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April 13, 2007

Aaron Yue
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Robert Perdue
Executive Officer
California Regional Water Quality Control Board
Colorado River Basin Region
73-720 Fred Waring Drive, Suite 100
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Subject: Interim Measures Compliance Monitoring Program
Groundwater Monitoring Report, First Quarter 2007
PG&E Topock Compressor Station, Needles, California

Dear Mr. Yue and Mr. Perdue:

Enclosed is the *Groundwater Monitoring Report, First Quarter 2007* for the Interim Measure Compliance Monitoring Program (CMP) at the PG&E Topock Compressor Station. This monitoring report presents the results of the first quarter 2007 CMP groundwater monitoring event, and has been prepared in conformance with RWQCB Order No. R7-2006-0060, as well as with DTSC's July 15 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, total chromium, total dissolved solids and pH to be used to determine if contingency plan actions were necessary based on sample results. The concentrations used to trigger the contingency plan are as follows: hexavalent chromium greater than 32.6 µg/L, total chromium greater than 28.0 µg/L, total dissolved solids greater than 10,800 mg/L, and pH outside of the range of 7.6 to 8.89.

During the first quarter 2007, a sample for pH collected from well OW-2M exhibited a pH reading of 7.50, using an EPA method with an accuracy of ± 0.1. Allowing for the accuracy of the method, this reading was essentially at the lower limit of the range specified in the contingency plan, outside of which the plan would be triggered. The historical measured pH for well OW-2M has ranged from 7.42 to 7.97. Considering that the average pH of the IM No. 3

treatment plant effluent is approximately 8.0, the pH reading in well OW-2M is not believed to be the result of the injection of treated groundwater.

As a confirmation step, a sample from well OW-2M collected on April 12, 2007 was analyzed for pH. That sample had a pH of 7.71, which is consistent with historical sampling results and is within the range where contingency plan actions are not required. The results of both samplings are presented in the tables of the report.

During the first quarter 2007 monitoring event, a sample and field duplicate from the well OW-2S exceeded the hexavalent chromium action level of 32.6 µg/L (37.2 and 37.1 µg/L, respectively), and samples from wells OW-2S (original and field duplicate) and OW-5S exceeded the total chromium action level of 28 µg/L (38.8, 38.4 and 28.5 µg/L, respectively). A review of the water quality parameters indicative of treated groundwater injection (hexavalent chromium, total dissolved solids, sulfate, nitrate/nitrite and fluoride) confirm that injected water has not yet reached OW-2S or OW-5S, and that these concentrations of total and hexavalent chromium are not related to injected water (which has significantly lower chromium concentrations), but instead are 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 hexavalent and total chromium with respect to OW-2S and OW-5S. The Colorado River Basin RWQCB concurred with this decision in a letter dated March 2, 2007. As such, the contingency plan was not triggered due to the hexavalent and total chromium concentrations detected in OW-2s and OW-5S during the first quarter 2007.

No other samples exceeded the action levels for hexavalent chromium, total chromium or total dissolved solids. The next sampling event will be in the first week of May, 2007.

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

Sincerely,

Yvonne Meeks

cc. Cliff Raley, RWQCB
Abdi Haile, RWQCB
Christopher Guerre, DTSC

Enclosure

Compliance Monitoring Program Groundwater Monitoring Report, First Quarter 2007

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

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 13, 2007

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Compliance Monitoring Program
Groundwater Monitoring Report
First Quarter 2007

PG&E Topock Compressor Station
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April 13, 2007

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

Serena Lee, P.G. No. 8259
Associate Hydrogeologist

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Acronyms and Abbreviations

CMP	Compliance Monitoring Program
Cr(T)	total dissolved chromium
Cr(VI)	hexavalent chromium
CW	compliance well
DTSC	California Department of Toxic Substances Control
IM	Interim Measure
IW	injection well
µg/L	micrograms per liter
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.

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, which 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 contained in this report was performed in accordance with the new 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. R7-2006-0063. This report adheres to requirements established in MRP No. R7-2006-0063. 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 provides 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 adheres to the additional requirements.

The injection system consists of two injection wells, 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. Beginning with the first quarter of 2006 (starting January 22, 2006), operational testing of IW-3 was performed to prepare the injection system for the operation of both installed injection wells. During the testing, injection of treated water was divided equally between IW-2 and IW-3. The only use of well IW-3 during the first quarter 2006 was for operational testing. During the second quarter 2006, injection occurred solely at IW-2. In August 2006, IW-2 went offline for routine maintenance, and injection commenced at IW-3. During the fourth quarter 2006, injection occurred solely at IW-3, except during routine maintenance. During the first quarter 2007, injection continued to occur at IW-3 and transitioned over to IW-2 on March 8. Figure 2 shows the locations of

the injection wells and the groundwater monitoring wells (observation wells and compliance monitoring wells) in the CMP. Table 1 summarizes information on well construction and sampling methods for all wells in the CMP.

In December 2006, PG&E requested a revision of constituents analyzed during quarterly sampling of the CMP observation wells (CH2M HILL, 2006a). In a letter dated January 22, 2007 (DTSC, 2007), DTSC approved PG&E's request. Observation wells are now sampled for a limited suite of constituents during quarterly monitoring events. The first quarter 2007 sampling event was the first event to incorporate this change. Semiannual CMP events still retain the original constituent suite for the observation and compliance wells (CWs).

Under the CMP, as of January 2007, samples are collected from wells (Figure 2) according to the following schedule:

- Nine observation wells located near the IM No. 3 injection well field are sampled quarterly.
- Eight compliance monitoring wells located around the IM No. 3 injection well field are sampled semiannually. These wells were not sampled during the first quarter 2007, and are scheduled to be sampled during the second quarter.

For the semiannual sampling events, laboratory analyses include total dissolved chromium [Cr(T)], hexavalent chromium [Cr(VI)], metals, specific conductance, pH, total dissolved solids (TDS), turbidity, and major inorganic cations and anions. For the quarterly sampling events, a smaller suite of metals and general chemistry constituents are collected. Groundwater elevation data and field water quality data—including specific conductance, temperature, pH, oxidation-reduction potential, dissolved oxygen, turbidity and salinity—are measured during each monitoring event (CH2M HILL, 2005a).

This quarterly report presents the results of the first quarter 2007 CMP groundwater monitoring activities.

2.0 First Quarter 2007 Activities

This section provides a summary of the monitoring and sampling activities completed during the first quarter 2007. The first quarter 2007 monitoring event was conducted during January 24-25, 2007 and consisted of:

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

Continuous groundwater elevation data were collected by pressure transducers/data loggers at each of the 17 CMP wells and 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 are 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 2007 Results

This section summarizes the results of the CMP groundwater sampling conducted during the first quarter 2007. Figure 2 presents the locations of the CMP groundwater wells.

The data presented include results for Cr(VI), Cr(T), 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 for the first quarter 2007 monitoring event are presented in Appendix A.

3.1 Analytical Results

Nine observation wells were sampled during the first quarter 2007 sampling event. Analytical results for Cr(VI) and Cr(T), metals, and general chemistry parameters are presented in Tables 2 and 3 and 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).

3.1.1 Hexavalent and Total Chromium

Table 2 presents the Cr(VI) and Cr(T) results for groundwater in the shallow, middle, and deep observation wells for the first quarter 2007 CMP sampling event. For shallow wells, the maximum detected Cr(VI) concentration was 37.2 micrograms per liter (µg/L) in well OW-2S on January 24, 2007. For the mid-depth wells, the maximum detected Cr(VI) concentration was 2.4 µg/L in well OW-2M on January 24, 2007. For the deep wells, there were no detections of Cr(VI) above the analytical reporting limit.

During the first quarter 2007, the primary and field duplicate samples of OW-2S exceeded the interim action level of 32.6 µg/L for Cr(VI), with concentrations of 37.2 µg/L and 37.1 µg/L. For these exceedances, the results were not considered to be the result of the injection of treated groundwater, as the average concentration of Cr(VI) from the IM No. 3 treatment plant is less than 0.5 µg/L (CH2M HILL, 2007a). Cr(VI) concentrations at OW-2S have been consistently above the WQOs since November 2005. In addition, other parameters that would indicate arrival of the injected water at OW-2S (such as a change in sulfate or TDS concentrations) are not observed in samples from this well. The results are thus considered reflective of the variance in background water quality.

For shallow wells, the maximum detected Cr(T) concentration was 38.8 µg/L in well OW-2S on January 24, 2007. For the middle wells, the maximum detected Cr(T) concentration was 2.9 µg/L in well OW-2M on January 24, 2007. For the deep wells, there were no detections of Cr(T) above the analytical reporting limit. During the first quarter 2007, three samples exceeded the interim action level of 28 µg/L for Cr(T). The primary and field duplicate January 24, 2007 samples from well OW-2S had concentrations of 38.8 µg/L and 38.4 µg/L. The January 25, 2007 sample from OW-5S had a concentration of 28.5 µg/L. Consistent with

the Cr(VI) levels found in the OW-2S, these exceedances of Cr(T) are considered reflective of the variance in background water quality.

3.1.2 Other Metals and Cations

Table 3 presents the other metals and general chemistry results for the CMP wells sampled during the first quarter 2007. As previously mentioned, the observation wells are now sampled for a limited suite of constituents during quarterly monitoring events. The first quarter 2007 sampling event was the first event to incorporate this change in which a smaller suite of metals and general chemistry constituents are collected. Metals and ions detected from the first quarter 2007 samples included boron, chloride, fluoride, molybdenum, nitrate/nitrite as nitrogen and sulfate. Concentrations of metals and ions detected during this sampling event are similar to those detected in previous sampling events.

During the first quarter 2007 monitoring, the sampling results for TDS and pH in all observation wells were within the WQOs, with one exception. The January 24, 2007 sample from OW-2M had a pH value of 7.50, using an EPA method with an accuracy of ± 0.1. Allowing for the accuracy of the method, this reading was essentially at the lower limit of the WQO range of 7.60 to 8.89. For this occurrence, the result is not considered to be the result of the injection of treated groundwater, as the average pH of the IM No. 3 treatment plant effluent is approximately 8.0 (CH2M HILL, 2007a).

3.2 Analytical Data Quality Review

The laboratory analytical data generated from the first quarter 2007 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 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

Matrix interference was encountered in two groundwater samples that affected the sensitivity for Cr(VI) when using Method SW 7199. The C(VI) sample results from OW-1M and OW-1D 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 2007 sampling event, all matrix spike acceptance criteria were met.

3.2.3 Quantitation and Sensitivity

For the first quarter 2007 sampling event, method and analyte combinations met the project reporting limit objectives, except for the matrix interference issue explained above.

3.2.4 Holding Time Data Qualification

For the first quarter 2007 sampling event, all method holding time requirements were met, with the following exceptions: five pH samples were analyzed outside of the recommended holding time due to a communication issue, and specific conductance samples were analyzed outside of the recommended holding time due to a lab protocol issue that required re-analyses of the samples. The pH results were not usable and were rejected (R flagged), and the specific conductance samples were qualified as estimated (J flagged). The laboratory has been instructed to take corrective measures to avoid similar issues in the future.

3.2.5 Field Duplicates

For the first quarter 2007 sampling event, field duplicate acceptance criteria were met.

3.2.6 Method Blanks

For the first quarter 2007 sampling event, method blank acceptance criteria were met.

3.2.7 Equipment Blanks

For the first quarter 2007 sampling event, equipment blank acceptance criteria were met.

3.2.8 Laboratory Duplicates

For the first quarter 2007 sampling event, laboratory duplicate acceptance criteria for the methods were met.

3.2.9 Conclusion

For the first quarter 2007 groundwater sampling event, the completeness objectives were met for the method and analyte combinations, with the exception of pH. The pH results were incomplete because the recommended holding time was exceeded for five samples. 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 from the IM No. 3 groundwater treatment system began on July 31, 2005. Under WDR No. R7-2006-0060, PG&E is required to submit 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 applicable for determining the baseline water quality of the treated water being injected into the IM No. 3 injection well field. Table 4 provides selected analytical results from three of the monthly reports: August 29, 2005, March 18, 2006, and January 3, 2007. 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 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 2007 effluent water quality data):

- Cr(VI): typically non-detect (0.001) milligrams per liter (mg/L)
- Cr(T): typically non-detect (0.001) mg/L
- Fluoride: approximately 1.9 to 2.2 mg/L
- Molybdenum: approximately 0.008 to 0.02 mg/L
- Nitrate as nitrogen: approximately 2 to 4 mg/L
- Sulfate: approximately 480 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 4 also lists the results of baseline sampling for the observation wells and compliance wells. A full set of nine OW groundwater samples were collected on July 27 and 28, 2005, and a full set of eight CW groundwater samples were collected on September 15, 2005. These samples are considered representative of conditions unaffected by injection and serve to characterize the pre-injection aquifer 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 large differences in concentration from the treated water are noted for the remaining four or five parameters. By considering the entire suite of seven analytes and focusing on those parameters that show differences, it is possible to distinguish between the pre-injection water quality at the monitoring wells and the treated water effluent quality.

Table 5 presents a comparison between the treated water quality and the results from the most recent first quarter 2007 sampling event. The January 2007 samples were collected after approximately 18 months of injection. While the pre-injection OW and CW sample results were significantly different from the treated water quality, a number of the OW and CW first quarter 2007 sample results have changed in that these results 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.

Wells OW-1M, OW-1D, OW-2M, OW-2D, OW-5M, and OW-5D 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 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 as nitrogen, pH, sodium, sulfate, TDS, and vanadium. Water quality hydrographs (time-series plots) of these 11 analytes in each observation well within the IM No. 3 injection well field from December 2004 through January 2007 are presented in Figures 3A through 3C. Results are not shown for sodium and vanadium during the first quarter 2007 because these constituents were not analyzed in accordance with the January 2007 DTSC letter (DTSC, 2007).

The 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-2D), 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 wells (OW-1S, OW-2S, and OW-5S) show little water quality variation over time and generally have no net trends over time. The one exception to this behavior is seen in the response for Cr(VI) and Cr(T) in well OW-2S, which shows an increasing trend over time. Although the Cr(VI) and Cr(T) concentrations measured in this well have changed over time, the other parameters show little variability. TDS, sodium, sulfate, chloride, and molybdenum are particularly consistent and show that the local groundwater quality is not being affected by injection of treated water or outside water sources.

