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May 15, 2004

Norman Shopay Project Manager California Department of Toxic Substances Control Geology and Corrective Action Branch 700 Heinz Avenue Berkeley, California 94710

Subject: Performance Monitoring Report No. 3 Interim Measure No. 2 PG&E Topock Compressor Station, Needles, California

Dear Mr. Shopay:

Enclosed is the third performance monitoring report for Interim Measure No. 2 for the Topock project. This report was prepared in conformance with Final Interim Measures Work Plan No. 2, and describes the activities performed and monitoring data collected during the period April 16 through April 30, 2004. Please contact me at (805) 546-5243 if you have any questions or if you need additional information.

Sincerely,

Ten: Heron for Yronne Meeks

Enclosure

cc: CWG Members

Final Report

Performance Monitoring Report No. 3, PG&E Topock Compressor Station, Interim Measure No. 2, April 16 through 30, 2004

Prepared for

Pacific Gas and Electric Company

May 15, 2004

CH2MHILL

Performance Monitoring Report No. 3 PG&E Topock Compressor Station, Interim Measures No. 2 April 16 through 30, 2004

Prepared for Pacific Gas and Electric Company

This work plan was prepared under supervision of a California Registered Geologist,

Brian Schroth, Registered Geologist No. 7423 Senior Hydrogeologist

Performance Monitoring Report No. 3, PG&E Topock Compressor Station, Interim Measure No. 2 April 16 through 30, 2004

Pacific Gas and Electric Company (PG&E) is implementing Interim Measure (IM) No. 2 at the Topock Compressor Station in Needles, California, as described in the *Final Interim Measures Work Plan No.* 2 prepared by CH2M HILL on March 2, 2004 and *Addenda to Interim Measures Work Plan No.* 2, prepared by CH2M HILL on March 1, 2004. This performance monitoring report describes operational and monitoring information for IM No. 2 for the period between April 16 and April 30, 2004.

This performance monitoring report has been prepared in compliance with the *Final Interim Measures Work Plan No. 2*, which requires reporting of system operations and performance monitoring data. Future reports will be submitted to the Department of Toxic Substances Control (DTSC) on the 1st (for the first half of the preceding month) and the 15th (for the last half of the preceding month) of each month, with the schedule subject to reevaluation and adjustment by DTSC.

System Operations

Pumping Operations

The groundwater extraction system is located within a secured area on the monitoring well MW-20 bench. Existing monitoring wells MW-20-70, MW-20-100, and MW-20-130 were equipped with submersible pumps, piping, instrumentation, and controls to operate as temporary extraction wells. The piping conveys the extracted groundwater to holding tanks for temporary accumulation before transport to an off-site permitted treatment and disposal facility. System operations for the reporting period are documented below.

Table 1 summarizes the pumping data for the reporting period. A total of 286,327 gallons of groundwater were extracted during the reporting period. The MW-20 pumps were shut down on April 24, 2004, prior to conducting step-drawdown testing at the recently installed extraction wells TW-2S and TW-2D. The MW-20 wells were restarted on April 26 after completing the step-drawdown tests. The MW-20 pumps were subsequently shut down on April 30, 2004 in preparation for constant-rate pump tests at TW-2S and TW-2D. The shutdowns were necessary to allow the aquifer to equilibrate before conducting the tests and to provide adequate storage in the holding tanks to manage water generated during the tests.

TABLE 1

Pump Data (April 16 through April 30, 2004) Performance Monitoring Report No. 3, Topock Compressor Station, Interim Measure No. 2, April 16 through 30, 2004

	Reporting	g Period	Project To Date					
Extraction Well	Average Pumping Rate (gpm)	Volume Pumped (gal)	Average Pumping Rate (gpm)	Volume Pumped (gal)				
MW-20-70	2.4	49,923	3.1	230,165				
MW-20-100	3.1	54,729	3.1	213,350				
MW-20-130	9.9	181,675	9.9	684,653				
Total	15.4	286,327	16.1	1,128,168				

gpm: gallons per minute.

gal: gallons.

Note: "Average Pumping Rate" is an average of the periodic flow meter readings over the reporting period, whereas "Volume Pumped" is based on flow totalizer readings from the beginning and end of the reporting period.

The extracted groundwater was manifested as a hazardous waste and transported to United States Filter Corporation in Los Angeles, California for treatment and disposal. Copies of field notes, field logs, and waste manifests are maintained on site. Completed waste manifests from the treatment and disposal facility are sent back to the Topock Station.

Daily inspections include tank inspections, flow measurements, site security, and desert tortoise sitings. Daily logs with documentation of inspections are maintained on site. No rainfall events occurred during this reporting period. No other operational changes were noted during the reporting period.

System Modifications

The following system modifications were completed during this reporting period to accommodate planned pump tests (step-drawdown and constant-rate) and in preparation of transferring pumping operations to the new extraction wells TW-2S and TW-2D.

