Topock Project Executive Abstract

Document Title: Fourth Quarter and Annual 2010 Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California

Submitting Agency: DTSC

Final Document? ☒ Yes ☐ No

Date of Document: 3/15/11

Who Created this Document?: (i.e. PG&E, DTSC, DOI, Other)

PG&E

Priority Status: ☐ HIGH ☐ MED ☒ LOW
Is this time critical? ☐ Yes ☒ No

Type of Document:
☐ Draft ☒ Report ☐ Letter ☐ Memo
☐ Other / Explain:

Action Required:
☒ Information Only ☐ Review & Comment
Return to: _____ _____
By Date:_____
☐ Other / Explain:

What does this information pertain to?
☐ Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA)/Preliminary Assessment (PA)
☐ RCRA Facility Investigation (RFI)/Remedial Investigation (RI) (including Risk Assessment)
☐ Corrective Measures Study (CMS)/Feasibility Study (FS)
☐ Corrective Measures Implementation (CMI)/Remedial Action
☐ California Environmental Quality Act (CEQA)/Environmental Impact Report (EIR)
☒ Interim Measures
☐ Other / Explain:

Is this a Regulatory Requirement?
☒ Yes
☐ No
If no, why is the document needed?

What is the consequence of NOT doing this item? What is the consequence of DOING this item?
Report is required to be in compliance with DTSC requirements.

Other Justification/s:
☐ Permit ☐ Other / Explain:

Brief Summary of attached document:

This combined quarterly and annual report documents the monitoring activities and performance evaluation of the Interim Measure (IM) hydraulic containment system under the IM Performance Monitoring Program and the Groundwater Monitoring Program and Surface Water Monitoring Program for the Topock Project. Hydraulic and chemical monitoring data were collected and used to evaluate IM hydraulic containment system performance based on a set of standards approved by DTSC. Key items included in this report are: (1) measured groundwater elevations and hydraulic gradient data at compliance well pairs that indicate the direction of groundwater flow is away from the Colorado River and towards the pumping centers onsite; (2) hexavalent chromium data for monitoring wells; (3) pumping rates and volumes from the IM extraction system; and (4) Groundwater Monitoring Program and Surface Water Monitoring Program activities and results.

Based on the data and evaluation presented in this report, the IM performance standard has been met for the fourth quarter and annual 2010 reporting period. On July 23, 2010 DTSC approved a revised reporting schedule for this report; this was done at the request of DTSC to minimize the time between data collection and report submittal. As a result, the fourth quarter includes the months of November and December 2010. The average pumping rate for the IM extraction system over the fourth quarter 2010 was 133.2 gallons per minute, and an estimated 61 kilograms (or 134 pounds) of chromium were removed.

Written by: PG&E

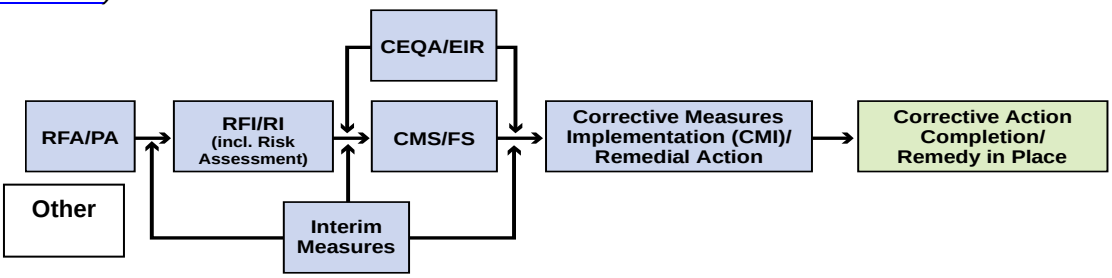
Recommendations:
Performance monitoring and evaluation of the IM hydraulic containment system will continue in accordance with the Performance Monitoring Plan and as directed by the DTSC. This report presents recommendations for changes in the PMP/GMP for 2011 onward. This report is for

information only.

How is this information related to the Final Remedy or Regulatory Requirements:
This report is required by DTSC as part of the Interim Measures Performance Monitoring Program.

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

Pacific Gas and Electric Company

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March 15, 2011

Mr. Aaron Yue
Project Manager
California Department of Toxic Substances Control
5796 Corporate Avenue
Cypress, CA 90630

Subject: *Fourth Quarter 2010 and Annual Interim Measures Performance and Site-Wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California* (Document ID: PGE20110315A)

Dear Mr. Yue:

Enclosed is the *Fourth Quarter and Annual 2010 Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California* for PG&E's Interim Measures Performance Monitoring Program and the Groundwater Monitoring Program and Surface Water Monitoring Program for the Topock project. This report presents the fourth quarter (November 2010 through December 2010) performance monitoring results for the IM hydraulic containment system and provides the annual performance evaluation for the 2010 reporting period, January 2010 through December 2010. This report also presents groundwater and surface water monitoring activities, results, and analyses related to the Groundwater and Surface Water Monitoring Programs during the 2010 reporting period.

The Interim Measures quarterly performance monitoring report is submitted in conformance with the reporting requirements in the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC's) Interim Measure directive dated February 14, 2005, and updates and modifications approved by DTSC in letters or emails dated October 12, 2007, July 14, 2008, July 17, 2008, March 3, 2010, April 28, 2010 and July 23, 2010.

Please contact me at (805) 234-2257 if you have any questions on the combined monitoring report. Comments regarding the new report format and contents are welcomed.

Sincerely,

Yvonne Meeks
Topock Project Manager

PDX/110740001
ES030411222853LAS

Enclosure
Fourth Quarter and Annual 2010 Interim Measures Performance and Site-Wide Groundwater and Surface Water Monitoring Report

cc:

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Final Report

Fourth Quarter 2010 and Annual Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report

PG&E Topock Compressor Station
Needles, California
Document ID: PGE20110315A

Prepared for

California Department of Toxic Substances Control

on behalf of

Pacific Gas and Electric Company

March 15, 2011

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Fourth Quarter 2010 and Annual Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report

Interim Measures Performance Monitoring Program and Groundwater Monitoring Program
PG&E Topock Compressor Station
Needles, California

Prepared for

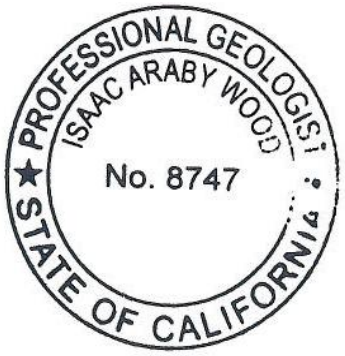
California Department of Toxic Substances Control

On behalf of

Pacific Gas and Electric Company

March 15, 2011

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



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CH2M HILL Project Manager

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Acronyms and Abbreviations

µg/L	micrograms per liter
bgs	below ground surface
BOR	United States Bureau of Reclamation
Cr(VI)	hexavalent chromium
COPCs	Contaminants of Potential Concern
CMS/FS	Corrective Measures Study/Feasibility Study
DTSC	California Environmental Protection Agency, Department of Toxic Substances Control
FLUTe™	Flexible Liner Underground Technologies
ft/ft	feet per foot
GMP	Groundwater Monitoring Program
gpm	gallons per minute
IM	Interim Measures
IMCP	Interim Measures Contingency Plan
IM-3	Interim Measures Number 3
MCL	maximum contaminant level
Mo	Molybdenum
ORP	oxidation-reduction potential
PG&E	Pacific Gas and Electric Company
PMP	Performance Monitoring Program
RCRA	Resource Conservation and Recovery Act
RMP	Surface Water Monitoring Program
Se	Selenium
SC	specific conductance
TDS	total dissolved solids
UTL	Upper Tolerance Limit

1.0 Introduction

Pacific Gas and Electric Company (PG&E) is implementing Interim Measures (IM) to address chromium concentrations in groundwater at the Topock Compressor Station near Needles, California. The Topock Compressor Station is located in eastern San Bernardino County, 15 miles southeast of the city of Needles, California, as shown in Figure 1-1. (All figures are located at the end of the report.) This report presents the monitoring data from three key PG&E monitoring programs:

- Site-wide Groundwater Monitoring Program (GMP)
- Site-wide Surface Water Monitoring Program (RMP)
- IM-3 Performance Monitoring Program (PMP) (data and evaluations)

This report presents the monitoring data from PG&E's site-wide Groundwater and Surface Water Monitoring Program (GMP) collected from November 1, 2010 through December 31, 2010. The data for the RMP event were collected from December 21, 2010 through December 22, 2010. In addition, this report serves as an annual report and provides a summary of groundwater and surface water monitoring results for samples collected from January 1, 2010 through December 31, 2010 (hereafter referred to as the annual reporting period) under the Topock GMP. The data collected as part of the GMP are presented in Section 3.0. The data collected for the current quarter (November through December) as part of the PMP are presented in Section 4.0. The data collected under the PMP for the annual reporting period are presented in Section 5.0. Further, this report provides recommended changes to future monitoring activities for the GMP and PMP (Section 7.0).

This combined GMP (including RMP) and PMP reporting format was approved by the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) in May 2009 (DTSC, 2009a). On July 23, 2010, DTSC approved a new sampling event timing and reporting schedule for the PMP, GMP and RMP programs (DTSC, 2010a).

1.1 Site-wide Groundwater and Surface Water Monitoring Program

The Topock GMP and RMP were initiated as part of a Resource Conservation and Recovery Act (RCRA) and Comprehensive Environmental Response, Compensation and Liability Act facility investigation/remedial investigation groundwater investigation. These programs are being regulated under a Corrective Action Consent Agreement issued by the DTSC in 1996 for the Topock site (United States Environmental Protection Agency ID No. CAT080011729).

Groundwater monitoring data collected between July 1997 and October 2007 are presented and summarized in the *Revised Final RCRA Facility Investigation and Remedial Investigation Report, Volume 2 – Hydrogeological Characterization and Results of Groundwater and Surface Water Investigation, Pacific Gas and Electric Company, Topock Compressor Station, Needles, California*, dated February 11, 2009 (CH2M HILL, 2009a). Select groundwater and surface

water monitoring data from November 2007 through September 2008 are presented in the *Final RCRA Facility Investigation/Remedial Investigation Report, Volume 2 Addendum – Hydrogeologic Characterization and Results of Groundwater and Surface Water Investigation, Pacific Gas and Electric Company, Topock Compressor Station, Needles, California,* dated June 29, 2009 (CH2M HILL, 2009b).

In compliance with the requirements for Groundwater and Surface Water Monitoring Program directive of April 2005 (DTSC, 2005a), this document presents the Fourth Quarter 2010 and Annual GMP and RMP report for the IM monitoring activities from November 1, 2010 through December 31, 2010.

1.1.1 GMP and RMP Monitoring Networks

Figure 1-2 shows the current locations and sampling frequencies of the monitoring wells in the GMP. Table A-1 summarizes the well construction and sampling methods for all wells in the GMP and other monitoring wells at the site. The complete GMP includes 123 groundwater monitoring wells, which consist of:

- 106 monitoring wells in California
- 8 monitoring wells in Arizona
- 2 water supply wells
- 2 active extraction wells
- 5 test wells

Sampling frequencies for the GMP wells were updated beginning in First Quarter 2010 following the DTSC directive dated March 3, 2010 (DTSC, 2010b). Figure 1-2 shows these updated frequencies. Sampling frequencies for the Arizona monitoring wells were updated following the April 23, 2010 approval from the Arizona Department of Environmental Quality (ADEQ, 2010) and the April 28, 2010 directive from DTSC (DTSC, 2010c).

Figure 1-3 shows the locations and sampling frequencies of the RMP. The RMP consists of:

- 10 river channel surface water monitoring locations
- 4 shoreline surface water monitoring locations
- 2 other surface water monitoring locations

1.1.2 Changes to the GMP in 2010

During the week of January 18, 2010, a series of storm events occurred that caused flooding of low lying areas and damaged several wells in the GMP monitoring network, including the bedrock wells of the MW-58 cluster: MW-58-115 and MW-58-205. As a result of this cluster being inundated and filled with floodwater, the Flexible Liner Underground Technologies™ (FLUTe™) well liner that allowed discrete sampling at the 115 feet below ground surface (bgs) and 205 feet bgs depth intervals was damaged and subsequently removed from the borehole. The MW-58 bedrock well cluster was configured as an open rock borehole and temporarily re-designated as MW-58BR. In September 2010, at the direction of DTSC, a packer system was installed into the open borehole MW-58BR at approximately 115 ft bgs, dividing the open borehole into upper and lower intervals designated as MW-58BR-UPR and MW-58BR-LWR respectively (CH2M HILL, 2010e).

On an August 5, 2010 conference call, DTSC directed PG&E to initiate monthly sampling at the MW-64 well cluster. Following the results from MW-58 packer samples, DTSC directed PG&E to remove the FLUTe™ liner creating depth discrete sampling zones in the MW-64 cluster (MW-64-150, MW-64-205, and MW-64-260). The FLUTe™ liner was removed during the week of December 6, 2010 and the well was temporarily re-designated as MW-64BR. Following removal of the FLUTe™ system, the open borehole was developed and a sample of the open borehole was collected on December 20, 2010. A packer system dividing the MW-64 borehole into two depth intervals similar to MW-58BR was installed in January 2011.

The two wells composing the MW-38 cluster, located in Bat Cave Wash adjacent to the Topock Compressor Station, were also damaged in the storm events during the week of January 18, 2010. Plans to repair monitoring well MW-38D and repair or replace monitoring well MW-38S provided in the technical memorandum entitled *Final Revised Implementation Plan for Repair of Monitoring Wells MW-38S and MW-38D and Old Well/Pipe Reconnaissance* (CH2M HILL, 2011a) were approved by DTSC and the United States Department of the Interior on February 24 and 25, 2011, respectively. Repair / replacement of MW-38S and MW-38D is pending as of the time of submittal of this report.

1.1.3 Changes to the RMP in 2010

During 2010, there were no changes and modifications to the surface water monitoring program.

1.2 Interim Measure Performance Monitoring Program

In compliance with the requirements for IM monitoring and reporting outlined in the DTSC IM performance directive of February 2005, and in subsequent directives from the DTSC in 2007 (DTSC, 2005c; DTSC, 2007a-c), this document presents the Fourth Quarter 2010 PMP evaluation report for the IM monitoring activities from November 1, 2010 through December 31, 2010.

The Topock project IM consists of groundwater extraction for hydraulic control of the plume boundaries in the Colorado River floodplain and management of extracted groundwater. The groundwater extraction, treatment, and injection systems are collectively referred to as Interim Measures Number 3 (IM-3). Currently, the IM-3 facilities include a groundwater extraction system (four extraction wells: TW-2D, TW-3D, TW-2S, and PE-1), conveyance piping, a groundwater treatment plant, and an injection well field for the discharge of the treated groundwater. Figure 1-1 shows the location of the IM-3 extraction, conveyance, treatment, and injection facilities.

In a letter dated February 14, 2005, DTSC established the criteria for evaluating the performance of the IM (DTSC, 2005c). As defined by DTSC, the performance standard for this IM is to "establish and maintain a net landward hydraulic gradient, both horizontally and vertically, that ensures that hexavalent chromium [Cr(VI)] concentrations at or greater than 20 micrograms per liter [µg/L] in the floodplain are contained for removal and treatment" (DTSC, 2005b). A draft *Performance Monitoring Plan for Interim Measures in the Floodplain Area, Pacific Gas and Electric Company, Topock Compressor Station, Needles, California*

(CH2M HILL, 2005) was submitted to DTSC on April 15, 2005 (herein referred to as the Performance Monitoring Plan).

The February 2005 DTSC directive also defined the monitoring and reporting requirements for the IM (DTSC, 2005c). In October 2007, DTSC modified the reporting requirements for the PMP (DTSC, 2007a) to discontinue monthly performance monitoring reports (the quarterly and annual reporting requirements were unchanged). Additional updates and modifications to the PMP were approved by DTSC in letters dated October 12, 2007, July 14, 2008, July 17, 2008 (DTSC, 2007a, 2008a-b), and July 23, 2010 (DTSC, 2010a).

PMP Monitoring Networks

Figure 1-4 shows the locations of wells used for IM extraction, performance monitoring, and hydraulic gradient measurements. With approval from DTSC, the list of wells included in the PMP was modified beginning August 1, 2008. The performance monitoring wells that were in service/active as of December 2010 are defined as:

- **Floodplain Wells** (monitoring wells on the Colorado River floodplain)
- **Intermediate Wells** (monitoring wells located immediately north, west, and southwest of the floodplain)
- **Interior Wells** (monitoring wells located upgradient of IM pumping).

Groundwater monitoring wells installed on the Arizona side of the Colorado River are not formally part of the PMP, but some of these wells have been used to collect groundwater elevation data for evaluating the hydraulic gradient on the Arizona side of the river.

Three extraction wells (TW-2D, TW-3D, and TW-2S) are located on the MW-20 bench. In addition, extraction well PE-1 is located on the floodplain approximately 450 feet east of extraction well TW-3D, as shown in Figure 1-4. Currently, extraction wells TW-3D and PE-1 operate full time.

The wells screened in the unconsolidated alluvial fan and fluvial deposits, which comprise the Alluvial Aquifer, have been separated into three depth intervals to present groundwater quality and groundwater level data. The depth intervals of the Alluvial Aquifer in the floodplain area—designated upper (shallow wells), middle (mid-depth wells), and lower (deep wells)—are based on grouping the monitoring wells screened at common elevations. These divisions do not correspond to any lithostratigraphic layers within the aquifer. The floodplain aquifer is considered to be hydraulically undivided. The subdivision of the aquifer into three depth intervals is an appropriate construct for presenting and evaluating groundwater quality data in the floodplain. The three-interval concept is also useful for presenting and evaluating lateral gradients while minimizing effects of vertical gradients and observing the influence of pumping from partially penetrating wells.

2.0 Fourth Quarter 2010 Monitoring Activities

This section provides a summary of the monitoring and sampling activities completed during the fourth quarter of 2010.

2.1 Groundwater Monitoring Program

2.1.1 Monthly

The active IM extraction wells (PE-1 and TW-3D) were sampled for Cr(VI) and chromium during November and December 2010.

In addition, the MW-64 cluster was sampled for Cr(VI) and chromium on November 11, 2010 following DTSC direction from an August 5, 2010 technical call. As described in Section 1.1.2 the FLUTe™ liner used to create depth discrete sample zones was removed on December 6, 2010. The MW-64BR open borehole was developed and a grab sample of the open borehole was collected on December 20, 2010. Arsenic was also analyzed in groundwater samples from MW-64 during these sampling events.

2.1.2 Quarterly

Following the July 23, 2010 sampling schedule approval (DTSC, 2010a), the fourth quarter GMP quarterly groundwater monitoring event was conducted between December 6 and December 17, 2010 and consisted of sampling:

- 109 groundwater monitoring wells, including 9 East Ravine wells.
- 2 active IM extraction wells

Samples from all of the above wells were submitted for laboratory analysis of Cr(VI), and chromium. Additional parameters measured in the field consisted of oxidation-reduction potential (ORP), specific conductance (SC), and pH.

In addition, the following monitoring activities were conducted at selected GMP wells during the fourth quarter 2010 sampling event:

- Three wells (MW-10, MW-12, and MW-22) were sampled for California Code of Regulations Title 22 metals analyses, which includes arsenic.
- Two wells (MW-16 and MW-17) were sampled for background metals as recommended in the background study report (CH2M HILL, 2008a).
- Sixty-one GMP wells screened in fluvial sediments were sampled for arsenic, as directed by DTSC in its Corrective Measures Study review comment No. 186 (DTSC, 2009b).
- Arsenic was also analyzed in groundwater samples from ten bedrock monitoring wells.
- Three constituents designated as contaminants of potential concern (COPCs) in the RCRA Investigation/Remedial Investigation Volume 2 Report and Addendum were molybdenum, selenium and nitrate (CH2M HILL, 2009a-b). In DTSC's acceptance of the Groundwater Risk Assessment and the Corrective Measures Study/Feasibility Study (CMS/FS), the agencies called for continued monitoring of these constituents. In an

email dated March 3, 2010, DTSC requested monitoring of COPCs (molybdenum, nitrate, and selenium) and potential in-situ byproducts (manganese and arsenic) to support remedy design to develop baseline conditions for select constituents in areas potentially affected by remedial alternatives (e.g., either injection/extraction and/or in situ methods). Samples were collected for COPCs and in situ byproducts during the fourth quarter of 2010.

Four wells (MW-20-100, MW-130, MW-50-200, and PGE-8) were not sampled during the December 2010 sampling event due to field logistical issues. Make-up sampling was conducted in these four wells in February 2011. Hereafter in this report these wells will be included in the fourth quarter of 2010.

2.2 Surface Water Monitoring Program

Quarterly surface water sampling was conducted on December 21 and December 22, 2010 from the complete RMP monitoring network. Samples were analyzed for Cr(VI), chromium, specific conductance, and pH.

2.3 Performance Monitoring Program

PMP pressure transducers were downloaded in the first week of each month (November and December). The transducers in the key monitoring wells (MW-27-085, MW-31-135, MW-33-150, MW-34-100, and MW-45-095a) were downloaded weekly.

3.0 Results for Site-Wide Groundwater Monitoring and Surface Water Sampling

This section presents the analytical results for groundwater and surface water monitoring conducted during the fourth quarter of 2010. In addition, this section summarizes the site-wide groundwater and surface water sample results for the 2010 annual reporting period.

3.1 Groundwater Results for Cr(VI) and Chromium

3.1.1 Fourth Quarter Groundwater Results for Cr(VI) and Chromium

Table 3-1 presents the results for Cr(VI), chromium, field ORP, field SC, and field pH in groundwater samples collected from September 2009 through December 2010. During the fourth quarter of 2010 the maximum detected Cr(VI) concentration was 10,100 µg/L at well MW-20-130. This sample was collected as make-up during February as described in Section 2.1.2. The samples collected in February, although not within the reporting period, are considered representative of the groundwater conditions. The laboratory reports for results from November through December 2010 are presented in Appendix B, which includes the lab reports for the four wells sampled in February 2011.

Figures 3-1a through 3-1c present the Cr(VI) results for wells monitoring the shallow (upper depth interval), mid-depth (middle depth interval), and deep (lower depth interval) wells of the Alluvial Aquifer and bedrock, respectively, from the fourth quarter 2010 sampling event. Figures 3-1a through 3-1c also show the approximate outlines of Cr(VI) concentration contours greater than 32 µg/L for the Alluvial Aquifer and bedrock. The value of 32 µg/L is based on the calculated natural background upper tolerance limit (UTL) for Cr(VI) in groundwater from the background study (CH2M HILL, 2009a).

The areas where Cr(VI) concentrations are greater than 32 µg/L in the shallow, mid-depth, and deep intervals of the Alluvial Aquifer and East Ravine bedrock wells are generally similar to the previous quarterly monitoring events (CH2M HILL, 2009c-e, 2010a, c-d).

3.1.2 Annual Evaluation of Groundwater Results for Cr(VI) and Chromium

Table 3-1 presents the results for Cr(VI), chromium, field ORP, field SC, and field pH in groundwater samples collected from September 2009 to December 2010. Hexavalent chromium concentration trend graphs for GMP monitoring wells with consistent chromium detections are presented in Figures C-1 through C-15 in Appendix C. The fourth quarter 2010 results are shown in Figures 3-1a through 3-1c. This section presents the results for wells that were not evaluated for the PMP. Monitoring results for wells in the PMP are presented in Sections 4.0 and 5.0 of this report.

A review of the GMP Cr(VI) concentration trend plots (Figures C-1 through C-15 and Table 3-1) reveals the following Cr(VI) trends since 2004:

- Concentrations have generally been variable at MW-10, stable at MW-12 (since March 2007), and stable at MW-13 (Figure C-1).
- Concentrations have generally been declining at MW-14, MW-18, and MW-19 (Figure C-2).
- Concentrations at the shallow alluvial well MW-25 have steadily decreased, with the lowest concentration to date reported in December 2010 (Figure C-3).
- Concentrations at MW-26 and the MW-31 cluster have decreased. The lowest concentrations reported to date for MW-26 and MW-31-060 were observed during December 2010 (Figure C-4).
- Concentrations at MW-37S and MW-40S have remained stable (Figures C-8 and C-9, respectively), while concentrations have decreased in MW-37D and increased in MW-40D (Figures C-8 and C-9, respectively).
- Concentrations in well MW-50-095 have declined since June 2007, and the lowest concentration reported to date was observed in December 2010. Concentrations at MW-50-200 have generally remained stable (Figure C-12).
- Concentrations at well MW-57-070 have been variable since installation in September 2009 (Figure C-13), while concentrations at MW-57-185 have been low and generally stable since installation.
- Concentrations at MW-59-100, MW-61-110, and MW-62-65 appear to be increasing (Figure C-13 and C-14).
- Concentrations at MW-60-125 and MW-62-110 are variable, while Cr(VI) concentrations at MW-62-190 have been non-detect since December 2009 (Figure C-14).

Samples from the Arizona monitoring wells did not have detections of Cr(VI) or chromium in 2010, with the exception of samples from MW-55-120, which had detections of less than 7 µg/L.

The Park Moabi water production wells, Park Moabi-3 and Park Moabi-4, had detections of 11.9 and 21.0 µg/L for Cr(VI) and 10.5 and 20.6 µg/L for chromium, respectively, in December 2010. The Cr(VI) and chromium detections were below the California drinking water standard of 50 µg/L for chromium (Title 22, CCR, Division 4, Chapter 15).

Sample results for the East Ravine bedrock wells indicate that Cr(VI) is present within bedrock and exceeds the groundwater background value of 32 µg/L in some shallow and mid-depth intervals (using the same elevations designated for the alluvial wells). The Cr(VI) contours in Figures 3-1a and 3-1b incorporate these data.

3.2 Other Groundwater Monitoring Results

3.2.1 COPCs and In situ Byproducts

Table 3-2 presents the COPC sampling results for groundwater monitoring wells in fourth quarter sampling. Figures 3-2a through 3-2c present the molybdenum, nitrate (as N), and selenium results for fourth quarter of 2010, respectively. Results were compared to the UTLs

calculated and reported in the Revised Final RCRA Facility Investigation/Remedial Investigation Report, Volume 2 (CH2M HILL, 2009a).

Results for 14 of the 41 wells sampled were above the calculated UTL for molybdenum (Mo) of 36.3 µg/L. There is no State or Federal MCL for molybdenum. The maximum Mo result was collected from MW-46-175 with a result of 200 µg/L. The majority of the well samples detections above the Mo UTL (12 out of 14) were detected in the deep zone of the alluvial aquifer with the one result above the Mo UTL from the mid-depth zone and one from the shallow zone.

Results for 14 of the 114 wells sampled were above the calculated UTL for nitrate (as N) of 5.03 mg/L. Six of these 14 wells exceeded the MCL of 10.0 µg/L. The maximum nitrate result was collected from TW-01 at 25.0 mg/L. The majority of the detections above the nitrate UTL (9 out of 14) were detected in the shallow zone of the alluvial aquifer with three wells results above the nitrate UTL collected from wells in the mid-depth zone and two from the deep zone.

Results for four of 41 wells sampled were above the calculated UTL for Selenium (Se) of 10.3 µg/L, none of which exceeded the MCL of 50 µg/L for selenium . The maximum result was collected from TW-01 at 36.0 µg/L. Two of the detections above the Se UTL were collected from wells in the shallow zone. One result above the Se UTL came from a well in the mid-depth zone and one from the deep zone of the alluvial aquifer.

Results for in situ byproduct sampling and geochemical indicator parameters are presented in Appendix D, Table D-1. An evaluation of in situ byproduct sample results for floodplain wells is presented in Section 5.3.2 with additional geochemical parameters collected for PMP performance monitoring.

3.2.2 Title 22 Metals

Table 3-3 presents the Title 22 metals results for the GMP monitoring wells (MW-10, MW-12 and MW-22) sampled during the fourth quarter of 2010, and previous 2010 monitoring events. The concentrations of Title 22 metals consistently detected in monitoring wells remained fairly stable overall during the 2010 monitoring period.

In addition to chromium, the trace metals detected in MW-10 during the fourth quarter 2010 groundwater sampling event were arsenic, barium, molybdenum, selenium, and vanadium. The dissolved concentrations of the trace metals detected during the fourth quarter 2010 event in MW-10 —other than chromium—are below the respective federal and California maximum contaminant level (MCL) drinking water standards.

In addition to chromium, the trace metals detected in MW-12 during the fourth quarter 2010 groundwater sampling event were antimony, arsenic, barium, copper, molybdenum, selenium, vanadium, and zinc. The dissolved concentrations of the trace metals detected in MW-12 during the fourth quarter 2010 event—other than chromium, antimony, and arsenic—are below the respective federal and California maximum contaminant level drinking water standards. Antimony had previously been detected above the MCL at well MW-12; the last detection was in October 2007.

The trace metals detected in MW-22 during the fourth quarter 2010 groundwater sampling event were arsenic, barium, molybdenum, and selenium. The dissolved concentrations of the trace metals detected during the fourth quarter 2010 event—other than arsenic—are below the respective federal and California maximum contaminant level drinking water standards.

3.2.3 Arsenic Sampling in Monitoring Wells

Sixty fluvial/alluvial wells were sampled for arsenic in the fourth quarter of 2010. These results and results for previous 2010 monitoring events are presented in Appendix D, Table D-2. Arsenic was detected in each of the 60 samples analyzed for arsenic. Only 9 of the monitoring well samples had arsenic concentrations greater than the California maximum contaminant level of 10 µg/L. The maximum concentration was detected in MW-12 at 53.0 µg/L. All arsenic concentrations are within the previously observed ranges for each well.

Arsenic was detected in each of the 11 bedrock wells sampled for arsenic in the fourth quarter 2010 event. These results are presented in Appendix D, Table D-2. Two of the bedrock monitoring well samples had arsenic concentrations just above the California maximum contaminant level of 10 µg/L, MW-57-185 at 11.0 µg/L and MW-62-110 at 14.0 µg/L.

The wells of the MW-64 cluster and MW-34-100 were sampled for arsenic during the November sampling event. These results are presented in Appendix D, Table D-2. Results from the November monthly sampling at the MW-64 cluster (MW-64-150, MW-64-205, and MW-64-260) yielded arsenic results above the California MCL at 45.2 µg/L, 16.9 µg/L, and 12.3 µg/L respectively, however, these results were rejected and flagged "R" because these data are not consistent with previous results (Table D-2) and the FLUTe™ liner that was in the MW-64 borehole at the time has been identified as a potential contributor to arsenic within the sample (CH2M, 2009f).

3.2.4 Background Study Metals

Table D-3 in Appendix D presents the background metals sampling results for fourth quarter 2010 sampling from monitoring wells MW-16 and MW-17, as recommended in the background study report (CH2M HILL, 2008a).

In addition to chromium, the background metals detected in MW-16 during the fourth quarter 2010 groundwater sampling event were arsenic, barium, boron, calcium, copper, iron, magnesium, molybdenum, nickel, selenium, and vanadium. The dissolved concentrations of the trace metals detected during the fourth quarter 2010 event are below the respective federal and California maximum contaminant level drinking water standards.

In addition to chromium, the background metals detected in MW-17 during the fourth quarter 2010 groundwater sampling event were antimony, arsenic, barium, boron, calcium, magnesium, molybdenum, selenium, vanadium and zinc. The dissolved concentrations of the trace metals detected during the fourth quarter 2010 event—other than antimony—are below the respective federal and California maximum contaminant level drinking water standards.

3.2.5 Other Analytical Results from MW-64BR

In December 2010, at the direction of DTSC, a grab sample was collected from the open borehole MW-64BR. These sample results are presented in Appendix D, Table D-4.

3.2.6 Laboratory Specific Conductance Results

In 2007 PG&E was directed by DTSC to continue collecting samples for laboratory specific conductance analysis (DTSC, 2007c). Results of this analysis are presented in Table D-5.

3.2.7 Water Level Monitoring

Appendix D, Table D-6 presents the manual water level measurements collected during the 2010 reporting period. Table D-6 also lists salinity data for the wells where water levels were measured. Groundwater salinity during the fourth quarter of 2010 ranged from 0.07 percent (MW-27-20) to 3.0 percent (well MW-32-020)—a range that is consistent with results of prior monitoring. Due to the variation in groundwater salinity at the site, the groundwater elevations measured in the monitoring wells have been adjusted (normalized) to an equivalent freshwater head (Fetter, 1994).

Beginning in June 2005, at DTSC's direction (DTSC, 2005b), a site-wide water level data set has been collected quarterly as part of the GMP to construct a groundwater elevation contour map for the shallow, upper-depth interval of the Alluvial Aquifer. That requirement was changed to annually in the September 28, 2007 letter from DTSC (DTSC, 2007d).

Figure 3-3 presents the groundwater elevation contours for the shallow-depth interval of the Alluvial Aquifer. A site-wide water level survey was conducted on December 6, 2010 that involved the manual collection of groundwater level data at 24 shallow wells within approximately a 1-hour period. Because groundwater levels at the site fluctuate continuously in response to changes in the river stage, these groundwater elevation contours reflect transient conditions at the time of measurement and may not be representative of the average groundwater flow directions.

3.2.8 Field Parameter Data

A field water quality meter and flow-through cell were used to measure parameters during well purging and groundwater sampling (CH2M HILL, 2005b). Water quality field measurements were also recorded during surface water sampling. Table D-7 summarizes the field water quality data collected (specific conductance, temperature, pH, ORP, and dissolved oxygen) from January 2010 through December 2010.

3.3 Surface Water Results for Cr(VI) and Chromium

Table 3-4 presents results of Cr(VI), chromium, specific conductance, and lab pH from the fourth quarter 2010 surface water monitoring event, and the 2010 reporting period. During the fourth quarter and 2010 reporting periods, Cr(VI) and chromium were not detected above reporting limits at any in-channel, shoreline, or other surface water monitoring locations.

3.4 Data Validation and Completeness

Laboratory analytical data from the fourth quarter 2010 GMP sampling event were reviewed by project chemists to assess data quality and to identify deviations from analytical requirements. The completeness objectives were met for all method and analyte combinations with the following exceptions.

In November 2010 the MW-64 cluster (MW-64-150, MW-64-205, and MW-64-260) wells continued to show elevated arsenic levels associated with the FLUTe™ liner and the October 20, 2010 rainfall event. See Section 3.2.2 of the *Third Quarter 2010 Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report PG&E Topock Compressor Station Needles, California* (CH2M HILL, 2010) for further information. The results were qualified as rejected and flagged "R" and are not considered representative of the aquifer in that location as discussed in section 3.2.3.

In December 2010 the FLUTe™ liner was removed from the MW-64 borehole at the direction of the DTSC. Following the removal of the FLUTe™ liner, the open borehole was developed and a grab sample (MW-64BR) was collected on December 20, 2010. In addition to the typical metals, anions, etc. that have been historically analyzed in the East Ravine wells, volatile organic compounds (VOCs) by SW8260B were also requested. The Acrolein (SW8260B) result for the MW-64BR sample was qualified as rejected and flagged "R" because of the low instrument response factor in the initial calibration.

No other significant analytical deficiencies were identified in the fourth quarter 2010 GMP data. Additional details are provided in the data validation reports, which are kept in the project file and are available upon request.

3.5 Summary of 2010 GMP Monitoring Results

This section summarizes the results of the monitoring events completed for the Topock GMP in 2010 and presents key observations and data trends for the monitoring period and previous years.

During 2010, the quarterly events occurred in March, April/May, September/October, and December. Quarterly events in April/May and September/October were timed to occur before and after Southwestern Willow Flycatcher nesting season to minimize biological impacts to potential nesting habitat from the field activities during these larger-scale sampling events.

The COPCs carried forward from the RFI Vol.2, Addendum and CMS/FS (Mo, Se, and nitrate) continue to be detected in monitoring wells above the background UTL. The majority of wells with results above the UTL for Mo (12 out of 14) came from the deep zone of the alluvial aquifer, while the majority of the results above the UTL for nitrate (9 out of 14) came from the shallow zone of the alluvial aquifer.

The dissolved concentrations of the trace metals (Title 22) detected during the fourth quarter 2010 event—other than chromium, antimony, and arsenic—are below the respective federal and California MCL.

Arsenic was detected in all 71 wells analyzed for arsenic. Eleven of these samples exceeded the California MCL of 10 µg/L.

4.0 Fourth Quarter IM Performance Monitoring Program Evaluation

4.1 Water Quality Results for PMP Floodplain Wells

Table F-1 in Appendix F presents the results of the general chemistry and stable isotope analyses for 15 PMP monitoring wells and 2 river stations during sampling events from March 2005 through December 2010. In July 2008, DTSC approved modifications to the PMP IM chemical performance monitoring program (DTSC, 2008b). With those modifications, there are now nine monitoring wells and one river station sampled for IM chemical performance monitoring. Figure 1-4 shows the locations of the monitoring wells sampled for the performance monitoring parameters. Water samples from the selected performance monitoring locations are analyzed for general chemistry parameters including TDS, chloride, sulfate, nitrate, bromide, calcium, potassium, magnesium, sodium, boron, alkalinity, deuterium, and oxygen-18 to monitor the effects of IM pumping on groundwater chemistry. Section 5.3.2.2 of this report provides an evaluation of the general chemistry groundwater data for the floodplain area.

4.2 Cr(VI) Distribution and Trends in PMP Wells

The fourth quarter 2010 distribution of Cr(VI) in the upper (shallow wells), middle (mid-depth wells), and lower (deep wells) intervals of the Alluvial Aquifer is shown in plan view and cross-section in Figure 4-1[1]. Figure 4-2 presents the fourth quarter 2010 Cr(VI) results for Cross-section B, oriented parallel to the Colorado River. The location of Cross-section B is shown in Figure 1-4.

Appendix C includes Cr(VI) concentration trend graphs for selected monitoring well clusters through December 2010. Sample results for the 2010 reporting period are presented in Table 3-1. An evaluation of chromium trends in PMP wells is presented in the annual performance evaluation in Section 5.3.

4.3 PMP Contingency Plan Cr(VI) Monitoring

The Topock Interim Measures Contingency Plan (IMCP) was developed to detect and control any possible migration of the Cr(VI) plume toward the Colorado River. Currently, the IMCP consists of 24 wells. Appendix C includes Cr(VI) concentration trend graphs for

[1] In Figures 4-1 and 4-2, the Cr(VI) concentrations are color-coded based on the groundwater background Cr(VI) concentration, which is 32 µg/L (CH2M HILL, 2009a). The 20 µg/L and 50 µg/L Cr(VI) concentration contours presented in Figures 4-1 and 4-2 are shown in accordance with DTSC's 2005 IM directive and are not based on the background Cr(VI) concentration for groundwater.

the IMCP wells. The IMCP well Cr(VI) results in the fourth quarter and throughout 2010 were all below their assigned trigger levels.

4.4 Extraction Systems Operations

Pumping data for the IM-3 groundwater extraction system for the fourth quarter reporting period of November 1, 2010 through December 31, 2010 are presented in Table 4-1. From November 1, 2010 through December 31, 2010, the volume of groundwater extracted and treated by the IM-3 system was 11,700,166 gallons. An estimated 134 pounds (61 kilograms) of chromium were removed from the aquifer during the period October 1, 2010 through December 31, 2010[2].

During the fourth quarter of 2010, extraction wells TW-3D and PE-1 operated at a combined pump rate of 133.2 gallons per minute (gpm), excluding periods of planned and unplanned downtime. The average monthly pumping rates were 133.7 gpm (November 2010) and 132.7 gpm (December 2010) during the reporting period. Extraction well TW-2S was not operated during the fourth quarter of 2010. The operational run-time percentage for the IM extraction system was 99.0 percent during this reporting period. The operations log for the extraction system during the fourth quarter of 2010, including planned and unplanned downtime, is included in Appendix G.

The concentrate (i.e., saline water) from the reverse osmosis system was shipped offsite as a RCRA non-hazardous waste and was transported to Liquid Environmental Solutions in Phoenix, Arizona for treatment and disposal. Three containers of solids from the IM-3 facility were disposed of at the Kettleman Hills Chemical Waste Management facility during the fourth quarter of 2010. Daily IM-3 inspections included general facility inspections, flow measurements, and site security monitoring. Daily logs with documentation of inspections are maintained onsite.

4.5 Hydraulic Gradient and River Levels during Quarterly Period

During the reporting period, water levels were recorded at intervals of 30 minutes with pressure transducers in 53 wells and 2 river monitoring stations (I-3 and RRB). The data are typically continuous, with only short interruptions for sampling or maintenance. The locations of the wells monitored are shown in Figure 1-4.

Daily average groundwater and river elevations calculated from the pressure transducer data for the fourth quarter 2010 reporting period are summarized in Table E-1 in Appendix E. Groundwater elevations (or hydraulic heads) are adjusted for temperature and salinity differences between wells (i.e., adjusted to a common freshwater equivalent), as described in the Performance Monitoring Plan. Groundwater elevation hydrographs for the PMP wells during the fourth quarter 2010 reporting period are included in Appendix E. The

[2] On July 23, 2010 DTSC approved a revised reporting schedule for this report that included a revised IM-3 sample collection period from October 1, 2010 through December 31, 2010; this IM-3 sample collection period is in line with previous reports prior to combining the GMP with the PMP reports. The PMP/GMP reporting schedule uses July through October as 3rd quarter and November through December as 4th quarter due to sampling event timing; these reporting periods differ from IM3.

elevation of the Colorado River measured at the I-3 gauge station (location shown in Figure 1-4) is also shown on the hydrographs in Appendix E.

Average fourth quarter 2010 groundwater elevations for the shallow, mid-depth, and deep wells are presented and contoured in plan view in Figures 4-3a through 4-3c. Average groundwater elevations for wells on floodplain Cross-section A are presented and contoured in Figure 4-4. Several monitoring wells are significantly deeper than other wells in the lower depth interval. Due to vertical gradients present at the Topock site, water levels in deeper wells tend to be higher than water levels in shallower wells. Consequently, some of the wells with screen intervals significantly deeper than most of the lower-interval wells exhibit water levels that are not contoured in the plan view in Figure 4-3c.

For the fourth quarter 2010 reporting period, transducer data was recorded in wells located on the Arizona side of the Colorado River. The quarterly average groundwater elevations for wells MW-55-120, MW-54-85, MW-54-140, and MW-54-195 are presented on Figure 4-3c and are used for contouring, where appropriate. With the exception of well MW-55-45, all of the wells in the MW-54 and MW-55 clusters are screened in the deep interval of the Alluvial Aquifer. Well MW-55-45 is screened over the boundary between the shallow and middle intervals.

Deep zone water levels shown in Figure 4-3c indicate that potentiometric levels in monitoring wells in Arizona are higher than those in wells across the river on the California floodplain. This means that the hydraulic gradient on the Arizona side of the river is directed to the west and, as a result, groundwater flow would also be towards the west in that area. This is consistent with the site conceptual model and with the current numerical groundwater flow model.

Hydraulic gradients were measured during the fourth quarter 2010 reporting period for well pairs selected for performance monitoring of the two pumping centers (TW-3D and PE-1). The following well pairs were approved by DTSC on October 12, 2007 (DTSC, 2007a) to define the gradients induced while pumping from two locations:

- MW-31-135 and MW-33-150 (northern gradient pair)
- MW-45-95 and MW-34-100 (central gradient pair)
- MW-45-95 and MW-27-85 (southern gradient pair)

Table 4-2 presents the average monthly hydraulic gradients that were measured between the gradient well pairs in November and December 2010. Strong landward gradients were measured each month. The overall average gradients for all well pairs ranged from 0.0048 to 0.0050 feet per foot (ft/ft). This is 4.8 to 5.0 times greater than the required gradient of 0.001 ft/ft. The gradient for the northern well pair ranged from 1.9 to 2.0 times the target gradient of 0.001 ft/ft. For the central well pair, the average landward gradient ranged from 8.9 to 9.8 times the target gradient. The southern well pair gradients were 3.4 times the target gradient for the fourth quarter 2010 reporting period. Graphs of the hydraulic gradients, monthly average pumping rates, and river levels for the quarterly period are presented in the annual performance evaluation in Section 5.2.

4.6 Projected River Levels during Next Quarter

Colorado River stage near the Topock Compressor Station is measured at the I-3 location and is directly influenced by releases from Davis Dam and, to a lesser degree, from Lake Havasu elevations, both of which are controlled by the United States Bureau of Reclamation (BOR). Total releases from Davis Dam follow a predictable annual cycle, with largest monthly releases typically in spring and early summer and smallest monthly releases in late fall/winter (November and December). Superimposed on this annual cycle is a diurnal cycle determined primarily by daily fluctuations in electric power demand. Releases within a given 24-hour period often fluctuate over a wider range of flows than that of monthly average flows over an entire year.

Figure 4-5 shows river stage measured at I-3 superimposed on the projected I-3 river levels. Projected river levels for future months are based on the BOR projections of Davis Dam discharge and Lake Havasu levels from the month preceding. For example, the projected river level for January 2011 is based on the December 2010 BOR projections of Davis Dam release and Lake Havasu level not the actual release and level values. The variability between measured and projected river levels is due to the difference between measured and actual Davis Dam release and Lake Havasu levels. The more recent data plotted in Figure 4-5 are summarized in Table 4-3. The future projections shown in Figure 4-5 are based on BOR long-range projections of Davis Dam releases and Lake Havasu levels from December 2010. There is more uncertainty in these projections at longer times in the future since water demand is based on various elements including climatic factors.

Current BOR projections, presented in Table 4-3, show that the average Davis Dam release for January 2011 (7,700 cubic feet per second) will be less than the actual release in December 2010 (9,286 cubic feet per second). Based on January 2011 BOR projections, it is anticipated that the Colorado River level at the I-3 gage location in January 2011 will be approximately 0.76 foot lower compared to the actual levels in December 2010. Current projections show that the water levels will increase during the next quarterly reporting period, in February and March 2011, further increasing in April 2011 to the maximum levels of the year, as shown in Figure 4-5.

4.7 Quarterly PMP Evaluation Summary

The groundwater elevation and hydraulic gradient data from November and December 2010 performance monitoring indicate that the minimum landward gradient target of 0.001 ft/ft was exceeded each month during the quarterly reporting period. The overall average landward gradients during the fourth quarter of 2010 were 4.8 to 5.0 times the required minimum magnitude. The current gradient well pairs are adequate to define the capture of the Cr(VI)plume while pumping from extraction wells TW-3D and PE-1. Based on the hydraulic and monitoring data and evaluation presented in this report, the IM performance standard has been met for the fourth quarter 2010 reporting period.

A total of 11,700,166 gallons of groundwater was extracted between November and December 2010 by the IM-3 treatment facility. The average pumping rate for the IM

extraction system during the fourth quarter of 2010, excluding system down time, was 133.2 gpm. An estimated 134 pounds (61 kilograms) of chromium were removed from groundwater during the period October 1 through December 31, 2010.

A review of the groundwater gradient maps for the fourth quarter of 2010 (Figures 4-3a to 4-3c) shows that floodplain PMP monitoring wells where Cr(VI) was detected at greater than 20 µg/L are within the IM capture zone of the pumping well(s) during the reporting period. That is, the inferred groundwater flow lines from floodplain PMP wells with Cr(VI) greater than 20 µg/L are oriented away from the river and towards the TW-3D and PE-1 extraction wells. Flow lines in this area are also simulated to be towards the IM extraction wells throughout the year in the site groundwater model.

The wells that are monitored in the IM pumping area (e.g., MW-36-100, MW-39-70, MW-39-80, and MW-39-100) generally continue to show overall declining Cr(VI) concentrations relative to prior monitoring results, as shown in Appendix C. Presentation and evaluation of the Cr(VI) trends observed in the performance monitoring area during the fourth quarter 2010 reporting period are discussed in Section 5.3.

5.0 Annual PMP Evaluation

5.1 Extraction System Operations for Annual Reporting Period

5.1.1 Extraction Facilities and Operations

Pumping data for the IM-3 groundwater extraction system for the 2010 annual reporting period are presented in Table 5-1. A total of 67,364,677 gallons of groundwater was extracted from January 2010 through December 2010. Approximately 551 pounds (250 kilograms) of chromium were removed from the aquifer by pumping over the 2010 annual reporting period. The total mass of chromium removed by the IM-2 and IM-3 extraction systems during IM pumping from March 2004 through December 31, 2010 is approximately 6,477 pounds (2,938 kilograms). The average annual pumping rate during the 2010 reporting period was 128.2 gpm, while pumping from extraction wells TW-3D and PE-1.

Figure 5-1 summarizes the monthly pumping rates, cumulative volumes extracted, and the percent of time that the extraction system was in operation during the 2010 reporting period. This figure shows that pumping rates were relatively consistent month to month, which is illustrated by the high percentage of uptime for the IM extraction and treatment facilities throughout the year. The decrease in uptime during February 2010 was due to planned treatment plant maintenance. The decrease in uptime during April 2010 was due to the planned annual treatment plant maintenance event. Further discussion of these downtime events can be found in the First Quarter 2010 GMP/PMP report (CH2M HILL, 2010c).

Extraction wells TW-3D and PE-1 operated throughout the annual reporting period at the target pumping rate of 135 gpm, excluding periods of planned and unplanned downtime. During the annual reporting period, extraction well TW-2D was only operated for short-term support of the extraction system or field operations and for periodic groundwater sampling.

5.1.2 Extracted Groundwater Quality and Trends

Extraction well TW-3D was brought online in late December 2005, and groundwater extraction at well PE-1 on the floodplain began on January 25, 2006; both wells have been operating continuously for the IM. Table 5-2 presents the analytical results for Cr(VI), dissolved chromium, and TDS for extraction wells TW-3D and PE-1 during the 2010 reporting period.

The Cr(VI) and TDS concentration trends for TW-3D and PE-1 are plotted in Figure 5-2. During the 2010 reporting period, Cr(VI) concentrations in TW-3D have remained stable, ranging from a maximum value of 1,500 μg/L in June 2010 to a minimum value of 1,000 μg/L in May 2010. TDS concentrations in TW-3D for this period have remained relatively stable, averaging about 5,300 milligrams per liter (mg/L).

The Cr(VI) concentrations in the extracted groundwater at well PE-1, located on the floodplain, have ranged from 22.6 to 12.4 µg/L during the reporting period, as shown in Table 5-2. TDS concentrations in PE-1 for this period have remained relatively stable, averaging about 3,300 mg/L.

5.2 Capture Zone Analysis for Annual Reporting Period

5.2.1 Monthly Average Gradients

Table 5-3 presents the hydraulic gradients measured between the selected gradient control well pairs during the period January 2010 through December 2010. The overall average gradient for well pairs exceeded the threshold for each month in the reporting period. In addition, the IM target landward gradient was met each month at individual gradient control well pairs during the annual reporting period. While exceeding the performance standard each month the gradient was calculated, the northern well pair (MW-31-135/ MW-33-150) generally had the lowest measured gradients because it is not aligned along the gradient generated by pumping. The gradient measurements are therefore underestimates of the true gradient.

Figure 5-3 summarizes the overall average monthly hydraulic gradient, individual well pair gradients, and the river stage and average pumping rates during the 2010 reporting period. During the annual reporting period, the average daily river levels ranged from a high of 457.17 feet above mean sea level (June 2010) to a low of 452.42 feet above mean sea level (January 2010). Strong overall average landward gradients were measured each month, even during the lower river stages observed in January, November, and December 2010.

5.2.2 Annual Average Gradients

Groundwater contour maps presenting the annual averages of the 2010 reporting period measured hydraulic data in the upper, mid-depth, and lower aquifer intervals are shown in Figures 5-4a through 5-4c. The fourth quarter 2010 Cr(VI) contours are also shown on the annual average gradient maps. In Figure 5-5, the annual average groundwater elevation data are presented in floodplain Cross-section A. Table E-2 in Appendix E presents a listing of the annual average, minimum, and maximum groundwater elevations for the wells used for the 2010 performance monitoring evaluation.

The net annual landward gradients illustrated on the aquifer interval maps (Figures 5-4a through 5-4c) show that the gradients are landward and are comparable to the gradient maps prepared from previous monitoring data.

5.2.3 Analysis and Evaluation of Capture Zone

Two graphical methods were presented in the 2006 annual performance evaluation report to illustrate the capture zone produced by IM pumping (CH2M HILL, 2007). The methodology and results of the capture zone evaluations for 2010 are summarized below.

5.2.3.1 Well Group Gradient Averaging

The temporal variation in magnitude and direction of horizontal hydraulic gradients in the lower-depth aquifer interval was assessed using quarterly average water levels and

triangulation with linear interpretation for two well groupings (MW-31-135/MW-33-150/ MW-34-100 and MW-45-95/MW-34-100/MW-27-85) in the IM performance area. Figure 5-6 shows the two well groupings and the calculated average gradients for all four quarterly monitoring periods in 2010.

This analysis shows that strong landward gradients were achieved during the 2010 monitoring period and that there was minimal variation in the magnitude and direction of the landward gradients during each quarter. These gradients are not the same as those calculated between the gradient control well pairs (Table 5-3) because they are calculated net gradients within the plane formed by each three-well group. Stronger landward gradients were calculated using the three-well method than those measured for the northern well pair MW-31-135/MW-33-150 (Table 5-3) due to a more optimally aligned flow direction.

5.2.3.2 Particle Track Analysis

For the 2006 performance evaluation, particle tracking was conducted to calculate the direction and distance that groundwater would likely flow using selected starting points in the floodplain under the dual well (TW-3D and PE-1) IM pumping system. During 2006 IM operations, TW-3D and PE-1 were pumping at individual annual average rates of 97.5 and 34.3 gpm, respectively. During 2010 IM operations, the extraction wells were pumped at individual annual average rates of 102.4 and 25.7 gpm, respectively. Because the pumping locations have not changed, conditions were similar and the gradients for the lower interval were comparable for the 2006 and 2010 two annual periods, completion of a new particle tracking analysis is not warranted. Please see the 2006 annual IM performance evaluation report (CH2M HILL, 2007) for the particle tracking figure and the methods, input parameters, and data used for this analysis.

5.3 Evaluation of Groundwater Quality Trend

5.3.1 Cr(VI) Distribution and Trends

Figure 4-1 presents the fourth quarter 2010 Cr(VI) concentration results in floodplain wells in the upper, mid-depth, and lower intervals of the Alluvial Aquifer. The Cr(VI) contours presented on this figure incorporate data from the most comprehensive sampling event of the year.

Figure 5-7 presents Cr(VI) concentration trend graphs for selected deep monitoring wells in the floodplain area through December 2010. Sampling results are plotted for wells MW-34-100, MW-36-90, MW-36-100, MW-44-115, MW-44-125, and MW-46-175. The locations of the deep wells selected for performance evaluation are shown in Figure 1-4. Appendix C includes Cr(VI) concentration trend graphs for selected monitoring well clusters through December 2010. Sample results for the 2010 reporting period are presented in Table 3-1.

Wells showing marked decreases in concentration are generally in the floodplain area where IM pumping is removing chromium in groundwater. Wells with historic detections near or at reporting limits remained at these levels during the fourth quarter 2010 period. A review of Figure 5-7 and Appendix C indicates that Cr(VI) concentrations have remained steady or

have decreased in many wells since IM and PE-1 pumping began in 2004 and 2005, respectively.

Key Cr(VI) concentration trends for the PMP wells sampled during the 2010 reporting period include:

- Concentrations at the MW-20 cluster (located near the TW-3D pumping well) indicate stable concentrations at the shallow well MW-20-070 (since 2007), decreasing concentrations at MW-20-100 (since May 2007), and variable concentrations at MW-20-130 (Figure C-3).
- MW-28-90 Cr(VI) concentrations have remained less than laboratory reporting limits since installation in May 2004, as shown in Appendix C, Figure C-4.
- MW-33 cluster Cr(VI) concentrations have shown stable to slightly increasing trends since 2005, while MW-33-40 results have been less than or near reporting limits since 2004, as presented in Appendix C, Figure C-5.
- Cr(VI) concentrations at MW-34-80 have been less than the reporting limits since June 2004 as shown in Appendix C, Figure C-6.
- As shown in Figure 5-7 and Appendix C, Figure C-6, well MW-34-100 has shown a fluctuating trend in Cr(VI) concentration over the past three years. However, since June 2006 concentrations at this well have shown a general downward trend. Landward gradients have been present at this location since IM pumping began; therefore, the periodic increases in concentration observed at MW-34-100 do not indicate movement of the plume toward the river.
- MW-36 cluster (MW-36-20 though MW-36-70) Cr(VI) concentrations in the shallow and mid-depth wells have remained less than or near reporting limits since 2004, as presented in Appendix C, Figure C-7.
- Deep well MW-36-90 Cr(VI) concentrations decreased after the start of IM pumping, diminishing further to reporting limits upon the initiation of PE-01 pumping in 2006 (Appendix C, Figure C-7).
- Deep well MW-36-100 Cr(VI) concentrations initially increased upon the startup of PE-01 pumping but decreased from 2007 through 2010 to less than 100 µg/L (Figure 5-7 and Appendix C, Figure C-4).
- Cr(VI) concentrations at shallow to mid-depth wells in the MW-39 cluster (MW-39-40 through MW-39-60) have remained less than or near reporting limits since 2004 and 2005 as presented in Appendix C, Figure C-8; while mid-depth to deep wells in the MW-39 cluster (MW-39-70 through MW-39-080) decreased to reporting limits in 2008 and 2009 (Figure C-8).
- Deep well MW-39-100 concentrations also steadily declined since the start of IM pumping, with the lowest concentration observed to date in 2010 as presented in Appendix C, Figure C-8.
- Deep well MW-44-115 has shown an overall downward trend since July 2006, as presented in Figure 5-7 and Appendix C, Figure C-10. Well MW-44-125 has also shown

an overall downward trend since November 2008, as presented in Figure 5-7 and Appendix C, Figure C-10.

- Concentrations in deep well MW-46-175 have shown a fluctuating trend since 2007 as presented in Figure 5-7 and Appendix C, Figure C-11.
- MW-47-55 Cr(VI) concentration trends have generally been fluctuating; while Cr(VI) concentrations trends have been slightly increasing at MW-47-155, as presented in Appendix C, Figure C-11.
- Well TW-04, a deeper well, has shown an overall declining trend since March 2007, as presented in Appendix C, Figure C-15.

5.3.2 Groundwater Geochemistry in IM Extraction Area

5.3.2.1 Oxidation-Reduction Potential Evaluation

The fourth quarter 2010 sampling event included additional analytes not usually sampled during the quarterly events. Figure 5-8 shows the concentrations and distributions of Cr(VI), ORP, nitrate, manganese, iron, and arsenic from the fourth quarter 2010 sampling event. Arsenic and manganese samples were collected to establish baseline conditions of in situ byproducts that may be produced when the groundwater remediation remedy is implemented. Figure 5-9 shows these same results on Cross-section A, which runs west-to-east along the floodplain.

5.3.2.2 General Chemistry Evaluation

Table F-1 in Appendix F presents the results of the general chemistry and stable isotope analyses for 15 PMP monitoring wells and 2 river stations during sampling events from March 2005 through December 2010. In July 2008, DTSC approved modifications to the PMP IM chemical performance monitoring program (DTSC, 2008b). With those modifications, there are now nine monitoring wells and one river station sampled for IM chemical performance monitoring.

Fifteen floodplain wells were sampled for chemical performance monitoring parameters over the period of March 2005 through January 2010. The majority of the parameters in groundwater samples from these wells remained stable through the reporting period (Table 3-1). Shallow-depth wells exhibit both increases and decreases in some of these same parameters over the reporting period, but in these cases, it is interpreted as natural variation because some values were similar to those measured in previous years. Little change was evident in the river sample R-28 in 2010 compared to prior years.

5.3.2.3 Stable Isotope Evaluation

Analysis of the stable isotopes of oxygen (^{18}O) and deuterium (^{2}H) provide a method of tracking the mixing occurring in floodplain groundwater as a result of IM extraction.

Figure 5-10 shows the results of stable isotopes of oxygen and deuterium in floodplain wells using data collected during the annual reporting period. The points that plot to the upper right in this plot are considered heavier in isotopic signature (i.e., enriched in heavy isotopes), while the points that plot to the lower left are considered lighter in isotopic signature. In this plot, it is apparent that the lighter signatures are dominated by river samples (with some shallow fluvial wells showing similar signature), whereas the heaviest

signatures are found in selected floodplain wells, which likely contain higher percentages of water that has flowed from the upland areas.

The effects of IM pumping on the isotopic signature of floodplain wells have been plotted in Figures 5-11a through 5-11c. The percent river water signature was calculated by using composite statistics for deuterium isotope data from site river water samples (light fraction) and groundwater samples with greater than 3,000 µg/L Cr(VI) (heavy fraction; termed "industrial water") between 2004 and 2010. The posted percentages each represent the sample's calculated river water signature percentage, with 100% being essentially the same deuterium signature as river water, and 0% being equal to the industrial water signature. It is evident that isotopic signature in most industrial signature wells has become more similar to river water since IM pumping began. This is a result of the continuous landward gradient created by IM pumping and the resultant mixing of industrial water with river-influenced groundwater. These changes are most likely due to lateral and downward movement of shallow floodplain water, which has an isotopic signature similar to river water.

5.4 Conclusions and Status of IM Operations

5.4.1 2010 Performance Evaluation

As of March 2011, the IM has operated full time for 7 years and has been successful in meeting the IM objectives and performance criteria. This section summarizes the conclusions of IM operations and performance monitoring for the 2010 reporting period.

5.4.1.1 Attainment of Performance Standard

Throughout 2010, the IM extraction system (combined wells TW-3D and PE-1) operated at the target pumping rate of 135 gpm, excluding periods of planned and unplanned downtime. The operational run-time percentage for the extraction system was 95.5 percent during the 2010 reporting period. The average pumping rate for the IM extraction system, including downtime, during the annual period was 128.2 gpm. The results and conclusions of the 2010 performance evaluation include:

- A total of 67,364,677 gallons of groundwater was extracted and treated at the IM-3 system during the annual reporting period. The IM system removed approximately 551 pounds (250 kilograms) of chromium from the aquifer during the reporting period.
- The IM pumping rate was sufficient to maintain the minimum overall average landward gradient throughout the 2010 annual reporting period. The strong landward gradients were maintained even during the period of lower river stages in January 2010 and November 2010 through December 2010.
- The current gradient well pairs are adequate to define the capture of the plume while pumping from extraction wells TW-3D and PE-1, although the northern pair particularly underestimates the gradient as it is aligned at an angle to the true gradient.
- The annual average hydraulic gradient monitoring data showed that all floodplain monitoring wells where Cr(VI) was detected at greater than 20 µg/L were within the capture zone of the IM extraction system during the 2010 reporting period.

5.4.1.2 Cr(VI) Distribution and Trends

The key conclusions on Cr(VI) distribution and trends observed in the IM performance monitoring area during 2010 include:

- Overall, the groundwater Cr(VI) concentrations in the floodplain are stable or decreasing. The ongoing monitoring has shown marked decreases in Cr(VI) concentration in the floodplain areas where IM pumping exerts a strong influence on hydraulic gradients (e.g., well clusters MW-36, MW-39, and MW-44).
- MW-34-100 has shown a fluctuating trend in Cr(VI) concentration over the past three years. However, since June 2006 concentrations at this well have shown a general downward trend. Landward gradients have been present at this location since IM pumping began; therefore, the periodic increases in concentration observed at MW-34-100 do not indicate any movement of the plume toward the river.
- The distribution of Cr(VI) in the performance monitoring area is significantly affected by the redox conditions in the aquifer. Reducing conditions where Cr(VI) and nitrate are generally non-detect are prevalent throughout the shallow and mid-depth floodplain wells.
- The groundwater ORP, stable isotopes monitoring data, and river signature confirm that continued IM extraction is drawing more oxidizing river-influenced groundwater into the performance monitoring area.

5.4.2 Status of Operations and Monitoring

Per DTSC direction, PG&E will continue to operate both TW-3D and PE-1 at a target combined pumping rate of 135 gpm, except for periods of planned and unplanned downtime. Treated groundwater will be discharged into the IM-3 injection wells in accordance with Waste Discharge Requirements Order No. R7-2006-0060. Saline water generated as a byproduct of the reverse osmosis process will continue to be transported offsite for treatment and disposal.

PG&E will balance the pumping rates between TW-3D and PE-1 to maintain the target pumping rate and maintain appropriate hydraulic gradients across the Alluvial Aquifer. If, at any time, hydraulic data indicate that PE-1 pumping has the potential to draw higher concentrations of chromium away from the capture zone of TW-3D, PG&E will request authorization from DTSC to increase the pumping rate at TW-3D and decrease the rate at PE-1. TW-2D will serve as a backup extraction well to TW-3D and PE-1.

Current BOR projections show that the river levels will increase during the next quarterly reporting period (January through March 2011) and April and decline from May into the fall. The lowest river levels during the upcoming IM operations year are expected to occur in December 2011. By April 2011, the average monthly river elevations are projected to reach their maximum level of the year, as shown on Figure 4-5.

6.0 Upcoming Operation and Monitoring Events

Reporting of the IM extraction and monitoring activities will continue as described in the PMP and under direction from DTSC. All monitoring results, operations, and performance monitoring data will be reported in the first quarter 2011 quarterly monitoring report, which will be submitted by April 30, 2011.

6.1 Groundwater Monitoring Program

6.1.1 Quarterly Monitoring

As described in the July 23, 2010 DTSC sampling schedule approval (DTSC, 2010a), the first quarter monitoring event occurred February 7-12, 2011. This sampling event was conducted at 34 GMP wells, including the wells located in the East Ravine area.

6.1.2 Monthly Monitoring

Monthly sampling of the two active extraction wells (TW-3D and PE-1) will continue to be performed during the first two weeks of each month. Monthly sampling will continue at MW-58BR-packer and MW-64BR-packer. Results will be reported in the first quarter 2011 monitoring report.

6.2 Surface Water Monitoring Program

The RMP low river event occurred January 18-19, 2011. The first quarter 2011 surface water monitoring event will be conducted at locations in the RMP monitoring network and is scheduled to occur on March 8-10, 2011. Results will be reported in the first quarter 2011 quarterly monitoring report.

6.3 Performance Monitoring Program

6.3.1 Extraction

Per DTSC direction, PG&E will continue to operate wells TW-3D and PE-1 at a target combined pumping rate of 135 gpm during the first quarter of 2011, except for periods when planned and unplanned downtime occurs. Extracted groundwater treated at the IM-3 facility will be discharged into the IM-3 injection wells in accordance with Waste Discharge Requirements Order No. R7-2006-0060. Saline water and solids generated as byproducts of the treatment process will continue to be transported for offsite disposal.

PG&E will balance the pumping rates between wells TW-3D and PE-1 to maintain the target pumping rate and to maintain the DTSC-specified hydraulic gradients across the Alluvial Aquifer. Well TW-2D will serve as a backup to extraction wells TW-3D and PE-1.

6.3.2 Transducer Download

Downloads of the transducers in the key gradient control wells (MW-27-085, MW-31-135, MW-33-135, MW-34-100, and MW-45-095) will continue to be conducted weekly during the first quarter 2011 reporting period. Downloads of the remainder of the transducers will occur during the first week of each month during the first quarter reporting period.

7.0 Recommendations

7.1 Recommended Modifications to the PMP

Table 7-1 lists wells subject to IMCP actions if trigger levels are exceeded. Sample results for all wells have remained below their respective trigger levels since they were established in August 2006 (CH2M HILL, 2006) and most wells greater than the IM performance standard of 20 µg/L for Cr(VI) show stable or decreasing trends (see Appendix C).

Contingency plan wells without stable or decreasing trends are mid-depth well MW-33-090 and deep well MW-47-115, where slow increasing trends are evident (see Appendix C, Figures C-5 and C-11, respectively). Both of these wells are within the IM capture zone. As a result increasing concentrations at these wells do not warrant additional groundwater extraction. In fact, the slowly increasing Cr(VI) concentrations at these wells may be a result of the strong gradients created by IM pumping. The geochemical conditions at well MW-33-090 have gradually become more oxidizing since 2005, with a corresponding increase in chromium concentrations. A new Cr(VI) trigger level was calculated for well MW-33-090 using Shewart statistical control limits and data from the 2009 and 2010 reporting periods. The proposed change to the Cr(VI) trigger level of 29 µg/L represents a modest increase to the current trigger level of 25 µg/L, and should be re-evaluated again during the next annual report.

7.2 Recommended Modifications to the GMP

With approval of modifications to the GMP sampling frequency in their letter dated March 3, 2010, the DTSC (DTSC, 2010b) requested a proposal for a sampling plan for the following analytes:

- COPCs: Mo, Se and NO_3, and in selected wells, Fluoride.
- In-situ reduction by-products: As and Mn

PG&E submitted a proposed sampling plan for these analytes on April 16, 2010. Although DTSC review was pending, PG&E then proposed to implement the April 16, 2010 sampling plan with the Annual GMP sampling event in December 2010, since the wells in the COPC plan were already being purged and sampled. The DTSC concurred in an e-mail dated December 3, 2010 and the sampling plan was implemented as supplemental data collection with the December GMP event. Results were presented in Table 3-2 and Appendix D of this report.

Based on review of the December 2010 data set, modifications to the COPC/by-product sampling plan that was submitted in April 2010 are proposed below and summarized in Table 7-2. With these proposed modifications, five wells are added to the COPC/by-product sampling plan; 39 wells are maintained in the plan, and based on trends confirmed by December 2010 data, 9 wells are proposed for no further supplemental sampling, and 37

wells are adjusted to an Annual frequency of COPC and/or by-product data collection (regular GMP sampling would continue at those 46 wells).

PG&E plans to implement the revised supplemental monitoring plan shown in Table 7-2 beginning with the May 2011 Semi-Annual GMP sampling event, unless directed otherwise by April 15, 2011.

7.2.1 COPC Sample Collection

The COPC data from the fourth quarter 2010 sampling event was evaluated with previous data to review whether modifications to the sampling plan proposed in April 2010 was appropriate for future COPC sample collection. Wells which did not have elevated COPC values, and several wells which are influenced by the In Situ Pilot Study (ISPS) injection, are proposed for either Annual sampling for long term trend monitoring, or for removal from future COPC sample collection. The remaining wells in the April 2010 COPC sampling plan are proposed for continued COPC monitoring; in a few cases the frequency proposed was adjusted to match current GMP sampling frequency. Five wells are added to the COPC plan with these modifications. Table 7-2 summarizes the April 2010 COPC sampling plan, including reasons for well selection, proposed modifications for sample collection in 2011, and the reasons new modifications are now proposed.

7.2.2 In situ Byproduct Sample Collection

Table 7-2 summarizes the April 2010 in situ byproduct sampling plan, including reasons for well selection, proposed modifications for sample collection in 2011, and the reasons new modifications are now proposed. Removal of some wells from the April 2010 plan is recommended, while the frequency for sampling of some wells has been adjusted to match the current GMP sampling frequency. Monitoring wells added to the proposed in situ by-product sampling plan include the MW-54 cluster wells in Arizona.

8.0 References

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Tables

Table 3-1
Groundwater Sampling Results, September 2009 through December 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Selected Field Parameters		
					ORP (mV)	Specific Conductance (µS/cm)	Field pH
MW-9	SA	24-Sep-09	311	260	60	3,180	7.6
		15-Dec-10	312	334	93	3,310	7.4
MW-10	SA	22-Sep-09	341	348	16	3,200	7.7
		11-Mar-10	2,880	3,140	-6.1	2,040	7.7
		07-Dec-10	912	949	82	2,710	7.9
		07-Dec-10 FD	900	909	FD	FD	FD
MW-12	SA	24-Sep-09	2,490	2,780	19	6,650	8.3
		24-Sep-09 FD	2,700	2,910	FD	FD	FD
		11-Dec-09	2,750	2,660	150	6,840	8.3
		06-Apr-10	1,960	1,900	74	6,150	8.4
		06-Apr-10 FD	1,960	1,840	FD	FD	FD
		06-May-10	2,650	2,700	84	5,820	8.4
		06-May-10 FD	2,650	2,890	FD	FD	FD
		30-Sep-10	2,930	2,810	210	6,390	8.2
		30-Sep-10 FD	3,110	2,810	FD	FD	FD
		16-Dec-10	2,770	2,800	59	6,430	8.3
MW-13	SA	21-Sep-09	22.8	22.5	50	1,980	7.5
		07-Dec-10	21.9	22.6	3.8	2,030	7.9
MW-14	SA	21-Sep-09	27.0	26.6	38	1,510	7.7
		07-Dec-10	22.1	22.1	14	1,560	8.0
MW-15	SA	30-Sep-09	12.3	10.4	46	1,750	7.8
		14-Dec-10	13.8	13.4	150	1,810	7.7
MW-16	SA	28-Sep-09	9.1	8.6	57	1,110	7.9
		16-Mar-10	12.0	10.8	80	1,230	8.0
		10-Dec-10	10.1	10.2	22	1,130	8.0
MW-17	SA	30-Sep-09	10.6	10.1	27	1,760	7.9
		11-Mar-10	16.4	15.1	-15	1,710	7.9
		14-Dec-10	16.7	17.0	150	1,590	7.9
MW-18	SA	22-Sep-09	22.3	20.2	48	1,410	7.7
		14-Dec-10	21.1	19.4	120	1,360	7.6
MW-19	SA	22-Sep-09	192	193	51	2,370	7.5
		18-Mar-10	542	453	93	2,450	7.5
		15-Dec-10	387	418	120	2,360	7.5
MW-20-70	SA	25-Sep-09	2,430	2,650	110	3,140	7.6

Refer to table footnotes for data qualifier explanation.

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					ORP (mV)	Specific Conductance (µS/cm)	Field pH
MW-20-70	SA	17-Mar-10	2,740	2,870	68	3,320	7.6
		16-Dec-10	3,130	3,430	75	3,030	7.6
MW-20-100 [2]	MA	25-Sep-09	5,760	6,790	94	3,500	7.4
		17-Mar-10	5,690	5,740	61	3,480	7.4
		10-Feb-11	4,500	4,520	210	3,090	7.5
MW-20-130 [2]	DA	25-Sep-09	10,800	11,000	82	12,600	7.5
		18-Mar-10	11,100	11,100	110	13,100	7.5
		10-Feb-11	10,100	10,600	220	12,200	7.6
MW-21	SA	23-Sep-09	ND (1.0)	2.7	49	12,800	7.2
		09-Dec-09	ND (1.0)	ND (1.0)	-67	11,000	6.8
		10-Mar-10	1.4	1.2	-24	8,950	7.0
		04-May-10	2.0	3.8	-30	8,420	7.1
		28-Sep-10	ND (1.0)	1.1	-84	13,100	7.1
		07-Dec-10	ND (1.0)	ND (1.0)	13	12,400	7.2
MW-22	SA	29-Sep-09	ND (1.0)	ND (1.0)	-61	20,800	6.9
		10-Dec-09	---	ND (1.0)	-52	34,200	6.8
		12-Mar-10	ND (2.1)	ND (1.0)	-87	34,300	6.8
		07-Dec-10	ND (1.0)	ND (1.0)	-66	28,500	6.7
MW-23-060	BR-S	24-Sep-09	30.5	25.6	24	17,000	9.4
		10-Dec-09	25.8	25.6	-1.9	16,200	11.3
		08-Mar-10	19.7	17.2	-9	10,700	10
		03-May-10	24.7	23.9	-32	14,700	9.1
		29-Sep-10	29.6	31.1	51	16,500	8.9
		14-Dec-10	30.4	33.3	53	16,100	10.3
MW-23-080	BR-S	23-Sep-09	29.7	28.1	-5.4	17,700	11.3
		10-Dec-09	21.8	22.4	-41	17,700	11.1
		08-Mar-10	11.3	9.6	-46	18,100	10.8
		04-May-10	21.8	20.5	-77	18,000	10.9
		29-Sep-10	6.0	8.0	-53	17,300	10.6
		14-Dec-10	12.2	12.8	3.5	17,400	10.4
MW-24BR	BR	28-Sep-09	ND (2.1)	ND (1.0)	-65	15,100	8.1
		08-Dec-09	ND (1.0)	ND (1.0)	-180	14,900	7.8
		12-Mar-10	ND (1.0)	ND (1.0)	-140	15,500	8.1
		05-May-10	ND (1.0)	ND (1.0)	-150	15,400	8.4
		30-Sep-10	ND (1.0)	1.1	-170	15,000	8.0

Refer to table footnotes for data qualifier explanation.

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					ORP (mV)	Specific Conductance (µS/cm)	Field pH
MW-24BR	BR	08-Dec-10	ND (1.0)	ND (1.0)	-160	15,000	8.3
MW-25	SA	21-Sep-09	455	495	86	1,270	7.3
		21-Sep-09 FD	457	482	FD	FD	FD
		07-Dec-10	280	344	35	1,360	7.6
MW-26	SA	22-Sep-09	2,140	2,180	44	3,940	7.5
		16-Mar-10	2,280	2,270	71	4,230	7.4
		15-Dec-10	1,890	2,030	110	4,120	7.4
MW-27-20	SA	01-Oct-09	ND (0.2)	ND (1.0)	-160	1,040	7.6
		07-Dec-10	ND (0.2)	ND (1.0)	-170	1,000	7.7
MW-27-60	MA	01-Oct-09	ND (0.2)	ND (1.0)	-100	1,820	7.8
		08-Dec-09	ND (0.2)	ND (1.0)	-64	1,810	8.2
		07-Dec-10	ND (0.2)	ND (1.0)	-160	1,180	8.2
MW-27-85	DA	01-Oct-09	ND (1.0)	ND (1.0)	-32	15,200	7.1
		08-Dec-09	ND (1.0)	ND (1.0)	-36	15,100	7.0
		09-Mar-10	ND (1.0)	ND (1.0)	-24	15,200	7.2
		29-Apr-10	ND (1.0)	ND (1.0)	-29	15,400	7.2
		01-Oct-10	ND (1.0)	1.2	-37	15,100	7.2
		07-Dec-10	ND (1.0)	ND (1.0)	-80	14,400	7.2
MW-28-25	SA	24-Sep-09	ND (0.2)	ND (1.0)	-120	1,140	7.4
		09-Mar-10	ND (0.2)	ND (1.0)	-25	1,200	7.5
		08-Dec-10	ND (1.0)	ND (1.0)	-34	1,140	7.3
MW-28-90	DA	24-Sep-09	ND (1.0)	ND (1.0)	-160	7,560	7.5
		09-Dec-09	ND (1.0)	ND (1.0)	-110	7,650	7.3
		09-Mar-10	ND (0.2)	ND (1.0)	-100	8,130	7.4
		29-Apr-10	ND (1.0)	ND (1.0)	-100	7,980	7.4
		28-Sep-10	ND (0.2)	ND (1.0)	-110	7,480	7.3
		08-Dec-10	ND (1.0)	ND (1.0)	-140	7,670	7.3
MW-29	SA	24-Sep-09	ND (1.0)	ND (1.0)	-180	2,620	7.5
		11-Mar-10	ND (0.2)	ND (1.0)	-110	3,480	7.4
		14-Dec-10	ND (0.2)	ND (1.0)	-140	2,330	7.3
MW-30-30	SA	24-Sep-09	ND (1.0)	ND (1.0)	-130	19,500	7.3
		07-Dec-10	ND (1.0)	ND (1.0)	-170	22,800	7.3
MW-30-50	MA	24-Sep-09	ND (0.21)	ND (1.0)	-90	1,590	8.0
		07-Dec-10	ND (0.2)	ND (1.0)	-210	1,330	8.0

Refer to table footnotes for data qualifier explanation.

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					ORP (mV)	Specific Conductance (µS/cm)	Field pH
MW-31-60	SA	21-Sep-09	424	417	55	3,320	7.6
		16-Mar-10	571	531	160	3,190	7.5
		15-Dec-10	353	386	150	3,300	7.5
MW-31-135	DA	21-Sep-09	19.6	20.4	65	11,300	7.9
		15-Dec-10	17.8	15.9	89	11,700	7.8
MW-32-20	SA	22-Sep-09	ND (5.2)	ND (1.0)	-150	53,300	6.8
		08-Dec-10	ND (1.0)	ND (1.0)	-140	51,700	6.8
MW-32-35	SA	22-Sep-09	ND (1.0)	ND (1.0)	-190	21,900	7.0
		09-Mar-10	ND (2.1)	ND (1.0)	-160	23,400	7.1
		09-Dec-10	ND (1.0)	3.0	-180	19,700	7.2
MW-33-40	SA	24-Sep-09	ND (0.21)	ND (1.0)	-130	6,600	8.1
		09-Dec-09	ND (1.0)	2.2	12	11,400	7.8
		11-Mar-10	ND (1.0)	ND (1.0)	-25	6,820	8.3
		30-Apr-10	ND (0.2)	ND (1.0)	-37	5,920	8.3
		28-Sep-10	ND (0.2)	3.5	-26	5,490	8.2
		10-Dec-10	ND (1.0)	ND (1.0)	45	14,000	7.7
MW-33-90	MA	29-Sep-09	22.4	21.1	62	10,500	7.6
		09-Dec-09	23.1	24.4	38	10,600	7.5
		12-Mar-10	23.7	25.2	170	11,600	7.5
		30-Apr-10	24.2	22.7	-32	10,900	7.5
		29-Sep-10	24.4	20.9	-24	10,700	7.4
		10-Dec-10	24.5	25.0	-91	10,600	7.5
MW-33-150	DA	29-Sep-09	9.3 J	8.9	140	16,900	7.6
		29-Sep-09 FD	12.3 J	9.3	FD	FD	FD
		09-Dec-09	10.1	10.5	8.2	17,600	7.6
		11-Mar-10	10.6	11.6	0.6	18,000	7.7
		11-Mar-10 FD	10.5	10.1	FD	FD	FD
		30-Apr-10	9.5	9.3	-33	17,600	7.6
		30-Apr-10 FD	10.4	9.7	FD	FD	FD
		29-Sep-10	10.8	10.8	62	17,500	7.4
		29-Sep-10 FD	11.2	11.0	FD	FD	FD
		10-Dec-10	11.5	11.9	-44	17,600	7.6
MW-33-210	DA	29-Sep-09	11.8	11.4	59	19,600	7.4
		09-Dec-09	13.1	13.3	26	19,900	7.4

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Table 3-1
Groundwater Sampling Results, September 2009 through December 2010
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PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date		Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Selected Field Parameters		
						ORP (mV)	Specific Conductance (µS/cm)	Field pH
MW-33-210	DA	11-Mar-10		14.4	15.9	9.4	20,700	7.5
		30-Apr-10		11.3	11.8	-27	20,400	7.4
		29-Sep-10		13.0	13.5	88	19,600	7.3
		10-Dec-10		14.1	15.5	-69	19,900	7.4
MW-34-55	MA	30-Sep-09		ND (0.2)	ND (1.0)	-120	1,060	7.9
		17-Nov-09		---	---	-120	1,080	7.5
		07-Dec-10		ND (0.2)	ND (1.0)	-150	1,020	7.7
MW-34-80	DA	30-Sep-09		ND (1.0)	ND (1.0)	-47	8,230	7.4
		13-Oct-09		ND (1.0)	ND (1.0)	-4.1	8,200	7.5
		02-Nov-09		ND (1.0)	ND (1.0)	-290	8,090	8.1
		09-Dec-09		ND (1.0)	ND (1.0)	-57	8,050	7.4
		11-Jan-10		ND (1.0)	1.6	-58	8,020	7.2
		08-Feb-10		ND (1.0)	ND (1.0)	-34	8,070	7.4
		10-Mar-10		ND (0.2)	ND (1.0)	-77	8,330	7.3
		29-Apr-10		ND (1.0)	ND (1.0)	-6.9	8,570	7.4
		01-Oct-10		ND (0.2)	ND (1.0)	-60	8,400	7.4
		07-Dec-10		ND (0.2)	ND (1.0)	-100	7,830	7.4
MW-34-100	DA	30-Sep-09		78.4	70.8	-6	18,400	7.5
		30-Sep-09	FD	78.9	72.6	FD	FD	FD
		14-Oct-09		211	208	-71	18,600	7.8
		02-Nov-09		152	146	-290	18,500	8.1
		02-Nov-09	FD	152	144	FD	FD	FD
		17-Nov-09		---	---	120	18,600	7.4
		09-Dec-09		211	203	23	18,400	7.6
		09-Dec-09	FD	211	211	FD	FD	FD
		11-Jan-10		243	231	67	20,000	8.0
		11-Jan-10	FD	254	235	FD	FD	FD
		08-Feb-10		312	311	-10	18,900	7.6
		08-Feb-10	FD	316	372	FD	FD	FD
		10-Mar-10		153	129	-34	19,300	7.5
		10-Mar-10	FD	152	133	FD	FD	FD
		29-Apr-10		71.3	73.5	29	19,500	7.5
		29-Apr-10	FD	78.7	73.6	FD	FD	FD
		01-Oct-10		75.1	66.6	33	18,500	7.4
		01-Oct-10	FD	75.6	67.1	FD	FD	FD
		09-Nov-10		110	104	83	18,400	8.9

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Table 3-1
Groundwater Sampling Results, September 2009 through December 2010
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PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Selected Field Parameters		
					ORP (mV)	Specific Conductance (µS/cm)	Field pH
MW-34-100	DA	08-Dec-10	145	132	-76	18,600	7.5
		08-Dec-10 FD	141	127	FD	FD	FD
MW-35-60	SA	24-Sep-09	27.7	23.2	78	7,410	7.6
		24-Sep-09 FD	25.3	23.6	FD	FD	FD
		16-Mar-10	34.8	36.1	100	6,910	7.4
		16-Mar-10 FD	34.4	35.6	FD	FD	FD
		14-Dec-10	30.2	25.4	110	7,490	7.3
MW-35-135	DA	24-Sep-09	33.4	30.8	100	9,920	8.0
		16-Mar-10	30.6	33.2	97	10,600	7.7
		14-Dec-10	37.8	34.8	130	10,100	7.7
MW-36-20	SA	23-Sep-09	ND (1.0)	ND (1.0)	-190	3,920	8.1
		07-Dec-10	ND (0.2)	ND (1.0)	-170	7,260	7.6
MW-36-40	SA	30-Sep-09	ND (0.2)	ND (1.0)	-180	3,730	7.9
		07-Dec-10	ND (0.2)	ND (1.0)	-200	2,120	7.9
MW-36-50	MA	30-Sep-09	ND (0.2)	ND (1.0)	-130	1,230	7.9
		08-Dec-10	ND (0.2)	ND (1.0)	-110	1,810	7.5
MW-36-70	MA	22-Sep-09	ND (0.2)	ND (1.0)	37	12,800	3.3
		07-Dec-10	ND (0.2)	ND (1.0)	-100	1,260	8.1
MW-36-90	DA	23-Sep-09	ND (0.2)	ND (1.0)	-57	1,490	8.2
		12-Mar-10	0.25	ND (1.0)	-81	1,430	8.3
		08-Dec-10	ND (0.2)	ND (1.0)	-69	1,430	8.2
		08-Dec-10 FD	ND (0.2)	ND (1.0)	FD	FD	FD
MW-36-100	DA	23-Sep-09	67.6	64.5	-170	11,500	7.1
		09-Mar-10	67.1	74.4	-140	12,600	7.2
		15-Dec-10	69.6	64.6	-160	11,000	7.1
MW-37S	MA	23-Sep-09	7.9	8.2	38	5,150	7.9
		23-Sep-09 FD	8.5	7.9	FD	FD	FD
		10-Dec-10	9.6	10.0	120	5,240	7.7
MW-37D	DA	23-Sep-09	308	336	49	15,700	7.9
		15-Dec-10	128	146	92	16,000	7.7
MW-39-40	SA	01-Oct-09	ND (1.0)	ND (1.0)	-130	8,490	7.4
MW-39-50	MA	01-Oct-09	ND (0.2)	ND (1.0)	5.3	1,990	8.1
		08-Dec-10	ND (0.2)	ND (1.0)	-7.5	1,720	8.0

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Table 3-1
Groundwater Sampling Results, September 2009 through December 2010
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PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Selected Field Parameters		
					ORP (mV)	Specific Conductance (µS/cm)	Field pH
MW-39-60	MA	01-Oct-09	ND (0.2)	ND (1.0)	38	2,720	7.9
		09-Dec-10	ND (0.2)	ND (1.0)	-63	2,040	7.9
MW-39-70	MA	01-Oct-09	ND (0.2)	ND (1.0)	49	4,090	7.6
		08-Dec-10	ND (0.2)	ND (1.0)	79	3,850	7.4
MW-39-80	DA	01-Oct-09	ND (1.0)	1.4	34	10,800	7.1
		09-Dec-10	ND (0.2)	ND (1.0)	-38	9,460	7.0
MW-39-100	DA	29-Sep-09	451	451	61	20,900	6.8
		14-Dec-10	206	240	6.4	20,300	6.7
MW-40S	SA	28-Sep-09	6.8	6.9	78	2,250	7.7
MW-40D	DA	28-Sep-09	116	114	53	16,300	7.5
		15-Dec-10	172	159	22	16,200	7.5
MW-41S	SA	23-Sep-09	18.7	18.9	32	5,220	8.0
		23-Sep-09 FD	19.5	17.8	FD	FD	FD
		08-Dec-10	19.5	16.4 J	-66	5,090	8.1
		08-Dec-10 FD	19.7	21.3 J	FD	FD	FD
MW-41M	DA	23-Sep-09	10.3	10.8	29	15,500	7.7
		08-Dec-10	11.0	10.4	-83	15,700	7.8
MW-41D	DA	23-Sep-09	ND (1.0)	2.2	63	22,400	7.9
		11-Mar-10	3.1	2.6	-71	23,100	7.8
		08-Dec-10	2.2	3.1	-110	22,100	7.9
MW-42-30	SA	23-Sep-09	---	---	-180	6,150	7.7
		06-Dec-10	ND (0.2)	ND (1.0)	-220	4,850	7.8
MW-42-55	MA	23-Sep-09	ND (1.0)	ND (1.0)	-190	10,600	7.4
		08-Dec-09	ND (1.0)	ND (1.0)	-120	10,800	7.2
		09-Mar-10	ND (1.0)	ND (1.0)	-130	11,000	7.4
		29-Apr-10	ND (1.0)	ND (1.0)	-100	10,500	7.5
		27-Sep-10	ND (0.2)	ND (1.0)	-11	9,130	7.2
		06-Dec-10	ND (1.0)	ND (1.0)	-170	8,830	7.3
MW-42-65	MA	23-Sep-09	ND (1.0)	ND (1.0)	-110	12,800	7.1
		08-Dec-09	ND (1.0)	ND (1.0)	-25	13,200	7.0
		09-Mar-10	ND (1.0)	ND (1.0)	-40	14,300	7.2
		29-Apr-10	ND (1.0)	ND (1.0)	-31	13,600	7.2
		27-Sep-10	ND (1.0)	ND (1.0)	2.3	10,800	7.1

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Table 3-1
Groundwater Sampling Results, September 2009 through December 2010
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PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Selected Field Parameters		
					ORP (mV)	Specific Conductance (µS/cm)	Field pH
MW-42-65	MA	06-Dec-10	ND (1.0)	ND (1.0)	-110	11,200	7.1
MW-43-25	SA	01-Oct-09	ND (0.2)	ND (1.0)	-170	1,300	7.5
		09-Dec-10	ND (0.2)	ND (1.0)	-190	1,260	7.6
MW-43-75	DA	01-Oct-09	ND (1.0)	ND (1.0)	-140	11,900	7.6
		09-Dec-10	ND (1.0)	ND (1.0)	-170	11,700	7.6
MW-43-90	DA	01-Oct-09	ND (1.0)	ND (1.0)	-95	18,900	6.9
		09-Dec-10	ND (1.0)	ND (1.0)	-98	18,400	7.0
MW-44-70	MA	21-Sep-09	ND (0.2)	ND (1.0)	-190	3,030	7.7
		07-Dec-09	ND (0.2)	ND (1.0)	-97	3,000	7.5
		08-Mar-10	ND (0.2)	ND (1.0)	-110	3,080	7.5
		09-Dec-10	ND (0.2)	ND (1.0)	-230	2,850	7.6
MW-44-115	DA	21-Sep-09	302	304	-250	12,000	8.1
		21-Sep-09 FD	303	296	FD	FD	FD
		14-Oct-09	300	295	-110	12,300	8.0
		03-Nov-09	306	293	-25	12,300	7.9
		07-Dec-09	291	284	-94	12,300	7.9
		12-Jan-10	282	279	-170	12,600	7.9
		09-Feb-10	219	256	-110	12,700	7.9
		08-Mar-10	325	269	-120	12,900	7.9
		30-Apr-10	269	270	-100	12,600	7.9
		30-Apr-10 FD	320	273	FD	FD	FD
		28-Sep-10	228	218	-200	11,800	7.9
		28-Sep-10 FD	236	219	FD	FD	FD
		09-Dec-10	219	191	-230	12,100	8.0
		09-Dec-10 FD	187	191	FD	FD	FD
MW-44-125	DA	23-Sep-09	93.7	90.3	-200	12,700	8.0
		14-Oct-09	20.3	176	-120	13,400	8.1
		03-Nov-09	159	160	-250	13,100	8.1
		07-Dec-09	68.8	78.3	-97	13,400	8.2
		12-Jan-10	155	127	-190	13,800	8.0
		09-Feb-10	5.0	176	-160	14,400	8.2
		08-Mar-10	46.4 J	51.8	-160	13,300	7.9
		08-Mar-10 FD	58.0 J	54.6	FD	FD	FD
		30-Apr-10	9.4	40.8	-210	13,000	8.0
		28-Sep-10	ND (0.2)	16.0	-220	12,000	7.7

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Table 3-1
Groundwater Sampling Results, September 2009 through December 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
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Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Selected Field Parameters		
					ORP (mV)	Specific Conductance (µS/cm)	Field pH
MW-44-125	DA	09-Dec-10	24.5	26.9	-280	12,900	7.9
		09-Dec-10 FD	25.0	27.4	FD	FD	FD
MW-45-095a	DA	29-Sep-09	---	---	-0.9	9,700	7.6
		14-Dec-10	---	---	-98	9,550	7.5
MW-46-175	DA	25-Sep-09	116	105	-120	17,600	8.4
		14-Oct-09	160	159	-99	17,700	8.6
		14-Oct-09 FD	165	155	FD	FD	FD
		02-Nov-09	150	142	-330	17,200	8.6
		08-Dec-09	169	163	-97	17,800	8.3
		12-Jan-10	200	194	-160	18,300	8.4
		08-Feb-10	177	190	-100	18,500	8.4
		11-Mar-10	177	154	-160	18,700	8.5
		30-Apr-10	81.7	79.8	-120	18,400	8.5
		28-Sep-10	74.5	72.3	-210	17,300	8.3
		09-Nov-10	102	115	-65	17,600	8.6
		08-Dec-10	130	123	-190	17,700	8.3
		08-Dec-10 FD	134	124	FD	FD	FD
MW-46-205	DA	25-Sep-09	4.9	5.6	-91	21,500	8.4
		08-Dec-09	4.6	4.7	-49	21,900	8.2
		08-Dec-09 FD	4.9	4.9	FD	FD	FD
		11-Mar-10	5.7	6.5	-90	22,800	8.5
		08-Dec-10	5.6	6.4	-100	21,800	8.3
MW-47-55	SA	24-Sep-09	18.8	17.4	51	4,910	7.7
		09-Dec-09	53.3	46.4	-13	4,150	7.4
		16-Mar-10	37.4	40.8	83	4,220	7.5
		13-Dec-10	25.0	22.0	69	4,810	7.4
		13-Dec-10 FD	23.2	22.3	FD	FD	FD
MW-47-115	DA	24-Sep-09	17.2	16.3	46	13,200	7.7
		09-Dec-09	14.4	14.4	-55	14,300	7.5
		10-Mar-10	18.8	16.3	-5.6	14,100	7.7
		13-Dec-10	22.5	18.4	58	14,300	7.4
MW-48	BR	23-Sep-09	ND (1.0)	ND (1.0)	120	18,300	7.3
		09-Dec-09	ND (1.0)	ND (1.0)	17	18,400	7.2
		08-Apr-10	ND (1.0)	ND (1.0)	89	19,200	7.0
		05-May-10	ND (1.0)	ND (1.0)	-27	19,500	7.8

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Table 3-1
Groundwater Sampling Results, September 2009 through December 2010
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Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Selected Field Parameters		
					ORP (mV)	Specific Conductance (µS/cm)	Field pH
MW-48	BR	29-Sep-10	ND (1.0)	ND (1.0)	110	16,800	7.1
		08-Dec-10	ND (1.0)	ND (1.0)	-4.3	21,400	7.5
MW-49-135	DA	22-Sep-09	ND (1.0)	ND (1.0)	85	13,500	7.9
		13-Dec-10	ND (1.0)	3.1	-1.2	14,400	7.8
MW-49-275	DA	22-Sep-09	ND (2.1)	1.8	-150	24,400	8.2
		13-Dec-10	ND (1.0)	1.8	-200	26,400	8.1
MW-49-365	DA	22-Sep-09	ND (2.1)	ND (1.0)	-230	37,900	8.0
		13-Dec-10	ND (2.1)	ND (1.0)	-220	40,200	7.9
MW-50-095	MA	24-Sep-09	40.3	39.6	56	5,120	8.1
		10-Dec-09	30.9	29.5	5.0	5,220	8.2
		12-Mar-10	24.9	25.3	-18	5,330	7.8
		10-Dec-10	18.9	19.7	36	5,240	7.8
MW-50-200 [2]	DA	25-Sep-09	6,380	7,450	77	20,900	8.0
		11-Dec-09	7,860	8,140	92	22,300	7.8
		11-Dec-09 FD	7,510	8,370	FD	FD	FD
		17-Mar-10	10,100	9,600	77	23,000	7.7
		06-May-10	10,800	9,840	110	22,400	7.8
		30-Sep-10	10,200	9,670	170	21,700	7.7
		10-Feb-11	9,160	9,350	230	21,800	7.9
		10-Feb-11 FD	9,100	9,240	FD	FD	FD
MW-51	MA	24-Sep-09	4,330	4,760	42	11,300	7.5
		17-Mar-10	4,480	4,590	59	11,500	7.4
		16-Dec-10	4,590	4,720	80	11,100	7.4
MW-52S	MA	29-Sep-09	ND (1.0)	ND (1.0)	-130	11,300	7.4
		10-Dec-09	ND (1.0)	1.6	-160	11,000	7.6
		10-Mar-10	ND (1.0)	ND (1.0)	-170	11,500	7.5
		09-Dec-10	ND (1.0)	ND (1.0)	-180	11,200	7.2
MW-52M	DA	29-Sep-09	ND (1.0)	ND (1.0)	-150	17,400	7.7
		10-Dec-09	ND (2.1)	1.8	-200	17,200	7.8
		10-Mar-10	ND (1.0)	ND (1.0)	-170	17,700	7.8
		09-Dec-10	ND (1.0)	ND (1.0)	-210	16,800	7.6
MW-52D	DA	29-Sep-09	ND (1.0)	ND (1.0)	-150	22,600	8.0
		10-Dec-09	ND (5.2)	1.6	-200	22,100	8.3
		10-Mar-10	ND (1.0)	ND (1.0)	-210	23,000	8.3

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Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Selected Field Parameters		
					ORP (mV)	Specific Conductance (µS/cm)	Field pH
MW-52D	DA	09-Dec-10	ND (1.0)	ND (1.0)	-220	21,700	8.0
MW-53M	DA	29-Sep-09	ND (1.0)	ND (1.0)	-160	20,700	8.4
		10-Dec-09	ND (2.1)	1.9	-210	20,600	8.3
		10-Mar-10	ND (1.0)	ND (1.0)	-220	21,200	8.4
		10-Dec-10	ND (1.0)	ND (1.0)	-210	21,000	8.1
MW-53D	DA	29-Sep-09	ND (2.1)	ND (1.0)	-200	27,300	8.6
		10-Dec-09	ND (5.2)	ND (1.0)	-220	26,900	8.7
		10-Mar-10	ND (2.1)	ND (1.0)	-200	27,800	8.4
		09-Dec-10	ND (1.0)	ND (1.0)	-220	26,200	8.4
MW-54-85	DA	22-Sep-09	ND (0.2)	ND (1.0)	-200	10,800	7.6
		08-Dec-09	ND (0.2)	ND (1.0)	-160	10,800	7.3
		09-Mar-10	ND (1.0)	ND (1.0)	-170	11,200	7.5
		14-Dec-10	ND (1.0)	ND (1.0)	-190	10,700	7.6
MW-54-140	DA	22-Sep-09	ND (0.2)	ND (1.0)	-53	13,400	7.9
		08-Dec-09	ND (1.0)	ND (1.0)	-100	13,300	7.7
		09-Mar-10	ND (2.0)	ND (1.0)	-75	13,800	7.8
		14-Dec-10	ND (1.0)	ND (1.0)	-110	13,100	7.8
MW-54-195	DA	22-Sep-09	ND (1.0)	ND (1.0)	-220	20,000	8.2
		08-Dec-09	ND (0.2)	ND (1.0)	-220	19,700	8.0
		09-Mar-10	ND (2.0)	ND (1.0)	-220	20,900	8.1
		14-Dec-10	ND (1.0)	ND (1.0)	-250	19,700	8.1
MW-55-45	MA	22-Sep-09	ND (0.2)	ND (1.0)	-160	1,550	7.8
		07-Dec-09	ND (0.2)	ND (1.0)	-110	1,520	7.8
		08-Mar-10	ND (0.2)	ND (1.0)	-100	1,550	7.7
		09-Dec-10	ND (0.2)	ND (1.0)	-200	1,560	7.8
MW-55-120	DA	22-Sep-09	4.0	5.1	-89	9,400	8.0
		22-Sep-09 FD	4.0	5.1	FD	FD	FD
		07-Dec-09	4.7	6.1	-42	9,430	7.9
		07-Dec-09 FD	4.6	5.8	FD	FD	FD
		08-Mar-10	5.6	6.1	-27	9,820	7.9
		08-Mar-10 FD	5.4	6.3	FD	FD	FD
		09-Dec-10	6.2	6.8	-120	9,320	8.0
		09-Dec-10 FD	6.2	6.8	FD	FD	FD
MW-56S	SA	30-Sep-09	ND (0.2)	ND (1.0)	-120	6,510	7.4

Refer to table footnotes for data qualifier explanation.

