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August 15, 2020

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

Subject: Second Quarter 2020 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California (PGE20180115A)

Dear Mr. Yue:

Enclosed is the Second Quarter 2020 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, the Groundwater Monitoring Program, and the Surface Water Monitoring Program for the Topock Project. This report presents the Second Quarter (April through June 2020) performance monitoring results for the IM-3 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 during the Second Quarter 2020.

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; July 20, 2015; and August 18, 2017.

Please contact me at 760.791.5884 if you have any questions on the combined monitoring report.

Sincerely,

Curt Russell
Topock Remediation Project Manager

Cc: Chris Guerre/DTSC
Pam Innis/DOI
Ken Foster/CA-SLC
Bruce Campbell/AZ-SLD

Topock Project Executive Abstract

Document Title:

Second Quarter 2020 Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles CA

Submitting Agency: DTSC

Final Document? ☒ Yes ☐ No

Date of Document: August 15, 2020

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

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

Type of Document:
☐ Draft ☒ Report ☐ Letter ☐ Memo

☐ Other / Explain:

Action Required:
☒ Information Only ☐ Review & Comment
Return to: _____

By Date:_____
☐ Other / Explain:

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

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

What is the consequence of NOT doing this item? What is the consequence of DOING this item?
Submittal of this report is a compliance requirement under DTSC requirements.

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

Brief Summary of attached document:

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 2020 Reporting Period. On July 23, 2010, DTSC approved a revised reporting schedule for this report that included a revised IM-3 sample collection period from April 1, 2020 through June 30, 2020.

Written by: PG&E

Recommendations:
none

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

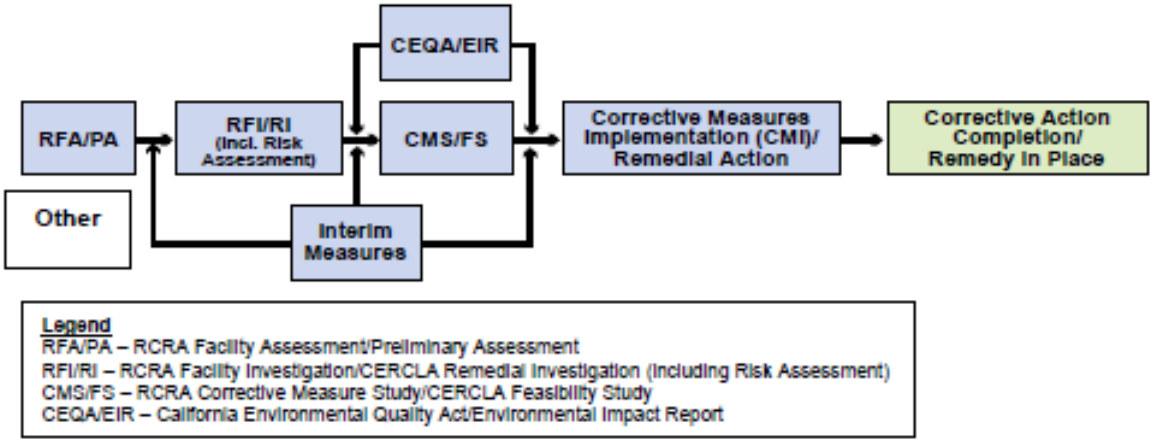
This report is required by DTSC as part of the Interim Measures Performance Monitoring Program.

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.



Version 9

ARCADIS Design & Consultancy for natural and built assets

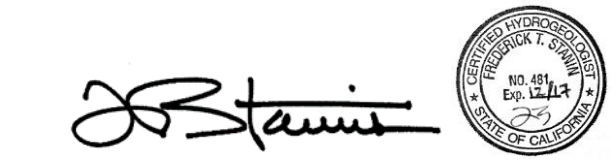
Pacific Gas and Electric Company

SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT

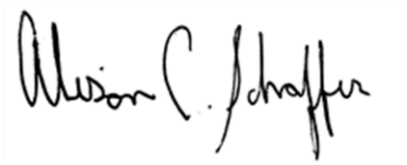
Topock Compressor Station,
Needles, California

August 15, 2020

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



Frederick T. Stanin, P.G., C. Hg
Principal Hydrogeologist



Alison Schaffer
Arcadis Report Lead

Daniel Bush, P.E.
Arcadis Project Manager

SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT

Topock Compressor Station,
Needles, California

Prepared for:

California Department of Toxic Substances Control

Prepared by:

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Date:

August 15, 2020

CONTENTS

TABLES

FIGURES

APPENDICES

ACRONYMS AND ABBREVIATIONS

δ2H	deuterium
δ18O	oxygen-18
µg/L	microgram per liter
COPC	constituent of potential concern
chromium-6	hexavalent chromium
DTSC	California Environmental Protection Agency, Department of Toxic Substances Control
GMP	Groundwater Monitoring Program
gpm	gallon per minute
ID	identification
IM	interim measure
IM-3	Interim Measures number 3
IMCP	Interim Measures Contingency Plan
mg/L	milligram per liter
MS	matrix spike
MSD	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
RRB	Red Rock Bridge
TDS	total dissolved solids
TSS	total suspended solids
USBR	United States Bureau of Reclamation
USEPA	United States Environmental Protection Agency
UTL	upper tolerance limit

EXECUTIVE SUMMARY

This quarterly report documents the monitoring activities and performance evaluation of the interim measure (IM) hydraulic containment system under the Groundwater Monitoring Program (GMP), Surface Water Monitoring Program (RMP), and IM Performance Monitoring Program (PMP) for Pacific Gas and Electric Company's Topock Compressor Station (the site), located near Needles, California. Chemical and hydraulic monitoring data were collected and used to determine if site conditions have changed and evaluate the IM hydraulic containment system performance based on a set of standards approved by the California Department of Toxic Substances Control.

Key items included in this report are: (1) GMP and RMP activities and results; (2) hexavalent chromium data for monitoring wells in the floodplain area; (3) measured groundwater elevations and hydraulic gradient data at compliance well pairs; and (4) pumping rates and volumes from the IM extraction system.

During Second Quarter 2020, IM extraction well TW-03D was operated to support hydraulic control. Hydraulic gradient data indicate that the minimum landward gradient target of 0.001 foot per foot was exceeded each month, providing evidence of hydraulic containment of the hexavalent chromium plume. Hexavalent chromium concentrations greater than 20 micrograms per liter in the floodplain area were contained for removal and treatment. Based on the data and evaluation presented in this report, the IM performance standard has been met for the Second Quarter 2020.

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 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 Measures (currently Interim Measure Number 3 [IM-3]) Performance Monitoring Program (PMP).

This report presents the monitoring data collected from PG&E's GMP, RMP, and PMP programs between April 1 through June 30, 2020 (hereafter referred to as "Second Quarter 2020"). 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 2020 monitoring activities and site operations conducted in support of these programs.

Section 3 presents GMP and RMP monitoring results for the Second Quarter 2020.

Section 4 presents PMP monitoring results and the IM evaluation for the Second Quarter 2020.

Section 5 describes upcoming monitoring events for the Third Quarter 2020.

Section 6 lists the references cited throughout this report.

This combined GMP, RMP, and PMP reporting format was approved by the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) in May 2009 (DTSC 2009).

1.1 Second Quarter 2020 Regulatory Communication

PG&E communications with the DTSC in Second Quarter 2020 associated with the GMP, RMP, and/or PMP programs are outlined below.

- The First Quarter 2020 Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report (PMP-GMP Report) was submitted to the DTSC on April 30, 2020 (Arcadis 2020b).
- Required GMP, RMP, and PMP notifications submitted for Second Quarter 2020 included:
    - On June 15, 2020, Arcadis sent a quarterly email notification to PG&E providing hexavalent chromium (chromium-6]) and dissolved chromium results from the April 2020 shoreline and in-

channel surface water sampling event. During the sampling, chromium-6 and dissolved chromium concentrations were lower than the respective reporting limits.

- On August 7, 2020, Arcadis, on behalf of PG&E, sent a quarterly email notification to the DTSC providing chromium-6 and dissolved chromium results from four subject floodplain wells (MW-34-100, MW-44-115, MW-46-175, and MW-44-125).
- As part of the conditional approval for the shutoff of extraction well PE-01, GMP monitoring results for monitoring wells listed in the July 20, 2015 DTSC approval letter (see Section 1.4.2.2; DTSC 2015) are compared to the maximum chromium-6 and dissolved chromium concentrations measured in 2014 (or for biennial sampling frequency, the 2013 maximum concentrations). Results that exceed the previous maximum are required to be reported to the DTSC within 40 days after the end of the quarterly GMP sampling event. In Second Quarter 2020, chromium-6 and/or dissolved chromium were detected at concentrations exceeding the notification levels at five monitoring wells: MW-20-070, MW-33-150, MW-33-210, MW-39-100, and MW-47-115. A notification email was submitted to the DTSC on July 30, 2020.

1.2 History of Groundwater Impact at the Site

1.2.1 Chromium-6 Impacts to Groundwater

The Topock Compressor Station began operations in 1951. Remediation efforts are ongoing to address chromium-6 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 2018).

1.2.2 Background Concentrations of Chromium-6

Based on a regional study of naturally occurring metals in groundwater and a statistical evaluation of these data, naturally occurring chromium-6 in groundwater was calculated to exhibit an upper tolerance limit (UTL) concentration of 32 micrograms per liter (µg/L; CH2M Hill 2009). This concentration is used as the background concentration for remedial activities. At the site, the chromium-6 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 at most 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

Routine groundwater and surface water monitoring at the site began in 1998 following a Resource Conservation and Recovery Act (RCRA) facility investigation and are ongoing (CH2M Hill 2005). The main objective of the GMP and RMP programs is to monitor concentrations of chromium-6 and other site constituents in groundwater and surface water to determine if site conditions have changed and to make

decisions about remedial options and future monitoring (CH2M Hill 2005). In accordance with the 2005 Monitoring Plan for Groundwater and Surface Water Monitoring (CH2M Hill 2005), quarterly monitoring reports document groundwater and surface water monitoring performed at the site during each reporting period. Monitoring reports to date are available on the DTSC website. This report documents the GMP and RMP monitoring activities conducted in Second Quarter 2020.

1.3.2 GMP and RMP Monitoring Networks

The GMP monitoring well network and RMP surface water monitoring network are shown on Figures 1-2 and 1-3, respectively, and are summarized in the table below. The complete GMP network includes 145 wells that monitor groundwater in the Alluvial Aquifer and bedrock. Well construction details for wells in the GMP monitoring well network are summarized in Table 1-2. The RMP network consists of 16 surface water monitoring locations, nine of which are sampled at multiple depths.

Groundwater and Surface Water Monitoring Wells

Groundwater Monitoring Wells	Surface Water Monitoring Wells
133 monitoring wells in California, including two normally dry wells	10 river channel locations (9 of which are sampled at two different depths)
8 monitoring wells in Arizona	4 shoreline locations
4 IM-3 extraction wells	2 other surface water sampling locations (adjacent to the shoreline)

GMP and RMP monitoring consists of collecting groundwater and surface water samples, inspecting the monitoring wells, and taking corrective actions as needed. GMP and RMP monitoring is performed quarterly, although the monitoring wells included in each GMP event vary by quarter. In addition, GMP monitoring is performed monthly at two extraction wells (TW-03D and PE-01). Table 1-2 provides a list of the monitoring wells and surface water monitoring locations included in the GMP and RMP programs and the monitoring frequency at each location. Monitoring frequency at GMP wells is also shown on Figure 1-2.

Another component of GMP monitoring is the Bat Cave Wash, an incised ephemeral stream adjacent to the Topock Compressor Station that flows following rainfall events and drains into the Colorado River (Figures 1-1 and 1-2). If a storm causes surface water flow in Bat Cave Wash, additional groundwater samples are collected from monitoring wells MW-09, MW-10, and MW-11.

1.4 Interim Measure Performance Monitoring Program

1.4.1 Basis for PMP Program

Operation of the current IM-3 system began in July 2005. The IM-3 system is intended to maintain hydraulic control of the groundwater chromium-6 plume until the final corrective action is in place at the site (CH2M Hill 2007). The IM-3 system consists of 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). Figure 1-1 shows the locations of the IM-3 extraction, conveyance, treatment, and injection facilities.

In a letter dated February 14, 2005, the DTSC issued an IM performance directive that established the operational requirements for the IM and methods for evaluating the performance of the IM (DTSC 2005). As defined by the DTSC, the performance standard for the IM is to, *"establish and maintain a net landward hydraulic gradient, both horizontally and vertically, that ensures that Cr(VI) concentrations at or greater than 20 micrograms per liter [µg/L] in the floodplain are contained for removal and treatment"* (DTSC 2005). The IM is required to maintain a landward hydraulic gradient of at least 0.001 foot per foot within the lower portion of the Alluvial Aquifer (DTSC 2005).

In accordance with the February 2005 DTSC directive, the following conditions must be met to demonstrate achievement of the IM performance standard (DTSC 2005):

- Demonstrate that a landward hydraulic gradient is maintained within the lower portion of the Alluvial Aquifer in the floodplain by:
    - Providing potentiometric surface contour maps of the Alluvial Aquifer within the floodplain area
    - Providing calculated hydraulic gradients using established gradient well pairs.
- Demonstrate that chromium-6 concentrations greater than 20 µg/L in the floodplain area are contained for removal and treatment by:
    - Depicting the 20 and 50 µg/L isoconcentration contours for chromium-6 within the floodplain on potentiometric surface maps and hydrogeologic cross-sections
    - Providing maps and cross-sections of the chromium-6 concentration for the upper, middle, and lower portions of the Alluvial Aquifer in the floodplain area
    - Providing time versus concentration graphs for chromium-6 measured in floodplain wells.

The February 2005 DTSC directive also defined the reporting requirements for the IM (DTSC 2005). In October 2007, the DTSC approved modifications to the reporting requirements, discontinuing monthly performance monitoring reports and continuing with quarterly and annual reports (DTSC 2007). The DTSC approved additional updates and modifications to the PMP in letters dated October 12, 2007; July 14, 2008; July 16, 2008; March 3, 2010; April 28, 2010; and June 27, 2014 (DTSC 2007, 2008a, 2008b, 2010a, 2010b, 2014).

1.4.2 PMP Monitoring Network

The PMP consists of a network of monitoring wells used to demonstrate achievement of the IM performance standard. Subsets of wells within the PMP network, including: (1) chromium monitoring network; (2) IM extraction wells; (3) IM hydraulic monitoring network; (4) IM Contingency Plan (IMCP) monitoring wells; and (5) IM chemical performance monitoring network, focus on different methods for evaluating performance of the IM. The PMP monitoring network is presented in the table below and shown on Figure 1-4.

PMP Monitoring Network (145 monitoring wells included in the GMP)

Type of Well	Wells Included in Network
IM Extraction Wells (4 monitoring wells)	• TW-02D • TW-03D • TW-02S • PE-01
IM Hydraulic Monitoring Network (57 monitoring wells and 2 river monitoring locations)	• 16 shallow monitoring wells • 15 mid-depth monitoring wells • 26 deep monitoring wells • 2 river monitoring locations: I-3 and Red Rock Bridge (RRB)
IMCP Monitoring Wells (24 monitoring wells)	• 6 shallow monitoring wells • 5 mid-depth monitoring wells • 13 deep monitoring wells
IM Chemical Performance Monitoring Network (10 monitoring wells and 1 river monitoring location)	• 5 shallow monitoring wells • 2 mid-depth monitoring wells • 3 deep monitoring wells • 1 river monitoring location: R-28

The subsets of monitoring well networks within the PMP are described in the following subsections.

1.4.2.1 Chromium Monitoring Network

chromium-6 data, collected as part of the GMP, are used to generate maps, cross-sections, and concentration time series charts that demonstrate that chromium-6 concentrations greater than 20 µg/L in the floodplain area are contained for removal and treatment. As described in Section 1.3.2, groundwater is sampled quarterly; however, the monitoring wells included in each sampling event vary by quarter. In addition, groundwater is sampled monthly at extraction wells TW-03D and PE-01. Table 1-2 provides a list of monitoring wells included in the chromium monitoring network (i.e., the GMP monitoring network) and the monitoring frequency of each location.

1.4.2.2 IM Extraction Wells

The PMP includes four IM extraction wells, which are used to ensure a landward hydraulic gradient via groundwater extraction (Figure 1-4). The operation of the IM extraction system, including pumping rates, planned/unplanned downtime, and volume of groundwater extracted from each extraction well, is documented to demonstrate proper operation of the extraction system. In addition, the wells are sampled as part of the GMP: extraction wells TW-03D and PE-01 are sampled monthly, TW-02D is sampled quarterly, and TW-02S is sampled annually.

Wells Monitored for Conditional Shutdown of PE-01

On July 20, 2015, the DTSC conditionally approved a 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 and contingency is not triggered based on chromium concentrations in select floodplain wells (DTSC 2015). Because PE-01 pumps water with low 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.

As part of the conditional approval for PE-01 shutoff, GMP monitoring results from 47 monitoring wells listed in the July 20, 2015 DTSC approval letter (i.e., wells within approximately 800 feet of TW-03D; Table 1-2) are compared to the maximum detected chromium-6 and dissolved chromium concentrations from 2014 (or 2013 for wells sampled biennially). If results from any of the wells exceed the 2014 maximum concentration, then the DTSC must be notified within 40 days after completion of the field sampling event to determine if PE-01 pumping should be reinitiated (DTSC 2015).

1.4.2.3 IM Hydraulic Monitoring Network

The IM hydraulic monitoring network consists of 52 monitoring wells located on the California side of the Colorado River and two river monitoring locations (I-3 and RRB) used to evaluate the performance of the IM-3 system by demonstrating compliance of the required hydraulic gradient of 0.001 foot per foot (Figure 1-4, Table 1-2). In addition, five groundwater monitoring wells located on the Arizona side of the Colorado River (MW-54-085, MW-54-140, MW-54-195, MW-55-045, and MW-55-120; not formally part of the PMP) also provide groundwater elevation data that demonstrate hydraulic gradients on the Arizona side of the river (Figure 1-4). Groundwater and surface water elevation data from these locations are collected monthly using pressure transducers installed at each location.

Groundwater elevation data collected from the IM hydraulic monitoring network are used to develop potentiometric maps of shallow, mid-depth, and deep groundwater and measure hydraulic gradients of three well pairs (northern, central, and southern) to demonstrate compliance with the required 0.001 foot per foot landward hydraulic gradient. On August 18, 2017, the DTSC approved use of monitoring well MW-20-130 in place of well MW-45-095 in the central and southern gradient well pairs during months when extraction well PE-01 is not pumped for hydraulic control at the site (DTSC 2017). The current gradient well pairs are:

- Northern Gradient Pair: MW-31-135 and MW-33-150
- When PE-01 is operated for hydraulic control:
    - Central Gradient Pair: MW-45-095 and MW-34-100
    - Southern Gradient Pair: MW-45-095 and MW-27-085
- When PE-01 is not operated for hydraulic control:
    - Central Gradient Pair: MW-20-130 and MW-34-100
    - Southern Gradient Pair: MW-20-130 and MW-27-085.

1.4.2.4 IM Contingency Plan Monitoring Wells

The IMCP was developed to detect and control possible migration of the chromium-6 plume toward the Colorado River (DTSC 2005). Twenty-four IMCP wells were selected as part of an early detection system to detect any increases in chromium concentrations at areas of interest across the site (Figure 1-4, Table 1-2). The IMCP wells are sampled quarterly, as part of the GMP monitoring program (note that not all 24 wells are

sampled each quarter), to determine if any increasing trends in chromium-6 concentrations are observed. If chromium-6 concentrations exceed the established trigger levels (based on historical chromium-6 concentrations), then a contingency plan must be implemented in accordance with the Revised Contingency Plan Flow Chart (DTSC 2005; PG&E 2008).

1.4.2.5 IM Chemical Performance Monitoring Network

Eleven IM chemical performance monitoring wells are sampled annually or biennially to help evaluate performance of the future remedy (Figure 1-4, Table 1-2). Wells are sampled for an expanded chemistry suite (dissolved boron, bromide, dissolved calcium, chloride, dissolved magnesium, nitrate/nitrite as nitrogen, dissolved potassium, dissolved sodium, sulfate, total alkalinity [as calcium carbonate], total dissolved solids [TDS], and stable isotopes [oxygen-18 {δ18O} and deuterium {δ2H}]), which was last amended in 2008 (DTSC 2008b; PG&E 2008). Currently, nine monitoring wells and one river monitoring location (R-28) are sampled annually, and one well is sampled biennially (MW-26). Results of IM chemical performance monitoring were last reported in the Fourth Quarter 2019 and Annual PMP-GMP Report (Arcadis 2020a). The next scheduled monitoring event is planned for Fourth Quarter 2020.

1.5 Sustainability

The GMP, RMP, and PMP programs strive to use sustainable sampling and data collection practices. This section briefly describes some of the sustainability practices now in use, which aim to reduce emissions from travel, reduce waste, conserve resources, and reduce potential impacts to nesting habitat and culturally sensitive areas.

- Groundwater sampling purge water is disposed on site via the IM-3 treatment plant and injection process.
- The RMP boat contractor is employed locally.
- Laboratory services are provided by a California-certified, Las Vegas-based lab.
- Chromium-6 and nitrate analytical methods were revised to methods with longer holding times.
- Reports are submitted via the DTSC website and electronically, and the number of hard copy quarterly report submittals has been reduced over time.
- Solar-powered data telemetry systems were installed at six key gradient compliance wells located in floodplain areas with nesting habitat for sensitive avian species.
- Low-flow sampling methods are used at most wells screened in the Alluvial Aquifer, reducing the volume of purge water.
- For wells still using the three-volume purge sampling methods, and pumps and tubing are sized for the optimum purge technique at each well.
- Utility vehicles (e.g., Polaris Ranger or Kawasaki Mule) and a quiet electric four-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.

- The IM-3 pumping regime was modified to allow PE-01 to be periodically shut off with pumping shifted to TW-03D and TW-02D or TW-02S. When applied, this modification allows for an increase in the rate of chromium removal from the floodplain.

2 SECOND QUARTER 2020 MONITORING ACTIVITIES

This section summarizes the monitoring activities completed during Second Quarter 2020 for the GMP, RMP, and PMP programs.

2.1 Groundwater Monitoring Program

The Second Quarter 2020 GMP consisted of monthly and quarterly groundwater monitoring.

2.1.1 Monthly Groundwater Monitoring

Monthly GMP monitoring events were performed at IM extraction well TW-03D in April and May 2020 and consisted of groundwater sampling. IM extraction well PE-01 was not sampled in Second Quarter 2020, and TW-03D was not sampled in June 2020, due to construction associated with the final groundwater remedy at the site. These monitoring well locations are shown on Figure 1-2 and listed in Table 1-2. Samples at TW-03D were collected from the tap of the extraction well (see Table 1-2). During collection of each groundwater sample, field parameters were recorded (i.e., temperature, pH, specific conductivity, oxidation-reduction potential [ORP], turbidity, TDS, and salinity). Samples were sent to Asset Laboratories in Las Vegas, Nevada and analyzed for the following constituents:

- Chromium-6 and dissolved chromium
- General chemistry parameters: specific conductivity, pH, alkalinity, chloride, sulfate, and TDS
- Constituent of potential concern (COPC): nitrate/nitrite as nitrogen
- In-situ byproducts: dissolved iron and dissolved manganese
- Cations: dissolved calcium, dissolved magnesium, and dissolved sodium.

2.1.2 Quarterly Groundwater Monitoring

The quarterly GMP monitoring event was performed in April, May, and June 2020 and consisted of groundwater sampling and inspection of 96 monitoring wells. Monitoring wells MW-57-050 and MW-58-065 were dry during the monitoring event, and monitoring wells MW-61-110, MW-70-105, MW-70BR-225, TW-01, and TW-02D were not sampled due to construction associated with the final groundwater remedy at the site. The monitoring well locations are shown on Figure 1-2 and listed in Table 1-2. Samples were collected using one or multiple sampling methods including low-flow, three-volume purge, HydraSleeve, and grab sampling methods (see Table 1-2). During collection of each groundwater sample, field parameters were recorded (i.e., temperature, pH, specific conductivity, ORP, turbidity, TDS, and salinity). Samples were sent to Asset Laboratories in Las Vegas, Nevada. Samples collected from monitoring locations in Arizona were sent to EMAX Laboratories, Inc. in Torrance, California.

Samples were analyzed for the following constituents (note that not all samples were analyzed for the complete analytical suite listed below):

- Chromium-6 and dissolved chromium
- General chemistry parameters: Specific conductivity

- COPCs: dissolved molybdenum, dissolved selenium, and nitrate/nitrite as nitrogen
- In-situ byproducts: dissolved arsenic and dissolved manganese.

2.2 Surface Water Monitoring Program

Second Quarter 2020 RMP monitoring was performed on April 29 and 30. The RMP monitoring event consisted of collecting 25 surface water samples from 16 locations. At nine of the 16 locations, samples were collected from two depth intervals: shallow (1 foot below water surface) and deep (1 foot above the river bottom). The surface water monitoring locations are shown on Figure 1-3 and listed in Table 1-2. During collection of each surface water sample, field parameters were recorded (i.e., temperature, pH, specific conductivity, ORP, turbidity, TDS, and salinity). Samples were sent to Asset Laboratories in Las Vegas, Nevada for analysis of the following constituents:

- Chromium-6 and dissolved chromium
- General chemistry parameters: Specific conductivity and pH
- COPC s: dissolved molybdenum, dissolved selenium, and nitrate/nitrite as nitrogen
- In-situ byproducts: dissolved arsenic, total and dissolved iron, and dissolved manganese
- Geochemical Parameters: dissolved barium and total suspended solids (TSS).

2.3 IM Performance Monitoring Program

IM performance monitoring in Second Quarter 2020 consisted of groundwater chromium monitoring within the floodplain area, a review of IM extraction system operation, and IM hydraulic monitoring. In addition, chromium-6 and dissolved chromium data collected during chromium monitoring were used to monitor shutdown of extraction well PE-01 and evaluate the need to implement the IMCP.

2.3.1 Chromium Monitoring

Chromium monitoring was performed as part of the monthly and quarterly GMP monitoring. Ninety-six monitoring wells were sampled for chromium-6 in April, May, and June 2020. Extraction well TW-03D was sampled monthly in April and May 2020. The monitoring well locations are shown on Figure 1-4 and listed in Table 1-2. Chromium-6 analytical results were used to evaluate chromium-6 distribution in the floodplain area.

2.3.2 IM Extraction System Operation

The IM extraction system was operated in April, May, and June 2020. Pumping rates, planned or unplanned downtime, and the volume of groundwater extracted from each IM extraction well were documented. Daily IM-3 inspections were performed including general facility inspections, flow measurements, and site security monitoring. Daily logs with documentation of inspections are maintained on site.

Wells Monitored for Conditional Shutdown of PE-01

Twenty-nine GMP monitoring wells were sampled for chromium-6 and dissolved chromium in Second Quarter 2020 as part of the conditional approval for PE-01 shutdown. IM extraction well PE-01 was not sampled due to construction associated with the final groundwater remedy at the site. The monitoring well locations are shown on Figure 1-2 and listed in Table 1-2. Results were evaluated against the maximum detected chromium-6 and dissolved chromium concentrations from 2014 (or 2013 for wells sampled biennially).

2.3.3 IM Hydraulic Monitoring

Groundwater elevation data from monitoring wells and river monitoring locations within the IM hydraulic monitoring network are measured using pressure transducers, which record continuous water levels at 30-minute intervals. Pressure transducer data were downloaded in Second Quarter 2020 during the first two weeks of each month (April, May, and June) from the 52 monitoring wells in the IM hydraulic monitoring network, two river monitoring locations (I-3 and RRB), and five wells located on the Arizona side of the Colorado River. The monitoring well and river monitoring locations are shown on Figure 1-4 and listed in Table 1-2. Pressure transducers at the six gradient control monitoring wells (MW-27-085, MW-31-135, MW-33-150, MW-34-100, MW-45-095, and MW-20-130) were downloaded via a cellular telemetry system.

2.3.4 IM Contingency Plan Monitoring

Nineteen IMCP monitoring wells were sampled for chromium-6 as part of the Second Quarter 2020 GMP program. The monitoring well locations are shown on Figure 1-4 and listed in Table 1-2. Results were evaluated against established trigger levels (based on historical chromium-6] concentrations).

3 SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING RESULTS

This section summarizes results from the groundwater and surface water monitoring performed during Second Quarter 2020 for the GMP and RMP programs.

3.1 Groundwater Monitoring Results

3.1.1 Chromium-6 and Dissolved Chromium

Table 3-1 presents the Second Quarter 2020 groundwater sample results for chromium-6 and dissolved chromium, as well as general chemistry parameters (specific conductivity, ORP, pH, and turbidity). The laboratory reports for samples analyzed during Second Quarter 2020 are provided in Appendix A. Historical chromium-6 and dissolved chromium concentration data are presented in Appendix B.

