

Topock Project Executive Abstract

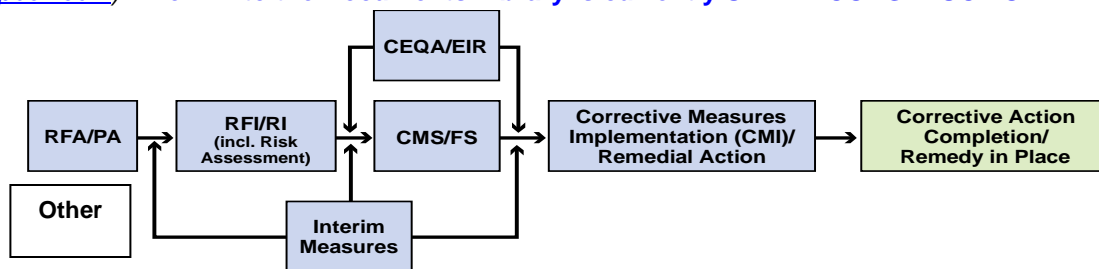
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<p>What does this information pertain to?</p> <p><input type="checkbox"/> Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA)/Preliminary Assessment (PA)</p> <p><input type="checkbox"/> RCRA Facility Investigation (RFI)/Remedial Investigation (RI) (including Risk Assessment)</p> <p><input type="checkbox"/> Corrective Measures Study (CMS)/Feasibility Study (FS)</p> <p><input type="checkbox"/> Corrective Measures Implementation (CMI)/Remedial Action</p> <p><input type="checkbox"/> California Environmental Quality Act (CEQA)/Environmental Impact Report (EIR)</p> <p><input checked="" type="checkbox"/> Interim Measures</p> <p><input type="checkbox"/> Other / Explain:</p>	<p>Is this a Regulatory Requirement?</p> <p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p>If no, why is the document needed?</p>
<p>What is the consequence of NOT doing this item? What is the consequence of DOING this item?</p> <p>Submittal of this report is a compliance requirement of WDR No. R7-2006-0060</p>	<p>Other Justification/s:</p> <p><input type="checkbox"/> Permit <input type="checkbox"/> Other / Explain:</p>
<p>Brief Summary of attached document:</p> <p>The purpose of the Topock Compliance Monitoring Program (CMP) is two-fold: 1) to monitor changes in groundwater hydraulics and/or water quality of the aquifer in the injection well area, and 2) to ensure that the quality of the aquifer is not adversely affected by the injected water. The monitoring network consists of multiple observation wells (OW series) and compliance wells (CW series) screened in the shallow (S), middle (M), and/or deep (D) zones of the alluvial aquifer. The injection of treated groundwater in the area began in 2005. As of first quarter 2009, the monitoring data show that the middle and deep zone observation wells have water quality similar to the injected water. The shallow zone observation wells have not yet shown the injected water quality.</p> <p>This report presents analytical groundwater laboratory results and groundwater levels data collected from the first quarter 2009 monitoring event conducted in January 2009. During this monitoring event, groundwater samples from the shallow observation well OW-2S had Cr(T) concentrations of 33.2 and 32.8 micrograms per liter (µg/L), which exceeded the Cr(T) water quality objective of 28 µg/L. The concentration of Cr(T) is not related to injected water (which consistently has significantly lower chromium concentrations than well OW-2S), but instead is related to the natural variability of background water quality within the shallower portions of the groundwater aquifer. Because of this reason, DTSC and the RWQCB have stated in letters to PG&E that it is not necessary to follow contingency plan requirements for Cr(VI) and Cr(T) with respect to OW-2S and OW-5S. No other samples exceeded the water quality objectives for Cr(VI), Cr(T), pH, or TDS from the first quarter 2009 sampling event.</p>	
<p>Written by: PG&E</p>	
<p>Recommendations:</p> <p>This report is for your information only.</p>	
<p>How is this information related to the Final Remedy or Regulatory Requirements:</p> <p>The CMP is a requirement related to the Interim Measure No. 3, designed to 1) monitor changes in groundwater hydraulics and/or water quality of the aquifer in the injection well area, and 2) to ensure that the quality of the aquifer is not adversely affected by the injected water.</p>	

Other requirements of this information?

None.

Related Reports and Documents:

Click any boxes in the Regulatory Road Map (below) to be linked to the Documents Library on the DTSC Topock Web Site (www.dtsc-topock.com). The link to the Documents Library is currently **UNDER CONSTRUCTION**.



Legend

RFA/PA – RCRA Facility Assessment/Preliminary Assessment

RFI/RI – RCRA Facility Investigation/CERCLA Remedial Investigation (including Risk Assessment)

CMS/FS – RCRA Corrective Measure Study/CERCLA Feasibility Study

CEQA/EIR – California Environmental Quality Act/Environmental Impact Report



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April 15, 2009

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Subject: Board Order R7-2006-0060, WDID No. 7B 36 2033 001 - Interim Measures
Compliance Monitoring Program Groundwater Monitoring Report, First Quarter
2009, PG&E Topock Compressor Station, Needles, California

Dear Mr. Yue and Mr. Perdue:

Enclosed is the *Groundwater Monitoring Report, First Quarter 2009* for the Interim Measure Compliance Monitoring Program (CMP) at the Pacific Gas and Electric Company (PG&E) Topock Compressor Station. This monitoring report presents the results of the first quarter 2009 CMP groundwater monitoring event, and has been prepared in conformance with California Regional Water Quality Board (Water Board) Order No. R7-2006-0060, as well as with the Department of Toxic Substances Control (DTSC)'s July 15, 2005 letter approving the Compliance Monitoring Plan and June 9, 2006 letter modifying the reporting requirements.

On August 8, 2006, 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 hexavalent chromium (Cr[VI]), total chromium (Cr[T]), total dissolved solids (TDS), and pH to be used to determine if contingency plan actions were necessary based on sample results. On August 22, 2008, the Water Board approved modifications to the contingency plan field pH range and the MRP. On December 12, 2008, the modifications to the field pH range were approved by DTSC. The remaining MRP modifications are awaiting DTSC approval. The water quality objectives (WQO) concentrations used to trigger the contingency plan are as follows: Cr(VI) greater

Mr. Aaron Yue
Mr. Robert Purdue
Page 2
April 15, 2009

than 32.6 micrograms per liter ($\mu\text{g/L}$), Cr(T) 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.

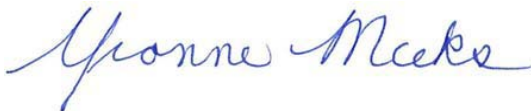
During the first quarter 2009 monitoring event, a primary sample and field duplicate from the well OW-2S (33.2 and 32.8 $\mu\text{g/L}$) exceeded the Cr(T) WQO. A review of the water quality parameters indicative of treated groundwater injection (Cr(VI), TDS, sulfate, molybdenum, nitrate/nitrite, and fluoride) confirm that injected water has not yet reached OW-2S and that the concentration of Cr(T) 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 Cr(T) with respect to OW-2S and OW-5S. The Colorado River Basin Water Board concurred with this decision in a letter dated March 2, 2007. As such, the contingency plan was not triggered due to the Cr(T) concentration detected in OW-2S during the first quarter 2009.

No other samples exceeded the action levels for Cr(VI), Cr(T), pH, or TDS during first quarter 2009 sampling. The next CMP sampling event is scheduled to occur in April 2009.

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

Sincerely,

A handwritten signature in blue ink that reads "Yvonne Meeks". The signature is fluid and cursive, with the first name and last name clearly distinguishable.

Yvonne Meeks
Topock Remediation Project Manager

Cc: Abdi Haile, Water Board
Christopher Guerre, DTSC

Enclosure

Final Report

**Compliance Monitoring Program
Groundwater Monitoring Report,
First Quarter 2009**

**Interim Measure No. 3
PG&E Topock Compressor Station
Needles, California
Board Order R7-2006-0060
WDID No. 7B 36 2033 001**

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

April 15, 2009

CH2MHILL

155 Grand Avenue, Suite 1000
Oakland, CA 94612

**Compliance Monitoring Program
Groundwater Monitoring Report
First Quarter 2009**

**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

April 15, 2009

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(T)	total chromium
Cr(VI)	hexavalent chromium
CW	compliance well
DTSC	California Department of Toxic Substances Control
EPA	United States Environmental Protection Agency
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
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.)

On October 13, 2004, the California Regional Water Quality Control Board, Colorado River Basin Region (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. 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 Compliance Monitoring Program (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. The *Groundwater Compliance Monitoring Plan for Interim Measures No. 3 Injection Area* (CH2M HILL, 2005a) was submitted to the Water Board and the California 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 CMP. In a letter dated June 9, 2006, DTSC modified the reporting requirements of the Compliance Monitoring Plan (DTSC, 2006). This report incorporates the additional 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 and compliance wells) 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). Observation wells (OWs) are sampled for a limited suite of constituents during quarterly monitoring events. Semiannual CMP events still retain the original constituent suite for the OWs and compliance wells (CWs).

Under the CMP, as of January 2009, samples are collected from OWs and CWs (Figure 2) according to the following schedule:

- Nine observation wells located near the IM No. 3 injection well field are sampled quarterly for a limited suite of constituents.
- Eight compliance monitoring wells and nine observation wells located around the IM No. 3 injection well field are sampled semiannually for a full suite of constituents.

On October 16, 2007, the Water Board approved collecting pH measurements in the field rather than through laboratory analysis due to the new 15-minute holding time for laboratory measurements specified by United States Environmental Protection Agency (EPA) 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).

Modifications to the CMP, including the sampling and reporting frequency and the field pH trigger range for the CMP contingency plan, were proposed to the Water Board and the DTSC by PG&E on July 3, 2008. On August 28, 2008, the Water Board approved these modifications as Revision 1 to the MRP (Water Board, 2008). As of 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 are awaiting DTSC approval.

For both quarterly and semiannual sampling events, laboratory analyses include dissolved total chromium (Cr[T]), Cr(VI), metals, specific conductance, total dissolved solids (TDS), turbidity, and major inorganic cations and anions. For quarterly events, the metals, cations, and anions list is reduced. 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 quarter 2009 CMP groundwater monitoring event.

2.0 First Quarter 2009 Activities

This section provides a summary of the monitoring and sampling activities completed during the first quarter 2009. The first quarter 2009 monitoring event was conducted on January 6, 2009 and consisted of the following:

- Nine observation monitoring wells were sampled for water quality analyses.
- Groundwater elevations and field water quality data were collected prior to sampling.
- One duplicate sample was collected at well OW-2S to assess field sampling and analytical quality control.

Continuous groundwater elevation data were collected using pressure transducers/data loggers at each 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* (CH2M HILL, 2005b).

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* (CH2M HILL, 2005b). Data validation and management were conducted in accordance with the *Quality Assurance Project Plan* (QAPP) provided as Appendix D of the *Sampling, Analysis, and Field Procedures Manual*.

3.0 First Quarter 2009 Results

This section is a summary of the results of the CMP groundwater sampling conducted during the first quarter 2009. Figure 2 presents the locations of the CMP groundwater wells.

The data presented include results for Cr(VI), Cr(T), 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 quarter 2009 monitoring event are presented in Appendices A and B, respectively.

3.1 Analytical Results

Nine observation wells were sampled during the first quarter 2009 sampling event. Analytical results for Cr(VI) and Cr(T), other metals, and general chemistry parameters are presented in Tables 3 and 4 are discussed below. Interim action levels/water quality objectives (WQOs) were updated in the *Addendum to the Compliance Monitoring Plan*, which was submitted to DTSC and the Water Board on December 13, 2005 (CH2M HILL, 2005c). On August 8, 2006, 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), Cr(T), TDS, and pH to be used to determine if contingency plan actions were necessary based on sample results.

3.1.1 Hexavalent and Total Chromium

Table 3 presents the Cr(VI) and Cr(T) results for groundwater in the shallow, middle, and deep wells for the first quarter 2009 CMP sampling event that occurred on January 6, 2009. For shallow wells, the maximum detected Cr(VI) concentration was 32.2 micrograms per liter ($\mu\text{g/L}$) in well OW-2S. For the middle wells, the maximum detected Cr(VI) concentration was 1.46 $\mu\text{g/L}$ in well OW-2M. For the deep wells, the maximum detected Cr(VI) concentration was 0.49 $\mu\text{g/L}$ in well OW-5D.

During the first quarter 2009 sampling event, none of the samples collected from shallow, middle, and deep wells exceeded the WQO of 32.6 $\mu\text{g/L}$ for Cr(VI).

For shallow wells, the maximum detected Cr(T) concentration during the January 6, 2009 sampling was 33.2 $\mu\text{g/L}$ in well OW-2S. For the middle wells, the maximum detected Cr(T) concentration was 1.41 $\mu\text{g/L}$ in well OW-2M. For the deep wells, all of the Cr(T) concentrations were below the reporting limit of 1.0 $\mu\text{g/L}$.

During the first quarter 2009 sampling event, samples from one well exceeded the WQO of 28 $\mu\text{g/L}$ for Cr(T). A primary sample and duplicate sample from well OW-2S had concentrations of 33.2 $\mu\text{g/L}$ and 32.8 $\mu\text{g/L}$, respectively. For these exceedances, the results are not considered to be the result of injection of treated groundwater as the average effluent concentration of Cr(T) from the IM No. 3 treatment plant is normally non-detect with a reporting limit of 0.2 $\mu\text{g/L}$ (CH2M HILL, 2009a). Cr(T) and Cr(VI) concentrations at OW-2S

have been consistently above the WQOs since November 2005. This exceedance of Cr(T) is thus considered reflective of the natural variance in background water quality.

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 quarter 2009. Since the first quarter 2007, the observation wells have been sampled for a limited suite of constituents during quarterly monitoring events. Metals and ions detected in the first quarter 2009 sampling included boron, molybdenum, chloride, fluoride, sulfate, and nitrate/nitrite as nitrogen. In general, concentrations of metals and ions detected during the first quarter 2009 sampling event are similar to those detected in previous sampling events.

During the first quarter 2009, 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 904 mg/L in well OW-2S to 4,480 mg/L in well OW-1M and field pH varied from 7.75 in wells OW-1M to 8.17 in well OW-2S.

3.2 Analytical Data Quality Review

The laboratory analytical data generated from the first quarter 2009 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 QAPP for the PG&E Topock Program, which is Appendix D of the *Sampling, Analysis, and Field Procedures Manual, Revision 1* (CH2M HILL, 2005b). A detailed discussion of data quality for CMP sampling data is presented in the data validation reports, which are kept in the project file and are available upon request.

3.2.1 Matrix Interference

For the first quarter 2009 sampling event, matrix interference was encountered in two groundwater samples that affected the sensitivity for Cr(VI) when using EPA Method 218.6. The Cr(VI) sample results from OW-1D and OW-2D reflected 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 quarter 2009 sampling event, all matrix spike acceptance criteria were met.

3.2.3 Quantitation and Sensitivity

For the first quarter 2009 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 quarter 2009 sampling event, all method holding time requirements were met.

3.2.5 Field Duplicates

For the first quarter 2009 sampling event, all field duplicate acceptance criteria were met.

3.2.6 Method Blanks

For the first quarter 2009 sampling event, method blank acceptance criteria were met.

3.2.7 Equipment Blanks

For the first quarter 2009 sampling event, equipment blank acceptance criteria were met.

3.2.8 Laboratory Duplicates

For the first quarter 2009 sampling event, laboratory duplicate acceptance criteria for the methods were met.

3.2.9 Calibration

For the first quarter 2009 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 quarter 2009 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 analytical results from three of the monthly reports: August 29, 2005, March 18, 2006, and January 9, 2009. 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), Cr(T), 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 August 2005 through January 2009 effluent characteristics):

- Cr(VI): typically non-detect (1.0 µg/L)
- Cr(T): typically non-detect (1.0 µg/L)
- Fluoride: approximately 2 mg/L

- Molybdenum: approximately 9 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 Cr(T), 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 quarter 2009 sampling event). These samples were collected after approximately 42 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 quarter 2009 sample results now show a marked similarity to the treated water results. The following wells display the general characteristics of treated water: OW-1M, OW-1D, OW-2M, OW-2D, OW-5M, and OW-5D. These wells are locations and depths where the treated water injection front has largely replaced the local pre-injection groundwater. To date, all shallow observations wells (wells OW-1S, OW-2S, and OW-5S) show no 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, Cr(T), 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 quarter within the IM No. 3 injection well field 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.

3.4 Water Level Measurements

Table 7 presents the manual water level measurements and groundwater elevations for the first quarter 2009 monitoring events.

As a requirement of the conditional approval by DTSC (DTSC, 2005), water level measurements were used to produce hydrographs for each well cluster. Figures 4A through 4G present hydrographs that illustrate groundwater elevation trends and vertical hydraulic gradients observed over the first quarter 2009 reporting period at the observation and compliance monitoring wells.

Average groundwater elevation maps for shallow, middle, and deep wells are also provided as Figures 5A through 5C. Water levels used to produce the monthly average groundwater elevation contour plots were taken from a selected number of days in which the levels remained reasonably constant. These dates are noted on each figure.

3.4.1 Groundwater Flow Characteristics

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, 2009b).

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 around the active injection wells IW-3 and IW-2. The potentiometric surfaces in prior CMP reports mapped the growth of the groundwater mound over time and show that, after 42 months of injection, the mound has 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 January 1 to January 31, 2009 averages. 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 January 1 to January 31, 2009 average groundwater levels. 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 is a summary of the field water quality data measured during the first quarter 2009 monitoring event. Field data sheets for the first quarter 2009 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 quarter 2009 monitoring events:

- 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 Quarterly Monitoring

The next quarterly monitoring event will occur in July during the third quarter of 2009. This event will include the sampling and analysis scope that was presented in the Compliance Monitoring Plan (CH2M HILL, 2005a, c) and subsequent approved scope revisions (DTSC, 2007, 2008a, b; Water Board, 2007a-c, 2008). The groundwater monitoring report for this quarterly CMP monitoring event will be submitted by October 15, 2009.

4.2 Semiannual Monitoring

The next semiannual monitoring event will occur in April during the second quarter of 2009. This CMP monitoring event, which encompasses both the OW and CW wells, 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; Water Board, 2007a-b, 2008). The groundwater monitoring report for this semiannual CMP monitoring event will be submitted by July 15, 2009.

5.0 References

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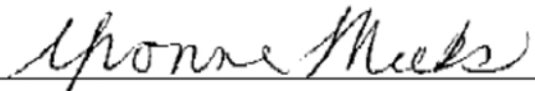
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- _____. 2009b. *Groundwater and Surface Water Monitoring Report, Fourth Quarter 2008 and Annual Summary*. March.

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: April 15, 2009

TABLE 1

Operational Status of Interim Measures No. 3 Injection Wells From Inception of Injection Through First Quarter 2009
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.

TABLE 2

Well Construction and Sampling Summary for Groundwater Samples, First Quarter 2009

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	566.16	140 - 190	2 (PVC)	190.0	109.4	Temp Redi-Flo AR	3	42	124	Active	
CW-01D	East Mesa	566.57	250 - 300	2 (PVC)	300.2	109.5	Temp Redi-Flo AR	3	100	125	Active	
CW-02M	East Mesa	549.37	152 - 202	2 (PVC)	202.0	93.3	Temp Redi-Flo AR	2	56	108	Active	
CW-02D	East Mesa	549.64	285 - 335	2 (PVC)	355.0	92.8	Temp Redi-Flo AR	3	135	108	Active	
CW-03M	East Mesa	534.21	172 - 222	2 (PVC)	222.0	78.1	Temp Redi-Flo AR	2	75	93	Active	
CW-03D	East Mesa	534.27	270 - 320	2 (PVC)	340.0	77.4	Temp Redi-Flo AR	3	135	93	Active	
CW-04M	East Mesa	518.66	119.5 - 169.8	2 (PVC)	169.8	62.1	Temp Redi-Flo AR	2	56	77	Active	
CW-04D	East Mesa	518.68	233 - 283	2 (PVC)	303.0	62.0	Temp Redi-Flo AR	3	126	77	Active	
IM Observation Wells												
OW-01S	East Mesa	550.21	83.5 - 113.5	2 (PVC)	113.5	95.1	Temp Redi-Flo AR	0.5	12	109	Active	
OW-01M	East Mesa	550.45	165 - 185	2 (PVC)	185.8	94.6	Temp Redi-Flo AR	2	48	109	Active	
OW-01D	East Mesa	550.48	257 - 277	2 (PVC)	277.0	93.9	Temp Redi-Flo AR	3	94	108	Active	
OW-02S	East Mesa	548.88	71 - 101	2 (PVC)	121.0	93.7	Temp Redi-Flo AR	2	16	108	Active	
OW-02M	East Mesa	548.59	190 - 210	2 (PVC)	210.3	92.6	Temp Redi-Flo AR	3	61	107	Active	
OW-02D	East Mesa	549.15	310 - 330	2 (PVC)	340.0	92.5	Temp Redi-Flo AR	3	127	107	Active	
OW-05S	East Mesa	551.83	70 - 110	2 (PVC)	110.3	96.5	Temp Redi-Flo AR	1	8	110	Active	
OW-05M	East Mesa	551.81	210 - 250	2 (PVC)	250.3	95.8	Temp Redi-Flo AR	3	81	110	Active	
OW-05D	East Mesa	552.33	300 - 320	2 (PVC)	350.0	96.3	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 shown is the most recently measured depth to water.
 All wells were purged and sampled using well-volume method.

