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ENVIRONMENT

Subject:

Addendum 3 to the *In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan – Floodplain Reductive Zone Enhancement* for the Pacific Gas and Electric Company Topock Compressor Station

Date:
30 November 2006

Dear: Mr. Perdue

Contact:
Alison Jones

Consistent with the *In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan – Floodplain Reductive Zone Enhancement* (Work Plan) prepared by MWH in August 2005, the *Final Addendum to the In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan – Floodplain Reductive Zone Enhancement* (Addendum 1) dated December 5, 2005, and *Addendum 2 to the In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan – Floodplain Reductive Zone Enhancement* (Addendum 2) dated April 14, 2006, ARCADIS proposes additional refinements to the floodplain reductive in-situ pilot test (ISPT, Figures 1 and 2). This third addendum (Addendum 3) details proposed modifications to the Work Plan and subsequent addenda. These modifications change the number and timing of injection events authorized under California Regional Water Quality Control Board, Colorado River Basin Region (Water Board) Order No. R7-2006-0008. Thus, these Addendum 3 modifications will need Water Board and Department of Toxic Substance Control (DTSC) approval prior to implementation.

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The purpose of the floodplain ISPT is to evaluate the efficacy of using food grade materials to reduce hexavalent chromium in groundwater to form stable, insoluble trivalent chromium. As specified in the Work Plan, the results will be used to assess the feasibility and performance (including delivery capabilities and persistence) of selected food grade organic carbon reductants under actual Site conditions. While the pilot test to date has been successful in reducing hexavalent chromium concentrations in the test area, the results of the proposed work will provide additional information on Site conditions necessary for the development of an enhanced reductive zone along the river floodplain and will assist with the selection of specific methodologies for long-term Site management.

Imagine the result

Results to Date

The first, second, third, and fourth injection events were on May 4, September 7, August 11, and November 1, 2006, respectively. Table 1 presents well construction details and Tables 2 and 3 present field and analytical data. The following paragraph describes the ISPT results through November 14, 2006.

The analytical results of post-injection sampling indicate that the injected tracers and total organic carbon (TOC) arrived at the PT-1 and PT-3 monitoring well nests within the first 3 days following the initial injections on May 4 through 6 (Table 2 and 3). Data to date from the second, third, or fourth injections do not indicate any changes in groundwater flow relative to the initial injections. Following the first injection, indications of reducing conditions and hexavalent chromium reduction were noted at wells PTI-1D, PT-1D, PT-2D, and PT-3D (Table 2 and 3). Although hexavalent chromium concentrations at wells PTI-1D and PT-1D increased slightly in months 3 and 5, concentrations decreased following the injection events on August 11, September 7, and November 1, 2006 (Table 2). Hexavalent chromium concentrations at well PTI-1D decreased to less than 10 micrograms per liter on September 28 and October 8, 2006 and have remained low. Hexavalent chromium concentrations also declined at well PT-2D following the injections, however, concentrations have remained above the detection limit. Peak TOC concentrations following injections have declined over time, indicating that the amount of TOC reaching this downgradient location is insufficient to support complete chromium reduction. Additionally, dissolved iron concentrations throughout the deep zone have remained low over the course of the injections, suggesting that the carbon addition thus far has not been adequate to stimulate the iron reducing conditions optimal for sustained chromium reduction.

The data suggest that the additional injections have increased the reduction of hexavalent chromium as the aquifer microbes have been conditioned to the presence of organic carbon. It is likely that the continued injection of organic carbon would continue the reduction of hexavalent chromium, but a more persistent reductive environment that is less dependent on continued injections of low concentrations of organic carbon would be preferable. In an effort to create a more persistent reductive environment, modifications to the injection approach are proposed.

Proposed Modifications

The following modifications are proposed to the floodplain ISPT, as currently detailed in the Work Plan, Addendum 1, and Addendum 2:

- Increase the number of injection events from four to six;
- Increase the amount of injected reductant reagent from 50, 100, 100, and 200 pounds, for the first four injections, to 1,500 pounds per injection for the fifth and sixth injection;
- Increase the total volume of injected reductant solution from 6,000 gallons per injection to 18,000 gallons;
- Modify the groundwater monitoring schedule and list of monitored parameters; and
- Clarify the reporting schedule and the content of the reports.

The proposed changes are discussed in more detail in the following paragraphs.

Number of Injection Events

The Work Plan noted that reduction efficiency can be determined from groundwater chemistry and a comparison between TOC concentrations and tracer concentrations. If the reduction efficiency indicates a high reductant consumption rate by compounds other than hexavalent chromium, additional injections of higher concentrations of lactate would be completed.

Water Board Order No. R7-2006-0008 provides for up to four injection events to be completed over a six-month period. ARCADIS is proposing to increase the number of injection events to six and, in an attempt to increase the persistence of the treatment, to increase both the concentration of lactate in the injectant and the volume of the injection solution used in each of the fifth and sixth injections. The total amounts of injected lactate and diluted solution used for all six injections will not exceed the respective amounts authorized under Order No. R7-2006-0008 to be used in four injections.

ARCADIS completed four injection events during the six month period from May 4, 2006 through November 2, 2006. The first event was completed in all three injection

wells (PTI-1S/M/D); the three subsequent injections were completed in the deep zone only. ARCADIS is now proposing to complete two additional injections of lactate in the deep zone. It is anticipated that these additional injections will result in the further reduction of hexavalent chromium concentrations in the groundwater. In addition, the additional injections are expected to stimulate the reduction of iron and the production of ferrous iron that is necessary to sustain continued hexavalent chromium reduction between organic carbon injections.

The data from these additional injections will support the full scale application of in-situ remediation at the Topock site. A comparison between water chemistry data from the low concentration and higher concentration lactate injections will provide data that can be used to determine the required loading of organic carbon in the upland recirculation test, as well as to calibrate organic carbon loading in a full scale floodplain injection program.

Reductant Reagent

In the original Work Plan, it was proposed to use both emulsified vegetable oil (EVO) and lactate as injected reductants. Addendum 1 modified the Work Plan to use lactate only and increased the proposed volume of lactate to be used to 500 pounds in each of the three injection wells. The proposed total volume of reagent solution (6,000 gallons per injection well) was not modified in Addendum 1.

In a deliberate, measured approach, only 50 pounds of lactate per injection well (a 10-fold reduction in the lactate volume) was used during the first injection event. Data from this initial injection event provided the basis for increasing the lactate volume used during subsequent injections as described in the *Request for Approval of Second and Third Injection Events*, dated July 25, 2006 and the *Request for Approval of a Fourth Injection Event*, dated October 18, 2006. During the second and third injections, 100 pounds of lactate were injected and 200 pounds of lactate were injected during the fourth injection.

ARCADIS proposes to inject 1,500 pounds of lactate (60% solution) during each of two additional injections (events 5 and 6) in the deep zone. It is anticipated that an increase in the volume of injected TOC should create a more persistent reducing zone. ARCADIS has completed half life calculations on the injected TOC and determined that TOC degradation rates are sufficient to degrade the TOC before the injected solution could arrive at the downgradient IM-3 extraction wells (TW-2D and TW-3D). These calculations were derived from the analytical data (Table 3). The

concentrations and types of other constituents in the reductant solution (i.e. yeast extract and tracers) will remain the same as was proposed in the Work Plan, Addendum 1, the *Request for Approval of Second and Third Injection Events*, and the *Request for Approval of a Fourth Injection Event*.

The total amount of lactate injected for all six injections would be 3,450 pounds, which is within the 6,000 pounds authorized under Water Board Order No. R7-2006-0008 for four injections.

Reductant Solution

The Work Plan and Addenda 1 and 2 state that the total volume of solution to be injected into in each injection well during each injection event will be 6,000 gallons. Data collected to date indicate that the radius of influence of a 6,000 gallon injection is approximately 15 feet. In order to increase the radius of influence, ARCADIS proposes to inject 18,000 gallons of solution per each additional injection. The 18,000 gallons of solution is anticipated to have an approximately 25-foot radius of influence. The total volume of injected solution for all six injections injection would be 72,000 gallons, which is the amount authorized under Order No. R7-2006-0008 for four injections.

Groundwater Monitoring Program

Groundwater monitoring will be completed as stated in the *Request for Approval of Second and Third Injection Events* and amended by agreement with the DTSC. ARCADIS proposes that the tracer test parameters (i.e. hexavalent chromium, total organic carbon, and two tracers) will be monitored weekly at the injection well (PTI-1D), three monitoring wells (PT-1D, PT-2D, and PT-3D), and two extraction wells (TW-2D and TW-3D) for one month after each additional injection and bi-monthly for two additional months. This is in accordance with the required monthly sampling under the Board Order No. R7-2006-0008.

Reporting

In accordance with the Work Plan, there will be frequent communication between PG&E, the Water Board, and DTSC. Monthly and quarterly update reports will continue to be prepared and submitted over the duration of the ISPT. A final report will be submitted within approximately three months after the completion of the pilot

study. The pilot study will be determined to be complete three months after TOC concentrations return to approximately baseline conditions.

Upon approval, ARCADIS will begin the fifth injection event at PTI-1D. The tentative proposed schedule for implementation of the fifth injection is January 9, 2006.

If you have any questions regarding the proposed additional injection events, please call Yvonne Meeks of PG&E at (805) 546-5243, or me at (415) 374-2744 ext 20.

Sincerely,

ARCADIS G&M, Inc.



Alison Jones, PhD, PE
Senior Project Manager
Principal Engineer

Attachments:

Table 1: Boring and Well Construction Details

Table 2: Summary of Field Parameters

Table 3: Summary of Primary Parameters

Figure 1: Site Plan

Figure 2: Sample Location Map

Copies:

Mr. Jose Cortez, Water Board

Ms. Liann Chavez, Water Board

Mr. Tom Vandenberg, Water Board (email only)

Mr. Christopher Guerre, DTSC (2 copies)

Table 1
Boring and Well Construction Detail Summary

PG&E Topock
Needles, California

Addendum 3 to the In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan – Floodplain Reductive Zone Enhancement

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 PTI-1 (feet)	Latitude	Longitude
PT-1S	31-Jan-06	S	472.239	474.644	125	2	10	45	430	35-45	440-430	32-47	443-428	28-32	447-443	2006010013	20	34° 43' 10.3"	114° 29' 25.8"
PT-1M	31-Jan-06	M	472.239	474.622	125	2	10	70	405	60-70	415-405	57-72	428-403	46-57	429-418	2006010013	23	34° 43' 10.3"	114° 29' 25.8"
PT-1D	31-Jan-06	D	472.239	474.627	125	2	10	105	370	95-105	380-370	92-125	383-350	72-92	403-383	2006010013	24	34° 43' 10.3"	114° 29' 25.8"
PT-2S	8-Feb-06	S	471.627	473.487	127	2	10	45	428	35-45	438-428	32-47	441-426	28-32	445-441	2006010012	45	34° 43' 10.3"	114° 29' 26.1"
PT-2M	8-Feb-06	M	471.627	473.587	127	2	10	70	404	60-70	414-404	57-72	423-402	46-57	428-417	2006010012	47	34° 43' 10.3 "	114° 29' 26.1"
PT-2D	8-Feb-06	D	471.627	473.522	127	2	10	105	369	95-105	379-369	92-127	382-347	72-92	402-382	2006010012	49	34° 43' 10.3"	114° 29' 26.1"
PT-3S	14-Feb-06	S	471.698	473.584	129	2	10	45	429	35-45	439-429	32-47	442-427	28-32	446-442	2006010011	12	34° 43' 10.2"	114° 29' 25.6"
PT-3M	14-Feb-06	M	471.698	473.520	129	2	10	70	404	60-70	414-404	57-72	427-402	46-57	428-417	2006010011	15	34° 43' 10.2"	114° 29' 25.6"
PT-3D	14-Feb-06	D	471.698	473.525	129	2	10	105	369	95-105	379-369	92-127	382-347	72-92	402-382	2006010011	13	34° 43' 10.2"	114° 29' 25.6"
PT-4S	12-Feb-06	S	471.79	474.430	127	2	10	45	429	35-45	439-429	32-47	442-427	28-32	446-442	2006010010	27	34° 43' 10.1"	114° 29' 25.4"
PT-4M	12-Feb-06	M	471.79	474.331	127	2	10	70	404	60-70	414-404	57-72	423-403	46-57	428-417	2006010010	29	34° 43' 10.1"	114° 29' 25.4"
PT-4D	12-Feb-06	D	471.79	474.299	127	2	10	105	369	95-105	379-369	92-127	382-347	72-92	402-382	2006010010	24	34° 43' 10.1"	114° 29' 25.4"
PT-5S	10-Feb-06	S	471.262	473.611	127	2	10	45	429	35-45	439-429	32-47	442-427	28-32	446-442	2006010009	54	34° 43' 10.1"	114° 29' 25.0"
PT-5M	10-Feb-06	M	471.262	473.630	127	2	10	70	404	60-70	414-404	57-72	427-402	46-57	428-417	2006010009	53	34° 43' 10.2"	114° 29' 25.0"
PT-5D	10-Feb-06	D	471.262	473.625	127	2	10	105	369	95-105	379-369	92-127	382-347	72-92	402-382	2006010009	49	34° 43' 10.2"	114° 29' 25.0"
PT-6S	28-Jan-06	S	474.441	475.981	137	2	10	45	431	35-45	441-431	32-47	444-429	28-32	448-444	2006010008	27	34° 43' 10.6"	114° 29' 25.4"
PT-6M	28-Jan-06	M	474.441	476.025	137	2	10	70	406	60-70	416-406	57-72	425-404	46-57	430-419	2006010008	23	34° 43' 10.6"	114° 29' 25.4"
PT-6D	28-Jan-06	D	474.441	476.013	137	2	10	105	371	95-105	381-381	92-137	384-339	72-92	444-384	2006010008	25	34° 43' 10.6"	114° 29' 25.4"
PTI-1S	28-Jan-06	S	472.751	475.035	47	4	10	45	430	35-45	440-430	32-47	443-428	28-32	447-443	2006010006	0	34° 43' 10.4"	114° 29' 25.5"
PTI-1M	26-Jan-06	M	472.938	475.087	77	4	10	70	405	60-70	415-405	57-72	428-403	46-57	429-418	2006010007	0	34° 43' 10.4"	114° 29' 25.6"
PTI-1D	26-Jan-06	D	472.573	474.762	137	4	10	105	370	95-105	380-370	92-137	383-338	72-92	403-383	2006010005	0	34° 43' 10.4"	114° 29' 25.6"
TW-2D	1-Apr-04	D	496.932	496.932	180	6	12	153	344	113-148	384-349	108-153	389-344	153-180, 101-108	344-317, 396-394	-	205	34° 43' 10.3"	114° 29' 28.0"
TW-3D	24-Oct-05	D	497.415	497.415	157	6	10	153	344	111-156	386-341	105-157	392-340	50-105	447-392	-	217	34° 43' 10.2"	114° 29' 28.1"
PE-1	2-Mar-05	D	466.879	496.549	105	6	10	110	387	79-89	418-408	76-99	421-398	99-105, 72-76	398-425, 392-421	2005101057	296	34° 43' 9.3"	114° 29' 22.2"

