



Linda S. Adams
Secretary for
Environmental Protection



Department of Toxic Substances Control

Maureen F. Gorsen, Director
700 Heinz Avenue
Berkeley, California 94710-2721



Arnold Schwarzenegger
Governor

June 9, 2006

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

**THIRD AND FOURTH QUARTER 2005 GROUNDWATER MONITORING REPORTS,
COMPLIANCE MONITORING PROGRAM FOR INTERIM MEASURES NO. 3 INJECTION
WELL FIELD AREA, PACIFIC GAS AND ELECTRIC COMPANY, TOPOCK COMPRESSOR
STATION, NEEDLES, CALIFORNIA (EPA ID NO. CAT080011729)**

Dear Ms. Meeks:

The Department of Toxic Substances Control (DTSC), Geological Services Unit (GSU) has completed their review of the Third and Fourth Quarter 2005 Groundwater Monitoring Reports for the Interim Measures No. 3 Injection Well Field Area, dated October 14, 2005 and January 16, 2006, and prepared by Pacific Gas and Electric Company (PG&E). GSU comments were provided in a technical memorandum dated March 13, 2006. A copy of the memorandum is enclosed. Based on the GSU recommendations, DTSC has determined the following:

1. PG&E shall address GSU comments 1, 5, 6, 7, and 8 in future monitoring reports.
2. PG&E shall submit the fourth quarter data for wells CW-1M and CW-1D to DTSC within 7 days of this letter.

If you have any questions, please contact me at (510) 540-3943.

Sincerely,

Norman Shopay, P.G.
Project Manager
Geology, Permitting and Corrective Action Branch

NTS/208A

Enclosure: GSU Memorandum, Third and Fourth Quarter 2005 Groundwater Monitoring Reports, Compliance Monitoring Program for Interim Measures No. 3 Injection Well Field Area (dated March 13, 2006)

cc: PG&E Topock Consultative Workgroup Members - Via e-mail



Department of Toxic Substances Control



Agency Secretary
Cal/EPA

8800 Cal Center Drive
Sacramento, California 95826-3200



Arnold Schwarzenegger
Governor

MEMORANDUM

TO: Norman Shopay, P.G.
Senior Engineering Geologist
Geology, Permitting & Corrective Action Branch, Berkeley Office

FROM: Kate Burger, Ph.D., P.G. *Kate Burger*
Engineering Geologist, Northern California Geological Services Unit
Geology, Permitting & Corrective Action Branch, Sacramento Office

DATE: March 13, 2006

SUBJECT: Third and Fourth Quarter 2005 Groundwater Monitoring Reports
Compliance Monitoring Program for Interim Measures No. 3 Injection
Well Field Area, PG&E Topock Compressor Station, Needles, San
Bernardino County, Project No. 22120/540015-48/36-HWMP

DOCUMENTS REVIEWED

Compliance Monitoring Program Groundwater Monitoring Report, Third Quarter 2005, PG&E Topock Compressor Station, Needles, California. Prepared by CH2MHill. Dated October 14, 2005.

Compliance Monitoring Program Groundwater Monitoring Report, Fourth Quarter 2005, PG&E Topock Compressor Station, Needles, California. Prepared by CH2MHill. Dated January 16, 2006.

INTRODUCTION

The Northern California Geological Services Unit (GSU) of the Department of Toxic Substances Control (DTSC) has reviewed the above-referenced monitoring reports for the Interim Measures No. 3 (IM 3) injection well field area. The reports present hydraulic and groundwater monitoring data collected during the third and fourth quarters of 2005 under the Groundwater Compliance Monitoring Plan (CH2M Hill, 2005a). Pacific Gas and Electric Company (PG&E) is submitting the reports as required by the Regional Water Quality Control Board (RWQCB) Order No. R7-2004-0103 and the DTSC approval of the Groundwater Compliance Monitoring Plan (DTSC, 2005).

This memorandum provides GSU comments and recommendations regarding the monitoring reports. If you have questions, please contact me at (916) 255-6537.