3.4 Water Level Measurements

Table 6 presents the manual water level measurements and groundwater elevations for the first quarter 2007 monitoring event.

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 2007 reporting period at the observation and compliance monitoring wells.

Average groundwater elevation maps for shallow, mid-depth, 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 select 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 quarterly (CH2M HILL,

2007b), with flow consistently being shown to move to the east/northeast across the uplands portions of the site. The effects of injection in the IM No. 3 injection well field are superimposed on the more regional Topock site groundwater flow system and, as expected, a groundwater mound has continued to grow. This potentiometric mound, evident in the mid-depth and deep intervals of the aquifer is centered around the active injection well IW-3. The potentiometric surfaces in prior CMP reports mapped the growth of the groundwater mound over time and show that, after 18 months of injection, the mound has increased in height by several tenths of a foot in elevation above the surrounding groundwater elevations. Figures 5B and 5C present contours for the average groundwater elevations of the mound within the middle and deep wells using January 15 through February 15, 2007 averages. As expected with a mound, the potentiometric surface of the deep wells is broader, while the potentiometric surface of the middle wells is more localized to the vicinity of the injection well. 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. This conclusion is supported by the faster arrival of the treated water to the OW-2 well cluster versus other observation wells, with OW-2 being located along the major axis from IW-3.

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 7 presents the vertical gradient data calculated using the January 15 through February 15, 2007 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. The observed lateral and vertical hydraulic 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 8 summarizes the field water quality data measured during the first quarter 2007 monitoring event. Field data sheets for the first quarter 2007 event are presented in Appendix B.

3.6 WDR Monitoring Requirements

Table 9 identifies the laboratory that performed each analysis for the first quarter 2007 monitoring event and lists the following information as required by the WDR:

- Sample location
- Sample identification number
- Sampler name

- Sample date
- Sample time
- Laboratory performing analysis
- Analysis method
- Analysis date
- Laboratory technician

4.0 Status of Monitoring Activities

4.1 Quarterly & Semiannual Monitoring

The next quarterly monitoring event will occur in April 2007 during the second quarter 2007. This event will also serve as the semiannual monitoring event, involving the sampling of both the OW and CW wells. This event will include the sampling and analysis scope that was presented in the Compliance Monitoring Plan (CH2M HILL, 2005a) and modified by the January 22, 2007 DTSC letter (DTSC, 2007). The groundwater monitoring report for this quarterly and semiannual CMP monitoring event will be submitted by July 15, 2007.

5.0 References

California Department of Toxic Substances Control (DTSC). 2005. Letter to PG&E. "Conditional Approval for the Start Up and Operation of the Interim Measures No. 3 Treatment System and Injection Wells, Pacific Gas & Electric Company, Topock Compressor Station." July 15.

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CH2M HILL. 2005a. *Groundwater Compliance Monitoring Plan for Interim Measure No. 3 Injection Area, Topock Compressor Station, Needles, California*. June 17.

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_____. 2006a. *Request for Approval to Implement Limited Sampling Frequency for Selected Metals/General Minerals for PG&E Topock Compressor Station*. December 1.

_____. 2007a. *February 2007 Monitoring Report for Interim Measures No. 3 Groundwater Treatment System, Water Discharge Requirements Order No. R7-2006-0060, Topock Compressor Station, Needles, California*. March 15.

_____. 2007b. *Groundwater and Surface Water Monitoring Report, Fourth Quarter 2006 and Annual Summary, Topock Compressor Station, Needles, California.* 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 13, 2007

Tables

TABLE 1
Well Construction and Sampling Summary for Groundwater Samples, First Quarter 2007
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 Installed	Remarks
IM Compliance Wells												
CW-01M	East Mesa	566.07	140 - 190	2 (PVC)	190.0	109.3	Dedi Redi-Flo AR	2	42	165	Active	
CW-01D	East Mesa	566.46	250 - 300	2 (PVC)	300.2	109.1	Temp Redi-Flo AR	3	110	180	Active	
CW-02M	East Mesa	549.45	152 - 202	2 (PVC)	202.0	93.1	Temp Redi-Flo AR	2	55	195	Active	
CW-02D	East Mesa	549.43	285 - 335	2 (PVC)	355.0	93.1	Temp Redi-Flo AR	3	140	159	Active	
CW-03M	East Mesa	534.10	172 - 222	2 (PVC)	222.0	77.7	Temp Redi-Flo AR	2	75	180	Active	
CW-03D	East Mesa	534.14	270 - 320	2 (PVC)	340.0	77.6	Temp Redi-Flo AR	3	140	143	Active	
CW-04M	East Mesa	518.55	119.5 - 169.8	2 (PVC)	169.8	61.8	Temp Redi-Flo AR	2	60	160	Active	
CW-04D	East Mesa	518.55	233 - 283	2 (PVC)	303.0	61.8	Temp Redi-Flo AR	3	120	134	Active	
IM Observation Wells												
OW-01S	East Mesa	550.15	83.5 - 113.5	2 (PVC)	113.5	94.7	Temp Waterra Hyd.	1	15	100	Active	
OW-01M	East Mesa	550.36	165 - 185	2 (PVC)	185.8	94.8	Temp Redi-Flo AR	2	54	109.6	Active	
OW-01D	East Mesa	550.36	257 - 277	2 (PVC)	277.0	94.2	Temp Redi-Flo AR	3	100	111.4	Active	
OW-02S	East Mesa	548.75	71 - 101	2 (PVC)	121.0	93.4	Temp Waterra Hyd.	2	15	100	Active	
OW-02M	East Mesa	548.52	190 - 210	2 (PVC)	210.3	92.8	Temp Redi-Flo AR	3	60	111.4	Active	
OW-02D	East Mesa	549.01	310 - 330	2 (PVC)	340.0	92.3	Temp Redi-Flo AR	3	120	110.3	Active	
OW-05S	East Mesa	551.75	70 - 110	2 (PVC)	110.3	96.0	Temp Waterra Hyd.	1	9	100	Active	
OW-05M	East Mesa	551.75	210 - 250	2 (PVC)	250.3	95.3	Temp Redi-Flo AR	3	80	112.5	Active	
OW-05D	East Mesa	552.35	300 - 320	2 (PVC)	350.0	95.4	Temp Redi-Flo AR	3	135	113.2	Active	

Notes:

AMSL	above mean sea level
BGS	below ground surface
BTOC	below top of polyvinyl chloride (PVC) casing
Dedi	dedicated
Redi-Flo AR	adjustable-rate electric submersible pump
Temp	temporary
Hyd	Hydrolift, Waterra inertial pump

Depth to water shown is the most recently measured depth to water.
All wells were purged and sampled using well-volume method.

TABLE 2
Chromium Results for Groundwater Samples, First Quarter 2007
PG&E Topock Compliance Monitoring Program

			Method:	SW7199	SW6020A, SW6010B
Location ID	**Sample Date**			**Hexavalent Chromium (µg/L)**	**Dissolved Chromium (µg/L)**
OW-01S	1/24/2007			20.1	18.8
OW-01M	1/25/2007			ND (1.0)	1.50
OW-01D	1/25/2007			ND (1.0)	ND (1.0)
OW-02S	1/24/2007			37.2	38.8
OW-02S	1/24/2007	(FD)		37.1	38.4
OW-02M	1/24/2007			2.40	2.90
OW-02D	1/24/2007			ND (0.2)	ND (1.0)
OW-05S	1/25/2007			27.8	28.5
OW-05M	1/25/2007			ND (0.2)	1.50
OW-05D	1/25/2007			ND (0.2)	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 3
Metals and General Chemistry Results for Groundwater Samples, First Quarter 2007
PG&E Topock Compliance Monitoring Program

	Method:	E120.1	E150.1	E160.1	E180.1	SW6010	SW6020A	E300.0	E300.0	E300.0	E353.3
Location ID	**Sample Date**	**Specific Conductance (uS/cm)**	**pH (pH units)**	**Total Dissolved Solids (mg/L)**	**Turbidity (NTU)**	**Dissolved Boron µg/L**	**Dissolved Molybdenum µg/L**	**Chloride (mg/L)**	**Fluoride (mg/L)**	**Sulfate (mg/L)**	**Nitrate/Nitrite as Nitrogen (mg/L)**
OW-01S	1/24/2007	2070 J	7.63	1310	1.02	0.289	9.00	590	2.54	128	3.15
OW-01M	1/25/2007	6150 J	7.71 R	3890	ND (1.0)	1.03	10.8	1970	1.96	464	2.43
OW-01D	1/25/2007	6040 J	7.75 R	4000	5.14	1.10	17.6	1980	2.65	465	2.23
OW-02S	1/24/2007	1680 J	7.62	955	2.56	0.663	42.5	416	4.60	122	3.93
OW-02S	1/24/2007 (FD)	1610 J	7.82	1000	1.55	0.597	40.7	411	4.66	121	3.80
OW-02M	1/24/2007	5740 J	7.50	4040	ND (1.0)	1.23	11.7	1980	1.99	466	2.62
OW-02M	4/12/2007	---	7.71	---	---	---	---	---	---	---	---
OW-02D	1/24/2007	6140 J	7.61	3880	ND (1.0)	0.994	12.1	2060	1.72	475	2.89
OW-05S	1/25/2007	1450 J	7.96 R	920	4.28	0.411	29.4	375	2.57	110	3.80
OW-05M	1/25/2007	6090 J	7.83 R	4100	1.06	1.04	17.9	2010	3.15	467	2.50
OW-05D	1/25/2007	6080 J	7.72 R	4060	ND (1.0)	1.04	14.0	2060	1.86	477	2.70

Notes:

ND parameter not detected at the listed reporting limit
uS/cm microSiemens per centimeter
NTU Nephelometric Turbidity Unit
mg/L milligrams per liter
µg/L micrograms per liter
J concentration or RL estimated by laboratory or data validation
R result exceeded analytical criteria for precision and accuracy; should not be used for project decision making
--- data not collected, available

TABLE 4
Treated Water Quality Compared to OW and CW Pre-injection Water Quality
PG&E Topock Compliance Monitoring Program

Location ID	Sample Date	Hexavalent Chromium (mg/L)	Total Chromium (mg/L)	Fluoride (mg/L)	Molybdenum (mg/L)	Nitrate (mg/L)	Sulfate (mg/L)	TDS (mg/L)
Treated Water	8/29/2005	ND(0.001)	ND(0.0021)	1.95	0.0083	3.7	450	3620
Treated Water	3/18/2006	ND(0.001)	ND(0.001)	1.92	0.0082	2.79	482	4040
Treated Water	1/3/2007	ND(0.0002)	0.0028	2.18	0.0204	2.18	491	4380
OW-01S	7/28/2005	0.0194	0.0235	2.45	0.0172	3.2	114	1320
OW-01M	7/27/2005	0.0163	0.0189	2.31	0.027	1.01	311	3450
OW-01D	7/27/2005	ND(0.001)	ND(0.0013)	1.14	0.0461	0.321	441	6170
OW-02S	7/28/2005	0.0153	0.0148	3.79	0.0356	3.81	126	1090
OW-02M	7/28/2005	0.0054	0.0057	2.19	0.0324	0.735	342	4380
OW-02D	7/28/2005	ND(0.001)	ND(0.0012)	0.966	0.0512	0.1	616	9550
OW-05S	7/28/2005	0.0234	0.0256	2.3	0.0171	3.55	105	1060
OW-05M	7/28/2005	0.0086	0.0088	2.74	0.0354	0.621	417	5550
OW-05D	7/28/2005	ND(0.001)	ND(0.0012)	1.11	0.057	0.151	480	8970
CW-01M	9/15/2005	0.0181	0.0178	2.34	0.0216	1.11	318	2990
CW-01D	9/15/2005	ND(0.001)	0.0016	0.951	0.0321	0.972	379	6230
CW-02M	9/15/2005	0.0158	0.0155	2.3	0.0231	0.908	342	3500
CW-02D	9/15/2005	ND(0.001)	0.0016	0.982	0.0416	0.28	601	8770
CW-03M	9/15/2005	0.0088	0.0081	2.57	0.0242	0.642	464	4740
CW-03D	9/15/2005	ND(0.001)	ND(0.001)	1.4	0.0292	0.304	672	9550
CW-04M	9/15/2005	0.0192	0.019	1.5	0.0123	1.18	240	3310
CW-04D	9/15/2005	ND(0.001)	ND(0.001)	1.01	0.026	0.188	534	7470

NOTES:

ND Not detected at the listed reporting limit.
Hexavalent chromium samples were analyzed with methods SW7199 and E218.6.
Total chromium samples were analyzed with methods SW6010B, SW6020A, and E200.7. Total chromium samples of the treated water were unfiltered.

TABLE 5
Treated Water Quality Compared to First Quarter 2007 Sampling Event Water Quality
PG&E Topock Compliance Monitoring Program

Location ID	Sample Date	Hexavalent Chromium (mg/L)	Dissolved Chromium (mg/L)	Fluoride (mg/L)	Dissolved Molybdenum (mg/L)	Nitrate/Nitrite as Nitrogen (mg/L)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)
Treated Water	3/8/2006	ND (0.001)	ND (0.001)	1.92	0.0082	2.79	482	4040
Treated Water	9/7/2006	ND (0.001)	ND (0.001)	1.93	0.0136	2.5	486	4420
Treated Water	1/3/2007	ND (0.0002)	0.0028	2.18	0.0204	2.18	491	4380
OW-01S	1/24/2007	0.0201	0.0188	2.54	0.009	3.15	128	1310
OW-01M	1/25/2007	ND (0.001)	0.0015	1.96	0.0108	2.43	464	3890
OW-01D	1/25/2007	ND (0.001)	ND (0.001)	2.65	0.0176	2.23	465	4000
OW-02S	1/24/2007	0.0372	0.0388	4.6	0.0425	3.93	122	955
OW-02S	1/24/2007 (FD)	0.0371	0.0384	4.66	0.0407	3.8	121	1000
OW-02M	1/24/2007	0.0024	0.0029	1.99	0.0117	2.62	466	4040
OW-02D	1/24/2007	ND (0.0002)	ND (0.001)	1.72	0.0121	2.89	475	3880
OW-05S	1/25/2007	0.0278	0.0285	2.57	0.0294	3.8	110	920
OW-05M	1/25/2007	ND (0.0002)	0.0015	3.15	0.0179	2.5	467	4100
OW-05D	1/25/2007	ND (0.0002)	ND (0.001)	1.86	0.014	2.7	477	4060

Notes:

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

Hexavalent chromium samples were analyzed with methods SW7199 and E218.6.