Figures 3-1a, 3-1b, and 3-1c show the chromium-6 concentrations across the site in wells monitoring the upper-depth (shallow), mid-depth, and lower-depth (deep) intervals of the Alluvial Aquifer and bedrock sampled during this reporting period. These figures also show the interpreted extent of groundwater chromium-6 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 chromium-6 in groundwater from the background study (CH2M Hill 2009).

During Second Quarter 2020, the maximum detected chromium-6 and dissolved chromium concentrations were 41,000 µg/L and 43,000 µg/L (both at MW-68-180), respectively.

3.1.2 Constituents of Potential Concern and In-Situ By-Products

Table 3-1 presents the Second Quarter 2020 groundwater sample results for COPCs (dissolved molybdenum, dissolved selenium, and nitrate/nitrite as nitrogen) and in-situ byproducts (dissolved arsenic and dissolved manganese). Maximum concentrations for each constituent are summarized below:

- Dissolved molybdenum: 180 µg/L (MW-46-175)
- Dissolved selenium: 380 µg/L (MW-67-185)
- Nitrate/nitrite as nitrogen: 91 milligrams per liter (mg/L; MW-67-185)
- Dissolved arsenic: 45 µg/L (MW-12)
- Dissolved manganese: 6,700 µg/L (MW-66BR-270).

3.1.3 Well Maintenance

Monitoring wells were inspected during groundwater sampling in Second Quarter 2020. No corrective or maintenance actions were needed. Appendix C summarizes the inspection results.

3.2 Surface Water Monitoring Results

3.2.1 Chromium-6 and Dissolved Chromium

Table 3-2 presents the Second Quarter 2020 surface water sample results for chromium-6 and dissolved chromium, as well as general chemistry parameters (pH and specific conductivity). Chromium-6 and dissolved chromium from the April 2020 sampling event were not detected at concentrations higher than reporting limits at any surface water monitoring location. The laboratory reports for samples analyzed during Second Quarter 2020 are provided in Appendix A.

3.2.2 Constituents of Potential Concern and In Situ By-Products

Table 3-2 presents the Second Quarter 2020 surface water results for COPCs (dissolved molybdenum, dissolved selenium, and nitrate/nitrite as nitrogen), in-situ byproducts (dissolved arsenic, total iron, dissolved iron, and dissolved manganese), and other geochemical indicator parameters (dissolved barium and TSS). Maximum concentrations for each constituent are summarized below (with associated locations):

- Dissolved molybdenum: 4.7 µg/L (R63, RRB)
- Dissolved selenium: 2.9 µg/L (RRB)
- Nitrate/nitrite as nitrogen: 2.5 mg/L (C-TAZ-S)
- Dissolved arsenic: 2.3 µg/L (C-MAR-D, R-28)
- Total iron: 530 J µg/L (C-1-3-D)
- Dissolved iron: 88 J µg/L (C-R27-S, R-28)
- Dissolved manganese: 2.1 µg/L (C-MAR-D)
- Dissolved barium: 120 µg/L (C-BNS, C-1-3-D, C-1-3-S, C-R27-S, R-28, R63)
- TSS: 6.5 mg/L (C-BNS).

3.3 Data Validation and Completeness

Project chemists reviewed laboratory analytical data from the Second Quarter 2020 sampling events to assess data quality and to identify deviations from analytical requirements.

The following bullets summarize the notable analytical qualifications in data reported for the Second Quarter 2020:

- Quantitation and sensitivity
    - The relative standard deviation exceeded method requirements for the dissolved arsenic analysis of sample MW-905-Q220 in multiple runs and dilution. The result was qualified as an estimated detect, flagged “J”.
- Holding time and preservation

  - Based on the March 2007 United States Environmental Protection Agency (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 laboratory by Method SM4500-HB (pH) are analyzed outside the USEPA -recommended holding time. Therefore, the pH results for the Second Quarter 2020 sampling event analyzed in a certified lab are considered estimated.

- Matrix spike (MS) and matrix spike duplicate (MSD) samples
  - Dissolved iron was recovered at concentrations less than criteria in the MS, MSD, and the post-digestion spike (PDS) samples, and the relative percent difference between the pair did not meet quality control (QC) criteria, affecting sample TW-03D-0420. The sample included in the preparation batch was qualified as estimated, flagged “J”.
  - Dissolved arsenic was recovered at concentrations greater than QC limits in the MS and MSD in the preparation batch associated with five detected samples. The sample results were qualified as estimated detects, flagged “J”.
- Laboratory duplicates
  - Nitrate/Nitrite as nitrogen demonstrated a relative percent difference greater than QC criteria for the laboratory duplicate pair associated with sample MW-57-185-Q220. The associated sample result was qualified as an estimated detect and flagged “J”.
- Field duplicate samples
  - Nitrate/Nitrite as nitrogen and dissolved manganese demonstrated relative percent differences greater than QC criteria for the field duplicate pairs of samples MW-41D-Q220/MW-911-Q220 and MW-69-195-Q220/MW-913-Q220, respectively. The associated results were qualified as estimated detects and flagged “J”.

4 SECOND QUARTER 2020 IM PERFORMANCE MONITORING PROGRAM EVALUATION

This section summarizes results of the Second Quarter 2020 PMP evaluation.

4.1 Distribution of Hexavalent Chromium in the Floodplain

chromium-6 data collected as part of the Second Quarter 2020 GMP monitoring were used to generate maps, cross-sections, and concentration time series charts to demonstrate that chromium-6 concentrations greater than 20 µg/L in the floodplain area are contained for removal and treatment.

Distribution of chromium-6 concentrations in the upper-depth (shallow wells), mid-depth, and lower-depth (deep wells) intervals of the Alluvial Aquifer is shown in plan view and cross-section view (cross-section A) on Figure 4-1. Figure 4-2 presents chromium-6 concentrations for cross-section B, oriented parallel to the Colorado River. The locations of cross-sections A and B are shown on Figure 4-1. The figures demonstrate that chromium-6 concentrations decrease from west to east along the floodplain (cross-section A), and that concentrations greater than 20 µg/L are contained in the floodplain area.

Appendix D provides chromium-6 concentration time series charts for wells sampled in Second Quarter 2020 and includes chromium-6 concentration time series charts for six deep monitoring wells in the floodplain area (MW-34-100, MW-36-090, MW-36-100, MW-44-115, MW-44-125, and MW-46-175) that have historically been monitored for chromium encroachment. These six wells are located between the IM extraction wells and the Colorado River; therefore, they show the distribution of chromium-6 concentrations at the toe of the chromium-6 plume. As shown by the concentration time series charts, chromium-6 concentrations have decreased since initiation of the IM extraction system in 2005 and have remained relatively steady over the past few years. In Second Quarter 2020, chromium-6 concentrations at the six wells were below 20 µg/L (Appendices B and D). In general, wells showing marked decreases in chromium-6 concentration are located in the floodplain area where IM pumping is removing chromium in groundwater.

4.2 IM Extraction System Operation

During Second Quarter 2020, IM extraction well TW-03D was operated at an average pumping rate of 102.8 gallons per minute (gpm) to support hydraulic control (Table 4-1). The target pumping rate was 135 gpm. Extraction well PE-01 was not operated. The average monthly pumping rates were 125.4 gpm (April 2020), 91.5 gpm (May 2020), and 91.7 gpm (June 2020). Table 4-1 shows the average pumping rates and total groundwater volumes pumped during Second Quarter 2020.

The IM-3 system extracted and treated 13,461,071 gallons of groundwater during Second Quarter 2020, and an estimated 54.1 pounds (24.5 kilograms) of chromium were removed from the aquifer between March 1 and May 31, 2020 (Table 4-1). Note that groundwater extraction is reported on a different schedule than chromium removal reporting (i.e., April through June and March through May, respectively; Table 4-1). The operational runtime percentage for the IM-3 system during Second Quarter 2020 was

77.5 percent. Appendix E provides the operations log for the IM-3 system including planned and unplanned downtime.

Chromium Concentrations in Wells Monitored for Conditional Shutdown of PE-01

During Second Quarter 2020, 29 of the 47 wells monitored to support the conditional shutdown of PE-01 (see Section 1.4.2.2) were sampled for chromium-6 and dissolved chromium. Chromium-6 and/or dissolved chromium were detected at concentrations exceeding the 2014 and/or 2013 maximum concentrations (i.e., notification levels) at five monitoring wells: MW-20-070, MW-33-150, MW-33-210, MW-39-100, and MW-47-115. Chromium concentrations at MW-20-070 appear to be increasing since Fourth Quarter 2018; however, concentrations are within the historical range at this location. Because this monitoring well is located near extraction well TW-03D and within the capture zone, notable changes in chromium concentrations are expected.

At monitoring wells MW-33-150, MW-33-210, and MW-47-115, dissolved chromium concentrations (11, 15, and 24 µg/L, respectively) exceeded their respective notification levels, and dissolved chromium concentrations at MW-33-150 and MW-33-210 were greater than chromium-6 concentrations. Chromium concentrations at these three wells are below the background concentration of 32 µg/L. Chromium concentrations at monitoring well MW-39-100 are generally stable and appear to be within the expected range based on recent data fluctuation (see Appendix D). Chromium concentrations at these five wells will continue to be monitored to verify that Second Quarter 2020 results are not indicative of increasing trends. Shutdown of extraction well PE-01 continued through the end of the reporting period. Table 4-2 presents the chromium-6 and dissolved chromium concentrations and their associated notification levels.

4.3 IM Hydraulic Monitoring Results

Table 4-3 presents the Second Quarter 2020 average monthly and quarterly groundwater and river elevations, calculated from the pressure transducer data. Average daily groundwater and river elevations are provided as hydrographs in Appendix F. Groundwater elevations were adjusted for temperature and salinity differences among wells (i.e., adjusted to a common freshwater equivalent).

Hydraulic Gradient Evaluation: California Floodplain

Figures 4-3a, 4-3b, and 4-3c present the average Second Quarter 2020 groundwater elevations and associated groundwater contours for the shallow, mid-depth, and deep wells, respectively. Figure 4-4 presents the average groundwater elevations and associated groundwater contours for wells located in the floodplain along cross-section A. Due to complex vertical gradients present at portions of the Topock site, water levels for some wells are not considered in the contouring on Figures 4-3a, 4-3b, 4-3c, or 4-4.

During Second Quarter 2020, hydraulic gradients were measured for three gradient well pairs selected for performance monitoring of the IM-3 system (shown on Figure 1-4; note that PE-01 was not operated for hydraulic control):

- Northern Gradient Pair: MW-31-135 and MW-33-150
- Central Gradient Pair: MW-20-130 and MW-34-100
- Southern Gradient Pair: MW-20-130 and MW-27-085.

As discussed in Section 1.4.2.3, a landward hydraulic gradient of 0.001 foot per foot must be maintained to demonstrate compliance with the performance standard. Table 4-4 presents the monthly average hydraulic gradients measured for each of the gradient well pairs in Second Quarter 2020, as well as the overall average of all well pairs. The overall monthly average gradients for all well pairs were 0.0045, 0.0037, and 0.0030 foot per foot for April, May, and June 2020, respectively. Landward gradients measured each month exceeded the 0.001 foot per foot requirement, as shown in Table 4-4. Figure 4-5 illustrates the measured hydraulic gradients during Second Quarter 2020 with the concurrent Colorado River elevations and IM-3 pumping rates.

Hydraulic Gradient Evaluation: Arizona Side of the Colorado River

During Second Quarter 2020, pressure transducer data were recorded in five wells located on the Arizona side of the Colorado River. The average quarterly groundwater elevations for monitoring wells MW-54-085, MW-54-140, MW-54-195, MW-55-045, and MW-55-120 are presented on Figures 4-3b and 4-3c and are used for contouring where appropriate. Except for 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 (Figure 4-3b). Average quarterly water levels at the MW-54 and MW-55 well clusters indicate that water level elevations in monitoring wells in Arizona are higher than those in wells across the river on the California floodplain. This indicates that the apparent 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.

4.4 IM Contingency Plan Monitoring Results

During Second Quarter 2020, chromium-6 concentrations in the 19 IMCP monitoring wells sampled were lower than the established trigger levels; therefore, implementation of the contingency plan was not needed. Chromium-6 concentrations for the IMCP wells and their associated trigger levels are presented in Table 4-5.

4.5 Projected River Levels During Next Quarter

Colorado River water level projections provide river level information that is useful for anticipating IM-3 extraction requirements for the upcoming quarter. The Colorado River stage near the site is measured at river monitoring location I-3. Water levels are 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 the largest monthly releases typically in spring and early summer and the 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 4-6 shows the river stage measured at location 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 2020 is based on the June 2020 USBR projections of Davis Dam release and Lake Havasu level. Future

projections of Colorado River stage, shown on Figure 4-6, are based on USBR long-range projections of Davis Dam releases and Lake Havasu levels from June 2020. There is more uncertainty in these projections at longer times in the future because water demand is based on various factors including climatic factors.

Current USBR projections, presented in Table 4-6, show that the projected Davis Dam release for July 2020 is 14,200 cubic feet per second, and the predicted Colorado River elevation at the I-3 gauge is 455.92 feet above mean sea level.

4.6 Second Quarter 2020 Performance Monitoring Program Evaluation Summary

A summary of the Second Quarter 2020 PMP evaluation is provided below.

- Chromium-6 isoconcentration maps indicate that chromium-6 concentrations greater than 20 µg/L in the floodplain area are hydraulically controlled.
- IM extraction well TW-03D was primarily operated to support hydraulic control. A total of 13,461,071 gallons of groundwater were extracted by the IM-3 system, and an estimated 54.1 pounds (24.5 kilograms) of chromium were removed from groundwater.
- Chromium-6 and dissolved chromium concentrations in monitoring wells located within 800 feet of extraction well TW-03D were lower than their established notification levels at all but five monitoring wells. Chromium concentrations will continue to be monitored at these five locations to verify that Second Quarter 2020 concentrations do not indicate increasing trends. The shutdown of extraction well PE-01 was continued through the end of the reporting period.
- Groundwater potentiometric surface maps and the gradient analysis from designated well pairs provide evidence of hydraulic containment of the chromium-6 plume. The overall monthly average landward gradients in April, May, and June 2020 were approximately 4.5, 3.7, and 3 times the required minimum magnitude of 0.001 foot per foot , respectively.
- Chromium-6 and dissolved chromium concentrations in the IMCP monitoring wells were lower than their established trigger levels, indicating that chromium concentrations did not increase at areas of interest across the site.

5 UPCOMING OPERATION AND MONITORING EVENTS

GMP, RMP, and PMP monitoring will continue under direction from the DTSC in Third Quarter 2020. Monitoring and results will be reported in the Third Quarter 2020 PMP-GMP Report (planned for submittal by December 15, 2020).

5.1 Groundwater Monitoring Program

5.1.1 Monthly Groundwater Monitoring

Monthly GMP monitoring events are planned for July, August, September, and October 2020 at extraction wells TW-03D and PE-01; however, PE-01 may be inaccessible in Third Quarter 2020 due to construction associated with the final groundwater remedy at the site.

5.1.2 Quarterly Groundwater Sampling

The quarterly GMP monitoring event is planned for August 2020. This event will consist of groundwater sampling and inspection of 20 monitoring wells. Any necessary corrective actions to monitoring wells will be performed in a timely manner.

If rainfall in Third Quarter 2020 causes surface water flow in Bat Cave Wash, monitoring wells MW-09, MW-10, and MW-11 will be sampled.

5.2 Surface Water Monitoring Program

The surface water monitoring event is planned for September and October 2020. The monitoring event will consist of surface water sampling at 16 locations.

5.3 IM Performance Monitoring Program

5.3.1 Chromium Monitoring

Chromium will be monitored as part of the Third Quarter 2020 GMP monthly and quarterly monitoring events. Chromium-6 data will be collected from a total of 22 monitoring wells.

5.3.2 IM Extraction System Operation

During Third Quarter 2020, the IM-3 system will continue operating, and operations will be documented. IM extraction well TW-03D will be pumped a target rate of 135 gpm, except during periods of planned and unplanned downtime, to maintain appropriate hydraulic gradients across the Alluvial Aquifer. If TW-03D cannot achieve the target pumping rate of 135 gpm, then PE-01, TW-02D, and/or TW-02S may be pumped to supplement TW-03D and achieve total flow.

Third Quarter 2020 GMP monitoring results from wells listed in the July 20, 2015 DTSC approval letter for conditional PE-01 shutdown (DTSC 2015) will be compared to the 2014 (or 2013 for wells sampled

biennially) maximum chromium-6 and dissolved chromium concentrations. Results that exceed the notification levels will be reported to the DTSC within 40 days after the end of the quarterly GMP sampling event.

5.3.3 IM Hydraulic Monitoring

The IM hydraulic monitoring network will continue to be used to demonstrate compliance of the required 0.001 foot per foot landward hydraulic gradient. During the first two weeks of each month, pressure transducer data will be downloaded from the 52 monitoring wells in the IM hydraulic monitoring network, five wells located on the Arizona side of the Colorado River, and two river monitoring locations. Pressure transducer data at the six gradient control wells (MW-27-085, MW-31-135, MW-33-150, MW-34-100, MW-45-095, and MW-20-130) will continue to be downloaded via cellular telemetry at monthly or more frequent intervals, as needed, to verify that 0.001 foot per foot landward gradients are maintained.

5.3.4 IM Contingency Plan Monitoring

Third Quarter 2020 GMP monitoring results from IMCP wells will be compared to their respective trigger levels. If any exceedances are observed, the DTSC will be notified in accordance with the Revised Contingency Plan Flow Chart (PG&E 2008).

5.4 Quarterly Notifications

Email notifications will be sent in Third Quarter 2020 providing chromium-6 and dissolved chromium results for shoreline and in-channel surface water monitoring locations and monitoring wells MW-34-100, MW-44-115, MW-46-175, and MW-44-125.

5.5 Monitoring Well Installation

In accordance with the Basis of Design Report (CH2M Hill 2015), new monitoring wells, extraction wells, and injection wells are currently being installed as part of the final groundwater remedy at the site. A summary of field activities and monitoring results associated with the installation of the new wells will be reported under separate cover as part of the monthly reporting process associated with construction of the final groundwater remedy.

6 REFERENCES

Arcadis. 2020a. Fourth Quarter 2019 and Annual Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California. March 15.

Arcadis. 2020b. First Quarter 2020 Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles, California. April 30.

CH2M Hill. 2005. Monitoring Plan for Groundwater and Surface Water Monitoring Program. PG&E Topock Compressor Station, Needles, California. April 11.

CH2M Hill. 2007. RCRA Facility Investigation/Remedial Investigation Report, Volume 1 – Site Background and History. PG&E Topock Compressor Station, Needles, California. August.

CH2M Hill. 2009. Groundwater Background Study, Steps 3 and 4: Revised Final Report of Results, PG&E Topock Compressor Station, Needles, California. November 6.

CH2M Hill. 2015. Basis of Design Report/Final [100%] Design Submittal for the Final Groundwater Remedy. November.

California Department of Toxic Substances Control (DTSC). 2005. Letter to PG&E. Criteria for Evaluating Interim Measures Performance Requirements to Hydraulically Contain Chromium Plume in Floodplain Area, PG&E Topock Compressor Station, Needles, California (EPA ID No. CAT080011729). February 14.

DTSC. 2007. Letter to PG&E. Approval of Updates and Modifications to the Interim Measures Performance Monitoring Program. PG&E Topock Compressor Station. October 12.

DTSC. 2008a. Letter to PG&E. Modifications to Hydraulic Data Collection for the Interim Measures Performance Monitoring Program at PG&E Topock Compressor Station, Needles, California. July 14.

DTSC. 2008b. Letter to Geology and Remediation Engineering. Updates to the Interim Measures Chemical Performance Monitoring Program. PG&E Topock Compressor Station, Needles, California. July 16.

DTSC. 2009. Email. Re: Request for Combined Reporting of Topock GMP and PMP. May 26.

DTSC. 2010a. Email. Re: Topock GMP Monitoring Frequency Modification. March 3.

DTSC. 2010b. Letter to PG&E. Arizona Monitoring Well Sampling Frequency Modification. PG&E Topock Compressor Station, Needles, California. April 28.

DTSC. 2014. Email from Chris Guerre/DTSC to Yvonne Meeks/PG&E. PG&E Topock: DTSC response to Section 7 2013 Annual Report Recommendations. June 27.

DTSC. 2015. Letter from Aaron Yue/DTSC to Yvonne Meeks/PG&E. Conditional Approval of Proposal to Modify Interim Measures 3 (IM3) Extraction Well Pumping at PG&E Topock Compressor Station, Needles, California (USEPA ID No. CAT080011729). July 20.

DTSC. 2017. Email from Chris Guerre/DTSC to Jay Piper/CH2M and Curt Russell/PG&E. Re: PG&E Topock – Letter Requesting Modified Key Gradient Well Pairs When PE-01 Is Not Pumping. August 18.

DTSC. 2018. PG&E Topock Compressor Station: Environmental Investigation and Cleanup Activities. Web page. Located at: http://dtsc-topock.com/.

PG&E. 2008. Approved Modifications to the Topock IM Performance Monitoring Program PG&E Topock Compressor Station, Needles, California. August 4.

TABLES

Table 1-1

Topock Monitoring Reporting Schedule

Second Quarter 2020 Interim Measures Performance Monitoring and Site-wide
Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Period	Reporting Period	Report Submittal Date	Anticipated Number of Monitoring Locations: Groundwater Monitoring Program (GMP)	Anticipated Number of Monitoring Locations: Surface Water Monitoring Program (RMP)	Anticipated Number of Monitoring Locations: Chromium Monitoring*	Anticipated Number of Monitoring Locations: Monitoring for Conditional Shutdown of PE-01*	Anticipated Number of Monitoring Locations: IM Hydraulic Monitoring	Anticipated Number of Monitoring Locations: IM Contingency Plan Monitoring*	Anticipated Number of Monitoring Locations: IM Chemical Performance Monitoring
First Quarter	January - March	April 30	22	16	22	4	59	3	0
Second Quarter	April - June	August 14	105	16	105	30	59	19	0
Third Quarter	July - October	December 15	22	16	22	4	59	3	0
Fourth Quarter	November - December	March 15	143 annual + 2 biennial	16	143 annual + 2 biennial	47	59	24	10 annual + 1 biennial

Notes:

1. On July 23, 2010, DTSC approved a revised reporting schedule that included a revised IM-3 monitoring period (i.e., chromium removed), as follows:
   First Quarter: January - February
   Second Quarter: March - May
   Third Quarter: June - September
   Fourth Quarter: October - December

* = Monitoring consists of collecting hexavalent chromium and/or dissolved chromium data from groundwater monitoring wells; these data are collected during the GMP monitoring event.
GMP = Groundwater Monitoring Program.
DTSC = Department of Toxic Substance Control.
IM = interim measure.
RMP = Surface Water Monitoring Program.