- Extraction wells TW-2S and TW-2D were piped to the holding tanks with 2-inch galvanized steel pipe. The pipe manifold includes flow meters and flow control valves. Extraction well piping is contained within a secondary containment trough or within the existing secondary containment for the holding tanks.
- A fifth 19,500-gallon holding tank was installed within the existing secondary containment area.

The secondary containment for the existing holding tanks is scheduled to be expanded to accommodate a sixth tank (if needed), while continuing to meet the secondary containment requirements for hazardous waste tanks (22 CCR Part 66265.193). An updated site plan and further discussion of the system modifications (e.g., pump installations, extraction well logs)

will be provided with the next monitoring report to document these modifications to the system.

On April 30, PG&E submitted a work plan to the DTSC and United States Bureau of Land Management (BLM) requesting approval to modify the existing temporary facilities to treat extracted groundwater in batches prior to off-site disposal. PG&E received authorization from the San Bernardino County Fire Department, the Certified Unified Program Agency for the site, to operate a batch treatment system on April 14, 2004. As described in the work plan, treatment of groundwater prior to off-site disposal will render the groundwater non-hazardous and provide PG&E greater flexibility to pursue local off-site disposal options. PG&E is currently awaiting approval of BLM to operate batch treatment.

Monitoring Data

Chemical Data

Groundwater samples were collected from each extraction well and from the combined effluent on April 21, 2004 and April 28, 2004. The samples were analyzed for total chromium, hexavalent chromium, and total dissolved solids (TDS). Table 2 and Figures 1 and 2 (provided at the end of this report) show the time-series concentrations of total chromium and TDS for the reporting period. Detected concentrations during pumping operations remain within historical ranges for these wells. The figures show both measured and combined MW-20 chromium and TDS values. The measured value represents a composite from all three wells, analyzed separately from the three wellhead samples.

Hydraulic Data

Water levels were recorded with pressure transducers placed in 18 wells and one river monitoring station (I-3). The wells monitored were: MW-19, MW-20 cluster (3), MW-25, MW-26, MW-27, MW-28, MW-29, MW-30 cluster (2), MW-31-60 (previously called MW-31), MW-32 cluster (2), MW-33 cluster (2), and MW-34 cluster (2). In addition, transducers were recently installed in 17 new wells including: TW-2S, TW-2D, MW-31-135, MW-35 cluster (2), MW-36 cluster (6) and MW-39 cluster (6). Water level data were continuously collected, with short interruptions for sampling. The transducers in MW-27, MW-30-30, MW-30-50, MW-34-55, and MW-34-80 failed and were repaired or replaced during the current reporting period.

Pumping continued at the MW-20 cluster during April 16-30 at an average rate of approximately 15.4 gallons per minute (gpm). Pumping at the MW-20 cluster stopped only during periods of testing at TW-2, as described below. Attachment 1 contains hydrographs for all transducer data collected between February 28 and April 30. Hydrographs are not provided for wells that have not yet been surveyed.

Well and aquifer tests were conducted at the recently-completed TW-2S and TW-2D during the current reporting period. Pumping from the MW-20 cluster wells was stopped in advance of and during the testing of the TW-2 wells. However, the net volume of water extracted increased during the testing, since the water removed from the TW-2 wells was greater than the volume that would have been extracted from the MW-20 wells alone.

The TW-2S and TW-2D step-drawdown tests were conducted on April 24 and 25, 2004, respectively. The step drawdown tests included pumping each well at five different pumping rates to evaluate well performance. Analysis of test results and evaluation of well performance is currently being conducted. A longer-term pumping test was conducted at TW-2S on April 30, 2003. Further analysis of these data, including removal of fluctuations in water level (caused by the Colorado River fluctuations) and calculation of aquifer properties, is currently being conducted.

Hydrographs of water levels in the Colorado River at station I-3, RRB, and the Topock Marsh Inlet show the daily fluctuations in river levels are caused by the release of water from Davis Dam. Beginning on March 9, the river levels began increasing. United States Bureau of Reclamation records confirm that releases from the dam increased on this date. During the current reporting period from April 15 to 30, 2004, dam discharge and river levels stayed relatively constant until April 30, 2004 when discharge and levels decreased notably. Data for the Davis Dam discharge and river elevation are being evaluated to assist with pumping test evaluation and in order to predict future river elevations.

Several new monitoring wells have been completed or will be completed soon and hydraulic testing at the TW-2 wells in ongoing. The pumping test results and geologic data obtained from the new well borings are currently being compiled and evaluated so that assessment of target volume capture may be improved.

Future Activities

Reporting of IM No. 2 activities will continue as described in the *Final Interim Measures Work Plan No.* 2. The next status report will be submitted on May 31, 2004 and will cover activities from May 1 to May 15, 2004.