Total chromium samples were analyzed with methods SW6010B, SW6020A, E200.7, and E200.8. Total chromium and molybdenum samples of the treated water were unfiltered.

Molybdenum samples were analyzed with methods SW6020A and E200.8.

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

Nitrate/Nitrite as Nitrogen samples were analyzed with methods E353.3 and E300.0.

Total Dissolved Solid samples were analyzed with method E160.1.

TABLE 6
Manual Water Level Measurements and Elevations, First Quarter 2007
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	550.15	24-Jan-07	1:03 PM	94.65	0.12	455.44
OW-01M	185.8	550.36	25-Jan-07	8:24 AM	94.83	0.45	455.42
OW-01D	277.0	550.36	25-Jan-07	7:08 AM	94.23	0.50	455.96
OW-02S	121.0	548.75	24-Jan-07	8:40 AM	93.36	0.11	455.30
OW-02M	210.3	548.52	24-Jan-07	10:14 AM	92.82	0.45	455.54
OW-02D	340.0	549.01	24-Jan-07	11:38 AM	92.28	0.51	456.44
OW-05S	110.3	551.75	25-Jan-07	11:40 AM	96.00	0.11	455.70
OW-05M	250.3	551.75	25-Jan-07	10:45 AM	95.30	0.45	456.24
OW-05D	350.0	552.35	25-Jan-07	9:32 AM	95.38	0.51	456.71

Notes:

AMSL above mean sea level
BTOC below top of polyvinyl chloride (PVC) casing

TABLE 7
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	0.0052
CW-02D to CW-02M	0.0089
CW-03D to CW-03M	0.0113
CW-04D to CW-04M	0.0063
OW-01M to OW-01S	0.0037
OW-01D to OW-01M	0.0051
OW-02M to OW-02S	0.0039
OW-02D to OW-02M	0.0082

[a] Positive value signifies an upward gradient.

Gradients calculated using January 15 through February 15, 2007 average groundwater levels.

TABLE 8
Field Parameter Measurements for Groundwater Samples, First Quarter 2007
PG&E Topock Compliance Monitoring Program

Location ID	Sampling Date	Specific Conductance (µS/cm)	Temperature (°C)	pH (pH units)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	Salinity (%)
OW-01S	1/24/2007	1650	27.72	7.6	56	6.47	4	0.08
OW-01M	1/25/2007	6050	29.32	7.54	52	7.69	2.2	0.32
OW-01D	1/25/2007	6130	28.5	7.71	31	7.28	9.1	0.33
OW-02S	1/24/2007	1640	25.59	7.79	109	9.55	5	0.08
OW-02M	1/24/2007	6090	29.7	7.5	66	7.47	2	0.32
OW-02M	4/12/2007	9550	30.7	7.92	111	8.23	1.4	0.5
OW-02D	1/24/2007	6280	29.28	7.57	74	7.79	2	0.34
OW-05S	1/25/2007	1360	29.19	7.7	77	7.79	8.9	0.06
OW-05M	1/25/2007	6080	29.52	7.66	67	8.88	3.3	0.32
OW-05D	1/25/2007	6230	28.11	7.5	318	7.61	2.1	0.33

Notes:

µS/cm	microSiemens per centimeter
°C	degree centigrade
ORP	oxidation reduction potential
mV	millivolts
mg/L	milligrams per liter
NTU	Nephelometric Turbidity Unit
%	percentage
---	data not collected or available or rejected

TABLE 9

Board Order No. R7-2006-0060 WDR Monitoring Information for Groundwater Samples, First Quarter 2007

PG&E Topock Compliance Monitoring Program

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
OW-01D	OW-01D-011	Barry Collom	1/25/2007	9:05:00 AM	EMXT	EPA 120.1	SC	3/7/2007	Tina Hoang
					TLI	EPA 150.1	PH	2/15/2007	Tina Acquiat
					EMXT	EPA 160.1	TDS	1/30/2007	Tina Hoang
					EMXT	EPA 180.1	TRB	1/26/2007	Romy Marasigan
					EMXT	EPA 300.0	CL	1/29/2007	Jane Osorio
					EMXT	EPA 300.0	FL	1/27/2007	Jane Osorio
					EMXT	EPA 300.0	SO4	1/29/2007	Jane Osorio
					EMXT	EPA 353.3	NO3NO2N	1/30/2007	Kam Ng
					TLI	EPA 6010B	BD	1/30/2007	Riddhi Patel
					TLI	EPA 6010B	CRTD	1/29/2007	Riddhi Patel
					TLI	SW 6020A	MOD	2/1/2007	Riddhi Patel
					TLI	SW 7199	CR6	1/25/2007	Faisal Raihan
OW-01M	OW-01M-011	Barry Collom	1/25/2007	10:06:00 AM	EMXT	EPA 120.1	SC	3/7/2007	Tina Hoang
					TLI	EPA 150.1	PH	2/15/2007	Tina Acquiat
					EMXT	EPA 160.1	TDS	1/30/2007	Tina Hoang
					EMXT	EPA 180.1	TRB	1/26/2007	Romy Marasigan
					EMXT	EPA 300.0	CL	1/29/2007	Jane Osorio
					EMXT	EPA 300.0	FL	1/27/2007	Jane Osorio
					EMXT	EPA 300.0	SO4	1/29/2007	Jane Osorio
					EMXT	EPA 353.3	NO3NO2N	1/30/2007	Kam Ng
					TLI	EPA 6010B	BD	1/30/2007	Riddhi Patel
					TLI	EPA 6010B	CRTD	1/29/2007	Riddhi Patel
					TLI	SW 6020A	MOD	2/1/2007	Riddhi Patel
					TLI	SW 7199	CR6	1/25/2007	Faisal Raihan
OW-01S	OW-01S-011	Barry Collom	1/24/2007	10:38:00 AM	EMXT	EPA 120.1	SC	3/7/2007	Tina Hoang
					TLI	EPA 150.1	PH	1/25/2007	Tina Acquiat
					EMXT	EPA 160.1	TDS	1/30/2007	Tina Hoang

TABLE 9
Board Order No. R7-2006-0060 WDR Monitoring Information for Groundwater Samples, First Quarter 2007
PG&E Topock Compliance Monitoring Program

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
OW-01S	OW-01S-011	Barry Collom	1/24/2007	10:38:00 AM	EMXT	EPA 180.1	TRB	1/25/2007	Romy Marasigan
					EMXT	EPA 300.0	CL	1/29/2007	Jane Osorio
					EMXT	EPA 300.0	FL	1/27/2007	Jane Osorio
					EMXT	EPA 300.0	SO4	1/29/2007	Jane Osorio
					EMXT	EPA 353.3	NO3NO2N	1/30/2007	Kam Ng
					TLI	EPA 6010B	BD	1/30/2007	Riddhi Patel
					TLI	EPA 6010B	CRTD	1/29/2007	Riddhi Patel
					TLI	SW 6020A	MOD	2/1/2007	Riddhi Patel
					TLI	SW 7199	CR6	1/24/2007	Stanley Hsieh
OW-02D	OW-02D-011	Barry Collom	1/24/2007	1:48:00 PM	EMXT	EPA 120.1	SC	3/7/2007	Tina Hoang
					TLI	EPA 150.1	PH	1/25/2007	Tina Acquiat
					EMXT	EPA 160.1	TDS	1/30/2007	Tina Hoang
					EMXT	EPA 180.1	TRB	1/25/2007	Romy Marasigan
					EMXT	EPA 300.0	CL	1/29/2007	Jane Osorio
					EMXT	EPA 300.0	FL	1/27/2007	Jane Osorio
					EMXT	EPA 300.0	SO4	1/29/2007	Jane Osorio
					EMXT	EPA 353.3	NO3NO2N	1/30/2007	Kam Ng
					TLI	EPA 6010B	BD	1/30/2007	Riddhi Patel
					TLI	EPA 6010B	CRTD	1/29/2007	Riddhi Patel
					TLI	SW 6020A	MOD	2/1/2007	Riddhi Patel
					TLI	SW 7199	CR6	1/24/2007	Stanley Hsieh
OW-02M	OW-02M-011	Barry Collom	1/24/2007	12:03:00 PM	EMXT	EPA 120.1	SC	3/7/2007	Tina Hoang
					TLI	EPA 150.1	PH	1/25/2007	Tina Acquiat
					EMXT	EPA 160.1	TDS	1/30/2007	Tina Hoang
					EMXT	EPA 180.1	TRB	1/25/2007	Romy Marasigan
					EMXT	EPA 300.0	SO4	1/29/2007	Jane Osorio
					EMXT	EPA 300.0	FL	1/27/2007	Jane Osorio

TABLE 9

Board Order No. R7-2006-0060 WDR Monitoring Information for Groundwater Samples, First Quarter 2007

PG&E Topock Compliance Monitoring Program

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
OW-02M	OW-02M-011	Barry Collom	1/24/2007	12:03:00 PM	EMXT	EPA 300.0	CL	1/29/2007	Jane Osorio
					EMXT	EPA 353.3	NO3NO2N	1/30/2007	Kam Ng
					TLI	EPA 6010B	CRTD	1/29/2007	Riddhi Patel
					TLI	EPA 6010B	BD	1/30/2007	Riddhi Patel
					TLI	SW 6020A	MOD	2/1/2007	Riddhi Patel
					TLI	SW 7199	CR6	1/24/2007	Stanley Hsieh
OW-02M	OW-02M-011C	Barry Collom	4/12/2007	9:35:00 AM	TLI	EPA 150.1	PH	4/13/2007	Tina Acquiat
OW-02S	MW-90-CMP-011	Barry Collom	1/24/2007	10:45:00 AM	EMXT	EPA 120.1	SC	3/7/2007	Tina Hoang
					TLI	EPA 150.1	PH	1/25/2007	Tina Acquiat
					EMXT	EPA 160.1	TDS	1/30/2007	Tina Hoang
					EMXT	EPA 180.1	TRB	1/25/2007	Romy Marasigan
					EMXT	EPA 300.0	SO4	1/29/2007	Jane Osorio
					EMXT	EPA 300.0	CL	1/29/2007	Jane Osorio
					EMXT	EPA 300.0	FL	1/27/2007	Jane Osorio
					EMXT	EPA 353.3	NO3NO2N	1/30/2007	Kam Ng
					TLI	EPA 6010B	BD	1/30/2007	Riddhi Patel
					TLI	EPA 6010B	CRTD	1/29/2007	Riddhi Patel
					TLI	SW 6020A	MOD	2/1/2007	Riddhi Patel
					TLI	SW 7199	CR6	1/25/2007	Stanley Hsieh
OW-02S	OW-02S-011	Barry Collom	1/24/2007	10:38:00 AM	EMXT	EPA 120.1	SC	3/7/2007	Tina Hoang
					TLI	EPA 150.1	PH	1/25/2007	Tina Acquiat
					EMXT	EPA 160.1	TDS	1/30/2007	Tina Hoang
					EMXT	EPA 180.1	TRB	1/25/2007	Romy Marasigan
					EMXT	EPA 300.0	SO4	1/29/2007	Jane Osorio
					EMXT	EPA 300.0	CL	1/29/2007	Jane Osorio
					EMXT	EPA 300.0	FL	1/27/2007	Jane Osorio
					EMXT	EPA 353.3	NO3NO2N	1/30/2007	Kam Ng

TABLE 9
Board Order No. R7-2006-0060 WDR Monitoring Information for Groundwater Samples, First Quarter 2007
PG&E Topock Compliance Monitoring Program

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
OW-02S	OW-02S-011	Barry Collom	1/24/2007	10:38:00 AM	TLI	EPA 6010B	BD	1/30/2007	Riddhi Patel
					TLI	EPA 6010B	CRTD	1/29/2007	Riddhi Patel
					TLI	SW 6020A	MOD	2/1/2007	Riddhi Patel
					TLI	SW 7199	CR6	1/24/2007	Stanley Hsieh
OW-05D	OW-05D-011	Barry Collom	1/25/2007	11:30:00 AM	EMXT	EPA 120.1	SC	3/7/2007	Tina Hoang
					TLI	EPA 150.1	PH	2/15/2007	Tina Acquiat
					EMXT	EPA 160.1	TDS	1/30/2007	Tina Hoang
					EMXT	EPA 180.1	TRB	1/26/2007	Romy Marasigan
					EMXT	EPA 300.0	SO4	1/29/2007	Jane Osorio
					EMXT	EPA 300.0	FL	1/27/2007	Jane Osorio
					EMXT	EPA 300.0	CL	1/29/2007	Jane Osorio
					EMXT	EPA 353.3	NO3NO2N	1/30/2007	Kam Ng
					TLI	EPA 6010B	CRTD	1/29/2007	Riddhi Patel
					TLI	EPA 6010B	BD	1/30/2007	Riddhi Patel
					TLI	SW 6020A	MOD	2/1/2007	Riddhi Patel
					TLI	SW 7199	CR6	1/25/2007	Faisal Raihan
OW-05M	OW-05M-011	Barry Collom	1/25/2007	11:54:00 AM	EMXT	EPA 120.1	SC	3/7/2007	Tina Hoang
					TLI	EPA 150.1	PH	2/15/2007	Tina Acquiat
					EMXT	EPA 160.1	TDS	1/30/2007	Tina Hoang
					EMXT	EPA 180.1	TRB	1/26/2007	Romy Marasigan
					EMXT	EPA 300.0	CL	1/29/2007	Jane Osorio
					EMXT	EPA 300.0	FL	1/27/2007	Jane Osorio
					EMXT	EPA 300.0	SO4	1/29/2007	Jane Osorio
					EMXT	EPA 353.3	NO3NO2N	1/30/2007	Kam Ng
					TLI	EPA 6010B	BD	1/30/2007	Riddhi Patel
					TLI	EPA 6010B	CRTD	2/8/2007	Riddhi Patel
					TLI	SW 6020A	MOD	2/1/2007	Riddhi Patel