Table 1-2
GMP, RMP, and PMP Monitoring Summary
Second Quarter 2020 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Location ID	Site Area	Measuring Point Elevation (ft amsl)	Well Screen Interval (ft bgs)	Well Screen Lithology	Well Casing Diameter (inches)	Well Depth (ft bgs)	Aquifer Zone	Sampling Method	GMP Monitoring Frequency	RMP Monitoring Frequency	PMP Monitoring: Chromium Monitoring Frequency	PMP Monitoring: Monitoring Frequency for Conditional Shutdown of PE-01	PMP Monitoring: IM Hydraulic Monitoring Frequency	PMP Monitoring: IM Contingency Plan Monitoring Frequency	PMP Monitoring: IM Chemical Performance Monitoring Frequency	Notes
MW-09	Bat Cave Wash	536.56	77 - 87	Alluvial	4 in PVC	89.4	Shallow	LF	Semiannual	--	Semiannual	--	--	--	--	Bat Cave Wash flow
MW-10	Bat Cave Wash	530.65	74 - 94	Alluvial	4 in PVC	96.9	Shallow	LF	Semiannual	--	Semiannual	--	--	--	--	Bat Cave Wash flow
MW-11	Bat Cave Wash	522.54	62.5 - 82.5	Alluvial	4 in PVC	86.1	Shallow	LF	Semiannual	--	Semiannual	--	--	--	--	Bat Cave Wash flow
MW-12	East of Station	484.01	27.5 - 47.5	Alluvial	4 in PVC	50.4	Shallow	LF	Semiannual	--	Semiannual	--	--	--	--	
MW-13	Bat Cave Wash	488.64	28.5 - 48.5	Alluvial	4 in PVC	52.0	Shallow	LF	Annual	--	Annual	--	--	--	--	
MW-14	East Mesa	570.99	111 - 131	Alluvial	4 in PVC	133.8	Shallow	LF	Semiannual	--	Semiannual	--	--	--	--	
MW-15	East of New Ponds	641.52	180.5 - 200.5	Alluvial	4 in PVC	203.0	Shallow	LF	Annual	--	Annual	--	--	--	--	
MW-16	Near New Ponds	657.31	198 - 218	Alluvial	4 in PVC	218.1	Shallow	LF	Biennial	--	Biennial	--	--	--	--	
MW-17	West of Mesa Area	589.96	130 - 150	Alluvial	4 in PVC	153.6	Shallow	LF	Biennial	--	Biennial	--	--	--	--	
MW-18	West Mesa	545.32	85 - 105	Alluvial	4 in PVC	106.7	Shallow	LF	Annual	--	Annual	--	--	--	--	
MW-19	Route 66	499.92	46 - 66	Alluvial	4 in PVC	65.8	Shallow	LF	Semiannual	--	Semiannual	--	--	--	--	
MW-20-070	MW-20 bench	500.07	50 - 70	Alluvial	4 in PVC	69.6	Shallow	LF	Semiannual	--	Semiannual	Semiannual	Monthly	--	Annual	
MW-20-100	MW-20 bench	500.58	89.5 - 99.5	Alluvial	4 in PVC	101.4	Middle	LF	Semiannual	--	Semiannual	Semiannual	Monthly	--	Annual	
MW-20-130	MW-20 bench	500.66	121 - 131	Alluvial	4 in PVC	132.3	Deep	LF	Semiannual	--	Semiannual	Semiannual	Monthly	--	Annual	Hydraulic Gradient Well
MW-21	Route 66	505.55	39 - 59	Alluvial	4 in PVC	58.5	Shallow	LF	Semiannual	--	Semiannual	--	--	Semiannual	--	Low recharge well; typically purges dry at 1 casing volume
MW-22	Floodplain	460.72	5.5 - 10.5	Fluvial	2 in PVC	12.4	Shallow	LF	Semiannual	--	Semiannual	--	Monthly	--	--	
MW-23-060	East Ravine	504.08	50 - 60	Bedrock	2 in Sch 40 PVC	60.2	Bedrock	LF	Semiannual	--	Semiannual	--	--	--	--	
MW-23-080	East Ravine	504.13	75 - 80	Bedrock	2 in Sch 40 PVC	80.8	Bedrock	LF	Semiannual	--	Semiannual	--	--	--	--	
MW-24A	MW-24 Bench	567.16	104 - 124	Alluvial	4 in PVC	127.5	Shallow	LF	Semiannual	--	Semiannual	--	--	--	--	
MW-24B	MW-24 Bench	564.76	193 - 213	Alluvial	4 in PVC	214.8	Deep	LF	Semiannual	--	Semiannual	--	--	--	--	
MW-24BR	MW-24 Bench	563.95	378 - 437	Bedrock	4 in PVC	441.0	Bedrock	3V	Annual	--	Annual	--	--	--	--	Low recharge well; typically purges dry at 1 casing volume
MW-25	Near Bat Cave Wash	542.90	84.5 - 104.5	Alluvial	4 in PVC	106.5	Shallow	LF	Semiannual	--	Semiannual	--	Monthly	--	Annual	
MW-26	Route 66	502.22	51.5 - 71.5	Alluvial	2 in PVC	70.1	Shallow	LF	Semiannual	--	Semiannual	Semiannual	Monthly	--	Biennial	
MW-27-020	Floodplain	460.56	7 - 17	Fluvial	2 in PVC	14.4	Shallow	LF	Annual	--	Annual	Annual	Monthly	--	--	
MW-27-060	Floodplain	461.49	47.3 - 57.3	Fluvial	2 in PVC	59.0	Middle	LF	Annual	--	Annual	Annual	Monthly	--	--	
MW-27-085	Floodplain	460.99	77.5 - 87.5	Fluvial	2 in PVC	80.0	Deep	LF	Semiannual	--	Semiannual	Semiannual	Monthly	Semiannual	--	Hydraulic Gradient Well
MW-28-025	Floodplain	466.77	13 - 23	Fluvial	2 in PVC	21.1	Shallow	LF	Semiannual	--	Semiannual	Semiannual	Monthly	--	--	
MW-28-090	Floodplain	467.53	70 - 90	Fluvial	2 in PVC	98.4	Deep	LF	Semiannual	--	Semiannual	Semiannual	Monthly	Semiannual	--	
MW-29	Floodplain	485.21	29.5 - 39.5	Fluvial	2 in PVC	41.5	Shallow	LF	Semiannual	--	Semiannual	--	--	--	--	
MW-30-030	Floodplain	468.12	12 - 32	Fluvial	2 in PVC	26.9	Shallow	LF	Annual	--	Annual	Annual	--	--	--	
MW-30-050	Floodplain	468.81	40 - 50	Fluvial	4 in PVC	52.6	Middle	LF	Annual	--	Annual	Annual	Monthly	--	--	
MW-31-060	MW-20 Bench	496.81	41.5 - 61.5	Alluvial	4 in PVC	64.0	Shallow	LF	Semiannual	--	Semiannual	Semiannual	Monthly	--	Annual	
MW-31-135	MW-20 Bench	498.11	113 - 133	Alluvial	2 in PVC	135.4	Deep	LF	Annual	--	Annual	Annual	Monthly	--	--	Hydraulic Gradient Well
MW-32-020	Floodplain	461.51	10 - 20	Fluvial	2 in PVC	19.6	Shallow	LF	Annual	--	Annual	Annual	--	Annual	--	
MW-32-035	Floodplain	461.63	27.5 - 35	Fluvial	4 in PVC	37.2	Shallow	LF	Semiannual	--	Semiannual	Semiannual	Monthly	Semiannual	Annual	
MW-33-040	Floodplain	487.38	29 - 39	Fluvial	2 in PVC	41.8	Shallow	LF	Semiannual	--	Semiannual	Semiannual	Monthly	Semiannual	--	
MW-33-090	Floodplain	487.55	69 - 89	Alluvial	4 in PVC	88.3	Middle	LF	Semiannual	--	Semiannual	Semiannual	Monthly	Semiannual	--	
MW-33-150	Floodplain	487.77	132 - 152	Alluvial	2 in PVC	155.4	Deep	LF	Semiannual	--	Semiannual	Semiannual	Monthly	Semiannual	--	Hydraulic Gradient Well
MW-33-210	Floodplain	487.25	190 - 210	Alluvial	2 in PVC	223.0	Deep	LF	Semiannual	--	Semiannual	Semiannual	--	Semiannual	--	
MW-34-055	Floodplain	460.95	45 - 55	Fluvial	4 in PVC	56.6	Middle	LF	Annual	--	Annual	Annual	Monthly	--	Annual	
MW-34-080	Floodplain	461.20	73 - 83	Fluvial	4 in PVC	84.3	Deep	LF	Semiannual	--	Semiannual	Semiannual	Monthly	Semiannual	Annual	
MW-34-100	Floodplain	460.97	89.5 - 99.5	Fluvial	2 in PVC	117.0	Deep	LF	Quarterly	--	Quarterly	Quarterly	Monthly	Quarterly	Annual	Hydraulic Gradient Well
MW-35-060	Route 66	484.33	41 - 61	Alluvial	2 in PVC	56.8	Shallow	LF	Semiannual	--	Semiannual	--	Monthly	--	--	
MW-35-135	Route 66	484.24	116 - 136	Alluvial	2 in PVC	158.7	Deep	LF	Semiannual	--	Semiannual	--	Monthly	--	--	
MW-36-020	Floodplain	469.33	10 - 20	Fluvial	1 in PVC	20.3	Shallow	LF	Annual	--	Annual	Annual	Monthly	--	--	
MW-36-040	Floodplain	469.59	30 - 40	Fluvial	1 in PVC	40.3	Shallow	LF	Annual	--	Annual	Annual	Monthly	--	--	
MW-36-050	Floodplain	469.62	46 - 51	Fluvial	1 in PVC	108.0	Middle	LF	Annual	--	Annual	Annual	Monthly	--	--	
MW-36-070	Floodplain	469.27	60 - 70	Fluvial	1 in PVC	70.3	Middle	LF	Annual	--	Annual	Annual	Monthly	Annual	--	
MW-36-090	Floodplain	469.64	80 - 90	Fluvial	1 in PVC	90.3	Deep	LF	Semiannual	--	Semiannual	Semiannual	Monthly	--	--	
MW-36-100	Floodplain	469.65	88 - 98	Fluvial	2 in PVC	108.0	Deep	LF	Semiannual	--	Semiannual	Semiannual	Monthly	--	--	
MW-37D	Bat Cave Wash	486.19	180 - 200	Alluvial	2 in PVC	226.7	Deep	LF	Semiannual	--	Semiannual	--	--	--	--	
MW-37S	Bat Cave Wash	485.97	64 - 84	Alluvial	2 in PVC	85.0	Middle	LF	Annual	--	Annual	--	--	--	--	
MW-38D	Bat Cave Wash	525.31	163 - 183	Alluvial	2 in PVC	190.9	Deep	LF	Semiannual	--	Semiannual	--	--	--	--	
MW-38S	Bat Cave Wash	526.59	75 - 95	Alluvial	2 in PVC	98.1	Shallow	LF	Quarterly	--	Quarterly	--	--	--	--	
MW-39-040	Floodplain	468.02	30 - 40	Fluvial	1 in PVC	42.1	Shallow	LF	Annual	--	Annual	Annual	Monthly	Annual	--	
MW-39-050	Floodplain	467.93	47 - 52	Fluvial	1 in PVC	54.6	Middle	LF	Annual	--	Annual	Annual	Monthly	--	--	
MW-39-060	Floodplain	468.00	49 - 59	Alluvial	1 in PVC	15.2	Middle	LF	Annual	--	Annual	Annual	Monthly	--	--	
MW-39-070	Floodplain	468.02	60 - 70	Alluvial	1 in PVC	71.7	Middle	LF	Annual	--	Annual	Annual	Monthly	--	--	
MW-39-080	Floodplain	467.92	70 - 80	Alluvial	1 in PVC	82.6	Deep	LF	Annual	--	Annual	Annual	Monthly	--	--	
MW-39-100	Floodplain	468.12	80 - 100	Alluvial	2 in PVC	117.7	Deep	LF	Semiannual	--	Semiannual	Semiannual	Monthly	--	--	
MW-40D	I-40 Median	566.08	240 - 260	Alluvial	2 in PVC	266.0	Deep	LF	Semiannual	--	Semiannual	--	--	--	--	
MW-40S	I-40 Median	566.04	115 - 135	Alluvial	2 in PVC	134.0	Shallow	H	Semiannual	--	Semiannual	--	--	--	--	

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Location ID	Site Area	Measuring Point Elevation (ft amsl)	Well Screen Interval (ft bgs)	Well Screen Lithology	Well Casing Diameter (inches)	Well Depth (ft bgs)	Aquifer Zone	Sampling Method	GMP Monitoring Frequency	RMP Monitoring Frequency	PMP Monitoring: Chromium Monitoring Frequency	PMP Monitoring: Monitoring Frequency for Conditional Shutdown of PE-01	PMP Monitoring: IM Hydraulic Monitoring Frequency	PMP Monitoring: IM Contingency Plan Monitoring Frequency	PMP Monitoring: IM Chemical Performance Monitoring Frequency	Notes
MW-41D	Bat Cave Wash	479.42	271 - 291	Alluvial	2 in PVC	311.5	Deep	LF	Semiannual	--	Semiannual	--	--	--	--	
MW-41M	Bat Cave Wash	479.84	170 - 190	Alluvial	2 in PVC	190.0	Deep	LF	Annual	--	Annual	--	--	--	--	
MW-41S	Bat Cave Wash	480.07	40 - 60	Alluvial	2 in PVC	60.0	Shallow	LF	Annual	--	Annual	--	--	--	--	
MW-42-030	Floodplain	463.74	9.8 - 29.8	Fluvial	2 in Sch 40 PVC	30.1	Shallow	LF	Annual	--	Annual	Annual	Monthly	--	--	
MW-42-055	Floodplain	463.85	42.5 - 52.5	Fluvial	2 in PVC	52.8	Middle	LF	Semiannual	--	Semiannual	Semiannual	--	Semiannual	--	
MW-42-065	Floodplain	463.37	56.2 - 66.2	Fluvial	2 in PVC	80.0	Middle	LF	Semiannual	--	Semiannual	Semiannual	Monthly	Semiannual	--	
MW-43-025	Floodplain	462.54	15 - 25	Fluvial	2 in PVC	25.0	Shallow	LF	Annual	--	Annual	--	Monthly	--	--	
MW-43-075	Floodplain	462.71	65 - 75	Fluvial	2 in PVC	75.0	Deep	LF	Annual	--	Annual	--	--	Annual	--	
MW-43-090	Floodplain	462.76	80 - 90	Fluvial	2 in PVC	97.0	Deep	LF	Annual	--	Annual	--	Monthly	Annual	--	
MW-44-070	Floodplain	471.84	61 - 71	Fluvial	2 in PVC	70.0	Middle	LF	Semiannual	--	Semiannual	Semiannual	Monthly	Semiannual	--	
MW-44-115	Floodplain	471.94	105 - 115	Alluvial	2 in PVC	113.5	Deep	LF	Quarterly	--	Quarterly	Quarterly	Monthly	Quarterly	--	
MW-44-125	Floodplain	472.11	116 - 125	Alluvial	2 in PVC	128.8	Deep	LF	Semiannual	--	Semiannual	Semiannual	Monthly	Semiannual	--	
MW-45-095a	Floodplain	468.27	83 - 93	Fluvial	2 in PVC	97.0	Deep	--	--	--	--	X (see Note 1)	Monthly	--	--	Pressure transducer location; Hydraulic Gradient Well
MW-46-175	Floodplain	482.16	165 - 175	Alluvial	2 in PVC	175.5	Deep	LF	Quarterly	--	Quarterly	Quarterly	Monthly	Quarterly	--	
MW-46-205	Floodplain	482.23	196.5 - 206.5	Alluvial	2 in PVC	206.5	Deep	LF	Semiannual	--	Semiannual	Semiannual	--	Semiannual	--	
MW-47-055	Floodplain	484.04	45 - 55	Alluvial	2 in PVC	55.0	Shallow	LF	Semiannual	--	Semiannual	Semiannual	Monthly	Semiannual	--	
MW-47-115	Floodplain	484.17	105 - 115	Alluvial	2 in PVC	115.0	Deep	LF	Semiannual	--	Semiannual	Semiannual	Monthly	Semiannual	--	
MW-48	East of Station	486.22	124 - 134	Bedrock	2 in PVC	138.0	Bedrock	LF	Semiannual	--	Semiannual	--	--	--	--	Low recharge well; typically purges dry at 1 casing volume
MW-49-135	Floodplain	483.97	125 - 135	Alluvial	1.5 in PVC	135.0	Deep	LF	Annual	--	Annual	--	Monthly	--	--	
MW-49-275	Floodplain	483.95	255 - 275	Alluvial	2 in PVC	274.7	Deep	LF	Annual	--	Annual	--	--	--	--	
MW-49-365	Floodplain	484.01	346 - 366	Alluvial	2 in PVC	367.4	Deep	LF	Annual	--	Annual	--	--	--	--	
MW-50-095	Route 66	496.49	85 - 95	Alluvial	2 in PVC	95.0	Middle	LF	Semiannual	--	Semiannual	--	Monthly	--	--	
MW-50-200	Route 66	496.35	190 - 200	Alluvial	2 in PVC	204.5	Deep	LF	Semiannual	--	Semiannual	--	--	--	--	
MW-51	Route 66	501.56	97 - 112	Alluvial	4 in PVC	113.3	Middle	LF	Semiannual	--	Semiannual	Semiannual	Monthly	--	--	
MW-52D	Floodplain	462.16	85 - 87	Fluvial	0.75 in MLABS	89.5	Deep	LF	Semiannual	--	Semiannual	--	--	--	--	
MW-52M	Floodplain	462.16	66 - 68	Fluvial	0.75 in MLABS	70.5	Deep	LF	Semiannual	--	Semiannual	--	--	--	--	
MW-52S	Floodplain	462.16	47 - 49	Fluvial	0.75 in MLABS	51.5	Middle	LF	Semiannual	--	Semiannual	--	--	--	--	
MW-53D	Floodplain	461.32	123.5 - 125	Fluvial	0.75 in MLABS	---	Deep	LF	Semiannual	--	Semiannual	--	--	--	--	
MW-53M	Floodplain	461.32	98.5 - 100	Fluvial	0.75 in MLABS	---	Deep	LF	Semiannual	--	Semiannual	--	--	--	--	
MW-54-085	Arizona	466.10	77 - 87	Fluvial	2 in PVC	93.2	Deep	LF	Semiannual	--	Semiannual	--	Monthly	--	--	
MW-54-140	Arizona	465.98	128 - 138	Fluvial	2 in PVC	138.0	Deep	LF	Semiannual	--	Semiannual	--	Monthly	--	--	
MW-54-195	Arizona	466.32	185 - 195	Fluvial	2 in PVC	195.0	Deep	LF	Semiannual	--	Semiannual	--	Monthly	--	--	
MW-55-045	Arizona	465.84	37 - 47	Fluvial	2 in PVC	54.0	Middle	LF	Semiannual	--	Semiannual	--	Monthly	--	--	
MW-55-120	Arizona	465.82	108 - 118	Fluvial	2 in PVC	120.3	Deep	LF	Semiannual	--	Semiannual	--	Monthly	--	--	
MW-56D	Arizona	461.36	103.5 - 105.5	Fluvial	0.75 in MLABS	---	Deep	LF	Semiannual	--	Semiannual	--	--	--	--	
MW-56M	Arizona	461.36	73.5 - 75.5	Fluvial	0.75 in MLABS	---	Deep	LF	Semiannual	--	Semiannual	--	--	--	--	
MW-56S	Arizona	461.36	33.5 - 35.5	Fluvial	0.75 in MLABS	---	Shallow	LF	Semiannual	--	Semiannual	--	--	--	--	
MW-57-050	East Ravine	508.76	40 - 50	Bedrock	2 in Sch 40 PVC	50.0	Bedrock	LF	Quarterly	--	Quarterly	--	--	--	--	
MW-57-070	East Ravine	509.37	55 - 70	Bedrock	2 in Sch 40 PVC	70.0	Bedrock	LF	Semiannual	--	Semiannual	--	--	--	--	
MW-57-185	East Ravine	508.97	70 - 184	Bedrock	4 in Sch 40 PVC	184.7	Bedrock	LF	Semiannual	--	Semiannual	--	--	--	--	
MW-58-065	East Ravine	523.26	54 - 64	Bedrock	2 in Sch 40 PVC	66.0	Bedrock	LF	Quarterly	--	Quarterly	--	--	--	--	
MW-58BR	East Ravine	---	--	Bedrock	---	---	Bedrock	LF	Quarterly	--	Quarterly	--	--	--	--	
MW-59-100	East Ravine	541.61	86 - 101	Alluvial	2 in Sch 40 PVC	101.0	Shallow	LF	Semiannual	--	Semiannual	--	--	--	--	
MW-60-125	East Ravine	555.47	103 - 123	Bedrock	2 in Sch 40 PVC	122.5	Bedrock	LF	Semiannual	--	Semiannual	--	--	--	--	
MW-60BR-245	East Ravine	554.95	136 - 245	Bedrock	5 in	244.1	Bedrock	LF	Quarterly	--	Quarterly	--	--	--	--	
MW-61-110	East Ravine	544.03	92 - 112	Bedrock	2 in Sch 40 PVC	112.5	Bedrock	LF	Semiannual	--	Semiannual	--	--	--	--	
MW-62-065	East Ravine	503.56	44.5 - 64.5	Bedrock	2 in Sch 40 PVC	67.4	Bedrock	LF	Quarterly	--	Quarterly	--	--	--	--	
MW-62-110	East Ravine	504.05	85 - 110	Bedrock	---	110.0	Bedrock	G	Quarterly	--	Quarterly	--	--	--	--	
MW-62-190	East Ravine	504.05	155 - 192	Bedrock	---	190.0	Bedrock	3V	Semiannual	--	Semiannual	--	--	--	--	
MW-63-065	East Ravine	504.47	46 - 66	Bedrock	2 in Sch 40 PVC	65.6	Bedrock	LF	Quarterly	--	Quarterly	--	--	--	--	
MW-64BR	East Ravine	575.60	2 - 258	Bedrock	3 in	260.0	Bedrock	LF	Quarterly	--	Quarterly	--	--	--	--	
MW-65-160	Topock Compressor Station	596.59	150 - 160	Alluvial	2 in PVC	160.1	Shallow	LF	Quarterly	--	Quarterly	--	--	--	--	
MW-65-225	Topock Compressor Station	596.58	215 - 225	Alluvial	2 in PVC	225.1	Deep	LF	Quarterly	--	Quarterly	--	--	--	--	
MW-66-165	Topock Compressor Station	586.16	142 - 162	Alluvial	2 in PVC	162.1	Shallow	LF	Semiannual	--	Semiannual	--	--	--	--	
MW-66-230	Topock Compressor Station	586.22	218 - 228	Alluvial	2 in PVC	228.1	Deep	LF	Semiannual	--	Semiannual	--	--	--	--	
MW-66BR-270	Topock Compressor Station	586.15	248 - 271	Bedrock	5 in	270.6	Bedrock	3V	Semiannual	--	Semiannual	--	--	--	--	
MW-67-185	Topock Compressor Station	625.91	177 - 187	Alluvial	2 in	186.7	Shallow	LF	Semiannual	--	Semiannual	--	--	--	--	
MW-67-225	Topock Compressor Station	625.83	210 - 225	Alluvial	2 in PVC	225.0	Middle	LF	Semiannual	--	Semiannual	--	--	--	--	
MW-67-260	Topock Compressor Station	625.81	250 - 260	Alluvial	2 in PVC	260.0	Deep	LF	Semiannual	--	Semiannual	--	--	--	--	
MW-68-180	Topock Compressor Station	621.17	165 - 180	Alluvial	2 in PVC	180.1	Shallow	LF	Quarterly	--	Quarterly	--	--	--	--	
MW-68-240	Topock Compressor Station	621.17	220 - 240	Alluvial	2 in PVC	240.1	Deep	LF	Semiannual	--	Semiannual	--	--	--	--	
MW-68BR-280	Topock Compressor Station	620.64	257 - 279	Bedrock	5 in	278.2	Bedrock	LF	Semiannual	--	Semiannual	--	--	--	--	
MW-69-195	Topock Compressor Station	631.36	176 - 196	Bedrock	2 in	195.5	Bedrock	LF	Quarterly	--	Quarterly	--	--	--	--	

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MW-70-105	East Ravine	541.47	85 - 105	Bedrock	2 in PVC	107.8	Bedrock	LF	Semiannual	--	Semiannual	--	--	--	--	
MW-70BR-225	East Ravine	539.84	120 - 227	Bedrock	5 in	229.3	Bedrock	LF	Semiannual	--	Semiannual	--	--	--	--	
MW-71-035	East Ravine	483.69	26 - 36	Alluvial	2 in	36.2	Shallow	LF	Semiannual	--	Semiannual	--	--	--	--	
MW-72-080	East Ravine	513.32	60 - 80	Bedrock	2 in	80.1	Bedrock	LF	Quarterly	--	Quarterly	--	--	--	--	
MW-72BR-200	East Ravine	513.79	107 - 200	Bedrock	---	200.0	Bedrock	LF	Quarterly	--	Quarterly	--	--	--	--	
MW-73-080	East Ravine	505.84	60.2 - 80.2	Bedrock	2 in	79.9	Bedrock	LF	Quarterly	--	Quarterly	--	--	--	--	
MW-74-240	East Ravine	672.34	220 - 240	Bedrock	2 in	239.7	Bedrock	LF	Semiannual	--	Semiannual	--	--	--	--	
OW-03D	West Mesa	558.63	242 - 262	Alluvial	2 in Sch 40 PVC	272.5	Deep	LF	Annual	--	Annual	--	--	--	--	
OW-03M	West Mesa	558.9	180 - 200	Alluvial	2 in Sch 40 PVC	200.3	Middle	LF	Annual	--	Annual	--	--	--	--	
OW-03S	West Mesa	558.58	86 - 116	Alluvial	2 in Sch 40 PVC	116.3	Shallow	LF	Annual	--	Annual	--	--	--	--	
PGE-07BR	MW-24 Bench	--	249 - 300	Bedrock	7 in	300.0	Bedrock	3V	Annual	--	Annual	--	--	--	--	Inactive supply well
PGE-8	Station	596.01	405-554	Bedrock	6.75 in Steel	564.0	Bedrock	3V	Annual	--	Annual	--	--	--	--	Inactive injection well
PT-2D	Floodplain	--	95 - 105	Alluvial	2 in in PVC	105	Deep	--	--	--	--	--	Monthly	--	--	
PT-5D	Floodplain	--	95 - 105	Alluvial	2 in in PVC	105	Deep	--	--	--	--	--	Monthly	--	--	
PT-6D	Floodplain	--	95 - 105	Alluvial	2 in in PVC	105	Deep	--	--	--	--	--	Monthly	--	--	
PE-01	Floodplain	457.52	79 - 89	Fluvial	6 in Sch 40	99.0	Deep	tap	Monthly	--	Monthly	Monthly	--	--	--	IM extraction well
TW-01	Plan B Test	620.55	169 - 269	Alluvial	5 in PVC	271.0	Shallow	LF	Semiannual	--	Semiannual	--	--	--	--	Inactive pilot test well
TW-02D	MW-20 bench	493.29	113 - 148	Alluvial	6 in Sch 80 PVC	150.0	Deep	tap	Quarterly	--	Quarterly	--	--	--	--	IM extraction well
TW-02S	MW-20 bench	499.05	42.5 - 92.5	Alluvial	6 in Sch 80 PVC	97.5	Shallow	tap	Annual	--	Annual	--	--	--	--	IM extraction well
TW-03D	MW-20 bench	498.09	111 - 156	Alluvial	8 in PVC	156.0	Deep	tap	Monthly	--	Monthly	--	--	--	--	IM extraction well
TW-04	Floodplain	484.11	210 - 250	Alluvial	4 in PVC	255.0	Deep	LF	Semiannual	--	Semiannual	Semiannual	--	--	--	
TW-05	Route 66	496.30	110 - 150	Alluvial	4 in PVC	155.0	Deep	LF	Semiannual	--	Semiannual	--	--	--	--	
Park Moabi-3	Park Moabi	518.55	80 - 200	Alluvial	8 in Steel	252.0	Middle	tap	Annual	--	Annual	--	--	--	--	Active supply well
Park Moabi-4	Park Moabi	---	93 - 140	Alluvial	Steel	---	Middle	tap	Annual	--	Annual	--	--	--	--	Active supply well
C-BNS	In-Channel	--	--	--	--	--	--		--	Quarterly	--	--	--	--	--	
C-CON	In-Channel	--	--	--	--	--	--		--	Quarterly	--	--	--	--	--	Deep and shallow depth intervals
C-I-3 (I-3)	In-Channel	--	--	--	--	--	--		--	Quarterly	--	--	Monthly	--	--	Deep and shallow depth intervals
C-MAR	In-Channel	--	--	--	--	--	--		--	Quarterly	--	--	--	--	--	Deep and shallow depth intervals
C-NR1	In-Channel	--	--	--	--	--	--		--	Quarterly	--	--	--	--	--	Deep and shallow depth intervals
C-NR3	In-Channel	--	--	--	--	--	--		--	Quarterly	--	--	--	--	--	Deep and shallow depth intervals
C-NR4	In-Channel	--	--	--	--	--	--		--	Quarterly	--	--	--	--	--	Deep and shallow depth intervals
C-R22A	In-Channel	--	--	--	--	--	--		--	Quarterly	--	--	--	--	--	Deep and shallow depth intervals
C-R27	In-Channel	--	--	--	--	--	--		--	Quarterly	--	--	--	--	--	Deep and shallow depth intervals
C-TAZ	In-Channel	--	--	--	--	--	--		--	Quarterly	--	--	--	--	--	Deep and shallow depth intervals
R-28	Shoreline	--	--	--	--	--	--		--	Quarterly	--	--	--	--	Annual	
R-19	Shoreline	--	--	--	--	--	--		--	Quarterly	--	--	--	--	--	
R-63	Shoreline	--	--	--	--	--	--		--	Quarterly	--	--	--	--	--	
RRB	Shoreline	--	--	--	--	--	--		--	Quarterly	--	--	Monthly	--	--	
SW-1	Other Surface Water Monitoring Location	--	--	--	--	--	--		--	Quarterly	--	--	--	--	--	
SW-2	Other Surface Water Monitoring Location	--	--	--	--	--	--		--	Quarterly	--	--	--	--	--	

Notes:
1. On June 27, 2014, DTSC approved discontinuation of groundwater sampling at monitoring well MW-45-095a. This location was originally included in the list of wells monitored for conditional shutdown of PE-01.

-- = not applicable.
3V = three volume.
amsl = above mean sea level.
bgs = below ground surface.
Deep = deep interval of Alluvial Aquifer.
DTSC = Department of Toxic Substance Control.
ft = feet.
G = grab sample.
GMP = Groundwater Monitoring Program.
H = HydraSleeve
ID = identification.
IM = interim measure.
LF = low flow (minimal drawdown).
Middle = mid-depth interval of Alluvial Aquifer.
PMP = Performance Monitoring Program.
PVC = polyvinyl chloride (pipe)
RMP = Surface Water Monitoring Program.
Shallow = shallow interval of Alluvial Aquifer.
Tap = sampled from tap of extraction well.

