

Topock Project Executive Abstract

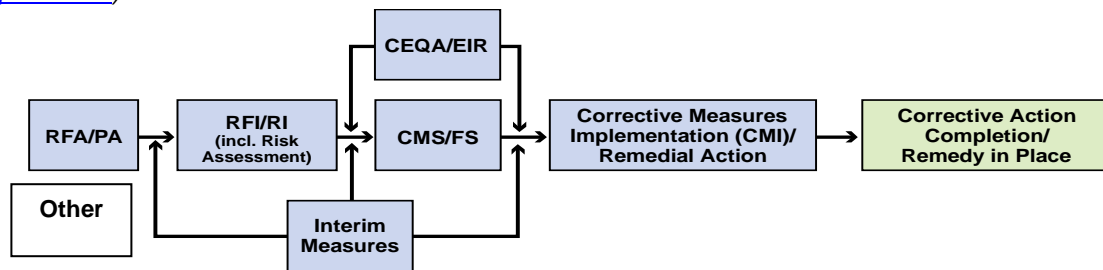
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<p>What is the consequence of NOT doing this item? What is the consequence of DOING this item?</p> <p>Submittal of this report is a compliance requirement under DOI's enforcement as an ARARs beginning August 2011.</p>	<p>Is this a Regulatory Requirement?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If no, why is the document needed?</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 2012, 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 2012 CMP monitoring event conducted in April 2012. During the First Half 2012 monitoring event, no samples exceeded the water quality objectives for Cr(VI), chromium, pH, or TDS. The next CMP event is scheduled to occur in October 2012.</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 an ARARs beginning August 2011.</p>	

Other requirements of this information?

None.

Related Reports and Documents:

Click any boxes in the Regulatory Road Map (below) to be linked to the Documents Library on the DTSC Topock Web Site (www.dtsc-topock.com).



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



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July 13, 2012

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Subject: Interim Measures No. 3, Compliance Monitoring Program, Semiannual Groundwater Monitoring Report, First Half 2012, PG&E Topock Compressor Station, Needles, California (PGE20120713A)

Dear Ms. Innis:

Enclosed is the Compliance Monitoring Program, Semiannual Groundwater Monitoring Report, First Half 2012 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 2012 Compliance Monitoring Program groundwater monitoring event and has been prepared in conformance with the 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 2012 sampling event. The next CMP event is scheduled to occur in October 2012.

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

Sincerely,

A handwritten signature in blue ink, reading "Yvonne Meeks", is positioned below the word "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 2012

**Interim Measure No. 3,
PG&E Topock Compressor Station,
Needles, California
Document ID: PGE20120713A**

Prepared for
United States Department of the Interior

On behalf of
Pacific Gas and Electric Company

July 13, 2012

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


**Compliance Monitoring Program
Semiannual Groundwater Monitoring Report,
First Half 2012**

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

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

July 13, 2012

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 2012, 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 2012 CMP groundwater monitoring event.

SECTION 2

First Half 2012 Activities

This section provides a summary of the monitoring and sampling activities completed during the First Half 2012. The First Half 2012 event was a semiannual event conducted from April 3 through April 5, 2012 and consisted of:

- Three observation and eight compliance monitoring wells were sampled for water quality analyses.
- Groundwater elevations and field water quality data were collected prior to sampling.
- Two duplicate samples were collected at wells CW-2D and CW-3D 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 EMAX Laboratories, Inc. in Torrance, California, both California-certified analytical laboratories. Analytical methods, sample volumes and containers, sample preservation, and quality control sample requirements were in accordance with the *Sampling, Analysis, and Field Procedures Manual, Revision 1, PG&E Topock Compressor Station, Needles, California* (CH2M HILL, 2005c) and addendums. Data validation and management were conducted in accordance with the *Quality Assurance Project Plan [QAPP], Addendum to the PG&E Program Quality Assurance Project Plan for the Topock Groundwater Monitoring and Investigation Projects* (CH2M HILL, 2008).

First Half 2012 Results

This section is a summary of the results of the CMP groundwater sampling conducted during the First Half 2012. 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 2012 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 2012 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 2012 CMP sampling event. For shallow wells, the maximum detected Cr(VI) concentration was 26.8 micrograms per liter ($\mu\text{g/L}$) in well OW-2S on April 5, 2012. For the middle wells, the maximum detected Cr(VI) concentration was 8.7 $\mu\text{g/L}$ in well CW-4M on April 4, 2012. For the deep wells, the maximum detected Cr(VI) concentration was 1.0 $\mu\text{g/L}$ in well CW-4D on April 4, 2012. During the First Half 2012 sampling event, no Cr(VI) sample results exceeded the WQO trigger level for Cr(VI) of 32 $\mu\text{g/L}$.

For shallow wells, the maximum detected chromium concentration was 25.4 $\mu\text{g/L}$ in well OW-2S on April 5, 2012. For the middle wells, the maximum detected chromium concentration was 8.7 $\mu\text{g/L}$ in well CW-4M on April 4, 2012. For the deep wells, the maximum detected chromium concentration was 1.3 $\mu\text{g/L}$ in well CW-4D on April 4, 2012. During the First Half 2012 sampling event, no chromium sample results exceeded the WQO trigger level for chromium of 28 $\mu\text{g/L}$. The contingency plan was not triggered for Cr(VI) or 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 2012. Metals and ions detected in the First Half 2012 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 2012 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 2012, the sampling results from all wells were within the WQOs for TDS (less than 10,800 milligrams per liter [mg/L]) and pH (within 6.2 to 9.2). Sampling results for TDS varied from 1,000 mg/L in well OW-2S to 4,830 mg/L in well CW-3M. Field pH varied from 7.47 in well OW-1S to 8.06 in well CW-2D.

Table 4 also includes results from a subset of wells being analyzed for contaminants of potential concern, including molybdenum and selenium. In an email dated March 3, 2010, DTSC directed monitoring of these contaminants of potential concern and potential in situ byproducts (DTSC, 2010).

3.2 Analytical Data Quality Review

The laboratory analytical data generated from the First Half 2012 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 (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 sensitivity for Cr(VI) when using Method E218.6 and result in elevated reporting limits for nondetect samples. No matrix interference was encountered for this set of samples.

3.2.2 Matrix Spike Samples

All matrix spike acceptance criteria were met.

3.2.3 Quantitation and Sensitivity

All method and analyte combinations met the project reporting limit objectives.

3.2.4 Holding-time Data Qualification

For the current semiannual sampling event, all method holding-time requirements were met.

3.2.5 Field Duplicates

One field duplicate pair had relative percent difference greater than the upper control limit for fluoride (E300.0, 20 percent); the detected results were qualified as estimated and flagged "J". All other field duplicate acceptance criteria were met.

3.2.6 Method Blanks

All method blank acceptance criteria were met.

3.2.7 Equipment Blanks

All equipment blank acceptance criteria were met.

3.2.8 Laboratory Duplicates

All laboratory duplicate acceptance criteria for the methods were met.

3.2.9 Calibration

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

3.2.10 Conclusion

For the semiannual First Half 2012 sampling event, the completeness objectives were met for all method and analyte combinations. The analyses and data quality met the QAPP and laboratory method quality control criteria except as noted above. Overall, the analytical data are considered acceptable for the purpose of the CMP.

3.3 Influence of Treated Water

3.3.1 Post-injection Versus Pre-injection

Injection of treated water began on July 31, 2005. 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 1, 2009, and April 3, 2012. While there are differences among some parameters in these samples, a number of parameters show relatively consistent concentrations in the effluent over time. Analytes that are relatively consistent over the injection time period include Cr(VI), chromium, fluoride, molybdenum, nitrate/nitrite as nitrogen, sulfate, and TDS. These seven constituents provide a characterization of the effluent that does not appear to vary greatly over time and can serve as a basis for determining if a groundwater monitoring well is being affected by injection. In general terms, treated water has the following characteristics (based on review of December 2005 through April 2012 effluent characteristics):

- Cr(VI): typically nondetect (or below 1.0 µg/L)
- Chromium: typically nondetect (1.0 µg/L)
- Fluoride: approximately 2 mg/L
- Molybdenum: approximately 15 µg/L
- Nitrate/nitrite as nitrogen: approximately 3.0 mg/L
- Sulfate: approximately 500 mg/L
- TDS: approximately 4,000 mg/L

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

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

Table 6 presents a comparison between the treated water quality and the results from the most recent sampling event (the First Half 2012 sampling event). These samples were collected after approximately 80 months of injection. While the pre-injection OW and CW sample results were significantly different from the treated water quality, a number of the First Half 2012 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, and CW-4M have chemical characteristics approaching that of treated water. To date, shallow observation wells OW-2S and OW-5S and compliance well CW-3M do not show water quality effects due to injection of treated water, indicating that injected water has not yet reached these depths and locations. However, well OW-5S has increased in TDS since injection began in 2005, suggesting that the injection front is approaching these wells.

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, pH,

sodium, sulfate, TDS, and vanadium. Water quality hydrographs (time-series plots) of these 11 analytes in each OW and CW during First Half 2012 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 net trends. The water quality change brought on by the arrival of the treated water injection front can be either gradual (OW-5M) or step-wise (OW-2M), with most affected wells showing a pattern of change somewhere between the two. Based on the variability in response, it is inferred that the movement of treated water is non-uniform laterally between wells. This variability in lateral movement can be inferred from differences in the water quality hydrographs in both the mid-depth and deep wells. The OW shallow-depth wells (OW-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-1M, CW-2M, and CW-4M show decreasing trends in Cr(VI) and chromium. These changes are attributed to the arrival of treated injection water.

3.4 Water Level Measurements

Table 7 presents the manual water level measurements and groundwater elevations from First and Second Quarters 2012 per the DOI ARAR requirements (DOI, 2011), as well as Third and Fourth Quarters 2011 groundwater elevations. 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 day of CMP sample 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 2012 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, 2012).

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 80 months of injection, the mound increased and then stabilized in height at several tenths of a foot in elevation above the surrounding water level elevations. Figures 5B and 5C present groundwater elevation contours for the average groundwater elevation of the mound within the middle and deep wells using May 2, 2012 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 2, 2012 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. One gradient, between well pairs CW-4D and CW-4M, is negative, signifying that the groundwater flow is downward. The gradient for this well pair is very small (-0.0007). A review of the last two years' of gradients at this well pair has the gradients ranging from 0.0003 to 0.0004. The negative gradient is in the same order of magnitude and very near zero, indicating that this could be due to normal variation of instrument readings. 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 2012 monitoring event. Field data sheets for the First Half 2012 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 2012 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 2012. 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, 2013.

4.2 Annual Monitoring

The next annual monitoring event will also occur in October during the second half of 2012. The groundwater monitoring report for this annual CMP monitoring event will be submitted by January 15, 2013.

References

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- _____. 2007. Letter to PG&E. "Conditional Approval of Request for Reduced Groundwater Sampling Frequency for Select Constituents at Pacific Gas & Electric Company, Topock Compressor Station, Needles, California." January 22.
- _____. 2008a. Letter to PG&E. "Re: Analytical Methods for WDR Monitoring Programs." January 22.
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- _____. 2010. Email. Email to PG&E. "Topock GMP Monitoring Frequency Modification, Topock Compressor Station, Needles, California." March 3.
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- _____. 2007b. Letter to PG&E. "Clarification of Monitoring and Reporting Program (MRP) Requirements, Board Orders Nos. R7-2006-0060 and R7-2004-0080, Topock Compressor Station, San Bernardino County." October 16.
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- _____. 2005b. *Addendum to the Compliance Monitoring Plan for the IM No. 3 Injection Area, Topock Compressor Station, Needles, California*. December 13.
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- _____. 2006. *Request for Approval to Implement Limited Sampling Frequency for Selected Metals/ General Minerals for PG&E Topock Compressor Station, Needles, California*. December 1.
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- _____. 2012. *Fourth Quarter 2011 and Annual Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California*. March 15.
- Pacific Gas and Electric Company (PG&E). 2011. Letter to DOI and Water Board "Re: Applicable or Relevant and Appropriate Requirements (ARARs) for the Waste Discharge associated with Interim Measure 3 Facility at PG&E's Topock Compressor Station." September 7.
- United States Department of the Interior (DOI). 2011. Letter to PG&E and Water Board. "Enforcement of Applicable or Relevant and Appropriate Requirements for the Interim Measure 3 Facility – PG&E Topock Compressor Station Site." August 18.

SECTION 6

Certification

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

Certification Statement:

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

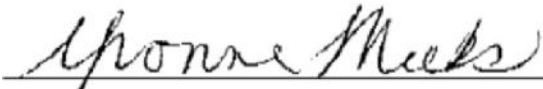
Signature: 
Name: Yvonne J. Meeks
Company: Pacific Gas and Electric Company
Title: Topock Project Manager
Date: July 13, 2012

TABLE 1

Operational Status of Interim Measures No. 3 Injection Wells From Inception of Injection Through First Half 2012
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.

TABLE 1

Operational Status of Interim Measures No. 3 Injection Wells From Inception of Injection Through First Half 2012
PG&E Topock Compliance Monitoring Program

Time Period	Injection Status
Third Quarter 2009	IM3 injection alternates between the two wells approximately every two weeks. Injection continued at IW-2 until July 8, when it transitioned to IW-3. Injection ceased from July 23 to 27, 2009 when it continued at IW-3 until September 9, 2009. Unplanned downtime occurred from September 9-14, 2009. On September 16, 2009 injection continued at IW-2, except during times of routine maintenance or otherwise mentioned.
Fourth Quarter 2009	Injection occurred at IW-2 until November 25, 2009 when it switched to IW-3. Injection continued at IW-3, except during times of routine maintenance.
First Half 2010	Injection occurred mainly at IW-3 until March 3, 2010. Beginning March 3, 2010, IM3 injection alternated between the two wells approximately every two weeks until April 20, 2010 for a planned shutdown. On April 22, 2010, injection resumed at IW-3 and alternated between the two wells approximately every two weeks. Backwashing 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 through 10; 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.

TABLE 2

Well Construction and Sampling Summary for Groundwater Samples, First Half 2012
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	108.3	Temp Redi-Flo AR	2	42	165		
CW-01D	East Mesa	566.46	250 - 300	2 (PVC)	300.2	108.4	Temp Redi-Flo AR	3	98	180		
CW-02M	East Mesa	549.45	152 - 202	2 (PVC)	208.3	91.8	Temp Redi-Flo AR	2	56	195		
CW-02D	East Mesa	549.43	285 - 335	2 (PVC)	355.0	91.5	Temp Redi-Flo AR	3	135	159		
CW-03M	East Mesa	534.10	172 - 222	2 (PVC)	222.0	76.7	Temp Redi-Flo AR	2	74	180		
CW-03D	East Mesa	534.14	270 - 320	2 (PVC)	340.0	76.2	Temp Redi-Flo AR	3	135	143		
CW-04M	East Mesa	518.55	119.5 - 169.5	2 (PVC)	169.8	60.6	Temp Redi-Flo AR	2	56	160		
CW-04D	East Mesa	518.55	233 - 283	2 (PVC)	303.0	60.6	Temp Redi-Flo AR	3	124	134		
IM Observation Wells												
OW-01S	East Mesa	550.21	83.5 - 113.5	2 (PVC)	113.5	92.7	Temp Redi-Flo AR	1	11	100	Active	
OW-01M	East Mesa	550.36	165 - 185	2 (PVC)	185.8	92.6	Temp Redi-Flo AR	3	50	109.6		
OW-01D	East Mesa	550.36	257 - 277	2 (PVC)	277.3	92.3	Temp Redi-Flo AR	3	102	111.4		
OW-02S	East Mesa	548.88	71 - 101	2 (PVC)	103.6	91.3	Temp Redi-Flo AR	1	6	100	Active	
OW-02M	East Mesa	548.52	190 - 210	2 (PVC)	210.3	90.7	Temp Redi-Flo AR	2	60	111.4		
OW-02D	East Mesa	549.01	310 - 330	2 (PVC)	340.0	90.7	Temp Redi-Flo AR	3	120	110.3		
OW-05S	East Mesa	551.83	70 - 110	2 (PVC)	110.3	94.2	Temp Redi-Flo AR	1	9	100	Active	
OW-05M	East Mesa	551.81	210 - 250	2 (PVC)	250.3	93.3	Temp Redi-Flo AR	3	80	112.5	Active	
OW-05D	East Mesa	552.41	300 - 320	2 (PVC)	350.0	93.8	Temp Redi-Flo AR	3	130	113.2	Active	

Notes:

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

Depth to water for each well was collected on May 2 2012.
All wells were purged and sampled using 3 well-volume method.

TABLE 3
Chromium Results for Groundwater Samples, First Half 2012
PG&E Topock Compliance Monitoring Program

Method:		E218.6	E200.8
Location ID	Sample Date	Hexavalent Chromium (µg/L)	Chromium (µg/L)
CW-01M	4/3/2012	2.00	2.40
CW-01D	4/3/2012	0.41	ND (1.0)
CW-02M	4/4/2012	2.40	2.80
CW-02D	4/4/2012	0.82	1.20
CW-02D	4/4/2012 (FD)	0.80	1.20
CW-03M	4/4/2012	7.90	8.60
CW-03D	4/4/2012	0.69	1.00
CW-03D	4/4/2012 (FD)	0.70	1.10
CW-04M	4/4/2012	8.70	8.70
CW-04D	4/4/2012	1.00	1.30
OW-01S	4/5/2012	9.50	9.40
OW-02S	4/5/2012	26.8	25.4
OW-05S	4/5/2012	20.2	20.1

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 2012

PG&E Topock Compliance Monitoring Program

Method:		E120.1	Field	SM2540C	SM2130B	E300.0	E300.0	E300.0	SM4500NH3D	SM4500NO3	E200.7	E200.7/SW6020A	SW6020A
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)	Dissolved Selenium (µg/L)
CW-01M	4/3/2012	7280	7.86	4070	0.181	2260	1.89	510	ND (0.5)	2.90	---	---	---
CW-01D	4/3/2012	7190	7.81	3960	0.142	2340	2.49	502	ND (0.5)	3.24	---	---	---
CW-02M	4/4/2012	7180	7.92	3920	0.399	3800	3.02	475	ND (0.5)	2.81	---	20.2	ND (10)
CW-02D	4/4/2012	7390	8.06	4050	0.611	2360	3.12	500	ND (0.5)	3.11	---	ND (10)	ND (10)
CW-02D	4/4/2012 (FD)	7410	FD	4320	0.677	2230	3.48	500	ND (0.5)	3.05	---	ND (10)	ND (10)
CW-03M	4/4/2012	8780	7.66	4830	0.168	2910	3.16	454	ND (0.5)	1.55	---	---	---
CW-03D	4/4/2012	7320	7.91	4170	0.115	2260	4.53 J	497	ND (0.5)	3.07	---	18.1	ND (10)
CW-03D	4/4/2012 (FD)	7350	FD	4360	0.135	2220	6.77 J	501	ND (0.5)	3.15	---	18.1	ND (10)
CW-04M	4/4/2012	6760	7.78	3690	ND (0.1)	1970	2.00	409	ND (0.5)	2.53	---	---	---
CW-04D	4/4/2012	7610	7.97	4660	0.153	2210	3.72	507	ND (0.5)	2.97	---	---	---
OW-01S	4/5/2012	5420	7.47	3100	ND (0.1)	1530	1.89	344	---	3.09	648	ND (10)	---
OW-02S	4/5/2012	1760	8.04	1000	0.237	407	4.98	103	---	4.04	317	39.1	---
OW-05S	4/5/2012	2770	7.76	1570	0.164	723	2.21	140	---	3.35	402	21.3	---

Notes:

FD field duplicate
 µmhos/cm micro-mhos per centimeter
 NTU Nephelometric Turbidity Unit
 mg/L milligrams per liter
 µg/L micrograms per liter
 ND parameter not detected at the listed reporting limit
 --- not sampled or required for this event
 J concentration or RL (reporting limit) estimated by laboratory or data validation

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	4/1/2009	ND (0.2)	ND (1.0)	2.01	19.6	2.48	500	3850
Treated Water	4/3/2012	ND (0.2)	ND (1.0)	2.11	18.9	3.06	564	4430
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 2012 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	4/7/2010	0.29	ND (1.0)	1.82	18.6	2.87	512	4270
Treated Water	4/5/2011	ND (0.2)	ND (1.0)	2.01	17.3	2.88	518	4150
Treated Water	4/3/2012	ND (0.2)	ND (1.0)	2.11	18.9	3.06	564	4430
CW-01M	4/3/2012	2.00	2.40	1.89	---	2.90	510	4070
CW-01D	4/3/2012	0.41	ND (1.0)	2.49	---	3.24	502	3960
CW-02M	4/4/2012	2.40	2.80	3.02	20.2	2.81	475	3920
CW-02D	4/4/2012 (FD)	0.80	1.20	3.48	ND (10)	3.05	500	4320
CW-02D	4/4/2012	0.82	1.20	3.12	ND (10)	3.11	500	4050
CW-03M	4/4/2012	7.90	8.60	3.16	---	1.55	454	4830
CW-03D	4/4/2012 (FD)	0.70	1.10	6.77 J	18.1	3.15	501	4360
CW-03D	4/4/2012	0.69	1.00	4.53 J	18.1	3.07	497	4170
CW-04M	4/4/2012	8.70	8.70	2.00	---	2.53	409	3690
CW-04D	4/4/2012	1.00	1.30	3.72	---	2.97	507	4660
OW-01S	4/5/2012	9.50	9.40	1.89	ND (10)	3.09	344	3100
OW-02S	4/5/2012	26.8	25.4	4.98	39.1	4.04	103	1000
OW-05S	4/5/2012	20.2	20.1	2.21	21.3	3.35	140	1570

Notes:

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

All hexavalent chromium samples were analyzed with method E218.6

All chromium and molybdenum samples were analyzed with methods E200.8 and E200.7, respectively. Chromium and molybdenum samples were field filtered, except for the treated water.

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

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

All total dissolved solid samples were analyzed with method SM2540C.

TABLE 7

Manual Water Level Measurements and Elevations, First Half 2012
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	21-Sep-11	2:16 PM	108.69	0.49	457.31
			14-Dec-11	9:24 AM	110.13	0.48	455.87
			27-Mar-12	9:01 AM	109.25	0.49	456.76
			02-May-12	11:18 AM	108.31	0.49	457.69
CW-01D	300.2	566.46	21-Sep-11	2:29 PM	108.90	0.48	457.40
			14-Dec-11	9:22 AM	110.21	0.50	456.12
			27-Mar-12	9:05 AM	109.24	0.48	457.06
			02-May-12	11:17 AM	108.40	0.48	457.90
CW-02M	208.3	549.45	21-Sep-11	11:09 AM	92.37	0.47	456.99
			14-Dec-11	9:47 AM	93.76	0.49	455.61
			27-Mar-12	9:09 AM	92.64	0.47	456.72
			02-May-12	11:25 AM	91.78	0.47	457.58
CW-02D	355.0	549.43	21-Sep-11	10:48 AM	91.93	0.50	457.26
			14-Dec-11	9:45 AM	93.24	0.49	455.95
			27-Mar-12	9:13 AM	92.15	0.50	457.04
			02-May-12	11:24 AM	91.53	0.50	457.66
CW-03M	222.0	534.10	21-Sep-11	11:43 AM	77.24	0.60	456.87
			14-Dec-11	9:53 AM	78.65	0.60	455.46
			27-Mar-12	9:17 AM	77.48	0.60	456.63
			02-May-12	11:29 AM	76.66	0.60	457.45
CW-03D	340.0	534.14	21-Sep-11	11:23 AM	76.62	0.54	457.36
			14-Dec-11	9:51 AM	77.92	0.53	456.04
			27-Mar-12	9:20 AM	76.82	0.54	457.16
			02-May-12	11:27 AM	76.20	0.54	457.77
CW-04M	169.8	518.55	21-Sep-11	1:53 PM	61.11	0.45	457.34
			14-Dec-11	9:36 AM	62.54	0.43	455.90
			27-Mar-12	9:29 AM	61.56	0.45	456.89
			02-May-12	11:38 AM	60.64	0.45	457.81
CW-04D	303.0	518.55	21-Sep-11	1:34 PM	61.02	0.50	457.33
			14-Dec-11	9:34 AM	62.36	0.51	456.01
			27-Mar-12	9:26 AM	61.38	0.50	456.97
			02-May-12	11:37 AM	60.62	0.50	457.73
OW-01S	113.5	550.21	22-Sep-11	10:50 AM	93.30	0.21	456.85
			14-Dec-11	9:12 AM	94.72	0.21	455.44
			27-Mar-12	9:32 AM	93.61	0.29	456.56
			02-May-12	11:00 AM	92.65	0.29	457.51
OW-01M	185.8	550.36	22-Sep-11	10:36 AM	92.79	0.48	457.48
			14-Dec-11	9:17 AM	94.13	0.46	456.13
			27-Mar-12	9:36 AM	93.35	0.48	456.92
			02-May-12	11:01 AM	92.55	0.48	457.72

TABLE 7

Manual Water Level Measurements and Elevations, First Half 2012
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)
OW-01D	277.3	550.36	22-Sep-11	10:19 AM	92.54	0.48	457.64
			14-Dec-11	9:16 AM	93.72	0.48	456.47
			27-Mar-12	9:40 AM	92.77	0.48	457.41
			02-May-12	11:02 AM	92.28	0.48	457.90
OW-02S	103.6	548.88	22-Sep-11	9:54 AM	91.95	0.09	456.89
			14-Dec-11	9:04 AM	93.37	0.09	455.47
			27-Mar-12	9:45 AM	92.21	0.12	456.64
			02-May-12	11:06 AM	91.25	0.12	457.59
OW-02M	210.3	548.52	22-Sep-11	10:03 AM	90.68	0.48	457.72
			14-Dec-11	9:06 AM	92.07	0.49	456.34
			27-Mar-12	9:49 AM	91.38	0.48	457.02
			02-May-12	11:08 AM	90.68	0.48	457.72
OW-02D	340.0	549.01	22-Sep-11	9:32 AM	90.80	0.48	457.94
			14-Dec-11	9:09 AM	92.06	0.49	456.70
			27-Mar-12	9:52 AM	90.89	0.48	457.85
			02-May-12	11:05 AM	90.71	0.48	458.03
OW-05S	110.3	551.83	22-Sep-11	8:38 AM	94.83	0.17	456.95
			14-Dec-11	8:53 AM	96.21	0.17	455.57
			27-Mar-12	9:55 AM	95.14	0.23	456.66
			02-May-12	11:10 AM	94.16	0.23	457.63
OW-05M	250.3	551.81	22-Sep-11	8:49 AM	94.30	0.46	457.35
			14-Dec-11	8:56 AM	95.52	0.46	456.13
			27-Mar-12	9:57 AM	94.61	0.44	457.11
			02-May-12	11:12 AM	93.30	0.44	458.33
OW-05D	350.0	552.41	22-Sep-11	9:08 AM	94.86	0.52	457.37
			14-Dec-11	8:59 AM	96.07	0.52	456.16
			27-Mar-12	10:00 AM	95.07	0.50	457.13
			02-May-12	11:13 AM	93.82	0.50	458.38

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	0.0019
CW-02D to CW-02M	0.0006
CW-03D to CW-03M	0.0033
CW-04D to CW-04M	-0.0007
OW-01M to OW-01S	0.0027
OW-01D to OW-01M	0.0020
OW-02M to OW-02S	0.0011
OW-02D to OW-02M	0.0026
OW-05M to OW-05S	0.0050
OW-05D to OW-05M	0.0006

^a Positive value signifies an upward gradient.

Gradients calculated using May 2, 2012 groundwater levels.

