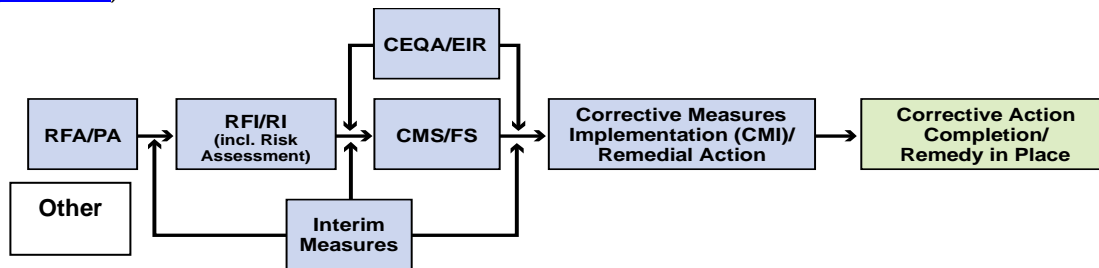


Topock Project Executive Abstract

<p>Document Title:</p> <p>Compliance Monitoring Program, Semiannual Groundwater Monitoring Report, First Half 2013 (PGE20130715A)</p> <p>Submitting Agency: DOI</p> <p>Final Document? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>Date of Document: July 15, 2013</p> <p>Who Created this Document?: (i.e. PG&E, DTSC, DOI, Other) – PG&E</p>
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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 under DOI's enforcement as an ARARs beginning August 2011.</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 twofold: (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, middle, and/or deep zones of the alluvial aquifer. The injection of treated groundwater in the area began in 2005. As of the First Half 2013, wells that exhibit water quality similar to the injected water include the middle- and deep-zone observation wells and certain middle- and all deep-zone compliance wells. Two of the three shallow-zone observation wells have not yet shown characteristics approaching injected water quality.</p> <p>This report presents groundwater analytical results and groundwater level data collected from the First Half 2013 CMP monitoring event conducted in April 2013. During the First Half 2013 monitoring event, no samples exceeded the water quality objectives for Cr(VI), chromium, pH, or total dissolved solids. The next CMP event is scheduled to occur in October 2013.</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>Submittal of this report is a compliance requirement under DOI enforcement's as ARARs beginning August 2011.</p>	
<p>Other requirements of this information?</p> <p>None.</p>	

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).



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

Version 9

July 15, 2013

Pamela Innis
DOI Topock Remedial Project Manager
U.S. Department of the Interior
Office of Environmental Policy and Compliance
P.O. Box 2507-D (D-108)
Denver Federal Center, Building 56
Denver, CO 80225-0007

Subject: Interim Measures No. 3, Compliance Monitoring Program, Semiannual Groundwater Monitoring Report, First Half 2013, PG&E Topock Compressor Station, Needles, California (PGE20130715A)

Dear Ms. Innis:

Enclosed is the *Compliance Monitoring Program, Semiannual Groundwater Monitoring Report, First Half 2013 for the Interim Measures No. 3 at the Pacific Gas and Electric Company [PG&E] Topock Compressor Station*. This monitoring report presents the results of the First Half 2013 Compliance Monitoring Program groundwater monitoring event and has been prepared in accordance with the United States Department of the Interior's August 18, 2011 letter stating that the Interim Measures No. 3 Waste Discharge Requirements are applicable or relevant and appropriate requirements.

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

No samples exceeded the water quality objectives for Cr(VI), chromium, pH, or TDS during the First Half 2013 sampling event. The next CMP event is scheduled to occur in October 2013.

Please contact me at (805) 234-2257 if you have any questions on the Compliance Monitoring Program.

Sincerely,



Yvonne Meeks
Topock Remediation Project Manager

Cc: Robert Perdue, Water Board
Jose Cortez, Water Board
Aaron Yue, DTSC
Christopher Guerre, DTSC

Enclosure

Compliance Monitoring Program Semiannual Groundwater Monitoring Report, First Half 2013,

**Interim Measure No. 3,
PG&E Topock Compressor Station,
Needles, California
Document ID: PGE20130715A**

Prepared for
United States Department of the Interior

On behalf of
Pacific Gas and Electric Company

July 15, 2013

CH2MHILL®
155 Grand Avenue, Suite 800
Oakland, CA 94612

**Compliance Monitoring Program
Semiannual Groundwater Monitoring Report,
First Half 2013,**

**PG&E Topock Compressor Station,
Needles, California**

Prepared for
United States Department of the Interior
On behalf of
Pacific Gas and Electric Company

July 15, 2013

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
ARAR	applicable or relevant and appropriate requirement
CMP	Compliance Monitoring Program
Cr(VI)	hexavalent chromium
CW	compliance well
DOI	United States Department of the Interior
DTSC	California Environmental Protection Agency, Department of Toxic Substances Control
IM	Interim Measure
IM-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 Requirement
WQO	water quality objective

SECTION 1

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-3). Currently, the IM-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-3 extraction, conveyance, treatment, and injection facilities. (All figures and tables are provided at the end of this report.)

The *Groundwater Compliance Monitoring Plan for Interim Measures No. 3 Injection Area, Topock Compressor Station, Needles, California* (CH2M HILL, 2005a) (herein referred to as the Compliance Monitoring Plan) was submitted to the California Regional Water Quality Control Board, Colorado River Basin Region (Water Board) and the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) on June 17, 2005. The Compliance Monitoring Plan and its addendum (CH2M HILL, 2005b) provide the objectives, proposed monitoring program, data evaluation methods, and reporting requirements for the Compliance Monitoring Program (CMP). Several modifications of the sampling and reporting procedures have been approved since 2005, as outlined in Exhibit 1.

EXHIBIT 1

Historical Modifications to the Compliance Monitoring Program

PG&E Topock Compliance Monitoring Program

Modification	Approval Date	Reference
Modification of reporting requirements	DTSC: June 9, 2006	DTSC, 2006
Reduction of constituents analyzed during quarterly sampling of CMP observation wells	Water Board: January 23, 2007	Water Board, 2007a
	DTSC: January 22, 2007	DTSC, 2007
		CH2M HILL, 2006
Change from laboratory pH to field collected pH for reporting	Water Board: October 16, 2007	Water Board, 2007b
	DTSC: January 22, 2008	DTSC, 2008a
Modification of hexavalent chromium analytical methods to extend hold time to 28 days	Water Board: November 13, 2007	Water Board, 2007c
	DTSC: January 22, 2008	DTSC, 2008a
Modification of sampling and reporting frequency and the field pH trigger range for the CMP contingency plan	Water Board: August 28, 2008	Water Board, 2008
	DTSC: December 12, 2008 (pH), September 3, 2009	DTSC, 2008b, 2009

From July 2005 through September 2011, PG&E was operating the IM-3 groundwater treatment system as authorized by Water Board Order No. R7-2004-0103 (issued October 13, 2004), Order No. R7-2006-0060 (issued September 20, 2006), and the revised Monitoring and Reporting Program (MRP) under Order No. R7-2006-0060 (issued August 28, 2008).

PG&E is currently performing the CMP as authorized by the United States Department of the Interior (DOI) waste discharge applicable or relevant and appropriate requirements (ARARs). The Waste Discharge Requirements (WDR Order No. R7-2006-0060) expired on September 20, 2011 and was replaced by DOI enforcement of the ARARs, as documented in correspondence among the Water Board, DOI, and PG&E during the summer of 2011.

Specifically, the letter agreement issued July 26, 2011 from the Water Board to DOI (Water Board, 2011) requested:

- DOI concurrence that the WDRs are ARARs under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 response action ongoing at the site.
- DOI confirmation that it will enforce these WDRs pursuant to the Administrative Consent Agreement entered into by DOI and PG&E in 2005 in lieu of the Water Board's adoption of a new Board Order to replace the expiring Board Order that set forth the WDRs.
- DOI concurrence with the roles and responsibilities between DOI and the Water Board for monitoring and enforcement.

In its letter dated August 18, 2011, the DOI provided concurrence and confirmation as requested (DOI, 2011). PG&E confirmed these changes with a letter to the DOI and the Water Board dated September 7, 2011 (PG&E, 2011). These changes add the DOI as the receiving regulatory agency for the CMP reports, with the Water Board continuing to receive report copies. Work described in this report was performed in accordance with the ARARs established in the July 26, 2011 letter (Water Board, 2011).

The ARARs specify effluent limitations, prohibitions, specifications, and provisions for subsurface injection. The MRP contained within the ARARs specifies the requirements for the CMP to monitor the aquifer in the injection well area to ensure that the injection of treated groundwater is not causing an adverse effect on the aquifer water quality.

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 provides a summary of the history of injection for IM-3.

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

As of April 2013, samples are collected from OWs and CWs, shown on Figure 2, according to the following schedule:

- Three OWs (OW-1S, OW-2S, and OW-5S) located near the IM-3 injection well field are sampled semiannually (during the second and fourth quarters) for a limited suite of constituents.
- Six OWs (OW-1M, OW-1D, OW-2M, OW-2D, OW-5M, and OW-5D) are:
 - Sampled annually for a limited suite of constituents during the fourth quarter.
 - Sampled for a full suite of constituents one cluster at a time on a triennial (once every 3 years) schedule. Within each 3-year period, all OW middle and deep wells will be sampled for a full suite of constituents. The triennial sampling will occur during the annual event (fourth quarter).
- Eight CWs are sampled semiannually for a limited suite of constituents and annually (during the fourth quarter) for a full suite of constituents.

For semiannual events, laboratory analyses include total dissolved solids (TDS), turbidity, specific conductance, a reduced suite of metals, and several inorganic cations and anions. Annual and triennial sampling events for CWs and select OWs include dissolved chromium, hexavalent chromium [Cr(VI)], metals, specific conductance, TDS, turbidity, and major inorganic cations and anions. Groundwater elevation data and field water quality data—including specific conductance, temperature, pH, oxidation-reduction potential, dissolved oxygen, turbidity and salinity—are also measured during each monitoring event (CH2M HILL, 2005a).

This report presents the results of the First Half 2013 CMP groundwater monitoring event.

SECTION 2

First Half 2013 Activities

This section provides a summary of the monitoring and sampling activities completed during the First Half 2013. The First Half 2013 event was a semiannual event conducted from April 8 through 9, 2013 and consisted of the following:

- Three observation and eight compliance monitoring wells were sampled for water quality analyses.
- Groundwater elevations and field water quality data were collected prior to sampling.
- Two duplicate samples were collected at wells CW-1D and CW-4M to assess field sampling and analytical quality control.

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

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

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

First Half 2013 Results

This section is a summary of the results of the CMP groundwater sampling conducted during the First Half 2013. Figure 2 presents the locations of the CMP groundwater wells.

The data presented include results for Cr(VI), chromium, specific conductance, metals, TDS, turbidity, and major inorganic cations and anions. Laboratory data quality review, water level measurements, and water quality field parameter data are also presented in this section. The laboratory reports and field data sheets for the First Half 2013 monitoring event are presented in Appendices A and B, respectively.

3.1 Analytical Results

Three observation wells and eight compliance wells were sampled during the First Half 2013 sampling event. Analytical results for Cr(VI), chromium, other metals, and general chemistry parameters are presented in Tables 3 and 4 and are discussed below. Interim action levels/ water quality objectives (WQOs) were updated on August 8, 2006, when PG&E submitted a revised contingency plan flowchart for groundwater quality changes associated with the injection system. The contingency plan specifies the concentrations and values for Cr(VI), chromium, TDS, and pH to be used to determine if contingency plan actions were necessary based on sample results. A modification of the CMP contingency plan pH range was approved by the Water Board and DTSC in 2008 (Water Board, 2008; DTSC, 2008b).

3.1.1 Hexavalent Chromium and Chromium

Table 3 presents the Cr(VI) and chromium analytical results for groundwater in the shallow, middle, and deep wells from the First Half 2013 CMP sampling event. For shallow wells, the maximum detected Cr(VI) concentration was 23.6 micrograms per liter ($\mu\text{g/L}$) in well OW-2S on April 8, 2013. For the middle wells, the maximum detected Cr(VI) concentration was 6.8 $\mu\text{g/L}$ in well CW-3M on April 9, 2013. For the deep wells, Cr(VI) was not detected [ND (1.0)] in any samples. During the First Half 2013 sampling event, no Cr(VI) sample result exceeded the WQO trigger level of 32 $\mu\text{g/L}$.

For shallow wells, the maximum detected chromium concentration was 25.6 $\mu\text{g/L}$ in well OW-2S on April 8, 2013. For the middle wells, the maximum detected chromium concentration was 7.4 $\mu\text{g/L}$ in well CW-3M on April 9, 2013. For the deep wells, chromium was not detected [ND (1.0)] in any samples. During the First Half 2013 sampling event, no chromium sample result exceeded the WQO trigger level of 28 $\mu\text{g/L}$. Hence, the contingency plan was not triggered for Cr(VI) nor chromium.

3.1.2 Other Metals and General Chemistry

Table 4 presents the metals and general chemistry results for the CMP groundwater wells sampled during the First Half 2013. Metals and ions detected in the First Half 2013 sampling event included chloride, fluoride, sulfate, nitrate/nitrite as nitrogen, dissolved sodium, and dissolved molybdenum. In general, concentrations of metals and ions detected during the First Half 2013 sampling event are similar to those detected in previous sampling events.

Table 4 presents other inorganic analyte results from the CMP wells. During the First Half 2013, the sampling results from all wells were within the WQOs for TDS (less than 10,800 milligrams per liter [mg/L]) and pH (between 6.2 and 9.2). Sampling results for TDS varied from 1,070 mg/L in well OW-2S to 5,190 mg/L in well CW-3M. Field pH varied from 7.0 in well OW-1S to 7.8 in well CW-4D.

3.2 Analytical Data Quality Review

The laboratory analytical data generated from the First Half 2013 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 addendum (CH2M HILL, 2008). 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

Matrix interference can affect the detection sensitivity for Cr(VI) when using Method E218.6 and can result in elevated reporting limits for nondetect samples. Six samples exhibited a matrix interference issue that required a dilution to achieve satisfactory matrix spike recovery, resulting in an elevated reporting limit. The sample results were qualified but no flags were added.

3.2.2 Matrix Spike Samples

Matrix spike acceptance criteria were met.

3.2.3 Quantitation and Sensitivity

With the exception of the matrix interference issues discussed in Section 3.2.1, method and analyte combinations met the project reporting limit objectives.

3.2.4 Holding-time Data Qualification

Method holding-time requirements were met.

3.2.5 Field Duplicates

Field duplicate acceptance criteria were met.

3.2.6 Method Blanks

Method blank acceptance criteria were met.

3.2.7 Equipment Blanks

Equipment blank acceptance criteria were met.

3.2.8 Laboratory Duplicates

Laboratory duplicate acceptance criteria for the methods were met.

3.2.9 Calibration

Initial and continuing calibrations were performed as required by the methods. Calibration criteria were met.

3.2.10 Conclusion

For the First Half 2013 CMP sampling event, the completeness objectives were met for the 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. Originally, under WDR No. R7-2006-0060 for the IM-3 groundwater treatment system and now the DOI's affirmation of the WDR as an ARAR, PG&E is required to submit semiannual monitoring reports regarding 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-3 injection well field. Table 5 provides selected effluent water analytical results from three of the monthly reports: August 29, 2005, April 7, 2010, and April 1, 2013. While there are differences among some parameters in these samples, a number of parameters show relatively consistent concentrations in the effluent over time. Analytes that are relatively consistent over the injection time

period include Cr(VI), chromium, fluoride, dissolved molybdenum, nitrate/nitrite as nitrogen, sulfate, and TDS. The consistency of these seven constituents provide a characterization of the effluent that 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 April 2013 effluent characteristics):

- Cr(VI): typically nondetect (or below 1.0 µg/L)
- Chromium: typically nondetect (or below 1.0 µg/L)
- Fluoride: approximately 2 mg/L
- Molybdenum: approximately 15 µg/L
- Nitrate/nitrite as nitrogen: approximately 3 mg/L
- Sulfate: approximately 500 mg/L
- TDS: approximately 4,000 mg/L

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

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

Table 6 presents a comparison between the treated water quality and the results from the most recent sampling event (the First Half 2013 sampling event). These samples were collected after approximately 7.7 years of injection. While the pre-injection OW and CW sample results were significantly different from the treated water quality, a number of the First Half 2013 sample 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, OW-5D, CW-1M, CW-1D, CW-2D, CW-3D, and CW-4D. These wells are at locations and depths where the treated water injection front has largely replaced the local pre-injection groundwater. Wells OW-1S, CW-2M, CW-3M, and CW-4M have chemical characteristics approaching that of treated water. To date, shallow observation wells OW-2S and OW-5S show little or no water quality effects due to injection of treated water, indicating that injected water has not yet reached the screened intervals at these 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-3 injection well field area and have sufficient detections to make time-series analysis useful. The analytes include chloride, chromium, fluoride, Cr(VI), molybdenum, nitrate/nitrite as nitrogen, lab pH, sodium, sulfate, TDS, and vanadium. Water quality hydrographs (time-series plots) of these 11 analytes in each OW and CW during First Half 2013 within the IM-3 injection well field are presented in Figures 3A through 3E.

Observation well water quality hydrographs are presented in Figures 3A through 3C. These hydrographs show the same overall patterns: wells that are identified as affected by treated water injection show a shift in water quality for characteristic parameters, while those identified as being unaffected by injection show no similar shift in water quality. 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-2S and OW-5S) show little water quality variation over time. Sodium, chloride, vanadium, and molybdenum are particularly consistent with baseline pre-injection concentrations and show that the local groundwater quality at these shallow depths is not being affected by injection of treated water or outside water sources.

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

3.4 Water Level Measurements

Table 7 presents the manual water level measurements and groundwater elevations from Second Quarter 2013 per the DOI ARAR requirements (DOI, 2011). Manual water level measurements from the First Quarter 2013 were collected on April 3, 2013. These water levels are representative of manual water levels collected from the First Quarter 2013 and this is supported by graphs presented in Appendix C. Appendix C graphs show manual water level graphs shown against previously collected transducer data.

In compliance with Condition No. 2 of DTSC's 2009 conditional approval letter (DTSC, 2009), confirmation was obtained from the IM-3 Plant Manager that the IM-3 plant was operating normally on both the day before and the days of CMP water level collection, with no backwash or unplanned shutdowns.

Water level measurements were collected continuously (measurements collected every half hour) with pressure transducers to produce hydrographs for select wells. Figures 4A through 4C present hydrographs that illustrate groundwater elevation trends and vertical hydraulic gradients observed over the First Half 2013 reporting period at specified observation monitoring wells.

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

3.4.1 Groundwater Gradient Characteristics

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

The injection well field is located in the East Mesa area of the Topock site, as shown on Figure 2. Overall sitewide water level contour maps for shallow wells are prepared annually under a separate report, with flow consistently being shown to move to the east/northeast across the uplands portions of the site (CH2M HILL, 2013).

The effects of injection in the IM-3 injection well field are superimposed on the more regional Topock site flow system and, as expected, a groundwater mound can be seen around the injection wells. This mound is centered on the active injection wells IW-2 and IW-3. The potentiometric surfaces in prior CMP reports mapped the growth of the groundwater mound over time and show that, after 7.7 years of injection, the mound increased and then stabilized in height at several tenths of a foot in elevation above the surrounding water level elevations. Figures 5B and 5C present groundwater elevation contours for the snapshot groundwater elevation of the mound within the middle and deep wells using May 28, 2013 groundwater elevations. As expected with a mound, the potentiometric surface of the deep wells is slightly broader, while the potentiometric surface of the middle wells is more localized to the vicinity of the injection wells. The mound is elliptical in shape, with the major axis running in a southwest to northeast direction. The lower gradients (broader contours) in the direction of the major axis

are an indication that the aquifer permeabilities are greater in this direction, indicating that there may be a preferred direction to flow in this area.

The vertical gradient in the IM-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 May 28, 2013 groundwater elevations. The magnitude of the vertical gradients is similar between clusters and between the depth intervals, indicating that the vertical gradient is generally of the same order of magnitude throughout the injection area. A component of the vertical gradients calculated in the vicinity of the IM-3 injection well field is likely related to the injection of treated water in the lower portions of the aquifer. The observed groundwater gradients in the IM-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, salinity, and water level elevations before sampling. Table 9 presents a summary of the field water quality data measured during the First Half 2013 monitoring event. Field data sheets for the First Half 2013 event are presented in Appendix B.

3.6 ARAR Monitoring Requirements

Table 10 identifies the laboratory that performed each analysis and lists the following information as required by the ARARs for the First Half 2013 monitoring event:

- Sample location
- Sample identification number
- Sampler name
- Sample date
- Sample time
- Laboratory performing analysis
- Analysis method
- Parameter
- Analysis date
- Laboratory technician
- Result unit
- Sample result
- Reporting limit
- Method detection limit

Status of Monitoring Activities

4.1 Semiannual Monitoring

The next semiannual monitoring event will occur in October during the second half of 2013. This CMP monitoring event will include the sampling and analysis scope presented in Attachment A of DOI November 18, 2011 letter (DOI, 2011). The groundwater monitoring report for this CMP monitoring event will be submitted by January 15, 2014.

4.2 Annual Monitoring

The next annual monitoring event, which is also a semiannual event, will occur in October during the second half of 2013. The groundwater monitoring report for this CMP monitoring event will be submitted by January 15, 2014.

References

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SECTION 6

Certification

PG&E submitted a signature delegation letter to the DOI and the Water Board on February 27, 2013 (PG&E, 2013). The letter delegated PG&E signature authority to Ms. Sheryl Bilbrey, Ms. Yvonne Meeks, and Mr. Curt Russell for correspondence regarding required ARARs.

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.

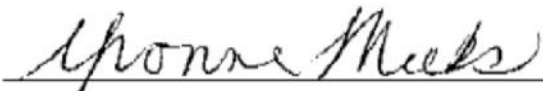
Signature: 
Name: Yvonne J. Meeks
Company: Pacific Gas and Electric Company
Title: Topock Environmental Remediation Project Manager
Date: July 15, 2013

TABLE 1

Operational Status of Interim Measures No. 3 Injection Wells From July 2005 through June 2013
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 intervals 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 was performed 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 interval on July 25 and from August 12 – August 31, 2008. Backwashing was performed 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 was performed 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 were performed periodically during the intervals when each injection well was offline. Routine and scheduled maintenance occurred 12/18/08 and 1/21/09 at which time both wells were offline.
Second Quarter 2009	Injection continued at IW-3 until April 20, 2009. Injection ceased from April 20, 2009 to April 27, 2009 due to routine maintenance after which injection continued at IW-3 until May 26, 2009 when it transitioned to IW-2. Injection continued at IW-2 until June 9, 2009 when it switched to IW-3. Injection returned to IW-2 on June 24, 2009.
Third Quarter 2009	IM3 injection alternates between the two wells approximately every two weeks. Injection continued at IW-2 until July 8, when it transitioned to IW-3. Injection ceased from July 23 to 27, 2009 when it continued at IW-3 until September 9, 2009. Unplanned downtime occurred from September 9-14, 2009. On September 16, 2009 injection continued at IW-2, except during times of routine maintenance or otherwise mentioned.
Fourth Quarter 2009	Injection occurred at IW-2 until November 25, 2009 when it switched to IW-3. Injection continued at IW-3, except during times of routine maintenance.
First Half 2010	Injection occurred mainly at IW-3 until March 3, 2010. Beginning March 3, 2010, IM3 injection alternated between the two wells approximately every two weeks until April 20, 2010 for a

TABLE 1

Operational Status of Interim Measures No. 3 Injection Wells From July 2005 through June 2013*PG&E Topock Compliance Monitoring Program*

Time Period	Injection Status
	planned shutdown. On April 22, 2010, injection resumed at IW-3 and alternated between the two wells approximately every two weeks. Backwashing was performed periodically during the intervals when each injection well was offline.
Second Half 2010	Injection occurred primarily at IW-2 with the exception of the following periods when it primarily occurred at IW-3: July 22 - August 25, August 30 - September 7, September 16 - October 15, November 5 -18, and December 17- 31, 2010.
First Half 2011	Injection occurred primarily at IW-3 with the exception of the following periods when it primarily occurred at IW-2: January 27 - February 10, February 23 - March 7, March 30 - April 20, May 6 – June 7, and June 22-28, 2011. Backwashing was performed periodically during the intervals when each injection well was offline. A planned shutdown occurred April 25-29 and June 28-30.
Second Half 2011	Injection occurred primarily at IW-3 with the exception of the following periods when it primarily occurred at IW-2: July 14 through August 3, August 10 through 13, September 11 through 22, October 6 through10; and October 27 Through December 31. Backwashing was performed periodically during the intervals when each injection well was offline.
First Half 2012	Injection occurred primarily at IW-3 with the exception of the following periods when it primarily occurred at IW-2: January 1 through January 6, 2012; February 2 through February 16, 2012; March 2 through April 5, 2012; May 10 through May 21, 2012; May 29 through June 1, 2012, June 14,2012 and June 21 through June 27, 2012.
Second Half 2012	Injection occurred primarily at IW-3 with the exception of the following periods when it primarily occurred at IW-2: July 18 through July 25, 2012; August 1 through August 13, 2012; August 17 through August 22, 2012; August 31 through September 26, 2012; and September 29 through October 9, 2012.
First Half 2013	Injection occurred primarily at IW-3 with the exception of the following periods when it primarily occurred at IW-2: March 5 through March 14, 2013; April 8 through May 22, 2013, June 24 through June 25, 2013, and June 29 through June 30, 2013.

TABLE 2

Well Construction and Sampling Summary for Groundwater Samples, First Half 2013

PG&E Topock Compliance Monitoring Program

Well ID	Site Area	Measuring Point Elevation (ft AMSL)	Screen Interval (ft bgs)	Well Casing (inches)	Well Depth (ft btoc)	Depth to Water (ft btoc)	Sampling System	Typical Purge Rate (gpm)	Typical Purge Volume (gallons)	Pump Depth (ft bgs)	Transducer Status	Remarks
IM Compliance Wells												
CW-01M	East Mesa	566.07	140 - 190	2 (PVC)	190.0	108.9	Temp Redi-Flo AR	2	42	165		
CW-01D	East Mesa	566.46	250 - 300	2 (PVC)	300.2	109.0	Temp Redi-Flo AR	3	98	180		
CW-02M	East Mesa	549.45	152 - 202	2 (PVC)	208.3	92.4	Temp Redi-Flo AR	2	56	195		
CW-02D	East Mesa	549.43	285 - 335	2 (PVC)	355.0	91.9	Temp Redi-Flo AR	3	134	159		
CW-03M	East Mesa	534.10	172 - 222	2 (PVC)	222.0	77.3	Temp Redi-Flo AR	2	74	180		
CW-03D	East Mesa	534.14	270 - 320	2 (PVC)	340.0	76.7	Temp Redi-Flo AR	3	134	143		
CW-04M	East Mesa	518.55	119.5 - 169.5	2 (PVC)	169.8	61.3	Temp Redi-Flo AR	2	56	160		
CW-04D	East Mesa	518.55	233 - 283	2 (PVC)	303.0	61.2	Temp Redi-Flo AR	3	124	134		
IM Observation Wells												
OW-01S	East Mesa	550.21	83.5 - 113.5	2 (PVC)	113.5	93.2	Temp Redi-Flo AR	1	10.2	100	Active	
OW-01M	East Mesa	550.36	165 - 185	2 (PVC)	185.8	93.7	Temp Redi-Flo AR	3	48	109.6		
OW-01D	East Mesa	550.36	257 - 277	2 (PVC)	277.3	93.7	Temp Redi-Flo AR	3	94	111.4		
OW-02S	East Mesa	548.88	71 - 101	2 (PVC)	103.6	91.7	Temp Redi-Flo AR	1	15	100	Active	
OW-02M	East Mesa	548.52	190 - 210	2 (PVC)	210.3	91.9	Temp Redi-Flo AR	2	61	111.4		
OW-02D	East Mesa	549.01	310 - 330	2 (PVC)	340.0	92.3	Temp Redi-Flo AR	2	127	110.3		
OW-05S	East Mesa	551.83	70 - 110	2 (PVC)	110.3	94.7	Temp Redi-Flo AR	1	8	100	Active	
OW-05M	East Mesa	551.81	210 - 250	2 (PVC)	250.3	95.1	Temp Redi-Flo AR	2	80	112.5	Active	
OW-05D	East Mesa	552.41	300 - 320	2 (PVC)	350.0	95.7	Temp Redi-Flo AR	3	131	113.2	Active	

Notes:

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

Depth to water for each well was collected on April 2013.

All wells were purged and sampled using 3 well-volume method.

