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ENVIRONMENT

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 for Reduction of Required Parameter Analysis at the Floodplain Reductive Zone In Situ Pilot Test. Board Order R7-2006-0008, Pacific Gas and Electric Company, Topock Compressor Station

Date:
18 June 2007

Contact:
Alison Jones

Phone:
415.374.2744 ext 20

Email:
Alison.Jones@arcadis-us.com

Our ref:
RC000689.0001.00006

Dear Mr. Perdue:

On behalf of Pacific Gas and Electric Company (PG&E), ARCADIS is requesting your approval of a reduction in required sampling parameters in association with the PG&E Topock Compressor Station floodplain reductive zone in situ pilot test (ISPT). Monthly (and in some cases, weekly) sampling of twenty-four wells in the test area has occurred since April 2006, and a correspondingly large body of data has been developed. Based on a review of this data set, we believe it is prudent to reduce the current sampling program in order to minimize ongoing disturbance to the area without any loss of important data.

The required sampling parameter are set forth in the Monitoring and Reporting Program (MRP) adopted as Attachments C and D of the Waste Discharge Requirements (WDRs) issued by the Colorado River Basin Regional Water Quality Control Board (Water Board) under Board Order R7-2006-0008, attachment Section V.A.4.f. WDRs under Board Order R7-2006-0008 apply to the floodplain ISPT only. The floodplain ISPT area is shown on Figures 1 and 2.

The MRP requires that the floodplain in situ monitoring wells (PT-1S/M/D) through PT-6S/M/D), injection wells (PTI-1S/M/D), and the extraction wells (TW-2D, TW-3D and PE-1) be sampled monthly for all water chemistry parameters for two through six months after injections. ARCADIS proposes to modify the required sampling as follows:

- Discontinue sampling in the shallow zone (PT-1S through PT-6S and PTI-1S) after the August 2007 monthly event, one month after the sixth and final injection event. The floodplain ISPT injection events two through six have and will be completed in

the deep zone only (PTI-1D). These deep zone injections have had no effect on the shallow zone. Historical data are presented in the *April 2007 Monitoring Report for the Floodplain Reductive Zone In-Situ Pilot Test,* Waste *Discharge Requirements Order No. R7-2006-0008 PG&E Topock Compressor Station San Bernardino County, California*, dated May 15, 2007 (Monitoring Report). ARCADIS proposes that this part of the ISPT be considered complete as regards the shallow groundwater zone.

- Reduce the frequency of sampling in the middle groundwater zone (PT-1M through PT-6M and PTI-1M) to quarterly after the August 2007 monthly event. As previously mentioned, the floodplain ISPT injection events two through six have and will be completed in the deep zone only (PTI-1D). These deep zone injections have had little to no effect on the middle zone. In their conditional approval letter dated January 12, 2007, the Department of Toxic Control (DTSC) required tracer test monitoring in the middle zone to evaluate potential mounding effects and communication between the middle and deep zones of the aquifer resulting from the increased injection volume of injection events five and six. After injection events five and six, select middle zones wells will have been sampled on a weekly and bi-weekly basis for more than one month. This data will be sufficient to evaluate any mounding effects in the middle zone or communication between the deep and middle zones.

- Modify the middle groundwater zone well sampling parameter list after the August 2007 monthly event to include only constituents necessary to continue the evaluation of any communication between the middle and deep zones. Field parameters, chromium species, tracers, and total dissolved solids (Table 1) will provide data to evaluate the middle zone after the injections have ceased. The MRP currently includes parameters for evaluating water chemistry and the establishment of reducing conditions following total organic carbon (TOC) injections into the middle zone. Parameters for monitoring the establishment of reducing conditions (e.g. nitrate, dissolved iron, dissolved manganese, sulfide and sulfate) are no longer necessary, because TOC injections have been limited to the deep zone. Previous sampling events provide the information needed to understand the middle zone water chemistry, reducing the need for continued sampling of basic water chemistry parameters (e.g. dissolved calcium, dissolved sodium, chloride).

- Discontinue sampling the extraction well PE-1 after the August 2007 monthly event. This extraction well is located upgradient from the ISPT and has not been affected by the ISPT. Additionally, this well is sampled regularly as part of the ongoing Topock Groundwater Monitoring Program currently in place at the Topock site.

