

Topock Project Executive Abstract

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<p>What does this information pertain to?</p> <p><input type="checkbox"/> Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA)/Preliminary Assessment (PA)</p> <p><input type="checkbox"/> RCRA Facility Investigation (RFI)/Remedial Investigation (RI) (including Risk Assessment)</p> <p><input type="checkbox"/> Corrective Measures Study (CMS)/Feasibility Study (FS)</p> <p><input type="checkbox"/> Corrective Measures Implementation (CMI)/Remedial Action</p> <p><input type="checkbox"/> California Environmental Quality Act (CEQA)/Environmental Impact Report (EIR)</p> <p><input checked="" type="checkbox"/> Interim Measures</p> <p><input type="checkbox"/> Other / Explain:</p>	<p>Is this a Regulatory Requirement?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If no, why is the document needed?</p>
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<p>Brief Summary of attached document:</p> <p>This quarterly report documents the monitoring activities and performance evaluation of the interim measure (IM) hydraulic containment system under the IM Performance Monitoring Program, the Groundwater Monitoring Program, and Surface Water Monitoring Program for the Topock Project. Hydraulic and chemical monitoring data were collected and used to evaluate the IM hydraulic containment system performance based on a set of standards approved by the California Department of Substances Control (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 toward the pumping centers on site; (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.</p> <p>Based on the data and evaluation presented in this report, the IM performance standard has been met for the Second Quarter 2016. The average pumping rate for the IM extraction system during Second Quarter 2016 was 122.6 gallons per minute, and an estimated 81.9 pounds (37.1 kilograms) of chromium were removed in March, April, and May 2016. To date, the IM extraction system has removed 8,610 pounds (3,900 kilograms) of chromium.</p>	
<p>Written by: PG&E</p>	

Recommendations:

This report does not present any recommended changes to the sampling program

How is this information related to the Final Remedy or Regulatory Requirements:

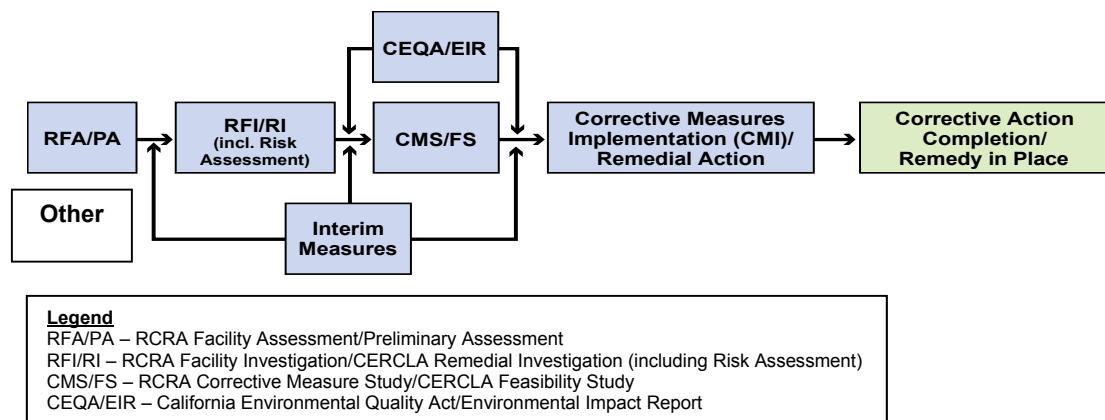
This report is required by DTSC as part of the Interim Measures Performance Monitoring Program.

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).





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August 15, 2016

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Subject: *Second Quarter 2016 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California (PGE20150116A)*

Dear Mr. Yue:

Enclosed is the Second Quarter 2016 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California, for Pacific Gas and Electric Company's Interim Measures (IMs) Performance Monitoring Program and the Groundwater Monitoring Program and Surface Water Monitoring Program for the Topock project. This report presents the Second Quarter (April through June 2016) performance monitoring results for the IMs hydraulic containment system. This report also presents groundwater and surface water monitoring activities, results, and analyses related to the Groundwater and Surface Water Monitoring Programs for the Second Quarter 2016 Reporting Period.

The IM quarterly performance monitoring report is submitted in conformance with the reporting requirements in the California Environmental Protection Agency, Department of Toxic Substances Control's (DTSC) IM 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; July 23, 2010; June 27, 2014; and July 20, 2015.

Please contact me at (805) 234-2257 if you have any questions on the combined monitoring report.

Sincerely,

Yvonne Meeks
Topock Remediation Project Manager

Cc: Chris Guerre/DTSC
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Pacific Gas and Electric Company

SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT

Topock Compressor Station,
Needles, California

August 15, 2016

SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT

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**SECOND QUARTER
2016 INTERIM
MEASURES
PERFORMANCE
MONITORING AND SITE-
WIDE GROUNDWATER
AND SURFACE WATER
MONITORING REPORT**

PG&E Topock Compressor Station,
Needles, California

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August 15, 2016

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GROUNDWATER AND SURFACE WATER MONITORING REPORT

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ACRONYMS AND ABBREVIATIONS

µg/L	micrograms per liter
ADEQ	Arizona Department of Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COPC	contaminant of potential concern
Cr(VI)	hexavalent chromium
CWG	Consultative Working Group
DOI	U.S. Department of the Interior
DTSC	California Environmental Protection Agency, Department of Toxic Substances Control
ft/ft	foot or feet per foot
GMP	Groundwater Monitoring Program
gpm	gallons per minute
IM	interim measure
IM-3	Interim Measures number 3
IMCP	Interim Measures Contingency Plan
mg/L	milligrams per liter
MS/MSD	matrix spike/matrix spike duplicate
ORP	oxidation-reduction potential
PDS	post digestion spike
PG&E	Pacific Gas and Electric Company
PMP	Performance Monitoring Program
QC	quality control
RCRA	Resource Conservation and Recovery Act
RMP	Surface Water Monitoring Program
TDS	total dissolved solids
USBR	United States Bureau of Reclamation
USEPA	United States Environmental Protection Agency
UTL	upper tolerance limit

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EXECUTIVE SUMMARY

This quarterly report documents the monitoring activities and performance evaluation of the interim measure (IM) hydraulic containment system under the IM Performance Monitoring Program, the Groundwater Monitoring Program, and Surface Water Monitoring Program for the Topock Project. Hydraulic and chemical monitoring data were collected and used to evaluate the IM hydraulic containment system performance based on a set of standards approved by the California Department of Substances Control (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 toward the pumping centers on site; (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 Second Quarter 2016. The average pumping rate for the IM extraction system during Second Quarter 2016 was 122.6 gallons per minute, and an estimated 81.9 pounds (37.1 kilograms) of chromium were removed in March, April, and May 2016. To date, the IM extraction system has removed 8,610 pounds (3,900 kilograms) of chromium.

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1 INTRODUCTION

Pacific Gas and Electric Company (PG&E) is implementing Interim Measures (IMs) to address chromium concentrations in groundwater at the Topock Compressor Station (the site). The Topock Compressor Station is located in eastern San Bernardino County, 15 miles southeast of the City of Needles, California, as shown on Figure 1-1.

This report presents the monitoring data from three PG&E monitoring programs:

- Site-wide Groundwater Monitoring Program (GMP)
- Site-wide Surface Water Monitoring Program (RMP)
- Interim Measure No. 3 (IM-3) Performance Monitoring Program (PMP)

This report presents the monitoring data collected from PG&E's GMP, RMP, and PMP between April 1 and June 30, 2016 (hereafter referred to as **Second Quarter 2016**). Table 1-1 shows the current reporting schedule for these programs.

This report is divided into six sections:

Section 1 introduces the site: the GMP, RMP, and PMP programs and the regulatory framework.

Section 2 describes the Second Quarter 2016 monitoring activities and site operations conducted in support of these programs.

Section 3 presents GMP and RMP monitoring results for the Second Quarter 2016 reporting period.

Section 4 presents PMP monitoring results and the IM evaluation for the Second Quarter 2016 reporting period.

Section 5 describes upcoming monitoring events for the Third Quarter 2016.

Section 6 lists the references cited throughout this report.

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).

1.1 Recent Regulatory Communication

- On June 27, 2014, DTSC approved changes to the GMP sampling schedule, sample frequencies, and sampling methods (DTSC 2014b). This approval was based on recommendations documented in

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the Fourth Quarter 2013 and Annual edition of the Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report (henceforth referred to as the GMP/PMP Report; CH2M Hill 2014a). Starting in Third Quarter 2014, the groundwater sample collection method for most monitoring wells was conditionally switched from the traditional three-volume method to the low-flow (minimal drawdown) method (following the standard operating procedures detailed in the Sampling and Analysis Field Procedures Topock Program Manual, Revision 1, PG&E, Topock Project [CH2M Hill 2005a] and relevant updates).

- An updated listing of DTSC-approved purge methods and sampling frequencies, as well as a revised set of proposed GMP analytical suite modification, was provided in Table 7-1 of the Fourth Quarter 2014 and Annual GMP/PMP Report (CH2M Hill 2015a). PG&E outlined additional recommendations for updates to the GMP program sampling methods in a letter to DTSC dated August 21, 2015 (PG&E 2015) and in Section 7 of the Fourth Quarter 2015 and Annual GMP/PMP Report (Arcadis 2016a). Recommendations made by PG&E in these documents remain under agency review.
- On June 29, 2015, the Arizona Department of Environmental Quality (ADEQ) recommended that PG&E increase the sampling frequency of MW-55-120 from semiannually to quarterly (ADEQ 2015). This was initiated by PG&E in Third Quarter 2015. On May 18, 2016 ADEQ recommended that quarterly sampling at MW-55-120 be extended for an additional year “where data are within the prescribed hold time and analyzed by an ADHS-certified lab (ADEQ 2016).” This was initiated by PG&E in Second Quarter 2016. Quarterly sampling is planned to continue through at least First Quarter 2017 at this location. Results of sampling at MW-55-120 will be evaluated following the First Quarter 2017 sampling event, and a new sampling frequency will be proposed in the First Quarter 2017 edition of this report.

On July 20, 2015, DTSC conditionally approved a proposal to evaluate a modification to the IM-3 pumping regime by allowing PE-01 to be shut off with pumping shifted to TW-03D and TW-02D or TW-02S, so long as gradient targets are maintained and contingency is not triggered based on hexavalent chromium [Cr(VI)] concentrations in select floodplain wells (DTSC 2015). Because PE-01 pumps water with low concentrations of chromium (typically less than 5 micrograms per liter [$\mu\text{g/L}$]), shifting the flow from this well to a higher concentration extraction well can increase the rate of chromium removal from the floodplain. After a brief period of testing hydraulic gradients and operating the IM-3 treatment plant with PE-01 off in August and September 2015, PE-01 pumping resumed in September 2015 and remained on through the end of the year. On February 3, 2016, PE-01 was turned off, with the pumping shifted to TW-03D and supplemented by TW-02D. PE-01 has remained off since that time except for brief periods to support groundwater sample collection and one week in June, when it was operated to

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help maintain key well gradients. As part of the conditional approval for PE-01 shutoff, GMP monitoring results from wells listed in the July 20, 2015 DTSC approval letter are compared to the maximum Cr(VI) and chromium concentrations measured in 2014 (or for biennial sampling frequency, the 2013 maximum concentrations), and results that exceed the previous maximum are required to be reported to DTSC within 40 days after the end of the quarterly GMP sampling event. This notification for second quarter GMP sampling results was made to DTSC on June 15, 2016 (with a follow up e-mail for one additional notification sent on August 10, 2016). DTSC replied to PG&E's initial second quarter notification with an email on June 15, 2016. DTSC confirmed that monitoring and assessment should continue to evaluate concentration trends, and requested that future notifications be provide in the same format as the second quarter submittal. Section 4.3.2 of this report provides further detail about this notification.

1.2 History of Groundwater Impact at the Site

1.2.1 Cr(VI) Impacts to Groundwater

The Topock Compressor Station began operations in 1951. Remediation efforts are ongoing to address Cr(VI) in soil and groundwater resulting from the historical water discharge practices. A comprehensive library documenting the history of remediation at the Topock Compressor Station is available on the DTSC website at <http://dtsc-topock.com/> (DTSC 2016).

1.2.2 Background Concentrations of Cr(VI)

Based on a regional study of naturally occurring metals in groundwater and a statistical evaluation of these data (CH2M Hill 2009a), naturally occurring Cr(VI) in groundwater was calculated to exhibit an upper tolerance limit (UTL) concentration of 32 µg/L. This concentration is used as the background concentration for remedial activities. At the site, the Cr(VI) plume is mostly present within unconsolidated alluvial fan and fluvial deposits (within the alluvial aquifer) and, to a lesser extent, in fractured bedrock. Natural groundwater gradients are generally west-to-east in the majority of the site. The depth to groundwater and the thickness of the saturated sediments vary significantly across the site based on surface topography and the paleo-topography of the top of bedrock surface underneath the site.

1.3 Site-wide Groundwater and Surface Water Monitoring Programs

1.3.1 Basis for GMP and RMP Programs

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 (CERCLA) facility investigation/remedial groundwater investigation. The RCRA program is being regulated under a

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Corrective Action Consent Agreement issued by the DTSC in 1996 for the Topock site (United States Environmental Protection Agency [USEPA] ID No. CAT080011729).

Groundwater monitoring data collected to date have been documented in regular monitoring reports (available on the DTSC website). In addition, data from between July 1997 and October 2007 are summarized in the Revised Final RCRA Facility Investigation/Remedial Investigation Report, Volume 2—Hydrogeologic Characterization and Results of Groundwater and Surface Water Investigation, PG&E, Topock Compressor Station, Needles, California, dated February 11, 2009 (CH2M Hill 2009a). Additional 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, PG&E, 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 report presents the Second Quarter 2016 GMP and RMP report for the IM monitoring activities conducted from April 1, 2016 through June 30, 2016.

1.3.2 GMP and RMP Sampling Networks

The GMP monitoring well network and RMP surface water sampling network are shown on Figures 1-2 and 1-3, respectively, and summarized below. The complete GMP network includes more than 100 wells that monitor groundwater in the alluvial aquifer and bedrock, and the RMP includes 16 surface water monitoring locations.

GMP Groundwater Monitoring Wells	RMP Surface Water Monitoring Locations
129 monitoring wells in California, including two normally dry wells	10 river channel locations
8 monitoring wells in Arizona	4 shoreline locations
2 water supply wells	2 other surface water sampling locations (adjacent to the shoreline)
2 IM-3 extraction wells	
5 test wells	

The well construction and sampling methods for wells in the GMP and other monitoring wells at the site are summarized in Appendix A (Table A-1) of the Fourth Quarter 2015 and Annual GMP/PMP report (Arcadis 2016a).

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1.4 Interim Measure Performance Monitoring Program

1.4.1 Basis for PMP 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 2005b; 2007a-c), this report presents the Second Quarter 2016 PMP evaluation results for the IM monitoring activities from April 1, 2016 through June 30, 2016.

The Topock IM project 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 IM-3. The IM monitors only the alluvial aquifer. Currently, the IM-3 facilities include a groundwater extraction system (four extraction wells: TW-02D, TW-03D, TW-02S, and PE-01), conveyance piping, a groundwater treatment plant, and an injection well field for the discharge of the treated groundwater. On February 3, 2016, PE-01 was turned off, with the pumping shifted to TW-03D and supplemented by TW-02D. Extraction well TW-03D operated full time through Second Quarter 2016. Figure 1-1 shows the locations 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 [$\mu\text{g/L}$] in the floodplain are contained for removal and treatment*” (DTSC 2005b). A Draft Performance Monitoring Plan for Interim Measures in the Floodplain Area, PG&E, Topock Compressor Station, Needles, California (CH2M Hill 2005b) 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 2005b-c). 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; July 23, 2010; and June 27, 2014 (DTSC 2007a; 2008a-b; 2010a; 2014b). On July 20, 2015, DTSC conditionally approved the proposal to modify the IM-3 pumping regime by allowing PE-01 to be shut off and pumping to be shifted to TW-03D and TW-02D or TW-02S so long as gradient targets are maintained (DTSC 2015). Because PE-01 pumps water with low

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concentrations of chromium (typically less than 5 µg/L), shifting more pumping to a higher concentration extraction well can increase the rate of chromium removal from the floodplain.

1.4.2 PMP – Aquifer Hydraulics

The PMP monitors hydrogeologic conditions in the alluvial aquifer. 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 alluvial aquifer is considered to be hydraulically undivided. The subdivision of the aquifer into three depth intervals is an appropriate construct for presenting and evaluating spatial and temporal distribution of 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.

1.4.3 PMP Monitoring Network

Figure 1-4 shows the locations of wells used for the PMP. The PMP includes data collection for IM groundwater extraction, IM hydraulic monitoring, the IM Contingency Plan (IMCP), and IM chemical performance monitoring. With approval from DTSC, the list of wells included in the PMP programs was modified beginning August 1, 2008 (PG&E 2008). The PMP wells and monitoring locations are described in the table below.

PMP Wells and Monitoring Networks

IM Extraction Wells (4 Wells)

- TW-02D
- TW-03D
- TW-02S
- PE-01

Hydraulic Monitoring Network – 53 Wells Total (including 17 shallow, 14 intermediate, and 22 deep)

- Floodplain wells: monitoring wells on the Colorado River floodplain
- Intermediate wells: monitoring wells immediately north, west, and southwest of the floodplain
- Interior wells: monitoring wells upgradient of IM pumping

IMCP Wells (24 Wells)

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- 6 Shallow Wells
- 5 Intermediate Wells
- 13 Deep Wells

Chemical Performance Monitoring Locations (11)

- 9 Annual Wells
- 1 River Sampling Location
- 1 Biennial Well

1.4.3.1 IM Extraction Wells

The PMP Program includes four IM extraction wells (Figure 1-4). Three wells (TW-02D, TW-03D, and TW-02S) are located on the MW-20 bench, and one well (PE-01) is located on the floodplain approximately 450 feet east of extraction well TW-03D.

1.4.3.2 IM Hydraulic Monitoring Network

The IM Hydraulic Monitoring Network consists of 53 wells (shown on Figure 1-4) that are used to evaluate the performance of the IM and demonstrate compliance of required hydraulic gradients. Section 4.7 of this report presents a summary of the IM hydraulic monitoring results for Second Quarter 2016.

In addition to the established IM hydraulic monitoring network, groundwater monitoring wells installed on the Arizona side of the Colorado River (not formally part of the PMP) also provide groundwater elevation data and demonstrate hydraulic gradients on the Arizona side of the river (Figure 1-4).

1.4.3.3 IM Contingency Plan Wells

Twenty-four IMCP wells have been selected as part of an early detection system to detect any increases in chromium concentrations at areas of interest at the site. Following a sampling event, any sampled IMCP wells are evaluated against their established trigger levels. If any exceedances are observed, a notification process is initiated as outlined in the Revised Contingency Plan Flow Chart (Figure 1; PG&E 2008). Results of IMCP well evaluations following Second Quarter 2016 sampling are presented in Section 4.3 of this report.

1.4.3.4 IM Chemical Performance Monitoring Wells

The well network is sampled annually or biennially for an expanded chemistry suite as part of the IM Chemical Performance Monitoring Network, which was most recently amended in 2008 (PG&E 2008). Currently, nine wells are sampled annually as part of this program, one well is sampled biennially, and one river location is sampled annually. Results of chemical performance monitoring were last reported in the

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Fourth Quarter 2015 Annual GMP-PMP Report (Arcadis 2016a). The next scheduled assessment is planned for Fourth Quarter 2016.

1.5 Sustainability

The GMP, RMP, and PMP monitoring programs strive to use sustainable sampling and data collection practices. This section briefly describes some of the sustainability practices now in use.

As approved by the California Regional Water Quality Control Board in 2006, groundwater sampling purge water is disposed via the on-site IM-3 treatment plant and injection process, eliminating off-site transport and disposal of sampling purge water. Additionally, the RMP boat contractor has always been a local Lake Havasu City-based business. Benefits of employing local resources for sampling support are reduced fuel consumption and greenhouse gas emissions, and increased local business support. In 2012, the analytical laboratory services supporting Topock monitoring was changed from a Los Angeles-based lab to the current California-certified Las Vegas-based lab, reducing lab courier travel by more than half. In 2007, DTCS approved the use of USEPA Method 218.6, which has a 28-day holding time in place of USEPA Method SW846 Method 7199 for Cr(VI) analysis, which has a 24-hour holding time. Subsequently, PG&E also adopted the 14-day holding time nitrate method (first used with the CMP) for Topock GMP to replace the previous 48-hour holding time method. These method changes reduced courier travel mileage and increased field efficiency with less frequent sample pickups. The use of the DTSC website and electronic report submittal has reduced the number of report hard copies and conserved natural resources. The number of report hard copies has been reduced over the years from 16 to 10 for the quarterly reports and from 18 to 12 for the annual reports to conserve resources.

To reduce the potential for impacts to floodplain areas with nesting habitat for sensitive avian species, water level data telemetry systems were installed from 2011 through 2012 at the five key gradient compliance well locations. The telemetry systems are still used. The solar-powered data telemetry systems eliminated the need for weekly download visits (reduced mobilizations of off-site technical support resources) and allows for monthly or less frequent visits for key well transducer calibrations and maintenance.

The DTSC approved the provisional use of low-flow sampling on June 27, 2014 (DTSC 2014b) at most wells screened in the alluvial aquifer. Low-flow sampling reduced the volume of purge water and the sampling footprint at most wells. For wells still using the three-volume purge sampling methods (primarily bedrock and long screened wells), pumps and tubing are sized for the optimum purge technique at each monitoring well. Utility vehicles (for example, Polaris Ranger or Kawasaki Mule) and one quiet electric four-

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wheel-drive utility vehicle are used to access wells on the floodplain and in some culturally sensitive areas rather than the full-size pickup truck. These best practices reduce generator use, impacts from well access, and decontamination water volume to further decrease the monitoring footprint.

More recently, DTSC's conditional approval to modify the IM-3 pumping regime by allowing PE-01 to be shut off (with pumping shifted to TW-03D and TW-02D or TW-02S) allows for an increase in the rate of chromium removal from the floodplain, thereby extending the benefit of additional mass removal by the existing system to the overall site cleanup while maintaining hydraulic control of the plume.

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2 SECOND QUARTER 2016 MONITORING ACTIVITIES

This section summarizes the monitoring and sampling activities completed during Second Quarter 2016 for the GMP, RMP, and PMP.

2.1 Groundwater Monitoring Program

2.1.1 Monthly Sampling

Groundwater was sampled from two of the IM extraction wells (PE-01 and TW-03D) in April, May, and June 2016 and was analyzed for Cr(VI), dissolved chromium, total dissolved solids (TDS), pH, and several additional analytes. While PE-01 has remained mostly off since being shut down in February, it was run for brief periods to support groundwater sample collection and for one week in June to help maintain key well gradients.

2.1.2 Quarterly Sampling

The Second Quarter 2016 GMP groundwater monitoring event was conducted between April 25 and May 6, 2016 and included sampling from 99 groundwater monitoring wells.

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

In addition, groundwater samples were collected at selected GMP wells for analysis of:

- Arsenic from a subset of wells screened in fluvial sediments, as directed by DTSC in the Corrective Measures Study review comment No. 186 (DTSC 2009b)
- Arsenic from bedrock monitoring wells
- Contaminants of potential concern (COPCs), including molybdenum, nitrate/nitrite as nitrogen (referred to as nitrate hereafter), selenium, and potential in situ byproducts (manganese, iron, and arsenic) from a subset of wells (DTSC 2010b; 2011; 2015).

2.1.3 Flow in Bat Cave Wash

On May 2, 2016, there was a rainfall event that caused surface water flow in Bat Cave Wash. The following day, wells MW-9, MW-10, and MW-11 were sampled as part of the Second Quarter GMP sampling event. Additional analytes were added to sampling to monitor any effects from the surface water flow. Results of this additional sampling are reported in Section 3.2.3.

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2.1.4 Well Maintenance

PG&E performs quarterly inspections and takes corrective actions as necessary to ensure that the monitoring wells are in good working condition (DTSC 2013; CH2M HILL 2005a-b). Table A-1 in Appendix A summarizes the quarterly inspection log, field observations, and mitigation actions, if any, for well maintenance.

2.1.5 Implementation of Alternative Sampling Methods

2.1.5.1 Site-wide Implementation of Low-flow Sampling Method

On June 27, 2014, the DTSC approved a change from the traditional three-volume purge sampling method to using a low-flow sampling method (DTSC 2014b). This approval applied to wells screened in alluvial/fluvial sediments with saturated screen lengths of 20 feet or less. Sample collection using the low-flow method at wells meeting the screen length criterion was initiated during the Third Quarter 2014 sampling event and has continued through Second Quarter 2016.

2.1.5.2 Sampling Method Trials at Select Wells

In conformance with the June 27, 2014 email from DTSC (DTSC 2014b), PG&E began conducting sampling method trials at MW-38S, MW-38D, MW-40S, and MW-40D during Fourth Quarter 2014. An assessment of the method trials was performed following Fourth Quarter 2015 sampling and was included with the Fourth Quarter 2015 Annual GMP/PMP Report (Arcadis 2016a). The annual report presented the results after 1 year of method trials and made recommendations for updates to the trials (currently under agency review). Method trials continued through Second Quarter 2016 at these wells. The next assessment will be presented in the Fourth Quarter 2016 Annual GMP/PMP Report.

2.2 Surface Water Monitoring Program

Quarterly surface water sampling for the Second Quarter 2016 was conducted April 27 and 28, 2016 from the RMP monitoring network. Samples from this event were analyzed for Cr(VI), dissolved chromium, specific conductance, and pH. Samples were also analyzed for COPCs (molybdenum, nitrate, and selenium), in situ byproducts (manganese, iron, and arsenic), and geochemical indicator parameters (barium and total suspended solids) to develop baseline concentrations for future remedy performance evaluations.

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2.3 Performance Monitoring Program

Groundwater samples for the PMP were collected during the Second Quarter 2016 GMP sampling event. In addition, PMP pressure transducers, which monitor hydraulic gradients of the alluvial aquifer, were downloaded in the first week of each month (April, May, and June). The transducers in the key monitoring wells (MW-27-085, MW-31-135, MW-33-150, MW-34-100, and MW-45-095; Figure 1-4) are also downloaded via a cellular telemetry system.

In accordance with DTSC conditional approval (DTSC 2015) PE-01 was shut off February 3, 2016, with the pumping shifted to TW-03D and supplemented by TW-02D. Conditional approval included the requirement that PG&E notify DTSC if chromium from individual floodplain monitoring wells within approximately 800 feet of TW-3D exhibited concentrations greater than the maximum detected chromium concentrations from 2014 (or most recent year if a well was not sampled in 2014) when PE-01 is shut down. In the Second Quarter monitoring event, nine of 29 wells monitored met this criterion where either Cr(VI) or total dissolved chromium (or both) was detected at concentrations exceeding the notification levels. DTSC was notified on June 15, 2016 (Arcadis 2016c), and DTSC confirmed that monitoring and assessment should continue. Further discussion of these results is presented in Section 4.3.2 of this report.

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3 RESULTS FOR SITE-WIDE GROUNDWATER MONITORING AND SURFACE WATER SAMPLING

This section presents the analytical results for groundwater and surface water monitoring conducted during Second Quarter 2016.

3.1 Groundwater Results for Cr(VI) and Chromium

Table 3-1 presents the Second Quarter 2015 through Second Quarter 2016 groundwater sample results for Cr(VI) and chromium, among other parameters. The laboratory reports for samples analyzed during Second Quarter 2016 are provided in Appendix B.

Figures 3-1a, 3-1b, and 3-1c present the Second Quarter 2016 Cr(VI) results in plan view for wells monitoring the upper (shallow wells), middle (mid-depth wells), and lower (deep wells) intervals, respectively, of the alluvial aquifer and bedrock. These figures also show the interpreted extent of groundwater Cr(VI) concentrations higher than 32 µg/L for each depth interval. The value of 32 µg/L is based on the calculated natural background UTL for Cr(VI) in groundwater from the background study (CH2M Hill 2009a).

During Second Quarter 2016, the maximum detected Cr(VI) concentration was 12,000 µg/L in well MW-68-180. The maximum detected dissolved chromium concentration was also in MW-68-180 at 11,000 µg/L.

3.2 Other Groundwater Monitoring Results

3.2.1 Contaminants of Potential Concern and In Situ Byproducts

Table 3-2 presents the COPCs and in situ byproducts sampling results for groundwater monitoring well samples collected in Second Quarter 2016. The wells where maximum concentrations of these analytes were reported are summarized as follows:

- MW-46-175 with a molybdenum concentration of 150 µg/L
- MW-67-185 with a nitrate concentration of 67 milligrams per liter (mg/L)
- MW-26 with a selenium concentration of 50 µg/L
- MW-71-035 with a manganese concentration of 3,000 µg/L
- MW-42-055 with an arsenic concentration of 27 µg/L

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3.2.2 Arsenic Sampling in Monitoring Wells

Select alluvial aquifer and bedrock wells were sampled for arsenic during the Second Quarter 2016 event. Selected arsenic results are presented with the COPCs and in situ byproducts results in Table 3-2. Additional arsenic results are presented in Appendix C, Table C-1. Arsenic concentrations were within expected ranges for the wells sampled.

3.2.3 Additional Analytes after Flow in Bat Cave Wash

Select alluvial aquifer wells (MW-9, MW-10, and MW-11) were sampled for Cr(VI), total dissolved chromium, calcium, magnesium, sodium, dissolved iron, boron, arsenic, manganese, molybdenum, selenium, bromide, chloride, sulfate, TDS, alkalinity, and nitrate/nitrite as nitrogen in the Second Quarter 2016 after a rainfall event that caused water to flow in Bat Cave Wash. This list of analytes is consistent with previous post-rainfall sampling for assessment of water quality in Bat Cave Wash. Concentrations of all analytes were consistent with historical data for all three wells, indicating that the preceding rainfall events did not demonstrate an impact on general water quality in the shallow aquifer beneath Bat Cave Wash based on samples collected one day after the event. This conclusion is consistent with observations made following past flow events. Additional analytical results are presented in Appendix C, Table C-2.

3.3 Surface Water Results for Cr(VI) and Chromium

During the Second Quarter 2016 RMP sampling event, Cr(VI) and dissolved chromium were not detected at concentrations higher than reporting limits at any surface water monitoring locations (Table 3-3).

Table 3-4 presents results for the COPCs (molybdenum, nitrate, and selenium), in situ byproducts (manganese, iron, and arsenic), and other geochemical indicator parameters for surface water samples. Arsenic (less than 3 µg/L), barium (less than or equal to 140 µg/L), molybdenum (less than 6 µg/L), and selenium (less than or equal to 2 µg/L) concentrations were detected at all sampled locations. The nitrate/nitrite as nitrogen results were less than 1.0 mg/L. The dissolved manganese results were below or within reporting limits with a maximum detection of 53 µg/L at C-MAR-D. Dissolved iron detections were observed above laboratory reporting limits at C-NR3-D and C-NR3-S, with a maximum detection of 64 J µg/L at C-NR3-D.

The C-MAR sample location is near the east side of the Colorado River at the mouth of the Topock Marsh area as shown on Figure 1-3. This location is out of the main river channel and adjacent to an area of naturally reducing geochemical conditions in groundwater. Elevated manganese and iron concentrations

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are typical of reduced geochemical environments. Detections of these metals may also occur occasionally in more oxidized environments due to the presence of suspended solids (colloids) in the filtered samples. This is likely the case for samples from C-NR3-S and C-NR3-D, located upstream of the site in the main river channel (near the western shore).

3.4 Data Validation and Completeness

Laboratory analytical data from the Second Quarter 2016 sampling events were reviewed by project chemists to assess data quality and to identify deviations from analytical requirements.

The following bullets summarize the notable analytical qualifications in data reported for Second Quarter 2016:

- Eighteen Cr(VI) (USEPA Method 218.6) results exhibited a matrix interference issue that required a dilution to achieve satisfactory matrix spike (MS) recovery, resulting in an elevated reporting limit. No flags were applied.
- Dissolved arsenic, dissolved molybdenum, dissolved chromium, dissolved manganese, and dissolved selenium were recovered at concentrations lower than quality control (QC) limits in the MS of sample MW-29-Q216. The associated parent sample was qualified as estimated detects/non-detects and flagged “J” or “UJ” accordingly.
- Dissolved manganese was recovered at concentrations lower than QC limits in the post digestion spike (PDS), MS, and matrix spike duplicate (MSD) of sample MW-53D- Q216. Additionally, the serial dilution for dissolved arsenic did not meet QC criteria. The associated sample results were qualified as estimated detects and flagged “J”.
- Dissolved iron demonstrated a relative percent difference greater than QC criteria in the MS/MSD of sample C-NR3-S-Q216. The associated parent sample result was qualified as an estimated detect and flagged “J”.
- Dissolved sodium and dissolved chromium were recovered at concentrations less than QC limits in the MS, MSD, and PDS (dissolved chromium only) of sample MW-09-Q216. The associated parent sample results were qualified as estimated detects and flagged “J”.
- PDS recoveries were not within QC criteria in the following sample/analytes: MW-33-040-Q216/dissolved molybdenum, MW-66BR-270-Q216/dissolved manganese, and C-CON-d-Q216/dissolved manganese. The associated results were qualified as estimated detects and flagged “J”.

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- Dissolved iron and iron demonstrated relative percent differences greater than QC criteria for the field duplicate pair of samples C-NR3-D-Q216/MW-917-Q216. The associated results were qualified as estimated detects/non-detects and flagged "J"/"UJ" accordingly.
- Based on the March 2007 USEPA ruling, and reaffirmed in the May 2012 USEPA ruling, pH has a 15-minute holding time. As a result, all samples analyzed in a certified lab by Method SM4500-HB (pH) are analyzed outside the USEPA-recommended holding time. Therefore, the pH results for the Second Quarter 2016 sampling events analyzed in a certified lab are considered estimated.

No other analytical deviations were identified in the Second Quarter 2016 data. Additional details are provided in the data validation reports kept in the project file and available upon request.

In addition, PG&E identified no “suspect” detections of Cr(VI) in surface water samples or any other “suspect” samples requiring reanalysis at the laboratory; therefore, in conformance with the agencies’ April 4, 2014 direction letter (DTSC 2014a), no notifications were made to DTSC and the United States Department of the Interior (DOI) with regards to “suspect” samples.

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4 SECOND QUARTER INTERIM MEASURES PERFORMANCE MONITORING PROGRAM EVALUATION

This section presents the quarterly PMP evaluation summary.

4.1 Water Quality Results for Performance Monitoring Program Floodplain Wells

The chemical performance monitoring wells are sampled annually (one well sampled biennially) during the Fourth Quarter sampling events. Figure 1-4 shows the locations of the monitoring wells sampled for the performance monitoring parameters.

In July 2008 and June 2014, DTSC approved modifications to the PMP IM chemical performance monitoring parameters (DTSC 2008b, 2014b). For the complete annual general chemistry results, see Table F-1 in Appendix F of the 2015 GMP/PMP Report (Arcadis 2016a). The next round of chemical performance monitoring sampling is planned for Fourth Quarter 2016.

4.2 Cr(VI) Distribution and Trends in Performance Monitoring Program Wells

The Second Quarter 2016 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 view on Figure 4-1.¹ Figure 4-2 presents the Second Quarter 2016 Cr(VI) results for cross-section B, oriented parallel to the Colorado River. The locations of cross-sections A and B are shown on Figure 4-1.

Analytical results from April 2015 through June 2016 are presented in Table 3-1. Appendix D includes graphs of Cr(VI) concentration vs time in selected monitoring well clusters through June 2016. Figure 4-3 presents graphs of Cr(VI) concentration vs time for the following deep monitoring wells in the floodplain area through June 2016: MW-34-100, MW-36-090, MW-36-100, MW-44-115, MW-44-125, and MW-46-175. The locations of these deep wells selected for performance evaluation are shown on Figure 4-1.

Wells showing marked decreases in concentration are generally in the floodplain area where IM pumping is removing chromium in groundwater. Wells with historical detections near or at reporting limits remained

¹ On 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 on 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.

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at these levels during the Second Quarter 2016 period. Cr(VI) concentrations have remained relatively steady with respect to historical trends or have decreased in many wells since IM and PE-01 pumping began in 2004 and 2005, respectively (Figure 4-3 and Appendix D).

Key Cr(VI) concentration trends over the long term for the PMP wells sampled during the Second Quarter 2016 include:

- Concentrations at the MW-20 cluster (located near the TW-03D pumping well) indicate generally decreasing concentrations at the shallow well MW-20-070 (since 2011), decreasing concentrations at MW-20-100 (since May 2007), and variable concentrations at MW-20-130 but overall decreasing since 2007 (Figure D-3).
- As shown on Figure 4-3 and Figure D-6, well MW-34-100 has shown a seasonally fluctuating trend in Cr(VI) concentration over the past 8 years; since June 2006, concentrations at this well have shown a general decreasing trend. Landward gradients have been present at this location since IM pumping began; therefore, the seasonal fluctuations in concentration observed at MW-34-100 are not considered an indication of any migration of the plume toward the river.
- Deep well MW-36-100 Cr(VI) concentrations initially increased upon the startup of PE-01 pumping, began to decrease in 2007, and have remained lower than 100 µg/L since late 2008, as shown on Figures 4-3 and D-7.
- Deep well MW-39-100 concentrations steadily declined since the start of IM pumping (Figure D-8).
- Deep well MW-44-115 has shown a downward trend since July 2006, as presented on Figures 4-3 and D-10. Well MW-44-125 has also shown an overall downward trend since November 2008, as presented on Figures 4-3 and D-10.
- Concentrations in deep well MW-46-175 have shown a seasonally fluctuating but overall downward trend since 2007, as presented on Figures 4-3 and D-11.
- Well TW-04, a deeper well, has shown a declining trend since March 2007, as presented on Figure D-19.

4.3 Performance Monitoring Program Contingency Plan Cr(VI) Monitoring

4.3.1 Chromium Concentrations in IMCP Wells

The Topock IMCP was developed to detect and control possible migration of the Cr(VI) plume toward the Colorado River (DTSC 2005b). Currently, the IMCP consists of 24 wells that activate contingencies per criteria in the IMCP plan if their trigger levels are exceeded. Cr(VI) results for the IMCP wells sampled

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during the Second Quarter 2016 reporting period were all lower than their trigger levels. Appendix D includes Cr(VI) concentration graphs for the IMCP wells and select other site monitoring wells.

4.3.2 Chromium Concentrations in Wells within 800 feet of TW-3D when PE-01 is Not Pumping

As discussed in Section 1.1, extraction well PE-01 has been shut down since February 3, 2016 (except for brief periods to support groundwater sample collection from PE-01 and 1 week in June when it was operated to help maintain key well gradients.). Conditional approval included the requirement that PG&E notify DTSC if chromium from individual floodplain monitoring wells within approximately 800 feet of TW-3D exhibited concentrations greater than the maximum detected chromium concentrations from 2014 (or most recent year if a well was not sampled in 2014) when PE-01 is shut down. In the Second Quarter 2016 monitoring event, nine of 29 wells monitored met this criterion where either Cr(VI) or total dissolved chromium (or both) was detected at concentrations exceeding the notification levels. These wells include MW-39-100, MW-42-055, MW-44-070, MW-44-125, MW-47-115, MW-20-130, MW-31-060, MW-51, and MW-26. For the other 20 wells sampled in Second Quarter 2016, total dissolved chromium and hexavalent chromium concentrations were below their notification levels and/or were non-detect. DTSC was notified of exceedances at eight wells on June 15, 2016 (Arcadis 2016c), and DTSC confirmed that monitoring and assessment should continue. In addition, due to a tracking error, an exceedance at a ninth well (MW-44-070) was identified during the reporting process and was communicated to DTSC in a follow-up email on August 10, 2016 (including supporting documentation indicating that total chromium concentrations at the well are within background levels).

For the nine wells identified, Second Quarter 2016 chromium concentrations appear to be within expectations based on recent data trends/fluctuation. In addition, the concentrations of hexavalent chromium at MW-42-055 and MW-44-125, and the concentrations of total dissolved chromium at MW-44-070, MW-44-125, and MW-47-115, while exceeding the maximum concentrations observed in 2014, remain within the range of site-wide natural background levels (<32 µg/L hexavalent chromium and <28 µg/L total dissolved chromium).

4.4 Extraction Systems Operations

From April 1, 2016 through June 30, 2016, the volume of groundwater extracted and treated by the IM-3 system was 16,084,389 gallons, and an estimated 81.9 pounds (37.1 kilograms) of chromium were removed from the aquifer in March, April, and May 2016 (Table 4-1).

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During Second Quarter 2016, extraction wells TW-03D, PE-01 (turned off since February 3, except during sampling and for 1 week in June), and TW-02D operated at a combined pumping rate of 122.6 gallons per minute (gpm), including periods of planned and unplanned downtime. The average monthly pumping rates were 97.3 gpm (April 2016), 135.5 gpm (May, 2016), and 135.0 gpm (June 2016) during the Second Quarter 2016. Extraction well TW-02S was not operated during Second Quarter 2016. Table 4-1 shows the average pumping rate and total volume pumped for the system during Second Quarter 2016, as well as monthly average pumping rates and total volumes pumped per extraction well during the quarter.

The operational runtime percentage for the IM extraction system was 89.6 percent during this reporting period. The operations log for the extraction system during Second Quarter 2016, including planned and unplanned downtime, is included in Appendix E. Additional IM-3 operational data are presented in quarterly (and semiannual) IM-3 Treatment System Monitoring Reports (e.g., CH2M Hill 2016a-b).

The concentrate (i.e., saline water) from the reverse osmosis system was shipped off site as a non-hazardous waste and was transported to Liquid Environmental Solutions in Phoenix, Arizona for treatment and disposal. Five containers of solids from the IM-3 facility were disposed of at the U.S. Ecology Chemical Waste Management facility in Beatty, Nevada during Second Quarter 2016. Daily IM-3 inspections included general facility inspections, flow measurements, and site security monitoring. Daily logs with documentation of inspections are maintained on site.

During the reporting period, Cr(VI) concentrations in TW-03D remained stable, ranging from a maximum value of 630 µg/L in June to a minimum value of 610 µg/L in May, as shown in Table 4-2. TDS concentrations in TW-3D for this reporting period have also remained stable, as shown in Table 4-2.

The Cr(VI) concentrations in the groundwater at extraction well PE-01 on the floodplain during the reporting period ranged from 1.2 µg/L in April to 0.83 µg/L in June, as shown in Table 4-2. After being shut down in February, this well remained off for most of the Second Quarter 2016, only being turned on for brief periods to support groundwater sampling and for 1 week in June to help maintain key well gradients. TDS concentrations in PE-1 for this reporting period have remained stable.

With increased use of extraction well TW-02D during First Quarter 2016, PG&E has increased sampling frequency at this well from annual to quarterly starting in Second Quarter 2016. Sampling results at this well during Second Quarter 2016 showed results of 46 µg/L Cr(VI) and 47 µg/L total dissolved chromium. Results will continue to be monitored at this location quarterly while this well remains in use for groundwater extraction.

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Groundwater samples are currently collected annually at extraction well TW-02S, with the next round of sampling planned for Fourth Quarter 2016.

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 56 wells (excluding five Arizona locations) and two river monitoring stations (I-3 and RRB; Figure 4-4a). The data are typically continuous, with only short interruptions for sampling or maintenance.

Hydraulic gradients were measured during the Second Quarter 2016 for well pairs selected for performance monitoring of the extraction system. Table 4-3 presents the monthly average hydraulic gradients that were measured for each of the gradient well pairs in April, May, and June 2016 as well as the overall average of all well pairs. Landward gradients exceeding the 0.001 foot per foot (ft/ft) requirement were measured each month as shown in Table 4-3. Figure 4-6 presents graphs of the hydraulic gradients, monthly average pumping rates, and river levels for the quarterly period. The overall average gradients for all well pairs were 0.0044, 0.0038, and 0.0048 ft/ft. This is 4.4, 3.8, and 4.8 times greater than the required gradient of 0.001 ft/ft, respectively. The monthly average gradients for the northern well pair were 2.0, 2.7, and 2.7 times the target gradient of 0.001 ft/ft. For the central well pair, the monthly average gradients were 9.0, 6.8, and 8.8 times the target gradient. The southern well pair average gradients were 2.2, 2.0, and 2.8 times the target gradient.

Daily average groundwater and river elevations calculated from the pressure transducer data for the Second Quarter 2016 reporting period are summarized in Table F-1 in Appendix F. Groundwater elevations (or total hydraulic heads) are adjusted for temperature and salinity differences between wells (i.e., adjusted to a common freshwater equivalent). The elevation of the Colorado River measured at the I-3 gauge station (location shown on Figure 4-4a) is also shown on the hydrographs in Appendix F.

Average Second Quarter 2016 groundwater elevations for the upper, middle, and lower wells are presented and contoured in plan view on Figures 4-4a, 4-4b, and 4-4c. Average groundwater elevations for wells on floodplain cross-section A are presented and contoured on Figure 4-5. Several monitoring wells are significantly deeper than other wells in the lower depth interval. Due to complex vertical gradients present at portions of the Topock site, water levels for some wells are not considered in the contouring in the plan views on Figures 4-4a through 4-4c and in the cross-section on Figure 4-5.

Lower water levels shown on Figure 4-4c 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 apparent

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hydraulic gradient on the Arizona side of the river is westward and, as a result, groundwater flow would also be toward the west in that area. This is consistent with the site conceptual model and with the current numerical groundwater flow model.

For the Second Quarter 2016 reporting period, transducer data were recorded in wells located on the Arizona side of the Colorado River. The quarterly average groundwater elevations for wells MW-55-120, MW-54-085, MW-54-140, and MW-54-195 are presented on Figure 4-4c, if available, and are used for contouring where appropriate. With the exception of well MW-55-045, all wells in the MW-54 and MW-55 clusters are screened in the deep interval of the alluvial aquifer. Well MW-55-045 is screened across portions of the shallow and middle intervals.

4.6 Projected River Levels during Next Quarter

The 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 (USBR). 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 4-7 shows the river stage measured at I-3 superimposed on the projected I-3 river levels.

Projected river levels for future months are based on the USBR projections of Davis Dam discharge and Lake Havasu levels from the preceding month. For example, the projected river level for July 2016 is based on the June 2016 USBR 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 (last 3 years; plotted on Figure 4-7) are summarized in Table 4-4. The future projections shown on Figure 4-7 (predicted data points and lines are in different color than actual measurements) are based on USBR long-range projections of Davis Dam releases and Lake Havasu levels from July 2016. There is more uncertainty in these projections at longer times in the future because water demand is based on various elements including climatic factors.

Current USBR projections, presented in Table 4-4, show that the average Davis Dam release for July 2016 (13,300 cubic feet per second) will be less than the actual release in June 2016 (14,100 cubic feet

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per second). Based on July 2016 USBR projections, it is anticipated that the Colorado River level at the I-3 gage location in July 2016 will be approximately 0.4 ft lower compared to the actual levels in June 2016.

4.7 Quarterly Performance Monitoring Program Evaluation Summary

The groundwater elevation and hydraulic gradient data from April, May, and June 2016 performance monitoring indicate that the minimum landward gradient target of 0.001 ft/ft was exceeded each month during the Second Quarter 2016. The overall average landward gradients during Second Quarter 2016 were 4.4, 3.8, and 4.8 times the required minimum magnitude, respectively, as shown in Table 4-3. The gradient analysis from designated well pairs are an approved line of evidence for assessing hydraulic containment of the Cr(VI) plume created by pumping from the extraction well network (primarily consisting of TW-03D, with other wells as needed). Based on the hydraulic and monitoring data and evaluation presented in this report, the IM performance standard has been met for the Second Quarter 2016 reporting period.

A total of 16,084,389 gallons of groundwater was extracted during Second Quarter 2016 by the IM-3 treatment facility. The average pumping rate for the IM extraction system during Second Quarter 2016, including system downtime, was 122.6 gpm. An estimated 81.9 pounds (37.1 kilograms) of chromium were removed from groundwater during March, April, and May 2016, as presented in Table 4-1.

The wells monitored to detect trends in Cr(VI) in the IM pumping area (for example, MW-36-100, MW-39-100, MW-44-115, MW-44-125, and MW-46-175) generally continue to show overall stable or declining Cr(VI) concentrations relative to prior monitoring results, as shown in Appendix D. Presentation and evaluation of the Cr(VI) trends observed in the performance monitoring area during the Second Quarter 2016 reporting period are discussed in Section 4.2.

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5 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. Monitoring results, operations, and performance monitoring data will be further reported in the Third Quarter 2016 GMP/PMP Report, which will be submitted by December 15, 2016.

5.1 Groundwater Monitoring Program

5.1.1 Quarterly Monitoring

Consistent with the July 23, 2010 DTSC sampling schedule approval (DTSC 2010a), the Third Quarter 2016 groundwater monitoring event is scheduled for mid-September to early October, 2016. This event includes groundwater sampling at 21 wells.

5.1.2 Monthly Monitoring

Monthly sampling of TW-03D will continue during the first 2 weeks of each month. PE-01 has been shut down (February 2016); however, monthly sampling will continue in coordination with IM-3 staff.

5.1.3 Well Inspections

Monitoring wells will be inspected during each regularly scheduled sampling event but not less than quarterly (DTSC 2013; CH2M Hill 2005a-b). Necessary repairs will be conducted in a timely manner.

5.2 Surface Water Monitoring Program

The Third Quarter 2016 surface water monitoring event will be conducted in conjunction with the quarterly groundwater monitoring event in mid-September to early October 2016 at 25 locations in the RMP monitoring network.

5.3 Performance Monitoring Program

5.3.1 Extraction

The IM-3 extraction system will continue operating in compliance with the DTSC conditional approval letter dated July 20, 2015 (DTSC 2015). Extraction will be primarily from TW-03D, coupled with PE-01 as needed to maintain gradient control. If TW-03D cannot produce the target pumping rate of 135 gpm, then TW-02D and/or TW-02S may be pumped to supplement and achieve total flow.

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5.3.2 PMP Monitoring and Notifications

Quarterly GMP monitoring results from IMCP wells will continue to be compared to their respective Cr(VI) trigger levels. If any exceedances are observed, a notification process will be initiated as outlined in the Revised Contingency Plan Flow Chart (Figure 1, PG&E 2008).

Quarterly GMP monitoring results from wells listed in the July 20, 2015 DTSC approval letter for conditional PE-01 shutoff (DTSC 2015) will continue to be compared to maximum Cr(VI) and total dissolved chromium concentrations measured in 2014 (or for biennial sampling frequency, the 2013 maximum concentrations), and results that exceed the previous maximum will be reported to DTSC within 40 days after the end of the quarterly GMP sampling event.

The IM hydraulic monitoring network (shown on Figure 1-4) will continue to be used to evaluate the performance of the IM and demonstrate compliance of required hydraulic gradients.

5.3.3 Transducer Downloads

Downloads of the transducers in the key gradient control wells (MW-27-085, MW-31-135, MW-33-150, MW-34-100, and MW-45-095) and the MW-33 cluster will continue via telemetry at monthly or more frequent intervals, as needed to support IM-3 pumping operations, during Third Quarter 2016. Downloads of the remainder of the transducers will occur monthly on the first week of each month during Third Quarter 2016.

5.3.4 Monthly IM-3 Updates

As requested at the July 2015 Consultative Working Group (CWG) meeting, monthly IM-3 hydraulic performance data have been shared with agencies, Tribes, and stakeholders. The monthly data snapshot for June 2016 was submitted July 20, 2016.

