



*Pacific Gas and
Electric Company*

Yvonne J. Meeks
Manager

Environmental Remediation
Gas Transmission & Distribution

Mailing Address
4325 South Higuera Street
San Luis Obispo, CA 93401

Location
6588 Ontario Road
San Luis Obispo, CA 93405

805.234.2257
Fax: 805.546.5232
E-mail: YJM1@pge.com

July 15, 2010

Aaron Yue
Senior Hazardous Substance Engineer
California Department of Toxic Substances Control
5796 Corporate Avenue
Cypress, California 90630

Robert Perdue
Executive Officer
California Regional Water Quality Control Board
Colorado River Basin Region
73-720 Fred Waring Drive, Suite 100
Palm Desert, California 92260

Subject: Board Order R7-2006-0060, WDID No. 7B 36 2033 001 - Interim Measures No. 3,
Compliance Monitoring Program, Semiannual Groundwater Monitoring Report,
First Half 2010, PG&E Topock Compressor Station, Needles, California

Dear Mr. Yue and Mr. Perdue:

Enclosed is the *Compliance Monitoring Program, Semiannual Groundwater Monitoring Report, First Half 2010* for the Interim Measure No. 3 at the Pacific Gas and Electric Company (PG&E) Topock Compressor Station. This monitoring report presents the results of the first half 2010 Compliance Monitoring Program (CMP) groundwater monitoring event and has been prepared in conformance with the California Regional Water Quality Board (Water Board) Order No. R7-2006-0060, MRP No. R7-2006-0060 Revision 1, the Department of Toxic Substances Control (DTSC)'s July 15, 2005 letter approving the Compliance Monitoring Plan, and subsequent letters modifying the reporting requirements.

The current contingency plan specifies the concentrations and values for hexavalent chromium (Cr[VI]), chromium, total dissolved solids (TDS), and pH to be used to determine if contingency plan actions were necessary based on sample results. The water quality objectives (WQO) concentrations used to trigger the contingency plan are as follows: Cr(VI) greater than 32.6 micrograms per liter ($\mu\text{g/L}$), chromium greater than 28.0 $\mu\text{g/L}$, TDS greater than 10,800 milligrams per liter, and pH outside of the range of 6.2 to 9.2.

During the first half 2010 monitoring event, a sample from the well OW-2S (30.6 $\mu\text{g/L}$) exceeded the chromium WQO. A review of the water quality parameters indicative of

Mr. Aaron Yue
Mr. Robert Purdue
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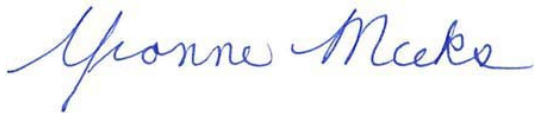
treated groundwater injection (Cr(VI), TDS, sulfate, molybdenum, nitrate/nitrite, and fluoride) confirm that injected water has not yet reached OW-2S and that the concentration of chromium is not related to injected water (which consistently has significantly lower chromium concentrations than those measured at well OW-2S), but instead is related to the natural variability within the shallower portions of the aquifer.

In a letter dated January 5, 2007, DTSC stated that it was not necessary to follow contingency plan requirements for Cr(VI) and chromium with respect to OW-2S and OW-5S. The Water Board concurred with this decision in a letter dated March 2, 2007. As such, the contingency plan was not triggered due to the chromium concentration detected in OW-2S during the first half 2010.

No other samples exceeded the water quality objectives for Cr(VI), chromium, pH, or TDS during first half 2010 sampling event. The next CMP event is scheduled to occur in October 2010.

Please contact me at (805) 546-5243 if you have any questions on the CMP.

Sincerely,



Yvonne Meeks
Topock Remediation Project Manager

Cc: Cliff Raley, Water Board
Christopher Guerre, DTSC

Enclosure

Final Report

**Compliance Monitoring Program
Semiannual Groundwater
Monitoring Report, First Half 2010**

**Interim Measure No. 3
PG&E Topock Compressor Station
Needles, California**

Board Order R7-2006-0060

WDID No. 7B 36 2033 001

Document ID: PGE20100715A

Prepared for
**California Department of Toxic Substances Control
and the California Regional Water Quality Control
Board, Colorado River Basin Region**

On behalf of
Pacific Gas and Electric Company

July 15, 2010

CH2MHILL

155 Grand Avenue, Suite 1000
Oakland, CA 94612

**Compliance Monitoring Program
Semiannual Groundwater Monitoring Report
First Half 2010**

**PG&E Topock Compressor Station
Needles, California
Board Order R7-2006-0060, WDID No. 7B 36 2033 001**

Prepared for
**California Department of Toxic Substance Control and the California Regional
Water Quality Control Board, Colorado River Basin Region**

On behalf of
Pacific Gas and Electric Company

July 15, 2010

This report was prepared under the supervision of a
California Professional Geologist


Serena Lee
Professional Geologist, P.G. #8259



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Acronyms and Abbreviations

µg/L	micrograms per liter
CMP	Compliance Monitoring Program
Cr(VI)	hexavalent chromium
CW	compliance well
DTSC	California Environmental Protection Agency, Department of Toxic Substances Control
IM	Interim Measure
IM No. 3	Interim Measure No. 3
IW	injection well
mg/L	milligrams per liter
MRP	Monitoring and Reporting Program
PG&E	Pacific Gas and Electric Company
OW	observation well
QAPP	Quality Assurance Project Plan
TDS	total dissolved solids
USEPA	United States Environmental Protection Agency
Water Board	California Regional Water Quality Control Board, Colorado River Basin Region
WDR	Waste Discharge Requirements
WQO	water quality objective

1.0 Introduction

Pacific Gas and Electric Company (PG&E) is implementing an Interim Measure (IM) to address chromium concentrations in groundwater at the Topock Compressor Station near Needles, California. The IM consists of groundwater extraction in the Colorado River floodplain and management of extracted groundwater. The groundwater extraction, treatment, and injection systems are collectively referred to as Interim Measure No. 3 (IM No. 3). Currently, the IM No. 3 facilities include a groundwater extraction system, conveyance piping, a groundwater treatment plant, and an injection well field for the discharge of the treated groundwater. Figure 1 shows the location of the IM No. 3 extraction, conveyance, treatment, and injection facilities. (All figures are provided at the end of this report.)

The *Groundwater Compliance Monitoring Plan for Interim Measures No. 3 Injection Area, Topock Compressor Station, Needles, California* (CH2M HILL, 2005a) was submitted to the California Regional Water Quality Control Board, Colorado River Basin Region (Water Board) and the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) on June 17, 2005 (herein referred to as the Compliance Monitoring Plan). The Compliance Monitoring Plan and its addendum provide the objectives, proposed monitoring program, data evaluation methods, and reporting requirements for the Compliance Monitoring Program (CMP). In a letter dated June 9, 2006, DTSC modified the reporting requirements of the Compliance Monitoring Plan (DTSC, 2006).

On October 13, 2004, the Water Board adopted Waste Discharge Requirements (WDR) Order No. R7-2004-0103. This WDR authorized PG&E to inject treated groundwater into wells located in the East Mesa area of the Topock site. This WDR was superseded on September 20, 2006 by WDR No. R7-2006-0060, which has similar terms. Work described in this report was performed in accordance with the WDR No. R7-2006-0060.

The WDR specifies effluent limitations, prohibitions, specifications, and provisions for subsurface injection. Monitoring and Reporting Program (MRP) No. R7-2004-0103 specified the requirements for the CMP to monitor the aquifer in the injection well area to ensure that the injection of treated groundwater is not causing an adverse effect on the aquifer water quality. As with the WDR, MRP No. R7-2004-0103 was superseded on September 20, 2006 by MRP No. R7-2006-0060 with similar requirements.

The injection system consists of two injection wells (IWs): IW-2 and IW-3. Operation of the treatment system was conditionally approved on July 15, 2005 (DTSC, 2005), and injection into IW-2 began on July 31, 2005. Table 1 is a summary of the history of injection for IM No. 3. (All tables are provided at the end of this report.)

Figure 2 shows the locations of the injection wells and the groundwater monitoring wells (observation wells [OWs] and compliance wells [CWs]) in the CMP. Table 2 is a summary of information on well construction and sampling methods for all wells in the CMP.

On January 22, 2007 (DTSC, 2007), DTSC approved a reduction of constituents analyzed during quarterly sampling of the CMP observation wells (details are provided in

CH2M HILL, 2006). The Water Board concurred in a letter dated January 23, 2007 (Water Board, 2007a).

On October 16, 2007, the Water Board approved collecting pH measurements in the field rather than through laboratory analysis due to the change to 15-minute holding time for laboratory measurements specified by United States Environmental Protection Agency (USEPA) Method 150.1 (Water Board, 2007b). DTSC provided concurrence for the field pH change in an e-mail dated January 22, 2008 (DTSC, 2008a). This change became effective with the first quarter 2008 sampling event.

On November 13, 2007, the Water Board approved a modification to hexavalent chromium (Cr[VI]) analytical methods, which extended the holding time from 24 hours to 28 days (Water Board, 2007c). DTSC provided concurrence for the 28-day holding time for Cr(VI) analyses in an e-mail dated January 22, 2008 (DTSC, 2008a). The first quarter 2008 sampling event was the first event to incorporate the new 28-day holding time for analyzing Cr(VI).

PG&E proposed modifications to the CMP, including the sampling and reporting frequency and the field pH trigger range for the CMP contingency plan, to the Water Board and the DTSC on July 3, 2008. On August 28, 2008, the Water Board approved these modifications as Revision 1 to the MRP (Water Board, 2008). On December 12, 2008, the modification of the CMP contingency plan pH range to a field pH range of 6.2 to 9.2 was also approved by the DTSC (DTSC, 2008b). The remaining MRP modifications were approved by DTSC on September 3, 2009 (DTSC, 2009).

With the approval of the MRP modifications, quarterly sampling is no longer required.

As of April 2010, samples are collected from OWs and CWs (Figure 2) according to the following schedule:

- Three OWs (OW-1S, OW-2S, and OW5S) located near the IM No. 3 injection well field are sampled semiannually (during the second and fourth quarters) for a limited suite of constituents.
- Six OWs (OW-1M, OW-1D, OW-2M, OW-2D, OW-5M, and OW-5D) are:
 - Sampled annually for a limited suite of constituents during the fourth quarter.
 - Sampled for a full suite of constituents one cluster at a time on a triennial (once every 3 years) schedule. Within a 3-year period, all OW middle and deep wells will be sampled for a full suite of constituents. The triennial sampling will occur during the annual event (fourth quarter).
- Eight CWs are sampled semiannually for a limited suite of constituents and annually (during the fourth quarter) for a full suite of constituents.

For semiannual events, laboratory analyses include total dissolved solids (TDS), turbidity, specific conductance, and a reduced suite of metals. For annual events for select OWs, laboratory analyses include TDS, turbidity, specific conductance, and a reduced suite of metals. Annual and triennial sampling events for CWs and select OWs include dissolved chromium, Cr(VI), metals, specific conductance, TDS, turbidity, and major inorganic cations and anions. Groundwater elevation data and field water quality data – including specific

conductance, temperature, pH, oxidation-reduction potential, dissolved oxygen, turbidity and salinity – are also measured during each monitoring event (CH2M HILL, 2005a).

This report presents the results of the first half 2010 CMP groundwater monitoring event.

2.0 First Half 2010 Activities

This section provides a summary of the monitoring and sampling activities completed during the first half 2010. The first half 2010 event was a semiannual event conducted on April 7-8, 2010 and consisted of:

- Three observation and eight compliance monitoring wells were sampled for water quality analyses.
- Groundwater elevations and field water quality data were collected prior to sampling.
- Two duplicate samples were collected at wells CW-3M and OW-1S to assess field sampling and analytical quality control.

Continuous groundwater elevation data were collected using pressure transducers/data loggers at five of the 17 CMP wells and were downloaded monthly during the reporting period.

The sampling methods, procedures, field documentation of the CMP sampling, water level measurements, and field water quality monitoring were performed in accordance with the *Sampling, Analysis, and Field Procedures Manual, Revision 1, PG&E Topock Compressor Station, Needles, California* (CH2M HILL, 2005b) and addendums.

CMP groundwater samples were analyzed by Truesdail Laboratories, Inc. in Tustin, California and EMAX Laboratories, Inc. in Torrance, California, both California-certified analytical laboratories. Analytical methods, sample volumes and containers, sample preservation, and quality control sample requirements were in accordance with the *Sampling, Analysis, and Field Procedures Manual, Revision 1, PG&E Topock Compressor Station, Needles, California* (CH2M HILL, 2005b) and addendums. Data validation and management were conducted in accordance with the *Quality Assurance Project Plan [QAPP] Addendum to the PG&E Program Quality Assurance Project Plan for the Topock Groundwater Monitoring and Investigation Projects* (CH2M HILL, 2008).

3.0 First Half 2010 Results

This section is a summary of the results of the CMP groundwater sampling conducted during the first half 2010. Figure 2 presents the locations of the CMP groundwater wells.

The data presented include results for Cr(VI), chromium, specific conductance, metals, TDS, turbidity, and major inorganic cations and anions. Laboratory data quality review, water level measurements, and water quality field parameter data are also presented in this section. The laboratory reports and field data sheets for the First Half 2010 monitoring event are presented in Appendices A and B, respectively.

3.1 Analytical Results

Three observation wells and eight compliance wells were sampled during the first half 2010 sampling event. Analytical results for Cr(VI), chromium, other metals, and general chemistry parameters are presented in Tables 3 and 4 and are discussed below. Interim action levels/water quality objectives (WQOs) were updated on August 8, 2006, when PG&E submitted a revised contingency plan flowchart for groundwater quality changes associated with the injection system. The contingency plan specifies the concentrations and values for Cr(VI), chromium, TDS, and pH to be used to determine if contingency plan actions were necessary based on sample results.

3.1.1 Hexavalent Chromium and Chromium

Table 3 presents the Cr(VI) and chromium analytical results for groundwater in the shallow, middle, and deep wells from the first half 2010 CMP sampling event. For shallow wells, the maximum detected Cr(VI) concentration was 30.3 micrograms per liter ($\mu\text{g/L}$) in well OW-2S on April 8, 2010. For the middle wells, the maximum detected Cr(VI) concentration was 14.2 $\mu\text{g/L}$ in well CW-4M on April 7, 2010. For the deep wells, the maximum detected Cr(VI) concentration was 1.68 $\mu\text{g/L}$ in well CW-4D on April 7, 2010.

During the first half 2010 sampling event, none of the samples exceeded the WQO of 32.6 $\mu\text{g/L}$ for Cr(VI).

For shallow wells, the maximum detected chromium concentration was 30.6 $\mu\text{g/L}$ in well OW-2S on April 8, 2010. For the middle wells, the maximum detected chromium concentration was 14.0 $\mu\text{g/L}$ in well CW-4M on April 7, 2010. For the deep wells, the maximum detected chromium concentration was 1.97 $\mu\text{g/L}$ in well CW-1D on April 8, 2010.

During the first half 2010 sampling event, a sample from one well exceeded the WQO of 28 $\mu\text{g/L}$ for chromium. The April 8, 2010 sample from well OW-2S had a chromium concentration of 30.6 $\mu\text{g/L}$. For this exceedance, the results are not considered to be the result of injection of treated groundwater since the average effluent concentration of chromium from the IM No. 3 treatment plant is normally non-detect with a reporting limit of 0.2 $\mu\text{g/L}$ (CH2M HILL, 2010a). Chromium and Cr(VI) concentrations at OW-2S have been consistently above the WQOs since November 2005. This exceedance of chromium is thus considered

reflective of the natural variance in background water quality. The contingency plan was not triggered due to the chromium concentration detected in OW-2S during the first half 2010.

3.1.2 Other Metals and General Chemistry

Table 4 presents the other metals and general chemistry results for the CMP groundwater wells sampled during the first half 2010. Metals and ions detected in the first half 2010 sampling event included chloride, fluoride, nitrate/nitrite as nitrogen, and sulfate. In general, concentrations of metals and ions detected during the first half 2010 sampling event are similar to those detected in previous sampling events.

During the first half 2010, the sampling results from all wells were within the WQOs for TDS (10,800 milligrams per liter [mg/L]) and pH (6.2 to 9.2). Sampling results for TDS varied from 936 mg/L in well OW-2S to 5,350 mg/L in well CW-3M. Field pH varied from 7.48 in well OW-1S to 8.07 in well CW-3D.

3.2 Analytical Data Quality Review

The laboratory analytical data generated from the first half 2010 CMP monitoring event were independently reviewed by project chemists to assess data quality and identify deviations from analytical requirements. The quality assurance and quality control requirements are outlined in the *PG&E Program Quality Assurance Project Plan (CH2M HILL, 2008) Addendum to the PG&E Program QAPP for the Topock Groundwater Monitoring and Investigation Projects*.

3.2.1 Matrix Interference

For the first half 2010 sampling event, matrix interference was encountered in five groundwater samples that affected the sensitivity for Cr(VI) when using Method E218.6. The Cr(VI) sample results from CW-1D, CW-1M, CW-3M, CW-3M field duplicate, and CW-4M reflect an adjusted reporting limit of 1 µg/L as a result of the serial dilution that was required to overcome the matrix interference and provide an acceptable matrix spike recovery. No qualifier flags were applied.

3.2.2 Matrix Spike Samples

For the first half 2010 sampling event, matrix spike acceptance criteria were met.

3.2.3 Quantitation and Sensitivity

For the first half 2010 sampling event, with the exception of the matrix interference issues discussed in Section 3.2.1, all method and analyte combinations met the project reporting limit objectives.

3.2.4 Holding Time Data Qualification

For the first half 2010 sampling event, all method holding time requirements were met.

3.2.5 Field Duplicates

For the first half 2010 sampling event, all field duplicate acceptance criteria were met.

3.2.6 Method Blanks

For the first half 2010 sampling event, method blank acceptance criteria were met.

3.2.7 Equipment Blanks

For the first half 2010 sampling event, equipment blank acceptance criteria were met.

3.2.8 Laboratory Duplicates

For the first half 2010 sampling event, laboratory duplicate acceptance criteria for the methods were met.

3.2.9 Calibration

For the first half 2010 sampling event, initial and continuing calibrations were performed as required by the methods. All calibration criteria were met.

3.2.10 Conclusion

For the first half 2010 sampling event, the completeness objectives were met for all method and analyte combinations. The analyses and data quality met the QAPP and laboratory method quality control criteria except as noted above. Overall, the analytical data are considered acceptable for the purpose of the CMP.

3.3 Influence of Treated Water

3.3.1 Post-injection Versus Pre-injection

Injection of treated water began on July 31, 2005. Under WDR No. R7-2006-0060 for the IM No. 3 groundwater treatment system, PG&E is required to submit WDR monitoring reports on the operation of the system. These reports contain the analytical results of treated water effluent sampling and, as such, the reports are useful in determining the baseline water quality of the treated water being injected into the IM No. 3 injection well field. Table 5 provides selected effluent water analytical results from three of the monthly reports: August 29, 2005, July 2, 2007, and April 7, 2010. While there are differences among some parameters in these samples, a number of parameters show relatively consistent concentrations in the effluent over time. Analytes that are relatively consistent over the injection time period include Cr(VI), chromium, fluoride, molybdenum, nitrate/nitrite as nitrogen, sulfate, and TDS. These seven constituents provide a characterization of the effluent that does not appear to vary greatly over time and can serve as a basis for determining if a groundwater monitoring well is being affected by injection. In general terms, treated water has the following characteristics (based on review of December 2005 through April 2010 effluent characteristics):

- Cr(VI): typically non-detect (0.2 µg/L)
- Chromium: typically non-detect (1.0 µg/L)
- Fluoride: approximately 2 mg/L
- Molybdenum: approximately 15 µg/L
- Nitrate/nitrite as nitrogen: approximately 3.0 mg/L

- Sulfate: approximately 500 mg/L
- TDS: approximately 4,000 mg/L

These treated water quality characteristics are meant to serve as a general guideline and not as a statistically representative sampling of the treated water quality over time.

Table 5 also lists the results of baseline sampling for the observation wells and compliance wells. A full set of nine OW groundwater samples was collected on July 27 and 28, 2005, and a full set of eight CW groundwater samples was collected on September 15, 2005. These samples are considered representative of conditions unaffected by injection and serve to characterize the pre-injection water quality. In comparing these sampling results to the treated injection water sampling results, there are some similarities in the constituent concentrations. For example, most of the pre-injection OW or CW deep well samples (OW-1D, OW-2D, OW-5D, CW-3D, and CW-4D) contain no detectable Cr(VI) or chromium, which is similar to the treated injection water. Most of the well samples show concentrations similar to the treated water for two or three constituents but observable differences in concentration from the treated water for the remaining four or five. By considering the entire suite of seven analytes and focusing on those parameters that show differences, it is relatively easy to distinguish between the pre-injection water quality at the monitoring wells and the treated water effluent quality.

Table 6 presents a comparison between the treated water quality and the results from the most recent sampling event (the first half 2010 sampling event). These samples were collected after approximately 59 months of injection. While the pre-injection OW and CW sample results were significantly different from the treated water quality, a number of the first half 2010 sample results show a marked similarity to the treated water results. The following wells display the general characteristics of treated water: CW-1M, CW-1D, CW-2D, CW-3D, and CW-4D. These wells are at locations and depths where the treated water injection front has largely replaced the local pre-injection groundwater. Wells CW-2M and CW-4M have chemical characteristics approaching that of treated water. To date, all shallow observation wells (wells OW-1S, OW-2S, and OW-5S) and compliance well CW-3M do not show water quality effects due to injection of treated water, indicating that injected water has not yet reached these depths and locations.

3.3.2 Water Quality Hydrographs

Trend data can be used to determine when a rapid change has occurred between sampling events, such as the arrival of the injection front. It can also be used to look at more gradual changes that occur over several sampling events, such as seasonal effects or the interaction of treated water with local groundwater and host aquifer material. Eleven analytes were selected for time-series analysis; these analytes are considered to be most representative of the IM No. 3 injection well field area and have sufficient detections to make time-series analysis useful. The analytes include chloride, chromium, fluoride, Cr(VI), molybdenum, nitrate/nitrite as nitrogen, pH, sodium, sulfate, TDS, and vanadium. Water quality hydrographs (time-series plots) of these 11 analytes in each observation well during the first half 2010 within the IM No. 3 injection well field are presented in Figures 3A through 3E.

Observation well water quality hydrographs are presented in Figures 3A through 3C. These hydrographs show the same overall patterns: wells that are identified as affected by treated

water injection show a shift in water quality for characteristic parameters, while those identified as being unaffected by injection show no net trends. The water quality change brought on by the arrival of the treated water injection front can be either gradual (OW-5M) or step-wise (OW-2M), with most affected wells showing a pattern of change somewhere between the two. Based on the variability in response, it is inferred that the movement of treated water is non-uniform laterally between wells. This variability in lateral movement can be inferred from differences in the water quality hydrographs in both the mid-depth and deep wells. The OW shallow-depth wells (OW-1S, OW-2S, and OW-5S) show little water quality variation over time and generally have no net trends over time. TDS, sodium, chloride, vanadium, and molybdenum are particularly consistent with baseline pre-injection concentrations and show that the local groundwater quality at shallow depths is not being affected by injection of treated water or outside water sources.

Compliance well water quality hydrographs are presented in Figures 3D and 3E. Wells CW-1M, CW-1D, CW-2D, CW-3D, and CW-4D show trends in TDS and chloride similar to the treated water. Wells CW-1M, CW-2M, and CW-4M show decreasing trends in Cr(VI) and chromium. These changes are attributed to the arrival of treated injection water.

3.4 Water Level Measurements

Table 7 presents the manual water level measurements and groundwater elevations for the first half 2010 monitoring event.

As a requirement of the conditional approval by DTSC (DTSC, 2005) and subsequent modifications (DTSC, 2009), water level measurements were collected continuously (measurements collected every half hour) with pressure transducers to produce hydrographs for select wells. Figures 4A through 4C present hydrographs that illustrate groundwater elevation trends and vertical hydraulic gradients observed over the first half 2010 reporting period at select observation monitoring wells.

Groundwater elevation maps for shallow, middle, and deep wells are provided as Figures 5A through 5C. A snapshot of water level elevations was used to produce the groundwater elevation contour plots. The date is noted on each figure.

3.4.1 Groundwater Gradient Characteristics

The monitoring wells in the middle and deep zone categories are screened over a wide elevation range (74 feet in the middle zone wells and 59 feet in the deep wells). Because there are natural vertical gradients as well as vertical gradients induced by injection, the relationships of groundwater elevations for wells in each category will reflect a mixture of vertical and horizontal gradients in groundwater elevation. Therefore, the groundwater contours on Figures 5B and 5C should be viewed as approximate.

The injection well field is located in the East Mesa area of the Topock site (Figure 2). Overall sitewide water level contour maps for shallow wells are prepared annually, with flow consistently being shown to move to the east, northeast across the uplands portions of the site (CH2M HILL, 2010b).

The effects of injection in the IM No. 3 injection well field are superimposed on the more regional Topock site flow system and, as expected, a groundwater mound can be seen around the injection wells. This mound is centered on the active injection well IW-3. The potentiometric surfaces in prior CMP reports mapped the growth of the groundwater mound over time and show that, after 59 months of injection, the mound increased and then stabilized in height at several tenths of a foot in elevation above the surrounding water level elevations. Figures 5B and 5C present groundwater elevation contours for the average groundwater elevation of the mound within the middle and deep wells using June 2, 2010 groundwater elevations. As expected with a mound, the potentiometric surface of the deep wells is slightly broader, while the potentiometric surface of the middle wells is more localized to the vicinity of the injection wells. The mound is elliptical in shape, with the major axis running in a southwest to northeast direction. The lower gradients (broader contours) in the direction of the major axis are an indication that the aquifer permeabilities are greater in this direction, indicating that there may be a preferred direction to flow in this area.

The vertical gradient in the IM No. 3 injection well field area is directed upward at all of the CW and OW well clusters and also upward between each of the depth intervals in those same well clusters. Table 8 presents the vertical gradient data calculated using the June 2, 2010 groundwater elevations. The magnitude of the vertical gradients is similar between clusters and between the depth intervals, indicating that the vertical gradient is of the same order of magnitude throughout the injection area. A component of the vertical gradients calculated in the vicinity of the IM No. 3 injection well field is undoubtedly related to the injection of treated water in the lower portions of the aquifer. The observed groundwater gradients in the IM No. 3 injection well field are consistent with expected regional groundwater flow within the southern Mohave Valley.

3.5 Field Parameter Data

A field water quality instrument and flow-through cell were used to measure water quality parameters during well purging and groundwater sampling. The measured field parameters included specific conductance, temperature, pH, oxidation-reduction potential, dissolved oxygen, turbidity, and salinity. Table 9 presents a summary of the field water quality data measured during the first half 2010 monitoring event. Field data sheets for the first half 2010 event are presented in Appendix B.

3.6 WDR Monitoring Requirements

Table 10 identifies the laboratory that performed each analysis and lists the following information as required by the WDR for the first half 2010 monitoring event:

- Sample location
- Sample identification number
- Sampler name
- Sample date
- Sample time
- Laboratory performing analysis

- Analysis method
- Parameter
- Analysis date
- Laboratory technician
- Result unit
- Sample result
- Reporting limit
- Method detection limit

4.0 Status of Monitoring Activities

4.1 Semiannual Monitoring

The next semiannual monitoring event will occur in October during the second half 2010 and also serves as the annual monitoring event. This CMP monitoring event will include the sampling and analysis scope presented in the Compliance Monitoring Plan (CH2M HILL, 2005a, c) and subsequent approved scope revisions (DTSC, 2007, 2008a-b, 2009; Water Board, 2007a-b, 2008). The groundwater monitoring report for this CMP monitoring event will be submitted by January 15, 2011.

4.2 Annual Monitoring

The next annual monitoring event will occur in October during the second half 2010. The groundwater monitoring report for this annual CMP monitoring event will be submitted by January 15, 2011.

5.0 References

- California Department of Toxic Substances Control (DTSC). 2005. Letter to PG&E. "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." July 15.
- _____. 2006. Letter to PG&E. "Third and Fourth Quarter Groundwater Monitoring Reports, Compliance Monitoring Program for Interim Measures No. 3 Injection Well Field Area, Pacific Gas & Electric Company, Topock Compressor Station, Needles, California." June 9.
- _____. 2007. Letter to PG&E. "Conditional Approval of Request for Reduced Groundwater Sampling Frequency for Select Constituents at Pacific Gas & Electric Company, Topock Compressor Station, Needles, California." January 22.
- _____. 2008a. Letter to PG&E. "Re: Analytical Methods for WDR Monitoring Programs." January 22.
- _____. 2008b. Letter to PG&E. "PG&E Topock: pH Modification to the CMP" December 12.
- _____. 2009. Letter to PG&E. "Conditional Approval of Modifications to the Compliance Monitoring Program, Pacific Gas and Electric Company (PG&E), Topock Compressor Station, Needles California (EPA ID No. CAT080011729)" September 3.
- California Regional Water Quality Control Board, Colorado River Basin Region (Water Board). 2007a. Letter to PG&E. "Conditional Approval of Limited Sampling Frequency for Selected Metals/General, PG&E, Topock Compressor Station, Needles, California." January 23.
- _____. 2007b. Letter to PG&E. "Clarification of Monitoring and Reporting Program (MRP) Requirements, Board Orders Nos. R7-2006-0060 and R7-2004-0080, Topock Compressor Station, San Bernardino County." October 16.
- _____. 2007c. Letter to PG&E. "Clarification of Monitoring and Reporting Program (MRP) Requirements, Board Orders Nos. R7-2006-0060, R7-2006-0008, R7-2004-0080, and R7-2007-0015, Topock Compressor Station, San Bernardino County." November 13.
- _____. 2008. Letter to PG&E. "Revision of Monitoring and Reporting Program (MRP), Board Order No. R7-2006-0060 Revision 1, Topock Compressor Station, San Bernardino County." August 28.
- CH2M HILL. 2005a. *Groundwater Compliance Monitoring Plan for Interim Measure No. 3 Injection Area, Topock Compressor Station, Needles, California.* June 17.
- _____. 2005b. *Sampling, Analysis, and Field Procedures Manual, Revision 1, PG&E Topock Compressor Station, Needles, California.* March 31.