Table 3-1

Groundwater Sampling Results, Second Quarter 2020

Second Quarter 2020 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 Type	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Dissolved Molybdenum (µg/L)	Dissolved Selenium (µg/L)	Nitrate/Nitrite as Nitrogen (mg/L)	Dissolved Arsenic (µg/L)	Dissolved Manganese (µg/L)	Dissolved Iron (µg/L)	ORP (mV)	Field pH (SU)	Turbidity (NTU)
MW-09	SA	4/24/2020		LF	130	130	2,900	6.8	5.3	11	1.1	2.1	--	100	6.9	3.5
MW-10	SA	4/23/2020		LF	150	150	2,900	19	6.1	12	--	--	--	90	6.9	20.1
MW-11	SA	4/23/2020		LF	43	43	2,200	5.8	4	5.2	0.9	1.3	--	91	6.9	5
MW-12	SA	4/28/2020		LF	2,700	2,800	7,200	8.8	13	15	45	1.4	--	51	7.7	5
MW-14	SA	6/24/2020		LF	12	12	3,300	10	1.8	3.2	0.12	0.79	--	240	7.6	9
MW-14	SA	6/24/2020	FD	--	12	12	3,300	10	2	2.8	0.18 J	0.72	--	--	--	--
MW-19	SA	4/27/2020		LF	32	40	2,000	--	--	--	--	--	--	84	6.8	17
MW-20-070	SA	4/24/2020		LF	2,500	2,500	2,000	29	7.7	13	2.2	2.2	--	90	7.1	3.1
MW-20-100	MA	4/24/2020		LF	750	760	1,900	4.8	5.4	7.5	1.3	1.1	--	96	6.8	2.31
MW-20-130	DA	4/24/2020		LF	5,900	6,100	11,000	42	22	11	0.97	0.84	--	72	7	4.3
MW-21	SA	4/30/2020		LF	4.6	5.4	11,000	46	42	2.8	--	--	--	-130	6.9	36
MW-22	SA	6/16/2020		LF	ND (0.2)	ND (1.0)	11,000	--	--	--	3.2	1,600	--	-110	6.8	40
MW-23-060	BR	6/18/2020		LF	40	37	15,000	--	--	--	0.86 J	1	--	83	9	40
MW-23-080	BR	6/18/2020		LF	ND (1.0)	ND (1.0)	16,000	--	--	--	4.9 J	1	--	44	9.7	12
MW-24A	SA	5/1/2020		LF	ND (0.2)	2.9	1,900	100	ND (0.5)	ND (0.05)	ND (0.1)	17	--	-140	7.8	4
MW-24B	DA	5/1/2020		LF	120	140	20,000	56	ND (2.5)	0.87	ND (0.5)	96	--	-180	7.4	9
MW-25	SA	6/24/2020		LF	56	55	2,000	4.3	7.5	13	0.96	3	--	230	7.4	5
MW-25	SA	6/24/2020	FD	--	57	56	2,100	4.4	7.4	12	0.93	3	--	--	--	--
MW-26	SA	4/27/2020		LF	2,300	2,300	3,600	35	39	21	0.88	2	--	130	6.8	22
MW-27-085	DA	6/18/2020		LF	ND (0.2)	ND (1.0)	11,000	16	ND (0.5)	ND (0.05)	ND (0.1)	110	--	-25	7.3	1
MW-28-025	SA	6/23/2020		LF	ND (0.2)	ND (1.0)	1,100	4.1	1.5	ND (0.05)	0.52	2	--	33	7.5	6
MW-28-090	DA	6/23/2020		LF	ND (0.2)	ND (1.0)	5,100	20	ND (0.5)	ND (0.05)	1	280	--	-24	7.1	6
MW-29	SA	6/23/2020		LF	ND (0.2)	ND (1.0)	2,600	18	3.3	0.13	8.4	290	--	-110	7.3	5
MW-31-060	SA	6/24/2020		LF	320	280	3,600	--	--	--	0.36	ND (0.5)	--	200	7.5	3
MW-32-035	SA	6/18/2020		LF	ND (0.2)	ND (1.0)	7,800	--	--	--	26 J	610	--	-180	7.3	25
MW-33-040	SA	6/17/2020		LF	ND (0.2)	ND (1.0)	8,200	120	ND (0.5)	0.077	5.5	54	--	93	8	5
MW-33-090	MA	6/17/2020		LF	3.3	6.3	8,900	8.2	ND (0.5)	1.1	ND (0.1)	11	--	85	7.2	9
MW-33-150	DA	6/17/2020		LF	4.9	11	14,000	48	0.83	1.4	ND (0.1)	8	--	87	7.4	8
MW-33-210	DA	6/17/2020		LF	7.2	15	17,000	22	ND (0.5)	1.7	ND (0.1)	7	--	89	7.4	3
MW-34-080	DA	6/18/2020		LF	ND (0.2)	ND (1.0)	8,400	--	--	ND (0.05)	ND (0.1)	66	--	-10	7.3	2
MW-34-100	DA	6/18/2020		LF	ND (0.2)	ND (1.0)	11,000	64	ND (0.5)	0.18	ND (0.1)	110	--	-52	7.6	6
MW-35-060	SA	4/27/2020		LF	32	32	3,900	15	1.5	2.8	0.45	1	--	50	6.8	35
MW-35-135	DA	4/27/2020		LF	25	24	11,000	20	0.92	2.6	ND (0.1)	8	--	24	7.1	41
MW-36-090	DA	6/16/2020		LF	ND (0.2)	ND (1.0)	4,800	--	--	--	1.3	51	--	-100	7.3	4
MW-36-100	DA	6/16/2020		LF	12	11	6,500	20	ND (0.5)	ND (0.05)	1.5	240	--	-86	7.3	9
MW-37D	DA	6/24/2020		LF	5	6.5	13,000	63	0.66	0.92	--	--	--	190	7.9	6
MW-38D	DA	4/23/2020		LF	19	16	21,000	78	ND (2.5)	ND (0.05)	7.3	27	--	-48	7.5	21
MW-38S	SA	4/23/2020		LF	4	4.4	1,600	21	2.9	5.1	5.7	69	--	61	7.3	5.41
MW-38S	SA	4/23/2020	FD	--	4	4.6	1,600	22	3.1	5.5	5.8	75	--	--	--	--
MW-39-100	DA	6/18/2020		LF	93	91	13,000	7.5	ND (0.5)	0.083	ND (0.1)	4	--	71	7	9
MW-40D	DA	6/17/2020		LF	12	11	14,000	41	0.78	0.57	ND (0.1)	13	--	--	--	--
MW-40S	SA	6/17/2020		H	18	28	1,700	30	6.1	10	3.2	6	--	-28	7.2	9
MW-41D	DA	6/24/2020		LF	ND (1.0)	ND (1.0)	18,000	80	ND (0.5)	0.14 J	2.4	120	--	-80	7.9	4
MW-41D	DA	6/24/2020	FD	--	ND (1.0)	ND (1.0)	18,000	82	ND (0.5)	1.1 J	2.4	120	--	--	--	--
MW-42-055	MA	6/18/2020		LF	ND (0.2)	ND (1.0)	1,000	--	--	--	12 J	150	--	-72	7.8	2
MW-42-065	MA	6/18/2020		LF	ND (0.2)	ND (1.0)	2,600	--	--	--	5.9 J	650	--	20	7.5	2
MW-44-070	MA	6/23/2020		LF	ND (0.2)	ND (1.0)	2,000	--	--	--	1.8	230	--	27	7.5	7
MW-44-115	DA	6/23/2020		LF	4	3.7	11,000	68	ND (0.5)	ND (0.05)	2.3	5	--	13	7.5	10
MW-44-125	DA	6/23/2020		LF	ND (0.2)	1	2,200	13	ND (0.5)	0.18	2.6	330	--	-47	7.6	4

Table 3-1

Groundwater Sampling Results, Second Quarter 2020

Second Quarter 2020 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 Type	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Dissolved Molybdenum (µg/L)	Dissolved Selenium (µg/L)	Nitrate/Nitrite as Nitrogen (mg/L)	Dissolved Arsenic (µg/L)	Dissolved Manganese (µg/L)	Dissolved Iron (µg/L)	ORP (mV)	Field pH (SU)	Turbidity (NTU)
MW-46-175	DA	6/23/2020		LF	5.3	23	19,000	180	0.55	1.1	--	--	--	65	8.6	2
MW-46-205	DA	6/23/2020		LF	1.2	2.1	22,000	--	--	--	--	--	--	120	8.6	3
MW-47-055	SA	6/25/2020		LF	16	16	4,700	--	--	--	0.17	ND (0.5)	--	130	7.5	17
MW-47-115	DA	6/25/2020		LF	24	24	13,000	--	--	--	--	--	--	160	7.6	16
MW-48	BR	5/1/2020		3V	ND (1.0)	ND (1.0)	18,000	--	--	--	--	--	--	18	7.1	5
MW-50-095	MA	6/24/2020		LF	13	14	5,800	--	--	--	--	--	--	180	7.6	8
MW-50-200	DA	6/24/2020		LF	3,600	3,500	20,000	--	--	--	--	--	--	150	7.6	5
MW-51	MA	4/27/2020		LF	3,200	3,200	12,000	40	19	9.2	ND (0.1)	ND (0.5)	--	96	7	3
MW-51	MA	4/27/2020	FD	--	3,300	3,200	13,000	42	20	9.2	ND (0.1)	ND (0.5)	--	--	--	--
MW-52D	DA	6/16/2020		LF	ND (1.0)	ND (1.0)	20,000	--	--	--	ND (0.1)	250	--	-19	7.6	8
MW-52M	DA	6/16/2020		LF	ND (1.0)	ND (1.0)	15,000	--	--	--	ND (0.1)	150	--	-150	7.1	4
MW-52S	MA	6/16/2020		LF	ND (0.2)	ND (1.0)	8,800	--	--	--	ND (0.1)	1,300	--	-150	6.8	9
MW-53D	DA	6/16/2020		LF	ND (1.0)	ND (1.0)	24,000	--	--	--	ND (0.1)	1,100	--	-130	7.5	2
MW-53M	DA	6/16/2020		LF	ND (1.0)	ND (1.0)	17,000	--	--	--	ND (0.1)	450	--	-59	7.5	3
MW-54-085	DA	6/19/2020	(a)	LF	ND (0.1)	ND (0.2)	5,590	--	--	--	5.19	472	--	-14	7.7	30
MW-54-140	DA	6/19/2020	(a)	LF	ND (0.5)	ND (0.2)	9,360	--	--	--	2.66	106	--	-2.6	7.8	25
MW-54-195	DA	6/19/2020	(a)	LF	ND (0.5)	ND (0.2)	16,300	--	--	--	ND (0.2)	350	--	-16	8.1	10
MW-55-045	MA	6/19/2020	(a)	LF	ND (0.1)	ND (0.2)	963	--	--	--	--	--	--	-74	7.9	9
MW-55-120	DA	6/19/2020	(a)	LF	8	9	5,970	--	--	--	--	--	--	250	8.2	5
MW-55-120	DA	6/19/2020	FD(a)	--	8	9	6,170	--	--	--	--	--	--	--	--	--
MW-56D	DA	6/19/2020	(a)	LF	ND (0.5)	ND (0.2)	16,100	--	--	--	--	--	--	170	7.6	3
MW-56M	DA	6/19/2020	(a)	LF	ND (0.5)	ND (0.2)	6,120	--	--	--	--	--	--	210	7.8	2
MW-56S	SA	6/19/2020	(a)	LF	ND (0.1)	ND (0.2)	4,010	--	--	--	--	--	--	-140	7.2	5
MW-57-070	BR	6/22/2020		LF	610	530	1,900	2.4	2.8	8.8	1.3	2	--	-40	7.1	9
MW-57-185	BR	6/22/2020		LF	1.3	1.9	17,000	78	ND (0.5)	0.14 J	4.3	2	--	-200	9.2	3
MW-57-185	BR	6/22/2020	FD	--	1.4	2	17,000	75	ND (0.5)	0.12	4.1	2	--	--	--	--
MW-58BR	BR	5/1/2020		LF	43	41	4,700	24	1.9	0.77	1.9	140	--	140	7.8	5
MW-59-100	SA	6/22/2020		LF	2100	2200	13,000	9	1.9	2.1	ND (0.1)	10	--	-65	6.9	15
MW-60-125	BR	6/24/2020		LF	660	630	9,100	17	5.2	3.8	ND (0.1)	5	--	180	7.6	3
MW-60BR-245-LF_S	BR	6/24/2020		LF	44	42	17,000	62	2.8	0.23	6.1	8	--	170	8.1	6
MW-62-065	BR	4/28/2020		LF	580	550	6,500	15	3.8	4.6	ND (0.1)	5	--	35	6.9	44
MW-62-110	BR	4/29/2020		Tap	ND (1.0)	ND (1.0)	14,000	71	ND (0.5)	3.3	2.9	130	--	-180	7	2
MW-62-190	BR	4/29/2020		Tap	ND (1.0)	ND (1.0)	19,000	41	ND (2.5)	ND (0.05)	ND (0.5)	700	--	-240	6.4	1
MW-62-190	BR	4/29/2020	FD	--	ND (1.0)	ND (1.0)	19,000	40	ND (2.5)	ND (0.05)	ND (0.5)	720	--	--	--	--
MW-63-065	BR	6/24/2020		LF	1	3	7,300	15	0.89	1.8	ND (0.1)	10	--	190	7	8
MW-64BR	BR	5/1/2020		--	ND (0.2)	2	740	37	ND (0.5)	0.056	0.77	160	--	130	7.9	9
MW-65-160	SA	4/29/2020		LF	190	210	3,100	40	7.2	10	0.63	52	--	69	7.4	46
MW-65-225	DA	4/29/2020		LF	280	260	14,000	43	3.7	4.9	ND (0.1)	92	--	33	7	39
MW-66-165	SA	4/29/2020		LF	530	520	4,200	6.2	29	29	0.39	7.7	--	86	6.9	45
MW-66-230	DA	4/29/2020		LF	6700	6300	19,000	79	17	23	8.4	2.3	--	61	7.4	9
MW-66-230	DA	4/29/2020	FD	--	6600	6600	19,000	81	17	23	8.7	2.3	--	--	--	--
MW-66BR-270	BR	6/24/2020		3V	ND (1.0)	ND (1.0)	17,000	1.1	ND (0.5)	0.47	ND (0.1)	6700	--	-220	8.4	9
MW-67-185	SA	4/30/2020		LF	2000	2000	7,600	5.1	380	91	ND (0.1)	ND (0.5)	--	91	6.8	13
MW-67-225	MA	4/30/2020		LF	3000	3200	7,500	48	87	27	1.3	5.2	--	81	7.1	10
MW-67-260	DA	4/30/2020		LF	1100	1100	19,000	67	ND (2.5)	0.62	11	120	--	20	8.3	9
MW-68-180	SA	4/30/2020		LF	41000	43000	5,500	53	21	36	1.8	9.6	--	100	6.8	4
MW-68-240	DA	4/30/2020		LF	2000	2000	17,000	22	3.7	4.1	ND (0.5)	17	--	51	7	4
MW-68BR-280	BR	4/30/2020		3V	ND (1.0)	ND (1.0)	22,000	13	ND (2.5)	ND (0.05)	0.36	110	--	-160	8.7	5
MW-69-195	BR	5/1/2020		LF	170	170	2,800	53	7	11	1.6	12 J	--	65	7	9

Table 3-1

Groundwater Sampling Results, Second Quarter 2020

Second Quarter 2020 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 Type	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Specific Conductance (µS/cm)	Dissolved Molybdenum (µg/L)	Dissolved Selenium (µg/L)	Nitrate/Nitrite as Nitrogen (mg/L)	Dissolved Arsenic (µg/L)	Dissolved Manganese (µg/L)	Dissolved Iron (µg/L)	ORP (mV)	Field pH (SU)	Turbidity (NTU)
MW-69-195	BR	5/1/2020	FD	--	180	170	2,800	52	7.2	9.6	1.6	9.2 J	--	--	--	--
MW-71-035	SA	5/1/2020		LF	ND (1.0)	ND (1.0)	13,000	15	ND (0.5)	0.19	2.2	66	--	110	7	39
MW-72-080	BR	4/28/2020		LF	100	95	16,000	74	1.3	1	6.5	89	--	-2.7	7.3	44
MW-72BR-200	BR	4/28/2020		LF	ND (1.0)	2.1	16,000	73	ND (0.5)	ND (0.05)	6.5	200	--	-210	7.6	12
MW-73-080	BR	4/28/2020		LF	26	24	9,500	36	4.2	3.9	ND (0.1)	4.5	--	21	6.9	28
MW-74-240	BR	4/30/2020		3V	ND (0.2)	1.5	700	20	ND (0.5)	ND (0.05)	11	17	--	44	7.8	112
TW-03D	DA	4/7/2020		Tap	440	420	6,800	--	--	2.9	--	21	ND (100 J)	93	7	1
TW-03D	DA	5/5/2020		Tap	450	410	7,600	--	--	3.4	--	19	ND (20)	52	7.8	3
TW-04	DA	6/25/2020		LF	3.7	4.1	20,000	41	0.58	--	--	70	--	120	7.5	13
TW-05	DA	6/25/2020		LF	12	12	12,000	32	0.58	--	--	4.6	--	180	7.9	22

Notes:

1. Beginning February 1, 2008, hexavalent chromium samples are field-filtered per DTSC-approved change from analysis Method SW7199 to E218.6.
2. The following analytical methods were used:
   Hexavalent chromium = USEPA Method 218.6
   Dissolved chromium, dissolved molybdenum, dissolved selenium, dissolved arsenic, dissolved manganese = Method SW6020
   Specific conductance = USEPA Method 120.1
   Nitrate/Nitrate as Nitrogen = SM 4500-NO3 F
3. Monitoring wells MW-57-050 and MW-58-065 were dry during the Second Quarter 2020 sampling event. Extraction wells PE-01, TW-02D, and TW-03D (in June 2020) and monitoring wells MW-61-110, MW-70-105, MW-70BR-225, and TW-01 were not sampled in Second Quarter 2020 due to construction activities associated with the final groundwater remedy at the site.

-- = not applicable or not reportable.
µg/L = micrograms per liter.
µS/cm = microSiemens per centimeter.
3V = three volume.
BR = bedrock.
DA = deep interval of Alluvial Aquifer.
DTSC = Department of Toxic Substance Control.
FD = field duplicate.
H = HydraSleeve.
J = concentration or reporting limit (RL) estimated by laboratory or data validation.
LF = Low Flow (minimal drawdown).
mV = millivolts.
ND = not detected at listed reporting limit.
NTU = nephelometric turbidity units.
ORP = oxidation-reduction potential.
SA = shallow interval of Alluvial Aquifer.
SU = standard units.
Tap = sampled from tap of extraction well.
USEPA = United States Environmental Protection Agency.

Table 3-2

Surface Water Sampling Results, Second Quarter 2020

Second Quarter 2020 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

Location ID	Sample Date	Sample Type	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)	Field pH (SU)	Specific Conductance (µS/cm)	Dissolved Molybdenum (µg/L)	Dissolved Selenium (µg/L)	Nitrate/Nitrite as Nitrogen (mg/L)	Dissolved Arsenic (µg/L)	Dissolved Iron (µg/L)	Iron (µg/L)	Dissolved Manganese (µg/L)	Dissolved Barium (µg/L)	Total Suspended Solids (mg/L)
C-BNS	4/29/2020		ND (0.2)	ND (1.0)	7.1	920	4.6	1.7	0.43	2.2	39 J	58 J	0.71	120	6.5
C-CON-D	4/30/2020		ND (0.2)	ND (1.0)	8.4	910	4.6	1.6	0.34	2.2	31 J	79	0.82	110	5.5
C-CON-D	4/30/2020	FD	ND (0.2)	ND (1.0)	--	900	4.4	1.7	0.4	2.1	29 J	99	0.83	100	ND (5.0)
C-CON-S	4/30/2020		ND (0.2)	ND (1.0)	8.3	900	4.5	1.5	0.43	2.2	ND (20)	73	0.52	110	ND (5.0)
C-I-3-D	4/29/2020		ND (0.2)	ND (1.0)	8.2	910	4.5	1.6	0.43	2.2	49 J	530 J	0.68	120	ND (5.0)
C-I-3-S	4/29/2020		ND (0.2)	ND (1.0)	8.3	920	4.5	1.7	0.44	2.2	29 J	75 J	ND (0.5)	120	5.0
C-MAR-D	4/30/2020		ND (0.2)	ND (1.0)	8.1	900	4.6	1.7	0.41	2.3	48 J	260	2.1	110	5.0
C-MAR-S	4/30/2020		ND (0.2)	ND (1.0)	8.2	880	4.5	1.6	0.4	2.2	22 J	72	1.9	110	ND (5.0)
C-NR1-D	4/30/2020		ND (0.2)	ND (1.0)	8.3	890	4.6	1.6	0.42	2.2	51 J	65	0.82	110	5.0
C-NR1-S	4/30/2020		ND (0.2)	ND (1.0)	8.2	890	4.4	1.6	0.43	2.1	ND (20)	61 J	ND (0.5)	110	ND (5.0)
C-NR1-S	4/30/2020	FD	ND (0.2)	ND (1.0)	--	890	4.6	1.7	0.43	2.1	ND (20)	180 J	ND (0.5)	100	5.5
C-NR3-D	4/30/2020		ND (0.2)	ND (1.0)	8.3	890	4.5	1.6	0.43	2.2	ND (20)	49	ND (0.5)	110	5.5
C-NR3-S	4/30/2020		ND (0.2)	ND (1.0)	8.3	880	4.4	1.6	0.37	2.0	ND (20)	30	ND (0.5)	110	ND (5.0)
C-NR4-D	4/30/2020		ND (0.2)	ND (1.0)	8.3	920	4.5	1.6	0.89	2.1	35 J	49	ND (0.5)	110	ND (5.0)
C-NR4-S	4/30/2020		ND (0.2)	ND (1.0)	8.3	910	4.5	1.6	0.38	2.2	ND (20)	42	0.53	110	ND (5.0)
C-R22A-D	4/29/2020		ND (0.2)	ND (1.0)	7.8	900	4.4	1.6	0.43	2.2	35 J	430 J	0.88	110	ND (5.0)
C-R22A-S	4/29/2020		ND (0.2)	ND (1.0)	7.4	900	4.5	1.5	0.38	2.2	ND (20 J)	88 J	0.58	110	ND (5.0)
C-R27-D	4/29/2020		ND (0.2)	ND (1.0)	7.2	890	4.5	1.6	0.42	2.2	47 J	71 J	1.1	110	ND (5.0)
C-R27-S	4/29/2020		ND (0.2)	ND (1.0)	7.4	890	4.4	1.6	0.39	2.2	37 J	70 J	ND (0.5 J)	110	ND (5.0)
C-R27-S	4/29/2020	FD	ND (0.2)	ND (1.0)	--	900	4.4	1.6	0.42	2.2	88 J	110 J	1.4 J	120	5.5
C-TAZ-D	4/29/2020		ND (0.2)	ND (1.0)	8.2	910	4.4	1.6	0.37	2.2	ND (20 J)	65 J	ND (0.5)	110	ND (5.0)
C-TAZ-S	4/29/2020		ND (0.2)	ND (1.0)	8.2	920	4.5	1.6	2.5	2.2	31 J	280 J	0.55	110	ND (5.0)
R-19	4/30/2020		ND (0.2)	ND (1.0)	8.3	890	4.4	1.5	0.38	2.1	26 J	47	1.4	110	ND (5.0)
R-28	4/29/2020		ND (0.2)	ND (1.0)	8.2	920	4.5	1.7	0.41	2.3	88 J	75 J	1.6	120	ND (5.0)
R63	4/29/2020		ND (0.2)	ND (1.0)	7.9	910	4.7	1.6	0.42	2.2	58 J	73 J	1.8	120	ND (5.0)
RRB	4/30/2020		ND (0.2)	ND (1.0)	8.3	900	4.7	2.9	0.31	2.2	ND (20)	24	1.8	110	ND (5.0)
SW1	4/30/2020		ND (0.2)	ND (1.0)	7.7	950	--	--	--	--	--	--	--	--	--
SW2	4/30/2020		ND (0.2)	ND (1.0)	7.6	940	--	--	--	--	--	--	--	--	--

Notes:

1. Beginning February 1, 2008, hexavalent chromium samples are field-filtered per DTSC-approved change from analysis Method SW7199 to E218.6.
2. The following analytical methods were used:
   Hexavalent chromium = USEPA 218.6
   Dissolved chromium, dissolved arsenic, dissolved barium, dissolved selenium = SW6020
   Dissolved iron, total iron, dissolved manganese, dissolved molybdenum = SW6010B
   Specific conductance = USEPA 120.1
   Nitrate/Nitrate as Nitrogen = SM 4500-NO3 F
   Total suspended solids = SM 2540D

-- = not applicable.
µg/L = micrograms per liter.
µS/cm = microSiemens per centimeter.
DTSC = Department of Toxic Substance Control.
FD = field duplicate.
ID = identification.
J = concentration or reporting limit (RL) estimated by laboratory or data validation.
mg/L = milligrams per liter.
ND = not detected at listed reporting limit.
SU = standard units.
USEPA = United States Environmental Protection Agency.

Printed: 7/6/2020

Table 4-1

Pumping Rate and Extracted Volume for IM-3 System, Second Quarter 2020

Second Quarter 2020 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report

PG&E Topock Compressor Station, Needles, California

Extraction Well ID	April 2020 Average Pumping Rate[a] (gpm)	April 2020 Volume Pumped (gal)	May 2020 Average Pumping Rate[a] (gpm)	May 2020 Volume Pumped (gal)	June 2020 Average Pumping Rate[a] (gpm)	June 2020 Volume Pumped (gal)	Second Quarter 2020 Average Pumping Rate[a] (gpm)	Second Quarter 2020 Volume Pumped (gal)
TW-02S	0.00	0	0.00	0	0.00	0	0.00	0
TW-02D	0.00	0	0.00	0	0.00	0	0.00	0
TW-03D	125.36	5,415,462	91.53	4,085,942	91.66	3,959,668	102.85	13,461,071
PE-01	0.00	0	0.00	0	0.00	0	0.00	0
TOTAL	**125.4**	**5,415,462**	**91.5**	**4,085,942**	**91.7**	**3,959,668**	**102.8**	**13,461,071**

Chromium Removed This Quarter (kg)	24.5
Chromium Removed Project to Date (kg)	4,430
Chromium Removed This Quarter (lb)	54.1
Chromium Removed Project to Date (lb)	9,760

Notes:

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

1. Chromium removed includes the period of March 1, 2020 through May 31, 2020.

gal = gallons.

gpm = gallons per minute.

ID = identification.

IM = Interim Measure.

kg = kilograms.

lb = pounds.

Table 4-2

Wells Monitored for Conditional Shutdown of PE-01, Second Quarter 2020

Second Quarter 2020 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report

PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Q2 2020 Sample Date	Q2 2020 Sample Method	Hexavalent Chromium 2014 Maximum Concentration (µg/L)	Hexavalent Chromium Q2 2020 Result (µg/L)	Dissolved Chromium 2014 Maximum Concentration (µg/L)	Dissolved Chromium Q2 2020 Result (µg/L)	Q2 2020 Result Exceeded 2014 Maximum Concentration?
MW-20-070	Shallow	04/24/2020	LF	2,200	**2,500**	2,400	**2,500**	**Yes**
MW-26	Shallow	04/27/2020	LF	2,400	2,300	2,300	2,300	No
MW-27-020	Shallow	--	--	ND (0.20)	--	ND (1.0)	--	--
MW-28-025	Shallow	06/23/2020	LF	ND (0.20)	ND (0.2)	ND (1.0)	ND (1.0)	No
MW-30-030	Shallow	--	--	0.21	--	ND (1.0)	--	--
MW-31-060	Shallow	06/24/2020	LF	600	320	660	280	No
MW-32-020	Shallow	--	--	ND (1.0)	--	ND (5.0)	--	--
MW-32-035	Shallow	06/18/2020	LF	ND (1.0)	ND (0.2)	ND (1.0)	ND (1.0)	No
MW-33-040	Shallow	06/17/2020	LF	0.28	ND (0.2)	ND (1.0)	ND (1.0)	No
MW-36-020	Shallow	--	--	ND (0.20)	--	ND (1.0)	--	--
MW-36-040	Shallow	--	--	0.34	--	ND (1.0)	--	--
MW-39-040	Shallow	--	--	ND (0.20)	--	ND (1.0)	--	--
MW-42-030	Shallow	--	--	0.54	--	ND (1.0)	--	--
MW-47-055	Shallow	06/25/2020	LF	16	16	16	16	No
MW-20-100	Middle	04/24/2020	LF	2,900	750	2,900	760	No
MW-27-060	Middle	--	--	ND (0.20)	--	ND (1.0)	--	--
MW-30-050	Middle	--	--	ND (0.20)	--	ND (1.0)	--	--
MW-33-090	Middle	06/17/2020	LF	13.3	3	15.5	6	No
MW-34-055	Middle	--	--	ND (0.20)	--	ND (1.0)	--	--
MW-36-050	Middle	--	--	ND (0.20)	--	ND (1.0)	--	--
MW-36-070	Middle	--	--	ND (0.20)	--	ND (1.0)	--	--
MW-39-050	Middle	--	--	ND (0.20)	--	ND (1.0)	--	--
MW-39-060	Middle	--	--	ND (0.20)	--	ND (1.0)	--	--
MW-39-070	Middle	--	--	ND (0.20)	--	ND (1.0)	--	--
MW-42-055	Middle	06/18/2020	LF	0.35	ND (0.2)	2.8	ND (1.0)	No
MW-42-065	Middle	06/18/2020	LF	ND (0.20)	ND (0.2)	ND (1.0)	ND (1.0)	No
MW-44-070	Middle	06/23/2020	LF	ND (0.20)	ND (0.2)	ND (1.0)	ND (1.0)	No
MW-51	Middle	04/27/2020	LF	4,800	3,300	4,800	3,200	No
MW-20-130	Deep	04/24/2020	LF	9,100	5,900	9,000	6,100	No
MW-27-085	Deep	06/18/2020	LF	ND (1.0)	ND (0.2)	ND (1.0)	ND (1.0)	No
MW-28-090	Deep	06/23/2020	LF	ND (0.20)	ND (0.2)	ND (1.0)	ND (1.0)	No
MW-31-135	Deep	--	--	12	--	12	--	--

Table 4-2

Wells Monitored for Conditional Shutdown of PE-01, Second Quarter 2020

Second Quarter 2020 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Q2 2020 Sample Date	Q2 2020 Sample Method	Hexavalent Chromium 2014 Maximum Concentration (µg/L)	Hexavalent Chromium Q2 2020 Result (µg/L)	Dissolved Chromium 2014 Maximum Concentration (µg/L)	Dissolved Chromium Q2 2020 Result (µg/L)	Q2 2020 Result Exceeded 2014 Maximum Concentration?
MW-33-150	Deep	06/17/2020	LF	12	5	10.8	**11**	**Yes**
MW-33-210	Deep	06/17/2020	LF	13	7	13.5	**15**	**Yes**
MW-34-080	Deep	06/18/2020	LF	ND (0.20)	ND (0.2)	ND (1.0)	ND (1.0)	No
MW-34-100	Deep	06/18/2020	LF	263	ND (0.2)	270	ND (1.0)	No
MW-36-090	Deep	06/16/2020	LF	ND (0.20)	ND (0.2)	ND (1.0)	ND (1.0)	No
MW-36-100	Deep	06/16/2020	LF	65	12	62	11	No
MW-39-080	Deep	--	--	ND (0.20)	--	ND (1.0)	--	--
MW-39-100	Deep	06/18/2020	LF	57	**93**	49	**91**	**Yes**
MW-44-115	Deep	06/23/2020	LF	41.6	4	42.9	4	No
MW-44-125	Deep	06/23/2020	LF	4.0 J	ND (0.2)	5.9	1	No
MW-45-095a	Deep	--	--	13.7*	--	14.2*	--	--
MW-46-175	Deep	06/23/2020	LF	46.3	5	46.1	23	No
MW-46-205	Deep	06/23/2020	LF	5.5	1	4.8	2	No
MW-47-115	Deep	06/25/2020	LF	24	24	20	**24**	**Yes**
PE-01	Deep	--	--	5.6	--	6	--	--
TW-04	Deep	06/25/2020	LF	7.4*	4	20	4	No

Notes:

1. Monitoring wells presented in the table are located within approximately 800 feet of TW-03D, as stated in DTSC 2015.
2. * = Result is the maximum concentration from 2013.
3. Values shown in parentheses are the reporting limit.
4. If a field duplicate sample was collected, the maximum concentration between the primary and field duplicate sample is presented.
5. On June 27, 2014, DTSC approved discontinuation of groundwater sampling at monitoring well MW-45-095a.
6. **Bold** values exceeded the 2013 and/or 2014 maximum concentration for hexavalent chromium and/or dissolved chromium.