TABLE 9

Board Order No. R7-2006-0060 WDR Monitoring Information for Groundwater Samples, First Quarter 2007

PG&E Topock Compliance Monitoring Program

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician
OW-05M	OW-05M-011	Barry Collom	1/25/2007	11:54:00 AM	TLI	SW 7199	CR6	1/25/2007	Faisal Raihan
OW-05S	OW-05S-011	Barry Collom	1/25/2007	12:55:00 PM	EMXT	EPA 120.1	SC	3/7/2007	Tina Hoang
					TLI	EPA 150.1	PH	2/15/2007	Tina Acquiat
					EMXT	EPA 160.1	TDS	1/30/2007	Tina Hoang
					EMXT	EPA 180.1	TRB	1/26/2007	Romy Marasigan
					EMXT	EPA 300.0	SO4	1/29/2007	Jane Osorio
					EMXT	EPA 300.0	FL	1/27/2007	Jane Osorio
					EMXT	EPA 300.0	CL	1/29/2007	Jane Osorio
					EMXT	EPA 353.3	NO3NO2N	1/30/2007	Kam Ng
					TLI	EPA 6010B	CRTD	1/29/2007	Riddhi Patel
					TLI	EPA 6010B	BD	1/30/2007	Riddhi Patel
					TLI	SW 6020A	MOD	2/1/2007	Riddhi Patel
					TLI	SW 7199	CR6	1/25/2007	Faisal Raihan

TABLE 9

Board Order No. R7-2006-0060 WDR Monitoring Information for Groundwater Samples, First Quarter 2007

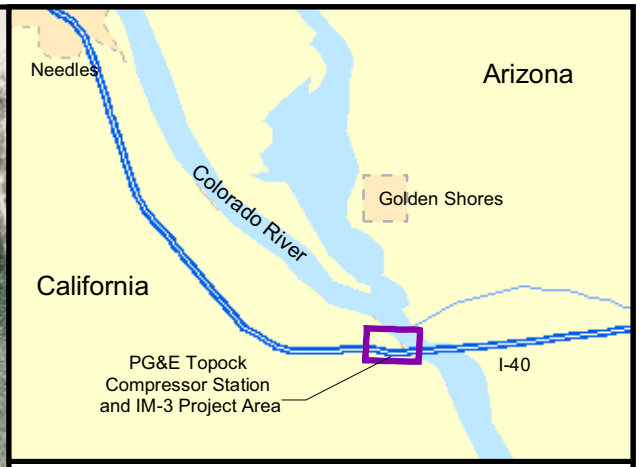
PG&E Topock Compliance Monitoring Program

NOTES:

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

SC	specific conductance	CAD	calcium, dissolved
PH	pH	MOD	molybdenum, dissolved
TDS	total dissolved solids	NID	nickel, dissolved
TRB	turbidity	PBD	lead, dissolved
CRTD	chromium, dissolved	HGD	mercury, dissolved
CR6	hexavalent chromium	SED	selenium, dissolved
CL	chloride	TLD	thallium, dissolved
FL	fluoride	COBD	cobalt, dissolved
ALD	aluminum, dissolved	CDD	cadmium, dissolved
BD	boron, dissolved	BED	beryllium, dissolved
FED	iron, dissolved	AGD	silver, dissolved
MND	manganese, dissolved	VD	vanadium, dissolved
ZND	zinc, dissolved	NO3NO2N	nitrate/nitrite (as N)
SBD	antimony, dissolved	NH3N	ammonia (as N)
ASD	arsenic, dissolved	SO4	sulfate
BAD	barium, dissolved	SBD	antimony, dissolved
CUD	copper, dissolved	ALKB	alkalinity, bicarb.as CACO3
MGD	magnesium, dissolved	ALKC	alkalinity, as carbonate
NAD	sodium, dissolved	ALKT	alkalinity, total as CACO3
KD	potassium, dissolved		

Figures



N

0 550 1,100 Feet

1 inch equals 550 feet

LEGEND

- PG&E Property Line
- Existing IM Extraction Well
- Existing IM Injection Well
- Treatment Facility Pipeline

Notes: Location map shows Interim Measures No.3 (IM-3) facilities as of 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

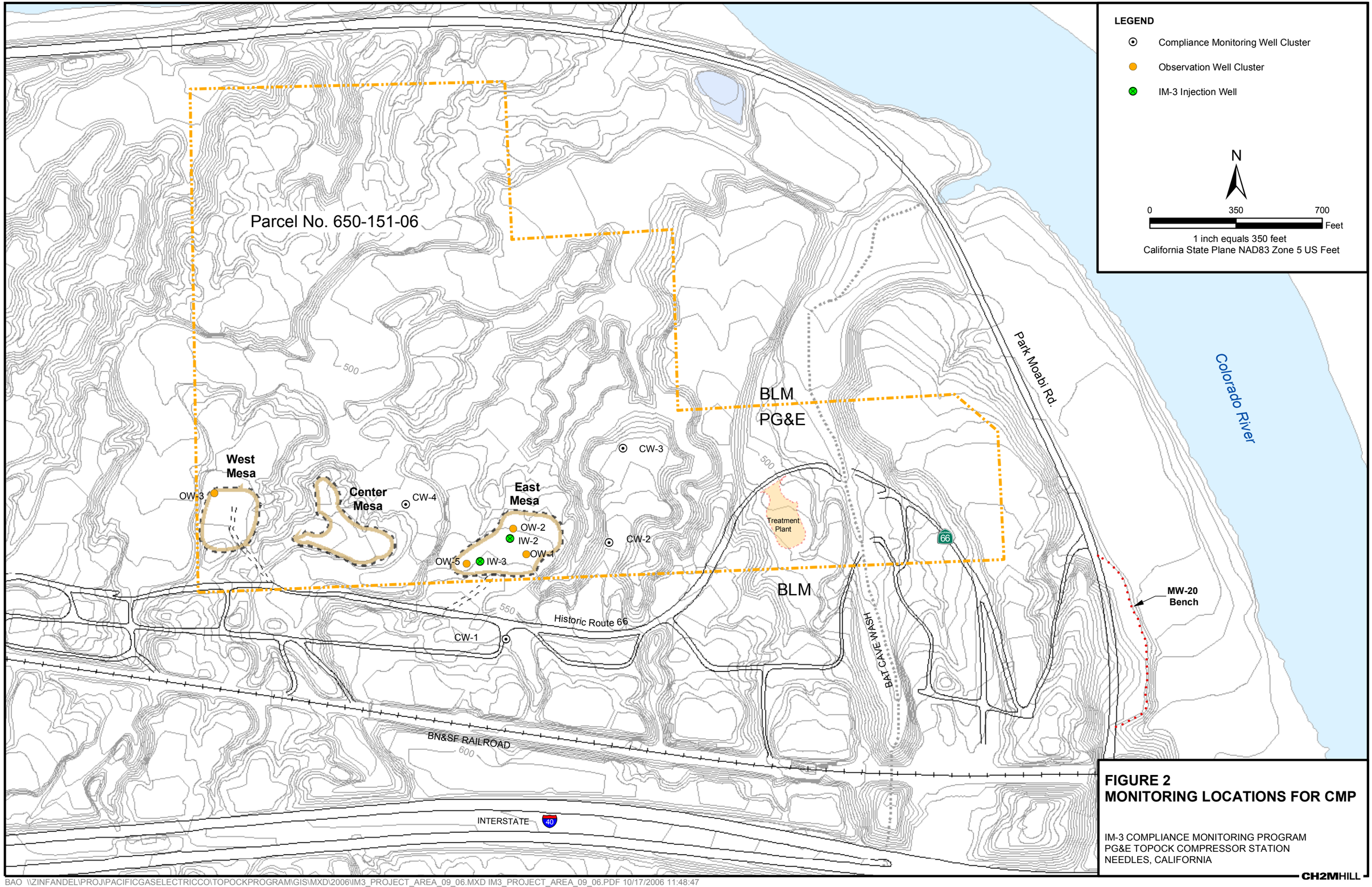
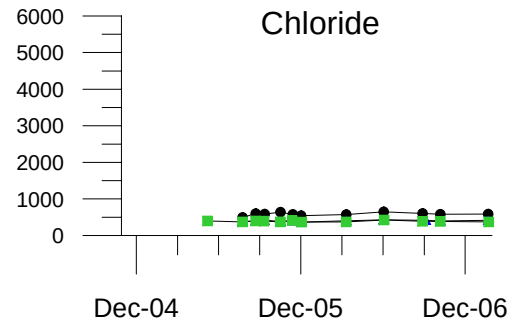
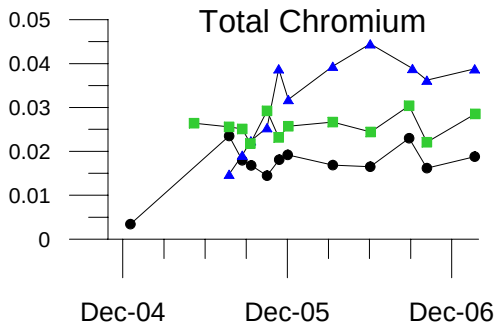


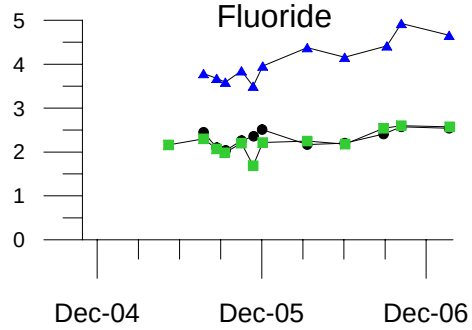
FIGURE 2
MONITORING LOCATIONS FOR CMP

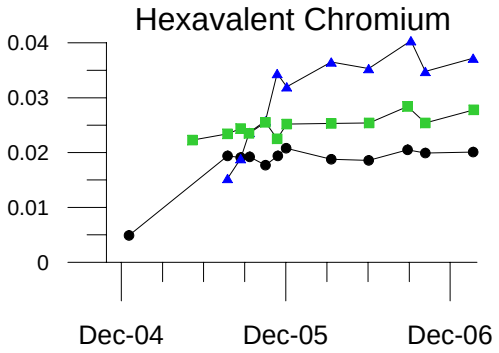
IM-3 COMPLIANCE MONITORING PROGRAM
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

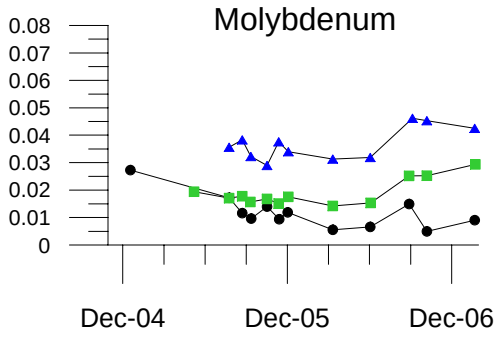
CH2MHILL

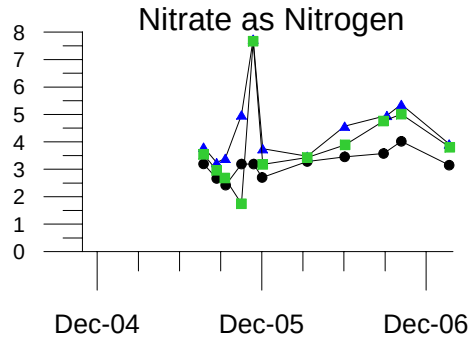


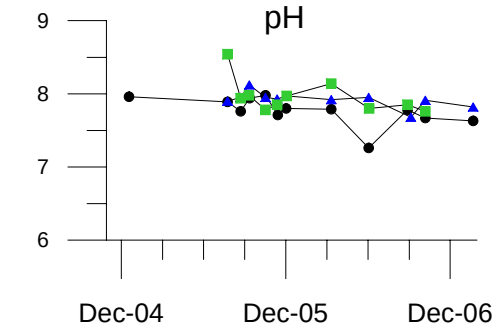


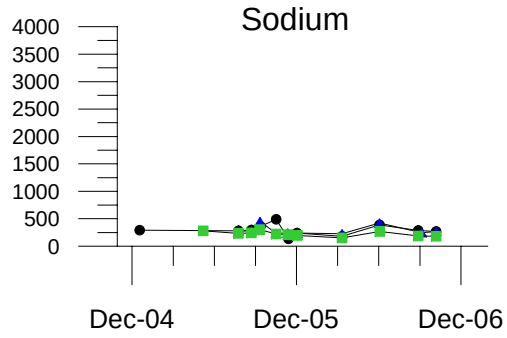


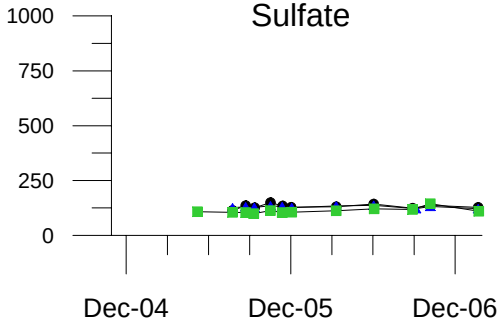


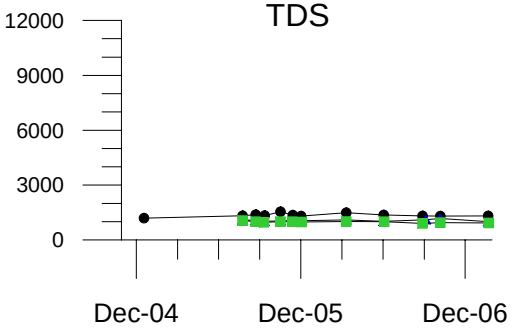


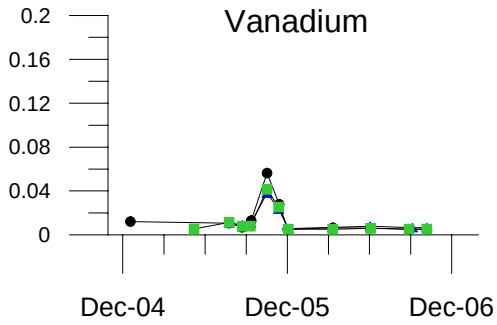


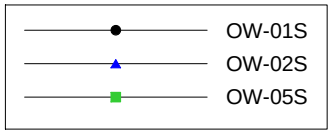








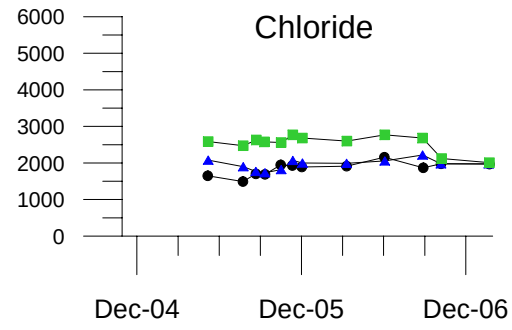


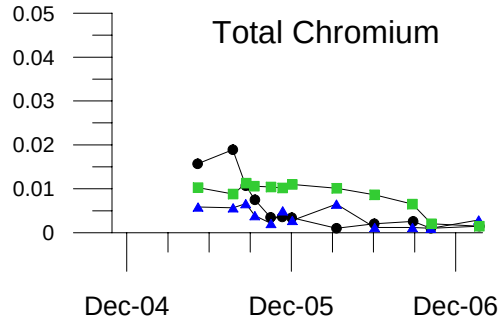


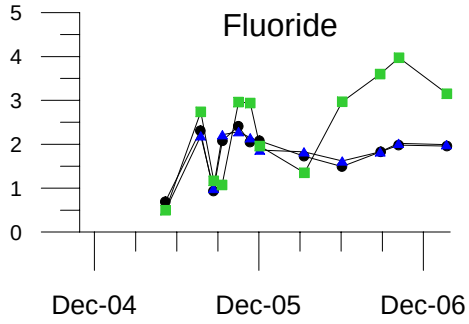
All concentration units in mg/L.
pH in pH units.

