Pacific Gas and Electric Company

Yvonne Meeks
Manager

Environmental Remediation

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

November 6, 2012

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: PG&E Topock Compressor Station, Needles, California
Upland In-Situ Pilot Test
2012 Annual Monitoring Report
(Rescinded Board Order R7-2007-0015)

Dear Mr. Perdue:

Enclosed is the 2012 Annual Monitoring Report for the Pacific Gas and Electric Company (PG&E) Topock Compressor Station, Upland reductive zone in situ pilot test. Although the Waste Discharge Requirement (WDR) issued by the Colorado River Basin Regional Water Quality Control Board (Water Board) under Board Order R7-2007-0015 was rescinded in May 2009, PG&E is continuing to monitor the test area and is providing this report for your information.

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

Sincerely,

Yvonne Meeks
Topock Project Manager

Enclosures:
2012 Annual Monitoring Report for the Upland Reductive Zone In Situ Pilot Test.

cc: Jose Cortez, Water Board
Aaron Yue, DTSC (2 copies)

Pacific Gas and Electric Company

2012 Annual Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test

PG&E Topock Compressor Station
San Bernardino County, California

November 6, 2012

Document ID: PGE20121106A

ARCADIS

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

Janis Lutrick
Senior Scientist

Margaret Gentile, PhD
Senior Engineer

Lisa Kellogg, PG, CEM
Principal Geologist
Certified Project Manager

2012 Annual Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test

PG&E Topock Compressor Station
San Bernardino County, California

Document ID: PGE20121106A

Prepared for:
Pacific Gas and Electric Company

Prepared by:
ARCADIS
630 Plaza Drive
Suite 100
Highlands Ranch
Colorado 80129
Tel 303 471 3500
Fax 303 471 3535

Our Ref.:
RC000753.0011.00004

Date:
November 6, 2012

ARCADIS

Table of Contents

1.0 Introduction **1**

2.0 In-Situ Pilot Test Sampling Locations **2**

3.0 Description of Activities **3**

4.0 Sampling and Analytical Procedures **4**

4.1 Groundwater Sampling 4

5.0 Analytical Results **6**

5.1 Groundwater Analytical Results 6

6.0 References **8**

7.0 Certification **9**

Tables

1 Boring and Well Construction Detail Summary

2 Summary of Field Parameters

3 Summary of Primary Analytical Parameters

4 Summary of Secondary Analytical Parameters

5 Summary of Supplemental Metals

6 Summary of Monitoring Information

Figures

1 Site Plan

2 Upland ISPT Area

3 Upland ISPT Cross Section

Appendices

A Communications

B Calibration Logs for Field Monitoring Instruments

C Groundwater Sampling Logs

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

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

ARCADIS

2012 Annual Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test

PG&E Topock Compressor Station
San Bernardino County, California

1.0 Introduction

Pacific Gas and Electric Company (PG&E) implemented an Upland reductive zone in-situ pilot test (ISPT) to address chromium concentrations in groundwater at the Topock Compressor Station (the Site) near Needles, California. The purpose of the Upland ISPT was to evaluate the efficacy of using a reagent mixture to remove hexavalent chromium from groundwater using chemical reduction to form stable, insoluble trivalent chromium. The Upland ISPT consisted of the recirculation of the reagent mixture between the two recirculation wells (PTR-1 and PTR-2) from March 6, 2008 through November 1, 2008; results were monitored in surrounding groundwater monitoring wells (PT-7 Shallow/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).

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

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

The Monitoring and Reporting Program (MRP) under Order No. R7-2007-0015 required monthly monitoring reports to be submitted by the 15th day of the following month. A letter requesting the Order be rescinded was submitted to the Water Board on March 20, 2009 (Appendix A). The rescission was approved on May 21, 2009. While active injection and operation of the in situ pilot test has ceased, ARCADIS has continued to take monitoring samples from the Upland ISPT area in order to document ongoing conditions at the site. This report describes monitoring activities and results related to the Upland ISPT for the last year, spanning from the fourth quarter of 2011 through the third quarter 2012; reports will continue to be submitted annually.

2.0 In-Situ Pilot Test Sampling Locations

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

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3.0 Description of Activities

During the past year, ARCADIS completed two sampling rounds associated with the Upland ISPT. Associated field activities were performed in accordance with the applicable procedures contained within the *Sampling, Analysis, and Field Procedures Manual, PG&E Topock Program, Revision 1 (*"SAFPM") (CH2M Hill, 2005).

The two sampling events were conducted in February 2012 and July 2012. Data from three events (the November 2011 data is also included as it has not been previously reported) are included in this 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. Calibration logs for field-monitoring instruments are included in Appendix B. Groundwater sampling logs are included in Appendix C.

With the rescission of the Waste Discharge Requirements for the pilot test, the groundwater analytical suite was reduced to the following parameters: total dissolved chromium, hexavalent chromium, fluorescein, rhodamine, nitrate, sulfate, dissolved iron, dissolved manganese, dissolved arsenic, dissolved molybdenum, dissolved selenium, total organic carbon, and bicarbonate alkalinity. Barium analysis was added to the sampling program in the first quarter of 2010 after baseline samples collected in the third quarter of 2009 indicated barium concentrations had increased.

4.0 Sampling and Analytical Procedures

4.1 Groundwater Sampling

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

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

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

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.

Sample results are summarized in Tables 3, 4, and 5. 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 6 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

Higher doses of carbon in the vicinity of PT-7M and PT-7D resulted in the temporary generation of carbon dioxide gas beyond the ability of the aquifer to diffuse the gas naturally. There were issues in the past regarding use of the down-well pump because it could not be primed due to the amount of gas present in the purge water from the well. However, the down-well pump has been used to collect samples from PT-7D and PT-7M since the July 2011 event.

Groundwater samples from the sampling events were analyzed for hexavalent chromium (United States Environmental Protection Agency [USEPA] Method 218.6 SM 2500-Cr) and total dissolved chromium (USEPA Method SW 6020) by Truesdail Laboratories (Truesdail); dissolved arsenic, dissolved barium, dissolved manganese, dissolved molybdenum, dissolved selenium, and dissolved iron (USEPA 200.8), sulfate and nitrate (USEPA 300), alkalinity bicarbonate (USEPA Method 2320B), and total organic carbon (TOC) (USEPA Method 5310B), by Calscience Environmental Laboratories, Inc. (Calscience); and for fluorescein and Rhodamine WT by Ozark Underground Laboratories, Inc. (fluorescence spectroscopy according to Ozark standard operating procedures). Hexavalent chromium was also analyzed in the field at the Interim Measures 3 facility using HACH Method 8023 - program 1560.

5.0 Analytical Results

5.1 Groundwater Analytical Results

Summaries of the field test parameters, primary and secondary parameters, and supplementary metals are presented in Tables 2, 3, 4, and 5, respectively.

Approximately three and a half years after completing the pilot study, Cr(VI) continues to be treated in areas where TOC distribution was greatest and strong reducing conditions were established during the pilot study operation. In addition, by-product concentrations have either returned to baseline levels or are following generally declining trends.

Cr(VI) concentrations have been stable over the last two years. Cr(VI) continues to be treated as indicated by concentrations below baseline, although the extent of reduction varies across the pilot study area and is correlated with the extent of organic carbon distribution achieved during the pilot study. During operation, the distribution of organic carbon varied with distance from the injection locations, as shown in Figure 3. Significant concentrations of organic carbon were distributed and maintained at MW-24A and PT-8S from injection at PTR-2 and at PT-7M and PT-7D from injection at PTR-1 (areas shown in dark blue on Figure 3). At these locations, Cr(VI) concentrations have remained at, or below, the reporting limit of 1 microgram per liter (µg/L) since the end of the pilot test; suggesting complete reduction has been maintained. In locations where organic carbon concentrations were distributed at lower concentrations and less consistently over time (areas shown in light blue on Figure 3), Cr(VI) concentrations are stable below baseline levels, indicating incomplete reduction has been maintained (e.g. in July 2012, PT-7S yielded a Cr(VI) concentration of 496 µg/L compared to a baseline concentration of 1,200 µg/L and PT-8D yielded a Cr(VI) concentration of 1,330 µg/L compared to baseline concentration of 6,540 µg/L). At PT-8M, where organic carbon was not distributed during operation, Cr(VI) concentrations continue to decline and reached a minimum during the July 2012 event (45 µg/L) compared to a baseline concentration of 3,960 µg/L, indicating the arrival of treated groundwater that was distributed upgradient of this location during operation.

Arsenic and manganese concentrations have also been relatively stable or changing gradually over the last year. At locations where organic carbon was distributed during operation (PT-7S, PT-7M, PT-7D, PT-8S, PT-8D, and MW-24A), as shown in dark blue on Figure 3, manganese and arsenic concentrations temporarily increased as a result of the anaerobic dissolution of manganese and arsenic-bearing minerals. Arsenic

concentrations have returned to baseline levels across the pilot test monitoring well network.

Manganese concentrations decreased by an order of magnitude in the first year and a half following the end of active operations and have been relatively stable over the past year, with the following exceptions:

- Elevated manganese concentrations were detected in samples from PT-7M and PT-7D. Manganese concentrations varied over time in post-pilot test samples collected from PT-7M and PT-7D, likely due to the locally heterogeneous generation and distribution of manganese during the pilot. The detection of several milligrams per liter of manganese in some samples is likely a result of delivering higher ethanol concentrations to the aquifer during the pilot and total organic carbon is still present in these locations.

- Manganese concentrations at PT-8M began increasing after the pilot study concluded. Organic carbon was not distributed at this location during recirculation. The arrival of manganese after recirculation ended indicates that organic carbon was distributed upgradient of this location and manganese dissolved into water is now traveling through PT-8M. The July 2012 result at PT-8M presents the current maximum manganese concentration at the site. In 2011, the increase in manganese concentration at PT-8M coincided with an increase in fluorescein tracer concentration, which was injected at PTR-1 during the ISPT injections in 2007, indicating that reduced groundwater influenced the pilot test injections continues to flux through the vicinity of the pilot test monitoring well network.

- In addition, total organic carbon concentrations declined to less than 5 milligrams per liter (mg/L) throughout the pilot study area by early 2010, with the exception of PT-7M where the highest concentrations had been distributed during the pilot study. TOC concentrations at PT-7M fell below 5 mg/L in July 2011 but significantly increased thereafter, with concentrations at 97 mg/L in July 2012. Similarly, TOC concentrations increased during the November 2011 and February and July 2012 events at all pilot study wells. Current TOC concentrations range from 15 mg/L at PT-7S to 45 mg/L at PT-7D. The systematic detection of TOC at all pilot monitoring locations, including upgradient locations, indicates a natural variation in concentrations rather than a result of the pilot test injections.

6.0 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.

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

ARCADIS, 2009b. PG&E, Third Quarter 2009 Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test, PG&E Topock Compressor Station, San Bernardino County, California, December 15.

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

Cooper, D.C., Morse, J.W. 1998. Extractability of metal sulfide minerals in acidic solutions: application to environmental studies of trace metal contamination within anoxic sediments. Environmental Science and Technology. 32: 1076-1078.

Gleyzes, C., Tellier, S., and Astruc, M. 2002. Fractionation studies of trace elements in contaminated soils and sediments: a review of sequential extraction procedures. Trends in Analytical Chemistry. 21(6,7): 451 – 467.

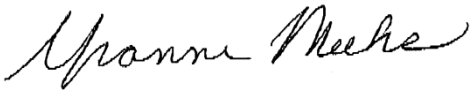
Pacific Gas & Electric Company, 2008. Letter to Robert Perdue. Executive Officer. California Regional Water Quality Control Board, Colorado River Basin Region, May 29, 2008.

7.0 Certification

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

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: November 5, 2012

Table 1
Boring and Well Construction Detail Summary
PG&E Topock
Needles, California
2012 Annual Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test

Well or Boring Designation	Date Completed	Aquifer Zone	Ground Elevation* (feet msl)	TOC Elevation** (feet msl)	Total Depth of Boring (feet bgs)	Casing Diameter (inches)	Boring Diameter (inches)	Well Completion Depth (feet bgs)	Well Completion Elevation (feet msl)	Screen Depth Interval (feet bgs)	Screen Elevation Interval (feet msl)	Sand Pack Depth Interval (feet bgs)	Sand Pack Elevation Interval (feet msl)	Bentonite Depth Interval (feet bgs)	Bentonite Elevation Interval (feet msl)	Well Permit Number	Distance From PTR-1 (feet)	Distance From PTR-2 (feet)	Latitude	Longitude
PT-7S	11-May-07	S	-	561.04	155	2	6	230	330.54	130-150	431-411	129-155	432-406	127-129	434-432	2007040400	17	122	34.71663	-114.49390
PT-7M	11-May-07	M	-	560.66***	187.5	2	6	187.5	373.66	165-185	396-376	164-187	397-374	162-164	399-397	2007040401	20	118	34.71662	-114.49391
PT-7D	11-May-07	D	-	560.46	221.5	2	6	230	330.42	197-217	363-343	196-221.5	364-338.5	194-196	366-364	2007040402	17	122	34.71663	-114.49390
PT-8S	21-May-07	S	-	562.60	152	2	6	225	337.60	127-147	436-416	126-152	437-411	124-126	439-437	2007040403	68	70	34.71650	-114.49382
PT-8M	21-May-07	M	562.47	562.59	184.5	2	6	184.5	378.09	162-182	401-381	161-184.5	402-378.5	159-161	404-402	2007040404	67	71	34.71651	-114.49381
PT-8D	21-May-07	D	-	562.07	212.5	2	6	225	337.07	190-210	373-353	189-212.5	374-350.5	187-189	376-374	2007040405	68	70	34.71650	-114.49382
PT-9S	6-Jun-07	S	-	559.68	153	2	6	218	341.67	128-148	432-412	126-153	434-407	120-126	440-434	2007040406	119	180	34.71684	-114.49362
PT-9M	6-Jun-07	M	559.50	559.67	187	2	6	187	372.67	162-182	398-378	158-187	402-373	155-158	405-402	2007040407	116	181	34.71684	-114.49364
PT-9D	6-Jun-07	D	559.56	559.66	212.5	2	6	218	341.66	190-210	370-350	188-212.5	372-347.5	156-188	404-372	2007040408	120	181	34.71684	-114.49362
MW-11	30-Jun-97	S	-	522.19	86.5	4	6	84	438.19	62-82	460-480	59-83	522.83-509.83	55-59	467.19-463.19	-	179	282	-	-
MW-24A	13-May-96	S	-	567.44	124.5	4	-	124.5	441.50	104-124	443-463	99-124.5	441.5-416.5	91-99	475-467	-	131	12	-	-
MW-24B	16-May-98	M	-	565.18	217.5	4	-	217.5	348.50	193-213	373-393	188-217.5	378-348.5	182.5-188	383.5-378	-	127	59	-	-
MW-38S	11-Apr-04	S	522.8	526.66	130	2	-	130	400.00	75-95	455-475	70-95.3	460-434.7	65-70	465-460	-	308	270	34.718640	-114.494285
MW-38D	10-Apr-04	D	523.0	526.74	195	2	-	195	335.00	166-188	364-384	152.8 - 188.3	377.2-341.7	147-152.8	383-377.2	-	323	280	34.715851	-114.494402
PTR-1	2-May-07	S/D	554***	560.21	225	6	10	225	335.21	125-160 175-220	435-470 385-340	123-162 173-225	442-403 392-340	118-123 162-173	442-437 398-387	2007040409	0	138	34.71666	-114.49395
PTR-2	2-May-07	S/D	554***	564.94	223	6	10	223	341.94	118-158 173-218	447-407 392-347	117-159 172-223	448-406 393-218	115-117 159-172	450-448 406-393	2007040410	138	0	34.71634	-114.49369

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
2012 Annual 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 (ºC)	DO (mg/L)	Depth to Water (feet below TOC)	Hexavalent Chromium Field (µg/L)
PT-7S	18-Jul-07	N	130-150	-62.7	7.67	5,697	31.25	4.13	103.58	920
	22-Jan-08	N		132	7.60	4,369	23.5	4.12	105.75	1,760
	06-Mar-08	N		-70.4	7.26	5,514	29.47	0.54	105.11	1,800
	13-Mar-08	N		-112.4	7.32	4,860	29.6	0.15	104.98	1,400
	18-Mar-08	N		-114.1	7.42	5,328	29.6	0.075	104.89	1,280
	25-Mar-08	N		-55.9	7.43	5,235	29.69	0.87	104.66	1,680
	02-Apr-08	N		-179.1	7.50	5,577	29.68	0.41	104.78	1,700
	17-Apr-08	N		-161.8	7.37	5,682	27.01	0.66	104.26	1,340
	29-Apr-08	N		-210.6	7.37	4,804	29.75	0.35	103.33	220
	15-May-08	N		-155.6	7.35	5,090	30.1	0.38	103.72	1,040
	29-May-08	N		-143	7.33	5,781	29.88	0.33	103.77	1,440
	11-Jun-08	N		41.6	7.27	5,694	29.95	0.72	103.64	1,800
	24-Jun-08	N		0.2	6.83	5,044	30.11	0.16	103.55	1,060
	23-Jul-08	N		22.8	7.47	5,503	30.13	0.18	103.59	201
	21-Aug-08	N		-92.0	7.39	6,500	30.15	0.67	103.53	820
	18-Sep-08	N		-165.8	7.54	5,479	28.63	0.79	104.22	489
	15-Oct-08	N		5363.0	7.20	5,362	29.97	0.32	104.48	<10
	12-Nov-08	N		-109.4	7.60	5,897	29.93	0.17	104.78	280
	05-Feb-09	N		-18.2	7.54	5,791	30.50	0.39	105.39	166
	15-May-09	N		78.6	7.01	6,004	30.61	0.06	103.60	<10
	04-Aug-09	N		49.8	7.02	5,759	30.87	0.44	103.97	1,120
	29-Oct-09	N		52.1	7.08	5,682	30.19	0.14	105.68	774
	13-Jan-10	N		172.2	7.26	5,646	30.06	0.42	105.25	1,000
	08-Apr-10	N		56.3	7.14	5,868	30.68	0.18	104.40	586
	14-Jul-10	N		155.7	7.23	6,417	31.00	0.05	103.62	662
	14-Oct-10	N		132.9	7.36	5,407	30.30	0.08	104.26	678
	18-Jan-11	N		-44.4	7.27	5,554	30.14	1.09	105.14	<10
	13-Apr-11	N		-13.9	7.34	5,327	30.90	0.03	104.10	591
	12-Jul-11	N		-95.8	7.32	5,470	30.38	0.28	103.58	600
	16-Nov-11	**N**		**-69.4**	**7.36**	**5,584**	**30.75**	**0.15**	**105.35**	**549**
	14-Feb-12	**N**		**-46.3**	**7.29**	**5,648**	**30.17**	**0.20**	**104.70**	**527**
	31-Jul-12	**N**		**-288.3**	**7.20**	**5,464**	**30.12**	**0.03**	**103.75**	**547**

Table 2
Summary of Field Parameters
PG&E Topock
Needles, California
2012 Annual 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 (ºC)	DO (mg/L)	Depth to Water (feet below TOC)	Hexavalent Chromium Field (µg/L)
PT-7M	19-Jul-07	N	165-185	-40.2	7.76	7,224	33.99	3.75	103.90	1,480
	24-Jan-08	N		10.6	7.17	9,257	30.06	0.85	105.79	2,840
	06-Mar-08	N		-487	7.34	6,818	29.91	0.07	105.48	22
	13-Mar-08	N		-280.12	6.99	6,650	29.99	0.08	105.06	240
	18-Mar-08	N		-324.9	6.85	6,870	30.21	0.057	105.07	86
	25-Mar-08	N		-320.6	6.75	6,806	30.25	0.46	104.67	37
	02-Apr-08	N		-338.3	7.01	7,208	30.20	0.13	104.83	220
	17-Apr-08	N		-231.4	6.85	6,980	28.00	0.55	104.31	80
	29-Apr-08	N		-278.6	6.89	6,610	30.55	0.36	101.26	1,020
	14-May-08	N		-254.3	6.72	7,802	30.82	0.13	103.80	80
	29-May-08	N		-213.9	6.76	7,526	30.81	0.22	103.72	60
	11-Jun-08	N		-199.3	6.77	6,879	31.07	0.27	83.83	27
	19-Jun-08	N		-239.1	6.74	8,241	31.02	0.08	102.84	---
	25-Jun-08	N		-161.8	6.66	7,973	31.11	0.13	79.51	35
	01-Jul-08	N		-217.2	6.61	7,604	31.41	0.04	97.30	---
	23-Jul-08	N		-187.9	6.68	7,417	31.48	0.13	88.72	14
	21-Aug-08	N		-189.2	6.72	8,498	31.49	0.32	103.48	160
	18-Sep-08	N		-231.0	6.78	7,506	31.57	0.57	104.51	37
	15-Oct-08	N		-199.3	7.29	7,931	25.91	1.05	103.89	419
	12-Nov-08	N		-35.9	6.82	5,974	22.76	0.94	104.77	<10
	15-May-09	N		-171.3	7.07	6,355	29.25	1.06	104.70	<10
	04-Aug-09	N		-144.7	7.25	6,511	32.94	0.56	104.90	<10
	29-Oct-09	N		-168.2	7.17	7,689	23.05	1.02	105.77	51
	13-Jan-10	N		-171.1	7.19	7,615	24.80	0.70	105.49	<10
	14-Jul-10	N		-73.2	7.07	9,839	44.00	0.27	103.50	20
	14-Oct-10	N		-152.7	6.97	6,111	29.84	1.10	104.28	<10
	18-Jan-11	N		-127.4	7.00	6,288	24.08	2.15	104.88	<10
	14-Apr-11	N		-127.8	6.98	6,194	25.10	0.53	104.16	14
	13-Jul-11	N		-101.6	6.85	6,673	33.62	1.67	103.64	34
	16-Nov-11	**N**		**-139.4**	**6.58**	**6,801**	**27.30**	**0.25**	**105.43**	**28**
	14-Feb-12	**N**		**-110.4**	**6.50**	**7,018**	**23.35**	**0.52**	**105.37**	**<10**
	31-Jul-12	**N**		**-132.4**	**6.44**	**6,730**	**29.15**	**1.12**	**103.82**	**<10**

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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 (ºC)	DO (mg/L)	Depth to Water (feet below TOC)	Hexavalent Chromium Field (µg/L)
PT-7D	18-Jul-07	N	197-217	-76.7	7.91	16,327	31.46	1.9	103.65	6,240
	24-Jan-08	N		10.9	7.86	19,260	30.35	0.58	105.90	9,280
	06-Mar-08	N		-322.8	7.97	12,840	30.3	0.05	105.53	568
	13-Mar-08	N		-189.4	7.76	1,138	30.43	0.07	105.04	360
	18-Mar-08	N		-379.8	7.28	12,933	30.46	0.58	105.00	58
	25-Mar-08	N		-320.4	7.19	13,090	30.53	0.74	104.75	35
	02-Apr-08	N		-313	7.50	13,818	30.53	0.05	104.83	140
	17-Apr-08	N		-310.1	7.01	10,406	28.2	0.42	104.11	360
	29-Apr-08	N		-311.3	7.05	9,035	30.79	0.63	94.86	260
	15-May-08	N		-424.7	6.68	10,224	31.02	0.36	103.76	100
	29-May-08	N		-330.7	6.68	10,985	31.03	0.32	101.80	100
	11-Jun-08	N		-274.9	6.78	8,920	31.38	0.29	84.54	23
	19-Jun-08	N		-372.1	6.70	10,173	31.44	0.09	102.18	---
	24-Jun-08	N		-248.9	6.51	8,952	31.2	0.1	86.30	54
	01-Jul-08	N		-290.4	6.65	9,071	31.44	0.05	102.94	---
	23-Jul-08	N		-189.2	6.67	8,509	31.72	0.12	80.54	18
	21-Aug-08	N		-256.3	7.00	8,647	32.01	0.15	103.69	180
	18-Sep-08	N		-258.8	6.65	9,188	30.00	0.28	103.66	<10
	14-Oct-08	N		-205.6	6.14	8,508	28.54	0.45	103.64	78
	12-Nov-08	N		-195.0	7.71	8,290	21.15	0.33	104.58	18
	15-May-09	N		-128.3	7.13	15,418	29.43	1.21	104.80	<10
	04-Aug-09	N		-185.4	7.54	10,897	32.62	1.14	104.70	<10
	29-Oct-09	N		-53.5	7.36	15,207	24.50	1.07	105.62	17
	13-Jan-10	N		-67.9	7.33	15,378	23.43	1.09	105.53	<10
	08-Apr-10	N		-108.3	7.21	15,522	27.45	0.77	105.43	<10Q
	14-Jul-10	N		-44.8	7.03	17,816	33.20	1.36	103.54	<10
	14-Oct-10	N		-133.5	7.37	11,368	28.59	0.51	104.30	<10
	18-Jan-11	N		-100.9	7.25	12,138	25.30	1.74	87.62	<10
	14-Apr-11	N		-133.4	7.40	9,988	25.80	0.52	97.72	38
	13-Jul-11	N		-115.2	6.84	12,602	32.87	0.80	96.71	36
	16-Nov-11	**N**		**-134.9**	**6.88**	**13,601**	**25.50**	**0.21**	**105.51**	**<10**
	15-Feb-12	**N**		**-132.1**	**6.84**	**14,520**	**25.81**	**0.34**	**105.29**	**19**
	31-Jul-12	**N**		**-168.6**	**6.65**	**15,701**	**30.87**	**0.65**	**103.78**	**15**

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Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	ORP (mV)	pH	Specific Conductance (µS/cm)	Temperature (ºC)	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
	11-Jun-08	N		-252.7	6.61	9,212	29.63	0.36	105.41	18
	19-Jun-08	N		-296.4	6.90	9,079	29.68	0.11	105.41	---
	25-Jun-08	N		-217.8	6.66	10,733	30.10	0.14	105.29	46
	01-Jul-08	N		-178.9	6.85	9,835	29.97	0.09	105.33	---
	23-Jul-08	N		-204.0	6.99	10,853	30.23	0.13	105.16	500
	20-Aug-08	N		-188.9	6.94	9,860	29.74	1.89	105.41	12
	17-Sep-08	N		-165.6	6.79	9,114	29.59	6.79	103.60	<10
	15-Oct-08	N		-145.7	6.92	9,055	28.35	0.49	106.10	28
	12-Nov-08	N		-82.3	7.08	9,443	25.20	0.99	106.44	11
	04-Feb-09	N		-146.0	7.02	8,421	28.42	2.91	106.93	<10
	13-May-09	N		-184.0	6.65	7,224	30.26	0.08	105.90	11
	04-Aug-09	N		-164.4	7.01	6,526	30.34	1.03	105.81	<10
	28-Oct-09	N		-194.4	7.12	6,069	29.59	0.16	106.50	<10
	12-Jan-10	N		-128.2	6.99	6,029	29.31	1.07	107.12	<10
	07-Apr-10	N		-167.1	7.10	5,841	30.36	0.22	106.38	<10
	13-Jul-10	N		-139.5	7.18	4,641	30.90	0.06	105.30	<10
	13-Oct-10	N		-279.5	7.21	5,292	30.39	0.09	106.20	46
	17-Jan-11	N		-205.6	7.05	5,359	30.52	0.24	106.83	35
	13-Apr-11	N		-165.4	7.21	5,192	30.50	0.02	105.80	13
	12-Jul-11	N		-154.4	7.19	5,290	30.30	0.33	105.34	<10
	15-Nov-11	**N**		**-273.4**	**7.25**	**5,302**	**30.51**	**0.44**	**107.17**	**<10**
	14-Feb-12	**N**		**-159.1**	**7.21**	**5,559**	**30.08**	**0.16**	**101.03**	**<10**
	31-Jul-12	**N**		**-291.2**	**7.14**	**5,359**	**30.19**	**0.04**	**105.46**	**<10**

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Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	ORP (mV)	pH	Specific Conductance (µS/cm)	Temperature (ºC)	DO (mg/L)	Depth to Water (feet below TOC)	Hexavalent Chromium Field (µg/L)
PT-8M	18-Jul-07	N	162-182	54.9	7.18	6,698	29.67	2.9	105.18	3,740
	23-Jan-08	N		36.1	7.17	8,047	29.95	1.72	107.30	4,660
	05-Mar-08	N		-96.4	7.40	7,930	29.89	1.68	107.10	3,680
	13-Mar-08	N		145.3	7.14	6,886	29.84	2.52	106.72	4,060
	19-Mar-08	N		164.5	7.34	7,238	29.87	3.64	106.65	3,340
	25-Mar-08	N		-6.1	7.19	6,955	29.99	2.77	106.30	4,100
	02-Apr-08	N		-129.7	7.23	7,308	29.81	1.47	106.24	4,100
	16-Apr-08	N		8.7	7.14	7,230	28.4	1.55	105.98	4,080
	29-Apr-08	N		-49.6	7.04	6,453	29.81	3.02	103.26	4,120
	14-May-08	N		-35.1	6.98	6,939	30.00	2.90	105.59	3,820
	28-May-08	N		-69.4	7.13	7,094	29.93	3.95	105.37	4,220
	11-Jun-08	N		-38.0	7.06	6,769	29.95	2.23	105.35	3,860
	19-Jun-08	N		-75.5	7.02	7,437	29.99	0.15	105.73	---
	25-Jun-08	N		23	6.89	6,634	30.19	0.85	76.50	4,140
	01-Jul-08	N		-22.2	6.98	6,438	30.03	0.07	105.30	---
	23-Jul-08	N		-0.6	7.13	6,511	29.93	0.31	105.47	4,000
	20-Aug-08	N		-37.0	7.22	6,769	29.97	0.32	105.71	3,140
	17-Sep-08	N		-80.1	7.01	6,884	29.87	1.11	105.93	2,460
	15-Oct-08	N		-101.0	6.99	6,277	29.99	0.24	106.19	2,940
	12-Nov-08	N		15.6	6.93	6,507	29.77	0.16	106.46	2,200
	04-Feb-09	N		3.9	6.77	7,084	29.94	1.22	106.90	1,660
	13-May-09	N		-12.3	6.42	7,316	30.40	0.08	99.50	639
	04-Aug-09	N		-100.2	6.64	7,426	30.29	2.18	105.56	579
	28-Oct-09	N		21.4	6.79	7,272	30.48	0.14	106.42	782
	12-Jan-10	N		-28.1	6.62	7,600	29.75	0.78	106.98	527
	07-Apr-10	N		13.5	6.58	8,036	30.42	0.21	106.30	438
	13-Jul-10	N		22.7	6.57	8,981	30.50	0.02	105.25	327
	13-Oct-10	N		-198.6	6.56	7,846	30.55	0.07	106.13	262
	17-Jan-11	N		-59.8	6.43	8,160	30.49	0.36	106.62	247
	13-Apr-11	N		27.0	6.54	8,031	30.30	0.04	105.77	159
	12-Jul-11	N		7.8	6.50	5,346	30.56	0.55	105.25	56
	15-Nov-11	**N**		**-214.8**	**6.59**	**8,723**	**30.51**	**0.22**	**107.09**	**126**
	14-Feb-12	**N**		**5.6**	**6.55**	**9,095**	**30.26**	**1.32**	**106.77**	**246**
	31-Jul-12	**N**		**-235.8**	**6.46**	**9,231**	**30.34**	**0.21**	**105.48**	**11**

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PT-8D	16-Jul-07	N	190-210	-54.6	7.99	16,042	33.76	6.39	105.09	6,120
	23-Jan-08	N		24.1	7.86	17,790	30.23	0.97	107.34	6,980
	05-Mar-08	N		-128.4	8.13	18,118	30.18	0.78	107.09	6,220
	13-Mar-08	N		195	7.85	1,589	30.3	1.21	106.80	5,740
	18-Mar-08	N		-57.3	7.93	17,392	30.28	1.34	106.77	5,460
	25-Mar-08	N		-34	7.87	16,250	30.32	0.77	106.45	5,700
	02-Apr-08	N		-169.2	7.90	16,964	30.15	0.29	107.17	4,800
	16-Apr-08	N		-39.1	7.85	17,458	28.44	0.90	106.13	6,480
	29-Apr-08	N		-108.1	7.74	15,000	30.39	0.71	105.91	4,940
	14-May-08	N		-99.5	7.57	14,622	30.37	0.32	105.89	3,800
	28-May-08	N		-52.9	7.79	16,139	30.24	0.39	105.50	1,220
	11-Jun-08	N		-89.7	7.75	15,420	30.36	0.43	106.56	3,960
	19-Jun-08	N		-129.8	7.76	16,400	30.4	0.26	105.63	---
	25-Jun-08	N		-163.9	7.49	14,750	30.38	0.23	104.57	2,920
	01-Jul-08	N		-155.5	7.71	15,337	30.47	0.18	105.20	
	23-Jul-08	N		-110.3	7.93	15,325	30.41	0.20	104.97	3,660
	20-Aug-08	N		-156.0	8.04	16,099	30.35	0.38	105.69	4,100
	17-Sep-08	N		-192.7	7.86	15,196	30.24	0.42	106.06	3,820
	15-Oct-08	N		-244.3	7.25	13,194	30.10	0.73	106.76	512
	12-Nov-08	N		-109.4	7.44	15,128	30.13	0.16	106.34	596
	04-Feb-09	N		-236.0	8.02	15,755	29.38	1.32	107.11	1,340
	13-May-09	N		-189.4	7.68	17,782	30.70	0.05	106.50	1,700
	04-Aug-09	N		-192.4	7.99	16,270	30.38	0.38	105.60	1,780
	28-Oct-09	N		-154.5	7.99	15,852	30.47	0.30	118.96	2,000
	12-Jan-10	N		-119.4	8.01	16,721	30.01	0.27	107.05	1,800
	07-Apr-10	N		-145.1	7.88	17,706	30.75	0.26	106.57	1,560
	13-Jul-10	N		-82.5	7.85	18,992	30.80	0.07	105.45	2,040
	13-Oct-10	N		-244.1	7.82	15,972	30.78	0.04	106.00	2,060
	17-Jan-11	N		-182.7	7.66	16,468	30.75	0.27	106.83	2,040
	13-Apr-11	N		-71.1	7.78	18,000	30.60	0.03	105.91	1,460
	12-Jul-11	N		-65.8	7.78	17,211	30.78	0.24	105.25	2,000
	15-Nov-11	**N**		**-95.9**	**7.84**	**17,769**	**30.81**	**0.27**	**106.82**	**1,720**
	14-Feb-12	**N**		**119.7**	**7.76**	**19,499**	**30.53**	**0.18**	**106.11**	**699**
	31-Jul-12	**N**		**-297.1**	**7.63**	**18,345**	**30.65**	**0.03**	**105.51**	**1,760**

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PT-9S	17-Jul-07	N	128-148	-61.5	7.86	4,919	33.28	4.97	102.33	2,620
	22-Jan-08	N		157.1	7.53	4,784	27.16	3.97	104.50	1,580
	05-Mar-08	N		41.8	7.71	4,942	25.95	4.21	104.08	1,360
	12-Mar-08	N		144.6	7.62	4,280	27.81	3.12	103.80	1,480
	19-Mar-08	N		125.6	7.73	4,819	27.07	2.68	103.71	1,200
	26-Mar-08	N		25.1	7.54	4,106	27.92	3.1	103.47	1,580
	02-Apr-08	N		-34.4	7.60	4,822	27.91	3.2	103.38	1,540
	16-Apr-08	N		149.3	7.50	4,800	27.79	2.79	103.09	1,640
	29-Apr-08	N		180.4	7.44	4,350	28.55	5.99	107.00	1,360
	14-May-08	N		-57.5	7.44	4,369	28.23	2.91	102.56	1,240
	28-May-08	N		2.0	7.52	4,840	28.61	2.78	102.48	1,540
	11-Jun-08	N		146.1	7.50	4,511	26.51	4.74	102.50	1,540
	25-Jun-08	N		21.4	7.30	4,778	28.86	3.91	102.27	1,420
	24-Jul-08	N		123.4	7.63	4,490	29.7	4.79	102.54	1,740
	20-Aug-08	N		-9.6	7.74	4,499	29.97	4.54	102.87	1,760
	17-Sep-08	N		154.4	7.43	4,908	27.72	2.86	103.00	1,880
	15-Oct-08	N		114.0	7.47	4,660	28.37	4.94	103.32	1,100
	12-Nov-08	N		-2.3	7.37	5,912	25.66	3.15	103.53	760
	05-Feb-09	N		-53.6	7.51	5,907	26.4	2.49	104.08	1,060
	14-May-09	N		-40.6	7.20	5,615	29.17	3.22	102.30	1,080
	05-Aug-09	N		-10.0	7.28	5,352	30.2	2.98	102.81	1,320
	29-Oct-09			8.6	7.49	5,446	27.23	4.3	103.58	620
	12-Jan-10	N		13.9	7.42	5,340	27.08	3.92	104.19	1,340
	08-Apr-10	N		-56.2	7.22	5,514	28.5	1.15	103.28	1,240
	13-Jul-10	N		-40.7	7.31	5,814	29.5	0.40	102.37	1,500
	13-Oct-10	N		-201.2	7.23	4,924	28.92	0.65	103.37	1,620
	18-Jan-11	N		-58.5	7.24	4,927	30.1	1.05	104.05	1,360
	13-Apr-11	N		35.9	7.49	4,644	28.1	2.13	102.83	1,120
	12-Jul-11	N		-63.2	7.42	4,722	2940	1.90	102.32	900
	15-Nov-11	**N**		**-209.1**	**7.40**	**4,740**	**28.33**	**0.80**	**104.15**	**747**
	15-Feb-12	**N**		**-25.9**	**7.42**	**4,801**	**25.94**	**0.74**	**104.02**	**681**
	01-Aug-12	**N**		**-222.7**	**7.30**	**4,530**	**29.21**	**0.85**	**102.52**	**505**

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Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	ORP (mV)	pH	Specific Conductance (µS/cm)	Temperature (ºC)	DO (mg/L)	Depth to Water (feet below TOC)	Hexavalent Chromium Field (µg/L)
PT-9M	17-Jul-07	N	162-182	-57.0	7.34	6,605	31.74	4.09	102.34	3,460
	22-Jan-08	N		58.8	7.03	7,963	30.05	3.34	104.49	3,000
	05-Mar-08	N		-41.7	7.37	7,982	29.99	3.06	104.10	2,100
	12-Mar-08	N		120.5	7.14	7,080	29.87	3.46	103.86	2,740
	19-Mar-08	N		48.9	7.28	7,710	30.08	3.03	103.69	2,420
	26-Mar-08	N		110.2	7.10	6,572	29.88	3.56	103.48	2,480
	02-Apr-08	N		55.7	7.08	7,798	29.81	2.34	77.22	2,800
	16-Apr-08	N		40.3	7.09	7,653	29.28	2.07	78.96	2,940
	29-Apr-08	N		-1.2	7.04	6,791	29.96	3.95	98.07	2,760
	14-May-08	N		-17.0	6.94	7,633	30.13	3.59	102.80	2,760
	28-May-08	N		-6.8	7.09	7,593	29.99	3.65	102.40	2,640
	11-Jun-08	N		70.1	7.00	7,238	30.13	4	90.56	2,980
	25-Jun-08	N		23.1	6.91	6,977	30.08	4.1	102.75	2,800
	24-Jul-08	N		198.7	7.27	6,706	30.01	4.57	102.47	2,800
	20-Aug-08	N		6.3	7.20	7,282	30.02	3.83	102.82	2,800
	17-Sep-08	N		111.3	7.07	7,304	29.85	4.04	103.06	2,860
	15-Oct-08	N		66.9	7.11	6,726	29.73	3.73	103.27	3,280
	12-Nov-08	N		71.3	7.14	7,152	29.85	2.95	103.36	3,180
	05-Feb-09	N		55.3	7.17	7,950	29.79	1.88	104.20	3,260
	14-May-09	N		25.7	6.88	8,183	30.17	2.36	102.80	2,870
	05-Aug-09	N		112.7	7.01	8,078	30.2	3.08	102.83	2,960
	29-Oct-09	N		68.6	7.15	8,225	29.95	2.91	103.66	2,940
	12-Jan-10	N		23.0	7.13	8,420	29.65	1.94	104.11	2,440
	08-Apr-10	N		102.8	7.02	9,187	30.34	0.93	103.38	2,580
	13-Jul-10	N		-1.1	7.08	9,961	30.50	0.84	102.34	2,460
	13-Oct-10	N		-191.5	6.96	8,585	30.39	0.39	103.45	2,600
	18-Jan-11	N		33.5	7.03	9,082	30.15	1.62	105.99	2,460
	13-Apr-11	N		65.4	7.05	8,751	30.40	0.07	102.89	2,040
	12-Jul-11	N		-32.9	7.06	9,276	30.53	0.29	102.54	2,160
	15-Nov-11	**N**		**-174.0**	**7.03**	**9,680**	**30.61**	**0.17**	**104.15**	**1,900**
	15-Feb-12	**N**		**18.9**	**7.01**	**10,223**	**30.40**	**0.29**	**104.00**	**1,740**
	01-Aug-12	**N**		**-213.8**	**6.87**	**9,898**	**30.34**	**0.04**	**102.57**	**1,620**