Table 3-1
Groundwater Sampling Results, September 2009 through December 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Selected Field Parameters		
					ORP (mV)	Specific Conductance (µS/cm)	Field pH
MW-56S	SA	10-Dec-09	ND (0.2)	ND (1.0)	-170	5,970	7.6
		18-Mar-10	ND (0.2)	ND (1.0)	-150	6,290	7.3
		14-Dec-10	ND (0.2)	ND (1.0)	-140	6,440	7.3
MW-56M	DA	30-Sep-09	ND (0.2)	ND (1.0)	-110	15,000	7.4
		10-Dec-09	ND (1.0)	ND (1.0)	-160	14,900	7.4
		18-Mar-10	ND (1.0)	ND (1.0)	-140	15,500	7.2
		14-Dec-10	ND (2.0)	ND (1.0)	-130	15,300	7.2
MW-56D	DA	30-Sep-09	ND (1.0)	ND (1.0)	-120	21,700	7.9
		10-Dec-09	ND (2.0)	ND (1.0)	-140	21,500	8.0
		18-Mar-10	ND (2.0)	ND (5.0)	-92	21,600	7.7
		14-Dec-10	ND (2.0)	ND (1.0)	-110	22,400	7.8
MW-57-050	PA	17-Feb-10	86.0	88.0 LF	---	1,900	7.4
MW-57-070	BR	24-Sep-09	132	139	34	3,160	7.2
		10-Dec-09	84.4	103	-32	3,270	7.3
		16-Mar-10	542	449	41	1,250	7.3
		05-May-10	452	452	3.5	1,830	7.4
		30-Sep-10	856	733	36	1,940	7.2
		15-Dec-10	456 J	438	1.8	2,160	7.2
		15-Dec-10 FD	330 J	368	FD	FD	FD
MW-57-185	BR-D	23-Sep-09	1.1	2.4	-42	19,000	8.9
		09-Dec-09	2.1	2.6	-190	18,900	8.5
		09-Mar-10	6.8	6.7	-38	19,200	9.5
		05-May-10	3.9	4.7	-50	19,700	8.7
		29-Sep-10	5.6	5.9	11	18,900	8.6
		09-Dec-10	3.7	2.4	-180	19,500	8.7
MW-58-065	BR-S	17-Feb-10	ND (0.2)	8.0 LF	---	737	8.0
MW-58-115	BR-M	29-Sep-09	ND (1.0)	ND (1.0)	-160	12,300	7.3
		16-Dec-09	ND (1.0)	1.4	-180	8,810	7.4
MW-58-205	BR-D	29-Sep-09	4.7	9.7	-250	4,550	7.4
		16-Dec-09	7.6	26.6	-280	5,330	7.8
MW-58BR	BR	25-Mar-10	9.1	15.0	---	---	---
MW-58BR-LWR	BR	16-Sep-10	200	200	---	---	---
		07-Oct-10	199	173	-66	9,890	7.5

Refer to table footnotes for data qualifier explanation.

Table 3-1
Groundwater Sampling Results, September 2009 through December 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Selected Field Parameters		
					ORP (mV)	Specific Conductance (µS/cm)	Field pH
MW-58BR-UPR	BR	14-Sep-10	3.8	3.5	---	---	---
		06-Oct-10	4.7	8.4	-78	11,800	8.0
MW-59-100	SA	24-Sep-09	4,630	5,300	63	11,900	7.0
		11-Dec-09	4,340	4,420	200	11,200	7.1
		17-Mar-10	5,320	5,270	100	13,100	6.9
		06-May-10	4,940	4,850	93	10,500	7.0
		30-Sep-10	5,140	4,630	240	10,700	6.9
		16-Dec-10	5,660	4,830	110	9,940	7.0
MW-60-125	BR-S	24-Sep-09	570	619	-14	8,240	7.5
		10-Dec-09	532	592	-71	8,320	7.5
		17-Mar-10	657	592	77	9,480	7.5
		06-May-10	1,120	1,080	76	9,610	7.4
		30-Sep-10	806	795	-16	9,210	7.4
		16-Dec-10	1,090	992	49	9,250	7.3
		16-Dec-10 FD	1,070	1,000	FD	FD	FD
MW-61-110	BR-S	24-Sep-09	360	363	-20	15,900	7.7
		10-Dec-09	433	450	-76	16,400	7.7
		17-Mar-10	484	406	24	15,700	7.6
		06-May-10	480	511	110	16,600	7.5
		30-Sep-10	512	507	38	16,400	7.4
		15-Dec-10	567	510	-100	16,600	7.6
MW-62-065	BR-S	24-Sep-09	236	251	29	5,780	7.6
		10-Dec-09	219	247	-17	5,760	7.5
		16-Mar-10	397	372	64	6,170	7.3
		06-May-10	436	456	120	6,580	7.4
		30-Sep-10	500	462	130	6,640	7.3
		15-Dec-10	598	494	19	6,270	7.4
MW-62-110	BR-M	29-Sep-09	4.4	31.3	-130	8,580	7.8
		16-Dec-09	381	460	-120	8,840	7.7
		20-Jan-10	---	---	-70	8,830	7.8
		10-Feb-10	---	---	-110	8,960	7.9
		11-Mar-10	628	684	-110	9,360	7.8
		04-May-10	579	569	-54	9,220	8.0
		29-Sep-10	414	363	-60	9,130	7.8
		16-Dec-10	390	378	110	8,880	7.8

Refer to table footnotes for data qualifier explanation.

Table 3-1
Groundwater Sampling Results, September 2009 through December 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Selected Field Parameters		
					ORP (mV)	Specific Conductance (µS/cm)	Field pH
MW-62-190	BR-D	29-Sep-09	147	50.3	-230	18,600	7.6
		16-Dec-09	ND (1.0)	1.6	-190	18,300	7.7
		20-Jan-10	---	---	-160	18,700	7.8
		10-Feb-10	---	---	-150	18,700	8.0
		11-Mar-10	ND (1.0)	ND (1.0)	-140	19,600	7.9
		04-May-10	ND (1.0)	ND (1.0)	-95	19,500	8.0
		29-Sep-10	ND (1.0)	ND (1.0)	43	19,100	7.7
		16-Dec-10	ND (1.0)	1.3	-30	17,500	7.9
MW-63-065	BR-S	22-Sep-09	0.65	1.2	66	6,930	7.3
		22-Sep-09 FD	0.54	1.9	FD	FD	FD
		09-Dec-09	0.63	1.1	40	6,840	7.1
		09-Dec-09 FD	ND (1.0)	ND (1.0)	FD	FD	FD
		09-Mar-10	ND (1.0)	ND (1.0)	12	7,620	7.1
		09-Mar-10 FD	1.1	ND (1.0)	FD	FD	FD
		03-May-10	1.4	2.1	15	8,070	7.1
		03-May-10 FD	1.4	2.4	FD	FD	FD
		27-Sep-10	1.7	2.2	73	7,440	7.1
		27-Sep-10 FD	1.7	2.2	FD	FD	FD
		06-Dec-10	1.2	ND (1.0)	-23	8,250	7.1
MW-64-150	BR-S	29-Sep-09	ND (1.0)	1.5	-200	9,760	6.8
		12-Oct-09	ND (1.0)	ND (1.0)	-320	9,760	7.1
		04-Nov-09	ND (1.0)	ND (1.0)	-300	9,820	7.1
		16-Dec-09	ND (1.0)	1.8	-290	10,900	7.1
		19-Jan-10	ND (1.0)	ND (1.0)	-95	11,900	7.0
		10-Feb-10	ND (1.0)	ND (1.0)	-44	11,800	7.3
		11-Mar-10	ND (1.0)	ND (1.0)	68	11,500	6.9
		04-May-10	ND (1.0)	ND (1.0)	38	11,300	6.9
		25-Aug-10	ND (1.0)	ND (1.0)	-51	10,900	7.2
		29-Sep-10	ND (1.0)	ND (1.0)	18	10,500	6.7
		20-Oct-10	ND (0.2)	ND (1.0)	-49	8,340	7.1
		11-Nov-10	ND (0.2)	ND (1.0)	-26	8,550	7.3
MW-64-205	BR-D	29-Sep-09	ND (1.0)	2.5	-240	14,200	6.7
		12-Oct-09	1.6	6.0	-300	13,800	7.1
		04-Nov-09	1.4	5.6	-310	14,100	7.1
		16-Dec-09	ND (1.0)	5.6	-180	15,200	7.0
		19-Jan-10	ND (1.0)	3.2	-190	15,400	7.1

Refer to table footnotes for data qualifier explanation.

Table 3-1
Groundwater Sampling Results, September 2009 through December 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Selected Field Parameters		
					ORP (mV)	Specific Conductance (µS/cm)	Field pH
MW-64-205	BR-D	10-Feb-10	ND (1.0)	ND (1.0)	-81	16,300	7.4
		11-Mar-10	ND (1.0)	ND (1.0)	-140	16,700	7.2
		04-May-10	ND (1.0)	2.6	-170	16,300	7.2
		25-Aug-10	ND (1.0)	3.9	-72	15,800	7.6
		29-Sep-10	ND (1.0)	3.8	-110	15,900	6.8
		20-Oct-10	ND (1.0)	3.6	-46	14,900	7.0
		11-Nov-10	ND (1.0)	4.0	-56	14,700	7.3
MW-64-260	BR-D	29-Sep-09	1.4	1.4	-280	14,200	6.8
		12-Oct-09	ND (1.0)	1.3	-310	13,300	7.2
		04-Nov-09	1.9	1.2	-290	11,600	7.1
		16-Dec-09	ND (1.0)	2.2	-210	15,100	7.0
		19-Jan-10	ND (1.0)	ND (1.0)	-210	15,700	7.0
		10-Feb-10	ND (1.0)	ND (1.0)	-210	16,400	7.2
		11-Mar-10	ND (1.0)	ND (1.0)	-220	16,600	7.2
		04-May-10	ND (1.0)	ND (1.0)	-190	16,100	7.2
		25-Aug-10	ND (1.0)	ND (1.0)	-210	15,900	8.1
		29-Sep-10	ND (1.0)	ND (1.0)	-180	15,900	6.7
		20-Oct-10	ND (1.0)	ND (1.0)	-140	14,800	6.9
		11-Nov-10	ND (1.0)	ND (1.0)	-160	14,500	7.2
MW-64BR [1]	BR	20-Dec-10	140	140	---	---	---
OW-3S	SA	08-Dec-10	25.2	25.6	-49	1,650	7.9
OW-3M	MA	08-Dec-10	18.0	18.6	-100	5,730	8.2
OW-3D	DA	08-Dec-10	9.4	10.4	-110	8,920	8.2
PE-1	DA	02-Sep-09	19.6	17.9	---	---	---
		01-Oct-09	---	---	220	5,630	7.5
		07-Oct-09	20.7	18.6 LF	---	---	---
		04-Nov-09	19.9	19.6 LF	---	---	---
		02-Dec-09	19.7	19.4	---	---	---
		06-Jan-10	20.0	19.6 LF	---	---	---
		03-Feb-10	22.6	19.1 LF	---	---	---
		03-Mar-10	20.8	17.3 LF	---	---	---
		07-Apr-10	13.7	15.4 LF	---	---	---
		04-May-10	13.0	14.6 LF	---	---	---
		02-Jun-10	14.0	13.4 UF	---	---	---
		07-Jul-10	13.7	11.4 LF	---	---	---

Refer to table footnotes for data qualifier explanation.

Table 3-1
Groundwater Sampling Results, September 2009 through December 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Selected Field Parameters		
					ORP (mV)	Specific Conductance (µS/cm)	Field pH
PE-1	DA	04-Aug-10	12.4	11.9 LF	---	---	---
		01-Sep-10	14.9	12.4 LF	---	---	---
		05-Oct-10	13.2	12.3 LF	---	---	---
		03-Nov-10	12.9	12.0 LF	---	---	---
		07-Dec-10	15.2	14.4 LF	---	---	---
PGE-7BR	BR	16-Mar-10	ND (1.0)	ND (1.0)	-270	20,200	9.2
		09-Dec-10	ND (1.0)	ND (1.0)	-250	20,400	7.3
PGE-8 [2]	BR	08-Apr-10	ND (1.0)	3.0	-270	21,600	8.3
		10-Feb-11	ND (1.0)	2.0	-330	20,800	8.0
Park Moabi-3	MA	01-Oct-09	9.9	9.5 UF	350	1,430	7.7
		10-Dec-10	11.9	10.5 UF	48	1,300	7.6
Park Moabi-4	MA	01-Oct-09	21.0	18.0 UF	730	1,870	7.9
		10-Dec-10	21.0	20.6 UF	40	1,960	7.4
TW-1	MA	22-Sep-09	3,740	4,130	88	7,180	7.4
		15-Mar-10	3,430	4,010	50	7,520	7.2
		05-May-10	3,700	3,700	31	7,450	7.4
		28-Sep-10	3,690	3,490	2.1	7,130	7.3
		09-Dec-10	3,520	3,780	29	7,330	7.4
TW-2S	MA	01-Oct-09	831	880	230	2,530	7.7
		15-Dec-10	700	815	200	2,550	7.6
TW-2D	DA	01-Oct-09	356	352	250	8,690	7.2
		15-Dec-10	274	287	230	9,370	7.2
TW-3D	DA	02-Sep-09	1,220	1,360	---	---	---
		07-Oct-09	1,330	1,340 LF	---	---	---
		04-Nov-09	1,160	1,310 LF	---	---	---
		02-Dec-09	1,410	1,340	---	---	---
		06-Jan-10	1,300	1,350 LF	---	---	---
		03-Feb-10	1,400	1,320 LF	---	---	---
		03-Mar-10	1,380	1,340 LF	---	---	---
		07-Apr-10	1,380	1,310 LF	---	---	---
		04-May-10	1,000	1,240 LF	---	---	---
		02-Jun-10	1,500	1,230 UF	---	---	---
		07-Jul-10	1,100	1,130 LF	---	---	---
		04-Aug-10	1,280	1,100 LF	---	---	---

Refer to table footnotes for data qualifier explanation.

Table 3-1
Groundwater Sampling Results, September 2009 through December 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Selected Field Parameters		
					ORP (mV)	Specific Conductance (µS/cm)	Field pH
TW-3D	DA	01-Sep-10	1,130	1,160 LF	---	---	---
		05-Oct-10	1,280	1,150 LF	---	---	---
		03-Nov-10	1,160	1,130 LF	---	---	---
		07-Dec-10	1,080	1,170 LF	---	---	---
TW-4	DA	23-Sep-09	10.7	11.1	41	21,800	7.7
		23-Sep-09 FD	10.1	10.5	FD	FD	FD
		09-Dec-09	10.1	10.4	-63	21,800	7.5
		13-Dec-10	11.4	11.9	83	21,700	7.4
TW-5	DA	23-Sep-09	10.4	9.6	-30	13,800	8.0
		10-Dec-10	---	---	63	14,500	7.7

Refer to table footnotes for data qualifier explanation.

NOTES:

ND = not detected at listed reporting limit (RL)
FD = field duplicate sample
UF = unfiltered
LF = lab filtered
R = result exceeded analytical criteria for precision and accuracy; should not be used for project decision-making.
J = concentration or RL estimated by laboratory or data validation
(---) = data not collected, available, rejected, or field instrument malfunction
µg/L= micrograms per liter
mV = millivolts
ORP = oxidation-reduction potential
µS/cm = microSiemens per centimeter

[1] One-time sample collected from an open borehole.

[2] Data collected February 2011 due to field logistical issues.

Beginning February 1, 2008, hexavalent chromium samples are field filtered per DTSC - approved change from analysis method SW7199 to E218.6.

The RLs for certain hexavalent chromium results from Method SW7199 analyses have been elevated above the standard RL of 0.2 µg/L due to required sample dilution to accommodate matrix interferences.

Monitoring wells MW-11, MW-24A, MW-24B, MW-38S, and MW-38D are currently sampled as part of the upland in-situ pilot test monitoring. Results from these wells are presented in the in-situ pilot test reports (ARCADIS, 2010) and are not included in this table.

As a results of a series of storm events in January 2010 the MW-58 cluster (MW-58-115 and MW-58-205) was inundated with flood water. This floodwater destroyed the Flexible Liner Underground Technologies™ well liner that allowed discrete sampling at the 115 feet below ground surface (bgs) and 205 feet bgs depth intervals and was consequently removed from the borehole. The MW-58 bedrock well cluster is now an open borehole. In September 2010 a packer system was installed in the borehole at about 115 ft bgs that divided the open borehole into upper (UPR) and lower (LWR) intervals.

In accordance with DTSC direction, the Flexible Liner Underground Technologies (FLUTe) multi-level monitoring system, which allowed discrete sampling at the 150, 205 and 260 ft bgs depth intervals, was removed from the MW-64BR borehole in December 2010. Following removal of the FLUTe system, the open borehole was developed and a sample representative of the entire saturated portion of the borehole was collected on December 20, 2010.

ORP is reported to two significant figures. Specific Conductance is reported to three significant figures.

Wells are assigned to separate Aquifer zones for results reporting:
SA: shallow interval of Alluvial Aquifer
MA: mid-depth interval of Alluvial Aquifer
DA: deep interval of Alluvial Aquifer
PA: perched aquifer (unsaturated zone)
BR: well completed in bedrock (Miocene Conglomerate or pre-Tertiary crystalline rock)
BR-S: well completed in shallow portion of BR
BR-M: well completed in middle portion of BR
BR-D: well completed in deep portion of BR

Table 3-2
Groundwater COPCs Sampling Results, Fourth Quarter 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date	Molydenum Dissolved (µg/L)	Selenium Dissolved (µg/L)	Nitrate as N (mg/L)
MW-9	SA	15-Dec-10	1.7	5.9	9.20
MW-10	SA	07-Dec-10	100	4.6	11.0
		07-Dec-10 FD	110	4.6	11.0
MW-12	SA	16-Dec-10	14.0	10.0	9.80
MW-13	SA	07-Dec-10	---	---	4.40
MW-14	SA	07-Dec-10	---	---	5.10
MW-15	SA	14-Dec-10	---	---	5.10
MW-16	SA	10-Dec-10	11.0	1.5	3.00
MW-17	SA	14-Dec-10	24.0	11.0	4.70
MW-18	SA	14-Dec-10	---	---	3.60
MW-19	SA	15-Dec-10	---	---	4.20
MW-20-70	SA	16-Dec-10	30.0	9.9	16.0
MW-20-100 [2]	MA	10-Feb-11	4.4	6.2	15.0
MW-20-130 [2]	DA	10-Feb-11	40.0	21.0	13.0
MW-21	SA	07-Dec-10	---	---	1.00
MW-22	SA	07-Dec-10	23.0	1.1	ND (2.5)
MW-23-060	BR-S	14-Dec-10	---	---	3.70
MW-23-080	BR-S	14-Dec-10	---	---	3.90
MW-24BR	BR	08-Dec-10	64.0	ND (0.5)	ND (2.5)
MW-25	SA	07-Dec-10	---	---	4.80
MW-26	SA	15-Dec-10	34.0	30.0	12.0
MW-27-20	SA	07-Dec-10	---	---	ND (0.5)
MW-27-60	MA	07-Dec-10	---	---	ND (0.5)
MW-27-85	DA	07-Dec-10	---	---	ND (1.0)
MW-28-25	SA	08-Dec-10	---	---	ND (0.5)
MW-28-90	DA	08-Dec-10	18.0	ND (0.5)	ND (1.0)
MW-29	SA	14-Dec-10	---	---	ND (0.5)
MW-30-30	SA	07-Dec-10	25.0	0.71	ND (1.0)
MW-30-50	MA	07-Dec-10	5.9	ND (0.5)	ND (0.5)
MW-31-60	SA	15-Dec-10	---	---	3.50
MW-31-135	DA	15-Dec-10	28.0	0.52	ND (1.0)
MW-32-20	SA	08-Dec-10	---	---	ND (5.0)

Table 3-2
Groundwater COPCs Sampling Results, Fourth Quarter 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date	Molydenum Dissolved (µg/L)	Selenium Dissolved (µg/L)	Nitrate as N (mg/L)
MW-32-35	SA	09-Dec-10	---	---	ND (2.5)
MW-33-40	SA	10-Dec-10	---	---	ND (2.5)
MW-33-90	MA	10-Dec-10	22.0	0.91	1.80
MW-33-150	DA	10-Dec-10	38.0	0.75	ND (2.5)
MW-33-210	DA	10-Dec-10	15.0	0.72	ND (2.5)
MW-34-55	MA	07-Dec-10	---	---	ND (0.5)
MW-34-80	DA	07-Dec-10	---	---	ND (1.0)
MW-34-100	DA	08-Dec-10	40.0	ND (0.5)	ND (2.5)
		08-Dec-10 FD	40.0	ND (0.5)	ND (1.0)
MW-35-60	SA	14-Dec-10	---	---	1.90
MW-35-135	DA	14-Dec-10	---	---	2.50
MW-36-20	SA	07-Dec-10	---	---	ND (0.5)
MW-36-40	SA	07-Dec-10	6.2	ND (0.5)	ND (0.5)
MW-36-50	MA	08-Dec-10	---	---	ND (0.5)
MW-36-70	MA	07-Dec-10	---	---	ND (0.5)
MW-36-90	DA	08-Dec-10	---	---	ND (0.5)
		08-Dec-10 FD	---	---	ND (0.5)
MW-36-100	DA	15-Dec-10	38.0	ND (0.5)	ND (2.5)
MW-37D	DA	15-Dec-10	---	---	ND (2.5)
MW-37S	MA	10-Dec-10	---	---	1.50
MW-39-50	MA	08-Dec-10	9.7	ND (0.5)	ND (0.5)
MW-39-60	MA	09-Dec-10	26.0	ND (0.5)	ND (0.5)
MW-39-70	MA	08-Dec-10	---	---	ND (0.5)
MW-39-80	DA	09-Dec-10	---	---	ND (1.0)
MW-39-100	DA	14-Dec-10	8.4	ND (0.5)	ND (2.5)
MW-40D	DA	15-Dec-10	47.0	2.0	2.90
MW-41D	DA	08-Dec-10	---	---	ND (2.5)
MW-41M	DA	08-Dec-10	---	---	ND (1.0)
MW-41S	SA	08-Dec-10	---	---	1.30
		08-Dec-10 FD	---	---	1.30
MW-42-30	SA	06-Dec-10	26.0	ND (0.5)	ND (0.5)
MW-42-55	MA	06-Dec-10	---	---	ND (1.0)

Table 3-2
Groundwater COPCs Sampling Results, Fourth Quarter 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date	Molydenum Dissolved (µg/L)	Selenium Dissolved (µg/L)	Nitrate as N (mg/L)
MW-42-65	MA	06-Dec-10	---	---	ND (1.0)
MW-43-25	SA	09-Dec-10	---	---	ND (0.5)
MW-43-75	DA	09-Dec-10	---	---	ND (2.5)
MW-43-90	DA	09-Dec-10	---	---	ND (2.5)
MW-44-70	MA	09-Dec-10	---	---	ND (0.5)
MW-44-115	DA	09-Dec-10	82.0	ND (0.5)	ND (2.5)
		09-Dec-10 FD	77.0	ND (0.5)	ND (2.5)
MW-44-125	DA	09-Dec-10	160	ND (0.5)	ND (2.5)
		09-Dec-10 FD	170	ND (0.5)	ND (2.5)
MW-45-095a	DA	14-Dec-10	---	---	ND (1.0)
MW-46-175	DA	08-Dec-10	200	0.83	ND (1.0)
		08-Dec-10 FD	200	0.84	ND (1.0)
MW-46-205	DA	08-Dec-10	---	---	ND (2.5)
MW-47-55	SA	13-Dec-10	---	---	1.60
		13-Dec-10 FD	---	---	1.60
MW-47-115	DA	13-Dec-10	---	---	ND (2.5)
MW-48	BR	08-Dec-10	---	---	ND (1.0)
MW-49-135	DA	13-Dec-10	---	---	ND (2.5)
MW-49-275	DA	13-Dec-10	---	---	ND (2.5)
MW-49-365	DA	13-Dec-10	---	---	ND (5.0)
MW-50-095	MA	10-Dec-10	---	---	1.50
MW-50-200 [2]	DA	10-Feb-11	---	---	6.40
		10-Feb-11 FD	---	---	6.10
MW-51	MA	16-Dec-10	---	---	10.0
MW-52D	DA	09-Dec-10	---	---	ND (2.5)
MW-52M	DA	09-Dec-10	---	---	ND (2.5)
MW-52S	MA	09-Dec-10	---	---	ND (1.0)
MW-53D	DA	09-Dec-10	---	---	ND (2.5)
MW-53M	DA	10-Dec-10	---	---	ND (2.5)
MW-54-85	DA	14-Dec-10	---	---	ND (0.5)
MW-54-140	DA	14-Dec-10	---	---	0.659
MW-54-195	DA	14-Dec-10	---	---	ND (0.5)
MW-55-45	MA	09-Dec-10	---	---	ND (0.5)

Table 3-2
Groundwater COPCs Sampling Results, Fourth Quarter 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date	Molydenum Dissolved (µg/L)	Selenium Dissolved (µg/L)	Nitrate as N (mg/L)
MW-55-120	DA	09-Dec-10	---	---	1.40
		09-Dec-10 FD	---	---	1.40
MW-56D	DA	14-Dec-10	---	---	ND (0.5)
MW-56M	DA	14-Dec-10	---	---	ND (0.5)
MW-56S	SA	14-Dec-10	---	---	ND (0.5)
MW-57-070	BR	15-Dec-10	3.0	2.0	6.20
		15-Dec-10 FD	3.1	1.9	6.20
MW-57-185	BR-D	09-Dec-10	87.0	0.52	ND (2.5)
MW-59-100	SA	16-Dec-10	4.6	5.0	5.90
MW-60-125	BR-S	16-Dec-10	17.0	5.2 J	3.60
		16-Dec-10 FD	18.0	5.3 J	3.30
MW-61-110	BR-S	15-Dec-10	27.0	1.0	ND (2.5)
MW-62-065	BR-S	15-Dec-10	13.0	3.1	3.60
MW-62-110	BR-M	16-Dec-10	57.0	2.4	2.80
MW-62-190	BR-D	16-Dec-10	87.0	0.51	ND (2.5)
MW-63-065	BR-S	06-Dec-10	28.0	0.88	1.30
MW-64BR [1]	BR	20-Dec-10	---	---	2.10
OW-3D	DA	08-Dec-10	26.0	0.56	ND (1.0)
OW-3M	MA	08-Dec-10	---	---	1.10
OW-3S	SA	08-Dec-10	---	---	3.20
PGE-7BR	BR	09-Dec-10	---	---	ND (2.5)
PGE-8 [2]	BR	10-Feb-11	85.0	ND (2.5)	ND (2.5)
Park Moabi-3	MA	10-Dec-10	---	---	3.30
Park Moabi-4	MA	10-Dec-10	---	---	2.20
TW-1	MA	09-Dec-10	15.0	36.0	25.0
TW-2D	DA	15-Dec-10	---	---	1.10
TW-2S	MA	15-Dec-10	---	---	4.40
TW-4	DA	13-Dec-10	---	---	ND (2.5)
TW-5	DA	10-Dec-10	---	---	ND (2.5)

NOTES:

µg/L = micrograms per liter
mg/L = milligrams per liter
ND = not detected at listed reporting limit
FD = field duplicate sample
--- = data not collected, available, rejected, or field instrument malfunction
J = concentration or RL estimated by laboratory or data validation mg/L

[1] One-time sample collected from a Borehole.
[2] Data collected February 2011 due to field logistical issues.

The Background Study Upper Tolerance Limit (UTL) for Molybdenum is 36.3 µg/L.
There is no U.S. EPA and California Maximum Contaminant Level for Molybdenum.
The Background Study Upper Tolerance Limit (UTL) for Nitrate as N is 5.03 mg/L.
The U.S. EPA and California Maximum Contaminant Level for Nitrate as N is 10 mg/L.
The Background Study Upper Tolerance Limit (UTL) Selenium is 10.3 µg/L.
The U.S. EPA and California Maximum Contaminant Level for Selenium is 50.0 µg/L.

Wells are assigned to separate Aquifer zones for results reporting:
SA: shallow interval of Alluvial Aquifer
MA: mid-depth interval of Alluvial Aquifer
DA: deep interval of Alluvial Aquifer
PA: perched aquifer (unsaturated zone)
BR: well completed in bedrock (Miocene Conglomerate or pre-Tertiary crystalline rock)
BR-S: well completed in shallow portion of BR
BR-M: well completed in middle portion of BR
BR-D: well completed in deep portion of BR

Table 3-3
Title 22 Metals Results, January 2010 through December 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide
Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

		California MCL:	6	10	1,000	4	5	NE	50	1,000*	15	2	NE	100	50	100*	2	NE	5,000*
Well ID		**Sample Date**	**Antimony**	**Arsenic**	**Barium**	**Beryllium**	**Cadmium**	**Cobalt**	**Chromium**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
MW-10		03/11/2010	ND (10)	**11.0**	28.0	ND (1.0)	ND (3.0)	ND (3.0)	**3,140**	ND (5.0)	ND (10)	ND (0.2)	220	ND (5.0)	6.8	ND (3.0)	ND (0.5)	40.0	27.0
		12/07/2010	ND (10)	7.2	51.0	ND (1.0)	ND (3.0)	ND (3.0)	**949**	ND (5.0)	ND (10)	ND (0.2)	100	ND (5.0)	4.6	ND (3.0)	ND (0.5)	30.0	ND (10)
	FD	12/07/2010	ND (10)	6.9	51.0	ND (1.0)	ND (3.0)	ND (3.0)	**909**	ND (5.0)	ND (10)	ND (0.2)	110	ND (5.0)	4.6	ND (3.0)	ND (0.5)	30.0	ND (10)
MW-12		04/06/2010	ND (10)	**63.0**	44.0	ND (1.0)	ND (3.0)	ND (3.0)	**1,900**	6.1	ND (10)	ND (0.2)	21.0	ND (5.0)	10.0	ND (3.0)	ND (0.5)	14.0	20.0
	FD	04/06/2010	ND (10)	**63.0**	42.0	ND (1.0)	ND (3.0)	ND (3.0)	**1,840**	17.0	ND (10)	ND (0.2)	19.0	ND (5.0)	8.7	ND (3.0)	ND (0.5)	14.0	18.0
		05/06/2010	ND (10)	**64.2**	40.0	ND (1.0)	ND (3.0)	ND (3.0)	**2,700**	ND (5.0)	ND (10)	ND (0.2)	18.0	5.7	14.0	ND (3.0)	ND (1.0)	13.0	31.0
	FD	05/06/2010	ND (10)	**66.9**	42.0	ND (1.0)	ND (3.0)	ND (3.0)	**2,890**	ND (5.0)	ND (10)	ND (0.2)	19.0	6.0	14.0	ND (3.0)	ND (1.0)	14.0	19.0
		09/30/2010	ND (10)	**53.4**	53.0	ND (1.0)	ND (3.0)	ND (3.0)	**2,810**	ND (5.0)	ND (10)	ND (0.2)	13.0	ND (5.0)	19.0	ND (3.0)	ND (0.5)	12.0	ND (10)
	FD	09/30/2010	ND (10)	**55.4**	53.0	ND (1.0)	ND (3.0)	ND (3.0)	**2,810**	ND (5.0)	ND (10)	ND (0.2)	13.0	ND (5.0)	18.0	ND (3.0)	ND (0.5)	12.0	ND (10)
		12/16/2010	**13.0**	**53.0**	57.0	ND (1.0)	ND (3.0)	ND (3.0)	**2,800**	11.0	ND (10)	ND (0.2)	14.0	ND (5.0)	10.0	ND (3.0)	ND (0.5)	13.0	16.0
MW-22		03/12/2010	ND (10)	**12.1**	130	ND (1.0)	ND (3.0)	ND (3.0)	ND (1.0)	ND (5.0)	ND (10)	ND (0.2) J	7.0	ND (5.0)	ND (5.0)	ND (3.0)	ND (0.5)	ND (3.0)	18.0
		12/07/2010	ND (20)	**12.0**	91.0	ND (2.0)	ND (6.0)	ND (6.0)	ND (1.0)	ND (10)	ND (20)	ND (0.2)	23.0	ND (10)	1.1	ND (6.0)	ND (0.5)	ND (6.0)	ND (20)

Notes:

ND not detected at listed reporting limit
FD field duplicate sample
NE not established
* Secondary USEPA MCL

Title 22 metals are the metals listed in California Code of Regulations, Title 22, Section 66261.24(a)(2)(A).

The maximum contaminant levels (MCLs) listed, in micrograms per liter (µg/L), are the California primary drinking water standards, except where noted.

All results are dissolved metals concentrations in µg/L from field-filtered samples.

Metals analyzed by Methods SW6010B or SW6020A or SW7470A.

Analytes detected above MCL are in bold.

Table 3-4
Surface Water Sampling Results, January 2010 through December 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Lab pH
In-channel Locations					
C-BNS-D	01/19/2010	ND (0.2)	ND (1.0)	967	8.26 J
C-BNS-D	04/05/2010	ND (0.2)	ND (1.0)	976	8.32 J
C-BNS-D	07/07/2010	ND (0.2)	ND (1.0)	935	8.15 J
C-BNS-D	10/12/2010	ND (0.2)	ND (1.0)	929	8.03 J
C-BNS-D	12/21/2010	ND (0.2)	ND (1.0)	935	8.21 J
C-CON-S	01/20/2010	ND (0.2)	ND (1.0)	964	8.34 J
C-CON-S	04/06/2010	ND (0.2)	ND (1.0)	962	8.34 J
C-CON-S	07/08/2010	ND (0.2)	ND (1.0)	934	8.26 J
C-CON-S	10/13/2010	ND (0.2)	ND (1.0)	944	8.15 J
C-CON-S	12/22/2010	ND (0.2)	ND (1.0)	923	8.33 J
C-CON-D	01/20/2010	ND (0.2)	ND (1.0)	953	8.33 J
C-CON-D	04/06/2010	ND (0.2)	ND (1.0)	959	8.32 J
C-CON-D	07/08/2010	ND (0.2)	ND (1.0)	929	8.28 J
C-CON-D	10/13/2010	ND (0.2)	ND (1.0)	933	8.14 J
C-CON-D	12/22/2010	ND (0.2)	ND (1.0)	924	8.32 J
C-I-3-S	01/19/2010	ND (0.2)	ND (1.0)	936	8.36 J
C-I-3-S	04/05/2010	ND (0.2)	ND (1.0)	955	8.29 J
C-I-3-S	07/07/2010	ND (0.2)	ND (1.0)	944	8.20 J
C-I-3-S	10/12/2010	ND (0.2)	ND (1.0)	921	8.10 J
C-I-3-S	12/21/2010	ND (0.2)	ND (1.0)	938	8.30 J
C-I-3-D	01/19/2010	ND (0.2)	ND (1.0)	975	8.34 J
C-I-3-D	04/05/2010	ND (0.2)	ND (1.0)	969	8.37 J
C-I-3-D	07/07/2010	ND (0.2)	ND (1.0)	942	8.25 J
C-I-3-D	10/12/2010	ND (0.2)	ND (1.0)	928	8.08 J
C-I-3-D	12/21/2010	ND (0.2)	ND (1.0)	939	8.28 J
C-MAR-S	01/19/2010	ND (0.2)	ND (1.0)	1890	7.89 J
C-MAR-S	04/05/2010	ND (0.2)	ND (1.0)	1150	7.65 J
C-MAR-S	07/07/2010	ND (0.2)	ND (1.0)	1040	7.44 J
C-MAR-S	10/12/2010	ND (0.2)	ND (1.0)	955	7.84 J
C-MAR-D	01/19/2010	ND (0.2)	ND (1.0)	1860	7.86 J
C-MAR-D	04/05/2010	ND (0.2)	ND (1.0)	1130	7.67 J
C-MAR-D	07/07/2010	ND (0.2)	ND (1.0)	1040	7.43 J
C-MAR-D	12/21/2010	ND (0.2)	ND (1.0)	1930	7.74 J
C-NR1-S	01/20/2010	ND (0.2)	ND (1.0)	955	8.34 J
C-NR1-S	04/06/2010	ND (0.2)	ND (1.0)	967	8.34 J
C-NR1-S	07/08/2010	ND (0.2)	ND (1.0)	929	8.23 J
C-NR1-S	10/13/2010	ND (0.2)	ND (1.0)	943	8.01 J

Table 3-4
Surface Water Sampling Results, January 2010 through December 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Lab pH
In-channel Locations					
C-NR1-S	12/22/2010	ND (0.2)	ND (1.0)	926	8.20 J
C-NR1-D	01/20/2010	ND (0.2)	ND (1.0)	958	8.35 J
C-NR1-D	04/06/2010	ND (0.2)	ND (1.0)	975	8.33 J
C-NR1-D	07/08/2010	ND (0.2)	ND (1.0)	936	8.25 J
C-NR1-D	10/13/2010	ND (0.2)	ND (1.0)	941	7.96 J
C-NR1-D	12/22/2010	ND (0.2)	ND (1.0)	926	8.30 J
C-NR3-S	01/20/2010	ND (0.2)	ND (1.0)	958	8.31 J
C-NR3-S	04/06/2010	ND (0.2)	ND (1.0)	941	8.33 J
C-NR3-S	07/08/2010	ND (0.2)	ND (1.0)	930	8.19 J
C-NR3-S	10/13/2010	ND (0.2)	ND (1.0)	926	8.12 J
C-NR3-S	12/22/2010	ND (0.2)	ND (1.0)	928	8.01 J
C-NR3-D	01/20/2010	ND (0.2)	ND (1.0)	951	8.33 J
C-NR3-D	04/06/2010	ND (0.2)	ND (1.0)	954	8.32 J
C-NR3-D	07/08/2010	ND (0.2)	ND (1.0)	942	8.18 J
C-NR3-D	10/13/2010	ND (0.2)	ND (1.0)	942	8.08 J
C-NR3-D	12/22/2010	ND (0.2)	ND (1.0)	925	8.15 J
C-NR4-S	01/20/2010	ND (0.2)	ND (1.0)	950	8.21 J
C-NR4-S	04/06/2010	ND (0.2)	ND (1.0)	963	8.31 J
C-NR4-S	07/08/2010	ND (0.2)	ND (1.0)	937	8.18 J
C-NR4-S	10/13/2010	ND (0.2)	ND (1.0)	943	8.10 J
C-NR4-S	12/22/2010	ND (0.2)	ND (1.0)	926	8.29 J
C-NR4-D	01/20/2010	ND (0.2)	ND (1.0)	962	8.32 J
C-NR4-D	04/06/2010	ND (0.2)	ND (1.0)	951	8.28 J
C-NR4-D	07/08/2010	ND (0.2)	ND (1.0)	932	8.17 J
C-NR4-D	10/13/2010	ND (0.2)	ND (1.0)	942	8.09 J
C-NR4-D	12/22/2010	ND (0.2)	ND (1.0)	925	8.30 J
C-R22a-S	01/19/2010	ND (0.2)	ND (1.0)	965	8.36 J
C-R22a-S	04/05/2010	ND (0.2)	ND (1.0)	989	8.37 J
C-R22a-S	07/07/2010	ND (0.2)	ND (1.0)	937	8.30 J
C-R22a-S	10/12/2010	ND (0.2)	ND (1.0)	932	8.11 J
C-R22a-S	12/21/2010	ND (0.2)	ND (1.0)	947	8.28 J
C-R22a-D	01/19/2010	ND (0.2)	ND (1.0)	994	8.35 J
C-R22a-D	04/05/2010	ND (0.2)	ND (1.0)	974	8.35 J
C-R22a-D	07/07/2010	ND (0.2)	ND (1.0)	938	8.28 J
C-R22a-D	10/12/2010	ND (0.2)	ND (1.0)	933	8.08 J
C-R22a-D	12/21/2010	ND (0.2)	ND (1.0)	952	8.29 J
C-R27-S	01/19/2010	ND (0.2)	ND (1.0)	985	8.32 J

Table 3-4
Surface Water Sampling Results, January 2010 through December 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Lab pH
In-channel Locations					
C-R27-S	04/05/2010	ND (0.2)	ND (1.0)	960	8.32 J
C-R27-S	07/07/2010	ND (0.2)	ND (1.0)	944	8.25 J
C-R27-S	10/12/2010	ND (0.2)	ND (1.0)	927	8.08 J
C-R27-S	12/21/2010	ND (0.2)	ND (1.0)	932	8.31 J
C-R27-D	01/19/2010	ND (0.2)	ND (1.0)	976	8.33 J
C-R27-D	04/05/2010	ND (0.2)	ND (1.0)	984	8.36 J
C-R27-D	07/07/2010	ND (0.2)	ND (1.0)	951	8.24 J
C-R27-D	10/12/2010	ND (0.2)	ND (1.0)	933	8.11 J
C-R27-D	12/21/2010	ND (0.2)	ND (1.0)	940	8.32 J
C-TAZ-S	01/19/2010	ND (0.2)	ND (1.0)	971	8.27 J
C-TAZ-S	04/05/2010	ND (0.2)	ND (1.0)	947	8.35 J
C-TAZ-S	07/07/2010	ND (0.2)	ND (1.0)	943	8.26 J
C-TAZ-S	10/12/2010	ND (0.2)	ND (1.0)	927	8.13 J
C-TAZ-S	12/21/2010	ND (0.2)	ND (1.0)	941	8.34 J
C-TAZ-D	01/19/2010	ND (0.2)	ND (1.0)	971	8.37 J
C-TAZ-D	04/05/2010	ND (0.2)	ND (1.0)	990	8.40 J
C-TAZ-D	07/07/2010	ND (0.2)	ND (1.0)	947	8.30 J
C-TAZ-D	10/12/2010	ND (0.2)	ND (1.0)	931	8.14 J
C-TAZ-D	12/21/2010	ND (0.2)	ND (1.0)	941	8.32 J
Shoreline Samples					
R-19	01/19/2010	ND (0.2)	ND (1.0)	967	8.32 J
R-19	04/05/2010	ND (0.2)	ND (1.0)	952	8.28 J
R-19	07/07/2010	ND (0.2)	ND (1.0)	943	8.30 J
R-19	10/13/2010	ND (0.2)	ND (1.0)	944	8.17 J
R-19	12/21/2010	ND (0.2)	ND (1.0)	960	8.30 J
R-28	01/20/2010	ND (0.2)	ND (1.0)	964	8.34 J
R-28	04/05/2010	ND (0.2)	ND (1.0)	979	8.36 J
R-28	07/07/2010	ND (0.2)	ND (1.0)	939	8.33 J
R-28	10/12/2010	ND (0.2)	ND (1.0)	930	8.17 J
R-28	12/21/2010	ND (0.2)	ND (1.0)	957	8.32 J
R63	01/19/2010	ND (0.2)	ND (1.0)	1030	8.34 J
R63	04/05/2010	ND (0.2)	ND (1.0)	971	8.42 J
R63	07/07/2010	ND (0.2)	ND (1.0)	940	8.37 J
R63	10/12/2010	ND (0.2)	ND (1.0)	932	8.19 J
R63	12/21/2010	ND (0.2)	ND (1.0)	956	8.18 J
RRB	01/20/2010	ND (0.2)	ND (1.0)	1150	7.85 J

Table 3-4
Surface Water Sampling Results, January 2010 through December 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Lab pH
Shoreline Samples					
RRB	04/06/2010	ND (0.2)	ND (1.0)	985	8.25 J
RRB	07/08/2010	ND (0.2)	ND (1.0)	947	8.12 J
RRB	10/13/2010	ND (0.2)	ND (1.0)	961	7.94 J
RRB	12/22/2010	ND (0.2)	ND (1.0)	3610	7.36 J
Other Surface Water Monitoring Locations					
SW1	01/20/2010	ND (0.2)	ND (1.0)	1040	7.81 J
SW1	04/06/2010	ND (0.2)	ND (1.0)	1030	7.81 J
SW1	07/08/2010	ND (0.2)	ND (1.0)	1000	7.58 J
SW1	10/12/2010	ND (0.2)	ND (1.0)	958	7.69 J
SW1	12/21/2010	ND (0.2)	ND (1.0)	974	7.70 J
SW2	01/20/2010	ND (0.2)	ND (1.0)	973	7.55 J
SW2	04/06/2010	ND (0.2)	ND (1.0)	1000	7.79 J
SW2	07/08/2010	ND (0.2)	ND (1.0)	988	7.57 J
SW2	10/12/2010	ND (0.2)	ND (1.0)	963	7.68 J
SW2	12/21/2010	ND (0.2)	ND (1.0)	974	7.35 J

Notes:

µg/L	micrograms per liter
µS/cm	microSiemens per centimeter
ND	not detected at listed reporting limit
J	concentration or reporting limit estimated by laboratory or data validation
(---)	data not collected or not available

Hexavalent chromium analytical method EPA 218.6 (reporting limit 0.2 µg/L for undiluted samples).

Other analytical methods: dissolved chromium - method SW6020A, specific conductance - EPA 120.1, pH -SM4500-HB.

Specific conductance is reported to three significant figures.

TABLE 4-1
Pumping Rate and Extracted Volume for IM System, November 2010 through December 2010
Fourth Quarter 2010 and Annual Interim Measures Performance Monitoring and
Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Extraction Well ID	November 2010		December 2010		Fourth Quarter 2010		Project to Date [a]
	Average Pumping Rate [b] (gpm)	Volume Pumped (gal)	Average Pumping Rate [b] (gpm)	Volume Pumped (gal)	Average Pumping Rate [b] (gpm)	Volume Pumped (gal)	Cumulative Volume Pumped (gal)
TW-02S	0.00	0	0.00	0	0.00	0	1,000,780
TW-02D	0.00	0	0.29	12,833	0.14	12,833	53,120,930
TW-03D	107.72	4,653,493	106.56	4,756,689	107.14	9,410,182	260,991,150
PE-01	26.03	1,124,399	25.82	1,152,753	25.93	2,277,152	74,770,400
TOTAL	**133.7**	**5,777,892**	**132.7**	**5,922,274**	**133.2**	**11,700,166**	389,883,260
					Volume Pumped from the MW-20 Well Cluster		1,527,724
					Total Volume Pumped (gal)		391,410,984
					Total Volume Pumped (ac-ft)		1,201.2

NOTES:

gpm gallons per minute
gal gallons
ac-ft acre-feet

[a] Interim measure groundwater extraction at the Topock site was initiated in March 2004.

[b] The "Average Pumping Rate" is the overall average during the reporting period, including system downtime, based on flow meter readings.

TABLE 4-2

Average Hydraulic Gradients, November 2010 through December 2010
Fourth Quarter 2010 Interim Measures Performance Monitoring
and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Well Pair [a]	Reporting Period	Mean landward Hydraulic Gradient (feet/foot) [b]	Days in Monthly Average [c]
	November	0.0048	NA
Overall Average	December	0.0050	NA
Northern Gradient Pair	November	0.0020	30 / 30
MW-31-135 / MW-33-150	December	0.0019	31 / 31
Central Gradient Pair	November	0.0089	30 / 30
MW-45-95 / MW-34-100	December	0.0098	31 / 31
Southern Gradient Pair	November	0.0034	30 / 30
MW-45-95 / MW-27-85	December	0.0034	31 / 31

Notes:

NA = All available data used in calculating overall average except where noted.

a Refer to Figure 1-3 for location of well pairs
b For IM pumping, the target landward gradient for the selected well pairs is 0.001 feet/foot
c Number of days transducers in both wells were operating correctly / Total number of days in month.

TABLE 4-3
Predicted and Actual Monthly Average Davis Dam Discharge and Colorado River Elevation at I-3
Fourth Quarter 2010 and Annual Interim Measures Performance Monitoring and
Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

	Davis Dam Release			Colorado River Elevation at I-3		
Month	Projected (cfs)	Actual (cfs)	Difference (cfs)	Predicted (ft amsl)	Actual (ft amsl)	Difference (feet)
January 2008	9,300	8,900	400	453.5	453.6	0.1
February 2008	10,100	12,463	-2,363	454.5	454.7	0.1
March 2008	15,200	15,837	-637	455.6	455.9	0.3
April 2008	17,600	18,554	-954	456.6	457.0	0.4
May 2008	17,200	16,155	1,045	456.6	456.4	-0.3
June 2008	15,400	15,655	-255	456.2	456.5	0.3
July 2008	14,500	14,574	-74	455.8	456.0	0.2
August 2008	13,100	12,976	124	455.2	455.2	0.0
September 2008	12,300	11,731	569	454.9	455.0	0.1
October 2008	10,500	10,272	228	454.1	454.2	0.1
November 2008	10,400	10,130	270	454.1	454.03	-0.1
December 2008	5,800	5,506	294	452.3	452.45	0.2
January 2009	9,300	10,644	-1,344	452.6	454.02	1.4
February 2009	10,800	11,319	-519	454.2	454.34	0.2
March 2009	16,200	16,826	-626	456.1	456.37	0.3
April 2009	18,800	18,432	368	457.2	457.13	-0.1
May 2009	15,800	14,889	911	456.4	456.26	-0.1
June 2009	14,100	13,246	854	455.8	455.73	0.0
July 2009	13,500	13,579	-79	455.5	455.65	0.1
August 2009	11,900	12,296	-396	454.8	455.08	0.3
September 2009	12,700	12,203	497	454.9	455.24	0.4
October 2009	9,500	10,128	-628	453.8	454.04	0.3
November 2009	10,200	9,909	291	454.1	454.27	0.2
December 2009	9,000	8,650	350	453.6	453.54	-0.1
January 2010	9,900	7,415	2,485	453.9	453.36	-0.5
February 2010	7,700	7,961	-261	453.0	453.41	0.4
March 2010	14,700	14,014	686	455.5	455.40	-0.1
April 2010	16,100	14,762	1,338	455.3	455.94	0.7
May 2010	15,500	15,246	254	456.2	456.41	0.3
June 2010	15,800	15,332	468	456.4	456.45	0.0
July 2010	14,500	14,841	-341	455.9	456.34	0.4
August 2010	13,500	13,627	-127	455.4	455.87	0.5
September 2010	13,400	13,555	-155	455.2	455.79	0.6
October 2010	12,300	12,463	-163	454.7	455.41	0.7
November 2010	10,900	10,597	303	454.3	454.92	0.6
December 2010	9,800	9,286	514	453.9	453.86	-0.1
January 2011	7,700			453.1		

NOTES:
cfs = cubic feet per second; ft amsl = feet above mean sea level.

Projected river level for each month in the past is calculated based on the preceding months USBR projections of Davis Dam release and stage in Lake Havasu. Future projections of river level at I-3 are based upon December 2010 USBR projections. These data are reported monthly by the US Department of Interior, at http://www.usbr.gov/lc/region/g4000/24mo.pdf

The difference in I-3 elevation is the difference between the I-3 elevation predicted and the actual elevation measured at I-3. The source of this difference is differences between BOR projections and actual dam releases/Havasu reservoir levels, rather than the multiple regression error.

For data prior to 2008 please see *Fourth Quarter 2009 and Annual Interim Measure Performance Monitoring Report, PG&E Topock Compressor Station, Needles, California* (CH2M HILL, 2010a).

Table 5-1
Summary of Pumping Rate and Extracted Volume for 2010 Reporting Period
Fourth Quarter 2010 and Annual Interim Measures Performance
Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Reporting Period	**Target Pump Rate** (gpm)	**Actual Monthly Pump Rate** (gpm)	**Individual Extraction Well Operations**				**Total Volume** (gallons)
			TW-2S (gallons)	**TW-2D** (gallons)	**TW-3D** (gallons)	**PE-1** (gallons)	
Jan-10	135	129.4	0	0	4,603,255	1,171,901	5,775,156
Feb-10	135	127.4	0	0	4,093,366	1,042,864	5,136,230
Mar-10	135	129.0	0	0	4,602,738	1,157,128	5,759,866
Apr-10	135	114.4	0	0	3,928,894	1,014,791	4,943,685
May-10	135	134.3	0	0	4,782,085	1,213,411	5,995,496
Jun-10	135	126.7	0	0	4,372,406	1,099,702	5,472,108
Jul-10	135	124.7	0	0	4,413,450	1,152,902	5,566,352
Aug-10	135	121.5	0	0	4,346,882	1,078,640	5,425,522
Sep-10	135	134.3	0	0	4,621,965	1,178,548	5,800,513
Oct-10	135	129.7	0	0	4,656,417	1,133,164	5,789,581
Nov-10	135	133.7	0	0	4,653,493	1,124,399	5,777,892
Dec-10	135	132.7	0	12,833	4,756,689	1,152,753	5,922,275
Totals for 2010 Annual Period		**128.2**	**0**	**12,833**	**53,831,641**	**13,520,203**	**67,364,677**

Notes:
gpm: gallons per minute
[a]The target pumping rate of 135 gpm, excluding periods of planned and unplanned downtime, was maintained by pumping from extraction wells TW-3D and PE-1 during the 2010 reporting period.
Extraction well TW-2D was only used for interim service or to support field operations.

Table 5-2
Analytical Results for Extraction Wells, January 2010 through December 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide
Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Well ID	Sample Date	Dissolved Chromium (µg/L)	Hexavalent Chromium (µg/L)	Total Dissolved Solids (mg/L)
TW-3D	06-Jan-10	1,350 LF	1,300	5,350
	03-Feb-10	1,320 LF	1,400	5,220
	03-Mar-10	1,340 LF	1,380	5,080
	07-Apr-10	1,310 LF	1,380	5,110
	04-May-10	1,240 LF	1,000	5,210
	02-Jun-10	1,230 UF	1,500	5,500
	07-Jul-10	1,130 LF	1,100	5,280
	04-Aug-10	1,100 LF	1,280	5,330
	01-Sep-10	1,160 LF	1,130	4,900
	05-Oct-10	1,150 LF	1,280	5,160
	03-Nov-10	1,130 LF	1,160	5,360
	07-Dec-10	1,170 LF	1,080	5,530
PE-1	06-Jan-10	19.6 LF	20.0	3,110
	03-Feb-10	19.1 LF	22.6	3,330
	03-Mar-10	17.3 LF	20.8	3,080
	07-Apr-10	15.4 LF	13.7	3,120
	04-May-10	14.6 LF	13.0	3,280
	02-Jun-10	13.4 UF	14.0	3,450
	07-Jul-10	11.4 LF	13.7	3,350
	04-Aug-10	11.9 LF	12.4	3,180
	01-Sep-10	12.4 LF	14.9	3,420
	05-Oct-10	12.3 LF	13.2	3,290
	03-Nov-10	12.0 LF	12.9	3,300
	07-Dec-10	14.4 LF	15.2	3,160

NOTES:

µg/L = concentration in micrograms per liter
mg/L = concentration in milligrams per liter
LF = lab filtered
UF = unfiltered

Groundwater samples from active extraction wells are taken at sample taps in Valve Vault 1 on the MW-20 Bench.

Dissolved chromium was analyzed by Method SW6020A or EPA200.8 or EPA200.7, hexavalent chromium analyzed by Method SM3500-CrB or EPA218.6 and total dissolved solids were analyzed by Method SM2540C.

TABLE 5-3

Calculated Hydraulic Gradients for Well Pairs by Month for 2010 Reporting Period
Fourth Quarter 2010 and Annual Interim Measures Performance Monitoring and
Site-Wide Groundwater and Surface Water Monitoring Report

PG&E Topock Compressor Station, Needles, California

	Mean Landward Hydraulic Gradient (ft/ft)[a]			
Reporting Period 2010	Overall Average[b]	Northern Gradient Pair[c] MW-31-135 / MW-33-150	Central Gradient Pair MW-45-95 / MW-34-100	Southern Gradient Pair MW-45-95 / MW-27-85
January	0.0052	0.0019	0.0099	0.0038
February	0.0051	0.0019	0.0099	0.0036
March	0.0055	0.0024	0.0104	0.0038
April	0.0043	0.0021	0.0077	0.0030
May	0.0056	0.0025	0.0105	0.0039
June	0.0049	0.0023	0.0091	0.0033
July	0.0048	0.0021	0.0090	0.0031
August	0.0043	0.0019	0.0080	0.0028
September	0.0056	0.0021	0.0107	0.0039
October	0.0048	0.0020	0.0091	0.0033
November	0.0048	0.0020	0.0089	0.0034
December	0.0050	0.0019	0.0098	0.0034

Notes:

a. For IM pumping, the target landward gradient for the selected well pairs is 0.001 feet/foot

b. Overall average gradients are calculated using all available data.

c. Refer to Figure 1-4 for location of well pairs

TABLE 7-1

Proposed Trigger Level Updates to Interim Measures Contingency Plan - December 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Assessment Monitoring Well	July 2008 Cr(VI) Trigger Level (µg/L) [(1)]	Most Recent Cr(VI) Concentration		Cr(VI) Concentration Trend 2009-2010 (see Appendix C)	Proposed 2010 Updated Cr(VI) Trigger Level (µg/L)[3]	Basis / Rationale	Historic Max Cr(VI) µg/L	Date of Maximum Cr(VI)
		(µg/L)	Date					
Shallow Zone Wells								
MW-21	20	ND (1.0)	7-Dec-10	NA	No Change		ND(5)	4-Oct-07
MW-32-20	20	ND (1.0)	8-Dec-10	NA	No Change		ND(5)	2-Oct-06
MW-32-35	20	ND (1.0)	9-Dec-10	NA	No Change		ND(2)	10-Mar-06
MW-33-40	20	ND (1.0)	10-Dec-10	NA	No Change		ND (1.05)	9-Dec-08
MW-39-40	20	1.1	1-Oct-09	NA	No Change		ND (1)	3-May-07
MW-47-55	150	25	13-Dec-10	fluctuating, overall stable	No Change		152	12-Dec-07
Mid-Depth Zone Wells								
MW-33-90	25	24.5	10-Dec-10	slowly increasing	29	Shewart Statistical Control Limit	24.5	10-Dec-10
MW-36-70	20	ND (0.2)	7-Dec-10	NA	No Change		ND (10)	10-Feb-06
MW-42-55	20	ND (1.00)	6-Dec-10	NA	No Change		ND (2)	14-Dec-06
MW-42-65	20	ND (1.00)	6-Dec-10	NA	No Change		ND (2)	14-Dec-06
MW-44-70	20	ND (0.2)	9-Dec-10	NA	No Change		ND (1)	9-Mar-07
Deep Zone Wells								
MW-27-85	20	ND (1.00)	7-Dec-10	NA	No Change		ND (2)	12-Jul-06
MW-28-90	20	ND (1.00)	8-Dec-10	NA	No Change		ND (1.05)	9-Dec-08
MW-33-150	20	11.5	10-Dec-10	stable	No Change		12.3J	29-Sep-09
MW-33-210	20	14.1	10-Dec-10	stable	No Change		14.4	11-Mar-10
MW-34-80	20	ND (0.2)	7-Dec-10	NA	No Change		ND (2)	16-Feb-05
MW-34-100	750	145	8-Dec-10	decreasing	No Change		976	28-Jun-06
MW-43-75	20	ND (1.00)	9-Dec-10	NA	No Change		ND (2)	3-Nov-05
MW-43-90	20	ND (1.00)	9-Dec-10	NA	No Change		ND (2)	10-Mar-06

TABLE 7-1

Proposed Trigger Level Updates to Interim Measures Contingency Plan - December 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Assessment Monitoring Well	July 2008 Cr(VI) Trigger Level (µg/L) [(1)]	Most Recent Cr(VI) Concentration		Cr(VI) Concentration Trend 2009-2010 (see Appendix C)	Proposed 2010 Updated Cr(VI) Trigger Level (µg/L)[3]	Basis / Rationale	Historic Max Cr(VI) µg/L	Date of Maximum Cr(VI)
		(µg/L)	Date					
MW-44-115	1,200	219	9-Dec-10	decreasing	No Change		1,710	4-May-06
MW-44-125	475	25	9-Dec-10	decreasing	No Change		634J	10-May-06
MW-46-175	225	134	8-Dec-10	fluctuating, overall stable	No Change		287	14-Mar-06
MW-46-205	20	5.6	8-Dec-10	stable	No Change		5.7	11-Mar-11
MW-47-115	31 [(2)]	22.5	13-Dec-10	slowly increasing	No Change		22.5	13-Dec-10

Notes:

1. The Cr(VI) sampling **Trigger Levels** for implementing the Contingency Plan (CH2M HILL, 2005; 2006; 2007).
2. Updated trigger level of 31 ug/L for MW-47-115, based on Shewart statistical control limit calculated using all data up to May 2009 was approved in DTSC email communication of June 24, 2009
3. Updated trigger level based upon Shewart statistical control limit calculated for data from 2009 through 2010.

µg/L = micrograms per liter

NA = not applicable

ND = not detected at listed reporting limit

J = the concentration is estimated by laboratory or data validation

TABLE 7-2
Proposed Changes to Sampling Frequency for COPCs and In Situ By-Products for 2011
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Monitoring Well Locations	COPCs			By-Products		Other	Former Proposed COPCs/By-Products Sampling Frequency	2011 Proposed COPCs/By-Products Sampling Frequency - 3/11/11	Reason for 2011 Proposed Change
	Mo	Se	Nitrate	As	Mn	Fluoride			
Uplands/West of National Trails Hwy									
MW-9			2				SA	A	sample at GMP freq.
MW-10	1					1	SA	SA	
MW-12	2		2				Q	Q	
MW-13				3	3		SA	A	No elevated values, continue collection
MW-24BR	2						Q	remove	Influence of Upland ISPS
MW-25				3	3		SA	A	sample at GMP freq.
MW-37D * (in BCW)	7							SA	Shown high concentrations in past
MW-37S (in BCW)				3	3		SA	A	No elevated values, continue collection
MW-38D (in BCW - damaged/usable Waterra)	2	5	2				SA	SA	
MW-40D	2		2	3	3		SA	SA	
MW-40S			2	3	3		SA	A	No elevated values, continue collection
MW-41D				3	3		SA	A	No elevated values, continue collection
MW-41M				3	3		SA	A	No elevated values, continue collection
MW-41S	7	7		3	3		SA	A	No elevated values for As and Mn (propose to no longer sample As and Mn); Never sampled for Mo and Se; Oxidizing well.
PGE-8 (Bedrock)	1						A	A	No elevated values, continue collection
OW-3D	2			3	3		SA	A	No elevated values, continue collection
Floodplain/East of National Trails Hwy									
MW-20-70			2				SA	SA	
MW-20-100	2	2	2				SA	SA	
MW-20-130	5	5	5	3	3		SA	SA	
MW-21*	7	7						SA	Shown high concentrations in past
MW-22				(1)	4		SA	SA	
MW-23-060 (bedrock)				3	3		Q	Q	
MW-23-080 (bedrock)				3	3		Q	Q	
MW-26	3	2	2	(1)	4		SA	SA	
MW-27-20				(1)	4		SA	A	No elevated values, continue collection
MW-27-60				(1)	4		Q	A	No elevated values, continue collection
MW-27-85				(1)	4		Q	A	No elevated values, continue collection
MW-28-25				(1)	4		SA	A	No elevated values, continue collection
MW-28-90	5			(1)	3,4		Q	A	No elevated values, continue collection
MW-29				(1)	4		SA	SA	
MW-30-30	1						SA	SA	
MW-30-50	5			(1)	4		SA	A	No elevated values, continue collection
MW-31-60				3	3		A	A	No elevated values, continue collection
MW-31-135	5	5		3	3		A	A	No elevated values, continue collection
MW-32-20				(1)	4		A	A	
MW-32-35				(1)	4		SA	SA	
MW-33-40				(1)	4	1	Q	A	No elevated values, continue collection
MW-33-90	2	3		3	3		Q	A	No elevated values, continue collection
MW-33-150	5						Q	A	No elevated values, continue collection
MW-33-210	5						Q	A	No elevated values, continue collection
MW-34-55				(1)	4		Q	A	sample at GMP freq.
MW-34-80				(1)	4		Q	A	No elevated values, continue collection
MW-34-100	2			(1)	4		Q	A	No elevated values, continue collection
MW-35-135				3	3		SA	A	No elevated values, continue collection
MW-36-40	5			(1)	4		SA	A	No elevated values, continue collection
MW-36-50				(1)	4		SA	A	No elevated values, continue collection
MW-36-70				(1)	4		SA	A	No elevated values, continue collection
MW-36-100	5			(1)	4		SA	SA	
MW-39-50			2	(1)	4		SA	A	No elevated values, continue collection
MW-39-60			2	3	4		SA	A	No elevated values, continue collection
MW-39-100	5		2	3	3		SA	A	No elevated values, continue collection
MW-42-30	5						SA	A	No elevated values, continue collection
MW-42-65				(1)	4		Q	Q	
MW-43-25				(1)	4		SA	SA	
MW-43-75				(1)	4		SA	A	No elevated values, continue collection
MW-43-90				(1)	4		SA	SA	
MW-44-70				(1)	4		SA	A	No elevated values, continue collection
MW-44-115	1			3	3		Q	Q	
MW-44-125	1			3	3		Q	Q	
MW-46-175	1						Q	Q	

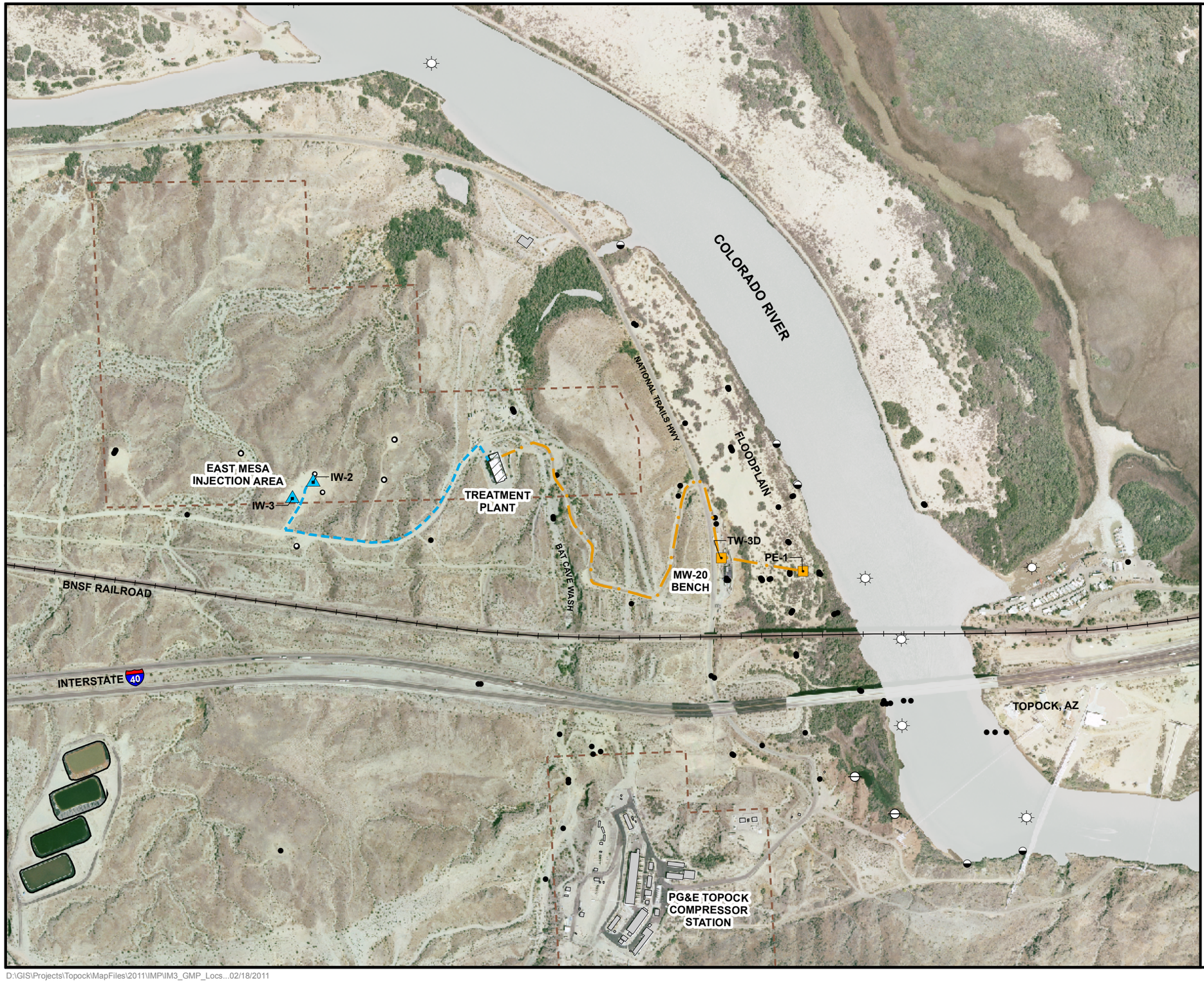
TABLE 7-2
Proposed Changes to Sampling Frequency for COPCs and In Situ By-Products for 2011
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide
Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Monitoring Well Locations	COPCs			By-Products		Other	Former Proposed COPCs/By-Products Sampling Frequency	2011 Proposed COPCs/By-Products Sampling Frequency - 3/11/11	Reason for 2011 Proposed Change
	Mo	Se	Nitrate	As	Mn	Fluoride			
MW-47-55				3	3		Q	A	No elevated values, continue collection
MW-49-135				3	3		SA	A	No elevated values, continue collection
MW-51		7		3	3		SA	SA	
MW-52S (CA slant)				(1)	4		SA	A	No elevated values, continue collection
MW-52M (CA slant)				(1)	4		SA	A	No elevated values, continue collection
MW-52D (CA slant)				(1)	4		SA	SA	
MW-53M (CA Slant)				(1)	4		SA	SA	
MW-53D (CA Slant)				(1)	4		SA	SA	
East Ravine									
MW-57-070	6	6	6	6	6		Q for 2Q	A	No elevated values, continue collection
MW-57-185	6	6	6	6	6		Q for 2Q	Q	evaluate after 2nd round
MW-59-100	6	6	6	6	6		Q for 2Q	Q	evaluate after 2nd round
MW-60-125	6	6	6	6	6		Q for 2Q	Q	evaluate after 2nd round
MW-61-110	6	6	6	6	6		Q for 2Q	Q	evaluate after 2nd round
MW-62-065	6	6	6	6	6		Q for 2Q	A	No elevated values, continue collection
MW-62-110 (Flute)	6	6	6	6	6		Q for 2Q	Q	evaluate after 2nd round
MW-62-190 (Flute)	6	6	6	6	6		Q for 2Q	Q	evaluate after 2nd round
MW-63-065	6	6	6	6	6		Q for 2Q	Q	evaluate after 2nd round
MW-64BR-UPR (packer location)	6	6	6	6	6		Q for 2Q	remove	Not enough volume to collect
MW-64BR-LWR (packer location)	6	6	6	6	6		Q for 2Q	remove	Not enough volume to collect
CMP Wells									
CW-2D						1	SA	remove	Injection Breakthrough
CW-3M	2		2				SA	remove	Injection Breakthrough
CW-3D	2						SA	remove	Injection Breakthrough
CW-4D	2,3	3	3	3	3		SA	remove	Injection Breakthrough
Test Wells									
TW-1		1					Q	Q	
MW-11		7	2				Q	A	Shown high concentrations in past
MW-24A		2	2				Q	remove	Influence of Upland ISPS
MW-24B	2	2	2				Q	remove	Influence of Upland ISPS
Offsite Wells									
MW-54-085 *				7	7			SA	off-site reducing well
MW-54-140 *				7	7			SA	off-site reducing well
MW-54-195 *				7	7			SA	off-site reducing well

NOTES
If sampling is indicated for one analyte in each category, all the category analytes will be sampled.
For example, As will be sampled with Mn. Mo, Se, and NO3 will all be sampled if any one is indicated by a reason below.
* Not on the original sampling list
SA = Semiannual
UTL = Upper tolerance limit
Q = Quarterly
HI = Health Index
As = Arsenic
Mo = Molybdenum
Se = Selenium
Mn = Manganese

Code for Reasons
(1) = Fluvial wells currently sampled for As on quarterly basis.
1 = HI>1
2 = Exceeds UTL
3 = Strategic location for Remedy Design
4 = Add Mn to As Fluvial Wells
5 = wells in proximity of HI>1 wells, that did not have an adequate data set
6 = complete 4 quarters of monitoring after well installation
7 = Added after Fourth Quarter 2010 sampling event

Figures



VICINITY MAP

LEGEND

- IM-3 Extraction Well (Active)
- IM-3 Injection Well
- Monitoring Well in Site-Wide Groundwater Monitoring Program (GMP)
- Monitoring Well in IM-3 Compliance Monitoring Program
- Shoreline Surface Water Monitoring Location
- River Channel Surface Water Monitoring Location
- Other Surface Water Monitoring Location
- Groundwater Extraction/Influent Pipeline
- Treatment Plant Effluent Pipeline
- Property Line

Note: 1. Location map shows Interim Measure No. 3 (IM-3) active facilities as of current report

2. See Figures 1-2 and 1-3 for complete monitoring locations and identifications.

N

0 600 1,200 Feet

FIGURE 1-1
LOCATIONS OF IM-3 FACILITIES AND MONITORING LOCATIONS

FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

CH2MHILL

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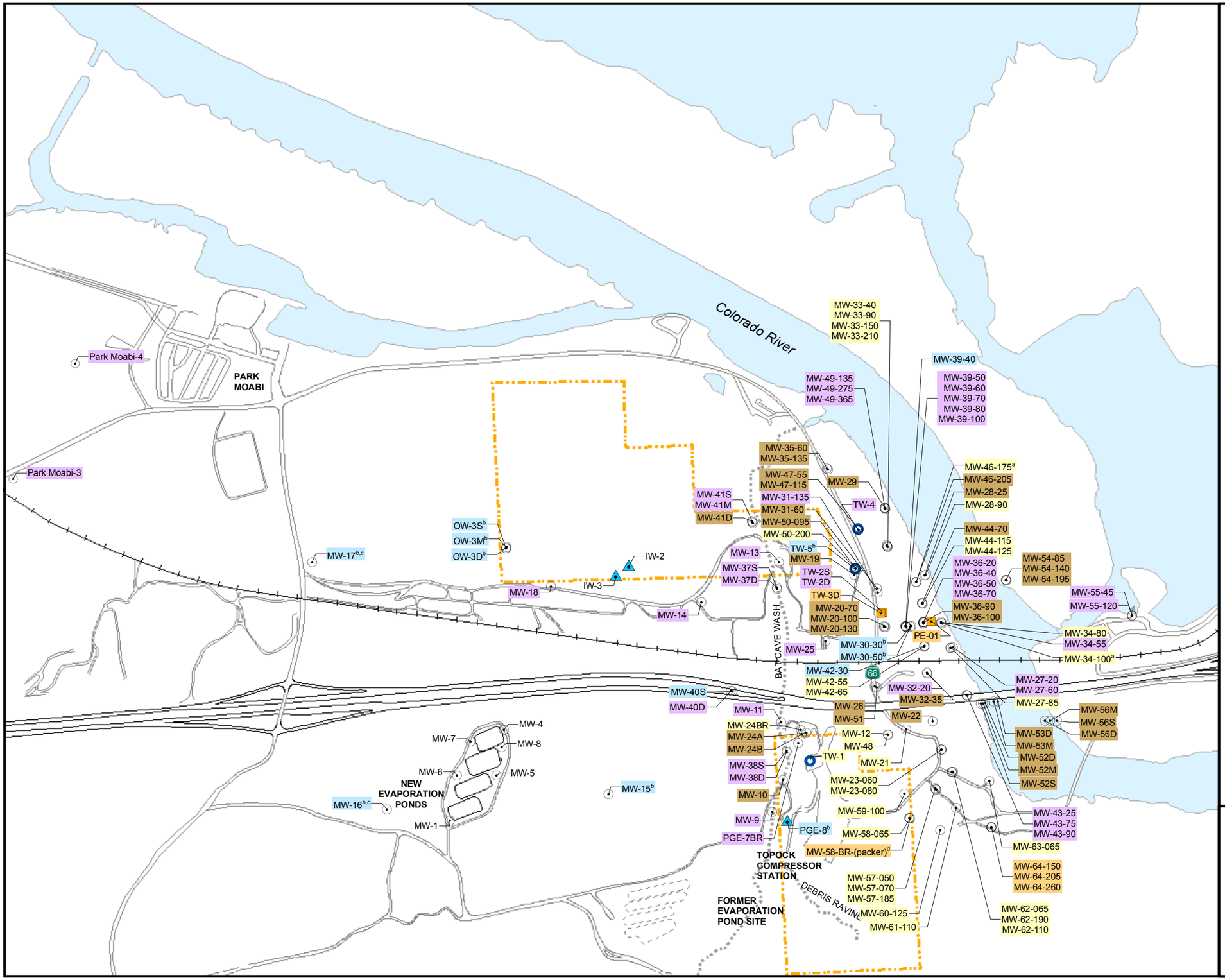

LEGEND

- Injection Well
- Groundwater Monitoring Well
- Test Well or Supply Well (inactive)
- Extraction Well
- Property Boundary

Sampling Frequency for Groundwater Monitoring Program (GMP)

MW-17	Biennial Sampling
MW-9	Annual Sampling
MW-22	Semiannual Sampling
MW-12	Quarterly Sampling
TW-3D	Monthly Sampling

Notes:

[a] Monthly sampling November through February, otherwise quarterly.

[b] These wells required to be sampled biennially, will be sampled annually for the water quality snapshot.

[c] Background metals collected semiannually.

[d] Monthly sampling scheduled to begin 2011.

N

0 500 1,000 Feet

California State Plane NAD83 Zone 5 US Feet

FIGURE 1-2
MONITORING LOCATIONS AND SAMPLING FREQUENCY FOR GMP

FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL

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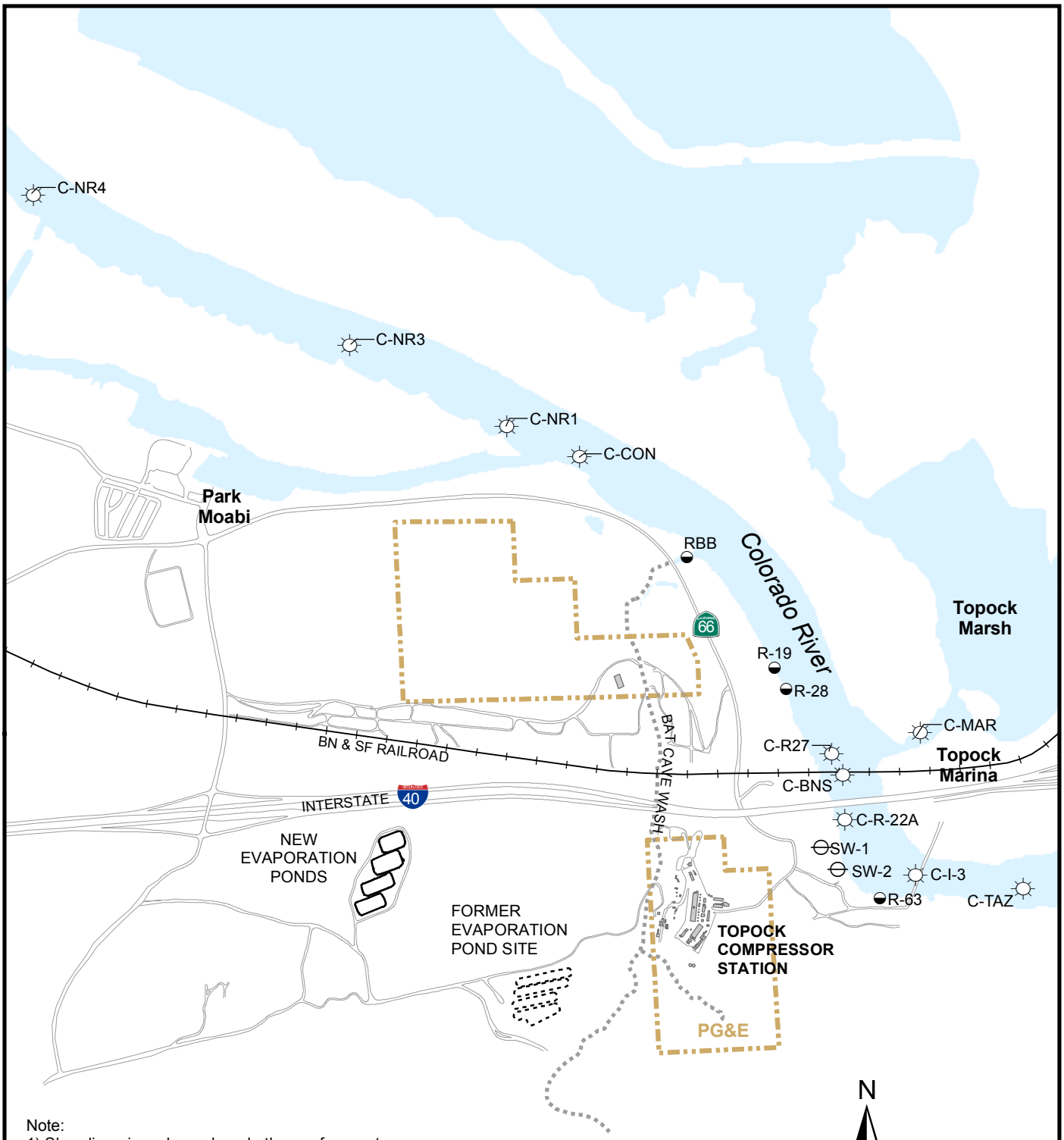

Note:
1) Shoreline, river channel, and other surface water monitoring locations are sampled quarterly and twice during periods of low river stage (typically November - January).
2) Location for SW-2 is approximate. GPS Coverage was not available.

LEGEND

- Shoreline Surface Water Monitoring Location
- River Channel Surface Water Monitoring Location
- Other Surface Water Monitoring Location

FIGURE 1-3
MONITORING LOCATIONS AND SAMPLING FREQUENCY FOR RMP

FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

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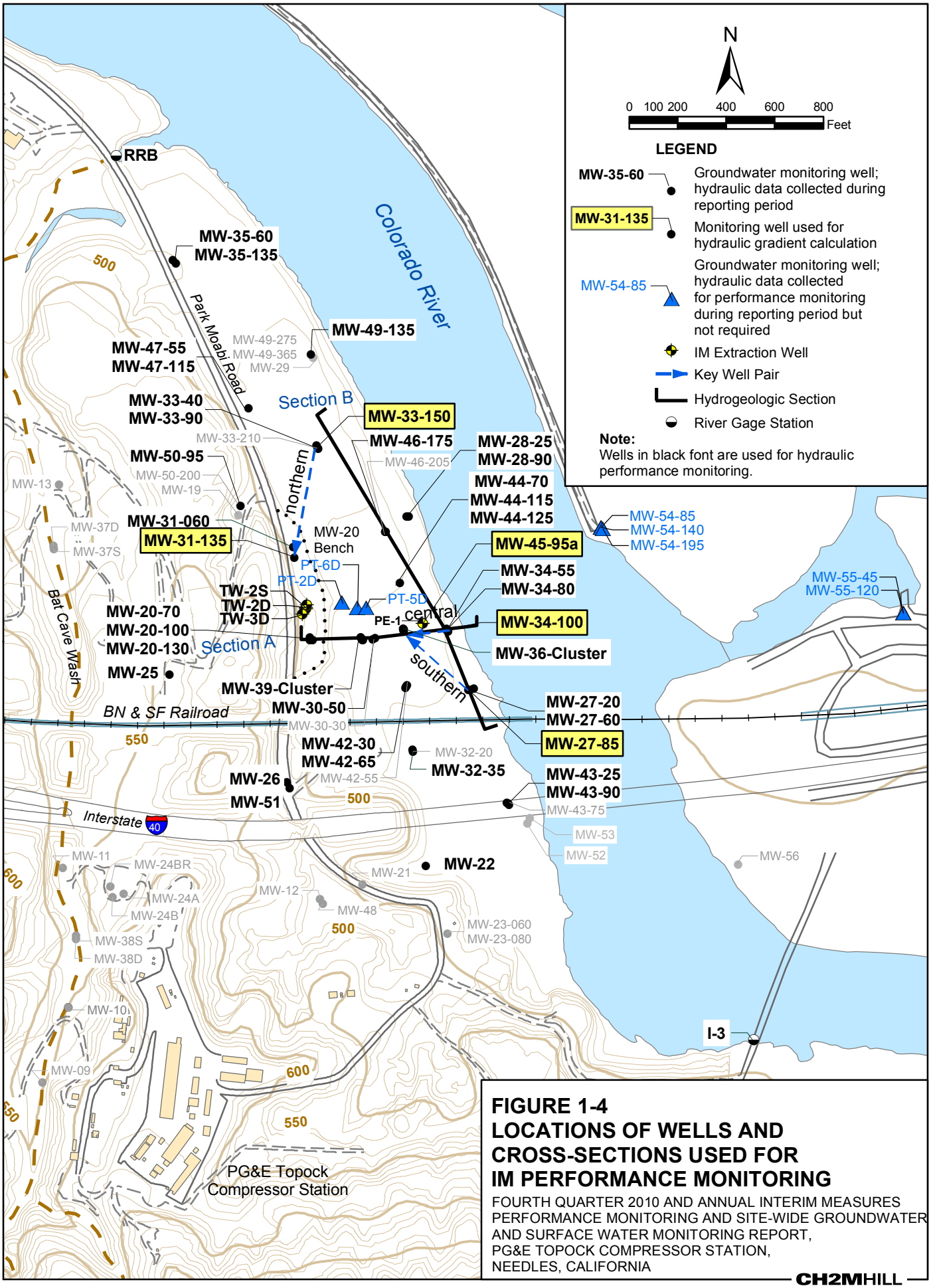

FIGURE 1-4
LOCATIONS OF WELLS AND CROSS-SECTIONS USED FOR IM PERFORMANCE MONITORING

FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

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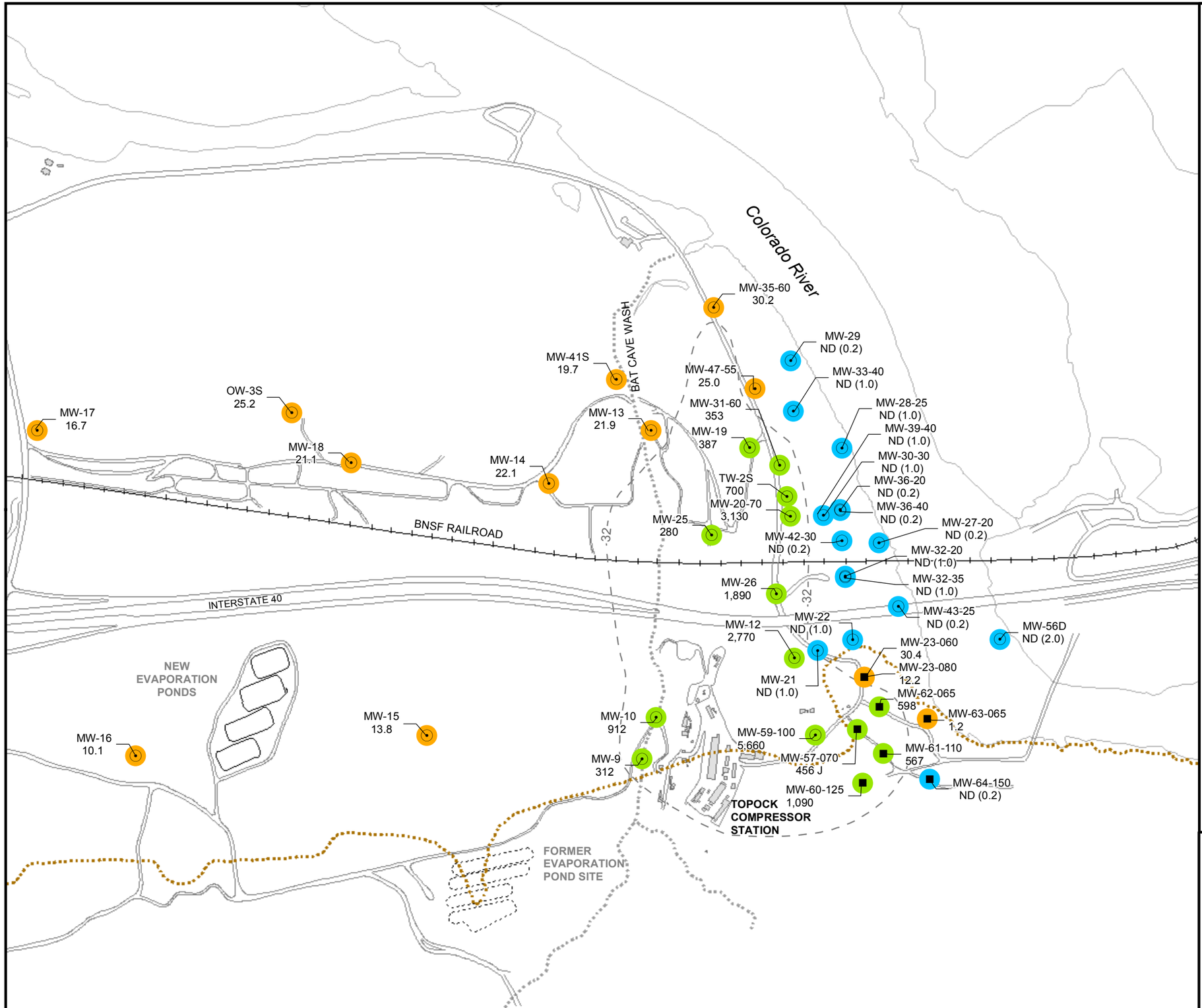

LEGEND

- Alluvial Aquifer well sampled during sampling event
- Bedrock well sampled during sampling event

6.48 Concentration of hexavalent chromium [Cr(VI)] in groundwater, micrograms per liter (µg/L)

Results shown are maximum concentrations in primary and duplicate samples from wells completed in **Shallow zone** of Alluvial Aquifer and Bedrock.