-- = not applicable.
µg/L = micrograms per liter.
DTSC = Department of Toxic Substance Control.
ID = identification.
LF = low flow (minimal drawdown).
ND = not detected at listed reporting limit.
Q2 = second quarter.

References:

DTSC. 2015. Letter from Aaron Yue/DTSC to Yvonne Meeks/PG&E. "Conditional Approval of Proposal to Modify Interim Measures 3 (IM3) Extraction Well Pumping at Pacific Gas and Electric Company, Topock Compressor Station (PG&E), Needles, California (USEPA ID No. CAT080011729)." July 20.

Table 4-3

Groundwater Elevation Results, Second Quarter 2020

Second Quarter 2020 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report
PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	April Average Groundwater Elevation (ft amsl)	May Average Groundwater Elevation (ft amsl)	June Average Groundwater Elevation (ft amsl)	Quarterly Average Groundwater Elevation (ft amsl)	Days in Quarterly Average
MW-20-070	Shallow	453.36	454.63	455.09	454.36	91
MW-22	Shallow	454.49	455.16	455.39	455.02	91
MW-25	Shallow	454.73	455.63	456.20	455.52	91
MW-26	Shallow	454.34	455.25	455.91	455.17	91
MW-27-020	Shallow	455.59	456.53	456.64	456.26	91
MW-28-025	Shallow	455.59	456.50	456.41	456.15	84
MW-31-060	Shallow	454.43	455.48	455.60	455.17	91
MW-32-035	Shallow	455.09	456.03	456.20	455.76	88
MW-33-040	Shallow	455.01	455.96	456.24	455.74	91
MW-35-060	Shallow	455.65	456.60	456.68	456.31	91
MW-36-020	Shallow	455.07	456.01	456.30	455.80	91
MW-36-040	Shallow	455.25	456.18	456.33	455.93	91
MW-39-040	Shallow	454.88	455.89	456.11	455.63	91
MW-42-030	Shallow	454.89	455.85	456.03	455.59	91
MW-43-025	Shallow	455.49	456.35	456.34	456.07	91
MW-47-055	Shallow	455.41	456.32	456.46	456.07	91
MW-20-100	Middle	452.74	454.23	454.70	453.90	91
MW-27-060	Middle	455.63	456.51	456.56	456.24	91
MW-30-050	Middle	455.00	455.98	456.13	455.71	91
MW-33-090	Middle	455.08	456.05	456.71	455.95	91
MW-34-055	Middle	455.63	456.54	456.56	456.25	91
MW-36-050	Middle	455.16	456.13	456.36	455.89	91
MW-36-070	Middle	454.97	456.12	456.51	455.94	85
MW-39-050	Middle	454.76	455.82	456.26	455.61	91
MW-39-060	Middle	454.43	455.65	455.66	455.25	91
MW-39-070	Middle	453.76	455.02	455.11	454.63	91
MW-42-065	Middle	454.99	455.97	456.00	455.66	91
MW-44-070	Middle	455.29	456.25	456.24	455.93	91
MW-50-095	Middle	455.16	455.85	INC	455.71	70
MW-51	Middle	454.13	INC	INC	INC	27
MW-55-045	Middle	456.41	456.98	457.00	456.80	91
MW-20-130	Deep	452.42	453.80	454.19	453.47	91
MW-27-085	Deep	455.51	456.38	456.42	456.11	91
MW-28-090	Deep	455.34	456.25	INC	455.89	75
MW-31-135	Deep	453.75	455.00	455.33	454.70	91
MW-33-150	Deep	455.33	456.25	456.18	455.93	91
MW-34-080	Deep	455.82	456.77	456.80	456.46	91
MW-34-100	Deep	455.60	456.52	456.53	456.22	91
MW-35-135	Deep	455.09	455.94	456.14	455.77	85
MW-36-090	Deep	454.46	455.50	455.77	455.24	91
MW-36-100	Deep	454.72	455.84	455.83	455.47	91
MW-39-080	Deep	453.70	454.94	455.21	454.62	91
MW-39-100	Deep	454.42	455.66	455.84	455.31	91
MW-43-090	Deep	INC	456.69	456.76	INC	57
MW-44-115	Deep	454.67	INC	INC	INC	54
MW-44-125	Deep	455.13	456.16	456.31	455.87	91
MW-45-095a	Deep	455.07	456.07	456.09	455.75	91
MW-46-175	Deep	455.36	456.28	456.37	456.01	91
MW-47-115	Deep	454.70	INC	455.90	INC	63
MW-49-135	Deep	455.44	456.48	456.60	456.18	91
MW-54-085	Deep	455.60	456.74	456.22	456.19	91
MW-54-140	Deep	455.23	456.32	456.07	455.88	91
MW-54-195	Deep	INC	456.40	456.43	INC	57
MW-55-120	Deep	456.35	456.96	456.94	456.75	91
PT-2D	Deep	453.35	454.67	454.95	454.33	91
PT-5D	Deep	454.42	455.61	455.82	455.29	91
PT-6D	Deep	454.31	455.56	455.71	455.20	91
I-3	Surface water	456.08	457.13	457.08	456.77	91
RRB	Surface water	INC	INC	INC	INC	0

Notes:

ft amsl = feet above mean sea level.
INC = data are incomplete; less than 75 percent of data were available during the reporting period due to rejection, field equipment malfunction, or inaccessibility.
ID = identification.

Table 4-4

Average Hydraulic Gradients Measured at Well Pairs, Second Quarter 2020

Second Quarter 2020 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report

PG&E Topock Compressor Station, Needles, California

Gradient Pair	Well Pair	Reporting Period	Mean Landward Hydraulic Gradient (feet/foot)	Days in Monthly Average	PE-01 Run for Gradient Control?
Overall Average	--	April	0.0045	--	No
Overall Average	--	May	0.0037	--	No
Overall Average	--	June	0.0030	--	No
Northern Gradient Pair	MW-31-135 / MW-33-150	April	0.0033	30	No
Northern Gradient Pair	MW-31-135 / MW-33-150	May	0.0026	31	No
Northern Gradient Pair	MW-31-135 / MW-33-150	June	0.0018	30	No
Central Gradient Pair (used when PE-01 is run for gradient control)	MW-45-095 / MW-34-100	April	--	--	--
Central Gradient Pair (used when PE-01 is run for gradient control)	MW-45-095 / MW-34-100	May	--	--	--
Central Gradient Pair (used when PE-01 is run for gradient control)	MW-45-095 / MW-34-100	June	--	--	--
Central Gradient Pair (used when PE-01 is not run for gradient control)	MW-20-130 / MW-34-100	April	0.0056	30	No
Central Gradient Pair (used when PE-01 is not run for gradient control)	MW-20-130 / MW-34-100	May	0.0048	31	No
Central Gradient Pair (used when PE-01 is not run for gradient control)	MW-20-130 / MW-34-100	June	0.0041	30	No
Southern Gradient Pair (used when PE-01 is run for gradient control)	MW-45-095 / MW-27-085	April	--	--	--
Southern Gradient Pair (used when PE-01 is run for gradient control)	MW-45-095 / MW-27-085	May	--	--	--
Southern Gradient Pair (used when PE-01 is run for gradient control)	MW-45-095 / MW-27-085	June	--	--	--
Southern Gradient Pair (used when PE-01 is not run for gradient control)	MW-20-130 / MW-27-085	April	0.0045	30	No
Southern Gradient Pair (used when PE-01 is not run for gradient control)	MW-20-130 / MW-27-085	May	0.0037	31	No
Southern Gradient Pair (used when PE-01 is not run for gradient control)	MW-20-130 / MW-27-085	June	0.0032	30	No

Notes:

1. The target mean landward hydraulic gradient for the selected well pairs is 0.001 feet/foot.
2. "Days in Monthly Average" refers to the number of days the pressure transducers in both wells were operating correctly.
3. Beginning in August 2017, MW-20-130 was approved for gradient compliance (instead of MW-45-95) at the central and southern well pairs during months when PE-01 is not run for gradient control.
4. MW-45-095 is also known as MW-45-095a.

-- = not applicable

Table 4-5

Interim Measure Contingency Plan Trigger Levels and Results, Second Quarter 2020

Second Quarter 2020 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report

PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Q2 2020 Sample Date	Q2 2020 Sample Method	Hexavalent Chromium Trigger Level (µg/L)	Q2 2020 Hexavalent Chromium Result (µg/L)	Q2 2020 Result Exceeded Trigger Level?
MW-21	Shallow	4/30/2020	LF	20	4.6	No
MW-27-085	Deep	6/18/2020	LF	20	ND (0.2)	No
MW-28-090	Deep	6/23/2020	LF	20	ND (0.2)	No
MW-32-020	Shallow	--	--	20	--	--
MW-32-035	Shallow	6/18/2020	LF	20	ND (0.2)	No
MW-33-040	Shallow	6/17/2020	LF	20	ND (0.2)	No
MW-33-090	Middle	6/17/2020	LF	25	3.3	No
MW-33-150	Deep	6/17/2020	LF	20	4.9	No
MW-33-210	Deep	6/17/2020	LF	20	7.2	No
MW-34-080	Deep	6/18/2020	LF	20	ND (0.2)	No
MW-34-100	Deep	6/18/2020	LF	750	ND (0.2)	No
MW-36-070	Middle	--	--	20	--	--
MW-39-040	Shallow	--	--	20	--	--
MW-42-055	Middle	6/18/2020	LF	20	ND (0.2)	No
MW-42-065	Middle	6/18/2020	LF	20	ND (0.2)	No
MW-43-075	Deep	--	--	20	--	--
MW-43-090	Deep	--	--	20	--	--
MW-44-070	Middle	6/23/2020	LF	20	ND (0.2)	No
MW-44-115	Deep	6/23/2020	LF	1,200	4	No
MW-44-125	Deep	6/23/2020	LF	475	ND (0.2)	No
MW-46-175	Deep	6/23/2020	LF	225	5.3	No
MW-46-205	Deep	6/23/2020	LF	20	1.2	No
MW-47-055	Shallow	6/25/2020	LF	150	16	No
MW-47-115	Deep	6/25/2020	LF	31	24	No

Notes:

1. If a field duplicate sample was collected, the maximum concentration between the primary and field duplicate sample is presented.
2. None of the results from the Second Quarter 2020 exceeded their respective trigger level.

-- = not applicable.
µg/L = micrograms per liter.
ID = identification.
LF = Low Flow (minimal drawdown).
ND = not detected at listed reporting limit.
Q2 = second quarter.

Table 4-6

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

Second Quarter 2020 Interim Measures Performance Monitoring and Site-wide

Groundwater and Surface Water Monitoring Report

PG&E Topock Compressor Station, Needles, California

Month, Year	Davis Dam Release Projected (cfs)	Davis Dam Release Actual (cfs)	Davis Dam Release Difference (cfs)	Colorado River Elevation at I-3 Predicted (ft amsl)	Colorado River Elevation at I-3 Actual (ft amsl)	Colorado River Elevation at I-3 Difference (feet)
January 2013	8,300	8,299	1	453.20	453.28	0.04
February 2013	10,600	10,972	-372	454.30	454.63	0.40
March 2013	15,200	15,545	-345	456.00	456.29	0.30
April 2013	17,600	17,090	510	456.90	456.74	0.10
May 2013	15,800	15,592	208	456.40	456.44	0.00
June 2013	15,700	15,588	112	456.50	456.47	0.00
July 2013	14,400	13,165	1,235	456.00	455.79	0.20
August 2013	13,100	12,185	915	455.40	455.43	0.00
September 2013	11,700	11,446	254	454.80	455.02	0.20
October 2013	12,300	12,497	-197	454.90	455.09	0.20
November 2013	9,700	8,918	782	454.00	453.98	0.00
December 2013	6,400	7,636	-1,236	452.40	452.81	0.40
January 2014	8,300	8,970	-670	452.80	453.27	0.50
February 2014	11,600	11,850	-250	454.30	454.67	0.30
March 2014	16,600	17,473	-873	456.40	456.70	0.30
April 2014	18,200	17,718	482	457.10	457.08	0.00
May 2014	16,700	16,622	78	456.80	456.68	0.10
June 2014	15,900	15,917	-17	456.60	456.64	0.10
July 2014	15,100	14,640	460	456.30	456.24	0.00
August 2014	12,300	11,336	964	455.20	455.26	0.10
September 2014	13,100	12,211	889	455.30	455.30	0.00
October 2014	10,700	10,434	266	454.30	454.81	0.50
November 2014	10,700	10,575	125	454.30	454.22	0.10
December 2014	6,400	7,235	-835	452.40	452.93	0.50
January 2015	10,600	10,740	-140	454.30	454.39	0.09
February 2015	10,500	11,252	-752	454.20	454.52	0.32
March 2015	14,900	15,658	-758	455.90	456.29	0.39
April 2015	18,000	17,170	830	457.10	456.82	0.28
May 2015	16,000	13,890	2110	456.50	456.06	0.50
June 2015	14,500	13,616	884	456.10	455.94	0.16
July 2015	13,400	12,411	989	455.60	455.50	0.10
August 2015	12,100	12,627	-527	455.10	455.45	0.40
September 2015	13,300	12,734	566	455.40	INC	NA
October 2015	11,300	10,653	647	454.70	454.80	0.1
November 2015	10,000	10,066	-66	454.16	453.87	0.29
December 2015	6,200	8,556	-2,356	453.30	453.48	-0.18
January 2016	9,400	9,000	400	453.44	454.05	-0.60
February 2016	11,300	11,700	-400	454.37	454.95	-0.57
March 2016	15,800	15,000	800	455.86	456.51	-0.65
April 2016	15,400	16,400	-1,000	456.77	457.17	-0.40
May 2016	15,800	14,700	1,100	455.98	456.76	-0.78
June 2016	14,400	14,100	300	456.01	456.64	-0.62
July 2016	13,300	13,100	200	455.73	456.38	-0.65
August 2016	11,500	11,600	-100	455.02	455.70	-0.69
September 2016	12,200	11,900	300	455.19	455.83	-0.63
October 2016	10,400	10,400	0	454.25	455.23	-0.98
November 2016	9,900	9,600	300	453.70	454.40	-0.70
December 2016	8,300	7,800	500	453.37	453.55	-0.18
January 2017	8,000	6,600	1,400	453.22	453.36	-0.14
February 2017	9,500	8,700	800	453.91	454.15	-0.24
March 2017	13,900	13,700	200	455.53	456.10	-0.57
April 2017	15,900	16,100	-200	456.40	456.97	-0.57
May 2017	14,000	13,800	200	455.74	456.39	-0.66
June 2017	13,600	14,300	-700	455.95	456.46	-0.51
July 2017	13,300	13,300	0	455.62	456.22	-0.59

Table 4-6

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

Second Quarter 2020 Interim Measures Performance Monitoring and Site-wide

Groundwater and Surface Water Monitoring Report

PG&E Topock Compressor Station, Needles, California

Month, Year	Davis Dam Release Projected (cfs)	Davis Dam Release Actual (cfs)	Davis Dam Release Difference (cfs)	Colorado River Elevation at I-3 Predicted (ft amsl)	Colorado River Elevation at I-3 Actual (ft amsl)	Colorado River Elevation at I-3 Difference (feet)
August 2017	11,500	11,500	0	454.91	455.59	-0.68
September 2017	12,700	11,100	1,600	454.39	455.32	-0.93
October 2017	12,000	10,900	1,100	454.01	455.15	-1.14
November 2017	10,400	10,000	400	454.25	454.70	-0.45
December 2017	8,800	9,000	-200	453.51	454.09	-0.58
January 2018	8,100	7,100	1,000	452.50	453.05	-0.55
February 2018	11,100	11,000	100	454.40	454.82	-0.42
March 2018	14,400	13,600	800	455.38	455.94	-0.56
April 2018	16,000	16,800	-800	456.25	457.09	-0.84
May 2018	15,900	16,300	-400	456.80	457.06	-0.26
June 2018	15,600	15,300	300	456.40	456.88	-0.48
July 2018	13,700	13,400	300	455.60	456.33	-0.73
August 2018	12,000	11,900	100	454.91	455.58	-0.67
September 2018	13,400	13,700	-300	464.03	456.29	7.74
October 2018	11,200	10,300	900	454.54	455.16	-0.62
November 2018	10,500	10,300	200	454.40	455.02	-0.62
December 2018	7,300	6,300	1000	452.94	453.33	-0.39
January 2019	7,300	6,800	500	452.96	453.32	-0.36
February 2019	11,800	10,200	1600	454.71	454.85	-0.14
March 2019	12,400	12,200	200	455.09	455.47	-0.38
April 2019	15,100	14,900	200	456.20	456.55	-0.35
May 2019	15,200	15,200	0	456.40	456.87	-0.47
June 2019	15,100	14,900	200	456.38	456.80	-0.42
July 2019	14,200	14,500	-300	455.90	456.53	-0.63
August 2019	12,700	13,000	-300	455.31	455.84	-0.53
September 2019	13,600	12,900	700	455.52	456.06	-0.54
October 2019	9,800	9,600	200	454.19	454.88	-0.69
November 2019	8,400	7,700	700	453.71	453.89	-0.18
December 2019	4,300	4,000	300	451.93	452.61	-0.68
January 2020	5,600	6,200	-600	452.39	452.62	-0.23
February 2020	8,300	9,100	-800	453.34	453.80	-0.46
March 2020	13,300	8,900	4400	455.42	454.61	0.81
April 2020	14,600	14,500	100	456.04	456.08	-0.04
May 2020	16,200	16,700	-500	456.60	457.13	-0.53
June 2020	15,900	15,700	200	456.67	457.08	-0.41
July 2020	14,200	--	--	455.92	--	--

Notes:

1. Projected river level for each month is calculated based on the preceding month's U.S. Bureau of Reclamation (USBR) projections of Davis Dam release and stage in Lake Havasu.

2. Projected and actual Davis Dam releases are reported monthly by the USBR, available online at https://www.usbr.gov/uc/water/crsp/studies/24Month_07.pdf.

-- = not applicable.

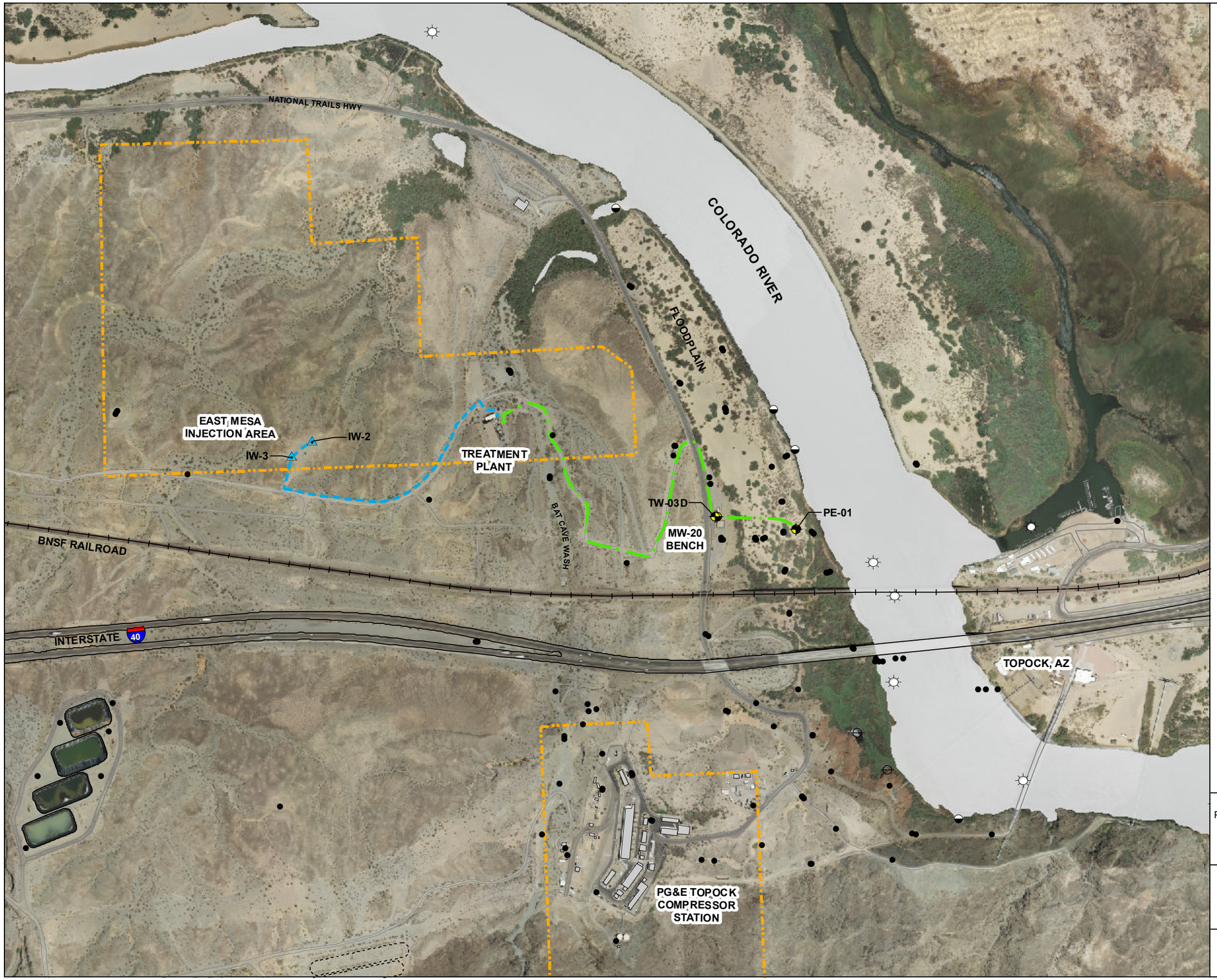
cfs = cubic feet per second.

ft amsl = feet above mean sea level.

INC = incomplete data set for Colorado River elevation at I-3.

NA = difference in predicted and actual river elevation not available due to incomplete dataset.

FIGURES



LEGEND

- IM-3 Extraction Well (Active)
- IM-3 Injection Well
- Monitoring Well in Site-Wide Groundwater Monitoring Program (GMP)
- 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

Notes:
1. Location map shows Interim Measure No. 3 (IM-3) active facilities as of current report.
2. See Figures 1-2 and 1-3 for complete monitoring locations and identifications.

0 500 1,000
Feet

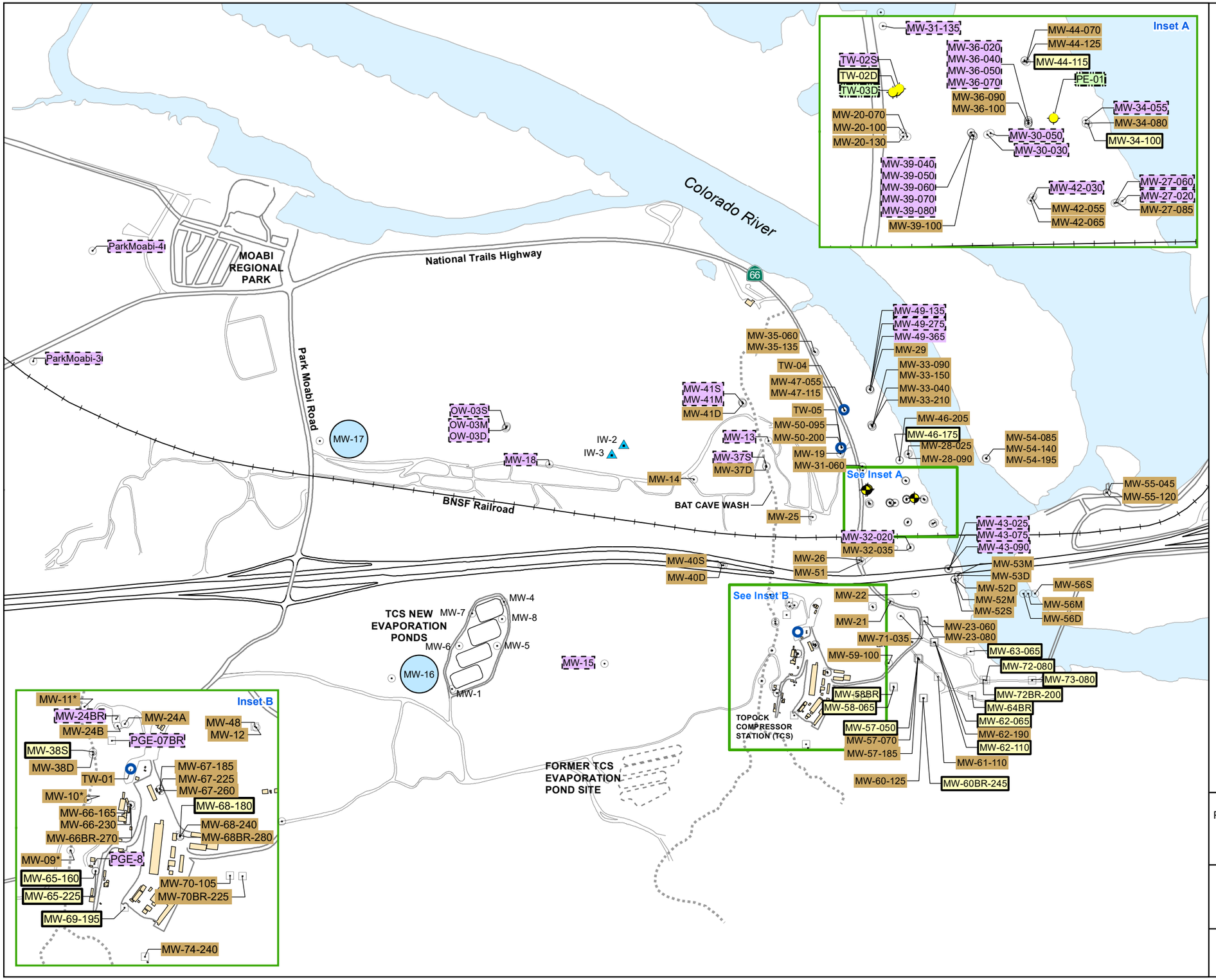
SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

LOCATIONS OF IM-3 FACILITIES AND MONITORING LOCATIONS

ARCADIS Design & Consultancy for natural and built assets

FIGURE
1-1

Z:\GISPROJECTS_ENV\PGE_TOPOCK\GEC\MXD\GMP\2Q20\FINAL\FIGURE1-1_IM3_GMP_LOCS_2020Q2.MXD 06/25/2020 10:56:00 AM



LEGEND

- Groundwater Monitoring Well Completed in Bedrock
- Injection Well
- Groundwater Monitoring Well Completed in Alluvial Aquifer
- Test Well or Supply Well (Inactive)
- Extraction Well (TW-03D and PE-01 are primary extraction wells; TW-02S and TW-02D are backup extraction wells)

Sampling Frequency for Groundwater Monitoring Program (GMP)

- MW-17 — Biennial sampling
- MW-13 — Annual sampling
- MW-09* — Collect additional sample in quarter following a runoff event with flow through Bat Cave Wash culverts.
- MW-21 — Semiannual sampling
- MW-38S — Quarterly sampling
- TW-3D — Monthly sampling

Notes:
1. GMP = Groundwater Monitoring Program
2. TCS = Topock Compressor Station

0 500 1,000
Feet

SECOND QUARTER 2020 INTERIM MEASURES
PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