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PT-9D	17-Jul-07	N	190-210	-74.8	7.87	14,027	31.46	1.14	102.18	10,050
	22-Jan-07	N		47.9	7.76	17,070	30.4	1.23	104.38	17,080
	05-Mar-08	N		-85.7	8.05	17,396	30.44	0.98	104.12	15,820
	12-Mar-08	N		198.4	7.78	1,541	30.16	1.52	103.89	14,060
	19-Mar-08	N		71.3	7.94	16,747	30.35	0.97	103.80	13,580
	26-Mar-08	N		35.2	7.81	13,975	30.39	0.98	103.50	12,220
	02-Apr-08	N		-93	7.83	16,109	30.41	0.51	105.17	13,980
	16-Apr-08	N		44.1	7.76	12,223	29.4	1.25	103.31	14,130
	29-Apr-08	N		-53.9	7.60	14,014	30.31	0.96	102.82	10,790
	14-May-08	N		-89.2	7.56	15,231	30.44	0.7	102.92	10,850
	28-May-08	N		101.2	7.68	15,667	30.34	0.8	102.51	14,450
	11-Jun-08	N		107.6	7.62	15,590	30.11	1.15	85.69	13,660
	25-Jun-08	N		14.2	7.45	14,474	30.46	0.68	102.49	10,400
	24-Jul-08	N		162.4	7.65	14,681	30.34	0.77	102.05	10,780
	20-Aug-08	N		17.7	7.84	16,555	30.46	1.15	102.87	14,400
	17-Sep-08	N		136.6	7.73	15,588	30.32	1.2	103.11	15,180
	15-Oct-08	N		80.0	7.52	13,691	30.06	2.56	103.36	9,300
	12-Nov-08	N		80.7	7.64	16,534	30.19	0.69	103.42	13,900
	05-Feb-09	N		37.1	7.73	16,997	30.48	0.99	104.10	15,860
	15-May-09	N		112.3	7.60	16,823	30.42	0.80	102.60	14,220
	05-Aug-09	N		74.7	7.66	15,340	30.37	0.98	102.78	11,180
	28-Oct-09	N		31.1	7.90	16,692	30.26	1.13	103.50	15,760
	12-Jan-10	N		22.4	7.91	17,133	30.02	1.32	104.07	15,010
	08-Apr-10	N		88.4	7.73	17,445	30.61	1.12	103.37	14,840
	13-Jul-10	N		31.6	7.76	18,767	30.80	1.03	102.36	13,180
	13-Oct-10	N		-198.1	7.68	16,320	30.48	1.00	103.40	15,320
	18-Jan-11	N		87.5	7.78	17,262	30.53	2.23	104.00	15,600
	13-Apr-11	N		75.2	7.79	16,583	30.50	0.99	102.91	14,360
	12-Jul-11	N		8.1	7.80	17,132	30.78	1.52	102.43	15,400
	15-Nov-11	**N**		**-122.6**	**7.81**	**17,816**	**30.90**	**1.07**	**104.15**	**14,640**
	15-Feb-12	**N**		**69.5**	**7.78**	**18,627**	**30.42**	**1.11**	**104.10**	**15,720**
	01-Aug-12	**N**		**-165.1**	**7.68**	**18,210**	**30.60**	**1.22**	**102.65**	**15,120**

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MW-11	17-Jul-07	N	63-88	-23.7	7.56	2,176	30.15	8.81	65.60	260
	24-Jan-08	N		137.3	7.40	2,312	28710	7.61	67.67	342
	04-Mar-08	N		51.6	7.47	2,262	28.79	0.93	67.09	350
	11-Mar-08	N		149.2	7.44	2,169	29.81	7.1	66.97	319
	19-Mar-08	N		29.5	7.61	2,279	29.27	5.59	66.85	340
	26-Mar-08	N		110.2	7.37	2,205	29.52	7.91	66.62	360
	01-Apr-08	N		-48.8	7.47	4,194	29.17	6.44	66.60	334
	15-Apr-08	N		66.5	7.24	2,097	30.06	5.66	66.06	326
	28-Apr-08	N		-23.2	7.41	20	29.86	9.03	65.82	322
	13-May-08	N		-35.9	7.24	2,351	30.04	6.76	65.83	420
	27-May-08	N		32.1	7.24	2,208	29.87	9.66	65.64	380
	10-Jun-08	N		-11.3	7.20	2,196	30.73	8.14	65.49	302
	24-Jun-08	N		54.6	7.01	2,287	29.17	8.96	65.54	252
	22-Jul-08	N		125.8	7.40	2,370	29.35	6.71	65.63	299
	21-Aug-08	N		151.7	7.43	2,210	29.49	8.68	65.84	285
	16-Sep-08	N		-43.3	7.32	2,203	29.37	7.51	66.10	269
	14-Oct-08	N		43.0	7.42	2,120	29.37	6.43	66.36	337
	11-Nov-08	N		144.3	7.69	2,161	29.21	5.87	66.78	343
	03-Feb-09	N		39.2	7.00	2,229	29.22	6.48	67.30	330
	14-May-09	N		14.0	7.18	2,252	29.46	7.22	65.63	246
	06-Apr-10	N		120.9	7.48	2,262	29.56	7.21	66.67	286
	12-Jul-10	N		69.3	7.38	2,539	29.60	9.43	65.62	257
	12-Oct-10	N		42.2	7.46	2,134	29.60	8.42	66.47	199
	17-Jan-11	N		20.7	7.38	2,112	29.65	6.25	67.16	233
	12-Apr-11	N		121.8	7.49	2,036	29.40	8.55	66.17	192
	11-Jul-11	N		75.1	7.38	2,205	29.64	9.39	65.55	235
	14-Nov-11	**N**		**-50.9**	**7.37**	**2,223**	**29.70**	**7.00**	**67.32**	**168**
	13-Feb-12	**N**		**42.7**	**6.90**	**2,129**	**29.44**	**7.79**	**67.20**	**184**
	30-Jul-12	**N**		**128.7**	**7.25**	**2,226**	**29.53**	**8.79**	**65.70**	**184**

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MW-24A	18-Jul-07	N	104-124	-43.9	7.67	2,707	32.20	2.89	110.05	1,100
	24-Jan-08	N		79.8	7.51	3,090	28.51	1.95	112.20	2,980
	06-Mar-08	N		-119.7	7.45	10,486	29.02	0.61	111.33	325
	12-Mar-08	N		-201.4	7.44	9,758	31.2	0.2	111.50	14,060
	19-Mar-08	N		-250.7	7.04	9,950	30.13	0.16	111.48	111
	26-Mar-08	N		-299.6	6.54	8,402	30.7	0.39	111.25	173
	01-Apr-08	N		-299.1	7.06	1,638	30.6	0.04	---	440
	17-Apr-08	N		-285.9	6.62	10,291	30.9	1.39	110.85	160
	30-Apr-08	N		-315.7	6.45	10,294	32.03	1.46	110.15	220
	30-Apr-08	FD		-315.7	6.45	10,294	32.03	1.46	110.15	220
	15-May-08	N		-350.1	6.54	10,940	33.47	0.44	109.82	120
	27-May-08	N		-278.1	6.33	10,759	32.8	1.29	110.20	<10
	12-Jun-08	N		-259.9	6.70	10,910	32.6	0.8	111.66	<10
	19-Jun-08	N		-222.4	6.49	11,469	32.81	1.28	110.28	---
	26-Jun-08	N		-228.5	7.20	107	30.84	0.17	110.13	18
	01-Jul-08	N		-320.4	6.82	10,282	31.3	0.07	109.73	---
	24-Jul-08	N		-224.9	7.57	10,670	32.38	0.32	110.26	180
	19-Aug-08	N		-302.5	7.20	10,311	33.74	2.06	110.53	17
	16-Sep-08	N		-343.8	6.54	9,799	30.03	0.31	110.78	50
	16-Oct-08	N		-259.4	7.01	10,626	30.91	0.70	111.11	123
	13-Nov-08	N		-284.9	7.57	10,952	27.05	0.44	111.33	<10
	03-Feb-09	N		-360.6	6.66	10,894	28.14	1.13	111.92	<10
	14-May-09	N		-212.3	7.13	10,531	31.64	0.11	110.23	<10
	03-Aug-09	N		-276.8	6.92	9,113	31.2	0.96	110.58	<10
	27-Oct-09	N		-206.0	7.41	6,001	30.91	0.17	111.10	<10
	11-Jan-10	N		-174.0	7.53	4,677	30.12	0.64	111.90	<10
	07-Apr-10	N		-194.7	7.71	3,757	31.15	0.17	111.15	<10
	12-Jul-10	N		-171.7	7.80	3,659	31.10	0.03	110.18	22
	12-Oct-10	N		-262.4	7.86	3,021	30.46	0.10	111.03	<10
	17-Jan-11	N		-135.9	7.45	3,421	30.00	0.60	111.76	23
	12-Apr-11	N		-206.8	7.93	2,711	30.80	0.04	110.75	22
	11-Jul-11	N		-369.5	8.05	2,613	30.48	0.33	110.10	<10
	14-Nov-11	**N**		**-396.9**	**7.80**	**2,817**	**30.51**	**0.18**	**111.86**	**10**
	13-Feb-12	**N**		**-210.9**	**7.90**	**2,615**	**30.07**	**0.20**	**111.80**	**<10**
	30-Jul-12	**N**		**-145.8**	**8.08**	**2,271**	**30.07**	**0.04**	**110.29**	**<10**

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MW-24B	18-Jul-07	N	193-213	-57.9	7.86	15,371	31.40	3.02	107.92	2,340
	24-Jan-08	N		-9.7	7.74	17,450	29.91	0.85	109.75	5,400
	06-Mar-08	N		28.1	7.73	17,751	28.05	1.49	110.20	4,400
	12-Mar-08	N		-19.4	7.78	1,669	30.62	1.11	109.47	4,800
	19-Mar-08	N		-32.7	7.90	17,369	30.16	0.78	109.22	4,460
	26-Mar-08	N		-28	7.77	14,547	30.91	88	109.23	4,700
	02-Apr-08	N		-292.2	7.77	17,340	30.13	0.54	109.00	4,420
	17-Apr-08	N		-141.4	7.77	16,429	30.42	1.09	108.60	4,640
	30-Apr-08	N		-222.7	7.79	15,539	30.45	0.85	105.82	3,800
	15-May-08	N		-82.0	7.65	17,017	30.36	0.80	108.57	3,860
	28-May-08	N		-105.4	7.76	16,854	30.25	2.54	108.14	3,940
	12-Jun-08	N		-66.6	7.72	16,160	30.23		111.23	3,980
	26-Jun-08	N		24.7	7.68	10,275	30.09	0.49	108.06	3,400
	24-Jul-08	N		-22.0	7.82	16,374	30.19	0.39	108.29	3,240
	19-Aug-08	N		-25.7	7.61	16,302	30.51	0.48	108.31	3,400
	17-Sep-08	N		-64.4	7.76	15,433	29.49	0.79	108.56	3,360
	16-Oct-08	N		88.6	7.60	15,816	31.18	1.18	109.03	3,380
	13-Nov-08	N		9.3	7.66	16,049	31.12	0.47	109.14	3,000
	04-Feb-09	N		-18.6	7.69	16,432	31.64	1.29	109.90	3,000
	14-May-09	N		-35.2	7.61	16,708	30.21	0.09	108.50	2,700
	07-Apr-10	N		-104.2	7.79	18,131	30.19	0.20	108.94	2,040
	12-Jul-10	N		144.0	7.72	20,363	30.60	0.04	108.29	2,340
	12-Oct-10	N		-239.8	7.80	16,937	30.21	0.07	108.90	2,280
	17-Jan-11	N		-102.5	7.63	17,665	30.29	0.30	109.47	2,180
	12-Apr-11	N		-72.0	7.93	17,812	30.30	0.03	108.53	2,220
	11-Jul-11	N		-134.8	7.78	18,793	30.79	0.23	108.10	2,200
	14-Nov-11	**N**		**-288.0**	**7.62**	**19,390**	**30.40**	**0.44**	**109.64**	**101**
	13-Feb-12	**N**		**-126.0**	**7.34**	**19,612**	**30.04**	**0.14**	**109.57**	**74**
	30-Jul-12	**N**		**-147.6**	**7.63**	**20,135**	**31.24**	**0.03**	**108.43**	**1,560**

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MW-38S	17-Jul-07	N	75-95	27.2	7.52	3,306	29.00	6.02	69.04	720
	23-Jan-08	N		36.6	7.56	3,175	27.08	5.33	71.05	1,140
	04-Mar-08	N		150	7.59	3,194	27.72	0.57	70.71	1,200
	11-Mar-08	N		56	7.70	3,094	28.37	2.95	70.40	1,300
	20-Mar-08	N		117.6	7.71	3,218	27.3	5.31	70.43	1,140
	26-Mar-08	N		24.1	7.39	2,687	28.36	4.2	70.18	1,260
	01-Apr-08	N		-16.4	7.57	5,892	28.48	4.6	70.10	1,280
	15-Apr-08	N		116.4	7.41	2,958	28.64	3.89	69.66	1,180
	28-Apr-08	N		-88.8	7.70	2,875	29.05	5.22	69.45	1,340
	13-May-08	N		-41.3	7.38	3,213	28.62	4.18	69.27	1,120
	27-May-08	N		-20.0	7.43	3,035	28.39	4.82	69.17	1,180
	10-Jun-08	N		-14.1	7.50	2,569	28.8	1.59	66.62	1,320
	24-Jun-08	N		10.7	7.20	3,041	28.65	4.82	69.12	1,140
	22-Jul-08	N		185.1	7.54	3,045	29.33	2.85	69.10	1,280
	20-Aug-08	N		7.2	7.71	2,832	28.88	1.49	65.66	1,340
	16-Sep-08	N		80.9	7.46	2,811	29.00	1.54	69.50	1,360
	14-Oct-08	N		141.6	7.43	2,684	28.63	0.67	69.94	1,540
	11-Nov-08	N		136.7	7.77	2,701	27.87	3.71	70.18	1,440
	03-Feb-09	N		40.1	7.28	2,816	28.41	3.33	70.83	1,600
	12-May-09	N		94.4	7.42	2,595	29.29	2.92	69.10	762
	03-Aug-09	N		93.0	7.36	2,390	29.20	1.41	69.33	977
	27-Oct-09	N		88.9	7.74	2,307	27.78	0.8	69.95	980
	11-Jan-10	N		11.0	7.66	2,248	28.25	1.89	70.70	1,220
MW-38D	17-Jul-07	N	166-188	-62.9	7.81	20,894	30.63	1.2	69.37	1,410
	23-Jan-08	N		-32.8	7.78	23,020	30.28	0.14	71.29	69
	04-Mar-08	N		-39	7.86	23,367	30.09	0.11	71.01	77
	11-Mar-08	N		-54.0	7.80	2,260	30.28	0.3	70.86	72
	20-Mar-08	N		174.8	7.95	234	30.18	0.14	70.79	54
	26-Mar-08	N		-47.9	7.77	19,673	30.4	0.18	70.53	54
	01-Apr-08	N		-79.7	8.10	42,680	30.22	0.10	67.43	53
	15-Apr-08	N		-56.2	7.65	21,852	30.06	0.50	70.83	62
	15-Apr-08	FD		-56.2	7.65	21,852	30.06	0.50	70.83	62
	28-Apr-08	N		-2.1	7.79	21,005	30.26	0.45	69.96	62
	13-May-08	N		-106.5	7.62	23,691	30.27	0.18	188.30	<10
	27-May-08	N		10.2	7.68	2,246	30.27	0.57	69.63	189
	10-Jun-08	N		36.9	7.74	21,879	30.49	0.5	69.22	64
	24-Jun-08	N		-80.4	7.80	22,824	30.32	0.17	69.58	53
	22-Jul-08	N		110.6	7.81	23,605	30.41	0.15	69.50	69
	20-Aug-08	N		89.0	7.93	22,069	30.33	0.20	69.81	66
	16-Sep-08	N		-118.3	7.73	21,191	29.29	0.39	70.07	70
	14-Oct-08	N		86.3	7.72	21,347	30.19	2.56	70.38	87
	11-Nov-08	N		159.3	7.82	21,866	30.24	0.33	68.70	71
	03-Feb-09	N		58.4	7.64	23,061	30.12	0.55	71.15	59
	12-May-09	N		-21.0	7.70	23,376	30.45	0.04	69.50	52
	03-Aug-09	N		8.7	7.74	22,012	30.49	0.48	69.80	49
	27-Oct-09	N		10.1	7.87	22,123	30.17	0.28	69.79	61
	11-Jan-10	N		106.4	7.43	27,027	29.9	0.36	71.13	34

Table 2
Summary of Field Parameters
PG&E Topock
Needles, California
2012 Annual 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 (ºC)	DO (mg/L)	Depth to Water (feet below TOC)	Hexavalent Chromium Field (µg/L)
PTR-1	19-Jul-07	N	*	-50.9	7.91	8,927	31.2	1.6	102.65	201
	25-Jan-08	N		228.7	7.48	7,093	22.52	2.09	---	920
	06-Mar-08	N		23.2	7.77	4,750	26.9	1.2	---	641
	11-Mar-08	N		114.3	6.74	4,453	32.84	1.99	---	380
	20-Mar-08	N		-139.7	7.97	3,105	37.50	1.54	---	62
	27-Mar-08	N		185.1	7.46	1,489	31.28	3.7	---	654
	01-Apr-08	N		-215.3	7.97	10,980	33.58	1.39	---	240
	16-Apr-08	N		-42.4	7.63	4,019	33.01	0.92	---	52
	29-Apr-08	N		-232.9	7.23	4,479	28.91	0.54	---	22
	15-May-08	N		-221.6	6.98	5,158	32.1	0.60	---	120
	29-May-08	N		-107.5	7.34	4,640	36.35	0.80	---	25
	12-Jun-08	N		-159.4	7.69	5,661	33.60	1.34	---	1
	19-Jun-08	N		-119.7	7.79	6,231	38.28	0.78	---	---
	26-Jun-08	N		-113.6	7.58	5,640	38.43	1.10	---	<10
	01-Jul-08	N		-1115	7.62	5,868	39.84	1.24	---	---
	24-Jul-08	N		90.5	7.46	5,365	37.00	1.24	---	480
	19-Aug-08	N		40.8	7.44	5,752	36.86	1.60	---	<10
	18-Sep-08	N		-33.3	7.57	5,804	31.94	0.96	---	<10
	16-Oct-08	N		-74.8	7.28	6,139	38.5	1.35	---	11
	13-Nov-08	N		-23.3	7.33	4,410	33.2	1.09	---	<10
	04-Feb-09	N		-227.9	7.25	5,702	32.15	0.50	102.73	<10
	14-May-09	N		-223.7	6.79	6,123	31.17	0.04	101.00	<10
PTR-2	18-Jul-07	N	*	-56.7	7.40	9,367	30.52	1.01	110.34	2,020
	25-Jan-08	N		167.8	7.31	9,122	28.41	2.37	---	4,920
	06-Mar-08	N		33.8	7.31	1,007	28.7	1.27	---	4,800
	11-Mar-08	N		125	6.92	9,837	28.21	1.59	---	5,660
	20-Mar-08	N		-27.2	7.70	4,116	37.18	3.66	---	19,500
	27-Mar-08	N		52.8	7.76	2,146	32.21	4.4	---	8,700
	01-Apr-08	N		-46.9	7.45	1,953	36.75	1.56	---	4,240
	15-Apr-08	N		-79.1	7.42	50	33.21	2.24	---	552
	29-Apr-08	N		-82.4	7.20	10,168	26.61	2.07	---	5,320
	15-May-08	N		45.0	7.30	11,203	29.69	1.43	---	5,060
	28-May-08	N		-60.0	7.73	8,988	32.73	1.95	---	4,280
	10-Jun-08	N		69.0	7.54	10,684	37.77	1.46	---	196
	19-Jun-08	N		170.6	7.55	9,106	38.22	1.4	---	---
	26-Jun-08	N		20.9	7.32	10,484	31.34	0.79	---	4,280
	01-Jul-08	N		-54.3	7.20	10,163	37.45	0.81	---	---
	24-Jul-08	N		281.5	7.26	10,747	33.07	1.18	---	4,900
	19-Aug-08			-19.6	7.30	5,956	37.04	---	---	2,000
	18-Sep-08	N		128.9	7.37	5,782	30.6	1.49	---	2,160
	16-Oct-08	N		-154.8	7.14	10,131	28.5	0.85	---	4,440
	13-Nov-08	N		16.5	7.09	11,109	33.11	0.88	---	4,360
	05-Feb-09	N		-40.7	7.29	12,167	29.83	0.29	107.7	2,060
	13-May-09	N		-74.3	7.09	12,175	30.59	0.07	105.88	2,380

Table 2
Summary of Field Parameters
PG&E Topock
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Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	ORP (mV)	pH	Specific Conductance (µS/cm)	Temperature (ºC)	DO (mg/L)	Depth to Water (feet below TOC)	Hexavalent Chromium Field (µg/L)

Notes:
Current quarter 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
ºC	Degrees Celsius
µg/L	Micrograms per liter
mg/L	Milligrams per liter
ORP	Oxidation Reduction Potential
N	Normal
DO	Dissolved oxygen
TOC	Top of Casing
---	Not analyzed/Not available
*	PTR-1 Screen: 125-160 and 175-220 ft bgs. PTR-2 Screen: 118-158 and 173-218 ft bgs.

Oct result for PT-7M & PT-7D are grab samples. Unable to effectively purge well because of gas buildup in the well.
Oct ORP value for PT-7S is under review; likely a mis-reading was recorded.

Table 3
Summary of Primary Analytical Parameters
PG&E Topock
Needles, California
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Location Name	Sample Date	Notes	Sample Type	Hexavalent Chromium (µg/L)	Total Dissolved Chromium (µg/L)	Total Chromium (µg/L)	Fluorescein (ppb)	Fluorescein (ppb dye)	Rhodamine (ppb)	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)	Dissolved Molybdenum (µg/L)	Dissolved Selenium (µg/L)
PT-7S	18-Jul-07	a	N	1,200	1,260	1,080	---	---	---	---	22	<0.1	6,160	<500	56	1,050	674	1.2	23 [1]	42 [1]
	23-Jan-08	a	N	1,400	1,390	---	---	---	---	---	19	<0.1	558	<2,500	<2,500	462	608	3.0	<25	33
	06-Mar-08	a	N	1,420	1,270	---	---	---	ND	ND	19	<0.1	<500	<500	<500	34	637	<1	25	22
	13-Mar-08	a	N	1,100	1,070	---	0.024	0.02	ND	ND	15	<0.1	<500	<2,500	<2,500	<10	588	1.3	---	---
	18-Mar-08	a	N	1,300	1,280	---	0.847	0.64	ND	ND	18	<0.1	<500	<2,500	---	11	606	1.2	---	---
	25-Mar-08	a	N	1,420	1,410	---	1.28	0.96	ND	ND	19	<0.2	<500	<2,500	<2,500	23	630	1.9	---	---
	02-Apr-08	a	N	1,490	1,510	---	0.325	0.24	ND	ND	---	---	<500	<2,500	---	---	665	<1	---	---
	17-Apr-08	a	N	1,320	1,280	---	3.22	2.42	ND	ND	---	---	<500	<2,500	---	---	737	<1	34	33
	29-Apr-08	a **	N	812	855	---	7.61	5.71	ND	ND	14	0.95	<500	<500	<500	189	567	1.8	---	---
	15-May-08	a	N	876	868	---	3.85	2.89	ND	ND	---	---	<500	<500	---	---	563	<1	---	---
	29-May-08	a	N	1,230	1,190	---	0.0942	0.07	ND	ND	19	<0.5	<500	<500	<500	47.9	675	<1	30	26
	11-Jun-08	a	N	1,580	1,350	---	0.23	0.17	ND	ND	---	---	<500	<500	---	---	764	---	26	35
	24-Jun-08	a	N	927	801	---	1.38	1.04	ND	ND	13	<0.5	<500	<500	<500	134	599	1.9	---	---
	23-Jul-08	a	N	182	190	---	33.7	25.3	15	3.00	4.4	<1	<500	<500	1,450	1,650	547	14	369	7.1
	21-Aug-08	a	N	401 J	398	---	451	338	1.83	0.37	9.0	<1	<500	<500	2,230	2,620	486	896	59	15
	18-Sep-08		N	429	502	---	2.9	2.18	0.598	0.12	15	<0.5	<500	<500	690	855	629	3.2	44	26
	15-Oct-08		N	<0.2	39	---	42.3	31.7	14.0	2.80	2.9	<0.5	604	<500	1,470	1,710	381	48	43	<5
	12-Nov-08		N	152	316	---	20.4	15.3	8.6	1.71	11	<0.5	<500	<500	945	1,380	543	16	32	22
	05-Feb-09	a	N	794	729	---	10.9	8.18	ND	ND	10 UB	<0.1	<100	102	366	369	770	1.5	29	25
	15-May-09		N	818	876	---	ND	ND	ND	ND	16	<0.2	1,820	<100	259	286	610	1 J	26	15
	04-Aug-09	a	N	836	805	---	ND	ND	ND	ND	17	---	---	278	189	---	620	0.85 UB	22	12 J
	29-Oct-09		N	770	646	---	ND	ND	ND	ND	16	---	---	393 J	158	---	680	3.1 J	20	9.6
	13-Jan-10		N	797	733	---	ND	ND	ND	ND	15	---	---	<100	97	---	670	0.72	20	13
	08-Apr-10		N	697	676	---	ND	ND	ND	ND	14	---	---	<100	86	---	680	0.81	20	9.5
	14-Jul-10		N	694	703	---	ND	ND	ND	ND	14	---	---	131	77	---	670	18 J [2]	17	11
	14-Oct-10		N	682	592	---	ND	ND	ND	ND	13	---	---	<100	69	---	660	<0.5	18	7.1
	18-Jan-11		N	638	541	---	ND	ND	ND	ND	13	---	---	<100	53	---	650	<0.5	18	7.1
	13-Apr-11		N	586	576	---	ND	ND	ND	ND	13 J	---	---	78 J	53	---	640	<0.5	18	5.6
	12-Jul-11		N	551	537	---	ND	ND	ND	ND	12.0	---	---	<50	49	---	670	<0.5	19	5.3
	16-Nov-11		**N**	**612**	**518**	---	**ND**	**ND**	**ND**	**ND**	**12.0**	---	---	**<250**	**42**	---	**650**	**14.0**	**16**	**6.5**
	14-Feb-12		**N**	**526**	**538**	---	**ND**	**ND**	**ND**	**ND**	**12.0**	---	---	**51.9**	**44**	---	**640**	**13.0**	**16**	**8.5**
	31-Jul-12		**N**	**496**	**526**	---	**ND**	**ND**	**ND**	**ND**	**12.0**	---	---	**<50**	**41**	---	**630**	**15.0**	**16**	**6.6**

Table 3
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PG&E Topock
Needles, California
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Location Name	Sample Date	Notes	Sample Type	Hexavalent Chromium (µg/L)	Total Dissolved Chromium (µg/L)	Total Chromium (µg/L)	Fluorescein (ppb)	Fluorescein (ppb dye)	Rhodamine (ppb)	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)	Dissolved Molybdenum (µg/L)	Dissolved Selenium (µg/L)
PT-7M	19-Jul-07	a	N	2,320	2,240	2,110	---	---	---	---	25	<0.1	6,260	<500	32	1,150	1,250	1.0	15 [1]	101 [1]
	24-Jan-08	a	N	2,440	2,340	---	---	---	---	---	30	<0.5	<500	<1,000	<1,000	<10	1,280	<1	17	85
	06-Mar-08	a	N	30	16.5	---	ND	ND	ND	ND	<0.5	<0.1	<500	<500	702	711	846	216	67	<5
	06-Mar-08	a	FD	33.3	18	---	0.044	0.03	ND	ND	<0.5	<0.1	<500	<500	703	714	832	213	---	---
	13-Mar-08	a	N	<0.2	<5	---	1,590	1,193	ND	ND	<0.5	<0.1	<500	<2,500	3,320	3,540	656	446	---	---
	18-Mar-08	a	N	<0.2	<5	---	4,520	3,390	ND	ND	<5	<1	1,040	<2,500	---	6,290	205	1,550	---	---
	25-Mar-08	a	N	6.9	<5	---	4,040	3,030	ND	ND	<2.5	<0.5	1,740	<2,500	8,690	9,500	144	1,500	---	---
	02-Apr-08	a	N	2	<5	---	3,760	2,820	ND	ND	---	---	2,660	<2,500	---	---	105	1,270	---	---
	17-Apr-08	a	N	<1	<5	---	10,200	7,650	ND	ND	---	---	6,320	3,700	---	---	<10	4,640	<25	<25
	29-Apr-08	a **	N	<1	1.08	---	10,900	8,175	ND	ND	<10	<2	1,680	1,300	11,300	14,100	<10	8,050	---	---
	14-May-08	a	N	<1.1	1.52	---	10,300	7,725	ND	ND	---	---	9,070	6,900	---	---	<20	8,040	---	---
	29-May-08	a	N	<1	1.34	---	5,550	4,163	ND	ND	<10	<10	12,400	11,000	18,600	18,400	<10	10,700	<5	<5
	11-Jun-08	a	N	1.4	1.98	---	4,000	3,000	ND	ND	---	---	15,100	10,900	---	---	11	8,530	<5	<5
	19-Jun-08	a	N	---	---	---	---	---	---	---	---	---	---	---	---	---	---	9,340	---	---	---
	25-Jun-08	a	N	<1	1.02	---	2,530	1,898	ND	ND	<2.5	<2.5	18,500	13,200	21,900	26,300	<2.5	8,630	---	---
	01-Jul-08	a	N	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8,180	---	---	---
	08-Jul-08	a	N	---	---	---	---	---	---	---	---	---	---	---	---	---	---	6,980	---	---	---
	15-Jul-08	a	N	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1,810	---	---	---
	23-Jul-08	a	N	<0.2	<1	---	16.5	12.4	ND	ND	<2.5	<2.5	27,100	19,100	24,400	26,500	3.11	5,180	<5	<5
	28-Jul-08	a	N	---	---	---	---	---	---	---	---	---	---	---	---	---	---	4,930	---	---	---
	21-Aug-08	a	N	<0.2 UJ	<1	---	1450	1,088	ND	ND	<2.5	<2.5	38,600	34,400	31,400	31,300	12	5,530	<50	<5
	03-Sep-08	a	N	---	---	---	---	---	---	---	---	---	---	---	---	---	---	2,870	---	---	---
	18-Sep-08		N	<0.2	<1	---	1,450	1,088	ND	ND	<1	<1	13,600	25,100	22,900	29,200	6.65	2,930	<5	<5
	15-Oct-08		N	<0.2	<1	---	1,320	990	ND	ND	<2.5	<2.5	33,600	27,800	16,100	16,300	57.8	2,210	<5	<5
	12-Nov-08		N	<0.2	<1	---	539	404	ND	ND	<1	<1	4,090	2,690	1,100	1,190	17.5	395	<5	<5
	15-May-09		N	<0.2	<1	---	315	236	ND	ND	<0.2	<0.2	8,930	6,930 J	1,950	1,930	<2 UB	110	<1	<1
	04-Aug-09	a	N	<0.2	<1	---	404	303	ND	ND	<0.2	---	---	4,350	977	---	3.3	79	<1	<1 UJ
	29-Oct-09		N	<0.2	<1	---	671	503	ND	ND	<0.2	---	---	16,100 J	3,050	---	34	950	1.4	<1
	13-Jan-10		N	<0.2	<1	---	261	196	ND	ND	<0.2	---	---	21,800	2,620	---	<3.5	160	1.1	<1
	14-Jul-10		N	<0.2	<1	---	436	327	ND	ND	<0.2	---	---	19,200	2,580	---	<2	320 J [2]	3.0	2.9
	14-Oct-10		N	<0.2	1.1	---	1,300	975	ND	ND	<0.2	---	---	5,620 J	398	---	<2	4.6	<1	<1
	18-Jan-11		N	<0.2	2.2	---	411	308	ND	ND	<0.2	---	---	8,980 J	505	---	<2	7.2	<1	<1
	14-Apr-11		N	<1	<1	---	532	399	ND	ND	<0.2	---	---	8,650	358	---	3.9	5.7	<5	<5
	13-Jul-11		N	<0.2	<1	---	353	265	ND	ND	<0.2	---	---	6,340	578	---	2.0	4.7	1.50	<1
	15-Nov-11		**N**	**<0.2**	**<1**	---	**498**	**374**	**ND**	**ND**	**<0.2**	---	---	**34,300**	**3,410**	---	**13**	**120**	**<5**	**<5**
	14-Feb-12		**N**	**<0.2**	**<1**	---	**468**	**351**	**ND**	**ND**	**<0.2**	---	---	**32,200**	**3,510**	---	**6.3**	**110**	**2.6**	**3.6**
	31-Jul-12		**N**	**<0.2**	**<1**	---	**532**	**399**	**ND**	**ND**	**<0.2**	---	---	**14,400**	**1,640**	---	**9.7**	**97**	**4.1**	**<5**

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Needles, California
2012 Annual Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test

Location Name	Sample Date	Notes	Sample Type	Hexavalent Chromium (µg/L)	Total Dissolved Chromium (µg/L)	Total Chromium (µg/L)	Fluorescein (ppb)	Fluorescein (ppb dye)	Rhodamine (ppb)	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)	Dissolved Molybdenum (µg/L)	Dissolved Selenium (µg/L)
PT-7D	18-Jul-07	a	N	7,260	7,890	7,750	---	---	---	---	7.4	<0.1	<500	<500	48	54	1,140	<1	129 [1]	8.1 [1]
	24-Jan-08	a	N	8,010	7,920	---	---	---	---	---	9.9	<0.5	<500	<1,000	<1,000	14	1,150	<1	87	<10
	06-Mar-08	a	N	506	499	---	ND	ND	ND	ND	<0.5	<0.1	<500	<500	<500	193	903	234	203	<5
	13-Mar-08	a	N	80.6	160	---	1,580	1,185	ND	ND	<0.5	<0.2	<500	<2,500	<2,500	1,050	903	313	---	---
	18-Mar-08	a	N	<2.1	69.3	---	1,040	780	ND	ND	<1	<0.2	<500	<2,500	---	2,220	621	309	---	---
	25-Mar-08	a	N	4	17.8 UB	---	860	645	ND	ND	<1	<0.5	<500	<2,500	4,080	4,320	612	313	---	---
	02-Apr-08	a	N	<0.2	<5	---	771	578	ND	ND	---	---	<500	<2,500	---	---	633	256	---	---
	17-Apr-08	a	N	22.6	7.64	---	5,550	4,163	ND	ND	---	---	<500	<2,500	---	---	179	1,410	65	<25
	29-Apr-08	a	N	<0.2	17.2	---	6,680	5,010	ND	ND	<10	<2	<500	<500	2,960	3,380	98	2,920	---	---
	15-May-08	a	N	<1.1	1.48	---	5,450	4,088	ND	ND	---	---	2,280	1,730	---	---	96	2,780	---	---
	29-May-08	a	N	<1	1.14	---	5,260	3,945	ND	ND	<10	<10	2,660	2,000	8,860	8,850	100	1,690	51	<5
	11-Jun-08	a	N	1.5	1.48	---	8,390	6,293	ND	ND	---	---	4,920	2,740	---	---	51	4,620	35	<5
	19-Jun-08	a	N	---	---	---		---		---	---	---	---	---	---	---	---	4,520	---	---
	24-Jun-08	a	N	<1	49.2	---	7,000	5,250	ND	ND	<10	<10	10,600	1,280	9,700	11,400	13	4,450	---	---
	01-Jul-08	a	N	---	---	---	---	---	---	---	---	---	---	---	---	---	---	5,850	---	---
	08-Jul-08	a	N	---	---	---	---	---	---	---	---	---	---	---	---	---	---	4,580	---	---
	15-Jul-08	a	N	---	---	---	---	---	---	---	---	---	---	---	---	---	---	5,430	---	---
	23-Jul-08	a	N	<0.2	2.18	---	2,730	2,048	ND	ND	<5	<5	7,870	5,380	18,100	19,900	<5	5,140	<5	<5
	28-Jul-08	a	N	---	---	---	---	---	---	---	---	---	---	---	---	---	---	5,140	---	---
	21-Aug-08	a	N	<0.2 UJ	1.13	---	2,210	1,658	ND	ND	<2.5	<2.5	7,130	6,140	19,100	20,300	30	4,500	10	<5
	03-Sep-08	a	N	---	---	---	---	---	---	---	---	---	---	---	---	---	---	5,110	---	---
	18-Sep-08		N	<0.2	3.07	---	1,010	758	ND	ND	<1	<1	25,900	10,000	27,000	20,100	11.3	2,890	<5	<5
	15-Oct-08		N	<0.2	7.37	---	704	528	ND	ND	<1	<1	14,300	6,150	23,700	25,400	17	1,640	<50	<50
	12-Nov-08		N	<0.2	2.8	---	424	318	ND	ND	<2.5	<2.5	4,460	<500	18,200	22,100	7.8	791	<25	<5
	15-May-09		N	<0.2	<1	---	437	328	ND	ND	<0.5	<0.5	836	315 J	246	579	290	3.7 J	<1	<1
	04-Aug-09	a	N	<0.2	<1	---	1,080	810	ND	ND	<0.5	---	---	5,150	6,170	---	82	770	11	<1 UJ
	28-Oct-09		N	<0.2	1.46	---	460	345	ND	ND	<0.5 UJ	---	---	746 J	354	---	510	4.9	<1	<1
	13-Jan-10		N	<0.2	<1	---	456	342	ND	ND	<0.5	---	---	1,010 J	389	---	680	9.2	4.6	<1
	08-Apr-10		N	<0.2	1.47	---	636	477	ND	ND	<0.5	---	---	463	200	---	650	4.9	16	<1
	14-Jul-10		N	<0.2	<1	---	484	363	ND	ND	<0.5	---	---	4,930 J	2,070	---	670	96 J [2]	22	<5
	14-Oct-10		N	<0.2	1.9	---	1,090	818	ND	ND	<0.5	---	---	893 J	422	---	370	2.2	19	<1
	18-Jan-11		N	<0.2	2.6	---	1,140	855	ND	ND	<0.5	---	---	1,150 J	420	---	380	6.2	27	<1
	14-Apr-11		N	<0.2	1.4	---	1,330	998	ND	ND	<0.5	---	---	1,110	336	---	170	26	18	<5
	13-Jul-11		N	<1	<1	---	718	539	ND	ND	<0.5	---	---	5,920	2,340	---	280	1	29	<1
	16-Nov-11		**N**	**<0.2**	**<1**	---	**605**	**454**	**ND**	**ND**	**<0.5**	---	---	**8,940**	**3,490**	---	**360**	**68**	**29**	**<5**
	15-Feb-12		**N**	**<0.2**	**<1**	---	**550**	**413**	**ND**	**ND**	**<0.2**	---	---	**12,400**	**4,290**	---	**340**	**52**	**33**	**<10**
	31-Jul-12		**N**	**<0.2**	**1.5**	---	**655**	**491**	**ND**	**ND**	**<0.5**	---	---	**7,810**	**2,180**	---	**260**	**45**	**28**	**<5**

Table 3
Summary of Primary Analytical Parameters
PG&E Topock
Needles, California
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Location Name	Sample Date	Notes	Sample Type	Hexavalent Chromium (µg/L)	Total Dissolved Chromium (µg/L)	Total Chromium (µg/L)	Fluorescein (ppb)	Fluorescein (ppb dye)	Rhodamine (ppb)	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)	Dissolved Molybdenum (µg/L)	Dissolved Selenium (µg/L)
PT-8S	16-Jul-07	a	N	1,750	1,660	1,620	---	---	---	---	25	<0.5	2,670	<500	25	269	869	1.4	45 [1]	84 [1]
	23-Jan-08	a	N	1,620	1,680	---	---	---	---	---	25	<0.5	<500	<2,500	<2,500	<10	734	1.0	---	---
	05-Mar-08	a	N	1,430	1,340	---	ND	ND	ND	ND	23	<0.5	<500	<500	<500	<10	727	1.1	---	---
	13-Mar-08	a	N	657	657	---	ND	ND	ND	ND	8.4	1.61	<500	<2,500	<2,500	333	618	13	---	---
	18-Mar-08	a	N	160	164	---	ND	ND	ND	ND	1.7	0.82	<500	<2,500	---	1,050	561	7.2	---	---
	25-Mar-08	a	N	455	438	---	0.10	0.07	ND	ND	6.2	2.42	<500	<2,500	<2,500	973	591	4.2	---	---
	02-Apr-08	a	N	877	884	---	ND	ND	ND	ND	---	---	<500	<2,500	---	---	634	1.4	---	---
	16-Apr-08	a	N	775	747	---	0.20	0.15	ND	ND	---	---	<500	<2,500	---	---	408	<1	---	---
	29-Apr-08	a	N	76.7	95.7	---	24.8	18.6	ND	ND	1.4	<0.2	<500	<500	2,300	2,910	560	74	---	---
	14-May-08	a	N	<0.2	18.1	---	12.8	9.60	1.77	0.35	---	---	<500	<500	---	---	481	36	---	---
	28-May-08	a	N	<0.2	2.68	---	80.0	60.0	34.6	6.92	<0.5	<2.5	532	<500	3,560	3,930	161	50	---	---
	28-May-08	a	FD	<0.2	3.05	---		62.1		6.72	<0.5	<2.5	544	<500	3,520	3,950	162	92	---	---
	11-Jun-08	a	N	1.8	4.97	---	430	323	213	42.6	---	---	5,530	4,210	---	---	12.7	1,100	---	---
	19-Jun-08	a	N	---	---	---	---	---	---	---	---	---	---	---	---	---	---	842	---	---
	25-Jun-08	a	N	<1	1.8	---	164	123	487	97.4	<1	<1	6,600	5,540	15,600	17,600	2.6	1,710	---	---
	01-Jul-08	a	N	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1,740	---	---
	08-Jul-08	a	N	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1,090	---	---
	15-Jul-08	a	N	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1,230	---	---
	23-Jul-08	a	N	<0.2	<1	---	111	83.3	486	97.2	<5	<5	6,380	5,050	17,200	18,100	<5	1,210	---	---
	28-Jul-08	a	N	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1,020	---	---
	20-Aug-08	a	N	<0.2 J	16.0	---	119	89.3	346	69.2	<1	<2.5	13,600	11,200	9,560	10,700	3.9	439	---	---
	17-Sep-08		N	<0.2	3.7	---	97.1	72.8	257	51.4	<1	<1	12,800	10,300	4,700	5,380	4.1	189	---	---
	15-Oct-08		N	<0.2	1.0	---	181	136	345	69.0	<1	<2.5	9,240	8,200	2,720	3,040	5.5	164	---	---
	12-Nov-08		N	<0.2	<1	---	111	83.3	248	49.6	<1	<1	19,700	8,090	1,640	3,030	5.2	5.4	---	---
	04-Feb-09	a	N	<0.2	<1	---	213	160	178	35.6	1.4	<0.5	7,100	6,150	2,600	2,880	100	3.9	8.2	2.4 J
	13-May-09	a	N	<0.2	3.8	---	139	104	194	38.8	<0.2	<0.2	8,920	5,000	2,600	2,770	150	2.4 J	13	<1
	04-Aug-09	a	N	<0.2	<1	---	111	83.3	165	33.0	<0.2	---	---	3,790	2,320	---	240	2.3	14	4.6 J
	28-Oct-09		N	<0.2	<1	---	86.9	65.2	118	23.6	9.9	---	---	763	1,460	---	740	1.7	4.5	24 J
	12-Jan-10		N	<0.2	<1	---	70.9	53.2	79.2	15.8	<0.2	---	---	3,020	2,100	---	360	1.8	27	2.1
	07-Apr-10		N	<0.2	<1	---	32.8	24.6	62.4	12.5	<0.1	---	---	2,680	2,290	---	500	1.3	28	4.6
	13-Jul-10		N	<0.2	3.6	---	17.4	13.1	29.2	5.84	<0.2	---	---	2,140	1,990	---	560	17 J	31	4.1
	13-Oct-10		N	<0.2	2.9	---	11.9	8.9	19.9	3.98	<0.2	---	---	1,530 J	1,890	---	580	<0.5	35	<1
	17-Jan-11		N	<0.2	1.5	---	7.56	5.7	13.9	2.78	<0.2	---	---	1,780 J	2,280	---	590	<0.5	41	<1
	13-Apr-11		N	<0.2	<1	---	2.87	2.2	8.1	1.62	<0.1	---	---	1,500 J	1,910	---	600	<0.5	50	<1
	12-Jul-11		N	<0.2	<1	---	2.05	1.5	4.51	0.90	<0.1	---	---	1,110	1,930	---	600	<0.5	61	<1
	15-Nov-11		**N**	**<0.2**	**<1**	---	**1.65**	**1.2**	**3.34**	**0.67**	**<0.2**	---	---	**1,040**	**1,950**	---	**630**	**18**	**56**	**<1**
	14-Feb-12		**N**	**<0.2**	**<1**	---	**0.706**	**0.5**	**1.73**	**0.35**	**<0.1**	---	---	**1,350**	**2,110**	---	**610**	**10**	**63**	**2.7**
	31-Jul-12		**N**	**<0.2**	**<1**	---	**0.447**	**0.3**	**1.19**	**0.24**	**<0.1**	---	---	**986**	**1,820**	---	**610**	**17**	**60**	**<5**