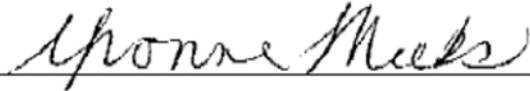
- _____. 2005c. *Addendum to the Compliance Monitoring Plan for the IM No. 3 Injection Area, Topock Compressor Station, Needles, California*. December 13.
- _____. 2006. *Request for Approval to Implement Limited Sampling Frequency for Selected Metals/General Minerals for PG&E Topock Compressor Station, Needles, California*. December 1.
- _____. 2008. *PG&E Program Quality Assurance Project Plan, Addendum to the PG&E Program Quality Assurance Project Plan for the Topock Groundwater Monitoring and Investigation Projects*. December.
- _____. 2010a. *First Quarter 2010 Monitoring Report for Interim Measure No. 3 Groundwater Treatment System, Document ID: PGE20100415A, Waste Discharge Requirements Board Order No. R7-2006-0060, PG&E Topock Compressor Station, Needles, California*. April 15.
- _____. 2010b. *Fourth Quarter 2009 and Annual Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California*. March 15.

6.0 Certification

PG&E submitted a signature delegation letter to the Water Board on September 20, 2006. The letter delegated PG&E signature authority to Mr. Curt Russell and Ms. Yvonne Meeks for correspondence regarding Board Order R7-2006-0060.

Certification Statement:

I declare under the penalty of law that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment for knowing violations.

Signature: 

Name: Yvonne J. Meeks

Company: Pacific Gas and Electric Company

Title: Topock Project Manager

Date: July 15, 2010

TABLE 1

Operational Status of Interim Measures No. 3 Injection Wells From Inception of Injection Through First Half 2010
PG&E Topock Compliance Monitoring Program

Time Period	Injection Status
July 31, 2005 to Fourth Quarter 2005	Injection occurred at IW-2.
First Quarter 2006	Injection occurred primarily at IW-2 except during periods of operational testing, when injection was divided equally between IW-2 and IW-3.
Second Quarter 2006	Injection occurred at IW-2.
Third Quarter 2006	In August 2006, IW-2 went offline for routine maintenance, and injection commenced at IW-3.
Fourth Quarter 2006	Injection occurred at IW-3, except during routine maintenance.
First Quarter 2007	Injection occurred at IW-3 and transitioned over to IW-2 on March 8.
Second Quarter 2007	Injection occurred at IW-3 from April 3 through June 20. Injection switched to IW-2 on June 20 and continued through July 20, 2007.
Third Quarter 2007	Injection occurred at IW-3 after July 20. Injection occurred at IW-2 on August 30 for an injection test and then returned to IW-3 after August 31.
Fourth Quarter 2007	Injection occurred at IW-3 and then switched to IW-2 on September 25 for routine maintenance. Injection returned to IW-3 after October 9.
First Quarter 2008	Injection occurred at IW-3 only. From February 5 through February 13, well maintenance activities were conducted at IW-2.
Second Quarter 2008	Injection occurred at IW-3 only. IM-3 system offline from April 21 through April 28 due to routine maintenance. Backwashing occurred at IW-3 on April 9, May 7, May 15, May 22, June 3, and June 4, 2008.
Third Quarter 2008	Injection occurred primarily at IW-3. Injection also occurred at IW-2 for short period on July 25 and from August 12 – August 31, 2008. Backwashing events occurred at IW-3 on June 17, June 27, July 9, July 15, July 17, July 18, August 12, August 13, September 2, and September 3, 2008. Backwashing events occurred at IW-2 on September 9 - September 11, 2008.
Fourth Quarter 2008	Injection occurred at IW-3 and then switched to IW-2 on September 23. Injection returned to IW-3 on October 7 and switched back to IW-2 on October 21. Injection primarily occurred at IW-2 until November 11 when it switched to IW-3 until December 3, 2008. Injection continued at IW-2 until December 16, 2008 and occurred concurrently and continued at IW-3 on December 11, 2008.
First Quarter 2009	Injection switched to IW-2 on December 30, 2008. On January 13, 2009 injection transitioned to IW-3. Backwashing events occurred periodically during the periods when each injection well was offline. Routine and scheduled maintenance occurred 12/18/08 and 1/21/09 at which time both wells were offline.
Second Quarter 2009	Injection continued at IW-3 until April 20, 2009. Injection ceased from April 20, 2009 to April 27, 2009 due to routine maintenance after which injection continued at IW-3 until May 26, 2009 when it transitioned to IW-2. Injection continued at IW-2 until June 9, 2009 when it switched to IW-3. Injection returned to IW-2 on June 24, 2009.

TABLE 1

Operational Status of Interim Measures No. 3 Injection Wells From Inception of Injection Through First Half 2010
PG&E Topock Compliance Monitoring Program

Time Period	Injection Status
Third Quarter 2009	IM3 injection alternates between the two wells approximately every two weeks. Injection continued at IW-2 until July 8, when it transitioned to IW-3. Injection ceased from July 23 to 27, 2009 when it continued at IW-3 until September 9, 2009. Unplanned downtime occurred from September 9-14, 2009. On September 16, 2009 injection continued at IW-2, except during times of routine maintenance or otherwise mentioned.
Fourth Quarter 2009	Injection occurred at IW-2 until November 25, 2009 when it switched to IW-3. Injection continued at IW-3, except during times of routine maintenance.
First Half 2010	Injection occurred mainly at IW-3 until March 3, 2010. Beginning March 3, 2010, IM3 injection alternated between the two wells approximately every two weeks until April 20, 2010 for a planned shutdown. On April 22, 2010, injection resumed at IW-3 and alternated between the two wells approximately every two weeks. Backwashing events occurred periodically during the periods when each injection well was offline.

TABLE 2

Well Construction and Sampling Summary for Groundwater Samples, First Half 2010
PG&E Topock Compliance Monitoring Program

Well ID	Site Area	Measuring Point Elevation (ft AMSL)	Screen Interval (ft bgs)	Well Casing (inches)	Well Depth (ft btoc)	Depth to Water (ft btoc)	Sampling System	Typical Purge Rate (gpm)	Typical Purge Volume (gallons)	Pump Depth (ft bgs)	Transducer Status	Remarks
IM Compliance Wells												
CW-01M	East Mesa	566.07	140 - 190	2 (PVC)	192.7	108.5	Temp Redi-Flo AR	3	42	124	Active	
CW-01D	East Mesa	566.46	250 - 300	2 (PVC)	322.7	108.7	Temp Redi-Flo AR	3	110	125	Active	
CW-02M	East Mesa	549.45	152 - 202	2 (PVC)	208.3	92.1	Temp Redi-Flo AR	2	56	108	Active	
CW-02D	East Mesa	549.43	285 - 335	2 (PVC)	357.7	91.7	Temp Redi-Flo AR	3	135	108	Active	
CW-03M	East Mesa	534.10	172 - 222	2 (PVC)	224.6	77.0	Temp Redi-Flo AR	2	75	93	Active	
CW-03D	East Mesa	534.14	270 - 320	2 (PVC)	342.6	76.4	Temp Redi-Flo AR	3	140	93	Active	
CW-04M	East Mesa	518.55	119.5 - 169.8	2 (PVC)	172.5	60.9	Temp Redi-Flo AR	3	56	77	Active	
CW-04D	East Mesa	518.55	233 - 283	2 (PVC)	305.6	60.8	Temp Redi-Flo AR	3	126	77	Active	
IM Observation Wells												
OW-01S	East Mesa	550.21	83.5 - 113.5	2 (PVC)	116.1	92.9	Temp Redi-Flo AR	1	12	109	Active	
OW-01M	East Mesa	550.36	165 - 185	2 (PVC)	188.4	92.8	Temp Redi-Flo AR	2	48	109	Active	
OW-01D	East Mesa	550.36	257 - 277	2 (PVC)	279.6	92.5	Temp Redi-Flo AR	3	94	108	Active	
OW-02S	East Mesa	548.88	71 - 101	2 (PVC)	103.6	91.6	Temp Redi-Flo AR	1	8	108	Active	
OW-02M	East Mesa	548.52	190 - 210	2 (PVC)	212.9	90.9	Temp Redi-Flo AR	3	61	107	Active	
OW-02D	East Mesa	549.01	310 - 330	2 (PVC)	342.3	91.1	Temp Redi-Flo AR	3	127	107	Active	
OW-05S	East Mesa	551.83	70 - 110	2 (PVC)	112.9	94.4	Temp Redi-Flo AR	1	8	110	Active	
OW-05M	East Mesa	551.81	210 - 250	2 (PVC)	253.0	93.5	Temp Redi-Flo AR	3	81	110	Active	
OW-05D	East Mesa	552.41	300 - 320	2 (PVC)	352.8	94.3	Temp Redi-Flo AR	3	132	110	Active	

Notes:

AMSL above mean sea level
BGS below ground surface
BTOC below top of polyvinyl chloride (PVC) casing
Redi-Flo AR adjustable-rate electric submersible pump
Temp temporary
gpm gallons per minute

Depth to water for each well was collected on June 2, 2010.
All wells were purged and sampled using 3 well-volume method.

TABLE 3
Chromium Results for Groundwater Samples, First Half 2010
PG&E Topock Compliance Monitoring Program

Method:		E218.6	E200.8
Location ID	Sample Date	Hexavalent Chromium (µg/L)	Chromium (µg/L)
CW-01M	4/8/2010	2.33	3.23
CW-01D	4/8/2010	1.12	1.97
CW-02M	4/7/2010	4.79	5.44
CW-02D	4/7/2010	0.23	ND (1.0)
CW-03M	4/7/2010	10.7	10.4
CW-03M	4/7/2010 (FD)	10.5	10.3
CW-03D	4/7/2010	0.24	ND (1.0)
CW-04M	4/7/2010	14.2	14.0
CW-04D	4/7/2010	1.68	1.75
OW-01S	4/8/2010	15.4	15.7
OW-01S	4/8/2010 (FD)	15.2	15.7
OW-02S	4/8/2010	30.3	30.6
OW-05S	4/8/2010	20.7	21.0

Notes:

FD field duplicate
ND parameter not detected at the listed reporting limit
µg/L micrograms per liter

Hexavalent Chromium and Chromium are field filtered.

TABLE 4

Metals and General Chemistry Results for Groundwater Samples, First Half 2010
PG&E Topock Compliance Monitoring Program

Method:		E120.1	Field	SM2540C	SM2130B	E300.0	E300.0	E300.0	SM4500NO3	E200.7	E200.8
Location ID	Sample Date	Specific Conductance (µmhos/cm)	Field pH	Total Dissolved Solids (mg/L)	Turbidity (NTU)	Chloride (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	Nitrate/Nitrite as Nitrogen (mg/L)	Dissolved Boron (mg/L)	Dissolved Molybdenum (µg/L)
CW-01M	4/8/2010	7210	7.70	4140	ND (0.1)	2120	1.61	505	3.14	---	---
CW-01D	4/8/2010	7360	7.61	4320	0.124	2240	1.45	532	3.00	---	---
CW-02M	4/7/2010	7010	7.84	3970	0.114	2160	2.48	446	2.23	---	---
CW-02D	4/7/2010	7120	8.04	4180	0.170	2130	4.15	489	2.81	---	---
CW-03M	4/7/2010	8730	7.73	5350	ND (0.1)	2800	2.62	429	1.24	---	---
CW-03M	4/7/2010 (FD)	8810	FD	5090	0.136	2800	2.54	461	1.44	---	---
CW-03D	4/7/2010	7060	8.07	3940	ND (0.1)	2070	5.83	486	2.84	---	---
CW-04M	4/7/2010	6390	7.72	4040	0.120	1960	1.55	354	1.65	---	---
CW-04D	4/7/2010	8780	7.87	5340	ND (0.1)	2680	4.03	543	2.43	---	---
OW-01S	4/8/2010	4040	7.48	2590	0.918	1210	1.38	215	2.72	---	---
OW-01S	4/8/2010 (FD)	4080	FD	2550	0.882	1220	1.60	207	2.88	---	---
OW-02S	4/8/2010	1700	7.91	936	0.402	398	5.02	109	4.18	---	---
OW-05S	4/8/2010	2330	7.68	1450	2.540	655	1.89	128	3.18	---	---

Notes:

FD field duplicate
µmhos/cm micro-mhos per centimeter
NTU Nephelometric Turbidity Unit
mg/L milligrams per liter
µg/L micrograms per liter
ND parameter not detected at the listed reporting limit
--- not sampled or required for this event

TABLE 5

Treated Water Quality Compared to OW and CW Pre-injection Water Quality
PG&E Topock Compliance Monitoring Program

Location ID	Sample Date	Hexavalent Chromium (µg/L)	Chromium (µg/L)	Fluoride (mg/L)	Dissolved Molybdenum (µg/L)	Nitrate/ Nitrite as Nitrogen (mg/L)	Sulfate (mg/L)	TDS (mg/L)
Treated Water	8/29/2005	ND(1.0)	ND(2.1)	1.95	8.3	3.7	450	3620
Treated Water	7/2/2007	ND(0.2)	ND(1.0)	2.18	17.5	2.60	477	3980
Treated Water	4/7/2010	0.29	ND(1.0)	1.82	18.6	2.87	512	4270
OW-01S	7/28/2005	19.4	23.5	2.45	17.2	3.2	114	1320
OW-01M	7/27/2005	16.3	18.9	2.31	27	1.01	311	3450
OW-01D	7/27/2005	ND(1.0)	ND(1.3)	1.14	46.1	0.321	441	6170
OW-02S	7/28/2005	15.3	14.8	3.79	35.6	3.81	126	1090
OW-02M	7/28/2005	5.4	5.7	2.19	32.4	0.735	342	4380
OW-02D	7/28/2005	ND(1.0)	ND(1.2)	0.966	51.2	0.1	616	9550
OW-05S	7/28/2005	23.4	25.6	2.3	17.1	3.55	105	1060
OW-05M	7/28/2005	8.6	8.8	2.74	35.4	0.621	417	5550
OW-05D	7/28/2005	ND(1.0)	ND(1.2)	1.11	57	0.151	480	8970
CW-01M	9/15/2005	18.1	17.8	2.34	21.6	1.11	318	2990
CW-01D	9/15/2005	ND(1.0)	1.6	0.951	32.1	0.972	379	6230
CW-02M	9/15/2005	15.8	15.5	2.3	23.1	0.908	342	3500
CW-02D	9/15/2005	ND(1.0)	1.6	0.982	41.6	0.28	601	8770
CW-03M	9/15/2005	8.8	8.1	2.57	24.2	0.642	464	4740
CW-03D	9/15/2005	ND(1.0)	ND(1.0)	1.4	29.2	0.304	672	9550
CW-04M	9/15/2005	19.2	19	1.5	12.3	1.18	240	3310
CW-04D	9/15/2005	ND(1.0)	ND(1.0)	1.01	26	0.188	534	7470

NOTES:

ND Not detected at the listed reporting limit.

mg/L milligrams per liter

µg/L micrograms per liter

Hexavalent chromium samples were analyzed using method 7199 in 2005 and then by method E218.6.

Chromium samples were analyzed using method 6020A for samples collected on 7/28/2005, by method 6010B for samples collected on 9/15/2005, by method 6020B for samples collected on 8/29/2005 and by method E200.8 for all other chromium samples.

Chromium samples of the treated water were unfiltered.

TABLE 6

Treated Water Quality Compared to First Half 2010 Sampling Event Water Quality
PG&E Topock Compliance Monitoring Program

Location ID	Sample Date	Hexavalent Chromium (µg/L)	Chromium (µg/L)	Fluoride (mg/L)	Molybdenum (µg/L)	Nitrate/Nitrite as Nitrogen (mg/L)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)
Treated Water	9/2/2009	ND (0.2)	ND (1.0)	2.47	24.6	2.84	485	4220
Treated Water	12/2/2009	ND (0.2)	ND (1.0)	2.40	14.2	3.12	521	4490
Treated Water	4/7/2010	0.29	ND (1.0)	1.82	18.6	2.87	512	4270
CW-01M	4/8/2010	2.33	3.23	1.61	---	3.14	505	4140
CW-01D	4/8/2010	1.12	1.97	1.45	---	3.00	532	4320
CW-02M	4/7/2010	4.79	5.44	2.48	---	2.23	446	3970
CW-02D	4/7/2010	0.23	ND (1.0)	4.15	---	2.81	489	4180
CW-03M	4/7/2010	10.7	10.4	2.62	---	1.24	429	5350
CW-03M	4/7/2010 (FD)	10.5	10.3	2.54	---	1.44	461	5090
CW-03D	4/7/2010	0.24	ND (1.0)	5.83	---	2.84	486	3940
CW-04M	4/7/2010	14.2	14.0	1.55	---	1.65	354	4040
CW-04D	4/7/2010	1.68	1.75	4.03	---	2.43	543	5340
OW-01S	4/8/2010 (FD)	15.2	15.7	1.60	---	2.88	207	2550
OW-01S	4/8/2010	15.4	15.7	1.38	---	2.72	215	2590
OW-02S	4/8/2010	30.3	30.6	5.02	---	4.18	109	936
OW-05S	4/8/2010	20.7	21.0	1.89	---	3.18	128	1450

Notes:

FD field duplicate
 ND parameter not detected at the listed reporting limit
 mg/L milligrams per liter
 µg/L micrograms per liter
 --- not sampled or required for this event

All hexavalent chromium samples were analyzed with method E218.6

All chromium and molybdenum samples were analyzed with method E200.8. Chromium and molybdenum samples were field filtered, except for the treated water.

Fluoride and Sulfate samples were analyzed with method E300.0.

All nitrate/nitrite as nitrogen samples were analyzed with method SM4500NO3E, except for treated water which used method E300.

All total dissolved solid samples were analyzed with method SM2540C.

TABLE 7

Manual Water Level Measurements and Elevations, First Half 2010
PG&E Topock Compliance Monitoring Program

Location ID	Well Depth (feet BTOC)	Measuring Point Elevation (feet AMSL)	Monitoring Date & Time		Water Level Measurement (feet BTOC)	Salinity (%)	Groundwater/Water Elevation Adjusted for Salinity (feet AMSL)
CW-01M	192.7	566.07	02-Jun-10	9:38 AM	108.53	0.47	457.47
CW-01D	322.7	566.46	02-Jun-10	9:41 AM	108.71	0.49	457.60
CW-02M	208.3	549.45	02-Jun-10	9:24 AM	92.08	0.50	457.31
CW-02D	357.7	549.43	02-Jun-10	9:20 AM	91.73	0.51	457.51
CW-03M	224.6	534.10	02-Jun-10	9:33 AM	76.96	0.60	457.15
CW-03D	342.6	534.14	02-Jun-10	9:31 AM	76.40	0.55	457.61
CW-04M	172.5	518.55	02-Jun-10	9:51 AM	60.87	0.45	457.58
CW-04D	305.6	518.55	02-Jun-10	9:48 AM	60.85	0.58	457.63
OW-01S	116.1	550.21	02-Jun-10	9:58 AM	92.95	0.26	457.21
OW-01M	188.4	550.36	02-Jun-10	10:01 AM	92.77	0.49	457.50
OW-01D	279.6	550.36	02-Jun-10	10:03 AM	92.53	0.49	457.66
OW-02S	103.6	548.88	02-Jun-10	10:11 AM	91.56	0.09	457.22
OW-02M	212.9	548.52	02-Jun-10	10:14 AM	90.90	0.49	457.51
OW-02D	342.3	549.01	02-Jun-10	10:07 AM	91.08	0.50	457.69
OW-05S	112.9	551.83	02-Jun-10	10:18 AM	94.45	0.14	457.33
OW-05M	253.0	551.81	02-Jun-10	10:21 AM	93.47	0.67	458.40
OW-05D	352.8	552.41	02-Jun-10	10:25 AM	94.31	0.76	458.34

Notes:

AMSL above mean sea level

BTOC below top of polyvinyl chloride (PVC) casing

% percentage

Salinity used to adjust water level to freshwater equivalent. Salinity values have been averaged in accordance with the Performance Monitoring Program.

TABLE 8

Vertical Gradients within the OW and CW Clusters

PG&E Topock Compliance Monitoring Program

Well Pairs	Vertical Gradient (ft/ft)^a
CW-01D to CW-01M	0.0012
CW-02D to CW-02M	0.0015
CW-03D to CW-03M	0.0047
CW-04D to CW-04M	0.0004
OW-01M to OW-01S	0.0038
OW-01D to OW-01M	0.0017
OW-02M to OW-02S	0.0025
OW-02D to OW-02M	0.0015
OW-05M to OW-05S	0.0077

^a Positive value signifies an upward gradient.

Gradients calculated using June 2, 2010 groundwater levels.

TABLE 9

Field Parameter Measurements for Groundwater Samples, First Half 2010
PG&E Topock Compliance Monitoring Program

Location ID	Sampling Date	Specific Conductance (µmhos/cm)	Temperature (°C)	pH	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	Salinity (%)
CW-01M	4/8/2010	7820	29.22	7.7	64.1	6.29	1.9	0.5
CW-01D	4/8/2010	7888	29.12	7.61	98.7	7.9	2.3	0.51
CW-02M	4/7/2010	7714	29.62	7.84	42	4.02	2	0.5
CW-02D	4/7/2010	7831	30.68	8.04	51.8	6.62	1.9	0.51
CW-03M	4/7/2010	9613	29.22	7.73	26.6	1.43	2.2	0.62
CW-03D	4/7/2010	7787	30.35	8.07	91.8	6.48	1.9	0.5
CW-04M	4/7/2010	7007	29.16	7.72	35.4	2.56	2.3	0.45
CW-04D	4/7/2010	9677	30.06	7.87	53.6	4.94	1.9	0.62
OW-01S	4/8/2010	4438	29.15	7.48	37.4	4.56	3	0.29
OW-02S	4/8/2010	1844	28.85	7.91	32.1	7.77	2.4	0.12
OW-05S	4/8/2010	2568	28.82	7.68	46.3	6.23	9.1	0.17

Notes:

µmhos/cm micro-mhos per centimeter
 °C degree centigrade
 ORP oxidation reduction potential
 mV millivolts
 mg/L milligrams per liter
 NTU Nephelometric Turbidity Unit
 % percentage

Salinity is calculated using the specific conductance field measurement, the last measurement before sampling.

TABLE 10

Board Order No. R7-2006-0060 WDR Monitoring Information for Groundwater Samples, First Half 2010
PG&E Topock Compliance Monitoring Program

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
CW-01D	CW-01D-023	Barry Collom	4/8/2010	9:39:00 AM	TLI	EPA 120.1	SC	4/12/2010	Tina Acquiat	µmhos/cm	7360	2.0	0.038
					TLI	EPA 200.8	CRTD	4/12/2010	Romuel Chaves	µg/L	1.97	1.0	0.075
					TLI	EPA 218.6	CR6	4/15/2010	Sonya Bersudsky	µg/L	1.12	1.1	0.0998
					TLI	EPA 300.0	CL	4/12/2010	Giawad Ghenniwa	mg/L	2240	100	12.0
					TLI	EPA 300.0	FL	4/9/2010	Giawad Ghenniwa	mg/L	1.45	0.5	0.06
					TLI	EPA 300.0	SO4	4/9/2010	Giawad Ghenniwa	mg/L	532	25.0	2.00
					TLI	SM2130B	TRB	4/9/2010	Gautam Savani	NTU	0.124	0.1	0.014
					TLI	SM2540C	TDS	4/12/2010	Tina Acquiat	mg/L	4320	250	43.4
					EMXT	SM4500NO3-E	NO3NO2N	4/20/2010	Elena Robles	mg/L	3.00	0.5	0.10
CW-01M	CW-01M-023	Barry Collom	4/8/2010	10:20:36 AM	TLI	EPA 120.1	SC	4/12/2010	Tina Acquiat	µmhos/cm	7210	2.0	0.038
					TLI	EPA 200.8	CRTD	4/12/2010	Romuel Chaves	µg/L	3.23	1.0	0.075
					TLI	EPA 218.6	CR6	4/15/2010	Sonya Bersudsky	µg/L	2.33	1.1	0.0998
					TLI	EPA 300.0	CL	4/12/2010	Giawad Ghenniwa	mg/L	2120	100	12.0
					TLI	EPA 300.0	FL	4/9/2010	Giawad Ghenniwa	mg/L	1.61	0.5	0.06
					TLI	EPA 300.0	SO4	4/9/2010	Giawad Ghenniwa	mg/L	505	25.0	2.00
					TLI	SM2130B	TRB	4/9/2010	Gautam Savani	NTU	ND (0.1)	0.1	0.014
					TLI	SM2540C	TDS	4/12/2010	Tina Acquiat	mg/L	4140	250	43.4
					EMXT	SM4500NO3-E	NO3NO2N	4/20/2010	Elena Robles	mg/L	3.14	0.5	0.10
CW-02D	CW-02D-023	Barry Collom	4/7/2010	10:00:14 AM	TLI	EPA 120.1	SC	4/12/2010	Tina Acquiat	µmhos/cm	7120	2.0	0.038
					TLI	EPA 200.8	CRTD	4/22/2010	Romuel Chaves	µg/L	ND (1.0)	1.0	1.00
					TLI	EPA 218.6	CR6	4/15/2010	Sonya Bersudsky	µg/L	0.23	0.2	0.02
					TLI	EPA 300.0	CL	4/12/2010	Giawad Ghenniwa	mg/L	2130	100	12.0
					TLI	EPA 300.0	FL	4/9/2010	Giawad Ghenniwa	mg/L	4.15	0.5	0.06
					TLI	EPA 300.0	SO4	4/9/2010	Giawad Ghenniwa	mg/L	489	25.0	2.00
					TLI	SM2130B	TRB	4/9/2010	Gautam Savani	NTU	0.17	0.1	0.014
					TLI	SM2540C	TDS	4/12/2010	Tina Acquiat	mg/L	4180	250	43.4
					EMXT	SM4500NO3-E	NO3NO2N	4/20/2010	Elena Robles	mg/L	2.81	0.5	0.10

TABLE 10

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PG&E Topock Compliance Monitoring Program

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
CW-02M	CW-02M-023	Barry Collom	4/7/2010	11:26:21 AM	TLI	EPA 120.1	SC	4/12/2010	Tina Acquiat	µmhos/cm	7010	2.0	0.038
					TLI	EPA 200.8	CRTD	4/15/2010	Romuel Chaves	µg/L	5.44	1.0	1.00
					TLI	EPA 218.6	CR6	4/15/2010	Sonya Bersudsky	µg/L	4.79	1.1	0.0998
					TLI	EPA 300.0	CL	4/12/2010	Giawad Ghenniwa	mg/L	2160	100	12.0
					TLI	EPA 300.0	FL	4/9/2010	Giawad Ghenniwa	mg/L	2.48	0.5	0.06
					TLI	EPA 300.0	SO4	4/9/2010	Giawad Ghenniwa	mg/L	446	25.0	2.00
					TLI	SM2130B	TRB	4/9/2010	Gautam Savani	NTU	0.114	0.1	0.014
					TLI	SM2540C	TDS	4/12/2010	Tina Acquiat	mg/L	3970	250	43.4
					EMXT	SM4500NO3-E	NO3NO2N	4/20/2010	Elena Robles	mg/L	2.23	0.5	0.10
CW-03D	CW-03D-023	Barry Collom	4/7/2010	1:43:18 PM	TLI	EPA 120.1	SC	4/12/2010	Tina Acquiat	µmhos/cm	7060	2.0	0.038
					TLI	EPA 200.8	CRTD	4/22/2010	Romuel Chaves	µg/L	ND (1.0)	1.0	1.00
					TLI	EPA 218.6	CR6	4/15/2010	Sonya Bersudsky	µg/L	0.24	0.2	0.02
					TLI	EPA 300.0	CL	4/12/2010	Giawad Ghenniwa	mg/L	2070	100	12.0
					TLI	EPA 300.0	FL	4/9/2010	Giawad Ghenniwa	mg/L	5.83	0.5	0.06
					TLI	EPA 300.0	SO4	4/9/2010	Giawad Ghenniwa	mg/L	486	25.0	2.00
					TLI	SM2130B	TRB	4/9/2010	Gautam Savani	NTU	ND (0.1)	0.1	0.014
					TLI	SM2540C	TDS	4/12/2010	Tina Acquiat	mg/L	3940	250	43.4
					EMXT	SM4500NO3-E	NO3NO2N	4/20/2010	Elena Robles	mg/L	2.84	0.5	0.10
CW-03M	OW-90-023	Barry Collom	4/7/2010	12:13:02 PM	TLI	EPA 120.1	SC	4/12/2010	Tina Acquiat	µmhos/cm	8810	2.0	0.038
					TLI	EPA 200.8	CRTD	4/15/2010	Romuel Chaves	µg/L	10.3	1.0	1.00
					TLI	EPA 218.6	CR6	4/15/2010	Sonya Bersudsky	µg/L	10.5	1.1	0.0998
					TLI	EPA 300.0	CL	4/12/2010	Giawad Ghenniwa	mg/L	2800	100	12.0
					TLI	EPA 300.0	FL	4/9/2010	Giawad Ghenniwa	mg/L	2.54	0.5	0.06
					TLI	EPA 300.0	SO4	4/9/2010	Giawad Ghenniwa	mg/L	461	25.0	2.00
					TLI	SM2130B	TRB	4/9/2010	Gautam Savani	NTU	0.136	0.1	0.014
					TLI	SM2540C	TDS	4/12/2010	Tina Acquiat	mg/L	5090	250	43.4
					EMXT	SM4500NO3-E	NO3NO2N	4/20/2010	Elena Robles	mg/L	1.44	0.5	0.10

TABLE 10

Board Order No. R7-2006-0060 WDR Monitoring Information for Groundwater Samples, First Half 2010
PG&E Topock Compliance Monitoring Program