MONITORING LOCATIONS AND SAMPLING FREQUENCY FOR GMP

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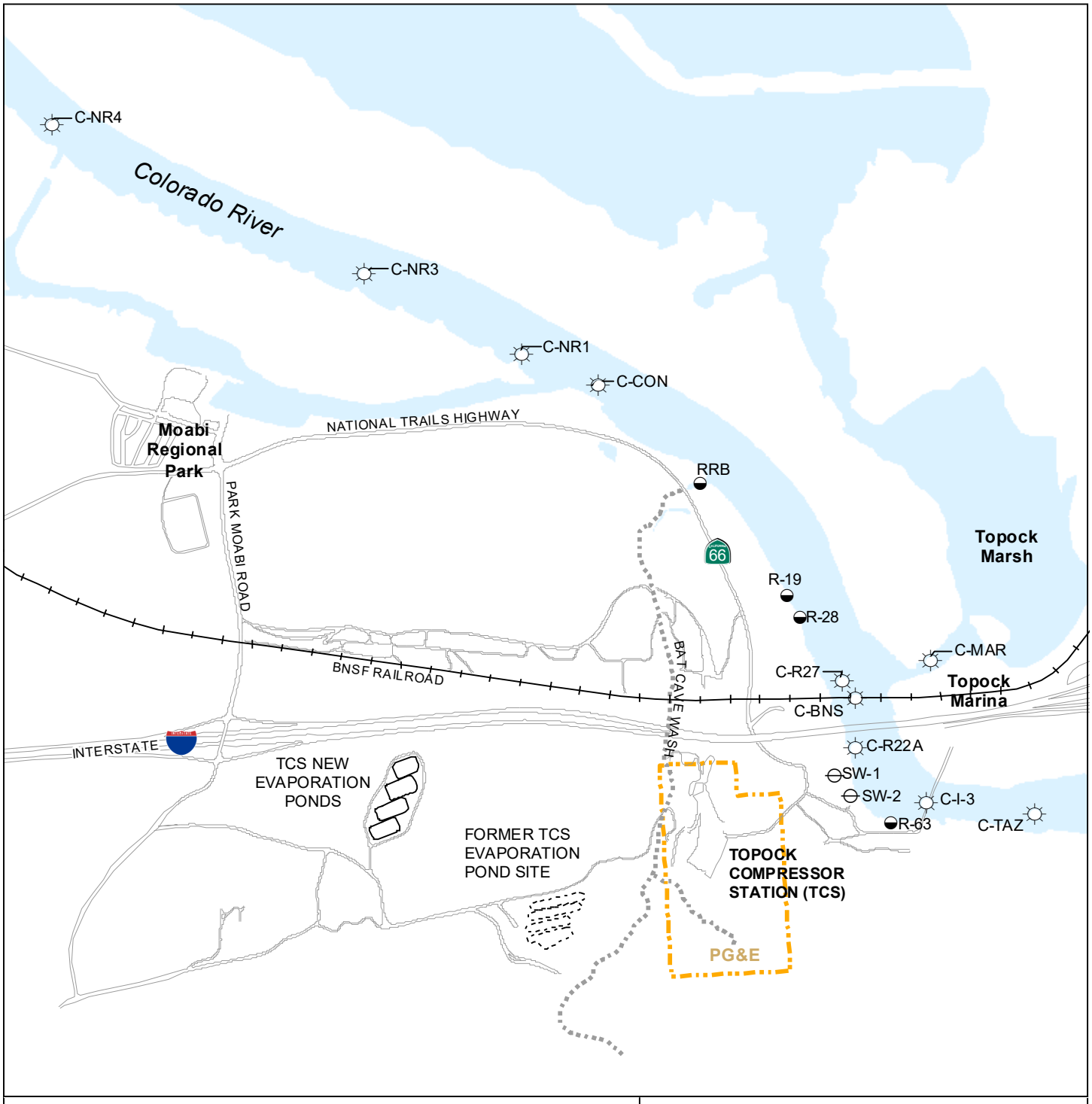
FIGURE
1-2

T:_ENV\PGE_TOPOCK\GEC\MXD\GMP\2Q20\FINAL\FIGURE1-2_GMP_SAMPLING_FREQUENCY_2020Q2.MXD 7/7/2020 12:07:02 AM



LEGEND

- Shoreline Surface Water Monitoring Location
- River Channel Surface Water Monitoring Location
- Other Surface Water Monitoring Location
- PG&E Property Line

0 600 1,200

Feet

Notes:

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

SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT

PG&E TOPOCK COMPRESSOR STATION NEEDLES, CALIFORNIA

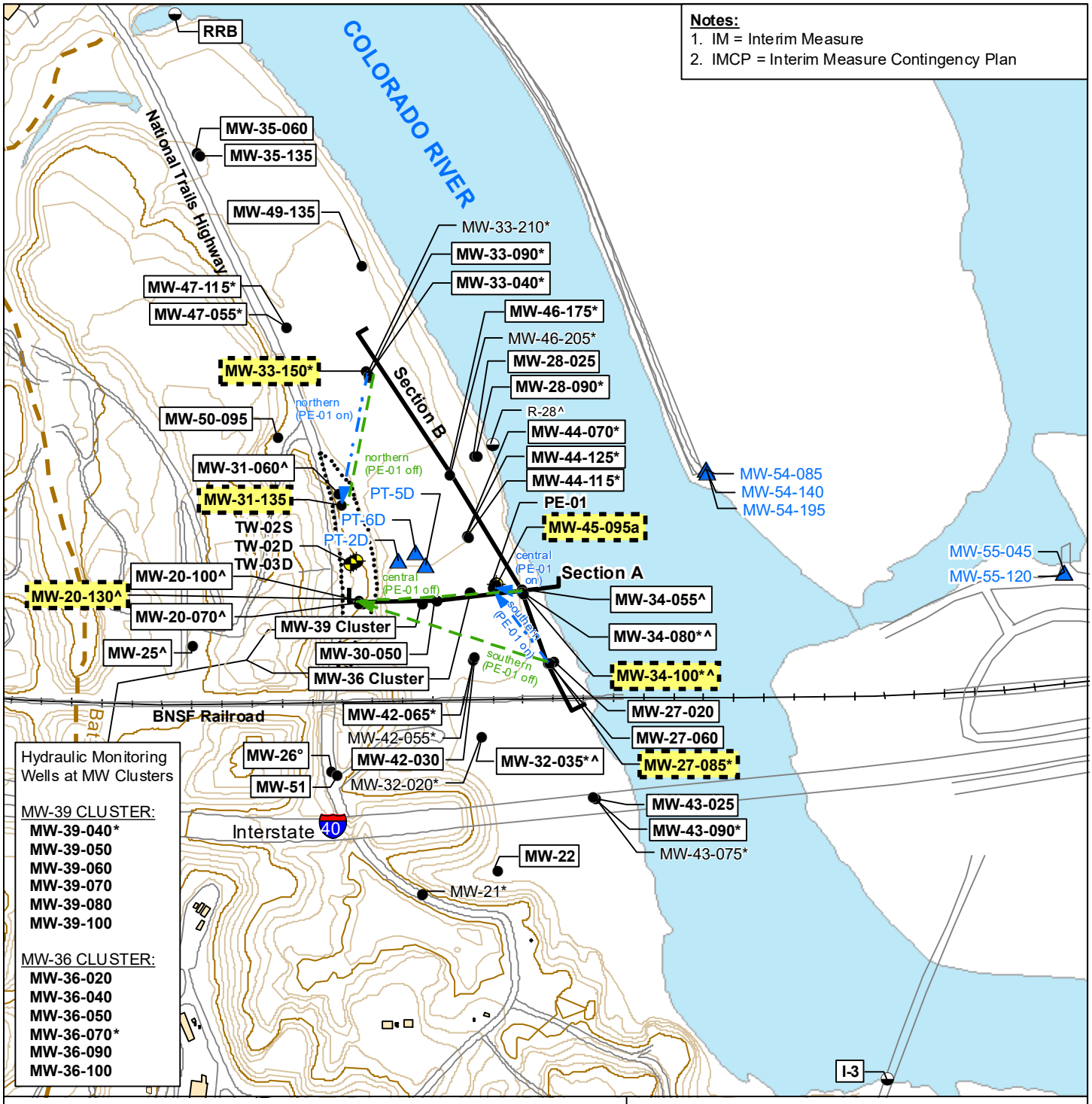
MONITORING LOCATIONS AND SAMPLING FREQUENCY FOR RMP

ARCADIS

FIGURE

1-3

Z:\GISPROJECTS_ENV\PGE_TOPOCK\GEC\MXD\GMP\2Q20\FINAL\FIGURE1-3_GMP_RIVER_SWLOCS_2020Q2.MXD 06/25/2020 11:00:17 AM



SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT

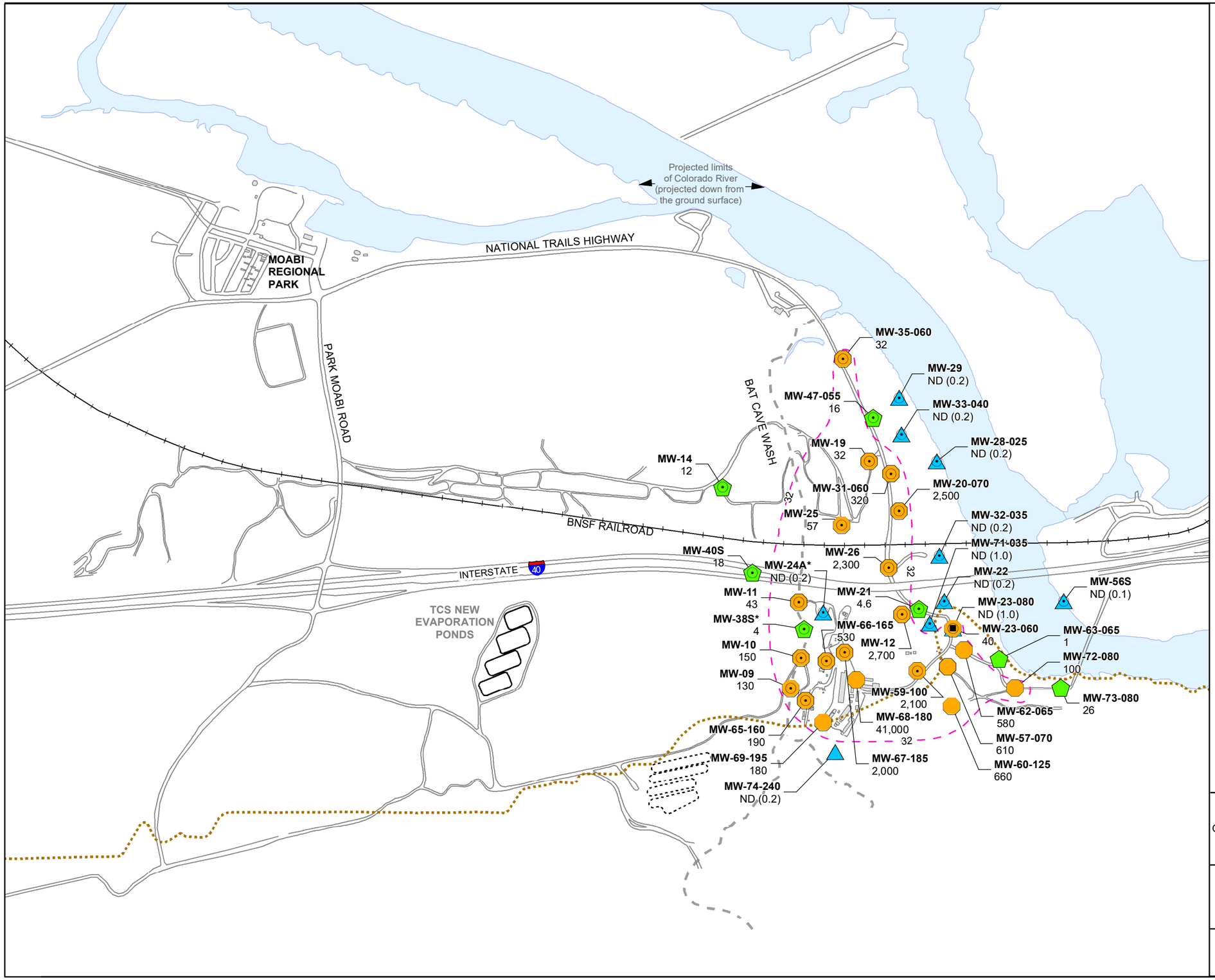
PG&E TOPOCK COMPRESSOR STATION NEEDLES, CALIFORNIA

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

ARCADIS

FIGURE **1-4**

Z:\GISPROJECTS_ENV\PGE_TOPOCK\GEC\MXD\GMP\2Q20\FINAL\FIGURE1-4_IMP_XSECTION_2020Q2.MXD 06/25/2020 11:12:07 AM



LEGEND

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

Cr(VI) Concentrations

- Not detected at analytical reporting limit
- Concentration between reporting limit and 32 µg/L
- Concentration ≥ 32 µg/
- Approximate boundary of "shallow" wells with Cr(VI) concentrations ≥ 32 µg/L
- Approximate bedrock contact at 455 feet above mean sea level.

MW-35-060 ——— Sampling Location
32 ——— Groundwater Cr(VI) Concentration (µg/L)

Notes:
1. ND = Cr(VI) not detected at analytical reporting limit.
2. µg/L = micrograms per liter
3. Cr(VI) = Hexavalent Chromium
4. TCS = Topock Compressor Station
5. ≥ = greater than or equal to
6. 32 µg/L is used as the background Cr(VI) concentration in groundwater for remedial activities.
7. Results plotted are maximum concentration from primary and duplicate samples.
8. The 32 µg/L boundary for Cr(VI) is estimated based on available groundwater analytical results from Fourth Quarter 2019 and the current quarter.
9. Long-screened wells and wells screened across more than one depth interval are generally not posted on this map.
10. * = Wells with sampled values less than 32 ug/L shown within footprint of 32 ug/L boundary.

0 500 1,000
Feet

SECOND QUARTER 2020 INTERIM MEASURES
PERFORMANCE MONITORING AND SITE-WIDE
GROUNDWATER AND SURFACE WATER MONITORING REPORT

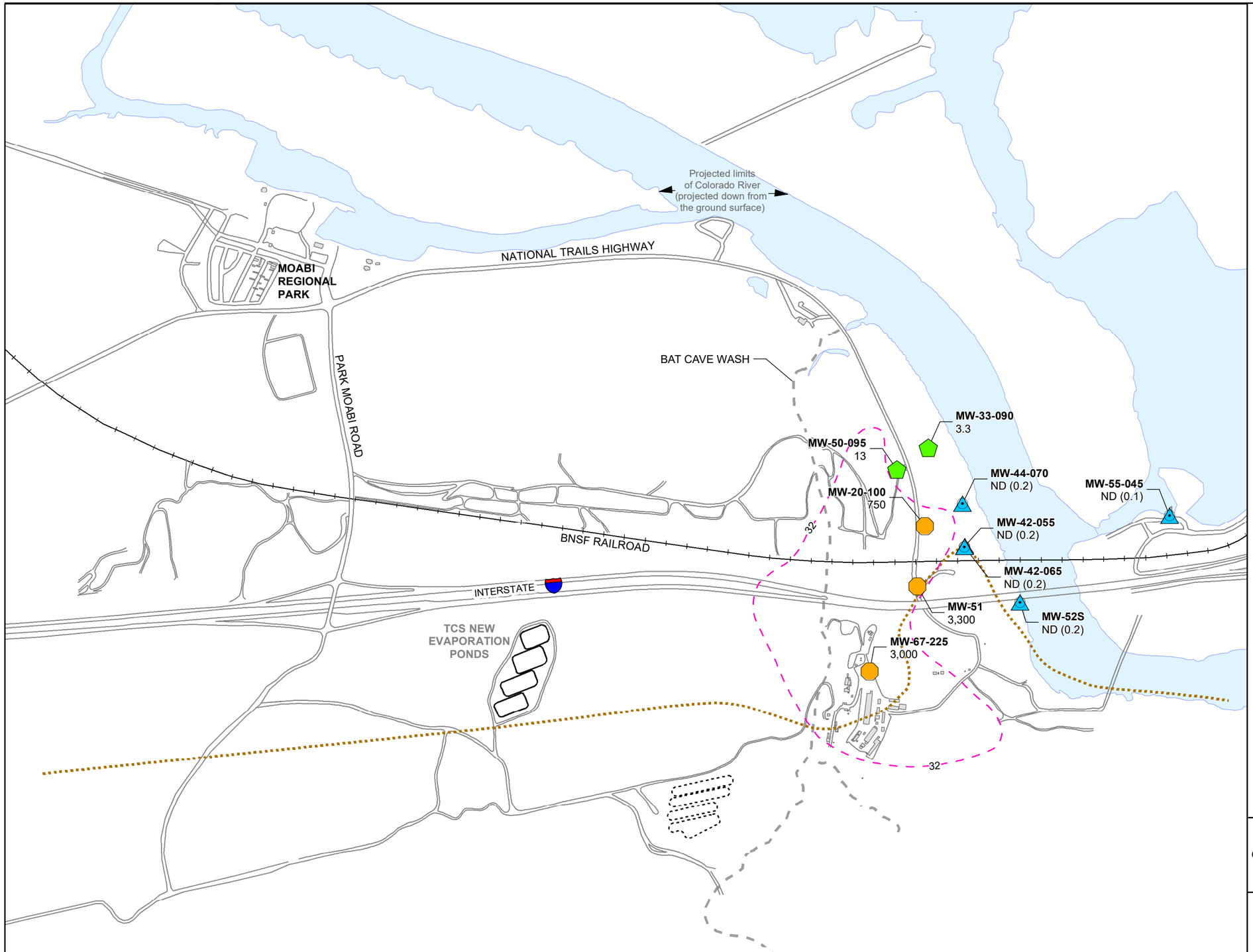
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

Cr(VI) SAMPLING RESULTS, SHALLOW WELLS IN ALLUVIAL AQUIFER AND BEDROCK, SECOND QUARTER 2020

ARCADIS Design & Consultancy for natural and built assets

FIGURE
3-1a

T:_ENV\PGE_TOPOCK\GEC\MXD\GMP\2Q20\FINAL\FIGURE3-1A_CRVI_SHALLOW_2020Q2.MXD PSI01045 08/03/2020 1:20:13 AM



LEGEND

- Alluvial Aquifer well sampled during sampling event

Cr(VI) Concentrations

- Not detected at analytical reporting limit
- Concentration between reporting limit and 32 µg/L
- Concentration ≥ 32 µg/L
- Approximate boundary of "mid-depth" wells with Cr(VI) concentrations ≥ 32 µg/L
- Approximate bedrock contact at 395 feet above mean sea level.

MW-33-090 — Sampling Location
3.3 — Groundwater Cr(VI) Concentration (µg/L)

Notes:
1. ND = Cr(VI) not detected at analytical reporting limit.
2. µg/L = micrograms per liter
3. Cr(VI) = Hexavalent Chromium
4. TCS = Topock Compressor Station
5. ≥ = greater than or equal to
6. 32 µg/L is used as the background Cr(VI) concentration in groundwater for remedial activities.
7. Results plotted are maximum concentration from primary and duplicate samples.
8. The 32 µg/L boundary for Cr(VI) is estimated based on available groundwater analytical results from Fourth Quarter 2019 and the current quarter.
9. Long-screened wells and wells screened across more than one depth interval are generally not posted on this map.

0 500 1,000
Feet

SECOND QUARTER 2020 INTERIM MEASURES
PERFORMANCE MONITORING AND SITE-WIDE
GROUNDWATER AND SURFACE WATER MONITORING REPORT

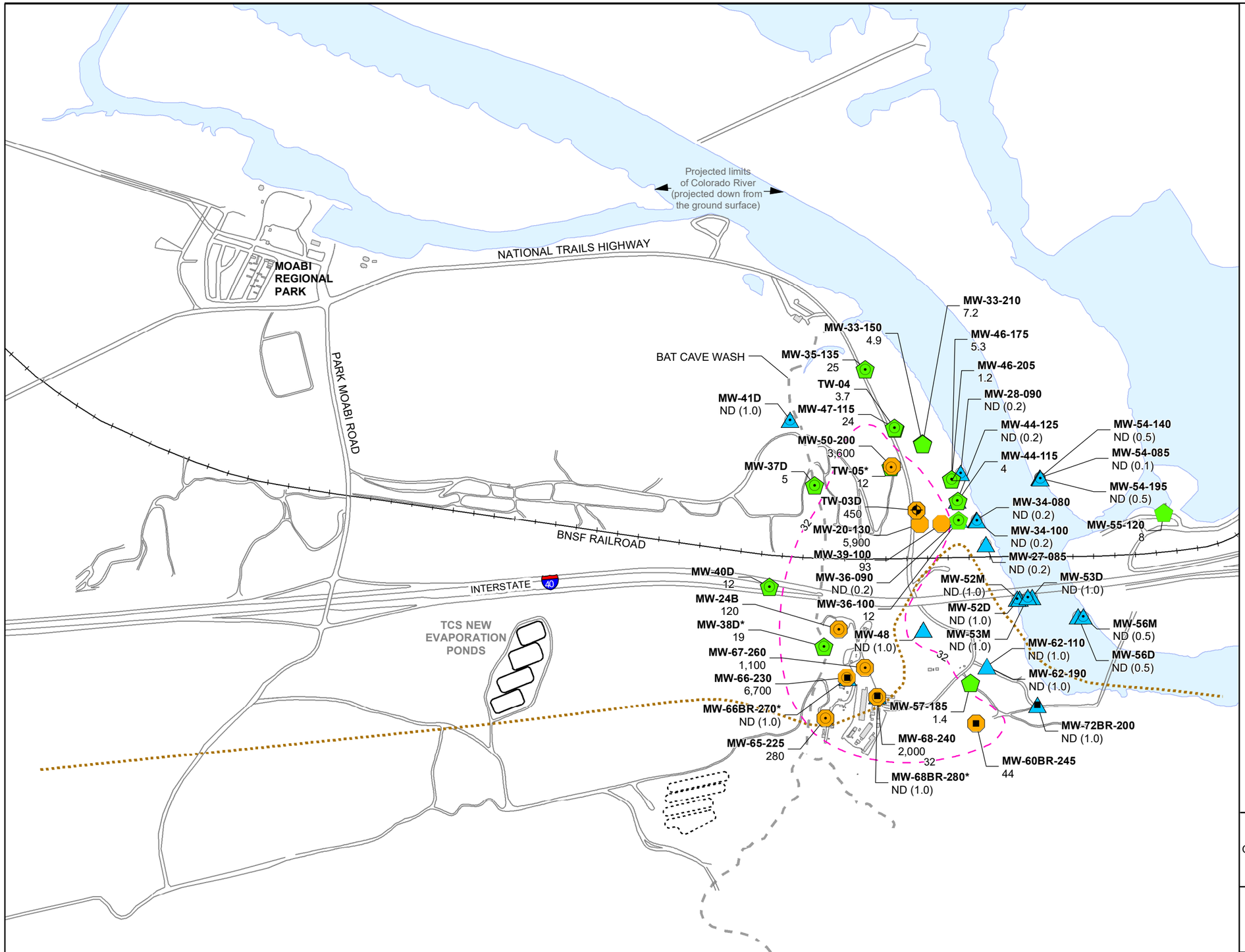
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

Cr(VI) SAMPLING RESULTS, MID-DEPTH WELLS IN ALLUVIAL AQUIFER AND BEDROCK, SECOND QUARTER 2020

ARCADIS Design & Consultancy for natural and built assets

FIGURE
3-1b

T:_ENV\PGE_TOPOCK\GEC\MXD\GMP\2Q20\FINAL\FIGURE3-1B_CRVI_MIDDEPTH_2020Q2.MXD PSI01045 07/31/2020 1:48:52 AM



LEGEND

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

Cr(VI) Concentrations

- Not detected at analytical reporting limit
- Concentration between reporting limit and 32 µg/L
- Concentration ≥ 32 µg/L
- Approximate boundary of "deep" wells with Cr(VI) concentrations ≥ 32 µg/L
- Approximate bedrock contact at 395 feet above mean sea level.

MW-46-175 ——— Sampling Location
5.3 ——— Groundwater Cr(VI) Concentration (µg/L)

Notes:
1. ND = Cr(VI) not detected at analytical reporting limit.
2. µg/L = micrograms per liter
3. Cr(VI) = Hexavalent Chromium
4. TCS = Topock Compressor Station
5. ≥ = greater than or equal to
6. 32 µg/L is used as the background Cr(VI) concentration in groundwater for remedial activities.
7. Results plotted are maximum concentration from primary and duplicate samples.
8. The 32 µg/L boundary for Cr(VI) is estimated based on available groundwater analytical results from Fourth Quarter 2019 and the current quarter.
9. Long-screened wells and wells screened across more than one depth interval are generally not posted on this map.
10. * = Wells with sampled values less than 32 ug/L shown within footprint of 32 ug/L boundary.

SECOND QUARTER 2020 INTERIM MEASURES
PERFORMANCE MONITORING AND SITE-WIDE
GROUNDWATER AND SURFACE WATER MONITORING REPORT

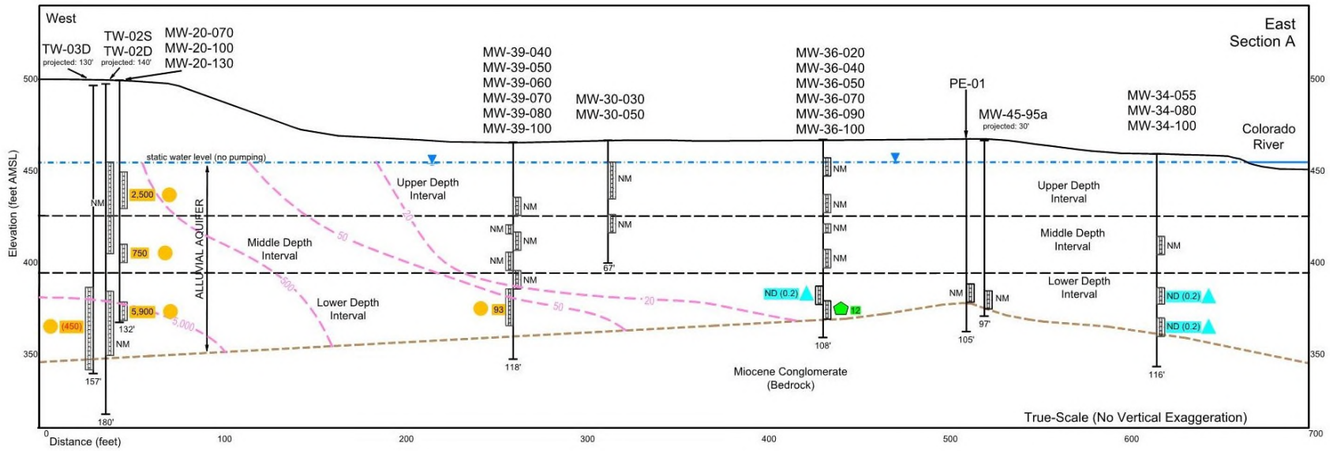
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

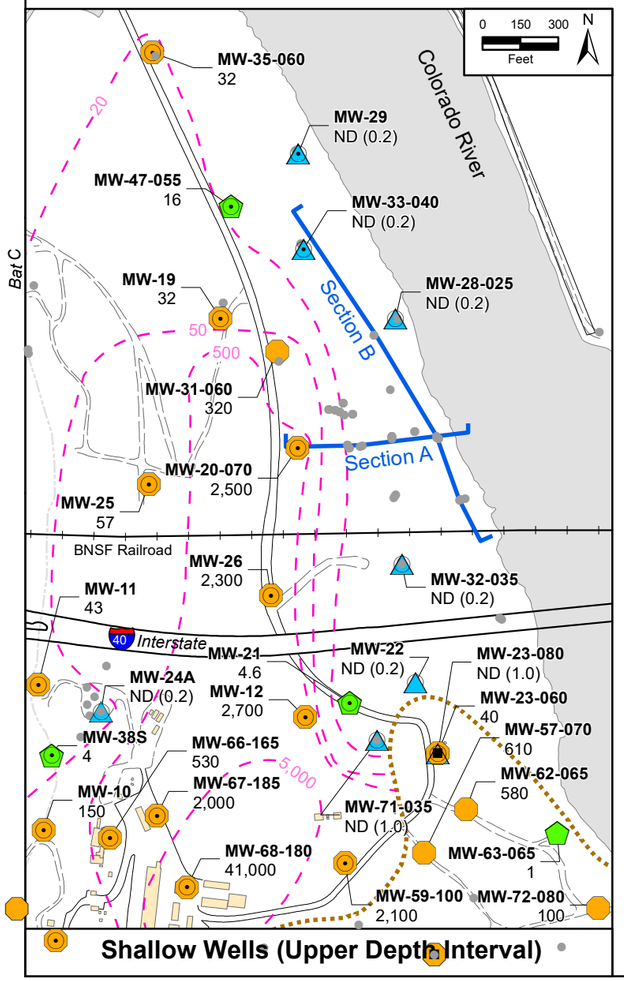
Cr(VI) SAMPLING RESULTS, DEEP WELLS IN ALLUVIAL AQUIFER AND BEDROCK, SECOND QUARTER 2020