TABLE 3
Chromium Results for Groundwater Samples, First Half 2013
PG&E Topock Compliance Monitoring Program

Method:		E218.6	E200.8
Location ID	Sample Date	Hexavalent Chromium (µg/L)	Chromium (µg/L)
CW-01M	4/8/2013	ND (1.0)	1.20
CW-01D	4/8/2013	ND (1.0)	ND (1.0)
CW-01D	4/8/2013 (FD)	ND (1.0)	ND (1.0)
CW-02M	4/9/2013	2.40	2.80
CW-02D	4/9/2013	ND (1.0)	ND (1.0)
CW-03M	4/9/2013	6.80	7.40
CW-03D	4/9/2013	ND (1.0)	ND (1.0)
CW-04M	4/9/2013	6.30	6.80
CW-04M	4/9/2013 (FD)	6.20	6.50
CW-04D	4/9/2013	ND (1.0)	ND (1.0)
OW-01S	4/8/2013	7.00	7.40
OW-02S	4/8/2013	23.6	25.6
OW-05S	4/8/2013	18.2	18.4

Notes:

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

Hexavalent Chromium and Chromium are field filtered.

TABLE 4

Metals and General Chemistry Results for Groundwater Samples, First Half 2013

PG&E Topock Compliance Monitoring Program

Method:		E120.1	Field	SM2540C	SM2130B	E300.0	E300.0	E300.0	SM4500NH3D	SM4500NO3	E200.7	E200.8
Location ID	Sample Date	Specific Conductance (µmhos/cm)	Field pH	Total Dissolved Solids (mg/L)	Turbidity (NTU)	Chloride (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	Ammonia as Nitrogen (mg/L)	Nitrate/Nitrite as Nitrogen (mg/L)	Dissolved Sodium (mg/L)	Dissolved Molybdenum (µg/L)
CW-01M	4/8/2013	7080	7.4	4360	0.128	2190	1.85	505	ND (0.5)	2.91	---	---
CW-01D	4/8/2013	7110	7.5	4210	ND (0.1)	2220	2.33	525	ND (0.5)	2.95	---	---
CW-01D	4/8/2013 (FD)	7080	(FD)	4440	ND (0.1)	2170	2.31	500	ND (0.5)	2.99	---	---
CW-02M	4/9/2013	7020	7.5	4170	0.132	1980	3.04	486	ND (0.5)	2.79	---	---
CW-02D	4/9/2013	7140	7.7	5160	0.205	2130	2.79	481	ND (0.5)	2.91	---	---
CW-03M	4/9/2013	8400	7.5	5190	ND (0.1)	2660	2.78	460	ND (0.5)	1.48	---	---
CW-03D	4/9/2013	7150	7.7	4510	ND (0.1)	2100	3.86	500	ND (0.5)	2.93	---	---
CW-04M	4/9/2013	6690	7.6	4050	0.140	2010	1.93	438	ND (0.5)	2.48	---	---
CW-04M	4/9/2013 (FD)	6680	(FD)	4120	0.134	2020	1.82	440	ND (0.5)	2.46	---	---
CW-04D	4/9/2013	7100	7.8	4310	0.249	2140	3.15	496	ND (0.5)	2.83	---	---
OW-01S	4/8/2013	5910	7.0	3800	2.760	1880	1.49	426	---	2.94	696	5.90
OW-02S	4/8/2013	1860	7.7	1070	0.248	469	4.58	106	---	3.70	336	38.3
OW-05S	4/8/2013	3270	7.4	2010	0.213	947	1.84	176	---	3.08	426	18.6

Notes:

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

TABLE 5

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

Location ID	Sample Date	Hexavalent Chromium (µg/L)	Chromium (µg/L)	Fluoride (mg/L)	Dissolved Molybdenum (µg/L)	Nitrate/Nitrite as Nitrogen (mg/L)	Sulfate (mg/L)	TDS (mg/L)
Treated Water	8/29/2005	ND (1.0)	ND (2.1)	1.95	8.3	3.7	450	3620
Treated Water	4/7/2010	0.29	ND (1.0)	1.82	18.6	2.87	512	4270
Treated Water	4/1/2013	ND (0.2)	ND (1.0)	2.14	17.2	2.84	501	4230
OW-01S	7/28/2005	19.4	23.5	2.45	17.2	3.2	114	1320
OW-01M	7/27/2005	16.3	18.9	2.31	27	1.01	311	3450
OW-01D	7/27/2005	ND(1.0)	ND(1.3)	1.14	46.1	0.321	441	6170
OW-02S	7/28/2005	15.3	14.8	3.79	35.6	3.81	126	1090
OW-02M	7/28/2005	5.4	5.7	2.19	32.4	0.735	342	4380
OW-02D	7/28/2005	ND(1.0)	ND(1.2)	0.966	51.2	0.1	616	9550
OW-05S	7/28/2005	23.4	25.6	2.3	17.1	3.55	105	1060
OW-05M	7/28/2005	8.6	8.8	2.74	35.4	0.621	417	5550
OW-05D	7/28/2005	ND(1.0)	ND(1.2)	1.11	57	0.151	480	8970
CW-01M	9/15/2005	18.1	17.8	2.34	21.6	1.11	318	2990
CW-01D	9/15/2005	ND(1.0)	1.6	0.951	32.1	0.972	379	6230
CW-02M	9/15/2005	15.8	15.5	2.3	23.1	0.908	342	3500
CW-02D	9/15/2005	ND(1.0)	1.6	0.982	41.6	0.28	601	8770
CW-03M	9/15/2005	8.8	8.1	2.57	24.2	0.642	464	4740
CW-03D	9/15/2005	ND(1.0)	ND(1.0)	1.4	29.2	0.304	672	9550
CW-04M	9/15/2005	19.2	19	1.5	12.3	1.18	240	3310
CW-04D	9/15/2005	ND(1.0)	ND(1.0)	1.01	26	0.188	534	7470

NOTES:

ND Not detected at the listed reporting limit.

mg/L milligrams per liter

µg/L micrograms per liter

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

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

Chromium samples of the treated water were unfiltered.

TABLE 6

Treated Water Quality Compared to First Half 2013 Sampling Event Water Quality
PG&E Topock Compliance Monitoring Program

Location ID	Sample Date	Hexavalent Chromium (µg/L)	Chromium (µg/L)	Fluoride (mg/L)	Molybdenum (µg/L)	Nitrate/Nitrite as Nitrogen (mg/L)	Sulfate (mg/L)	Total Dissolved Solids (mg/L)
Treated Water	4/5/2011	ND (0.2)	ND (1.0)	2.01	17.3	2.88	518	4,150
Treated Water	4/3/2012	ND (0.2)	ND (1.0)	2.11	18.9	3.06	564	4,430
Treated Water	4/1/2013	ND (0.2)	ND (1.0)	2.14	17.2	2.84	501	4,230
CW-01M	4/8/2013	ND (1.0)	1.20	1.85	---	2.91	505	4,360
CW-01D	4/8/2013	ND (1.0)	ND (1.0)	2.33	---	2.95	525	4,210
CW-01D	4/8/2013 (FD)	ND (1.0)	ND (1.0)	2.31	---	2.99	500	4,440
CW-02M	4/9/2013	2.40	2.80	3.04	---	2.79	486	4,170
CW-02D	4/9/2013	ND (1.0)	ND (1.0)	2.79	---	2.91	481	5,160
CW-03M	4/9/2013	6.80	7.40	2.78	---	1.48	460	5,190
CW-03D	4/9/2013	ND (1.0)	ND (1.0)	3.86	---	2.93	500	4,510
CW-04M	4/9/2013 (FD)	6.20	6.50	1.82	---	2.46	440	4,120
CW-04M	4/9/2013	6.30	6.80	1.93	---	2.48	438	4,050
CW-04D	4/9/2013	ND (1.0)	ND (1.0)	3.15	---	2.83	496	4,310
OW-01S	4/8/2013	7.00	7.40	1.49	5.90	2.94	426	3,800
OW-02S	4/8/2013	23.6	25.6	4.58	38.3	3.70	106	1,070
OW-05S	4/8/2013	18.2	18.4	1.84	18.6	3.08	176	2,010

Notes:

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

All hexavalent chromium samples were analyzed with method E218.6.

All chromium and molybdenum samples were analyzed with method E200.8, except treated water which was analyzed by method E200.7 and E200.8. Chromium and molybdenum samples were field filtered, except for the treated water.

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

All nitrate/nitrite as nitrogen samples were analyzed with method SM4500NO3E, except for treated water which used method E300.0.

All total dissolved solid samples were analyzed with method SM2540C.

TABLE 7

Manual Water Level Measurements and Elevations, First Half 2013
 PG&E Topock Compliance Monitoring Program

Location ID	Well Depth (feet BTOC)	Measuring Point Elevation (feet AMSL)	Monitoring Date & Time		Water Level Measurement (feet BTOC)	Salinity (%)	Groundwater/Water Elevation Adjusted for Salinity (feet AMSL)
CW-01M	190.0	566.07	03-Apr-13	8:46 AM	109.45	0.48	456.55
			28-May-13	9:43 AM	108.33	0.48	457.67
CW-01D	300.2	566.46	03-Apr-13	8:54 AM	109.76	0.48	456.55
			28-May-13	9:45 AM	108.45	0.48	457.86
CW-02M	208.3	549.45	03-Apr-13	9:08 AM	92.75	0.48	456.60
			28-May-13	9:51 AM	91.85	0.48	457.50
CW-02D	355.0	549.43	03-Apr-13	9:16 AM	92.72	0.49	456.46
			28-May-13	9:53 AM	91.47	0.49	457.71
CW-03M	222.0	534.10	03-Apr-13	9:31 AM	77.57	0.58	456.51
			28-May-13	9:58 AM	76.71	0.58	457.37
CW-03D	340.0	534.14	03-Apr-13	9:39 AM	77.35	0.49	456.53
			28-May-13	10:00 AM	76.13	0.49	457.75
CW-04M	169.8	518.55	03-Apr-13	9:56 AM	61.69	0.46	456.77
			28-May-13	10:07 AM	60.67	0.46	457.79
CW-04D	303.0	518.55	03-Apr-13	10:04 AM	61.80	0.52	456.59
			28-May-13	10:09 AM	60.55	0.52	457.83
OW-01S	113.5	550.21	03-Apr-13	10:18 AM	93.52	0.34	456.66
			28-May-13	10:16 AM	92.77	0.34	457.40
OW-01M	185.8	550.36	03-Apr-13	10:23 AM	93.71	0.47	456.56
			28-May-13	10:18 AM	92.54	0.47	457.73
OW-01D	277.3	550.36	03-Apr-13	10:31 AM	93.70	0.47	456.48
			28-May-13	10:20 AM	92.26	0.47	457.92
OW-02S	103.6	548.88	03-Apr-13	10:43 AM	92.07	0.12	456.78
			28-May-13	10:23 AM	91.39	0.12	457.45
OW-02M	210.3	548.52	03-Apr-13	10:48 AM	91.90	0.47	456.50
			28-May-13	10:25 AM	90.68	0.47	457.71
OW-02D	340.0	549.01	03-Apr-13	10:58 AM	92.35	0.47	456.38
			28-May-13	10:27 AM	90.74	0.47	457.99
OW-05S	110.3	551.83	03-Apr-13	11:13 AM	95.04	0.27	456.75
			28-May-13	10:31 AM	94.23	0.27	457.56
OW-05M	250.3	551.81	03-Apr-13	11:20 AM	95.09	0.47	456.66
			28-May-13	10:33 AM	93.35	0.47	458.31
OW-05D	350.0	552.41	03-Apr-13	11:40 AM	95.72	0.47	456.62
			28-May-13	10:35 AM	94.04	0.47	458.10

Notes:

AMSL above mean sea level

BTOC below top of polyvinyl chloride (PVC) casing

% percentage

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

TABLE 8

Vertical Gradients within the OW and CW Clusters

PG&E Topock Compliance Monitoring Program

Well Pairs	Vertical Gradient (ft/ft) ^a
CW-01D to CW-01M	0.0017
CW-02D to CW-02M	0.0016
CW-03D to CW-03M	0.0039
CW-04D to CW-04M	0.0004
OW-01M to OW-01S	0.0043
OW-01D to OW-01M	0.0021
OW-02M to OW-02S	0.0023
OW-02D to OW-02M	0.0023
OW-05M to OW-05S	0.0054

^a Positive value signifies an upward gradient.

Gradients calculated using May 28, 2013 groundwater levels.

TABLE 9

Field Parameter Measurements for Groundwater Samples, First Half 2013

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 (%)	Depth To Water (feet BTOC)
CW-01M	4/8/2013	7,582	29.35	7.4	168	9.50	1	0.49	108.95
CW-01D	4/8/2013	7,601	28.44	7.5	176	8.81	1	0.49	109.00
CW-02M	4/9/2013	7,582	30.00	7.5	158	7.98	1	0.49	92.42
CW-02D	4/9/2013	7,727	30.20	7.7	167	7.32	1	0.50	91.92
CW-03M	4/9/2013	9,055	30.07	7.5	143	3.44	1	0.58	77.25
CW-03D	4/9/2013	7,737	30.37	7.7	135	7.51	1	0.50	76.67
CW-04M	4/9/2013	7,191	29.86	7.6	161	6.09	1	0.46	61.33
CW-04D	4/9/2013	7,687	30.00	7.8	128	8.64	1	0.50	61.22
OW-01S	4/8/2013	6,325	29.04	7.0	157	7.92	2	0.41	93.21
OW-02S	4/8/2013	1,962	28.92	7.7	131	8.07	2	0.13	91.73
OW-05S	4/8/2013	3,542	29.15	7.4	138	6.64	1	0.23	94.69

Notes:

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

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

TABLE 10

ARAR Monitoring Information for Groundwater Samples, First Half 2013

PG&E Topock Compliance Monitoring Program

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
CW-01D	OW-90-029	Barry Collom	4/8/2013	6:55:00 AM	TLI	EPA 120.1	SC	4/12/2013	Gautam Savani	µmhos/cm	7080	2.0	0.116
					TLI	EPA 200.8	CRTD	4/12/2013	Bitu Emami	µg/L	ND (1.0)	1.0	0.18
					TLI	EPA 218.6	CR6	4/11/2013	Tom Martinez	µg/L	ND (1.0)	1.0	0.046
					TLI	EPA 300.0	CL	4/11/2013	Giawad Ghenniwa	mg/L	2170	50.0	17.4
					TLI	EPA 300.0	FL	4/10/2013	Giawad Ghenniwa	mg/L	2.31	0.5	0.104
					TLI	EPA 300.0	SO4	4/11/2013	Giawad Ghenniwa	mg/L	500	25.0	1.54
					CHMC	EPA 353.2	NO3NO2N	4/26/2013	Youning Li	mg/L	2.99	0.05	0.0152
					TLI	SM2130B	TRB	4/10/2013	Gautam Savani	NTU	ND (0.1)	0.1	0.014
					TLI	SM2540C	TDS	4/12/2013	Jenny Tankunakorn	mg/L	4440	250	1.76
					TLI	SM4500NH3D	NH3N	4/12/2013	Melissa Scharfe	mg/L	ND (0.5)	0.5	0.0318
CW-01D	CW-01D-029	Barry Collom	4/8/2013	9:15:42 AM	TLI	EPA 120.1	SC	4/12/2013	Gautam Savani	µmhos/cm	7110	2.0	0.116
					TLI	EPA 200.8	CRTD	4/12/2013	Bitu Emami	µg/L	ND (1.0)	1.0	0.18
					TLI	EPA 218.6	CR6	4/11/2013	Tom Martinez	µg/L	ND (1.0)	1.0	0.046
					TLI	EPA 300.0	CL	4/11/2013	Giawad Ghenniwa	mg/L	2220	50.0	17.4
					TLI	EPA 300.0	FL	4/10/2013	Giawad Ghenniwa	mg/L	2.33	0.5	0.104
					TLI	EPA 300.0	SO4	4/11/2013	Giawad Ghenniwa	mg/L	525	25.0	1.54
					CHMC	EPA 353.2	NO3NO2N	4/26/2013	Youning Li	mg/L	2.95	0.05	0.0152
					TLI	SM2130B	TRB	4/10/2013	Gautam Savani	NTU	ND (0.1)	0.1	0.014
					TLI	SM2540C	TDS	4/12/2013	Jenny Tankunakorn	mg/L	4210	250	1.76

TABLE 10

ARAR Monitoring Information for Groundwater Samples, First Half 2013

PG&E Topock Compliance Monitoring Program

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
CW-01D	CW-01D-029	Barry Collom	4/8/2013	9:15:42 AM	TLI	SM4500NH3D	NH3N	4/12/2013	Melissa Scharfe	mg/L	ND (0.5)	0.5	0.0318
CW-01M	CW-01M-029	Barry Collom	4/8/2013	9:53:47 AM	TLI	EPA 120.1	SC	4/12/2013	Gautam Savani	µmhos/cm	7080	2.0	0.116
					TLI	EPA 200.8	CRTD	4/12/2013	Bitu Emami	µg/L	1.20	1.0	0.18
					TLI	EPA 218.6	CR6	4/11/2013	Tom Martinez	µg/L	ND (1.0)	1.0	0.046
					TLI	EPA 300.0	CL	4/11/2013	Giawad Ghenniwa	mg/L	2190	50.0	17.4
					TLI	EPA 300.0	FL	4/10/2013	Giawad Ghenniwa	mg/L	1.85	0.5	0.104
					TLI	EPA 300.0	SO4	4/11/2013	Giawad Ghenniwa	mg/L	505	25.0	1.54
					CHMC	EPA 353.2	NO3NO2N	4/26/2013	Younging Li	mg/L	2.91	0.05	0.0152
					TLI	SM2130B	TRB	4/10/2013	Gautam Savani	NTU	0.128	0.1	0.014
					TLI	SM2540C	TDS	4/12/2013	Jenny Tankunakorn	mg/L	4360	250	1.76
					TLI	SM4500NH3D	NH3N	4/12/2013	Melissa Scharfe	mg/L	ND (0.5)	0.5	0.0318
CW-02D	CW-02D-029	Barry Collom	4/9/2013	8:06:51 AM	TLI	EPA 120.1	SC	4/12/2013	Gautam Savani	µmhos/cm	7140	2.0	0.116
					TLI	EPA 200.8	CRTD	4/12/2013	Bitu Emami	µg/L	ND (1.0)	1.0	0.18
					TLI	EPA 218.6	CR6	4/11/2013	Tom Martinez	µg/L	ND (1.0)	1.0	0.046
					TLI	EPA 300.0	CL	4/11/2013	Giawad Ghenniwa	mg/L	2130	50.0	17.4
					TLI	EPA 300.0	FL	4/10/2013	Giawad Ghenniwa	mg/L	2.79	0.5	0.104
					TLI	EPA 300.0	SO4	4/11/2013	Giawad Ghenniwa	mg/L	481	25.0	1.54
					CHMC	EPA 353.2	NO3NO2N	4/26/2013	Younging Li	mg/L	2.91	0.05	0.0152
					TLI	SM2130B	TRB	4/10/2013	Gautam Savani	NTU	0.205	0.1	0.014

TABLE 10

ARAR Monitoring Information for Groundwater Samples, First Half 2013

PG&E Topock Compliance Monitoring Program

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
CW-02D	CW-02D-029	Barry Collom	4/9/2013	8:06:51 AM	TLI	SM2540C	TDS	4/12/2013	Jenny Tankunakorn	mg/L	5160	250	1.76
					TLI	SM4500NH3D	NH3N	4/12/2013	Melissa Scharfe	mg/L	ND (0.5)	0.5	0.0318
CW-02M	CW-02M-029	Barry Collom	4/9/2013	9:06:00 AM	TLI	EPA 120.1	SC	4/12/2013	Gautam Savani	µmhos/cm	7020	2.0	0.116
					TLI	EPA 200.8	CRTD	4/12/2013	Bitu Emami	µg/L	2.80	1.0	0.18
					TLI	EPA 218.6	CR6	4/11/2013	Tom Martinez	µg/L	2.40	1.0	0.046
					TLI	EPA 300.0	CL	4/11/2013	Giawad Ghenniwa	mg/L	1980	50.0	17.4
					TLI	EPA 300.0	FL	4/10/2013	Giawad Ghenniwa	mg/L	3.04	0.5	0.104
					TLI	EPA 300.0	SO4	4/11/2013	Giawad Ghenniwa	mg/L	486	25.0	1.54
					CHMC	EPA 353.2	NO3NO2N	4/26/2013	Youning Li	mg/L	2.79	0.05	0.0152
					TLI	SM2130B	TRB	4/10/2013	Gautam Savani	NTU	0.132	0.1	0.014
					TLI	SM2540C	TDS	4/12/2013	Jenny Tankunakorn	mg/L	4170	250	1.76
					TLI	SM4500NH3D	NH3N	4/12/2013	Melissa Scharfe	mg/L	ND (0.5)	0.5	0.0318
CW-03D	CW-03D-029	Barry Collom	4/9/2013	10:54:00 AM	TLI	EPA 120.1	SC	4/12/2013	Gautam Savani	µmhos/cm	7150	2.0	0.116
					TLI	EPA 200.8	CRTD	4/12/2013	Bitu Emami	µg/L	ND (1.0)	1.0	0.18
					TLI	EPA 218.6	CR6	4/11/2013	Tom Martinez	µg/L	ND (1.0)	1.0	0.046
					TLI	EPA 300.0	CL	4/11/2013	Giawad Ghenniwa	mg/L	2100	50.0	17.4
					TLI	EPA 300.0	FL	4/10/2013	Giawad Ghenniwa	mg/L	3.86	0.5	0.104
					TLI	EPA 300.0	SO4	4/11/2013	Giawad Ghenniwa	mg/L	500	25.0	1.54
					CHMC	EPA 353.2	NO3NO2N	4/26/2013	Youning Li	mg/L	2.93	0.05	0.0152

TABLE 10

ARAR Monitoring Information for Groundwater Samples, First Half 2013

PG&E Topock Compliance Monitoring Program

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
CW-03D	CW-03D-029	Barry Collom	4/9/2013	10:54:00 AM	TLI	SM2130B	TRB	4/10/2013	Gautam Savani	NTU	ND (0.1)	0.1	0.014
					TLI	SM2540C	TDS	4/12/2013	Jenny Tankunakorn	mg/L	4510	250	1.76
					TLI	SM4500NH3D	NH3N	4/12/2013	Melissa Scharfe	mg/L	ND (0.5)	0.5	0.0318
CW-03M	CW-03M-029	Barry Collom	4/9/2013	12:12:09 PM	TLI	EPA 120.1	SC	4/12/2013	Gautam Savani	µmhos/cm	8400	2.0	0.116
					TLI	EPA 200.8	CRTD	4/12/2013	Bitu Emami	µg/L	7.40	1.0	0.18
					TLI	EPA 218.6	CR6	4/11/2013	Tom Martinez	µg/L	6.80	1.0	0.046
					TLI	EPA 300.0	CL	4/11/2013	Giawad Ghenniwa	mg/L	2660	50.0	17.4
					TLI	EPA 300.0	FL	4/10/2013	Giawad Ghenniwa	mg/L	2.78	0.5	0.104
					TLI	EPA 300.0	SO4	4/11/2013	Giawad Ghenniwa	mg/L	460	25.0	1.54
					CHMC	EPA 353.2	NO3NO2N	4/26/2013	Youning Li	mg/L	1.48	0.01	0.00303
					TLI	SM2130B	TRB	4/10/2013	Gautam Savani	NTU	ND (0.1)	0.1	0.014
					TLI	SM2540C	TDS	4/12/2013	Jenny Tankunakorn	mg/L	5190	250	1.76
					TLI	SM4500NH3D	NH3N	4/12/2013	Melissa Scharfe	mg/L	ND (0.5)	0.5	0.0318
CW-04D	CW-04D-029	Barry Collom	4/9/2013	1:54:24 PM	TLI	EPA 120.1	SC	4/12/2013	Gautam Savani	µmhos/cm	7100	2.0	0.116
					TLI	EPA 200.8	CRTD	4/12/2013	Bitu Emami	µg/L	ND (1.0)	1.0	0.18
					TLI	EPA 218.6	CR6	4/11/2013	Tom Martinez	µg/L	ND (1.0)	1.0	0.046
					TLI	EPA 300.0	CL	4/11/2013	Giawad Ghenniwa	mg/L	2140	50.0	17.4
					TLI	EPA 300.0	FL	4/10/2013	Giawad Ghenniwa	mg/L	3.15	0.5	0.104
					TLI	EPA 300.0	SO4	4/11/2013	Giawad Ghenniwa	mg/L	496	25.0	1.54

TABLE 10

ARAR Monitoring Information for Groundwater Samples, First Half 2013

PG&E Topock Compliance Monitoring Program

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
CW-04D	CW-04D-029	Barry Collom	4/9/2013	1:54:24 PM	CHMC	EPA 353.2	NO3NO2N	4/26/2013	Youning Li	mg/L	2.83	0.05	0.0152
					TLI	SM2130B	TRB	4/10/2013	Gautam Savani	NTU	0.249	0.1	0.014
					TLI	SM2540C	TDS	4/12/2013	Jenny Tankunakorn	mg/L	4310	250	1.76
					TLI	SM4500NH3D	NH3N	4/12/2013	Melissa Scharfe	mg/L	ND (0.5)	0.5	0.0318
CW-04M	CW-04M-029	Barry Collom	4/9/2013	3:12:41 PM	TLI	EPA 120.1	SC	4/12/2013	Gautam Savani	µmhos/cm	6690	2.0	0.116
					TLI	EPA 200.8	CRTD	4/12/2013	Bitu Emami	µg/L	6.80	1.0	0.18
					TLI	EPA 218.6	CR6	4/11/2013	Tom Martinez	µg/L	6.30	1.0	0.046
					TLI	EPA 300.0	CL	4/11/2013	Giawad Ghenniwa	mg/L	2010	50.0	17.4
					TLI	EPA 300.0	FL	4/10/2013	Giawad Ghenniwa	mg/L	1.93	0.5	0.104
					TLI	EPA 300.0	SO4	4/11/2013	Giawad Ghenniwa	mg/L	438	25.0	1.54
					CHMC	EPA 353.2	NO3NO2N	4/26/2013	Youning Li	mg/L	2.48	0.05	0.0152
					TLI	SM2130B	TRB	4/10/2013	Gautam Savani	NTU	0.14	0.1	0.014
					TLI	SM2540C	TDS	4/12/2013	Jenny Tankunakorn	mg/L	4050	125	1.76
					TLI	SM4500NH3D	NH3N	4/12/2013	Melissa Scharfe	mg/L	ND (0.5)	0.5	0.0318
CW-04M	OW-91-029	Barry Collom	4/9/2013	5:25:00 PM	TLI	EPA 120.1	SC	4/12/2013	Gautam Savani	µmhos/cm	6680	2.0	0.116
					TLI	EPA 200.8	CRTD	4/12/2013	Bitu Emami	µg/L	6.50	1.0	0.18
					TLI	EPA 218.6	CR6	4/12/2013	Tom Martinez	µg/L	6.20	0.2	0.0092
					TLI	EPA 300.0	CL	4/11/2013	Giawad Ghenniwa	mg/L	2020	50.0	17.4
					TLI	EPA 300.0	FL	4/10/2013	Giawad Ghenniwa	mg/L	1.82	0.5	0.104

TABLE 10

ARAR Monitoring Information for Groundwater Samples, First Half 2013

PG&E Topock Compliance Monitoring Program

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
CW-04M	OW-91-029	Barry Collom	4/9/2013	5:25:00 PM	TLI	EPA 300.0	SO4	4/11/2013	Giawad Ghenniwa	mg/L	440	25.0	1.54
					CHMC	EPA 353.2	NO3NO2N	4/26/2013	Youning Li	mg/L	2.46	0.05	0.0152
					TLI	SM2130B	TRB	4/10/2013	Gautam Savani	NTU	0.134	0.1	0.014
					TLI	SM2540C	TDS	4/12/2013	Jenny Tankunakorn	mg/L	4120	125	1.76
					TLI	SM4500NH3D	NH3N	4/12/2013	Melissa Scharfe	mg/L	ND (0.5)	0.5	0.0318
OW-01S	OW-01S-029	Barry Collom	4/8/2013	11:43:44 AM	TLI	EPA 120.1	SC	4/12/2013	Gautam Savani	µmhos/cm	5910	2.0	0.116
					TLI	EPA 200.7	NAD	4/16/2013	Denise Chauv	mg/L	696	200	78.8
					TLI	EPA 200.8	CRTD	4/12/2013	Bitu Emami	µg/L	7.40	1.0	0.18
					TLI	EPA 200.8	MOD	4/12/2013	Bitu Emami	µg/L	5.90	2.0	0.41
					TLI	EPA 218.6	CR6	4/11/2013	Tom Martinez	µg/L	7.00	0.2	0.0092
					TLI	EPA 300.0	CL	4/11/2013	Giawad Ghenniwa	mg/L	1880	50.0	17.4
					TLI	EPA 300.0	FL	4/10/2013	Giawad Ghenniwa	mg/L	1.49	0.5	0.104
					TLI	EPA 300.0	SO4	4/11/2013	Giawad Ghenniwa	mg/L	426	25.0	1.54
					CHMC	EPA 353.2	NO3NO2N	4/26/2013	Youning Li	mg/L	2.94	0.05	0.0152
					TLI	SM2130B	TRB	4/10/2013	Gautam Savani	NTU	2.76	0.1	0.014
					TLI	SM2540C	TDS	4/12/2013	Jenny Tankunakorn	mg/L	3800	125	1.76
OW-02S	OW-02S-029	Barry Collom	4/8/2013	1:53:00 PM	TLI	EPA 120.1	SC	4/12/2013	Gautam Savani	µmhos/cm	1860	2.0	0.116
					TLI	EPA 200.7	NAD	4/16/2013	Denise Chauv	mg/L	336	50.0	19.7
					TLI	EPA 200.8	CRTD	4/12/2013	Bitu Emami	µg/L	25.6	1.0	0.18