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Location Name	Sample Date	Notes	Sample Type	Hexavalent Chromium (µg/L)	Total Dissolved Chromium (µg/L)	Total Chromium (µg/L)	Fluorescein (ppb)	Fluorescein (ppb dye)	Rhodamine (ppb)	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)	Dissolved Molybdenum (µg/L)	Dissolved Selenium (µg/L)
PT-8M	18-Jul-07	a	N	3,960	4,120	4,140	---	---	---	---	32	--	<500	<500	16	22.7	1,330	1.4	12 [1]	151 [1]
	23-Jan-08	a	N	4,050	4,030	---	---	---	---	---	35	<5	<500	<2,500	<2,500	<10	1,210	1.3	---	---
	05-Mar-08	a	N	3,820	3,910	---	ND	ND	ND	ND	34	<0.5	<500	<500	<500	<10	1,290	1.4	---	---
	13-Mar-08	a	N	3,870	3,870	---	ND	ND	ND	ND	32	<0.5	<500	<2,500	<2,500	<10	1,250	1.3	---	---
	19-Mar-08	a	N	4,030	3,850	---	ND	ND	ND	ND	33	<1	<500	<2,500	---	<10	1,230	1.2	---	---
	25-Mar-08	a	N	3,890	3,820	---	ND	ND	ND	ND	33	<1	<500	<2,500	<2,500	<10	1,230	1.0	---	---
	02-Apr-08	a	N	3,880	3,810	---	ND	ND	ND	ND	---	---	<500	<2,500	---	---	1,290	1.1	---	---
	16-Apr-08	a	N	3,670	3,730	---	ND	ND	ND	ND	---	---	<500	<2,500	---	---	1,280	<1	---	---
	29-Apr-08	a	N	3,570	3,760	---	ND	ND	ND	ND	32	<1	<500	<500	<500	<10	1,250	<1	---	---
	14-May-08	a	N	3,880	3,760	---	ND	ND	ND	ND	---	---	<500	<500	---	---	1,220	1.4	---	---
	28-May-08	a	N	3,830	3,660	---	ND	ND	ND	ND	13	<2.5	<500	<500	<500	12.8	1,010	<1	---	---
	11-Jun-08	a	N	2,720	3,500	---	0.43	0.32	ND	ND	---	---	<500	<500	---	---	1,220	1.4	---	---
	19-Jun-08	a	N	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<2	---	---
	25-Jun-08	a	N	3,710	3,540	---	0.02	0.02	ND	ND	30	<1	<500	<500	<500	<10	1,190	1.5	---	---
	25-Jun-08	a	FD	3,550	3,470	---		0.02		ND	31	<1	<500	<500	<500	<10	1,190	1.5	---	---
	01-Jul-08		N	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1.6	---	---
	23-Jul-08	a	N	3,620	3,480	---	0.04	0.03	ND	ND	29	<1	<500	<500	<500	<10	1,130	1.6	---	---
	20-Aug-08	a	N	2,770 J	2,740	---	2.56	1.92	ND	ND	22	<1	<500	<500	<500	80	1,090	2.2	---	---
	17-Sep-08		N	1,950	2,310	---	0.66	0.49	0.373	0.07	19	<1	<500	<500	<500	231	1,040	2.4	---	---
	15-Oct-08		N	2,900	2,780	---	0.67	0.50	4.94	0.99	26 J	<1	<500	<500	<500	16	1,110	1.6	---	---
	12-Nov-08		N	1,660	1,650	---	2.73	2.05	14.1	2.82	12	1.21	<500	<500	<500	314	878	2.3	---	---
	04-Feb-09	a	N	1,170	1,350	---	91.50	68.6	14.6	2.92	11	<0.5	300	179	554	532	890	3.8	6.5	61 J
	13-May-09		N	702	698	---	134.00	101	7.58	1.52	6.1	<0.2	644	<100	882	985	590	1.9 J	6.2	23
	04-Aug-09	a	N	571	512	---	200.00	150	ND	ND	6.0	---	---	582	1,590	---	630	2.4	4.8	24 J
	28-Oct-09		N	884	843	---	27.60	20.7	ND	ND	<0.2	---	---	3,400	2,070	---	320	1.7	20	<1 UJ
	12-Jan-10		N	580	590	---	73.50	55.1	ND	ND	8.1	---	---	1,030	1,850	---	710	1.8	5.8	21
	07-Apr-10		N	383	452	---	58.40	43.8	ND	ND	7.2	---	---	125	2,380	---	770	2.1	4.8	17
	13-Jul-10		N	400	396	---	102.00	76.5	ND	ND	7.5	---	---	286 J	2,640	---	820	38 J	4.6	17
	13-Oct-10		N	233	284	---	75.30	56.5	ND	ND	7.6	---	---	158 J	2,990	---	900	0.62	4.0	12
	17-Jan-11		N	340	334	---	31.30	23.5	ND	ND	8.9	---	---	213 J	3,480	---	1,000	<0.5	4.4	11
	13-Apr-11		N	178	227	---	106.00	79.5	ND	ND	6.2	---	---	215 J	2,960	---	840	0.62	4.6	7.5
	13-Apr-11		FD	185	230	---	74.60	56.0	ND	ND	6.2	---	---	193 J	2,920	---	850	<0.5	4.4	7.2
	12-Jul-11		N	114	149	---	101.00	75.8	ND	ND	6.2	---	---	279	4,040	---	1,000	<0.5	5.4	7.7
	15-Nov-11		**N**	**186**	**261**	---	**18.30**	**13.7**	**ND**	**ND**	**6.6**	---	---	**378**	**4,310**	---	**1,100**	**30**	**5.0**	**11**
	14-Feb-12		**N**	**292**	**341**	---	**16.10**	**12.1**	**ND**	**ND**	**7.7**	---	---	**293**	**4,090**	---	**1,100**	**24**	**5.2**	**9.1**
	31-Jul-12		**N**	**45**	**99**	---	**47.00**	**35.3**	**ND**	**ND**	**4.3**	---	---	**488**	**5,040**	---	**1,100**	**29**	**5.2**	**6.4**

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Location Name	Sample Date	Notes	Sample Type	Hexavalent Chromium (µg/L)	Total Dissolved Chromium (µg/L)	Total Chromium (µg/L)	Fluorescein (ppb)	Fluorescein (ppb dye)	Rhodamine (ppb)	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)	Dissolved Molybdenum (µg/L)	Dissolved Selenium (µg/L)
PT-8D	16-Jul-07	a	N	6,540	7,260	7,290	---	---	---	---	9.7	<1	2,620	<500	24	186	1,110	<1	92 [1]	9.1 [1]
	23-Jan-08	a	N	6,210	6,340	---	---	---	---	---	11	<2.5	<500	<5,000	<5,000	<10	1,080	<1	---	---
	05-Mar-08	a	N	6,510	6,600	---	ND	ND	ND	ND	11	<1	<500	<2,500	<2,500	<10	1,110	<1	---	---
	13-Mar-08	a	N	6,560	5,030	---	ND	ND	ND	ND	13	<2.5	<500	<2,500	<2,500	<10	1,270	<1	---	---
	18-Mar-08	a	N	5,750	5,280	---	ND	ND	ND	ND	12	<2.5	<500	<2,500	---	<10	1,130	<1	---	---
	25-Mar-08	a	N	5,380	5,310	---	ND	ND	ND	ND	12	<2.5	<500	<2,500	<2,500	<10	1,160	<1	---	---
	02-Apr-08	a	N	2,640	5,180	---	ND	ND	ND	ND	---	---	<500	<2,500	---	---	1,180	<1	---	---
	16-Apr-08	a	N	6,340	6,270	---	ND	ND	ND	ND	---	---	<500	<2,500	---	---	1,100	<1	---	---
	29-Apr-08	a	N	4,570	4,380	---	2.93	2.20	ND	ND	13	<2.5	<500	<500	<500	<10	1,240	<1	---	---
	14-May-08	a	N	2,300	3,470	---	14.1	10.6	ND	ND	---	---	<500	<500	---	---	1,210	8.2	---	---
	28-May-08	a	N	3,940	3,790	---	6.03	4.52	ND	ND	11	<2.5	<500	<500	<500	82.1	1,170	<1	---	---
	11-Jun-08	a	N	3,310	3,530	---	9.22	6.92	ND	ND	---	---	<500	<500	---	---	1,190	1.5	---	---
	19-Jun-08	a	N	---	---	---	---	---	---	---	---	---	---	---	---	---	---	2.3	---	---
	25-Jun-08	a	N	2,120	2,550	---	64.9	48.7	ND	ND	7.2	<2.5	<500	<500	929	975	1,140	91	---	---
	01-Jul-08		N	---	---	---	---	---	---	---	---	---	---	---	---	---	---	4.2	---	---
	08-Jul-08		N	---	---	---	---	---	---	---	---	---	---	---	---	---	---	51	---	---
	15-Jul-08		N	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1.7	---	---
	23-Jul-08	a	N	3,000	2,700	---	11.7	8.78	ND	ND	9.6	<2.5	<500	<500	<500	72.4	1,170	2.4	---	---
	28-Jul-08		N	---	---	---	---	---	---	---	---	---	---	---	---	---	---	25	---	---
	20-Aug-08	a	N	3,710 J	3,550	---	6.23	4.67	ND	ND	9.3	<2.5	<500	<500	<500	107.0	1,130	1.4	---	---
	17-Sep-08	a	N	3,130	3,430	---	ND	ND	ND	ND	10.1	<2.5	<500	<2,500	<2,500	45.0	1,180	<1	---	---
	15-Oct-08		N	18	1,420	---	87.3	65.5	ND	ND	7.0	<2.5	<500	<2,500	<2,500	1,410	1,120	58	---	---
	12-Nov-08		N	714	802	---	44.3	33.2	ND	ND	5.5	<1	<500	<2,500	<2,500	952	1,120	1.6	---	---
	04-Feb-09	a	N	982	1,180	---	24.4	18.3	ND	ND	<9.3	<1	<100	152	406	532	1,400	0.60	---	---
	04-Feb-09	a	FD	966	1,170	---	26.7	20.0	ND	ND	<8.9	<1	<100	198	424	490	1,300	<0.5	65	5.2 J
	13-May-09		N	1,440	1,630	---	12.7	9.53	ND	ND	5.4	<0.5	108	<100	268	362	960	<0.5	82	<1
	04-Aug-09	a	N	1,450	1,390	---	2.42	1.82	ND	ND	9.1	---	---	591	220	---	1,100	<0.5	68	<1 UJ
	28-Oct-09		N	1,760	1,710	---	2.88	2.16	ND	ND	10	---	---	891	265	---	1,200	<0.5	72	<1 UJ
	28-Oct-09		FD	1,780	1,590	---	3.14	2.36	ND	ND	10	---	---	885	254	---	1,200	<0.5	66	<1 UJ
	12-Jan-10		N	1,820	1,780	---	2.08	1.56	ND	ND	9.2	---	---	<500	271	---	1,100	<0.5	75	7.7
	07-Apr-10		N	1,630	1,660	---	1.99	1.49	ND	ND	7.4	---	---	<100	294	---	1,100	<0.5	74	<1
	07-Apr-10		FD	1,630	1,680	---	---	---	---	---	7.5	---	---	105	299	---	1,100	<0.5	75	<1
	13-Jul-10		N	1,900	1,650	---	1.14	0.86	ND	ND	9.5	---	---	144	223	---	1,100	4.5 J [2]	76	6.7
	13-Oct-10		N	1,760	1,940	---	1.18	0.89	ND	ND	8.6	---	---	<100	236	---	1,100	<0.5	73	10
	17-Jan-11		N	1,810	1,650	---	0.49	0.37	ND	ND	9.3	---	---	151 J	237	---	1,100	<0.5	59	8.4
	13-Apr-11		N	1,430	1,410	---	0.66	0.49	ND	ND	5.8	---	---	129 J	286	---	910	<0.5	63	5.2
	12-Jul-11		N	1,560	1,520	---	0.70	0.53	ND	ND	8.3	---	---	<50	213	---	1,000	<0.5	78	5.7
	15-Nov-11		**N**	**1,760**	**1,650**	---	**0.08**	**0.06**	**ND**	**ND**	**8.9**	---	---	**<250**	**213**	---	**1,100**	**5.1**	**59**	**11**
	14-Feb-12		**N**	**1,230**	**1,280**	---	**0.07**	**0.05**	**ND**	**ND**	**6.4**	---	---	**68**	**219**	---	**930**	**3.8**	**54**	**8.3**
	31-Jul-12		**N**	**1,330**	**1,460**	---	**0.05**	**0.04**	**ND**	**ND**	**8.0**	---	---	**<50**	**223**	---	**1,000**	**4.6**	**54**	**6.6**
	31-Jul-12		**FD**	**1,330**	**1,420**	---	---	---	---	---	**8.2**	---	---	**<50**	**211**	---	**990**	**4.8**	**54**	**<5**

Table 3
Summary of Primary Analytical Parameters
PG&E Topock
Needles, California
2012 Annual Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test

Location Name	Sample Date	Notes	Sample Type	Hexavalent Chromium (µg/L)	Total Dissolved Chromium (µg/L)	Total Chromium (µg/L)	Fluorescein (ppb)	Fluorescein (ppb dye)	Rhodamine (ppb)	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)	Dissolved Molybdenum (µg/L)	Dissolved Selenium (µg/L)
PT-9S	17-Jul-07	a	N	1,180	1,150	1,170	---	---	---	---	16	<0.5	1,080	<500	29	125	689	1.2	48 [1]	57 [1]
	22-Jan-08	a	N	1,380	1,250	---	---	---	---	---	17	<2.5	917	1,000	<500	37	644	<1	---	---
	05-Mar-08	a	N	1,380	1,340	---	0.02	0.01	ND	ND	18	<0.5	1,060	<500	<500	145	718	<1	---	---
	12-Mar-08	a	N	1,140	1,010	---	ND	ND	ND	ND	16	<0.5	<500	<500	<500	13	525	<1	---	---
	19-Mar-08	a	N	1,390	1,380	---	ND	ND	ND	ND	18	<0.5	<500	<2,500	---	22	633	<1	---	---
	26-Mar-08	a	N	1,350	1,310	---	ND	ND	ND	ND	18	<0.5	<500	<2,500	<2,500	17	668	<1	---	---
	02-Apr-08	a	N	1,340	1,300	---	ND	ND	ND	ND	---	---	<500	<2,500	---	---	670	<1	---	---
	16-Apr-08	a	N	1,410	1,350	---	0.05	0.04	ND	ND	---	---	<500	<2,500	---	---	424	<1	---	---
	29-Apr-08	a	N	1,050	1,080	---	ND	ND	ND	ND	17	<0.5	<500	<500	<500	17	559	<1	---	---
	14-May-08	a	N	1,060	1,030	---	ND	ND	ND	ND	---	---	<500	<500	---	---	563	<1	---	---
	28-May-08	a	N	1,280	1,210	---	ND	ND	ND	ND	18	<0.5	635	<500	<500	52	643	<1	---	---
	11-Jun-08	a	N	1,270	1,180	---	ND	ND	ND	ND	---	---	719	<500	---	---	678	---	---	---
	25-Jun-08	a	N	1,030	1,060	---	0.03	0.02	ND	ND	16	<0.5	<500	<500	<500	33	595	<1	---	---
	24-Jul-08	a	N	1,450	1,240	---	ND	ND	ND	ND	17	<1	1,310	<500	<500	194.0	627	1.3	---	---
	20-Aug-08	a	N	1,460 J	1,390	---	2.07	1.55	11	2.2	17	<1	1,240	<500	<500	164.0	667	1.3	---	---
	17-Sep-08		N	1,290	1,400	---	5.81	4.36	ND	ND	16	<0.5	<500	<500	<500	22	689	1.2	---	---
	15-Oct-08		N	929	889	---	3.91	2.93	4.03	0.81	11 J	<0.5	<500	<500	<500	28	558	1.2	---	---
	12-Nov-08		N	530	484	---	75.1	56.3	9.22	1.84	8.9	<0.5	1,480	<500	1,280	1,820	377	146	---	---
	05-Feb-09	a	N	633	458	---	33.6	25.2	17.7	3.54	14 UB	<0.1	5,850 J	<100	893	973	720	7.0	28	54 J
	14-May-09		N	826	936	---	161	121	8.01	1.60	13	<0.2	9,180 J	<100	800	1,110	510	44	31	42
	05-Aug-09		N	1,060	1,180	---	212	159	6.13	1.23	14	---	---	300	683	---	520	2.2	29	41
	29-Oct-09		N	1,010	956	---	ND	ND	ND	ND	10	---	---	329 J	559	---	440	2.6	33	33
	12-Jan-10		N	1,320	1,350	---	199	149	1.89	0.38	16	---	---	466	513	---	660	1.9	42.4 J	44
	08-Apr-10		N	1,080	1,080	---	96.9	73	3.31	0.66	14	---	---	<100	472	---	690	1.6	29	32
	13-Jul-10		N	1,250	1,120	---	27.9	21	0.525	0.11	14	---	---	141 J	662	---	690	17 J [2]	29	34
	13-Oct-10		N	1,080	1,080	---	26.1	20	ND	ND	13	---	---	<100	608	---	660	0.6	30	27
	18-Jan-11		N	1,090	950	---	33.5	25	ND	ND	12	---	---	122 J	612	---	610	<0.5	47	24
	13-Apr-11		N	944	896	---	10.8	8.1	0.064	0.01	8.1 J	---	---	75 J	477	---	600	<0.5	39	17
	12-Jul-11		N	752	777	---	3.19	2.4	ND	ND	9.6	---	---	<50	639	---	580	<0.5	39	13
	15-Nov-11		**N**	**833**	**868**	---	**4.95**	**3.7**	**ND**	**ND**	**8.8**	---	---	**<250**	**461**	---	**570**	**19**	**40**	**14**
	15-Feb-12		**N**	**689**	**672**	---	**2.38**	**1.8**	**ND**	**ND**	**9.2**	---	---	**<500**	**432**	---	**520**	**16**	**39**	**11**
	01-Aug-12		**N**	**474**	**472**	---	**0.753**	**0.6**	**ND**	**ND**	**6.8**	---	---	**<50**	**560**	---	**520**	**17**	**32**	**6**

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PG&E Topock
Needles, California
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Location Name	Sample Date	Notes	Sample Type	Hexavalent Chromium (µg/L)	Total Dissolved Chromium (µg/L)	Total Chromium (µg/L)	Fluorescein (ppb)	Fluorescein (ppb dye)	Rhodamine (ppb)	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)	Dissolved Molybdenum (µg/L)	Dissolved Selenium (µg/L)
PT-9M	17-Jul-07	a	N	2,340	2,270	2,250	---	---	---	---	24	<0.5	<500	<500	18.7	27	1,410	1.2	7.1 [1]	165 [1]
	17-Jul-07	a	FD	2,240	2,270	2,220	---	---	---	---	25	<0.5	<500	<500	18.2	32	1,410	1.2	7.5 [1]	173 [1]
	22-Jan-08	a	N	2,940	2,400	---	---	---	---	---	24	<2.5	<500	<500	<500	<10	1,390	1.0	---	---
	05-Mar-08	a	N	2,310	2,400	---	ND	ND	ND	ND	25	<0.5	<500	<500	<500	<10	1,460	<1	---	---
	12-Mar-08	a	N	2,590	2,360	---	ND	ND	ND	ND	22	<0.5	<500	<500	<500	<10	1,370	<1	---	---
	19-Mar-08	a	N	2,660	2,570	---	0.074	0.06	ND	ND	23	<1	<500	<2,500	---	<10	1,430	<1	---	---
	26-Mar-08	a	N	2,610	2,490	---	0.174	0.13	ND	ND	24	<1	<500	<2,500	<2,500	<10	1,340	<1	---	---
	26-Mar-08	a	FD	2,500	2,500	---	ND	ND	ND	ND	24	<1	<500	<2,500	<2,500	<10	1,340	<1	---	---
	02-Apr-08	a	N	2,520	2,510	---	ND	ND	ND	ND	---	---	1,260	<2,500	---	---	1,510	<1	---	---
	16-Apr-08	a	N	2,550	2,570	---	ND	ND	ND	ND	---	---	<500	<2,500	---	---	908	<1	---	---
	29-Apr-08	a	N	2,370	2,360	---	ND	ND	ND	ND	22	<0.2	<500	<500	<500	<10	1,460	<1	---	---
	14-May-08	a	N	2,550	2,430	---	ND	ND	ND	ND	---	---	<500	<500	---	---	1,450	<1	---	---
	28-May-08	a	N	2,500	2,300	---	0.065	0.05	ND	ND	24	<1	<500	<500	<500	<10	1,410	<1	---	---
	11-Jun-08	a	N	2,500	2,330	---	ND	ND	ND	ND	---	---	<500	<500	---	---	1,460	---	---	---
	25-Jun-08	a	N	2,460	2,260	---	ND	ND	ND	ND	21	<1	<500	<500	<500	<10	1,450	1.3	---	---
	24-Jul-08	a	N	2,620	2,230	---	ND	ND	ND	ND	21	<1	<500	<500	<500	<10	1,400	1.5	---	---
	20-Aug-08	a	N	2,500 J	2,400	---	0.086	0.06	ND	ND	22	<1	<500	<500	<500	<10	1,420	1.4	---	---
	17-Sep-08		N	2,260	2,590	---	ND	ND	0.207	0.04	22	<1	<500	<2,500	<2,500	<10	1,480	<1	---	---
	15-Oct-08		N	2,660	2,630	---	ND	ND	ND	ND	26 J	<1	<500	<500	<500	<10	1,490	1.1	---	---
	12-Nov-08		N	2,590	2,800	---	ND	ND	ND	ND	24	<0.5	<500	<2,500	<2,500	<10	1,450	1.0	---	---
	05-Feb-09	a	N	2,680	2,590	---	0.05	0.03	ND	ND	23 J	<0.2	1,480 J	134	1.1	25	1,800	0.63	7.6	163 J
	14-May-09		N	2,580	2,750	---	ND	ND	ND	ND	22 J	<0.2	1,560 J	117 J	1.1	28	1,400	0.79 J	7.2	101
	05-Aug-09	a	N	2,490	2,580	---	ND	ND	ND	ND	20	---	---	1,030	<1	---	1,400	0.64 UB	7.1	121
	29-Oct-09		N	2,560	2,600	---	ND	ND	ND	ND	20 J	---	---	1,370 J	<1	---	1,500	0.66	7.8	114
	12-Jan-10		N	2,540	2,470	---	ND	ND	ND	ND	20	---	---	<500	<5	---	1,300	0.54	7.64 J	108
	08-Apr-10		N	2,230	2,160	---	ND	ND	ND	ND	19	---	---	110	<1	---	1,400	0.56	8.1	67
	13-Jul-10		N	2,390	2,240	---	ND	ND	ND	ND	20	---	---	163	<1	---	1,400	5.0 J [2]	7.9	89
	13-Oct-10		N	2,200	2,010	---	ND	ND	ND	ND	19	---	---	<100	<1	---	1,400	<0.5	6.6	72
	18-Jan-11		N	2,150	1,900	---	ND	ND	ND	ND	16	---	---	<100 J	<1	---	1,400	<0.5	7.2	66
	13-Apr-11		N	1,860	1,810	---	ND	ND	ND	ND	16	---	---	149 J	1.7	---	1,300	<0.5	6.6	36
	12-Jul-11		N	1,770	1,850	---	ND	ND	ND	ND	15	---	---	<50	<1	---	1,300	<0.5	7.7	40
	15-Nov-11		**N**	**1,890**	**1,770**	---	**ND**	**ND**	**ND**	**ND**	**14**	---	---	**<250**	**<5**	---	**1,300**	**11**	**5.9**	**40**
	15-Feb-12		**N**	**1,520**	**1,550**	---	**ND**	**ND**	**ND**	**ND**	**11**	---	---	**<500**	**<10**	---	**1,200**	**10**	**<10**	**21**
	01-Aug-12		**N**	**1,290**	**1,210**	---	**ND**	**ND**	**9.41**	**1.88**	**10**	---	---	**73.8**	**1.5**	---	**1,200**	**11**	**5.6**	**17**

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PG&E Topock
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Location Name	Sample Date	Notes	Sample Type	Hexavalent Chromium (µg/L)	Total Dissolved Chromium (µg/L)	Total Chromium (µg/L)	Fluorescein (ppb)	Fluorescein (ppb dye)	Rhodamine (ppb)	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)	Dissolved Molybdenum (µg/L)	Dissolved Selenium (µg/L)
PT-9D	17-Jul-07	a	N	15,700	15,600	<1	---	---	---	---	9.3	<1	<500	<500	29	34	1,260	1.1	92 [1]	9.1 [1]
	22-Jan-08	a	N	17,400	15,300	---	---	---	---	---	12	<2.5	<500	<5,000	<5,000	<10	1,390	<1	---	---
	22-Jan-08	a	FD	16,400	15,500	---	---	---	---	---	11	<2.5	<500	<5,000	<5,000	<10	1,310	<1	---	---
	05-Mar-08	a	N	16,000	15,600	---	ND	ND	ND	ND	9.9	<1	<500	<2,500	<2,500	15.8	1,470	<1	---	---
	12-Mar-08	a	N	13,500	12,500	---	ND	ND	ND	ND	13	<2.5	<500	<2,500	<2,500	<10	1,390	<1	---	---
	19-Mar-08	a	N	14,800	14,300	---	ND	ND	ND	ND	12	<2.5	<500	<2,500	---	<10	1,370	<1	---	---
	26-Mar-08	a	N	14,600	14,100	---	ND	ND	ND	ND	12	<2.5	<500	<2,500	<2,500	<10	1,320	<1	---	---
	02-Apr-08	a	N	13,900	14,400	---	ND	ND	ND	ND	---	---	<500	<2,500	---	---	1,430	<1	---	---
	16-Apr-08	a	N	14,900	15,400	---	ND	ND	ND	ND	---	---	<500	<2,500	---	---	1,350	<1	---	---
	29-Apr-08	a	N	11,000	10,600	---	ND	ND	ND	ND	13	<5	<500	<500	<500	<10	1,400	<1	---	---
	14-May-08	a	N	10,600	10,700	---	ND	ND	ND	ND	---	---	<500	<500	---	---	1,340	<1	---	---
	28-May-08	a	N	12,000	11,700	---	ND	ND	ND	ND	13	<2.5	<500	<500	<500	<10	1,330	<10	---	---
	11-Jun-08	a	N	13,600	12,300	---	ND	ND	ND	ND	---	---	<500	<500	---	---	1,400	<2	---	---
	11-Jun-08	a	FD	14,500	12,200	---		0.29		ND	---	---	<500	<500	---	---	1,380	<2	---	---
	25-Jun-08	a	N	10,500	9,680	---	ND	ND	ND	ND	14	<2.5	<500	<500	<500	<10	1,330	<5	---	---
	24-Jul-08	a	N	10,900	9,920	---	ND	ND	ND	ND	13	<2.5	<500	<500	<500	<10	1,320	12	---	---
	20-Aug-08	a	N	13,000 J	14,900	---	0.02	0.02	ND	ND	11	<2.5	<500	<500	<500	<10	1,320	1.2	---	---
	20-Aug-08	a	FD	7,090 J	14,800	---	---	---	---	---	11	<2.5	<500	<500	<500	<10	1,310	1.2	---	---
	17-Sep-08		N	12,100	14,000	---	ND	ND	ND	ND	11	<2.5	<500	<2,500	<2,500	<10	1,440	<1	---	---
	15-Oct-08		N	9,920	9,650	---	ND	ND	ND	ND	15	<1	<500	<2,500	<2,500	<10	1,440	<2	---	---
	12-Nov-08		N	13,500	13,400	---	ND	ND	ND	ND	13	<2.5	<500	<2,500	<2,500	<10	1,380	1.8	---	---
	05-Feb-09	a	N	15,300	13,400	---	ND	ND	ND	ND	14 UB	<0.5	335 J	527	<5	8.1	1,800	<2.5	74	14 J
	15-May-09		N	13,800	13,800	---	ND	ND	ND	ND	12	<0.5	400	459 J	1.1	10	1,400	<0.5	85	<1
	05-Aug-09		N	12,300	11,600	---	ND	ND	ND	ND	11	---	---	974	<1	---	1,400	<2.5	64	<1
	28-Oct-09		N	14,000	14,200	---	ND	ND	ND	ND	11	---	---	1,640	<1	---	1,400	<2.5	84	<1 UJ
	12-Jan-10		N	15,000	15,600	---	ND	ND	ND	ND	11	---	---	<500	<5	---	1,400	<2.5	92	9.4
	08-Apr-10		N	14,000	11,800	---	ND	ND	ND	ND	10	---	---	591	<1	---	1,400	<0.5	87	<1
	13-Jul-10		N	15,600	15,500	---	ND	ND	ND	ND	12	---	---	390	<1	---	1,400	11 J [2]	92.1 J	7.0
	13-Oct-10		N	16,400	14,100	---	ND	ND	ND	ND	11	---	---	<500	<1	---	1,400	<0.5	93	9.7 J
	13-Oct-10		FD	16,200	13,900	---	--	--	--	--	11	---	---	<500	<1	---	1,400	<0.5	93	13 J
	18-Jan-11		N	15,700	13,700	---	ND	ND	ND	ND	10	---	---	868 J	<1	---	1,600	<2.5	99	10
	13-Apr-11		N	15,400	15,100	---	ND	ND	ND	ND	11	---	---	842 J	<1	---	1,500	<0.5	87	8.0
	12-Jul-11		N	14,700	13,600	---	ND	ND	ND	ND	10	---	---	<50	<1	---	1,500	<1	102	7.3
	15-Nov-11		**N**	**11,000**	**15,400**	---	**ND**	**ND**	**ND**	**ND**	**11**	---	---	**<500**	**<10**	---	**1,600**	**3.5**	**88**	**15**
	15-Feb-12		**N**	**15,000**	**14,600**	---	**ND**	**ND**	**ND**	**ND**	**10**	---	---	**667**	**<10**	---	**1,600**	**3.8**	**108**	**13**
	01-Aug-12		**N**	**14,100**	**13,400**	---	**ND**	**ND**	**ND**	**ND**	**11**	---	---	**663**	**<5**	---	**1,400**	**3.7**	**87**	**8.2**

Table 3
Summary of Primary Analytical Parameters
PG&E Topock
Needles, California
2012 Annual Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test

Location Name	Sample Date	Notes	Sample Type	Hexavalent Chromium (µg/L)	Total Dissolved Chromium (µg/L)	Total Chromium (µg/L)	Fluorescein (ppb)	Fluorescein (ppb dye)	Rhodamine (ppb)	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)	Dissolved Molybdenum (µg/L)	Dissolved Selenium (µg/L)
MW-11	17-Jul-07	a	N	321	314	339	---	---	---	---	8.4	<0.5	<500	<500	<5	<10	251	1.1	11 [1]	6.1 [1]
	24-Jan-08	a	N	321	310	---	---	---	---	---	8.7	<0.5	<500	<500	<500	<10	241	<1	---	---
	04-Mar-08	a	N	299	290	---	ND	ND	ND	---	9.7	<0.5	<500	<500	<500	<10	236	<1	---	---
	11-Mar-08	a	N	289	288	---	ND	ND	ND	ND	8.9	<0.5	<500	<500	<500	<10	240	<1	---	---
	11-Mar-08	a	FD	286	285	---	ND	ND	ND	ND	9.0	<0.5	<500	<500	<500	<10	248	<1	---	---
	19-Mar-08	a	N	340	332	---	ND	ND	ND	ND	9.3	<0.5	<500	<2,500	---	<10	231	<1	---	---
	27-Mar-08	a	N	331	308	---	0.056	0.04	ND	ND	8.9	<0.5	<500	<500	<500	<10	238	<1	---	---
	01-Apr-08	a	N	316	306	---	0.038	0.03	ND	ND	---	---	<500	<500	---	---	237	<1	---	---
	15-Apr-08	a	N	311	319	---	ND	ND	ND	ND	---	---	<500	<500	---	---	222	<1	---	---
	28-Apr-08	a	N	284	266	---	ND	ND	ND	ND	8.6	<0.5	<500	<500	<500	<10	226	<1	---	---
	13-May-08	a	N	280	281	---	ND	ND	ND	ND	---	---	<500	<500	---	---	229	<1	---	---
	27-May-08	a	N	286	238	---	ND	ND	ND	ND	8.6	<0.5	<500	<500	<500	<10	220	<1	---	---
	10-Jun-08	a	N	275	265	---	ND	ND	ND	ND	---	---	---	<500	---	---	227	<1	---	---
	24-Jun-08	a	N	286	244	---	0.03	0.02	ND	ND	8.7	<0.5	<500	<500	<500	<10	226	<1	---	---
	22-Jul-08	a	N	296	256	---	ND	ND	ND	ND	8.6	<0.5	<500	<500	<500	<10	220	<1	---	---
	21-Aug-08	a	N	281	240	---	ND	ND	ND	ND	8.3	<0.5	<500	<500	<500	<10	223	<1	---	---
	16-Sep-08		N	262	256	---	ND	ND	ND	ND	8.5	<0.5	<500	<500	<500	<10	227	<1	---	---
	14-Oct-08		N	264	312	---	ND	ND	ND	ND	8.4	<0.5	<500	<500	<500	<10	217	<1	---	---
	11-Nov-08		N	305	303	---	ND	ND	ND	ND	8.6	<0.5	<500	<500	<500	<10	266	<1	---	---
	03-Feb-09	a	N	299	336	---	0.03	0.02	ND	ND	9.8	<0.1	<100	<100	<1	<1	290	0.58	9.3	8.99 J
	14-May-09		N	234	268	---	4.57	3.43	ND	ND	8.7	<0.1	714 J	<100	2.8	19	200	5.5 J	10	8.6
	06-Apr-10		N	231	243	---	ND	ND	ND	ND	8.7	---	---	<100	<1	---	200	0.58	9.4	7.2
	12-Jul-10		N	256	222	---	ND	ND	ND	ND	8.7	---	---	<100 J	<1	---	200	4.4 J [2]	9.5	9.0
	12-Oct-10		N	256	216	---	ND	ND	ND	ND	8.6	---	---	<100	<1	---	190	<0.5	8.6	6.0
	17-Jan-11		N	244	208	---	ND	ND	ND	ND	8.4	---	---	111 J	1.3	---	190	<0.5	9.1	4.8
	17-Jan-11		FD	242	220	---	---	---	---	---	8.4	---	---	<100 J	1.2	---	190	<0.5	8.5	5.4
	12-Apr-11		N	223	229	---	ND	ND	ND	ND	8.7	---	---	101	<1	---	190	<0.5	9.6	4.1 J
	11-Jul-11		N	206	179	---	ND	ND	ND	ND	8.3	---	---	<50	<1	---	190	<0.5	8.7	4.8
	14-Nov-11		**N**	**216**	**214**	---	**ND**	**ND**	**ND**	**ND**	**8.2**	---	---	**<250**	**<5**	---	**190**	**10**	**8.9**	**7.6**
	14-Nov-11		**FD**	**188**	**202**	---	---	---	---	---	**8.2**	---	---	**<50**	**<1**	---	**190**	**11**	**9.0**	**6.1**
	13-Feb-11		**N**	**169**	**174**	---	**ND**	**ND**	**ND**	**ND**	**8.0**	---	---	**<50**	**1.04**	---	**180**	**9.7**	**9.0**	**5.3**
	30-Jul-12		**N**	**157**	**162**	---	**ND**	**ND**	**ND**	**ND**	**7.4**	---	---	**<50**	**<1**	---	**180**	**10**	**8.4**	**8.1**

Table 3
Summary of Primary Analytical Parameters
PG&E Topock
Needles, California
2012 Annual Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test

Location Name	Sample Date	Notes	Sample Type	Hexavalent Chromium (µg/L)	Total Dissolved Chromium (µg/L)	Total Chromium (µg/L)	Fluorescein (ppb)	Fluorescein (ppb dye)	Rhodamine (ppb)	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)	Dissolved Molybdenum (µg/L)	Dissolved Selenium (µg/L)
MW-24A	18-Jul-07	a	N	2,480	2,550	2,600	---	---	---	---	18	<0.5	<500	<500	<5	<10	372	3.8	48 [1]	3.4 [1]
	24-Jan-08	a	N	2,620	2,570	---	---	---	---	---	19	<0.5	<500	<500	<500	<10	380	3.8	40	<5
	06-Mar-08	a	N	3,890	4,190	---	ND	ND	ND	ND	14	<5	<500	<500	<500	401	1,210	367	29	58
	12-Mar-08	a	N	1,650	2,510	---	11.4	8.55	2,290	458	<10	<10	<500	<2,500	<2,500	417	1,170	1,160	---	---
	19-Mar-08	a	N	1.6	5.76	---	1,760	1,320	1,480	296	<2.5	<2.5	<500	<2,500	---	1,280	854	2,460	---	---
	26-Mar-08	a	N	10.6	12.90	---	12,600	9,450	3,880	776	<5	<5	1,030	<2,500	<2,500	2,380	347	4,890	---	---
	01-Apr-08	a	N	<1	5.46	---	14,200	10,650	9,970	1,994	---	---	2,080	<2,500	---	---	129	12,900	---	---
	17-Apr-08	a	N	15.7	9.79	---	254	191	2,480	496	---	---	1,820	<2,500	---	---	46.1	3,690	<25	<25
	30-Apr-08	a	N	<1	7.18	---	28.7	21.5	194	38.8	<5	<5	670	<500	1,320	1,360	624	1,160	---	---
	30-Apr-08	a	FD	<1	8.19	---	28.6	21.5	265	53	<5	<5	680	<500	1,330	1,350	624	1,160	---	---
	15-May-08	a	N	<0.2	5.04	---	54.7	41.0	214	42.8	---	---	1,520	853	---	---	831	1,650	12	34
	15-May-08	a	FD	<0.2	4.88	---	56.0	42.0	195	39	---	---	1,540	861	---	---	821	1,660	---	---
	27-May-08	a	N	<2.1	5.42	---	19.2	14.4	353	70.6	<1	<2.5	2,160	1,560	3,550	3,740	21	1,350	---	---
	12-Jun-08	a	N	2.3	4.56	---	28.3	21.2	326	65.2	---	---	2,440	671	---	---	267	1,130	---	---
	19-Jun-08	a	N	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1,500	---	---
	26-Jun-08	a	N	<0.2	26.00	---	3.21	2.41	14.9	2.98	5.4	<2.5	1,890	758	1,550	1,630	1,110	43	---	---
	01-Jul-08	a	N	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<400	---	---
	24-Jul-08	a	N	<1.0	39.10	---	3.65	2.74	20.4	4.08	4.2	<2.5	2,370	527	647	653	1,230	<1	21	32
	24-Jul-08	a	FD	<1.0	43.40	---		2.55		4.66	3.2	<2.5	2,350	560	672	768	1,190	12	---	---
	19-Aug-08	a	N	1.5 J	1.46	---	7.17	5.38	365	73.0	<1	<1	548	<500	1,430	1,670	982	9.4	<5	<5
	16-Sep-08		N	<0.2	4.38	---	3.49	2.62	208	41.6	<1	<1	<500	<500	1,510	1,720	16	800	<5	<5
	16-Oct-08		N	5.8	6.72	---	2.14	1.61	3.43	0.7	<0.5	<1	2,380	519	1,100	1,330	868	90	5	13
	13-Nov-08		N	<0.2	9.10	---	2.09	1.57	19.0	3.8	<0.5	<1	2,010 J	<2,500	<2,500	1,140 J	644	52	<25	<25
	13-Nov-08		FD	<0.2	7.19	---	1.97	1.48	14.0	2.8	<2.5	<2.5	3,490 J	<2,500	<2,500	1,020 J	690	80	---	---
	03-Feb-09	a	N	<0.2	4.30	---	5.97	4.48	163.0	32.6	<0.5	<0.5	2,410	156	964	863	1,200	4.0	1	4.3 J
	14-May-09		N	<1.0	1.30	---	16.9	12.7	333.0	66.6	<0.5	<0.5	1,120 J	363 J	750	750	680	5.3	3	3
	03-Aug-09	a	N	<0.2	<1	---	20.6	15.5	282.0	56.4	<0.2	---	---	2,130	3,260	---	520	6.3	<5	<5
	27-Oct-09		N	<0.2	1.18	---	30.2	22.7	333.0	66.6	<0.2	---	---	649	1,010	---	200	3.7	<1	<1 UJ
	11-Jan-10		N	<0.2	1.28	---	15.9	11.9	356.0	71.2	<0.2	---	---	485 J	479	---	190	3.6	1	1
	07-Apr-10		N	<0.2	1.39	---	10.9	8.2	547.0	109.4	<0.5	---	---	252	261	---	280	3.6	1	3
	12-Jul-10		N	0.26	<1	---	7.38	5.5	495.0	99	<0.1	---	---	188	147	---	320	23 J [2]	2	3
	12-Jul-10		FD	0.28	<1	---	--	--	--	--	<0.1	---	---	185	153	---	310	18 J [2]	2	3
	12-Oct-10		N	0.23	5.30	---	3.68	2.8	371.0	74.2	<0.1	---	---	142	154	---	310	1.6	3	<1
	17-Jan-11		N	<0.2	1.20	---	6.37	4.8	242.0	48.4	<0.2	---	---	402 J	343	---	250	1.5	3	<1
	12-Apr-11		N	0.98	2.00	---	2.11	1.6	333.0	66.6	<0.1	---	---	197	121	---	360	1.4	6	<1 J
	11-Jul-11		N	<0.2	<1	---	1.52	1.1	239.0	47.8	<0.2	---	---	95.2	68	---	340	1.3	11	<1
	14-Nov-11		**N**	**<0.2**	**<1**	---	**2.3**	**1.7**	**146.0**	**29.2**	**<0.1**	---	---	**<250**	**121**	---	**290**	**39**	**18**	**<5**
	13-Feb-12		**N**	**<0.2**	**<1**	---	**1.29**	**1.0**	**151.0**	**30.2**	**<0.1**	---	---	**99.4**	**113**	---	**330**	**28**	**20**	**<1**
	13-Feb-12		**FD**	**<0.2**	**<1**	---	---	---	---	---	**<0.1**	---	---	**101**	**113**	---	**310**	**28**	**20**	**<1**
	30-Jul-12		**N**	**<0.2**	**<1**	---	**1.26**	**0.9**	**195.0**	**39**	**<0.1**	---	---	**68.6**	**53**	---	**290**	**29**	**44**	**3**

