



**Pacific Gas and  
Electric Company**

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May 29, 2002

Ms. Karen Baker, CEG, CHG  
Chief, Corrective Action Branch  
Department of Toxic Substances Control, Region 4  
5796 Corporate Avenue  
Cypress, California 90630

Subject: Groundwater and Surface Water Sampling Results - First Quarter 2002  
Corrective Action Consent Agreement for Bat Cave Wash Area  
PG&E Topock Compressor Station, Needles, California  
EPA ID No. CAT080011729

Dear Ms. Baker:

This letter transmits the results of the First Quarter (March 2002) groundwater and surface water monitoring event for the Topock project. During this monitoring event, 27 wells and 6 locations along the Colorado River were sampled for the site constituents of concern. The results of the groundwater and surface water sampling are presented in Tables 1 and 2, respectively. The sampling locations and results for hexavalent chromium are shown on the attached figure. We have completed our data review of the sampling results and have determined that the results are usable for monitoring water quality conditions at the site.

For the March 2002 monitoring event, all samples analyzed for total chromium, copper, nickel, and zinc inadvertently were preserved/digested prior to sample filtration and hence reflect **total recoverable** metal concentrations (metals in both dissolved fraction and suspended sediment). During prior monitoring events, the samples analyzed for these parameters were filtered prior to sample processing and therefore measure only the dissolved metals content. The March 2002 results in Tables 1 and 2 (and project database) have been qualified accordingly. As a result of the fact that sediment was not filtered out of the samples prior to sample preservation and digestion, the March 2002 results for total chromium, copper, nickel, and zinc are not representative of the dissolved concentrations of metals in the water samples and are not useful for comparison with prior samples. Therefore, during subsequent monitoring events, the sample preparation procedure for dissolved metals analysis will be used for these parameters.

If you have any questions, please call me at (925) 974-4081.

Sincerely,

 for

Linda Gonsalves  
Project Manager

Attachments

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**Table 1: Results of March 2002 Groundwater Sampling  
Topock Compressor Station**