TABLE 10

ARAR Monitoring Information for Groundwater Samples, First Half 2013

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-02S	OW-02S-029	Barry Collom	4/8/2013	1:53:00 PM	TLI	EPA 200.8	MOD	4/12/2013	Bitu Emami	µg/L	38.3	2.0	0.41
					TLI	EPA 218.6	CR6	4/11/2013	Tom Martinez	µg/L	23.6	0.2	0.0092
					TLI	EPA 300.0	CL	4/11/2013	Giawad Ghenniwa	mg/L	469	10.0	3.49
					TLI	EPA 300.0	FL	4/10/2013	Giawad Ghenniwa	mg/L	4.58	0.5	0.104
					TLI	EPA 300.0	SO4	4/11/2013	Giawad Ghenniwa	mg/L	106	5.0	0.307
					CHMC	EPA 353.2	NO3NO2N	4/26/2013	Youning Li	mg/L	3.70	0.05	0.0152
					TLI	SM2130B	TRB	4/10/2013	Gautam Savani	NTU	0.248	0.1	0.014
					TLI	SM2540C	TDS	4/12/2013	Jenny Tankunakorn	mg/L	1070	50.0	1.76
OW-05S	OW-05S-029	Barry Collom	4/8/2013	12:35:33 PM	TLI	EPA 120.1	SC	4/12/2013	Gautam Savani	µmhos/cm	3270	2.0	0.116
					TLI	EPA 200.7	NAD	4/16/2013	Denise Chauv	mg/L	426	50.0	19.7
					TLI	EPA 200.8	CRTD	4/12/2013	Bitu Emami	µg/L	18.4	1.0	0.18
					TLI	EPA 200.8	MOD	4/12/2013	Bitu Emami	µg/L	18.6	2.0	0.41
					TLI	EPA 218.6	CR6	4/11/2013	Tom Martinez	µg/L	18.2	0.2	0.0092
					TLI	EPA 300.0	CL	4/11/2013	Giawad Ghenniwa	mg/L	947	20.0	6.98
					TLI	EPA 300.0	FL	4/10/2013	Giawad Ghenniwa	mg/L	1.84	0.5	0.104
					TLI	EPA 300.0	SO4	4/11/2013	Giawad Ghenniwa	mg/L	176	5.0	0.307
					CHMC	EPA 353.2	NO3NO2N	4/26/2013	Youning Li	mg/L	3.08	0.05	0.0152
					TLI	SM2130B	TRB	4/10/2013	Gautam Savani	NTU	0.213	0.1	0.014
					TLI	SM2540C	TDS	4/12/2013	Jenny Tankunakorn	mg/L	2010	50.0	1.76

TABLE 10

ARAR Monitoring Information for Groundwater Samples, First Half 2013

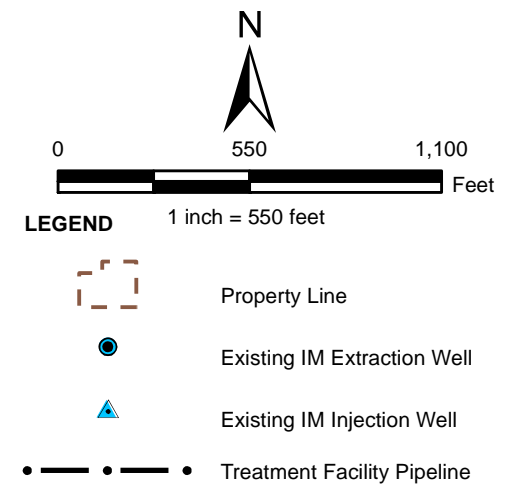
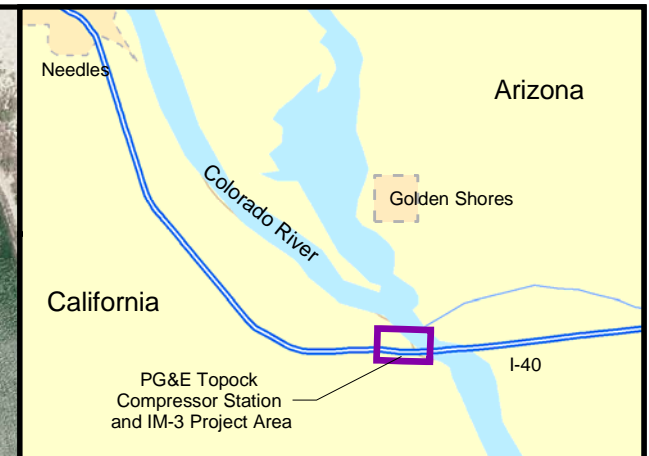
PG&E Topock Compliance Monitoring Program

NOTES:

MDL	method detection limit corrected for sample dilution
RL	reporting limit corrected for sample dilution
ND	parameter not detected at the listed reporting limit
µmhos/cm	micro-mhos per centimeter
NTU	Nephelometric Turbidity Unit
mg/L	milligrams per liter
µg/L	micrograms per liter
J	Concentration estimated by laboratory or data validation

ARAR	applicable or relevant and appropriate requirements
TLI	Truesdail Laboratories, Inc.
EMXT	Emax Laboratories

SC	specific conductance
CRTD	chromium, dissolved
CR6	hexavalent chromium
CL	chloride
FL	fluoride
SO4	sulfate
TDS	total dissolved solids
TRB	turbidity
NH3N	ammonia as nitrogen
NO3NO2N	nitrate/nitrite (as N)
MOD	molybdenum, dissolved
NAD	sodium, dissolved
SED	selenium, dissolved

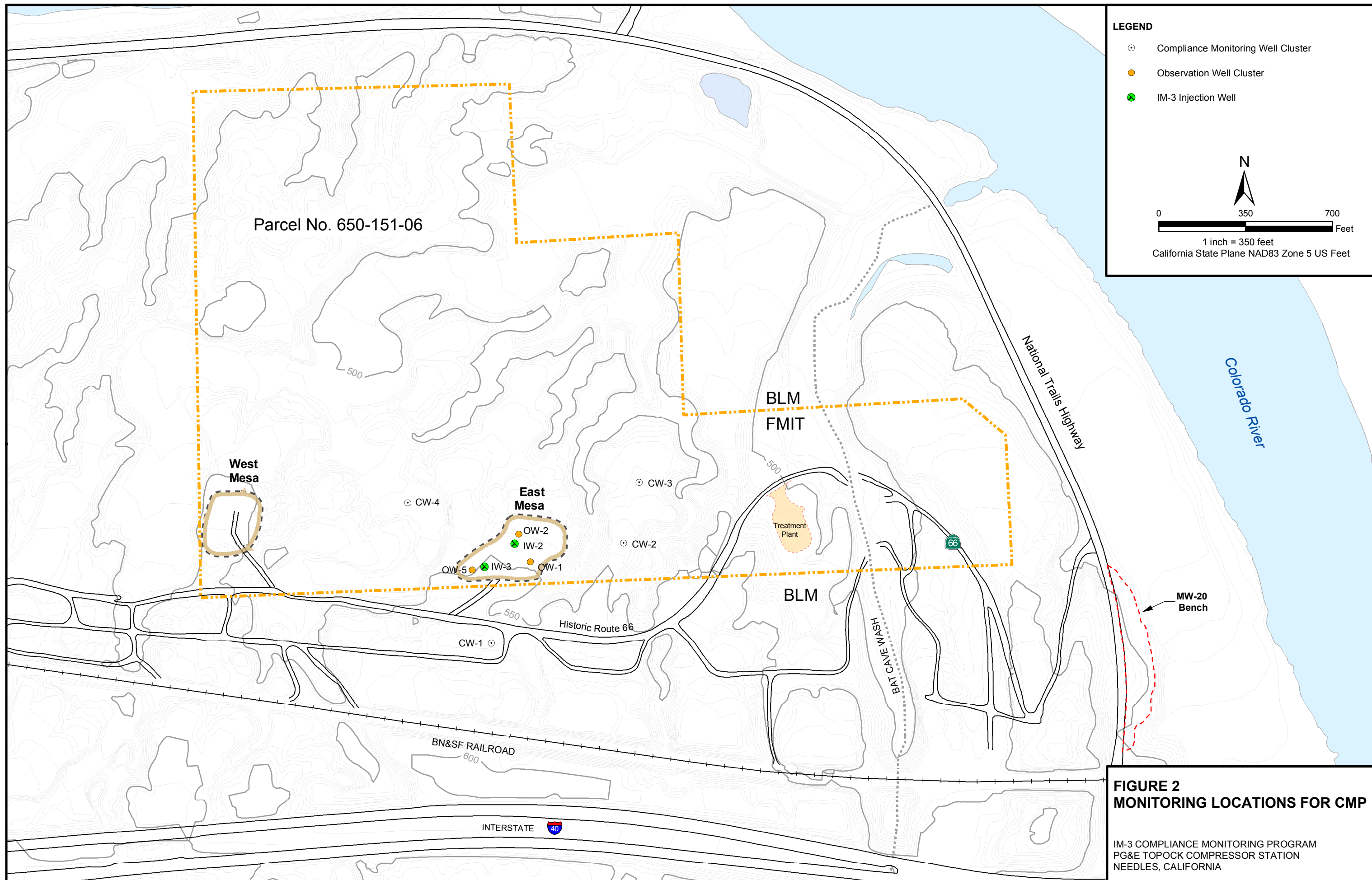


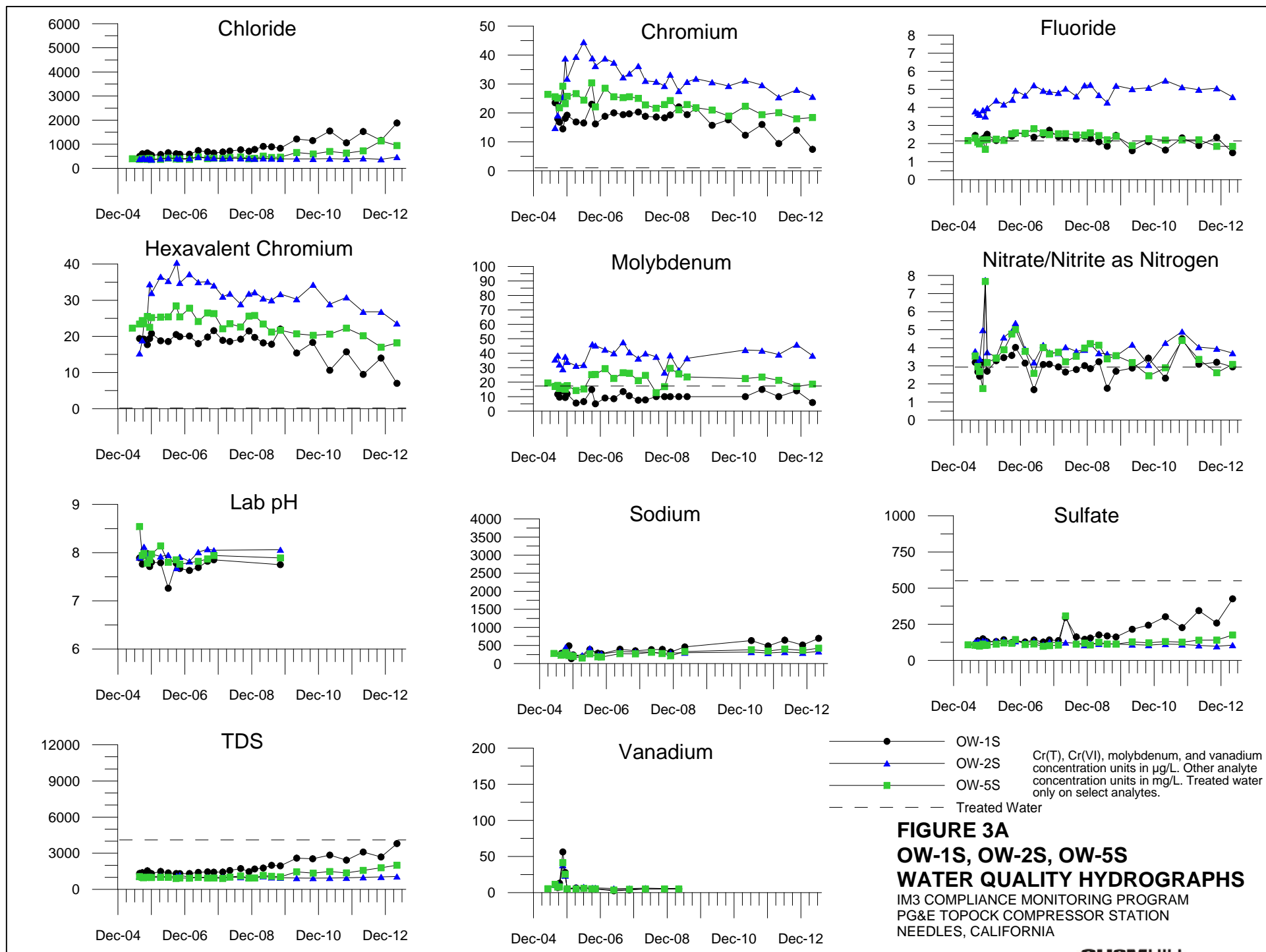
Notes: Location map shows Interim Measures No.3 (IM-3) facilities as of January 2006.
Aerial photography taken May 2005.

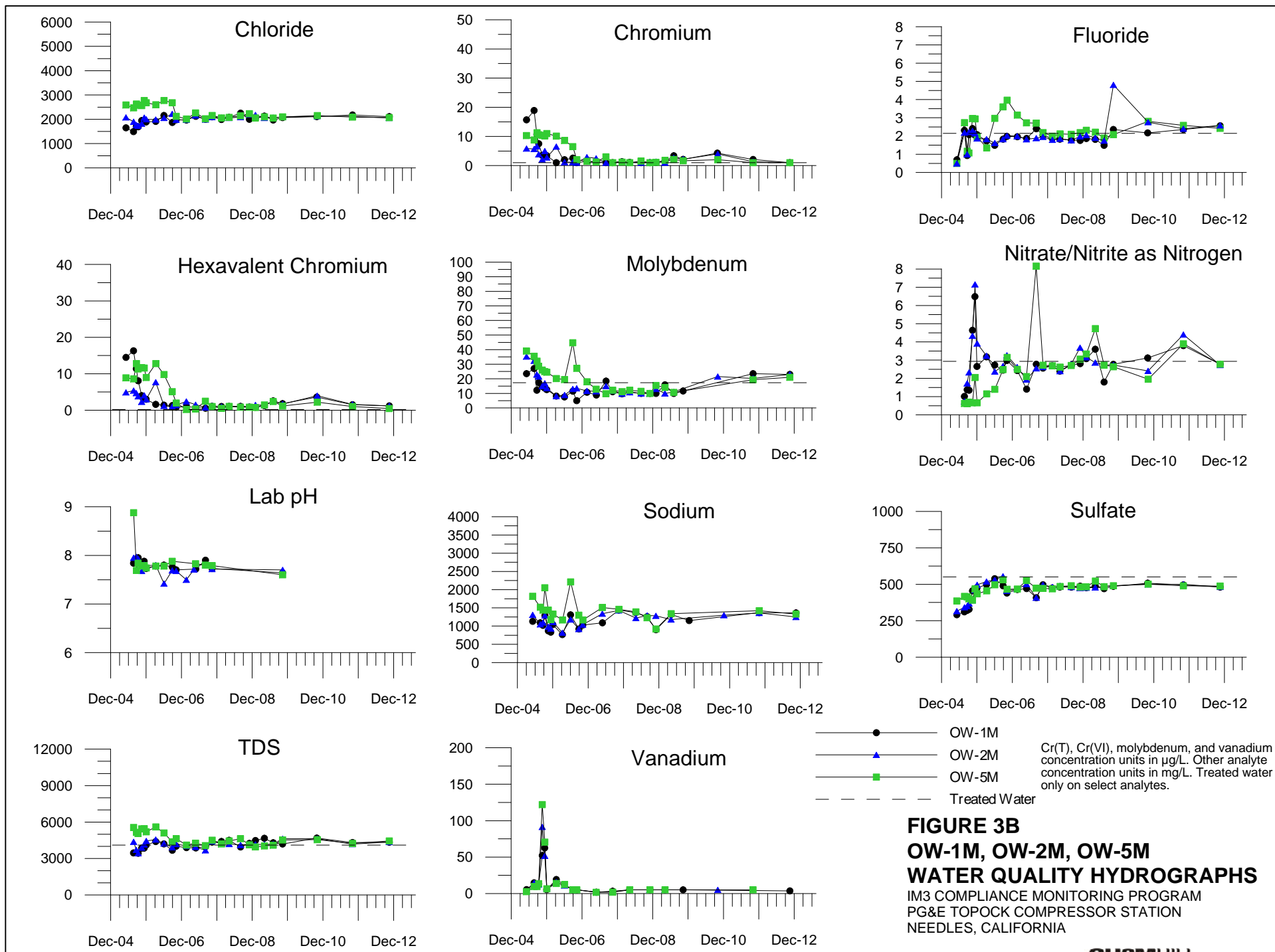
FIGURE 1 SITE LOCATION AND LAYOUT

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

CH2MHILL







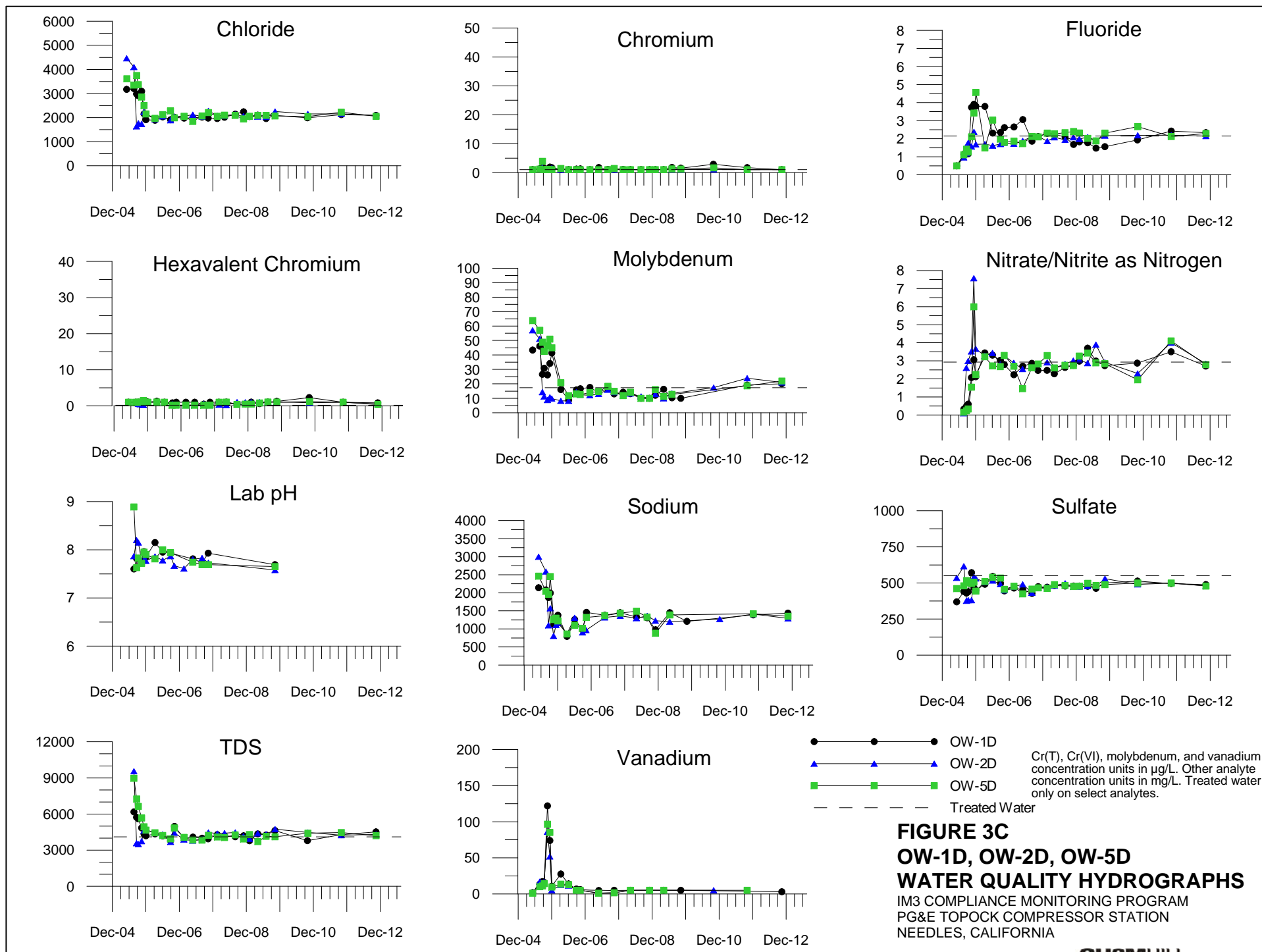
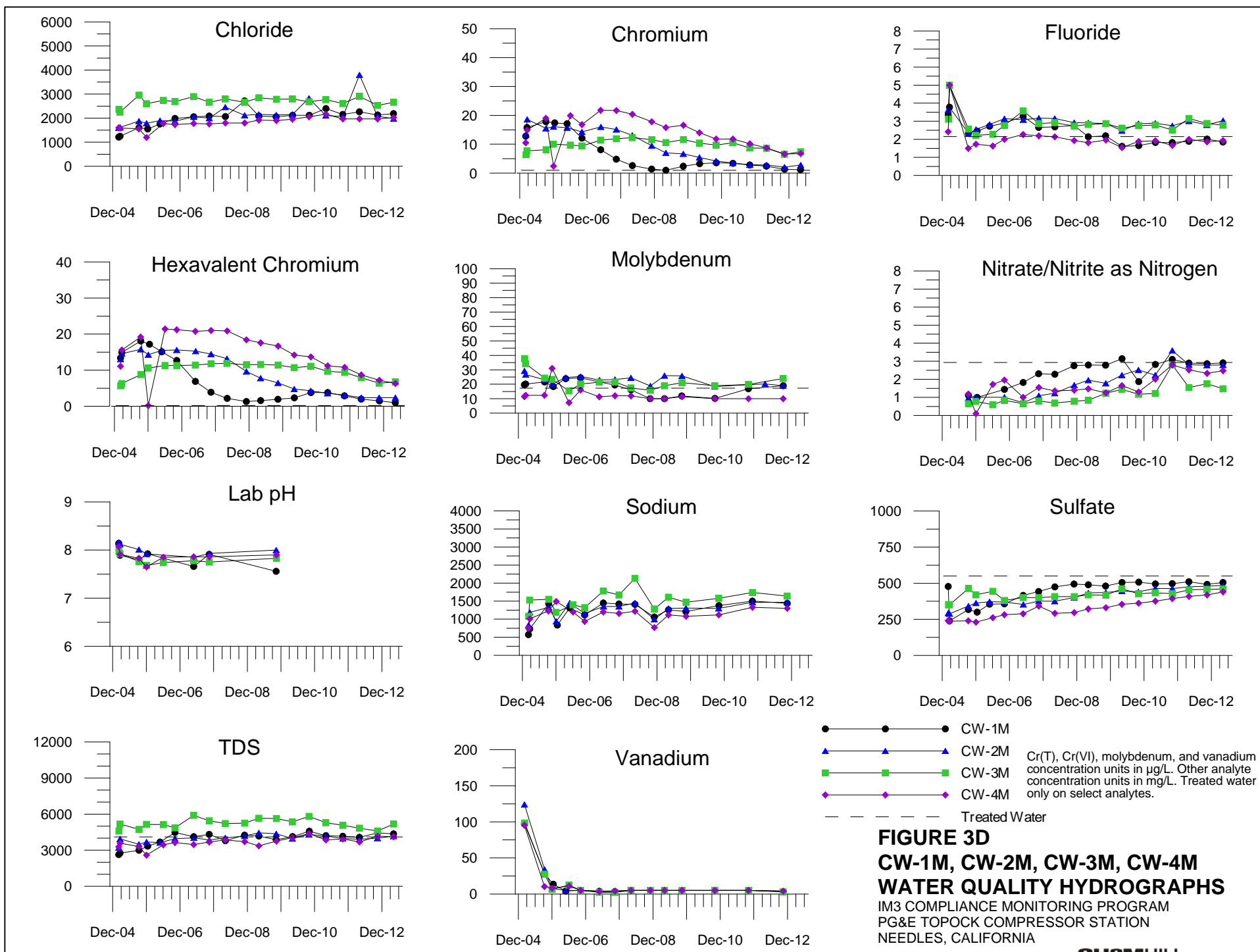
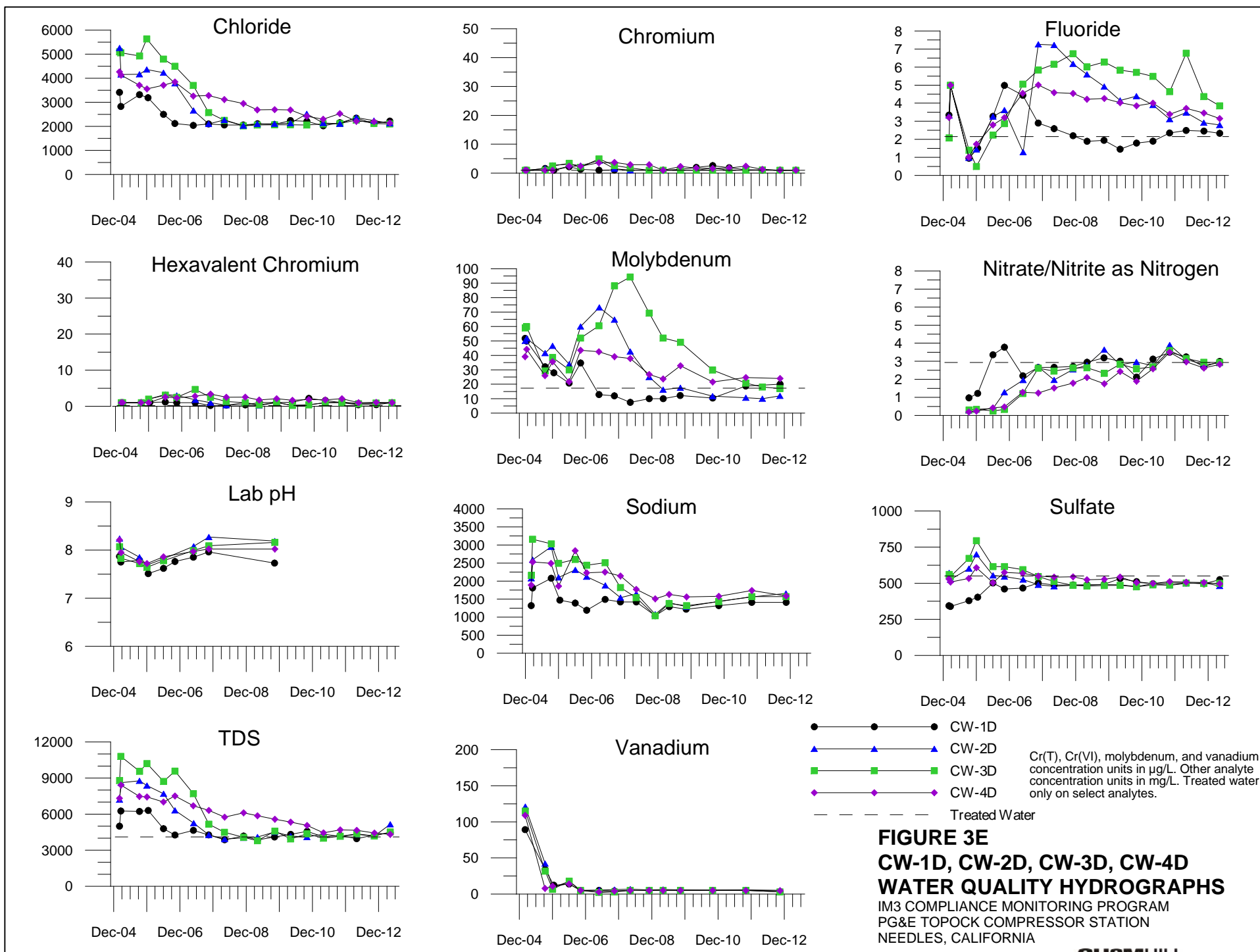
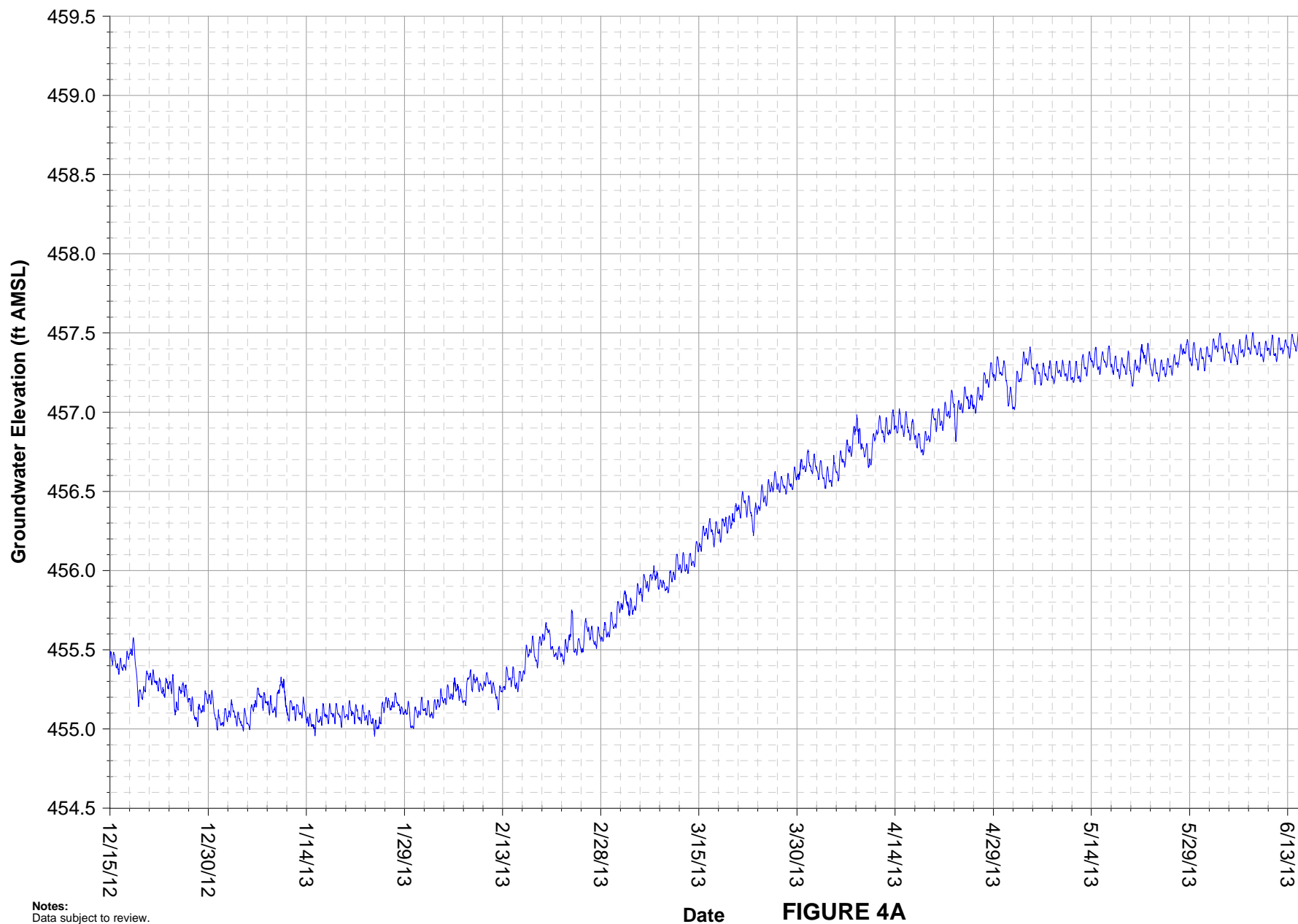


