



Linda S. Adams  
Secretary for  
Environmental Protection



## Department of Toxic Substances Control

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Maureen F. Gorsen, Director  
5796 Corporate Avenue  
Cypress, California 90630



Arnold Schwarzenegger  
Governor

Sent Via Email

January 22, 2006

Ms. Yvonne Meeks  
Portfolio Manager – Site Remediation  
Pacific Gas and Electric Company  
4325 South Higuera Street  
San Luis Obispo, CA 93401

**CONDITIONAL APPROVAL OF REQUEST FOR REDUCED GROUNDWATER SAMPLING FREQUENCY FOR SELECT CONSTITUENTS AT PACIFIC GAS AND ELECTRIC COMPANY (PG&E), TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA (EPA ID NO. CAT080011729)**

Dear Ms. Meeks,

The Department of Toxic Substances Control (DTSC) has reviewed PG&E's December 18, 2006 request to modify the sampling frequency for select metals and general minerals currently required by the Interim Measures No. 3 injection well field Compliance Monitoring Program (CMP). PG&E proposes the reduction of sampling frequency for select metals and general minerals in nine observation wells from quarterly to semi-annual. The proposal eliminates seven general minerals and 18 metals constituents from specific semi-annual sampling events beginning with the first quarter 2007 event. PG&E's proposal, however, does not change the requirement to sample and analyze a full suite of general minerals and metals in the observation wells during the alternating quarters.

As a result of our review, DTSC is in general agreement with PG&E's proposal with one exception. As a condition of approval, DTSC believes molybdenum should be added as part of the "Limited Suite" constituent to be sampled every quarter in the observation wells as recommended in the enclosed August 18, 2006 memorandum by Dr. Kate Burger. Even though Dr. Burger's memorandum was prepared in response to PG&E's original sampling modification request of July 28, 2006, revised on August 9, 2006 and subsequently withdrawn by PG&E in September 2006, DTSC notes that the December 18, 2006 proposal by PG&E is essentially identical to the previous request. Therefore, Dr. Burger's memorandum in response to this matter is still appropriate and relevant.

Ms. Yvonne Meeks  
January 22, 2006  
Page 2 of 2

In conclusion, DTSC conditionally approves PG&E's proposal to reduce the sampling frequencies of specific minerals and metals provided that PG&E adds molybdenum as a constituent to be sampled every quarter in the CMP. If you have any questions or comments regarding this letter, please contact me at (714) 484-5439.

Sincerely,



Aaron Yue  
Project Manager  
Geology, Permitting and Corrective Action Branch

aky:010704C

Enclosure

cc: PG&E Topock Consultative Workgroup Members – Via Email  
Native American Tribal Representatives Contacts on PG&E Topock – Via Email



## Department of Toxic Substances Control

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### MEMORANDUM

TO: Christopher Guerre, CHG  
Senior Engineering Geologist  
Geology, Permitting & Corrective Action Branch, Cypress Office

FROM: Kate Burger, PhD, PG *Kate Burger*  
Engineering Geologist, Northern California Geological Services Unit  
Engineering & Geology Support Branch  
Site Mitigation and Brownfields Reuse Program

DATE: August 18, 2006

SUBJECT: Request to Implement Limited Sampling Frequency  
Interim Measures No. 3 (IM No. 3) Injection Well Field Area  
PG&E Topock Compressor Station, Needles, San Bernardino County  
Project No. 22120/540015-48/219-HWMP

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### DOCUMENT REVIEWED

Request for Approval to Implement Limited Sampling Frequency for Selected Metals/General Minerals, Interim Measures Compliance Monitoring Program, IM No. 3 Injection Area, PG&E Topock Compressor Station, Needles, California. Prepared by PG&E. Dated July 28, 2006, revised August 9, 2006.

### INTRODUCTION

The Northern California Geological Services Unit (GSU) of the Department of Toxic Substances Control (DTSC) has reviewed the above-referenced request related to the the Interim Measure No. 3 (IM 3) injection well field operated by the Pacific Gas and Electric Company (PG&E). PG&E is requesting DTSC approval to implement the limited sampling frequency approach outlined in the Groundwater Compliance Monitoring Plan for the IM 3 injection well field area (CH2M Hill, 2005). This memorandum provides GSU comments and recommendations regarding the request. If you have questions, please contact me at (916) 255-6537.

