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August 4, 2008

Mr. Aaron Yue
Project Manager
California Department of Toxic Substances Control
5796 Corporate Avenue
Cypress, California 90630

Subject: Approved Modifications to the Topock IM Performance Monitoring Program
PG&E Topock Compressor Station, Needles, California

Dear Mr. Yue:

This letter documents the approved modifications to the Interim Measures (IM) Performance Monitoring Program (PMP) at Pacific Gas and Electric Company's (PG&E) Topock Compressor Station. These approvals are discussed in two letters from the California Department of Toxic Substances Control (DTSC) dated July 14 and July 17, 2008, and include modifications to:

- The PMP hydraulic monitoring network,
- The IM chemical performance sampling activity, and
- The IM Contingency Plan

These modifications are incorporated into the PMP beginning August 1, 2008. They will be reflected in the 3rd quarter (August - October) Performance Monitoring Report, due to DTSC on November 30, 2008.

PMP Hydraulic Monitoring Network

DTSC's July 14, 2008 letter revised the list of wells to be used for hydraulic data collection for IM performance monitoring. Table 1 presents the new hydraulic monitoring network for the PMP. With the latest revision, there are now 54 wells included in the PMP hydraulic monitoring network.

IM Chemical Performance Sampling

DTSC's July 17, 2008 letter specified revisions to current IM chemical performance monitoring for the PMP. Table 2 lists the wells and monitoring frequency for the IM chemical performance sampling activity. The chemical performance monitoring discussed here is supplemental to monitoring under the Groundwater and Surface Water Monitoring Program (GMP), and does not replace sampling included in the GMP.

Mr. Aaron Yue
August 4, 2008

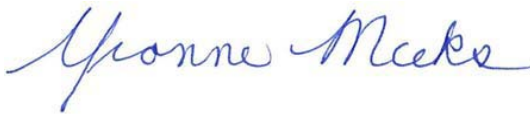
IM Contingency Plan

DTSC's July 17, 2008 letter also specified changes to be made to PG&E's proposed IM Contingency Plan for chromium monitoring under the PMP. Trigger levels have been updated for the assigned assessment monitoring wells with historical Cr(VI) concentrations greater than 20 µg/L, and are presented in Table 3. Figure 1 presents the revised IM Contingency Plan Flow Chart.

In addition, in the July 17, 2008 letter, DTSC requested a review of MW-34-55 data that appeared to be anomalous. PG&E has completed the data review and provided a summary of the findings in Attachment 1 of this letter.

Please call me at (805)234-2257 if you have any questions or need additional information.

Sincerely,



Yvonne Meeks
Topock Project Manager

Enclosures

Table 1 - July 2008 Modifications to PMP Hydraulic Data Collection, Wells in the PMP Hydraulic Monitoring Network

Table 2 - July 2008 Modifications to IM Chemical Performance Sampling Frequency

Table 3 - Assessment Monitoring Wells and Trigger Levels for Performance Monitoring, July 2008 Update for Interim Measures Contingency Plan

Figure 1 - Revised Contingency Plan Flow Chart

Attachment 1 - Response to DTSC's July 17, 2008 Letter Regarding MW-34-55 Anomalous Data

cc: Chris Guerre/DTSC
Kevin Sullivan/PG&E

TABLES

TABLE 1
Wells in Hydraulic Monitoring Network
IM Performance Monitoring Program, July 2008 Revision
PG&E Topock Compressor Station

Shallow Wells (Upper Depth Interval)	Intermediate Wells (Middle Depth Interval)	Deep Wells (Lower Depth Interval)
MW-20-70	MW-20-100	MW-20-130
MW-22	MW-27-60	MW-27-85
MW-27-20	MW-30-50	MW-28-90
MW-25	MW-33-90	MW-31-135
MW-26	MW-34-55	MW-33-150
MW-28-25	MW-36-50	MW-34-80
MW-29	MW-36-70	MW-34-100
MW-31-60	MW-39-50	MW-35-135
MW-32-35	MW-39-60	MW-36-90
MW-33-40	MW-39-70	MW-36-100
MW-35-60	MW-42-30	MW-39-80
MW-36-20	MW-42-65	MW-39-100
MW-36-40	MW-44-70	MW-43-90
MW-39-40	MW-50-95	MW-44-115
MW-42-30	MW-51	MW-44-125
MW-43-25		MW-45-95
MW-47-55		MW-46-175
		MW-47-115
		MW-49-135
		PT-2D
		PT-5D
		PT-6D