TABLE 3

Chromium Results for Groundwater Samples, First Quarter 2009

PG&E Topock Compliance Monitoring Program

Method:		E218.6	E200.8
Location ID	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)
OW-01S	1/6/2009	19.7	19.3
OW-01M	1/6/2009	0.79	1.04
OW-01D	1/6/2009	ND (1.0)	ND (1.0)
OW-02S	1/6/2009	31.6	33.2
OW-02S	1/6/2009 (FD)	32.2	32.8
OW-02M	1/6/2009	1.46	1.41
OW-02D	1/6/2009	ND (1.0)	ND (1.0)
OW-05S	1/6/2009	25.8	24.3
OW-05M	1/6/2009	0.77	1.08
OW-05D	1/6/2009	0.49	ND (1.0)

Notes:

FD field duplicate

ND parameter not detected at the listed reporting limit

µg/L micrograms per liter

Hexavalent Chromium is lab filtered and Dissolved Chromium is field filtered.

TABLE 4
Metals and General Chemistry Results for Groundwater Samples, First Quarter 2009
PG&E Topock Compliance Monitoring Program

Method:		E120.1	Field	SM2540C	SM2130B	E200.7	E200.8	E300.0	E300.0	E300.0	SM4500NO3
Location ID	Sample Date	Specific Conductance (µmhos/cm)	Field pH	Total Dissolved Solids (mg/L)	Turbidity (NTU)	Dissolved Boron (mg/L)	Dissolved Molybdenum (µg/L)	Chloride (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	Nitrate/Nitrite as Nitrogen (mg/L)
OW-01S	1/6/2009	2590	7.76	1690	0.933	0.321	ND (10)	781	2.28	155	2.85
OW-01M	1/6/2009	6570	7.75	4480	0.466	0.989	ND (10)	2050	1.86	477	3.08
OW-01D	1/6/2009	6570	7.86	3780	0.473	1.02	12.1	2040	1.83	479	2.98
OW-02S	1/6/2009	1640	8.17	904	1.26	0.694	38.6	398	5.25	118	4.09
OW-02S	1/6/2009 (FD)	1640	FD	926	1.30	0.656	37.5	399	5.01	119	4.19
OW-02M	1/6/2009	6550	7.82	4170	0.547	0.989	13.0	2180	2.05	476	3.16
OW-02D	1/6/2009	6510	7.90	3950	ND (0.1)	1.00	12.9	2060	1.99	475	3.05
OW-05S	1/6/2009	1610	8.05	950	1.10	0.423	29.6	410	2.60	107	4.23
OW-05M	1/6/2009	6610	7.78	3960	0.112	0.995	15.4	2060	2.32	483	3.34
OW-05D	1/6/2009	6530	7.78	4290	ND (0.1)	0.963	16.0	2060	2.32	478	3.26

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

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)	Total 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	3/18/2006	ND(1.0)	ND(1.0)	1.92	8.2	2.79	482	4040
Treated Water	1/9/2009	ND (0.2)	ND(1.0)	2.42	10.3	3.08	521	4200
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 with method E218.6.

Total chromium samples were analyzed with method E200.8.

Total chromium samples of the treated water were unfiltered.

TABLE 6

Treated Water Quality Compared to First Quarter 2009 Sampling Event Water Quality
 PG&E Topock Compliance Monitoring Program

Location ID	Sample Date	Hexavalent Chromium (µg/L)	Total Chromium (µg/L)	Fluoride (mg/L)	Dissolved Molybdenum (µg/L)	Nitrate/Nitrite as Nitrogen (mg/L)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)
Treated Water	3/8/2006	ND (1.0)	ND (1.0)	1.92	8.20	2.79	482	4040
Treated Water	9/7/2006	ND (1.0)	ND (1.0)	1.93	13.6	2.50	486	4420
Treated Water	1/9/2009	ND (0.2)	ND (1.0)	2.42	10.3	3.08	521	4200
OW-01S	1/6/2009	19.7	19.3	2.28	ND (10)	2.85	155	1690
OW-01M	1/6/2009	0.79	1.04	1.86	ND (10)	3.08	477	4480
OW-01D	1/6/2009	ND (1.0)	ND (1.0)	1.83	12.1	2.98	479	3780
OW-02S	1/6/2009	31.6	33.2	5.25	38.6	4.09	118	904
OW-02S	1/6/2009 (FD)	32.2	32.8	5.01	37.5	4.19	119	926
OW-02M	1/6/2009	1.46	1.41	2.05	13.0	3.16	476	4170
OW-02D	1/6/2009	ND (1.0)	ND (1.0)	1.99	12.9	3.05	475	3950
OW-05S	1/6/2009	25.8	24.3	2.60	29.6	4.23	107	950
OW-05M	1/6/2009	0.77	1.08	2.32	15.4	3.34	483	3960
OW-05D	1/6/2009	0.49	ND (1.0)	2.32	16.0	3.26	478	4290

Notes:

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

Hexavalent chromium samples were analyzed with method E218.6.

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

Molybdenum samples were analyzed with method E200.8.

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

Nitrate/Nitrite as Nitrogen samples were analyzed with method SM4500NO3E.

Total Dissolved Solid samples were analyzed with method SM2540C.

TABLE 7

Manual Water Level Measurements and Elevations, First Quarter 2009

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 (percent)	Groundwater/Water Elevation Adjusted for Salinity (feet AMSL)
OW-01S	113.5	550.21	06-Jan-09	11:28 AM	95.07	0.28	455.10
OW-01M	185.8	550.45	06-Jan-09	12:12 PM	94.61	0.58	455.88
OW-01D	277.0	550.48	06-Jan-09	1:17 PM	93.90	0.59	456.65
OW-02S	121.0	548.88	06-Jan-09	4:29 PM	93.68	0.17	455.13
OW-02M	210.3	548.59	06-Jan-09	3:35 PM	92.59	0.58	456.11
OW-02D	340.0	549.15	06-Jan-09	2:25 PM	92.51	0.57	456.76
OW-05S	110.3	551.83	06-Jan-09	8:20 AM	96.52	0.37	455.29
OW-05M	250.3	551.81	06-Jan-09	9:06 AM	95.78	1.18	456.74
OW-05D	350.0	552.33	06-Jan-09	10:06 AM	96.31	1.23	457.42

Notes:

AMSL above mean sea level

BTOC below top of polyvinyl chloride (PVC) casing

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	0.0043
CW-02D to CW-02M	0.0067
CW-03D to CW-03M	--
CW-04D to CW-04M	--
OW-01M to OW-01S	0.0075
OW-01D to OW-01M	0.0046
OW-02M to OW-02S	0.0062
OW-02D to OW-02M	0.0044
OW-05M to OW-05S	0.0112
OW-05D to OW-05M	0.0060

^a Positive value signifies an upward gradient.Gradients calculated using January 1 through
January 31, 2009 average groundwater levels."--": Data unavailable for CW-03D and CW-04D due to
transducer failure. Vertical gradients cannot be
calculated.

TABLE 9

Field Parameter Measurements for Groundwater Samples, First Quarter 2009

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 (%)
OW-01S	1/6/2009	2979	28.84	7.76	-80	2.98	3	0.19
OW-01M	1/6/2009	7290	29.68	7.75	-57.9	6.11	0.5	0.47
OW-01D	1/6/2009	7321	29.66	7.86	-38.2	6.71	0.8	0.47
OW-02S	1/6/2009	1807	28.29	8.17	-54.7	5.11	3	0.11
OW-02M	1/6/2009	7271	28.9	7.82	-37.1	5.97	0.4	0.47
OW-02D	1/6/2009	7302	27.55	7.9	-47.4	4.81	0.5	0.47
OW-05S	1/6/2009	1785	28.26	8.05	-48.6	5.25	5	0.11
OW-05M	1/6/2009	7347	29.9	7.78	-57.4	4.33	0.3	0.47
OW-05D	1/6/2009	7316	29.45	7.78	-32.7	4.73	0.3	0.47

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

TABLE 10

Board Order No. R7-2006-0060 WDR Monitoring Information for Groundwater Samples, First Quarter 2009

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-01D	OW-01D-019	Barry Collom	1/6/2009	2:04:00 PM	TLI	EPA 120.1	SC	1/8/2009	Tina Acquiat	µmhos/cm	6570	2.0	0.099
					TLI	EPA 200.7	BD	1/14/2009	Mark Kotani	mg/L	1.02	0.02	0.0048
					TLI	EPA 200.8	CRTD	1/15/2009	Romuel Chaves	µg/L	ND (1.0)	1.0	0.0532
					TLI	EPA 200.8	MOD	1/26/2009	Romuel Chaves	µg/L	12.1	10.0	0.0168
					TLI	EPA 218.6	CR6	1/8/2009	Michael Nonezyan	µg/L	ND (1.0)	1.0	0.152
					TLI	EPA 300.0	CL	1/12/2009	Giawad Ghenniwa	mg/L	2040	100	14.0
					TLI	EPA 300.0	FL	1/8/2009	Giawad Ghenniwa	mg/L	1.83	0.5	0.025
					TLI	EPA 300.0	SO4	1/12/2009	Giawad Ghenniwa	mg/L	479	12.5	0.60
					TLI	SM2130B	TRB	1/8/2009	Gautam Savani	NTU	0.473	0.1	0.007
					TLI	SM2540C	TDS	1/8/2009	Tina Acquiat	mg/L	3780	250	50.4
					EMXT	SM4500NO3-E	NO3NO2N	1/14/2009	Elena Robles	mg/L	2.98	0.5	0.10
OW-01M	OW-01M-019	Barry Collom	1/6/2009	12:47:00 PM	TLI	EPA 120.1	SC	1/8/2009	Tina Acquiat	µmhos/cm	6570	2.0	0.099
					TLI	EPA 200.7	BD	1/14/2009	Mark Kotani	mg/L	0.989	0.02	0.0048
					TLI	EPA 200.8	CRTD	1/15/2009	Romuel Chaves	µg/L	1.04	1.0	0.0532
					TLI	EPA 200.8	MOD	1/26/2009	Romuel Chaves	µg/L	ND (10)	10.0	0.0168
					TLI	EPA 218.6	CR6	1/8/2009	Michael Nonezyan	µg/L	0.79	0.2	0.0304
					TLI	EPA 300.0	CL	1/12/2009	Giawad Ghenniwa	mg/L	2050	100	14.0
					TLI	EPA 300.0	FL	1/8/2009	Giawad Ghenniwa	mg/L	1.86	0.5	0.025
					TLI	EPA 300.0	SO4	1/12/2009	Giawad Ghenniwa	mg/L	477	12.5	0.60
					TLI	SM2130B	TRB	1/8/2009	Gautam Savani	NTU	0.466	0.1	0.007
					TLI	SM2540C	TDS	1/8/2009	Tina Acquiat	mg/L	4480	250	50.4
					EMXT	SM4500NO3-E	NO3NO2N	1/14/2009	Elena Robles	mg/L	3.08	0.5	0.10
OW-01S	OW-01S-019	Barry Collom	1/6/2009	11:51:00 AM	TLI	EPA 120.1	SC	1/8/2009	Tina Acquiat	µmhos/cm	2590	2.0	0.099
					TLI	EPA 200.7	BD	1/14/2009	Mark Kotani	mg/L	0.321	0.02	0.0048
					TLI	EPA 200.8	CRTD	1/15/2009	Romuel Chaves	µg/L	19.3	1.0	0.0532
					TLI	EPA 200.8	MOD	1/26/2009	Romuel Chaves	µg/L	ND (10)	10.0	0.0168
					TLI	EPA 218.6	CR6	1/8/2009	Michael Nonezyan	µg/L	19.7	0.2	0.0304

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
OW-01S	OW-01S-019	Barry Collom	1/6/2009	11:51:00 AM	TLI	EPA 300.0	CL	1/12/2009	Giawad Ghenniwa	mg/L	781	40.0	5.60
					TLI	EPA 300.0	FL	1/8/2009	Giawad Ghenniwa	mg/L	2.28	0.5	0.025
					TLI	EPA 300.0	SO4	1/12/2009	Giawad Ghenniwa	mg/L	155	5.0	0.24
					TLI	SM2130B	TRB	1/8/2009	Gautam Savani	NTU	0.933	0.1	0.007
					TLI	SM2540C	TDS	1/8/2009	Tina Acquiati	mg/L	1690	50.0	10.1
					EMXT	SM4500NO3-E	NO3NO2N	1/14/2009	Elena Robles	mg/L	2.85	0.5	0.10
OW-02D	OW-02D-019	Barry Collom	1/6/2009	3:20:00 PM	TLI	EPA 120.1	SC	1/8/2009	Tina Acquiati	µmhos/cm	6510	2.0	0.099
					TLI	EPA 200.7	BD	1/14/2009	Mark Kotani	mg/L	1.00	0.02	0.0048
					TLI	EPA 200.8	CRTD	1/15/2009	Romuel Chaves	µg/L	ND (1.0)	1.0	0.0532
					TLI	EPA 200.8	MOD	1/26/2009	Romuel Chaves	µg/L	12.9	10.0	0.0168
					TLI	EPA 218.6	CR6	1/8/2009	Michael Nonezyan	µg/L	ND (1.0)	1.0	0.152
					TLI	EPA 300.0	CL	1/12/2009	Giawad Ghenniwa	mg/L	2060	100	14.0
					TLI	EPA 300.0	FL	1/8/2009	Giawad Ghenniwa	mg/L	1.99	0.5	0.025
					TLI	EPA 300.0	SO4	1/12/2009	Giawad Ghenniwa	mg/L	475	12.5	0.60
					TLI	SM2130B	TRB	1/8/2009	Gautam Savani	NTU	ND (0.1)	0.1	0.007
					TLI	SM2540C	TDS	1/8/2009	Tina Acquiati	mg/L	3950	250	50.4
					EMXT	SM4500NO3-E	NO3NO2N	1/14/2009	Elena Robles	mg/L	3.05	0.5	0.10
OW-02M	OW-02M-019	Barry Collom	1/6/2009	4:15:00 PM	TLI	EPA 120.1	SC	1/8/2009	Tina Acquiati	µmhos/cm	6550	2.0	0.099
					TLI	EPA 200.7	BD	1/14/2009	Mark Kotani	mg/L	0.989	0.02	0.0048
					TLI	EPA 200.8	MOD	1/26/2009	Romuel Chaves	µg/L	13.0	10.0	0.0168
					TLI	EPA 200.8	CRTD	1/15/2009	Romuel Chaves	µg/L	1.41	1.0	0.0532
					TLI	EPA 218.6	CR6	1/8/2009	Michael Nonezyan	µg/L	1.46	1.0	0.152
					TLI	EPA 300.0	SO4	1/12/2009	Giawad Ghenniwa	mg/L	476	12.5	0.60
					TLI	EPA 300.0	FL	1/8/2009	Giawad Ghenniwa	mg/L	2.05	0.5	0.025
					TLI	EPA 300.0	CL	1/12/2009	Giawad Ghenniwa	mg/L	2180	100	14.0
					TLI	SM2130B	TRB	1/8/2009	Gautam Savani	NTU	0.547	0.1	0.007
					TLI	SM2540C	TDS	1/8/2009	Tina Acquiati	mg/L	4170	250	50.4

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
OW-02M	OW-02M-019	Barry Collom	1/6/2009	4:15:00 PM	EMXT	SM4500NO3-E	NO3NO2N	1/14/2009	Elena Robles	mg/L	3.16	0.5	0.10
OW-02S	MW-91-019	Barry Collom	1/6/2009	1:30:00 PM	TLI	EPA 120.1	SC	1/8/2009	Tina Acquiat	µmhos/cm	1640	2.0	0.099
					TLI	EPA 200.7	BD	1/14/2009	Mark Kotani	mg/L	0.656	0.02	0.0048
					TLI	EPA 200.8	MOD	1/26/2009	Romuel Chaves	µg/L	37.5	10.0	0.0168
					TLI	EPA 200.8	CRTD	1/15/2009	Romuel Chaves	µg/L	32.8	1.0	0.0532
					TLI	EPA 218.6	CR6	1/8/2009	Michael Nonezyan	µg/L	32.2	1.0	0.152
					TLI	EPA 300.0	CL	1/12/2009	Giawad Ghenniwa	mg/L	399	20.0	2.80
					TLI	EPA 300.0	FL	1/8/2009	Giawad Ghenniwa	mg/L	5.01	0.5	0.025
					TLI	EPA 300.0	SO4	1/12/2009	Giawad Ghenniwa	mg/L	119	5.0	0.24
					TLI	SM2130B	TRB	1/8/2009	Gautam Savani	NTU	1.30	0.1	0.007
					TLI	SM2540C	TDS	1/8/2009	Tina Acquiat	mg/L	926	50.0	10.1
					EMXT	SM4500NO3-E	NO3NO2N	1/14/2009	Elena Robles	mg/L	4.19	0.5	0.10
OW-02S	OW-02S-019	Barry Collom	1/6/2009	4:48:00 PM	TLI	EPA 120.1	SC	1/8/2009	Tina Acquiat	µmhos/cm	1640	2.0	0.099
					TLI	EPA 200.7	BD	1/14/2009	Mark Kotani	mg/L	0.694	0.02	0.0048
					TLI	EPA 200.8	CRTD	1/15/2009	Romuel Chaves	µg/L	33.2	1.0	0.0532
					TLI	EPA 200.8	MOD	1/26/2009	Romuel Chaves	µg/L	38.6	10.0	0.0168
					TLI	EPA 218.6	CR6	1/8/2009	Michael Nonezyan	µg/L	31.6	1.0	0.152
					TLI	EPA 300.0	SO4	1/12/2009	Giawad Ghenniwa	mg/L	118	5.0	0.24
					TLI	EPA 300.0	FL	1/8/2009	Giawad Ghenniwa	mg/L	5.25	0.5	0.025
					TLI	EPA 300.0	CL	1/12/2009	Giawad Ghenniwa	mg/L	398	20.0	2.80
					TLI	SM2130B	TRB	1/8/2009	Gautam Savani	NTU	1.26	0.1	0.007
					TLI	SM2540C	TDS	1/8/2009	Tina Acquiat	mg/L	904	50.0	10.1
					EMXT	SM4500NO3-E	NO3NO2N	1/14/2009	Elena Robles	mg/L	4.09	0.5	0.10
OW-05D	OW-05D-019	Barry Collom	1/6/2009	11:03:00 AM	TLI	EPA 120.1	SC	1/8/2009	Tina Acquiat	µmhos/cm	6530	2.0	0.099
					TLI	EPA 200.7	BD	1/14/2009	Mark Kotani	mg/L	0.963	0.02	0.0048
					TLI	EPA 200.8	MOD	1/26/2009	Romuel Chaves	µg/L	16.0	10.0	0.0168
					TLI	EPA 200.8	CRTD	1/15/2009	Romuel Chaves	µg/L	ND (1.0)	1.0	0.0532

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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
OW-05D	OW-05D-019	Barry Collom	1/6/2009	11:03:00 AM	TLI	EPA 218.6	CR6	1/8/2009	Michael Nonezyan	µg/L	0.49	0.2	0.0304
					TLI	EPA 300.0	SO4	1/12/2009	Giawad Ghenniwa	mg/L	478	12.5	0.60
					TLI	EPA 300.0	FL	1/8/2009	Giawad Ghenniwa	mg/L	2.32	0.5	0.025
					TLI	EPA 300.0	CL	1/12/2009	Giawad Ghenniwa	mg/L	2060	100	14.0
					TLI	SM2130B	TRB	1/8/2009	Gautam Savani	NTU	ND (0.1)	0.1	0.007
					TLI	SM2540C	TDS	1/8/2009	Tina Acquiati	mg/L	4290	250	50.4
					EMXT	SM4500NO3-E	NO3NO2N	1/14/2009	Elena Robles	mg/L	3.26	0.5	0.10
OW-05M	OW-05M-019	Barry Collom	1/6/2009	9:45:00 AM	TLI	EPA 120.1	SC	1/8/2009	Tina Acquiati	µmhos/cm	6610	2.0	0.099
					TLI	EPA 200.7	BD	1/14/2009	Mark Kotani	mg/L	0.995	0.02	0.0048
					TLI	EPA 200.8	CRTD	1/15/2009	Romuel Chaves	µg/L	1.08	1.0	0.0532
					TLI	EPA 200.8	MOD	1/26/2009	Romuel Chaves	µg/L	15.4	10.0	0.0168
					TLI	EPA 218.6	CR6	1/8/2009	Michael Nonezyan	µg/L	0.77	0.2	0.0304
					TLI	EPA 300.0	CL	1/12/2009	Giawad Ghenniwa	mg/L	2060	100	14.0
					TLI	EPA 300.0	FL	1/8/2009	Giawad Ghenniwa	mg/L	2.32	0.5	0.025
					TLI	EPA 300.0	SO4	1/12/2009	Giawad Ghenniwa	mg/L	483	12.5	0.60
					TLI	SM2130B	TRB	1/8/2009	Gautam Savani	NTU	0.112	0.1	0.007
					TLI	SM2540C	TDS	1/8/2009	Tina Acquiati	mg/L	3960	250	50.4
					EMXT	SM4500NO3-E	NO3NO2N	1/14/2009	Elena Robles	mg/L	3.34	0.5	0.10
OW-05S	OW-05S-019	Barry Collom	1/6/2009	8:45:00 AM	TLI	EPA 120.1	SC	1/8/2009	Tina Acquiati	µmhos/cm	1610	2.0	0.099
					TLI	EPA 200.7	BD	1/14/2009	Mark Kotani	mg/L	0.423	0.02	0.0048
					TLI	EPA 200.8	MOD	1/26/2009	Romuel Chaves	µg/L	29.6	10.0	0.0168
					TLI	EPA 200.8	CRTD	1/15/2009	Romuel Chaves	µg/L	24.3	1.0	0.0532
					TLI	EPA 218.6	CR6	1/8/2009	Michael Nonezyan	µg/L	25.8	1.0	0.152
					TLI	EPA 300.0	FL	1/8/2009	Giawad Ghenniwa	mg/L	2.60	0.5	0.025
					TLI	EPA 300.0	CL	1/12/2009	Giawad Ghenniwa	mg/L	410	40.0	5.60
					TLI	EPA 300.0	SO4	1/12/2009	Giawad Ghenniwa	mg/L	107	25.0	1.20
					TLI	SM2130B	TRB	1/8/2009	Gautam Savani	NTU	1.10	0.1	0.007