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
CW-03M	CW-03M-023	Barry Collom	4/7/2010	2:58:01 PM	TLI	EPA 120.1	SC	4/12/2010	Tina Acquiat	µmhos/cm	8730	2.0	0.038
					TLI	EPA 200.8	CRTD	4/15/2010	Romuel Chaves	µg/L	10.4	1.0	1.00
					TLI	EPA 218.6	CR6	4/15/2010	Sonya Bersudsky	µg/L	10.7	1.1	0.0998
					TLI	EPA 300.0	CL	4/12/2010	Giawad Ghenniwa	mg/L	2800	100	12.0
					TLI	EPA 300.0	FL	4/9/2010	Giawad Ghenniwa	mg/L	2.62	0.5	0.06
					TLI	EPA 300.0	SO4	4/9/2010	Giawad Ghenniwa	mg/L	429	25.0	2.00
					TLI	SM2130B	TRB	4/9/2010	Gautam Savani	NTU	ND (0.1)	0.1	0.014
					TLI	SM2540C	TDS	4/12/2010	Tina Acquiat	mg/L	5350	250	43.4
					EMXT	SM4500NO3-E	NO3NO2N	4/20/2010	Elena Robles	mg/L	1.24	0.5	0.10
CW-04D	CW-04D-023	Barry Collom	4/7/2010	4:28:24 PM	TLI	EPA 120.1	SC	4/12/2010	Tina Acquiat	µmhos/cm	8780	2.0	0.038
					TLI	EPA 200.8	CRTD	4/22/2010	Romuel Chaves	µg/L	1.75	1.0	1.00
					TLI	EPA 218.6	CR6	4/15/2010	Sonya Bersudsky	µg/L	1.68	1.1	0.0998
					TLI	EPA 300.0	CL	4/12/2010	Giawad Ghenniwa	mg/L	2680	100	12.0
					TLI	EPA 300.0	FL	4/9/2010	Giawad Ghenniwa	mg/L	4.03	0.5	0.06
					TLI	EPA 300.0	SO4	4/9/2010	Giawad Ghenniwa	mg/L	543	25.0	2.00
					TLI	SM2130B	TRB	4/9/2010	Gautam Savani	NTU	ND (0.1)	0.1	0.014
					TLI	SM2540C	TDS	4/12/2010	Tina Acquiat	mg/L	5340	250	43.4
					EMXT	SM4500NO3-E	NO3NO2N	4/20/2010	Elena Robles	mg/L	2.43	0.5	0.10
CW-04M	CW-04M-023	Barry Collom	4/7/2010	5:27:55 PM	TLI	EPA 120.1	SC	4/12/2010	Tina Acquiat	µmhos/cm	6390	2.0	0.038
					TLI	EPA 200.8	CRTD	4/15/2010	Romuel Chaves	µg/L	14.0	1.0	1.00
					TLI	EPA 218.6	CR6	4/15/2010	Sonya Bersudsky	µg/L	14.2	1.1	0.0998
					TLI	EPA 300.0	CL	4/12/2010	Giawad Ghenniwa	mg/L	1960	100	12.0
					TLI	EPA 300.0	FL	4/9/2010	Giawad Ghenniwa	mg/L	1.55	0.5	0.06
					TLI	EPA 300.0	SO4	4/9/2010	Giawad Ghenniwa	mg/L	354	25.0	2.00
					TLI	SM2130B	TRB	4/9/2010	Gautam Savani	NTU	0.12	0.1	0.014
					TLI	SM2540C	TDS	4/12/2010	Tina Acquiat	mg/L	4040	125	21.7
					EMXT	SM4500NO3-E	NO3NO2N	4/20/2010	Elena Robles	mg/L	1.65	0.5	0.10

TABLE 10

Board Order No. R7-2006-0060 WDR Monitoring Information for Groundwater Samples, First Half 2010
PG&E Topock Compliance Monitoring Program

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
OW-01S	OW-91-023	Barry Collom	4/8/2010	8:55:37 AM	TLI	EPA 120.1	SC	4/12/2010	Tina Acquiat	µmhos/cm	4080	2.0	0.038
					TLI	EPA 200.8	CRTD	4/12/2010	Romuel Chaves	µg/L	15.7	1.0	0.075
					TLI	EPA 218.6	CR6	4/15/2010	Sonya Bersudsky	µg/L	15.2	0.2	0.02
					TLI	EPA 300.0	CL	4/12/2010	Giawad Ghenniwa	mg/L	1220	100	12.0
					TLI	EPA 300.0	FL	4/9/2010	Giawad Ghenniwa	mg/L	1.60	0.5	0.06
					TLI	EPA 300.0	SO4	4/9/2010	Giawad Ghenniwa	mg/L	207	25.0	2.00
					TLI	SM2130B	TRB	4/9/2010	Gautam Savani	NTU	0.882	0.1	0.014
					TLI	SM2540C	TDS	4/12/2010	Tina Acquiat	mg/L	2550	125	21.7
					EMXT	SM4500NO3-E	NO3NO2N	4/20/2010	Elena Robles	mg/L	2.88	0.5	0.10
OW-01S	OW-01S-023	Barry Collom	4/8/2010	11:50:05 AM	TLI	EPA 120.1	SC	4/12/2010	Tina Acquiat	µmhos/cm	4040	2.0	0.038
					TLI	EPA 200.8	CRTD	4/12/2010	Romuel Chaves	µg/L	15.7	1.0	0.075
					TLI	EPA 218.6	CR6	4/15/2010	Sonya Bersudsky	µg/L	15.4	0.2	0.02
					TLI	EPA 300.0	CL	4/13/2010	Giawad Ghenniwa	mg/L	1210	100	12.0
					TLI	EPA 300.0	FL	4/9/2010	Giawad Ghenniwa	mg/L	1.38	0.5	0.06
					TLI	EPA 300.0	SO4	4/9/2010	Giawad Ghenniwa	mg/L	215	25.0	2.00
					TLI	SM2130B	TRB	4/9/2010	Gautam Savani	NTU	0.918	0.1	0.014
					TLI	SM2540C	TDS	4/12/2010	Tina Acquiat	mg/L	2590	125	21.7
					EMXT	SM4500NO3-E	NO3NO2N	4/20/2010	Elena Robles	mg/L	2.72	0.5	0.10
OW-02S	OW-02S-023	Barry Collom	4/8/2010	12:36:08 PM	TLI	EPA 120.1	SC	4/12/2010	Tina Acquiat	µmhos/cm	1700	2.0	0.038
					TLI	EPA 200.8	CRTD	4/12/2010	Romuel Chaves	µg/L	30.6	1.0	0.075
					TLI	EPA 218.6	CR6	4/15/2010	Sonya Bersudsky	µg/L	30.3	1.1	0.0998
					TLI	EPA 300.0	CL	4/12/2010	Giawad Ghenniwa	mg/L	398	20.0	2.40
					TLI	EPA 300.0	FL	4/9/2010	Giawad Ghenniwa	mg/L	5.02	0.5	0.06
					TLI	EPA 300.0	SO4	4/9/2010	Giawad Ghenniwa	mg/L	109	25.0	2.00
					TLI	SM2130B	TRB	4/9/2010	Gautam Savani	NTU	0.402	0.1	0.014
					TLI	SM2540C	TDS	4/12/2010	Tina Acquiat	mg/L	936	50.0	8.68
					EMXT	SM4500NO3-E	NO3NO2N	4/20/2010	Elena Robles	mg/L	4.18	0.5	0.10

TABLE 10

Board Order No. R7-2006-0060 WDR Monitoring Information for Groundwater Samples, First Half 2010
PG&E Topock Compliance Monitoring Program

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
OW-05S	OW-05S-023	Barry Collom	4/8/2010	11:07:01 AM	TLI	EPA 120.1	SC	4/12/2010	Tina Acquiat	µmhos/cm	2330	2.0	0.038
					TLI	EPA 200.8	CRTD	4/12/2010	Romuel Chaves	µg/L	21.0	1.0	0.075
					TLI	EPA 218.6	CR6	4/15/2010	Sonya Bersudsky	µg/L	20.7	0.2	0.02
					TLI	EPA 300.0	CL	4/12/2010	Giawad Ghenniwa	mg/L	655	20.0	2.40
					TLI	EPA 300.0	FL	4/9/2010	Giawad Ghenniwa	mg/L	1.89	0.5	0.06
					TLI	EPA 300.0	SO4	4/9/2010	Giawad Ghenniwa	mg/L	128	25.0	2.00
					TLI	SM2130B	TRB	4/9/2010	Gautam Savani	NTU	2.54	0.1	0.014
					TLI	SM2540C	TDS	4/12/2010	Tina Acquiat	mg/L	1450	50.0	8.68
					EMXT	SM4500NO3-E	NO3NO2N	4/20/2010	Elena Robles	mg/L	3.18	0.5	0.10

TABLE 10

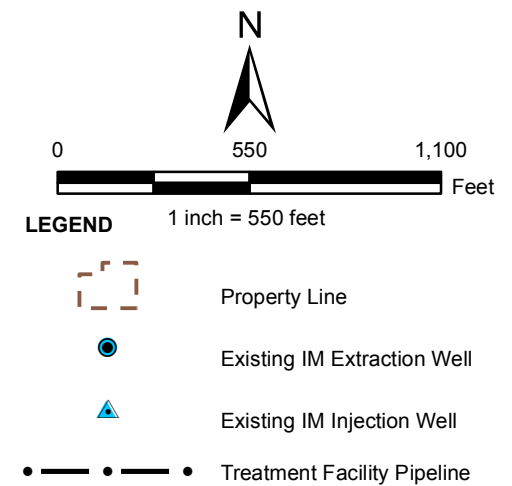
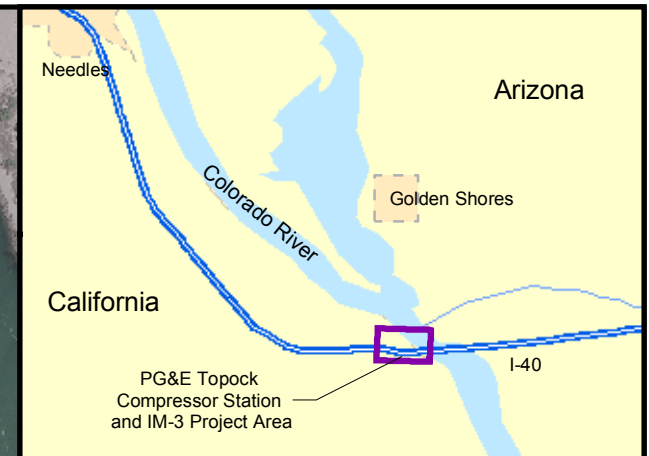
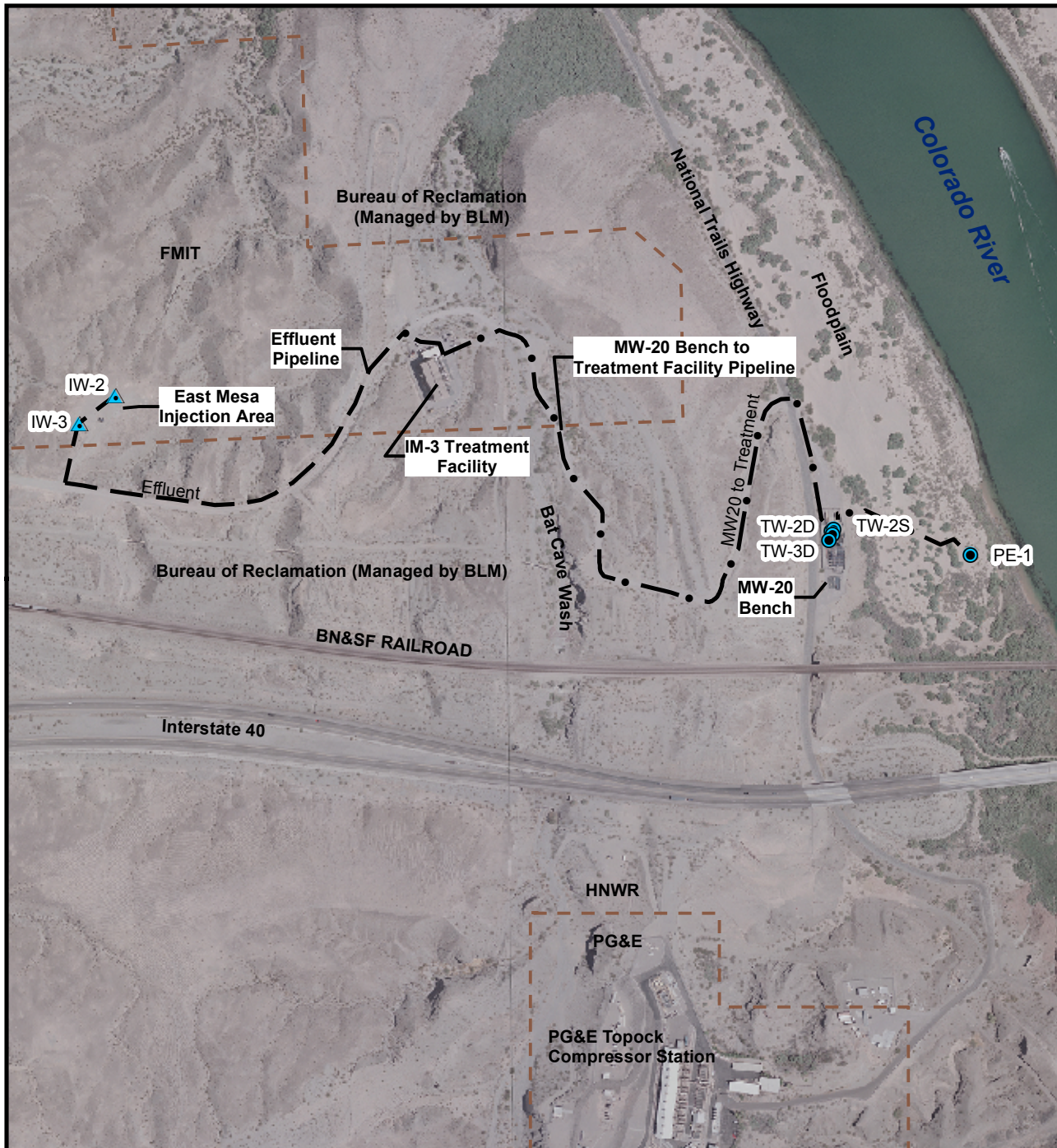
Board Order No. R7-2006-0060 WDR Monitoring Information for Groundwater Samples, First Half 2010
PG&E Topock Compliance Monitoring Program

NOTES:

MDL	method detection limit corrected for sample dilution
RL	reporting limit corrected for sample dilution
ND	parameter not detected at the listed reporting limit
µmhos/cm	micro-mhos per centimeter
NTU	Nephelometric Turbidity Unit
mg/L	milligrams per liter
µg/L	micrograms per liter
J	Concentration estimated by laboratory or data validation
TLI	Truesdail Laboratories, Inc.
EMXT	Emax Laboratories
WDR	Waste Discharge Requirements

ALKC	alkalinity, as carbonate	HGD	mercury, dissolved
ALKT	alkalinity, total as CaCO ₃	KD	potassium, dissolved
ALKB	alkalinity, bicarbonate as CaCO ₃	MGD	magnesium, dissolved
ALD	aluminum, dissolved	MND	manganese, dissolved
AGD	silver, dissolved	MOD	molybdenum, dissolved
ASD	arsenic, dissolved	NAD	sodium, dissolved
BD	boron, dissolved	NID	nickel, dissolved
BAD	barium, dissolved	NH ₃ N	ammonia (as Nitrogen)
BED	beryllium, dissolved	NO ₃ NO ₂ N	nitrate/nitrite (as Nitrogen)
CAD	calcium, dissolved	PBD	lead, dissolved
CDD	cadmium, dissolved	SBD	antimony, dissolved
CL	chloride	SC	specific conductance
COBD	cobalt, dissolved	SED	selenium, dissolved
CRTD	chromium, dissolved	SO ₄	sulfate
CR6	hexavalent chromium	TLD	thallium, dissolved
CUD	copper, dissolved	TDS	total dissolved solids
FE	iron	TRB	turbidity
FETD	iron, dissolved	VD	vanadium, dissolved
FL	fluoride	ZND	zinc, dissolved

Figures



Notes: Location map shows Interim Measures No.3 (IM-3) facilities as of the current report. Aerial photography taken October 2008.

FIGURE 1 SITE LOCATION AND LAYOUT

IM-3 COMPLIANCE MONITORING PROGRAM
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

CH2MHILL

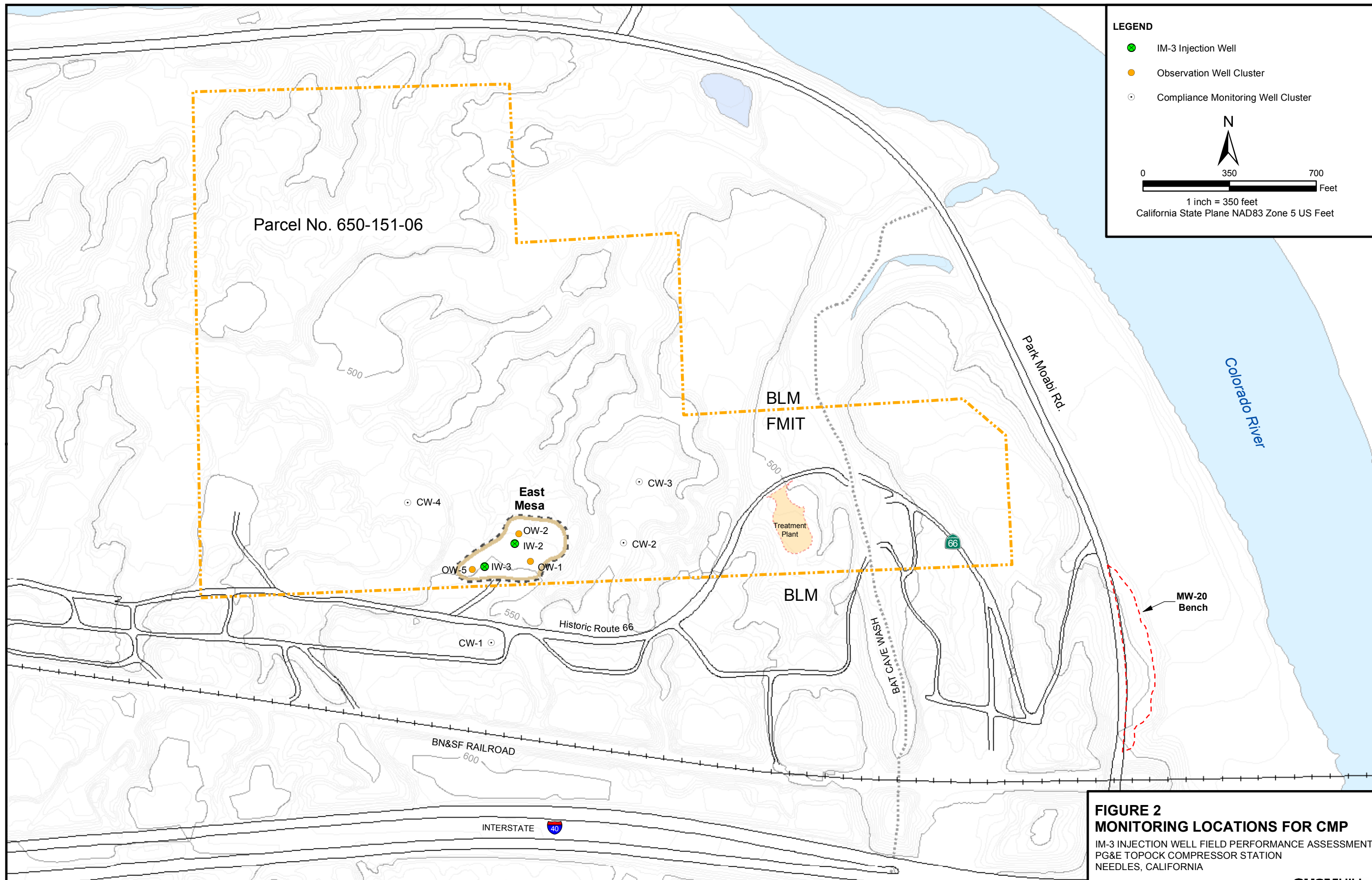


FIGURE 2
MONITORING LOCATIONS FOR CMP
 IM-3 INJECTION WELL FIELD PERFORMANCE ASSESSMENT
 PG&E TOPOCK COMPRESSOR STATION
 NEEDLES, CALIFORNIA

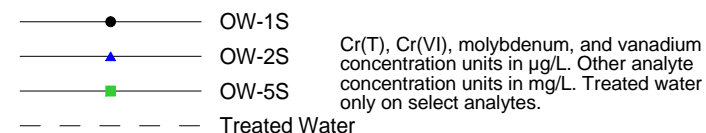
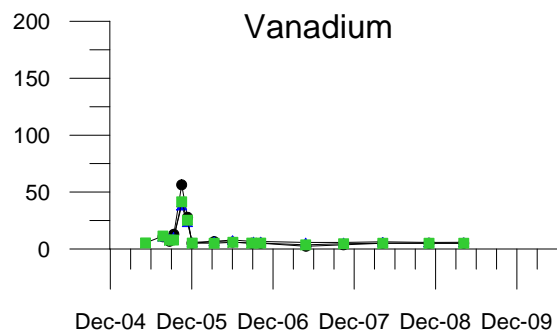
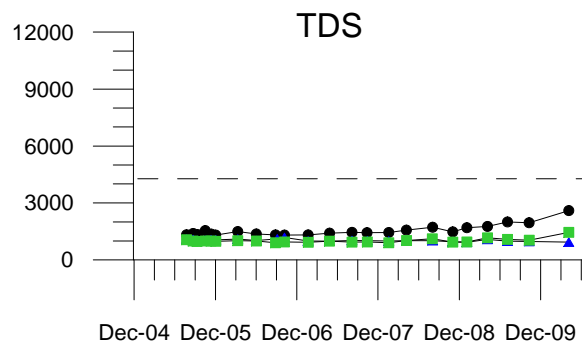
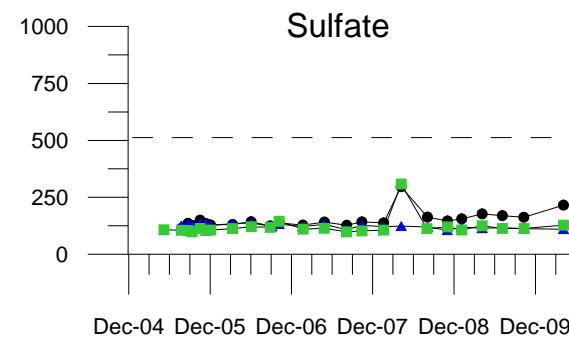
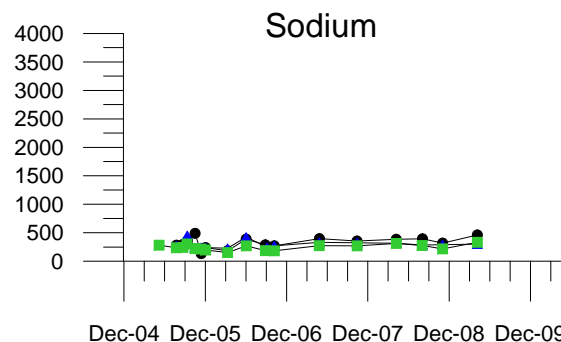
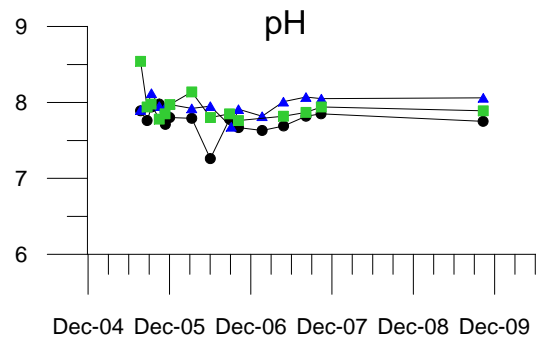
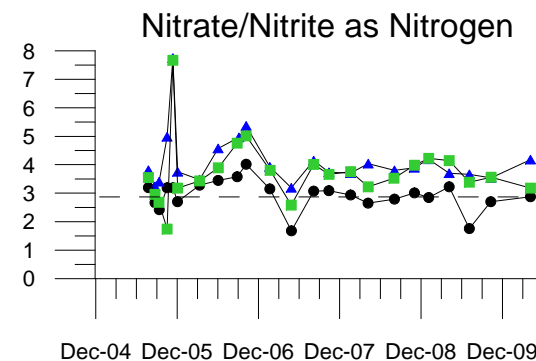
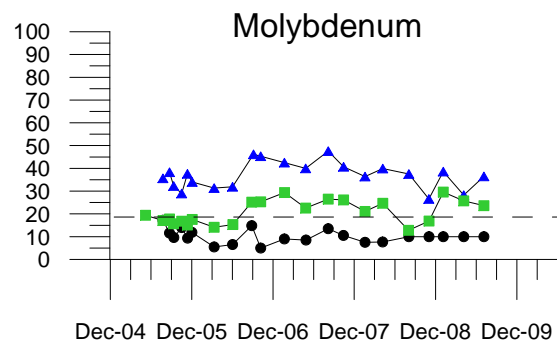
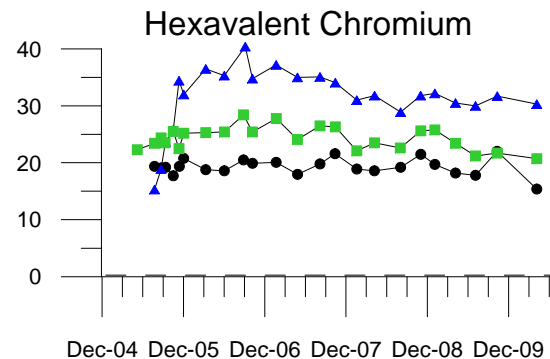
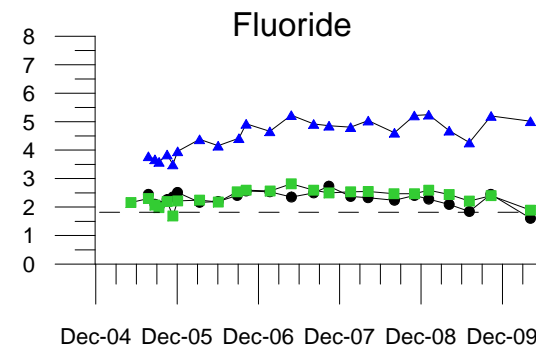
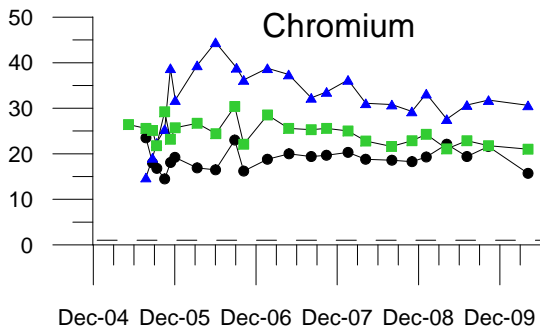
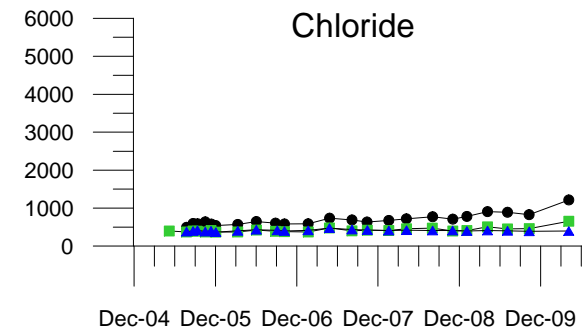
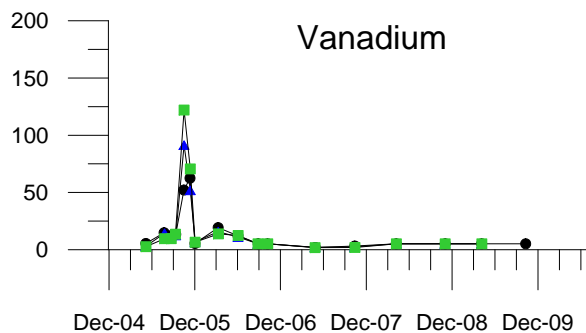
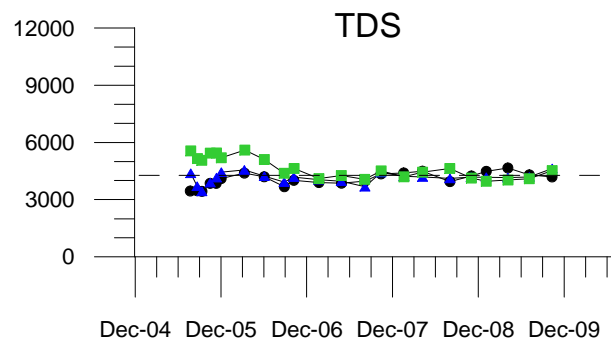
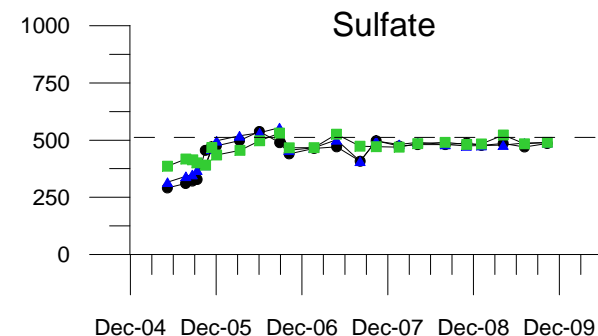
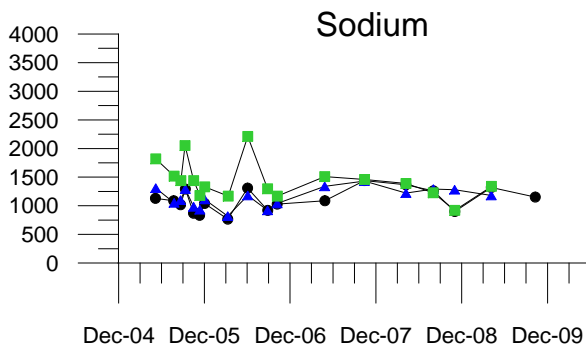
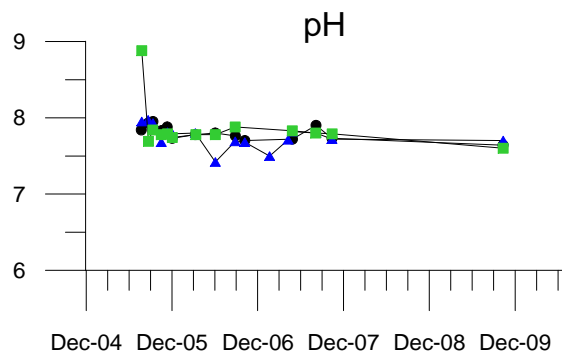
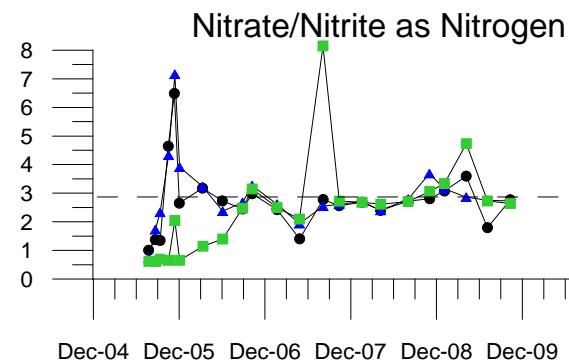
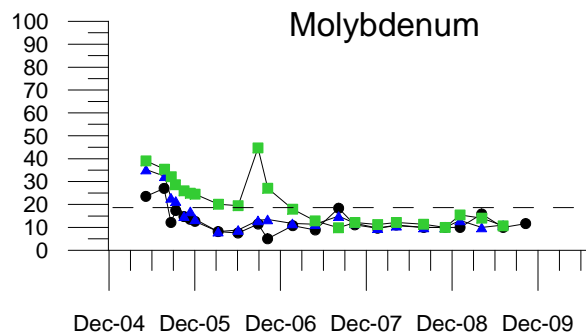
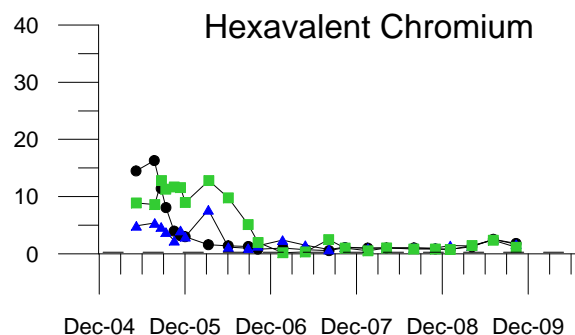
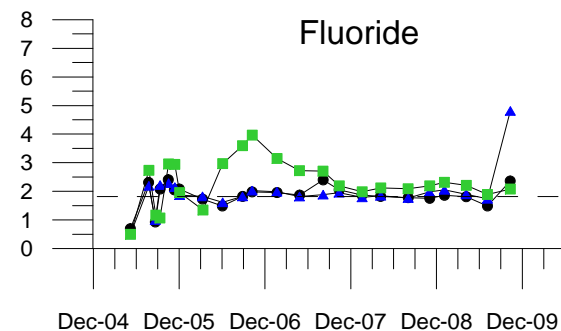
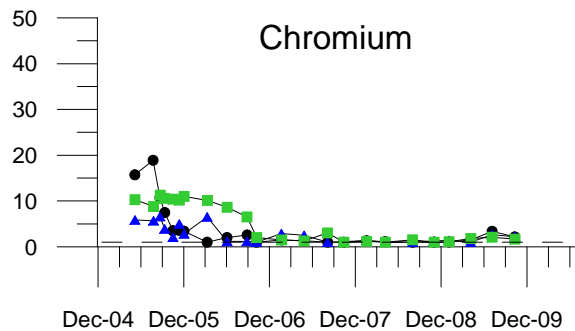
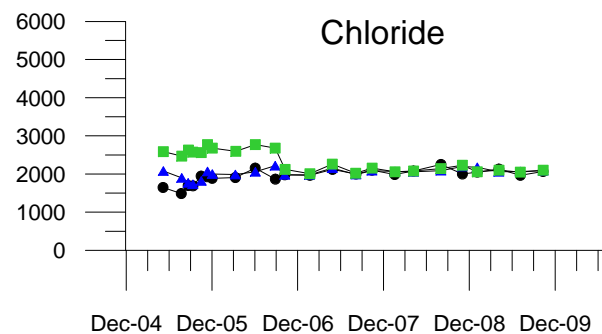


