18.7	27.2	1,410	1.17
	17-Jul-07	2,240	2,270	2,220	---	---	24.6	<0.1	<500	<500	18.2	32.3	1,410	1.21
	22-Jan-08	2,940	2,400	---	---	---	24.3	<0.5	<500	<500	<500	<10	1,390	1.02
	05-Mar-08	2,310	2,400	---	ND	ND	24.5	<0.1	<500	<500	<500	<10	1,460	<1
	12-Mar-08	2,590	2,360	---	ND	ND	22.3	<0.1	<500	<500	<500	<10	1,370	<1
	19-Mar-08	2,660	2,570	---	0.06	ND	23.0	<0.2	<500	<2,500	---	<10	1,430	<1
	26-Mar-08	2,610	2,490	---	0.13	ND	23.5	<0.2	<500	<2,500	<2,500	<10	1,340	<1
	26-Mar-08	2,500	2,500	---	ND	ND	23.5	<0.2	<500	<2,500	<2,500	<10	1,340	<1
	02-Apr-08	2,520	2,510	---	ND	ND	---	---	1,260	<2,500	---	---	1,510	<1
	16-Apr-08	2,550	2,570	---	ND	ND	---	---	<500	<2,500	---	---	908	<1
	29-Apr-08	2,370	2,360	---	ND	ND	22.2	<0.2	<500	<500	<500	<10	1,460	<1
	14-May-08	2,550	2,430	---	ND	ND	---	---	<500	<500	---	---	1,450	<1
	28-May-08	2,500	2,300	---	0.05	ND	23.6	<1	<500	<500	<500	<10	1,410	<1
<b>11-Jun-08</b>	<b>2,500</b>	<b>2,330</b>	---	<b>ND</b>	<b>ND</b>	---	---	<b>&lt;500</b>	<b>&lt;500</b>	---	---	<b>1,460</b>	---	
<b>25-Jun-08</b>	<b>2,460</b>	<b>2,260</b>	---	<b>ND</b>	<b>ND</b>	<b>21.3</b>	<b>&lt;1</b>	<b>&lt;500</b>	<b>&lt;500</b>	<b>&lt;500</b>	<b>&lt;10</b>	<b>1,450</b>	<b>1.28</b>	
PT-9D	17-Jul-07	15,700	15,600	<1	---	---	9.3	<0.2	<500	<500	29.4	33.8	1,260	1.14
	22-Jan-08	17,400	15,300	---	---	---	11.8	<0.5	<500	<5,000	<5,000	<10	1,390	<1
	22-Jan-08	16,400	15,500	---	---	---	10.9	<0.5	<500	<5,000	<5,000	<10	1,310	<1
	05-Mar-08	16,000	15,600	---	ND	ND	9.9	<0.2	<500	<2,500	<2,500	15.8	1,470	<1
	12-Mar-08	13,500	12,500	---	ND	ND	12.5	<0.5	<500	<2,500	<2,500	<10	1,390	<1
	19-Mar-08	14,800	14,300	---	ND	ND	12.4	<0.5	<500	<2,500	---	<10	1,370	<1
	26-Mar-08	14,600	14,100	---	ND	ND	12.4	<0.5	<500	<2,500	<2,500	<10	1,320	<1
	02-Apr-08	13,900	14,400	---	ND	ND	---	---	<500	<2,500	---	---	1,430	<1
	16-Apr-08	14,900	15,400	---	ND	ND	---	---	<500	<2,500	---	---	1,350	<1
	29-Apr-08	11,000	10,600	---	ND	ND	12.9	<1	<500	<500	<500	<10	1,400	<1
	14-May-08	10,600	10,700	---	ND	ND	---	---	<500	<500	---	---	1,340	<1
	28-May-08	12,000	11,700	---	ND	ND	12.9	<2.5	<500	<500	<500	<10	1,330	<10
	<b>11-Jun-08</b>	<b>13,600</b>	<b>12,300</b>	---	<b>ND</b>	<b>ND</b>	---	---	<b>&lt;500</b>	<b>&lt;500</b>	---	---	<b>1,400</b>	---
<b>25-Jun-08</b>	<b>10,500</b>	<b>9,680</b>	---	<b>ND</b>	<b>ND</b>	<b>13.6</b>	<b>&lt;2.5</b>	<b>&lt;500</b>	<b>&lt;500</b>	<b>&lt;500</b>	<b>&lt;10</b>	<b>1,330</b>	<b>&lt;5</b>	

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

July 2008 Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test

Location Name	Sample Date	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	321	314	339	---	---	8.4	<0.1	<500	<500	<5	<10	251	1.06
	24-Jan-08	321	310	---	---	---	8.7	<0.1	<500	<500	<500	<10	241	<1
	04-Mar-08	299	290	---	ND	---	9.7	<0.1	<500	<500	<500	<10	236	<1
	11-Mar-08	289	288	---	ND	ND	8.9	<0.1	<500	<500	<500	<10	240	<1
	11-Mar-08	286	285	---	ND	ND	9.0	<0.1	<500	<500	<500	<10	248	<1
	19-Mar-08	340	332	---	ND	ND	9.3	<0.1	<500	<2,500	---	<10	231	<1
	27-Mar-08	331	308	---	0.04	ND	8.9	<0.1	<500	<500	<500	<10	238	<1
	01-Apr-08	316	306	---	0.03	ND	---	---	<500	<500	---	---	237	<1
	15-Apr-08	311	319	---	ND	ND	---	---	<500	<500	---	---	222	<1
	28-Apr-08	284	266	---	ND	ND	8.6	<0.1	<500	<500	<500	<10	226	<1
	13-May-08	280	281	---	ND	ND	---	---	<500	<500	---	---	229	<1
	27-May-08	286	238	---	ND	ND	8.6	<0.5	<500	<500	<500	<10	220	<1
	<b>10-Jun-08</b>	<b>275</b>	<b>265</b>	---	<b>ND</b>	<b>ND</b>	---	---	---	<b>&lt;500</b>	---	---	<b>227</b>	<b>&lt;1</b>
	<b>24-Jun-08</b>	<b>286</b>	<b>244</b>	---	<b>0.02</b>	<b>ND</b>	<b>8.7</b>	<b>&lt;0.5</b>	<b>&lt;500</b>	<b>&lt;500</b>	<b>&lt;500</b>	<b>&lt;10</b>	<b>226</b>	<b>&lt;1</b>
	MW-24A	18-Jul-07	2,480	2,550	2,600	---	---	18.3	<0.1	<500	<500	<5	<10	372
24-Jan-08		2,620	2,570	---	---	---	18.5	<0.1	<500	<500	<500	<10	380	3.79
06-Mar-08		3,890	4,190	---	ND	ND	13.5	<1	<500	<500	<500	401	1,210	367
12-Mar-08		1,650	2,510	---	8.55	458	<10	<2	<500	<2,500	<2,500	417	1,170	1,160
19-Mar-08		1.6	5.76	---	1320	296	<2.5	<0.5	<500	<2,500	---	1,280	854	2,460
26-Mar-08		10.6	12.9	---	9450	776	<5	<1	1,030	<2,500	<2,500	2,380	347	4,890
01-Apr-08		<1	5.46	---	10650	1994	---	---	2,080	<2,500	---	---	129	12,900
17-Apr-08		15.7	9.79	---	190.5	496	---	---	1,820	<2,500	---	---	46.1	3,690
30-Apr-08		<1	7.18	---	21.5	38.80	<5	<1	670	<500	1,320	1,360	624	1,160
30-Apr-08		<1	8.19	---	21.5	53	<5	<1	680	<500	1,330	1,350	624	1,160
15-May-08		<0.2	5.04	---	41.0	42.80	---	---	1,520	853	---	---	831	1,650
15-May-08		<0.2	4.88	---	42	39	---	---	1,540	861	---	---	821	1,660
27-May-08		<2	5.42	---	14	70.60	<1	<2.5	2,160	1,560	3,550	3,740	21	1,350
<b>12-Jun-08</b>		<b>2.1</b>	<b>4.56</b>	---	<b>21.23</b>	<b>65.20</b>	---	---	<b>2,440</b>	<b>671</b>	---	---	<b>267</b>	<b>1,130</b>
<b>19-Jun-08</b>		---	---	---	---	---	---	---	---	---	---	---	---	<b>1,500</b>
<b>26-Jun-08</b>		<b>&lt;0.2</b>	<b>26.0</b>	---	<b>2.41</b>	<b>2.98</b>	<b>5.4</b>	<b>&lt;2.5</b>	<b>1,890</b>	<b>758</b>	<b>1,550</b>	<b>1,630</b>	<b>1,110</b>	<b>42.6</b>
<b>01-Jul-08</b>		---	---	---	---	---	---	---	---	---	---	---	---	<b>&lt;400</b>
MW-24B	18-Jul-07	5,540	6,020	5,680	---	---	12.1	<0.1	<500	<500	22.7	25.1	1,060	<1
	24-Jan-08	4,870	4,760	---	---	---	11.3	<0.5	<500	<1,000	<1,000	20.3	1,050	<1
	06-Mar-08	4,510	4,110	---	ND	ND	11.2	<0.2	<500	<500	<500	15.4	1,030	<1
	12-Mar-08	4,530	4,310	---	ND	ND	12.0	<0.2	<500	<2,500	<2,500	12.9	996	<1
	19-Mar-08	4,690	4,470	---	ND	ND	12.6	<0.5	<500	<2,500	---	15.7	1,010	<1
	26-Mar-08	4,160	4,220	---	ND	ND	12.0	<0.5	<500	<2,500	<2,500	13.6	1,020	<1
	03-Apr-08	4,310	4,240	---	0.15	ND	---	---	<500	<2,500	---	15	1,040	<1
	17-Apr-08	4,180	4,260	---	0.02	ND	---	---	<500	<2,500	---	---	1,120	<1
	30-Apr-08	3,400	3,790	---	ND	ND	9.96	<0.2	<500	<500	<500	14.2	1,050	4.42
	15-May-08	3,580	3,780	---	ND	ND	---	---	<500	<500	---	---	1,050	<1
	28-May-08	3,620	3,530	---	0.07	ND	31.0	<1	<500	<500	<500	<10	1,180	1.02
	<b>12-Jun-08</b>	<b>3,690</b>	<b>3,730</b>	---	<b>ND</b>	<b>ND</b>	---	---	<b>&lt;500</b>	<b>&lt;500</b>	---	---	<b>1,080</b>	<b>&lt;1</b>
	<b>26-Jun-08</b>	<b>3,720</b>	<b>3,280</b>	---	<b>0.03</b>	<b>ND</b>	<b>12.5</b>	<b>&lt;2.5</b>	<b>&lt;500</b>	<b>&lt;500</b>	<b>&lt;500</b>	<b>14.7</b>	<b>995</b>	<b>&lt;1</b>

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 Needles, California

July 2008 Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test

Location Name	Sample Date	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-38S	17-Jul-07	911	920	948	---	---	10.5	<0.1	1,910	<500	<5	234	465	1.07	
	23-Jan-08	899	885	---	---	---	10.7	<0.1	<500	<500	<500	<10	366	<1	
	04-Mar-08	900	912	---	ND	ND	11.5	<0.1	<500	<500	<500	14.7	399	<1	
	11-Mar-08	948	942	---	ND	ND	11.2	<0.1	<500	<500	<500	12.6	429	<1	
	20-Mar-08	993	1,040	---	0.05	0.05	10.9	<0.1	<500	<2,500	---	<10	404	<1	
	26-Mar-08	958	984	---	ND	ND	10.9	<0.1	<500	<2,500	<2,500	<10	404	<1	
	01-Apr-08	999	852	---	0.08	ND	---	---	<500	<500	---	---	419	<1	
	15-Apr-08	995	987	---	ND	ND	---	---	<500	<500	---	---	396	<1	
	28-Apr-08	1,020	956	---	0.17	ND	10.7	<0.1	<500	<500	<500	<10	414	<1	
	13-May-08	1,000	977	---	ND	ND	---	---	<500	<500	---	---	404	<1	
	27-May-08	984	895	---	ND	ND	10.7	<0.5	<500	<500	<500	<10	399	<1	
	<b>10-Jun-08</b>	<b>992</b>	<b>959</b>	---	<b>ND</b>	<b>ND</b>	---	---	<b>1,140</b>	<b>&lt;500</b>	---	---	<b>410</b>	<b>&lt;1</b>	
	<b>24-Jun-08</b>	<b>1,040</b>	<b>942</b>	---	<b>0.02</b>	<b>ND</b>	<b>10.4</b>	<b>&lt;0.5</b>	<b>&lt;500</b>	<b>&lt;500</b>	<b>&lt;500</b>	<b>&lt;10</b>	<b>396</b>	<b>&lt;1</b>	
	MW-38D	17-Jul-07	104	72.1	66.2	---	---	0.70	<0.5	<500	<500	10.4	20.4	724	<1
23-Jan-08		58.8	67.7	---	---	---	<2.5	<0.5	<500	<10,000	<10,000	<10	723	<1	
04-Mar-08		49.8	47.0	---	ND	ND	0.56	<0.5	<500	<500	<500	<10	735	<1	
11-Mar-08		50.4	53.8	---	ND	ND	0.58	<0.5	<500	<2,500	<2,500	<10	734	<1	
20-Mar-08		49.6	50.7	---	ND	ND	<2.5	<0.5	<500	<2,500	---	13	724	<1	
20-Mar-08		51	50.9	---	ND	ND	<2.5	<0.5	<500	<2,500	---	11.9	711	<1	
26-Mar-08		48.7	50.1	---	ND	ND	<1	<0.5	<500	<2,500	<2,500	12.5	723	<1	
01-Apr-08		45.6	42.4	---	ND	ND	---	---	<500	<500	---	---	746	<1	
01-Apr-08		47.6	41.8	---	0.02	ND	---	---	<500	<500	---	---	746	<1	
15-Apr-08		43.8	45.8	---	ND	ND	---	---	<500	<500	---	---	738	<1	
15-Apr-08		46.1	45.8	---	0.04	ND	---	---	<500	<500	---	---	748	<1	
28-Apr-08		48	46.2	---	ND	ND	0.54	<0.5	<500	<2,500	<2,500	16.6	734	<1	
13-May-08		53	50.1	---	ND	ND	---	---	<500	<500	---	---	743	<1	
27-May-08		53	48.3	---	ND	ND	0.59	<5	<500	<500	<500	12.7	748	<1	
<b>10-Jun-08</b>		<b>50.9</b>	<b>47.7</b>	---	<b>0.05</b>	<b>ND</b>	---	---	<b>&lt;500</b>	<b>&lt;500</b>	---	---	<b>741</b>	<b>&lt;1</b>	
<b>24-Jun-08</b>		<b>55.5</b>	<b>48.3</b>	---	<b>ND</b>	<b>ND</b>	<b>0.57</b>	<b>&lt;0.5</b>	<b>&lt;500</b>	<b>&lt;500</b>	<b>&lt;500</b>	<b>13.3</b>	<b>737</b>	<b>&lt;1</b>	
PTR-1		19-Jul-07	538	713	1,240	---	---	18.4	<0.1	6,010	<500	92.2	119	983	<1
	25-Jan-08	904	991	---	---	---	20.4	<0.1	2,920	<500	<500	25.8	742	3.82	
	06-Mar-08	356	334	---	333,750	ND	<500	<100	<500	<2,500	<2,500	1,070	1,460	11,200	
	11-Mar-08	945	846	---	2,070	ND	11.4	<1	<500	<2,500	<2,500	633	671	29,700	
	20-Mar-08	76.8	125	---	30,375	ND	<50	<10	540	<2,500	---	437	440	63,400	
	27-Mar-08	<1	<5	---	8,700	ND	<20	<4	1,660	<2,500	<2,500	867	122	122,000	
	01-Apr-08	<1	<5	---	12,525	ND	---	---	2,160	<2,500	---	---	356	2,890	
	16-Apr-08	20.2	99.2	---	84	ND	---	---	750	<2,500	---	---	386	37,200	
	28-Apr-08	---	---	---	---	---	---	---	---	---	---	---	---	208,000	
	29-Apr-08	<0.2	93.9	---	1,320	ND	5.91	<1	<500	<500	5,350	5,890	359	205,000	
	15-May-08	<2.1	170	---	364	ND	---	---	524	<500	---	---	428	2,360	
	29-May-08	<2	3.1	---	24	ND	1.46	<0.5	2,670	<500	708	919	520	27,900	
	<b>12-Jun-08</b>	<b>&lt;2</b>	<b>1.75</b>	---	---	---	---	---	<b>2,310</b>	<b>1,040</b>	---	---	<b>644</b>	<b>80.3</b>	
	<b>19-Jun-08</b>	---	---	---	---	---	---	---	---	---	---	---	---	---	<b>107</b>
	<b>26-Jun-08</b>	<b>&lt;0.2</b>	<b>5.24</b>	---	<b>25.95</b>	<b>ND</b>	<b>5.33</b>	<b>6.04</b>	<b>718</b>	<b>&lt;500</b>	<b>1,050</b>	<b>1,200</b>	<b>658</b>	<b>28.2</b>	
<b>01-Jul-08</b>	---	---	---	---	---	---	---	---	---	---	---	---	---	<b>12.3</b>	

**Table 3**  
**Summary of Primary Analytical Parameters**

PG&E Topock  
Needles, California

July 2008 Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test

Location Name	Sample Date	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	3,190	3,380	4,020	---	---	25.8	<0.1	3,720	<500	68.7	73.6	1,200	1.63	
	25-Jan-08	4,240	4,310	---	---	---	32.8	<0.1	6,920	<1,000	<1,000	29.4	1,280	6.35	
	06-Mar-08	4,960	5,120	---	4,118	ND	29.1	<0.2	<500	<2,500	<2,500	<10	1,220	675	
	11-Mar-08	5,120	5,150	---	0	0.16	29.6	<0.2	<500	<500	<500	<10	1,280	1,060	
	20-Mar-08	3,170	3,160	---	2,228	96,400.00	<250	<50	<500	<2,500	---	55.1	514	83,000	
	27-Mar-08	1,800	1,720	---	1,403	39,000.00	<500	<100	<500	<2,500	<2,500	131	<500	117,000	
	01-Apr-08	4,190	4,370	---	848	81.80	---	---	<500	<2,500	---	---	1,190	3,090	
	15-Apr-08	2,030	2,080	---	20	39.00	---	---	<500	<2,500	---	---	762	31,900	
	28-Apr-08	---	---	---	---	---	---	---	---	---	---	---	---	---	220,000
	29-Apr-08	4,900	4,870	---	3.49	21.40	26.9	<0.2	<500	<500	<500	95.3	1,250	206,000	
	15-May-08	4,790	4,840	---	0.86	8.88	---	---	<500	<500	---	---	1,240	8.38	
	28-May-08	3,870	3,920	---	0.33	16.98	10.7	<1	<500	<500	<500	183	1,010	25,200	
	<b>10-Jun-08</b>	<b>4,350</b>	<b>4,970</b>	---	<b>0.36</b>	<b>8.58</b>	---	---	<b>&lt;500</b>	<b>&lt;500</b>	---	---	<b>1,200</b>	<b>201</b>	
	<b>19-Jun-08</b>	---	---	---	---	---	---	---	---	---	---	---	---	---	<b>39</b>
	<b>26-Jun-08</b>	<b>4,570</b>	<b>4,240</b>	---	<b>1.06</b>	<b>1.54</b>	<b>26.1</b>	<b>&lt;2.5</b>	<b>&lt;500</b>	<b>&lt;500</b>	<b>&lt;500</b>	<b>31.2</b>	<b>1,160</b>	<b>&lt;20</b>	
	<b>01-Jul-08</b>	---	---	---	---	---	---	---	---	---	---	---	---	---	<b>&lt;10</b>
Equipment Balns	17-Jul-07	<0.2	<1	<1	---	---	<0.5	<0.1	<500	<500	<5	<10	<0.5	<1	
	22-Jan-08	<0.2	<1	---	---	---	<0.5	<0.1	<500	<500	<500	<10	<0.5	<1	
	05-Mar-08	<0.2	1.70	---	ND	ND	<0.5	<0.1	<500	<500	<500	<10	0.63	<1	
	11-Mar-08	<0.2	<1	---	ND	ND	<0.5	<0.1	<500	<500	<500	<10	0.69	<1	
	18-Mar-08	<1	<1	---	ND	ND	<0.5	<0.1	<500	<500	---	<10	<0.5	<1	
	25-Mar-08	<42	3.31	---	0.02	ND	<0.5	<0.1	<500	<500	<500	<10	<0.5	<1	
	03-Apr-08	<0.2	<1	---	ND	ND	---	---	<500	<500	---	<10	<0.5	<1	
	15-Apr-08	<0.2	<1	---	ND	ND	---	---	<500	<500	---	---	<0.5	1.40	
	28-Apr-08	<0.2	<1	---	ND	ND	<0.5	<0.1	<500	<500	<500	<10	<0.5	<1	
	13-May-08	<0.2	<1	---	ND	ND	---	---	<500	<500	---	---	<0.5	<1	
	28-May-08	<0.2	<1	---	ND	ND	<0.5	<0.5	<500	<500	<500	<10	<0.5	<1	
	10-Jun-08	<0.2	<1	---	---	---	---	---	<500	<500	---	---	<0.5	<1	
	24-Jun-08	<0.2	<1	---	ND	ND	<0.5	<0.5	<500	<500	<500	<10	<0.5	<1	
	01-Jul-08	---	---	---	---	---	---	---	---	---	---	---	---	<1	

**Table 3**  
**Summary of Primary Analytical Parameters**

PG&E Topock  
 Needles, California

July 2008 Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test

Location Name	Sample Date	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	<0.2	<1	<1	---	---	<0.5	<0.1	<500	<500	<5	<10	<0.5	<1
	22-Jan-08	<0.2	<1	---	---	---	<0.5	<0.1	<500	<500	<500	<10	36.4	<1
	05-Mar-08	<0.2	<1	---	ND	ND	<0.5	<0.1	<500	<500	<500	<10	0.63	<1
	11-Mar-08	<0.2	1.15	---	ND	ND	<0.5	<0.1	<500	<500	<500	<10	<0.5	<1
	18-Mar-08	<0.2	<1	---	ND	ND	<0.5	<0.1	<500	<500	---	<10	<0.5	<1
	25-Mar-08	<0.2	<1	---	0.02	ND	<0.5	<0.1	<500	<500	<500	<10	<0.5	<1
	03-Apr-08	<0.2	<1	---	0.03	ND	---	---	<500	<500	---	<10	<0.5	<1
	15-Apr-08	<0.2	<1	---	ND	ND	---	---	<500	<500	---	---	<0.5	<1
	28-Apr-08	<0.2	<1	---	ND	ND	<0.5	<0.1	<500	<500	<500	<10	<0.5	<1
	13-May-08	<0.2	<1	---	ND	ND	---	---	<500	<500	---	---	<0.5	<1
	28-May-08	<0.2	---	---	ND	ND	<0.5	<0.5	<500	<500	<500	<10	<0.5	<1
	10-Jun-08	---	<1	---	---	---	---	---	<500	<500	---	---	<0.5	<1
	24-Jun-08	<0.2	<1	1	ND	ND	<0.5	<0.5	<500	<500	<500	<10	<0.5	<1
	01-Jul-08	---	---	---	---	---	---	---	---	---	---	---	---	<1

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 ground
- mg/L per liter
- µg/L per liter
- < Symbol indicates not detected at or above laboratory detection limit as noted
- N Normal
- ND Non-detect
- EB blank
- FB Field blank
- FD duplicate
- Nitrate-N Nitrate as N
- Nitrite-N Nitrite as N
- analyzed/Not
- \* 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