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
OW-05S	OW-05S-019	Barry Collom	1/6/2009	8:45:00 AM	TLI	SM2540C	TDS	1/8/2009	Tina Acquiat	mg/L	950	50.0	10.1
					EMXT	SM4500NO3-E	NO3NO2N	1/14/2009	Elena Robles	mg/L	4.23	0.5	0.10

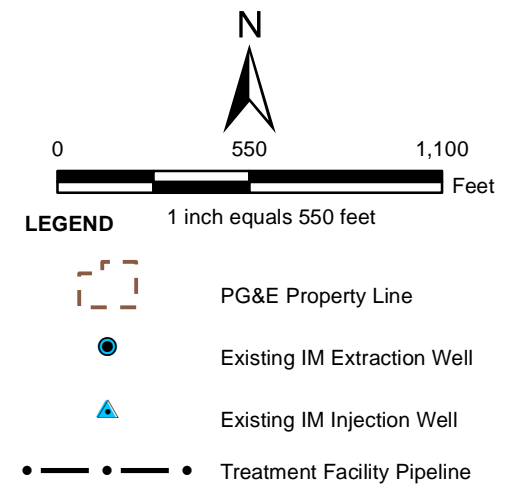
NOTES:

MDL method detection limit corrected for sample dilution
 RL reporting limit
 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

TLI Truesdail Laboratories, Inc.
 EMXT EMAX Laboratories
 WDR Waste Discharge Requirements

SC specific conductance
 TDS total dissolved solids
 TRB turbidity
 CRTD chromium, dissolved
 CR6 hexavalent chromium
 CL chloride
 FL fluoride
 BD boron, dissolved
 MOD molybdenum, dissolved
 NO3NO2N nitrate/nitrite (as N)
 SO4 sulfate

Figures

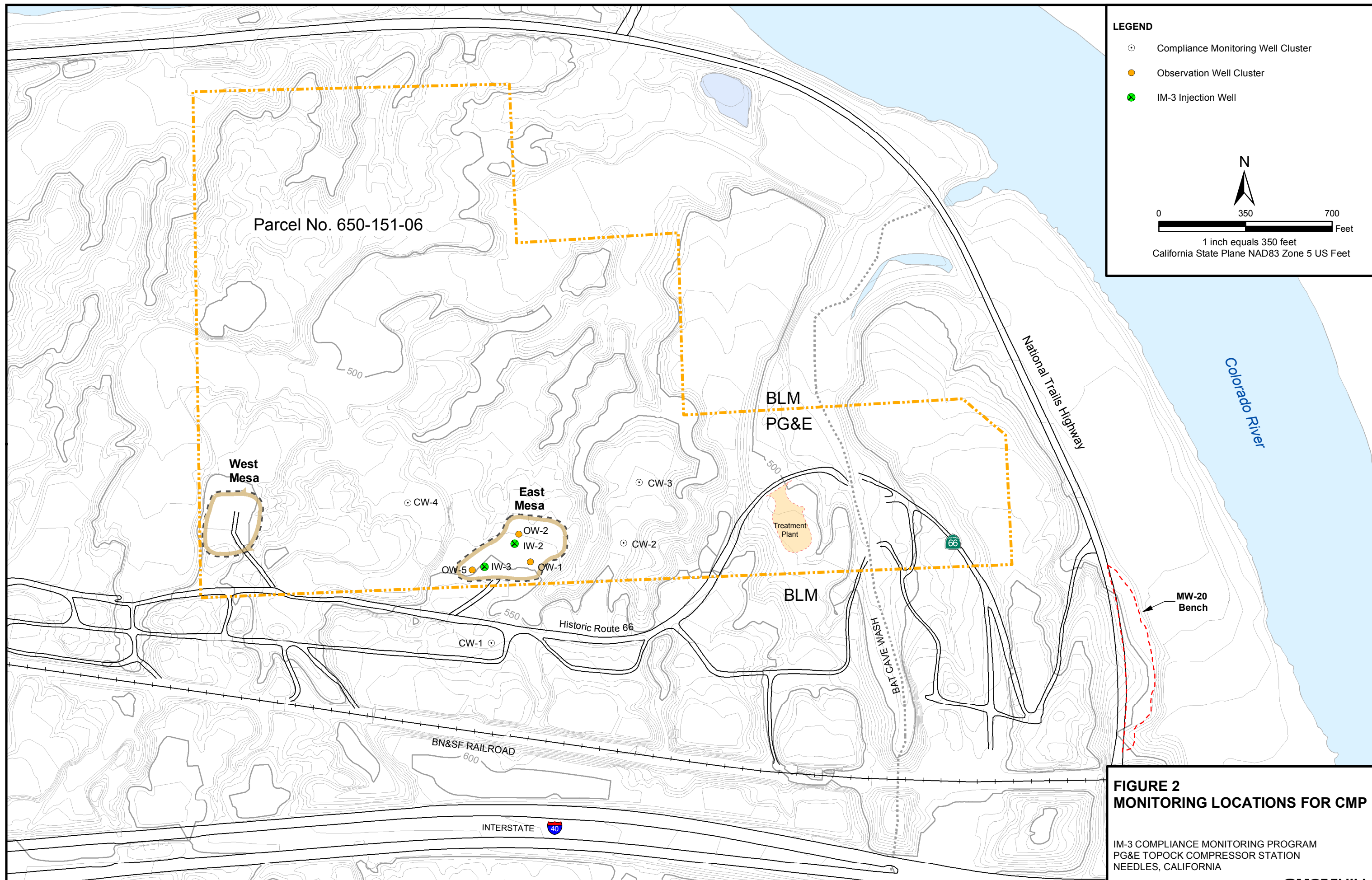


Notes: Location map shows Interim Measures No.3 (IM-3) facilities as of January 2006.
Aerial photography taken May 2005.

FIGURE 1 SITE LOCATION AND LAYOUT

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

CH2MHILL



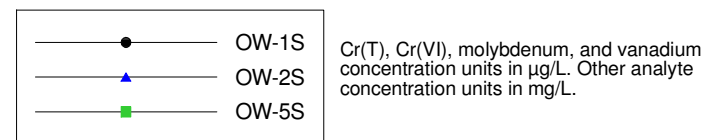
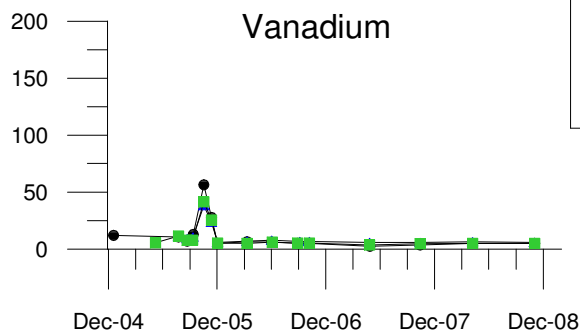
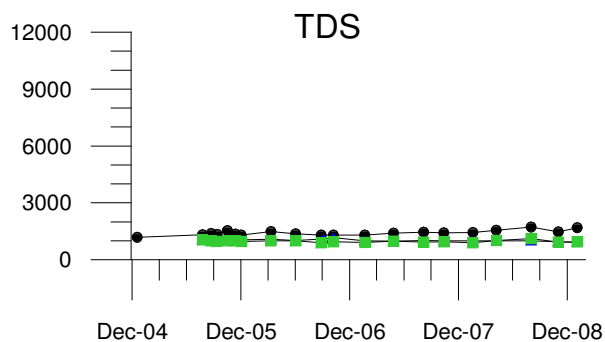
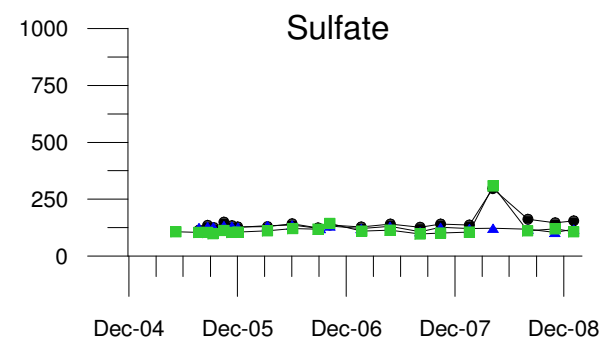
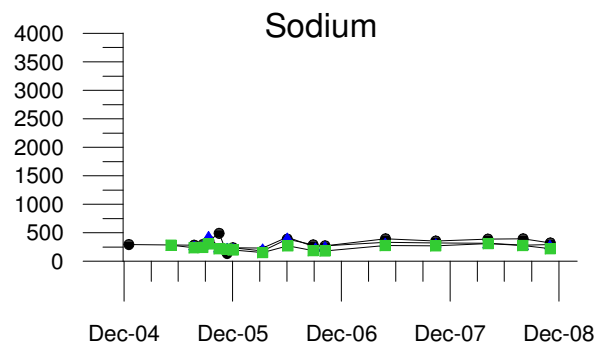
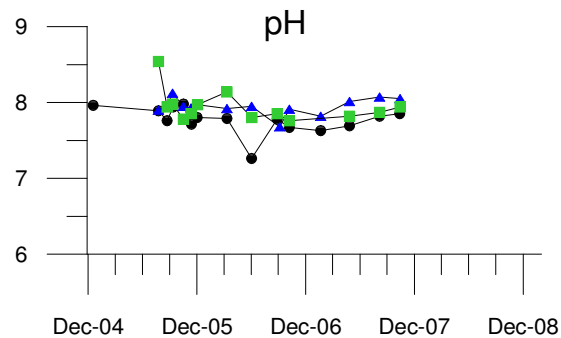
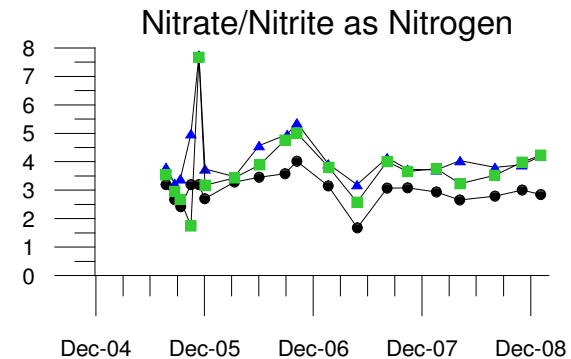
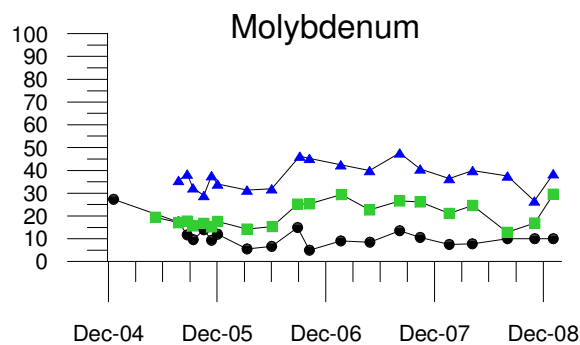
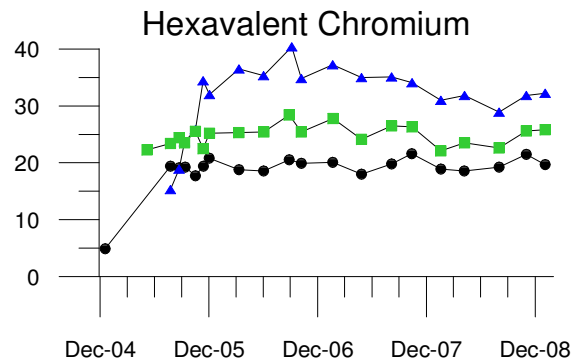
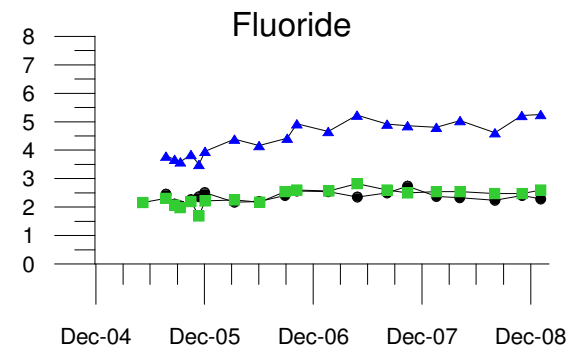
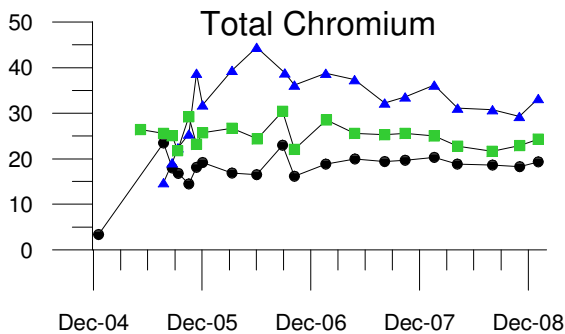
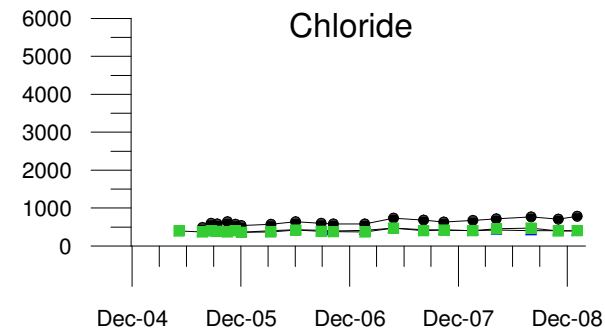


FIGURE 3A
OW-1S, OW-2S, OW-5S
WATER QUALITY HYDROGRAPHS
 IM3 COMPLIANCE MONITORING PROGRAM
 PG&E TOPOCK COMPRESSOR STATION
 NEEDLES, CALIFORNIA

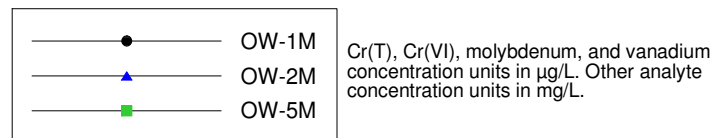
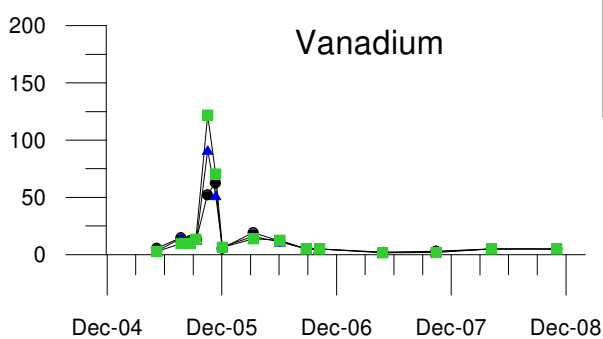
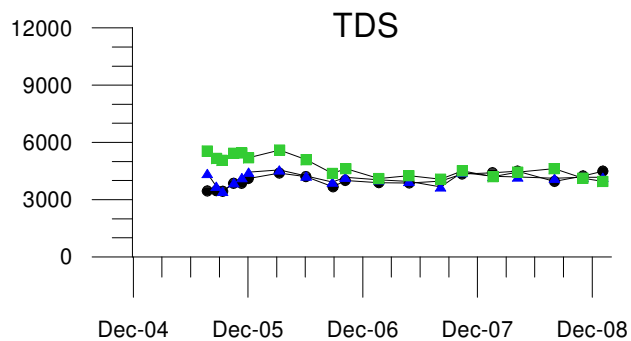
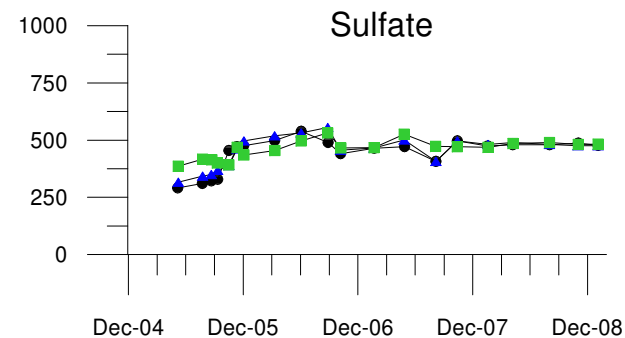
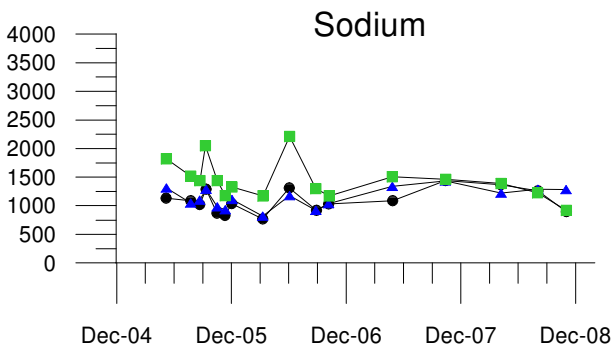
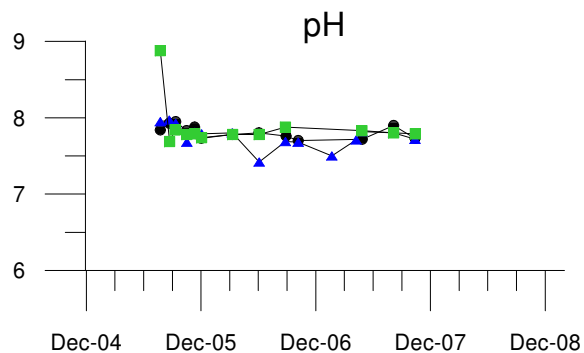
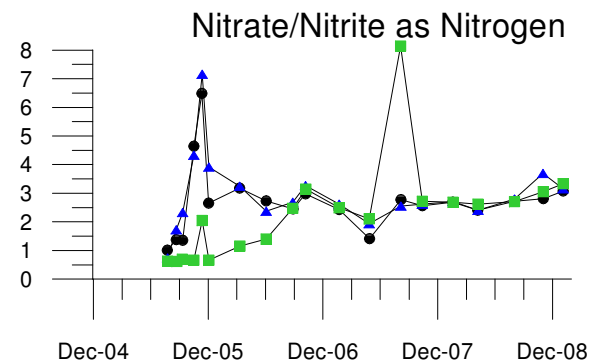
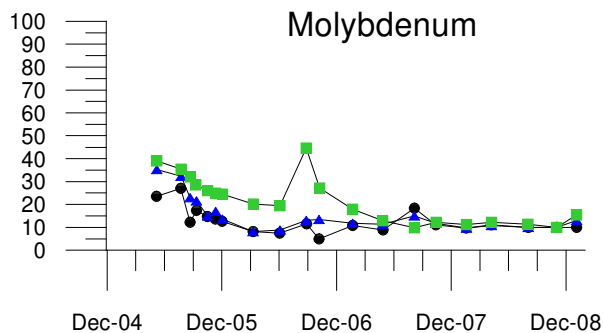
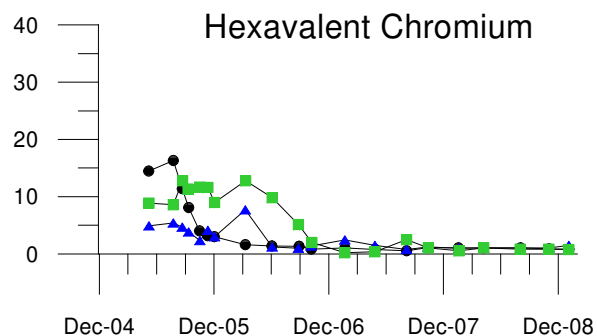
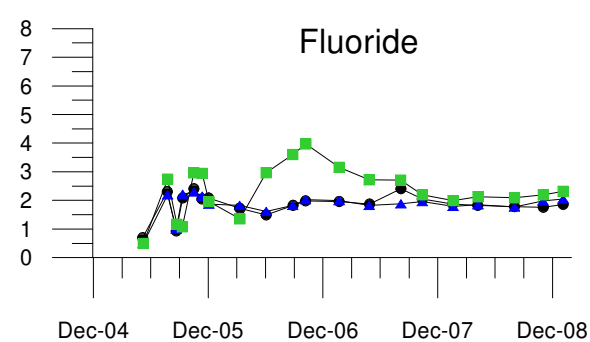
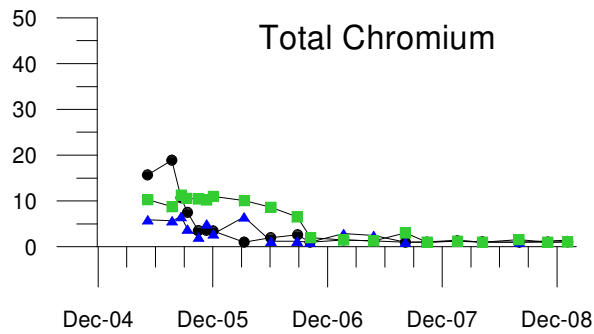
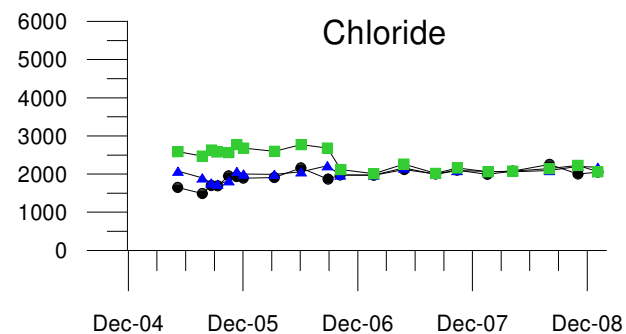