TABLE 9

Field Parameter Measurements for Groundwater Samples, First Half 2012
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	4/3/2012	7294	29.38	7.86	19.3	5.04	1	0.47	108.91
CW-01D	4/3/2012	7314	28.47	7.81	29.2	4.52	1	0.47	108.93
CW-02M	4/4/2012	7228	29.55	7.92	27.2	6.5	1	0.47	92.32
CW-02D	4/4/2012	7465	30.32	8.06	15.3	7.79	2	0.48	91.74
CW-03M	4/4/2012	8913	29.89	7.66	73	2.54	1	0.58	77.16
CW-03D	4/4/2012	7502	30.85	7.91	122	8.43	1	0.48	76.45
CW-04M	4/4/2012	6792	29.48	7.78	15.5	4.02	1	0.44	61.10
CW-04D	4/4/2012	7641	30.44	7.97	22.4	8.48	1	0.49	61.00
OW-01S	4/5/2012	5499	28.74	7.47	75.6	6.77	1	0.35	93.29
OW-02S	4/5/2012	1739	29.01	8.04	38.2	7.49	1	0.11	91.85
OW-05S	4/5/2012	2742	28.78	7.76	21.8	6.39	1	0.18	94.77

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 2012

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-027	Barry Collom	4/3/2012	2:36:00 PM	TLI	EPA 120.1	SC	4/6/2012	Gautam Savani	µmhos/cm	7190	2.0	0.095
					TLI	EPA 200.8	CRTD	4/11/2012	Katia Kiarashpoor	µg/L	ND (1.0)	1.0	0.11
					TLI	EPA 218.6	CR6	4/10/2012	Maksim Gorbunov/George Wahba/ Melissa Scharfe	µg/L	0.41	0.2	0.026
					TLI	EPA 300.0	CL	4/5/2012	Giawad Ghenniwa	mg/L	2340	100	18.0
					TLI	EPA 300.0	FL	4/5/2012	Giawad Ghenniwa	mg/L	2.49	0.5	0.155
					TLI	EPA 300.0	SO4	4/5/2012	Giawad Ghenniwa	mg/L	502	25.0	5.70
					TLI	SM2130B	TRB	4/5/2012	Gautam Savani	NTU	0.142	0.1	0.014
					TLI	SM2540C	TDS	4/6/2012	Kim Luck	mg/L	3960	250	0.40
					TLI	SM4500NH3D	NH3N	4/5/2012	Bitu Emami	mg/L	ND (0.5)	0.5	0.0012
					EMXT	SM4500NO3-E	NO3NO2N	4/16/2012	Nina Macalinao	mg/L	3.24	1.0	0.20
CW-01M	CW-01M-027	Barry Collom	4/3/2012	3:30:00 PM	TLI	EPA 120.1	SC	4/6/2012	Gautam Savani	µmhos/cm	7280	2.0	0.095
					TLI	EPA 200.8	CRTD	4/11/2012	Katia Kiarashpoor	µg/L	2.40	1.0	0.11
					TLI	EPA 218.6	CR6	4/10/2012	Maksim Gorbunov/George Wahba/ Melissa Scharfe	µg/L	2.00	0.2	0.026
					TLI	EPA 300.0	CL	4/5/2012	Giawad Ghenniwa	mg/L	2260	100	18.0
					TLI	EPA 300.0	FL	4/5/2012	Giawad Ghenniwa	mg/L	1.89	0.5	0.155
					TLI	EPA 300.0	SO4	4/5/2012	Giawad Ghenniwa	mg/L	510	50.0	11.4
					TLI	SM2130B	TRB	4/5/2012	Gautam Savani	NTU	0.181	0.1	0.014
					TLI	SM2540C	TDS	4/6/2012	Kim Luck	mg/L	4070	250	0.40
					TLI	SM4500NH3D	NH3N	4/5/2012	Bitu Emami	mg/L	ND (0.5)	0.5	0.0012

TABLE 10

ARAR Monitoring Information for Groundwater Samples, First Half 2012
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-01M	CW-01M-027	Barry Collom	4/3/2012	3:30:00 PM	EMXT	SM4500NO3-E	NO3NO2N	4/16/2012	Nina Macalinao	mg/L	2.90	1.0	0.20
CW-02D	CW-02D-027	Barry Collom	4/4/2012	12:47:00 PM	TLI	EPA 120.1	SC	4/6/2012	Gautam Savani	µmhos/cm	7390	2.0	0.095
					TLI	EPA 200.8	CRTD	4/11/2012	Katia Kiarashpoor	µg/L	1.20	1.0	0.11
					TLI	EPA 218.6	CR6	4/10/2012	Maksim Gorbunov/George Wahba/ Melissa Scharfe	µg/L	0.82	0.2	0.026
					TLI	EPA 300.0	CL	4/5/2012	Giawad Ghenniwa	mg/L	2360	100	18.0
					TLI	EPA 300.0	FL	4/5/2012	Giawad Ghenniwa	mg/L	3.12	0.5	0.155
					TLI	EPA 300.0	SO4	4/5/2012	Giawad Ghenniwa	mg/L	500	25.0	5.70
					TLI	SM2130B	TRB	4/5/2012	Gautam Savani	NTU	0.611	0.1	0.014
					TLI	SM2540C	TDS	4/6/2012	Kim Luck	mg/L	4050	250	0.40
					TLI	SM4500NH3D	NH3N	4/5/2012	Bitu Emami	mg/L	ND (0.5)	0.5	0.0012
					EMXT	SM4500NO3-E	NO3NO2N	4/16/2012	Nina Macalinao	mg/L	3.11	1.0	0.20
					TLI	SW 6020A	MOD	4/11/2012	Katia Kiarashpoor	µg/L	ND (10)	10.0	0.27
					TLI	SW 6020A	SED	4/11/2012	Katia Kiarashpoor	µg/L	ND (10)	10.0	0.34
CW-02D	OW-91-027	Barry Collom	4/4/2012	5:35:00 PM	TLI	EPA 120.1	SC	4/6/2012	Gautam Savani	µmhos/cm	7410	2.0	0.095
					TLI	EPA 200.8	CRTD	4/11/2012	Katia Kiarashpoor	µg/L	1.20	1.0	0.11
					TLI	EPA 218.6	CR6	4/10/2012	Maksim Gorbunov/George Wahba/ Melissa Scharfe	µg/L	0.80	0.2	0.026
					TLI	EPA 300.0	CL	4/5/2012	Giawad Ghenniwa	mg/L	2230	100	18.0
					TLI	EPA 300.0	FL	4/5/2012	Giawad Ghenniwa	mg/L	3.48	0.5	0.155
					TLI	EPA 300.0	SO4	4/5/2012	Giawad Ghenniwa	mg/L	500	25.0	5.70

TABLE 10

ARAR Monitoring Information for Groundwater Samples, First Half 2012
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	OW-91-027	Barry Collom	4/4/2012	5:35:00 PM	TLI	SM2130B	TRB	4/5/2012	Gautam Savani	NTU	0.677	0.1	0.014
					TLI	SM2540C	TDS	4/6/2012	Kim Luck	mg/L	4320	250	0.40
					TLI	SM4500NH3D	NH3N	4/5/2012	Bitu Emami	mg/L	ND (0.5)	0.5	0.0012
					EMXT	SM4500NO3-E	NO3NO2N	4/16/2012	Nina Macalinao	mg/L	3.05	1.0	0.20
					TLI	SW 6020A	MOD	4/11/2012	Katia Kiarashpoor	µg/L	ND (10)	10.0	0.27
					TLI	SW 6020A	SED	4/11/2012	Katia Kiarashpoor	µg/L	ND (10)	10.0	0.34
CW-02M	CW-02M-027	Barry Collom	4/4/2012	1:47:00 PM	TLI	EPA 120.1	SC	4/6/2012	Gautam Savani	µmhos/cm	7180	2.0	0.095
					TLI	EPA 200.8	CRTD	4/11/2012	Katia Kiarashpoor	µg/L	2.80	1.0	0.11
					TLI	EPA 218.6	CR6	4/10/2012	Maksim Gorbunov/George Wahba/ Melissa Scharfe	µg/L	2.40	0.2	0.026
					TLI	EPA 300.0	CL	4/5/2012	Giawad Ghenniwa	mg/L	3800	100	18.0
					TLI	EPA 300.0	FL	4/5/2012	Giawad Ghenniwa	mg/L	3.02	0.5	0.155
					TLI	EPA 300.0	SO4	4/5/2012	Giawad Ghenniwa	mg/L	475	25.0	5.70
					TLI	SM2130B	TRB	4/5/2012	Gautam Savani	NTU	0.399	0.1	0.014
					TLI	SM2540C	TDS	4/6/2012	Kim Luck	mg/L	3920	250	0.40
					TLI	SM4500NH3D	NH3N	4/5/2012	Bitu Emami	mg/L	ND (0.5)	0.5	0.0012
					EMXT	SM4500NO3-E	NO3NO2N	4/16/2012	Nina Macalinao	mg/L	2.81	1.0	0.20
					TLI	SW 6020A	MOD	4/11/2012	Katia Kiarashpoor	µg/L	20.2	10.0	0.27
					TLI	SW 6020A	SED	4/11/2012	Katia Kiarashpoor	µg/L	ND (10)	10.0	0.34
CW-03D	OW-90-027	Barry Collom	4/4/2012	7:10:00 AM	TLI	EPA 120.1	SC	4/6/2012	Gautam Savani	µmhos/cm	7350	2.0	0.095

TABLE 10

ARAR Monitoring Information for Groundwater Samples, First Half 2012
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	OW-90-027	Barry Collom	4/4/2012	7:10:00 AM	TLI	EPA 200.8	CRTD	4/14/2012	Katia Kiarashpoor	µg/L	1.10	1.0	0.11
					TLI	EPA 218.6	CR6	4/10/2012	Maksim Gorbunov/George Wahba/ Melissa Scharfe	µg/L	0.70	0.2	0.026
					TLI	EPA 300.0	CL	4/5/2012	Giawad Ghenniwa	mg/L	2220	100	18.0
					TLI	EPA 300.0	FL	4/5/2012	Giawad Ghenniwa	mg/L	6.77 J	0.5	0.155
					TLI	EPA 300.0	SO4	4/5/2012	Giawad Ghenniwa	mg/L	501	25.0	5.70
					TLI	SM2130B	TRB	4/5/2012	Gautam Savani	NTU	0.135	0.1	0.014
					TLI	SM2540C	TDS	4/6/2012	Kim Luck	mg/L	4360	250	0.40
					TLI	SM4500NH3D	NH3N	4/5/2012	Biti Emami	mg/L	ND (0.5)	0.5	0.0012
					EMXT	SM4500NO3-E	NO3NO2N	4/16/2012	Nina Macalinao	mg/L	3.15	1.0	0.20
					TLI	SW 6020A	MOD	4/11/2012	Katia Kiarashpoor	µg/L	18.1	10.0	0.27
CW-03D	CW-03D-027	Barry Collom	4/4/2012	9:25:00 AM	TLI	SW 6020A	SED	4/11/2012	Katia Kiarashpoor	µg/L	ND (10)	10.0	0.34
					TLI	EPA 120.1	SC	4/6/2012	Gautam Savani	µmhos/cm	7320	2.0	0.095
					TLI	EPA 200.8	CRTD	4/11/2012	Katia Kiarashpoor	µg/L	1.00	1.0	0.11
					TLI	EPA 218.6	CR6	4/10/2012	Maksim Gorbunov/George Wahba/ Melissa Scharfe	µg/L	0.69	0.2	0.026
					TLI	EPA 300.0	CL	4/5/2012	Giawad Ghenniwa	mg/L	2260	100	18.0
					TLI	EPA 300.0	FL	4/5/2012	Giawad Ghenniwa	mg/L	4.53 J	0.5	0.155
					TLI	EPA 300.0	SO4	4/5/2012	Giawad Ghenniwa	mg/L	497	25.0	5.70
					TLI	SM2130B	TRB	4/5/2012	Gautam Savani	NTU	0.115	0.1	0.014
					TLI	SM2540C	TDS	4/6/2012	Kim Luck	mg/L	4170	250	0.40

TABLE 10

ARAR Monitoring Information for Groundwater Samples, First Half 2012
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-027	Barry Collom	4/4/2012	9:25:00 AM	TLI	SM4500NH3D	NH3N	4/5/2012	Bitia Emami	mg/L	ND (0.5)	0.5	0.0012
					EMXT	SM4500NO3-E	NO3NO2N	4/16/2012	Nina Macalinao	mg/L	3.07	1.0	0.20
					TLI	SW 6020A	MOD	4/11/2012	Katia Kiarashpoor	µg/L	18.1	10.0	0.27
					TLI	SW 6020A	SED	4/11/2012	Katia Kiarashpoor	µg/L	ND (10)	10.0	0.34
CW-03M	CW-03M-027	Barry Collom	4/4/2012	10:31:00 AM	TLI	EPA 120.1	SC	4/6/2012	Gautam Savani	µmhos/cm	8780	2.0	0.095
					TLI	EPA 200.8	CRTD	4/11/2012	Katia Kiarashpoor	µg/L	8.60	1.0	0.11
					TLI	EPA 218.6	CR6	4/10/2012	Maksim Gorbunov/George Wahba/ Melissa Scharfe	µg/L	7.90	1.0	0.13
					TLI	EPA 300.0	CL	4/5/2012	Giawad Ghenniwa	mg/L	2910	100	18.0
					TLI	EPA 300.0	FL	4/5/2012	Giawad Ghenniwa	mg/L	3.16	0.5	0.155
					TLI	EPA 300.0	SO4	4/5/2012	Giawad Ghenniwa	mg/L	454	25.0	5.70
					TLI	SM2130B	TRB	4/5/2012	Gautam Savani	NTU	0.168	0.1	0.014
					TLI	SM2540C	TDS	4/6/2012	Kim Luck	mg/L	4830	250	0.40
					TLI	SM4500NH3D	NH3N	4/5/2012	Bitia Emami	mg/L	ND (0.5)	0.5	0.0012
					EMXT	SM4500NO3-E	NO3NO2N	4/16/2012	Nina Macalinao	mg/L	1.55	0.5	0.10
CW-04D	CW-04D-027	Barry Collom	4/4/2012	3:48:00 PM	TLI	EPA 120.1	SC	4/6/2012	Gautam Savani	µmhos/cm	7610	2.0	0.095
					TLI	EPA 200.8	CRTD	4/7/2012	Katia Kiarashpoor	µg/L	1.30	1.0	0.11
					TLI	EPA 218.6	CR6	4/11/2012	Melissa Scharfe	µg/L	1.00	0.2	0.075
					TLI	EPA 300.0	CL	4/6/2012	Giawad Ghenniwa	mg/L	2210	100	18.0
					TLI	EPA 300.0	FL	4/6/2012	Giawad Ghenniwa	mg/L	3.72	0.5	0.155

TABLE 10

ARAR Monitoring Information for Groundwater Samples, First Half 2012

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-027	Barry Collom	4/4/2012	3:48:00 PM	TLI	EPA 300.0	SO4	4/6/2012	Giawad Ghenniwa	mg/L	507	25.0	5.70
					TLI	SM2130B	TRB	4/6/2012	Gautam Savani	NTU	0.153	0.1	0.014
					TLI	SM2540C	TDS	4/6/2012	Kim Luck	mg/L	4660	250	0.40
					TLI	SM4500NH3D	NH3N	4/10/2012	Bitam Emami	mg/L	ND (0.5)	0.5	0.0012
					EMXT	SM4500NO3-E	NO3NO2N	4/16/2012	Nina Macalinao	mg/L	2.97	1.0	0.20
CW-04M	CW-04M-027	Barry Collom	4/4/2012	4:46:00 PM	TLI	EPA 120.1	SC	4/6/2012	Gautam Savani	µmhos/cm	6760	2.0	0.095
					TLI	EPA 200.8	CRTD	4/7/2012	Katia Kiarashpoor	µg/L	8.70	1.0	0.11
					TLI	EPA 218.6	CR6	4/11/2012	Melissa Scharfe	µg/L	8.70	0.2	0.075
					TLI	EPA 300.0	CL	4/6/2012	Giawad Ghenniwa	mg/L	1970	100	18.0
					TLI	EPA 300.0	FL	4/6/2012	Giawad Ghenniwa	mg/L	2.00	0.5	0.155
					TLI	EPA 300.0	SO4	4/6/2012	Giawad Ghenniwa	mg/L	409	25.0	5.70
					TLI	SM2130B	TRB	4/6/2012	Gautam Savani	NTU	ND (0.1)	0.1	0.014
					TLI	SM2540C	TDS	4/6/2012	Kim Luck	mg/L	3690	250	0.40
					TLI	SM4500NH3D	NH3N	4/10/2012	Bitam Emami	mg/L	ND (0.5)	0.5	0.0012
					EMXT	SM4500NO3-E	NO3NO2N	4/16/2012	Nina Macalinao	mg/L	2.53	1.0	0.20
OW-01S	OW-01S-027	Barry Collom	4/5/2012	9:08:00 AM	TLI	EPA 120.1	SC	4/6/2012	Gautam Savani	µmhos/cm	5420	2.0	0.095
					TLI	EPA 200.7	MOD	4/9/2012	Ethel Suico	µg/L	ND (10)	10.0	4.00
					TLI	EPA 200.7	NAD	4/9/2012	Ethel Suico	mg/L	648	25.0	2.93
					TLI	EPA 200.8	CRTD	4/7/2012	Katia Kiarashpoor	µg/L	9.40	1.0	0.11

TABLE 10

ARAR Monitoring Information for Groundwater Samples, First Half 2012

PG&E Topock Compliance Monitoring Program

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
OW-01S	OW-01S-027	Barry Collom	4/5/2012	9:08:00 AM	TLI	EPA 218.6	CR6	4/11/2012	Melissa Scharfe	µg/L	9.50	0.2	0.075
					TLI	EPA 300.0	CL	4/6/2012	Giawad Ghenniwa	mg/L	1530	100	18.0
					TLI	EPA 300.0	FL	4/6/2012	Giawad Ghenniwa	mg/L	1.89	0.5	0.155
					TLI	EPA 300.0	SO4	4/6/2012	Giawad Ghenniwa	mg/L	344	25.0	5.70
					TLI	SM2130B	TRB	4/6/2012	Gautam Savani	NTU	ND (0.1)	0.1	0.014
					TLI	SM2540C	TDS	4/6/2012	Kim Luck	mg/L	3100	125	0.40
					EMXT	SM4500NO3-E	NO3NO2N	4/16/2012	Nina Macalinao	mg/L	3.09	1.0	0.20
OW-02S	OW-02S-027	Barry Collom	4/5/2012	10:10:00 AM	TLI	EPA 120.1	SC	4/6/2012	Gautam Savani	µmhos/cm	1760	2.0	0.095
					TLI	EPA 200.7	MOD	4/9/2012	Ethel Suico	µg/L	39.1	10.0	4.00
					TLI	EPA 200.7	NAD	4/9/2012	Ethel Suico	mg/L	317	25.0	2.93
					TLI	EPA 200.8	CRTD	4/10/2012	Katia Kiarashpoor	µg/L	25.4	1.0	0.11
					TLI	EPA 218.6	CR6	4/11/2012	Melissa Scharfe	µg/L	26.8	1.0	0.38
					TLI	EPA 300.0	CL	4/6/2012	Giawad Ghenniwa	mg/L	407	20.0	3.60
					TLI	EPA 300.0	FL	4/6/2012	Giawad Ghenniwa	mg/L	4.98	0.5	0.155
					TLI	EPA 300.0	SO4	4/6/2012	Giawad Ghenniwa	mg/L	103	25.0	5.70
					TLI	SM2130B	TRB	4/6/2012	Gautam Savani	NTU	0.237	0.1	0.014
					TLI	SM2540C	TDS	4/6/2012	Kim Luck	mg/L	1000	50.0	0.40
					EMXT	SM4500NO3-E	NO3NO2N	4/16/2012	Nina Macalinao	mg/L	4.04	1.0	0.20
OW-05S	OW-05S-027	Barry Collom	4/5/2012	12:27:00 PM	TLI	EPA 120.1	SC	4/6/2012	Gautam Savani	µmhos/cm	2770	2.0	0.095

TABLE 10

ARAR Monitoring Information for Groundwater Samples, First Half 2012

PG&E Topock Compliance Monitoring Program

Location	Sample ID	Sampler Name	Sample Date	Sample Time	Lab	Analysis Method	Parameter	Analysis Date	Lab Technician	Units	Result	RL	MDL
OW-05S	OW-05S-027	Barry Collom	4/5/2012	12:27:00 PM	TLI	EPA 200.7	MOD	4/9/2012	Ethel Suico	µg/L	21.3	10.0	4.00
					TLI	EPA 200.7	NAD	4/9/2012	Ethel Suico	mg/L	402	25.0	2.93
					TLI	EPA 200.8	CRTD	4/7/2012	Katia Kiarashpoor	µg/L	20.1	1.0	0.11
					TLI	EPA 218.6	CR6	4/11/2012	Melissa Scharfe	µg/L	20.2	0.2	0.075
					TLI	EPA 300.0	CL	4/6/2012	Giawad Ghenniwa	mg/L	723	100	18.0
					TLI	EPA 300.0	FL	4/6/2012	Giawad Ghenniwa	mg/L	2.21	0.5	0.155
					TLI	EPA 300.0	SO4	4/6/2012	Giawad Ghenniwa	mg/L	140	25.0	5.70
					TLI	SM2130B	TRB	4/6/2012	Gautam Savani	NTU	0.164	0.1	0.014
					TLI	SM2540C	TDS	4/6/2012	Kim Luck	mg/L	1570	50.0	0.40
					EMXT	SM4500NO3-E	NO3NO2N	4/16/2012	Nina Macalinao	mg/L	3.35	1.0	0.20

TABLE 10

ARAR Monitoring Information for Groundwater Samples, First Half 2012

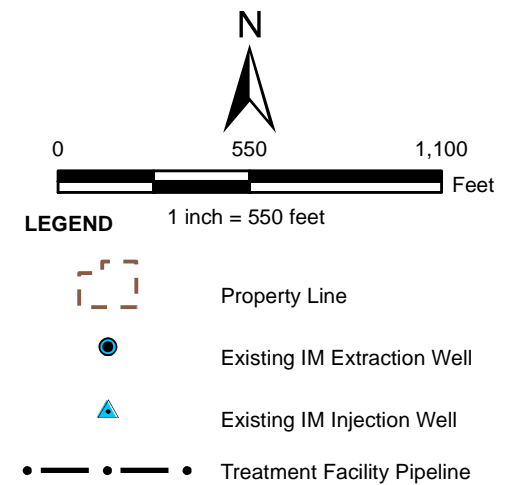
PG&E Topock Compliance Monitoring Program

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

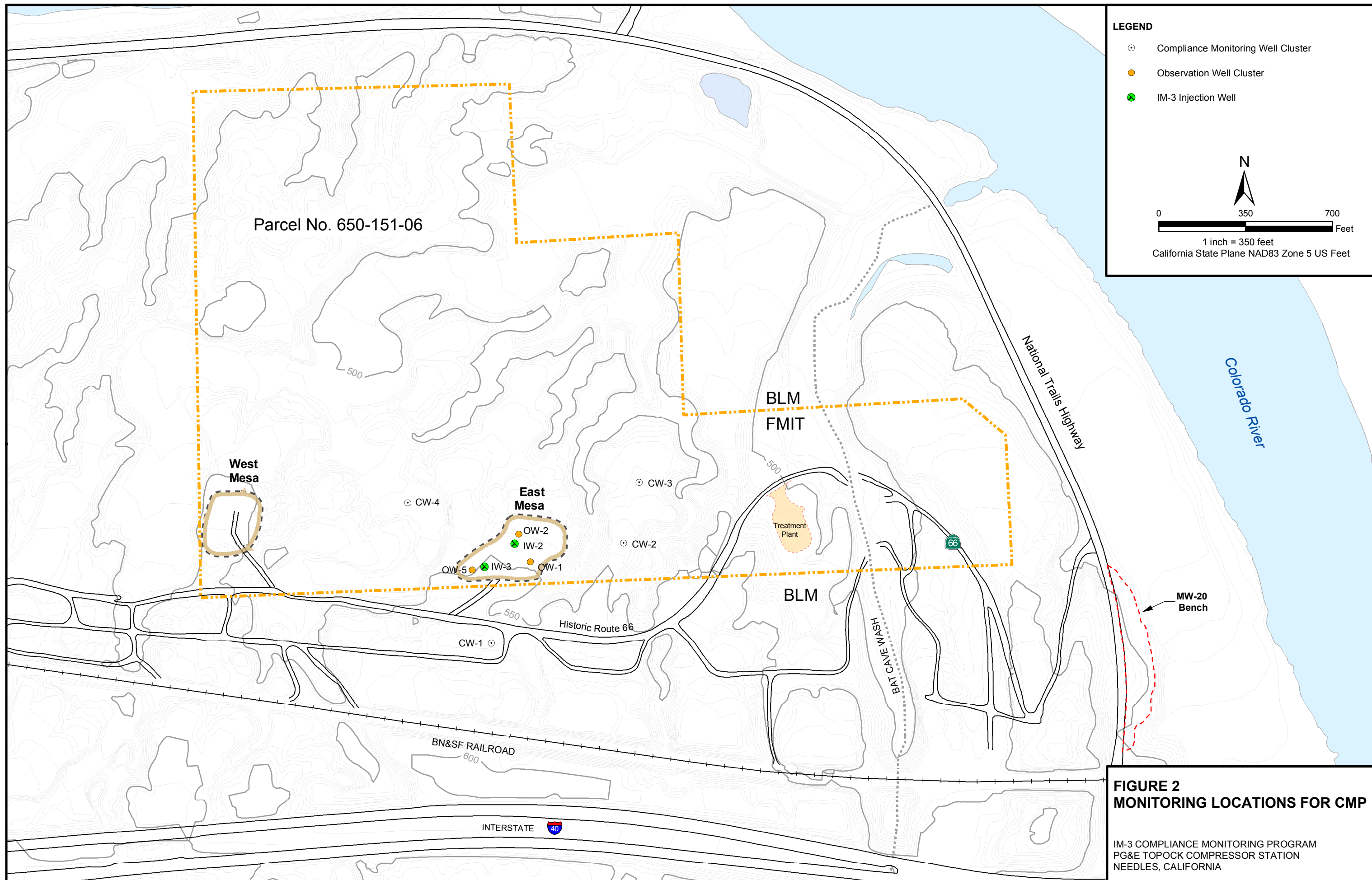


Notes: Location map shows Interim Measures No.3 (IM-3) facilities as of January 2006. Aerial photography taken May 2005.