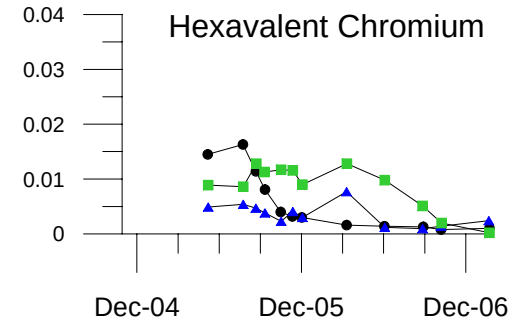
FIGURE 3A
OW-01S, OW-02S, OW-05S
WATER QUALITY HYDROGRAPHS
IM3 COMPLIANCE MONITORING PROGRAM
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

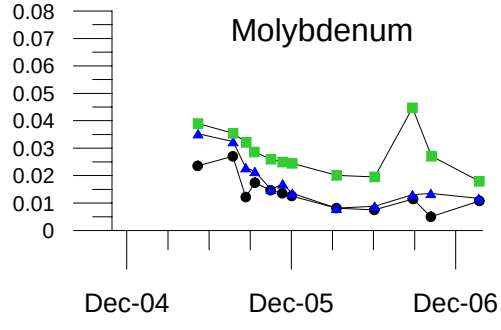
CH2MHILL

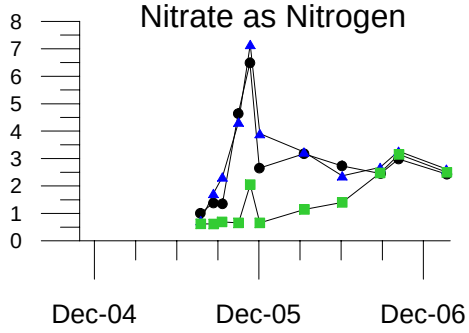


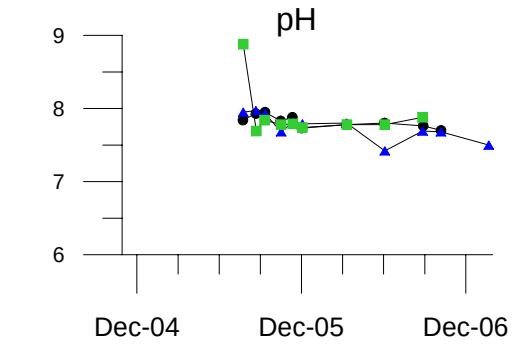


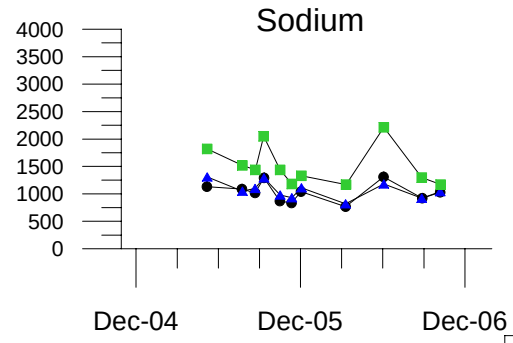


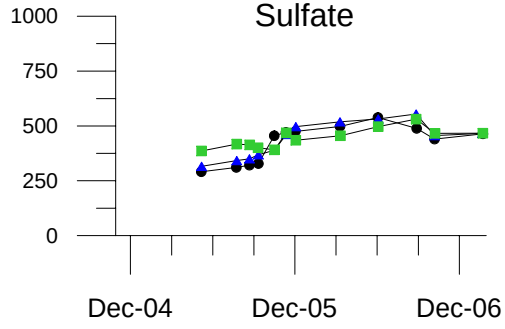


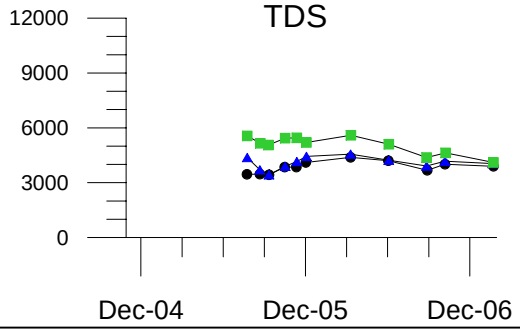


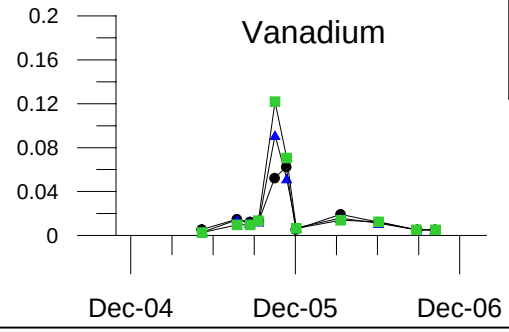


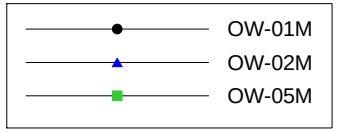








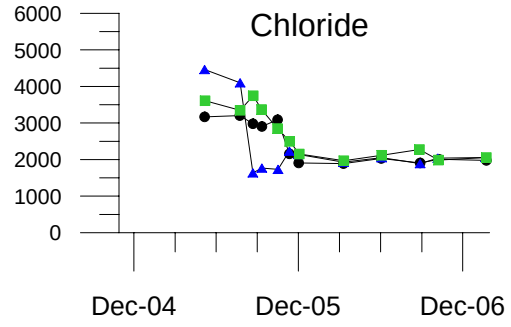


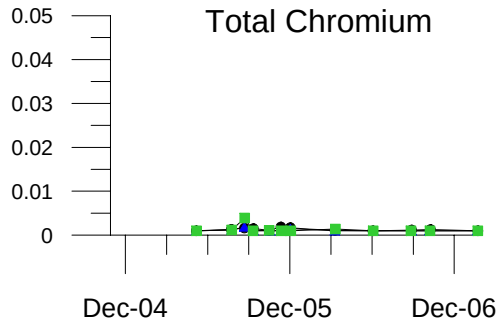


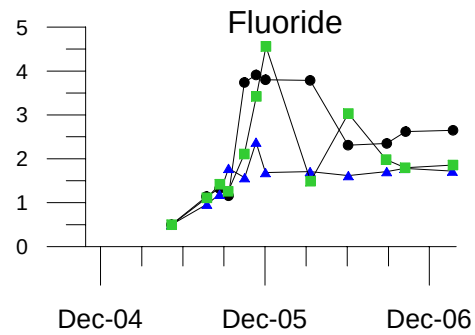
All concentration units in mg/L.
pH in pH units.

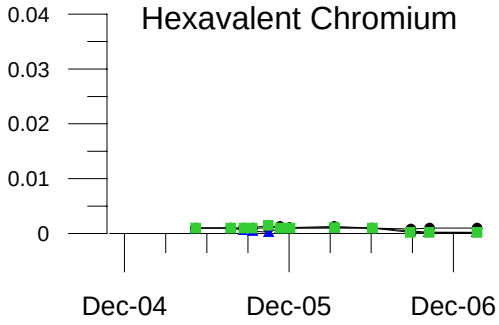
FIGURE 3B
OW-01M, OW-02M, OW-05M
WATER QUALITY HYDROGRAPHS
IM3 COMPLIANCE MONITORING PROGRAM
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

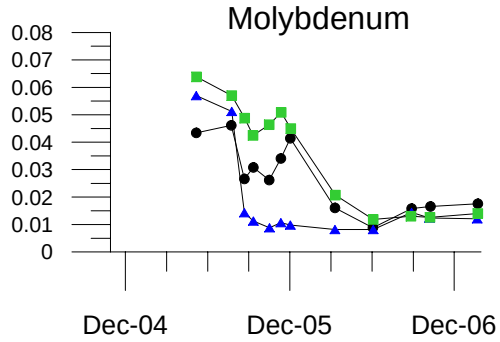
CH2MHILL

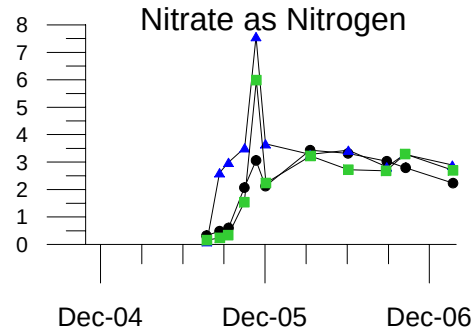


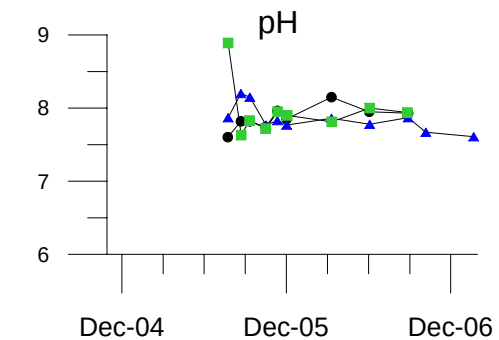


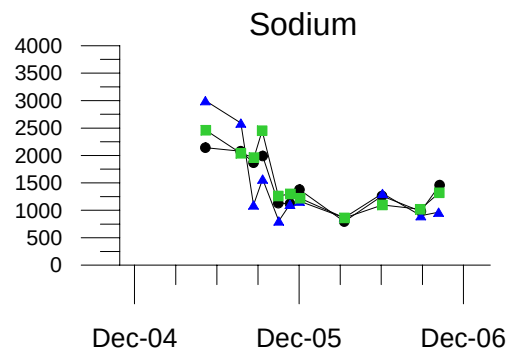


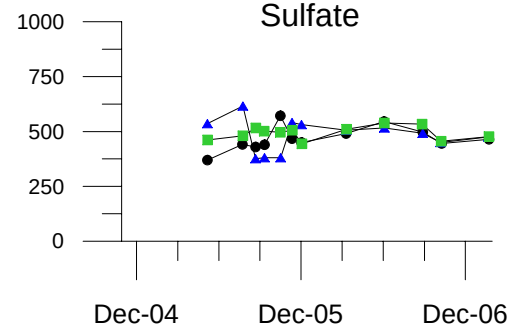


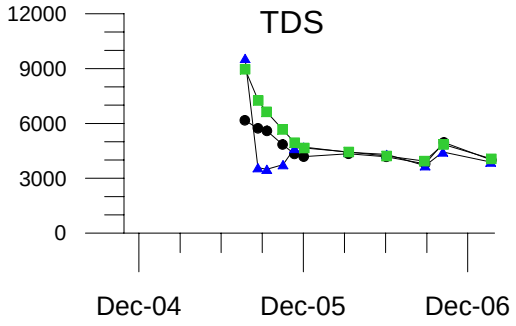


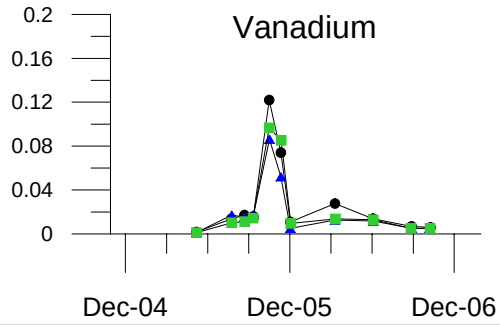


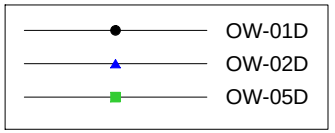












All concentration units in mg/L.
pH in pH units.