ND (0.2) Cr(VI) not detected at listed reporting limit

Cr(VI) Concentrations - Fourth Quarter 2010

- Not detected at analytical reporting limit
- Concentration between reporting limit and 32 µg/L
- Concentration ≥ 32 µg/L

-32- Approximate outline of monitoring wells in Alluvial Aquifer and Bedrock with Cr(VI) concentrations ≥ 32 µg/L based on Fourth Quarter 2010 groundwater sampling.

Approximate bedrock contact at 455 feet above mean sea level.

Notes:
Results plotted are maximum concentration from primary and duplicate samples, see table 3-1 for complete results.

J= Concentration or RL estimated by laboratory or data validation

N

0 500 1,000 Feet

FIGURE 3-1a
Cr(VI) SAMPLING RESULTS, SHALLOW WELLS IN ALLUVIAL AQUIFER AND BEDROCK, FOURTH QUARTER 2010

FOURTH QUARTER 2010 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

CH2MHILL

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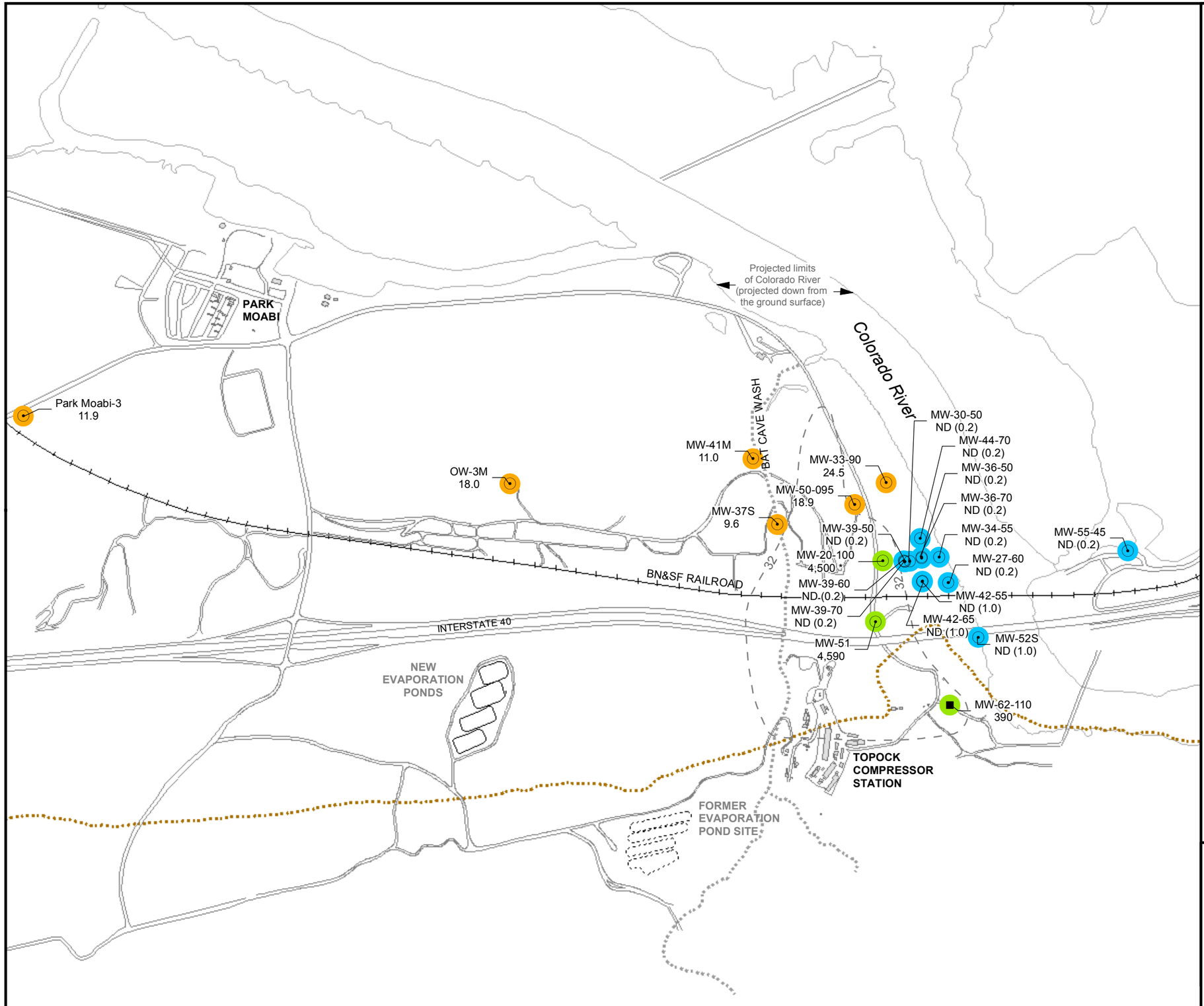

LEGEND

- ⊙ Alluvial Aquifer well sampled during sampling event
- ■ Bedrock well sampled during sampling event

6.48 Concentration of hexavalent chromium [Cr(VI)] in groundwater, micrograms per liter (µg/L)

Results shown are maximum concentrations in primary and duplicate samples from wells completed in **Mid-Depth zone** of Alluvial Aquifer and Bedrock.

ND (0.2) Cr(VI) not detected at listed reporting limit

Cr(VI) Concentrations - Fourth Quarter 2010

- Not detected at analytical reporting limit
- Concentration between reporting limit and 32 µg/L
- Concentration ≥ 32 µg/L

-32- Approximate outline of monitoring wells in Alluvial Aquifer and Bedrock with Cr(VI) concentrations ≥ 32 µg/L based on Fourth Quarter 2010 groundwater sampling.

Approximate bedrock contact at 425 feet above mean sea level.

Notes:

1. Results plotted are maximum concentration from primary and duplicate samples, see table 3-1 for complete results.
2. * = Data collected February 2011 due to field logistical issues.

N

0 500 1,000 Feet

FIGURE 3-1b
Cr(VI) SAMPLING RESULTS
MID-DEPTH WELLS IN ALLUVIAL AQUIFER AND BEDROCK, FOURTH QUARTER 2010

FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

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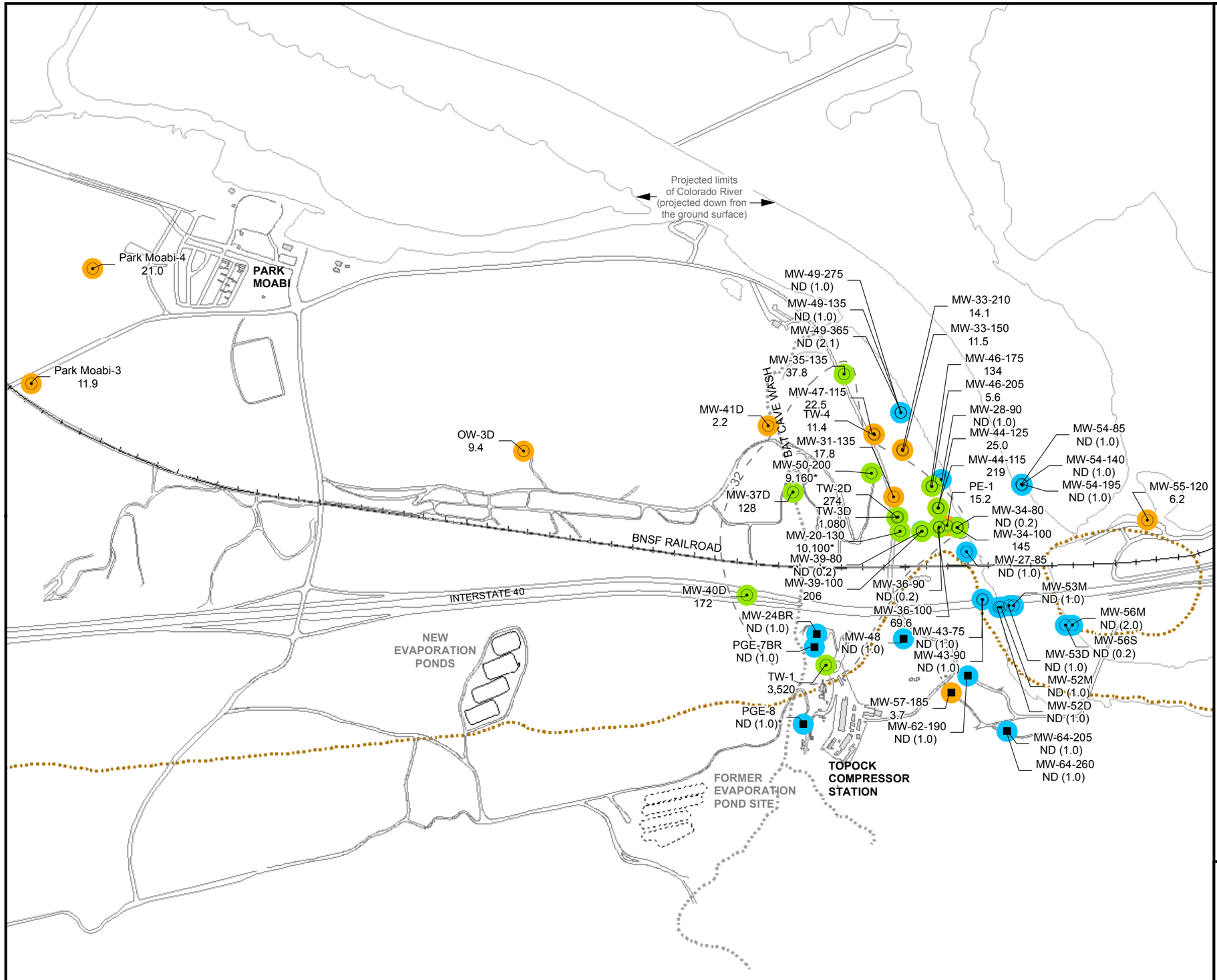

LEGEND

- ⊙ Alluvial Aquifer well sampled during sampling event
- ■ Bedrock well sampled during sampling event

6.48 Concentration of hexavalent chromium [Cr(VI)] in groundwater, micrograms per liter (µg/L)

Results shown are maximum concentrations in primary and duplicate samples from wells completed in **Deep zone** of Alluvial Aquifer and Bedrock.

ND (0.2) Cr(VI) not detected at listed reporting limit

Cr(VI) Concentrations - Fourth Quarter 2010

- Not detected at analytical reporting limit
- Concentration between reporting limit and 32 µg/L
- Concentration ≥ 32 µg/L

-32- Approximate outline of monitoring wells in Alluvial Aquifer and Bedrock with Cr(VI) concentrations ≥ 32 µg/L based on Fourth Quarter 2010 groundwater sampling.

Approximate bedrock contact at 395 feet above mean sea level.

Notes:

1. Results plotted are maximum concentration from primary and duplicate samples, see table 3-1 for complete results.
2. In the floodplain area, the 32 µg/L line for Cr(VI) in deep zone (80-90 feet below Colorado River) is estimated based on available groundwater sampling, hydrogeologic and geochemical data. There are no data confirming the existence of Cr(VI) under the Colorado River.
3. * = Data collected February 2011 due to field logistical issues

N

0 500 1,000 Feet

FIGURE 3-1c
Cr(VI) SAMPLING RESULTS, DEEP WELLS IN ALLUVIAL AQUIFER AND BEDROCK, FOURTH QUARTER 2010

FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL

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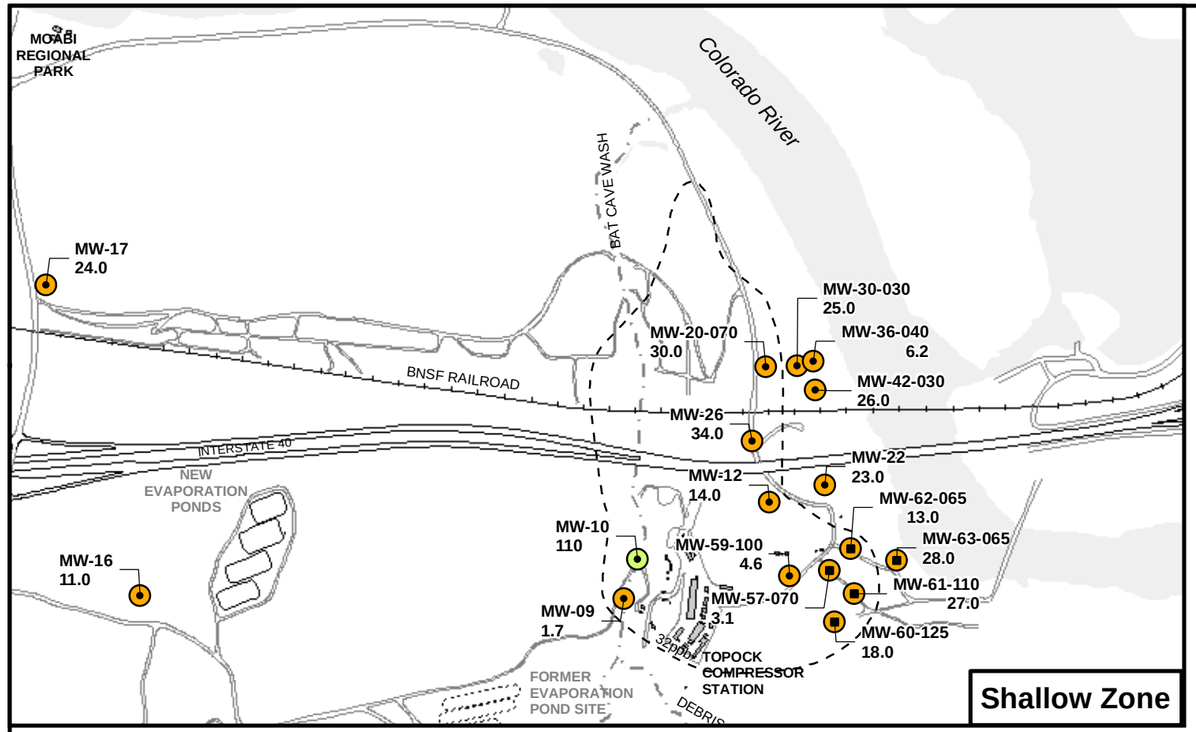

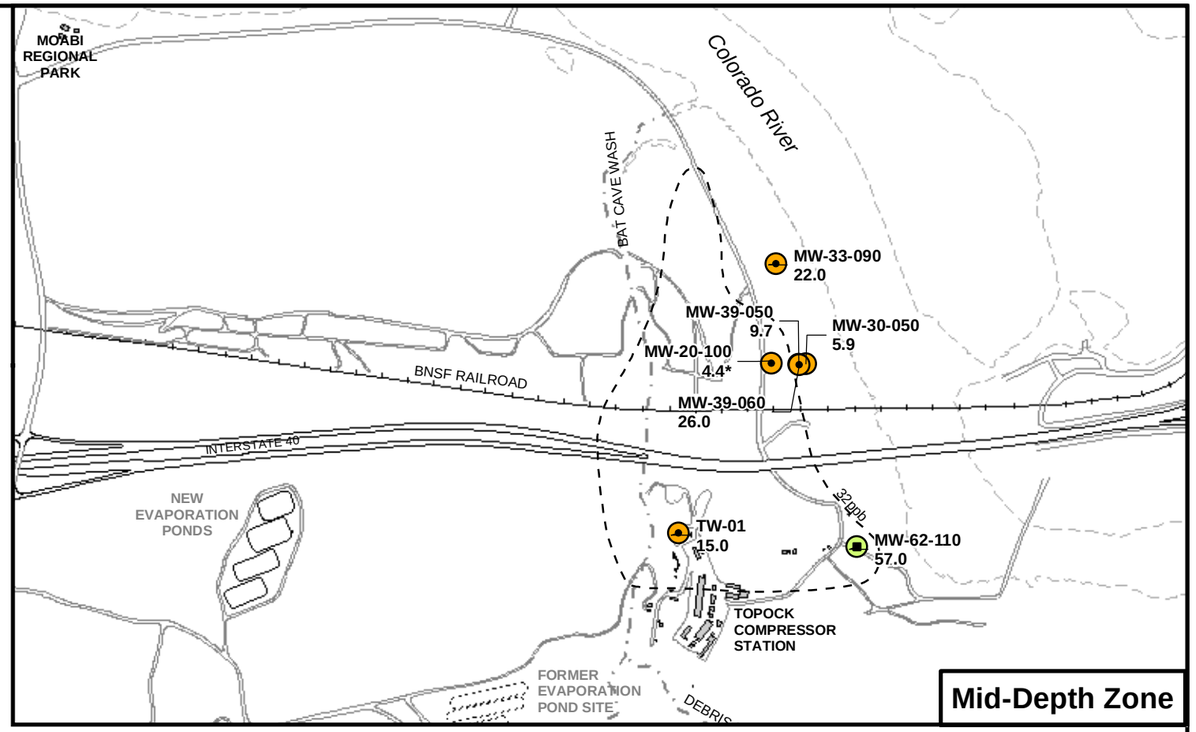

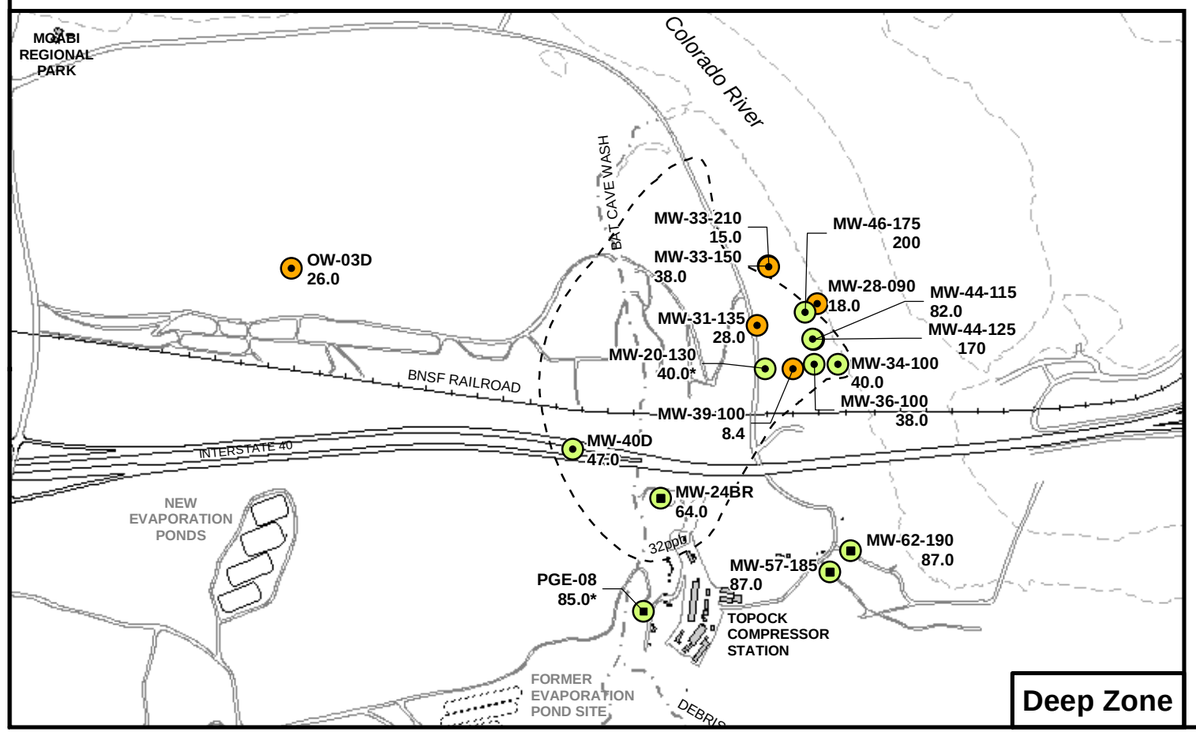

LEGEND

- Groundwater Well Completed in Alluvial Aquifer
- Groundwater Well Completed in Bedrock Aquifer
- Concentration < 36.3 µg/L
- Concentration > 36.3 µg/L
- Approximate Outline of Cr(VI) in Alluvial Aquifer depth zone >= 32 µg/L, December 2010

Dissolved Molybdenum Concentrations

MW-10 ← Well ID

5.8 ← Concentration in µg/L (micrograms per Liter)

Notes:
1) Molybdenum Background Study Upper Tolerance Limit (UTL) = 36.3 µg/L
2) There is no U.S. EPA and California Maximum Contaminant Level for Molybdenum.

*Data collected for MW-20-100, MW-20-130, and PGE-8 February 2011 due to field logistical issues.

FIGURE 3-2a
MOLYBDENUM SAMPLING RESULTS, FOURTH QUARTER 2010

FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNA

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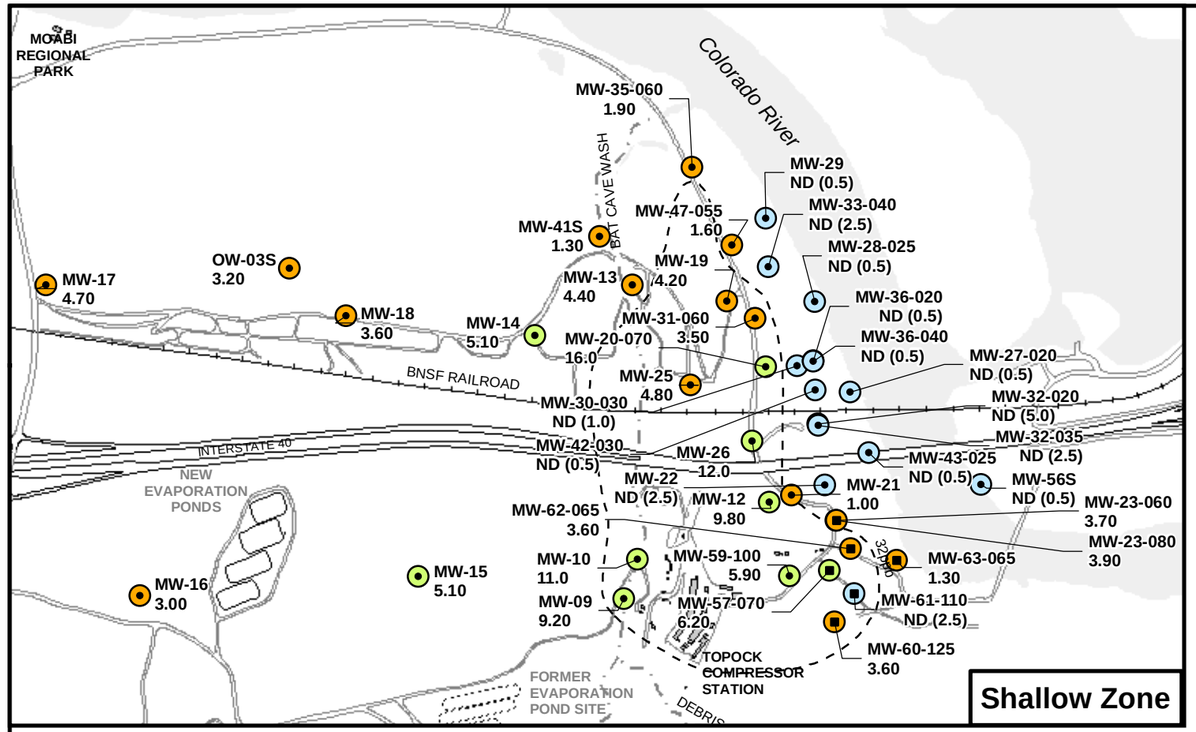
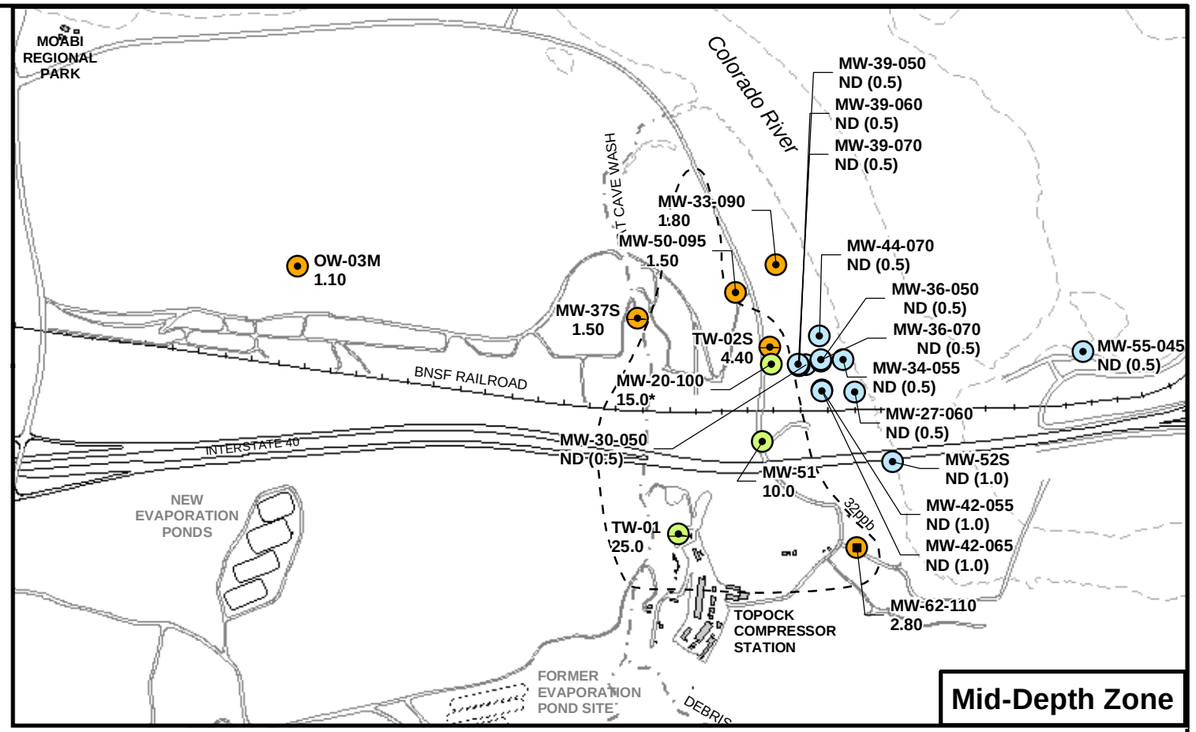
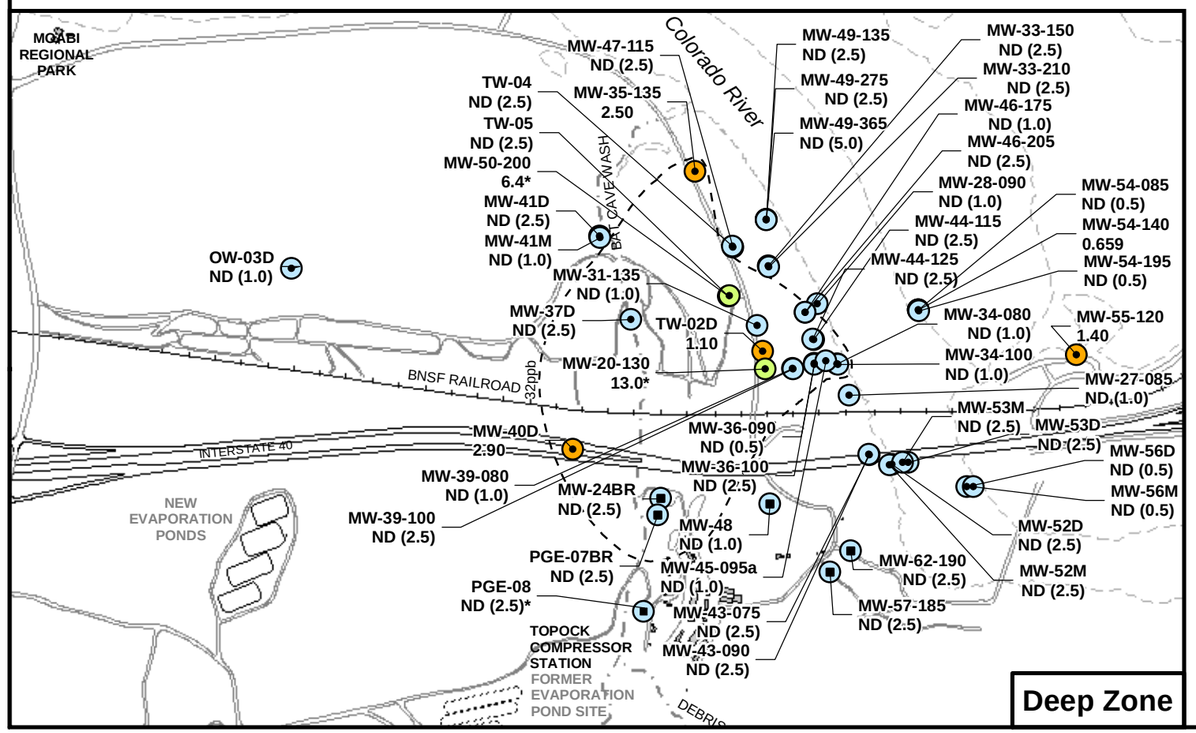






LEGEND

- Groundwater Well Completed in Alluvial Aquifer
- Groundwater Well Completed in Bedrock Aquifer
- Not Detected
- < 5.03 mg/L
- > 5.03 mg/L
- Approximate Outline of Cr(VI) in Alluvial Aquifer depth zone >= 32 µg/L, December 2010

Dissolved Nitrate as Nitrogen (N) Concentrations

MW-10 ← Well ID

5.8 ← Concentration in µg/L (milligrams per Liter)

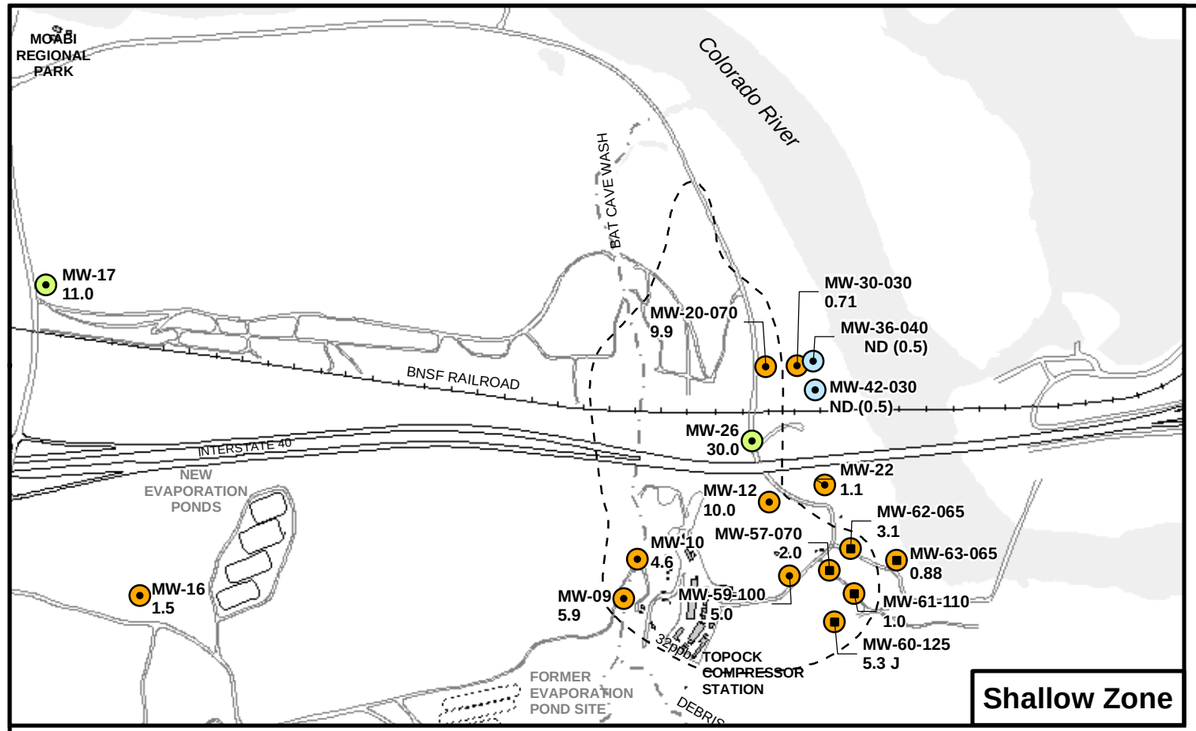
Notes:
1) Nitrate as N Background Study Upper Tolerance Limit (UTL) = 5.03 mg/L
2) Nitrate as N Maximum Contaminant Level = 10 mg/L
3) Not Detected = Not Detected at listed reporting limit (RL)

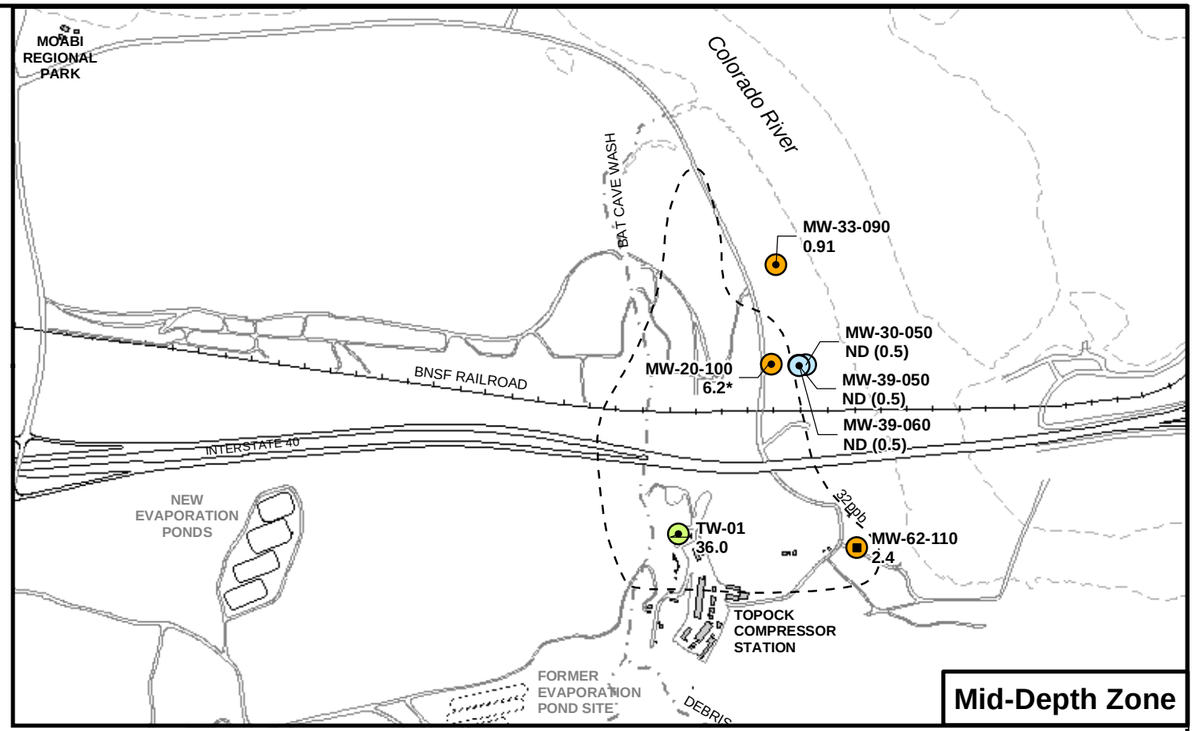
*Data collected for MW-20-100, MW-20-130, MW-50-200, and PGE-8 February 2011 due to field logistical issues.

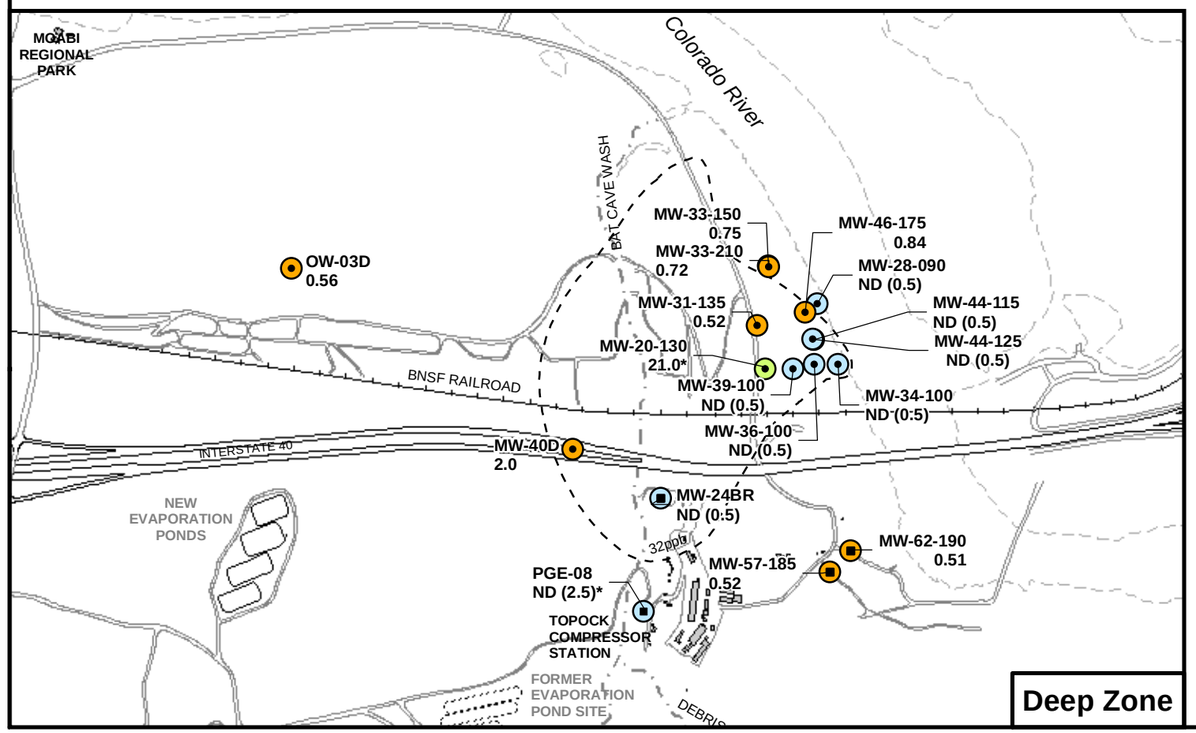
FIGURE 3-2b
NITRATE SAMPLING RESULTS, FOURTH QUARTER 2010

FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNA

\\ZINFANDEL\PROJ\PACIFICGASELECTRICCO\TOPOCKPROGRAM\GIS\MAPFILES\2010\PMR\ANNUAL AND Q4 PMR\PMR_2010Q4_ANALYTES_NITRATE.MXD GMOON 3/2/2011 16:34:03







LEGEND

- Groundwater Well Completed in Alluvial Aquifer
- Groundwater Well Completed in Bedrock Aquifer
- Not Detected
- Concentration < 10.3 µg/L
- Concentration > 10.3 µg/L
- Approximate Outline of Cr(VI) in Alluvial Aquifer depth zone >= 32 µg/L, December 2010

Dissolved Selenium Concentrations

MW-10 ← Well ID

5.8 ← Concentration in µg/L (micrograms per Liter)

Notes:
1) Selenium Background Study Upper Tolerance Limit (UTL) = 10.3 µg/L
2) Selenium applicable or relavant and appropriate requirement (ARAR) = 50.0 µg/L
3) ND = Not Detected at listed reporting limit (RL)

*Data collected for MW-20-100, MW-20-130, and PGE-8 February 2011 due to field logistical issues.

FIGURE 3-2c
SELENIUM SAMPLING RESULTS, FOURTH QUARTER 2010

FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNA

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N

0 700 1,400 Feet

LEGEND

- Extraction well
- Groundwater monitoring / observation well
- MW-14 456.38 — Well name with water level elevation (ft MSL)
- MW-10 (528.31) — Well name with water level elevation (ft MSL) not used in contouring
- Groundwater Elevation Contour 0.5 ft
- Approximate Bedrock/Alluvial Conctact at 455 ft MSL

Notes:
1. Water level contours for the floodplain area are presented in IM Performance Monitoring Reports.
2. Extraction wells TW-3D and PE-1 are pumping from lower portion of the aquifer.
3. Gradients shown on this figure show transient conditions in the aquifer at the time of measurement and may not reflect the expected average groundwater flow directions.

PARK MOABI

Colorado River

BAT CAVE WASH

BN & SF RAILROAD

INTERSTATE 40

66

457.0

456.5

456.0

455.5

455.0

MW-17 457.24

MW-18 456.72

OW-03S 456.73

OW-02S 456.42

OW-01S 456.48

MW-41S 455.61

MW-13 455.96

MW-14 456.20

MW-19 454.92

TW-3D

TW-2D

PE-1

MW-25 455.31

MW-40S 456.02

MW-12 455.47

MW-11 456.10001

MW-21 455.41

MW-24A 456.14

MW-07 (456.22)

MW-08 456.90

NEW EVAPORATION PONDS

MW-06 457.22

MW-16 457.49

MW-01 (456.62)

MW-15 456.88

MW-10 456.29

MW-59-100 456.34

MW-09 456.51

TOPOCK COMPRESSOR STATION

FORMER EVAPORATION POND SITE

DEBRIS RAVINE

FIGURE 3-3
GROUNDWATER ELEVATION MAP SHALLOW ZONE OF THE ALLUVIAL AQUIFER (WATER TABLE), DECEMBER 6, 2010
FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURE PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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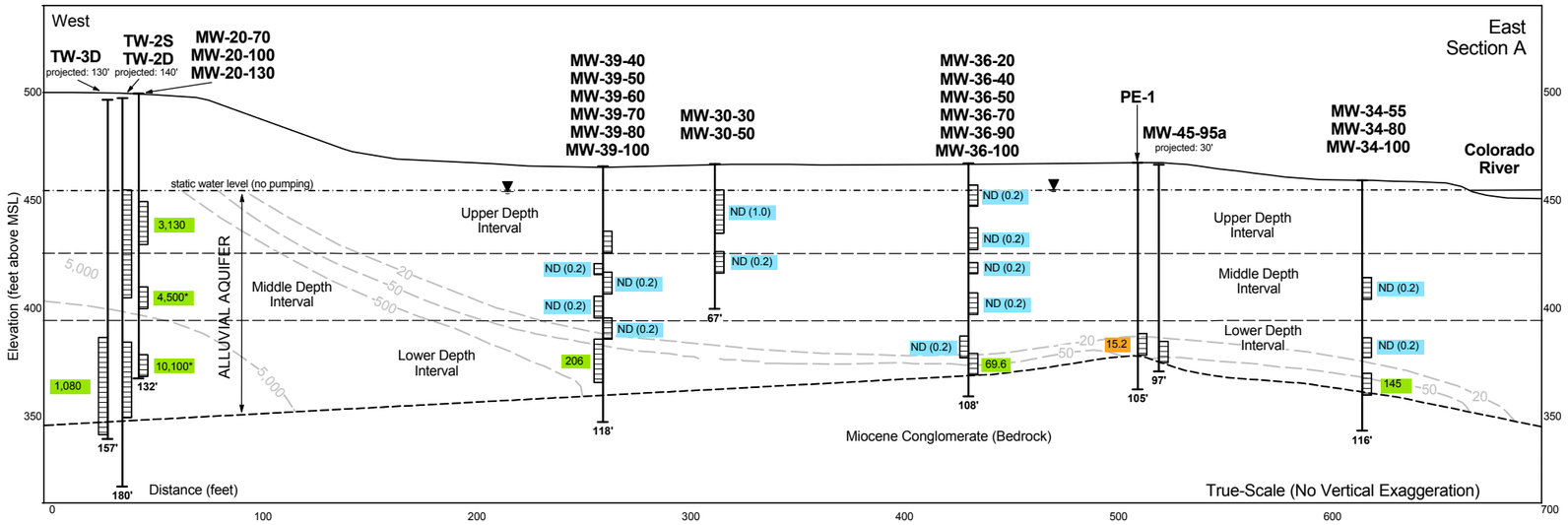
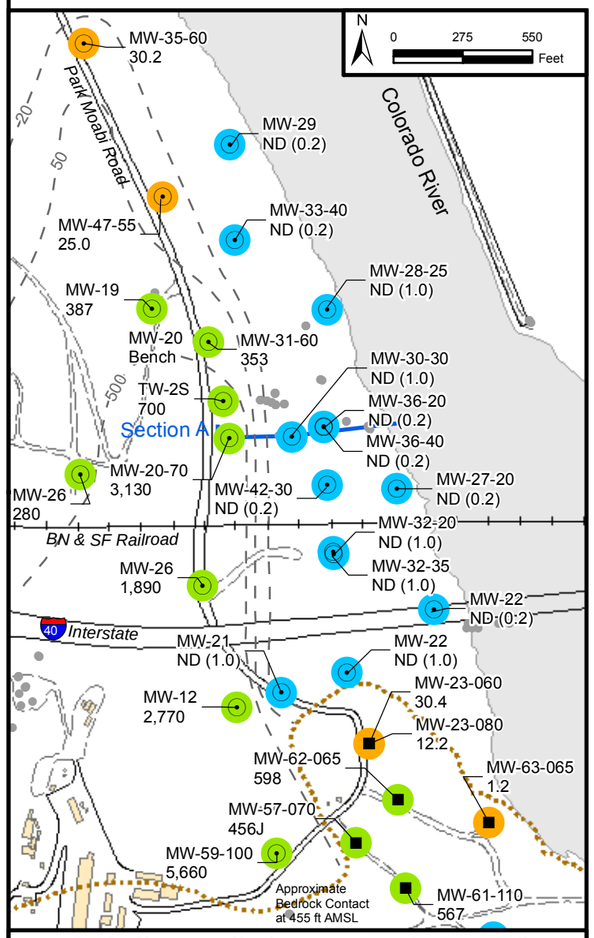
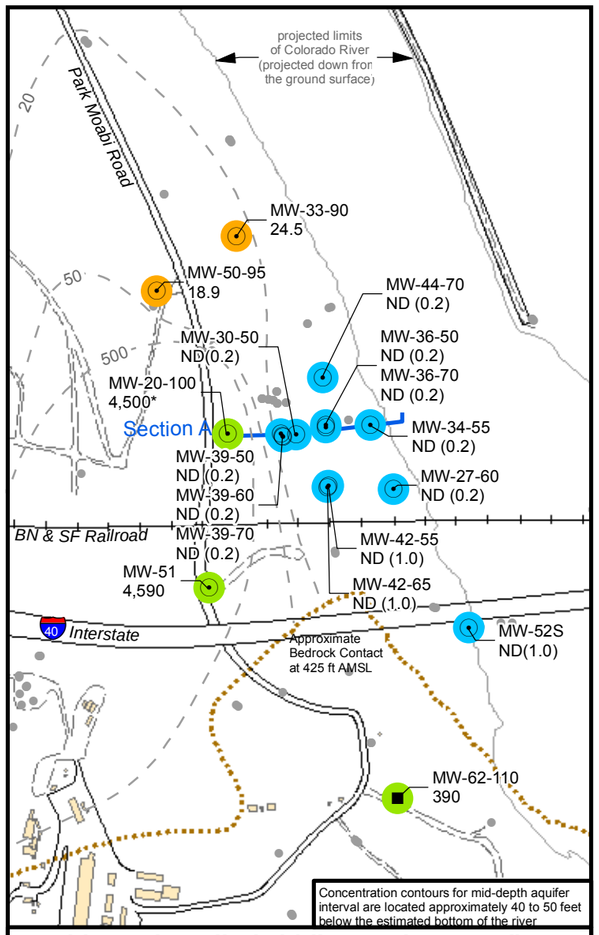
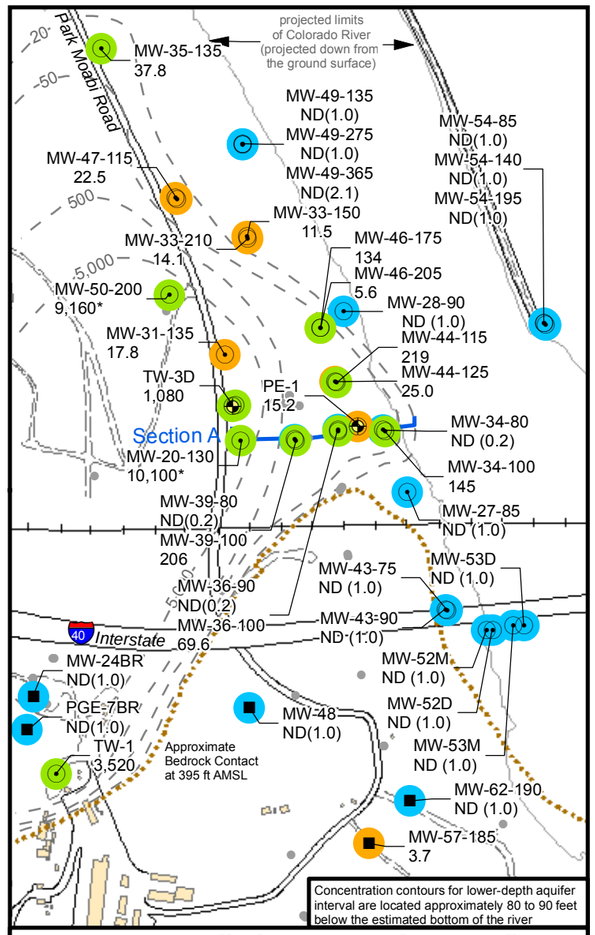




Shallow Wells (Upper Depth Interval)



Mid-Depth Wells (Middle-Depth Interval)



Deep Wells (Lower Depth Interval)

LEGEND

- Alluvial Aquifer well sampled during sampling event
- Bedrock well sampling during sampling event
- Extraction well sampled during sampling event
- Well not sampled during sampling event

6.48 Concentration of hexavalent chromium [Cr(VI)] in groundwater, micrograms per liter (µg/L). Results posted are maximum Cr(VI) concentrations.

ND (0.2) Cr(VI) not detected at listed reporting limit

Cr(VI) Concentrations - Fourth Quarter 2010

- Not detected at analytical reporting limit
- Concentration between reporting limit and 32 µg/L
- Concentration ≥ 32 µg/L
- 50 — Inferred Cr(VI) concentration contour within Alluvial aquifer depth interval based on Fourth 2010 sampling results.
- Hydrogeologic Section A
- Approximate bedrock contact

NOTES ON CONTOUR MAPS

1. The Cr(VI) concentration contours of 20 and 50 µg/L are shown in accordance with DTSC's 2005 IM performance monitoring directive. The IM performance standard was established for containment of Cr(VI) concentrations greater than 20 ug/L in the floodplain portion of the Alluvial Aquifer.
2. In the floodplain area, the 20 µg/L line for Cr(VI) in deep zone (80-90 feet below Colorado River) is estimated based on available groundwater sampling, hydrogeologic and geochemical data. There are no data confirming the existence of Cr(VI) under the Colorado River.
3. Extraction wells PE-1 and TW-3D are not included in contouring. These wells draw water from a larger area and do not represent Cr(VI) concentrations at their specific locations.
4. * Data collected for MW-20-100, MW-20-130 and MW-50-200 February 2011 due to field logistical issues.
5. J = concentration or RL estimated by laboratory or data validation.

FIGURE 4-1
MAXIMUM Cr(VI) CONCENTRATIONS IN ALLUVIAL AQUIFER, FOURTH QUARTER 2010

FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
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North

South
Section B

Cross-Section Parallel to the Colorado River

BN & SF
Railroad

MW-33-40
MW-33-90
MW-33-150
MW-33-210

MW-46-175
MW-46-205

MW-28-25
MW-28-90
projected: 110'

MW-44-70
MW-44-115
MW-44-125

MW-34-55
MW-34-80
MW-34-100

MW-27-20
MW-27-60
MW-27-85

Elevation (feet above MSL)

700
600
500
400
300
200
100
0

water table (average 455' MSL)

ALLUVIAL AQUIFER

Oldest Alluvium

Fluvial Deposits

Upper Depth Interval

Middle Depth Interval

Lower Depth Interval

Approximate geologic contact
between alluvial fan
and fluvial deposits

ND (1.0)
20
24.5
11.5
14.1
237'

ND (1.0)
ND (1.0)
20
50
134
5.6
216'

ND (0.2)
ND (0.2)
ND (1.0)
219
25.0
134'

ND (0.2)
ND (0.2)
ND (0.2)
145
116'

ND (0.2)
ND (0.2)
ND (1.0)
107'

Miocene Conglomerate (Bedrock)

True-Scale (No Vertical Exaggeration)

-100 0 100 200 300 400 500 600 700 800 900 1,000 1,100 1,200 1,300 1,400
Distance (feet)

Notes:
ND = Not detected at listed reporting limit.

See Table 3-1 for additional sampling data and prior results for wells on this figure.

See Figure 1-4 for map of this cross-section.

water level

well screen

3,810

boring depth (feet)

103'

50
Inferred Cr(VI) concentration contour from December 2010 sampling.

Hexavalent Chromium [Cr(VI)] concentration in micrograms per liter (µg/L), equivalent to parts per billion (ppb).

ND (1)	Not detected at listed reporting limit (ppb)
29	Less than 32 µg/L
3,810	Greater than 32 µg/L

FIGURE 4-2
Cr(VI) CONCENTRATIONS
FLOODPLAIN CROSS-SECTION B,
FOURTH QUARTER 2010

FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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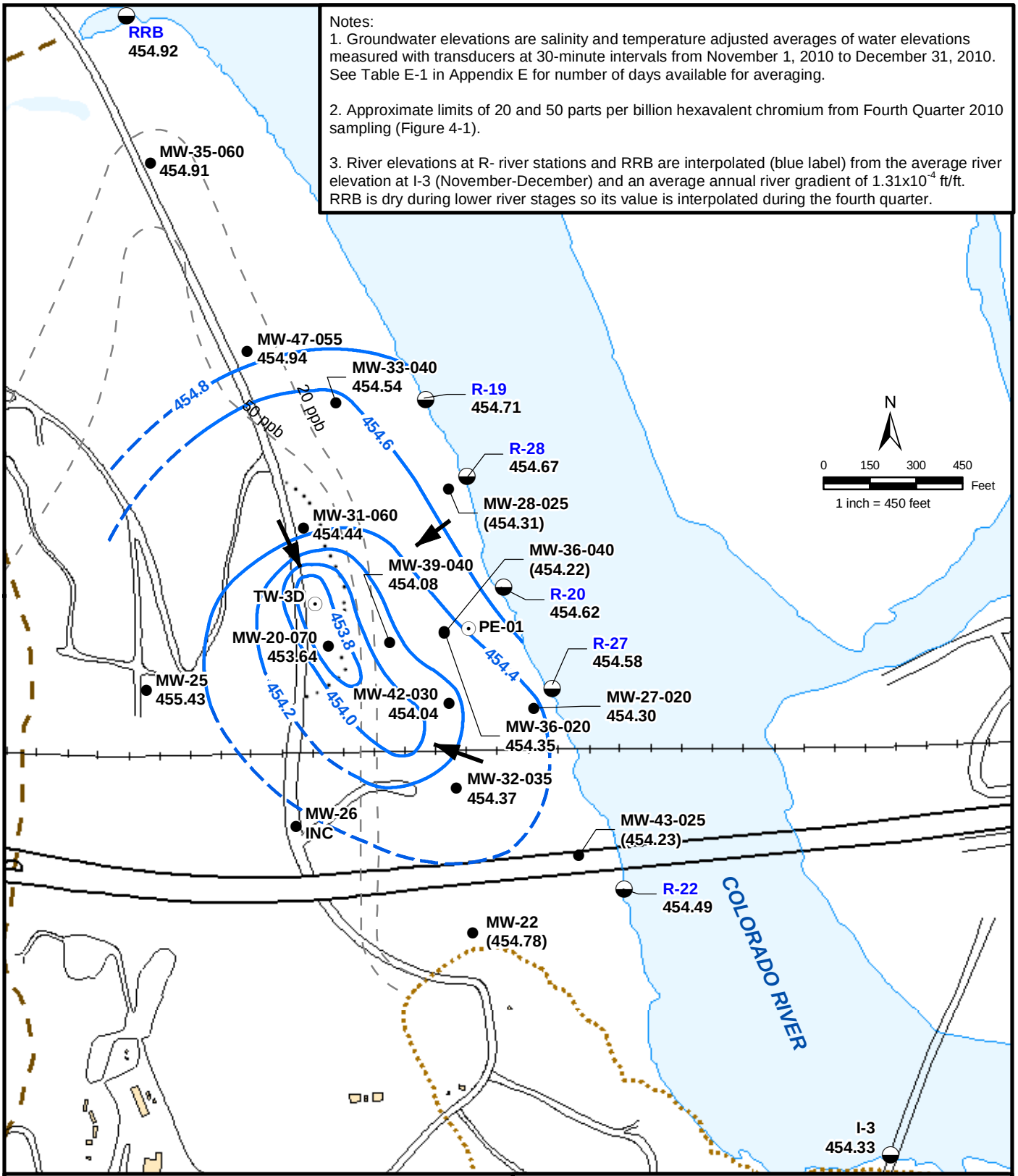
C:\USERS\CHALL6\DOCUMENTS\GINT\ANNUAL_2010\FIGURE_4-2_XSECB_CR.GDW;



Notes:
1. Groundwater elevations are salinity and temperature adjusted averages of water elevations measured with transducers at 30-minute intervals from November 1, 2010 to December 31, 2010. See Table E-1 in Appendix E for number of days available for averaging.

2. Approximate limits of 20 and 50 parts per billion hexavalent chromium from Fourth Quarter 2010 sampling (Figure 4-1).

3. River elevations at R- river stations and RRB are interpolated (blue label) from the average river elevation at I-3 (November-December) and an average annual river gradient of 1.31×10^{-4} ft/ft. RRB is dry during lower river stages so its value is interpolated during the fourth quarter.

MW-29 455.85 — Average Groundwater Elevation at Monitoring Station (ft AMSL)

MW-29 (455.85) — Average Groundwater Elevation at Monitoring Station (ft AMSL) Not Used for Contouring

R-22 455.85 — River Elevation (ft MSL) Interpolated Average

Interpreted Groundwater Flow Direction

Bedrock Contact at 455 ft elevation

Monitoring Well

River Station

Extraction Well

Groundwater Elevation Contour 0.2 ft (dashed where inferred)

INC — Data incomplete for reporting period

FIGURE 4-3a
AVERAGE GROUNDWATER ELEVATIONS IN SHALLOW WELLS, FOURTH QUARTER 2010

FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION
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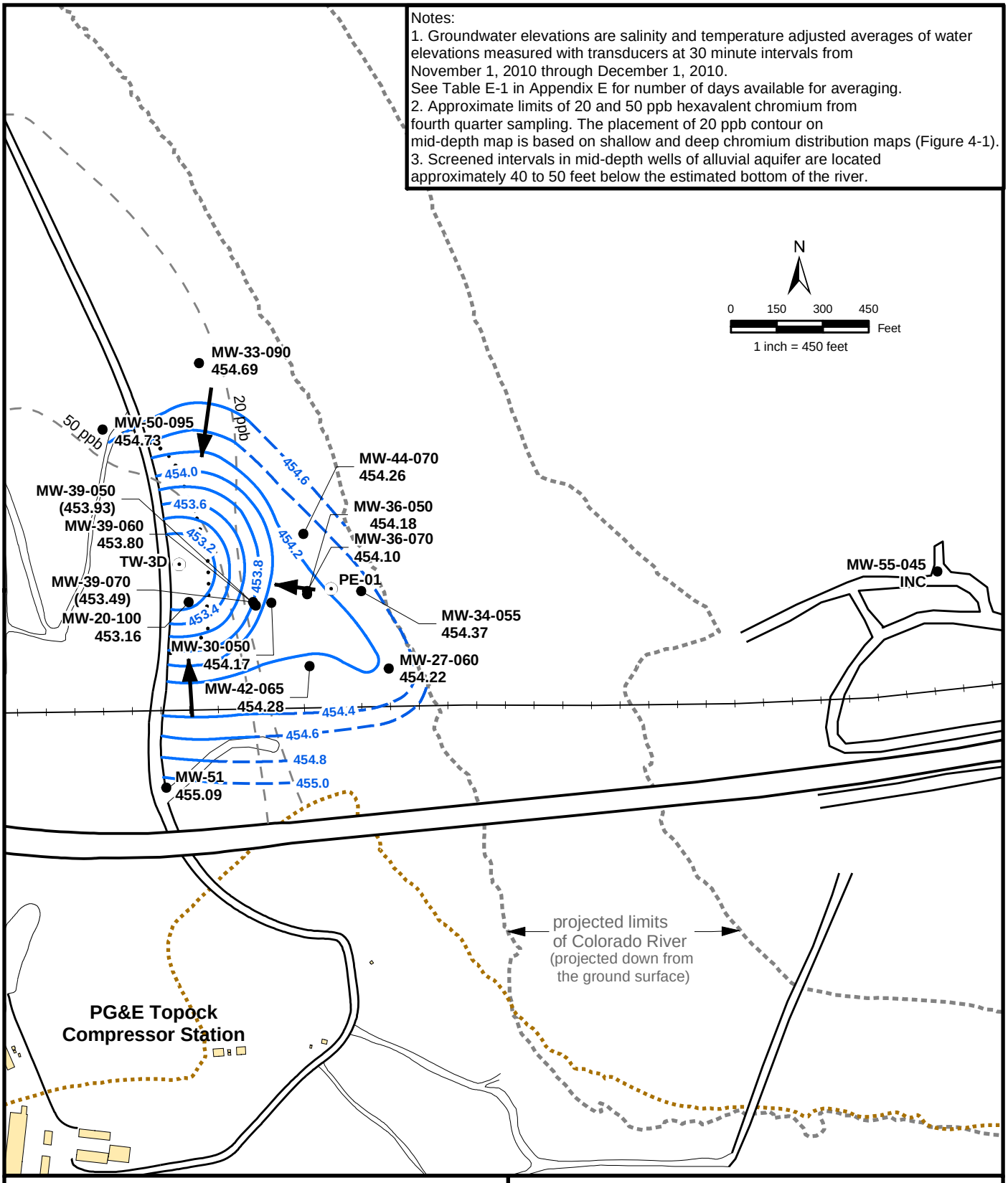

FIGURE 4-3b
AVERAGE GROUNDWATER ELEVATIONS IN MID-DEPTH WELLS, FOURTH QUARTER 2010

FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION
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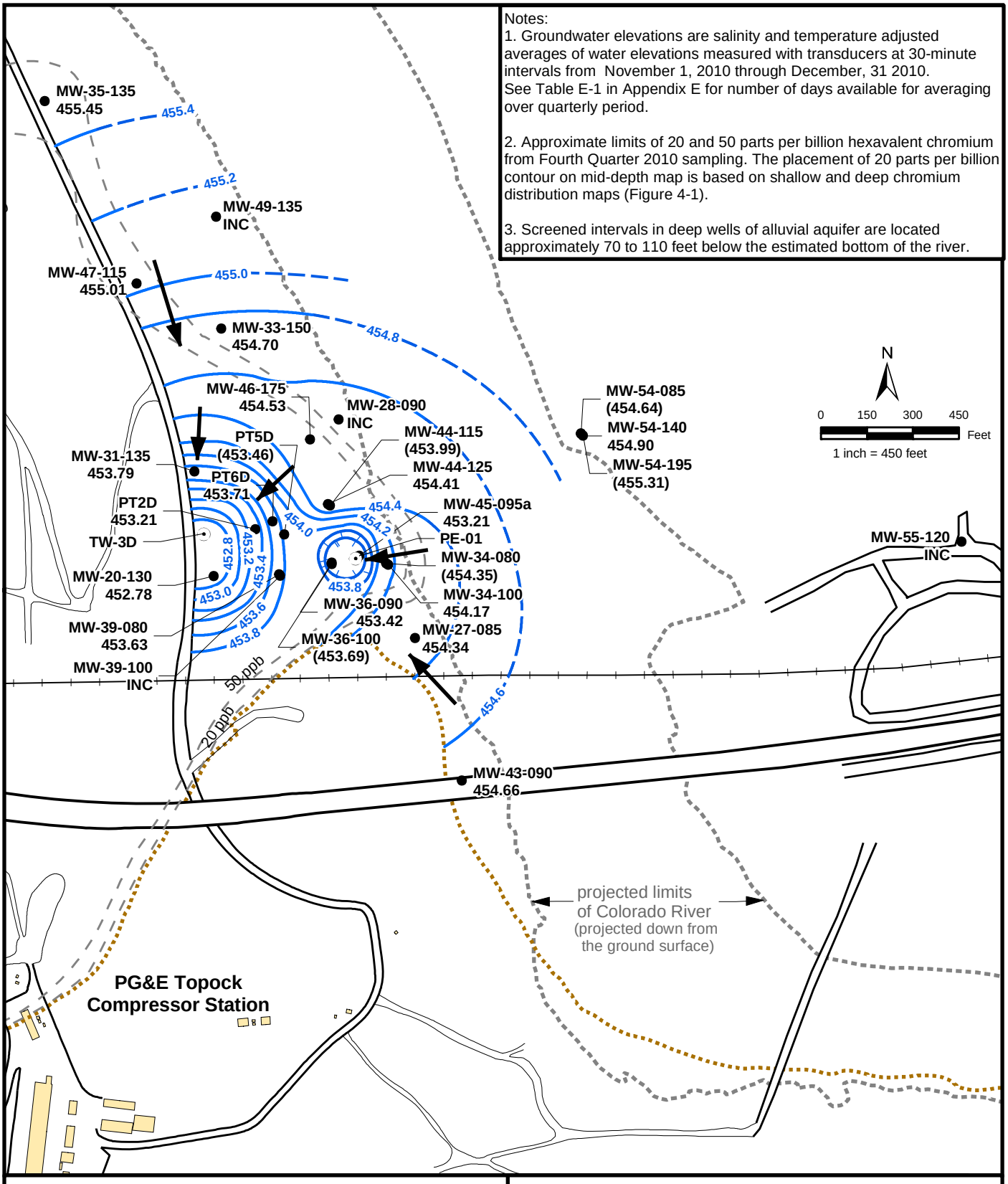

FIGURE 4-3c
AVERAGE GROUNDWATER ELEVATIONS IN DEEP WELLS, FOURTH QUARTER 2010

FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNA

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West

East
Section A

TW-2S
TW-2D
projected: 140'

TW-3D
projected: 130'

MW-20-70
MW-20-100
MW-20-130

MW-39-40
MW-39-50
MW-39-60
MW-39-70
MW-39-80
MW-39-100

MW-30-30
MW-30-50

MW-36-20
MW-36-40
MW-36-50
MW-36-70
MW-36-90*
MW-36-100

PE-1

MW-45-95a
projected:30'

MW-34-55
MW-34-80
MW-34-100

Colorado River

Elevation (feet above MSL)

550
500
450
400
350
300
250

453.64
453.16
452.78
132'
157'
180'

453.2
453.4
453.6
453.8
454.0
453.0
452.8
20
50

454.08
453.93
453.80
453.49
453.63
INC
118'

454.17
67'

Groundwater Divide

454.35
454.22
454.18
454.10
453.42
453.69
108'

454.2
454.0
453.8
453.6
453.4
453.2
453.21
97'
105'

454.4
454.37
454.35
454.17
116'

454.58

Miocene Conglomerate (Bedrock)

True-Scale (No Vertical Exaggeration)

0 Distance (feet) 100 200 300 400 500 600 700

Notes:
Results show average groundwater elevations for November 1, 2010 through December 31, 2010 measured with transducers at 30 minute intervals.

Groundwater elevations adjusted for salinity and temperature.
Well MW-36-90* is excluded from contouring.
River elevation (R-27) is the calculated average river level based upon the river gradient between RRB and I-3.

Legend:

MW-30-50
Inferred water table
well screen
455.23
103 boring depth (feet)

20
Inferred hexavalent chromium contour (ppb) from December 2010 sampling.

Average groundwater head (ft AMSL)

453.5
Groundwater head contour

453.5
Inferred groundwater head contour

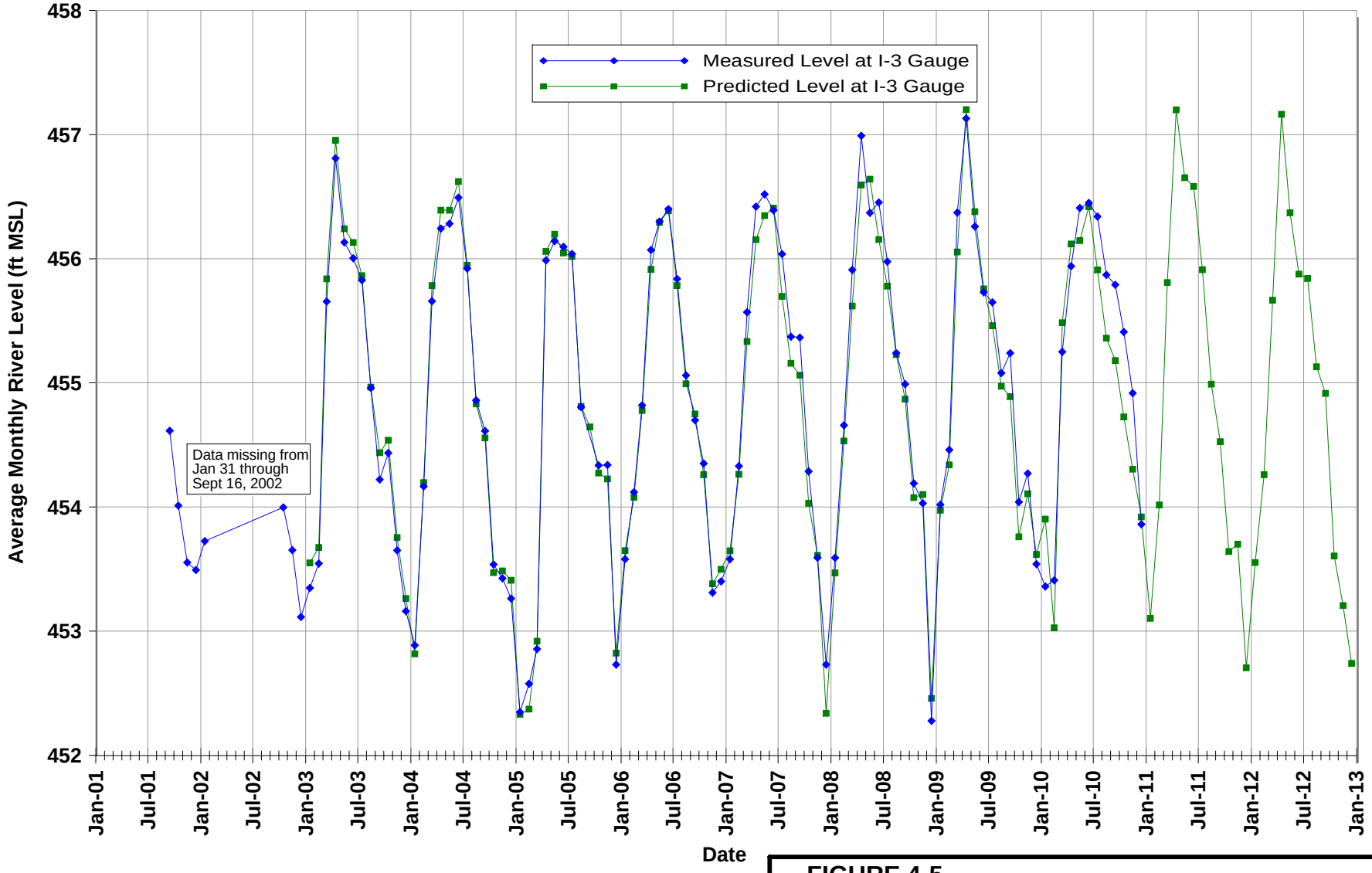
Interpreted groundwater flow direction

FIGURE 4-4
AVERAGE GROUNDWATER ELEVATIONS FOR WELLS IN FLOODPLAIN CROSS-SECTION A FOURTH QUARTER 2010

FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

CH2MHILL

C:\USERS\CHALL6\DOCUMENTS\GINT\ANNUAL_2010\FIGURE_4-4_XSECA_GW.GDW;



Note:
Projected river level for each month in the past is calculated based on the preceding months USBR projections of Davis Dam release and stage in Lake Havasu. Future projections of river level at I-3 are based upon December 2010 USBR projections. These data are reported monthly by the US Department of Interior, at http://www.usbr.gov/lc/region/g4000/24mo.pdf

FIGURE 4-5
PAST AND PREDICTED FUTURE RIVER LEVELS AT TOPOCK COMPRESSOR STATION

FOURTH QUARTER AND ANNUAL 2010 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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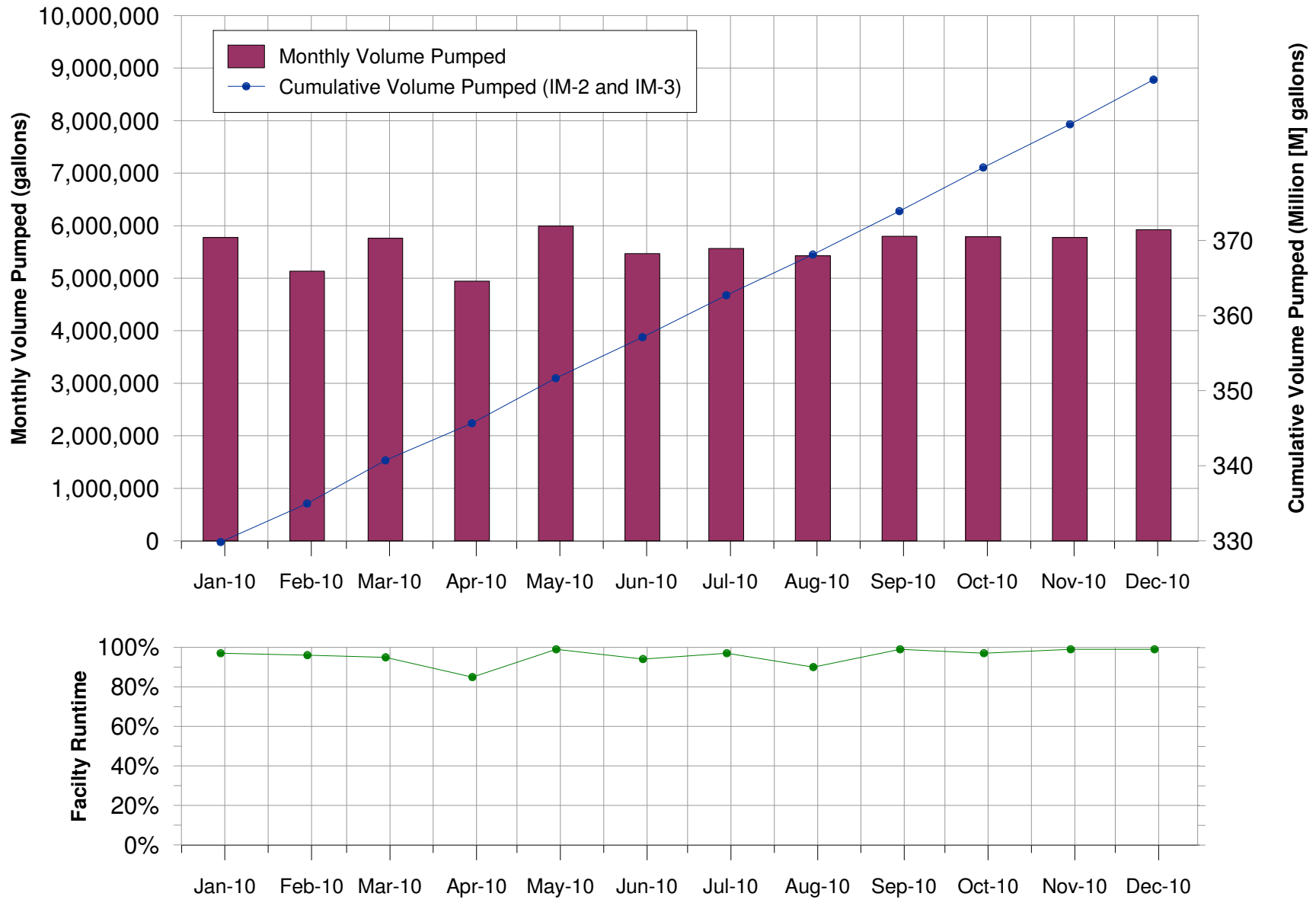

FIGURE 5-1
MONTHLY COMBINED PUMPING VOLUMES AND PERCENT UPTIME, 2010 REPORTING PERIOD
FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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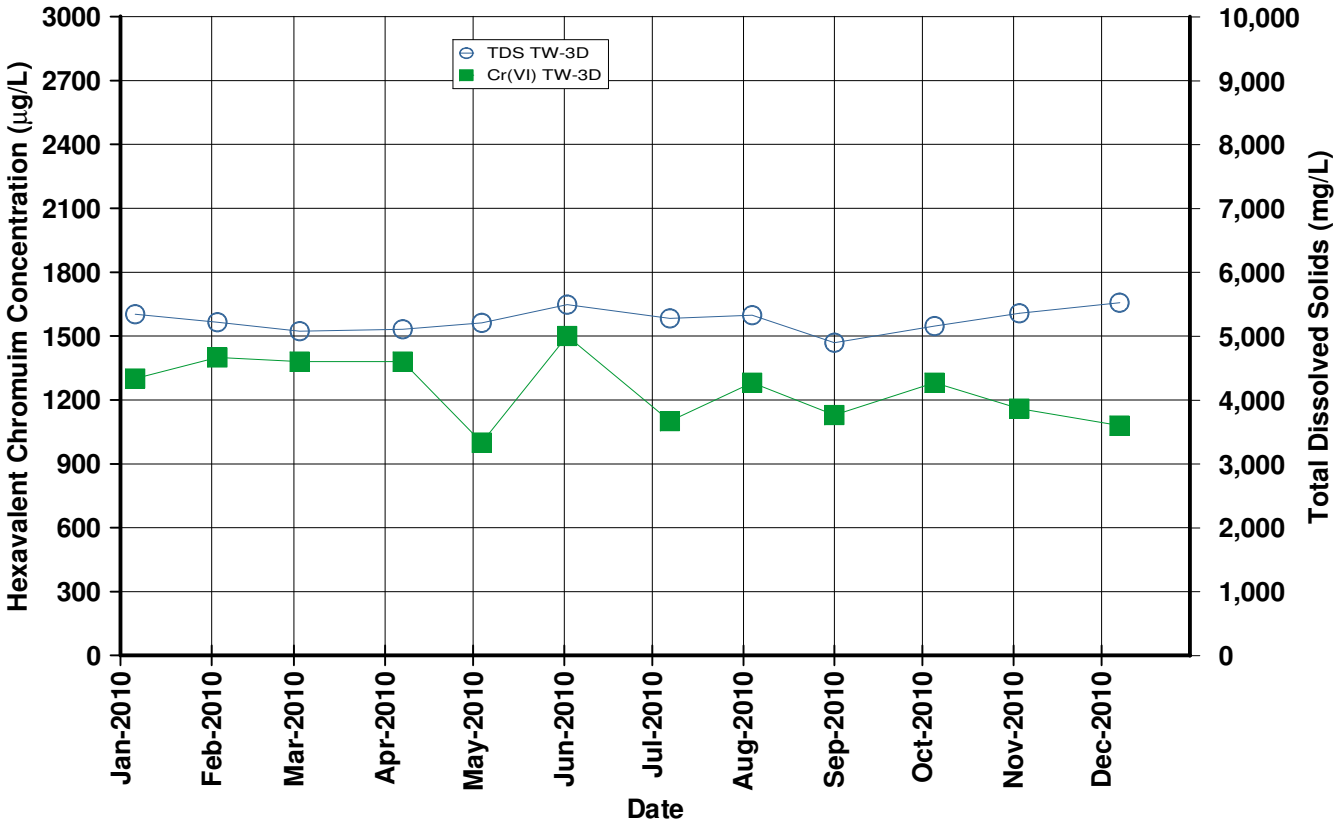

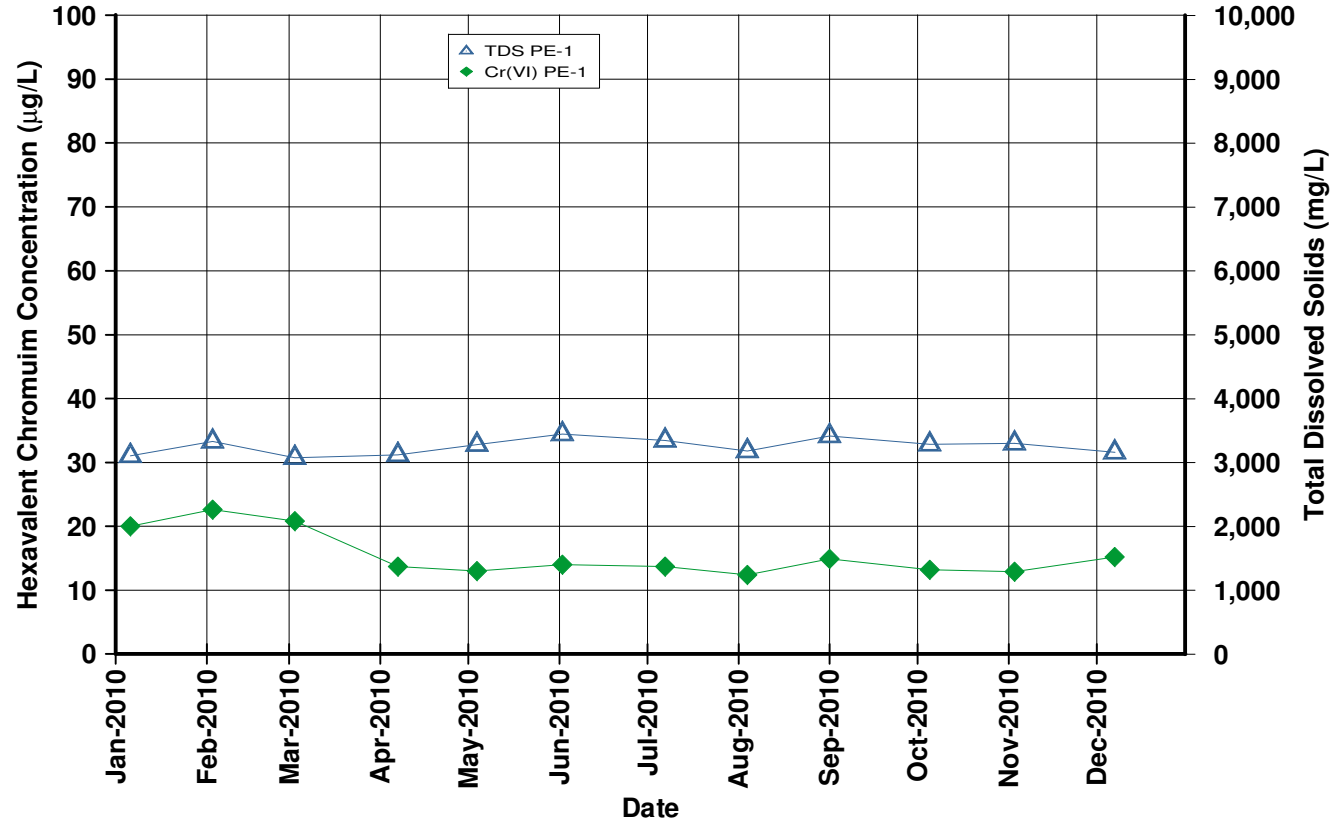

Notes:
TW-3D pumping began on 20-Dec-05.
TW-3D average extraction rate during 2010 was 102.4 gpm.
PE-1 pumping began on 26-Jan-06.
PE-01 average extraction rate during 2010 was 25.7 gpm.

FIGURE 5-2
Cr(VI) AND TOTAL DISSOLVED SOLIDS CONCENTRATIONS IN EXTRACTION WELLS TW-3D AND PE-1, 2010 REPORTING PERIOD
FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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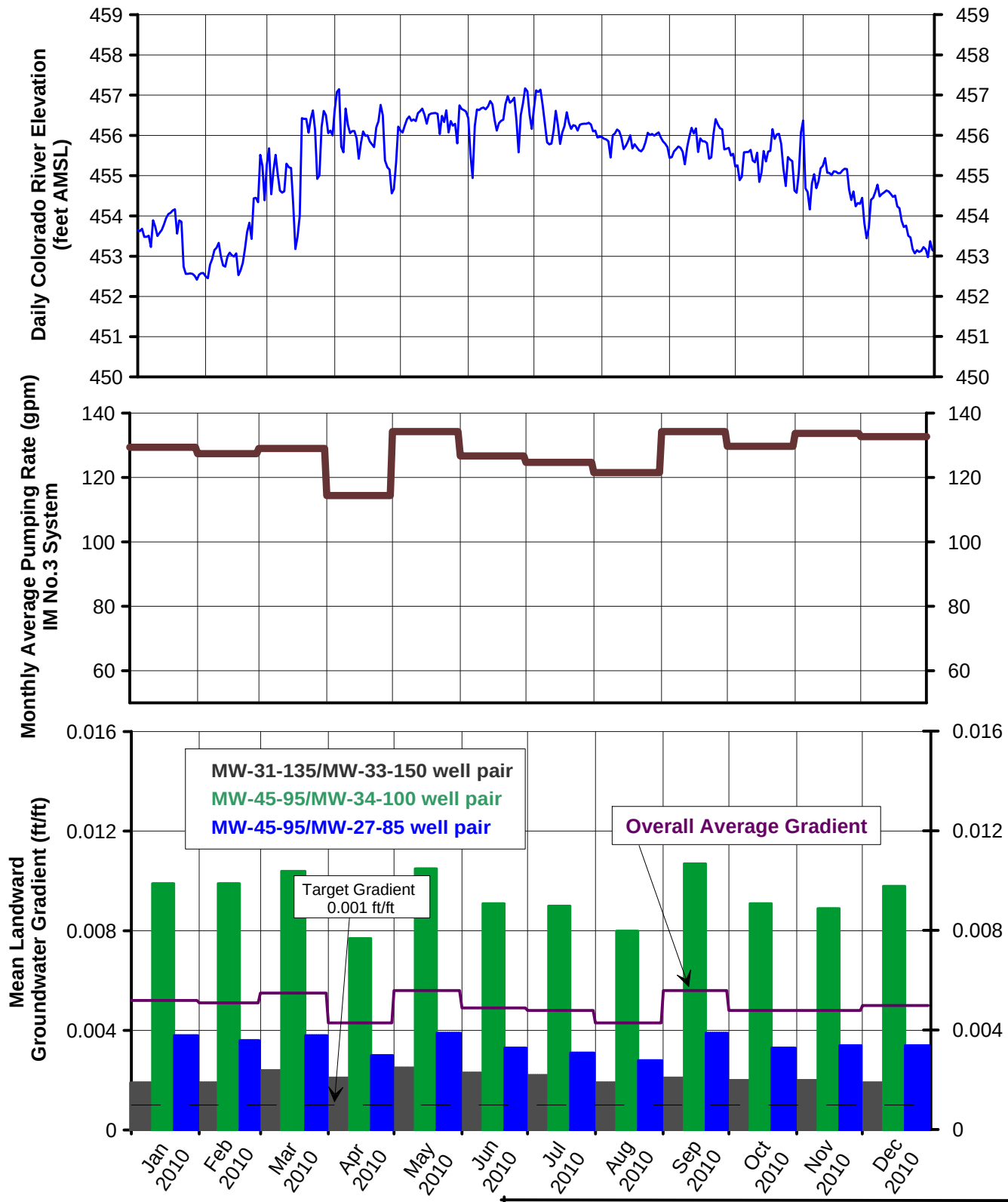

Notes:

1) For IM pumping, the target landward gradient for well pairs is 0.001 feet/foot.
2) Refer to Table 4-1 and Section 4.4 for discussion of pumping data.
3) Pumping rate plotted is the combined rate of extraction wells TW-3D and PE-1 in operation each month.
4) Refer to Table 4-2 and Section 4.5 for discussion of gradient data.