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Location Name	Sample Date	Notes	Sample Type	Hexavalent Chromium (µg/L)	Total Dissolved Chromium (µg/L)	Total Chromium (µg/L)	Fluorescein (ppb)	Fluorescein (ppb dye)	Rhodamine (ppb)	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)	Dissolved Molybdenum (µg/L)	Dissolved Selenium (µg/L)
MW-24B	18-Jul-07	a	N	5,540	6,020	5,680	---	---	---	---	12	<0.5	<500	<500	23	25	1,060	<1	60.0	11 [1]
	24-Jan-08	a	N	4,870	4,760	---	---	---	---	---	11	<2.5	<500	<1,000	<1,000	20	1,050	<1	---	---
	06-Mar-08	a	N	4,510	4,110	---	ND	ND	ND	ND	11	<1	<500	<500	<500	15	1,030	<1	---	---
	12-Mar-08	a	N	4,530	4,310	---	ND	ND	ND	ND	12	<1	<500	<2,500	<2,500	13	996	<1	---	---
	19-Mar-08	a	N	4,690	4,470	---	ND	ND	ND	ND	13	<2.5	<500	<2,500	---	16	1,010	<1	---	---
	26-Mar-08	a	N	4,160	4,220	---	ND	ND	ND	ND	12	<2.5	<500	<2,500	<2,500	14	1,020	<1	---	---
	03-Apr-08	a	N	4,310	4,240	---	0.200	0.15	ND	ND	---	---	<500	<2,500	---	15	1,040	<1	---	---
	17-Apr-08	a	N	4,180	4,260	---	0.031	0.02	ND	ND	---	---	<500	<2,500	---	---	1,120	<1	---	---
	30-Apr-08	a	N	3,400	3,790	---	ND	ND	ND	ND	10.0	<0.2	<500	<500	<500	14	1,050	4.4	---	---
	15-May-08	a	N	3,580	3,780	---	ND	ND	ND	ND	---	---	<500	<500	---	---	1,050	<1	---	---
	28-May-08	a	N	3,620	3,530	---	0.098	0.07	ND	ND	31	<1	<500	<500	<500	<10	1,180	1.0	---	---
	12-Jun-08	a	N	3,690	3,730	---	ND	ND	ND	ND	---	---	<500	<500	---	---	1,080	<1	---	---
	26-Jun-08	a	N	3,720	3,280	---	0.03	0.03	ND	ND	13	<2.5	<500	<500	<500	15	995	<1	---	---
	24-Jul-08	a	N	3,180	2,690	---	ND	ND	ND	ND	12	<5	<500	<500	<500	14	1,010	1.0	---	---
	19-Aug-08	a	N	3,200	2,730	---	ND	ND	ND	ND	12	<1	<500	<500	<500	11	1,020	1.2	---	---
	17-Sep-08	a	N	2,680	2,820	---	ND	ND	ND	ND	12	<2.5	<500	<2,500	<2,500	20	1,070	1.1	---	---
	16-Oct-08		N	2,700	2,640	---	ND	ND	ND	ND	13	<2.5	<500	<2,500	<2,500	13	1,060	<1	---	---
	16-Oct-08		FD	2,560	2,610	---	ND	ND	ND	ND	13	<2.5	<500	<2,500	<2,500	14	1,060	<1	---	---
	13-Nov-08		N	2,470	2,540	---	ND	ND	ND	ND	13	<2.5	<500 J	<2,500	<2,500	17	1,120	2.6	---	---
	04-Feb-09	a	N	2,480	2,210	---	ND	ND	ND	ND	<13 UB	<0.2	<100	246	17	18	1,300	3.1	55	<1 UJ
	14-May-09		N	2,300	2,800	---	ND	ND	ND	ND	10	<0.5	<100	<100	17	18	990	<0.5	63	<1
	07-Apr-10		N	2,070	2,060	---	ND	ND	ND	ND	8.4	---	---	112	19	---	1,100	<0.5	65	<1
	12-Jul-10		N	2,000	1,970	---	ND	ND	ND	ND	7.9	---	---	144 J	20	---	990	2.2 J [2]	63	<5
	12-Oct-10		N	2,130	1,850	---	ND	ND	ND	ND	7.4	---	---	<500	19	---	990	<0.5	55	7.4
	17-Jan-11		N	1,940	1,690	---	ND	ND	ND	ND	6.8	---	---	119 J	21	---	960	<0.5	56	6.6
	12-Apr-11		N	1,680	1,920	---	ND	ND	ND	ND	7.4	---	---	<250	24	---	930	<0.5	53	5.28 J
	11-Jul-11		N	1,720	1,700	--	ND	ND	ND	ND	6.2	---	---	<50	18	---	930	<0.5	73	3.0
	11-Jul-11		FD	1,790	1,620	--	---	---	---	---	6.2	--	--	<50	19	--	950	<0.5	73	2.8
	14-Nov-11		**N**	**1,870**	**1,580**	--	**ND**	**ND**	**ND**	**ND**	**5.8**	--	--	**<500**	**19**	--	**930**	**4.3**	**58**	**<10**
	13-Feb-12		**N**	**1,540**	**1,690**	--	**ND**	**ND**	**ND**	**ND**	**5.6**	--	--	**<250**	**21**	--	**900**	**3.7**	**57**	**<5**
	30-Jul-12		**N**	**1,350**	**1,440**	--	**ND**	**ND**	**ND**	**ND**	**5.0**	--	--	**<50**	**22**	--	**880**	**4.1**	**55**	**<5**

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Location Name	Sample Date	Notes	Sample Type	Hexavalent Chromium (µg/L)	Total Dissolved Chromium (µg/L)	Total Chromium (µg/L)	Fluorescein (ppb)	Fluorescein (ppb dye)	Rhodamine (ppb)	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)	Dissolved Molybdenum (µg/L)	Dissolved Selenium (µg/L)
MW-38S	17-Jul-07	a	N	911	920	948	---	---	---	---	11	<0.5	1,910	<500	<5	234	465	1.1	65 [1]	7.2 [1]
	23-Jan-08	a	N	899	885	---	---	---	---	---	11	<0.5	<500	<500	<500	<10	366	<1	71	5.5
	04-Mar-08	a	N	900	912	---	ND	ND	ND	ND	12	<0.5	<500	<500	<500	15	399	<1	---	---
	11-Mar-08	a	N	948	942	---	ND	ND	ND	ND	11	<0.5	<500	<500	<500	13	429	<1	---	---
	20-Mar-08	a	N	993	1,040	---	0.065	0.05	0.232	0.05	11	<0.5	<500	<2,500	---	<10	404	<1	---	---
	26-Mar-08	a	N	958	984	---	ND	ND	ND	ND	11	<0.5	<500	<2,500	<2,500	<10	404	<1	---	---
	01-Apr-08	a	N	999	852	---	0.109	0.08	ND	ND	---	---	<500	<500	---	---	419	<1	---	---
	15-Apr-08	a	N	995	987	---	ND	ND	ND	ND	---	---	<500	<500	---	---	396	<1	---	---
	28-Apr-08	a	N	1,020	956	---	0.221	0.17	ND	ND	11	<0.5	<500	<500	<500	<10	414	<1	---	---
	13-May-08	a	N	1,000	977	---	ND	ND	ND	ND	---	---	<500	<500	---	---	404	<1	---	---
	27-May-08	a	N	984	895	---	ND	ND	ND	ND	11	<0.5	<500	<500	<500	<10	399	<1	---	---
	10-Jun-08	a	N	992	959	---	ND	ND	ND	ND	---	---	1,140	<500	---	---	410	<1	---	---
	24-Jun-08	a	N	1,040	942	---	0.02	0.02	ND	ND	10	<0.5	<500	<500	<500	<10	396	<1	66	5.3
	22-Jul-08	a	N	1,020	945	---	ND	ND	ND	ND	10	<0.5	<500	<500	<500	<10	390	<1	71	5.5
	20-Aug-08	a	N	1,020 J	1,020	---	0.02	0.02	ND	ND	9.9	<0.5	<500	<500	<500	<10	371	<1	71	5.4
	16-Sep-08		N	987	999	---	ND	ND	ND	ND	9.9	<0.5	<500	<500	<500	<10	391	<1	70	5.4
	14-Oct-08		N	1,100	1,090	---	ND	ND	ND	ND	9.6	0.60	<500	<500	<500	<10	383	<1	70	5.2
	11-Nov-08		N	1,050	1,000	---	0.17	0.13	ND	ND	10	<0.5	566	<500	<500	46	381	<1	72	5.4
	03-Feb-09	a	N	1,140	1,080	---	ND	ND	ND	ND	11	<0.1	425	269	10	16	490	0.97	68	8.0 J
	12-May-09		N	1,040	912	---		ND		ND	9.7 J	<0.1	36,500	106	6.6	582	320	0.80	75	6.4
	03-Aug-09	a	N	949	855	---	ND	ND	ND	ND	9.6	---	---	<100	6.0	---	340	0.89 UB	65	5.9 UB
	27-Oct-09		N	1,040	927	---	ND	ND	ND	ND	9.3	---	---	108	<5.84 UB	---	310	0.67	67	6.6 J
	11-Jan-10		N	1,030	974	---	ND	ND	ND	ND	9.3	---	---	121 J	5.0	---	330	0.96	72	6.9

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Location Name	Sample Date	Notes	Sample Type	Hexavalent Chromium (µg/L)	Total Dissolved Chromium (µg/L)	Total Chromium (µg/L)	Fluorescein (ppb)	Fluorescein (ppb dye)	Rhodamine (ppb)	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)	Dissolved Molybdenum (µg/L)	Dissolved Selenium (µg/L)
MW-38D	17-Jul-07	a	N	104	72.1	66.2	---	---	---	---	0.70	<2.5	<500	<500	10	20	724	<1	78 [1]	<1 [1]
	23-Jan-08	a	N	58.8	67.7	---	---	---	---	---	<2.5	<2.5	<500	<10,000	<10,000	<10	723	<1	76	<5
	04-Mar-08	a	N	49.8	47	---	ND	ND	ND	ND	0.56	<2.5	<500	<500	<500	<10	735	<1	---	---
	11-Mar-08	a	N	50.4	53.8	---	ND	ND	ND	ND	0.58	<2.5	<500	<2,500	<2,500	<10	734	<1	---	---
	20-Mar-08	a	N	49.6	50.7	---	ND	ND	ND	ND	<2.5	<2.5	<500	<2,500	---	13	724	<1	---	---
	20-Mar-08	a	FD	51	50.9	---	ND	ND	ND	ND	<2.5	<2.5	<500	<2,500	---	12	711	<1	---	---
	26-Mar-08	a	N	48.7	50.1	---	ND	ND	ND	ND	<1	<2.5	<500	<2,500	<2,500	13	723	<1	---	---
	01-Apr-08	a	N	45.6	42.4	---	ND	ND	ND	ND	---	---	<500	<500	---	---	746	<1	---	---
	01-Apr-08	a	FD	47.6	41.8	---	0.027	0.02	ND	ND	---	---	<500	<500	---	---	746	<1	---	---
	15-Apr-08	a	N	43.8	45.8	---	ND	ND	ND	ND	---	---	<500	<500	---	---	738	<1	---	---
	15-Apr-08	a	FD	46.1	45.8	---	0.047	0.04	ND	ND	---	---	<500	<500	---	---	748	<1	---	---
	28-Apr-08	a	N	48	46.2	---	ND	ND	ND	ND	0.54	<0.5	<500	<2,500	<2,500	17	734	<1	---	---
	13-May-08	a	N	53	50.1	---	ND	ND	ND	ND	---	---	<500	<500	---	---	743	<1	---	---
	27-May-08	a	N	53	48.3	---	ND	ND	ND	ND	0.59	<5	<500	<500	<500	13	748	<1	---	---
	10-Jun-08	a	N	50.9	47.7	---	0.073	0.05	ND	ND	---	---	<500	<500	---	---	741	<1	---	---
	24-Jun-08	a	N	55.5	48.3	---	ND	ND	ND	ND	0.57	<0.5	<500	<500	<500	13	737	<1	78	<5
	22-Jul-08	a	N	56.3	52.3	---	ND	ND	ND	ND	<0.5	<5	<500	<500	<500	<10	734	<1	80	<5
	20-Aug-08	a	N	54.1	47.2	---	ND	ND	ND	ND	<2.5	<2.5	<500	<500	6,950	<10	721	<1	---	---
	16-Sep-08		N	48.8	52.5	---	ND	ND	ND	ND	<0.5	<2.5	<500	<500	<500	<10	763	<1	76	<5
	16-Sep-08		FD	50.5	57.0	---	ND	ND	ND	ND	0.54	<2.5	<500	<2,500	<2,500	<10	760	<1	76	<25
	14-Oct-08		N	71.7	70.2	---	ND	ND	ND	ND	0.68	<2.5	<500	<2,500	<2,500	<10	672	<1	81	<25
	11-Nov-08		N	55.8	53.4	---	ND	ND	ND	ND	0.77	<2.5	<500	<500	<500	<10	655	<1	72	<5
	03-Feb-09	a	N	45.4	52.4	---	0.03	0.02	ND	ND	<0.5	<0.5	<100	<100	4.2	6.0	940	<0.5	70	<1 UJ
	12-May-09		N	44.7	44.7	---	ND	ND	ND	ND	<1.0	<1.0	<100	<100	4.3	5.2	780	<0.5	86	<1
	12-May-09		FD	43.0	40.6	---	ND	ND	ND	ND	<1.0	<1.0	<100	<100	4.1	5.0	780	<0.5	85	<1
	03-Aug-09	a	N	51.5	44.5	---	ND	ND	ND	ND	0.75	---	---	713 J	<5	---	720	<0.5	77	9.0 UB
	03-Aug-09	a	FD	52.8	56.2	---		---		---	<0.5	---	---	737 J	<5	---	710	<0.5	78	12
	27-Oct-09		N	54.9	46.1	---	ND	ND	ND	ND	<1	---	---	888	<3.1 UB	---	760	<0.5	79	<1 UJ
	11-Jan-10		N	47.5	46.6	---	ND	ND	ND	ND	<0.5	---	---	<500 J	<5	---	730	<0.5	83	<5
	11-Jan-10		FD	53.1	44.6	---	---	---	---	---	<0.5	---	---	<500 J	<5	---	710	<0.5	86	<5

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Location Name	Sample Date	Notes	Sample Type	Hexavalent Chromium (µg/L)	Total Dissolved Chromium (µg/L)	Total Chromium (µg/L)	Fluorescein (ppb)	Fluorescein (ppb dye)	Rhodamine (ppb)	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)	Dissolved Molybdenum (µg/L)	Dissolved Selenium (µg/L)
PTR-1	19-Jul-07	a	N	538	713	1,240	---	---	---	---	18	<0.5	6,010	<500	92	119	983	<1	52 [1]	54 [1]
	25-Jan-08	a	N	904	991	---	---	---	---	---	20	<0.5	2,920	<500	<500	26	742	3.8	---	---
	06-Mar-08	a	N	356	334	---	445,000	333,750	ND	ND	<500	<500	<500	<2,500	<2,500	1,070	1,460	11,200	---	---
	11-Mar-08	a	N	945	846	---	2,760	2,070	ND	ND	11	<5	<500	<2,500	<2,500	633	671	29,700	---	---
	20-Mar-08	a	N	76.8	125	---	40,500	30,375	ND	ND	<50	<50	540	<2,500	---	437	440	63,400	---	---
	27-Mar-08	a	N	<1	<5	---	11,600	8,700	ND	ND	<20	<20	1,660	<2,500	<2,500	867	122	122,000	---	---
	01-Apr-08	a	N	<1	<5	---	16,700	12,525	ND	ND	---	---	2,160	<2,500	---	---	356	2,890	---	---
	16-Apr-08	a	N	20.2	99.2	---	112	84	ND	ND	---	---	750	<2,500	---	---	386	37,200	---	---
	28-Apr-08	a	N	---	---	---	---	---	---	---	---	---	---	---	---	---	---	208,000	---	---
	29-Apr-08	a	N	<0.2	93.9	---	1,760	1,320	ND	ND	5.9	<5	<500	<500	5,350	5,890	359	205,000	---	---
	15-May-08	a	N	<2.1	170	---	485	364	ND	ND	---	---	524	<500	---	---	428	2,360	---	---
	29-May-08	a	N	<2	3.1	---	31.5	24	ND	ND	1.5	<0.5	2,670	<500	708	919	520	27,900	---	---
	12-Jun-08	a	N	<2	1.8	---	---	31.8	---	---	---	---	2,310	1,040	---	---	644	80	---	---
	19-Jun-08	a	N	---	---	---	---	---	---	---	---	---	---	---	---	---	---	107	---	---
	26-Jun-08	a	N	<0.2	5.2	---	34.6	26.0	ND	ND	5.3	6.04	718	<500	1,050	1,200	658	28.20	---	---
	01-Jul-08		N	---	---	---	---	---	---	---	---	---	---	---	---	---	---	12	---	---
	24-Jul-08	a	N	<1.0	49.3	---	39.4	29.6	ND	ND	3.5	7.44	998	<500	1,770	2,200	586	19	---	---
	19-Aug-08	a	N	<0.2 UJ	30.9	---	11.1	8.33	ND	ND	2.0	0.72	5,210	<500	507	623	659	968	---	---
	18-Sep-08		N	1.2	96.0	---	6.21	4.66	ND	ND	9.3	0.71	8,970	<500	<500	519	731	6.5	---	---
	16-Oct-08		N	0.3	16.5	---	6.33	4.75	ND	ND	11	<1	15,400	<500	<500	322	713	3.5	---	---
	13-Nov-08		N	0.4	16.0	---	16.1	12.1	ND	ND	<0.5	<0.5	7,530 J	<500	528	764 J	161	12,400	---	---
	04-Feb-09	a	N	<0.2	<1	---	10.7	8.03	ND	ND	0.7	<0.5	6,550	4,250	12,800	14,000	280	740	3.0	3.8 J
	14-May-09		N	<0.2	1.1	---	17.9	13.4	ND	ND	<1.5 UB	<0.2	18,300 J	18,100 J	4,330	4,180	210	310	1.7	<1

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PTR-2	18-Jul-07	a	N	3,190	3,380	4,020	---	---	---	---	26	<0.5	3,720	<500	69	74	1,200	1.6	26 [1]	83 [1]
	25-Jan-08	a	N	4,240	4,310	---	---	---	---	---	33	<0.5	6,920	<1,000	<1,000	29	1,280	6.4	---	---
	06-Mar-08	a	N	4,960	5,120	---	5,490	4,118	ND	ND	29	<1	<500	<2,500	<2,500	<10	1,220	675	---	---
	11-Mar-08	a	N	5,120	5,150	---	0.290	0	0.811	0.16	30	<1	<500	<500	<500	<10	1,280	1,060	---	---
	20-Mar-08	a	N	3,170	3,160	---	2,970	2,228	482,000	96,400	<250	<250	<500	<2,500	---	55	514	83,000	---	---
	27-Mar-08	a	N	1,800	1,720	---	1,870	1,403	195,000	39,000	<500	<500	<500	<2,500	<2,500	131	<500	117,000	---	---
	01-Apr-08	a	N	4,190	4,370	---	1,130	848	409	81.80	---	---	<500	<2,500	---	---	1,190	3,090	---	---
	15-Apr-08	a	N	2,030	2,080	---	26.9	20	195	39.00	---	---	<500	<2,500	---	---	762	31,900	---	---
	28-Apr-08	a	N	---	---	---	---	---	---	---	---	---	---	---	---	---	---	220,000	---	---
	29-Apr-08	a	N	4,900	4,870	---	4.65	3.49	107	21.4	27	<1	<500	<500	<500	95	1,250	206,000	---	---
	15-May-08	a	N	4,790	4,840	---	1.14	0.86	44.4	8.88	---	---	<500	<500	---	---	1,240	8.4	---	---
	28-May-08	a	N	3,870	3,920	---	0.446	0.33	84.9	17.0	11	<1	<500	<500	<500	183	1,010	25,200	---	---
	10-Jun-08	a	N	4,350	4,970	---	0.475	0.36	42.9	8.58	---	---	<500	<500	---	---	1,200	201	---	---
	19-Jun-08		N	---	---	---	---	---	---	---	---	---	---	---	---	---	---	39	---	---
	26-Jun-08	a	N	4,570	4,240	---	1.41	1.06	7.71	1.54	26	<2.5	<500	<500	<500	31	1,160	<20	---	---
	01-Jul-08	a	N	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<10	---	---
	24-Jul-08	a	N	4,620	4,420	---	2.69	2.02	7.07	1.41	24	<2.5	<500	<500	<500	19	1,160	54	---	---
	19-Aug-08	a	N	1,620 J	1,900	---	ND	ND	24.5	4.90	<0.5	<1	2,370	<5,000	<5,000	80	782	29,100	---	---
	18-Sep-08		N	719	2,070	---	1.16	0.87	17.2	3.44	8.9	0.83	1,110	<500	<500	145	654	47,400	---	---
	16-Oct-08		N	3,900	3,780	---	1.58	1.19	1.92	0.38	20	<2.5	<500	<2,500	<2,500	49	1,180	2,690	---	---
	13-Nov-08		N	3,900	4,220	---	0.14	0.11	3.02	0.60	15	5.25	<500 J	<2,500	<2,500	43 J	1,080	3.7	---	---
	05-Feb-09	a	N	1,670	1,600	---	1.89	1.42	2.33	0.47	14	<0.2	594 J	167	557	534	1,300	0.56	40	23 J
	13-May-09		N	2,330	2,320	---	0.20	0.15	1.11	0.22	9.5	<0.5	1,200	125	379	448	1,000	0.69 J	35	5.2

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Location Name	Sample Date	Notes	Sample Type	Hexavalent Chromium (µg/L)	Total Dissolved Chromium (µg/L)	Total Chromium (µg/L)	Fluorescein (ppb)	Fluorescein (ppb dye)	Rhodamine (ppb)	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)	Dissolved Molybdenum (µg/L)	Dissolved Selenium (µg/L)
Equipment Balnks	17-Jul-07	a	EB	<0.2	<1	<1	---	---	---	---	<0.5	<0.5	<500	<500	<5	<10	<0.5	<1	---	---
	22-Jan-08	a	EB	<0.2	<1	---	---	---	---	---	<0.5	<0.5	<500	<500	<500	<10	<0.5	<1	---	---
	05-Mar-08	a	EB	<0.2	1.7	---	ND	ND	ND	ND	<0.5	<0.5	<500	<500	<500	<10	0.63	<1	---	---
	11-Mar-08	a	EB	<0.2	<1	---	ND	ND	ND	ND	<0.5	<0.5	<500	<500	<500	<10	0.69	<1	---	---
	18-Mar-08	a	EB	<1	<1	---	ND	ND	ND	ND	<0.5	<0.5	<500	<500	---	<10	<0.5	<1	---	---
	25-Mar-08	a	EB	<42	3.31	---	0.029	0.02	ND	ND	<0.5	<0.5	<500	<500	<500	<10	<0.5	<1	---	---
	03-Apr-08	a	EB	<0.2	<1	---	ND	ND	ND	ND	---	---	<500	<500	---	<10	<0.5	<1	---	---
	15-Apr-08	a	EB	<0.2	<1	---	ND	ND	ND	ND	---	---	<500	<500	---	---	<0.5	1.4	---	---
	28-Apr-08	a	EB	<0.2	<1	---	ND	ND	ND	ND	<0.5	<0.5	<500	<500	<500	<10	<0.5	<1	---	---
	13-May-08	a	EB	<0.2	<1	---	ND	ND	ND	ND	---	---	<500	<500	---	---	<0.5	<1	---	---
	28-May-08	a	EB	<0.2	<1	---	ND	ND	ND	ND	<0.5	<0.5	<500	<500	<500	<10	<0.5	<1	---	---
	10-Jun-08	a	EB	<0.2	<1	---	---	---	---	---	---	---	<500	<500	---	---	<0.5	<1	---	---
	19-Jun-08		EB	---	---	---		---		---	---	---	---	---	---	---	---	<1	---	---
	24-Jun-08	a	EB	<0.2	<1	---	ND	ND	ND	ND	<0.5	<0.5	<500	<500	<500	<10	<0.5	<1	---	---
	01-Jul-08		EB	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<1	---	---
	22-Jul-08	a	EB	<0.2	<1	---	ND	ND	ND	ND	<0.5	<0.5	<500	<500	<500	<10	<0.5	<1	---	---
	19-Aug-08	a	EB	<0.2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	20-Aug-08	a	EB	---	<1	---	---	ND	---	ND	1.1	<0.5	<500	<500	<500	<10	<0.5	<1	---	---
	16-Sep-08		EB	<0.2	<1	---	---	ND	---	ND	<0.5	<0.5	<500	<500	<500	<10	<0.5	<1	---	---
	14-Oct-08		EB	<0.2	<1	---	---	ND	---	ND	<0.5	<0.5	<500	<500	<500	<10	<0.5	<1	---	---
	11-Nov-08		EB	<0.2	<1	---	ND	ND	ND	ND	<0.5	<0.5	<500	<500	<500	<10	<0.5	<1	---	---
	03-Feb-09		EB	<0.2	<1	---	ND	ND	ND	ND	<0.1	<0.1	<100	<100	<1	<1	1.1	<0.5	---	---
	14-May-09		EB	<0.2	<1	---		ND		ND	0.6	<0.1	<100	<100	<1	<5	2.2	2.8	<1	<1
	03-Aug-09		EB	0.24	<1	---		---	---	---	<0.1	---	---	<100	<1	---	1.6	0.68	<1	<1
	29-Oct-09		EB	<0.2	<1	---	ND	ND	ND	ND	<0.1	---	---	<100	<1	---	1.2	<0.5	<1	<1
	12-Jan-10		EB	<0.2	<1	---	ND	ND	ND	ND	<0.1	---	---	<100	<1	---	1.2	<0.5	<1	<1
	08-Apr-10		EB	<0.2	<1	---	ND	ND	ND	ND	<0.1	---	---	<100	<1	---	3.4	<0.5	<1	<1
	13-Jul-10		EB	0.32	<1	---	ND	ND	ND	ND	<0.1	---	---	<100	<1	---	<1	0.62	<1	<1
	13-Oct-10		EB	<0.2	<1	---	ND	ND	ND	ND	<0.1	---	---	<100	<1	---	<1	<0.5	<1	<1
	18-Jan-11		EB	<0.2	<1	---	ND	ND	ND	ND	<0.1	---	---	<100	<1	---	<1	<0.5	<1	<1
	12-Apr-11		EB	<0.2	<1	---	ND	ND	ND	ND	<0.1	---	---	<50	<1	---	<1	<0.5	<1	<1
	11-Jul-11		EB	<0.2	<1	---	ND	ND	ND	ND	<0.1	---	---	<50	<1	---	<1	<0.5	<1	<1
	14-Nov-11		EB	<0.2	<1	---	---	---	---	---	<0.1	---	---	---	---	---	---	---	---	---
	15-Nov-11		EB			---	ND	ND	ND	ND	<0.1	---	---	<50	<1	---	<1	0.74	<1	<1
	14-Feb-12		EB	<0.2	<1	---	ND	ND	ND	ND	<0.1	---	---	<50	<1	---	<1	0.68	<1	<1

Table 3
Summary of Primary Analytical Parameters
PG&E Topock
Needles, California
2012 Annual Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test

Location Name	Sample Date	Notes	Sample Type	Hexavalent Chromium (µg/L)	Total Dissolved Chromium (µg/L)	Total Chromium (µg/L)	Fluorescein (ppb)	Fluorescein (ppb dye)	Rhodamine (ppb)	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)	Dissolved Molybdenum (µg/L)	Dissolved Selenium (µg/L)
Field Blanks	17-Jul-07	a	FB	<0.2	<1	<1	---	---	---	---	<0.5	<0.5	<500	<500	<5	<10	<0.5	<1	---	---
	22-Jan-08	a	FB	<0.2	<1	---	---	---	---	---	<0.5	<0.5	<500	<500	<500	<10	36.4	<1	---	---
	05-Mar-08	a	FB	<0.2	<1	---	ND	ND	ND	ND	<0.5	<0.5	<500	<500	<500	<10	0.63	<1	---	---
	11-Mar-08	a	FB	<0.2	1.15	---	ND	ND	ND	ND	<0.5	<0.5	<500	<500	<500	<10	<0.5	<1	---	---
	18-Mar-08	a	FB	<0.2	<1	---	ND	ND	ND	ND	<0.5	<0.5	<500	<500	---	<10	<0.5	<1	---	---
	25-Mar-08	a	FB	<0.2	<1	---	0.03	0.02	ND	ND	<0.5	<0.5	<500	<500	<500	<10	<0.5	<1	---	---
	03-Apr-08	a	FB	<0.2	<1	---	0.043	0.03	ND	ND	---	---	<500	<500	---	<10	<0.5	<1	---	---
	15-Apr-08	a	FB	<0.2	<1	---	ND	ND	ND	ND	---	---	<500	<500	---	---	<0.5	<1	---	---
	28-Apr-08	a	FB	<0.2	<1	---	ND	ND	ND	ND	<0.5	<0.5	<500	<500	<500	<10	<0.5	<1	---	---
	13-May-08	a	FB	<0.2	<1	---	ND	ND	ND	ND	---	---	<500	<500	---	---	<0.5	<1	---	---
	28-May-08	a	FB	<0.2	---	---	ND	ND	ND	ND	<0.5	<0.5	<500	<500	<500	<10	<0.5	<1	---	---
	10-Jun-08	a	FB	---	<1	---	---	---	---	---	---	---	<500	<500	---	---	<0.5	<1	---	---
	19-Jun-08		FB	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<1	---	---
	24-Jun-08	a	FB	<0.2	<1	1	ND	ND	ND	ND	<0.5	<0.5	<500	<500	<500	<10	<0.5	<1	---	---
	01-Jul-08		FB	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<1	---	---
	22-Jul-08	a	FB	<0.2	<1	---	0.456	0.34	ND	ND	<0.5	<0.5	<500	<500	<500	<10	<0.5	<1	---	---
	19-Aug-08	a	FB	<0.2 J	<1	---	---	0.024	---	ND	<0.5	<0.5	<500	<500	<500	<10	<0.5	1.03	---	---
	16-Sep-08		FB	<0.2	<1	---	---	ND	---	ND	<0.5	<0.5	<500	<500	<500	<10	<0.5	<1	---	---
	14-Oct-08		FB	<0.2	<1	---	---	ND	---	ND	<0.5	<0.5	<500	<500	<500	<10	<0.5	<1	---	---
	11-Nov-08		FB	<0.2	<1	---	ND	ND	ND	ND	0.52	<0.5	<500	<500	<500	<10	<0.5	<1	---	---
	04-Feb-09		FB	<0.2	<1	---	0.03	0.02	ND	ND	3.3	<0.5	<100	<100	<1	<5	<5	<0.5	---	---
	12-May-09		FB	<0.2	<1	---		ND		ND	<0.1	<0.1	<100	<100	<1	<5	2.0	<0.5	<1	<1
	03-Aug-09		FB	0.24	<1	---		---	---	---	<0.1	---	---	<100	<1	---	1.6	<0.5	<1	1
	29-Oct-09		FB	<0.2	<1	---	0.04	0.03	ND	ND	<0.1	---	---	<100	<1	---	3.1	<0.5	<1	<1
	11-Jan-10		FB	<0.2	<1	---	ND	ND	ND	ND	<0.1	---	---	<100	<1	---	1.2	<0.5	<1	<1
	07-Apr-10		FB	<0.2	<1	---	ND	ND	ND	ND	<0.1	---	---	<100	<1	---	3.3	<0.5	<1	<1
	12-Jul-10		FB	0.27	<1	---	ND	ND	ND	ND	<0.1	---	---	<100	<1	---	<1	0.54	<1	<1
	13-Oct-10		FB	<0.2	<1	---	ND	ND	ND	ND	<0.1	---	---	<100	<1	---	<1	<0.5	<1	<1
	18-Jan-11		FB	<0.2	<1	---	ND	ND	ND	ND	<0.1	---	---	<100	<1	---	<1	<0.5	<1	<1
	12-Apr-11		FB	<0.2	<1	---	ND	ND	ND	ND	---	---	---	---	---	---	---	---	---	---
	11-Jul-11		FB	<0.2	<1	---	ND	ND	ND	ND	<0.1	---	---	<50	<1	---	<1	<0.5	<1	<1
	14-Nov-11		FB	0.29	<1	---	ND	ND	ND	ND	<0.1	---	---	<50	<1	---	<1	0.79	<1	<1
	13-Feb-12		FB	<0.2	<1	---	ND	ND	ND	ND	<0.1	---	---	<50	<1	---	<1	1.2	<1	<1

Table 3
Summary of Primary Analytical Parameters
PG&E Topock
Needles, California
2012 Annual Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test

Location Name	Sample Date	Notes	Sample Type	Hexavalent Chromium (µg/L)	Total Dissolved Chromium (µg/L)	Total Chromium (µg/L)	Fluorescein (ppb)	Fluorescein (ppb dye)	Rhodamine (ppb)	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)	Dissolved Molybdenum (µg/L)	Dissolved Selenium (µg/L)

Notes:
Current quarter data indicated in **BOLD**

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

Starting with the February 2009 results, Calscience Laboratories was used for analysis, not EMAX laboratories.

[1] Molybdenum and selenium results are Total, not Dissolved

[2] TOC data from 3rd quarter 2010 is not used for trend evaluation due to calibration concerns in regards to the calculation method of TOC.