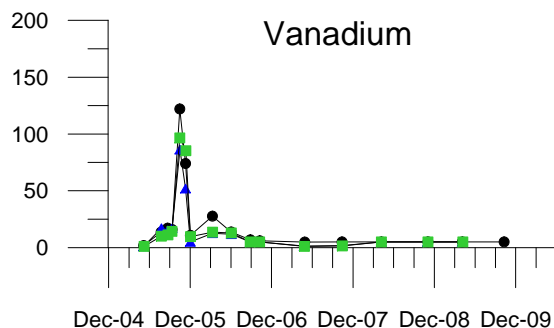
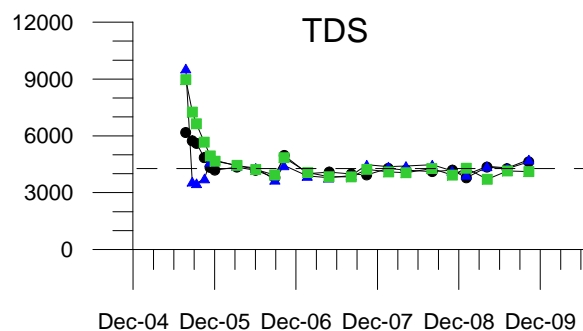
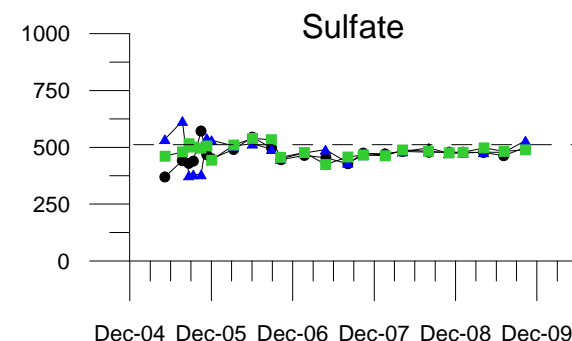
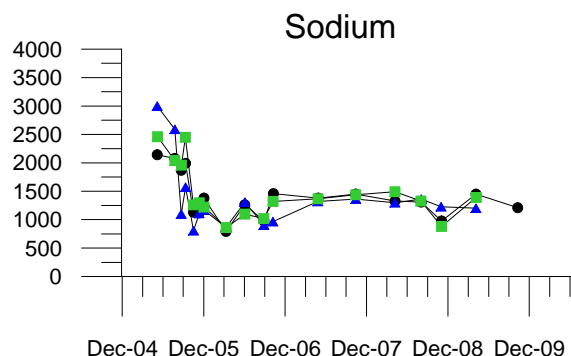
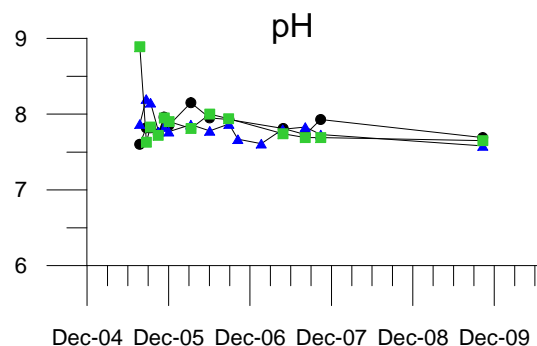
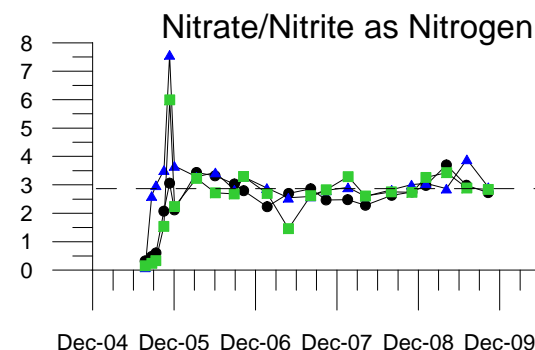
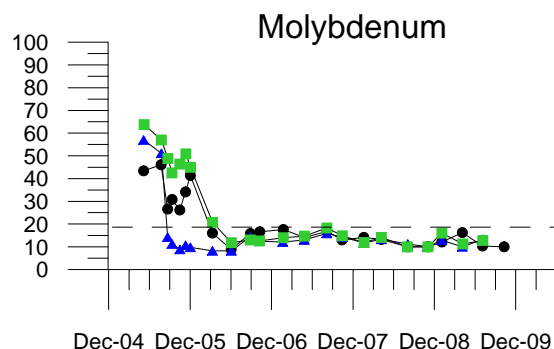
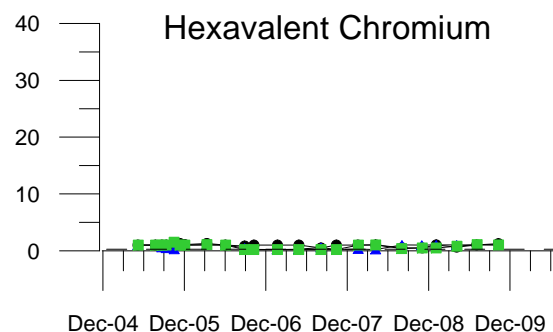
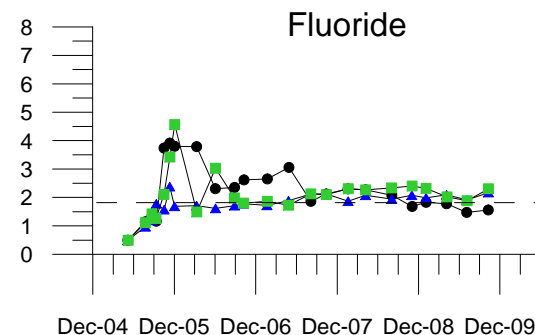
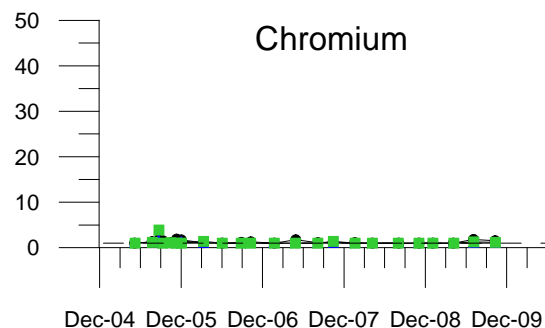
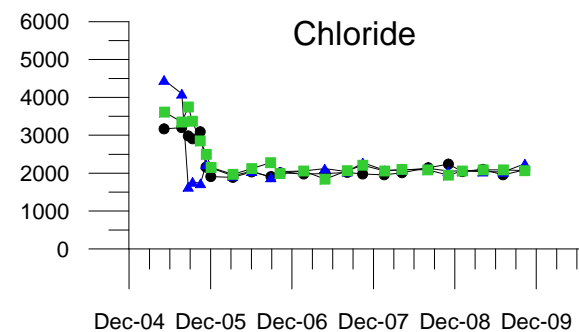
FIGURE 3A
OW-1S, OW-2S, OW-5S
WATER QUALITY HYDROGRAPHS
 IM3 COMPLIANCE MONITORING PROGRAM
 PG&E TOPOCK COMPRESSOR STATION
 NEEDLES, CALIFORNIA



● OW-1M
 ▲ OW-2M
 ■ OW-5M
 --- Treated Water

Cr(T), Cr(VI), molybdenum, and vanadium
 concentration units in µg/L. Other analyte
 concentration units in mg/L. Treated water
 only on select analytes.

FIGURE 3B
OW-1M, OW-2M, OW-5M
WATER QUALITY HYDROGRAPHS
 IM3 COMPLIANCE MONITORING PROGRAM
 PG&E TOPOCK COMPRESSOR STATION
 NEEDLES, CALIFORNIA



● OW-1D
 ▲ OW-2D
 ■ OW-5D
 --- Treated Water
 Cr(T), Cr(VI), molybdenum, and vanadium concentration units in µg/L. Other analyte concentration units in mg/L. Treated water only on select analytes.

FIGURE 3C
OW-1D, OW-2D, OW-5D
WATER QUALITY HYDROGRAPHS
 IM3 COMPLIANCE MONITORING PROGRAM
 PG&E TOPOCK COMPRESSOR STATION
 NEEDLES, CALIFORNIA

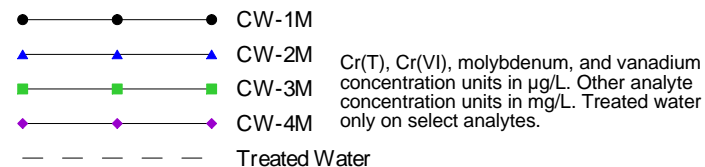
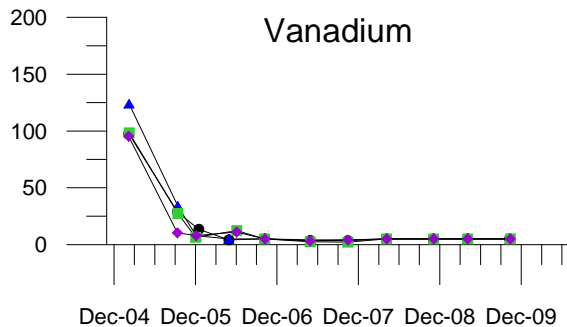
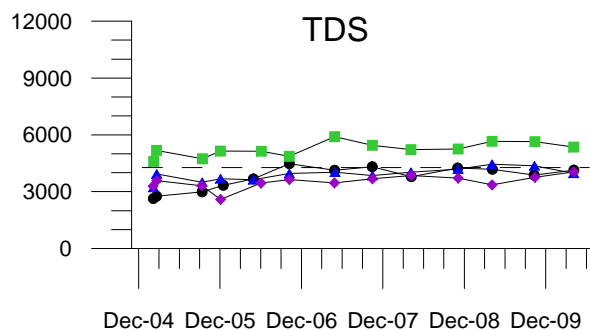
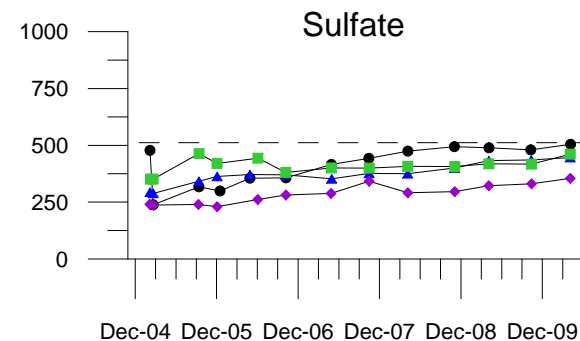
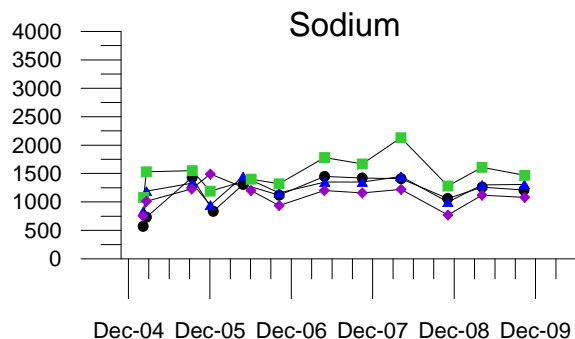
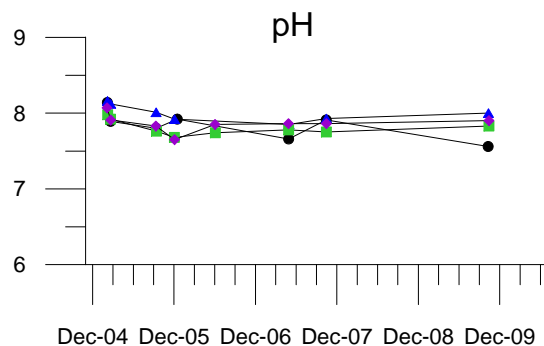
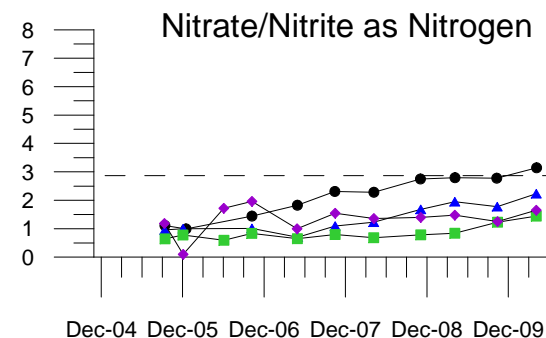
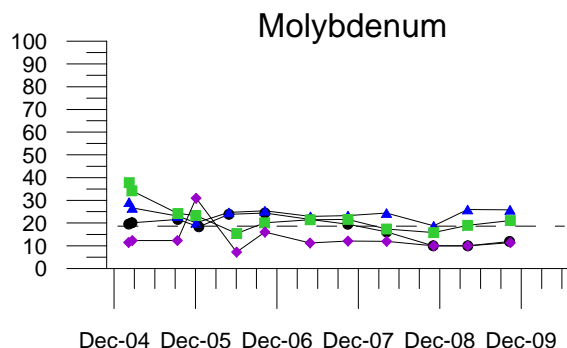
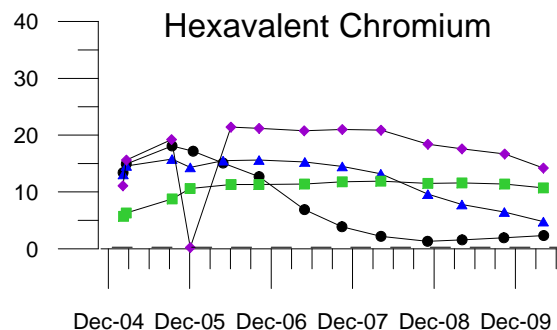
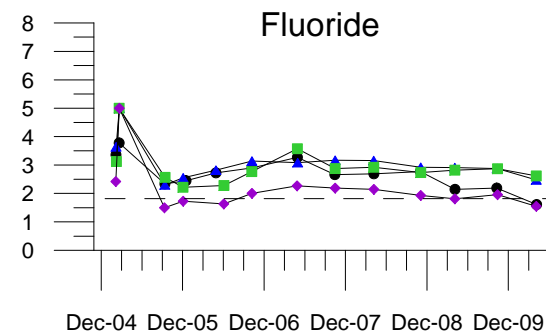
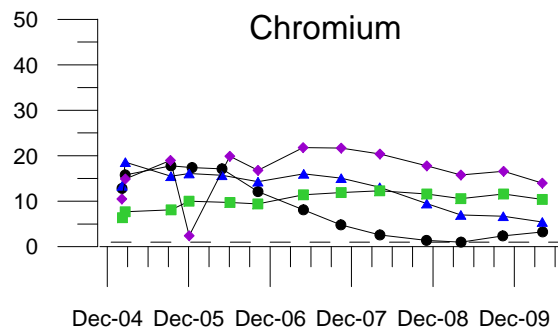
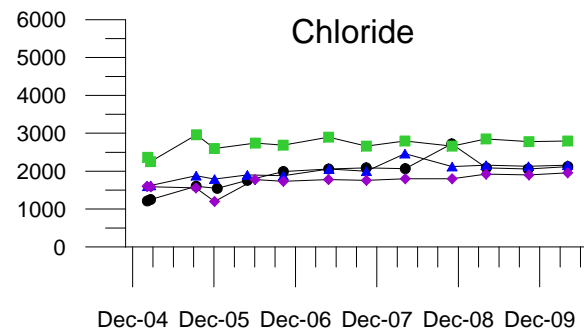
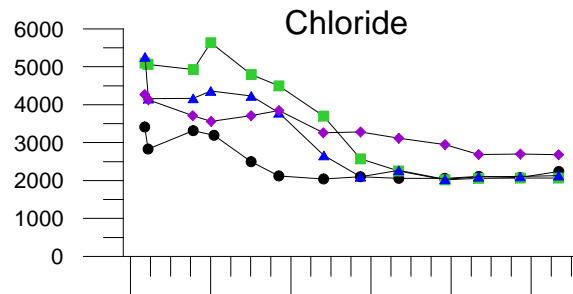
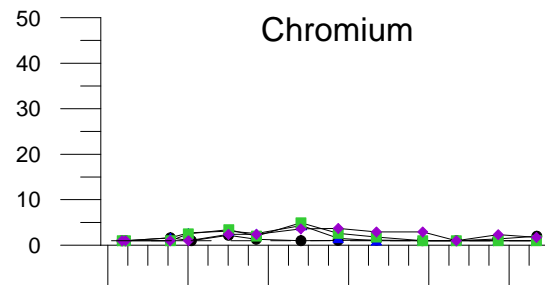


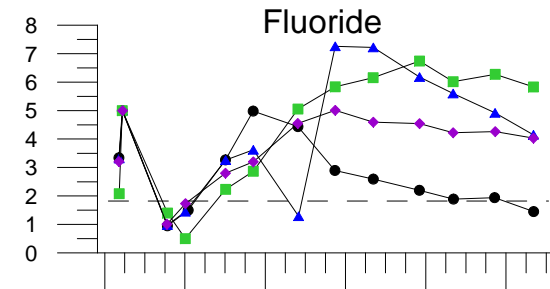
FIGURE 3D
CW-1M, CW-2M, CW-3M, CW-4M
WATER QUALITY HYDROGRAPHS
 IM3 COMPLIANCE MONITORING PROGRAM
 PG&E TOPOCK COMPRESSOR STATION
 NEEDLES, CALIFORNIA



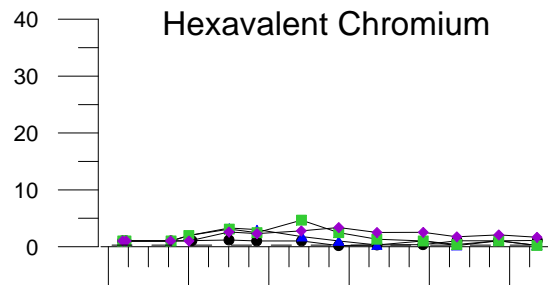
Dec-04 Dec-05 Dec-06 Dec-07 Dec-08 Dec-09



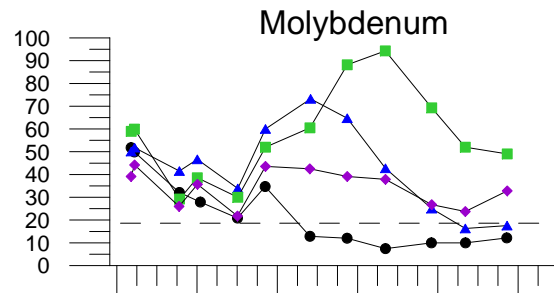
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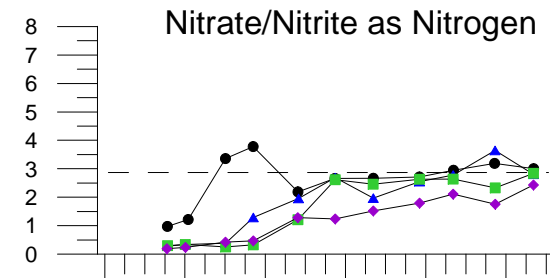
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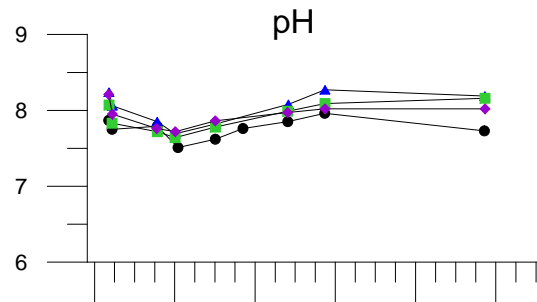
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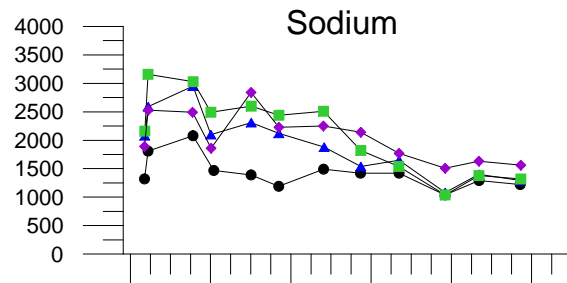
Dec-04 Dec-05 Dec-06 Dec-07 Dec-08 Dec-09



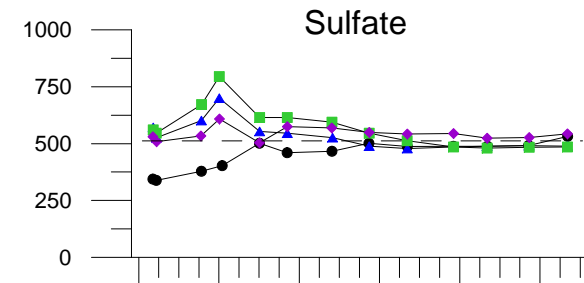
Dec-04 Dec-05 Dec-06 Dec-07 Dec-08 Dec-09



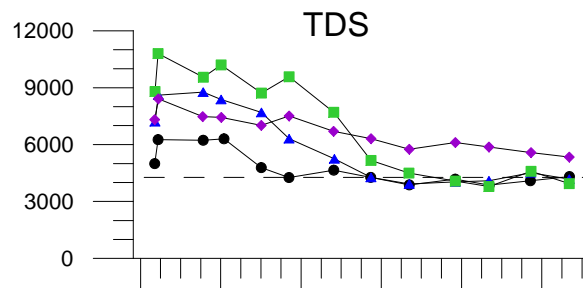
Dec-04 Dec-05 Dec-06 Dec-07 Dec-08 Dec-09



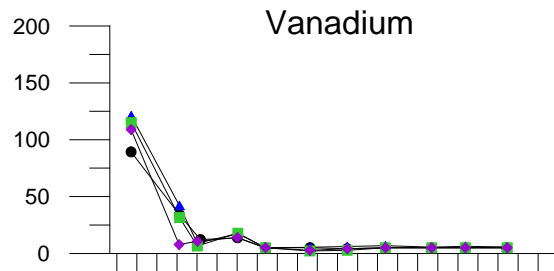
Dec-04 Dec-05 Dec-06 Dec-07 Dec-08 Dec-09



Dec-04 Dec-05 Dec-06 Dec-07 Dec-08 Dec-09



Dec-04 Dec-05 Dec-06 Dec-07 Dec-08 Dec-09



Dec-04 Dec-05 Dec-06 Dec-07 Dec-08 Dec-09

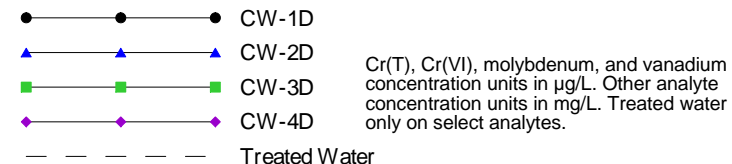
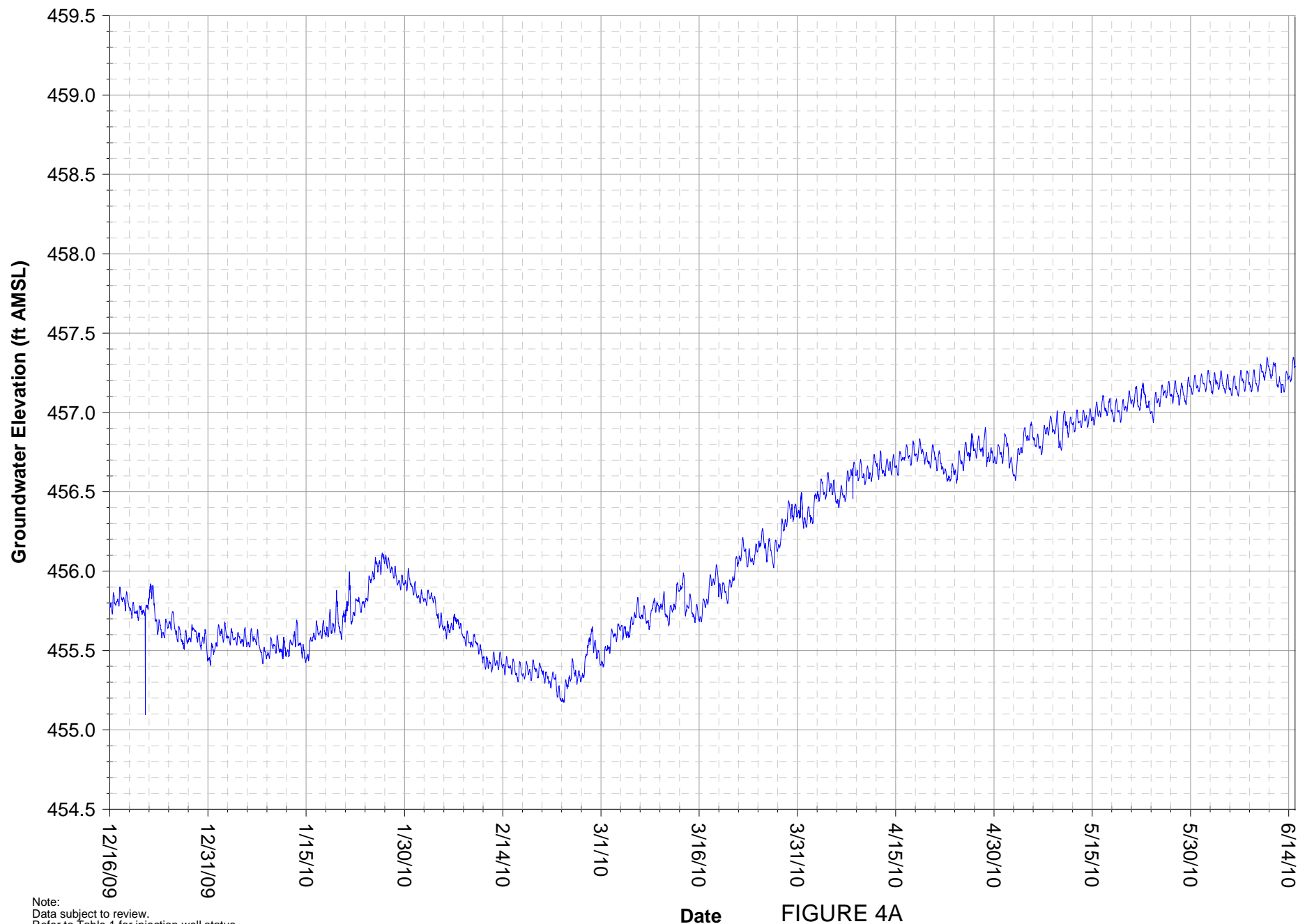


FIGURE 3E
CW-1D, CW-2D, CW-3D, CW-4D
WATER QUALITY HYDROGRAPHS
 IM3 COMPLIANCE MONITORING PROGRAM
 PG&E TOPOCK COMPRESSOR STATION
 NEEDLES, CALIFORNIA



Note:
Data subject to review.
Refer to Table 1 for injection well status.