July 2008 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		N	159,000	---	<5	9.65	14,500	999,000	125	<5	1,250	<0.5	<2	
	23-Jan-08		N	259,000	42,400	<25	---	13,600	942,000	135	---	1,060	<0.5	<2	
	06-Mar-08		N	147,000	30,000	<5	---	12,300	931,000	153	---	1,170	<0.5	<2	
	13-Mar-08		N	141,000	28,100	<25	---	11,900	844,000	153	---	1,110	<0.5	<2	
	18-Mar-08		N	179,000	30,100	---	---	12,900	885,000	160	<5	1,230	<0.5	<2	
	25-Mar-08		N	160,000	30,600	<25	---	12,900	903,000	153	---	1,240	<0.5	<2	
	02-Apr-08		N	163,000	34,900	---	---	13,400	982,000	135	<5	---	---	<2	
	17-Apr-08		N	172,000	35,400	---	---	13,900	1,010,000	140	<5	---	---	<2	
	29-Apr-08	**	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	<b>170,000</b>	<b>37,000</b>	---	---	<b>13,600</b>	<b>1,110,000</b>	<b>128</b>	<b>&lt;5</b>	---	---	<b>&lt;2</b>	
	24-Jun-08		N	<b>139,000</b>	<b>27,100</b>	<b>&lt;5</b>	---	<b>12,100</b>	<b>872,000</b>	<b>158</b>	---	<b>1,150</b>	<b>&lt;0.5</b>	<b>&lt;2</b>	
	PT-7M	19-Jul-07		N	419,000	---	<5	7.01	23,900	1,350,000	97.5	<5	1,920	<0.5	<2
		24-Jan-08		N	434,000	58,100	<10	---	24,600	1,460,000	80.0	---	2,180	<0.5	<2
06-Mar-08			N	236,000	32,200	10.1	---	19,200	1,170,000	138	---	1,520	<0.5	<2	
06-Mar-08			FD	236,000	32,500	10.8	---	19,200	1,170,000	145	<5	1,490	<0.5	<2	
13-Mar-08			N	275,000	37,500	53.0	---	18,600	1,150,000	360	---	1,530	<0.5	<2	
18-Mar-08			N	273,000	37,900	---	---	17,300	1,140,000	650	<5	1,570	<0.5	8.0	
25-Mar-08			N	333,000	42,400	<25	---	18,000	1,170,000	920	---	1,560	<2.5	<2	
02-Apr-08			N	340,000	47,500	---	---	17,200	1,210,000	1,010	<5	---	---	8.0	
17-Apr-08			N	457,000	59,500	---	---	19,500	1,310,000	1,380	<5	---	---	<2	
29-Apr-08		**	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			N	<b>769,000</b>	<b>87,900</b>	---	---	<b>20,800</b>	<b>1,220,000</b>	<b>1,400</b>	<b>&lt;5</b>	---	---	<b>&lt;2</b>	
19-Jun-08			N	---	---	---	---	---	---	---	---	---	---	---	
25-Jun-08			N	<b>874,000</b>	<b>81,100</b>	<b>35.4</b>	---	<b>20,800</b>	<b>1,110,000</b>	<b>1,800</b>	---	<b>1,110</b>	<b>&lt;2.5</b>	<b>&lt;2</b>	
01-Jul-08			N	---	---	---	---	---	---	---	---	---	---	---	
08-Jul-08			N	---	---	---	---	---	---	---	---	---	---	---	
15-Jul-08		N	---	---	---	---	---	---	---	---	---	---	---		
PT-7D	18-Jul-07		N	321,000	---	8.0	8.12	38,600	3,630,000	52.5	<5	5,490	<0.5	<2	
	24-Jan-08		N	339,000	9,350	<10	---	39,100	3,890,000	47.5	---	5,540	<1	<2	
	06-Mar-08		N	153,000	4,530	18.8	---	25,200	2,660,000	85.0	---	3,480	<0.5	<2	
	13-Mar-08		N	141,000	<5,000	<25	---	23,400	2,460,000	150	---	3,540	<0.5	<2	
	18-Mar-08		N	174,000	5,650	---	---	24,100	2,620,000	280	<5	3,690	<1	10.4	
	25-Mar-08		N	217,000	6,970	97.4	---	25,400	2,940,000	360	---	3,980	<1	17.6	
	02-Apr-08		N	210,000	7,980	---	---	25,500	3,030,000	340	<5	---	---	6.8	
	17-Apr-08		N	178,000	5,700	---	---	19,800	2,340,000	840	<5	---	---	20.8	
	29-Apr-08		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		N	<b>286,000</b>	<b>7,090</b>	---	---	<b>19,300</b>	<b>2,170,000</b>	<b>1,330</b>	<b>&lt;5</b>	---	---	<b>&lt;2</b>	
	19-Jun-08		N	---	---	---	---	---	---	---	---	---	---	---	
	24-Jun-08		N	<b>257,000</b>	<b>6,700</b>	<b>17.5</b>	---	<b>21,400</b>	<b>2,110,000</b>	<b>1,370</b>	---	<b>2,030</b>	<b>&lt;10</b>	<b>5.6</b>	
	01-Jul-08		N	---	---	---	---	---	---	---	---	---	---	---	
	08-Jul-08		N	---	---	---	---	---	---	---	---	---	---	---	
	15-Jul-08		N	---	---	---	---	---	---	---	---	---	---	---	

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

July 2008 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-8S	16-Jul-07		N	132,000	---	<5	5.13	12,500	955,000	125	<5	1,190	<0.5	<2
	23-Jan-08		N	141,000	30,000	<25	---	12,600	1,040,000	128	---	1,220	<0.5	2.0
	05-Mar-08		N	120,000	26,000	<5	---	11,400	1,060,000	158	---	1,100	<0.5	<2
	13-Mar-08		N	114,000	23,900	<25	---	11,100	934,000	215	---	1,110	<0.5	<2
	18-Mar-08		N	97,500	21,500	---	---	10,600	894,000	225	<5	1,010	<0.5	<2
	25-Mar-08		N	101,000	21,300	<25	---	10,600	876,000	230	---	1,070	<0.5	<2
	02-Apr-08		N	110,000	25,200	---	---	11,400	965,000	200	<5	---	---	<2
	16-Apr-08		N	125,000	26,700	---	---	11,700	1,010,000	205	<5	---	---	<2
	29-Apr-08		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		N	<b>402,000</b>	<b>72,100</b>	---	---	<b>15,600</b>	<b>1,840,000</b>	<b>950</b>	<b>&lt;5</b>	---	---	<b>&lt;2</b>
	19-Jun-08		N	---	---	---	---	---	---	---	---	---	---	---
	25-Jun-08		N	<b>502,000</b>	<b>77,100</b>	<b>18.6</b>	---	<b>17,400</b>	<b>1,940,000</b>	<b>1,370</b>	---	<b>2,440</b>	<b>&lt;1</b>	<b>&lt;2</b>
	01-Jul-08		N	---	---	---	---	---	---	---	---	---	---	---
	08-Jul-08		N	---	---	---	---	---	---	---	---	---	---	---
	15-Jul-08		N	---	---	---	---	---	---	---	---	---	---	---
PT-8M	18-Jul-07		N	353,000	---	<5	1.53	22,200	1,130,000	103	<5	1,510	<2.5	<2
	23-Jan-08		N	403,000	41,800	<25	---	24,100	1,230,000	100	---	1,700	<0.5	4.0
	05-Mar-08		N	422,000	42,200	<5	---	24,000	1,350,000	108	---	1,650	<0.5	<2
	13-Mar-08		N	364,000	44,100	<25	---	22,300	1,130,000	120	---	1,400	<0.5	<2
	19-Mar-08		N	362,000	43,000	---	---	22,400	1,120,000	123	<5	1,400	<0.5	<2
	25-Mar-08		N	376,000	41,500	<25	---	22,200	1,110,000	130	---	1,570	<0.5	4.0
	02-Apr-08		N	367,000	45,400	---	---	22,900	1,160,000	130	<5	---	---	<2
	16-Apr-08		N	392,000	45,100	---	---	23,200	1,190,000	125	<5	---	---	<2
	29-Apr-08		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		N	321,000	6,750	7.0	---	34,000	3,200,000	50	---	4,820	<1	<2
	11-Jun-08	---	N	<b>381,000</b>	<b>48,900</b>	---	---	<b>21,400</b>	<b>1,160,000</b>	<b>110</b>	<b>&lt;5</b>	---	---	<b>&lt;2</b>
	19-Jun-08	---	N	---	---	---	---	---	---	---	---	---	---	---
	25-Jun-08		N	<b>362,000</b>	<b>42,600</b>	<b>&lt;5</b>	---	<b>21,200</b>	<b>104,000</b>	<b>113</b>	---	<b>1,360</b>	<b>&lt;0.5</b>	<b>&lt;2</b>
	01-Jul-08		N	---	---	---	---	---	---	---	---	---	---	---

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

July 2008 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-8D	16-Jul-07		N	281,000	---	7.1	9.00	35,100	3,300,000	45.0	<5	5,360	<0.5	<2
	23-Jan-08		N	325,000	11,800	<50	---	35,200	3,420,000	50.0	---	5,190	<1	<2
	05-Mar-08		N	322,000	10,000	<25	---	37,700	3,850,000	50.0	---	5,240	<0.5	<2
	13-Mar-08		N	284,000	9,560	<25	---	32,900	3,340,000	55.0	---	5,090	<2.5	<2
	18-Mar-08		N	292,000	9,470	---	---	33,900	3,480,000	48.0	<5	5,480	<2.5	<2
	25-Mar-08		N	306,000	10,200	<25	---	34,300	3,550,000	50.0	---	5,010	<0.5	<2
	02-Apr-08		N	298,000	10,700	---	---	33,800	3,550,000	52.5	<5	---	---	<2
	16-Apr-08		N	312,000	9,020	---	---	36,000	3,840,000	50.0	<5	---	---	<2
	29-Apr-08		N	292,000	9,830	7.7	---	33,500	3,290,000	60.0	<5	---	<1	<2
	14-May-08		N	281,000	13,300	---	---	32,000	2,820,000	87.5	<5	---	---	<2
	28-May-08		N	267,000	9,020	6.8	---	32,100	3,050,000	57.5	---	4,530	<1	<2
	11-Jun-08	---	N	<b>288,000</b>	<b>11,100</b>	---	---	<b>32,200</b>	<b>3,390,000</b>	<b>55.0</b>	<b>&lt;5</b>	---	---	<b>&lt;2</b>
	19-Jun-08	---	N	---	---	---	---	---	---	---	---	---	---	---
	25-Jun-08		N	<b>280,000</b>	<b>12,100</b>	<b>11.6</b>	---	<b>30,600</b>	<b>2,960,000</b>	<b>143</b>	---	<b>4,200</b>	<b>&lt;0.5</b>	<b>&lt;2</b>
	01-Jul-08		N	---	---	---	---	---	---	---	---	---	---	---
	08-Jul-08		N	---	---	---	---	---	---	---	---	---	---	---
	15-Jul-08		N	---	---	---	---	---	---	---	---	---	---	---
PT-9S	17-Jul-07		N	108,000	---	<5	5.36	11,800	820,000	155	<5	895	<0.5	<2
	22-Jan-08		N	107,000	21,100	5.6	---	9,140	848,000	205	---	924	<0.5	<2
	05-Mar-08		N	120,000	24,500	5.2	---	9,990	962,000	168	---	977	<0.5	<2
	12-Mar-08		N	87,500	17,800	5.5	---	8,270	836,000	190	---	916	<0.5	<2
	19-Mar-08		N	115,000	23,100	---	---	9,930	884,000	163	<5	889	<0.5	<2
	26-Mar-08		N	116,000	23,000	<25	---	9,370	843,000	175	---	977	<0.5	<2
	02-Apr-08		N	118,000	25,100	---	---	9,570	871,000	178	<5	---	---	<2
	16-Apr-08		N	126,000	25,100	---	---	9,980	891,000	170	<5	---	---	<2
	29-Apr-08		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		N	111,000	22,000	<5	---	9,420	825,000	158	---	917	<0.5	<2
	11-Jun-08		N	<b>107,000</b>	<b>23,500</b>	---	---	<b>9,150</b>	<b>867,000</b>	<b>160</b>	<b>&lt;5</b>	---	---	<b>&lt;2</b>
	25-Jun-08		N	<b>102,000</b>	<b>20,000</b>	<b>&lt;5</b>	---	<b>8,910</b>	<b>820,000</b>	<b>163</b>	---	<b>908</b>	<b>&lt;0.5</b>	<b>&lt;2</b>
	PT-9M	17-Jul-07		N	485,000	---	<5	1.40	30,200	1,030,000	97.5	<5	1,400	<0.5
17-Jul-07			FD	476,000	---	<5	1.42	29,800	1,020,000	100	<5	1,400	<0.5	<2
22-Jan-08			N	525,000	22,700	<5	---	29,800	1,140,000	97.5	---	1,640	<0.5	<2
05-Mar-08			N	553,000	25,100	<5	---	32,100	1,220,000	100	---	1,650	<0.5	<2
12-Mar-08			N	483,000	22,800	<5	---	30,700	1,140,000	113	---	1,520	<0.5	<2
19-Mar-08			N	517,000	26,400	---	---	32,100	1,190,000	97.5	<5	1,510	<0.5	<2
26-Mar-08			N	526,000	26,200	<25	---	31,900	1,160,000	100	---	1,610	<0.5	<2
26-Mar-08			Fd	543,000	26,400	<25	---	33,200	1,190,000	103	---	1,600	<0.5	<2
02-Apr-08			N	513,000	27,700	---	---	31,800	1,150,000	105	<5	---	---	<2
16-Apr-08			N	556,000	28,000	---	---	32,900	1,220,000	105	<5	---	---	<2
29-Apr-08			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			N	479,000	22,800	<5	---	29,800	1,070,000	108	---	1,530	<0.5	<2
11-Jun-08			N	<b>492,000</b>	<b>25,900</b>	---	---	<b>31,200</b>	<b>1,150,000</b>	<b>97.5</b>	<b>&lt;5</b>	---	---	<b>&lt;2</b>
25-Jun-08		N	<b>452,000</b>	<b>21,800</b>	<b>&lt;5</b>	---	<b>29,900</b>	<b>1,090,000</b>	<b>103</b>	---	<b>1,380</b>	<b>&lt;1</b>	<b>&lt;2</b>	

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

July 2008 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-9D	17-Jul-07		N	368,000	---	6.3	6.11	34,200	2,840,000	52.5	<5	4,350	<1	<2
	22-Jan-08		N	399,000	8,380	<50	---	35,500	3,230,000	50.0	---	4,790	<1	<2
	22-Jan-08		FD	404,000	9,160	<50	---	35,400	3,260,000	55.0	---	4,940	<1	<2
	05-Mar-08		N	438,000	9,240	<25	---	37,000	3,540,000	41.0	---	4,890	<0.5	<2
	12-Mar-08		N	407,000	10,100	<25	---	35,000	3,210,000	52.5	---	4,920	<2.5	<2
	19-Mar-08		N	432,000	10,400	---	---	36,800	3,320,000	42.0	<5	4,650	<1	<2
	26-Mar-08		N	436,000	10,100	<25	---	36,700	3,300,000	52.5	---	4,810	<1	12.0
	02-Apr-08		N	419,000	10,400	---	---	36,000	3,320,000	50.0	<5	---	---	<2
	16-Apr-08		N	445,000	10,300	---	---	36,600	3,440,000	55.0	<5	---	---	<2
	29-Apr-08		N	431,000	11,900	7.3	---	35,500	2,940,000	57.5	<5	---	<5	<2
	14-May-08	a	N	408,000	12,400	---	---	35,800	2,750,000	65.0	<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		N	<b>460,000</b>	<b>12,800</b>	---	---	<b>37,300</b>	<b>3,270,000</b>	<b>47.5</b>	<b>&lt;5</b>	---	---	<2
	25-Jun-08		N	<b>439,000</b>	<b>12,500</b>	<b>7.4</b>	---	<b>35,000</b>	<b>2,830,000</b>	<b>52.5</b>	---	<b>4,050</b>	<b>&lt;1</b>	<b>&lt;2</b>
	MW-11	17-Jul-07		N	125,000	---	<5	1.54	8,330	280,000	87.5	<5	470	<0.5
24-Jan-08			N	122,000	16,100	<5	---	8,160	280,000	103	<5	442	<0.5	<2
04-Mar-08			N	123,000	17,700	<5	---	8,300	302,000	92.5	---	434	<0.5	<2
11-Mar-08			N	116,000	16,100	<5	---	7,990	278,000	110	---	439	<0.5	<2
11-Mar-08			FD	120,000	16,700	<5	---	8,160	296,000	105	---	453	<0.5	<2
19-Mar-08			N	125,000	17,400	---	---	8,800	302,000	103	<5	427	<0.5	<2
27-Mar-08			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	---	466	<0.5	<2
10-Jun-08			N	<b>119,000</b>	<b>17,600</b>	---	---	<b>8,230</b>	<b>282,000</b>	<b>90</b>	<b>&lt;5</b>	---	---	<2
24-Jun-08			N	<b>120,000</b>	<b>16,700</b>	<b>&lt;5</b>	---	<b>8,560</b>	<b>284,000</b>	<b>90</b>	---	<b>477</b>	<b>&lt;0.5</b>	<b>&lt;2</b>
MW-24A		18-Jul-07		N	42,000	---	5.4	5.58	5,610	565,000	310	<5	410	<0.5
	24-Jan-08		N	46,300	8,660	5.1	---	5,860	585,000	365	---	452	<0.5	<2
	06-Mar-08		N	367,000	46,000	8.0	---	19,900	1,840,000	118	---	2,450	<5	<2
	12-Mar-08		N	387,000	39,900	<25	---	22,700	1,680,000	198	---	2,680	<10	<2
	19-Mar-08		N	407,000	46,200	---	---	21,200	1,710,000	423	<5	2,370	<2.5	<2
	26-Mar-08		N	491,000	50,500	82.8	---	18,900	1,690,000	970	---	2,380	<5	4.8
	01-Apr-08		N	423,000	47,700	---	---	18,100	1,620,000	1,020	<5	---	---	<2
	17-Apr-08		N	517,000	43,400	---	---	23,100	2,030,000	1,110	<5	---	---	10.4
	30-Apr-08		N	432,000	37,200	72.2	---	24,700	1,860,000	590	<5	---	<5	<2
	30-Apr-08		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	---	N	<b>521,000</b>	<b>45,900</b>	---	---	<b>25,300</b>	<b>1,960,000</b>	<b>970</b>	<b>&lt;5</b>	---	---	<b>4.0</b>
	19-Jun-08	---	N	---	---	---	---	---	---	---	---	---	---	---
26-Jun-08		N	<b>398,000</b>	<b>29,700</b>	<b>23.7</b>	---	<b>23,700</b>	<b>192,000</b>	<b>153</b>	---	<b>2,780</b>	<b>&lt;0.5</b>	<b>&lt;2</b>	
01-Jul-08		N	---	---	---	---	---	---	---	---	---	---	---	

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 PG&E Topock  
 Needles, California

July 2008 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-24B	18-Jul-07		N	329,000	---	7.1	7.08	34,500	3,270,000	50.0	<5	4,820	<0.5	<2	
	24-Jan-08		N	341,000	8,050	<10	---	36,400	3,470,000	50.0	---	5,270	<1	2.0	
	06-Mar-08		N	338,000	7,970	8.8	---	37,200	3,430,000	42.0	---	5,160	<1	<2	
	12-Mar-08		N	332,000	7,610	<25	---	34,800	3,290,000	52.5	---	5,870	<1	<2	
	19-Mar-08		N	351,000	8,410	---	---	37,100	3,650,000	44.0	<5	5,120	<0.5	<2	
	26-Mar-08		N	358,000	8,240	<25	---	37,200	3,580,000	42.0	---	5,150	<0.5	<2	
	03-Apr-08		N	345,000	8,130	---	---	36,200	3,470,000	44.0	<5	---	---	3.2	
	17-Apr-08		N	345,000	8,280	---	---	36,700	3,530,000	50.0	<5	---	---	<2	
	30-Apr-08		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	55.0	<5	---	---	<2	
	28-May-08		N	360,000	38,900	<5	---	20,800	1,050,000	118.0	---	1,420	<1	<2	
	<b>12-Jun-08</b>		<b>N</b>	<b>336,000</b>	<b>7,570</b>	---	---	<b>34,800</b>	<b>3,340,000</b>	<b>45.0</b>	<b>&lt;5</b>	---	---	<b>&lt;2</b>	
	<b>26-Jun-08</b>		<b>N</b>	<b>326,000</b>	<b>6,960</b>	<b>8.3</b>	---	<b>35,400</b>	<b>3,300,000</b>	<b>46.3</b>	---	<b>4,950</b>	<b>&lt;1</b>	<b>&lt;2</b>	
	MW-38S	17-Jul-07		N	84,200	---	<5	6.10	8,710	627,000	175	<5	680	<0.5	<2
		23-Jan-08		N	63,900	12,200	<5	---	7,400	546,000	175	---	546	<0.5	<2
		04-Mar-08		N	67,600	13,300	<5	---	7,910	607,000	185	---	534	<0.5	<2
11-Mar-08			N	66,100	13,300	<5	---	7,920	586,000	175	---	571	<0.5	<2	
20-Mar-08			N	70,900	13,400	---	---	8,190	593,000	200	200	---	<0.5	<2	
26-Mar-08			N	71,000	13,500	<25	---	8,160	583,000	183	---	583	<0.5	<2	
01-Apr-08			N	60,500	11,600	---	---	7,010	57,500	290	<5	---	---	<2	
15-Apr-08			N	67,100	13,000	---	---	7,710	590,000	190	<5	---	---	<2	
28-Apr-08			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	
<b>10-Jun-08</b>			<b>N</b>	<b>63,000</b>	<b>12,400</b>	---	---	<b>7,670</b>	<b>620,000</b>	<b>180</b>	<b>&lt;5</b>	---	---	<b>&lt;2</b>	
<b>24-Jun-08</b>			<b>N</b>	<b>65,700</b>	<b>12,200</b>	<b>&lt;5</b>	---	<b>7,690</b>	<b>570,000</b>	<b>185</b>	---	<b>533</b>	<b>&lt;0.5</b>	<b>&lt;2</b>	
MW-38D		17-Jul-07		N	352,000	---	7.9	7.49	45,600	4,710,000	35.0	<5	7,240	<0.5	<2
		23-Jan-08		N	353,000	<20,000	<100	---	43,100	4,560,000	40.0	---	7,690	<2.5	<2
		04-Mar-08		N	343,000	7,150	8.6	---	44,500	5,070,000	31.0	---	7,390	<0.5	<2
	11-Mar-08		N	363,000	7,580	<25	---	47,000	4,970,000	32.0	---	7,710	<0.5	<2	
	20-Mar-08		N	361,000	7,720	---	---	44,900	5,020,000	32.0	32	---	<2.5	<2	
	20-Mar-08		FD	359,000	7,720	---	---	45,100	4,920,000	33.0	33	---	<2.5	<2	
	26-Mar-08		N	362,000	7,580	<25	---	44,700	4,940,000	31.0	---	7,830	<1	<2	
	01-Apr-08		N	353,000	7,040	---	---	46,100	4,870,000	31.0	<5	---	---	<2	
	01-Apr-08		Fd	335,000	6,680	---	---	44,000	4,900,000	32.0	<5	---	---	<2	
	15-Apr-08		N	38,500	7,440	---	---	45,200	5,010,000	31.0	<5	---	---	<2	
	15-Apr-08		FD	405,000	7,500	---	---	46,300	5,330,000	32.0	<5	---	---	<2	
	28-Apr-08		N	346,000	7,700	<25	---	43,700	4,740,000	32.0	<5	---	<0.5	<2	
	13-May-08		N	360,000	7,020	---	---	46,400	4,690,000	36.0	<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	
	<b>10-Jun-08</b>		<b>N</b>	<b>352,000</b>	<b>6,960</b>	---	---	<b>44,900</b>	<b>4,860,000</b>	---	---	---	---	<b>&lt;2</b>	
	<b>24-Jun-08</b>		<b>N</b>	<b>377,000</b>	<b>6,610</b>	<b>9.0</b>	---	<b>45,200</b>	<b>5,000,000</b>	<b>32.5</b>	---	<b>7,420</b>	<b>&lt;0.5</b>	<b>&lt;2</b>	

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 Needles, California

July 2008 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		N	254,000	---	<5	1.94	21,500	1,500,000	97.5	<5	1,940	<0.5	<2	
	25-Jan-08		N	206,000	37,500	<5	---	16,400	1,190,000	123	---	1,610	<0.5	<2	
	06-Mar-08		N	171,000	36,500	<25	---	12,800	882,000	208	---	1,360	<500	<2	
	11-Mar-08		N	166,000	36,100	<25	---	13,000	872,000	158	---	1,190	<5	<2	
	20-Mar-08		N	155,000	32,800	---	---	11,500	758,000	203	203	---	<50	<2	
	27-Mar-08		N	112,000	21,600	<25	---	6,680	461,000	185	---	608	<20	3.2	
	01-Apr-08		N	254,000	47,500	---	---	15,600	1,050,000	600	<5	---	---	<2	
	16-Apr-08		N	175,000	40,900	---	---	12,500	833,000	138	<5	---	---	<2	
	29-Apr-08		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	---	<b>N</b>	<b>171,000</b>	<b>38,900</b>	---	---	<b>14,200</b>	<b>965,000</b>	<b>148</b>	<b>&lt;5</b>	---	---	<b>&lt;2</b>	
	19-Jun-08	---	<b>N</b>	---	---	---	---	---	---	---	---	---	---	---	
	26-Jun-08	---	<b>N</b>	<b>173,000</b>	<b>36,100</b>	<b>7.5</b>	---	<b>13,600</b>	<b>942,000</b>	<b>150</b>	---	<b>1,290</b>	<b>&lt;0.5</b>	<b>&lt;2</b>	
	01-Jul-08	---	<b>N</b>	---	---	---	---	---	---	---	---	---	---	---	
	PTR-2	18-Jul-07		N	335,000	---	<5	1.99	23,200	1,610,000	92.5	<5	2,200	<0.5	<2
		25-Jan-08		N	427,000	34,400	<10	---	25,000	1,450,000	103	---	2,060	<0.5	2.0
06-Mar-08			N	407,000	29,200	<25	---	26,800	1,780,000	92.5	---	2,460	<1	<2	
11-Mar-08			N	393,000	27,200	<5	---	26,300	1,770,000	92.5	---	2,470	<0.5	<2	
20-Mar-08			N	151,000	18,000	---	---	17,300	1,220,000	148	148	---	<250	<2	
27-Mar-08			N	88,500	13,000	<25	---	11,100	830,000	120	---	1,090	<500	<2	
01-Apr-08			N	404,000	28,900	---	---	28,500	2,120,000	145	<5	---	---	<2	
15-Apr-08			N	241,000	23,900	---	---	13,900	919,000	143	<5	---	---	<2	
29-Apr-08			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			N	302,000	19,700	7.7	---	22,800	1,730,000	82.5	---	2,620	<1	<2	
10-Jun-08			<b>N</b>	<b>397,000</b>	<b>25,200</b>	---	---	<b>26,200</b>	<b>203,000</b>	<b>95.0</b>	<b>&lt;5</b>	---	---	<b>&lt;2</b>	
19-Jun-08			<b>N</b>	---	---	---	---	---	---	---	---	---	---	---	
26-Jun-08			<b>N</b>	<b>397,000</b>	<b>24,000</b>	<b>&lt;5</b>	---	<b>26,700</b>	<b>1,910,000</b>	<b>82.5</b>	---	<b>2,650</b>	<b>&lt;1</b>	<b>&lt;2</b>	
01-Jul-08			<b>N</b>	---	---	---	---	---	---	---	---	---	---	---	
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		N	<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	
	01-Jul-08		---	---	---	---	---	---	---	---	---	---	---	---	

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

July 2008 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)
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		N	<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	<1000	<1,000	---	---	<1,000	<1,000	<5	<5	---	---	<2
	24-Jun-08		FB	<1000	<1000	<5	---	<1000	<1000	<5	---	1.15	<0.5	<2
	01-Jul-08		---	---	---	---	---	---	---	---	---	---	---	---

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.
- \*\* Sample IDs were transcribed in the field. Data here are presented with the appropriate ID.