NOTES:

Alluvial Aquifer elevation intervals in feet above mean sea level (MSL):

Upper Depth Interval = water table (ave. 455' MSL) to 425' MSL

Mid-Depth Interval = 425' - 395' MSL

Lower Depth Interval = below elevation 395' MSL

The last field in monitoring well ID indicates the approximate base depth of well screen (feet below ground surface)

TABLE 2
Wells and Sampling Frequency for Chemical Performance Monitoring
IM Performance Monitoring Program, July 2008 Revision
PG&E Topock Compressor Station

Sampling Location	Approved Updated Site COPC Sampling Frequency ¹ (October 2007)	Approved Chemical Performance Sampling Frequency ² (July 2008)	Rationale
MW-20-70	Semiannual	Annual	Maintain water quality trend at MW-20 bench pumping center (shallow-depth groundwater)
MW-20-100	Semiannual	Annual	Maintain water quality trend at MW-20 bench pumping center (mid-depth groundwater)
MW-20-130	Semiannual	Annual	Maintain water quality trend at MW-20 bench pumping center (deep groundwater)
MW-25	Annual	Annual	Well location for monitoring water quality upgradient of IM pumping
MW-26	Semiannual	Biennial	Assess long-term chemistry changes south of groundwater pumping
MW-31-60	Annual	Annual	Assess long-term chemistry changes south of groundwater pumping
MW-32-35	Annual	Annual	Continue monitoring the increasing TDS trend at this floodplain location produced by IM pumping
MW-34-55	Annual	Annual	Continue monitoring water quality data at mid-depth floodplain well near river
MW-34-80	Monthly	Annual	Continue monitoring water quality data at easternmost deep floodplain well near river
MW-34-100	Monthly	Annual	DTSC recommended including this key well in the program
River R-28	Quarterly	Annual	Maintain river water quality data for comparing and evaluating IM pumping influence

Notes:

¹ The groundwater sampling frequencies for site COPCs (chromium, specific conductance, pH) were approved and updated by DTSC letter, September 28, 2007.

² IM chemical performance sampling includes monitoring stable isotope and general chemistry parameters (in addition to the site COPC sampling). See 2007 Annual IM Performance Monitoring Report for chemical performance monitoring data, March 2004 to April 2007.

Wells MW-27-20, MW-28-25, MW-30-30, MW-30-50, MW-32-20, and River Station R-27 were removed from the IM chemical performance sampling activity, as approved by DTSC letter on July 17, 2008.