FIGURE 1 SITE LOCATION AND LAYOUT

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

CH2MHILL



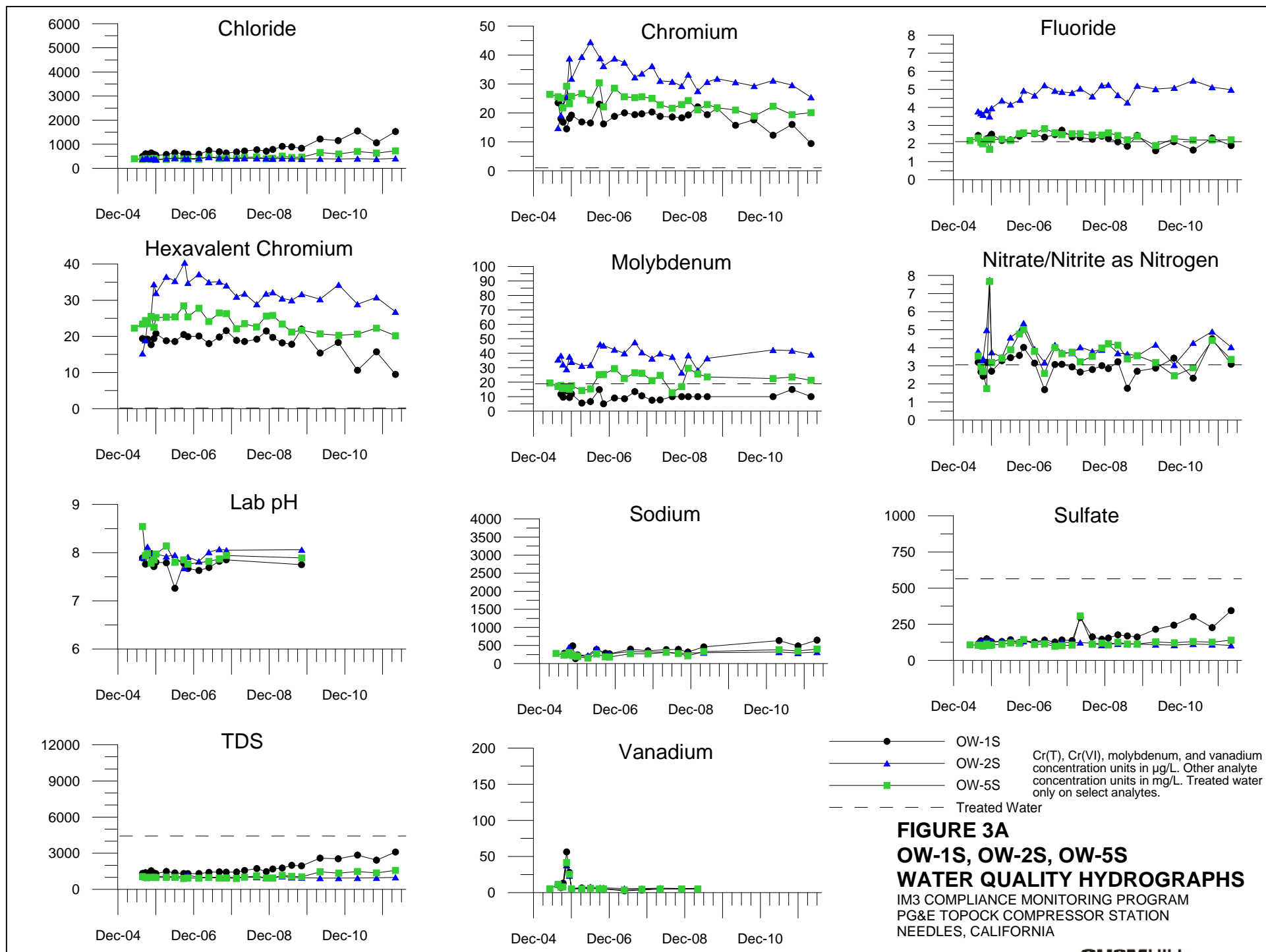


FIGURE 3A
OW-1S, OW-2S, OW-5S
WATER QUALITY HYDROGRAPHS
 IM3 COMPLIANCE MONITORING PROGRAM
 PG&E TOPOCK COMPRESSOR STATION
 NEEDLES, CALIFORNIA

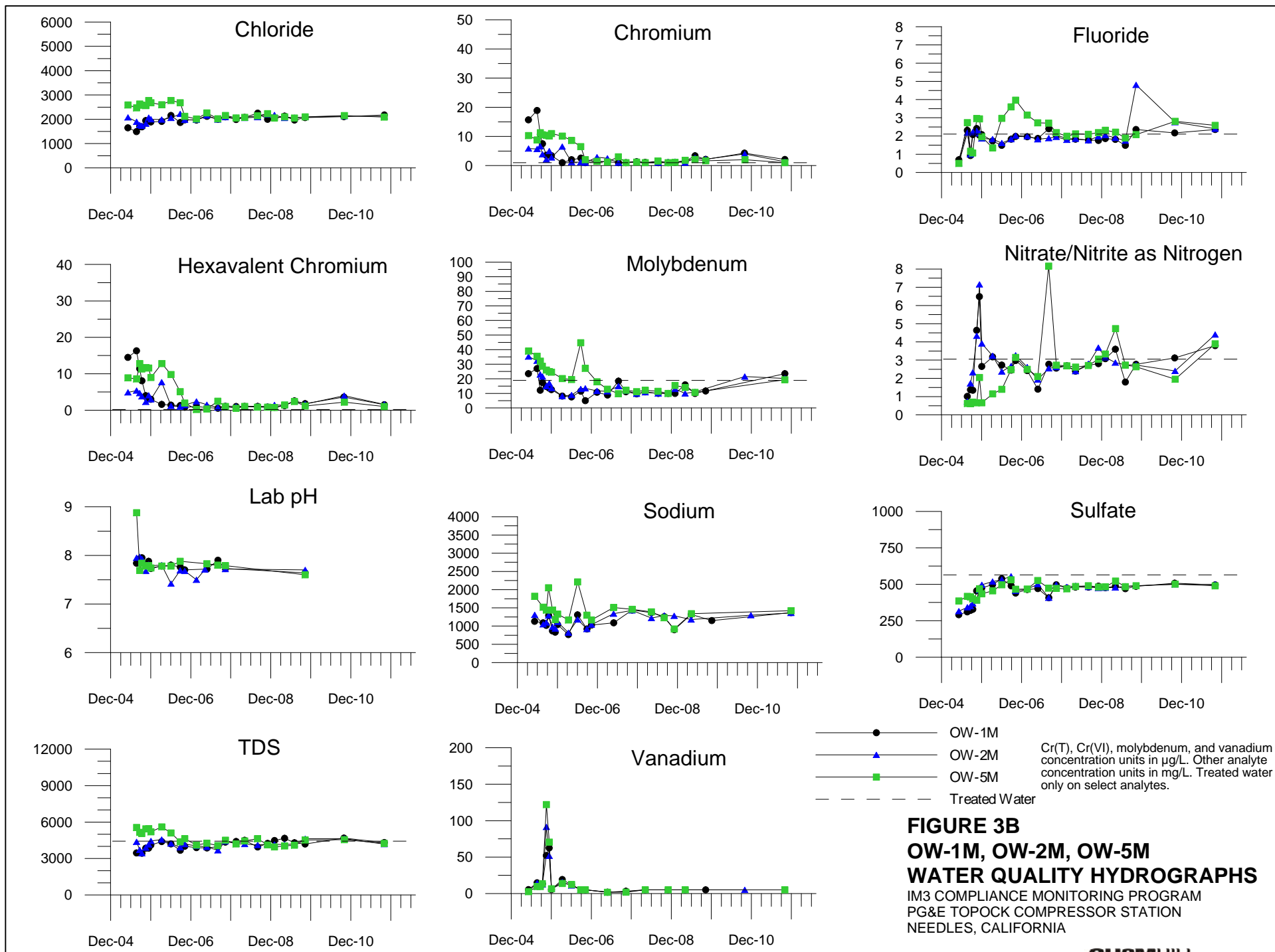


FIGURE 3B
OW-1M, OW-2M, OW-5M
WATER QUALITY HYDROGRAPHS
 IM3 COMPLIANCE MONITORING PROGRAM
 PG&E TOPOCK COMPRESSOR STATION
 NEEDLES, CALIFORNIA

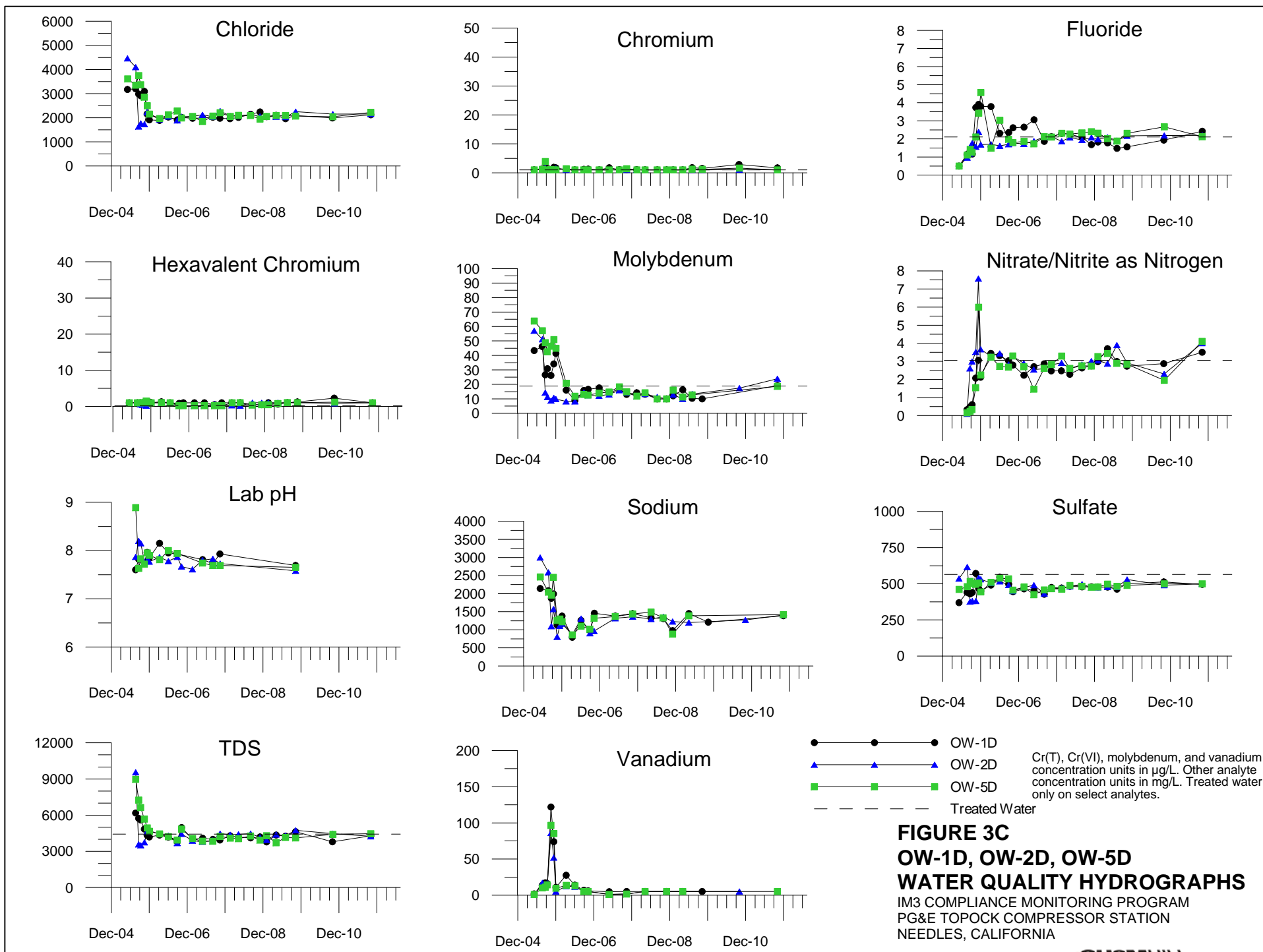


FIGURE 3C
OW-1D, OW-2D, OW-5D
WATER QUALITY HYDROGRAPHS
 IM3 COMPLIANCE MONITORING PROGRAM
 PG&E TOPOCK COMPRESSOR STATION
 NEEDLES, CALIFORNIA

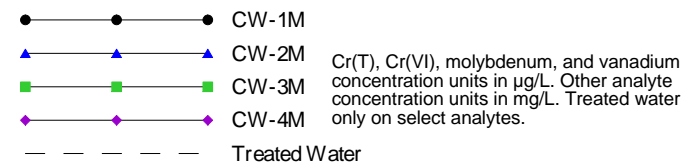
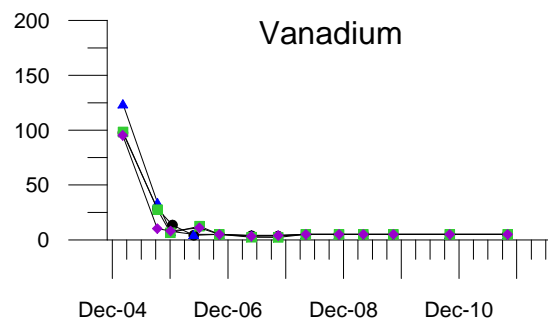
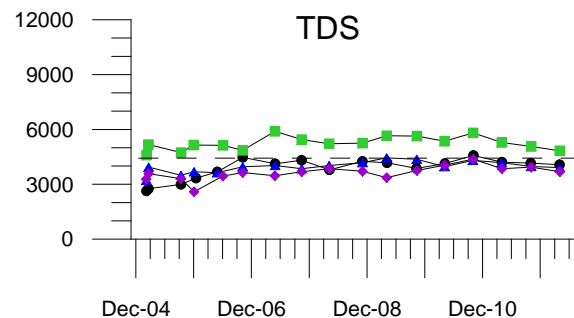
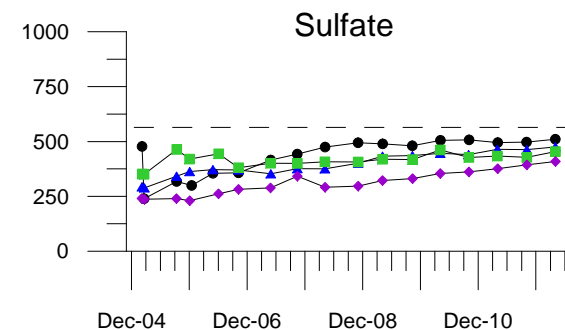
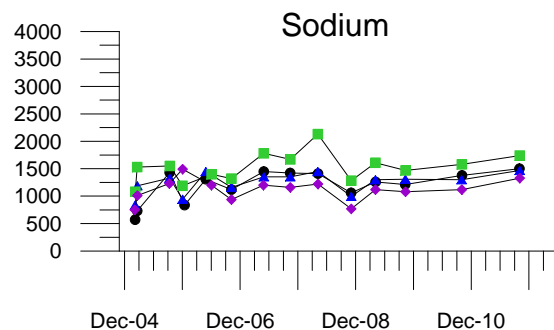
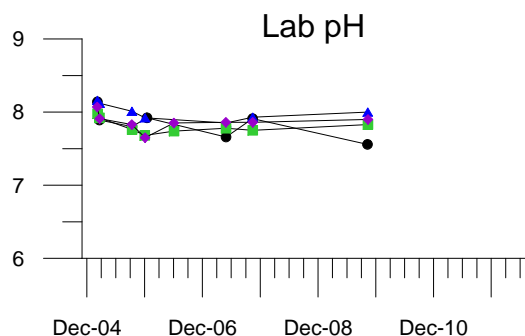
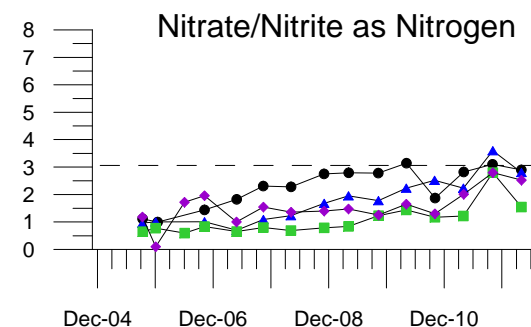
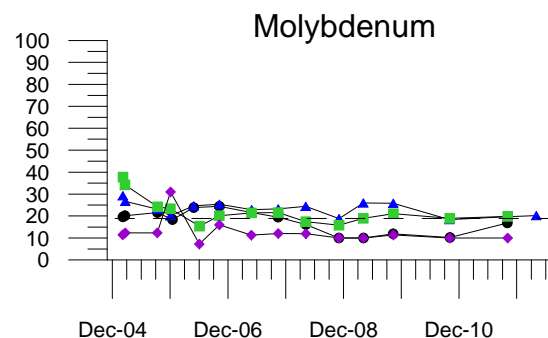
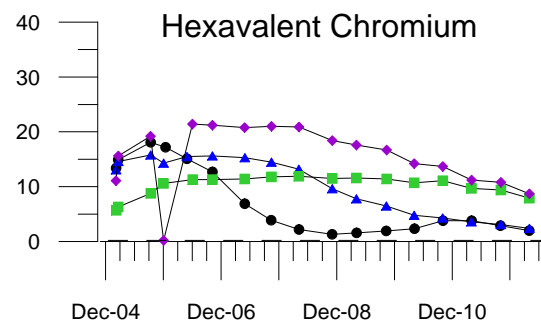
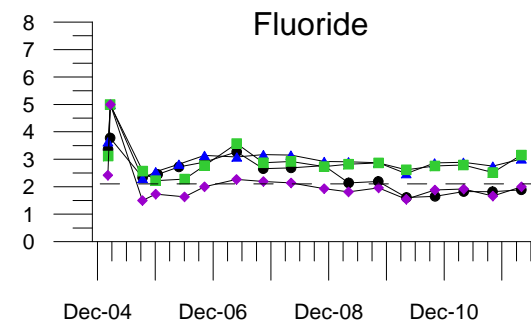
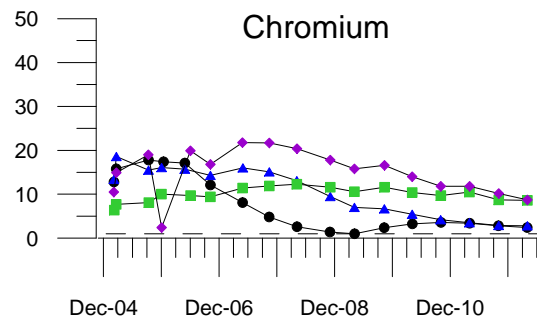
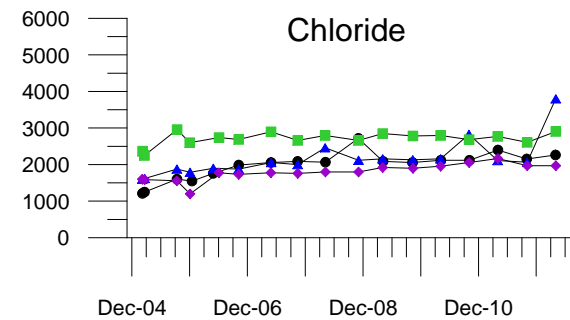
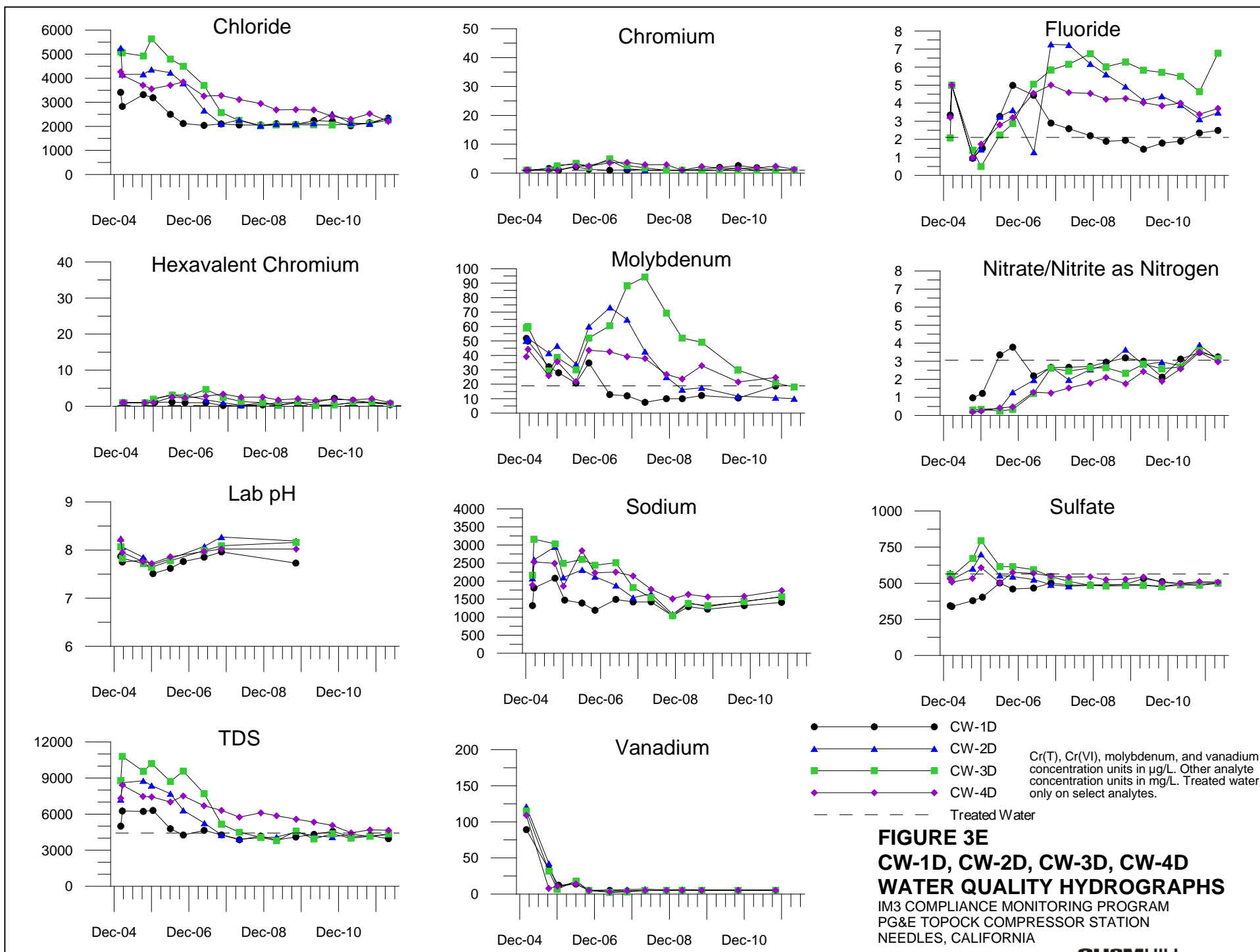
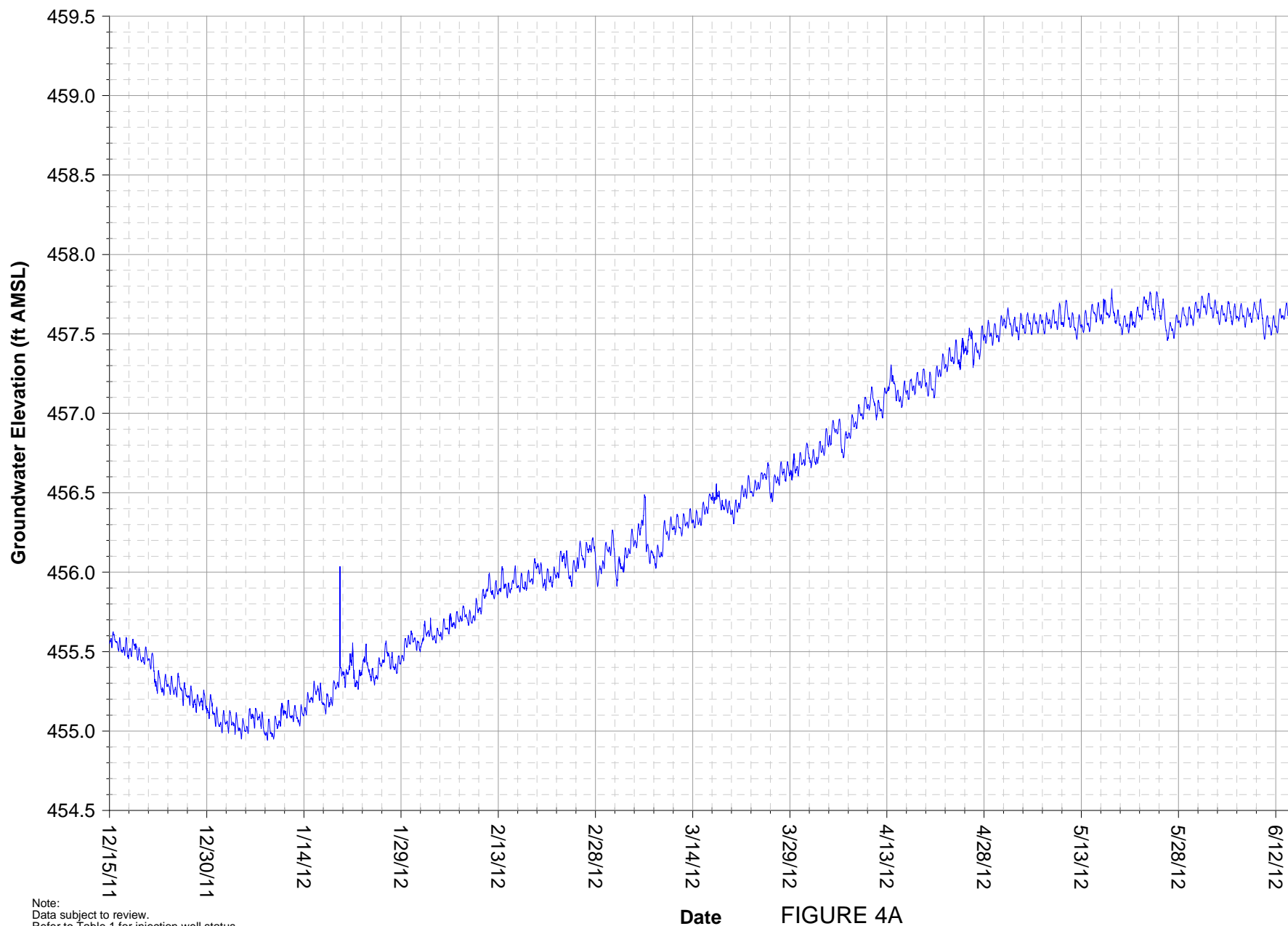


FIGURE 3D
CW-1M, CW-2M, CW-3M, CW-4M
WATER QUALITY HYDROGRAPHS
 IM3 COMPLIANCE MONITORING PROGRAM
 PG&E TOPOCK COMPRESSOR STATION
 NEEDLES, CALIFORNIA

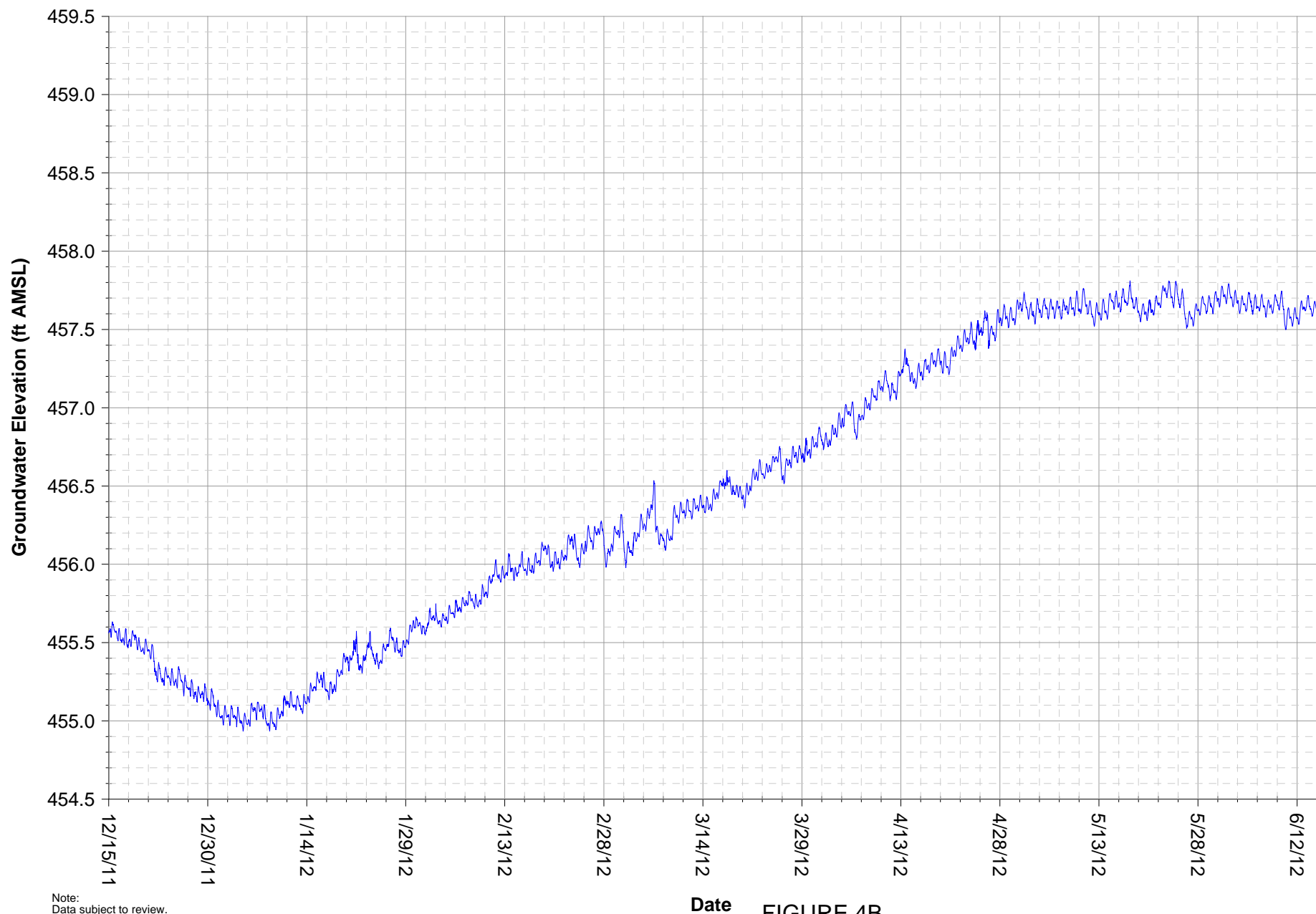




Note:
Data subject to review.
Refer to Table 1 for injection well status.