**Table 5**  
**Summary of Monitoring Information**

PG&E Topock  
Needles, California

July 2008 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	
PT-7S	PT-07S-080611	Gary Clift	6/11/2008	11:30	EMXT	E200.7	Iron-Total	6/19/2008	Mary Jane Mendoza	
					EMXT	E200.8	Calcium	6/19/2008	Christopher Capulong	
					EMXT	E200.8	Chromium	6/19/2008	Christopher Capulong	
					EMXT	E200.8	Iron-Dissolved	6/19/2008	Christopher Capulong	
					EMXT	E200.8	Magnesium	6/18/2008	Christopher Capulong	
					EMXT	E200.8	Potassium	6/19/2008	Christopher Capulong	
					EMXT	E200.8	Sodium	6/18/2008	Christopher Capulong	
					Truesdail	E218.6	Chromium, hexavalent	6/12/2008	Jean-Paul Gleeson	
					EMXT	E300.0	Sulfate	6/13/2008	Ha Le	
					EMXT	E310.1	Alkalinity bicarbonate	6/17/2008	Romy Marasigan	
					EMXT	E310.1	Alkalinity carbonate	6/17/2008	Romy Marasigan	
					EMXT	E376.1	Sulfide	6/17/2008	Romy Marasigan	
					EMXT	E415.1	Total Organic Carbon	6/14/2008	Kenny Siu	
						IM-3	Chromium, hexavalent-Field			
						Ozark	OHM In-House Method	Fluorescein	6/24/2008	Margaret Ridinger
						Ozark	OHM In-House Method	Rhodamine WT (RWT)	6/24/2008	Margaret Ridinger
					PT-7S	PT-07S-080624	Mike Gallagher	6/24/2008	15:00	EMXT
EMXT	E200.7	Manganese	7/2/2008	Mary Jane Mendoza						
EMXT	E200.8	Arsenic	7/2/2008	Christopher Capulong						
EMXT	E200.8	Calcium	7/2/2008	Christopher Capulong						
EMXT	E200.8	Chromium	7/2/2008	Christopher Capulong						
EMXT	E200.8	Iron	7/2/2008	Christopher Capulong						
EMXT	E200.8	Magnesium	7/2/2008	Christopher Capulong						
EMXT	E200.8	Manganese	7/2/2008	Christopher Capulong						
EMXT	E200.8	Potassium	7/2/2008	Christopher Capulong						
EMXT	E200.8	Sodium	7/2/2008	Christopher Capulong						
Truesdail	E218.6	Chromium, hexavalent	6/25/2008							
EMXT	E300.0	Chloride-cl	6/27/2008	Yelena Pustilnikova						
EMXT	E300.0	Nitrate-n	6/25/2008	Yelena Pustilnikova						
EMXT	E300.0	Nitrite-n	6/25/2008	Yelena Pustilnikova						
EMXT	E300.0	Orthophosphate-p	6/25/2008	Yelena Pustilnikova						
EMXT	E300.0	Sulfate	6/27/2008	Yelena Pustilnikova						
EMXT	E310.1	Alkalinity bicarbonate	6/30/2008	Romy Marasigan						
EMXT	E376.1	Sulfide	6/30/2008	Romy Marasigan						
EMXT	E415.1	Total Organic Carbon	6/26/2008	Kenny Siu						
	IM-3	Chromium, hexavalent-Field								
	Ozark	OHM In-House Method	Fluorescein	7/7/2008						Margaret Ridinger
	Ozark	OHM In-House Method	Rhodamine WT (RWT)	7/7/2008						Margaret Ridinger

**Table 5  
Summary of Monitoring Information**

PG&E Topock  
Needles, California

July 2008 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	
PT-7M	PT-07M-080611	Gary Clift	6/11/2008	13:00	EMXT	E200.7	Iron-Total	6/19/2008	Mary Jane Mendoza	
						E200.8	Calcium	6/18/2008	Christopher Capulong	
						E200.8	Chromium	6/19/2008	Christopher Capulong	
						E200.8	Iron-Dissolved	6/19/2008	Christopher Capulong	
						E200.8	Magnesium	6/18/2008	Christopher Capulong	
						E200.8	Potassium	6/19/2008	Christopher Capulong	
						E200.8	Sodium	6/18/2008	Christopher Capulong	
						Truesdail	E218.6	Chromium, hexavalent	6/11/2008	Jean-Paul Gleeson
						EMXT	E300.0	Sulfate	6/16/2008	Ha Le
						EMXT	E310.1	Alkalinity bicarbonate	6/17/2008	Romy Marasigan
						EMXT	E310.1	Alkalinity carbonate	6/17/2008	Romy Marasigan
						EMXT	E376.1	Sulfide	6/17/2008	Romy Marasigan
						EMXT	E415.1	Total Organic Carbon	6/14/2008	Kenny Siu
						PT-7M	PT-07M-080619	Gary Clift	6/19/2008	08:40
OHM In-House Method	Rhodamine WT (RWT)	6/24/2008	Margaret Ridinger							
PT-7M	PT-07M-080625	Mike Gallagher	6/25/2008	08:55	EMXT	E415.1	Total Organic Carbon	6/23/2008	Kenny Siu	
PT-7M	PT-07M-080625	Mike Gallagher	6/25/2008	08:55	EMXT	E200.7	Iron-Total	7/2/2008	Mary Jane Mendoza	
						E200.7	Manganese	7/2/2008	Mary Jane Mendoza	
						E200.8	Arsenic	7/2/2008	Christopher Capulong	
						E200.8	Calcium	7/2/2008	Christopher Capulong	
						E200.8	Chromium	7/2/2008	Christopher Capulong	
						E200.8	Iron	7/2/2008	Christopher Capulong	
						E200.8	Magnesium	7/2/2008	Christopher Capulong	
						E200.8	Manganese	7/2/2008	Christopher Capulong	
						E200.8	Potassium	7/2/2008	Christopher Capulong	
						E200.8	Sodium	7/2/2008	Christopher Capulong	
						Truesdail	E218.6	Chromium, hexavalent	6/26/2008	
						EMXT	E300.0	Chloride-cl	7/1/2008	Yelena Pustilnikova
						EMXT	E300.0	Nitrate-n	6/26/2008	Yelena Pustilnikova
						EMXT	E300.0	Nitrite-n	6/26/2008	Yelena Pustilnikova
						EMXT	E300.0	Orthophosphate-p	6/26/2008	Yelena Pustilnikova
						EMXT	E300.0	Sulfate	6/26/2008	Yelena Pustilnikova
						EMXT	E310.1	Alkalinity bicarbonate	7/2/2008	Romy Marasigan
EMXT	E376.1	Sulfide	6/30/2008	Romy Marasigan						
EMXT	E415.1	Total Organic Carbon	6/27/2008	Kenny Siu						
PT-7M	PT-07M-080701	Gary Clift	7/1/2008	14:35	EMXT	OHM In-House Method	Fluorescein	7/7/2008	Margaret Ridinger	
						OHM In-House Method	Rhodamine WT (RWT)	7/7/2008	Margaret Ridinger	
PT-7M	PT-07M-080708	Mike Gallagher	7/8/2008	11:15	EMXT	E415.1	Total Organic Carbon	7/3/2008	Kenny Siu	
PT-7M	PT-07M-080715	Mike Gallagher	7/15/2008	09:30	EMXT	E415.1	Total Organic Carbon	7/14/2008	Kenny Siu	
PT-7M	PT-07M-080715	Mike Gallagher	7/15/2008	09:30	EMXT	E415.1	Total Organic Carbon	7/18/2008	Kenny Siu	

**Table 5  
Summary of Monitoring Information**

PG&E Topock  
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July 2008 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	
PT-7D	PT-07D-080611	Gary Clift	6/11/2008	12:15	EMXT	E200.7	Iron-Total	6/19/2008	Mary Jane Mendoza	
						E200.8	Calcium	6/23/2008	Christopher Capulong	
						E200.8	Chromium	6/23/2008	Christopher Capulong	
						E200.8	Iron-Dissolved	6/23/2008	Christopher Capulong	
						E200.8	Magnesium	6/23/2008	Christopher Capulong	
						E200.8	Potassium	6/23/2008	Christopher Capulong	
						E200.8	Sodium	6/19/2008	Christopher Capulong	
						Truesdail	E218.6	Chromium, hexavalent	6/11/2008	Jean-Paul Gleeson
						EMXT	E300.0	Sulfate	6/16/2008	Ha Le
						EMXT	E310.1	Alkalinity bicarbonate	6/17/2008	Romy Marasigan
						EMXT	E310.1	Alkalinity carbonate	6/17/2008	Romy Marasigan
						EMXT	E376.1	Sulfide	6/17/2008	Romy Marasigan
						EMXT	E415.1	Total Organic Carbon	6/14/2008	Kenny Siu
							IM-3	Chromium, hexavalent-Field		
	Ozark	OHM In-House Method	Fluorescein	6/24/2008	Margaret Ridinger					
	Ozark	OHM In-House Method	Rhodamine WT (RWT)	6/24/2008	Margaret Ridinger					
PT-7D	PT-07D-080619	Gary Clift	6/19/2008	09:25	EMXT	E415.1	Total Organic Carbon	6/23/2008	Kenny Siu	
PT-7D	PT-07D-080624	Mike Gallagher	6/24/2008	14:05	EMXT	E200.7	Iron-Total	7/2/2008	Mary Jane Mendoza	
					EMXT	E200.7	Manganese	7/2/2008	Mary Jane Mendoza	
					EMXT	E200.8	Arsenic	7/3/2008	Christopher Capulong	
					EMXT	E200.8	Calcium	7/3/2008	Christopher Capulong	
					EMXT	E200.8	Chromium	7/3/2008	Christopher Capulong	
					EMXT	E200.8	Iron	7/3/2008	Christopher Capulong	
					EMXT	E200.8	Magnesium	7/3/2008	Christopher Capulong	
					EMXT	E200.8	Manganese	7/3/2008	Christopher Capulong	
					EMXT	E200.8	Potassium	7/3/2008	Christopher Capulong	
					EMXT	E200.8	Sodium	7/3/2008	Christopher Capulong	
					Truesdail	E218.6	Chromium, hexavalent	6/25/2008		
					EMXT	E300.0	Chloride-cl	6/27/2008	Yelena Pustilnikova	
					EMXT	E300.0	Nitrate-n	6/25/2008	Yelena Pustilnikova	
					EMXT	E300.0	Nitrite-n	6/25/2008	Yelena Pustilnikova	
					EMXT	E300.0	Orthophosphate-p	6/25/2008	Yelena Pustilnikova	
					EMXT	E300.0	Sulfate	6/25/2008	Yelena Pustilnikova	
					EMXT	E310.1	Alkalinity bicarbonate	6/30/2008	Romy Marasigan	
					EMXT	E376.1	Sulfide	6/30/2008	Romy Marasigan	
					EMXT	E415.1	Total Organic Carbon	6/26/2008	Kenny Siu	
						IM-3	Chromium, hexavalent-Field			
					Ozark	OHM In-House Method	Fluorescein	7/7/2008	Margaret Ridinger	
					Ozark	OHM In-House Method	Rhodamine WT (RWT)	7/7/2008	Margaret Ridinger	
PT-7D	PT-07D-080701	Gary Clift	7/1/2008	13:45	EMXT	E415.1	Total Organic Carbon	7/3/2008	Kenny Siu	
PT-7D	PT-07D-080708	Mike Gallagher	7/8/2008	11:45	EMXT	E415.1	Total Organic Carbon	7/14/2008	Kenny Siu	
PT-7D	PT-07D-080715	Mike Gallagher	7/15/2008	10:00	EMXT	E415.1	Total Organic Carbon	7/18/2008	Kenny Siu	

**Table 5**  
**Summary of Monitoring Information**

PG&E Topock  
Needles, California

July 2008 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	
PT-8S	PT-08S-080611	Gary Clift	6/11/2008	13:45	EMXT	E200.7	Iron-Total	6/19/2008	Mary Jane Mendoza	
						E200.8	Calcium	6/18/2008	Christopher Capulong	
						E200.8	Chromium	6/19/2008	Christopher Capulong	
						E200.8	Iron-Dissolved	6/19/2008	Christopher Capulong	
						E200.8	Magnesium	6/18/2008	Christopher Capulong	
						E200.8	Potassium	6/19/2008	Christopher Capulong	
						E200.8	Sodium	6/18/2008	Christopher Capulong	
						Truesdail	E218.6	Chromium, hexavalent	6/11/2008	Jean-Paul Gleeson
						EMXT	E300.0	Sulfate	6/13/2008	Ha Le
						EMXT	E310.1	Alkalinity bicarbonate	6/17/2008	Romy Marasigan
						EMXT	E310.1	Alkalinity carbonate	6/17/2008	Romy Marasigan
						EMXT	E376.1	Sulfide	6/17/2008	Romy Marasigan
						EMXT	E415.1	Total Organic Carbon	6/18/2008	Kenny Siu
						IM-3	Chromium, hexavalent-Field			
						Ozark	OHM In-House Method	Fluorescein	6/24/2008	Margaret Ridinger
Ozark	OHM In-House Method	Rhodamine WT (RWT)	6/24/2008	Margaret Ridinger						
PT-8S	PT-08S-080619	Gary Clift	6/19/2008	09:55	EMXT	E415.1	Total Organic Carbon	6/24/2008	Kenny Siu	
						E200.7	Iron-Total	7/2/2008	Mary Jane Mendoza	
						E200.7	Manganese	7/2/2008	Mary Jane Mendoza	
						E200.8	Arsenic	7/2/2008	Christopher Capulong	
						E200.8	Calcium	7/2/2008	Christopher Capulong	
						E200.8	Chromium	7/2/2008	Christopher Capulong	
						E200.8	Iron	7/2/2008	Christopher Capulong	
						E200.8	Magnesium	7/2/2008	Christopher Capulong	
						E200.8	Manganese	7/2/2008	Christopher Capulong	
						E200.8	Potassium	7/2/2008	Christopher Capulong	
						E200.8	Sodium	7/2/2008	Christopher Capulong	
						Truesdail	E218.6	Chromium, hexavalent	6/26/2008	
						EMXT	E300.0	Chloride-cl	7/1/2008	Yelena Pustilnikova
						EMXT	E300.0	Nitrate-n	6/26/2008	Yelena Pustilnikova
						EMXT	E300.0	Nitrite-n	6/26/2008	Yelena Pustilnikova
						EMXT	E300.0	Orthophosphate-p	6/26/2008	Yelena Pustilnikova
						EMXT	E300.0	Sulfate	6/26/2008	Yelena Pustilnikova
						EMXT	E310.1	Alkalinity bicarbonate	7/2/2008	Romy Marasigan
						EMXT	E376.1	Sulfide	6/30/2008	Romy Marasigan
						EMXT	E415.1	Total Organic Carbon	6/30/2008	Kenny Siu
IM-3	Chromium, hexavalent-Field									
Ozark	OHM In-House Method	Fluorescein	7/7/2008	Margaret Ridinger						
Ozark	OHM In-House Method	Rhodamine WT (RWT)	7/7/2008	Margaret Ridinger						
PT-8S	PT-08S-080701	Gary Clift	7/1/2008	12:00	EMXT	E415.1	Total Organic Carbon	7/3/2008	Kenny Siu	
PT-8S	PT-08S-080708	Mike Gallagher	7/8/2008	12:15	EMXT	E415.1	Total Organic Carbon	7/15/2008	Kenny Siu	
PT-8S	PT-08S-080715	Mike Gallagher	7/15/2008	10:30	EMXT	E415.1	Total Organic Carbon	7/18/2008	Kenny Siu	

**Table 5**  
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Location	Sample ID	Sampler	Sample Date	Sample Time	Laboratory	Test Method	Analyte	Analysis Date	Analyst Name	
PT-8M	PT-08M-080611	Gary Clift	6/11/2008	15:10	EMXT	E200.7	Iron-Total	6/19/2008	Mary Jane Mendoza	
						E200.8	Calcium	6/18/2008	Christopher Capulong	
						E200.8	Chromium	6/18/2008	Christopher Capulong	
						E200.8	Iron-Dissolved	6/19/2008	Christopher Capulong	
						E200.8	Magnesium	6/18/2008	Christopher Capulong	
						E200.8	Potassium	6/19/2008	Christopher Capulong	
						E200.8	Sodium	6/18/2008	Christopher Capulong	
						Truesdail	E218.6	Chromium, hexavalent	6/11/2008	Jean-Paul Gleeson
						EMXT	E300.0	Sulfate	6/13/2008	Ha Le
						EMXT	E310.1	Alkalinity bicarbonate	6/17/2008	Romy Marasigan
						EMXT	E310.1	Alkalinity carbonate	6/17/2008	Romy Marasigan
						EMXT	E376.1	Sulfide	6/17/2008	Romy Marasigan
						EMXT	E415.1	Total Organic Carbon	6/18/2008	Kenny Siu
						IM-3	Chromium, hexavalent-Field			
						Ozark	OHM In-House Method	Fluorescein	6/24/2008	Margaret Ridinger
Ozark	OHM In-House Method	Rhodamine WT (RWT)	6/24/2008	Margaret Ridinger						
PT-8M	PT-08M-080619	Gary Clift	6/19/2008	11:10	EMXT	E415.1	Total Organic Carbon	6/24/2008	Kenny Siu	
PT-8M	PT-08M-080625	Mike Gallagher	6/25/2008	10:50	EMXT	E200.7	Iron-Total	7/2/2008	Mary Jane Mendoza	
						E200.7	Manganese	7/2/2008	Mary Jane Mendoza	
						E200.8	Arsenic	7/2/2008	Christopher Capulong	
						E200.8	Calcium	7/2/2008	Christopher Capulong	
						E200.8	Chromium	7/2/2008	Christopher Capulong	
						E200.8	Iron	7/2/2008	Christopher Capulong	
						E200.8	Magnesium	7/2/2008	Christopher Capulong	
						E200.8	Manganese	7/2/2008	Christopher Capulong	
						E200.8	Potassium	7/2/2008	Christopher Capulong	
						E200.8	Sodium	7/2/2008	Christopher Capulong	
						Truesdail	E218.6	Chromium, hexavalent	6/26/2008	
						EMXT	E300.0	Chloride-cl	6/28/2008	Yelena Pustilnikova
						EMXT	E300.0	Nitrate-n	6/27/2008	Yelena Pustilnikova
						EMXT	E300.0	Nitrite-n	6/27/2008	Yelena Pustilnikova
						EMXT	E300.0	Orthophosphate-p	6/27/2008	Yelena Pustilnikova
EMXT	E300.0	Sulfate	6/28/2008	Yelena Pustilnikova						
EMXT	E310.1	Alkalinity bicarbonate	7/2/2008	Romy Marasigan						
EMXT	E376.1	Sulfide	6/30/2008	Romy Marasigan						
EMXT	E415.1	Total Organic Carbon	6/30/2008	Kenny Siu						
IM-3	Chromium, hexavalent-Field									

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Location	Sample ID	Sampler	Sample Date	Sample Time	Laboratory	Test Method	Analyte	Analysis Date	Analyst Name
PT-8M	PT-08M-080625D	Mike Gallagher	6/25/2008		EMXT	E200.7	Iron-Total	7/2/2008	Mary Jane Mendoza
					EMXT	E200.7	Manganese	7/2/2008	Mary Jane Mendoza
					EMXT	E200.8	Arsenic	7/2/2008	Christopher Capulong
					EMXT	E200.8	Calcium	7/2/2008	Christopher Capulong
					EMXT	E200.8	Chromium	7/2/2008	Christopher Capulong
					EMXT	E200.8	Iron	7/2/2008	Christopher Capulong
					EMXT	E200.8	Magnesium	7/2/2008	Christopher Capulong
					EMXT	E200.8	Manganese	7/2/2008	Christopher Capulong
					EMXT	E200.8	Potassium	7/2/2008	Christopher Capulong
					EMXT	E200.8	Sodium	7/2/2008	Christopher Capulong
					Truesdail	E218.6	Chromium, hexavalent	6/26/2008	
					EMXT	E300.0	Chloride-cl	6/28/2008	Yelena Pustilnikova
					EMXT	E300.0	Nitrate-n	6/27/2008	Yelena Pustilnikova
					EMXT	E300.0	Nitrite-n	6/27/2008	Yelena Pustilnikova
					EMXT	E300.0	Orthophosphate-p	6/27/2008	Yelena Pustilnikova
					EMXT	E300.0	Sulfate	6/28/2008	Yelena Pustilnikova
					EMXT	E310.1	Alkalinity bicarbonate	7/2/2008	Romy Marasigan
					EMXT	E376.1	Sulfide	6/30/2008	Romy Marasigan
					EMXT	E415.1	Total Organic Carbon	6/30/2008	Kenny Siu
					PT-8M PT-8D	PT-08M-080701 PT-08D-080611	Gary Clift	7/1/2008 6/11/2008	12:45 14:20
Ozark	OHM In-House Method	Rhodamine WT (RWT)	7/7/2008	Margaret Ridinger					
EMXT	E415.1	Total Organic Carbon	7/3/2008	Kenny Siu					
EMXT	E200.7	Iron-Total	6/19/2008	Mary Jane Mendoza					
EMXT	E200.8	Calcium	6/19/2008	Christopher Capulong					
EMXT	E200.8	Chromium	6/18/2008	Christopher Capulong					
EMXT	E200.8	Iron-Dissolved	6/19/2008	Christopher Capulong					
EMXT	E200.8	Magnesium	6/18/2008	Christopher Capulong					
EMXT	E200.8	Potassium	6/19/2008	Christopher Capulong					
EMXT	E200.8	Sodium	6/18/2008	Christopher Capulong					
Truesdail	E218.6	Chromium, hexavalent	6/12/2008	Jean-Paul Gleeson					
EMXT	E300.0	Sulfate	6/13/2008	Ha Le					
EMXT	E310.1	Alkalinity bicarbonate	6/17/2008	Romy Marasigan					
EMXT	E310.1	Alkalinity carbonate	6/17/2008	Romy Marasigan					
PT-8D	PT-08D-080619	Gary Clift	6/19/2008	10:30	EMXT	E376.1	Sulfide	6/17/2008	Romy Marasigan
					EMXT	E415.1	Total Organic Carbon	6/14/2008	Kenny Siu
					Ozark	OHM In-House Method	Fluorescein	6/24/2008	Margaret Ridinger
					Ozark	OHM In-House Method	Rhodamine WT (RWT)	6/24/2008	Margaret Ridinger
					EMXT	E415.1	Total Organic Carbon	6/24/2008	Kenny Siu
					EMXT	E415.1	Total Organic Carbon	6/24/2008	Kenny Siu