FIGURE 5-3
MEASURED HYDRAULIC GRADIENTS, RIVER ELEVATION, AND PUMPING RATE, 2010 REPORTING PERIOD

FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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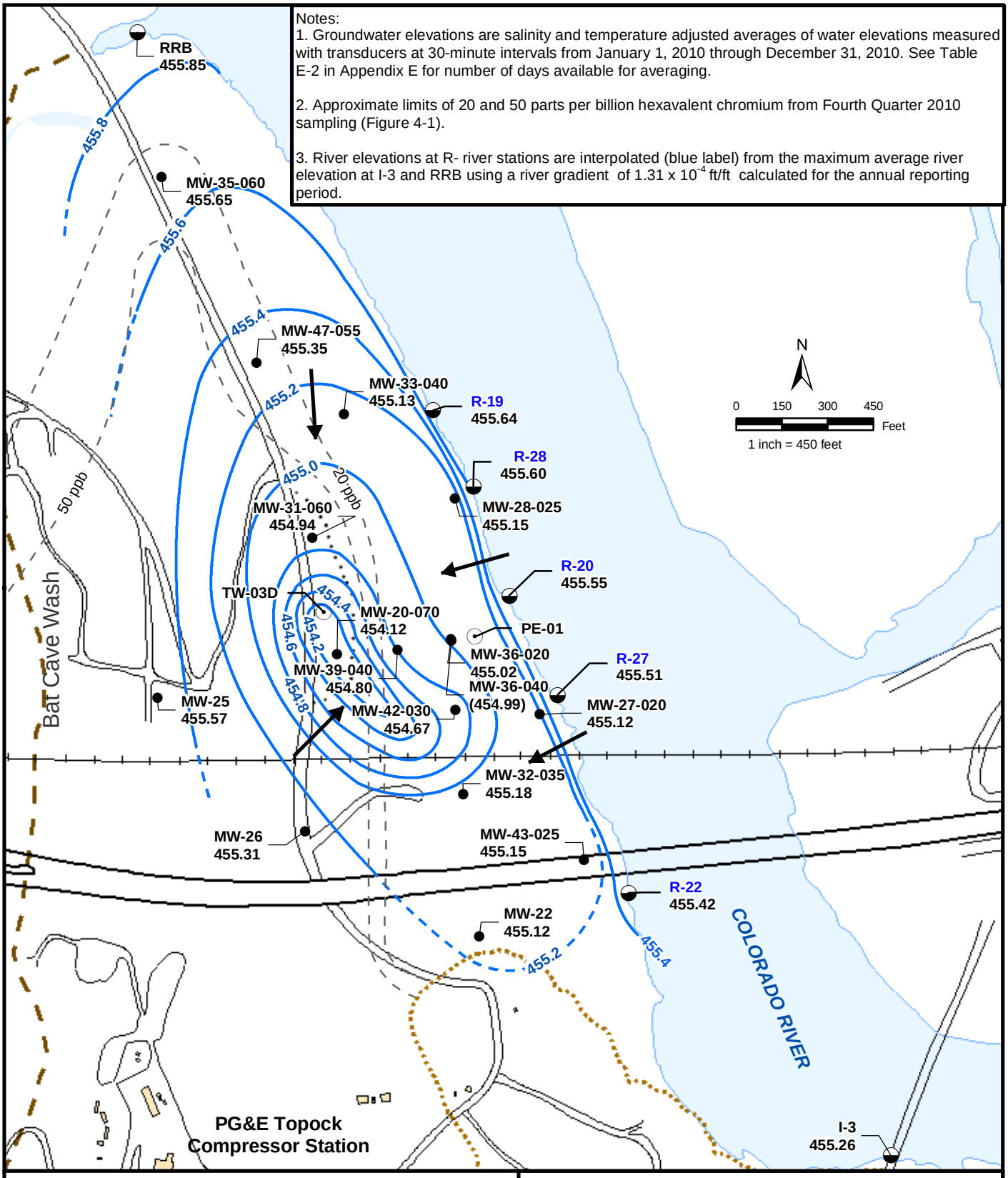

FIGURE 5-4a
AVERAGE GROUNDWATER ELEVATIONS IN SHALLOW WELLS AND RIVER ELEVATIONS, 2010 REPORTING PERIOD

FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNA

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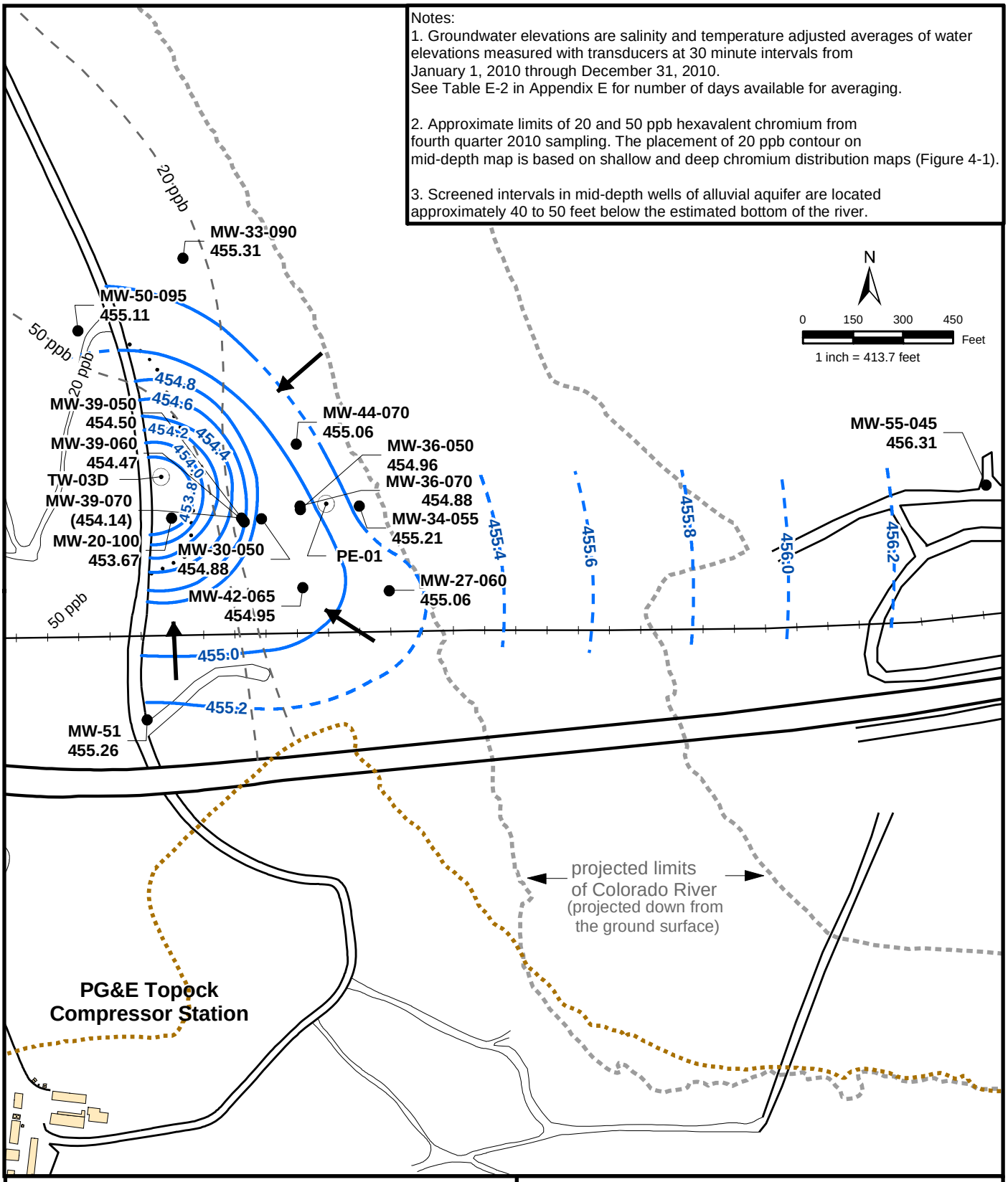

FIGURE 5-4b
AVERAGE GROUNDWATER ELEVATIONS IN MID-DEPTH WELLS 2010 REPORTING PERIOD

FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
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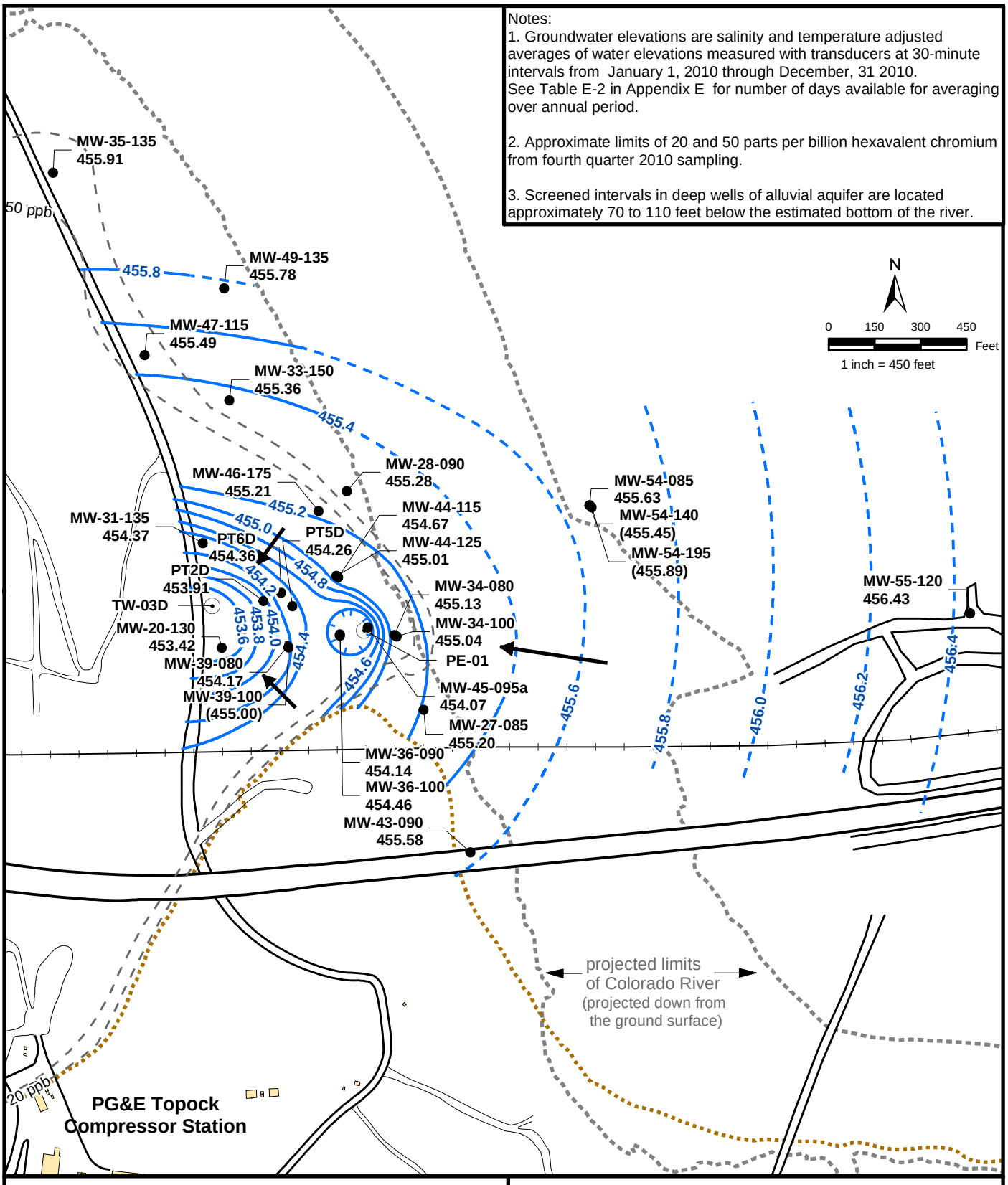

FIGURE 5-4c
AVERAGE GROUNDWATER ELEVATIONS IN DEEP WELLS, 2010 REPORTING PERIOD

FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNA

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West

East

Section A

TW-2S
TW-2D
projected: 140'

TW-3D
projected: 130'

MW-20-70
MW-20-100
MW-20-130

MW-39-40
MW-39-50
MW-39-60
MW-39-70
MW-39-80
MW-39-100

MW-30-30
MW-30-50

MW-36-20
MW-36-40
MW-36-50
MW-36-70
MW-36-90*
MW-36-100

PE-1

MW-45-95a
projected:30'

MW-34-55
MW-34-80
MW-34-100

Colorado River

Elevation (feet above MSL)

550
500
450
400
350
300
250

454.12
453.67
453.42
132'
157'
180'

454.80
454.50
454.47
454.14
454.17
455.0
118'

454.88
67'

455.02
454.99
454.96
454.88
454.14
454.46
108'

454.07
97'
105'

455.51
455.21
455.13
455.04
116'

453.8
454.0
453.6
453.4
454.8
454.6
454.4
454.2
455.0
455.2
455.4
454.8
454.6
454.4
454.2
20
50
Groundwater Divide

Miocene Conglomerate (Bedrock)

True-Scale (No Vertical Exaggeration)

0 Distance (feet) 100 200 300 400 500 600 700

Notes:
Results show average groundwater elevations for January 1, 2010 through December 31, 2010 measured with transducers at 30 minute intervals.

Groundwater elevations adjusted for salinity and temperature.
Well MW-36-90* is excluded from contouring.
River elevation (R-27) is the calculated average river level based upon the river gradient between RRB and I-3.

Legend:

MW-30-50
Inferred water table
well screen
455.23
103 boring depth (feet)

20
Inferred hexavalent chromium contour (ppb) from December 2010 sampling.

Average groundwater head (ft AMSL)

453.5
Groundwater head contour

453.5
Inferred groundwater head contour

Interpreted groundwater flow direction

FIGURE 5-5
AVERAGE GROUNDWATER ELEVATIONS FOR WELLS IN FLOODPLAIN CROSS-SECTION A 2010 REPORTING PERIOD

FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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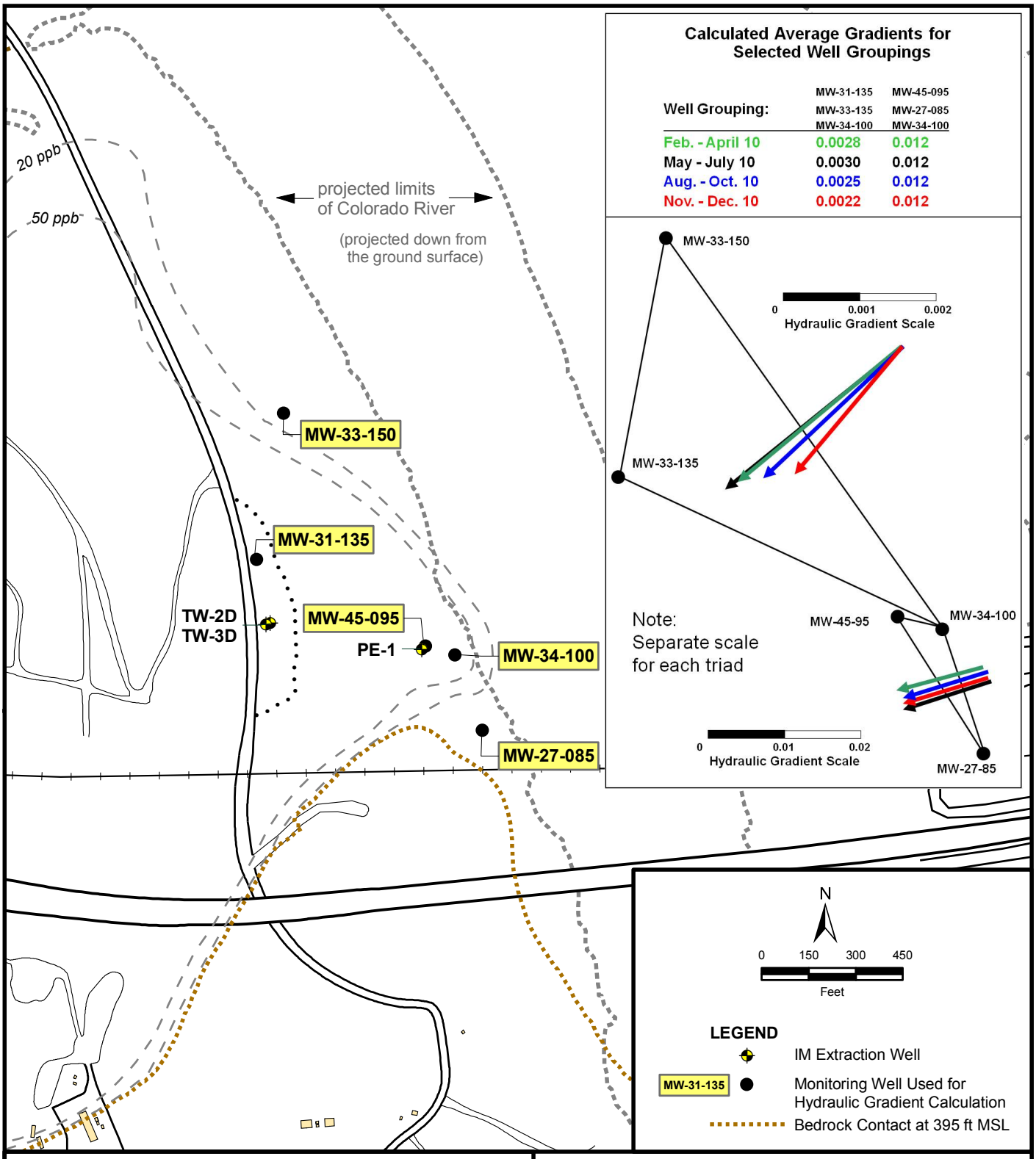
C:\USERS\CHALL6\DOCUMENTS\GINT\ANNUAL_2010\FIGURE_5-5_XSECA_GW-ANNUAL.GDW;



Notes:
1. Direction and magnitude of hydraulic gradient for each well triad (MW-45-095, MW-33-150, MW-31-135 and MW-45-095, MW-34-100, MW-27-085) were calculated using triangulation with linear interpretation and average head values for each quaterly reporting period.

2. Approximate limits of 20 and 50 ppb hexavalent chromium from fourth quarter 2010 sampling.

3. Screened intervals in deep wells of alluvial aquifer are located approximately 80 to 90 feet below the estimated bottom of the river.

FIGURE 5-6
MAGNITUDE AND DIRECTION OF HYDRAULIC GRADIENTS IN LOWER DEPTH INTERVAL DURING 2010 ANNUAL PERIOD

FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNA

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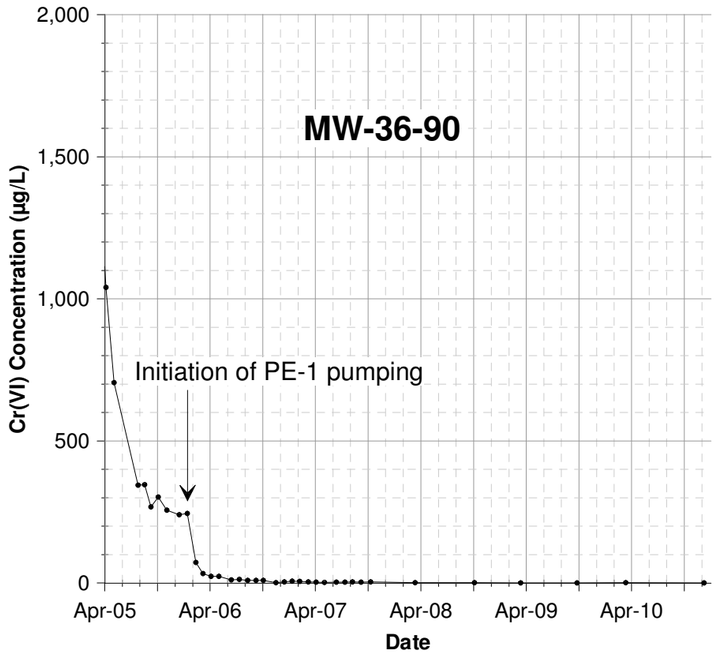

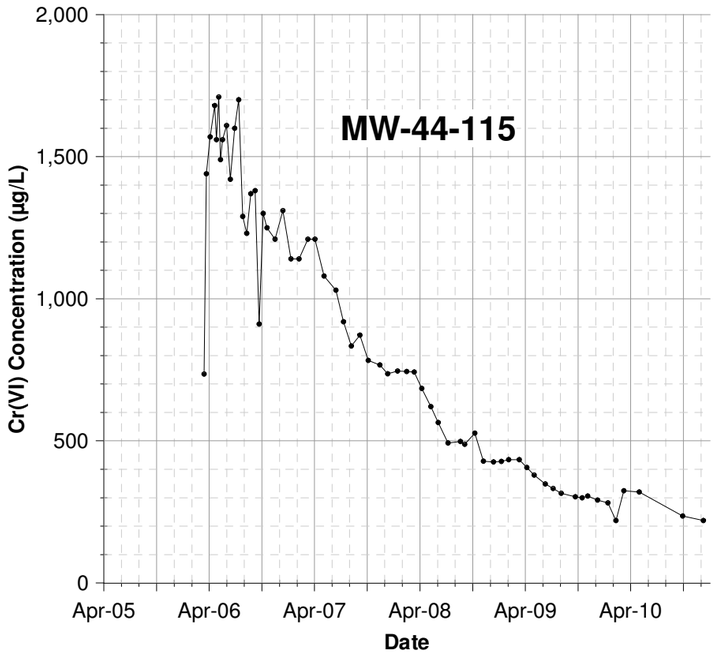

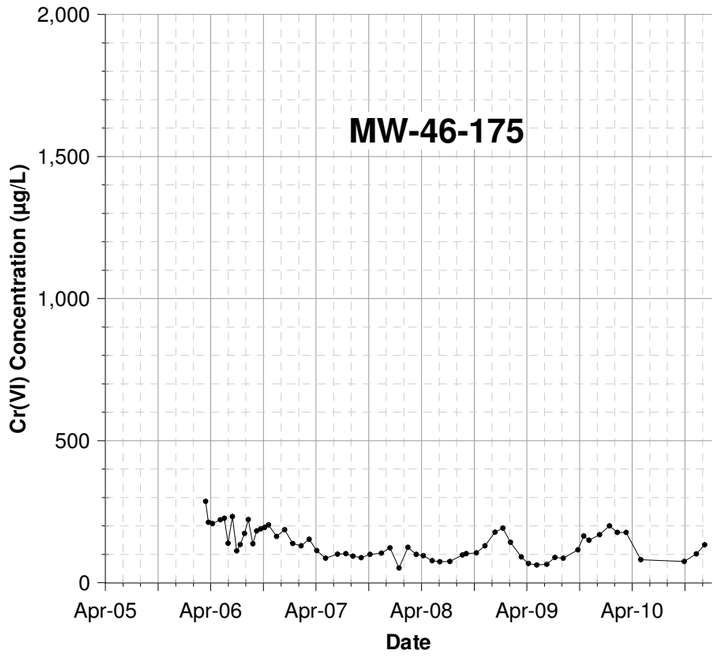

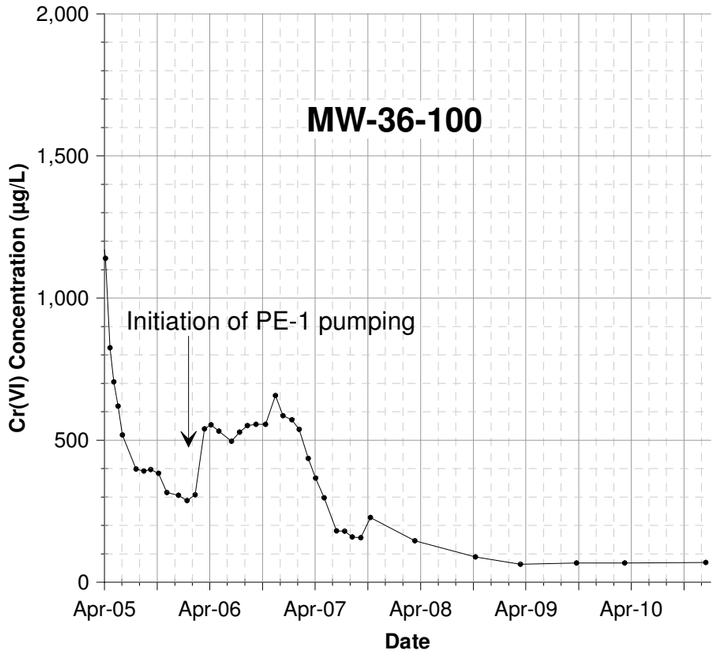

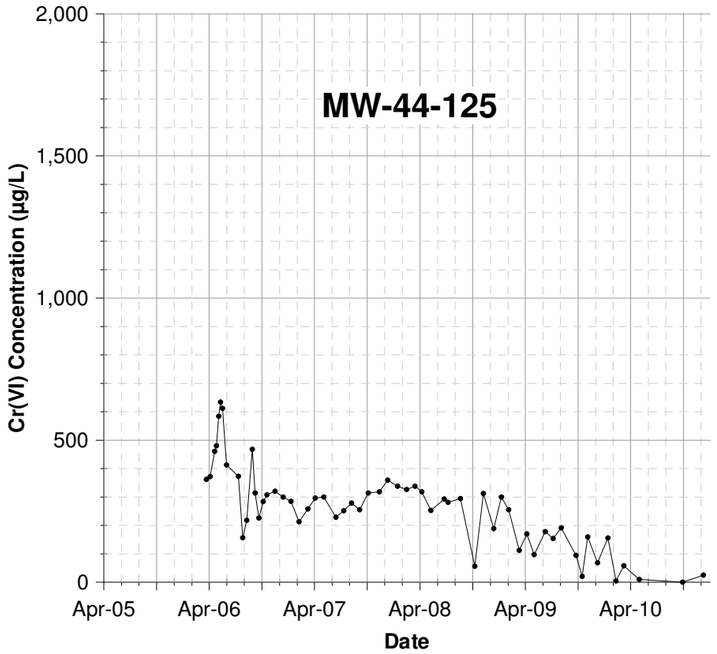

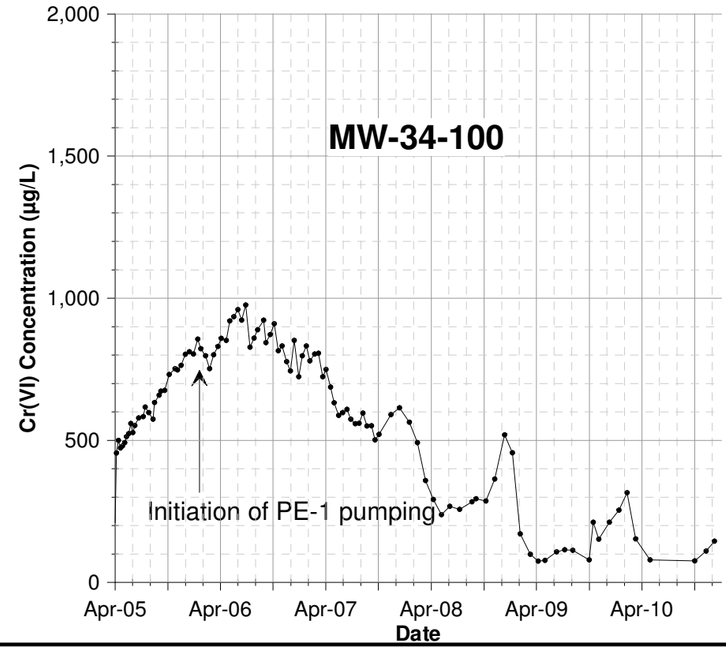

Notes
1. Hexavalent chromium [Cr(VI)] results in micrograms per liter (µg/L), equivalent to parts per billion (ppb).
2. Results plotted are maximum concentrations from primary and duplicate samples; see Table 3-1 for complete results.
3. MW-36 wells selected to monitor effects of PE-1 pumping on plume west of PE-1. MW-44 wells, MW-46-175, and MW-34-100 selected to monitor concentrations within the plume.

FIGURE 5-7
Cr(VI) CONCENTRATION TRENDS IN SELECTED PERFORMANCE MONITORING WELLS, APRIL 2005 THROUGH DECEMBER 2010
FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

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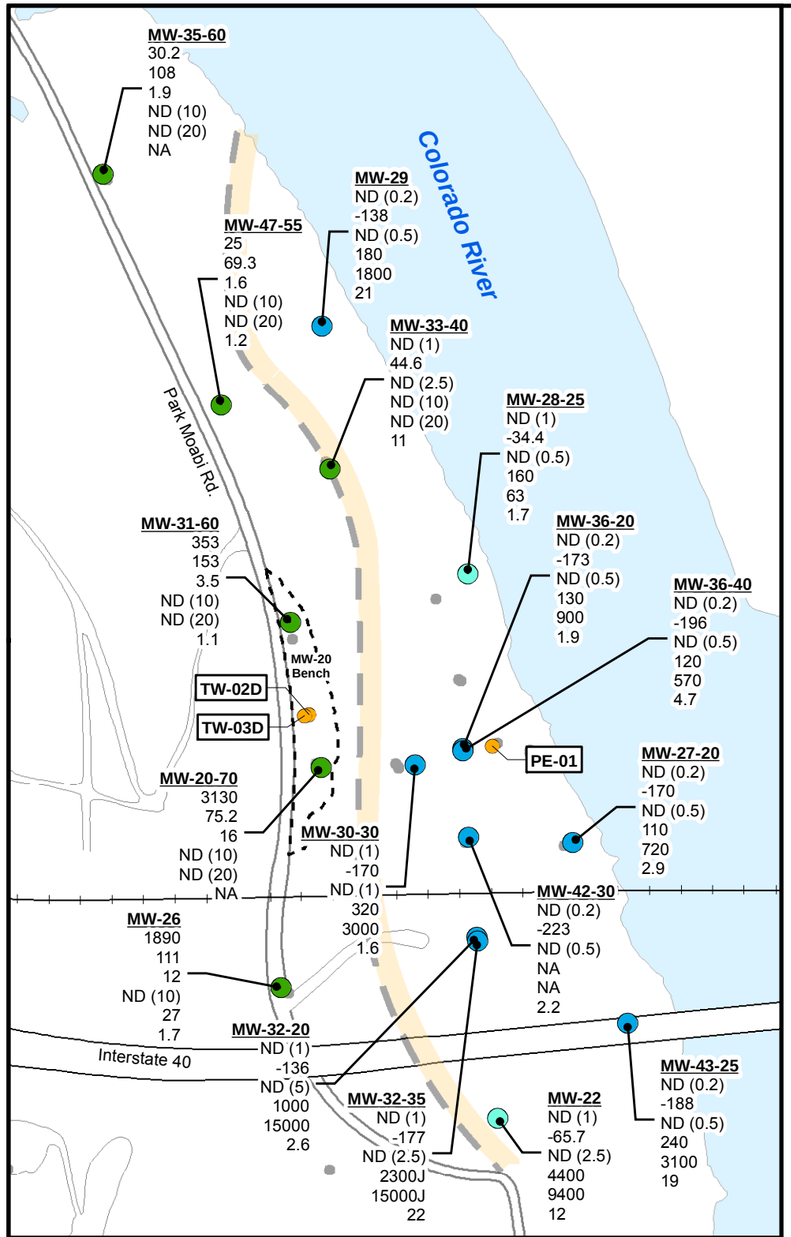
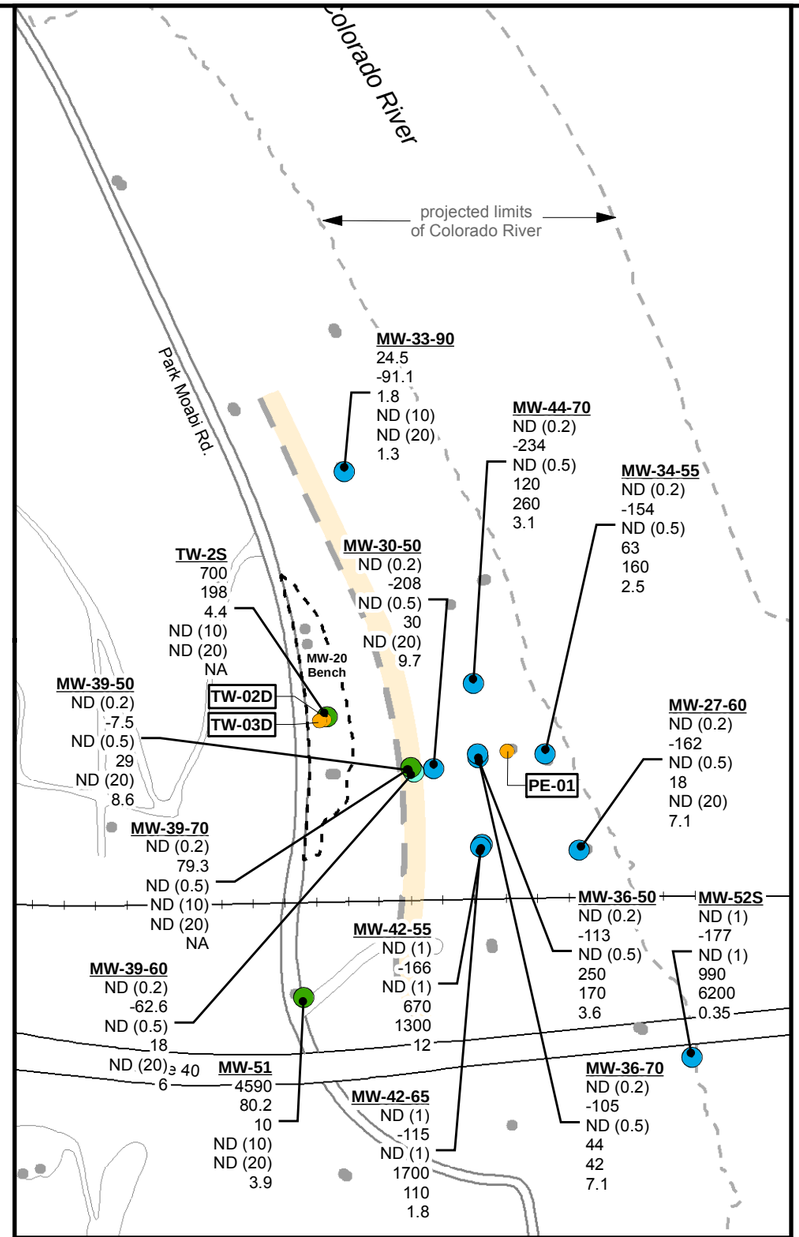
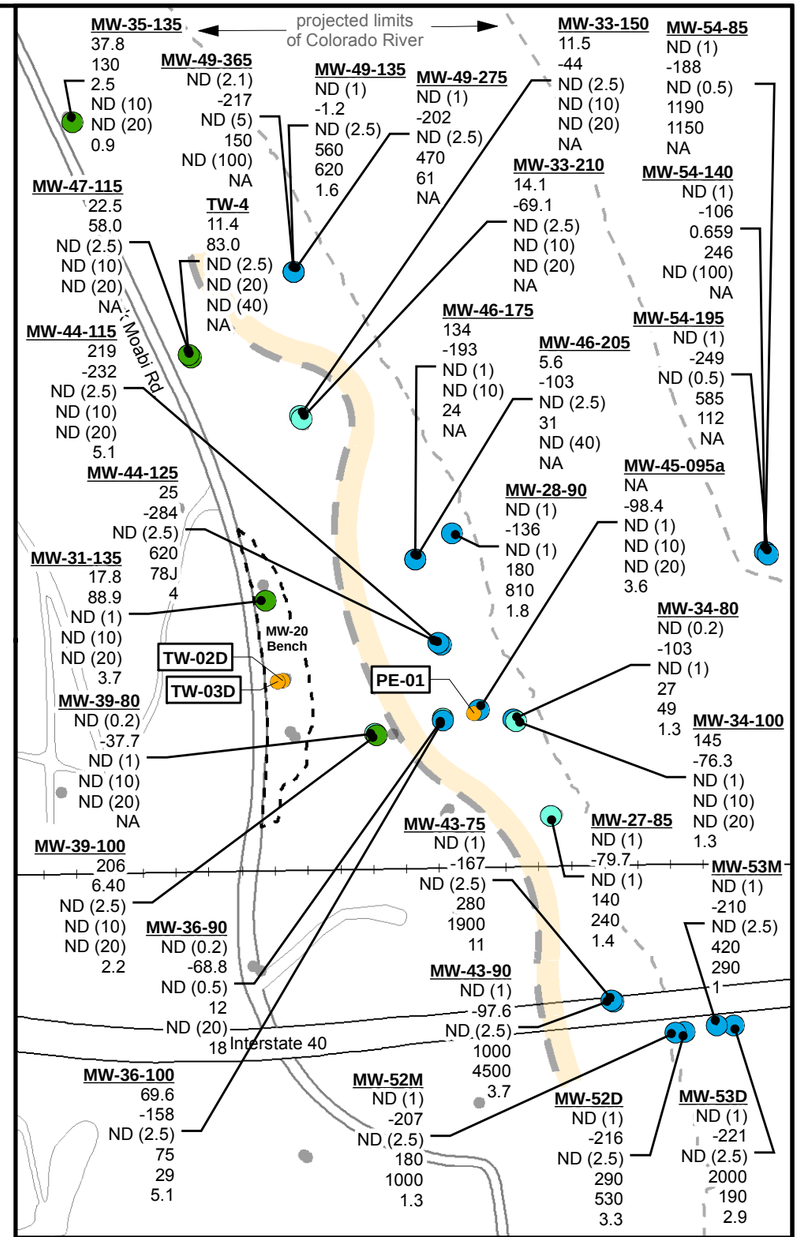


Shallow Wells (Upper Depth Interval) - 2010



Intermediate Wells (Middle Depth Interval) - 2010



Deep Wells (Lower Depth Interval) - 2010

LEGEND

- IM3 Extraction Wells (TW-2D, TW-3D, and PE-1)
- Groundwater ORP < -90 mV
- Groundwater -90 mV < ORP < 1 mV
- Groundwater ORP > 1 mV

Notes:
ND = not detected at listed reporting limit
NA = data not collected during reporting period
J = the value is an estimate

MW-22 **Groundwater Results, Fourth Quarter 2010**

ND (1)	Hexavalent chromium, micrograms per liter (µg/L)
-65.7	Oxidation reduction potential (ORP), millivolts (mV)
ND (2.5)	Nitrate as N, milligrams per liter (mg/L)
4400	Manganese (Mn), mircrograms per liter (µg/L)
9400	Iron (Fe), mircrograms per liter (µg/L)
12	Arsenic (As), mircrograms per liter (µg/L)

Approximate limit of reducing groundwater based upon a combination of redox indicator parameters.

N

0 400 800 Feet

FIGURE 5-8
DISTRIBUTION OF Cr(VI), GEOCHEMICAL INDICATOR PARAMETERS, AND IN SITU BYPRODUCTS IN FLOODPLAIN WELLS

FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURE PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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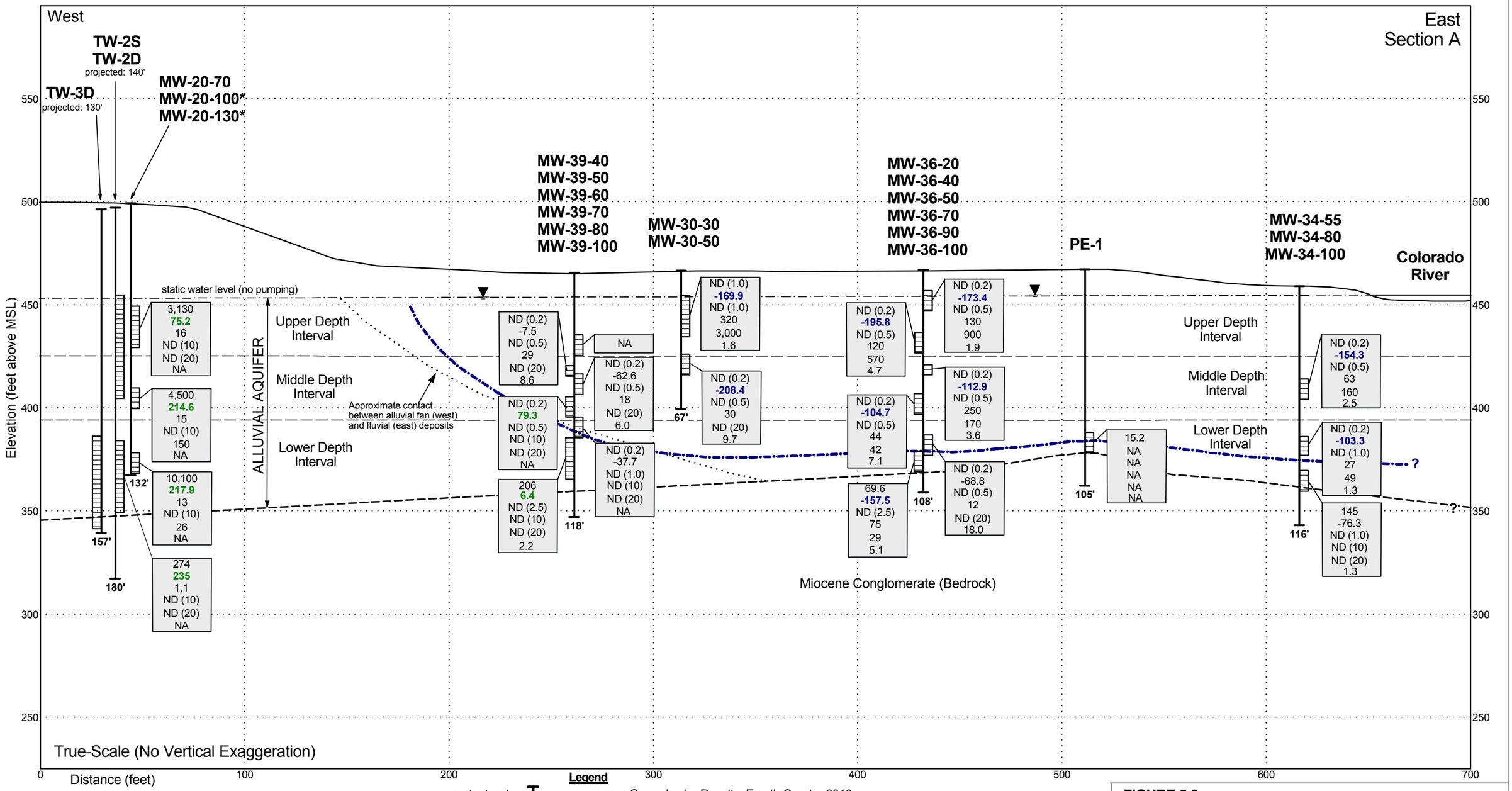
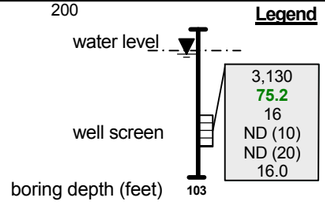


Notes:
ND = not detected at listed reporting limit.
NA = data not collected during reporting period.
* = Data for MW-20-100 and MW-20-130 collected in February 2011 due to field logistical issues.

Legend



Groundwater Results, Fourth Quarter 2010

Hexavalent chromium, micrograms per liter (ug/L)
Oxidation reduction potential, millivolts (mV)
Nitrate as N, milligrams per liter (mg/L)
Manganese (Mn), micrograms per liter (ug/L)
Iron (Fe), micrograms per liter (ug/L)
Arsenic (As), micrograms per liter (ug/L)

ORP values less than -90 mV highlighted blue.
Positive ORP values highlighted green.

Approximate limit of reducing water; based on a combination of redox indicator parameters.

FIGURE 5-9
DISTRIBUTION OF Cr(VI), GEOCHEMICAL INDICATOR PARAMETERS, AND IN SITU BYPRODUCTS IN FLOODPLAIN WELLS CROSS-SECTION A, FOURTH QUARTER 2010

FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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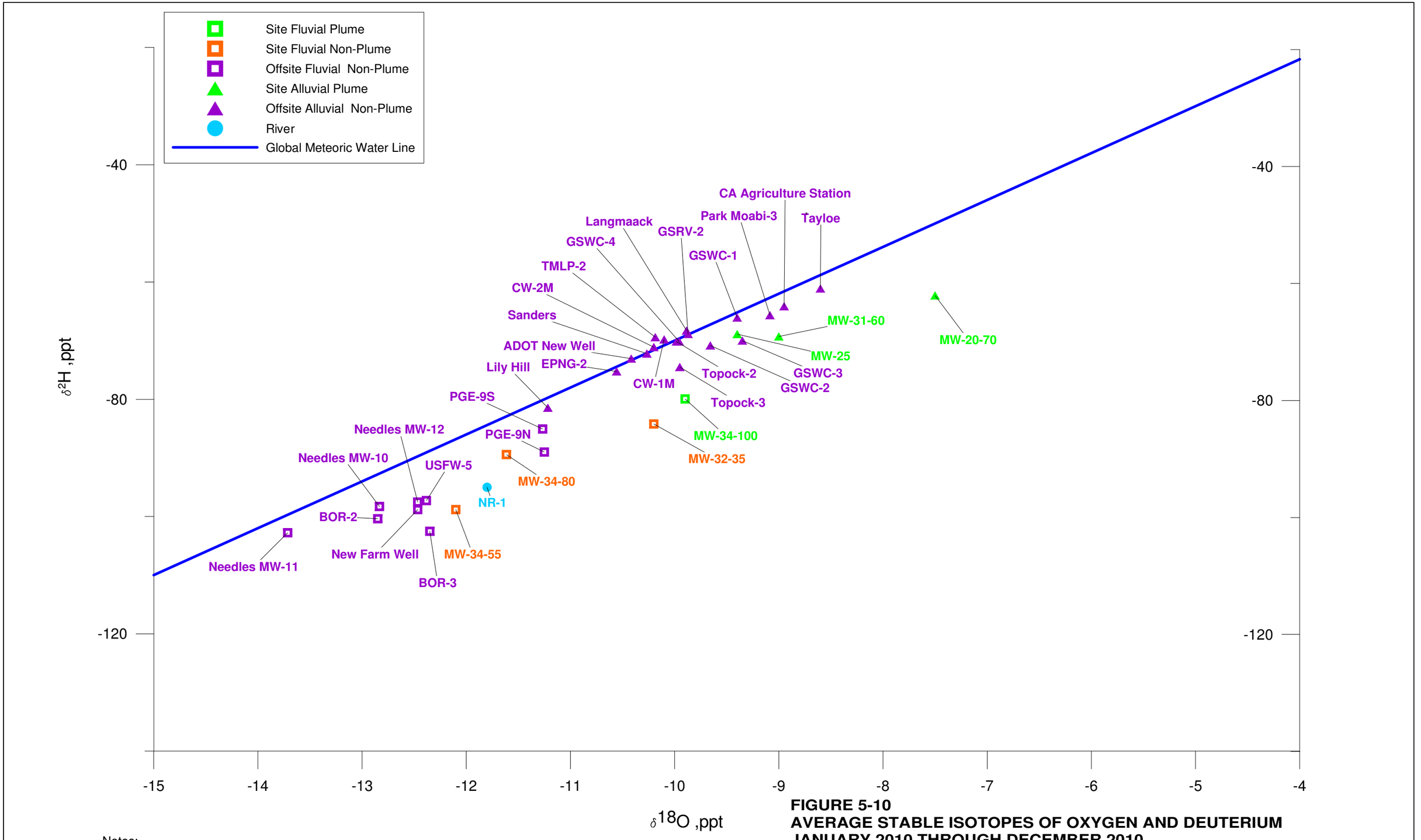
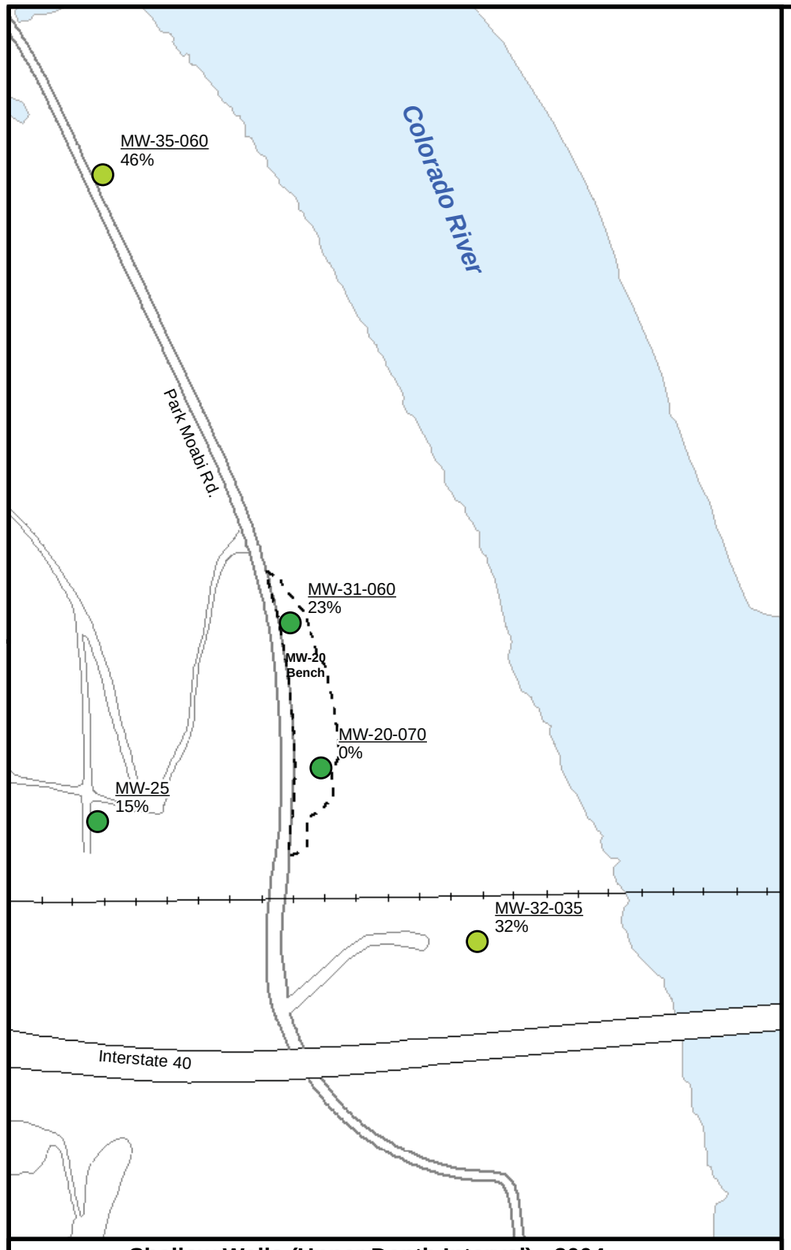
C:\USERS\CHALL6\DOCUMENTS\GINT\ANNUAL_2010\FIGURE_5-9_X-SEC_GEOCHEM_ANNUAL_2011.GDW;

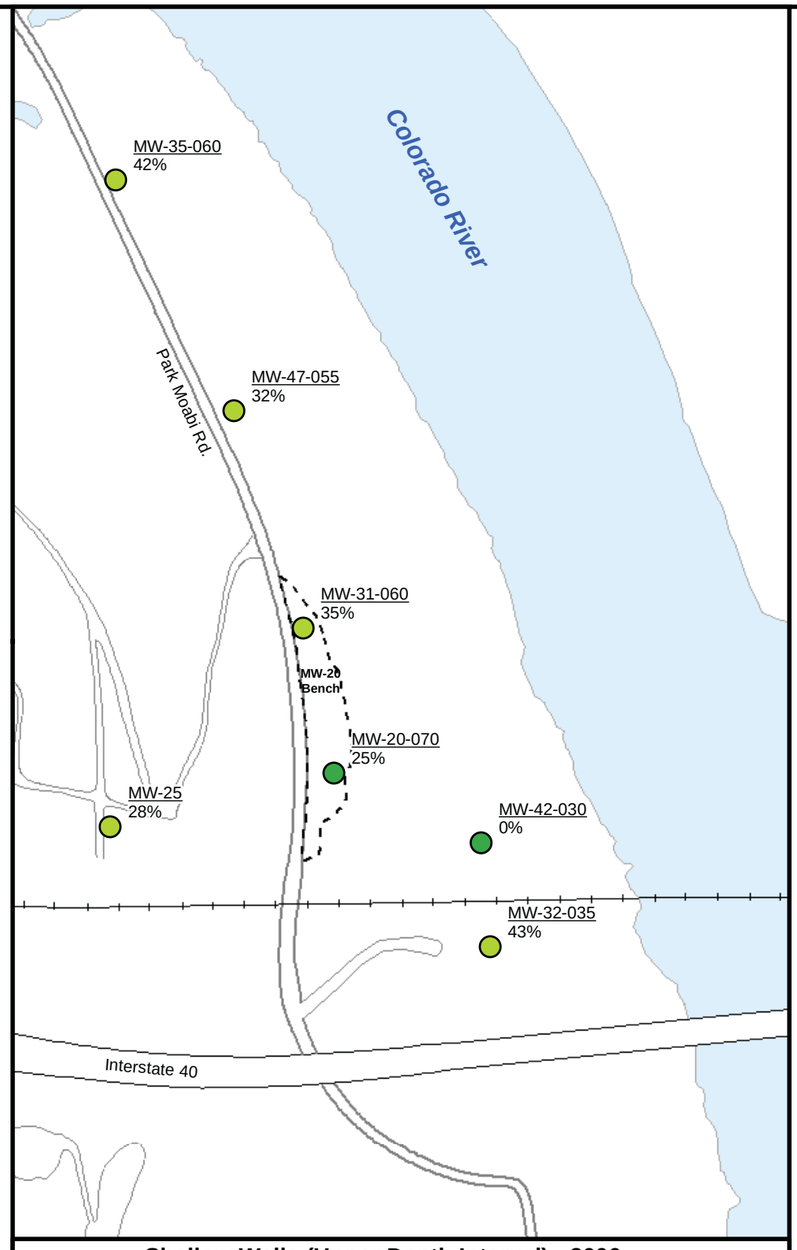


Notes:
Values for Performance Monitoring Program Wells (Site Wells) are averages from the 2010 Reporting Period.
Values from Background Wells are cumulative averages from all years.

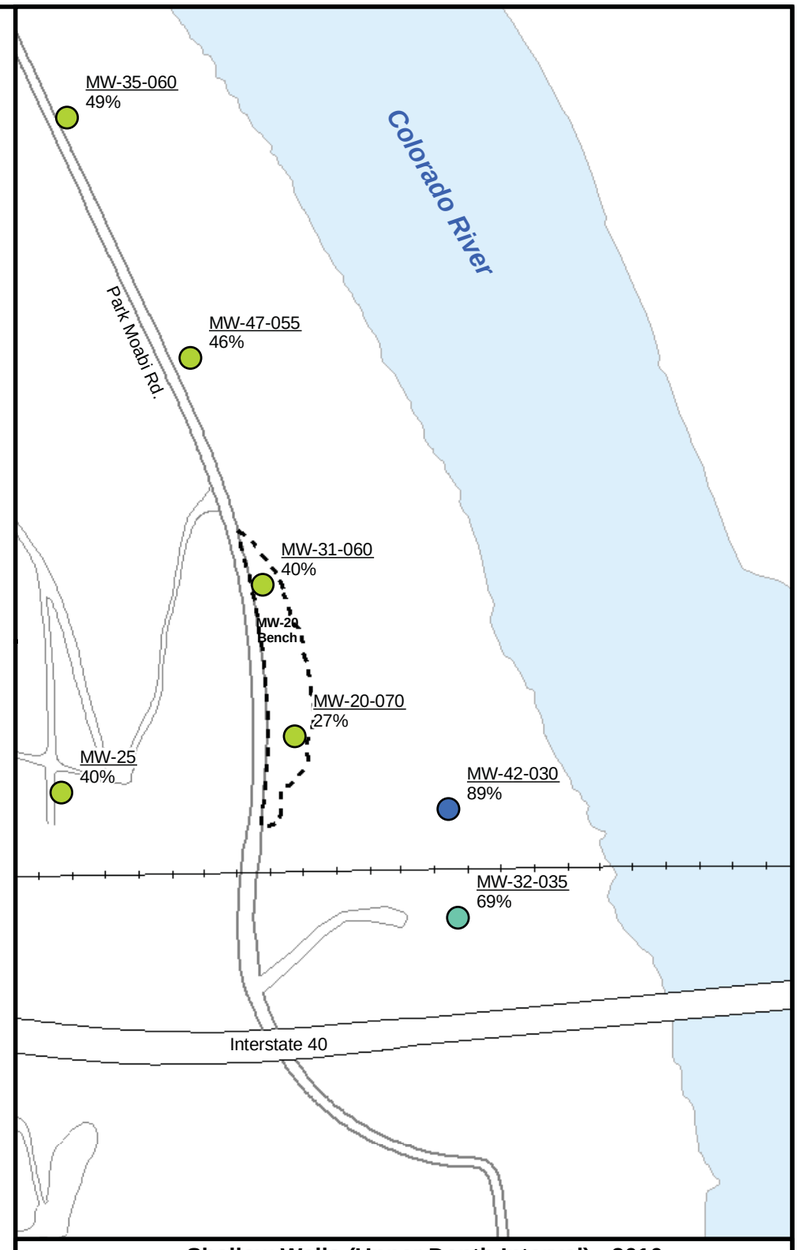
FIGURE 5-10
AVERAGE STABLE ISOTOPES OF OXYGEN AND DEUTERIUM
JANUARY 2010 THROUGH DECEMBER 2010



Shallow Wells (Upper Depth Interval) - 2004



Shallow Wells (Upper Depth Interval) - 2006



Shallow Wells (Upper Depth Interval) - 2010

LEGEND

Calculated Riverine Signature

- <25%
- 26-50%
- 51-75%
- 76-100%

MW-22 **Well ID**
22% Percent River Signature

Note:
Percent river water signature was calculated using composite statistics for deuterium isotope data from site river water samples and plume groundwater samples between 2004 and 2010. The posted percentages each represent the sample's calculated river water signature percentage, with 100% being essentially the same deuterium signature as river water, and 0% being equal to the plume water signature.

N

0 400 800 Feet

FIGURE 5-11a
DISTRIBUTION OF RIVER SIGNATURE IN FLOODPLAIN WELLS, SHALLOW WELLS (UPPER DEPTH INTERVAL)
FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

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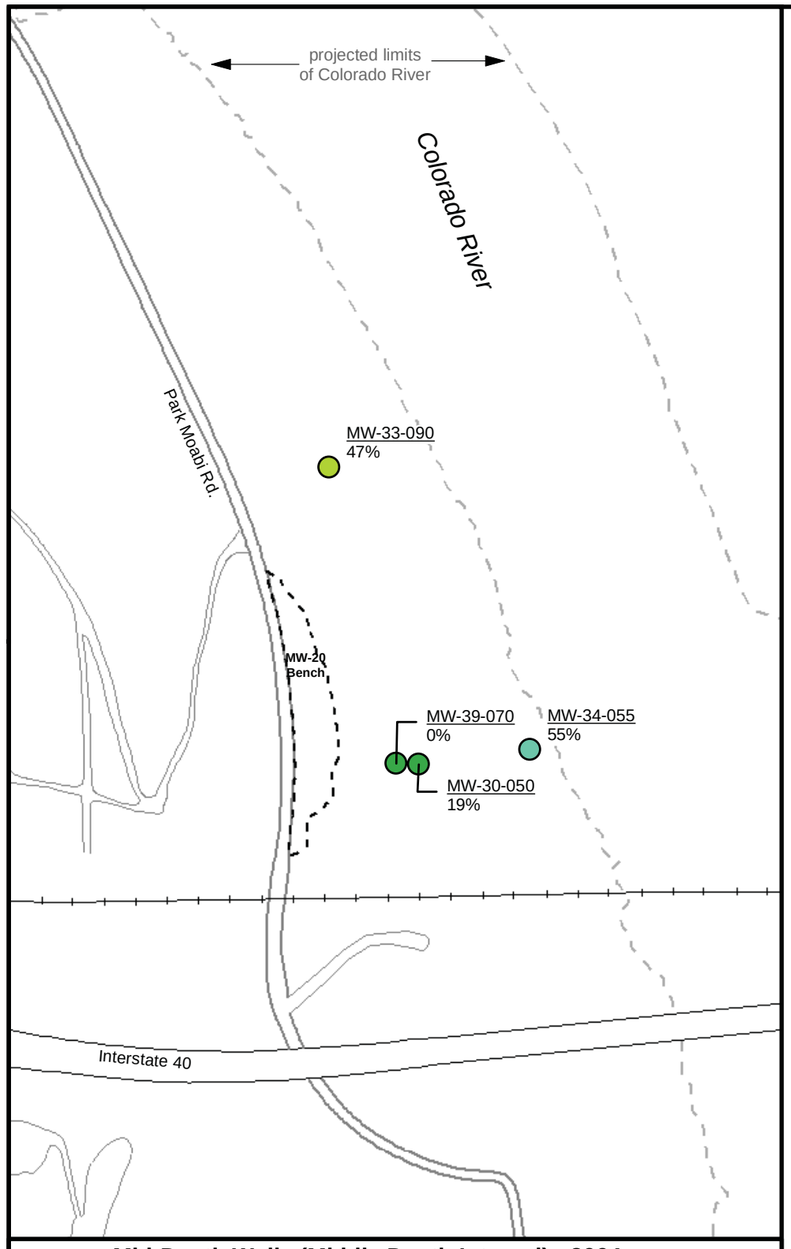
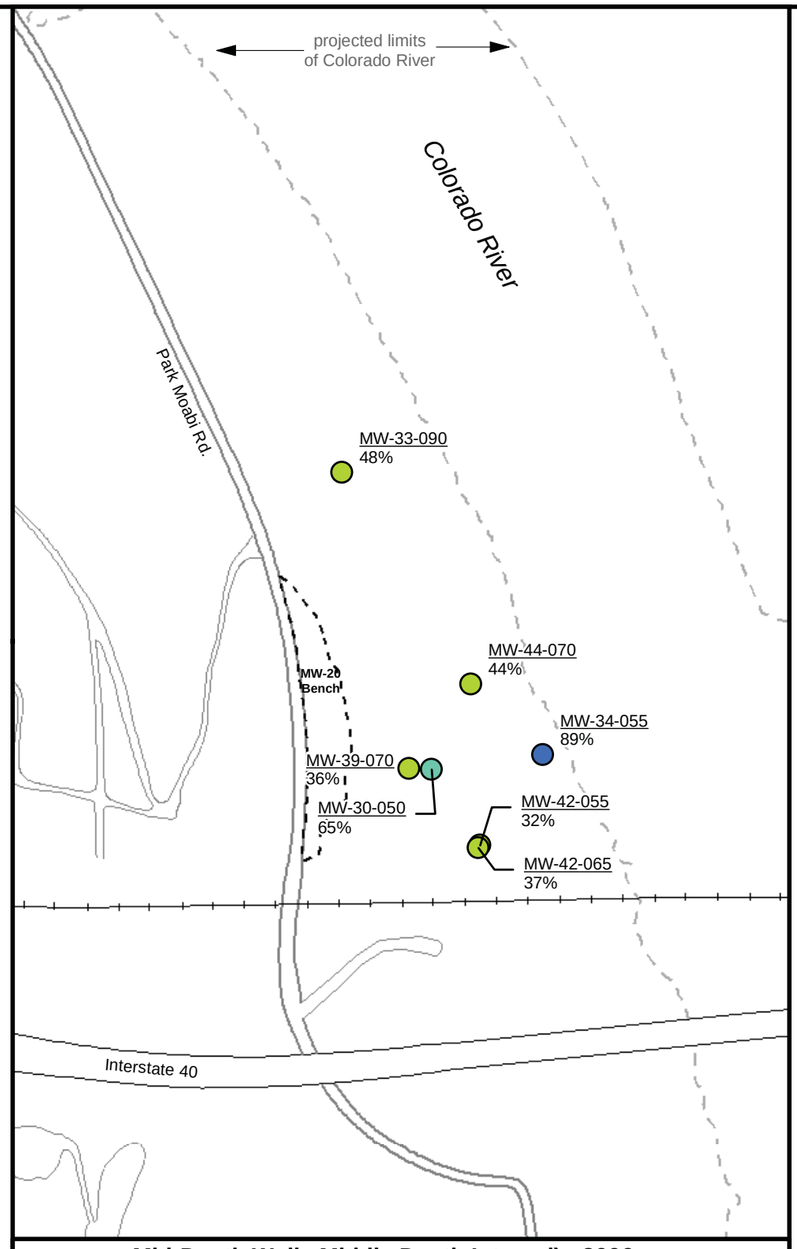
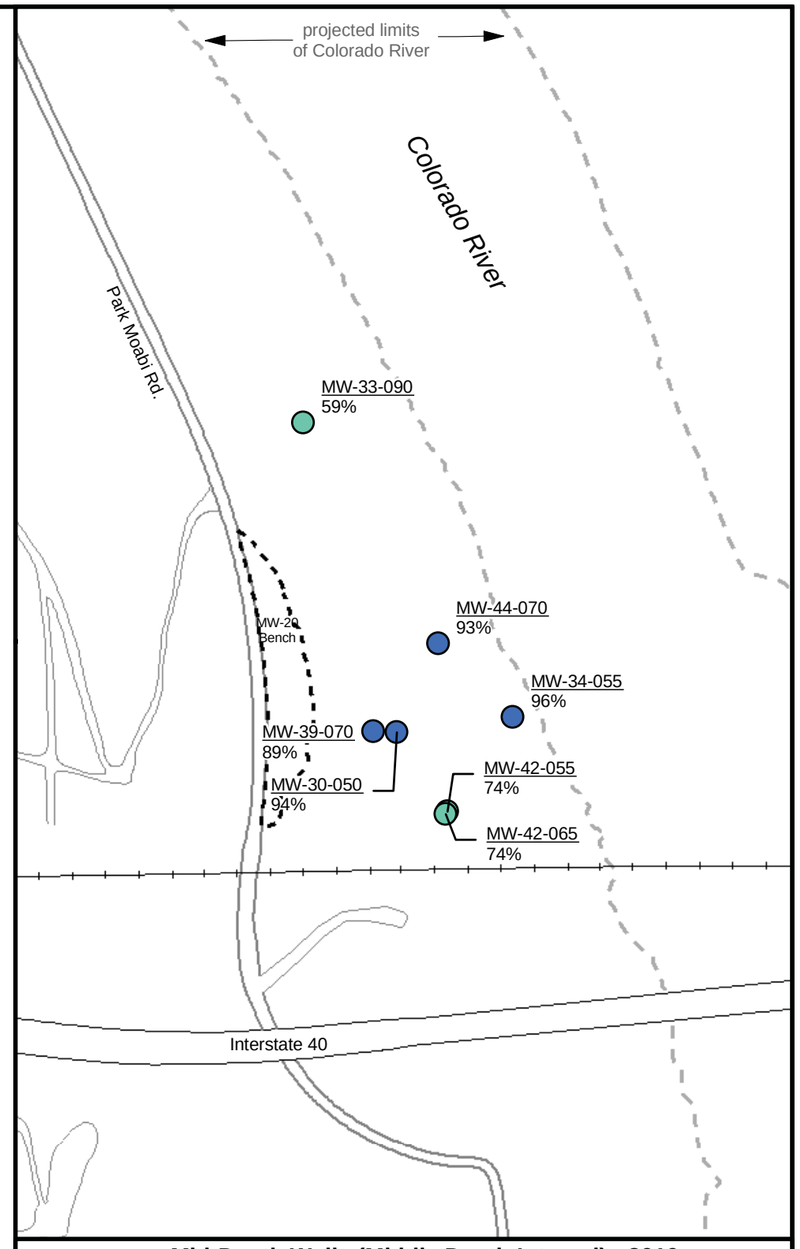


Mid-Depth Wells (Middle Depth Interval) - 2004



Mid-Depth Wells Middle Depth Interval) - 2006



Mid-Depth Wells (Middle Depth Interval) - 2010

LEGEND

Calculated Riverine Signature

- <25%
- 26-50%
- 51-75%
- 76-100%

MW-22 **Well ID**
22% Percent River Signature

Note:
Percent river water signature was calculated using composite statistics for deuterium isotope data from site river water samples and plume groundwater samples between 2004 and 2010. The posted percentages each represent the sample's calculated river water signature percentage, with 100% being essentially the same deuterium signature as river water, and 0% being equal to the plume water signature.

N

0 400 800 Feet

FIGURE 5-11b
DISTRIBUTION OF RIVER SIGNATURE IN FLOODPLAIN WELLS, MID-DEPTH WELLS (MIDDLE DEPTH INTERVAL)
FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION
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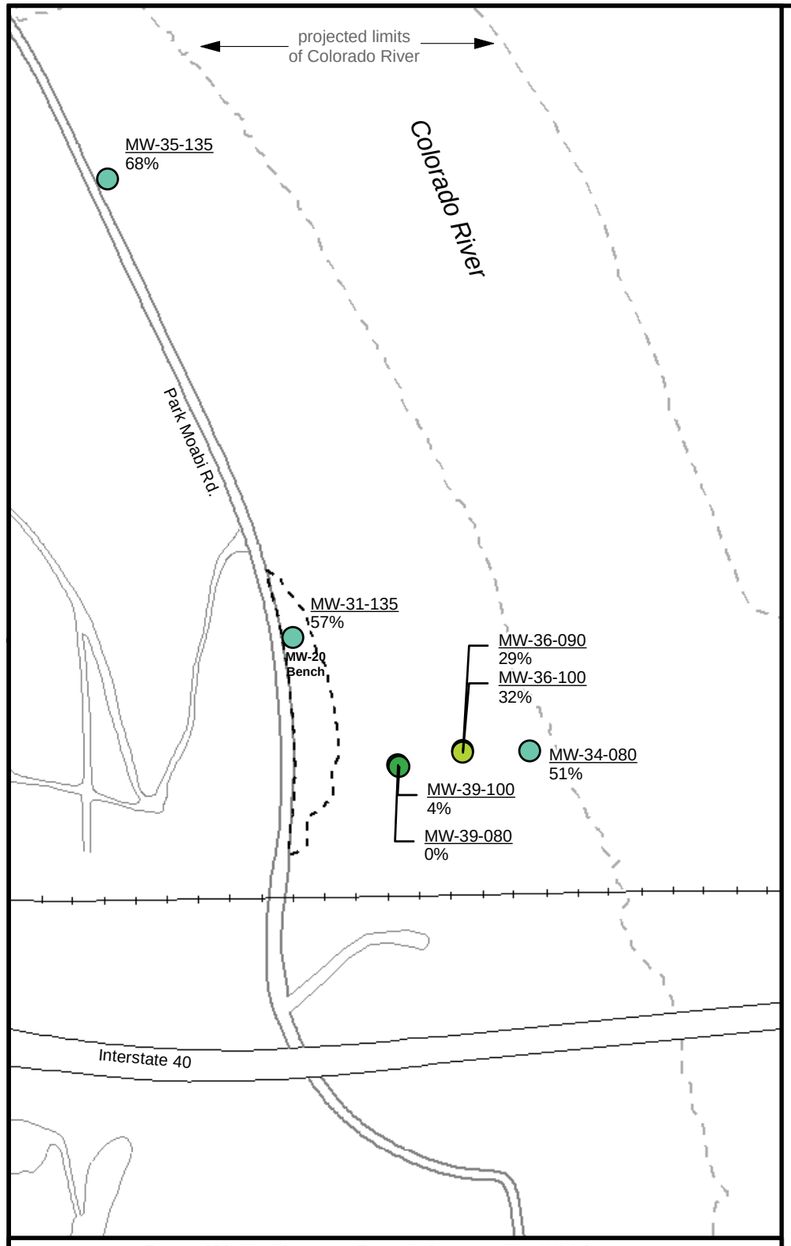
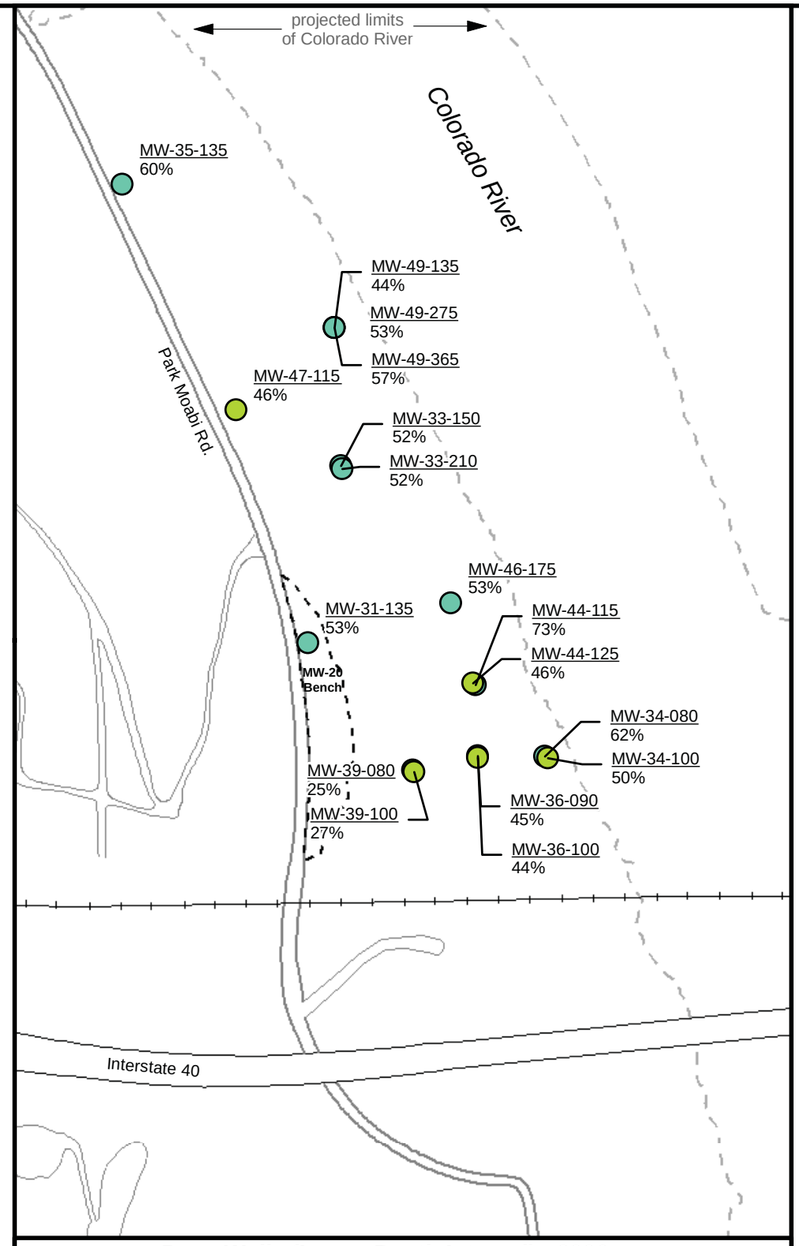
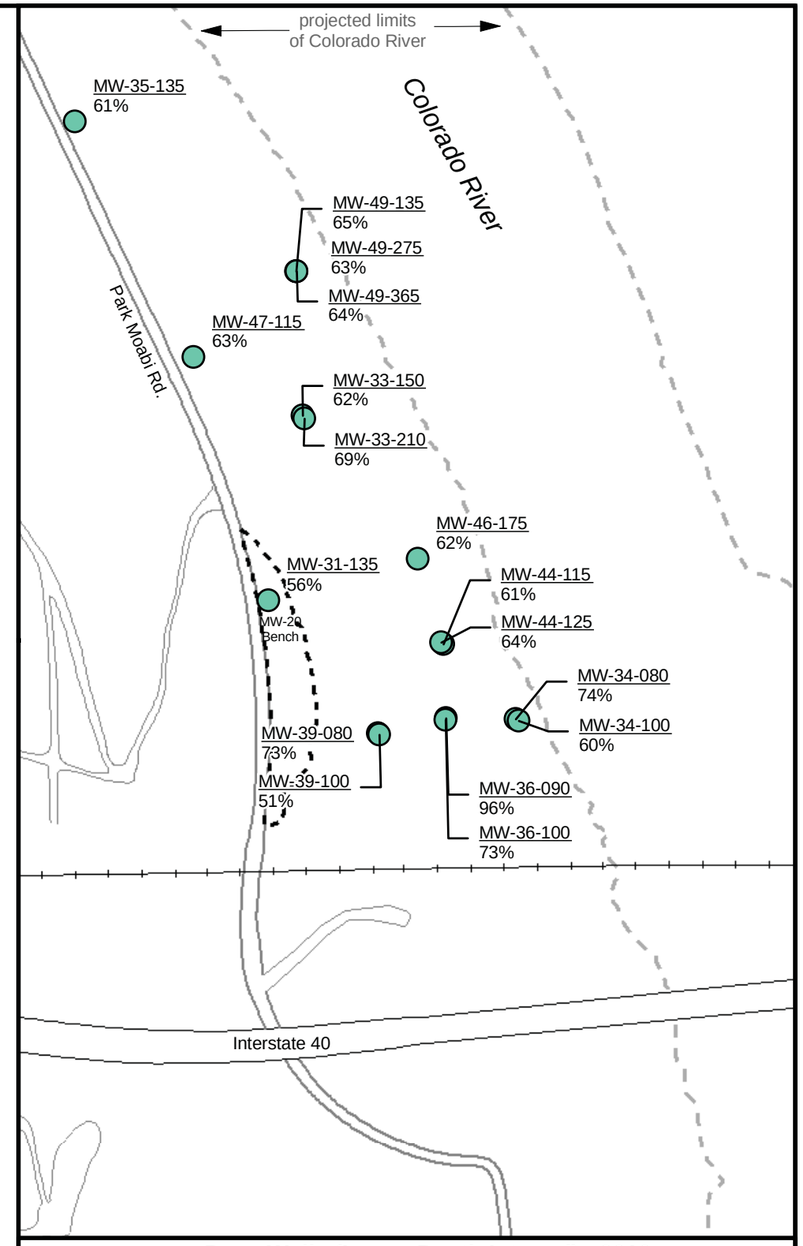


Deep Wells (Lower Depth Interval) - 2004



Deep Wells (Lower Depth Interval) - 2006



Deep Wells (Lower Depth Interval) - 2010

LEGEND

Calculated Riverine Signature

- <25%
- 26-50%
- 51-75%
- 76-100%

MW-22 **Well ID**
22% Percent River Signature

Note:
Percent river water signature was calculated using composite statistics for deuterium isotope data from site river water samples and plume groundwater samples between 2004 and 2010. The posted percentages each represent the sample's calculated river water signature percentage, with 100% being essentially the same deuterium signature as river water, and 0% being equal to the plume water signature.

N

0 400 800 Feet

FIGURE 5-11c
DISTRIBUTION OF RIVER SIGNATURE IN FLOODPLAIN WELLS, DEEP WELLS (LOWER DEPTH INTERVAL)
FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

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Appendix A
Well Construction

Table A-1
Well Construction and Sampling Summary, December 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Well ID	Site Area	Measuring Point Elevation (ft MSL)	Screen Interval (ft bgs)	Well Screen Lithology	Well Casing (inches)	Well Depth (ft bgs)	Depth to Water (ft btoc)	Sampling System	Typical Purge Rate (gpm)	Typical Purge Volume (gallons)	Remarks
GMP Monitoring Wells											
MW-9	Bat Cave Wash	536.56	77 - 87	Alluvial	4 in PVC	89.4	79.9	Temp. pump	2	11	
MW-10	Bat Cave Wash	530.65	74 - 94	Alluvial	4 in PVC	96.9	74.3	CD pump	5	40	
MW-11	Bat Cave Wash	522.61	62.5 - 82.5	Alluvial	4 in PVC	86.1	66.4	CD pump	5	30	
MW-12	East of Station	484.01	27.5 - 47.5	Alluvial	4 in PVC	50.4	29.3	Temp. pump	3	40	
MW-13	Bat Cave Wash	488.64	28.5 - 48.5	Alluvial	4 in PVC	52.0	32.6	CD pump	4	30	
MW-14	East Mesa	570.99	111 - 131	Alluvial	4 in PVC	133.8	114.7	CD pump	4	30	
MW-15	East of New Ponds	641.52	180.5 - 200.5	Alluvial	4 in PVC	203.0	184.6	CD pump	5	30	
MW-16	Near New Ponds	657.31	198 - 218	Alluvial	4 in PVC	218.1	199.8	Temp. pump	2	35	
MW-17	West of Mesa Area	589.96	130 - 150	Alluvial	4 in PVC	153.6	132.6	CD pump	7	32	
MW-18	West Mesa	545.32	85 - 105	Alluvial	4 in PVC	106.7	88.3	Temp. pump	2	30	
MW-19	Route 66	499.92	46 - 66	Alluvial	4 in PVC	65.8	45.0	CD pump	7	41	
MW-20-70	MW-20 bench	500.15	50 - 70	Alluvial	4 in PVC	69.6	46.7	Temp. pump	4	53	
MW-20-100	MW-20 bench	500.58	89.5 - 99.5	Alluvial	4 in PVC	101.4	48.0	Temp. pump	5	110	
MW-20-130	MW-20 bench	500.66	121 - 131	Alluvial	4 in PVC	132.3	48.7	Temp. pump	5	180	
MW-21	Route 66	505.55	39 - 59	Alluvial	4 in PVC	58.5	56.3	Temp. pump	2	10	low recharge well; typically purges dry at 1 casing volume
MW-22	Floodplain	460.72	5.5 - 10.5	Fluvial	2 in PVC	12.4	6.1	Peristaltic	0.2	4	
MW-23-060	East Ravine	504.08	50 - 60	Bedrock	2 in Sch 40 PVC	60.2	49.6	Temp. pump	NA	NA	
MW-23-080	East Ravine	504.13	75 - 80	Bedrock	2 in Sch 40 PVC	80.8	52.5	Temp. pump	NA	NA	
MW-24A	MW-24 Bench	567.16	104 - 124	Alluvial	4 in PVC	127.5	111.0	CD pump	3	30	
MW-24B	MW-24 Bench	564.76	193 - 213	Alluvial	4 in PVC	214.8	109.5	CD pump	7	210	
MW-24BR	MW-24 Bench	563.95	378 - 437	Bedrock	4 in PVC	441.0	130.3	Temp. pump	5	185	low recharge well; typically purges dry at 1 casing volume

Table A-1
Well Construction and Sampling Summary, December 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Well ID	Site Area	Measuring Point Elevation (ft MSL)	Screen Interval (ft bgs)	Well Screen Lithology	Well Casing (inches)	Well Depth (ft bgs)	Depth to Water (ft btoc)	Sampling System	Typical Purge Rate (gpm)	Typical Purge Volume (gallons)	Remarks
GMP Monitoring Wells											
MW-25	Near Bat Cave Wash	542.90	84.5 - 104.5	Alluvial	4 in PVC	106.5	87.5	CD pump	7	32	
MW-26	Route 66	502.22	51.5 - 71.5	Alluvial	2 in PVC	70.1	47.1	CD pump	7	50	
MW-27-20	Floodplain	460.56	7 - 17	Fluvial	2 in PVC	14.4	5.9	Temp. pump	1	7	
MW-27-60	Floodplain	461.38	47.3 - 57.3	Fluvial	2 in PVC	59.0	7.2	Temp. pump	2	25	
MW-27-85	Floodplain	460.99	77.5 - 87.5	Fluvial	2 in PVC	80.0	7.4	Temp. pump	2	36	
MW-28-25	Floodplain	466.77	13 - 23	Fluvial	2 in PVC	21.1	12.0	Ded. RF	1	5	
MW-28-90	Floodplain	467.53	70 - 90	Fluvial	2 in PVC	98.4	13.4	Temp. pump	2	50	
MW-29	Floodplain	485.21	29.5 - 39.5	Fluvial	2 in PVC	41.5	30.3	Temp. pump	0.5	6	
MW-30-30	Floodplain	468.12	12 - 32	Fluvial	2 in PVC	26.9	13.8	Ded. RF	1	10	
MW-30-50	Floodplain	468.81	40 - 50	Fluvial	4 in PVC	52.6	14.5	Ded. RF	2	75	
MW-31-60	MW-20 Bench	496.81	41.5 - 61.5	Alluvial	4 in PVC	64.0	42.3	CD pump	10	40	
MW-31-135	MW-20 Bench	498.11	113 - 133	Alluvial	2 in PVC	135.4	44.3	Temp. pump	3	60	
MW-32-20	Floodplain	461.51	10 - 20	Fluvial	2 in PVC	19.6	7.4	Ded. RF	1.5	6	
MW-32-35	Floodplain	461.63	27.5 - 35	Fluvial	4 in PVC	37.2	7.2	Ded. RF	2	60	
MW-33-40	Floodplain	487.38	29 - 39	Fluvial	4 in PVC	41.8	33.6	Temp. pump	0.5	4	
MW-33-90	Floodplain	487.55	69 - 89	Alluvial	4 in PVC	88.3	33.8	Temp. pump	2	110	
MW-33-150	Floodplain	487.77	132 - 152	Alluvial	2 in PVC	155.4	31.2	Temp. pump	3	60	
MW-33-210	Floodplain	487.25	190 - 210	Alluvial	2 in PVC	223.0	34.0	Temp. pump	3	90	
MW-34-55	Floodplain	460.95	45 - 55	Fluvial	4 in PVC	56.6	6.9	Ded. RF	2	100	
MW-34-80	Floodplain	461.20	73 - 83	Fluvial	4 in PVC	84.3	6.8	Temp. pump	3	150	
MW-34-100	Floodplain	460.97	89.5 - 99.5	Fluvial	2 in PVC	117.0	7.4	Ded. RF	2	55	

Table A-1
Well Construction and Sampling Summary, December 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Well ID	Site Area	Measuring Point Elevation (ft MSL)	Screen Interval (ft bgs)	Well Screen Lithology	Well Casing (inches)	Well Depth (ft bgs)	Depth to Water (ft btoc)	Sampling System	Typical Purge Rate (gpm)	Typical Purge Volume (gallons)	Remarks
GMP Monitoring Wells											
MW-35-60	Route 66	484.33	41 - 61	Alluvial	2 in PVC	56.8	29.5	Temp. pump	2	18	
MW-35-135	Route 66	484.24	116 - 136	Alluvial	2 in PVC	158.7	29.0	Temp. pump	3	66	
MW-36-20	Floodplain	469.33	10 - 20	Fluvial	1 in PVC	22.7	14.5	Peristaltic	0.5	4	
MW-36-40	Floodplain	469.59	30 - 40	Fluvial	1 in PVC	42.8	15.7	Peristaltic	0.5	4	
MW-36-50	Floodplain	469.62	46 - 51	Fluvial	1 in PVC	53.3	15.0	Peristaltic	0.75	5	
MW-36-70	Floodplain	469.27	60 - 70	Fluvial	1 in PVC	72.5	15.3	Peristaltic	0.5	7	
MW-36-90	Floodplain	469.64	80 - 90	Fluvial	1 in PVC	92.5	15.9	Peristaltic	0.4	10	
MW-36-100	Floodplain	469.65	88 - 98	Fluvial	2 in PVC	110.2	16.0	Ded. RF	2	45	
MW-37D	Bat Cave Wash	486.19	180 - 200	Alluvial	2 in PVC	226.7	31.0	Temp. pump	3	100	
MW-37S	Bat Cave Wash	485.97	64 - 84	Alluvial	2 in PVC	87.0	30.9	Temp. pump	2	30	
MW-39-40	Floodplain	468.02	30 - 40	Fluvial	1 in PVC	42.1	13.8	Peristaltic	0.5	3.5	
MW-39-50	Floodplain	467.93	47 - 52	Fluvial	1 in PVC	54.6	14.2	Peristaltic	0.5	5	
MW-39-60	Floodplain	468.00	49 - 59	Alluvial	1 in PVC	66.3	13.9	Peristaltic	0.5	6	
MW-39-70	Floodplain	468.02	60 - 70	Alluvial	1 in PVC	71.7	14.6	Peristaltic	0.5	7	
MW-39-80	Floodplain	467.92	70 - 80	Alluvial	1 in PVC	82.6	14.2	Peristaltic	0.5	9	
MW-39-100	Floodplain	468.12	80 - 100	Alluvial	2 in PVC	117.7	14.8	Ded. RF	2	45	
MW-40D	I-40 Median	566.08	240 - 260	Alluvial	2 in PVC	266.0	110.5	Temp. pump	3	75	
MW-40S	I-40 Median	566.04	115 - 135	Alluvial	2 in PVC	134.0	109.9	Temp. pump	2	13	
MW-41D	Bat Cave Wash	479.42	271 - 291	Alluvial	2 in PVC	313.0	24.0	Temp. pump	5	145	
MW-41M	Bat Cave Wash	479.84	170 - 190	Alluvial	2 in PVC	192.4	24.1	Temp. pump	3	85	
MW-41S	Bat Cave Wash	480.07	40 - 60	Alluvial	2 in PVC	61.6	24.4	Temp. pump	2	42	

Table A-1
Well Construction and Sampling Summary, December 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Well ID	Site Area	Measuring Point Elevation (ft MSL)	Screen Interval (ft bgs)	Well Screen Lithology	Well Casing (inches)	Well Depth (ft bgs)	Depth to Water (ft btoc)	Sampling System	Typical Purge Rate (gpm)	Typical Purge Volume (gallons)	Remarks
GMP Monitoring Wells											
MW-42-30	Floodplain	463.74	9.8 - 29.8	Fluvial	2 in PVC	32.0	9.6	Temp. pump	2	28	
MW-42-55	Floodplain	463.85	42.5 - 52.5	Fluvial	2 in PVC	56.0	9.8	Temp. pump	3	21	
MW-42-65	Floodplain	463.37	56.2 - 66.2	Fluvial	2 in PVC	80.0	9.3	Temp. pump	3	36	
MW-43-25	Floodplain	462.54	15 - 25	Fluvial	2 in PVC	27.0	7.7	Temp. pump	1	9	
MW-43-75	Floodplain	462.71	65 - 75	Fluvial	2 in PVC	77.0	8.1	Ded. RF	2	28	
MW-43-90	Floodplain	462.76	80 - 90	Fluvial	2 in PVC	102.0	8.6	Temp. pump	2	47	
MW-44-70	Floodplain	471.90	61 - 71	Fluvial	2 in PVC	70.0	18.0	Temp. pump	1.5	38	
MW-44-115	Floodplain	472.01	103 - 113	Alluvial	2 in PVC	113.5	18.9	Ded. RF	3	60	
MW-44-125	Floodplain	472.04	116 - 125	Alluvial	2 in PVC	128.8	18.6	Ded. RF	0.35	57	
MW-46-175	Floodplain	482.16	165 - 175	Alluvial	2 in PVC	181.8	28.8	Ded. RF	1.5	100	
MW-46-205	Floodplain	482.23	196.5 - 206.5	Alluvial	2 in PVC	224.7	28.7	Temp. pump	2	90	
MW-47-55	Floodplain	484.04	45 - 55	Alluvial	2 in PVC	55.0	28.9	Temp. pump	2	30	
MW-47-115	Floodplain	484.17	105 - 115	Alluvial	2 in PVC	115.0	29.3	Temp. pump	1.5	55	
MW-48	East of Station	486.22	124 - 134	Bedrock	2 in PVC	138.0	31.4	Temp. pump	0.5	22	low recharge well; typically purges dry at 1 casing volume
MW-49-135	Floodplain	484.02	125 - 135	Alluvial	1.5 in PVC	136.6	29.3	Temp. pump	0.6	30	
MW-49-275	Floodplain	483.95	255 - 275	Alluvial	2 in PVC	274.7	30.2	Temp. pump	3	126	
MW-49-365	Floodplain	484.01	345 - 365	Alluvial	2 in PVC	367.4	31.7	Temp. pump	2	180	
MW-50-095	Route 66	496.49	85 - 95	Alluvial	2 in PVC	96.4	41.5	Temp. pump	2	36	
MW-50-200	Route 66	496.35	190 - 200	Alluvial	2 in PVC	204.5	42.7	Temp. pump	5	85	
MW-51	Route 66	501.56	97 - 112	Alluvial	4 in PVC	113.3	46.7	Temp. pump	4	180	
MW-52D	Floodplain	462.16	85 - 87	Fluvial	0.75 in MLABS	89.5	14.9	Peristaltic	0.2	4.5	

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Well ID	Site Area	Measuring Point Elevation (ft MSL)	Screen Interval (ft bgs)	Well Screen Lithology	Well Casing (inches)	Well Depth (ft bgs)	Depth to Water (ft btoc)	Sampling System	Typical Purge Rate (gpm)	Typical Purge Volume (gallons)	Remarks
GMP Monitoring Wells											
MW-52M	Floodplain	462.16	66 - 68	Fluvial	0.75 in MLABS	70.5	11.3	Peristaltic	0.2	4.5	
MW-52S	Floodplain	462.16	47 - 49	Fluvial	0.75 in MLABS	51.5	9.8	Peristaltic	0.2	4.5	
MW-53D	Floodplain	461.32	123.5 - 125	Fluvial	0.75 in MLABS	---	14.3	Peristaltic	0.2	5.1	
MW-53M	Floodplain	461.32	98.5 - 100	Fluvial	0.75 in MLABS	---	13.7	Peristaltic	0.06	5.4	
MW-54-85	Arizona	466.10	77 - 87	Fluvial	2 in PVC	93.2	11.2	---	NA	NA	
MW-54-140	Arizona	465.98	128 - 138	Fluvial	2 in PVC	137.8	11.2	---	NA	NA	
MW-54-195	Arizona	466.32	185 - 195	Fluvial	2 in PVC	195.0	11.9	---	NA	NA	
MW-55-45	Arizona	463.41	37 - 47	Fluvial	2 in PVC	51.8	7.4	---	NA	NA	
MW-55-120	Arizona	463.21	108 - 118	Fluvial	2 in PVC	117.6	7.2	---	NA	NA	
MW-56D	Arizona	461.36	103.5 - 105.5	Fluvial	0.75 in MLABS	---	16.3	---	NA	NA	
MW-56M	Arizona	461.36	73.5 - 75.5	Fluvial	0.75 in MLABS	---	15.2	---	NA	NA	
MW-56S	Arizona	461.36	33.5 - 35.5	Fluvial	0.75 in MLABS	---	14.1	---	NA	NA	
MW-57-050	East Ravine	508.76	40 - 50	Bedrock	2 in Sch 40 PVC	50.0	---	Temp. pump	NA	NA	Dry
MW-57-070	East Ravine	509.37	55 - 70	Bedrock	2 in Sch 40 PVC	70.0	53.6	Temp. pump	0.3	10	
MW-57-185	East Ravine	508.97	70 - 184	Bedrock	3 in Sch 40 PVC	184.7	53.1	Temp. pump	3	270	
MW-58-065	East Ravine	523.26	54 - 64	Bedrock	2 in Sch 40 PVC	66.0	66.2	Temp. pump	NA	NA	Damaged
MW-58-115	East Ravine	524.44	95 - 115	Bedrock	---	115.0	68.3	Flute	NA	NA	Damaged
MW-58-205	East Ravine	524.42	160 - 206	Bedrock	---	206.0	67.7	Flute	NA	NA	Damaged
MW-59-100	East Ravine	541.61	86 - 101	Alluvial	2 in Sch 40 PVC	101.0	86.1	Temp. pump	0.5	8	
MW-60-125	East Ravine	555.47	103 - 123	Bedrock	2 in Sch 40 PVC	122.5	99.9	Temp. pump	0.3	13	
MW-61-110	East Ravine	544.03	92 - 112	Bedrock	2 in Sch 40 PVC	112.5	88.5	Temp. pump	0.4	14	

Table A-1
Well Construction and Sampling Summary, December 2010
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PG&E Topock Compressor Station, Needles, California

Well ID	Site Area	Measuring Point Elevation (ft MSL)	Screen Interval (ft bgs)	Well Screen Lithology	Well Casing (inches)	Well Depth (ft bgs)	Depth to Water (ft btoc)	Sampling System	Typical Purge Rate (gpm)	Typical Purge Volume (gallons)	Remarks
GMP Monitoring Wells											
MW-62-065	East Ravine	503.56	44.5 - 64.5	Bedrock	2 in Sch 40 PVC	67.4	48.9	Temp. pump	0.3	9	
MW-62-110	East Ravine	504.05	85 - 110	Bedrock	---	110.0	34.5	Flute	NA	2	
MW-62-190	East Ravine	504.05	155 - 192	Bedrock	---	190.0	34.5	Flute	NA	2	
MW-63-065	East Ravine	504.47	46 - 66	Bedrock	2 in Sch 40 PVC	65.6	50.3	Temp. pump	0.5	10	
MW-64-150	East Ravine	575.90	120 - 150	Bedrock	---	150.0	120.1	Flute	NA	1	
MW-64-205	East Ravine	575.92	175 - 205	Bedrock	---	205.0	120.0	Flute	NA	1	
MW-64-260	East Ravine	575.90	230 - 260	Bedrock	---	260.0	120.0	Flute	NA	1	
OW-3D	West Mesa	558.63	242 - 262	Alluvial	2 in PVC	275.2	101.8	Temp. pump	3	90	
OW-3M	West Mesa	558.90	180 - 200	Alluvial	2 in PVC	202.9	102.0	Temp. pump	3	54	
OW-3S	West Mesa	558.58	86 - 116	Alluvial	2 in PVC	119.0	101.6	Temp. pump	2	30	
Other Site Wells not in GMP											
MW-1	New Ponds	661.76	201 - 211	Alluvial	4 in PVC	217.0	205.1	Ded. RF	NA	NA	active PG&E pond monitoring well
MW-3	New Ponds	650.51	193 - 203	Alluvial	4 in PVC	205.0	194.6	Ded. RF	NA	NA	active PG&E pond monitoring well
MW-4	New Ponds	625.73	164.5 - 174.5	Alluvial	4 in PVC	176.3	169.1	Ded. RF	NA	NA	active PG&E pond monitoring well
MW-5	New Ponds	635.69	175.9 - 184.9	Alluvial	4 in PVC	186.2	178.8	Ded. RF	NA	NA	active PG&E pond monitoring well
MW-6	New Ponds	642.84	184.5 - 193.5	Alluvial	4 in PVC	194.9	185.6	Ded. RF	NA	NA	active PG&E pond monitoring well
MW-7	New Ponds	631.91	172.7 - 182.7	Alluvial	4 in PVC	185.0	175.7	Ded. RF	NA	NA	active PG&E pond monitoring well
MW-8	New Ponds	627.54	169 - 178	Alluvial	4 in PVC	179.9	170.6	Ded. RF	NA	NA	active PG&E pond monitoring well
MW-45-095a	Floodplain	470.03	83 - 93	Fluvial	2 in PVC	97.0	17.4	Temp. pump	1	40	pressure transducer location
Test and Extraction Wells											
PE-1	Floodplain	457.52	79 - 89	Fluvial	6 in Steel	97.0	16.4	CD pump	3	400	active IM extraction well
TW-1	Plan B Test	620.55	169 - 269	Alluvial	5 in PVC	240.2	165.2	CD pump	20	200	inactive pilot test well

Table A-1
Well Construction and Sampling Summary, December 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Well ID	Site Area	Measuring Point Elevation (ft MSL)	Screen Interval (ft bgs)	Well Screen Lithology	Well Casing (inches)	Well Depth (ft bgs)	Depth to Water (ft btoc)	Sampling System	Typical Purge Rate (gpm)	Typical Purge Volume (gallons)	Remarks
Test and Extraction Wells											
TW-2D	MW-20 bench	493.29	113 - 148	Alluvial	6 in PVC	150.0	69.3	CD pump	70.1	160	inactive IM extraction well
TW-2S	MW-20 bench	499.05	42.5 - 92.5	Alluvial	6 in PVC	102.1	34.0	CD pump	6	75	inactive IM extraction well
TW-3D	MW-20 bench	498.09	111 - 156	Alluvial	8 in PVC	157.0	46.5	CD pump	NA	NA	active IM extraction well
TW-4	Floodplain	484.11	210 - 250	Alluvial	4 in PVC	255.0	29.6	Temp. pump	NA	NA	
TW-5	Route 66	496.30	110 - 150	Alluvial	4 in PVC	152.5	41.4	Temp. pump	3	150	
Water Supply Wells											
PGE-7BR	MW-24 Bench	---	249 - 300	Bedrock	7 in	300.0	109.7	---	NA	NA	
PGE-8	Station	596.01	405 - 554	Bedrock	6.75 in Steel	564.0	140.9	CD pump	20	1900	inactive injection
Park Moabi-3	Park Moabi	518.55	80 - 200	Alluvial	8 in Steel	252.0	61.3	active supply well	NA	NA	call Park Ranger to schedule sampling
Park Moabi-4	Park Moabi	---	93 - 140	Alluvial	Steel	---	---	---	NA	NA	

Notes:

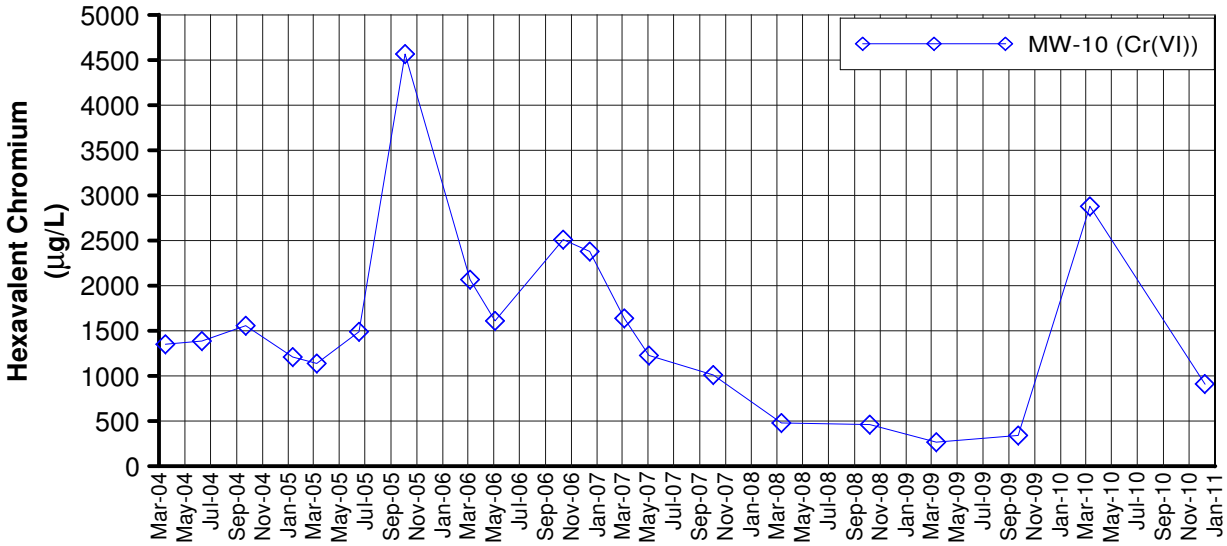
bgs	below ground surface
MSL	mean sea level
btoc	below top of casing
NA	not known or available
CD pump	dedicated constant-discharge electric submersible pump
Redi-Flo AR	adjustable-rate electric submersible pump
Temp. pump	temporary pump
PVC	polyvinyl chloride
Ded. RF	dedicated Redi - Flo submersible pump
GMP	Groundwater Monitoring Program
Flute	Flexible Liner Underground Technologies

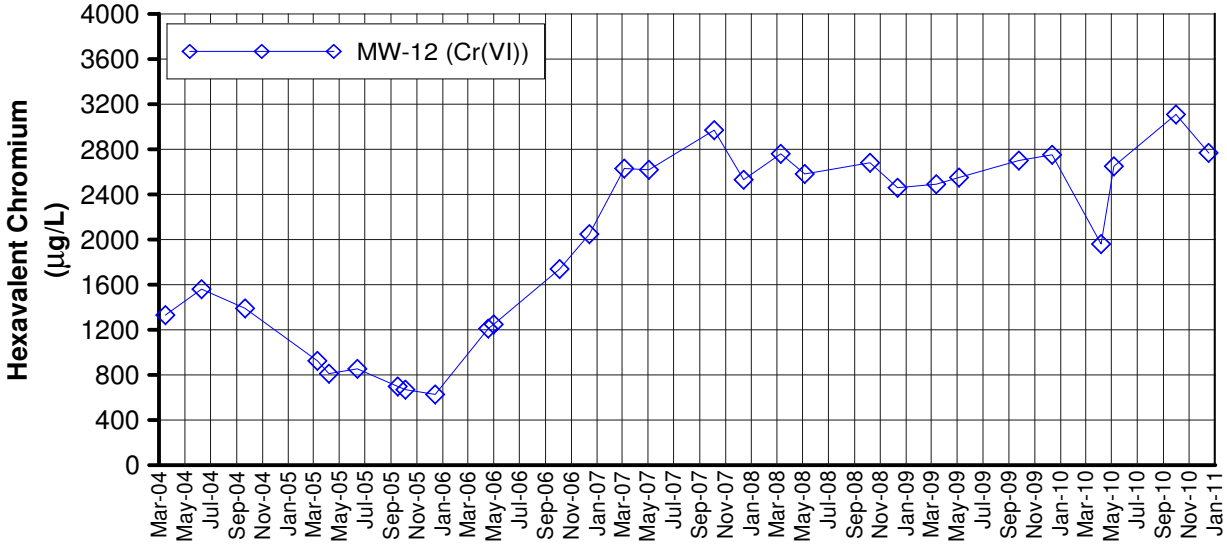
Depth to water shown is the most recently measured depth to water.