Date

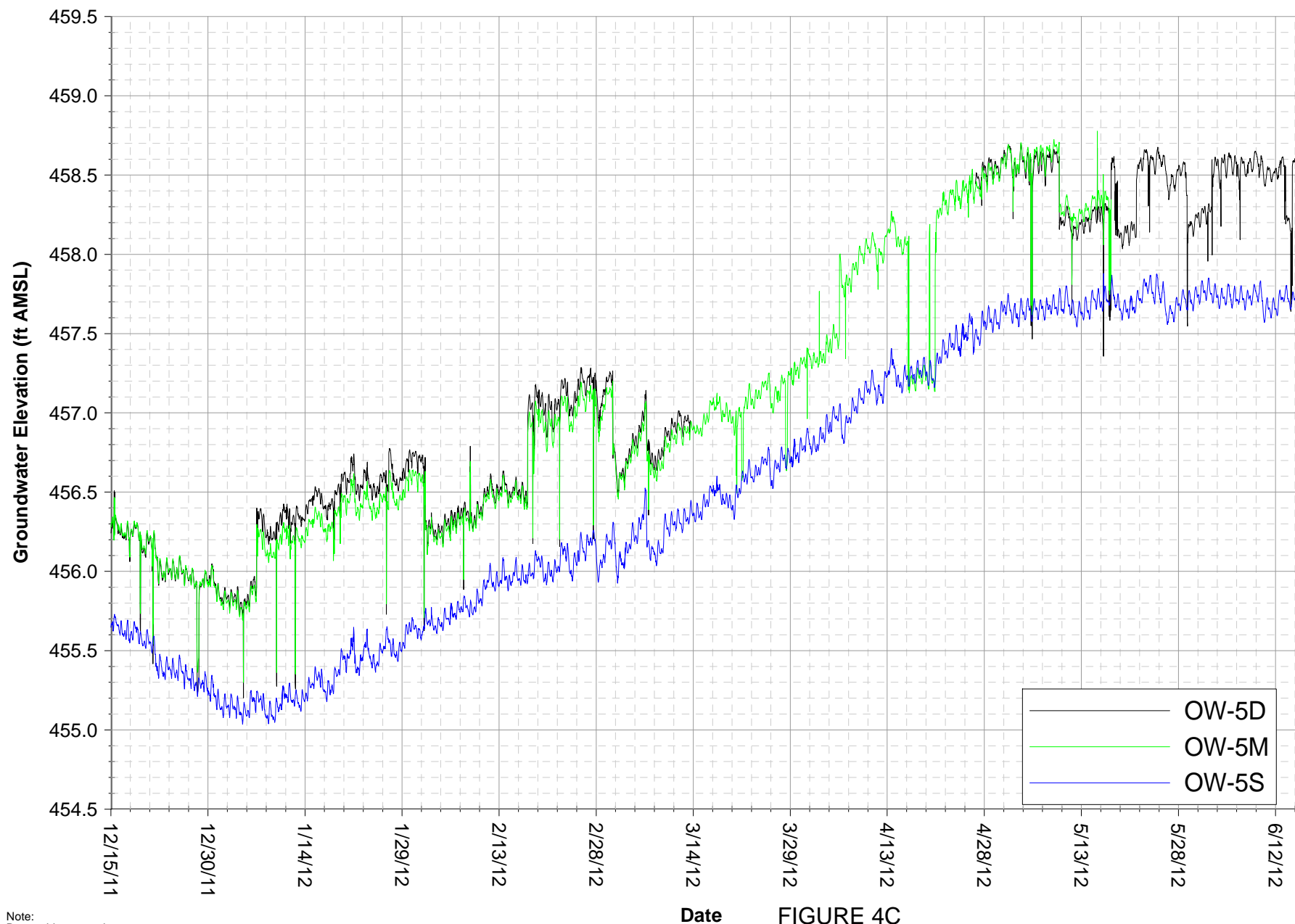
FIGURE 4A
OW-1S GROUNDWATER ELEVATION HYDROGRAPH
 IM-3 COMPLIANCE MONITORING PROGRAM
 PG&E TOPOCK COMPRESSOR STATION
 NEEDLES, CALIFORNIA



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

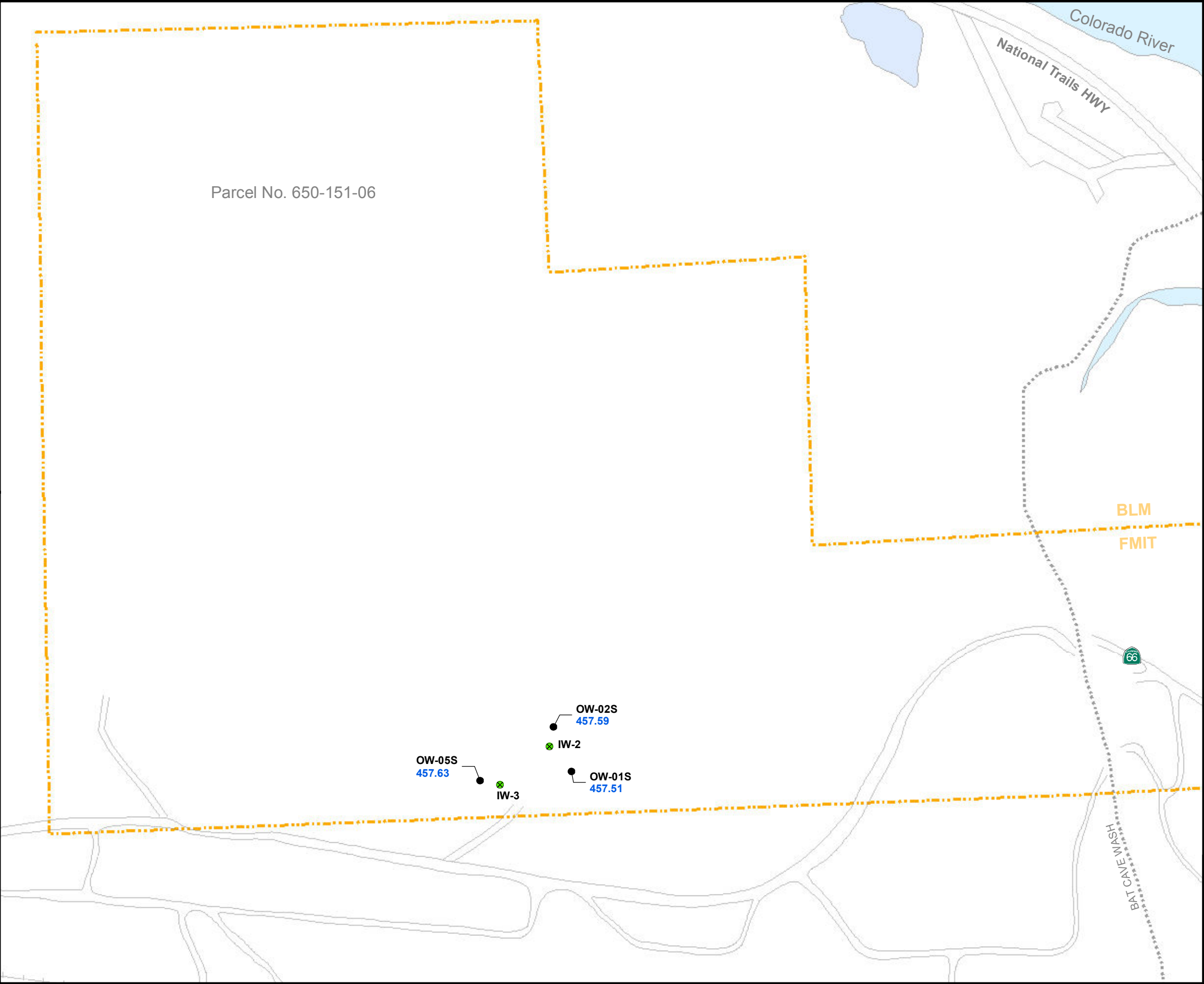
Date

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



Note:
 Data subject to review.
 Refer to Table 1 for injection well status.
 OW-5D data unavailable from March 13, 2012 until April 26, 2012 due to transducer failure.
 OW-5M data unavailable from May 17, 2012 until June 15, 2012 due to transducer failure.

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



N

0 250 500 Feet

1 inch = 250 feet

California State Plane NAD83 Zone 5 US Feet

LEGEND

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

Groundwater Elevations for Shallow Wells in IM-3 Injection Area

- **OW-05S** Salinity and temperature adjusted groundwater head elevation in feet above mean sea level (MSL).
- **457.63**

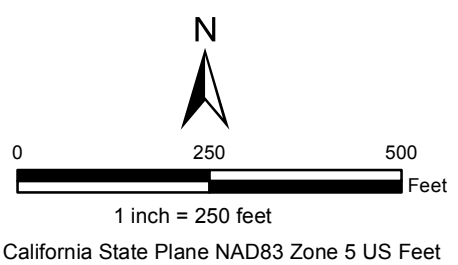
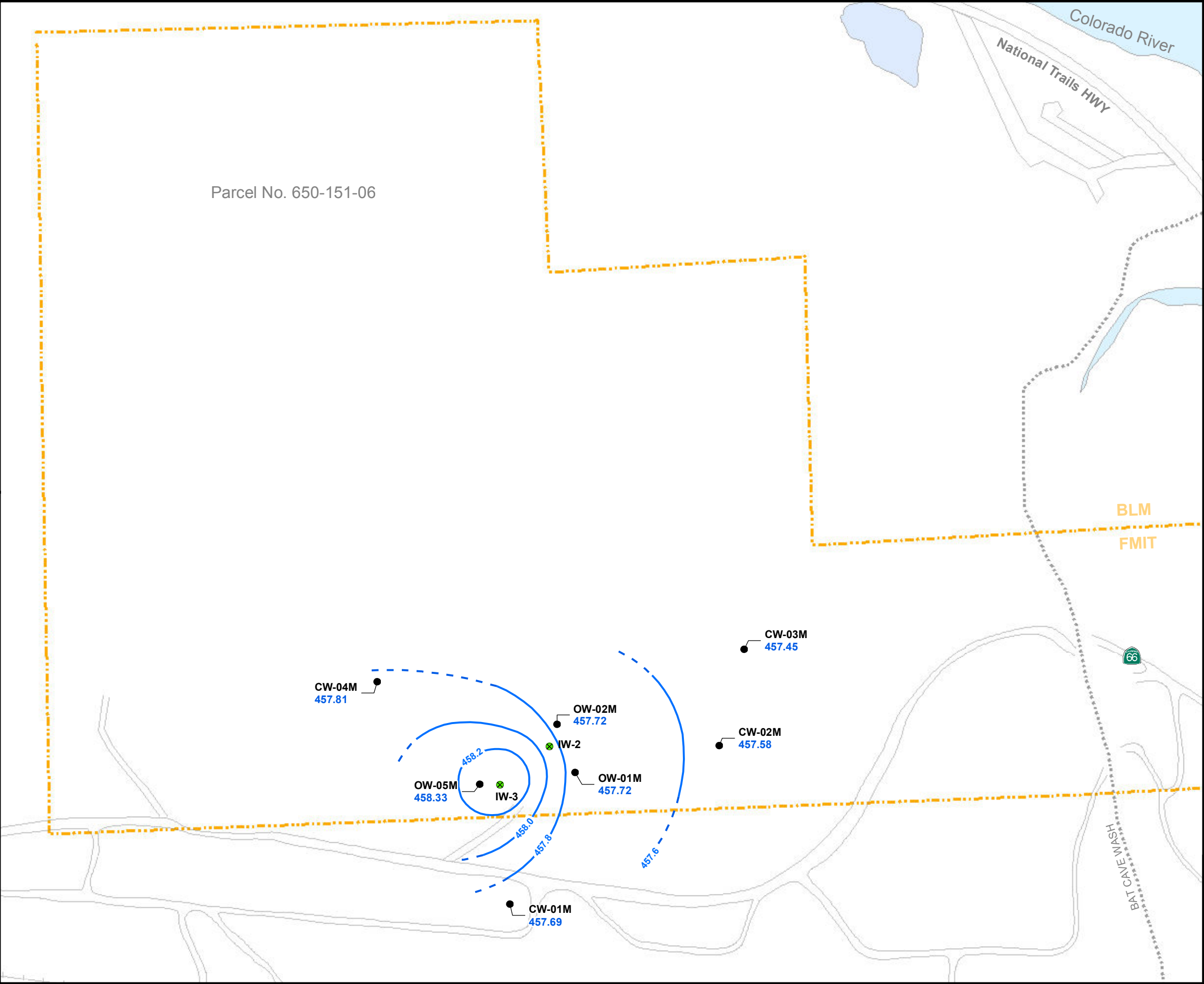
FIGURE 5A

AVERAGE GROUNDWATER ELEVATIONS FOR SHALLOW WELLS

MAY 2, 2012

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

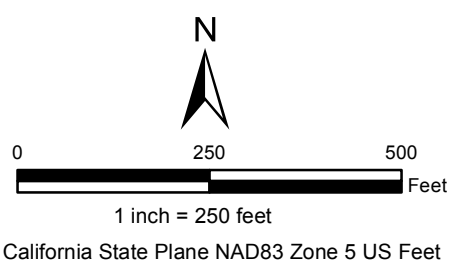
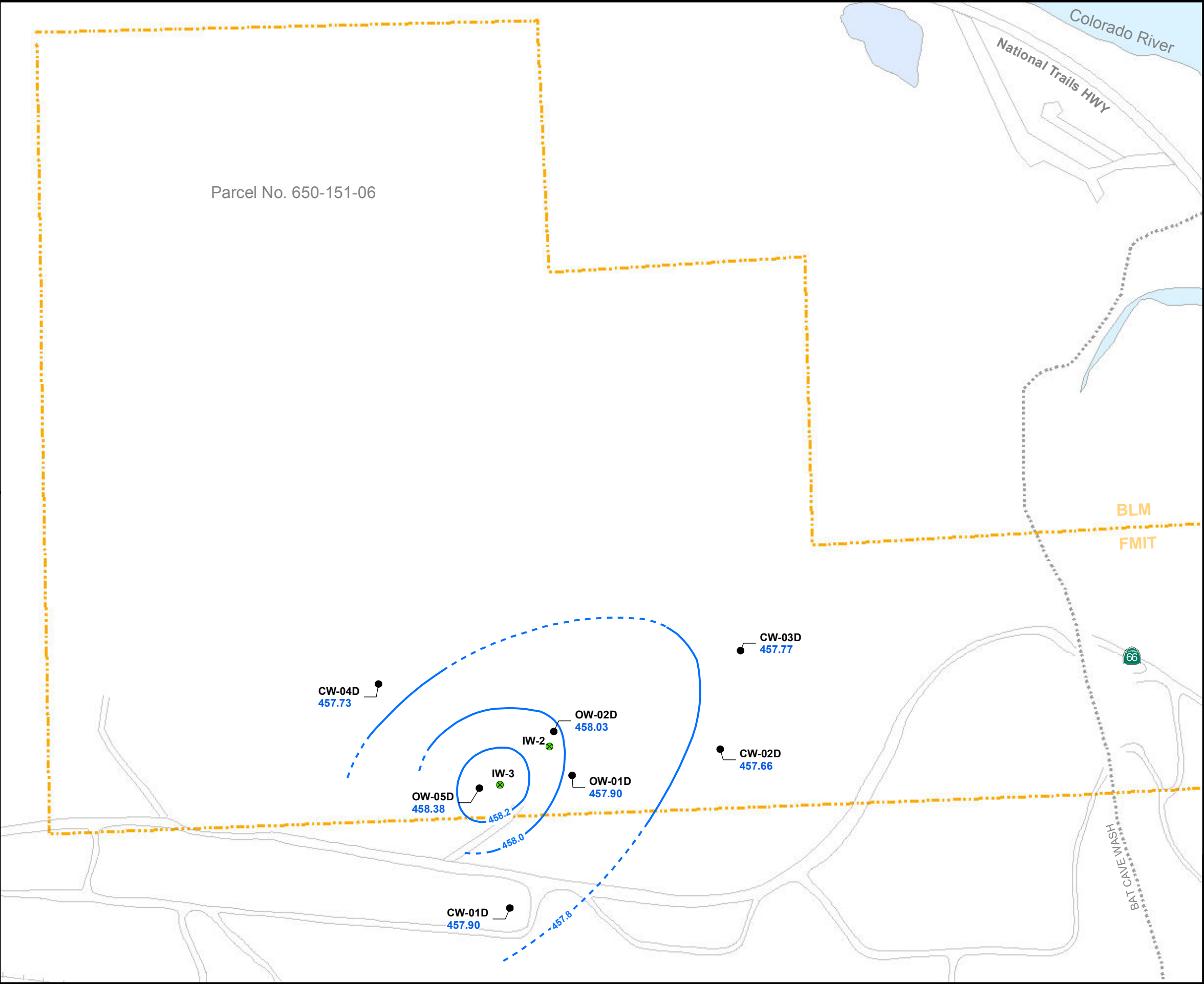
CH2MHILL



- 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).
● **458.33**
 - — — 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 ELEVATIONS FOR MID-DEPTH WELLS
MAY 2, 2012
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).
● **458.38**
 - 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 ELEVATIONS
FOR DEEP WELLS
MAY 2, 2012
IM3 COMPLIANCE MONITORING PROGRAM
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

Appendix A
Laboratory Reports, First Half 2012



LABORATORIES, INC.

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

Date: 04-24-2012
EMAX Batch No.: 12D046

Attn: Priya Kumar

CH2M HILL
155 Grand, Suite 1000
Oakland CA 94612

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

Enclosed is the Laboratory report for samples received on 04/05/12.
The data reported relate only to samples listed below :

Sample ID	Control #	Col Date	Matrix	Analysis
-----	-----	-----	-----	-----
CW-01D-027	D046-01	04/03/12	WATER	NITRATE/NITRITE AS N
CW-01M-027	D046-02	04/03/12	WATER	NITRATE/NITRITE AS N
CW-02D-027	D046-03	04/04/12	WATER	NITRATE/NITRITE AS N
CW-02M-027	D046-04	04/04/12	WATER	NITRATE/NITRITE AS N
CW-03D-027	D046-05	04/04/12	WATER	NITRATE/NITRITE AS N
CW-03M-027	D046-06	04/04/12	WATER	NITRATE/NITRITE AS N
OW-90-027	D046-07	04/04/12	WATER	NITRATE/NITRITE AS N
OW-91-027	D046-08	04/04/12	WATER	NITRATE/NITRITE AS N

The results are summarized on the following pages.

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

Sincerely yours,

Caspar J. Pang
Laboratory Director

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

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

NELAC Accredited Certificate Number 02116CA
L-A-B Accredited DoD ELAP and ISO/IEC 17025 Certificate Number L2278 Testing

- ORIGINAL - 12D046

CH2MHILL

CHAIN OF CUSTODY RECORD

4/4/2012 4:05:47 PM

Page 1 OF 1

Project Name PG&E Topock				Container: 1 Liter Poly	Nitrate/Nitrite (SM4500NO3-E)			
Location Topock				Preservatives: H2SO4,				
Project Manager Jay Piper				pH<2,				
Sample Manager Matt Ringier				4°C				
Filtered: NA								
Holding Time: 28								
Project Number 423575.MP.02.CM.0								
Task Order								
Project 2012-CMP-027								
Turnaround Time 12 Days								
Shipping Date: 4/4/2012								
COC Number: 2								
DATE	TIME	Matrix					Number of Containers	COMMENTS
1 CW-01D-027	4/3/2012	14:36	Water	X			1	
2 CW-01M-027	4/3/2012	15:30	Water	X			1	
3 CW-02D-027	4/4/2012	12:47	Water	X			1	
4 CW-02M-027	4/4/2012	13:47	Water	X			1	
5 CW-03D-027	4/4/2012	9:25	Water	X			1	
6 CW-03M-027	4/4/2012	10:31	Water	X			1	
7 OW-90-027	4/4/2012	7:10	Water	X			1	
8 OW-91-027	4/4/2012	17:35	Water	X			1	
TOTAL NUMBER OF CONTAINERS							8	

Approved by: [Signature] Date/Time: 4-4-12 1606 Shipping Details: Method of Shipment: courier ATTN: T=3.0°C
Sampled by: [Signature] On Ice: yes / no Sample Custody:
Relinquished by: [Signature] 4-4-12 1636 Airbill No:
Received by: [Signature] 4-4-12 2200 Lab Name: EMAX
Relinquished by: Linda 4/4/12 2200 Lab Phone:
Received by: [Signature] 4/4/12 2200
Relinquished by: Linda, TL, 4/5/12 9:40 Keith Start 4/5/12 9:40

Special Instructions:

April 4-6, 2012

Report Copy to

Shawn Duffy
(530) 229-3303

4/5/12 1345



SAMPLE RECEIPT FORM 1

Type of Delivery	Airbill / Tracking Number	ECN <u>12D046</u>
<input type="checkbox"/> FedEx <input type="checkbox"/> UPS <input type="checkbox"/> GSO <input type="checkbox"/> Others		Recipient <u>1-LUN 2</u>
<input type="checkbox"/> EMAX Courier <input type="checkbox"/> Client Delivery		Date <u>4/5/12</u> Time <u>1345</u>

COC Inspection					
<input checked="" type="checkbox"/> Client Name <u>124/5/12</u>	<input checked="" type="checkbox"/> Client PM/PC	<input checked="" type="checkbox"/> Sampler Name	<input checked="" type="checkbox"/> Sampling Date/Time/Location	<input checked="" type="checkbox"/> Sample ID	<input checked="" type="checkbox"/> Matrix
<input checked="" type="checkbox"/> Address	<input checked="" type="checkbox"/> Tel # / Fax #	<input checked="" type="checkbox"/> Courier Signature	<input checked="" type="checkbox"/> Analysis Required	<input checked="" type="checkbox"/> Preservative (if any)	<input checked="" type="checkbox"/> TAT
Safety Issues (if any)	<input type="checkbox"/> High concentrations expected	<input type="checkbox"/> Superfund Site samples	<input type="checkbox"/> Rad screening required		
Comments:					

Packaging Inspection					
Container <input checked="" type="checkbox"/> Cooler	<input type="checkbox"/> Box	<input type="checkbox"/> Other			
Condition <input type="checkbox"/> Custody Seal	<input checked="" type="checkbox"/> Intact	<input type="checkbox"/> Damaged			
Packaging <input type="checkbox"/> Bubble Pack	<input type="checkbox"/> Styrofoam	<input type="checkbox"/> Popcorn	<input checked="" type="checkbox"/> Sufficient	<input type="checkbox"/>	
Temperatures <u>A - 13.0 °C</u>	<input type="checkbox"/> Cooler 2 _____ °C	<input type="checkbox"/> Cooler 3 _____ °C	<input type="checkbox"/> Cooler 4 _____ °C	<input type="checkbox"/> Cooler 5 _____ °C	
(Cool, =6 °C but not frozen)	<input type="checkbox"/> Cooler 6 _____ °C	<input type="checkbox"/> Cooler 7 _____ °C	<input type="checkbox"/> Cooler 8 _____ °C	<input type="checkbox"/> Cooler 9 _____ °C	
Thermometer: <u>A - S/N 101541371</u>	<u>B - S/N 101541382</u>		<input type="checkbox"/> Cooler 10 _____ °C		
Comments: <input type="checkbox"/> Temperature is out of range. PM was informed IMMEDIATELY.					
Note: pH holding time requirement for water samples is 15 mins. Water samples for pH analysis are received beyond 15 minutes from sampling time.					

DISCREPANCIES				
LSID	LSCID	Description Code	Sample Label ID / Information	Corrective Action Code

☐ Continue to next page.

REVIEWS

Sample Labeling 4/5/12Date 4/5/12SRF 4/5/12Date 4/5/12PM 4/5/12Date 4/5/12

LEGEND:

Code Description- Sample Management

A1 Analysis is not indicated in COC.
A2 Analysis is not indicated in label.
A3 Analysis is inconsistent in COC vis-à-vis label.
B1 Sample ID is not indicated in COC.
B2 Sample ID is not indicated in label.
B3 Sample ID is inconsistent in COC vis-à-vis label.
C1 Improper container
C2 Broken container
C3 Leaking container
D1 Date and/or time is not indicated in COC.
D2 Date and/or time is not indicated in label.
D3 Date and/or time is inconsistent in COC vis-à-vis label.
F1 Improper preservation
F2 Insufficient Sample
F3 Bubble is > 6mm. Use vial with smallest bubble first.
F4 Bubble is > 6mm in all vials.
F5 >20 % solid particle
F6 Out of Holding Time

Code Description-Sample Management

G1 Sample indicated in COC is not received.
G2 MS/MSD is not indicated in COC.
G3 No identified trip blank, proceed as indicated in COC.
G4 Trip Blank is designated in SDG _____
G5 Trip Blank has no sampling date & time. Log-in with earliest sampling date and 0:00 time.
H1 _____

Code Description-Project Management

R1 Hold sample(s); wait for further instructions
R2 Proceed as indicated in COC and inform client.
R3 Refer to attached instruction
R4 Cancel the analysis
R5 Inform client.
R6 Proceed as indicated in COC

CLIENT: CH2M HILL
PROJECT: TOPOCK

SDG: 12D046

Analyst names:

1.SM4500NO3-E: Nina Macalinao

CASE NARRATIVE

Client : CH2M HILL
Project : PG&E'S TOPOCK GAS COMPRESSOR STAT
SDG : 12D046

METHOD SM4500NO3 NITRATE/NITRITE-N

A total of eight (8) water samples were received on 04/05/12 for Nitrate/Nitrite as N analysis, Method SM4500NO3 in accordance with Standard Methods for the Examination of Water and Wastewater, 20th Edition.

Holding Time

Samples were analyzed within the prescribed holding time.

Calibration

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

Method Blank

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

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for NAD004WL/C were all within QC limits.

Matrix QC Sample

Matrix QC sample was analyzed at the frequency prescribed by the project. Percent recovery for D046-01M was within project QC limits. Sample duplicate was also analyzed with the samples. RPD was within project limit.