Pump tests scheduled during the next reporting period include constant-rate tests at TW-2S and TW-2D (both individual and combined tests), and spinner-log testing at each well. New extraction wells TW-2S and TW-2D will be brought online immediately following completion of the tests. It is anticipated that pumping operations will be transferred to TW-2S and TW-2D by May 14, 2004. The MW-20 cluster pumps will be taken offline and used as monitoring wells, but will remain fully equipped in the near future for back-up service.

Bimonthly sampling from 14 wells and two river stations is scheduled for the week of May 10 for general geochemistry. Samples will be analyzed for chromium, major ions, natural tracers, and stable isotopes of oxygen and hydrogen. The results will be compared to the baseline sampling event completed in March 2004 prior to starting the pumping operations.

Tables

Table 2 Analytical Results - MW-20 Extraction Wells Topock Interim Measures No. 2

		MW-2 average	2 0-70 3.1 gpm		MW-20-100 average 3.1 gpm			MW-20-130 average 9.9 gpm				MW-20 Combined average 16.1 gpm				
Sample Time Relative to Pumping Start	Sample Date	Total Dissolved Chromium mg/L	Hexavalent Chromium mg/L	Total Dissolved Solids mg/L	Sample Date	Total Dissolved Chromium mg/L	Hexavalent Chromium mg/L	Total Dissolved Solids mg/L	Sample Date	Total Dissolved Chromium mg/L	Hexavalent Chromium mg/L	Total Dissolved Solids mg/L	Sample Date	Total Dissolved Chromium mg/L	Hexavalent Chromium mg/L	Total Dissolved Solids mg/L
Startup 12-hr Well	Tests															
3 casing vol.	08-Mar-04	10.00		2,240	09-Mar-04	2.26		3,440	10-Mar-04	4.83		11,000				
6-hour	08-Mar-04	9.81		2,210	09-Mar-04	2.28		3,440	10-Mar-04	5.42		10,600				
12-hour	09-Mar-04	10.90		2,200	10-Mar-04	2.99		3,410	11-Mar-04	5.59		10,600				
Ongoing Extraction	1															
1 day	12-Mar-04	9.47		2,170	12-Mar-04	2.76		3,440	12-Mar-04	6.24		9,930	12-Mar-04	5.74		7,000
2 days	13-Mar-04	9.40		2,240	13-Mar-04	2.53		3,420	13-Mar-04	6.15		9,750	13-Mar-04			
3 days	14-Mar-04	8.73		2,230	14-Mar-04	2.76		3,410	14-Mar-04	6.43		9,540	14-Mar-04			
4 days	15-Mar-04	9.24		2,230	15-Mar-04	3.04		3,420	15-Mar-04	6.59		9,420	15-Mar-04			
5 days	16-Mar-04	8.61		2,230	16-Mar-04	2.83		3,420	16-Mar-04	6.31		9,160	16-Mar-04			
6 days	17-Mar-04	9.25		2,210	17-Mar-04	3.03		3,410	17-Mar-04	6.20		9,160	17-Mar-04		7.98	
7 days	18-Mar-04	9.62		2,230	18-Mar-04	2.95		3,400	18-Mar-04	6.39		9,000	18-Mar-04			
8 days	19-Mar-04	9.7		2,260	19-Mar-04	3.32		3,430	19-Mar-04	6.42		9,090	19-Mar-04			
9 days	20-Mar-04			2,210	20-Mar-04			3,400	20-Mar-04			8,940	20-Mar-04			
10 days	21-Mar-04			2,260	21-Mar-04			3,390	21-Mar-04			8,600	21-Mar-04			
11 days	22-Mar-04				22-Mar-04				22-Mar-04				22-Mar-04	6.39	8.01	6,420
13 days	24-Mar-04	11.4		2,210	24-Mar-04	3.64		3,400	24-Mar-04	7.29		8,350	24-Mar-04	7.78		6,260
16 days	27-Mar-04			2,360	27-Mar-04	5.68		3,310	27-Mar-04	8.09		8,520	27-Mar-04	8.43		6,060
20 days	31-Mar-04	11.5	11.4	2,240	31-Mar-04	3.25	3.43	3,440	31-Mar-04	7.70	7.82	8,220	31-Mar-04	7.70	7.71	6,120
27 days	07-Apr-04	10.6	11.7	2,330	07-Apr-04	3.03	3.49	3,430	07-Apr-04	7.35	7.79	8,100	07-Apr-04	7.49	7.88	6,040
34 days	14-Apr-04	11.4	12.4	2,260	14-Apr-04	3.74	3.65	3,260	14-Apr-04	6.27	7.77	8,330	14-Apr-04	6.44	7.88	6,090
41 days	21-Apr-04	9.97	11.1	2,280	21-Apr-04	3.07	3.82	3,410	21-Apr-04	7.01	7.68	8,010	21-Apr-04	6.45	6.51	5,650
48 days	28-Apr-04	13.2	10.8	2,300	28-Apr-04	3.40	3.62	3,460	28-Apr-04	7.97	7.77	8,100	28-Apr-04	8.20	7.55	6,160

Figures





Attachment 1 Hydrographs