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Location	Sample ID	Sampler	Sample Date	Sample Time	Laboratory	Test Method	Analyte	Analysis Date	Analyst Name	
PT-8D	PT-08D-080625	Mike Gallagher	6/25/2008	09:40	EMXT	E200.7	Iron-Total	7/2/2008	Mary Jane Mendoza	
						E200.7	Manganese	7/2/2008	Mary Jane Mendoza	
						E200.8	Arsenic	7/3/2008	Christopher Capulong	
						E200.8	Calcium	7/3/2008	Christopher Capulong	
						E200.8	Chromium	7/3/2008	Christopher Capulong	
						E200.8	Iron	7/3/2008	Christopher Capulong	
						E200.8	Magnesium	7/3/2008	Christopher Capulong	
						E200.8	Manganese	7/3/2008	Christopher Capulong	
						E200.8	Potassium	7/3/2008	Christopher Capulong	
						E200.8	Sodium	7/3/2008	Christopher Capulong	
						Truesdail	E218.6	Chromium, hexavalent	6/26/2008	
						EMXT	E300.0	Chloride-cl	7/1/2008	Yelena Pustilnikova
						EMXT	E300.0	Nitrate-n	6/27/2008	Yelena Pustilnikova
					EMXT	E300.0	Nitrite-n	6/27/2008	Yelena Pustilnikova	
					EMXT	E300.0	Orthophosphate-p	6/27/2008	Yelena Pustilnikova	
					EMXT	E300.0	Sulfate	6/28/2008	Yelena Pustilnikova	
					EMXT	E310.1	Alkalinity bicarbonate	7/2/2008	Romy Marasigan	
					EMXT	E376.1	Sulfide	6/30/2008	Romy Marasigan	
					EMXT	E415.1	Total Organic Carbon	6/27/2008	Kenny Siu	
					PT-8D	PT-08D-080701	Gary Clift	7/1/2008	11:10	Ozark
OHM In-House Method	Rhodamine WT (RWT)	7/7/2008	Margaret Ridinger							
PT-8D	PT-08D-080708	Mike Gallagher	7/8/2008	12:45	EMXT	E415.1	Total Organic Carbon	7/3/2008	Kenny Siu	
PT-8D	PT-08D-080715	Mike Gallagher	7/15/2008	11:00	EMXT	E415.1	Total Organic Carbon	7/15/2008	Kenny Siu	
PT-9S	PT-09S-080611	Gary Clift	6/11/2008	08:50	EMXT	E200.7	Iron-Total	6/19/2008	Mary Jane Mendoza	
						E200.8	Calcium	6/19/2008	Christopher Capulong	
						E200.8	Chromium	6/19/2008	Christopher Capulong	
						E200.8	Iron-Dissolved	6/19/2008	Christopher Capulong	
						E200.8	Magnesium	6/18/2008	Christopher Capulong	
						E200.8	Potassium	6/19/2008	Christopher Capulong	
						E200.8	Sodium	6/18/2008	Christopher Capulong	
						Truesdail	E218.6	Chromium, hexavalent	6/11/2008	Jean-Paul Gleeson
						EMXT	E300.0	Sulfate	6/13/2008	Ha Le
						EMXT	E310.1	Alkalinity bicarbonate	6/17/2008	Romy Marasigan
						EMXT	E310.1	Alkalinity carbonate	6/17/2008	Romy Marasigan
						EMXT	E376.1	Sulfide	6/17/2008	Romy Marasigan
						EMXT	E415.1	Total Organic Carbon	6/18/2008	Kenny Siu
					Ozark	OHM In-House Method	Fluorescein	6/24/2008	Margaret Ridinger	
					Ozark	OHM In-House Method	Rhodamine WT (RWT)	6/24/2008	Margaret Ridinger	

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Location	Sample ID	Sampler	Sample Date	Sample Time	Laboratory	Test Method	Analyte	Analysis Date	Analyst Name					
PT-9S	PT-09S-080625	Mike Gallagher	6/25/2008	15:10	EMXT	E200.7	Iron-Total	7/2/2008	Mary Jane Mendoza					
					EMXT	E200.7	Manganese	7/2/2008	Mary Jane Mendoza					
					EMXT	E200.8	Arsenic	7/2/2008	Christopher Capulong					
					EMXT	E200.8	Calcium	7/2/2008	Christopher Capulong					
					EMXT	E200.8	Chromium	7/2/2008	Christopher Capulong					
					EMXT	E200.8	Iron	7/2/2008	Christopher Capulong					
					EMXT	E200.8	Magnesium	7/2/2008	Christopher Capulong					
					EMXT	E200.8	Manganese	7/2/2008	Christopher Capulong					
					EMXT	E200.8	Potassium	7/2/2008	Christopher Capulong					
					EMXT	E200.8	Sodium	7/2/2008	Christopher Capulong					
					Truesdail	E218.6	Chromium, hexavalent	6/26/2008						
					EMXT	E300.0	Chloride-cl	6/28/2008	Yelena Pustilnikova					
					EMXT	E300.0	Nitrate-n	6/27/2008	Yelena Pustilnikova					
					EMXT	E300.0	Nitrite-n	6/27/2008	Yelena Pustilnikova					
					EMXT	E300.0	Orthophosphate-p	6/27/2008	Yelena Pustilnikova					
					EMXT	E300.0	Sulfate	6/28/2008	Yelena Pustilnikova					
					EMXT	E310.1	Alkalinity bicarbonate	7/2/2008	Romy Marasigan					
					EMXT	E376.1	Sulfide	6/30/2008	Romy Marasigan					
					EMXT	E415.1	Total Organic Carbon	6/27/2008	Kenny Siu					
						IM-3	Chromium, hexavalent-Field							
						Ozark	OHM In-House Method	Fluorescein	7/7/2008	Margaret Ridinger				
						Ozark	OHM In-House Method	Rhodamine WT (RWT)	7/7/2008	Margaret Ridinger				
					PT-9M	PT-09M-080611	Gary Clift	6/11/2008	10:40	EMXT	E200.7	Iron-Total	6/19/2008	Mary Jane Mendoza
										EMXT	E200.8	Calcium	6/18/2008	Christopher Capulong
										EMXT	E200.8	Chromium	6/19/2008	Christopher Capulong
EMXT	E200.8	Iron-Dissolved	6/19/2008	Christopher Capulong										
EMXT	E200.8	Magnesium	6/18/2008	Christopher Capulong										
EMXT	E200.8	Potassium	6/19/2008	Christopher Capulong										
EMXT	E200.8	Sodium	6/18/2008	Christopher Capulong										
Truesdail	E218.6	Chromium, hexavalent	6/11/2008	Jean-Paul Gleeson										
EMXT	E300.0	Sulfate	6/13/2008	Ha Le										
EMXT	E310.1	Alkalinity bicarbonate	6/17/2008	Romy Marasigan										
EMXT	E310.1	Alkalinity carbonate	6/17/2008	Romy Marasigan										
EMXT	E376.1	Sulfide	6/17/2008	Romy Marasigan										
EMXT	E415.1	Total Organic Carbon	6/14/2008	Kenny Siu										
	IM-3	Chromium, hexavalent-Field												
	Ozark	OHM In-House Method	Fluorescein	6/24/2008						Margaret Ridinger				
	Ozark	OHM In-House Method	Rhodamine WT (RWT)	6/24/2008						Margaret Ridinger				

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Location	Sample ID	Sampler	Sample Date	Sample Time	Laboratory	Test Method	Analyte	Analysis Date	Analyst Name					
PT-9M	PT-09M-080625	Mike Gallagher	6/25/2008	12:00	EMXT	E200.7	Iron-Total	7/2/2008	Mary Jane Mendoza					
					EMXT	E200.7	Manganese	7/2/2008	Mary Jane Mendoza					
					EMXT	E200.8	Arsenic	7/2/2008	Christopher Capulong					
					EMXT	E200.8	Calcium	7/2/2008	Christopher Capulong					
					EMXT	E200.8	Chromium	7/2/2008	Christopher Capulong					
					EMXT	E200.8	Iron	7/2/2008	Christopher Capulong					
					EMXT	E200.8	Magnesium	7/2/2008	Christopher Capulong					
					EMXT	E200.8	Manganese	7/2/2008	Christopher Capulong					
					EMXT	E200.8	Potassium	7/2/2008	Christopher Capulong					
					EMXT	E200.8	Sodium	7/2/2008	Christopher Capulong					
					Truesdail	E218.6	Chromium, hexavalent	6/26/2008						
					EMXT	E300.0	Chloride-cl	6/28/2008	Yelena Pustilnikova					
					EMXT	E300.0	Nitrate-n	6/27/2008	Yelena Pustilnikova					
					EMXT	E300.0	Nitrite-n	6/27/2008	Yelena Pustilnikova					
					EMXT	E300.0	Orthophosphate-p	6/27/2008	Yelena Pustilnikova					
					EMXT	E300.0	Sulfate	6/28/2008	Yelena Pustilnikova					
					EMXT	E310.1	Alkalinity bicarbonate	7/2/2008	Romy Marasigan					
					EMXT	E376.1	Sulfide	6/30/2008	Romy Marasigan					
					EMXT	E415.1	Total Organic Carbon	6/30/2008	Kenny Siu					
						IM-3	Chromium, hexavalent-Field							
						Ozark	OHM In-House Method	Fluorescein	7/7/2008	Margaret Ridinger				
						Ozark	OHM In-House Method	Rhodamine WT (RWT)	7/7/2008	Margaret Ridinger				
					PT-9D	PT-09D-080611	Gary Clift	6/11/2008	09:50	EMXT	E200.7	Iron-Total	6/19/2008	Mary Jane Mendoza
										EMXT	E200.8	Calcium	6/18/2008	Christopher Capulong
										EMXT	E200.8	Chromium	6/18/2008	Christopher Capulong
										EMXT	E200.8	Iron-Dissolved	6/19/2008	Christopher Capulong
EMXT	E200.8	Magnesium	6/18/2008	Christopher Capulong										
EMXT	E200.8	Potassium	6/19/2008	Christopher Capulong										
EMXT	E200.8	Sodium	6/18/2008	Christopher Capulong										
Truesdail	E218.6	Chromium, hexavalent	6/12/2008	Jean-Paul Gleeson										
EMXT	E300.0	Sulfate	6/13/2008	Ha Le										
EMXT	E310.1	Alkalinity bicarbonate	6/17/2008	Romy Marasigan										
EMXT	E310.1	Alkalinity carbonate	6/17/2008	Romy Marasigan										
EMXT	E376.1	Sulfide	6/17/2008	Romy Marasigan										
EMXT	E415.1	Total Organic Carbon	6/18/2008	Kenny Siu										
	IM-3	Chromium, hexavalent-Field												
	Ozark	OHM In-House Method	Fluorescein	6/24/2008						Margaret Ridinger				
	Ozark	OHM In-House Method	Rhodamine WT (RWT)	6/24/2008						Margaret Ridinger				

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Location	Sample ID	Sampler	Sample Date	Sample Time	Laboratory	Test Method	Analyte	Analysis Date	Analyst Name		
PT-9D	PT-09D-080611D	Gary Clift	6/11/2008			EMXT	E200.7	Iron-Total	6/19/2008	Mary Jane Mendoza	
						EMXT	E200.8	Calcium	6/19/2008	Christopher Capulong	
						EMXT	E200.8	Chromium	6/19/2008	Christopher Capulong	
						EMXT	E200.8	Iron-Dissolved	6/19/2008	Christopher Capulong	
						EMXT	E200.8	Magnesium	6/19/2008	Christopher Capulong	
						EMXT	E200.8	Potassium	6/19/2008	Christopher Capulong	
						EMXT	E200.8	Sodium	6/19/2008	Christopher Capulong	
						Truesdail	E218.6	Chromium, hexavalent	6/12/2008	Jean-Paul Gleeson	
						EMXT	E300.0	Sulfate	6/16/2008	Ha Le	
						EMXT	E310.1	Alkalinity bicarbonate	6/17/2008	Romy Marasigan	
						EMXT	E310.1	Alkalinity carbonate	6/17/2008	Romy Marasigan	
						EMXT	E376.1	Sulfide	6/17/2008	Romy Marasigan	
						EMXT	E415.1	Total Organic Carbon	6/18/2008	Kenny Siu	
							IM-3	Chromium, hexavalent-Field			
							Ozark	OHM In-House Method	Fluorescein	6/24/2008	Margaret Ridinger
							Ozark	OHM In-House Method	Rhodamine WT (RWT)	6/24/2008	Margaret Ridinger
						PT-9D	PT-09D-080625	Mike Gallagher	6/25/2008	14:20	
EMXT	E200.7	Manganese	7/2/2008	Mary Jane Mendoza							
EMXT	E200.8	Arsenic	7/3/2008	Christopher Capulong							
EMXT	E200.8	Calcium	7/3/2008	Christopher Capulong							
EMXT	E200.8	Chromium	7/3/2008	Christopher Capulong							
EMXT	E200.8	Iron	7/3/2008	Christopher Capulong							
EMXT	E200.8	Magnesium	7/3/2008	Christopher Capulong							
EMXT	E200.8	Manganese	7/3/2008	Christopher Capulong							
EMXT	E200.8	Potassium	7/3/2008	Christopher Capulong							
EMXT	E200.8	Sodium	7/3/2008	Christopher Capulong							
Truesdail	E218.6	Chromium, hexavalent	6/26/2008								
EMXT	E300.0	Chloride-cl	7/1/2008	Yelena Pustilnikova							
EMXT	E300.0	Nitrate-n	6/27/2008	Yelena Pustilnikova							
EMXT	E300.0	Nitrite-n	6/27/2008	Yelena Pustilnikova							
EMXT	E300.0	Orthophosphate-p	6/27/2008	Yelena Pustilnikova							
EMXT	E300.0	Sulfate	6/30/2008	Yelena Pustilnikova							
EMXT	E310.1	Alkalinity bicarbonate	7/2/2008	Romy Marasigan							
EMXT	E376.1	Sulfide	6/30/2008	Romy Marasigan							
EMXT	E415.1	Total Organic Carbon	6/30/2008	Kenny Siu							
	IM-3	Chromium, hexavalent-Field									
	Ozark	OHM In-House Method	Fluorescein	7/7/2008	Margaret Ridinger						
	Ozark	OHM In-House Method	Rhodamine WT (RWT)	7/7/2008	Margaret Ridinger						

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Location	Sample ID	Sampler	Sample Date	Sample Time	Laboratory	Test Method	Analyte	Analysis Date	Analyst Name
MW-11	MW-11-080610	Gary Clift	6/10/2008	13:45	EMXT	E200.7	Iron-Total	6/18/2008	Mary Jane Mendoza
					EMXT	E200.8	Calcium	6/19/2008	Christopher Capulong
					EMXT	E200.8	Chromium	6/19/2008	Christopher Capulong
					EMXT	E200.8	Iron-Dissolved	6/19/2008	Christopher Capulong
					EMXT	E200.8	Magnesium	6/19/2008	Christopher Capulong
					EMXT	E200.8	Potassium	6/19/2008	Christopher Capulong
					EMXT	E200.8	Sodium	6/19/2008	Christopher Capulong
					Truesdail	E218.6	Chromium, hexavalent	6/10/2008	Jean-Paul Gleeson
					EMXT	E300.0	Sulfate	6/13/2008	Ha Le
					EMXT	E310.1	Alkalinity bicarbonate	6/17/2008	Romy Marasigan
					EMXT	E310.1	Alkalinity carbonate	6/17/2008	Romy Marasigan
					EMXT	E376.1	Sulfide	6/16/2008	Romy Marasigan
					EMXT	E415.1	Total Organic Carbon	6/13/2008	Kenny Siu
						IM-3	Chromium, hexavalent-Field		
					Ozark	OHM In-House Method	Fluorescein	6/16/2008	Margaret Ridinger
					Ozark	OHM In-House Method	Rhodamine WT (RWT)	6/16/2008	Margaret Ridinger
					MW-11	MW-11-080624	Mike Gallagher	6/24/2008	12:15
EMXT	E200.7	Manganese	7/2/2008	Mary Jane Mendoza					
EMXT	E200.8	Arsenic	7/2/2008	Christopher Capulong					
EMXT	E200.8	Calcium	7/2/2008	Christopher Capulong					
EMXT	E200.8	Chromium	7/2/2008	Christopher Capulong					
EMXT	E200.8	Iron	7/2/2008	Christopher Capulong					
EMXT	E200.8	Magnesium	7/2/2008	Christopher Capulong					
EMXT	E200.8	Manganese	7/2/2008	Christopher Capulong					
EMXT	E200.8	Potassium	7/2/2008	Christopher Capulong					
EMXT	E200.8	Sodium	7/2/2008	Christopher Capulong					
Truesdail	E218.6	Chromium, hexavalent	6/25/2008						
EMXT	E300.0	Chloride-cl	6/27/2008	Yelena Pustilnikova					
EMXT	E300.0	Nitrate-n	6/25/2008	Yelena Pustilnikova					
EMXT	E300.0	Nitrite-n	6/25/2008	Yelena Pustilnikova					
EMXT	E300.0	Orthophosphate-p	6/25/2008	Yelena Pustilnikova					
EMXT	E300.0	Sulfate	6/27/2008	Yelena Pustilnikova					
EMXT	E310.1	Alkalinity bicarbonate	6/30/2008	Romy Marasigan					
EMXT	E376.1	Sulfide	6/30/2008	Romy Marasigan					
EMXT	E415.1	Total Organic Carbon	6/26/2008	Kenny Siu					
	IM-3	Chromium, hexavalent-Field							
Ozark	OHM In-House Method	Fluorescein	7/7/2008	Margaret Ridinger					
Ozark	OHM In-House Method	Rhodamine WT (RWT)	7/7/2008	Margaret Ridinger					

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Location	Sample ID	Sampler	Sample Date	Sample Time	Laboratory	Test Method	Analyte	Analysis Date	Analyst Name	
MW-24A	MW-24A-080612	Gary Clift	6/12/2008	09:05	EMXT	E200.7	Iron-Total	6/19/2008	Mary Jane Mendoza	
						E200.8	Calcium	6/17/2008	Christopher Capulong	
						E200.8	Chromium	6/19/2008	Christopher Capulong	
						E200.8	Iron-Dissolved	6/19/2008	Christopher Capulong	
						E200.8	Magnesium	6/19/2008	Christopher Capulong	
						E200.8	Potassium	6/19/2008	Christopher Capulong	
						E200.8	Sodium	6/17/2008	Christopher Capulong	
						Truesdail	E218.6	Chromium, hexavalent	6/12/2008	Jean-Paul Gleeson
						EMXT	E300.0	Sulfate	6/14/2008	Yelena Pustilnikova
						EMXT	E310.1	Alkalinity bicarbonate	6/17/2008	Romy Marasigan
						EMXT	E310.1	Alkalinity carbonate	6/17/2008	Romy Marasigan
						EMXT	E376.1	Sulfide	6/16/2008	Romy Marasigan
						EMXT	E415.1	Total Organic Carbon	6/18/2008	Kenny Siu
						Ozark	IM-3	Chromium, hexavalent-Field		
						Ozark	OHM In-House Method	Fluorescein	7/1/2008	Margaret Ridinger
MW-24A	MW-24A-080619	Gary Clift	6/19/2008	12:00	EMXT	OHM In-House Method	Rhodamine WT (RWT)	7/1/2008	Margaret Ridinger	
						E415.1	Total Organic Carbon	6/24/2008	Kenny Siu	
MW-24A	MW-24A-080626	Mike Gallagher	6/26/2008	08:05	EMXT	E200.7	Iron-Total	7/7/2008	Mary Jane Mendoza	
					EMXT	E200.7	Manganese	7/7/2008	Mary Jane Mendoza	
					EMXT	E200.8	Arsenic	7/3/2008	Christopher Capulong	
					EMXT	E200.8	Calcium	7/3/2008	Christopher Capulong	
					EMXT	E200.8	Chromium	7/3/2008	Christopher Capulong	
					EMXT	E200.8	Iron	7/3/2008	Christopher Capulong	
					EMXT	E200.8	Magnesium	7/3/2008	Christopher Capulong	
					EMXT	E200.8	Manganese	7/3/2008	Christopher Capulong	
					EMXT	E200.8	Potassium	7/3/2008	Christopher Capulong	
					EMXT	E200.8	Sodium	7/3/2008	Christopher Capulong	
					Truesdail	E218.6	Chromium, hexavalent	6/27/2008		
					EMXT	E300.0	Chloride-cl	7/1/2008	Yelena Pustilnikova	
					EMXT	E300.0	Nitrate-n	6/27/2008	Yelena Pustilnikova	
					EMXT	E300.0	Nitrite-n	6/27/2008	Yelena Pustilnikova	
					EMXT	E300.0	Orthophosphate-p	6/27/2008	Yelena Pustilnikova	
					EMXT	E300.0	Sulfate	7/1/2008	Yelena Pustilnikova	
					EMXT	E310.1	Alkalinity bicarbonate	7/2/2008	Romy Marasigan	
					EMXT	E376.1	Sulfide	7/2/2008	Romy Marasigan	
					EMXT	E415.1	Total Organic Carbon	6/30/2008	Kenny Siu	
					Ozark	IM-3	Chromium, hexavalent-Field			
					Ozark	OHM In-House Method	Fluorescein	7/7/2008	Margaret Ridinger	
					Ozark	OHM In-House Method	Rhodamine WT (RWT)	7/7/2008	Margaret Ridinger	
MW-24A	MW-24A-080701	Gary Clift	7/1/2008	15:05	EMXT	E415.1	Total Organic Carbon	7/3/2008	Kenny Siu	

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Location	Sample ID	Sampler	Sample Date	Sample Time	Laboratory	Test Method	Analyte	Analysis Date	Analyst Name
MW-24B	MW-24B-080612	Gary Clift	6/12/2008	10:20	EMXT	E200.7	Iron-Total	6/19/2008	Mary Jane Mendoza
					EMXT	E200.8	Calcium	6/17/2008	Christopher Capulong
					EMXT	E200.8	Chromium	6/17/2008	Christopher Capulong
					EMXT	E200.8	Iron-Dissolved	6/19/2008	Christopher Capulong
					EMXT	E200.8	Magnesium	6/19/2008	Christopher Capulong
					EMXT	E200.8	Potassium	6/19/2008	Christopher Capulong
					EMXT	E200.8	Sodium	6/17/2008	Christopher Capulong
					Truesdail	E218.6	Chromium, hexavalent	6/12/2008	Jean-Paul Gleeson
					EMXT	E300.0	Sulfate	6/14/2008	Yelena Pustilnikova
					EMXT	E310.1	Alkalinity bicarbonate	6/17/2008	Romy Marasigan
					EMXT	E310.1	Alkalinity carbonate	6/17/2008	Romy Marasigan
					EMXT	E376.1	Sulfide	6/16/2008	Romy Marasigan
					EMXT	E415.1	Total Organic Carbon	6/14/2008	Kenny Siu
						IM-3	Chromium, hexavalent-Field		
					Ozark	OHM In-House Method	Fluorescein	6/24/2008	Margaret Ridinger
					Ozark	OHM In-House Method	Rhodamine WT (RWT)	6/24/2008	Margaret Ridinger
					MW-24B	MW-24B-080626	Mike Gallagher	6/26/2008	09:00
EMXT	E200.7	Manganese	7/7/2008	Mary Jane Mendoza					
EMXT	E200.8	Arsenic	7/3/2008	Christopher Capulong					
EMXT	E200.8	Calcium	7/3/2008	Christopher Capulong					
EMXT	E200.8	Chromium	7/3/2008	Christopher Capulong					
EMXT	E200.8	Iron	7/3/2008	Christopher Capulong					
EMXT	E200.8	Magnesium	7/3/2008	Christopher Capulong					
EMXT	E200.8	Manganese	7/3/2008	Christopher Capulong					
EMXT	E200.8	Potassium	7/3/2008	Christopher Capulong					
EMXT	E200.8	Sodium	7/3/2008	Christopher Capulong					
Truesdail	E218.6	Chromium, hexavalent	6/27/2008						
EMXT	E300.0	Chloride-cl	7/1/2008	Yelena Pustilnikova					
EMXT	E300.0	Nitrate-n	6/27/2008	Yelena Pustilnikova					
EMXT	E300.0	Nitrite-n	6/27/2008	Yelena Pustilnikova					
EMXT	E300.0	Orthophosphate-p	6/27/2008	Yelena Pustilnikova					
EMXT	E300.0	Sulfate	7/1/2008	Yelena Pustilnikova					
EMXT	E310.1	Alkalinity bicarbonate	7/2/2008	Romy Marasigan					
EMXT	E376.1	Sulfide	7/2/2008	Romy Marasigan					
EMXT	E415.1	Total Organic Carbon	6/30/2008	Kenny Siu					
	IM-3	Chromium, hexavalent-Field							
Ozark	OHM In-House Method	Fluorescein	7/7/2008	Margaret Ridinger					
Ozark	OHM In-House Method	Rhodamine WT (RWT)	7/7/2008	Margaret Ridinger					