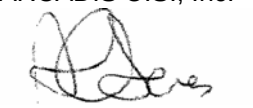
- Modify the deep well (PT-1D through PT-6D, and PTI-1D) and extraction well (TW-2D and TW-3D) sampling parameter list after the August 2007 monthly event to eliminate sampling for general chemistry parameters. A reducing zone has clearly been established by examination of the historical data (Monitoring Report). In order to evaluate the effects of the TOC on the sustainability of the reducing zone and hexavalent chromium reduction, the continued analysis of basic water chemistry parameters will no longer be necessary after the final injections have been completed. The parameters that will be continued are related specifically to the longevity of the reducing zone that has been established, and the continued reactivity of the reducing zone to chromium. These include field parameters, chromium species, nitrate, total and dissolved iron, manganese, sulfate, sulfide, tracers, TOC, and total dissolved solids (Table 1).

Table 1 summarizes the current parameter sampling list and the proposed modifications as described above.

Thank you for your consideration of our request. If you have any questions regarding this matter, or if you need additional information, please call Yvonne Meeks of PG&E at (805) 546-5243, or me at (415) 374-2744 ext 20.

Sincerely,

ARCADIS U.S., Inc.

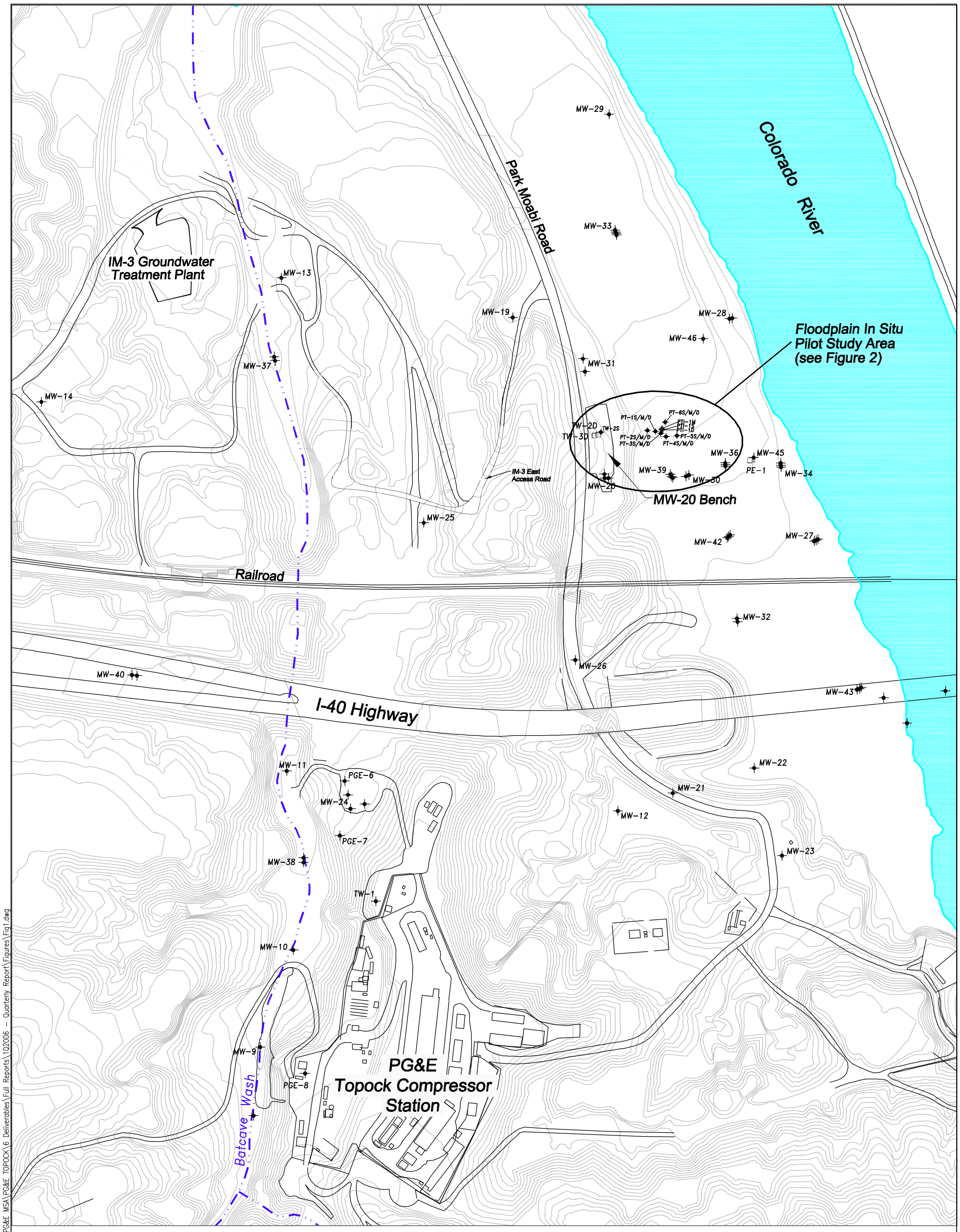


Alison Jones, PhD, PE
Senior Project Manager
Principal Engineer

Enclosures:

Figure 1	Site Plan
Figure 2	Sample Location Map
Table 1	Parameter Summary

Copies:
Abdi Haile, Water Board
Tom Vandenburg, State Water Resources Control Board
Cliff Raley, Water Board
Aaron Yue, DTSC



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*

N

0 FEET 300

SCALE

Project Director: N. MORGAN-BUTCHER	Area Manager: J. PETERS
Task Manager: H. VOSCOTT	Technical Review:
Drawing Date: 05 APR 06	Drawn By: M. CHIU

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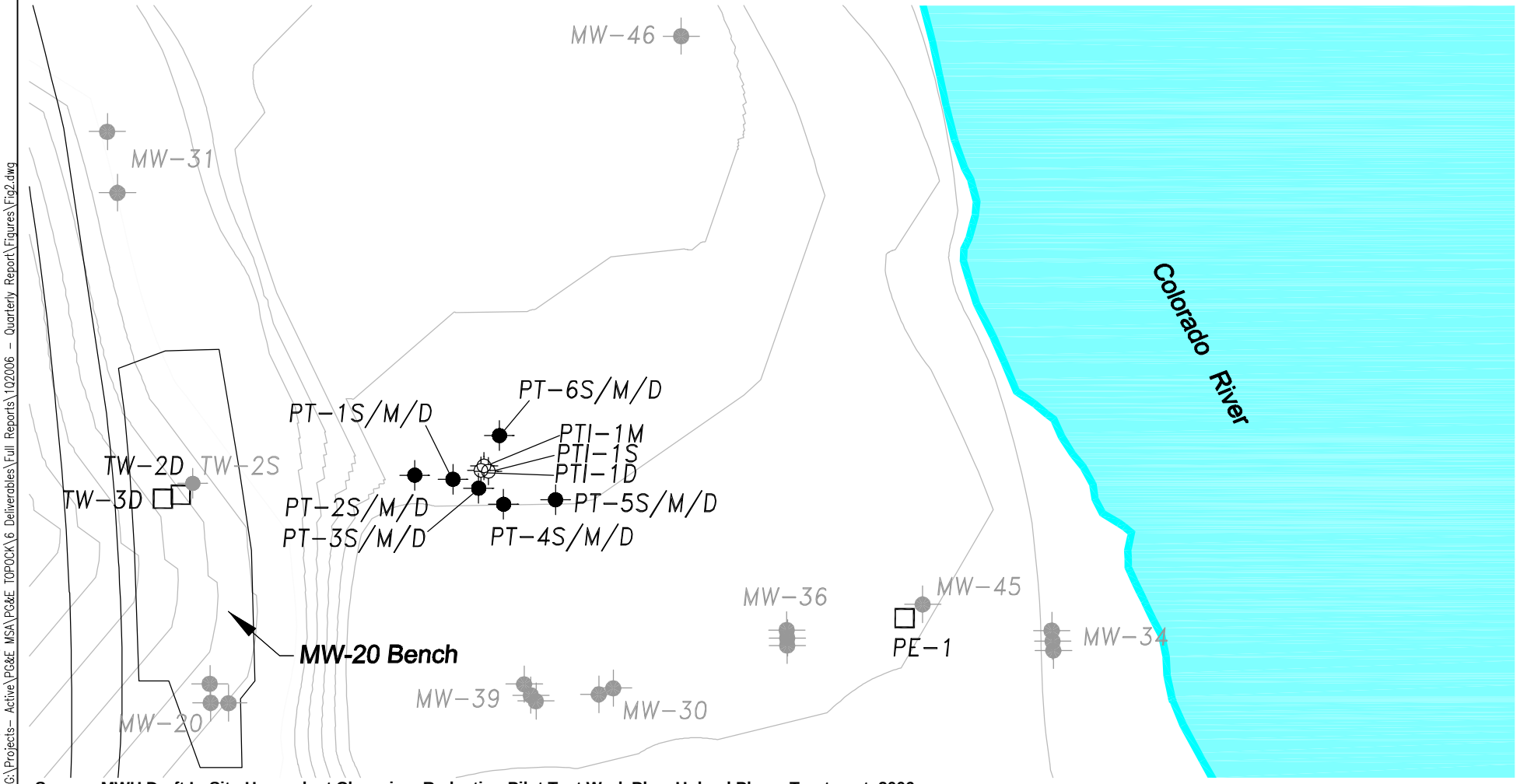
SITE PLAN
PG&E TOPOCK FACILITY
NEEDLES, CALIFORNIA