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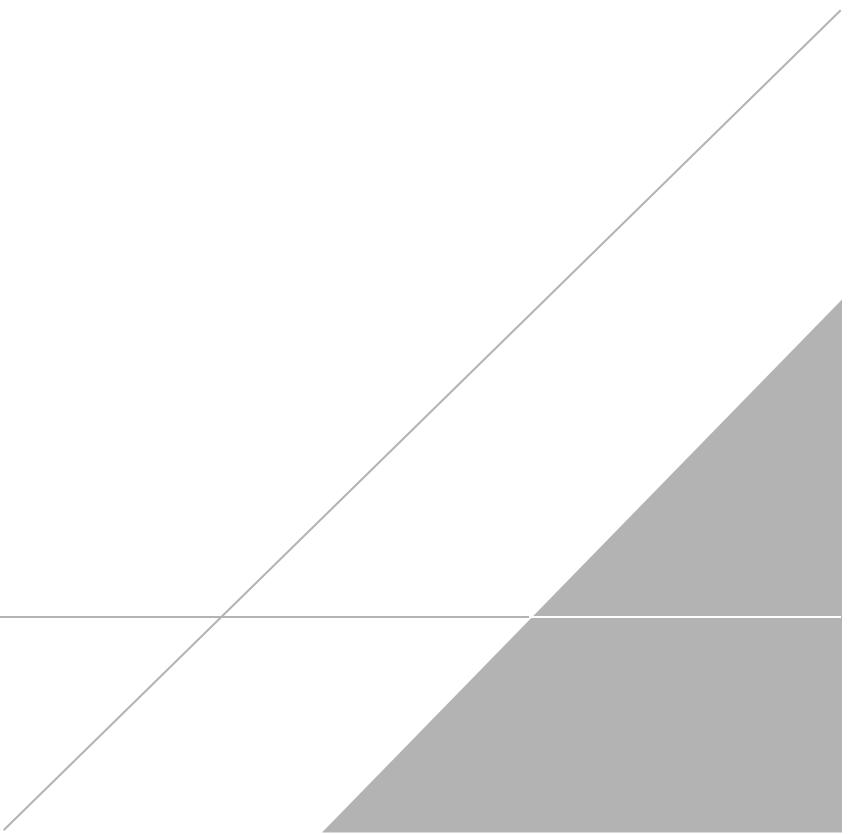


Table 1-1

Topock Monitoring Reporting Schedule

*Second Quarter 2016 Interim Measures Performance Monitoring and**Site-wide Groundwater and Surface Water Monitoring Report,**PG&E Topock Compressor Station, Needles, California*

Time Period	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Groundwater Monitoring Program	January - March	April - June	July - October	November - December
Surface Water Monitoring Program	January - March	April - June	July - October	November - December
Performance Monitoring Program	January - March	April - June	July - October	November - December
IM-3 Monitoring (Chromium removed)	January - February	March - May	June - September	October - December

Table 3-1**Groundwater Sampling Results, April 2015 through June 2016**

*Second Quarter 2016 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California*

Location ID	Aquifer Zone	Sample Date	Sample Method	Hexavalent Chromium (ug/L)	Dissolved Chromium (ug/L)	Total Chromium (ug/L)	Specific Conductance (us/Cm)	Selected Field Parameters		
								ORP (mV)	Field pH	Turbidity
MW-09	SA	5/12/2015	LF	230	230	---	3,510	-170	7.6	1
MW-09	SA	10/7/2015	LF	200	230	---	3,050	89	7.3	1
MW-09	SA	12/1/2015	LF	190	200	---	3,400	31	7.4	4
MW-09	SA	5/3/2016	LF	190	200	---	3,330	64	7.6	2
MW-10	SA	5/12/2015	LF	280	290	---	3,410	-170	7.4	16
MW-10	SA	10/7/2015	LF	190	210	---	2,610	71	7.4	20
MW-10	SA	12/1/2015	LF	150	170	---	2,950	67	7.4	39
MW-10	SA	5/3/2016	LF	220	220	---	3,170	42	7.3	5
MW-11	SA	5/12/2015	LF	130	130	---	2,570	-140	7.5	2
MW-11	SA	10/7/2015	LF	130	130	---	2,380	75	7.4	17
MW-11	SA	12/2/2015	LF	120	110	---	2,730	77	7.6	3
MW-11	SA	12/2/2015	FD	120	110	---	---	---	---	---
MW-11	SA	5/3/2016	LF	110	110	---	2,450	90	7.5	2
MW-11	SA	5/3/2016	FD	110	110	---	---	---	---	---
MW-12	SA	5/19/2015	LF	1,900	2,200	---	7,120	-81	7.7	1
MW-12	SA	12/2/2015	LF	2,300	2,300	---	6,600	98	8.0	1
MW-12	SA	5/2/2016	LF	1,900	2,000	---	7,490	-11	7.9	3
MW-13	SA	12/7/2015	LF	23	22	---	2,220	63	7.3	4
MW-14	SA	5/6/2015	LF	16	18	---	2,240	-110	7.5	6
MW-14	SA	12/7/2015	LF	17	16	---	2,210	31	7.6	106
MW-14	SA	4/27/2016	LF	13	15	---	2,400	63	7.6	22
MW-15	SA	12/9/2015	LF	13	12	---	1,810	69	7.6	4
MW-16	SA	12/8/2015	LF	11	11	---	1,130	63	7.5	9
MW-17	SA	12/9/2015	LF	13	14	---	1,370	150	7.7	2
MW-18	SA	12/7/2015	LF	22	21	---	1,510	29	7.5	2
MW-19	SA	5/14/2015	LF	630	690	---	2,490	-110	7.4	15
MW-19	SA	12/7/2015	LF	450	430	---	1,870	59	7.4	6
MW-19	SA	4/27/2016	LF	450	500	---	2,790	83	7.3	5
MW-20-070	SA	5/19/2015	LF	1,900	2,200	---	2,010	-180	7.3	4

Table 3-1**Groundwater Sampling Results, April 2015 through June 2016**

*Second Quarter 2016 Interim Measures Performance Monitoring and Site-wide
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PG&E Topock Compressor Station, Needles, California*

Location ID	Aquifer Zone	Sample Date	Sample Method	Hexavalent Chromium (ug/L)	Dissolved Chromium (ug/L)	Total Chromium (ug/L)	Specific Conductance (us/Cm)	Selected Field Parameters		
								ORP (mV)	Field pH	Turbidity
MW-20-070	SA	5/19/2015	FD	1,900	2,200	---	---	---	---	---
MW-20-070	SA	12/8/2015	LF	1,900	1,900	---	1,790	62	7.7	2
MW-20-070	SA	4/27/2016	LF	2,000	2,300	---	2,020	100	7.8	5
MW-20-100	MA	5/19/2015	LF	2,400	2,800	---	2,690	-190	7.2	3
MW-20-100	MA	12/8/2015	LF	1,600	1,700	---	2,360	53	7.3	8
MW-20-100	MA	4/27/2016	LF	2,200	2,300	---	2,590	110	7.4	2
MW-20-130	DA	5/19/2015	LF	7,600	7,900	---	11,800	-250	7.2	2
MW-20-130	DA	12/8/2015	LF	7,700	8,000	---	11,700	59	7.5	20
MW-20-130	DA	12/8/2015	FD	7,700	8,000	---	---	---	---	---
MW-20-130	DA	4/27/2016	LF	9,100	9,400	---	14,200	69	7.7	4
MW-21	SA	5/6/2015	LF	1.5	1.4	---	10,700	-340	7.2	36
MW-21	SA	12/9/2015	LF	1.5	1.4	---	11,600	-18	7.2	2
MW-21	SA	5/3/2016	G	ND (1)	1.8	---	11,700	-4.1	6.6	9
MW-22	SA	4/22/2015	LF	ND (1)	ND (1)	---	29,800	-390	6.9	5
MW-22	SA	12/3/2015	LF	ND (1)	ND (1)	---	22,000	-80	6.5	9
MW-22	SA	4/25/2016	LF	ND (1)	ND (1)	---	12,500	-95	6.7	8
MW-23-060	BR	4/30/2015	3V	38	34	---	17,300	70	8.9	1
MW-23-060	BR	12/3/2015	3V	36	32	---	17,000	-44	9.8	2
MW-23-060	BR	5/2/2016	3V	37	36	---	18,200	-57	9.8	2
MW-23-080	BR	4/30/2015	3V	3	2.5	---	17,400	-140	10	1
MW-23-080	BR	12/3/2015	3V	1.8	3.2	J	16,300	-40	10	1
MW-23-080	BR	5/2/2016	3V	2.7	3.8	---	18,500	-160	10	2
MW-24A	SA	4/29/2015	LF	0.28	ND (1)	---	2,010	-200	8.3	5
MW-24A	SA	4/29/2015	FD	0.3	ND (1)	---	---	---	---	---
MW-24A	SA	12/1/2015	LF	ND (0.2)	4	---	1,780	-140	8.6	12
MW-24A	SA	5/3/2016	LF	0.47	ND (1)	---	1,860	-200	8.3	1
MW-24B	DA	4/29/2015	LF	ND (1)	1.8	---	20,200	-280	7.7	3
MW-24B	DA	12/1/2015	LF	32	35	---	18,700	-93	8.1	6
MW-24B	DA	5/3/2016	LF	11	12	---	20,200	-100	7.7	1

Table 3-1**Groundwater Sampling Results, April 2015 through June 2016**

*Second Quarter 2016 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California*

Location ID	Aquifer Zone	Sample Date	Sample Method	Hexavalent Chromium (ug/L)	Dissolved Chromium (ug/L)	Total Chromium (ug/L)	Specific Conductance (us/Cm)	Selected Field Parameters		
								ORP (mV)	Field pH	Turbidity
MW-24B	DA	5/3/2016	FD	LF	12	12	---	---	---	---
MW-24BR	BR	12/2/2015	3V	ND (1)	ND (1)	---	13,600	-220	7.7	5
MW-25	SA	5/11/2015	LF	91	87	---	2,080	-140	8.0	1
MW-25	SA	12/7/2015	LF	150	140	---	5,890	86	7.9	14
MW-25	SA	4/27/2016	LF	77	77	---	2,250	87	7.0	3
MW-26	SA	5/19/2015	LF	2,400	2,500	---	4,680	-240	7.5	2
MW-26	SA	12/8/2015	LF	2,600	2,700	---	4,080	68	7.3	23
MW-26	SA	12/8/2015	FD	2,600	2,700	---	---	---	---	---
MW-26	SA	4/28/2016	LF	2,500	2,700	---	4,450	96	7.5	5
MW-27-020	SA	12/3/2015	LF	ND (0.2)	ND (1)	---	1,090	-40	7.6	2
MW-27-060	MA	12/3/2015	LF	ND (0.2)	ND (1)	---	1,010	-130	7.5	19
MW-27-060	MA	12/3/2015	FD	LF	ND (0.2)	ND (1)	---	---	---	---
MW-27-085	DA	4/20/2015	LF	ND (0.2)	ND (1)	---	10,000	-39	7.4	1
MW-27-085	DA	4/20/2015	FD	LF	ND (0.2)	ND (1)	---	---	---	---
MW-27-085	DA	12/3/2015	LF	ND (0.2)	ND (1)	---	9,980	-58	7.2	2
MW-27-085	DA	4/25/2016	LF	ND (1)	ND (1)	---	11,700	-0.50	7.2	4
MW-27-085	DA	4/25/2016	FD	LF	ND (1)	ND (1)	---	---	---	---
MW-28-025	SA	4/21/2015	LF	ND (0.2)	ND (1)	---	968	-280	7.0	1
MW-28-025	SA	12/2/2015	LF	ND (0.2)	ND (1)	---	1,220	76	7.2	1
MW-28-025	SA	4/26/2016	LF	ND (0.2)	ND (1)	---	1,230	-15	7.2	3
MW-28-090	DA	4/21/2015	LF	ND (0.2)	ND (1)	---	5,000	-38	7.1	10
MW-28-090	DA	12/2/2015	LF	ND (0.2)	ND (1)	---	4,970	-44	7.1	1
MW-28-090	DA	4/26/2016	LF	ND (0.2)	ND (1)	---	5,080	-75	7.2	2
MW-29	SA	4/21/2015	LF	ND (0.2)	ND (1)	---	2,490	-310	7.2	1
MW-29	SA	12/1/2015	LF	0.24	ND (1)	---	2,720	-120	7.2	1
MW-29	SA	4/26/2016	LF	ND (0.2)	ND (1 J)	---	2,800	-140	7.2	2
MW-30-030	SA	12/3/2015	LF	ND (0.2)	2.3	---	12,000	-110	7.7	18
MW-30-050	MA	12/3/2015	LF	ND (0.2)	ND (1)	---	1,050	-56	7.4	2
MW-30-050	MA	12/3/2015	FD	LF	ND (0.2)	ND (1)	---	---	---	---

Table 3-1**Groundwater Sampling Results, April 2015 through June 2016**

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Location ID	Aquifer Zone	Sample Date	Sample Method	Hexavalent Chromium (ug/L)	Dissolved Chromium (ug/L)	Total Chromium (ug/L)	Specific Conductance (us/Cm)	Selected Field Parameters		
								ORP (mV)	Field pH	Turbidity
MW-31-060	SA	5/13/2015	LF	480	490	---	3,710	-190	7.5	1
MW-31-060	SA	12/7/2015	LF	920	880	---	2,850	-27	7.6	2
MW-31-060	SA	4/27/2016	LF	710	740	---	3,180	110	7.6	2
MW-31-135	DA	12/7/2015	LF	13	12	---	12,700	-190	7.8	2
MW-32-020	SA	12/3/2015	LF	ND (1)	1.2	---	38,700	-59	6.8	3
MW-32-020	SA	12/3/2015	FD	LF	ND (1)	ND (5)	---	---	---	---
MW-32-035	SA	4/20/2015	LF	ND (0.2)	ND (1)	---	11,000	-260	7.5	5
MW-32-035	SA	12/3/2015	LF	ND (1)	ND (1)	---	11,300	-120	7.2	15
MW-32-035	SA	4/25/2016	LF	ND (1)	ND (1)	---	12,700	-150	6.9	9
MW-33-040	SA	4/27/2015	LF	ND (0.2)	ND (1)	---	7,220	-250	8.0	3
MW-33-040	SA	12/1/2015	LF	ND (1)	ND (1)	---	17,800	71	7.7	5
MW-33-040	SA	4/26/2016	LF	ND (1)	ND (1)	---	7,580	78	8.0	6
MW-33-040	SA	4/26/2016	FD	LF	ND (0.2)	ND (1)	---	---	---	---
MW-33-090	MA	4/27/2015	LF	6.8	5.7	---	10,100	-310	7.2	4
MW-33-090	MA	12/1/2015	LF	6.2	5.8	---	10,200	130	7.4	1
MW-33-090	MA	4/26/2016	3V	5.6	5.2	---	11,000	-17	7.0	5
MW-33-150	DA	4/27/2015	LF	4	3.2	---	15,700	-250	7.5	4
MW-33-150	DA	12/1/2015	LF	2.9	4.3	---	15,700	110	7.1	2
MW-33-150	DA	4/26/2016	LF	6.1	5.2	---	16,900	11	7.2	3
MW-33-210	DA	4/27/2015	LF	7.9 J	6.4 J	---	20,600	-270	7.3	3
MW-33-210	DA	4/27/2015	FD	LF	7.7 J	6.3 J	---	---	---	---
MW-33-210	DA	12/1/2015	LF	14	13	---	20,100	81	7.4	6
MW-33-210	DA	4/26/2016	LF	10	10	---	20,500	52	7.4	3
MW-34-055	MA	12/3/2015	LF	ND (0.2)	1.4	---	1,010	-42	7.6	1
MW-34-080	DA	4/20/2015	LF	ND (0.2)	ND (1)	---	3,010	-160	7.9	1
MW-34-080	DA	12/3/2015	LF	ND (0.2)	ND (1)	---	5,690	-36	7.2	1
MW-34-080	DA	4/26/2016	LF	ND (0.2)	ND (1)	---	9,120	-190	7.2	3
MW-34-100	DA	4/20/2015	LF	7.6 J	5.4 J	---	15,400	-410	7.7	3
MW-34-100	DA	4/20/2015	FD	LF	7.7 J	5.7 J	---	---	---	---

Table 3-1**Groundwater Sampling Results, April 2015 through June 2016**

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Location ID	Aquifer Zone	Sample Date	Sample Method	Hexavalent Chromium (ug/L)	Dissolved Chromium (ug/L)	Total Chromium (ug/L)	Specific Conductance (us/Cm)	Selected Field Parameters		
								ORP (mV)	Field pH	Turbidity
MW-34-100	DA	10/6/2015	LF	70	67	---	20,200	10	7.7	1
MW-34-100	DA	12/3/2015	LF	260	260	---	17,500	-91	7.8	2
MW-34-100	DA	12/3/2015	FD	260	250	---	---	---	---	---
MW-34-100	DA	2/25/2016	LF	41	31	---	14,100	-36	7.7	2
MW-34-100	DA	4/26/2016	LF	4.2	4.6	---	15,500	-29	7.4	4
MW-35-060	SA	5/7/2015	LF	24	24	---	6,860	-220	7.3	2
MW-35-060	SA	12/7/2015	LF	22	23	---	7,100	49	7.0	1
MW-35-060	SA	4/27/2016	LF	24	23	---	6,830	60	7.2	8
MW-35-060	SA	4/27/2016	FD	25	24	---	---	---	---	---
MW-35-135	DA	5/7/2015	LF	28	25	---	11,000	---	7.3	4
MW-35-135	DA	12/7/2015	3V	30	28	---	11,500	57	7.3	2
MW-35-135	DA	4/27/2016	LF	25	27	---	12,700	22	7.4	7
MW-36-020	SA	12/8/2015	LF	ND (0.2)	ND (1)	---	11,600	-140	7.2	2
MW-36-040	SA	12/8/2015	LF	0.42	ND (1)	---	1,140	-150	7.6	1
MW-36-050	MA	12/8/2015	LF	ND (0.2)	ND (1)	---	1,110	-81	7.5	1
MW-36-070	MA	12/8/2015	LF	ND (0.2)	ND (1)	---	985	12	7.6	1
MW-36-090	DA	4/23/2015	LF	ND (0.2)	ND (1)	---	1,020	-360	7.8	2
MW-36-090	DA	12/8/2015	LF	ND (0.2)	2.2	---	10	-49	8.0	1
MW-36-090	DA	4/26/2016	LF	ND (0.2)	ND (1)	---	4,050	-170	7.7	4
MW-36-100	DA	4/23/2015	LF	59	51	---	7,150	---	7.3	3
MW-36-100	DA	12/8/2015	LF	63	58	---	7,770	-24	7.2	7
MW-36-100	DA	4/26/2016	LF	38	42	---	8,130	-81	7.2	8
MW-37D	DA	4/27/2015	LF	8.3 J	6.7 J	---	17,500	-220	7.6	4
MW-37D	DA	12/7/2015	LF	6.5	6.3	---	14,000	19	7.6	15
MW-37D	DA	4/27/2016	LF	7.7	7.7	---	17,200	-4.6	7.5	6
MW-37S	MA	12/8/2015	LF	12	11	---	6,030	31	7.6	15
MW-38D	DA	4/30/2015	3V	16	14	---	21,300	-280	7.9	1
MW-38D	DA	4/30/2015	LF	20	20	---	21,300	-330	7.7	1
MW-38D	DA	12/1/2015	3V	20	23	---	---	---	---	---

Table 3-1**Groundwater Sampling Results, April 2015 through June 2016**

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Location ID	Aquifer Zone	Sample Date	Sample Method	Hexavalent Chromium (ug/L)	Dissolved Chromium (ug/L)	Total Chromium (ug/L)	Specific Conductance (us/Cm)	Selected Field Parameters		
								ORP (mV)	Field pH	Turbidity
MW-38D	DA	12/1/2015	LF	19	19	---	26,000	-73	8.0	13
MW-38D	DA	5/3/2016	3V	18	17	---	---	---	---	---
MW-38D	DA	5/3/2016	LF	19	18	---	24,000	-120	7.8	8
MW-38S	SA	4/30/2015	3V	ND (0.2)	ND (1)	---	1,870	-290	7.6	1
MW-38S	SA	4/30/2015	LF	ND (0.2)	ND (1)	---	1,880	-240	7.2	2
MW-38S	SA	9/28/2015	3V	ND (0.2)	ND (1)	---	1,800	---	7.7	1
MW-38S	SA	9/28/2015	LF	ND (0.2)	ND (1)	---	1,800	---	7.7	1
MW-38S	SA	12/1/2015	3V	ND (0.2)	ND (1)	---	---	---	---	---
MW-38S	SA	12/1/2015	LF	ND (0.2)	ND (1)	---	1,890	-140	7.9	4
MW-38S	SA	2/24/2016	3V	ND (0.2)	ND (1)	---	---	---	---	---
MW-38S	SA	2/24/2016	LF	ND (0.2)	ND (1)	---	1,670	-210	7.8	4
MW-38S	SA	5/3/2016	3V	ND (0.2)	ND (1)	---	---	---	---	---
MW-38S	SA	5/3/2016	LF	ND (0.2)	ND (1)	---	1,810	-180	7.6	1
MW-39-040	SA	12/4/2015	LF	ND (0.2)	ND (1)	---	1,300	-120	7.9	2
MW-39-050	MA	12/4/2015	LF	ND (0.2)	ND (1)	---	1,240	-120	7.5	2
MW-39-060	MA	12/4/2015	LF	0.46	ND (1)	---	1,350	66	7.8	1
MW-39-060	MA	12/4/2015	FD	0.38	ND (1)	---	---	---	---	---
MW-39-070	MA	12/4/2015	LF	0.58	ND (1)	---	1,970	-13	7.6	2
MW-39-080	DA	12/4/2015	LF	ND (0.2)	ND (1)	---	2,300	-120	7.7	2
MW-39-100	DA	4/21/2015	LF	7.4 J	5.9 J	---	13,000	-220	7.6	1
MW-39-100	DA	12/4/2015	LF	23	24	---	13,400	-220	6.8	2
MW-39-100	DA	4/26/2016	LF	81	79	---	19,500	-120	6.7	5
MW-39-100	DA	4/26/2016	FD	77	79	---	---	---	---	---
MW-40D	DA	5/12/2015	H	ND (1)	ND (1)	---	---	---	---	---
MW-40D	DA	5/12/2015	LF	120	110	---	17,900	-310	7.0	9
MW-40D	DA	12/7/2015	H	82	78	---	---	---	---	---
MW-40D	DA	12/7/2015	LF	98	87	---	16,000	38	7.4	3
MW-40D	DA	12/7/2015	FD	H	97	88	---	---	---	---
MW-40D	DA	5/4/2016	3V	120	110	---	---	---	---	---

Table 3-1**Groundwater Sampling Results, April 2015 through June 2016**

*Second Quarter 2016 Interim Measures Performance Monitoring and Site-wide
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Location ID	Aquifer Zone	Sample Date	Sample Method	Hexavalent Chromium (ug/L)	Dissolved Chromium (ug/L)	Total Chromium (ug/L)	Specific Conductance (us/Cm)	Selected Field Parameters		
								ORP (mV)	Field pH	Turbidity
MW-40D	DA	5/4/2016	LF	130	110	---	16,800	25	7.3	2
MW-40S	SA	12/7/2015	H	10	9.1	---	---	---	---	---
MW-40S	SA	12/7/2015	LF	8.1	11	---	2,630	61	7.5	5
MW-41D	DA	5/6/2015	LF	ND (1)	ND (1)	---	22,300	-270	6.9	1
MW-41D	DA	12/7/2015	LF	3	2.8	---	21,000	57	7.2	1
MW-41D	DA	4/27/2016	LF	1.3	1.3	---	21,200	23	7.6	2
MW-41M	DA	12/7/2015	LF	9.5	15	---	15,400	19	7.2	2
MW-41M	DA	12/7/2015	FD	9.5	14	---	---	---	---	---
MW-41S	SA	12/7/2015	LF	15	14	---	---	---	---	---
MW-42-030	SA	12/3/2015	LF	0.84	ND (1)	---	3,320	-160	7.8	9
MW-42-055	MA	4/20/2015	LF	0.22	1.7	---	1,230	-310	8.3	4
MW-42-055	MA	12/3/2015	LF	0.4	2.1	---	1,230	-77	8.2	3
MW-42-055	MA	4/26/2016	LF	0.44	1.6	---	1,230	-110	8.3	6
MW-42-065	MA	4/20/2015	LF	ND (0.2)	ND (1)	---	5,620	-350	7.5	2
MW-42-065	MA	12/3/2015	LF	ND (0.2)	ND (1)	---	5,980	42	7.4	2
MW-42-065	MA	4/26/2016	LF	ND (0.2)	ND (1)	---	4,620	-120	7.5	8
MW-43-025	SA	12/8/2015	LF	ND (0.2)	ND (1)	---	1,450	-110	7.2	3
MW-43-075	DA	12/2/2015	LF	ND (0.2)	ND (1)	---	10,200	-59	7.0	2
MW-43-090	DA	12/2/2015	LF	ND (1)	ND (1)	---	16,800	-38	7.1	12
MW-44-070	MA	4/23/2015	LF	ND (0.2)	ND (1)	---	1,910	-340	7.1	3
MW-44-070	MA	12/4/2015	LF	ND (0.2)	ND (1)	---	1,730	39	7.7	6
MW-44-070	MA	4/26/2016	LF	ND (0.2)	15	---	2,630	-160	18	10
MW-44-115	DA	4/23/2015	LF	31	28	---	10,300	-300	6.9	5
MW-44-115	DA	10/6/2015	LF	27	27	---	11,500	55	7.9	8
MW-44-115	DA	10/6/2015	FD	27	26	---	---	---	---	---
MW-44-115	DA	12/4/2015	LF	26	34	---	12,000	39	7.9	4
MW-44-115	DA	2/25/2016	LF	30	28	---	12,300	-110	7.9	2
MW-44-115	DA	2/25/2016	FD	29	27	---	---	---	---	---
MW-44-115	DA	4/26/2016	LF	24	23	---	11,900	14	7.8	6

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Location ID	Aquifer Zone	Sample Date	Sample Method	Hexavalent Chromium (ug/L)	Dissolved Chromium (ug/L)	Total Chromium (ug/L)	Specific Conductance (us/Cm)	Selected Field Parameters		
								ORP (mV)	Field pH	Turbidity
MW-44-125	DA	4/23/2015	LF	1.2 J	5.4	---	7,000	-340	7.1	3
MW-44-125	DA	4/23/2015	FD	1.5 J	6.2	---	---	---	---	---
MW-44-125	DA	12/4/2015	LF	0.3	2	---	6,610	-40	7.4	2
MW-44-125	DA	12/4/2015	FD	0.23	2.2	---	---	---	---	---
MW-44-125	DA	4/26/2016	LF	5.9	14	---	10,500	-37	7.4	2
MW-44-125	DA	4/26/2016	FD	6.3	14	---	---	---	---	---
MW-46-175	DA	4/21/2015	LF	13 J	9.4 J	---	17,400	-310	8.2	1
MW-46-175	DA	10/6/2015	LF	11	11	---	18,800	46	8.3	1
MW-46-175	DA	12/2/2015	LF	23	21	---	19,200	130	8.2	1
MW-46-175	DA	2/25/2016	LF	18	19	---	20,100	77	8.2	1
MW-46-175	DA	4/26/2016	LF	11	11	---	19,400	-40	8.3	2
MW-46-205	DA	4/21/2015	LF	1.4	ND (1)	---	19,900	-280	8.2	1
MW-46-205	DA	12/2/2015	LF	1.6	1.6	---	21,100	96	8.1	1
MW-46-205	DA	4/26/2016	LF	1.2	ND (5)	---	23,400	-91	8.1	3
MW-47-055	SA	5/7/2015	LF	15	15	---	5,250	-170	7.8	2
MW-47-055	SA	12/2/2015	LF	23	21	---	4,920	-120	7.4	2
MW-47-055	SA	4/26/2016	3V	16	15	---	5,260	120	7.1	8
MW-47-115	DA	5/7/2015	LF	23	22	---	13,900	---	7.2	8
MW-47-115	DA	12/2/2015	LF	19	17	---	14,800	17	7.3	9
MW-47-115	DA	4/26/2016	LF	24	22	---	13,800	150	7.6	7
MW-48	BR	5/7/2015	3V	ND (1)	ND (1)	---	18,400	-37	6.4	9
MW-48	BR	12/4/2015	LF	ND (1)	ND (1)	---	17,200	130	7.3	10
MW-48	BR	5/4/2016	G	ND (1)	1.1	---	19,200	6.9	7.6	8
MW-49-135	DA	12/1/2015	3V	1.8	1.8	---	14,200	-190	7.7	1
MW-49-275	DA	12/1/2015	LF	ND (1)	4.7	---	25,600	-49	8.1	5
MW-49-365	DA	12/1/2015	LF	ND (1)	ND (1)	---	38,100	-180	8.0	1
MW-49-365	DA	12/1/2015	FD	ND (1)	ND (1)	---	---	---	---	---
MW-50-095	MA	5/6/2015	LF	14	13	---	5,890	-200	7.6	2
MW-50-095	MA	12/8/2015	LF	14	13	---	5,360	35	7.8	9

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Location ID	Aquifer Zone	Sample Date	Sample Method	Hexavalent Chromium (ug/L)	Dissolved Chromium (ug/L)	Total Chromium (ug/L)	Specific Conductance (us/Cm)	Selected Field Parameters			
								ORP (mV)	Field pH	Turbidity	
MW-50-095	MA	4/27/2016	LF	13	13	---	6,030	45	7.6	8	
MW-50-200	DA	5/20/2015	LF	3,800	4,000	---	21,300	-240	6.9	1	
MW-50-200	DA	12/7/2015	LF	4,900	5,100	---	17,600	34	7.6	15	
MW-50-200	DA	4/27/2016	LF	6,900	7,600	---	25,000	81	7.5	5	
MW-51	MA	5/20/2015	LF	4,600	5,100	---	13,000	-270	7.5	1	
MW-51	MA	12/8/2015	LF	4,800	4,900	---	12,800	83	7.3	1	
MW-51	MA	4/27/2016	LF	4,800	5,000	---	12,200	100	7.5	1	
MW-52D	DA	4/22/2015	Slant	ND (1)	ND (1)	---	19,800	---	8.0	1	
MW-52D	DA	12/2/2015	3V	ND (1)	ND (1)	---	22,200	-81	7.6	1	
MW-52D	DA	4/25/2016	LF	ND (1)	ND (5)	---	23,000	-150	7.6	2	
MW-52M	DA	4/22/2015	Slant	ND (1)	ND (1)	---	15,000	---	7.7	1	
MW-52M	DA	12/2/2015	3V	ND (1)	ND (1)	---	18,000	-68	7.3	1	
MW-52M	DA	4/25/2016	LF	ND (1)	ND (1)	---	17,900	-180	7.2	2	
MW-52S	MA	4/22/2015	Slant	ND (0.2)	ND (1)	---	8,670	---	6.9	1	
MW-52S	MA	12/2/2015	3V	ND (0.2)	ND (1)	---	10,000	-72	6.9	1	
MW-52S	MA	4/25/2016	LF	ND (1)	ND (1)	---	10,400	-120	6.9	5	
MW-53D	DA	4/22/2015	Slant	ND (1)	ND (1)	---	23,200	-320	8.1	1	
MW-53D	DA	12/2/2015	3V	ND (1)	ND (1)	---	27,100	-130	7.9	1	
MW-53D	DA	4/27/2016	LF	ND (5)	ND (5)	---	27,300	-140	8.0	2	
MW-53M	DA	4/22/2015	Slant	ND (1)	ND (1)	---	17,400	-400	7.8	1	
MW-53M	DA	12/2/2015	3V	ND (1)	ND (1)	---	17,600	-190	7.8	1	
MW-53M	DA	4/27/2016	LF	ND (1)	ND (1)	---	19,700	-120	7.4	3	
MW-54-085	DA	4/28/2015	(a)	LF	ND (1)	ND (1)	---	8,990	-240	7.5	2
MW-54-085	DA	12/9/2015	LF	ND (0.2)	ND (1)	---	10,700	-50	7.3	1	
MW-54-085	DA	12/9/2015	(a)	LF	ND (0.5 J)	ND (10)	---	---	---	---	---
MW-54-085	DA	12/9/2015	FD	LF	ND (0.2)	ND (1)	---	---	---	---	---
MW-54-085	DA	4/29/2016	(a)	LF	ND (0.5)	ND (10)	---	10,200	-12	7.4	5
MW-54-140	DA	4/28/2015	(a)	LF	ND (1)	ND (1)	---	13,200	-260	7.5	4
MW-54-140	DA	12/9/2015	LF	ND (1)	ND (1)	---	13,100	-55	7.6	1	

Table 3-1**Groundwater Sampling Results, April 2015 through June 2016**

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Location ID	Aquifer Zone	Sample Date	Sample Method	Hexavalent Chromium (ug/L)	Dissolved Chromium (ug/L)	Total Chromium (ug/L)	Specific Conductance (us/Cm)	Selected Field Parameters		
								ORP (mV)	Field pH	Turbidity
MW-54-140	DA	12/9/2015	(a)	LF	ND (0.5 J)	ND (10)	---	---	---	---
MW-54-140	DA	4/29/2016	(a)	LF	ND (0.5)	ND (10)	---	13,500	-59	7.5
MW-54-195	DA	4/28/2015	(a)	LF	ND (2)	ND (1)	---	19,700	-270	8.0
MW-54-195	DA	12/9/2015	LF	ND (1)	ND (1)	---	19,500	-180	7.9	1
MW-54-195	DA	12/9/2015	(a)	LF	ND (0.5 J)	ND (10)	---	---	---	---
MW-54-195	DA	4/29/2016	(a)	LF	ND (0.5)	ND (10)	---	20,500	-210	7.8
MW-55-045	MA	4/29/2015	(a)	LF	ND (0.2)	ND (1)	---	1,480	-180	7.7
MW-55-045	MA	4/29/2015	FD(a)	LF	ND (0.2)	ND (1)	---	---	---	---
MW-55-045	MA	12/7/2015	LF	ND (0.2)	ND (1)	---	1,450	-110	7.6	2
MW-55-045	MA	12/7/2015	(a)	LF	ND (0.5 J)	ND (10)	---	---	---	---
MW-55-045	MA	5/5/2016	(a)	LF	ND (0.5)	ND (10)	---	1,510	-190	7.6
MW-55-120	DA	4/29/2015	(a)	LF	6.7	7	---	7,980	-150	7.7
MW-55-120	DA	10/21/2015	LF	7.8 J	6.3 J	---	9,460	60	7.9	7
MW-55-120	DA	10/21/2015	(a)	LF	7.58 J	7.04	---	---	---	---
MW-55-120	DA	12/7/2015	LF	8	8.2	---	8,450	-26	7.9	3
MW-55-120	DA	12/7/2015	(a)	LF	7.5 J	ND (10)	---	---	---	---
MW-55-120	DA	2/24/2016	LF	7.6	8.1	---	9,290	-87	8.0	8
MW-55-120	DA	2/24/2016	(a)	LF	7.2 J	ND (10)	---	---	---	---
MW-55-120	DA	5/5/2016	(a)	LF	11.1	10.6	---	8,630	-20	7.9
MW-56D	DA	4/28/2015	(a)	Slant	ND (2)	ND (1)	---	19,900	-280	7.7
MW-56D	DA	12/9/2015	3V	ND (1)	ND (1)	---	20,900	-120	6.9	1
MW-56D	DA	12/9/2015	(a)	3V	ND (0.5 J)	ND (10)	---	---	---	---
MW-56D	DA	5/5/2016	(a)	LF	ND (0.5)	ND (10)	---	22,500	-140	7.5
MW-56M	DA	4/28/2015	(a)	Slant	ND (2)	ND (1)	---	14,000	-240	7.2
MW-56M	DA	12/9/2015	Slant	ND (1)	ND (1)	---	15,000	-150	6.9	1
MW-56M	DA	12/9/2015	(a)	Slant	ND (0.5 J)	ND (10)	---	---	---	---
MW-56M	DA	5/5/2016	(a)	LF	ND (0.5)	ND (10)	---	15,600	-140	7.1
MW-56S	SA	4/28/2015	(a)	Slant	ND (0.2)	ND (1)	---	5,980	-260	7.0
MW-56S	SA	12/9/2015	Slant	ND (0.2)	ND (1)	---	6,540	-140	6.7	1

Table 3-1**Groundwater Sampling Results, April 2015 through June 2016**

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Location ID	Aquifer Zone	Sample Date	Sample Method	Hexavalent Chromium (ug/L)	Dissolved Chromium (ug/L)	Total Chromium (ug/L)	Specific Conductance (us/Cm)	Selected Field Parameters		
								ORP (mV)	Field pH	Turbidity
MW-56S	SA	12/9/2015	(a)	Slant	ND (0.5 J)	ND (10)	---	---	---	---
MW-56S	SA	5/5/2016	(a)	LF	ND (0.5)	ND (10)	---	6,740	-130	6.9
MW-57-070	BR	5/21/2015	3V	410	420	---	2,960	-240	7.2	2
MW-57-070	BR	12/4/2015	3V	520	550	---	2,920	-23	7.1	6
MW-57-070	BR	4/28/2016	3V	470	510	---	2,370	87	7.2	8
MW-57-185	BR	5/11/2015	3V	10	9	---	19,400	-300	9.1	1
MW-57-185	BR	12/4/2015	3V	9.9	8.5	---	18,700	-45	8.3	5
MW-57-185	BR	4/28/2016	3V	4.6	5.6	---	19,800	-36	9.8	5
MW-58BR	BR	5/18/2015	LF	ND (0.2)	ND (1)	---	9,500	-220	7.2	1
MW-58BR	BR	9/30/2015	LF	ND (0.2)	ND (1)	---	8,260	---	7.5	7
MW-58BR	BR	12/7/2015	LF	2.9	2.9	---	9,300	-15	7.5	6
MW-58BR	BR	2/24/2016	LF	4.1	4.5	---	9,140	40	7.4	5
MW-58BR	BR	4/28/2016	LF	0.56	ND (1)	---	8,900	-7.4	7.6	1
MW-58BR	BR	4/28/2016	FD	0.6	ND (1)	---	---	---	---	---
MW-59-100	SA	5/19/2015	LF	3,900	4,300	---	12,900	-120	7.0	2
MW-59-100	SA	12/3/2015	LF	4,500	4,300	---	11,700	62	6.9	6
MW-59-100	SA	12/3/2015	FD	4,400	4,400	---	---	---	---	---
MW-59-100	SA	4/29/2016	LF	3,300	3,400	---	12,300	100	7.0	4
MW-60-125	BR	5/14/2015	3V	1,100	1,200	---	10,100	-170	7.0	4
MW-60-125	BR	12/4/2015	3V	960	840	---	8,360	60	7.4	27
MW-60-125	BR	4/28/2016	3V	940	990	---	10,800	64	7.2	8
MW-60BR-245	BR	5/14/2015	3V	ND (1)	ND (1)	---	19,300	---	7.4	2
MW-60BR-245	BR	9/29/2015	3V	ND (1)	1.4	---	18,400	---	8.2	4
MW-60BR-245	BR	12/4/2015	3V	61	53	---	16,700	-250	7.9	1
MW-60BR-245	BR	2/23/2016	3V	ND (1)	ND (5)	---	18,900	-81	8.1	2
MW-60BR-245	BR	4/29/2016	G	ND (1)	ND (5)	---	18,900	-150	8.0	10
MW-61-110	BR	5/13/2015	3V	440	500	---	17,300	-140	7.3	2
MW-61-110	BR	12/4/2015	3V	540	530	---	15,700	-34	7.6	6
MW-61-110	BR	4/29/2016	LF	410	400	---	17,600	-55	7.5	5

Table 3-1**Groundwater Sampling Results, April 2015 through June 2016**

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Location ID	Aquifer Zone	Sample Date	Sample Method	Hexavalent Chromium (ug/L)	Dissolved Chromium (ug/L)	Total Chromium (ug/L)	Specific Conductance (us/Cm)	Selected Field Parameters		
								ORP (mV)	Field pH	Turbidity
MW-62-065	BR	5/13/2015	3V	580	620	---	7,130	-98	7.4	2
MW-62-065	BR	5/13/2015	FD	3V	580	620	---	---	---	---
MW-62-065	BR	10/7/2015		3V	560	610	---	6,520	70	7.3
MW-62-065	BR	12/3/2015		3V	570	570	---	6,710	63	7.3
MW-62-065	BR	2/23/2016		3V	560	620	---	6,700	-34	7.4
MW-62-065	BR	5/2/2016		3V	670	690	---	7,090	-47	7.4
MW-62-110	BR	5/19/2015	Flute	1,000	1,100	---	9,830	-120	6.5	2
MW-62-110	BR	10/1/2015	Flute	ND (10)	2.6	---	14,300	---	6.6	1
MW-62-110	BR	12/4/2015		3V	0.29	ND (1)	---	8,850	-140	7.7
MW-62-110	BR	2/24/2016		3V	ND (1)	ND (1)	---	13,700	-99	7.6
MW-62-110	BR	5/3/2016		Tap	1.2	ND (1)	---	14,800	-150	7.6
MW-62-190	BR	5/19/2015	Flute	ND (0.2)	ND (1)	---	19,200	-280	6.4	2
MW-62-190	BR	12/4/2015		3V	ND (1)	ND (1)	---	18,000	-220	7.7
MW-62-190	BR	5/3/2016		Tap	ND (1)	ND (5)	---	20,300	-130	7.9
MW-63-065	BR	4/29/2015		3V	1.4	1.3	---	7,420	-160	7.1
MW-63-065	BR	9/28/2015		3V	1.3	1.2	---	8,240	68	7.1
MW-63-065	BR	12/4/2015		3V	1.7	7.7	---	6,790	29	7.3
MW-63-065	BR	2/23/2016		3V	1.5	2.1	---	7,550	-41	7.1
MW-63-065	BR	4/28/2016		3V	1.5	2.2	---	8,230	76	6.9
MW-63-065	BR	4/28/2016	FD	3V	1.5	2.2	---	---	---	---
MW-64BR	BR	5/18/2015		LF	ND (5)	11	---	15,400	-170	7.4
MW-64BR	BR	10/1/2015		SS	ND (1)	1.5	---	15,500	---	7.4
MW-64BR	BR	12/7/2015		SS	ND (1)	ND (1)	---	14,700	-100	7.3
MW-64BR	BR	2/22/2016		SS	ND (1)	ND (1)	---	14,900	-120	7.3
MW-65-160	SA	5/11/2015		SS	110	110	---	4,080	-240	8.0
MW-65-160	SA	5/11/2015	FD	LF	110	110	---	---	---	---
MW-65-160	SA	9/30/2015		LF	140	150	---	4,030	56	7.2
MW-65-160	---	12/2/2015		LF	130	160	---	3,490	28	7.0
MW-65-160	---	2/24/2016		LF	140	150	---	4,040	-25	7.2
										29

Table 3-1**Groundwater Sampling Results, April 2015 through June 2016**

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Location ID	Aquifer Zone	Sample Date	Sample Method	Hexavalent Chromium (ug/L)	Dissolved Chromium (ug/L)	Total Chromium (ug/L)	Specific Conductance (us/Cm)	Selected Field Parameters		
								ORP (mV)	Field pH	Turbidity
MW-65-160	---	5/3/2016	Tap	130	130	---	1,597	140.6	7.4	1.16
MW-65-225	---	5/11/2015	LF	160	140	---	17,700	-140	7.1	6
MW-65-225	---	9/30/2015	LF	180	210	---	16,400	29	7.4	9
MW-65-225	---	12/2/2015	Tap	250	250	---	2,000	112.4	7.8	1.53
MW-65-225	DA	2/24/2016	LF	510	490	J	12,900	-71	7.3	10
MW-65-225	DA	5/3/2016	LF	130	130	---	17,600	4.9	7.5	7
MW-66-165	SA	5/13/2015	LF	650	760	---	5,010	-180	7.4	8
MW-66-165	SA	12/2/2015	LF	490	540	---	5,050	81	7.4	58
MW-66-165	SA	4/25/2016	LF	660	600	---	5,300	110	7.2	2
MW-66-230	DA	5/21/2015	LF	6,500	7,000	---	20,400	---	7.0	1
MW-66-230	DA	12/3/2015	LF	7,700	6,800	---	18,600	38	7.8	5
MW-66-230	DA	4/25/2016	LF	7,500	6,700	---	21,700	63	7.8	1
MW-66BR-270	BR	5/18/2015	3V	ND (0.2)	ND (1)	---	19,800	---	8.4	28
MW-66BR-270	BR	12/9/2015	3V	ND (1)	ND (1)	---	6,080	-310	9.3	22
MW-66BR-270	BR	5/4/2016	3V	ND (0.2)	ND (1)	---	18,800	-350	8.1	8
MW-67-185	SA	5/20/2015	LF	1,800	2,100	---	8,360	-150	7.7	7
MW-67-185	SA	12/2/2015	LF	1,700	1,700	---	8,420	67	7.2	137
MW-67-185	SA	5/3/2016	LF	1,800	1,800	---	7,940	120	7.2	5
MW-67-225	MA	5/20/2015	LF	3,200	3,400	---	8,720	-280	7.4	8
MW-67-225	MA	12/2/2015	LF	3,400	3,300	---	8,610	40	7.6	119
MW-67-225	MA	5/3/2016	LF	3,400	3,300	---	7,830	89	7.6	26
MW-67-225	MA	5/3/2016	FD	3,500	3,300	---	---	---	---	---
MW-67-260	DA	5/20/2015	LF	700	730	---	20,300	---	8.6	1
MW-67-260	DA	12/2/2015	LF	1,100	1,100	---	21,400	-26	8.4	7
MW-67-260	DA	5/3/2016	LF	620	670	---	19,400	12	8.4	2
MW-68-180	SA	5/18/2015	SS	12,000	13,000	---	3,910	-140	7.7	8
MW-68-180	SA	9/30/2015	SS	32,000	44,000	---	5,050	70	7.3	8
MW-68-180	SA	9/30/2015	FD	32,000	44,000	---	---	---	---	---
MW-68-180	SA	12/2/2015	LF	36,000	40,000	---	4,490	130	7.2	18

Table 3-1**Groundwater Sampling Results, April 2015 through June 2016**

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Location ID	Aquifer Zone	Sample Date	Sample Method	Hexavalent Chromium (ug/L)	Dissolved Chromium (ug/L)	Total Chromium (ug/L)	Specific Conductance (us/Cm)	Selected Field Parameters		
								ORP (mV)	Field pH	Turbidity
MW-68-180	SA	2/24/2016	LF	37,000	42,000	---	4,980	2.7	7.4	40
MW-68-180	SA	5/4/2016	LF	12,000	11,000	---	3,840	64	7.3	3
MW-68-240	DA	5/21/2015	LF	2,200	2,500	---	19,600	---	7.1	1
MW-68-240	DA	12/2/2015	LF	2,300	2,200	---	15,800	120	7.1	3
MW-68-240	DA	5/4/2016	LF	2,100	2,100	---	18,000	26	7.2	9
MW-68BR-280	BR	5/27/2015	3V	ND (1)	ND (1)	---	21,900	-370	8.2	4
MW-68BR-280	BR	12/3/2015	LF	ND (1)	ND (1)	---	20,100	-170	8.7	6
MW-68BR-280	BR	5/4/2016	LF	ND (1)	ND (1)	---	23,000	-160	8.6	4
MW-69-195	BR	5/14/2015	3V	970	1,100	---	4,120	-110	7.0	1
MW-69-195	BR	5/14/2015	FD	3V	980	1,100	---	---	---	---
MW-69-195	BR	10/1/2015	3V	890	940	---	4,190	79	7.3	1
MW-69-195	BR	12/4/2015	3V	830	790	---	3,610	-30	7.4	5
MW-69-195	BR	2/24/2016	3V	620	670	---	3,920	26	7.3	9
MW-69-195	BR	2/24/2016	FD	3V	610	660	---	---	---	---
MW-69-195	BR	4/25/2016	3V	660	660	---	4,540	130	7.2	3
MW-70-105	BR	5/7/2015	3V	150	130	---	4,240	-250	7.7	1
MW-70-105	BR	12/7/2015	3V	150	140	---	3,210	52	7.7	3
MW-70-105	BR	4/28/2016	LF	120	140	---	3,820	11	7.9	29
MW-70BR-225	BR	5/27/2015	3V	2,300	2,400	---	14,800	---	7.5	1
MW-70BR-225	BR	12/7/2015	3V	2,000	2,000	---	11,800	83	7.3	3
MW-70BR-225	BR	4/28/2016	3V	2,000	2,100	---	14,700	79	7.4	25
MW-71-035	SA	5/6/2015	LF	ND (1)	ND (1)	---	13,100	-170	6.9	313
MW-71-035	SA	12/4/2015	LF	1.2	15	---	18,000	140	6.9	287
MW-71-035	SA	5/3/2016	LF	ND (1)	ND (5)	---	17,400	-49	6.6	92
MW-71-035	SA	5/3/2016	FD	LF	ND (1)	ND (1)	---	---	---	---
MW-72-080	BR	5/11/2015	3V	92	85	---	16,500	-210	7.5	2
MW-72-080	BR	9/29/2015	3V	130	120	---	17,300	48	7.7	1
MW-72-080	BR	12/7/2015	3V	140	120	---	17,000	50	7.4	3
MW-72-080	BR	2/23/2016	3V	120	110	---	17,300	-86	7.7	29

Table 3-1**Groundwater Sampling Results, April 2015 through June 2016**

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Location ID	Aquifer Zone	Sample Date	Sample Method	Hexavalent Chromium (ug/L)	Dissolved Chromium (ug/L)	Total Chromium (ug/L)	Specific Conductance (us/Cm)	Selected Field Parameters		
								ORP (mV)	Field pH	Turbidity
MW-72-080	BR	4/29/2016	3V	100	89	---	17,600	-12	7.5	8
MW-72BR-200	BR	5/4/2015	3V	4.3	3.7	---	15,600	-310	8.1	1
MW-72BR-200	BR	9/29/2015	3V	4.2	4.1	---	15,000	25	8.2	1
MW-72BR-200	BR	12/8/2015	3V	6.4	6.2	---	16,300	-110	8.0	1
MW-72BR-200	BR	2/23/2016	3V	6	5.6	---	17,100	-300	8.3	2
MW-72BR-200	BR	4/28/2016	3V	3.9	3.6	---	18,400	-150	8.0	3
MW-73-080	BR	5/6/2015	3V	42	41	---	7,950	-160	7.6	36
MW-73-080	BR	9/29/2015	3V	51	45	---	11,900	47	7.4	16
MW-73-080	BR	12/8/2015	3V	48	43	---	11,100	85	7.3	45
MW-73-080	BR	2/23/2016	3V	53	49	---	11,800	-29	7.4	11
MW-73-080	BR	4/29/2016	3V	20	20	---	6,550	100	7.7	120
MW-74-240	BR	5/14/2015	3V	ND (0.2)	1.2	---	987	-390	8.4	84
MW-74-240	BR	12/7/2015	3V	0.31	8.2	---	768	-150	8.6	269
MW-74-240	BR	4/27/2016	LF	ND (0.2)	ND (1)	---	983	-74	8.6	61
OW-03D	DA	12/7/2015	LF	13	12	---	11,000	-95	7.6	2
OW-03M	MA	12/7/2015	LF	17	18	---	6,490	-140	7.9	5
OW-03S	SA	12/7/2015	3V	25	25	---	1,510	44	7.8	10
OW-03S	SA	12/7/2015	FD	3V	25	24	---	---	---	---
PE-01	DA	4/7/2015	Tap	3.6	3.6	---	---	---	---	---
PE-01	DA	5/5/2015	Tap	2.9	2.5	---	---	---	---	---
PE-01	DA	6/2/2015	Tap	3.4	3.1	---	---	---	7.5	---
PE-01	DA	7/7/2015	3V	3.2	3.1	---	---	---	---	---
PE-01	DA	8/4/2015	Tap	3.2	2.9	---	---	---	---	---
PE-01	DA	9/1/2015	Tap	0.43	1.4	---	---	---	---	---
PE-01	DA	10/6/2015	Tap	3.2	2.7	---	---	---	---	---
PE-01	DA	10/27/2015	Tap	---	2.7	---	4,420	31	7.8	---
PE-01	DA	11/3/2015	3V	3.4	3.1	---	---	---	---	---
PE-01	DA	11/10/2015	Tap	---	3.5	---	4,420	170	7.6	2
PE-01	DA	12/1/2015	3V	3.6	3.3	---	---	---	---	---

Table 3-1**Groundwater Sampling Results, April 2015 through June 2016**

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Location ID	Aquifer Zone	Sample Date	Sample Method	Hexavalent Chromium (ug/L)	Dissolved Chromium (ug/L)	Total Chromium (ug/L)	Specific Conductance (us/Cm)	Selected Field Parameters		
								ORP (mV)	Field pH	Turbidity
PE-01	DA	12/7/2015	Tap	3.8	---	---	4,440	2.1	8.0	1
PE-01	DA	1/6/2016	Tap	3.8	3.6	---	---	---	---	---
PE-01	DA	2/2/2016	Tap	3.9	3.3	---	---	---	---	---
PE-01	DA	2/3/2016	Tap	---	---	---	4,080	220	7.3	1.91
PE-01	DA	3/2/2016	Tap	0.79	ND (1)	---	4,620	200	7.1	2.02
PE-01	DA	4/27/2016	Tap	1.2	1.1	---	3,650	35	7.5	4
PE-01	DA	5/10/2016	Tap	ND (0.2)	ND (1)	---	3,580	25	7.3	3
PE-01	DA	6/7/2016	Tap	0.83	ND (1)	---	---	---	---	---
PGE-07BR	BR	12/2/2015	3V	ND (1)	ND (1)	---	19,900	-300	6.9	19
PGE-08	BR	12/10/2015	3V	ND (1)	ND (1)	---	20,500	-120	8.1	2
PM-03	---	12/8/2015	Tap	9.3	8.8	---	1,210	-37	7.4	1
PM-03	---	4/5/2016	Tap	9.5	9.2	9.3	---	---	---	---
PM-04	---	12/8/2015	Tap	17	17	---	2,090	-26	7.4	1
PM-04	---	4/5/2016	Tap	17	17	17	---	---	---	---
TW-01	SA	5/27/2015	3V	2,500	2,600	---	8,060	---	7.1	1
TW-01	SA	12/1/2015	3V	2,400	2,300	---	8,810	64	7.6	1
TW-01	SA	5/3/2016	Tap	2,400	2,100	---	8,620	31	7.0	4
TW-02D	DA	12/9/2015	Tap	96	88	---	6,810	99	7.8	1
TW-02D	DA	12/9/2015	FD	97	88	---	---	---	---	---
TW-02D	DA	5/10/2016	Tap	46	47	---	7,810	87	7.1	2
TW-02S	SA	9/1/2015	Tap	330	330	---	---	---	---	---
TW-02S	SA	12/9/2015	Tap	330	330	---	2,260	190	7.5	1
TW-03D	DA	4/7/2015	Tap	730	730	---	---	---	---	---
TW-03D	DA	5/5/2015	Tap	700	640	---	---	---	---	---
TW-03D	DA	6/2/2015	Tap	700	650	---	---	---	7.6	---
TW-03D	DA	7/7/2015	3V	710	770	---	---	---	---	---
TW-03D	DA	8/4/2015	Tap	710	670	---	---	---	---	---
TW-03D	DA	9/1/2015	Tap	720	720	---	---	---	---	---
TW-03D	DA	10/6/2015	Tap	700	680	---	---	---	---	---

Table 3-1**Groundwater Sampling Results, April 2015 through June 2016**

*Second Quarter 2016 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California*

Location ID	Aquifer Zone	Sample Date	Sample Method	Hexavalent Chromium (ug/L)	Dissolved Chromium (ug/L)	Total Chromium (ug/L)	Specific Conductance (us/Cm)	Selected Field Parameters		
								ORP (mV)	Field pH	Turbidity
TW-03D	DA	10/27/2015	Tap	760	---	---	8,220	51	7.4	2
TW-03D	DA	11/3/2015	3V	740	670	---	---	---	---	---
TW-03D	DA	11/10/2015	Tap	720	740	---	8,240	220	7.3	2
TW-03D	DA	12/1/2015	3V	730	690	---	---	---	---	---
TW-03D	DA	12/7/2015	Tap	750 J	---	---	8,040	-4.4	7.5	5
TW-03D	DA	1/6/2016	Tap	740	740	---	---	---	---	---
TW-03D	DA	2/2/2016	Tap	730	720	---	7,740	200	7.3	4.33
TW-03D	DA	3/2/2016	Tap	790	840	---	8,660	190	7.2	6.27
TW-03D	DA	4/27/2016	Tap	620	660	---	9,080	30	7.2	4
TW-03D	DA	5/10/2016	Tap	610	620	---	7,930	4.0	7.1	4
TW-03D	DA	6/7/2016	Tap	630	610	---	---	---	---	---
TW-04	DA	12/8/2015	3V	6.9	6.4	---	22,800	73	7.7	2
TW-05	DA	12/8/2015	3V	16	14	---	16,300	110	7.7	2

Notes:

(a) = ADHS approved lab

--- = data was either not collected, not available or was rejected

ADHS = Arizona Department of Health Services

FD = field duplicate sample.