FIGURE 3B
OW-1M, OW-2M, OW-5M
WATER QUALITY HYDROGRAPHS
IM3 COMPLIANCE MONITORING PROGRAM
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

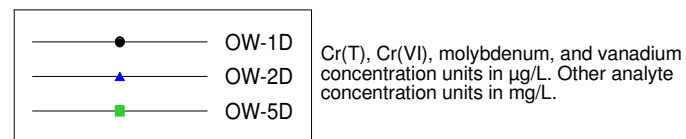
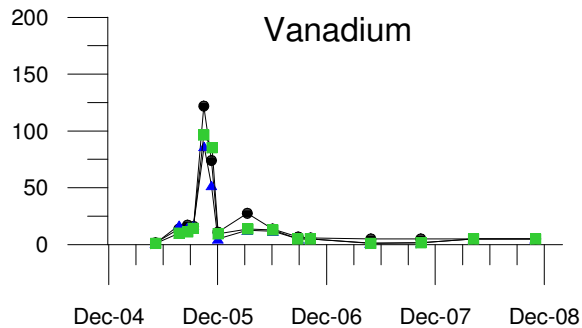
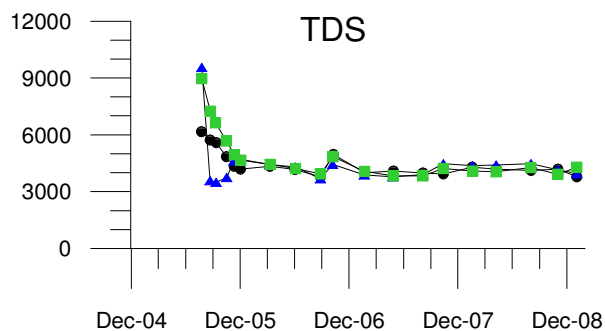
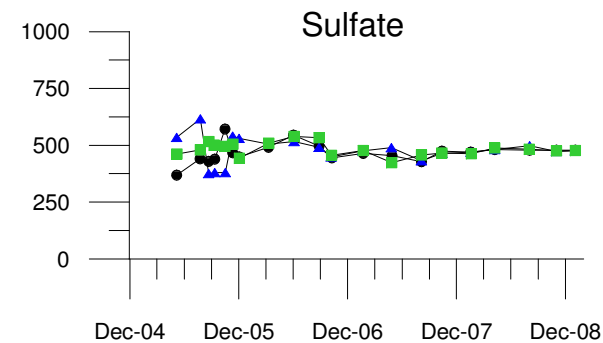
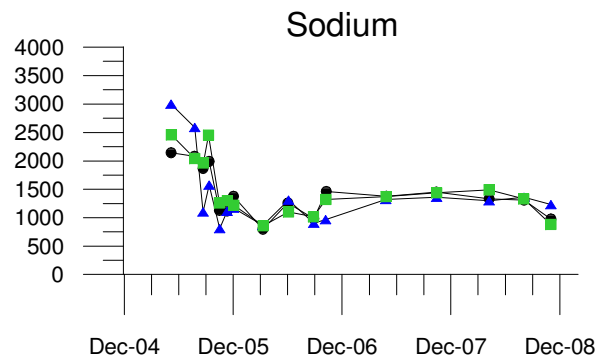
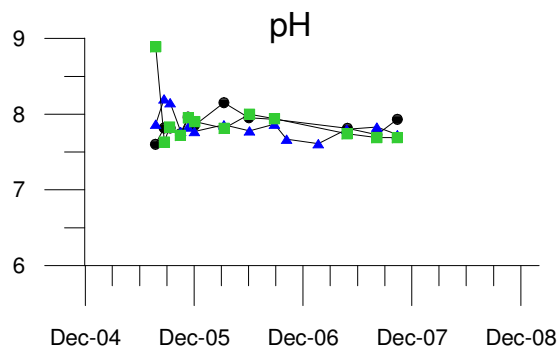
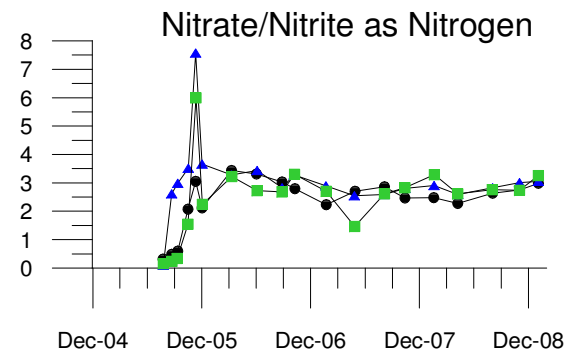
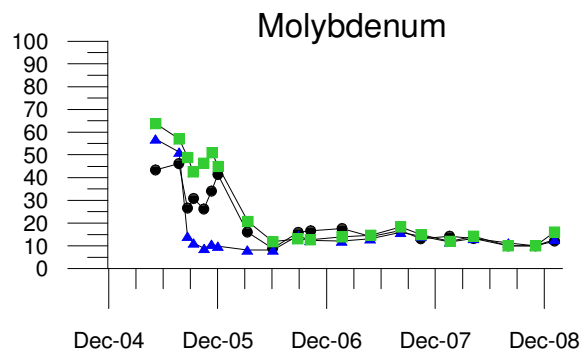
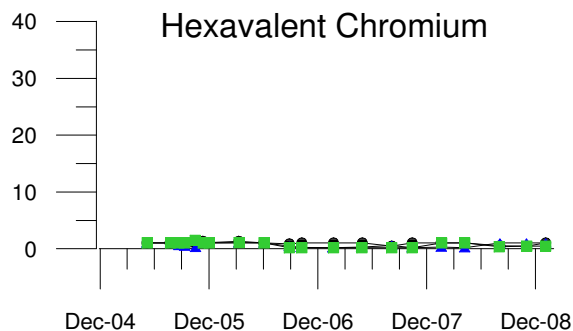
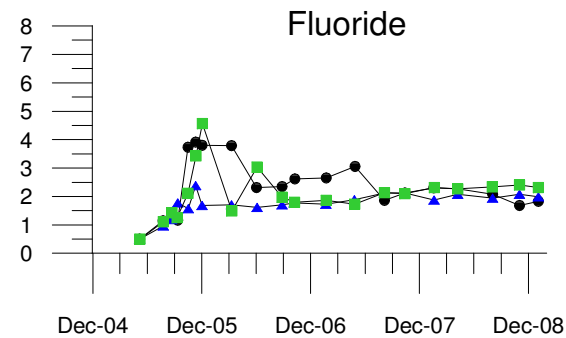
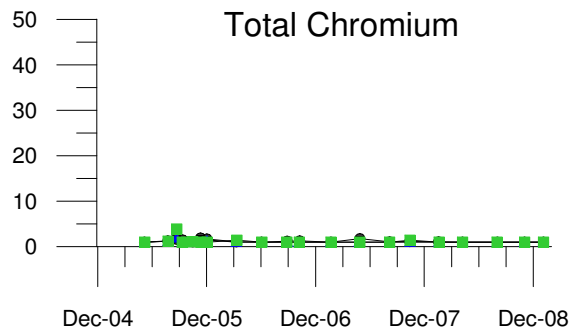
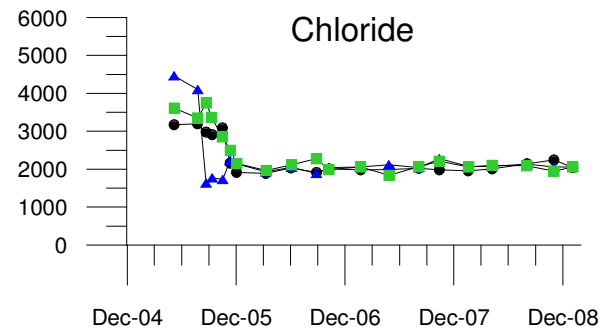
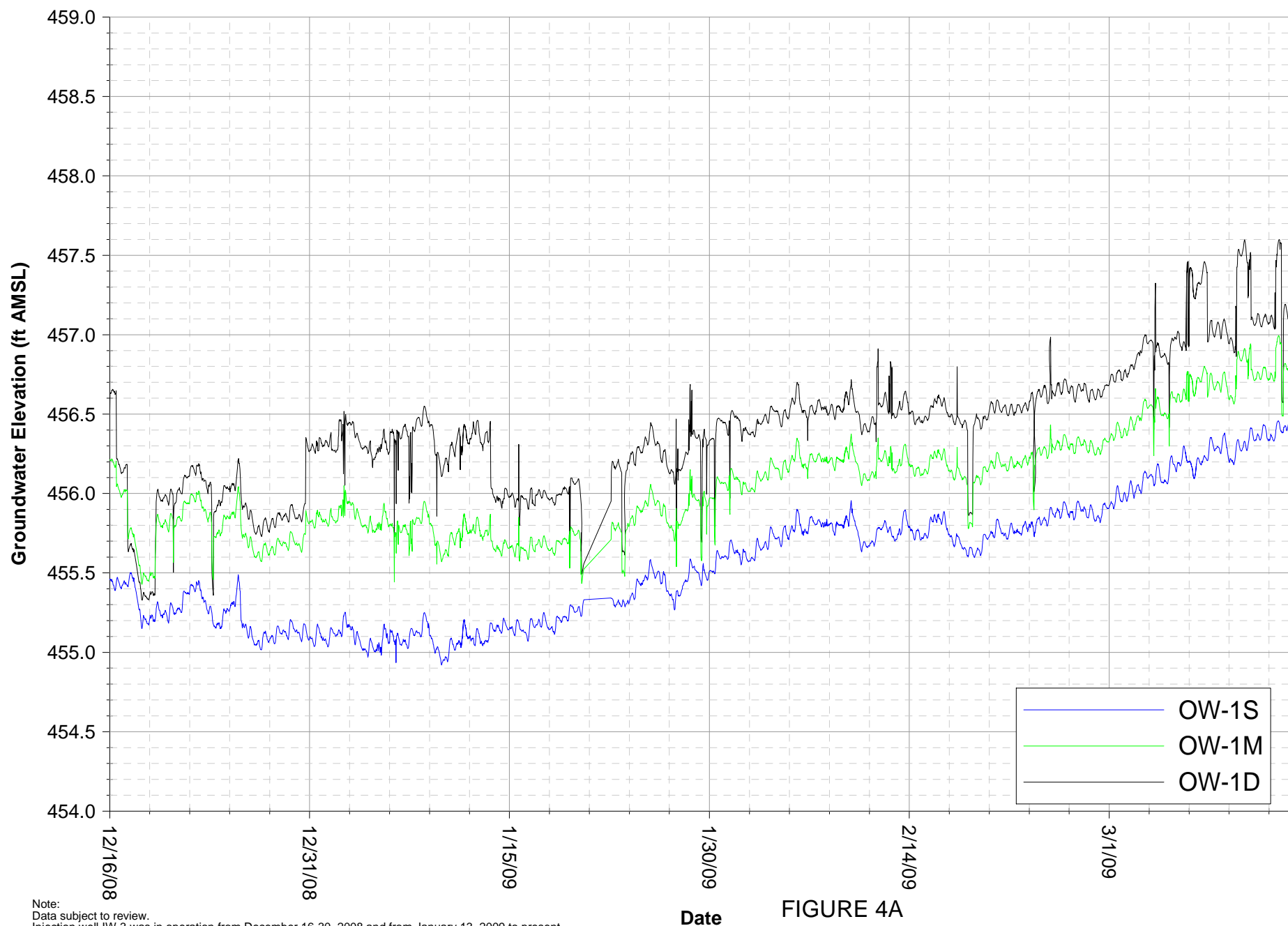
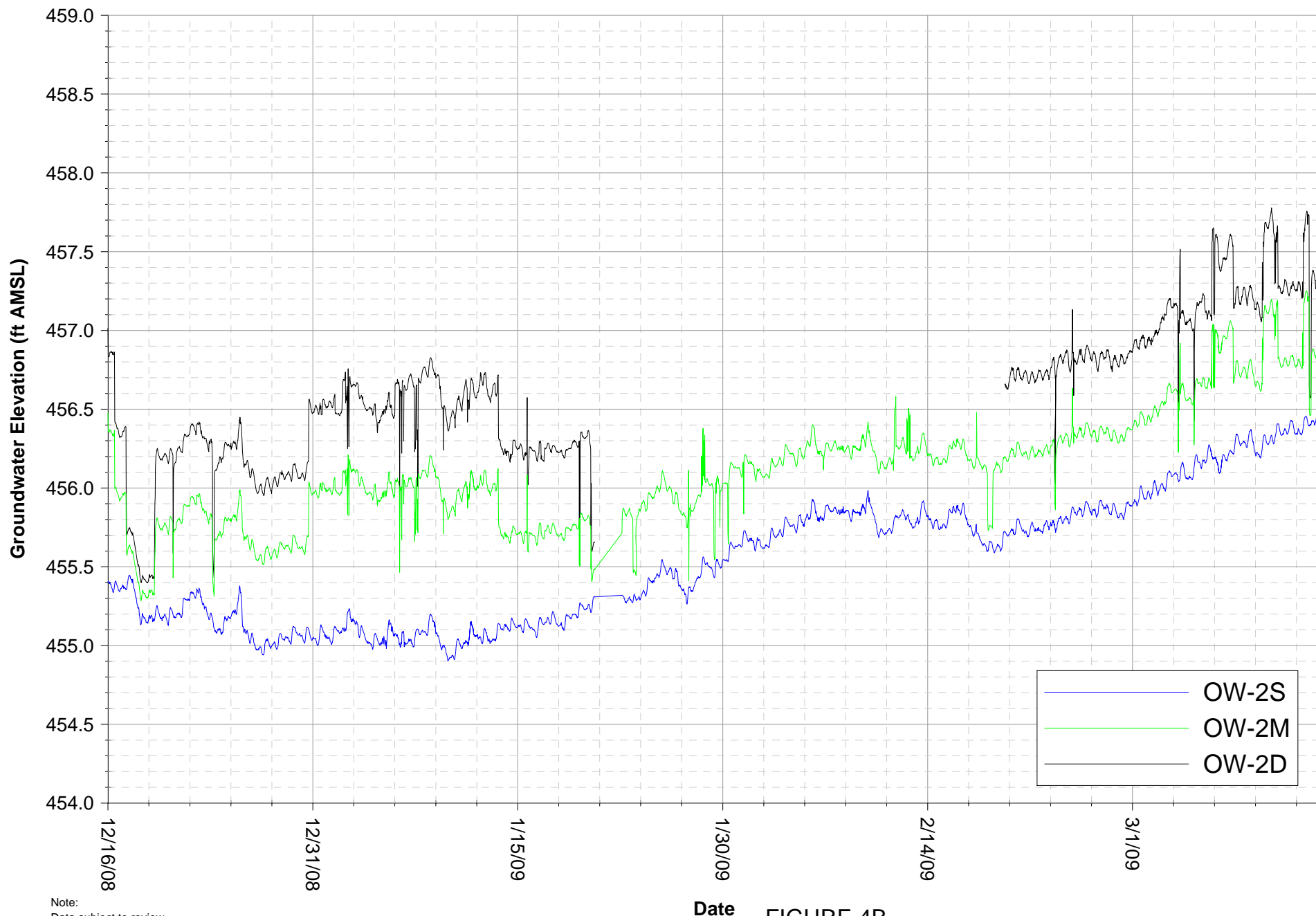


FIGURE 3C
OW-1D, OW-2D, OW-5D
WATER QUALITY HYDROGRAPHS
 IM3 COMPLIANCE MONITORING PROGRAM
 PG&E TOPOCK COMPRESSOR STATION
 NEEDLES, CALIFORNIA



Note:
 Data subject to review.
 Injection well IW-3 was in operation from December 16-30, 2008 and from January 13, 2009 to present.
 Injection well IW-2 was in full operation on December 16, 2008 and from December 30, 2008 until January 13, 2009.
 Routine and scheduled maintenance occurred 12/18/08 and 1/21/09 at which time both wells were offline.

FIGURE 4A
OW-1 GROUNDWATER ELEVATION HYDROGRAPHS
 IM-3 COMPLIANCE MONITORING PROGRAM
 PG&E TOPOCK COMPRESSOR STATION
 NEEDLES, CALIFORNIA



Note:

Data subject to review.

Injection well IW-3 was in operation from December 16-30, 2008 and from January 13, 2009 to present.

Injection well IW-2 was in full operation on December 16, 2008 and from December 30, 2008 until January 13, 2009.

Routine and scheduled maintenance occurred 12/18/08 and 1/21/09 at which time both wells were offline.

OW-2D data unavailable from January 20, 2009 until February 19, 2008 due to transducer failure.

Date

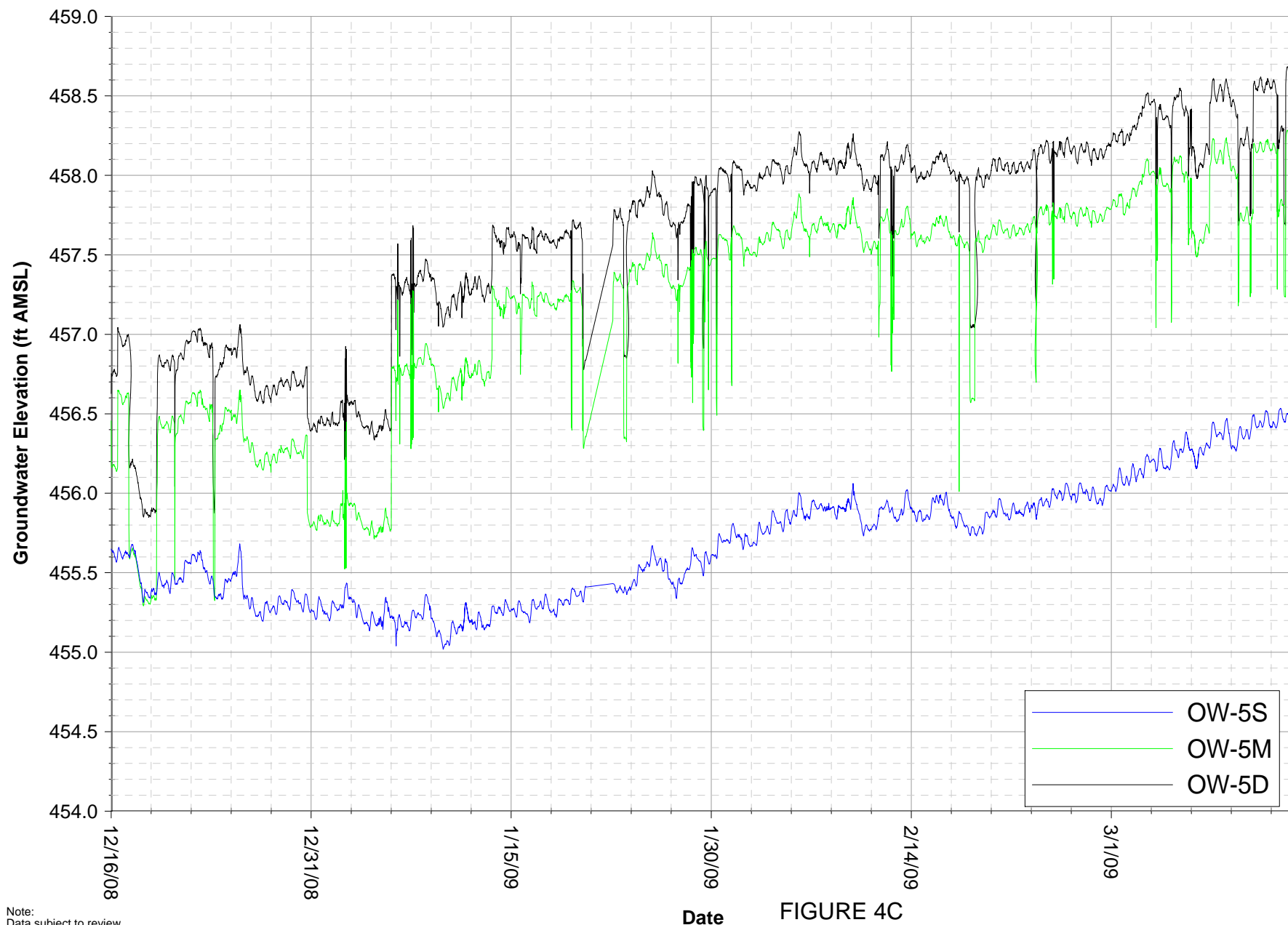
FIGURE 4B

OW-2 GROUNDWATER ELEVATION HYDROGRAPHS

IM-3 COMPLIANCE MONITORING PROGRAM

PG&E TOPECO COMPRESSOR STATION

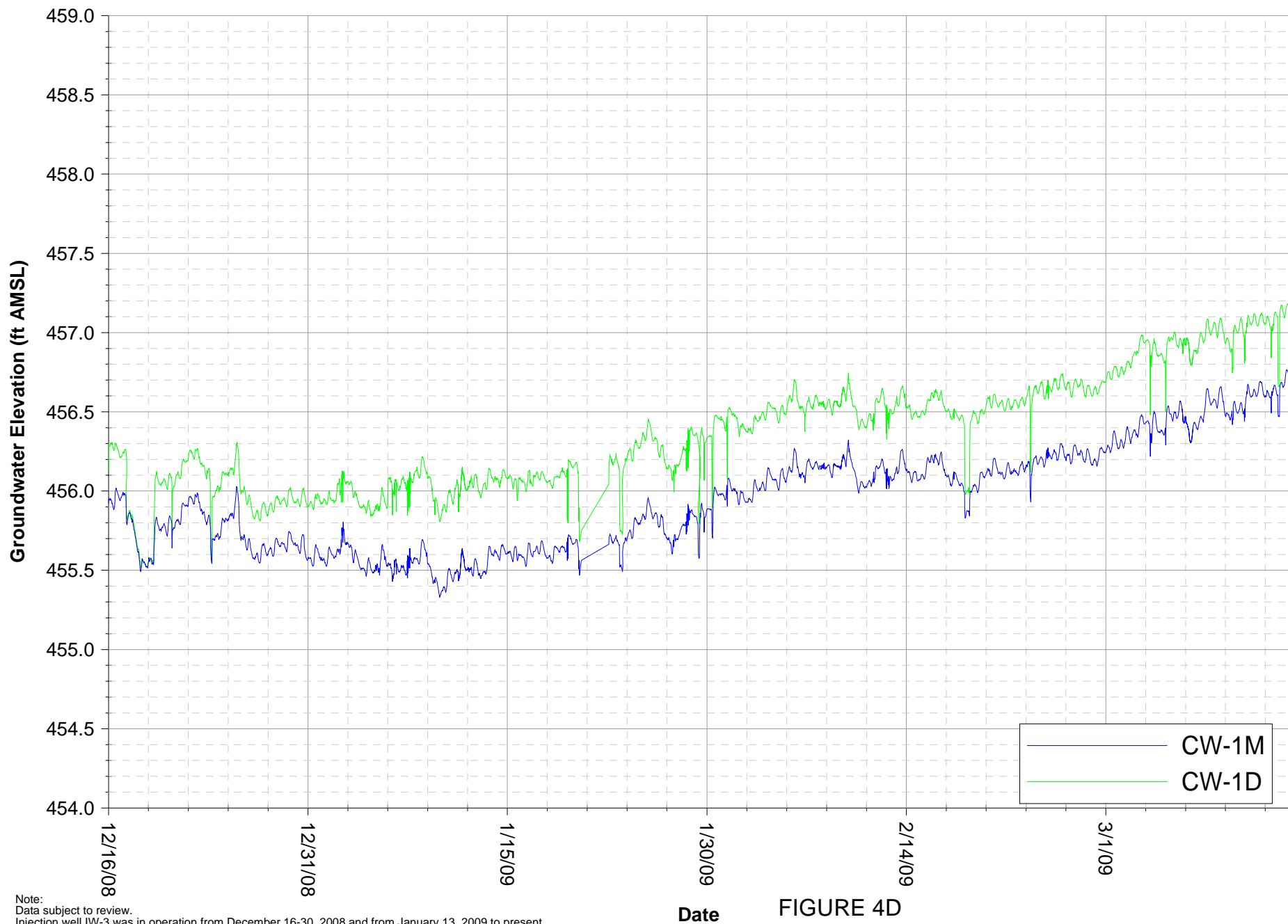
NEEDLES, CALIFORNIA



Note:
 Data subject to review.
 Injection well IW-3 was in operation from December 16-30, 2008 and from January 13, 2009 to present.
 Injection well IW-2 was in full operation on December 16, 2008 and from December 30, 2008 until January 13, 2009.
 Routine and scheduled maintenance occurred 12/18/08 and 1/21/09 at which time both wells were offline.