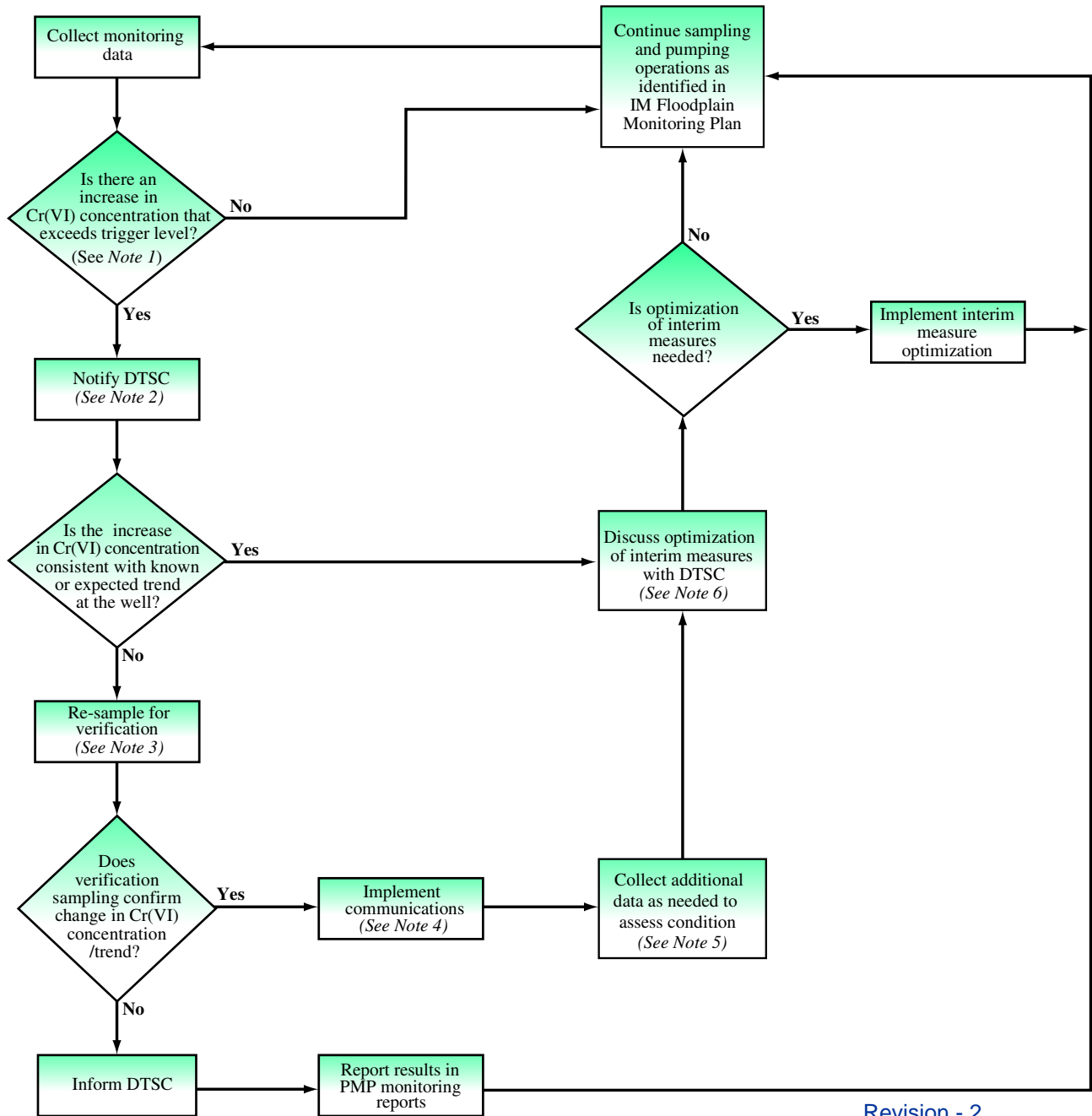
TABLE 3
Assessment Monitoring Wells and Trigger Levels for IM Contingency Plan
IM Performance Monitoring Program, July 2008 Revision
PG&E Topock Compressor Station

Assessment Monitoring Well	Well Location Relative to Cr(VI) Plume	Cr(VI) Concentrations ¹ July 2006 - December 2007	Trigger Level ² for Implementing IM Contingency Plan
Shallow Wells (Upper Interval)			
MW-21	outside plume	ND (1)	IM target concentration
MW-32-20	outside plume	ND (2)	IM target concentration
MW-32-35	outside plume	ND (1)	IM target concentration
MW-33-40	outside plume	ND (0.2) - 0.4	IM target concentration
MW-39-40	outside (above) plume	ND (0.2)	IM target concentration
MW-47-55	plume margin	30.3 - 152	150 µg/L
Intermediate Wells (Mid-Depth)			
MW-33-90	plume edge	2.3 - 21.0	25 ³ µg/L
MW-36-70	outside (above) plume	ND (0.2)	IM target concentration
MW-42-55	outside plume	ND (0.2)	IM target concentration
MW-42-65	outside plume	ND (0.2)	IM target concentration
MW-44-70	outside (above) plume	ND (0.2)	IM target concentration
Deep Wells (Lower Interval)			
MW-27-85	outside plume	ND (0.2)	IM target concentration
MW-28-90	outside plume	ND (0.2)	IM target concentration
MW-33-150	outside (below) plume	6.8 - 10.8	IM target concentration
MW-33-210	outside (below) plume	9.2 - 13.3	IM target concentration
MW-34-80	outside (above) plume	ND (0.2)	IM target concentration
MW-34-100	easternmost well in plume	501 - 922	750 µg/L
MW-43-75	outside plume	ND (1)	IM target concentration
MW-43-90	outside plume	ND (1)	IM target concentration
MW-44-115	inside plume	736 - 1,700	1,200 µg/L
MW-44-125	inside plume	155 - 468	475 µg/L
MW-46-175	within plume, central floodplain	86.4 - 223	225 µg/L
MW-46-205	outside (below) plume	2.0 - 4.0	IM target concentration
MW-47-115	plume edge	7.9 - 14.1	20 ⁴ µg/L