Well Number	Sample Date	Hexavalent Chromium mg/L	Total Chromium mg/L	Copper mg/L	Nickel mg/L	Zinc mg/L	Electrical Conductivity µS/cm	pH
MW-9	28-Nov-2001	0.36	0.34	0.0038 J	0.0014 J	0.021	3,320	7.6
	6-Mar-2002	0.354	0.339 *	0.0052 J *	0.0101 *	0.127 *	3,350	7.2
MW-10	28-Nov-2001	1.9	1.4	0.0031 J	0.0017 J	0.026	2,920	7.6
	6-Mar-2002	1.87	1.67 *	0.0042 *	0.0059 *	0.0593 *	3,490	7.4
MW-11	28-Nov-2001	0.73	0.54	ND	0.00096 J	0.014	2,570	7.5
	6-Mar-2002	0.613	0.512 *	0.005 J *	0.0088 *	0.0523 *	2,440	7.2
MW-12	29-Nov-2001	0.98	1.0	ND <0.01	0.0073	0.071	3,320	8.3
	7-Mar-2002	1.28	0.997 *	0.0092 *	0.0071 *	0.0688 *	3,880	8.2
MW-13	28-Nov-2001	0.028	0.023	ND <0.01	0.0046 J	0.065	2,040	7.7
	6-Mar-2002	0.026	0.0305 *	0.0053 *	0.0106 *	0.0313 *	2,120	7.4
MW-14	30-Nov-2001	0.035	0.10	0.0038	0.016	0.046	1,870	7.7
	7-Mar-2002	0.099	0.077 *	0.0297 *	0.0125 *	0.0617 *	1,620	7.4
MW-15	29-Nov-2001	0.026	0.012 J	ND <0.01	0.0016 J	0.072	1,640	7.6
	6-Mar-2002	0.05	0.0368 *	0.007 *	0.0099 *	0.038 *	1,940	7.5
MW-16	29-Nov-2001	0.018	0.016 J	0.0054 J	0.008 J	0.075	1,190	8.0
	7-Mar-2002	0.03	0.0336 *	0.0147 *	0.0124 *	0.0746 *	1,250	7.6
MW-17	29-Nov-2001	ND <0.01	ND <0.02	ND <0.01	0.0027 J	0.075	1,800	7.7
MW-18	29-Nov-2001	0.035	0.037	ND <0.01	0.002 J	0.06	1,190	7.7
	6-Mar-2002	0.036	0.0434 *	0.0029 *	0.0046 *	0.0281 *	1,280	7.4
MW-19	29-Nov-2001	0.68	0.64	ND <0.01	0.0038 J	0.07	2,220	7.9
	7-Mar-2002	0.966	0.709 *	0.0126 *	0.007 *	0.048 *	2,470	7.4
MW-20-70	30-Nov-2001	9.0	9.9	ND <0.01	0.002 J	0.066	3,490	7.6
	7-Mar-2002	13.2	11.6 *	0.0785 *	0.0182 *	0.1339 *	3,590	7.5
MW-20-100	30-Nov-2001	3.0	3.0	ND	0.0037 J	0.067	5,410	7.8
	7-Mar-2002	3.44	4.16 *	0.0123 *	0.0128 J *	0.141 J *	5,640	7.8
	duplicate 7-Mar-2002	3.28	2.85 *	0.0173 *	0.0194 J *	0.0618 J *	5,660	7.8
MW-20-130	30-Nov-2001	5.6	5.5	ND <0.01	ND <0.005	0.045 J	16,200	7.7
	7-Mar-2002	6.44	5.79 *	0.0061 *	0.0136 *	0.0397 *	17,100	7.6
MW-21	30-Nov-2001	ND <0.01	ND <0.02	ND <0.10	0.015 J	0.089 J	11,800	7.1
	8-Mar-2002	ND <0.01	0.0128 *	0.111 *	0.036 *	0.363 *	15,300	7.2
MW-22	28-Nov-2001	ND <0.01	ND	ND	0.021 J	0.19 J	22,400	7.0
	5-Mar-2002	ND <0.01	0.142 *	0.149 *	0.123 *	0.734 *	22,800	7.1
MW-23	28-Nov-2001	ND <0.01	ND <0.02	ND <0.10	0.0150 J	0.12	16,100	6.9
	8-Mar-2002	ND <0.01	0.0192 *	0.0111 *	0.0331 *	0.0935 *	17,800	7.1