Notes:

- feet bgsFeet below ground surface
- feet mslFeet mean sea level
- PTI-Pilot test injection well
- PT-Pilot test monitoring well
- SShallow
- MMiddle
- DDeep
- TOCTop of casing
- *Elevations are in feet, North American Vertical Datum of 1988 (NAVD 88), NGS data sheet EU0763.
- **Reference elevation
- Not available

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

Addendum 3 to the In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan –
Floodplain Reductive Zone Enhancement

Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	ORP (mV)	pH	Specific Conductance (µS/cm)	Temperature (C°)	Hexavalent Chromium Field (µg/L)
PT-1S	17-Mar-06	N	35-45	-150.7	7.05	6,565	26.62	<10
	06-Apr-06	N		-173	7.06	6,892	26.92	<10
	04-May-06	N		-100.6	8.06	8,889	25.64	<10
	05-May-06	N		-107.2	7.55	7,457	26.82	<10
	06-May-06	N		-88.4	7.09	7,318	26.45	<10
	07-May-06	N		-98.6	7.31	7,097	26.59	10
	08-May-06	N		-82.7	7.35	6,976	26.65	<10
	09-May-06	N		-30.7	7.12	7,550	26.63	<10
	10-May-06	N		-102.2	7.15	6,735	26.72	<10
	11-May-06	N		-97.7	7.22	6,369	26.72	<10
	12-May-06	N		-73	7.08	6,594	26.72	<10
	13-May-06	N		-47.2	7.18	5,961	26.61	---
	23-May-06	N		14.1	7.34	5,830	27.01	<10
	01-Jun-06	N		567.9	7.03	3,636	26.54	<10
	06-Jun-06	N		-173.5	7.39	6,546	26.88	<10
	18-Jul-06	N		-133.4	7.25	6,461	26.6	<10
	08-Aug-06	N		-139.1	6.96	7,412	26.43	10
	06-Sep-06	N		-175.9	7.44	6,555	26.87	13
	04-Oct-06	N		-151.8	7.33	6,939	26.97	18
	08-Nov-06	N		-138.6	6.78	9,980	26.04	38
PT-1M	17-Mar-06	N	60-70	-211	7.46	7,000	26.21	<10
	06-Apr-06	N		-211.1	9	7,506	26.54	<10
	04-May-06	N		-88.7	8.45	6,824	25.1	<10
	06-May-06	N		-93.1	7.48	7,221	25.8	---
	07-May-06	N		-98.2	7.62	7,202	26.1	38
	08-May-06	N		-77.6	7.07	4,593	26.16	42
	09-May-06	N		-19.6	7.62	7,273	26.23	<10
	10-May-06	N		-118.8	7.69	6,657	26.55	15
	11-May-06	N		-92.1	7.61	6,539	26.29	11
	12-May-06	N		-77.3	7.54	6,877	26.3	<10
	13-May-06	N		-39.2	7.47	5,933	26.26	---
	24-May-06	N		-16.2	7.67	5,837	26.24	<10
	31-May-06	N		-59.6	7.36	4,549	27.59	<10
	06-Jun-06	N		-176.9	7.62	7,071	26.27	<10
	18-Jul-06	N		-139.6	7.51	6,927	26.3	<10
	08-Aug-06	N		-183.5	7.21	6,826	25.66	<10
	06-Sep-06	N		-233.4	7.88	6,750	26.3	17
	04-Oct-06	N		-132.1	7.51	6,823	28.81	12
	08-Nov-06	N		-146	7.14	6,743	25.36	10

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

Addendum 3 to the In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan –
Floodplain Reductive Zone Enhancement

Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	ORP (mV)	pH	Specific Conductance (µS/cm)	Temperature (C°)	Hexavalent Chromium Field (µg/L)
PT-1D	17-Mar-06	N	95-105	-129.5	7.36	13,149	26.06	1,900
	06-Apr-06	N		112	6.66	14,027	26	3,040
	05-May-06	N		47.6	7.86	12,918	26.03	---
	06-May-06	N		69.3	7.36	14,048	26.18	4,660
	07-May-06	N		79.3	7.62	13,536	26.07	3,680
	08-May-06	N		85.6	7.71	12,334	26.14	4,980
	09-May-06	N		-145.2	7.59	12,058	26.18	2,960
	10-May-06	N		5.7	7.54	11,794	26.19	2,840
	11-May-06	N		-7.1	7.71	10,586	26.1	1,740
	12-May-06	N		-6	7.56	10,653	26.5	2,260
	13-May-06	N		41.9	7.6	9,215	25.9	---
	24-May-06	N		90.2	6.6	10,570	26.25	1,420
	31-May-06	N		358.1	5.89	5,935	29.21	980
	05-Jun-06	N		403.4	8.41	10,776	27.13	840
	17-Jul-06	N		201.6	7.39	11,498	26.29	840
	08-Aug-06	N		-163.8	7.17	11,662	25.83	1,240
	14-Aug-06	N		-22.9	8.1	9,762	27.52	820
	17-Aug-06	N		-154.6	8.16	10,189	26.46	580
	22-Aug-06	N		-109.3	8.31	9,846	26.68	540
	24-Aug-06	N		-2.1	8.03	9,779	26.62	580
	29-Aug-06	N		-42.1	8.12	9,308	26.56	480
	05-Sep-06	N		-94.7	8.33	9,402	27.92	371
	12-Sep-06	N		-174.1	7.95	9,129	26.76	180
	19-Sep-06	N		-361.1	8.32	8,445	26.49	320
	28-Sep-06	N		-155.8	7.74	8,889	26.58	118
	04-Oct-06	N		-173.9	7.82	9,298	26.73	103
	17-Oct-06	N		-186	7.57	9,869	26.5	40
	31-Oct-06	N		117.6	7.58	10,534	25.8	171
	08-Nov-06	N		-252.4	7.38	9,572	25.69	<10
	14-Nov-06	N		-124.7	6.91	9,798	25.69	41
PT-2S	17-Mar-06	N	35-45	-204	7.27	6,273	26.87	<10
	06-Apr-06	N		-175.9	6.14	6,867	26.79	<10
	24-May-06	N		-6.5	7.57	5,405	27.13	10
	01-Jun-06	N		-88.7	7.25	6,678	26.74	10
	07-Jun-06	N		-168.6	7.57	6,268	26.37	<10
	18-Jul-06	N		-203.8	7.28	6,492	27.51	<10
	08-Aug-06	N		-74.6	7.54	6,892	26.96	19
	06-Sep-06	N		-205.1	7.69	6,563	28.21	17
	04-Oct-06	N		-152.2	7.4	6,548	26.53	24
	08-Nov-06	N		-152	7.1	7,712	26.23	18

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

Addendum 3 to the In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan –
 Floodplain Reductive Zone Enhancement

Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	ORP (mV)	pH	Specific Conductance (µS/cm)	Temperature (C°)	Hexavalent Chromium Field (µg/L)
PT-2M	17-Mar-06	N	60-70	-170.9	7.29	7,304	26.3	<10
	06-Apr-06	N		-173.8	8.01	7,752	26.9	<10
	24-May-06	N		44.3	7.61	5,902	2,647	<10
	31-May-06	N		-65	7.14	7,271	25.94	<10
	07-Jun-06	N		-99.7	7.62	6,825	26.71	<10
	18-Jul-06	N		-173.1	7.16	6,849	27.25	<10
	08-Aug-06	N		-27.6	7.44	6,797	26.39	<10
	06-Sep-06	N		-227.6	7.66	6,610	27.04	19
	04-Oct-06	N		-82.9	7.33	6,592	25.85	18
	08-Nov-06	N		-20.1	6.9	6,813	25.86	<10
PT-2D	17-Mar-06	N	95-105	-100.5	7.21	12,626	26.17	1,600
	06-Apr-06	N		-71.3	7.04	13,924	26.03	2,300
	24-May-06	N		180.9	7.39	9,229	26.45	1,640
	31-May-06	N		-51.2	7.39	11,157	25.95	1,160
	07-Jun-06	N		403.3	7.61	10,386	26.21	840
	17-Jul-06	N		426.4	7.46	11,231	26.63	500
	07-Aug-06	N		-134.6	7.43	11,647	26.8	660
	14-Aug-06	N		3.5	7.95	11,541	26.64	620
	17-Aug-06	N		-157.2	7.93	11,608	26.61	560
	21-Aug-06	N		-177.7	8.26	11,140	26.52	500
	24-Aug-06	N		-73.9	8.01	10,924	26.45	580
	29-Aug-06	N		-72	8.01	10,433	26.39	680
	05-Sep-06	N		-234.6	7.82	10,660	27.33	520
	12-Sep-06	N		-87	7.74	10,774	26.5	520
	19-Sep-06	N		-245.7	7.65	9,754	26.57	500
	28-Sep-06	N		-146.9	7.68	9,443	26.41	258
	04-Oct-06	N		91	7.58	9,240	25.85	4220*
	17-Oct-06	N		378.7	7.42	9,445	25.45	76
	31-Oct-06	N		393.3	7.53	10,065	25.69	282
	08-Nov-06	N		212	7.31	10,769	25.98	225
	14-Nov-06	N		395.4	7.46	10,256	25.4	279

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

Addendum 3 to the In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan –
Floodplain Reductive Zone Enhancement

Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	ORP (mV)	pH	Specific Conductance (µS/cm)	Temperature (C°)	Hexavalent Chromium Field (µg/L)
PT-3S	16-Mar-06	N	35-45	-218.9	7.14	6,353	26.67	<10
	03-Apr-06	N		-238.1	7.38	6,846	26.68	<10
	04-May-06	N		-119.3	8.1	6,380	27.1	<10
	05-May-06	N		-130.6	7.44	6,690	26.46	<10
	06-May-06	N		-130.7	7.1	6,363	26.6	<10
	07-May-06	N		-115.2	7.25	6,846	26.56	<10
	09-May-06	N		-43.9	7.27	6,976	26.55	<10
	10-May-06	N		-135.7	7.35	6,419	26.81	11
	11-May-06	N		-20.1	7.39	6,218	26.77	<10
	12-May-06	N		-92.7	7.14	6,169	26.69	<10
	13-May-06	N		-90.5	7.28	6,358	26.7	---
	23-May-06	N		1.37	7.13	5,944	26.82	<10
	30-May-06	N		-162.7	12.28	5,971	27.5	13
	06-Jun-06	N		-177.7	7.57	5,295	26.72	12
	19-Jul-06	N		-166.3	7.27	5,771	26.64	<10
	08-Aug-06	N		-120.1	7.04	6,105	27.83	<10
	06-Sep-06	N		-98	7.52	6,205	26.68	23
	04-Oct-06	N		-156.2	7.32	6,249	26.31	20
	07-Nov-06	N		-155.4	7.43	6,586	26.4	20
PT-3M	18-Mar-06	N	60-70	-249.1	7.96	7,232	26.19	<10
	07-Apr-06	N		-218.3	7.33	8,041	26.06	---
	04-May-06	N		-101.8	8.68	7,193	24.31	---
	05-May-06	N		-106	7.99	7,665	26.05	<10
	06-May-06	N		-96.6	7.53	7,613	25.83	<10
	07-May-06	N		-82	7.64	7,681	26.23	<10
	09-May-06	N		-8.4	7.58	7,718	25.98	<10
	10-May-06	N		-103	7.61	7,176	26.41	14
	11-May-06	N		-86.4	7.7	6,879	26.32	<10
	12-May-06	N		-71.8	7.54	6,927	26.27	13
	13-May-06	N		6.9	7.49	7,130	26.12	---
	23-May-06	N		42.8	7.38	7,475	26.13	<10
	30-May-06	N		-70.3	12.31	7,977	26.69	16
	06-Jun-06	N		-112.8	7.68	7,026	25.75	<10
	19-Jul-06	N		-156.3	7.33	6,911	25.7	<10
	08-Aug-06	N		-92.5	7.52	7,048	26.72	10
	06-Sep-06	N		-39.3	7.68	6,777	25.84	14
	04-Oct-06	N		-126.1	7.49	6,566	25.36	19
	07-Nov-06	N		-150	7.38	6,571	26.48	19

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

Addendum 3 to the In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan –
Floodplain Reductive Zone Enhancement

Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	ORP (mV)	pH	Specific Conductance (µS/cm)	Temperature (C°)	Hexavalent Chromium Field (µg/L)
PT-3D	18-Mar-06	N	95-105	-54.4	7.38	13,782	25.98	4,620
	05-Apr-06	N		51.8	7.51	14,347	26.71	7,760
	05-May-06	N		66.7	7.87	13,263	25.96	3,140
	06-May-06	N		71.7	7.54	11,437	26.03	3,440
	07-May-06	N		76.8	7.81	9,027	26.14	4,200
	09-May-06	N		168.5	7.62	12,715	26.08	3,960
	10-May-06	N		2.6	6.66	10,771	26.33	3,960
	11-May-06	N		-11.9	7.86	11,767	26.28	3,780
	12-May-06	N		-6.1	7.65	12,290	26.18	3,720
	13-May-06	N		144.5	7.72	12,139	26.33	---
	23-May-06	N		129.1	7.31	13,111	27.37	3,900
	30-May-06	N		30.7	12.4	13,907	27.29	3,800
	06-Jun-06	N		12.6	7.71	12,310	25.82	3,380
	17-Jul-06	N		-246.7	7.51	12,277	26.17	1,920
	08-Aug-06	N		-66.9	8.62	13,045	29.12	4,100
	14-Aug-06	N		-24.3	8.46	10,984	26.95	3,140
	17-Aug-06	N		-176.1	8.34	11,853	26.29	3,600
	21-Aug-06	N		-163.9	8.54	12,168	26.73	3,860
	24-Aug-06	N		-95.2	8.31	12,213	26.3	3,520
	29-Aug-06	N		-124.4	8.34	12,065	26.68	3,340
	05-Sep-06	N		-61.2	8.41	12,130	26.55	3,200
	12-Sep-06	N		-144.8	8.01	12,434	26.47	2,880
	19-Sep-06	N		-231.4	7.66	12,884	26.31	3,100
	28-Sep-06	N		-115.5	7.75	12,579	25.98	3,800
	04-Oct-06	N		-69.8	7.84	12,638	26.11	3,520
	17-Oct-06	N		-115.2	7.61	13,181	26.85	700
	31-Oct-06	N		-74.9	7.77	13,265	25.45	3,440
	07-Nov-06	N		-140.8	7.94	13,517	26.23	2,640
	14-Nov-06	N		-186.7	7.69	11,694	25.13	680