Date

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



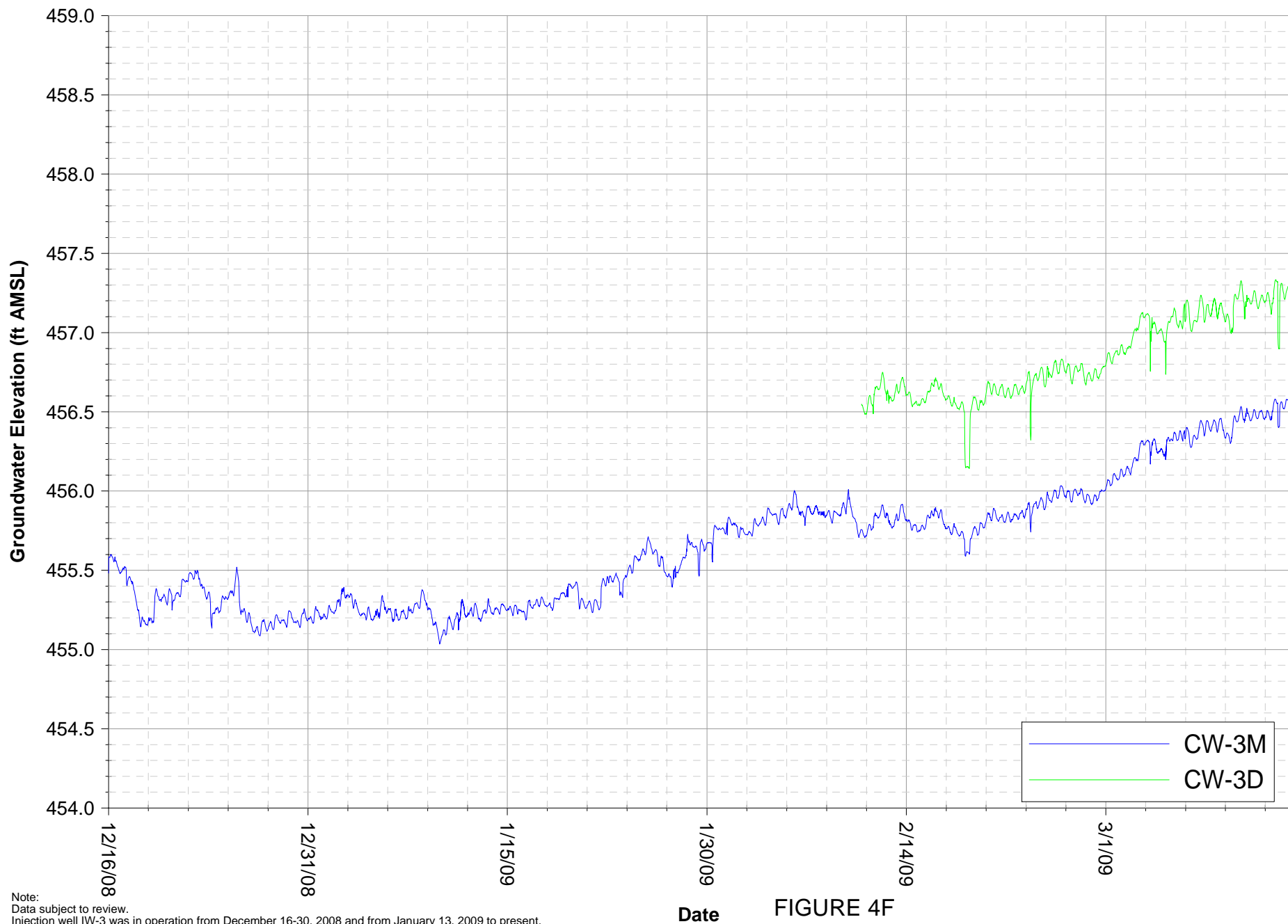
Note:
Data subject to review.
Injection well IW-3 was in operation from December 16-30, 2008 and from January 13, 2009 to present.
Injection well IW-2 was in full operation on December 16, 2008 and from December 30, 2008 until January 13, 2009.
Routine and scheduled maintenance occurred 12/18/08 and 1/21/09 at which time both wells were offline.

FIGURE 4D
CW-1 GROUNDWATER ELEVATION HYDROGRAPHS
IM-3 COMPLIANCE MONITORING PROGRAM
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA



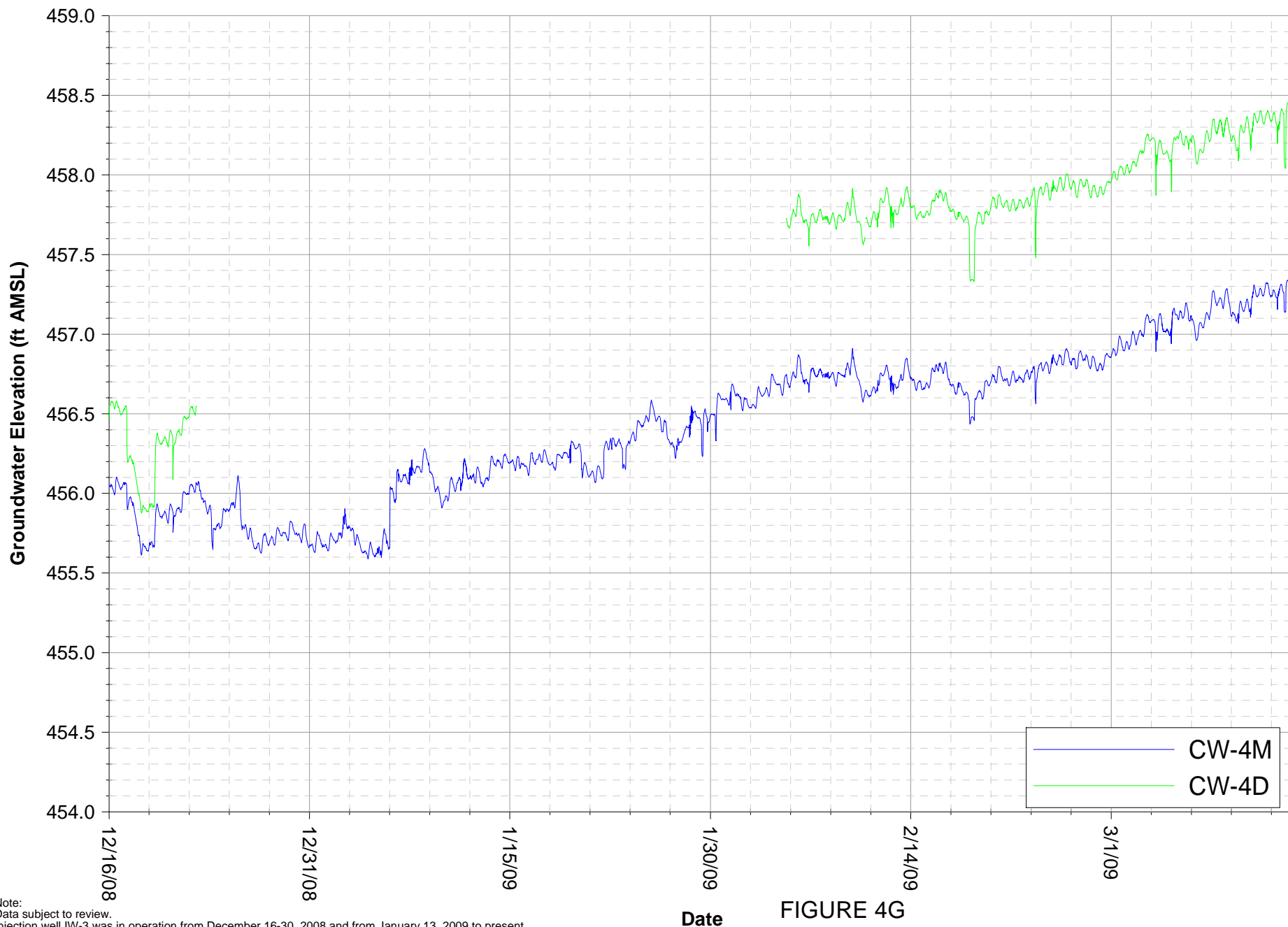
Note:
 Data subject to review.
 Injection well IW-3 was in operation from December 16-30, 2008 and from January 13, 2009 to present.
 Injection well IW-2 was in full operation on December 16, 2008 and from December 30, 2008 until January 13, 2009.
 Routine and scheduled maintenance occurred 12/18/08 and 1/21/09 at which time both wells were offline.

FIGURE 4E
CW-2 GROUNDWATER ELEVATION HYDROGRAPHS
 IM-3 COMPLIANCE MONITORING PROGRAM
 PG&E TOPOCK COMPRESSOR STATION
 NEEDLES, CALIFORNIA



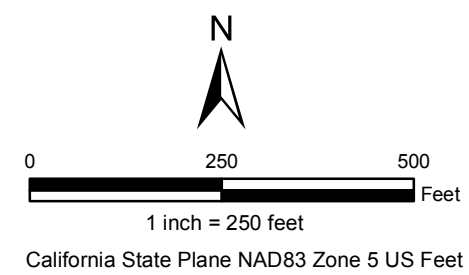
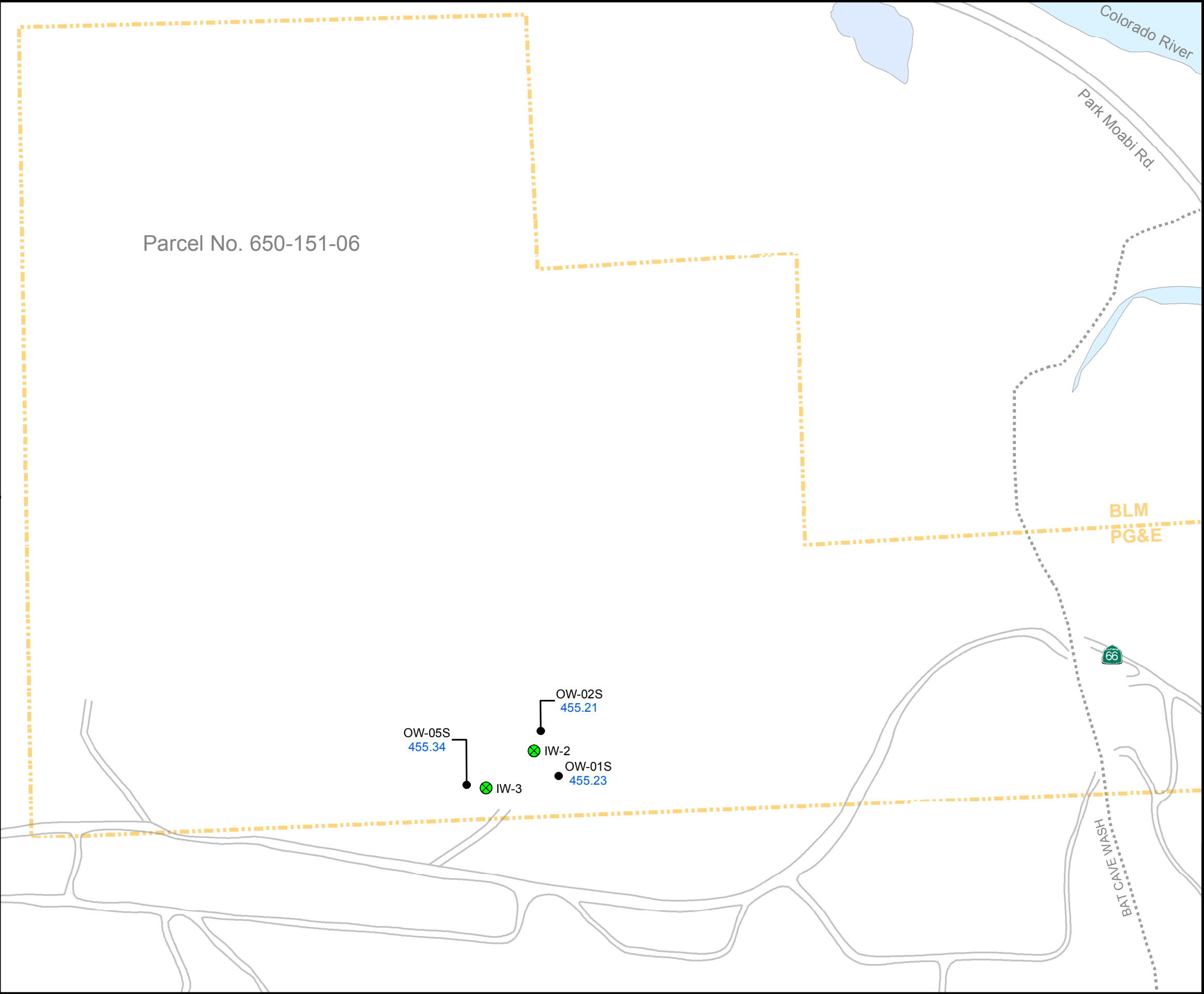
Note:
 Data subject to review.
 Injection well IW-3 was in operation from December 16-30, 2008 and from January 13, 2009 to present.
 Injection well IW-2 was in full operation on December 16, 2008 and from December 30, 2008 until January 13, 2009.
 Routine and scheduled maintenance occurred 12/18/08 and 1/21/09 at which time both wells were offline.
 OW-3D data unavailable from December 16, 2008 to February 10, 2009 due to transducer failure.

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



Note:
 Data subject to review.
 Injection well IW-3 was in operation from December 16-30, 2008 and from January 13, 2009 to present.
 Injection well IW-2 was in full operation on December 16, 2008 and from December 30, 2008 until January 13, 2009.
 Routine and scheduled maintenance occurred 12/18/08 and 1/21/09 at which time both wells were offline.
 CW-4D data unavailable from December 22, 2008 until February 4, 2009 due to transducer failure.

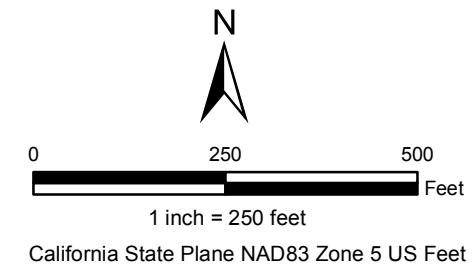
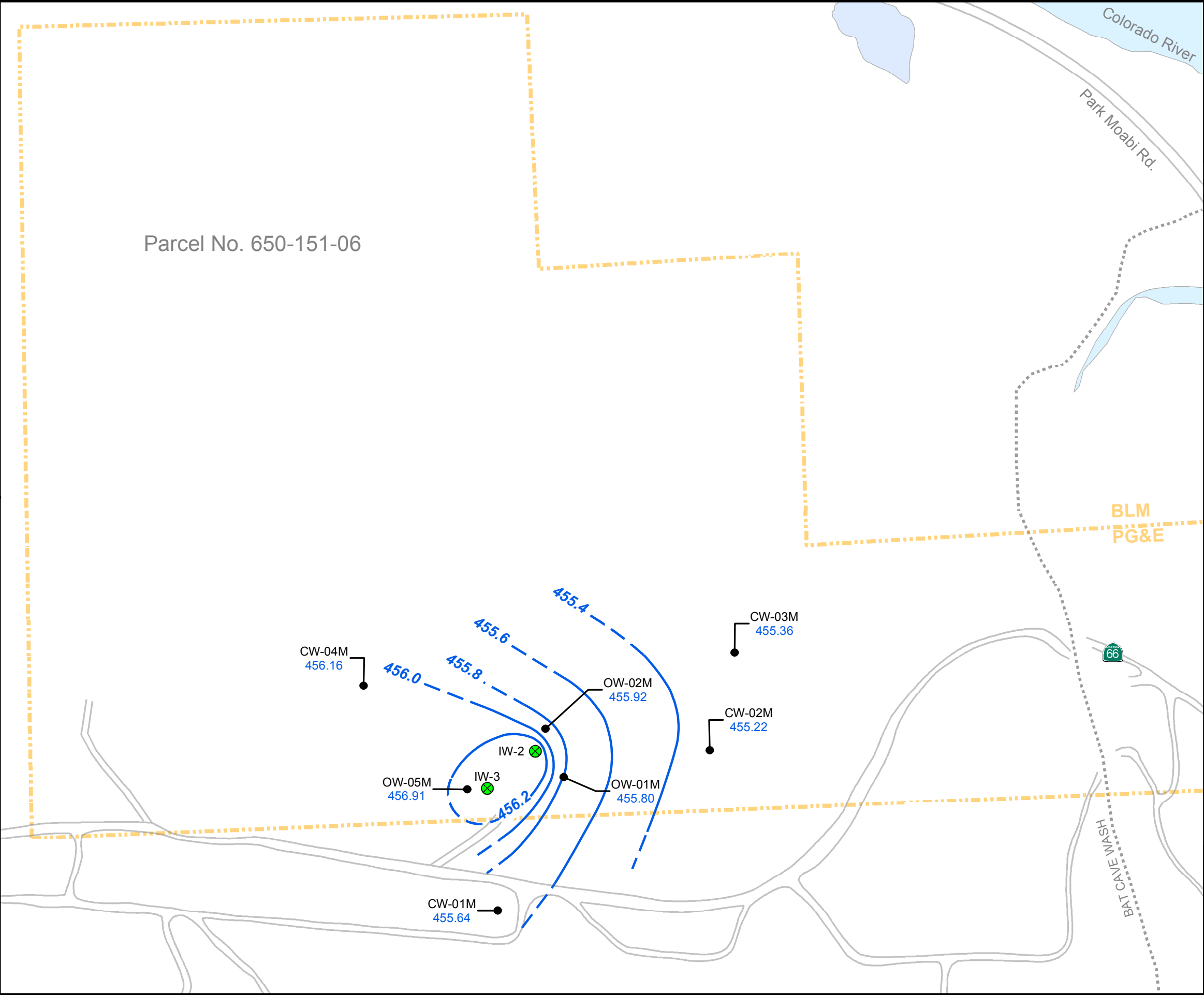
FIGURE 4G
CW-4 GROUNDWATER ELEVATION HYDROGRAPHS
 IM-3 COMPLIANCE MONITORING PROGRAM
 PG&E TOPOCK COMPRESSOR STATION
 NEEDLES, CALIFORNIA



- LEGEND**
- Groundwater Monitoring, Compliance, and Observation Well
 - ⊗ IM-3 Injection Well
- Groundwater Elevations for Shallow Wells in IM-3 Injection Area**
- OW-02S Salinity and temperature adjusted groundwater head elevation in feet above mean sea level (MSL)
455.21

Notes:
Data posted and contoured from monthly average heads measured with transducers at 30 minute intervals.