All GMP wells except low recharge wells, active IM extraction wells, and Park Moabi wells are purged and sampled using well-volume method.

Appendix B
Lab Reports, November through December 2010
(Provided on CD-ROM only with hardcopy submittal)

Appendix C
Chromium Trend Graphs





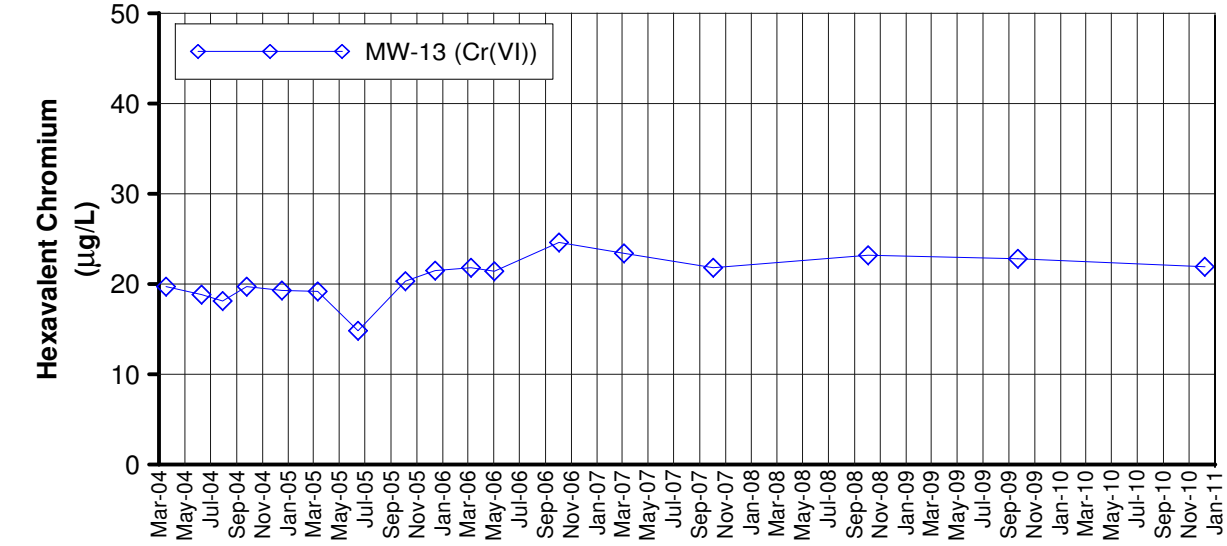


FIGURE C-1
HEXAVALENT CHROMIUM
IN MW-10, MW-12, AND MW-13
FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES
PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND
SURFACE WATER MONITORING REPORT
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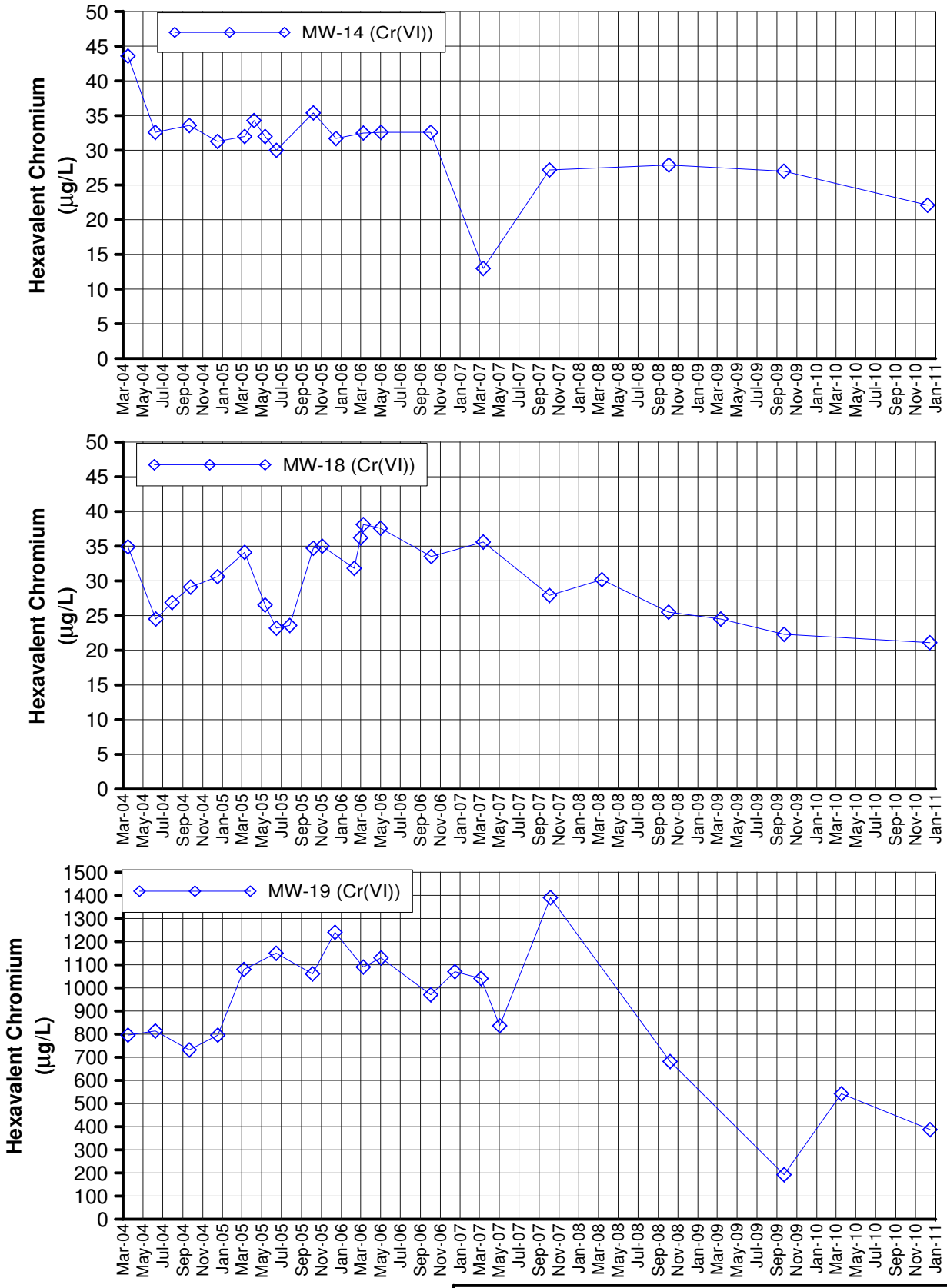

FIGURE C-2
HEXAVALENT CHROMIUM
IN MW-14, MW-18, AND MW-19
FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES
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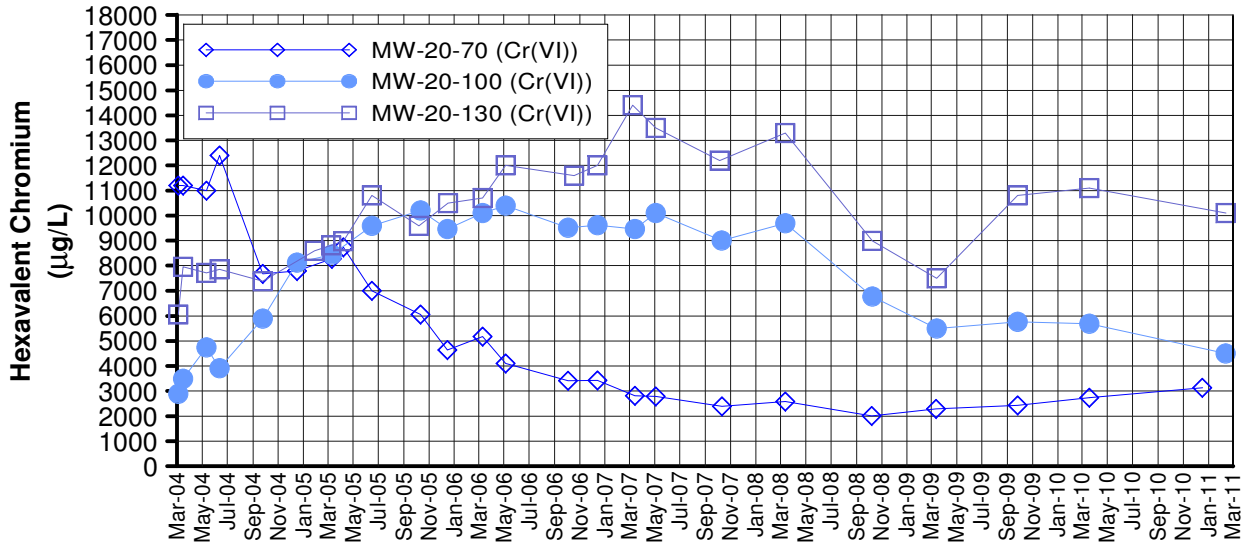

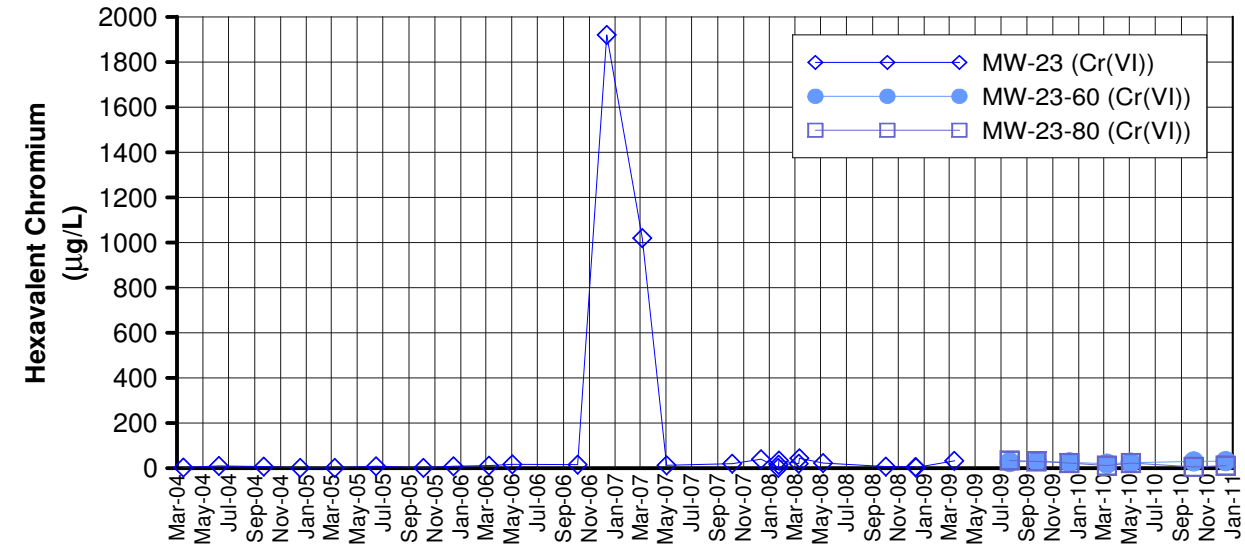

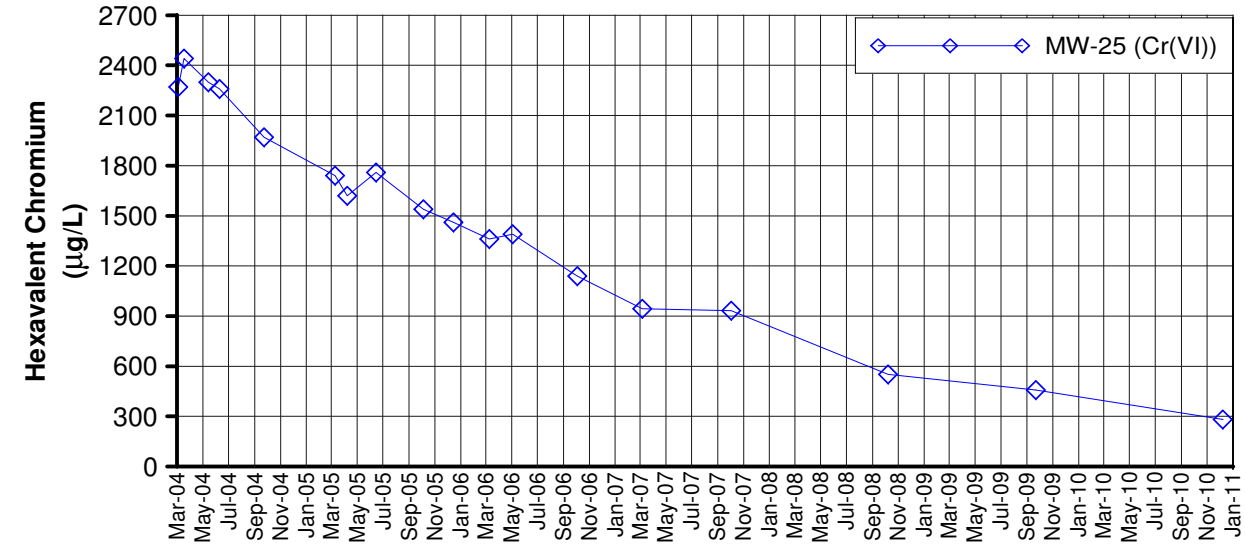

Notes:
1) Fourth Quarter 2010 data for MW-20-100 and MW-20-130 collected in February 2011 due to logistical issues.

FIGURE C-3
HEXAVALENT CHROMIUM
IN MW-20, MW-23, AND MW-25 CLUSTERS
FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES
PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND
SURFACE WATER MONITORING REPORT
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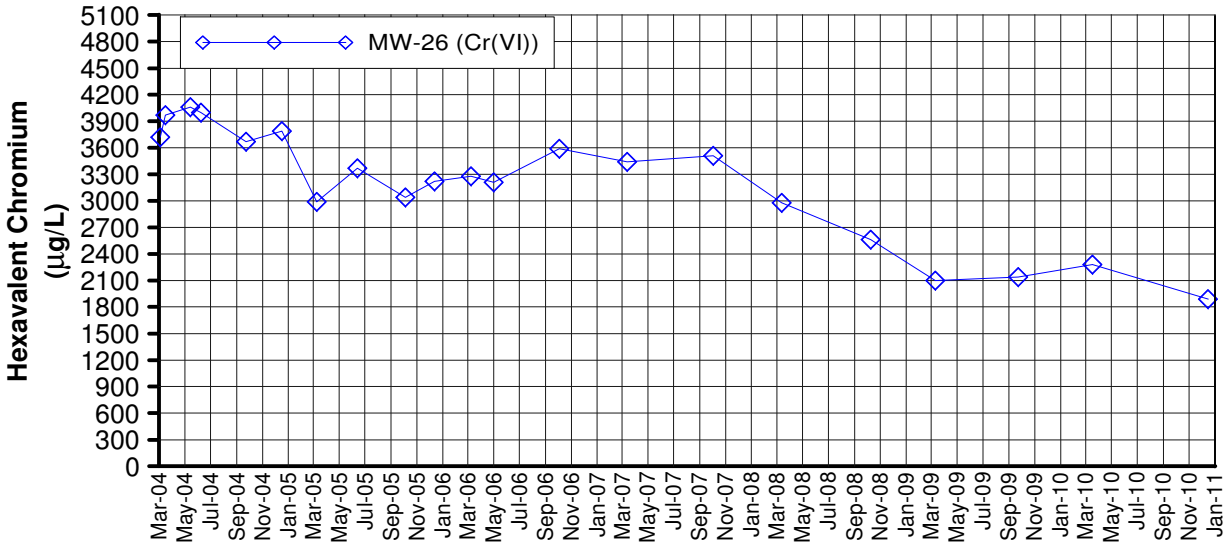

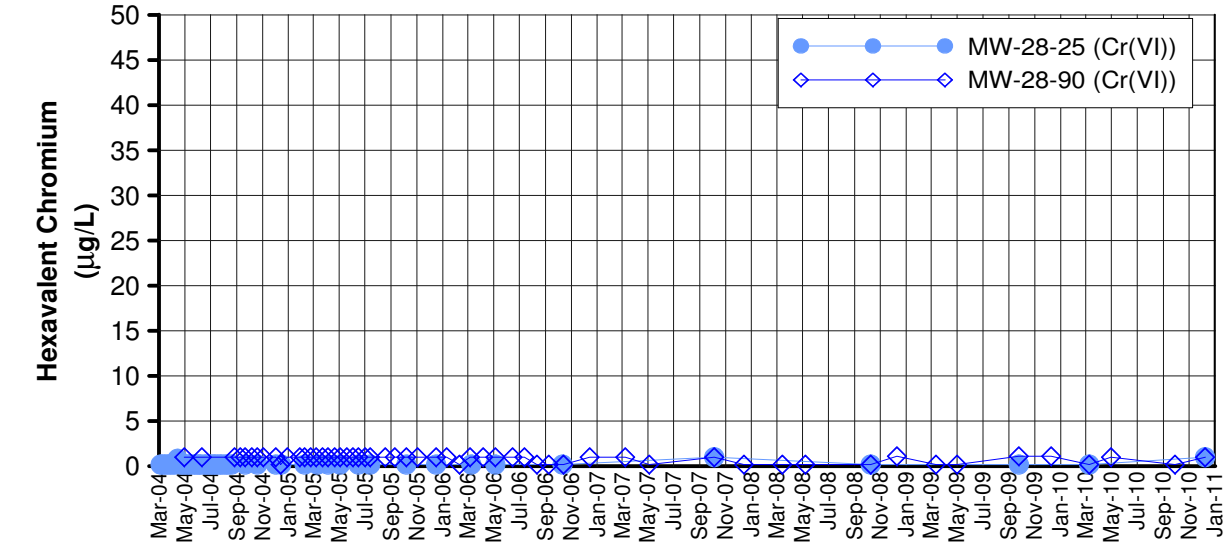

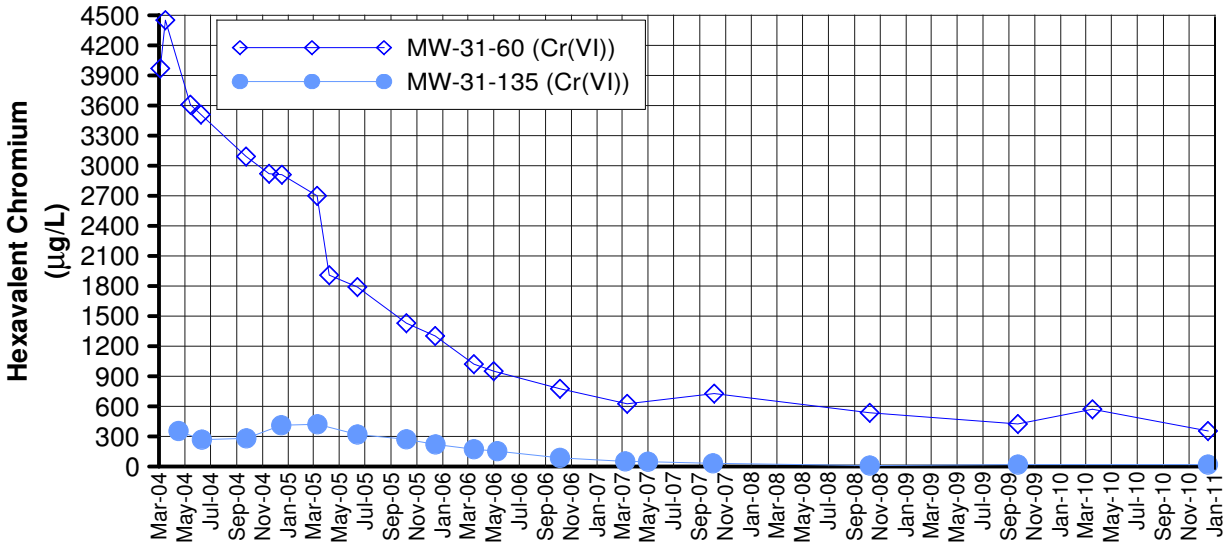

Notes:
1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
2) The trigger level for MW-28-90 is 20 µg/L.

FIGURE C-4
HEXAVALENT CHROMIUM
IN MW-26, MW-28, AND MW-31 CLUSTERS
FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES
PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND
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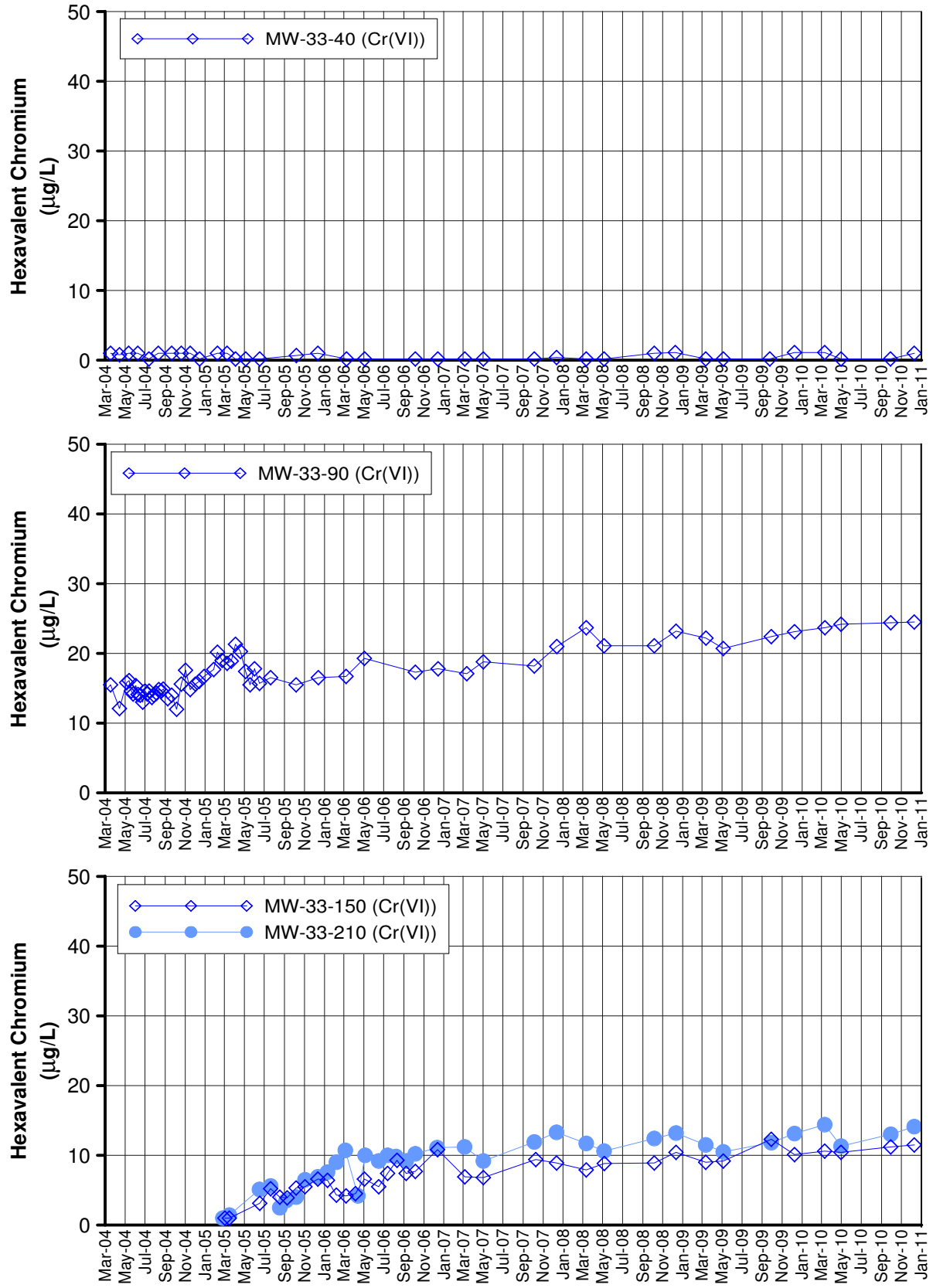

Notes:
1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
2) The trigger level for MW-33-40 is 20 µg/L.
3) The trigger level for MW-33-90 is 25 µg/L.
4) The trigger level for MW-33-150 is 20 µg/L.
5) The trigger level for MW-33-210 is 20 µg/L.

FIGURE C-5
HEXAVALENT CHROMIUM
IN MW-33 CLUSTER
FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
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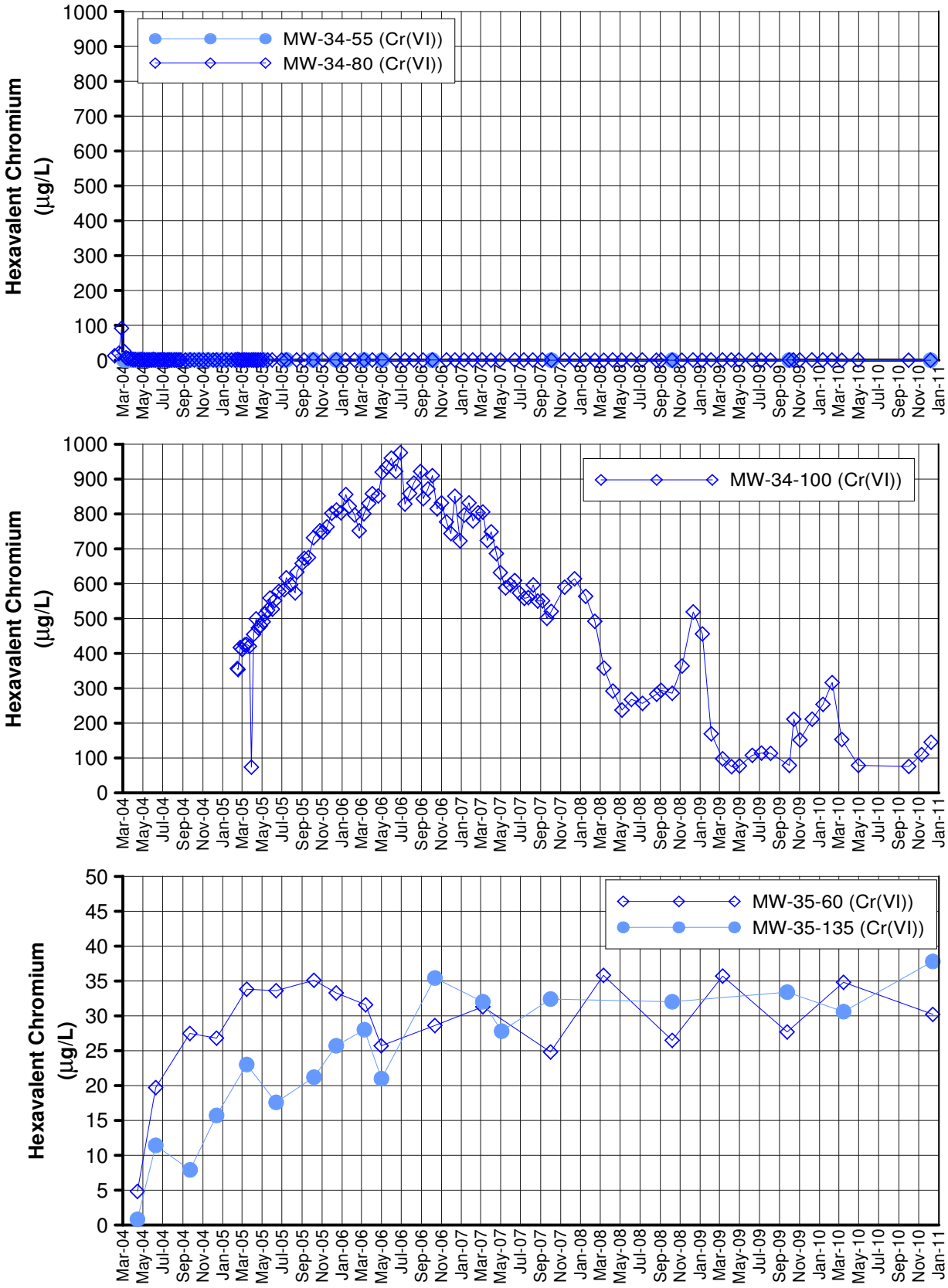

Notes:
1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
2) The trigger level for MW-34-80 is 20 µg/L.
3) The trigger level for MW-34-100 is 750 µg/L.

FIGURE C-6
HEXAVALENT CHROMIUM
IN MW-34 AND MW-35 CLUSTERS
FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES
PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND
SURFACE WATER MONITORING REPORT
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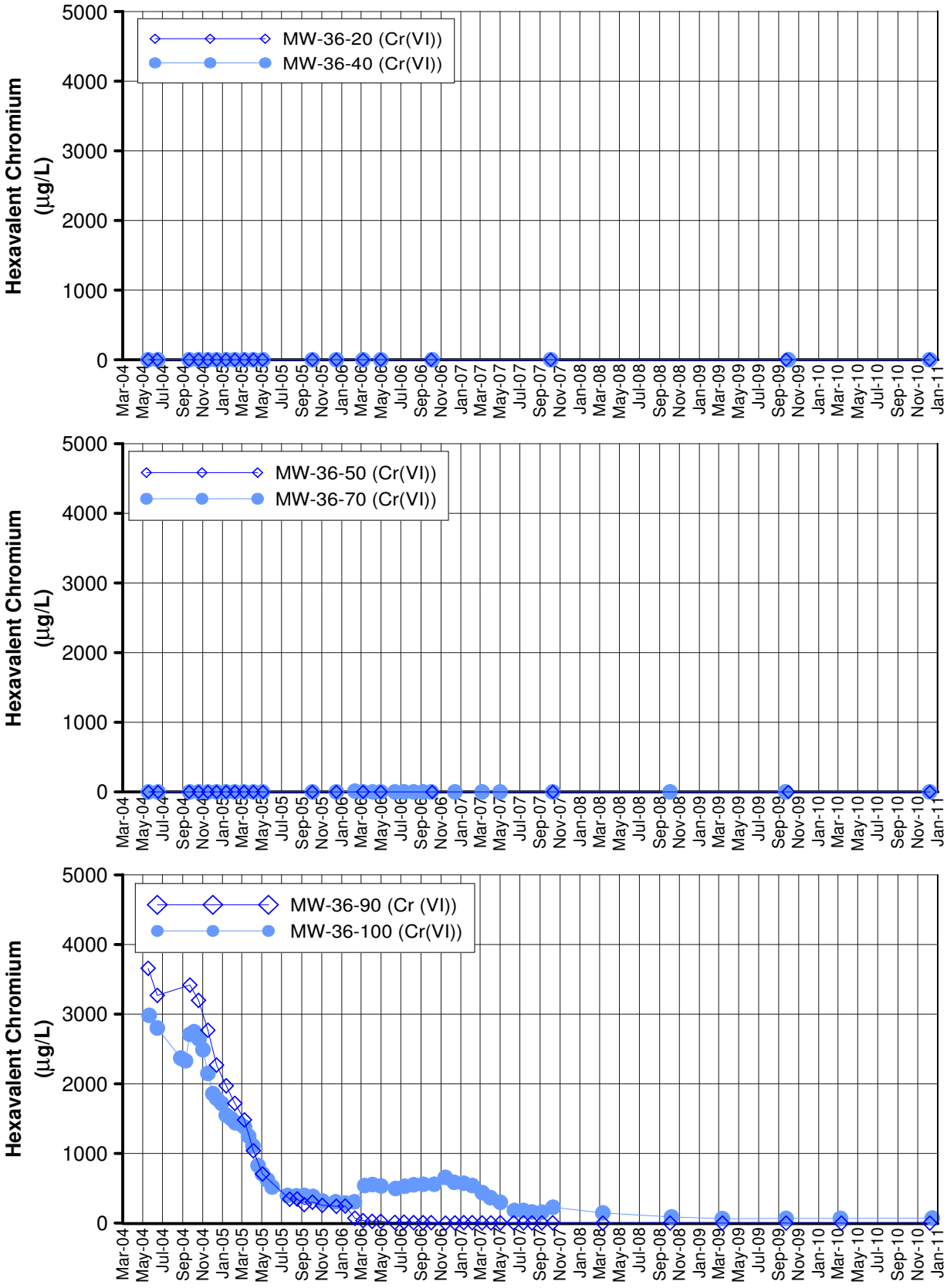

Notes:
1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
2) The trigger level for MW-36-70 is 20 µg/L.

FIGURE C-7
HEXAVALENT CHROMIUM
IN MW-36 CLUSTER
FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES
PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND
SURFACE WATER MONITORING REPORT
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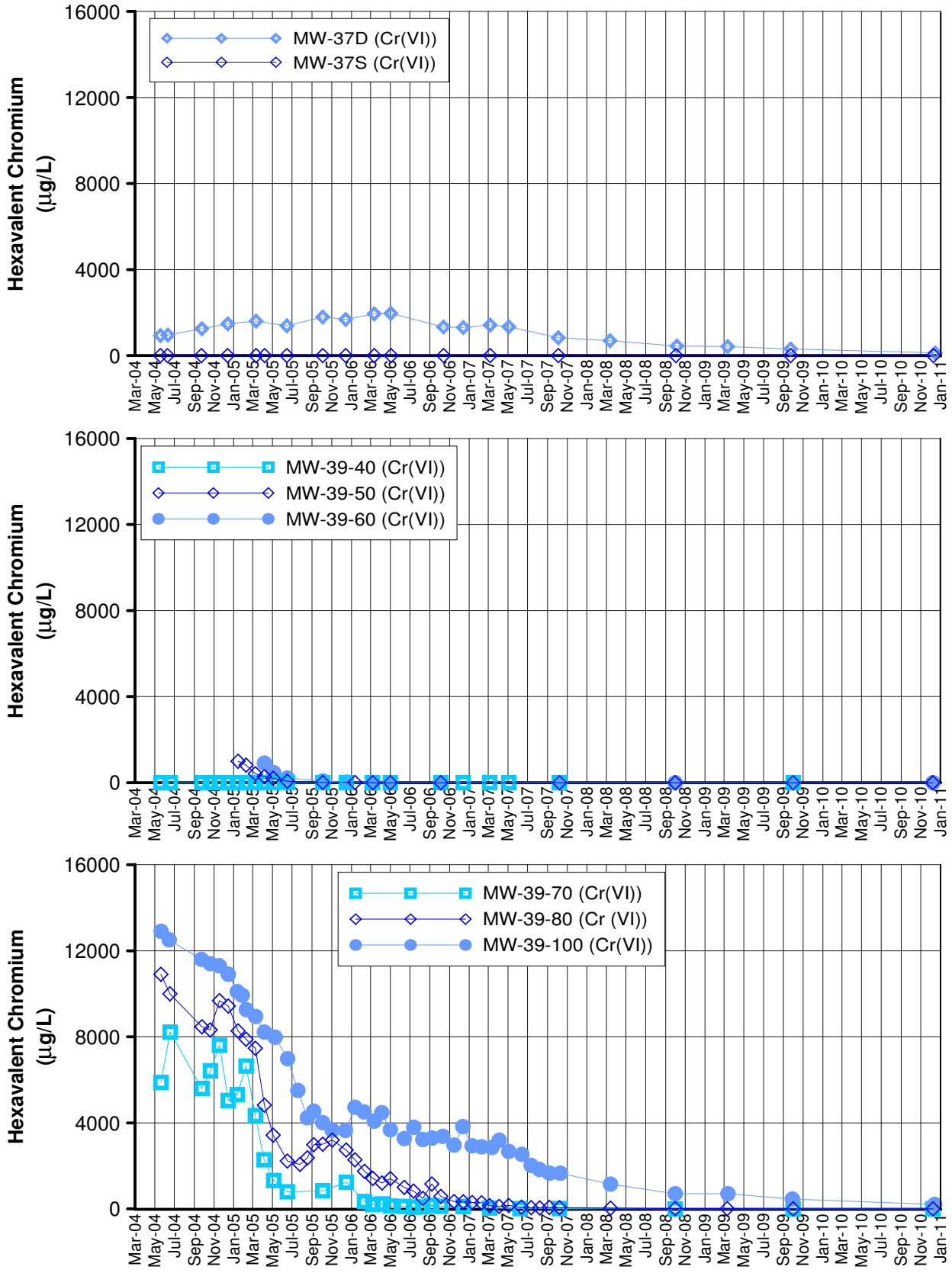

Notes:
1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
2) The trigger level for MW-39-40 is 20 µg/L.

FIGURE C-8
HEXAVALENT CHROMIUM
IN MW-37 AND MW-39 CLUSTERS
FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES
PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND
SURFACE WATER MONITORING REPORT
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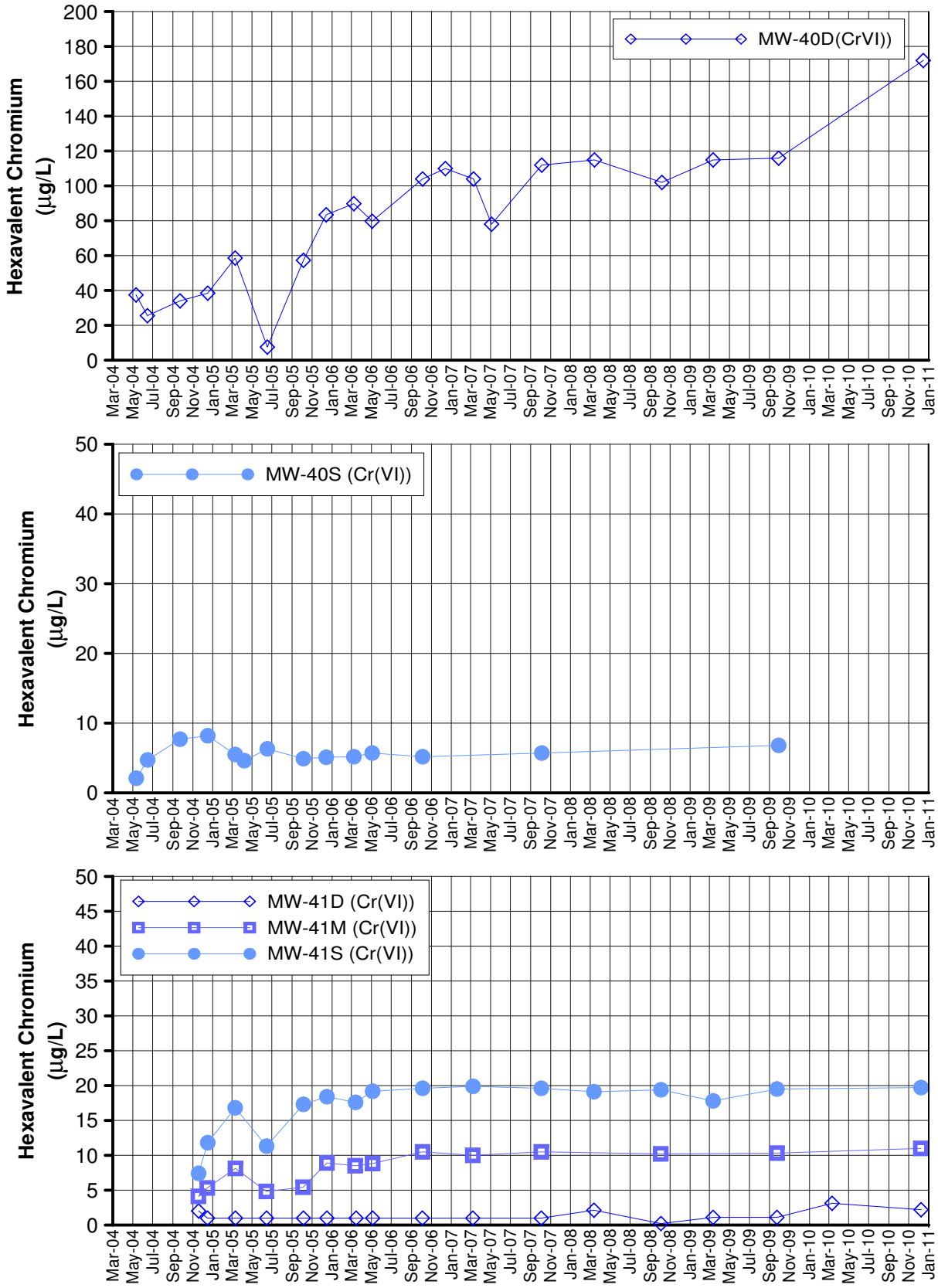

FIGURE C-9
HEXAVALENT CHROMIUM
IN MW-40 AND MW-41 CLUSTERS
FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES
PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND
SURFACE WATER MONITORING REPORT
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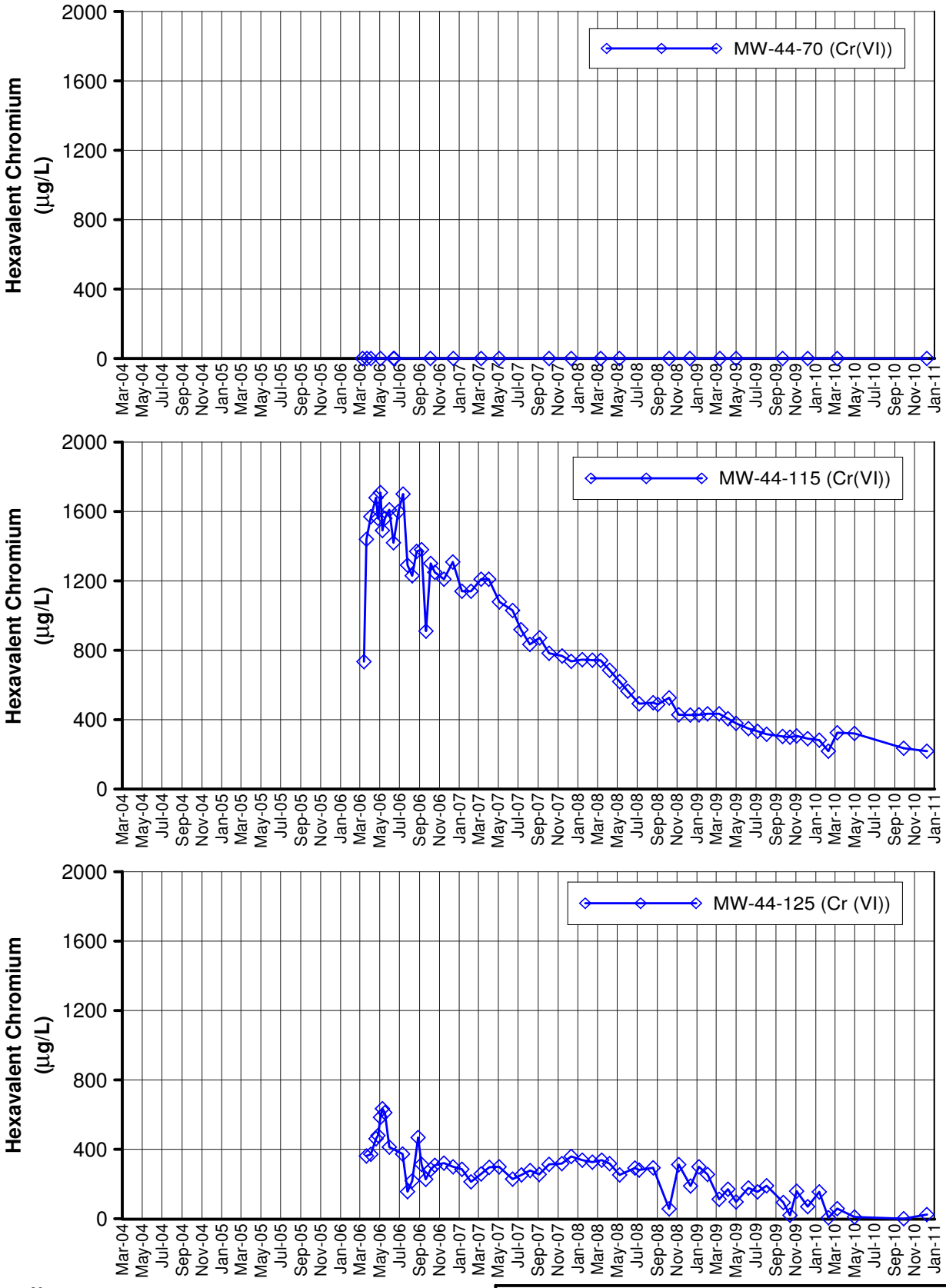

Notes:

1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
2) The trigger level for MW-44-70 is 20 µg/L.
3) The trigger level for MW-44-115 is 1,200 µg/L.
4) The trigger level for MW-44-125 is 475 µg/L.

FIGURE C-10
HEXAVALENT CHROMIUM
IN MW-44 CLUSTER
FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES
PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND
SURFACE WATER MONITORING REPORT
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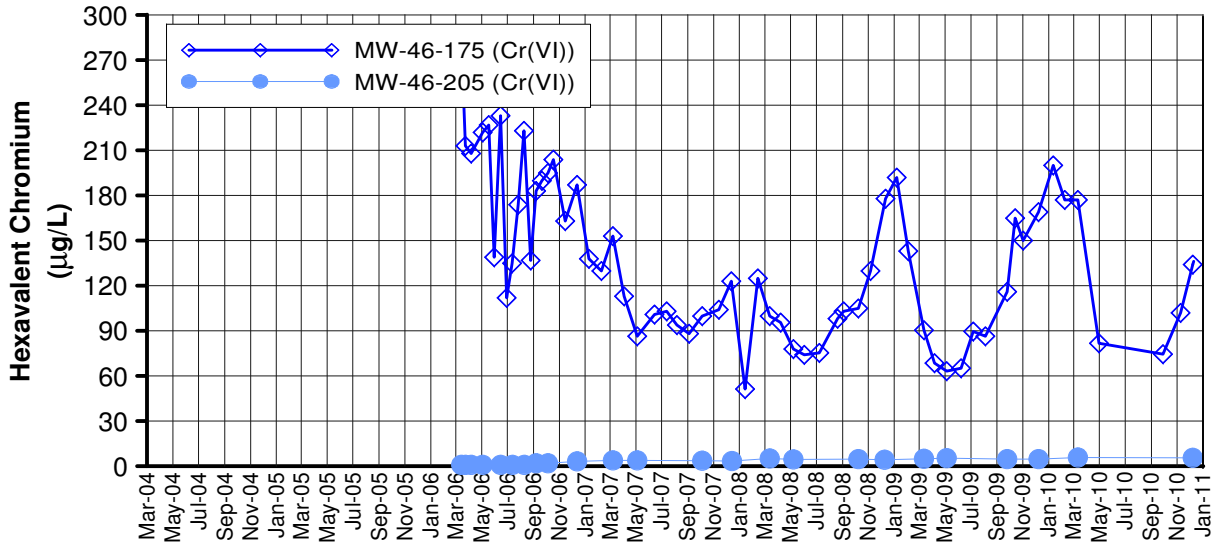

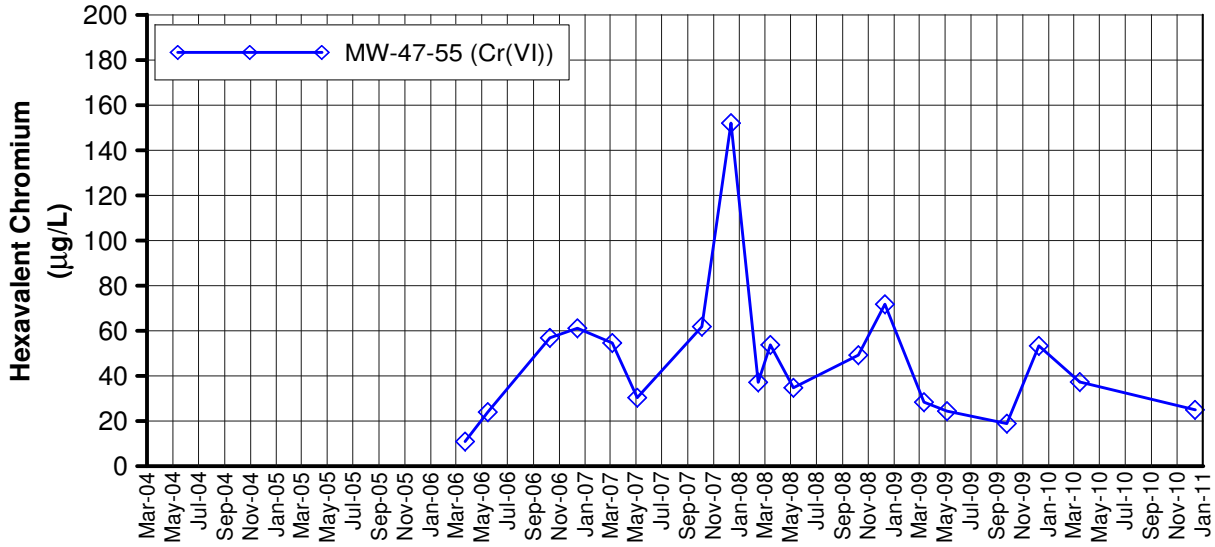

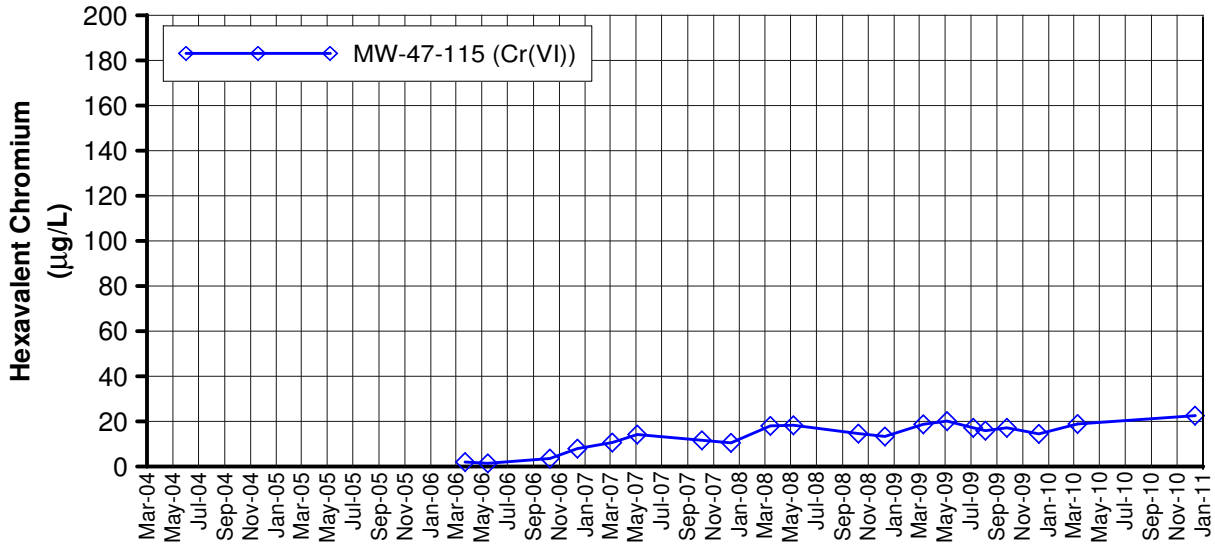

Notes:
1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
2) The trigger level for MW-46-175 is 225 µg/L.
3) The trigger level for MW-46-205 is 20 µg/L.
4) The trigger level for MW-47-55 is 475 µg/L.
5) The trigger level for MW-47-115 is 31 µg/L.

FIGURE C-11
HEXAVALENT CHROMIUM
IN MW-46 AND MW-47 CLUSTERS
FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

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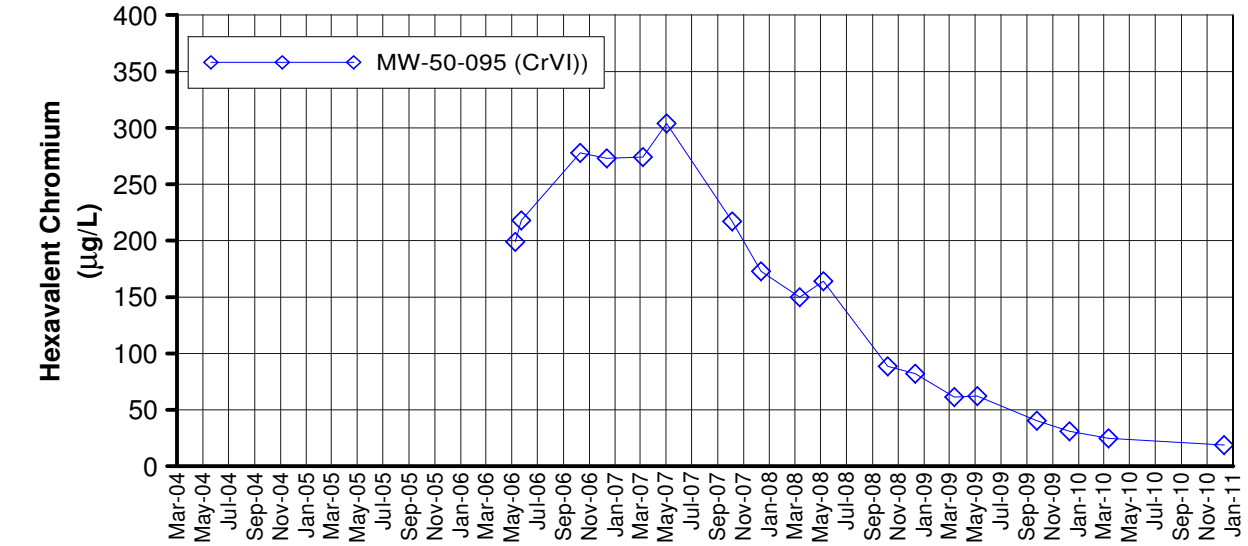

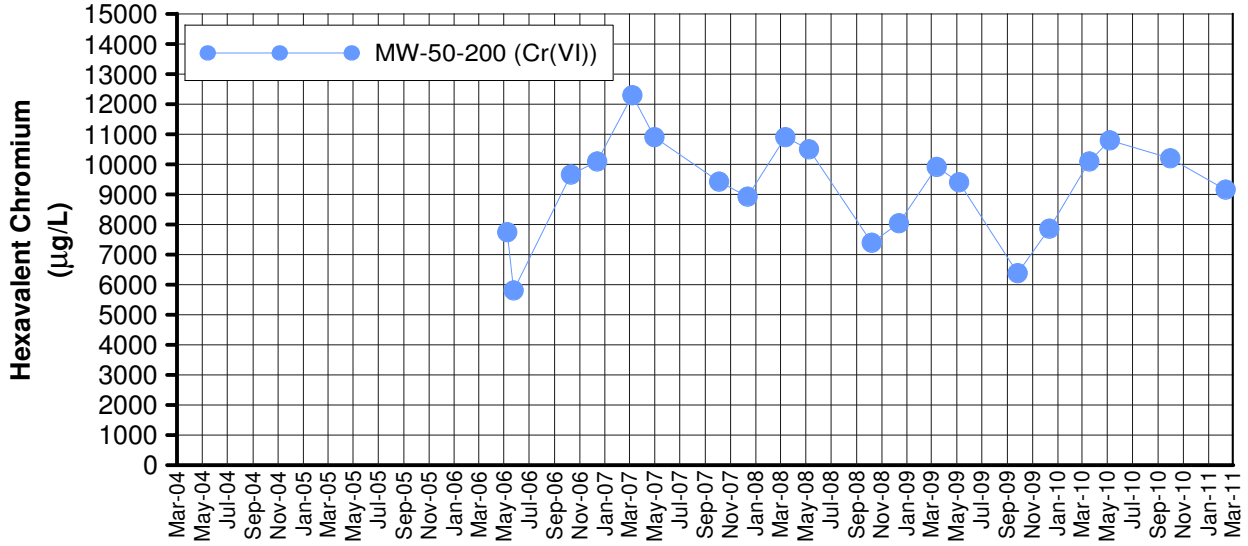

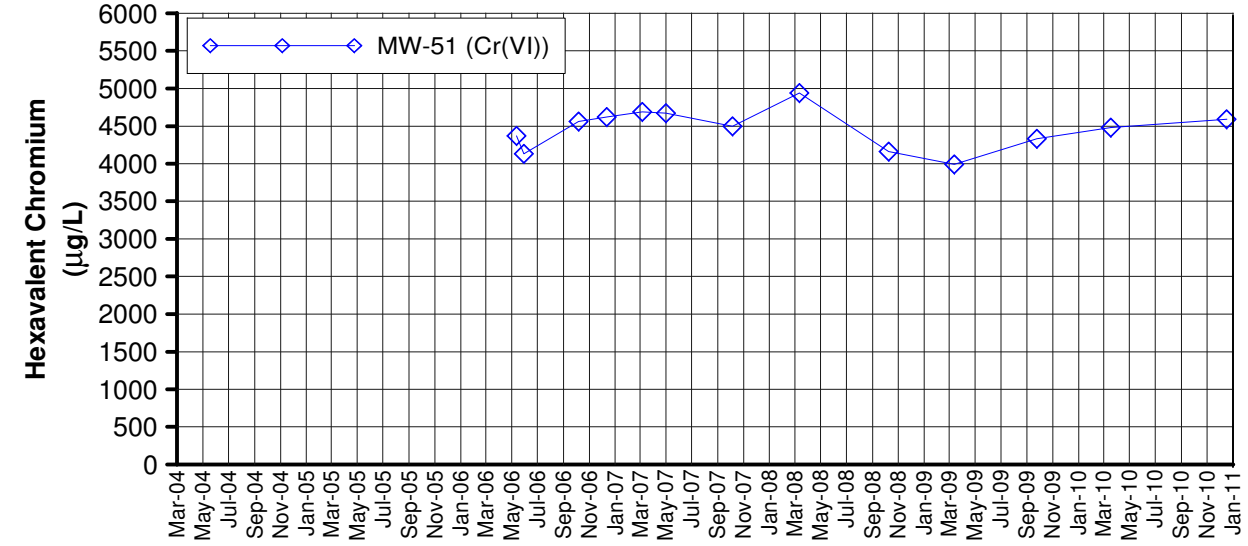

Notes:
1) Fourth Quarter 2010 data for MW-50-200 collected in February 2011 due to logistical issues.

FIGURE C-12
HEXAVALENT CHROMIUM
IN MW-50 AND MW-51 CLUSTERS
FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES
PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND
SURFACE WATER MONITORING REPORT
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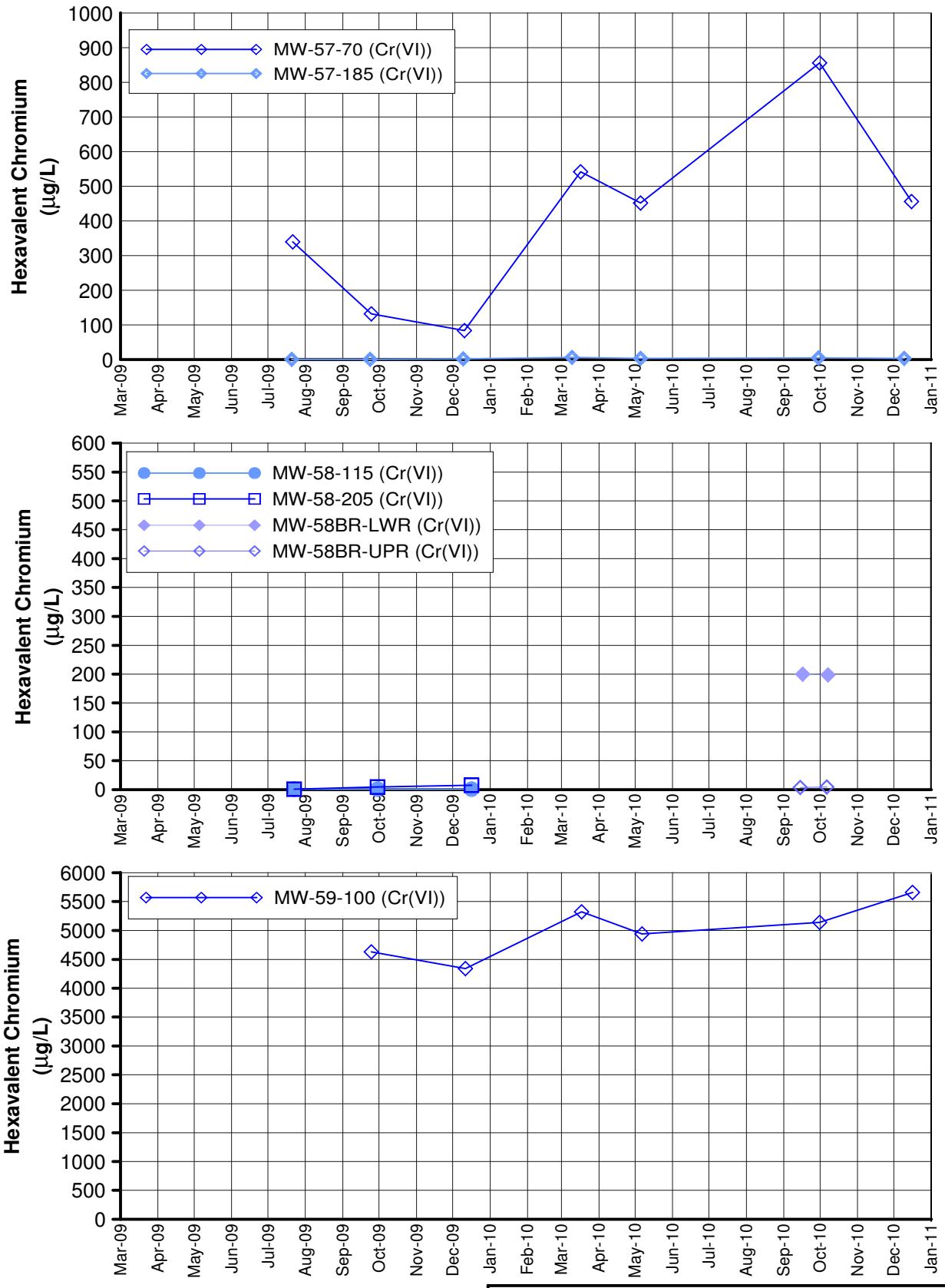

FIGURE C-13
HEXAVALENT CHROMIUM
IN MW-57, MW-58 and MW-59 CLUSTERS
FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES
PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND
SURFACE WATER MONITORING REPORT
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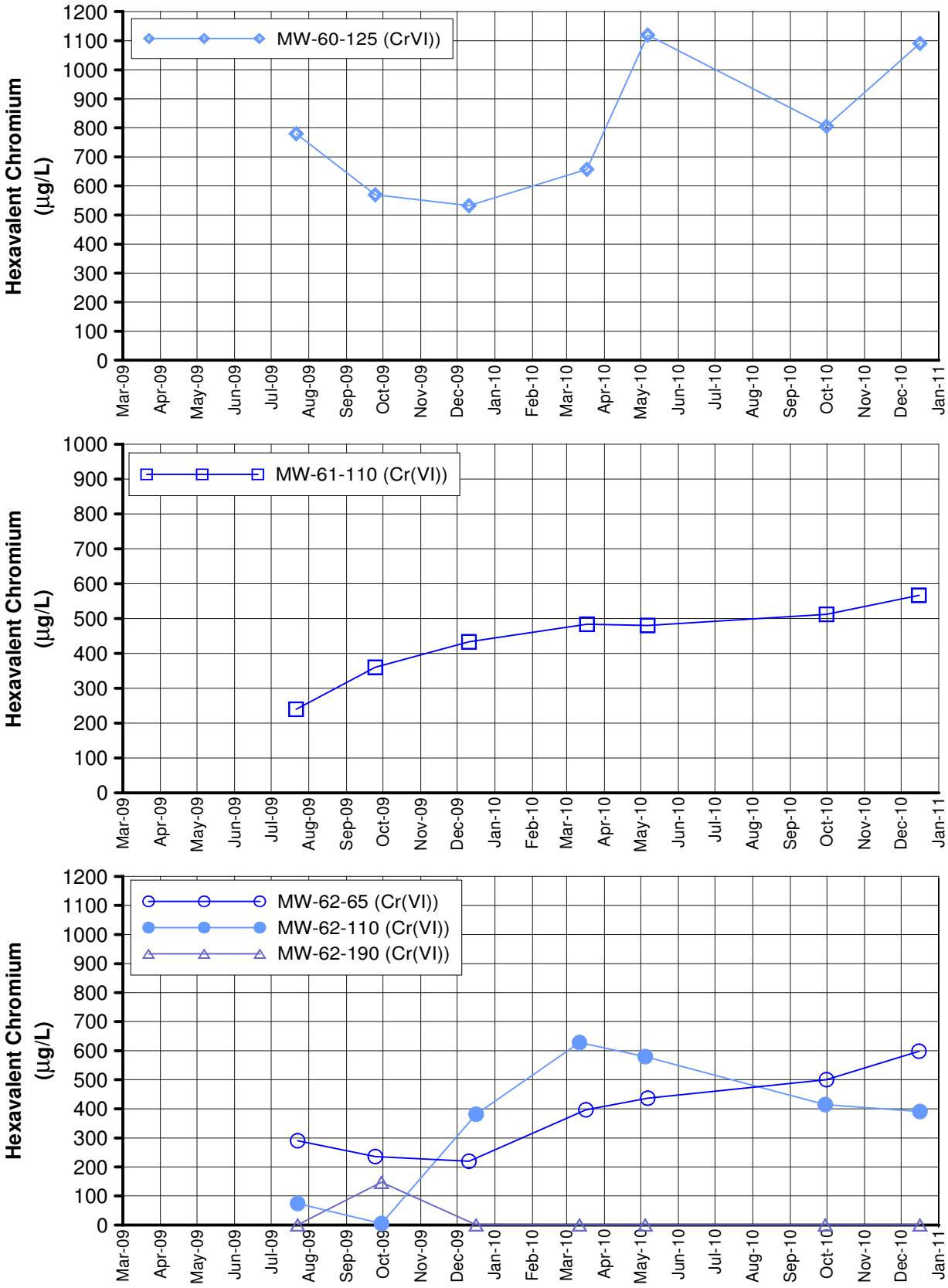

FIGURE C-14
HEXAVALENT CHROMIUM
IN MW-60-125, MW-61-110 AND THE MW-62 CLUSTER
FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES
PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND
SURFACE WATER MONITORING REPORT
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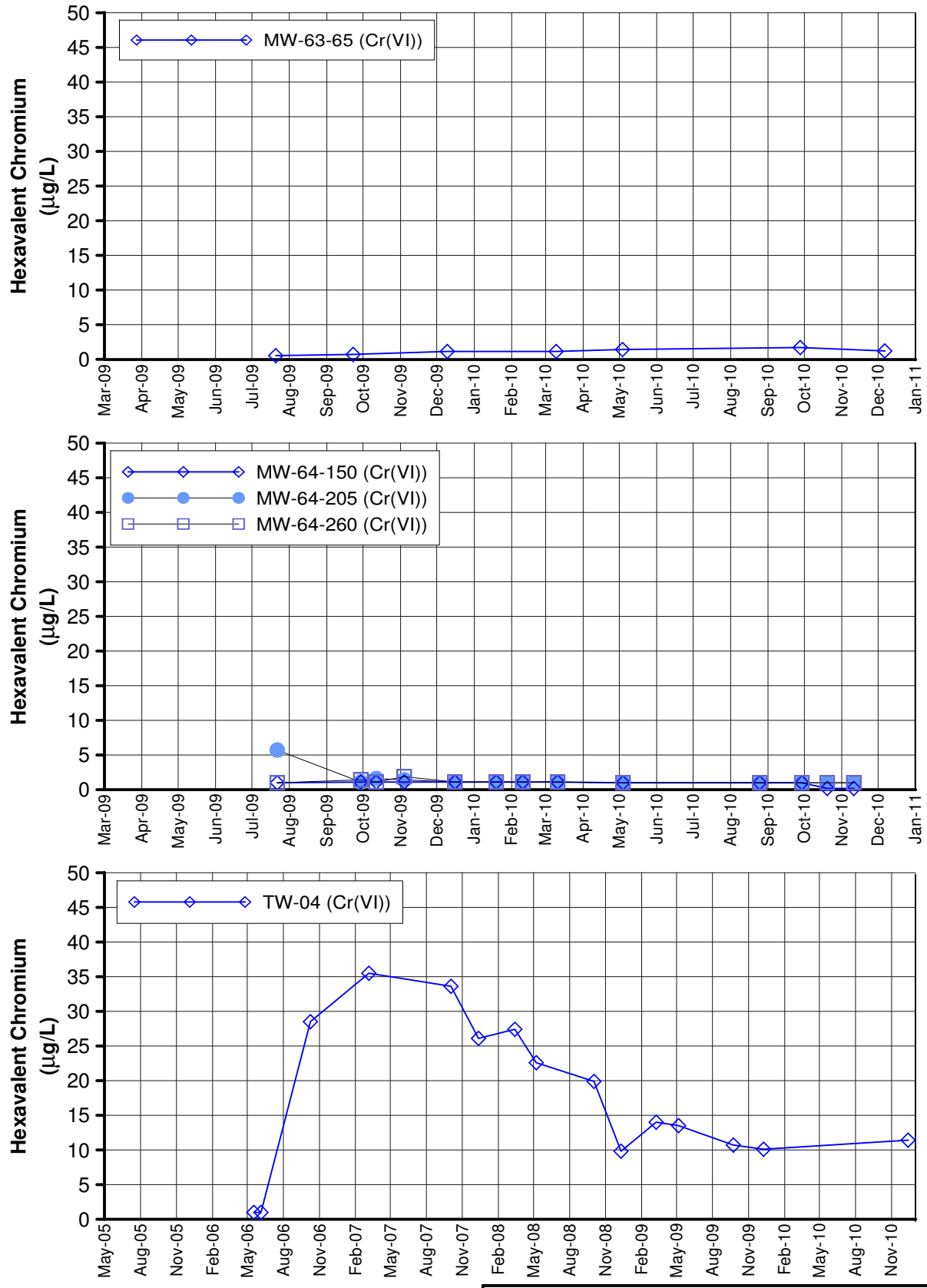

FIGURE C-15
HEXAVALENT CHROMIUM
IN MW-63-065, THE MW-64 CLUSTER, AND TW-04
FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES
PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND
SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

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Appendix D
Other Groundwater Monitoring Results

Table D-1
In Situ By-Product and Geochemical Indicator Parameter Analytical Results, Fourth Quarter 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Location ID	Sample Date	Arsenic Dissolved (µg/L)	Manganese Dissolved (µg/L)	Iron Dissolved (µg/L)	Ammonia (mg/L)	Nitrate as N (mg/L	Sulfate (mg/L)	Field ORP (mV)
MW-9	15-Dec-10	---	ND (10)	21.0	---	9.20	250	93
MW-10	07-Dec-10	7.2	ND (10)	ND (20)	---	11.0	280	82
	07-Dec-10 FD	6.9	ND (10)	ND (20)	---	11.0	290	FD
MW-12	16-Dec-10	53.0	ND (10)	31.0	---	9.80	400	59
MW-13	07-Dec-10	1.9	ND (10)	ND (20)	---	4.40	140	3.8
MW-14	07-Dec-10	---	ND (10)	ND (20)	---	5.10	100	14
MW-15	14-Dec-10	---	ND (10)	ND (20)	---	5.10	130	150
MW-16	10-Dec-10	9.7	ND (10)	22.0	---	3.00	110	22
MW-17	14-Dec-10	1.2	ND (10)	ND (20)	---	4.70	500	150
MW-18	14-Dec-10	---	ND (10)	ND (20)	---	3.60	80.0	120
MW-19	15-Dec-10	---	ND (10)	ND (20)	---	4.20	170	120
MW-20-70	16-Dec-10	---	ND (10)	ND (20)	---	16.0	320	75
MW-20-100 [2]	10-Feb-11	---	ND (10)	150	---	15.0	380	210
MW-20-130 [2]	10-Feb-11	4.9	ND (10)	26.0	---	13.0	1100	220
MW-21	07-Dec-10	---	61.0	77.0	---	1.00	2100	13
MW-22	07-Dec-10	12.0	4400	9400	---	ND (2.5)	2000	-66
MW-23-060	14-Dec-10	3.0	ND (10)	ND (20)	ND (0.1)	3.70	500	53
MW-23-080	14-Dec-10	2.6	ND (10)	ND (20)	0.27	3.90	940	3.5
MW-24BR	08-Dec-10	---	480	ND (20)	---	ND (2.5)	460	-160
MW-25	07-Dec-10	1.5	ND (10)	ND (20)	---	4.80	120	35
MW-26	15-Dec-10	1.7	ND (10)	27.0	---	12.0	480	110
MW-27-20	07-Dec-10	2.9	110	720	0.16	ND (0.5)	220	-170
MW-27-60	07-Dec-10	7.1	18.0	ND (20)	0.16	ND (0.5)	170	-160
MW-27-85	07-Dec-10	1.4	140	240	0.28	ND (1.0)	1200	-80
MW-28-25	08-Dec-10	1.7	160	63.0	0.12	ND (0.5)	230	-34
MW-28-90	08-Dec-10	1.8	180	810	0.14	ND (1.0)	590	-140
MW-29	14-Dec-10	21.0	180	1800	1.30	ND (0.5)	290	-140
MW-30-30	07-Dec-10	1.6	320	3000	---	ND (1.0)	1900	-170
MW-30-50	07-Dec-10	9.7	30.0	ND (20)	0.32	ND (0.5)	220	-210
MW-31-60	15-Dec-10	1.1	ND (10)	ND (20)	ND (0.1)	3.50	210	150

Table D-1
In Situ By-Product and Geochemical Indicator Parameter Analytical Results, Fourth Quarter 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Location ID	Sample Date	Arsenic Dissolved (µg/L)	Manganese Dissolved (µg/L)	Iron Dissolved (µg/L)	Ammonia (mg/L)	Nitrate as N (mg/L	Sulfate (mg/L)	Field ORP (mV)
MW-31-135	15-Dec-10	3.7	ND (10)	ND (20)	ND (0.1)	ND (1.0)	470	89
MW-32-20	08-Dec-10	2.6	1000	15000	12.0	ND (5.0)	4100	-140
MW-32-35	09-Dec-10	22.0	2300 J	15000 J	6.20	ND (2.5)	1600	-180
MW-33-40	10-Dec-10	11.0	ND (10)	ND (20)	ND (0.1)	ND (2.5)	1300	45
MW-33-90	10-Dec-10	1.3	ND (10)	ND (20)	ND (0.1)	1.80	620	-91
MW-33-150	10-Dec-10	---	ND (10)	ND (20)	ND (0.1)	ND (2.5)	800	-44
MW-33-210	10-Dec-10	---	ND (10)	ND (20)	0.10	ND (2.5)	1100	-69
MW-34-55	07-Dec-10	2.5	63.0	160	0.11	ND (0.5)	230	-150
MW-34-80	07-Dec-10	1.3	27.0	49.0	0.15	ND (1.0)	700	-100
MW-34-100	08-Dec-10	1.3	ND (10)	ND (20)	0.23	ND (2.5)	1300	-76
	08-Dec-10 FD	1.3	ND (10)	ND (20)	ND (0.1)	ND (1.0)	1200	FD
MW-35-60	14-Dec-10	---	ND (10)	ND (20)	0.10	1.90	330	110
MW-35-135	14-Dec-10	0.9	ND (10)	ND (20)	ND (0.1)	2.50	600	130
MW-36-20	07-Dec-10	1.9	130	900	0.61	ND (0.5)	1000	-170
MW-36-40	07-Dec-10	4.7	120	570	0.12	ND (0.5)	200	-200
MW-36-50	08-Dec-10	3.6	250	170	0.11	ND (0.5)	240	-110
MW-36-70	07-Dec-10	7.1	44.0	42.0	0.17	ND (0.5)	230	-100
MW-36-90	08-Dec-10	17.0	10.0	ND (20)	0.19	ND (0.5)	240	-69
	08-Dec-10 FD	18.0	12.0	ND (20)	ND (0.1)	ND (0.5)	230	FD
MW-36-100	15-Dec-10	5.1	75.0	29.0	ND (0.1)	ND (2.5)	890	-160
MW-37S	10-Dec-10	1.7	ND (10)	ND (20)	---	1.50	260	120
MW-37D	15-Dec-10	---	ND (10)	28.0	---	ND (2.5)	600	92
MW-39-50	08-Dec-10	8.6	29.0	ND (20)	0.13	ND (0.5)	230	-7.5
MW-39-60	09-Dec-10	6.0	18.0	ND (20)	0.21	ND (0.5)	250	-63
MW-39-70	08-Dec-10	---	ND (10)	ND (20)	ND (0.1)	ND (0.5)	360	79
MW-39-80	09-Dec-10	---	ND (10)	ND (20)	0.18	ND (1.0)	760	-38
MW-39-100	14-Dec-10	2.2	ND (10)	ND (20)	ND (0.1)	ND (2.5)	1500	6.4
MW-40D	15-Dec-10	4.2	ND (10)	ND (20)	---	2.90	670	22
MW-41S	08-Dec-10	2.0	ND (10)	ND (20)	---	1.30	250	-66
	08-Dec-10 FD	1.9	ND (10)	ND (20)	---	1.30	270	FD
MW-41M	08-Dec-10	2.0	ND (10)	ND (20)	---	ND (1.0)	510	-83

Table D-1
In Situ By-Product and Geochemical Indicator Parameter Analytical Results, Fourth Quarter 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Location ID	Sample Date	Arsenic Dissolved (µg/L)	Manganese Dissolved (µg/L)	Iron Dissolved (µg/L)	Ammonia (mg/L)	Nitrate as N (mg/L	Sulfate (mg/L)	Field ORP (mV)
MW-41D	08-Dec-10	2.4	63.0	43.0	---	ND (2.5)	730	-110
MW-42-30	06-Dec-10	2.2	---	---	---	ND (0.5)	---	-220
MW-42-55	06-Dec-10	12.0	670	1300	0.95	ND (1.0)	680	-170
MW-42-65	06-Dec-10	1.8	1700	110	0.14	ND (1.0)	890	-110
MW-43-25	09-Dec-10	19.0	240	3100	1.50	ND (0.5)	270	-190
MW-43-75	09-Dec-10	11.0	280	1900	0.17	ND (2.5)	1900	-170
MW-43-90	09-Dec-10	3.7	1000	4500	0.38	ND (2.5)	2000	-98
MW-44-70	09-Dec-10	3.1	120	260	ND (0.1)	ND (0.5)	250	-230
MW-44-115	09-Dec-10	5.1	ND (10)	ND (20)	ND (0.1)	ND (2.5)	670	-230
	09-Dec-10 FD	5.0	ND (10)	ND (20)	0.11	ND (2.5)	670	FD
MW-44-125	09-Dec-10	4.0	610	78.0 J	0.16	ND (2.5)	570	-280
	09-Dec-10 FD	3.8	620	140 J	0.19	ND (2.5)	600	FD
MW-45-095a	14-Dec-10	3.6	ND (10)	ND (20)	ND (0.1)	ND (1.0)	690	-98
MW-46-175	08-Dec-10	---	ND (10)	ND (20)	ND (0.1)	ND (1.0)	700	-190
	08-Dec-10 FD	---	ND (10)	24.0	ND (0.1)	ND (1.0)	700	FD
MW-46-205	08-Dec-10	---	31.0	ND (40)	ND (0.1)	ND (2.5)	820	-100
MW-47-55	13-Dec-10	1.1	ND (10)	ND (20)	ND (0.1)	1.60	230	69
	13-Dec-10 FD	1.2	ND (10)	ND (20)	ND (0.1)	1.60	230	FD
MW-47-115	13-Dec-10	---	ND (10)	ND (20)	0.10	ND (2.5)	660	58
MW-48	08-Dec-10	---	38.0	ND (20)	---	ND (1.0)	530	-4.3
MW-49-135	13-Dec-10	1.6	560	620	ND (0.1)	ND (2.5)	680	-1.2
MW-49-275	13-Dec-10	---	470	61.0	ND (0.1)	ND (2.5)	1300	-200
MW-49-365	13-Dec-10	---	150	ND (100)	0.11	ND (5.0)	1100	-220
MW-50-095	10-Dec-10	---	ND (10)	ND (20)	ND (0.1)	1.50	260	36
MW-50-200 [2]	10-Feb-11	---	ND (20)	ND (40)	0.10	6.40	1000	230
	10-Feb-11 FD	---	ND (20)	ND (40)	0.14	6.10	1100	FD
MW-51	16-Dec-10	3.9	ND (10)	ND (20)	ND (0.1)	10.0	710	80
MW-52S	09-Dec-10	0.35	990	6200	0.77	ND (1.0)	400	-180
MW-52M	09-Dec-10	1.3	180	1000	ND (0.1)	ND (2.5)	690	-210
MW-52D	09-Dec-10	3.3	290	530	ND (0.1)	ND (2.5)	830	-220
MW-53M	10-Dec-10	1.0	420	290	0.11	ND (2.5)	800	-210

Table D-1
In Situ By-Product and Geochemical Indicator Parameter Analytical Results, Fourth Quarter 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Location ID	Sample Date	Arsenic Dissolved (µg/L)	Manganese Dissolved (µg/L)	Iron Dissolved (µg/L)	Ammonia (mg/L)	Nitrate as N (mg/L	Sulfate (mg/L)	Field ORP (mV)
MW-53D	09-Dec-10	2.9	2000	190	0.11	ND (2.5)	1100	-220
MW-54-85	14-Dec-10	---	1190	1150	ND (0.1)	ND (0.5)	511	-190
MW-54-140	14-Dec-10	---	246	ND (100)	ND (0.1)	0.659	474	-110
MW-54-195	14-Dec-10	---	585	112	ND (0.1)	ND (0.5)	916	-250
MW-55-45	09-Dec-10	---	1030	ND (100)	---	ND (0.5)	52.1	-200
MW-55-120	09-Dec-10	---	33.7	ND (100)	---	1.40	286	-120
	09-Dec-10 FD	---	33.9	ND (100)	---	1.40	286	FD
MW-56S	14-Dec-10	---	546	2960	0.13	ND (0.5)	411	-140
MW-56M	14-Dec-10	---	720	3190	0.45	ND (0.5)	969	-130
MW-56D	14-Dec-10	---	639	634	0.49	ND (0.5)	1090	-110
MW-57-070	15-Dec-10	1.4	17.0	79.0	ND (0.1)	6.20	120	1.8
	15-Dec-10 FD	1.5	25.0	69.0	ND (0.1)	6.20	120	FD
MW-57-185	09-Dec-10	11.0	580	ND (20)	ND (0.1)	ND (2.5)	700	-180
MW-59-100	16-Dec-10	2.1	ND (10)	ND (20)	ND (0.1)	5.90	660	110
MW-60-125	16-Dec-10	1.4	29.0	ND (20)	ND (0.1)	3.60	450	49
	16-Dec-10 FD	1.5	35.0	ND (20)	ND (0.1)	3.30	440	FD
MW-61-110	15-Dec-10	3.2	520	130	0.14	ND (2.5)	670	-100
MW-62-065	15-Dec-10	0.99	ND (10)	ND (20)	ND (0.1)	3.60	380	19
MW-62-110	16-Dec-10	14.0	230	ND (20)	0.27	2.80	490	110
MW-62-190	16-Dec-10	8.1	1300	49.0	ND (0.1)	ND (2.5)	710	-30
MW-63-065	06-Dec-10	1.6	57.0	26.0	0.12	1.30	600	-23
MW-64BR [1]	20-Dec-10	5.3	---	---	---	2.10	---	---
OW-3S	08-Dec-10	---	ND (10)	61.0	---	3.20	71.0	-49
OW-3M	08-Dec-10	---	ND (10)	ND (20)	---	1.10	290	-100
OW-3D	08-Dec-10	2.6	ND (10)	ND (20)	---	ND (1.0)	380	-110
PGE-7BR	09-Dec-10	---	4600	110000	---	ND (2.5)	780	-250
PGE-8 [2]	10-Feb-11	---	610	240	---	ND (2.5)	2000	-330
Park Moabi-3	10-Dec-10	---	ND (10)	ND (20)	ND (0.1)	3.30	54.0	48
Park Moabi-4	10-Dec-10	---	ND (10)	ND (20)	0.12	2.20	92.0	40
TW-1	09-Dec-10	---	ND (10)	ND (20)	---	25.0	910	29
TW-2S	15-Dec-10	---	ND (10)	ND (20)	---	4.40	180	200

Table D-1
In Situ By-Product and Geochemical Indicator Parameter Analytical Results, Fourth Quarter 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Location ID	Sample Date	Arsenic Dissolved (µg/L)	Manganese Dissolved (µg/L)	Iron Dissolved (µg/L)	Ammonia (mg/L)	Nitrate as N (mg/L	Sulfate (mg/L)	Field ORP (mV)
TW-2D	15-Dec-10	---	ND (10)	ND (20)	---	1.10	500	230
TW-4	13-Dec-10	---	ND (20)	ND (40)	---	ND (2.5)	1000	83
TW-5	10-Dec-10	---	ND (10)	ND (20)	---	ND (2.5)	520	63

NOTES:
ND = not detected at listed reporting limit (RL)
FD = field duplicate sample
J = concentration or RL estimated by laboratory or data validation
(---) = data not collected, available, rejected, or field instrument malfunction
µg/L= micrograms per liter
mg/L = milligrams per liter
mV = millivolts
ORP = oxidation-reduction potential

ORP is reported to two significant figures.

[1] One-time sample collected from an open borehole.
[2] Data collected February 2011 due to field logistical issues.