FIGURE 3C
OW-1D, OW-2D, OW-5D
WATER QUALITY HYDROGRAPHS
 IM3 COMPLIANCE MONITORING PROGRAM
 PG&E TOPOCK COMPRESSOR STATION
 NEEDLES, CALIFORNIA

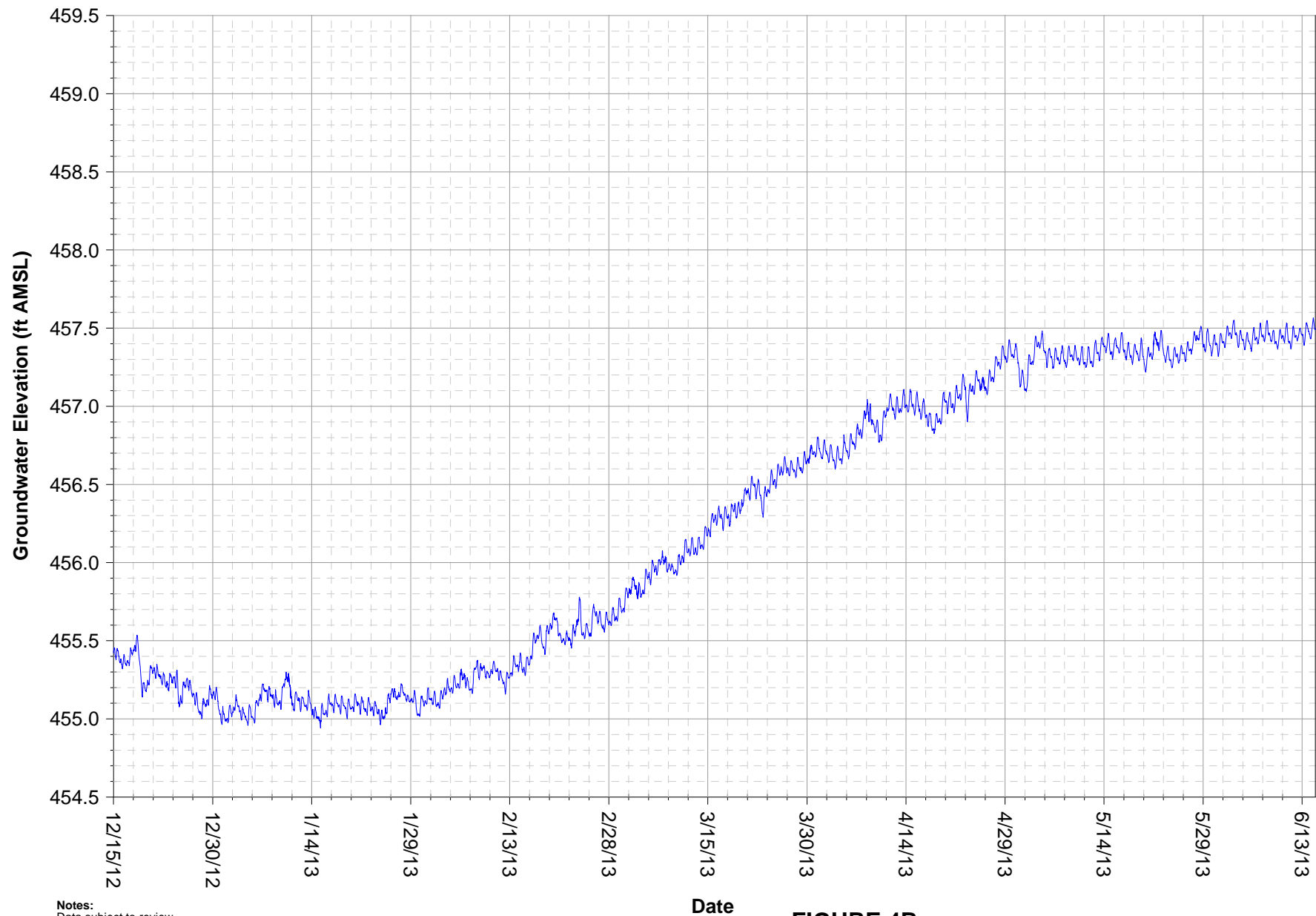






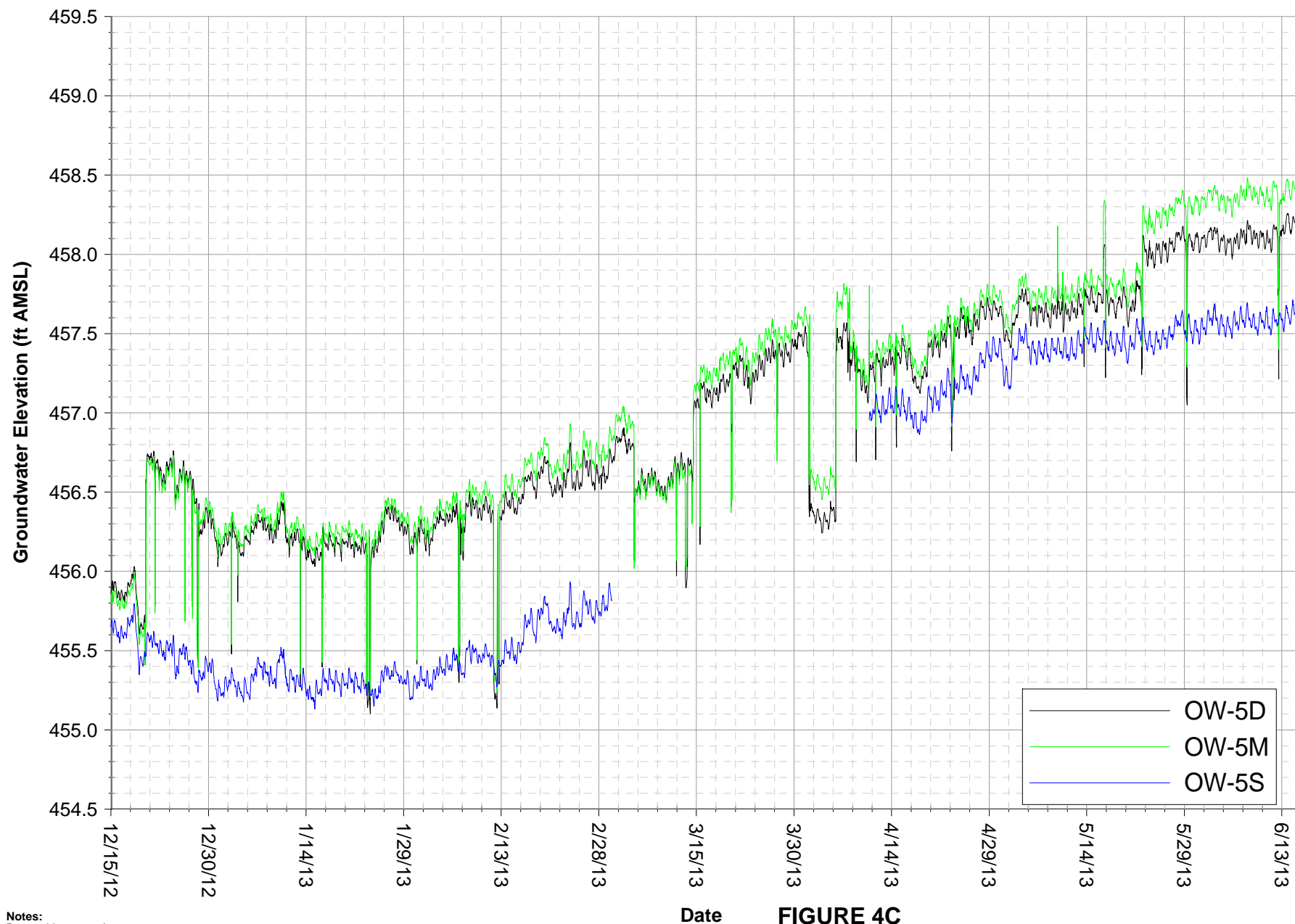
Notes:
Data subject to review.
Refer to Table 1 for injection well status.

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



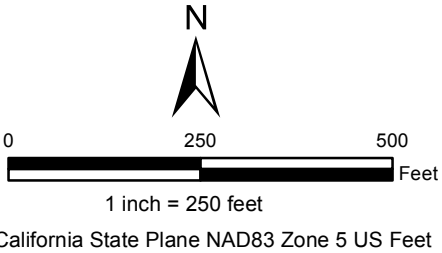
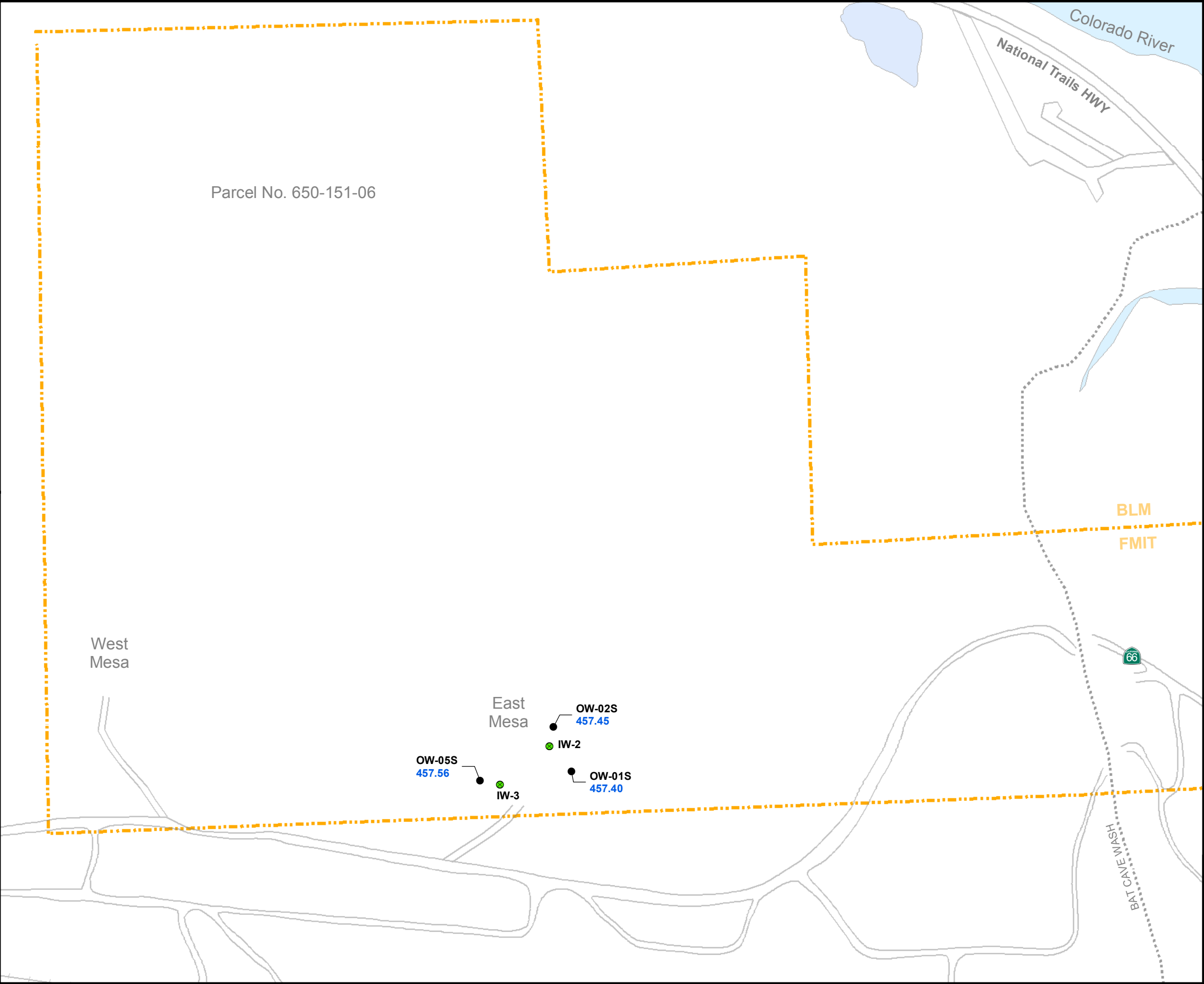
Notes:
Data subject to review.
Refer to Table 1 for injection well status.

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



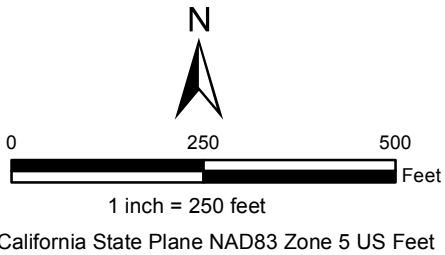
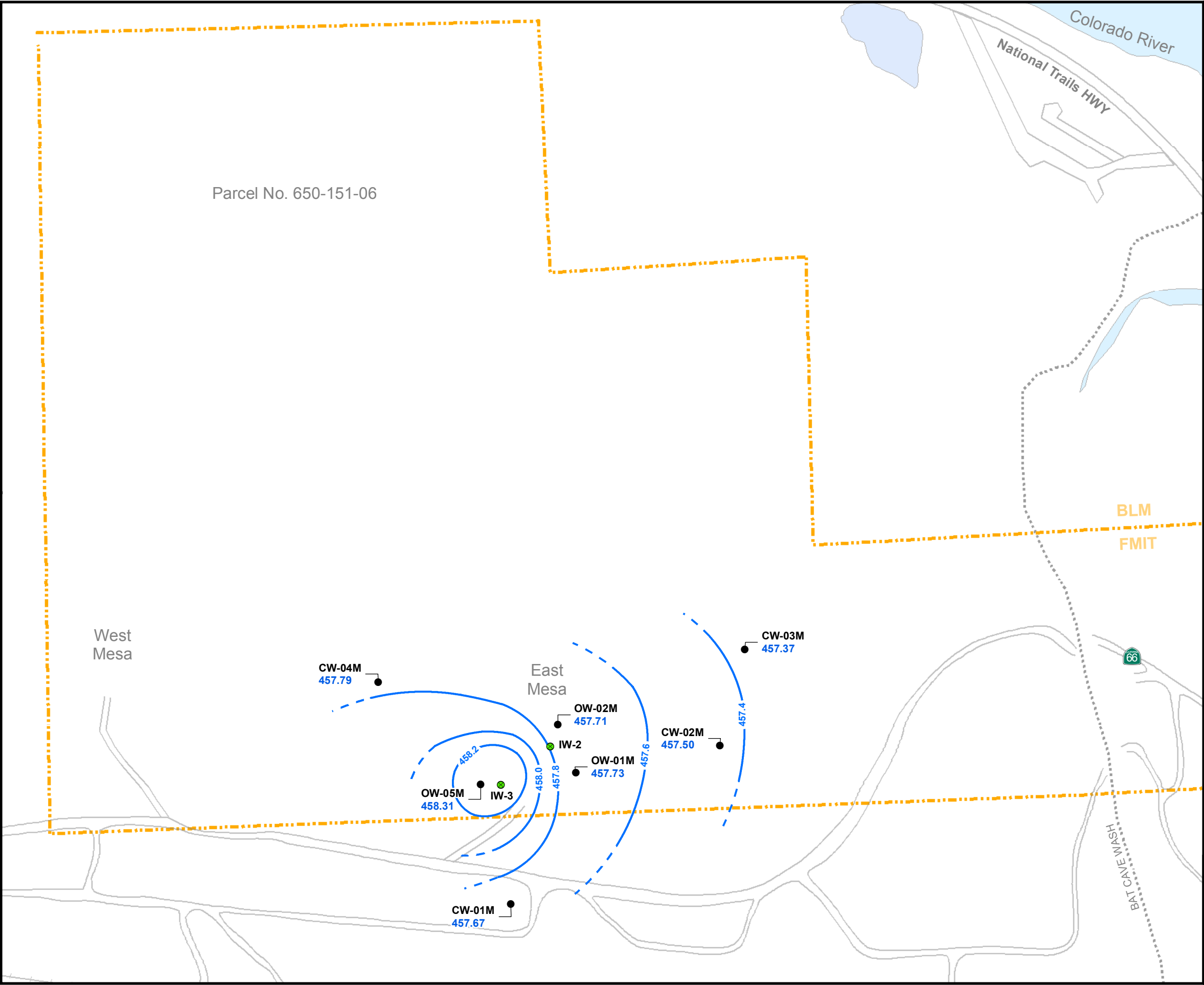
Notes:
 Data subject to review.
 Refer to Table 1 for injection well status.
 OW-5S data unavailable from March 2, 2013 until April 10, 2013 due to transducer failure.

FIGURE 4C
OW-5 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-05S** Salinity and temperature adjusted groundwater head elevation in feet above mean sea level (MSL).
 - 457.56**

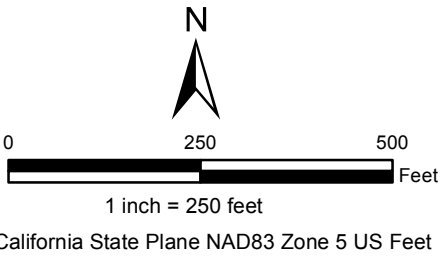
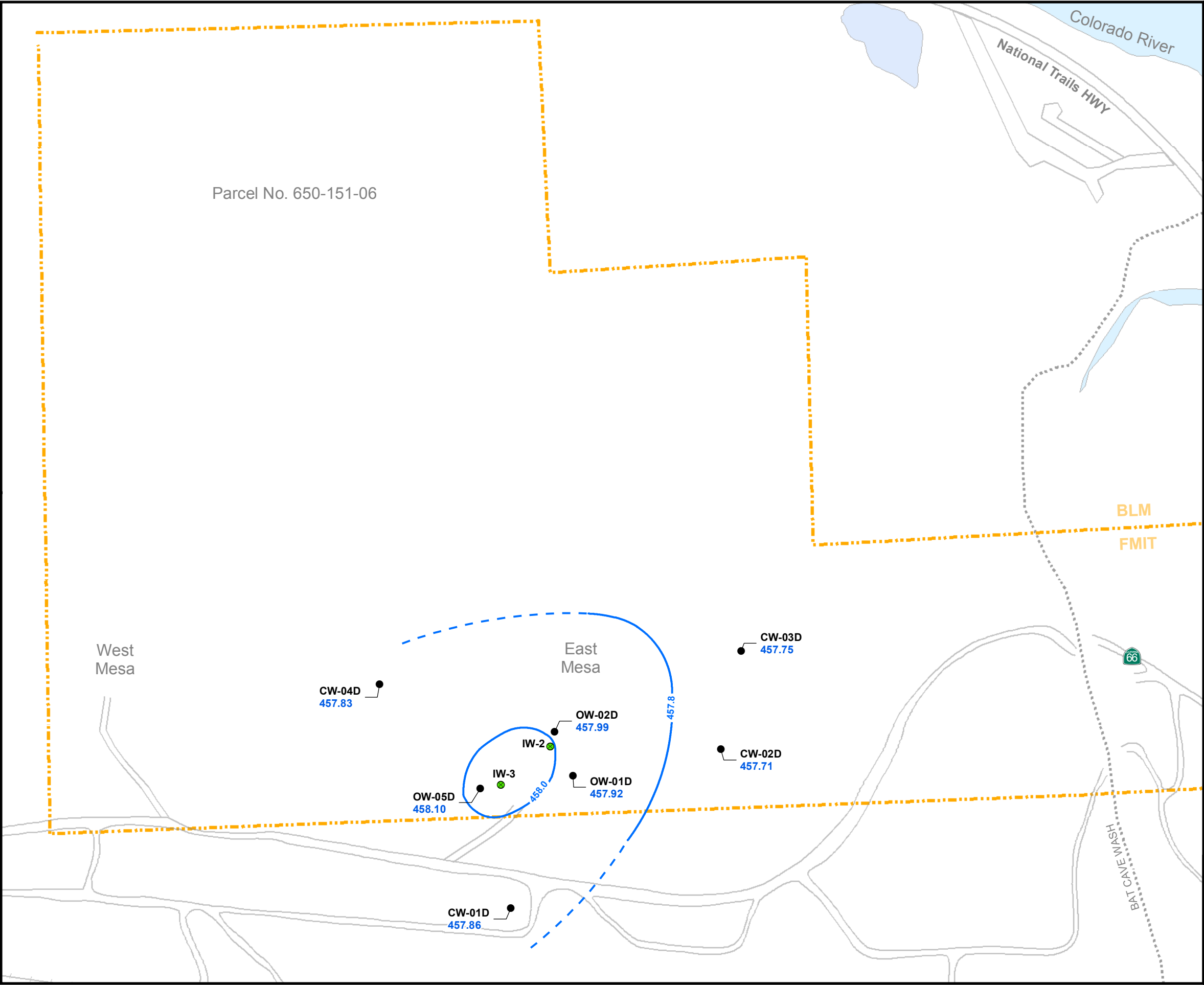
FIGURE 5A
AVERAGE GROUNDWATER ELEVATIONS
FOR SHALLOW WELLS,
MAY 28, 2013
 IM3 COMPLIANCE MONITORING PROGRAM
 PG&E TOPOCK COMPRESSOR STATION
 NEEDLES, CALIFORNIA



- LEGEND**
- Groundwater Monitoring, Compliance, and Observation Well
 - IM-3 Injection Well
- Groundwater Elevations for Mid-depth Wells in IM-3 Injection Area**
- **OW-05M** Salinity and temperature adjusted groundwater head elevation in feet above mean sea level (MSL).
 - **458.31**
- Groudwater elevation contour in feet above MSL (0.2 foot interval). Dashed where inferred.

Notes:
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,
MAY 28, 2013
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** Salinity and temperature adjusted groundwater head elevation in feet above mean sea level (MSL).
 - **458.10**
- Groudwater elevation contour in feet above MSL (0.2 foot interval). Dashed where inferred.

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

FIGURE 5C
AVERAGE GROUNDWATER ELEVATION
CONTOURS FOR DEEP WELLS,
MAY 28, 2013
IM3 COMPLIANCE MONITORING PROGRAM
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

Appendix A
Laboratory Reports, First Half 2013

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

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

April 26, 2013

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK 2013-CMP-029, GROUNDWATER MONITORING
PROJECT, TLI NO.: 807342


Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2013-CMP-029 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 April 9, 2013, 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.

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.


Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer

TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

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

Attention: Shawn Duffy

Sample: Seventeen (17) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 423575.MP.02.CM

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

Laboratory No.: 807342

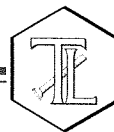
Date: April 26, 2013

Collected: April 8 - 9, 2013

Received: April 9, 2013

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Gautam Savani
SM 2540C	Total Dissolved Solids	Jenny Tankunakorn
SM 2130B	Turbidity	Gautam Savani
EPA 300.0	Anions	Giawad Ghenniwa
SM 4500-NH3 D	Ammonia	Melissa Scharfe
EPA 200.7	Metals by ICP	Denise Chauv
EPA 200.8	Metals by ICP/MS	Bitu Emami
EPA 218.6	Hexavalent Chromium	Tom Martinez



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

Attention: Shawn Duffy

Project Name: PG&E Topock Project

Project No.: 423575.MP.02.CM

P.O. No.: 423575.MP.02.CM

Laboratory No.: 807342

Date Received: April 9, 2013

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
807342-001	CW-01D-029	E120.1	NONE	4/8/2013	9:15	EC	7110	umhos/cm	2.00
807342-001	CW-01D-029	E200.8	FLDFLT	4/8/2013	9:15	Chromium	ND	ug/L	1.0
807342-001	CW-01D-029	E218.6	FLDFLT	4/8/2013	9:15	Chromium, Hexavalent	ND	ug/L	1.0
807342-001	CW-01D-029	E300	NONE	4/8/2013	9:15	Chloride	2220	mg/L	50.0
807342-001	CW-01D-029	E300	NONE	4/8/2013	9:15	Fluoride	2.33	mg/L	0.500
807342-001	CW-01D-029	E300	NONE	4/8/2013	9:15	Sulfate	525	mg/L	25.0
807342-001	CW-01D-029	SM2130B	NONE	4/8/2013	9:15	Turbidity	ND	NTU	0.100
807342-001	CW-01D-029	SM2540C	NONE	4/8/2013	9:15	Total Dissolved Solids	4210	mg/L	250
807342-001	CW-01D-029	SM4500NH3D	NONE	4/8/2013	9:15	Ammonia-N	ND	mg/L	0.500
807342-002	CW-01M-029	E120.1	NONE	4/8/2013	9:53	EC	7080	umhos/cm	2.00
807342-002	CW-01M-029	E200.8	FLDFLT	4/8/2013	9:53	Chromium	1.2	ug/L	1.0
807342-002	CW-01M-029	E218.6	FLDFLT	4/8/2013	9:53	Chromium, Hexavalent	ND	ug/L	1.0
807342-002	CW-01M-029	E300	NONE	4/8/2013	9:53	Chloride	2190	mg/L	50.0
807342-002	CW-01M-029	E300	NONE	4/8/2013	9:53	Fluoride	1.85	mg/L	0.500
807342-002	CW-01M-029	E300	NONE	4/8/2013	9:53	Sulfate	505	mg/L	25.0
807342-002	CW-01M-029	SM2130B	NONE	4/8/2013	9:53	Turbidity	0.128	NTU	0.100
807342-002	CW-01M-029	SM2540C	NONE	4/8/2013	9:53	Total Dissolved Solids	4360	mg/L	250
807342-002	CW-01M-029	SM4500NH3D	NONE	4/8/2013	9:53	Ammonia-N	ND	mg/L	0.500



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
807342-003	OW-01S-029	E120.1	NONE	4/8/2013	11:43	EC	5910	umhos/cm	2.00
807342-003	OW-01S-029	E200.7	FLDFLT	4/8/2013	11:43	Sodium	696000	ug/L	200000
807342-003	OW-01S-029	E200.8	FLDFLT	4/8/2013	11:43	Chromium	7.4	ug/L	1.0
807342-003	OW-01S-029	E200.8	FLDFLT	4/8/2013	11:43	Molybdenum	5.9	ug/L	2.0
807342-003	OW-01S-029	E218.6	FLDFLT	4/8/2013	11:43	Chromium, Hexavalent	7.0	ug/L	0.20
807342-003	OW-01S-029	E300	NONE	4/8/2013	11:43	Chloride	1880	mg/L	50.0
807342-003	OW-01S-029	E300	NONE	4/8/2013	11:43	Fluoride	1.49	mg/L	0.500
807342-003	OW-01S-029	E300	NONE	4/8/2013	11:43	Sulfate	426	mg/L	25.0
807342-003	OW-01S-029	SM2130B	NONE	4/8/2013	11:43	Turbidity	2.76	NTU	0.100
807342-003	OW-01S-029	SM2540C	NONE	4/8/2013	11:43	Total Dissolved Solids	3800	mg/L	125
807342-004	OW-02S-029	E120.1	NONE	4/8/2013	13:53	EC	1860	umhos/cm	2.00
807342-004	OW-02S-029	E200.7	FLDFLT	4/8/2013	13:53	Sodium	336000	ug/L	50000
807342-004	OW-02S-029	E200.8	FLDFLT	4/8/2013	13:53	Chromium	25.6	ug/L	1.0
807342-004	OW-02S-029	E200.8	FLDFLT	4/8/2013	13:53	Molybdenum	38.3	ug/L	2.0
807342-004	OW-02S-029	E218.6	FLDFLT	4/8/2013	13:53	Chromium, Hexavalent	23.6	ug/L	0.20
807342-004	OW-02S-029	E300	NONE	4/8/2013	13:53	Chloride	469	mg/L	10.0
807342-004	OW-02S-029	E300	NONE	4/8/2013	13:53	Fluoride	4.58	mg/L	0.500
807342-004	OW-02S-029	E300	NONE	4/8/2013	13:53	Sulfate	106	mg/L	5.00
807342-004	OW-02S-029	SM2130B	NONE	4/8/2013	13:53	Turbidity	0.248	NTU	0.100
807342-004	OW-02S-029	SM2540C	NONE	4/8/2013	13:53	Total Dissolved Solids	1070	mg/L	50.0
807342-005	OW-05S-029	E120.1	NONE	4/8/2013	12:35	EC	3270	umhos/cm	2.00
807342-005	OW-05S-029	E200.7	FLDFLT	4/8/2013	12:35	Sodium	426000	ug/L	50000
807342-005	OW-05S-029	E200.8	FLDFLT	4/8/2013	12:35	Chromium	18.4	ug/L	1.0
807342-005	OW-05S-029	E200.8	FLDFLT	4/8/2013	12:35	Molybdenum	18.6	ug/L	2.0
807342-005	OW-05S-029	E218.6	FLDFLT	4/8/2013	12:35	Chromium, Hexavalent	18.2	ug/L	0.20
807342-005	OW-05S-029	E300	NONE	4/8/2013	12:35	Chloride	947	mg/L	20.0
807342-005	OW-05S-029	E300	NONE	4/8/2013	12:35	Fluoride	1.84	mg/L	0.500
807342-005	OW-05S-029	E300	NONE	4/8/2013	12:35	Sulfate	176	mg/L	5.00
807342-005	OW-05S-029	SM2130B	NONE	4/8/2013	12:35	Turbidity	0.213	NTU	0.100
807342-005	OW-05S-029	SM2540C	NONE	4/8/2013	12:35	Total Dissolved Solids	2010	mg/L	50.0
807342-006	OW-80-029	E218.6	FLDFLT	4/8/2013	14:40	Chromium, Hexavalent	ND	ug/L	0.20
807342-007	OW-81-029	E218.6	FLDFLT	4/8/2013	14:35	Chromium, Hexavalent	ND	ug/L	0.20



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
807342-008	OW-90-029	E120.1	NONE	4/8/2013	6:55	EC	7080	umhos/cm	2.00
807342-008	OW-90-029	E200.8	FLDFLT	4/8/2013	6:55	Chromium	ND	ug/L	1.0
807342-008	OW-90-029	E218.6	FLDFLT	4/8/2013	6:55	Chromium, Hexavalent	ND	ug/L	1.0
807342-008	OW-90-029	E300	NONE	4/8/2013	6:55	Chloride	2170	mg/L	50.0
807342-008	OW-90-029	E300	NONE	4/8/2013	6:55	Fluoride	2.31	mg/L	0.500
807342-008	OW-90-029	E300	NONE	4/8/2013	6:55	Sulfate	500	mg/L	25.0
807342-008	OW-90-029	SM2130B	NONE	4/8/2013	6:55	Turbidity	ND	NTU	0.100
807342-008	OW-90-029	SM2540C	NONE	4/8/2013	6:55	Total Dissolved Solids	4440	mg/L	250
807342-008	OW-90-029	SM4500NH3D	NONE	4/8/2013	6:55	Ammonia-N	ND	mg/L	0.500
807342-009	CW-02D-029	E120.1	NONE	4/9/2013	8:06	EC	7140	umhos/cm	2.00
807342-009	CW-02D-029	E200.8	FLDFLT	4/9/2013	8:06	Chromium	ND	ug/L	1.0
807342-009	CW-02D-029	E218.6	FLDFLT	4/9/2013	8:06	Chromium, Hexavalent	ND	ug/L	1.0
807342-009	CW-02D-029	E300	NONE	4/9/2013	8:06	Chloride	2130	mg/L	50.0
807342-009	CW-02D-029	E300	NONE	4/9/2013	8:06	Fluoride	2.79	mg/L	0.500
807342-009	CW-02D-029	E300	NONE	4/9/2013	8:06	Sulfate	481	mg/L	25.0
807342-009	CW-02D-029	SM2130B	NONE	4/9/2013	8:06	Turbidity	0.205	NTU	0.100
807342-009	CW-02D-029	SM2540C	NONE	4/9/2013	8:06	Total Dissolved Solids	5160	mg/L	250
807342-009	CW-02D-029	SM4500NH3D	NONE	4/9/2013	8:06	Ammonia-N	ND	mg/L	0.500
807342-010	CW-02M-029	E120.1	NONE	4/9/2013	9:06	EC	7020	umhos/cm	2.00
807342-010	CW-02M-029	E200.8	FLDFLT	4/9/2013	9:06	Chromium	2.8	ug/L	1.0
807342-010	CW-02M-029	E218.6	FLDFLT	4/9/2013	9:06	Chromium, Hexavalent	2.4	ug/L	1.0
807342-010	CW-02M-029	E300	NONE	4/9/2013	9:06	Chloride	1980	mg/L	50.0
807342-010	CW-02M-029	E300	NONE	4/9/2013	9:06	Fluoride	3.04	mg/L	0.500
807342-010	CW-02M-029	E300	NONE	4/9/2013	9:06	Sulfate	486	mg/L	25.0
807342-010	CW-02M-029	SM2130B	NONE	4/9/2013	9:06	Turbidity	0.132	NTU	0.100
807342-010	CW-02M-029	SM2540C	NONE	4/9/2013	9:06	Total Dissolved Solids	4170	mg/L	250
807342-010	CW-02M-029	SM4500NH3D	NONE	4/9/2013	9:06	Ammonia-N	ND	mg/L	0.500
807342-011	CW-03D-029	E120.1	NONE	4/9/2013	10:54	EC	7150	umhos/cm	2.00
807342-011	CW-03D-029	E200.8	FLDFLT	4/9/2013	10:54	Chromium	ND	ug/L	1.0
807342-011	CW-03D-029	E218.6	FLDFLT	4/9/2013	10:54	Chromium, Hexavalent	ND	ug/L	1.0
807342-011	CW-03D-029	E300	NONE	4/9/2013	10:54	Chloride	2100	mg/L	50.0
807342-011	CW-03D-029	E300	NONE	4/9/2013	10:54	Fluoride	3.86	mg/L	0.500
807342-011	CW-03D-029	E300	NONE	4/9/2013	10:54	Sulfate	500	mg/L	25.0
807342-011	CW-03D-029	SM2130B	NONE	4/9/2013	10:54	Turbidity	ND	NTU	0.100
807342-011	CW-03D-029	SM2540C	NONE	4/9/2013	10:54	Total Dissolved Solids	4510	mg/L	250
807342-011	CW-03D-029	SM4500NH3D	NONE	4/9/2013	10:54	Ammonia-N	ND	mg/L	0.500



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
807342-012	CW-03M-029	E120.1	NONE	4/9/2013	12:12	EC	8400	umhos/cm	2.00
807342-012	CW-03M-029	E200.8	FLDFLT	4/9/2013	12:12	Chromium	7.4	ug/L	1.0
807342-012	CW-03M-029	E218.6	FLDFLT	4/9/2013	12:12	Chromium, Hexavalent	6.8	ug/L	1.0
807342-012	CW-03M-029	E300	NONE	4/9/2013	12:12	Chloride	2660	mg/L	50.0
807342-012	CW-03M-029	E300	NONE	4/9/2013	12:12	Fluoride	2.78	mg/L	0.500
807342-012	CW-03M-029	E300	NONE	4/9/2013	12:12	Sulfate	460	mg/L	25.0
807342-012	CW-03M-029	SM2130B	NONE	4/9/2013	12:12	Turbidity	ND	NTU	0.100
807342-012	CW-03M-029	SM2540C	NONE	4/9/2013	12:12	Total Dissolved Solids	5190	mg/L	250
807342-012	CW-03M-029	SM4500NH3D	NONE	4/9/2013	12:12	Ammonia-N	ND	mg/L	0.500
807342-013	CW-04D-029	E120.1	NONE	4/9/2013	13:54	EC	7100	umhos/cm	2.00
807342-013	CW-04D-029	E200.8	FLDFLT	4/9/2013	13:54	Chromium	ND	ug/L	1.0
807342-013	CW-04D-029	E218.6	FLDFLT	4/9/2013	13:54	Chromium, Hexavalent	ND	ug/L	1.0
807342-013	CW-04D-029	E300	NONE	4/9/2013	13:54	Chloride	2140	mg/L	50.0
807342-013	CW-04D-029	E300	NONE	4/9/2013	13:54	Fluoride	3.15	mg/L	0.500
807342-013	CW-04D-029	E300	NONE	4/9/2013	13:54	Sulfate	496	mg/L	25.0
807342-013	CW-04D-029	SM2130B	NONE	4/9/2013	13:54	Turbidity	0.249	NTU	0.100
807342-013	CW-04D-029	SM2540C	NONE	4/9/2013	13:54	Total Dissolved Solids	4310	mg/L	250
807342-013	CW-04D-029	SM4500NH3D	NONE	4/9/2013	13:54	Ammonia-N	ND	mg/L	0.500
807342-014	CW-04M-029	E120.1	NONE	4/9/2013	15:12	EC	6690	umhos/cm	2.00
807342-014	CW-04M-029	E200.8	FLDFLT	4/9/2013	15:12	Chromium	6.8	ug/L	1.0
807342-014	CW-04M-029	E218.6	FLDFLT	4/9/2013	15:12	Chromium, Hexavalent	6.3	ug/L	1.0
807342-014	CW-04M-029	E300	NONE	4/9/2013	15:12	Chloride	2010	mg/L	50.0
807342-014	CW-04M-029	E300	NONE	4/9/2013	15:12	Fluoride	1.93	mg/L	0.500
807342-014	CW-04M-029	E300	NONE	4/9/2013	15:12	Sulfate	438	mg/L	25.0
807342-014	CW-04M-029	SM2130B	NONE	4/9/2013	15:12	Turbidity	0.140	NTU	0.100
807342-014	CW-04M-029	SM2540C	NONE	4/9/2013	15:12	Total Dissolved Solids	4050	mg/L	125
807342-014	CW-04M-029	SM4500NH3D	NONE	4/9/2013	15:12	Ammonia-N	ND	mg/L	0.500
807342-015	OW-82-029	E218.6	FLDFLT	4/9/2013	15:42	Chromium, Hexavalent	ND	ug/L	0.20
807342-016	OW-83-029	E218.6	FLDFLT	4/9/2013	15:48	Chromium, Hexavalent	ND	ug/L	0.20



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
807342-017	OW-91-029	E120.1	NONE	4/9/2013	17:25	EC	6680	umhos/cm	2.00
807342-017	OW-91-029	E200.8	FLDFLT	4/9/2013	17:25	Chromium	6.5	ug/L	1.0
807342-017	OW-91-029	E218.6	FLDFLT	4/9/2013	17:25	Chromium, Hexavalent	6.2	ug/L	0.20
807342-017	OW-91-029	E300	NONE	4/9/2013	17:25	Chloride	2020	mg/L	50.0
807342-017	OW-91-029	E300	NONE	4/9/2013	17:25	Fluoride	1.82	mg/L	0.500
807342-017	OW-91-029	E300	NONE	4/9/2013	17:25	Sulfate	440	mg/L	25.0
807342-017	OW-91-029	SM2130B	NONE	4/9/2013	17:25	Turbidity	0.134	NTU	0.100
807342-017	OW-91-029	SM2540C	NONE	4/9/2013	17:25	Total Dissolved Solids	4120	mg/L	125
807342-017	OW-91-029	SM4500NH3D	NONE	4/9/2013	17:25	Ammonia-N	ND	mg/L	0.500

ND: Non Detected (below reporting limit)

mg/L: Milligrams per liter.

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

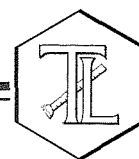
Results below 0.01ppm will have two (2) significant figures.

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

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

TRUESDAIL LABORATORIES, INC.

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REPORT

Client: E2 Consulting Engineers, Inc.

155 Grand Avenue, Suite 800

Oakland, CA 94612

Attention: Shawn Duffy

Project Name: PG&E Topock Project

Project Number: 423575.MP.02.CM

P.O. Number: 423575.MP.02.CM

Release Number:

Laboratory No. 807342

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Printed 4/26/2013

Samples Received on 4/9/2013 10:30:00 PM

Field ID	Lab ID	Collected	Matrix
CW-01D-029	807342-001	04/08/2013 09:15	Water
CW-01M-029	807342-002	04/08/2013 09:53	Water
OW-01S-029	807342-003	04/08/2013 11:43	Water
OW-02S-029	807342-004	04/08/2013 13:53	Water
OW-05S-029	807342-005	04/08/2013 12:35	Water
OW-80-029	807342-006	04/08/2013 14:40	Water
OW-81-029	807342-007	04/08/2013 14:35	Water
OW-90-029	807342-008	04/08/2013 06:55	Water
CW-02D-029	807342-009	04/09/2013 08:06	Water
CW-02M-029	807342-010	04/09/2013 09:06	Water
CW-03D-029	807342-011	04/09/2013 10:54	Water
CW-03M-029	807342-012	04/09/2013 12:12	Water
CW-04D-029	807342-013	04/09/2013 13:54	Water
CW-04M-029	807342-014	04/09/2013 15:12	Water
OW-82-029	807342-015	04/09/2013 15:42	Water
OW-83-029	807342-016	04/09/2013 15:48	Water
OW-91-029	807342-017	04/09/2013 17:25	Water

Anions By I.C. - EPA 300.0

Batch 04AN13K

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807342-001 Fluoride	mg/L	04/10/2013 09:33	5.00	0.104	0.500	2.33
807342-002 Fluoride	mg/L	04/10/2013 09:44	5.00	0.104	0.500	1.85
807342-003 Fluoride	mg/L	04/10/2013 09:55	5.00	0.104	0.500	1.49
807342-004 Fluoride	mg/L	04/10/2013 10:07	5.00	0.104	0.500	4.58
807342-005 Fluoride	mg/L	04/10/2013 10:18	5.00	0.104	0.500	1.84
807342-008 Fluoride	mg/L	04/10/2013 10:30	5.00	0.104	0.500	2.31
807342-009 Fluoride	mg/L	04/10/2013 10:41	5.00	0.104	0.500	2.79
807342-010 Fluoride	mg/L	04/10/2013 10:52	5.00	0.104	0.500	3.04
807342-011 Fluoride	mg/L	04/10/2013 12:58	5.00	0.104	0.500	3.86

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.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.CM

Printed 4/26/2013

807342-012 Fluoride	mg/L	04/10/2013 13:09	5.00	0.104	0.500	2.78
807342-013 Fluoride	mg/L	04/10/2013 14:41	5.00	0.104	0.500	3.15
807342-014 Fluoride	mg/L	04/10/2013 14:52	5.00	0.104	0.500	1.93
807342-017 Fluoride	mg/L	04/10/2013 15:03	5.00	0.104	0.500	1.82

Method Blank

Parameter	Unit	DF	Result
Fluoride	mg/L	1.00	ND
Nitrate as Nitrogen	mg/L	1.00	ND

Duplicate

Lab ID = 807290-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Fluoride	mg/L	1.00	ND	0.291	0	0 - 20

Duplicate

Lab ID = 807346-010

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	ND	0.235	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	4.17	4.00	104	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.00	4.00	100	90 - 110

Matrix Spike

Lab ID = 807290-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Fluoride	mg/L	1.00	2.33	2.29(2.00)	102	85 - 115

Matrix Spike

Lab ID = 807346-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Nitrate as Nitrogen	mg/L	1.00	2.25	2.24(2.00)	101	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	4.14	4.00	104	90 - 110
Nitrate as Nitrogen	mg/L	1.00	3.99	4.00	99.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	3.20	3.00	107	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	3.17	3.00	106	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.CM

Printed 4/26/2013

Anions By I.C. - EPA 300.0

Batch 04AN130

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807342-001 Sulfate	mg/L	04/11/2013 19:14	50.0	1.54	25.0	525
807342-002 Sulfate	mg/L	04/11/2013 19:25	50.0	1.54	25.0	505
807342-003 Sulfate	mg/L	04/11/2013 19:37	50.0	1.54	25.0	426
807342-004 Sulfate	mg/L	04/11/2013 19:48	10.0	0.307	5.00	106
807342-005 Sulfate	mg/L	04/11/2013 19:59	10.0	0.307	5.00	176
807342-008 Sulfate	mg/L	04/11/2013 20:11	50.0	1.54	25.0	500
807342-009 Sulfate	mg/L	04/11/2013 20:22	50.0	1.54	25.0	481
807342-010 Sulfate	mg/L	04/11/2013 20:56	50.0	1.54	25.0	486
807342-011 Sulfate	mg/L	04/11/2013 21:08	50.0	1.54	25.0	500
807342-012 Sulfate	mg/L	04/11/2013 21:19	50.0	1.54	25.0	460
807342-013 Sulfate	mg/L	04/11/2013 21:31	50.0	1.54	25.0	496
807342-014 Sulfate	mg/L	04/11/2013 21:42	50.0	1.54	25.0	438
807342-017 Sulfate	mg/L	04/11/2013 21:53	50.0	1.54	25.0	440

Method Blank

Parameter	Unit	DF	Result
Chloride	mg/L	1.00	ND
Sulfate	mg/L	1.00	ND

Duplicate

Lab ID = 807346-010

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chloride	mg/L	10.0	30.9	31.6	2.29	0 - 20
Sulfate	mg/L	10.0	38.5	39.3	2.10	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	4.02	4.00	100	90 - 110
Sulfate	mg/L	1.00	20.0	20.0	100	90 - 110

Matrix Spike

Lab ID = 807346-010

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chloride	mg/L	10.0	73.8	71.6(40.0)	105	85 - 115
Sulfate	mg/L	10.0	80.0	79.3(40.0)	102	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.98	4.00	99.6	90 - 110
Sulfate	mg/L	1.00	20.0	20.0	100.	90 - 110


Client: E2 Consulting Engineers, Inc.
Project Name: PG&E Topock Project
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Project Number: 423575.MP.02.CM
Printed 4/26/2013
Anions By I.C. - EPA 300.0
Batch 04AN13L

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807342-001 Chloride	mg/L	04/11/2013 12:23	500	17.4	50.0	2220
807342-002 Chloride	mg/L	04/11/2013 12:34	500	17.4	50.0	2190
807342-003 Chloride	mg/L	04/11/2013 12:46	500	17.4	50.0	1880
807342-004 Chloride	mg/L	04/11/2013 12:57	100	3.49	10.0	469
807342-005 Chloride	mg/L	04/11/2013 13:09	200	6.98	20.0	947
807342-008 Chloride	mg/L	04/11/2013 13:54	500	17.4	50.0	2170
807342-009 Chloride	mg/L	04/11/2013 14:06	500	17.4	50.0	2130
807342-010 Chloride	mg/L	04/11/2013 14:17	500	17.4	50.0	1980
807342-011 Chloride	mg/L	04/11/2013 14:29	500	17.4	50.0	2100
807342-012 Chloride	mg/L	04/11/2013 14:40	500	17.4	50.0	2660
807342-013 Chloride	mg/L	04/11/2013 14:51	500	17.4	50.0	2140
807342-014 Chloride	mg/L	04/11/2013 15:03	500	17.4	50.0	2010
807342-017 Chloride	mg/L	04/11/2013 15:14	500	17.4	50.0	2020

Method Blank

Parameter	Unit	DF	Result
Chloride	mg/L	1.00	ND
Sulfate	mg/L	1.00	ND
Nitrate as Nitrogen	mg/L	1.00	ND

Duplicate
Lab ID = 807346-011

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chloride	mg/L	10.0	31.4	31.8	1.12	0 - 20
Sulfate	mg/L	10.0	38.5	39.4	2.28	0 - 20

Duplicate
Lab ID = 807375-013

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Nitrate as Nitrogen	mg/L	5.00	13.1	13.1	0.312	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	4.03	4.00	101	90 - 110
Sulfate	mg/L	1.00	20.2	20.0	101	90 - 110
Nitrate as Nitrogen	mg/L	1.00	4.02	4.00	100	90 - 110

Matrix Spike
Lab ID = 807346-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chloride	mg/L	10.0	72.4	71.8(40.0)	101	85 - 115
Sulfate	mg/L	10.0	79.6	79.4(40.0)	100	85 - 115



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.CM

Printed 4/26/2013

Specific Conductivity - EPA 120.1

Batch 04EC13D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807342-001 Specific Conductivity	umhos/cm	04/12/2013	1.00	0.116	2.00	7110
807342-002 Specific Conductivity	umhos/cm	04/12/2013	1.00	0.116	2.00	7080
807342-003 Specific Conductivity	umhos/cm	04/12/2013	1.00	0.116	2.00	5910
807342-004 Specific Conductivity	umhos/cm	04/12/2013	1.00	0.116	2.00	1860
807342-005 Specific Conductivity	umhos/cm	04/12/2013	1.00	0.116	2.00	3270
807342-008 Specific Conductivity	umhos/cm	04/12/2013	1.00	0.116	2.00	7080
807342-009 Specific Conductivity	umhos/cm	04/12/2013	1.00	0.116	2.00	7140
807342-010 Specific Conductivity	umhos/cm	04/12/2013	1.00	0.116	2.00	7020
807342-011 Specific Conductivity	umhos/cm	04/12/2013	1.00	0.116	2.00	7150
807342-012 Specific Conductivity	umhos/cm	04/12/2013	1.00	0.116	2.00	8400
807342-013 Specific Conductivity	umhos/cm	04/12/2013	1.00	0.116	2.00	7100
807342-014 Specific Conductivity	umhos/cm	04/12/2013	1.00	0.116	2.00	6690
807342-017 Specific Conductivity	umhos/cm	04/12/2013	1.00	0.116	2.00	6680

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 807342-011

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	7140	7150	0.140	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	683	706	96.7	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	692	706	98.0	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	694	706	98.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	971	998	97.3	90 - 110


Client: E2 Consulting Engineers, Inc.
Project Name: PG&E Topock Project
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Project Number: 423575.MP.02.CM
Printed 4/26/2013
Chrome VI by EPA 218.6

Batch 04CrH13G

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807342-001 Chromium, Hexavalent	ug/L	04/11/2013 16:54	5.00	0.0460	1.0	ND
807342-002 Chromium, Hexavalent	ug/L	04/11/2013 18:04	5.00	0.0460	1.0	ND
807342-003 Chromium, Hexavalent	ug/L	04/11/2013 11:48	1.00	0.00920	0.20	7.0
807342-004 Chromium, Hexavalent	ug/L	04/11/2013 11:58	1.00	0.00920	0.20	23.6
807342-005 Chromium, Hexavalent	ug/L	04/11/2013 12:19	1.00	0.00920	0.20	18.2
807342-006 Chromium, Hexavalent	ug/L	04/11/2013 12:30	1.00	0.00920	0.20	ND
807342-007 Chromium, Hexavalent	ug/L	04/11/2013 13:11	1.00	0.00920	0.20	ND
807342-008 Chromium, Hexavalent	ug/L	04/11/2013 18:15	5.00	0.0460	1.0	ND
807342-009 Chromium, Hexavalent	ug/L	04/11/2013 18:25	5.00	0.0460	1.0	ND
807342-010 Chromium, Hexavalent	ug/L	04/11/2013 18:35	5.00	0.0460	1.0	2.4
807342-011 Chromium, Hexavalent	ug/L	04/11/2013 18:46	5.00	0.0460	1.0	ND
807342-012 Chromium, Hexavalent	ug/L	04/11/2013 15:37	5.00	0.0460	1.0	6.8
807342-013 Chromium, Hexavalent	ug/L	04/11/2013 19:17	5.00	0.0460	1.0	ND
807342-014 Chromium, Hexavalent	ug/L	04/11/2013 19:27	5.00	0.0460	1.0	6.3
807342-015 Chromium, Hexavalent	ug/L	04/11/2013 14:34	1.00	0.00920	0.20	ND
807342-016 Chromium, Hexavalent	ug/L	04/11/2013 15:06	1.00	0.00920	0.20	ND

Method Blank

Parameter	Unit	DF	Result
Chromium, Hexavalent	ug/L	1.00	ND

Duplicate

Lab ID = 807342-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.80	6.96	2.27	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.200	0.200	100	70 - 130

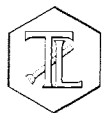
Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.94	5.00	98.8	90 - 110

Matrix Spike

Lab ID = 807342-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.27	5.44(5.00)	96.5	90 - 110

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 11 of 24****Project Number: 423575.MP.02.CM****Printed 4/26/2013**

Matrix Spike						Lab ID = 807342-001
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.42	1.51(1.00)	90.6	90 - 110
Matrix Spike						Lab ID = 807342-002
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.83	5.94(5.00)	97.9	90 - 110
Matrix Spike						Lab ID = 807342-002
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.74	6.00(5.00)	94.7	90 - 110
Matrix Spike						Lab ID = 807342-003
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	16.3	17.0(10.0)	93.6	90 - 110
Matrix Spike						Lab ID = 807342-004
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.05	48.3	49.8(26.2)	94.2	90 - 110
Matrix Spike						Lab ID = 807342-005
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.02	37.3	38.6(20.4)	93.8	90 - 110
Matrix Spike						Lab ID = 807342-006
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.942	1.00(1.00)	94.2	90 - 110
Matrix Spike						Lab ID = 807342-007
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.912	1.00(1.00)	91.2	90 - 110
Matrix Spike						Lab ID = 807342-008
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.34	5.41(5.00)	98.5	90 - 110
Matrix Spike						Lab ID = 807342-008
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.44	1.50(1.00)	94.7	90 - 110
Matrix Spike						Lab ID = 807342-009
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.49	5.55(5.00)	98.8	90 - 110
Matrix Spike						Lab ID = 807342-009
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.56	1.60(1.00)	96.5	90 - 110



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

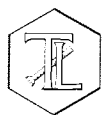
Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.CM