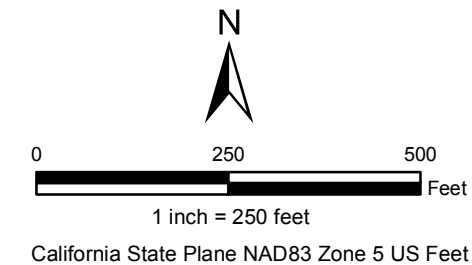
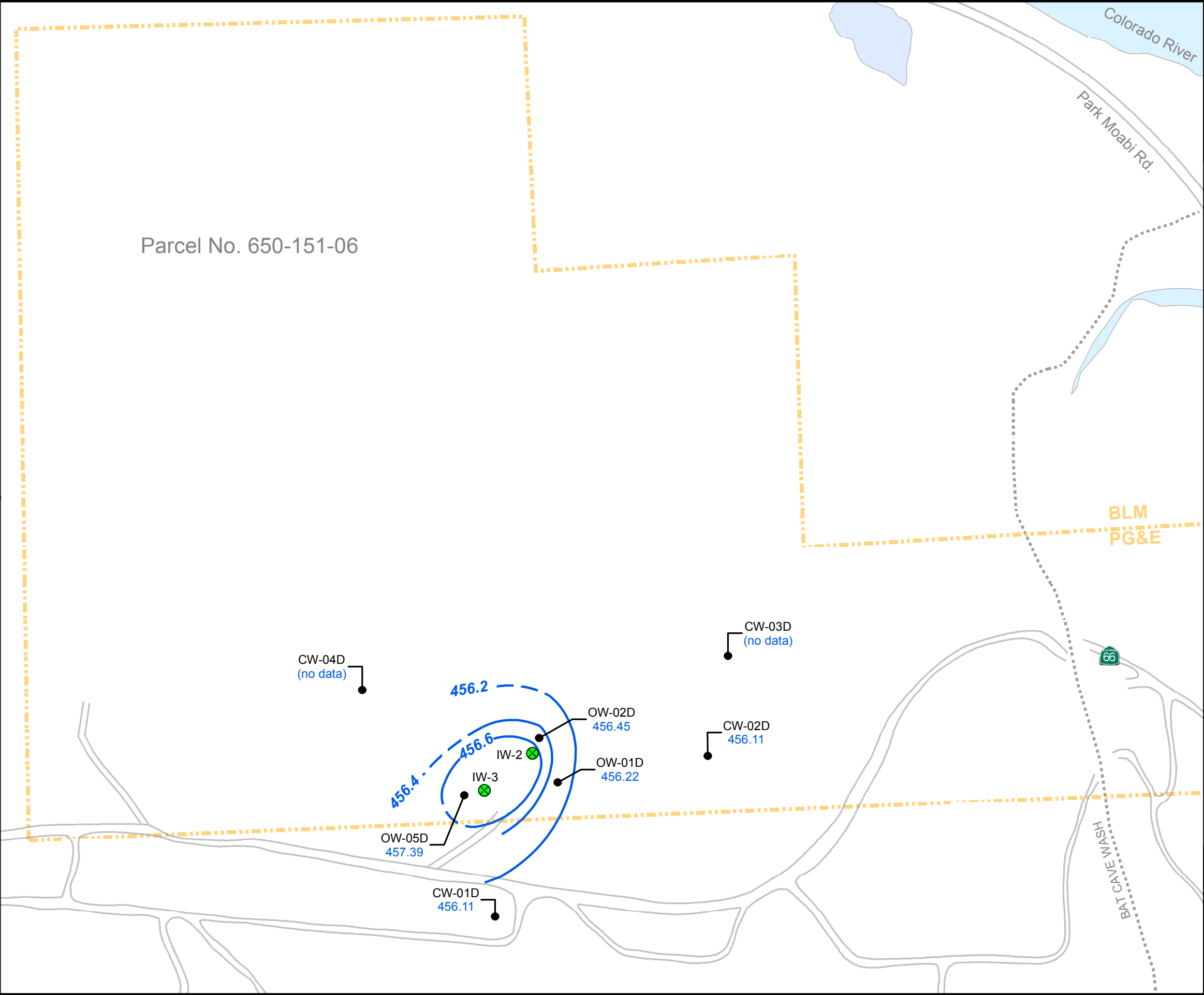
**FIGURE 5A
AVERAGE GROUNDWATER ELEVATIONS
FOR SHALLOW WELLS
JANUARY 1 TO JANUARY 31, 2009**
IM3 COMPLIANCE MONITORING PROGRAM
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA



- LEGEND**
- Groundwater Monitoring, Compliance, and Observation Well
 - IM-3 Injection Well
- Groundwater Elevations for Mid-depth Wells in IM-3 Injection Area**
- OW-02M Salinity and temperature adjusted groundwater head elevation in feet above mean sea level (MSL)
455.92
 - Groundwater elevation contour in feet above MSL (0.2 foot interval), dashed where inferred

Notes:
Data posted and contoured from monthly average heads measured with transducers at 30 minute intervals.

**FIGURE 5B
AVERAGE GROUNDWATER ELEVATION
CONTOURS FOR MID-DEPTH WELLS
JANUARY 1 TO JANUARY 31, 2009**
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 Deep Wells in IM-3 Injection Area**
- OW-05D 457.39 Salinity and temperature adjusted groundwater head elevation in feet above mean sea level (MSL)
 - — — Groundwater elevation contour in feet above MSL (0.2 foot interval), dashed where inferred

Notes:
Data posted and contoured from monthly average heads measured with transducers at 30 minute intervals. (CW-03D) and (CW-04D) were excluded from contouring due to transducer failure.

**FIGURE 5C
AVERAGE GROUNDWATER ELEVATION
CONTOURS FOR DEEP WELLS
JANUARY 1 TO JANUARY 31, 2009**
IM3 COMPLIANCE MONITORING PROGRAM
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

Appendix A
Laboratory Reports, First Quarter 2009

Table of Contents
TLI Laboratory Data Package
For Laboratory Number: 981017

<u>ITEM</u>	<u>Section</u>
Case Narrative	1.0
Summary Table of Final Results	2.0
Final Reports	3.0
Wet Chem Analysis/ Raw Data, Standard, Quality Control and Chain of Custody Records	4.0
Established Retention Time Window and Analytical Raw Data	5.0

Section 1.0

Case Narrative

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



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January 27, 2009

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 2009-CMP-019, GROUNDWATER MONITORING
PROJECT, TLI NO.: 981017

Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2009-CMP-019 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 January 7, 2009, 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 runs for the matrix spike for samples 981017-2 and 981017-3 for Hexavalent Chromium analysis by EPA 218.6 were just outside the retention time window. Because the matrix spike recovery was within acceptable limits, the data is reported.

The straight run for sample 981017-5 for Hexavalent Chromium analysis by EPA 218.6 was just outside the retention time window. Because the matrix spike recovery was within acceptable limits, the data is reported.

Samples 981017-7 and 981017-8 for Hexavalent Chromium analysis was analyzed at a dilution of 1.05x and was outside the Retention Time Window (RTW). Therefore, the sample was then run at 5x along with a 5x matrix spike. The results from the 5x dilutions are reported.

Due to the large number of samples in-house, the samples for Total Chromium and Molybdenum analysis were analyzed by method EPA 200.8, rather than EPA 200.7 as requested on the chain of custody.

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.

Seam Conde
E. 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: Eleven (11) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 370367.MP.02.CM.01

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

Laboratory No.: 981017

Date: January 27, 2009

Collected: January 6, 2009

Received: January 7, 2009

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 200.7	Metals by ICP	Mark Kotani
EPA 200.8	Metals by ICP/MS	Romuel Chaves
EPA 218.6	Hexavalent Chromium	Michael Nonezyan

Section 2.0

Summary Table of Final Results

TRUESDAIL LABORATORIES, INC.

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

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

Laboratory No.: 981017
Date Received: January 7, 2009
Revision 1

Project Name: PG&E Topock Project
Project No.: 370367.MP.02.CM.01
P.O. No.: 370367.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>
981017-1	OW-05S-019	08:45	1610	950	1.10	25.8	24.3
981017-2	OW-05M-019	09:45	6610	3960	0.112	0.77	1.08
981017-3	OW-05D-019	11:03	6530	4290	ND	0.49	ND
981017-4	OW-01S-019	11:51	2590	1690	0.933	19.7	19.3
981017-5	OW-01M-019	12:47	6570	4480	0.466	0.79	1.04
981017-6	MW-91-019	13:30	1640	926	1.30	32.2	32.8
981017-7	OW-01D-019	14:04	6570	3780	0.473	ND	ND
981017-8	OW-02D-019	15:20	6510	3950	ND	ND	ND
981017-9	MW-89-019	15:35	---	---	---	ND	---
981017-10	OW-02M-019	16:15	6550	4170	0.547	1.46	1.41
981017-11	OW-02S-019	16:48	1640	904	1.26	31.6	33.2



<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>	<u>EPA 200.7</u> <i>Boron</i> <i>Dissolved</i>	<u>EPA 200.8</u> <i>Molybdenum</i> <i>Dissolved</i>
			<i>mg/L</i>	<i>mg/L</i>	<i>mg/L</i>	<i>µg/L</i>	<i>µg/L</i>
981017-1	OW-05S-019	08:45	2.60	107	410	423	29.6
981017-2	OW-05M-019	09:45	2.32	483	2060	995	15.4
981017-3	OW-05D-019	11:03	2.32	478	2060	963	16.0
981017-4	OW-01S-019	11:51	2.28	155	781	321	ND
981017-5	OW-01M-019	12:47	1.86	477	2050	989	ND
981017-6	MW-91-019	13:30	5.01	119	399	656	37.5
981017-7	OW-01D-019	14:04	1.83	479	2040	1020	12.1
981017-8	OW-02D-019	15:20	1.99	475	2060	1000	12.9
981017-9	MW-89-019	15:35	---	---	---	---	---
981017-10	OW-02M-019	16:15	2.05	476	2180	989	13.0
981017-11	OW-02S-019	16:48	5.25	118	398	694	38.6

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 0.01ppm will have two (2) significant figures.

Result above or equal to 0.01ppm will have three (3) significant figures.

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

Section 3.0

Final Reports

TRUESDAIL LABORATORIES, INC.

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REPORT

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

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

Attention: Shawn Duffy

Sample: Eleven (11) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 370367.MP.02.CM.01

P.O. No.: 370367.MP.02.CM.01

Laboratory No.: 981017

Date: January 27, 2009

Collected: January 6, 2009

Received: January 7, 2009

Prep/ Analyzed: January 8, 2009

Analytical Batch: 01CrH09B

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>
981017-1	OW-05S-019	08:45	07:34	µg/L	5.25	1.05	25.8
981017-2	OW-05M-019	09:45	07:44	µg/L	1.05	0.20	0.77
981017-3	OW-05D-019	11:03	07:55	µg/L	1.05	0.20	0.49
981017-4	OW-01S-019	11:51	11:17	µg/L	1.05	0.20	19.7
981017-5	OW-01M-019	12:47	12:14	µg/L	1.05	0.20	0.79
981017-6	MW-91-019	13:30	12:25	µg/L	5.25	1.05	32.2
981017-7	OW-01D-019	14:04	14:22	µg/L	5.25	1.05	ND
981017-8	OW-02D-019	15:20	14:32	µg/L	5.25	1.05	ND
981017-9	MW-89-019	15:35	14:43	µg/L	1.05	0.20	ND
981017-10	OW-02M-019	16:15	16:27	µg/L	5.25	1.05	1.46
981017-11	OW-02S-019	16:48	15:55	µg/L	5.25	1.05	31.6

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Sean Condon
Mona Nassimi, Manager
Analytical Services

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.

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



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REPORT

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

Attention: Shawn Duffy

Sample: Eleven (11) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 370367.MP.02.CM.01

P.O. No.: 370367.MP.02.CM.01

Laboratory No.: 981017

Date: January 27, 2009

Collected: January 6, 2009

Received: January 7, 2009

Prep/ Analyzed: January 8, 2009

Analytical Batch: 01CrH09B

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		981017-1		25.8		25.8		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	981017-1	25.8	5.25	5.00	26.2	52.0	52.0	100%	90-110%	Yes
MS	981017-2	0.77	1.06	1.00	1.06	1.87	1.83	104%	90-110%	Yes
MS	981017-3	0.49	1.06	1.00	1.06	1.61	1.55	106%	90-110%	Yes
MS	981017-4	19.7	1.06	20.0	21.2	40.2	40.9	96.7%	90-110%	Yes
MS	981017-5	0.79	1.06	1.00	1.06	1.89	1.85	104%	90-110%	Yes
MS	981017-6	32.2	5.25	10.0	52.5	83.9	84.7	98.5%	90-110%	Yes
MS	981017-7	0.65	5.25	1.00	5.25	5.90	5.90	100%	90-110%	Yes
MS	981017-8	0.60	5.25	1.00	5.25	5.87	5.85	100%	90-110%	Yes
MS	981017-9	0.052	1.06	1.00	1.06	1.07	1.11	96.0%	90-110%	Yes
MS	981017-10	1.46	5.25	1.00	5.25	6.69	6.71	99.6%	90-110%	Yes
MS	981017-11	31.6	5.25	10.0	52.5	83.5	84.1	98.9%	90-110%	Yes

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

f. San Camacho
Mona Nassimi, Manager
Analytical Services

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TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



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REPORT

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

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

Attention: Shawn Duffy

Sample: Eleven (11) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 370367.MP.02.CM.01

P.O. No.: 370367.MP.02.CM.01

Laboratory No.: 981017

Date: January 27, 2009

Collected: January 6, 2009

Received: January 7, 2009

Prep/ Analyzed: January 8, 2009

Analytical Batch: 01CrH09B

Investigation:

Hexavalent Chromium by EPA 218.6

QA/QC Summary

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
Blank	ND	<0.200	---	<0.200	Yes
MRCSS	5.00	5.00	100%	90% - 110%	Yes
MRCVS#1	10.2	10.0	102%	95% - 105%	Yes
MRCVS#2	10.1	10.0	101%	95% - 105%	Yes
MRCVS#3	10.0	10.0	100%	95% - 105%	Yes
MRCVS#4	9.95	10.0	99.5%	95% - 105%	Yes
MRCVS#5	9.95	10.0	99.5%	95% - 105%	Yes
LCS	5.00	5.00	100%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

f. - Sam Candia
Mona Nassimi, Manager
Analytical Services

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155 Grand Ave. Suite 1000
Oakland, CA 94612

Attention: Shawn Duffy

Sample: Eleven (11) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 370367.MP.02.CM.01

P.O. No.: 370367.MP.02.CM.01

Laboratory No.: 981017

Date: January 27, 2009

Collected: January 6, 2009

Received: January 7, 2009

Prep/ Analyzed: January 8, 2009

Analytical Batch: 01TUC09D

Investigation:

Turbidity by Method SM 2130B

Analytical Results Turbidity

TLI I.D.	Field I.D.	Sample Time	Units	DF	RL	Results
981017-1	OW-05S-019	08:45	NTU	1.00	0.100	1.10
981017-2	OW-05M-019	09:45	NTU	1.00	0.100	0.112
981017-3	OW-05D-019	11:03	NTU	1.00	0.100	ND
981017-4	OW-01S-019	11:51	NTU	1.00	0.100	0.933
981017-5	OW-01M-019	12:47	NTU	1.00	0.100	0.466
981017-6	MW-91-019	13:30	NTU	1.00	0.100	1.30
981017-7	OW-01D-019	14:04	NTU	1.00	0.100	0.473
981017-8	OW-02D-019	15:20	NTU	1.00	0.100	ND
981017-10	OW-02M-019	16:15	NTU	1.00	0.100	0.547
981017-11	OW-02S-019	16:48	NTU	1.00	0.100	1.26

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	980992-10	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	8.40	8.00	105%	90% - 110%	Yes
LCS	8.18	8.00	102%	90% - 110%	Yes
LCS	8.20	8.00	103%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Sam Conder
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: Eleven (11) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 370367.MP.02.CM.01

P.O. No.: 370367.MP.02.CM.01

Laboratory No.: 981017

Date: January 27, 2009

Collected: January 6, 2009

Received: January 7, 2009

Prep/ Analyzed: January 8, 2009

Analytical Batch: 01EC09D

Investigation:

Specific Conductivity by EPA 120.1

Analytical Results Specific Conductivity

TLI I.D.	Field I.D.	Units	Method	MDL	DF	RL	Results
981017-1	OW-05S-019	µmhos/cm	EPA 120.1	0.099	1.00	2.00	1610
981017-2	OW-05M-019	µmhos/cm	EPA 120.1	0.099	1.00	2.00	6610
981017-3	OW-05D-019	µmhos/cm	EPA 120.1	0.099	1.00	2.00	6530
981017-4	OW-01S-019	µmhos/cm	EPA 120.1	0.099	1.00	2.00	2590
981017-5	OW-01M-019	µmhos/cm	EPA 120.1	0.099	1.00	2.00	6570
981017-6	MW-91-019	µmhos/cm	EPA 120.1	0.099	1.00	2.00	1640
981017-7	OW-01D-019	µmhos/cm	EPA 120.1	0.099	1.00	2.00	6570
981017-8	OW-02D-019	µmhos/cm	EPA 120.1	0.099	1.00	2.00	6510
981017-10	OW-02M-019	µmhos/cm	EPA 120.1	0.099	1.00	2.00	6550
981017-11	OW-02S-019	µmhos/cm	EPA 120.1	0.099	1.00	2.00	1640

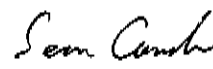
QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Relative Percent Difference	Acceptance limits	QC Within Control
Duplicate	981017-7	6570	6570	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	696	706	98.6%	90% - 110%	Yes
CVS#1	986	1000	98.6%	90% - 110%	Yes
CVS#2	987	1000	98.7%	90% - 110%	Yes
LCS	696	706	98.6%	90% - 110%	Yes
LCSD	696	706	98.6%	90% - 110%	Yes

DF: Dilution Factor.

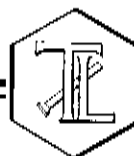
Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

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: Eleven (11) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 370367.MP.02.CM.01

P.O. No.: 370367.MP.02.CM.01

REPORT

14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
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www.truesdail.com

Laboratory No.: 981017

Date: January 27, 2009

Collected: January 6, 2009

Received: January 7, 2009

Prep/ Analyzed: January 8, 2009

Analytical Batch: 01TDS09D

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>
981017-1	OW-05S-019	mg/L	SM 2540C	50.0	950
981017-2	OW-05M-019	mg/L	SM 2540C	250	3960
981017-3	OW-05D-019	mg/L	SM 2540C	250	4290
981017-4	OW-01S-019	mg/L	SM 2540C	50.0	1690
981017-5	OW-01M-019	mg/L	SM 2540C	250	4480
981017-6	MW-91-019	mg/L	SM 2540C	50.0	926
981017-7	OW-01D-019	mg/L	SM 2540C	250	3780
981017-8	OW-02D-019	mg/L	SM 2540C	250	3950
981017-10	OW-02M-019	mg/L	SM 2540C	250	4170
981017-11	OW-02S-019	mg/L	SM 2540C	50.0	904

QA/QC Summary

QC STD I.D.	Laboratory Number	Concentration	Duplicate Concentration	Percent Difference	Acceptance limits	QC Within Control
Duplicate	981017-11	904	916	0.66%	< 5%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
Blank	ND	<25.0	---	<25.0	Yes
LCS 1	501	500	100%	90% - 110%	Yes
LCS 2	507	500	101%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

RL: Reporting Limit.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Sean Conder
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: Eleven (11) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 370367.MP.02.CM.01

P.O. No.: 370367.MP.02.CM.01

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Laboratory No.: 981017

Date: January 27, 2009

Collected: January 6, 2009

Received: January 7, 2009

Prep/ Analyzed: January 12, 2009

Analytical Batch: 01AN09F

Investigation:

Sulfate by Method EPA 300.0

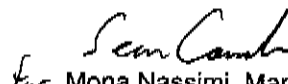
Analytical Results Sulfate

<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>
981017-1	OW-05S-019	08:45	11:47	mg/L	50.0	25.0	107
981017-2	OW-05M-019	09:45	15:24	mg/L	25.0	12.5	483
981017-3	OW-05D-019	11:03	15:36	mg/L	25.0	12.5	478
981017-4	OW-01S-019	11:51	15:47	mg/L	10.0	5.00	155
981017-5	OW-01M-019	12:47	15:58	mg/L	25.0	12.5	477
981017-6	MW-91-019	13:30	16:10	mg/L	10.0	5.00	119
981017-7	OW-01D-019	14:04	16:21	mg/L	25.0	12.5	479
981017-8	OW-02D-019	15:20	16:33	mg/L	25.0	12.5	475
981017-10	OW-02M-019	16:15	16:44	mg/L	25.0	12.5	476
981017-11	OW-02S-019	16:48	16:55	mg/L	10.0	5.00	118

ND: Below the reporting limit (Not Detected).

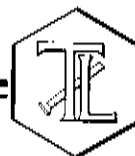
DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


for Mona Nassimi, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



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REPORT

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

Attention: Shawn Duffy

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

Sample: Eleven (11) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 370367.MP.02.CM.01
P.O. No.: 370367.MP.02.CM.01

Laboratory No.: 981017
Date: January 27, 2009
Collected: January 6, 2009
Received: January 7, 2009
Prep/ Analyzed: January 12, 2009
Analytical Batch: 01AN09F

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	981017-1	107	108	0.93%	≤ 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	981017-1	107	50.0	4.0	200	313	307	103%	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	20.4	20.0	102%	90% - 110%	Yes
MRCVS#1	15.0	15.0	100%	90% - 110%	Yes
MRCVS#2	15.0	15.0	100%	90% - 110%	Yes
MRCVS#3	15.0	15.0	100%	90% - 110%	Yes
MRCVS#4	15.0	15.0	100%	90% - 110%	Yes
LCS	20.4	20.0	102%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Sam Corbett
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: Eleven (11) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 370367.MP.02.CM.01

P.O. No.: 370367.MP.02.CM.01

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Laboratory No.: 981017

Date: January 27, 2009

Collected: January 6, 2009

Received: January 7, 2009

Prep/ Analyzed: January 12, 2009

Analytical Batch: 01AN09F

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>
981017-1	OW-05S-019	08:45	11:13	mg/L	200	40.0	410
981017-2	OW-05M-019	09:45	12:22	mg/L	500	100	2060
981017-3	OW-05D-019	11:03	12:33	mg/L	500	100	2060
981017-4	OW-01S-019	11:51	13:41	mg/L	200	40.0	781
981017-5	OW-01M-019	12:47	13:53	mg/L	500	100	2050
981017-6	MW-91-019	13:30	14:04	mg/L	100	20.0	399
981017-7	OW-01D-019	14:04	14:16	mg/L	500	100	2040
981017-8	OW-02D-019	15:20	14:27	mg/L	500	100	2060
981017-10	OW-02M-019	16:15	14:39	mg/L	500	100	2180
981017-11	OW-02S-019	16:48	14:50	mg/L	100	20.0	398

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Mona Nassimi
for Mona Nassimi, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.