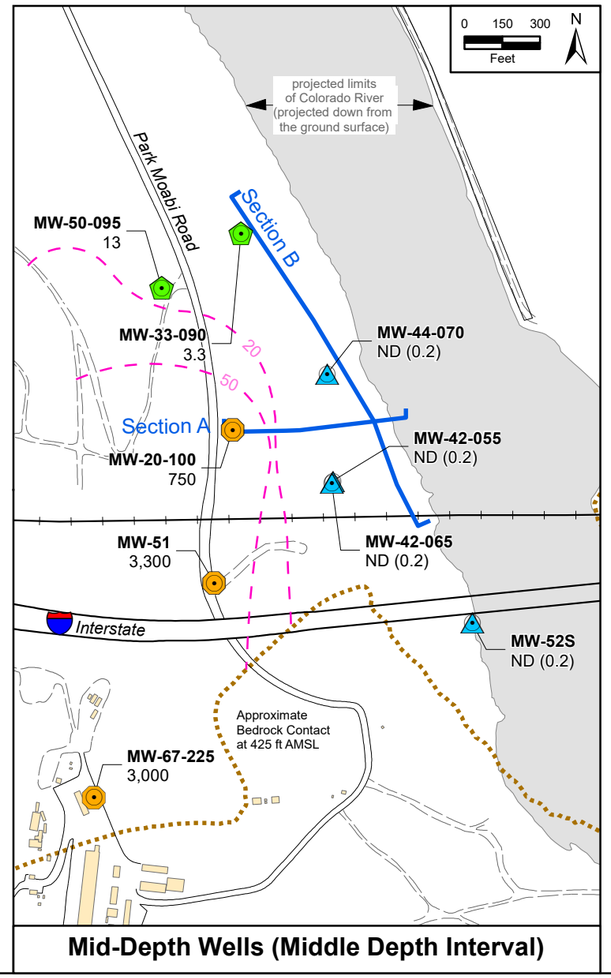
ARCADIS Design & Consultancy for natural and built assets

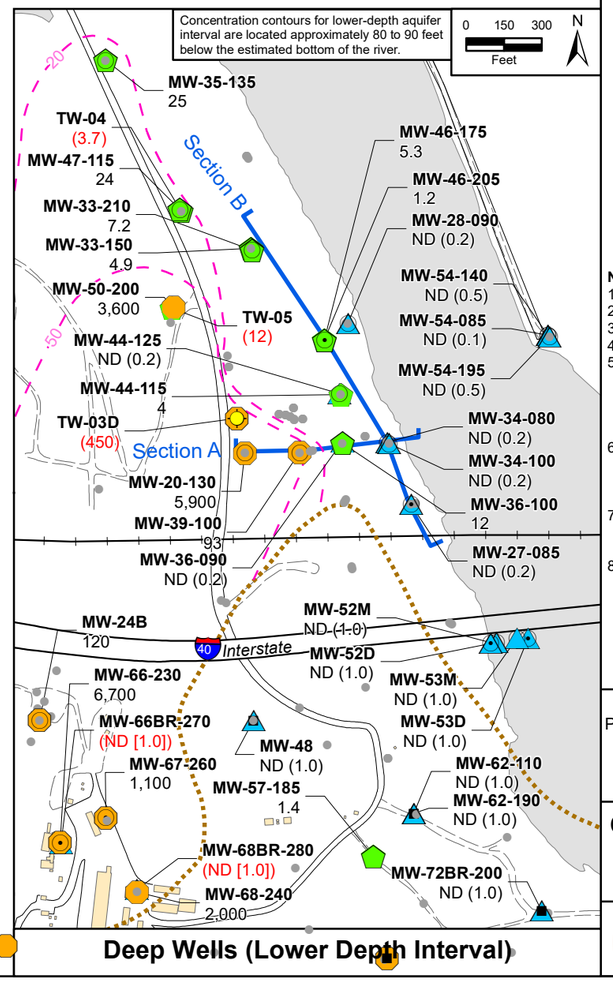
FIGURE
3-1c

T:_ENV\PGE_TOPOCK\GEC\MXD\GMP\2Q20\FINAL\FIGURE3-1C_CRVI_DEEP_2020Q2.MXD PSI01045 08/03/2020 3:49:08 AM







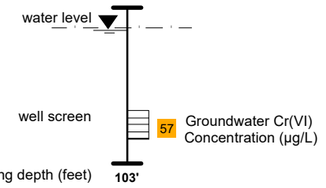


LEGEND

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

Cr(VI) Concentrations

- Not detected at analytical reporting limit
- Concentration between reporting limit and 32 µg/L
- Concentration ≥ 32 µg/L
- Inferred Cr(VI) concentration contour within Alluvial Aquifer depth interval
- Approximate bedrock contact (per depth interval)
- Hydrogeologic Section



MW-38S — Sampling Location
4 — Groundwater Cr(VI) Concentration (µg/L)
(450) — Groundwater Cr(VI) Concentration (µg/L) not used for contouring

Notes:

1. ND = Cr(VI) not detected at analytical reporting limit.
2. µg/L = micrograms per liter
3. ≥ = greater than or equal to
4. Cr(VI) = Hexavalent Chromium
5. The Cr(VI) concentration contours of 20 and 50 µg/L are shown in accordance with Department of Toxic Substances Control's 2005 Interim Measure performance monitoring directive, which was established for containment of Cr(VI) concentrations greater than 20 µg/L in the floodplain portion of the Alluvial Aquifer.
6. The Cr(VI) contours are estimated based on available groundwater analytical results from Fourth Quarter 2019 and the current quarter. There are no data confirming the existence of Cr(VI) under the Colorado River.
7. Extraction wells PE-01, TW-02S, TW-02D, and TW-03D are not included in contouring. These wells draw water from a larger area and do not represent Cr(VI) concentrations at their specific locations.
8. Long-screened wells and wells screened across more than one depth interval are generally not posted on this map.

SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT

PG&E TOPOCK COMPRESSOR STATION NEEDLES, CALIFORNIA

CR(VI) CONCENTRATIONS IN ALLUVIAL AQUIFER AND BEDROCK, SECOND QUARTER 2020

ARCADIS Design & Consultancy for natural and built assets

FIGURE 4-1

T:_ENV\PGE_TOPOCK\GEC\MXD\GMP\2Q20\FINAL\FIGURE4-1_GMP_CR6_2020Q2_MAX.MXD 8/5/2020 11:03:41 AM

North

South
Section B

Cross-Section Parallel to the Colorado River

BNSF
Railroad

MW-33-040
MW-33-090
MW-33-150
MW-33-210

MW-46-175
MW-46-205

MW-28-025
MW-28-090
projected: 110'

MW-44-070
MW-44-115
MW-44-125

MW-34-055
MW-34-080
MW-34-100

MW-27-020
MW-27-060
MW-27-085

Elevation (feet AMSL)

700
600
500
400
300
200
100
0

water table (average 455' AMSL)

Upper Depth Interval
Middle Depth Interval
Lower Depth Interval

ALLUVIAL AQUIFER

Oldest Alluvium

Fluvial Deposits

Approximate geologic contact between alluvial fan and fluvial deposits

ND (0.2)
3.3
4.9
7.2
237'

ND (0.2)
ND (0.2)
5.3
1.2
216'

ND (0.2)
ND (0.2)
4.0
ND (0.2)
134'

Upper Depth Interval
NM
Middle Depth Interval
ND (0.2)
ND (0.2)
Lower Depth Interval
116'

NM
NM
ND (0.2)
107'

Miocene Conglomerate
(Bedrock)

True-Scale (No Vertical Exaggeration)

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

Notes:
AMSL = above mean sea level.
µg/L = micrograms per liter.
ND = not detected at listed reporting limit.
≥ = greater than or equal to.
Cr(VI) = hexavalent chromium.

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

Legend

water level
well screen
boring depth (feet)
14
Groundwater Cr(VI) Concentration (µg/L)
103'

20
Inferred hexavalent chromium contours (µg/L) in Alluvial Aquifer.

Approximate bedrock contact (per depth interval)

Cr(VI) Concentrations

Not detected at analytical reporting limit

Concentration between reporting limit and 32 µg/L

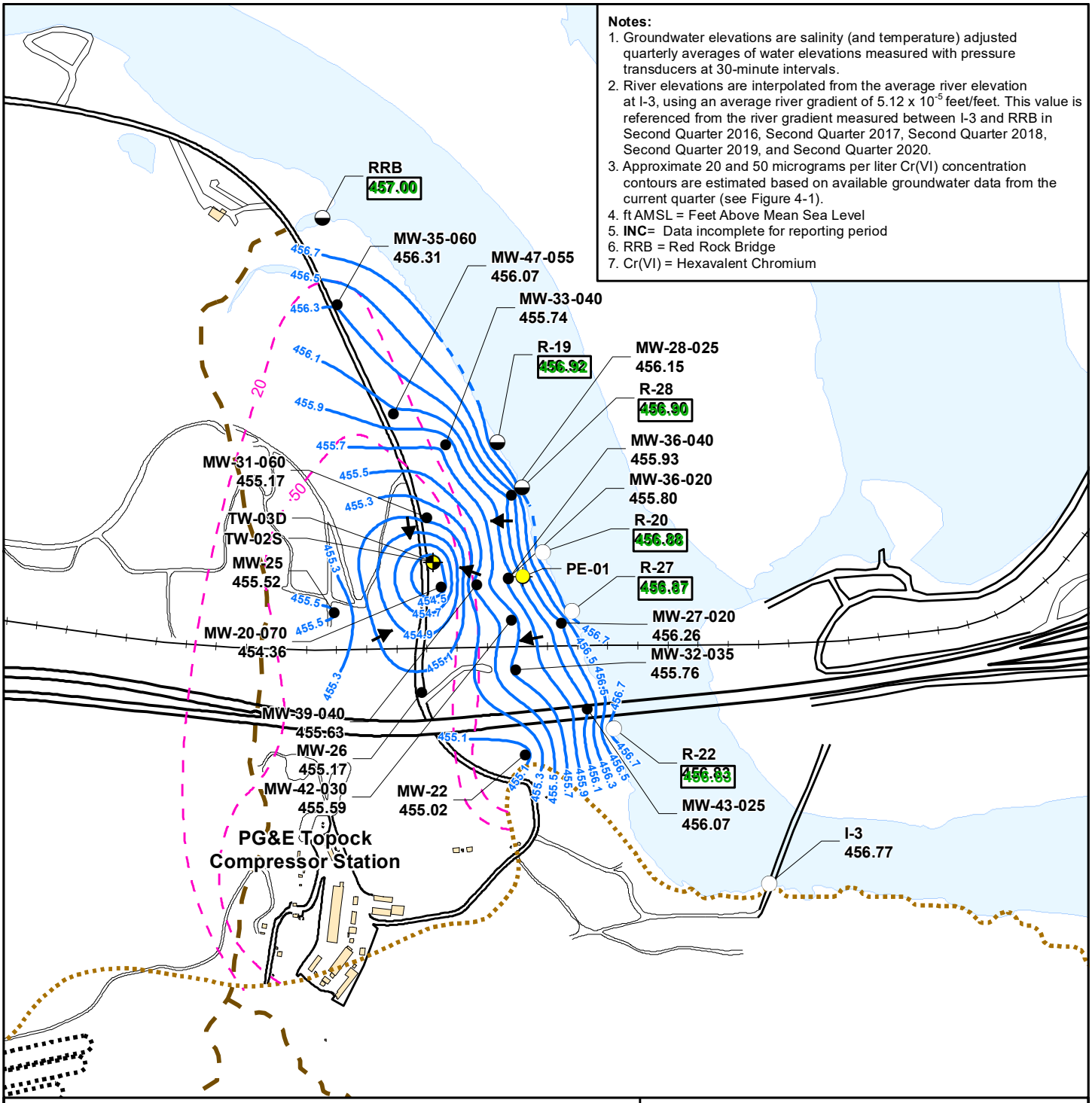
Concentration ≥ 32 µg/L

SECOND QUARTER 2020 INTERIM-MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

Cr(VI) CONCENTRATIONS FLOODPLAIN CROSS-SECTION B, SECOND QUARTER 2020

ARCADIS Design & Consultancy for natural and built assets

FIGURE
4-2



Notes:

1. Groundwater elevations are salinity (and temperature) adjusted quarterly averages of water elevations measured with pressure transducers at 30-minute intervals.
2. River elevations are interpolated from the average river elevation at I-3, using an average river gradient of 5.12×10^{-5} feet/feet. This value is referenced from the river gradient measured between I-3 and RRB in Second Quarter 2016, Second Quarter 2017, Second Quarter 2018, Second Quarter 2019, and Second Quarter 2020.
3. Approximate 20 and 50 micrograms per liter Cr(VI) concentration contours are estimated based on available groundwater data from the current quarter (see Figure 4-1).
4. ft AMSL = Feet Above Mean Sea Level
5. **INC**= Data incomplete for reporting period
6. RRB = Red Rock Bridge
7. Cr(VI) = Hexavalent Chromium

LEGEND

- Monitoring Well
- River Station
- Extraction Well
- Bedrock Contact at 455 ft AMSL Elevation
- Interpreted Groundwater Flow Direction
- Groundwater Elevation Contour 0.2 ft (dashed where inferred)
- Inferred Cr(VI) concentration (micrograms per liter) contour

0 800 1,600

Feet

MW-47-055 —— Gauging Location
456.07 —— Average Groundwater Elevation (ft AMSL)

R-27 —— River Station
456.87 —— River Elevation (ft AMSL) Interpolated Average

SECOND QUARTER 2020 INTERIM MEASURES
PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT

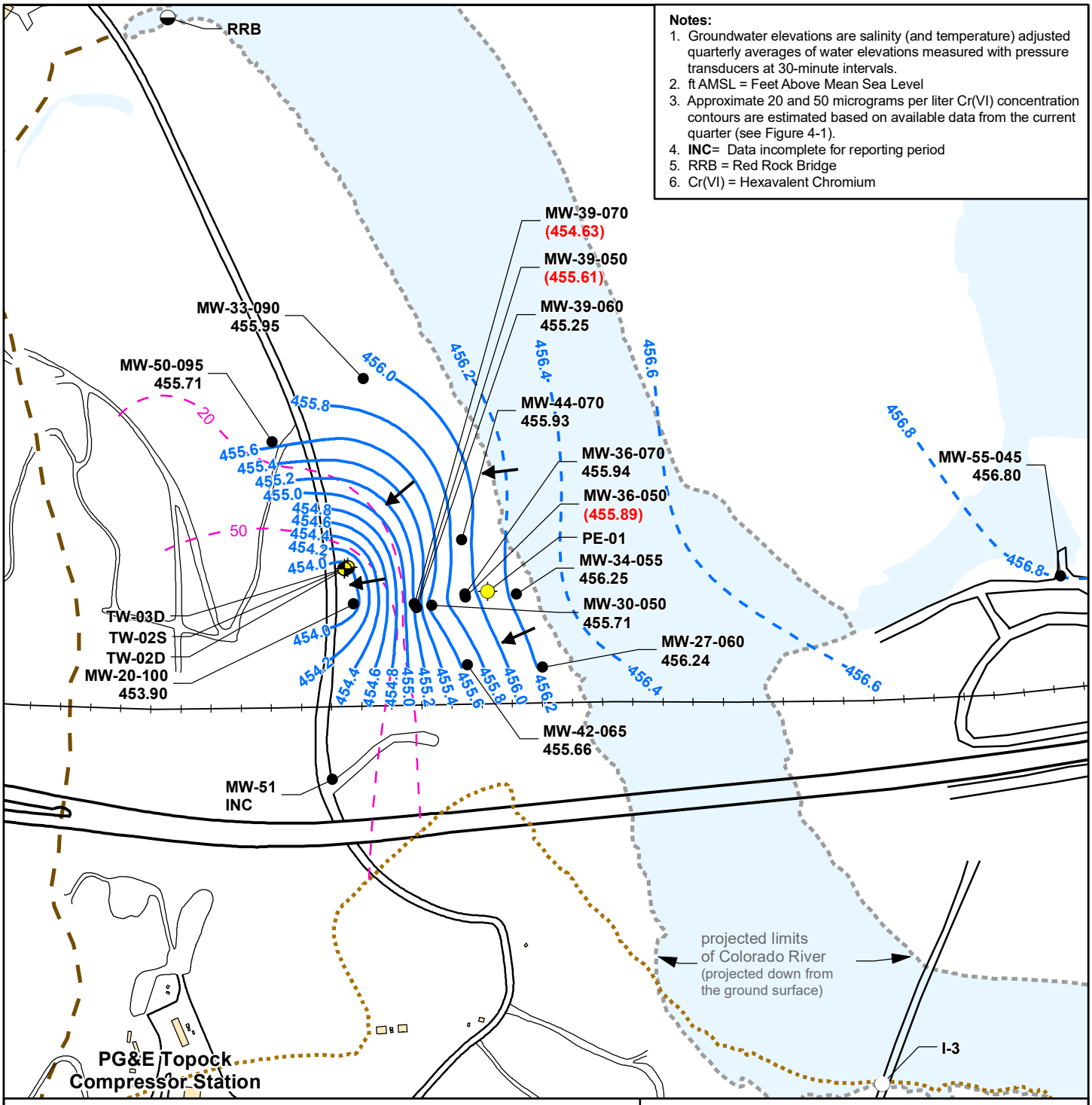
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

AVERAGE GROUNDWATER ELEVATIONS IN SHALLOW WELLS AND RIVER ELEVATIONS, SECOND QUARTER 2020

ARCADIS Design & Consultancy for natural and built assets

FIGURE
4-3a

T:_ENV\PGE_TOPOCK\GEC\MXD\GMP\2Q20\FINAL\FIGURE4-3A_GWE_SHALLOW_2020Q2.MXD 07/22/2020 3:47:30 AM



Notes:

1. Groundwater elevations are salinity (and temperature) adjusted quarterly averages of water elevations measured with pressure transducers at 30-minute intervals.
2. ft AMSL = Feet Above Mean Sea Level
3. Approximate 20 and 50 micrograms per liter Cr(VI) concentration contours are estimated based on available data from the current quarter (see Figure 4-1).
4. **INC**= Data incomplete for reporting period
5. RRB = Red Rock Bridge
6. Cr(VI) = Hexavalent Chromium

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 (micrograms per liter) contour

0 500 1,000
Feet

MW-30-050 ——— Gauging Location
455.71 ——— Average Groundwater Elevation (ft AMSL)
(454.63) ——— Elevation in red parentheses not used for contouring

SECOND QUARTER 2020 INTERIM MEASURES
PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT

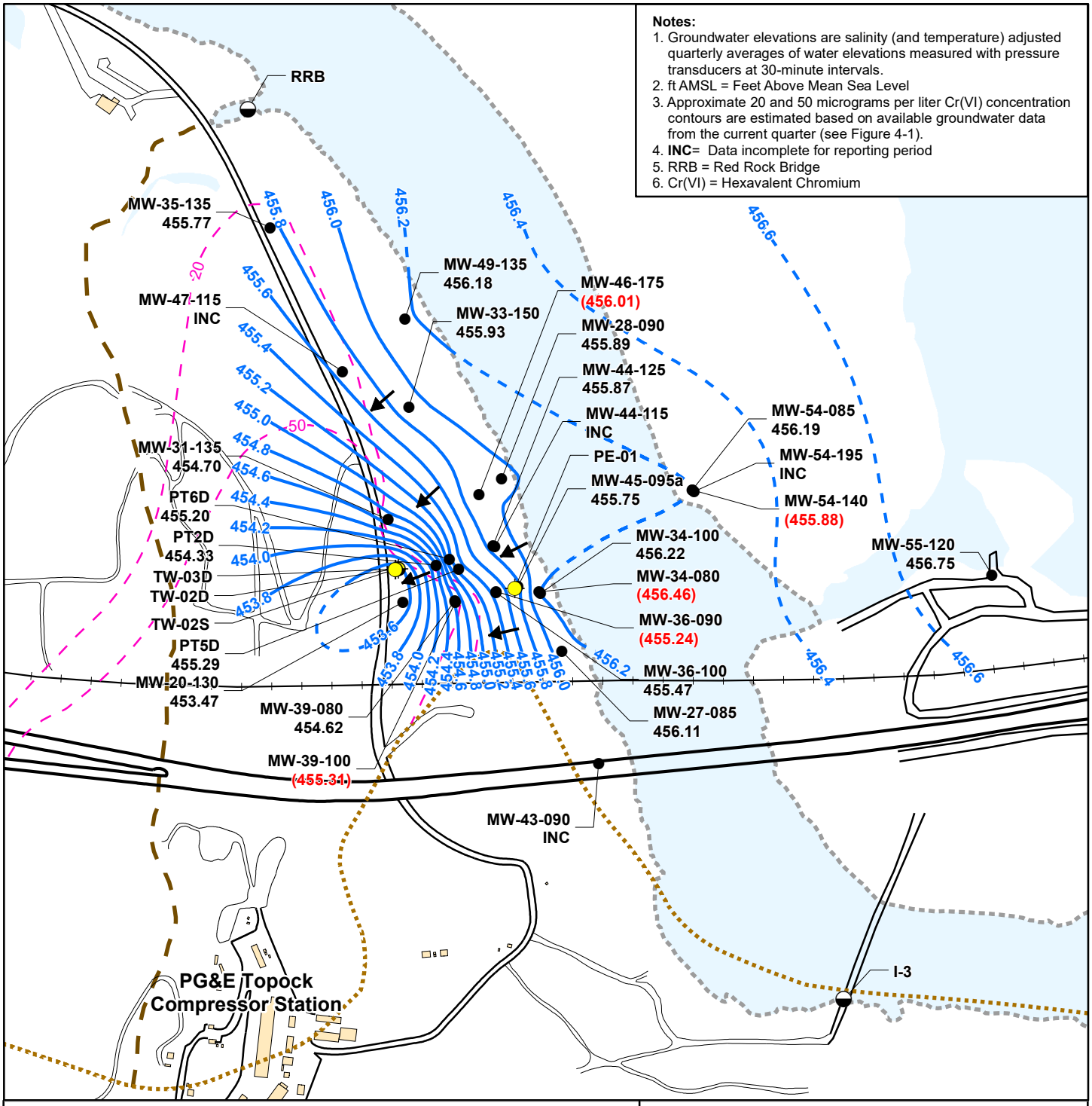
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

AVERAGE GROUNDWATER ELEVATIONS IN MID-DEPTH WELLS, SECOND QUARTER 2020

ARCADIS Design & Consultancy for natural and built assets

FIGURE
4-3b

T:_ENV\PGE_TOPOCK\GEC\MXD\GMP\2Q20\FINAL\FIGURE4-3B_GWE_MIDDEPTH_2020Q2.MXD 07/28/2020 4:09:38 AM



Notes:

1. Groundwater elevations are salinity (and temperature) adjusted quarterly averages of water elevations measured with pressure transducers at 30-minute intervals.
2. ft AMSL = Feet Above Mean Sea Level
3. Approximate 20 and 50 micrograms per liter Cr(VI) concentration contours are estimated based on available groundwater data from the current quarter (see Figure 4-1).
4. **INC**= Data incomplete for reporting period
5. RRB = Red Rock Bridge
6. Cr(VI) = Hexavalent Chromium

LEGEND

- Monitoring Well
- River Location
- 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 (micrograms per liter) contour

0 600 1,200
Feet

MW-28-090 Gauging Location
455.89 Average Groundwater Elevation (ft AMSL)
(453.42) Elevation in red parentheses not used for contouring

SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT

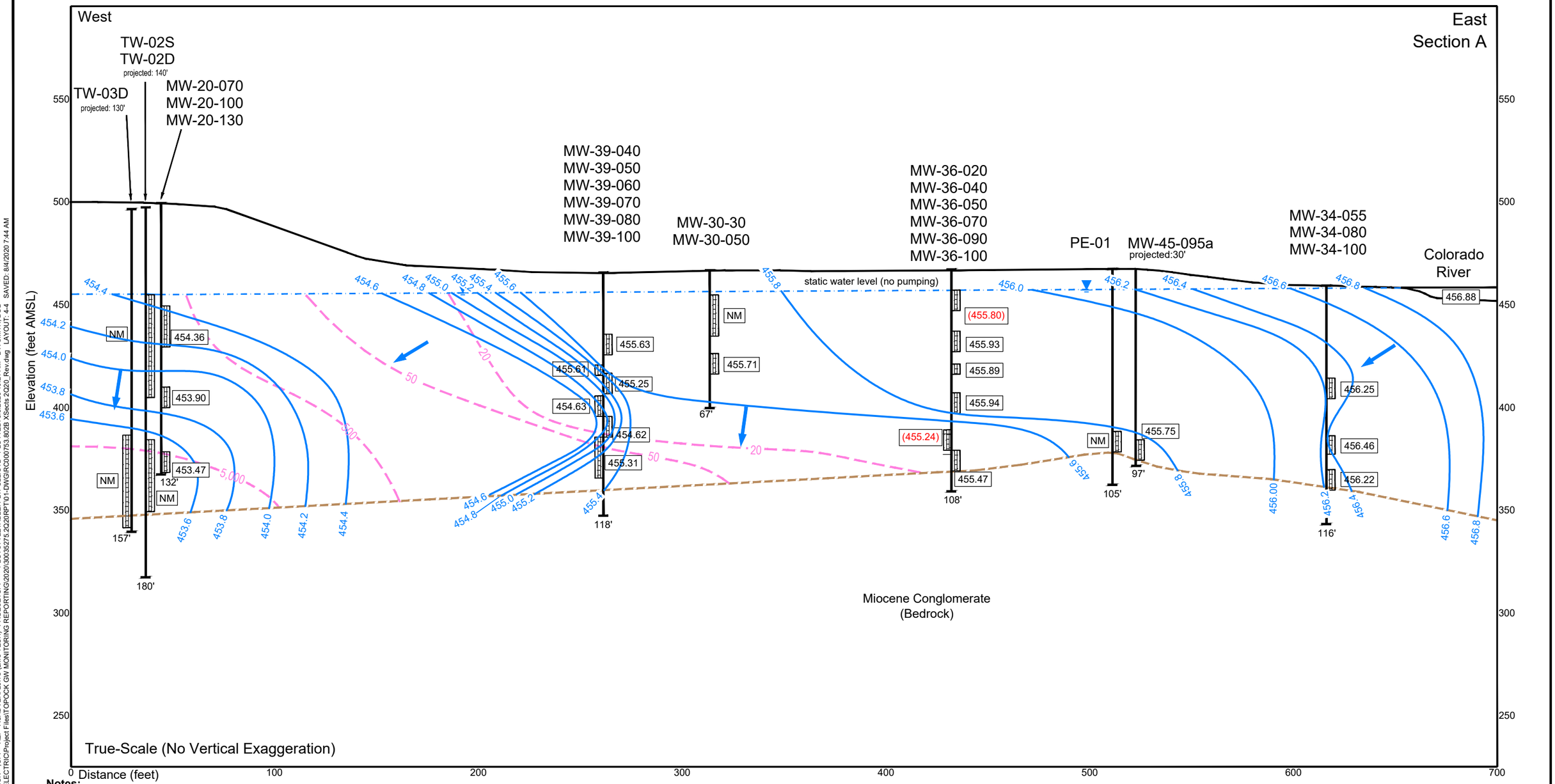
PG&E TOPOCK COMPRESSOR STATION NEEDLES, CALIFORNIA

AVERAGE GROUNDWATER ELEVATIONS IN DEEP WELLS, SECOND QUARTER 2020

ARCADIS Design & Consultancy for natural and built assets

FIGURE
4-3c

T:_ENV\PGE_TOPOCK\GEC\MXD\GMP\2Q20\FINAL\FIGURE4-3C_GWE_DEEP_2020Q2.MXD 8/5/2020 3:36:38 PM



Notes:

1. Results show average groundwater elevations for April, May and June 2020 measured with pressure transducers at 30-minute intervals.
2. Groundwater elevations are adjusted for salinity and temperature.
3. Colorado River elevation shown as interpolated Second Quarter 2020 average from R-20 river monitoring location.
4. The hexavalent chromium contour lines are from Figure 4-1.
5. Groundwater elevations shown in red parenthesis are not used for contouring.

AMSL = above mean sea level.
NM = well not measured or used in contouring.