Printed 4/26/2013

Matrix Spike						Lab ID = 807342-010
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.37	7.42(5.00)	99.0	90 - 110
Matrix Spike						Lab ID = 807342-010
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	7.32	7.42(5.00)	98.1	90 - 110
Matrix Spike						Lab ID = 807342-011
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.73	1.78(1.00)	95.2	90 - 110
Matrix Spike						Lab ID = 807342-011
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.59	5.73(5.00)	97.3	90 - 110
Matrix Spike						Lab ID = 807342-012
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	30.8	31.8(25.0)	96.1	90 - 110
Matrix Spike						Lab ID = 807342-013
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.20	5.60(5.00)	92.0	90 - 110
Matrix Spike						Lab ID = 807342-013
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.62	1.64(1.00)	98.1	90 - 110
Matrix Spike						Lab ID = 807342-014
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	16.0	16.2(10.0)	99.1	90 - 110
Matrix Spike						Lab ID = 807342-014
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	31.2	31.3(25.0)	99.7	90 - 110
Matrix Spike						Lab ID = 807342-015
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.946	1.00(1.00)	94.6	90 - 110
Matrix Spike						Lab ID = 807342-016
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.916	1.00(1.00)	91.6	90 - 110
Matrix Spike						Lab ID = 807342-017
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	31.3	31.1(25.0)	101	90 - 110


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Project Number: 423575.MP.02.CM
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Chrome VI by EPA 218.6

Batch 04CrH13I

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807342-017 Chromium, Hexavalent	ug/L	04/12/2013 12:10	1.00	0.00920	0.20	6.2

Method Blank

Parameter	Unit	DF	Result
Chromium, Hexavalent	ug/L	1.00	ND

Duplicate

Lab ID = 807345-008

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	41.2	41.5	0.624	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.198	0.200	99.0	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	4.89	5.00	97.9	90 - 110

Matrix Spike

Lab ID = 807342-017

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	15.6	16.2(10.0)	93.9	90 - 110

Matrix Spike

Lab ID = 807345-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.12	1.17(1.00)	94.3	90 - 110

Matrix Spike

Lab ID = 807345-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	9.57	9.91(5.00)	93.3	90 - 110

Matrix Spike

Lab ID = 807345-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.936	1.00(1.00)	93.6	90 - 110

Matrix Spike

Lab ID = 807345-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	16.8	16.9(10.0)	99.0	90 - 110

Matrix Spike

Lab ID = 807345-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.955	1.01(1.00)	94.3	90 - 110



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Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.CM

Printed 4/26/2013

Total Dissolved Solids by SM 2540 C

Batch 04TDS13E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807342-001 Total Dissolved Solids	mg/L	04/12/2013	1.00	1.76	250	4210
807342-002 Total Dissolved Solids	mg/L	04/12/2013	1.00	1.76	250	4360
807342-003 Total Dissolved Solids	mg/L	04/12/2013	1.00	1.76	125	3800
807342-004 Total Dissolved Solids	mg/L	04/12/2013	1.00	1.76	50.0	1070
807342-005 Total Dissolved Solids	mg/L	04/12/2013	1.00	1.76	50.0	2010
807342-008 Total Dissolved Solids	mg/L	04/12/2013	1.00	1.76	250	4440
807342-009 Total Dissolved Solids	mg/L	04/12/2013	1.00	1.76	250	5160
807342-010 Total Dissolved Solids	mg/L	04/12/2013	1.00	1.76	250	4170
807342-011 Total Dissolved Solids	mg/L	04/12/2013	1.00	1.76	250	4510
807342-012 Total Dissolved Solids	mg/L	04/12/2013	1.00	1.76	250	5190
807342-013 Total Dissolved Solids	mg/L	04/12/2013	1.00	1.76	250	4310
807342-014 Total Dissolved Solids	mg/L	04/12/2013	1.00	1.76	125	4050
807342-017 Total Dissolved Solids	mg/L	04/12/2013	1.00	1.76	125	4120

Method Blank

Parameter	Unit	DF	Result
Total Dissolved Solids	mg/L	1.00	ND

Duplicate

Lab ID = 807342-012

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	5350	5190	3.04	0 - 10

Duplicate

Lab ID = 807408-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	1430	1420	0.422	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	474	500	94.8	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.CM

Printed 4/26/2013

Ammonia Nitrogen by SM4500-NH3D

Batch 04NH313B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807342-001 Ammonia as N	mg/L	04/12/2013	1.00	0.0318	0.500	ND
807342-002 Ammonia as N	mg/L	04/12/2013	1.00	0.0318	0.500	ND
807342-008 Ammonia as N	mg/L	04/12/2013	1.00	0.0318	0.500	ND
807342-009 Ammonia as N	mg/L	04/12/2013	1.00	0.0318	0.500	ND
807342-010 Ammonia as N	mg/L	04/12/2013	1.00	0.0318	0.500	ND
807342-011 Ammonia as N	mg/L	04/12/2013	1.00	0.0318	0.500	ND
807342-012 Ammonia as N	mg/L	04/12/2013	1.00	0.0318	0.500	ND
807342-013 Ammonia as N	mg/L	04/12/2013	1.00	0.0318	0.500	ND
807342-014 Ammonia as N	mg/L	04/12/2013	1.00	0.0318	0.500	ND
807342-017 Ammonia as N	mg/L	04/12/2013	1.00	0.0318	0.500	ND

Method Blank

Parameter	Unit	DF	Result
Ammonia as N	mg/L	1.00	ND

Duplicate

Lab ID = 807346-011

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Ammonia as N	mg/L	1.00	ND	0	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	8.31	8.00	104	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	8.24	8.00	103	90 - 110

Matrix Spike

Lab ID = 807346-011

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	7.82	8.00(8.00)	97.8	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.25	6.00	104	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.46	6.00	108	90 - 110


Client: E2 Consulting Engineers, Inc.
Project Name: PG&E Topock Project
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Project Number: 423575.MP.02.CM
Printed 4/26/2013
Metals by EPA 200.8, Dissolved

Batch 041213A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807342-001 Chromium	ug/L	04/12/2013 13:24	2.00	0.184	1.0	ND
807342-002 Chromium	ug/L	04/12/2013 13:30	2.00	0.184	1.0	1.2
807342-003 Chromium	ug/L	04/12/2013 13:36	2.00	0.184	1.0	7.4
Molybdenum	ug/L	04/12/2013 13:36	2.00	0.414	2.0	5.9
807342-004 Chromium	ug/L	04/12/2013 13:42	2.00	0.184	1.0	25.6
Molybdenum	ug/L	04/12/2013 13:42	2.00	0.414	2.0	38.3
807342-005 Chromium	ug/L	04/12/2013 13:48	2.00	0.184	1.0	18.4
Molybdenum	ug/L	04/12/2013 13:48	2.00	0.414	2.0	18.6
807342-008 Chromium	ug/L	04/12/2013 13:54	2.00	0.184	1.0	ND
807342-009 Chromium	ug/L	04/12/2013 14:06	2.00	0.184	1.0	ND
807342-010 Chromium	ug/L	04/12/2013 14:12	2.00	0.184	1.0	2.8
807342-011 Chromium	ug/L	04/12/2013 14:18	2.00	0.184	1.0	ND
807342-012 Chromium	ug/L	04/12/2013 14:42	2.00	0.184	1.0	7.4
807342-013 Chromium	ug/L	04/12/2013 14:49	2.00	0.184	1.0	ND
807342-014 Chromium	ug/L	04/12/2013 14:55	2.00	0.184	1.0	6.8
807342-017 Chromium	ug/L	04/12/2013 15:01	2.00	0.184	1.0	6.5

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND
Molybdenum	ug/L	1.00	ND

Duplicate

Lab ID = 807288-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	2.00	2.34	2.33	0.240	0 - 20
Molybdenum	ug/L	2.00	28.0	26.6	5.08	0 - 20

Low Level Calibration Verification

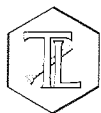
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.233	0.200	117	70 - 130

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	0.508	0.500	102	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	2.00	53.7	50.0	107	85 - 115
Molybdenum	ug/L	2.00	48.7	50.0	97.4	85 - 115



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.CM

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Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0		

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0		

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	ND	0		

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	ND	0		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.3	20.0	96.7	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	19.7	20.0	98.5	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	ND	0		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Molybdenum	ug/L	1.00	ND	0		

Serial Dilution

Lab ID = 807342-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	10.0	23.7	25.6	7.85	0 - 10
Molybdenum	ug/L	10.0	37.1	38.3	3.26	0 - 10



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.CM

Printed 4/26/2013

Metals by 200.7, Dissolved

Batch 041613A-Th2

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807342-003 Sodium	ug/L	04/16/2013 15:11	200	78800	200000	696000
807342-004 Sodium	ug/L	04/16/2013 15:37	50.0	19700	50000	336000
807342-005 Sodium	ug/L	04/16/2013 15:43	50.0	19700	50000	426000

Method Blank

Parameter	Unit	DF	Result
Sodium	ug/L	1.00	ND

Duplicate

Lab ID = 807342-003

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Sodium	ug/L	200	691000	696000	0.779	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	2080	2000	104	85 - 115

Matrix Spike

Lab ID = 807342-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Sodium	ug/L	200	1070000	1100000(400000)	94.0	75 - 125

MRCSS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	4910	5000	98.2	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	4900	5000	98.1	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	4890	5000	97.8	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	4870	5000	97.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	4900	5000	97.9	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	4900	5000	98.0	90 - 110



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.CM

Printed 4/26/2013

Turbidity by SM 2130 B

Batch 04TUC13I

Parameter	Unit	Analyzed	DF	MDL	RL	Result
807342-001 Turbidity	NTU	04/10/2013	1.00	0.0140	0.100	ND
807342-002 Turbidity	NTU	04/10/2013	1.00	0.0140	0.100	0.128
807342-003 Turbidity	NTU	04/10/2013	1.00	0.0140	0.100	2.76
807342-004 Turbidity	NTU	04/10/2013	1.00	0.0140	0.100	0.248
807342-005 Turbidity	NTU	04/10/2013	1.00	0.0140	0.100	0.213
807342-008 Turbidity	NTU	04/10/2013	1.00	0.0140	0.100	ND
807342-009 Turbidity	NTU	04/10/2013	1.00	0.0140	0.100	0.205
807342-010 Turbidity	NTU	04/10/2013	1.00	0.0140	0.100	0.132
807342-011 Turbidity	NTU	04/10/2013	1.00	0.0140	0.100	ND
807342-012 Turbidity	NTU	04/10/2013	1.00	0.0140	0.100	ND
807342-013 Turbidity	NTU	04/10/2013	1.00	0.0140	0.100	0.249
807342-014 Turbidity	NTU	04/10/2013	1.00	0.0140	0.100	0.140
807342-017 Turbidity	NTU	04/10/2013	1.00	0.0140	0.100	0.134

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate

Lab ID = 807342-011

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Turbidity	NTU	1.00	ND	0	0	0 - 20

Lab Control Sample


Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.90	8.00	98.8	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	7.77	8.00	97.1	90 - 110

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.


for Mona Nassimi
Manager, Analytical Services



Truesdail Laboratories, Inc.

Total Dissolved Solids by SM 2540 C**Calculations**Batch: 04TDS13E
Date Analyzed: 4/12/13

Laboratory Number	Sample volume, ml	Initial weight, g	1st Final weight, g	2nd Final weight, g	Weight Difference, g	Exceeds 0.5mg? Yes/No	Residue weight, g	Filterable residue, ppm	RL, ppm	Reported Value, ppm	DF
Blank	100	72.3781	72.3781	72.3781	0.0000	No	0.0000	0.0	25.0	ND	1
807342-1	10	50.5062	50.5486	50.5483	0.0003	No	0.0421	4210.0	250.0	4210.0	1
807342-2	10	51.8547	51.8987	51.8983	0.0004	No	0.0436	4360.0	250.0	4360.0	1
807342-3	20	49.4973	49.5732	49.5732	0.0000	No	0.0759	3795.0	125.0	3795.0	1
807342-4	50	46.9791	47.0325	47.0324	0.0001	No	0.0533	1066.0	50.0	1066.0	1
807342-5	50	50.8285	50.9288	50.9288	0.0000	No	0.1003	2006.0	50.0	2006.0	1
807342-8	10	49.3981	49.4429	49.4425	0.0004	No	0.0444	4440.0	250.0	4440.0	1
807342-9	10	50.7264	50.7781	50.778	0.0001	No	0.0516	5160.0	250.0	5160.0	1
807342-10	10	50.7619	50.8041	50.8036	0.0005	No	0.0417	4170.0	250.0	4170.0	1
807342-11	10	50.5018	50.547	50.5469	0.0001	No	0.0451	4510.0	250.0	4510.0	1
807342-12	10	51.3488	51.4007	51.4007	0.0000	No	0.0519	5190.0	250.0	5190.0	1
807342-12D	10	50.1534	50.2073	50.2069	0.0004	No	0.0535	5350.0	250.0	5350.0	1
LCS	100	50.5872	50.6346	50.6346	0.0000	No	0.0474	474.0	25.0	474.0	1
807342-13	10	47.9466	47.9897	47.9897	0.0000	No	0.0431	4310.0	250.0	4310.0	1
807342-14	20	49.3471	49.4282	49.4281	0.0001	No	0.0810	4050.0	125.0	4050.0	1
807342-17	20	52.0422	52.1245	52.1245	0.0000	No	0.0823	4115.0	125.0	4115.0	1
807375-13	20	51.0503	51.1018	51.1018	0.0000	No	0.0515	2575.0	125.0	2575.0	1
807383-2	20	47.7620	47.8386	47.8386	0.0000	No	0.0766	3830.0	125.0	3830.0	1
807408-1	50	51.2500	51.3168	51.3167	0.0001	No	0.0667	1334.0	50.0	1334.0	1
807408-2	50	51.8805	51.9767	51.9763	0.0004	No	0.0958	1916.0	50.0	1916.0	1
807408-3	20	49.1791	49.241	49.2409	0.0001	No	0.0618	3090.0	125.0	3090.0	1
807408-4	50	50.6961	50.7984	50.7980	0.0004	No	0.1019	2038.0	50.0	2038.0	1
807408-5	50	51.8378	51.9091	51.9087	0.0004	No	0.0709	1418.0	50.0	1418.0	1
807408-5D	50	51.4574	51.5289	51.5287	0.0002	No	0.0713	1426.0	50.0	1426.0	1

Calculation as follows:

Filterable residue (TDS), mg/L =

$$\left(\frac{A - B}{C} \right) \times 10^6$$

Where:

A = weight of dish + residue in grams.
B = weight of dish in grams.
C = mL of sample filtered.RL = reporting limit.
ND = not detected (below the reporting limit)**Laboratory Control Sample (LCS) Summary**

QC Std I.D.	Measured Value, ppm	Theoretical Value, ppm	Percent Rec	Acceptance Limit	QC Within Control?
LCS1	474	500	94.8%	90-110%	Yes
LCS2					

LCS Recovery

$$P = \left(\frac{LC}{LT} \right) \times 100$$

P = Percent recovery.

LC = Measured LCS value (ppm).

LT = Theoretical LCS value (ppm).

Duplicate Determinations Difference Summary

Lab Number	Sample Weight, g	Sample Dup Weight, g	% RPD	Acceptance Limit	QC Within Control?
807342-12	0.0519	0.0535	1.5%	≤5%	Yes
807408-5	0.0709	0.0713	0.3%	5%	Yes

Duplicate Determination Difference

$$\% \text{ Difference} = \frac{|A - B|}{C} \times 100$$

$$\text{where } C = \frac{A + B}{2}$$

A = Weight of the first sample in (g).

B = Weight of the second sample in (g).

C = Average weight in (g).

Jenny T.

Analyst Printed Name

Analyst Signature

Maksim G.

Reviewer Printed Name

Reviewer Signature

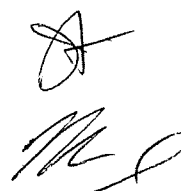
040

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 04TDS13E
Date Analyzed: 4/12/13

Laboratory Number	EC	TDS/EC Ratio: 0.55-.9	Calculated TDS (EC*0.65)	Measured TDS / Calc TDS <1.3
807342-1	7110	0.59	4621.5	0.91
807342-2	7080	0.62	4602	0.95
807342-3	5910	0.64	3841.5	0.99
807342-4	1860	0.57	1209	0.88
807342-5	3270	0.61	2125.5	0.94
807342-8	7080	0.63	4602	0.96
807342-9	7140	0.72	4641	1.11
807342-10	7020	0.59	4563	0.91
807342-11	7140	0.63	4641	0.97
807342-12	8400	0.62	5460	0.95
807342-12D	8400	0.64	5460	0.98
LCS				
807342-13	7100	0.61	4615	0.93
807342-14	6690	0.61	4348.5	0.93
807342-17	6680	0.62	4342	0.95
807375-13	4050	0.64	2632.5	0.98
807383-2	5170	0.74	3360.5	1.14
807408-1	1880	0.71	1222	1.09
807408-2	2570	0.75	1670.5	1.15
807408-3	4040	0.76	2626	1.18
807408-4	2710	0.75	1761.5	1.16
807408-5	1970	0.72	1280.5	1.11
807408-5D	1970	0.72	1280.5	1.11



CH2MHILL

CHAIN OF CUSTODY RECORD

807342

4/9/2013 3:50:25 PM

Page 1 OF 2

Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Matt Ringier				Container:	250 ml Poly (NH4)2S O4/NH4O H, 4°C	500 ml Poly HNO3, 4°C	500 ml Poly HNO3, 4°C	2x1 Liter 4°C	2x1 Liter 4°C	2x1 Liter 4°C	2x1 Liter 4°C	1 Liter Poly H2SO4, pH<2, 4°C	Rec'd 4/9/13 SAC 807342	Number of Containers	COMMENTS
Preservatives:				Field	Field	Field	NA	NA	NA	NA	NA				
Filtered:				28	180	180	14	14	14	14	28				
Holding Time:				Cr6 (E218.6) Field Filtered	Metals (E200.7-E200.8) Field Filtered Cr,Mo,Na	Metals (E200.7-E200.8) Field Filtered Chromium	Specific Conductance (E120.1)	Anions (E300.0) Cl, F, SO4	Turbidity (SM2130)	TDS (SM2540C)	Ammonia (SM4500NH3)				
Project Number 423575.MP.02.CM Task Order Project 2013-CMP-029 Turnaround Time 10 Days Shipping Date: 4/3/2013 COC Number: TLI-CMP029				DATE	TIME	Matrix									
1	CW-01D-029	4/8/2013	9:15	Water	X	X		X	X	X	X	X		5	
2	CW-01M-029	4/8/2013	9:53	Water	X	X		X	X	X	X	X		5	
3	OW-01S-029	4/8/2013	11:43	Water	X		X	X	X	X	X			4	pH=2
4	OW-02S-029	4/8/2013	13:53	Water	X		X	X	X	X	X			4	metals
5	OW-05S-029	4/8/2013	12:35	Water	X		X	X	X	X	X			4	
6	OW-80-029	4/8/2013	14:40	Water	X									1	
7	OW-81-029	4/8/2013	14:35	Water	X									1	
8	OW-90-029	4/8/2013	6:55	Water	X	X		X	X	X	X	X		5	
9	CW-02D-029	4/9/2013	8:06	Water	X	X		X	X	X	X	X		5	
10	CW-02M-029	4/9/2013	9:06	Water	X	X		X	X	X	X	X		5	pH=2
11	CW-03D-029	4/9/2013	10:54	Water	X	X		X	X	X	X	X		5	metals
12	CW-03M-029	4/9/2013	12:12	Water	X	X		X	X	X	X	X		5	
13	CW-04D-029	4/9/2013	13:54	Water	X	X		X	X	X	X	X		5	
14	CW-04M-029	4/9/2013	15:12	Water	X	X		X	X	X	X	X		5	

ALERT !!
Level III QC

Approved by
Sampled by
Relinquished by
Received by
Relinquished by
Received by

Signatures
Date/Time
4-9-13
1600
Rafael Davila 4-9-13 16:00
Rafael Davila 4-9-13 22:30
Linda, TLI 4/9/13 22:30

Shipping Details
Method of Shipment: FedEx
On Ice: yes / no
Airbill No:
Lab Name: Truesdail Laboratories, Inc.
Lab Phone: (714) 730-6239

ATTN:

Special Instructions:

April 8-10, 2013

Sample Custody

Report Copy to

Shawn Duffy
(530) 229-3303

CH2MHILL

CHAIN OF CUSTODY RECORD

4/9/2013 3:50:26 PM

Page 2 OF 2

Project Name PG&E Topock Location Topock Project Manager Jay Piper Sample Manager Matt Ringier Project Number 423575.MP.02.CM Task Order Project 2013-CMP-029 Turnaround Time 10 Days Shipping Date: 4/3/2013 COC Number: TLI-CMP029				Container:	250 ml Poly (NH4)2S O4/NH4O H, 4°C	500 ml Poly HNO3, 4°C	500 ml Poly HNO3, 4°C	2x1 Liter 4°C	2x1 Liter 4°C	2x1 Liter 4°C	2x1 Liter 4°C	1 Liter Poly H2SO4, pH<2, 4°C	Number of Containers	COMMENTS
DATE	TIME	Matrix	Preservatives:	Filtered:	Holding Time:									
OW-82-029	4/9/2013	15:42	Water	X									1	
OW-83-029	4/9/2013	15:48	Water	X									1	
OW-91-029	4/9/2013	17:25	Water	X	X		X	X	X	X	X		5	pk=2
TOTAL NUMBER OF CONTAINERS												66	metals	

ALERT !!
Level III QC

Signatures

Approved by

Sampled by

Relinquished by

Received by

Relinquished by

Received by

Date/Time

4-9-13
1600

4-9-13

16:00

4-9-13 22:30

4/9/13 22:30

Shipping Details

Method of Shipment: FedEx

On Ice: yes / no

Airbill No:

Lab Name: Truesdail Laboratories, Inc.

Lab Phone: (714) 730-6239

ATTN:

Special Instructions:

April 8-10, 2013

Sample Custody

Report Copy to

Shawn Duffy
(530) 229-3303

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
4/6/13	807268	7.0	2 mL / 100 mL	9.5	9:00	TM
4/8/13	807286-1	9.5	N/A	N/A	N/A	NE
		-2				
		-3				
		-4				
		-5				
		-6				
		-7				
✓	✓	✓ -8	✓	✓	✓	✓
4/8/13	807287-1	9.5	N/A	N/A	N/A	NE
		-2				
		-3				
		-4				
✓	✓	✓ -5	✓	✓	✓	✓
4/8/13	807288					
4/10/13	807288-1	9.5	N/A	N/A	N/A	NE
4/10/13		-2				
		-3				
		-4				
		-5				
		-6				
		-7				
		-8				
✓		✓ -9	✓	✓	✓	✓
		7.0	5 drops 25% NaOH / 100 mL	9.5	10:00	
4/10/13	807287-6	9.5	N/A	N/A	N/A	✓
4/9/13	807341	7.0	2 mL / 100 mL	9.5	09:00	NE
4/9/13	807342-1	9.5	N/A	N/A	N/A	NE
		-2				
		-3				
		-4				
✓	✓	✓ -5	✓	✓	✓	✓

Hexavalent Chromium

Method EPA 218.6 and SW 7199 Sample pH Log

Date	Lab Number	Initial pH	Buffer Added (mL)	Final pH	Time Buffered	Initials
4/9/13	807342-6	9.5	N/A	N/A	N/A	NE
	-7					
	-8					
	-9					
	-10					
	-11					
	-12					
	-13					
	-14					
	-15					
	-16					
✓	-17	✓	✓	✓	✓	✓
4/10/13	807343-1	9.5	N/A	N/A	N/A	TM
	-2					
	-3					
	-4					
	-5					
	-6					
	-7					
	-8					
	-9					
↓	↓ -10	↓	↓	↓	↓	↓
4/10/13	807344-1	9.5	N/A	N/A	N/A	TM
↓	↓ -2	↓	↓	↓	↓	↓
4/10/13	807345-1	9.5	N/A	N/A	N/A	TM
	-2					
	-3					
	-4					
	-5					
	-6					
↓	↓ -7	↓	↓	↓	↓	↓



Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	pH2-Adjusted Time	Date/Time of 2nd pH check	Comments
807283-174	>1	<2	4/10/13	DC	yes			
807301-4	↓	↓	↓	↓	↓			
807302-4	↓	↓	↓	↓	↓			
807293	↓	↓	↓	↓	↓			
807294	↓	↓	↓	↓	↓			
803229(1-3)	<1	>2	4-10-13	BE	NO	14:30		
807322	↓	↓	↓	↓	↓	↓		
807364	>1	>2	↓	DC	yes	16:45		
807290-5	<1	>2	↓	DC	NO	↓		
807342(1-2)	<1	<2	4-11-13	BE	yes			
807338-1,2	>1	>2	4/11/13	DC	yes	9:25		
807359(4,5,6)	<1	>2	4/11/13	ES	NO	10:00	4/12/13	pH <2
807350(1-5)	<1	<2	4-11-13	BE	yes			
807384(1-6)	↓	↓	↓	↓	↓			
807343(1-4)	<1	<2	4/11/13	ES	yes			
807344-1	↓	↓	↓	↓	↓			
807345(1-10)	↓	↓	↓	↓	↓			
807346(1,3-12)	↓	↓	↓	↓	↓			
807340(1-4)	↓	↓	↓	↓	↓			
807380	↓	↓	↓	↓	↓			
807371(10-13)	<1	>2	4/12/13	ES	NO	12:00	4/15/13	pH <2
807409	<1	<2	4-12-13	BE	yes			
807383(1-4)	↓	↓	↓	↓	↓			
807381(1-3)	↓	↓	↓	↓	↓			
807375(1-11,13)	↓	↓	↓	↓	↓			
807376(1-10)	<1	<2	4-15-13	BE	yes			
807407(1-7,9)	↓	↓	↓	↓	↓			
807382(1,2-13)	↓	↓	↓	↓	↓			
807406(1-8)	↓	↓	↓	↓	↓			
807408(1-5)	<1	<2	4-15-13	ES	yes			
807409(1-8)	↓	↓	↓	↓	↓			
807410(1-2,4-9)	↓	↓	↓	↓	↓			
807411(1,3-10)	↓	↓	↓	↓	↓			
807448(1-8)	<1	<2	4-17-13	BE	yes			
807449(1,3-11)	↓	↓	↓	↓	↓			
807459(1-7)	↓	↓	↓	↓	↓			
807451(1-8)	↓	↓	↓	↓	↓			
807395	<1	>2	4/17/13	DC	yes	11:00		
807398	<1	<2	↓	↓	↓			
807399	↓	↓	↓	↓	↓			
807400	>1	↓	↓	↓	↓			
807403	↓	↓	↓	↓	↓			
807414	<1	↓	↓	↓	↓			
807427	↓	↓	↓	↓	↓			

Notes:

1. Samples should be analyzed after 24 hrs of pH adjustment to pH2 for Dissolved Analytes.
2. All Total Recoverable Analytes must be pH adjusted and digested.
3. Do not use disposable pipette to measure pH; pour a little amount of sample from the bottle.



Sample Integrity & Analysis Discrepancy Form

Client: E 2

Lab # 807342

Date Delivered: 04/09/13 Time: 12:50 By: ☐ Mail ☒ Field Service ☐ Client

1. Was a Chain of Custody received and signed? ☒ Yes ☐ No ☐ N/A
2. Does Customer require an acknowledgement of the COC? ☐ Yes ☐ No ☒ N/A
3. Are there any special requirements or notes on the COC? ☐ Yes ☐ No ☒ N/A
4. If a letter was sent with the COC, does it match the COC? ☐ Yes ☐ No ☒ N/A
5. Were all requested analyses understood and acceptable? ☒ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition?
Temperature (if yes)? 3.6 °C ☒ Yes ☐ No ☐ N/A
7. Were samples received intact
(i.e. broken bottles, leaks, air bubbles, etc.)? ☒ Yes ☐ No ☐ N/A
8. Were sample custody seals intact? ☐ Yes ☐ No ☒ N/A
9. Does the number of samples received agree with COC? ☒ Yes ☐ No ☐ N/A
10. Did sample labels correspond with the client ID's? ☒ Yes ☐ No ☐ N/A
11. Did sample labels indicate proper preservation?
Preserved (if yes) by: ☒ Truesdail ☐ Client ☒ Yes ☐ No ☐ N/A
12. Were samples pH checked? pH = See C.O.C. ☒ Yes ☐ No ☐ N/A
13. Were all analyses within holding time at time of receipt?
If not, notify Project Manager. ☒ Yes ☐ No ☐ N/A
14. Have Project due dates been checked and accepted?
Turn Around Time (TAT): ☐ RUSH ☒ Std ☒ Yes ☐ No ☐ N/A
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water
☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☒ Other Water
16. Comments: _____
17. Sample Check-In completed by Truesdail-Log-In/Receiving: Linda





CH2MHILL

Applied Sciences Laboratory

ANALYTICAL REPORT

For:

PGE Topock

ASL Report #: M1713

Project ID: 423575.MP.02.CM

Attn: Jay Piper

cc:

Data Center/RDD

Authorized and Released By:

Kathy McKinley

Laboratory Project Manager

Kathy McKinley

(541) 758-0235 ext.23144

May 07, 2013

This data package meets standards requested by client and is not intended or implied to meet any other standard.