J = concentration or reporting limit (RL) estimated by laboratory or data validation.

mV = millivolts.

ND = not detected at listed RL.

ORP = oxidation-reduction potential.

RL = reporting limit.

UF = unfiltered.

ug/L = micrograms per liter.

uS/cm = microSiemens per centimeter.

Table 3-1**Groundwater Sampling Results, April 2015 through June 2016**

*Second Quarter 2016 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California*

Location ID	Aquifer Zone	Sample Date	Sample Method	Selected Field Parameters				
				Hexavalent Chromium (ug/L)	Dissolved Chromium (ug/L)	Total Chromium (ug/L)	Specific Conductance (us/Cm)	ORP (mV) Field pH Turbidity

Sample Methods:

3V = three volume.

Flute = flexible liner underground technologies sampling system.

H = HydraSleeve

LF = Low Flow (minimal drawdown)

Slant = slant (non vertical) wells MW-52, MW-53, MW-56 are sampled from dedicated Barcad screens, using a peristaltic pump.

SS = System Sample

Tap = sampled from tap or port of extraction or supply well.

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).

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 E218.6 analyses have been elevated above the standard RL of 0.2 ug/L due to required sample dilution to accommodate matrix interferences.

Starting in Third Quarter 2014, the groundwater sample collection method was switched from the traditional three-volume purge method (3V) to the low flow (LF) method at many short screen wells screened in alluvial sediments. The method for purging prior to sample collection is indicated in the sample method column of this table.

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

Table 3-2**Groundwater COPCs and In Situ Byproducts Sampling Results, Second Quarter 2016**

Second Quarter 2016 Interim Measures Performance Monitoring and Site-wide

Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date	Sample Method	Arsenic Dissolved (ug/L)	Molybdenum Dissolved (ug/L)	Selenium Dissolved (ug/L)	Manganese Dissolved (ug/L)	Nitrate as N (mg/L)	
MW-09	SA	5/3/2016	LF	1.8	4.5	5.7	ND (0.5)	11	
MW-10	SA	5/3/2016	LF	--	25	4.8	--	11	
MW-11	SA	5/3/2016	LF	1.5	6.3	4.7	ND (0.5)	6	
MW-11	SA	5/3/2016	FD	1.5	6.3	4.9	ND (0.5)	6.1	
MW-12	SA	5/2/2016	LF	--	11	24	--	16	
MW-14	SA	4/27/2016	LF	0.86	14	2.3	0.57	3.5	
MW-20-070	SA	4/27/2016	LF	--	38	5.3	--	8.5	
MW-20-100	MA	4/27/2016	LF	--	3.4	5	--	8.6	
MW-20-130	DA	4/27/2016	LF	4.6	71	16	3.1	10	
MW-21	SA	5/3/2016	G	--	97	15	--	1.6	
MW-22	SA	4/25/2016	LF	13	--	--	1,700	--	
MW-23-060	BR	5/2/2016	3V	4.1	--	--	3.6	--	
MW-23-080	BR	5/2/2016	3V	4	--	--	4.3	--	
MW-24A	SA	5/3/2016	LF	ND (0.1)	130	ND (0.5)	18	ND (0.05)	
MW-24B	DA	5/3/2016	LF	2.8	59	ND (12)	95	0.41	
MW-24B	DA	5/3/2016	FD	3.1	62	ND (2.5)	98	0.44	
MW-25	SA	4/27/2016	LF	1.1	2.8	6.7	ND (0.5)	9.7	
MW-26	SA	4/28/2016	LF	2	35	50	ND (0.5)	21	
MW-27-085	DA	4/25/2016	LF	1.3	16	ND (0.5)	83	ND (0.05)	
MW-27-085	DA	4/25/2016	FD	3V	1.3	16	ND (0.5)	82	ND (0.05)
MW-28-025	SA	4/26/2016	LF	1	5	ND (0.5)	9.6	ND (0.05)	
MW-28-090	DA	4/26/2016	LF	2.2	23	ND (0.5)	240	ND (0.05)	
MW-29	SA	4/26/2016	LF	13 J	20 J	4.9 J	450 J	0.21	
MW-31-060	SA	4/27/2016	LF	1.1	--	--	ND (0.5)	--	
MW-32-035	SA	4/25/2016	LF	27	--	--	820	--	
MW-33-040	SA	4/26/2016	LF	12	110 J	ND (0.5)	13	ND (0.05)	
MW-33-040	SA	4/26/2016	FD	LF	12	120	ND (0.5)	15	ND (0.05)
MW-33-090	MA	4/26/2016	3V	1	10	ND (2.5)	3.2	1.1	
MW-33-150	DA	4/26/2016	LF	1.3	42	ND (2.5)	0.97	1.5	
MW-33-210	DA	4/26/2016	LF	1	16	ND (2.5)	ND (2.5)	1.7	
MW-34-080	DA	4/26/2016	LF	1.3	--	--	38	--	
MW-34-100	DA	4/26/2016	LF	1.1	41	ND (0.5)	57	ND (0.05)	
MW-35-060	SA	4/27/2016	LF	0.99	9.6	0.94	ND (0.5)	2.2	
MW-35-060	SA	4/27/2016	FD	LF	1	9.9	1.3	ND (0.5)	
MW-35-135	DA	4/27/2016	LF	0.81	22	1.1	3.1	2.5	
MW-36-090	DA	4/26/2016	LF	7.2	--	--	79	--	
MW-36-100	DA	4/26/2016	LF	6.5	22	ND (0.5)	240	0.075	
MW-37D	DA	4/27/2016	LF	--	54	ND (2.5)	--	0.18	
MW-38D	DA	5/3/2016	3V	7.6	86	ND (2.5)	56	ND (0.05)	
MW-38D	DA	5/3/2016	LF	7.9	84	ND (2.5)	74	ND (0.05)	
MW-38S	SA	5/3/2016	3V	11	41	ND (0.5)	210	0.17	
MW-38S	SA	5/3/2016	LF	13	39	ND (0.5)	220	0.24	
MW-39-100	DA	4/26/2016	LF	2.5	7.5	ND (0.5)	8.2	ND (0.05)	
MW-39-100	DA	4/26/2016	FD	LF	2.6	8.1	ND (0.5)	8.2	ND (0.05)
MW-40D	DA	5/4/2016	3V	4.4	49	1.5	12	1.1	
MW-40D	DA	5/4/2016	LF	4.1	49	ND (2.5)	1.3	2.7	
MW-41D	DA	4/27/2016	LF	1.9	87	ND (2.5)	89	0.28	
MW-42-055	MA	4/26/2016	LF	28	--	--	19	--	
MW-42-065	MA	4/26/2016	LF	5.1	--	--	350	--	
MW-44-070	MA	4/26/2016	LF	4.1	--	--	160	--	
MW-44-115	DA	4/26/2016	LF	6	90	ND (0.5)	5.9	0.14	
MW-44-125	DA	4/26/2016	LF	4	110	ND (0.5)	450	0.14	
MW-44-125	DA	4/26/2016	FD	LF	4	120	ND (0.5)	460	0.12
MW-46-175	DA	4/26/2016	LF	--	150	ND (2.5)	--	1.2	
MW-47-055	SA	4/26/2016	3V	1.1	--	--	ND (0.5)	--	
MW-51	MA	4/27/2016	LF	3.4	42	16	1.9	11	
MW-52D	DA	4/25/2016	LF	2.3	--	--	280	--	
MW-52M	DA	4/25/2016	LF	0.92	--	--	150	--	
MW-52S	MA	4/25/2016	LF	0.38	--	--	1,400	--	
MW-53D	DA	4/27/2016	LF	2.9 J	--	--	1,500 J	--	
MW-53M	DA	4/27/2016	LF	ND (0.5)	--	--	400	--	
MW-54-085	DA	4/29/2016	(a)	LF	ND (5)	--	777	--	
MW-54-140	DA	4/29/2016	(a)	LF	ND (5)	--	123	--	
MW-54-195	DA	4/29/2016	(a)	LF	ND (5)	--	185 J	--	
MW-57-070	BR	4/28/2016	3V	1.4	4.9	3.2	3.9	7.3	

Table 3-2**Groundwater COPCs and In Situ Byproducts Sampling Results, Second Quarter 2016***Second Quarter 2016 Interim Measures Performance Monitoring and Site-wide**Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California*

Location ID	Aquifer Zone	Sample Date	Sample Method	Arsenic Dissolved (ug/L)	Molybdenum Dissolved (ug/L)	Selenium Dissolved (ug/L)	Manganese Dissolved (ug/L)	Nitrate as N (mg/L)
MW-57-185	BR	4/28/2016	3V	10	94	ND (0.5)	240	0.085
MW-58BR	BR	4/28/2016	LF	1.4	29	1.1	430	0.081
MW-58BR	BR	4/28/2016	FD	1.3	27	0.9	400	0.08
MW-59-100	SA	4/29/2016	LF	2.2	8	2.5	ND (2.5)	2.9
MW-60-125	BR	4/28/2016	3V	1.6	20	6.1	3	4.3
MW-60BR-245	BR	4/29/2016	G	6.8	62	2.6	17	0.13
MW-61-110	BR	4/29/2016	LF	3.3	24	ND (2.5)	150	0.65
MW-62-065	BR	5/2/2016	3V	1.5	14	3.9	0.91	4.3
MW-62-110	BR	5/3/2016	Tap	6.2	63	ND (2.5)	110	ND (0.05)
MW-62-190	BR	5/3/2016	Tap	4.7	43	ND (2.5)	1,100	0.064
MW-63-065	BR	4/28/2016	3V	1.6	20	0.91	2.3	0.76
MW-63-065	BR	4/28/2016	FD	3V	1.5	19	0.86	2.2
MW-64BR	BR	5/2/2016	LF	4.2	72	ND (0.5)	990	ND (0.05)
MW-65-160	SA	5/3/2016	LF	0.54	36	6.5	7.1	11
MW-65-225	DA	5/3/2016	LF	2.8	52	ND (2.5)	49	2
MW-66-165	SA	4/25/2016	LF	1.1	5.4	32	ND (0.5)	33
MW-66-230	DA	4/25/2016	LF	4.3	80	18	3.6	23
MW-66BR-270	BR	5/4/2016	3V	ND (0.1)	3.1	ND (0.5)	520 J	ND (0.05)
MW-67-185	SA	5/3/2016	LF	1.1	8.9	340	ND (0.5)	67
MW-67-225	MA	5/3/2016	LF	3.6	44	86	11	26
MW-67-225	MA	5/3/2016	FD	LF	3.7	45	86	12
MW-67-260	DA	5/3/2016	LF	9.3	88	ND (2.5)	140	0.58
MW-68-180	SA	5/4/2016	LF	2.8	38	11	ND (0.5)	13
MW-68-240	DA	5/4/2016	LF	1.5	23	3.5	37	4.5
MW-68BR-280	BR	5/4/2016	LF	0.82	35	ND (2.5)	300	ND (0.05)
MW-69-195	BR	4/25/2016	3V	2.3	80	13	ND (0.5)	21
MW-70-105	BR	4/28/2016	LF	4.8	91	4.9	37	3.9
MW-70BR-225	BR	4/28/2016	3V	2	19	2.5	1.2	3.6
MW-71-035	SA	5/3/2016	LF	5.3	35	ND (2.5)	2,700	ND (0.05)
MW-71-035	SA	5/3/2016	FD	LF	5.7	36	ND (2.5)	3,000
MW-72-080	BR	4/29/2016	3V	10	76	ND (2.5)	37	0.76
MW-72BR-200	BR	4/28/2016	3V	16	87	ND (0.5)	16	0.072
MW-73-080	BR	4/29/2016	3V	2.1	22	ND (2.5)	2.4	2.5
MW-74-240	BR	4/27/2016	LF	11	37	1.2	4.3	0.37
PE-01	DA	4/27/2016	Tap	--	--	--	93	ND (0.05)
PE-01	DA	5/10/2016	Tap	--	--	--	300	ND (0.05)
PE-01	DA	6/7/2016	Tap	--	--	--	72	ND (0.05)
PM-03	--	4/5/2016	Tap	1.2	5.9	1.4	ND (0.5)	3.1
PM-04	--	4/5/2016	Tap	0.43	6.4	1.1	1.2	2.1
TW-01	SA	5/3/2016	Tap	--	15	13	--	18
TW-02D	DA	5/10/2016	Tap	--	--	--	56	0.84
TW-03D	DA	4/27/2016	Tap	--	--	--	17	2.9
TW-03D	DA	5/10/2016	Tap	--	--	--	12	3.1
TW-03D	DA	6/7/2016	Tap	--	--	--	12	2.9

Notes:

(a) = data was analyzed by an Arizona certified laboratory.

--- = data was either not collected, not available or was rejected

COPC = contaminants of potential concern.

FD = field duplicate sample.

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

mg/L = milligrams per liter.

ND = not detected at listed reporting limit.

ug/L = micrograms per liter.

Sample Methods:

3V = three volume.

Flute = flexible liner underground technologies sampling system.

LF = Low Flow (minimal drawdown)

Slant = slant (non vertical) wells MW-52, MW-53, MW-56 are sampled from dedicated Barcad screens, using a peristaltic pump

Tap = sampled from tap or port of extraction or supply well.

Wells are assigned to separate aquifer zones for results reporting:

SA = shallow interval of Alluvial Aquifer.

MA = mid-depth interval of Alluvial Aquifer.

Table 3-2**Groundwater COPCs and In Situ Byproducts Sampling Results, Second Quarter 2016***Second Quarter 2016 Interim Measures Performance Monitoring and Site-wide**Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California*

Location ID	Aquifer Zone	Sample Date	Sample Method	Arsenic Dissolved (ug/L)	Molybdenum Dissolved (ug/L)	Selenium Dissolved (ug/L)	Manganese Dissolved (ug/L)	Nitrate as N (mg/L)
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DA = deep interval of Alluvial Aquifer.

PA = perched aquifer (unsaturated zone).

BR = well completed in bedrock (Miocene Conglomerate or pre-Tertiary crystalline rock).

Nitrate samples were analyzed using USEPA Method 4500NO₃, except for TW-3D and PE-1, which were analyzed using USEPA Method 300.0. USEPA Method 4500NO₃ reports a combination of nitrate and nitrite as nitrogen. The contribution of nitrite to the reported result of nitrate plus nitrite as nitrogen is expected to be negligible; therefore, sample results for USEPA Method 4500NO₃ are expected to be essentially the same as previous samples analyzed using USEPA Method 300.0 and reported as nitrate as nitrogen.

Starting in Third Quarter 2014, the groundwater sample collection method was switched from the traditional three-volume purge method (3V) to the low flow (LF) method at many short screen wells screened in alluvial sediments. The method for purging prior to sample collection is indicated in the sample method column of this table.

The background study upper tolerance limit (UTL) for arsenic is 24.3 µg/L.

The USEPA and California maximum contaminant level (MCL) for arsenic is 10 µg/L.

The background study UTL for molybdenum is 36.3 µg/L.

There is no USEPA or California MCL for molybdenum.

The background study UTL for selenium is 10.3 µg/L.

The USEPA and California MCL for selenium is 50.0 µg/L.

The secondary USEPA and California MCL for manganese is 50 ug/L.

The background study UTL for nitrate as nitrogen is 5.03 mg/L.

The USEPA and California MCL for nitrate as nitrogen is 10 mg/L.

The background study UTL for fluoride is 7.1 mg/L.

The USEPA MCL for fluoride is 4 mg/L, and the California MCL for fluoride is 2 mg/L.

Table 3-3**Surface Water Sampling Results, Second Quarter 2016***Second Quarter 2016 Interim Measures Performance Monitoring and Site-wide**Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California*

Location ID	Sample Date	Hexavalent Chromium (ug/L)	Dissolved Chromium (ug/L)	Specific Conductance (uS/cm)	Lab pH*
In-channel Locations					
C-BNS-D	4/27/2016	ND (0.2)	ND (1)	993	8.2
C-BNS-D	4/27/2016 FD	ND (0.2)	ND (1)	--	8.2
C-CON-D	4/28/2016	ND (0.2)	ND (1)	1,090	8.2
C-CON-S	4/28/2016	ND (0.2)	ND (1)	1,090	8.2
C-I-3-D	4/27/2016	ND (0.2)	ND (1)	988	8.2
C-I-3-S	4/27/2016	ND (0.2)	ND (1)	988	8.2
C-MAR-D	4/27/2016	ND (0.2)	ND (1)	1,070	7.7
C-MAR-S	4/27/2016	ND (0.2)	ND (1)	1,070	7.7
C-NR1-D	4/28/2016	ND (0.2)	ND (1)	1,090	8.2
C-NR1-S	4/28/2016	ND (0.2)	ND (1)	1,090	8.2
C-NR3-D	4/28/2016	ND (0.2)	ND (1)	1,090	8.2
C-NR3-D	4/28/2016 FD	ND (0.2)	ND (1)	--	8.2
C-NR3-S	4/28/2016	ND (0.2)	ND (1)	1,090	8.2
C-NR4-D	4/28/2016	ND (0.2)	ND (1)	1,090	8.2
C-NR4-S	4/28/2016	ND (0.2)	ND (1)	1,090	8.2
C-R22A-D	4/27/2016	ND (0.2)	ND (1)	990	8.2
C-R22A-S	4/27/2016	ND (0.2)	ND (1)	993	8.2
C-R27-D	4/28/2016	ND (0.2)	ND (1)	1,110	8.2
C-R27-S	4/28/2016	ND (0.2)	ND (1)	1,090	8.2
C-TAZ-D	4/27/2016	ND (0.2)	ND (1)	984	8.2
C-TAZ-S	4/27/2016	ND (0.2)	ND (1)	984	8.2
Shoreline Samples					
R-19	4/27/2016	ND (0.2)	ND (1)	1,010	8.3
R-19	4/27/2016 FD	ND (0.2)	ND (1)	--	8.2
R-28	4/27/2016	ND (0.2)	ND (1)	994	8.3
R63	4/27/2016	ND (0.2)	ND (1)	996	8.1
RRB	4/28/2016	ND (0.2)	ND (1)	1,090	8.2
SW1	4/28/2016	ND (0.2)	ND (1)	1,140	7.6
SW2	4/28/2016	ND (0.2)	ND (1)	1,140	7.5

Notes:

* Lab pH Values were all J flagged by the lab for being out of holding time.

FD = field duplicate sample.

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

ND = not detected at listed reporting limit.

ug/L = micrograms per liter.

uS/cm = microSiemens per centimeter.

Hexavalent chromium analytical Method USEPA 218.6 (reporting limit 0.2 ug/L for undiluted samples).

Other analytical methods: dissolved chromium - Method SW6020A; specific conductance - USEPA 120.1; pH -SM4500-HB.

pH is reported to two significant figures.

Table 3-4

COPCs, In Situ Byproducts, and Geochemical Indicator Parameters in Surface Water Samples, Second Quarter 2016*Second Quarter 2016 Interim Measures Performance Monitoring and Site-wide**Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California*

Location ID	Sample Date	Arsenic, Dissolved (ug/L)	Barium, Dissolved (ug/L)	Iron, Total (ug/L)	Iron, Dissolved (ug/L)	Manganese, Dissolved (ug/L)	Molybdenum, Dissolved (ug/L)	Nitrate/Nitrite as Nitrogen (mg/L)	Selenium, Dissolved (ug/L)	Total Suspended Solids (mg/L)
In-channel locations										
C-BNS-D	4/27/2016	2.1	120	40	ND (20)	ND (0.5)	4.9	0.39	1.4	ND (10)
C-BNS-D	4/27/2016 FD	2.1	120	40	ND (20)	ND (0.5)	4.7	0.39	1.4	ND (10)
C-CON-D	4/28/2016	2.3	140	82	ND (20)	ND (0.5)	5.5	0.42	1.9	ND (10)
C-CON-S	4/28/2016	2.2	130	64	ND (20)	ND (0.5)	5.2	0.42	1.7	ND (10)
C-I-3-D	4/27/2016	2.1	130	95	ND (20)	ND (0.5)	4.9	0.38	1.6	ND (10)
C-I-3-S	4/27/2016	2.2	120	40	ND (20)	ND (0.5)	5.1	0.38	1.5	ND (10)
C-MAR-D	4/27/2016	2.1	120	4,000	35	53	5.4	0.27	1.5	100
C-MAR-S	4/27/2016	1.9	120	4,000	ND (20)	49	5	0.24	1.3	100
C-NR1-D	4/28/2016	2.3	140	56	ND (20)	ND (0.5)	5.4	0.4	1.8	ND (10)
C-NR1-S	4/28/2016	2.2	130	59	ND (20)	ND (0.5)	5.1	0.41	1.7	ND (10)
C-NR3-D	4/28/2016	2.3	130	110 J	64 J	ND (0.5)	5.4	0.42	2	ND (10)
C-NR3-D	4/28/2016 FD	2.2	130	59 J	ND (20 J)	ND (0.5)	5.3	0.41	1.8	ND (10)
C-NR3-S	4/28/2016	2.3	130	49	27 J	ND (0.5)	5	0.41	1.7	ND (10)
C-NR4-D	4/28/2016	2.2	130	43	24	ND (0.5)	5	0.49	1.6	ND (10)
C-NR4-S	4/28/2016	2.4	140	34	41	ND (0.5)	5.4	0.42	1.7	ND (10)
C-R22A-D	4/27/2016	2.1	130	110	ND (20)	ND (0.5)	5	0.4	1.4	ND (10)
C-R22A-S	4/27/2016	2.3	130	87	110	ND (0.5)	5.1	0.4	1.7	ND (10)
C-R27-D	4/28/2016	2.3	130	78	40	ND (0.5)	5.1	0.37	1.7	ND (10)
C-R27-S	4/28/2016	2.2	140	60	20	ND (0.5)	5.2	0.38	1.6	ND (10)
C-TAZ-D	4/27/2016	2.4	130	83	ND (20)	ND (0.5)	5.2	0.42	1.5	ND (10)
C-TAZ-S	4/27/2016	2.4	130	55	ND (20)	ND (0.5)	5.5	0.41	1.6	ND (10)
Shoreline Samples										
R-19	4/27/2016	2.2	130	63	ND (20)	ND (0.5)	5.2	0.38	1.5	ND (10)
R-19	4/27/2016 FD	2.2	120	65	ND (20)	ND (0.5)	4.9	0.39	1.5	ND (10)
R-28	4/27/2016	2.1	120	110	28	ND (0.5)	4.9	0.42	1.6	ND (10)
R63	4/27/2016	2.2	120	71	ND (20)	5.3	5	0.38	1.3	ND (10)
RRB	4/28/2016	2.2	140	66	ND (20)	0.67	5.3	0.37	1.7	ND (10)

Notes:

--- = data was either not collected, not available or was rejected

COPC = contaminants of potential concern (molybdenum, selenium, and nitrate).

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

mg/L = milligrams per liter.

ND = not detected at listed reporting limit.

TSS = total suspended solids.

ug/L = micrograms per liter.

USEPA = United States Environmental Protection Agency.

Table 3-4**COPCs, In Situ Byproducts, and Geochemical Indicator Parameters in Surface Water Samples, Second Quarter 2016***Second Quarter 2016 Interim Measures Performance Monitoring and Site-wide**Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California*

Location ID	Sample Date	Arsenic, Dissolved (ug/L)	Barium, Dissolved (ug/L)	Iron, Total (ug/L)	Iron, Dissolved (ug/L)	Manganese, Dissolved (ug/L)	Molybdenum, Dissolved (ug/L)	Nitrate/Nitrite as Nitrogen (mg/L)	Selenium, Dissolved (ug/L)	Total Suspended Solids (mg/L)
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Geochemical indicator parameters (TSS and alkalinity).

In situ byproducts (arsenic, iron and manganese).

USEPA Methods:

Alkalinity - SM2320B.

Metals - SW6010B/SW6020A.

Nitrate - SM4500NO3.

Total Suspended Solids - SM2540D.

TABLE 4-1

Pumping Rate and Extracted Volume for IM System, Second Quarter 2016
*Second Quarter 2016 Interim Measures Performance Monitoring and Site-wide
 Groundwater and Surface Water Monitoring Report,
 PG&E Topock Compressor Station, Needles, California*

Extraction Well ID	April 2016		May 2016		June 2016		Second Quarter 2016	
	Average Pumping Rate ^a (gpm)	Volume Pumped (gal)	Average Pumping Rate ^a (gpm)	Volume Pumped (gal)	Average Pumping Rate ^a (gpm)	Volume Pumped (gal)	Average Pumping Rate ^a (gpm)	Volume Pumped (gal)
TW-02S	0.00	0	0.00	0	0.00	0	0.00	0
TW-02D	2.52	108,850	0.02	1,038	0.01	589	0.85	110,477
TW-03D	90.78	3,921,560	133.29	5,949,866	130.03	5,617,177	118.03	15,488,604
PE-01	4.02	173,758	2.22	99,290	4.91	212,261	3.72	485,309
TOTAL	97.3	4,204,168	135.5	6,050,193	135.0	5,830,027	122.6	16,084,389

Chromium Removed This Quarter (kg)	37.1
Chromium Removed Project to Date (kg)	3900
Chromium Removed This Quarter (lb)	81.9
Chromium Removed Project to Date (lb)	8610

Notes:

DTSC = Department of Toxic Substances Control.

gal = gallons.

gpm = gallons per minute.

IM = Interim Measures.

kg = kilograms.

lb = pounds.

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

Chromium removed includes the period of March 1, 2016 through May 31, 2016. DTSC approved a revised reporting schedule for this report that included a revised IM-3 sample collection period from March 1, 2016 through May 31, 2016.

Table 4-2

Analytical Results for Extraction Wells, April 2015 through June 2016
*Second Quarter 2016 Interim Measures Performance Monitoring and Site-wide
 Groundwater and Surface Water Monitoring Report,
 PG&E Topock Compressor Station, Needles, California*

Location ID	Sample Date	Hexavalent Chromium (ug/L)	Dissolved Chromium (ug/L)	Total Dissolved Solids (mg/L)	Lab pH*
PE-01	4/7/2015	3.6	3.6	2,500	7.6
PE-01	5/5/2015	2.9	2.5	2,500	7.6
PE-01	6/2/2015	3.4	3.1	2,400	--
PE-01	7/7/2015	3.2	3.1	2,500	--
PE-01	8/4/2015	3.2	2.9	2,500	--
PE-01	9/1/2015	0.43	1.4	2,500	--
PE-01	10/6/2015	3.2	2.7	2,500	--
PE-01	10/27/2015	--	2.7	2,300	7.5
PE-01	11/3/2015	3.4	3.1	2,500	--
PE-01	11/10/2015	--	3.5	2,400	7.6
PE-01	12/7/2015	3.8	--	2,500	7.5
PE-01	2/2/2016	3.9	3.3	2,600	7.6
PE-01	2/3/2016	--	--	--	--
PE-01	3/2/2016	0.79	ND (1)	2,500	7.6
PE-01	4/27/2016	1.2	1.1	2,100	7.6
PE-01	5/10/2016	ND (0.2)	ND (1)	2,000	7.5
PE-01	6/7/2016	0.83	ND (1)	2,200	7.5
TW-02D	12/9/2015	96	88	4,800	--
TW-02D	12/9/2015	97	88	4,800	--
TW-02D	5/10/2016	46	47	4,500	7.3
TW-02S	9/1/2015	330	330	1,400	--
TW-02S	12/9/2015	330	330	1,300	--
TW-03D	4/7/2015	730	730	4,700	7.5
TW-03D	5/5/2015	700	640	4,400	7.1
TW-03D	6/2/2015	700	650	4,400	--
TW-03D	7/7/2015	710	770	4,600	--
TW-03D	8/4/2015	710	670	4,600	--
TW-03D	9/1/2015	720	720	4,400	--
TW-03D	10/6/2015	700	680	4,600	--
TW-03D	10/27/2015	760	--	4,600	7.5
TW-03D	11/3/2015	740	670	4,600	--
TW-03D	11/10/2015	720	740	4,600	7.2
TW-03D	12/1/2015	730	690	4,500	--
TW-03D	12/7/2015	750]	--	4,800]	7.3
TW-03D	1/6/2016	740	740	4,600	7.4
TW-03D	2/2/2016	730	720	4,700	7.3
TW-03D	3/2/2016	790	840	4,700	7.2
TW-03D	4/27/2016	620	660	4,700	7.2
TW-03D	5/10/2016	610	620	4,400	7.3
TW-03D	6/7/2016	630	610	4,400	7.3

Table 4-2

Analytical Results for Extraction Wells, April 2015 through June 2016
*Second Quarter 2016 Interim Measures Performance Monitoring and Site-wide
 Groundwater and Surface Water Monitoring Report,
 PG&E Topock Compressor Station, Needles, California*

Location ID	Sample Date	Hexavalent Chromium	Dissolved Chromium	Dissolved Solids	Total
		(ug/L)	(ug/L)	(mg/L)	Lab pH*

Notes:

* Lab pH Values were all J flagged by the lab for being out of holding time.

--- = data was either not collected, not available or was rejected

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

LF = lab filtered.

mg/L = milligrams per liter.

ug/L = micrograms per liter.

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 USEPA200.8 or USEPA200.7, hexavalent chromium analyzed by Method SM3500-CrB or USEPA218.6, and total dissolved solids were analyzed by Method SM2540C.

Table 4-3

Average Hydraulic Gradients Measured at Well Pairs, Second Quarter 2016
*Second Quarter 2016 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^b Hydraulic Gradient (feet/foot)	Days in^c Monthly Average
Overall Average	April	0.0044	NA
	May	0.0038	NA
	June	0.0048	NA
Northern Gradient Pair MW-31-135 / MW-33-150	April	0.0020	30
	May	0.0027	31
	June	0.0027	30
Central Gradient Pair MW-45-095 ^d / MW-34-100	April	0.0090	30
	May	0.0068	31
	June	0.0088	30
Southern Gradient Pair MW-45-095 ^d / MW-27-085	April	0.0022	30
	May	0.0020	31
	June	0.0028	30

Notes:

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

^a Refer to Figure 1-4 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.

^d MW-45-095 is also known as MW-45-095a.

Table 4-4

Predicted and Actual Monthly Average Davis Dam Discharge and Colorado River Elevation at I-3

*Second Quarter 2016 Interim Measures Performance Monitoring and Site-wide Groundwater
and Surface Water Monitoring Report,**PG&E Topock Compressor Station, Needles, California*

Month	Davis Dam Release			Colorado River Elevation at I-3		
	Projected (cfs)	Actual (cfs)	Difference (cfs)	Predicted (ft amsl)	Actual (ft amsl)	Difference (feet)
January 2013	8,300	8,299	1	453.2	453.28	0.04
February 2013	10,600	10,972	-372	454.3	454.63	0.4
March 2013	15,200	15,545	-345	456.0	456.29	0.3
April 2013	17,600	17,090	510	456.9	456.74	-0.1
May 2013	15,800	15,592	208	456.4	456.44	0.0
June 2013	15,700	15,588	112	456.5	456.47	0.0
July 2013	14,400	13,165	1,235	456.0	455.79	-0.2
August 2013	13,100	12,185	915	455.4	455.43	0.0
September 2013	11,700	11,446	254	454.8	455.02	0.2
October 2013	12,300	12,497	-197	454.9	455.09	0.2
November 2013	9,700	8,918	782	454.0	453.98	0.0
December 2013	6,400	7,636	-1,236	452.4	452.81	0.4
January 2014	8,300	8,970	-670	452.8	453.27	0.5
February 2014	11,600	11,850	-250	454.3	454.67	0.3
March 2014	16,600	17,473	-873	456.4	456.70	0.3
April 2014	18,200	17,718	482	457.1	457.08	0.0
May 2014	16,700	16,622	78	456.8	456.68	-0.1
June 2014	15,900	15,917	-17	456.6	456.64	0.1
July 2014	15,100	14,640	460	456.3	456.24	0.0
August 2014	12,300	11,336	964	455.2	455.26	0.1
September 2014	13,100	12,211	889	455.3	455.30	0.0
October 2014	10,700	10,434	266	454.3	454.81	0.5
November 2014	10,700	10,575	125	454.3	454.22	-0.1
December 2014	6,400	7,235	-835	452.4	452.93	0.5
January 2015	10,600	10,740	-140	454.3	454.39	0.1
February 2015	10,500	11,252	-752	454.2	454.52	0.3
March 2015	14,900	15,658	-758	455.9	456.29	0.4
April 2015	18,000	17,170	830	457.1	456.82	-0.3
May 2015	16,000	13,890	2110	456.5	456.06	-0.5
June 2015	14,500	13,616	884	456.1	455.94	-0.2
July 2015	13,400	12,411	989	455.6	455.50	-0.1
August 2015	12,100	12,627	-527	455.1	455.45	0.4

Table 4-4

Predicted and Actual Monthly Average Davis Dam Discharge and Colorado River Elevation at I-3

*Second Quarter 2016 Interim Measures Performance Monitoring and Site-wide Groundwater
and Surface Water Monitoring Report,*

PG&E Topock Compressor Station, Needles, California

Month	Davis Dam Release			Colorado River Elevation at I-3		
	Projected (cfs)	Actual (cfs)	Difference (cfs)	Predicted (ft amsl)	Actual (ft amsl)	Difference (feet)
September 2015	13,300	12,734	566	455.4	INC	NA
October 2015	11,300	10,653	647	454.7	454.80	0.1
November 2015	10,000	10,066	-66	454.2	453.87	0.29
December 2015	6,200	8,556	-2356	453.3	453.48	-0.18
January 2016	9,400	9,000	400	453.4	454.05	-0.60
February 2016	11,300	11,700	-400	454.4	454.95	-0.57
March 2016	15,800	15,000	800	455.9	456.51	-0.65
April 2016	15,400	16,400	-1000	456.8	457.17	-0.40
May 2016	15,800	14,700	1100	456.0	456.76	-0.78
June 2016	14,400	14,100	300	456.0	456.64	-0.62
July 2016	13,300			455.6		

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 July 2016 USBR projections.

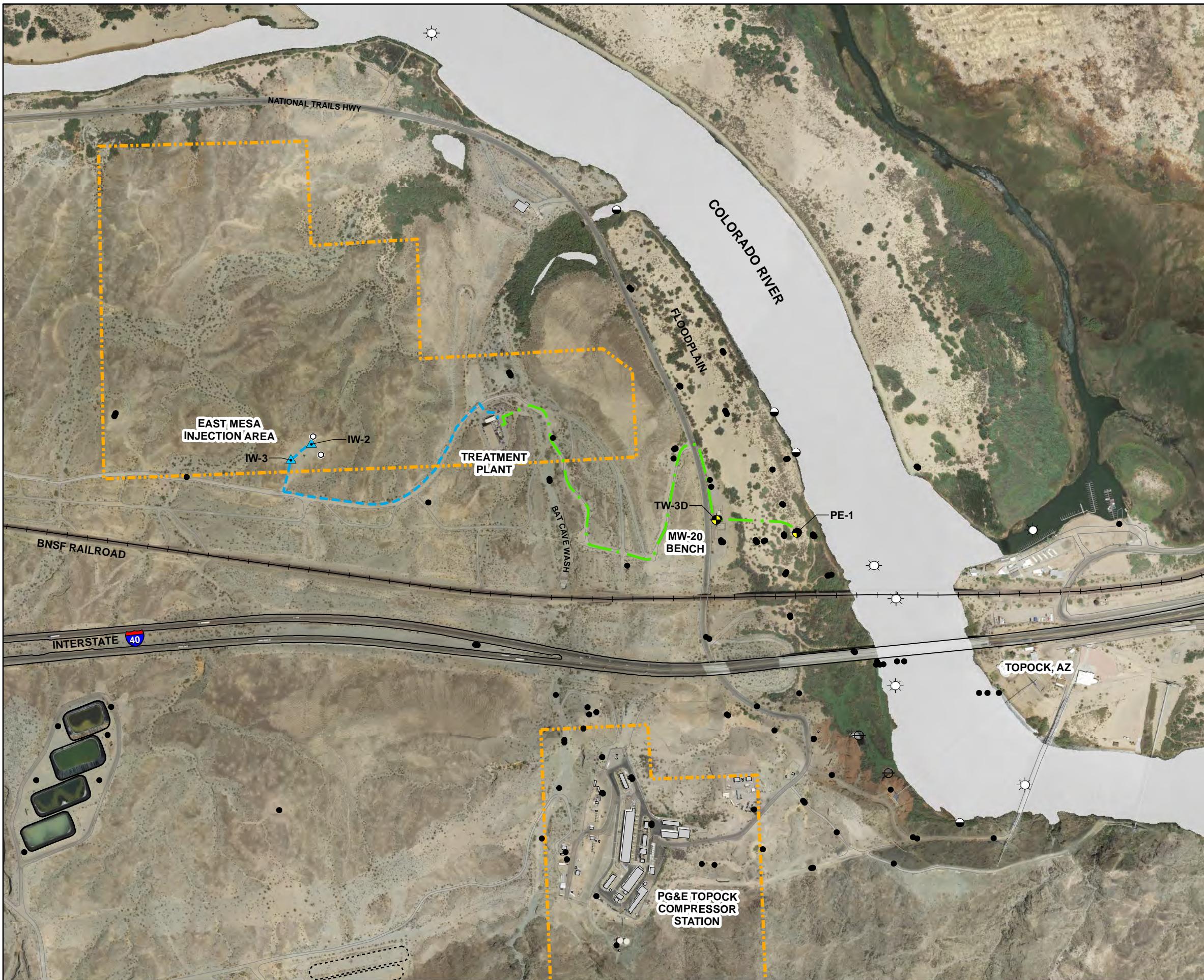
These data are reported monthly by the US Department of Interior, at <http://www.usbr.gov/lc/region/g4000/24mo.pdf>.

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.

FIGURES





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

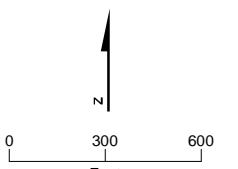
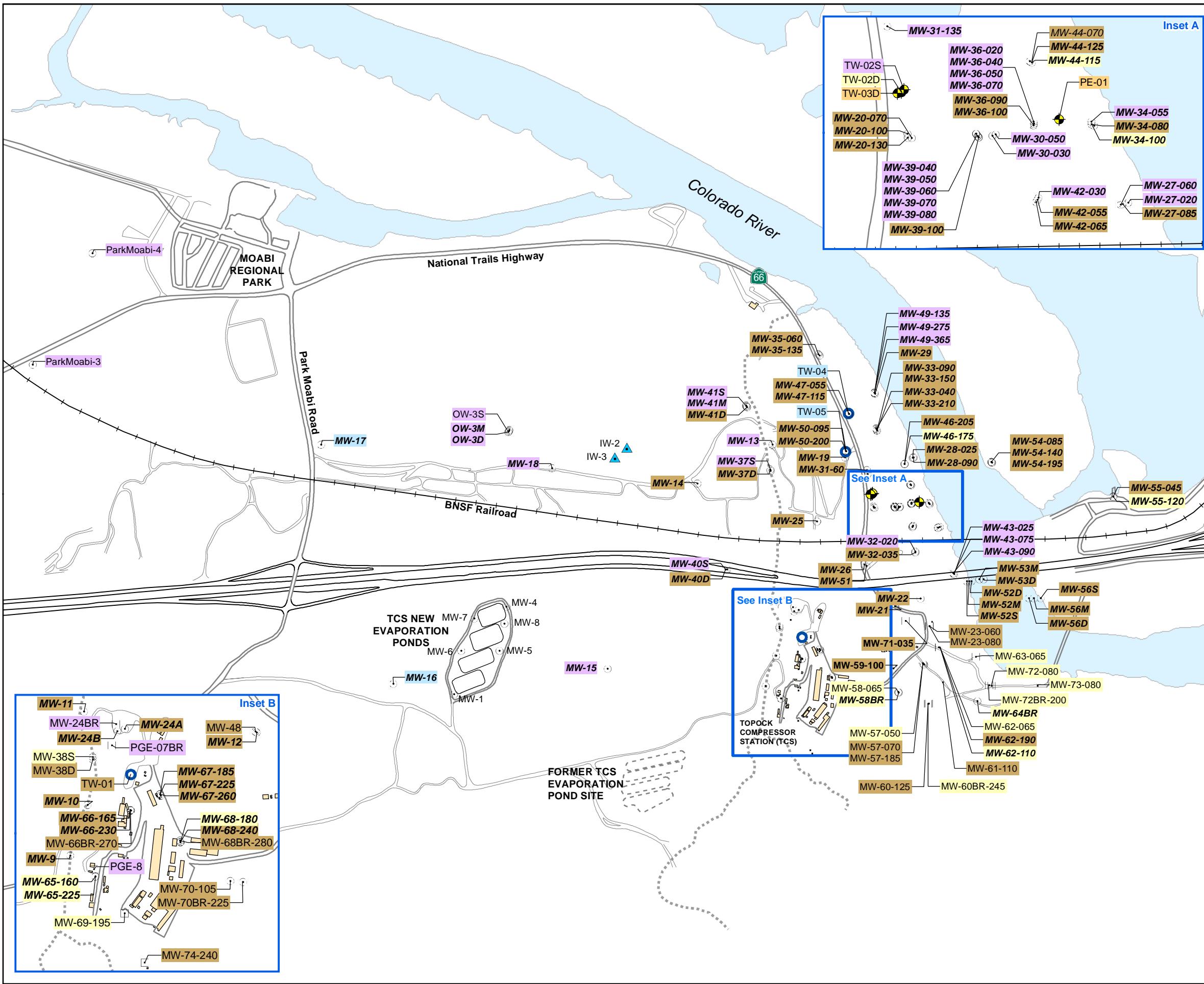


FIGURE 1-1
LOCATIONS OF IM-3 FACILITIES AND MONITORING LOCATIONS

SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA



Sampling Frequency for Groundwater Monitoring Program (GMP)

- MW-17 Biennial sampling
- MW-13 Annual sampling
- MW-09 Annual; plus the next quarterly event following any channel-wide flows in Bat Cave Wash with discharge through the highway culverts
- MW-21 Semiannual sampling
- TW-01 Quarterly sampling
- TW-3D Monthly sampling

Notes:
Bold/Italicized labels indicate sample collected using low flow sampling method; otherwise, sample collected using the three-volume purge sampling method.

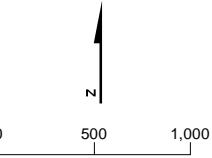
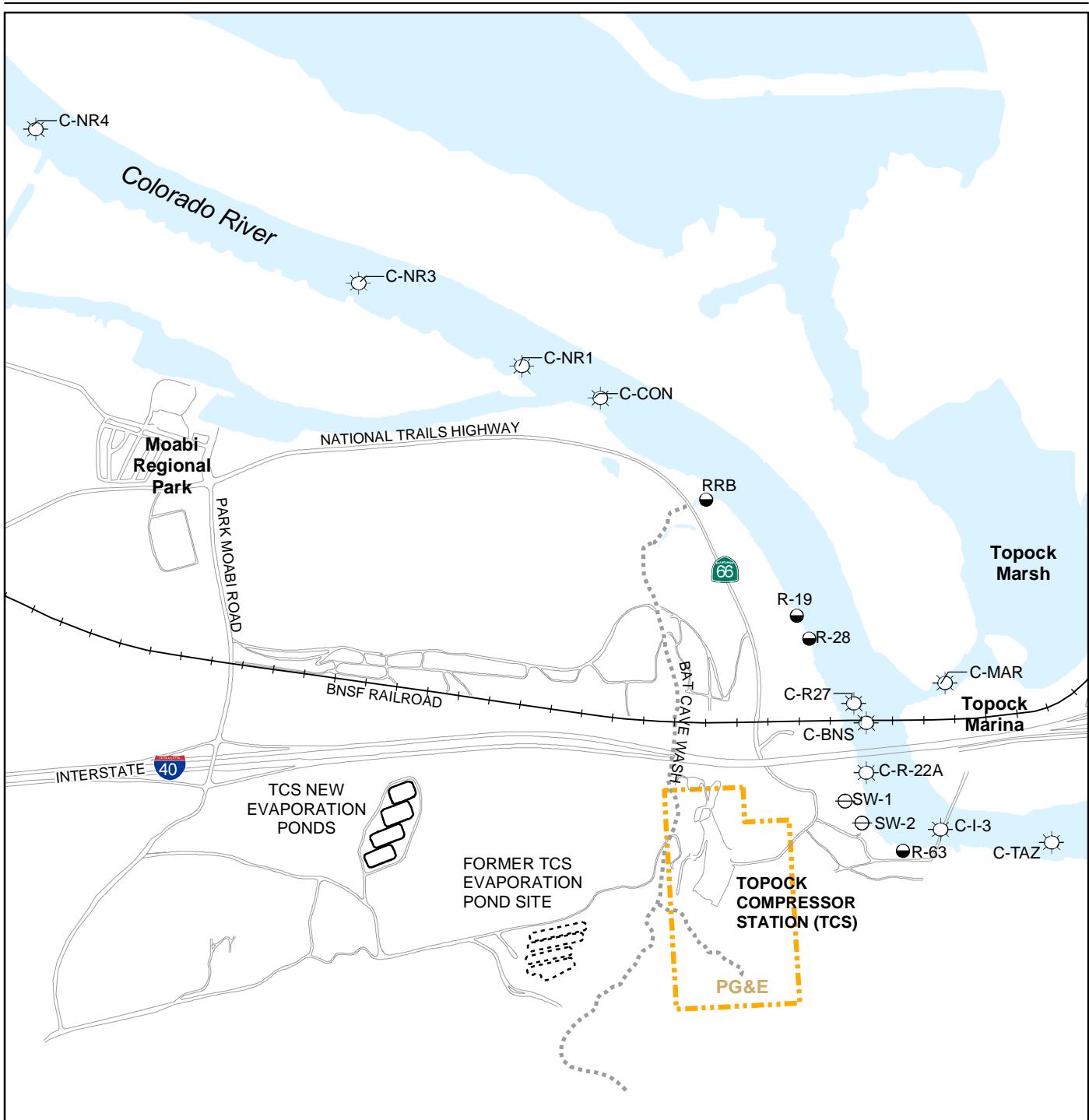


FIGURE 1-2
MONITORING LOCATIONS AND SAMPLING FREQUENCY FOR GMP

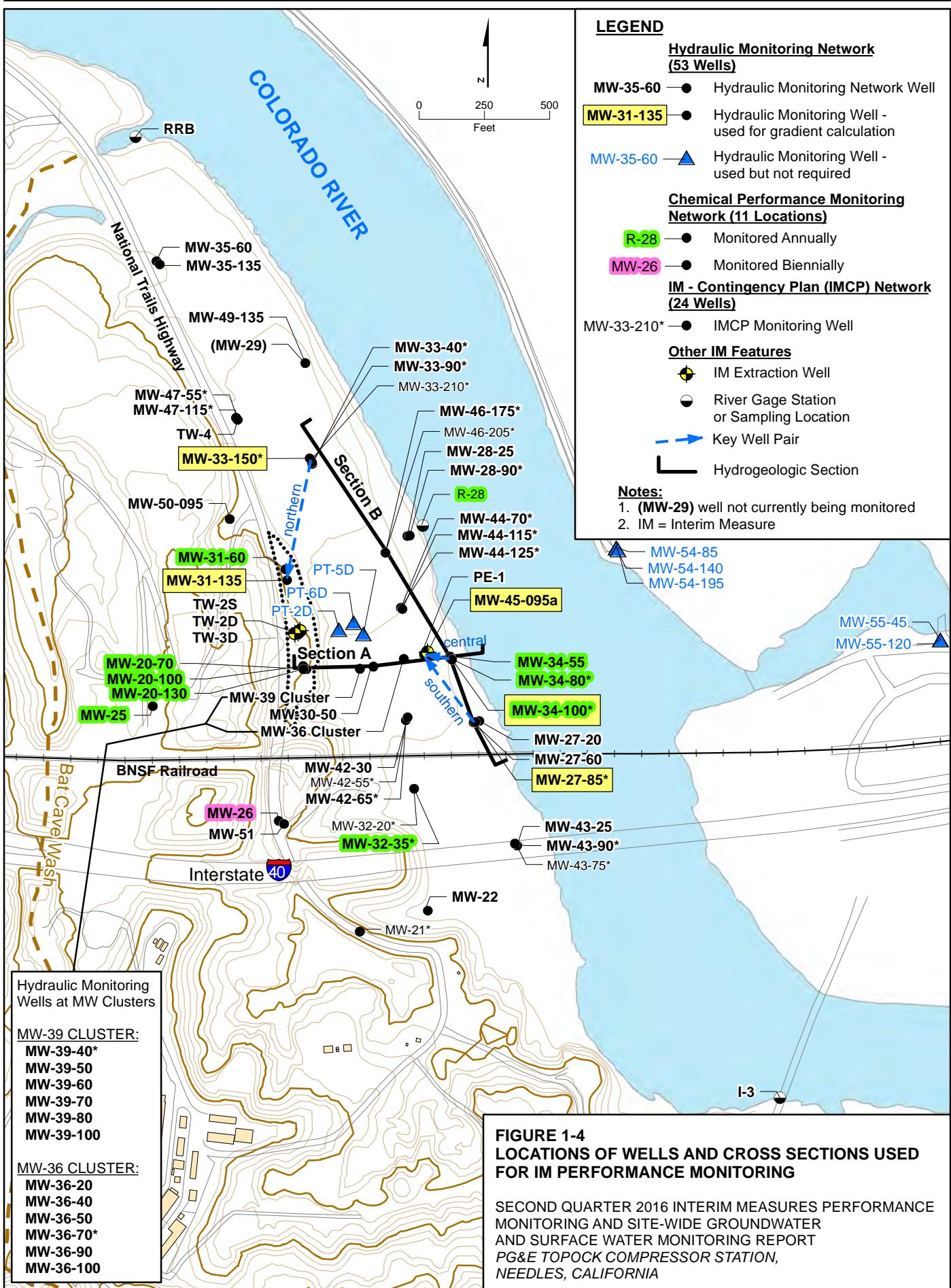
SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

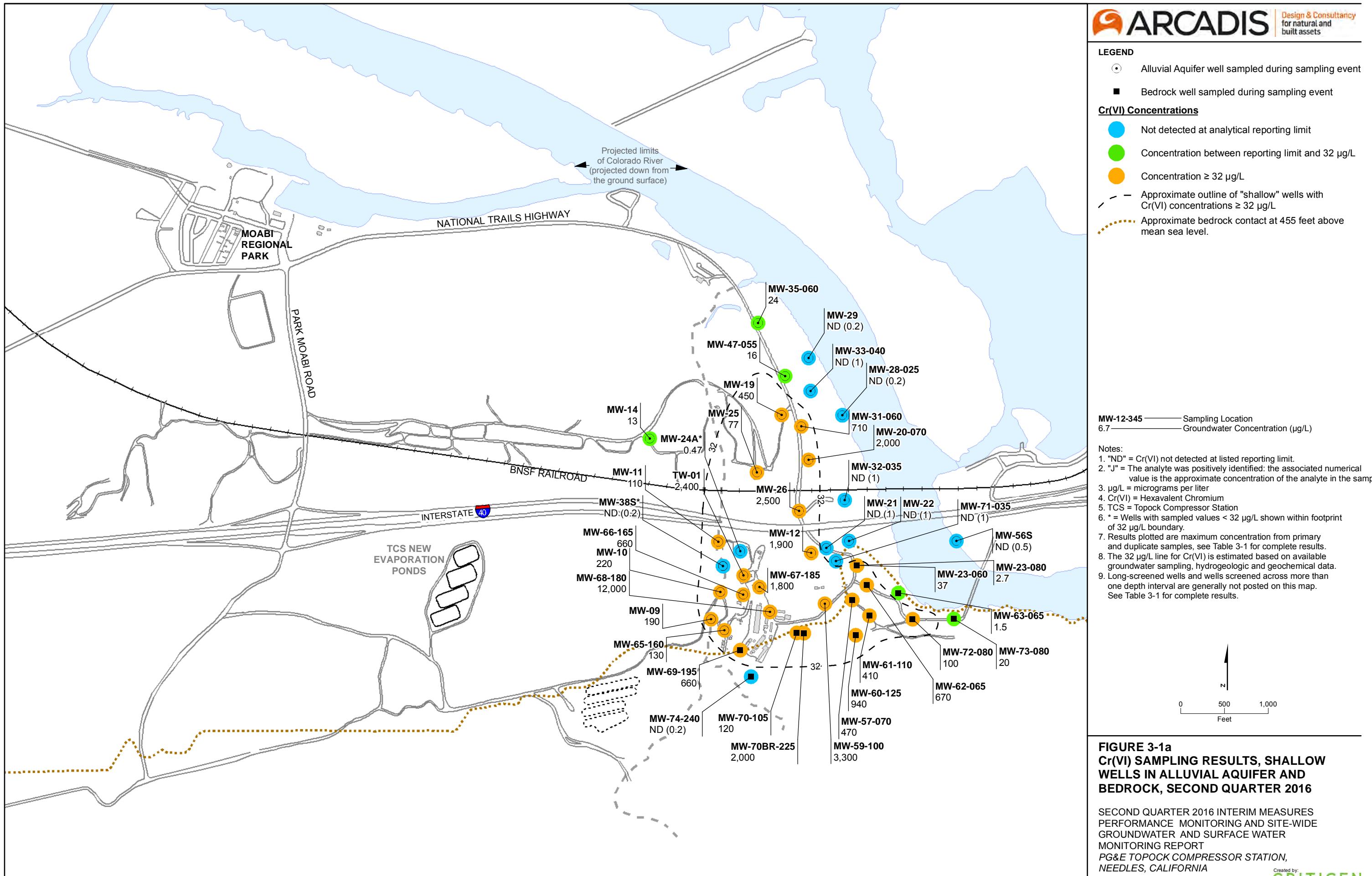

Notes:

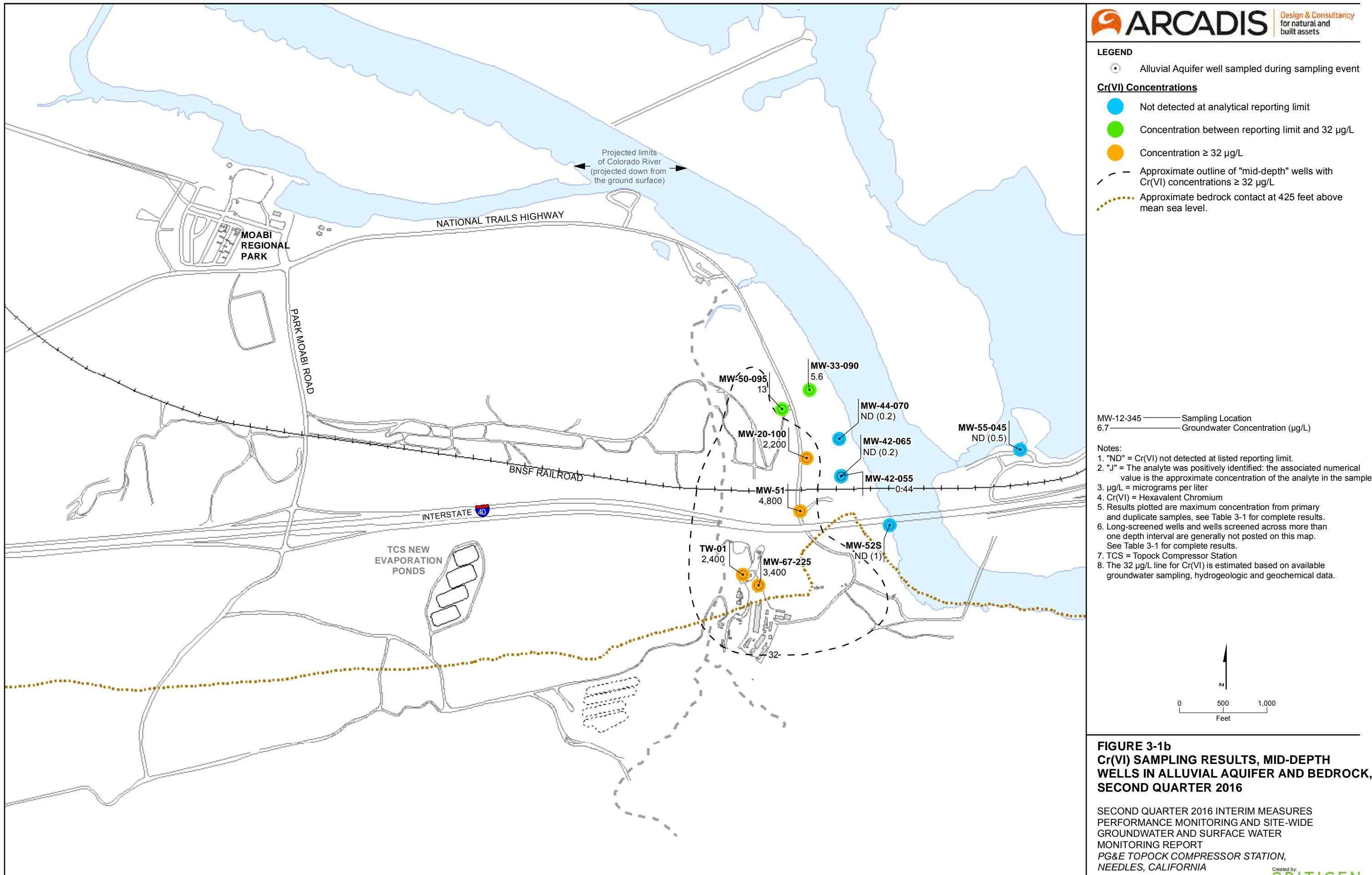
- Shoreline, river channel, and other surface water monitoring locations are sampled quarterly and twice during periods of low river stage (typically November - January).
- Location for SW-2 is approximate. GPS coverage was not available.
- RMP = River Monitoring Program
- TCS = Topock Compressor Station

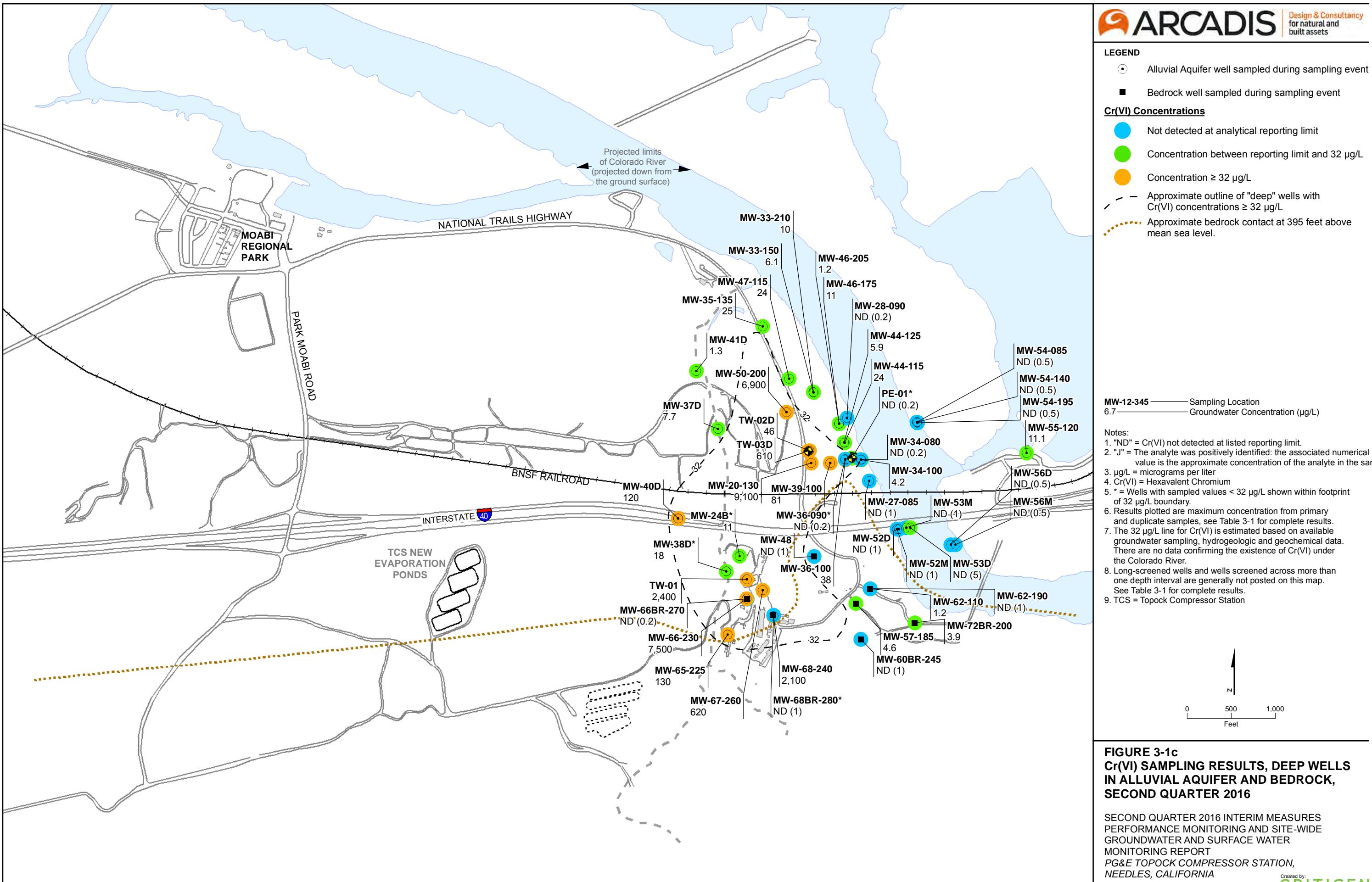
FIGURE 1-3
MONITORING LOCATIONS AND
SAMPLING FREQUENCY FOR RMP

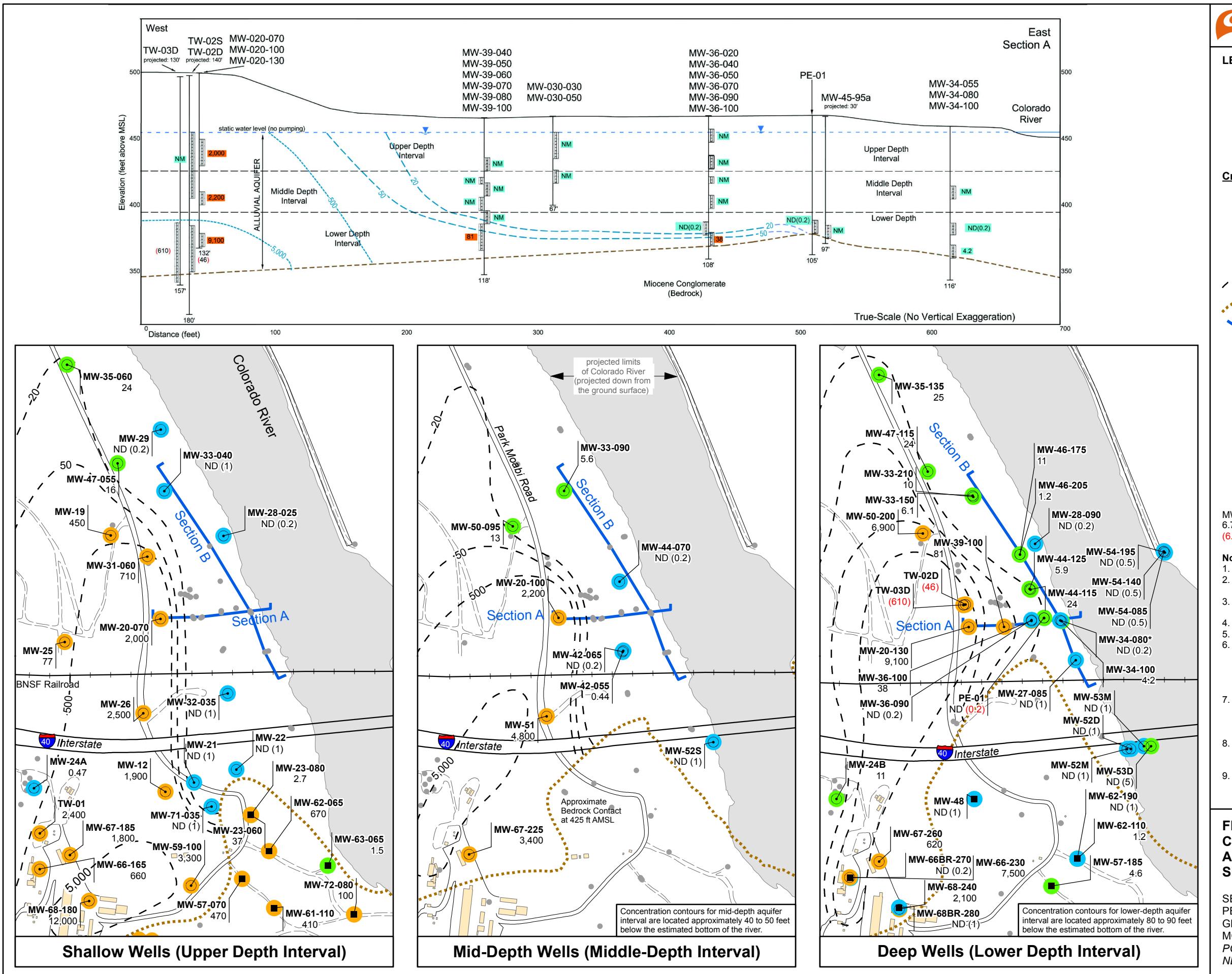
SECOND QUARTER 2016 INTERIM MEASURES
PERFORMANCE MONITORING AND SITE-WIDE
GROUNDWATER AND SURFACE WATER
MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA











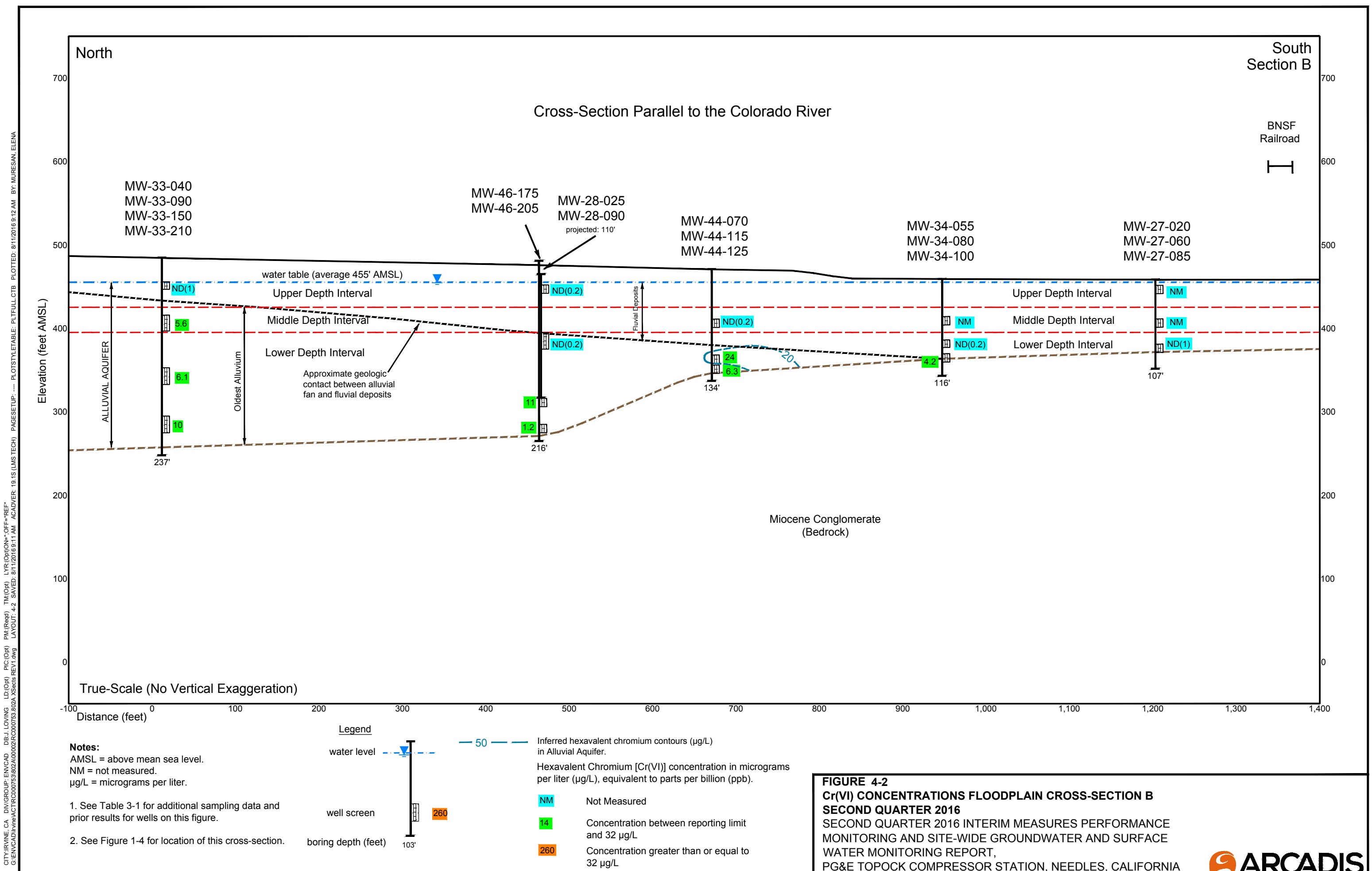
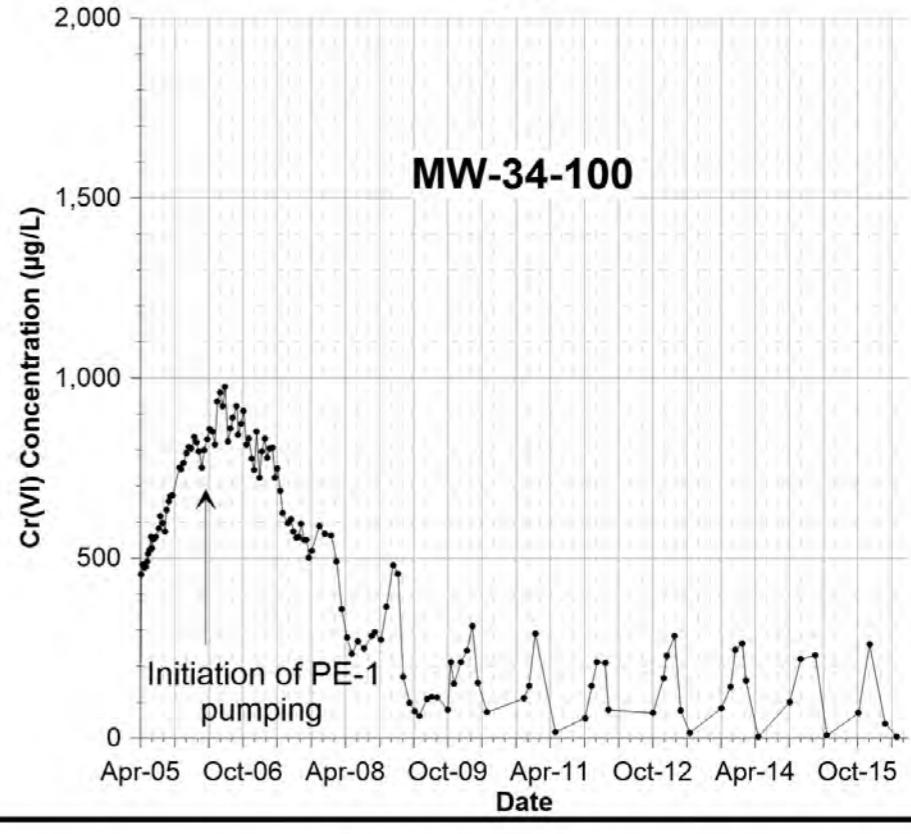
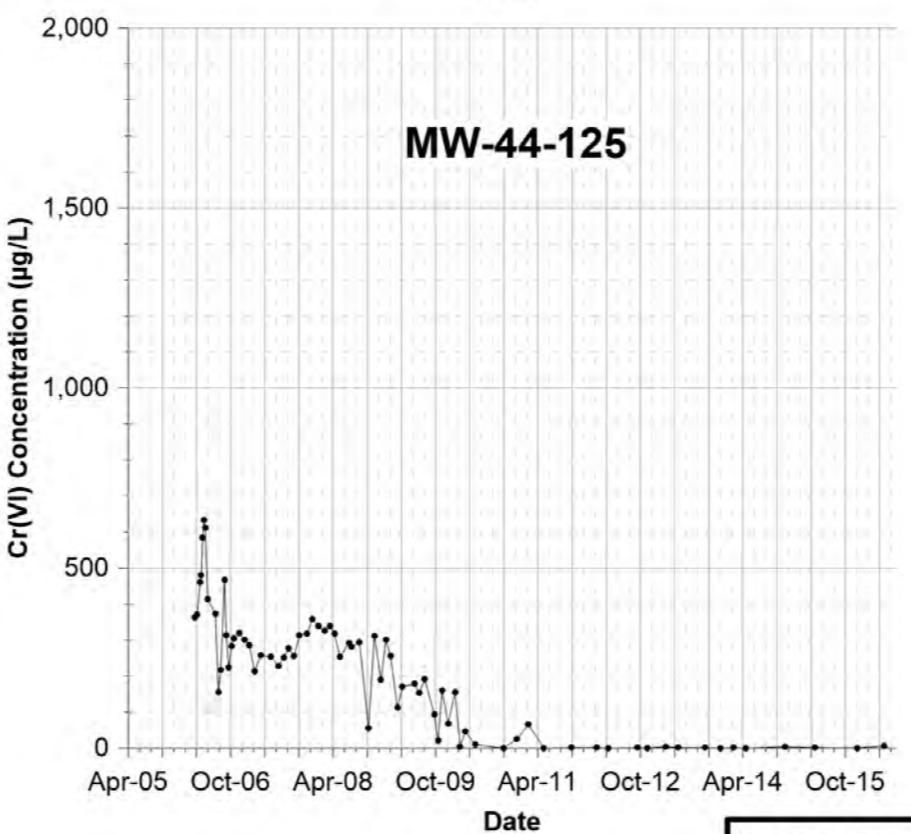
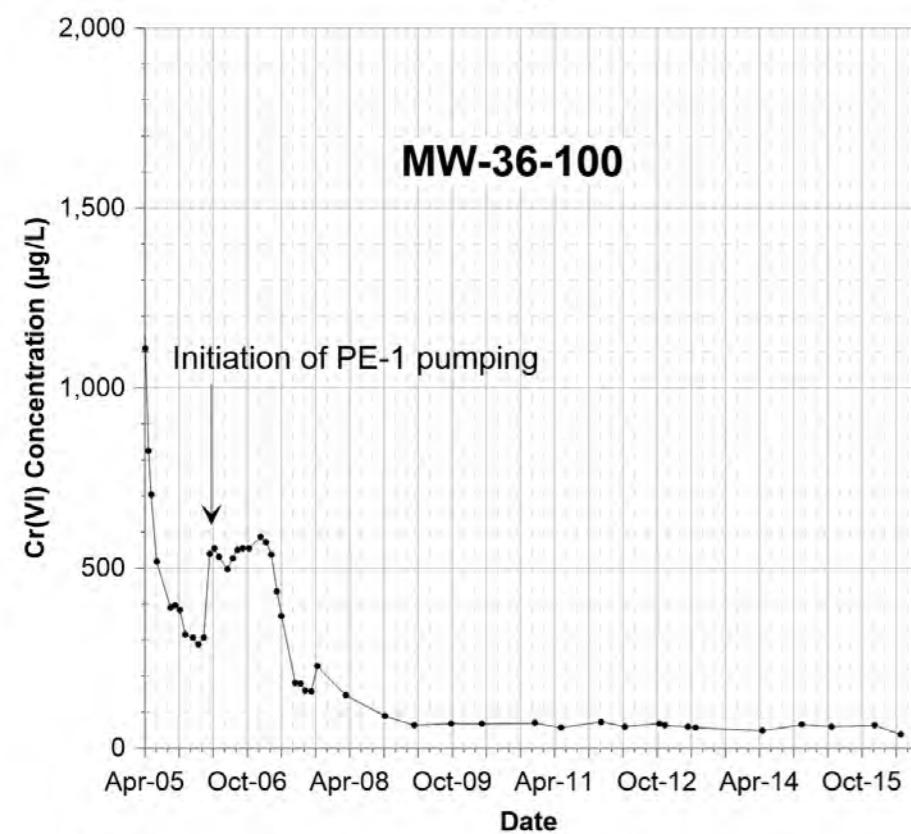
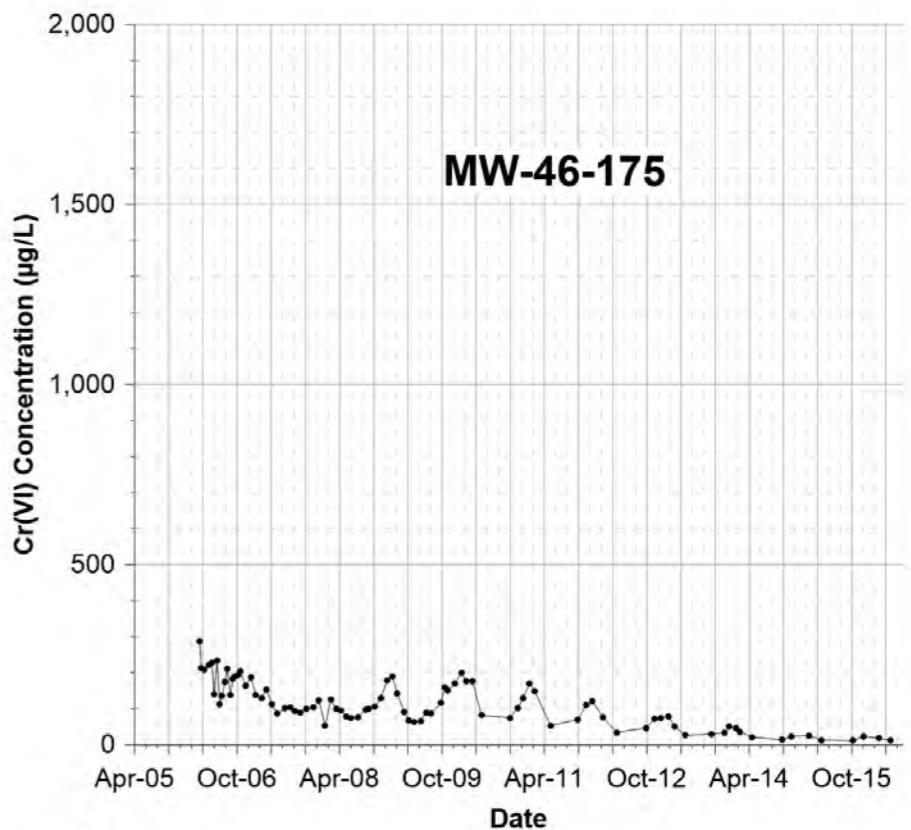
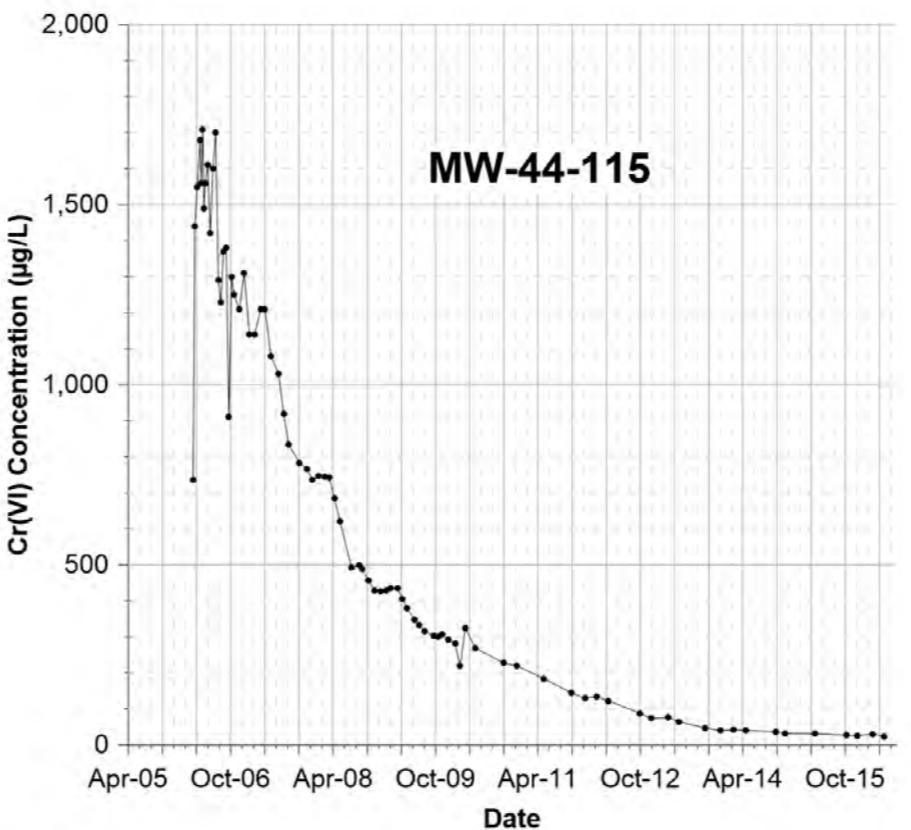
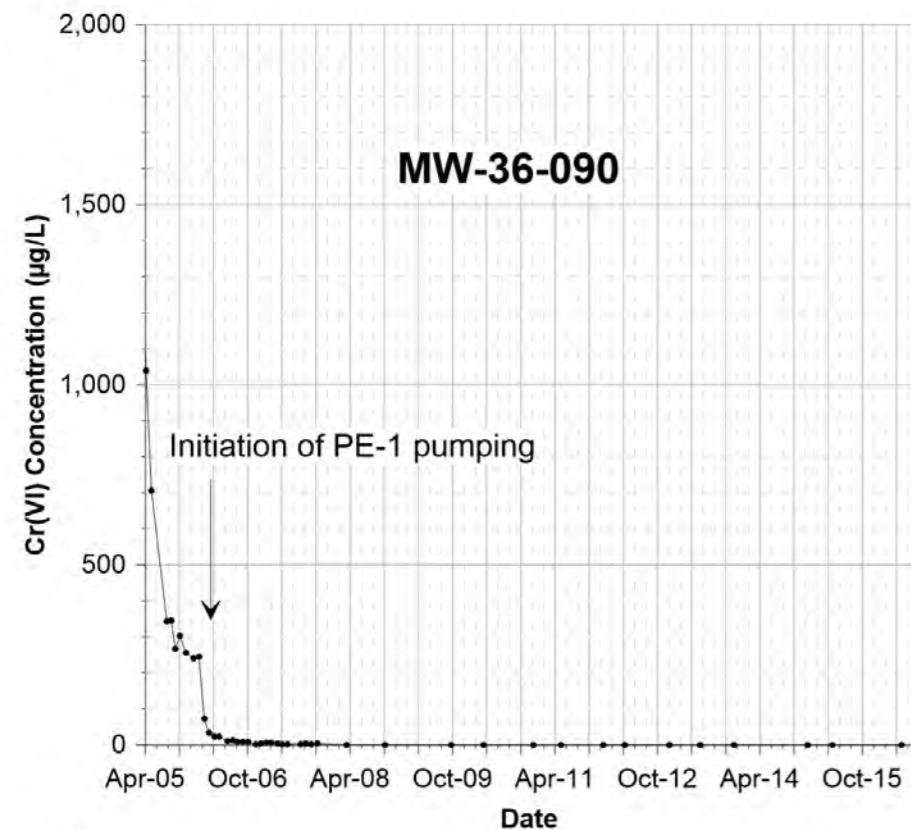


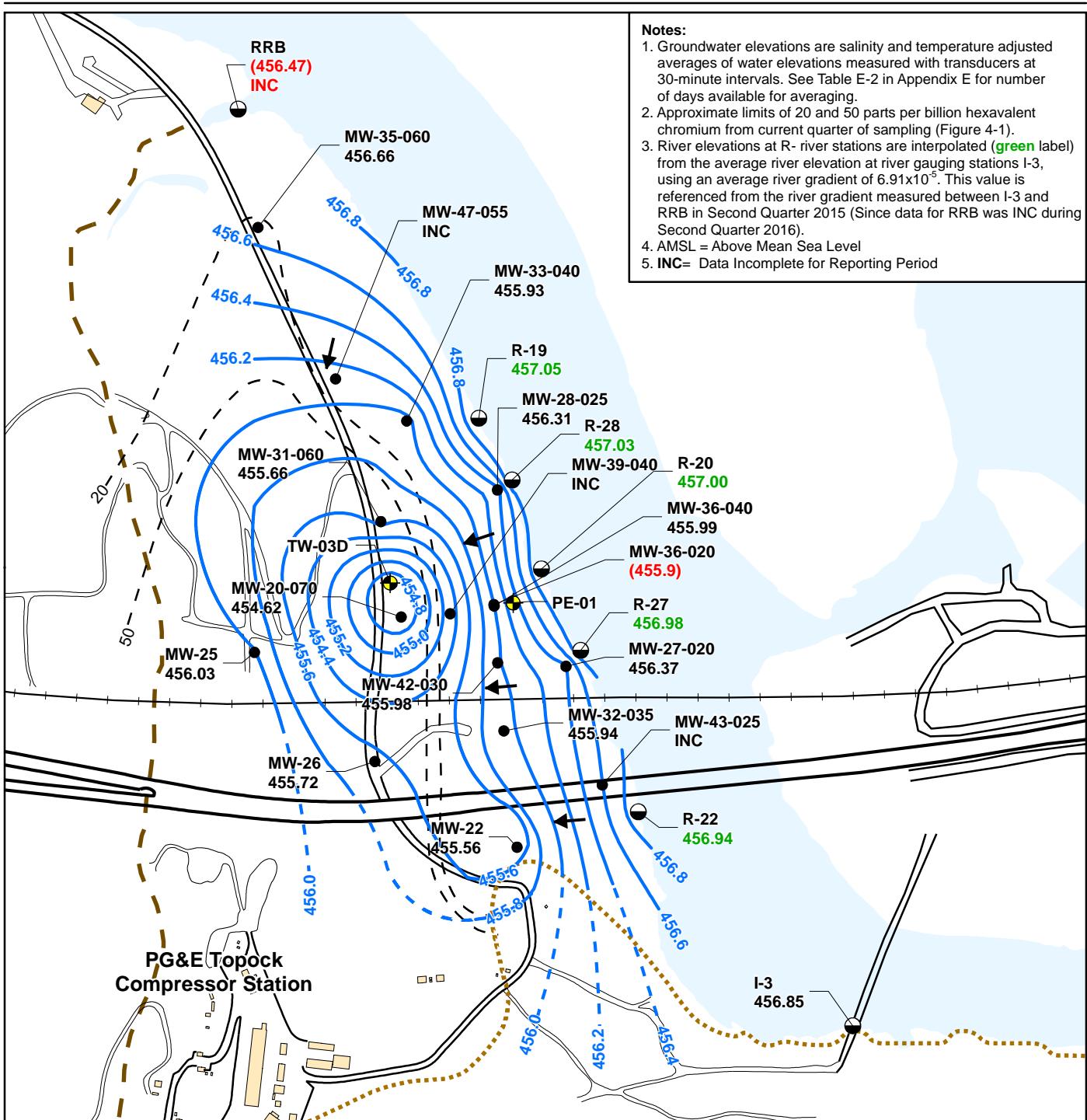
FIGURE 4-2
Cr(VI) CONCENTRATIONS FLOODPLAIN CROSS-SECTION B
SECOND QUARTER 2016
SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE
WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:

1. Hexavalent chromium [Cr(VI)] results in micrograms per liter ($\mu\text{g/L}$), 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 4-3
Cr(VI) CONCENTRATION TRENDS IN SELECTED PERFORMANCE MONITORING WELLS, APRIL 2005 THROUGH JUNE 2016
 SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

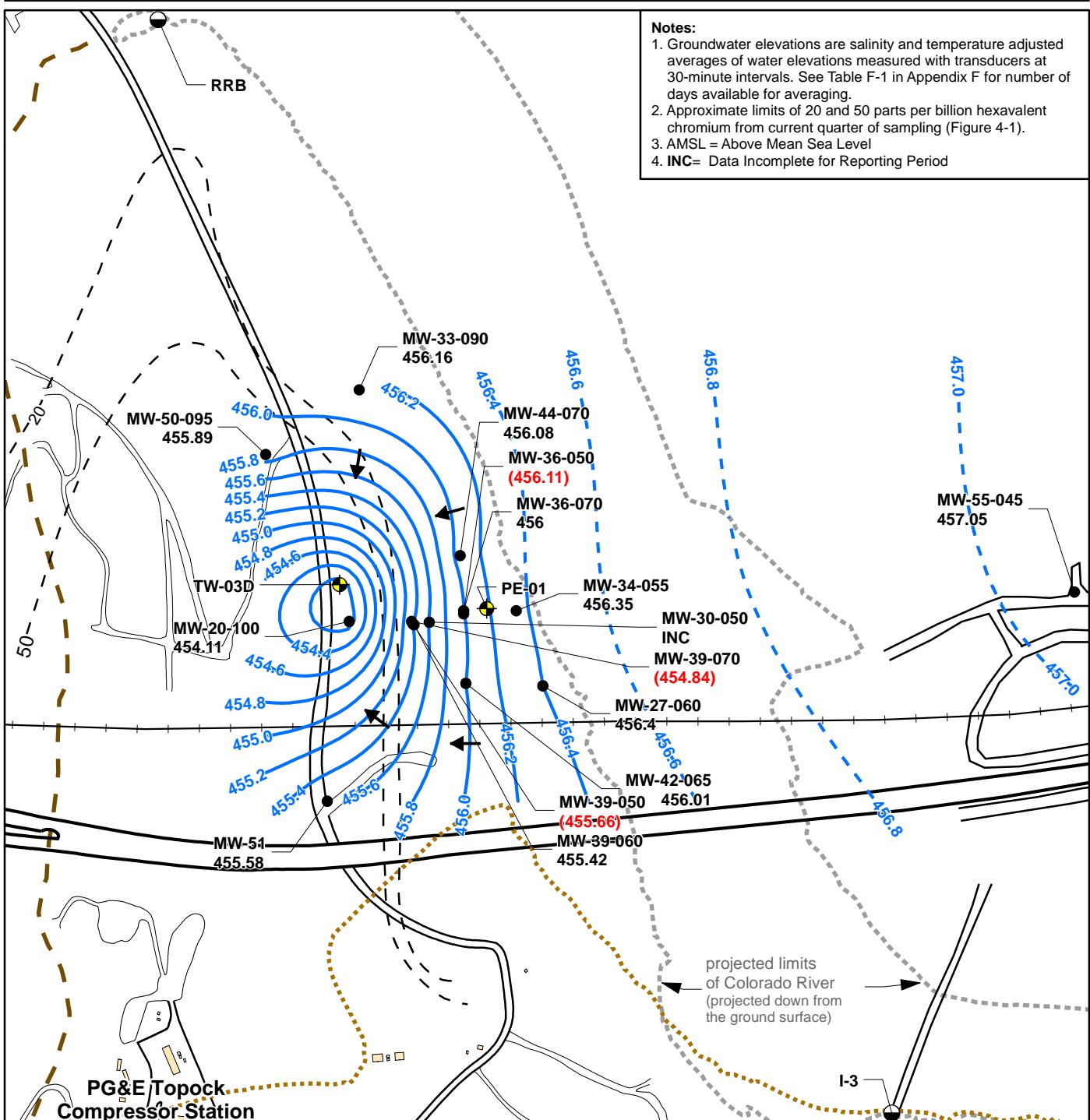

LEGEND

- Monitoring Well
- River Station
- Extraction Well
- Bedrock Contact at 455 ft Elevation
- Interpreted Groundwater Flow Direction
- Groundwater Elevation Contour 0.2 ft (dashed where inferred)
- - - Inferred Cr(VI) Concentration Contour (see note 2)

MW-20-070 — Gauging Location
 453.11 — Average Groundwater Elevation (ft AMSL)
 (453.74) — Elevation in red parentheses not used for contouring
 R-27 — River Station (see note 3)
 453.79 — River Elevation (ft AMSL) Interpolated Average

FIGURE 4-4a
AVERAGE GROUNDWATER ELEVATIONS
IN SHALLOW WELLS AND RIVER
ELEVATIONS, SECOND QUARTER 2016

SECOND QUARTER 2016 INTERIM MEASURES
 PERFORMANCE MONITORING AND SITE-WIDE
 GROUNDWATER AND SURFACE WATER
 MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION,
 NEEDLES, CALIFORNIA

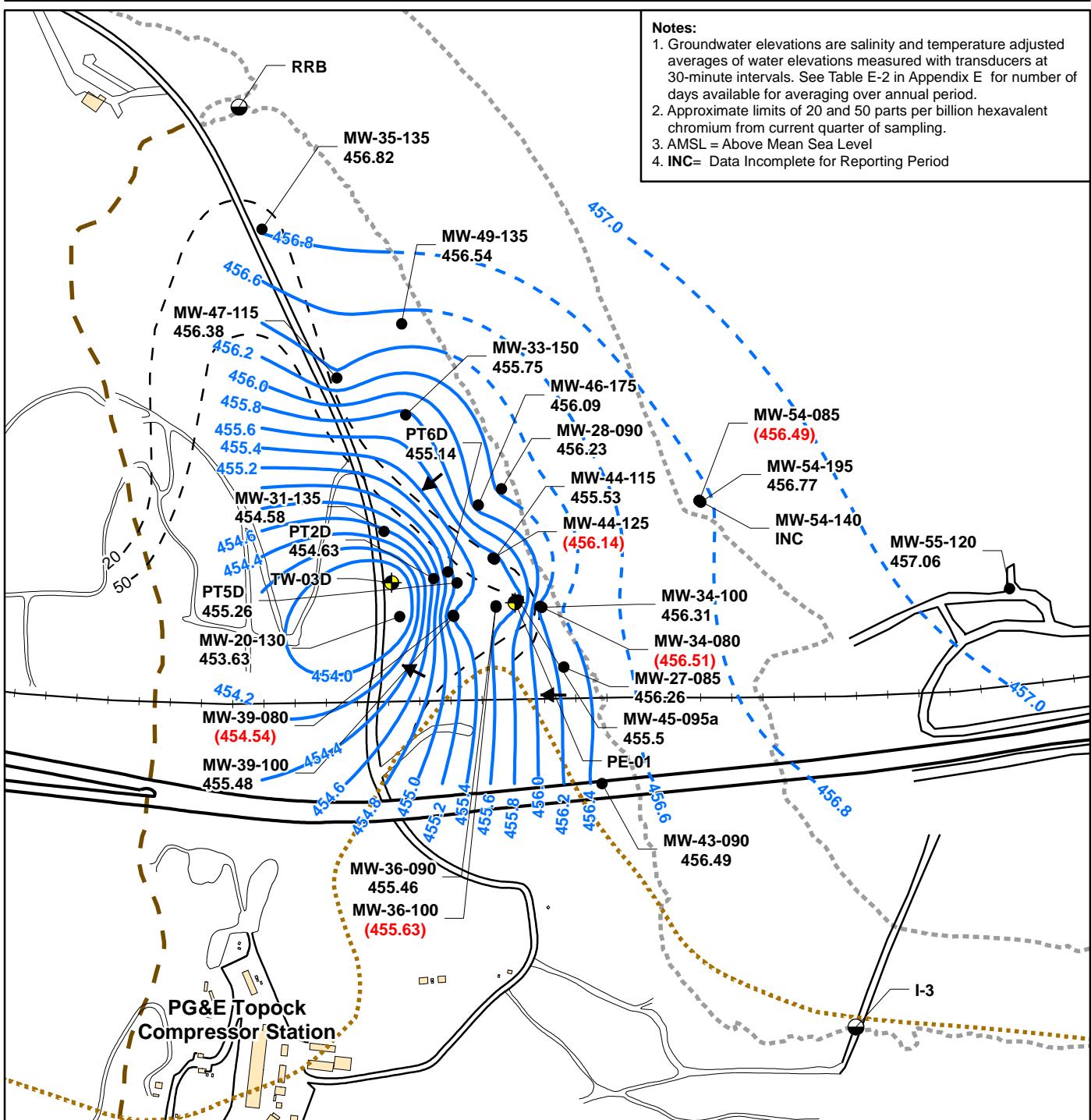

LEGEND

- Monitoring Well
- River Station
- Extraction Well
- Bedrock Contact at 425 ft AMSL Elevation
- Interpreted Groundwater Flow Direction
- Groundwater Elevation Contour 0.2 ft (dashed where inferred)
- - - Inferred Cr(VI) Concentration Contour (see note 2)

MW-20-070 — Gauging Location
 453.11 — Average Groundwater Elevation (ft AMSL)
 (453.74) — Elevation in red parentheses not used for contouring

FIGURE 4-4b
AVERAGE GROUNDWATER ELEVATIONS
IN MID-DEPTH WELLS, SECOND QUARTER 2016

SECOND QUARTER 2016 INTERIM MEASURES
PERFORMANCE MONITORING AND SITE-WIDE
GROUNDWATER AND SURFACE WATER
MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA


LEGEND

- Deep Zone
- River Station
- Extraction Well
- Bedrock Contact at 396 ft AMSL Elevation
- Interpreted Groundwater Flow Direction
- Groundwater Elevation Contour 0.2 ft
(dashed where inferred)
- - - Inferred Cr(VI) Concentration Contour (see note 2)

0 300 600
Feet



MW-20-070 — Gauging Location
453.11 — Average Groundwater Elevation (ft AMSL)
(453.74) — Elevation in red parentheses not used for contouring

FIGURE 4-4c
AVERAGE GROUNDWATER ELEVATIONS
IN DEEP WELLS, SECOND QUARTER 2016

SECOND QUARTER 2016 INTERIM MEASURES
PERFORMANCE MONITORING AND SITE-WIDE
GROUNDWATER AND SURFACE WATER
MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

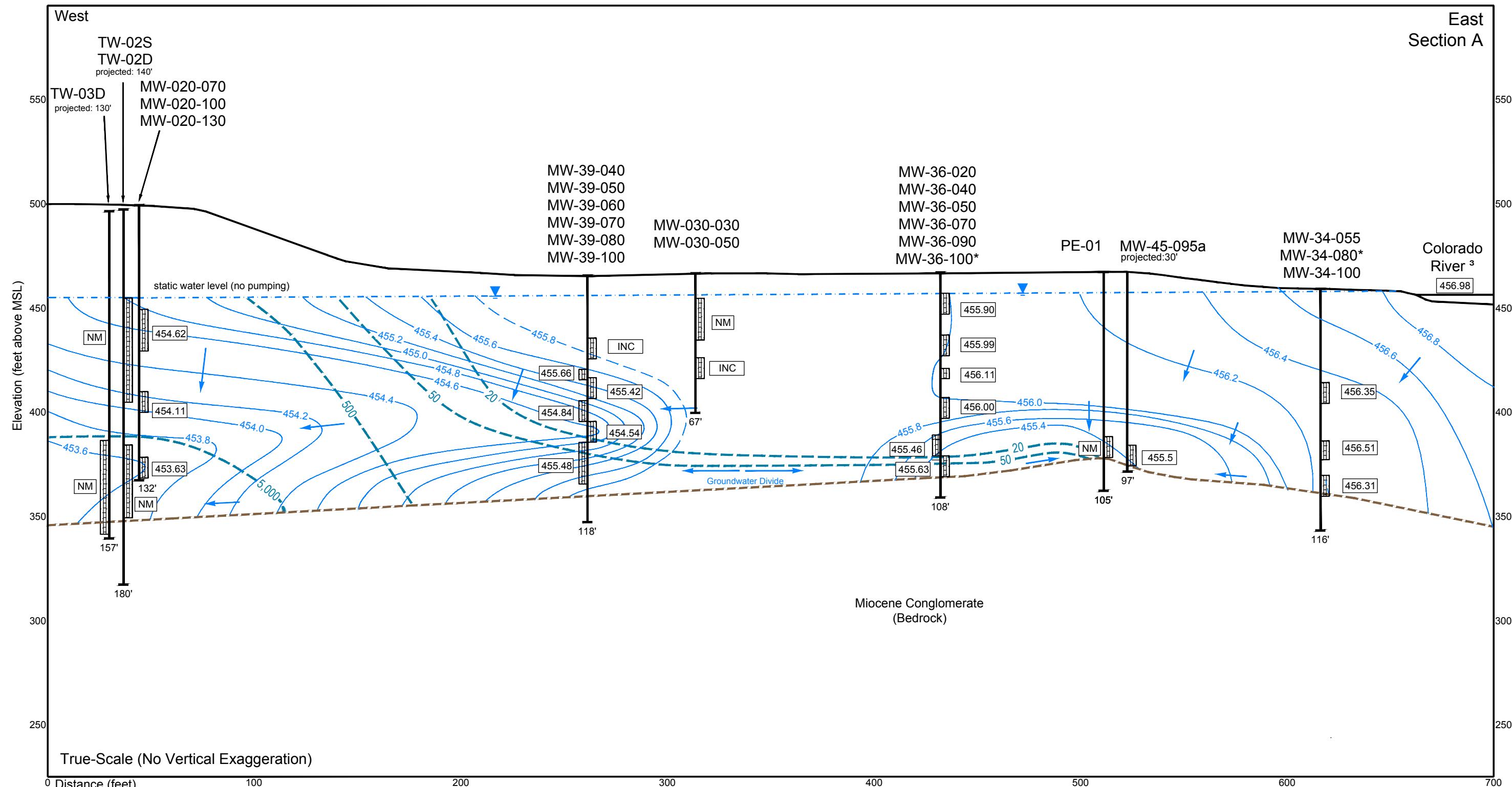
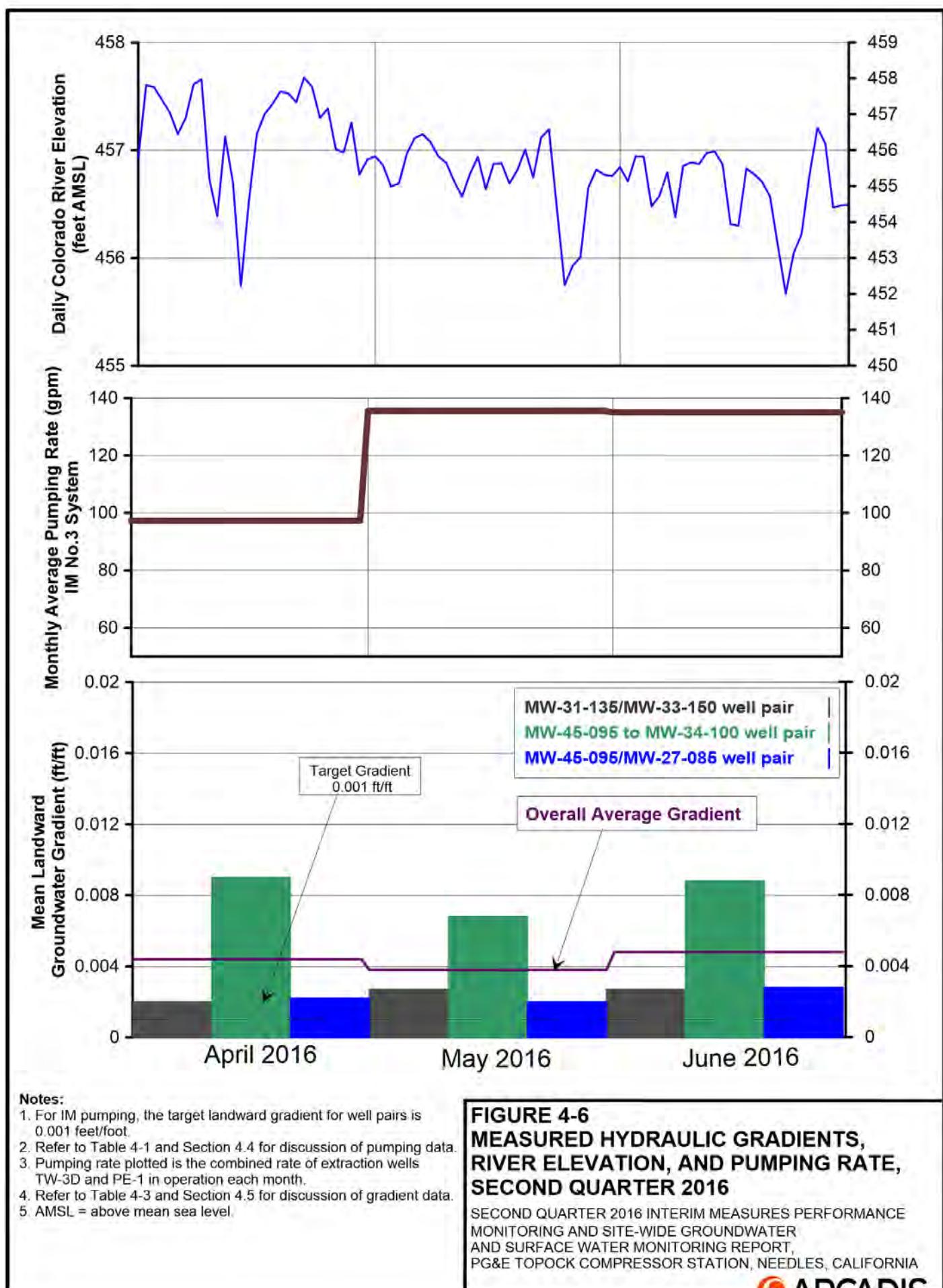
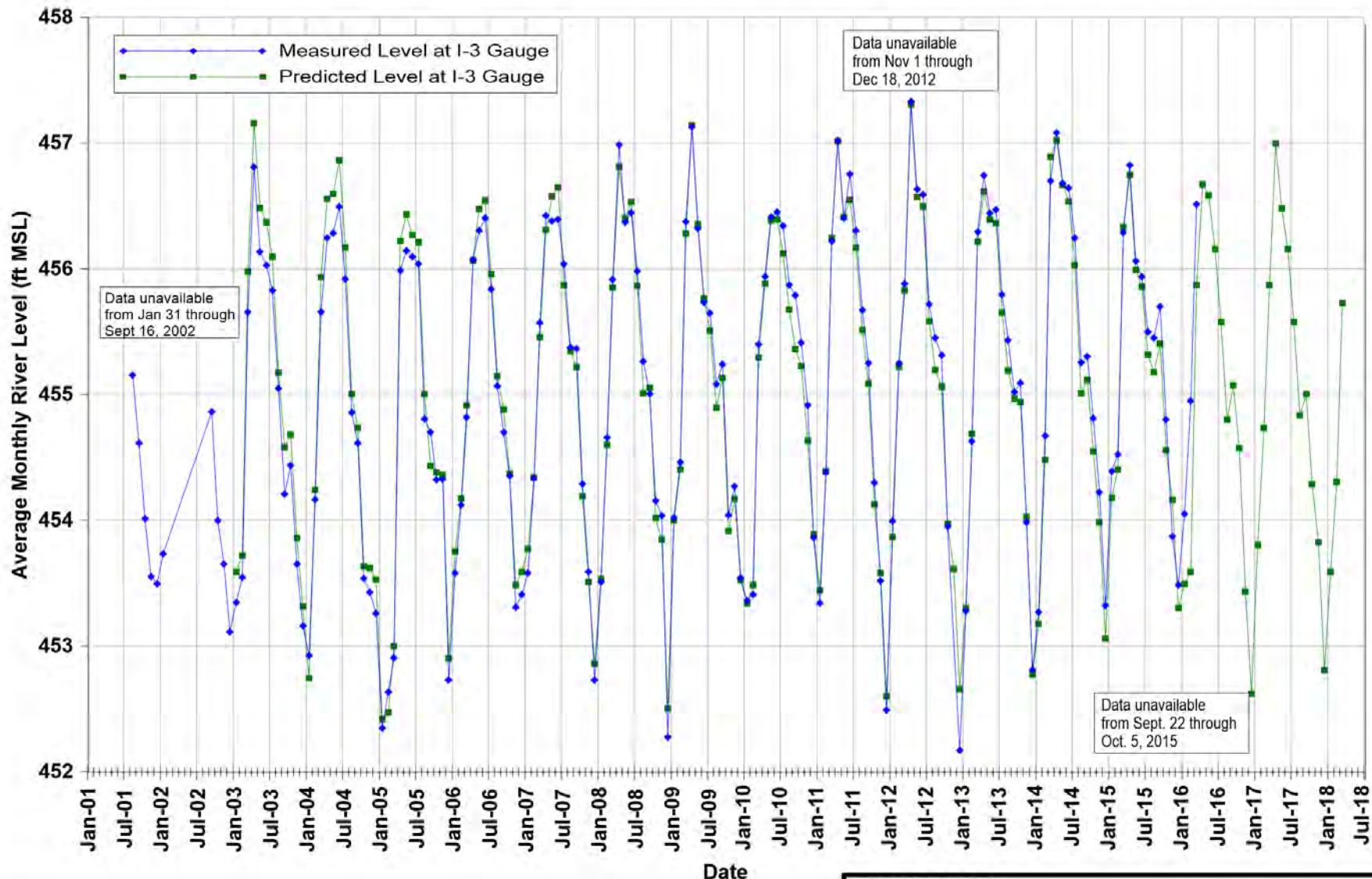