Table D-2
Arsenic Results in Monitoring Wells, January 2010 through December 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date		Dissolved Arsenic (µg/L)
MW-10	SA	11-Mar-10		11.0
		07-Dec-10		7.2
		07-Dec-10	FD	6.9
MW-12	SA	06-Apr-10		63.0
		06-Apr-10	FD	63.0
		06-May-10		64.2
		06-May-10	FD	66.9
		30-Sep-10		53.4
		30-Sep-10	FD	55.4
		16-Dec-10		53.0
MW-13	SA	07-Dec-10		1.9
MW-16	SA	10-Dec-10		9.7
MW-17	SA	14-Dec-10		1.2
MW-20-130 [2]	DA	10-Feb-11		4.9
MW-22	SA	12-Mar-10		12.1
		07-Dec-10		12.0
MW-23-060	BR-S	14-Dec-10		3.0
MW-23-080	BR-S	14-Dec-10		2.6
MW-25	SA	07-Dec-10		1.5
MW-26	SA	15-Dec-10		1.7
MW-27-20	SA	07-Dec-10		2.9
MW-27-60	MA	07-Dec-10		7.1
MW-27-85	DA	09-Mar-10		1.4
		29-Apr-10		5.6
		01-Oct-10		1.8
		07-Dec-10		1.4
MW-28-25	SA	09-Mar-10		2.0
		08-Dec-10		1.7
MW-28-90	DA	09-Mar-10		2.1
		29-Apr-10		2.8
		28-Sep-10		2.3
		08-Dec-10		1.8
MW-29	SA	11-Mar-10		35.0
		14-Dec-10		21.0
MW-30-30	SA	07-Dec-10		1.6
MW-30-50	MA	07-Dec-10		9.7

Table D-2
Arsenic Results in Monitoring Wells, January 2010 through December 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date		Dissolved Arsenic (µg/L)
MW-31-60	SA	15-Dec-10		1.1
MW-31-135	DA	15-Dec-10		3.7
MW-32-20	SA	08-Dec-10		2.6
MW-32-35	SA	09-Mar-10		24.4
		09-Dec-10		22.0
MW-33-40	SA	11-Mar-10		17.7
		30-Apr-10		20.3
		28-Sep-10		19.4
		10-Dec-10		11.0
MW-33-90	MA	10-Dec-10		1.3
MW-34-55	MA	07-Dec-10		2.5
MW-34-80	DA	10-Mar-10		1.3
		29-Apr-10		2.2
		01-Oct-10		1.5
		07-Dec-10		1.3
MW-34-100	DA	10-Mar-10		1.7
		10-Mar-10	FD	1.4
		29-Apr-10		2.2
		29-Apr-10	FD	3.4
		01-Oct-10		1.7
		01-Oct-10	FD	1.7
		09-Nov-10		1.6
		08-Dec-10		1.3
		08-Dec-10	FD	1.3
MW-35-135	DA	14-Dec-10		0.9
MW-36-20	SA	07-Dec-10		1.9
MW-36-40	SA	07-Dec-10		4.7
MW-36-50	MA	08-Dec-10		3.6
MW-36-70	MA	07-Dec-10		7.1
MW-36-90	DA	12-Mar-10		16.4
		08-Dec-10		17.0
		08-Dec-10	FD	18.0
MW-36-100	DA	09-Mar-10		4.5
		15-Dec-10		5.1
MW-37S	MA	10-Dec-10		1.7
MW-39-50	MA	08-Dec-10		8.6

Table D-2
Arsenic Results in Monitoring Wells, January 2010 through December 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date		Dissolved Arsenic (µg/L)
MW-39-60	MA	09-Dec-10		6.0
MW-39-100	DA	14-Dec-10		2.2
MW-40D	DA	15-Dec-10		4.2
MW-41D	DA	08-Dec-10		2.4
MW-41M	DA	08-Dec-10		2.0
MW-41S	SA	08-Dec-10		2.0
		08-Dec-10	FD	1.9
MW-42-30	SA	06-Dec-10		2.2
MW-42-55	MA	09-Mar-10		11.8
		29-Apr-10		14.2
		27-Sep-10		12.5
		06-Dec-10		12.0
MW-42-65	MA	09-Mar-10		2.1
		29-Apr-10		3.3
		27-Sep-10		3.0
		06-Dec-10		1.8
MW-43-25	SA	09-Dec-10		19.0
MW-43-75	DA	09-Dec-10		11.0
MW-43-90	DA	09-Dec-10		3.7
MW-44-70	MA	08-Mar-10		3.0
		09-Dec-10		3.1
MW-44-115	DA	09-Dec-10		5.1
		09-Dec-10	FD	5.0
MW-44-125	DA	09-Dec-10		4.0
		09-Dec-10	FD	3.8
MW-45-095a	DA	14-Dec-10		3.6
MW-47-55	SA	13-Dec-10		1.1
		13-Dec-10	FD	1.2
MW-49-135	DA	13-Dec-10		1.6
MW-51	MA	16-Dec-10		3.9
MW-52D	DA	10-Mar-10		3.5
		09-Dec-10		3.3
MW-52M	DA	10-Mar-10		1.4
		09-Dec-10		1.3
MW-52S	MA	10-Mar-10		ND (1.0)
		09-Dec-10		0.35

Table D-2
Arsenic Results in Monitoring Wells, January 2010 through December 2010
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Well ID	Aquifer Zone	Sample Date		Dissolved Arsenic (µg/L)
MW-53D	DA	10-Mar-10		2.7
		09-Dec-10		2.9
MW-53M	DA	10-Mar-10		ND (1.0)
		10-Dec-10		1.0
MW-57-070	BR	15-Dec-10		1.4
		15-Dec-10	FD	1.5
MW-57-185	BR-D	09-Dec-10		11.0
MW-58BR [1]	BR	25-Mar-10		13.0
MW-58BR-LWR	BR	16-Sep-10		3.2
		07-Oct-10		3.2
MW-58BR-UPR	BR	14-Sep-10		5.9
		06-Oct-10		5.6
MW-59-100	SA	16-Dec-10		2.1
MW-60-125	BR-S	16-Dec-10		1.4
		16-Dec-10	FD	1.5
MW-61-110	BR-S	15-Dec-10		3.2
MW-62-065	BR-S	15-Dec-10		0.99
MW-62-110	BR-M	11-Mar-10		10.3
		04-May-10		12.0
		29-Sep-10		19.5
		16-Dec-10		14.0
MW-62-190	BR-D	11-Mar-10		9.4
		04-May-10		9.4
		29-Sep-10		9.5
		16-Dec-10		8.1
MW-63-065	BR-S	06-Dec-10		1.6
MW-64-150	BR-S	11-Mar-10		12.5
		04-May-10		12.9
		25-Aug-10		10.4
		29-Sep-10		8.2
MW-64-205	BR-D	11-Mar-10		8.5
		04-May-10		8.5
		25-Aug-10		6.3
		29-Sep-10		6.6
MW-64-260	BR-D	11-Mar-10		2.9
		04-May-10		5.2
		25-Aug-10		3.4

Table D-2
Arsenic Results in Monitoring Wells, January 2010 through December 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Sample Date	Dissolved Arsenic (µg/L)
MW-64-260	BR-D	29-Sep-10	2.6
MW-64BR [1]	BR	20-Dec-10	5.3
OW-3D	DA	08-Dec-10	2.6

NOTES:

µg/L = micrograms per liter
FD = field duplicate

[1] One-time sample collected from an open borehole.
[2] Data collected February 2011 due to field logistical issues.

As a results of a series of storm events in January 2010 the MW-58 cluster (MW-58-115 and MW-58-205) was inundated with flood water. This floodwater destroyed the Flexible Liner Underground Technologies™ well liner that allowed discrete sampling at the 115 feet below ground surface (bgs) and 205 feet bgs depth intervals and was consequently removed from the borehole. The MW-58 bedrock well cluster is now an open borehole. In September 2010 a packer system was installed in the borehole at about 115 ft bgs that divided the open borehole into upper (UPR) and lower (LWR) intervals.

In accordance with DTSC direction, the Flexible Liner Underground Technologies (FLUTe) multi-level monitoring system, which allowed discrete sampling at the 150, 205 and 260 ft bgs depth intervals, was removed from the MW-64BR borehole in December 2010. Following removal of the FLUTe system, the open borehole was developed and a sample representative of the entire saturated portion of the borehole was collected on December 20, 2010.

The California primary drinking water standards Maximum Contaminant Level (MCL) for Arsenic is 10 ug/L. The background level for Arsenic at the site is 24.3 ug/L.

Wells are assigned to separate Aquifer zones for results reporting:
SA: shallow interval of Alluvial Aquifer
MA: mid-depth interval of Alluvial Aquifer
DA: deep interval of Alluvial Aquifer
PA: perched aquifer (unsaturated zone)
BR: well completed in bedrock (Miocene Conglomerate or pre-Tertiary crystalline rock)
BR-S: well completed in shallow portion of BR
BR-M: well completed in middle portion of BR
BR-D: well completed in deep portion of BR

Table D-3
Background Metals, Fourth Quarter 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide
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PG&E Topock Compressor Station, Needles, California

		Metals in µg/L																		General Metals in mg/L				
	California MCL:	6	10	200	1,000	4	5	NE	50	1,000*	15	2	NE	100	50	100*	2	NE	5,000*	NE	NE	0.3*	NE	0.05*
Well ID	**Sample Date**	**Antimony**	**Arsenic**	**Aluminum**	**Barium**	**Beryllium**	**Cadmium**	**Cobalt**	**Chromium**	**Copper**	**Lead**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**	**Boron**	**Calcium**	**Iron**	**Magnesium**	**Manganese**
MW-16	12/10/2010	ND (10)	9.7	ND (50)	28.0	ND (1.0)	ND (3.0)	ND (3.0)	10.2	5.4	ND (10)	ND (0.2) J	11.0	5.0	1.5	ND (3.0)	ND (0.5)	32.0	ND (10)	0.31	26.0	0.022	4.7	ND (0.01)
MW-17	12/14/2010	**13.0**	1.2	ND (50)	22.0	ND (1.0)	ND (3.0)	ND (3.0)	17.0	ND (5.0)	ND (10)	ND (0.2)	24.0	ND (5.0)	11.0	ND (3.0)	ND (0.5)	4.8	14.0	0.2	83.0	ND (0.02)	11.0	ND (0.01)

Notes:
µg/L micrograms per liter
mg/L milligrams per liter
ND not detected at listed reporting limit
FD field duplicate sample
NE not established
* Secondary USEPA MCL

J= concentration or reporting limit estimated by laboratory or data validation

The maximum contaminant levels (MCLs) listed are the California primary drinking water standards, except where noted.

All results are dissolved metals from field-filtered samples.

Metals analyzed by Methods SW6010B or SW6020A or SW7470A.

Analytes detected above MCL are in bold.

Table D-4
Analytical Results for MW-64BR, Fourth Quarter 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Analyte	Method	Units	MW-64BR 12/20/2010
Anions			
Chloride	300	mg/L	4,600
Nitrate as Nitrogen	300	mg/L	2.1
General Chemistry			
Total dissolved solids	SM2540C	mg/L	8,300
Metals			
Arsenic, dissolved	6020A	µg/L	5.3
Chromium, dissolved	6010B/6020A	µg/L	140
Chromium, Hexavalent	218.6	µg/L	140
Volatile Organic Compounds			
1,1,1,2-Tetrachloroethane	8260	µg/L	ND (1.0)
1,1,1-Trichloroethane	8260	µg/L	ND (1.0)
1,1,2,2-Tetrachloroethane	8260	µg/L	ND (1.0)
1,1,2-Trichloroethane	8260	µg/L	ND (1.0)
1,1,2-Trichlorotrifluoroethane (Freon 113)	8260	µg/L	ND (1.0)
1,1-Dichloroethane	8260	µg/L	ND (1.0)
1,1-Dichloroethene	8260	µg/L	ND (1.0)
1,1-Dichloropropene	8260	µg/L	ND (1.0)
1,2,3-Trichlorobenzene	8260	µg/L	ND (1.0)
1,2,3-Trichloropropane	8260	µg/L	ND (1.0)
1,2,4-Trichlorobenzene	8260	µg/L	ND (1.0)
1,2,4-Trimethylbenzene	8260	µg/L	ND (1.0)
1,2-Dibromo-3-chloropropane	8260	µg/L	ND (2.0)
1,2-Dibromoethane	8260	µg/L	ND (1.0)
1,2-Dichlorobenzene	8260	µg/L	ND (1.0)
1,2-Dichloroethane	8260	µg/L	ND (1.0)
1,2-Dichloropropane	8260	µg/L	ND (1.0)
1,3,5-Trimethylbenzene	8260	µg/L	ND (1.0)
1,3-Dichlorobenzene	8260	µg/L	ND (1.0)
1,3-Dichloropropane	8260	µg/L	ND (1.0)
1,4-Dichlorobenzene	8260	µg/L	ND (1.0)
2,2-Dichloropropane	8260	µg/L	ND (1.0)
2-Chlorotoluene	8260	µg/L	ND (1.0)
4-Isopropyltoluene	8260	µg/L	ND (1.0)
Acetone	8260	µg/L	ND (10)
Acrylonitrile	8260	µg/L	ND (20) J
Benzene	8260	µg/L	ND (1.0)

Table D-4
Analytical Results for MW-64BR, Fourth Quarter 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Analyte	Method	Units	MW-64BR 12/20/2010
Volatile Organic Compounds			
Bromobenzene	8260	µg/L	ND (1.0)
Bromochloromethane	8260	µg/L	ND (1.0)
Bromodichloromethane	8260	µg/L	ND (1.0)
Bromoform	8260	µg/L	ND (1.0)
Bromomethane	8260	µg/L	ND (1.0)
Carbon disulfide	8260	µg/L	ND (1.0)
Carbon tetrachloride	8260	µg/L	ND (1.0)
Chloro benzene	8260	µg/L	ND (1.0)
Chloroethane	8260	µg/L	ND (1.0)
Chloroform	8260	µg/L	ND (1.0)
Chloromethane	8260	µg/L	ND (1.0)
cis-1,2-Dichloro ethene	8260	µg/L	ND (1.0)
cis-1,3-Dichloropropene	8260	µg/L	ND (1.0)
Dibromochloromethane	8260	µg/L	ND (1.0)
Dibromomethane	8260	µg/L	ND (1.0)
Dichlorodifluoromethane	8260	µg/L	ND (1.0)
Ethylbenzene	8260	µg/L	ND (1.0)
Hexachlorobutadiene	8260	µg/L	ND (1.0)
Isopropylbenzene	8260	µg/L	ND (1.0)
m,p-Xylenes	8260	µg/L	ND (1.0)
Methyl ethyl ketone	8260	µg/L	ND (10)
Methyl isobutyl ketone	8260	µg/L	ND (10)
Methyl tert-butyl ether (MTBE)	8260	µg/L	ND (1.0)
Methylene chloride	8260	µg/L	ND (5.0)
Naphthalene	8260	µg/L	ND (1.0)
N-Butylbenzene	8260	µg/L	ND (1.0)
N-Propylbenzene	8260	µg/L	ND (1.0)
o-Xylene	8260	µg/L	ND (1.0)
p-Chlorotoluene	8260	µg/L	ND (1.0)
sec-Butylbenzene	8260	µg/L	ND (1.0)
Styrene	8260	µg/L	ND (1.0)
tert-Butylbenzene	8260	µg/L	ND (1.0)
Tetrachloroethene	8260	µg/L	ND (1.0)
Toluene	8260	µg/L	ND (2.5)
trans-1,2-Dichloroethene	8260	µg/L	ND (1.0)
trans-1,3-Dichloropropene	8260	µg/L	ND (1.0)

Table D-4
Analytical Results for MW-64BR, Fourth Quarter 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Analyte	Method	Units	MW-64BR 12/20/2010
Volatile Organic Compounds			
Trichloroethene	8260	µg/L	ND (1.0)
Trichlorofluoromethane (Freon 11)	8260	µg/L	ND (1.0)
Vinyl chloride	8260	µg/L	ND (1.0)
Xylenes, total	8260	µg/L	ND (2.0)

NOTES:

ND not detected at listed reporting limit
ug/L micrograms per liter
mg/L milligrams per liter
J concentration or RL estimated by laboratory or data validation

Table D-5
Laboratory Specific Conductance Results, January 2005 through December 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Location	Sampling Date		Specific Conductance (µS/cm)
MW-1	05/09/2005		738
MW-3	05/09/2005		1,260
MW-4	05/09/2005		1,010
MW-5	05/13/2005		1,600
MW-6	05/13/2005		656
MW-7	05/13/2005		1,070
MW-8	05/13/2005		1,250
MW-9	03/08/2005		3,010
MW-9	06/16/2005		2,800
MW-9	06/16/2005	FD	2,820
MW-9	10/03/2005		2,740
MW-9	03/07/2006		2,650
MW-9	03/07/2006	FD	2,630
MW-9	10/12/2006		2,820
MW-9	05/03/2007		2,880
MW-9	10/04/2007		2,810
MW-9	10/06/2008		3,300
MW-9	09/24/2009		3,200
MW-9	12/15/2010		3,100
MW-10	03/08/2005		3,370
MW-10	03/08/2005	FD	3,420
MW-10	06/16/2005		3,290
MW-10	10/03/2005		1,690
MW-10	03/06/2006		2,730
MW-10	10/12/2006		2,350
MW-10	12/14/2006		2,140
MW-10	03/06/2007		2,760
MW-10	05/03/2007		2,840
MW-10	10/02/2007		2,700
MW-10	03/11/2008		2,990
MW-10	10/06/2008		3,100
MW-10	03/12/2009		3,400
MW-10	09/22/2009		3,200
MW-10	03/11/2010		1,900
MW-10	12/07/2010		2,600 J
MW-10	12/07/2010	FD	1,800 J
MW-11	03/08/2005		2,310
MW-11	06/16/2005		2,200
MW-11	10/03/2005		2,330
MW-11	03/06/2006		2,360
MW-11	10/12/2006		2,320
MW-11	05/03/2007		2,100
MW-11	05/03/2007	FD	2,110
MW-12	03/10/2005		3,980
MW-12	03/10/2005	FD	4,000
MW-12	06/13/2005		3,910
MW-12	09/16/2005		3,630
MW-12	10/04/2005		2,980
MW-12	10/04/2005	FD	2,970
MW-12	12/13/2005		2,930
MW-12	04/18/2006		3,450
MW-12	05/01/2006		3,520
MW-12	10/04/2006		4,590
MW-12	12/13/2006		4,490
MW-12	03/06/2007		4,820
MW-12	05/03/2007		5,220
MW-12	10/04/2007		5,560
MW-12	10/04/2007	FD	5,540
MW-12	12/13/2007		5,170
MW-12	03/10/2008		5,270
MW-12	05/05/2008		6,200
MW-12	10/07/2008		6,400
MW-12	10/07/2008	FD	6,400
MW-12	12/11/2008		5,760
MW-12	03/12/2009		6,400
MW-12	05/05/2009		6,170
MW-12	09/24/2009		6,600
MW-12	09/24/2009	FD	6,500
MW-12	12/11/2009		6,180
MW-12	04/06/2010		6,700
MW-12	04/06/2010	FD	6,700
MW-12	05/06/2010		5,520

Table D-5
Laboratory Specific Conductance Results, January 2005 through December 2010
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PG&E Topock Compressor Station, Needles, California

Location	Sampling Date		Specific Conductance (µS/cm)
MW-12	05/06/2010	FD	5,480
MW-12	12/16/2010		5,900
MW-13	03/11/2005		1,850
MW-13	06/14/2005		1,850
MW-13	10/04/2005		1,770
MW-13	12/13/2005		1,740
MW-13	12/13/2005	FD	1,750
MW-13	03/08/2006		1,820
MW-13	03/08/2006	FD	1,800
MW-13	05/02/2006		1,760
MW-13	05/02/2006	FD	1,750
MW-13	10/02/2006		1,860
MW-13	03/05/2007		1,860
MW-13	10/02/2007		1,860
MW-13	10/02/2008		1,900
MW-13	09/21/2009		1,900
MW-13	12/07/2010		1,800
MW-14	03/09/2005		1,510
MW-14	06/15/2005		1,450
MW-14	06/15/2005	FD	1,450
MW-14	10/06/2005		1,430
MW-14	12/15/2005		1,440
MW-14	03/09/2006		1,420
MW-14	05/02/2006		1,440
MW-14	10/02/2006		1,430
MW-14	10/02/2006	FD	1,440
MW-14	03/12/2007		1,450
MW-14	10/02/2007		1,410
MW-14	10/03/2008		1,500
MW-14	09/21/2009		1,500
MW-14	12/07/2010		1,500
MW-15	03/09/2005		1,350
MW-15	06/17/2005		1,500
MW-15	10/06/2005		1,410
MW-15	03/07/2006		1,790
MW-15	10/05/2006		1,430
MW-15	05/04/2007		2,060
MW-15	10/02/2007		1,450
MW-15	09/30/2009		1,700
MW-15	12/14/2010		1,700
MW-16	05/13/2005		1,200
MW-16	05/13/2005	FD	1,200
MW-16	10/06/2005		1,020
MW-16	03/07/2006		1,050
MW-16	11/01/2006		1,090
MW-16	10/02/2007		1,040
MW-16	09/28/2009		1,100
MW-16	03/16/2010		1,200
MW-16	12/10/2010		1,000
MW-17	05/19/2005		1,780
MW-17	05/19/2005	FD	1,810
MW-17	10/05/2005		1,670
MW-17	03/09/2006		1,710
MW-17	10/02/2006		1,780
MW-17	10/03/2007		1,710
MW-17	09/30/2009		1,700
MW-17	03/11/2010		1,600
MW-17	12/14/2010		1,500
MW-18	03/09/2005		1,190
MW-18	03/09/2005	FD	1,180
MW-18	05/11/2005		1,480
MW-18	06/15/2005		1,420
MW-18	10/06/2005		1,210
MW-18	03/09/2006		1,140
MW-18	03/09/2006	FD	1,130
MW-18	10/04/2006		1,250
MW-18	03/12/2007		1,200
MW-18	03/12/2007	FD	1,200
MW-18	10/02/2007		1,250
MW-18	03/11/2008		1,230
MW-18	03/11/2008	FD	1,320
MW-18	10/02/2008		1,300

Table D-5
Laboratory Specific Conductance Results, January 2005 through December 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Location	Sampling Date		Specific Conductance (µS/cm)
MW-18	03/11/2009		1,400
MW-18	03/11/2009	FD	1,400
MW-18	09/22/2009		1,400
MW-18	12/14/2010		1,300
MW-19	03/07/2005		2,150
MW-19	06/14/2005		2,000
MW-19	10/04/2005		1,970
MW-19	12/12/2005		2,040
MW-19	03/09/2006		2,080
MW-19	05/02/2006		2,150
MW-19	10/02/2006		2,230
MW-19	12/15/2006		2,250
MW-19	03/06/2007		2,240
MW-19	05/02/2007		2,310
MW-19	10/05/2007		2,200
MW-19	10/07/2008		2,500
MW-19	09/22/2009		2,400
MW-19	03/18/2010		2,400
MW-19	12/15/2010		2,200
MW-20-70	03/10/2005		3,240
MW-20-70	06/15/2005		2,980
MW-20-70	06/15/2005	FD	3,020
MW-20-70	10/11/2005		2,950
MW-20-70	12/15/2005		2,850
MW-20-70	03/10/2006		2,870
MW-20-70	05/05/2006		2,860
MW-20-70	10/03/2006		2,840
MW-20-70	10/03/2006	FD	2,790
MW-20-70	12/13/2006		2,850
MW-20-70	03/14/2007		2,850
MW-20-70	05/03/2007		2,750
MW-20-70	10/11/2007		2,800
MW-20-70	03/12/2008		2,880
MW-20-70	10/07/2008		3,200
MW-20-70	03/12/2009		3,200
MW-20-70	09/25/2009		3,000
MW-20-70	03/17/2010		3,200
MW-20-70	12/16/2010		2,800
MW-20-100	03/10/2005		4,180
MW-20-100	06/15/2005		3,790
MW-20-100	10/11/2005		3,600
MW-20-100	12/15/2005		3,550
MW-20-100	03/10/2006		3,690
MW-20-100	05/05/2006		3,610
MW-20-100	10/03/2006		3,570
MW-20-100	12/13/2006		3,630
MW-20-100	12/13/2006	FD	3,560
MW-20-100	03/14/2007		3,590
MW-20-100	05/03/2007		3,560
MW-20-100	05/03/2007	FD	3,590
MW-20-100	10/10/2007		3,390
MW-20-100	03/12/2008		3,420
MW-20-100	10/08/2008		3,500
MW-20-100	03/13/2009		3,700
MW-20-100	09/25/2009		3,400
MW-20-100	03/17/2010		3,300
MW-20-100 [1]	02/10/2011		2,800
MW-20-130	01/27/2005		12,300
MW-20-130	03/09/2005		11,000
MW-20-130	03/09/2005	FD	10,900
MW-20-130	06/15/2005		11,000
MW-20-130	10/07/2005		12,000
MW-20-130	12/16/2005		13,000
MW-20-130	03/10/2006		13,600
MW-20-130	05/05/2006		14,200
MW-20-130	10/18/2006		17,000
MW-20-130	12/13/2006		15,100
MW-20-130	12/13/2006	FD	15,200
MW-20-130	03/08/2007		12,600
MW-20-130	03/08/2007	FD	12,800
MW-20-130	05/03/2007		12,700
MW-20-130	05/03/2007	FD	12,800

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Location	Sampling Date	Specific Conductance (µS/cm)
MW-20-130	10/05/2007	11,600
MW-20-130	03/12/2008	12,200
MW-20-130	10/08/2008	12,000
MW-20-130	03/13/2009	13,000
MW-20-130	09/25/2009	12,000
MW-20-130	03/18/2010	12,000
MW-20-130 [1]	02/10/2011	10,000
MW-21	03/08/2005	8,890
MW-21	06/14/2005	12,500
MW-21	10/05/2005	13,400
MW-21	12/14/2005	8,960
MW-21	05/02/2006	14,300
MW-21	10/03/2006	16,500
MW-21	12/13/2006	13,900
MW-21	03/09/2007	11,100
MW-21	05/01/2007	12,200
MW-21	10/04/2007	14,100
MW-21	12/11/2007	13,700
MW-21	03/11/2008	12,900
MW-21	05/06/2008	13,000
MW-21	10/02/2008	15,000
MW-21	12/11/2008	12,400
MW-21	03/11/2009	12,000
MW-21	05/06/2009	10,000
MW-21	09/23/2009	12,000
MW-21	12/09/2009	11,400
MW-21	03/10/2010	10,000
MW-21	05/04/2010	8,280
MW-21	12/07/2010	11,000
MW-22	03/10/2005	42,600
MW-22	06/17/2005	31,100
MW-22	10/04/2005	44,600
MW-22	12/16/2005	34,500
MW-22	03/15/2006	36,300
MW-22	05/03/2006	33,400
MW-22	10/13/2006	40,300
MW-22	03/08/2007	27,700
MW-22	10/10/2007	23,700
MW-22	03/11/2008	27,200
MW-22	10/03/2008	29,000
MW-22	03/12/2009	34,000
MW-22	09/29/2009	18,000
MW-22	03/12/2010	36,000
MW-22	12/07/2010	16,000
MW-23-060	09/24/2009	16,000
MW-23-060	12/10/2009	15,400
MW-23-060	03/08/2010	10,000
MW-23-060	05/03/2010	14,000
MW-23-060	12/14/2010	12,000
MW-23-080	09/23/2009	16,000
MW-23-080	12/10/2009	16,500
MW-23-080	03/08/2010	16,000
MW-23-080	05/04/2010	16,600
MW-23-080	12/14/2010	13,000
MW-24A	03/07/2005	3,330
MW-24A	03/07/2005 FD	3,380
MW-24A	06/16/2005	3,180
MW-24A	10/03/2005	3,200
MW-24A	10/03/2005 FD	3,190
MW-24A	03/06/2006	3,100
MW-24A	10/03/2006	3,170
MW-24A	12/14/2006	3,220
MW-24A	03/06/2007	3,190
MW-24A	07/18/2007	2,690
MW-24B	03/07/2005	13,400
MW-24B	06/16/2005	12,700
MW-24B	10/03/2005	14,900
MW-24B	03/07/2006	15,400
MW-24B	10/03/2006	17,100
MW-24B	12/14/2006	18,800
MW-24B	03/05/2007	14,900
MW-24B	07/18/2007	15,200

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Location	Sampling Date		Specific Conductance (µS/cm)
MW-24BR	03/08/2005		14,000
MW-24BR	12/15/2005		13,600
MW-24BR	03/16/2006		15,600
MW-24BR	05/10/2006		15,200
MW-24BR	11/01/2006		16,700
MW-24BR	12/15/2006		16,500
MW-24BR	03/06/2007		14,200
MW-24BR	05/03/2007		14,000
MW-24BR	10/04/2007		13,500
MW-24BR	12/14/2007		13,000
MW-24BR	03/11/2008		14,000
MW-24BR	05/08/2008		15,000
MW-24BR	10/02/2008		14,000
MW-24BR	12/10/2008		13,500
MW-24BR	03/11/2009		15,000
MW-24BR	05/07/2009		13,600
MW-24BR	09/28/2009		14,000
MW-24BR	12/08/2009		14,100
MW-24BR	03/12/2010		14,000
MW-24BR	05/05/2010		14,300
MW-24BR	12/08/2010		13,000
MW-25	03/09/2005		1,410
MW-25	06/14/2005		1,500
MW-25	06/14/2005	FD	1,510
MW-25	10/04/2005		1,390
MW-25	10/04/2005	FD	1,190
MW-25	12/14/2005		1,360
MW-25	12/14/2005	FD	1,350
MW-25	03/09/2006		1,400
MW-25	05/03/2006		1,400
MW-25	05/03/2006	FD	1,420
MW-25	10/03/2006		1,400
MW-25	03/06/2007		1,330
MW-25	10/02/2007		1,190
MW-25	10/02/2007	FD	1,210
MW-25	10/07/2008		1,300
MW-25	10/07/2008	FD	1,300
MW-25	09/21/2009		1,300
MW-25	09/21/2009	FD	1,300
MW-25	12/07/2010		1,300
MW-26	03/08/2005		3,180
MW-26	03/08/2005	FD	3,090
MW-26	06/13/2005		3,420
MW-26	10/04/2005		3,120
MW-26	12/12/2005		3,850
MW-26	03/08/2006		3,300
MW-26	05/01/2006		3,350
MW-26	10/03/2006		3,600
MW-26	03/12/2007		3,580
MW-26	10/02/2007		3,490
MW-26	03/12/2008		3,570
MW-26	03/12/2008	FD	3,570
MW-26	10/08/2008		3,800
MW-26	03/10/2009		3,800
MW-26	03/10/2009	FD	3,800
MW-26	09/22/2009		4,000
MW-26	03/16/2010		4,000
MW-26	12/15/2010		3,800
MW-27-20	03/08/2005		1,830
MW-27-20	07/18/2005		1,060
MW-27-20	10/05/2005		1,040
MW-27-20	12/14/2005		1,340
MW-27-20	03/06/2006		998
MW-27-20	05/01/2006		1,490
MW-27-20	10/03/2006		1,090
MW-27-20	10/02/2007		1,120
MW-27-20	10/03/2008		1,100
MW-27-20	10/01/2009		1,000
MW-27-20	12/07/2010		980
MW-27-60	02/23/2005		13,500
MW-27-60	02/23/2005	FD	13,500
MW-27-60	03/14/2005		13,800

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Location	Sampling Date	Specific Conductance (µS/cm)
MW-27-60	04/05/2005	13,500
MW-27-60	07/18/2005	14,200
MW-27-60	10/05/2005	13,900
MW-27-60	12/15/2005	13,700
MW-27-60	03/07/2006	13,600
MW-27-60	05/01/2006	12,800
MW-27-60	10/03/2006	9,700 J
MW-27-60	10/02/2007	7,400
MW-27-60	10/03/2008	4,300
MW-27-60	12/10/2008	3,870
MW-27-60	10/01/2009	1,800
MW-27-60	12/08/2009	1,830
MW-27-60	12/07/2010	1,200
MW-27-85	02/23/2005	17,800
MW-27-85	03/14/2005	18,600
MW-27-85	04/05/2005	17,200
MW-27-85	07/19/2005	16,700
MW-27-85	10/05/2005	19,800
MW-27-85	12/15/2005	17,500
MW-27-85	03/06/2006	20,600
MW-27-85	05/01/2006	17,200
MW-27-85	10/13/2006	21,600
MW-27-85	12/11/2006	21,600
MW-27-85	03/07/2007	18,100
MW-27-85	05/01/2007	18,500
MW-27-85	10/02/2007	16,300
MW-27-85	12/11/2007	17,800
MW-27-85	03/10/2008	15,900
MW-27-85	05/06/2008	17,000
MW-27-85	10/03/2008	16,000
MW-27-85	12/10/2008	15,800
MW-27-85	03/11/2009	16,000
MW-27-85	04/30/2009	14,900
MW-27-85	10/01/2009	14,000
MW-27-85	12/08/2009	14,300
MW-27-85	03/09/2010	14,000
MW-27-85	04/29/2010	14,200
MW-27-85	12/07/2010	12,000
MW-28-25	03/10/2005	1,290
MW-28-25	06/15/2005	1,300
MW-28-25	10/06/2005	1,210
MW-28-25	12/16/2005	1,430
MW-28-25	03/09/2006	1,040
MW-28-25	05/05/2006	1,170
MW-28-25	10/11/2006	1,340
MW-28-25	10/04/2007	1,220
MW-28-25	10/08/2008	1,300
MW-28-25	09/24/2009	1,100
MW-28-25	03/09/2010	1,200
MW-28-25	12/08/2010	1,100
MW-28-90	03/07/2005	9,520
MW-28-90	06/15/2005	9,860
MW-28-90	10/06/2005	8,230
MW-28-90	12/16/2005	8,400
MW-28-90	03/06/2006	8,970
MW-28-90	05/05/2006	7,680
MW-28-90	10/13/2006	8,510
MW-28-90	12/14/2006	7,740
MW-28-90	03/08/2007	7,450
MW-28-90	05/04/2007	7,560
MW-28-90	10/04/2007	7,020
MW-28-90	12/14/2007	7,290
MW-28-90	03/13/2008	7,420
MW-28-90	05/07/2008	7,600
MW-28-90	10/08/2008	7,600
MW-28-90	12/09/2008	7,270
MW-28-90	03/11/2009	7,800
MW-28-90	04/30/2009	7,080
MW-28-90	09/24/2009	7,500
MW-28-90	12/09/2009	7,360
MW-28-90	03/09/2010	7,600
MW-28-90	04/29/2010	7,460

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Location	Sampling Date		Specific Conductance (µS/cm)
MW-28-90	12/08/2010		7,300
MW-29	03/09/2005		24,900
MW-29	06/15/2005		3,760
MW-29	10/04/2005		4,620
MW-29	12/12/2005		5,620
MW-29	04/13/2006		3,340
MW-29	05/05/2006		2,430
MW-29	10/13/2006		4,300
MW-29	10/04/2007		2,630
MW-29	03/12/2008		3,840
MW-29	09/30/2008		2,800
MW-29	12/10/2008		3,010
MW-29	03/12/2009		3,200
MW-29	09/24/2009		2,600
MW-29	03/11/2010		3,300
MW-29	12/14/2010		1,900
MW-30-30	03/10/2005		57,300
MW-30-30	10/07/2005		57,100
MW-30-30	12/15/2005		61,500
MW-30-30	03/13/2006		65,300
MW-30-30	05/02/2006		53,300
MW-30-30	10/10/2006		49,300
MW-30-30	10/08/2007		35,800
MW-30-30	09/24/2009		18,000
MW-30-30	12/07/2010		14,000
MW-30-50	03/10/2005		10,200
MW-30-50	10/07/2005		9,340
MW-30-50	12/16/2005		10,200
MW-30-50	03/09/2006		9,650
MW-30-50	05/02/2006		9,500
MW-30-50	10/11/2006		6,100
MW-30-50	10/11/2006	FD	6,210
MW-30-50	12/07/2010		1,300
MW-31-60	03/09/2005		2,530
MW-31-60	06/13/2005		2,960
MW-31-60	10/06/2005		2,600
MW-31-60	12/13/2005		2,570
MW-31-60	03/15/2006		2,580
MW-31-60	03/15/2006	FD	2,560
MW-31-60	05/01/2006		2,590
MW-31-60	10/05/2006		2,440
MW-31-60	03/12/2007		2,730
MW-31-60	10/04/2007		2,840
MW-31-60	10/06/2008		3,400
MW-31-60	09/21/2009		3,300
MW-31-60	03/16/2010		3,100
MW-31-60	12/15/2010		3,100
MW-31-135	03/10/2005		10,900
MW-31-135	06/13/2005		11,500
MW-31-135	06/13/2005	FD	11,400
MW-31-135	10/06/2005		9,400
MW-31-135	12/14/2005		9,240
MW-31-135	03/15/2006		11,000
MW-31-135	05/09/2006		9,830
MW-31-135	10/05/2006		9,370
MW-31-135	03/08/2007		9,980
MW-31-135	03/08/2007	FD	9,970
MW-31-135	05/01/2007		10,600
MW-31-135	10/01/2007		9,750
MW-31-135	10/06/2008		11,000
MW-31-135	09/21/2009		11,000
MW-31-135	12/15/2010		10,000
MW-32-20	03/09/2005		22,100
MW-32-20	06/17/2005		15,800
MW-32-20	10/04/2005		44,100
MW-32-20	12/16/2005		39,400
MW-32-20	03/10/2006		36,500
MW-32-20	05/04/2006		27,900
MW-32-20	10/02/2006		65,200
MW-32-20	12/11/2006		57,100
MW-32-20	03/06/2007		37,200
MW-32-20	04/30/2007		27,500

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Location	Sampling Date	Specific Conductance (µS/cm)
MW-32-20	10/01/2007	47,700
MW-32-20	03/10/2008	38,800
MW-32-20	10/03/2008	60,000
MW-32-20	03/10/2009	47,000
MW-32-20	09/22/2009	61,000
MW-32-20	12/08/2010	48,000
MW-32-35	03/09/2005	6,460
MW-32-35	06/17/2005	12,200
MW-32-35	10/04/2005	13,100
MW-32-35	12/16/2005	12,600
MW-32-35	03/10/2006	14,200
MW-32-35	05/04/2006	17,000
MW-32-35	10/02/2006	18,400
MW-32-35	12/11/2006	19,200
MW-32-35	03/06/2007	17,300
MW-32-35	04/30/2007	19,400
MW-32-35	10/01/2007	18,700
MW-32-35	10/03/2008	22,000
MW-32-35	09/22/2009	27,000
MW-32-35	03/09/2010	19,000
MW-32-35	12/09/2010	15,000
MW-33-40	03/09/2005	5,530
MW-33-40	10/07/2005	5,480
MW-33-40	12/12/2005	9,380
MW-33-40	03/09/2006	5,560
MW-33-40	05/04/2006	4,290
MW-33-40	10/06/2006	4,170
MW-33-40	12/14/2006	6,790
MW-33-40	03/06/2007	4,960
MW-33-40	05/02/2007	4,500
MW-33-40	10/05/2007	6,260
MW-33-40	12/12/2007	7,890
MW-33-40	03/12/2008	5,380
MW-33-40	05/05/2008	5,100
MW-33-40	10/06/2008	10,000
MW-33-40	12/09/2008	7,640
MW-33-40	03/12/2009	6,000
MW-33-40	05/05/2009	4,740
MW-33-40	09/24/2009	6,400
MW-33-40	12/09/2009	9,890
MW-33-40	03/11/2010	6,500
MW-33-40	04/30/2010	5,420
MW-33-40	12/10/2010	12,000
MW-33-90	03/09/2005	8,090
MW-33-90	06/16/2005	9,540
MW-33-90	06/16/2005 FD	9,580
MW-33-90	10/06/2005	8,300
MW-33-90	12/13/2005	8,540
MW-33-90	12/13/2005 FD	8,520
MW-33-90	03/08/2006	10,000
MW-33-90	05/03/2006	8,840
MW-33-90	05/03/2006 FD	8,590
MW-33-90	10/06/2006	8,200
MW-33-90	12/15/2006	9,460
MW-33-90	12/15/2006 FD	9,380
MW-33-90	03/12/2007	9,750
MW-33-90	05/02/2007	9,980
MW-33-90	10/05/2007	9,540
MW-33-90	12/13/2007	9,730
MW-33-90	12/13/2007 FD	9,710
MW-33-90	03/12/2008	10,300
MW-33-90	05/05/2008	10,000
MW-33-90	10/06/2008	11,000
MW-33-90	12/11/2008	9,960
MW-33-90	03/13/2009	11,000
MW-33-90	05/05/2009	9,810
MW-33-90	09/29/2009	10,000
MW-33-90	12/09/2009	9,310
MW-33-90	03/12/2010	10,000
MW-33-90	04/30/2010	10,300
MW-33-90	12/10/2010	8,700
MW-33-150	03/02/2005	15,600

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Location	Sampling Date		Specific Conductance (µS/cm)
MW-33-150	03/02/2005	FD	15,800
MW-33-150	03/16/2005		16,900
MW-33-150	06/17/2005		17,700
MW-33-150	10/06/2005		17,600
MW-33-150	10/06/2005	FD	17,800
MW-33-150	12/12/2005		15,600
MW-33-150	03/08/2006		18,300
MW-33-150	05/03/2006		17,500
MW-33-150	10/06/2006		18,400
MW-33-150	12/13/2006		19,500
MW-33-150	03/06/2007		15,900
MW-33-150	05/02/2007		16,000
MW-33-150	10/09/2007		15,600
MW-33-150	10/09/2007	FD	15,500
MW-33-150	12/12/2007		16,700
MW-33-150	03/12/2008		16,300
MW-33-150	05/06/2008		16,000
MW-33-150	10/06/2008		17,000
MW-33-150	10/06/2008	FD	17,000
MW-33-150	12/11/2008		16,400
MW-33-150	03/12/2009		17,000
MW-33-150	05/05/2009		15,600
MW-33-150	09/29/2009		16,000
MW-33-150	09/29/2009	FD	16,000
MW-33-150	12/09/2009		16,800
MW-33-150	03/11/2010		16,000
MW-33-150	03/11/2010	FD	16,000
MW-33-150	04/30/2010		16,500
MW-33-150	04/30/2010	FD	16,600
MW-33-150	12/10/2010		14,000
MW-33-210	02/24/2005		18,900
MW-33-210	03/16/2005		18,800
MW-33-210	06/16/2005		21,600
MW-33-210	10/06/2005		20,800
MW-33-210	12/12/2005		18,000
MW-33-210	03/06/2006		21,500
MW-33-210	05/05/2006		17,900
MW-33-210	10/06/2006		20,100
MW-33-210	12/11/2006		22,200
MW-33-210	03/05/2007		18,900
MW-33-210	05/02/2007		18,800
MW-33-210	10/05/2007		17,500
MW-33-210	12/12/2007		17,600
MW-33-210	03/12/2008		18,900
MW-33-210	05/05/2008		18,000
MW-33-210	10/06/2008		18,000
MW-33-210	12/11/2008		18,000
MW-33-210	03/12/2009		19,000
MW-33-210	05/05/2009		18,200
MW-33-210	09/29/2009		18,000
MW-33-210	12/09/2009		18,500
MW-33-210	03/11/2010		18,000
MW-33-210	04/30/2010		19,200
MW-33-210	12/10/2010		16,000
MW-34-55	03/10/2005		9,140
MW-34-55	07/15/2005		8,690
MW-34-55	10/05/2005		7,600
MW-34-55	12/14/2005		7,620
MW-34-55	03/08/2006		8,500
MW-34-55	05/03/2006		7,550
MW-34-55	10/04/2006		2,410
MW-34-55	10/03/2007		1,160
MW-34-55	10/07/2008		1,200
MW-34-55	09/30/2009		1,100
MW-34-55	12/07/2010		990
MW-34-80	03/08/2005		14,200
MW-34-80	03/15/2005		14,400
MW-34-80	06/30/2005		15,000
MW-34-80	10/05/2005		15,000
MW-34-80	12/14/2005		12,500
MW-34-80	03/09/2006		12,400
MW-34-80	05/03/2006		13,600

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Location	Sampling Date		Specific Conductance (µS/cm)
MW-34-80	10/04/2006		14,200
MW-34-80	12/12/2006		11,900
MW-34-80	03/05/2007		10,000
MW-34-80	04/30/2007		10,000
MW-34-80	10/03/2007		8,790
MW-34-80	12/13/2007		7,750
MW-34-80	03/12/2008		8,590
MW-34-80	05/06/2008		8,730
MW-34-80	10/07/2008		8,700
MW-34-80	12/10/2008		7,490
MW-34-80	03/10/2009		8,100
MW-34-80	04/30/2009		7,970
MW-34-80	09/30/2009		8,400
MW-34-80	12/09/2009		7,540
MW-34-80	03/10/2010		8,100
MW-34-80	04/29/2010		8,010
MW-34-80	12/07/2010		7,100
MW-34-100	02/23/2005		16,000
MW-34-100	03/14/2005		16,200
MW-34-100	04/05/2005		16,100
MW-34-100	04/05/2005	FD	15,900
MW-34-100	06/21/2005		17,300
MW-34-100	06/21/2005	FD	18,000
MW-34-100	10/05/2005		17,400
MW-34-100	10/05/2005	FD	16,900
MW-34-100	12/14/2005		15,000
MW-34-100	12/14/2005	FD	15,000
MW-34-100	03/08/2006		17,900
MW-34-100	03/08/2006	FD	17,900
MW-34-100	05/03/2006		18,000
MW-34-100	05/03/2006	FD	18,000
MW-34-100	10/04/2006		19,000
MW-34-100	12/12/2006		18,500
MW-34-100	03/07/2007		16,400
MW-34-100	04/30/2007		16,500
MW-34-100	04/30/2007	FD	16,300
MW-34-100	10/03/2007		16,000
MW-34-100	10/03/2007	FD	16,100
MW-34-100	12/13/2007		16,400
MW-34-100	12/13/2007	FD	15,400
MW-34-100	03/12/2008		17,100
MW-34-100	05/06/2008		17,000
MW-34-100	05/06/2008	FD	17,000
MW-34-100	10/07/2008		17,000
MW-34-100	10/07/2008	FD	17,000
MW-34-100	12/10/2008		15,800
MW-34-100	12/10/2008	FD	16,000
MW-34-100	03/10/2009		17,000
MW-34-100	04/30/2009		16,900
MW-34-100	04/30/2009	FD	16,900
MW-34-100	09/30/2009		18,000
MW-34-100	09/30/2009	FD	18,000
MW-34-100	12/09/2009		17,300
MW-34-100	12/09/2009	FD	17,400
MW-34-100	03/10/2010		17,000
MW-34-100	03/10/2010	FD	17,000
MW-34-100	04/29/2010		18,200
MW-34-100	04/29/2010	FD	18,200
MW-34-100	12/08/2010		12,000
MW-34-100	12/08/2010	FD	11,000
MW-35-60	03/15/2005		6,280
MW-35-60	06/13/2005		7,170
MW-35-60	10/07/2005		6,590
MW-35-60	10/07/2005	FD	6,510
MW-35-60	12/14/2005		6,350
MW-35-60	12/14/2005	FD	6,430
MW-35-60	03/14/2006		7,700
MW-35-60	05/01/2006		6,740
MW-35-60	10/12/2006		8,850
MW-35-60	03/08/2007		6,750
MW-35-60	03/08/2007	FD	6,740
MW-35-60	10/01/2007		7,160

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Location	Sampling Date		Specific Conductance (µS/cm)
MW-35-60	10/01/2007	FD	7,270
MW-35-60	03/11/2008		6,450
MW-35-60	10/07/2008		7,700
MW-35-60	10/07/2008	FD	7,700
MW-35-60	03/11/2009		6,800
MW-35-60	09/24/2009		7,300
MW-35-60	09/24/2009	FD	7,300
MW-35-60	03/16/2010		6,600
MW-35-60	03/16/2010	FD	6,500
MW-35-60	12/14/2010		6,600
MW-35-135	03/15/2005		9,960
MW-35-135	06/13/2005		12,600
MW-35-135	10/07/2005		9,460
MW-35-135	12/14/2005		9,550
MW-35-135	03/10/2006		10,800
MW-35-135	03/10/2006	FD	10,700
MW-35-135	05/02/2006		12,000
MW-35-135	10/12/2006		9,570
MW-35-135	10/12/2006	FD	8,640
MW-35-135	03/08/2007		9,820
MW-35-135	05/04/2007		10,800
MW-35-135	05/04/2007	FD	10,500
MW-35-135	10/01/2007		9,150
MW-35-135	10/07/2008		10,000
MW-35-135	09/24/2009		9,800
MW-35-135	03/16/2010		9,900
MW-35-135	12/14/2010		8,900
MW-36-20	03/09/2005		24,400
MW-36-20	10/03/2005		16,300
MW-36-20	03/07/2006		15,100
MW-36-20	05/01/2006		20,000
MW-36-20	10/02/2006		20,500
MW-36-20	10/03/2007		23,500
MW-36-20	09/23/2009		4,100
MW-36-20	12/07/2010		6,200
MW-36-40	03/08/2005		12,400
MW-36-40	10/03/2005		14,800
MW-36-40	12/15/2005		12,300
MW-36-40	03/07/2006		13,800
MW-36-40	05/01/2006		13,000
MW-36-40	10/05/2006		11,600
MW-36-40	10/03/2007		8,390
MW-36-40	09/30/2009		3,700
MW-36-40	12/07/2010		1,600
MW-36-50	03/08/2005		9,430
MW-36-50	10/03/2005		8,090
MW-36-50	12/15/2005		11,000
MW-36-50	03/07/2006		7,850
MW-36-50	03/07/2006	FD	7,650
MW-36-50	05/01/2006		6,970
MW-36-50	10/05/2006		3,240 J
MW-36-50	10/10/2007		3,360
MW-36-50	09/30/2009		1,300
MW-36-50	12/08/2010		1,300
MW-36-70	03/08/2005		10,400
MW-36-70	10/03/2005		8,540
MW-36-70	12/15/2005		8,220
MW-36-70	03/07/2006		9,120
MW-36-70	05/01/2006		8,410
MW-36-70	10/02/2006		4,900
MW-36-70	12/14/2006		3,580
MW-36-70	03/07/2007		2,780
MW-36-70	05/01/2007		2,210
MW-36-70	10/09/2007		1,520
MW-36-70	10/03/2008		1,400
MW-36-70	09/22/2009		1,300
MW-36-70	12/07/2010		1,100
MW-36-90	03/09/2005		15,800
MW-36-90	10/03/2005		16,800
MW-36-90	12/15/2005		13,900
MW-36-90	03/07/2006		11,800
MW-36-90	05/01/2006		11,200

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Location	Sampling Date		Specific Conductance (µS/cm)
MW-36-90	10/02/2006		7,960
MW-36-90	10/02/2006	FD	7,880
MW-36-90	12/14/2006		7,340
MW-36-90	12/14/2006	FD	7,420
MW-36-90	03/07/2007		7,060
MW-36-90	05/02/2007		6,080
MW-36-90	05/02/2007	FD	6,170
MW-36-90	10/09/2007		3,210
MW-36-90	03/11/2008		2,880
MW-36-90	03/11/2008	FD	2,780
MW-36-90	10/03/2008		1,800
MW-36-90	03/12/2009		1,700
MW-36-90	03/12/2009	FD	1,700
MW-36-90	09/23/2009		1,500
MW-36-90	03/12/2010		1,500
MW-36-90	12/08/2010		1,200
MW-36-90	12/08/2010	FD	1,200
MW-36-100	03/09/2005		16,600
MW-36-100	10/05/2005		15,500
MW-36-100	12/13/2005		15,800
MW-36-100	03/13/2006		18,100
MW-36-100	05/02/2006		16,600
MW-36-100	10/11/2006		17,500 J
MW-36-100	12/11/2006		16,400
MW-36-100	03/08/2007		14,100
MW-36-100	05/02/2007		13,500
MW-36-100	10/10/2007		12,500
MW-36-100	03/11/2008		14,200
MW-36-100	10/07/2008		13,000
MW-36-100	03/12/2009		13,000
MW-36-100	09/23/2009		11,000
MW-36-100	03/09/2010		12,000
MW-36-100	12/15/2010		10,000
MW-37S	03/11/2005		4,260
MW-37S	06/15/2005		3,700
MW-37S	10/04/2005		4,210
MW-37S	10/04/2005	FD	4,180
MW-37S	12/14/2005		4,220
MW-37S	12/14/2005	FD	4,230
MW-37S	03/13/2006		4,280
MW-37S	05/04/2006		4,260
MW-37S	05/04/2006	FD	4,250
MW-37S	10/13/2006		4,580
MW-37S	03/07/2007		4,640
MW-37S	10/04/2007		4,470
MW-37S	10/04/2007	FD	4,530
MW-37S	10/03/2008		5,000
MW-37S	10/03/2008	FD	5,000
MW-37S	09/23/2009		4,900
MW-37S	09/23/2009	FD	5,000
MW-37S	12/10/2010		4,600
MW-37D	03/11/2005		13,800
MW-37D	06/15/2005		13,200
MW-37D	10/04/2005		14,900
MW-37D	12/14/2005		13,300
MW-37D	03/13/2006		16,000
MW-37D	05/03/2006		16,200
MW-37D	10/13/2006		15,900
MW-37D	12/14/2006		17,000
MW-37D	03/07/2007		14,700
MW-37D	05/03/2007		14,400
MW-37D	10/04/2007		13,600
MW-37D	03/13/2008		14,800
MW-37D	10/06/2008		15,000
MW-37D	03/12/2009		16,000
MW-37D	09/23/2009		15,000
MW-37D	12/15/2010		14,000
MW-39-40	03/09/2005		6,040
MW-39-40	06/16/2005		6,430
MW-39-40	10/04/2005		5,640
MW-39-40	12/16/2005		6,010
MW-39-40	03/07/2006		7,780

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Location	Sampling Date		Specific Conductance (µS/cm)
MW-39-40	05/02/2006		8,490
MW-39-40	10/05/2006		7,890
MW-39-40	12/14/2006		9,940
MW-39-40	03/05/2007		9,480
MW-39-40	05/03/2007		9,490
MW-39-40	10/08/2007		10,800
MW-39-40	10/01/2009		7,700
MW-39-50	03/09/2005		12,100
MW-39-50	06/16/2005		10,700
MW-39-50	10/04/2005		12,000
MW-39-50	03/08/2006		12,200
MW-39-50	05/02/2006		10,300
MW-39-50	10/05/2006		7,370
MW-39-50	10/08/2007		3,660
MW-39-50	10/01/2008		2,700
MW-39-50	10/01/2009		1,800
MW-39-50	12/08/2010		1,300
MW-39-60	03/09/2005		11,200
MW-39-60	06/16/2005		13,100
MW-39-60	10/04/2005		13,200
MW-39-60	12/16/2005		14,400
MW-39-60	03/08/2006		15,700
MW-39-60	03/08/2006	FD	15,300
MW-39-60	05/02/2006		13,200
MW-39-60	10/05/2006		7,180
MW-39-60	10/05/2006	FD	7,800
MW-39-60	10/08/2007		4,550
MW-39-60	10/01/2008		3,500
MW-39-60	10/01/2009		2,600
MW-39-60	12/09/2010		1,800
MW-39-70	03/09/2005		10,600
MW-39-70	03/09/2005	FD	10,500
MW-39-70	06/16/2005		11,700
MW-39-70	10/04/2005		11,900
MW-39-70	12/16/2005		12,800
MW-39-70	03/08/2006		12,300

Location	Sampling Date	Specific Conductance (µS/cm)
MW-39-70	05/02/2006	11,500
MW-39-70	10/05/2006	8,020
MW-39-70	12/14/2006	8,250
MW-39-70	03/05/2007	8,250
MW-39-70	05/03/2007	6,920
MW-39-70	10/08/2007	5,420
MW-39-70	10/01/2008	5,200
MW-39-70	10/01/2009	3,900
MW-39-70	12/08/2010	1,800
MW-39-80	03/09/2005	12,400
MW-39-80	06/16/2005	15,700
MW-39-80	10/04/2005	15,000
MW-39-80	12/15/2005	12,600
MW-39-80	03/08/2006	15,900
MW-39-80	05/02/2006	15,400
MW-39-80	10/05/2006	16,600
MW-39-80	12/14/2006	18,000
MW-39-80	03/05/2007	13,300
MW-39-80	05/03/2007	12,400
MW-39-80	10/08/2007	11,800
MW-39-80	03/14/2008	12,600
MW-39-80	10/01/2008	12,000
MW-39-80	03/11/2009	12,000
MW-39-80	10/01/2009	10,000
MW-39-80	12/09/2010	8,500
MW-39-100	03/10/2005	15,500
MW-39-100	06/17/2005	18,700
MW-39-100	10/04/2005	16,300
MW-39-100	12/13/2005	16,700
MW-39-100	03/13/2006	20,700
MW-39-100	05/02/2006	20,500
MW-39-100	10/11/2006	20,000
MW-39-100	12/12/2006	21,300
MW-39-100	03/12/2007	18,700
MW-39-100	05/03/2007	18,600
MW-39-100	10/10/2007	18,600

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Location	Sampling Date		Specific Conductance (µS/cm)
MW-39-100	03/14/2008		19,900
MW-39-100	10/01/2008		19,000
MW-39-100	03/13/2009		20,000
MW-39-100	09/29/2009		19,000
MW-39-100	12/14/2010		17,000
MW-40S	03/10/2005		1,910
MW-40S	06/16/2005		1,870
MW-40S	10/05/2005		1,890
MW-40S	12/13/2005		1,850
MW-40S	03/08/2006		1,960
MW-40S	05/03/2006		1,950
MW-40S	05/03/2006	FD	1,930
MW-40S	10/05/2006		2,120
MW-40S	10/04/2007		2,040
MW-40S	09/28/2009		2,000
MW-40D	03/10/2005		15,200
MW-40D	06/16/2005		14,100
MW-40D	10/05/2005		16,700
MW-40D	12/13/2005		14,600
MW-40D	03/08/2006		17,200
MW-40D	05/03/2006		14,700
MW-40D	10/05/2006		18,600
MW-40D	12/13/2006		17,900
MW-40D	03/09/2007		15,300
MW-40D	05/04/2007		15,300
MW-40D	10/04/2007		14,600
MW-40D	03/13/2008		15,300
MW-40D	10/06/2008		16,000
MW-40D	03/11/2009		16,000
MW-40D	09/28/2009		15,000
MW-40D	12/15/2010		14,000
MW-41S	03/10/2005		4,830
MW-41S	06/14/2005		4,460
MW-41S	10/05/2005		4,520
MW-41S	10/05/2005	FD	4,470
MW-41S	12/16/2005		4,620
MW-41S	12/16/2005	FD	4,650
MW-41S	03/13/2006		5,170
MW-41S	05/05/2006		4,450
MW-41S	05/05/2006	FD	4,550
MW-41S	10/05/2006		4,780
MW-41S	03/08/2007		4,710
MW-41S	10/03/2007		4,650
MW-41S	10/03/2007	FD	4,580
MW-41S	03/12/2008		4,820
MW-41S	10/03/2008		5,000
MW-41S	10/03/2008	FD	5,000
MW-41S	03/11/2009		5,200
MW-41S	09/23/2009		4,900
MW-41S	09/23/2009	FD	4,900
MW-41S	12/08/2010		4,900 J
MW-41S	12/08/2010	FD	1,700 J
MW-41M	03/11/2005		14,500
MW-41M	06/14/2005		12,600
MW-41M	06/14/2005	FD	12,700
MW-41M	10/05/2005		13,200
MW-41M	12/16/2005		15,900
MW-41M	03/13/2006		16,300
MW-41M	05/05/2006		12,000
MW-41M	10/05/2006		15,200
MW-41M	10/05/2006	FD	16,400
MW-41M	03/08/2007		14,500
MW-41M	10/03/2007		14,100
MW-41M	10/03/2008		15,000
MW-41M	09/23/2009		14,000
MW-41M	12/08/2010		11,000
MW-41D	03/11/2005		20,700
MW-41D	06/14/2005		23,000
MW-41D	10/05/2005		19,200
MW-41D	12/16/2005		19,600
MW-41D	03/15/2006		23,500
MW-41D	05/05/2006		19,500

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Location	Sampling Date		Specific Conductance (µS/cm)
MW-41D	10/04/2006		22,300
MW-41D	03/07/2007		20,800
MW-41D	03/07/2007	FD	20,700
MW-41D	10/03/2007		20,000
MW-41D	03/12/2008		20,800
MW-41D	10/03/2008		19,000
MW-41D	03/11/2009		20,000
MW-41D	09/23/2009		19,000
MW-41D	03/11/2010		19,000
MW-41D	12/08/2010		12,000
MW-42-30	02/23/2005		11,300
MW-42-30	03/16/2005		13,100
MW-42-30	10/07/2005		17,200
MW-42-30	12/15/2005		17,800
MW-42-30	03/07/2006		11,100
MW-42-30	05/02/2006		13,900
MW-42-30	10/03/2006		19,400
MW-42-30	03/07/2007		13,300
MW-42-30	10/04/2007		20,600
MW-42-55	02/23/2005		12,600
MW-42-55	03/16/2005		15,600
MW-42-55	10/07/2005		19,500
MW-42-55	12/15/2005		12,100
MW-42-55	03/07/2006		15,600
MW-42-55	05/02/2006		17,000
MW-42-55	10/03/2006		17,500
MW-42-55	12/14/2006		18,500
MW-42-55	03/07/2007		15,000
MW-42-55	03/07/2007	FD	15,200
MW-42-55	05/01/2007		15,400
MW-42-55	10/04/2007		13,900
MW-42-55	12/11/2007		14,600
MW-42-55	03/11/2008		15,400
MW-42-55	05/06/2008		14,000
MW-42-55	10/03/2008		13,000
MW-42-55	12/09/2008		12,000
MW-42-55	03/09/2009		12,000
MW-42-55	04/30/2009		11,200
MW-42-55	09/23/2009		10,000
MW-42-55	12/08/2009		10,400
MW-42-55	03/09/2010		10,000
MW-42-55	04/29/2010		9,640
MW-42-55	12/06/2010		8,100
MW-42-65	02/24/2005		15,400
MW-42-65	03/16/2005		12,500
MW-42-65	10/07/2005		20,000
MW-42-65	12/15/2005		16,100
MW-42-65	03/07/2006		18,000
MW-42-65	05/02/2006		20,000
MW-42-65	10/03/2006		19,900
MW-42-65	12/14/2006		22,300
MW-42-65	03/07/2007		17,500
MW-42-65	05/01/2007		16,300
MW-42-65	10/03/2007		14,400
MW-42-65	12/11/2007		15,900
MW-42-65	03/11/2008		17,200
MW-42-65	05/06/2008		15,000
MW-42-65	10/03/2008		14,000
MW-42-65	12/09/2008		13,600
MW-42-65	03/09/2009		14,000
MW-42-65	04/30/2009		12,500
MW-42-65	09/23/2009		12,000
MW-42-65	12/08/2009		12,500
MW-42-65	03/09/2010		13,000
MW-42-65	04/29/2010		12,800
MW-42-65	12/06/2010		10,000
MW-43-25	03/07/2005		1,440
MW-43-25	03/15/2005		1,440
MW-43-25	06/20/2005		1,740
MW-43-25	10/04/2005		1,170
MW-43-25	12/16/2005		1,340
MW-43-25	03/10/2006		1,240

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Location	Sampling Date		Specific Conductance (µS/cm)
MW-43-25	05/04/2006		1,210
MW-43-25	10/02/2006		1,190
MW-43-25	03/06/2007		1,250
MW-43-25	10/02/2007		1,210
MW-43-25	10/02/2008		1,400
MW-43-25	10/01/2009		1,300
MW-43-25	12/09/2010		1,100
MW-43-75	03/07/2005		13,300
MW-43-75	03/15/2005		13,800
MW-43-75	06/20/2005		14,700
MW-43-75	10/04/2005		15,000
MW-43-75	12/16/2005		13,100
MW-43-75	03/10/2006		15,900
MW-43-75	05/04/2006		13,000
MW-43-75	10/02/2006		17,400
MW-43-75	12/12/2006		16,300
MW-43-75	03/06/2007		13,800
MW-43-75	04/30/2007		13,600
MW-43-75	10/02/2007		13,400
MW-43-75	10/02/2008		14,000
MW-43-75	10/01/2009		12,000
MW-43-75	12/09/2010		10,000
MW-43-90	03/07/2005		19,900
MW-43-90	03/15/2005		20,100
MW-43-90	03/15/2005	FD	20,000
MW-43-90	06/20/2005		25,100
MW-43-90	06/20/2005	FD	24,400
MW-43-90	10/04/2005		22,000
MW-43-90	12/16/2005		19,900
MW-43-90	03/10/2006		24,300
MW-43-90	05/04/2006		12,600
MW-43-90	10/02/2006		26,000
MW-43-90	12/12/2006		24,300
MW-43-90	03/06/2007		19,700
MW-43-90	04/30/2007		19,800
MW-43-90	10/02/2007		18,200
MW-43-90	10/02/2008		18,000
MW-43-90	10/01/2009		17,000
MW-43-90	12/09/2010		15,000
MW-44-70	03/23/2006		7,960
MW-44-70	05/04/2006		7,270
MW-44-70	10/04/2006		8,220
MW-44-70	12/14/2006		6,640
MW-44-70	03/09/2007		6,320
MW-44-70	05/03/2007		5,890
MW-44-70	10/04/2007		4,790
MW-44-70	12/11/2007		4,430
MW-44-70	03/11/2008		4,490
MW-44-70	05/07/2008		4,200
MW-44-70	10/07/2008		3,700
MW-44-70	12/10/2008		3,120
MW-44-70	03/12/2009		2,000
MW-44-70	05/01/2009		3,150
MW-44-70	09/21/2009		3,100
MW-44-70	12/07/2009		2,940
MW-44-70	03/08/2010		3,000
MW-44-70	12/09/2010		2,400
MW-44-115	03/14/2006		13,900
MW-44-115	03/22/2006		14,400
MW-44-115	05/04/2006		12,600
MW-44-115	10/05/2006		13,800
MW-44-115	12/12/2006		15,200
MW-44-115	03/09/2007		13,000
MW-44-115	03/09/2007	FD	13,000
MW-44-115	05/04/2007		13,200
MW-44-115	10/04/2007		12,300
MW-44-115	10/04/2007	FD	12,200
MW-44-115	12/11/2007		13,100
MW-44-115	03/11/2008		14,000
MW-44-115	05/08/2008		13,000
MW-44-115	10/07/2008		13,000
MW-44-115	10/07/2008	FD	13,000

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Location	Sampling Date		Specific Conductance (µS/cm)
MW-44-115	12/11/2008		11,800
MW-44-115	03/10/2009		13,000
MW-44-115	05/01/2009		11,700
MW-44-115	09/21/2009		12,000
MW-44-115	09/21/2009	FD	12,000
MW-44-115	12/07/2009		11,700
MW-44-115	03/08/2010		12,000
MW-44-115	04/30/2010		11,800
MW-44-115	04/30/2010	FD	12,000
MW-44-115	12/09/2010		10,000
MW-44-115	12/09/2010	FD	10,000
MW-44-125	03/22/2006		12,200
MW-44-125	05/04/2006		12,700
MW-44-125	10/05/2006		15,300
MW-44-125	12/13/2006		17,700
MW-44-125	03/09/2007		12,300
MW-44-125	05/03/2007		11,700
MW-44-125	05/03/2007	FD	12,200
MW-44-125	10/04/2007		11,900
MW-44-125	12/11/2007		13,600
MW-44-125	03/14/2008		12,000
MW-44-125	05/08/2008		12,000
MW-44-125	10/07/2008		10,000
MW-44-125	12/12/2008		13,000
MW-44-125	03/10/2009		12,000
MW-44-125	05/01/2009		8,770
MW-44-125	09/23/2009		8,300
MW-44-125	12/07/2009		12,900
MW-44-125	03/08/2010		13,000
MW-44-125	03/08/2010	FD	13,000
MW-44-125	04/30/2010		12,400
MW-44-125	12/09/2010		11,000
MW-44-125	12/09/2010	FD	11,000
MW-45-095a	03/24/2006		14,000
MW-45-095a	05/04/2007		10,100
MW-45-095a	12/14/2010		8,600

Location	Sampling Date		Specific Conductance (µS/cm)
MW-46-175	03/14/2006		17,700
MW-46-175	03/24/2006		17,800
MW-46-175	05/04/2006		15,600
MW-46-175	10/05/2006		15,700
MW-46-175	10/05/2006	FD	17,700
MW-46-175	12/13/2006		21,900
MW-46-175	03/08/2007		16,200
MW-46-175	05/04/2007		16,100
MW-46-175	10/05/2007		15,500
MW-46-175	12/13/2007		15,800
MW-46-175	03/13/2008		16,400
MW-46-175	05/07/2008		17,000
MW-46-175	10/08/2008		17,000
MW-46-175	12/11/2008		16,200
MW-46-175	03/12/2009		17,000
MW-46-175	05/05/2009		16,400
MW-46-175	09/25/2009		17,000
MW-46-175	12/08/2009		16,600
MW-46-175	03/11/2010		17,000
MW-46-175	04/30/2010		17,500
MW-46-175	12/08/2010		11,000
MW-46-175	12/08/2010	FD	11,000
MW-46-205	03/14/2006		22,000
MW-46-205	03/24/2006		21,900
MW-46-205	05/04/2006		18,900
MW-46-205	10/05/2006		18,000
MW-46-205	12/13/2006		23,400
MW-46-205	03/08/2007		19,900
MW-46-205	05/04/2007		20,400
MW-46-205	10/05/2007		18,900
MW-46-205	12/14/2007		19,100
MW-46-205	03/13/2008		20,100
MW-46-205	05/07/2008		19,000
MW-46-205	10/08/2008		19,000
MW-46-205	12/09/2008		19,600
MW-46-205	03/12/2009		20,000

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Location	Sampling Date		Specific Conductance (µS/cm)
MW-46-205	05/05/2009		19,700
MW-46-205	05/05/2009	FD	19,800
MW-46-205	09/25/2009		19,000
MW-46-205	12/08/2009		20,300
MW-46-205	12/08/2009	FD	20,700
MW-46-205	03/11/2010		19,000
MW-46-205	12/08/2010		11,000
MW-47-55	03/23/2006		3,650
MW-47-55	10/10/2006		3,670
MW-47-55	12/14/2006		3,960
MW-47-55	03/06/2007		3,610
MW-47-55	05/04/2007		3,990
MW-47-55	10/04/2007		3,660
MW-47-55	12/12/2007		3,720
MW-47-55	03/14/2008		3,570
MW-47-55	03/14/2008	FD	3,590
MW-47-55	05/07/2008		4,100
MW-47-55	10/08/2008		4,200
MW-47-55	12/10/2008		3,880
MW-47-55	03/12/2009		4,300
MW-47-55	03/12/2009	FD	4,300
MW-47-55	05/06/2009		4,050
MW-47-55	09/24/2009		4,800
MW-47-55	12/09/2009		4,120
MW-47-55	03/16/2010		4,000
MW-47-55	12/13/2010		4,400
MW-47-55	12/13/2010	FD	4,400
MW-47-115	03/23/2006		14,200
MW-47-115	10/10/2006		14,600
MW-47-115	12/14/2006		17,400
MW-47-115	03/06/2007		12,500
MW-47-115	05/04/2007		12,700
MW-47-115	10/04/2007		12,200
MW-47-115	12/12/2007		13,200
MW-47-115	12/12/2007	FD	13,000
MW-47-115	03/14/2008		12,400
MW-47-115	05/07/2008		13,000
MW-47-115	10/08/2008		13,000
MW-47-115	12/10/2008		13,200
MW-47-115	03/11/2009		14,000
MW-47-115	05/06/2009		12,200
MW-47-115	09/24/2009		13,000
MW-47-115	12/09/2009		13,400
MW-47-115	03/10/2010		13,000
MW-47-115	12/13/2010		12,000
MW-48	05/18/2006		16,800
MW-48	10/06/2006		17,600
MW-48	12/15/2006		22,300
MW-48	03/07/2007		17,400
MW-48	05/01/2007		17,900
MW-48	10/04/2007		16,500
MW-48	12/14/2007		16,400
MW-48	03/11/2008		18,800
MW-48	05/07/2008		17,000
MW-48	10/01/2008		17,000
MW-48	12/10/2008		16,700
MW-48	03/11/2009		18,000
MW-48	05/06/2009		16,900
MW-48	09/23/2009		17,000
MW-48	12/09/2009		17,100
MW-48	04/08/2010		18,000
MW-48	05/05/2010		17,700
MW-48	12/08/2010		11,000
MW-49-135	04/25/2006		16,100
MW-49-135	10/12/2006		17,000
MW-49-135	12/15/2006		15,700
MW-49-135	03/09/2007		13,500
MW-49-135	05/04/2007		13,400
MW-49-135	10/10/2007		12,300
MW-49-135	03/13/2008		13,400
MW-49-135	10/06/2008		14,000
MW-49-135	03/11/2009		14,000

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Location	Sampling Date		Specific Conductance (µS/cm)
MW-49-135	09/22/2009		13,000
MW-49-135	12/13/2010		12,000
MW-49-275	04/25/2006		27,700
MW-49-275	10/12/2006		30,300
MW-49-275	12/15/2006		31,500
MW-49-275	03/09/2007		23,700
MW-49-275	05/04/2007		23,400
MW-49-275	10/09/2007		22,200
MW-49-275	03/13/2008		23,400
MW-49-275	09/30/2008		25,000
MW-49-275	03/11/2009		29,000
MW-49-275	09/22/2009		30,000
MW-49-275	12/13/2010		20,000
MW-49-365	04/26/2006		43,200
MW-49-365	10/12/2006		46,000
MW-49-365	12/15/2006		45,700
MW-49-365	03/09/2007		36,100
MW-49-365	05/04/2007		36,900
MW-49-365	10/09/2007		34,200
MW-49-365	03/13/2008		35,700
MW-49-365	10/06/2008		44,000
MW-49-365	03/11/2009		44,000
MW-49-365	09/22/2009		45,000
MW-49-365	12/13/2010		43,000
MW-50-095	05/09/2006		5,530
MW-50-095	10/10/2006		4,660
MW-50-095	12/12/2006		4,790
MW-50-095	03/07/2007		4,770
MW-50-095	05/02/2007		4,810
MW-50-095	10/04/2007		4,660
MW-50-095	12/11/2007		4,910
MW-50-095	03/12/2008		4,680
MW-50-095	03/12/2008	FD	5,020
MW-50-095	05/07/2008		5,100
MW-50-095	05/07/2008	FD	5,200
MW-50-095	10/06/2008		5,200
MW-50-095	12/10/2008		4,670
MW-50-095	12/10/2008	FD	4,650
MW-50-095	03/12/2009		5,100
MW-50-095	03/12/2009	FD	5,100
MW-50-095	05/06/2009		4,840
MW-50-095	09/24/2009		5,000
MW-50-095	12/10/2009		5,060
MW-50-095	03/12/2010		5,000
MW-50-095	12/10/2010		4,700
MW-50-200	05/09/2006		22,800
MW-50-200	10/10/2006		18,400
MW-50-200	12/12/2006		23,400
MW-50-200	03/07/2007		20,700
MW-50-200	04/30/2007		20,300
MW-50-200	10/04/2007		18,800
MW-50-200	12/11/2007		19,400
MW-50-200	03/12/2008		20,500
MW-50-200	05/08/2008		19,000
MW-50-200	10/07/2008		19,000
MW-50-200	12/12/2008		19,000
MW-50-200	03/13/2009		20,000
MW-50-200	05/06/2009		19,900
MW-50-200	05/06/2009	FD	20,200
MW-50-200	09/25/2009		19,000
MW-50-200	12/11/2009		19,200
MW-50-200	12/11/2009	FD	19,000
MW-50-200	03/17/2010		19,000
MW-50-200	05/06/2010		21,100
MW-50-200[1]	02/10/2011		17,000
MW-50-200[1]	02/10/2011	FD	18,000
MW-51	05/12/2006		10,900
MW-51	10/06/2006		11,800
MW-51	12/12/2006		9,980
MW-51	03/06/2007		10,500
MW-51	05/01/2007		11,100
MW-51	10/05/2007		10,100

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Location	Sampling Date		Specific Conductance (µS/cm)
MW-51	03/11/2008		12,300
MW-51	10/08/2008		11,000
MW-51	03/12/2009		12,000
MW-51	09/24/2009		11,000
MW-51	03/17/2010		11,000
MW-51	12/16/2010		9,600
MW-52S	06/05/2007		10,600
MW-52S	07/12/2007		11,600
MW-52S	08/08/2007		11,600
MW-52S	09/05/2007		10,800
MW-52S	10/11/2007		11,000
MW-52S	12/17/2007		10,700
MW-52S	03/13/2008		11,000
MW-52S	05/07/2008		11,000
MW-52S	10/01/2008		11,000
MW-52S	12/11/2008		10,500
MW-52S	03/12/2009		12,000
MW-52S	04/29/2009		10,000
MW-52S	09/29/2009		11,000
MW-52S	12/10/2009		10,400
MW-52S	03/10/2010		11,000
MW-52S	12/09/2010		9,500
MW-52M	06/05/2007		16,100
MW-52M	07/12/2007		15,900
MW-52M	08/08/2007		16,400
MW-52M	08/08/2007	FD	16,100
MW-52M	09/05/2007		15,100
MW-52M	10/11/2007		15,800
MW-52M	12/17/2007		15,400
MW-52M	03/13/2008		16,400
MW-52M	05/07/2008		16,000
MW-52M	10/01/2008		16,000
MW-52M	12/11/2008		15,600
MW-52M	03/12/2009		17,000
MW-52M	04/29/2009		15,600
MW-52M	09/29/2009		16,000
MW-52M	12/10/2009		16,200
MW-52M	03/10/2010		16,000
MW-52M	12/09/2010		14,000
MW-52D	06/05/2007		20,700
MW-52D	07/12/2007		20,600
MW-52D	08/08/2007		20,500
MW-52D	09/05/2007		19,200
MW-52D	10/11/2007		19,700
MW-52D	12/17/2007		19,500
MW-52D	03/13/2008		20,800
MW-52D	05/08/2008		19,000
MW-52D	10/01/2008		19,000
MW-52D	12/11/2008		20,100
MW-52D	03/12/2009		20,000
MW-52D	04/29/2009		20,500
MW-52D	09/29/2009		19,000
MW-52D	12/10/2009		20,900
MW-52D	03/10/2010		20,000
MW-52D	12/09/2010		18,000
MW-53M	06/05/2007		14,400
MW-53M	07/12/2007		15,400
MW-53M	08/08/2007		16,200
MW-53M	09/05/2007		15,500
MW-53M	10/11/2007		16,900
MW-53M	12/17/2007		16,900
MW-53M	03/13/2008		17,400
MW-53M	05/07/2008		18,000
MW-53M	10/01/2008		18,000
MW-53M	12/11/2008		18,300
MW-53M	03/12/2009		19,000
MW-53M	04/29/2009		18,700
MW-53M	09/29/2009		18,000
MW-53M	12/10/2009		18,800
MW-53M	03/10/2010		18,000
MW-53M	12/10/2010		17,000
MW-53D	06/05/2007		26,100

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Location	Sampling Date		Specific Conductance (µS/cm)
MW-53D	06/05/2007	FD	23,100
MW-53D	07/12/2007		25,500
MW-53D	08/08/2007		25,700
MW-53D	09/05/2007		23,500
MW-53D	09/05/2007	FD	24,200
MW-53D	10/11/2007		24,300
MW-53D	10/11/2007	FD	24,800
MW-53D	12/17/2007		24,300
MW-53D	03/13/2008		25,500
MW-53D	05/07/2008		27,000
MW-53D	10/01/2008		27,000
MW-53D	12/11/2008		24,800
MW-53D	03/12/2009		31,000
MW-53D	04/29/2009		24,700
MW-53D	09/29/2009		32,000
MW-53D	12/10/2009		24,900
MW-53D	03/10/2010		31,000
MW-53D	12/09/2010		20,000
MW-54-85	09/22/2009		9,150
MW-54-85	12/14/2010		10,500
MW-54-140	09/22/2009		13,000
MW-54-140	12/14/2010		13,000
MW-54-195	09/22/2009		19,000
MW-54-195	12/14/2010		19,500
MW-55-45	09/22/2009		1,490
MW-55-45	12/09/2010		1,560
MW-55-120	09/22/2009		9,040
MW-55-120	09/22/2009	FD	8,970
MW-55-120	12/09/2010		9,120
MW-55-120	12/09/2010	FD	9,080
MW-56S	09/30/2009		6,360
MW-56S	12/14/2010		6,160
MW-56M	09/30/2009		14,600
MW-56M	12/14/2010		14,600
MW-56D	09/30/2009		20,900
MW-56D	12/14/2010		21,000
MW-57-070	03/16/2010		1,200
MW-57-070	05/05/2010		1,700
MW-57-070	12/15/2010		2,000
MW-57-070	12/15/2010	FD	1,900
MW-57-185	03/09/2010		17,000
MW-57-185	05/05/2010		18,400
MW-57-185	12/09/2010		16,000
MW-58BR	03/25/2010		7,800
MW-59-100	03/17/2010		12,000
MW-59-100	05/06/2010		9,890
MW-59-100	12/16/2010		8,400
MW-60-125	03/17/2010		8,800
MW-60-125	05/06/2010		9,080
MW-60-125	12/16/2010		8,000
MW-60-125	12/16/2010	FD	8,000
MW-61-110	03/17/2010		15,000
MW-61-110	05/06/2010		15,500
MW-61-110	12/15/2010		14,000
MW-62-065	03/16/2010		6,000
MW-62-065	05/06/2010		6,230
MW-62-065	12/15/2010		5,800
MW-62-110	03/11/2010		8,800
MW-62-110	05/04/2010		8,640
MW-62-110	12/16/2010		7,900
MW-62-190	03/11/2010		17,000
MW-62-190	05/04/2010		18,100
MW-62-190	12/16/2010		15,000
MW-63-065	03/09/2010		7,200
MW-63-065	03/09/2010	FD	7,200
MW-63-065	05/03/2010		7,580
MW-63-065	05/03/2010	FD	7,470
MW-63-065	12/06/2010		7,200
MW-64-150	03/11/2010		11,000
MW-64-150	05/04/2010		10,100
MW-64-205	03/11/2010		15,000

Table D-5
Laboratory Specific Conductance Results, January 2005 through December 2010
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Location	Sampling Date		Specific Conductance (µS/cm)
MW-64-205	05/04/2010		15,200
MW-64-260	03/11/2010		15,000
MW-64-260	05/04/2010		15,100
OW-3S	10/06/2005		1,740
OW-3S	03/09/2006		1,700
OW-3S	10/12/2006		1,640
OW-3S	03/09/2007		1,730
OW-3S	04/30/2007		1,850
OW-3S	10/03/2007		1,690
OW-3S	12/08/2010		1,200
OW-3M	10/06/2005		4,680
OW-3M	03/09/2006		5,420
OW-3M	10/12/2006		5,100
OW-3M	10/12/2006	FD	4,960
OW-3M	03/09/2007		5,100
OW-3M	05/01/2007		5,240
OW-3M	10/03/2007		4,980
OW-3M	12/08/2010		5,600
OW-3D	10/06/2005		6,900
OW-3D	03/09/2006		8,240
OW-3D	10/06/2006		7,630
OW-3D	03/09/2007		7,680
OW-3D	10/03/2007		7,710
OW-3D	12/08/2010		6,500
PE-1	03/21/2005		13,400
PE-1	10/03/2005		11,800
PE-1	12/13/2005		11,800
PE-1	02/08/2006		13,200
PE-1	03/08/2006		12,000
PE-1	04/06/2006		13,000
PE-1	05/11/2006		11,200
PE-1	06/15/2006		10,600
PE-1	07/12/2006		10,600
PE-1	08/09/2006		9,650
PE-1	09/07/2006		10,600
PE-1	10/04/2006		10,300
PE-1	11/01/2006		10,800
PE-1	12/06/2006		10,000
PE-1	01/10/2007		8,410
PE-1	02/06/2007		8,390
PE-1	03/07/2007		8,360
PE-1	06/13/2007		7,650
PE-1	07/11/2007		7,450
PE-1	08/08/2007		7,290
PE-1	09/05/2007		6,590
PE-1	10/03/2007		6,550
PE-1	11/13/2007		6,450
PE-1	12/12/2007		7,120
PE-1	01/03/2008		6,590
PE-1	02/06/2008		6,510
PE-1	03/05/2008		6,380
PE-1	04/02/2008		6,460
PE-1	05/08/2008		6,580
PE-1	06/04/2008		6,320
PE-1	07/02/2008		6,060
PE-1	08/06/2008		6,050
PE-1	09/04/2008		6,040
PE-1	10/01/2008		5,680
PE-1	11/06/2008		5,460
PE-1	12/04/2008		5,710
PE-1	01/09/2009		5,800
PE-1	02/04/2009		5,580
PE-1	03/04/2009		5,540
PE-1	04/01/2009		5,640
PE-1	05/06/2009		5,670
PE-1	06/03/2009		5,790
PE-1	07/01/2009		5,840
PE-1	08/05/2009		5,700
PE-1	09/02/2009		5,640
PE-1	10/07/2009		5,670
PE-1	11/04/2009		5,540
PE-1	12/02/2009		5,620

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Location	Sampling Date		Specific Conductance (µS/cm)
PE-1	01/06/2010		5,430
PE-1	02/03/2010		5,450
PE-1	03/03/2010		5,490
PE-1	04/07/2010		5,440
PE-1	05/04/2010		5,570
PE-1	06/02/2010		5,560
PE-1	07/07/2010		5,500
PE-1	08/04/2010		5,490
PE-1	09/01/2010		5,400
PE-1	10/05/2010		5,350
PE-1	11/03/2010		5,310
PE-1	12/07/2010		5,300
PE-1	01/04/2011		5,330
PGE-7BR	03/12/2008		17,300
PGE-7BR	05/08/2008		18,200
PGE-7BR	10/07/2008		16,700
PGE-7BR	12/09/2010		16,000
PGE-8	10/13/2005		16,900
PGE-8	08/08/2007		18,400
PGE-8	08/08/2007		18,200
PGE-8	08/09/2007		18,800
PGE-8	08/09/2007		18,900
PGE-8	08/09/2007		19,000
PGE-8	08/09/2007	FD	19,000
PGE-8	08/10/2007		19,200
PGE-8	08/10/2007		18,300
PGE-8	08/10/2007		17,000
PGE-8	08/10/2007	FD	19,200
PGE-8	08/11/2007		18,000
PGE-8	08/11/2007		18,200
PGE-8	08/11/2007	FD	19,500
PGE-8	04/08/2010		17,000
PGE-8 [1]	02/10/2011		16,000
Park Moabi-3	03/11/2005		1,260
Park Moabi-3	05/18/2005		1,220
Park Moabi-3	05/18/2005	FD	1,260
Park Moabi-3	06/15/2005		1,200
Park Moabi-3	10/05/2005		1,280
Park Moabi-3	12/16/2005		2,100
Park Moabi-3	03/06/2006		1,260
Park Moabi-3	05/03/2006		1,300
Park Moabi-3	10/04/2006		1,150
Park Moabi-3	05/02/2007		1,890
Park Moabi-3	10/04/2007		1,920
Park Moabi-3	10/02/2008		1,400
Park Moabi-3	10/01/2009		1,400
Park Moabi-3	12/10/2010		1,200
Park Moabi-4	05/02/2007		1,530
Park Moabi-4	10/04/2007		1,720
Park Moabi-4	11/13/2007		1,470
Park Moabi-4	10/02/2008		1,700
Park Moabi-4	10/01/2009		1,800
Park Moabi-4	12/10/2010		1,700
RRB	06/14/2005		986
RRB	10/05/2005		998
RRB	03/06/2006		1,040
RRB	05/03/2006		920
RRB	10/04/2006		1,070
RRB	12/20/2006		3,870
RRB	03/14/2007		929
RRB	05/09/2007		947
RRB	09/12/2007		1,310
RRB	12/06/2007		3,560
RRB	04/02/2008		1,000
RRB	06/18/2008		1,040
RRB	09/18/2008		957
RRB	10/24/2008		988
RRB	12/04/2008		2,310
RRB	01/21/2009		977
RRB	04/10/2009		969
RRB	07/08/2009		984
RRB	09/09/2009		998

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Location	Sampling Date	Specific Conductance (µS/cm)
RRB	12/15/2009	1,060
RRB	01/20/2010	1,150
RRB	04/06/2010	985
RRB	07/08/2010	947
RRB	10/13/2010	961
RRB	12/22/2010	3,610
RRB	01/19/2011	1,100
TW-1	10/11/2005	6,200
TW-1	10/11/2007	6,200
TW-1	03/15/2010	7,100
TW-1	05/05/2010	6,860
TW-1	12/09/2010	6,000
TW-2S	03/11/2005	3,150
TW-2S	06/16/2005	3,120
TW-2S	10/07/2005	2,790
TW-2S	03/15/2006	2,680
TW-2S	05/03/2006	2,520
TW-2S	10/04/2006	2,690
TW-2S	10/04/2007	2,380
TW-2S	10/03/2008	2,700
TW-2S	10/01/2009	2,500
TW-2S	12/15/2010	2,400
TW-2D	03/09/2005	9,400
TW-2D	06/15/2005	9,230
TW-2D	01/18/2006	11,400
TW-2D	03/15/2006	8,960
TW-2D	05/03/2006	7,190
TW-2D	10/04/2006	9,320
TW-2D	10/04/2007	7,350
TW-2D	10/03/2008	9,400
TW-2D	10/01/2009	8,600
TW-2D	12/15/2010	8,300
TW-3D	11/05/2005	6,950
TW-3D	01/18/2006	8,740
TW-3D	02/08/2006	9,760
TW-3D	03/08/2006	9,640
TW-3D	04/06/2006	10,900
TW-3D	05/11/2006	9,900
TW-3D	06/15/2006	9,900
TW-3D	07/12/2006	9,570
TW-3D	08/09/2006	9,280
TW-3D	09/07/2006	9,990
TW-3D	10/04/2006	10,500
TW-3D	11/01/2006	10,600
TW-3D	12/06/2006	10,000
TW-3D	01/10/2007	8,670
TW-3D	02/06/2007	8,610
TW-3D	03/07/2007	8,740
TW-3D	06/13/2007	8,670
TW-3D	07/11/2007	8,750
TW-3D	08/08/2007	8,660
TW-3D	09/05/2007	7,750
TW-3D	10/03/2007	8,200
TW-3D	11/13/2007	8,080
TW-3D	12/12/2007	8,930
TW-3D	01/03/2008	8,390
TW-3D	02/06/2008	8,490
TW-3D	03/05/2008	8,320
TW-3D	04/02/2008	8,580
TW-3D	05/08/2008	8,690
TW-3D	06/04/2008	8,440
TW-3D	07/02/2008	8,270
TW-3D	08/06/2008	8,350
TW-3D	09/04/2008	8,460
TW-3D	10/01/2008	7,820
TW-3D	11/06/2008	7,730
TW-3D	12/04/2008	8,240
TW-3D	01/09/2009	8,450
TW-3D	02/04/2009	8,360
TW-3D	03/04/2009	8,390
TW-3D	04/01/2009	8,400
TW-3D	05/06/2009	8,260

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Laboratory Specific Conductance Results, January 2005 through December 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Location	Sampling Date		Specific Conductance (µS/cm)
TW-3D	06/03/2009		8,490
TW-3D	07/01/2009		8,640
TW-3D	08/05/2009		8,620
TW-3D	09/02/2009		8,440
TW-3D	10/07/2009		8,430
TW-3D	11/04/2009		8,550
TW-3D	12/02/2009		8,640
TW-3D	01/06/2010		8,390
TW-3D	02/03/2010		8,260
TW-3D	03/03/2010		8,560
TW-3D	04/07/2010		8,550
TW-3D	05/04/2010		8,680
TW-3D	06/02/2010		8,580
TW-3D	07/07/2010		8,480
TW-3D	08/04/2010		8,530
TW-3D	09/01/2010		8,620
TW-3D	10/05/2010		8,560
TW-3D	11/03/2010		8,600
TW-3D	12/07/2010		8,700
TW-3D	01/04/2011		8,710
TW-4	05/18/2006		21,900
TW-4	10/09/2006		21,900
TW-4	03/07/2007		20,700
TW-4	03/07/2007	FD	20,800
TW-4	10/03/2007		19,400
TW-4	10/03/2007	FD	19,600
TW-4	12/12/2007		19,600
TW-4	03/14/2008		19,900
TW-4	05/08/2008		19,000
TW-4	10/02/2008		19,000
TW-4	10/02/2008	FD	19,000
TW-4	12/10/2008		20,200
TW-4	03/10/2009		19,000
TW-4	05/06/2009		19,100
TW-4	09/23/2009		19,000
TW-4	09/23/2009	FD	19,000
TW-4	12/09/2009		19,800
TW-4	12/13/2010		18,000
TW-5	05/10/2006		13,600
TW-5	10/09/2006		14,900
TW-5	10/04/2007		12,200
TW-5	10/02/2008		12,000
TW-5	09/23/2009		13,000
TW-5	12/10/2010		12,000

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NOTES:

µS/cm microSiemens per centimeter
FD field duplicate sample
J concentration estimated by laboratory or data validation

Specific conductance is reported to three significant figures.

[1] Data collected February 2011 due to field logistical issues.