Table 4
Summary of Secondary Analytical Parameters
PG&E Topock
Needles, California
2012 Annual 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 mg/L	Sulfide mg/L	Fluoride mg/L
PT-7S	18-Jul-07	a	N	159,000	---	<5	9.7	14,500	999,000	125	<5	1,250	<0.5	<2	---
	23-Jan-08	a	N	259,000	42,400	<25	---	13,600	942,000	135	---	1,060	<0.5	<2	---
	06-Mar-08	a	N	147,000	30,000	<5	---	12,300	931,000	153	---	1,170	<0.5	<2	---
	13-Mar-08	a	N	141,000	28,100	<25	---	11,900	844,000	153	---	1,110	<0.5	<2	---
	18-Mar-08	a	N	179,000	30,100	---	---	12,900	885,000	160	<5	1,230	<0.5	<2	---
	25-Mar-08	a	N	160,000	30,600	<25	---	12,900	903,000	153	---	1,240	<0.5	<2	---
	02-Apr-08	a	N	163,000	34,900	---	---	13,400	982,000	135	<5	---	---	<2	---
	17-Apr-08	a	N	172,000	35,400	---	---	13,900	1,010,000	140	<5	---	---	<2	---
	29-Apr-08	a **	N	141,000	30,300	<5	---	12,800	897,000	170	<5	---	<0.5	<2	---
	15-May-08		N	140,000	28,900	---	---	12,300	873,000	175	<5	---	---	<2	---
	29-May-08	a	N	166,000	34,000	<5	---	13,600	1,010,000	145	---	1,270	<0.5	<2	---
	11-Jun-08	a	N	170,000	37,000	---	---	13,600	1,110,000	128	<5	---	---	<2	---
	24-Jun-08	a	N	139,000	27,100	<5	---	12,100	872,000	158	---	1,150	<0.5	<2	---
	23-Jul-08	a	N	154,000	36,200	<5	---	13,200	96,700	173	---	1,310	<0.5	<2	---
	21-Aug-08	a	N	221,000	42,800	5.6	---	15,400	1,330,000	580	---	1,310	<1	4.00	---
	18-Sep-08		N	149,000	31,400	<5	---	12,900	983,000	130	---	1,260	<0.5	<2	---
	15-Oct-08		N	151,000	33,100	12	---	11,900	918,000	352	---	1,420	<0.5	<2	---
	12-Nov-08		N	158,000	33,600	8.0	---	13,100	1,020,000	211	---	1,340	<0.5	<2	---
	05-Feb-09		N	153,000	40,400	5.3	---	14,000	1,220,000	162	---	1,500	<0.1	<0.05	---
	15-May-09	a	N	161,000	32,700 J	3.2	---	12,300	975,000	144	---	1,400	<0.20	<0.05	---
	04-Aug-09		N	---	---	2.1	---	---	---	156	---	---	---	---	1.4
	29-Oct-09		N	---	---	1.9	---	---	---	157	---	---	---	---	1.2
	13-Jan-10		N	---	---	3.2	---	---	---	158	---	---	---	---	---
	08-Apr-10		N	---	---	2.9	---	---	---	150	---	---	---	---	---
	14-Jul-10		N	---	---	2.7	---	---	---	144	---	---	---	---	---
	14-Oct-10		N	---	---	3.0	---	---	---	156	---	---	---	---	---
	18-Jan-11		N	---	---	2.8	---	---	---	145	---	---	---	---	---
	14-Apr-11		N	---	---	<1	---	---	---	140	---	---	---	---	---
	12-Jul-11		N	---	---	2.4	---	---	---	141	---	---	---	---	---
	16-Nov-11		**N**	---	---	**<5**	---	---	---	**139**	---	---	---	---	---
	14-Feb-12		**N**	---	---	**1.8**	---	---	---	**142**	---	---	---	---	---
	31-Jul-12		**N**	---	---	**3.7**	---	---	---	**139**	---	---	---	---	---

Table 4
Summary of Secondary Analytical Parameters
PG&E Topock
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Location Name:	Sample Date:	Notes	Sample Type:	Dissolved Calcium µg/L	Dissolved Magnesium µg/L	Dissolved Arsenic µg/L	Total Arsenic µg/L	Dissolved Potassium µg/L	Dissolved Sodium µg/L	Alkalinity bicarbonate mg/L	Alkalinity carbonate mg/L	Chloride mg/L	Orthophosphate mg/L	Sulfide mg/L	Fluoride mg/L
PT-7M	19-Jul-07	a	N	419,000	---	<5	7.0	23,900	1,350,000	97.5	<5	1,920	<0.5	<2	---
	24-Jan-08	a	N	434,000	58,100	<10	---	24,600	1,460,000	80.0	---	2,180	<0.5	<2	---
	06-Mar-08	a	N	236,000	32,200	10	---	19,200	1,170,000	138	---	1,520	<0.5	<2	---
	06-Mar-08	a	FD	236,000	32,500	11	---	19,200	1,170,000	145	<5	1,490	<0.5	<2	---
	13-Mar-08	a	N	275,000	37,500	53	---	18,600	1,150,000	360	---	1,530	<0.5	<2	---
	18-Mar-08	a	N	273,000	37,900	---	---	17,300	1,140,000	650	<5	1,570	<5	8.00	---
	25-Mar-08	a	N	333,000	42,400	<25	---	18,000	1,170,000	920	---	1,560	<2.5	<2	---
	02-Apr-08	a	N	340,000	47,500	---	---	17,200	1,210,000	1,010	<5	---	---	8.00	---
	17-Apr-08	a	N	457,000	59,500	---	---	19,500	1,310,000	1,380	<5	---	---	<2	---
	29-Apr-08	a**	N	503,000	62,400	16	---	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	29	---	19,900	1,180,000	1,720	---	1,090	<10	<2	---
	11-Jun-08	a	N	769,000	87,900	---	---	20,800	1,220,000	1,400	<5	---	---	<2	---
	25-Jun-08	a	N	874,000	81,100	35	---	20,800	1,110,000	1,800	---	1,110	<2.5	<2	---
	23-Jul-08	a	N	1,030,000	97,700	30	---	20,200	984,000	1,980	---	863	<2.5	<2	---
	21-Aug-08	a	N	1,380,000	133,000	31	---	22,900	1,290,000	2,780	---	1,020	<2.5	8.00	---
	18-Sep-08		N	994,000	82,600	47	---	20,600	1,100,000	2,160	---	1,080	<1	<2	---
	15-Oct-08		N	849,000	80,200	47	---	21,200	1,090,000	2,040	---	1,280	<2.5	<2	---
	12-Nov-08		N	225,000	52,800	55	---	16,800	1,020,000	1,010	---	1,230	<1	<2	---
	15-May-09	a	N	181,000	28,000 J	19	---	14,000	1,050,000	1,170	---	1,100	<0.20	0.25	---
	04-Aug-09		N	---	---	12	---	---	---	1,460	---	---	---	---	1.1
	29-Oct-09		N	---	---	8.6	---	---	---	2,180	---	---	---	---	0.78
	13-Jan-10		N	---	---	12	---	---	---	1,890	---	---	---	---	---
	14-Jul-10		N	---	---	9.0	---	---	---	1,460	---	---	---	---	---
	14-Oct-10		N	---	---	7.5	---	---	---	1,540	---	---	---	---	---
	18-Jan-11		N	---	---	5.2	---	---	---	1,330	---	---	---	---	---
	12-Apr-11		N	---	---	6.1	---	---	---	1,200	---	---	---	---	---
	13-Jul-11		N	---	---	1.6	---	---	---	1,130	---	---	---	---	---
	16-Nov-11		**N**	---	---	**5.6**	---	---	---	**1,290**	---	---	---	---	---
	14-Feb-12		**N**	---	---	**4.8**	---	---	---	**1,260**	---	---	---	---	---
	31-Jul-12		**N**	---	---	**8.6**	---	---	---	**962**	---	---	---	---	---

Table 4
Summary of Secondary Analytical Parameters
PG&E Topock
Needles, California
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Location Name:	Sample Date:	Notes	Sample Type:	Dissolved Calcium µg/L	Dissolved Magnesium µg/L	Dissolved Arsenic µg/L	Total Arsenic µg/L	Dissolved Potassium µg/L	Dissolved Sodium µg/L	Alkalinity bicarbonate mg/L	Alkalinity carbonate mg/L	Chloride mg/L	Orthophosphate mg/L	Sulfide mg/L	Fluoride mg/L
PT-7D	18-Jul-07	a	N	321,000	---	8	8.1	38,600	3,630,000	52.5	<5	5,490	<0.5	<2	---
	24-Jan-08	a	N	339,000	9,350	<10	---	39,100	3,890,000	47.5	---	5,540	<1	<2	---
	06-Mar-08	a	N	153,000	4,530	19	---	25,200	2,660,000	85.0	---	3,480	<0.5	<2	---
	13-Mar-08	a	N	141,000	<5000	<25	---	23,400	2,460,000	150	---	3,540	<0.5	<2	---
	18-Mar-08	a	N	174,000	5,650	---	---	24,100	2,620,000	280	<5	3,690	<1	10.4	---
	25-Mar-08	a	N	217,000	6,970	97	---	25,400	2,940,000	360	---	3,980	<1	17.6	---
	02-Apr-08	a	N	210,000	7,980	---	---	25,500	3,030,000	340	<5	---	---	6.80	---
	17-Apr-08	a	N	178,000	5,700	---	---	19,800	2,340,000	840	<5	---	---	20.8	---
	29-Apr-08	a	N	155,000	4,780	42	---	18,100	2,130,000	805	<5	---	<10	4.40	---
	15-May-08		N	188,000	6,370	---	---	19,300	2,110,000	920	<5	---	---	5.60	---
	29-May-08	a	N	215,000	6,640	28	---	20,400	2,280,000	1,040	---	2,670	<10	7.20	---
	11-Jun-08	a	N	286,000	7,090	---	---	19,300	2,170,000	1,330	<5	---	---	<2	---
	24-Jun-08	a	N	257,000	6,700	18	---	21,400	2,110,000	1,370	---	2,030	<10	5.60	---
	23-Jul-08	a	N	400,000	11,000	23	---	19,800	1,940,000	1,640	---	1,480	<5	<2	---
	21-Aug-08	a	N	472,000	14,300	33	---	21,200	2,270,000	2,080	---	1,480	<2.5	40.0	---
	18-Sep-08		N	433,000	11,400	23	---	21,600	198,000	1,960	---	1,460	<1	<2	---
	15-Oct-08		N	320,000	11,000	32	---	20,300	1,780,000	1,490	---	1,650	<1	6.40	---
	12-Nov-08		N	236,000	10,700	47	---	20,000	1,700,000	1,380	---	1,560	<2.5	26.0	---
	15-May-09	a	N	96,900	8,630 J	<0.5	---	18,300	3,150,000	922	---	4,400	<0.50	1.6	---
	04-Aug-09		N	---	---	24	---	---	---	2,190	---	---	---	---	2.1
	28-Oct-09		N	---	---	<0.5	---	---	---	1,000	---	---	---	---	1.7
	13-Jan-10		N	---	---	<0.5	---	---	---	896	---	---	---	---	---
	08-Apr-10		N	---	---	<0.5	---	---	---	870	---	---	---	---	---
	14-Jul-10		N	---	---	<0.5	---	---	---	966	---	---	---	---	---
	14-Oct-10		N	---	---	2.5	---	---	---	1,060	---	---	---	---	---
	18-Jan-11		N	---	---	<0.5	---	---	---	890	---	---	---	---	---
	12-Apr-11		N	---	---	5.5	---	---	---	940	---	---	---	---	---
	13-Jul-11		N	---	---	4.8	---	---	---	830	---	---	---	---	---
	16-Nov-11		**N**	---	---	**7.7**	---	---	---	**651**	---	---	---	---	---
	15-Feb-12		**N**	---	---	**10.6**	---	---	---	**599**	---	---	---	---	---
	31-Jul-12		**N**	---	---	**6.5**	---	---	---	**466**	---	---	---	---	---

Table 4
Summary of Secondary Analytical Parameters
PG&E Topock
Needles, California
2012 Annual 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 mg/L	Sulfide mg/L	Fluoride mg/L
PT-8S	16-Jul-07	a	N	132,000	---	<5	5.1	12,500	955,000	125	<5	1,190	<0.5	<2	---
	23-Jan-08	a	N	141,000	30,000	<25	---	12,600	1,040,000	128	---	1,220	<0.5	2.00	---
	05-Mar-08	a	N	120,000	26,000	<5	---	11,400	1,060,000	158	---	1,100	<0.5	<2	---
	13-Mar-08	a	N	114,000	23,900	<25	---	11,100	934,000	215	---	1,110	<0.5	<2	---
	18-Mar-08	a	N	97,500	21,500	---	---	10,600	894,000	225	<5	1,010	<0.5	<2	---
	25-Mar-08	a	N	101,000	21,300	<25	---	10,600	876,000	230	---	1,070	<0.5	<2	---
	02-Apr-08	a	N	110,000	25,200	---	---	11,400	965,000	200	<5	---	---	<2	---
	16-Apr-08	a	N	125,000	26,700	---	---	11,700	1,010,000	205	<5	---	---	<2	---
	29-Apr-08	a	N	160,000	35,500	10	---	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	26	---	11,200	1,220,000	550	---	1,760	<0.5	2.00	---
	28-May-08	a	FD	155,000	33,500	26	---	11,300	1,210,000	520	---	1,770	<0.5	<2	---
	11-Jun-08	a	N	402,000	72,100	---	---	15,600	1,840,000	950	<5	---	---	<2	---
	25-Jun-08	a	N	502,000	77,100	19	---	17,400	1,940,000	1,370	---	2,440	<1	<2	---
	23-Jul-08	a	N	459,000	84,800	21	---	16,200	1,910,000	1,150	---	2,660	<5	<2	---
	20-Aug-08	a	N	358,000	62,500	28	---	14,500	1,780,000	1,000	---	2,640	<1	40.0	---
	17-Sep-08		N	264,000	58,600	31	---	14,500	1,750,000	830	---	2,580	<1	<2	---
	15-Oct-08		N	251,000	57,500	27	---	13,900	1,700,000	1,180	---	2,550	<1	<2	---
	12-Nov-08		N	212,000	49,200	44	---	14,200	1,740,000	914	---	2,510	<1	2.00	---
	04-Feb-09	a	N	178,000	48,700 J	18	---	11,700	1,300,000	754	---	2,400	<0.50	<0.050	---
	13-May-09	a	N	321,000	67,000	14	---	10,800	1,150,000	624	---	1,800	<0.20	0.30	---
	04-Aug-09		N	---	---	8.7	---	---	---	502	---	---	---	---	2.8
	28-Oct-09		N	---	---	1.8	---	---	---	359	---	---	---	---	0.5
	12-Jan-10		N	---	---	9.2	---	---	---	418	---	---	---	---	---
	07-Apr-10		N	---	---	8.6	---	---	---	318	---	---	---	---	---
	13-Jul-10		N	---	---	7.5	---	---	---	244	---	---	---	---	---
	13-Oct-10		N	---	---	8.0	---	---	---	250	---	---	---	---	---
	17-Jan-11		N	---	---	11	---	---	---	206	---	---	---	---	---
	14-Apr-11		N	---	---	10	---	---	---	187	---	---	---	---	---
	12-Jul-11		N	---	---	9.3	---	---	---	182	---	---	---	---	---
	15-Nov-11		**N**	---	---	**11**	---	---	---	**177**	---	---	---	---	---
	14-Feb-12		**N**	---	---	**13**	---	---	---	**199**	---	---	---	---	---
	31-Jul-12		**N**	---	---	**10**	---	---	---	**171**	---	---	---	---	---

Table 4
Summary of Secondary Analytical Parameters
PG&E Topock
Needles, California
2012 Annual 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 mg/L	Sulfide mg/L	Fluoride mg/L
PT-8M	18-Jul-07	a	N	353,000	---	<5	1.5	22,200	1,130,000	103	<5	1,510	<2.5	<2	---
	23-Jan-08	a	N	403,000	41,800	<25	---	24,100	1,230,000	100	---	1,700	<0.5	4.00	---
	05-Mar-08	a	N	422,000	42,200	<5	---	24,000	1,350,000	108	---	1,650	<0.5	<2	---
	13-Mar-08	a	N	364,000	44,100	<25	---	22,300	1,130,000	120	---	1,400	<0.5	<2	---
	19-Mar-08	a	N	362,000	43,000	---	---	22,400	1,120,000	123	<5	1,400	<0.5	<2	---
	25-Mar-08	a	N	376,000	41,500	<25	---	22,200	1,110,000	130	---	1,570	<0.5	4.00	---
	02-Apr-08	a	N	367,000	45,400	---	---	22,900	1,160,000	130	<5	---	---	<2	---
	16-Apr-08	a	N	392,000	45,100	---	---	23,200	1,190,000	125	<5	---	---	<2	---
	29-Apr-08	a	N	356,000	43,900	<5	---	22,000	1,070,000	145	<5	---	<1	<2	---
	14-May-08		N	350,000	42,900	---	---	21,800	1,040,000	135	<5	---	---	<2	---
	28-May-08	a	N	321,000	6,750	7.0	---	34,000	3,200,000	50	---	4,820	<1	<2	---
	11-Jun-08	a	N	381,000	48,900	---	---	21,400	1,160,000	110	<5	---	---	<2	---
	25-Jun-08	a	N	362,000	42,600	<5	---	21,200	1,040,000	113	---	1,360	<0.5	<2	---
	25-Jun-08	a	FD	366,000	42,600	<5	---	20,900	1,050,000	108	---	1,390	<1	<2	---
	23-Jul-08	a	N	356,000	49,300	<5	---	20,100	1,020,000	115	---	1,300	<1	<2	---
	20-Aug-08	a	N	364,000	43,900	<5	---	20,000	1,050,000	155	---	1,510	<0.5	80.0	---
	17-Sep-08		N	371,000	47,400	<5	---	21,800	1,120,000	180	---	1,650	<0.5	<2	---
	15-Oct-08		N	357,000	45,000	<5	---	20,400	978,000	168	---	1,480	<1	<2	---
	12-Nov-08		N	338,000	44,500	<5	---	20,400	990,000	258	---	1,400	<0.5	<2	---
	04-Feb-09	a	N	366,000	51,700 J	6.3	---	21,100	1,180,000	314	---	2,000	<0.50	<0.050	---
	13-May-09	a	N	599,000	71,000	2.1	---	19,600	1,040,000	360	---	1,700	<0.20	<0.050	---
	04-Aug-09		N	---	---	0.7	---	---	---	382	---	---	---	---	0.62
	28-Oct-09		N	---	---	8.3	---	---	---	447	---	---	---	---	2.7
	12-Jan-10		N	---	---	1.9	---	---	---	414	---	---	---	---	---
	07-Apr-10		N	---	---	1.7	---	---	---	434	---	---	---	---	---
	13-Jul-10		N	---	---	1.2	---	---	---	430	---	---	---	---	---
	13-Oct-10		N	---	---	0.9	---	---	---	420	---	---	---	---	---
	17-Jan-11		N	---	---	1.4	---	---	---	316	---	---	---	---	---
	14-Apr-11		N	---	---	1.2	---	---	---	378	---	---	---	---	---
	14-Apr-11		FD	---	---	1.7	---	---	---	376	---	---	---	---	---
	12-Jul-11		N	---	---	1.5	---	---	---	343	---	---	---	---	---
	15-Nov-11		**N**	---	---	**<5**	---	---	---	**262**	---	---	---	---	---
	14-Feb-12		**N**	---	---	**2.0**	---	---	---	**245**	---	---	---	---	---
	31-Jul-12		**N**	---	---	**2.5**	---	---	---	**240**	---	---	---	---	---
											---	---	---	---	---

Table 4
Summary of Secondary Analytical Parameters
PG&E Topock
Needles, California
2012 Annual 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 mg/L	Sulfide mg/L	Fluoride mg/L
PT-8D	16-Jul-07	a	N	281,000	---	7.1	9.0	35,100	3,300,000	45.0	<5	5,360	<0.5	<2	---
	23-Jan-08	a	N	325,000	11,800	<50	---	35,200	3,420,000	50.0	---	5,190	<1	<2	---
	05-Mar-08	a	N	322,000	10,000	<25	---	37,700	3,850,000	50.0	---	5,240	<0.5	<2	---
	13-Mar-08	a	N	284,000	9,560	<25	---	32,900	3,340,000	55.0	---	5,090	<2.5	<2	---
	18-Mar-08	a	N	292,000	9,470	---	---	33,900	3,480,000	48.0	<5	5,480	<2.5	<2	---
	25-Mar-08	a	N	306,000	10,200	<25	---	34,300	3,550,000	50.0	---	5,010	<0.5	<2	---
	02-Apr-08	a	N	298,000	10,700	---	---	33,800	3,550,000	52.5	<5	---	---	<2	---
	16-Apr-08	a	N	312,000	9,020	---	---	36,000	3,840,000	50.0	<5	---	---	<2	---
	29-Apr-08	a	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	a	N	267,000	9,020	6.8	---	32,100	3,050,000	57.5	---	4,530	<1	<2	---
	11-Jun-08	a	N	288,000	11,100	---	---	32,200	3,390,000	55.0	<5	---	---	<2	---
	25-Jun-08	a	N	280,000	12,100	12	---	30,600	2,960,000	143	---	4,200	<0.5	<2	---
	23-Jul-08	a	N	264,000	11,000	8.9	---	30,700	3,080,000	60.0	---	4,390	<1	<2	---
	20-Aug-08	a	N	284,000	10,500	7.2	---	31,400	3,220,000	46.3	---	4,870	<1	40.0	---
	17-Sep-08		N	286,000	10,000	<25	---	34,000	3,250,000	47.5	---	4,730	<1	<2	---
	15-Oct-08		N	333,000	24,200	<25	---	31,300	2,530,000	197	---	4,140	<0.5	<2	---
	12-Nov-08		N	312,000	17,400	<25	---	33,600	3,020,000	85.9	---	4,250	<0.5	<2	---
	04-Feb-09	a	N	332,000	14,400 J	<3.39 UB	---	32,900	2,780,000	56.0	---	5,200	<1.0	0.50	---
	04-Feb-09	a	FD	327,000	13,400 J	<0.5	---	32,400	2,890,000	55.0	---	5,400	1.4	0.50	---
	13-May-09	a	N	656,000	17,700	<0.5	---	34,100	3,090,000	50.0	---	5,400	<0.50	0.10	---
	04-Aug-09		N	---	---	<0.5	---	---	---	60.0	---	---	---	---	3.6
	28-Oct-09		N	---	---	<0.5	---	---	---	50.0	---	---	---	---	3.2
	28-Oct-09		FD	---	---	<0.5	---	---	---	48.0	---	---	---	---	3.3
	12-Jan-10		N	---	---	7.0	---	---	---	48.0	---	---	---	---	---
	07-Apr-10		N	---	---	<0.5	---	---	---	42.0	---	---	---	---	---
	07-Apr-10		FD	---	---	<0.5	---	---	---	44.0	---	---	---	---	---
	13-Jul-10		N	---	---	<0.5	---	---	---	46.0	---	---	---	---	---
	13-Oct-10		N	---	---	6.5	---	---	---	48.0	---	---	---	---	---
	17-Jan-11		N	---	---	<0.5	---	---	---	49.0	---	---	---	---	---
	14-Apr-11		N	---	---	6.7	---	---	---	39.0	---	---	---	---	---
	12-Jul-11		N	---	---	5.0	---	---	---	45.6	---	---	---	---	---
	15-Nov-11		**N**	---	---	**8.4**	---	---	---	**42.0**	---	---	---	---	---
	14-Feb-12		**N**	---	---	**4.8**	---	---	---	**41.0**	---	---	---	---	---
	31-Jul-12		**N**	---	---	**11**	---	---	---	**45.0**	---	---	---	---	---
	31-Jul-12		**FD**	---	---	**12**	---	---	---	**46.3**	---	---	---	---	---

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Location Name:	Sample Date:	Notes	Sample Type:	Dissolved Calcium µg/L	Dissolved Magnesium µg/L	Dissolved Arsenic µg/L	Total Arsenic µg/L	Dissolved Potassium µg/L	Dissolved Sodium µg/L	Alkalinity bicarbonate mg/L	Alkalinity carbonate mg/L	Chloride mg/L	Orthophosphate mg/L	Sulfide mg/L	Fluoride mg/L
PT-9S	17-Jul-07	a	N	108,000	---	<5	5.4	11,800	820,000	155	<5	895	<0.5	<2	---
	22-Jan-08	a	N	107,000	21,100	5.6	---	9,140	848,000	205	---	924	<0.5	<2	---
	05-Mar-08	a	N	120,000	24,500	5.2	---	9,990	962,000	168	---	977	<0.5	<2	---
	12-Mar-08	a	N	87,500	17,800	5.5	---	8,270	836,000	190	---	916	<0.5	<2	---
	19-Mar-08	a	N	115,000	23,100	---	---	9,930	884,000	163	<5	889	<0.5	<2	---
	26-Mar-08	a	N	116,000	23,000	<25	---	9,370	843,000	175	---	977	<0.5	<2	---
	02-Apr-08	a	N	118,000	25,100	---	---	9,570	871,000	178	<5	---	---	<2	---
	16-Apr-08	a	N	126,000	25,100	---	---	9,980	891,000	170	<5	---	---	<2	---
	29-Apr-08	a	N	113,000	24,900	5.3	---	9,590	837,000	185	<5	---	<0.5	<2	---
	14-May-08		N	101,000	21,000	---	---	8,940	821,000	168	<5	---	---	<2	---
	28-May-08	a	N	111,000	22,000	<5	---	9,420	825,000	158	---	917	<0.5	<2	---
	11-Jun-08	a	N	107,000	23,500	---	---	9,150	867,000	160	<5	---	---	<2	---
	25-Jun-08	a	N	102,000	20,000	<5	---	8,910	820,000	163	---	908	<0.5	<2	---
	24-Jul-08	a	N	105,000	22,600	5.1	---	9,070	855,000	165	---	890	<0.5	<2	---
	20-Aug-08	a	N	99,200	21,100	5.1	---	9,050	844,000	160	---	922	<0.5	320	---
	17-Sep-08		N	114,000	23,500	<5	---	9,930	920,000	155	---	989	<0.5	<2	---
	15-Oct-08		N	103,000	21,400	5.2	---	9,180	849,000	188	---	1,090	<0.5	<2	---
	12-Nov-08		N	127,000	27,100	13	---	9,840	993,000	427	---	1,290	<0.5	<2	---
	05-Feb-09	a	N	141,000	33,500	15	---	10,100	1,070,000	316	---	1,400	<0.1	0.20	---
	14-May-09	a	N	151,000	31,100 J	9.8	---	10,300	955,000	476	---	1,200	<0.20	<0.050	---
	05-Aug-09		N	---	---	9.8	---	---	---	490	---	---	---	---	3.0
	29-Oct-09		N	---	---	8.9	---	---	---	565	---	---	---	---	3.1
	12-Jan-10		N	---	---	8.9	---	---	---	420	---	---	---	---	---
	08-Apr-10		N	---	---	7.9	---	---	---	352	---	---	---	---	---
	13-Jul-10		N	---	---	11	---	---	---	237	---	---	---	---	---
	13-Oct-10		N	---	---	8.3	---	---	---	252	---	---	---	---	---
	18-Jan-11		N	---	---	12	---	---	---	254	---	---	---	---	---
	14-Apr-11		N	---	---	6.8	---	---	---	208	---	---	---	---	---
	12-Jul-11		N	---	---	11	---	---	---	185	---	---	---	---	---
	15-Nov-11		**N**	---	---	**12**	---	---	---	**194**	---	---	---	---	---
	15-Feb-12		**N**	---	---	**10**	---	---	---	**188**	---	---	---	---	---
	01-Aug-12		**N**	---	---	**11**	---	---	---	**168**	---	---	---	---	---

Table 4
Summary of Secondary Analytical Parameters
PG&E Topock
Needles, California
2012 Annual 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 mg/L	Sulfide mg/L	Fluoride mg/L
PT-9M	17-Jul-07	a	N	485,000	---	<5	1.4	30,200	1,030,000	97.5	<5	1,400	<0.5	<2	---
	17-Jul-07	a	FD	476,000	---	<5	1.4	29,800	1,020,000	100	<5	1,400	<0.5	<2	---
	22-Jan-08	a	N	525,000	22,700	<5	---	29,800	1,140,000	97.5	---	1,640	<0.5	<2	---
	05-Mar-08	a	N	553,000	25,100	<5	---	32,100	1,220,000	100	---	1,650	<0.5	<2	---
	12-Mar-08	a	N	483,000	22,800	<5	---	30,700	1,140,000	113	---	1,520	<0.5	<2	---
	19-Mar-08	a	N	517,000	26,400	---	---	32,100	1,190,000	97.5	<5	1,510	<0.5	<2	---
	26-Mar-08	a	N	526,000	26,200	<25	---	31,900	1,160,000	100	---	1,610	<0.5	<2	---
	26-Mar-08	a	FD	543,000	26,400	<25	---	33,200	1,190,000	103	---	1,600	<0.5	<2	---
	02-Apr-08	a	N	513,000	27,700	---	---	31,800	1,150,000	105	<5	---	---	<2	---
	16-Apr-08	a	N	556,000	28,000	---	---	32,900	1,220,000	105	<5	---	---	<2	---
	29-Apr-08	a	N	475,000	23,900	<5	---	30,900	1,100,000	120	<5	---	<1	<2	---
	14-May-08		N	496,000	26,100	---	---	33,500	1,130,000	120	<5	---	---	<2	---
	28-May-08	a	N	479,000	22,800	<5	---	29,800	1,070,000	108	---	1,530	<0.5	<2	---
	11-Jun-08	a	N	492,000	25,900	---	---	31,200	1,150,000	97.5	<5	---	---	<2	---
	25-Jun-08	a	N	452,000	21,800	<5	---	29,900	1,090,000	103	---	1,380	<1	<2	---
	24-Jul-08	a	N	426,000	22,700	<5	---	26,600	1,050,000	108	---	1,240	<0.5	<2	---
	20-Aug-08	a	N	488,000	23,500	<5	---	28,900	1,100,000	97.5	---	1,530	<0.5	40.0	---
	17-Sep-08		N	504,000	26,100	<25	---	32,300	1,110,000	92.5	---	1,660	<0.5	<2	---
	15-Oct-08		N	431,000	22,300	<5	---	27,600	1,010,000	105	---	1,450	<1	<2	---
	12-Nov-08		N	468,000	24,700	<25	---	30,700	1,090,000	100	---	1,420	<0.5	<2	---
	05-Feb-09	a	N	507,000	32,300	11	---	30,400	1,310,000	114	---	2,000	<0.2	<0.05	---
	14-May-09	a	N	571,000	23,200 J	3.7	---	30,800	1,080,000	86.0	---	1,800	<0.20	<0.050	---
	05-Aug-09		N	---	---	0.9	---	---	---	92.0	---	---	---	---	0.92
	29-Oct-09		N	---	---	3.7	---	---	---	93.0	---	---	---	---	0.81
	12-Jan-10		N	---	---	<2.5	---	---	---	96.0	---	---	---	---	---
	08-Apr-10		N	---	---	2.9	---	---	---	88.0	---	---	---	---	---
	13-Jul-10		N	---	---	5.6	---	---	---	88.0	---	---	---	---	---
	13-Oct-10		N	---	---	1.8	---	---	---	94.0	---	---	---	---	---
	18-Jan-11		N	---	---	2.0	---	---	---	90.0	---	---	---	---	---
	14-Apr-11		N	---	---	<1	---	---	---	92.0	---	---	---	---	---
	12-Jul-11		N	---	---	<1	---	---	---	91.0	---	---	---	---	---
	15-Nov-11		**N**	---	---	**<5**	---	---	---	**92.0**	---	---	---	---	---
	15-Feb-12		**N**	---	---	**<10**	---	---	---	**94.0**	---	---	---	---	---
	01-Aug-12		**N**	---	---	**1.2**	---	---	---	**94.0**	---	---	---	---	---

Table 4
Summary of Secondary Analytical Parameters
PG&E Topock
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Location Name:	Sample Date:	Notes	Sample Type:	Dissolved Calcium µg/L	Dissolved Magnesium µg/L	Dissolved Arsenic µg/L	Total Arsenic µg/L	Dissolved Potassium µg/L	Dissolved Sodium µg/L	Alkalinity bicarbonate mg/L	Alkalinity carbonate mg/L	Chloride mg/L	Orthophosphate mg/L	Sulfide mg/L	Fluoride mg/L
PT-9D	17-Jul-07	a	N	368,000	---	6.3	6.1	34,200	2,840,000	52.5	<5	4,350	<1	<2	---
	22-Jan-08	a	N	399,000	8,380	<50	---	35,500	3,230,000	50.0	---	4,790	<1	<2	---
	22-Jan-08	a	FD	404,000	9,160	<50	---	35,400	3,260,000	55.0	---	4,940	<1	<2	---
	05-Mar-08	a	N	438,000	9,240	<25	---	37,000	3,540,000	41.0	---	4,890	<0.5	<2	---
	12-Mar-08	a	N	407,000	10,100	<25	---	35,000	3,210,000	52.5	---	4,920	<2.5	<2	---
	19-Mar-08	a	N	432,000	10,400	---	---	36,800	3,320,000	42.0	<5	4,650	<1	<2	---
	26-Mar-08	a	N	436,000	10,100	<25	---	36,700	3,300,000	52.5	---	4,810	<1	12.0	---
	02-Apr-08	a	N	419,000	10,400	---	---	36,000	3,320,000	50.0	<5	---	---	<2	---
	16-Apr-08	a	N	445,000	10,300	---	---	36,600	3,440,000	55.0	<5	---	---	<2	---
	29-Apr-08	a	N	431,000	11,900	7.3	---	35,500	2,940,000	57.5	<5	---	<5	<2	---
	14-May-08		N	408,000	12,400	---	---	35,800	2,750,000	65.0	<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	a	N	460,000	12,800	---	---	37,300	3,270,000	47.5	<5	---	---	<2	---
	11-Jun-08	a	FD	466,000	13,200	---	---	37,100	3,340,000	47.5	<5	---	---	<2	---
	25-Jun-08	a	N	439,000	12,500	7.4	---	35,000	2,830,000	52.5	---	4,050	<1	<2	---
	24-Jul-08	a	N	452,000	15,200	6.5	---	33,600	2,910,000	53.8	---	4,090	<2.5	8.00	---
	20-Aug-08	a	N	451,000	11,900	7.3	---	36,700	3,250,000	47.5	---	4,810	<2.5	40.0	---
	20-Aug-08	a	FD	451,000	12,000	7.2	---	36,200	3,280,000	47.5	---	4,820	<2.5	160	---
	17-Sep-08		N	431,000	11,200	<25	---	36,900	3,250,000	47.5	---	4,880	<2.5	<2	---
	15-Oct-08		N	458,000	18,400	<25	---	36,300	2,640,000	55.5	---	3,990	<1	<2	---
	12-Nov-08		N	523,000	17,000	<25	---	40,300	3,110,000	47.9	---	4,680	<2.5	<2	---
	05-Feb-09	a	N	441,000	13,700	12	---	36,700	3,560,000	44.0	---	5,700	<0.5	<0.05	---
	15-May-09	a	N	455,000	7,880 J	<0.5	---	24,800	3,160,000	52.0	---	5,200	<0.50	<0.050	---
	05-Aug-09		N	---	---	<0.5	---	---	---	49.0	---	---	---	---	3.4
	28-Oct-09		N	---	---	<0.5	---	---	---	47.0	---	---	---	---	3.6
	12-Jan-10		N	---	---	10	---	---	---	48.0	---	---	---	---	---
	08-Apr-10		N	---	---	<0.5	---	---	---	48.0	---	---	---	---	---
	13-Jul-10		N	---	---	<0.5	---	---	---	48.0	---	---	---	---	---
	13-Oct-10		N	---	---	7.9	---	---	---	52.0	---	---	---	---	---
	13-Oct-10		FD	---	---	9.7	---	---	---	54.0	---	---	---	---	---
	18-Jan-11		N	---	---	3.1	---	---	---	46.0	---	---	---	---	---
	14-Apr-11		N	---	---	8.5	---	---	---	47.0	---	---	---	---	---
	12-Jul-11		N	---	---	6.4	---	---	---	49.0	---	---	---	---	---
	15-Nov-11		**N**	---	---	**11**	---	---	---	**46.0**	---	---	---	---	---
	15-Feb-12		**N**	---	---	**14**	---	---	---	**48.0**	---	---	---	---	---
	01-Aug-12		**N**	---	---	**9.1**	---	---	---	**45.0**	---	---	---	---	---

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Location Name:	Sample Date:	Notes	Sample Type:	Dissolved Calcium µg/L	Dissolved Magnesium µg/L	Dissolved Arsenic µg/L	Total Arsenic µg/L	Dissolved Potassium µg/L	Dissolved Sodium µg/L	Alkalinity bicarbonate mg/L	Alkalinity carbonate mg/L	Chloride mg/L	Orthophosphate mg/L	Sulfide mg/L	Fluoride mg/L
MW-11	17-Jul-07	a	N	125,000	---	<5	1.5	8,330	280,000	87.5	<5	470	<0.5	<2	---
	24-Jan-08	a	N	122,000	16,100	<5	---	8,160	280,000	103	---	442	<0.5	<2	---
	04-Mar-08	a	N	123,000	17,700	<5	---	8,300	302,000	92.5	---	434	<0.5	<2	---
	11-Mar-08	a	N	116,000	16,100	<5	---	7,990	278,000	110	---	439	<0.5	<2	---
	11-Mar-08	a	FD	120,000	16,700	<5	---	8,160	296,000	105	---	453	<0.5	<2	---
	19-Mar-08	a	N	125,000	17,400	---	---	8,800	302,000	103	<5	427	<0.5	<2	---
	27-Mar-08	a	N	124,000	15,900	<5	---	8,480	295,000	110	---	467	<0.5	<2	---
	01-Apr-08		N	118,000	15,800	---	---	8,340	283,000	103	<5	---	---	<2	---
	15-Apr-08		N	122,000	16,400	---	---	8,260	299,000	108	<5	---	---	4.00	---
	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	---	---	2.40	---
	27-May-08	a	N	117,000	16,100	<5	---	8,220	272,000	100	---	466	<0.5	<2	---
	10-Jun-08		N	119,000	17,600	---	---	8,230	282,000	90.0	<5	---	---	<2	---
	24-Jun-08	a	N	120,000	16,700	<5	---	8,560	284,000	90.0	---	477	<0.5	<2	---
	22-Jul-08	a	N	114,000	17,900	<5	---	8,120	275,000	92.5	---	473	<0.5	<2	---
	21-Aug-08	a	N	116,000	19,000	<5	---	8,450	300,000	92.5	---	465	<0.5	<2	---
	16-Sep-08		N	114,000	16,500	<5	---	8,360	268,000	87.5	---	474	<0.5	<2	---
	14-Oct-08		N	120,000	16,300	<5	---	8,140	278,000	94.3	---	459	<0.5	<2	---
	11-Nov-08		N	116,000	15,100	<5	---	8,210	280,000	91.5	---	551	<0.5	<2	---
	03-Feb-09	a	N	113,000	16,600	<2.64 UB	---	7,790	277,000	96.0	---	510	<0.10	<0.050	---
	14-May-09	a	N	116,000	17,500 J	2.2	---	7,690	296,000	90.0	---	520	<0.10	<0.050	---
	06-Apr-10		N	---	---	1.8	---	---	---	90.0	---	---	---	---	---
	12-Jul-10		N	---	---	2.3 J	---	---	---	98.0	---	---	---	---	---
	12-Oct-10		N	---	---	1.9	---	---	---	90.0	---	---	---	---	---
	17-Jan-11		N	---	---	2.4	---	---	---	93.0	---	---	---	---	---
	17-Jan-11		FD	---	---	2.4	---	---	---	93.0	---	---	---	---	---
	12-Apr-11		N	---	---	2.0	---	---	---	92.0	---	---	---	---	---
	11-Jul-11		N	---	---	2.0	---	---	---	101	---	---	---	---	---
	14-Nov-11		**N**	---	---	**<5**	---	---	---	**93.0**	---	---	---	---	---
	14-Nov-11		**FD**	---	---	**2.0**	---	---	---	**94.0**	---	---	---	---	---
	13-Feb-12		**N**	---	---	**1.7**	---	---	---	**90.0**	---	---	---	---	---
	30-Jul-12		**N**	---	---	**2.7**	---	---	---	**92.0**	---	---	---	---	---

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MW-24A	18-Jul-07	a	N	42,000	---	5.4	5.6	5,610	565,000	310	<5	410	<0.5	<2	---
	24-Jan-08	a	N	46,300	8,660	5.1	---	5,860	585,000	365	---	452	<0.5	<2	---
	06-Mar-08	a	N	367,000	46,000	8.0	---	19,900	1,840,000	118	---	2,450	<5	<2	---
	12-Mar-08	a	N	387,000	39,900	<25	---	22,700	1,680,000	198	---	2,680	<10	<2	---
	19-Mar-08	a	N	407,000	46,200	---	---	21,200	1,710,000	423	<5	2,370	<2.5	<2	---
	26-Mar-08	a	N	491,000	50,500	83	---	18,900	1,690,000	970	---	2,380	<5	4.80	---
	01-Apr-08	a	N	423,000	47,700	---	---	18,100	1,620,000	1,020	<5	---	---	<2	---
	17-Apr-08	a	N	517,000	43,400	---	---	23,100	2,030,000	1,110	<5	---	---	10.4	---
	30-Apr-08	a	N	432,000	37,200	72	---	24,700	1,860,000	590	<5	---	<5	<2	---
	30-Apr-08	a	FD	437,000	35,800	70	---	23,700	1,860,000	570	<5	---	<5	<2	---
	15-May-08		N	494,000	59,900	---	---	24,000	1,750,000	450	<5	---	---	<2	---
	15-May-08		FD	502,000	59,100	---	---	24,800	1,780,000	480	<5	---	---	<2	---
	27-May-08	a	N	493,000	42,200	9.8	---	24,300	1,870,000	880	---	2,790	<1	11.2	---
	12-Jun-08	a	N	521,000	45,900	---	---	25,300	1,960,000	970	<5	---	---	4.00	---
	26-Jun-08	a	N	398,000	29,700	24	---	23,700	1,920,000	153	---	2,780	<0.5	<2	---
	24-Jul-08	a	N	384,000	27,800	25	---	24,000	1,980,000	115	---	2,730	<1	6.40	---
	24-Jul-08	a	FD	397,000	28,300	26	---	24,300	2,020,000	118	---	2,670	<1	<2	---
	19-Aug-08	a	N	376,000	34,500	21	---	22,400	1,800,000	288	---	2,690	<1	2.00	---
	16-Sep-08		N	355,000	29,100	8.1	---	23,100	1,930,000	670	---	2,720	<1	117	---
	16-Oct-08		N	353,000	30,400	26	---	24,300	1,940,000	353	---	2,870	<0.5	22.0	---
	13-Nov-08		N	348,000	26,500	<25.0	---	26,500	1,980,000	340	---	2,800	<0.5	102	---
	13-Nov-08		FD	349,000	27,400	<25	---	26,000	2,010,000	310	---	2,800	<2.5	94.4	---
	03-Feb-09	a	N	322,000	28,500	11	---	24,700	2,140,000	334	---	3,400	<0.50	8.1	---
	14-May-09	a	N	302,000	23,200 J	12	---	19,800	1,880,000	330	---	2,600	<0.50	2.5	---
	03-Aug-09		N	---	---	7.5	---	---	---	504	---	---	---	---	2.3
	27-Oct-09		N	---	---	3.2	---	---	---	576	---	---	---	---	3.1
	11-Jan-10		N	---	---	2.0	---	---	---	563	---	---	---	---	---
	07-Apr-10		N	---	---	1.5	---	---	---	464	---	---	---	---	---
	12-Jul-10		N	---	---	0.70 J	---	---	---	426	---	---	---	---	---
	12-Jul-10		FD	---	---	1.0 J	---	---	---	422	---	---	---	---	---
	12-Oct-10		N	---	---	0.8	---	---	---	400	---	---	---	---	---
	17-Jan-11		N	---	---	1.0	---	---	---	469	---	---	---	---	---
	12-Apr-11		N	---	---	<1	---	---	---	320	---	---	---	---	---
	11-Jul-11		N	---	---	<1	---	---	---	518	---	---	---	---	---
	14-Nov-11		**N**	---	---	**<5**	---	---	---	**362**	---	---	---	---	---
	13-Feb-12		**N**	---	---	**1.1**	---	---	---	**283**	---	---	---	---	---
	13-Feb-12		**FD**	---	---	**<1**	---	---	---	**291**	---	---	---	---	---
	30-Jul-12		**N**	---	---	**2.8**	---	---	---	**310**	---	---	---	---	---