FIGURE 4-5
AVERAGE GROUNDWATER ELEVATIONS FOR WELLS IN FLOODPLAIN
CROSS-SECTION A, SECOND QUARTER 2016
SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE
WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA





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 July 2016 USBR projections. These data are reported monthly by the US Department of Interior, at <http://www.usbr.gov/lc/region/g4000/24mo.pdf>

FIGURE 4-7
PAST AND PREDICTED FUTURE RIVER LEVELS
AT TOPOCK COMPRESSOR STATION

SECOND QUARTER 2016 INTERIM MEASURES
PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

APPENDIX A

Well Inspection and Maintenance Log, Second Quarter 2016

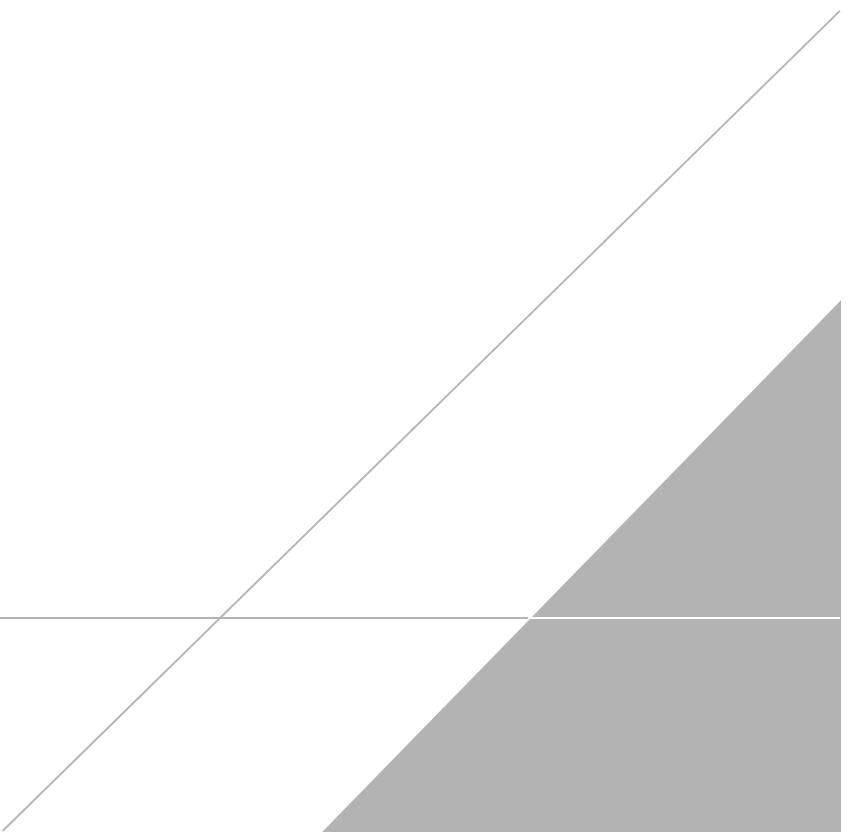


Table A-1
Well Inspection Log, Second Quarter 2016

Second Quarter 2016 Interim Measures Performance Monitoring and Site-wide
 Groundwater and Surface Water Monitoring Report,
 PG&E Topock Compressor Station, Needles, California

Well/ Piezometer	Inspection Date	Survey Mark Present? (Y/N)	Standing or Ponded Water? (Y/N)	Lock in Place? (Y/N)	Evidence of Well Subsidence? (Y/N)	Well Labeled on Casing or Pad? (Y/N)	Traffic Poles Intact? (Y/N)	Concrete Pad Intact? (Y/N)	Erosion Around Wellhead? (Y/N)	Steel Casing Intact? (Y/N)	PVC Cap Present? (Y/N)	Standing Water in Annulus? (Y/N)	Well Casing Intact? (Y/N)	Photo taken this quarter? (Y/N)	Required Actions	Action Completed? (Y/N)	Action Completed Date	Notes
I-3	4/11/2016	Yes	No	No	No	No	No	NA	NA	Yes	No	Yes	Yes			NA		
MW-20-070	4/12/2016	Yes	No	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes			NA		
MW-20-100	4/12/2016	Yes	No	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes			NA		
MW-20-130	4/12/2016	Yes	No	---	Yes	No	Yes	No	Yes	Yes	---	Yes	Yes			NA		
MW-22	4/11/2016	Yes	No	Yes	No	Yes	No	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-25	4/12/2016	Yes	No	Yes	No	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes		NA		
MW-26	4/12/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-27-020	4/4/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-27-060	4/4/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-27-085	4/4/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-28-025	4/11/2016	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes			NA		
MW-28-090	4/11/2016	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	Yes			NA		
MW-30-050	4/11/2016	Yes	No	Yes	No	Yes	No	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-31-060	4/12/2016	Yes	No	Yes	No	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes		NA		
MW-31-135	4/4/2016	Yes	No	Yes	No	Yes	Yes	No	NA	Yes	Yes	No	Yes	Yes		NA		
MW-32-035	4/11/2016	Yes	No	Yes	No	Yes	NA	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-33-040	4/4/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-33-090	4/4/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-33-150	4/4/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-34-055	4/4/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-34-080	4/4/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-34-100	4/4/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-35-060	4/11/2016	Yes	No	Yes	No	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes		NA		
MW-35-135	4/11/2016	Yes	No	Yes	No	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes		NA		
MW-36-020	4/5/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-36-040	4/5/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	No	No	Yes	Yes		NA		
MW-36-050	4/5/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	No	No	Yes	Yes		NA		
MW-36-070	4/5/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	No	No	Yes	Yes		NA		
MW-36-090	4/5/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	No	No	Yes	Yes		NA		
MW-36-100	4/5/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	No	No	Yes	Yes		NA		
MW-39-040	4/5/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	No	No	Yes	Yes		NA		
MW-39-050	4/5/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	No	No	Yes	Yes		NA		
MW-39-060	4/5/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	No	No	Yes	Yes		NA		
MW-39-070	4/5/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	No	No	No	Yes		NA		
MW-39-080	4/5/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	No	No	Yes	Yes		NA		
MW-39-100	4/5/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-42-030	4/5/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-42-065	4/5/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-43-090	4/5/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-44-070	4/11/2016	Yes	No	Yes	No	Yes	No	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-44-115	4/11/2016	Yes	No	Yes	No	Yes	No	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-44-125	4/11/2016	Yes	No	Yes	No	Yes	No	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-45-095A	4/4/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-46-175	4/11/2016	Yes	No	Yes	No	Yes	No	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-47-055	4/11/2016	Yes	No	Yes	No	Yes	NA	Yes	Yes	Yes	Yes	No	Yes	Yes		NA		
MW-47-115	4/11/2016	Yes	No	Yes	No	Yes	No	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-49-135	4/11/2016	Yes	No	Yes	No	Yes	No	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-50-095	4/12/2016	Yes	No	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes		NA		
MW-51	4/11/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-54-085	4/12/2016	Yes	No	Yes	No	Yes	No	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-54-140	4/12/2016	Yes	No	Yes	No	Yes	No	Yes	No	NA	Yes	Yes	Yes	Yes		NA		
MW-54-195	4/12/2016	Yes	No	Yes	No	Yes	No	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-55-045	4/12/2016	Yes	No	Yes	No	Yes	NA	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-55-120	4/12/2016	Yes	No	Yes	No	Yes	No	NA	No	Yes	Yes	No	Yes	Yes		NA		
OW-01S	4/12/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes		NA		
OW-02S	4/12/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes		NA		
OW-05D	4/12/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes		NA		
OW-05M	4/12/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes		NA		
OW-05S	4/12/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes		NA		
PM-03	4/5/2016	Yes	No	Yes	No	No	Yes	Yes	No	Yes	Yes	NA	Yes	Yes		NA		
PM-04	4/5/2016	NA	No	Yes	No	Yes	Yes	Yes	No	Yes	NA	NA	Yes	Yes		NA		
PT2D	4/11/2016	Yes	No	Yes	No	Yes	No	Yes	No	Yes	Yes	No	Yes	Yes		NA		
P15D	4/11/2016	Yes	No	Yes	No	Yes	No	Yes	No	Yes	Yes	No	Yes	Yes		NA		
P17D	4/11/2016	Yes	No	Yes	No	Yes	No	Yes	No	Yes	Yes	No	Yes	Yes		NA		
RRB	4/11/2016	Yes	No	Yes	No	Yes	NA	NA	NA	Yes	Yes	No	Yes	Yes		NA		
I-3	5/5/2016	Yes	NA	NA	No	No	NA	NA	NA	NA	Yes	NA	Yes	Yes		NA		
MW-09	5/3/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-10	5/3/2016	Yes	No	Yes	No	Yes	NA	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-10	5/4/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-11	5/3/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-11	5/4/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-12	5/2/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-14	4/27/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-19	4/27/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-20-070	4/27/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes		NA		

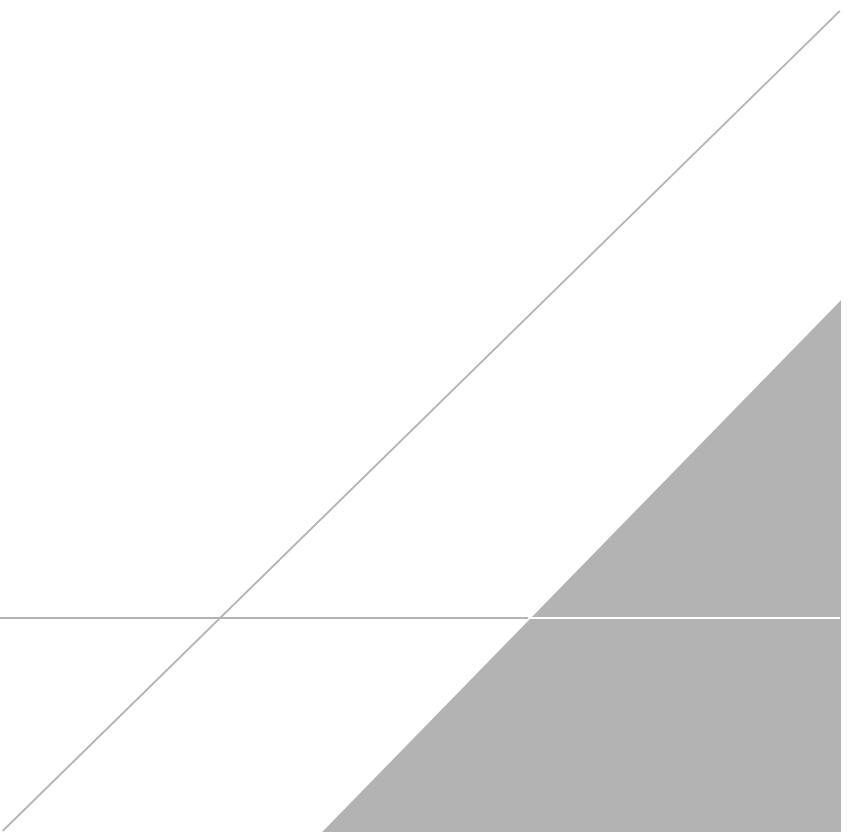
Well/ Piezometer	Inspection Date	Survey Mark Present? (Y/N)	Standing or Ponded Water? (Y/N)	Lock in Place? (Y/N)	Evidence of Well Subsidence? (Y/N)	Well Labeled on Casing or Pad? (Y/N)	Traffic Poles Intact? (Y/N)	Concrete Pad Intact? (Y/N)	Erosion Around Wellhead? (Y/N)	Steel Casing Intact? (Y/N)	PVC Cap Present? (Y/N)	Standing Water in Annulus? (Y/N)	Well Casing Intact? (Y/N)	Photo taken this quarter? (Y/N)	Required Actions	Action Completed? (Y/N)	Action Completed Date	Notes
MW-20-070	5/2/2016	Yes	No	Yes	No	Yes	Yes	No	No	NA	Yes	No	Yes	Yes			NA	
MW-20-100	4/27/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes			NA	
MW-20-100	5/2/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-20-130	4/27/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes			NA	
MW-20-130	5/2/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-21	5/2/2016	Yes	No	No	No	No	NA	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-22	4/25/2016	Yes	No	Yes	No	Yes	NA	Yes	No	Yes	Yes	No	Yes	Yes			NA	
MW-22	5/3/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-23-060	5/2/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes			NA	
MW-23-080	5/2/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes			NA	
MW-24A	5/3/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes			NA	
MW-24B	5/3/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes			NA	
MW-25	4/27/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes			NA	
MW-25	5/2/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-26	4/28/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-26	5/5/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-27-020	5/3/2016	Yes	No	Yes	No	Yes	NA	NA	No	NA	Yes	No	Yes	Yes			NA	
MW-27-060	5/3/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-28-025	5/4/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-27-085	4/25/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes			NA	
MW-28-090	5/4/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-28-090	4/26/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes			NA	
MW-29	4/26/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes			NA	
MW-31-060	5/2/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-31-060	4/27/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes			NA	
MW-31-135	5/2/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-32-035	5/3/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-32-035	4/25/2016	Yes	No	Yes	No	Yes	NA	Yes	No	Yes	Yes	No	Yes	Yes			NA	
MW-33-040	5/4/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-33-040	4/26/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes			NA	
MW-33-090	5/4/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-33-090	4/26/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-33-150	5/4/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-33-150	4/26/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-33-210	4/26/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes			NA	
MW-34-055	5/3/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-34-080	4/26/2016	Yes	No	Yes	No	Yes	NA	Yes	No	Yes	Yes	No	Yes	Yes			NA	
MW-34-080	5/3/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-34-100	5/3/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-34-100	4/26/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes			NA	
MW-35-060	4/27/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes			NA	
MW-35-060	5/2/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-35-135	4/27/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes			NA	
MW-35-135	5/2/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-36-020	5/3/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-36-040	5/3/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-36-050	5/3/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-36-070	5/3/2016	No	Yes	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-36-090	4/26/2016	Yes	No	Yes	No	Yes	NA	Yes	No	Yes	Yes	No	Yes	Yes			NA	
MW-36-090	5/3/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-36-100	5/3/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-36-100	4/26/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes			NA	
MW-37D	4/27/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes			NA	
MW-37S	5/5/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-38D	5/3/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes			NA	
MW-38S	5/3/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-39-050	5/4/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-39-060	5/4/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-39-070	5/4/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-39-080	5/4/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-39-100	4/26/2016	Yes	No	Yes	No	Yes	NA	Yes	No	Yes	Yes	No	Yes	Yes			NA	
MW-40D	5/4/2016	Yes	No	No	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-41D	4/27/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes			NA	
MW-41S	5/5/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-42-030	5/3/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-42-055	4/26/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes			NA	
MW-42-065	4/26/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-42-065	5/3/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-43-090	5/3/2016	Yes	No	Yes	No	Yes	NA	--	No	NA	Yes	No	Yes	Yes			NA	
MW-44-070	4/26/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes	--	--	NA	
MW-44-070	5/3/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-44-115	5/3/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-44-115	4/26/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes			NA	
MW-44-115	4/26/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes			NA	
MW-44-125	5/3/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes			NA	

Well/ Piezometer	Inspection Date	Survey Mark Present? (Y/N)	Standing or Ponded Water? (Y/N)	Lock in Place? (Y/N)	Evidence of Well Subsidence? (Y/N)	Well Labeled on Casing or Pad? (Y/N)	Traffic Poles Intact? (Y/N)	Concrete Pad Intact? (Y/N)	Erosion Around Wellhead? (Y/N)	Steel Casing Intact? (Y/N)	PVC Cap Present? (Y/N)	Standing Water in Annulus? (Y/N)	Well Casing Intact? (Y/N)	Photo taken this quarter? (Y/N)	Required Actions	Action Completed? (Y/N)	Action Completed Date	Notes
MW-45-095A	5/3/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-46-175	5/4/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-46-175	4/26/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-46-205	4/26/2016	Yes	No	Yes	No	Yes	NA	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-47-055	4/26/2016	Yes	No	Yes	Yes	Yes	NA	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-47-115	5/4/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-47-115	4/26/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-48	5/2/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-49-135	5/4/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-50-095	4/27/2016	Yes	No	Yes	No	Yes	NA	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-50-095	5/2/2016	Yes	No	Yes	No	Yes	NA	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-50-200	4/27/2016	Yes	No	Yes	No	Yes	NA	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-51	5/3/2016	Yes	No	Yes	No	Yes	NA	Yes	No	---	NA	No	Yes	Yes		NA		
MW-51	4/27/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-52D	4/25/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-52M	4/25/2016	Yes	No	Yes	No	Yes	NA	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-52S	4/25/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-53D	4/27/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-53M	4/27/2016	Yes	No	Yes	No	Yes	NA	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-54-085	5/5/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-54-085	4/29/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-54-140	4/29/2016	Yes	No	No	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-54-195	4/29/2016	Yes	No	No	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-54-195	5/5/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-55-045	5/4/2016	Yes	No	Yes	No	Yes	NA	No	NA	Yes	No	Yes	Yes	Yes		NA		
MW-55-045	5/5/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-55-120	5/4/2016	Yes	No	Yes	No	Yes	NA	No	No	NA	Yes	No	Yes	Yes		NA		
MW-55-120	5/5/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-56D	5/5/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	No	No	Yes	Yes		NA		
MW-56M	5/5/2016	No	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-56S	5/5/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-57-050	4/28/2016	Yes	Yes	No	Yes	No	Yes	No	NA	Yes	No	Yes	No	Yes		NA		
MW-57-070	4/28/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-57-185	4/28/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-58-065	4/28/2016	Yes	No	Yes	No	Yes	NA	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-58BR	4/28/2016	Yes	No	Yes	No	Yes	NA	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-59-100	4/29/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-60-125	4/28/2016	Yes	No	No	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-60BR-245	4/28/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-61-110	4/29/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-62-065	5/2/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-62-110	5/2/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-62-190	5/2/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-63-065	4/28/2016	Yes	No	No	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-64BR	5/2/2016	Yes	No	No	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-65-160	5/3/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-65-225	5/3/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-66-165	4/25/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-66-230	4/25/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-66BR-270	4/25/2016	--	Yes	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-67-185	5/3/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-67-225	5/3/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-67-260	5/3/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-68-180	5/4/2016	Yes	No	No	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-68-240	5/4/2016	Yes	No	No	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-68BR-280	5/4/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-69-195	4/25/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-70-105	4/28/2016	Yes	No	Yes	No	Yes	NA	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-70BR-225	4/28/2016	Yes	No	Yes	No	Yes	NA	Yes	No	Yes	Yes	No	Yes	Yes		NA		
MW-71-035	5/2/2016	Yes	No	No	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-72-080	4/29/2016	Yes	No	No	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-72BR-200	4/28/2016	Yes	No	No	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
MW-73-080	4/28/2016	Yes	No	No	No	Yes	NA	Yes	No	NA	Yes	Yes	Yes	Yes		NA		
MW-74-240	4/25/2016	--	No	Yes	No	---	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
OW-02S	5/2/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
OW-05D	5/2/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
OW-05M	5/2/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
OW-05S	5/2/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
PE-01	4/27/2016	NA	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
PT2D	5/4/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
PT15D	5/4/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA		
PT6D	5/4/2016	Yes	No	Yes	No	Yes	NA	No	NA	Yes	Yes	No	Yes	Yes		NA		
RRB	5/5/2016	Yes	Yes	No	No	No	NA	NA	NA	NA	Yes	NA	Yes	No		NA		

Well/ Piezometer	Inspection Date	Survey Mark Present? (Y/N)	Standing or Ponded Water? (Y/N)	Lock in Place? (Y/N)	Evidence of Well Subsidence? (Y/N)	Well Labeled on Casing or Pad? (Y/N)	Traffic Poles Intact? (Y/N)	Concrete Pad Intact? (Y/N)	Erosion Around Wellhead? (Y/N)	Steel Casing Intact? (Y/N)	PVC Cap Present? (Y/N)	Standing Water in Annulus? (Y/N)	Well Casing Intact? (Y/N)	Photo taken this quarter? (Y/N)	Required Actions	Action Completed? (Y/N)	Action Completed Date	Notes	
TW-03D	4/27/2016	NA	No	Yes	No	Yes	NA	Yes	No	Yes	NA	No	Yes	Yes		NA			
TW-01	5/3/2016	Yes	No	No	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA			
PE-01	5/10/2016	NA	NA	NA	NA	Yes	NA	Yes	NA	Yes	NA	NA	NA	Yes		NA			
TW-02D	5/10/2016	NA	NA	Yes	NA	Yes	NA	Yes	NA	Yes	NA	NA	Yes	Yes		NA			
TW-03D	5/10/2016	NA	NA	NA	NA	Yes	NA	Yes	NA	Yes	NA	NA	Yes	Yes		NA			
I-3	6/6/2016	Yes	NA	NA	NA	NA	NA	NA	NA	NA	Yes	NA	Yes	No		NA			
MW-20-070	6/8/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	NA	Yes	No	Yes	Yes		NA			
MW-20-100	6/8/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	NA	Yes	No	Yes	Yes		NA			
MW-20-130	6/8/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	NA	Yes	No	Yes	Yes		NA			
MW-22	6/7/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA			
MW-27-020	6/7/2016	Yes	No	Yes	No	Yes	NA	NA	No	NA	Yes	No	Yes	Yes		NA			
MW-27-060	6/7/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA			
MW-27-085	6/6/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA			
MW-28-025	6/9/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA			
MW-28-090	6/9/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA			
MW-31-060	6/8/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	NA	Yes	No	Yes	Yes		NA			
MW-32-035	6/7/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA			
MW-33-040	6/9/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA			
MW-33-090	6/9/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	NA	Yes	Yes		NA			
MW-33-150	6/9/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA			
MW-34-055	6/7/2016	Yes	No	Yes	No	Yes	NA	NA	No	NA	Yes	No	Yes	Yes		NA			
MW-34-080	6/7/2016	Yes	No	Yes	No	Yes	NA	NA	No	NA	Yes	No	Yes	Yes		NA			
MW-34-100	6/6/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	No		NA			
MW-35-060	6/8/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	NA	Yes	No	Yes	Yes		NA			
MW-35-135	6/8/2016	Yes	No	Yes	No	Yes	Yes	Yes	No	NA	Yes	No	Yes	Yes		NA			
MW-36-020	6/7/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA			
MW-36-040	6/7/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	No	No	Yes	No		NA			
MW-36-050	6/7/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	No	No	Yes	No		NA			
MW-36-070	6/7/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	No	No	Yes	Yes		NA			
MW-36-090	6/7/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	No	No	Yes	No		NA			
MW-39-050	6/8/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	No	No	Yes	Yes		NA			
MW-39-060	6/8/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	No	No	Yes	Yes		NA			
MW-39-070	6/8/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	No	No	Yes	Yes		NA			
MW-39-080	6/8/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	No	No	Yes	Yes		NA			
MW-39-100	6/8/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	No	No	Yes	Yes		NA			
MW-42-030	6/8/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	No	No	Yes	No		NA			
MW-42-065	6/8/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA			
MW-43-090	6/7/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA			
MW-44-070	6/8/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA			
MW-44-115	6/8/2016	Yes	No	Yes	NA	Yes	NA	Yes	No	Yes	Yes	No	Yes	Yes		NA			
MW-44-125	6/8/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA			
MW-45-095A	6/6/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	No		NA			
MW-46-175	6/9/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA			
MW-47-115	6/9/2016	Yes	No	Yes	No	Yes	NA	Yes	Yes	NA	Yes	No	Yes	Yes		NA			
MW-49-135	6/9/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA			
MW-50-095	6/9/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA			
MW-51	6/8/2016	Yes	No	NA	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA			
MW-54-085	6/9/2016	Yes	No	NA	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA			
MW-54-195	6/9/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA			
MW-55-045	6/8/2016	Yes	No	Yes	No	Yes	NA	No	Yes	NA	Yes	No	Yes	Yes		NA			
MW-55-120	6/8/2016	Yes	No	Yes	No	Yes	NA	No	Yes	NA	Yes	No	Yes	Yes		NA			
PE-1	6/7/2016	NA	NA	NA	NA	Yes	NA	NA	NA	NA	NA	NA	NA	No		NA			
PT2D	6/8/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA			
PT5D	6/8/2016	Yes	No	Yes	No	Yes	NA	Yes	No	NA	Yes	No	Yes	Yes		NA			
PT6D	6/8/2016	Yes	No	Yes	No	Yes	NA	NA	No	NA	Yes	No	Yes	Yes		NA			
TW-03D	6/7/2016	NA	No	NA	No	Yes	NA	NA	NA	NA	NA	NA	NA	Yes	No		NA		

APPENDIX B

Lab Reports, Second Quarter 2016 (Provided on CD Only with Hard Copy Submittal)



APPENDIX C

Other Groundwater Monitoring Results

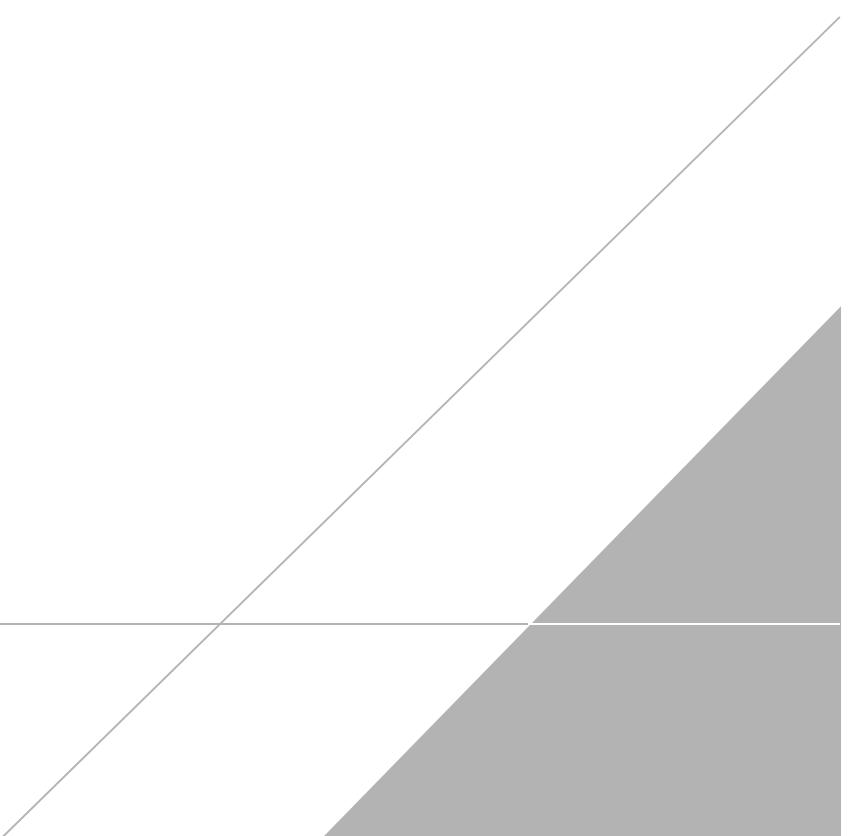


Table C-1**Arsenic Results in Monitoring Wells, June 2015 through June 2016**

*Second Quarter 2016 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California*

Location ID	Aquifer Zone	Sample Date	Sample Method	Dissolved Arsenic (ug/L)
MW-09	SA	10/7/2015	LF	1.6
MW-09	SA	12/1/2015	LF	1.6
MW-09	SA	5/3/2016	LF	1.8
MW-10	SA	10/7/2015	LF	3.4
MW-10	SA	12/1/2015	LF	2.9
MW-11	SA	10/7/2015	LF	1.4
MW-11	SA	12/2/2015	LF	1.7
MW-11	SA	12/2/2015	FD	LF
MW-11	SA	5/3/2016	LF	1.5
MW-11	SA	5/3/2016	FD	LF
MW-12	SA	12/2/2015	LF	36
MW-13	SA	12/7/2015	LF	1.9
MW-14	SA	12/7/2015	LF	0.87
MW-14	SA	4/27/2016	LF	0.86
MW-20-130	DA	12/8/2015	LF	4.5
MW-20-130	DA	12/8/2015	FD	LF
MW-20-130	DA	4/27/2016	LF	4.6
MW-22	SA	12/3/2015	LF	15
MW-22	SA	4/25/2016	LF	13
MW-23-060	BR	12/3/2015	3V	4.2
MW-23-060	BR	5/2/2016	3V	4.1
MW-23-080	BR	12/3/2015	3V	4.1
MW-23-080	BR	5/2/2016	3V	4
MW-24A	SA	12/1/2015	LF	0.15
MW-24A	SA	5/3/2016	LF	ND (0.1)
MW-24B	DA	12/1/2015	LF	2.8
MW-24B	DA	5/3/2016	LF	2.8
MW-24B	DA	5/3/2016	FD	LF
MW-24BR	BR	12/2/2015	3V	0.37
MW-25	SA	12/7/2015	LF	1.2
MW-25	SA	4/27/2016	LF	1.1
MW-26	SA	12/8/2015	LF	1.9
MW-26	SA	12/8/2015	FD	LF
MW-26	SA	4/28/2016	LF	2
MW-27-020	SA	12/3/2015	LF	1.5
MW-27-060	MA	12/3/2015	LF	12
MW-27-060	MA	12/3/2015	FD	LF
MW-27-085	DA	12/3/2015	LF	1.4
MW-27-085	DA	4/25/2016	LF	1.3
MW-27-085	DA	4/25/2016	FD	LF

Table C-1**Arsenic Results in Monitoring Wells, June 2015 through June 2016**

*Second Quarter 2016 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California*

Location ID	Aquifer Zone	Sample Date	Sample Method	Dissolved Arsenic (ug/L)
MW-28-025	SA	12/2/2015	LF	0.81
MW-28-025	SA	4/26/2016	LF	1
MW-28-090	DA	12/2/2015	LF	2.1
MW-28-090	DA	4/26/2016	LF	2.2
MW-29	SA	12/1/2015	LF	15
MW-29	SA	4/26/2016	LF	13 J
MW-30-030	SA	12/3/2015	LF	2.5
MW-30-050	MA	12/3/2015	LF	2.9
MW-30-050	MA	12/3/2015	FD	LF
MW-31-060	SA	12/7/2015	LF	1.2
MW-31-060	SA	4/27/2016	LF	1.1
MW-31-135	DA	12/7/2015	LF	3.4
MW-32-020	SA	12/3/2015	LF	3.9
MW-32-020	SA	12/3/2015	FD	LF
MW-32-035	SA	12/3/2015	LF	17
MW-32-035	SA	4/25/2016	LF	27
MW-33-040	SA	12/1/2015	LF	10
MW-33-040	SA	4/26/2016	LF	12
MW-33-040	SA	4/26/2016	FD	LF
MW-33-090	MA	12/1/2015	LF	1.1
MW-33-090	MA	4/26/2016	3V	1
MW-33-150	DA	12/1/2015	LF	1.1
MW-33-150	DA	4/26/2016	LF	1.3
MW-33-210	DA	12/1/2015	LF	1
MW-33-210	DA	4/26/2016	LF	1
MW-34-055	MA	12/3/2015	LF	2.4
MW-34-080	DA	12/3/2015	LF	1.3
MW-34-080	DA	4/26/2016	LF	1.3
MW-34-100	DA	10/6/2015	LF	1.4
MW-34-100	DA	12/3/2015	LF	1.4
MW-34-100	DA	12/3/2015	FD	LF
MW-34-100	DA	2/25/2016	LF	1.9
MW-34-100	DA	4/26/2016	LF	1.1
MW-35-060	SA	12/7/2015	LF	1
MW-35-060	SA	4/27/2016	LF	0.99
MW-35-060	SA	4/27/2016	FD	LF
MW-35-135	DA	12/7/2015	3V	0.87
MW-35-135	DA	4/27/2016	LF	0.81
MW-36-020	SA	12/8/2015	LF	1.8
MW-36-040	SA	12/8/2015	LF	4.6

Table C-1**Arsenic Results in Monitoring Wells, June 2015 through June 2016**

*Second Quarter 2016 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California*

Location ID	Aquifer Zone	Sample Date	Sample Method	Dissolved Arsenic (ug/L)
MW-36-050	MA	12/8/2015	LF	3.8
MW-36-070	MA	12/8/2015	LF	2.9
MW-36-090	DA	12/8/2015	LF	21
MW-36-090	DA	4/26/2016	LF	7.2
MW-36-100	DA	12/8/2015	LF	8.5
MW-36-100	DA	4/26/2016	LF	6.5
MW-37S	MA	12/8/2015	LF	1.7
MW-38D	DA	12/1/2015	3V	7.7
MW-38D	DA	12/1/2015	LF	7.3
MW-38D	DA	5/3/2016	3V	7.6
MW-38D	DA	5/3/2016	LF	7.9
MW-38S	SA	9/28/2015	3V	14
MW-38S	SA	9/28/2015	LF	14
MW-38S	SA	12/1/2015	3V	13
MW-38S	SA	12/1/2015	LF	14
MW-38S	SA	2/24/2016	3V	14
MW-38S	SA	2/24/2016	LF	14
MW-38S	SA	5/3/2016	3V	11
MW-38S	SA	5/3/2016	LF	13
MW-39-040	SA	12/4/2015	LF	18
MW-39-050	MA	12/4/2015	LF	2.4
MW-39-060	MA	12/4/2015	LF	4.4
MW-39-060	MA	12/4/2015	FD	4.2
MW-39-100	DA	12/4/2015	LF	3
MW-39-100	DA	4/26/2016	LF	2.5
MW-39-100	DA	4/26/2016	FD	2.6
MW-40D	DA	12/7/2015	H	4.2
MW-40D	DA	12/7/2015	LF	3.9
MW-40D	DA	12/7/2015	FD	3.9
MW-40D	DA	5/4/2016	H	4.4
MW-40D	DA	5/4/2016	LF	4.1
MW-40S	SA	12/7/2015	H	1.7
MW-40S	SA	12/7/2015	LF	1.3
MW-41D	DA	12/7/2015	LF	1.7
MW-41D	DA	4/27/2016	LF	1.9
MW-41M	DA	12/7/2015	LF	2
MW-41M	DA	12/7/2015	FD	2.2
MW-41S	SA	12/7/2015	LF	1.6
MW-42-030	SA	12/3/2015	LF	3.4
MW-42-055	MA	12/3/2015	LF	27

Table C-1**Arsenic Results in Monitoring Wells, June 2015 through June 2016**

*Second Quarter 2016 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California*

Location ID	Aquifer Zone	Sample Date	Sample Method	Dissolved Arsenic (ug/L)
MW-42-055	MA	4/26/2016	LF	28
MW-42-065	MA	12/3/2015	LF	4
MW-42-065	MA	4/26/2016	LF	5.1
MW-43-025	SA	12/8/2015	LF	17
MW-43-075	DA	12/2/2015	LF	13
MW-43-090	DA	12/2/2015	LF	1.2
MW-44-070	MA	12/4/2015	LF	6.6
MW-44-070	MA	4/26/2016	LF	4.1
MW-44-115	DA	10/6/2015	LF	5.9
MW-44-115	DA	10/6/2015	FD	5.9
MW-44-115	DA	12/4/2015	LF	5.6
MW-44-115	DA	2/25/2016	LF	6.1
MW-44-115	DA	2/25/2016	FD	5.5
MW-44-115	DA	4/26/2016	LF	6
MW-44-125	DA	12/4/2015	LF	4.3
MW-44-125	DA	12/4/2015	FD	4.1
MW-44-125	DA	4/26/2016	LF	4
MW-44-125	DA	4/26/2016	FD	4
MW-47-055	SA	12/2/2015	LF	0.74
MW-47-055	SA	4/26/2016	3V	1.1
MW-49-135	DA	12/1/2015	3V	1.9
MW-49-365	DA	12/1/2015	LF	1.6
MW-50-200	DA	12/7/2015	LF	3.2
MW-51	MA	12/8/2015	LF	3.8
MW-51	MA	4/27/2016	LF	3.4
MW-52D	DA	12/2/2015	3V	2.7
MW-52D	DA	4/25/2016	LF	2.3
MW-52M	DA	12/2/2015	3V	0.81
MW-52M	DA	4/25/2016	LF	0.92
MW-52S	MA	12/2/2015	3V	0.37
MW-52S	MA	4/25/2016	LF	0.38
MW-53D	DA	12/2/2015	3V	2.6
MW-53D	DA	4/27/2016	LF	2.9 J
MW-53M	DA	12/2/2015	3V	0.51
MW-53M	DA	4/27/2016	LF	ND (0.5)
MW-54-085	DA	12/9/2015	LF	2.5
MW-54-085	DA	12/9/2015	(a)	LF
MW-54-085	DA	12/9/2015	FD	2.4
MW-54-085	DA	4/29/2016	(a)	LF
MW-54-140	DA	12/9/2015	LF	2.4

Table C-1**Arsenic Results in Monitoring Wells, June 2015 through June 2016**

*Second Quarter 2016 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California*

Location ID	Aquifer Zone	Sample Date	Sample Method	Dissolved Arsenic (ug/L)	
MW-54-140	DA	12/9/2015	(a)	LF	ND (5)
MW-54-140	DA	4/29/2016	(a)	LF	ND (5)
MW-54-195	DA	12/9/2015		LF	0.94
MW-54-195	DA	12/9/2015	(a)	LF	ND (5)
MW-54-195	DA	4/29/2016	(a)	LF	ND (5)
MW-55-120	DA	2/24/2016		LF	6.4
MW-55-120	DA	2/24/2016	(a)	LF	5.8
MW-57-070	BR	12/4/2015		3V	1.4
MW-57-070	BR	4/28/2016		3V	1.4
MW-57-185	BR	12/4/2015		3V	13
MW-57-185	BR	4/28/2016		3V	10
MW-58BR	BR	9/30/2015		LF	2.9
MW-58BR	BR	12/7/2015		LF	1.5
MW-58BR	BR	2/24/2016		LF	1.5
MW-58BR	BR	4/28/2016		LF	1.4
MW-58BR	BR	4/28/2016	FD	LF	1.3
MW-59-100	SA	12/3/2015		LF	1.9
MW-59-100	SA	12/3/2015	FD	LF	2
MW-59-100	SA	4/29/2016		LF	2.2
MW-60-125	BR	12/4/2015		3V	1.3
MW-60-125	BR	4/28/2016		3V	1.6
MW-60BR-245	BR	9/29/2015		3V	5.9
MW-60BR-245	BR	12/4/2015		3V	7
MW-60BR-245	BR	2/23/2016		3V	6.9
MW-60BR-245	BR	4/29/2016		G	6.8
MW-61-110	BR	12/4/2015		3V	3.3
MW-61-110	BR	4/29/2016		LF	3.3
MW-62-065	BR	10/7/2015		3V	1.3
MW-62-065	BR	12/3/2015		3V	1.3
MW-62-065	BR	2/23/2016		3V	1.2
MW-62-065	BR	5/2/2016		3V	1.5
MW-62-110	BR	10/1/2015		Flute	6.8
MW-62-110	BR	12/4/2015		3V	7.7
MW-62-110	BR	2/24/2016		3V	4.9
MW-62-110	BR	5/3/2016		Tap	6.2
MW-62-190	BR	12/4/2015		3V	3.9
MW-62-190	BR	5/3/2016		Tap	4.7
MW-63-065	BR	9/28/2015		3V	1.3
MW-63-065	BR	12/4/2015		3V	1.9
MW-63-065	BR	2/23/2016		3V	1.7

Table C-1**Arsenic Results in Monitoring Wells, June 2015 through June 2016**

*Second Quarter 2016 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California*

Location ID	Aquifer Zone	Sample Date	Sample Method	Dissolved Arsenic (ug/L)	
MW-63-065	BR	4/28/2016	3V	1.6	
MW-63-065	BR	4/28/2016	FD	3V	1.5
MW-64BR	BR	10/1/2015	LF	3.2	
MW-64BR	BR	12/7/2015	LF	3.3	
MW-64BR	BR	2/22/2016	LF	4.1	
MW-64BR	BR	5/2/2016	LF	4.2	
MW-65-160	SA	9/30/2015	LF	0.61	
MW-65-160	SA	12/2/2015	LF	0.73	
MW-65-160	SA	2/24/2016	LF	0.54	
MW-65-160	SA	5/3/2016	LF	0.54	
MW-65-225	DA	9/30/2015	LF	2.5	
MW-65-225	DA	12/2/2015	LF	2.6	
MW-65-225	DA	2/24/2016	LF	2.2	
MW-65-225	DA	5/3/2016	LF	2.8	
MW-66-165	SA	12/2/2015	LF	0.9	
MW-66-165	SA	4/25/2016	LF	1.1	
MW-66-230	DA	12/3/2015	LF	4.4	
MW-66-230	DA	4/25/2016	LF	4.3	
MW-66BR-270	BR	12/9/2015	3V	ND (0.5)	
MW-66BR-270	BR	5/4/2016	3V	ND (0.1)	
MW-67-185	SA	12/2/2015	LF	0.93	
MW-67-185	SA	5/3/2016	LF	1.1	
MW-67-225	MA	12/2/2015	LF	3.5	
MW-67-225	MA	5/3/2016	LF	3.6	
MW-67-225	MA	5/3/2016	FD	LF	3.7
MW-67-260	DA	12/2/2015	LF	8.9	
MW-67-260	DA	5/3/2016	LF	9.3	
MW-68-180	SA	9/30/2015	LF	2.5	
MW-68-180	SA	9/30/2015	FD	LF	2.4
MW-68-180	SA	12/2/2015	LF	2.7	
MW-68-180	SA	2/24/2016	LF	2.7	
MW-68-180	SA	5/4/2016	LF	2.8	
MW-68-240	DA	12/2/2015	LF	1.5	
MW-68-240	DA	5/4/2016	LF	1.5	
MW-68BR-280	BR	12/3/2015	LF	1.3	
MW-68BR-280	BR	5/4/2016	3V	0.82	
MW-69-195	BR	10/1/2015	3V	2.3	
MW-69-195	BR	12/4/2015	3V	2.3	
MW-69-195	BR	2/24/2016	3V	2.4	
MW-69-195	BR	2/24/2016	FD	3V	2.3

Table C-1**Arsenic Results in Monitoring Wells, June 2015 through June 2016**

*Second Quarter 2016 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California*

Location ID	Aquifer Zone	Sample Date	Sample Method	Dissolved Arsenic (ug/L)
MW-69-195	BR	4/25/2016	3V	2.3
MW-70-105	BR	12/7/2015	3V	4.2
MW-70-105	BR	4/28/2016	LF	4.8
MW-70BR-225	BR	12/7/2015	3V	1.8
MW-70BR-225	BR	4/28/2016	3V	2
MW-71-035	SA	12/4/2015	LF	9.5
MW-71-035	SA	5/3/2016	LF	5.3
MW-71-035	SA	5/3/2016	FD	5.7
MW-72-080	BR	9/29/2015	3V	12
MW-72-080	BR	12/7/2015	3V	10
MW-72-080	BR	2/23/2016	3V	12
MW-72-080	BR	4/29/2016	3V	10
MW-72BR-200	BR	9/29/2015	3V	16
MW-72BR-200	BR	12/8/2015	3V	15
MW-72BR-200	BR	2/23/2016	3V	16
MW-72BR-200	BR	4/28/2016	3V	16
MW-73-080	BR	9/29/2015	3V	1.3
MW-73-080	BR	12/8/2015	3V	1.7
MW-73-080	BR	2/23/2016	3V	1.5
MW-73-080	BR	4/29/2016	3V	2.1
MW-74-240	BR	12/7/2015	Tap	14
MW-74-240	BR	4/27/2016	Tap	11
PM-03	DA	4/5/2016	Tap	1.2
PM-04	---	4/5/2016	Tap	0.43
TW-02D	DA	12/9/2015	Tap	2.4

Notes:

(a) = data was analyzed by an Arizona certified laboratory.

--- = data was either not collected, not available or was rejected

FD = field duplicate sample.

J = concentration or reporting limit (RL) estimated by laboratory or data validation.

ND = not detected at listed RL.

UF = unfiltered.

ug/L = micrograms per liter.

Sample Methods:

3V = three volume.

Flute = flexible liner underground technologies sampling system.

LF = Low Flow (minimal drawdown)

Table C-1

Arsenic Results in Monitoring Wells, June 2015 through June 2016

*Second Quarter 2016 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California*

Location ID	Aquifer Zone	Sample Date	Sample Method	Dissolved Arsenic (ug/L)
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Slant = slant (non vertical) wells MW-52, MW-53, MW-56 are sampled from dedicated Barcad screens, using a peristaltic pump.

Tap = sampled from tap or port of extraction or supply well.

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).

Starting in Third Quarter 2014, the groundwater sample collection method was switched from the traditional three-volume purge method (3V) to the low flow (LF) method at many short screen wells screened in alluvial sediments. The method for purging prior to sample collection is indicated in the sample method column of this table.

The California primary drinking water standard maximum contaminant level (MCL) for Arsenic is 10 ug/L. The Background Study Upper Tolerance Limit for Arsenic at the site is 24.3 ug/L.

Table C-2**Additional Analytes from Wells in Bat Cave Wash, Second Quarter 2016**

*Second Quarter 2016 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California*

Location ID	Sample Date	Chloride (mg/L)	Bromide (mg/L)	Sulfate (mg/L)	Total Alkalinity (mg/L)	Total Dissolved Solids (mg/L)	Dissolved Metals (mg/L)				
							Calcium	Magnesium	Iron	Sodium	Boron
MW-09	5/3/2016	720	ND (1)	250	130	1,800	110	27.0	ND (0.02)	480 J	.820
MW-10	5/3/2016	640	ND (1)	270	120	1,700	100	16.0	21	470	1.1
MW-11	5/3/2016	520	ND (1)	190	91	1,400	120	18.0	ND (0.02)	310	.510
MW-11	5/3/2016	FD	530	ND (1)	190	91	1,400	120	19.0	ND (0.02)	330
											.510

Notes:

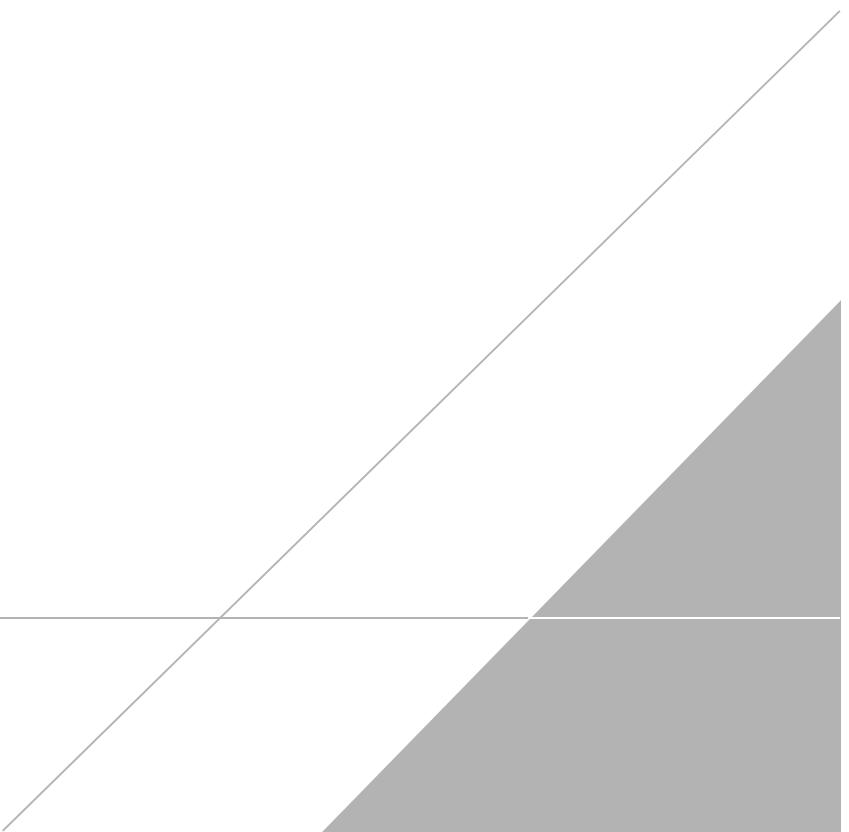
--- = data was either not collected, not available or was rejected

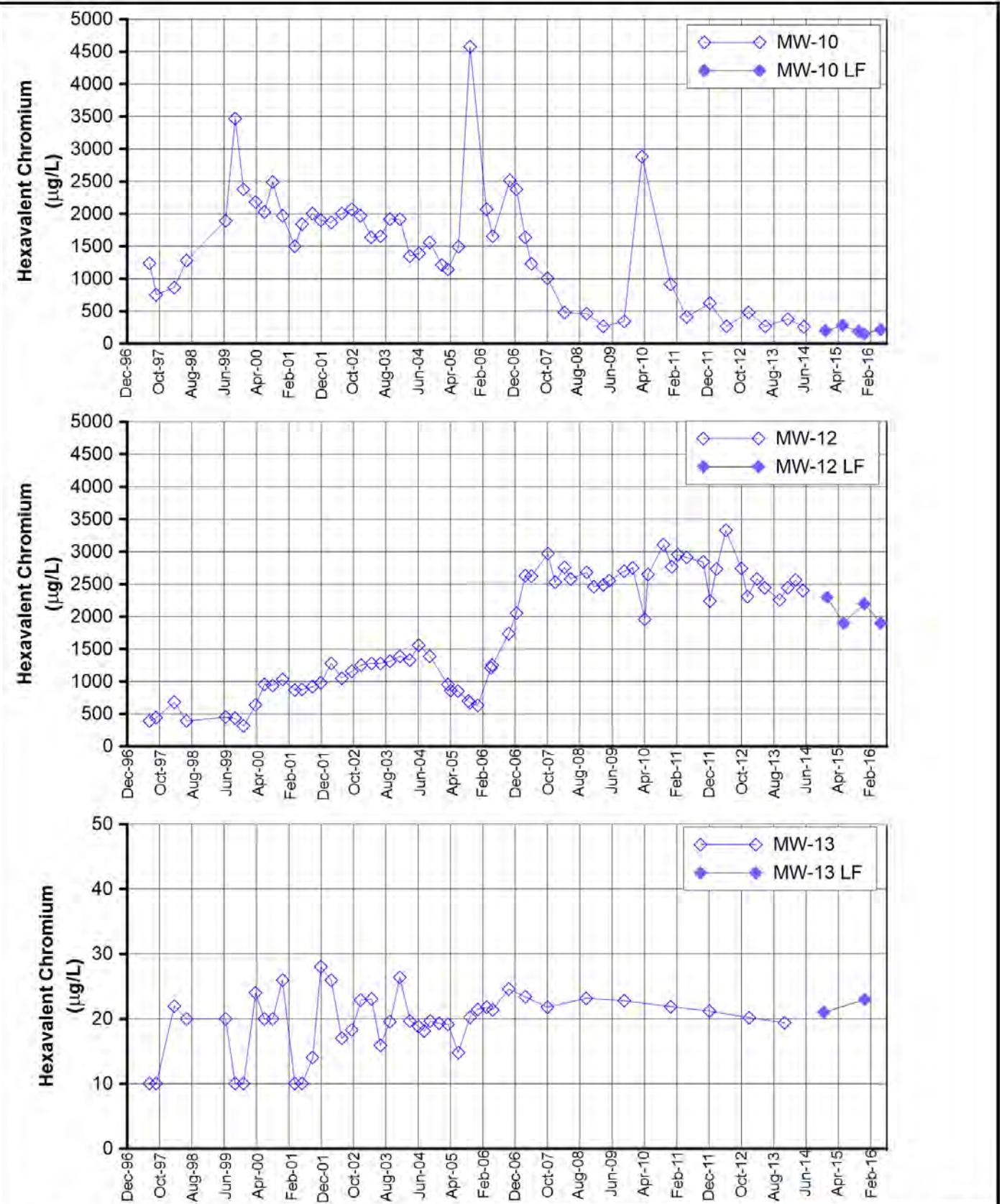
FD = field duplicate sample.