Date

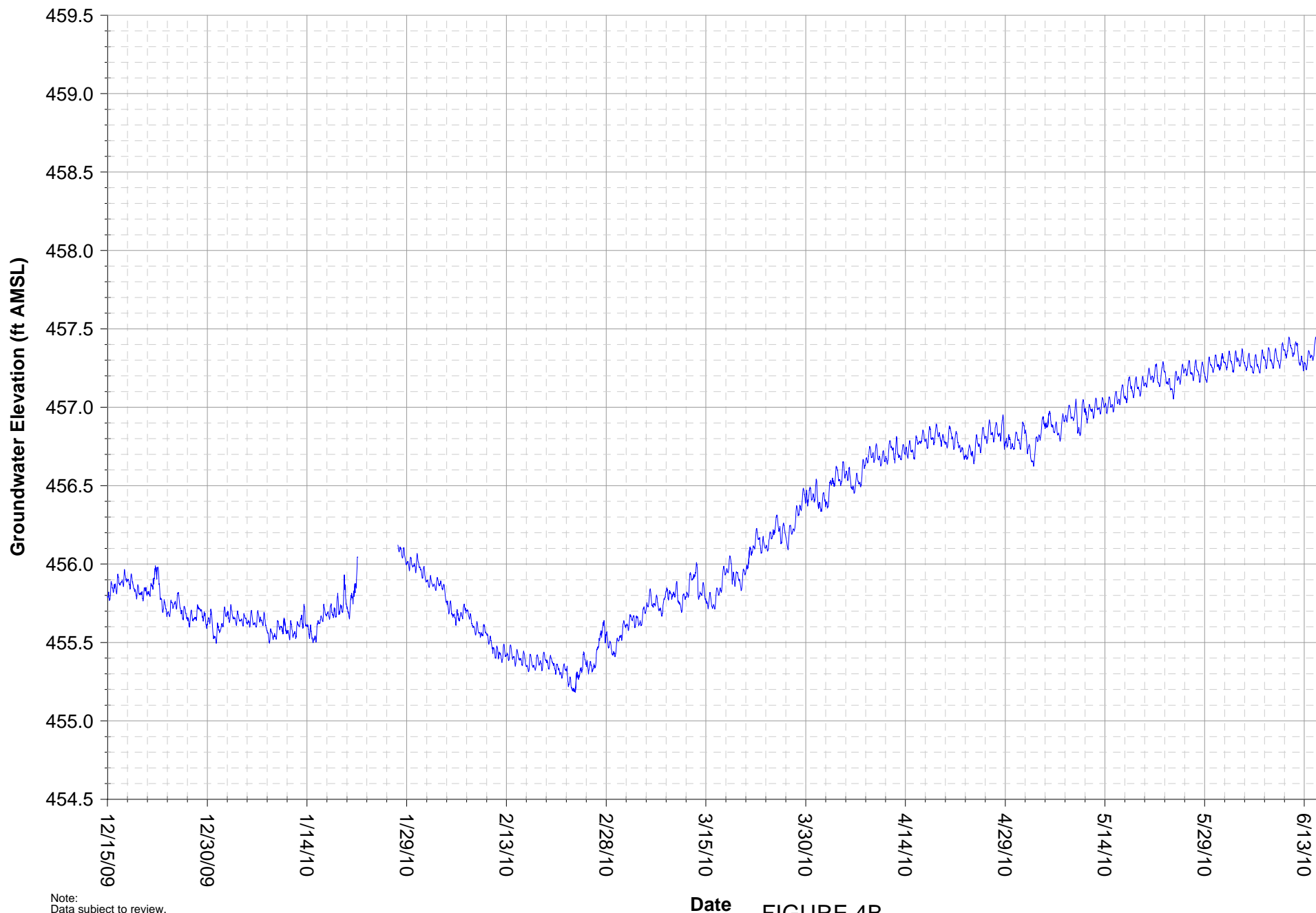
FIGURE 4A

OW-1S GROUNDWATER ELEVATION HYDROGRAPH

IM-3 COMPLIANCE MONITORING PROGRAM

PG&E TOPOCK COMPRESSOR STATION

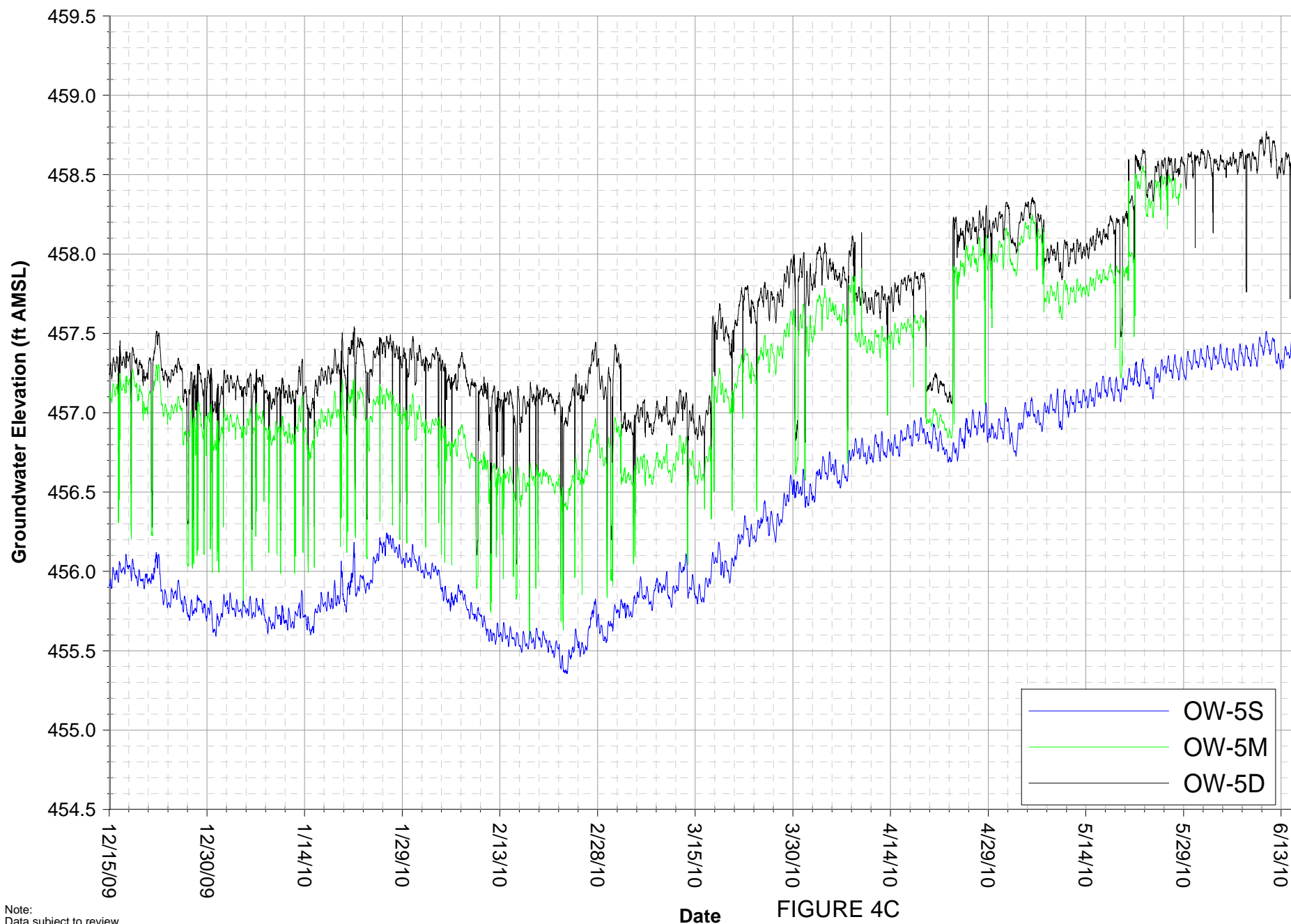
NEEDLES, CALIFORNIA



Note:
 Data subject to review.
 Refer to Table 1 for injection well status.
 No data from January 21, 2010 to January 27, 2010 due to transducer failure.

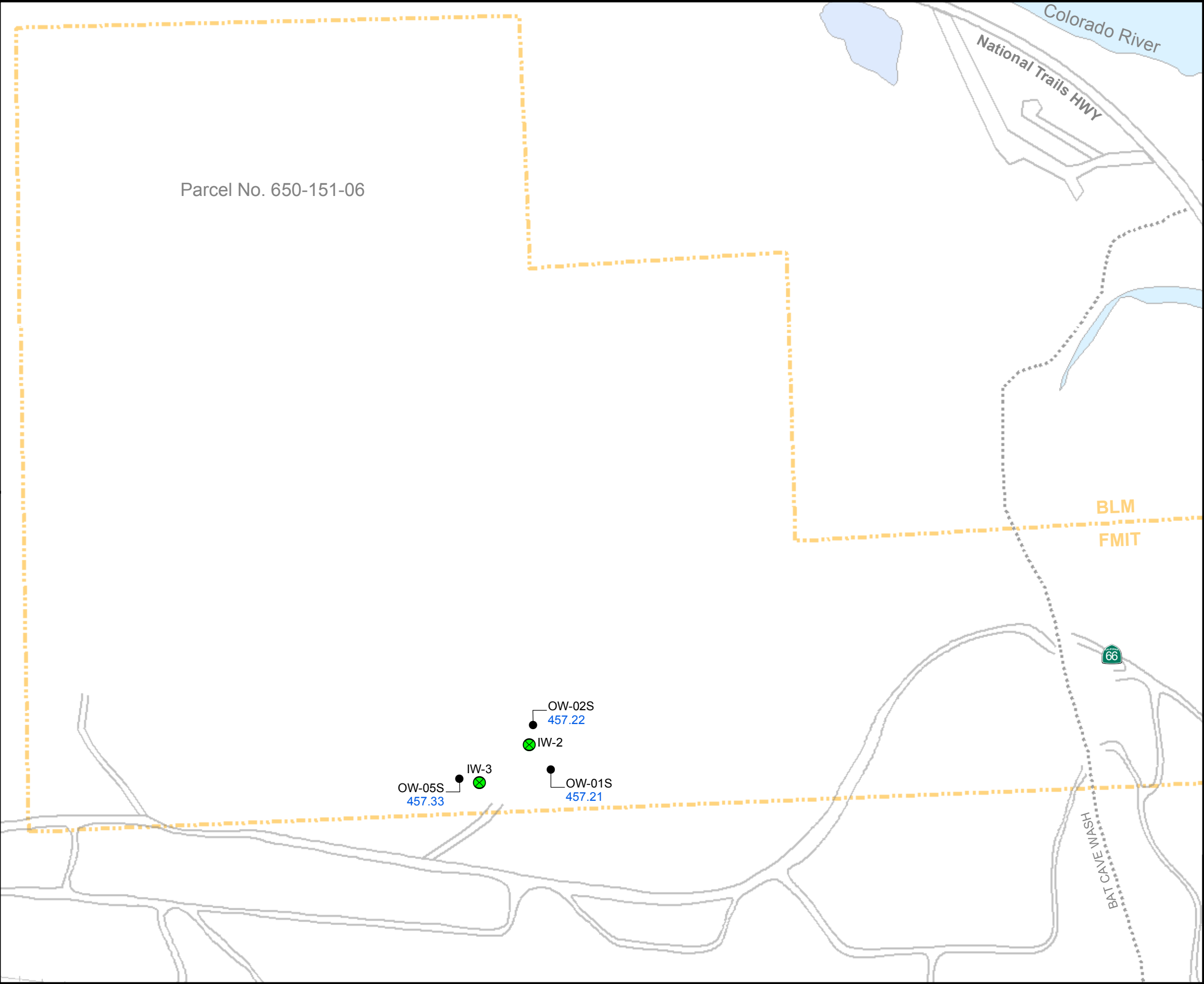
Date

FIGURE 4B
OW-2S GROUNDWATER ELEVATION HYDROGRAPH
 IM-3 COMPLIANCE MONITORING PROGRAM
 PG&E TOPOCK COMPRESSOR STATION
 NEEDLES, CALIFORNIA

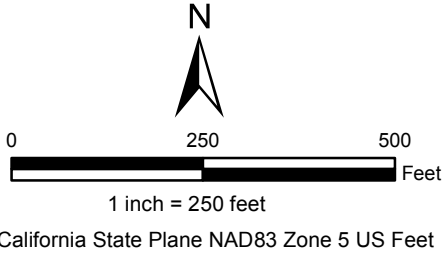


Note:
 Data subject to review.
 Refer to Table 1 for injection well status.
 OW-5M data unavailable from May 28, 2010 until June 15, 2010 due to transducer failure.

FIGURE 4C
OW-5 GROUNDWATER ELEVATION HYDROGRAPHS
 IM-3 COMPLIANCE MONITORING PROGRAM
 PG&E TOPOCK COMPRESSOR STATION
 NEEDLES, CALIFORNIA

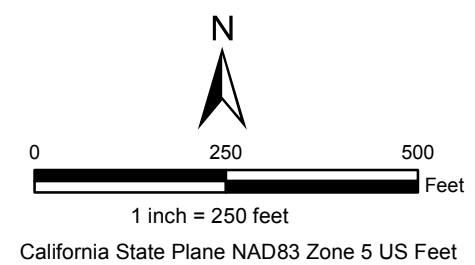
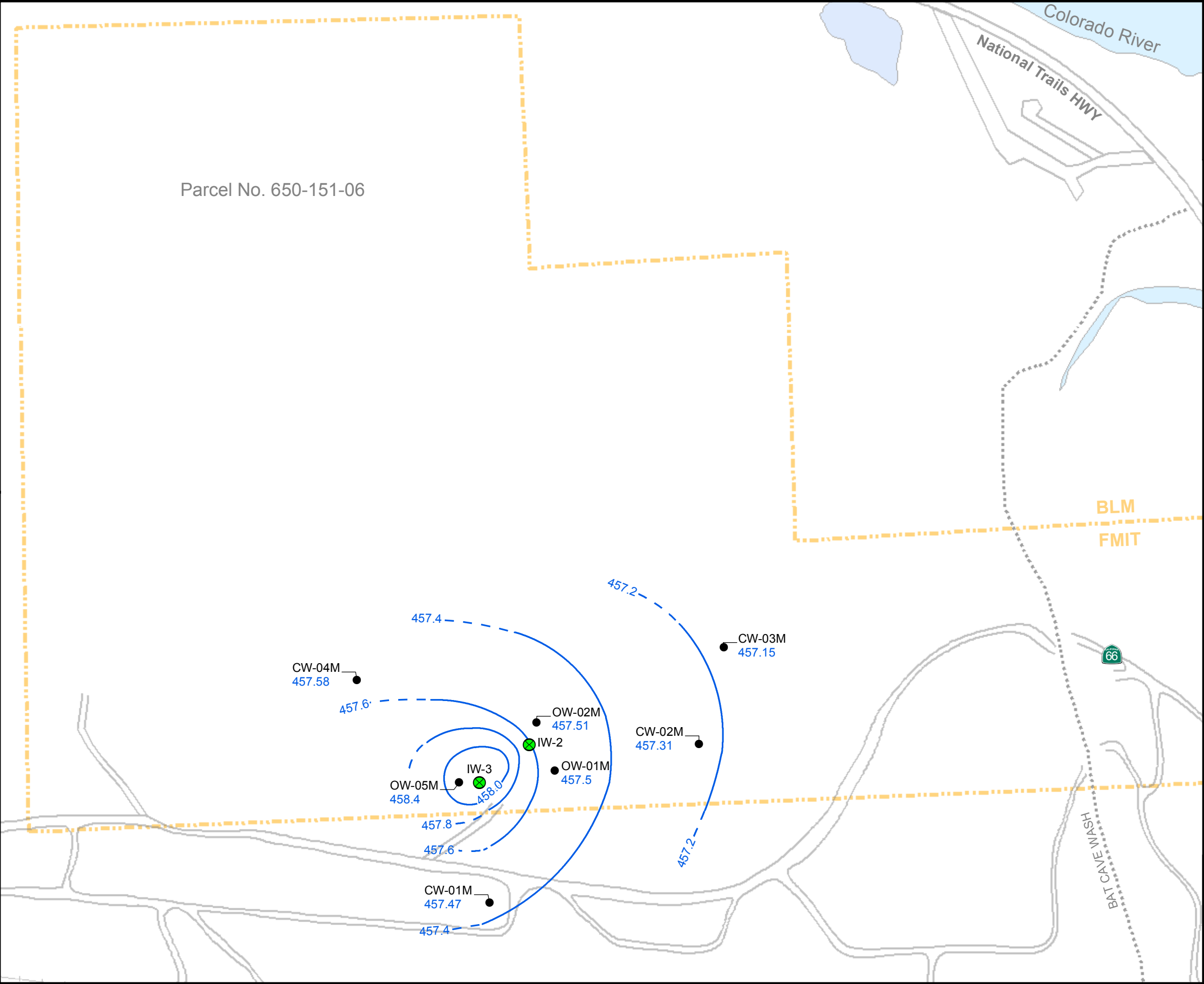


Parcel No. 650-151-06



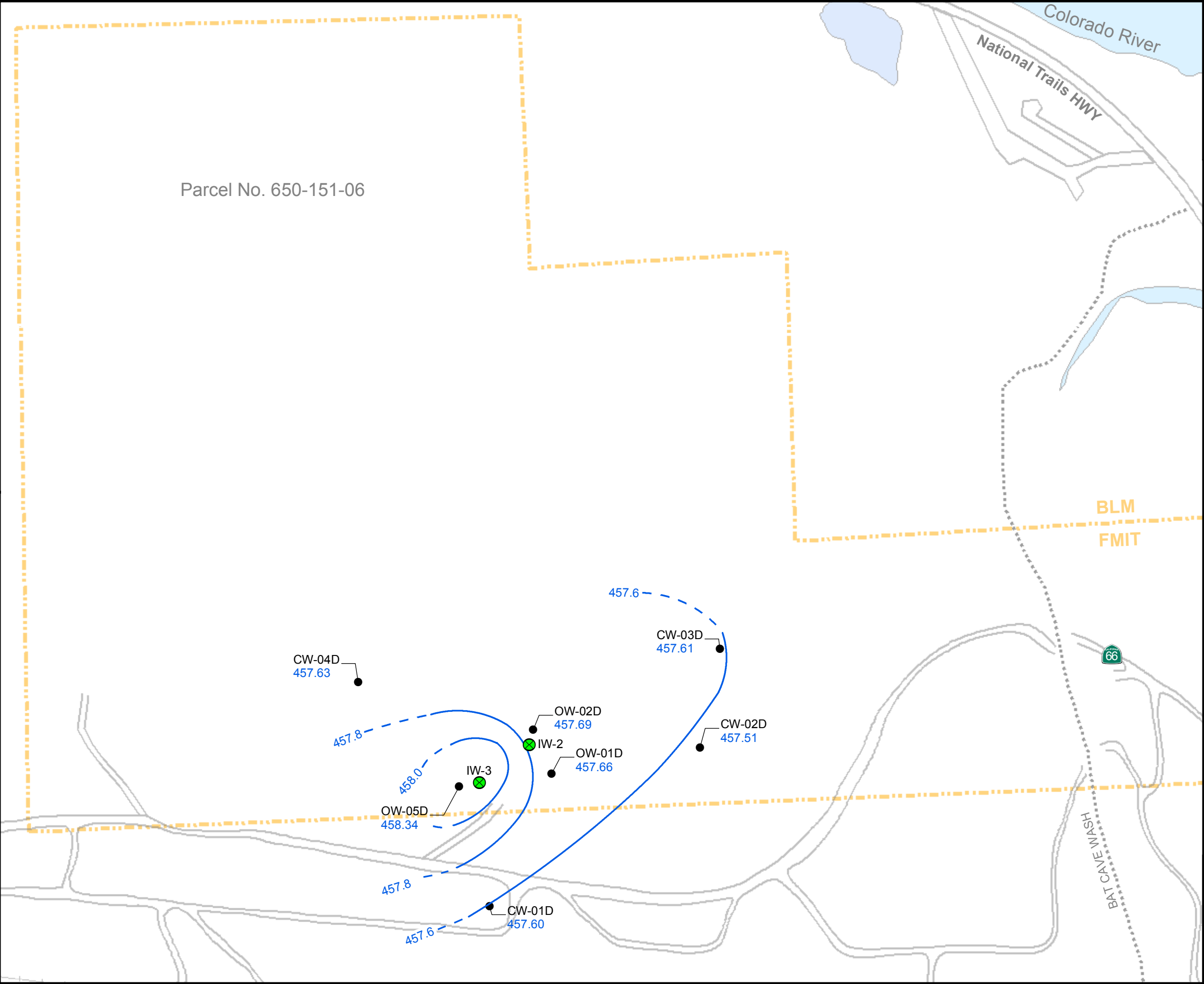
- LEGEND**
- Groundwater Monitoring, Compliance, and Observation Well
 - ⊗ IM-3 Injection Well
- Groundwater Elevations for Shallow Wells in IM-3 Injection Area**
- **OW-05S** Salinity and temperature adjusted groundwater head elevation in feet above mean sea level (MSL)
 - **457.33**

FIGURE 5A
AVERAGE GROUNDWATER ELEVATION
CONTOURS FOR SHALLOW WELLS
JUNE 2, 2010
IM3 COMPLIANCE MONITORING PROGRAM
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

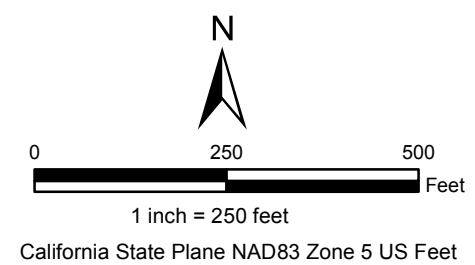


- LEGEND**
- Groundwater Monitoring, Compliance, and Observation Well
 - IM-3 Injection Well
- Groundwater Elevations for Mid-Depth Wells in IM-3 Injection Area**
- **OW-05M** Salinity and temperature adjusted groundwater head elevation in feet above mean sea level (MSL)
● **458.4**
 - Groundwater elevation contour in feet above MSL (0.2 foot interval), dashed where inferred

FIGURE 5B
AVERAGE GROUNDWATER ELEVATION
CONTOURS FOR MID DEPTH WELLS
JUNE 2, 2010
IM3 COMPLIANCE MONITORING PROGRAM
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA



Parcel No. 650-151-06



- LEGEND**
- Groundwater Monitoring, Compliance, and Observation Well
 - IM-3 Injection Well
- Groundwater Elevations for Deep Wells in IM-3 Injection Area**
- **OW-05D** Salinity and temperature adjusted groundwater head elevation in feet above mean sea level (MSL)
● **458.34**
 - Groundwater elevation contour in feet above MSL (0.2 foot interval), dashed where inferred

FIGURE 5C
AVERAGE GROUNDWATER ELEVATION
CONTOURS FOR DEEP WELLS
JUNE 2, 2010
IM3 COMPLIANCE MONITORING PROGRAM
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

Appendix A
Laboratory Reports, First Half 2010



LABORATORIES, INC.
1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889
Fax: (310) 618-0818

Date: 04-22-2010
EMAX Batch No.: 10D087

Attn: Priya Kumar

CH2M HILL
155 Grand, Suite 1000
Oakland CA 94612

Subject: Laboratory Report
Project: PG&E's Topock Gas Compressor Stat

Enclosed is the Laboratory report for samples received on 04/09/10.
The data reported relate only to samples listed below :

Sample ID	Control #	Col Date	Matrix	Analysis
CW-02D-023	D087-01	04/07/10	WATER	NITRATE/NITRITE AS N
CW-02M-023	D087-02	04/07/10	WATER	NITRATE/NITRITE AS N
CW-03D-023	D087-03	04/07/10	WATER	NITRATE/NITRITE AS N
CW-03M-023	D087-04	04/07/10	WATER	NITRATE/NITRITE AS N
CW-04D-023	D087-05	04/07/10	WATER	NITRATE/NITRITE AS N
CW-04M-023	D087-06	04/07/10	WATER	NITRATE/NITRITE AS N
OW-90-023	D087-07	04/07/10	WATER	NITRATE/NITRITE AS N
CW-01D-023	D087-08	04/08/10	WATER	NITRATE/NITRITE AS N
CW-01M-023	D087-09	04/08/10	WATER	NITRATE/NITRITE AS N
OW-01S-023	D087-10	04/08/10	WATER	NITRATE/NITRITE AS N
OW-02S-023	D087-11	04/08/10	WATER	NITRATE/NITRITE AS N
OW-05S-023	D087-12	04/08/10	WATER	NITRATE/NITRITE AS N
OW-91-023	D087-13	04/08/10	WATER	NITRATE/NITRITE AS N

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

Caspar J. Pang
Laboratory Director

This report is confidential and intended solely for the use of the individual or entity to whom it is addressed. This report shall not be reproduced except in full or without the written approval of EMAX.

EMAX certifies that the results included in this report meet all NELAC requirements unless noted in the Case Narrative.

CMP EMax #1

10D087

CH2MHILL

CHAIN OF CUSTODY RECORD

4/8/2010 8:38:34 AM

Page 1 OF 1

Project Name PG&E Topock		Container: 1 Liter Poly				
Location Topock		Preservatives: H2SO4, pH<2, 4°C				
Project Number 390378.MP.02.CM.01		Filtered: NA				
Project Manager Jay Piper		Holding Time: 28				
Sample Manager Matt Ringier						
Task Order				Nitrate/Nitrite (SM4500NO3-E)		
Project 2010-CMP-023						
Turnaround Time 12 Days						
Shipping Date: 4/8/2010						
COC Number: 2						
	DATE	TIME	MATRIX		Number of Containers	COMMENTS
1	CW-02D-023	4/7/2010	10:00	Water	X	
2	CW-02M-023	4/7/2010	11:26	Water	X	
3	CW-03D-023	4/7/2010	13:43	Water	X	
4	CW-03M-023	4/7/2010	14:58	Water	X	
5	CW-04D-023	4/7/2010	16:28	Water	X	
6	CW-04M-023	4/7/2010	17:27	Water	X	
7	OW-90-023	4/7/2010	12:13	Water	X	
TOTAL NUMBER OF CONTAINERS					7	

T = 2.7°C

Signatures		Date/Time	Shipping Details		ATTN:	Special Instructions:
Approved by		4-8-10	Method of Shipment: courier			
Sampled by		1600	On Ice: yes / no		Sample Custody	April 5-9, 2010
Relinquished by			Airbill No:			
Received by		4-8-10 1600	Lab Name:		Report Copy to	Shawn Duffy (530) 229-3303
Relinquished by		4-8-10 21:30	Lab Phone:			
Received by		L. Shakhmurov, TLI, 4/8/10				

REMOVED BY [Signature]

100087

CHAIN OF CUSTODY RECORD

4/8/2010 2:17:46 PM

Page 1 OF 1

Approved by	Signatures	Date/Time	Shipping Details	ATTN:	Special Instructions:
Sampled by		4-8-10	Method of Shipment: courier		April 5-9, 2010
Relinquished by		1600	On Ice: yes / no	Sample Custody	
Received by			Airbill No:		Report Copy to
Relinquished by			Lab Name:		Shawn Duffy
Received by			Lab Phone:		(530) 229-3303



CLIENT: CH2M HILL TOPOCK

SDG: 10D087

Analyst names:

1. SM4500NO3: Elena Robles

1003A

CASE NARRATIVE

Client : CH2M HILL
Project : PG&E'S TOPOCK GAS COMPRESSOR STAT
SDG : 10D087

METHOD SM4500NO3 NITRATE/NITRITE-N

A total of thirteen (13) water samples were received on 04/09/10 for Nitrate/Nitrite as N analysis, Method SM4500NO3 in accordance with USEPA SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.

Holding Time

Samples were analyzed within the prescribed holding time.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source. Continuing calibration verifications were carried out at the frequency specified by the project. All calibration requirements were within acceptance criteria.

Method Blank

Method blank was analyzed at the frequency required by the project. For this SDG, one method blank was analyzed with the samples. Result was compliant to project requirement.

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for NAD005WL/C were all within QC limits.

Matrix QC Sample

Matrix QC sample was analyzed at the frequency prescribed by the project. Percent recovery for 10D087WM was within project QC limits. Sample duplicate was also analyzed with the samples. RPD was within project limit.

Sample Analysis

Samples were analyzed according to prescribed analytical procedures. All project requirements were met otherwise anomalies were discussed within the associated QC parameter.