FIGURE 3C
OW-01D, OW-02D, OW-05D
WATER QUALITY HYDROGRAPHS
IM3 COMPLIANCE MONITORING PROGRAM
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

CH2MHILL

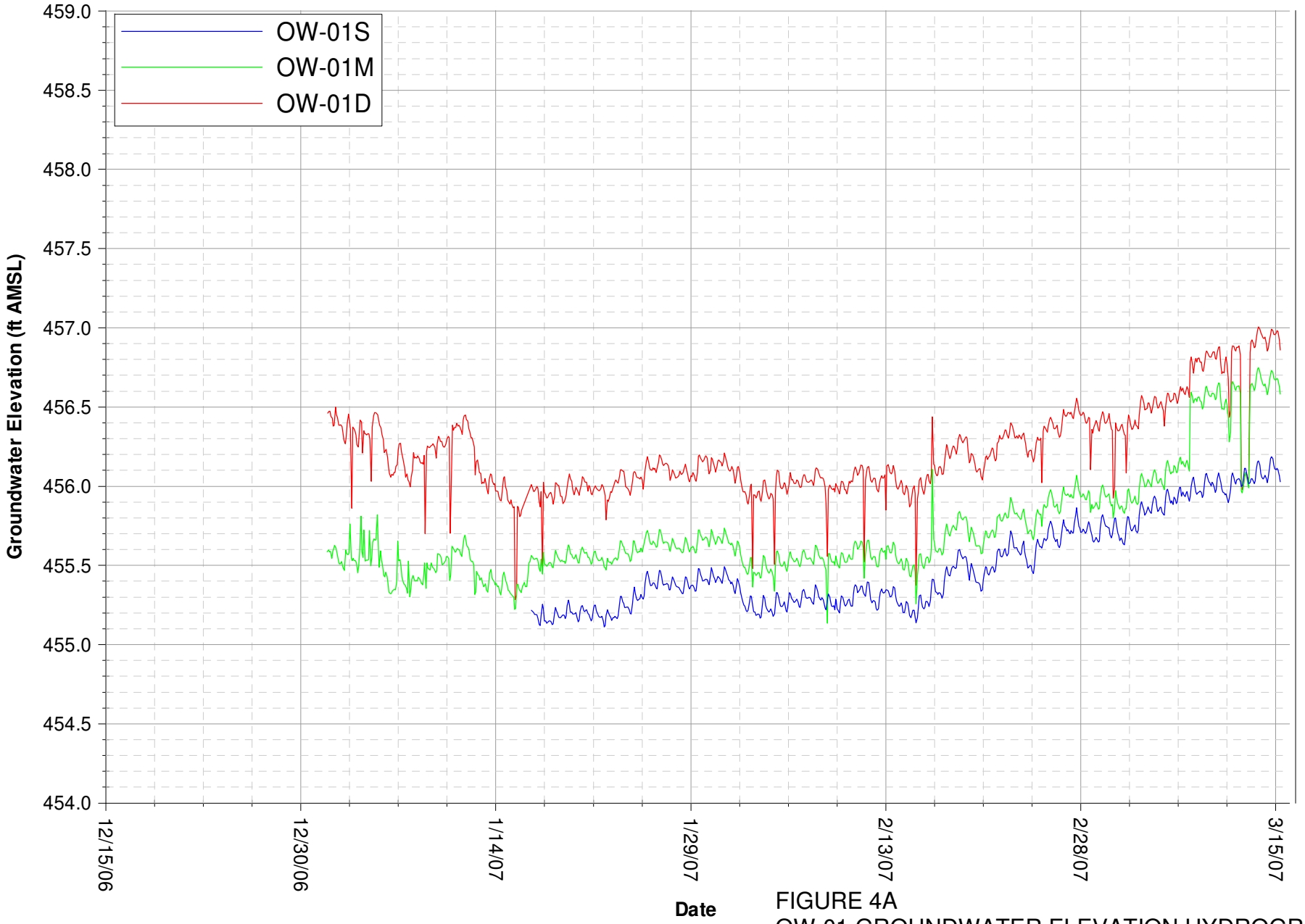


FIGURE 4A
OW-01 GROUNDWATER ELEVATION HYDROGRAPHS
IM-3 Compliance Monitoring Program
PG & E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

Note: Data subject to review.
OW-1M data unavailable piror to 1/1/2007 due to transducer failure.
OW-1S data unavailable piror to 1/16/2007 due to transducer failure.
OW-1D data unavailable piror to 1/1/2007 due to transducer failure.
Injection at IW-3 ceased on 3/8/07. Injection at IW-2 began on 3/8/07.

CH2MHILL

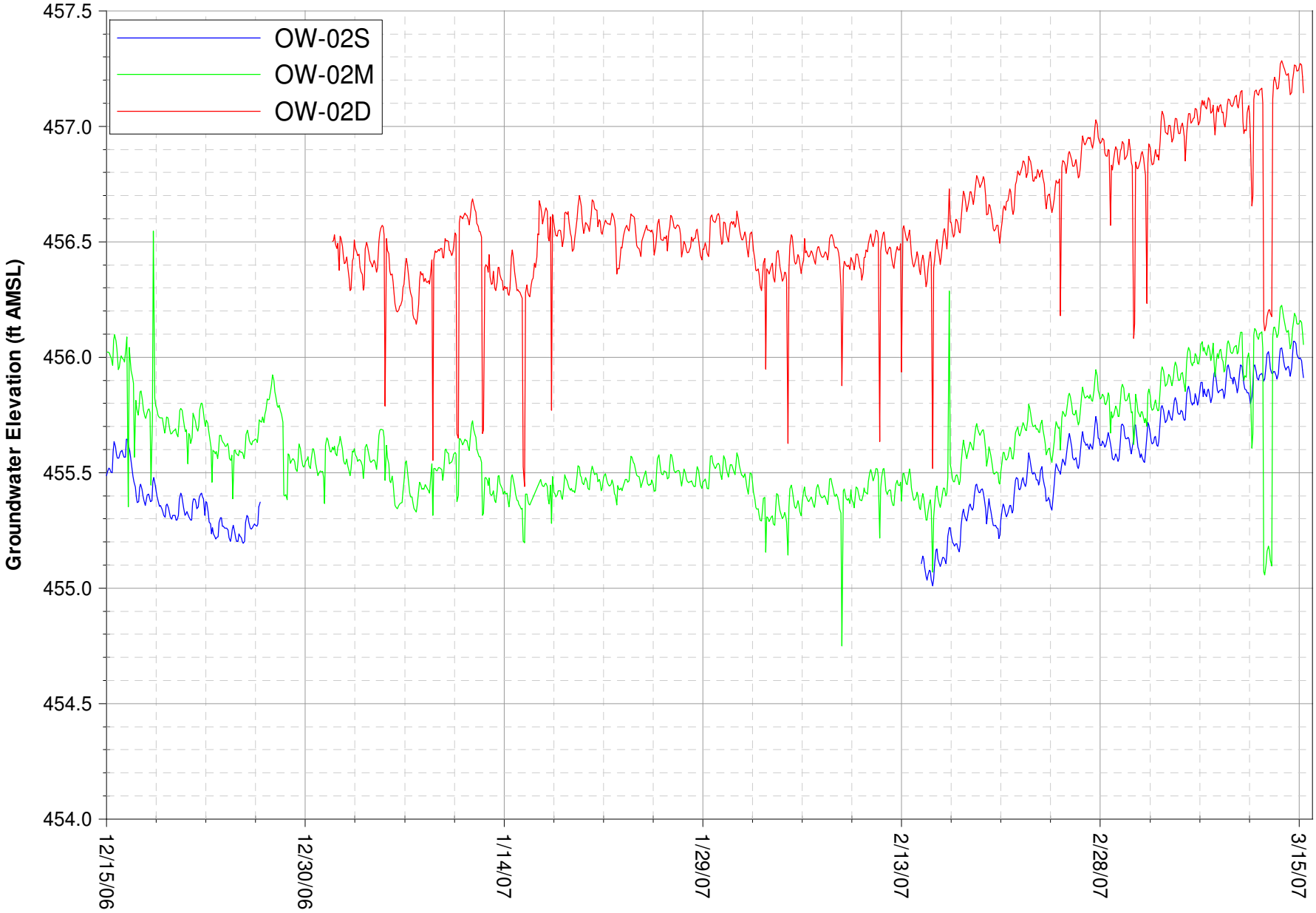
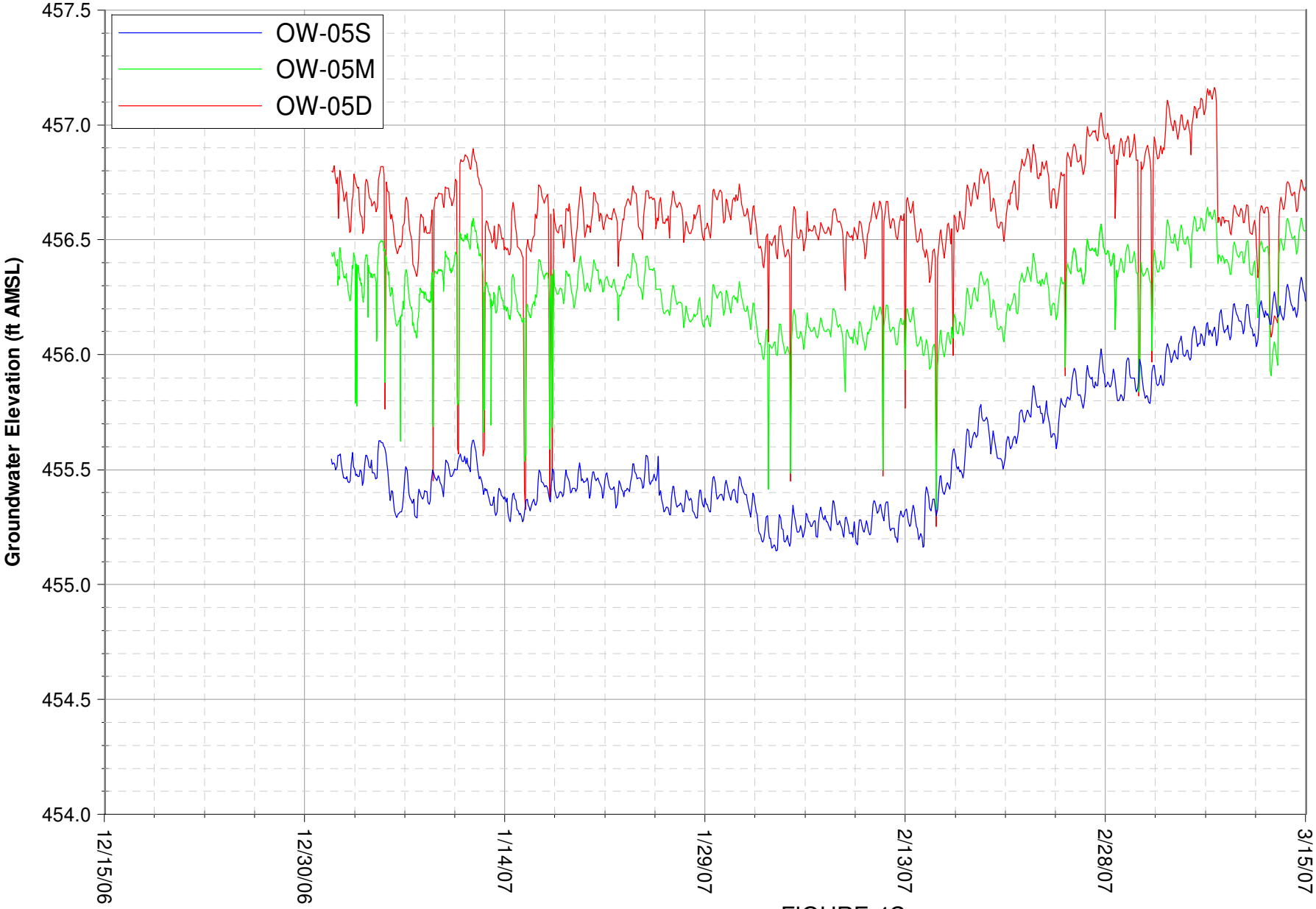


FIGURE 4B
OW-02 GROUNDWATER ELEVATION HYDROGRAPHS
IM-3 Compliance Monitoring Program
PG & E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

Note: Data subject to review.
OW-02D data unavailable prior to 1/1/07 due to transducer failure .
OW-02S data unavailable from 12/26/06 to 2/14/07 due to transducer failure.
Injection at IW-3 ceased on 3/8/07. Injection at IW-2 began on 3/8/07.

CH2MHILL



Note: Data subject to review.
OW-5S data unavailable prior to 12/31/06 due to power failure.
OW-5M data unavailable prior to 12/31/06 due to power failure.
OW-5D data unavailable prior to 12/31/06 due to power failure.
Injection at IW-3 ceased on 3/8/07. Injection at IW-2 began on 3/8/07.

FIGURE 4C
OW-05 GROUNDWATER ELEVATION HYDROGRAPHS
IM-3 COMPLIANCE MONITORING PROGRAM
PG & E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

CH2MHILL

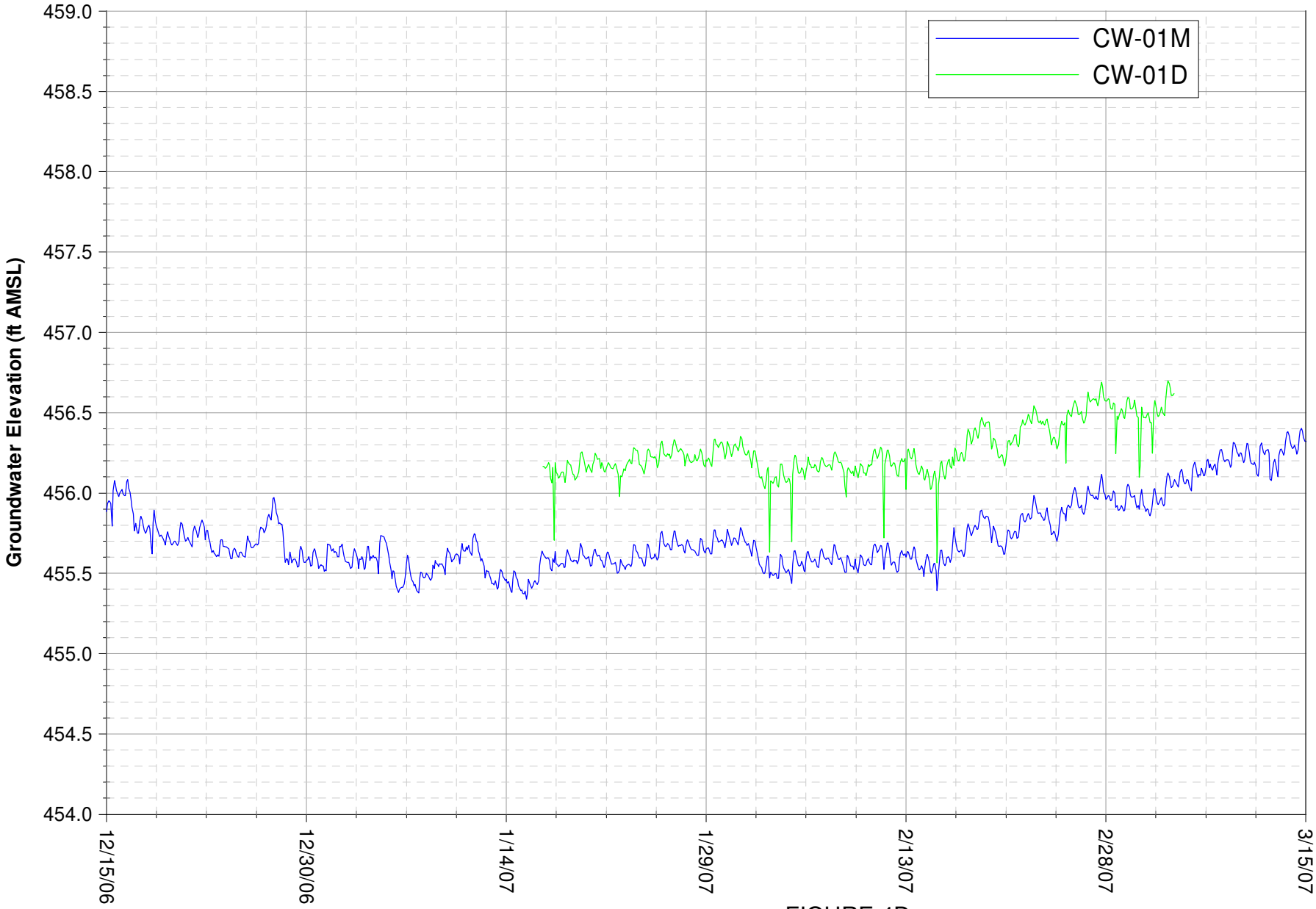


FIGURE 4D
CW-01 GROUNDWATER ELEVATION HYDROGRAPHS
IM-3 Compliance Monitoring Program
PG & E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

Note: Data subject to review.
CW-01D data unavailable prior to 1/15/07 and after 3/5/07 due to power failure.
Injection at IW-3 ceased on 3/8/07. Injection at IW-2 began on 3/8/07.