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

Addendum 3 to the In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan –
Floodplain Reductive Zone Enhancement

Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	ORP (mV)	pH	Specific Conductance (µS/cm)	Temperature (C°)	Hexavalent Chromium Field (µg/L)
PT-4S	15-Mar-06	N	35-45	-257	7.32	7,072	26.16	<10
	06-Apr-06	N		-159.9	7.8	7,783	26.11	<10
	04-May-06	N		-117	8.33	6,585	25.39	<10
	05-May-06	N		-126.6	7.7	7,325	25.82	<10
	09-May-06	N		-93.5	7.21	7,752	25.75	<10
	10-May-06	N		-119.8	7.41	4,939	26.33	<10
	11-May-06	N		6.2	7.62	7,180	27.26	<10
	12-May-06	N		-71.2	7.35	6,997	26.08	14
	13-May-06	N		-68.7	7.6	7,305	26.09	---
	23-May-06	N		20.4	7.53	6,411	27.13	<10
	30-May-06	N		-121.7	7.1	7,504	25.93	<10
	06-Jun-06	N		-230.2	7.78	7,377	27.56	<10
	19-Jul-06	N		-137.8	7.33	7,106	26.16	11
	08-Aug-06	N		-151.6	7.2	7,174	26.05	11
	06-Sep-06	N		-126.1	7.73	7,212	26.7	<10
	04-Oct-06	N		-130	7.62	7,314	26.67	11
	08-Nov-06	N		-135.2	7.88	7,478	24.89	13
PT-4M	15-Mar-06	N	60-70	-246.1	7.9	6,784	25.99	<10
	07-Apr-06	N		-210.5	7.48	7,566	26.28	---
	04-May-06	N		-119.6	8.74	7,031	24.95	<10
	08-May-06	N		-113.4	7.97	7,384	26.14	11
	09-May-06	N		-58.9	7.74	7,588	25.84	<10
	10-May-06	N		-134	7.73	7,022	26.24	<10
	11-May-06	N		-115.2	7.92	6,991	26.21	<10
	12-May-06	N		-95.1	7.73	7,084	25.79	<10
	13-May-06	N		-68.6	7.85	6,265	25.93	---
	23-May-06	N		25.9	7.81	6,267	26.82	<10
	30-May-06	N		-113.1	7.48	7,467	25.61	11
	06-Jun-06	N		-211.3	7.89	7,258	26.68	<10
	19-Jul-06	N		-146.4	7.44	6,939	26.19	<10
	08-Aug-06	N		-160.5	7.29	6,976	25.76	10
	06-Sep-06	N		-110.5	7.77	6,825	26.08	<10
	04-Oct-06	N		-123.5	7.6	6,918	26.34	18
	08-Nov-06	N		-178.6	7.82	6,623	25.25	17

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

Addendum 3 to the In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan –
Floodplain Reductive Zone Enhancement

Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	ORP (mV)	pH	Specific Conductance (µS/cm)	Temperature (C°)	Hexavalent Chromium Field (µg/L)
PT-4D	15-Mar-06	N	95-105	-98.4	7.4	15,180	26.02	5,800
	05-Apr-06	N		-30	7.58	162,310	26.61	5,840
	08-May-06	N		62.7	7.93	14,947	26.1	5,920
	09-May-06	N		48.3	7.45	14,719	25.92	6,520
	10-May-06	N		42.1	7.68	14,351	26.14	6,160
	11-May-06	N		-10.2	7.84	13,923	26.15	5,920
	12-May-06	N		-4.5	7.72	14,580	25.97	7,480
	13-May-06	N		28.1	7.69	12,744	26	---
	23-May-06	N		50	7.91	13,640	31.2	4,840
	30-May-06	N		-81.3	7.43	15,116	25.97	5,800
	06-Jun-06	N		-174.3	7.81	15,010	26.65	4,780
	19-Jul-06	N		-76.3	7.49	14,389	25.97	5,960
	08-Aug-06	N		-135.9	7.32	14,160	25.09	6,220
	06-Sep-06	N		46.8	7.79	14,720	26.1	5,020
	04-Oct-06	N		-99.4	7.7	14,992	27.04	5,280
	08-Nov-06	N		11.4	7.72	15,619	24.91	5,640
PT-5S	16-Mar-06	N	35-45	-204.9	7.33	7,714	25.81	<10
	07-Apr-06	N		-177.3	7	8,640	25.75	---
	01-Jun-06	N		-88.9	7.17	8,682	25.46	<10
	19-Jul-06	N		-134.5	7.23	8,660	25.53	<10
	09-Aug-06	N		-172.2	7.37	8,902	25.2	<10
	08-Sep-06	N		-209.6	7.32	8,742	25.63	26
	05-Oct-06	N		-133.7	7.32	8,975	25.91	12
	09-Nov-06	N		-108.7	7.33	9,205	22.15	18
PT-5M	16-Mar-06	N	60-70	-184.6	7.29	6,989	25.48	<10
	07-Apr-06	N		-183.5	6.97	8,609	25.8	---
	01-Jun-06	N		-49.9	7.05	6,191	24.82	<10
	19-Jul-06	N		-113.4	7.26	5,091	25.32	<10
	09-Aug-06	N		-171.5	7.46	4,740	24.81	<10
	08-Sep-06	N		-184.3	7.58	4,666	25.16	<10
	05-Oct-06	N		-113.8	7.53	4,606	24.89	10
	09-Nov-06	N		-61.7	7.57	4,571	22.25	<10
PT-5D	16-Mar-06	N	95-105	-191.1	7.71	8,304	25.85	6,200
	07-Apr-06	N		-181.1	7.05	8,561	25.78	---
	12-May-06	N		-1.2	7.7	13,620	26.62	5,240
	01-Jun-06	N		-45.5	7.47	14,037	25.5	3,660
	17-Jul-06	N		-208.6	7.55	13,286	25.97	3,940
	09-Aug-06	N		-128.2	7.41	13,646	25.65	4,380
	08-Sep-06	N		-168	7.65	13,954	25.45	4,600
	05-Oct-06	N		-78.9	7.66	14,067	26.14	4,100
	09-Nov-06	N		-46.2	7.82	15,243	23.18	4,980

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

Addendum 3 to the In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan –
Floodplain Reductive Zone Enhancement

Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	ORP (mV)	pH	Specific Conductance (µS/cm)	Temperature (C°)	Hexavalent Chromium Field (µg/L)
PT-6S	18-Mar-06	N	35-45	-91.7	6.99	10,053	25.49	<10
	04-Apr-06	N		-187.9	7.22	10,379	26.56	<10
	13-May-06	N		-48.4	7.31	7,353	26.62	---
	22-May-06	N		-14	7.21	7,476	26.59	<10
	01-Jun-06	N		556.8	6.52	4,423	27.56	<10
	06-Jun-06	N		-164.1	7.65	8,564	26.25	14
	19-Jul-06	N		-161.6	6.97	8,271	22.57	12
	09-Aug-06	N		-107.7	6.88	9,196	26.87	52
	08-Sep-06	N		-143.6	7.78	9,508	26.05	45
	05-Oct-06	N		-139.1	7.09	9,579	25.84	20
	09-Nov-06	N		-138.6	7.04	10,797	25.75	25
PT-6M	16-Mar-06	N	60-70	-120.1	7.25	7,221	26.13	<10
	04-Apr-06	N		-114.1	7.45	7,761	26.18	<10
	13-May-06	N		22.6	7.46	6,212	26.22	---
	23-May-06	N		85.6	7.57	5,988	26.51	<10
	01-Jun-06	N		675.3	6.84	3,952	27.04	<10
	06-Jun-06	N		-197.1	7.98	6,832	2,610	<10
	19-Jul-06	N		-168.5	7.28	6,528	26.7	<10
	09-Aug-06	N		-38.9	7.2	6,396	26.43	<10
	08-Sep-06	N		-38.6	8.12	6,168	25.81	28
	05-Oct-06	N		-21.2	7.61	6,166	25.52	<10
	09-Nov-06	N		20	7.52	6,076	25.21	<10
PT-6D	16-Mar-06	N	95-105	-118.9	7.73	13,489	25.9	3,380
	04-Apr-06	N		-91.1	7.72	12,784	26.95	2,580
	13-May-06	N		28.7	7.77	9,829	25.87	---
	22-May-06	N		79.4	7.9	9,631	26.37	2,040
	01-Jun-06	N		692.8	7.08	6,017	26.42	1,360
	06-Jun-06	N		-170.6	8	10,470	25.84	1,000
	17-Jul-06	N		-681.6	7.62	10,365	26.49	920
	09-Aug-06	N		-43.8	7.5	10,793	26.84	1,600
	08-Sep-06	N		14.3	8.26	11,809	25.89	1,780
	05-Oct-06	N		-12.7	7.76	10,885	25.36	1,080
	09-Nov-06	N		131.7	7.68	11,006	25.01	1,400

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

Addendum 3 to the In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan –
Floodplain Reductive Zone Enhancement

Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	ORP (mV)	pH	Specific Conductance (µS/cm)	Temperature (C°)	Hexavalent Chromium Field (µg/L)
PTI-1S	15-Mar-06	N	35-45	-203.1	7.1	6,390	26.83	<10
	05-Apr-06	N		-184	7.28	6,964	27.06	<10
	06-May-06	N		---	---	---	---	620
	07-May-06	N		-137.8	6.73	4,936	33.59	600
	09-May-06	N		-54.8	6.57	5,627	32.39	---
	10-May-06	N		-155.1	6.29	5,313	25.6	290
	11-May-06	N		-156.5	6.27	5,326	28.93	20
	12-May-06	N		-71.9	6.8	4,457	28.07	70
	13-May-06	N		-132.8	6.58	4,582	28.42	---
	23-May-06	N		-21.3	6.66	4,262	27.04	<10
	31-May-06	N		-146	6.93	4,313	28.09	28
	05-Jun-06	N		-240.5	7.88	4,144	27.51	<10
	18-Jul-06	N		-164.1	7.28	6,399	26.77	80
	07-Aug-06	N		-124.1	7.22	6,771	26.43	<10
	07-Sep-06	N		-98.6	7.54	6,865	26.62	14
	03-Oct-06	N		-171.7	7.35	6,861	26.74	<10
	07-Nov-06	N		-178.4	6.86	7,209	26.03	14
PTI-1M	15-Mar-06	N	60-70	-220.1	7.38	7,338	26.17	14
	04-Apr-06	N		-173.8	7.71	7,919	27.06	10
	06-May-06	N		-6.8	6.82	6,623	29.31	74
	07-May-06	N		-17.2	7.08	6,244	28.96	55
	09-May-06	N		-2.3	7.22	7,559	28.03	430
	10-May-06	N		57	7.26	6,179	29.4	28
	11-May-06	N		-149.5	7.02	7,325	27.56	27
	12-May-06	N		-72.4	7.52	6,066	27.05	29
	13-May-06	N		-229	7.45	6,745	27.13	---
	23-May-06	N		-231.7	6.66	6,204	27.57	11
	31-May-06	N		-120.2	7.2	6,824	26.76	57
	05-Jun-06	N		-254	8.13	7,092	26.94	<10
	18-Jul-06	N		-180.1	7.56	6,990	26.62	<10
	07-Aug-06	N		-150.3	7.45	6,940	27.24	<10
	07-Sep-06	N		-78.2	7.87	6,923	26.86	16
	03-Oct-06	N		-112.8	7.27	6,621	26.15	<10
	07-Nov-06	N		-160.2	6.97	6,610	25.58	<10

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

Addendum 3 to the In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan –
Floodplain Reductive Zone Enhancement

Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	ORP (mV)	pH	Specific Conductance (µS/cm)	Temperature (C°)	Hexavalent Chromium Field (µg/L)
PTI-1D	15-Mar-06	N	95-105	-89.9	7.37	13,018	26.04	1,780
	03-Apr-06	N		-87	7.68	13,811	26.07	3,520
	07-May-06	N		43.5	6.99	6,659	27.75	61
	09-May-06	N		124.5	7.25	6,880	29.05	870
	10-May-06	N		181	7.68	13,066	29.78	3,320
	11-May-06	N		159.9	8.13	11,442	27.48	1,140
	12-May-06	N		47.8	6.43	4,888	28.17	122
	13-May-06	N		-6.4	7.35	6,626	26.74	---
	22-May-06	N		154.7	8.08	15,136	27.57	980
	31-May-06	N		-198.3	7.92	12,156	26.32	1,160
	05-Jun-06	N		-210.4	8.51	11,989	28.74	920
	18-Jul-06	N		-138.6	7.94	11,582	26.93	1,700
	07-Aug-06	N		-157.4	7.75	11,815	27.14	1,720
	15-Aug-06	N		-52.8	8.35	7,441	29.07	100
	17-Aug-06	N		-204.8	8.53	8,988	29.38	140
	22-Aug-06	N		-66	8.61	10,398	28.19	160
	24-Aug-06	N		-20.2	8.38	10,670	28.31	220
	29-Aug-06	N		-58.8	8.49	11,102	27.95	186
	05-Sep-06	N		-84.6	8.47	11,337	27.51	240
	12-Sep-06	N		-227.1	7.79	8,409	28.97	74
	19-Sep-06	N		-343.4	8.45	10,698	27.31	30
	28-Sep-06	N		-152.3	7.98	11,585	26.35	<10
	03-Oct-06	N		-170.2	8.02	11,933	26.63	13
	17-Oct-06	N		-173.8	8.01	12,274	27.14	28
	31-Oct-06	N		-142.4	8.03	12,402	25.97	175
	07-Nov-06	N		-293.8	7.26	8,689	26.44	10
	14-Nov-06	N		-225.2	7.61	10,502	26.11	<10