**Table 1: Results of March 2002 Groundwater Sampling  
Topock Compressor Station**

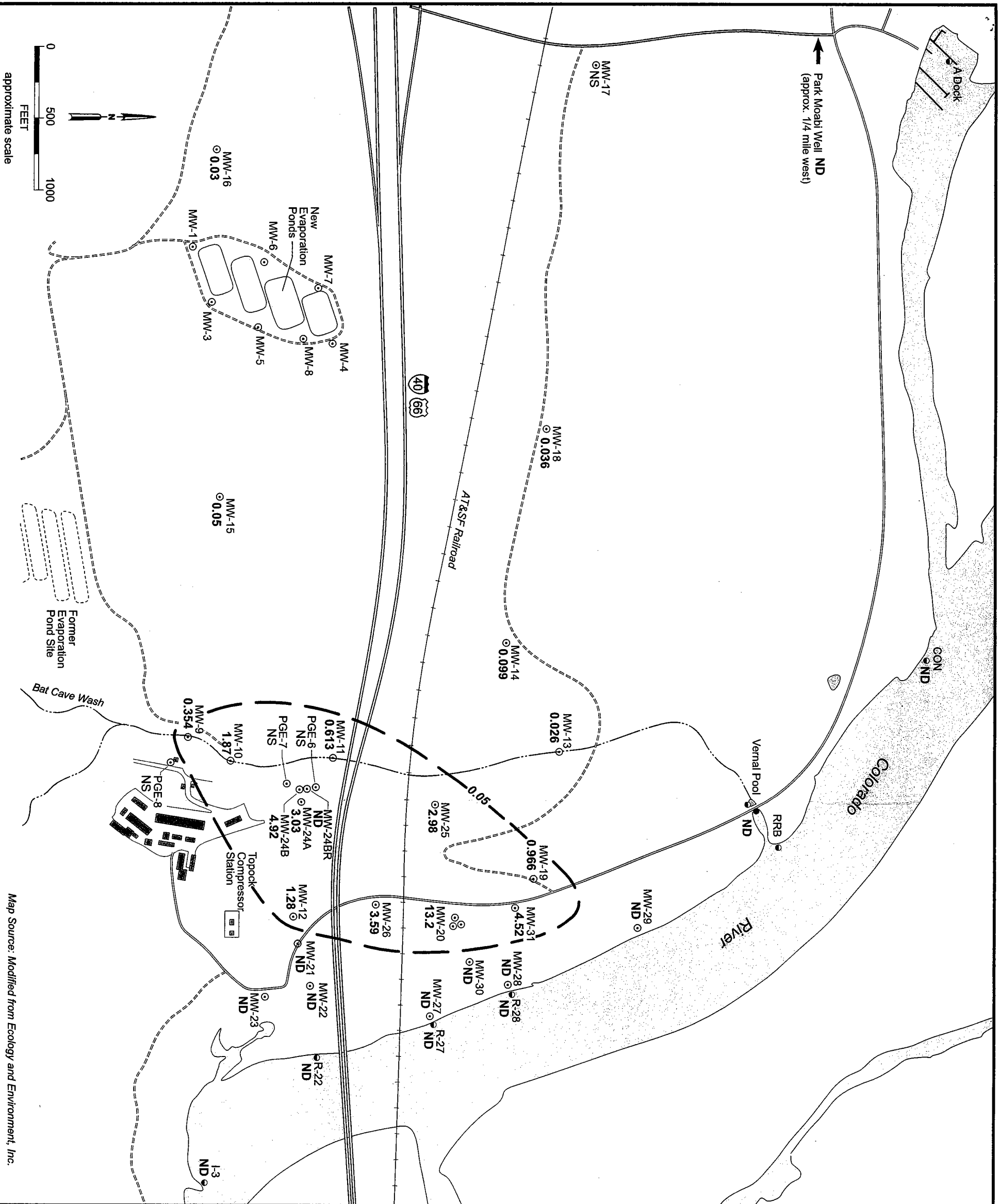
Well Number	Sample Date	Hexavalent Chromium mg/L	Total Chromium mg/L	Copper mg/L	Nickel mg/L	Zinc mg/L	Electrical Conductivity µS/cm	pH
MW-24A	29-Nov-2001	3.4	2.9	0.0061 J	0.0020 J	0.058	3,150	7.8
	8-Mar-2002	3.03	2.99 *	0.0092 *	0.0053 *	0.0327 *	3,650	7.8
MW-24B	29-Nov-2001	4.4	4.4	ND <0.01	ND <0.005	ND <0.01	12,500	8.0
	8-Mar-2002	4.92	4.6 *	0.0136 *	0.0105 *	0.0716 *	13,300	8.0
MW-24BR	29-Nov-2001	ND <0.01	ND <0.02	ND <0.01	0.0085 J	ND <0.01	13,800	8.6
	8-Mar-2002	ND <0.01	0.0688 *	0.0655 *	0.0172 *	0.133 *	14,300	8.5
MW-25	29-Nov-2001	2.4	2.6	ND <.010	0.0038 J	0.031	1,570	7.7
	7-Mar-2002	2.98	2.54 *	0.0076 *	0.0089 *	0.0682 J *	1,850	7.3
	duplicate 7-Mar-2002	2.98	2.55 *	0.0058 *	0.0086 *	0.0284 J *	1,840	7.3
MW-26	30-Nov-2001	3.2	3.5	0.0075 J	0.009 J	0.14	3,330	7.5
	7-Mar-2002	3.59	3.07 *	0.0342 *	0.0172 J *	0.0733 *	3,440	7.5
MW-27	28-Nov-2001	ND <0.01	0.014 J	0.021	0.012	0.12	1,190	7.7
	5-Mar-2002	ND <0.01	0.0886 *	0.0961 *	0.0635 *	0.44 *	1,010	7.8
MW-28	28-Nov-2001	ND <0.01	ND	0.016	0.0097	0.063	1,650	7.6
	5-Mar-2002	ND <0.01	0.0258 *	0.0269 *	0.0206 *	0.143 *	3,060	7.8
MW-29	30-Nov-2001	ND <0.01	ND <0.10	ND <0.01	0.010 J	0.076	7,580	7.2
	5-Mar-2002	ND <0.01	0.0168 *	0.0187 *	0.0213 *	0.1113 *	12,100	7.2
MW-30	28-Nov-2001	ND <0.01	ND <0.02	ND	ND	ND	51,900	6.9
	5-Mar-2002	ND <0.01	0.0284 *	0.024 *	0.0376 *	0.0721 *	43,200	6.9
MW-31	29-Nov-2001	3.8	3.7	ND	0.0023 J	0.034	3,040	7.5
	7-Mar-2002	4.52	4.01 *	0.0408 J *	0.0093 *	0.0461 J *	2,980	7.4
	duplicate 7-Mar-2002	4.46	3.75 *	0.0075 J *	0.0098 J *	0.11 J *	3,060	7.4
PGE-6	29-Nov-2001	0.78	0.88	0.0087 J	ND <0.005	0.091	4,060	7.8
PGE-7	29-Nov-2001	4.8	4.8	ND <.010	ND <0.005	0.046 J	11,200	7.8
PGE-8	28-Nov-2001	ND <0.01	ND <0.02	ND <0.01	ND <0.005	0.320	16,100	8.5
Pk Moabi	28-Nov-2001	ND <0.01	0.017 J	0.0058 J	ND	0.024	1,680	7.9
	5-Mar-2002	ND <0.01	0.0223 *	0.0092 *	0.0087 *	0.0546 *	2,200	7.7