Sample Analysis

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

METHOD SM4500NO3
NITRATE/NITRITE-N

Client : CH2M HILL
Project : PG&E'S TOPOCK GAS COMPRESSOR STAT
Batch No. : 12D046

Matrix : WATER
Instrument ID : 70

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATE/TIME	Extraction DATE/TIME	LFID	CAL REF	PREP BATCH	Collection DATE/TIME	Received DATE/TIME
MBLK1W	NAD004WB	ND	1	NA	0.100	0.0200	04/16/1218:48	NA	NAD00410	NAD00407	NAD004W	NA	NA
LCS1W	NAD004WL	0.524	1	NA	0.100	0.0200	04/16/1218:49	NA	NAD00411	NAD00407	NAD004W	NA	NA
LCD1W	NAD004WC	0.524	1	NA	0.100	0.0200	04/16/1218:49	NA	NAD00412	NAD00407	NAD004W	NA	NA
CW-01D-027	D046-01T	3.24	10	NA	1.00	0.200	04/16/1218:50	NA	NAD00414	NAD00407	NAD004W	04/03/1214:36	04/05/12
CW-01D-027DUP	D046-01D	3.16	10	NA	1.00	0.200	04/16/1218:50	NA	NAD00415	NAD00407	NAD004W	04/03/1214:36	04/05/12
CW-01D-027MS	D046-01M	8.54	10	NA	1.00	0.200	04/16/1218:50	NA	NAD00416	NAD00407	NAD004W	04/03/1214:36	04/05/12
CW-01M-027	D046-02T	2.90	10	NA	1.00	0.200	04/16/1218:52	NA	NAD00420	NAD00417	NAD004W	04/03/1215:30	04/05/12
CW-02D-027	D046-03T	3.11	10	NA	1.00	0.200	04/16/1218:52	NA	NAD00422	NAD00417	NAD004W	04/04/1212:47	04/05/12
CW-02M-027	D046-04T	2.81	10	NA	1.00	0.200	04/16/1218:52	NA	NAD00424	NAD00417	NAD004W	04/04/1213:47	04/05/12
CW-03D-027	D046-05T	3.07	10	NA	1.00	0.200	04/16/1218:52	NA	NAD00426	NAD00417	NAD004W	04/04/1209:25	04/05/12
CW-03M-027	D046-06T	1.55	5	NA	0.500	0.100	04/16/1218:53	NA	NAD00430	NAD00427	NAD004W	04/04/1210:31	04/05/12
OW-90-027	D046-07T	3.15	10	NA	1.00	0.200	04/16/1218:54	NA	NAD00432	NAD00427	NAD004W	04/04/1207:10	04/05/12
OW-91-027	D046-08T	3.05	10	NA	1.00	0.200	04/16/1218:54	NA	NAD00434	NAD00427	NAD004W	04/04/1217:35	04/05/12

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

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

BATCH NO.: 12D046
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: NAD004WL/C

DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 04/16/12 18:49:18:49

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
NITRATE + NITRITE-N	ND	0.500	0.524	105	0.500	0.524	105	0	85-115	20

5003

EMAX QUALITY CONTROL DATA
MS ANALYSIS

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

=====

BATCH NO.: 12D046 DATE RECEIVED: 04/05/12
SAMPLE ID: CW-01D-027MS DATE EXTRACTED: NA
CONTROL NO.: D046-01M DATE ANALYZED: 04/16/1218:50

ACCESSION:

PARAMETER	SMPL RSLT (mg/L)	SPIKE AMT (mg/L)	MS RSLT (mg/L)	MS % REC	QC LIMIT (%)
NITRATE + NITRITE-N	3.24	5.00	8.54	106	75-125

EMAX QUALITY CONTROL DATA
DUPLICATE ANALYSIS

CLIENT: CH2M HILL
PROJECT: PG&E'S TOPOCK GAS COMPRESSOR STAT
METHOD: METHOD SM4500N03
MATRIX: WATER
% MOISTURE: NA

=====

BATCH NO.: 12D046 DATE RECEIVED: 04/05/12
SAMPLE ID: CW-01D-027DUP DATE EXTRACTED: NA
CONTROL NO.: D046-01D DATE ANALYZED: 04/16/1218:50

ACCESSION:

PARAMETER	SAMPLE (mg/L)	DUP. SAMPLE (mg/L)	RPD (%)	RPD LIMIT (%)
NITRATE + NITRITE-N	3.24	3.16	3	20



LABORATORIES, INC.

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

Date: 04-24-2012
EMAX Batch No.: 12D083

Attn: Priya Kumar

CH2M HILL
155 Grand, Suite 1000
Oakland CA 94612

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

Enclosed is the Laboratory report for samples received on 04/09/12.
The data reported relate only to samples listed below :

Sample ID	Control #	Col Date	Matrix	Analysis
-----	-----	-----	-----	-----
CW-04D-027	D083-01	04/04/12	WATER	NITRATE/NITRITE AS N
CW-04M-027	D083-02	04/04/12	WATER	NITRATE/NITRITE AS N
OW-01S-027	D083-03	04/05/12	WATER	NITRATE/NITRITE AS N
OW-02S-027	D083-04	04/05/12	WATER	NITRATE/NITRITE AS N
OW-05S-027	D083-05	04/05/12	WATER	NITRATE/NITRITE AS N

The results are summarized on the following pages.

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

Sincerely yours,

Caspar J. Pang
Laboratory Director

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

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

NELAC Accredited Certificate Number 02116CA
L-A-B Accredited DoD ELAP and ISO/IEC 17025 Certificate Number L2278 Testing

CH-0408.

12 D083

CH2MHILL

CHAIN OF CUSTODY RECORD

4/5/2012 2:31:48 PM

Page 1 OF 1

Project Name PG&E Topock Container: 1 Liter Poly Location Topock Preservatives: H2SO4, Project Manager Jay Piper pH<2, Sample Manager Matt Ringier 4°C Filtered: NA Holding Time: 28 Project Number 423575.MP.02.CM.0 Task Order Project 2012-CMP-027 Turnaround Time 12 Days Shipping Date: 3/28/2012 COC Number: EMAX-CMP027				Nitrate/Nitrite (SM4500NO3-E)	Number of Containers	COMMENTS																																		
<table border="1"> <thead> <tr> <th>DATE</th> <th>TIME</th> <th>Matrix</th> <th></th> </tr> </thead> <tbody> <tr> <td>CW-04D-027</td> <td>4/4/2012</td> <td>15:48</td> <td>Water</td> <td>X</td> </tr> <tr> <td>CW-04M-027</td> <td>4/4/2012</td> <td>16:46</td> <td>Water</td> <td>X</td> </tr> <tr> <td>OW-01S-027</td> <td>4/5/2012</td> <td>9:08</td> <td>Water</td> <td>X</td> </tr> <tr> <td>OW-02S-027</td> <td>4/5/2012</td> <td>10:10</td> <td>Water</td> <td>X</td> </tr> <tr> <td>OW-05S-027</td> <td>4/5/2012</td> <td>12:27</td> <td>Water</td> <td>X</td> </tr> <tr> <td colspan="4" style="text-align: right;">TOTAL NUMBER OF CONTAINERS</td> <td>5</td> </tr> </tbody> </table>							DATE	TIME	Matrix		CW-04D-027	4/4/2012	15:48	Water	X	CW-04M-027	4/4/2012	16:46	Water	X	OW-01S-027	4/5/2012	9:08	Water	X	OW-02S-027	4/5/2012	10:10	Water	X	OW-05S-027	4/5/2012	12:27	Water	X	TOTAL NUMBER OF CONTAINERS				5
DATE	TIME	Matrix																																						
CW-04D-027	4/4/2012	15:48	Water				X																																	
CW-04M-027	4/4/2012	16:46	Water				X																																	
OW-01S-027	4/5/2012	9:08	Water				X																																	
OW-02S-027	4/5/2012	10:10	Water				X																																	
OW-05S-027	4/5/2012	12:27	Water	X																																				
TOTAL NUMBER OF CONTAINERS				5																																				

Signatures

Date/Time 15:50

Shipping Details

Approved by

Sampled by

Relinquished by

Received by

Relinquished by

Received by

Rel-sket: Ludg, TLD, 4/9/12 9:55

4-5-12 15:50

Method of Shipment: FedEx

On Ice: yes / no

Airbill No:

Lab Name: EMAX

Lab Phone:

Keith Stant

ATTN:

Sample Custody

Special Instructions:

April 4-6, 2012

Report Copy to

Shawn Duffy
(530) 229-3303

Keith Stant 4/9/12 14:08

T = 2.6 °C



SAMPLE RECEIPT FORM 1

Type of Delivery	Airbill / Tracking Number	ECN 12 D083
<input type="checkbox"/> FedEx <input type="checkbox"/> UPS <input type="checkbox"/> GSO <input type="checkbox"/> Others		Recipient J Patel
<input checked="" type="checkbox"/> EMAX Courier <input type="checkbox"/> Client Delivery		Date 4/9/12 Time 1408

<input checked="" type="checkbox"/> Client Name	<input checked="" type="checkbox"/> Client PM/FC	<input checked="" type="checkbox"/> Sampler Name	<input checked="" type="checkbox"/> COC Inspection	<input checked="" type="checkbox"/> Sample ID	<input checked="" type="checkbox"/> Matrix
<input type="checkbox"/> Address	<input type="checkbox"/> Tel # / Fax #	<input checked="" type="checkbox"/> Courier Signature	<input checked="" type="checkbox"/> Sampling Date/Time/Location	<input checked="" type="checkbox"/> Analysis Required	<input checked="" type="checkbox"/> TAT
<input type="checkbox"/> Safety Issues (if any)	<input type="checkbox"/> High concentrations expected	<input type="checkbox"/> Superfund Site samples	<input type="checkbox"/> Rad screening required		
Comments:					

Container	<input checked="" type="checkbox"/> Cooler	<input type="checkbox"/> Box	<input type="checkbox"/> Other
Condition	<input type="checkbox"/> Custody Seal	<input checked="" type="checkbox"/> Intact	<input type="checkbox"/> Damaged
Packaging	<input type="checkbox"/> Bubble Pack	<input type="checkbox"/> Styrofoam	<input type="checkbox"/> Popcorn
Temperatures	<input checked="" type="checkbox"/> Cooler 2.6 °C	<input type="checkbox"/> Cooler 2 °C	<input type="checkbox"/> Cooler 3 °C
(Cool, =6 °C but not frozen)	<input type="checkbox"/> Cooler 6 °C	<input type="checkbox"/> Cooler 7 °C	<input type="checkbox"/> Cooler 8 °C
Thermometer: A - S/N 101541371		B - S/N 101541382	
Comments: <input type="checkbox"/> Temperature is out of range. PM was informed IMMEDIATELY.			
Note: pH holding time requirement for water samples is 15 mins. Water samples for pH analysis are received beyond 15 minutes from sampling time.			

DISCREPANCIES				
LSID	LSCID	Description Code	Sample Label ID / Information	Corrective Action Code

☐ Continue to next page.

REVIEWS

Sample Labeling

Date

SRF

Date

PM

Date

LEGEND:

Code	Description-Sample Management
A1	Analysis is not indicated in COC.
A2	Analysis is not indicated in label.
A3	Analysis is inconsistent in COC vis-à-vis label.
B1	Sample ID is not indicated in COC.
B2	Sample ID is not indicated in label.
B3	Sample ID is inconsistent in COC vis-à-vis label.
C1	Improper container
C2	Broken container
C3	Leaking container
D1	Date and/or time is not indicated in COC.
D2	Date and/or time is not indicated in label.
D3	Date and/or time is inconsistent in COC vis-à-vis label.
F1	Improper preservation
F2	Insufficient Sample
F3	Bubble is > 6mm. Use vial with smallest bubble first.
F4	Bubble is > 6mm in all vials.
F5	>20 % solid particle
F6	Out of Holding Time

Code	Description-Sample Management
G1	Sample indicated in COC is not received.
G2	MS/MSD is not indicated in COC.
G3	No identified trip blank, proceed as indicated in COC.
G4	Trip Blank is designated in SDG
G5	Trip Blank has no sampling date & time. Log-in with earliest sampling date and 0:00 time.
H1	

Code	Description-Project Management
R1	Hold sample(s); wait for further instructions
R2	Proceed as indicated in COC and inform client.
R3	Refer to attached instruction
R4	Cancel the analysis
R5	Inform client
R6	Proceed as indicated in COC

CLIENT: CH2M HILL
PROJECT: TOPOCK

SDG: 12D083

Analyst names:

1.SM4500NO3-E: Nina Macalinao

CASE NARRATIVE

Client : CH2M HILL
Project : PG&E'S TOPOCK GAS COMPRESSOR STAT
SDG : 12D083

METHOD SM4500NO3 NITRATE/NITRITE-N

A total of five (5) water samples were received on 04/09/12 for Nitrate/Nitrite as N analysis, Method SM4500NO3 in accordance with Standard Methods for the Examination of Water and Wastewater, 20th Edition.

Holding Time

Samples were analyzed within the prescribed holding time.

Calibration

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

Method Blank

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

Lab Control Sample

A set of LCS/LCD was analyzed with the samples in this SDG. Percent recoveries for NAD004WL/C were all within QC limits.

Matrix QC Sample

No matrix QC sample was designated for this SDG.

Sample Analysis

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

METHOD SM4500NO3
NITRATE/NITRITE-N

```

=====
Client      : CH2M HILL                                     Matrix      : WATER
Project     : PG&E'S TOPOCK GAS COMPRESSOR STAT           Instrument ID : 70
Batch No.   : 12D083
=====
  
```

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/L)	DLF	MOIST	RL (mg/L)	MDL (mg/L)	Analysis DATE/TIME	Extraction DATE/TIME	LFID	CAL REF	PREP BATCH	Collection DATE/TIME	Received DATE/TIME
MBLK1W	NAD004WB	ND	1	NA	0.100	0.0200	04/16/1218:48	NA	NAD00410	NAD00407	NAD004W	NA	NA
LCS1W	NAD004WL	0.524	1	NA	0.100	0.0200	04/16/1218:49	NA	NAD00411	NAD00407	NAD004W	NA	NA
LCD1W	NAD004WC	0.524	1	NA	0.100	0.0200	04/16/1218:49	NA	NAD00412	NAD00407	NAD004W	NA	NA
CW-04D-027	D083-01T	2.97	10	NA	1.00	0.200	04/16/1218:55	NA	NAD00438	NAD00435	NAD004W	04/04/1215:48	04/09/12
CW-04M-027	D083-02T	2.53	10	NA	1.00	0.200	04/16/1218:55	NA	NAD00440	NAD00435	NAD004W	04/04/1216:46	04/09/12
OW-01S-027	D083-03T	3.09	10	NA	1.00	0.200	04/16/1218:56	NA	NAD00442	NAD00435	NAD004W	04/05/1209:08	04/09/12
OW-02S-027	D083-04T	4.04	10	NA	1.00	0.200	04/16/1218:56	NA	NAD00444	NAD00435	NAD004W	04/05/1210:10	04/09/12
OW-05S-027	D083-05T	3.35	10	NA	1.00	0.200	04/16/1218:56	NA	NAD00446	NAD00435	NAD004W	04/05/1212:27	04/09/12

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

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

BATCH NO.: 12D083
SAMPLE ID: LCS1W/LCD1W
CONTROL NO.: NAD004WL/C

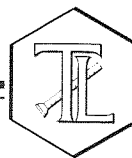
DATE RECEIVED: NA
DATE EXTRACTED: NA
DATE ANALYZED: 04/16/1218:49/18:49

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD %	QC LIMIT %	RPD LIMIT %
NITRATE + NITRITE-N	ND	0.500	0.524	105	0.500	0.524	105	0	85-115	20

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 20, 2012

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK 2012-CMP-027, GROUNDWATER MONITORING
PROJECT, TLI No.: 800861

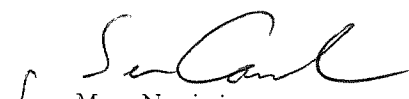
Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2012-CMP-027 groundwater-monitoring project. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period 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 4, 2012, 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 violations or non-conformance actions occurred for this data package.

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

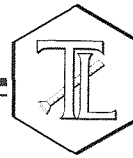
Respectfully Submitted,
TRUESDAIL LABORATORIES, INC.


for - Mona Nassimi
Manager, Analytical Services


Michael Ngo
Quality Assurance/Quality Control Officer

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

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

Attention: Shawn Duffy

Sample: Nine (9) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 423575.MP.02.CM

Laboratory No.: 800861

Date: May 3, 2012

Collected: April 3, 2012

Received: April 4, 2012

Revision 1

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Gautam Savani
SM 2540C	Total Dissolved Solids	Kim Luck
SM 2130B	Turbidity	Gautam Savani
EPA 300.0	Anions	Giawad Ghenniwa
SM 4500-NH3 D	Ammonia	Bitia Emami
SW 6020A	Metals by ICP/MS	Katia Kiarashpoor
EPA 200.8	Metals by ICP/MS	Katia Kiarashpoor
EPA 218.6	Hexavalent Chromium	Maksim Gorbunov / George Wahba / Melissa Scharfe

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

Project Name: PG&E Topock Project

Project No.: 423575.MP.02.CM

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

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

Laboratory No.: 800861

Date Received: April 4, 2012

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
800861-001	CW-01D-027	E120.1	NONE	4/3/2012	14:36	EC	7190	umhos/cm	2.00
800861-001	CW-01D-027	E200.8	FLDFLT	4/3/2012	14:36	Chromium	ND	ug/L	1.0
800861-001	CW-01D-027	E218.6	FLDFLT	4/3/2012	14:36	Chromium, hexavalent	0.41	ug/L	0.20
800861-001	CW-01D-027	E300	NONE	4/3/2012	14:36	Chloride	2340	mg/L	100
800861-001	CW-01D-027	E300	NONE	4/3/2012	14:36	Fluoride	2.49	mg/L	0.500
800861-001	CW-01D-027	E300	NONE	4/3/2012	14:36	Sulfate	502	mg/L	25.0
800861-001	CW-01D-027	SM2130B	NONE	4/3/2012	14:36	Turbidity	0.142	NTU	0.100
800861-001	CW-01D-027	SM2540C	NONE	4/3/2012	14:36	Total Dissolved Solids	3960	mg/L	250
800861-001	CW-01D-027	SM4500NH3D	NONE	4/3/2012	14:36	Ammonia-N	ND	mg/L	0.500
800861-002	CW-01M-027	E120.1	NONE	4/3/2012	15:30	EC	7280	umhos/cm	2.00
800861-002	CW-01M-027	E200.8	FLDFLT	4/3/2012	15:30	Chromium	2.4	ug/L	1.0
800861-002	CW-01M-027	E218.6	FLDFLT	4/3/2012	15:30	Chromium, hexavalent	2.0	ug/L	0.20
800861-002	CW-01M-027	E300	NONE	4/3/2012	15:30	Chloride	2260	mg/L	100
800861-002	CW-01M-027	E300	NONE	4/3/2012	15:30	Fluoride	1.89	mg/L	0.500
800861-002	CW-01M-027	E300	NONE	4/3/2012	15:30	Sulfate	510	mg/L	50.0
800861-002	CW-01M-027	SM2130B	NONE	4/3/2012	15:30	Turbidity	0.181	NTU	0.100
800861-002	CW-01M-027	SM2540C	NONE	4/3/2012	15:30	Total Dissolved Solids	4070	mg/L	250
800861-002	CW-01M-027	SM4500NH3D	NONE	4/3/2012	15:30	Ammonia-N	ND	mg/L	0.500
800861-003	OW-86-027	E218.6	FLDFLT	4/3/2012	16:30	Chromium, hexavalent	ND	ug/L	0.20

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Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
800861-004	CW-02D-027	E120.1	NONE	4/4/2012	12:47	EC	7390	umhos/cm	2.00
800861-004	CW-02D-027	E200.8	FLDFLT	4/4/2012	12:47	Chromium	1.2	ug/L	1.0
800861-004	CW-02D-027	E218.6	FLDFLT	4/4/2012	12:47	Chromium, hexavalent	0.82	ug/L	0.20
800861-004	CW-02D-027	E300	NONE	4/4/2012	12:47	Chloride	2360	mg/L	100
800861-004	CW-02D-027	E300	NONE	4/4/2012	12:47	Fluoride	3.12	mg/L	0.500
800861-004	CW-02D-027	E300	NONE	4/4/2012	12:47	Sulfate	500	mg/L	25.0
800861-004	CW-02D-027	SM2130B	NONE	4/4/2012	12:47	Turbidity	0.611	NTU	0.100
800861-004	CW-02D-027	SM2540C	NONE	4/4/2012	12:47	Total Dissolved Solids	4050	mg/L	250
800861-004	CW-02D-027	SM4500NH3D	NONE	4/4/2012	12:47	Ammonia-N	ND	mg/L	0.500
800861-004	CW-02D-027	SW6020	FLDFLT	4/4/2012	12:47	Molybdenum	ND	ug/L	10.0
800861-004	CW-02D-027	SW6020	FLDFLT	4/4/2012	12:47	Selenium	ND	ug/L	10.0
800861-005	CW-02M-027	E120.1	NONE	4/4/2012	13:47	EC	7180	umhos/cm	2.00
800861-005	CW-02M-027	E200.8	FLDFLT	4/4/2012	13:47	Chromium	2.8	ug/L	1.0
800861-005	CW-02M-027	E218.6	FLDFLT	4/4/2012	13:47	Chromium, hexavalent	2.4	ug/L	0.20
800861-005	CW-02M-027	E300	NONE	4/4/2012	13:47	Chloride	3800	mg/L	100
800861-005	CW-02M-027	E300	NONE	4/4/2012	13:47	Fluoride	3.02	mg/L	0.500
800861-005	CW-02M-027	E300	NONE	4/4/2012	13:47	Sulfate	475	mg/L	25.0
800861-005	CW-02M-027	SM2130B	NONE	4/4/2012	13:47	Turbidity	0.399	NTU	0.100
800861-005	CW-02M-027	SM2540C	NONE	4/4/2012	13:47	Total Dissolved Solids	3920	mg/L	250
800861-005	CW-02M-027	SM4500NH3D	NONE	4/4/2012	13:47	Ammonia-N	ND	mg/L	0.500
800861-005	CW-02M-027	SW6020	FLDFLT	4/4/2012	13:47	Molybdenum	20.2	ug/L	10.0
800861-005	CW-02M-027	SW6020	FLDFLT	4/4/2012	13:47	Selenium	ND	ug/L	10.0
800861-006	CW-03D-027	E120.1	NONE	4/4/2012	9:25	EC	7320	umhos/cm	2.00
800861-006	CW-03D-027	E200.8	FLDFLT	4/4/2012	9:25	Chromium	1.0	ug/L	1.0
800861-006	CW-03D-027	E218.6	FLDFLT	4/4/2012	9:25	Chromium, hexavalent	0.69	ug/L	0.20
800861-006	CW-03D-027	E300	NONE	4/4/2012	9:25	Chloride	2260	mg/L	100
800861-006	CW-03D-027	E300	NONE	4/4/2012	9:25	Fluoride	4.53	mg/L	0.500
800861-006	CW-03D-027	E300	NONE	4/4/2012	9:25	Sulfate	497	mg/L	25.0
800861-006	CW-03D-027	SM2130B	NONE	4/4/2012	9:25	Turbidity	0.115	NTU	0.100
800861-006	CW-03D-027	SM2540C	NONE	4/4/2012	9:25	Total Dissolved Solids	4170	mg/L	250
800861-006	CW-03D-027	SM4500NH3D	NONE	4/4/2012	9:25	Ammonia-N	ND	mg/L	0.500
800861-006	CW-03D-027	SW6020	FLDFLT	4/4/2012	9:25	Molybdenum	18.1	ug/L	10.0
800861-006	CW-03D-027	SW6020	FLDFLT	4/4/2012	9:25	Selenium	ND	ug/L	10.0



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
800861-007	CW-03M-027	E120.1	NONE	4/4/2012	10:31	EC	8780	umhos/cm	2.00
800861-007	CW-03M-027	E200.8	FLDFLT	4/4/2012	10:31	Chromium	8.6	ug/L	1.0
800861-007	CW-03M-027	E218.6	FLDFLT	4/4/2012	10:31	Chromium, hexavalent	7.9	ug/L	1.0
800861-007	CW-03M-027	E300	NONE	4/4/2012	10:31	Chloride	2910	mg/L	100
800861-007	CW-03M-027	E300	NONE	4/4/2012	10:31	Fluoride	3.16	mg/L	0.500
800861-007	CW-03M-027	E300	NONE	4/4/2012	10:31	Sulfate	454	mg/L	25.0
800861-007	CW-03M-027	SM2130B	NONE	4/4/2012	10:31	Turbidity	0.168	NTU	0.100
800861-007	CW-03M-027	SM2540C	NONE	4/4/2012	10:31	Total Dissolved Solids	4830	mg/L	250
800861-007	CW-03M-027	SM4500NH3D	NONE	4/4/2012	10:31	Ammonia-N	ND	mg/L	0.500
800861-008	OW-90-027	E120.1	NONE	4/4/2012	7:10	EC	7350	umhos/cm	2.00
800861-008	OW-90-027	E200.8	FLDFLT	4/4/2012	7:10	Chromium	1.1	ug/L	1.0
800861-008	OW-90-027	E218.6	FLDFLT	4/4/2012	7:10	Chromium, hexavalent	0.70	ug/L	0.20
800861-008	OW-90-027	E300	NONE	4/4/2012	7:10	Chloride	2220	mg/L	100
800861-008	OW-90-027	E300	NONE	4/4/2012	7:10	Fluoride	6.77	mg/L	0.500
800861-008	OW-90-027	E300	NONE	4/4/2012	7:10	Sulfate	501	mg/L	25.0
800861-008	OW-90-027	SM2130B	NONE	4/4/2012	7:10	Turbidity	0.135	NTU	0.100
800861-008	OW-90-027	SM2540C	NONE	4/4/2012	7:10	Total Dissolved Solids	4360	mg/L	250
800861-008	OW-90-027	SM4500NH3D	NONE	4/4/2012	7:10	Ammonia-N	ND	mg/L	0.500
800861-008	OW-90-027	SW6020	FLDFLT	4/4/2012	7:10	Molybdenum	18.1	ug/L	10.0
800861-008	OW-90-027	SW6020	FLDFLT	4/4/2012	7:10	Selenium	ND	ug/L	10.0
800861-009	OW-91-027	E120.1	NONE	4/4/2012	17:35	EC	7410	umhos/cm	2.00
800861-009	OW-91-027	E200.8	FLDFLT	4/4/2012	17:35	Chromium	1.2	ug/L	1.0
800861-009	OW-91-027	E218.6	FLDFLT	4/4/2012	17:35	Chromium, hexavalent	0.80	ug/L	0.20
800861-009	OW-91-027	E300	NONE	4/4/2012	17:35	Chloride	2230	mg/L	100
800861-009	OW-91-027	E300	NONE	4/4/2012	17:35	Fluoride	3.48	mg/L	0.500
800861-009	OW-91-027	E300	NONE	4/4/2012	17:35	Sulfate	500	mg/L	25.0
800861-009	OW-91-027	SM2130B	NONE	4/4/2012	17:35	Turbidity	0.677	NTU	0.100
800861-009	OW-91-027	SM2540C	NONE	4/4/2012	17:35	Total Dissolved Solids	4320	mg/L	250
800861-009	OW-91-027	SM4500NH3D	NONE	4/4/2012	17:35	Ammonia-N	ND	mg/L	0.500
800861-009	OW-91-027	SW6020	FLDFLT	4/4/2012	17:35	Molybdenum	ND	ug/L	10.0
800861-009	OW-91-027	SW6020	FLDFLT	4/4/2012	17:35	Selenium	ND	ug/L	10.0

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.

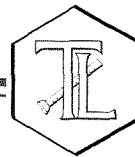
Result above or equal to 0.01ppm will have three (3) significant figures.

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

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TRUESDAIL LABORATORIES, INC.