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Location	Sample ID	Sampler	Sample Date	Sample Time	Laboratory	Test Method	Analyte	Analysis Date	Analyst Name
MW-38S	MW-38S-080610	Gary Clift	6/10/2008	12:40	EMXT	E200.7	Iron-Total	6/18/2008	Mary Jane Mendoza
					EMXT	E200.8	Calcium	6/19/2008	Christopher Capulong
					EMXT	E200.8	Chromium	6/19/2008	Christopher Capulong
					EMXT	E200.8	Iron-Dissolved	6/19/2008	Christopher Capulong
					EMXT	E200.8	Magnesium	6/19/2008	Christopher Capulong
					EMXT	E200.8	Potassium	6/19/2008	Christopher Capulong
					EMXT	E200.8	Sodium	6/18/2008	Christopher Capulong
					Truesdail	E218.6	Chromium, hexavalent	6/10/2008	Jean-Paul Gleeson
					EMXT	E300.0	Sulfate	6/13/2008	Ha Le
					EMXT	E310.1	Alkalinity bicarbonate	6/17/2008	Romy Marasigan
					EMXT	E310.1	Alkalinity carbonate	6/17/2008	Romy Marasigan
					EMXT	E376.1	Sulfide	6/16/2008	Romy Marasigan
					EMXT	E415.1	Total Organic Carbon	6/13/2008	Kenny Siu
						IM-3	Chromium, hexavalent-Field		
					Ozark	OHM In-House Method	Fluorescein	6/16/2008	Margaret Ridinger
					Ozark	OHM In-House Method	Rhodamine WT (RWT)	6/16/2008	Margaret Ridinger
					MW-38S	MW-38S-080624	Mike Gallagher	6/24/2008	11:40
EMXT	E200.7	Manganese	7/2/2008	Mary Jane Mendoza					
EMXT	E200.8	Arsenic	7/2/2008	Christopher Capulong					
EMXT	E200.8	Calcium	7/2/2008	Christopher Capulong					
EMXT	E200.8	Chromium	7/2/2008	Christopher Capulong					
EMXT	E200.8	Iron	7/2/2008	Christopher Capulong					
EMXT	E200.8	Magnesium	7/2/2008	Christopher Capulong					
EMXT	E200.8	Manganese	7/2/2008	Christopher Capulong					
EMXT	E200.8	Potassium	7/2/2008	Christopher Capulong					
EMXT	E200.8	Sodium	7/2/2008	Christopher Capulong					
Truesdail	E218.6	Chromium, hexavalent	6/25/2008						
EMXT	E300.0	Chloride-cl	6/27/2008	Yelena Pustilnikova					
EMXT	E300.0	Nitrate-n	6/25/2008	Yelena Pustilnikova					
EMXT	E300.0	Nitrite-n	6/25/2008	Yelena Pustilnikova					
EMXT	E300.0	Orthophosphate-p	6/25/2008	Yelena Pustilnikova					
EMXT	E300.0	Sulfate	6/27/2008	Yelena Pustilnikova					
EMXT	E310.1	Alkalinity bicarbonate	6/30/2008	Romy Marasigan					
EMXT	E376.1	Sulfide	6/30/2008	Romy Marasigan					
EMXT	E415.1	Total Organic Carbon	6/26/2008	Kenny Siu					
	IM-3	Chromium, hexavalent-Field							
Ozark	OHM In-House Method	Fluorescein	7/7/2008	Margaret Ridinger					
Ozark	OHM In-House Method	Rhodamine WT (RWT)	7/7/2008	Margaret Ridinger					

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Location	Sample ID	Sampler	Sample Date	Sample Time	Laboratory	Test Method	Analyte	Analysis Date	Analyst Name
MW-38D	MW-38D-080610	Gary Clift	6/10/2008	11:55	EMXT	E200.7	Iron-Total	6/18/2008	Mary Jane Mendoza
					EMXT	E200.8	Calcium	6/19/2008	Christopher Capulong
					EMXT	E200.8	Chromium	6/19/2008	Christopher Capulong
					EMXT	E200.8	Iron-Dissolved	6/19/2008	Christopher Capulong
					EMXT	E200.8	Magnesium	6/19/2008	Christopher Capulong
					EMXT	E200.8	Potassium	6/19/2008	Christopher Capulong
					EMXT	E200.8	Sodium	6/18/2008	Christopher Capulong
					Truesdail	E218.6	Chromium, hexavalent	6/10/2008	Jean-Paul Gleeson
					EMXT	E300.0	Sulfate	6/14/2008	Ha Le
					EMXT	E310.1	Alkalinity bicarbonate	6/17/2008	Romy Marasigan
					EMXT	E310.1	Alkalinity carbonate	6/17/2008	Romy Marasigan
					EMXT	E376.1	Sulfide	6/16/2008	Romy Marasigan
					EMXT	E415.1	Total Organic Carbon	6/13/2008	Kenny Siu
						IM-3	Chromium, hexavalent-Field		
					Ozark	OHM In-House Method	Fluorescein	6/16/2008	Margaret Ridinger
					Ozark	OHM In-House Method	Rhodamine WT (RWT)	6/16/2008	Margaret Ridinger
					MW-38D	MW-38D-080624	Mike Gallagher	6/24/2008	11:00
EMXT	E200.7	Manganese	7/2/2008	Mary Jane Mendoza					
EMXT	E200.8	Arsenic	7/3/2008	Christopher Capulong					
EMXT	E200.8	Calcium	7/3/2008	Christopher Capulong					
EMXT	E200.8	Chromium	7/3/2008	Christopher Capulong					
EMXT	E200.8	Iron	7/3/2008	Christopher Capulong					
EMXT	E200.8	Magnesium	7/3/2008	Christopher Capulong					
EMXT	E200.8	Manganese	7/3/2008	Christopher Capulong					
EMXT	E200.8	Potassium	7/3/2008	Christopher Capulong					
EMXT	E200.8	Sodium	7/3/2008	Christopher Capulong					
Truesdail	E218.6	Chromium, hexavalent	6/25/2008						
EMXT	E300.0	Chloride-cl	6/27/2008	Yelena Pustilnikova					
EMXT	E300.0	Nitrate-n	6/25/2008	Yelena Pustilnikova					
EMXT	E300.0	Nitrite-n	6/25/2008	Yelena Pustilnikova					
EMXT	E300.0	Orthophosphate-p	6/25/2008	Yelena Pustilnikova					
EMXT	E300.0	Sulfate	6/28/2008	Yelena Pustilnikova					
EMXT	E310.1	Alkalinity bicarbonate	6/30/2008	Romy Marasigan					
EMXT	E376.1	Sulfide	6/30/2008	Romy Marasigan					
EMXT	E415.1	Total Organic Carbon	6/26/2008	Kenny Siu					
	IM-3	Chromium, hexavalent-Field							
Ozark	OHM In-House Method	Fluorescein	7/7/2008	Margaret Ridinger					
Ozark	OHM In-House Method	Rhodamine WT (RWT)	7/7/2008	Margaret Ridinger					

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Location	Sample ID	Sampler	Sample Date	Sample Time	Laboratory	Test Method	Analyte	Analysis Date	Analyst Name	
PTR-1	PTR-01-080612	Gary Clift	6/12/2008	09:10	EMXT	E200.7	Iron-Total	6/19/2008	Mary Jane Mendoza	
						E200.8	Calcium	6/19/2008	Christopher Capulong	
						E200.8	Chromium	6/19/2008	Christopher Capulong	
						E200.8	Iron-Dissolved	6/19/2008	Christopher Capulong	
						E200.8	Magnesium	6/19/2008	Christopher Capulong	
						E200.8	Potassium	6/19/2008	Christopher Capulong	
						E200.8	Sodium	6/17/2008	Christopher Capulong	
						Truesdail	E218.6	Chromium, hexavalent	6/13/2008	Jean-Paul Gleeson
						EMXT	E300.0	Sulfate	6/14/2008	Yelena Pustilnikova
						EMXT	E310.1	Alkalinity bicarbonate	6/17/2008	Romy Marasigan
						EMXT	E310.1	Alkalinity carbonate	6/17/2008	Romy Marasigan
						EMXT	E376.1	Sulfide	6/16/2008	Romy Marasigan
						EMXT	E415.1	Total Organic Carbon	6/19/2008	Kenny Siu
						Ozark	IM-3	Chromium, hexavalent-Field		
						Ozark	OHM In-House Method	Fluorescein	6/24/2008	Margaret Ridinger
PTR-1	PTR-01-080619	Gary Clift	6/19/2008	08:15	EMXT	OHM In-House Method	Rhodamine WT (RWT)	6/24/2008	Margaret Ridinger	
						E415.1	Total Organic Carbon	6/24/2008	Kenny Siu	
PTR-1	PTR-01-080626	Mike Gallagher	6/26/2008	08:30	EMXT	E200.7	Iron-Total	7/7/2008	Mary Jane Mendoza	
						E200.7	Manganese	7/7/2008	Mary Jane Mendoza	
						E200.8	Arsenic	7/3/2008	Christopher Capulong	
						E200.8	Calcium	7/3/2008	Christopher Capulong	
						E200.8	Chromium	7/3/2008	Christopher Capulong	
						E200.8	Iron	7/3/2008	Christopher Capulong	
						E200.8	Magnesium	7/3/2008	Christopher Capulong	
						E200.8	Manganese	7/3/2008	Christopher Capulong	
						E200.8	Potassium	7/3/2008	Christopher Capulong	
						E200.8	Sodium	7/3/2008	Christopher Capulong	
						Truesdail	E218.6	Chromium, hexavalent	6/27/2008	
						EMXT	E300.0	Chloride-cl	7/1/2008	Yelena Pustilnikova
						EMXT	E300.0	Nitrate-n	6/27/2008	Yelena Pustilnikova
						EMXT	E300.0	Nitrite-n	6/27/2008	Yelena Pustilnikova
						EMXT	E300.0	Orthophosphate-p	6/27/2008	Yelena Pustilnikova
EMXT	E300.0	Sulfate	6/28/2008	Yelena Pustilnikova						
EMXT	E310.1	Alkalinity bicarbonate	7/2/2008	Romy Marasigan						
EMXT	E376.1	Sulfide	7/2/2008	Romy Marasigan						
EMXT	E415.1	Total Organic Carbon	6/30/2008	Kenny Siu						
Ozark	OHM In-House Method	Fluorescein	7/7/2008	Margaret Ridinger						
Ozark	OHM In-House Method	Rhodamine WT (RWT)	7/7/2008	Margaret Ridinger						
PTR-1	PTR-01-080701	Gary Clift	7/1/2008	12:30	EMXT	E415.1	Total Organic Carbon	7/3/2008	Kenny Siu	

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Location	Sample ID	Sampler	Sample Date	Sample Time	Laboratory	Test Method	Analyte	Analysis Date	Analyst Name	
PTR-2	PTR-02-080610	Gary Clift	6/10/2008	12:00	EMXT	E200.7	Iron-Total	6/18/2008	Mary Jane Mendoza	
						E200.8	Calcium	6/18/2008	Christopher Capulong	
						E200.8	Chromium	6/18/2008	Christopher Capulong	
						E200.8	Iron-Dissolved	6/19/2008	Christopher Capulong	
						E200.8	Magnesium	6/19/2008	Christopher Capulong	
						E200.8	Potassium	6/19/2008	Christopher Capulong	
						E200.8	Sodium	6/18/2008	Christopher Capulong	
						Truesdail	E218.6	Chromium, hexavalent	6/10/2008	Jean-Paul Gleeson
						EMXT	E300.0	Sulfate	6/14/2008	Ha Le
						EMXT	E310.1	Alkalinity bicarbonate	6/17/2008	Romy Marasigan
						EMXT	E310.1	Alkalinity carbonate	6/17/2008	Romy Marasigan
						EMXT	E376.1	Sulfide	6/16/2008	Romy Marasigan
						EMXT	E415.1	Total Organic Carbon	6/13/2008	Kenny Siu
						IM-3	Chromium, hexavalent-Field			
						PTR-2	PTR-02-080610	Gary Clift	6/10/2008	12:00
Ozark	OHM In-House Method	Rhodamine WT (RWT)	6/16/2008	Margaret Ridinger						
PTR-2	PTR-02-080619	Gary Clift	6/19/2008	08:00	EMXT	E415.1	Total Organic Carbon	6/23/2008	Kenny Siu	
					EMXT	E200.7	Iron-Total	7/7/2008	Mary Jane Mendoza	
						E200.7	Manganese	7/7/2008	Mary Jane Mendoza	
						E200.8	Arsenic	7/3/2008	Christopher Capulong	
						E200.8	Calcium	7/3/2008	Christopher Capulong	
						E200.8	Chromium	7/3/2008	Christopher Capulong	
						E200.8	Iron	7/3/2008	Christopher Capulong	
						E200.8	Magnesium	7/3/2008	Christopher Capulong	
						E200.8	Manganese	7/3/2008	Christopher Capulong	
						E200.8	Potassium	7/3/2008	Christopher Capulong	
						E200.8	Sodium	7/3/2008	Christopher Capulong	
						Truesdail	E218.6	Chromium, hexavalent	6/27/2008	
						EMXT	E300.0	Chloride-cl	7/1/2008	Yelena Pustilnikova
						EMXT	E300.0	Nitrate-n	6/27/2008	Yelena Pustilnikova
						EMXT	E300.0	Nitrite-n	6/27/2008	Yelena Pustilnikova
						EMXT	E300.0	Orthophosphate-p	6/27/2008	Yelena Pustilnikova
						EMXT	E300.0	Sulfate	7/1/2008	Yelena Pustilnikova
						EMXT	E310.1	Alkalinity bicarbonate	7/2/2008	Romy Marasigan
						EMXT	E376.1	Sulfide	7/2/2008	Romy Marasigan
EMXT	E415.1	Total Organic Carbon	6/30/2008	Kenny Siu						
PTR-2	PTR-02-080701	Gary Clift	7/1/2008	12:10	Ozark	OHM In-House Method	Fluorescein	7/7/2008	Margaret Ridinger	
					Ozark	OHM In-House Method	Rhodamine WT (RWT)	7/7/2008	Margaret Ridinger	
					EMXT	E415.1	Total Organic Carbon	7/3/2008	Kenny Siu	

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Needles, California

July 2008 Monitoring Report for the Uplands Reductive Zone In-Situ Pilot Test

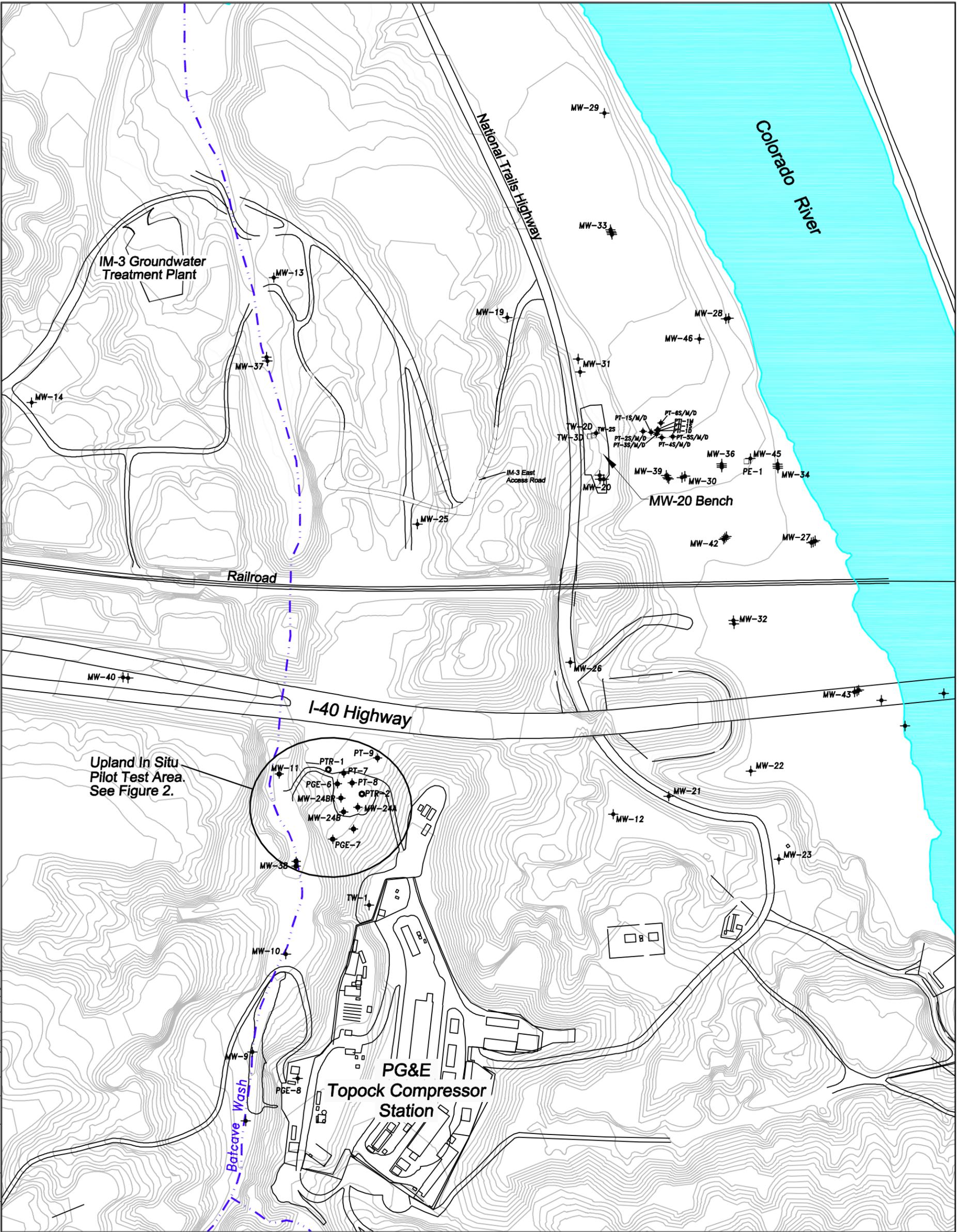
Location	Sample ID	Sampler	Sample Date	Sample Time	Laboratory	Test Method	Analyte	Analysis Date	Analyst Name					
EB-Upland Wells	EB-080610	Arcadis	6/10/2008	11:15	EMXT	E200.7	Iron-Total	6/18/2008	Mary Jane Mendoza					
					EMXT	E200.8	Calcium	6/18/2008	Christopher Capulong					
					EMXT	E200.8	Chromium	6/18/2008	Christopher Capulong					
					EMXT	E200.8	Iron-Dissolved	6/18/2008	Christopher Capulong					
					EMXT	E200.8	Magnesium	6/18/2008	Christopher Capulong					
					EMXT	E200.8	Potassium	6/18/2008	Christopher Capulong					
					EMXT	E200.8	Sodium	6/18/2008	Christopher Capulong					
					Truesdail	E218.6	Chromium, hexavalent	6/10/2008	Jean-Paul Gleeson					
					EMXT	E300.0	Sulfate	6/13/2008	Ha Le					
					EMXT	E310.1	Alkalinity bicarbonate	6/17/2008	Romy Marasigan					
					EMXT	E310.1	Alkalinity carbonate	6/17/2008	Romy Marasigan					
					EMXT	E376.1	Sulfide	6/16/2008	Romy Marasigan					
					EMXT	E415.1	Total Organic Carbon	6/13/2008	Kenny Siu					
					Ozark	OHM In-House Method	Fluorescein	6/16/2008	Margaret Ridinger					
					Ozark	OHM In-House Method	Rhodamine WT (RWT)	6/16/2008	Margaret Ridinger					
					EB-Upland Wells	EB-080619	Arcadis	6/19/2008	09:00	EMXT	E415.1	Total Organic Carbon	6/23/2008	Kenny Siu
					EB-Upland Wells	EB-080624	Arcadis	6/24/2008	09:30	EMXT	E200.7	Iron-Total	7/2/2008	Mary Jane Mendoza
EMXT	E200.7	Manganese	7/2/2008	Mary Jane Mendoza										
EMXT	E200.8	Arsenic	7/2/2008	Christopher Capulong										
EMXT	E200.8	Calcium	7/2/2008	Christopher Capulong										
EMXT	E200.8	Chromium	7/2/2008	Christopher Capulong										
EMXT	E200.8	Iron	7/2/2008	Christopher Capulong										
EMXT	E200.8	Magnesium	7/2/2008	Christopher Capulong										
EMXT	E200.8	Manganese	7/2/2008	Christopher Capulong										
EMXT	E200.8	Potassium	7/2/2008	Christopher Capulong										
EMXT	E200.8	Sodium	7/2/2008	Christopher Capulong										
Truesdail	E218.6	Chromium, hexavalent	6/25/2008											
EMXT	E300.0	Chloride-cl	6/25/2008	Yelena Pustilnikova										
EMXT	E300.0	Nitrate-n	6/25/2008	Yelena Pustilnikova										
EMXT	E300.0	Nitrite-n	6/25/2008	Yelena Pustilnikova										
EMXT	E300.0	Orthophosphate-p	6/25/2008	Yelena Pustilnikova										
EMXT	E300.0	Sulfate	6/25/2008	Yelena Pustilnikova										
EMXT	E310.1	Alkalinity bicarbonate	6/30/2008	Romy Marasigan										
EMXT	E376.1	Sulfide	6/30/2008	Romy Marasigan										
EMXT	E415.1	Total Organic Carbon	6/26/2008	Kenny Siu										
Ozark	OHM In-House Method	Fluorescein	7/7/2008	Margaret Ridinger										
Ozark	OHM In-House Method	Rhodamine WT (RWT)	7/7/2008	Margaret Ridinger										
EB-Upland Wells	EB-080701	Mike Gallagher	7/1/2008	11:00	EMXT	E415.1	Total Organic Carbon	7/3/2008	Kenny Siu					

**Table 5**  
**Summary of Monitoring Information**

PG&E Topock  
Needles, California

July 2008 Monitoring Report for the Uplands Reductive Zone In-Situ Pilot Test

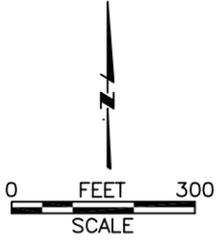
Location	Sample ID	Sampler	Sample Date	Sample Time	Laboratory	Test Method	Analyte	Analysis Date	Analyst Name					
FB-Upland Wells	FB-080610	Arcadis	6/10/2008	11:00	EMXT	E200.7	Iron-Total	6/18/2008	Mary Jane Mendoza					
					EMXT	E200.8	Calcium	6/18/2008	Christopher Capulong					
					EMXT	E200.8	Chromium	6/18/2008	Christopher Capulong					
					EMXT	E200.8	Iron-Dissolved	6/18/2008	Christopher Capulong					
					EMXT	E200.8	Magnesium	6/18/2008	Christopher Capulong					
					EMXT	E200.8	Potassium	6/18/2008	Christopher Capulong					
					EMXT	E200.8	Sodium	6/18/2008	Christopher Capulong					
					Truesdail	E218.6	Chromium, hexavalent	6/10/2008	Jean-Paul Gleeson					
					EMXT	E300.0	Sulfate	6/13/2008	Ha Le					
					EMXT	E310.1	Alkalinity bicarbonate	6/17/2008	Romy Marasigan					
					EMXT	E310.1	Alkalinity carbonate	6/17/2008	Romy Marasigan					
					EMXT	E376.1	Sulfide	6/16/2008	Romy Marasigan					
					EMXT	E415.1	Total Organic Carbon	6/13/2008	Kenny Siu					
					Ozark	OHM In-House Method	Fluorescein	6/16/2008	Margaret Ridinger					
					Ozark	OHM In-House Method	Rhodamine WT (RWT)	6/16/2008	Margaret Ridinger					
					FB-Upland Wells	FB-080619	Arcadis	6/19/2008	09:10	EMXT	E415.1	Total Organic Carbon	6/23/2008	Kenny Siu
					FB-Upland Wells	FB-080624	Arcadis	6/24/2008	09:00	EMXT	E200.7	Iron-Total	7/2/2008	Mary Jane Mendoza
EMXT	E200.7	Manganese	7/2/2008	Mary Jane Mendoza										
EMXT	E200.8	Arsenic	7/2/2008	Christopher Capulong										
EMXT	E200.8	Calcium	7/2/2008	Christopher Capulong										
EMXT	E200.8	Chromium	7/2/2008	Christopher Capulong										
EMXT	E200.8	Iron	7/2/2008	Christopher Capulong										
EMXT	E200.8	Magnesium	7/2/2008	Christopher Capulong										
EMXT	E200.8	Manganese	7/2/2008	Christopher Capulong										
EMXT	E200.8	Potassium	7/2/2008	Christopher Capulong										
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EMXT	E300.0	Chloride-cl	6/25/2008	Yelena Pustilnikova										
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EMXT	E300.0	Nitrite-n	6/25/2008	Yelena Pustilnikova										
EMXT	E300.0	Orthophosphate-p	6/25/2008	Yelena Pustilnikova										
EMXT	E300.0	Sulfate	6/25/2008	Yelena Pustilnikova										
EMXT	E310.1	Alkalinity bicarbonate	6/30/2008	Romy Marasigan										
EMXT	E376.1	Sulfide	6/30/2008	Romy Marasigan										
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Ozark	OHM In-House Method	Rhodamine WT (RWT)	7/7/2008	Margaret Ridinger										
FB-Upland Wells	FB-080701	Mike Gallagher	7/1/2008	11:10	EMXT	E415.1	Total Organic Carbon	7/3/2008	Kenny Siu					



Upland In Situ Pilot Test Area. See Figure 2.