- NOTES: 1. First quarter 2002 sample results from CH2M HILL. November 2001 results from Alisto/E&E shown for comparison.
2. ND = not detected at listed analytical reporting limit, J = parameter detected below reporting limit (estimated concentration)
3. Analysis methods: hexavalent chromium (SW 7196A), total chromium, copper, nickel, zinc (SW 6020A), elect. conductivity (SW 9050), pH (SW 9040).
4. The March 2002 samples analyzed for total chromium, copper, nickel, zinc were preserved & digested before laboratory filtration & analysis. Accordingly, the March 2002 results for these parameters are **total recoverable** metals concentrations (flagged \*).  
The November 2001 samples were filtered by the laboratory before preparation and analysis and are **dissolved** metals concentrations.

**Table 2**  
**Results of March 2002 Surface Water Sampling**  
**Topock Compressor Station**

Sample Location	Sample Date	Hexavalent Chromium mg/L	Total Chromium mg/L	Copper mg/L	Nickel mg/L	Zinc mg/L	Electrical Conductivity mS/cm	pH
CON	27-Nov-2001	ND <0.01	ND <0.02	0.0025 J	ND <0.005	0.046	925	7.9
	5-Mar-2002	ND <0.01	0.0139 J *	0.0051 J *	0.0047 *	0.0192 *	939	8.2
Vernal Pool	22-Aug-2001	ND <0.01	ND <0.02	0.0057 J	0.0015 J	0.015	854	7.7
	5-Mar-2002	ND <0.01	0.0147 J *	0.0047 *	0.0062 *	0.0225 *	932	8.1
I-3	27-Nov-2001	ND <0.01	ND <0.02	ND <0.01	ND <0.005	0.0093 J	909	8.2
	5-Mar-2002	ND <0.01	0.0134 J *	0.0065 *	0.0049 *	0.0711 *	922	8.2
R-22	27-Nov-2001	ND <0.01	ND <0.02	0.0021 J	0.0024 J	0.016	899	8.2
	5-Mar-2002	ND <0.01	0.0127 J *	0.0087 *	0.0057 *	0.0536 *	962	8.3
R-27	27-Nov-2001	ND <0.01	ND <0.02	0.0022 J	0.001 J	0.014	896	8.0
	5-Mar-2002	ND <0.01	0.0144 J *	0.0083 *	0.0059 *	0.0728 *	930	8.2
R-28	27-Nov-2001	ND <0.01	ND <0.02	ND <0.01	0.00098 J	0.030	889	8.1
	5-Mar-2002	ND <0.01	0.0133 J *	0.0061 *	0.0048 *	0.0437 *	919	8.2