EXCELLENCE IN INDEPENDENT TESTING



Established 1931

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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. 800861

Page 1 of 16

Printed 4/20/2012

Samples Received on 4/4/2012 10:00:00 PM

Field ID	Lab ID	Collected	Matrix
CW-01D-027	800861-001	04/03/2012 14:36	Water
CW-01M-027	800861-002	04/03/2012 15:30	Water
OW-86-027	800861-003	04/03/2012 16:30	Water
CW-02D-027	800861-004	04/04/2012 12:47	Water
CW-02M-027	800861-005	04/04/2012 13:47	Water
CW-03D-027	800861-006	04/04/2012 09:25	Water
CW-03M-027	800861-007	04/04/2012 10:31	Water
OW-90-027	800861-008	04/04/2012 07:10	Water
OW-91-027	800861-009	04/04/2012 17:35	Water

Anions By I.C. - EPA 300.0

Batch 04AN12D

Parameter	Unit	Analyzed	DF	MDL	RL	Result
800861-001 Chloride	mg/L	04/05/2012 13:50	500	18.0	100.	2340
Fluoride	mg/L	04/05/2012 10:24	5.00	0.155	0.500	2.49
Sulfate	mg/L	04/05/2012 15:44	50.0	5.70	25.0	502.
800861-002 Chloride	mg/L	04/05/2012 14:01	500	18.0	100.	2260
Fluoride	mg/L	04/05/2012 10:36	5.00	0.155	0.500	1.89
Sulfate	mg/L	04/05/2012 12:41	100	11.4	50.0	510.
800861-004 Chloride	mg/L	04/05/2012 14:35	500	18.0	100.	2360
Fluoride	mg/L	04/05/2012 10:47	5.00	0.155	0.500	3.12
Sulfate	mg/L	04/05/2012 15:55	50.0	5.70	25.0	500.
800861-005 Chloride	mg/L	04/05/2012 14:47	500	18.0	100.	3800
Fluoride	mg/L	04/05/2012 10:59	5.00	0.155	0.500	3.02
Sulfate	mg/L	04/05/2012 16:07	50.0	5.70	25.0	475.
800861-006 Chloride	mg/L	04/05/2012 14:58	500	18.0	100.	2260
Fluoride	mg/L	04/05/2012 11:10	5.00	0.155	0.500	4.53
Sulfate	mg/L	04/05/2012 16:18	50.0	5.70	25.0	497.

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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 4/20/2012

800861-007 Chloride	mg/L	04/05/2012 15:10	500	18.0	100.	2910
Fluoride	mg/L	04/05/2012 11:21	5.00	0.155	0.500	3.16
Sulfate	mg/L	04/05/2012 16:52	50.0	5.70	25.0	454.
800861-008 Chloride	mg/L	04/05/2012 15:21	500	18.0	100.	2220
Fluoride	mg/L	04/05/2012 11:33	5.00	0.155	0.500	6.77
Sulfate	mg/L	04/05/2012 17:04	50.0	5.70	25.0	501.
800861-009 Chloride	mg/L	04/05/2012 15:32	500	18.0	100.	2230
Fluoride	mg/L	04/05/2012 11:44	5.00	0.155	0.500	3.48
Sulfate	mg/L	04/05/2012 17:15	50.0	5.70	25.0	500.

Method Blank

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

Duplicate

Lab ID = 800854-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chloride	mg/L	25.0	53.6	55.4	3.24	0 - 20

Duplicate

Lab ID = 800861-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Fluoride	mg/L	5.00	2.43	2.49	2.32	0 - 20

Duplicate

Lab ID = 800861-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Sulfate	mg/L	100	508.	510.	0.422	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.98	4.00	99.4	90 - 110
Fluoride	mg/L	1.00	4.12	4.00	103.	90 - 110
Sulfate	mg/L	1.00	20.1	20.0	100.	90 - 110

Matrix Spike

Lab ID = 800854-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chloride	mg/L	25.0	152.	155.(100.)	96.9	85 - 115

Matrix Spike

Lab ID = 800861-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Fluoride	mg/L	5.00	23.3	22.5(20.0)	104.	85 - 115

**Client: E2 Consulting Engineers, Inc.****Project Name: PG&E Topock Project****Page 3 of 16****Project Number: 423575.MP.02.CM****Printed 4/20/2012****Matrix Spike**

Lab ID = 800861-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Sulfate	mg/L	100	1530	1510(1000)	102.	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.98	4.00	99.4	90 - 110
Fluoride	mg/L	1.00	4.12	4.00	103.	90 - 110
Sulfate	mg/L	1.00	20.1	20.0	100.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	2.98	3.00	99.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	2.98	3.00	99.3	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	2.99	3.00	99.6	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	3.12	3.00	104.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Fluoride	mg/L	1.00	3.12	3.00	104.	90 - 110
Sulfate	mg/L	1.00	14.9	15.0	99.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sulfate	mg/L	1.00	14.9	15.0	99.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sulfate	mg/L	1.00	15.0	15.0	100.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sulfate	mg/L	1.00	15.0	15.0	99.8	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.CM

Printed 4/20/2012

Specific Conductivity - EPA 120.1

Batch 04EC12B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
800861-001 Specific Conductivity	umhos/cm	04/06/2012	1.00	0.0950	2.00	7190
800861-002 Specific Conductivity	umhos/cm	04/06/2012	1.00	0.0950	2.00	7280
800861-004 Specific Conductivity	umhos/cm	04/06/2012	1.00	0.0950	2.00	7390
800861-005 Specific Conductivity	umhos/cm	04/06/2012	1.00	0.0950	2.00	7180
800861-006 Specific Conductivity	umhos/cm	04/06/2012	1.00	0.0950	2.00	7320
800861-007 Specific Conductivity	umhos/cm	04/06/2012	1.00	0.0950	2.00	8780
800861-008 Specific Conductivity	umhos/cm	04/06/2012	1.00	0.0950	2.00	7350
800861-009 Specific Conductivity	umhos/cm	04/06/2012	1.00	0.0950	2.00	7410

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 800861-009

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	7410	7410	0.00	0 - 10

Duplicate

Lab ID = 800895-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	2770	2770	0.00	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	693	706	98.2	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	701	706	99.3	90 - 110

MRCCS - Secondary

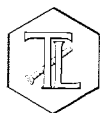
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	686	706	97.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	969	998	97.1	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	972	998	97.4	90 - 110



Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.CM

Printed 4/20/2012

Chrome VI by EPA 218.6

Batch 04CrH12G

Parameter	Unit	Analyzed	DF	MDL	RL	Result
800861-001 Chromium, Hexavalent	ug/L	04/10/2012 14:03	1.00	0.0260	0.20	0.41
800861-002 Chromium, Hexavalent	ug/L	04/10/2012 14:55	1.00	0.0260	0.20	2.0
800861-003 Chromium, Hexavalent	ug/L	04/10/2012 15:05	1.00	0.0260	0.20	ND
800861-004 Chromium, Hexavalent	ug/L	04/10/2012 15:57	1.00	0.0260	0.20	0.82
800861-005 Chromium, Hexavalent	ug/L	04/10/2012 16:07	1.00	0.0260	0.20	2.4
800861-006 Chromium, Hexavalent	ug/L	04/10/2012 16:18	1.00	0.0260	0.20	0.69
800861-007 Chromium, Hexavalent	ug/L	04/10/2012 19:55	5.00	0.130	1.0	7.9
800861-008 Chromium, Hexavalent	ug/L	04/10/2012 17:31	1.00	0.0260	0.20	0.70
800861-009 Chromium, Hexavalent	ug/L	04/10/2012 18:04	1.00	0.0260	0.20	0.80

Method Blank

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

Duplicate

Lab ID = 800919-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.0132	0.0146	10.1	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.188	0.200	94.2	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.08	5.00	102.	90 - 110

Matrix Spike

Lab ID = 800861-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.44	1.41(1.00)	104.	90 - 110

Matrix Spike

Lab ID = 800861-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.24	5.27(5.00)	99.4	90 - 110

Matrix Spike

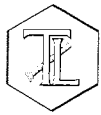
Lab ID = 800861-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.90	6.98(5.00)	98.5	90 - 110

Matrix Spike

Lab ID = 800861-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	6.77	6.73(5.00)	101.	90 - 110



TRUESDAIL LABORATORIES, INC.

Report Continued

Client: E2 Consulting Engineers, Inc.

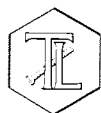
Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.CM

Printed 4/20/2012

Matrix Spike						Lab ID = 800861-003
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.978	1.00(1.00)	97.8	90 - 110
Matrix Spike						Lab ID = 800861-004
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.58	5.59(5.00)	99.9	90 - 110
Matrix Spike						Lab ID = 800861-004
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.78	1.82(1.00)	96.0	90 - 110
Matrix Spike						Lab ID = 800861-005
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	7.39	7.45(5.00)	98.8	90 - 110
Matrix Spike						Lab ID = 800861-005
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	7.33	7.23(5.00)	102.	90 - 110
Matrix Spike						Lab ID = 800861-006
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.66	1.69(1.00)	96.2	90 - 110
Matrix Spike						Lab ID = 800861-006
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.38	5.54(5.00)	96.8	90 - 110
Matrix Spike						Lab ID = 800861-007
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	17.7	17.8(10.0)	99.1	90 - 110
Matrix Spike						Lab ID = 800861-007
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	32.9	32.9(25.0)	100.	90 - 110
Matrix Spike						Lab ID = 800861-008
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.49	5.49(5.00)	100.	90 - 110
Matrix Spike						Lab ID = 800861-008
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.68	1.70(1.00)	97.4	90 - 110
Matrix Spike						Lab ID = 800861-009
Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.80	1.80(1.00)	99.4	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 4/20/2012

Matrix Spike

Lab ID = 800861-009

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	5.55	5.58(5.00)	99.4	90 - 110

Matrix Spike

Lab ID = 800919-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.997	1.01(1.00)	98.2	90 - 110

Matrix Spike

Lab ID = 800919-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.972	1.00(1.00)	97.2	90 - 110

Matrix Spike

Lab ID = 800920-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.06	1.00(1.00)	106.	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.03	5.00	100.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.1	10.0	101.	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.1	10.0	101.	95 - 105

MRCVS - Primary

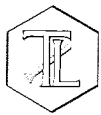
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.1	10.0	101.	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.1	10.0	101.	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.1	10.0	101.	95 - 105



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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Metals by EPA 6020A, Dissolved

Batch 041012B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
800861-004 Molybdenum	ug/L	04/11/2012 00:58	5.00	0.270	10.0	ND
Selenium	ug/L	04/11/2012 00:58	5.00	0.340	10.0	ND
800861-005 Molybdenum	ug/L	04/11/2012 01:05	5.00	0.270	10.0	20.2
Selenium	ug/L	04/11/2012 01:05	5.00	0.340	10.0	ND
800861-006 Molybdenum	ug/L	04/11/2012 01:12	5.00	0.270	10.0	18.1
Selenium	ug/L	04/11/2012 01:12	5.00	0.340	10.0	ND
800861-008 Molybdenum	ug/L	04/11/2012 01:26	5.00	0.270	10.0	18.1
Selenium	ug/L	04/11/2012 01:26	5.00	0.340	10.0	ND
800861-009 Molybdenum	ug/L	04/11/2012 01:33	5.00	0.270	10.0	ND
Selenium	ug/L	04/11/2012 01:33	5.00	0.340	10.0	ND

Method Blank

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

Duplicate

Lab ID = 800861-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Selenium	ug/L	5.00	3.00	3.41	12.8	0 - 20
Molybdenum	ug/L	5.00	18.3	18.5	1.09	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	1.00	0.202	0.200	101.	70 - 130
Molybdenum	ug/L	1.00	0.210	0.200	105.	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Selenium	ug/L	5.00	99.7	100.	99.7	85 - 115
Molybdenum	ug/L	5.00	95.4	100.	95.4	85 - 115

Matrix Spike

Lab ID = 800861-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Selenium	ug/L	5.00	95.3	103.(100.)	91.8	75 - 125
Molybdenum	ug/L	5.00	115.	118.(100.)	96.4	75 - 125

Matrix Spike Duplicate

Lab ID = 800861-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Selenium	ug/L	5.00	100.	103.(100.)	96.7	75 - 125
Molybdenum	ug/L	5.00	122.	118.(100.)	103.	75 - 125



TRUESDAIL LABORATORIES, INC.

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Project Number: 423575.MP.02.CM

Printed 4/20/2012

Total Dissolved Solids by SM 2540 C

Batch 04TDS12B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
800861-001 Total Dissolved Solids	mg/L	04/06/2012	1.00	0.400	250.	3960
800861-002 Total Dissolved Solids	mg/L	04/06/2012	1.00	0.400	250.	4070
800861-004 Total Dissolved Solids	mg/L	04/06/2012	1.00	0.400	250.	4050
800861-005 Total Dissolved Solids	mg/L	04/06/2012	1.00	0.400	250.	3920
800861-006 Total Dissolved Solids	mg/L	04/06/2012	1.00	0.400	250.	4170
800861-007 Total Dissolved Solids	mg/L	04/06/2012	1.00	0.400	250.	4830
800861-008 Total Dissolved Solids	mg/L	04/06/2012	1.00	0.400	250.	4360
800861-009 Total Dissolved Solids	mg/L	04/06/2012	1.00	0.400	250.	4320

Method Blank

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

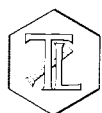
Duplicate

Lab ID = 800895-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	1630	1570	3.87	0 - 5

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	450.	500.	90.0	90 - 110



Client: E2 Consulting Engineers, Inc.

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Project Number: 423575.MP.02.CM

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Ammonia Nitrogen by SM4500-NH3D

Batch 04NH3-E12A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
800861-001 Ammonia as N	mg/L	04/05/2012	1.00	0.00120	0.500	ND
800861-002 Ammonia as N	mg/L	04/05/2012	1.00	0.00120	0.500	ND
800861-004 Ammonia as N	mg/L	04/05/2012	1.00	0.00120	0.500	ND
800861-005 Ammonia as N	mg/L	04/05/2012	1.00	0.00120	0.500	ND
800861-006 Ammonia as N	mg/L	04/05/2012	1.00	0.00120	0.500	ND
800861-007 Ammonia as N	mg/L	04/05/2012	1.00	0.00120	0.500	ND
800861-008 Ammonia as N	mg/L	04/05/2012	1.00	0.00120	0.500	ND
800861-009 Ammonia as N	mg/L	04/05/2012	1.00	0.00120	0.500	ND

Method Blank

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

Duplicate

Lab ID = 800831-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Ammonia as N	mg/L	1.00	ND	0.00	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	10.4	10.0	104.	90 - 110

Matrix Spike

Lab ID = 800831-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.28	6.00(6.00)	105.	75 - 125

Matrix Spike Duplicate

Lab ID = 800831-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.50	6.00(6.00)	108.	75 - 125

MRCCS - Secondary

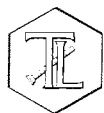
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.12	6.00	102.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	5.97	6.00	99.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.02	6.00	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 4/20/2012

Metals by EPA 200.8, Dissolved

Batch 041012B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
800861-001 Chromium	ug/L	04/11/2012 00:08	5.00	0.110	1.0	ND
800861-002 Chromium	ug/L	04/11/2012 00:51	5.00	0.110	1.0	2.4
800861-004 Chromium	ug/L	04/11/2012 00:58	5.00	0.110	1.0	1.2
800861-005 Chromium	ug/L	04/11/2012 01:05	5.00	0.110	1.0	2.8
800861-006 Chromium	ug/L	04/11/2012 01:12	5.00	0.110	1.0	1.0
800861-007 Chromium	ug/L	04/11/2012 01:19	5.00	0.110	1.0	8.6
800861-009 Chromium	ug/L	04/11/2012 01:33	5.00	0.110	1.0	1.2

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate

Lab ID = 800861-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	5.00	ND	0.00	0	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.226	0.200	113.	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	5.00	103.	100.	103.	85 - 115

Matrix Spike

Lab ID = 800861-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	106.	100.(100.)	106.	75 - 125

Matrix Spike Duplicate

Lab ID = 800861-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	109.	100.(100.)	109.	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	10.8	10.0	108.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	10.1	10.0	101.	90 - 110


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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Metals by EPA 200.8, Dissolved

Batch 041312B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
800861-008 Chromium	ug/L	04/14/2012 05:09	5.00	0.110	1.0	1.1

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.211	0.200	105.	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	5.00	103.	100.	103.	85 - 115

Matrix Spike

Lab ID = 800861-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	107.	101.(100.)	106.	75 - 125

Matrix Spike Duplicate

Lab ID = 800861-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	114.	101.(100.)	113.	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	9.74	10.0	97.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	9.55	10.0	95.5	90 - 110

MRCVS - Primary

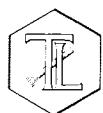
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	9.67	10.0	96.7	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0.00		

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0.00		



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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 AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	9.64	10.0	96.4	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	9.47	10.0	94.7	80 - 120

Turbidity by SM 2130 B

Batch 04TUC12E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
800861-001 Turbidity	NTU	04/05/2012	1.00	0.0140	0.100	0.142
800861-002 Turbidity	NTU	04/05/2012	1.00	0.0140	0.100	0.181
800861-004 Turbidity	NTU	04/05/2012	1.00	0.0140	0.100	0.611
800861-005 Turbidity	NTU	04/05/2012	1.00	0.0140	0.100	0.399
800861-006 Turbidity	NTU	04/05/2012	1.00	0.0140	0.100	0.115
800861-007 Turbidity	NTU	04/05/2012	1.00	0.0140	0.100	0.168
800861-008 Turbidity	NTU	04/05/2012	1.00	0.0140	0.100	0.135
800861-009 Turbidity	NTU	04/05/2012	1.00	0.0140	0.100	0.677

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate

Lab ID = 800861-009

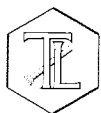
Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Turbidity	NTU	1.00	0.680	0.677	0.442	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.30	8.00	104.	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.20	8.00	102.	90 - 110



TRUESDAIL LABORATORIES, INC.

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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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Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

for 
Mona Nassimi
Manager, Analytical Services

F2 SC



Total Dissolved Solids by SM 2540 C

Calculations

Batch: 04TDS12B

Date Calculated: 4/6/12

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	72.8180	72.8190	72.8188	0.0002	No	0.0008	8.0	25.0	ND	1
800861-1	10	75.4461	75.4859	75.4857	0.0002	No	0.0396	3960.0	250.0	3960.0	1
800861-2	10	51.4259	51.4669	51.4666	0.0003	No	0.0407	4070.0	250.0	4070.0	1
800861-4	10	50.4941	50.5348	50.5346	0.0002	No	0.0405	4050.0	250.0	4050.0	1
800861-5	10	74.6832	74.7228	74.7224	0.0004	No	0.0392	3920.0	250.0	3920.0	1
800861-6	10	47.5215	47.5636	47.5632	0.0004	No	0.0417	4170.0	250.0	4170.0	1
800861-7	10	49.3515	49.4002	49.3998	0.0004	No	0.0483	4830.0	250.0	4830.0	1
800861-8	10	48.5955	48.6395	48.6391	0.0004	No	0.0436	4360.0	250.0	4360.0	1
800861-9	10	47.5075	47.5511	47.5507	0.0004	No	0.0432	4320.0	250.0	4320.0	1
800895-1	10	46.9878	47.0347	47.0344	0.0003	No	0.0466	4660.0	250.0	4660.0	1
800895-2	10	50.9888	51.0259	51.0257	0.0002	No	0.0369	3690.0	250.0	3690.0	1
800895-3	20	49.8234	49.8858	49.8855	0.0003	No	0.0621	3105.0	125.0	3105.0	1
800895-4	50	68.4249	68.4754	68.475	0.0004	No	0.0501	1002.0	50.0	1002.0	1
800895-5	50	76.5494	76.6283	76.6279	0.0004	No	0.0785	1570.0	50.0	1570.0	1
800895-5D	50	68.1358	68.2177	68.2174	0.0003	No	0.0816	1632.0	50.0	1632.0	1
LCS	100	74.7349	74.7803	74.7799	0.0004	No	0.0450	450.0	25.0	450.0	1

Calculation as follows:

$$\text{Filterable residue (TDS), mg/L} = \left(\frac{A - B}{C} \right) \times 10^6$$

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)

Analyst Printed Name

Analyst Signature

Reviewer Printed Name

Reviewer Signature

TDS/EC CHECK

Date Calculated: 4/6/12

[illegible]

H

CMP-027 TLI #1

800861

CH2MHILL

CHAIN OF CUSTODY RECORD

4/4/2012 4:03:44 PM

Page 1 OF 1

Project Name PG&E Topock			Container:	250 ml Poly	500 ml Poly	500 ml Poly	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	1 Liter Poly	<div style="border: 2px solid black; padding: 10px; text-align: center;"> ALERT !! Level III QC </div>	Number of Containers	COMMENTS
Location Topock			Preservatives:	(NH4)2S 0.4% HNO3 H, 4°C	HNO3 4°C	HNO3 4°C	4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C			
Project Manager Jay Piper			Filtered:	Field	Field	Field	NA	NA	NA	NA	NA			
Sample Manager Matt Ringier			Holding Time:	28	180	180	2	2	2	2	28			
Project Number 423575.MP.02.CM.0														
Task Order														
Project 2012-CMP-027														
Turnaround Time 10 Days														
Shipping Date: 4/4/2012														
COC Number: 1														
DATE TIME Matrix														
1	CW-01D-027	4/3/2012	14:36	Water	X	X		X	X	X	X	X	5	
2	CW-01M-027	4/3/2012	15:30	Water	X	X		X	X	X	X	X	5	
3	OW-86-027	4/3/2012	16:30	Water	X								1	
4	CW-02D-027	4/4/2012	12:47	Water	X	X	X	X	X	X	X	X	6	
5	CW-02M-027	4/4/2012	13:47	Water	X	X	X	X	X	X	X	X	6	
6	CW-03D-027	4/4/2012	9:25	Water	X	X	X	X	X	X	X	X	6	
7	CW-03M-027	4/4/2012	10:31	Water	X	X	SPD	X	X	X	X	X	5	
8	OW-90-027	4/4/2012	7:10	Water	X	X	X	X	X	X	X	X	5	Please add Mo and Se analysis to this sample
9	OW-91-027	4/4/2012	17:35	Water	X	X	X	X	X	X	X	X	6	
TOTAL NUMBER OF CONTAINERS												45		

Approved by

Sampled by

Relinquished by

Received by

Relinquished by

Received by

Signatures

Date/Time

Shipping Details

Special Instructions:

ATTN:

April 4-6, 2012

Sample Custody

Report Copy to

Shawn Duffy
(530) 229-3303

Method of Shipment: courier

On Ice: yes / no

Airbill No:

Lab Name: Truesdail Laboratories, Inc.

Lab Phone: (714) 730-6239

4-4-12

1606

4-4-12 1606

800861

Project Name PG&E Topock				Container:	250 ml Poly	500 ml Poly	500 ml Poly	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	1 Liter Poly	Number of Containers	COMMENTS
Location Topock				Preservatives:	(NH4)2S O4/NH4O H, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C		
Project Manager Jay Piper				Filtered:	Field	Field	Field	NA	NA	NA	NA	NA		
Sample Manager Matt Ringier				Holding Time:	28	180	180	2	2	2	2	28		
Project Number 423575.MP.02.CM.0					Cr6 (E218.6) Field Filtered	Metals (E200.7-E200.8) Field Filtered Chromium	Metals (SW6010B/SW6020A) Field Filtered Hg, Se	Specific Conductance (E120.1)	Anions (E300.0) Cl, F, SO4	Turbidity (SM2130)	TDS (SM2540C)	Ammonia (SM4500NH3)		
Task Order														
Project 2012-CMP-027														
Turnaround Time 10 Days														
Shipping Date: 4/4/2012														
COC Number: 1														
DATE	TIME	MATRIX												
CW-01D-027	4/3/2012	14:36	Water	X	X		X	X	X	X	X		5	pH=2 Metals
CW-01M-027	4/3/2012	15:30	Water	X	X		X	X	X	X	X		5	
OW-86-027	4/3/2012	16:30	Water	X									1	
CW-02D-027	4/4/2012	12:47	Water	X	X	X	X	X	X	X	X		6	pH=2 Metals
CW-02M-027	4/4/2012	13:47	Water	X	X	X	X	X	X	X	X		6	
CW-03D-027	4/4/2012	9:25	Water	X	X	X	X	X	X	X	X		6	
CW-03M-027	4/4/2012	10:31	Water	X	X		X	X	X	X	X		5	
OW-90-027	4/4/2012	7:10	Water	X	X		X	X	X	X	X		5	
OW-91-027	4/4/2012	17:35	Water	X	X	X	X	X	X	X	X		6	
TOTAL NUMBER OF CONTAINERS													45	

ALERT!!

Level III QC

For Sample Conditions
See Form Attached

Signatures

Approved by

Sampled by

Relinquished by

Received by

Relinquished by

Received by

Date/Time

4-4-12

1606

4-4-12 1606

4-4-12 2200

4/4/12 2210

Shipping Details

Method of Shipment: courier

On Ice: yes / no

Airbill No:

Lab Name: Truesdail Laboratories, Inc.