CH2MHILL

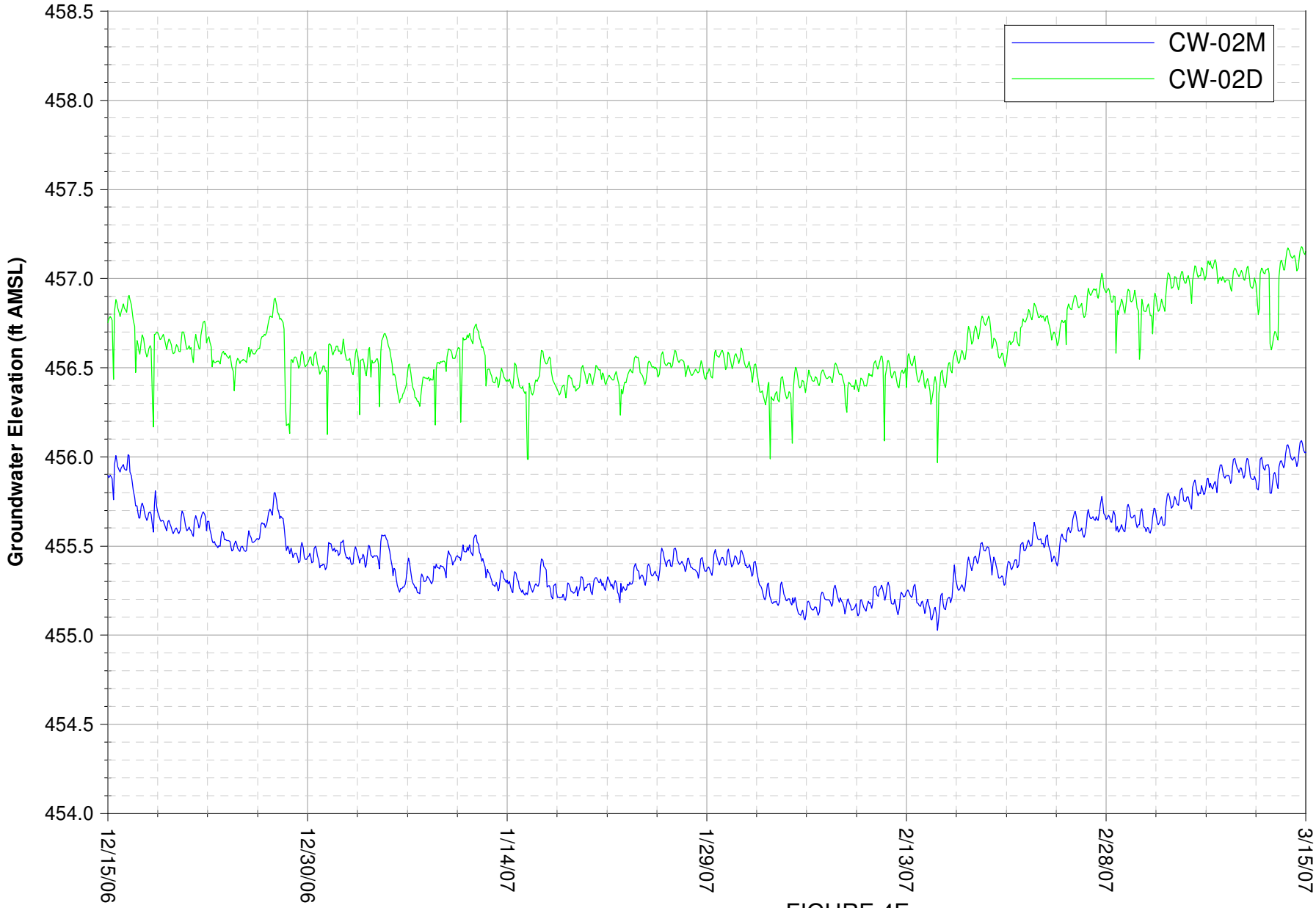


FIGURE 4E
CW-02 GROUNDWATER ELEVATION HYDROGRAPHS
IM-3 Compliance Monitoring Program
PG & E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

Note: Data subject to review.
Injection at IW-3 ceased on 3/8/07. Injection at IW-2 began on 3/8/07.

CH2MHILL

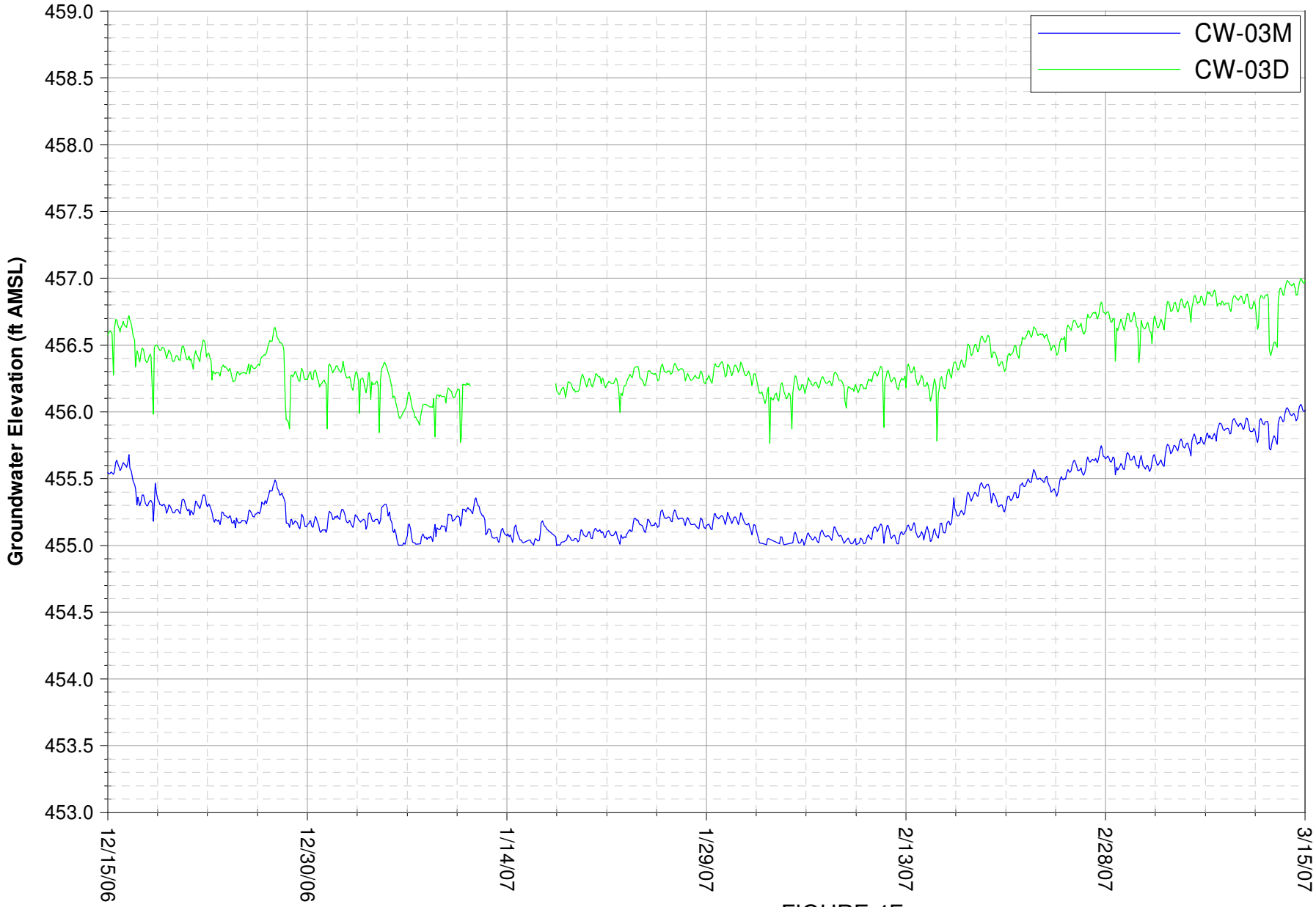


FIGURE 4F
CW-03 GROUNDWATER ELEVATION HYDROGRAPHS
IM-3 Compliance Monitoring Program
PG & E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

Note: Data subject to review..
CW-03D data unavailable after 1/13/07 to 1/15/07 due to transducer failure.
Injection at IW-3 ceased on 3/8/07. Injection at IW-2 began on 3/8/07.

CH2MHILL

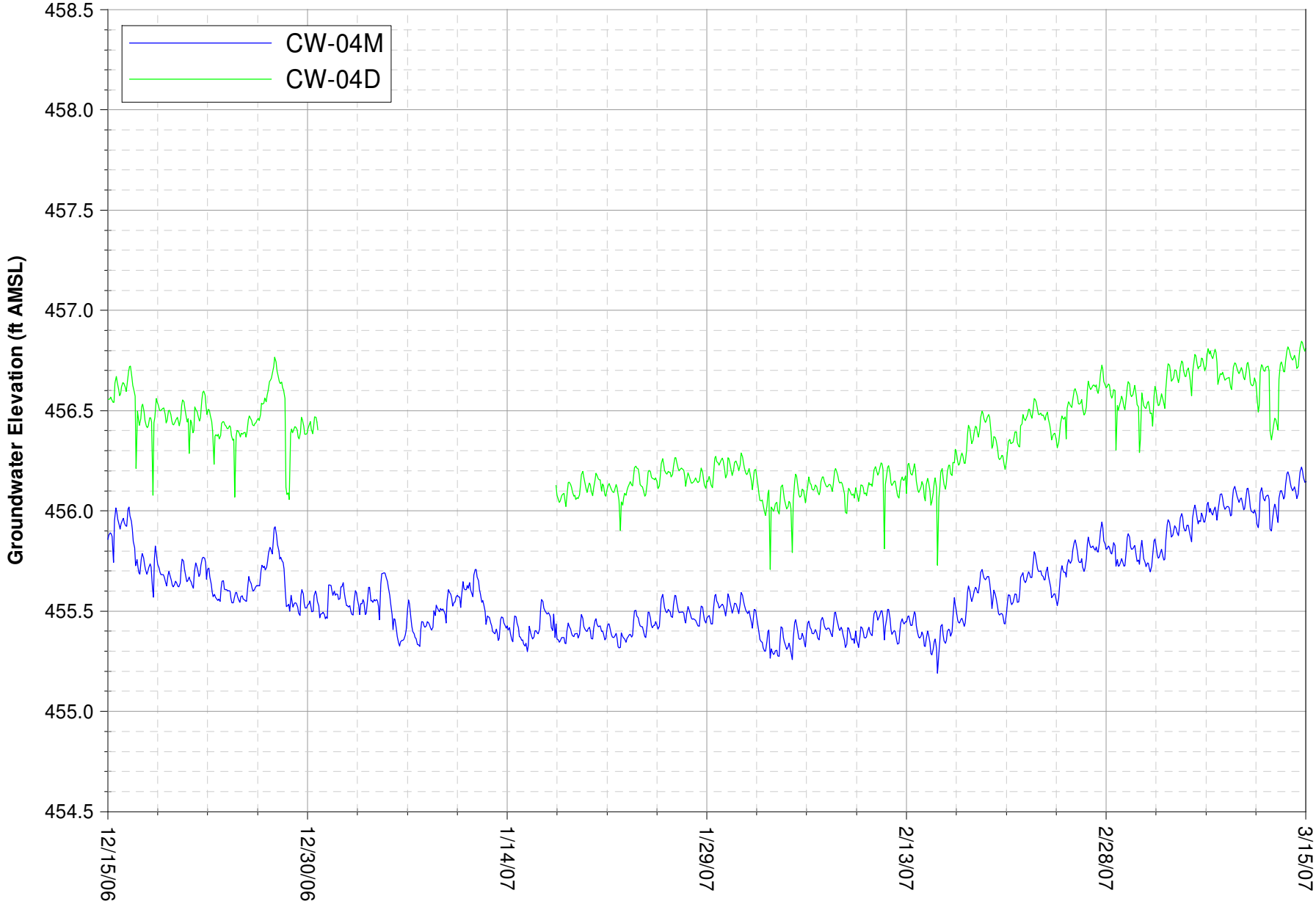
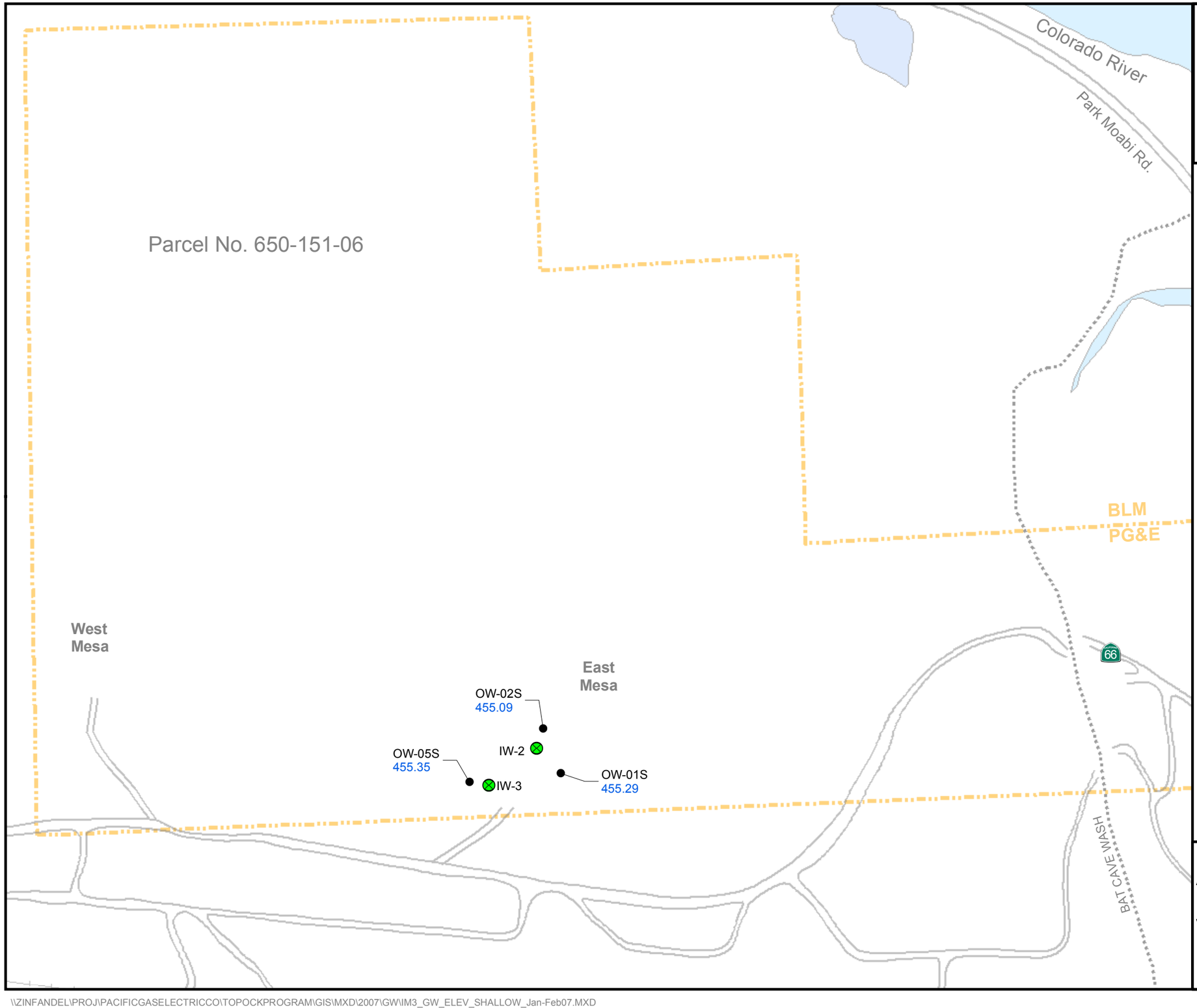