METHOD SM4500NO3
NITRATE/NITRITE-N

Client : CH2M HILL
Project : PG&E'S TOPOCK GAS COMPRESSOR STAT
Batch No. : 10D087

Matrix : WATER
Instrument ID : 170

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1W	NAD005WB	ND	1 NA	0.100	0.0200	04/20/1015:59	NA	NAD00511	NAD00508	NAD005W	NA	NA
LCS1W	NAD005WL	0.515	1 NA	0.100	0.0200	04/20/1015:59	NA	NAD00512	NAD00508	NAD005W	NA	NA
LCD1W	NAD005WC	0.501	1 NA	0.100	0.0200	04/20/1016:00	NA	NAD00513	NAD00508	NAD005W	NA	NA
CW-02D-023	D087-01	2.81	5 NA	0.500	0.100	04/20/1016:00	NA	NAD00514	NAD00508	NAD005W	04/07/1010:00	04/09/10
CW-02D-023DUP	D087-01D	2.79	5 NA	0.500	0.100	04/20/1016:01	NA	NAD00515	NAD00508	NAD005W	04/07/1010:00	04/09/10
CW-02D-023MS	D087-01M	3.27	5 NA	0.500	0.100	04/20/1016:01	NA	NAD00516	NAD00508	NAD005W	04/07/1010:00	04/09/10
CW-02M-023	D087-02	2.23	5 NA	0.500	0.100	04/20/1016:01	NA	NAD00517	NAD00508	NAD005W	04/07/1011:26	04/09/10
CW-030-023	D087-03	2.84	5 NA	0.500	0.100	04/20/1016:02	NA	NAD00518	NAD00508	NAD005W	04/07/1013:43	04/09/10
CW-03M-023	D087-04	1.24	5 NA	0.500	0.100	04/20/1016:03	NA	NAD00519	NAD00508	NAD005W	04/07/1014:58	04/09/10
CW-04D-023	D087-05	2.43	5 NA	0.500	0.100	04/20/1016:04	NA	NAD00522	NAD00520	NAD005W	04/07/1016:28	04/09/10
CW-04M-023	D087-06	1.65	5 NA	0.500	0.100	04/20/1016:05	NA	NAD00523	NAD00520	NAD005W	04/07/1017:27	04/09/10
CW-090-023	D087-07	1.44	5 NA	0.500	0.100	04/20/1016:05	NA	NAD00524	NAD00520	NAD005W	04/07/1012:13	04/09/10
CW-01D-023	D087-08	3.00	5 NA	0.500	0.100	04/20/1016:06	NA	NAD00525	NAD00520	NAD005W	04/08/1009:39	04/09/10
CW-01M-023	D087-09	3.14	5 NA	0.500	0.100	04/20/1016:07	NA	NAD00526	NAD00520	NAD005W	04/08/1010:20	04/09/10
CW-01S-023	D087-10	2.72	5 NA	0.500	0.100	04/20/1016:08	NA	NAD00527	NAD00520	NAD005W	04/08/1011:50	04/09/10
CW-02S-023	D087-11	4.18	5 NA	0.500	0.100	04/20/1016:10	NA	NAD00528	NAD00520	NAD005W	04/08/1012:36	04/09/10
CW-05S-023	D087-12	3.18	5 NA	0.500	0.100	04/20/1016:10	NA	NAD00529	NAD00520	NAD005W	04/08/1011:07	04/09/10
CW-91-023	D087-13	2.88	5 NA	0.500	0.100	04/20/1016:11	NA	NAD00530	NAD00520	NAD005W	04/08/1008:55	04/09/10

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
METHOD: METHOD SM4500NO3
MATRIX: WATER
% MOISTURE: NA

BATCH NO.: 10D087
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: NAD005WL/WC

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 04/20/10 15:59/ 16:00

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
NITRATE/NITRITE-N	ND	0.500	0.515	103	0.500	0.501	100	3	85-115	20

000000

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
METHOD: METHOD SM4500NO3
MATRIX: WATER
% MOISTURE: NA

=====

BATCH NO.: 10D087
SAMPLE ID: CW-02D-023MS
CONTROL NO.: D087-01M

DATE RECEIVED: 04/09/10
DATE EXTRACTED: NA
DATE ANALYZED: 04/20/10 16:01

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	QC LIMIT (%)
NITRATE/NITRITE-N	2.81	0.500	3.27	92	75-125

EMAX QUALITY CONTROL DATA
DUPLICATE ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
METHOD: METHOD SM4500NO3
MATRIX: WATER
% MOISTURE: NA

=====

BATCH NO.:	10D087	DATE RECEIVED:	04/09/10
SAMPLE ID:	CW-02D-023DUP	DATE EXTRACTED:	NA
CONTROL NO.:	D087-01D	DATE ANALYZED:	04/20/10 16:01

ACCESSION:

PARAMETER	SAMPLE (mg/L)	DUP. SAMPLE (mg/L)	RPD (%)	RPD LIMIT (%)
NITRATE/NITRITE-N	2.81	2.79	1	20

8005

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



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April 22, 2010

14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

E2 Consulting Engineers, Inc.
Mr. Shawn Duffy
155 Grand Ave., Suite 1000
Oakland, California 94612

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK 2010-CMP-023, GROUNDWATER MONITORING
PROJECT, TLI NO.: 988698

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2010-CMP-023 groundwater-monitoring project. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

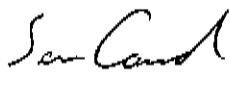
The samples were received and delivered with the chain of custody on April 8, 2010, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

Total Dissolved Chromium, for samples CW-01D-023 and CW-01M-023, were re-analyzed due to the discrepancy between the Total Dissolved Chromium and Hexavalent Chromium results. The results from the re-analysis, 1.65 ug/L and 3.28 ug/L respectively, matched those from the original run (1.97 and 3.23 ug/L). Therefore, sample from the Hexavalent Chromium sample containers were analyzed for Total Dissolved Chromium. The results were 1.22 and 1.97 ug/L respectively, which matched the results from the Hexavalent Chromium analysis (1.12 and 2.33 ug/L). Therefore, the results from the original runs are reported.

No other violations or non-conformance actions occurred for this data package.

If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 200.

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.

for 
Mona Nassimi
Manager, Analytical Services

K. R. P. Iyer

K.R.P. Iyer
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

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Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Sample: Seven (7) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 390378.MP.02.CM.01

14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

Laboratory No.: 988698

Date: April 22, 2010

Collected: April 8, 2010

Received: April 8, 2010

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Tina Acquiat
SM 2540C	Total Dissolved Solids	Tina Acquiat
SM 2130B	Turbidity	Gautam Savani
EPA 300.0	Anions	Giawad Ghenniwa
EPA 200.8	Metals by ICP/MS	Romuel Chaves
EPA 218.6	Hexavalent Chromium	Sonya Bersudsky

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Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Laboratory No.: 988698
Date Received: April 8, 2010

Project Name: PG&E Topock Project
Project No.: 390378.MP.02.CM.01
P.O. No.: 390378.MP.02.CM.01

Analytical Results Summary

<u>Lab I.D.</u>	<u>Sample I.D.</u>	<u>Sample Time</u>	<u>EPA 120.1</u> <i>EC</i>	<u>SM 2540C</u> <i>TDS</i>	<u>SM 2130B</u> <i>Turbidity</i>	<u>EPA 218.6</u> <i>Chromium Hexavalent</i>	<u>EPA 200.8</u> <i>Chromium Dissolved</i>
			<i>µmhos/cm</i>	<i>mg/L</i>	<i>NTU</i>	<i>µg/L</i>	<i>µg/L</i>
988698-1	CW-01D-023	09:39	7360	4320	0.124	1.12	1.97
988698-2	CW-01M-023	10:20	7210	4140	ND	2.33	3.23
988698-3	OW-01S-023	11:50	4040	2590	0.918	15.4	15.7
988698-4	OW-02S-023	12:36	1700	936	0.402	30.3	30.6
988698-5	OW-05S-023	11:07	2330	1450	2.54	20.7	21.0
988698-6	OW-87-023	13:05	---	---	---	ND	---
988698-7	OW-91-023	08:55	4080	2550	0.882	15.2	15.7

<u>Lab I.D.</u>	<u>Sample I.D.</u>	<u>Sample Time</u>	<u>EPA 300.0</u> <i>Fluoride</i>	<u>EPA 300.0</u> <i>Sulfate</i>	<u>EPA 300.0</u> <i>Chloride</i>
			<i>mg/L</i>	<i>mg/L</i>	<i>mg/L</i>
988698-1	CW-01D-023	09:39	1.45	532	2240
988698-2	CW-01M-023	10:20	1.61	505	2120
988698-3	OW-01S-023	11:50	1.38	215	1210
988698-4	OW-02S-023	12:36	5.02	109	398
988698-5	OW-05S-023	11:07	1.89	128	655
988698-7	OW-91-023	08:55	1.60	207	1220

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

Note: The following "Significant Figures" rule has been applied to all results:

Results below 0.001ppm will have two (2) significant figures.

Result above or equal to 0.001ppm will have three (3) significant figures.

Quality Control data will always have three (3) significant figures.

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public, and these laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from Truesdail Laboratories.

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14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

REPORT

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Sample: Seven (7) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 390378.MP.02.CM.01

P.O. No.: 390378.MP.02.CM.01

Laboratory No.: 988698

Date: April 22, 2010

Collected: April 8, 2010

Received: April 8, 2010

Prep/ Analyzed: April 15, 2010

Analytical Batch: 04CrH10F

Investigation:

Hexavalent Chromium by EPA 218.6

Analytical Results Hexavalent Chromium

<u>TL/ I.D.</u>	<u>Field I.D.</u>	<u>Sample Time</u>	<u>Run Time</u>	<u>Units</u>	<u>DF</u>	<u>RL</u>	<u>Results</u>
988698-1	CW-01D-023	09:39	12:13	µg/L	5.25	1.05	1.12
988698-2	CW-01M-023	10:20	12:23	µg/L	5.25	1.05	2.33
988698-3	OW-01S-023	11:50	11:00	µg/L	1.05	0.20	15.4
988698-4	OW-02S-023	12:36	10:39	µg/L	5.25	1.05	30.3
988698-5	OW-05S-023	11:07	12:34	µg/L	1.05	0.20	20.7
988698-6	OW-87-023	13:05	12:44	µg/L	1.05	0.20	ND
988698-7	OW-91-023	08:55	12:54	µg/L	1.05	0.20	15.2

ND: Below the reporting limit (Not Detected).

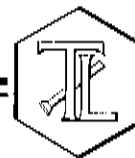
DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


Mona Nassimi, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.

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REPORT

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Sample: Seven (7) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 390378.MP.02.CM.01

P.O. No.: 390378.MP.02.CM.01

Laboratory No.: 988698

Date: April 22, 2010

Collected: April 8, 2010

Received: April 8, 2010

Prep/ Analyzed: April 15, 2010

Analytical Batch: 04CrH10F

Investigation:

Hexavalent Chromium by EPA 218.6

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	988698-4	30.3	30.2	0.33%	< 20%	Yes

QC Std I.O.	Lab Number	Conc. of unspiked sample	Dilution Factor	Added Spike Conc.	MS Amount	Measured Conc. of spiked sample	Theoretical Conc. of spiked sample	MS% Recovery	Acceptance limits	QC Within Control
MS	988698-1	1.12	5.25	1.00	5.25	6.43	6.37	101%	90-110%	Yes
MS	988698-2	2.33	5.25	1.00	5.25	7.92	7.58	106%	90-110%	Yes
MS	988698-3	15.4	1.08	20.0	21.6	37.3	37.0	101%	90-110%	Yes
MS	988698-4	30.3	5.25	10.0	52.5	78.8	82.8	92.4%	90-110%	Yes
MS	988698-5	20.7	1.11	25.0	27.8	48.5	48.5	100%	90-110%	Yes
MS	988698-6	0.00	1.06	1.00	1.06	1.13	1.06	107%	90-110%	Yes
MS	988698-7	15.2	1.08	20.0	21.6	36.6	36.8	99.1%	90-110%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
Blank	ND	<0.200	---	<0.200	Yes
MRCCS	4.84	5.00	96.8%	90% - 110%	Yes
MRCVS#1	9.85	10.0	98.5%	95% - 105%	Yes
MRCVS#2	10.2	10.0	102%	95% - 105%	Yes
MRCVS#3	10.4	10.0	104%	95% - 105%	Yes
MRCVS#4	10.2	10.0	102%	95% - 105%	Yes
MRCVS#5	9.96	10.0	99.6%	95% - 105%	Yes
MRCVS#6	10.4	10.0	104%	95% - 105%	Yes
LCS	5.41	5.00	108%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


Mona Nassimi, Manager
Analytical Services

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TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

REPORT

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Sample: Seven (7) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 390378.MP.02.CM.01

P.O. No.: 390378.MP.02.CM.01

Laboratory No.: 988698

Date: April 22, 2010

Collected: April 8, 2010

Received: April 8, 2010

Prep/ Analyzed: April 9, 2010

Analytical Batch: 04TUC10F

Investigation:

Turbidity by Method SM 2130B

Analytical Results Turbidity

<u>TLI I.D.</u>	<u>Field I.D.</u>	<u>Sample Time</u>	<u>Units</u>	<u>DF</u>	<u>RL</u>	<u>Results</u>
988698-1	CW-01D-023	09:39	NTU	1.00	0.100	0.124
988698-2	CW-01M-023	10:20	NTU	1.00	0.100	ND
988698-3	OW-01S-023	11:50	NTU	1.00	0.100	0.918
988698-4	OW-02S-023	12:36	NTU	1.00	0.100	0.402
988698-5	OW-05S-023	11:07	NTU	1.00	0.100	2.54
988698-7	OW-91-023	08:55	NTU	1.00	0.100	0.882

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	988699-4	ND	ND	0.00%	≤ 20%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
Blank	ND	<0.100	---	<0.100	Yes
LCS	7.80	8.00	97.5%	90% - 110%	Yes
LCS	7.73	8.00	96.6%	90% - 110%	Yes
LCS	7.70	8.00	96.3%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


Mona Nassimi, Manager
Analytical Services

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TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



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Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Sample: Seven (7) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 390378.MP.02.CM.01
P.O. No.: 390378.MP.02.CM.01

REPORT

14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 • FAX (714) 730-6462
www.truesdail.com

Laboratory No.: 988698

Date: April 22, 2010

Collected: April 8, 2010

Received: April 8, 2010

Prep/ Analyzed: April 12, 2010

Analytical Batch: 04EC10D

Investigation:

Specific Conductivity by EPA 120.1

Analytical Results Specific Conductivity

<u>TLI I.D.</u>	<u>Field I.D.</u>	<u>Units</u>	<u>Method</u>	<u>MDL</u>	<u>DF</u>	<u>RL</u>	<u>Results</u>
988698-1	CW-01D-023	µmhos/cm	EPA 120.1	0.038	1.00	2.00	7360
988698-2	CW-01M-023	µmhos/cm	EPA 120.1	0.038	1.00	2.00	7210
988698-3	OW-01S-023	µmhos/cm	EPA 120.1	0.038	1.00	2.00	4040
988698-4	OW-02S-023	µmhos/cm	EPA 120.1	0.038	1.00	2.00	1700
988698-5	OW-05S-023	µmhos/cm	EPA 120.1	0.038	1.00	2.00	2330
988698-7	OW-91-023	µmhos/cm	EPA 120.1	0.038	1.00	2.00	4080

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance Limits	QC Within Control
Duplicate	988698-4	1700	1700	0.00%	≤ 10%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
Blank	ND	<2.00	---	<2.00	Yes
CCS	704	706	99.7%	90% - 110%	Yes
CVS#1	992	1000	99.2%	90% - 110%	Yes
CVS#2	993	1000	99.3%	90% - 110%	Yes
LCS	704	706	99.7%	90% - 110%	Yes
LCSD	704	706	99.7%	90% - 110%	Yes

DF: Dilution Factor.

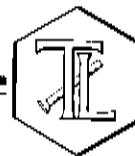
Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Mona Nassimi
for **Mona Nassimi, Manager**
Analytical Services

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Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Sample: Seven (7) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 390378.MP.02.CM.01

P.O. No.: 390378.MP.02.CM.01

REPORT

14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 • FAX (714) 730-6462
www.truesdail.com

Laboratory No.: 988898

Date: April 22, 2010

Collected: April 8, 2010

Received: April 8, 2010

Prep/ Analyzed: April 12, 2010

Analytical Batch: 04TDS10E

Investigation:

Total Dissolved Solids by SM 2540C

Analytical Results Total Dissolved Solids

<u>TLI I.D.</u>	<u>Field I.D.</u>	<u>Units</u>	<u>Method</u>	<u>RL</u>	<u>Results</u>
988698-1	CW-01D-023	mg/L	SM 2540C	250	4320
988698-2	CW-01M-023	mg/L	SM 2540C	250	4140
988698-3	OW-01S-023	mg/L	SM 2540C	125	2590
988698-4	OW-02S-023	mg/L	SM 2540C	50.0	936
988698-5	OW-05S-023	mg/L	SM 2540C	50.0	1450
988698-7	OW-91-023	mg/L	SM 2540C	125	2550

QA/QC Summary

<u>QC STD I.D.</u>	<u>Laboratory Number</u>	<u>Concentration</u>	<u>Duplicate Concentration</u>	<u>Percent Difference</u>	<u>Acceptance limits</u>	<u>QC Within Control</u>
Duplicate	988698-7	2550	2540	0.20%	< 5%	Yes

<u>QC Std I.D.</u>	<u>Measured Concentration</u>	<u>Theoretical Concentration</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>	<u>QC Within Control</u>
Blank	ND	<25.0	---	<25.0	Yes
LCS 1	497	500	99.4%	90% - 110%	Yes
LCS 2	498	500	99.6%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

RL: Reporting Limit.

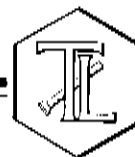
Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Mona Nassimi
Mona Nassimi, Manager
Analytical Services

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TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 • FAX (714) 730-6462
www.truesdail.com

REPORT

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Sample: Seven (7) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 390378.MP.02.CM.01

P.O. No.: 390378.MP.02.CM.01

Laboratory No.: 988698

Date: April 22, 2010

Collected: April 8, 2010

Received: April 8, 2010

Prep/ Analyzed: April 9, 2010

Analytical Batch: 04AN10G

Investigation:

Sulfate by Method EPA 300.0

Analytical Results Sulfate

TLI I.D.	Field I.D.	Sample Time	Run Time	Units	DF	RL	Results
988698-1	CW-01D-023	09:39	13:51	mg/L	50.0	25.0	532
988698-2	CW-01M-023	10:20	17:52	mg/L	50.0	25.0	505
988698-3	OW-01S-023	11:50	18:03	mg/L	50.0	25.0	215
988698-4	OW-02S-023	12:36	18:14	mg/L	50.0	25.0	109
988698-5	OW-05S-023	11:07	18:26	mg/L	50.0	25.0	128
988698-7	OW-91-023	08:55	18:37	mg/L	50.0	25.0	207

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	988698-1	532	518	2.67%	≤ 20%	Yes

QC Std I.D.	Lab Number	Conc. of unspiked sample	Dilution Factor	Added Spike Conc.	MS Amount	Measured Conc. of spiked sample	Theoretical Conc. of spiked sample	MS% Recovery	Acceptance limits	QC Within Control
MS	988698-1	532	50.0	10.0	500	1010	1032	95.6%	85-115%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
Blank	ND	<0.500	---	<0.500	Yes
MRCCS	20.2	20.0	101%	90% - 110%	Yes
MRCVS#1	15.6	15.0	104%	90% - 110%	Yes
MRCVS#2	15.4	15.0	103%	90% - 110%	Yes
MRCVS#3	15.4	15.0	103%	90% - 110%	Yes
MRCVS#4	15.4	15.0	103%	90% - 110%	Yes
MRCVS#5	15.3	15.0	102%	90% - 110%	Yes
LCS	20.2	20.0	101%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

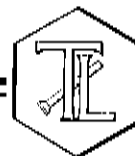
Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Mona Nassimi, Manager
Analytical Services

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REPORT

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Sample: Seven (7) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 390378.MP.02.CM.01

P.O. No.: 390378.MP.02.CM.01

Laboratory No.: 988698

Date: April 22, 2010

Collected: April 8, 2010

Received: April 8, 2010

Prep/ Analyzed: April 12, 2010

Analytical Batch: 04AN10H

Chloride by Method EPA 300.0

Investigation:

Analytical Results Chloride

<u>TLI I.D.</u>	<u>Field I.D.</u>	<u>Sample Time</u>	<u>Run Time</u>	<u>Units</u>	<u>DF</u>	<u>RL</u>	<u>Results</u>
988698-1	CW-01D-023	09:39	12:35	mg/L	500	100	2240
988698-2	CW-01M-023	10:20	12:46	mg/L	500	100	2120
988698-4	OW-02S-023	12:36	13:09	mg/L	100	20.0	398
988698-5	OW-05S-023	11:07	13:21	mg/L	100	20.0	655
988698-7	OW-91-023	08:55	13:32	mg/L	500	100	1220

QA/QC Summary

<u>QC STD I.D.</u>	<u>Laboratory Number</u>	<u>Concentration</u>	<u>Duplicate Concentration</u>	<u>Relative Percent Difference</u>	<u>Acceptance Limits</u>	<u>QC Within Control</u>
Duplicate	988717	301	302	0.33%	≤ 20%	Yes

<u>QC Std I.D.</u>	<u>Lab Number</u>	<u>Conc. of unspiked sample</u>	<u>Dilution Factor</u>	<u>Added Spike Conc.</u>	<u>MS Amount</u>	<u>Measured Conc. of spiked sample</u>	<u>Theoretical Conc. of spiked sample</u>	<u>MS% Recovery</u>	<u>Acceptance Limits</u>	<u>QC Within Control</u>
MS	988717	301	100	4.00	400	690	701	97.3%	85-115%	Yes

<u>QC Std I.D.</u>	<u>Measured Concentration</u>	<u>Theoretical Concentration</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>	<u>QC Within Control</u>
Blank	ND	<0.500	—	<0.500	Yes
MRCCS	3.99	4.00	99.8%	90% - 110%	Yes
MRCVS#1	2.96	3.00	98.7%	90% - 110%	Yes
MRCVS#2	2.99	3.00	99.7%	90% - 110%	Yes
LCS	3.97	4.00	99.3%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


Mona Nassimi, Manager
Analytical Services

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REPORT

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Sample: Seven (7) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 390378.MP.02.CM.01

P.O. No.: 390378.MP.02.CM.01

Laboratory No.: 988698

Date: April 22, 2010

Collected: April 8, 2010

Received: April 8, 2010

Prep/ Analyzed: April 13, 2010

Analytical Batch: 04AN101

Investigation:

Chloride by Method EPA 300.0

Analytical Results Chloride

<u>TLI I.D.</u>	<u>Field I.D.</u>	<u>Sample Time</u>	<u>Run Time</u>	<u>Units</u>	<u>DF</u>	<u>RL</u>	<u>Results</u>
988698-3	OW-01S-023	11:50	13:02	mg/L	500	100	1210

QA/QC Summary

QC STD I.D.		Laboratory Number		Concentration		Duplicate Concentration		Relative Percent Difference		Acceptance limits		QC Within Control	
Duplicate		988698-3		1210		1200		0.83%		≤ 20%		Yes	

QC Std I.D.	Lab Number	Conc. of unspiked sample	Dilution Factor	Added Spike Conc.	MS Amount	Measured Conc. of spiked sample	Theoretical Conc. of spiked sample	MS% Recovery	Acceptance limits	QC Within Control
MS	988698-3	1210	500	4.00	2000	3340	3210	107%	85-115%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
Blank	ND	<0.500	---	<0.500	Yes
MRCCS	3.96	4.00	99.0%	90% - 110%	Yes
MRCVS#1	3.06	3.00	102%	90% - 110%	Yes
MRCVS#2	2.98	3.00	99.3%	90% - 110%	Yes
LCS	3.97	4.00	99.3%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

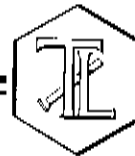
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Mona Nassimi
Mona Nassimi, Manager
Analytical Services

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REPORT

Client: E2 Consulting Engineers, Inc.

155 Grand Ave. Suite 1000

Oakland, CA 94612

Attention: Shawn Duffy

Sample: Seven (7) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 390378.MP.02.CM.01

P.O. No.: 390378.MP.02.CM.01

Laboratory No.: 988698

Date: April 22, 2010

Collected: April 8, 2010

Received: April 8, 2010

Prep/ Analyzed: April 9, 2010

Analytical Batch: 04AN10G

Investigation:

Fluoride by Ion Chromatography using EPA 300.0

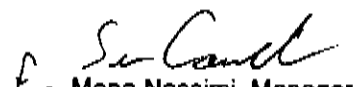
Analytical Results Fluoride

<u>TLI I.D.</u>	<u>Field I.D.</u>	<u>Sample Time</u>	<u>Run Time</u>	<u>Units</u>	<u>DF</u>	<u>RL</u>	<u>Results</u>
988698-1	CW-01D-023	09:39	12:53	mg/L	5.00	0.500	1.45
988698-2	CW-01M-023	10:20	13:39	mg/L	5.00	0.500	1.61
988698-3	OW-01S-023	11:50	15:23	mg/L	5.00	0.500	1.38
988698-4	OW-02S-023	12:36	15:35	mg/L	5.00	0.500	5.02
988698-5	OW-05S-023	11:07	15:46	mg/L	5.00	0.500	1.89
988698-7	OW-91-023	08:55	15:58	mg/L	5.00	0.500	1.60

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

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Mona Nassimi, Manager
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Oakland, CA 94612

Attention: Shawn Duffy

Sample: Seven (7) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 390378.MP.02.CM.01

P.O. No.: 390378.MP.02.CM.01

Laboratory No.: 988698

Date: April 22, 2010

Collected: April 8, 2010

Received: April 8, 2010

Prep/ Analyzed: April 9, 2010

Analytical Batch: 04AN10G

Investigation:

Fluoride by Ion Chromatography using EPA 300.0

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	988698-1	1.45	1.47	1.37%	≤ 20%	Yes

QC Std I.D.	Lab Number	Conc. of unspiked sample	Dilution Factor	Added Spike Conc.	MS Amount	Measured Conc. of spiked sample	Theoretical Conc. of spiked sample	MS% Recovery	Acceptance limits	QC Within Control
MS	988698-1	1.45	5.00	4.00	20.0	21.7	21.5	101%	85-115%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
Blank	ND	<0.500	---	<0.500	Yes
MRCCS	4.14	4.00	104%	90% - 110%	Yes
MRCCS#1	3.13	3.00	104%	90% - 110%	Yes
MRCCS#2	3.14	3.00	105%	90% - 110%	Yes
MRCVS#3	3.15	3.00	105%	90% - 110%	Yes
MRCVS#4	3.16	3.00	105%	90% - 110%	Yes
LCS	4.13	4.00	103%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

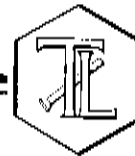
Respectfully submitted,
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Analytical Services

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REPORT

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Sample: Seven (7) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 390378.MP.02.CM.01

P.O. No.: 390378.MP.02.CM.01

Prep. Batch: 041210A

Laboratory No.: 988698

Date: April 22, 2010

Collected: April 8, 2010

Received: April 8, 2010

Prep/ Analyzed: April 12, 2010

Analytical Batch: 041210A

Investigation: Total Dissolved Chromium by Inductively Coupled Argon Plasma Mass Spectrometer
using EPA 200.8


Analytical Results Total Dissolved Chromium

<u>TLI I.D.</u>	<u>Field I.D.</u>	<u>Sample Time</u>	<u>Method</u>	<u>Run Time</u>	<u>Units</u>	<u>DF</u>	<u>RL</u>	<u>Results</u>
988698-1	CW-01D-023	09:39	EPA 200.8	13:22	µg/L	5.00	1.00	1.97
988698-2	CW-01M-023	10:20	EPA 200.8	13:29	µg/L	5.00	1.00	3.23
988698-3	OW-01S-023	11:50	EPA 200.8	13:36	µg/L	5.00	1.00	15.7
988698-4	OW-02S-023	12:36	EPA 200.8	13:42	µg/L	5.00	1.00	30.6
988698-5	OW-05S-023	11:07	EPA 200.8	13:49	µg/L	5.00	1.00	21.0
988698-7	OW-91-023	08:55	EPA 200.8	13:56	µg/L	5.00	1.00	15.7

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


for Mona Nassimi, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.

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REPORT

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Sample: Seven (7) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 390378.MP.02.CM.01

P.O. No.: 390378.MP.02.CM.01

Prep. Batch: 041210A

Laboratory No.: 988698

Date: April 22, 2010

Collected: April 8, 2010

Received: April 8, 2010

Prep/ Analyzed: April 12, 2010

Analytical Batch: 041210A

Investigation: Total Dissolved Chromium by Inductively Coupled Argon Plasma Mass Spectrometer
using EPA 200.8

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	988683-1	ND	ND	0.00%	≤ 20%	Yes

QC Std I.D.	Lab Number	Conc. of unspiked sample	Dilution Factor	Added Spike Conc.	MS Amount	Measured Conc. of spiked sample	Theoretical Conc. of spiked sample	MS% Recovery	Acceptance limits	QC Within Control
MS	988683-1	0.00	5.00	50.0	250	258	250	103%	70-130%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
Blank	ND	<1.00	---	<1.00	Yes
MRCCS	52.0	50.0	104%	90% - 110%	Yes
MRCVS#1	51.8	50.0	104%	90% - 110%	Yes
MRCVS#2	51.9	50.0	104%	90% - 110%	Yes
MRCVS#3	51.4	50.0	103%	90% - 110%	Yes
ICS	52.2	50.0	104%	80% - 120%	Yes
LCS	52.3	50.0	105%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


Mona Nassimi, Manager
Analytical Services

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CMP TLI

988698

CH2MHILL

CHAIN OF CUSTODY RECORD

4/8/2010 2:18:19 PM

Page 1 OF 1

Project Name PG&E Topock Location Topock Project Number 390378.MP.02.CM.01 Project Manager Jay Piper Sample Manager Matt Ringier Task Order Project 2010-CMP-023 Turnaround Time 10 Days Shipping Date: 4/8/2010 COC Number: 1				Container: Preservatives: Filtered: Holding Time:	250 ml Poly (NH ₄) ₂ SO ₄ 4M/140H, 4°C	250 ml Poly HNO ₃ , 4°C	1 Liter Poly 4°C	1L Poly 4°C	1 Liter Poly 4°C	1 Liter Poly 4°C			
				Field	Field	NA	NA	NA	NA				
				28	180	28	7	28	28				
				C/6 (E218.6) Field Filtered	100.0 Dissolved Chromium 200.8 Field Filtered	Specific Conductance (E120.1)	TDS (SM2540C)	Anions (E300.0) Cl, F, SO ₄	Turbidity (SM2130)				
	DATE	TIME	Matrix								Number of Containers	COMMENTS	
✓	CW-01D-023	4/8/2010	9:39	Water	X	X	X	X	X	X	5	} PM=2	
2	CW-01M-023	4/8/2010	10:20	Water	X	X	X	X	X	X	5		
3	OW-01S-023	4/8/2010	11:50	Water	X	X	X	X	X	X	5		
4	OW-02S-023	4/8/2010	12:36	Water	X	X	X	X	X	X	5		
5	OW-05S-023	4/8/2010	11:07	Water	X	X	X	X	X	X	5		
6	OW-87-023	4/8/2010	13:05	Water	X						1		
7	OW-91-023	4/8/2010	8:55	Water	X	X	X	X	X	X	5	PM=2	
TOTAL NUMBER OF CONTAINERS											31		

For Sample Conditions
See Form Attached

ALERT !!
Level III QC

Approved by Sampled by Relinquished by Received by Relinquished by Received by	Signatures Date/Time 4-8-10 1600 4-8-10 16:00 4-8-10 21:30 APR 08 2010 21:30	Shipping Details Method of Shipment: courier On Ice: yes / no Airbill No: Lab Name: Truesdail Laboratories, Inc. Lab Phone: (714) 730-6239	ATTN: Sample Custody	Special Instructions: April 5-9, 2010 Report Copy to Shawn Duffy (530) 229-3303
---	---	---	-------------------------	---



Sample Integrity & Analysis Discrepancy Form

Client: CH2M HILLLab # 988698Date Delivered: 4/8/10 Time: 2:30 By: ☐ Mail ☒ Field Service ☐ Client

1. Was a Chain of Custody received and signed? ☒ Yes ☐ No ☐ N/A
2. Does Customer require an acknowledgement of the COC? ☐ Yes ☐ No ☒ N/A
3. Are there any special requirements or notes on the COC? ☐ Yes ☐ No ☒ N/A
4. If a letter was sent with the COC, does it match the COC? ☐ Yes ☐ No ☒ N/A
5. Were all requested analyses understood and acceptable? ☒ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition?
Temperature (if yes)? 4°C ☒ Yes ☐ No ☐ N/A
7. Were samples received intact
(i.e. broken bottles, leaks, air bubbles, etc..)? ☒ Yes ☐ No ☐ N/A
8. Were sample custody seals intact? ☐ Yes ☐ No ☐ N/A
9. Does the number of samples received agree with COC? ☒ Yes ☐ No ☐ N/A
10. Did sample labels correspond with the client ID's? ☒ Yes ☐ No ☐ N/A
11. Did sample labels indicate proper preservation?
Preserved (if yes) by: ☒ Truesdail ☐ Client ☒ Yes ☐ No ☐ N/A
12. Were samples pH checked? pH = See C.O.C ☒ Yes ☐ No ☐ N/A
13. Were all analyses within holding time at time of receipt?
If not, notify Project Manager. ☒ Yes ☐ No ☐ N/A
14. Have Project due dates been checked and accepted?
Turn Around Time (TAT): ☐ RUSH ☒ Std ☒ Yes ☐ No ☐ N/A
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water
☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☒ Other WATER
16. Comments: _____
17. Sample Check-In completed by Truesdail Log-In/Receiving: Rafael Davila

TRUESDAIL LABORATORIES, INC.