Lab Phone: (714) 730-6239

Special Instructions:

April 4-6, 2012

ATTN:

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
3/16/12	800534-1	9.5	N/A	N/A	N/A	ML
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
↓	↓ -5	↓	↓	↓	↓	↓
↓	↓ -6	↓	↓	↓	↓	↓
3/21/12	800584	7.0	5mL	9.5	10:15am	ML
3/23/12	800651-1	9.5	NA	NA	NA	ML
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
3/26/12	800732	7.0	5mL	9.5	9:25am	ML
3/28/12	800732	7	5mL	9.5	9:30 Am	ML
3/28/12	800742	7.0	5mL	9.5	10:35am	ML
3/29/12	800756	9.5	NA	NA	NA	ML
3/30/12	800770-1	9.5	NA	NA	7:50am	ML
↓	↓ -2	↓	↓	↓	↓ N/A	↓
↓	↓ -3	↓	↓	↓	↓ N/A	↓
4/4/12	800830 -1	7.0	2mL	9.5	9:30am	ML
4/4/12	800830 -2	7.0	2mL	9.5	9:45am	ML
4/4/12	800831 -1	7.0	2mL	9.5	10:00am	ML
↓	↓ -2	↓	↓	↓	10:10am	↓
↓	↓ -3	↓	↓	↓	10:20am	↓
4/5/12	800861 -1	9.5	NA	NA	NA	ML
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
↓	↓ -5	↓	↓	↓	↓	↓
↓	↓ -6	↓	↓	↓	↓	↓
↓	↓ -7	↓	↓	↓	↓	↓
↓	↓ -8	↓	↓	↓	↓	↓
↓	↓ -9	↓	↓	↓	↓	↓

GW 4/2/12
↓

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	Adjusted to pH<2 (Y/N)
800853(11-13)	<1	>2	4-5-12	BE	NO	XCS 7:30AM
800861(1-2)	<1	<2			XCS	3010A
800875-4	<1	<2			NO	YES
800860	>1	>2			YES	3010A XCS 14:30
800878	↓	<2			XCS	3010A BE 4-5-12
800880	<1	↓			NO	
800879	>1	↓			YES	3010A
BE 4-6-12 800891 800907	>1	<2	4-6-12	BE	YES	3010A
800925(1-5)	<1	<2			↓	↓
800909	>1	<2			↓	↓
800921(1-2)	<1	<2			XCS	3010A
800913	>1	<2	4-9-12	BE	XCS	3010A
800914	>1	↓			↓	↓
800915(1-33)	<1	>2			NO	XCS 7:45AM
800916(1-18)	↓	↓			↓	↓
800917(1-17)	↓	↓			↓	↓
800918(1-18)	↓	↓			↓	↓
800928	<1	<2	4-10-12	BE	NO	NO
800929	↓	↓			↓	↓
800930	↓	>2			BE 4-10-12 YES	3010A XCS 7:30AM
800931(1-4)	-2>1	<2			-2>3 XCS	3010A
800934(1-3)	<1	↓			YES	3010A
800936(1-7)	↓	↓			↓	↓
800935(1-6)	↓	↓			↓	↓
800939	↓	↓			YES 3010A	NO
800964(1-10)	<1	<2	4-11-12	BE	XCS	3010A
800963-1	↓	↓			↓	↓
800965(1-8)	↓	↓			↓	↓
800966(1-9)	↓	↓			↓	↓
800967	↓	>2			↓	YES 8:30AM
800968(1-14)	-12>1	<2			↓	↓
BE 4-11-12 800949 800940	<1	>2			NO	XCS 14:00
800950	>1	<2			YES	3010A
800970	↓	↓			↓	↓
800974-4	↓	↓			↓	↓
800972	<1	↓			NO	NO
800971	↓	↓			YES	3010A BE 4-11-12
800982(1-3)	<1	>2	4-12-12	BE	NO	XCS 8:30
800986(1-3)	-2>1	<2			-2 YES	3010A -2
800998(1-28)	<1	1-12 72			NO	1-12 YES 8:45
800999(1-24)	<1	<2			NO	NO
800997(1-28)	<1	<2			NO	NO
800989	<1	<2			NO	NO
800990	>1	<2			YES	3010A
800991	>1	>2			YES	3010A XCS 10:1AM
800992	<1	>2			NO	XCS 10:30AM
800997	>1	<2			XCS	3010A
801008	>1	<2	4-13-12	BE	YES	3010A



TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2

Lab # 802861

Date Delivered: 04/04/12 Time: 22:00 By: ☐ Mail ☒ Field Service ☐ Client

1. Was a Chain of Custody received and signed? ☒ Yes ☐ No ☐ N/A
2. Does Customer require an acknowledgement of the COC? ☐ Yes ☐ No ☒ N/A
3. Are there any special requirements or notes on the COC? ☐ Yes ☐ No ☒ N/A
4. If a letter was sent with the COC, does it match the COC? ☐ Yes ☐ No ☒ N/A
5. Were all requested analyses understood and acceptable? ☒ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition?
Temperature (if yes)? 4.8°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. v. 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: L. Shabunine

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 20, 2012

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

Dear Mr. Duffy:

SUBJECT: CASE NARRATIVE PG&E TOPOCK 2012-CMP-027, GROUNDWATER MONITORING
PROJECT, TLI NO.: 800895

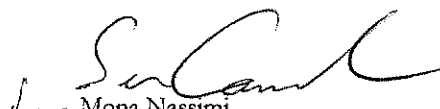
Truesdail Laboratories, Inc. is pleased to submit this report summarizing the Topock 2012-CMP-027 groundwater-monitoring project. A summary table for this sample delivery group is included in Section 2. Complete laboratory reports, quality control data, and chain of custody forms for sampling period are included in Sections 3 and 4. Analytical raw data are under Section 5.

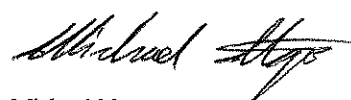
The samples were received and delivered with the chain of custody April 5, 2012, intact and in chilled condition. The samples will be kept in a locked refrigerator for 30 days; thereafter it will be kept in warm storage for an additional 2 months before disposal.

No 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.

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

Attention: Shawn Duffy

Sample: Seven (7) Groundwater Samples

Project Name: PG&E Topock Project

Project No.: 423575.MP.02.CM

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

Laboratory No.: 800895

Date: April 20, 2012

Collected: April 4, 2012

Received: April 5, 2012

ANALYST LIST

METHOD	PARAMETER	ANALYST
EPA 120.1	Specific Conductivity	Gautam Savani
SM 2540C	Total Dissolved Solids	Kim Luck
SM 2130B	Turbidity	Gautam Savani
EPA 300.0	Anions	Giawad Ghenniwa
SM 4500-NH3 D	Ammonia	Bitu Emami
EPA 200.7	Metals by ICP	Ethel Suico
EPA 200.8	Metals by ICP/MS	Katia Kiarashpoor
EPA 218.6	Hexavalent Chromium	Melissa Scharfe

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

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

Laboratory No.: 800895
Date Received: April 5, 2012

Project Name: PG&E Topock Project
Project No.: 423575.MP.02.CM
P.O. No.: 423575.MP.02.CM

Analytical Results Summary

Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
800895-001	CW-04D-027	E120.1	NONE	4/4/2012	15:48	EC	7610	umhos/cm	2.00
800895-001	CW-04D-027	E200.8	FLDFLT	4/4/2012	15:48	Chromium	1.3	ug/L	1.0
800895-001	CW-04D-027	E218.6	FLDFLT	4/4/2012	15:48	Chromium, hexavalent	1.0	ug/L	0.20
800895-001	CW-04D-027	E300	NONE	4/4/2012	15:48	Chloride	2210	mg/L	100
800895-001	CW-04D-027	E300	NONE	4/4/2012	15:48	Fluoride	3.72	mg/L	0.500
800895-001	CW-04D-027	E300	NONE	4/4/2012	15:48	Sulfate	507	mg/L	25.0
800895-001	CW-04D-027	SM2130B	NONE	4/4/2012	15:48	Turbidity	0.153	NTU	0.100
800895-001	CW-04D-027	SM2540C	NONE	4/4/2012	15:48	Total Dissolved Solids	4660	mg/L	250
800895-001	CW-04D-027	SM4500NH3D	NONE	4/4/2012	15:48	Ammonia-N	ND	mg/L	0.500
800895-002	CW-04M-027	E120.1	NONE	4/4/2012	16:46	EC	6760	umhos/cm	2.00
800895-002	CW-04M-027	E200.8	FLDFLT	4/4/2012	16:46	Chromium	8.7	ug/L	1.0
800895-002	CW-04M-027	E218.6	FLDFLT	4/4/2012	16:46	Chromium, hexavalent	8.7	ug/L	0.20
800895-002	CW-04M-027	E300	NONE	4/4/2012	16:46	Chloride	1970	mg/L	100
800895-002	CW-04M-027	E300	NONE	4/4/2012	16:46	Fluoride	2.00	mg/L	0.500
800895-002	CW-04M-027	E300	NONE	4/4/2012	16:46	Sulfate	409	mg/L	25.0
800895-002	CW-04M-027	SM2130B	NONE	4/4/2012	16:46	Turbidity	ND	NTU	0.100
800895-002	CW-04M-027	SM2540C	NONE	4/4/2012	16:46	Total Dissolved Solids	3690	mg/L	250
800895-002	CW-04M-027	SM4500NH3D	NONE	4/4/2012	16:46	Ammonia-N	ND	mg/L	0.500
800895-003	OW-01S-027	E120.1	NONE	4/5/2012	9:08	EC	5420	umhos/cm	2.00
800895-003	OW-01S-027	E200.7	FLDFLT	4/5/2012	9:08	Molybdenum	ND	ug/L	10.0
800895-003	OW-01S-027	E200.7	FLDFLT	4/5/2012	9:08	Sodium	648000	ug/L	25000
800895-003	OW-01S-027	E200.8	FLDFLT	4/5/2012	9:08	Chromium	9.4	ug/L	1.0
800895-003	OW-01S-027	E218.6	FLDFLT	4/5/2012	9:08	Chromium, hexavalent	9.5	ug/L	0.20
800895-003	OW-01S-027	E300	NONE	4/5/2012	9:08	Chloride	1530	mg/L	100
800895-003	OW-01S-027	E300	NONE	4/5/2012	9:08	Fluoride	1.89	mg/L	0.500
800895-003	OW-01S-027	E300	NONE	4/5/2012	9:08	Sulfate	344	mg/L	25.0

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.



Lab Sample ID	Field ID	Analysis Method	Extraction Method	Sample Date	Sample Time	Parameter	Result	Units	RL
800895-003	OW-01S-027	SM2130B	NONE	4/5/2012	9:08	Turbidity	ND	NTU	0.100
800895-003	OW-01S-027	SM2540C	NONE	4/5/2012	9:08	Total Dissolved Solids	3100	mg/L	125
800895-004	OW-02S-027	E120.1	NONE	4/5/2012	10:10	EC	1760	umhos/cm	2.00
800895-004	OW-02S-027	E200.7	FLDFLT	4/5/2012	10:10	Molybdenum	39.1	ug/L	10.0
800895-004	OW-02S-027	E200.7	FLDFLT	4/5/2012	10:10	Sodium	317000	ug/L	25000
800895-004	OW-02S-027	E200.8	FLDFLT	4/5/2012	10:10	Chromium	25.4	ug/L	1.0
800895-004	OW-02S-027	E218.6	FLDFLT	4/5/2012	10:10	Chromium, hexavalent	26.8	ug/L	1.0
800895-004	OW-02S-027	E300	NONE	4/5/2012	10:10	Chloride	407	mg/L	20.0
800895-004	OW-02S-027	E300	NONE	4/5/2012	10:10	Fluoride	4.98	mg/L	0.500
800895-004	OW-02S-027	E300	NONE	4/5/2012	10:10	Sulfate	103	mg/L	25.0
800895-004	OW-02S-027	SM2130B	NONE	4/5/2012	10:10	Turbidity	0.237	NTU	0.100
800895-004	OW-02S-027	SM2540C	NONE	4/5/2012	10:10	Total Dissolved Solids	1000	mg/L	50.0
800895-005	OW-05S-027	E120.1	NONE	4/5/2012	12:27	EC	2770	umhos/cm	2.00
800895-005	OW-05S-027	E200.7	FLDFLT	4/5/2012	12:27	Molybdenum	21.3	ug/L	10.0
800895-005	OW-05S-027	E200.7	FLDFLT	4/5/2012	12:27	Sodium	402000	ug/L	25000
800895-005	OW-05S-027	E200.8	FLDFLT	4/5/2012	12:27	Chromium	20.1	ug/L	1.0
800895-005	OW-05S-027	E218.6	FLDFLT	4/5/2012	12:27	Chromium, hexavalent	20.2	ug/L	0.20
800895-005	OW-05S-027	E300	NONE	4/5/2012	12:27	Chloride	723	mg/L	100
800895-005	OW-05S-027	E300	NONE	4/5/2012	12:27	Fluoride	2.21	mg/L	0.500
800895-005	OW-05S-027	E300	NONE	4/5/2012	12:27	Sulfate	140	mg/L	25.0
800895-005	OW-05S-027	SM2130B	NONE	4/5/2012	12:27	Turbidity	0.164	NTU	0.100
800895-005	OW-05S-027	SM2540C	NONE	4/5/2012	12:27	Total Dissolved Solids	1570	mg/L	50.0
800895-006	OW-87-027	E218.6	FLDFLT	4/5/2012	7:45	Chromium, hexavalent	ND	ug/L	0.20
800895-007	OW-88-027	E218.6	FLDFLT	4/5/2012	13:15	Chromium, hexavalent	ND	ug/L	0.20

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. 800895

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Printed 4/20/2012

Samples Received on 4/5/2012 10:30:00 PM

Field ID	Lab ID	Collected	Matrix
CW-04D-027	800895-001	04/04/2012 15:48	Water
CW-04M-027	800895-002	04/04/2012 16:46	Water
OW-01S-027	800895-003	04/05/2012 09:08	Water
OW-02S-027	800895-004	04/05/2012 10:10	Water
OW-05S-027	800895-005	04/05/2012 12:27	Water
OW-87-027	800895-006	04/05/2012 07:45	Water
OW-88-027	800895-007	04/05/2012 13:15	Water

Anions By I.C. - EPA 300.0

Batch 04AN12E

Parameter	Unit	Analyzed	DF	MDL	RL	Result
800895-001 Chloride	mg/L	04/06/2012 13:58	500	18.0	100.	2210
Fluoride	mg/L	04/06/2012 11:07	5.00	0.155	0.500	3.72
Sulfate	mg/L	04/06/2012 12:50	50.0	5.70	25.0	507.
800895-002 Chloride	mg/L	04/06/2012 14:09	500	18.0	100.	1970
Fluoride	mg/L	04/06/2012 11:18	5.00	0.155	0.500	2.00
Sulfate	mg/L	04/06/2012 13:01	50.0	5.70	25.0	409.
800895-003 Chloride	mg/L	04/06/2012 14:55	500	18.0	100.	1530
Fluoride	mg/L	04/06/2012 11:30	5.00	0.155	0.500	1.89
Sulfate	mg/L	04/06/2012 13:12	50.0	5.70	25.0	344.
800895-004 Chloride	mg/L	04/06/2012 15:06	100	3.60	20.0	407.
Fluoride	mg/L	04/06/2012 11:41	5.00	0.155	0.500	4.98
Sulfate	mg/L	04/06/2012 13:24	50.0	5.70	25.0	103.
800895-005 Chloride	mg/L	04/06/2012 15:18	500	18.0	100.	723.
Fluoride	mg/L	04/06/2012 11:53	5.00	0.155	0.500	2.21
Sulfate	mg/L	04/06/2012 13:35	50.0	5.70	25.0	140.

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Client: E2 Consulting Engineers, Inc.

Project Name: PG&E Topock Project

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Method Blank

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

Duplicate

Lab ID = 800896-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chloride	mg/L	1.00	ND	0.00	0	0 - 20
Fluoride	mg/L	1.00	ND	0.00	0	0 - 20
Sulfate	mg/L	1.00	ND	0.00	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.97	4.00	99.2	90 - 110
Fluoride	mg/L	1.00	4.12	4.00	103.	90 - 110
Sulfate	mg/L	1.00	20.0	20.0	100.	90 - 110

Matrix Spike

Lab ID = 800896-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chloride	mg/L	1.00	2.06	2.00(2.00)	103.	85 - 115
Fluoride	mg/L	1.00	2.17	2.00(2.00)	108.	85 - 115
Sulfate	mg/L	1.00	1.93	2.00(2.00)	96.3	85 - 115

Matrix Spike Duplicate

Lab ID = 800896-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chloride	mg/L	1.00	2.08	2.00(2.00)	104.	85 - 115
Fluoride	mg/L	1.00	2.17	2.00(2.00)	109.	85 - 115
Sulfate	mg/L	1.00	1.93	2.00(2.00)	96.5	85 - 115

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	3.97	4.00	99.2	90 - 110
Fluoride	mg/L	1.00	4.13	4.00	103.	90 - 110
Sulfate	mg/L	1.00	20.0	20.0	100.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	2.97	3.00	99.0	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chloride	mg/L	1.00	2.99	3.00	99.6	90 - 110

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Client: E2 Consulting Engineers, Inc.

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Specific Conductivity - EPA 120.1

Batch 04EC12B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
800895-001 Specific Conductivity	umhos/cm	04/06/2012	1.00	0.0950	2.00	7610
800895-002 Specific Conductivity	umhos/cm	04/06/2012	1.00	0.0950	2.00	6760
800895-003 Specific Conductivity	umhos/cm	04/06/2012	1.00	0.0950	2.00	5420
800895-004 Specific Conductivity	umhos/cm	04/06/2012	1.00	0.0950	2.00	1760
800895-005 Specific Conductivity	umhos/cm	04/06/2012	1.00	0.0950	2.00	2770

Method Blank

Parameter	Unit	DF	Result
Specific Conductivity	umhos	1.00	ND

Duplicate

Lab ID = 800861-009

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	7410	7410	0.00	0 - 10

Duplicate

Lab ID = 800895-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Specific Conductivity	umhos	1.00	2770	2770	0.00	0 - 10

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	693	706	98.2	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	701	706	99.3	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	686	706	97.2	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	969	998	97.1	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Specific Conductivity	umhos	1.00	972	998	97.4	90 - 110



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Chrome VI by EPA 218.6

Batch 04CrH12H

Parameter	Unit	Analyzed	DF	MDL	RL	Result
800895-001 Chromium, Hexavalent	ug/L	04/11/2012 15:38	1.00	0.0750	0.20	1.0
800895-002 Chromium, Hexavalent	ug/L	04/11/2012 15:49	1.00	0.0750	0.20	8.7
800895-003 Chromium, Hexavalent	ug/L	04/11/2012 15:59	1.00	0.0750	0.20	9.5
800895-004 Chromium, Hexavalent	ug/L	04/11/2012 16:09	5.00	0.375	1.0	26.8
800895-005 Chromium, Hexavalent	ug/L	04/11/2012 16:20	1.00	0.0750	0.20	20.2
800895-006 Chromium, Hexavalent	ug/L	04/11/2012 16:30	1.00	0.0750	0.20	ND
800895-007 Chromium, Hexavalent	ug/L	04/11/2012 16:41	1.00	0.0750	0.20	ND

Method Blank

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

Duplicate

Lab ID = 800895-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	8.75	8.70	0.538	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	5.11	5.00	102.	90 - 110

Matrix Spike

Lab ID = 800895-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	6.05	6.02(5.00)	100.	90 - 110

Matrix Spike

Lab ID = 800895-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	18.4	18.7(10.0)	97.1	90 - 110

Matrix Spike

Lab ID = 800895-003

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	19.2	19.5(10.0)	96.2	90 - 110

Matrix Spike

Lab ID = 800895-004

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	5.00	73.3	76.8(50.0)	93.0	90 - 110

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Matrix Spike

Lab ID = 800895-005

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	45.4	46.4(26.2)	96.2	90 - 110

Matrix Spike

Lab ID = 800895-006

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	1.01	1.03(1.00)	98.3	90 - 110

Matrix Spike

Lab ID = 800895-007

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	0.944	1.01(1.00)	93.0	90 - 110

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	5.09	5.00	102.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.1	10.0	101.	95 - 105

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium, Hexavalent	ug/L	1.00	10.0	10.0	100.	95 - 105

Total Dissolved Solids by SM 2540 C

Batch 04TDS12B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
800895-001 Total Dissolved Solids	mg/L	04/06/2012	1.00	0.400	250.	4660
800895-002 Total Dissolved Solids	mg/L	04/06/2012	1.00	0.400	250.	3690
800895-003 Total Dissolved Solids	mg/L	04/06/2012	1.00	0.400	125	3100
800895-004 Total Dissolved Solids	mg/L	04/06/2012	1.00	0.400	50.0	1000
800895-005 Total Dissolved Solids	mg/L	04/06/2012	1.00	0.400	50.0	1570

Method Blank

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

Duplicate

Lab ID = 800895-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Total Dissolved Solids	mg/L	1.00	1630	1570	3.87	0 - 5

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Total Dissolved Solids	mg/L	1.00	450.	500.	90.0	90 - 110

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Ammonia Nitrogen by SM4500-NH3D

Batch 04NH3-E12B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
800895-001 Ammonia as N	mg/L	04/10/2012	1.00	0.00120	0.500	ND
800895-002 Ammonia as N	mg/L	04/10/2012	1.00	0.00120	0.500	ND

Method Blank

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

Duplicate

Lab ID = 800895-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Ammonia as N	mg/L	1.00	ND	0.00	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	10.6	10.0	106	90 - 110

Matrix Spike

Lab ID = 800895-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	5.96	6.00(6.00)	99.2	75 - 125

Matrix Spike Duplicate

Lab ID = 800895-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.03	6.00(6.00)	100.	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.17	6.00	103.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Ammonia as N	mg/L	1.00	6.03	6.00	100.	90 - 110


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Metals by EPA 200.8, Dissolved

Batch 040612B

Parameter	Unit	Analyzed	DF	MDL	RL	Result
800895-001 Chromium	ug/L	04/07/2012 03:46	5.00	0.110	1.0	1.3
800895-002 Chromium	ug/L	04/07/2012 02:57	5.00	0.110	1.0	8.7
800895-003 Chromium	ug/L	04/07/2012 03:54	5.00	0.110	1.0	9.4
800895-005 Chromium	ug/L	04/07/2012 04:08	5.00	0.110	1.0	20.1

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate

Lab ID = 800895-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	5.00	8.94	8.69	2.89	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.194	0.200	97.2	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	5.00	95.7	100.	95.7	85 - 115

Matrix Spike

Lab ID = 800895-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	114	109.(100.)	105.	75 - 125

Matrix Spike Duplicate

Lab ID = 800895-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	115.	109.(100.)	106.	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	9.94	10.0	99.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	9.71	10.0	97.1	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	9.60	10.0	96.0	90 - 110



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Metals by EPA 200.8, Dissolved

Batch 041012A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
800895-004 Chromium	ug/L	04/10/2012 16:21	5.00	0.110	1.0	25.4

Method Blank

Parameter	Unit	DF	Result
Chromium	ug/L	1.00	ND

Duplicate

Lab ID = 800895-002

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	5.00	8.81	8.93	1.35	0 - 20

Low Level Calibration Verification

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	0.176	0.200	88.0	70 - 130

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	5.00	103.	100.	103.	85 - 115

Matrix Spike

Lab ID = 800895-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	110.	109.(100.)	101.	75 - 125

Matrix Spike Duplicate

Lab ID = 800895-002

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Chromium	ug/L	5.00	110.	109.(100.)	100.	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	10.5	10.0	105.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	10.0	10.0	100.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	9.94	10.0	99.4	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	9.64	10.0	96.4	90 - 110



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MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	10.1	10.0	101.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	9.58	10.0	95.8	90 - 110

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0.00		

Interference Check Standard A

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	ND	0.00		

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	9.94	10.0	99.4	80 - 120

Interference Check Standard AB

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Chromium	ug/L	1.00	9.77	10.0	97.7	80 - 120

Serial Dilution

Lab ID = 800895-004

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Chromium	ug/L	25.0	26.6	25.4	4.46	0 - 10



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Metals by 200.7, Dissolved

Batch 040912A

Parameter	Unit	Analyzed	DF	MDL	RL	Result
800895-003 Molybdenum	ug/L	04/09/2012 15:46	1.00	4.02	10.0	ND
Sodium	ug/L	04/09/2012 14:39	50.0	2930	25000	648000
800895-004 Molybdenum	ug/L	04/09/2012 15:52	1.00	4.02	10.0	39.1
Sodium	ug/L	04/09/2012 14:45	50.0	2930	25000	317000
800895-005 Molybdenum	ug/L	04/09/2012 15:58	1.00	4.02	10.0	21.3
Sodium	ug/L	04/09/2012 14:51	50.0	2930	25000	402000

Method Blank

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

Duplicate

Lab ID = 800921-001

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Sodium	ug/L	10.0	70400	74200	5.23	0 - 20
Molybdenum	ug/L	1.00	ND	0.00	0	0 - 20

Lab Control Sample

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	2170	2000	108.	85 - 115
Molybdenum	ug/L	1.00	1870	2000	93.7	85 - 115

Matrix Spike

Lab ID = 800921-001

Parameter	Unit	DF	Result	Expected/Added	Recovery	Acceptance Range
Sodium	ug/L	10.0	92300	94200(20000)	90.4	75 - 125
Molybdenum	ug/L	1.00	2050	2000(2000)	102.	75 - 125

MRCCS - Secondary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	4750	5000	95.1	90 - 110
Molybdenum	ug/L	1.00	5220	5000	104.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	5200	5000	104.	90 - 110

MRCVS - Primary

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Sodium	ug/L	1.00	4880	5000	97.7	90 - 110

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Turbidity by SM 2130 B

Batch 04TUC12F

Parameter	Unit	Analyzed	DF	MDL	RL	Result
800895-001 Turbidity	NTU	04/06/2012	1.00	0.0140	0.100	0.153
800895-002 Turbidity	NTU	04/06/2012	1.00	0.0140	0.100	ND
800895-003 Turbidity	NTU	04/06/2012	1.00	0.0140	0.100	ND
800895-004 Turbidity	NTU	04/06/2012	1.00	0.0140	0.100	0.237
800895-005 Turbidity	NTU	04/06/2012	1.00	0.0140	0.100	0.164

Method Blank

Parameter	Unit	DF	Result
Turbidity	NTU	1.00	ND

Duplicate

Lab ID = 800895-005

Parameter	Unit	DF	Result	Expected	RPD	Acceptance Range
Turbidity	NTU	1.00	0.166	0.164	1.21	0 - 20

Lab Control Sample

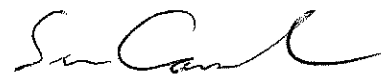
Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.46	8.00	106.	90 - 110

Lab Control Sample Duplicate

Parameter	Unit	DF	Result	Expected	Recovery	Acceptance Range
Turbidity	NTU	1.00	8.37	8.00	105.	90 - 110

Respectfully submitted,

TRUESDAIL LABORATORIES, INC.

for 
Mona Nassimi
Manager, Analytical Services



Calculations

Date Calculated: 4/6/12

Calculation as follows:

$$\text{Filterable residue (TDS), mg/L} = \left(\frac{A - B}{C} \right) \times 10^6$$

C = mL of sample filtered.