J = concentration or reporting limit (RL) estimated by laboratory or data validation.

APPENDIX D

Groundwater Monitoring Data for GMP and Interim Measures Monitoring Wells





Notes:

LF = low flow, hexavalent chromium sample collected using low flow sampling method. Data not indicated with (LF) was collected using the three-volume purge sampling method.

**FIGURE D-1
HEXAVALENT CHROMIUM
IN MW-10, MW-12, AND MW-13**
SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



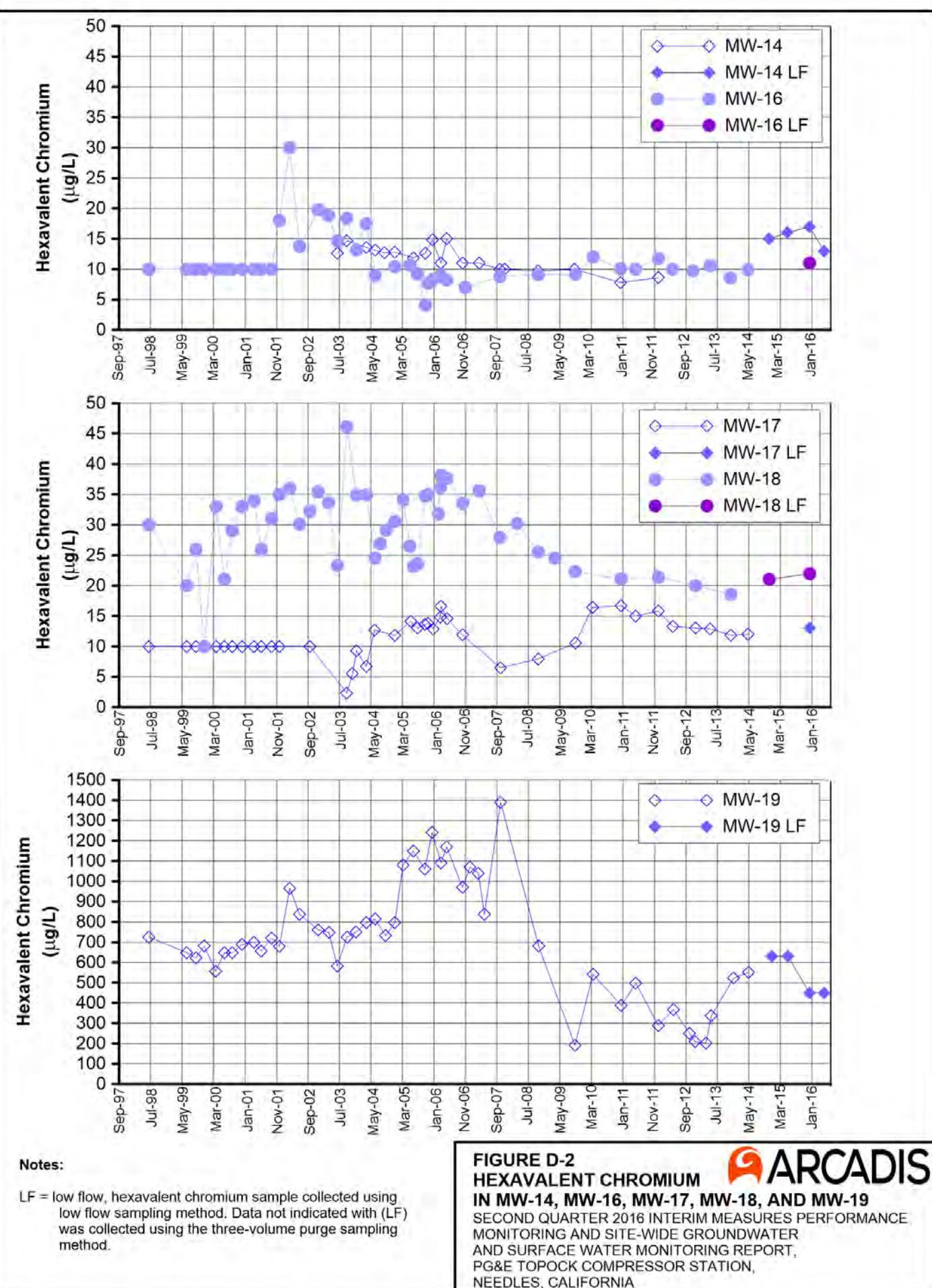
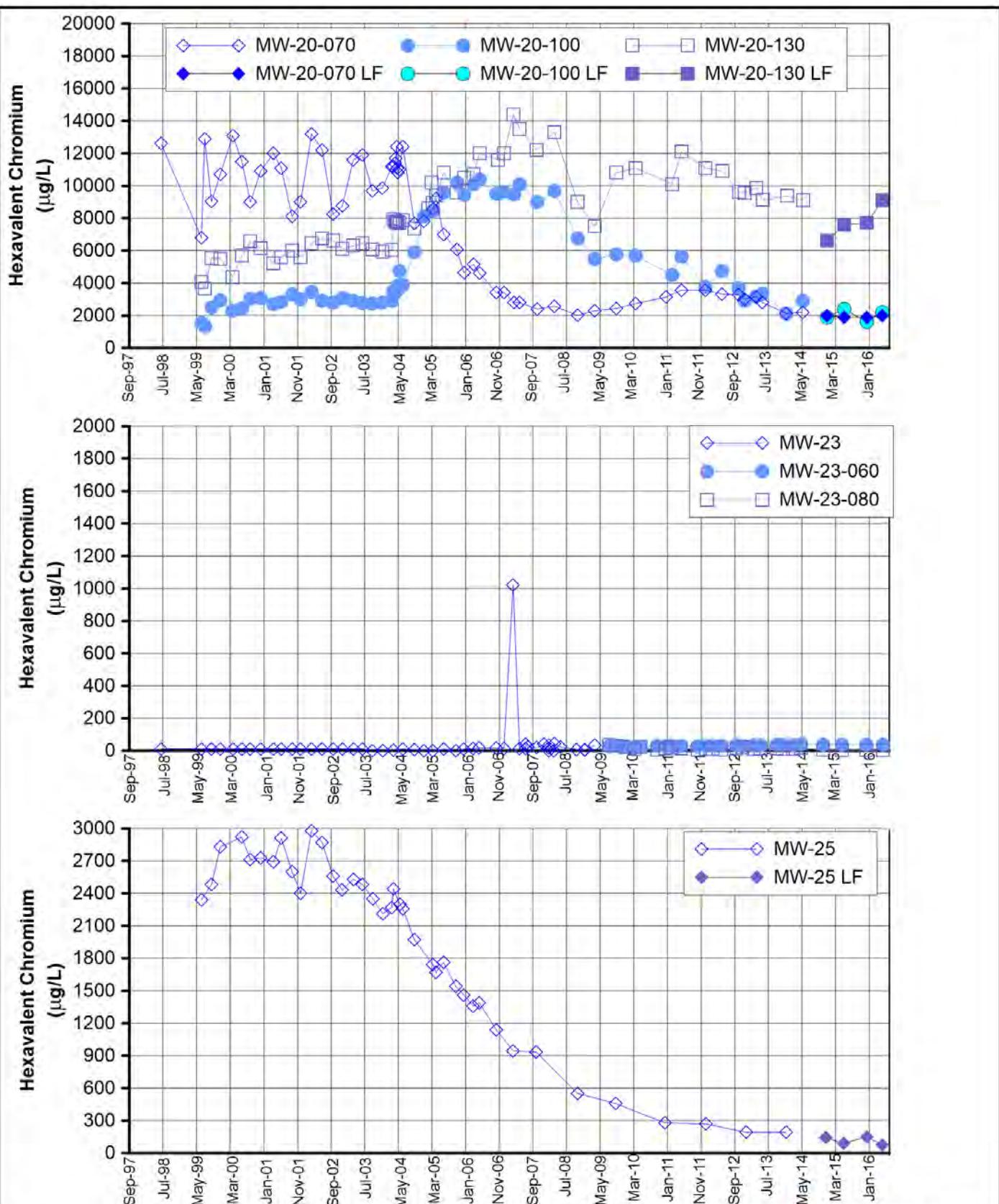


FIGURE D-2
HEXAVALENT CHROMIUM
IN MW-14, MW-16, MW-17, MW-18, AND MW-19
 SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE
 MONITORING AND SITE-WIDE GROUNDWATER
 AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION,
 NEEDLES, CALIFORNIA

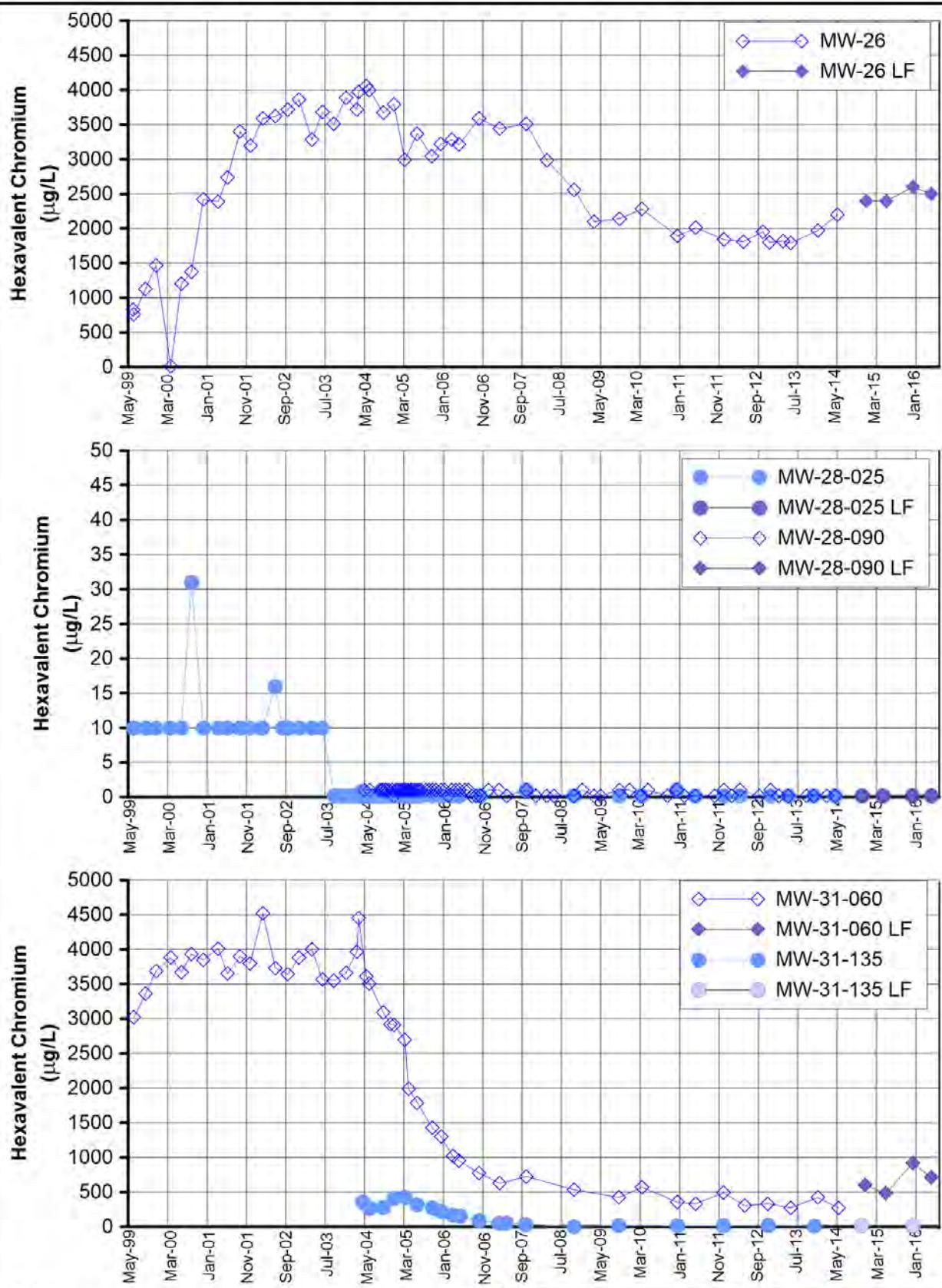


Notes:

LF = low flow, hexavalent chromium sample collected using low flow sampling method. Data not indicated with (LF) was collected using the three-volume purge sampling method.

FIGURE D-3
HEXAVALENT CHROMIUM
IN MW-20 AND MW-23 CLUSTERS AND MW-25
 SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA





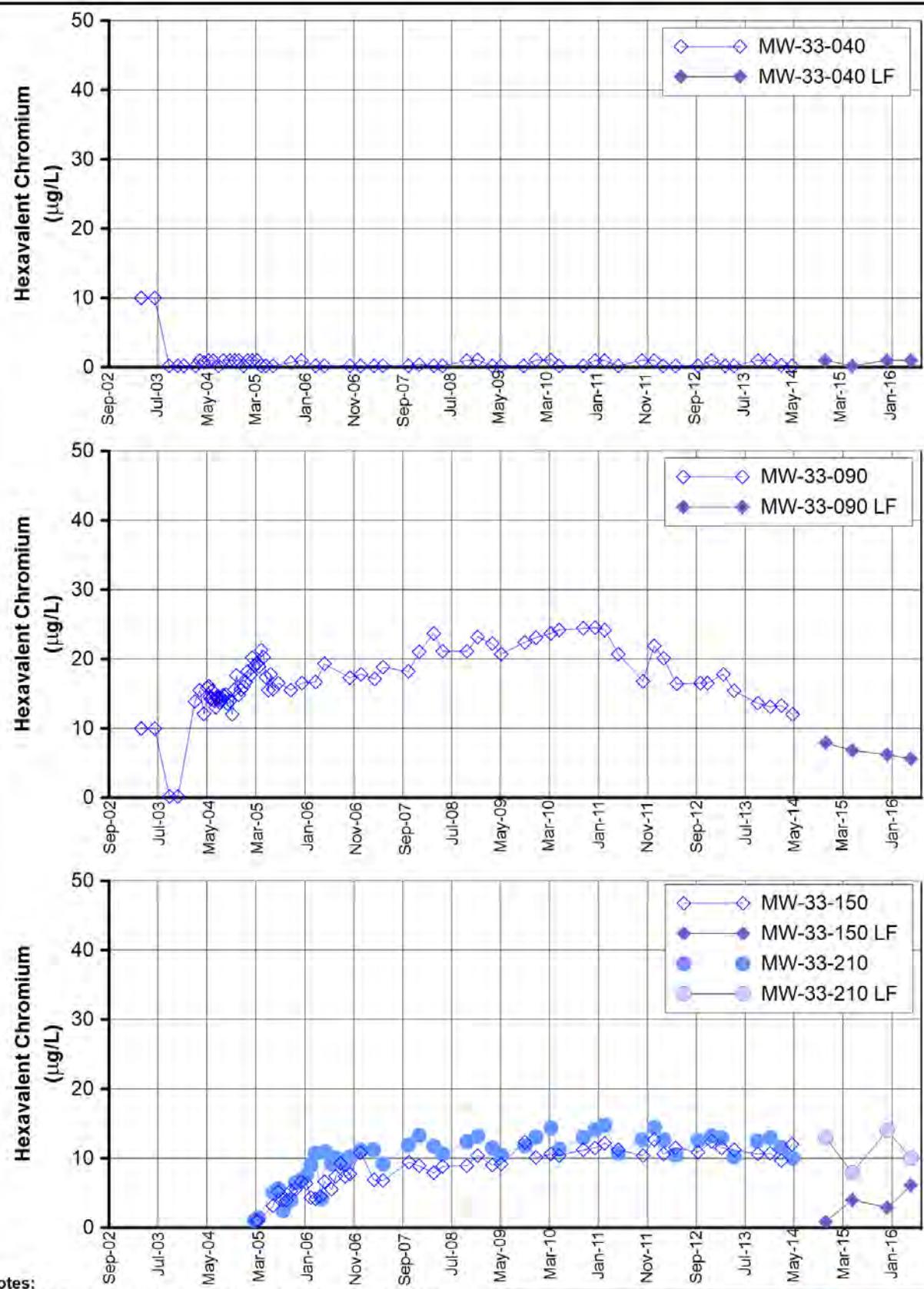
Notes:

- 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-28-090 is 20 µg/L.

LF = low flow, hexavalent chromium sample collected using low flow sampling method. Data not indicated with (LF) was collected using the three-volume purge sampling method.

**FIGURE D-4
HEXAVALENT CHROMIUM
IN MW-26, MW-28, AND MW-31 CLUSTERS**

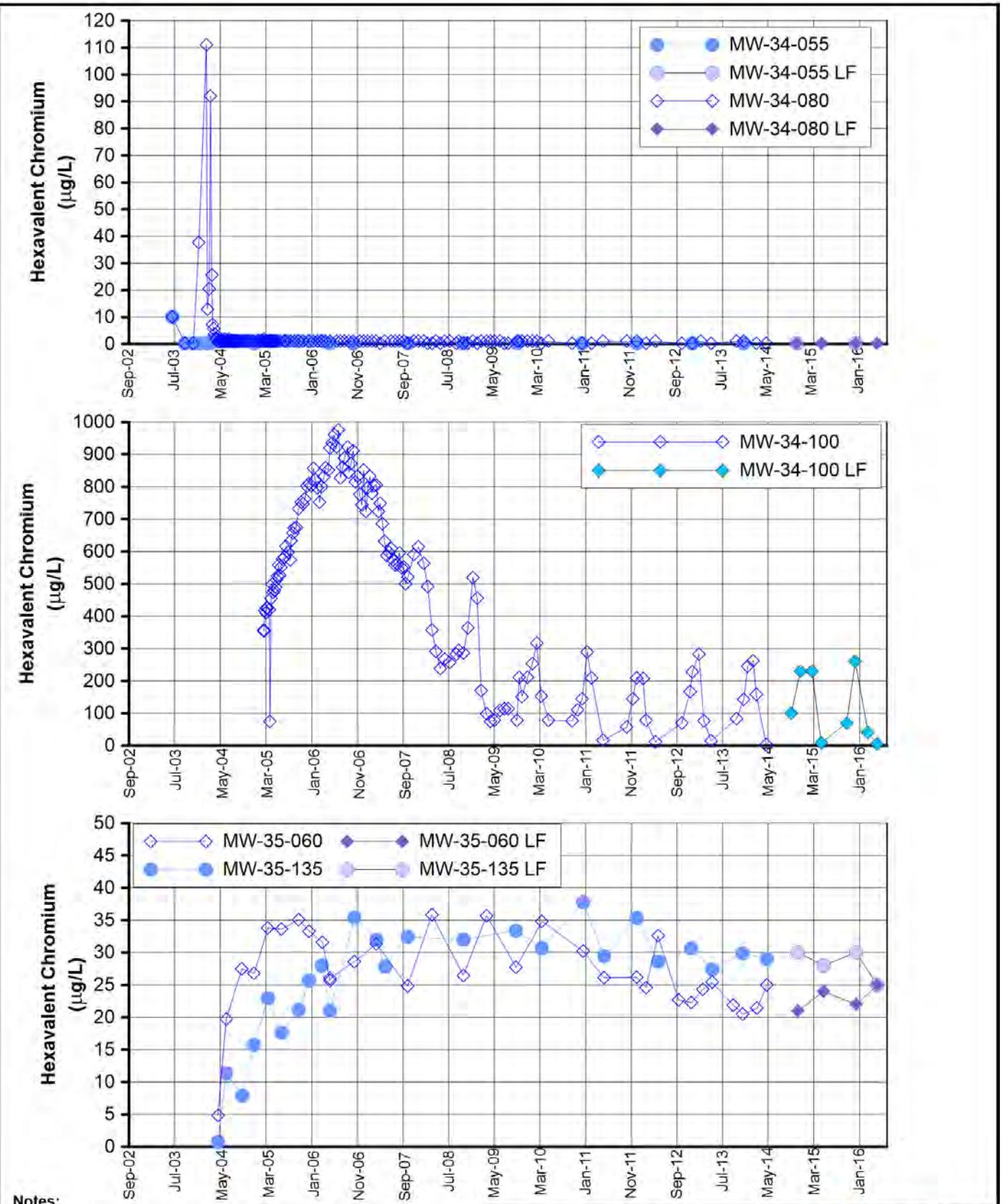
SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



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-33-040 is 20 µg/L.
 - 3) The trigger level for MW-33-090 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.
- LF = low flow, hexavalent chromium sample collected using low flow sampling method. Data not indicated with (LF) was collected using the three-volume purge sampling method.

FIGURE D-5
HEXAVALENT CHROMIUM IN MW-33 CLUSTER 
 SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



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-34-080 is 20 µg/L.
- 3) The trigger level for MW-34-100 is 750 µg/L.

LF = low flow, hexavalent chromium sample collected using low flow sampling method. Data not indicated with (LF) was collected using the three-volume purge sampling method.

FIGURE D-6
HEXAVALENT CHROMIUM
IN MW-34 AND MW-35 CLUSTERS

SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



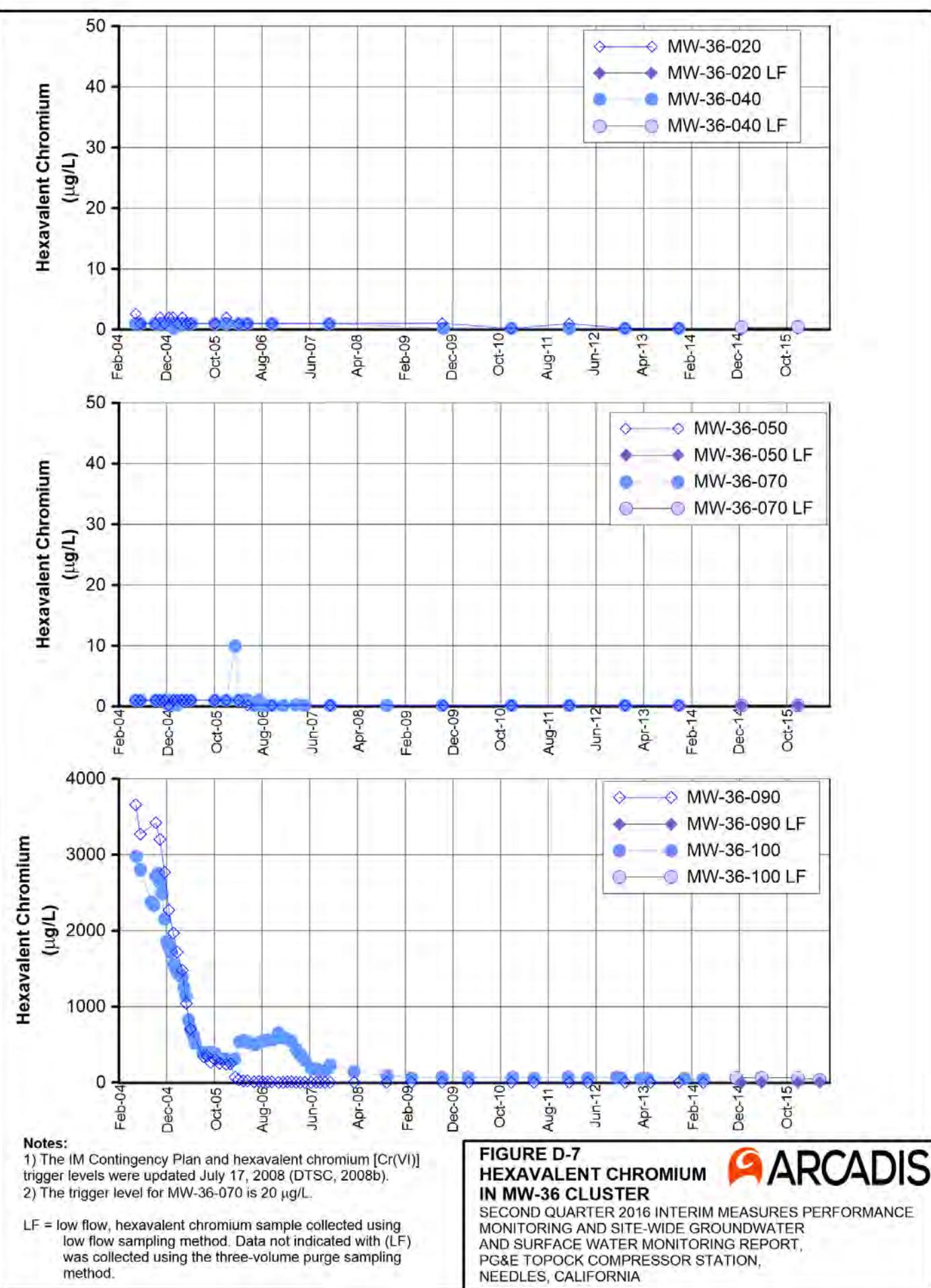


FIGURE D-7
HEXAVALENT CHROMIUM
IN MW-36 CLUSTER

SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA



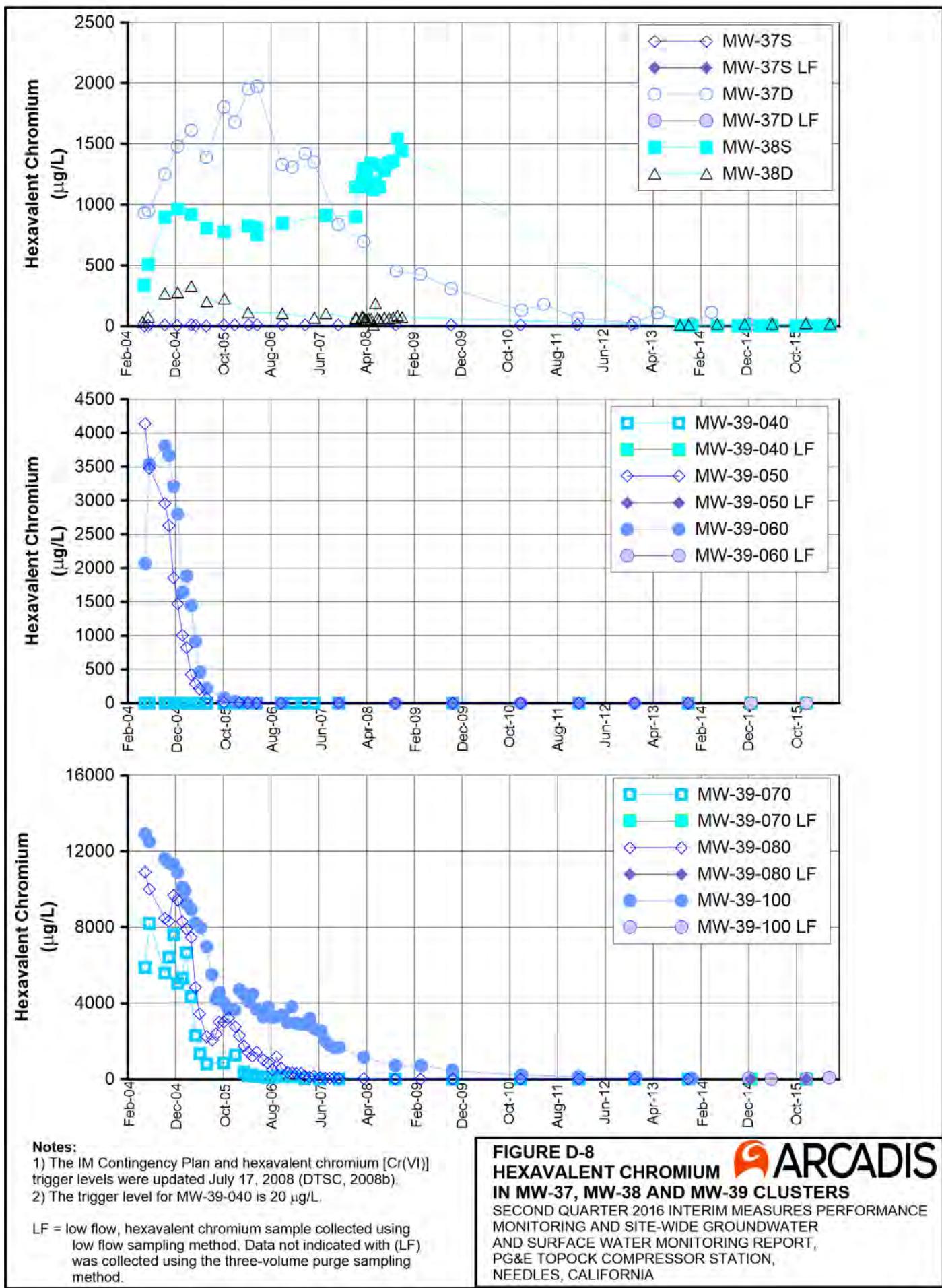
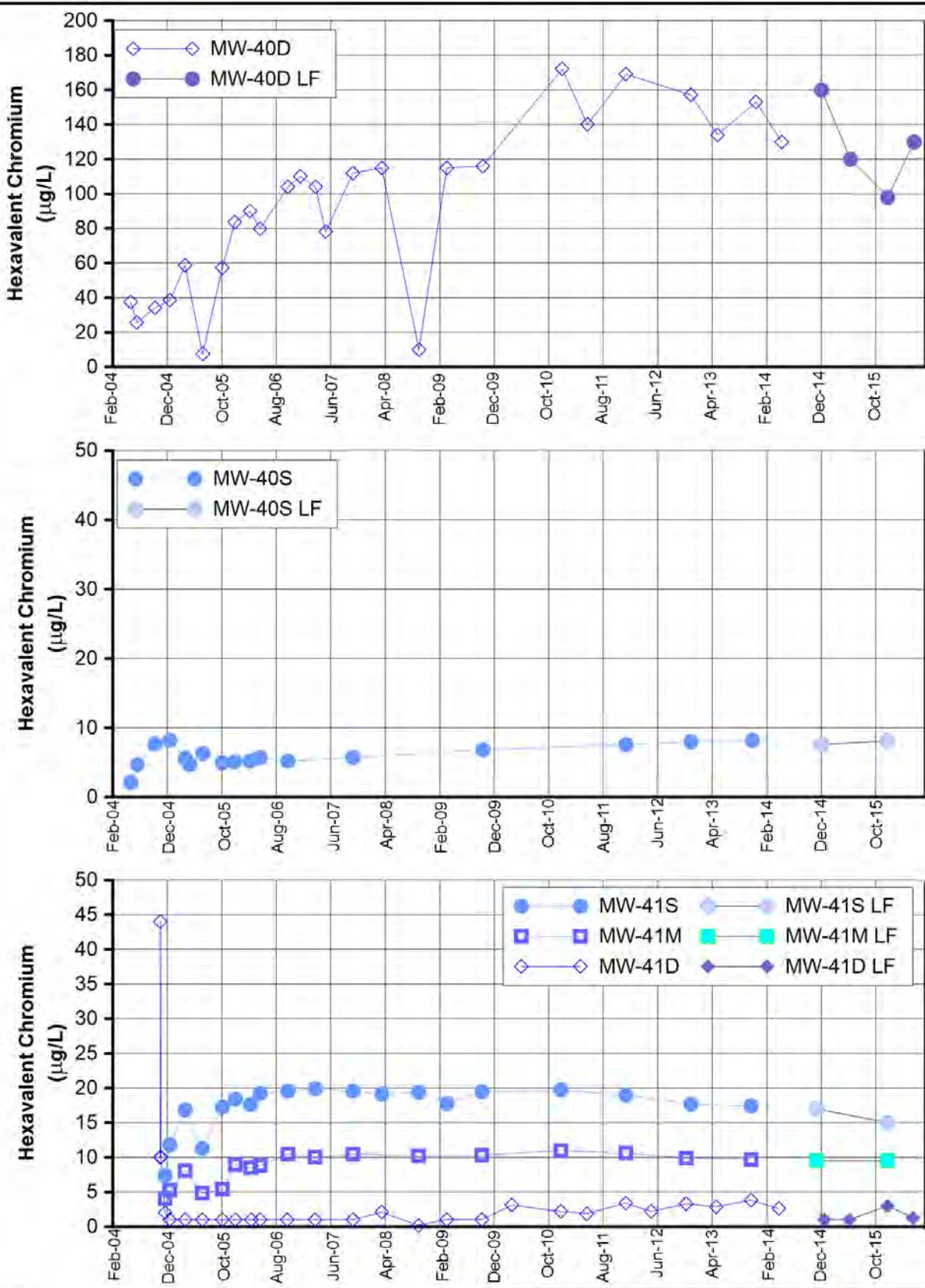


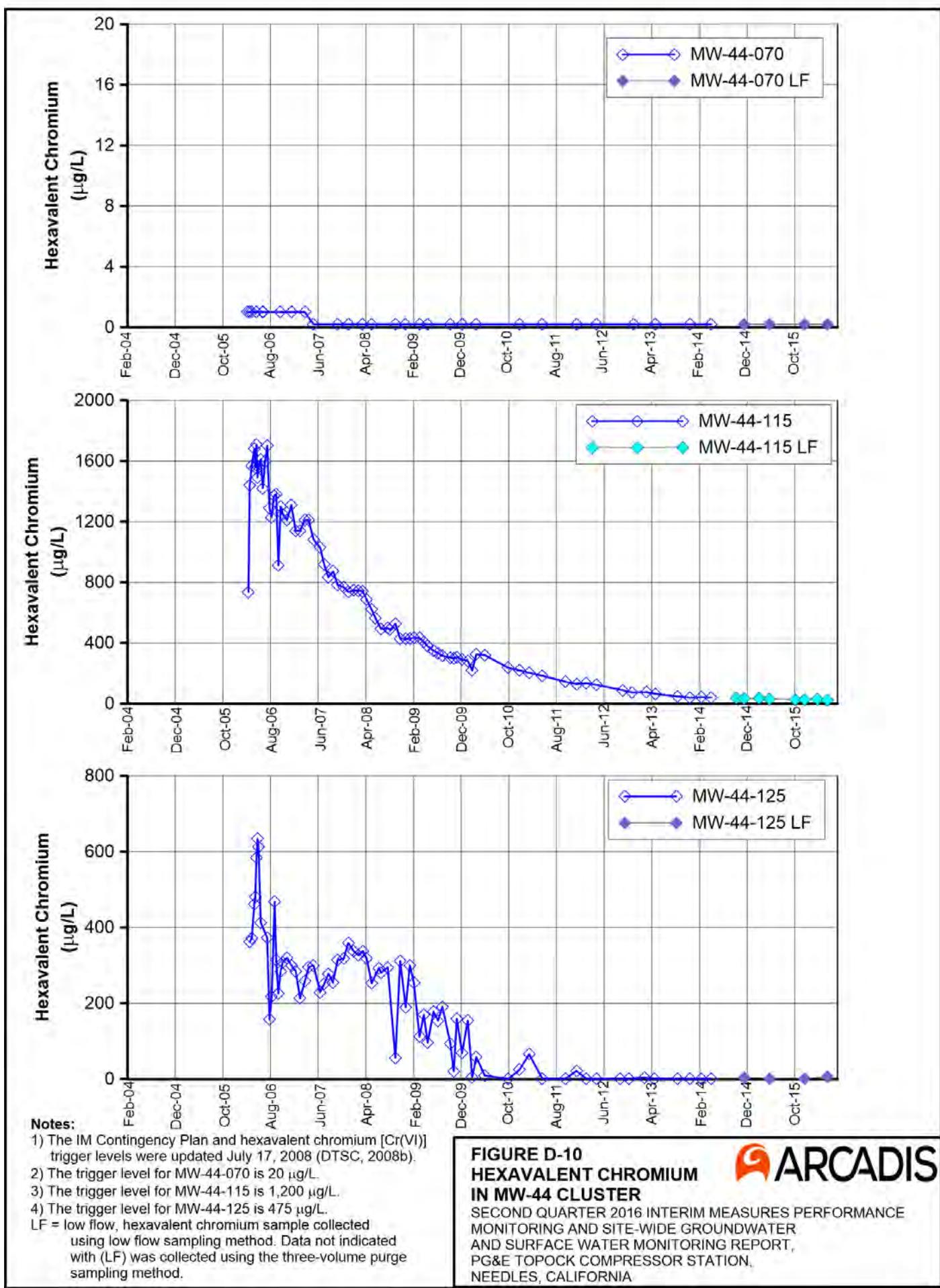
FIGURE D-8
HEXAVALENT CHROMIUM 
IN MW-37, MW-38 AND MW-39 CLUSTERS
SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA



Notes:

LF = low flow, hexavalent chromium sample collected using low flow sampling method. Data not indicated with (LF) was collected using the three-volume purge sampling method.

FIGURE D-9
HEXAVALENT CHROMIUM
IN MW-40 AND MW-41 CLUSTERS
 SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE
 MONITORING AND SITE-WIDE GROUNDWATER
 AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION,
 NEEDLES, CALIFORNIA



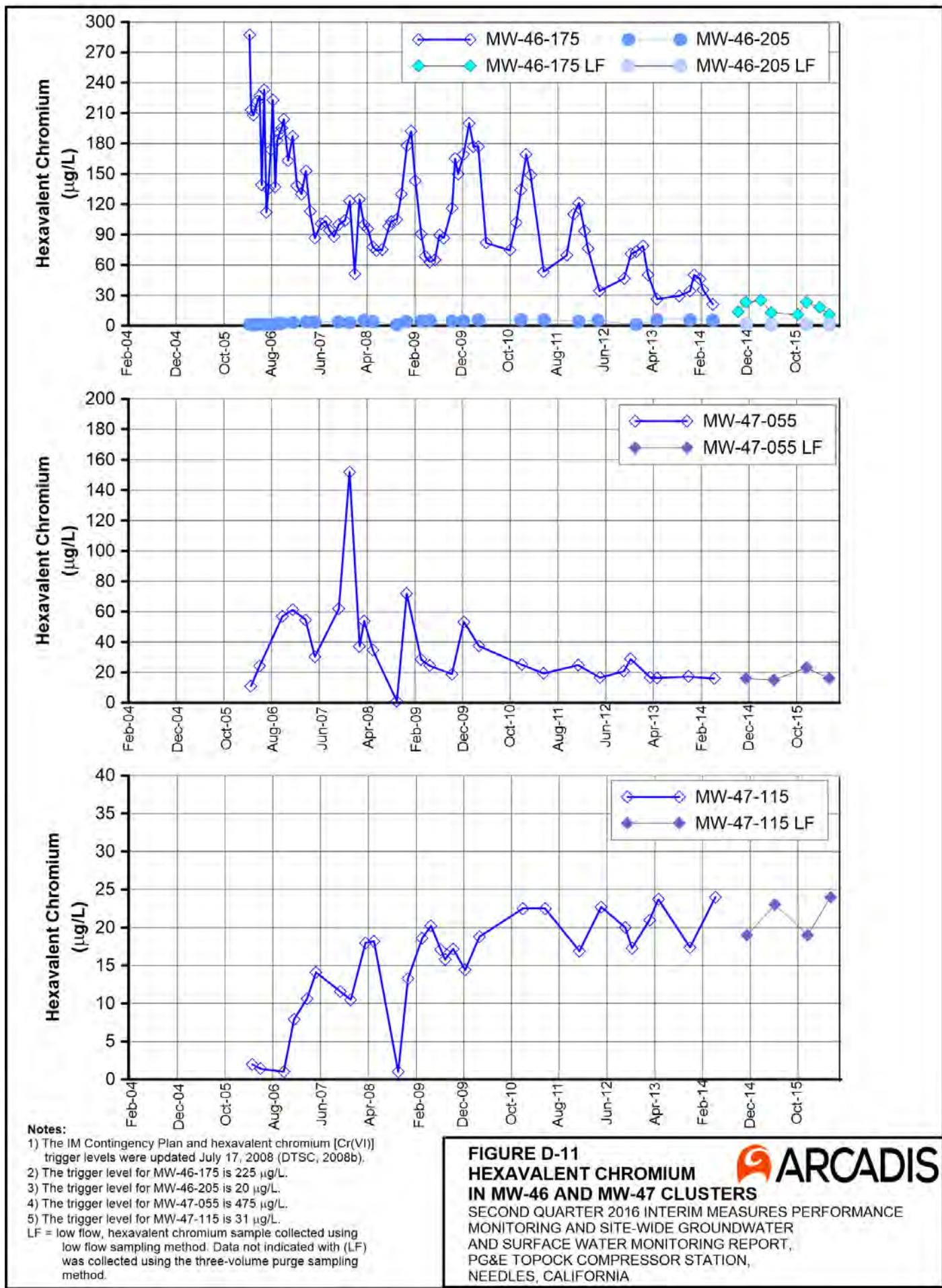
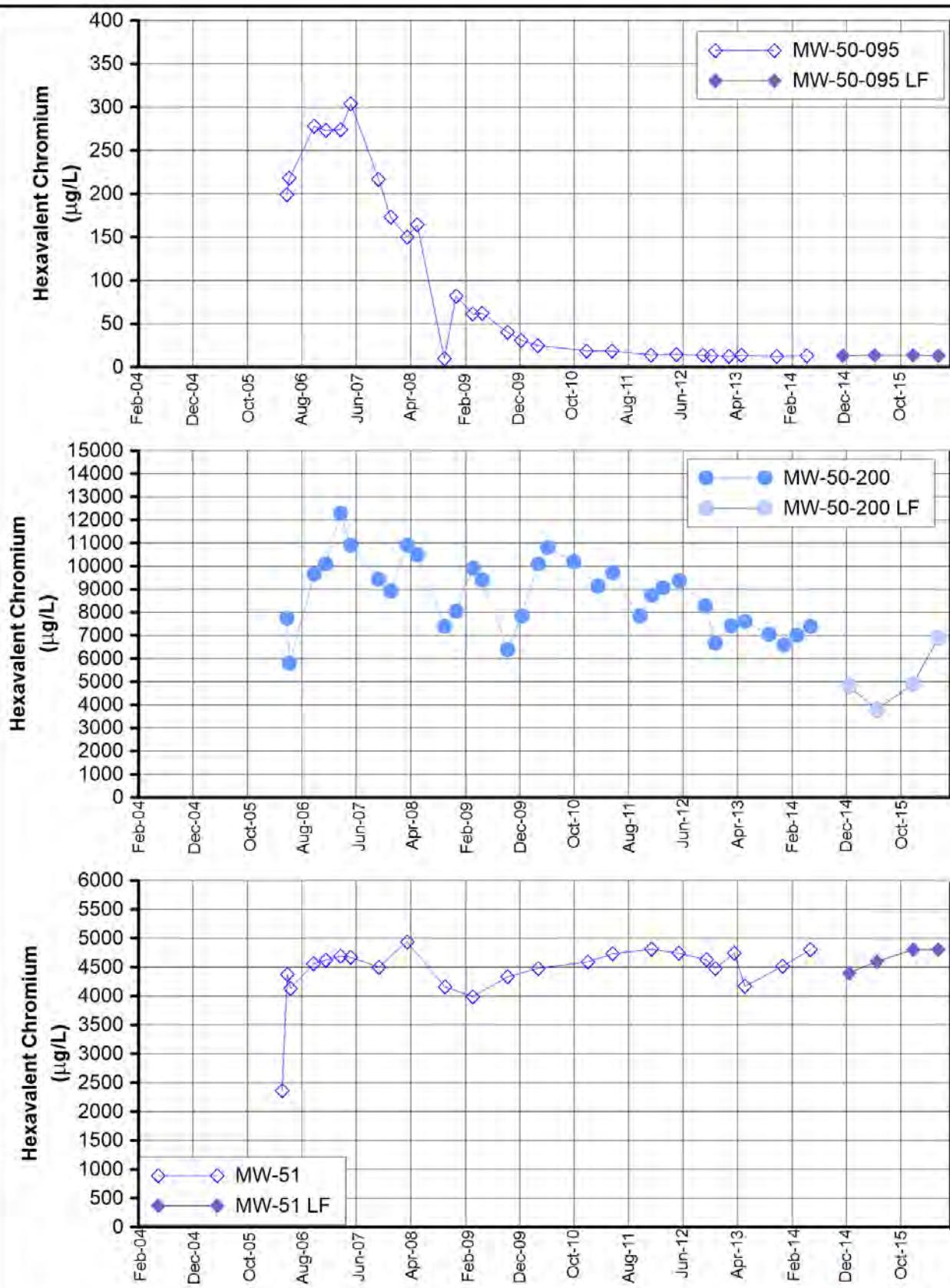


FIGURE D-11
HEXAVALENT CHROMIUM
IN MW-46 AND MW-47 CLUSTERS

SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION,
 NEEDLES, CALIFORNIA

ARCADIS

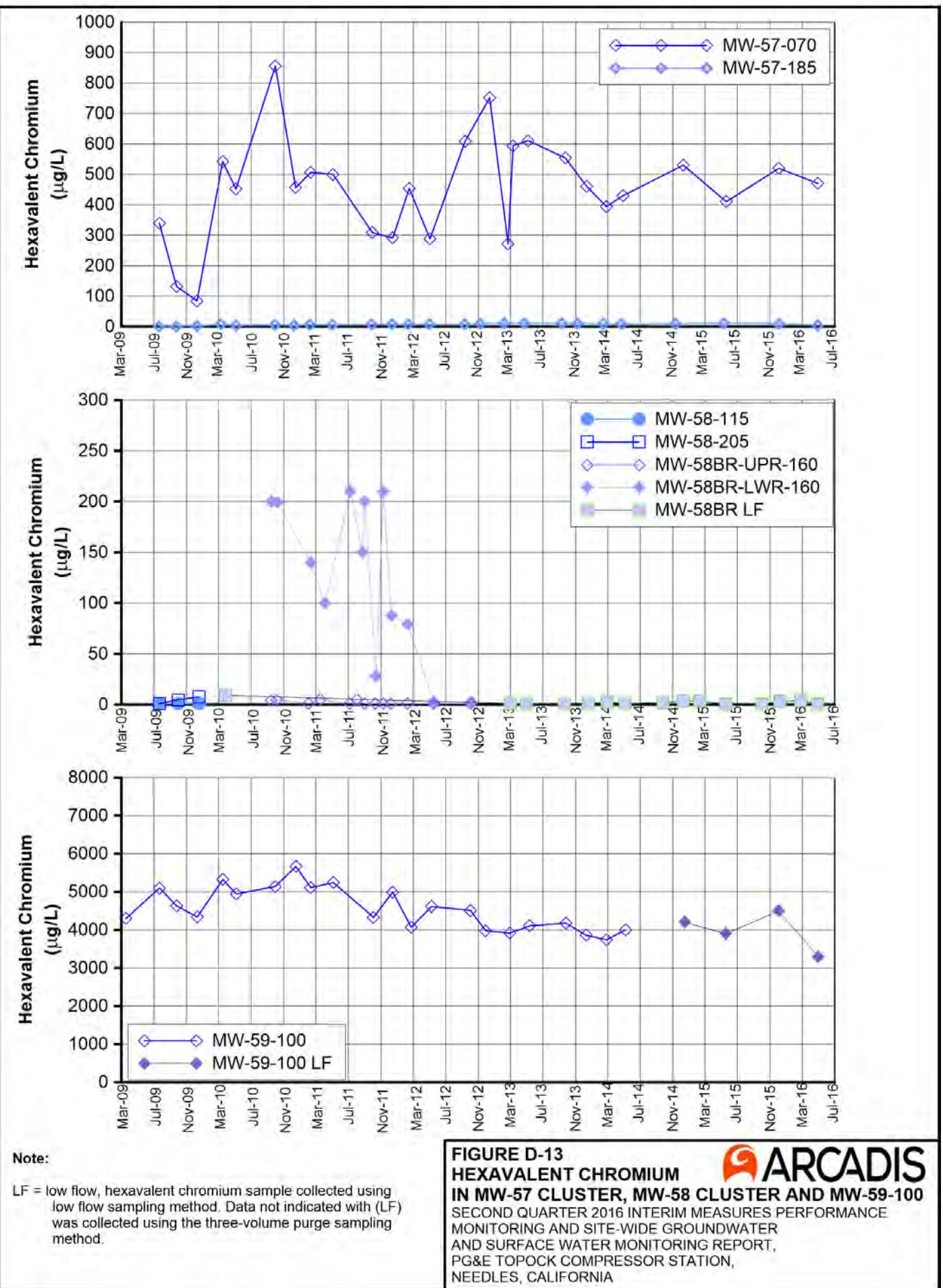


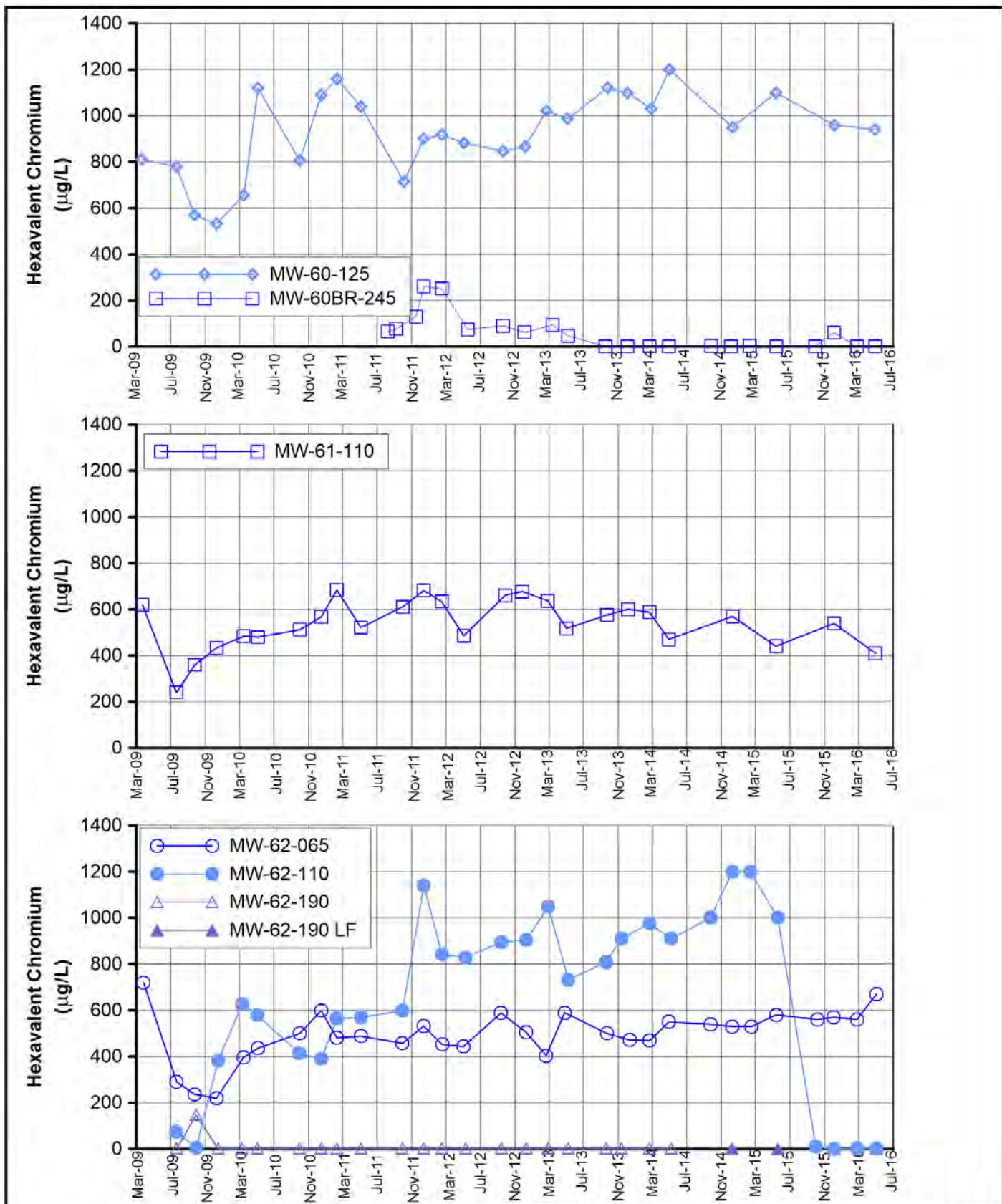
Notes:

LF = low flow, hexavalent chromium sample collected using low flow sampling method. Data not indicated with (LF) was collected using the three-volume purge sampling method.