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April 23, 2010

14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 • FAX (714) 730-6462
www.truesdail.com

E2 Consulting Engineers, Inc.
Mr. Shawn Duffy
155 Grand Ave., Suite 1000
Oakland, California 94612

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK 2010-CMP-023, GROUNDWATER MONITORING PROJECT, TLI No.: 988699

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2010-CMP-023 groundwater-monitoring project. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

The samples were received and delivered with the chain of custody on April 8, 2010, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.


The straight run for samples CW-02D-023 and CW-03D-023 and the associated matrix spikes for Hexavalent Chromium analysis by EPA 218.6 were just outside the retention time window. Because the matrix spike recoveries were within acceptable limits and the results from the 5x dilutions agree with those from the straight runs, the data from the straight runs are reported.

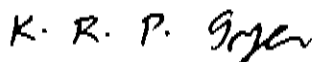
Total Dissolved Chromium, for samples CW-02D-23, CW-03D-023, and CW-04D-023, were re-analyzed due to the discrepancy between the Total Dissolved Chromium and Hexavalent Chromium results. The results from the re-analysis are reported.

No other violations or non-conformance actions occurred for this data package.

If you have any questions or require additional information, please contact me at (714) 730-6239 ext. 200.

Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.


for Mona Nassimi
Manager, Analytical Services



K.R.P. Iyer
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Sample: Seven (7) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 390378.MP.02.CM.01

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www.truesdail.com

Laboratory No.: 988699

Date: April 23, 2010

Collected: April 7, 2010

Received: April 8, 2010

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Tina Acquiat
SM 2540C	Total Dissolved Solids	Tina Acquiat
SM 2130B	Turbidity	Gautam Savani
EPA 300.0	Anions	Giawad Ghenniwa
EPA 200.8	Metals by ICP/MS	Romuel Chaves
EPA 218.6	Hexavalent Chromium	Sonya Bersudsky

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Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612
Attention: Shawn Duffy

Laboratory No.: 988699
Date Received: April 8, 2010

Project Name: PG&E Topock Project
Project No.: 390378.MP.02.CM.01
P.O. No.: 390378.MP.02.CM.01

Analytical Results Summary

<u>Lab I.D.</u>	<u>Sample I.D.</u>	<u>Sample Time</u>	<u>EPA 120.1</u> EC <i>µmhos/cm</i>	<u>SM 2540C</u> TDS <i>mg/L</i>	<u>SM 2130B</u> Turbidity <i>NTU</i>	<u>EPA 218.6</u> Chromium Hexavalent <i>µg/L</i>	<u>EPA 200.8</u> Chromium Dissolved <i>µg/L</i>
988699-1	CW-02D-023	10:00	7120	4180	0.170	0.23	ND
988699-2	CW-02M-023	11:26	7010	3970	0.114	4.79	5.44
988699-3	CW-03D-023	13:43	7060	3940	ND	0.24	ND
988699-4	CW-03M-023	14:58	8730	5350	ND	10.7	10.4
988699-5	CW-04D-023	16:28	8780	5340	ND	1.68	1.75
988699-6	CW-04M-023	17:27	6390	4040	0.120	14.2	14.0
988699-7	OW-90-023	12:13	8810	5090	0.136	10.5	10.3

<u>Lab I.D.</u>	<u>Sample I.D.</u>	<u>Sample Time</u>	<u>EPA 300.0</u> Fluoride <i>mg/L</i>	<u>EPA 300.0</u> Sulfate <i>mg/L</i>	<u>EPA 300.0</u> Chloride <i>mg/L</i>
988699-1	CW-02D-023	10:00	4.15	489	2130
988699-2	CW-02M-023	11:26	2.48	448	2160
988699-3	CW-03D-023	13:43	5.83	486	2070
988699-4	CW-03M-023	14:58	2.62	429	2800
988699-5	CW-04D-023	16:28	4.03	543	2680
988699-6	CW-04M-023	17:27	1.55	354	1960
988699-7	OW-90-023	12:13	2.54	461	2800

ND: Non Detected (below reporting limit)
mg/L: Milligrams per liter.
Note: The following "Significant Figures" rule has been applied to all results:
Results below 0.001ppm will have two (2) significant figures.
Result above or equal to 0.001ppm will have three (3) significant figures.
Quality Control data will always have three (3) significant figures.

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REPORT

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Sample: Seven (7) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 390378.MP.02.CM.01

P.O. No.: 390378.MP.02.CM.01

Laboratory No.: 988699

Date: April 23, 2010

Collected: April 7, 2010

Received: April 8, 2010

Prep/ Analyzed: April 15, 2010

Analytical Batch: 04CrH10F

Investigation:

Hexavalent Chromium by EPA 218.6

Analytical Results Hexavalent Chromium

<u>TLI I.D.</u>	<u>Field I.D.</u>	<u>Sample Time</u>	<u>Run Time</u>	<u>Units</u>	<u>DF</u>	<u>RL</u>	<u>Results</u>
988699-1	CW-02D-023	10:00	14:29	µg/L	1.05	0.20	0.23
988699-2	CW-02M-023	11:26	17:16	µg/L	5.25	1.05	4.79
988699-3	CW-03D-023	13:43	14:49	µg/L	1.05	0.20	0.24
988699-4	CW-03M-023	14:58	17:58	µg/L	5.25	1.05	10.7
988699-5	CW-04D-023	16:28	19:42	µg/L	5.25	1.05	1.68
988699-6	CW-04M-023	17:27	19:52	µg/L	5.25	1.05	14.2
988699-7	OW-90-023	12:13	20:03	µg/L	5.25	1.05	10.5

ND: Below the reporting limit (Not Detected).

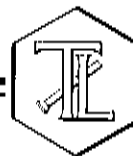
DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

f. Mona Nassimi
Mona Nassimi, Manager
Analytical Services

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P.O. No.: 390378.MP.02.CM.01

Laboratory No.: 988699

Date: April 23, 2010

Collected: April 7, 2010

Received: April 8, 2010

Prep/ Analyzed: April 15, 2010

Analytical Batch: 04CrH10F

Investigation:

Hexavalent Chromium by EPA 218.6

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	988698-4	30.3	30.2	0.33%	< 20%	Yes


QC Std I.D.	Lab Number	Conc. of unspiked sample	Dilution Factor	Added Spike Conc.	MS Amount	Measured Conc. of spiked sample	Theoretical Conc. of spiked sample	MS% Recovery	Acceptance limits	QC Within Control
MS	988699-1	0.23	1.06	1.00	1.06	1.39	1.29	109%	90-110%	Yes
MS	988699-2	4.79	5.25	1.00	5.25	10.0	10.0	99.2%	90-110%	Yes
MS	988699-3	0.24	1.06	1.00	1.06	1.40	1.30	109%	90-110%	Yes
MS	988699-4	10.7	5.25	5.00	26.3	38.2	37.0	105%	90-110%	Yes
MS	988699-5	1.68	5.25	1.00	5.25	6.93	6.93	100%	90-110%	Yes
MS	988699-6	14.2	5.25	5.00	26.3	40.3	40.5	99.4%	90-110%	Yes
MS	988699-7	10.5	5.25	5.00	26.3	37.3	36.8	102%	90-110%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
Blank	ND	<0.200	---	<0.200	Yes
MRCCS	4.84	5.00	96.8%	90% - 110%	Yes
MRCVS#1	9.85	10.0	98.5%	95% - 105%	Yes
MRCVS#2	10.2	10.0	102%	95% - 105%	Yes
MRCVS#3	10.4	10.0	104%	95% - 105%	Yes
MRCVS#4	10.2	10.0	102%	95% - 105%	Yes
MRCVS#5	9.96	10.0	99.6%	95% - 105%	Yes
MRCVS#6	10.4	10.0	104%	95% - 105%	Yes
LCS	5.41	5.00	108%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


Mona Nassimi, Manager
Analytical Services

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REPORT

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Sample: Seven (7) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 390378.MP.02.CM.01

P.O. No.: 390378.MP.02.CM.01

Laboratory No.: 988699

Date: April 23, 2010

Collected: April 7, 2010

Received: April 8, 2010

Prep/ Analyzed: April 9, 2010

Analytical Batch: 04TUC10F

Investigation:

Turbidity by Method SM 2130B

Analytical Results Turbidity

<u>TLI I.D.</u>	<u>Field I.D.</u>	<u>Sample Time</u>	<u>Units</u>	<u>DF</u>	<u>RL</u>	<u>Results</u>
988699-1	CW-02D-023	10:00	NTU	1.00	0.100	0.170
988699-2	CW-02M-023	11:26	NTU	1.00	0.100	0.114
988699-3	CW-03D-023	13:43	NTU	1.00	0.100	ND
988699-4	CW-03M-023	14:58	NTU	1.00	0.100	ND
988699-5	CW-04D-023	16:28	NTU	1.00	0.100	ND
988699-6	CW-04M-023	17:27	NTU	1.00	0.100	0.120
988699-7	OW-90-023	12:13	NTU	1.00	0.100	0.136

QA/QC Summary

<u>QC STD I.D.</u>	<u>Laboratory Number</u>	<u>Concentration</u>	<u>Duplicate Concentration</u>	<u>Relative Percent Difference</u>	<u>Acceptance limits</u>	<u>QC Within Control</u>
Duplicate	988699-4	ND	ND	0.00%	≤ 20%	Yes

<u>QC Std I.D.</u>	<u>Measured Concentration</u>	<u>Theoretical Concentration</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>	<u>QC Within Control</u>
Blank	ND	<0.100	---	<0.100	Yes
LCS	7.80	8.00	97.5%	90% - 110%	Yes
LCS	7.73	8.00	96.6%	90% - 110%	Yes
LCS	7.70	8.00	96.3%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

For Mona Nassimi
Mona Nassimi, Manager
Analytical Services

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Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Sample: Seven (7) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 390378.MP.02.CM.01
P.O. No.: 390378.MP.02.CM.01

REPORT

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Laboratory No.: 988699

Date: April 23, 2010

Collected: April 7, 2010

Received: April 8, 2010

Prep/ Analyzed: April 12, 2010

Analytical Batch: 04EC10D

Investigation:

Specific Conductivity by EPA 120.1

Analytical Results Specific Conductivity

<u>TLI I.D.</u>	<u>Field I.D.</u>	<u>Units</u>	<u>Method</u>	<u>MDL</u>	<u>DF</u>	<u>RL</u>	<u>Results</u>
988699-1	CW-02D-023	µmhos/cm	EPA 120.1	0.038	1.00	2.00	7120
988699-2	CW-02M-023	µmhos/cm	EPA 120.1	0.038	1.00	2.00	7010
988699-3	CW-03D-023	µmhos/cm	EPA 120.1	0.038	1.00	2.00	7060
988699-4	CW-03M-023	µmhos/cm	EPA 120.1	0.038	1.00	2.00	8730
988699-5	CW-04D-023	µmhos/cm	EPA 120.1	0.038	1.00	2.00	8780
988699-6	CW-04M-023	µmhos/cm	EPA 120.1	0.038	1.00	2.00	6390
988699-7	OW-90-023	µmhos/cm	EPA 120.1	0.038	1.00	2.00	8810


QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	988699-7	8810	8810	0.00%	≤ 10%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
Blank	ND	<2.00	---	<2.00	Yes
CCS	704	706	99.7%	90% - 110%	Yes
CVS#1	992	1000	99.2%	90% - 110%	Yes
CVS#2	993	1000	99.3%	90% - 110%	Yes
LCS	704	706	99.7%	90% - 110%	Yes
LCSD	704	706	99.7%	90% - 110%	Yes

DF: Dilution Factor.

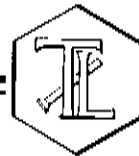
Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for 
Mona Nassimi, Manager
Analytical Services

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Laboratory No.: 988699

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Project Name: PG&E Topock Project
Project No.: 390378.MP.02.CM.01
P.O. No.: 390378.MP.02.CM.01

Date: April 23, 2010
Collected: April 7, 2010
Received: April 8, 2010
Prep/ Analyzed: April 12, 2010
Analytical Batch: 04TDS10E

Investigation:

Total Dissolved Solids by SM 2540C

Analytical Results Total Dissolved Solids

<u>TLI I.D.</u>	<u>Field I.D.</u>	<u>Units</u>	<u>Method</u>	<u>RL</u>	<u>Results</u>
988699-1	CW-02D-023	mg/L	SM 2540C	250	4180
988699-2	CW-02M-023	mg/L	SM 2540C	250	3970
988699-3	CW-03D-023	mg/L	SM 2540C	250	3940
988699-4	CW-03M-023	mg/L	SM 2540C	250	5350
988699-5	CW-04D-023	mg/L	SM 2540C	250	5340
988699-6	CW-04M-023	mg/L	SM 2540C	125	4040
988699-7	OW-90-023	mg/L	SM 2540C	250	5090

QA/QC Summary


<u>QC STD I.D.</u>	<u>Laboratory Number</u>	<u>Concentration</u>	<u>Duplicate Concentration</u>	<u>Percent Difference</u>	<u>Acceptance Limits</u>	<u>QC Within Control</u>
Duplicate	988698-7	2550	2540	0.20%	< 5%	Yes

<u>QC Std I.D.</u>	<u>Measured Concentration</u>	<u>Theoretical Concentration</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>	<u>QC Within Control</u>
Blank	ND	<25.0	---	<25.0	Yes
LCS 1	497	500	99.4%	90% - 110%	Yes
LCS 2	498	500	99.6%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

RL: Reporting Limit.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


Mona Nassimi, Manager
Analytical Services

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Sample: Seven (7) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 390378.MP.02.CM.01

P.O. No.: 390378.MP.02.CM.01

Laboratory No.: 988699

Date: April 23, 2010

Collected: April 7, 2010

Received: April 8, 2010

Prep/ Analyzed: April 9, 2010

Analytical Batch: 04AN10G

Investigation:

Sulfate by Method EPA 300.0

Analytical Results Sulfate

<u>TLI I.D.</u>	<u>Field I.D.</u>	<u>Sample Time</u>	<u>Run Time</u>	<u>Units</u>	<u>DF</u>	<u>RL</u>	<u>Results</u>
988699-1	CW-02D-023	10:00	18:49	mg/L	50.0	25.0	489
988699-2	CW-02M-023	11:26	19:00	mg/L	50.0	25.0	446
988699-3	CW-03D-023	13:43	19:11	mg/L	50.0	25.0	486
988699-4	CW-03M-023	14:58	19:23	mg/L	50.0	25.0	429
988699-5	CW-04D-023	16:28	19:57	mg/L	50.0	25.0	543
988699-6	CW-04M-023	17:27	20:09	mg/L	50.0	25.0	354
988699-7	OW-90-023	12:13	20:20	mg/L	50.0	25.0	461

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


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Prep/ Analyzed: April 9, 2010

Analytical Batch: 04AN10G

Investigation:

Sulfate by Method EPA 300.0

QA/QC Summary

QC STD I.D.		Laboratory Number		Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control		
Duplicate		988698-1		532	518	2.67%	≤ 20%	Yes		
QC Std I.D.	Lab Number	Conc. of unspiked sample	Dilution Factor	Added Spike Conc.	MS Amount	Measured Conc. of spiked sample	Theoretical Conc. of spiked sample	MS% Recovery	Acceptance limits	QC Within Control
MS	988698-1	532	50.0	10.0	500	1010	1032	95.6%	85-115%	Yes
QC Std I.D.		Measured Concentration		Theoretical Concentration		Percent Recovery	Acceptance Limits	QC Within Control		
Blank		ND		<0.500		---	<0.500	Yes		
MRCCS		20.2		20.0		101%	90% - 110%	Yes		
MRCVS#1		15.6		15.0		104%	90% - 110%	Yes		
MRCVS#2		15.4		15.0		103%	90% - 110%	Yes		
MRCVS#3		15.4		15.0		103%	90% - 110%	Yes		
MRCVS#4		15.4		15.0		103%	90% - 110%	Yes		
MRCVS#5		15.3		15.0		102%	90% - 110%	Yes		
LCS		20.2		20.0		101%	90% - 110%	Yes		

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for 
Mona Nassimi, Manager
Analytical Services

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TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
(714) 730-6239 · FAX (714) 730-6462
www.truesdail.com

REPORT

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Sample: Seven (7) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 390378.MP.02.CM.01

P.O. No.: 390378.MP.02.CM.01

Laboratory No.: 988699

Date: April 23, 2010

Collected: April 7, 2010

Received: April 8, 2010

Prep/ Analyzed: April 12, 2010

Analytical Batch: 04AN10H

Chloride by Method EPA 300.0

Investigation:

Analytical Results Chloride

<u>TLI I.D.</u>	<u>Field I.D.</u>	<u>Sample Time</u>	<u>Run Time</u>	<u>Units</u>	<u>DF</u>	<u>RL</u>	<u>Results</u>
988699-1	CW-02D-023	10:00	13:43	mg/L	500	100	2130
988699-2	CW-02M-023	11:26	13:55	mg/L	500	100	2160
988699-3	CW-03D-023	13:43	14:52	mg/L	500	100	2070
988699-4	CW-03M-023	14:58	15:03	mg/L	500	100	2800
988699-5	CW-04D-023	16:28	15:49	mg/L	500	100	2680
988699-6	CW-04M-023	17:27	16:00	mg/L	500	100	1960
988699-7	OW-90-023	12:13	16:12	mg/L	500	100	2800

ND: Below the reporting limit (Not Detected).

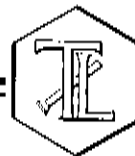
DF: Dilution Factor.

Respectfully submitted,
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for 
Mona Nassimi, Manager
Analytical Services

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Project No.: 390378.MP.02.CM.01

P.O. No.: 390378.MP.02.CM.01

Laboratory No.: 988699

Date: April 23, 2010

Collected: April 7, 2010

Received: April 8, 2010

Prep/ Analyzed: April 12, 2010

Analytical Batch: 04AN10H

Chloride by Method EPA 300.0

Investigation:

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	988717	301	302	0.33%	≤ 20%	Yes


QC Std I.D.	Lab Number	Conc. of unspiked sample	Dilution Factor	Added Spike Conc.	MS Amount	Measured Conc. of spiked sample	Theoretical Conc. of spiked sample	MS% Recovery	Acceptance limits	QC Within Control
MS	988717	301	100	4.00	400	690	701	97.3%	85-115%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
Blank	ND	<0.500	---	<0.500	Yes
MRCCS	3.99	4.00	99.8%	90% - 110%	Yes
MRCVS#1	2.96	3.00	98.7%	90% - 110%	Yes
MRCVS#2	2.99	3.00	99.7%	90% - 110%	Yes
LCS	3.97	4.00	99.3%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for 
Mona Nassimi, Manager
Analytical Services

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REPORT

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Sample: Seven (7) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 390378.MP.02.CM.01

P.O. No.: 390378.MP.02.CM.01

Laboratory No.: 988699

Date: April 23, 2010

Collected: April 7, 2010

Received: April 8, 2010

Prep/ Analyzed: April 9, 2010

Analytical Batch: 04AN10G

Investigation:

Fluoride by Ion Chromatography using EPA 300.0

Analytical Results Fluoride

<u>TLI I.D.</u>	<u>Field I.D.</u>	<u>Sample Time</u>	<u>Run Time</u>	<u>Units</u>	<u>DF</u>	<u>RL</u>	<u>Results</u>
988699-1	CW-02D-023	10:00	16:09	mg/L	5.00	0.500	4.15
988699-2	CW-02M-023	11:26	16:20	mg/L	5.00	0.500	2.48
988699-3	CW-03D-023	13:43	16:32	mg/L	5.00	0.500	5.83
988699-4	CW-03M-023	14:58	16:43	mg/L	5.00	0.500	2.62
988699-5	CW-04D-023	16:28	16:55	mg/L	5.00	0.500	4.03
988699-8	CW-04M-023	17:27	17:06	mg/L	5.00	0.500	1.55
988699-7	OW-90-023	12:13	17:40	mg/L	5.00	0.500	2.54

ND: Below the reporting limit (Not Detected).

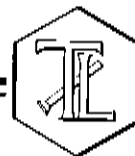
DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


for Mona Nassimi, Manager
Analytical Services

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REPORT

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Sample: Seven (7) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 390378.MP.02.CM.01

P.O. No.: 390378.MP.02.CM.01

Laboratory No.: 988699

Date: April 23, 2010

Collected: April 7, 2010

Received: April 8, 2010

Prep/ Analyzed: April 9, 2010

Analytical Batch: 04AN10G

Investigation: Fluoride by Ion Chromatography using EPA 300.0

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	988698-1	1.45	1.47	1.37%	≤ 20%	Yes

QC Std I.D.	Lab Number	Conc. of unspiked sample	Dilution Factor	Added Spike Conc.	MS Amount	Measured Conc. of spiked sample	Theoretical Conc. of spiked sample	MS% Recovery	Acceptance limits	QC Within Control
MS	988698-1	1.45	5.00	4.00	20.0	21.7	21.5	101%	85-115%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
Blank	ND	<0.500	—	<0.500	Yes
MRCCS	4.14	4.00	104%	90% - 110%	Yes
MRCCS#1	3.13	3.00	104%	90% - 110%	Yes
MRCCS#2	3.14	3.00	105%	90% - 110%	Yes
MRCVS#3	3.15	3.00	105%	90% - 110%	Yes
MRCVS#4	3.16	3.00	105%	90% - 110%	Yes
LCS	4.13	4.00	103%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Sean Cant
for **Mona Nassimi, Manager**
Analytical Services

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REPORT

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Sample: Seven (7) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 390378.MP.02.CM.01

P.O. No.: 390378.MP.02.CM.01

Prep. Batch: 0415108

Laboratory No.: 988699

Date: April 23, 2010

Collected: April 7, 2010

Received: April 8, 2010

Prep/ Analyzed: April 15, 2010

Analytical Batch: 0415108

Investigation: **Total Dissolved Chromium by Inductively Coupled Argon Plasma Mass Spectrometer
using EPA 200.8**

Analytical Results Total Dissolved Chromium

TLI I.D.	Field I.D.	Sample Time	Method	Run Time	Units	DF	RL	Results
988699-2	CW-02M-023	11:28	EPA 200.8	17:46	µg/L	5.00	1.00	5.44
988699-4	CW-03M-023	14:58	EPA 200.8	18:00	µg/L	5.00	1.00	10.4
988699-6	CW-04M-023	17:27	EPA 200.8	18:13	µg/L	5.00	1.00	14.0
988699-7	OW-90-023	12:13	EPA 200.8	18:20	µg/L	5.00	1.00	10.3

QA/QC Summary

QC STD I.D.		Laboratory Number		Concentration		Duplicate Concentration		Relative Percent Difference		Acceptance limits		QC Within Control	
Duplicate		988700-1		1900		1860		2.13%		≤ 20%		Yes	

QC Std I.D.	Lab Number	Conc. of unspiked sample	Dilution Factor	Added Spike Conc.	MS Amount	Measured Conc. of spiked sample	Theoretical Conc. of spiked sample	MS% Recovery	Acceptance limits	QC Within Control
MS	988700-1	1900	5.00	50.0	250	2140	2150	96.0%	70-130%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
Blank	ND	<1.00	---	<1.00	Yes
MRCGS	50.3	50.0	101%	90% - 110%	Yes
MRCVS#1	49.0	50.0	98.0%	90% - 110%	Yes
MRCVS#2	49.6	50.0	99.2%	90% - 110%	Yes
MRCVS#3	48.1	50.0	96.2%	90% - 110%	Yes
ICS	49.8	50.0	99.6%	80% - 120%	Yes
LCS	50.4	50.0	101%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


for Mona Nassimi, Manager
Analytical Services

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REPORT

Client: E2 Consulting Engineers, Inc.
155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Sample: Seven (7) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 390378.MP.02.CM.01
P.O. No.: 390378.MP.02.CM.01
Prep. Batch: 042210A

Laboratory No.: 988699
Date: April 23, 2010
Collected: April 7, 2010
Received: April 8, 2010
Prep/ Analyzed: April 22, 2010
Analytical Batch: 042210A

Investigation: **Total Dissolved Chromium by Inductively Coupled Argon Plasma Mass Spectrometer
using EPA 200.8**

Analytical Results Total Dissolved Chromium

TLI I.D.	Field I.D.	Sample Time	Method	Run Time	Units	DF	RL	Results
988699-1	CW-02D-023	10:00	EPA 200.8	11:48	µg/L	5.00	1.00	ND
988699-3	CW-03D-023	13:43	EPA 200.8	11:55	µg/L	5.00	1.00	ND
988699-5	CW-04D-023	16:26	EPA 200.8	12:22	µg/L	5.00	1.00	1.75

QA/QC Summary

QC STD I.D.		Laboratory Number		Concentration		Duplicate Concentration		Relative Percent Difference		Acceptance limits		QC Within Control	
Duplicate		988699-1		ND		ND		0.00%		≤ 20%		Yes	

QC Std I.D.	Lab Number	Conc. of unspiked sample	Dilution Factor	Added Spike Conc.	MS Amount	Measured Conc. of spiked sample	Theoretical Conc. of spiked sample	MS% Recovery	Acceptance limits	QC Within Control
MS	988699-1	0.00	5.00	50.0	250	244	250	97.6%	70-130%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
Blank	ND	<1.00	—	<1.00	Yes
MRCCS	51.3	50.0	103%	90% - 110%	Yes
MRCVS#1	51.7	50.0	103%	90% - 110%	Yes
MRCVS#2	51.2	50.0	102%	90% - 110%	Yes
ICS	56.1	50.0	112%	80% - 120%	Yes
LCS	50.4	50.0	101%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).
DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for 
Mona Nassimi, Manager
Analytical Services

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CMP TLI #1

988699

CH2MHILL

CHAIN OF CUSTODY RECORD

4/8/2010 8:53:59 AM

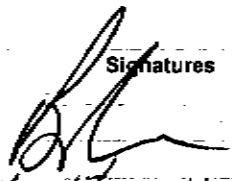
Page 1 OF 1


Project Name PG&E Topock			Container:	250 ml Poly	250 ml Poly	1 Liter Poly	1L Poly	1 Liter Poly	1 Liter Poly	Number of Containers	COMMENTS
Location Topock			Preservatives:	(NH ₄) ₂ SO ₄	HNO ₃ , 4°C	4°C	4°C	4°C	4°C		
Project Number 390378.MP.02.CM.01			Filtered:	Field	Field	NA	NA	NA	NA		
Project Manager Jay Piper			Holding Time:	28	180	28	7	28	28		
Sample Manager Matt Ringier											
Task Order											
Project 2010-CMP-023											
Turnaround Time 10 Days											
Shipping Date: 4/8/2010											
COC Number: 1											
DATE	TIME	MATRIX									
CW-02D-023	4/7/2010	10:00	Water	X	X	X	X	X	X	5	4
CW-02M-023	4/7/2010	11:26	Water	X	X	X	X	X	X	5	4
CW-03D-023	4/7/2010	13:43	Water	X	X	X	X	X	X	5	4
CW-03M-023	4/7/2010	14:58	Water	X	X	X	X	X	X	5	4
CW-04D-023	4/7/2010	16:28	Water	X	X	X	X	X	X	5	4
CW-04M-023	4/7/2010	17:27	Water	X	X	X	X	X	X	5	4
OW-86-023	4/7/2010	18:19	Water	X						1	Hold
OW-90-023	4/7/2010	12:13	Water	X	X	X	X	X	X	5	4
TOTAL NUMBER OF CONTAINERS										38	


29


For Sample Conditions
See Form Attached

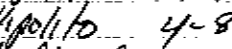
ALERT !!
Level III QC


Approved by  Signatures

Sampled by 

Relinquished by 

Received by  4-8-10 16:00

Relinquished by  4-8-10 21:30

Received by  APR 08 2010 21:30

Shipping Details

Method of Shipment: courier

On Ice: yes / no

Airbill No:

Lab Name: Truesdail Laboratories, Inc.

Lab Phone: (714) 730-6239

ATTN:

Sample Custody

Special Instructions:

April 5-9, 2010

Report Copy to

Shawn Duffy

(530) 229-3303



TRUESDAIL LABORATORIES, INC.

ALERT !!