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Location Name:	Sample Date:	Notes	Sample Type:	Dissolved Calcium µg/L	Dissolved Magnesium µg/L	Dissolved Arsenic µg/L	Total Arsenic µg/L	Dissolved Potassium µg/L	Dissolved Sodium µg/L	Alkalinity bicarbonate mg/L	Alkalinity carbonate mg/L	Chloride mg/L	Orthophosphate mg/L	Sulfide mg/L	Fluoride mg/L
MW-24B	18-Jul-07	a	N	329,000	---	7.1	7.1	34,500	3,270,000	50.0	<5	4,820	<0.5	<2	---
	24-Jan-08	a	N	341,000	8,050	<10	---	36,400	3,470,000	50.0	---	5,270	<1	2.00	---
	06-Mar-08	a	N	338,000	7,970	8.8	---	37,200	3,430,000	42.0	---	5,160	<1	<2	---
	12-Mar-08	a	N	332,000	7,610	<25	---	34,800	3,290,000	52.5	---	5,870	<1	<2	---
	19-Mar-08	a	N	351,000	8,410	---	---	37,100	3,650,000	44.0	<5	5,120	<0.5	<2	---
	26-Mar-08	a	N	358,000	8,240	<25	---	37,200	3,580,000	42.0	---	5,150	<0.5	<2	---
	03-Apr-08	a	N	345,000	8,130	---	---	36,200	3,470,000	44.0	<5	---	---	3.20	---
	17-Apr-08	a	N	345,000	8,280	---	---	36,700	3,530,000	50.0	<5	---	---	<2	---
	30-Apr-08	a	N	304,000	7,020	6.8	---	68,200	3,420,000	57.5	<5	---	<1	<2	---
	15-May-08		N	338,000	8,130	---	---	37,100	3,350,000	55.0	<5	---	---	<2	---
	28-May-08	a	N	360,000	38,900	<5	---	20,800	1,050,000	118	---	1,420	<1	<2	---
	12-Jun-08	a	N	336,000	7,570	---	---	34,800	3,340,000	45.0	<5	---	---	<2	---
	26-Jun-08	a	N	326,000	6,960	8.3	---	35,400	3,300,000	46.3	---	4,950	<1	<2	---
	24-Jul-08	a	N	323,400	7,730	7.4	---	33,000	3,420,000	46.3	---	4,860	<2.5	3.20	---
	19-Aug-08	a	N	296,000	7,150	7.6	---	31,900	3,210,000	46.3	---	4,910	<1	2.00	---
	17-Sep-08		N	308,000	7,770	<25	---	34,900	3,260,000	45.0	---	4,950	<0.5	<2	---
	16-Oct-08		N	307,000	7,990	<25	---	34,700	3,130,000	47.6	---	4,870	<0.5	<2	---
	16-Oct-08		FD	310,000	7,880	<25	---	34,700	3,190,000	47.8	---	4,880	<0.5	<2	---
	13-Nov-08		N	302,000	7,600	<25	---	35,000	3,380,000	46.0	---	5,260	<0.5	<2	---
	04-Feb-09	a	N	310,000	7,200 J	<3.59 UB	---	34,100	3,060,000	48.0	---	4,000	1	<0.050	---
	14-May-09	a	N	333,000	6,990 J	<0.5	---	23,900	3,190,000	42.0	---	5,100	<0.50	<0.050	---
	07-Apr-10		N	---	---	<0.5	---	---	---	42.0	---	---	---	---	---
	12-Jul-10		N	---	---	<0.5 UJ	---	---	---	40.0	---	---	---	---	---
	12-Oct-10		N	---	---	5.5	---	---	---	41.0	---	---	---	---	---
	17-Jan-11		N	---	---	<0.5	---	---	---	49.0	---	---	---	---	---
	12-Apr-11		N	---	---	9.1	---	---	---	38.0	---	---	---	---	---
	11-Jul-11		N	---	---	4.9	---	---	---	40.0	---	---	---	---	---
	11-Jul-11		FD	---	---	6.5	---	---	---	39.6	---	---	---	---	---
	14-Nov-11		**N**	---	---	**12**	---	---	---	**40.0**	---	---	---	---	---
	13-Feb-12		**N**	---	---	**16**	---	---	---	**41.0**	---	---	---	---	---
	30-Jul-12		**N**	---	---	**26**	---	---	---	**37.0**	---	---	---	---	---

Table 4
Summary of Secondary Analytical Parameters
PG&E Topock
Needles, California
2012 Annual 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 mg/L	Sulfide mg/L	Fluoride mg/L
MW-38S	17-Jul-07	a	N	84,200	---	<5	6.1	8,710	627,000	175	<5	680	<0.5	<2	---
	23-Jan-08	a	N	63,900	12,200	<5	---	7,400	546,000	175	---	546	<0.5	<2	---
	04-Mar-08	a	N	67,600	13,300	<5	---	7,910	607,000	185	---	534	<0.5	<2	---
	11-Mar-08	a	N	66,100	13,300	<5	---	7,920	586,000	175	---	571	<0.5	<2	---
	20-Mar-08	a	N	70,900	13,400	---	---	8,190	593,000	200	200	---	<0.5	<2	---
	26-Mar-08	a	N	71,000	13,500	<25	---	8,160	583,000	183	---	583	<0.5	<2	---
	01-Apr-08	a	N	60,500	11,600	---	---	7,010	57,500	290	<5	---	---	<2	---
	15-Apr-08	a	N	67,100	13,000	---	---	7,710	590,000	190	<5	---	---	<2	---
	28-Apr-08	a	N	67,000	13,000	<5	---	8,030	575,000	200	<5	---	<0.5	<2	---
	13-May-08		N	63,400	12,700	---	---	7,780	571,000	185	<5	---	---	<2	---
	27-May-08	a	N	62,600	12,200	<5	---	7,420	540,000	193	---	551	<0.5	<2	---
	10-Jun-08	a	N	63,000	12,400	---	---	7,670	620,000	180	<5	---	---	<2	---
	24-Jun-08	a	N	65,700	12,200	<5	---	7,690	570,000	185	---	533	<0.5	<2	---
	22-Jul-08	a	N	59,700	12,600	<5	---	7,270	534,000	183	---	523	<0.5	<2	---
	20-Aug-08	a	N	56,400	11,200	<5	---	7,160	540,000	175	---	487	<0.5	160	---
	16-Sep-08		N	54,200	10,900	<5	---	7,150	560,000	160	---	496	<0.5	<2	---
	14-Oct-08		N	53,700	10,400	<5	---	6,840	535,000	189	---	467	<0.5	<2	---
	11-Nov-08		N	53,000	9,220	<5	---	6,930	516,000	182	---	471	<0.5	<2	---
	03-Feb-09	a	N	58,400	9,600	<5.9 UB	---	8,570	488,000	187	---	530	<0.10	<0.050	---
	12-May-09	a	N	66,700	7,510	5.8	---	10,700	412,000	208	---	390	<0.10	0.050	---
	03-Aug-09		N	---	---	5.6	---	---	---	178	---	---	---	---	5.8
	27-Oct-09		N	---	---	5.1	---	---	---	228	---	---	---	---	6.0
	11-Jan-10		N	---	---	5.6	---	---	---	192	---	---	---	---	---

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Location Name:	Sample Date:	Notes	Sample Type:	Dissolved Calcium µg/L	Dissolved Magnesium µg/L	Dissolved Arsenic µg/L	Total Arsenic µg/L	Dissolved Potassium µg/L	Dissolved Sodium µg/L	Alkalinity bicarbonate mg/L	Alkalinity carbonate mg/L	Chloride mg/L	Orthophosphate mg/L	Sulfide mg/L	Fluoride mg/L
MW-38D	17-Jul-07	a	N	352,000	---	7.9	7.5	45,600	4,710,000	35.0	<5	7,240	<0.5	<2	---
	23-Jan-08	a	N	353,000	<20000	<100	---	43,100	4,560,000	40.0	---	7,690	<2.5	<2	---
	04-Mar-08	a	N	343,000	7,150	8.6	---	44,500	5,070,000	31.0	---	7,390	<0.5	<2	---
	11-Mar-08	a	N	363,000	7,580	<25	---	47,000	4,970,000	32.0	---	7,710	<0.5	<2	---
	20-Mar-08	a	N	361,000	7,720	---	---	44,900	5,020,000	32.0	32.0	---	<2.5	<2	---
	20-Mar-08	a	FD	359,000	7,720	---	---	45,100	4,920,000	33.0	33.0	---	<2.5	<2	---
	26-Mar-08	a	N	362,000	7,580	<25	---	44,700	4,940,000	31.0	---	7,830	<1	<2	---
	01-Apr-08	a	N	353,000	7,040	---	---	46,100	4,870,000	31.0	<5	---	---	<2	---
	01-Apr-08	a	FD	335,000	6,680	---	---	44,000	4,900,000	32.0	<5	---	---	<2	---
	15-Apr-08	a	N	38,500	7,440	---	---	45,200	5,010,000	31.0	<5	---	---	<2	---
	15-Apr-08	a	FD	405,000	7,500	---	---	46,300	5,330,000	32.0	<5	---	---	<2	---
	28-Apr-08	a	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	---	---	2.00	---
	27-May-08	a	N	337,000	6,670	7.7	---	44,500	4,600,000	32.0	---	7,580	<0.5	<2	---
	10-Jun-08	a	N	352,000	6,960	---	---	44,900	4,860,000	32.5	<5	---	---	<2	---
	24-Jun-08	a	N	377,000	6,610	9.0	---	45,200	5,000,000	32.5	---	7,420	<0.5	<2	---
	22-Jul-08	a	N	369,000	7,300	8.5	---	45,100	4,900,000	32.5	---	7,490	<0.5	<2	---
	20-Aug-08	a	N	364,000	6,950	8.9	---	43,200	3,200,000	31.3	---	7,230	<2.5	80.0	---
	16-Sep-08		N	367,000	7,240	8.6	---	44,700	4,870,000	32.0	---	7,390	<0.5	<2	---
	16-Sep-08		FD	339,000	7,750	<25	---	44,400	4,910,000	33.0	---	7,430	<0.5	<2	---
	14-Oct-08		N	361,000	8,180	<25	---	45,100	5,080,000	33.3	---	7,360	<0.5	<2	---
	11-Nov-08		N	365,000	6,670	8.1	---	42,400	487,000	32.4	---	7,210	<0.5	<2	---
	03-Feb-09	a	N	388,000	8,450	<0.5	---	48,300	5,320,000	33.0	---	8,500	<0.50	<0.050	---
	12-May-09	a	N	355,000	3,380	<0.5	---	41,800	3,620,000	31.0	---	7,000	<1.0	<0.050	---
	12-May-09	a	FD	348,000	3,600	<0.5	---	41,400	3,710,000	32.0	---	7,000	<1.0	<0.050	---
	03-Aug-09	a	N	---	---	7.8	---	---	---	28.0	---	---	---	---	3.9
	03-Aug-09	a	FD	---	---	7.4	---	---	---	30.0	---	---	---	---	3.9
	27-Oct-09		N	---	---	<0.5	---	---	---	36.0	---	---	---	---	3.7
	11-Jan-10		N	---	---	9.0	---	---	---	34.0	---	---	---	---	---
	11-Jan-10		FD	---	---	9.3	---	---	---	32.0	---	---	---	---	---

Table 4
Summary of Secondary Analytical Parameters
PG&E Topock
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Location Name:	Sample Date:	Notes	Sample Type:	Dissolved Calcium µg/L	Dissolved Magnesium µg/L	Dissolved Arsenic µg/L	Total Arsenic µg/L	Dissolved Potassium µg/L	Dissolved Sodium µg/L	Alkalinity bicarbonate mg/L	Alkalinity carbonate mg/L	Chloride mg/L	Orthophosphate mg/L	Sulfide mg/L	Fluoride mg/L
PTR-1	19-Jul-07	a	N	254,000	---	<5	1.9	21,500	1,500,000	97.5	<5	1,940	<0.5	<2	---
	25-Jan-08	a	N	206,000	37,500	<5	---	16,400	1,190,000	123	---	1,610	<0.5	<2	---
	06-Mar-08	a	N	171,000	36,500	<25	---	12,800	882,000	208	---	1,360	<500	<2	---
	11-Mar-08	a	N	166,000	36,100	<25	---	13,000	872,000	158	---	1,190	<5	<2	---
	20-Mar-08	a	N	155,000	32,800	---	---	11,500	758,000	203	203	---	<50	<2	---
	27-Mar-08	a	N	112,000	21,600	<25	---	6,680	461,000	185	---	608	<20	3.20	---
	01-Apr-08	a	N	254,000	47,500	---	---	15,600	1,050,000	600	<5	---	---	<2	---
	16-Apr-08	a	N	175,000	40,900	---	---	12,500	833,000	138	<5	---	---	<2	---
	29-Apr-08	a	N	170,000	35,100	13	---	11,300	767,000	298	<5	---	<5	4.80	---
	15-May-08		N	188,000	37,800	---	---	11,800	818,000	300	<5	---	---	3.60	---
	29-May-08	a	N	157,000	35,700	<5	---	13,800	856,000	183	---	1,190	<0.5	4.00	---
	12-Jun-08	a	N	171,000	38,900	---	---	14,200	965,000	148	<5	---	---	<2	---
	26-Jun-08	a	N	173,000	36,100	7.5	---	13,600	942,000	150	---	1,290	<0.5	<2	---
	24-Jul-08	a	N	163,000	37,700	<5	---	12,300	916,000	160	---	1,180	<0.5	16.0	---
	19-Aug-08	a	N	170,000	37,500	6.0	---	14,200	979,000	140	---	1,330	<0.5	320	---
	18-Sep-08		N	182,000	40,200	8.5	---	15,000	1,040,000	115	---	1,450	<0.5	<2	---
	16-Oct-08		N	176,000	40,600	<5	---	16,300	992,000	106	---	1,440	<0.5	2.00	---
	13-Nov-08		N	209,000	32,300	<5.00	---	11,900	686,000	330	---	967	<0.5	<2	---
	04-Feb-09	a	N	323,000	53,800 J	<2.9 UB	---	12,500	925,000	592	---	1,300	2	0.30	---
	14-May-09	a	N	227,000	56,600 J	1.4	---	11,700	936,000	764	---	1,000	<0.20	<0.050	---
PTR-2	18-Jul-07	a	N	335,000	---	<5	1.99	23,200	1,610,000	92.5	<5	2,200	<0.5	<2	---
	25-Jan-08	a	N	427,000	34,400	<10	---	25,000	1,450,000	103	---	2,060	<0.5	2.00	---
	06-Mar-08	a	N	407,000	29,200	<25	---	26,800	1,780,000	92.5	---	2,460	<1	<2	---
	11-Mar-08	a	N	393,000	27,200	<5	---	26,300	1,770,000	92.5	---	2,470	<0.5	<2	---
	20-Mar-08	a	N	151,000	18,000	---	---	17,300	1,220,000	148	148	---	<250	<2	---
	27-Mar-08	a	N	88,500	13,000	<25	---	11,100	830,000	120	---	1,090	<500	<2	---
	01-Apr-08	a	N	404,000	28,900	---	---	28,500	2,120,000	145	<5	---	---	<2	---
	15-Apr-08	a	N	241,000	23,900	---	---	13,900	919,000	143	<5	---	---	<2	---
	29-Apr-08	a	N	410,000	25,300	5.6	---	26,200	1,920,000	120	<5	---	<1	<2	---
	15-May-08		N	396,000	26,900	---	---	28,800	1,970,000	105	<5	---	---	<2	---
	28-May-08	a	N	302,000	19,700	7.7	---	22,800	1,730,000	82.5	---	2,620	<1	<2	---
	10-Jun-08	a	N	397,000	25,200	---	---	26,200	203,000	95.0	<5	---	---	<2	---
	26-Jun-08	a	N	397,000	24,000	<5	---	26,700	1,910,000	82.5	---	2,650	<1	<2	---
	24-Jul-08	a	N	396,000	26,400	<5	---	25,900	1,960,000	95.0	---	2,660	<2.5	4.00	---
	19-Aug-08	a	N	254,000	26,100	<25	---	17,800	1,050,000	125	---	1,580	<0.5	80.0	---
	18-Sep-08		N	281,000	23,400	7.8	---	21,000	1,520,000	75.0	---	1,380	<0.5	<2	---
	16-Oct-08		N	354,000	26,600	<25	---	26,100	1,740,000	86.9	---	2,630	<0.5	<2	---
	13-Nov-08		N	364,000	22,700	<25	---	28,300	2,060,000	92.5	---	2,770	<1	<2	---
	05-Feb-09	a	N	330,000	24,800	<2.5 UB	---	27,800	2,370,000	94.0	---	3,700	<0.2	<0.05	---
	13-May-09	a	N	684,000	37,000	<0.5	---	26,100	1,940,000	60.0	---	4,300	<0.50	<0.050	---

Table 4
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Location Name:	Sample Date:	Notes	Sample Type:	**Dissolved Calcium µg/L**	**Dissolved Magnesium µg/L**	**Dissolved Arsenic µg/L**	**Total Arsenic µg/L**	**Dissolved Potassium µg/L**	**Dissolved Sodium µg/L**	**Alkalinity bicarbonate mg/L**	**Alkalinity carbonate mg/L**	**Chloride mg/L**	**Orthophosphate mg/L**	**Sulfide mg/L**	**Fluoride mg/L**

Notes:
Current quarter 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.

Starting with the February 2009 results, Calscience Laboratories was used for analysis, not EMAX laboratories

Table 5
Summary of Supplementary Metals
PG&E Topock
Needles, California
2012 Annual Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test

Location Name:	Sample Date:	Notes	Sample Type:	Dissolved Antimony µg/L	Total Antimony µg/L	Dissolved Barium µg/L	Total Barium µg/L	Dissolved Cadmium µg/L	Total Cadmium µg/L	Dissolved Cobalt µg/L	Total Cobalt µg/L	Dissolved Lead µg/L	Total Lead µg/L	Dissolved Silver µg/L	Total Silver µg/L	Dissolved Thallium µg/L	Total Thallium µg/L	Dissolved Vanadium µg/L	Total Vanadium µg/L
PT-7S	18-Jul-07		N	---	<1	---	156	---	<1	---	21.5	---	28.6	---	<1	---	<1	---	51.5
	04-Aug-09		N	<1	---	45.1	---	<1	---	<1	---	<1	---	<1	---	<1	---	5.48	---
	29-Oct-09		N	---	---	43.7	---	---	---	---	---	---	---	---	---	---	---	---	---
	13-Jan-10		N	---	---	46.2	---	---	---	---	---	---	---	---	---	---	---	---	---
	08-Apr-10		N	---	---	45.2	---	---	---	---	---	---	---	---	---	---	---	---	---
	14-Jul-10		N	---	---	43.7	---	---	---	---	---	---	---	---	---	---	---	---	---
	14-Oct-10		N	---	---	38.7	---	---	---	---	---	---	---	---	---	---	---	---	---
	18-Jan-11		N	---	---	45.4	---	---	---	---	---	---	---	---	---	---	---	---	---
	14-Apr-11		N	---	---	41.7	---	---	---	---	---	---	---	---	---	---	---	---	---
	12-Jul-11		N	---	---	44.1	---	---	---	---	---	---	---	---	---	---	---	---	---
	16-Nov-11		**N**	---	---	**41.2**	---	---	---	---	---	---	---	---	---	---	---	---	---
	14-Feb-12		**N**	---	---	**39.9**	---	---	---	---	---	---	---	---	---	---	---	---	---
	31-Jul-12		**N**	---	---	**41.8**	---	---	---	---	---	---	---	---	---	---	---	---	---
PT-7M	19-Jul-07		N	---	<1	---	94.8	---	<1	---	12.4	---	18.6	---	<1	---	<1	---	30.1
	04-Aug-09		N	<1	---	869	---	<1	---	<1	---	<1	---	<1	---	<1	---	<1	---
	29-Oct-09		N	---	---	1,140	---	---	---	---	---	---	---	---	---	---	---	---	---
	13-Jan-10		N	---	---	1,490	---	---	---	---	---	---	---	---	---	---	---	---	---
	14-Jul-10		N	---	---	1,090	---	---	---	---	---	---	---	---	---	---	---	---	---
	14-Oct-10		N	---	---	946	---	---	---	---	---	---	---	---	---	---	---	---	---
	18-Jan-11		N	---	---	1,150	---	---	---	---	---	---	---	---	---	---	---	---	---
	14-Apr-11		N	---	---	1,160	---	---	---	---	---	---	---	---	---	---	---	---	---
	13-Jul-11		N	---	---	1,090	---	---	---	---	---	---	---	---	---	---	---	---	---
	16-Nov-11		**N**	---	---	**1,360**	---	---	---	---	---	---	---	---	---	---	---	---	---
	14-Feb-12		**N**	---	---	**1,160**	---	---	---	---	---	---	---	---	---	---	---	---	---
	31-Jul-12		**N**	---	---	**982**	---	---	---	---	---	---	---	---	---	---	---	---	---

Table 5
Summary of Supplementary Metals
PG&E Topock
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2012 Annual Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test

Location Name:	Sample Date:	Notes	Sample Type:	Dissolved Antimony µg/L	Total Antimony µg/L	Dissolved Barium µg/L	Total Barium µg/L	Dissolved Cadmium µg/L	Total Cadmium µg/L	Dissolved Cobalt µg/L	Total Cobalt µg/L	Dissolved Lead µg/L	Total Lead µg/L	Dissolved Silver µg/L	Total Silver µg/L	Dissolved Thallium µg/L	Total Thallium µg/L	Dissolved Vanadium µg/L	Total Vanadium µg/L
PT-7D	18-Jul-07		N	---	<1	---	96.5	---	<1	---	<1	---	<1	---	<1	---	<1	---	5.47
	04-Aug-09		N	<1	---	2,800	---	<1	---	<1	---	<1	---	<1	---	<1	---	1.07	---
	28-Oct-09		N	---	---	512	---	---	---	---	---	---	---	---	---	---	---	---	---
	13-Jan-10		N	---	---	273	---	---	---	---	---	---	---	---	---	---	---	---	---
	08-Apr-10		N	---	---	227	---	---	---	---	---	---	---	---	---	---	---	---	---
	14-Jul-10		N	---	---	297	---	---	---	---	---	---	---	---	---	---	---	---	---
	14-Oct-10		N	---	---	245	---	---	---	---	---	---	---	---	---	---	---	---	---
	18-Jan-11		N	---	---	264	---	---	---	---	---	---	---	---	---	---	---	---	---
	14-Apr-11		N	---	---	450	---	---	---	---	---	---	---	---	---	---	---	---	---
	13-Jul-11		N	---	---	1,060	---	---	---	---	---	---	---	---	---	---	---	---	---
	16-Nov-11		**N**	---	---	**1,120**	---	---	---	---	---	---	---	---	---	---	---	---	---
	15-Feb-12		**N**	---	---	**854**	---	---	---	---	---	---	---	---	---	---	---	---	---
	31-Jul-12		**N**	---	---	**299**	---	---	---	---	---	---	---	---	---	---	---	---	---
PT-8S	16-Jul-07		N	---	<1	---	86.9	---	<1	---	5.18	---	7.75	---	<1	---	<1	---	22.3
	04-Aug-09		N	<1	---	393	---	<1	---	<1	---	<1	---	<1	---	<1	---	<1	---
	28-Oct-09		N	---	---	82.4	---	---	---	---	---	---	---	---	---	---	---	---	---
	12-Jan-10		N	---	---	248	---	---	---	---	---	---	---	---	---	---	---	---	---
	07-Apr-10		N	---	---	176	---	---	---	---	---	---	---	---	---	---	---	---	---
	13-Jul-10		N	---	---	121	---	---	---	---	---	---	---	---	---	---	---	---	---
	13-Oct-10		N	---	---	97.6	---	---	---	---	---	---	---	---	---	---	---	---	---
	17-Jan-11		N	---	---	85.3	---	---	---	---	---	---	---	---	---	---	---	---	---
	14-Apr-11		N	---	---	71.0	---	---	---	---	---	---	---	---	---	---	---	---	---
	12-Jul-11		N	---	---	68.1	---	---	---	---	---	---	---	---	---	---	---	---	---
	15-Nov-11		**N**	---	---	**63.8**	---	---	---	---	---	---	---	---	---	---	---	---	---
	14-Feb-12		**N**	---	---	**59.6**	---	---	---	---	---	---	---	---	---	---	---	---	---
	31-Jul-12		**N**	---	---	**54.1**	---	---	---	---	---	---	---	---	---	---	---	---	---

Table 5
Summary of Supplementary Metals
PG&E Topock
Needles, California
2012 Annual Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test

Location Name:	Sample Date:	Notes	Sample Type:	Dissolved Antimony µg/L	Total Antimony µg/L	Dissolved Barium µg/L	Total Barium µg/L	Dissolved Cadmium µg/L	Total Cadmium µg/L	Dissolved Cobalt µg/L	Total Cobalt µg/L	Dissolved Lead µg/L	Total Lead µg/L	Dissolved Silver µg/L	Total Silver µg/L	Dissolved Thallium µg/L	Total Thallium µg/L	Dissolved Vanadium µg/L	Total Vanadium µg/L
PT-8M	18-Jul-07		N	---	<1	---	33.7	---	<1	---	<1	---	<1	---	<1	---	<1	---	5.73
	04-Aug-09		N	<1	---	78.7	---	<1	---	<1	---	<1	---	<1	---	<1	---	<1	---
	28-Oct-09		N	---	---	327	---	---	---	---	---	---	---	---	---	---	---	---	---
	12-Jan-10		N	---	---	96.8	---	---	---	---	---	---	---	---	---	---	---	---	---
	07-Apr-10		N	---	---	98.3	---	---	---	---	---	---	---	---	---	---	---	---	---
	13-Jul-10		N	---	---	92.7	---	---	---	---	---	---	---	---	---	---	---	---	---
	13-Oct-10		N	---	---	92.2	---	---	---	---	---	---	---	---	---	---	---	---	---
	17-Jan-11		N	---	---	76.7	---	---	---	---	---	---	---	---	---	---	---	---	---
	14-Apr-11		N	---	---	70.8	---	---	---	---	---	---	---	---	---	---	---	---	---
	14-Apr-11		FD	---	---	69.0	---	---	---	---	---	---	---	---	---	---	---	---	---
	12-Jul-11		N	---	---	79.2	---	---	---	---	---	---	---	---	---	---	---	---	---
	15-Nov-11		**N**	---	---	**73.4**	---	---	---	---	---	---	---	---	---	---	---	---	---
	14-Feb-12		**N**	---	---	**67.2**	---	---	---	---	---	---	---	---	---	---	---	---	---
	31-Jul-12		**N**	---	---	**62.7**	---	---	---	---	---	---	---	---	---	---	---	---	---
PT-8D	16-Jul-07		N	---	<1	---	105	---	<1	---	6.03	---	9.13	---	<1	---	<1	---	13.1
	04-Aug-09		N	<1	---	45.4	---	<1	---	<1	---	<1	---	<1	---	<1	---	<1	---
	28-Oct-09		N	---	---	48.3	---	---	---	---	---	---	---	---	---	---	---	---	---
	28-Oct-09		FD	---	---	44.3	---	---	---	---	---	---	---	---	---	---	---	---	---
	12-Jan-10		N	---	---	53.0	---	---	---	---	---	---	---	---	---	---	---	---	---
	07-Apr-10		N	---	---	58.9	---	---	---	---	---	---	---	---	---	---	---	---	---
	07-Apr-10		FD	---	---	60.2	---	---	---	---	---	---	---	---	---	---	---	---	---
	13-Jul-10		N	---	---	46.4	---	---	---	---	---	---	---	---	---	---	---	---	---
	13-Oct-10		N	---	---	52.0	---	---	---	---	---	---	---	---	---	---	---	---	---
	17-Jan-11		N	---	---	48.6	---	---	---	---	---	---	---	---	---	---	---	---	---
	14-Apr-11		N	---	---	54.2	---	---	---	---	---	---	---	---	---	---	---	---	---
	12-Jul-11		N	---	---	49.7	---	---	---	---	---	---	---	---	---	---	---	---	---
	15-Nov-11		**N**	---	---	**50.4**	---	---	---	---	---	---	---	---	---	---	---	---	---
	14-Feb-12		**N**	---	---	**51.0**	---	---	---	---	---	---	---	---	---	---	---	---	---
	31-Jul-12		**N**	---	---	**45.8**	---	---	---	---	---	---	---	---	---	---	---	---	---
	31-Jul-12		**FD**	---	---	**46.6**	---	---	---	---	---	---	---	---	---	---	---	---	---

Table 5
Summary of Supplementary Metals
PG&E Topock
Needles, California
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Location Name:	Sample Date:	Notes	Sample Type:	Dissolved Antimony µg/L	Total Antimony µg/L	Dissolved Barium µg/L	Total Barium µg/L	Dissolved Cadmium µg/L	Total Cadmium µg/L	Dissolved Cobalt µg/L	Total Cobalt µg/L	Dissolved Lead µg/L	Total Lead µg/L	Dissolved Silver µg/L	Total Silver µg/L	Dissolved Thallium µg/L	Total Thallium µg/L	Dissolved Vanadium µg/L	Total Vanadium µg/L
PT-9S	17-Jul-07		N	---	<1	---	67.2	---	<1	---	2.86	---	2.57	---	<1	---	<1	---	20.0
	05-Aug-09		N	<1	---	128	---	<1	---	<1	---	<1	---	<1	---	<1	---	<1	---
	29-Oct-09		N	---	---	122	---	---	---	---	---	---	---	---	---	---	---	---	---
	12-Jan-10		N	---	---	99.5	---	---	---	---	---	---	---	---	---	---	---	---	---
	08-Apr-10		N	---	---	97.2	---	---	---	---	---	---	---	---	---	---	---	---	---
	13-Jul-10		N	---	---	83.0	---	---	---	---	---	---	---	---	---	---	---	---	---
	13-Oct-10		N	---	---	86.7	---	---	---	---	---	---	---	---	---	---	---	---	---
	18-Jan-11		N	---	---	92.3	---	---	---	---	---	---	---	---	---	---	---	---	---
	14-Apr-11		N	---	---	74.8	---	---	---	---	---	---	---	---	---	---	---	---	---
	12-Jul-11		N	---	---	81.4	---	---	---	---	---	---	---	---	---	---	---	---	---
	15-Nov-11		**N**	---	---	**67.0**	---	---	---	---	---	---	---	---	---	---	---	---	---
	15-Feb-12		**N**	---	---	**60.1**	---	---	---	---	---	---	---	---	---	---	---	---	---
	01-Aug-12		**N**	---	---	**64.7**	---	---	---	---	---	---	---	---	---	---	---	---	---
PT-9M	17-Jul-07		N	---	<1	---	46.8	---	<1	---	1.09	---	<1	---	<1	---	<1	---	5.92
	17-Jul-07		FD	---	<1	---	48.1	---	<1	---	1.00	---	<1	---	<1	---	<1	---	6.28
	05-Aug-09		N	<1	---	34.2	---	<1	---	<1	---	<1	---	<1	---	<1	---	<1	---
	29-Oct-09		N	---	---	32.1	---	---	---	---	---	---	---	---	---	---	---	---	---
	12-Jan-10		N	---	---	34.8	---	---	---	---	---	---	---	---	---	---	---	---	---
	08-Apr-10		N	---	---	38.0	---	---	---	---	---	---	---	---	---	---	---	---	---
	13-Jul-10		N	---	---	35.4	---	---	---	---	---	---	---	---	---	---	---	---	---
	13-Oct-10		N	---	---	37.3	---	---	---	---	---	---	---	---	---	---	---	---	---
	18-Jan-11		N	---	---	38.6	---	---	---	---	---	---	---	---	---	---	---	---	---
	14-Apr-11		N	---	---	37.7	---	---	---	---	---	---	---	---	---	---	---	---	---
	12-Jul-11		N	---	---	38.1	---	---	---	---	---	---	---	---	---	---	---	---	---
	15-Nov-11		**N**	---	---	**39.9**	---	---	---	---	---	---	---	---	---	---	---	---	---
	15-Feb-12		**N**	---	---	**34.1**	---	---	---	---	---	---	---	---	---	---	---	---	---
	01-Aug-12		**N**	---	---	**40.2**	---	---	---	---	---	---	---	---	---	---	---	---	---

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Location Name:	Sample Date:	Notes	Sample Type:	Dissolved Antimony µg/L	Total Antimony µg/L	Dissolved Barium µg/L	Total Barium µg/L	Dissolved Cadmium µg/L	Total Cadmium µg/L	Dissolved Cobalt µg/L	Total Cobalt µg/L	Dissolved Lead µg/L	Total Lead µg/L	Dissolved Silver µg/L	Total Silver µg/L	Dissolved Thallium µg/L	Total Thallium µg/L	Dissolved Vanadium µg/L	Total Vanadium µg/L
PT-9D	17-Jul-07		N	---	<1	---	79.5	---	<1	---	<1	---	<1	---	<1	---	<1	---	3.95
	05-Aug-09		N	<1	---	34.8	---	<1	---	<1	---	<1	---	<1	---	<1	---	<1	---
	28-Oct-09		N	---	---	34.4	---	---	---	---	---	---	---	---	---	---	---	---	---
	12-Jan-10		N	---	---	40.9	---	---	---	---	---	---	---	---	---	---	---	---	---
	08-Apr-10		N	---	---	38.7	---	---	---	---	---	---	---	---	---	---	---	---	---
	13-Jul-10		N	---	---	38.4	---	---	---	---	---	---	---	---	---	---	---	---	---
	13-Oct-10		N	---	---	41.7	---	---	---	---	---	---	---	---	---	---	---	---	---
	13-Oct-10		FD	---	---	40.5	---	---	---	---	---	---	---	---	---	---	---	---	---
	18-Jan-11		N	---	---	35.6	---	---	---	---	---	---	---	---	---	---	---	---	---
	14-Apr-11		N	---	---	37.5	---	---	---	---	---	---	---	---	---	---	---	---	---
	12-Jul-11		N	---	---	37.8	---	---	---	---	---	---	---	---	---	---	---	---	---
	15-Nov-11		**N**	---	---	**40.4**	---	---	---	---	---	---	---	---	---	---	---	---	---
	15-Feb-12		**N**	---	---	**43.5**	---	---	---	---	---	---	---	---	---	---	---	---	---
	01-Aug-12		**N**	---	---	**37.4**	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-11	17-Jul-07		N	---	<1	---	43.1	---	<1	---	<1	---	2.48	---	<1	---	<1	---	9.16
	06-Apr-10		N	---	---	43.5	---	---	---	---	---	---	---	---	---	---	---	---	---
	12-Jul-10		N	---	---	43.6	---	---	---	---	---	---	---	---	---	---	---	---	---
	12-Oct-10		N	---	---	43.0	---	---	---	---	---	---	---	---	---	---	---	---	---
	17-Jan-11		N	---	---	40.4	---	---	---	---	---	---	---	---	---	---	---	---	---
	17-Jan-11		N	---	---	41.5	---	---	---	---	---	---	---	---	---	---	---	---	---
	14-Apr-11		N	---	---	38.2	---	---	---	---	---	---	---	---	---	---	---	---	---
	11-Jul-11		N	---	---	43.3	---	---	---	---	---	---	---	---	---	---	---	---	---
	14-Nov-11		**N**	---	---	**50.2**	---	---	---	---	---	---	---	---	---	---	---	---	---
	14-Nov-11		**FD**	---	---	**46.1**	---	---	---	---	---	---	---	---	---	---	---	---	---
	13-Feb-12		**N**	---	---	**42.5**	---	---	---	---	---	---	---	---	---	---	---	---	---
	30-Jul-12		**N**	---	---	**47.9**	---	---	---	---	---	---	---	---	---	---	---	---	---

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MW-24A	18-Jul-07		N	---	<1	---	26.1	---	<1	---	<1	---	1.10	---	<1	---	<1	---	30.6
	03-Aug-09	a	N	<5	---	183 D	---	<5	---	<5	---	<5	---	<5	---	<5	---	<5	---
	27-Oct-09		N	---	---	229	---	---	---	---	---	---	---	---	---	---	---	---	---
	11-Jan-09		N	---	---	190	---	---	---	---	---	---	---	---	---	---	---	---	---
	07-Apr-10		N	---	---	132	---	---	---	---	---	---	---	---	---	---	---	---	---
	12-Jul-10		N	---	---	89.9	---	---	---	---	---	---	---	---	---	---	---	---	---
	12-Jul-10		FD	---	---	99.0	---	---	---	---	---	---	---	---	---	---	---	---	---
	12-Oct-10		N	---	---	105	---	---	---	---	---	---	---	---	---	---	---	---	---
	17-Jan-11		N	---	---	150	---	---	---	---	---	---	---	---	---	---	---	---	---
	14-Apr-11		N	---	---	78.1	---	---	---	---	---	---	---	---	---	---	---	---	---
	11-Jul-11		N	---	---	60.4	---	---	---	---	---	---	---	---	---	---	---	---	---
	14-Nov-11		**N**	---	---	**89.1**	---	---	---	---	---	---	---	---	---	---	---	---	---
	13-Feb-12		**N**	---	---	**74.9**	---	---	---	---	---	---	---	---	---	---	---	---	---
	13-Feb-12		**FD**	---	---	**73.2**	---	---	---	---	---	---	---	---	---	---	---	---	---
	30-Jul-12		**N**	---	---	**51.1**	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-24B	18-Jul-07		N	---	<1	---	38.9	---	<1	---	<1	---	<1	---	<1	---	<1	---	7.20
	07-Apr-10		N	---	---	49.4	---	---	---	---	---	---	---	---	---	---	---	---	---
	12-Jul-10		N	---	---	37.2	---	---	---	---	---	---	---	---	---	---	---	---	---
	12-Oct-10		N	---	---	44.4	---	---	---	---	---	---	---	---	---	---	---	---	---
	17-Jan-11		N	---	---	44.7	---	---	---	---	---	---	---	---	---	---	---	---	---
	14-Apr-11		N	---	---	42.6	---	---	---	---	---	---	---	---	---	---	---	---	---
	11-Jul-11		N	---	---	46.3	---	---	---	---	---	---	---	---	---	---	---	---	---
	11-Jul-11		FD	---	---	47.0	---	---	---	---	---	---	---	---	---	---	---	---	---
	14-Nov-11		**N**	---	---	**52.5**	---	---	---	---	---	---	---	---	---	---	---	---	---
	13-Feb-12		**N**	---	---	**45.9**	---	---	---	---	---	---	---	---	---	---	---	---	---
	30-Jul-12		**N**	---	---	**46.9**	---	---	---	---	---	---	---	---	---	---	---	---	---

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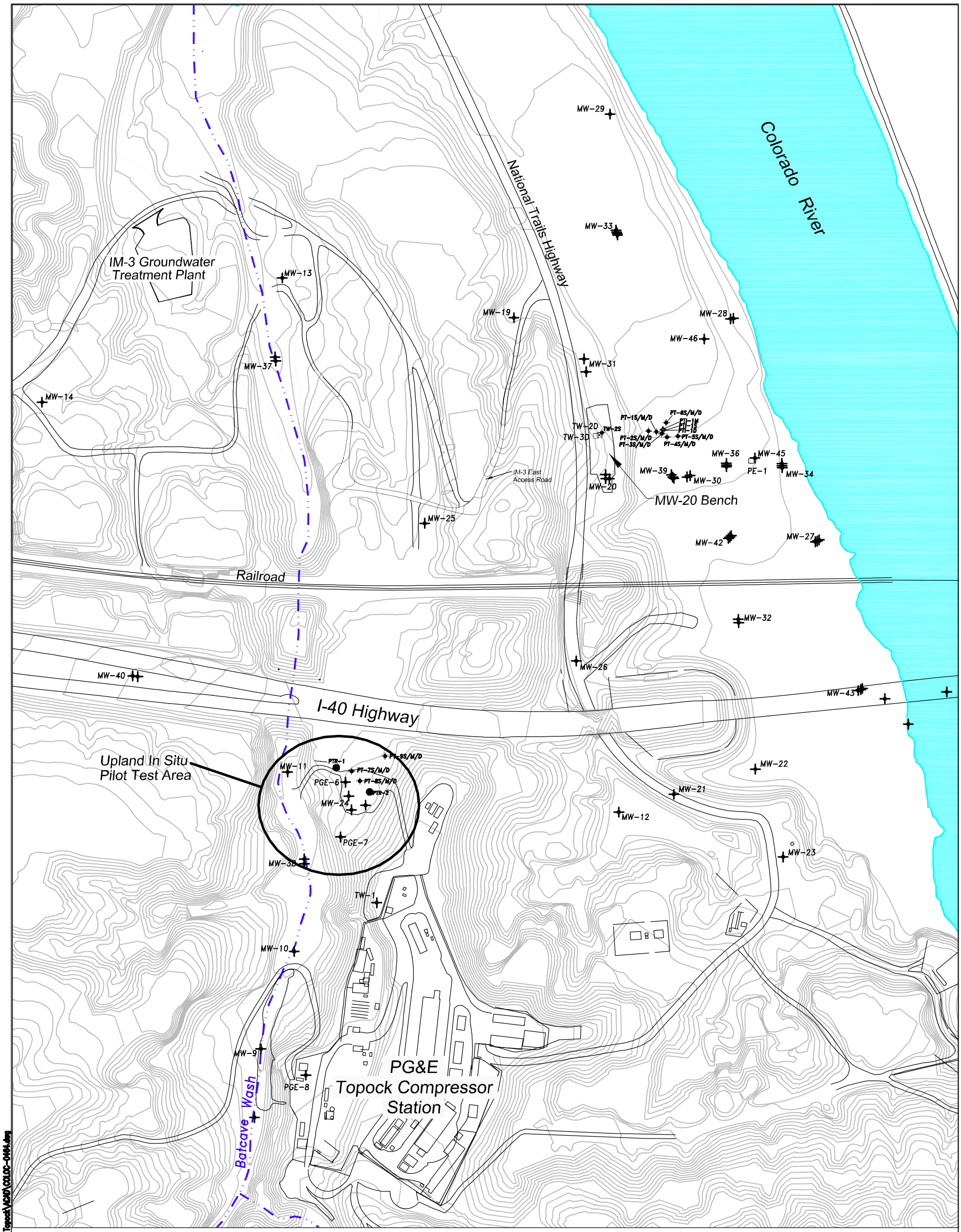
Location Name:	Sample Date:	Notes	Sample Type:	Dissolved Antimony µg/L	Total Antimony µg/L	Dissolved Barium µg/L	Total Barium µg/L	Dissolved Cadmium µg/L	Total Cadmium µg/L	Dissolved Cobalt µg/L	Total Cobalt µg/L	Dissolved Lead µg/L	Total Lead µg/L	Dissolved Silver µg/L	Total Silver µg/L	Dissolved Thallium µg/L	Total Thallium µg/L	Dissolved Vanadium µg/L	Total Vanadium µg/L
MW-38S	17-Jul-07		N	---	1.74	---	40.7	---	1.20	---	3.19	---	2.39	---	1.38	---	1.47	---	26.2
	03-Aug-09		N	<1	---	27.1	---	<1	---	<1	---	<1	---	<1	---	<1	---	17.5	---
	27-Oct-09		N	---	---	24.4	---	---	---	---	---	---	---	---	---	---	---	---	---
	11-Jan-09		N	---	---	24.1	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-38D	17-Jul-07		N	---	<1	---	45.7	---	<1	---	<1	---	<1	---	<1	---	1.46	---	6.92
	03-Aug-09	a	N	<5	---	47.6	---	<5	---	<5	---	<5	---	<5	---	<5	---	<5	---
	03-Aug-09	a	FD	<5	---	47.7	---	<5	---	<5	---	<5	---	<5	---	<5	---	<5	---
	27-Oct-09		N	---	---	39.5	---	---	---	---	---	---	---	---	---	---	---	---	---
	11-Jan-10		N	---	---	46.0	---	---	---	---	---	---	---	---	---	---	---	---	---
	11-Jan-10		FD	---	---	47.0	---	---	---	---	---	---	---	---	---	---	---	---	---
PTR-01	19-Jul-07		N	---	<1	---	72.7	---	<1	---	1.10	---	<1	---	<1	---	<1	---	4.67
PTR-02	18-Jul-07		N	---	<1	---	39.7	---	<1	---	<1	---	<1	---	<1	---	<1	---	4.24
EB	17-Jul-07		EB	---	<1	---	<1	---	<1	---	<1	---	<1	---	<1	---	<1	---	<1
	03-Aug-09		EB	<1	---	<1	---	<1	---	<1	---	<1	---	<1	---	<1	---	<1	---
	12-Jan-10		EB	---	---	<1	---	---	---	---	---	---	---	---	---	---	---	---	---
	08-Apr-10		EB	---	---	<1	---	---	---	---	---	---	---	---	---	---	---	---	---
	13-Jul-10		EB	---	---	<1	---	---	---	---	---	---	---	---	---	---	---	---	---
	13-Oct-10		EB	---	---	<1	---	---	---	---	---	---	---	---	---	---	---	---	---
	18-Jan-11		EB	---	---	<1	---	---	---	---	---	---	---	---	---	---	---	---	---
	14-Apr-11		EB	---	---	<1	<1	---	---	---	---	---	---	---	---	---	---	---	---
	11-Jul-01		EB	---	---	<1	---	---	---	---	---	---	---	---	---	---	---	---	---
	15-Nov-11		**EB**	**---**	**---**	**<1**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
	14-Feb-12		**EB**	**---**	**---**	**<1**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
FB	17-Jul-07		FB	---	<1	---	<1	---	<1	---	<1	---	<1	---	<1	---	<1	---	<1
	03-Aug-09		FB	<1	---	<1	---	<1	---	<1	---	<1	---	<1	---	<1	---	<1	---
	11-Jan-09		FB	---	---	<1	---	---	---	---	---	---	---	---	---	---	---	---	---
	07-Apr-10		FB	---	---	<1	---	---	---	---	---	---	---	---	---	---	---	---	---
	12-Jul-10		FB	---	---	<1	---	---	---	---	---	---	---	---	---	---	---	---	---
	13-Oct-10		FB	---	---	<1	---	---	---	---	---	---	---	---	---	---	---	---	---
	18-Jan-11		FB	---	---	<1	---	---	---	---	---	---	---	---	---	---	---	---	---
	14-Apr-11		FB	---	---	<1	---	---	---	---	---	---	---	---	---	---	---	---	---
	11-Jul-11		FB	---	---	<1	---	---	---	---	---	---	---	---	---	---	---	---	---
	14-Nov-11		**FB**	**---**	**---**	**<1**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
	13-Feb-12		**FB**	**---**	**---**	**<1**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
				---	---														