**Legend**

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



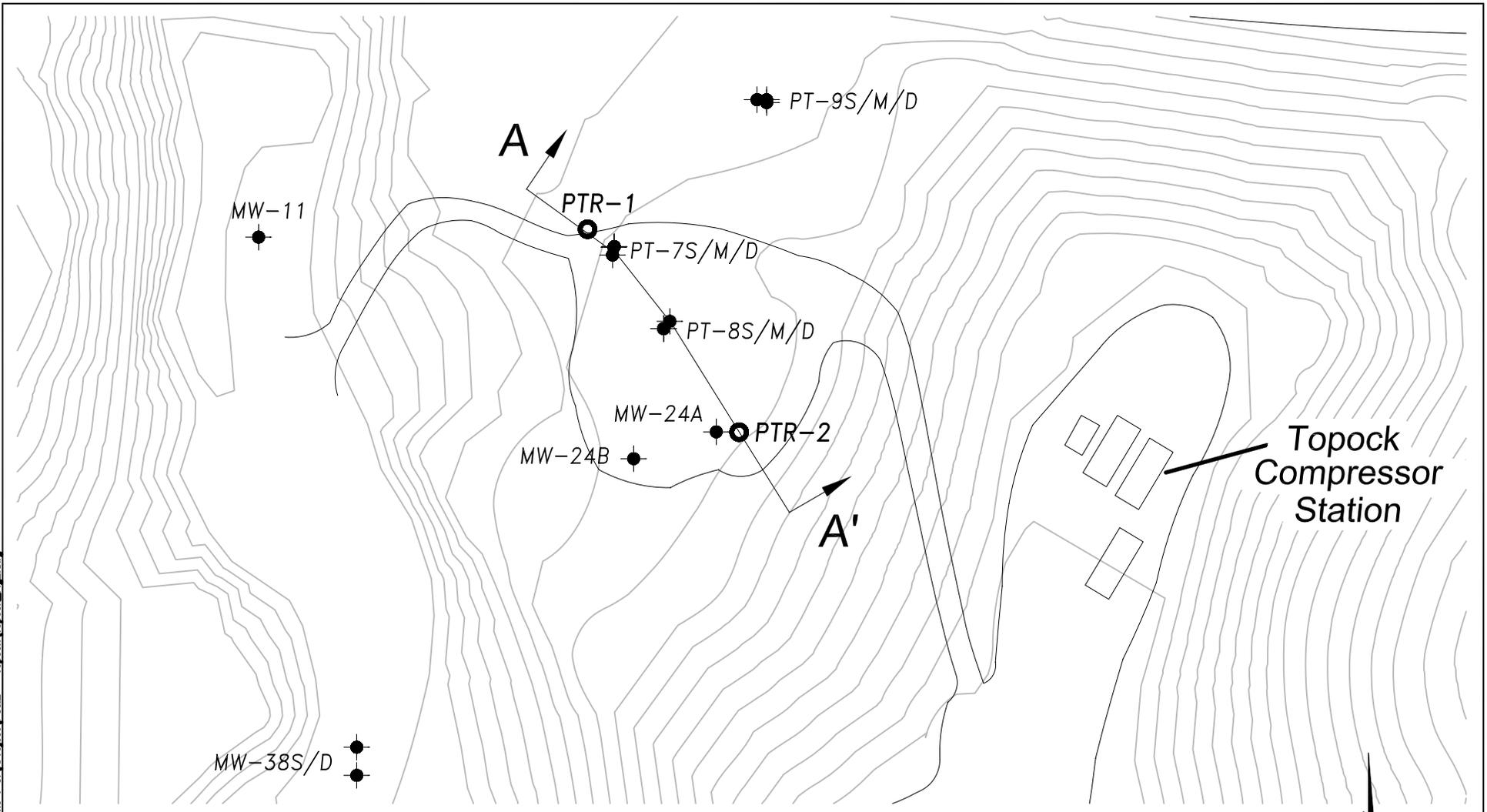
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 User Name : mchiu  
 Date/Time : Wed, 05 Mar 2008 - 2:44pm  
 Path Name : G:\Projects-Active\PG&E-MSA\TOPOCK 16 Deliverables\Draft Reports\February Upland Report\Fig.dwg

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

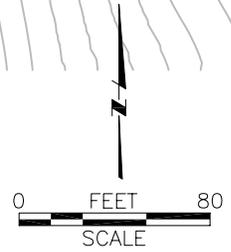
**ARCADIS**  
 ARCADIS, Inc.  
 1050 Marina Way South  
 Richmond, CA 94804  
 Tel: 510-233-3200 Fax: 510-233-3204  
 www.arcadis-us.com

**SITE PLAN**  
**PG&E TOPOCK FACILITY**  
**NEEDLES, CALIFORNIA**

Project Number <b>RC000689.0001</b>
Figure <b>1</b>



- Legend**
- Monitoring Well Locations**
  - Recirculation Well Locations**
  - S/M/D** **Shallow/Middle/Deep**



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

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

**UPLAND ISPT AREA  
 PG&E TOPOCK FACILITY  
 NEEDLES, CALIFORNIA**

Project Number
RC000689.0004
Figure
2

A'  
SOUTH

A  
NORTH

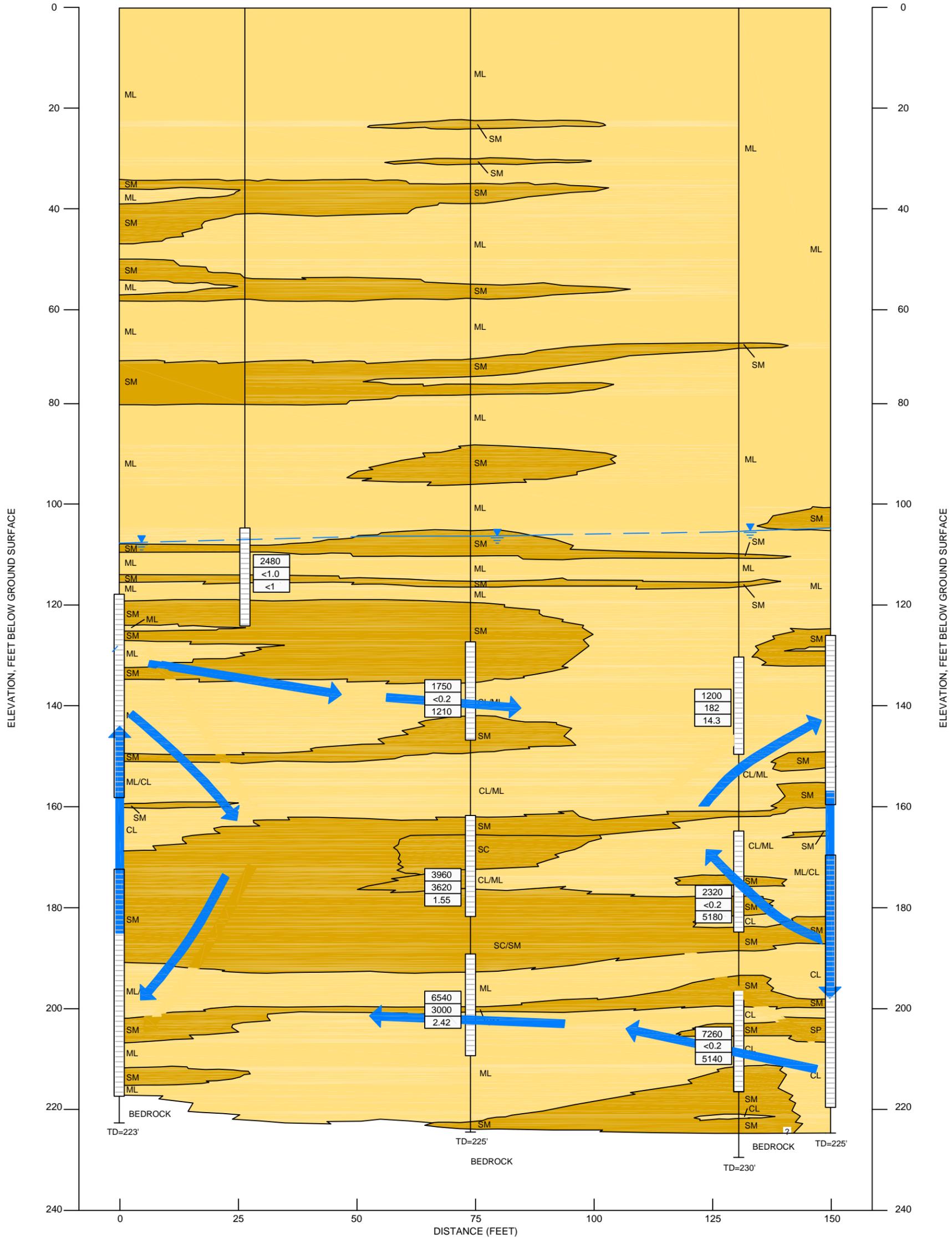
PTR-2  
(ELEVATION APPROXIMATE  
RESURVEY IN PROGRESS)

(PROJECTED)  
MW-24A

(PROJECTED)  
PT-8S/M/D  
(562.59')

PT-7S/M/D  
(560.42')

PTR-1  
(ELEVATION APPROXIMATE  
RESURVEY IN PROGRESS)

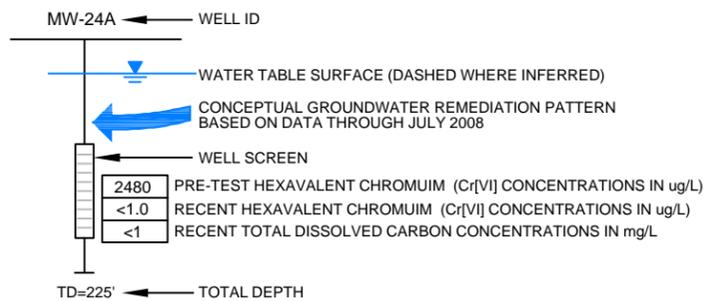


**LEGEND:**

- GENERALLY FINE GRAINED, LOWER PERMEABILITY
- GENERALLY COARSER GRAINED, HIGHER PERMEABILITY

**SOIL CLASSIFICATION:**

- GW = WELL GRADED GRAVEL
- SW = WELL GRADED SAND
- SP = POORLY GRADED SAND
- SM = SILTY SAND
- SC = CLAYEY SAND
- ML = SILT
- CL = CLAY



Area Manager	J. Peters
Project Manager	L. Kellogg
Task Manager	J. Lutrick
Technical Review	M. Gertile



ARCADIS, Inc.  
630 Plaza Drive, Suite 200  
Highlands Ranch, Colorado 80129  
Tel: 720.344.3500 Fax: 720.344.3535  
www.arcadis-us.com

**CROSS SECTION A'-A  
PG&E TOPOCK FACILITY  
NEEDLES, CALIFORNIA**

Project Number  
**RC000689.0004**

Drawing Date  
08/13/2008

Figure  
**3**

ARCADIS

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](mailto: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.<sup>1</sup> 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

<sup>1</sup> 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."

Reagent Injection Process - 3 -  
Upland ISPT, Topock Compressor Station

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

ARCADIS

**Appendix B**

Calibration Logs for Field Monitoring  
Instruments

ARCADIS

MULTIPARAMETER INSTRUMENT CALIBRATION RECORD

Project No.: RC 689.0001

Location: Tolock, CA

Instrument: YSI-556 MPS

Serial Number: 05C1520 AH

Date	Calibrated by	Parameter	Standards Used	Calibrated Achieved (Y/N)	Remarks
6-10-06	JA	pH	4.00	Y 3.98	31.96°C
			7.00	Y 7.00	31.19°C
			10.00	Y 10.00	30.70°C
		Spec cond	3900 $\mu$ S/cm	Y 3900	33.00°C
		DO	To Ambient	Y ✓	✓
		ORP	222.0 mV	Y 222.0	32.78°C
6-11-06	JA	pH	4.00	Y 4.00	29.71°C
			7.00	Y 7.00	30.15°C
			10.00	Y 10.00	30.21°C
		Spec cond	3900 $\mu$ S/cm	Y 3900	29.52°C
		ORP	224.5 mV	Y 224.5	29.83°C
		DO	To Ambient	Y ✓	✓
6-12-06	JA	pH	4.00	Y 4.00	23.23°C
			7.00	Y 7.00	22.79°C
			10.00	Y 10.01	22.84°C
		Spec cond	3900 $\mu$ S	Y 3900	22.40°C
		ORP	234.0 mV	Y	22.88°C
		DO	To Ambient	Y ✓	✓

MULTIPARAMETER INSTRUMENT CALIBRATION RECORD

Project No.:

Location: TOPOCK, CA

Instrument: VSI 556

Serial Number: 05C1520 AK

Date	Calibrated by	Parameter	Standards Used	Calibrated Achieved (Y/N)	Remarks
6-24-08	CI	Ph 7.0	6.92	Y	
↓	↓	Ph 4.0	3.95	Y	
↓	↓	Ph 10.0	9.91	Y	
↓	↓	COND 3.9	3738	Y	
↓	↓	ORP	209.3	Y	
↓	↓	DO	19.5	Y	
6-25-08	CI	Ph 7.0	6.92	Y	
↓	↓	Ph 4.0	3.95	Y	
↓	↓	Ph 10.0	10.09	Y	
↓	↓	COND 3.9	3924	Y	
↓	↓	ORP	227.8	Y	
↓	↓	D.O.	113.2	Y	
6-26-08	CI	Ph 7.0	6.90	Y	
↓	↓	Ph 4.0	3.87	Y	
↓	↓	Ph 10.0	9.93	Y	
↓	↓	COND 3.9	3916	Y	
↓	↓	ORP	224.7	Y	
↓	↓	DO	109.5	Y	



**ARCADIS**

**Appendix C**

Groundwater Sampling Logs

# RECORD OF WATER LEVEL MEASUREMENTS

Date: 06-10-08

Tools used (circle one): Interface Probe  
~~DTP~~ Meter  
 Measuring Tape

Project Name: Topock

Job No.: RC000689.0001.000006

Location: Needles, CA

ARCADIS Personnel: GC

Well Number	Time Measured	Depth to Product (DTP) (feet)	Depth to Water (DTW) (feet)	Depth to Bottom (DTB) (feet)	Product Thickness = DTW - DTP (feet)	Remarks:
MW-11	1325		65.49	88		6-10-08, JA 4"
MW-38S	1224		66.62	95.3		6-10-08, JA 2"
MW-38D	1128		69.22	188.3		6-10-08, JA 2"
PT-7S	1115 <del>1027</del>		103.64	150		6-11-08, JA 2"
PT-7M	1240		83.83	145		6-11-08, JA 2"
PT-7D	1140		64.54	217		6-11-08, JA 2"
PT-8S	1313		105.41	147		6-11-08, JA 2"
PT-8M	1445		105.35	182		6-11-08, JA 2"
PT-8D	1357		106.56	210		6-11-08, JA 2"
PT-9S	0632		102.50	147		6-11-08, JA 2"
PT-9M	1016		90.56	182		6-11-08, JA 2"

# RECORD OF WATER LEVEL MEASUREMENTS

Date: 06-12-08

Tools used (circle one): Interface Probe  
DTW Meter  
Measuring Tape

Project Name: Topock

Job No.: RC000689.0001.00006

Location: Needles, CA

ARCADIS Personnel: GC

Well Number	Time Measured	Depth to Product (DTP) (feet)	Depth to Water (DTW) (feet)	Depth to Bottom (DTB) (feet)	Product Thickness = DTW - DTP (feet)	Remarks:
PT-9D	0922		65.64	210		6-11-08, JA 2"
MW-24A	0840		111.66	124		6-12-08, JA 4"
MW-24B	0932		111.23	213		6-12-08, JA 4"

# ARCADIS

## Groundwater Sampling Form

Project Number: RC000689.0001. Task: 00006 Well ID: MW-385  
 Date: 06-10-08 Sampled By: GC  
 Weather: Hot Recorded By: JA  
 Coded Duplicate No.: None

### Instrument Identification

	PID	Water Quality Meter(s)
Model	—	YSI-556 MPS
Serial #:	—	05C1520 AH

### Purging Information

Casing Material: PVC  
 Casing Diameter: 2"  
 Total Depth: 95.3'  
 Depth to Water: 66.62  
 Water Column: 28.68  
 Gallons/Foot: .16  
 Gallons in Well: 4.6

Purge Technique (circle one): Low-Flow Remove 3 Well Volumes Bail Dry  
 Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailer Water  
 Screen Interval: From: 75' To: 95'  
 Pump Intake Setting: 2 gm  
 Volumes to be Purged: 3 casing  
 Total Volume Purged: 14  
 Pump on: 1230 Off: 1244

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

CR+6  
(560) 1.32 mg/L

### 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
1230	0	<del>2</del>	0	66.98	214	-56.1	7.50	1699	29.79	1.60	
1232	2		4	67.00	166	-29.9	7.57	2976	29.12	1.62	
1234	4		8	67.00	140	-19.8	7.51	2864	28.76	1.59	
1236	6		12	67.00	75	-14.1	7.50	2569	28.80	1.59	
1237	7	↓	14	67.00	86	-11.3	7.49	2571	28.74	1.58	
Transducer	out		1218								
	in		1252								

### Observations During Sampling

Well Condition: Broken Plug  
 Color: Light Brown  
 Odor: None  
 Purge Water Disposal: FRAC Tank  
 Turbidity(qualitative): Slightly opaque  
 Other (OVA, HNU, etc.):

Sample ID: MW-385 Sample Date & Time: 6-10-08, 1240  
 Samples Analyzed For: See the COC

**ARCADIS**

**Groundwater Sampling Form**

Project Number: RC000689.0001. Task: 00006 Well ID: MW-11  
 Date: 06-10-08 Sampled By: GC  
 Weather: Hot Recorded By: JA  
 Coded Duplicate No.: None

**Instrument Identification**

	PID	Water Quality Meter(s)
Model	—	YSI-556 MPS
Serial #:	—	05C1520 AM

**Purging Information**

Casing Material: PVC  
 Casing Diameter: 4"  
 Total Depth: 88'  
 Depth to Water: 65.49  
 Water Column: 22.51  
 Gallons/Foot: .65  
 Gallons in Well: 14.7

Purge Technique (circle one): Low-Flow Remove 3 Well Volumes Bail Dry  
 Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailer Dedicated  
 Screen Interval: From: 63' 88'  
 Pump Intake Setting: 3.5 gpm  
 Volumes to be Purged: 3 casing  
 Total Volume Purged: 45 gal  
 Pump on: 1327 Off: 1346

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

C7+6 (1960) .302 mg/L

**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 (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
1327	0	3	0	66.12	19	-21.9	7.25	2238	30.67	8.14	
1330	3	↓	9	66.14	16	-15.9	7.21	2228	30.60	8.04	
1333	6	↓	18	66.15	16	-12.3	7.20	2221	30.68	8.10	
1336	9	↓	27	66.16	14	-11.1	7.20	2230	30.66	8.10	
1339	12	↓	36	66.16	22	-10.6	7.20	2215	30.79	8.09	
1342	15	↓	45	66.16	10	-11.3	7.20	2196	30.73	8.14	

**Observations During Sampling**

Well Condition: Good Purge Water Disposal: FMC tank  
 Color: None Turbidity(qualitative): clear  
 Odor: None Other (OVA, HNU, etc.): —

Sample ID: MW-11 Sample Date & Time: 6-10-08, 1345  
 Samples Analyzed For: See the COC





# ARCADIS

## Groundwater Sampling Form

Project Number: RC000689.0001. Task: 00006 Well ID: PT-7S  
 Date: 06-11-08 Sampled By: GC  
 Weather: Hat Recorded By: JA  
 Coded Duplicate No.: -

### Instrument Identification

	PID	Water Quality Meter(s)
Model	<u>-</u>	<u>YSI-556 MPS</u>
Serial #:	<u>-</u>	<u>0501520 AM</u>

### Purging Information

Casing Material: PVC  
 Casing Diameter: 2"  
 Total Depth: 150'  
 Depth to Water: 103.64  
 Water Column: 46.36  
 Gallons/Foot: .16  
 Gallons in Well: 7.5

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: 3 gpm  
 Volumes to be Purged: 3 Casing  
 Total Volume Purged: 24  
 Pump on: 1118 Off: 1132

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

CAT6  
(1500) 1.80 mg/L

### 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
1118	0	3	0	103.64	450	53.9	7.39	5143	29.11	1.07	
1120	2	↓	6	104.50	95	44.3	7.26	5700	29.95	0.76	
1122	4	↓	12	104.61	36	43.8	7.28	5695	29.96	0.74	
1124	6	↓	18	104.61	33	43.2	7.27	5695	29.95	0.71	
1126	8	↓	24	104.61	27	41.6	7.27	5694	29.95	0.72	

### Observations During Sampling

Well Condition: Good Purge Water Disposal: FRAC TANK  
 Color: None Turbidity(qualitative): Clear  
 Odor: None Other (OVA, HNU, etc.): -

Sample ID: PT-7S Sample Date & Time: 6-11-08, 1130  
 Samples Analyzed For: See the COC

**ARCADIS**

**Groundwater Sampling Form**

Project Number: RC000689.0001. Task: 00006 Well ID: PT-9D  
 Date: 06-11-08 Sampled By: GC  
 Weather: Hot Recorded By: JA  
 Coded Duplicate No.: DUP-1, 6-11-08 0955

**Instrument Identification**

Model	PID	Water Quality Meter(s)
Serial #:		
		YSI-556 MPS
		05C1520 AM

**Purging Information**

Casing Material: PVC  
 Casing Diameter: 2"  
 Total Depth: 210'  
 Depth to Water: 85.64  
 Water Column: 127.36  
 Gallons/Foot: .16  
 Gallons in Well: 19.9

Purge Technique (circle one): Low-Flow Remove 3 Well Volumes Bail Dry  
 Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailer  
 Screen Interval: From: 190' To: 210'  
 Pump Intake Setting: 4 gpm  
 Volumes to be Purged: 3 CASING  
 Total Volume Purged: 60  
 Pump on: 0930 Off: 0959

C7+6 13.66 mg/L  
(1560)

Well Casing Volumes (gal/ft):	<u>2" = 0.16</u>	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 btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
0930	0	4	0	85.64	128	134.9	7.40	15057	29.03	1.31	light green
0933	3		12	102.92	113	125.3	7.63	16525	30.35	1.38	
0936	6		24	102.92	100	116.4	7.64	16042	30.21	1.25	
0939	9		36	102.93	50	109.9	7.63	15600	30.36	1.20	
0942	12		48	102.93	46	108.1	7.63	15599	30.30	1.20	
0945	15		60	102.93	30	107.6	7.62	15590	30.21	1.15	

**Observations During Sampling**

Well Condition: Good  
 Color: light green  
 Odor: None  
 Purge Water Disposal: FRAC TANK  
 Turbidity(qualitative): Slighter opaque  
 Other (OVA, HNU,etc.):

Sample ID: PT-9D Sample Date & Time: 6-11-08, 0950  
 Samples Analyzed For: See the COC

**ARCADIS**

**Groundwater Sampling Form**

Project Number: RC000689.0001. Task: 00006 Well ID: PT-9M  
 Date: 06-11-08 Sampled By: GC  
 Weather: Hot Recorded By: JA  
 Coded Duplicate No.: -

**Instrument Identification**

	PID	Water Quality Meter(s)
Model	<u>-</u>	<u>YSI-556 MPS</u>
Serial #:	<u>-</u>	<u>05C1520 AH</u>

**Purging Information**

Casing Material: PVC  
 Casing Diameter: 2"  
 Total Depth: 182'  
 Depth to Water: 90.56  
 Water Column: 91.44  
 Gallons/Foot: .16  
 Gallons in Well: 14.7

Purge Technique (circle one): Low-Flow Remove 3 Well Volumes Bail Dry  
 Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailer  
 Screen Interval: From: 162' To: 182'  
 Pump Intake Setting: 3 gpm  
 Volumes to be Purged: 3 Casing  
 Total Volume Purged: 45  
 Pump on: 1020 Off: 1043

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

CNT6  
(1560) 2.98 mg/L

**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
1020	0	3	0	91.44	702	73.7	7.01	7070	29.09	3.51	
1023	3		9	102.50	71	70.4	7.01	7242	30.11	3.97	
1026	6		18	103.00	42	69.7	7.01	7243	30.11	3.98	
1029	9		27	103.01	30	69.8	7.01	7240	30.14	4.00	
1032	12		36	103.02	36	69.9	7.00	7239	30.15	3.99	
1035	15		45	103.03	29	70.1	7.00	7238	30.13	4.00	

**Observations During Sampling**

Well Condition: Good  
 Color: None  
 Odor: None  
 Purge Water Disposal: FRAC tank  
 Turbidity(qualitative): Clear  
 Other (OVA, HNU, etc.): -

Sample ID: PT-9M Sample Date & Time: 6-11-08, 1040  
 Samples Analyzed For: See the COC

ARCADIS

Groundwater Sampling Form

Project Number: RC000689.0001. Task: 00006 Well ID: PT-9S
Date: 06-11-08 Sampled By: GC
Weather: Not Recorded By: JA
Coded Duplicate No.: [initials]

Instrument Identification

Table with 2 columns: Instrument ID (Model, Serial #) and Water Quality Meter(s) (YSI-556mps, 05C1520 AM)

Purging Information

Casing Material: PVC
Casing Diameter: 2"
Total Depth: 147'
Depth to Water: 102.50
Water Column: 44.5
Gallons/Foot: .16
Gallons in Well: 7.2