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Attention: Shawn Duffy

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Project No.: 370367.MP.02.CM.01

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Laboratory No.: 981017

Date: January 27, 2009

Collected: January 6, 2009

Received: January 7, 2009

Prep/ Analyzed: January 12, 2009

Analytical Batch: 01AN09F

Investigation:

Chloride 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		981017-1		410		413		0.73%	≤ 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	981017-1	410	200	4.00	800	1230	1210	103%	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		4.05		4.00		101%		90% - 110%	Yes	
MRCVS#1		2.96		3.00		98.7%		90% - 110%	Yes	
MRCVS#2		2.96		3.00		98.7%		90% - 110%	Yes	
MRCVS#3		2.94		3.00		98.0%		90% - 110%	Yes	
LCS		4.05		4.00		101%		90% - 110%	Yes	

ND: Below the reporting limit (Not Detected).

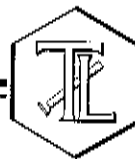
DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Sam Cassin
Mona Nassimi, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.

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REPORT

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Client: E2 Consulting Engineers, Inc.
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Sample: Eleven (11) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 370367.MP.02.CM.01

P.O. No.: 370367.MP.02.CM.01

Laboratory No.: 981017

Date: January 27, 2009

Collected: January 6, 2009

Received: January 7, 2009

Prep/ Analyzed: January 8, 2009

Analytical Batch: 01AN09D

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>
981017-1	OW-05S-019	08:45	17:31	mg/L	5.00	0.500	2.60
981017-2	OW-05M-019	09:45	17:42	mg/L	5.00	0.500	2.32
981017-3	OW-05D-019	11:03	17:52	mg/L	5.00	0.500	2.32
981017-4	OW-01S-019	11:51	18:05	mg/L	5.00	0.500	2.28
981017-5	OW-01M-019	12:47	18:16	mg/L	5.00	0.500	1.86
981017-6	MW-91-019	13:30	18:28	mg/L	5.00	0.500	5.01
981017-7	OW-01D-019	14:04	18:39	mg/L	5.00	0.500	1.83
981017-8	OW-02D-019	15:20	18:51	mg/L	5.00	0.500	1.99
981017-10	OW-02M-019	16:15	19:02	mg/L	5.00	0.500	2.05
981017-11	OW-02S-019	16:48	19:13	mg/L	5.00	0.500	5.25

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


for Mona Nassimi, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

REPORT

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

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

Attention: Shawn Duffy

Sample: Eleven (11) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 370367.MP.02.CM.01

P.O. No.: 370367.MP.02.CM.01

Laboratory No.: 981017

Date: January 27, 2009

Collected: January 6, 2009

Received: January 7, 2009

Prep/ Analyzed: January 8, 2009

Analytical Batch: 01AN09D

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	981016	0.612	0.614	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	981016	0.612	1.00	2.00	2.00	2.64	2.61	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	4.16	4.00	104%	90% - 110%	Yes
MRCCS#1	3.14	3.00	105%	90% - 110%	Yes
MRCCS#2	3.15	3.00	105%	90% - 110%	Yes
MRCVS#3	3.14	3.00	105%	90% - 110%	Yes
LCS	4.17	4.00	104%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

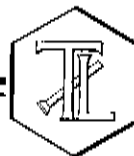
Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

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

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.

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



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REPORT

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

Attention: Shawn Duffy

Sample: Eleven (11) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 370367.MP.02.CM.01

P.O. No.: 370367.MP.02.CM.01

Prep. Batch: 011509A

14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
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www.truesdail.com

Laboratory No.: 981017

Date: January 27, 2009

Collected: January 6, 2009

Received: January 7, 2009

Prep/ Analyzed: January 15, 2009

Analytical Batch: 011509A

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>
981017-1	OW-05S-019	08:45	EPA 200.8	12:19	µg/L	1.00	1.00	24.3
981017-2	OW-05M-019	09:45	EPA 200.8	12:57	µg/L	1.00	1.00	1.08
981017-3	OW-05D-019	11:03	EPA 200.8	13:04	µg/L	1.00	1.00	ND
981017-4	OW-01S-019	11:51	EPA 200.8	13:10	µg/L	1.00	1.00	19.3
981017-5	OW-01M-019	12:47	EPA 200.8	13:30	µg/L	1.00	1.00	1.04
981017-6	MW-91-019	13:30	EPA 200.8	13:37	µg/L	1.00	1.00	32.8
981017-7	OW-01D-019	14:04	EPA 200.8	13:44	µg/L	1.00	1.00	ND
981017-8	OW-02D-019	15:20	EPA 200.8	13:50	µg/L	1.00	1.00	ND
981017-10	OW-02M-019	16:15	EPA 200.8	13:57	µg/L	1.00	1.00	1.41
981017-11	OW-02S-019	16:48	EPA 200.8	14:04	µg/L	1.00	1.00	33.2

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


for Mona Nassimi, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



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REPORT

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

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

Attention: Shawn Duffy

Laboratory No.: 981017

Date: January 27, 2009

Collected: January 6, 2009

Received: January 7, 2009

Prep/ Analyzed: January 15, 2009

Analytical Batch: 011509A

Sample: Eleven (11) Groundwater Samples
Project Name: PG&E Topock Project
Project No.: 370367.MP.02.CM.01
P.O. No.: 370367.MP.02.CM.01
Prep. Batch: 011509A

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	981017-1	24.3	24.4	0.41%	≤ 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	981017-1	24.3	1.00	50.0	50.0	71.8	74.3	95.0%	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
MRCSS	50.5	50.0	101%	90% - 110%	Yes
MRCVS#1	51.1	50.0	102%	90% - 110%	Yes
MRCVS#2	51.7	50.0	103%	90% - 110%	Yes
MRCVS#3	49.9	50.0	99.8%	90% - 110%	Yes
ICS	51.1	50.0	102%	80% - 120%	Yes
LCS	49.8	50.0	99.6%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

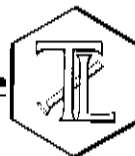
DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

For 
Mona Nassimi, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



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REPORT

Client: E2 Consulting Engineers, Inc.
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www.truesdail.com

Attention: Shawn Duffy

Laboratory No.: 981017

Sample: Eleven (11) Groundwater Samples

Date: January 27, 2009

Project Name: PG&E Topock Project

Collected: January 6, 2009

Project No.: 370367.MP.02.CM.01

Received: January 7, 2009

P.O. No.: 370367.MP.02.CM.01

Prep/ Analyzed: January 14, 2009

Prep. Batch: 011409A

Analytical Batch: 011409A

Investigation:

Total Dissolved Boron by Inductively Coupled Argon Plasma Atomic Emission Spectrometer using EPA 200.7

Analytical Results Total Dissolved Boron

<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>
981017-1	OW-05S-019	08:45	EPA 200.7	12:43	µg/L	1.00	20.0	423
981017-2	OW-05M-019	09:45	EPA 200.7	12:55	µg/L	1.00	20.0	995
981017-3	OW-05D-019	11:03	EPA 200.7	13:00	µg/L	1.00	20.0	963
981017-4	OW-01S-019	11:51	EPA 200.7	13:04	µg/L	1.00	20.0	321
981017-5	OW-01M-019	12:47	EPA 200.7	13:08	µg/L	1.00	20.0	989
981017-6	MW-91-019	13:30	EPA 200.7	13:12	µg/L	1.00	20.0	656
981017-7	OW-01D-019	14:04	EPA 200.7	13:16	µg/L	1.00	20.0	1020
981017-8	OW-02D-019	15:20	EPA 200.7	13:20	µg/L	1.00	20.0	1000
981017-10	OW-02M-019	16:15	EPA 200.7	13:24	µg/L	1.00	20.0	989
981017-11	OW-02S-019	16:48	EPA 200.7	13:28	µg/L	1.00	20.0	694

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for Sam Gamba
Mona Nassimi, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



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REPORT

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

Attention: Shawn Duffy

Sample: Eleven (11) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 370367.MP.02.CM.01

P.O. No.: 370367.MP.02.CM.01

Prep. Batch: 011409A

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www.truesdail.com

Laboratory No.: 981017

Date: January 27, 2009

Collected: January 6, 2009

Received: January 7, 2009

Prep/ Analyzed: January 14, 2009

Analytical Batch: 011409A

Investigation: Total Dissolved Boron by Inductively Coupled Argon Plasma Atomic Emission Spectrometer using EPA 200.7

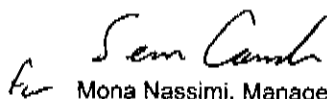
QA/QC Summary

QC STD I.D.		Laboratory Number		Concentration		Duplicate Concentration		Relative Percent Difference	Acceptance Limits	QC Within Control
Duplicate		981017-1		423		390		8.12%	≤ 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	981017-1	423	1.00	2000	2000	2340	2423	95.9%	70-130%	Yes
QC Std I.D.		Measured Concentration		Theoretical Concentration		Percent Recovery		Acceptance Limits	QC Within Control	
Blank		ND		<20.0		---		<20.0	Yes	
MRCCS		5110		5000		102%		90% - 110%	Yes	
MRCVS#1		4560		5000		91.2%		90% - 110%	Yes	
MRCVS#2		5040		5000		101%		90% - 110%	Yes	
LCS		5220		5000		104%		90% - 110%	Yes	

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.


Mona Nassimi, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



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REPORT

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

Attention: Shawn Duffy

Sample: Eleven (11) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 370367.MP.02.CM.01

P.O. No.: 370367.MP.02.CM.01

Prep. Batch: 012609A

14201 FRANKLIN AVENUE
TUSTIN, CALIFORNIA 92780-7008
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Laboratory No.: 981017

Date: January 27, 2009

Collected: January 6, 2009

Received: January 7, 2009

Prep/ Analyzed: January 26, 2009

Analytical Batch: 012609A

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

Analytical Results Total Dissolved Molybdenum

<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>
981017-1	OW-05S-019	08:45	EPA 200.8	13:33	µg/L	1.00	10.0	29.6
981017-2	OW-05M-019	09:45	EPA 200.8	13:39	µg/L	1.00	10.0	15.4
981017-3	OW-05D-019	11:03	EPA 200.8	13:46	µg/L	1.00	10.0	16.0
981017-4	OW-01S-019	11:51	EPA 200.8	14:12	µg/L	1.00	10.0	ND
981017-5	OW-01M-019	12:47	EPA 200.8	14:19	µg/L	1.00	10.0	ND
981017-6	MW-91-019	13:30	EPA 200.8	14:26	µg/L	1.00	10.0	37.5
981017-7	OW-01D-019	14:04	EPA 200.8	14:32	µg/L	1.00	10.0	12.1
981017-8	OW-02D-019	15:20	EPA 200.8	14:39	µg/L	1.00	10.0	12.9
981017-10	OW-02M-019	16:15	EPA 200.8	14:46	µg/L	1.00	10.0	13.0
981017-11	OW-02S-019	16:48	SW 6020	14:52	µg/L	1.00	10.0	38.6

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

for 
Mona Nassimi, Manager
Analytical Services

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

REPORT

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

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

Attention: Shawn Duffy

Laboratory No.: 981017

Date: January 27, 2009

Sample: Eleven (11) Groundwater Samples

Collected: January 6, 2009

Project Name: PG&E Topock Project

Received: January 7, 2009

Project No.: 370367.MP.02.CM.01

Prep/ Analyzed: January 26, 2009

P.O. No.: 370367.MP.02.CM.01

Analytical Batch: 012609A

Prep. Batch: 012609A

Investigation: Total Dissolved Molybdenum 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		981233		14.5		15.0		3.39%		≤ 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	981233	14.5	1.00	50.0	50.0	72.3	64.5	116%	70-130%	Yes

QC Std I.D.	Measured Concentration	Theoretical Concentration	Percent Recovery	Acceptance Limits	QC Within Control
Blank	ND	<10.0	---	<10.0	Yes
MRCCS	50.6	50.0	101%	90% - 110%	Yes
MRCVS#1	51.7	50.0	103%	90% - 110%	Yes
MRCVS#2	51.6	50.0	103%	90% - 110%	Yes
LCS	51.8	50.0	104%	90% - 110%	Yes

ND: Below the reporting limit (Not Detected).

DF: Dilution Factor.

Respectfully submitted,
TRUESDAIL LABORATORIES, INC.

Moni Nassimi
Moni Nassimi, Manager
Analytical Services

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.

981017

Rec'd 01/07/09
981017

TRUESDALL LABORATORIES, INC.
14201 Franklin Avenue, Tustin, CA 92780-7008
(714) 730-8239 FAX: (714) 730-5462
www.truesdall.com

CHAIN OF CUSTODY RECORD

[2009-CMP-019]

COC Number

Turnaround Time 10 Days

Date 1-7-09 Page 1 OF 2

COMPANY E2				Container:	250 ml Poly	500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	Number of Containers	COMMENTS
PROJECT PG&E Topock				Preservatives:	(NH4)2SO4 / NH4OH 4°C	HNO3	4°C	4°C	4°C	4°C		
ADDRESS 155 Grand Ave Ste 1000 Oakland, CA 94612				Filtered:	Lab	Field	NA	NA	NA	NA		
PHONE (530) 229-3303 FAX (530) 339-3303				Holding Time:	28	180	28	28	28	28		
P.O. NUM 370367.MP.02.CM.01 TEAM 1					Cr6 (218.6) Lab Filtered	Metals (E200.7) Field Filtered B, Cr, Mo	Specific Conductance (120.1)	TDS (SM2540C)	Anions (300) Chloride, Fluoride, Sulfate	Turbidity (SM2130)		
SAMPLERS (SIGNATURE)												
SAMPLE I.D.	DATE	TIME	Matrix									
-1 DW-055-019	1/6/09	0845	GW	X	X	X	X	X	X		3	PH-2
-2 DW-05M-019	1/6/2009	0945	GW	X	X	X	X	X	X		3	
-3 DW-05D-019	1/6/09	1103	GW	X	X	X	X	X	X		3	
-4 DW-015-019	1/6/09	1151	GW	X	X	X	X	X	X		3	
-5 DW-01M-019	1/6/09	1247	GW	X	X	X	X	X	X		3	
-6 MW-91-019	1/6/09	1330	GW	X	X	X	X	X	X		3	
-7 DW-01D-019	1/6/09	1404	GW	X	X	X	X	X	X		3	
-8 DW-02D-019	1/6/09	1520	GW	X	X	X	X	X	X		3	↓
-9 MW-89-019	1/6/09	1535	GW	X							1	PH-2

CHAIN OF CUSTODY SIGNATURE RECORD

Signature (Relinquished)	Printed Name Barry Gellon	Company/Agency CHAM Hill	Date/Time 1-7-09 1545
Signature (Received) Rafael Davila	Printed Name Rafael	Company/Agency T.L.I	Date/Time 1-7-09 1545
Signature (Relinquished) Rafael Davila	Printed Name Rafael	Company/Agency T.L.I	Date/Time 1-7-09 2045
Signature (Received)	Printed Name Hashem	Company/Agency T.L.I	Date/Time 1-7-09 2045
Signature (Relinquished)	Printed Name	Company/Agency	Date/Time
Signature (Received)	Printed Name	Company/Agency	Date/Time

SAMPLE CONDITIONS

RECEIVED COOL ☐ WARM ☐ °FCUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

ALERT!!
Level III QC

066

981017

Rec'd 01/07/09

981017



TRUESDALL LABORATORIES, INC.
14201 Franklin Avenue, Tustin, CA 92780-7008
(714) 730-6239 FAX: (714) 730-6462
www.truesdall.com

CHAIN OF CUSTODY RECORD

[2009-CMP-019]

COC Number

Turnaround Time 10 Days

Date 1-7-09 Page 2 OF 2

COMPANY E2				Container:	250 ml Poly	500 ml Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	1 Liter Poly	Number of Containers	COMMENTS	
PROJECT PG&E Topock				Preservatives:	(NH4)2SO4 4% NH4OH 4°C	HNO3	4°C	4°C	4°C	4°C			
ADDRESS 155 Grand Ave Ste 1000 Oakland, CA 94612				Filtered:	Lab	Field	NA	NA	NA	NA			
PHONE (530) 229-3303 FAX (530) 339-3303				Holding Time:	28	180	28	28	28	28			
P.O. NUM 370367.MP.02.CM.01 TEAM 1					Cr6 (218.6) Lab Filtered	Metals (E200.7) Field Filtered B, Cr Mo	Specific Conductance (120.1)	TDS (SM2540C)	Anions (300) Chloride, Fluoride, Sulfate	Turbidity (SM2130)			
SAMPLE I.D.				DATE	TIME	Matrix							
-10 DW-02M-019				1/6/09	1615	GW	X	X	X	X	X	3	PH-2
-11 DW-02S-019				1/6/09	1648	GW	X	X	X	X	X	3	PH-2
TOTAL NUMBER OF CONTAINERS											31		

CHAIN OF CUSTODY SIGNATURE RECORD

Signature (Relinquished)	Printed Name	Company/Agency	Date/Time
<i>[Signature]</i>	Barry Collom	CH2M Hill	1-7-09 1545
Signature (Received)	Printed Name	Company/Agency	Date/Time
<i>[Signature]</i>	Rafael Davila	T.C.E.	1-7-09 1545
Signature (Relinquished)	Printed Name	Company/Agency	Date/Time
<i>[Signature]</i>	Rafael Davila	T.C.E.	1-7-09 2045
Signature (Received)	Printed Name	Company/Agency	Date/Time
<i>[Signature]</i>	ALERT	Tech 1	1-7-09 2045
Signature (Relinquished)	Printed Name	Company/Agency	Date/Time
<i>[Signature]</i>	Level 1 QC		
Signature (Received)	Printed Name	Company/Agency	Date/Time
<i>[Signature]</i>			

SAMPLE CONDITIONS

RECEIVED COOL ☐ WARM ☐ °FCUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

067

TABLE OF CONTENTS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
SDG: 09A057

SECTION	PAGE
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GC/MS-SVOA **	3000 –
GC-VOA **	4000 –
GC-SVOA **	5000 –
HPLC **	6000 –
METALS **	7000 –
WET METHOD SM4500NO3	8000 – 8008
OTHERS **	9000 –

** - Not Requested

CH.0408

09A057



EMAX Laboratories, Inc.
1835 W. 205th Street, Torrance, CA 90501
Tel: (310) 618 8889 Ext. 119 Fax: (310) 618 0818
Joe Kelbley jkelbley@emaxlabs.com

CHAIN OF CUSTODY RECORD

[2009-CMP-019]

COC Number

Turnaround Time 12 Days

Date 1-7-09 Page 1 OF 2

COMPANY E2		Container: 1 Liter Poly		Nitrate/Nitrite (SM4500NO3-E)		Number of Containers	COMMENTS
PROJECT PG&E Topock		Preservatives: H2SO4, pH=2, 4°C					
ADDRESS 155 Grand Ave Ste 1000 Oakland, CA 94612		Filtered: NA					
PHONE (530) 229-3303 FAX (530) 339-3303		Holding Time: 28					
P.O. NUM 370367.MP.02.CM.01 TEAM 1							
SAMPLERS (SIGNATURE)							
SAMPLE I.D.	DATE	TIME	Matrix				
1 DW-055-019	1/6/09	0845	GW	X		/	
2 DW-05M-019	1/6/09	0945	GW	X		/	
3 DW-05D-019	1/6/09	1103	GW	X		/	
4 DW-015-019	1/6/09	1151	GW	X		/	
5 DW-01M-019	1/6/09	1247	GW	X		/	
6 DW-01A-019	1/6/09	1330	GW	X		/	
7 DW-01D-019	1/6/09	1404	GW	X		/	
8 DW-02D-019	1/6/09	1520	GW	X		/	
9 DW-02M-019	1/6/09	1615	GW	X		/	

CHAIN OF CUSTODY SIGNATURE RECORD

Signature (Relinquished)	Printed Name Barry Coleman	Company/Agency CH2M Hill	Date/Time 1-7-09 1545
Signature (Received) Rafael Davila	Printed Name Rafael	Company/Agency T.L.I	Date/Time 1-7-09 1545
Signature (Relinquished)	Printed Name Phil Hatcher	Company/Agency EMAX	Date/Time 1-8-09 810
Signature (Received)	Printed Name Phil Hatcher	Company/Agency EMAX	Date/Time 1-8-09 1315
Signature (Received)	Printed Name INDRA PATEL	Company/Agency EMAX	Date/Time 1-15-09

SAMPLE CONDITIONS

RECEIVED COOL ☐ WARM ☐ °FCUSTODY SEALED YES ☐ NO ☐

SPECIAL REQUIREMENTS:

T = 3.8°C

1001



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CHAIN OF CUSTODY RECORD

[2009-CMP-019]

09 A057
COC Number _____
Turnaround Time 12 Days
Date 1-7-09 Page 2 OF 2

COMPANY E2		Container: 1 Liter Poly	Nitrate/Nitrite (SMASCONO3-E)		Number of Containers	COMMENTS
PROJECT PG&E Topock		Preservatives: H2SO4, pH<2, 4°C				
ADDRESS 155 Grand Ave Ste 1000 Oakland, CA 94612		Filtered: NA				
PHONE (530) 229-3303 FAX (530) 339-3303		Holding Time: 28				
P.O. NUM 370367.MP.02.CM.01 TEAM 1						
SAMPLERS (SIGNATURE)						
SAMPLE I.D.	DATE	TIME	Matrix			
0W-025-019	1/6/09	1648	GW	X		
TOTAL NUMBER OF CONTAINERS					10	

CHAIN OF CUSTODY SIGNATURE RECORD

Signature (Relinquished)				Printed Name Barry Colton		Company/ Agency CHAM Hill		Date/ Time 1-7-09 1545		SAMPLE CONDITIONS RECEIVED COOL <input type="checkbox"/> WARM <input type="checkbox"/> <input checked="" type="checkbox"/>	
Signature (Received) Robert Davis				Printed Name Robert		Company/ Agency T.L.F.		Date/ Time 1-7-09 1545		CUSTODY SEALED YES <input type="checkbox"/> NO <input type="checkbox"/>	
Signature (Relinquished)				Printed Name		Company/ Agency T.L.F.		Date/ Time 1/8/09 8:45 am		SPECIAL REQUIREMENTS:	
Signature (Received) Phil Hatcher				Printed Name Phil Hatcher		Company/ Agency EMAX		Date/ Time 1-8-09 9:15			
Signature (Relinquished)				Printed Name Phil Hatcher		Company/ Agency EMAX		Date/ Time 1-8-09 1315			
Signature (Received)				Printed Name INDRA LATEL		Company/ Agency EMAX		Date/ Time 1-8-09 1315			

1002

CLIENT: CH2M HILL TOPOCK

SDG: 09A057

Analyst names:

1. SM4500NO3: Elena Robles

LABORATORY REPORT FOR

CH2M HILL

PG&E'S TOPOCK GAS COMPRESSOR STAT

METHOD SM4500NO3
NITRATE/NITRITE-N

SDG#: 09A057

CASE NARRATIVE

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
SDG: 09A057

METHOD SM4500NO3 NITRATE/NITRITE-N

Ten (10) water samples were received on 11/18/09 for Nitrate/Nitrite-N analysis by Method SM4500NO3 in accordance with "Standard Method for the Examination of Water and Wastewater".