Table D-6
Manual Water Level Measurements, January 2010 through December 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Location	Well Depth (feet BMP)	Measuring Point Elevation (feet AMSL)	Monitoring Date & Time		Water Level Measurement (feet BMP)	Salinity (percent)	Groundwater Elevation Adjusted for Salinity (feet AMSL)
Monitoring Wells							
MW-9	89	536.56	12/06/10	8:50 AM	80.02	0.20	456.51
			12/15/10	12:10 PM	79.92	0.20	456.61
MW-10	97	530.65	03/11/10	1:27 PM	75.24	0.20	455.35
			12/06/10	8:45 AM	74.30	0.20	456.29
			12/07/10	9:06 AM	74.33	0.20	456.26
MW-12	50	484.01	04/06/10	10:34 AM	28.66	0.40	455.33
			05/06/10	12:45 PM	28.17	0.40	455.82
			09/30/10	9:04 AM	27.90	0.40	456.10
			12/06/10	9:07 AM	28.52	0.40	455.47
			12/16/10	9:47 PM	28.47	0.40	455.53
MW-13	52	488.64	12/06/10	9:31 AM	32.62	0.12	455.96
			12/07/10	10:41 AM	32.60	0.12	455.98
MW-14	134	570.99	12/06/10	9:12 AM	114.73	0.10	456.20
			12/07/10	11:16 AM	114.70	0.10	456.23
MW-15	203	641.52	12/06/10	9:08 AM	184.58	0.10	456.88
			12/14/10	7:53 AM	184.59	0.10	456.87
MW-16	218	657.31	03/16/10	9:07 AM	201.05	0.10	456.20
			12/06/10	9:17 AM	199.75	0.10	457.49
			12/10/10	11:02 AM	199.77	0.10	457.47
MW-17	154	589.96	03/11/10	9:36 AM	133.59	0.11	456.30
			12/06/10	8:32 AM	132.64	0.11	457.24
			12/14/10	9:34 AM	132.59	0.11	457.29
MW-18	107	545.32	12/06/10	8:54 AM	88.54	0.08	456.72
			12/14/10	2:48 PM	88.27	0.08	456.99
MW-19	66	499.92	03/18/10	10:15 AM	44.86	0.15	455.00
			12/06/10	9:49 AM	44.94	0.15	454.92
			12/15/10	1:50 PM	44.95	0.15	454.91
MW-20-70	70	500.15	03/17/10	11:44 AM	46.60	0.21	453.49
			12/16/10	8:46 PM	46.69	0.21	453.41
MW-20-100 [1]	101	500.58	03/17/10	4:02 PM	47.25	0.24	453.21
			02/10/11	1:47 PM	47.98	0.23	452.47
MW-20-130 [1]	132	500.66	03/18/10	8:35 AM	47.61	0.85	453.21
			02/10/11	4:10 PM	48.69	0.85	452.12
MW-21	58	505.55	03/09/10	12:17 PM	50.68	0.90	454.89
			05/03/10	11:02 PM	49.91	0.79	455.65
			09/27/10	12:42 PM	49.62	0.79	455.95
			12/06/10	11:50 AM	50.13	0.79	455.44
			12/06/10	9:15 AM	50.15	0.79	455.41
MW-22	12	460.72	03/12/10	9:45 AM	5.95	2.00	454.85
			12/07/10	9:25 AM	6.11	2.20	454.69
MW-23-060	60	504.08	03/08/10	2:37 PM	49.42	1.09	454.70
			05/03/10	1:04 PM	48.73	1.09	455.39

Table D-6
Manual Water Level Measurements, January 2010 through December 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Location	Well Depth (feet BMP)	Measuring Point Elevation (feet AMSL)	Monitoring Date & Time		Water Level Measurement (feet BMP)	Salinity (percent)	Groundwater Elevation Adjusted for Salinity (feet AMSL)
Monitoring Wells							
MW-23-060	60	504.08	09/29/10	8:11 AM	48.23	1.09	455.90
			12/14/10	10:47 AM	48.75	1.09	455.38
MW-23-080	81	504.13	03/08/10	4:23 PM	54.15	1.09	450.09
			05/04/10	12:45 PM	50.75	1.10	453.47
			09/29/10	9:39 AM	52.84	1.10	451.40
			12/14/10	1:15 PM	52.58	1.10	451.67
MW-24BR	441	563.95	03/12/10	8:11 AM	136.09	1.03	428.60
			05/04/10	8:38 AM	107.39	1.03	457.36
			09/30/10	7:00 AM	106.84	1.03	457.91
			12/07/10	2:07 PM	107.40	1.03	457.35
			12/08/10	2:32 PM	125.20	1.03	439.51
MW-25	107	542.90	12/06/10	9:40 AM	87.52	0.09	455.31
			12/07/10	12:45 PM	87.46	0.09	455.38
MW-26	70	502.22	03/17/10	12:42 PM	47.64	0.26	454.53
			12/15/10	2:47 PM	47.13	0.26	455.08
MW-27-20	14	460.56	12/07/10	10:30 AM	5.86	0.07	454.69
MW-27-60	59	461.38	12/07/10	12:03 PM	7.19	0.20	454.17
MW-27-85	80	460.99	03/09/10	8:51 AM	6.69	1.10	454.79
			04/29/10	12:39 PM	6.54	0.97	454.86
			10/01/10	7:20 AM	5.73	0.93	455.62
			12/07/10	11:05 AM	6.92	0.93	454.44
MW-28-25	21	466.77	03/09/10	11:40 AM	12.26	0.08	454.49
			12/08/10	9:23 AM	11.98	0.08	454.77
MW-28-90	98	467.53	03/09/10	12:37 PM	13.42	0.50	454.26
			04/29/10	1:54 PM	12.90	0.50	454.74
			09/28/10	12:50 PM	12.76	0.50	454.91
			12/08/10	9:54 AM	13.05	0.50	454.62
MW-29	42	485.21	03/11/10	8:55 AM	30.32	0.18	454.87
			12/14/10	12:53 PM	30.29	0.18	454.90
MW-30-30	27	468.12	12/07/10	8:15 AM	13.78	2.50	454.53
MW-30-50	53	468.81	12/07/10	8:51 AM	14.46	0.59	454.41
MW-31-60	64	496.81	03/16/10	8:22 AM	42.94	0.20	453.82
			12/15/10	8:34 AM	42.31	0.21	454.45
MW-31-135	135	498.11	12/15/10	7:41 AM	44.33	0.63	453.90
MW-32-20	20	461.51	12/08/10	3:19 PM	7.37	3.00	454.36
MW-32-35	37	461.63	03/09/10	1:39 PM	7.50	1.40	454.33
			12/09/10	7:23 AM	7.19	1.60	454.69
MW-33-40	42	487.38	03/11/10	1:08 PM	32.58	0.49	454.80
			04/30/10	12:29 PM	31.74	0.54	455.64
			09/28/10	1:57 PM	31.97	0.54	455.41
			12/10/10	7:26 AM	32.49	0.54	454.90
MW-33-90	88	487.55	03/12/10	8:05 AM	32.28	0.70	455.36

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PG&E Topock Compressor Station, Needles, California

Location	Well Depth (feet BMP)	Measuring Point Elevation (feet AMSL)	Monitoring Date & Time		Water Level Measurement (feet BMP)	Salinity (percent)	Groundwater Elevation Adjusted for Salinity (feet AMSL)
Monitoring Wells							
MW-33-90	88	487.55	03/12/10	8:03 AM	32.28	0.69	455.36
			04/30/10	3:51 PM	32.10	0.69	455.52
			04/30/10	3:55 PM	32.10	0.69	455.52
			09/29/10	1:08 PM	32.34	0.69	455.29
			12/10/10	10:55 AM	32.88	0.69	454.77
MW-33-150	155	487.77	03/11/10	1:48 PM	33.52	1.15	454.85
			04/30/10	2:05 PM	32.69	1.16	455.69
			09/29/10	9:14 AM	32.48	1.05	455.82
			12/10/10	8:48 AM	33.37	1.05	454.96
MW-33-210	223	487.25	03/11/10	2:39 PM	33.33	1.20	454.81
			04/30/10	3:05 PM	32.52	1.20	455.63
			09/29/10	10:26 AM	32.47	1.20	455.68
			12/10/10	9:38 AM	33.17	1.20	454.98
MW-34-55	57	460.95	12/07/10	1:24 PM	6.89	0.31	454.07
MW-34-80	84	461.20	01/11/10	3:44 PM	8.09	0.50	453.25
			02/08/10	11:13 AM	8.36	0.50	452.93
			03/10/10	1:46 PM	6.57	0.50	454.79
			04/29/10	10:06 AM	6.31	0.50	454.98
			10/01/10	8:34 AM	5.93	0.50	455.44
			12/07/10	2:35 PM	7.34	0.50	454.02
MW-34-100	117	460.96	01/11/10	2:10 PM	8.64	1.25	453.11
			02/08/10	12:58 PM	8.93	1.25	452.83
			03/10/10	2:56 PM	6.96	1.25	454.83
			04/29/10	11:21 PM	6.66	1.26	455.14
			10/01/10	9:44 AM	6.72	1.20	455.01
			11/09/10	1:33 PM	7.28	1.20	454.44
			12/08/10	7:40 AM	7.05	1.20	454.67
MW-35-60	57	484.33	03/16/10	10:49 AM	29.76	0.45	454.56
			12/14/10	4:05 PM	29.49	0.45	454.83
MW-35-135	159	484.24	03/16/10	11:25 AM	29.44	0.64	454.93
			12/14/10	3:39 PM	28.96	0.64	455.44
MW-36-20	23	469.33	12/07/10	11:17 AM	14.46	1.37	454.93
MW-36-40	43	469.59	12/07/10	3:05 PM	15.71	0.60	453.94
MW-36-50	53	469.62	12/08/10	8:08 AM	14.99	0.24	454.61
MW-36-70	72	469.27	12/07/10	1:09 PM	15.30	0.10	453.89
MW-36-90	92	487.55	03/12/10	10:50 AM	15.66	0.12	471.78
		469.64	12/08/10	9:41 PM	15.95	0.12	453.60
MW-36-100	110	469.65	03/09/10	3:05 PM	16.47	0.80	453.51
			12/15/10	7:18 AM	16.02	0.80	453.95
MW-37D	227	486.19	12/15/10	10:46 AM	31.00	1.05	455.78
MW-37S	87	485.97	12/10/10	7:20 AM	30.87	0.32	454.99
MW-39-50	55	467.93	12/08/10	2:39 PM	14.16	0.14	453.70

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Location	Well Depth (feet BMP)	Measuring Point Elevation (feet AMSL)	Monitoring Date & Time		Water Level Measurement (feet BMP)	Salinity (percent)	Groundwater Elevation Adjusted for Salinity (feet AMSL)
Monitoring Wells							
MW-39-60	66	468.00	12/09/10	8:59 AM	13.88	0.20	454.05
MW-39-70	72	468.02	12/08/10	1:22 PM	14.58	0.30	453.43
MW-39-80	83	467.92	12/09/10	7:27 PM	14.21	0.80	453.92
MW-39-100	118	468.12	12/14/10	3:32 PM	14.83	1.40	454.04
MW-40D	266	566.08	12/15/10	9:31 AM	110.51	1.11	456.04
MW-40S	134	566.04	12/06/10	9:39 AM	109.93	0.13	456.02
MW-41D	313	479.42	03/11/10	10:03 AM	24.66	1.38	456.29
			12/08/10	8:18 AM	24.05	1.38	456.90
MW-41M	192	479.83	12/08/10	9:22 AM	24.11	1.03	456.25
MW-41S	62	480.07	12/06/10	9:22 AM	24.40	0.32	455.61
			12/08/10	10:22 AM	24.41	0.32	455.60
MW-42-30	32	463.74	12/06/10	11:57 AM	9.62	1.07	454.23
MW-42-55	56	463.85	03/09/10	9:58 AM	9.70	0.90	454.31
			04/29/10	3:00 PM	9.35	0.90	454.66
			09/27/10	11:19 PM	8.75	0.90	455.27
			12/06/10	12:42 PM	9.78	0.90	454.23
MW-42-65	80	463.37	03/09/10	10:36 AM	9.32	1.05	454.42
			04/29/10	3:47 PM	8.60	1.05	455.10
			09/27/10	12:34 PM	8.48	1.05	455.26
			12/06/10	1:55 PM	9.41	1.05	454.33
MW-43-25	27	462.54	12/09/10	8:38 AM	7.68	0.08	454.83
MW-43-75	77	462.71	12/09/10	9:50 AM	8.09	0.90	454.90
MW-43-90	102	462.76	12/09/10	10:25 AM	8.57	1.22	454.82
MW-44-70	70	471.90	03/08/10	12:53 PM	17.79	0.22	454.08
			12/09/10	3:19 PM	17.97	0.22	453.92
MW-44-115	114	472.01	01/12/10	11:02 AM	19.08	0.83	453.23
			02/09/10	10:40 AM	19.26	0.83	453.05
			03/08/10	2:02 PM	18.72	0.83	453.65
			04/30/10	9:19 AM	17.00	0.83	455.32
			09/28/10	7:33 AM	16.93	0.83	455.45
			12/09/10	2:35 PM	18.68	0.83	453.68
MW-44-125	129	472.04	01/12/10	8:42 AM	18.78	0.85	453.61
			02/09/10	8:14 AM	19.26	0.85	453.13
			03/08/10	2:45 PM	18.36	0.85	454.12
			04/30/10	10:14 AM	16.84	0.88	455.58
			09/28/10	8:12 AM	16.66	0.88	455.85
			12/09/10	12:11 PM	18.14	0.88	454.35
MW-45-095a	97	470.03	12/14/10	2:00 PM	17.41	0.31	452.64
MW-46-175	182	482.16	01/12/10	11:27 AM	29.11	1.10	453.92
			02/08/10	1:55 PM	29.74	1.10	453.16
			03/11/10	9:52 AM	28.02	1.10	455.02
			04/30/10	7:36 AM	26.96	1.10	455.95

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Location	Well Depth (feet BMP)	Measuring Point Elevation (feet AMSL)	Monitoring Date & Time	Water Level Measurement (feet BMP)	Salinity (percent)	Groundwater Elevation Adjusted for Salinity (feet AMSL)
Monitoring Wells						
MW-46-175	182	482.16	09/28/10 11:10 PM	27.60	1.10	455.47
			11/09/10 10:28 AM	27.89	1.10	455.02
			12/08/10 1:05 PM	28.54	1.10	454.51
MW-46-205	225	482.23	03/11/10 11:08 AM	28.59	1.30	454.83
			12/08/10 11:48 AM	28.67	1.30	454.75
MW-47-55	55	484.04	03/16/10 12:25 PM	29.50	0.28	454.50
			12/13/10 2:40 PM	28.92	0.28	455.08
MW-47-115	115	484.17	03/10/10 3:07 PM	29.30	0.92	455.13
			12/13/10 1:42 PM	29.30	0.92	455.12
MW-48	138	486.22	04/06/10 9:28 AM	31.19	1.25	455.47
			05/03/10 11:40 PM	30.77	1.25	455.89
			09/27/10 11:10 PM	30.42	1.25	456.34
MW-49-135	137	484.02	12/13/10 11:04 AM	29.34	0.95	455.08
MW-49-275	275	483.95	12/13/10 3:06 PM	30.17	1.52	455.51
MW-49-365	367	484.01	12/13/10 12:50 PM	31.72	2.50	456.92
MW-50-095	96	496.49	03/12/10 11:56 AM	41.71	0.34	454.70
			12/10/10 9:46 AM	41.54	0.34	454.87
MW-50-200 [1]	205	496.35	03/17/10 3:46 PM	42.13	1.30	455.00
			05/06/10 1:41 PM	41.52	1.30	455.62
			09/30/10 11:11 PM	41.41	1.30	455.73
			02/10/11 3:05 PM	42.74	1.30	454.39
MW-51	113	501.56	03/17/10 12:21 PM	47.05	0.75	454.58
			12/16/10 11:00 PM	46.73	0.75	454.93
MW-54-85	93	466.10	03/09/10 7:51 AM	11.08	0.70	455.16
			12/14/10 7:58 AM	11.22	0.70	455.01
MW-54-140	138	465.98	03/09/10 9:03 AM	11.06	0.85	455.26
			12/14/10 8:36 AM	11.17	0.85	455.12
MW-54-195	195	466.32	03/09/10 9:54 AM	11.98	1.32	455.45
			12/14/10 9:32 AM	11.94	1.30	455.44
MW-55-45	52	463.41	03/08/10 12:32 PM	7.38	0.10	455.90
			12/09/10 2:33 PM	7.42	0.10	455.86
MW-55-120	118	463.21	03/08/10 1:20 PM	7.22	0.61	456.02
			12/09/10 2:30 PM	7.17	0.61	456.09
MW-57-070	70	509.37	03/16/10 12:54 PM	51.24	0.20	458.07
			05/05/10 11:17 PM	52.12	0.20	457.19
			09/30/10 9:32 AM	52.12	0.20	457.19
			12/15/10 1:42 PM	52.68	0.20	456.65
MW-57-185	185	508.97	03/09/10 3:13 PM	52.82	1.09	456.62
			05/05/10 7:22 AM	52.03	1.20	457.51
			09/29/10 1:00 PM	51.72	1.20	457.82
			12/09/10 11:15 AM	52.42	1.20	457.15
MW-59-100	101	541.61	03/17/10 2:03 PM	85.98	0.75	455.64

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Location	Well Depth (feet BMP)	Measuring Point Elevation (feet AMSL)	Monitoring Date & Time	Water Level Measurement (feet BMP)	Salinity (percent)	Groundwater Elevation Adjusted for Salinity (feet AMSL)
Monitoring Wells						
MW-59-100	101	541.61	05/06/10 11:58 PM	85.23	0.75	456.39
			09/30/10 10:09 AM	84.73	0.75	456.89
			12/06/10 9:01 AM	85.28	0.75	456.34
			12/16/10 12:12 AM	85.30	0.75	456.33
MW-60-125	123	555.47	03/17/10 8:23 AM	99.70	0.52	455.75
			05/06/10 10:03 AM	98.75	0.52	456.70
			09/30/10 10:52 AM	98.41	0.52	457.04
			12/16/10 8:31 AM	99.12	0.52	456.37
MW-61-110	113	544.03	03/17/10 7:21 AM	88.41	0.96	455.68
			05/06/10 9:06 AM	87.34	0.96	456.75
			09/30/10 8:37 AM	87.13	0.96	456.96
			12/15/10 11:46 AM	87.84	0.96	456.25
MW-62-065	67	503.56	03/16/10 3:29 PM	48.49	0.36	455.03
			05/06/10 6:33 AM	47.44	0.39	456.09
			09/30/10 7:11 AM	47.41	0.39	456.11
			12/15/10 9:35 AM	48.19	0.39	455.34
MW-62-110	110	504.05	01/18/10 3:05 PM	49.26	0.50	454.77
MW-62-190	190	504.05	01/18/10 3:07 PM	49.60	1.09	455.00
MW-63-065	66	504.47	03/09/10 1:17 PM	49.91	0.41	454.55
			05/03/10 9:46 AM	48.14	0.44	456.32
			09/27/10 1:57 PM	49.16	0.44	455.30
			12/06/10 2:09 PM	49.89	0.44	454.58
MW-64-150	150	575.90	01/18/10 11:15 AM	121.07	0.51	454.83
			03/10/10 8:48 AM	120.22	0.51	455.68
			05/04/10 7:43 AM	119.50	0.75	456.45
			08/24/10 8:03 AM	119.27	0.75	456.68
			09/28/10 7:36 AM	116.75	0.75	459.21
			10/19/10 8:17 AM	119.59	0.75	456.36
			11/10/10 9:32 AM	120.09	0.75	455.86
MW-64-205	205	575.92	01/18/10 11:17 AM	121.09	0.80	454.99
			03/10/10 9:00 AM	120.10	0.80	456.00
			05/04/10 7:48 AM	120.48	1.00	455.74
			08/24/10 9:05 AM	119.45	1.00	456.77
			09/28/10 7:43 AM	119.37	1.00	456.85
			10/19/10 8:19 AM	119.74	1.00	456.48
			11/10/10 9:37 AM	120.02	1.00	456.20
MW-64-260	260	575.90	01/18/10 11:20 AM	118.50	0.62	457.50
			03/10/10 9:05 AM	120.58	0.62	455.44
			05/04/10 7:50 AM	119.73	0.90	456.57
			08/24/10 8:07 AM	119.50	0.90	456.80
			09/28/10 7:47 AM	119.45	0.90	456.84
			10/19/10 8:21 AM	119.76	0.90	456.53

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Manual Water Level Measurements, January 2010 through December 2010
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Location	Well Depth (feet BMP)	Measuring Point Elevation (feet AMSL)	Monitoring Date & Time	Water Level Measurement (feet BMP)	Salinity (percent)	Groundwater Elevation Adjusted for Salinity (feet AMSL)
Monitoring Wells						
MW-64-260	260	575.90	11/10/10 9:39 AM	120.01	0.90	456.28
OW-3D	275	558.63	12/08/10 11:37 AM	101.76	0.51	456.71
OW-3M	203	558.90	12/08/10 12:41 PM	101.96	0.32	456.72
OW-3S	119	558.58	12/06/10 8:47 AM	101.78	0.08	456.73
			12/08/10 1:24 PM	101.64	0.08	456.87
PGE-7BR	300	---	03/15/10 11:21 PM	110.48	---	---
			12/08/10 3:40 PM	109.65	---	---
PGE-8 [1]	564	596.01	04/08/10 12:45 PM	140.32	1.15	457.16
			02/10/11 8:48 AM	140.94	1.22	456.75
TW-1	240	620.55	03/15/10 2:52 PM	165.15	0.43	455.32
			05/05/10 1:41 PM	164.15	0.45	456.33
			09/28/10 10:38 AM	163.87	0.45	456.61
			12/09/10 9:08 AM	164.42	0.45	456.06
TW-4	255	484.11	12/13/10 10:53 AM	29.61	1.27	455.55
TW-5	153	496.30	12/10/10 8:20 AM	41.44	0.95	455.11

Notes:

AMSL above mean sea level
BMP below well measure point
(---) data not collected or available.
T Results from transducers presented to fill water level data gaps

[1] Data collected February 2011 due to field logistical issues.

Well depths rounded off to whole foot.

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

Table D-7
Field Water Quality Measurements, January 2010 through December 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Location	Sampling Date	Specific Conductance (µS/cm)	Temperature (°C)	pH	ORP (mV)	Dissolved Oxygen (mg/L)
Monitoring Wells						
MW-9	12/15/2010	3,305	29.90	7.39	93	4.02
MW-10	03/11/2010	2,039	28.65	7.74	-6	4.40
	12/07/2010	2,705	29.28	7.94	82	4.25
MW-12	04/06/2010	6,150	27.88	8.36	74	6.51
	05/06/2010	5,820	28.22	8.37	84	6.09
	09/30/2010	6,385	27.99	8.23	214	6.23
	12/16/2010	6,430	28.07	8.25	59	5.09
MW-13	12/07/2010	2,025	28.17	7.93	4	5.87
MW-14	12/07/2010	1,558	28.89	7.96	14	5.60
MW-15	12/14/2010	1,808	30.92	7.66	153	7.19
MW-16	03/16/2010	1,229	29.26	7.97	80	5.75
	12/10/2010	1,130	30.61	7.98	22	8.41
MW-17	03/11/2010	1,706	30.26	7.94	-15	6.18
	12/14/2010	1,592	30.16	7.90	153	6.27
MW-18	12/14/2010	1,362	28.98	7.58	117	7.04
MW-19	03/18/2010	2,450	28.54	7.47	93	5.54
	12/15/2010	2,360	28.71	7.52	118	6.49
MW-20-70	03/17/2010	3,322	28.82	7.56	68	8.44
	12/16/2010	3,031	28.61	7.62	75	6.68
MW-20-100 [1]	03/17/2010	3,477	29.32	7.36	61	2.21
	02/10/2011	3,085	29.32	7.53	215	3.56
MW-20-130 [1]	03/18/2010	13,130	29.38	7.45	107	1.56
	02/10/2011	12,190	29.42	7.63	218	2.03
MW-21	03/10/2010	8,949	26.52	7.01	-24	0.98
	05/04/2010	8,416	29.02	7.14	-30	1.64
	09/28/2010	13,110	29.31	7.11	-84	0.35
	12/07/2010	12,392	28.65	7.23	13	1.35
MW-22	03/12/2010	34,252	19.86	6.82	-87	0.35
	12/07/2010	28,540	25.06	6.70	-66	0.16
MW-23-060	03/08/2010	10,690	28.36	9.96	---	1.94
	05/03/2010	14,740	30.69	9.13	-32	4.00
	09/29/2010	16,480	34.09	8.94	51	2.26
	12/14/2010	16,050	31.79	10.33	53	3.03
MW-23-080	03/08/2010	18,130	29.05	10.83	---	0.38
	05/04/2010	18,010	31.98	10.91	-77	0.27
	09/29/2010	17,260	32.81	10.61	-53	0.26
	12/14/2010	17,390	30.32	10.43	4	1.70
MW-24BR	03/12/2010	15,460	31.21	8.10	-144	0.07

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Location	Sampling Date	Specific Conductance (µS/cm)	Temperature (°C)	pH	ORP (mV)	Dissolved Oxygen (mg/L)
Monitoring Wells						
MW-24BR	05/05/2010	15,400	31.62	8.41	-153	0.06
	09/30/2010	14,980	33.79	7.99	-169	0.12
	12/08/2010	15,040	31.73	8.30	-164	0.12
MW-25	12/07/2010	1,360	29.81	7.64	35	5.51
MW-26	03/16/2010	4,234	29.69	7.39	71	8.81
	12/15/2010	4,124	29.62	7.37	111	6.21
MW-27-20	12/07/2010	1,003	19.56	7.70	-170	0.67
MW-27-60	12/07/2010	1,184	18.85	8.18	-162	0.39
MW-27-85	03/09/2010	15,163	19.73	7.23	-24	0.19
	04/29/2010	15,420	20.10	7.20	-29	0.30
	10/01/2010	15,110	20.09	7.16	-37	0.05
	12/07/2010	14,400	20.04	7.22	-80	0.39
MW-28-25	03/09/2010	1,198	20.35	7.53	-25	0.17
	12/08/2010	1,135	22.56	7.33	-34	0.54
MW-28-90	03/09/2010	8,127	19.09	7.35	-104	0.14
	04/29/2010	7,978	19.45	7.40	-102	0.22
	09/28/2010	7,478	19.48	7.29	-108	0.01
	12/08/2010	7,667	19.41	7.25	-136	0.42
MW-29	03/11/2010	3,480	24.77	7.35	-114	0.66
	12/14/2010	2,333	25.24	7.31	-138	0.32
MW-30-30	12/07/2010	22,770	24.32	7.25	-170	0.90
MW-30-50	12/07/2010	1,330	21.60	7.99	-208	0.34
MW-31-60	03/16/2010	3,190	27.26	7.51	156	3.90
	12/15/2010	3,297	28.19	7.53	153	4.65
MW-31-135	12/15/2010	11,670	28.95	7.75	89	0.47
MW-32-20	12/08/2010	51,690	26.13	6.76	-136	0.44
MW-32-35	03/09/2010	23,423	25.04	7.06	-157	0.12
	12/09/2010	19,700	24.95	7.16	-177	0.14
MW-33-40	03/11/2010	6,819	26.88	8.25	-25	0.40
	04/30/2010	5,919	27.71	8.28	-37	1.94
	09/28/2010	5,489	30.22	8.23	-26	0.55
	12/10/2010	14,020	27.10	7.73	45	0.30
MW-33-90	03/12/2010	11,613	25.70	7.49	170	0.21
	04/30/2010	10,940	26.75	7.48	-32	0.13
	09/29/2010	10,730	26.62	7.37	-24	0.08
	12/10/2010	10,560	26.63	7.49	-91	0.14
MW-33-150	03/11/2010	17,964	26.95	7.67	---	0.14
	04/30/2010	17,570	27.14	7.58	-33	0.15

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PG&E Topock Compressor Station, Needles, California

Location	Sampling Date	Specific Conductance (µS/cm)	Temperature (°C)	pH	ORP (mV)	Dissolved Oxygen (mg/L)
Monitoring Wells						
MW-33-150	09/29/2010	17,480	27.16	7.42	62	0.07
	12/10/2010	17,560	27.06	7.56	-44	0.17
MW-33-210	03/11/2010	20,735	27.34	7.53	9	0.09
	04/30/2010	20,350	27.60	7.41	-27	0.10
	09/29/2010	19,600	27.62	7.26	88	0.05
	12/10/2010	19,880	27.48	7.42	-69	0.14
MW-34-55	12/07/2010	1,024	18.01	7.72	-154	0.30
MW-34-80	01/11/2010	8,020	19.00	7.22	-58	0.07
	02/08/2010	8,069	19.05	7.35	-34	0.07
	03/10/2010	8,331	17.96	7.33	-77	0.19
	04/29/2010	8,568	19.04	7.35	-7	0.26
	10/01/2010	8,400	19.01	7.35	-60	0.67
	12/07/2010	7,833	19.00	7.38	-103	0.27
MW-34-100	01/11/2010	19,953	20.10	7.98	67	0.17
	02/08/2010	18,920	20.31	7.63	-10	0.04
	03/10/2010	19,295	19.16	7.49	-34	0.17
	04/29/2010	19,490	20.15	7.48	29	0.23
	10/01/2010	18,490	20.20	7.43	33	0.24
	11/09/2010	18,370	20.20	8.94	83	0.11
	12/08/2010	18,580	20.16	7.49	-76	0.55
MW-35-60	03/16/2010	6,907	25.96	7.36	100	1.02
	12/14/2010	7,488	26.90	7.33	108	0.87
MW-35-135	03/16/2010	10,570	25.93	7.69	97	0.39
	12/14/2010	10,050	29.91	7.69	130	0.46
MW-36-20	12/07/2010	7,264	22.26	7.61	-173	0.07
MW-36-40	12/07/2010	2,121	20.58	7.90	-196	0.10
MW-36-50	12/08/2010	1,814	19.59	7.51	-113	0.22
MW-36-70	12/07/2010	1,256	20.26	8.08	-105	0.11
MW-36-90	03/12/2010	1,431	27.02	8.29	-81	0.17
	12/08/2010	1,430	20.26	8.19	-69	0.13
MW-36-100	03/09/2010	12,554	22.41	7.17	-139	0.12
	12/15/2010	10,970	22.15	7.06	-158	0.09
MW-37D	12/15/2010	15,980	30.02	7.69	92	0.31
MW-37S	12/10/2010	5,241	28.86	7.65	120	1.89
MW-39-50	12/08/2010	1,717	22.51	7.98	-8	0.09
MW-39-60	12/09/2010	2,041	22.62	7.87	-63	0.15
MW-39-70	12/08/2010	3,854	23.10	7.43	79	0.14
MW-39-80	12/09/2010	9,464	22.90	7.01	-38	0.23

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Location	Sampling Date	Specific Conductance (µS/cm)	Temperature (°C)	pH	ORP (mV)	Dissolved Oxygen (mg/L)
Monitoring Wells						
MW-39-100	12/14/2010	20,320	24.80	6.66	6	0.07
MW-40D	12/15/2010	16,210	31.53	7.51	22	0.56
MW-41D	03/11/2010	23,090	30.29	7.75	---	0.03
	12/08/2010	22,130	30.29	7.91	-107	0.26
MW-41M	12/08/2010	15,650	29.55	7.81	-83	0.40
MW-41S	12/08/2010	5,091	28.53	8.06	-66	1.97
MW-42-30	12/06/2010	4,853	23.84	7.82	-223	0.53
MW-42-55	03/09/2010	11,037	22.96	7.40	-131	0.18
	04/29/2010	10,470	23.20	7.47	-104	0.15
	09/27/2010	9,129	23.41	7.17	---	0.76
	12/06/2010	8,827	22.81	7.33	-166	0.65
MW-42-65	03/09/2010	14,272	23.05	7.19	-40	0.15
	04/29/2010	13,620	23.28	7.16	-31	0.27
	09/27/2010	10,791	23.74	7.05	---	0.28
	12/06/2010	11,180	23.04	7.12	-115	0.57
MW-43-25	12/09/2010	1,256	21.06	7.59	-188	0.09
MW-43-75	12/09/2010	11,730	21.08	7.59	-167	0.07
MW-43-90	12/09/2010	18,420	21.34	6.98	-98	0.09
MW-44-70	03/08/2010	3,081	19.22	7.46	-108	0.30
	12/09/2010	2,847	19.54	7.59	-234	0.14
MW-44-115	01/12/2010	12,630	21.90	7.86	-174	0.04
	02/09/2010	12,730	21.86	7.93	-108	0.03
	03/08/2010	12,943	21.46	7.85	-121	0.10
	04/30/2010	12,580	21.69	7.93	-100	0.24
	09/28/2010	11,840	21.53	7.85	-198	0.01
	12/09/2010	12,050	21.37	8.00	-232	0.06
MW-44-125	01/12/2010	13,810	22.00	8.03	-193	0.03
	02/09/2010	14,410	22.11	8.21	-162	0.03
	03/08/2010	13,322	21.60	7.94	-158	0.12
	04/30/2010	12,960	22.14	8.00	-208	0.11
	09/28/2010	11,950	22.09	7.71	-225	0.00
	12/09/2010	12,860	21.85	7.93	-284	0.06
MW-45-095a	12/14/2010	9,548	19.76	7.50	-98	0.08
MW-46-175	01/12/2010	18,270	23.60	8.37	-158	0.04
	02/08/2010	18,490	23.57	8.37	-103	0.03
	03/11/2010	18,652	23.35	8.54	-160	0.08
	04/30/2010	18,400	23.65	8.45	-119	0.21
	09/28/2010	17,300	23.69	8.34	-205	0.00

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Location	Sampling Date	Specific Conductance (µS/cm)	Temperature (°C)	pH	ORP (mV)	Dissolved Oxygen (mg/L)
Monitoring Wells						
MW-46-175	11/09/2010	17,550	23.40	8.61	-65	0.11
	12/08/2010	17,710	23.55	8.32	-193	0.20
MW-46-205	03/11/2010	22,798	24.31	8.49	-90	0.10
	12/08/2010	21,800	24.48	8.25	-103	0.19
MW-47-55	03/16/2010	4,215	26.91	7.53	83	2.02
	12/13/2010	4,807	27.63	7.39	69	2.48
MW-47-115	03/10/2010	14,140	27.87	7.69	-6	0.10
	12/13/2010	14,250	28.09	7.42	58	0.14
MW-48	04/08/2010	19,220	29.06	7.00	89	1.01
	05/05/2010	19,530	32.20	7.80	-27	0.49
	09/29/2010	16,780	32.94	7.10	106	2.70
	12/08/2010	21,400	31.36	7.45	-4	2.09
MW-49-135	12/13/2010	14,420	24.51	7.79	-1	1.07
MW-49-275	12/13/2010	26,360	27.04	8.06	-202	0.08
MW-49-365	12/13/2010	40,180	27.45	7.93	-217	0.09
MW-50-095	03/12/2010	5,332	29.04	7.82	---	1.70
	12/10/2010	5,240	28.92	7.79	36	1.99
MW-50-200 [1]	03/17/2010	22,960	30.03	7.67	77	2.78
	05/06/2010	22,390	30.00	7.78	113	2.67
	09/30/2010	21,690	30.02	7.67	170	2.82
	02/10/2011	21,840	30.16	7.86	229	3.59
MW-51	03/17/2010	11,450	29.57	7.39	59	2.05
	12/16/2010	11,080	29.60	7.42	80	1.81
MW-52D	03/10/2010	22,954	19.66	8.29	-210	0.17
	12/09/2010	21,680	20.17	7.96	-216	0.22
MW-52M	03/10/2010	17,726	18.57	7.76	-175	0.26
	12/09/2010	16,790	19.91	7.62	-207	0.10
MW-52S	03/10/2010	11,522	19.18	7.53	-167	0.29
	12/09/2010	11,150	19.74	7.19	-177	0.24
MW-53D	03/10/2010	27,807	19.17	8.37	-202	0.22
	12/09/2010	26,190	19.28	8.35	-221	0.21
MW-53M	03/10/2010	21,161	19.23	8.41	-224	0.16
	12/10/2010	21,000	18.39	8.08	-210	0.22
MW-54-85	03/09/2010	11,240	25.28	7.51	-169	0.39
	12/14/2010	10,720	26.25	7.55	-188	0.14
MW-54-140	03/09/2010	13,810	24.22	7.82	-75	0.25
	12/14/2010	13,130	25.29	7.82	-106	0.09
MW-54-195	03/09/2010	20,900	24.09	8.11	-221	0.18

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Location	Sampling Date	Specific Conductance (µS/cm)	Temperature (°C)	pH	ORP (mV)	Dissolved Oxygen (mg/L)
Monitoring Wells						
MW-54-195	12/14/2010	19,680	25.23	8.12	-249	0.05
MW-55-45	03/08/2010	1,546	27.05	7.72	-104	0.47
	12/09/2010	1,563	28.20	7.82	-195	0.26
MW-55-120	03/08/2010	9,815	27.46	7.88	-27	1.00
	12/09/2010	9,324	28.85	7.97	-116	1.08
MW-56D	03/18/2010	21,580	22.03	7.67	-92	7.01
	12/14/2010	22,400	20.26	7.78	-109	5.15
MW-56M	03/18/2010	15,450	21.72	7.23	-139	0.10
	12/14/2010	15,340	20.88	7.24	-126	0.28
MW-56S	03/18/2010	6,289	21.94	7.33	-146	0.06
	12/14/2010	6,438	21.73	7.29	-139	0.15
MW-57-070	03/16/2010	1,253	30.47	7.29	41	3.31
	05/05/2010	1,827	34.07	7.41	4	3.79
	09/30/2010	1,940	32.54	7.18	36	3.23
	12/15/2010	2,155	30.62	7.16	2	2.02
MW-57-185	03/09/2010	19,160	28.69	9.45	-38	0.23
	05/05/2010	19,720	29.79	8.73	-50	0.06
	09/29/2010	18,910	30.05	8.64	11	0.08
	12/09/2010	19,540	29.87	8.66	-184	0.07
MW-58BR-LWR	10/07/2010	9,889	28.60	7.49	-66	0.04
MW-58BR-UPR	10/06/2010	11,830	28.20	7.95	-78	0.15
MW-59-100	03/17/2010	13,090	30.66	6.94	104	5.45
	05/06/2010	10,450	31.26	7.00	93	4.76
	09/30/2010	10,670	30.53	6.90	244	6.29
	12/16/2010	9,936	30.23	6.97	106	5.21
MW-60-125	03/17/2010	9,477	27.95	7.48	77	1.69
	05/06/2010	9,605	32.65	7.41	76	2.06
	09/30/2010	9,210	33.89	7.35	-16	1.69
	12/16/2010	9,245	32.71	7.32	49	2.05
MW-61-110	03/17/2010	15,720	28.15	7.56	24	0.36
	05/06/2010	16,550	29.62	7.48	113	0.39
	09/30/2010	16,360	30.51	7.39	38	0.22
	12/15/2010	16,580	31.35	7.60	-101	0.26
MW-62-065	03/16/2010	6,170	29.81	7.33	64	1.19
	05/06/2010	6,580	30.91	7.36	120	2.27
	09/30/2010	6,638	31.69	7.28	126	1.94
	12/15/2010	6,266	30.33	7.37	19	2.35
MW-62-110	01/20/2010	8,830	27.30	7.78	-70	0.22

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Location	Sampling Date	Specific Conductance (µS/cm)	Temperature (°C)	pH	ORP (mV)	Dissolved Oxygen (mg/L)
Monitoring Wells						
MW-62-110	02/10/2010	8,964	27.70	7.91	-110	0.09
	03/11/2010	9,363	27.32	7.84	-114	0.09
	05/04/2010	9,223	28.03	7.96	-54	0.42
	09/29/2010	9,126	28.19	7.83	-60	0.05
	12/16/2010	8,875	27.33	7.83	110	0.21
MW-62-190	01/20/2010	18,730	26.70	7.83	-160	0.18
	02/10/2010	18,680	27.50	7.96	-147	0.08
	03/11/2010	19,550	27.19	7.93	-139	0.05
	05/04/2010	19,530	28.06	8.02	-95	0.39
	09/29/2010	19,050	28.19	7.65	43	0.15
	12/16/2010	17,450	26.90	7.90	-30	0.37
MW-63-065	03/09/2010	7,615	26.19	7.11	12	0.74
	05/03/2010	8,073	27.36	7.12	15	0.98
	09/27/2010	7,440	29.21	7.13	73	1.49
	12/06/2010	8,252	27.93	7.14	-23	1.35
MW-64-150	01/19/2010	11,880	26.30	7.04	-95	0.13
	02/10/2010	11,840	25.70	7.34	-44	0.13
	03/11/2010	11,530	24.93	6.87	68	0.13
	05/04/2010	11,270	26.79	6.88	38	0.39
	08/25/2010	10,920	29.20	7.19	-51	0.43
	09/29/2010	10,540	28.29	6.71	18	0.22
	10/20/2010	8,343	26.90	7.10	-49	1.21
	11/11/2010	8,550	26.80	7.34	-26	0.48
MW-64-205	01/19/2010	15,350	26.40	7.05	-192	0.10
	02/10/2010	16,280	25.90	7.40	-81	0.10
	03/11/2010	16,670	25.19	7.24	-136	0.08
	05/04/2010	16,300	26.95	7.18	-168	0.43
	08/25/2010	15,810	28.90	7.58	-72	0.37
	09/29/2010	15,850	28.29	6.78	-109	0.06
	10/20/2010	14,910	27.00	6.99	-46	1.23
	11/11/2010	14,690	26.70	7.27	-56	0.22
MW-64-260	01/19/2010	15,710	26.30	6.97	-207	0.11
	02/10/2010	16,400	25.90	7.23	-205	0.10
	03/11/2010	16,580	25.45	7.17	-224	0.09
	05/04/2010	16,120	27.09	7.18	-194	0.39
	08/25/2010	15,850	29.20	8.09	-205	0.34
	09/29/2010	15,910	28.40	6.74	-176	0.05
	10/20/2010	14,840	27.00	6.91	-144	1.33
	11/11/2010	14,520	26.70	7.22	-163	0.22

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Location	Sampling Date	Specific Conductance (µS/cm)	Temperature (°C)	pH	ORP (mV)	Dissolved Oxygen (mg/L)
Monitoring Wells						
OW-3D	12/08/2010	8,923	30.83	8.19	-106	0.45
OW-3M	12/08/2010	5,734	30.34	8.17	-101	0.99
OW-3S	12/08/2010	1,646	29.92	7.91	-49	8.91
PGE-7BR	03/16/2010	20,170	31.12	9.22	-271	0.11
	12/09/2010	20,390	30.88	7.26	-246	0.15
PGE-8 [1]	04/08/2010	21,550	32.80	8.25	-270	0.07
	02/10/2011	20,847	30.93	8.02	-333	0.18
Park Moabi-3	12/10/2010	1,299	29.44	7.57	48	3.97
Park Moabi-4	12/10/2010	1,964	29.31	7.44	40	2.20
TW-1	03/15/2010	7,520	28.67	7.22	50	2.68
	05/05/2010	7,448	29.82	7.40	31	2.62
	09/28/2010	7,130	29.74	7.30	2	2.00
	12/09/2010	7,334	29.62	7.36	29	1.99
TW-2D	12/15/2010	9,371	25.17	7.21	235	3.52
TW-2S	12/15/2010	2,548	27.86	7.55	198	6.69
TW-4	12/13/2010	21,710	28.99	7.44	83	0.06
TW-5	12/10/2010	14,470	29.13	7.69	63	0.25
Shoreline Surface Water Station						
R-28	01/19/2010	977	11.40	7.30	266	10.53
	04/05/2010	984	16.39	8.28	63	9.18
	07/07/2010	947	21.90	8.57	19	8.93
	10/12/2010	960	22.00	8.23	198	10.18
	12/21/2010	967	13.60	8.35	190	
R63	01/19/2010	1,012	11.56	8.31	260	12.97
	04/05/2010	987	15.88	8.28	88	9.48
	07/07/2010	946	21.60	8.65	-17	8.74
	10/12/2010	958	21.60	8.25	203	10.11
	12/21/2010	983	13.50	8.19	191	
RRB	01/20/2010	1,009	11.48	7.74	218	7.49
	04/06/2010	995	14.92	7.31	183	8.00
	07/08/2010	952	21.60	8.37	-3	8.08
	10/13/2010	978	20.10	8.02	181	8.04
	12/22/2010	3,310	14.90	7.24	85	4.52
Other Surface Water Monitoring Locations						
SW1	01/20/2010	1,006	11.42	7.87	239	8.58
	04/06/2010	1,044	16.72	7.77	80	7.07
	07/08/2010	1,033	28.80	8.04	22	5.20
	10/12/2010	980	20.50	7.69	165	6.43

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Location	Sampling Date	Specific Conductance (µS/cm)	Temperature (°C)	pH	ORP (mV)	Dissolved Oxygen (mg/L)
Other Surface Water Monitoring Locations						
SW1	12/21/2010	988	13.70	7.97	198	
SW2	01/20/2010	1,065	10.43	7.41	231	5.48
	04/06/2010	1,169	15.74	7.56	108	7.83
	07/08/2010	1,004	24.10	8.05	22	4.85
	10/12/2010	999	21.20	7.74	188	6.70
	12/21/2010	994	13.50	7.37	201	
In-Channel Surface Water Station						
C-BNS-D	01/19/2010	992	11.30	8.28	266	12.11
	04/05/2010	979	15.62	8.28	77	9.84
	07/07/2010	915	21.50	8.53	-8	8.31
	10/12/2010	975	22.60	8.20	192	8.80
	12/21/2010	956	13.90	8.36	188	
C-CON-D	01/20/2010	976	11.17	8.24	229	10.30
C-CON-S	01/20/2010	975	11.02	8.18	232	10.61
C-CON-D	04/06/2010	981	14.57	7.96	137	9.27
C-CON-S	04/06/2010	983	14.36	8.07	126	9.65
C-CON-D	07/08/2010	946	21.50	8.70	-6	8.77
C-CON-S	07/08/2010	949	21.20	8.71	-4	8.70
C-CON-D	10/13/2010	963	21.40	8.21	167	8.21
C-CON-S	10/13/2010	963	21.40	8.21	174	8.28
C-CON-D	12/22/2010	947	13.40	7.63	174	10.07
C-CON-S	12/22/2010	934	13.40	7.56	183	11.10
C-I-3-D	01/19/2010	992	11.29	8.31	253	13.41
C-I-3-S	01/19/2010	992	11.17	8.22	262	12.20
C-I-3-D	04/05/2010	979	14.82	8.22	90	9.76
C-I-3-S	04/05/2010	979	14.77	8.43	88	9.77
C-I-3-D	07/07/2010	945	21.50	8.58	-26	8.70
C-I-3-S	07/07/2010	947	21.00	8.57	-20	8.94
C-I-3-D	10/12/2010	955	22.00	8.20	193	9.27
C-I-3-S	10/12/2010	961	21.90	8.20	199	9.20
C-I-3-D	12/20/2010	956	14.00	8.34	191	
C-I-3-S	12/20/2010	952	13.80	8.36	191	
C-MAR-D	01/19/2010	1,910	11.83	7.76	287	10.06
C-MAR-S	01/19/2010	1,915	11.94	7.79	286	10.07
C-MAR-D	04/05/2010	1,158	17.85	7.49	86	5.48
C-MAR-S	04/05/2010	1,160	17.88	7.61	60	6.02
C-MAR-D	07/07/2010	1,051	26.90	7.61	6	4.11
C-MAR-S	07/07/2010	1,051	27.00	7.87	5	3.63

Table D-7
Field Water Quality Measurements, January 2010 through December 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide
Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Location	Sampling Date	Specific Conductance (µS/cm)	Temperature (°C)	pH	ORP (mV)	Dissolved Oxygen (mg/L)
In-Channel Surface Water Station						
C-MAR-S	10/12/2010	998	22.40	7.87	180	8.00
C-MAR-D	12/21/2010	1,872	14.30	7.72	208	
C-NR1-D	01/20/2010	973	11.16	8.26	242	10.22
C-NR1-S	01/20/2010	974	11.12	8.27	245	9.82
C-NR1-D	04/06/2010	983	14.61	8.23	131	9.11
C-NR1-S	04/06/2010	984	14.61	8.00	152	9.00
C-NR1-D	07/08/2010	947	21.10	8.67	2	8.48
C-NR1-S	07/08/2010	947	21.10	8.64	7	8.78
C-NR1-D	10/13/2010	964	21.50	8.21	172	8.07
C-NR1-S	10/13/2010	965	21.60	8.21	178	7.60
C-NR1-D	12/22/2010	933	13.40	7.72	189	10.13
C-NR1-S	12/22/2010	933	13.40	8.06	173	10.10
C-NR3-D	01/20/2010	969	11.18	8.27	253	10.02
C-NR3-S	01/20/2010	970	11.06	8.23	255	9.86
C-NR3-D	04/06/2010	983	15.02	8.22	89	8.80
C-NR3-S	04/06/2010	983	14.89	8.12	91	8.66
C-NR3-D	07/08/2010	946	21.30	8.63	10	8.64
C-NR3-S	07/08/2010	945	21.30	8.65	5	8.40
C-NR3-D	10/13/2010	966	21.90	8.21	175	7.19
C-NR3-S	10/13/2010	965	21.80	8.20	171	7.73
C-NR3-D	12/22/2010	933	13.40	8.25	171	9.61
C-NR3-S	12/22/2010	933	13.30	8.27	175	10.04
C-NR4-D	01/20/2010	969	11.13	8.24	257	9.97
C-NR4-S	01/20/2010	969	11.01	8.17	262	10.26
C-NR4-D	04/06/2010	984	15.18	8.12	89	9.02
C-NR4-S	04/06/2010	984	15.03	8.13	87	9.19
C-NR4-D	07/08/2010	947	21.00	8.66	-2	8.46
C-NR4-S	07/08/2010	948	20.10	8.65	2	8.34
C-NR4-D	10/13/2010	965	21.90	8.19	174	7.17
C-NR4-S	10/13/2010	969	21.90	8.18	180	7.50
C-NR4-D	12/22/2010	933	13.40	8.28	181	9.93
C-NR4-S	12/22/2010	934	13.40	8.28	183	9.86
C-R22A-D	01/19/2010	996	11.32	8.29	273	12.67
C-R22A-S	01/19/2010	996	11.35	8.28	274	12.04
C-R22A-D	04/05/2010	982	15.60	8.23	83	9.91
C-R22A-S	04/05/2010	982	15.38	8.24	84	9.65
C-R22A-D	07/07/2010	954	21.80	8.59	-20	9.11
C-R22A-S	07/07/2010	948	21.70	8.61	-9	8.79

Table D-7
Field Water Quality Measurements, January 2010 through December 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide
Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Location	Sampling Date	Specific Conductance (µS/cm)	Temperature (°C)	pH	ORP (mV)	Dissolved Oxygen (mg/L)
In-Channel Surface Water Station						
C-R22A-D	10/12/2010	965	22.50	8.20	189	8.68
C-R22A-S	10/12/2010	965	22.10	8.21	188	8.63
C-R22A-D	12/21/2010	968	14.00	8.33	186	
C-R22A-S	12/21/2010	968	13.80	8.33	188	
C-R27-D	01/19/2010	993	11.27	8.27	276	11.93
C-R27-S	01/19/2010	993	11.30	8.28	278	11.86
C-R27-D	04/05/2010	981	15.62	8.21	89	9.60
C-R27-S	04/05/2010	981	15.65	8.27	78	9.43
C-R27-D	07/07/2010	945	21.60	8.54	-11	8.38
C-R27-S	07/07/2010	948	21.80	8.52	-9	8.41
C-R27-D	10/12/2010	977	22.40	8.19	198	8.48
C-R27-S	10/12/2010	962	22.20	8.18	199	8.51
C-R27-D	12/21/2010	957	13.90	8.36	190	
C-R27-S	12/21/2010	957	13.80	8.36	190	
C-TAZ-D	01/19/2010	992	11.10	7.20	287	11.81
C-TAZ-S	01/19/2010	993	11.11	7.64	273	10.54
C-TAZ-D	04/05/2010	977	15.18	8.47	58	10.95
C-TAZ-S	04/05/2010	976	15.02	8.17	80	10.57
C-TAZ-D	07/07/2010	945	21.50	8.51	-36	11.50
C-TAZ-S	07/07/2010	946	21.20	8.59	-33	9.58
C-TAZ-D	10/12/2010	978	22.10	8.19	186	9.61
C-TAZ-S	10/12/2010	961	21.90	8.21	191	9.80
C-TAZ-D	12/21/2010	974	13.90	8.27	192	
C-TAZ-S	12/21/2010	956	13.80	8.32	192	

NOTES:

µS/cm microSiemens per centimeter
°C degree celsius
ORP oxidation reduction potential, results rounded off to whole point
mV millivolts
mg/L milligrams per liter
(---) data not collected, not available, or rejected

[1] Data collected February 2011 due to field logistical issues.

All field measurements were collected during groundwater and surface water sampling using a Horiba U-22 water quality meter, a YSI multi-parameter water quality meter, or an Orion pH/ORP meter.

Appendix E
Hydraulic Data for Interim Measures Reporting Period

Table E-1
Average Monthly and Quarterly Groundwater Elevations, November 2010 through December 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide
Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	November 2010	December 2010	Quarter Average	Days in Quarter Average
I-3	River Station	454.81	453.86	454.33	61
MW-20-070	Shallow Zone	453.94	453.35	453.64	61
MW-20-100	Middle Zone	453.50	452.83	453.16	61
MW-20-130	Deep Wells	453.10	452.47	452.78	61
MW-22	Shallow Zone	455.04	454.54	454.78	61
MW-25	Shallow Zone	455.65	455.22	455.43	61
MW-26	Shallow Zone	INC	455.11	INC	28
MW-27-020	Shallow Zone	454.77	453.85	454.30	61
MW-27-060	Middle Zone	454.66	453.80	454.22	61
MW-27-085	Deep Wells	454.79	453.90	454.34	61
MW-28-025	Shallow Zone	454.77	453.86	454.31	61
MW-28-090	Deep Wells	INC	453.99	INC	30
MW-30-050	Middle Zone	454.57	453.78	454.17	61
MW-31-060	Shallow Zone	454.77	454.11	454.44	61
MW-31-135	Deep Wells	454.14	453.46	453.79	61
MW-32-035	Shallow Zone	454.74	454.01	454.37	61
MW-33-040	Shallow Zone	454.92	454.17	454.54	61
MW-33-090	Middle Zone	455.05	454.33	454.69	61
MW-33-150	Deep Wells	455.07	454.35	454.70	61
MW-34-055	Middle Zone	454.81	453.95	454.37	61
MW-34-080	Deep Wells	454.79	453.92	454.35	61
MW-34-100	Deep Wells	454.59	453.77	454.17	61
MW-35-060	Shallow Zone	455.30	454.53	454.91	61
MW-35-135	Deep Wells	455.79	455.12	455.45	61
MW-36-020	Shallow Zone	454.76	453.95	454.35	61
MW-36-040	Shallow Zone	454.64	453.82	454.22	61
MW-36-050	Middle Zone	454.61	453.77	454.18	61
MW-36-070	Middle Zone	454.52	453.69	454.10	61
MW-36-090	Deep Wells	453.81	453.04	453.42	61
MW-36-100	Deep Wells	454.13	453.27	453.69	61
MW-39-040	Shallow Zone	454.48	453.70	454.08	61
MW-39-050	Middle Zone	454.34	453.54	453.93	61
MW-39-060	Middle Zone	454.20	453.40	453.80	61
MW-39-070	Middle Zone	453.85	453.13	453.49	61
MW-39-080	Deep Wells	454.02	453.25	453.63	61
MW-39-100	Deep Wells	454.83	INC	INC	15
MW-42-030	Shallow Zone	454.45	453.63	454.04	61
MW-42-065	Middle Zone	454.67	453.89	454.28	61
MW-43-025	Shallow Zone	454.70	453.77	454.23	61
MW-43-090	Deep Wells	455.12	454.21	454.66	61
MW-44-070	Middle Zone	454.70	453.84	454.26	61
MW-44-115	Deep Wells	454.38	453.61	453.99	61
MW-44-125	Deep Wells	454.87	453.97	454.41	61
MW-45-095a	Deep Wells	453.67	452.77	453.21	61
MW-46-175	Deep Wells	454.86	454.20	454.53	61
MW-47-055	Shallow Zone	455.31	454.58	454.94	61
MW-47-115	Deep Wells	455.36	454.68	455.01	61
MW-49-135	Deep Wells	455.44	INC	INC	36

Table E-1
Average Monthly and Quarterly Groundwater Elevations, November 2010 through December 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide
Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	November 2010	December 2010	Quarter Average	Days in Quarter Average
MW-50-095	Middle Zone	455.04	454.43	454.73	61
MW-51	Middle Zone	455.33	454.87	455.09	61
MW-54-085	Deep Wells	455.08	454.21	454.64	61
MW-54-140	Deep Wells	455.26	454.55	454.90	61
MW-54-195	Deep Wells	455.63	454.99	455.31	61
MW-55-045	Middle Zone	455.96	INC	INC	35
MW-55-120	Deep Wells	456.18	INC	INC	35
MW-59-100	Shallow Zone	456.54	456.21	456.37	61
PT2D	Deep Wells	453.58	452.85	453.21	61
PT5D	Deep Wells	453.83	453.09	453.46	61
PT6D	Deep Wells	454.09	453.34	453.71	61
RRB	River Station	455.06	INC	454.82	50

NOTES:

Averages reported in ft AMSL (feet above mean sea level).

Quarterly Average = average of daily averages over reporting period

INC = Data incomplete, less than 75% of data available over reporting period due to rejection or field equipment malfunction

Table E-2
Average, Minimum, and Maximum Groundwater Elevations, January 2010 through December 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide
Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Minimum[a] (ft AMSL)	Maximum[a] (ft AMSL)	Average[a] (ft AMSL)	Number of Days Reporting Data
I-3	River Station	452.42	457.17	455.26	365
MW-20-070	Shallow Zone	452.39	455.74	454.12	353
MW-20-100	Middle Zone	451.86	455.93	453.67	365
MW-20-130	Deep Wells	451.45	456.15	453.42	339
MW-22	Shallow Zone	453.75	456.57	455.12	280
MW-25	Shallow Zone	454.14	456.45	455.57	365
MW-26	Shallow Zone	453.91	456.15	455.31	330
MW-27-020	Shallow Zone	452.54	456.81	455.12	365
MW-27-060	Middle Zone	452.48	456.75	455.06	365
MW-27-085	Deep Wells	452.73	456.89	455.20	365
MW-28-025	Shallow Zone	452.44	456.87	455.15	365
MW-28-090	Deep Wells	452.59	456.96	455.28	335
MW-30-050	Middle Zone	452.47	456.48	454.88	365
MW-31-060	Shallow Zone	453.07	456.15	454.94	365
MW-31-135	Deep Wells	452.50	456.22	454.37	365
MW-32-035	Shallow Zone	452.96	456.44	455.18	310
MW-33-040	Shallow Zone	452.98	456.50	455.13	365
MW-33-090	Middle Zone	453.10	456.72	455.31	365
MW-33-150	Deep Wells	453.32	456.75	455.36	365
MW-34-055	Middle Zone	452.55	456.94	455.21	365
MW-34-080	Deep Wells	452.53	456.89	455.13	365
MW-34-100	Deep Wells	452.53	456.93	455.04	365
MW-35-060	Shallow Zone	453.43	457.09	455.65	365
MW-35-135	Deep Wells	454.00	457.09	455.91	365
MW-36-020	Shallow Zone	452.65	456.55	455.02	365
MW-36-040	Shallow Zone	452.55	456.58	454.99	365
MW-36-050	Middle Zone	452.48	456.57	454.96	365
MW-36-070	Middle Zone	452.38	456.49	454.88	365
MW-36-090	Deep Wells	451.78	456.37	454.14	365
MW-36-100	Deep Wells	452.13	456.90	454.46	365
MW-39-040	Shallow Zone	452.47	456.42	454.80	365
MW-39-050	Middle Zone	452.26	456.57	454.50	331
MW-39-060	Middle Zone	452.19	456.26	454.47	365
MW-39-070	Middle Zone	452.02	456.28	454.14	365
MW-39-080	Deep Wells	452.10	456.38	454.17	331
MW-39-100	Deep Wells	452.63	457.00	455.00	319
MW-42-030	Shallow Zone	452.45	456.12	454.67	348
MW-42-065	Middle Zone	452.68	456.44	454.95	365
MW-43-025	Shallow Zone	452.48	456.92	455.15	365
MW-43-090	Deep Wells	452.92	457.36	455.58	365
MW-44-070	Middle Zone	452.45	456.80	455.06	365
MW-44-115	Deep Wells	452.25	456.51	454.67	365
MW-44-125	Deep Wells	452.38	457.29	455.01	365
MW-45-095a	Deep Wells	451.44	458.22	454.07	365
MW-46-175	Deep Wells	453.05	456.65	455.21	365
MW-47-055	Shallow Zone	453.49	456.82	455.35	277
MW-47-115	Deep Wells	453.62	456.75	455.49	323
MW-49-135	Deep Wells	453.54	457.17	455.78	341

Table E-2
Average, Minimum, and Maximum Groundwater Elevations, January 2010 through December 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide
Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Well ID	Aquifer Zone	Minimum[a] (ft AMSL)	Maximum[a] (ft AMSL)	Average[a] (ft AMSL)	Number of Days Reporting Data
MW-50-095	Middle Zone	453.41	456.32	455.11	310
MW-51	Middle Zone	453.87	456.13	455.26	360
MW-54-085	Deep Wells	452.91	457.20	455.63	308
MW-54-140	Deep Wells	453.44	457.10	455.45	303
MW-54-195	Deep Wells	453.86	457.25	455.89	352
MW-55-045	Middle Zone	454.97	457.27	456.31	323
MW-55-120	Deep Wells	455.06	457.34	456.43	341
MW-59-100	Shallow Zone	455.28	457.10	456.37	364
PT2D	Deep Wells	451.76	456.32	453.91	360
PT5D	Deep Wells	452.04	456.45	454.26	365
PT6D	Deep Wells	452.15	456.53	454.36	365
RRB	River Station	453.44	457.52	455.85	327

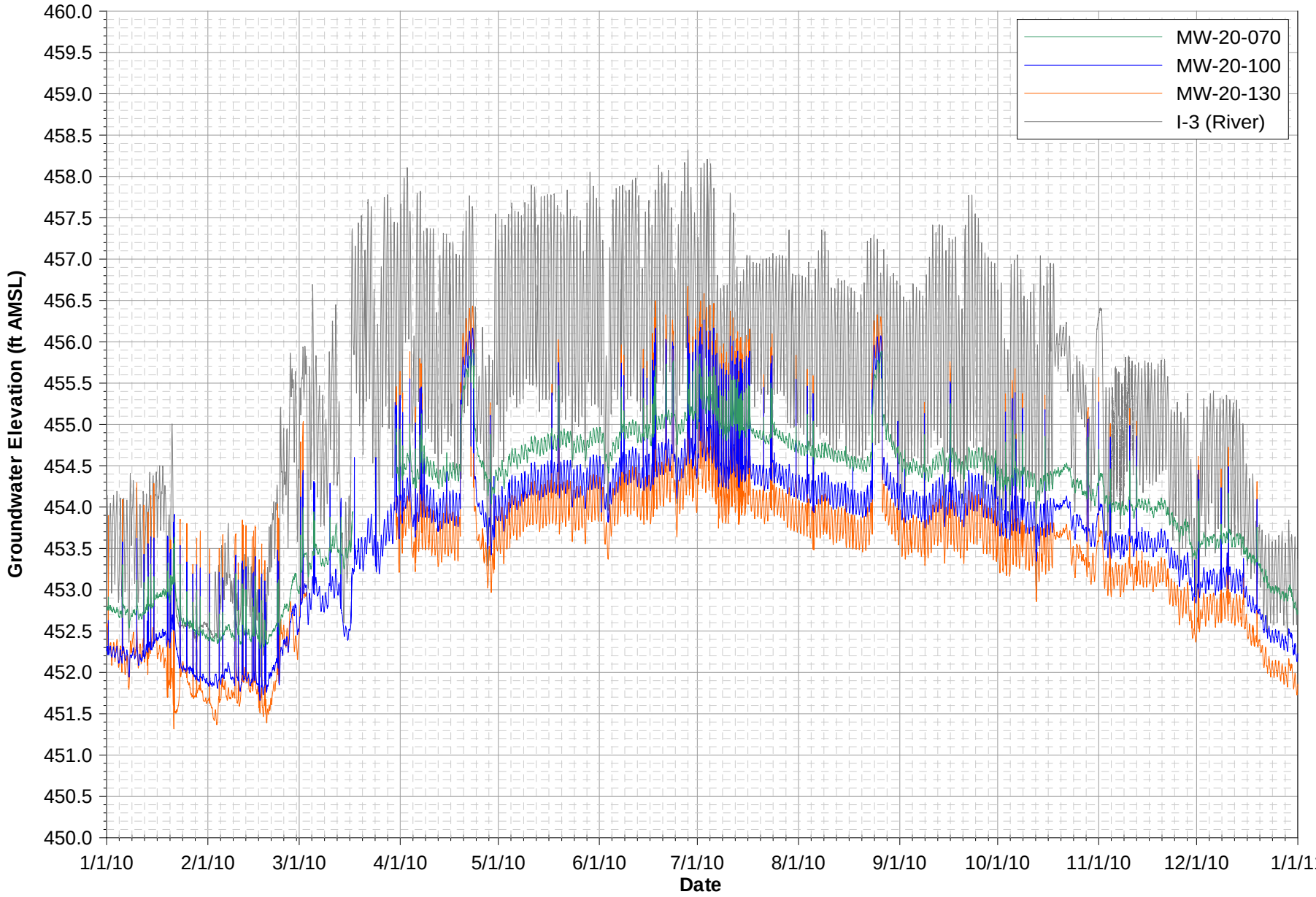
NOTES:

[a] minimium, maximum and average of daily groundwater elevation averages

Averages include data collected from 1/1/2010 through 12/31/2010

ft AMSL = feet above mean sea level

INC = Data incomplete, less than 75% of data available over reporting period due to rejection or field equipment malfunction



Notes:
Data subject to review.
MW-20-070 data unavailable from March 16, 2010 through March 30, 2010 due to transducer failure.
MW-20-130 data unavailable from March 3, 2010 through March 30, 2010 due to transducer failure.

FIGURE E-1A
MW-20 CLUSTER HYDROGRAPHS
FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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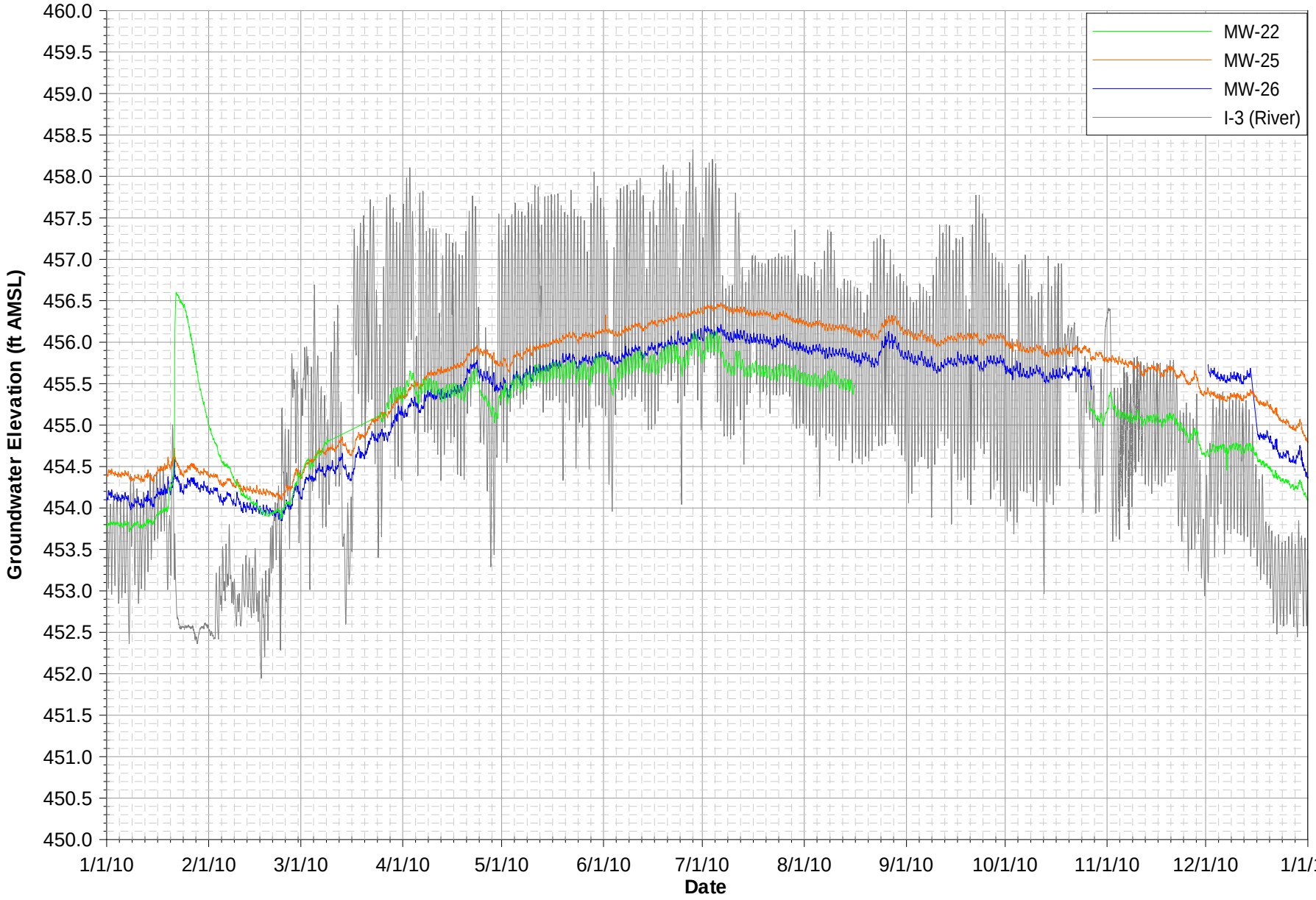

Notes:
Data subject to review.
MW-22 data unavailable from August 16, 2010 until October 26, 2010 due to transducer failure.
MW-26 data unavailable from October 27, 2010 until December 1, 2010 due to transducer failure.

FIGURE E-1B

MW-22, MW-25, AND MW-26 HYDROGRAPHS

FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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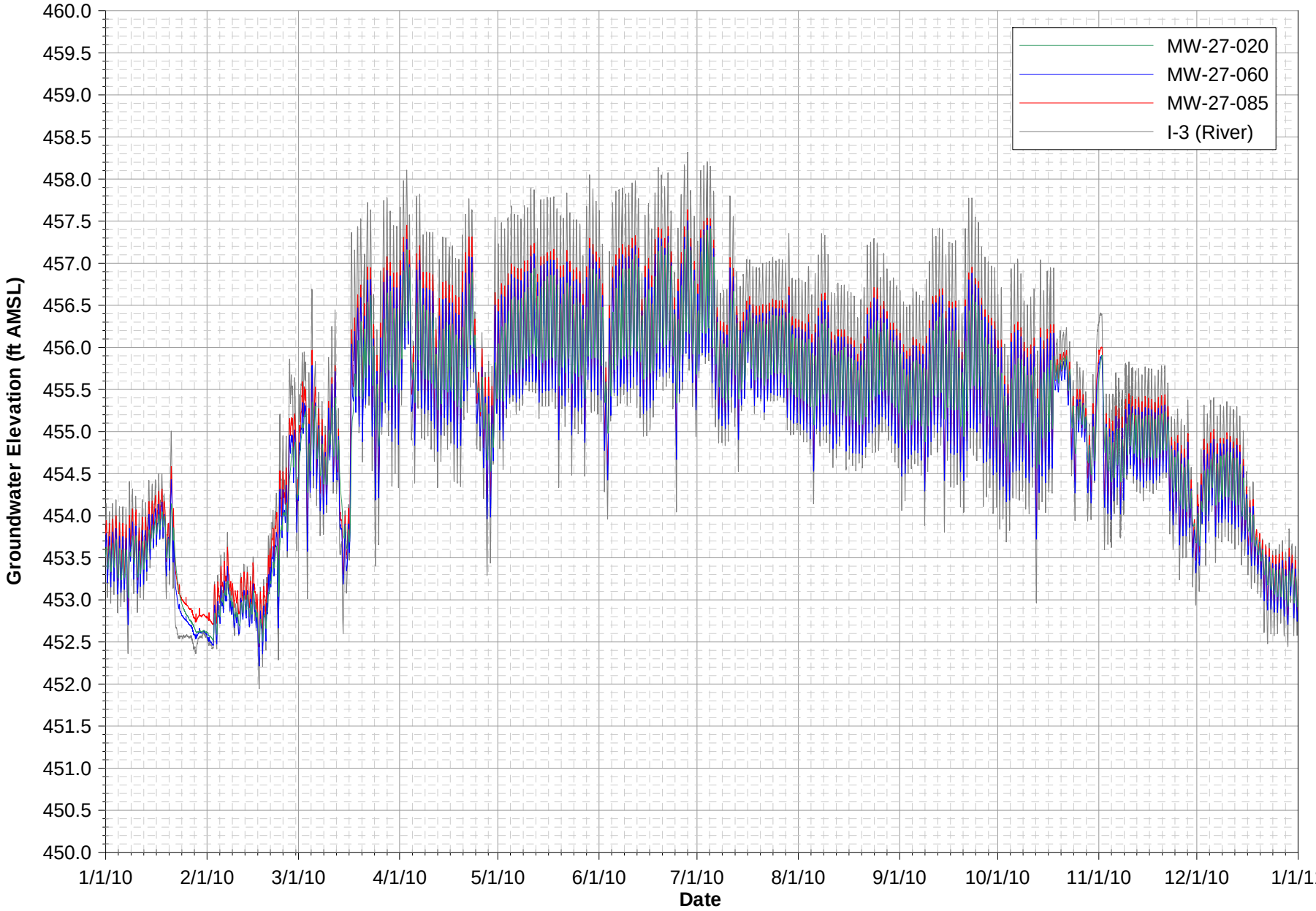


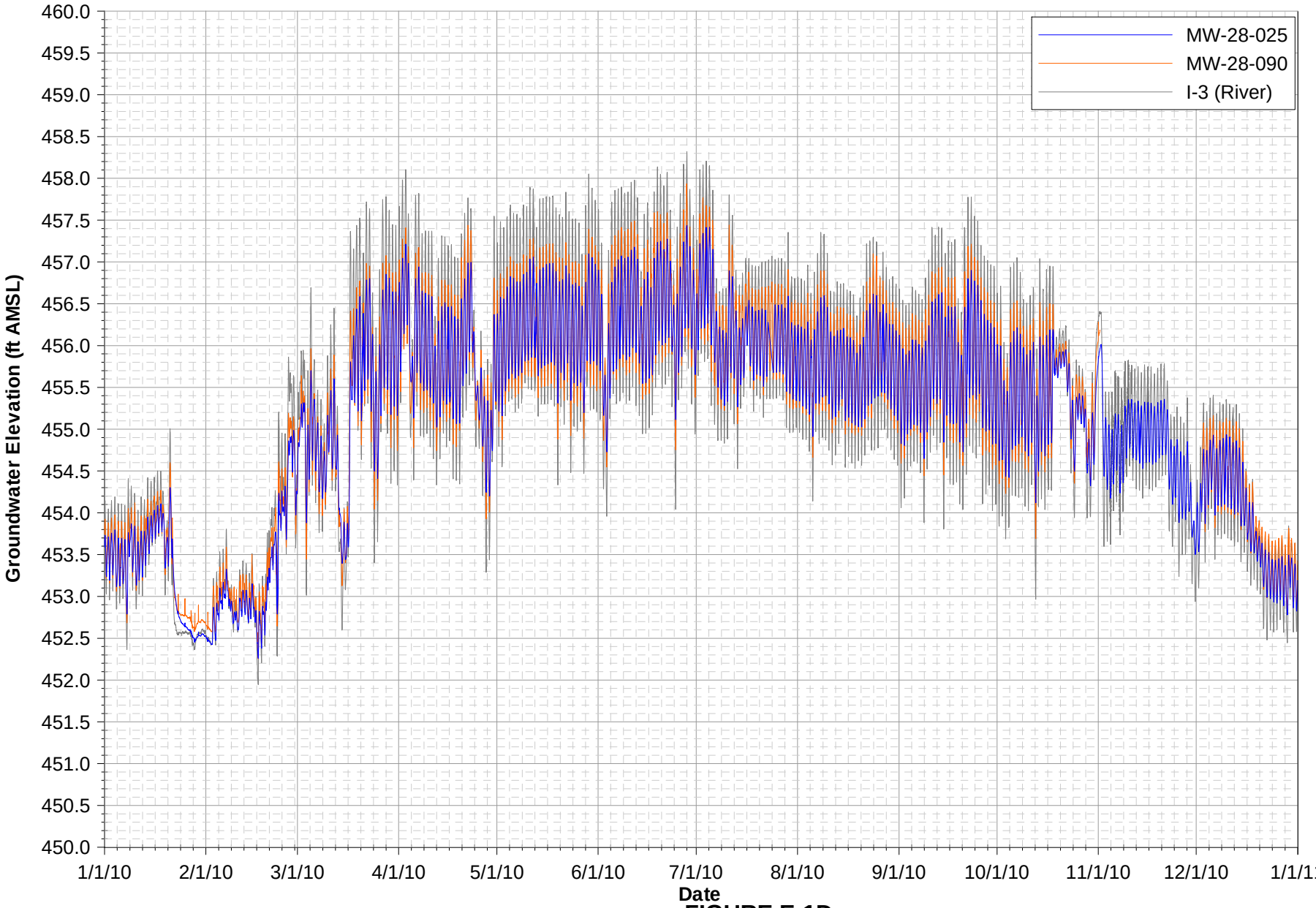
Notes:
Data subject to review.

FIGURE E-1C

MW-27 CLUSTER HYDROGRAPHS

FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL



Notes:
Data subject to review.
MW-28-025 data unavailable from November 1, 2010 through December 2, 2010 due to transducer failure.

FIGURE E-1D

MW-28 CLUSTER HYDROGRAPHS

FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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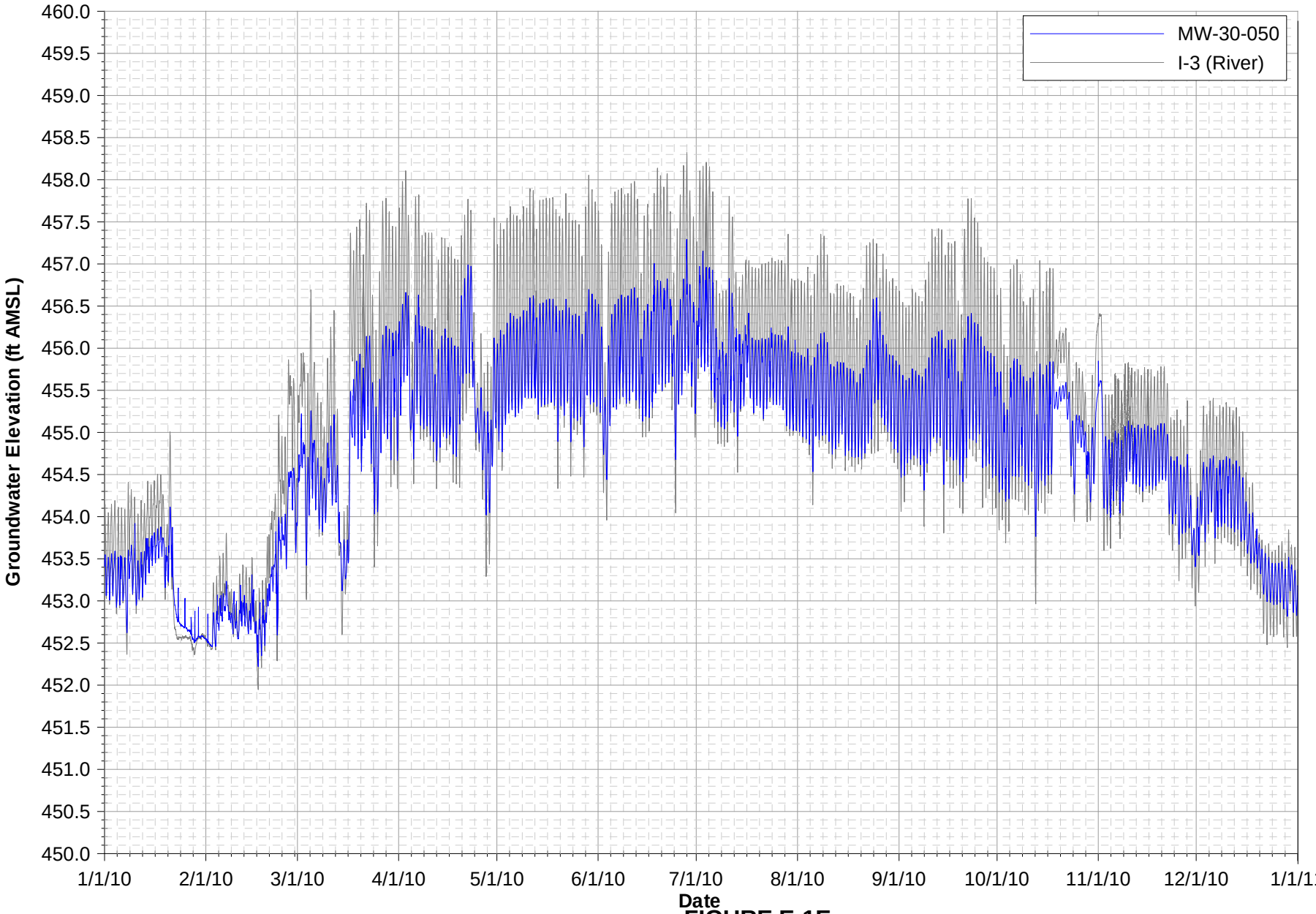

Notes:
Data subject to review.

FIGURE E-1E

MW-30-50 HYDROGRAPH

FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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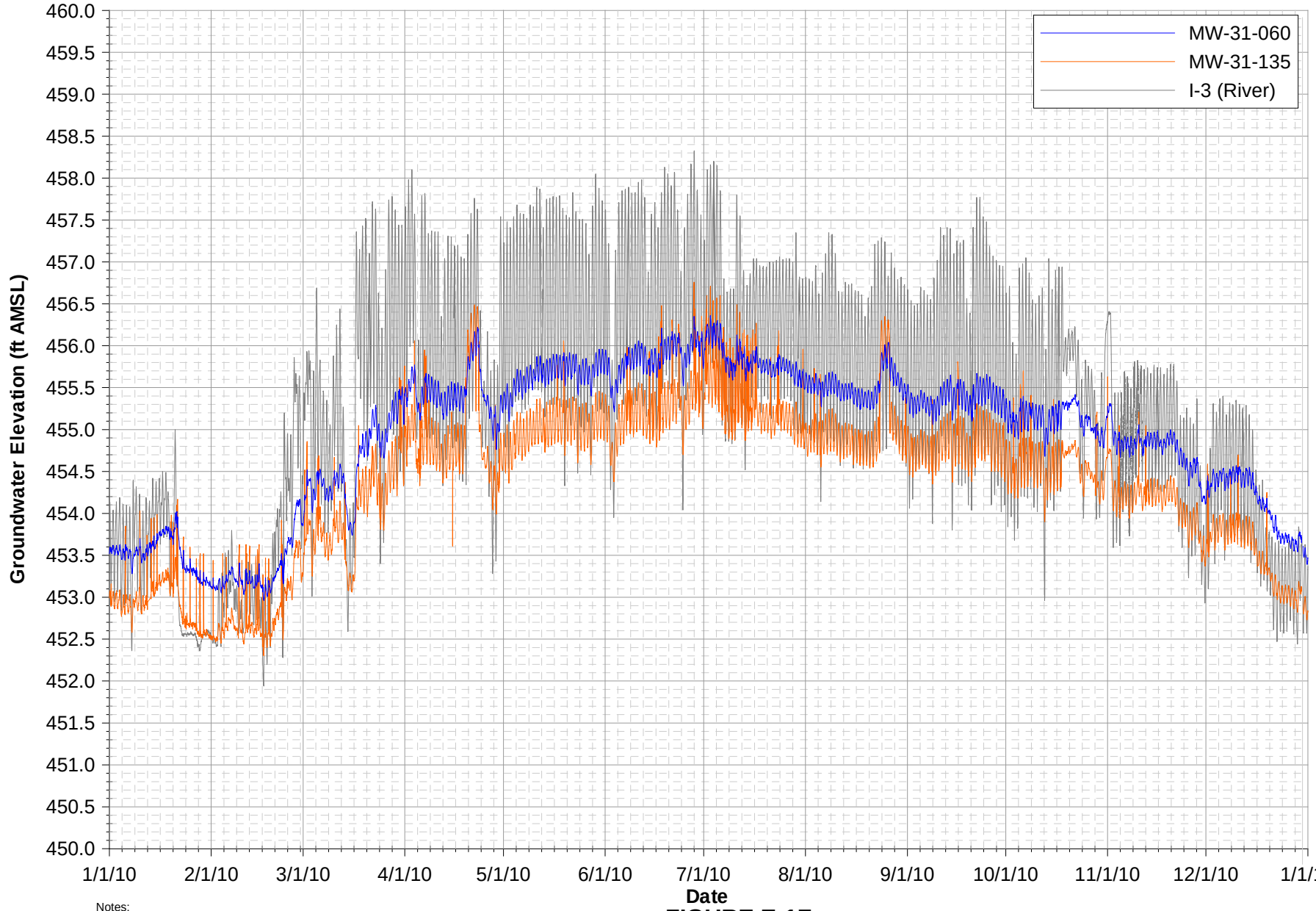

Notes:
Data subject to review.

FIGURE E-1F
MW-31 CLUSTER HYDROGRAPHS
FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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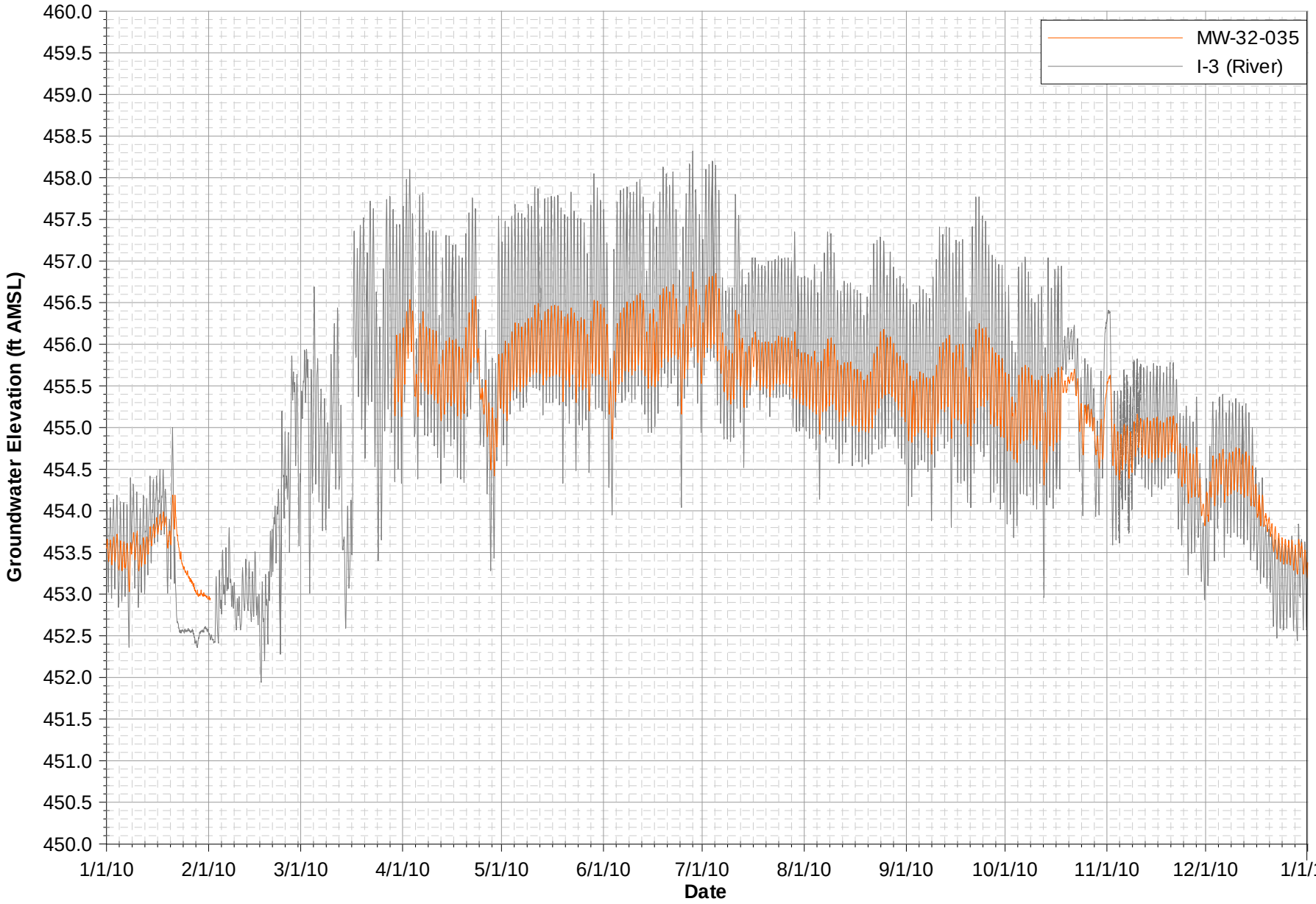
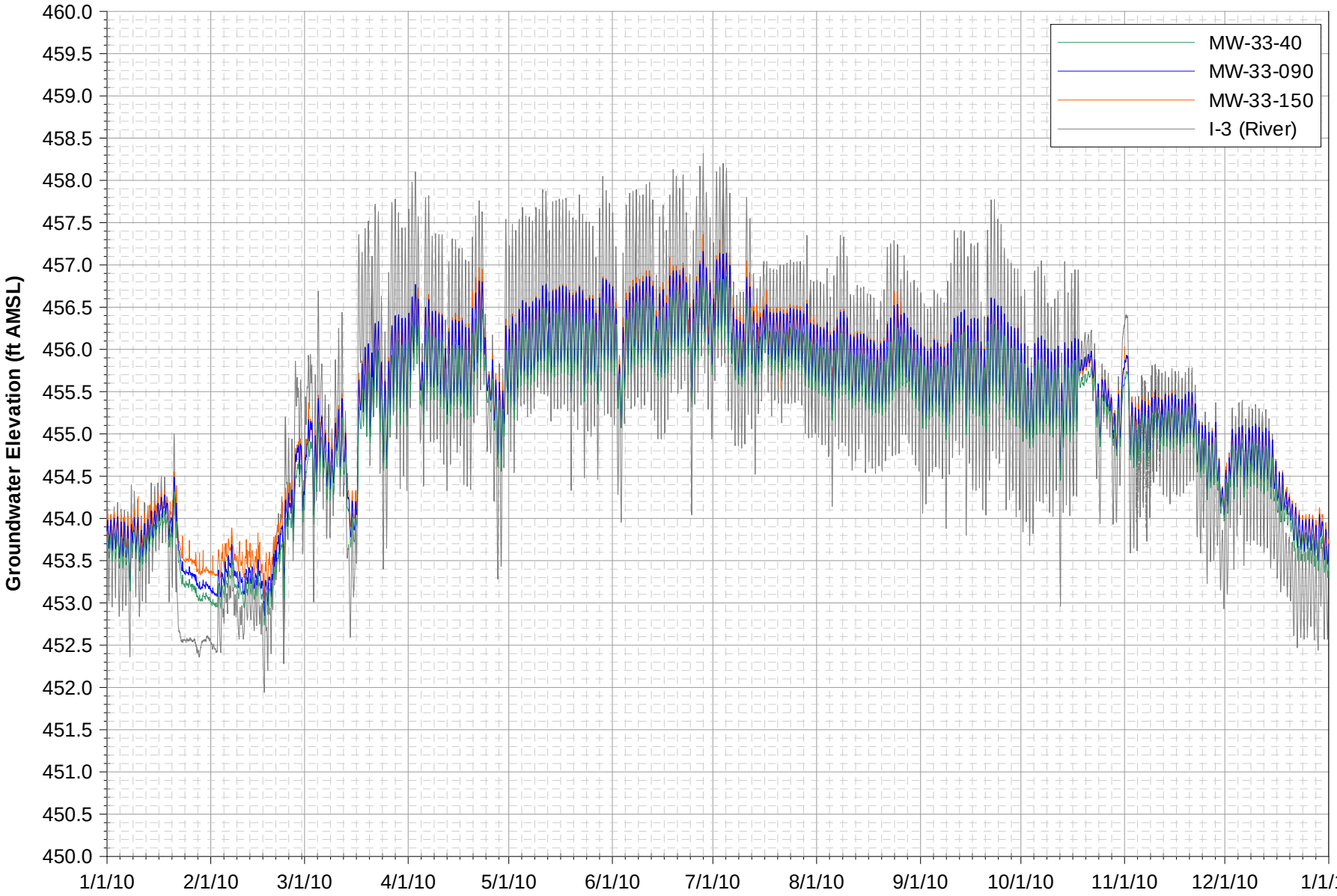


Notes:
Data subject to review.
MW-32-35 data unavailable from February 1, 2010 throughMarch 29, 2010 due to transducer failure.

FIGURE E-1G
MW-32 HYDROGRAPH
FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL



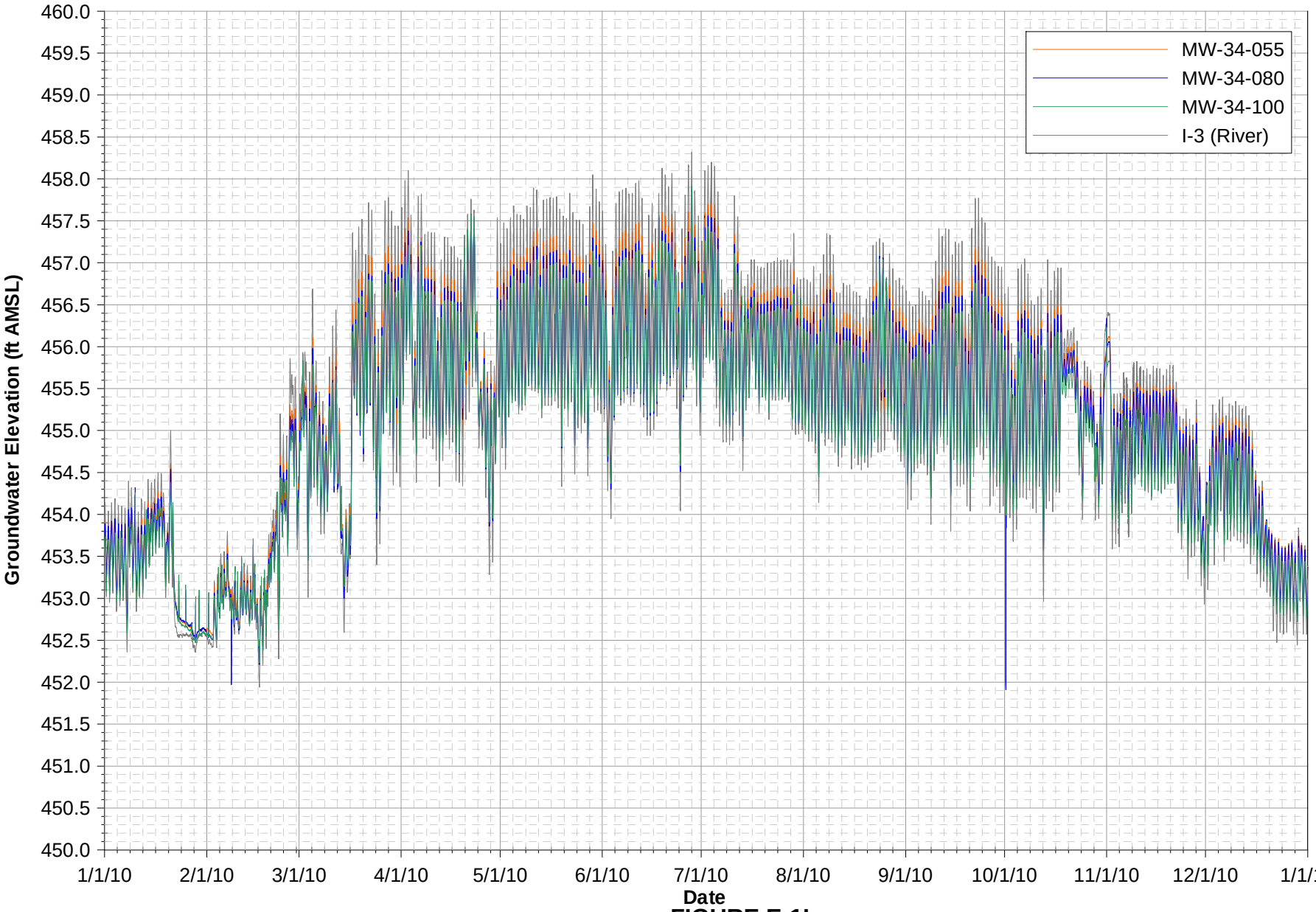
Notes:
Data subject to review.