Purge Technique (circle one): Low-Flow Remove 3 Well Volumes Bail Dry
Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailor (cuterra)
Screen Interval: From: 128' To: 147'
Pump Intake Setting: 2 gpm
Volumes to be Purged: 3 casing
Total Volume Purged: 22
Pump on: 0835 Off: 0854

C76 (1560) 1.54 mg/L

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

Table with 12 columns: 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

Observations During Sampling

Well Condition: Good
Color: Light Brown
Odor: None

Purge Water Disposal: FRAC TANK
Turbidity(qualitative): Slightly Opalescent
Other (OVA, HNU, etc.):

Sample ID: PT-9S Sample Date & Time: 6-11-08, 0850
Samples Analyzed For: See the COC

**ARCADIS**

**Groundwater Sampling Form**

Project Number: RC000689.0001. Task: 00006 Well ID: PT-8D  
 Date: 06-11-08 Sampled By: GC  
 Weather: Hot Recorded By: JA  
 Coded Duplicate No.: -

**Instrument Identification**

	PID	Water Quality Meter(s)
Model	<u>-</u>	<u>YSI-556 MPS</u>
Serial #:	<u>-</u>	<u>05C1520AH</u>

**Purging Information**

Casing Material: PVC  
 Casing Diameter: 2"  
 Total Depth: 210'  
 Depth to Water: 106.56  
 Water Column: 103.94  
 Gallons/Foot: 116  
 Gallons in Well: 16.6

Purge Technique (circle one): Low-Flow Remove 3 Well Volumes Bail Dry  
 Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailer  
 Screen Interval: From: 190' To: 210'  
 Pump Intake Setting: 3 gpm  
 Volumes to be Purged: 3 Casing  
 Total Volume Purged: 51  
 Pump on: 1400 Off: 1424

C176  
(1500) 3.96 mg/L

Well Casing Volumes (gal/ft):	<u>2" = 0.16</u>	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 btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (umhos/cm)	Temp (°C)	DO (mg/L)	Comments
1400	0	3	0	106.60	48	406.3	7.79	16036	29.79	0.51	
1404	4	↓	17	106.66	32	-109.2	7.75	16293	30.21	0.43	
1408	8	↓	24	106.66	15	-96.6	7.77	16021	30.31	0.42	
1412	12	↓	36	106.66	12	-92.7	7.76	15463	30.31	0.42	
1416	16	↓	48	106.66	11	-90.1	7.75	15480	30.33	0.43	
1417	17	↓	51	106.66	9	-89.7	7.75	15420	30.36	0.43	

**Observations During Sampling**

Well Condition: Good Purge Water Disposal: FRAC tank  
 Color: None Turbidity(qualitative): Clear  
 Odor: None Other (OVA, HNU, etc.): -

Sample ID: PT-8D Sample Date & Time: 6-11-08, 1420  
 Samples Analyzed For: See the COC



**ARCADIS**

**Groundwater Sampling Form**

Project Number: RC000689.0001. Task: 00006 Well ID: PT-7M  
 Date: 06-11-08 Sampled By: GC  
 Weather: Hot Recorded By: JA  
 Coded Duplicate No.: —

**Instrument Identification**

	PID	Water Quality Meter(s)
Model	<u>—</u>	<u>YSI-556 MPS</u>
Serial #:	<u>—</u>	<u>0501520 AH</u>

**Purging Information**

Casing Material: PVC  
 Casing Diameter: 2"  
 Total Depth: 185'  
 Depth to Water: 83.83  
 Water Column: 101.17  
 Gallons/Foot: .16  
 Gallons in Well: 16.2

Purge Technique (circle one): Low-Flow Remove 3 Well Volumes Bail Dry  
 Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailer  
 Screen Interval: From: 165' To: 185'  
 Pump Intake Setting: 3 gpm  
 Volumes to be Purged: 3 CASING  
 Total Volume Purged: 51  
 Pump on: 1242 Off: 1303

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

C At 6 (1560) .027 mg/L

**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
1242	0	3	0	83.83	126	-150.4	6.72	6615	30.27	0.42	Green
1246	4	↓	12	104.20	64	-141.1	6.76	6547	30.96	0.29	ODOR
1250	8	↓	24	104.23	48	-155.0	6.76	6515	30.98	0.28	
1254	12	↓	36	104.26	40	-159.8	6.77	6569	31.02	0.27	
1258	16	↓	48	104.29	36	-191.9	6.77	6569	31.04	0.30	
1259	17	↓	51	104.29	24	-199.3	6.77	6579	31.07	0.27	

**Observations During Sampling**

Well Condition: Good Purge Water Disposal: FAAC TANK  
 Color: Green Turbidity(qualitative): Clear  
 Odor: Yes Other (OVA, HNU, etc.): —

Sample ID: PT-7M Sample Date & Time: 6-11-08, 1300  
 Samples Analyzed For: See the COC

**ARCADIS**

**Groundwater Sampling Form**

Project Number: RC000689.0001. Task: 00006 Well ID: PT-7D  
 Date: 06-11-08 Sampled By: GC  
 Weather: Hot Recorded By: JA  
 Coded Duplicate No.: -

**Instrument Identification**

Model	PID	Water Quality Meter(s)
	<u>-</u>	<u>YSI-556 MPS</u>
Serial #:	<u>-</u>	<u>05CL520 AH</u>

**Purging Information**

Casing Material: PVC  
 Casing Diameter: 2"  
 Total Depth: 217'  
 Depth to Water: 84.54  
 Water Column: 132.46  
 Gallons/Foot: .16  
 Gallons in Well: 21.2

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: 3  
 Volumes to be Purged: 3 CASING  
 Total Volume Purged: 65  
 Pump on: 1150 Off: 1220

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

C176  
(1560) .023 m42

**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
<del>1145</del>	0	3	0	84.54	114	-216.1	6.31	8690	30.91	0.24	GREEN
1150	5		15	90.18	72	-245.9	6.58	8772	31.16	0.37	ODOR
1155	10		30	101.14	38	-257.2	6.67	8766	31.23	0.33	↓
1200	15		45	102.46	30	-266.6	6.74	8925	31.24	0.31	↓
1205	20		60	103.18	28	-267.7	6.76	8933	31.39	0.30	GREEN
1210	22	↓	66	103.33	22	-274.9	6.78	8720	31.38	0.29	ODOR

**Observations During Sampling**

Well Condition: Good Purge Water Disposal: FRAE tank  
 Color: Green Turbidity(qualitative): Clear  
 Odor: Yes Other (OVA, HNU, etc.): -

Sample ID: PT-7D Sample Date & Time: 6-11-08, 1215  
 Samples Analyzed For: See the COC

**ARCADIS**

**Groundwater Sampling Form**

Project Number: RC000689.0001. Task: 00006 Well ID: PT-8M  
 Date: 06-11-08 Sampled By: GC  
 Weather: Hot Recorded By: JA  
 Coded Duplicate No.: —

**Instrument Identification**

Model	PID	Water Quality Meter(s)
Serial #:	—	YSI -556 MPS 05C1520 AM

**Purging Information**

Casing Material: PVC  
 Casing Diameter: 2"  
 Total Depth: 182'  
 Depth to Water: 105.35  
 Water Column: 46.65  
 Gallons/Foot: .16  
 Gallons in Well: 13.9

Purge Technique (circle one): Low-Flow Remove 3 Well Volumes Bail Dry  
 Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailer  
 Screen Interval: From: 162' To: 182'  
 Pump Intake Setting: 3 gpm  
 Volumes to be Purged: 3 casing  
 Total Volume Purged: 42  
 Pump on: 1450 Off: 1511

CMT6  
(1560) 3.86 mg/L

Well Casing Volumes (gal/ft):	<u>2" = 0.16</u>	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 btoC)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (umhos/cm)	Temp (°C)	DO (mg/L)	Comments
1450	0	3	0	105.35	23	-57.2	6.97	6801	29.89	2.35	
1453	3	↓	9	105.60	13	-47.7	7.08	6790	29.93	2.18	
1456	6	↓	18	105.80	15	-42.4	7.07	6781	29.96	2.26	
1459	9	↓	27	105.80	12	-41.4	7.07	6780	29.96	2.19	
1502	12	↓	36	105.80	11	-40.1	7.07	6776	30.00	2.20	
1507	17	↓	42	105.80	10	-38.0	7.06	6769	29.95	2.23	

**Observations During Sampling**

Well Condition: Good Purge Water Disposal: FRAC TANK  
 Color: None Turbidity(qualitative): Clear  
 Odor: None Other (OVA, HNU, etc.): —

Sample ID: PT-8M Sample Date & Time: 6-11-08, 1510  
 Samples Analyzed For: See the COC

**ARCADIS**

**Groundwater Sampling Form**

Project Number: RC000689.0001.  
 Date: 06-12-08  
 Weather: Hot

Task: 00006 Well ID: MW-24B  
 Sampled By: GC  
 Recorded By: JA  
 Coded Duplicate No.: No

**Instrument Identification**

Model	PID	Water Quality Meter(s)
	<u>—</u>	<u>YSI-556 MPS</u>
Serial #:	<u>—</u>	<u>05C1520 AH</u>

**Purging Information**

Casing Material: PVC  
 Casing Diameter: 4"  
 Total Depth: 213'  
 Depth to Water: 111.23  
 Water Column: 101.77  
 Gallons/Foot: .65  
 Gallons in Well: 66.2

Purge Technique (circle one): Low-Flow Remove 3 Well Volumes Bail Dry  
 Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailer  
 Screen Interval: From: 193' 213'  
 Pump Intake Setting: 5  
 Volumes to be Purged: 3 CASING  
 Total Volume Purged: 200  
 Pump on: 0935 Off: 1022

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

C76  
(1560) 3.98 mg/L

**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 (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
0935	0	5	0	111.23	13	-99.7	7.74	14780	28.60	1.56	
0943	8		40	116.40	7	-91.9	7.77	16413	30.03	1.21	
0951	16		80	120.67	8	-86.5	7.74	16264	30.15	1.20	
0959	24		120	121.09	9	-75.8	7.73	16196	30.21	1.14	
1007	32		160	121.18	8	-72.4	7.72	16175			
1015	40	↓	200	121.27	8	-66.6	7.72	16160	30.23		

**Observations During Sampling**

Well Condition: Good  
 Color: light yellow  
 Odor: none

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

Sample ID: MW-24B  
 Samples Analyzed For: See the COC

Sample Date & Time: 6-12-08, 1020

**ARCADIS**

**Groundwater Sampling Form**

Project Number: RC000689.0001.  
 Date: 06-12-08  
 Weather: Hot

Task: 00006 Well ID: MW-24A  
 Sampled By: GC  
 Recorded By: JA  
 Coded Duplicate No.: None

**Instrument Identification**

	PID	Water Quality Meter(s)
Model	<u>—</u>	<u>YSI-556MPS</u>
Serial #:	<u>—</u>	<u>05C1520 AM</u>

**Purging Information**

Casing Material: PVC  
 Casing Diameter: 4"  
 Total Depth: 124'  
 Depth to Water: 111.66  
 Water Column: 12.64  
 Gallons/Foot: .65  
 Gallons in Well: 8.4

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: 4  
 Volumes to be Purged: 3 casing  
 Total Volume Purged: 26  
 Pump on: 0850 Off: 0908

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

CR76  
(1560) .008 mg/L

**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 (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
0850	0	2	0	111.66	34	-276.6	6.46	10893	30.76	0.65	PINIC
0852	2		4	111.72	36	-273.1	6.54	10907	31.34	0.58	ODO2
0854	4		8	111.63	28	-274.2	6.55	10898	31.79	0.57	
0856	6		12	111.66	25	-275.9	6.57	10899	32.01	0.59	
0858	8		16	111.56	22	-275.4	6.58	10898	32.09	0.63	
0900	10		20	111.56	24	-260.7	6.65	10902	32.24	0.74	
0902	12		24	111.66	26	-263.9	6.68	10905	32.40	0.51	
0903	13	✓	26	111.66	24	-259.9	6.70	10910	32.60	0.80	

**Observations During Sampling**

Well Condition: Good  
 Color: Pink  
 Odor: Yes

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

Sample ID: MW-24A  
 Samples Analyzed For: See the COC

Sample Date & Time: 6-12-08, 0905



# RECORD OF WATER LEVEL MEASUREMENTS

Date: 06-24-2008

Job No.: RC000689.0004.000008

Project Name: Topock

Location: Needles, CA

ARCADIS Personnel: MG

Tools used (circle one): Interface Probe  
DTW Meter  
Measuring Tape

Well Number	Time Measured	Depth to Product (DTP) (feet)	Depth to Water (DTW) (feet)	Depth to Bottom (DTB) (feet)	Product Thickness = DTW - DTP (feet)	Remarks:
		—		—		
		—		—		
MW-11	1200	—	65.54	—		
PT-7D	1335	—	86.30	—		
PT-7S	1435	—	103.55	—		
PT-7M	0753	—	79.51	—		
PT-8D	0910	—	105.43	—		
PT-8S	0947	—	105.29	—		
PT-8M	1022	—	105.50	—		
PT-9M	1130	—	102.75	—		
PT-9D	1350	—	102.49	—		



# ARCADIS

## Groundwater Sampling Form

Project Number: RC000689.0004.  
 Date: 06-26-08  
 Weather: HST

Task: 00008 Well ID: PTR-1  
 Sampled By: MG  
 Recorded By: WJ  
 Coded Duplicate No.: \_\_\_\_\_

### Instrument Identification

	PID	Water Quality Meter(s)
Model		<u>VSI 556</u>
Serial #:		<u>05C1520 AK</u>

### Purging Information

Casing Material: \_\_\_\_\_  
 Casing Diameter: \_\_\_\_\_  
 Total Depth: \_\_\_\_\_  
 Depth to Water: \_\_\_\_\_  
 Water Column: \_\_\_\_\_  
 Gallons/Foot: \_\_\_\_\_  
 Gallons in Well: \_\_\_\_\_

Purge Technique (circle one): Low-Flow Remove 3 Well Volumes Bail Dry  
 Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailer  
 Screen Interval: From: \_\_\_\_\_ To: \_\_\_\_\_  
 Pump Intake Setting: \_\_\_\_\_  
 Volumes to be Purged: \_\_\_\_\_  
 Total Volume Purged: \_\_\_\_\_  
 Pump on: \_\_\_\_\_ Off: \_\_\_\_\_

Cr<sup>6+</sup> .009 mg/L

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 ( )	Volume Purged ( )	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
<u>0830</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>18</u>	<u>-113.6</u>	<u>7.58</u>	<u>5640</u>	<u>38.43</u>	<u>1.10</u>	

### Observations During Sampling

Well Condition: Good  
 Color: none  
 Odor: None

Purge Water Disposal: \_\_\_\_\_  
 Turbidity(qualitative): slightly turbid  
 Other (OVA, HNU, etc.): \_\_\_\_\_

Sample ID: PTR-1  
 Samples Analyzed For: See the COC

Sample Date & Time: 6-26-08 @ 0830

**ARCADIS**

**Groundwater Sampling Form**

Project Number: RC000689.0004.  
 Date: 06-26-08  
 Weather: Hot

Task: 00008 Well ID: PTR-2  
 Sampled By: MG  
 Recorded By: CT  
 Coded Duplicate No.: \_\_\_\_\_

**Instrument Identification**

	PID	Water Quality Meter(s)
Model		<u>YSI 556</u>
Serial #:		<u>05C1520 AK</u>

**Purging Information**

Casing Material: \_\_\_\_\_  
 Casing Diameter: \_\_\_\_\_  
 Total Depth: \_\_\_\_\_  
 Depth to Water: \_\_\_\_\_  
 Water Column: \_\_\_\_\_  
 Gallons/Foot: \_\_\_\_\_  
 Gallons in Well: \_\_\_\_\_

Purge Technique (circle one): Low-Flow Remove 3 Well Volumes Bail Dry  
 Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailer  
 Screen Interval: From: \_\_\_\_\_ To: \_\_\_\_\_  
 Pump Intake Setting: \_\_\_\_\_  
 Volumes to be Purged: \_\_\_\_\_  
 Total Volume Purged: \_\_\_\_\_  
 Pump on: \_\_\_\_\_ Off: \_\_\_\_\_

C<sub>6+</sub> 4.28 mg/L

<b>Well Casing Volumes (gal/ft):</b>	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 ( )	Volume Purged ( )	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
<u>0845</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>6</u>	<u>20.9</u>	<u>7.22</u>	<u>10484</u>	<u>31.34</u>	<u>0.79</u>	

**Observations During Sampling**

Well Condition: Good  
 Color: LIGHT GREEN  
 Odor: NO

Purge Water Disposal: \_\_\_\_\_  
 Turbidity(qualitative): CLEAR  
 Other (OVA, HNU, etc.): \_\_\_\_\_

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

Sample Date & Time: 6-26-08 @ 0845

**ARCADIS**

**Groundwater Sampling Form**

Project Number: RC000689.0004. Task: 00008 Well ID: PT-7S  
 Date: 06-24-08 Sampled By: MG  
 Weather: HOT Recorded By: CP  
 Coded Duplicate No.: \_\_\_\_\_

**Instrument Identification**

Model	PID	Water Quality Meter(s)
Serial #:		<u>VSI 536</u> <u>05C1520 AK</u>

**Purging Information**

Casing Material: PVC  
 Casing Diameter: 2"  
 Total Depth: 150'  
 Depth to Water: 103.55  
 Water Column: 46.45  
 Gallons/Foot: .16  
 Gallons in Well: 7.432

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: 140'  
 Volumes to be Purged: 3  
 Total Volume Purged: 22.296  
 Pump on: 1442 Off: 1505

Cr # 1.06 mg/L

<b>Well Casing Volumes (gal/ft):</b>	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 btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (umhos/cm)	Temp (°C)	DO (mg/L)	Comments
1442	0	2	0		37	-28.6	7.10	4958	29.64	1.70	
1446	4	2	7.5		51	-2.3	6.81	4990	30.06	0.25	
1449	7	2	15.0		30	0.7	6.77	5037	30.07	0.18	
1453	11	2	22.5		19	0.2	6.83	5044	30.11	0.16	

**Observations During Sampling**

Well Condition: GOOD Purge Water Disposal: \_\_\_\_\_  
 Color: NONE Turbidity(qualitative): CLEAR  
 Odor: NONE Other (OVA, HNU, etc.): \$

Sample ID: PT-76 Sample Date & Time: 6-24-08 @ 1500  
 Samples Analyzed For: See the COC

# ARCADIS

## Groundwater Sampling Form

Project Number: RC000689.0004.  
 Date: 06-25-08  
 Weather: HOT

Task: 00008 Well ID: PT-7M  
 Sampled By: MG  
 Recorded By: [Signature]  
 Coded Duplicate No.: \_\_\_\_\_

### Instrument Identification

Model	PID	Water Quality Meter(s)
Serial #:		<u>VSE 516</u> <u>OSC1520 AK</u>

### Purging Information

Casing Material: PVC  
 Casing Diameter: 2"  
 Total Depth: 185'  
 Depth to Water: 79.51  
 Water Column: 105.49  
 Gallons/Foot: 0.16  
 Gallons in Well: 16.8784

Purge Technique (circle one): Low-Flow Remove  Well Volumes Bail Dry  
 Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailer  
 Screen Interval: From: 165' To: 185'  
 Pump Intake Setting: 175'  
 Volumes to be Purged: 3  
 Total Volume Purged: 50.6352  
 Pump on: 0831 Off: 0900

CAT 0.035 mg/L

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 ( )	Volume Purged ( )	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (umhos/cm)	Temp (°C)	DO (mg/L)	Comments
<u>0831</u>	<u>0</u>	<u>2.5</u>	<u>0</u>		<u>377</u>	<u>-82.2</u>	<u>6.57</u>	<u>7771</u>	<u>31.02</u>	<u>4.75</u>	
<u>0838</u>	<u>7</u>	<u>2.5</u>	<u>17</u>		<u>82</u>	<u>-151.0</u>	<u>6.62</u>	<u>7834</u>	<u>30.99</u>	<u>0.15</u>	
<u>0845</u>	<u>14</u>	<u>2.5</u>	<u>34</u>		<u>47</u>	<u>-158.4</u>	<u>6.64</u>	<u>7863</u>	<u>31.04</u>	<u>0.13</u>	
<u>0851</u>	<u>20</u>	<u>2.5</u>	<u>51</u>		<u>38</u>	<u>-161.8</u>	<u>6.66</u>	<u>7973</u>	<u>31.11</u>	<u>0.13</u>	

### Observations During Sampling

Well Condition: GOOD  
 Color: GREEN  
 Odor: NO, MEDIUM

Purge Water Disposal: \_\_\_\_\_  
 Turbidity(qualitative): CLEAR  
 Other (OVA, HNU, etc.): \_\_\_\_\_

Sample ID: \_\_\_\_\_ Sample Date & Time: 6-25-08 @ 0855  
 Samples Analyzed For: See the COC

**ARCADIS**

**Groundwater Sampling Form**

Project Number: RC000689.0004. Task: 00008 Well ID: PT-7D  
 Date: 06-24-08 Sampled By: MG  
 Weather: HOT Recorded By: CR  
 Coded Duplicate No.: \_\_\_\_\_

**Instrument Identification**

	PID	Water Quality Meter(s)
Model		<u>V52 556</u>
Serial #:		<u>05C1520 AK</u>

**Purging Information**

Casing Material: PVC  
 Casing Diameter: 2"  
 Total Depth: 217'  
 Depth to Water: 86.30  
 Water Column: 130.7  
 Gallons/Foot: .16  
 Gallons in Well: 20.912

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: 207'  
 Volumes to be Purged: 3  
 Total Volume Purged: 62736  
 Pump on: 1342 Off: 140

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

C<sub>at</sub> .054 mg/L

**Field Parameter Measurements Taken During Purging**

Time	Minutes Elapsed	Flow Rate ( )	Volume Purged ( )	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
<u>1342</u>	<u>0</u>	<u>3</u>	<u>0</u>		<u>34</u>	<u>-214.9</u>	<u>6.08</u>	<u>9453</u>	<u>30.07</u>	<u>0.90</u>	
<u>1349</u>	<u>7</u>	<u>3</u>	<u>21</u>		<u>59</u>	<u>-249.9</u>	<u>6.34</u>	<u>8931</u>	<u>31.07</u>	<u>0.10</u>	
<u>1356</u>	<u>14</u>	<u>3</u>	<u>42</u>		<u>34</u>	<u>-249.7</u>	<u>6.47</u>	<u>8963</u>	<u>31.19</u>	<u>0.10</u>	
<u>1403</u>	<u>21</u>	<u>3</u>	<u>63</u>		<u>31</u>	<u>-248.9</u>	<u>6.51</u>	<u>8952</u>	<u>31.20</u>	<u>0.10</u>	

**Observations During Sampling**  
 Well Condition: GOOD  
 Color: GREEN  
 Odor: STRONG

Purge Water Disposal: \_\_\_\_\_  
 Turbidity(qualitative): CLEAR  
 Other (OVA, HNU, etc.): \_\_\_\_\_

Sample ID: PT-7D Sample Date & Time: 6-24-08 @ 1405  
 Samples Analyzed For: See the COC

**ARCADIS**

**Groundwater Sampling Form**

Project Number: RC000689.0004. Task: 00008 Well ID: PT-8S  
 Date: 06-25-08 Sampled By: MG  
 Weather: HOT WINDY Recorded By: GA  
 Coded Duplicate No.: \_\_\_\_\_

**Instrument Identification**

	PID	Water Quality Meter(s)
Model		<u>YSI 536</u>
Serial #:		<u>05C1520AK</u>

**Purging Information**

Casing Material: PVC  
 Casing Diameter: 2"  
 Total Depth: 147'  
 Depth to Water: 105.29  
 Water Column: 41.71  
 Gallons/Foot: .16  
 Gallons in Well: 6.6736

Purge Technique (circle one): Low-Flow Remove Well Volumes Bail Dry  
 Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailer  
 Screen Interval: From: 127' To: 147'  
 Pump Intake Setting: 137'  
 Volumes to be Purged: 3  
 Total Volume Purged: 20.0108  
 Pump on: 0955 Off: 1015

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

C-66 .046 mg/L

**Field Parameter Measurements Taken During Purging**

Time	Minutes Elapsed	Flow Rate ( )	Volume Purged ( )	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
<u>0955</u>	<u>0</u>	<u>2</u>	<u>0</u>		<u>243</u>	<u>-219.2</u>	<u>6.59</u>	<u>10350</u>	<u>29.20</u>	<u>1.07</u>	
<u>0959</u>	<u>4</u>	<u>2</u>	<u>8</u>		<u>23</u>	<u>-227.6</u>	<u>6.61</u>	<u>10676</u>	<u>29.85</u>	<u>0.19</u>	
<u>1002</u>	<u>7</u>	<u>2</u>	<u>15</u>		<u>23</u>	<u>-219.5</u>	<u>6.64</u>	<u>10740</u>	<u>30.06</u>	<u>0.15</u>	
<u>1006</u>	<u>11</u>	<u>2</u>	<u>21</u>		<u>16</u>	<u>-217.8</u>	<u>6.66</u>	<u>10733</u>	<u>30.10</u>	<u>0.14</u>	