Notes:

- Hexavalent chromium [Cr(VI)] results are range of concentrations, in micrograms per liter (µg/L), detected in July 2006 - December 2007. ND (1) = not detected at listed reporting limit.
- The Cr(VI) sampling **Trigger Levels** for implementing the Contingency Plan per DTSC's July 17, 2008 letter (provided as Figure 1):
 - ND wells and wells with Cr(VI) detections <20 µg/L: Trigger level is the target concentration for IM hydraulic containment (20 µg/L).
 - Wells with historical Cr(VI) detections >20 µg/L use:
 - Maximum concentration from April 2007 to December 2007 (wells with decreasing trends).
 - Maximum concentration from July 2006 to December 2007 (wells with non-trending data).
- Based on March 2008 maximum. Otherwise the maximum would be 20 µg/L.
- Based on March 2008 maximum. Otherwise the maximum would be 15 µg/L.
- Per DTSC July 17, 2008 letter, Contingency Plan trigger levels will be evaluated and updated annually within the Annual PMP Report.

FIGURES



Revision - 2
Updated July 10, 2008
(DTSC)

NOTES:

1. The wells subject to this contingency plan are defined in Table 1 and shown on Figure 1. Trigger concentrations for implementing Contingency Plan defined in Table 1 for each well.
2. Notification will be provided to DTSC within seven days following receipt of validated laboratory results.
3. Verification sampling to consist of re-sampling the well on a monthly frequency for two events, with results reported to DTSC within 20 days of sample collection for each event.
4. DTSC to notify stakeholders at its discretion.
5. Data needed to assess trend or condition may include increased sampling frequency at triggered well, increased sampling at adjacent wells (i.e., lateral, vertical), or collection of additional data to assess change in geochemical conditions.
6. Assess the gradient direction and extent of capture zone near the triggered well and optimize Interim Measures accordingly. Optimization may include change to pumping rates or extraction well locations to ensure capture, or other measures such as enhanced reductive treatment in affected area.

FIGURE 1
REVISED CONTINGENCY PLAN
FLOW CHART
INTERIM MEASURES PERFORMANCE
MONITORING PROGRAM,
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

ATTACHMENT 1

Response to DTSC's July 17, 2008 Letter Regarding MW-34-55 Anomalous Data

DATE: August 4, 2008

Introduction

This technical memorandum presents a response to the California Department of Toxic Substances Control (DTSC) July 17, 2008 letter requesting a review of the potentially anomalous data from MW-34-55. PG&E has reviewed the chemical performance parameters for MW-34-55. Table 1 presents the analytical results from the well for the last 5 years, along with results from river stations R-27 and R-28 for comparison. The stable isotope data (oxygen-18 and deuterium) and total dissolved solids data indicate that the water in MW-34-55 has progressively become similar to river water. The October 2007 sample results for MW-34-55 show that values of these parameters are within the range observed in river water. This chemistry shift over time is due to the effects of the IM No. 3 extraction system operating in the floodplain.

In prior discussions, DTSC requested an explanation of why concentrations of calcium and magnesium in MW-34-55 samples collected in October 2006 and October 2007 were lower than those found in river samples. At first glance, this could suggest a possible lab or sample collection error, as river water is more dilute than local groundwater. Inspection of general chemistry data showed no apparent lab analysis or sample collection errors. The most likely explanation for these low concentrations is ion exchange with aquifer solids. Positively charged ions, or cations, such as sodium, calcium, and magnesium adsorb weakly to surfaces of soil minerals. Natural groundwater near the site is dominated by sodium over calcium and magnesium, and so the soils in the floodplain are dominated by adsorbed sodium. River water, by contrast, has similar concentrations of all three cations. Calcium and magnesium ions both possess a 2+ charge, and are generally more favored on soil exchange sites than sodium ions, which have a 1+ charge. When the groundwater becomes more dilute with the drawing of river water by the IM extraction wells, some of the calcium and magnesium in that water is exchanged on the soil adsorption sites, releasing sodium into the groundwater. The result is a water quality with similar TDS to the river, but with calcium and magnesium partially removed and sodium enhanced. In view of this mechanism, the analytical results observed in MW-34-55 are not anomalous but rather reflect the normal cation exchange balance of the well as it shifts toward river water.