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

Addendum 3 to the In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan –
Floodplain Reductive Zone Enhancement

Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	ORP (mV)	pH	Specific Conductance (µS/cm)	Temperature (C°)	Hexavalent Chromium Field (µg/L)
PE-1	17-Mar-06	N	79-89	---	---	---	---	115
	05-Apr-06	N		---	---	---	---	144
	01-Jun-06	N		---	---	---	---	116
	17-Jul-06	N		---	---	---	---	59
	07-Aug-06	N		-29.4	6.53	9,401	22.9	99
	06-Sep-06	N		2.2	7.56	9,443	24.78	94
	03-Oct-06	N		160.6	7.5	9,190	27.03	109
	07-Nov-06	N		-94	7.06	9,235	25.01	100
TW-2D	17-Mar-06	N	113-148	---	---	---	---	1,620
	05-Apr-06	N		---	---	---	---	1,620
	19-Jul-06	N		---	---	---	---	940
	07-Aug-06	N		-35.5	7.18	7,991	28.1	900
	14-Aug-06	N		54.8	7.45	7,793	30.1	880
	17-Aug-06	N		-202.6	7.72	7,053	30.28	1,480
	22-Aug-06	N		63.1	7.2	7,364	30.14	1,040
	24-Aug-06	N		95.2	7.73	6,605	32.22	1,580
	29-Aug-06	N		163	7.39	7,387	30.71	900
	06-Sep-06	N		16.6	7.49	7,964	28.02	920
	12-Sep-06	N		79.1	7.46	5,675	29.6	1,720
	19-Sep-06	N		81.9	7.09	6,967	29.67	920
	28-Sep-06	N		36.4	7.66	5,605	26.94	1,200
	04-Oct-06	N		-73.6	7.58	8,257	31.39	1,430
	17-Oct-06	N		337	7.5	10,003	27.19	380
	31-Oct-06	N		144.9	7.54	6,974	24.18	1,280
	08-Nov-06	N		61.7	6.97	6,041	24.89	700
	14-Nov-06	N		-59.4	7.36	7,633	24.72	740

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

Addendum 3 to the In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan –
Floodplain Reductive Zone Enhancement

Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	ORP (mV)	pH	Specific Conductance (µS/cm)	Temperature (C°)	Hexavalent Chromium Field (µg/L)
TW-3D	17-Mar-06	N	111-156	---	---	---	---	3,660
	05-Apr-06	N		---	---	---	---	3,460
	19-Jul-06	N		---	---	---	---	2,760
	07-Aug-06	N		-45.9	7.45	9,325	28.1	2,300
	14-Aug-06	N		52.1	7.82	9,071	30.04	2,880
	17-Aug-06	N		-195.4	7.69	9,016	30.2	2,740
	22-Aug-06	N		32.9	8.03	8,856	31.02	2,760
	24-Aug-06	N		101.8	7.8	8,663	30.83	2,840
	29-Aug-06	N		199.4	6.88	8,476	30.78	2,800
	06-Sep-06	N		4.9	7.45	8,959	28.64	2,840
	12-Sep-06	N		87	7.48	9,435	29.96	2,820
	19-Sep-06	N		73.4	7.13	8,913	29.35	2,740
	28-Sep-06	N		-86.7	7.27	8,899	30.27	2,780
	04-Oct-06	N		-62.4	7.47	8,411	30.8	3,320
	17-Oct-06	N		350.4	7.31	9,043	26.31	720
	31-Oct-06	N		134.7	7.4	8,896	25.16	2,860
	08-Nov-06	N		65.3	7.11	9,172	25.2	2,740
	14-Nov-06	N		-13.3	7.5	8,843	24.72	2,740
INJ_SOLUTION_01	05-May-06	N	NA	---	---	---	---	<10
INJ_SOLUTION_03	06-May-06	N	NA	---	---	---	---	174

Notes:

Most recent data indicated in **BOLD**

ft bgs	Feet below ground surface
mV	Millivolts
µS/cm	Microsiemens per centimeter
C°	Degrees Celsius
µg/L	Micrograms per liter
ORP	Oxidation Reduction Potential
<	Symbol indicates not detected at or above the estimated reporting limit as noted.
N	Normal
---	Not available/Not analyzed
NA	Not applicable
*	Possible anomaly

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

Addendum 3 to the In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan – Floodplain Reductive Zone Enhancement

Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Iodide (mg/L)	Bromide (mg/L)	Fluorescein (ppb)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Total Iron (µg/L)	Dissolved Iron (µg/L)	Dissolved Manganese (µg/L)	Sulfate (mg/L)	Total Organic Carbon (mg/L)
PT-1S	17-Mar-06	N	35-45	<1	1.3	<1	<.5	ND	<.5	<.1	3,050	1,930	1,320	198	2.98
	06-Apr-06	N		<0.2	<1	<1	<.5	ND	<.5	<.5	1,910	1,860	779	181	3.04
	04-May-06	N		<1	---	<1	<1	ND	---	---	---	---	---	---	---
	05-May-06	N		<1	---	<1	<1	ND	---	---	---	---	---	---	---
	06-May-06	N		<0.2	<1	<1	<.5	ND	<.5	<.1	5,560	2,960	947	90.1	6.66
	07-May-06	N		<1	---	<1	<1	ND	---	---	---	---	---	---	---
	08-May-06	N		<0.2	---	<1	<1	ND	---	---	---	---	---	---	---
	09-May-06	N		<1	<1	<1	0.846	ND	<.5	<.1	2,360	4,770	1,070	144	4.16
	10-May-06	N		<1	---	<1	<2.5	ND	---	---	---	---	---	---	---
	11-May-06	N		<1	---	<1	<2.5	ND	---	---	---	---	---	---	---
	12-May-06	N		<1 J/HD	---	<1	<1	ND	---	---	---	---	---	---	---
	13-May-06	N		<1 J/HD	4.48	<1	<1	ND	<1	<.2	3,900	3,220	800	122	4.58
	23-May-06	N		<1	<1	<1	<.5	ND	<.5	<.5	117,000	826	790	157	4.53
	01-Jun-06	N		<1	<1	<1	<.5	ND	<.5	<.1	89,600	2,570	911	126	5.11
	06-Jun-06	N		<1	<1	<1	<.5	ND	<.5	<.5	43,400	3,020	857	125	5.77
	18-Jul-06	N		<0.2	<1	<1	1.96	ND	<.5	<.1	28,400	4,610	679	114	6.98
	08-Aug-06	N		<0.2	<1	<.5	2.26	ND	<.5	<.1	42,300	5,870	1,140	79.7	9.38
	06-Sep-06	N		2.2	42.3	<.5	0.627	0.239	<.5	<.1	6,460	34,300	1,560	109	6.61
	04-Oct-06	N		6	<1	<.5	0.933	0.068	<.5	<.1	30,500	3,890	951	101	9.61

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

Addendum 3 to the In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan – Floodplain Reductive Zone Enhancement

Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Iodide (mg/L)	Bromide (mg/L)	Fluorescein (ppb)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Total Iron (µg/L)	Dissolved Iron (µg/L)	Dissolved Manganese (µg/L)	Sulfate (mg/L)	Total Organic Carbon (mg/L)
PT-1M	17-Mar-06	N	60-70	<1	<1	<1	<.5	ND	<.5	<.1	<500	<500	1,330	411	1.14
	06-Apr-06	N		<1	1	<1	<.5	ND	<.5	<.5	591	557	1,350	446	1.1
	04-May-06	N		<1	---	<1	<.5	ND	---	---	---	---	---	---	---
	06-May-06	N		<1	<1	<1	258	0.452	<.5	<.1	554	535	1,230	397	27.9
	07-May-06	N		<1	---	<1	390	0.466	---	---	---	---	---	---	---
	08-May-06	N		<1	---	<1	377	0.429	---	---	---	---	---	---	---
	09-May-06	N		<1	<1	<1	341	0.232	<.5	<.1	543	550	2,430	391	25.4
	10-May-06	N		<1	---	<1	296	0.458	---	---	---	---	---	---	---
	11-May-06	N		<1	---	<1	273	0.433	---	---	---	---	---	---	---
	12-May-06	N		<1 J/HD	---	<1	245	0.423	---	---	---	---	---	---	---
	13-May-06	N		<1 J/HD	3.69	<1	216	0.354	<.5	<.1	696	668	4,390	451	5.39
	24-May-06	N		<1	10.8	<1	96	0.16	<.5	<.5	673	6,900	3,560	425	2.02
	31-May-06	N		<1	3.29	<1	48.9	0.101	<.5	<.5	7,360	577	3,950	430	2.4
	06-Jun-06	N		<1	<1	<1	36.7	0.083	<.5	<.5	5,230	637	3,450	501	1.82
	18-Jul-06	N		<0.2	<1	<1	13.4	0.039	<.5	<.1	3,430	871	2,810	405	2.47
	08-Aug-06	N		<0.2	<1	<.5	5.36	ND	<.5	<.1	5,280	744	2,330	452	3.92
	06-Sep-06	N		<0.2	<1	<.5	2.55	0.162	<.5	<.1	<500	579	2,240	481	2.29
	04-Oct-06	N		<0.2	<1	<.5	1.62	ND	<.5	<.1	4,810	628	1,820	412	6.06

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

Addendum 3 to the In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan – Floodplain Reductive Zone Enhancement

Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Iodide (mg/L)	Bromide (mg/L)	Fluorescein (ppb)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Total Iron (µg/L)	Dissolved Iron (µg/L)	Dissolved Manganese (µg/L)	Sulfate (mg/L)	Total Organic Carbon (mg/L)
PT-1D	17-Mar-06	N	95-105	2,470	2,270	<1	0.581	ND	1.84	<.5	<500	<500	88.2	943	1.07
	17-Mar-06	FD		2,460	2,230	<1	<.5	ND	1.84	<.5	<500	<500	85.7	941	1.18
	06-Apr-06	N		3,080	2,770	5.45	<.5	ND	2.27	<.5	<500	<500	51	978	1.09
	06-Apr-06	FD		2,960	2,690	6.15	<.5	ND	2.26	<.5	<500	<500	54.8	963	1.1
	06-May-06	N		4,140	4,350	<1	<.5	ND	2.64	<.1	<500	<500	26.7	930	1.24
	07-May-06	N		3,560	---	50.9	<1	ND	---	---	---	---	---	---	---
	08-May-06	N		3,190	---	252	1.26	ND	---	---	---	---	---	---	---
	09-May-06	N		2,870	2,780	441	2.63	0.023	1.18	<.2	<500	<500	48.9	846	37.5
	10-May-06	N		2,670	---	464	2.92	0.029	---	---	---	---	---	---	---
	11-May-06	N		2,660	---	528	2.87	0.016	---	---	---	---	---	---	---
	12-May-06	N		2,520	---	578	3.01	0.022	---	---	---	---	---	---	---
	13-May-06	N		2,380 J/HD	2,390	613	3	0.016	<1	<.2	<500	<500	60.1	529	58.4
	24-May-06	N		1,320	1,330	488	2.61	0.164	<.5	<.5	<500	<500	507	653	30.7
	31-May-06	N		970	896	373	1.86	ND	<.5	<.5	<500	<500	992	665	16
	05-Jun-06	N		931	859	371	1.71	ND	<.5	<.5	<500	<500	1,270	730	10.1
	17-Jul-06	N		998	1,000	30.4	1.37	ND	0.939	0.869	<500	<500	1,160	731	3.68
	08-Aug-06	N		1,100	1,120	9.79	0.597	ND	1.15	<.1	<500	<500	1,030	748	3.21
	14-Aug-06	N		---	---	16.7	---	703	---	---	---	---	---	---	52.7
	17-Aug-06	N		---	---	<2.5	---	1,180	---	---	---	---	---	---	50
	21-Aug-06	N		---	---	5.79	---	1,420	---	---	---	---	---	---	36.2
	21-Aug-06	FD		---	---	14.5	---	1,440	---	---	---	---	---	---	36.3
	24-Aug-06	N		---	---	11.3	---	1,360	---	---	---	---	---	---	31.8
	24-Aug-06	FD		---	---	13.3	---	1,450	---	---	---	---	---	---	32.6
	29-Aug-06	N		---	---	8.58	---	1,210	---	---	---	---	---	---	16.3
	05-Sep-06	N		320	363	5.79	<1	1,250	<1	0.359	<500	<500	2,790	671	5.9
	12-Sep-06	N		---	---	333	---	845	---	---	---	---	---	---	46.3
	19-Sep-06	N		---	---	462	---	549	---	---	---	---	---	---	35.2
	19-Sep-06	FD		---	---	462	---	558	---	---	---	---	---	---	33.5
	28-Sep-06	N		---	---	447	---	251	---	---	---	---	---	---	16.4
	04-Oct-06	N		58.7	117	454	0.539	136	<.5	<.1	<500	<500	5,790	480	10.3
	17-Oct-06	N		---	---	303	---	84.3	---	---	---	---	---	---	4.91

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

Addendum 3 to the In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan – Floodplain Reductive Zone Enhancement

Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Iodide (mg/L)	Bromide (mg/L)	Fluorescein (ppb)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Total Iron (µg/L)	Dissolved Iron (µg/L)	Dissolved Manganese (µg/L)	Sulfate (mg/L)	Total Organic Carbon (mg/L)
PT-2S	17-Mar-06	N	35-45	<1	<1	<1	0.563	ND	<.5	<.1	34,300	976	1,170	11.7	7.42
	06-Apr-06	N		<0.2	<1	<1	<.5	ND	<.5	<.5	30,200	1,850	1,240	8.91	8.57
	24-May-06	N		<1	<1	<1	<.5	ND	<.5	<.5	164,000	<500	1,160	3.02	11
	01-Jun-06	N		<1	<1	<1	<.5	ND	<.5	<.1	91,900	934	1,300	3.06	9.65
	07-Jun-06	N		<1	<1	<1	<.5	ND	<.5	<.5	42,300	950	1,280	2.77	10.8
	18-Jul-06	N		<0.2	<1	<1	1.47	ND	<.5	<.1	38,300	2,690	1,330	6.83	12.1
	08-Aug-06	N		<0.2	1.14	<.5	1.63	ND	<.5	<.1	61,300	1,400	1,430	54.1	10.7
	06-Sep-06	N		0.26	<1	<.5	0.805	ND	<.5	<.1	48,400	889	1,460	30.4	10.6
	04-Oct-06	N		<0.2	<1	<.5	1.02	ND	<.5	<.1	25,600	1,750	1,400	12.8	13
PT-2M	17-Mar-06	N	60-70	<1	8.19	<1	<.5	ND	<.5	<.5	<500	<500	547	474	<1
	06-Apr-06	N		<0.2	7.58	<1	<.5	ND	<.5	<.1	<500	<500	380	471	<1
	24-May-06	N		<1	<1	<1	40	0.114	<.5	<.5	20,000	<500	431	423	1.76
	31-May-06	N		<1	<1	<1	12.1	0.033	<.5	<.5	3,430	<500	363	438	2.21
	31-May-06	FD		<1	<1	<1	12	0.038	<.5	<.5	4,150	<500	371	429	2.28
	07-Jun-06	N		<1	<1	<1	5.29	0.024	<.5	<.5	1,220	<500	353	487	1.85
	18-Jul-06	N		<0.2	1.06	<1	0.988	5.65	<.5	<.1	1,990	<500	228	377	3.1
	08-Aug-06	N		<0.2	<1	<.5	0.638	ND	<.5	<.1	1,040	<500	233	412	9.06
	06-Sep-06	N		<0.2	<1	<.5	<.5	ND	<.5	<.1	811	<500	228	415	2.41
	04-Oct-06	N		<0.2	<1	<.5	<.5	ND	<.5	<.1	958	<500	203	374	7.88

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

Addendum 3 to the In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan – Floodplain Reductive Zone Enhancement

Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Iodide (mg/L)	Bromide (mg/L)	Fluorescein (ppb)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Total Iron (µg/L)	Dissolved Iron (µg/L)	Dissolved Manganese (µg/L)	Sulfate (mg/L)	Total Organic Carbon (mg/L)
PT-2D	17-Mar-06	N	95-105	1,660	1,580	<1	<.5	ND	1.23	<.5	<500	<500	154	931	1.09
	17-Mar-06	FD		1,670	1,570	<1	<.5	ND	1.26	<.5	<500	<500	161	924	1.24
	06-Apr-06	N		2,310	2,160	4.44	<.5	ND	1.68	<.5	<500	<500	79.7	924	1.02
	06-Apr-06	FD		2,290	2,170	4.1	<.5	ND	1.84	<.5	<500	<500	78.3	946	<1
	24-May-06	N		1,800	1,760	374	2.11	ND	<.5	<.5	507	<500	173	691	26.9
	31-May-06	N		1,180	1,170	388	1.85	ND	<.5	<.5	1,400	<500	320	689	17.6
	07-Jun-06	N		951	930	390	1.99	ND	<.5	<.5	<500	<500	423	724	14.4
	17-Jul-06	N		466	438	110	1.76	ND	<.5	0.885	<500	<500	622	745	3.98
	07-Aug-06	N		568	495	34	0.687	ND	0.607	<.1	4,350	<500	597	953	7.94
	14-Aug-06	N		---	---	27.1	---	ND	---	---	---	---	---	---	7.23
	14-Aug-06	FD		---	---	28.9	---	ND	---	---	---	---	---	---	4.8
	17-Aug-06	N		---	---	24.3	---	47	---	---	---	---	---	---	5.1
	17-Aug-06	FD		---	---	23.6	---	49.5	---	---	---	---	---	---	4.34
	21-Aug-06	N		---	---	17.3	---	405	---	---	---	---	---	---	16.2
	24-Aug-06	N		---	---	16.8	---	636	---	---	---	---	---	---	21.8
	29-Aug-06	N		---	---	14.7	---	792	---	---	---	---	---	---	12.6
	06-Sep-06	N		432	512	10.2	<1	905	<1	<.2	<500	<500	1,270	699	4.54
	12-Sep-06	N		---	---	18.1	---	954	---	---	---	---	---	---	7.24
	19-Sep-06	N		---	---	120	---	1,050	---	---	---	---	---	---	10.3
	28-Sep-06	N		---	---	229	---	610	---	---	---	---	---	---	6.92
	04-Oct-06	N		292	234	303	<2.5	307	<2.5	<.5	3,090	<500	1,420	455	4
	17-Oct-06	N		---	---	394	---	ND	---	---	---	---	---	---	7.26

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

Addendum 3 to the In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan – Floodplain Reductive Zone Enhancement

Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Iodide (mg/L)	Bromide (mg/L)	Fluorescein (ppb)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Total Iron (µg/L)	Dissolved Iron (µg/L)	Dissolved Manganese (µg/L)	Sulfate (mg/L)	Total Organic Carbon (mg/L)
PT-3S	16-Mar-06	N	35-45	<1	40.3	<1	<.5	ND	<.5	<.1	6,370	4,860	1,160	217	4.27
	03-Apr-06	N		<1	1.48	<1	<.5	ND	<.5	<.5	5,510	4,990	988	221	4.66
	04-May-06	N		<0.2	---	<1	<1	ND	---	---	---	---	---	---	---
	05-May-06	N		<0.2	---	<1	<1	ND	---	---	---	---	---	---	---
	06-May-06	N		<1	1.46	<1	<.5	ND	<.5	<.1	7,370	5,660	968	80.2	5.05
	06-May-06	FD		<1	1.01	<1	<.5	ND	<.5	<.1	6,500	5,820	950	80.4	5.26
	07-May-06	N		<0.2	---	<1	<1	ND	---	---	---	---	---	---	---
	09-May-06	N		<0.2 J/HD	1.54	<1	<1	9.61	<1	<.2	7,850	6,280	973	112	5.83
	10-May-06	N		<1	---	<1	19	34.4	---	---	---	---	---	---	---
	11-May-06	N		<1	---	<1	1.07	5.49	---	---	---	---	---	---	---
	12-May-06	N		<0.2	---	<1	64.6	42.3	---	---	---	---	---	---	---
	13-May-06	N		<1 J/HD	2.38	<1	93.7	56	<1	<.2	6,710	5,890	872	112	14.6
	23-May-06	N		<1	<1	<1	68.1	1,060	<1	<.5	130,000	1,750	830	30.5	49.9
	30-May-06	N		<1	1.36	<1	470	1,510	<2.5	<.5	27,600	695	762	24.4	93.5
	06-Jun-06	N		<1	<1	<1	749	1,220	<2.5	<.5	21,900	3,220	750	23.2	119
	19-Jul-06	N		<0.2	<1	<1	212	751	<.5	<.5	23,400	4,680	652	12.9	16.4
	08-Aug-06	N		<0.2	<1	<.5	75.6	578	<.5	<.1	38,500	3,000	749	16.3	6.28
	06-Sep-06	N		<0.2	<1	<.5	35.2	344	<.5	<.1	12,900	3,700	883	34.2	6.66
	04-Oct-06	N		<0.2	<1	<2.5	25.1	206	<2.5	<.5	12,600	4,310	886	36.9	10.7

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

Addendum 3 to the In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan – Floodplain Reductive Zone Enhancement

Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Iodide (mg/L)	Bromide (mg/L)	Fluorescein (ppb)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Total Iron (µg/L)	Dissolved Iron (µg/L)	Dissolved Manganese (µg/L)	Sulfate (mg/L)	Total Organic Carbon (mg/L)
PT-3M	18-Mar-06	N	60-70	<1	<1	<1	<.5	ND	<.5	<.5	<500	<500	1,670	571	1.33
	07-Apr-06	N		<1	<1	<1	<.5	ND	<.5	<.5	<500	<500	2,020	672	1.01
	04-May-06	N		<1	---	<1	<.5	ND	---	---	---	---	---	---	---
	05-May-06	N		<1	---	<1	<.5	ND	---	---	---	---	---	---	---
	06-May-06	N		<1 J/HD	<1	<1	<.5	ND	<.5	<.1	508	<500	1,720	597	1.11
	07-May-06	N		<1	---	<1	2.32	0.025	---	---	---	---	---	---	---
	09-May-06	N		<0.2 J/HD	<1	<1	28.8	0.075	<.5	<.1	518	<500	1,350	559	2.94
	10-May-06	N		<1	---	<1	60.2	0.148	---	---	---	---	---	---	---
	11-May-06	N		<1	---	<1	75.8	0.2	---	---	---	---	---	---	---
	12-May-06	N		<1 J/HD	---	<1	87.1	0.223	---	---	---	---	---	---	---
	13-May-06	N		<1 J/HD	2.46	<1	72.9	0.135	<.5	<.1	620	597	1,250	530	3.22
	13-May-06	FD		<0.2	9.68	<1	73.3	0.18	<.5	<.1	620	589	1,270	517	3.89
	23-May-06	N		<1	<1	<1	27.4	0.104	<.5	<.5	12,000	<500	1,550	573	1.59
	30-May-06	N		<1	3.09	<1	9.74	0.043	<.5	<.5	33,100	<500	1,260	533	1.94
	06-Jun-06	N		<1	<1	<1	4.86	0.031	<.5	<.5	5,140	<500	1,100	583	1.77
	06-Jun-06	FD		<1	1.61	<1	4.5	0.034	<.5	<.5	24,400	<500	1,130	575	2.41
	19-Jul-06	N		<1 J/HD	<1	<1	1.21	ND	<.5	<.5	14,500	588	936	544	4.05
	08-Aug-06	N		<0.2	<1	<.5	<.5	ND	<.5	<.1	11,800	<500	888	514	2.39
	06-Sep-06	N		<0.2	<1	<.5	<.5	ND	<.5	<.1	4,070	<500	821	590	2.2
	04-Oct-06	N		<0.2	<1	<.5	<.5	ND	<.5	<.1	3,570	<500	732	479	1.84

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

Addendum 3 to the In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan – Floodplain Reductive Zone Enhancement

Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Iodide (mg/L)	Bromide (mg/L)	Fluorescein (ppb)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Total Iron (µg/L)	Dissolved Iron (µg/L)	Dissolved Manganese (µg/L)	Sulfate (mg/L)	Total Organic Carbon (mg/L)
PT-3D	18-Mar-06	N	95-105	4,390	4,370	<1	<.5	ND	3.33	<.5	<500	<500	16.7	984	<1
	05-Apr-06	N		4,440	4,680	8.87	<.5	ND	3.28	<.5	<500	<500	10.2	966	<1
	05-May-06	N		3,980	---	<1	<1	ND	---	---	---	---	---	---	---
	06-May-06	N		3,090 J/HD	3,420	666	2.93	0.031	1.73	<.1	<500	<500	28.4	699	80.3
	07-May-06	N		4,140	---	515	3.15	0.023	---	---	---	---	---	---	---
	09-May-06	N		3,900 J/HD	3,920	268	2.1	0.02	2.02	<.2	<500	<500	42	853	36
	10-May-06	N		3,680	---	199	<2.5	0.013	---	---	---	---	---	---	---
	11-May-06	N		3,700	---	159	---	ND	---	---	---	---	---	---	---
	12-May-06	N		1,940	---	127	<2.5	ND	---	---	---	---	---	---	---
	13-May-06	N		3,550 J/HD	3,630	96.8	3.07	0.151	2.1	<.2	<500	<500	309	909	9.41
	23-May-06	N		4,380	3,940	21.7	<.5	ND	2.73	<.5	671	<500	113	854	2.39
	30-May-06	N		3,880	4,030	<1	<1	ND	2.82	<.5	<500	<500	83.8	843	2.23
	06-Jun-06	N		3,730	3,770	2.92	<.5	ND	2.82	<.5	1,630	<500	67.5	985	1.31
	17-Jul-06	N		3,830	3,920	1.15	0.893	ND	2.92	0.722	<500	<500	22.4	690	3.31
	17-Jul-06	FD		3,730	3,820	<1	1.13	ND	2.93	0.723	<500	<500	22.2	885	3.14
	08-Aug-06	N		3,260	4,180	8.34	0.861	0.123	3.28	<.1	6,760	<500	27.7	875	2.99
	14-Aug-06	N		---	---	8.97	---	1,190	---	---	---	---	---	---	58
	17-Aug-06	N		---	---	9.65	---	387	---	---	---	---	---	---	10.5
	21-Aug-06	N		---	---	8.24	---	209	---	---	---	---	---	---	3.86
	24-Aug-06	N		---	---	7.09	---	181	---	---	---	---	---	---	8.53
	29-Aug-06	N		---	---	7.51	---	114	---	---	---	---	---	---	2.25
	29-Aug-06	FD		---	---	7.5	---	108	---	---	---	---	---	---	2.35
	05-Sep-06	N		2,930	2,940	8.37	<10	49.9	<10	<2	<500	<500	1,660	801	2.33
	12-Sep-06	N		---	---	270	---	40.9	---	---	---	---	---	---	32.8
	12-Sep-06	FD		---	---	265	---	45.5	---	---	---	---	---	---	31.3
	19-Sep-06	N		---	---	60.8	---	18.6	---	---	---	---	---	---	6.91
	28-Sep-06	N		---	---	25.3	---	7.85	---	---	---	---	---	---	6.16
	04-Oct-06	N		3,100	2,960	25.5	<1	7.04	2.65	<2	<500	<500	2,630	741	7.61
	17-Oct-06	N		---	---	4.16	---	2.09	---	---	---	---	---	---	7.08
	17-Oct-06	FD		---	---	4.89	---	ND	---	---	---	---	---	---	8.91

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

Addendum 3 to the In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan – Floodplain Reductive Zone Enhancement

Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Iodide (mg/L)	Bromide (mg/L)	Fluorescein (ppb)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Total Iron (µg/L)	Dissolved Iron (µg/L)	Dissolved Manganese (µg/L)	Sulfate (mg/L)	Total Organic Carbon (mg/L)
PT-4S	15-Mar-06	N	35-45	<1	3.83	0.714 J	<.5	ND	<.5	<.1	4,060	713	919	474	1.69
	06-Apr-06	N		<1	5.84	<1	<.5	ND	<.5	<.5	2,510	1,350	707	450	1.69
	04-May-06	N		<1	---	<1	<1	ND	---	---	---	---	---	---	---
	05-May-06	N		<1	---	<1	<1	ND	---	---	---	---	---	---	---
	09-May-06	N		<0.2 J/HD	<1	<1	<.5	ND	<.5	<.1	10,800	1,490	657	472	2.4
	10-May-06	N		<1	---	<1	<2.5	ND	---	---	---	---	---	---	---
	11-May-06	N		<1	---	<1	<.5	ND	---	---	---	---	---	---	---
	12-May-06	N		<1	---	<1	<1	ND	---	---	---	---	---	---	---
	13-May-06	N		<1 J/HD	3.18	<1	<1	ND	<1	<.2	2,320	1,940	673	415	2.02
	23-May-06	N		<1	<1	<1	<.5	ND	<.5	<.5	18,600	<500	683	436	2.29
	30-May-06	N		<1	1.15	<1	<.5	ND	<.5	<.5	20,000	<500	650	426	2.72
	06-Jun-06	N		<1	<1	<1	<.5	0.073	<.5	<.5	8,530	1,340	610	492	2.56
	19-Jul-06	N		<0.2	<1	<1	<.5	ND	<.5	<.5	4,710	1,670	545	445	4.86
	08-Aug-06	N		<0.2	<1	<.5	<.5	0.165	<.5	<.1	4,270	1,710	617	431	4.21
	06-Sep-06	N		<0.2	<1	<.5	<.5	ND	<.5	<.1	4,440	1,260	614	499	3.46
	06-Sep-06	FD		<0.2	<1	<.5	<.5	ND	<.5	<.1	3,780	1,360	634	461	3.16
	04-Oct-06	N		<0.2	<1	<.5	<.5	ND	<.5	<.1	4,050	1,600	576	401	5.38

Table 3
Summary of Primary Analytical Parameters

PG&E Topock
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Addendum 3 to the In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan – Floodplain Reductive Zone Enhancement

Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Iodide (mg/L)	Bromide (mg/L)	Fluorescein (ppb)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Total Iron (µg/L)	Dissolved Iron (µg/L)	Dissolved Manganese (µg/L)	Sulfate (mg/L)	Total Organic Carbon (mg/L)
PT-4M	15-Mar-06	N	60-70	<1	<1	0.75 J	<.5	ND	<.5	<.1	<500	<500	966	609	<1
	07-Apr-06	N		<1	1.63	<1	<.5	ND	<.5	<.5	<500	<500	766	722	1.05
	04-May-06	N		<1	---	<1	<.5	ND	---	---	---	---	---	---	---
	08-May-06	N		<1	---	<1	<.5	ND	---	---	---	---	---	---	---
	09-May-06	N		<0.21 J/HD	<1	<1	<.5	ND	<.5	<.1	723	700	686	504	1.12
	10-May-06	N		<1	---	<1	<.5	ND	---	---	---	---	---	---	---
	11-May-06	N		<1 J/HD	---	<1	<.5	ND	---	---	---	---	---	---	---
	12-May-06	N		<1	---	<1	<.5	ND	---	---	---	---	---	---	---
	13-May-06	N		<1 J/HD	2.05	<1	<.5	ND	<.5	<.1	988	899	612	529	1.22
	23-May-06	N		<1	<1	<1	<.5	ND	<.5	<.5	3,700	<500	613	565	1.58
	30-May-06	N		<1	229	<1	<.5	ND	<.5	<.5	929	<500	492	534	2.05
	06-Jun-06	N		<1	2.24	<1	<.5	ND	<.5	<.5	1,330	<500	523	570	1.31
	19-Jul-06	N		<0.2	<1	<1	<.5	ND	<.5	<.5	1,270	892	492	518	5.5
	08-Aug-06	N		<0.2	<1	<.5	<.5	ND	<.5	<.1	1,960	724	535	528	3.22
	06-Sep-06	N		0.29	<1	<.5	<.5	ND	<.5	<.1	4,780	526	565	565	2.22
	04-Oct-06	N		<0.20	1.73	<.5	<.5	ND	<.5	<.1	5,070	<500	569	496	2.38

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

Addendum 3 to the In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan – Floodplain Reductive Zone Enhancement

Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Iodide (mg/L)	Bromide (mg/L)	Fluorescein (ppb)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Total Iron (µg/L)	Dissolved Iron (µg/L)	Dissolved Manganese (µg/L)	Sulfate (mg/L)	Total Organic Carbon (mg/L)
PT-4D	15-Mar-06	N	95-105	5,670	5,510	<1	1.32	ND	4.28	<.5	<500	<500	8.27	1,080	<1
	05-Apr-06	N		5,960	5,480	12.9	<.5	ND	4.7	<.5	<500	<500	<5	1,110	1.05
	08-May-06	N		5,870	---	<1	<1	ND	---	---	---	---	---	---	---
	09-May-06	N		5,900 J/HD	5,900	<1	<2.5	ND	4.6	<.5	<500	<500	<5	1,110	1.16
	10-May-06	N		5,830	---	<1	<2.5	ND	---	---	---	---	---	---	---
	11-May-06	N		5,790	---	<1	<1	ND	---	---	---	---	---	---	---
	12-May-06	N		5,810	---	<1	<1	ND	---	---	---	---	---	---	---
	13-May-06	N		5,710 J/HD	5,900	<1	<1	ND	4.36	<.2	<500	<500	<5	1,050	1.21
	23-May-06	N		5,750	5,880	<1	<.5	ND	4.91	<.5	<500	<500	<5	1,010	1.6
	23-May-06	FD		---	5,970	<1	<.5	ND	4.89	<.5	<500	<500	<5	1,010	1.87
	30-May-06	N		5,730	5,740	<1	<1	ND	4.75	<.5	2,390	<500	21	989	2.32
	06-Jun-06	N		5,800	5,560	<1	<.5	0.078	4.7	<.5	<500	<500	<5	1,130	1.44
	19-Jul-06	N		5,360	5,830	<1	0.989	ND	4.5	<.5	<500	<500	<5	957	7.78
	08-Aug-06	N		5,080	5,800	10.1	0.914	0.024	4.31	<.1	<500	<500	13.2	989	2.99
	06-Sep-06	N		5,750	5,720	3.57	0.647	ND	4.76	<.2	<500	<500	<5	1,030	2.18
	04-Oct-06	N		5,800	5,710	13	<2.5	ND	4.62	<.5	<500	<500	11.9	882	1.76
	04-Oct-06	FD		5,530	6,000	13.3	<2.5	ND	4.78	<.5	<500	<500	15.2	869	8.18
PT-5S	16-Mar-06	N	35-45	<1	2.71	<1	<.5	ND	<.5	<.1	949	971	2,440	401	3.2
	07-Apr-06	N		<1	<1	<1	<.5	ND	<.5	<.5	995	1,030	1,850	490	2.76
	01-Jun-06	N		<1	<1	<1	<.5	ND	<.5	<.1	4,250	1,870	1,530	372	4.14
	19-Jul-06	N		<1	<1	<1	<.5	ND	<.5	<.5	3,530	2,470	1,400	351	12.7
	09-Aug-06	N		<200	<1	<.5	2.26	ND	<.5	<.1	3,220	2,410	1,350	375	8.3
	08-Sep-06	N		<0.2	<1	<.5	0.586	ND	<.5	3.7	4,070	2,840	1,410	340	6.95
	05-Oct-06	N		<0.2	1.05	<.5	0.938	ND	<.5	<.1	3,410	2,680	1,280	316	8.13

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

Addendum 3 to the In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan – Floodplain Reductive Zone Enhancement

Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Iodide (mg/L)	Bromide (mg/L)	Fluorescein (ppb)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Total Iron (µg/L)	Dissolved Iron (µg/L)	Dissolved Manganese (µg/L)	Sulfate (mg/L)	Total Organic Carbon (mg/L)
PT-5M	16-Mar-06	N	60-70	<1	<1	<1	<.5	ND	<.5	<.1	<500	<500	707	463	1.04
	07-Apr-06	N		<1	<1	<1	<.5	ND	<.5	<.5	1,850	1,820	1,770	443	3.31
	01-Jun-06	N		<1 J/HD	<1	<1	<.5	ND	<.5	<.1	4,570	<500	168	437	1.62
	19-Jul-06	N		<0.2	<1	<1	<.5	ND	<.5	<.5	2,240	<500	109	404	6.53
	09-Aug-06	N		<200 J/HD	<1	<.5	<.5	ND	<.5	<.1	3,770	<500	83.5	372	3.75
	08-Sep-06	N		<0.2	<1	<.5	<.5	ND	<.5	<.1	9,570	<500	82.3	404	2.77
	05-Oct-06	N		<0.2	<1	<.5	<.5	ND	<.5	<.1	2,980	<500	65.4	343	5.79
PT-5D	16-Mar-06	N	95-105	6,150	5,650	<1	<.5	ND	4.86	0.258	<500	<500	355	1,080	<1
	07-Apr-06	N		<0.2	<1	<1	<.5	ND	<.5	<.5	2,280	2,200	1,700	403	3.49
	12-May-06	N		4,250	4,680	<1	1.17	0.02	3.58	<1	<500	<500	209	1,020	1.34
	01-Jun-06	N		3,900	3,930	<1	<.5	ND	3.18	<.1	3,550	<500	132	919	1.27
	17-Jul-06	N		3,640	3,890	<1	1.01	ND	2.98	0.613	<500	<500	90.8	882	3.73
	09-Aug-06	N		4470 J/HD	3,880	6.85	<1	ND	3.12	<.2	<500	<500	55.8	933	1.74
	08-Sep-06	N		4,420	4,930	9.71	<1	ND	3.61	<.2	<500	<500	40	923	2.33
	05-Oct-06	N		3,740	3,920	8.72	<1	ND	3.13	<.2	<500	<500	62.3	860	8.05
PT-6S	16-Mar-06	N	35-45	<1	---	---	---	---	---	---	---	---	---	---	---
	18-Mar-06	N		---	4.6	<1	1.18	ND	<.5	<1	4,560	3,530	9,260	60	13.4
	04-Apr-06	N		<1	<1	<1	1.3	ND	<.5	<.5	11,600	6,310	7,650	57.8	14.2
	13-May-06	N		<1 J/HD	2.83	<1	<1	ND	<1	<.2	33,000	13,400	4,400	3.03	13
	22-May-06	N		<1 J/HD	26	<1	<.5	ND	<.5	<.5	22,600	1,180	3,710	5.91	13.9
	01-Jun-06	N		<1 J/HD	1.38	<1	<.5	ND	<.5	<.1	17,000	12,600	3,710	6.96	13.4
	06-Jun-06	N		<1	1.44	<1	<2.5	ND	<2.5	<.5	19,000	17,100	3,250	4.57	14.8
	19-Jul-06	N		1.1	17.2	<1	2.72	ND	<.5	<.5	19,900	17,200	2,970	2.56	16.9
	09-Aug-06	N		<200	1.41	<.5	2.9	ND	<.5	<.1	23,700	16,500	3,170	76.2	16.1
	08-Sep-06	N		<0.2	2.56	<1	<1	ND	<1	<.2	22,900	15,800	2,810	4.46	16.4
	05-Oct-06	N		<0.2	<1	<2.5	<2.5	ND	<2.5	<.5	26,400	19,100	2,610	4.66	20.2

Table 3
Summary of Primary Analytical Parameters
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Addendum 3 to the In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan – Floodplain Reductive Zone Enhancement

Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Iodide (mg/L)	Bromide (mg/L)	Fluorescein (ppb)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Total Iron (µg/L)	Dissolved Iron (µg/L)	Dissolved Manganese (µg/L)	Sulfate (mg/L)	Total Organic Carbon (mg/L)
PT-6M	16-Mar-06	N	60-70	<1	<1	<1	<.5	ND	<.5	<.1	<500	<500	56.1	486	<1
	04-Apr-06	N		<1	<1	<1	<.5	ND	<.5	<.5	<500	<500	55.2	498	1.22
	13-May-06	N		<1 J/HD	4.53	<1	<.5	ND	<.5	<.1	<500	<500	71.2	509	1.7
	23-May-06	N		<1	<1	<1	<.5	ND	<.5	<.5	1,690	<500	71.2	476	1.11
	01-Jun-06	N		<1	1.24	<1	<.5	ND	<.5	<.1	1,150	<500	77.6	479	1.4
	06-Jun-06	N		<1	1.66	<1	<.5	ND	<.5	<.5	1,650	<500	76.4	528	3.14
	19-Jul-06	N		<0.2	2.53	<1	<.5	ND	<.5	<.5	641	<500	89.2	471	4.28
	09-Aug-06	N		<200 J/HD	<1	<.5	<.5	ND	<.5	<.1	<500	<500	94.1	465	5.44
	08-Sep-06	N		<0.2	<1	<.5	<.5	ND	<.5	<.1	2,790	<500	108	452	2.97
	05-Oct-06	N		<0.2	<1	<.5	<.5	ND	<.5	<.1	1,120	<500	104	405	8.61
PT-6D	16-Mar-06	N	95-105	3,310	3,140	<1	<.5	ND	2.5	0.218	<500	<500	361	844	<1
	04-Apr-06	N		2,270	2,180	4.23	<.5	ND	1.73	<.5	<500	<500	258	750	<1
	13-May-06	N		1,760 J/HD	1,720	<1	<1	ND	1.49	<.2	1,320	<500	169	810	1.16
	22-May-06	N		1,610 J/HD	1,970	<1	<.5	ND	1.42	<.5	2,520	<500	168	719	1.96
	01-Jun-06	N		1,440	1,420	<1	<.5	ND	1.2	<.1	764	<500	152	711	1.08
	06-Jun-06	N		1,340	1,290	<1	1.85	0.105	1.38	<.5	1,130	<500	134	750	2.45
	17-Jul-06	N		1,220	1,120	<1	<.5	ND	0.994	0.917	<500	<500	112	670	3.54
	09-Aug-06	N		1320 J/HD	1,440	3.34	0.94	ND	1.27	<.1	<500	<500	77.2	684	2.67
	08-Sep-06	N		1,540	1,520	3.54	<.5	ND	1.55	<.1	<500	<500	70.6	726	2.17
	05-Oct-06	N		1,060	1,000	2.44	0.55	ND	1.05	<.1	612	<500	34.1	667	2.9