**Observations During Sampling**

Well Condition: GOOD Purge Water Disposal: \_\_\_\_\_  
 Color: NO SLIGHT REDISH Turbidity(qualitative): CLEAR  
 Odor: YES, SLIGHT Other (OVA, HNU, etc.): \_\_\_\_\_

Sample ID: PT-8S Sample Date & Time: 6-25-08 @ 1010  
 Samples Analyzed For: See the COC

# ARCADIS

## Groundwater Sampling Form

Project Number: RC000689.0004.  
 Date: 06-25-08  
 Weather: HOT

Task: 00008 Well ID: PT-8M  
 Sampled By: MG  
 Recorded By: CF  
 Coded Duplicate No.: DUP-1

### Instrument Identification

	PID	Water Quality Meter(s)
Model:		VSE 586
Serial #:		054510 AK

### Purging Information

Casing Material: PVC  
 Casing Diameter: 2"  
 Total Depth: 182'  
 Depth to Water: 109.50  
 Water Column: 76.50  
 Gallons/Foot: .16  
 Gallons in Well: 12.24

Purge Technique (circle one): Low-Flow Remove 3  Well Volumes Bail Dry  
 Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailer  
 Screen Interval: From: 162' To: 182'  
 Pump Intake Setting: 172'  
 Volumes to be Purged: 3  
 Total Volume Purged: 36.72  
 Pump on: 1029 Off: 1050

C<sub>6H</sub> 4.14 mg/L

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 ( )	Volume Purged ( )	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
1029	0	2	0		46	-20.2	7.10	6557	29.32	1.30	
1035	6	2	13		15	10.7	6.95	6633	30.10	0.73	
1041	12	2	25		11	17.1	6.89	6634	30.17	0.82	
1047	18	2	37			23.0	6.89	6634	30.19	0.85	

### Observations During Sampling

Well Condition: GOOD  
 Color: \_\_\_\_\_  
 Odor: \_\_\_\_\_

Purge Water Disposal: \_\_\_\_\_  
 Turbidity(qualitative): CLEAR  
 Other (OVA, HNU, etc.): \_\_\_\_\_

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

Sample Date & Time: 6-25-08 @ 1050  
DUP-1 @ 1230

**ARCADIS**

**Groundwater Sampling Form**

Project Number: RC000689.0004. Task: 00008 Well ID: PT-8D  
 Date: 06-25-08 Sampled By: MG  
 Weather: Hot Windy Recorded By: OR  
 Coded Duplicate No.: \_\_\_\_\_

**Instrument Identification**

	PID	Water Quality Meter(s)
Model		<u>YSI 556</u>
Serial #:		<u>05C1520 BK</u>

**Purging Information**

Casing Material: PVC  
 Casing Diameter: 2"  
 Total Depth: 210'  
 Depth to Water: 105.43  
 Water Column: 104.57  
 Gallons/Foot: .16  
 Gallons in Well: 16.7312

Purge Technique (circle one): Low-Flow Remove 2 Well Volumes Bail Dry  
 Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailer  
 Screen Interval: From: 190' To: 210'  
 Pump Intake Setting: 200'  
 Volumes to be Purged: 3  
 Total Volume Purged: 50.1936  
 Pump on: 0918 Off: 0945

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

C-6# 2.92 mg/L

**Field Parameter Measurements Taken During Purging**

Time	Minutes Elapsed	Flow Rate ( )	Volume Purged ( )	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
<u>0918</u>	<u>0</u>	<u>2.5</u>	<u>0</u>		<u>48</u>	<u>-223.7</u>	<u>7.30</u>	<u>12494</u>	<u>29.30</u>	<u>1.75</u>	
<u>0925</u>	<u>6</u>	<u>3</u>	<u>17</u>		<u>14</u>	<u>-144.0</u>	<u>7.75</u>	<u>15068</u>	<u>30.26</u>	<u>0.28</u>	
<u>0931</u>	<u>12</u>	<u>3</u>	<u>34</u>		<u>8</u>	<u>-143.4</u>	<u>7.68</u>	<u>14915</u>	<u>30.32</u>	<u>0.25</u>	
<u>0936</u>	<u>17</u>	<u>3</u>	<u>51</u>		<u>7</u>	<u>-163.9</u>	<u>7.49</u>	<u>14750</u>	<u>30.38</u>	<u>0.23</u>	

**Observations During Sampling**

Well Condition: GOOD Purge Water Disposal: \_\_\_\_\_  
 Color: NONE Turbidity(qualitative): Clear  
 Odor: ACIDIC Other (OVA, HNU, etc.): \_\_\_\_\_

Sample ID: PT-8D Sample Date & Time: 6-25-08 0940  
 Samples Analyzed For: See the COC

# ARCADIS

## Groundwater Sampling Form

Project Number: RC000689.0004.  
 Date: 06-25-08  
 Weather: Hot 108°

Task: 00008 Well ID: PT-9S  
 Sampled By: MG  
 Recorded By: Q  
 Coded Duplicate No.: \_\_\_\_\_

### Instrument Identification

	PID	Water Quality Meter(s)
Model		<u>YSI 556</u>
Serial #:		<u>05C1520 AK</u>

### Purging Information

Casing Material: \_\_\_\_\_  
 Casing Diameter: 2"  
 Total Depth: 147'  
 Depth to Water: 102.27  
 Water Column: 44.73  
 Gallons/Foot: ~~7.1568~~ .16  
 Gallons in Well: 7.1568

Purge Technique (circle one): Low-Flow Remove 3 Well Volumes Bail Dry  
 Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailer  
 Screen Interval: From: 128' To: 147'  
 Pump Intake Setting: \_\_\_\_\_  
 Volumes to be Purged: 3  
 Total Volume Purged: 21.4709  
 Pump on: 1450 Off: 1515

C<sub>44</sub> 1.42 mg/L

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 ( )	Volume Purged ( )	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (umhos/cm)	Temp (°C)	DO (mg/L)	Comments
<u>1450</u>	<u>0</u>	<u>2</u>	<u>0</u>		<u>16</u>	<u>22.8</u>	<u>7.29</u>	<u>48.04</u>	<u>28.65</u>	<u>5.41</u>	
<u>1454</u>	<u>4</u>	<u>2</u>	<u>8</u>		<u>67</u>	<u>24.1</u>	<u>7.32</u>	<u>47.90</u>	<u>28.58</u>	<u>4.81</u>	
<u>1458</u>	<u>8</u>	<u>2</u>	<u>16</u>		<u>82</u>	<u>20.7</u>	<u>7.31</u>	<u>49.62</u>	<u>28.73</u>	<u>4.47</u>	
<u>1507</u>	<u>12</u>	<u>2</u>	<u>22</u>		<u>76</u>	<u>21.4</u>	<u>7.30</u>	<u>47.78</u>	<u>28.86</u>	<u>3.91</u>	

### Observations During Sampling

Well Condition: GOOD  
 Color: NONE  
 Odor: NONE

Purge Water Disposal: \_\_\_\_\_  
 Turbidity(qualitative): YES  
 Other (OVA, HNU, etc.): \_\_\_\_\_

Sample ID: PT. 9S  
 Samples Analyzed For: See the COC

Sample Date & Time: 6-25-08 @ 1510



# ARCADIS

## Groundwater Sampling Form

Project Number: RC000689.0004. Task: 00008 Well ID: PT-9D  
 Date: 06-25-08 Sampled By: MG  
 Weather: HOT Recorded By: CL  
 Coded Duplicate No.: \_\_\_\_\_

### Instrument Identification

	PID	Water Quality Meter(s)
Model		<u>YSI 556</u>
Serial #:		<u>05C1520 AK</u>

### Purging Information

Casing Material: PVC  
 Casing Diameter: 2"  
 Total Depth: 210'  
 Depth to Water: 102.49  
 Water Column: 107.51  
 Gallons/Foot: 0.16  
 Gallons in Well: 17.2

Purge Technique (circle one): Low-Flow Remove 3 Well Volumes Bail Dry  
 Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailer  
 Screen Interval: From: 190' To: 210'  
 Pump Intake Setting: 200'  
 Volumes to be Purged: 3  
 Total Volume Purged: 51.60  
 Pump on: 1357 Off: 1425

C-6k 10.40 mg/L

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 btoc)	Turbidity (NTUS)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
<u>1357</u>	<u>0</u>	<u>3</u>	<u>0</u>		<u>246</u>	<u>14.4</u>	<u>7.41</u>	<u>126013</u>	<u>29.77</u>	<u>1.65</u>	
<u>1363</u>	<u>6</u>	<u>3</u>	<u>17.5</u>		<u>61</u>	<u>16.3</u>	<u>7.41</u>	<u>14200</u>	<u>30.41</u>	<u>0.67</u>	
<u>1409</u>	<u>12</u>	<u>3</u>	<u>25</u>		<u>27</u>	<u>15.6</u>	<u>7.44</u>	<u>14423</u>	<u>30.44</u>	<u>0.68</u>	
<u>1415</u>	<u>18</u>	<u>3</u>	<u>52</u>		<u>15</u>	<u>14.2</u>	<u>7.45</u>	<u>14474</u>	<u>30.46</u>	<u>0.67</u>	

### Observations During Sampling

Well Condition: GOOD Purge Water Disposal: \_\_\_\_\_  
 Color: NONE Turbidity(qualitative): CLR  
 Odor: NONE Other (OVA, HNU, etc.): \_\_\_\_\_

Sample ID: PT-9D Sample Date & Time: 6-25-08 1420  
 Samples Analyzed For: See the COC

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 6/17/2008

**ARCADIS**

**Groundwater Sampling Form**

Project Number: RC000689.0004.  
 Date: 06-24-08  
 Weather: Hot, Sunny

Task: 00008 Well ID: MW-11  
 Sampled By: MG  
 Recorded By: Chris F  
 Coded Duplicate No.: \_\_\_\_\_

**Instrument Identification**

	PID	Water Quality Meter(s)
Model		<u>KSI 556 / 195</u>
Serial #:		<u>05C1520 AK</u>

**Purging Information**

Casing Material: PVC  
 Casing Diameter: 4"  
 Total Depth: 88'  
 Depth to Water: 65.54  
 Water Column: 22.46  
 Gallons/Foot: .65  
 Gallons in Well: 14.599

Purge Technique (circle one): Low-Flow Remove 3 Well Volumes Bail Dry  
 Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailer  
 Screen Interval: From: 63' 88'  
 Pump Intake Setting: 75'  
 Volumes to be Purged: 3  
 Total Volume Purged: 43.799  
 Pump on: 1208 Off: 1218

C. 6H 0.252 mg/L

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	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
1208	0	7.5	0		57	70.5	7.30	2389	29.04	8.86	
1210	2	7.5	15		16	58.1	7.12	2306	29.15	8.89	
1212	2	7.5	30		10	55.8	7.02	2291	29.14	8.92	
1214	2	7.5	45		9	54.6	7.01	2287	29.17	8.96	

**Observations During Sampling**

Well Condition: Good  
 Color: None  
 Odor: None

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

Sample ID: \_\_\_\_\_  
 Samples Analyzed For: See the COC

Sample Date & Time: 6/24/08 1215



**ARCADIS**

**Groundwater Sampling Form**

Project Number: RC000689.0004.  
 Date: 06-26-08  
 Weather: HOT

Task: 00008 Well ID: MW-24B  
 Sampled By: MG  
 Recorded By: CR  
 Coded Duplicate No.: \_\_\_\_\_

**Instrument Identification**

	PID	Water Quality Meter(s)
Model		<u>VSI 556</u>
Serial #:		<u>05C1520 AK</u>

**Purging Information**

Casing Material: Pvc  
 Casing Diameter: 4"  
 Total Depth: 213'  
 Depth to Water: 108.06  
 Water Column: 104.94  
 Gallons/Foot: .65  
 Gallons in Well: 69.211

Purge Technique (circle one): Low-Flow Remove Well Volumes Bail Dry  
 Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailer  
 Screen Interval: From: 193' 203' 213'  
 Pump Intake Setting: 203'  
 Volumes to be Purged: 3  
 Total Volume Purged: 204.633  
 Pump on: 0828 Off: 0904

Cr<sup>6+</sup> 3.40 mg/L

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 ( )	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
<u>0828</u>	<u>0</u>	<u>7</u>	<u>0</u>		<u>5</u>	<u>-28.5</u>	<u>7.86</u>	<u>18278</u>	<u>29.48</u>	<u>0.99</u>	
<u>0838</u>	<u>10</u>	<u>7</u>	<u>69</u>		<u>5</u>	<u>7.6</u>	<u>7.69</u>	<u>16323</u>	<u>30.05</u>	<u>0.47</u>	
<u>0848</u>	<u>20</u>	<u>7</u>	<u>138</u>		<u>4</u>	<u>20.6</u>	<u>7.69</u>	<u>16278</u>	<u>30.04</u>	<u>0.47</u>	
<u>0858</u>	<u>30</u>	<u>7</u>	<u>205</u>		<u>6</u>	<u>24.7</u>	<u>7.68</u>	<u>16275</u>	<u>30.07</u>	<u>0.49</u>	

**Observations During Sampling**

Well Condition: MW 24 B  
 Color: NO  
 Odor: NO

Purge Water Disposal: \_\_\_\_\_  
 Turbidity(qualitative): CLEAR  
 Other (OVA, HNU,etc.): \_\_\_\_\_

Sample ID: MW 24 B  
 Samples Analyzed For: See the COC

Sample Date & Time: 6-26-08 @ 0900

**ARCADIS**

**Groundwater Sampling Form**

Project Number: RC000689.0004.  
 Date: 06-24-08  
 Weather: HOT

Task: 00008 Well ID: MW-38S  
 Sampled By: MG  
 Recorded By: ET  
 Coded Duplicate No.: \_\_\_\_\_

**Instrument Identification**

	PID	Water Quality Meter(s)
Model		<u>YSI 596</u>
Serial #:		<u>05C1520 AK</u>

**Purging Information**

Casing Material: PVC  
 Casing Diameter: 2"  
 Total Depth: 95.3'  
 Depth to Water: 69.12  
 Water Column: 26.18  
 Gallons/Foot: .16  
 Gallons in Well: 4.1888

Purge Technique (circle one): Low-Flow Remove 3 Well Volumes Bail Dry  
 Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailer  
 Screen Interval: From: 75' 95'  
 Pump Intake Setting: 85'  
 Volumes to be Purged: 3  
 Total Volume Purged: 12.5664  
 Pump on: 1030 Off: 1045

C<sub>2</sub>B# 1.14 mg/L

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 ( )	Volume Purged ( )	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
<u>1031</u>	<u>0</u>	<u>2</u>	<u>0</u>		<u>24</u>	<u>18.1</u>	<u>7.45</u>	<u>3328</u>	<u>29.14</u>	<u>5.68</u>	
<u>1033</u>	<u>2</u>	<u>2</u>	<u>4.5</u>		<u>14</u>	<u>17.2</u>	<u>7.25</u>	<u>3056</u>	<u>28.74</u>	<u>5.21</u>	
<u>1035</u>	<u>4</u>	<u>2</u>	<u>9.0</u>		<u>10</u>	<u>13.0</u>	<u>7.19</u>	<u>3065</u>	<u>28.78</u>	<u>4.60</u>	
<u>1037</u>	<u>6</u>	<u>2</u>	<u>13.0</u>		<u>10</u>	<u>10.7</u>	<u>7.20</u>	<u>3041</u>	<u>28.65</u>	<u>4.82</u>	

**Observations During Sampling**

Well Condition: BROKEN HINGE  
 Color: BE NONE  
 Odor: NONE

Purge Water Disposal: \_\_\_\_\_  
 Turbidity(qualitative): CLEAR  
 Other (OVA, HNU, etc.): \_\_\_\_\_

Sample ID: MW-38S  
 Samples Analyzed For: See the COC

Sample Date & Time: 6-24-08 1040



# RECORD OF WATER LEVEL MEASUREMENTS

Date: 07-1 -08

Tools used (circle one): Interface Probe  
DTW Meter  
Measuring Tape

Project Name: Topock

Job No.: RC000689.0004.00008

Location: Needles, CA

ARCADIS Personnel: GC

Well Number	Time Measured	Depth to Product (DTP) (feet)	Depth to Water (DTW) (feet)	Depth to Bottom (DTB) (feet)	Product Thickness = DTW - DTP (feet)	Remarks:
<u>PT-8D</u>	<u>1020</u>	<u>—</u>	<u>105.20</u>	<u>—</u>		
<u>PT-8M</u>	<u>1122</u>	<u>—</u>	<u>105.33</u>	<u>—</u>		
<u>PT-8S</u>	<u>1215</u>	<u>—</u>	<u>105.30</u>	<u>—</u>		
<u>PT-8M</u>	<u>1410</u>		<u>97.30</u>			
<u>PT-8D</u>	<u>1315</u>	<u>—</u>	<u>102.94</u>	<u>—</u>		
<u>MW-24A</u>	<u>15:00</u>		<u>109.73</u>			



ARCADIS

Groundwater Sampling Form

Project Number: RC000689.0004. Task: 00008 Well ID: PT-8D  
 Date: 08-1 -08 Sampled By: GC  
 Weather: Hot Recorded By: CR  
 Coded Duplicate No.: None

Instrument Identification

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

Purging Information

Casing Material: PVC  
 Casing Diameter: 2"  
 Total Depth: 210'  
 Depth to Water: 105.20  
 Water Column: 104.80  
 Gallons/Foot: .16  
 Gallons in Well: 16.768

Purge Technique (circle one): Low-Flow Remove 3 Well Volumes Bail Dry  
 Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailer  
 Screen Interval: From: 190' To: 210'  
 Pump Intake Setting: 200'  
 Volumes to be Purged: 3 casing  
 Total Volume Purged: 50.304  
 Pump on: 1048 Off: 1112

Well Casing Volumes (gal/ft):	<u>2" = 0.16</u>	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 ( )	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (umhos/cm)	Temp (°C)	DO (mg/L)	Comments
1048	0	3	0		133	-182.4	7.29	15421	29.68	0.40	
1054	6	↓	17		14	-126.2	7.73	16943	30.43	0.16	
1059	11	↓	34		6	-124.8	7.73	16054	30.47	0.19	
1105	17	↓	51		6	-155.5	7.71	15337	30.47	0.18	

Observations During Sampling

Well Condition: Good Purge Water Disposal: FRAC TANK  
 Color: NO Turbidity(qualitative): CLEAR  
 Odor: SLIGHT Other (OVA, HNU, etc.): —

Sample ID: PT-8D Sample Date & Time: 7-1-08 @ 1110  
 Samples Analyzed For: See the COC

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 6/23/2008



ARCADIS

Groundwater Sampling Form

Project Number: RC000689.0004. Task: 00008 Well ID: PT-8  
 Date: 07-1-08 Sampled By: GC  
 Weather: Hot Recorded By: CF  
 Coded Duplicate No.: None

Instrument Identification

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

Purging Information

Casing Material: PVC  
 Casing Diameter: 2"  
 Total Depth: 147  
 Depth to Water: 109.33  
 Water Column: 76.67 41.67  
 Gallons/Foot: .16  
 Gallons in Well: 12.2672  
6.6672

Purge Technique (circle one): Low-Flow Remove 3 Well Volumes Bail Dry  
 Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailer  
 Screen Interval: From: 127 To: 147  
 Pump Intake Setting: 137'  
 Volumes to be Purged: 3 CASING  
 Total Volume Purged: 20.0016  
 Pump on: 1145 Off: 1201

Well Casing Volumes (gal/ft):	<u>2" = 0.16</u>	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 btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (umhos/cm)	Temp (°C)	DO (mg/L)	Comments
<del>1146</del>	0	<u>3</u>	<u>0</u>		<u>62</u>	<u>-130.0</u>	<u>6.85</u>	<u>9905</u>	<u>29.37</u>	<u>0.13</u>	
<del>1149</del>	4	<u>1</u>	<u>13</u>		<u>12</u>	<u>-162.7</u>	<u>6.86</u>	<u>10026</u>	<u>29.89</u>	<u>0.09</u>	
<del>1154</del>	9	<u>↓</u>	<u>26</u>		<u>10</u>	<u>-174.1</u>	<u>6.86</u>	<u>9995</u>	<u>29.94</u>	<u>0.09</u>	
<del>1158</del>	13	<u>↓</u>	<u>37</u>		<u>16</u>	<u>-178.9</u>	<u>6.85</u>	<u>9835</u>	<u>29.97</u>	<u>0.09</u>	

Observations During Sampling

Well Condition: GOOD Purge Water Disposal: FRAC TANK  
 Color: RED LIGHT Turbidity(qualitative): CLEAR  
 Odor: YES Other (OVA, HNU, etc.):  

Sample ID: PT-8M Sample Date & Time: 7-1-08 @ 1200  
 Samples Analyzed For: See the COC

**ARCADIS**

**Groundwater Sampling Form**

Project Number: RC000689.0004. Task: 00008 Well ID: PTR-1  
 Date: 07 | -08 Sampled By: GC  
 Weather: Hot Recorded By: GC  
 Coded Duplicate No.: None

**Instrument Identification**

	PID	Water Quality Meter(s)
Model	<u>—</u>	<u>YSI -556 MPS</u>
Serial #:	<u>—</u>	<u>06F1362 40</u>

**Purging Information**

Casing Material: \_\_\_\_\_  
 Casing Diameter: \_\_\_\_\_  
 Total Depth: \_\_\_\_\_  
 Depth to Water: \_\_\_\_\_  
 Water Column: \_\_\_\_\_  
 Gallons/Foot: \_\_\_\_\_  
 Gallons in Well: \_\_\_\_\_

Purge Technique (circle one): Low-Flow Remove 3 Well Volumes Bail Dry  
 Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailer  
 Screen Interval: From: \_\_\_\_\_ To: \_\_\_\_\_  
 Pump Intake Setting: \_\_\_\_\_  
 Volumes to be Purged: \_\_\_\_\_  
 Total Volume Purged: \_\_\_\_\_  
 Pump on: \_\_\_\_\_ Off: \_\_\_\_\_

<b>Well Casing Volumes (gal/ft):</b>	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 ( )	Volume Purged ( )	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
<u>1230</u>					<u>36</u>	<u>-115</u>	<u>7.82</u>	<u>5868</u>	<u>39.84</u>	<u>1.24</u>	

**Observations During Sampling**

Well Condition: Good Purge Water Disposal: System  
 Color: LIGHT GREEN Turbidity(qualitative): CLEAR  
 Odor: ND Other (OVA, HNU, etc.): —

Sample ID: PTR-1 Sample Date & Time: 7-1-08 @ 1230  
 Samples Analyzed For: See the COC

**ARCADIS**

**Groundwater Sampling Form**

Project Number: RC000689.0004. Task: 00008 Well ID: PT-8M  
 Date: 07-1-08 Sampled By: GC  
 Weather: Hot Recorded By: CR  
 Coded Duplicate No.: None

**Instrument Identification**

	PID	Water Quality Meter(s)
Model	<u>—</u>	<u>YSI-556 mps</u>
Serial #:	<u>—</u>	<u>06F1362 A9</u>

**Purging Information**

Casing Material: PVC  
 Casing Diameter: 2"  
 Total Depth: ~~182~~ 182  
 Depth to Water: 105.30  
 Water Column: 76.7  
 Gallons/Foot: .16  
 Gallons in Well: 12.272

Purge Technique (circle one): Low-Flow Remove 3 Well Volumes Bail Dry  
 Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailer  
 Screen Interval: From: ~~162~~ 162 To: ~~182~~ 182  
 Pump Intake Setting: ~~172~~ 172  
 Volumes to be Purged: 3 casing  
 Total Volume Purged: 36.816  
 Pump on: 1228 Off:           

Well Casing Volumes (gal/ft):	<u>2" = 0.16</u>	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 ( )	Volume Purged ( )	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
<u>1228</u>	<u>0</u>	<u>3</u>	<u>0</u>		<u>104</u>	<u>-27.0</u>	<u>7.06</u>	<u>6315</u>	<u>29.44</u>	<u>0.36</u>	
<u>1232</u>	<u>4</u>	<u>3</u>	<u>13</u>		<u>15</u>	<u>-30.5</u>	<u>7.04</u>	<u>6432</u>	<u>29.80</u>	<u>0.10</u>	
<u>1237</u>	<u>9</u>	<u>3</u>	<u>26</u>		<u>9</u>	<u>-24.8</u>	<u>7.01</u>	<u>6420</u>	<u>30.01</u>	<u>0.88</u>	
<u>1241</u>	<u>13</u>	<u>3</u>	<u>37</u>		<u>8</u>	<u>-22.2</u>	<u>6.98</u>	<u>6438</u>	<u>30.03</u>	<u>0.07</u>	

**Observations During Sampling**

Well Condition: GOOD Purge Water Disposal: FRAC TANK  
 Color: LIGHT GRN Turbidity(qualitative): 0.07  
 Odor: NO Other (OVA, HNU, etc.):           

Sample ID: PT-8S Sample Date & Time: 7-1-08 @ ~~1245~~ 1245  
 Samples Analyzed For: See the COC





ARCADIS

**Appendix D**

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