TABLE 1

Interim Measures Performance Monitoring Parameters, 2004 - 2008
 PG&E Topock Groundwater and Surface Water Monitoring Program

Location	Sample Date	Total Dissolved Solids	Oxygen 18	Deuterium	Chloride	Sulfate	Nitrate	Calcium	Magnesium	Potassium	Sodium	Boron	Alkalinity	Bromide
Monitoring Wells														
MW-34-55	04-Mar-04	6700	-9.6	-77.0	3200	850	ND (0.4)	360	97.0	13.0	2000	1.20	270	ND (5.0)
	13-May-04	5700	-10.3	-77.0	2700	770	ND (0.4)	310	77.0	15.0	1900	1.00	270	ND (5.0)
	22-Sep-04	5800	-11	-82.0	2700	732	ND (0.2)	260	85.2	17.0	1800	0.90	250	ND (10)
	15-Dec-04	5860	-10.9	-83.0	2390	743	ND (0.5)	288	69.9	33.0	1540	1.34	234	0.743
	10-Mar-05	6230	-10.8	-82.0	2620	739	ND (0.5)	366	71.3	29.1	1900	1.19	240	0.654
	15-Jul-05	---	-10.3	-84.0	2250	607	ND (0.5)	247	52.0	16.5	1420	1.02	242	ND (0.5)
	05-Oct-05	5150	-10.6	-88.0	2170	619	ND (0.5)	272	59.1	25.8	1230	1.20	232	ND (0.5)
	14-Dec-05	5100	-10.8	-74.0	2150	552	ND (0.5)	217	45.0	27.2	965	0.937	236	0.588
	08-Mar-06	4850	-10.8	-86.8	2080	593	ND (0.5)	256	54.2	13.5	1640	0.956	272	ND (0.5)
	03-May-06	4320	-11.5	-84.3	2070	500	ND (0.5)	198	44.8	11.1	1360	0.846	302	ND (0.5)
	04-Oct-06	1680 J	-12.2	-94.8	443	230	ND (0.5)	37.6	8.08	4.59	536	0.54	368	ND (0.5)
03-Oct-07	730	-11.3	-96.6	109	266	ND (1.0)	15.0	3.30	3.30	290	0.26	190	ND (1.0)	
Surface Water Stations														
R-27	03-Mar-04	630	-11.4	-86.0	87.0	250	ND (0.4)	77.0	28.0	4.40	94.0	ND (0.2)	140	ND (0.5)
	12-May-04	590	-11.4	-96.0	84.0	240	ND (0.4)	74.0	27.0	4.80	96.0	ND (0.2)	140	ND (0.5)
	22-Sep-04	680	-12.1	-98.0	88.4	237	0.38	77.0	29.0	4.80	99.0	ND (0.2)	130	ND (0.2)
	13-Dec-04	632	-11.4	-95.0	84.4	235	ND (0.5) R	79.6	31.4	4.95	86.5	ND (0.2) J	125	ND (0.5)
	07-Mar-05	669	-12.3	-102.0	92.7	244	ND (0.5)	82.8	31.3	4.72	108	ND (0.2)	136	ND (0.5)
	14-Jun-05	686	-11.4	-92.0	90.9	266	ND (0.5)	81.9	29.8	6.04	98.9	ND (0.2)	127	ND (0.5)
	05-Oct-05	678	-11.6	-94.0	85.1	255	ND (0.5)	101	36.2	6.56	91.2	ND (0.2)	130	ND (0.5)
	16-Dec-05	718	-11.7	-87.0	87.9	253	ND (0.5)	85.5	29.5	5.99	75.6	ND (0.2)	126	ND (0.5)
	06-Mar-06	656	-11.8	-92.1	90.6	268	ND (0.5)	83.5	29.4	5.44 J	101	ND (0.2)	144	ND (0.5)
	03-May-06	567	-12.8	-93.9	93.1	267	ND (0.5)	87.0	31.1	3.12 J	106	ND (0.2)	139	ND (0.5)
	04-Oct-06	752 J	-12.2	-94.9	91.5	261	ND (0.5)	82.9	31.5	6.24 J	98.1	ND (0.2)	128	ND (0.5)
	20-Dec-06	680	-12.7	-98.1	94.5	266	ND (0.5)	83.2	30.9	3.64	106	ND (0.2)	138	ND (0.5)
	13-Mar-07	750 J	-13	-99.5	96.5	267	0.537	86.9	31.3	4.73	106	ND (0.2)	130	ND (0.5)
08-May-07	715 J	-12.9	-104.0	92.6	269	ND (0.5)	84.3	29.8	5.55	100	ND (0.2)	143	ND (0.5)	
11-Sep-07	650	-12.5	-101.0	89.4	253	0.336	74.2	28.9	5.47	86.5	ND (0.2)	132	ND (0.2)	
05-Dec-07	---	-11.7	-99.0	94.7	256	ND (1.0)	89.8	31.7	6.60	93.4	0.157	137	ND (0.2)	
R-28	03-Mar-04	670	-11.3	-90.0	87.0	250	0.50	78.0	28.0	4.40	93.0	ND (0.2)	140	ND (0.5)
	12-May-04	580	-11.5	-98.0	84.0	240	ND (0.4)	72.0	26.0	4.20	92.0	ND (0.2)	140	ND (0.5)
	22-Sep-04	680	-12.1	-99.0	104	240	0.38	79.0	30.0	4.90	99.0	ND (0.2)	130	ND (0.2)