**FIGURE D-12
HEXAVALENT CHROMIUM
IN MW-50 AND MW-51 CLUSTERS**
SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



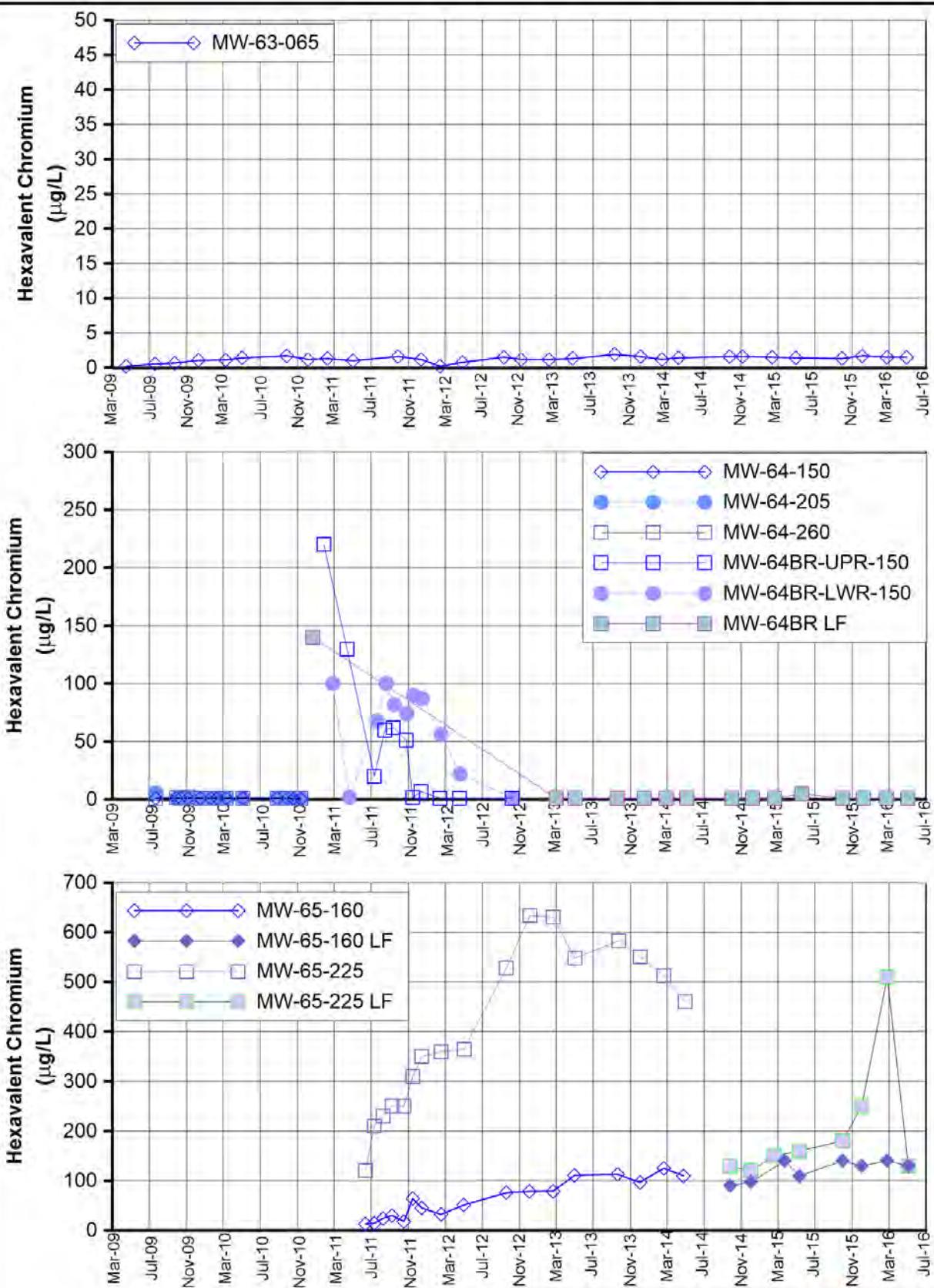




Notes:

LF = low flow, hexavalent chromium sample collected using low flow sampling method. Data not indicated with (LF) was collected using the three-volume purge sampling method.

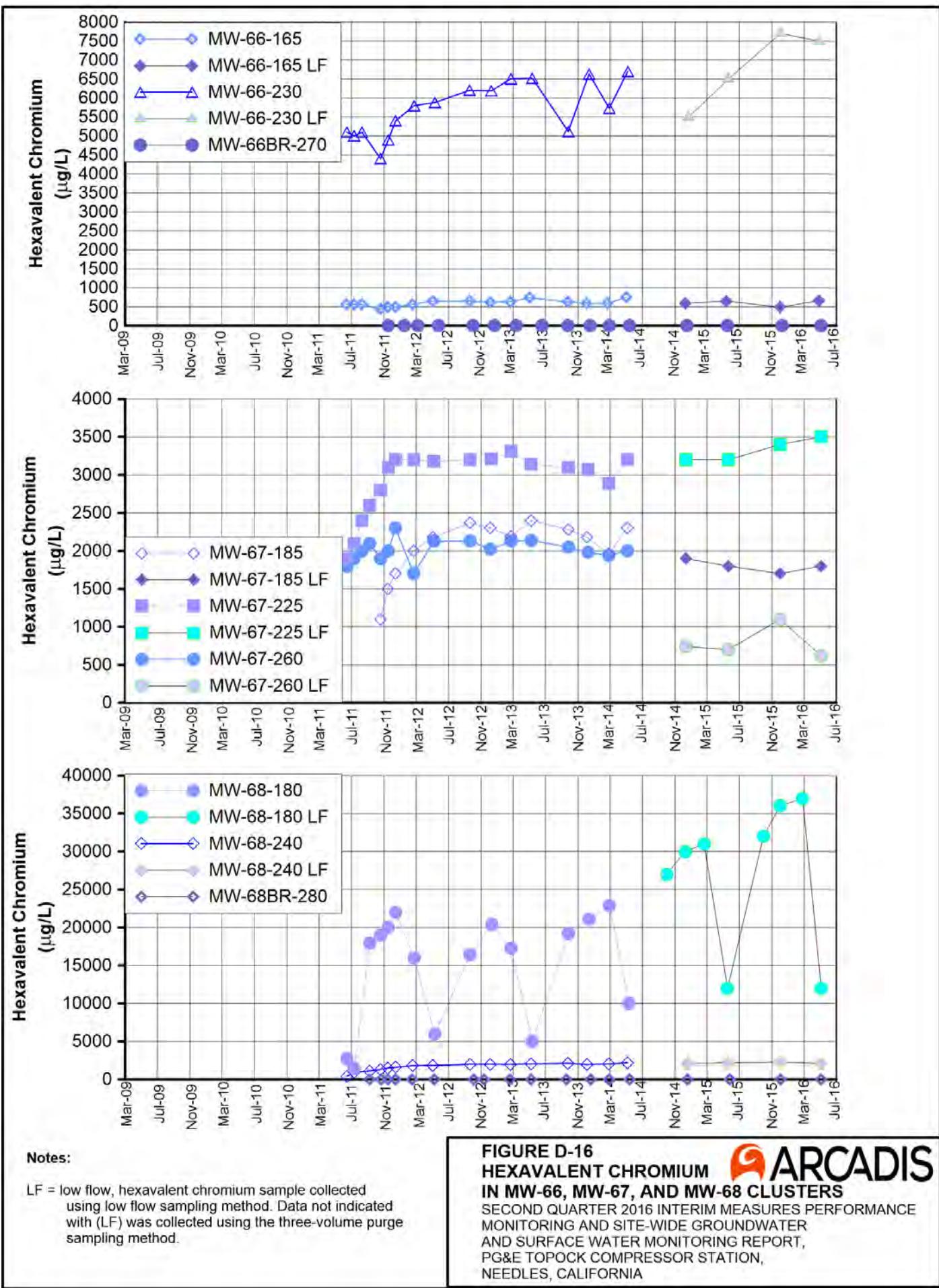
**FIGURE D-14
HEXAVALENT CHROMIUM
IN MW-60 CLUSTER, MW-61-110 AND MW-62 CLUSTER**
SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

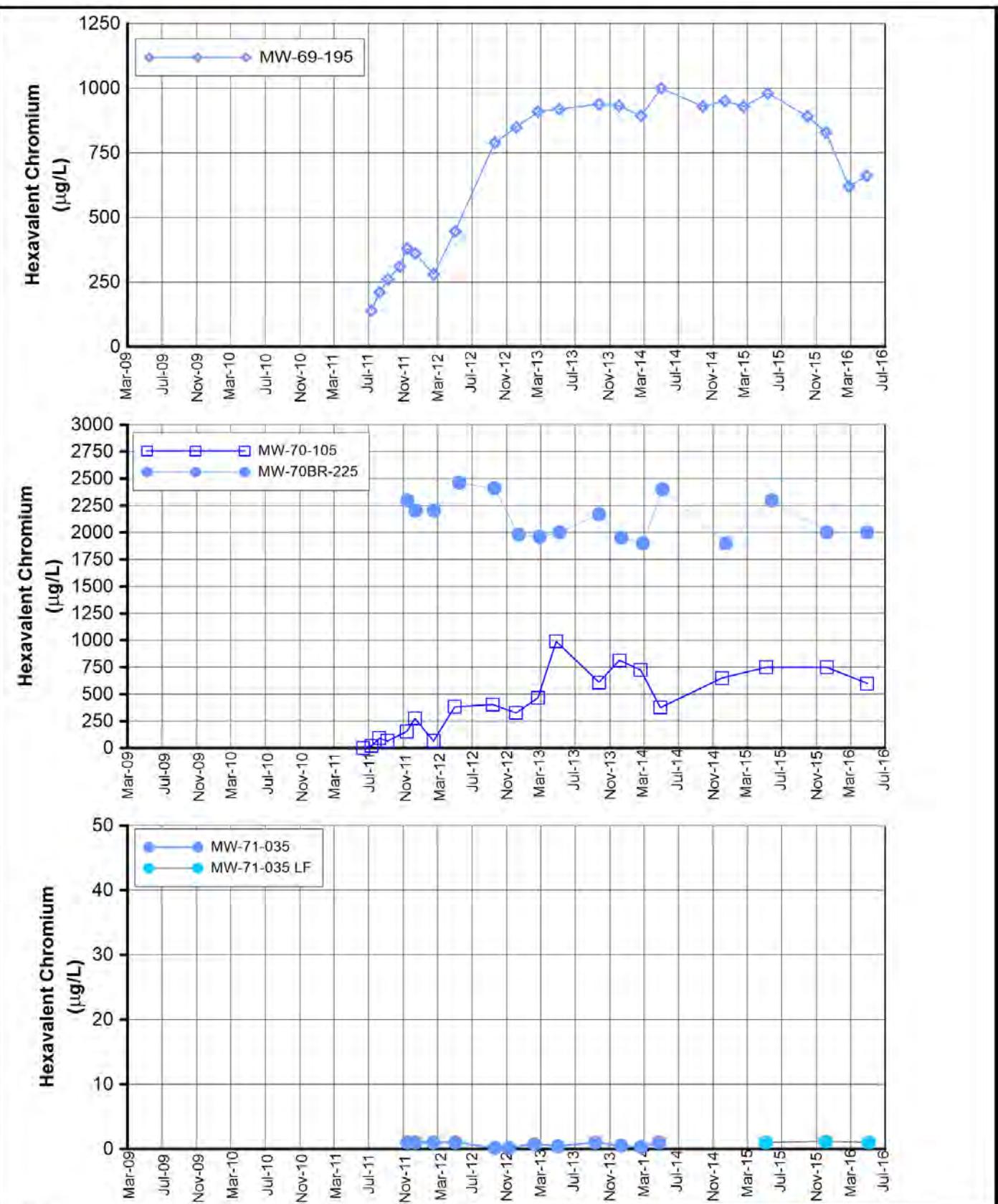


Notes:

LF = low flow, hexavalent chromium sample collected using low flow sampling method. Data not indicated with (LF) was collected using the three-volume purge sampling method.

FIGURE D-15
HEXAVALENT CHROMIUM
IN MW-63-065, MW-64 CLUSTER AND MW-65 CLUSTER
 SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE
 MONITORING AND SITE-WIDE GROUNDWATER
 AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION,
 NEEDLES, CALIFORNIA

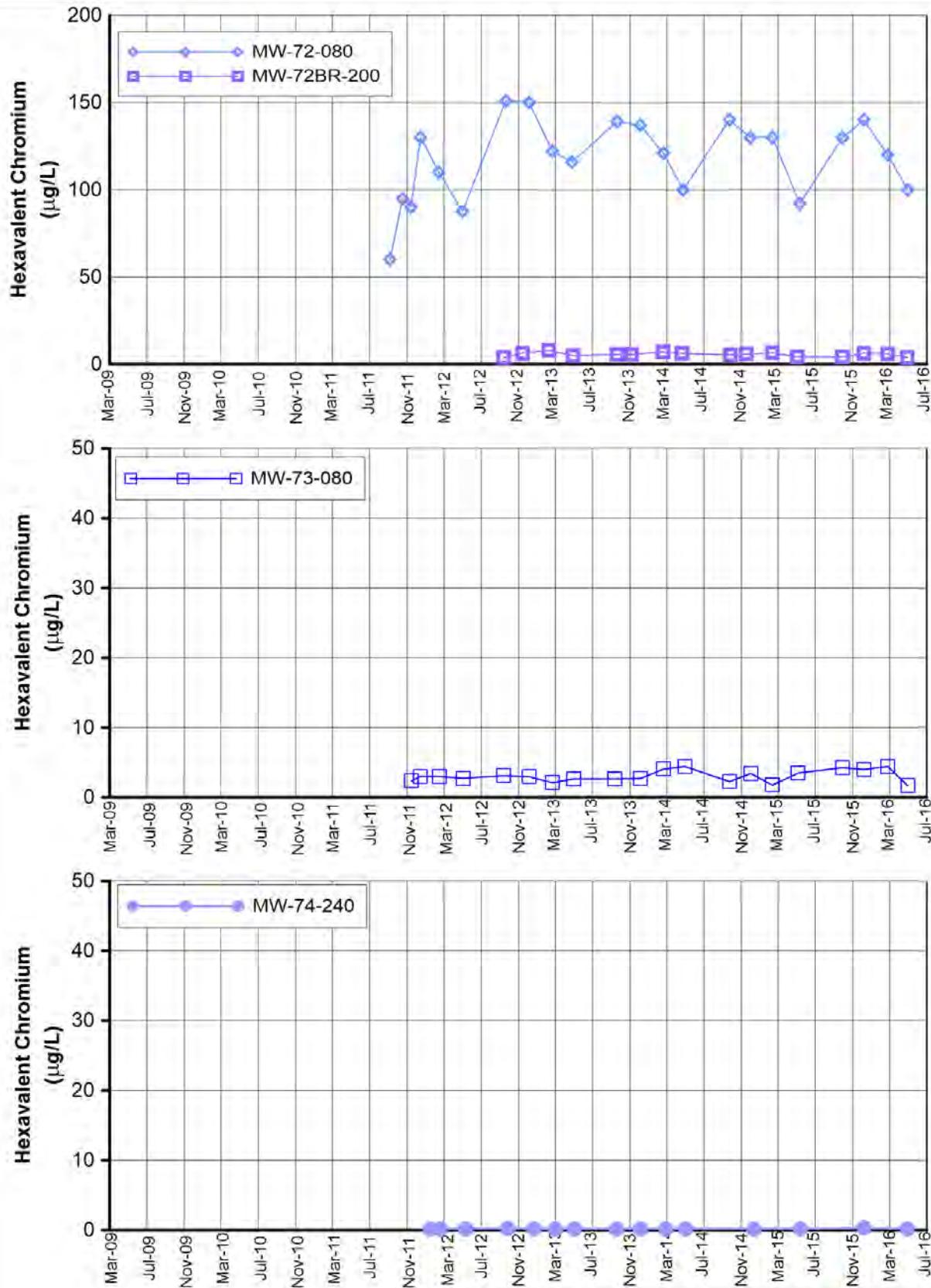




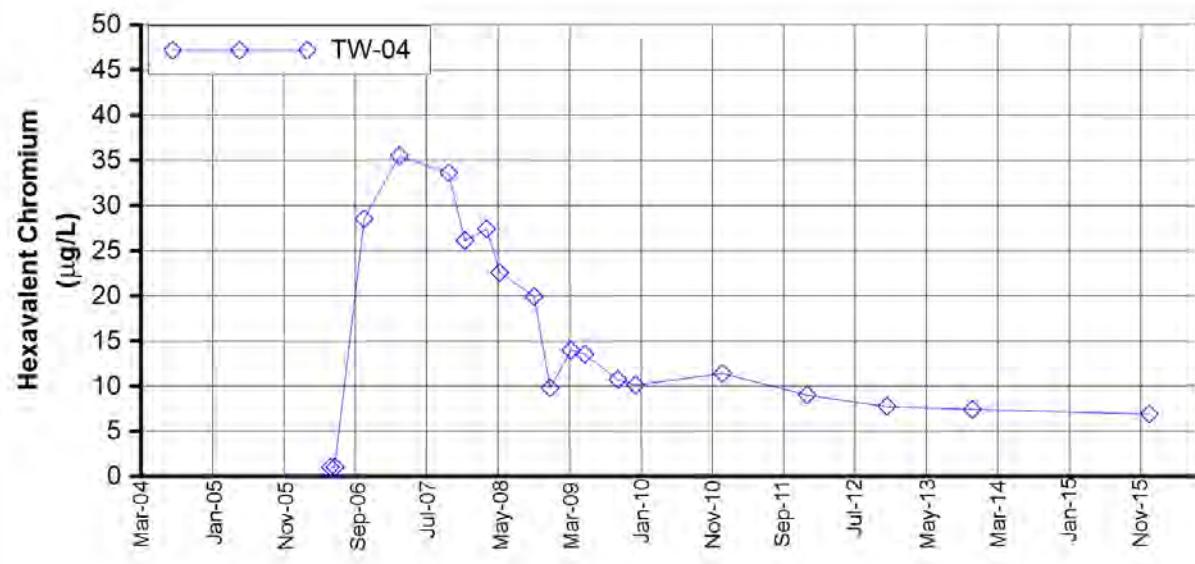
Notes:

LF = low flow, hexavalent chromium sample collected using low flow sampling method. Data not indicated with (LF) was collected using the three-volume purge sampling method.

**FIGURE D-17
HEXAVALENT CHROMIUM
IN MW-69-195, MW-70 CLUSTER, AND MW-71-035
SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA**



**FIGURE D-18
HEXAVALENT CHROMIUM
IN MW-72 CLUSTER, MW-73-080, AND MW-74-240**
SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA



**FIGURE D-19
HEXAVALENT CHROMIUM
IN TW-04**

SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Table D-1

Chromium Concentrations of Wells within Approximately 800 feet of TW-3D Compared to the Maximum

Detected Chromium Concentrations from 2014

Second Quarter 2016 Interim Measures Performance Monitoring and Site-wide

Groundwater and Surface Water Monitoring Report,

PG&E Topock Compressor Station, Needles, California

Location ID	Hexavalent Chromium		Total Dissolved Chromium		Trigger Level Exceeded (Yes if triggered - blank if not)
	Maximum 2014 Hexavalent Chromium Concentration and New Trigger Levels (ug/L)	2016 Second Quarter Hexavalent Chromium Result (ug/L)	Total Dissolved Chromium Concentration and New Trigger Levels (ug/L)	Quarter Total Dissolved Chromium Result (ug/L)	
Shallow Zone Wells					
MW-20-070	2,200	2,000	2,400	2,300	
MW-26	2,400	2,500	2,300	2,700	Y
MW-27-020	ND (0.20)	---	ND (1.0)	---	
MW-28-025	ND (0.20)	ND (0.2)	ND (1.0)	ND (1)	
MW-30-030	0.21	---	ND (1.0)	---	
MW-31-060	600	710	660	740	Y
MW-32-020	ND (1.0)	---	ND (5.0)	---	
MW-32-035	ND (1.0)	ND (1)	ND (1.0)	ND (1)	
MW-33-040	0.28	ND (1)	ND (1.0)	ND (1)	
MW-36-020	ND (0.20)	---	ND (1.0)	---	
MW-36-040	0.34	---	ND (1.0)	---	
MW-39-040	ND (0.20)	---	ND (1.0)	---	
MW-42-030	0.54	---	ND (1.0)	---	
MW-47-055	16	16	16	15	
Middle Zone Wells					
MW-20-100	2,900	2,200	2,900	2,300	
MW-27-060	ND (0.20)	---	ND (1.0)	---	
MW-30-050	ND (0.20)	---	ND (1.0)	---	
MW-33-090	13.3	5.6	15.5	5.2	
MW-34-055	ND (0.20)	---	ND (1.0)	---	
MW-36-050	ND (0.20)	---	ND (1.0)	---	
MW-36-070	ND (0.20)	---	ND (1.0)	---	
MW-39-050	ND (0.20)	---	ND (1.0)	---	
MW-39-060	ND (0.20)	---	ND (1.0)	---	
MW-39-070	ND (0.20)	---	ND (1.0)	---	
MW-42-055	0.35	0.44	2.8	1.6	Y
MW-42-065	ND (0.20)	ND (0.2)	ND (1.0)	ND (1)	
MW-44-070	ND (0.20)	ND (0.2)	ND (1.0)	15	Y
MW-51	4,800	4,800	4,800	5,000	Y
Deep Zone Wells					
MW-20-130	9,100	9,100	9,000	9,400	Y
MW-27-085	ND (1.0)	ND (1.0)	ND (1.0)	ND (1)	
MW-28-090	ND (0.20)	---	ND (1.0)	ND (1)	
MW-31-135	12	---	12	---	
MW-33-150	12 J	---	10.8	5.2	
MW-33-210	13	---	13.5	10	
MW-34-080	ND (0.20)	---	ND (1.0)	ND (1)	
MW-34-100	263	---	270	4.6	
MW-36-090	ND (0.20)	---	ND (1.0)	ND (1)	
MW-36-100	65	---	62	42	
MW-39-080	ND (0.20)	---	ND (1.0)	---	

Table D-1

Chromium Concentrations of Wells within Approximately 800 feet of TW-3D Compared to the Maximum

Detected Chromium Concentrations from 2014*Second Quarter 2016 Interim Measures Performance Monitoring and Site-wide**Groundwater and Surface Water Monitoring Report,**PG&E Topock Compressor Station, Needles, California*

Location ID	Hexavalent Chromium		Total Dissolved Chromium		Trigger Level Exceeded (Yes if triggered - blank if not)
	Maximum 2014 Hexavalent Chromium Concentration and New Trigger Levels (ug/L)	2016 Second Quarter Hexavalent Chromium Result (ug/L)	Total Dissolved Chromium Concentration and New Trigger Levels (ug/L)	Quarter Total Dissolved Chromium Result (ug/L)	
MW-39-100	57	81	49	79	Y
MW-44-115	41.6	---	42.9	23	
MW-44-125	4.0 J	5.9	5.9	14	Y
MW-45-095a	13.7 (a)	---	14.2 (a)	---	
MW-46-175	46.3	---	46.1	11	
MW-46-205	5.5	---	4.8	ND (5)	
MW-47-115	24	24	20	22	Y
PE-01	5.6	1.2	6	---	
TW-04	7.4	---	6.5	---	

Notes:

--- = data was either not collected, not available or was rejected

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

ug/L = micrograms per liter.

(a) = Result is the maximum from 2013

APPENDIX E

Interim Measures Extraction System Operations Log, Second Quarter 2016



Interim Measures Extraction System Operations Log, Second Quarter 2016, PG&E Topock Performance Monitoring Program

During Second Quarter 2016 (April through June), extraction wells PE-1, TW-2D, and TW-3D operated at a target pump rate of at 135 gallons per minute, excluding periods of planned and unplanned downtime. Extraction well TW-2S was not operated during Second Quarter 2016. The operational run time for the Interim Measure groundwater extraction system (combined or individual pumping) was approximately 89.6 percent during Second Quarter 2016. The operational run time for the IM groundwater extraction system (combined or individual pumping), by month, was approximately:

- 71.1 percent during April 2016
- 99.4 percent during May 2016
- 98.1 percent during June 2016

The Interim Measure Number 3 (IM-3) facility treated approximately 16,084,389 gallons of extracted groundwater during Second Quarter 2016. In addition to extracted groundwater, during Second Quarter 2016 the IM-3 facility treated 1,320 gallons of water generated from the groundwater monitoring program, 8,100 gallons of injection well development water and 2,793 gallons of purge water from Groundwater Partners.

Periods of planned and unplanned extraction system downtime (that together resulted in approximately 10.4 percent of downtime during Second Quarter 2016) are summarized below. The times shown are in Pacific Standard Time to be consistent with other data collected (for example, water level data) at the site.

April 2016

During April 2016, extraction wells TW-2D, TW-3D and PE-1 operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction well TW-2S was not operated during April 2016. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 71.1 percent during the April 2016 reporting period.

The IM-3 facility treated approximately 4,204,168 gallons of extracted groundwater during April 2016. The IM-3 facility treated 3,600 gallons of injection well backwashing/re-development water, 1,010 gallons of water generated from the groundwater monitoring program, and 2,093 gallons of purge water from groundwater partners. No containers of solids from the IM-3 facility were transported offsite during April 2016.

Periods of planned and unplanned extraction system downtime (that together resulted in approximately 28.9 percent downtime during April 2016) are summarized below.

- **April 3, 2016 (unplanned):** The extraction well system was offline from 7:12 a.m. to 8:38 a.m. due to an air compressor malfunction and ferrous injection interruption. Extraction system downtime was 1 hour, 26 minutes.
- **April 4 - 12, 2016 (planned/unplanned):** The extraction well system was offline from 6:02 a.m. on April 4, 2016 to 1:36 p.m. on April 9, 2016, 2:08 p.m. on April 9, 2016 to 9:52 a.m. on April 10, 2016, from 9:54 a.m. to 10:00 a.m. on April 10, 2016, from 11:04 a.m. to 11:10 a.m. on April 10, 2016, and from 11:36 a.m. on April 10, 2016 to 11:38 a.m. on April 12, 2016 for semiannual scheduled maintenance and facility evacuation due to a nearby brush fire on April 6-7, 2016. The extraction wells were operated intermittently during the end of the outage to confirm piping re-assembly and pump operation. Extraction system downtime was 8 days, 3 hours, 32 minutes.

- **April 12, 2016 (unplanned):** The extraction well system was offline from 2:52 p.m. to 3:06 p.m. due to a ferrous injection interruption. Extraction system downtime was 14 minutes.
- **April 12, 2016 (unplanned):** The extraction well system was offline from 6:36 p.m. to 9:34 p.m. due to a high level alarm in the Raw Water Storage Tank (T-100). Extraction system downtime was 2 hours, 58 minutes.
- **April 13, 2016 (unplanned):** The extraction well system was offline from 9:00 a.m. to 9:36 am, from 9:42 a.m. to 9:44 am, and from 11:06 a.m. to 11:26 a.m. due to air compressor failures. Extraction system downtime was 58 minutes.
- **April 13, 2016 (unplanned):** The extraction well system was offline from 2:52 p.m. to 3:26 p.m. to repair the ferrous injection pump. Extraction system downtime was 34 minutes.
- **April 14, 2016 (unplanned):** The extraction well system was offline from 7:02 a.m. to 12:40 p.m. to replace the microfilter control valve. Extraction system downtime was 5 hours, 38 minutes.
- **April 21, 2016 (unplanned):** The extraction well system was offline from 3:28 p.m. to 3:34 p.m. and 10:08 p.m. to 10:12 p.m. to switch the plant to generator power due to high winds and return the plant to power from the City of Needles. Extraction system downtime was 10 minutes.
- **April 20, 2016 (unplanned):** The extraction well system was offline from 12:26 p.m. to 12:40 p.m. and 1:12 p.m. to 1:26 p.m. due to ferrous injection interruptions. Extraction system downtime was 28 minutes.
- **April 27-28, 2016 (unplanned):** The extraction well system was offline from 9:20 p.m. to 9:28 p.m. and from 9:34 p.m. to 9:36 p.m. on April 27, 2016 and from 5:48 a.m. to 5:54 a.m. on April 28, 2016 to switch the plant to generator power due to loss of power from the City of Needles and to return the plant to power from the City of Needles. Extraction system downtime was 16 minutes.

May 2016

During May 2016, extraction wells TW-2D, TW-3D and PE-1 operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction well TW-2S was not operated during May 2016. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 99.4 percent during the May 2016 reporting period.

The IM-3 facility treated approximately 6,050,193 gallons of extracted groundwater during May 2016. The IM-3 facility treated 310 gallons of water from groundwater monitoring well sampling, 4,500 gallons of injection well backwashing/re-development water, and 700 gallons of purge water from groundwater partners. Three containers of solids from the IM-3 facility were transported offsite during May 2016.

Periods of planned and unplanned extraction system downtime (that together resulted in approximately 0.6 percent downtime during May 2016) are summarized below.

- **May 5, 2016 (planned):** The extraction well system was offline from 8:56 a.m. to 8:58 am, from 9:12 a.m. to 9:14 am, from 9:26 a.m. to 9:28 a.m. and from 9:30 a.m. to 9:32 a.m. for plant maintenance including testing of critical alarms and the leak detection system. Extraction system downtime was 8 minutes.
- **May 5, 2016 (unplanned):** The extraction well system was offline from 11:40 a.m. to 12:42 p.m. to replace the Clarifier Feed Pump (P-400) and perform maintenance on the Primary RO system. Extraction system downtime was 1 hour, 2 minutes.
- **May 20, 2016 (unplanned):** The extraction well system was offline from 12:16 p.m. to 12:20 p.m. due to loss of power from the City of Needles. Extraction system downtime was 4 minutes.

- **May 22, 2016 (unplanned):** The extraction well system was offline 7:38 a.m. to 9:28 a.m. and from 9:30 a.m. to 10:18 a.m. due to failure of a pump in the ferrous injection system. Extraction system downtime was 2 hours, 38 minutes.
- **May 20, 2016 (unplanned):** The extraction well system was offline from 12:06 p.m. to 12:10 p.m. due to loss of power from the City of Needles. Extraction system downtime was 4 minutes.
- **May 29, 2016 (unplanned):** The extraction well system was offline 10:00 a.m. to 10:08 a.m. and from 8:44 p.m. to 8:48 p.m. to transition the plant to and from generator power due to low voltage being supplied from City of Needles. Extraction system downtime was 12 minutes.

June 2016

During June 2016, extraction wells TW-2D, TW-3D and PE-1 operated at a target pump rate of 135 gpm excluding periods of planned and unplanned downtime. Extraction well TW-2S was not operated during June 2016. The operational run time for the IM-3 groundwater extraction system (combined or individual pumping) was 98.1 percent during the June 2016 reporting period. Two containers of solids from the IM-3 facility were transported offsite during June 2016.

The IM-3 facility treated approximately 5,830,027 gallons of extracted groundwater during June 2016.

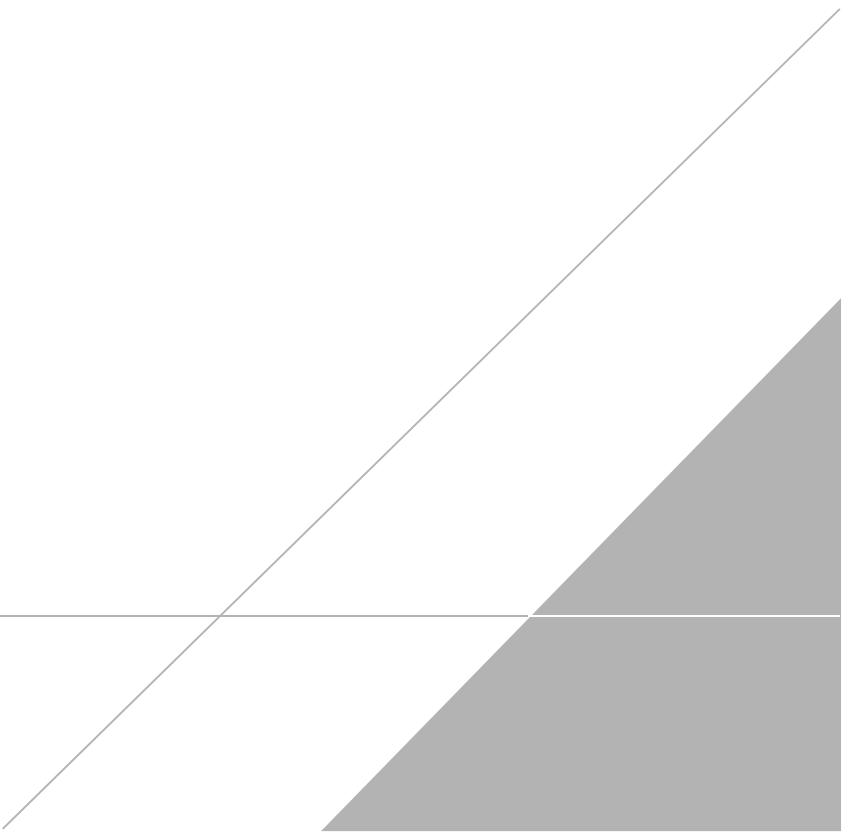
Periods of planned and unplanned extraction system downtime (that together resulted in approximately 1.9 percent downtime during June 2016) are summarized below.

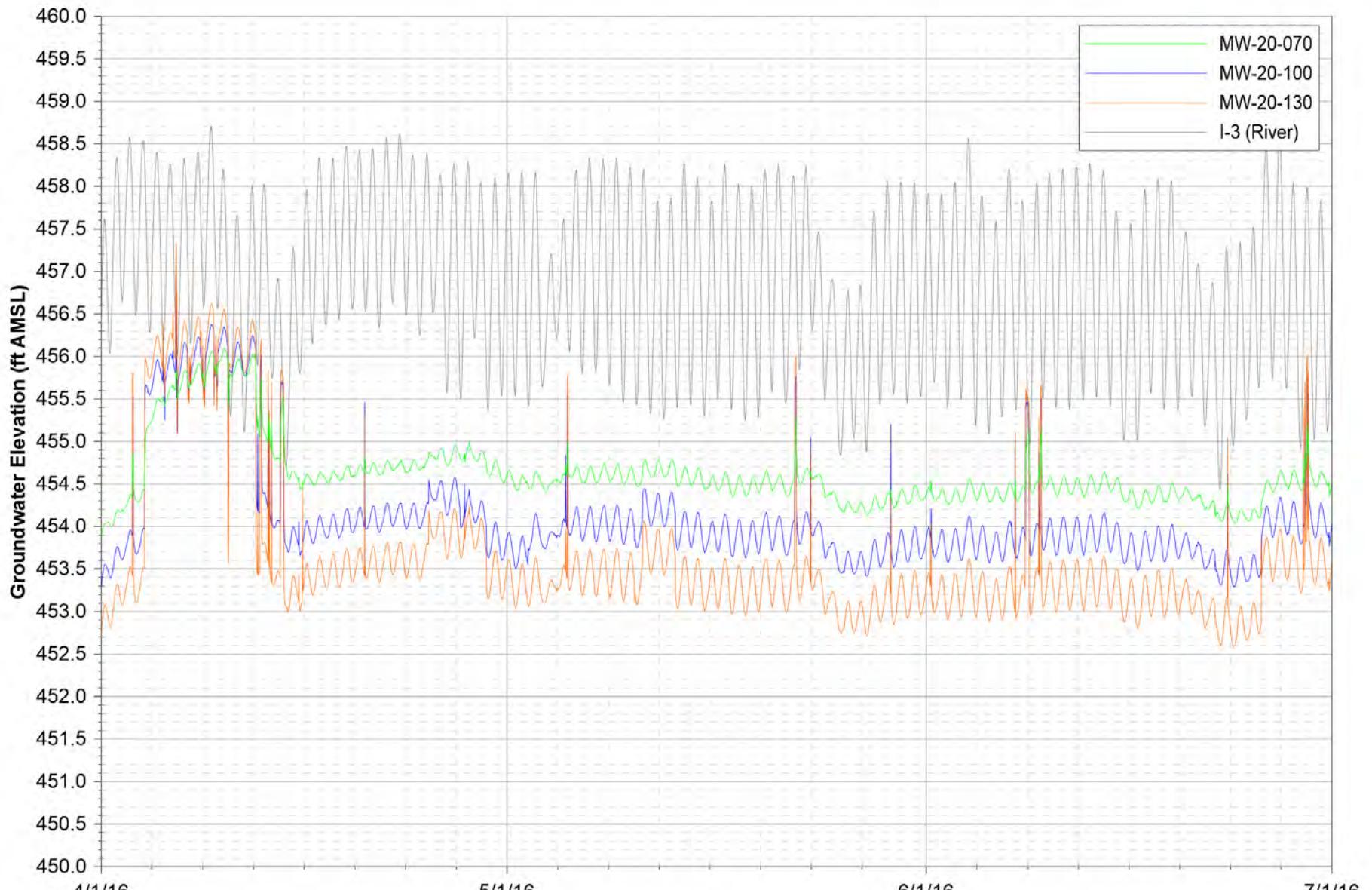
- **June 1, 2016 (planned):** The extraction well system was offline from 8:54 a.m. to 8:56 a.m., from 9:10 a.m. to 9:12 a.m., from 9:14 a.m. to 9:18 a.m., from 9:20 a.m. to 9:22 a.m. from 9:26 a.m. to 9:28 a.m., and from 9:30 a.m. to 9:34 a.m. for testing of critical alarms and the leak detection system. Extraction system downtime was 16 minutes.
- **June 1, 2016 (unplanned):** The extraction well system was offline from 12:54 p.m. to 12:58 p.m. due to loss of power from the City of Needles. Extraction system downtime was 4 minutes.
- **June 7, 2016 (planned):** The extraction well system was offline from 2:44 p.m. to 3:00 p.m. and from 3:02 p.m. to 3:12 p.m. for setup and testing of a new Variable Frequency Drive (VFD) for the extraction wells. Extraction system downtime was 26 minutes.
- **June 8, 2016 (planned):** The extraction well system was offline from 9:10 a.m. to 10:08 a.m., 10:10 a.m. to 10:14 a.m., 10:16 a.m. to 10:42 a.m., from 10:44 a.m. to 10:58 a.m., from 11:02 a.m. to 11:14 a.m., from 11:22 a.m. to 3:30 pm, and from 3:38 p.m. to 3:42 p.m. for setup and testing of a new VFD, wiring for the extraction wells, and to replace the microfilter modules. Extraction system downtime was 6 hours, 6 minutes.
- **June 9, 2016 (planned):** The extraction well system was offline from 9:08 a.m. to 9:18 a.m., from 9:50 a.m. to 10:06 a.m., and from 11:10 a.m. to 1:26 p.m. for system programming related to the new VFD. Extraction system downtime was 2 hours, 42 minutes.
- **June 23, 2016 (unplanned):** The extraction well system was offline from 8:08 a.m. to 8:18 a.m. to replace the wiring for the VFD. Extraction system downtime 10 minutes.
- **June 25, 2016 (unplanned):** The extraction well system was offline from 7:40 p.m. to 7:46 p.m. to turn on extraction well PE-1. Extraction system downtime 6 minutes.
- **June 28, 2016 (unplanned):** The extraction well system was offline from 9:46 p.m. to 10:20 p.m. due to a high level alarm in the Iron Oxidation Reactor Tank #3 (T-301C). Extraction system downtime 34 minutes.

- **June 29, 2016 (unplanned):** The extraction well system was offline from 1:06 a.m. to 2:00 a.m. due to a high level alarm in Iron Oxidation Reactor Tank #3 (T-301C). Extraction system downtime 54 minutes.
- **June 29, 2016 (unplanned):** The extraction well system was offline from 4:12 a.m. to 5:54 a.m. to replace the Clarifier Feed Pump (P-400). Extraction system downtime was 1 hour, 42 minutes.
- **June 29, 2016 (unplanned):** The extraction well system was offline from 7:00 a.m. to 7:38 a.m. to bypass the VFD for the Clarifier Feed Pump (P-400). Extraction system downtime was 38 minutes.
- **June 30, 2016 (unplanned):** The extraction well system was offline from 6:46 p.m. to 6:52 p.m. due to loss of power from the City of Needles. Plant was moved to generator power at this time. Extraction system downtime was 6 minutes.

APPENDIX F

Hydraulic Data for Interim Measures Reporting Period





Notes:

1. Data subject to review.
2. ft amsl = feet above mean sea level.

FIGURE F-1A

MW-20 CLUSTER HYDROGRAPHS

SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE
GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

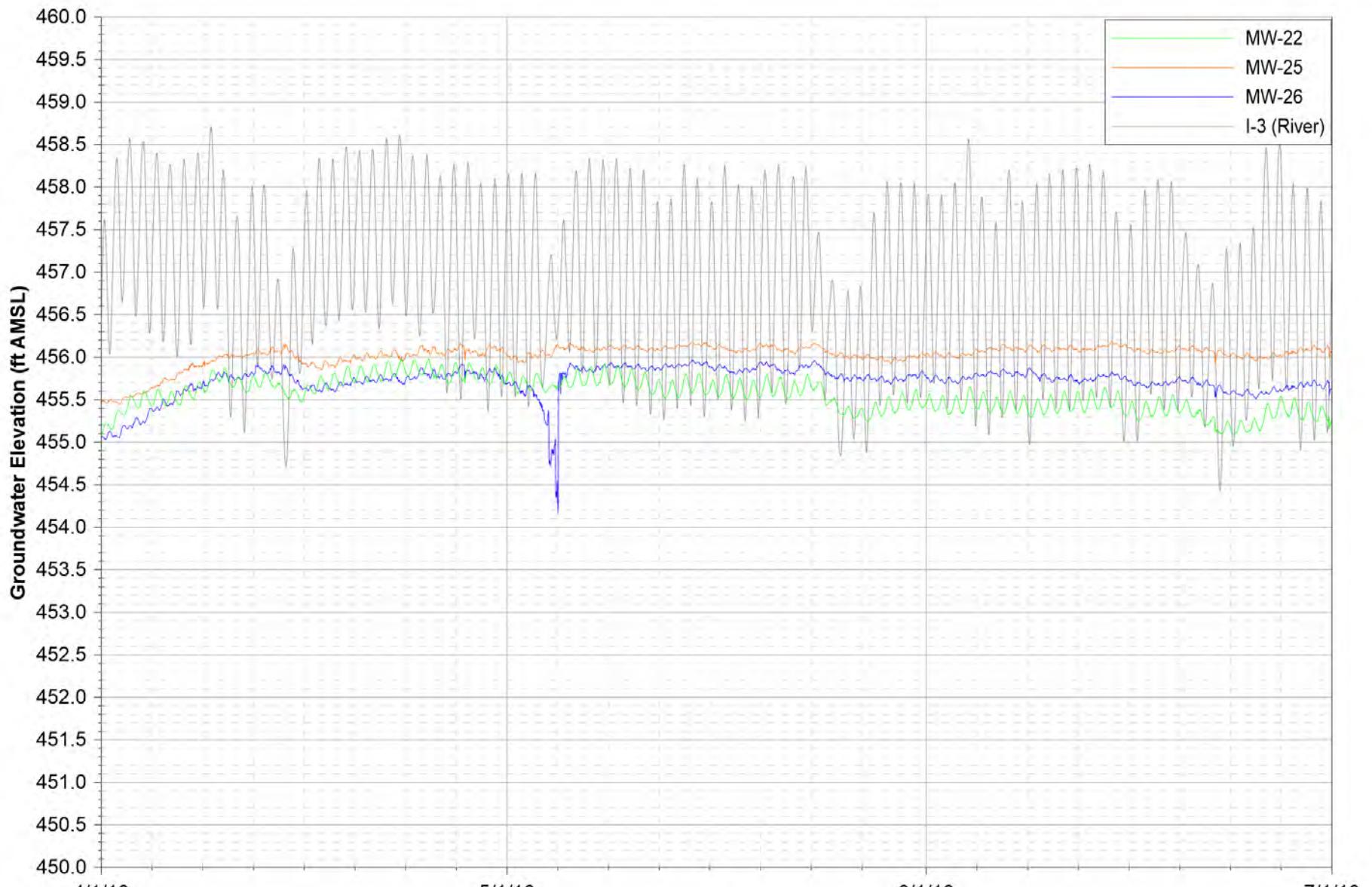
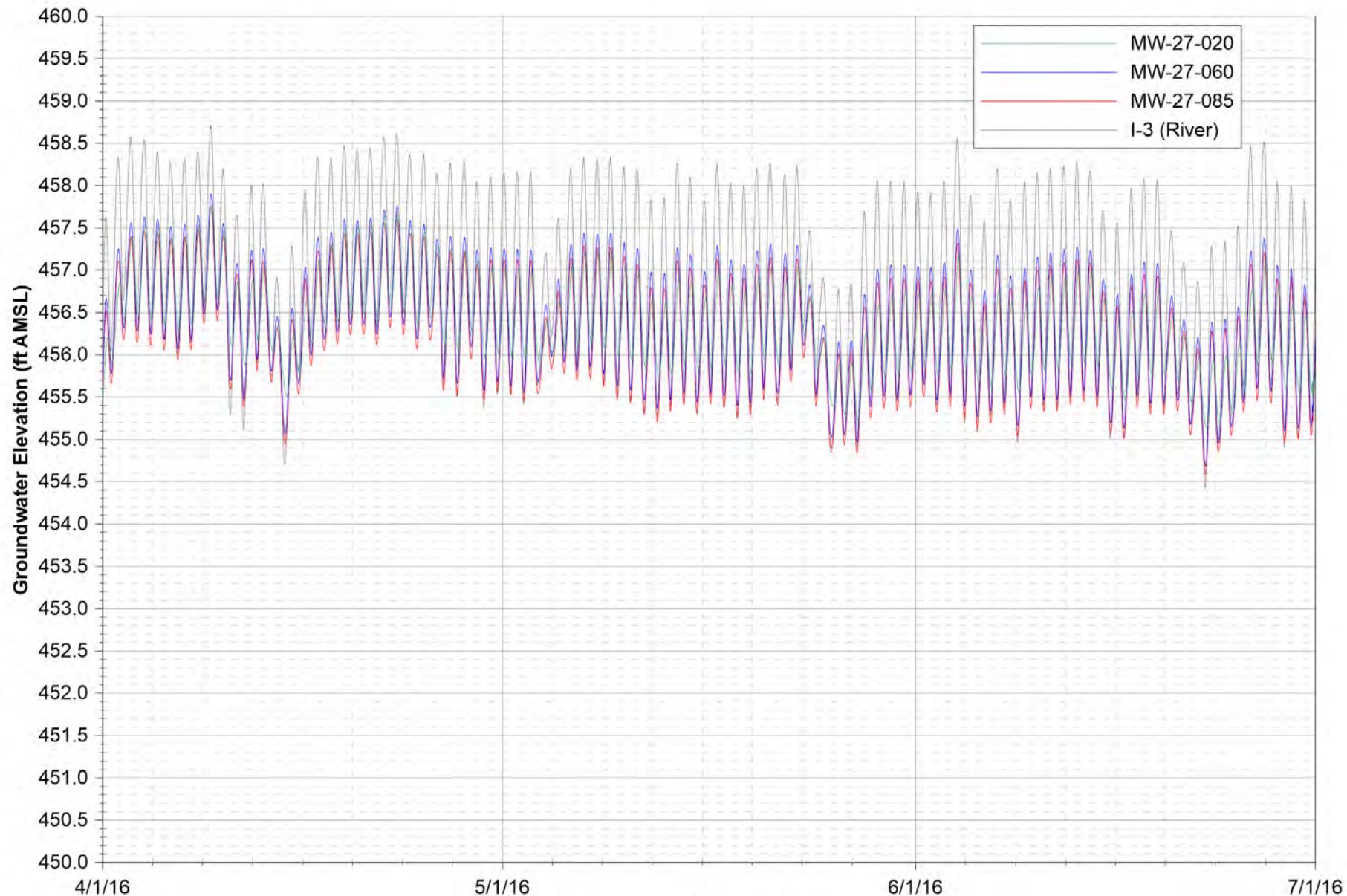


FIGURE F-1B

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

SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:

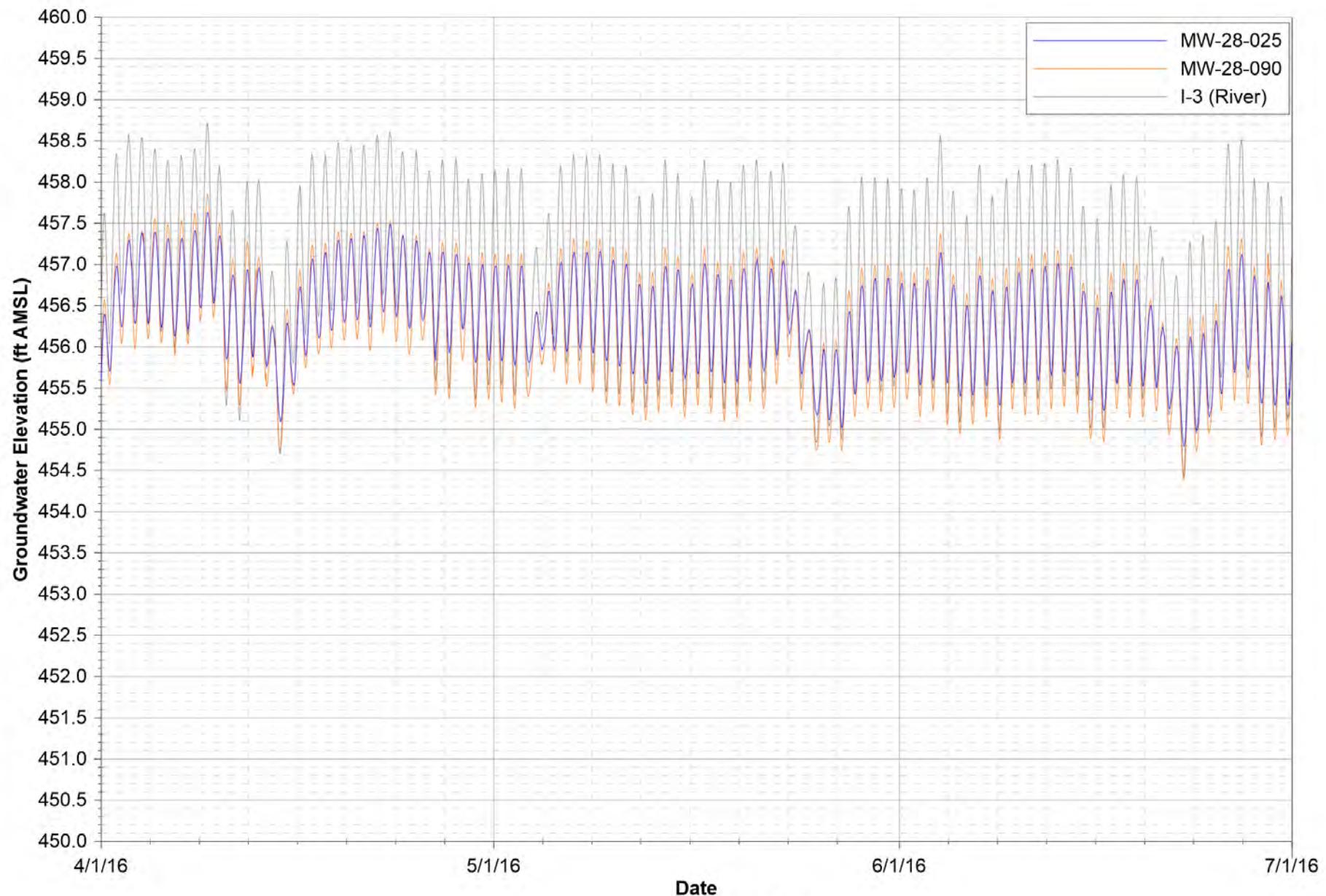
1. Data subject to review.
2. ft amsl = feet above mean sea level.

Date

FIGURE F-1C

MW-27 CLUSTER HYDROGRAPHS

SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

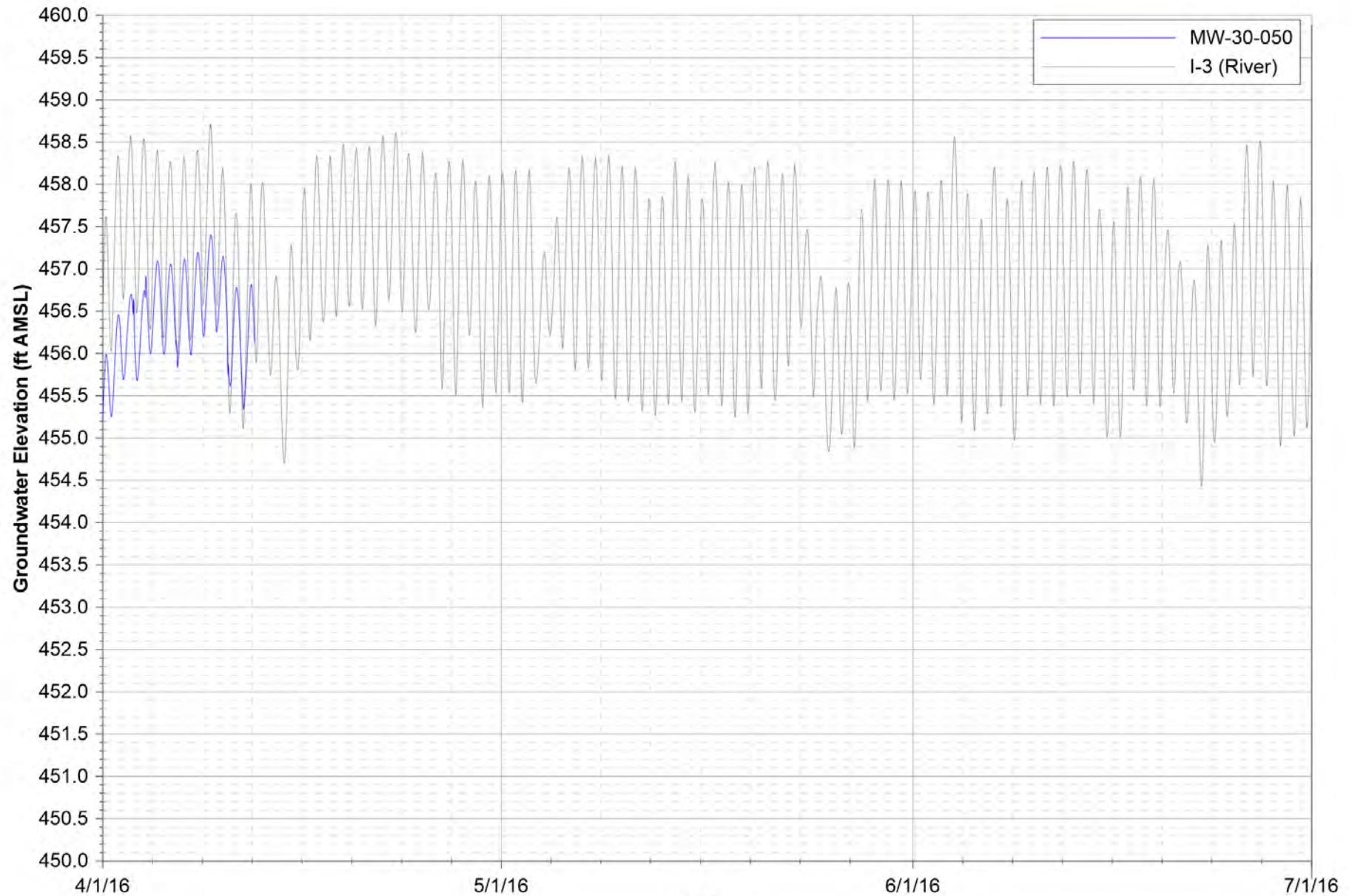


Notes:

1. Data subject to review.
2. ft amsl = feet above mean sea level.

**FIGURE F-1D
MW-28 CLUSTER HYDROGRAPHS**

SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:

1. Data subject to review.
2. ft amsl = feet above mean sea level.
3. MW-30-050 data unavailable from April 12, 2016 through July 1, 2016 due to transducer malfunction.