All analyses performed by CH2M HILL are clearly indicated. Any subcontracted analyses are included as appended reports as received from the subcontracted laboratory. The results included in this report only relate to the samples listed on the following Sample Cross-Reference page. This report shall not be reproduced except in full, without the written approval of the laboratory.

Any unusual difficulties encountered during the analysis of your samples are discussed in the attached case narratives.

ASL Report #: M1713

Sample Receipt Comments

We certify that the test results meet all standard ASL requirements.

Sample Cross-Reference

ASL Sample ID	Client Sample ID	Date/Time Collected	Date Received
M171301	CW-01D-029	04/08/13 09:15	04/23/13
M171302	CW-01M-029	04/08/13 09:53	04/23/13
M171303	OW-01S-029	04/08/13 11:43	04/23/13
M171304	OW-02S-029	04/08/13 13:53	04/23/13
M171305	OW-05S-029	04/08/13 12:35	04/23/13
M171306	OW-90-029	04/08/13 06:55	04/23/13
M171307	CW-02D-029	04/09/13 08:06	04/23/13
M171308	CW-02M-029	04/09/13 09:06	04/23/13
M171309	CW-03D-029	04/09/13 10:54	04/23/13
M171310	CW-03M-029	04/09/13 12:12	04/23/13
M171311	CW-04D-029	04/09/13 13:54	04/23/13
M171312	CW-04M-029	04/09/13 15:12	04/23/13
M171313	OW-91-029	04/09/13 17:25	04/23/13



CH2M HILL
Applied Sciences Laboratory (ASL)
1000 NE Circle Blvd, Building 10
Suite 10350
Corvallis, OR 97330
Tel 541.768.3120
Fax 541.752.0276
ASL@CH2M.com

Client: PGE Topock
M1713

Method	Parameter	Analyst
EPA 353.2	NO3-NO2	Youning Li

CLIENT SAMPLE CROSS-REFERENCE
For Samples Received January 05, 2011

ASL Report #: K1012

Sample ID	Client Sample ID	Date Collected	Time Collected
K101201	SAWGRASS-CA	01/04/2011	
K101202	SPRINGTREE-CA	01/04/2011	
K101203	SOUTHWEST-CA-2	01/05/2011	

**CASE NARRATIVE
ORGANICS**

ASL Report #: K1012

Client/Project: Sunrise DBP-FP

- I. Holding Times:
All acceptance criteria were met.
- II. Analysis:
- A. Calibration:
All acceptance criteria were met.
- B. Method Blank(s):
All acceptance criteria were met.
- C. Duplicate Sample(s):
Analysis performed in accordance with standard operating procedure.
- D. Spike Sample(s):
Analysis performed in accordance with standard operating procedure.
- E. Lab Control Sample(s):
All acceptance criteria were met.
- F. Surrogate Recoveries:
All acceptance criteria were met.
- G. Other:
Not applicable.
- III. Documentation Exceptions:
None.
- IV. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signature.

Prepared by: _____ Date: _____

Reviewed by: _____ Date: _____

CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL/LAB/CVO

ASL SDG#: M1713

Project: PGE Topock

Project #: 423575.MP.02.CM

I. Method(s):

Analysis: E353.2

II. Receipt/Holding Times:

All acceptance criteria were met.

III. Analysis:

A. Initial Calibration(s):

All acceptance criteria were met.

B. Calibration Verification(s):

All acceptance criteria were met.

C. Blanks:

All acceptance criteria were met.

D. Laboratory Control Sample(s):

All acceptance criteria were met.

E. Matrix Spike/Matrix Spike Duplicate Sample(s):

Analyzed in accordance with standard operating procedure.

F. Analytical Exception(s):

None.

IV. Documentation Exception(s):

None.

- V. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signatures.

Prepared by:

[Signature]

Date:

5/1/2013

Reviewed by:

Kathy McNulty

Date:

5/3/13

1A-WC

CW-01M-029

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M171302

[illegible]

1A-WC

OW-015-029

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M171303

[illegible]

1A-WC

OW-02S-029

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M171304

Date Received: 04/23/13

[illegible]

Field Sample ID:

Date Received: 04/23/13

[illegible]

1A-WC

OW-90-029

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M171306

Date Received: 04/23/13

[illegible]

1A-WC

CW-02D-029

Date Received: 04/23/13

[illegible]

1A-WC

CW-02M-029

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M171308

Date Received: 04/23/13

[illegible]

1A-WC

CW-03D-029

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M171309

Date Received: 04/23/13

[illegible]

1A-WC

CW-03M-029

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M171310

[illegible]

1A-WC

CTW-04D-029

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M171311

Date Received: 04/23/13

[illegible]

1A-WC

CW-04M-029

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M171312

Date Received: 04/23/13

[illegible]

1A-WC

OW-91-029

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: M171313

Date Received: 04/23/13

[illegible]

1A-WC

WB3-0426

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB3-0426

Date Received: / /

[illegible]

1A-WC

WB4-0426

Lab Name: CH2M HILL/LAB/CVO

Lab Sample ID: WB4-0426

Date Received: / /

[illegible]

Concentration Units: MG/L[illegible]

* Values outside of QC limits

Comments:

Concentration Units: MG/L

[illegible]

Comments:

Project Name PG&E Topock				Container: 1 Liter Poly	M1713	Number of Containers	COMMENTS
Location Topock				Preservatives: H2SO4, pH<2, 4°C			
Project Manager Jay Piper				Filtered: NA			
Sample Manager Matt Ringier				Holding Time: 28			
Project Number 423575.MP.02.CM				Nitrate/Nitrite (SM4500NO3)			
Task Order							
Project 2013-CMP-029							
Turnaround Time 12 Days							
Shipping Date: 4/3/2013							
COC Number: CHMC-CMP029							
DATE	TIME	Matrix					
CW-01D-029	4/8/2013	9:15	Water	X		1	1
CW-01M-029	4/8/2013	9:53	Water	X		1	2
OW-01S-029	4/8/2013	11:43	Water	X		1	3
OW-02S-029	4/8/2013	13:53	Water	X		1	4
OW-05S-029	4/8/2013	12:35	Water	X		1	5
OW-90-029	4/8/2013	6:55	Water	X		1	6
CW-02D-029	4/9/2013	8:06	Water	X		1	7
CW-02M-029	4/9/2013	9:06	Water	X		1	8
CW-03D-029	4/9/2013	10:54	Water	X		1	9
CW-03M-029	4/9/2013	12:12	Water	X		1	10
CW-04D-029	4/9/2013	13:54	Water	X		1	11
CW-04M-029	4/9/2013	15:12	Water	X		1	12
OW-91-029	4/9/2013	17:25	Water	X		1	13
TOTAL NUMBER OF CONTAINERS						13	

Signatures

Approved by

Sampled by

Relinquished by

Received by

Relinquished by

Received by

Date/Time

4-16-13

1655

4-16-13 1655

4/14/13 191

4/22/13 1650

Shipping Details

Method of Shipment: FedEx

On Ice: ☒ yes ☐ no 24 1021

Airbill No:

Lab Name: CH2M HILL Applied Sciences Lab

Lab Phone: (541) 752-4271

ATTN:

Sample Custody

and

Kathy McKinley

Special Instructions:

April 8-10, 2013

Report Copy to

Shawn Duffy
(530) 229-3303

RE INVOICED: 4/22/13

Carmen Beu

4/23/13 1200



Batch Number: M1713
Client/Project: Торжок

Date received: 4/23/13
Checked by: CS
Checked by: _____

VERIFICATION OF SAMPLE CONDITIONS (verify all items), HD = Client Hand delivered Samples	NA	YES	NO
Radiological Screening for DoD	✓		
Were custody seals intact and on the outside of the cooler?		✓	
Type of packing material: <u>Ice</u> Blue Ice <u>Bubble wrap</u>			
Was a Chain of Custody (CoC) Provided?		✓	
Was the CoC correctly filled out (If No, document in the SRER)		✓	
Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC)		✓	
Were the sample containers in good condition (broken or leaking)?		✓	
Containers supplied by ASL?		✓	
Any sample with < 1/2 holding time remaining? If so contact LPM			✓
Samples have multi-phase? If yes, document on SRER			✓
Was there ice in the cooler? Enter temp. If >6°C contact client/SRER 1-8 °C		✓	

All VOCs free of air bubbles? No, document on SRER	✓		
pH of all samples checked and met requirements? No, then document in SRER		✓	
Enough sample volume provided for analysis? No, document in SRER		✓	
Did sample labels agree with COC? No, document in SRER		✓	
Dissolved/Soluble metals filtered in the field?	✓		
Dissolved/Soluble metals have sediment in bottom of container? Document in SRER	✓		

[illegible]

Appendix B
Field Data Sheets, First Half 2013

108-95

Topock Sampling Log

Project Name PG&E Topock CMP

Job Number 423575.MP.02.CM

Sampling Event 2013-CMP-029

Date 4/8/13

Sampler CG

Field Team 1

Field Conditions

Windy! Pky Cloudy Cool

Page 1 of 1

Well/Sample Number CW-01D-029

QC Sample ID

OW-90-029

QC Sample Time

0655

Purge Start Time 0839

Purge Method: 3-volume

Ded. Pump 40

Flow Cell: (Y) N

Min. Purge Volume (gal)(L) 47.5

Purge Rate (gpm)(mLpm) 3

Pump Make and Model

2" Grundfos R2

Water Level	Time	Vol. Purged gallons / liters	pH**	Conductivity mS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Salinity %	TDS** g/L	Eh/ORP mv	Comments (See description below)
109.11	0846	21	7.34	7575	3	7.59	28.75	-	-	210	H2=311
109.13	0853	42	7.42	7603	1	8.79	28.45	-	-	193	
109.13	0900	63	7.45	7603	1	8.80	28.45	-	-	183	
109.13	0907	84	7.44	7606	1	8.80	28.47	-	-	178	
109.13	0914	105	7.45	7601	1	8.81	28.44	-	-	176	
Parameter Compliance Criteria			6.2<pH<9.2						1.0800		

**If pH or TDS is out of range check calibration, take to IM3 and check pH, SC-get second probe. If still out of range immediately contact B. Collom ((541) 740-3250). If B. Collom unavailable contact S. Duffy ((530) 941-9227). If S. Duffy unavailable contact J. Piper ((702) 953-1202 x36602 or (702) 525-1137). If J. Piper unavailable contact Christina Hong ((213) 228-8248 x35448 or (213) 228-8242).

Parameter Stabilization Criteria	+/- 0.1 pH units	+/- 3%	+/- 10% NTU units when >10 NTUs	+/- 0.3 mg/L	+/- 2°C	NA	NA	+/- 10 mV
Did last three Parameters Stabilize prior to sampling?	Y	Y	Y	Y	Y	-	-	Y
Previous Field measurement (10/16/2012)	7.77	7283	0.2	7.92	28.74	0.47		66.6
Are measurements consistent with previous?	Y	Y	Y	higher	Y	-	-	higher

Sample Time 0915

Sample Location:

pump tubing

well port

spigot

bailer

other

Comments:

Initial Depth to Water (ft BTOC): 109.0

Field measured confirmation of Well Depth (ft btoc):

WD (Well Depth - from database) ft btoc (300.2)

SWH (Standing Water Height) = WD-Initial Depth 191.2

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

One Casing Volume = D*SWH 32.50

Three Casing Volumes = 97.51

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

Odor: none, sulphur, organic, other

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

WQ METER MAKE and SERIAL NUMBER:

In-Situ 50618

WATER LEVEL METER SERIAL NUMBER:

Heron 10769

Initial DTW / Before Removal		If Transducer	
Time	Initial DTW	Approx. 5 min After Reinstallation	Time of Removal
0820	109.0	NA	Time of Reinstallation
Comments:			

Project Name PG&E Topock CMP

Job Number 423575.MP.02.CM

Sampling Event 2013-CMP-029

Date 4/8/13

Sampler _____ Field Team 1 Field Conditions

Page 1 of 1

Well/Sample Number CW-01M-029

QC Sample ID NA

QC Sample Time NA

Purge Start Time 0932

Purge Method: 3-volume Ded. Pump NO

Flow Cell (Y) / N

Min. Purge Volume (gal)/(L) 42 Purge Rate (gpm)/(mLpm) 2

Pump Make and Model 2 in Annelfos #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)
109.05	0936	8	7.41	7589	1	9.71	29.30	-	-	170	H2=314
109.03	0940	16	7.36	7585	1	9.43	29.29	-	-	171	
109.03	0944	24	7.42	7593	1	9.37	29.51	-	-	168	
109.03	0948	32	7.44	7585	1	9.22	29.31	-	-	168	
109.03	0952	40	7.43	7582	1	9.50	29.35	-	-	168	
Parameter Compliance Criteria			6.2<pH<9.2						1.0800		

**If pH or TDS is out of range check calibration, take to IM3 and check pH, SC-get second probe. If still out of range immediately contact B. Collom ((541) 740-3250). If B. Collom unavailable contact S. Duffy ((530) 941-9227). If S. Duffy unavailable contact J. Piper ((702) 953-1202 x36602 or (702) 525-1137). If J. Piper unavailable contact Christina Hong ((213) 228-8248 x35448 or (213) 228-8242).

Parameter Stabilization Criteria	+/- 0.1 pH units	+/- 3%	+/- 10% NTU units when >10 NTUs	+/- 0.3 mg/L	+/- 2°C	NA	NA	+/- 10 mV
Did last three Parameters Stabilize prior to sampling?	Y	Y	Y	Y	Y	-	-	Y
Previous Field measurement (10/16/2012)	7.8	7314	0.2	9.3	29.7	0.47		66.7
Are measurements consistent with previous?	Y	Y	Y	Y	Y	-	-	higher

Sample Time 0953

Sample Location:

pump tubing

well port

spigot

bailer

other

Comments:

Initial Depth to Water (ft BTOC): 108.95

Field measured confirmation of Well Depth (ft btoc):

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

SWH (Standing Water Height) = WD-Initial Depth 81.05

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

One Casing Volume = D*SWH 13.78

Three Casing Volumes = 41.34

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

Odor: none, sulphur, organic, other

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

Measure Point: Well TOC Steel Casing

WQ METER MAKE and SERIAL NUMBER: In-situ 9520

WATER LEVEL METER SERIAL NUMBER: 50618

Heron 10769

Initial DTW / Before Removal		If Transducer	
Time	Initial DTW	Approx. 5 min After Reinstallation	Time of Removal
0905	108.95	NA	Time of Reinstallation
Comments:			

Project Name PG&E Topock CMP

Sampling Event 2013-CMP-029

Job Number 423575.MP.02.CM

Date 4/9/13

Sampler CB Field Team 1 Field Conditions Windy, Cool, Clear

Page 1 of 1

Well/Sample Number CW-02D-029

QC Sample ID NA

QC Sample Time NA

Purge Start Time 0719

Purge Method: 3-VOL

Ded. Pump NO

Min. Purge Volume (gal)/(L) 135

Purge Rate (gpm)/(mLpm) 3

Pump Make and Model Grundfos #3

Flow Cell 0 / N

Water Level	Time	Vol. Purged gallons / liters	pH**	Conductivity mS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Salinity %	TDS** g/L	Eh/ORP mv	Comments (See description below)
92.12	0728	27	7.63	7.729	12	7.41	30.16	-	-	191	Az=277
92.14	0737	54	7.63	7.729	2	7.40	30.26	-	-	181	
92.13	0746	81	7.64	7.725	1	7.35	30.29	-	-	171	
92.13	0755	108	7.66	7.732	1	7.30	30.32	-	-	167	
92.13	0804	135	7.66	7.727	1	7.32	30.20	-	-	167	
Parameter Compliance Criteria			6.2<pH<9.2						1.0800		

**If pH or TDS is out of range check calibration, take to IM3 and check pH, SC-get second probe. If still out of range immediately contact B. Collom ((541) 740-3250). If B. Collom unavailable contact S. Duffy ((530) 941-9227). If S. Duffy unavailable contact J. Piper ((702) 953-1202 x36602 or (702) 525-1137). If J. Piper unavailable contact Christina Hong ((213) 228-8248 x35448 or (213) 228-8242).

Parameter Stabilization Criteria	+/- 0.1 pH units	+/- 3%	+/- 10% NTU units when >10 NTUs	+/- 0.3 mg/L	+/- 2°C	NA	NA	+/- 10 mV
Did last three Parameters Stabilize prior to sampling?	Y	Y	Y	Y	Y	-	-	Y
Previous Field measurement (10/15/2012)	8.07	7507	0.2	7.28	30.51	0.48		37.6
Are measurements consistent with previous?	lower	Y	Y	Y	Y	-	-	higher

Sample Time 0800 Sample Location: pump tubing well port spigot bailer other

Comments:

Initial Depth to Water (ft BTOC): 91.92

Field measured confirmation of Well Depth (ft btoc):

WD (Well Depth - from database) ft btoc (355)

SWH (Standing Water Height) = WD-Initial Depth 263.08

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

One Casing Volume = D*SWH 44.72

Three Casing Volumes = 134.17

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

Measure Point: Well TOC Steel Casing

WQ METER MAKE and SERIAL NUMBER: Fu-5, 4980

WATER LEVEL METER SERIAL NUMBER: 50618

Initial DTW / Before Removal		If Transducer	
Time	Initial DTW	Approx. 5 min After Reinstallation	Time of Removal
0702	91.92	NA	
		Final DTW	Time of Reinstallation

Comments:

Odor: none sulphur, organic, other

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

Project Name PG&E Topock CMP
 Job Number 423575.MP.02.CM
 Sampler OB Field Team 1 Field Conditions windy, Cool, Clear

Sampling Event 2013-CMP-029

Date 4/9/13Page 1 of 1

b9c ✓

Well/Sample Number CW-02M-029QC Sample ID NAQC Sample Time NAPurge Start Time 0834Purge Method: 3-ValDed. Pump NOMin. Purge Volume (gal)/(L) 56Purge Rate (gpm)/(mLpm) 2Pump Make and Model Grundfos 82Flow Cell A N

Water Level	Time	Vol. Purged gallons / liters	pH**	Conductivity mS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Salinity %	TDS** g/L	Eh/ORP mv	Comments (See description below)
92.52	0840	12	7.39	7595	1	7.77	29.93	-	-	160	H2 281
92.53	0846	24	7.50	7588	1	7.96	29.95	-	-	162	
92.52	0852	36	7.50	7577	1	7.98	30.07	-	-	160	
92.52	0858	48	7.50	7583	1	7.97	30.04	-	-	159	
92.52	0904	60	7.51	7582	1	7.98	30.00	-	-	158	
Parameter Compliance Criteria			6.2<pH<9.2						1.0800		

**If pH or TDS is out of range check calibration, take to IM3 and check pH, SC-get second probe. If still out of range immediately contact B. Collom ((541) 740-3250). If B. Collom unavailable contact S. Duffy ((530) 941-9227). If S. Duffy unavailable contact J. Piper ((702) 953-1202 x36602 or (702) 525-1137). If J. Piper unavailable contact Christina Hong ((213) 228-8248 x35448 or (213) 228-8242).

Parameter Stabilization Criteria	+/- 0.1 pH units	+/- 3%	+/- 10% NTU units when >10 NTUs	+/- 0.3 mg/L	+/- 2°C	NA	NA	+/- 10 mV
Did last three Parameters Stabilize prior to sampling?	Y	Y	Y	Y	Y	-	-	Y
Previous Field measurement (10/15/2012)	7.92	7302	0.2	7.48	36.08	0.47		29.8
Are measurements consistent with previous?	lower	Y	Y	Y	lower	-	-	higher

Sample Time 0904 Sample Location:pump tubing

well port

spigot

bailer

other

Comments:

Initial Depth to Water (ft BTOC):

92.42

Field measured confirmation of Well Depth (ft btoc):

WD (Well Depth - from database) ft btoc (202)

SWH (Standing Water Height) = WD-Initial Depth 109.58

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

One Casing Volume = D*SWH 18.63Three Casing Volumes = 55.89Color: clear, grey, yellow, brown, black, cloudy, greenOdor: none, sulphur, organic, otherSolids: Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, SandWQ METER MAKE and SERIAL NUMBER: In-Situ 9500Measure Point: Well TOC Steel CasingWATER LEVEL METER SERIAL NUMBER: Solinst 216100

Initial DTW / Before Removal		If Transducer	
Time	Initial DTW	Approx. 5 min After Reinstallation	Time of Removal
<u>0810</u>	<u>92.42</u>	<u>NA</u>	
Time	Final DTW	Time of Reinstallation	

Comments:

Project Name PG&E Topock CMP

Sampling Event 2013-CMP-029

Job Number 423575.MP.02.CM

Date 4/9/13

Sampler CH Field Team 1 Field Conditions windy, cool, clearPage 1 of 1Well/Sample Number CW-03D-029QC Sample ID NAQC Sample Time NPPurge Start Time 1007Purge Method: 3 galDed. Pump NAFlow Cell: Y / NMin. Purge Volume (gal/L) 135Purge Rate (gpm)/(mLpm) 3Pump Make and Model Grundfos #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)
76.71	1016	27	7.52	7.765	1	7.46	29.64	-	-	143	
76.71	1025	54	7.71	7.722	1	7.53	30.20	-	-	136	
76.71	1034	81	7.71	7.726	1	7.54	30.43	-	-	133	
76.71	1043	108	7.72	7.717	1	7.56	30.15	-	-	133	
76.71	1052	135	7.72	7.737	1	7.51	30.37	-	-	135	

Parameter Compliance Criteria

6.2 < pH < 9.2

1.0800

**If pH or TDS is out of range check calibration, take to IM3 and check pH, SC-get second probe. If still out of range immediately contact B. Collom ((541) 740-3250). If B. Collom unavailable contact S. Duffy ((530) 941-9227). If S. Duffy unavailable contact J. Piper ((702) 953-1202 x36602 or (702) 525-1137). If J. Piper unavailable contact Christina Hong ((213) 228-8248 x35448 or (213) 228-8242).

Parameter Stabilization Criteria

+/- 0.1
pH units

+/- 3%

+/- 10% NTU
units
when > 10 NTUs+/- 0.3
mg/L

+/- 2°C

NA

NA

+/- 10 mV

Did last three Parameters Stabilize prior to sampling?

Y

Y

Y

Y

Y

-

-

Y

Previous Field measurement (10/15/2012)

8.08

7509

0.2

7.43

30.67

0.48

12.2

Are measurements consistent with previous?

lower

Y

Y

Y

Y

-

-

higher

Sample Time 1054 Sample Location:

pump tubing

well port

spigot

bailer

other

Comments:

Initial Depth to Water (ft BTWC):

76.67

Field measured confirmation of Well Depth (ft btoc):

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

SWH (Standing Water Height) = WD-Initial Depth

263.33

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

One Casing Volume = D*SWH

44.76

Three Casing Volumes =

134.29

Color: 0, grey, yellow, brown, black, cloudy, greenOdor: 0, sulphur, organic, otherSolids: 0, Trace, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

WQ METER MAKE and SERIAL NUMBER:

In-Situ 9500

WATER LEVEL METER SERIAL NUMBER:

52618

Initial DTW / Before Removal		If Transducer	
Time	Initial DTW	Approx. 5 min After Reinstallation	Time of Removal
0957	76.67	NA	
Comments:		Time of Reinstallation	

pump tubing

77.25

Measure Point: Well TOC

WQ METER MAKE and SERIAL NUMBER: In-situ 9500
 WATER LEVEL METER SERIAL NUMBER: 50618
Solis 21010

WATER LEVEL METER SERIAL NUMBER: Solinas 210100

Initial DTW / Before Removal		If Transducer	
Time	Initial DTW	Approx. 5 min After Reinstallation	Time of Removal
		Time	Final DTW
1032	77.25	NA	
			Time of Reinstallation

Comments:

Comments:

Odor: none, sulphur, organic, other

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

Project Name PG&E Topock CMP

Sampling Event 2013-CMP-029

Job Number 423575.MP.02.CM

Date 4/9/13

Sampler CG

Field Team 1

Field Conditions

w. wdy. Cool, Clear

Page 1 of 1

BEC

Well/Sample Number CW-04D-029

QC Sample ID

NA

QC Sample Time

NA

Purge Start Time

1312

Purge Method: 3-vol

Ded. Pump NO

Flow Cell: Y / N

Min. Purge Volume (gal/L) 124

Purge Rate (gpm)/(mLpm) 3

Pump Make and Model

Grundfos 83

Water Level	Time 8mm	Vol. Purged gallons / liters	pH**	Conductivity mS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Salinity %	TDS** g/L	Eh/ORP mv	Comments (See description below)
61.63	1320	24	7.72	7689	4	8.14	29.89	-	-	150	H2=247
61.61	1328	48	7.76	7631	4	8.67	29.42	-	-	138	
61.60	1336	72	7.77	7559	2	8.73	30.15	-	-	133	
61.60	1344	96	7.76	7685	1	8.63	30.18	-	-	128	
61.60	1352	120	7.76	7687	1	8.64	30.00	-	-	128	
Parameter Compliance Criteria			6.2<pH<9.2						1.0800		

**If pH or TDS is out of range check calibration, take to IM3 and check pH, SC-get second probe. If still out of range immediately contact B. Collom ((541) 740-3250). If B. Collom unavailable contact S. Duffy ((530) 941-9227). If S. Duffy unavailable contact J. Piper ((702) 953-1202 x36602 or (702) 525-1137). If J. Piper unavailable contact Christina Hong ((213) 228-8248 x35448 or (213) 228-8242).

Parameter Stabilization Criteria	+/- 0.1 pH units	+/- 3%	+/- 10% NTU units when >10 NTUs	+/- 0.3 mg/L	+/- 2°C	NA	NA	+/- 10 mV
Did last three Parameters Stabilize prior to sampling?	Y	Y	Y	Y	Y	-	-	Y
Previous Field measurement (10/16/2012)	7.97	7717	0.7	8.61	30.48	0.5		80.7
Are measurements consistent with previous?	Y	Y	Y	Y	Y	-	-	higher

Sample Time 1354

Sample Location:

pump tubing

well port

spigot

bailer

other

Comments:

Initial Depth to Water (ft BTOC): 61.22

Field measured confirmation of Well Depth (ft btoc):

WD (Well Depth - from database) ft btoc (303)

SWH (Standing Water Height) = WD-Initial Depth 241.78

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

One Casing Volume = D*SWH

Three Casing Volumes =

Color: 0, grey, yellow, brown, black, cloudy, green

Odor: 0, sulphur, organic, other

Solids: 0, Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand

Measure Point: Well TOC

Steel Casing

WQ METER MAKE and SERIAL NUMBER: In-Situ 9580

WATER LEVEL METER SERIAL NUMBER: 50618

30121 210100

Initial DTW / Before Removal		If Transducer	
Time	Initial DTW	Approx. 5 min After Reinstallation	Time of Removal
1301	61.22	NA	Time of Reinstallation
Comments:			

Project Name PG&E Topock CMP

Sampling Event 2013-CMP-029

Job Number 423575.MP.02.CM

Date 4/9/13

Sampler CG

Field Team 1

Field Conditions

windy, cool, clear

Page 1 of 1

BEC ✓

Well/Sample Number CW-04M-029

QC Sample ID OW-91-029

QC Sample Time 1725 ✓

Purge Start Time 1441

Purge Method: 3 vol

Ded. Pump NO

Flow Cell Y / N

Min. Purge Volume (gal)/(L) 56

Purge Rate (gpm)/(mLpm) 2

Pump Make and Model Grundfos 42

Water Level	Time min	Vol. Purged gallons / liters	pH**	Conductivity mS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Salinity %	TDS** g/L	Eh/ORP mv	Comments (See description below)
61.59	1447	12	7.67	7298	4	6.59	29.69	5.8	-	167	H2 251
61.59	1453	24	7.67	7188	1	6.19	29.72	-	-	166	
61.59	1459	36	7.66	7182	1	6.09	29.76	-	-	165	
61.59	1505	48	7.66	7188	1	6.10	29.80	-	-	163	
61.59	1511	60	7.64	7191	1	6.09	29.86	-	-	161	
Parameter Compliance Criteria			6.2 < pH < 9.2						1.0800		

**If pH or TDS is out of range check calibration, take to IM3 and check pH, SC-get second probe. If still out of range immediately contact B. Collom ((541) 740-3250). If B. Collom unavailable contact S. Duffy ((530) 941-9227). If S. Duffy unavailable contact J. Piper ((702) 953-1202 x36602 or (702) 525-1137). If J. Piper unavailable contact Christina Hong ((213) 228-8248 x35448 or (213) 228-8242).