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Duplicate

Sample A057-10 was analyzed for duplicate. %RPD was within QC limit.

5. Matrix Spike

Sample A057-10 was spiked. Recovery was within QC limit.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD SM4500NO3
NITRATE/NITRITE-N

Client : CH2M HILL
Project : PG&E'S TOPOCK GAS COMPRESSOR STAT
Batch No. : 09A057

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	NAA002WB	ND	1	NA	0.100	0.0200	01/14/0915:28	NA	NAA00211	NAA00208	NAA002W	NA	NA
LCS1W	NAA002WL	0.503	1	NA	0.100	0.0200	01/14/0915:29	NA	NAA00212	NAA00208	NAA002W	NA	NA
LCD1W	NAA002WC	0.501	1	NA	0.100	0.0200	01/14/0915:29	NA	NAA00213	NAA00208	NAA002W	NA	NA
OW-05S-019	A057-01	4.23	5	NA	0.500	0.100	01/14/0915:30	NA	NAA00214	NAA00208	NAA002W	01/06/0908:45	01/08/09
OW-05M-019	A057-02	3.34	5	NA	0.500	0.100	01/14/0915:30	NA	NAA00215	NAA00208	NAA002W	01/06/0909:45	01/08/09
OW-05D-019	A057-03	3.26	5	NA	0.500	0.100	01/14/0915:30	NA	NAA00216	NAA00208	NAA002W	01/06/0911:03	01/08/09
OW-01S-019	A057-04	2.85	5	NA	0.500	0.100	01/14/0915:30	NA	NAA00217	NAA00208	NAA002W	01/06/0911:51	01/08/09
OW-01M-019	A057-05	3.08	5	NA	0.500	0.100	01/14/0915:31	NA	NAA00218	NAA00208	NAA002W	01/06/0912:47	01/08/09
MW-91-019	A057-06	4.19	5	NA	0.500	0.100	01/14/0915:32	NA	NAA00221	NAA00219	NAA002W	01/06/0913:30	01/08/09
OW-01D-019	A057-07	2.98	5	NA	0.500	0.100	01/14/0915:32	NA	NAA00222	NAA00219	NAA002W	01/06/0914:04	01/08/09
OW-02D-019	A057-08	3.05	5	NA	0.500	0.100	01/14/0915:32	NA	NAA00223	NAA00219	NAA002W	01/06/0915:20	01/08/09
OW-02M-019	A057-09	3.16	5	NA	0.500	0.100	01/14/0915:33	NA	NAA00224	NAA00219	NAA002W	01/06/0916:15	01/08/09
OW-02S-019	A057-10	4.09	5	NA	0.500	0.100	01/14/0915:34	NA	NAA00225	NAA00219	NAA002W	01/06/0916:48	01/08/09
OW-02S-019DUP	A057-10D	4.11	5	NA	0.500	0.100	01/14/0915:34	NA	NAA00226	NAA00219	NAA002W	01/06/0916:48	01/08/09
OW-02S-019MS	A057-10M	4.62	5	NA	0.500	0.100	01/14/0915:35	NA	NAA00227	NAA00219	NAA002W	01/06/0916:48	01/08/09

Appendix B
Field Data Sheets, First Quarter 2009

BEC

Project Name PGE Topock CMP

Job Number 370367.MP.02.CM.01

Sampling Event 2009-CMP-019

Date 1/6/09 AM 2009

Sampler A. Abbott Field Team 1 Field Conditions few high clouds, 35, calm

Page 1 of 1

Well/Sample Number OW-05M-019

QC Sample ID NA

QC Sample Time NA

Purge Start Time 0917 - 0949

Purge Method Temp Ded. Pump N

Flow Cell ☒ / N

Min. Purge Volume (gal)(L) 78.8 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)
—	0921	13.5	7.70	7.340	1	3.22	29.01	4.02	4.772	-86.5	WL meter stuck (924 96.18)
96.18	0926	27	7.77	7.345	1	3.86	29.57	4.02	4.775	-73.1	
96.18	0930	40.5	7.79	7.347	1	4.29	29.79	4.02	4.776	-64.9	
96.18	0935	54	7.79	7.347	0.5	4.34	29.90	4.02	4.776	-60.4	
96.18	0939	67.5	7.79	7.347	0.4	4.32	29.90	4.02	4.776	-58.6	
96.18	0943	81	7.78	7.347	0.3	4.33	29.90	4.01	4.776	-57.4	
	0945										
			+/- 0.1 pH units	+/- 3%	+/- 10% NTU units when >10 NTUs	+/- 0.3 mg/L	NA	NA	NA	+/- 10 mV	
Parameter Stabilization Criteria											
Did Parameters Stabilize prior to sampling?			Y	Y	Y	Y	NA	Y	Y	Y	
Previous Field measurement (11/4/2008)			7.65	7409	Y	5.69	30.03	Y	Y	148.9	
Are measurements consistent with previous?			Y	Y	Y	Y	NA	yes	Y	lower	

Sample Time 0945 Sample Location: pump tubing ☒ well port ☐ spigot ☐ baller ☐ other ☐

Comments:

Initial Depth to Water (ft BTOC): 95.78

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

WD (Well Depth - from database) ft btoc (250.3000)

SWH (Standing Water Height) = WD - Initial Depth 154.52

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

One Casing Volume = D * SWH 26.267

Three Casing Volumes = 78.8

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

Measure Point: Well TOC Steel Casing

WATER LEVEL METER SERIAL NUMBER: PGE-2005-03

Initial DTW / Before Removal		If Transducer			
		Approx. 5 min After Reinstallation		Time of Removal	09:10
Time	Initial DTW	Time	Final DTW		
906	95.78	0957	95.75	Time of Reinstallation	09:52
Comments:					

Odor: none, sulphur, organic, other

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

Project Name PGE Topock CMP

Job Number 370367.MP.02.CM.01

Sampling Event 2009-CMP-019

Date 1/10/09

Sampler A. Abbott Field Team 1 Field Conditions few high clouds, calm, 55°F

Page 1 of 1

Well/Sample Number OW-05D-019

QC Sample ID NA

QC Sample Time N/A

Purge Start Time 1018-11:05

Purge Method Temp. Ded. Pump No

Flow Cell 1 / N.

Min. Purge Volume (gal)/(L) 129.4 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)
96.60	1025	21	7.68	7.290	0.6	3.06	29.53	3.98	4.738	-28.7	
96.60	1032	42	7.71	7.286	0.5	3.45	29.68	3.98	4.736	-29.8	
96.92	1039	63	7.79	7.310	0.4	4.64	29.40	4.00	4.752	-30.0	
97.02	1046	84	7.79	7.313	0.3	4.73	29.59	4.00	4.751	-33.5	Backwashing @ 1W-3 caused
96.65	1053	105	7.80	7.315	0.4	4.73	29.41	4.00	4.754	-33.4	drawdowns to increase
96.60	1101	129.4	7.78	7.316	0.3	4.73	29.45	4.00	4.755	-32.7	
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 (11/4/2008)			7.68	7396	1	6.1	30.63			1237	
Are measurements consistent with previous?			Y	Y	Y	Y	NA	Y	—	lower	

Sample Time 1103 Sample Location:

pump tubing X

well port

spigot

baller

other

Comments: Recalibrated ORP before purging this well to double check calibration.

Initial Depth to Water (ft BTOC): 96.31

Measure Point: Well TOC

Steel Casing

WATER LEVEL METER SERIAL NUMBER: PGE-2005-03

Field measured confirmation of Well Depth (ft btoc):

WD (Well Depth - from database) ft btoc (350)

SWH (Standing Water Height) = WD-Initial Depth 253.69

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

One Casing Volume = D*SWH 43.13

Three Casing Volumes = 129.4

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

Odor: none, sulphur, organic, other

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

Initial DTW / Before Removal		If Transducer		
Time	Initial DTW	Approx. 5 min After Reinstallation	Time of Removal	Time of Reinstallation
1006	96.31	1114	1008	1109
		96.32		
Comments:				

Project Name PGE Topock CMP

Job Number 370367.MP.02.CM.01

Sampling Event 2009-CMP-019

Date 1/16/09

Sampler A. Abbott

Field Team 1

Field Conditions few high clouds, calm, 65

Page 1 of 1

Well/Sample Number OW-02D-019

QC Sample ID NA

QC Sample Time N/A

Purge Start Time 1435 - 1521

Purge Method Temp Ded. Pump No

Flow Cell ☒ Y ☐ N

Min. Purge Volume (gal)/(L) 126.2

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)
92.73	1442	21	7.83	7.284	0.5	4.51	28.13	3.99	4.734	-70.1	
92.74	1449	42	7.87	7.282	0.3	5.19	27.66	3.99	4.735	-58.6	
92.74	1456	63	7.90	7.301	0.4	4.83	27.49	4.00	4.746	-54.0	
93.15	1503	84	7.90	7.302	0.4	4.83	27.56	4.00	4.746	-50.4	
92.75	1510	105	7.90	7.302	0.4	4.81	27.54	4.00	4.746	-48.2	
92.75	1517	126.2	7.90	7.302	0.5	4.81	27.55	4.00	4.747	-47.4	
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 (11/3/2008)			7.61	7212	1	8.69	29.71			136.4	
Are measurements consistent with previous?			Y	Y	Y	Y	NA	Y	-	lower	

Sample Time 1520 Sample Location:

pump tubing

X

well port

spigot

bailer

other

Comments: 1535 Collect Equipment Blank: MW-89-019

Initial Depth to Water (ft BTOC): 92.51

Field measured confirmation of Well Depth (ft btoC):

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

SWH (Standing Water Height) = WD-Initial Depth 247.49

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

One Casing Volume = D*SWH 42.07

Three Casing Volumes = 126.2

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

Measure Point: Well TOC Steel Casing

WATER LEVEL METER SERIAL NUMBER: PGE-2005-03

Initial DTW / Before Removal		If Transducer			
		Approx. 5 min After Reinstallation		Time of Removal	1528
Time	Initial DTW	Time	Final DTW	Time of Reinstallation	1524
1425	92.51	1529	92.85		
Comments:					

Odor: ☒ none, sulphur, organic, otherSolids: ☒ Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Project Name PGE Topock CMP

Job Number 370367.MP.02.CM.01

Sampling Event 2009-CMP-019

Date 1/6/2009

Sampler A. Alcott

Field Team 1

Field Conditions few high clouds, calm, 65

Page 1 of 1

Well/Sample Number OW-01M-019

QC Sample ID NA

QC Sample Time NA

Purge Start Time 1220-1250

Purge Method Temp Ded. Pump No

Flow Cell ☒ Y ☐ N

Min. Purge Volume (gal)/(L) 47

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)
94.89	1224	8	7.78	7.285	0.4	6.01	29.06	3.99	4.740	-55.4	
94.80	1228	16	7.77	7.296	0.5	6.01	29.56	3.98	4.740	-55.5	
94.80	1232	24	7.76	7.288	0.4	6.10	29.69	3.98	4.734	-54.8	Back washing occurring @ 100-3
94.78	1236	32	7.75	7.292	0.4	6.07	29.66	3.98	4.741	-55.7	
94.75	1240	40	7.75	7.292	0.7	6.10	29.70	3.98	4.741	-56.4	
94.73	1244	48	7.75	7.290	0.5	6.11	29.68	3.98	4.741	-57.9	
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 (11/4/2008)			7.61	7443	1	8.89	30.36			125.3	
Are measurements consistent with previous?			Y	Y	Y	Y	NA	Y	-	lower	

Sample Time 1247 Sample Location: pump tubing ☒ X well port ☐ spigot ☐ bailer ☐ other ☐

Comments:

Initial Depth to Water (ft BTOC): 94.61

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

WD (Well Depth - from database) ft btoC (185.8000)

SWH (Standing Water Height) = WD-Initial Depth 91.19

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

One Casing Volume = D*SWH 15.5

Three Casing Volumes = 46.5

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

Measure Point: Well TOC Steel Casing

WATER LEVEL METER SERIAL NUMBER: PGE-2005-03

Initial DTW / Before Removal		If Transducer	
Time	Initial DTW	Approx. 5 min After Reinstallation	Time of Removal
1212	94.61	1259	94.55
Comments:		Time of Reinstallation	1254

Odor: ☒ none, ☐ sulphur, ☐ organic, ☐ otherSolids: ☒ Trace, ☐ Small Qu, ☐ Med Qu, ☐ Large Qu, ☐ Particulate, ☐ Silt, ☐ Sand

Project Name PGE Topock CMP
Job Number 370367.MP.02.CM.01

Sampling Event 2009-CMP-019

Date 1/6/2009

Sampler 1. Matt Field Team 1 Field Conditions few high clouds, calm, 65

Page 1 of 1

Well/Sample Number OW-01D-019

QC Sample ID NA

QC Sample Time N/A

Purge Start Time 1330 - 1407

Purge Method Temp.

Ded. Pump No

Flow Cell ☒ Y ☐ N

Min. Purge Volume (gal)(L) 93.4

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)
97.23	1335	15.5	7.80	7.336	0.5	5.12	29.19	4.01	4.765	-55.6	
97.23	1341	31	7.83	7.334	0.4	5.74	29.55	4.01	4.764	-51.0	
97.65	1346	46.5	7.84	7.312	0.8	6.71	29.60	4.00	4.755	-45.5	BACKWASHING @ JW-3
97.29	1351	62	7.85	7.313	0.9	6.72	29.61	4.00	4.754	-44.6	
97.23	1356	77.5	7.86	7.317	1.8	6.77	29.59	4.00	4.757	-42.9	
97.18	1402	93.4	7.86	7.321	0.8	6.71	29.66	4.00	4.754	-38.2	
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 (11/4/2008)			7.76	7.498	3.1	10.5	30.21			115.3	
Are measurements consistent with previous?			Y	Y	Y	Y	NA	Y	—	lower	

Sample Time 1404 Sample Location:

pump tubing X

well port

spigot

baller

other

Comments: Pump @ 109'

Initial Depth to Water (ft BTOC): 93.90

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

WD (Well Depth - from database) ft btoc (277)

SWH (Standing Water Height) = WD - Initial Depth 183.1

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

One Casing Volume = D * SWH 31.1

Three Casing Volumes = 93.4

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

Measure Point: Well TOC

Steel Casing

WATER LEVEL METER SERIAL NUMBER: P4E-2005-03

Initial DTW / Before Removal		If Transducer	
Time	Initial DTW	Approx. 5 min After Reinstallation	Time of Removal
1317	93.90	1415	94.11
Comments:		Time of Reinstallation 1410	

Odor: none, sulphur, organic, other

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

Initial Depth to Water (ft BTOC): 92.59
Field measured confirmation of Well Depth (ft btoC): —
WD (Well Depth - from database) ft btoC (210.3000)
SWH (Standing Water Height) = WD-Initial Depth 117.71
D (Volume as per diameter) 2" = 0.17, 4" = 0.66, 1" = 0.041 (2 in)
One Casing Volume = D*SWH 20
Three Casing Volumes = 60
Color: clear, grey, yellow, brown, black, cloudy, green

Odor: none, sulphur, organic, other

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

Topock Sampling Log

Project Name PGE Topock CMP Sampling Event 2009-CMP-019 BCL
 Job Number 370367.MP.02.CM.01 Date 1/6/2009
 Sampler A. Abbott Field Team 1 Field Conditions less high clouds, mid 30s, calm Page 1 of 1

Well/Sample Number OW-05S-019 QC Sample ID NA QC Sample Time N/A
 Purge Start Time 0832 - 846 Purge Method Temp. Ded. Pump No
 Flow Cell ☒ Y / ☐ N Min. Purge Volume 2.02 (gal)/(L) Purge Rate 1 (gpm)/(mLpm)

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)
96.62	0834	1	7.87	1859	49	7.50	27.46	0.93	1.201	-30.5	
96.62	0836	3	8.02	1843	22	6.19	27.89	0.93	1.191	-40.1	
96.62	0838	4	8.05	1.813	12	5.73	28.11	0.91	1.177	-43.5	
96.62	0839	5	8.05	1.805	7	5.61	28.22	0.91	1.173	-44.7	
96.62	0841	67	8.05	1.794	6	5.40	28.25	0.90	1.164	-46.4	
96.65	0842	8	8.05	1.785	5	5.25	28.26	0.90	1.160	-48.6	
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 (11/4/2008)			7.87	1798	5	6.66	28.87			121/2	
Are measurements consistent with previous?			Y	Y	-	Y	NA	yes	-	lower	

Sample Time 0845 Sample Location: pump tubing ☒ well port spigot bailer other
 Comments: Purge into bucket

Initial Depth to Water (ft BTOW): 96.52
 Field measured confirmation of Well Depth (ft btoc):
 WD (Well Depth - from database) ft btoc (110.3000)
 SWH (Standing Water Height) = WD-Initial Depth 13.78
 D (Volume as per diameter) 2"= 0.17, 4"= 0.66, 1"=0.041 (2 in)
 One Casing Volume = D*SWH 2.34
 Three Casing Volumes = 7.02
 Color: clean grey, yellow, brown, black, cloudy, green

Measure Point: Well TOC Steel Casing WATER LEVEL METER SERIAL NUMBER: PGE-2005-03

Initial DTW / Before Removal		Approx. 5 min After Reinstallation		If Transducer	
Time	Initial DTW	Time	Final DTW	Time of Removal	Time of Reinstallation
8:20	96.52	0857	96.55	8:22	0852

Comments:

Odor: None, sulphur, organic, other

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

Topock Sampling Log

Project Name PGE Topock CMP
 Job Number 370367.MP.02.CM.01
 Sampler A. Abbott Field Team 1 Field Conditions clear, calm, 50
 Sampling Event 2009-CMP-019 Date 1/6/09 2009 BEC
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Well/Sample Number OW-02S-019 QC Sample ID MW-91-019 QC Sample Time 1330
 Purge Start Time 1638-1650 Purge Method Temp Ded. Pump NO
 Flow Cell Y N Min. Purge Volume 14 (gal)/(L) Purge Rate 2 (gpm)/(mLpm)

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)
94.36	1640	4	8.16	1.808	44	5.15	27.76	0.91	1.175	-61.3	AA
94.39	1642	8	8.17	1.807	9	5.11	28.13	0.91	1.175	-57.8	AA
94.39	1644	12	8.17	1.807	5	5.11	28.24	0.91	1.175	-56.0	AA
94.39	1646	16	8.17	1.807	3	5.11	28.29	0.91	1.175	-54.7	
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 (11/3/2008)			7.93	1830	Y	7.09	28.79	—	—	49.7	
Are measurements consistent with previous?			Y	Y	Y	Y	NA	Y	—	lower	

Sample Time 1648 Sample Location: pump tubing ☒ well port ☐ spigot ☐ bailer ☐ other ☐

Comments: _____

Initial Depth to Water (ft BTOW): 93.68Field measured confirmation of Well Depth (ft btoc): —

WD (Well Depth - from database) ft btoc (121)

SWH (Standing Water Height) = WD-Initial Depth 27.32

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

One Casing Volume = D*SWH 4.6Three Casing Volumes = 13.9Color: 0 clear, grey, yellow, brown, black, cloudy, greenOdor: 0 none, sulphur, organic, otherSolids: 0 Small Qu, Med Qu, Large Qu, Particulate, Silt, SandMeasure Point: Well TOC

Steel Casing

WATER LEVEL METER SERIAL NUMBER: PG6-2005-03

Initial DTW / Before Removal		If Transducer	
Time	Initial DTW	Time	Final DTW
<u>1629</u>	<u>93.68</u>	<u>1658</u>	<u>93.73</u>
Comments:		Time of Removal	<u>1631</u>
		Time of Reinstallation	<u>1653</u>