### COMMENTS AND RECOMMENDATIONS

1. As summarized in Table 1 (see attached), the requested limited sampling frequency

for selected parameters is consistent with the approach outlined in Tables 4-1 and 4-2 of the Groundwater Compliance Monitoring Plan. DTSC approval of the request means that the full suite of parameters would be analyzed in observation wells on a semi-annual basis (rather than the current quarterly basis), while a limited suite of parameters would be analyzed in observation wells during the intervening quarterly sampling events. (Note: The request pertains only to observation wells. Compliance monitoring wells will continue to be sampled on a semi-annual basis for the full parameter suite.)

2. DTSC approval of a limited sampling frequency for certain parameters should consider that one objective of the groundwater monitoring program is to be able to assess the degree of vertical migration and mixing of groundwater during treated water injection. To meet this objective, it seems appropriate that the limited parameter suite include constituents believed to be reliable indicators of treated water injection. In the Addendum to the First Half 2006 Semiannual Monitoring Report (CH2M Hill, 2006), PG&E indicates that the treated water characteristics can best be described by the following constituents: hexavalent chromium, total chromium, fluoride, molybdenum, nitrate, sulfate, and total dissolved solids. GSU recommends that these constituents are included in the limited parameter suite. Hence, molybdenum should be added to the limited parameter suite.
3. DTSC approval of the PG&E request should also consider that another objective of the groundwater monitoring program is to determine whether treated water injection is mobilizing trace metals from the aquifer sediments. As of June 2006, PG&E has nine data points to describe the trace metal concentrations in each observation well. GSU believes that this data set in conjunction with semi-annual evaluation of trace metal concentrations in observation wells is adequate to support this monitoring objective.

## **OVERALL RECOMMENDATION**

With one modification, GSU recommends approval of the PG&E request to analyze a limited suite of parameters in observation wells on a semi-annual basis. GSU recommends that molybdenum be added to the limited suite of parameters proposed by PG&E.

## **REFERENCES**

- CH2M Hill. 2005. Groundwater Compliance Monitoring Plan for Interim Measures No. 3 Injection Area, Waste Discharge Requirements Order No. R7-2004-0103, PG&E Topock Compressor Station, Needles, California. June 17, 2005.
- CH2M Hill. 2006. Addendum to the Semiannual Groundwater Monitoring Report, June 2006, Interim Measures Compliance Monitoring Program, PG&E Topock Compressor Station, Needles, California. July 31, 2006.

Table 1. Full and Limited Suite of Parameters

PARAMETER (1)	CURRENT FULL SUITE (2)	REQUESTED LIMITED SUITE (3)	COMMENT (4)
<b>GENERAL CHEMISTRY</b>			
Specific conductance	X	X	
pH	X	X	
Turbidity	X	X	
ORP	X	X	
Alkalinity (as CaCO <sub>3</sub> )	X		
Ammonia as (N)	X		
Chloride	X	X	
<b>Fluoride</b>	X	X	
<b>Nitrate/nitrate (as N)</b>	X	X	
<b>Sulfate</b>	X	X	
Boron	X	X	
Calcium	X		
Iron, total	X		
Magnesium	X		
Manganese	X		
Potassium	X		
Sodium	X		
<b>Total dissolved solids</b>	X	X	
<b>TRACE METALS</b>			
Aluminum	X		DF <10%
Antimony	X		DF <10%
Arsenic	X		DF <10%
Barium	X		DF >50%
Beryllium	X		DF <20%
Cadmium	X		DF <10%
Cobalt	X		DF <10%
<b>Chromium, total</b>	X	X	
<b>Chromium, Cr(VI)</b>	X	X	
Copper	X		DF <20%
Lead	X		DF <10%
Mercury	X		DF = 0%
<b>Molybdenum</b>	X	(5)	
Nickel	X		DF <20%
Selenium	X		DF <20%
Silver	X		DF <10%
Thallium	X		DF = 0%
Vanadium	X		DF >50%
Zinc	X		DF <50%

**Notes:**

- 1 Bold indicates parameter interpreted to be a good indicator of treated water (CH2M Hill, 2006)
- 2 Full suite as identified in Table 4-2 of the Groundwater Compliance Monitoring Plan (CH2M Hill, 2005)
- 3 Requested limited suite as outlined in Table 4-2 of the Groundwater Compliance Monitoring Plan (CH2M Hill, 2005) and in the July 28, 2006 PG&E letter.
- 4 DF is the detection frequency of trace metals in observation wells as of June 2006.
- 5 GSU recommends adding this parameter to the limited suite of parameters.