TABLE 1
Interim Measures Performance Monitoring Parameters, 2004 - 2008
PG&E Topock Groundwater and Surface Water Monitoring Program

Location	Sample Date	Total Dissolved Solids	Oxygen 18	Deuterium	Chloride	Sulfate	Nitrate	Calcium	Magnesium	Potassium	Sodium	Boron	Alkalinity	Bromide
Surface Water Stations														
R-28	13-Dec-04	652	-11.1	-95.0	84.8	236	ND (0.5) R	79.9	31.5	4.93	86.0	ND (0.2) J	133	ND (0.5)
	08-Mar-05	651	-12.5	-102.0	90.4	231	ND (13)	83.7	31.4	5.02	107	ND (0.2)	132	ND (0.5)
	14-Jun-05	680	-11.6	-95.0	91.2	268	ND (0.5)	78.5	28.5	5.08	94.5	ND (0.2)	127	ND (0.5)
	05-Oct-05	672	-11.6	-94.0	85.5	255	ND (0.5)	85.7	30.4	6.30	77.0	ND (0.2)	122	ND (0.5)
	16-Dec-05	710	-11.5	-83.0	88.1	254	ND (0.5)	87.2	29.8	6.11	76.8	ND (0.2)	126	ND (0.5)
	06-Mar-06	675	-12.3	-93.4	91.0	270	ND (0.5)	76.6	26.6	5.22 J	91.5	ND (0.2)	146	ND (0.5)
	03-May-06	586	-13	-92.1	93.4	270	ND (0.5)	88.1	31.4	4.04 J	107	ND (0.2)	136	ND (0.5)
	04-Oct-06	644 J	-12.6	-95.3	90.9	259	ND (0.5)	84.2	32.1	6.17 J	96.5	ND (0.2)	133	ND (0.5)
	20-Dec-06	615	-12.4	-99.6	93.3	262	ND (0.5)	85.7	32.0	4.66	108	ND (0.2)	143	ND (0.5)
	14-Mar-07	710	-12.8	-100.0	96.7	268	0.534	87.9	31.0	5.71	105	ND (0.2)	133	ND (0.5)
	09-May-07	690	-13	-102.0	95.8	271	ND (0.5)	86.1	30.5	5.92	103	ND (0.2)	143	ND (0.5)
	12-Sep-07	682	-12.4	-99.4	106	296	0.372	73.8	29.9	6.36	89.2	ND (0.2)	122	ND (0.2)
	06-Dec-07	---	-11.7	-98.6	96.5	258	0.345	75.7	30.4	6.62	79.4	ND (0.2)	139	ND (0.2)

NOTES:

- ND parameter not detected at the listed reporting limit.
- J concentration or reporting estimated by laboratory or data validation
- parameter not analyzed

Results in milligrams per liter (mg/L), except Oxygen-18 and Deuterium, which are expressed as differences from global standards in parts per thousand.

Alkalinity reported as carbonate (CaCO3). Nitrate reported as Nitrogen (N).

All metal results are dissolved concentrations.