COMMENTS AND RECOMMENDATIONS

1. The third quarter monitoring report does not clearly state which wells are interpreted to have a treated water signal. However, the Addendum to the Compliance Monitoring Plan (CH2M Hill, 2005b) interprets a treated water signal at well OW-02D during August and September 2005 and at well OW-2M during September 2005.

The fourth quarter report interprets that the following observation wells show the effects of treated groundwater injection (i.e., chemistry measured in the wells is moving towards, or has been replaced by, the chemistry of the injected water): OW-01M, OW-01D, OW-02S, OW-02M, OW-02D, and OW-05D. With the exception of well OW-02S, GSU concurs that these wells appear to show the effects of treated water injection. Wells completed in the middle depth interval of the Alluvial Aquifer showed increases in total dissolved solids (TDS), sulfate, and nitrate concentrations. Well OW-01M also showed increasing chloride concentrations and specific conductance. Lower depth interval wells OW-01D and OW-05D showed decreases in specific conductance, TDS, and chloride and showed increases in fluoride and nitrate concentrations. Well OW-02D showed increasing concentrations of nitrate, sulfate, TDS, and chloride.

GSU recommends that future quarterly reports have a separate section that summarizes which wells are interpreted to have water quality influenced by the treated water injection. The section should discuss the specific data that is being used to identify the effects of injection. It would be helpful if the section was supported by a table summarizing the treated water effluent chemistry for the reporting period.

2. For both monitoring periods, PG&E reports intermittent exceedances of established action levels in multiple observation wells, and attributes these exceedances to natural spatial variability. PG&E has not implemented the contingency plan (CH2M Hill, 2005c) for these exceedances¹ for two reasons. First, most exceedances occur in observation wells which were sampled monthly during the third and fourth quarters. Second, robust action levels and data comparison methods were not yet established at the time the monitoring reports were prepared. GSU discusses and provides recommendations regarding the updated baseline data set, revised action levels, and data comparison methods in a separate technical memorandum commenting on the Addendum to the Groundwater Compliance Monitoring Plan.
3. The fourth quarter report does not include data for wells CW-1M and CW-1D. From a discussion with CH2M Hill, GSU understands that this well cluster was blocked by construction activities at the time the other IM 3 wells were sampled the week of December 6. This well cluster was sampled on December 19 in coordination with other site groundwater sampling activities. The data were not received in time to be included in the fourth quarter report. PG&E should provide the fourth quarter data for wells CW-1M and CW-1D to DTSC as a separate transmittal.

¹ The contingency plan requires agency notification and verification resampling.

4. Vanadium appears to be showing seasonal variations during the third and fourth quarters of 2005; higher concentrations are reported during October and November than in the other months. Also, after reviewing updated baseline water quality data set, it is notable that molybdenum and vanadium, parameters which have geochemical behavior similar to hexavalent chromium, have a high detection frequency in injection area wells.
5. According to the Groundwater Compliance Monitoring Plan, the fourth quarter report is intended to fulfill the semi-annual reporting requirements. The fourth quarter report does not address this reporting requirement because it does not summarize hydraulic and analytical data for the entire semi-annual period.
6. It would be helpful if the fourth quarter reports included graphical summaries of the analytical data (e.g., time series plots for wells completed in same depth interval or wells in the same well cluster).
7. Future monitoring reports should include a more detailed discussion of the groundwater flow characteristics (horizontal and vertical) in the vicinity of the injection well field area.
8. The quarterly reports should include copies of the laboratory analytical reports in electronic format. Currently, only the field data sets and chain-of-custody records are provided in electronic format.

REFERENCES

- CH2M Hill. 2005a. 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. 2005b. Technical Memorandum, Addendum to the Compliance Monitoring Plan for the IM No. 3 Injection Area, PG&E Topock Compressor Station, Needles, California. December 13, 2005.
- CH2M Hill. 2005c. Addendum to Interim Measures No. 3 Injection Well Operation and Maintenance Plan, PG&E Topock Compressor Station, Needles, California. June 3, 2005.
- DTSC. 2005. Conditional Approval for the Start-up and Operation of the Interim Measures No. 3 Treatment System and Injection Wells, Pacific Gas & Electric Company, Topock Compressor Station, Needles, California. July 15, 2005.