FIGURE F-1E

MW-30-050 HYDROGRAPH

SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

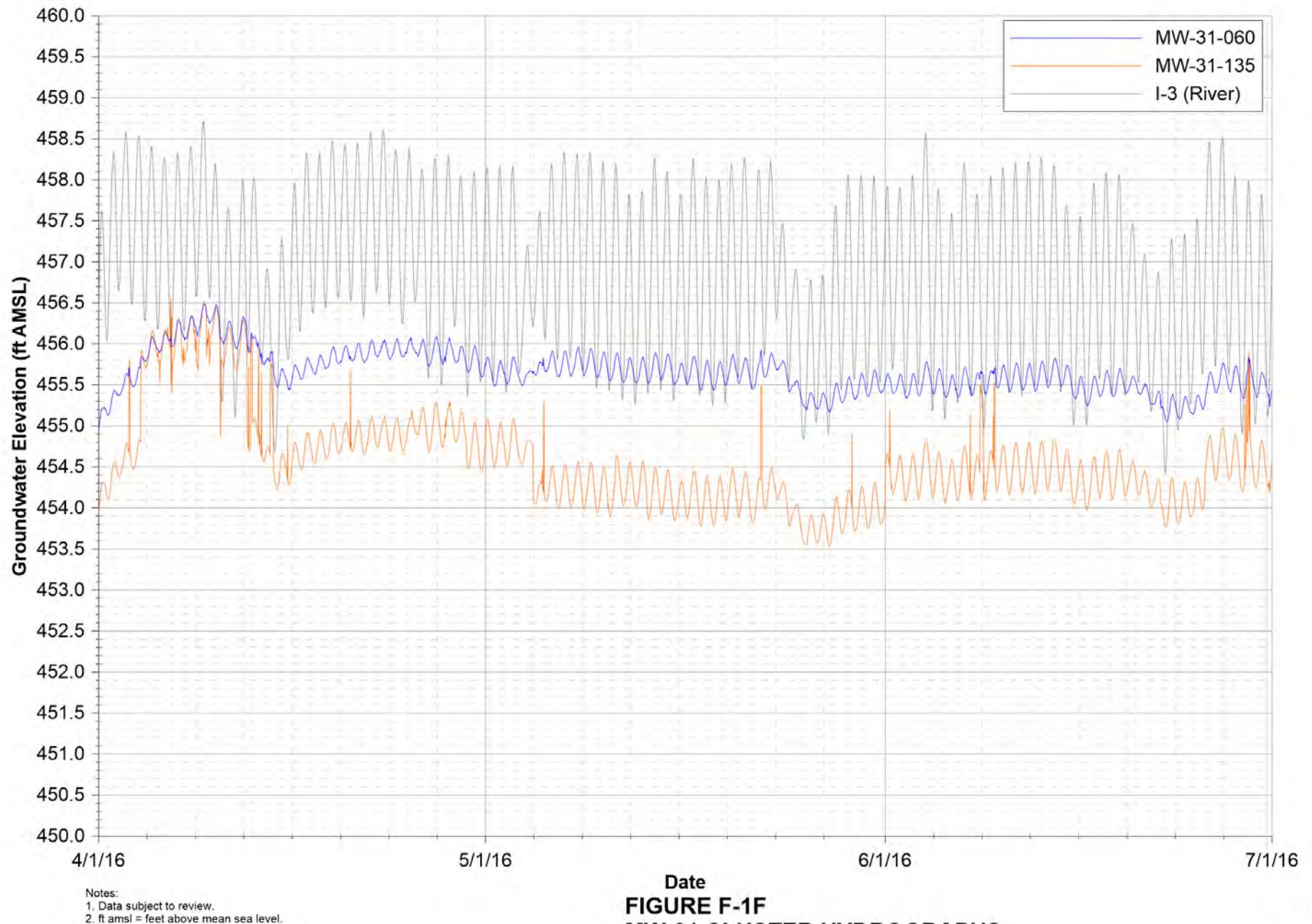
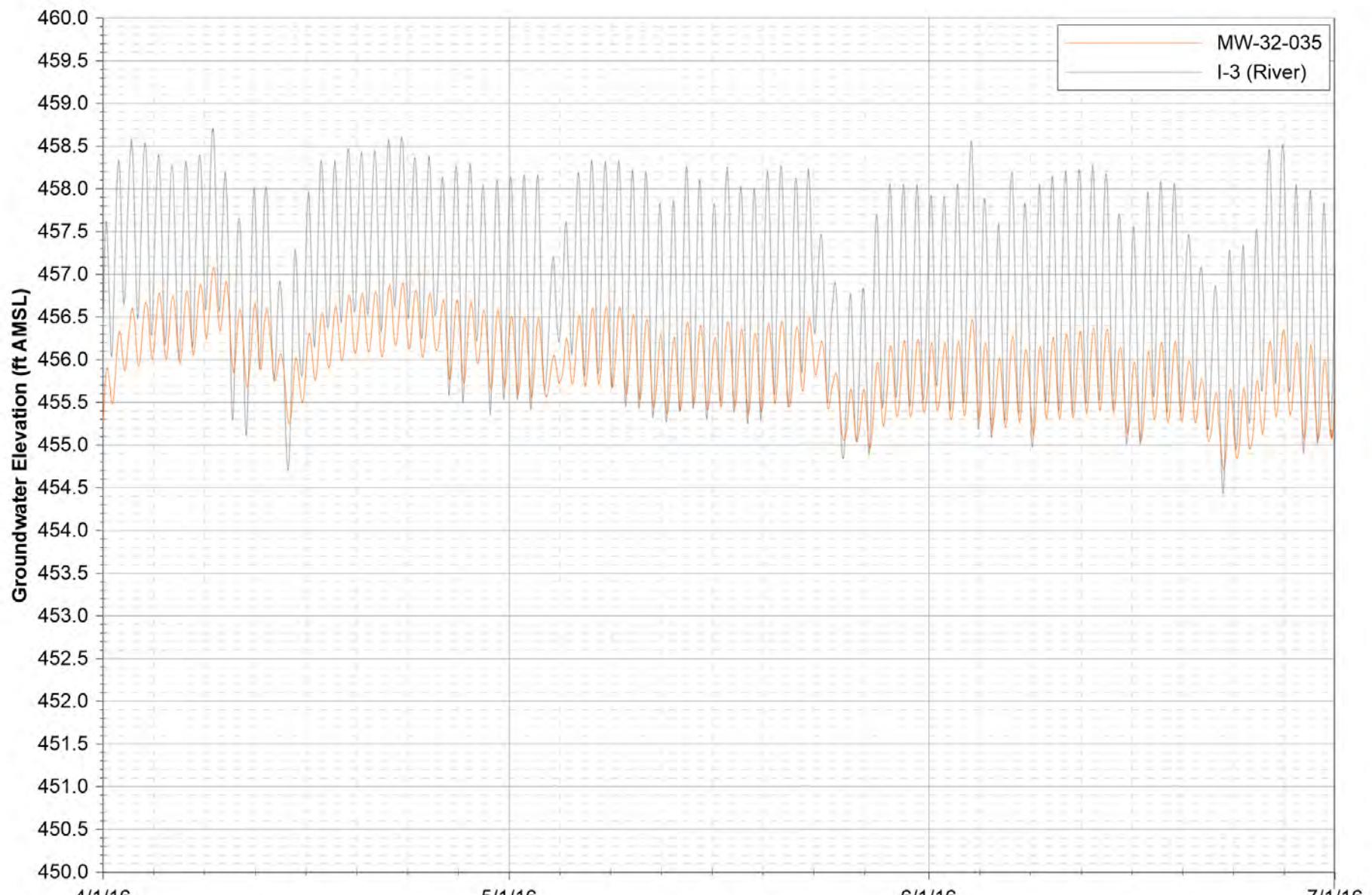


FIGURE F-1F
MW-31 CLUSTER HYDROGRAPHS

SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

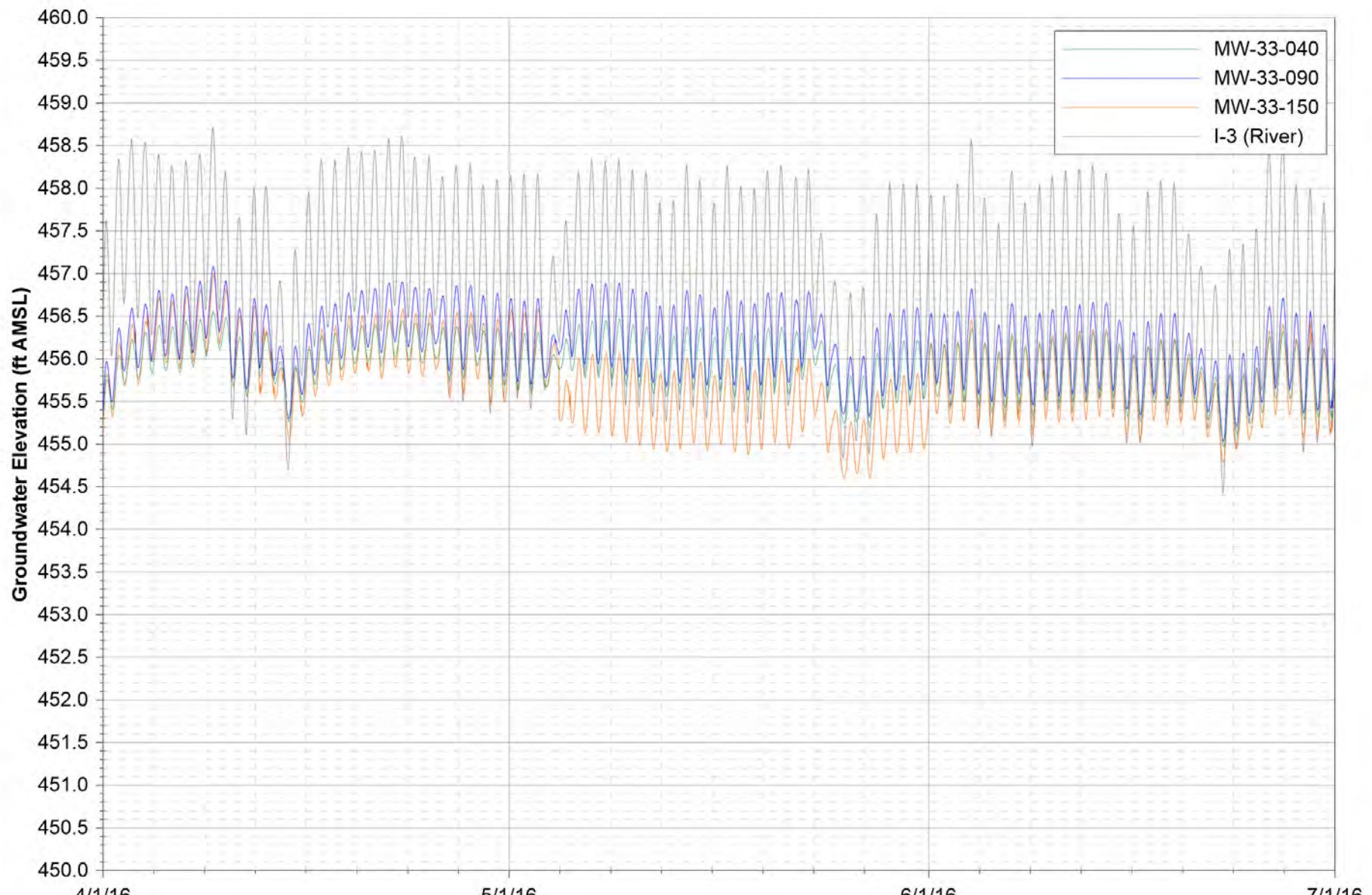


Notes:

1. Data subject to review.
2. ft amsl = feet above mean sea level.

Date
FIGURE F-1G
MW-32 HYDROGRAPH

SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

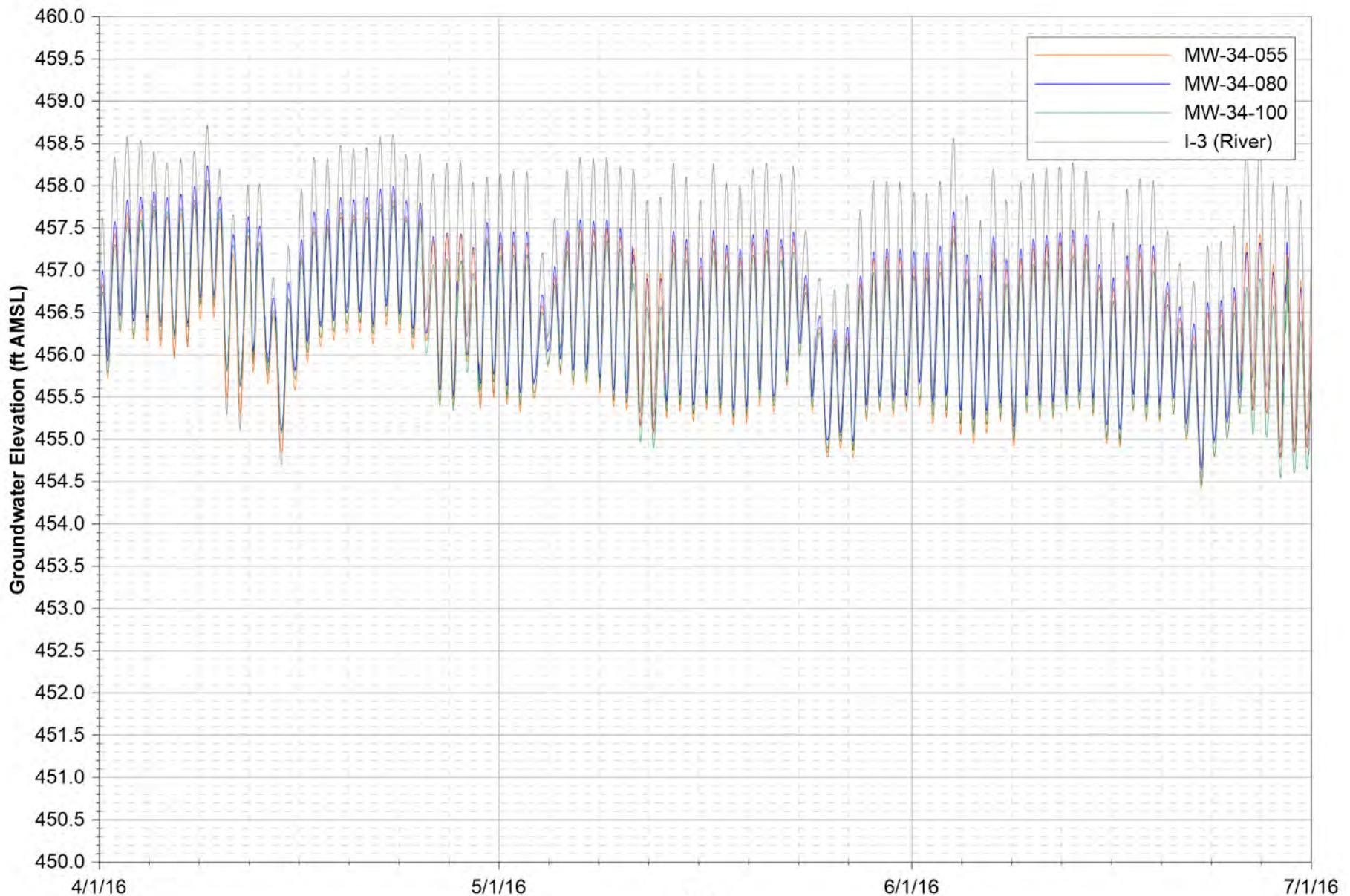


Notes:

1. Data subject to review.
2. ft amsl = feet above mean sea level.

FIGURE F-1H
MW-33 CLUSTER HYDROGRAPHS

SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



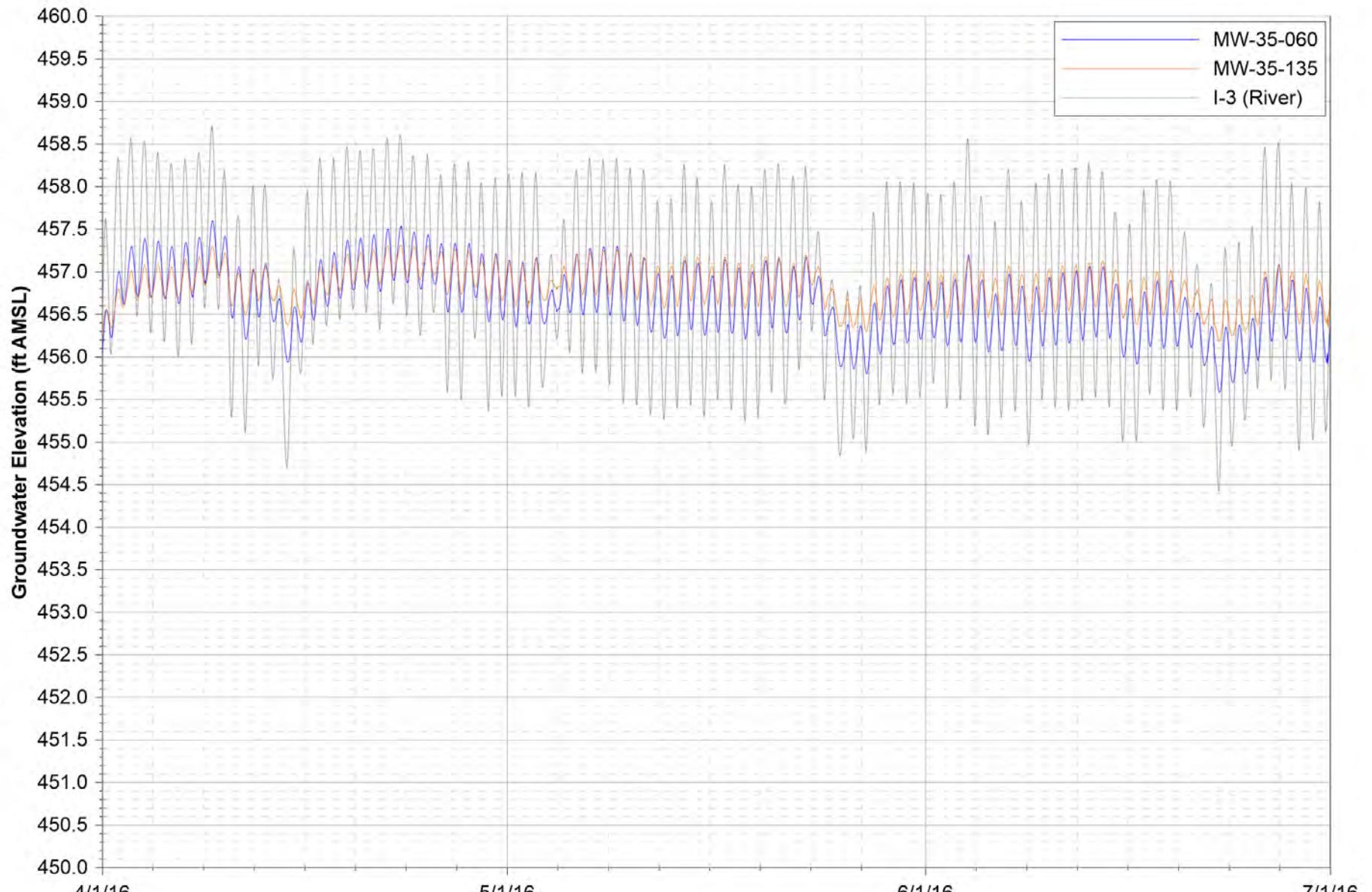
Notes:

1. Data subject to review.
2. ft amsl = feet above mean sea level.

FIGURE F-11

MW-34 CLUSTER HYDROGRAPHS

SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



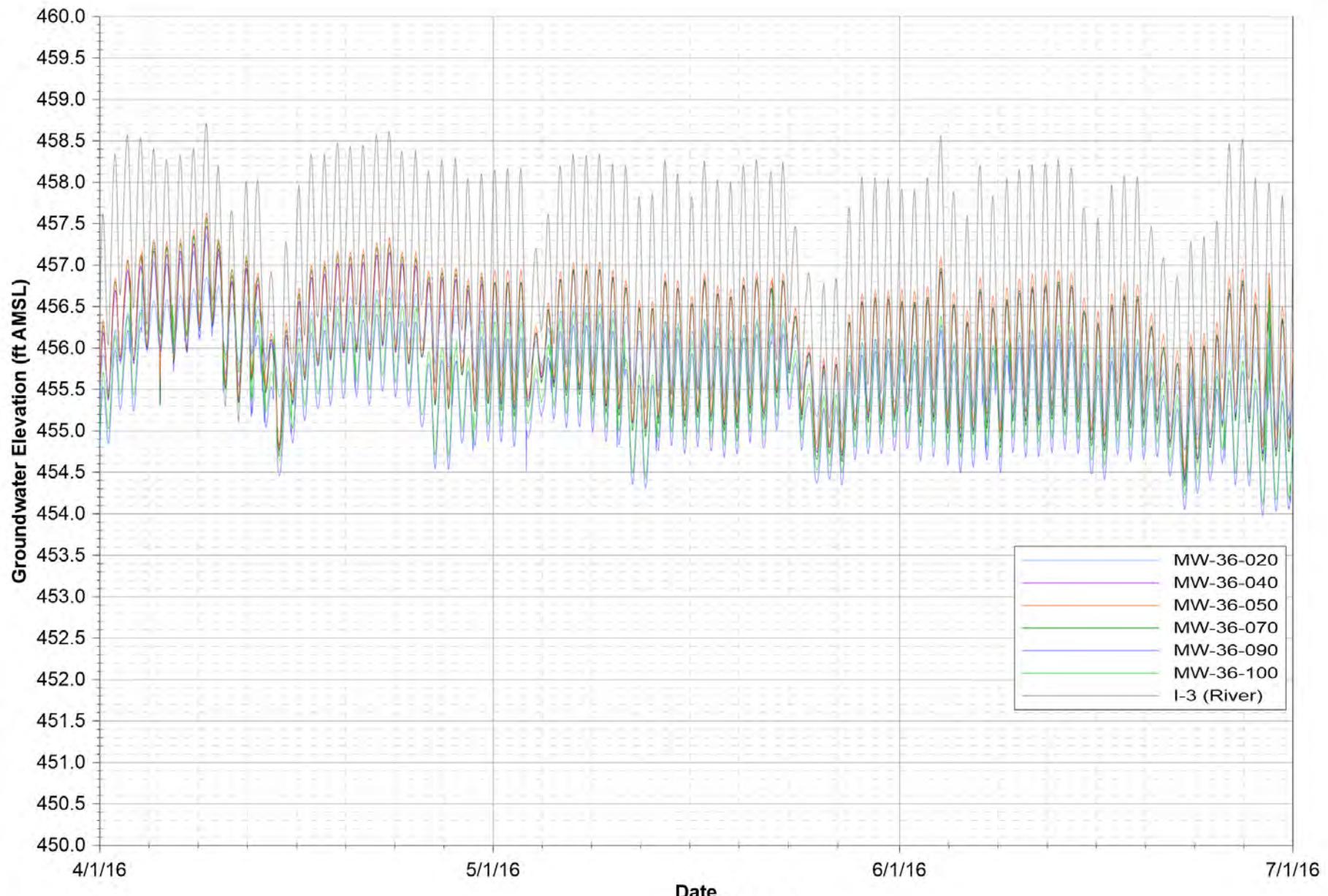
Notes:

1. Data subject to review.
2. ft amsl = feet above mean sea level.

FIGURE F-1J

MW-35 CLUSTER HYDROGRAPHS

SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:

1. Data subject to review.
2. ft amsl = feet above mean sea level.

FIGURE F-1K
MW-36 CLUSTER HYDROGRAPHS

SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

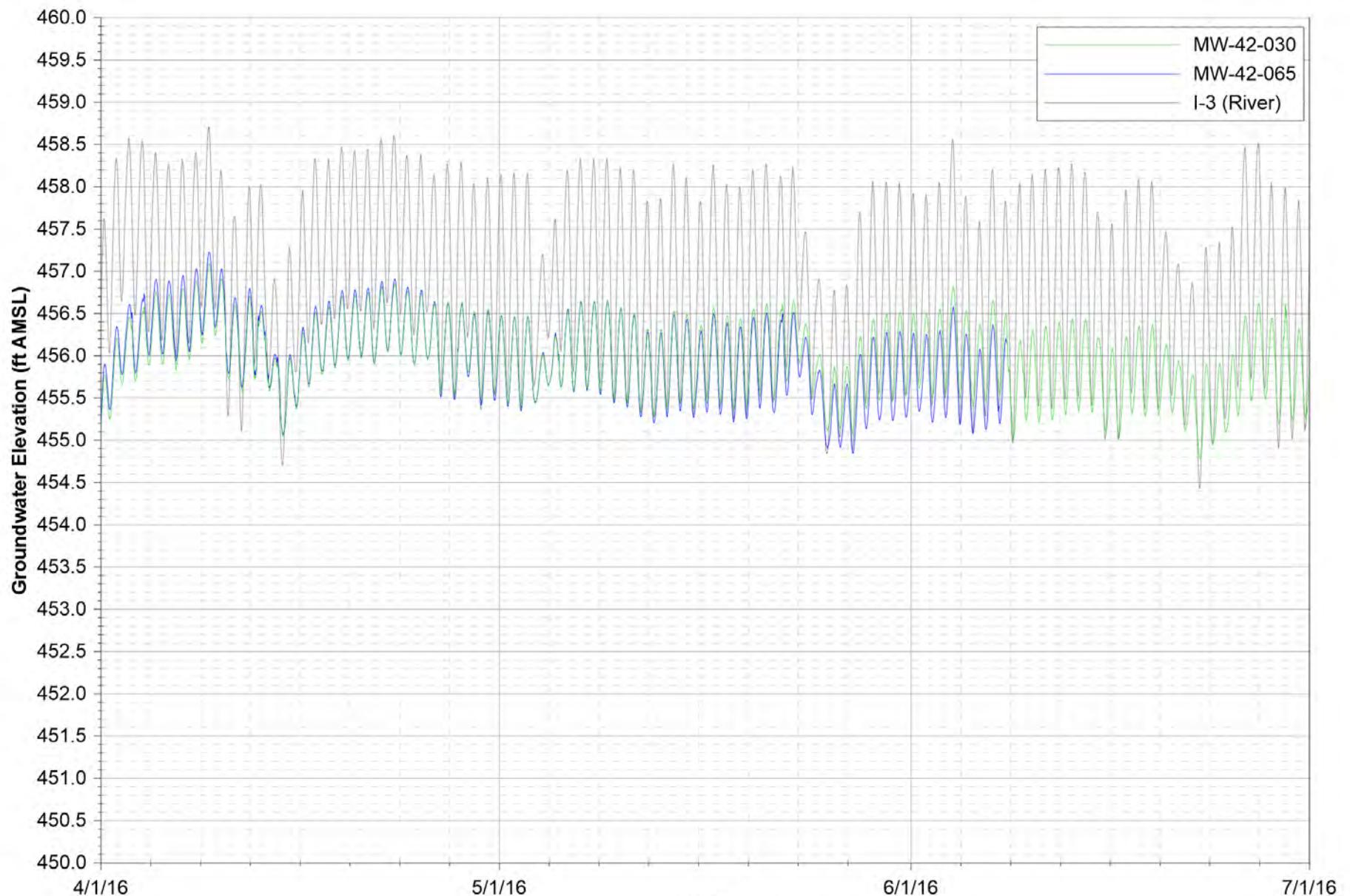


Notes:

1. Data subject to review.
2. ft amsl = feet above mean sea level.
3. MW-39-040 data unavailable from April 1, 2016 through June 30, 2016 due to transducer malfunction.

**FIGURE F-1L
MW-39 CLUSTER HYDROGRAPHS**

SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



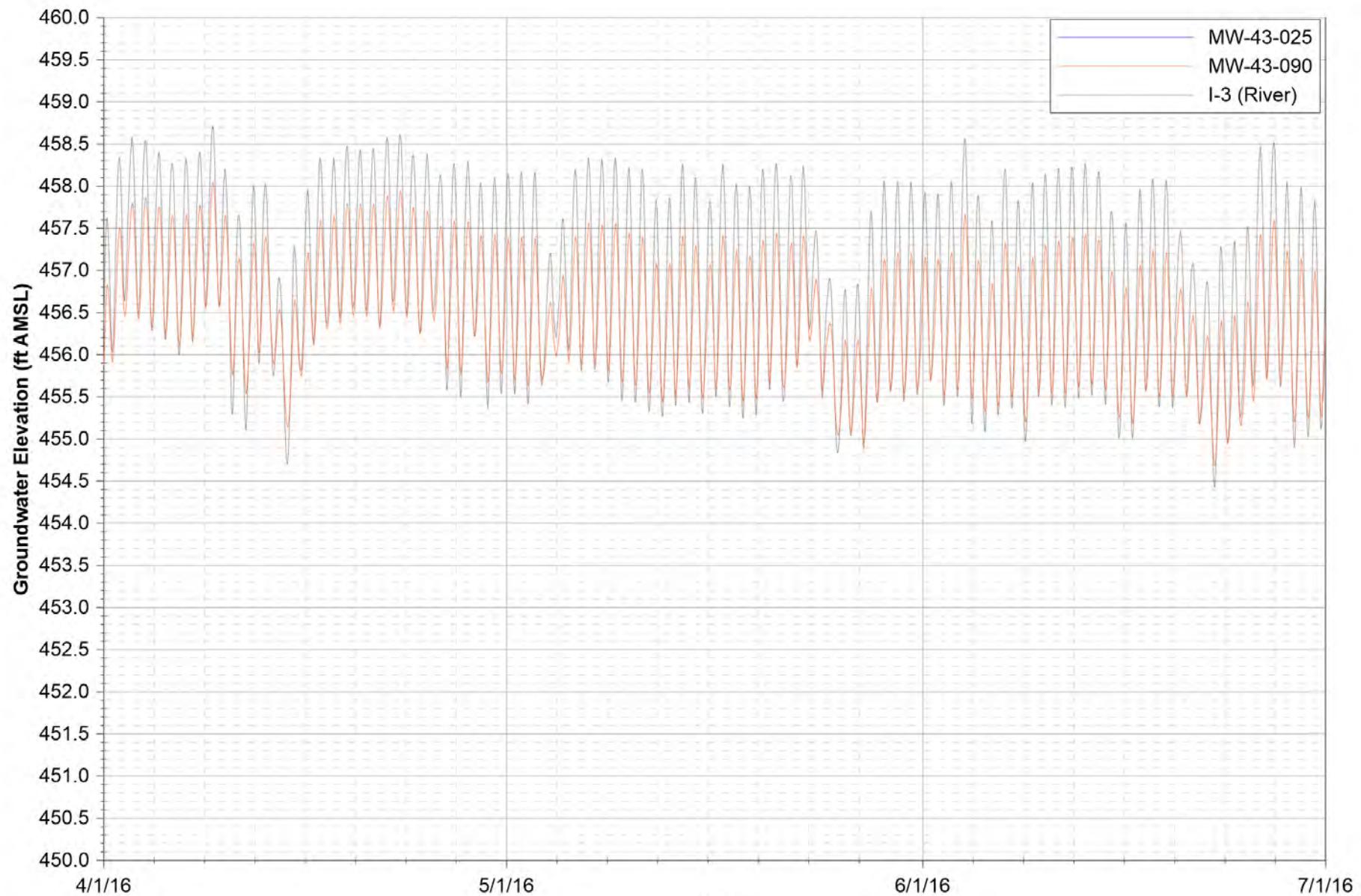
Notes:

1. Data subject to review.
2. ft amsl = feet above mean sea level.
3. MW-42-065 data unavailable from June 6, 2016 through June 30, 2016 due to transducer malfunction.

Date

**FIGURE F-1M
MW-42 CLUSTER HYDROGRAPHS**

SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:

1. Data subject to review.
2. ft amsl = feet above mean sea level.
3. MW-43-025 data unavailable from April 1, 2016 through June 30, 2016 due to transducer malfunction.

FIGURE F-1N

MW-43 CLUSTER HYDROGRAPHS

SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:

1. Data subject to review.
2. ft amsl = feet above mean sea level.

FIGURE F-10
MW-44 CLUSTER HYDROGRAPHS

SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



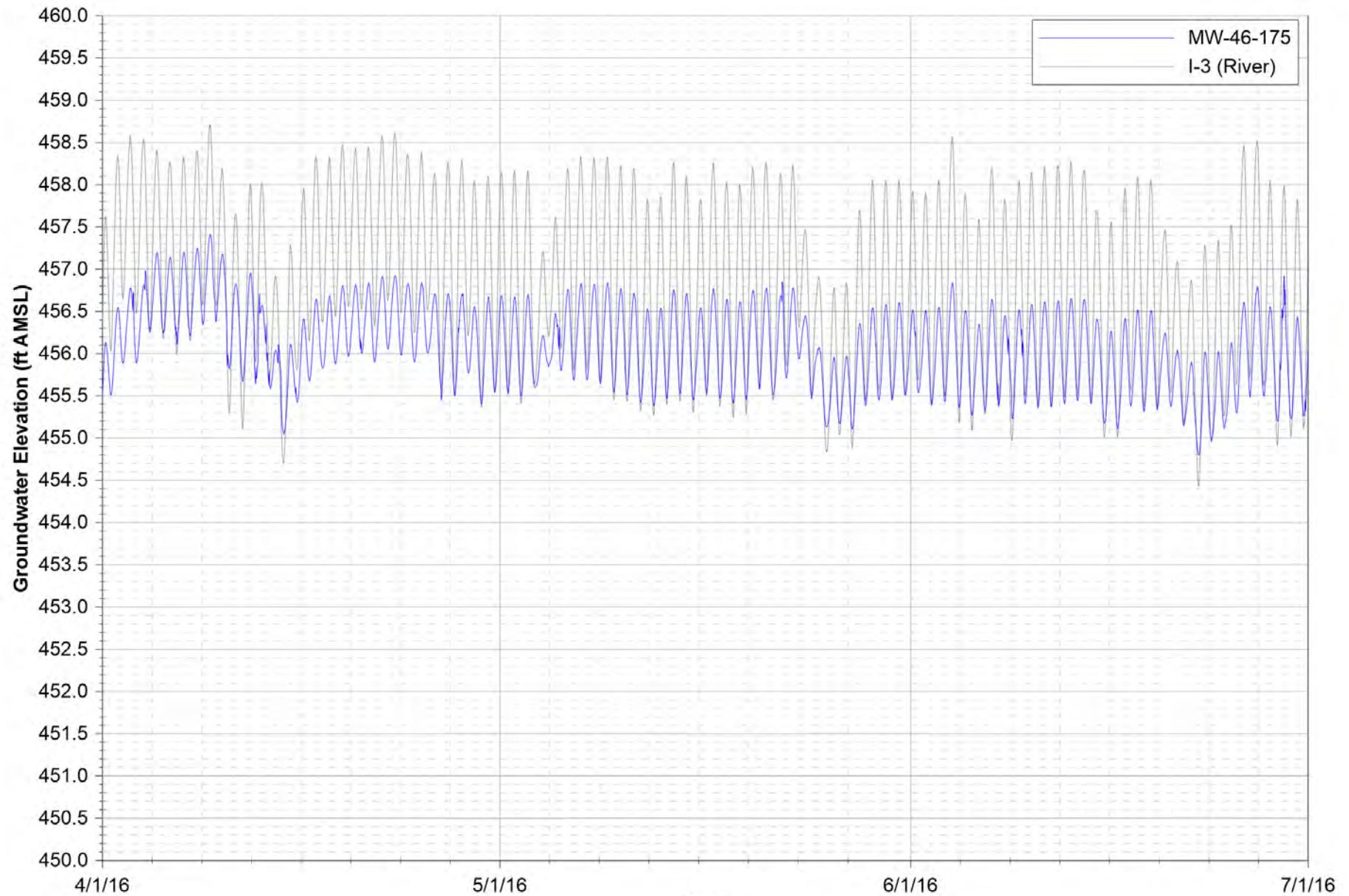
Notes:

1. Data subject to review.
2. ft amsl = feet above mean sea level.

FIGURE F-1P

MW-45-095a HYDROGRAPH

SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

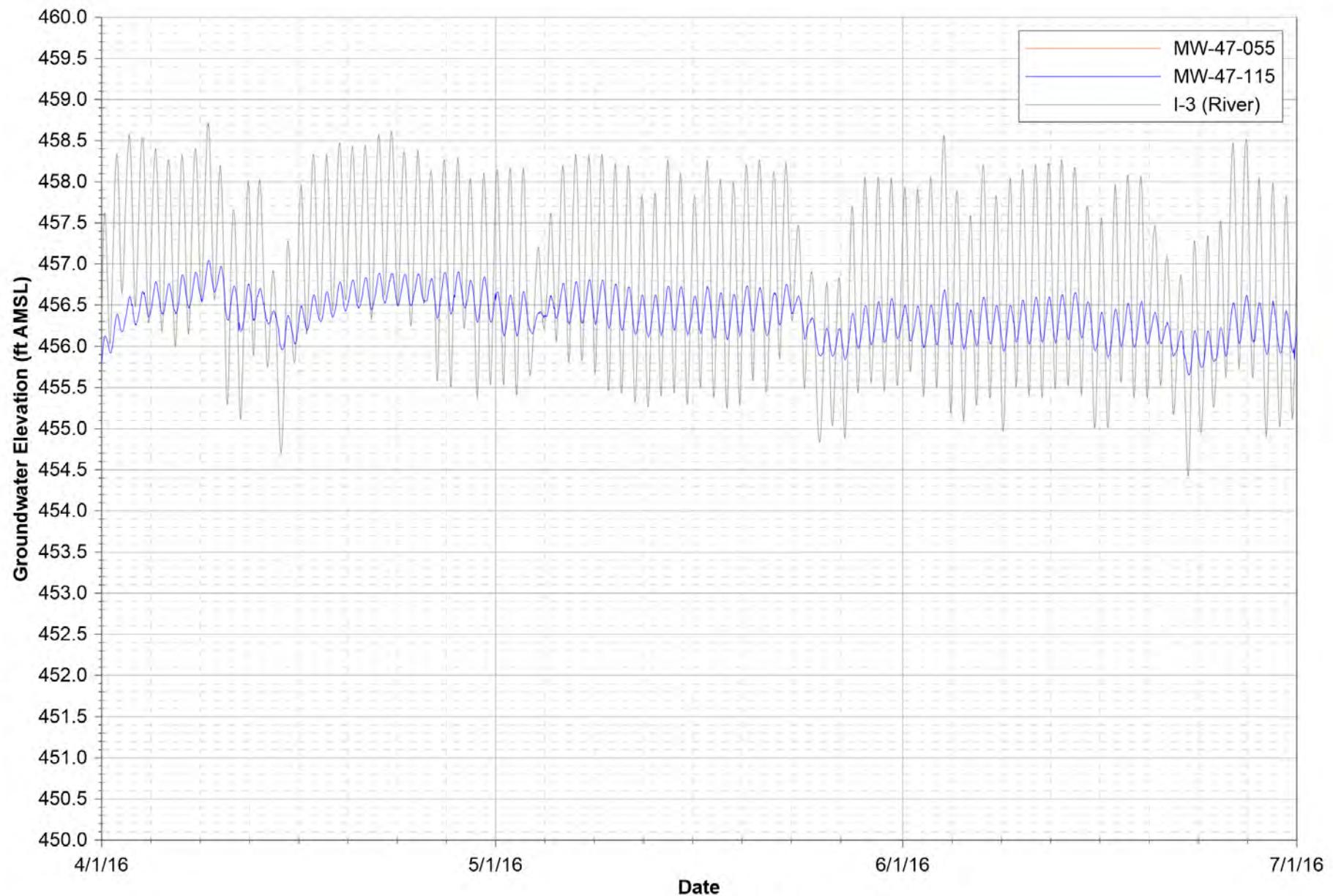


Notes:

1. Data subject to review.
2. ft amsl = feet above mean sea level.

Date
FIGURE F-1Q
MW-46 HYDROGRAPH

SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:

1. Data subject to review.
2. ft amsl = feet above mean sea level.
3. MW-47-055 data unavailable from April 1, 2016 to June 30, 2016 due to transducer malfunction.

FIGURE F-1R
MW-47 CLUSTER HYDROGRAPHS

SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

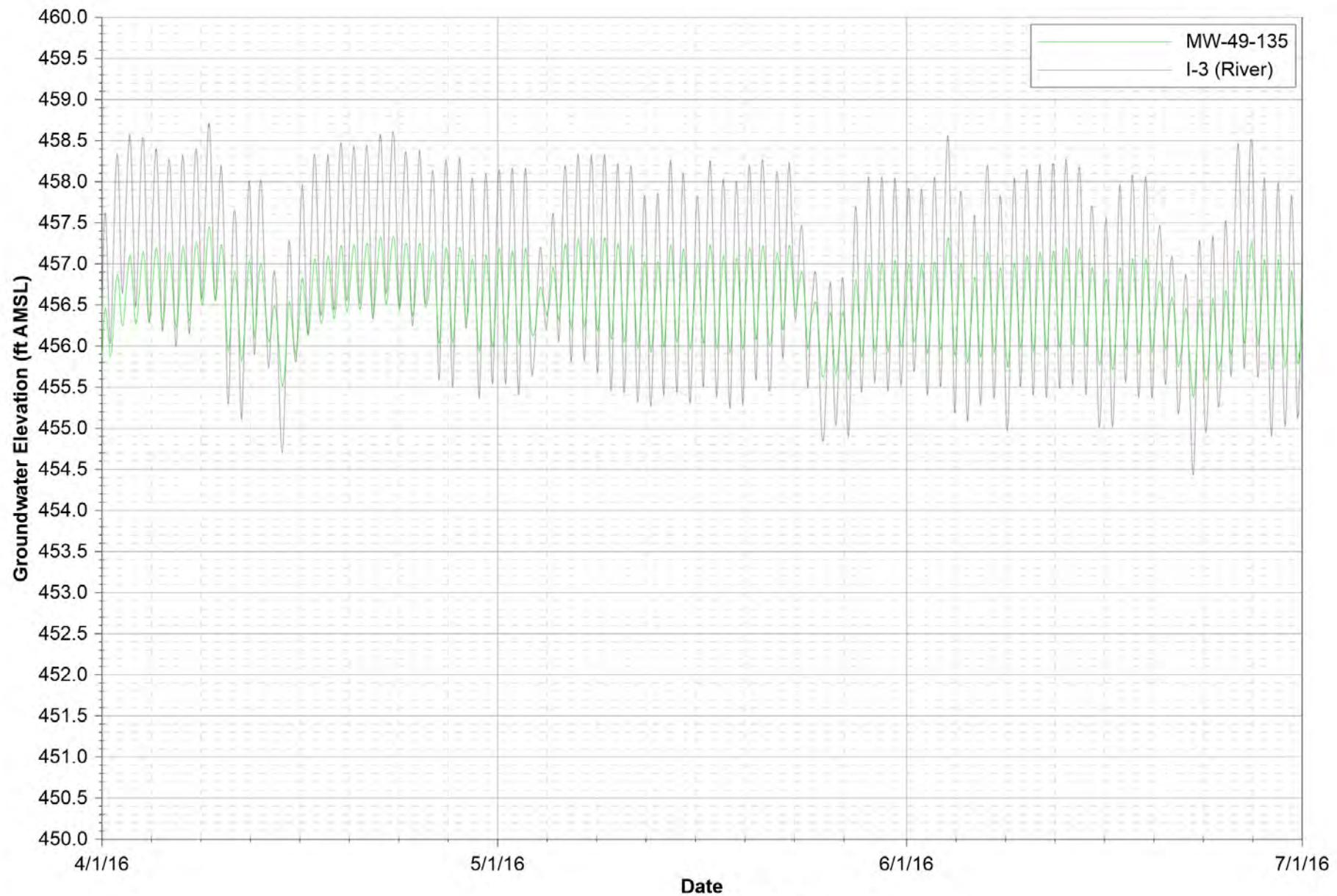


FIGURE F-1S
MW-49 HYDROGRAPH

SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

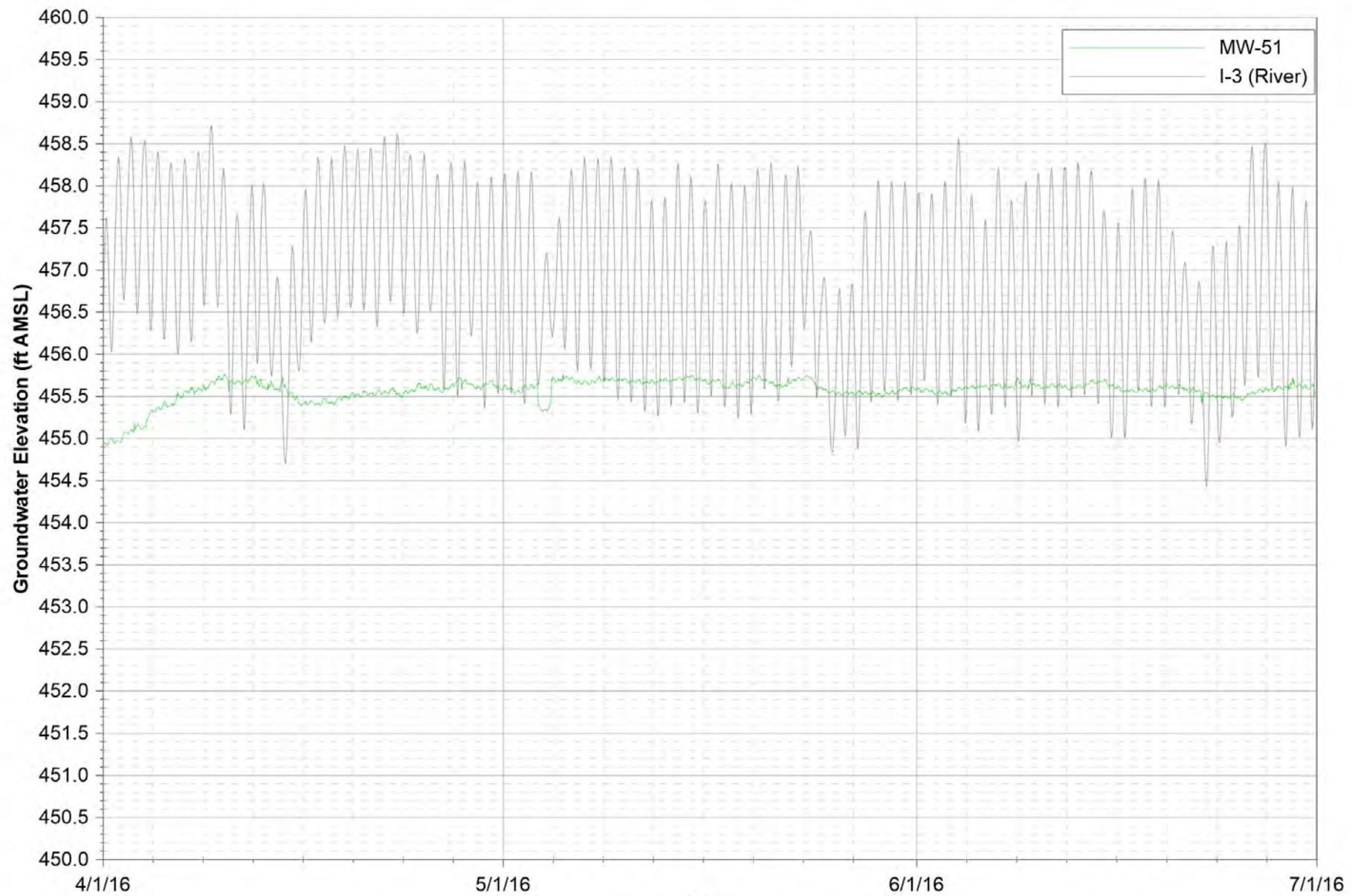


Notes:

1. Data subject to review.
2. ft amsl = feet above mean sea level.

Date
FIGURE F-1T
MW-50 HYDROGRAPH

SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Notes:

1. Data subject to review.
2. ft amsl = feet above mean sea level.

**Date
FIGURE F-1U**

MW-51 HYDROGRAPHS

SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA



Note:
 1. Data subject to review.
 2. ft amsl = feet above mean sea level.

FIGURE F-1V
INSITU PILOT STUDY WELL HYDROGRAPHS

SECOND QUARTER 2016 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
 PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

Table F-1**Average Monthly and Quarterly Groundwater Elevations, Second Quarter 2016***Second Quarter 2016 Interim Measures Performance Monitoring and Site-wide**Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California*

Well ID	Aquifer Zone	April 2016	May 2016	June 2016	Quarter Average	Days in Quarter Average
I-3	River Station	457.17	456.76	456.64	456.85	91
MW-20-070	Shallow Zone	454.95	454.50	454.41	454.62	91
MW-20-100	Middle Zone	454.58	453.90	453.85	454.11	91
MW-20-130	Deep Zone	454.28	453.33	453.28	453.63	91
MW-22	Shallow Zone	455.68	455.61	455.38	455.56	91
MW-25	Shallow Zone	455.93	456.07	456.07	456.03	91
MW-26	Shallow Zone	455.66	455.79	455.71	455.72	91
MW-27-020	Shallow Zone	456.70	456.28	456.12	456.37	91
MW-27-060	Middle Zone	456.72	456.32	456.16	456.40	91
MW-27-085	Deep Zone	456.59	456.17	456.03	456.26	91
MW-28-025	Shallow Zone	456.60	456.25	456.08	456.31	91
MW-28-090	Deep Zone	456.55	456.14	455.99	456.23	91
MW-30-050	Middle Zone	INC	INC	INC	INC	INC
MW-31-060	Shallow Zone	455.87	455.62	455.49	455.66	91
MW-31-135	Deep Zone	455.13	454.19	454.41	454.58	91
MW-32-035	Shallow Zone	456.27	455.88	455.66	455.94	91
MW-33-040	Shallow Zone	456.06	455.94	455.78	455.93	91
MW-33-090	Middle Zone	456.32	456.18	455.99	456.16	91
MW-33-150	Deep Zone	456.09	455.48	455.68	455.75	91
MW-34-055	Middle Zone	456.72	456.26	456.09	456.35	91
MW-34-080	Deep Zone	456.92	456.38	456.23	456.51	91
MW-34-100	Deep Zone	456.75	456.20	455.98	456.31	91
MW-35-060	Shallow Zone	456.91	456.64	456.43	456.66	91
MW-35-135	Deep Zone	456.91	456.83	456.70	456.82	91
MW-36-020	Shallow Zone	456.22	455.88	455.60	455.90	91
MW-36-040	Shallow Zone	456.31	455.92	455.75	455.99	91
MW-36-050	Middle Zone	456.42	456.00	455.90	456.11	91
MW-36-070	Middle Zone	456.36	455.90	455.74	456.00	91
MW-36-090	Deep Zone	455.85	455.38	455.16	455.46	91
MW-36-100	Deep Zone	456.02	455.54	455.33	455.63	91
MW-39-040	Shallow Zone	INC	INC	INC	INC	INC
MW-39-050	Middle Zone	455.96	455.56	455.45	455.66	91
MW-39-060	Middle Zone	455.79	455.30	455.17	455.42	91
MW-39-070	Middle Zone	455.27	454.70	454.56	454.84	91
MW-39-080	Deep Zone	455.17	454.55	453.89	454.54	91
MW-39-100	Deep Zone	455.86	455.34	455.26	455.48	91
MW-42-030	Shallow Zone	456.18	455.94	455.81	455.98	91
MW-42-065	Middle Zone	456.24	455.84	INC	456.01	69

Well ID	Aquifer Zone	April 2016	May 2016	June 2016	Quarter Average	Days in Quarter Average
MW-43-025	Shallow Zone	INC	INC	INC	INC	INC
MW-43-090	Deep Zone	456.84	456.38	456.24	456.49	91
MW-44-070	Middle Zone	456.45	455.98	455.81	456.08	91
MW-44-115	Deep Zone	455.91	455.41	455.28	455.53	91
MW-44-125	Deep Zone	456.49	456.05	455.89	456.14	91
MW-45-095a	Deep Zone	455.87	455.53	455.11	455.50	91
MW-46-175	Deep Zone	456.32	456.06	455.89	456.09	91
MW-47-055	Shallow Zone	INC	INC	INC	INC	INC
MW-47-115	Deep Zone	456.54	456.37	456.22	456.38	91
MW-49-135	Deep Zone	456.65	456.54	456.42	456.54	91
MW-50-095	Middle Zone	456.00	455.91	455.76	455.89	91
MW-51	Middle Zone	455.50	455.63	455.59	455.58	91
MW-54-085	Deep Zone	456.57	456.54	456.35	456.49	91
MW-54-140	Deep Zone	INC	INC	INC	INC	INC
MW-54-195	Deep Zone	457.01	456.74	456.57	456.77	91
MW-55-045	Middle Zone	457.19	457.09	456.87	457.05	91
MW-55-120	Deep Zone	457.21	457.10	456.86	457.06	91
PT2D	Deep Zone	455.13	454.45	454.32	454.63	91
PT5D	Deep Zone	455.72	455.12	454.95	455.26	91
PT6D	Deep Zone	455.60	455.00	454.84	455.14	91
RRB	River Station	456.90	456.31	456.20	456.47	91

Notes:

Average 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.

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