Level III QC

Sample Integrity & Analysis Discrepancy Form

Client: CH2M HILL

Lab # 988699

Date Delivered: 4/8/10 Time: 21:30 By: ☐ Mail ☒ Field Service ☐ Client

1. Was a Chain of Custody received and signed? ☒ Yes ☐ No ☐ N/A
2. Does Customer require an acknowledgement of the COC? ☐ Yes ☐ No ☒ N/A
3. Are there any special requirements or notes on the COC? ☐ Yes ☐ No ☒ N/A
4. If a letter was sent with the COC, does it match the COC? ☐ Yes ☐ No ☒ N/A
5. Were all requested analyses understood and acceptable? ☒ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition?
Temperature (if yes)? 4°C ☒ Yes ☐ No ☐ N/A
7. Were samples received intact
(i.e. broken bottles, leaks, air bubbles, etc..)? ☒ Yes ☐ No ☐ N/A
8. Were sample custody seals intact? ☐ Yes ☐ No ☐ N/A
9. Does the number of samples received agree with COC? ☒ Yes ☐ No ☐ N/A
10. Did sample labels correspond with the client ID's? ☒ Yes ☐ No ☐ N/A
11. Did sample labels indicate proper preservation?
Preserved (if yes) by: ☒ Truesdail ☐ Client ☒ Yes ☐ No ☐ N/A
12. Were samples pH checked? pH = see c.o.c ☒ Yes ☐ No ☐ N/A
13. Were all analyses within holding time at time of receipt?
If not, notify Project Manager. ☒ Yes ☐ No ☐ N/A
14. Have Project due dates been checked and accepted?
Turn Around Time (TAT): ☐ RUSH ☒ Std ☒ Yes ☐ No ☐ N/A
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water
☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☒ Other WATER

16. Comments: _____

17. Sample Check-in completed by Truesdail Log-In/Receiving: Rafael Davila

Appendix B
Field Data Sheets, First Half 2010

Project Name PG&E Topock CMP

Job Number 390378.MP.02.CM.01

Sampling Event 2010-CMP-023

Date 4/8/10

Sampler Abbott

Field Team

1

Field Conditions

Sunny, 73°F, breeze from N, ~1 mph

Page

ot

of

Well/Sample Number CW-01D-023

QC Sample ID **NA**

QC Sample Time **N/A**

Purge Start Time 9:01

Purge Method Temperature Ded. Pump

Ded. Pump

Flow Cell Y N

Min. Purge Volume (gal)/(L)

1075

Purge Rate (gpm)/(mLpm) 3

251 09B100198
S/N: ↑

Water Level	Time	Vol. Purged gallons / liters	pH	Conductivity mS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Salinity %	TDS g/L	Eh/ORP mv	Comments (See description below)
109.38	9:07	18	7.37	7.703	3.8	4.14	29.28	4.23	5.001	104.2	300 Hz
109.39	9:13	36	7.62	7.884	3.5	7.60	29.16	4.34	5.125	100.9	
109.39	9:19	54	7.63	7.891	2.2	7.87	29.12	4.34	5.129	100.8	
109.39	9:25	72	7.63	7.881	2.5	7.84	29.12	4.33	5.124	100.0	
109.39	9:31	90	7.62	7.889	2.8	7.89	29.13	4.34	5.128	100.0	
109.51	9:37	108	7.61	7.888	2.3	7.90	29.12	4.34	5.126	98.7	
	0941		pump off								
Parameter Stabilization Criteria			+/- 0.1 pH units	+/- 3%	+/- 10% NTU units when >10 NTUs	+/- 0.3 mg/L	NA ±2°C	NA	NA	+/- 10 mV	
Did Parameters Stabilize prior to sampling?			Y	Y	Y	Y	NA Y	—	—	Y	
Previous Field measurement (10/12/2009)			7.74	7332	1	7.74	28.25	0.47		100.8	
Are measurements consistent with previous?			lower	Y	Y	Y	NA Y	—	—	Y	
Sample Time 0939			Sample Location:								

Sample Time 0939 Sample Location:

pump tubing

well port

spigot

bailer

other

Comments:

Initial Depth to Water (ft BTOC): **109.28**

Field measured confirmation of Well Depth (ft btoc):

WD (Well Depth - from database) ft btoc (320)

SWH (Standing Water Height) = WD-Initial Depth 210.72

D (Volume as per diameter) 2"= 0.17, 4"= 0.66, 1"=0.041 (2 in)

One Casing Volume = $D \cdot SWH$ 35.82

Three Casing Volumes = 107.5

Color: clear, grey, yellow, brown, black, cloudy, green

Measure Point: Well TOC Steel Casing

WATER LEVEL METER SERIAL NUMBER:

~~DGE-2405-01B~~

Initial DTW / Before Removal		Approx. 5 min After Reinstallation		Time of Removal	
Time	Initial DTW	Time	Final DTW	Time of Reinstallation	
8:45	109.28	N/A		N/A	
Comments:					

Odor: none, sulphur, organic, other

Solids: Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock CMP
Job Number 390378.MP.02.CM.01
Sampling Event 2010-CMP-023
Date 4/8/10
Sampler Abbott **Field Team** 1 **Field Conditions** Sunny, 78°F, wind from N ~ 2 mph
Page 1 of 1

Well/Sample Number CW-01M-023
Purge Start Time 10:03
Flow Cell (Y) / N
QC Sample ID NA
Purge Method Temporary
Ded. Pump No
Min. Purge Volume (gal)(L) 41.2
Purge Rate (gpm)(mLpm) 3
QC Sample Time N/A

Water Level	Time	Vol. Purged gallons / liters	pH	Conductivity mS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Salinity %	TDS g/L	Eh/ORP mv	Comments (See description below)
109.28	10:05	7	7.71	7.843	2.7	6.36	29.09	4.31	5.098	9.6	
109.28	10:07	14	7.72	7.840	2.0	6.29	29.17	4.31	5.095	27.0	
109.28	10:10	21	7.73	7.840	1.8	6.30	29.22	4.31	5.095	41.5	
109.28	10:12	28	7.70	7.840	2.0	6.31	29.23	4.31	5.095	50.4	
109.28	10:14	35	7.69	7.838	2.2	6.30	29.24	4.31	5.094	55.6	
109.28	10:17	42	7.68	7.835	2.0	6.31	29.24	4.31	5.095	61.3	
109.28	10:19	49	7.70	7.820	1.9	6.29	29.22	4.30	5.086	64.1	
	10:22		pump off								
Parameter Stabilization Criteria			+/- 0.1 pH units	+/- 3%	+/- 10% NTU units when >10 NTUs	+/- 0.3 mg/L	NA ±2°C	NA	NA	+/- 10 mV	
Did Parameters Stabilize prior to sampling?			Y	Y	Y	Y	NA Y	—	—	Y	
Previous Field measurement (10/12/2009)			7.78	7300	0.4 slightly higher	7.17	28.46	0.47		88.7	
Are measurements consistent with previous?			Y	Y	Y	Y	NA Y	—	—	Y	

Sample Time 1020 **Sample Location:** pump tubing X well port Y spigot bailer other

Comments:

Initial Depth to Water (ft BTOC): 109.19

Field measured confirmation of Well Depth (ft btoc):

WD (Well Depth - from database) ft btoc (190)

SWH (Standing Water Height) = WD-Initial Depth 80.81

D (Volume as per diameter) 2"= 0.17, 4"= 0.66, 1"=0.041 (2 in)

One Casing Volume = D*SWH 13.7

Three Casing Volumes = 41.2

Color: clear, grey, yellow, brown, black, cloudy, green

Measure Point: Well TOC Steel Casing

WATER LEVEL METER SERIAL NUMBER: PGE-2005-01B

Initial DTW / Before Removal		If Transducer	
Time	Initial DTW	Approx. 5 min After Reinstallation	Time of Removal
0955	109.19	N/A	N/A
Comments:		Time of Reinstallation	

Odor: none, sulphur, organic, other

Solids: Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock CMP
 Job Number 390378.MP.02.CM.01
 Sampler Abbott Field Team 1 Field Conditions clear sky, windy ~ 15 mph, 65°F Sampling Event 2010-CMP-023 Date 9/7/10 Page 1 of 1
 Well/Sample Number CW-02D-023 QC Sample ID NA QC Sample Time N/A
 Purge Start Time 9:13 Purge Method knock pump Ded. Pump No
 Flow Cell Y / N Min. Purge Volume (gal)/(L) 134 Purge Rate (gpm)/(mLpm) 3

Water Level	Time	Vol. Purged gallons / liters	pH	Conductivity mS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Salinity %	TDS g/L	Eh/ORP mv	Comments (See description below)
92.84	9:20	2321	8.00	7.839	2.8	5.73	29.71	4.31	5.096	86.2	294 H ₂
92.85	9:28	45	8.04	7.840	2.7	6.31	30.55	4.30	5.093	67.0	
92.85	9:38	66	8.04	7.826	2.4	6.61	30.61	4.29	5.087	59.7	
92.86	9:423	90	8.05	7.828	2.1	6.62	30.67	4.29	5.089	55.8	
92.87	9:450	111	8.04	7.829	2.6	6.63	30.67	4.29	5.090	53.1	
92.88	9:58	135	8.04	7.831	1.9	6.62	30.68	4.29	5.090	51.8	
	1003	pump off									
Parameter Stabilization Criteria			+/- 0.1 pH units	+/- 3%	+/- 10% NTU units when >10 NTUs	+/- 0.3 mg/L	NA +2°C	NA	NA	+/- 10 mV	
Did Parameters Stabilize prior to sampling?			Y	Y	Y	Y	NA Y			Y	
Previous Field measurement (10/14/2009)			8.19	7499	2	6.48	29.39	0.48		-12	
Are measurements consistent with previous?			Y	Y	Y	Y	NA Y	-	-	Y	

Sample Time 1000 Sample Location: pump tubing ☒ well port ☐ spigot ☐ bailer ☐ other ☐
 Comments: _____

Initial Depth to Water (ft BTOC): 92.36
 Field measured confirmation of Well Depth (ft btoc): _____
 WD (Well Depth - from database) ft btoc (355)
 SWH (Standing Water Height) = WD-Initial Depth 262.64
 D (Volume as per diameter) 2"= 0.17, 4"= 0.66, 1"=0.041 (2 in)
 One Casing Volume = D*SWH 44.65
 Three Casing Volumes = 134
 Color: clear, grey, yellow, brown, black, cloudy, green

Measure Point: Well TOC Steel Casing WATER LEVEL METER SERIAL NUMBER: PGF-2005-24
 Initial DTW / Before Removal
 Time Initial DTW
0858 92.36
 If Transducer
 Approx. 5 min After Reinstallation
 Time Final DTW
N/A
 Time of Removal N/A
 Time of Reinstallation _____
 Comments: _____
 Odor: none, sulphur, organic, other
 Solids: Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock CMP
Job Number 390378.MP.02.CM.01
Sampler Abbott **Field Team** 1 **Field Conditions** clear sky, NW ~15 mph, gust 25 mph
Sampling Event 2010-CMP-023 **Date** 4/7/2010 **Page** 1 of 1
Well/Sample Number CW-02M-023 **QC Sample ID** NA **QC Sample Time** N/A
Purge Start Time 10:52 **Purge Method** temporary **Ded. Pump** No ded. pump or tubing
Flow Cell (F) N **Min. Purge Volume (gal)/(L)** 57.5 **Purge Rate (gpm)/(mLpm)** 2

Water Level	Time	Vol. Purged gallons / liters	pH	Conductivity mS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Salinity %	TDS g/L	Eh/ORP mv	Comments (See description below)
92.97	1057	10	7.84	7.721	2.4	4.24	29.48	4.24	5.016	23.3	
92.97	1102	20	7.85	7.701	2.1	4.12	29.57	4.22	5.003	32.3	11:04
92.97	1109	30	7.86	7.709	2.4	4.09	29.57	4.23	5.008	37.6	shut off to switch tanks
92.97	1114	40	7.79	7.722	2.2	4.11	29.60	4.24	5.020	40.2	11:04 restart.
92.97	1119	50	7.84	7.715	2.3	4.04	29.63	4.03	5.020	41.4	
92.97	1124	60	7.84	7.714	2.0	4.02	29.62	4.23	5.018	42.0	
	1128	pump off									
Parameter Stabilization Criteria			+/- 0.1 pH units	+/- 3%	+/- 10% NTU units when >10 NTUs	+/- 0.3 mg/L	NA +2°C	NA	NA	+/- 10 mV	
Did Parameters Stabilize prior to sampling?			Y	Y	Y	Y	NA Y			Y	
Previous Field measurement (10/14/2009)			7.99	7366	2	4.13	28.42	0.48		0.9	
Are measurements consistent with previous?			Y	Y	Y	Y	NA Y			higher	

Sample Time 11:26 **Sample Location:** pump tubing ☒ well port ☐ spigot ☐ bailer ☐ other ☐
Comments:

Initial Depth to Water (ft BTOC): 92.85
Field measured confirmation of Well Depth (ft btoc): _____
WD (Well Depth - from database) ft btoc (205.5)
SWH (Standing Water Height) = WD-Initial Depth 112.65
D (Volume as per diameter) 2"= 0.17, 4"= 0.66, 1"=0.041 (2 in)
One Casing Volume = D*SWH 19
Three Casing Volumes = 57.45
Color: clear, grey, yellow, brown, black, cloudy, green

Measure Point: Well TOC **Steel Casing** **WATER LEVEL METER SERIAL NUMBER:** PGE-2005-01B

Initial DTW / Before Removal		If Transducer	
Time	Initial DTW	Approx. 5 min After Reinstallation	Time of Removal
		Time	Final DTW
<u>1044</u>	<u>92.85</u>		<u>N/A</u>
Comments:		Time of Reinstallation	

Odor: none, sulphur, organic, other

Solids: Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock CMP

Job Number 390378.MP.02.CM.01

Sampling Event 2010-CMP-023

2010-CMP-023

Date 4/7/2010

Sampler Abbott Field Team 1 Field Conditions Sunny, ~75°F, wind from NW @ ~10-15 mph

Page 1 of 1

Well/Sample Number **CW-03D-023**

QC Sample ID **NA**QC Sample Time *N/A*

Purge Start Time 1215 1220 1253

Purge Method Temporary Ded. Pump No ded. pump or tubing

Flow Cell: Y / N

Min. Purge Volume (gal)(L) 139 ✓ Purge Rate (gpm)(mLpm) 3

[illegible]

Sample Time 1343 Sample Location: NA higher 9
 Comments: pump tubing X well port _____ spigot _____ bailer _____ other 7

Initial Depth to Water (ft BTOC): 77.46

Field measured confirmation of Well Depth (ft btoc): _____

WD (Well Depth - from database) ft btoc (340)

SWH (Standing Water Height) = WD-Initial Depth 262.54

D (Volume as per diameter) 2"= 0.17, 4"= 0.66, 1"=0.041 (2 in)

One Casing Volume = $D \cdot SWH$ 44.6

Three Casing Volumes = 139

Color: clear, grey, yellow, brown, black, cloudy, green

Measure Point: Well TOC Steel Casing

WATER LEVEL METER SERIAL NUMBER: PGE-2005-01B

Initial DTW / Before Removal		Approx. 5 min After Reinstallation		If Transducer	
				Time of Removal	N/A
Time	Initial DTW	Time	Final DTW	Time of Reinstallation	
1208	77.46				
Comments:					

Odor (none), sulphur, organic, other

Solids: (Trace) Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Topock Sampling Log

Project Name PG&E Topock CMP
 Job Number 390378.MP.02.CM.01
 Sampler Abbott Field Team 1 Field Conditions Sunny, clear, ~15mph, ~75°F Sampling Event 2010-CMP-023 Date 4/7/10 Page 1 of 1

Well/Sample Number CW-03M-023 QC Sample ID OW-90-023 QC Sample Time 12:13
 Purge Start Time 1419 Purge Method Flow Cell Ded. Pump 2
 Flow Cell: Y N Min. Purge Volume (gal)/(L) 74 Purge Rate (gpm)/(mLpm) 2

Water Level	Time	Vol. Purged gallons/ liters	pH	Conductivity mS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Salinity %	TDS g/L	Eh/ORP mv	Comments (See description below)
77.70	1425	12	7.67	9.374	4.4	0.57	28.19	5.22	6.091	19.0	245 Hz
77.71	1431	24	7.72	9.973	3.2	1.03	29.20	5.58	6.489	24.5	
77.72	1437	37	7.72	9.810	2.8	1.20	29.26	5.47	6.369	24.5	
77.71	1443	49	7.70	9.688	3.0	1.27	29.26	5.41	6.295	24.8	
77.70	1449	61	7.71	9.642	2.6	1.33	29.24	5.38	6.267	26.1	
77.70	1456	74	7.73	9.613	2.2	1.43	29.22	5.36	6.249	26.6	
	1302	pump off									
Parameter Stabilization Criteria			+/- 0.1 pH units	+/- 3%	+/- 10% NTU units when >10 NTUs	+/- 0.3 mg/L	NA ±2°C	NA	NA	+/- 10 mV	
Did Parameters Stabilize prior to sampling?			Y	Y	Y	Y	NA Y	—	—	Y	
Previous Field measurement (10/15/2009)			7.66	8911	2	0.81	28.37	0.58		50.5	
Are measurements consistent with previous?			Y	Y	Y	Y	NA Y			Y	

Sample Time 1458 Sample Location: pump tubing X well port — spigot — bailer — other —
 Comments: —

Initial Depth to Water (ft BTOC): 77.57
 Field measured confirmation of Well Depth (ft btoC): —
 WD (Well Depth - from database) ft btoC (222)
 SWH (Standing Water Height) = WD-Initial Depth 144.43
 D (Volume as per diameter) 2"= 0.17, 4"= 0.66, 1"=0.041 (2 in)
 One Casing Volume = D*SWH 24.5
 Three Casing Volumes = 74 gallons
 Color: clear, grey, yellow, brown, black, cloudy, green

Measure Point: Well TOC Steel Casing WATER LEVEL METER SERIAL NUMBER: PG&E-2005-128 015
AA

Initial DTW / Before Removal		If Transducer	
Time	Initial DTW	Approx. 5 min After Reinstallation	Time of Removal
		Time	Final DTW
1410	77.57	N/A	
Comments: <u>—</u>			

Odor: none, sulphur, organic, other —
 Solids: Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock CMP
 Job Number 390378.MP.02.CM.01
 Sampler Abbott Field Team 1 Field Conditions Sunny, clear, 75-80°F, NW 5-7mph, gusts ~ 35mph
 Sampling Event 2010-CMP-023
 Date 4-7-10 Page 1 of 1
 Well/Sample Number CW-04M-023 QC Sample ID NA QC Sample Time N/A
 Purge Start Time 1707 Purge Method 2" Grundfos Ded. Pump No.
 Flow Cell: Y N Min. Purge Volume (gal)(L) 55.5 Purge Rate (gpm)(mLpm) 3

Water Level	Time	Vol. Purged gallons / liters	pH	Conductivity mS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Salinity %	TDS g/L	Eh/ORP mv	Comments (See description below)
61.84	1710	9	7.86	7.273	4.2	3.11	28.78	3.97	4.722	-6.1	
61.84	1713	19	7.74	7.272	3.3	3.06	29.09	3.97	4.720	10.1	
61.83	1716	28	7.74	7.136	1.9	2.73	29.13	3.89	4.629	19.7	
61.83	1719	38	7.74	7.015	1.9	2.62	29.11	3.82	4.560	26.1	
61.83	1722	47	7.73	7.011	2.1	2.57	29.11	3.82	4.558	30.6	
61.83	1726	57	7.72	7.007	2.3	2.56	29.16	3.82	4.555	35.4	
	1733	pump off									
Parameter Stabilization Criteria			+/- 0.1 pH units	+/- 3%	+/- 10% NTU units when >10 NTUs	+/- 0.3 mg/L	NA	NA	NA	+/- 10 mV	
Did Parameters Stabilize prior to sampling?			Y	Y	Y	Y	NA	Y		Y	
Previous Field measurement (10/15/2009)			7.73	6516	3	1.69	28.41	0.42		21	
Are measurements consistent with previous?			Y	higher	Y	higher	NA	Y		Y	

Sample Time 1727 Sample Location: pump tubing X well port _____ spigot _____ bailer _____ other _____

Comments: 1819 Collect EB OW-86-023

Initial Depth to Water (ft BTOC): 61.46

Field measured confirmation of Well Depth (ft btoc): —

WD (Well Depth - from database) ft btoc (169.8000)

SWH (Standing Water Height) = WD-Initial Depth 108.34

D (Volume as per diameter) 2"= 0.17, 4"= 0.66, 1"=0.041 (2 in)

One Casing Volume = D*SWH 18.5

Three Casing Volumes = 55.5

Color: clear grey, yellow, brown, black, cloudy, green

Measure Point: Well TOC Steel Casing WATER LEVEL METER SERIAL NUMBER: PG&E-2005-01B

Initial DTW / Before Removal		Approx. 5 min After Reinstallation		If Transducer	
Time	Initial DTW	Time	Final DTW	Time of Removal	Time of Reinstallation
<u>1643</u>	<u>61.46</u>		<u>N/A</u>	<u>N/A</u>	
Comments:					

Odor: none sulphur, organic, other

Solids: Trace Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock CMP
Job Number 390378.MP.02.CM.01
Sampling Event 2010-CMP-023
Date 4/8/2010
Sampler Abbott **Field Team** 1 **Field Conditions** sunny, clear, ~80°F wind from N ~2 mph
Page 1 of 1

Well/Sample Number OW-01S-023 **QC Sample ID** OW-91-023 **QC Sample Time** 855
Purge Start Time 11:38 **Purge Method** Temporary **Ded. Pump** No
Flow Cell ☒ Y ☐ N **Min. Purge Volume (gal)/(L)** 10.3 **Purge Rate (gpm)/(mLpm)** 1

location verified by several people.

Water Level	Time	Vol. Purged gallons / liters	pH	Conductivity mS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Salinity %	TDS g/L	EH/ORP mv	Comments (See description below)
93.50	11:40	2	7.44	4.454	6.2	4.66	28.38	2.36	2.906	9.3	
93.50	11:42	4	7.49	4.478	8.3	4.56	28.93	2.37	2.912	20.5	
93.50	11:44	6	7.48	4.430	6.8	4.56	29.09	2.35	2.886	26.9	
93.50	11:46	8	7.48	4.442	4.8	4.56	29.13	2.35	2.886	32.0	
93.50	11:48	10	7.47	4.440	3.4	4.59	29.12	2.35	2.891	35.5	
93.50	11:49	12	7.48	4.438	3.0	4.56	29.15	2.35	2.885	37.4	
	11:53	pump off									
Parameter Stabilization Criteria			+/- 0.1 pH units	+/- 3%	+/- 10% NTU units when >10 NTUs	+/- 0.3 mg/L	NA	NA	NA	+/- 10 mV	
Did Parameters Stabilize prior to sampling?			Y	Y	Y	Y	NA	—	—	Y	
Previous Field measurement (10/12/2009)			7.65	3070	2	5.34	28.22	0.2		72.2	
Are measurements consistent with previous?			lower	higher	Y	Y	NA	—	—	Y	

Sample Time 1150 **Sample Location:** pump tubing ☒ well port ☐ spigot ☐ bailer ☐ other ☐

Comments:

Initial Depth to Water (ft BTOW): 93.40
Field measured confirmation of Well Depth (ft btoc):
WD (Well Depth - from database) ft btoc (113.5)
SWH (Standing Water Height) = WD-Initial Depth 20.10
D (Volume as per diameter) 2"= 0.17, 4"= 0.66, 1"=0.041 (2 in)
One Casing Volume = D*SWH 3.4
Three Casing Volumes = 10.3
Color: clear, grey, yellow, brown, black, cloudy, green

Measure Point: Well TOC Steel Casing **WATER LEVEL METER SERIAL NUMBER:** PGE-2005-01B

Initial DTW / Before Removal		Approx. 5 min After Reinstallation		If Transducer	
Time	Initial DTW	Time	Final DTW	Time of Removal	Time of Reinstallation
11:31	93.40	12:03	93.40	11:32	11:56

Comments:

Odor: none, sulphur, organic, other

Solids: Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock CMP

Job Number 390378.MP.02.CM.01

Sampling Event 2010-CMP-023

Date 4/8/2010

Sampler Alko H Field Team 1

Field Conditions

sunny, clear, 85°F

blaze for
w/let
~1 mph

Page 1 of 1

BEC

Well/Sample Number OW-02S-023

QC Sample ID NA

QC Sample Time

N/A

Purge Start Time 12:27

Purge Method temp

Ded. Pump

No

Flow Cell: Y / N

Min. Purge Volume (gal)/(L) 5

Purge Rate (gpm)/(mLpm) 1

Water Level	Time	Vol. Purged gallons / liters	pH	Conductivity mS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Salinity %	TDS g/L	Eh/ORP mv	Comments (See description below)
92.39	12:29	2	7.92	1.843	6.1	7.92	28.15	0.93	1.198	-14.1	
92.39	12:30	3	7.92	1.843	3.9	7.80	28.46	0.93	1.198	0.5	
92.39	12:31	4	7.92	1.843	2.7	7.80	28.61	0.93	1.198	10.4	
92.39	12:32	5	7.94	1.844	2.7	7.77	28.70	0.93	1.198	17.0	
92.39	12:33	6	7.92	1.844	2.3	7.78	28.80	0.93	1.199	23.4	
92.39	12:34	7	7.92	1.844	2.9	7.79	28.84	0.93	1.199	29.7	
92.39	12:35	8	7.91	1.844	2.4	7.77	28.85	0.93	1.199	32.1	
	12:37		pump off								
Parameter Stabilization Criteria			+/- 0.1 pH units	+/- 3%	+/- 10% NTU units when >10 NTUs	+/- 0.3 mg/L	NA	NA	NA	+/- 10 mV	
Did Parameters Stabilize prior to sampling?			Y	Y	Y	Y	NA	Y		Y	
Previous Field measurement (10/13/2009)			8.16	1759	2	8.1	27.92	0.11		65.1	
Are measurements consistent with previous?			Y	Y	Y	Y	NA	higher		lower	

Sample Time 12:36 Sample Location:

Comments:

Collect EB

well port

spigot

bailer

other

OW-87-023

1305

Initial Depth to Water (ft BTOW): 92.02

Field measured confirmation of Well Depth (ft btoc):

WD (Well Depth - from database) ft btoc (101)

SWH (Standing Water Height) = WD - Initial Depth 8.98

D (Volume as per diameter) 2"= 0.17, 4"= 0.66, 1"=0.041 (2 in)

One Casing Volume = D*SWH 1.5

Three Casing Volumes = 4.6

Color: clear, grey, yellow, brown, black, cloudy, green

Measure Point: Well TOC Steel Casing

WATER LEVEL METER SERIAL NUMBER: PGE-2005-018

Initial DTW / Before Removal		If Transducer	
Time	Initial DTW	Approx. 5 min After Reinstallation Time	Final DTW
1217	92.02	12:50	92.02
Comments:		Time of Removal	12:18
		Time of Reinstallation	12:45

Odor: none, sulphur, organic, other

Solids: Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PG&E Topock CMP

Job Number 390378.MP.02.CM.01

Sampling Event 2010-CMP-023

Date 4/8/2010

Sampler Abbott

Field Team 1

Field Conditions sunny, clear, 78°F, N 23 mph

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Well/Sample Number OW-05S-023

QC Sample ID NA

QC Sample Time N/A

Purge Start Time 10:56

Purge Method Temporary

Ded. Pump No.

Flow Cell: Y / N

Min. Purge Volume (gal)/(L) 8

Purge Rate (gpm)/(mLpm) 1

Water Level	Time	Vol. Purged gallons / liters	pH	Conductivity mS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Salinity %	TDS g/L	Eh/ORP mv	Comments (See description below)
95.07	1058	2	7.68	2.616	22.3	5.88	28.32	1.34	1.700	18.0	238 Hz
95.08	1059	3	7.67	2.632	27.4	5.97	28.54	1.35	1.708	24.6	
95.09	1100	4	7.68	2.628	28.8	6.16	28.63	1.35	1.713	29.4	
95.09	1101	5	7.69	2.597	19.6	6.28	28.71	1.33	1.685	34.0	
95.09	1102	6	7.67	2.599	16.0	6.25	28.75	1.34	1.698	37.6	
95.09	1103	7	7.68	2.580	12.6	6.22	28.79	1.32	1.677	40.2	
95.09	1104	8	7.67	2.576	10.7	6.26	28.80	1.32	1.681	42.4	
95.09	1105	9	7.68	2.568	8.6	6.26	28.80	1.31	1.667	44.2	
95.09	1106	10	7.68	2.568	9.1	6.23	28.82	1.32	1.678	46.3	
Parameter Stabilization Criteria		11:09 pump	+/- 0.1 pH units	+/- 3%	+/- 10% NTU units when >10 NTUs	+/- 0.3 mg/L	NA	NA	NA	+/- 10 mV	
Did Parameters Stabilize prior to sampling?			Y	Y	Y	Y	NA	Y	Y	Y	
Previous Field measurement (10/13/2009)			7.9	1952	3	6.99	28	0.13		78.6	
Are measurements consistent with previous?			Y	higher	higher	Y	NA	Y	Y	Y	

Sample Time 1107 Sample Location:

pump tubing X

well port

spigot

bailer

other

Comments: Pump set approx 10 feet below water so we don't hit bottom and cause turbulence

Initial Depth to Water (ft BTOW): 94.95

Field measured confirmation of Well Depth (ft btoc): -

WD (Well Depth - from database) ft btoc (110.25)

SWH (Standing Water Height) = WD-Initial Depth 15.30

D (Volume as per diameter) 2"= 0.17, 4"= 0.66, 1"=0.041 (2 in)

One Casing Volume = D*SWH 2.601

Three Casing Volumes = 7.803

Color: clear, grey, yellow, brown, black, cloudy, green

Odor: none, sulphur, organic, other

Solids: Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Measure Point: Well TOC Steel Casing

WATER LEVEL METER SERIAL NUMBER: PGF-2005-01B

Initial DTW / Before Removal		If Transducer	
Time	Initial DTW	Approx. 5 min After Reinstallation	Time of Removal
1039	94.95	11:21	94.95
Comments:		Time of Reinstallation	1113

PGE Topock Groundwater Monitoring
Dec 11-15, 2006 Water Level Measurements

Sample Location	Sample Date	Time	Depth to Water (feet below MP)	Comment	ProjectCode	Event
OW-01S	6-2-10	0958	92.95		CMP	measured quarterly
OW-01M		1001	92.77		CMP	measured quarterly
OW-01D		1003	92.53		CMP	measured quarterly
OW-02S		1011	91.56		CMP	measured quarterly
OW-02M		1014	90.90		CMP	measured quarterly
OW-02D		1007	91.08		CMP	measured quarterly
OW-05S		1018	94.45		CMP	measured quarterly
OW-05M		1021	93.47		CMP	measured quarterly
OW-05D		1025	94.31		CMP	measured quarterly
CW-01M		0938	108.53		CMP	measured quarterly
CW-01D		0941	108.71		CMP	measured quarterly
CW-02M		0924	92.08		CMP	measured quarterly
CW-02D		0920	91.73		CMP	measured quarterly
CW-03M		0933	76.96		CMP	measured quarterly
CW-03D		0931	76.40		CMP	measured quarterly
CW-04M		0951	60.87		CMP	measured quarterly
CW-04D		0948	60.85		CMP	measured quarterly

* Confirmed w/ Scott O'Donnell/IM-3 that yesterday (6-1-10) was a normal operation day - no backwashing or other activities that affected the injection rate.

B. Colton/CHAM WLI # PGE-2005-03 6-2-10