- NOTES: 1. First quarter 2002 sample results from CH2M HILL. November 2001 results from Alisto/E&E shown for comparison.
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3. Analysis methods: hexavalent chromium (SW 7196A), total chromium, copper, nickel, zinc (SW 6020A), elect. conductivity (SW 9050), pH (SW 9040).
4. The March 2002 samples analyzed for total chromium, copper, nickel, zinc were preserved & digested before laboratory filtration & analysis.
- Accordingly, the March 2002 results for these parameters are **total recoverable** metals concentrations (flagged \*).  
The November 2001 samples were filtered by the laboratory before preparation and analysis and are **dissolved** metals concentrations.



Map Source: Modified from Ecology and Environment, Inc.

- LEGEND**
- Monitoring Well
  - Surface Water Sample
  - 3.47 Concentration of hexavalent chromium [Cr(VI)] in milligrams per liter (mg/L)
  - ND Cr(VI) not detected, 0.01 mg/L detection limit
  - NS Not sampled
  - Approximate limits of Cr(VI) > 0.05 mg/L

Well No.	Monitored Zone	Hexavalent Chromium Results (mg/L)		Date
		March 2002	Prior Maximum Detected	
MW-9	Upper UA	0.354	0.367	Mar-2000
MW-10	Upper UA	1.87	3.47	Sep-1999
MW-11	Upper UA	0.613	1.71	Jun-1998
MW-12	Upper UA	1.28	1.03	Dec-2000
MW-13	Upper UA	0.026	0.028	Nov-2001
MW-14	Upper UA	0.099	0.053	Sep-2000
MW-15	Upper UA	0.05	0.026	Nov-2001
MW-16	Upper UA	0.03	0.018	Nov-2001
MW-17	Upper UA	NS	ND	
MW-18	Upper UA	0.036	0.035	Nov-2001
MW-19	Upper UA	0.966	0.726	Jun-1998
MW-20-70	Upper UA	13.2	12.9	Jul-1999
MW-20-100	Middle UA	3.44	3.1	Sep-2001
MW-20-130	Lower UA	6.44	6.34	Sep-2000
MW-21	Upper UA	ND	0.02	Jun-1999
MW-22	Upper UA	ND	0.01	Jun-1999
MW-23	Fanglomerate	ND	ND	
MW-24A	Upper UA	3.03	3.87	Sep-2000
MW-24B	Lower UA	4.92	4.7	Sep-2001
MW-24BR	Bedrock	ND	0.346	Jun-1998
MW-25	Upper UA	2.98	2.92	Jun-2000
MW-26	Upper UA	3.59	3.4	Aug-2001
MW-27	Upper UA	ND	ND	
MW-28	Upper UA	ND	0.031 J	Sep-2000
MW-29	Upper UA	ND	ND	
MW-30	Upper UA	ND	0.007 J	Sep-2000
MW-31	Upper UA	4.52	4.01	Mar-2001
PGE-6	UA	NS	3.1	Jul-1997
PGE-7	RF/Bedrock	NS	5.4	Sep-2001
PGE-8	Bedrock	NS	ND	
Park Moabi	UA	ND	ND	

**Hexavalent Chromium Concentrations in Groundwater March 2002**

Bat Cave Wash Project  
PG&E Topock Compressor Station