Table 5
Summary of Supplementary Metals
PG&E Topock
Needles, California
2012 Annual Monitoring Report for the Upland Reductive Zone In-Situ Pilot Test

Location Name:	Sample Date:	Notes	Sample Type:	Dissolved Antimony µg/L	Total Antimony µg/L	Dissolved Barium µg/L	Total Barium µg/L	Dissolved Cadmium µg/L	Total Cadmium µg/L	Dissolved Cobalt µg/L	Total Cobalt µg/L	Dissolved Lead µg/L	Total Lead µg/L	Dissolved Silver µg/L	Total Silver µg/L	Dissolved Thallium µg/L	Total Thallium µg/L	Dissolved Vanadium µg/L	Total Vanadium µg/L

Notes:
Current quarter data indicated in **BOLD**

a	Samples were diluted in the laboratory
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



Legend

- Monitoring Well Locations
- Extraction Well Locations
- Injection Well Locations
- Recirculation Well Locations

Program Manager: L. KELLOGG	Principal In Charge: L. MICHELETTI-COPE	
Task Manager: K.J. PRESTON	Technical Review: M. GENTILE	
Drawing Date: 8 AUG 11	Drawn By: M. HOEFER	

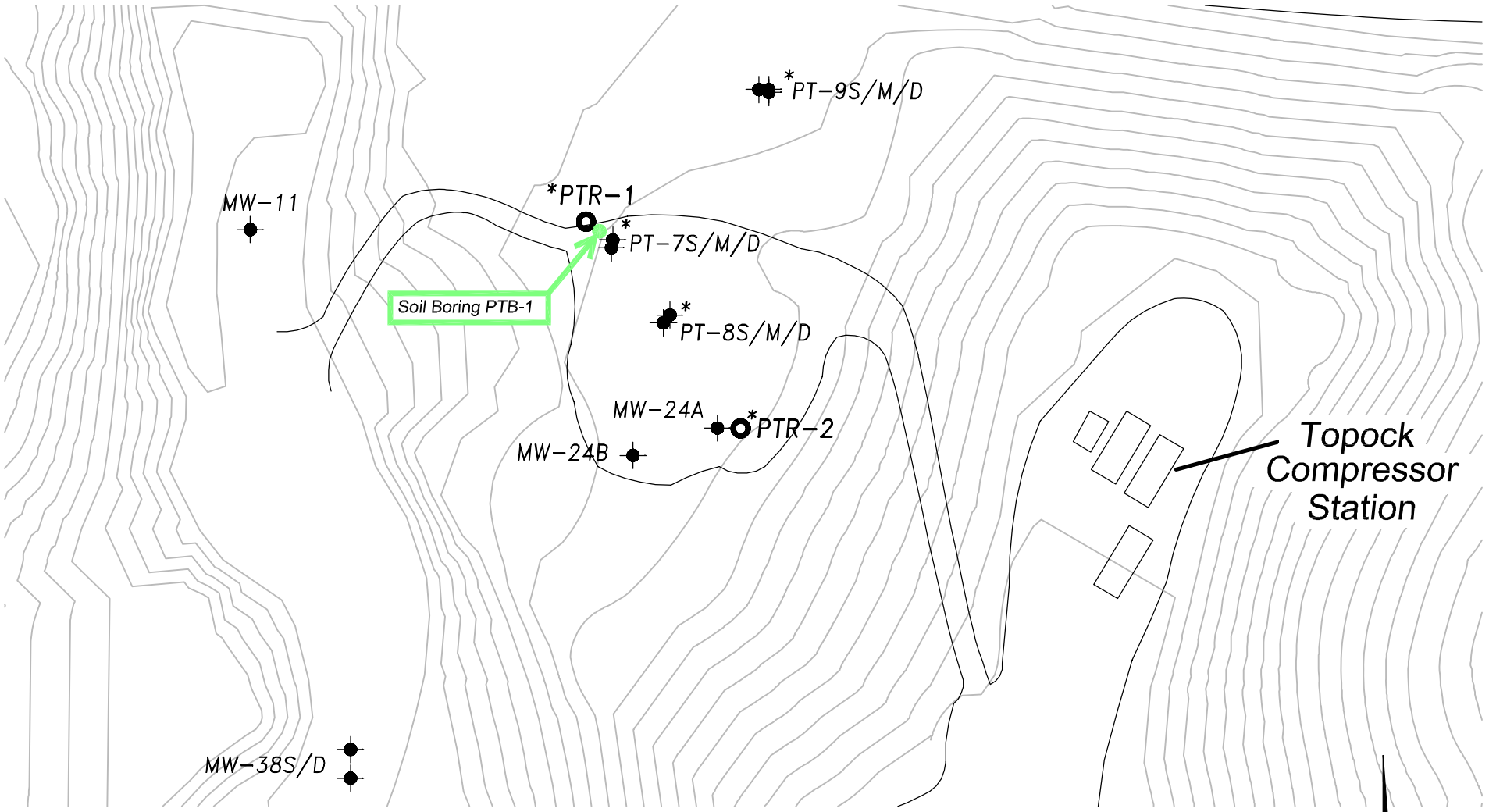
ARCADIS, Inc.
1050 Marina Way South
Richmond, CA 94804
Tel: 510-233-3200 Fax: 510-233-3204
www.arcadis-us.com

SITE PLAN
PG&E TOPOCK FACILITY
NEEDLES, CALIFORNIA

Project Number: RC000753.0007

Figure: 1

Acad Version : R17.0s (LMS Tech)
User Name : MHoefer
Date\Time : Thu, 04 Aug 2011 - 10:41am
Path\Name : P:\Project\PG&E - Topock\MXD\COLOC-0484.dwg



Legend

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

* Soil recoverered prior to start of pilot test, during well installation.

Program Manager: L. KELLOGG	Principal In Charge: L. MICHELETTI-COPE
Task Manager: K.J. PRESTON	Technical Review: M. GENTILE
Drawing Date: 2 AUG 11	Drawn By: M. HOEFER

ARCADIS
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: RC000753.0007

Figure: 2

Acad Version : R17.0s (LMS Tech)
User Name : MHoefer
Date\Time : Thu, 04 Aug 2011 - 10:46am
Path\Name : P:\AProject\PG&E - Topock\ACAD\COLOC-0388.dwg

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)

ELEVATION, FEET BELOW GROUND SURFACE

0
20
40
60
80
100
120
140
160
180
200
220
240

MW-24A	Baseline	Maximum/ Minimum	Current
Cr(VI)	2,480	<0.2 [1]	<0.2
As	5.4	82.8 [2]	2.8
Mn	<5	3,550 [2]	53
TOC	3.82	12,900 [2]	29

PT-8S	Baseline	Maximum/ Minimum	Current
Cr(VI)	1,750	<0.2 [1]	<0.2
As	<5	43.8 [2]	10
Mn	25.1	17,000 [2]	1,820
TOC	1.35	1,740 [2]	17

PT-7S	Baseline	Maximum/ Minimum	Current
Cr(VI)	1,200	<0.2 [1]	496
As	<5	12.4 [2]	3.7
Mn	55.6	2,230 [2]	41
TOC	1.18	896 [2]	15

PT-8M	Baseline	Maximum/ Minimum	Current
Cr(VI)	3,960	114 [1]	45
As	<5	8.3 [2]	2.5
Mn	15.5	5,040 [2]	5,040
TOC	1.4	3.8J [2]	29

PT-7M	Baseline	Maximum/ Minimum	Current
Cr(VI)	2,320	<0.2 [1]	<0.2
As	<5	54.8 [2]	8.6
Mn	31.6	31,400 [2]	1,640
TOC	1.02	10,700 [2]	97

PT-8D	Baseline	Maximum/ Minimum	Current
Cr(VI)	6,540	18 [1]	1,330
As	7.07	11.9 [2]	11.9
Mn	23.5	929 [2]	211
TOC	<1	91.1 [2]	4.8

PT-7D	Baseline	Maximum/ Minimum	Current
Cr(VI)	7,260	<0.2 [1]	<0.2
As	8	97.4 [2]	6.5
Mn	48.3	27,000 [2]	2,180
TOC	<1	5,850 [2]	45

BEDROCK
TD=223'

TD=225'

BEDROCK

TD=230'

BEDROCK
TD=225'

0
20
40
60
80
100
120
140

DISTANCE (FEET)

LEGEND:

- TRANSIENT DISTRIBUTION OF LOWER TOC CONCENTRATIONS (LESS THAN 1,000 mg/L) DURING RECIRCULATION
- SUSTAINED DISTRIBUTION OF ELEVATED TOC CONCENTRATIONS (GREATER THAN 1,000 mg/L) DURING RECIRCULATION
- 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

MW-7S/M/D ← WELL ID

WATER TABLE SURFACE (DASHED WHERE INFERRED)

CONCEPTUAL GROUNDWATER RECIRCULATION PATTERN BASED ON DATA THROUGH AUGUST 2012

WELL SCREEN

TOTAL DEPTH → TD=230'

PT-7D	Baseline	Maximum/ Minimum	Current
Cr(VI)	7,260	<0.2 [1]	<0.2
As	8	97.4 [2]	6.5
Mn	48.3	27,000 [2]	2,180
TOC	<1	5,850 [2]	45

NOTE:
3rd QUARTER 2011 TOC VALUES NOT USED IN THE GENERATION OF THIS FIGURE.

Cr(VI) = HEXAVALENT CHROMIUM
As = ARSENIC
Mn = MANGANESE
TOC = TOTAL ORGANIC CARBON
[1] = MINIMUM CONCENTRATION FOR Cr(VI)
[2] = MAXIMUM CONCENTRATION FOR As, Mn, TOC

Cr(VI), As, Mn, CONCENTRATIONS ARE PROVIDED IN MICROGRAMS PER LITER (ug/L)
TOC CONCENTRATIONS ARE PROVIDED IN MILLIGRAMS PER LITER (mg/L)

0 20 40
VERTICAL SCALE IN FEET

0 20 40
HORIZONTAL SCALE IN FEET

COCRS-0450.DWG

Program Manager	L. Kellogg
Principal In Charge	L. Michelettl-Cope
Task Manager	K.J. Preston
Technical Review	M. Gertile

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

UPLAND ISPT CROSS SECTION
PG&E TOPOCK FACILITY
NEEDLES, CALIFORNIA

Project Number	RC000753.0011
Drawing Date	9/17/12
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

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".

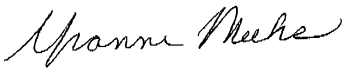
Based on our review of the Waste Discharge Requirements, it does not appear as though the proposed actions fall under the Effluent Limitations and Discharge Specifications IV.A.5 that states, "Any changes in the type of amount of treatment chemicals added to the process water, duration of the pilot test, 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

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

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

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

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

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

Cliff Raley for

ROBERT PERDUE
Executive Officer

CR/tab

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

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

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

-----Original Message-----
From: Meeks, Yvonne J [mailto:YJM1@pge.com]
Sent: Monday, August 04, 2008 4:12 PM
To: Robert Perdue; Cliff Raley; Tom Vandenberg
Cc: Gilbert, David; Doss, Robert; Jayo, Juan (Law); Kellogg, Lisa; Robert Lucas
Subject: PGE Uplands ISPT Reagent Dosing

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

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

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

Yvonne Meeks

From: Meeks, Yvonne J [mailto:YJM1@pge.com]
Sent: Thursday, October 23, 2008 4:07 PM
To: Robert Perdue; Tom Vandenberg; Cliff Raley
Cc: Gilbert, David; Doss, Robert; Robert Lucas; Ayue@dtsc.ca.gov; Christopher Guerre
Subject: Topock - Notification request to the RWQCB regarding Uplands dosing

Robert --

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

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

Let me know if you have any questions, Yvonne

Preston, Kelli Jo

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

Robert --

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

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

Yvonne Meeks

Pacific Gas and Electric Company

Yvonne Meeks
Manager

Environmental Remediation
Gas T&D Department

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

March 20, 2009

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

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

Dear Mr. Perdue:

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

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

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

Sincerely,

Yvonne Meeks
Topock Project Manager

cc: Cliff Raley, Water Board
Aaron Yue, DTSC

ARCADIS

Appendix B

Calibration Logs for Field Monitoring Instruments

ARCADIS

MULTIPARAMETER INSTRUMENT CALIBRATION RECORD

Project No.: RC000753.0007.00002 Location: TOPOCK, CA

Instrument: YSI-556 Serial Number: 0561569 CA

Date	Calibrated by	Parameter	Standards Used	Calibrated Achieved (Y/N)	Remarks
11/14/11	JE	pH, 7, 10, 4	7, 10, 4	Y Y Y	
↓		Cond. 3900	3900	Y	
		DO 100%	100%	Y	
		ORP	241.0	Y	
11/15/11		pH	7, 10, 4	Y Y Y	
↓		Cond.	3900	Y	
		DO	100%	Y	
		ORP	242.0	Y	
11/16/11		pH	7, 10, 4	Y Y Y	
↓		Cond.	3900	Y	
		DO	100%	Y	
		ORP	6	Y	

ARCADIS

MULTIPARAMETER INSTRUMENT CALIBRATION RECORD

Project No.: RC000753.0007 Location: Topock, CA

Instrument: YSI-556 Serial Number: 09D101246

Date	Calibrated by	Parameter	Standards Used	Calibrated Achieved (Y/N)	Remarks
2/13/12	JL	pH 7,10,3	7,10,4	Y	
		Cond.	3900	Y	
		ORP	244.3	Y	
		DO	100%	Y	
2/14/12		pH	7,10,4	Y	
		Cond.	3900	Y	
		ORP	250.5	Y	
		DO	100%	Y	
2/15/12		pH	7,10,4	Y	
		Cond.	3900	Y	
		DO	100%	Y	
		ORP	250.5	Y	

ARCADIS

MULTIPARAMETER INSTRUMENT CALIBRATION RECORD

Project No.: RC000753.2011.00002 Location: TOPOCK, CA

Instrument: YSI-556 Serial Number: 06F1362AU

Date	Calibrated by	Parameter	Standards Used	Calibrated Achieved (Y/N)	Remarks
7/30/12	NT	6.98, 10.05, 3.94	7.00, 10.00, 4.00	Y	
↓	NT	4892	3900	Y	
↓	NT	249.3 mV	228 mV	Y	
↓	NT	95.5% D.O.	100% D.O	Y	
7/31/12	NT	7.11, 9.96 3.91	7.00, 10.00 4.00	Y	
↓	NT	3882	3900	Y	
↓	NT	233.7 mV	230mV	Y	
↓	NT	~~99.8% D.O. 100% D.O.~~	100% ~~99.8%~~	Y	
8/1/12	NT	7.05, 9.91, 3.93 → NT	7.00, 10.00 4.00	Y	
↓	NT	3961	3900	Y	
↓	NT	230.6 mV	229 mV	Y	
↓	NT	92.3% D.O.	100% D.O.	Y	

ARCADIS

Appendix C

Groundwater Sampling Logs

ARCADIS

Groundwater Sampling Form

Project Number: RC000753.0007. Task: 00002 Well ID: PT-7S

Date: 11- 16 -11 Sampled By: Gary Clift

Weather: WARM Recorded By: Jon Ramirez

Coded Duplicate No.: —

Instrument Identification

	PID	Water Quality Meter(s)
Model	—	YSI- 556
Serial #:	—	05615690 CA

Purging Information

Casing Material: PVC

Casing Diameter: 2"

Total Depth: 150'

Depth to Water: 105.35

Water Column: 44.65

Gallons/Foot: .16

Gallons in Well: 7.1

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 casing

Total Volume Purged: 2

Pump on: 1315 Off: 1341

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

CrVI (1560) .549 mg/L

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Flow Rate (GPM)	Volume Purged (Gals)	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
1318	3	1	3	105.38	138	-56.2	7.39	5615	30.51	0.19	
1321	6	↓	6	105.38	73	-66.2	7.38	5594	30.84	0.19	
1324	9		9	105.38	52	-70.1	7.37	5585	30.72	0.18	
1327	12		12	105.38	31	-71.7	7.37	5585	30.74	0.16	
1330	15		15	105.39	24	-71.3	7.36	5583	30.73	0.16	
1333	18		18	105.38	22	-70.6	7.36	5582	30.74	0.16	
1337	22		22	105.39	20	-69.4	7.36	5584	30.75	0.15	

Observations During Sampling

Well Condition: Good

Color: None

Odor: None

Purge Water Disposal: DM-3

Turbidity(qualitative): Clear

Other (OVA, HNU,etc.): —

Sample ID: PT-7S-111116 **Sample Date & Time:** 11-16-11 @ 1338

Samples Analyzed For: See the COC

ARCADIS

Groundwater Sampling Form

Project Number: RC000753.0007. Task: 00002 Well ID: PT-7M

Date: 11- 16 -11 Sampled By: Gary Clift

Weather: WARM Recorded By: Jon Ramirez

Coded Duplicate No.: —

Instrument Identification

	PID	Water Quality Meter(s)
Model	—	YSI -556
Serial #:	—	05615 69CA

Purging Information

Casing Material: PVC

Casing Diameter: 2"

Total Depth: 185'

Depth to Water: 105.43

Water Column: 79.57

Gallons/Foot: .16

Gallons in Well: 12.7

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

Purge Equipment (circle one): (Submersible) Centrifugal Bladder Peristaltic Bailer PSO

Screen Interval: From: 165' To: 185'

Pump Intake Setting: 175'

Volumes to be Purged: 3 CASING

Total Volume Purged: 42

Pump on: 1400 Off: 15:30

Submersible pump air locked

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

Cr+6 (1560) .028 mg/L

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Flow Rate (GPM)	Volume Purged (Gals)	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
1412	12	1/2	6	105.47	122	-98.1	6.64	3476	25.52	2.58	
1424	24		12	105.47	450	-80.0	6.79	4366	25.56	2.22	
1436	36		18	105.47	246	-118.9	6.61	6837	26.71	0.60	
1448	48		24	105.47	92	-127.9	6.59	6844	26.99	0.38	
1500	60		30	105.47	86	-131.4	6.57	6859	27.20	0.30	
1512	72		36	105.47	79	-136.6	6.58	6814	27.32	0.26	
1524	84	↓	42	105.47	77	-139.4	6.58	6801	27.30	0.25	

Observations During Sampling

Well Condition: Good

Color: Yellow

Odor: Organic

Purge Water Disposal: Im-3

Turbidity(qualitative): Cloudy

Other (OVA, HNU,etc.): —

Sample ID: PT-7M-111116 **Sample Date & Time:** 11-16-11 @1525

Samples Analyzed For: See the COC

ARCADIS

Groundwater Sampling Form

Project Number: RC000753.0007. Task: 00002 Well ID: PT-7D

Date: 11- 16 -11 Sampled By: Gary Clift

Weather: WARM Recorded By: ~~0561569CA~~ Jon Ramsey

Coded Duplicate No.: —

Instrument Identification

	PID	Water Quality Meter(s)
Model	—	YSI-556
Serial #:	—	0561569CA

Purging Information

Casing Material: PVC

Casing Diameter: 2"

Total Depth: 217'

Depth to Water: 105.51

Water Column: 111.49

Gallons/Foot: .16

Gallons in Well: 17.8

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

Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailer (PAD)

Screen Interval: From: 197' To: 217'

Pump Intake Setting: 210'

Volumes to be Purged: 3 CASing

Total Volume Purged: 54

Pump on: 0908 Off: 1250

CrVI (1560) .003 mg/L

Well Casing Volumes (gal/ft): (2" = 0.16) 3" = 0.37 3½" = 0.50 4" = 0.65 6" = 1.46

Field Parameter Measurements Taken During Purging

Time ↔	Minutes Elapsed	Flow Rate (GPM)	Volume Purged (Gals)	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
32	0940	0.25	8	105.51	35	-116.9	6.95	13384	23.67	0.48	
64	1012	|	16	105.51	16	-117.5	6.88	14341	24.79	0.28	
96	1044	|	24	105.51	37	-127.7	6.87	14276	25.16	0.25	
128	1116	|	32	105.51	14	-130.6	6.88	13935	24.99	0.21	
160	1148	|	40	105.51	13	-133.2	6.88	13823	25.51	0.22	
192	1220	|	48	105.51	11	-133.7	6.88	13642	25.43	0.23	
216	1244	↓	54	105.51	10	-134.9	6.88	13601	25.50	0.21	

Observations During Sampling

Well Condition: Good

Color: Green/Yellow

Odor: None

Purge Water Disposal: IM-3

Turbidity(qualitative): Clear

Other (OVA, HNU,etc.): —

Sample ID: PT-7D-111116 **Sample Date & Time:** 11-16-11 @1245

Samples Analyzed For: See the COC

ARCADIS

Groundwater Sampling Form

Project Number: RC000753.0007. Task: 00002 Well ID: PT-8S

Date: 11- 15 -11 Sampled By: Gary Clift

Weather: WARM Recorded By: JM

Coded Duplicate No.: —

Instrument Identification

	PID	Water Quality Meter(s)
Model	—	YSI-556
Serial #:	—	05G1569CA

Purging Information

Casing Material: PVC

Casing Diameter: 2"

Total Depth: 147'

Depth to Water: 107.17

Water Column: 39.83

Gallons/Foot: .16

Gallons in Well: 6.4

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

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

Screen Interval: From: 127' To: 147'

Pump Intake Setting: 137'

Volumes to be Purged: 3 Casing Volumes

Total Volume Purged: 21

Pump on: ~~0934~~ 0944 Off: 1007

(57)

Well Casing Volumes (gal/ft): (2" = 0.16) 3" = 0.37 3½" = 0.50 4" = 0.65 6" = 1.46

Cr+6 (1560) .069 mg/L

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Flow Rate (GPM)	Volume Purged (Gals)	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
0947	~~0938~~	3	3	107.18	72	-218.6	7.25	5630	29.55	0.42	
0950	~~0938~~	6	6	107.18	59	-231.8	7.25	~~5549~~	30.50	0.27	
0953	~~0944~~	9	9	107.18	49	-243.2	7.25	5490	30.52	0.25	
0956	0944	12	12	107.18	43	-255.1	7.25	5435	30.56	0.28	
0959	0947	15	15	107.18	34	-265.3	7.25	5378	30.53	0.35	
1002	~~0950~~	18	18	107.18	32	-269.9	7.25	5327	30.52	0.42	
1005	~~0953~~	21	21	107.18	30	-273.4	7.25	5302	30.51	0.44	

Observations During Sampling

Well Condition: Good

Color: None

Odor: None

Purge Water Disposal: IM-3

Turbidity(qualitative): Clear

Other (OVA, HNU,etc.): —

Sample ID: PT-8S-111115 **Sample Date & Time:** 11-15-11 @ 1006

Samples Analyzed For: See the COC

ARCADIS

Groundwater Sampling Form

Project Number: RC000753.0007. Task: 00002 Well ID: PT-8M

Date: 11- 15 -11 Sampled By: Gary Clift

Weather: WARM Recorded By: Jan Ramirez

Coded Duplicate No.: —

Instrument Identification

	PID	Water Quality Meter(s)
Model	—	YSI-556
Serial #:	—	0561569CA

Purging Information

Casing Material: PVC

Casing Diameter: 2"

Total Depth: 182'

Depth to Water: 107.09

Water Column: 74.91

Gallons/Foot: .16

Gallons in Well: 12

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 CASING VOLUMES

Total Volume Purged: 36

Pump on: 1049 Off: 1106

Cr+6 (1560) .126 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 (Gals)	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
1049	3	2	6	107.11	340	-144.6	6.59	9029	30.40	0.25	
1052	6	|	12	107.11	203	-189.5	6.60	8910	30.48	0.34	
1055	9	|	18	107.11	184	-231.9	6.60	8807	30.50	0.34	
1058	12	|	24	107.11	170	-220.1	6.59	8752	30.51	0.28	
1059	15	|	30	107.11	154	-217.4	6.59	8742	30.49	0.26	
1102	18	↓	36	107.11	160	-214.8	6.59	8723	30.51	0.22	

Observations During Sampling

Well Condition: Good

Color: (Inv) ~~Abnor~~ Slight yellow

Odor: None

Purge Water Disposal: IM-3

Turbidity(qualitative): Cloudy

Other (OVA, HNU,etc.): —

Sample ID: PT-8M-111115 **Sample Date & Time:** 11-15-11 @ 1103

Samples Analyzed For: See the COC

ARCADIS

Groundwater Sampling Form

Project Number: RC000753.0007. Task: 00002 Well ID: PT-8D

Date: 11- 15 -11 Sampled By: Gary Clift

Weather: WARM Recorded By: JR

Coded Duplicate No.: —

Instrument Identification

	PID	Water Quality Meter(s)
Model	—	YSI- 556.
Serial #:	—	0561569CA

Purging Information

Casing Material: PVC

Casing Diameter: 2"

Total Depth: 210'

Depth to Water: 106.82

Water Column: 103.18

Gallons/Foot: .16

Gallons in Well: 16.5

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

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

Screen Interval: From: 190' To: 210'

Pump Intake Setting: 200'

Volumes to be Purged: 3 casing

Total Volume Purged: 50

Pump on: 0847 Off: 0915

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

CrT6 (1560) 1.72 mg/L

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Flow Rate (GPM)	Volume Purged (Gals)	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
0852	5	2	10	107.48	27	63.0	7.72	19918	30.19	0.66	
0857	10	↓	20	107.48	11	-30.4	7.84	18401	30.71	0.39	
0902	15		30	107.48	9	-87.9	7.85	18043	30.73	0.33	
0907	20		40	107.48	7	-90.4	7.84	17789	30.79	0.29	
0912	25	↓	50	107.48	6	-95.9	7.84	17769	30.81	0.27	

Observations During Sampling

Well Condition: Good

Color: Yellow

Odor: (Slight) ~~Above~~ Slight organic

Purge Water Disposal: IM-3

Turbidity(qualitative): Clear

Other (OVA, HNU,etc.): —

Sample ID: PT-8D-111115 **Sample Date & Time:** 11-15-11 @ 0913

Samples Analyzed For: See the COC

ARCADIS

Groundwater Sampling Form

Project Number: RC000753.0007. Task: 00002 Well ID: PT-9S

Date: 11- 15 -11 Sampled By: Gary Clift

Weather: WARM Recorded By: Jon Bonnin

Coded Duplicate No.: —

Instrument Identification

	PID	Water Quality Meter(s)
Model	—	YSI-556
Serial #:	—	0561569CA

Purging Information

Casing Material: PVC

Casing Diameter: 2"

Total Depth: 147'

Depth to Water: 104.15

Water Column: 42.85

Gallons/Foot: .16

Gallons in Well: 6.9

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

Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailer (Waterra)

Screen Interval: From: 128' To: 147'

Pump Intake Setting: 140'

Volumes to be Purged: 3 Casing Volumes

Total Volume Purged: 21

Pump on: 1353 Off: 1419

Well Casing Volumes (gal/ft): (2" = 0.16) 3" = 0.37 3½" = 0.50 4" = 0.65 6" = 1.46

CN6 (1560) .747 mg/L

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Flow Rate (1)	Volume Purged (Gals)	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
1356	3		3	104.15	13	-111.2	7.49	4940	27.44	3.61	
1359	6		6	104.15	71	-118.6	7.41	4980	26.87	3.27	
1402	9		9	104.15	89	-161.0	7.39	4821	27.95	1.38	
1405	12		12	104.15	32	-198.5	7.40	4660	28.05	0.99	
1408	15		15	104.15	15	-206.4	7.39	4697	28.39	0.86	
1411	18		18	104.15	11	-208.3	7.40	4721	28.21	0.84	
1414	21	↓	21	104.15	9	-209.1	7.40	4740	28.33	0.80	

Observations During Sampling

Well Condition: Good

Color: None

Odor: None

Purge Water Disposal: IM-3

Turbidity(qualitative): Cloudy (5) Clear

Other (OVA, HNU,etc.): —

Sample ID: PT-9S-111115 **Sample Date & Time:** 11-15-11 @ 1415

Samples Analyzed For: See the COC

ARCADIS

Groundwater Sampling Form

Project Number: RC000753.0007. Task: 00002 Well ID: PT-9M

Date: 11- 15 -11 Sampled By: Gary Clift

Weather: WARM Recorded By: Jon Ramirez

Coded Duplicate No.: —

Instrument Identification

	PID	Water Quality Meter(s)
Model	—	YSI-556
Serial #:	—	0561569 CA

Purging Information

Casing Material: PVC

Casing Diameter: 2"

Total Depth: 182'

Depth to Water: 104.15

Water Column: 77.85

Gallons/Foot: .16

Gallons in Well: 12.5

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

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

Screen Interval: From: 162' To: 182'

Pump Intake Setting: 172'

Volumes to be Purged: 3 CASING VOLUMES

Total Volume Purged: ~~38~~ 42

Pump on: 1244 Off: 1309

CN+6 (1560) 1.90 mg/L

Well Casing Volumes (gal/ft): (2" = 0.16) 3" = 0.37 3½" = 0.50 4" = 0.65 6" = 1.46

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Flow Rate (GPM)	Volume Purged (Gals)	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
1247	3	2	6	104.17	255	-163.1	7.04	9744	30.21	0.25	
1250	6		12	104.17	255	-168.9	7.04	9754	30.44	0.19	
1253	9		18	104.17	172	-172.3	7.04	9725	30.74	0.14	
1256	12		24	104.17	75	-172.8	7.04	9710	30.69	0.14	
1259	15		30	104.17	51	-172.4	7.03	9699	30.65	0.14	
1302	18		36	104.17	44	-173.1	7.03	9686	30.63	0.15	
1305	21	V	~~42~~	104.17	42	-174.0	7.03	9680	30.61	0.17	

Observations During Sampling

Well Condition: Good

Color: Slight pink

Odor: None

Purge Water Disposal: IM-3

Turbidity(qualitative): Cloudy

Other (OVA, HNU,etc.): —

Sample ID: PT-9M-111115 **Sample Date & Time:** 11-15-11 @ 1306

Samples Analyzed For: See the COC

ARCADIS

Groundwater Sampling Form

Project Number: RC000753.0007. Task: 00002 Well ID: PT-9D

Date: 11- 15 -11 Sampled By: Gary Clift

Weather: WARM Recorded By: Jon Ramirez

Coded Duplicate No.: —

Instrument Identification

	PID	Water Quality Meter(s)
Model	—	YSI-556
Serial #:	—	0561569CA

Purging Information

Casing Material: PVC

Casing Diameter: 2"

Total Depth: 210'

Depth to Water: 104.15

Water Column: 105.85

Gallons/Foot: .16

Gallons in Well: 16.9

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: 200'

Volumes to be Purged: 3 casing Volumes

Total Volume Purged: 52

Pump on: 1152 Off: 1222

Well Casing Volumes (gal/ft): (2" = 0.16) 3" = 0.37 3½" = 0.50 4" = 0.65 6" = 1.46

Cr+6 (1560) 14.64 mg/L

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Flow Rate (Gpm)	Volume Purged (Gals)	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
1156	4	2	8	104.20	~~117.4~~ 260	-117.4	7.72	18101	32.36	1.20	
1200	8	↓	16	104.20	139	-119.0	7.81	18086	30.82	1.19	
1204	12		24	104.20	112	-119.3	7.81	18054	30.84	1.14	
1208	16		32	104.20	88	-120.9	7.82	17979	30.86	1.11	
1212	20		40	104.20	74	-122.5	7.82	17906	30.88	1.09	
1216	24		48	104.20	66	-121.8	7.81	17853	30.90	1.09	
1218	26		52	104.20	69	-122.6	7.81	17816	30.90	1.07	

Observations During Sampling

Well Condition: Good

Color: Yellow

Odor: None

Purge Water Disposal: IM-3

Turbidity(qualitative): Cloudy

Other (OVA, HNU,etc.): —

Sample ID: PT-9D-111115 **Sample Date & Time:** 11-15-11 @ 1219

Samples Analyzed For: See the COC

ARCADIS

Groundwater Sampling Form

Project Number: RC000753.0007. Task: 00002 Well ID: MW-11

Date: 11- 14 -11 Sampled By: Gary Clift

Weather: WARM Recorded By: Ja Ramirez

Coded Duplicate No.: Dup1-111114 @ 1200

Instrument Identification

	PID	Water Quality Meter(s)
Model	—	YSI - 556
Serial #:	—	05615691CA

Purging Information

Casing Material: PVC

Casing Diameter: 4"

Total Depth: 88'

Depth to Water: 67.32

Water Column: 20.68

Gallons/Foot: .065

Gallons in Well: 13.4

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

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

Screen Interval: From: 63' 88'

Pump Intake Setting: 85'

Volumes to be Purged: 3 Casing

Total Volume Purged: 40.2

Pump on: 1127 Off: 1150

Well Casing Volumes (gal/ft): 2" = 0.16 3" = 0.37 (4" = 0.65) 3½" = 0.50 6" = 1.46

Cr+6 (1560) .168 mg/L

Field Parameter Measurements Taken During Purging

Transducer Removed @ 1113 - Replaced @ 1153

Time	Minutes Elapsed	Flow Rate (Gpm)	Volume Purged (gals)	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
1130	3	2	6	67.84	387	-55.8	7.40	2290	29.70	6.98	
1133	6		12	67.84	374	-55.0	7.39	2247	29.75	6.92	
1136	9		18	67.84	216	-53.9	7.40	2231	29.74	6.93	
1139	12		24	67.84	162	-53.6	7.39	2225	29.72	7.02	
1142	15		30	67.84	121	-52.7	7.38	2225	29.70	7.00	
1145	17		36	67.84	125	-51.3	7.37	2220	29.70	7.00	
1148	20	↓	42	67.84	120	-50.9	7.37	2223	29.70	7.00	

Observations During Sampling

Well Condition: Good

Color: None

Odor: None

Purge Water Disposal: IM-3

Turbidity(qualitative): Cloudy

Other (OVA, HNU,etc.): —

Sample ID: MW-11-111114 **Sample Date & Time:** 11-14-11 @ 1149

Samples Analyzed For: See the COC

ARCADIS

Groundwater Sampling Form

Project Number: RC000753.0007. Task: 00002 Well ID: MW-24A

Date: 11- 14 -11 Sampled By: Gary Clift

Weather: WARM Recorded By: Jon Ramirez

Coded Duplicate No.: —

Instrument Identification

	PID	Water Quality Meter(s)
Model	—	YSI- 556
Serial #:	—	05615694 QA

Purging Information

Casing Material: PVC

Casing Diameter: 4"

Total Depth: 124'

Depth to Water: 111.86

Water Column: 12.14

Gallons/Foot: .65

Gallons in Well: 7.9

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

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

Screen Interval: From: 104' 124'

Pump Intake Setting: 121'

Volumes to be Purged: 3 casing

Total Volume Purged: 24

Pump on: 1246 Off:

Well Casing Volumes (gal/ft): 2" = 0.16 3" = 0.37 $3^1/_2$" = 0.50 (4" = 0.65) 6" = 1.46

CrVI (1560) .010 mg/L

Field Parameter Measurements Taken During Purging Removed Transducer @1239 - Replaced @ 1319

Time	Minutes Elapsed	Flow Rate (GPM)	Volume Purged (Gals)	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
1252	3	1	3	112.04	21	-330.2	7.61	3158	30.36	0.28	
1255	6		6	112.07	62	-378.7	7.64	2984	30.67	0.20	
1258	9		9	112.07	75	-385.0	7.68	2919	30.63	0.19	
1301	12		12	112.07	68	-387.4	7.70	2877	30.53	0.18	
1304	15		15	112.07	32	-392.6	7.72	2845	30.48	0.18	
1307	19		19	112.07	39	-395.8	7.72	2838	30.47	0.17	
1310	21		21	112.07	33	-396.4	7.80	2827	30.54	0.19	
1313	24	↓	24	112.07	35	-396.9	7.80	2817	30.51	0.18	

Observations During Sampling

Well Condition: Good

Color: None

Odor: None

Purge Water Disposal: FM-3

Turbidity(qualitative): Clear

Other (OVA, HNU,etc.): —

Sample ID: MW-24A-111114 **Sample Date & Time:** 11-14-11 @ 1314

Samples Analyzed For: See the COC

ARCADIS

Groundwater Sampling Form

Project Number: RC000753.0007. Task: 00002 Well ID: MW-24B

Date: 11- 14 -11 Sampled By: Gary Clift

Weather: WARM Recorded By: Jon Ramirez

Coded Duplicate No.: —

Instrument Identification

	PID	Water Quality Meter(s)
Model	—	YSI-556
Serial #:	—	05615694A

Purging Information

Casing Material: PVC

Casing Diameter: 4"

Total Depth: 213'

Depth to Water: 109.64

Water Column: 103.36

Gallons/Foot: .65

Gallons in Well: 67.2

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

Purge Equipment (circle one): Ded. Submersible Centrifugal Bladder Peristaltic Bailer

Screen Interval: From: 193' 213'

Pump Intake Setting:

Volumes to be Purged: 3 CASING

Total Volume Purged: 20

Pump on: 1336 Off: 1416

CR46 (1560) .101 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 (6 gpm)	Volume Purged (6 gals)	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
1340	4	6	24	109.88	19	-284.1	7.68	19186	29.93	1.15	
1344	8		48	109.87	11	-278.7	7.69	19301	29.85	0.95	
1348	12		72	109.88	3	-272.1	7.67	19362	30.31	0.71	
1352	16		96	109.88	2	-282.3	7.65	19450	30.47	0.60	
1356	20		120	109.88	2	-280.1	7.65	19476	30.32	0.56	
1400	24		144	109.88	2	-278.0	7.63	19456	30.59	0.51	
1404	28		168	109.88	2	-284.1	7.64	19398	30.45	0.47	
1408	32		192	109.88	2	-287.5	7.62	19387	30.36	0.44	
1410	34	↓	204	109.88	2	-288.0	7.62	19390	30.40	0.44	

Observations During Sampling

Well Condition: Good

Color: Yellow

Odor: None

Purge Water Disposal: IM-3

Turbidity(qualitative): Clear

Other (OVA, HNU,etc.): —

Sample ID: MW-24B-111114 **Sample Date & Time:** 11-14-11 @ 1411

Samples Analyzed For: See the COC

ARCADIS

Groundwater Sampling Form

Project Number: RC000753.0007. Task: 00002 Well ID: MW-11
Date: 02- 13 -12 Sampled By: Gary Clift
Weather: Cloudy Recorded By: JR
Coded Duplicate No.: —

Instrument Identification

	PID	Water Quality Meter(s)
Model	—	YSI-556
Serial #:	—	09D 101246

Purging Information

Casing Material: PVC
Casing Diameter: 4"
Total Depth: 88'
Depth to Water: 67.20
Water Column: 20.80
Gallons/Foot: .65
Gallons in Well: 13.5

Purge Technique (circle one): Low-Flow (Remove 3 Well Volumes) Bail Dry
Purge Equipment (circle one): (Submersible) Centrifugal Bladder Peristaltic Bailer
Screen Interval: From: 63' 88'
Pump Intake Setting: 79'
Volumes to be Purged: 3 casing 40.5 gal.
Total Volume Purged: 42 gallons
Pump on: 1149 Off: 1217

Well Casing Volumes (gal/ft): 2" = 0.16 3" = 0.37 (4" = 0.65) $3^1/_2$" = 0.50 6" = 1.46