Table 3
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Addendum 3 to the In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan – Floodplain Reductive Zone Enhancement

Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Iodide (mg/L)	Bromide (mg/L)	Fluorescein (ppb)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Total Iron (µg/L)	Dissolved Iron (µg/L)	Dissolved Manganese (µg/L)	Sulfate (mg/L)	Total Organic Carbon (mg/L)
PTI-1S	15-Mar-06	N	35-45	<1	19.8	0.708 J	<.5	ND	<.5	<.1	7,360	8,350	717	122	4.55
	05-Apr-06	N		<1	<1	<1	<.5	ND	<.5	<.5	7,730	3,320	606	120	4.84
	06-May-06	N		<1 J/HD	4.15	<1	1,130	1,950	<2.5	<.5	21,500	19,900	980	15	588
	07-May-06	N		<1 J/HD	---	<1	449	3,820	---	---	---	---	---	---	452
	09-May-06	N		<1	---	<1	360	3,820	---	---	---	---	---	---	474
	09-May-06	FD		<0.2	---	<1	360	3,770	---	---	---	---	---	---	467
	10-May-06	N		<1	---	<1	362	3,560	---	---	---	---	---	---	506
	11-May-06	N		<1	---	<1	316	3,760	---	---	---	---	---	---	543
	12-May-06	N		<1	---	<1	284	3,710	---	---	---	---	---	---	558
	13-May-06	N		---	---	<1	288	3,730	---	---	---	---	---	---	525
	23-May-06	N		---	---	<1	213	3,810	---	---	---	---	---	---	214
	31-May-06	N		---	---	<1	56.4	4,090	---	---	---	---	---	---	188
	05-Jun-06	N		---	---	<1	28.7	3,750	---	---	---	---	---	---	136
	18-Jul-06	N		<0.2	---	<1	3.05	647	---	---	---	---	---	---	9.33
	07-Aug-06	N		<0.2	---	<.5	<.5	196	---	---	---	---	---	---	11.4
	07-Sep-06	N		<1	---	<1	<1	73.4	---	---	---	---	---	---	8.1
	03-Oct-06	N		<0.2	---	<2.5	<2.5	46	---	---	---	---	---	---	10.8

Table 3
Summary of Primary Analytical Parameters

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Addendum 3 to the In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan – Floodplain Reductive Zone Enhancement

Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Iodide (mg/L)	Bromide (mg/L)	Fluorescein (ppb)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Total Iron (µg/L)	Dissolved Iron (µg/L)	Dissolved Manganese (µg/L)	Sulfate (mg/L)	Total Organic Carbon (mg/L)
PTI-1M	15-Mar-06	N	60-70	3.9	8.2	0.718 J	<.5	ND	<.5	<.1	<500	<500	141	510	<1
	04-Apr-06	N		3.3	11.1	<1	<.5	ND	<.5	<.5	<500	<500	99.5	529	<1
	06-May-06	N		<1 J/HD	<1	<1	1,430	0.853	<.5	<.1	<500	<500	1,770	18.7	210
	07-May-06	N		<1 J/HD	---	<1	1,510	0.728	---	---	---	---	---	---	215
	09-May-06	N		<1	---	---	621	0.272	---	---	---	---	---	---	83.4
	10-May-06	N		<1	---	<1	1,080	0.746	---	---	---	---	---	---	111
	11-May-06	N		<1	---	<1	1,130	0.79	---	---	---	---	---	---	101
	12-May-06	N		<1	---	<1	1,090	0.934	---	---	---	---	---	---	77.6
	13-May-06	N		---	---	<1	1,060	1.04	---	---	---	---	---	---	67.6
	23-May-06	N		---	---	<1	1,490	1.58	---	---	---	---	---	---	77.8
	31-May-06	N		---	---	<1	169	0.298	---	---	---	---	---	---	3.56
	05-Jun-06	N		---	---	<1	125	0.281	---	---	---	---	---	---	2.18
	18-Jul-06	N		<1	---	<1	28.4	0.1	---	---	---	---	---	---	3.12
	07-Aug-06	N		<0.2	---	<.5	18.1	1.57	---	---	---	---	---	---	6.07
	07-Sep-06	N		<0.2	---	<.5	5.66	0.047	---	---	---	---	---	---	2.42
	03-Oct-06	N		<0.2	---	<0.5	1.96	0.029	---	---	---	---	---	---	7.75

Table 3
Summary of Primary Analytical Parameters
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Addendum 3 to the In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan – Floodplain Reductive Zone Enhancement

Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Iodide (mg/L)	Bromide (mg/L)	Fluorescein (ppb)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Total Iron (µg/L)	Dissolved Iron (µg/L)	Dissolved Manganese (µg/L)	Sulfate (mg/L)	Total Organic Carbon (mg/L)
PTI-1D	15-Mar-06	N	95-105	1,620	1,580	<1	2.63	ND	<.5	<.5	<500	<500	1,070	907	1.3
	03-Apr-06	N		3,350	3,370	6.42	<.5	ND	2.59	<.5	<500	<500	140	912	<1
	07-May-06	N		<1 J/HD	---	1,640	8.27	0.153	---	---	---	---	---	---	195
	09-May-06	N		<1	---	1,950	19.2	0.794	---	---	---	---	---	---	204
	10-May-06	N		937	---	672	4.56	0.087	---	---	---	---	---	---	46.4
	11-May-06	N		1,050	---	613	3.76	0.059	---	---	---	---	---	---	31.9
	12-May-06	N		<1 J/HD	---	2,400	12.6	0.603	---	---	---	---	---	---	215
	13-May-06	N		---	---	1,760	8.24	0.145	---	---	---	---	---	---	206
	22-May-06	N		---	---	57.9	0.942	ND	---	---	---	---	---	---	2.34
	31-May-06	N		---	---	<1	<.5	ND	---	---	---	---	---	---	3.26
	05-Jun-06	N		---	---	20	<.5	ND	---	---	---	---	---	---	2.45
	18-Jul-06	N		1,360	---	1.65	0.512	ND	---	---	---	---	---	---	3.42
	07-Aug-06	N		1,820	---	4.65	<.5	ND	---	---	---	---	---	---	7.28
	15-Aug-06	N		---	---	<5	---	2,850	---	---	---	---	---	---	117
	17-Aug-06	N		---	---	14.3	---	1,830	---	---	---	---	---	---	53.7
	22-Aug-06	N		---	---	1.5	---	849	---	---	---	---	---	---	13.1
	24-Aug-06	N		---	---	<1	---	629	---	---	---	---	---	---	6.76
	29-Aug-06	N		---	---	<1	---	285	---	---	---	---	---	---	3.53
	05-Sep-06	N		231	---	<.5	<.5	168	---	---	---	---	---	---	3.76
	12-Sep-06	N		---	---	873	---	30.4	---	---	---	---	---	---	110
	19-Sep-06	N		---	---	260	---	30	---	---	---	---	---	---	11
	28-Sep-06	N		---	---	80.9	---	15.4	---	---	---	---	---	---	6.94
	28-Sep-06	FD		---	---	80.5	---	15.4	---	---	---	---	---	---	7.51
	03-Oct-06	N		<0.2	---	51.8	0.648	12.3	---	---	---	---	---	---	5.91
	17-Oct-06	N		---	---	20.5	---	6.1	---	---	---	---	---	---	6.7

Table 3
Summary of Primary Analytical Parameters
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Addendum 3 to the In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan – Floodplain Reductive Zone Enhancement

Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Iodide (mg/L)	Bromide (mg/L)	Fluorescein (ppb)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Total Iron (µg/L)	Dissolved Iron (µg/L)	Dissolved Manganese (µg/L)	Sulfate (mg/L)	Total Organic Carbon (mg/L)
PE-1	17-Mar-06	N		148	138	<1	<.5	ND	<.5	<.5	<500	<500	12.7	900	2.14
	05-Apr-06	N		140	136	<1	<.5	ND	<.5	<.5	<500	<500	12.3	939	1.99
	01-Jun-06	N		114	111	<1	<.5	ND	<.5	<.1	<500	<500	12.5	773	2.34
	17-Jul-06	N		97	96.2	<1	1.11	ND	<.5	1.11	<500	<500	10.7	772	4.16
	07-Aug-06	N		100	98.6	<.5	<.5	ND	<.5	<.1	<500	<500	10.5	699	8.83
	07-Aug-06	FD		104	100	<.5	0.868	ND	<.5	<.1	<500	<500	10.7	692	4.58
	06-Sep-06	N		94.5	102	<.5	<.5	ND	<.5	<.1	<500	<500	11	751	3.23
	03-Oct-06	N		90.2	93.6	<0.5	0.624	ND	<0.5	<0.1	<500	<5000	11.6	683	8.57
	03-Oct-06	FD		95.8	96.2	<0.5	0.615	ND	<0.5	<0.1	<500	<5000	11.4	717	6.28
TW-2D	17-Mar-06	N		1,430	1,530	<1	<.5	ND	1.67	<.5	<500	<500	<5	501	<1
	05-Apr-06	N		1,350	1,240	2.55	<.5	ND	1.51	<.5	<500	<500	<5	509	<1
	19-Jul-06	N		802	785	7.09	0.55	ND	1.34	<.5	<500	<500	<5	483	2.88
	07-Aug-06	N		943	797	2.51	0.791	ND	1.79	<.1	<500	<500	<5	433	6.62
	14-Aug-06	N		---	---	5.29	---	ND	---	---	---	---	---	---	6.29
	17-Aug-06	N		---	---	3.9	---	ND	---	---	---	---	---	---	1.27
	22-Aug-06	N		---	---	4.56	---	ND	---	---	---	---	---	---	1.2
	24-Aug-06	N		---	---	3.88	---	ND	---	---	---	---	---	---	8.17
	29-Aug-06	N		---	---	4.02	---	ND	---	---	---	---	---	---	1.94
	06-Sep-06	N		780	813	2.83	<.5	ND	2.34	<.1	<500	<500	<5	398	1.81
	12-Sep-06	N		---	---	1.76	---	ND	---	---	---	---	---	---	2.13
	19-Sep-06	N		---	---	2.56	---	0.114	---	---	---	---	---	---	5.42
	28-Sep-06	N		---	---	2.56	---	ND	---	---	---	---	---	---	3.12
	04-Oct-06	N		733	738	1.41	0.921	ND	1.21	<.1	<500	<500	<5	491	2.41
	17-Oct-06	N		---	---	<.5	---	0.058	---	---	---	---	---	---	6.48

Table 3
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Addendum 3 to the In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan – Floodplain Reductive Zone Enhancement

Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Iodide (mg/L)	Bromide (mg/L)	Fluorescein (ppb)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Total Iron (µg/L)	Dissolved Iron (µg/L)	Dissolved Manganese (µg/L)	Sulfate (mg/L)	Total Organic Carbon (mg/L)
TW-3D	17-Mar-06	N		3,350	3,070	<1	<.5	ND	4.87	<.2	<500	<500	<5	613	1.04
	05-Apr-06	N		3,140	2,980	6.12	<.5	ND	4.61	<.5	<500	<500	<5	645	<1
	19-Jul-06	N		2,440	2,360	<1	1	ND	3.89	<.5	<500	<500	<5	637	3
	07-Aug-06	N		2,600	2,580	5.86	0.849	ND	4.08	<.1	<500	<500	<5	599	5.26
	14-Aug-06	N		---	---	6.23	---	ND	---	---	---	---	---	---	3.31
	17-Aug-06	N		---	---	6.31	---	ND	---	---	---	---	---	---	1.41
	22-Aug-06	N		---	---	6.43	---	ND	---	---	---	---	---	---	1.4
	24-Aug-06	N		---	---	6.21	---	0.288	---	---	---	---	---	---	8.22
	29-Aug-06	N		---	---	6.33	---	0.085	---	---	---	---	---	---	2.08
	06-Sep-06	N		2,570	2,620	6.1	<1	ND	3.94	<.2	<500	<500	<5	656	2.05
	12-Sep-06	N		---	---	5.19	---	ND	---	---	---	---	---	---	2.43
	19-Sep-06	N		---	---	5.57	---	0.179	---	---	---	---	---	---	4.88
	28-Sep-06	N		---	---	5.8	---	ND	---	---	---	---	---	---	5.07
	04-Oct-06	N		2,350	2,920	6.86	<1	ND	5.21	<.2	<500	<500	<5	577	3.67
	17-Oct-06	N		---	---	<1.0	---	ND	---	---	---	---	---	---	6.18
INJ_SOLUTION_01	04-May-06	N		---	---	---	---	5,620	---	---	---	---	---	---	265
	05-May-06	N		---	---	---	<5	---	---	---	---	---	---	---	---
INJ_SOLUTION_02	05-May-06	N		---	---	---	1,790	---	---	---	---	---	---	---	276
INJ_SOLUTION_03	06-May-06	N		---	---	1,960	---	---	---	---	---	---	---	---	258
	11-Aug-06	N		---	---	<5	---	5,140	---	---	---	---	---	---	459
	07-Sep-06	N		<0.2	---	1,670	---	---	---	---	---	---	---	---	466
Make_Up_Water	05-May-06	N		---	---	<1	<.5	---	---	---	---	---	---	---	---

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Summary of Primary Analytical Parameters
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Addendum 3 to the In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan – Floodplain Reductive Zone Enhancement

Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Iodide (mg/L)	Bromide (mg/L)	Fluorescein (ppb)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Total Iron (µg/L)	Dissolved Iron (µg/L)	Dissolved Manganese (µg/L)	Sulfate (mg/L)	Total Organic Carbon (mg/L)
Field Blank	17-Mar-06	FB		<0.21	<1	<1	<.5	ND	<.5	<.1	<500	<500	<5	<.5	<1
	04-Apr-06	FB		<0.2	<1	<1	<.5	ND	<.5	<.1	<500	<500	<5	<.5	<1
	09-May-06	EB		<0.2 J/HD	<1	<1	<.5	ND	<.5	<.1	<500	<500	<5	<.5	<1
	13-May-06	FB		<0.2	<1	<1	<.5	ND	<.5	<.1	<500	<500	<5	<.5	<1
	24-May-06	FB		0.25	<1	<1	<.5	ND	<.5	<.1	<500	<500	<5	2.45	1.53
	01-Jun-06	FB		<0.2	<1	<1	<.5	ND	<.5	<.1	<500	<500	<5	<.5	21.4
	05-Jun-06	FB		<0.2	<1	<1	<.5	0.027	<.5	<.1	<500	<500	<5	<.5	<1
	17-Jul-06	FB		<0.21	<1	<1	<.5	ND	<.5	<.1	<500	<500	<5	<.5	2.51
	07-Aug-06	FB		<0.2	<1	<.5	<.5	ND	<.5	<.1	<500	<500	<5	<.5	5.16
	14-Aug-06	FB		---	---	<.5	---	ND	---	---	---	---	---	---	4.04
	21-Aug-06	FB		---	---	<.5	---	0.033	---	---	---	---	---	---	1.08
	29-Aug-06	FB		---	---	<.5	---	ND	---	---	---	---	---	---	1.49
	06-Sep-06	FB		<0.2	<1	<.5	<.5	ND	<.5	<.1	<500	<500	<5	4.47	1.85
	12-Sep-06	FB		---	---	<.5	---	ND	---	---	---	---	---	---	1.69
	19-Sep-06	FB		---	---	<.5	---	ND	---	---	---	---	---	---	4.04
	28-Sep-06	FB		---	---	<.5	---	ND	---	---	---	---	---	---	5.13
	03-Oct-06	FB		<0.2	<1	<0.5	<0.5	ND	<0.5	<0.1	<500	<500	<5	<0.5	7.03
	17-Oct-06	FB		---	---	<.5	---	ND	---	---	---	---	---	---	4.51

Table 3
Summary of Primary Analytical Parameters

PG&E Topock
Needles, California

Addendum 3 to the In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan – Floodplain Reductive Zone Enhancement

Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Iodide (mg/L)	Bromide (mg/L)	Fluorescein (ppb)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Total Iron (µg/L)	Dissolved Iron (µg/L)	Dissolved Manganese (µg/L)	Sulfate (mg/L)	Total Organic Carbon (mg/L)
Equipment Blank	17-Mar-06	EB		<0.21	2.91	<1	<.5	ND	<.5	<.1	<500	<500	<5	<.5	<1
	07-Apr-06	EB		<0.2	<1	<1	<.5	ND	<.5	<.1	<500	<500	<5	<.5	<1
	09-May-06	FB		<0.2 J/HD	<1	<1	<.5	ND	<.5	<.1	<500	<500	<5	<.5	<1
	13-May-06	EB		<0.2	<1	<1	<.5	ND	<.5	<.1	<500	<500	<5	<.5	1.33
	24-May-06	EB		0.23	<1	<1	<.5	ND	<.5	<.1	<500	<500	<5	2.47	1.17
	01-Jun-06	EB		<0.2	<1	<1	<.5	ND	<.5	<.1	<500	<500	<5	<.5	<1
	05-Jun-06	EB		<0.2	<1	<1	<.5	ND	<.5	<.1	<500	<500	<5	<.5	1.03
	17-Jul-06	EB		<0.21	<1	<1	<.5	ND	<.5	<.1	<500	<500	<5	<.5	2.95
	07-Aug-06	EB		<0.2	<1	<.5	<.5	ND	<.5	<.1	<500	<500	<5	0.539	3.84
	14-Aug-06	EB		---	---	<.5	---	ND	---	---	---	---	---	---	4.45
	21-Aug-06	EB		---	---	<.5	---	ND	---	---	---	---	---	---	1.11
	29-Aug-06	EB		---	---	<.5	---	ND	---	---	---	---	---	---	1.57
	06-Sep-06	EB		<0.2	<1	<.5	<.5	ND	<.5	<.1	<500	<500	<5	4.11	<1
	12-Sep-06	EB		---	---	<.5	---	ND	---	---	---	---	---	---	2.03
	19-Sep-06	EB		---	---	<.5	---	---	---	---	---	---	---	---	4.38
	28-Sep-06	EB		---	---	<.5	---	ND	---	---	---	---	---	---	4.95
	04-Oct-06	EB		<0.2	7.26	<.5	<.5	ND	<.5	<.1	<500	<500	<5	2.39	2.24
	17-Oct-06	EB		---	---	<.5	---	---	---	---	---	---	---	---	3.2

Notes on following page.

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

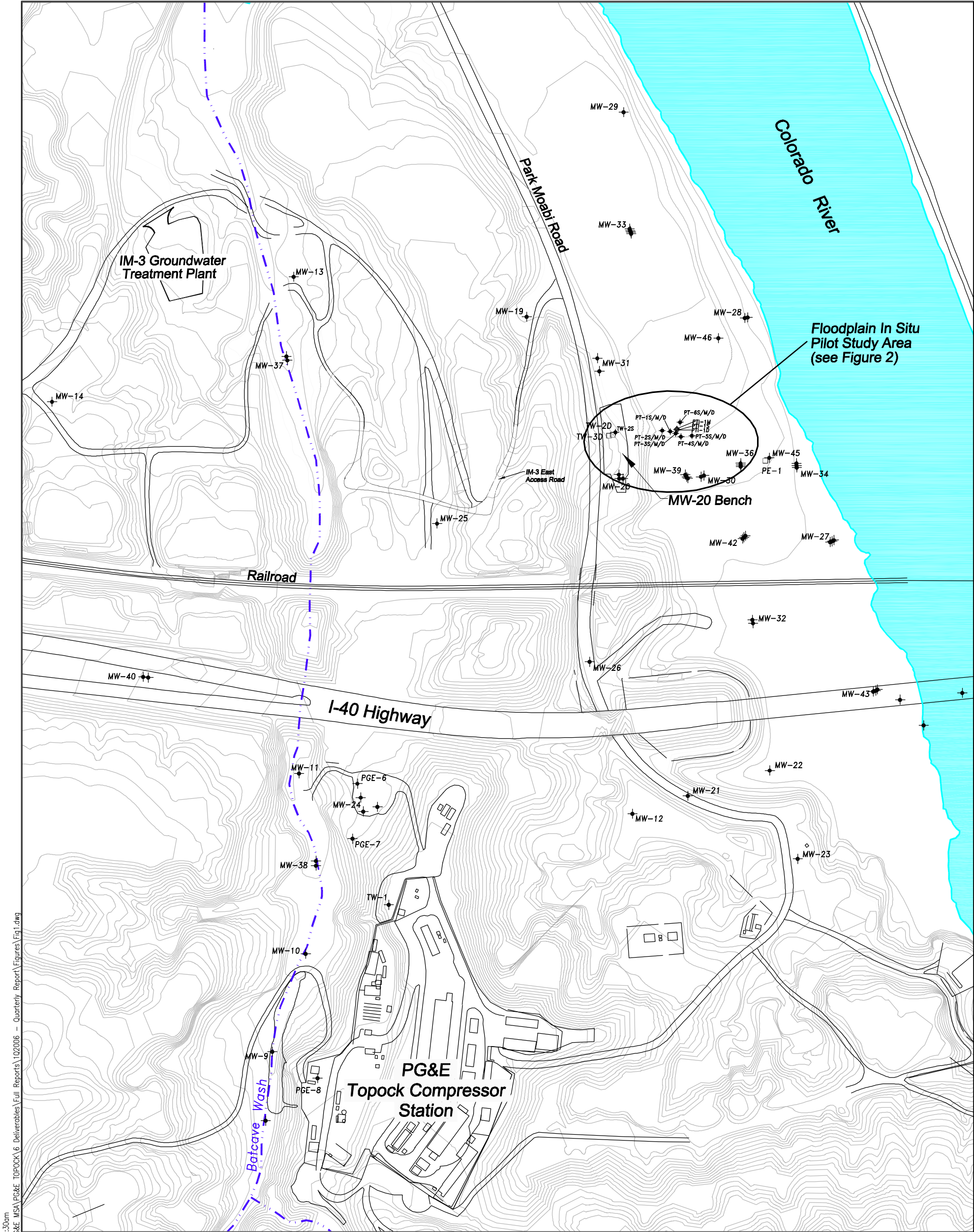
Addendum 3 to the In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan – Floodplain Reductive Zone Enhancement

Location Name	Sample Date	Sample Type	Screen Interval (ft bgs)	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Iodide (mg/L)	Bromide (mg/L)	Fluorescein (ppb)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Total Iron (µg/L)	Dissolved Iron (µg/L)	Dissolved Manganese (µg/L)	Sulfate (mg/L)	Total Organic Carbon (mg/L)
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Notes:

Most recent data indicated in **BOLD**

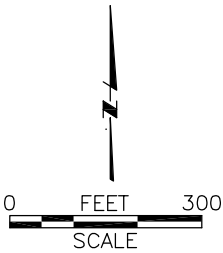
ft bgs	Feet below ground surface
mg/L	Milligrams per liter
µg/L	Micrograms per liter
ppb	Parts per billion
<	Symbol indicates not detected at or above laboratory detection limit as noted
N	Normal
EB	Equipment blank
FB	Field blank
FD	Field duplicate
J	Reported value is estimated
J/HD	Sample analyzed beyond USEPA-recommended holding time. Results may still be used for their intended purpose.
NA	Not applicable
ND	Not detected
Nitrate-N	Nitrate as Nitrogen
	Nitrite as
Nitrite-N	Nitrogen
---	Not analyzed/Not available
USEPA	United States Environmental Protection Agency



Source: MWH Draft In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan, Upland Plume Treatment, 2006.

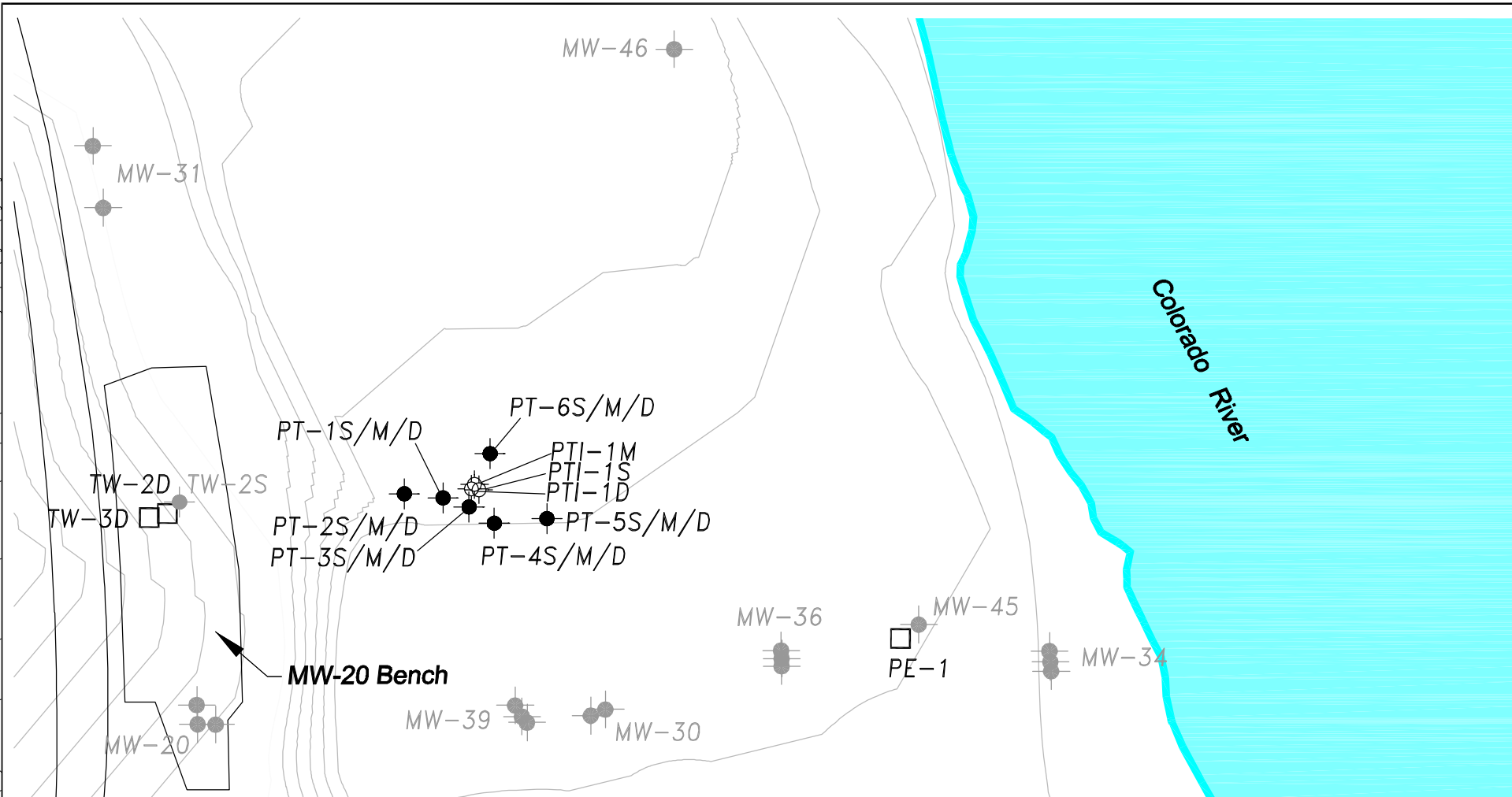
Legend

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



Date\\Time : Mon, 17 Apr 2006 - 9:30am
User Name : G:\\Projects- Active\\PG&E Topock\\6 Deliverables\\Full Reports\\102006 - Quarterly Report\\Figures\\Fig1.dwg
Acad Version : R16.1s (LWS Tech)
User Name : mchiu
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Task Manager H. VOSCOTT		Technical Review			Figure
Drawing Date 05 APR 06		Drawn By M. CHIU			1



Source: MWH Draft In-Situ Hexavalent Chromium Reduction Pilot Test Work Plan, Upland Plume Treatment, 2006.

Legend

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



0 FEET 100
SCALE

Project Director N. MORGAN-BUTCHER	Area Manager J. PETERS	 ARCADIS G&M, Inc. 1050 Marina Way South Richmond, CA 94804 Tel: 510-233-3200 Fax: 510-233-3204 www.arcadis-us.com	SAMPLE LOCATION MAP PG&E TOPOCK FACILITY NEEDLES, CALIFORNIA	Project Number RC000689.0001
Task Manager H. VOSCOTT	Technical Review			Figure 2
Drawing Date 05 APR 06	Drawn By M. CHIU			