Parameter Stabilization Criteria	+/- 0.1 pH units	+/- 3%	+/- 10% NTU units when >10 NTUs	+/- 0.3 mg/L	+/- 2°C	NA	NA	+/- 10 mV
Did last three Parameters Stabilize prior to sampling?	Y	Y	Y	Y	Y	-	-	Y
Previous Field measurement (10/16/2012)	7.76	6823	0.4	5.2	29.81	0.44		64.7
Are measurements consistent with previous?	Y	Y	Y	higher	Y	-	-	higher

Sample Time 1512 ✓ Sample Location: pump tubing well port spigot bailer other

Comments:

Initial Depth to Water (ft BTOC): 61.33

Field measured confirmation of Well Depth (ft btoc):

WD (Well Depth - from database) ft btoc (169.8)

SWH (Standing Water Height) = WD-Initial Depth 108.47

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

One Casing Volume = D*SWH 18.44

Three Casing Volumes = 55.32

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

Odor: none, sulphur, organic, other

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

Measure Point: Well TOC Steel Casing

WQ METER MAKE and SERIAL NUMBER: In-Situ 9500 30618

WATER LEVEL METER SERIAL NUMBER: Solinst 210100

Initial DTW / Before Removal		If Transducer	
Time	Initial DTW	Approx. 5 min After Reinstallation	Time of Removal
1430	61.33	NA	Time of Reinstallation
Comments:			

Project Name PG&E Topock CMP

Job Number 423575.MP.02.CM

Sampling Event 2013-CMP-029

Date 4/8/13

Sampler CA

Field Team 1

Field Conditions

Windy, Cool, Cloudy

Page 1 of 1

Well/Sample Number OW-01S-029

QC Sample ID

NA

QC Sample Time

NA

Purge Start Time 1130

Purge Method: 3 vol

Ded. Pump NO

Flow Cell: M / N

Min. Purge Volume (gal)/(L) 11

Purge Rate (gpm)/(mLpm) 1

Pump Make and Model

Grandfos #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)
93.30	1132	2	7.10	6469	68 ⁵ NA	8.17	28.52	-	-	211	H2 = 243
93.28	1134	4	7.05	66612	68	8.50	28.84	-	-	159	
93.28	1136	6	7.05	6391	10	8.00	28.96	-	-	166	
93.28	1138	8	7.02	6356	3	8.02	29.16	-	-	160	
93.29	1140	10	7.01	6325	2	7.92	29.04	-	-	157	
Parameter Compliance Criteria			6.2 < pH < 9.2						1.0800		

**If pH or TDS is out of range check calibration, take to IM3 and check pH, SC-get second probe. If still out of range immediately contact B. Collom ((541) 740-3250). If B. Collom unavailable contact S. Duffy ((530) 941-9227). If S. Duffy unavailable contact J. Piper ((702) 953-1202 x36602 or (702) 525-1137). If J. Piper unavailable contact Christina Hong ((213) 228-8248 x35448 or (213) 228-8242).

Parameter Stabilization Criteria	+/- 0.1 pH units	+/- 3%	+/- 10% NTU units when >10 NTUs	+/- 0.3 mg/L	+/- 2°C	NA	NA	+/- 10 mV
Did last three Parameters Stabilize prior to sampling?	Y	Y	Y	Y	Y	-	-	Y
Previous Field measurement (10/16/2012)	7.64	4295	1	8.26	29.66	0.28		61.9
Are measurements consistent with previous?	lower	higher	Y	Y	Y	-	-	higher

Sample Time 1143

Sample Location:

pump tubing

well port

spigot

bailer

other

Comments: 1110 - Check In-situ 9500 ORP vs. standard reads 224 @ 21.3°C. Standard = ~230 @ 21°C. Calibration is good

Initial Depth to Water (ft BTOC): 93.21

Field measured confirmation of Well Depth (ft btoc):

WD (Well Depth - from database) ft btoc (113.5)

SWH (Standing Water Height) = WD-Initial Depth 20.29

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

One Casing Volume = D*SWH 3.44

Three Casing Volumes = 10.32

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

Odor: none, sulphur, organic, other

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

Measure Point: Well TOC

Steel Casing

WQ METER MAKE and SERIAL NUMBER: In-situ 9500

50618

WATER LEVEL METER SERIAL NUMBER: Heron 10769

Initial DTW / Before Removal		If Transducer	
Time	Initial DTW	Approx. 5 min After Reinstallation	Time of Removal
1101	93.21	1200	93.20
Comments:		Time of Reinstallation	1153

Project Name PG&E Topock CMP

Job Number 423575.MP.02.CM

Sampling Event 2013-CMP-029

Date 9/8/13

Sampler CB

Field Team 1

Field Conditions

Windy, Cloudy, Cool

Page 1 of 1

Well/Sample Number OW-02S-029

QC Sample ID

NA

QC Sample Time

NA

Purge Start Time 1335

Purge Method: S-01

Ded. Pump NO

Flow Cell: N

Min. Purge Volume (gal)/(L) 16

Purge Rate (gpm)/(mLpm) 1

Pump Make and Model

Grundfos X3

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)
92.13	1338	3	7.73	1980	11	8.26	28.45	-	-	133	H ₂ = 245
92.13	1341	6	7.74	1946	26	8.15	28.94	-	-	131	Pump slipped down. move up.
92.13	1344	9	7.70	1969	12	8.00	28.79	-	-	130	
92.13	1347	12	7.70	1965	3	8.03	28.84	-	-	130	
92.13	1350	15	7.71	1962	2	8.07	28.92	-	-	131	
Parameter Compliance Criteria			6.2<pH<9.2						1.0800		

**If pH or TDS is out of range check calibration, take to IM3 and check pH, SC-get second probe. If still out of range immediately contact B. Collom ((541) 740-3250). If B. Collom unavailable contact S. Duffy ((530) 941-9227). If S. Duffy unavailable contact J. Piper ((702) 953-1202 x36602 or (702) 525-1137). If J. Piper unavailable contact Christina Hong ((213) 228-8248 x35448 or (213) 228-8242).

Parameter Stabilization Criteria	+/- 0.1 pH units	+/- 3%	+/- 10% NTU units when >10 NTUs	+/- 0.3 mg/L	+/- 2°C	NA	NA	+/- 10 mV
Did last three Parameters Stabilize prior to sampling?	Y	Y	Y	Y	Y	-	-	Y
Previous Field measurement (10/18/2012)	8.08	1716	1	7.92	29.55	0.11	-	43.2
Are measurements consistent with previous?	lower	Y	Y	Y	Y	-	-	higher

Sample Time 1353

Sample Location:

pump tubing

well port

spigot

bailer

other

Comments: Well depth not 121. Depth actually 91.73. Pumped 30 of larger volume just in case. Will update DB. Feels like mud on bottom.

Initial Depth to Water (ft BTOC): 91.73

Field measured confirmation of Well Depth (ft btoC):

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

SWH (Standing Water Height) = WD-Initial Depth 29.27

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

One Casing Volume = D*SWH 65.084.98

Three Casing Volumes = 195.254.94

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

Odor: none, sulphur, organic, other

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

Measure Point: Well TOC Steel Casing

WQ METER MAKE and SERIAL NUMBER: In-Situ 9500

WATER LEVEL METER SERIAL NUMBER: 50618

Heron 10769

Initial DTW / Before Removal		If Transducer	
Time	Initial DTW	Time	Final DTW
1320	91.73	1409	91.75
Comments:		Approx. 5 min After Reinstallation	
		Time of Removal	1325
		Time of Reinstallation	1404

Project Name PG&E Topock CMP

Job Number 423575.MP.02.CM

Sampling Event 2013-CMP-029

Date 9/18/13

Sampler CA

Field Team 1

Field Conditions

windy, cool, Pky Cloudy

Page 1 of 1

Well/Sample Number OW-05S-029

QC Sample ID

NA

QC Sample Time

NA

Purge Start Time 1224

Purge Method:

Ded. Pump

Flow Cell (Y) / N

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

Purge Rate (gpm)/(mLpm) 1

Pump Make and Model

Grundfos X2

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)
94.83	1226	2	7.41	3731	7	6.66	28.89	-	-	147	1/2 = 253
94.83	1228	4	7.38	3579	6	6.68	29.10	-	-	142	
94.83	1230	6	7.37	3562	5	6.68	29.02	-	-	141	
94.83	1232	8	7.37	3520	3	6.66	29.08	-	-	139	
94.83	1234	10	7.38	3542	1	6.64	29.15	-	-	138	
Parameter Compliance Criteria			6.2 < pH < 9.2						1.0800		

**If pH or TDS is out of range check calibration, take to IM3 and check pH, SC-get second probe. If still out of range immediately contact B. Collom ((541) 740-3250). If B. Collom unavailable contact S. Duffy ((530) 941-9227). If S. Duffy unavailable contact J. Piper ((702) 953-1202 x36602 or (702) 525-1137). If J. Piper unavailable contact Christina Hong ((213) 228-8248 x35448 or (213) 228-8242).

Parameter Stabilization Criteria	+/- 0.1 pH units	+/- 3%	+/- 10% NTU units when >10 NTUs	+/- 0.3 mg/L	+/- 2°C	NA	NA	+/- 10 mV
Did last three Parameters Stabilize prior to sampling?	Y	Y	Y	Y	Y	-	-	Y
Previous Field measurement (10/18/2012)	7.71	2954	2	6.28	30.01	0.19		46.6
Are measurements consistent with previous?	Y	Y	Y	Y	Y	-	-	higher

Sample Time 1235

Sample Location:

pump tubing

well port

spigot

bailer

other

Comments:

Initial Depth to Water (ft BTOC):

94.69

Field measured confirmation of Well Depth (ft btoc):

WD (Well Depth - from database) ft btoc (110.3)

SWH (Standing Water Height) = WD-Initial Depth

15.61

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

One Casing Volume = D*SWH

2.65

Three Casing Volumes =

7.96

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

Odor: none, sulphur, organic, other

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

WQ METER MAKE and SERIAL NUMBER:

In Situ 9500
50618

WATER LEVEL METER SERIAL NUMBER:

Hean 10769

Initial DTW / Before Removal		If Transducer	
Time	Initial DTW	Approx. 5 min After Reinstallation	Time of Removal
1210	94.69	1245	94.69
Comments:		Time of Reinstallation	1240

Date 4-3-13

Did calibration parameters stabilize? *yes*

SC calibration: 1413 $\mu\text{s}/\text{cm}$ sol'n reads 1413 $\mu\text{s}/\text{cm}$ @ 0745

* IM-3 Staff confirms that there was no backwashing or unplanned plant downtime on 4-2-13 or 4-3-13, ~~they were Pre~~

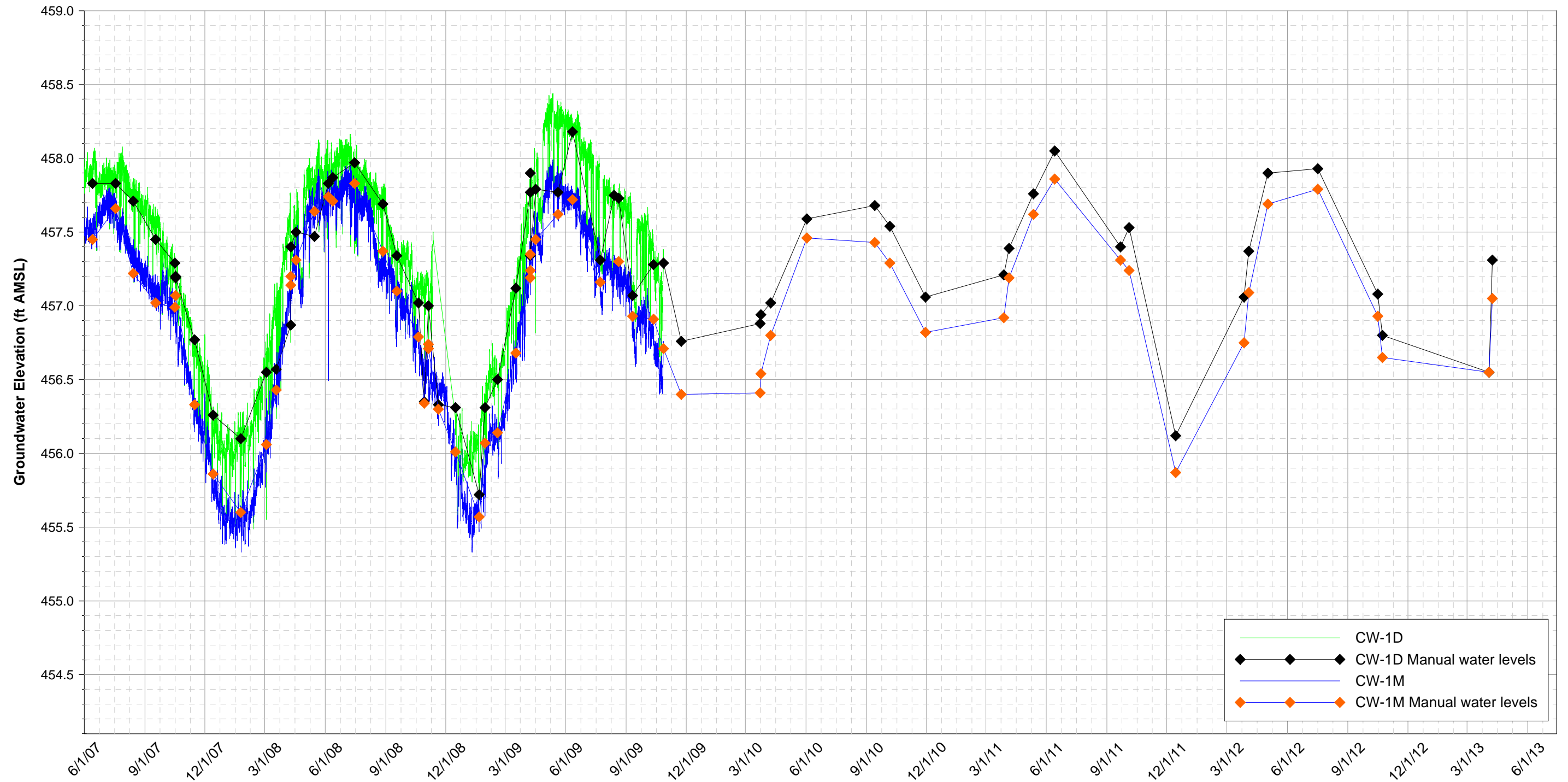
[illegible]

Topock CMP Manual Water Level SnapshotPersonnel: B. Collow / CH2MWLI serial number: PGE 2005-013

Loc ID	Depth to Water (ft BTOC)	Date	Time	Comments
CW-1M	108.33	5-28-13	0943	
CW-1D	108.45		0945	
CW-2M	91.85		0951	
CW-2D	91.47		0953	
CW-3M	76.71		0958	
CW-3D	76.13		1000	
CW-4M	60.67		1007	
CW-4D	60.55		1009	
OW-1S	92.77		1016	
OW-1M	92.54		1018	
OW-1D	92.26		1020	
OW-2S	91.39		1023	
OW-2M	90.68		1025	
OW-2D	90.74		1027	
OW-5S	94.23		1031	
OW-5M	93.35		1033	
OW-5D	94.04		1035	

IM-3 Staff confirm that 5-28-13, 5-27-13, and 5-26-13 were normal operation days with no backwashing or plant down time prior to snapshot collection.

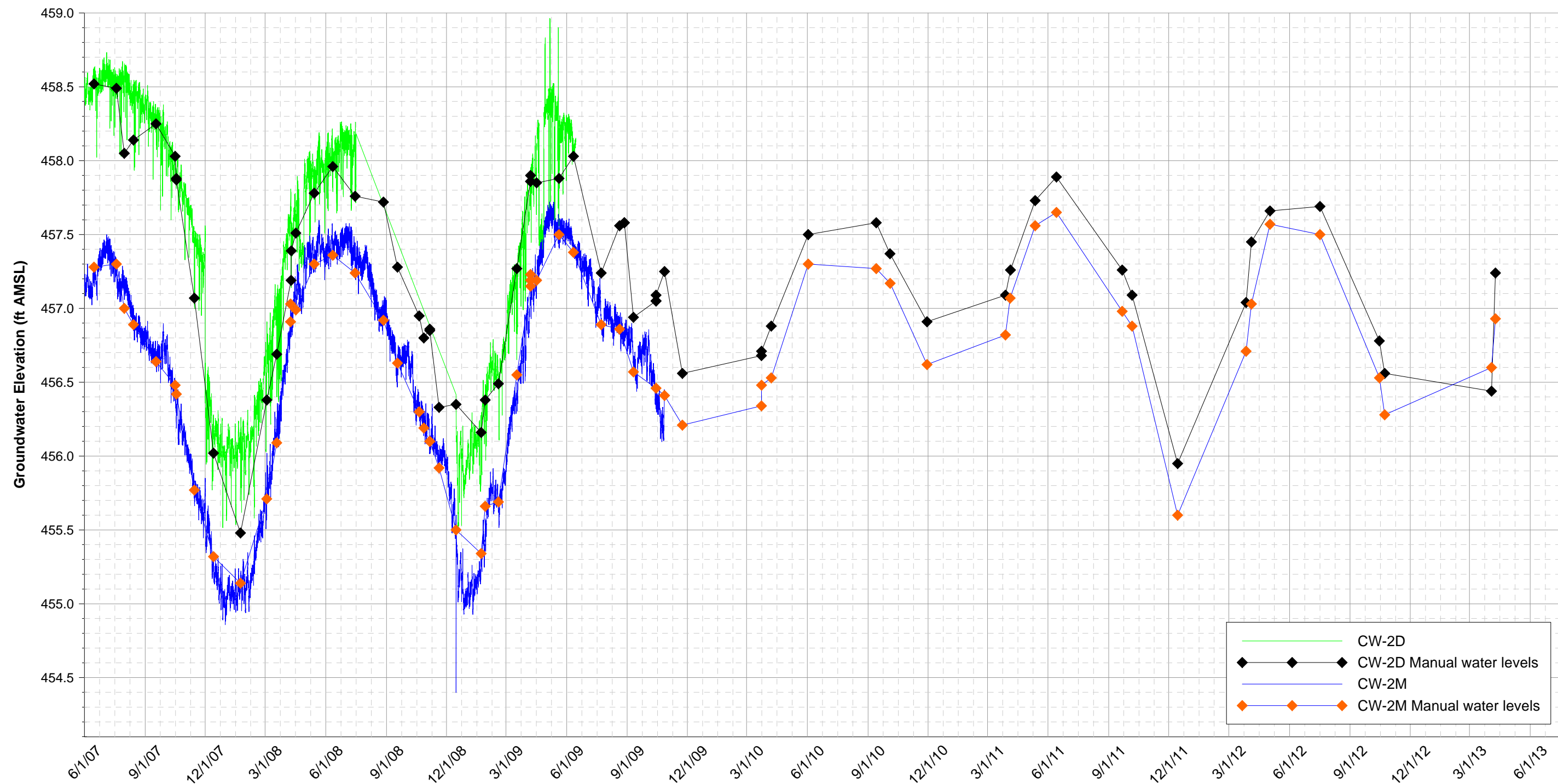
Appendix C
Additional Graphs, First Half 2013



Note: Data subject to review.

On September 3, 2009, DTSC approved modifications to the CMP Monitoring and Reporting Program that no longer required continuous groundwater elevation measurements at CW-1D and CW-1M.

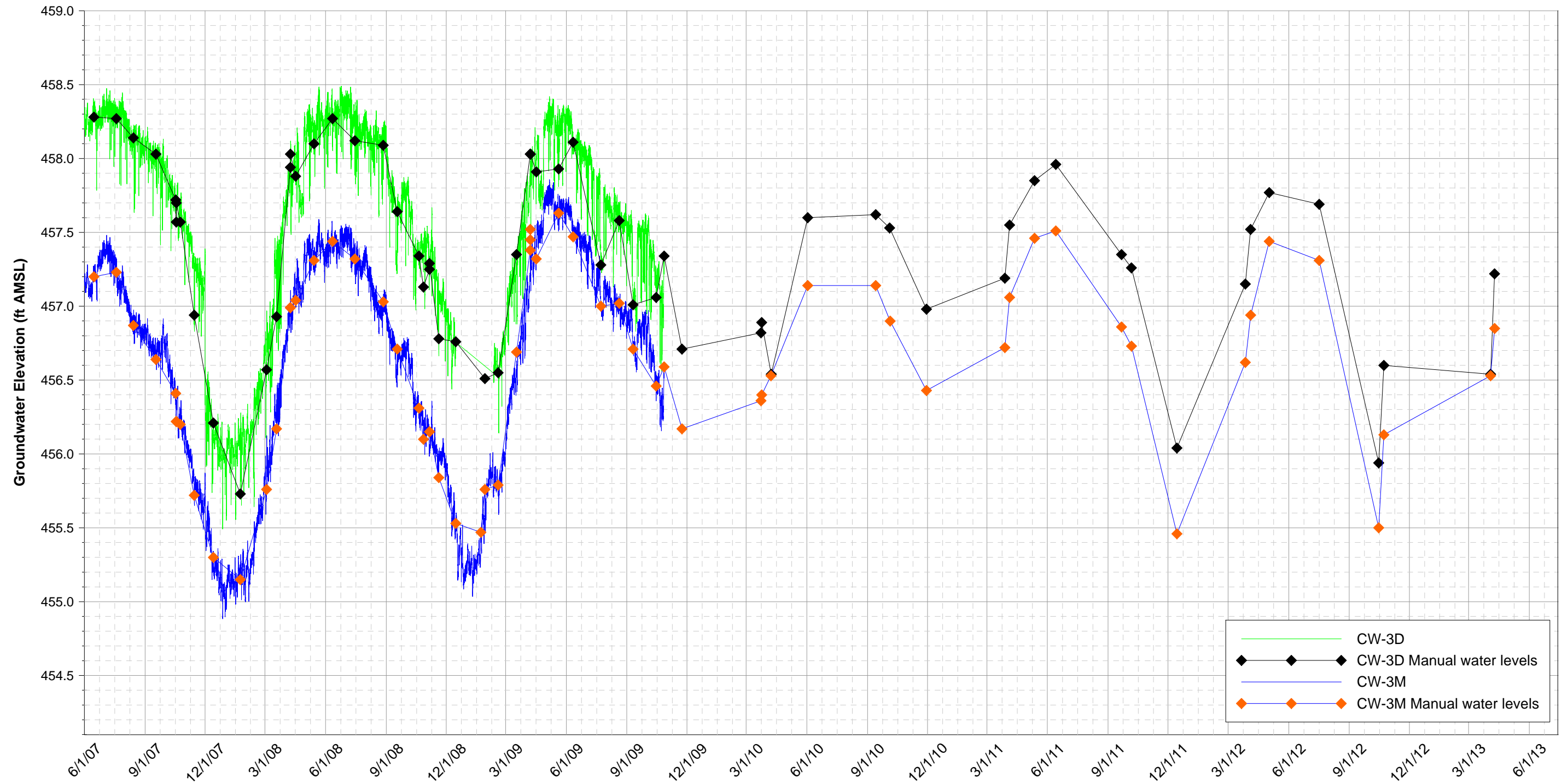
FIGURE C-1
CW-1 HYDROGRAPHS AND
MANUAL WATER LEVELS
 IM-3 COMPLIANCE MONITORING PROGRAM
 PG&E TOPOCK COMPRESSOR STATION
 NEEDLES, CALIFORNIA



Note: Data subject to review.

On September 3, 2009, DTSC approved modifications to the CMP Monitoring and Reporting Program that no longer required continuous groundwater elevation measurements at CW-2D and CW-2M.

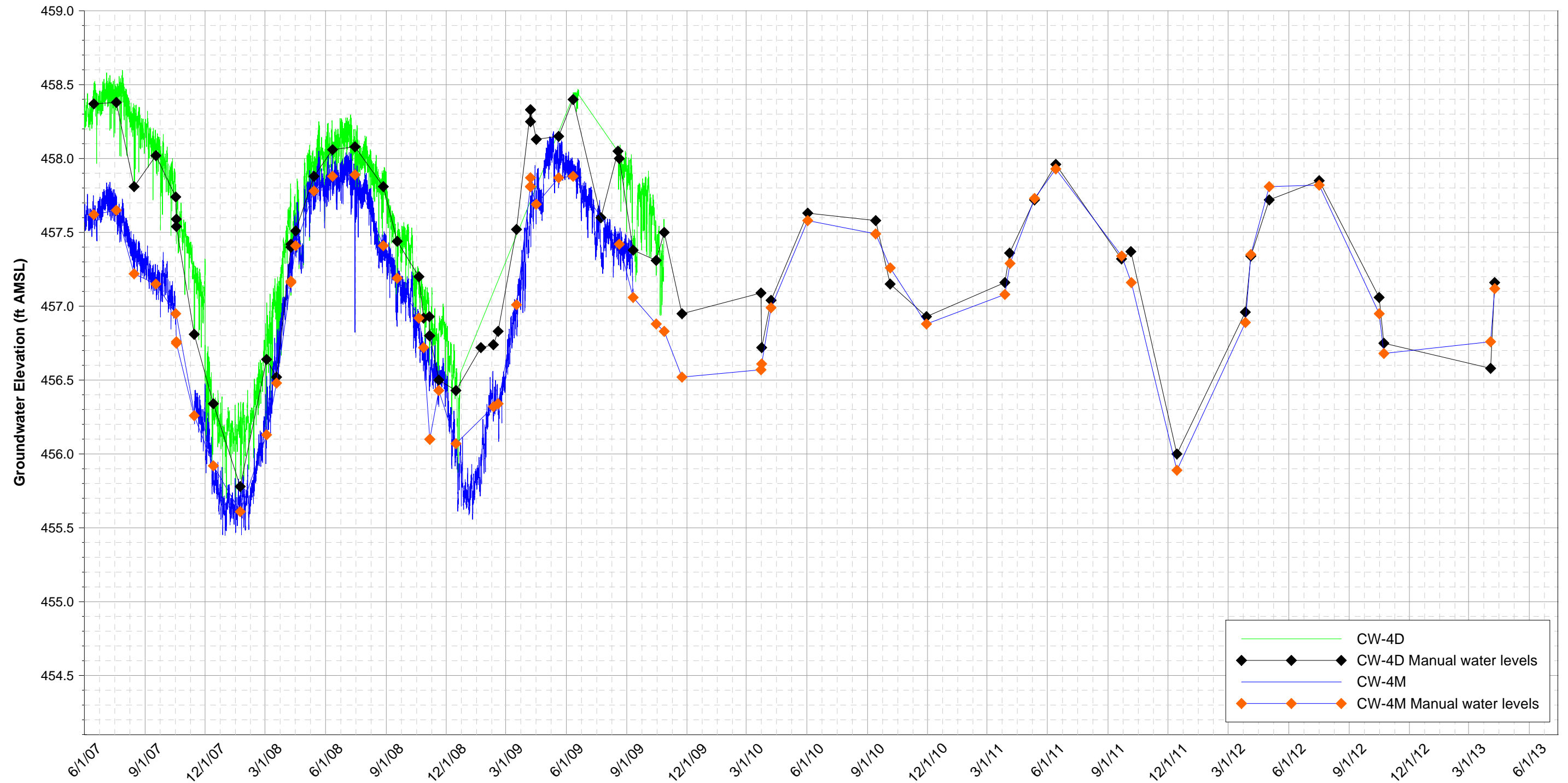
FIGURE C-2
CW-2 HYDROGRAPHS AND
MANUAL WATER LEVELS
 IM-3 COMPLIANCE MONITORING PROGRAM
 PG&E TOPOCK COMPRESSOR STATION
 NEEDLES, CALIFORNIA



Note: Data subject to review.

On September 3, 2009, DTSC approved modifications to the CMP Monitoring and Reporting Program that no longer required continuous groundwater elevation measurements at CW-3D and CW-3M.

FIGURE C-3
CW-3 HYDROGRAPHS AND
MANUAL WATER LEVELS
 IM-3 COMPLIANCE MONITORING PROGRAM
 PG&E TOPOCK COMPRESSOR STATION
 NEEDLES, CALIFORNIA



Note: Data subject to review.

On September 3, 2009, DTSC approved modifications to the CMP Monitoring and Reporting Program that no longer required continuous groundwater elevation measurements at CW-4D and CW-4M.

FIGURE C-4
CW-4 HYDROGRAPHS AND
MANUAL WATER LEVELS
 IM-3 COMPLIANCE MONITORING PROGRAM
 PG&E TOPOCK COMPRESSOR STATION
 NEEDLES, CALIFORNIA