$Cr+6_{(1560)}$ .184 mg/L

Field Parameter Measurements Taken During Purging Removed transducer @ 1134 Replaced @ 1220

Time	Minutes Elapsed	Flow Rate (GPM)	Volume Purged (Gals)	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
1152	3	2	6	68.11	311	70.0	6.92	2222	29.37	7.98	
1155	6	↓	12	68.11	121	60.3	6.87	2187	29.42	7.99	
1158	9		18	68.4	69	55.5	6.86	2166	29.44	7.99	
1201	12		24	68.4	69	45.7	6.90	2169	29.40	7.80	
1204	15		30	68.11	51	42.1	6.94	2170	29.42	7.72	
1207	18		36	68.4	55	41.0	6.90	2130	29.43	7.80	
1210	21		42	68.11	50	42.7	6.90	2129	29.44	7.79	

Observations During Sampling

Well Condition: Good
Color: None
Odor: None

Purge Water Disposal: FM-3
Turbidity(qualitative): Clear
Other (OVA, HNU,etc.): —

Sample ID: MW-11-120213 **Sample Date & Time:** 2-13-12 @ 1211
Samples Analyzed For: See the COC

ARCADIS

Groundwater Sampling Form

Project Number: RC000753.0007. Task: 00002 Well ID: MW-24A

Date: 02- 13 -12 Sampled By: Gary Clift

Weather: Cloudy Recorded By: JR

Coded Duplicate No.: DUP-2-120213 @ 1320

Instrument Identification

	PID	Water Quality Meter(s)
Model	—	YSI-556
Serial #:	—	09D101246

Purging Information

Casing Material: PVC

Casing Diameter: 4"

Total Depth: 124'

Depth to Water: 111.80

Water Column: 12.20

Gallons/Foot: .65

Gallons in Well: 7.9

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

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

Screen Interval: From: 104' 124'

Pump Intake Setting: 119'

Volumes to be Purged: 3 CASing 23.7 gal

Total Volume Purged: 24 gallons

Pump on: 1300 Off: 1321

Well Casing Volumes (gal/ft): 2" = 0.16 3" = 0.37 (4" = 0.65) $3^1/_2$" = 0.50 6" = 1.46

CrVI+6 (1560)) .009 mg/L

Transducer removed @ 1258 Replaced @ 1322

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Flow Rate (GPM)	Volume Purged (Gals)	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
1302	2	2	4	112.04	112	-165.2	7.88	2655	29.55	0.45	organic odor
1304	4	↓	8	112.04	91	-180.3	7.88	2619	29.84	0.36	
1306	6		12	112.04	31	-200.0	7.86	2615	30.01	0.29	
1308	8		16	112.04	18	-206.9	7.88	2615	30.06	0.22	
1310	10		20	112.04	10	-209.2	7.90	2615	30.07	0.21	
1312	12	↓	24	112.04	9	-210.9	7.90	2615	30.07	0.20	

Observations During Sampling

Well Condition: Good

Color: ~~None~~ (Slight Pink)

Odor: Organic

Purge Water Disposal: IM-3

Turbidity(qualitative): Clear

Other (OVA, HNU,etc.): —

Sample ID: MW-24A-120213 **Sample Date & Time:** 12-13-12 @1313

Samples Analyzed For: See the COC

ARCADIS

Groundwater Sampling Form

Project Number: RC000753.0007. Task: 00002 Well ID: MW-24B

Date: 02- 13 -12 Sampled By: Gary Clift

Weather: Cloudy Recorded By: JM

Coded Duplicate No.: —

Instrument Identification

	PID	Water Quality Meter(s)
Model	—	YSI-556
Serial #:	—	09D 10 1246

Purging Information

Casing Material: PVC

Casing Diameter: 4"

Total Depth: 213'

Depth to Water: 109.57

Water Column: 103.43

Gallons/Foot: .65

Gallons in Well: 67.2

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:

Volumes to be Purged: 3 casing 201.6 gals

Total Volume Purged: 210 gals

Pump on: 1346 Off: 1435

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

Cr+6 (1560) .074 mg/L

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Flow Rate (6lpm)	Volume Purged (Gals)	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
1353	7	5	35	112.40	3	-150.4	7.69	19653	29.62	0.22	
1400	14	↓	70	112.49	2	-148.0	7.58	19650	29.87	0.18	
1407	21		105	112.50	2	-131.2	7.59	19627	29.89	0.17	
1414	28		140	112.50	1	-129.4	7.37	19622	29.96	0.15	
1421	35		175	112.50	1	-127.4	7.35	19616	29.99	0.15	
1428	42	↓	210	112.50	1	-126.0	7.34	19612	30.04	0.14	

Observations During Sampling

Well Condition: Good

Color: ~~None~~ Light yellow tint

Odor: None

Purge Water Disposal: Im-3

Turbidity(qualitative): Clear

Other (OVA, HNU,etc.): —

Sample ID: MW-24B-120213 **Sample Date & Time:** 2-13-12 @ 1429

Samples Analyzed For: See the COC

ARCADIS

Groundwater Sampling Form

Project Number: RC000753.0007. Task: 00002 Well ID: PT-8S

Date: 02- 14 -12 Sampled By: Gary Clift

Weather: Cloudy Recorded By: JM

Coded Duplicate No.: —

Instrument Identification

	PID	Water Quality Meter(s)
Model	—	YSI-556
Serial #:	—	09D101246

Purging Information

Casing Material: PVC

Casing Diameter: 2"

Total Depth: 147'

Depth to Water: 107.03

Water Column: 39.97

Gallons/Foot: .16

Gallons in Well: 6.4

CN6 (1560) .006 mg/L

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 19.2 gal

Total Volume Purged: 20 gallons

Pump on: 1046 Off: 1110

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

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Flow Rate (GPM)	Volume Purged (Gals)	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
1050	4	1	4	107.10	8	-135.3	7.21	5718	29.69	0.25	
1054	8	↓	8	107.10	8	-142.7	7.21	5660	29.97	0.21	
1058	12	↓	12	107.10	7	-151.0	7.21	5580	30.06	0.19	
1102	16	↓	16	107.10	5	-154.5	7.21	5560	30.10	0.18	
1106	20	↓	20	107.10	5	-159.1	7.21	5559	30.08	0.16	

Observations During Sampling

Well Condition: Good

Color: None

Odor: Organic

Purge Water Disposal: IM-3

Turbidity(qualitative): clear

Other (OVA, HNU,etc.): —

Sample ID: PT-8S120214 **Sample Date & Time:** 2-14-12 @1107

Samples Analyzed For: See the COC

ARCADIS

Groundwater Sampling Form

Project Number: RC000753.0007. Task: 00002 Well ID: PT-8M
Date: 02- 14 -12 Sampled By: Gary Clift
Weather: Cloudy Recorded By: jm
Coded Duplicate No.: —

Instrument Identification

	PID	Water Quality Meter(s)
Model	—	YSI-556
Serial #:	—	09D101296

Purging Information

Casing Material: PVC
Casing Diameter: 2"
Total Depth: 182'
Depth to Water: 106.77
Water Column: 75.23
Gallons/Foot: .16
Gallons in Well: 12

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 CASING 36 gals
Total Volume Purged: 36 gallons
Pump on: 1128 Off: 1150

Well Casing Volumes (gal/ft): (2" = 0.16) 3" = 0.37 3½" = 0.50 4" = 0.65 6" = 1.46

CrVI+6 (1560) = 246 ug/L

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Flow Rate (Gpm)	Volume Purged (Gals)	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
1131	3	2	6	106.90	643	34.0	6.58	9332	29.96	0.28	
1134	6	↓	12	106.90	420	4.8	6.57	9225	30.13	1.36	
1137	9		18	106.90	275	3.9	6.56	9161	30.19	1.25	
1140	12		24	106.90	198	4.4	6.56	9129	30.21	1.27	
1143	15		30	106.90	112	5.1	6.55	9102	30.25	1.33	
1146	18	↓	36	106.90	104	5.6	6.55	9095	30.26	1.32	

Observations During Sampling

Well Condition: Good
Color: Tan
Odor: None

Purge Water Disposal: IM-3
Turbidity(qualitative): Cloudy
Other (OVA, HNU,etc.): —

Sample ID: PT-8M 120214 **Sample Date & Time:** 2-14-12 @1147
Samples Analyzed For: See the COC

ARCADIS

Groundwater Sampling Form

Project Number: RC000753.0007. Task: 00002 Well ID: PT-8D

Date: 02- 14 -12 Sampled By: Gary Clift

Weather: Cloudy Recorded By: JM

Coded Duplicate No.: ~~09D101246~~ (JD)

Instrument Identification

	PID	Water Quality Meter(s)
Model	—	YSI-556
Serial #:	—	09D101246

Purging Information

Casing Material: PVC

Casing Diameter: 2"

Total Depth: 210'

Depth to Water: 106.11

Water Column: 103.89

Gallons/Foot: .16

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: 200'

Volumes to be Purged: 3 casing 49.8 gal.

Total Volume Purged: 52 gallons

Pump on: 0959 Off: 1030

CrVI (1560) .699 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 (Gals)	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
1003	4	2	8	106.80	30	184.9	7.41	20567	29.70	0.49	
1007	8	|	16	106.80	4	155.6	7.75	20802	30.28	0.30	
1011	12	|	24	106.80	3	136.2	7.77	20015	30.41	0.22	
1015	16	|	32	106.80	3	126.1	7.76	19666	30.49	0.21	
1019	20	|	40	106.80	3	123.8	7.76	19571	30.50	0.20	
1023	24	|	48	106.80	3	120.8	7.76	19523	30.50	0.18	
1025	26	↓	52	106.80	3	119.7	7.76	19499	30.53	0.18	

Observations During Sampling

Well Condition: Good

Color: Yellow

Odor: None

Purge Water Disposal: Im-3

Turbidity(qualitative): Clear

Other (OVA, HNU,etc.): —

Sample ID: PT-8D120214 **Sample Date & Time:** 2-14-12 @ 1026

Samples Analyzed For: See the COC

ARCADIS

Groundwater Sampling Form

Project Number: RC000753.0007. Task: 00002 Well ID: PT-7S

Date: 02- 14 -12 Sampled By: Gary Clift

Weather: Cloudy Recorded By: JR

Coded Duplicate No.: —

Instrument Identification

	PID	Water Quality Meter(s)
Model	—	YSI -556
Serial #:	—	09B101246

Purging Information

Casing Material: PVC

Casing Diameter: 2"

Total Depth: 150'

Depth to Water: ~~105.37~~ 104.70

Water Column: 45.30

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 Bailer

Screen Interval: From: 130' To: 150'

Pump Intake Setting: 140'

Volumes to be Purged: 3 CASING 21.6 gal.

Total Volume Purged: 24 gallons

Pump on: 1437 Off: 1507

CrVI (1560) .527 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 (Gals)	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
1441	4	1	4	104.85	37	-34.9	7.33	5678	29.90	0.23	
1445	8		8	104.85	24	-36.4	7.31	5661	30.08	0.21	
1449	12		12	104.85	20	-40.2	7.30	5648	30.17	0.25	
1453	16		16	104.85	14	-43.8	7.30	5651	30.14	0.29	
1457	20		20	104.85	14	-45.8	7.29	5649	30.16	0.22	
1501	24		24	104.85	12	-46.3	7.29	5648	30.17	0.20	

Observations During Sampling

Well Condition: Good

Color: Light yellow

Odor: None

Purge Water Disposal: IM-3

Turbidity(qualitative): Clear

Other (OVA, HNU,etc.): —

Sample ID: PT-7S120214 **Sample Date & Time:** 2/14/12 @ 1502

Samples Analyzed For: See the COC

ARCADIS

Groundwater Sampling Form

Project Number: RC000753.0007. Task: 00002 Well ID: PT-7M

Date: 02- 14 -12 Sampled By: Gary Clift

Weather: Cloudy Recorded By: JL

Coded Duplicate No.: —

Instrument Identification

	PID	Water Quality Meter(s)
Model	—	YSI-556
Serial #:	—	09A101246

Purging Information

Casing Material: PVC

Casing Diameter: 2"

Total Depth: 185'

Depth to Water: 105.37

Water Column: 79.63

Gallons/Foot: .16

Gallons in Well: 12.7

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

Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailer (ADD)

Screen Interval: From: 165' To: 185'

Pump Intake Setting: 175'

Volumes to be Purged: 3 CASING 38.1 gal.

Total Volume Purged: 40 gallons

Pump on: 1253 Off: 1420

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

Cr+6 (1560) .002 mg/L

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Flow Rate (GPM)	Volume Purged (Gals)	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
1305	12	0.5	6	105.37	110	-109.7	6.50	7191	22.63	4.93	
1317	24		12	105.37	60	-109.7	6.50	7151	23.20	1.59	
1329	36		18	105.37	42	-111.7	6.50	7100	23.60	1.25	
1341	48		24	105.37	35	-110.6	6.50	7066	23.99	1.04	
1353	60		30	105.37	27	-109.9	6.50	7055	23.94	0.69	
1405	72		36	105.37	30	-108.5	6.50	7032	23.32	0.56	
1413	80	↓	40	105.37	29	-110.4	6.50	7018	23.35	0.52	

Observations During Sampling

Well Condition: Good

Color: Yellow

Odor: Organic

Purge Water Disposal: DM-3

Turbidity(qualitative): Clear

Other (OVA, HNU,etc.): —

Sample ID: PT-7M 1202M **Sample Date & Time:** 2/14/12 @ 1414

Samples Analyzed For: See the COC

ARCADIS

Groundwater Sampling Form

Project Number: RC000753.0007. Task: 00002 Well ID: PT-7D

Date: 02- 15 -12 Sampled By: Gary Clift

Weather: Clear Recorded By: JR

Coded Duplicate No.: —

Instrument Identification

	PID	Water Quality Meter(s)
Model	—	YSI-556
Serial #:	—	09B10 1246

Purging Information

Casing Material: PVC

Casing Diameter: 2"

Total Depth: 217'

Depth to Water: 105.29

Water Column: 111.71

Gallons/Foot: x 16

Gallons in Well: 17.9

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

Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailer (A30)

Screen Interval: From: 197' To: 217'

Pump Intake Setting: 207'

Volumes to be Purged: 3 CASing 53.7 gal.

Total Volume Purged: 53.7

Pump on: 0840 Off: 1036

Well Casing Volumes (gal/ft): (2" = 0.16) 3" = 0.37 3½" = 0.50 4" = 0.65 6" = 1.46

CrVI (1560) .019 mg/L

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Flow Rate (gpm)	Volume Purged (Gals)	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
0858	18	0.5	9	105.33	29	-127.3	6.81	15283	25.35	0.75	Green
0916	36		18	105.33	22	-128.2	6.82	15238	24.96	0.59	
0934	54		27	105.33	18	-130.1	6.84	14871	25.64	0.45	
0952	72		36	105.33	15	-131.1	6.83	14659	25.52	0.40	
1010	90		45	105.33	14	-130.7	6.83	14559	25.79	0.38	
1028	108	↓	54	105.33	12	-132.1	6.84	14520	25.81	0.34	↓

Observations During Sampling

Well Condition: Good

Color: Green

Odor: None

Purge Water Disposal: IM-3

Turbidity(qualitative): Clear

Other (OVA, HNU,etc.): —

Sample ID: PT-7D120215 **Sample Date & Time:** 2/15/12 @ 1030

Samples Analyzed For: See the COC

ARCADIS

Groundwater Sampling Form

Project Number: **RC000753.0007.** Task: **00002** Well ID: **PT-9S**

Date: **02- 15 -12** Sampled By: **Gary Clift**

Weather: Cloudy / Rain Recorded By: JR

Coded Duplicate No.: —

Instrument Identification

	PID	Water Quality Meter(s)
Model	—	YSI-556
Serial #:	—	09D 10.1246

Purging Information

Casing Material: PVC

Casing Diameter: 2"

Total Depth: 147'

Depth to Water: 104.02

Water Column: 42.98

Gallons/Foot: .16

Gallons in Well: 6.9

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

Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailer (waterra)

Screen Interval: From: 128' To: 147'

Pump Intake Setting:

Volumes to be Purged: 3 CASING 20.7 gal

Total Volume Purged: 21 gallons

Pump on: 1418 Off:

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

CrVI6 (1560) .681 mg/L

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Flow Rate (GPM)	Volume Purged (Gals)	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
1421	3	1	3	104.10	5	94.9	7.23	4999	24.63	3.50	
1424	6		6	104.10	16	61.0	7.40	5100	23.74	1.21	
1427	9		9	104.10	11	22.1	7.40	4905	25.88	0.96	
1430	12		12	104.10	10	-1.2	7.41	4835	26.41	0.89	
1433	15		15	104.10	6	-17.9	7.41	4836	25.77	0.85	
1436	18		18	104.10	6	-24.1	7.42	4819	26.00	0.77	
1439	21	↓	21	104.10	5	-25.9	7.42	4801	25.94	0.74	

Observations During Sampling

Well Condition: Good

Color: Light yellow tint

Odor: None

Purge Water Disposal: IM-3

Turbidity(qualitative): Clear

Other (OVA, HNU,etc.): —

Sample ID: PT-9S 120215 **Sample Date & Time:** 2/15/12 @ 1440

Samples Analyzed For: See the COC

ARCADIS

Groundwater Sampling Form

Project Number: RC000753.0007. Task: 00002 Well ID: PT-9M

Date: 02- 15 -12 Sampled By: Gary Clift

Weather: Sunny Recorded By: JL

Coded Duplicate No.: —

Instrument Identification

	PID	Water Quality Meter(s)
Model	—	YSI-556
Serial #:	—	09A101246

Purging Information

Casing Material: PVC

Casing Diameter: 2"

Total Depth: 182'

Depth to Water: 104.00

Water Column: 78.00

Gallons/Foot: .16

Gallons in Well: 12.5

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

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

Screen Interval: From: 162' To: 182'

Pump Intake Setting: 172'

Volumes to be Purged: 3 CASING 37.5 gal

Total Volume Purged: 40 gal

Pump on: 1111 Off: 1140

Well Casing Volumes (gal/ft): (2" = 0.16) 3" = 0.37 3½" = 0.50 4" = 0.65 6" = 1.46

Cr+6 (1560) 1.74 mg/L

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Flow Rate (gpm)	Volume Purged (Gals)	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
1115	4	2	8	104.15	142	9.9	7.04	10315	30.01	0.22	Pink
1119	8	↑	16	104.15	49	13.3	7.03	10250	30.34	0.18	
1123	12	↑	24	104.15	8	14.2	7.02	10229	30.35	0.20	
1127	16	↑	32	104.15	7	17.2	7.01	10230	30.38	0.25	
1131	20	↓	40	104.15	6	18.9	7.01	10223	30.40	0.29	↓

Observations During Sampling

Well Condition: Good

Color: Pink

Odor: None

Purge Water Disposal: IM-3

Turbidity(qualitative): Clear

Other (OVA, HNU,etc.): —

Sample ID: PT-9M120215 **Sample Date & Time:** 2/15/12 @ 1132

Samples Analyzed For: See the COC

ARCADIS

Groundwater Sampling Form

Project Number: **RC000753.0007.** Task: **00002** Well ID: **PT-9D**

Date: **02- 15 -12** Sampled By: **Gary Clift**

Weather: Overcast Recorded By: JR

Coded Duplicate No.: —

Instrument Identification

	PID	Water Quality Meter(s)
Model	—	YSI-556
Serial #:	—	09D101246

Purging Information

Casing Material: PVC

Casing Diameter: 2"

Total Depth: 210'

Depth to Water: 104.10

Water Column: 105.90

Gallons/Foot: .16

Gallons in Well: 16.7

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

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

Screen Interval: From: 190' To: 210'

Pump Intake Setting: 200'

Volumes to be Purged: 3 casing 50.1 gal.

Total Volume Purged: 52 gals

Pump on: 1302 Off: 1334

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

CrVI 15.72 mg/L
(1560)

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Flow Rate (gpm)	Volume Purged (Gals)	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
1306	4	2	8	104.44	19	91.5	7.77	18836	30.07	1.23	Yellow
1310	8	↓	16	104.44	17	85.2	7.79	18797	30.25	1.20	↓
1314	12		24	104.44	22	79.8	7.79	18755	30.43	1.17	
1318	16		32	104.44	8	75.6	7.79	18717	30.35	1.15	
1322	20		40	104.44	7	72.3	7.78	18677	30.44	1.13	
1326	24		48	104.44	5	70.1	7.78	18638	30.40	1.11	
1328	26	↓	52	104.44	5	69.5	7.78	19627	30.42	1.11	↓

Observations During Sampling

Well Condition: Good

Color: Yellow

Odor: None

Purge Water Disposal: Frac-3

Turbidity(qualitative): Clear

Other (OVA, HNU,etc.): —

Sample ID: PT-9D120215 **Sample Date & Time:** 2/15/12 @ 1330

Samples Analyzed For: See the COC

ARCADIS

Groundwater Sampling Form

Project Number: RC000753.0011. Task: 00002 Well ID: PT-7S
Date: 7-31-12 Sampled By: Gary Clift
Weather: WARM Recorded By: NT
Coded Duplicate No.: None

Instrument Identification

	PID	Water Quality Meter(s)
Model	—	YSI-556
Serial #:	—	06F1362AU

Purging Information

Casing Material: PVC
Casing Diameter: 2"
Total Depth: 150'
Depth to Water: 103.75
Water Column: 46.25
Gallons/Foot: .16
Gallons in Well: 7.4

Purge Technique (circle one): Low-Flow (Remove 3 Well Volumes) Bail Dry
Purge Equipment (circle one): (Submersible) Centrifugal Bladder Peristaltic Baile
Screen Interval: From: 130' To: 150'
Pump Intake Setting: 140'
Volumes to be Purged: 3 case volume 235 gal
Total Volume Purged: 22.5
Pump on: 1102 Off: 1120

Well Casing Volumes (gal/ft): (2" = 0.16) 3" = 0.37 3½" = 0.50 4" = 0.65 6" = 1.46

CR74 (1560) .547 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
1107	5	1.5	7.5	104.02	15	-281.8	7.21	5458	30.09	0.03	
1110	8	1.5	12	104.02	10	-284.8	7.20	5456	30.11	0.03	
1112	10	1.5	15	104.02	8	-286.2	7.20	5459	30.11	0.03	
1115	13	1.5	19.5	104.02	7	-287.1	7.20	5462	30.12	0.03	
1117	15	1.5	22.5	104.03	7	-288.3	7.20	5464	30.12	0.03	

Observations During Sampling
Well Condition: good
Color: clear
Odor: none

Purge Water Disposal: Im-3
Turbidity(qualitative): clear
Other (OVA, HNU,etc.): —

Sample ID: PT-7S120731 Sample Date & Time: 7-31-12 @ 1120
Samples Analyzed For: See the COC

ARCADIS

Groundwater Sampling Form

Project Number: RC000753.0011. Task: 00002 Well ID: PT-7M
Date: 7 - 31 -12 Sampled By: Gary Clift
Weather: WARM Recorded By: MT
Coded Duplicate No.: None

Instrument Identification

	PID	Water Quality Meter(s)
Model	—	YSI-556
Serial #:	—	06F1362AU

Purging Information

Casing Material: PVC
Casing Diameter: 2"
Total Depth: 185'
Depth to Water: 103.82
Water Column: 81.18
Gallons/Foot: .16
Gallons in Well: 12.9

Purge Technique (circle one): Low-Flow (Remove 3 Well Volumes) Bail Dry
Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailer
Screen Interval: From: 165' To: 185'
Pump Intake Setting: 170'
Volumes to be Purged: 3 Casing
Total Volume Purged: 39
Pump on: 1346 Off: 1425

Well Casing Volumes (gal/ft): (2" = 0.16) 3" = 0.37 3½" = 0.50 4" = 0.65 6" = 1.46

CrVI (1560) .006 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
1359	13	1	13	103.98	20	-149.3	6.58	6822	29.22	1.33	
1406	20	1	20	103.98	21	-138.1	6.50	6747	29.19	1.34	
1412	26	1	26	103.98	19	-135.6	6.45	6938	29.19	1.20	
1419	33	1	33	103.99	18	-133.7	6.44	6782	29.17	1.14	
1425	39	1	39	103.99	18	-132.4	6.44	6730	29.15	1.12	

Observations During Sampling
Well Condition: good
Color: Time green
Odor: slight odor

Purge Water Disposal: FM-3
Turbidity(qualitative): clear
Other (OVA, HNU,etc.): —

Sample ID: PT-75120731 Sample Date & Time: 7-31-12 @ 1428
Samples Analyzed For: See the COC

ARCADIS

Groundwater Sampling Form

Project Number: RC000753.0011. Task: 00002 Well ID: PT-7D
Date: 7 - 31 -12 Sampled By: Gary Clift
Weather: WARM Recorded By: NT
Coded Duplicate No.: None

Instrument Identification

	PID	Water Quality Meter(s)
Model	—	YSI-556
Serial #:	—	06F1362AU

Purging Information

Casing Material: PVC
Casing Diameter: 2"
Total Depth: 217'
Depth to Water: 103.78
Water Column: 113.22
Gallons/Foot: .16
Gallons in Well: 18.1

Purge Technique (circle one): Low-Flow (Remove 3 Well Volumes) Bail Dry
Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailer P.A.D.
Screen Interval: From: 197' To: 217'
Pump Intake Setting: 205'
Volumes to be Purged: 3 CASING
Total Volume Purged: 55
Pump on: 1216 Off: 1332

Well Casing Volumes (gal/ft): (2" = 0.16) 3" = 0.37 3½" = 0.50 4" = 0.65 6" = 1.46

CA+6 (1560) .015 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
1241	25	0.75	19	104.36	23	-142.2	6.65	15662	30.51	1.18	
1254	38	0.75	29	104.36	24	-153.5	6.67	15683	30.70	0.90	
1306	50	0.75	38	104.36	22	-163.1	6.67	15699	30.80	0.71	
1319	63	0.75	48	104.36	22	-165.7	6.65	15703	30.84	0.68	
1332	76	0.75	55	104.36	21	-168.6	6.65	15701	30.87	0.65	

Observations During Sampling
Well Condition: good
Color: lime green
Odor: slight odor

Purge Water Disposal: IM-3
Turbidity(qualitative): clear
Other (OVA, HNU,etc.): —

Sample ID: PT-7D120731 Sample Date & Time: 7-31-12 @ 1335
Samples Analyzed For: See the COC

ARCADIS

Groundwater Sampling Form

Project Number: RC000753.0011. Task: 00002 Well ID: PT-8S
Date: 7-31-12 Sampled By: Gary Clift
Weather: WARM Recorded By: NT
Coded Duplicate No.: None

Instrument Identification

	PID	Water Quality Meter(s)
Model	—	YSI-556
Serial #:	—	06F1362AU

Purging Information

Casing Material: PVC
Casing Diameter: 2"
Total Depth: 147'
Depth to Water: 105.46
Water Column: 41.54
Gallons/Foot: .16
Gallons in Well: 6.6

Purge Technique (circle one): Low-Flow (Remove 3 Well Volumes) Bail Dry
Purge Equipment (circle one): (Submersible) Centrifugal Bladder Peristaltic Baile
Screen Interval: From: 127' To: 147'
Pump Intake Setting: 137' @ 245 Hz
Volumes to be Purged: 3 casing 20 gal
Total Volume Purged: 20
Pump on: 0913 Off: 0936

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

Cr+6 (1560) .005 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
0920	7	1	7	105.62	14	-273.9	7.13	5548	29.60	0.08	
0923	10	1	10	105.62	21	-283.4	7.12	5486	30.18	0.03	
0927	14	1	14	105.63	12	-287.1	7.13	5369	30.15	0.03	
0931	18	1	18	105.63	10	-289.6	7.14	5365	30.18	0.04	
0933	20	1	20	105.63	10	-291.2	7.14	5359	30.19	0.04	

Observations During Sampling
Well Condition: good
Color: clear
Odor: none

Purge Water Disposal: IM-3
Turbidity(qualitative): clear
Other (OVA, HNU,etc.): —

Sample ID: PT-8S120731 Sample Date & Time: 7-31-12 @ 0936
Samples Analyzed For: See the COC

ARCADIS

Groundwater Sampling Form

Project Number: RC000753.0011. Task: 00002 Well ID: PT-8M

Date: 7-31-12 Sampled By: Gary Clift

Weather: warm Recorded By: NT

Coded Duplicate No.: None

Instrument Identification

	PID	Water Quality Meter(s)
Model	—	YSI-556 MPS
Serial #:	—	06F1362AU

Purging Information

Casing Material: PVC

Casing Diameter: 2"

Total Depth: 182'

Depth to Water: 105.48

Water Column: 76.52

Gallons/Foot: .16

Gallons in Well: 12.2

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

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

Screen Interval: From: 162' To: 182'

Pump Intake Setting: 172'

Volumes to be Purged: 3 CASing

Total Volume Purged: 38

Pump on: 1006 Off: 1028

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

CrVI (1560) .011 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
1013	9	2	14	106.10	233	-254.7	6.48	9349	30.24	0.03	
1017	11	2	22	106.28	99	-245.6	6.47	9297	30.29	0.13	
1020	14	2	28	106.40	61	-239.4	6.46	9253	30.31	0.18	
1022	16	2	32	106.47	58	-237.3	6.46	9236	30.33	0.20	
1025	19	2	38	106.53	59	-235.8	6.46	9231	30.34	0.21	

Observations During Sampling

Well Condition: good

Color: Red

Odor: none

Purge Water Disposal: IM-3

Turbidity(qualitative): clear

Other (OVA, HNU,etc.): —

Sample ID: PT-8M120731 Sample Date & Time: 7-31-12 @ 1028

Samples Analyzed For: See the COC

ARCADIS

Groundwater Sampling Form

Project Number: RC000753.0011. Task: 00002 Well ID: PT-8D
Date: 7-31-12 Sampled By: Gary Clift
Weather: WARM Recorded By: NT
Coded Duplicate No.: DUP120731 @ 0905

Instrument Identification

	PID	Water Quality Meter(s)
Model	—	YSI-556
Serial #:	—	06F1362AU

Purging Information

Casing Material: PVC
Casing Diameter: 2"
Total Depth: 210'
Depth to Water: 105.51
Water Column: 104.49
Gallons/Foot: .16
Gallons in Well: 16.7

Purge Technique (circle one): Low-Flow (Remove 3 Well Volumes) Bail Dry
Purge Equipment (circle one): (Submersible) Centrifugal Bladder Peristaltic Baile
Screen Interval: From: 190' To: 210'
Pump Intake Setting: 200' @ 285 Hz
Volumes to be Purged: 3 CASING
Total Volume Purged: 51
Pump on: 0815 Off: 0842

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

CrT6 (1560) 1.76 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
0823	8.5	2	17	105.92	6	-281.7	7.58	18651	30.54	0.04	
0828	13	2	26	105.94	5	-289.8	7.62	18501	30.59	0.04	
0832	17	2	34	105.95	6	-292.5	7.62	18377	30.62	0.03	
0836	21	2	42	105.96	5	-295.9	7.65	18348	30.64	0.03	
0840	25.5	2	51	105.96	5	-297.1	7.63	18345	30.65	0.03	

Observations During Sampling
Well Condition: good
Color: clear / light green tint
Odor: none

Purge Water Disposal: IM-3
Turbidity(qualitative): clear
Other (OVA, HNU,etc.): —

Sample ID: PT-8D120731 Sample Date & Time: 7-31-12 @ 0842
Samples Analyzed For: See the COC

ARCADIS

Groundwater Sampling Form

Project Number: RC000753.0011. Task: 00002 Well ID: PT-9S

Date: 8-1-12 Sampled By: Gary Clift

Weather: WARM Recorded By: NT

Coded Duplicate No.: None

Instrument Identification

	PID	Water Quality Meter(s)
Model	—	YSI- 556
Serial #:	—	06F1362AU

Purging Information

Casing Material: PVC

Casing Diameter: 2"

Total Depth: 147'

Depth to Water: 102.52

Water Column: 44.48

Gallons/Foot: .16

Gallons in Well: 7.1

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

Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaitic Baile

Screen Interval: From: 128' To: 147'

Pump Intake Setting: 138'

Volumes to be Purged: 3 CASING

Total Volume Purged: 22

Pump on: 1001 Off: 1028

Well Casing Volumes (gal/ft): (2" = 0.16) 3" = 0.37 3½" = 0.50 4" = 0.65 6" = 1.46

Cr+6 (1560) .505 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
1009	8	1	8	102.68	34	-184.6	7.48	4653	29.12	1.41	
1013	12	1	12	102.68	23	-206.8	7.35	4607	29.43	1.12	
1017	16	1	16	102.68	15	-216.6	7.30	4543	29.69	0.90	
1021	20	1	20	102.68	15	-220.1	7.30	4535	29.30	0.86	
1023	22	1	22	102.68	14	-222.7	7.30	4530	29.21	0.85	

Observations During Sampling

Well Condition: good

Color: clear

Odor: none

Purge Water Disposal: IM-3

Turbidity(qualitative): clear

Other (OVA, HNU,etc.): —

Sample ID: PT-9S120801 Sample Date & Time: 8-01-12 @ 1028

Samples Analyzed For: See the COC

ARCADIS

Groundwater Sampling Form

Project Number: RC000753.0011. Task: 00002 Well ID: PT-9M

Date: 8-1-12 Sampled By: Gary Clift

Weather: WARM Recorded By: WT

Coded Duplicate No.: None

Instrument Identification

	PID	Water Quality Meter(s)
Model	—	YSI-556
Serial #:	—	06F1362AU

Purging Information

Casing Material: PVC

Casing Diameter: 2"

Total Depth: 182'

Depth to Water: 102.57

Water Column: 79.43

Gallons/Foot: .16

Gallons in Well: 12.7

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

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

Screen Interval: From: 162' To: 182'

Pump Intake Setting: 172' @ 285 Hz

Volumes to be Purged: 3 CASING

Total Volume Purged: 40

Pump on: 0800 Off: 0822

Well Casing Volumes (gal/ft): (2" = 0.16) 3" = 0.37 3½" = 0.50 4" = 0.65 6" = 1.46

Cr+6 (1560) 1.62 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
0807	7	2	14	102.86	12	-199.0	6.84	9893	30.28	0.05	
0810	10.5	2	21	102.86	8	-205.1	6.86	9892	30.29	0.05	
0814	14	2	28	102.87	6	-210.7	6.87	9891	30.32	0.04	
0817	17	2	34	102.87	5	-212.6	6.87	9895	30.32	0.04	
0820	20	2	40	102.87	5	-213.8	6.87	9898	30.34	0.04	

Observations During Sampling

Well Condition: good

Color: light pink tint

Odor: none

Purge Water Disposal: IM-3

Turbidity(qualitative): clear

Other (OVA, HNU,etc.): —

Sample ID: PT-9M120801 Sample Date & Time: 8-1-12 @ 0822

Samples Analyzed For: See the COC

ARCADIS

Groundwater Sampling Form

Project Number: RC000753.0011. Task: 00002 Well ID: PT-9D

Date: 8-1-12 Sampled By: Gary Clift

Weather: WARM Recorded By: NT

Coded Duplicate No.: None

Instrument Identification

	PID	Water Quality Meter(s)
Model	—	YSI-556
Serial #:	—	06F1362AU

Purging Information

Casing Material: PVC

Casing Diameter: 2"

Total Depth: 210'

Depth to Water: 102.65

Water Column: 107.35

Gallons/Foot: .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' @ 28.5 Hz

Volumes to be Purged: 3 CASING Volumes

Total Volume Purged: 52

Pump on: 1100 Off: 1130

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

CrVI (1560) 15.12 ug/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
1109	9	2	18	103.05	21	-168.4	7.67	18328	30.50	1.31	
1113	13.5	2	27	103.05	8	-167.6	7.68	18284	30.50	1.28	
1118	18	2	36	103.05	6	-166.9	7.68	18223	30.57	1.25	
1122	22.5	2	45	103.06	5	-165.9	7.68	18202	30.58	1.24	
1126	26	2	52	103.06	5	-165.1	7.68	18210	30.60	1.22	

Observations During Sampling

Well Condition: good

Color: green

Odor: none

Purge Water Disposal: IM-3

Turbidity(qualitative): clear

Other (OVA, HNU,etc.): —

Sample ID: PT-9D120801 Sample Date & Time: 8-1-12 @ 1130

Samples Analyzed For: See the COC

ARCADIS

Groundwater Sampling Form

Project Number: RC000753.0011. Task: 00002 Well ID: MW-11
Date: 7-30-12 Sampled By: Gary Clift
Weather: RAIN / WARM Recorded By: NT
Coded Duplicate No.: NONE

Instrument Identification

	PID	Water Quality Meter(s)
Model	-	YSI-556
Serial #:	-	06F1362AU

Purging Information

Casing Material: PVC
Casing Diameter: 4"
Total Depth: 88'
Depth to Water: 65.70
Water Column: 22.30
Gallons/Foot: .65
Gallons in Well: 14.5 gal

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: 70' @ 245 ft
Volumes to be Purged: 3 CASING 44 gal
Total Volume Purged: 44
Pump on: 1119 Off: 1144

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

CrVI (1560) .184 mg/L

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Flow Rate (2 gpm)	Volume Purged ( )	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
1126	7.5	2	15	66.26	40	140.3	6.73	2233	29.58	8.96	
1130	11.25	2	22.5	66.27	38	137.9	7.10	2231	29.59	8.83	
1134	15	2	30	66.29	32	134.8	7.21	2224	29.56	8.72	
1138	19	2	38	66.30	30	131.6	7.24	2227	29.54	8.78	
1141	22	2	44	66.32	30	128.7	7.25	2226	29.53	8.79	

Observations During Sampling
Well Condition: good
Color: clear
Odor: none

Purge Water Disposal: IM-3
Turbidity(qualitative): clear
Other (OVA, HNU,etc.): -

Sample ID: MW-11120730 Sample Date & Time: 7-30-12 @ 1144
Samples Analyzed For: See the COC

ARCADIS

Groundwater Sampling Form

Project Number: RC000753.0011. Task: 00002 Well ID: MW-24A

Date: 7 - 30 -12 Sampled By: Gary Clift

Weather: rain / WARM Recorded By: NT

Coded Duplicate No.: None

Instrument Identification

	PID	Water Quality Meter(s)
Model	—	YSI-556
Serial #:	—	06F1362AU

Purging Information

Casing Material: PVC

Casing Diameter: 4"

Total Depth: 124'

Depth to Water: 110.29

Water Column: 13.71

Gallons/Foot: .65

Gallons in Well: 8.9

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

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

Screen Interval: From: 104' 124'

Pump Intake Setting: 114' @ 265 ft

Volumes to be Purged: 3 casing 27 gal

Total Volume Purged: 27 gal

Pump on: 1221 Off: 1248

Well Casing Volumes (gal/ft): 2" = 0.16 3" = 0.37 $3^1/_2$" = 0.50 (4" = 0.65) 6" = 1.46

Cr+6 (1560) .06 mg/L

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Flow Rate (1.5) gpm	Volume Purged (gal)	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
1227	6	1.5	9	111.34	35	-177.2	8.09	2269	29.88	0.06	
1230	9	1.5	13.5	111.35	29	-180.1	8.09	2267	30.02	0.05	
1233	12	1.5	18	111.35	21	-192.6	8.09	2270	30.05	0.04	
1236	15	1.5	22.5	111.35	19	-194.7	8.08	2270	30.07	0.04	
1239	18	1.5	27	111.36	19	-195.8	8.08	2271	30.07	0.04	
			27m								

Observations During Sampling

Well Condition: good

Color: clear / light red

Odor: none / slight odor

Purge Water Disposal: FM-3

Turbidity(qualitative): clear

Other (OVA, HNU,etc.): —

Sample ID: MW-24A120730 Sample Date & Time: 7-30-12 @ 1242

Samples Analyzed For: See the COC

ARCADIS

Groundwater Sampling Form

Project Number: RC000753.0011. Task: 00002 Well ID: MW-24B
Date: 7-30-12 Sampled By: Gary Clift
Weather: rain / warm Recorded By: NT
Coded Duplicate No.: none

Instrument Identification

	PID	Water Quality Meter(s)
Model	—	YSI-556
Serial #:	—	06F1362AU

Purging Information

Casing Material: pvc
Casing Diameter: 4"
Total Depth: 213'
Depth to Water: 108.43
Water Column: 104.57
Gallons/Foot: .65
Gallons in Well: 67.9

Purge Technique (circle one): Low-Flow (Remove 3 Well Volumes) Bail Dry
Purge Equipment (circle one): Submersible Centrifugal Bladder Peristaltic Bailer (dedicated pump)
Screen Interval: From: 193' 213'
Pump Intake Setting: —
Volumes to be Purged: 3 casing 51 gal
Total Volume Purged: 204
Pump on: 1311 Off: 1405

Well Casing Volumes (gal/ft): 2" = 0.16 3" = 0.37 3½" = 0.50 (4" = 0.65) 6" = 1.46

Cr+6 (1560) 1.56 mg/L

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Flow Rate (4gpm)	Volume Purged ( )	DTW (ft btoc)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Spec Cond (µmhos/cm)	Temp (°C)	DO (mg/L)	Comments
1328	17	4	68	112.22	16	-170.1	7.64	20136	31.30	0.03	
1336	25.5	4	102	112.23	14	-156.4	7.64	20138	31.22	0.03	
1345	34	4	136	112.25	14	-150.6	7.64	20141	31.22	0.03	
1353	42.5	4	170	112.25	12	-148.9	7.63	20136	31.22	0.03	
1402	51	4	204	112.26	11	-147.6	7.63	20135	31.24	0.03	

Observations During Sampling
Well Condition: good
Color: clear / light tint yellow greenish
Odor: clear to slight odor
Purge Water Disposal: FM-3
Turbidity(qualitative): clear
Other (OVA, HNU,etc.): —

Sample ID: MW-24B120730 Sample Date & Time: 7-30-12 @ 1405
Samples Analyzed For: See the COC

Appendix D

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