FIGURE E-1H

MW-33 CLUSTER HYDROGRAPHS

FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL



Notes:
Data subject to review.

FIGURE E-1I

MW-34 CLUSTER HYDROGRAPHS

FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL

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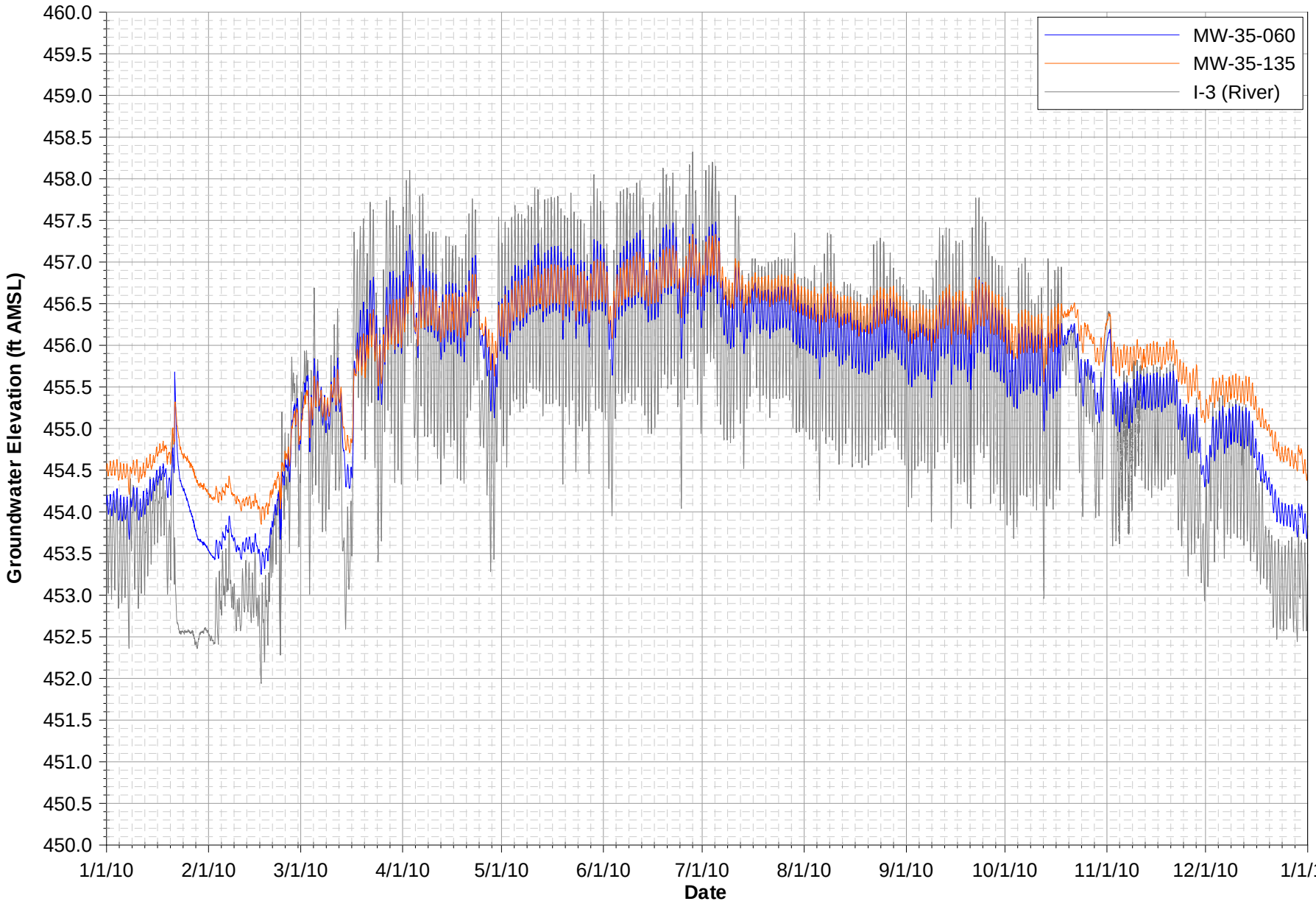
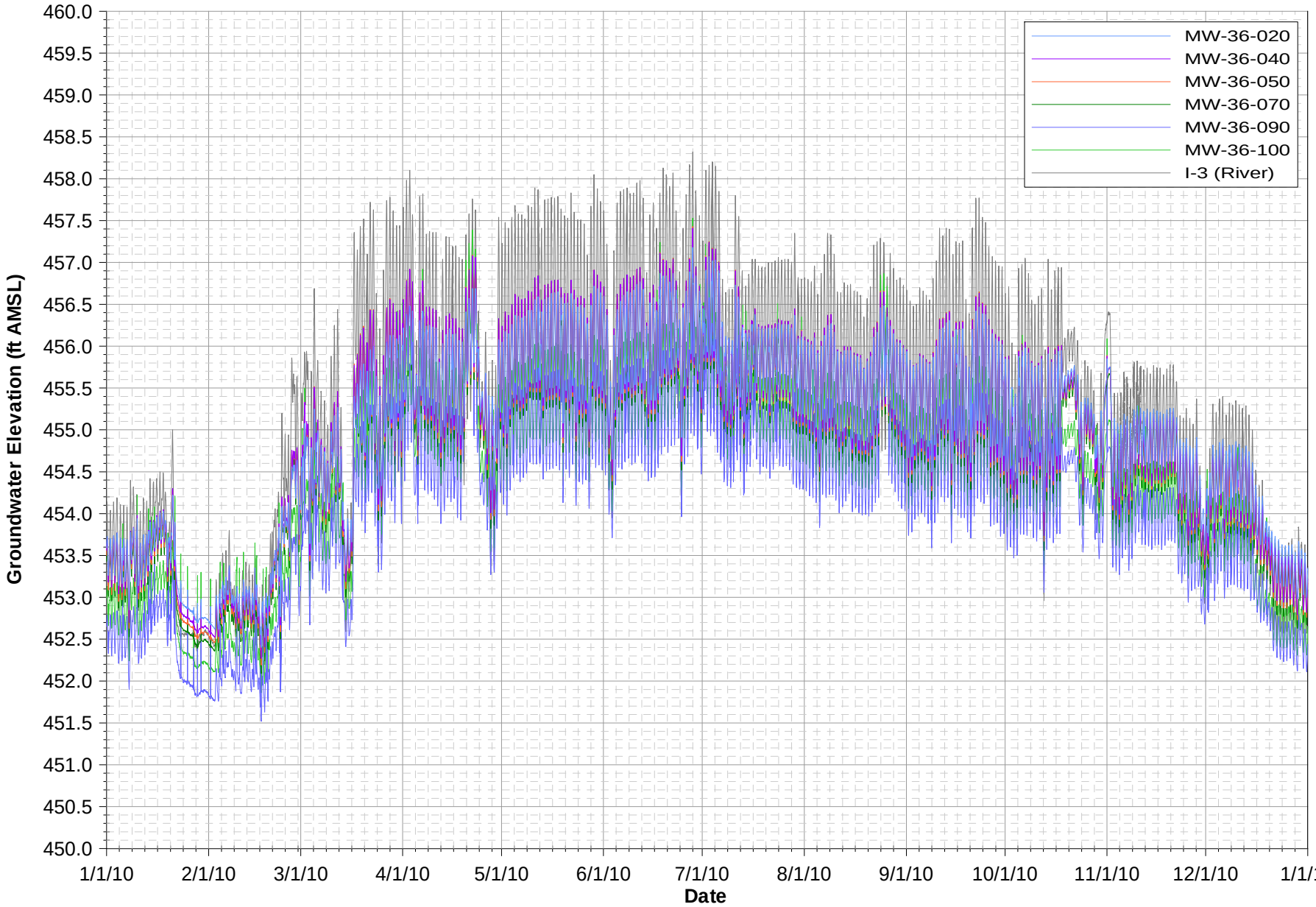


Notes:
Data subject to review.

FIGURE E-1J
MW-35 CLUSTER HYDROGRAPHS
FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL



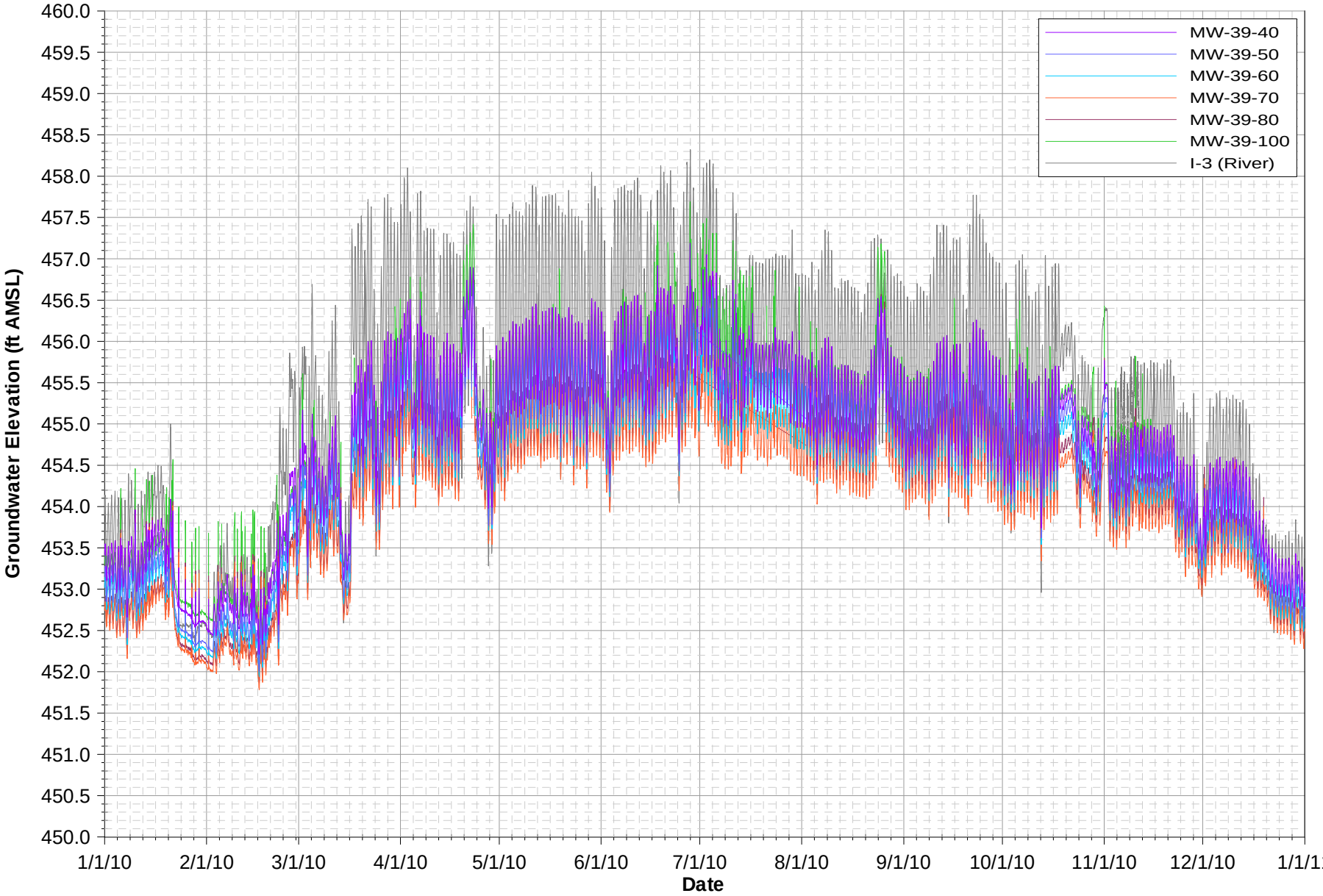
Notes:
Data subject to review.

FIGURE E-1K

MW-36 CLUSTER HYDROGRAPHS

FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL

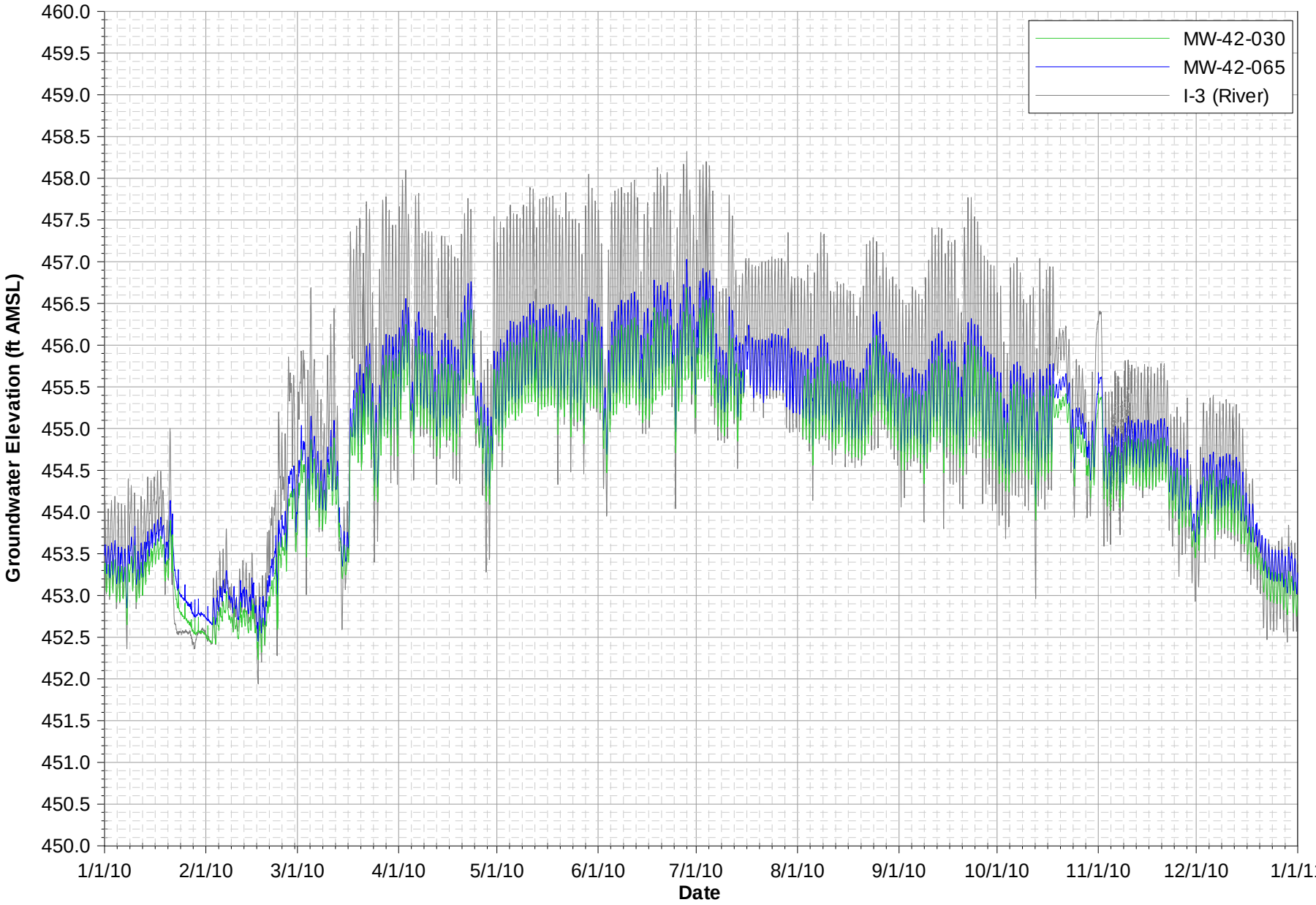


Notes:
Data subject to review.
MW-39-50 data unavailable from June 28, 2010 through August 2, 2010.
MW-39-80 data unavailable from June 28, 2010 through August 2, 2010.
MW-39-100 data unavailable from November 15, 2010 through December 31, 2010.

FIGURE E-1L
MW-39 CLUSTER HYDROGRAPHS

FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL

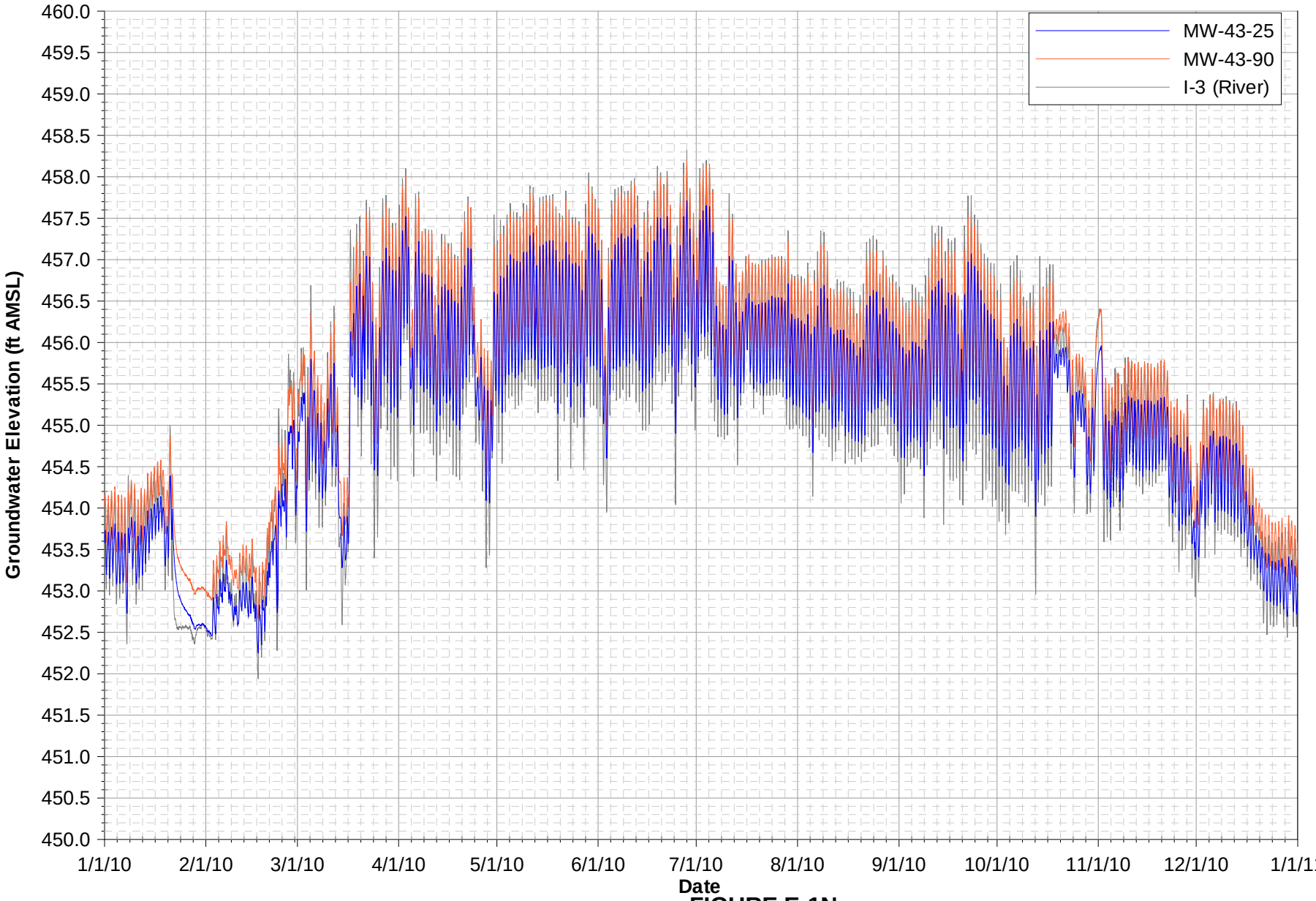


Notes:
Data subject to review.
MW-42-030 data unavailable from July 15, 2010 until August 2, 2010 due to transducer failure.

FIGURE E-1M
MW-42 CLUSTER HYDROGRAPHS

FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL



Notes:
Data subject to review.

FIGURE E-1N

MW-43 CLUSTER HYDROGRAPHS

FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL

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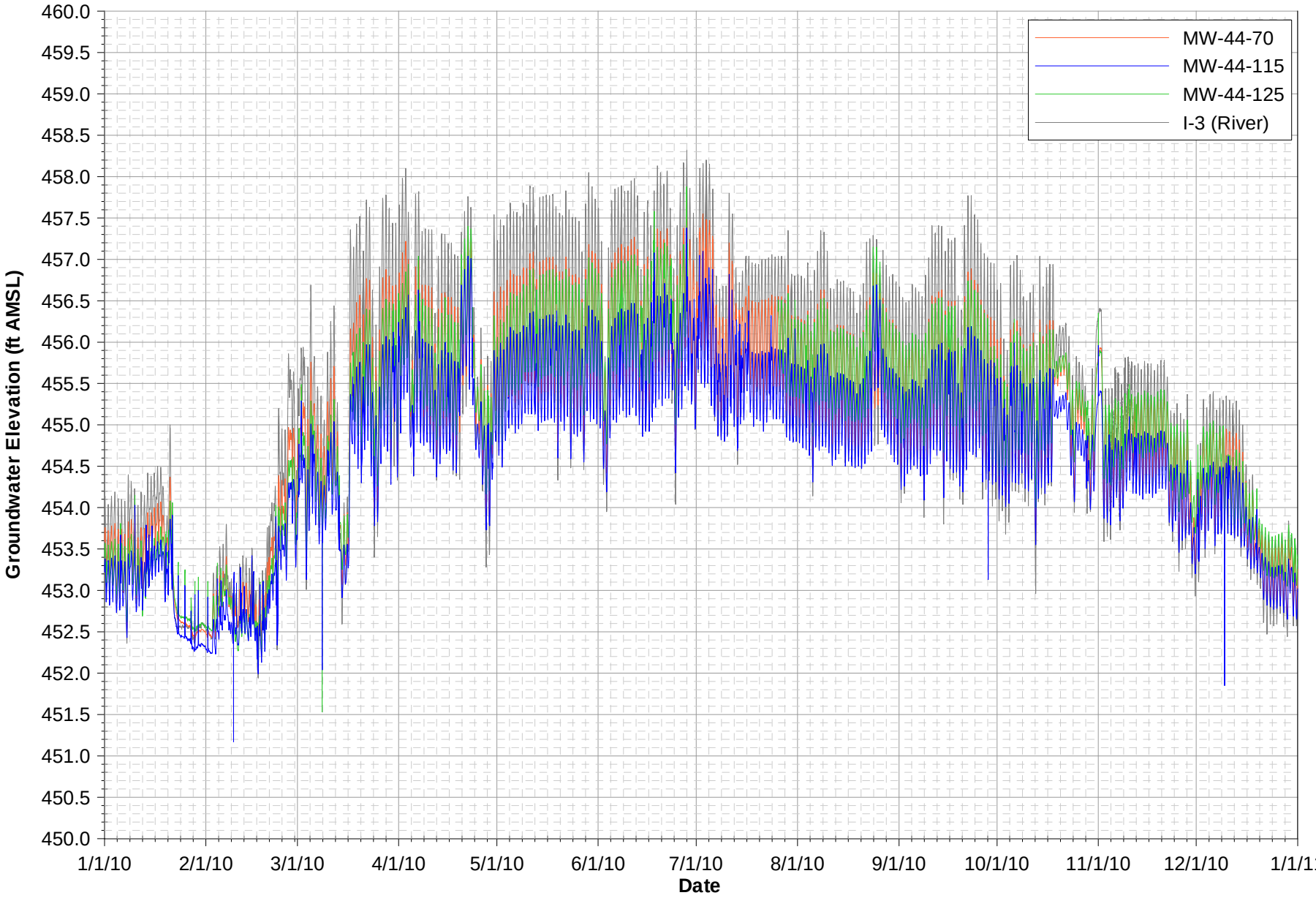


Notes:
Data subject to review.
MW-44-125 data unavailable from July 1, 2010 until July 26, 2010 due to transducer failure.

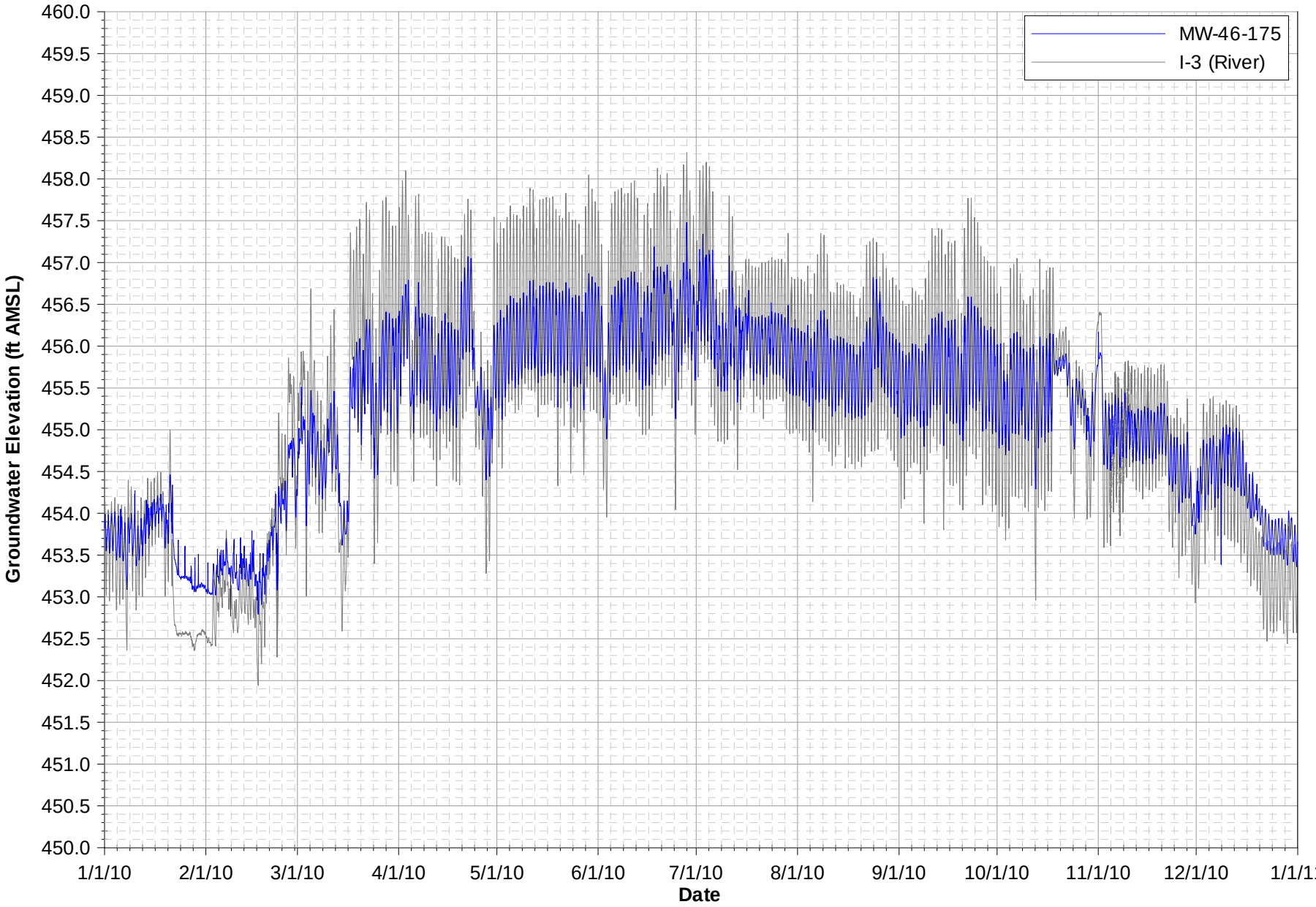
FIGURE E-1O
MW-44 CLUSTER HYDROGRAPHS
FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL

Notes:
Data subject to review.

FIGURE E-1P
MW-45-95a HYDROGRAPH
FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

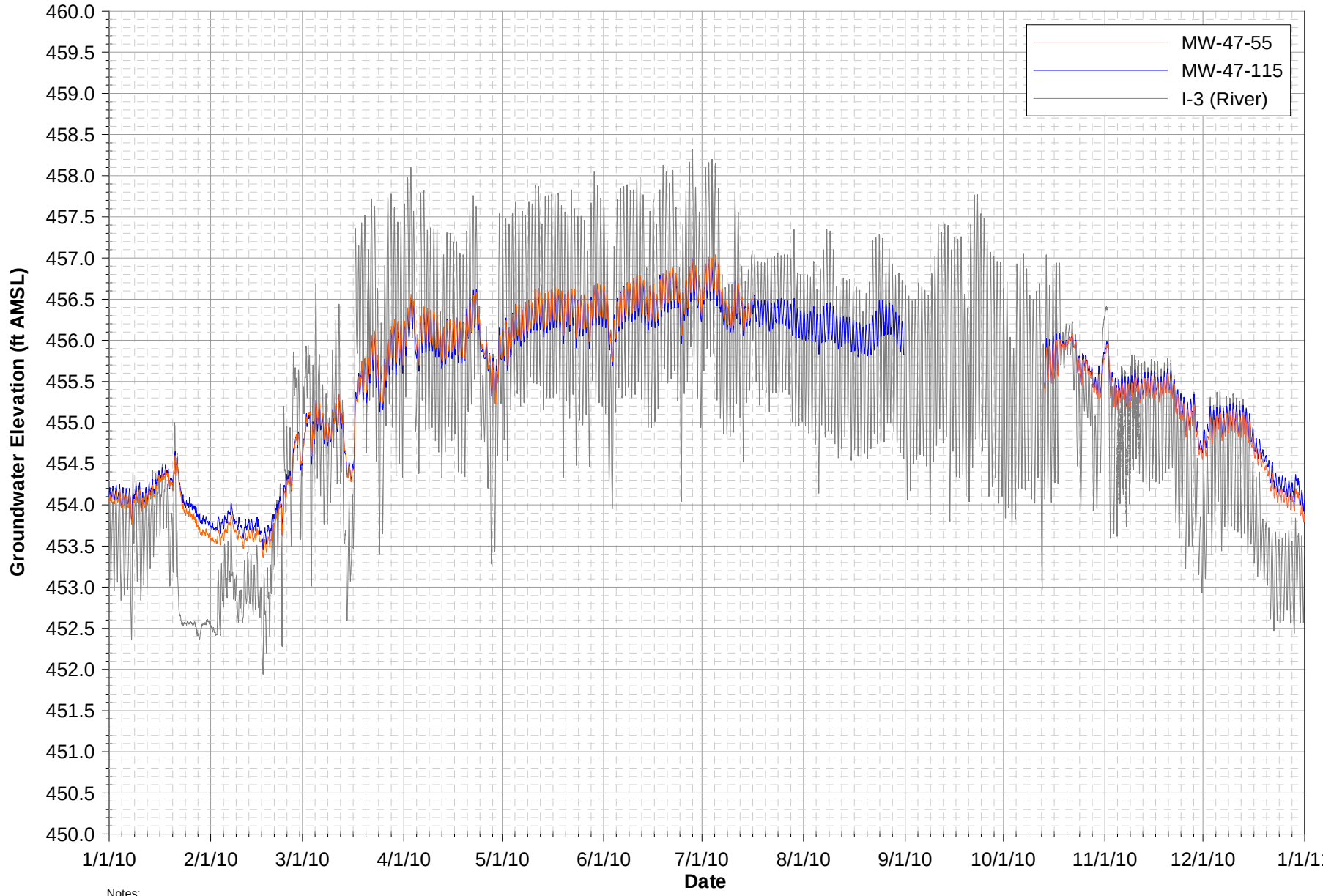
CH2MHILL



Notes:
Data subject to review.

FIGURE E-1Q
MW-46 HYDROGRAPH
FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL

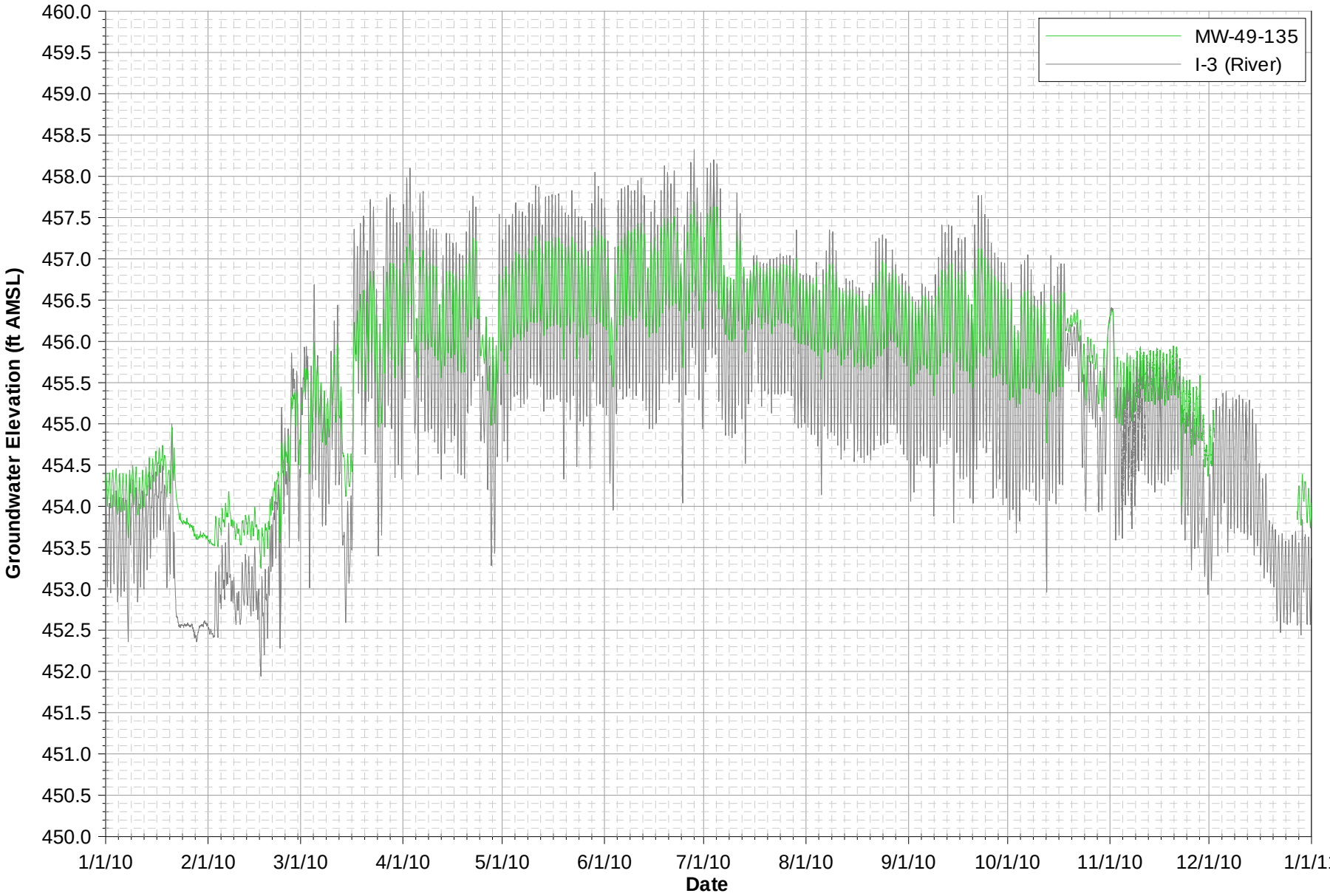


Notes:
Data subject to review.
MW-47-55 data unavailable from July 16, 2010 until October 13, 2010 due to transducer failure.
MW-47-115 data unavailable from August 31, 2010 until October 13, 2010 due to transducer failure.

FIGURE E-1R
MW-47 CLUSTER HYDROGRAPHS

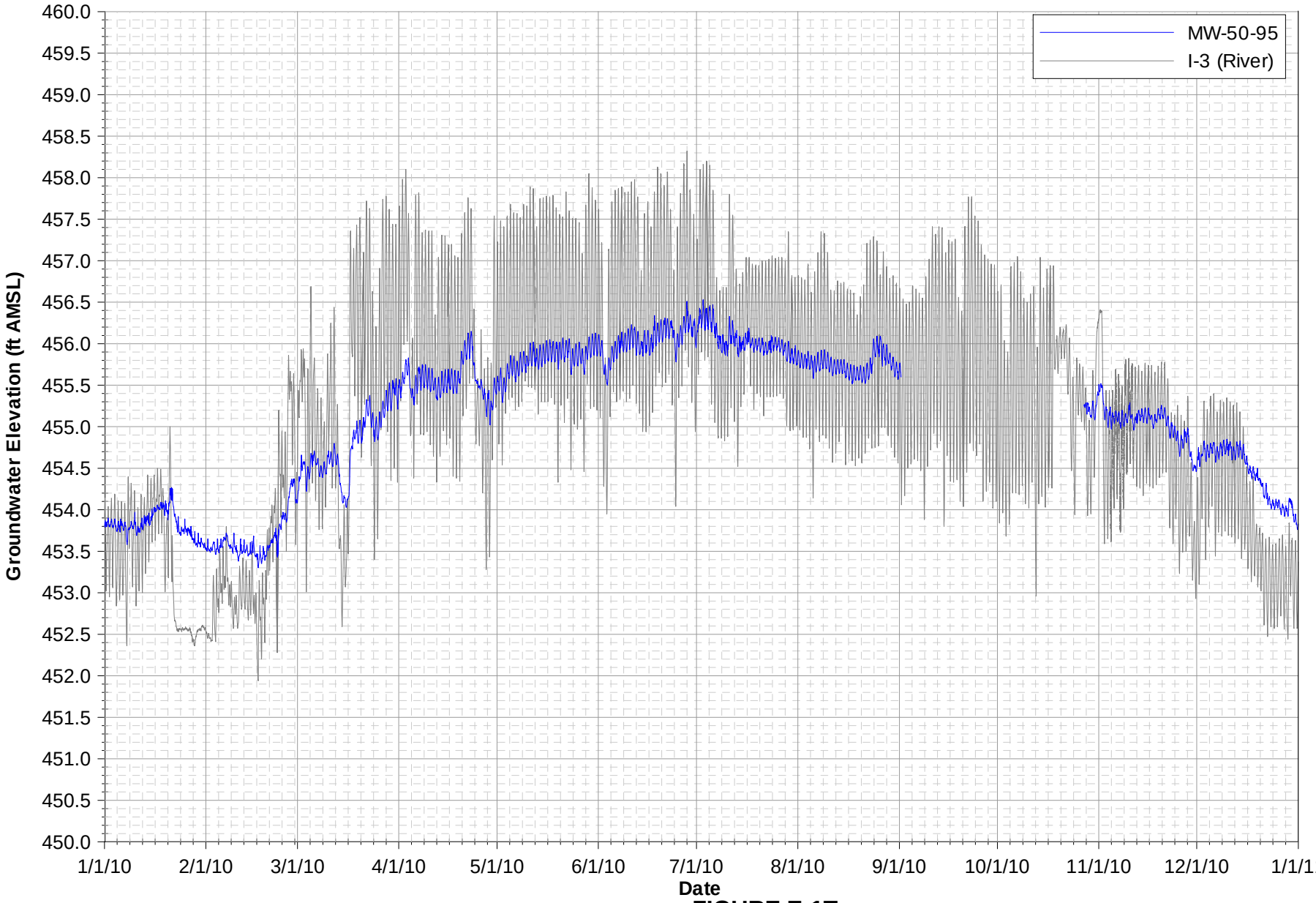
FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL



Notes:
Data subject to review.
MW-49-135 data unavailable from December 2, 2010 through December 27, 2010 due to transducer failure.

FIGURE E-1S
MW-49 HYDROGRAPH
FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

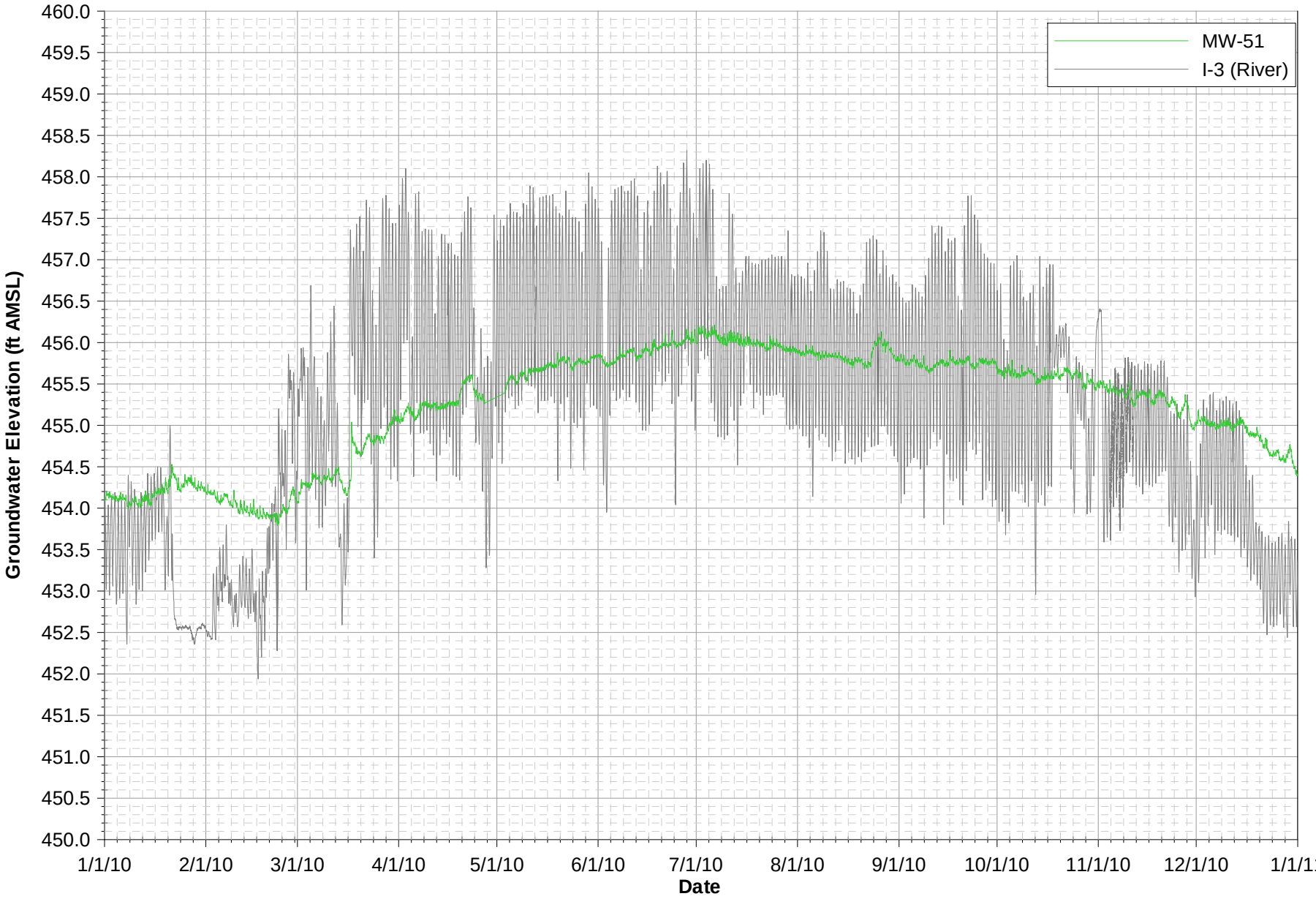


Notes:
Data subject to review.
MW-50-95 data unavailable from September 1, 2010 until October 31, 2010 due to transducer failure.

FIGURE E-1T
MW-50 HYDROGRAPH

FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL



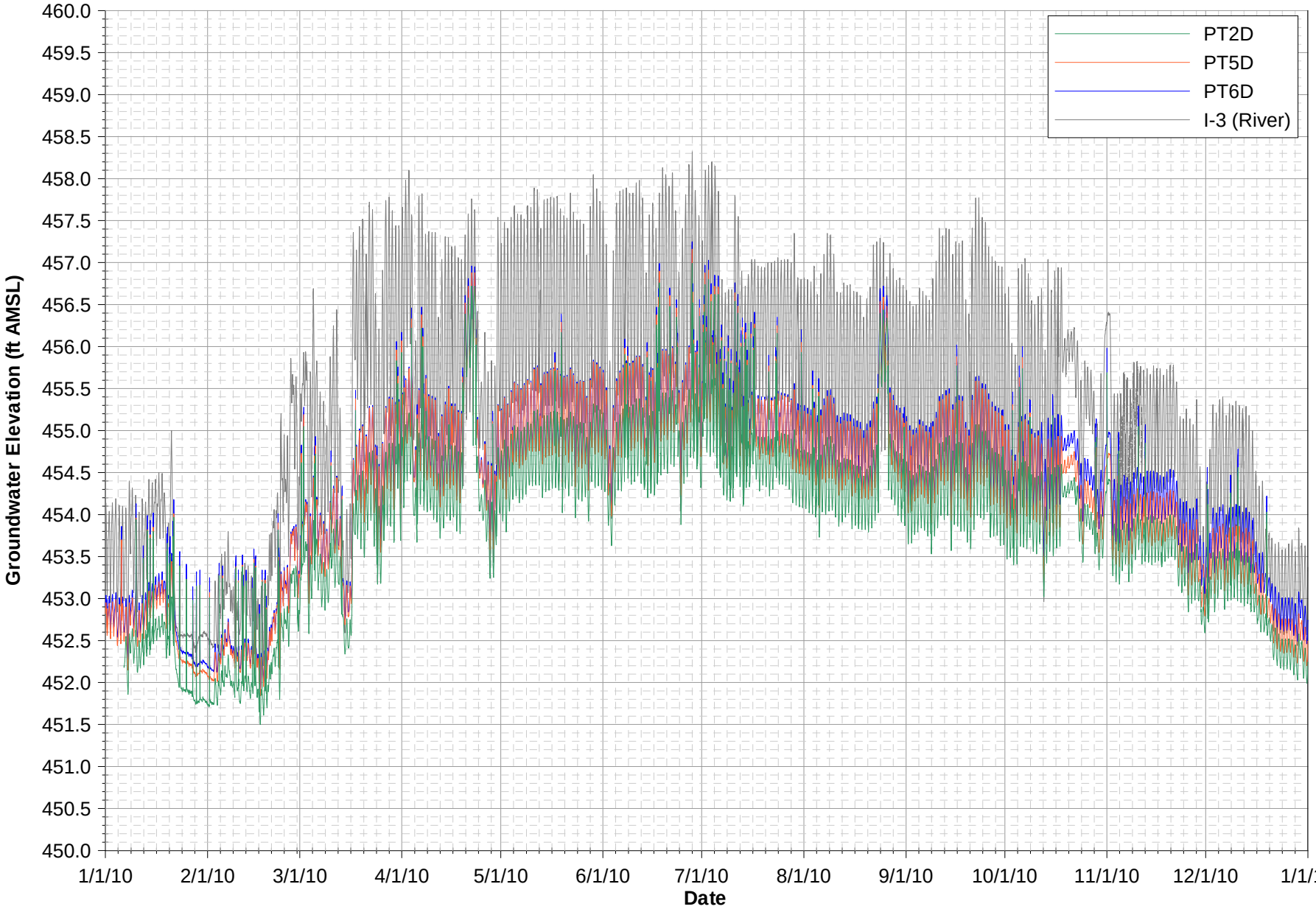
Notes:
Data subject to review.

FIGURE E-1U

MW-26 & MW-51 HYDROGRAPHS

FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

CH2MHILL



Note:
Data subject to review.
PT2D data unavailabe from January 1, 2010 through January 6, 2010 due to transducer failure.

FIGURE E-1V

INSITU PILOT STUDY WELL HYDROGRAPHS

FOURTH QUARTER 2010 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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Appendix F
Groundwater Monitoring Data for GMP and PMP

Table F-1
Chemical Performance Monitoring Analytical Results, March 2005 through December 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Total Dissolved Solids	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	Alkalinity (total)	Dissolved Metals				
										Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wells														
MW-20-70	10-Mar-05	1940	-7.1	-59.0	740	378	9.98	ND (1.0)	81.7	198	55.4	9.89	431	0.412
	15-Jun-05	1980	-7.0	-60.0	749	388	9.79	ND (1.0)	73.8	189	55.4	10.5	433	0.414
	15-Jun-05 FD	2050	-8.3	-57.0	760	392	9.81	ND (1.0)	71.3	204	60.7	11.4	468	0.445
	11-Oct-05	1950	-7.2	-57.0	737	359	9.48	0.641	69.9	198	49.9	14.6	323	0.402
	15-Dec-05	1830	-7.1	-49.0	645	326	9.90	ND (1.0)	77.8	138	42.3	14.5	267	0.441
	10-Mar-06	1940	-7.2	-54.0	679	358	10.5	ND (0.5)	82.2	161	48.6	9.22	424	0.427
	05-May-06	1750	-8.2	-55.9	696	376	9.86	0.574	74.5	162	49.2	9.55	461	0.476
	03-Oct-06	1890	-8.1	-60.4	677	357	13.0	ND (5.0)	85.0	158	47.6	9.82	472	0.535
	03-Oct-06 FD	1840	-8.1	-60.5	669	352	12.9	ND (5.0)	80.0	154	45.9	9.51	466	0.515
	13-Dec-06	1910	-7.6	-61.2	678	352	12.7	0.699	77.5	149	44.3	9.09	458	0.459
	14-Mar-07	1740	-8.5	-64.3	689	358	13.7	0.641	80.0	139	42.2	8.83	451	0.503
	03-May-07	1750	-8.4	-66.7	697	344	25.1	ND (1.0)	77.5	139	41.2	8.65	390	0.477
	11-Oct-07	1820	-8.2	-63.9	699	367	15.6	ND (1.0)	80.0	130	39.1	11.0	600	0.54
	12-Mar-08	1790	-7.6	-65.2	695	360	22.1	ND (1.0)	77.0	139	41.2	10.7	403	0.51
	07-Oct-08	1900	-8.5	-64.4	650	360	15.0	0.61	83.0	136	37.9	10.5	400	0.608
	12-Mar-09	1900	-7.74	-60.8	670	330	17.0	ND (1.0)	79.0	128	40.2	9.95	496	0.549
	25-Sep-09	1700	-8.7	-66.4	700	310	16.0	ND (2.5)	74.0	130	33.0	9.70	390	0.42
	16-Dec-10	1700	-7.5	-62.3	680	320	16.0	0.51	79.0	130	33.0	12.0	400	0.51
MW-20-100 [1]	10-Mar-05	2490	-5.2	-49.0	466	511	9.98	ND (1.0)	84.2	133	19.8	8.98	712	0.859
	15-Jun-05	2500	-4.7	-46.0	921	506	9.02	ND (1.0)	84.0	137	21.3	9.06	592	0.713
	11-Oct-05	2400	-5.3	-48.0	887	484	8.87	0.731	82.3	170	23.7	15.2	500	0.718
	15-Dec-05	2340	-5.4	-40.0	813	404	9.65	ND (1.0)	82.7	136	21.4	14.8	406	0.709
	10-Mar-06	2500	-5.6	-50.3	861	475	9.94	ND (0.5)	92.5	171	27.0	7.75	597	0.803
	05-May-06	2260	-5.1	-46.4	927	522	9.99	ND (1.0)	82.5	193	32.0	10.8	577	0.716

Table F-1

Chemical Performance Monitoring Analytical Results, March 2005 through December 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Total Dissolved Solids	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	Alkalinity (total)	Dissolved Metals				
										Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wells														
MW-20-100 [1]	03-Oct-06	2320	-5.8	-51.5	863	456	13.4	ND (5.0)	90.0	202	34.4	10.9 J	568	0.874
	13-Dec-06	1960	-6.2	-54.4	861	459	12.3	0.83	97.5	205	32.2	11.4	579	0.889
	13-Dec-06 FD	2200	-6.2	-54.5	874	457	12.2	0.851	92.5	205	32.2	9.55	575	0.881
	14-Mar-07	2180	-6.8	-57.8	847	477	14.2	0.785	87.5	194	31.7	9.90	521	0.715
	03-May-07	2300	-7.3	-59.2	879	493	23.2	ND (1.0)	87.5	209	36.0	12.0 J	559	0.699
	03-May-07 FD	2330	-6.7	-59.3	888	484	19.7	ND (1.0)	87.5	208	34.6	9.63 J	532	0.686
	10-Oct-07	2160	-7.2	-57.2	858	468	3.25	ND (1.0)	92.0	190	32.0	15.0	560	0.81
	12-Mar-08	2470	-6.9	-58.3	827	442	19.2	ND (1.0)	870	218	35.4	11.9	469	0.702
	08-Oct-08	2200	-7.9	-60.2	760	420	16.0	ND (1.0)	90.0	215	36.8	10.3	453	0.669
	13-Mar-09	2200	-7.08	-58.2	770	420	16.0	ND (1.0)	97.0	213	36.4	11.6	543	0.89
	25-Sep-09	2000	-7.67	-62.8	750	400	16.0	ND (2.5)	89.0	200	30.0	12.0	430	0.70
	10-Feb-11	1800	-7.0	-58.8	610	380	15.0	0.57	120	180	28.0	14.0	400	0.81
MW-20-130 [1]	09-Mar-05	5520	-5.8	-56.0	3120	1080	10.9	ND (1.0)	68.9	219	12.1	24.7	2250	1.90
	09-Mar-05 FD	6200	-5.4	-51.0	3080	1080	10.9	ND (1.0)	68.9	231	12.8	25.4	2390	1.99
	15-Jun-05	7790	-5.0	-48.0	3410	1230	11.1	ND (1.0)	68.7	352	23.2	31.3	2980	2.75
	07-Oct-05	7330	-5.0	-47.0	3010	1210	10.9	1.04 J	72.4	349	13.9	38.4	2070	2.41
	16-Dec-05	7860	-5.8	-43.0	3260	1000	10.7	ND (2.5)	63.2	324	16.3	44.4	1780	1.98
	10-Mar-06	8610	-5.5	-48.8	3370	1250	10.6	ND (0.5)	74.5	312	18.9	27.7	2730	2.03
	05-May-06	7700	-5.3	-47.2	3900	1280	8.95	ND (1.0)	69.2	349	20.3	27.7	2810	2.40
	18-Oct-06	8450	-6.3	-51.4	3680	1100	11.5	ND (5.0)	70.0	358	20.9	28.0	2870	2.28
	13-Dec-06	7890	-6.0	-54.9	3970	1250	10.6	0.896	72.5	335	19.7	27.6	2900	2.31
	13-Dec-06 FD	8250	-5.9	-54.4	3950	1260	10.5	1.09	72.5	328	19.1	27.3	2830	2.24
	08-Mar-07	8450	-6.5	-57.7	3930	1240	11.3	1.08	70.0	353	21.3	27.0	2760	2.24
	08-Mar-07 FD	8510	-6.6	-57.4	3900	1210	11.3	1.06	72.5	351	21.3	26.8	2750	2.19

Table F-1
Chemical Performance Monitoring Analytical Results, March 2005 through December 2010
Fourth Quarter 2010 and Annual Interim Measure Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Total Dissolved Solids	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	Alkalinity (total)	Dissolved Metals				
										Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wells														
MW-20-130 [1]	03-May-07	8150	-7.7	-60.0	4020	1310	9.80 J	ND (1.0)	75.0	338	22.5	27.8	2550	2.49
	03-May-07 FD	8100	-6.9	-60.1	3950	1290	20.4 J	ND (1.0)	72.5	338	21.9	27.3	2550	2.47
	05-Oct-07	7980	-7.0	-57.5	3670	1070	11.6	ND (1.0)	77.0	310	19.0	31.0	2900	2.40
	12-Mar-08	8460	-6.2	-58.7	3690	1220	14.3	ND (1.0)	75.0	342	23.4	47.0	2260	2.07
	08-Oct-08	7800	-7.3	-59.6	3500	1200	12.0	ND (2.5)	81.0	329	22.0	40.1	1990	2.23
	13-Mar-09	8100	-6.58	-56.4	3600	1100	11.0	ND (2.5)	79.0	350	22.7	41.4	2550	2.16
	25-Sep-09	6500	-7.59	-61.7	3500	1100	13.0	ND (2.5)	76.0	280	17.0	33.0	2400	2.00
	10-Feb-11	5900	-6.6	-59.0	3100	1100	13.0	1.00	80.0	310	18.0	50.0	2100	2.20
MW-25	09-Mar-05	877	-8.4	-62.0	247	169	3.64	ND (0.5)	158	77.6	16.1	6.24	211	0.441
	14-Jun-05	942	-8.6	-61.0	289	183	3.89	ND (0.5)	137	93.5	20.0	8.91	253	0.464
	14-Jun-05 FD	980	-7.2	-59.0	294	185	3.94	ND (0.5)	137	100	20.9	9.06	268	0.475
	04-Oct-05	950	-8.2	-68.0	252	171	3.77	ND (0.5)	141	83.3	14.9	9.93	164	0.362
	04-Oct-05 FD	910	-8.3	-60.0	251	171	3.75	ND (0.5)	146	94.6	15.3	10.2	185	0.371
	14-Dec-05	838	-8.4	-55.0	224	158	3.74	ND (0.5)	153	75.5	14.5	9.80	143	0.396
	14-Dec-05 FD	896	-8.4	-50.0	219	155	3.75	ND (0.5)	156	73.0	14.1	9.71	151	0.382
	09-Mar-06	910	-8.4	-64.1	245	164	3.83	ND (0.5)	170	76.4	15.6	6.97	210	0.39
	03-May-06	907	-9.0	-59.4	272	172	3.95	ND (0.5)	150	78.0	17.3	7.38	222	0.418
	03-May-06 FD	924	-9.0	-61.0	274	173	3.94	ND (0.5)	155	79.7	17.8	7.53	245	0.431
	03-Oct-06	892	-8.9	-62.7	222	158	4.09	ND (0.5)	163	73.3	15.0	7.25	206	0.466
	06-Mar-07	843	-9.0	-66.9	221	164	3.95	ND (0.5)	160	72.9	14.4	6.85	203	0.459
	02-Oct-07	796	-9.0	-65.8	189	155	4.58	ND (1.0)	180	66.0	14.0	7.90	200	0.49
	02-Oct-07 FD	758	-9.0	-65.7	195	157	4.40	ND (1.0)	190	63.0	13.0	7.70	220	0.46
	07-Oct-08	740	-9.9	-68.5	170	150	4.30	ND (0.5)	200	59.2	12.9	9.89	143	0.559
	07-Oct-08 FD	730	-10.1	-69.1	170	150	4.40	ND (0.5)	210	58.4	12.9	10.2	144	0.559

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Location	Sample Date	Total Dissolved Solids	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	Alkalinity (total)	Dissolved Metals				
										Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wells														
MW-25	21-Sep-09	660	-8.91	-69.9	180	130	4.30	ND (0.5)	200	64.0	12.0	7.20	180	0.46
	21-Sep-09 FD	650	-8.87	-69.5	180	130	4.30	ND (0.5)	200	64.0	12.0	7.90	190	0.47
	07-Dec-10	780	-9.4	-68.9	220	120	4.80	ND (1.0)	180	74.0	15.0	10.0	180	0.43
MW-26	08-Mar-05	1840	-8.8	-70.0	756	370	4.48	ND (0.5)	98.7	166	41.6	10.7	439	0.557
	08-Mar-05 FD	1800	-8.7	-70.0	708	338	4.45	ND (0.5)	96.1	166	40.9	11.4	438	0.559
	13-Jun-05	2130	-8.2	-65.0	847	371	4.90	ND (0.5)	103	178	44.6	14.0	511	0.663
	04-Oct-05	2120	-7.8	-68.0	779	372	4.88	0.601	109	166	40.4	19.8	352	0.526
	12-Dec-05	2610	-8.5	-55.0	788	372	4.88	0.546	99.7	162	39.9	20.3	349	0.613
	08-Mar-06	2070	-8.6	-60.4	772	324	4.90	ND (0.5)	121	155	38.1	11.7	434 J	0.621
	01-May-06	2130	-8.9	-62.7	927	382	4.87	ND (0.5)	121	165	42.0	12.8	555	0.723
	03-Oct-06	2220	-8.8	-63.0	894	370	6.22	ND (2.5)	105	170	43.9	12.8	510	0.692
	12-Mar-07	2280	-9.0	-67.0	917	387	6.02	0.646	90.0	163	41.6	12.9	621	0.622
	02-Oct-07	2180	-8.6	-66.3	945	391	7.84	ND (1.0)	100	170	42.0	15.0	620	0.66
	12-Mar-08	2500	-8.1	-67.2	908	398	10.7 J	ND (1.0)	103	176	44.1 J	16.2 J	498	0.589
	12-Mar-08 FD	2420	-8.9	-68.2	905	398	7.61 J	ND (1.0)	102	160	32.8 J	12.7 J	462	0.601
	08-Oct-08	2400	-8.7	-66.5	930	440	10.0	ND (1.0)	110	183	45.8	14.6	555	0.591
	10-Mar-09	2300	-8.41	-65.3	870	440 J	9.80	1.40	100	172	47.9	14.8	585	0.604
	10-Mar-09 FD	2300	-8.68	-65.8	860	440 J	9.70	1.50	100	174	46.2	15.6	631	0.65
	22-Sep-09	2200	-9.04	-68.3	870	450	10.0	ND (1.0)	100	170	39.0	14.0	550	0.59
	15-Dec-10	---	---	---	900	480	12.0	---	100	180	40.0	---	560	---
MW-27-20	08-Mar-05	1250	-12	-102.0	190	432	ND (0.5)	ND (0.5)	215	137	56.6	4.89	195	ND (0.2)
	18-Jul-05	---	-11.9	-98.0	81.9	228	ND (0.5)	ND (0.5)	160	96.1	30.1	4.27	94.8	ND (0.2)
	05-Oct-05	742	-11.8	-102.0	91.1	252	ND (0.5)	ND (0.5)	175	88.6	31.4	5.48	81.0	ND (0.2)
	14-Dec-05	1020	-11.7	-91.0	118	347	ND (0.5)	ND (0.5)	216	116	41.8	6.96	116	ND (0.2)

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Location	Sample Date	Total Dissolved Solids	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	Alkalinity (total)	Dissolved Metals				
										Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wells														
MW-27-20	06-Mar-06	664	-12.1	-90.9	89.7	231	ND (0.2)	ND (0.2)	385	89.1	28.8	4.90	103	ND (0.2)
	14-Jun-06	730	-12	-89.8	98.3	272	ND (0.5)	ND (0.5)	195	91.1	28.5	2.79 J	96.9	ND (0.2)
	03-Oct-06	600	-13.1	-96.6	90.8	261	ND (0.5)	ND (0.5)	160	102	34.5	6.45	113	ND (0.2)
	02-Oct-07	802	-12.5	-96.3	102	320	ND (1.0)	ND (1.0)	170	97.0	34.0	5.30	150	0.22
	03-Oct-08	---	---	---	94.0	240	ND (0.5)	---	---	87.9	29.5	---	110	---
	01-Oct-09	---	---	---	88.0	230	ND (0.5)	---	130	84.0	25.0	---	87.0	---
	07-Dec-10	---	---	---	86.0	220	ND (0.5)	---	200	87.0	29.0	---	93.0	---
MW-28-25	10-Mar-05	880	-12.2	-95.0	112	302	ND (0.5)	ND (0.5)	204	129	36.3	3.50	122	ND (0.2)
	15-Jun-05	974	-11.6	-91.0	108	359	ND (0.5)	ND (0.5)	221	133	38.9	6.54	117	ND (0.2)
	06-Oct-05	884	-11.7	-95.0	99.8	300	ND (0.5)	ND (0.5)	197	123	37.0	6.61	88.7	ND (0.2)
	16-Dec-05	1010	-11.4	-90.0	128	348	ND (0.5)	ND (0.5)	212	134	41.5	6.46	107	ND (0.2)
	09-Mar-06	746	-11.5	-93.9	84.4	225	ND (0.5)	ND (0.5)	244	98.5	27.5	4.15 J	88.5	ND (0.2)
	05-May-06	741	-11.4	-90.3	110	302	ND (0.5)	ND (0.5)	216	117	35.7	5.77	118	ND (0.2)
	11-Oct-06	1050	-12.2	-95.0	86.3	247	ND (0.5)	ND (0.5)	225	133	40.8	5.47	132	ND (0.2)
	04-Oct-07	812	-12.1	-98.7	110	307	ND (1.0)	ND (1.0)	230	120	37.0 J	4.80	150	0.26 J
	08-Oct-08	---	---	---	100	280	ND (0.5)	---	220	109	34.7	---	102	---
	24-Sep-09	---	---	---	94.0	240	ND (0.5)	---	200	100	27.0	---	100 J	---
	08-Dec-10	---	---	---	90.0	230	ND (0.5)	---	190	110	31.0	---	95.0	---
MW-30-30	10-Mar-05	38800	-9.8	-79.0	16000	4270	ND (5.0)	7.91	421	1590	1600	95.4	13600	4.97
	07-Oct-05	36400	-8.5	-75.0	17600	4000	ND (0.5)	ND (10)	521	1020	842	93.6	7650	5.20
	15-Dec-05	35700	-8.7	-59.0	19700	4070	ND (1.0)	3.13	504	1060	894	110	8540	6.14
	13-Mar-06	39700 J	-8.8	-70.5	18600	4530	ND (0.5)	ND (50)	650	1050	892	77.2	11300	4.62
	02-May-06	32400	-10.3	-70.7	15400	3300	ND (0.5)	ND (5.0)	756	882	828	59.4	10300	3.95
	10-Oct-06	29400	-9.4	-68.7	17800	4400	ND (2.5)	ND (2.5)	550	729	653	55.0	10200	4.32

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Location	Sample Date	Total Dissolved Solids	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	Alkalinity (total)	Dissolved Metals				
										Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wells														
MW-30-30	08-Oct-07	27400	-9.0	-73.9	13700	3370	ND (1.0)	3.88	800	650	540	56.0	9600	4.50
	24-Sep-09	---	---	---	5800	1700	ND (5.0)	---	550	280	220	---	3800	---
	07-Dec-10	---	---	---	7200	1900	ND (1.0)	---	790	390	290	---	4800	---
MW-30-50	10-Mar-05	6470 J	-8.3	-68.0	4660	672	ND (0.5)	1.03	324	335	107	16.5	2040	1.15
	07-Oct-05	6860	-9.4	-79.0	3060	857	ND (0.5)	0.899 J	252	438	101	37.0	1780	1.27
	16-Dec-05	5850	-10.5	-65.0	2360	578	ND (0.5)	0.645	212	265	77.9	32.9	1260	1.19
	09-Mar-06	5380	-9.8	-83.5	2420	651	ND (0.5)	ND (0.5)	275	226	66.2	14.6	1640	1.18
	02-May-06	5420	-10.4	-73.6	2380	612	ND (0.5)	3.41	261	243	70.3	16.4	1750	1.22
	11-Oct-06	4170	-10.7	-82.2	1980	468	ND (0.5)	ND (0.5)	290	171	48.5	14.0	1370	1.11
	11-Oct-06 FD	3930	-11	-82.6	1810	462	ND (0.5)	ND (0.5)	298	163	46.1	14.1	1340	1.08
	24-Sep-09	---	---	---	---	---	---	---	220	19.0	4.80	---	270	---
	07-Dec-10	---	-12.2	-97.5	140	220	ND (0.5)	---	200	15.0	4.20	---	260	---
MW-31-60	09-Mar-05	1540	-8.6	-63.0	649	210	4.94	ND (0.5)	76.6	108	17.3	5.97	424	0.401
	13-Jun-05	1660	-8.2	-65.0	745	207	4.12	ND (0.5)	70.0	121	18.9	6.57	403	0.388
	06-Oct-05	1660	-8.6	-65.0	691	206	4.01	ND (0.5)	77.3	109	16.5	9.75	308	0.462
	13-Dec-05	1620	-8.7	-54.0	669	199	4.14	ND (0.5)	73.0	87.0	15.4	9.32	275	0.359
	15-Mar-06	1560 J	-8.6	-65.6	661	191	4.37	ND (0.5)	89.3	106	17.5	7.30	403	0.393
	15-Mar-06 FD	1640 J	-8.6	-64.9	662	192	4.34	ND (0.5)	81.9	101	16.8	6.94	391	0.383
	01-May-06	1630	-9.6	-63.2	691	209	4.58	ND (0.5)	79.6	118	20.1	7.78	467	0.449
	05-Oct-06	1620	-9.4	-66.3	687	205	5.00	ND (0.5)	80.0	113	20.6	9.60 J	325	0.464
	12-Mar-07	1750	-9.3	-69.0	757	222	4.93	ND (0.5)	72.5	116	20.3	6.05	454	0.402 J
	04-Oct-07	1720	-9.4	-69.6	799	208	5.15	ND (1.0)	80.0	150	26.0	7.30	580	0.64
	06-Oct-08	2000	-10.2	-72.2	810	240	4.20	ND (1.0)	81.0	150	26.0	9.39	460	0.399
	21-Sep-09	1800	-9.23	-72.1	870	220	3.70	ND (1.0)	75.0	160	26.0	9.60	480	0.43

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Location	Sample Date	Total Dissolved Solids	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	Alkalinity (total)	Dissolved Metals				
										Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wells														
MW-31-60	15-Dec-10	2000	-9.0	-69.3	840	210	3.50	ND (0.5)	78.0	170	27.0	12.0	440	0.43
MW-32-20	09-Mar-05	12500	-7.2	-65.0	6930	1660	ND (0.5)	3.51	123	838	302	36.9	4000	2.76
	17-Jun-05	10200	-9.0	-67.0	4810	690	ND (0.5)	ND (2.5)	676	566	231	23.3	2620	1.75
	04-Oct-05	28800	-7.8	-65.0	14200	2420	ND (5.0)	6.19	733	1380 J	613 J	91.1 J	5400 J	4.75 J
	16-Dec-05	24600	-7.8	-61.0	12200	2140	ND (1.0)	3.48	861	1470	552	90.4	4950	4.16
	10-Mar-06	20900	-8.3	-65.5	10600	1970	ND (0.5)	ND (0.5)	432	1350	530	56.1	6440	3.54
	04-May-06	16900	-8.1	-64.9	9430	1380	ND (0.5)	2.35	218	937	445	46.0	4780	2.87
	02-Oct-06	46200 J	-8.6	-67.1	20200	3190	ND (2.5)	7.30	660	1870	1070	87.0	11300	6.34
	11-Dec-06	37900	-8.0	-67.0	17900	3020	ND (5.0)	7.67	825	1530	785	81.7	8420	4.98
	06-Mar-07	27600	-8.7	-72.7	16200	2210	0.925	5.93	765	1460	635	64.4	7110	3.92
	30-Apr-07	17700	-9.6	-78.1	9820	1310	ND (0.2)	3.78	770	965	484	51.4	5520	3.02
	01-Oct-07	37200	-8.3	-70.1	20600	3160	ND (1.0)	6.44	700	1800	1100	93.0	9900	5.70
	10-Mar-08	26000	-9.4	-72.6	15800	2280	ND (1.0)	5.66	800	1190	710	67.4	11600	2.31
	03-Oct-08	---	---	---	21000	3500	ND (5.0)	---	640	1700	1080	---	9550	---
	10-Mar-09	29000	-8.91	-70.5	15000	2100 J	ND (5.0)	15.0	750	1620	970	96.6	7020	3.53
	22-Sep-09	---	---	---	20000	3600	ND (5.0)	---	730	1800	740	---	9300	---
	08-Dec-10	---	---	---	17000	4100	ND (5.0)	---	830	1600	720	---	11000	---
MW-32-35	09-Mar-05	3560	-8.2	-68.0	1770	465	ND (0.5)	0.845	260	312	85.5	13.0	944	1.07
	17-Jun-05	7550	-9.5	-72.0	3520	787	ND (0.5)	ND (2.5)	223	506	120	14.8	2110	1.18
	04-Oct-05	8340	-8.3	-70.0	3840	765	ND (0.5)	ND (5.0)	208	567	134	29.3	1530	1.26
	16-Dec-05	7660	-8.8	-63.0	3510	710	ND (1.0)	1.02	219	606	128	30.0	1580	1.25
	10-Mar-06	9230	-8.6	-74.0	4210	1010	ND (0.5)	ND (0.5)	234	654	129	19.2	2360	1.13
	04-May-06	9840	-9.1	-67.8	4960	1130	ND (0.5)	ND (0.5)	218	693	148	19.5	2800	1.38
	02-Oct-06	11200	-9.4	-71.4	5430	1050	ND (2.5)	ND (2.5)	290	839	165	23.9	3260	1.48

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Location	Sample Date	Total Dissolved Solids	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	Alkalinity (total)	Dissolved Metals				
										Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wells														
MW-32-35	11-Dec-06	10400	-9.0	-70.4	5090	1000	ND (0.5)	1.90	338	845	173	22.5	2620	1.43
	06-Mar-07	12600	-10.2	-75.4	6070	1200	ND (0.5)	2.65	360	1080	209	23.5	2910	1.35
	30-Apr-07	12100	-9.9	-78.7	6610	1280	ND (0.2)	2.60	475	1250	273	26.2	3280	1.35
	01-Oct-07	13700	-8.9	-72.7	6830	1120	ND (1.0)	2.62	490	1000	390	29.0	4000	1.70
	03-Oct-08	15000	-9.8	-73.1	7600	1300	ND (2.5)	3.10	550	829	150	52.3	3490	1.49
	22-Sep-09	13000	-9.32	-75.2	6900	1400	ND (2.5)	2.80	530	880	400	53.0	3100	1.70
	09-Dec-10	11000	-10.2	-84.2	5500	1600	ND (2.5)	ND (2.5)	590	750	390 J	51.0 J	3000	1.70 J
MW-34-55	10-Mar-05	6230	-10.8	-82.0	2620	739	ND (0.5)	0.654	240	366	71.3	29.1	1900	1.19
	15-Jul-05	---	-10.3	-84.0	2250	607	ND (0.5)	ND (0.5)	242	247	52.0	16.5	1420	1.02
	05-Oct-05	5150	-10.6	-88.0	2170	619	ND (0.5)	ND (0.5)	232	272	59.1	25.8	1230	1.20
	14-Dec-05	5100	-10.8	-74.0	2150	552	ND (0.5)	0.588	236	217	45.0	27.2	965	0.937
	08-Mar-06	4850	-10.8	-86.8	2080	593	ND (0.5)	ND (0.5)	272	256	54.2	13.5	1640	0.956
	03-May-06	4320	-11.5	-84.3	2070	500	ND (0.5)	ND (0.5)	302	198	44.8	11.1	1360	0.846
	04-Oct-06	1680 J	-12.2	-94.8	443	230	ND (0.5)	ND (0.5)	368	37.6	8.08	4.59	536	0.54
	03-Oct-07	730	-11.3	-96.6	109	266	ND (1.0)	ND (1.0)	190	15.0	3.30	3.30	290	0.26
	07-Oct-08	700	-13	-100.0	100	250	ND (0.5)	---	170	72.4	16.9	5.26	192	0.248
	30-Sep-09	700	-12.3	-101.0	---	---	---	---	160	77.0	17.0	4.40	120	0.15
	07-Dec-10	590	-12.1	-98.8	87.0	230	ND (0.5)	ND (0.5)	140	81.0	19.0	5.10	100	0.10
MW-34-80	08-Mar-05	6940	-10.4	-83.0	4180	1040	ND (0.5)	1.01	304	439	68.1	28.0	2750	1.65
	15-Mar-05	8980	---	---	3920	ND (5.0)	ND (1.0)	---	288	445	65.7	29.7	2990	---
	30-Jun-05	7840	-8.4	-82.0	3910	979	ND (0.5)	ND (0.5)	302	497	76.5	27.7	2670	1.66
	05-Oct-05	10200	-10.1	-85.0	3880	1060	ND (0.5)	ND (0.5)	302	429	72.5	47.4	1660	1.57
	14-Dec-05	8800	-10.2	-71.0	3700	880	ND (0.5)	0.854	297	432	68.3	54.9	1710	1.54
	09-Mar-06	7830	-9.9	-86.8	3520	986	ND (0.5)	ND (0.5)	313	383	65.8	24.0	2420	1.49

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Location	Sample Date	Total Dissolved Solids	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	Alkalinity (total)	Dissolved Metals				
										Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wells														
MW-34-80	03-May-06	7950	-11.7	-77.6	3700	921	ND (0.5)	ND (0.5)	297	425	70.3	23.9	2480	1.38
	04-Oct-06	7080	-11.3	-81.8	3210	786	ND (0.5)	0.737	268	341	65.4	21.1	2170	1.31
	12-Dec-06	6510	-10.5	-80.9	3190	789	ND (0.5)	0.742	288	298	62.9	18.9	2040	1.26
	05-Mar-07	6360 J	-11.5	-85.8	3300	783	ND (0.5)	0.72	205	315	68.3	19.4	2020	1.29
	30-Apr-07	6390	-11.5	-88.9	3320 J	889 J	ND (0.2)	ND (1.0)	245	282	57.0	18.6	2080	1.33
	03-Oct-07	5490	-11.3	-87.8	2630	696	ND (1.0)	ND (1.0)	240	220	53.0	21.0	2000	1.20
	13-Dec-07	5420	-10.9	-88.6	2380	698	ND (1.0)	ND (1.0)	264	193	49.1	25.4	1450	1.09
	12-Mar-08	5500	-11.4	-87.3	2510	739	ND (1.0)	ND (1.0)	238	237	52.6	19.2	2030	1.14
	06-May-08	5820	-11.4	-87.3	2460	753	ND (0.2)	0.525	216	230	49.0	30.0	1600	1.20
	07-Oct-08	5300	-11.8	-87.6	2400	720	ND (2.0)	ND (2.0)	250	223	46.3	22.0	1220	0.765
	10-Dec-08	5300	-11	-93.1	2190	698	ND (1.0)	ND (1.0)	253	147	45.2	20.6	3880	1.11
	10-Mar-09	5100	-10.9	-84.8	2300	700 J	ND (2.5)	ND (2.5)	240	219	46.3	22.2	1480	1.08
	30-Apr-09	5830	-11.5	-85.8	2340	768	ND (1.0)	ND (1.0)	237	219	50.0	24.6	1510	1.11
	30-Sep-09	4000	-10.8	-88.9	2300	710	ND (1.0)	ND (1.0)	230	240	46.0	22.0	1500	0.98
	09-Dec-09	4580	-11.9	-89.1	2200	690	ND (1.0)	ND (1.0)	230	---	---	---	---	---
	10-Mar-10	4900	-12.1	-91.6	2100	660	ND (1.0)	ND (1.0)	240	220 J	41.0	28.0	1400 J	0.93
	07-Dec-10	4600	-11.1	-87.3	2300	700	ND (1.0)	ND (1.0)	220	240	47.0	24.0	1300	1.00
MW-34-100	14-Mar-05	10800	---	---	5010	1210	ND (1.0)	---	175	221	17.4	34.1	3600	---
	21-Jun-05	11300	-9.7	-75.0	5350	1270	1.05	ND (0.5)	179	229	17.4	27.1	3510	2.22
	21-Jun-05 FD	10900 J	-9.5	-77.0	4920	1180	1.03	ND (0.5)	179	243	18.2	32.1	3740	2.36
	05-Oct-05	10400	-9.9	-83.0	4530	1150	1.20	ND (0.5)	172	171	13.8	55.2	2450	2.57
	05-Oct-05 FD	10400	-9.9	-83.0	4680	1200	1.21	ND (0.5)	172	228	14.1	50.9	2730	2.57
	14-Dec-05	---	---	---	---	---	---	---	---	226	14.9	62.9	2530	2.32
	14-Dec-05 FD	---	---	---	---	---	---	---	---	220	15.1	64.2	2530	2.40

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PG&E Topock Compressor Station, Needles, California

Location	Sample Date	Total Dissolved Solids	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	Alkalinity (total)	Dissolved Metals				
										Calcium	Magnesium	Potassium	Sodium	Boron
Monitoring Wells														
MW-34-100	08-Mar-06	10000	-11.4	-75.5 J	4720	1180	1.39	---	152	179	12.1	32.5	3580	2.41
	08-Mar-06 FD	10100	-10.1	-102 J	4920	1220	1.39	---	159	182	11.9	36.5	3530	2.46
	30-Apr-07	10600	-10.9	-80.7	5920	1040	1.38	---	123	186	12.0	31.5	3840	2.39
	30-Apr-07 FD	11900	-11.2	-82.1	5880	1050	1.37	---	123	189	12.0	32.1	3920	2.40
	03-Oct-07	10700	-10.2	-78.2	5350	970	1.19	ND (1.0)	120	170	11.0	44.0	4300	2.50
	03-Oct-07 FD	10500	-10.6	-78.4	5360	953	1.03	ND (1.0)	120	160	10.0	43.0	4300	2.40
	07-Oct-08	11000	-10.9	-80.8	5400	1200	ND (2.5)	ND (2.5)	140	158	10.6	54.5	2970 J	2.35
	07-Oct-08 FD	11000	-11	-81.3	5600	1200	ND (2.5)	ND (2.5)	140	184	11.5	56.7	3880 J	2.59
	30-Sep-09	---	---	---	5500	1300	ND (5.0)	---	170	200	11.0	73.0	3800	2.30
	30-Sep-09 FD	---	---	---	5600	1300	ND (5.0)	---	170	---	---	---	---	---
	17-Nov-09	11000	-10.5	-82.4	---	---	---	ND (1.0)	---	---	---	---	---	---
	08-Dec-10	10000	-9.8	-79.5	5800	1300	ND (2.5)	ND (2.5)	140 J	190	9.60	52.0 J	4100	2.60
	08-Dec-10 FD	9900	-10	-80.4	5700	1200	ND (1.0)	ND (1.0)	89.0 J	180	9.80	60.0 J	4000	2.50
MW-50-200 [1]	10-Feb-11	---	---	---	6900	1000	6.40	---	39.0	590	32.0	75.0	4100	---
	10-Feb-11 FD	---	---	---	7000	1100	6.10	---	39.0	570	31.0	73.0	4000	---
PGE-8 [1]	10-Feb-11	---	---	---	6100	2000	ND (2.5)	---	53.0	870	20.0	96.0 J	3800	---
Surface Water Stations														
R-27	07-Mar-05	669	-12.3	-102.0	92.7	244	ND (0.5)	ND (0.5)	136	82.8	31.3	4.72	108	ND (0.2)
	14-Jun-05	686	-11.4	-92.0	90.9	266	ND (0.5)	ND (0.5)	127	81.9	29.8	6.04	98.9	ND (0.2)
	05-Oct-05	678	-11.6	-94.0	85.1	255	ND (0.5)	ND (0.5)	130	101	36.2	6.56	91.2	ND (0.2)
	16-Dec-05	718	-11.7	-87.0	87.9	253	ND (0.5)	ND (0.5)	126	85.5	29.5	5.99	75.6	ND (0.2)
	06-Mar-06	656	-11.8	-92.1	90.6	268	ND (0.5)	ND (0.5)	144	83.5	29.4	5.44 J	101	ND (0.2)
	03-May-06	567	-12.8	-93.9	93.1	267	ND (0.5)	ND (0.5)	139	87.0	31.1	3.12 J	106	ND (0.2)
	04-Oct-06	752 J	-12.2	-94.9	91.5	261	ND (0.5)	ND (0.5)	128	82.9	31.5	6.24 J	98.1	ND (0.2)

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Location	Sample Date	Total Dissolved Solids	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	Alkalinity (total)	Dissolved Metals				
										Calcium	Magnesium	Potassium	Sodium	Boron
Surface Water Stations														
R-27	20-Dec-06	680	-12.7	-98.1	94.5	266	ND (0.5)	ND (0.5)	138	83.2	30.9	3.64	106	ND (0.2)
	13-Mar-07	750 J	-13	-99.5	96.5	267	0.537	ND (0.5)	130	86.9	31.3	4.73	106	ND (0.2)
	08-May-07	715 J	-12.9	-104.0	92.6	269	ND (0.5)	ND (0.5)	143	84.3	29.8	5.55	100	ND (0.2)
	11-Sep-07	650	-12.5	-101.0	89.4	253	0.336	ND (0.2)	132	74.2	28.9	5.47	86.5	ND (0.2)
	05-Dec-07	---	-11.7	-99.0	94.7	256	ND (1.0)	ND (0.2)	137	89.8	31.7	6.60	93.4	0.157
	02-Apr-08	---	---	---	93.0	267	ND (1.0)	ND (1.0)	136	80.2	30.7	5.50	106	0.432
	17-Jun-08	682	-13	-101.0	91.6	254	ND (1.0)	ND (1.0)	134	76.2	31.8	6.69	89.7	ND (0.2)
R-28	08-Mar-05	651	-12.5	-102.0	90.4	231	ND (13)	ND (0.5)	132	83.7	31.4	5.02	107	ND (0.2)
	14-Jun-05	680	-11.6	-95.0	91.2	268	ND (0.5)	ND (0.5)	127	78.5	28.5	5.08	94.5	ND (0.2)
	05-Oct-05	672	-11.6	-94.0	85.5	255	ND (0.5)	ND (0.5)	122	85.7	30.4	6.30	77.0	ND (0.2)
	16-Dec-05	710	-11.5	-83.0	88.1	254	ND (0.5)	ND (0.5)	126	87.2	29.8	6.11	76.8	ND (0.2)
	06-Mar-06	675	-12.3	-93.4	91.0	270	ND (0.5)	ND (0.5)	146	76.6	26.6	5.22 J	91.5	ND (0.2)
	03-May-06	586	-13	-92.1	93.4	270	ND (0.5)	ND (0.5)	136	88.1	31.4	4.04 J	107	ND (0.2)
	04-Oct-06	644 J	-12.6	-95.3	90.9	259	ND (0.5)	ND (0.5)	133	84.2	32.1	6.17 J	96.5	ND (0.2)
	20-Dec-06	615	-12.4	-99.6	93.3	262	ND (0.5)	ND (0.5)	143	85.7	32.0	4.66	108	ND (0.2)
	14-Mar-07	710	-12.8	-100.0	96.7	268	0.534	ND (0.5)	133	87.9	31.0	5.71	105	ND (0.2)
	09-May-07	690	-13	-102.0	95.8	271	ND (0.5)	ND (0.5)	143	86.1	30.5	5.92	103	ND (0.2)
	12-Sep-07	682	-12.4	-99.4	106	296	0.372	ND (0.2)	122	73.8	29.9	6.36	89.2	ND (0.2)
	06-Dec-07	---	-11.7	-98.6	96.5	258	0.345	ND (0.2)	139	75.7	30.4	6.62	79.4	ND (0.2)
	02-Apr-08	---	---	---	92.5	309	ND (1.0)	ND (1.0)	137	84.7	31.4	5.58	108	0.467
	18-Jun-08	672	-13.2	-102.0	89.4	248	ND (1.0)	ND (1.0)	132	43.3	31.1	6.95	93.9	ND (0.2)
	17-Sep-08	640	---	---	91.4	256	ND (0.5)	ND (0.5)	132	83.4	31.2	6.48	78.0	ND (0.2)
	04-Dec-08	649	-11.9	-97.0	97.4	260	ND (1.0)	ND (1.0)	135	81.7	30.0	5.95	114	0.262
	21-Jan-09	652	-12	-96.7	91.5	253	ND (0.5)	ND (0.5)	134	79.2	27.8	6.01	91.7	ND (0.2)

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Location	Sample Date	Total Dissolved Solids	Oxygen-18	Deuterium	Chloride	Sulfate	Nitrate	Bromide	Alkalinity (total)	Dissolved Metals				
										Calcium	Magnesium	Potassium	Sodium	Boron
Surface Water Stations														
R-28	09-Apr-09	643	-12.4	-97.8	92.7	250	ND (1.0)	ND (0.5)	138	79.6	28.8	5.44	97.0	ND (0.2)
	08-Jul-09	632	-12.8	-98.6	84.5	239	ND (0.5)	ND (0.5)	131	79.6	27.3	6.17	86.9	ND (0.2)
	09-Sep-09	640	-12.5	-99.1	86.0	236	ND (1.0)	ND (1.0)	131	74.8	26.2	6.01	78.7	ND (0.2)
	14-Dec-09	612	-13	-98.3	89.7	244	ND (1.0)	ND (1.0)	131	73.5	26.7	4.98	88.2	ND (0.2)
	21-Dec-10	602	-12.1	-102.0	91.0	223	ND (0.5)	ND (0.5)	133	69.1	24.8	4.75	87.8	ND (0.2)

NOTES:

FD = field duplicate sample
ND =parameter not detected at the listed reporting limit
J = concentration or reporting limit estimated by laboratory or data validation
R = result exceeded analytical criteria for precision and accuracy; should not be used for project decisionmaking
--- = data not collected or available

[1] Data collected February 2011 due to field logistical issues.

General chemistry results in milligrams per liter (mg/L), except Oxygen-18 and Deuterium, which are expressed as differences from global standards in parts per thousand.

Alkalinity (total) reported as calcium carbonate. Nitrate reported as Nitrogen (N).

Appendix G
Interim Measure Extraction System Operations Log, November 2010 through December 2010

APPENDIX G

Interim Measures Extraction System Operations Log, November 2010 through December 2010, PG&E Topock Performance Monitoring Program

During the fourth quarter of 2010 (November through December), extraction wells TW-3D and PE-1 operated at a target pump rate of at 135 gallons per minute (gpm), excluding periods of planned and unplanned downtime. Extraction wells TW-2D and TW-2S were operated for a short period during December 2010 for groundwater sampling. The operational run time for the Interim Measure (IM) groundwater extraction system (combined or individual pumping) was approximately 99.0 percent during fourth quarter 2010.

The Interim Measure Number 3 (IM-3) facility treated approximately 11,700,166 gallons of extracted groundwater during fourth quarter 2010. The IM-3 facility also treated approximately 2,550 gallons of water generated from the groundwater monitoring program and 2,700 gallons of water from IM-3 injection well development. Three containers of solids from the IM-3 facility were transported offsite during the reporting period.

Periods of planned and unplanned extraction system downtime (that together resulted in approximately 1.0 percent of downtime during fourth quarter 2010) are summarized below. The times shown are in Pacific Standard Time to be consistent with other data collected (e.g., water level data) at the site.

G.1 November 2010

- **November 1, 2010 (unplanned):** The extraction well system was offline from 12:18 a.m. to 1:28 a.m. due to cleaning of a plugged line between T-300 and 301. Extraction system downtime was 1 hour and 10 minutes.
- **November 4, 2010 (unplanned):** The extraction well system was offline from 8:06 a.m. to 8:10 a.m. due to City of Needles power imbalance that shut down extraction wells. Extraction system downtime was 4 minutes.
- **November 4, 2010 (planned):** The extraction well system was offline from 12:14 p.m. to 12:16 p.m., 12:22 p.m. to 12:42 p.m. and 1:06 p.m. to 1:14 p.m. for critical alarm and extraction well specific capacity testing. Extraction system downtime was 30 minutes.
- **November 10, 2010 (planned):** The extraction well system was offline from 11:04 a.m. to 12:34 p.m. due to blower maintenance. Extraction system downtime was 1 hour and 30 minutes.

- **November 12, 2010 (unplanned):** The extraction well system was offline from 9:56 a.m. to 10:00 a.m. due to City of Needles power imbalance that shut down extraction wells. Extraction system downtime was 4 minutes.
- **November 12, 2010 (unplanned):** The extraction well system was offline from 2:06 p.m. to 4:02 p.m. due to reduced microfilter performance and microfilter maintenance. Extraction system downtime was 1 hour and 56 minutes.
- **November 24, 2010 (unplanned):** The extraction well system was offline from 11:00 p.m. to 11:02 p.m. due to a level sensor malfunction in the raw water storage tank. Extraction system downtime was 2 minutes.
- **November 29, 2010 (planned):** The extraction well system was offline from 1:00 p.m. to 1:02 p.m., 1:22 p.m. to 1:24 p.m., 2:22 p.m. to 2:24 p.m., 2:48 p.m. to 2:50 p.m., and 8:08 a.m. to 8:10 a.m. due to I&C onsite making corrections to the HMI. Extraction system downtime was 10 minutes.

G.2 December 2010

- **December 1, 2010 (planned):** The extraction well system was offline from 9:50 a.m. to 11:44 a.m. due to replacement of primary reverse osmosis (RO) membranes. Extraction system downtime was 1 hour and 54 minutes.
- **December 1, 2010 (planned):** The extraction well system was offline from 11:50 a.m. to 11:56 a.m. for startup sampling. Extraction system downtime was 6 minutes.
- **December 1, 2010 (planned):** The extraction well system was offline from 3:02 p.m. to 5:28 p.m. due to microfilter maintenance. Extraction system downtime was 2 hours and 26 minutes.
- **December 8, 2010 (planned):** The extraction well system was offline from 12:36 p.m. to 12:38 p.m. and 1:20 p.m. to 1:22 p.m. due to critical alarm and leak detection system testing. Extraction system downtime was 4 minutes.
- **December 9, 2010 (unplanned):** The extraction well system was offline from 7:34 a.m. to 7:38 a.m., 10:48 a.m. to 10:52 a.m., 11:10 a.m. to 11:12 a.m. and 12:48 p.m. to 12:54 p.m. due to reduced microfilter performance. Extraction system downtime was 16 minutes.
- **December 10, 2010 (planned):** The extraction well system was offline from 4:14 p.m. to 4:44 p.m. and 4:52 p.m. to 7:36 p.m. due to polymer pump replacement. Extraction system downtime was 3 hours and 14 minutes.
- **December 19, 2010 (unplanned):** The extraction well system was offline from 2:29 p.m. to 3:21 p.m. due to City of Needles power imbalance that shut down extraction wells. Extraction system downtime was 52 minutes.
- **December 31, 2010 (unplanned):** The extraction well system was offline from 9:22 p.m. to 9:24 p.m. due to reduced microfilter performance. Extraction system downtime was 2 minutes.