FIGURE 4G
CW-04 GROUNDWATER ELEVATION HYDROGRAPHS
IM-3 Compliance Monitoring Program
PG & E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

Note: Data subject to review.
CW-04D Data unavailable from 12/30/2006 through 1/17/2007due to transducer failure.
Injection at IW-3 ceased on 3/8/07. Injection at IW-2 began on 3/8/07.

CH2MHILL



N

0 250 500 Feet

1 inch equals 250 feet

California State Plane NAD83 Zone 5 US Feet

LEGEND

- Groundwater Monitoring, Compliance, and Observation Well
- IM-3 Injection Well

Groundwater Elevations for Shallow Wells in IM-3 Injection Area

- **OW-02S** 454.75 — Salinity and temperature adjusted groundwater head elevation in feet above mean sea level (MSL)

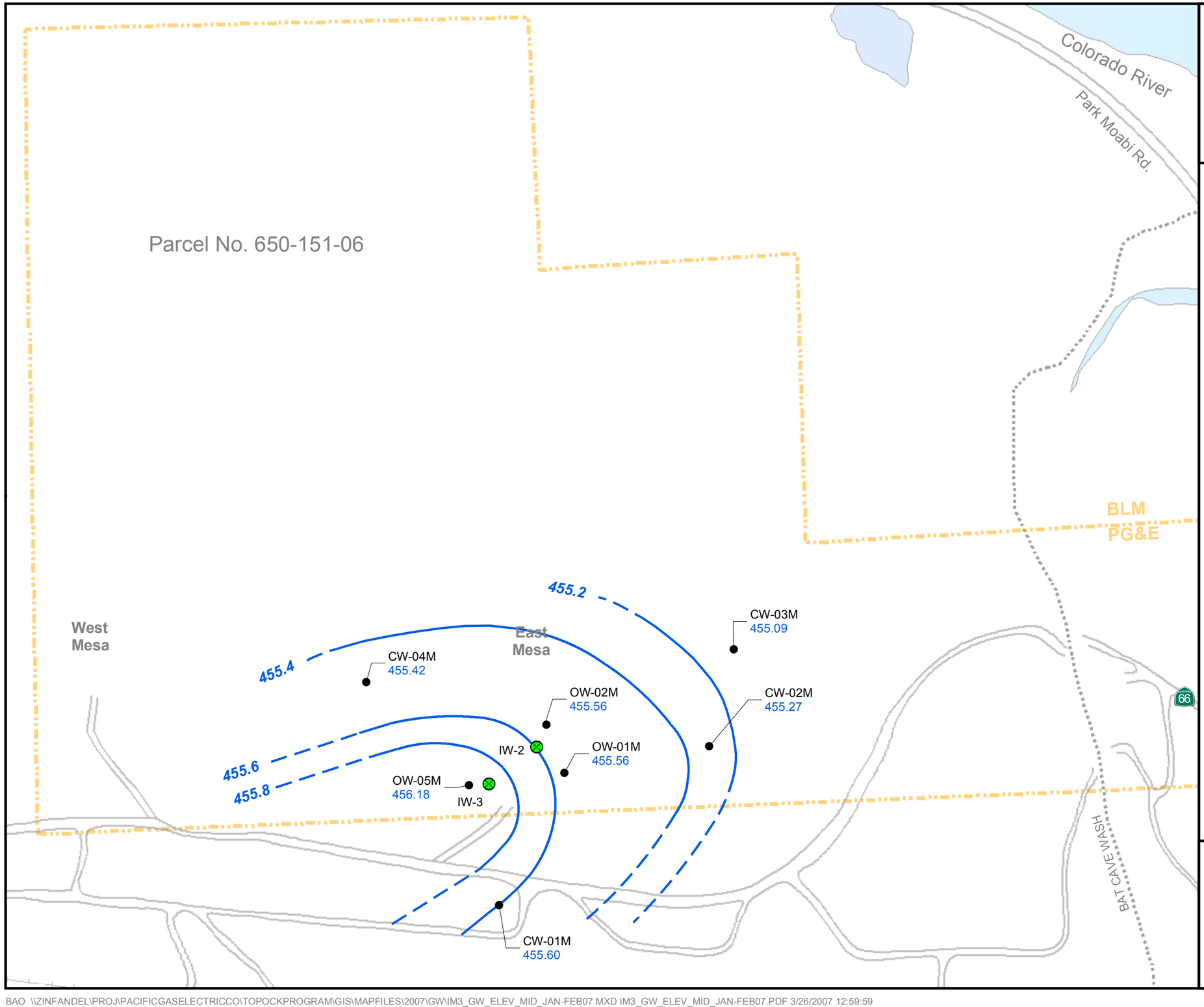
Note: Average monthly groundwater elevations are calculated with pressure transducer data measured at 30 minute intervals.

FIGURE 5A
AVERAGE GROUNDWATER ELEVATIONS FOR SHALLOW WELLS JANUARY 15 TO FEBRUARY 15, 2007

IM3 COMPLIANCE MONITORING PROGRAM
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

CH2MHILL

\\ZINFANDEL\PROJ\PACIFICGASELECTRICCO\TOPOCKPROGRAM\GIS\MXD\2007\GW\IM3_GW_ELEV_SHALLOW_Jan-Feb07.MXD



N

0 250 500 Feet

1 inch equals 250 feet

California State Plane NAD83 Zone 5 US Feet

LEGEND

- Groundwater Monitoring, Compliance, and Observation Well
- IM-3 Injection Well

Groundwater Elevations for Mid-depth Wells in IM-3 Injection Area

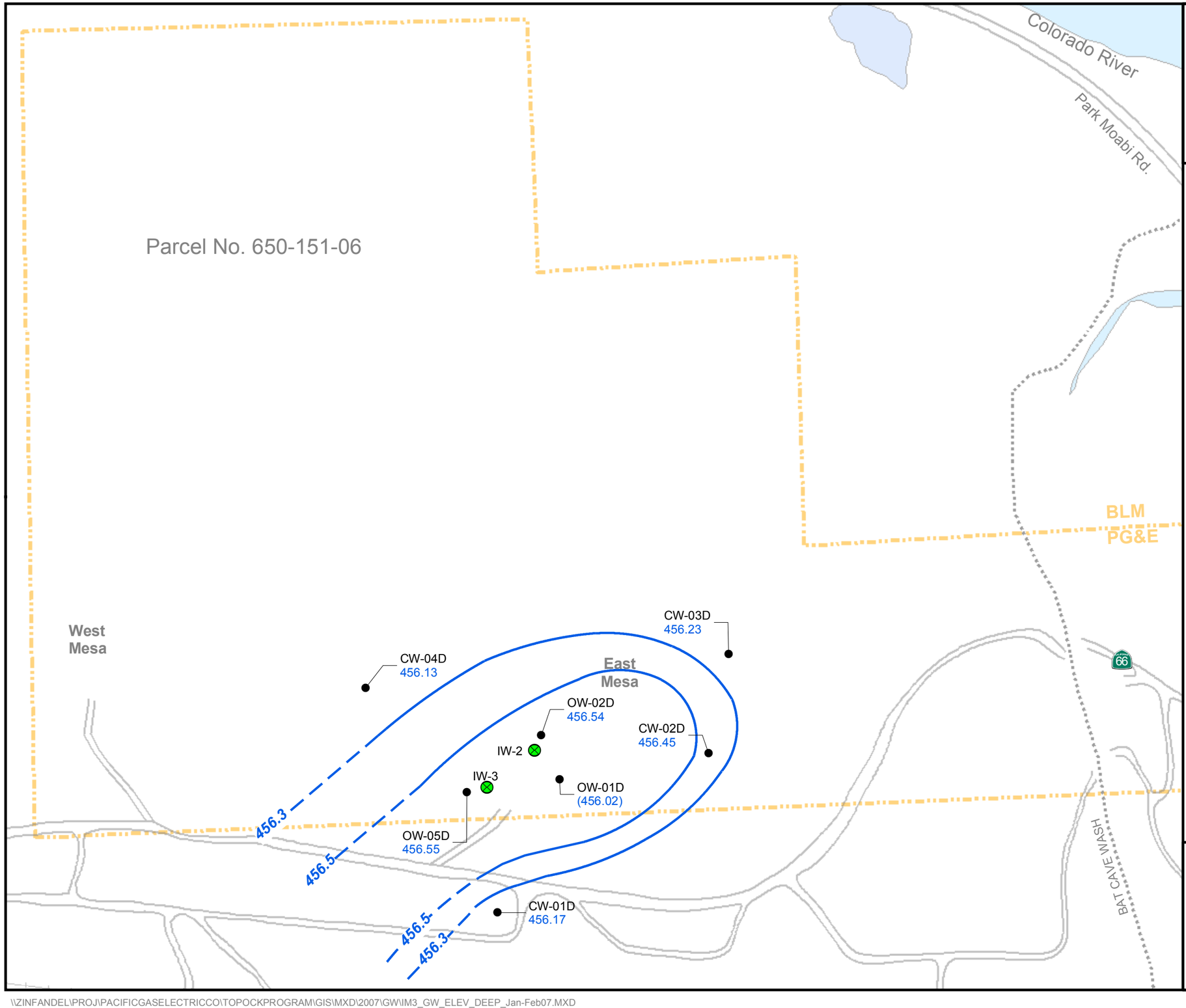
- **OW-02M** 454.75 — Salinity and temperature adjusted groundwater head elevation in feet above mean sea level (MSL)
- Groundwater elevation contour in feet above MSL (0.2 foot interval), dashed where inferred

Note: Average monthly groundwater elevations are calculated with pressure transducer data measured at 30 minute intervals.

FIGURE 5B
AVERAGE GROUNDWATER ELEVATION CONTOURS FOR MID-DEPTH WELLS JANUARY 15 TO FEBRUARY 15, 2007

INTERIM MEASURES COMPLIANCE MONITORING
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

CH2MHILL



N

0 250 500 Feet

1 inch equals 250 feet

California State Plane NAD83 Zone 5 US Feet

LEGEND

- Groundwater Monitoring, Compliance and Observation Well
- IM-3 Injection Well

Groundwater Elevations for Deep Wells in IM-3 Injection Area

- **OW-05D** 454.75 — 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 tranducers at 30 minute intervals. (OW-1D) excluded from contouring.

FIGURE 5C
AVERAGE GROUNDWATER ELEVATION CONTOURS FOR DEEP WELLS JANUARY 15 TO FEBRUARY 15, 2007

INTERIM MEASURES COMPLIANCE MONITORING
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

CH2MHILL

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Appendix A
Laboratory Reports, First Quarter 2007

Appendix B
Field Data Sheets, First Quarter 2007