Analyst Printed Name

Analyst Signature

Reviewer Printed Name

Reviewer Signature _____

Total Dissolved Solids by SM 2540 C

TDS/EC CHECK

Batch: 04TDS12B

Date Calculated: 4/6/12

[illegible]

2

11

CH2MHILL

CHAIN OF CUSTODY RECORD

4/5/2012 2:31:17 PM

Page 1 OF 1

800895

Project Name PG&E Topock		Container:	250 ml Poly	500 ml Poly	500 ml Poly	2x1 Liter	2x1 Liter	2x1 Liter	2x1 Liter	1 Liter Poly	<div style="border: 2px solid black; padding: 10px; transform: rotate(-5deg); display: inline-block;"> ALERT !! Level III QC </div>	Number of Containers	COMMENTS
Location Topock		Preservatives:	(NH4)2S O4/NH4O H, 4°C	HNO3, 4°C	HNO3, 4°C	4°C	4°C	4°C	4°C	H2SO4, pH<2, 4°C			
Project Manager Jay Piper		Filtered:	Field	Field	Field	NA	NA	NA	NA	NA			
Sample Manager Matt Ringler		Holding Time:	28	180	180	2	2	2	2	28			
Project Number 423576.MP.02.CM.0													
Task Order													
Project 2012-CMP-027													
Turnaround Time 10 Days													
Shipping Date: 4/5/2012													
COC Number: 3													
DATE TIME Matrix													
1	CW-04D-027	4/4/2012	15:48	Water	X	X		X	X	X	X	5	pH=2 Metals
2	CW-04M-027	4/4/2012	16:46	Water	X	X		X	X	X	X	5	
3	OW-01S-027	4/5/2012	9:08	Water	X		X	X	X	X	X	4	
4	OW-02S-027	4/5/2012	10:10	Water	X		X	X	X	X	X	4	
5	OW-05S-027	4/5/2012	12:27	Water	X		X	X	X	X	X	4	
6	OW-07-027	4/5/2012	7:45	Water	X							1	
7	OW-08-027	4/5/2012	13:15	Water	X							1	
TOTAL NUMBER OF CONTAINERS												24	

For Sample Conditions
See Form Attached

Approved by _____ Signatures
 Sampled by _____ Date/Time 4-5-12 15:50
 Relinquished by _____ Shipping Details
 Received by _____ Method of Shipment: FedEx
 Relinquished by _____ On Ice: yes / no
 Received by _____ Airbill No:
 Relinquished by _____ Lab Name: Truesdail Laboratories, Inc.
 Received by _____ Lab Phone: (714) 730-6239

4-5-12 15:50
 Rafael Davila
 4-5-12 22:30
 Linda, TCI

Special Instructions:

April 4-6, 2012

ATTN:

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
4/2/12	800769-1	7	1 mL	9.5	4:15 pm	QW
↓	↓ -2	↓	↓	↓	↓	↓
4/5/12	800863-1	9.5	NA	NA	NA	QW
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
4/5/12	800862-1	9.5	NA	NA	NA	QW
↓	↓ -2	↓	↓	↓	↓	↓
4/6/12	800894-1	9.5	NA	NA	NA	QW
4/6/12	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
4/6/12	800895-1	9.5	NA	NA	NA	QW
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
↓	↓ -5	↓	↓	↓	↓	↓
↓	↓ -6	↓	↓	↓	↓	↓
↓	↓ -7	↓	↓	↓	↓	↓
4/6/12	800919-1	9.5	N/A	N/A	N/A	MG
↓	↓ -2	↓	↓	↓	↓	↓
4/6/12	800920	9.5	N/A	N/A	N/A	MG
4/6/12	800921-1	9.5	N/A	N/A	N/A	MG
↓	↓ -2	↓	↓	↓	↓	↓
4/10/12	800933-1	9.5	NA	NA	NA	QW
↓	↓ -2	↓	↓	↓	↓	↓
4/10/12	800935-1	9.5	NA	NA	NA	QW
↓	↓ -2	↓	↓	↓	↓	↓
↓	↓ -3	↓	↓	↓	↓	↓
↓	↓ -4	↓	↓	↓	↓	↓
↓	↓ -5	↓	↓	↓	↓	↓
↓	↓ -6	↓	↓	↓	↓	↓

Turbidity/pH Check

Sample Number	Turbidity	pH	Date	Analyst	Need Digest	Adjusted to pH<2 (Y/N)
800853(11-13)	<1	>2	4-5-12	BE	NO	XCS 7:30 AM
800861(1-2)	<1	<2			XCS	3010A
800875-4	<1	<2			NO	YES
800860	>1	>2			YES	3010A XCS 14:30
800878	↓	<2			XCS	3010A BE 4-5-12
800880	<1	↓			NO	
800879	>1	↓			YES	3010A
800891 800907	>1	<2	4-6-12	BE	YES	3010A
800895(1-5)	<1	<2			↓	↓
800899	>1	<2			↓	↓
800921(1-2)	<1	<2			XCS	3010A
800913	>1	<2	4-9-12	BE	XCS	3010A
800914	>1	↓			↓	↓
800915(1-33)	<1	>2			NO	YES 7:45 AM
800916(1-18)	↓	↓			↓	↓
800917(1-17)	↓	↓			↓	↓
800918(1-18)	↓	↓			↓	↓
800928	<1	<2	4-10-12	BE	NO	NO
800929	↓	↓			↓	↓
800930	↓	>2			BE 4-10-12 YES	3010A YES 7:30 AM
800931(1-4)	-2/3 >1	<2			-2/3 XCS	3010A
800934(1-13)	<1	↓			YES	3010A
800936(1-7)	↓	↓			↓	↓
800935(1-6)	↓	↓			↓	↓
800939	↓	↓			YES 3010A NO	
800964(1-10)	<1	<2	4-11-12	BE	XCS	3010A
800963-1	↓	↓			↓	↓
800965(1-7)	↓	↓			↓	↓
800966(1-9)	↓	↓			↓	↓
800967	↓	>2			↓	YES 8:30 AM
800968(1-14)	-12/1 ↓	<2			↓	↓
800935(1-3)	<1	>2			NO	YES 14:00
800949	>1	<2			YES	3010A
800950	↓	↓			↓	↓
800970	↓	↓			↓	↓
800974-4	↓	↓			↓	↓
800972	<1	↓			NO	NO
800971	↓	↓			YES	3010A BE 4-11-12
800982(1-3)	<1	>2	4-12-12	BE	NO	YES 8:30
800986(1-3)	-2/1	<2			-2 YES	3010A -2
800998(1-28)	<1	1-12 >2			NO	1-12 YES 8:45
800999(1-24)	<1	<2			NO	NO
800997(1-28)	<1	<2			NO	NO
800989	<1	<2			NO	NO
800990	>1	<2			YES	3010A
800991	>1	>2			YES	3010A YES 10:10 AM
800992	<1	>2			NO	XCS 10:00 AM
801007	>1	<2			XCS	3010A
801008	>1	<2	4-13-12	BE	YES	3010A



TRUESDAIL LABORATORIES, INC.

Sample Integrity & Analysis Discrepancy Form

Client: E2

Lab # 800895

Date Delivered: 04/05/12 Time: 12:30 By: ☐ Mail ☒ Field Service ☐ Client

1. Was a Chain of Custody received and signed? ☒ Yes ☐ No ☐ N/A
2. Does Customer require an acknowledgement of the COC? ☐ Yes ☐ No ☒ N/A
3. Are there any special requirements or notes on the COC? ☐ Yes ☐ No ☒ N/A
4. If a letter was sent with the COC, does it match the COC? ☐ Yes ☐ No ☒ N/A
5. Were all requested analyses understood and acceptable? ☒ Yes ☐ No ☐ N/A
6. Were samples received in a chilled condition?
Temperature (if yes)? 3.4°C ☒ Yes ☐ No ☐ N/A
7. Were samples received intact
(i.e. broken bottles, leaks, air bubbles, etc.)? ☒ Yes ☐ No ☐ N/A
8. Were sample custody seals intact? ☐ Yes ☐ No ☒ N/A
9. Does the number of samples received agree with COC? ☒ Yes ☐ No ☐ N/A
10. Did sample labels correspond with the client ID's? ☒ Yes ☐ No ☐ N/A
11. Did sample labels indicate proper preservation?
Preserved (if yes) by ☒ Truesdail ☐ Client ☒ Yes ☐ No ☐ N/A
12. Were samples pH checked? pH = see C.O.C. ☒ Yes ☐ No ☐ N/A
13. Were all analyses within holding time at time of receipt?
If not, notify Project Manager. ☒ Yes ☐ No ☐ N/A
14. Have Project due dates been checked and accepted?
Turn Around Time (TAT): ☐ RUSH ☒ Std ☒ Yes ☐ No ☐ N/A
15. **Sample Matrix:** ☐ Liquid ☐ Drinking Water ☐ Ground Water ☐ Waste Water
☐ Sludge ☐ Soil ☐ Wipe ☐ Paint ☐ Solid ☒ Other Water

16. Comments: _____

17. Sample Check-In completed by Truesdail Log-In/Receiving _____



Appendix B
Field Data Sheets, First Half 2012

Project Name PG&E Topock CMP		Sampling Event 2012-CMP-027	
Job Number 423575.MP.02.CM.01		Date 4/5/12	
Sampler CCA	Field Team 1	Field Conditions Overcast, Breezy, 65°F	Page 1 of 1

Well/Sample Number OW-01S-027		QC Sample ID NA	QC Sample Time NA
Purge Start Time 0850	Flow Cell Y/ N	Purge Method 2m #2	Ded. Pump NO
Min. Purge Volume (gal)(L) 11		Purge Rate (gpm)(mLpm) 1	

Water Level	2min 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)
93.24	0852	2	7.18	6315	1	6.97	28.57	3.42	4.090	113.5	H2241
93.25	0854	4	7.26	6157	1	6.89	28.59	3.31	3.979	106.1	
93.25	0856	6	7.34	5923	1	6.90	28.64	3.19	3.840	96.8	
93.25	0858	8	7.37	5865	1	6.87	28.64	3.15	3.799	93.0	
93.25	0900	10	7.40	5749	1	6.89	28.71	3.09	3.731	88.2	
93.25	0902	12	7.42	5662	1	6.86	28.69	3.03	3.665	83.3	
93.25	0904	14	7.45	5551	1	6.83	28.73	2.98	3.607	79.6	
93.25	0906	16	7.47	5499	1	6.77	28.74	2.94	3.557	75.6	

Parameter Compliance Criteria	6.2 < pH < 9.2									
--------------------------------------	----------------	--	--	--	--	--	--	--	--	--

**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	NA	NA	NA	+/- 10 mV
Did Parameters Stabilize prior to sampling?	Y	Y	Y	Y	NA	-	-	Y
Previous Field measurement (10/5/2011)	7.68	4019	2	7.59	28.66	0.26		91.7
Are measurements consistent with previous?	Y	higher	Y	lower	NA	-	-	Y

Sample Time 0908 **Sample Location:** pump tubing ☒ well port ☐ spigot ☐ bailer ☐ other ☐

Comments:

Initial Depth to Water (ft BTOC): 93.29

Field measured confirmation of Well Depth (ft btoc):

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

SWH (Standing Water Height) = WD-Initial Depth 20.21

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: (C) clean, grey, yellow, brown, black, cloudy, green

Odor: (C) none, sulphur, organic, other

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

Project Name PG&E Topock CMP
Job Number 423575.MP.02.CM.01

Sampling Event 2012-CMP-027

Date 4/5/12

Sampler CB Field Team 1 Field Conditions Overcast, Breezy

Page 1 of 1

Well/Sample Number OW-02S-027

QC Sample ID NA

QC Sample Time

Purge Start Time 0956 Flow Cell Y N Purge Method: 2 in 41 Ded. Pump NU Min. Purge Volume (gal)(L) 6 Purge Rate (gpm)/(mLpm) 0.5

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)
91.93	0958	1	8.06	1750	3	7.67	28.44	0.88	1.133	44.2	Hc 225
91.93	1000	2	8.05	1743	2	7.55	28.65	0.87	1.131	42.9	Pump @ 98 ft
91.93	1002	3	8.05	1734	2	7.54	28.76	0.87	1.126	41.7	
91.93	1004	4	8.05	1739	1	7.51	28.87	0.87	1.131	40.5	
91.93	1006	5	8.04	1739	1	7.51	28.92	0.87	1.132	39.5	
91.93	1008	6	8.04	1739	1	7.49	29.01	0.87	1.130	38.2	

Parameter Compliance Criteria

6.2 < pH < 9.2

**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

NA

NA

NA

+/- 10 mV

Did Parameters Stabilize prior to sampling?

Y

Y

-

Y

NA

-

Y

Previous Field measurement (10/5/2011)

8

1602

1

8.03

28.72

0.1

76.2

Are measurements consistent with previous?

Y

Y

-

Y

NA

-

Lower

Sample Time 1010 Sample Location: pump tubing X well port _____ spigot _____ bailer _____ other _____

Comments:

Initial Depth to Water (ft BTOC): 91.85

Field measured confirmation of Well Depth (ft btoc):

WD (Well Depth - from database) ft btoc 423 102.45

SWH (Standing Water Height) = WD-Initial Depth 10.6

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

One Casing Volume = D*SWH 1.80

Three Casing Volumes = 5.4

Color: 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: YSI 556WATER LEVEL METER SERIAL NUMBER: D100474Measure Point: Well TOC Steel Casing

If Transducer			
Initial DTW / Before Removal		Approx. 5 min After Reinstallation	
Time	Initial DTW	Time	Final DTW
0934	91.85	1026	91.88
Comments:		Time of Removal 0937 Time of Reinstallation 1021	

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Project Name PG&E Topock CMP		Sampling Event 2012-CMP-027	
Job Number 423575.MP.02.CM.01		Date 4/13/12	
Sampler AG	Field Team 1	Field Conditions Sunny, Breezy 80F	
Well/Sample Number CW-01D-027		QC Sample ID NA	QC Sample Time NA
Purge Start Time 1354	Flow Cell Y N	Purge Method: 2 in ground	Ded. Pump NO
Min. Purge Volume (gal)(L) 98		Purge Rate (gpm)(mLpm) 3	

Water Level	Time	Vol. Purged gallons / liters	pH**	Conductivity mS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Salinity %	TDS** g/L	Eh/ORP mv	Comments (See description below)
	1354	25	Pump off due to power issue								
	1408	42	Pump back on								
109.0	1415	53	7.185	7212	2	High	28.74	3.95	4.694	96.7	Change meter for YSI
109.0	1422	84	7.66	7308	1	4.53	28.53	4.00	4.751	73.2	07m100170
109.0	1427	105	7.80	7312	1	4.50	28.50	4.00	4.753	30.9	
109.0	1427	84	7.81	7314	1	4.51	28.48	4.00	4.754	26.4	
109.0	1434	105	7.81	7314	1	4.52	28.47	4.00	4.754	29.2	
Parameter Compliance Criteria			6.2<pH<9.2						1.0000 10.80		

**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	NA	NA	NA	+/- 10 mV
Did Parameters Stabilize prior to sampling?	Y	Y	Y	Y	NA	-	-	Y
Previous Field measurement (10/4/2011)	7.63	8006	0.3	10.99	28.97	0.52		75.6
Are measurements consistent with previous?	Y	lower	Y	lower	NA	-	-	lower

Sample Time 1436 **Sample Location:** pump tubing X well port spigot bailer other

Comments: Collect Equipment blank CW-86-027 @ 1630

Initial Depth to Water (ft BTOC): 108.93

Field measured confirmation of Well Depth (ft btoc):

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

SWH (Standing Water Height) = WD-Initial Depth 191.27

D (Volume as per diameter) 2"= 0.17, 4"= 0.06, 1"=0.041 (2 in)

One Casing Volume = D*SWH 32.52

Three Casing Volumes = 97.56

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

Measure Point: Well TOC Steel Casing

WQ METER MAKE and SERIAL NUMBER: YSI #D10474

WATER LEVEL METER SERIAL NUMBER: PHE 2005-03

Initial DTW / Before Removal		Approx. 5 min After Reinstallation		If Transducer	
Time	Initial DTW	Time	Final DTW	Time of Removal	Time of Reinstallation
1320	108.93	NA	NA	NA	NA
Comments:					

Odor: none, sulphur, organic, other

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

Page 2 of 11

Project Name PG&E Topock CMP				Sampling Event 2012-CMP-027			
Job Number 423575.MP.02.CM.01				Date 4/4/12			
Sampler CG		Field Team 1		Field Conditions Sunny, Breezy 80°F		Page 1 of 1	
Well/Sample Number CW-02D-027				QC Sample ID OW-91-027		QC Sample Time 1735	
Purge Start Time 1157 9 min		Flow Cell (Y) N		Purge Method 2 in #2		Ded. Pump NO	
				Min. Purge Volume (gal)/(L) 135		Purge Rate (gpm)/(mLpm) 3	

Water Level	Time	Vol. Purged gallons / liters	pH**	Conductivity mS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Salinity %	TDS** g/L	Eh/ORP mv	Comments (See description below)
92.00	1206	27	7.51	7541	4	8.85	30.32	-	-	66	142 295
92.00	1215	54	7.24	7543	2	8.77	30.55	-	-	67	
92.00	1224	81	7.21	7539	2	8.79	30.58	-	-	67	
91.91	+235	105	8.04	7462	1	7.97	30.23	-	-	7.1	pH jumping, put YSI # D100 in line Pump on @ 1227 to switch w/ 90g pump on 1229
91.91	+244	135	8.05	7467	1	7.88	30.29	-	-	10.0	
91.90	1244	135	8.06	7465	2	7.79	30.32	-	-	15.3	
Parameter Compliance Criteria			6.2 < pH < 9.2	418,000					1.0000 10.8		

**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	NA	NA	NA	+/- 10 mV
Did Parameters Stabilize prior to sampling?	Y	Y	Y	Y	NA		-	Y
Previous Field measurement (10/6/2011)	8.05	8010	0.6	8.64	30.61	0.52		69.3
Are measurements consistent with previous?	Y	lower	Y	Y	NA		-	lower

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

Comments: _____

Initial Depth to Water (ft BTOC): 91.74

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

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

SWH (Standing Water Height) = WD-Initial Depth 263.26

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

One Casing Volume = D*SWH 44.75

Three Casing Volumes = 134.26

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

Measure Point: Well TOC Steel Casing

WQ METER MAKE and SERIAL NUMBER: In Situ 9500 JS 50618

WATER LEVEL METER SERIAL NUMBER: 2011-01

Initial DTW / Before Removal		Approx. 5 min After Reinstallation		If Transducer	
Time	Initial DTW	Time	Final DTW	Time of Removal	Time of Reinstallation
1145	91.74	NA	NA	NA	NA

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 2012-CMP-027	
Job Number 423575.MP.02.CM.01		Date 4/4/12	
Sampler CG	Field Team 1	Field Conditions Sunny, Windy 80°F	Page 1 of 1

Well/Sample Number CW-02M-027		QC Sample ID NA		QC Sample Time	
Purge Start Time 1313	Flow Cell (Y) N	Purge Method 2 in 1	Ded. Pump NO	Min. Purge Volume (gal)/(L) 36	Purge Rate (gpm)(mLpm) 2

Water Level	Comm 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)
92.35	1314	12	7.90	7.238	1	6.44	29.52	-	-	15.1	H2 271
92.35	1325	24	7.91	7.233	1	6.50	29.54	-	-	20.0	
92.35	1331	36	7.92	7.234	1	6.48	29.58	-	-	22.6	
92.35	1337	48	7.92	7.231	1	6.49	29.59	-	-	25.3	
92.35	1343	60	7.92	7.228	1	6.50	29.55	-	-	27.2	
Parameter Compliance Criteria			6.2<pH<9.2	418,000					1.0000	10.8	

**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	NA	NA	NA	+/- 10 mV
Did Parameters Stabilize prior to sampling?	Y	Y	Y	Y	NA	-	-	Y
Previous Field measurement (10/6/2011)	7.91	7665	0.2	6.75	29.73	0.5		74.5
Are measurements consistent with previous?	Y	Lower	Y	Y	NA	-	-	Lower

Sample Time 1347 **Sample Location:** pump tubing ☒ well port ☐ spigot ☐ bailer ☐ other ☐

Comments:

Initial Depth to Water (ft BTOW): 92.32

Field measured confirmation of Well Depth (ft btoc):

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

SWH (Standing Water Height) = WD-Initial Depth 109.68

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

One Casing Volume = D*SWH 18.65

Three Casing Volumes = 55.95

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

Measure Point: (Well TOC) Steel Casing

WQ METER MAKE and SERIAL NUMBER: YSE 956 D100474

WATER LEVEL METER SERIAL NUMBER: 2011-01

Initial DTW / Before Removal		If Transducer	
Time	Initial DTW	Approx. 5 min After Reinstallation	Time of Removal
1158	92.32	NA	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				Sampling Event 2012-CMP-027			
Job Number 423575.MP.02.CM.01				Date 4/4/12			
Sampler <u>CH</u> Field Team 1 Field Conditions Sunny, Calm 57°F				Page 1 of 1			
Well/Sample Number CW-03D-027				QC Sample ID OW-90-027		QC Sample Time 0710	
Purge Start Time 0837		Flow Cell 8 / N		Purge Method 2 in 82		Ded. Pump NO	
				Min. Purge Volume (gal)(L) 135		Purge Rate (gpm)/(mLpm) 3	

Water Level	Time	Vol. Purged gallons / liters	pH**	Conductivity mS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Salinity %	TDS** g/L	Eh/ORP mv	Comments (See description below)
76.52	0846	27	7.90	7476	1	8.08	30.43	-	-	156	HK 293
76.52	0855	54	7.89	7500	1	8.41	30.75	-	-	134	
76.53	0904	81	7.90	7501	1	8.41	30.81	-	-	127	
76.53	0913	108	7.90	7500	1	8.42	30.81	-	-	125	
76.53	0922	135	7.91	7502	1	8.43	30.85	-	-	122	
Parameter Compliance Criteria			6.2 < pH < 9.2	418,000					10,000 10.8		

**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	NA	NA	NA	+/- 10 mV
Did Parameters Stabilize prior to sampling?	Y	Y	Y	Y	NA			Y
Previous Field measurement (10/6/2011)	8.07	7600	0.5	8.65	30.79	0.51		70
Are measurements consistent with previous?	Y	lower	Y	Y	NA			higher

Sample Time 0925 **Sample Location:** pump tubing X well port _____ spigot _____ bailer _____ other _____

Comments: _____

Initial Depth to Water (ft BTOC): 76.45

Field measured confirmation of Well Depth (ft btoc):

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

SWH (Standing Water Height) = WD-Initial Depth 263.55

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

One Casing Volume = D*SWH 44.8

Three Casing Volumes = 134.4

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

Odor: none, sulphur, organic, other

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

WQ METER MAKE and SERIAL NUMBER: In Situ Troll 9900 IS 50618

WATER LEVEL METER SERIAL NUMBER: PGE 2011-01

If Transducer			
Initial DTW / Before Removal		Approx. 5 min After Reinstallation	
Time	Initial DTW	Time	Final DTW
0800	76.45	NA	NA
Comments:		Time of Removal NA	
		Time of Reinstallation NA	

Measure Point: <u>Well TOC</u>		Steel Casing		Insitu Troll 1500 WQ METER MAKE and SERIAL NUMBER: <u>IS 30618</u> WATER LEVEL METER SERIAL NUMBER: <u>RGE 2011-01</u>	
Initial DTW / Before Removal		If Transducer			
		Approx. 5 min After Reinstallation		Time of Removal	
Time	Initial DTW	Time	Final DTW	Time of Reinstallation	
<u>0930</u>	<u>77.16</u>			<u>NA</u>	
Comments:					
Odor: <u>None</u> , sulphur, organic, other		Solids: <u>Trace</u> Small Qu, Med Qu, Large Qu, Particulate, Silt, Sand			

Project Name PG&E Topock CMP				Sampling Event 2012-CMP-027							
Job Number 423575.MP.02.CM.01				Date 4/4/12				BCL			
Sampler <u>OG</u>		Field Team 1		Field Conditions overcast, windy & cool				Page 1		of 1	
Well/Sample Number CW-04D-027				QC Sample ID NA		QC Sample Time <u>NA</u>					
Purge Start Time 1504		Flow Cell <u>Y</u> N		Purge Method 2 in #2		Ded. Pump <u>NO</u>		Min. Purge Volume (gal)(L) <u>124</u>		Purge Rate (gpm)/(mLpm) <u>3</u>	

Water Level	Time	Vol. Purged gallons / liters	pH**	Conductivity mS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Salinity %	TDS** g/L	Eh/ORP mv	Comments (See description below)
61.33	1511	21	7.95	7354	1	8.15	29.67	4.02	4.77	20.3	
61.33	1518	42	7.98	7360	7	9.0	30.31	4.02	4.785	21.9	
61.33	1525	63	7.98	7461	1	8.73	30.39	4.08	4.848	21.3	
61.33	1532	84	7.97	7570	1	8.62	30.41	4.14	4.922	20.5	
61.33	1539	105	7.97	7602	1	8.56	30.42	4.16	4.944	20.8	
61.33	1546	126	7.97	7641	1	8.48	30.44	4.19	4.969	22.4	
Parameter Compliance Criteria			6.2<pH<9.2						1.0800 10.8		

**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	NA	NA	NA	+/- 10 mV
Did Parameters Stabilize prior to sampling?	Y	Y	Y	Y	NA	-	-	Y
Previous Field measurement (10/5/2011)	7.92	8609	Y	8.46	30.67	0.56		63.9
Are measurements consistent with previous?	Y	lower	Y	Y	NA	-	-	lower

Sample Time 1548 **Sample Location:** pump tubing X well port Y spigot Y bailer Y other Y

Comments: _____

Initial Depth to Water (ft BTOC): 61.0

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

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

SWH (Standing Water Height) = WD-Initial Depth 242

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

One Casing Volume = D*SWH 41.14

Three Casing Volumes = 123.42

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

Measure Point: Well Top Steel Casing

WQ METER MAKE and SERIAL NUMBER: YSI 950 D168474

WATER LEVEL METER SERIAL NUMBER: TGE 2611-01

Initial DTW / Before Removal		If Transducer	
Time	Initial DTW	Approx. 5 min After Reinstallation	Time of Removal
1500	61.0	NA	NA
Time	Final DTW	Time of Reinstallation	

Comments: _____

Odor: 0, sulphur, organic, other

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

Project Name PG&E Topock CMP				Sampling Event 2012-CMP-027			
Job Number 423575.MP.02.CM.01				Date 4/4/12			
Sampler CG		Field Team 1		Field Conditions Sunny, Windy 80°F		Page 1 of 1	
Well/Sample Number CW-04M-027				QC Sample ID NA		QC Sample Time NA	
Purge Start Time 16012		Flow Cell Y / N		Purge Method 2 in 1		Ded. Pump NO	
				Min. Purge Volume (gal)(L) 56		Purge Rate (gpm)/(mLpm) 2	

Water Level	Time	Vol. Purged gallons / liters	pH**	Conductivity mS/cm	Turbidity NTU	Diss. Oxygen mg/L	Temp. °C	Salinity %	TDS** g/L	Eh/ORP mv	Comments (See description below)
61.48	1618	12	7.77	6.847	1	4.37	29.54	3.69	4.444	6.8	H ₂ O = 249
61.48	1624	24	7.77	6.789	1	4.02	29.54	3.69	4.414	9.3	
61.48	1630	36	7.77	6.790	1	4.02	29.55	3.69	4.415	11.7	
61.48	1636	48	7.77	6.790	1	4.02	29.55	3.69	4.413	13.8	
61.48	1642	60	7.78	6.792	1	4.02	29.48	3.69	4.412	15.5	
Parameter Compliance Criteria			6.2 < pH < 9.2						4.0000 10.8		

**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	NA	NA	NA	+/- 10 mV
Did Parameters Stabilize prior to sampling?	Y	Y	Y	Y	NA	Y	-	Y
Previous Field measurement (10/6/2011)	7.77	7203	1	4106	29.4	0.47		113.8
Are measurements consistent with previous?	Y	lower	Y	Y	NA	-	-	lower

Sample Time 1646 **Sample Location:** pump tubing ☒ well port ☐ spigot ☐ bailer ☐ other ☐

Comments: E9B collected 4-5-12 @ 0745

Initial Depth to Water (ft BTOC): 61.10

Field measured confirmation of Well Depth (ft btoc):

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

SWH (Standing Water Height) = WD-Initial Depth 108.7

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

One Casing Volume = D*SWH 18.48

Three Casing Volumes = 55.44

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

Measure Point: ☒ Well TOC ☐ Steel Casing

WQ METER MAKE and SERIAL NUMBER: YSI 556 D100474

WATER LEVEL METER SERIAL NUMBER: 2611-01

If Transducer			
Initial DTW / Before Removal		Approx. 5 min After Reinstallation	
Time	Initial DTW	Time	Final DTW
1600	61.10	NA	NA
Comments:			

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

Topock CMP Manual Water Level Snapshot

Personnel: B. Collom / CHAM

WLI serial number: PGE 2011-01

Loc ID	Depth to Water (ft BTOC)	Date	Time	Comments
CW-1M	109.25	3-27-12	0901	
CW-1D	109.24		0905	
CW-2M	92.64		0909	
CW-2D	92.15		0913	
CW-3M	77.48		0917	
CW-3D	76.82		0920	
CW-4M	61.56		0929	
CW-4D	61.38		0926	
OW-1S	93.61		0932	
OW-1M	93.35		0936	
OW-1D	92.77		0940	
OW-2S	92.21		0945	
OW-2M	91.38		0949	
OW-2D	90.89		0952	
OW-5S	95.14		0955	
OW-5M	94.61		0957	
OW-5D	95.07		1000	

* IM-3 personnel (Scott O'Donnell)
 confirms that 3-25-12 + 3-26-12 were
 both 'normal operation' days with no
 down time or backwashing.

Topock CMP Manual Water Level Snapshot

Personnel: B. Collom / CH2M

WLI serial number: DGE 2011-01

Loc ID	Depth to Water (ft BTOC)	Date	Time	Comments
CW-1M	108.31	5-2-12	1118	
CW-1D	108.40		1117	
CW-2M	91.78		1125	
CW-2D	91.53		1124	
CW-3M	76.66		1129	
CW-3D	76.20		1127	
CW-4M	60.64		1138	
CW-4D	60.62		1137	
OW-1S	92.65		1100	
OW-1M	92.55		1101	
OW-1D	92.28		1102	
OW-2S	91.25		1106	
OW-2M	90.68		1108	
OW-2D	90.71		1105	
OW-5S	94.16		1110	
OW-5M	93.30		1112	
OW-5D	93.82		1113	

IM-3 staff confirms that ~~4-29~~ 4-30, +
5-1 + 5-2-12 were all normal operation
days w/no downtime or backwashing prior
to snapshot collection.