Project Number: RC000689.0001

Figure: 1

Acad Version : R16.1s (LMS Tech)
User Name : mchiu
Date\Time : Mon, 17 Apr 2006 – 9:30am
Path\Name : G:\Projects– Active\PG&E MSA\PG&E TOPOCK\6 Deliverables\Full Reports\102006 – Quarterly Report\Figures\Fig1.dwg



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

N

0 FEET 100
SCALE

Project Director: N. MORGAN-BUTCHER	Area Manager: J. PETERS	
Task Manager: H. VOSCOTT	Technical Review:	
Drawing Date: 05 APR 06	Drawn By: M. CHIU	

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SAMPLE LOCATION MAP
PG&E TOPOCK FACILITY
NEEDLES, CALIFORNIA

Project Number: RC000689.0001

Figure: 2

Table 1
Parameter Summary
PG&E Topock
Needles, California
Request for Reduction of Required Parameter Analysis at the Floodplain Reductive Zone In Situ Pilot Test

Parameter	Current Requirement for Monitoring and Extaction Wells	Current Requirement for Injection Wells	Requested Parameters in Middle Monitoring and Injection Wells	Requested Parameters in Deep Monitoring Wells	Requested Parameters in Deep Injection Well	Requested Parameters in Extraction Wells TW-2D and TW-3D.
ORP (mV)	X	X	X	X	X	X
pH	X	X	X	X	X	X
Temperature (C°)	X	X	X	X	X	X
Specific Conductance (µs/cm)	X	X	X	X	X	X
Hexavalent Chromium- Field (µg/L)	X	X	X	X	X	X
Hexavalent Chromium (µg/L)	X	X	X	X	X	X
Dissolved Chromium (µg/L)	X		X	X	X	X
Iodide (mg/L)	X	X	X	X	X	X
Bromide (mg/L)	X	X		X		
Fluorescein (ppb)	X	X	X	X	X	X
Nitrate-N (mg/L)	X			X	X	
Total Iron (µg/L)	X			X	X	
Dissolved Iron (µg/L)	X			X	X	
Dissolved Manganese (µg/L)	X			X	X	
Sulfate (mg/L)	X			X	X	
Total Organic Carbon (mg/L)	X	X		X	X	X
Dissolved Calcium (µg/L)	X					
Dissolved Magnesium (µg/L)	X					
Dissolved Arsenic (µg/L)	X					
Dissolved Potassium (µg/L)	X					
Dissolved Sodium (µg/L)	X					
Alkalinity Bicarbonate (mg/L)	X					
Alkalinity Carbonate (mg/L)	X					
Chloride-cl (mg/L)	X					
Orthophosphate-p (mg/L)	X					
Sulfide (mg/L)	X	X		X		
Total Dissolved Solids (mg/L)	X	X	X	X	X	X

Shallow wells and PE-1 are proposed to be removed from the monitroing program after the August 2007 event.
Notes on following page:

Table 1
Parameter Summary
PG&E Topock
Needles, California
Request for Reduction of Required Parameter Analysis at the Floodplain Reductive Zone In Situ Pilot Test

Parameter	Current Requirement for Monitoring and Extaction Wells	Current Requirement for Injection Wells	Requested Parameters in Middle Monitoring and Injection Wells	Requested Parameters in Deep Monitoring Wells	Requested Parameters in Deep Injection Well	Requested Parameters in Extraction Wells TW-2D and TW-3D.
mV	Millivolts					
µs/cm	Microsiemens per centimeter					
C^{o}	Degrees Celsius					
µg/L	Micrograms per liter					
mg/L	Milligrams per liter					
ppb	Parts per billion					
ORP	Oxidation Reduction Potential					