Legend

MW-030-050

Inferred water table

well screen and associated average groundwater elevation (feet AMSL) — 453.66

boring depth (feet) — 67'

453.5
Inferred groundwater head contour

Interpreted groundwater flow direction

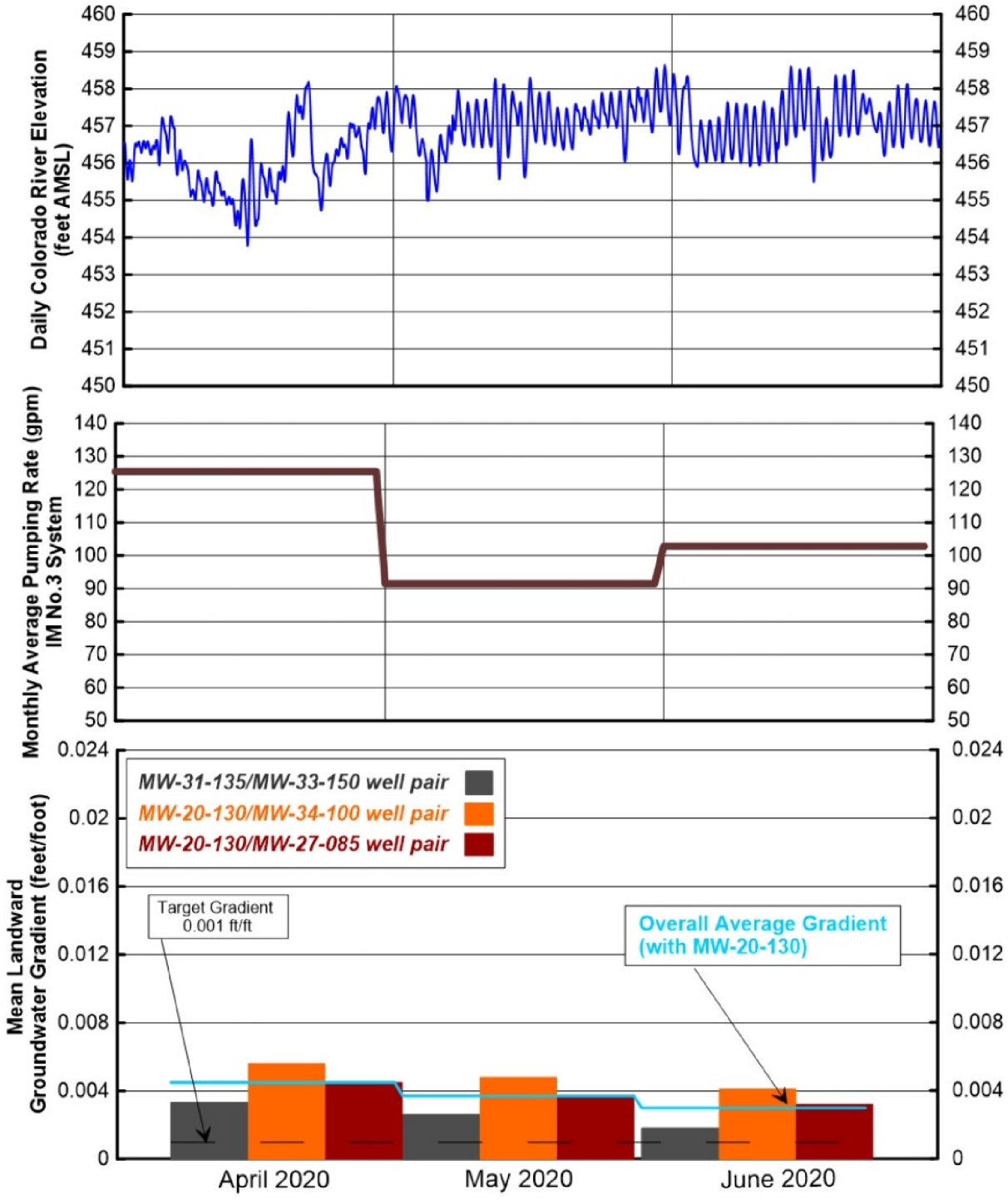
20
Inferred hexavalent chromium contour (ppb) in Alluvial Aquifer

SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

AVERAGE GROUNDWATER ELEVATIONS FOR WELLS IN FLOODPLAIN CROSS-SECTION A, SECOND QUARTER 2020

ARCADIS Design & Consultancy for natural and built assets

FIGURE
4-4



Notes:
1. For Interim Measure (IM) pumping, the target landward gradient for well pairs is 0.001 feet/foot.
2. Pumping rate plotted is the combined rate of extraction wells TW-03D and PE-01 in operation each month.
3. Beginning August 2017, MW-20-130 approved for gradient compliance (instead of MW-45-095) at central and southern well pairs during months when PE-01 is not run for gradient control.
4. AMSL = above mean sea level.
5. gpm = gallons per minute

SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT

PG&E TOPOCK COMPRESSOR STATION NEEDLES, CALIFORNIA

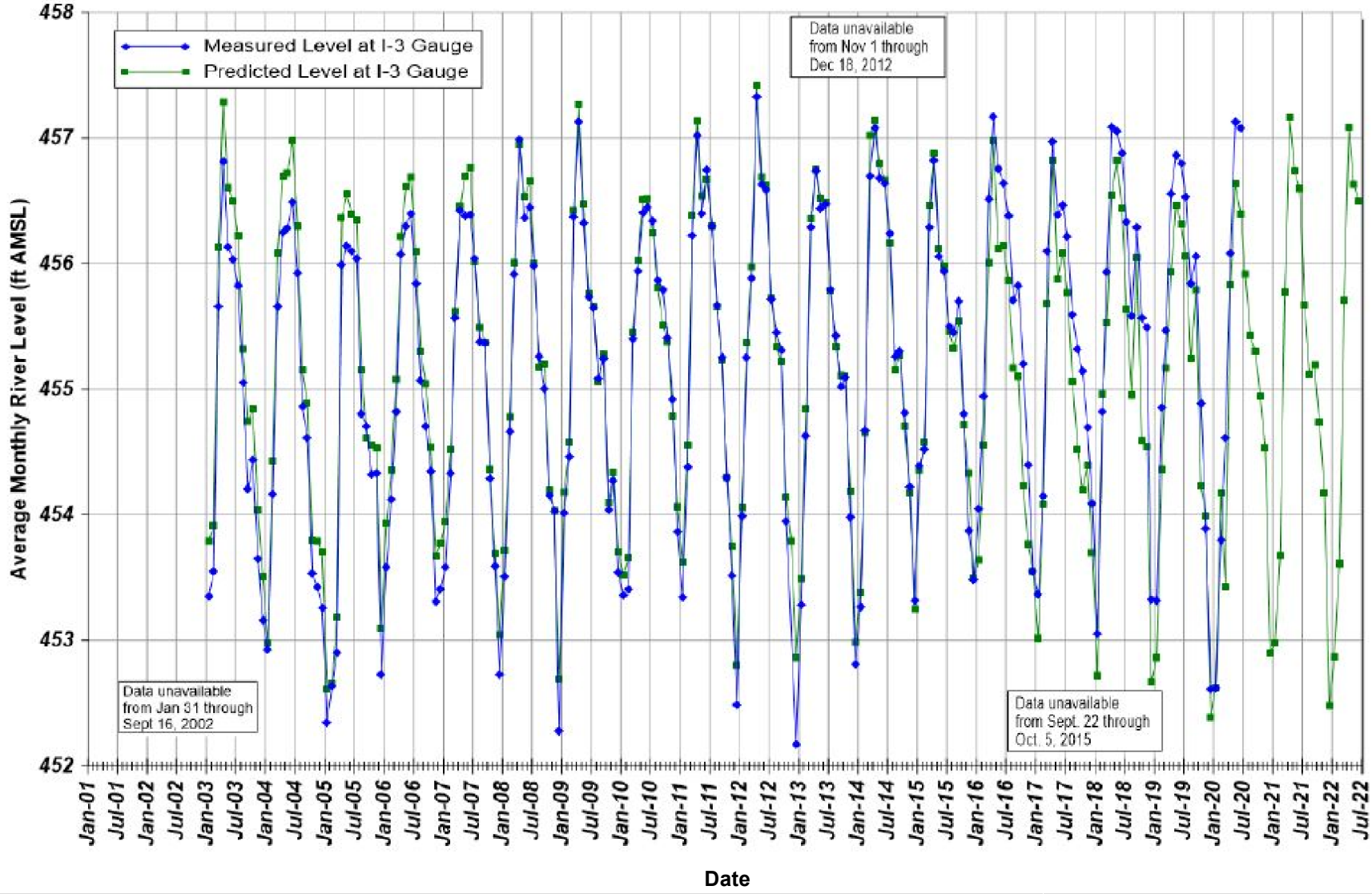
MEASURED HYDRAULIC GRADIENTS, RIVER ELEVATION, AND PUMPING RATE, SECOND QUARTER 2020

ARCADIS Design & Consultancy for natural and built assets

FIGURE

4-5

T:_ENV\PGE_TOPOCK\GEC\MXD\GMP\2Q20\FINAL\FIGURE4-5_RIVER_GRADIENTS_2020Q2.MXD 07/31/2020 2:48:51 AM



Notes:

Projected river level for each month in the past is calculated based on the preceding months United States Bureau of Reclamation (USBR) projections of Davis Dam release and stage in Lake Havasu. Future projections of river level at 1-3 are based upon USBR projections presented in the July 24-Month Study (Report dated July 15, 2020). These data are reported monthly by the US Department of Interior, at https://www.usbr.gov/uc/water/crsp/studies/24Month_07.pdf

ft AMSL = feet above mean sea level

SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT

PG&E TOPOCK COMPRESSOR STATION NEEDLES, CALIFORNIA

PAST AND PREDICTED FUTURE RIVER LEVELS AT TOPOCK COMPRESSOR STATION

ARCADIS Design & Consultancy for natural and built assets

FIGURE **4-6**

T:_ENV\PGE_TOPOCK\GEC\MXD\GMP\2Q20\FINAL\FIGURE4-6_PREDICTED_RIVER_LEVELS_2020Q2.MXD 8/5/2020 1:14:38 AM

APPENDIX A

Lab Reports, Second Quarter 2020
(Provided on CD with Hard Copy Submittal)

For additional help with the information provided in the lab reports, please contact Alison Schaffer, Arcadis Report Lead, at 303.471.3575.

APPENDIX B

Historical Chromium-6 and Dissolved Chromium Concentrations, January 2018 through June 2020

Appendix B

Historical Cr(VI) and Dissolved Chromium Concentrations, January 2018 through June 2020

Second Quarter 2020 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 Type	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)
MW-09	SA	02/23/2018		LF	150	150
MW-09	SA	05/02/2018		LF	150	140
MW-09	SA	12/12/2018		LF	140	150
MW-09	SA	03/18/2019		LF	140	130
MW-09	SA	05/17/2019		LF	150	150
MW-09	SA	09/30/2019		LF	130	150
MW-09	SA	12/18/2019		LF	120	120
MW-09	SA	04/24/2020		LF	130	130
MW-10	SA	02/23/2018		LF	160	160
MW-10	SA	05/02/2018		LF	170	160
MW-10	SA	12/12/2018		LF	110	120
MW-10	SA	03/18/2019		LF	150	140
MW-10	SA	03/18/2019	FD	--	150	140
MW-10	SA	05/17/2019		LF	180	180
MW-10	SA	05/17/2019	FD	LF	180	180
MW-10	SA	09/30/2019		LF	110	110
MW-10	SA	12/18/2019		LF	220	230
MW-10	SA	04/23/2020		LF	150	150
MW-11	SA	02/23/2018		LF	57	56
MW-11	SA	05/02/2018		LF	57	53
MW-11	SA	05/02/2018	FD	LF	58	55
MW-11	SA	12/12/2018		LF	47	48
MW-11	SA	12/12/2018	FD	LF	47	50
MW-11	SA	03/18/2019		LF	42	43
MW-11	SA	05/17/2019		LF	51	49
MW-11	SA	09/30/2019		LF	44	47
MW-11	SA	12/18/2019		LF	37	35
MW-11	SA	04/23/2020		LF	43	43
MW-12	SA	05/01/2018		LF	1,500	1,600
MW-12	SA	12/11/2018		LF	1,500	1,500
MW-12	SA	05/22/2019		LF	1,600	1,600
MW-12	SA	12/17/2019		LF	1,600	1,800
MW-12	SA	04/28/2020		LF	2,700	2,800
MW-14	SA	05/01/2018		LF	13	14
MW-14	SA	12/11/2018		LF	13	15
MW-14	SA	05/15/2019		LF	14	13
MW-14	SA	12/09/2019		LF	10	9
MW-14	SA	06/24/2020		LF	12	12
MW-14	SA	06/24/2020	FD	--	12	12
MW-19	SA	04/27/2018		LF	370	380
MW-19	SA	12/10/2018		LF	670	780
MW-19	SA	05/15/2019		LF	250	250
MW-19	SA	12/12/2019		LF	130	120

Appendix B

Historical Cr(VI) and Dissolved Chromium Concentrations, January 2018 through June 2020

Second Quarter 2020 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 Type	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)
MW-19	SA	04/27/2020		LF	32	40
MW-20-070	SA	04/27/2018		LF	1,700	1,700
MW-20-070	SA	12/11/2018		LF	1,600	1,700
MW-20-070	SA	12/11/2018	FD	LF	1,600	1,800
MW-20-070	SA	05/24/2019		LF	1,700	1,800
MW-20-070	SA	12/13/2019		LF	2,300	2,200
MW-20-070	SA	04/24/2020		LF	2,500	2,500
MW-20-100	MA	04/27/2018		LF	1,800	1,800
MW-20-100	MA	12/04/2018		LF	1,400	1,500
MW-20-100	MA	05/24/2019		LF	1,300	1,500
MW-20-100	MA	12/13/2019		LF	750	780
MW-20-100	MA	04/24/2020		LF	750	760
MW-20-130	DA	04/27/2018		LF	6,900	7,000
MW-20-130	DA	12/04/2018		LF	5,800	6,100
MW-20-130	DA	05/24/2019		LF	5,900	6,800
MW-20-130	DA	05/24/2019	FD	LF	6,000	6,800
MW-20-130	DA	12/13/2019		LF	5,900	6,000
MW-20-130	DA	04/24/2020		LF	5,900	6,100
MW-21	SA	05/02/2018		LF	ND (1.0)	1
MW-21	SA	05/02/2018	FD	LF	ND (1.0)	ND (1.0)
MW-21	SA	12/12/2018		LF	1	1
MW-21	SA	05/23/2019		LF	7	7
MW-21	SA	12/13/2019		LF	ND (1.0)	9
MW-21	SA	04/30/2020		LF	5	5
MW-22	SA	04/23/2018		LF	ND (1.0)	ND (5.0)
MW-22	SA	12/04/2018		LF	ND (1.0)	ND (1.0)
MW-22	SA	12/04/2018	FD	LF	ND (1.0)	ND (1.0)
MW-22	SA	04/23/2019		LF	ND (1.0)	ND (1.0)
MW-22	SA	12/11/2019		LF	ND (1.0)	ND (1.0)
MW-22	SA	12/11/2019	FD	--	ND (1.0)	ND (1.0)
MW-22	SA	06/16/2020		LF	ND (0.2)	ND (1.0)
MW-23-060	BR	04/26/2018		LF	39	37 J
MW-23-060	BR	12/11/2018		LF	39	40
MW-23-060	BR	05/21/2019		LF	40	35
MW-23-060	BR	12/09/2019		LF	41	34
MW-23-060	BR	06/18/2020		LF	40	37
MW-23-080	BR	04/26/2018		LF	ND (1.0)	2
MW-23-080	BR	12/11/2018		LF	ND (1.0)	3
MW-23-080	BR	05/21/2019		LF	ND (1.0)	1
MW-23-080	BR	12/09/2019		LF	ND (1.0)	1
MW-23-080	BR	06/18/2020		LF	ND (1.0)	ND (1.0)
MW-24A	SA	05/02/2018		LF	ND (0.2)	ND (1.0)
MW-24A	SA	12/12/2018		LF	ND (0.2)	ND (1.0)

Appendix B

Historical Cr(VI) and Dissolved Chromium Concentrations, January 2018 through June 2020

Second Quarter 2020 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 Type	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)
MW-24A	SA	05/17/2019		LF	ND (0.2)	ND (1.0)
MW-24A	SA	12/03/2019		LF	ND (0.2)	2
MW-24A	SA	05/01/2020		LF	ND (0.2)	3
MW-24B	DA	05/02/2018		LF	200	200
MW-24B	DA	12/12/2018		LF	160	150
MW-24B	DA	05/17/2019		LF	86	73
MW-24B	DA	05/17/2019	FD	LF	84	73
MW-24B	DA	12/03/2019		LF	230	220
MW-24B	DA	12/03/2019	FD	--	230	230
MW-24B	DA	05/01/2020		LF	120	140
MW-25	SA	05/01/2018		LF	68	65
MW-25	SA	12/10/2018		LF	100	100
MW-25	SA	12/10/2018	FD	LF	100	100
MW-25	SA	05/15/2019		LF	68	66
MW-25	SA	12/09/2019		LF	72	69
MW-25	SA	12/09/2019	FD	--	74	71
MW-25	SA	06/24/2020		LF	56	55
MW-25	SA	06/24/2020	FD	--	57	56
MW-26	SA	05/01/2018		LF	2,300	2,400
MW-26	SA	12/07/2018		LF	2,200	2,300
MW-26	SA	05/22/2019		LF	2,300	2,500
MW-26	SA	12/12/2019		LF	2,300	2,300
MW-26	SA	12/12/2019	FD	--	2,300	2,400
MW-26	SA	04/27/2020		LF	2,300	2,300
MW-27-085	DA	04/24/2018		LF	ND (1.0)	ND (1.0)
MW-27-085	DA	12/05/2018		LF	ND (1.0)	ND (1.0)
MW-27-085	DA	04/22/2019		LF	ND (0.2)	ND (1.0)
MW-27-085	DA	12/10/2019		LF	ND (0.2)	ND (1.0)
MW-27-085	DA	06/18/2020		LF	ND (0.2)	ND (1.0)
MW-28-025	SA	04/25/2018		LF	ND (0.2)	ND (1.0)
MW-28-025	SA	04/25/2018	FD	LF	ND (0.2)	ND (1.0)
MW-28-025	SA	12/14/2018		LF	ND (0.2)	ND (1.0)
MW-28-025	SA	05/21/2019		LF	ND (0.2)	ND (1.0)
MW-28-025	SA	12/09/2019		LF	ND (0.2)	ND (1.0)
MW-28-025	SA	06/23/2020		LF	ND (0.2)	ND (1.0)
MW-28-090	DA	04/25/2018		LF	ND (0.2)	ND (1.0)
MW-28-090	DA	12/14/2018		LF	ND (0.2)	ND (1.0)
MW-28-090	DA	05/21/2019		LF	ND (0.2)	ND (1.0)
MW-28-090	DA	12/09/2019		LF	ND (0.2)	ND (1.0)
MW-28-090	DA	06/23/2020		LF	ND (0.2)	ND (1.0)
MW-29	SA	04/25/2018		LF	ND (0.2)	ND (1.0)
MW-29	SA	12/10/2018		LF	ND (0.2)	ND (1.0)
MW-29	SA	05/21/2019		LF	ND (0.2)	ND (1.0)

Appendix B

Historical Cr(VI) and Dissolved Chromium Concentrations, January 2018 through June 2020

Second Quarter 2020 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 Type	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)
MW-29	SA	12/10/2019		LF	ND (0.2)	ND (1.0)
MW-29	SA	06/23/2020		LF	ND (0.2)	ND (1.0)
MW-31-060	SA	04/27/2018		LF	380	390
MW-31-060	SA	12/10/2018		LF	390	400
MW-31-060	SA	05/20/2019		LF	250	240
MW-31-060	SA	05/20/2019	FD	LF	250	240
MW-31-060	SA	12/12/2019		LF	370	370
MW-31-060	SA	12/12/2019	FD	--	370	360
MW-31-060	SA	06/24/2020		LF	320	280
MW-32-035	SA	04/23/2018		LF	ND (1.0)	ND (1.0)
MW-32-035	SA	12/04/2018		LF	ND (1.0)	ND (1.0)
MW-32-035	SA	04/23/2019		LF	ND (0.2)	ND (1.0)
MW-32-035	SA	12/09/2019		LF	ND (1.0)	ND (1.0)
MW-32-035	SA	06/18/2020		LF	ND (0.2)	ND (1.0)
MW-33-040	SA	04/25/2018		LF	ND (1.0)	1
MW-33-040	SA	12/07/2018		LF	ND (1.0)	ND (1.0)
MW-33-040	SA	04/23/2019		LF	ND (0.2)	ND (1.0)
MW-33-040	SA	12/05/2019		LF	ND (1.0)	ND (1.0)
MW-33-040	SA	12/05/2019	FD	--	ND (1.0)	ND (1.0)
MW-33-040	SA	06/17/2020		LF	ND (0.2)	ND (1.0)
MW-33-090	MA	04/24/2018		LF	3	4
MW-33-090	MA	12/07/2018		LF	1	2
MW-33-090	MA	12/07/2018	FD	LF	9	10
MW-33-090	MA	04/22/2019		LF	3	6
MW-33-090	MA	12/05/2019		LF	3	4
MW-33-090	MA	12/05/2019	FD	--	3	4
MW-33-090	MA	06/17/2020		LF	3	6
MW-33-150	DA	04/25/2018		LF	5	5
MW-33-150	DA	12/07/2018		LF	4	6
MW-33-150	DA	05/21/2019		LF	6	21
MW-33-150	DA	12/05/2019		LF	2	8
MW-33-150	DA	12/05/2019	FD	--	2	8
MW-33-150	DA	06/17/2020		LF	5	11
MW-33-210	DA	04/25/2018		LF	6	6
MW-33-210	DA	12/07/2018		LF	7	10
MW-33-210	DA	04/22/2019		LF	10	9
MW-33-210	DA	12/05/2019		LF	13	15
MW-33-210	DA	12/05/2019	FD	--	13	15
MW-33-210	DA	06/17/2020		LF	7	15
MW-34-080	DA	04/24/2018		LF	ND (1.0)	ND (1.0)
MW-34-080	DA	12/05/2018		LF	ND (1.0)	ND (1.0)
MW-34-080	DA	04/24/2019		LF	ND (0.2)	ND (1.0)
MW-34-080	DA	12/10/2019		LF	ND (0.2)	ND (1.0)

Appendix B

Historical Cr(VI) and Dissolved Chromium Concentrations, January 2018 through June 2020

Second Quarter 2020 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 Type	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)
MW-34-080	DA	12/10/2019	FD	--	ND (0.2)	ND (1.0)
MW-34-080	DA	06/18/2020		LF	ND (0.2)	ND (1.0)
MW-34-100	DA	02/20/2018		LF	ND (1.0)	2
MW-34-100	DA	04/24/2018		LF	ND (1.0)	1
MW-34-100	DA	04/24/2018	FD	LF	ND (1.0)	1
MW-34-100	DA	10/01/2018		LF	ND (1.0)	ND (1.0)
MW-34-100	DA	12/05/2018		LF	ND (1.0)	ND (1.0)
MW-34-100	DA	02/14/2019		LF	ND (1.0)	2
MW-34-100	DA	04/24/2019		LF	ND (0.2)	ND (1.0)
MW-34-100	DA	10/01/2019		LF	ND (0.2)	ND (1.0)
MW-34-100	DA	12/10/2019		LF	ND (1.0)	2
MW-34-100	DA	12/10/2019	FD	--	ND (1.0)	2
MW-34-100	DA	02/20/2020		LF	ND (0.2)	4
MW-34-100	DA	06/18/2020		LF	ND (0.2)	ND (1.0)
MW-35-060	SA	04/27/2018		LF	22	24
MW-35-060	SA	12/10/2018		LF	20	20
MW-35-060	SA	05/24/2019		LF	24	22
MW-35-060	SA	12/13/2019		LF	24	21
MW-35-060	SA	04/27/2020		LF	32	32
MW-35-135	DA	04/27/2018		LF	26	25
MW-35-135	DA	12/10/2018		LF	25	25
MW-35-135	DA	05/24/2019		LF	28	24
MW-35-135	DA	12/13/2019		LF	28	25
MW-35-135	DA	12/13/2019	FD	--	28	24
MW-35-135	DA	04/27/2020		LF	25	24
MW-36-090	DA	04/24/2018		LF	ND (0.2)	ND (1.0)
MW-36-090	DA	12/06/2018		LF	ND (0.2)	ND (1.0)
MW-36-090	DA	12/06/2018	FD	LF	ND (0.2)	ND (1.0)
MW-36-090	DA	04/24/2019		LF	ND (0.2)	ND (1.0)
MW-36-090	DA	12/04/2019		LF	ND (0.2)	ND (1.0)
MW-36-090	DA	06/16/2020		LF	ND (0.2)	ND (1.0)
MW-36-100	DA	04/24/2018		LF	7	11
MW-36-100	DA	12/06/2018		LF	3	7
MW-36-100	DA	04/24/2019		LF	7	11
MW-36-100	DA	04/24/2019	FD	LF	7	11
MW-36-100	DA	12/04/2019		LF	8	10
MW-36-100	DA	06/16/2020		LF	12	11
MW-37D	DA	05/03/2018		LF	7	7
MW-37D	DA	12/06/2018		LF	5	5
MW-37D	DA	05/20/2019		LF	6	6
MW-37D	DA	12/19/2019		LF	5	5
MW-37D	DA	06/24/2020		LF	5	7
MW-38D	DA	05/02/2018		LF	15	14

Appendix B

Historical Cr(VI) and Dissolved Chromium Concentrations, January 2018 through June 2020

Second Quarter 2020 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 Type	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)
MW-38D	DA	05/02/2018		3V	15	14
MW-38D	DA	12/12/2018		3V	20	20
MW-38D	DA	12/12/2018		LF	21	21
MW-38D	DA	05/17/2019		LF	21	17
MW-38D	DA	12/18/2019		LF	19	21
MW-38D	DA	04/23/2020		LF	19	16
MW-38S	SA	02/23/2018		LF	3	3
MW-38S	SA	02/23/2018		3V	3	2
MW-38S	SA	05/02/2018		LF	2	2
MW-38S	SA	05/02/2018		3V	1	1
MW-38S	SA	09/27/2018		LF	3	3
MW-38S	SA	09/27/2018		3V	3	3
MW-38S	SA	12/12/2018		LF	4	5
MW-38S	SA	12/12/2018		3V	4	4
MW-38S	SA	02/13/2019		LF	5	6
MW-38S	SA	05/17/2019		LF	6	6
MW-38S	SA	09/25/2019		LF	5	5
MW-38S	SA	12/18/2019		LF	5	5
MW-38S	SA	02/25/2020		LF	4	3
MW-38S	SA	02/25/2020	FD	--	4	3
MW-38S	SA	04/23/2020		LF	4	4
MW-38S	SA	04/23/2020	FD	--	4	5
MW-38S-SMT	SA	02/13/2019		3V	4	4
MW-39-100	DA	04/24/2018		LF	57	54
MW-39-100	DA	12/06/2018		LF	63	70
MW-39-100	DA	04/24/2019		LF	88	89
MW-39-100	DA	12/05/2019		LF	87	82
MW-39-100	DA	06/18/2020		LF	93	91
MW-40D	DA	04/25/2018		H	25	31
MW-40D	DA	04/25/2018		LF	120	120
MW-40D	DA	12/12/2018		H	ND (1.0)	ND (1.0)
MW-40D	DA	12/12/2018		LF	140	140
MW-40D	DA	05/22/2019		LF	120	120
MW-40D	DA	05/22/2019	FD	LF	120	120
MW-40D	DA	12/11/2019		LF	150	130
MW-40D	DA	06/17/2020		--	12	11
MW-40S	SA	04/25/2018		H	18	17
MW-40S	SA	04/25/2018		LF	20	20
MW-40S	SA	12/12/2018		H	17	29
MW-40S	SA	12/12/2018		LF	11	11
MW-40S	SA	05/22/2019		H	12	15
MW-40S	SA	12/11/2019		H	17	17
MW-40S	SA	06/17/2020		H	18	28

Appendix B

Historical Cr(VI) and Dissolved Chromium Concentrations, January 2018 through June 2020

Second Quarter 2020 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 Type	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)
MW-41D	DA	05/04/2018		LF	ND (1.0)	ND (1.0)
MW-41D	DA	12/13/2018		LF	ND (1.0)	ND (5.0)
MW-41D	DA	05/15/2019		LF	ND (1.0)	ND (1.0)
MW-41D	DA	12/17/2019		LF	ND (1.0)	2
MW-41D	DA	06/24/2020		LF	ND (1.0)	ND (1.0)
MW-41D	DA	06/24/2020	FD	--	ND (1.0)	ND (1.0)
MW-42-055	MA	04/24/2018		LF	ND (0.2)	ND (1.0)
MW-42-055	MA	12/05/2018		LF	ND (0.2)	ND (1.0)
MW-42-055	MA	04/23/2019		LF	ND (0.2)	ND (1.0)
MW-42-055	MA	12/11/2019		LF	ND (0.2)	ND (1.0)
MW-42-055	MA	06/18/2020		LF	ND (0.2)	ND (1.0)
MW-42-065	MA	04/24/2018		LF	ND (0.2)	ND (1.0)
MW-42-065	MA	12/05/2018		LF	ND (0.2)	ND (1.0)
MW-42-065	MA	04/23/2019		LF	ND (0.2)	ND (1.0)
MW-42-065	MA	12/11/2019		LF	ND (0.2)	ND (1.0)
MW-42-065	MA	06/18/2020		LF	ND (0.2)	ND (1.0)
MW-44-070	MA	04/24/2018		LF	ND (0.2)	ND (1.0)
MW-44-070	MA	12/05/2018		LF	ND (0.2)	ND (1.0)
MW-44-070	MA	04/24/2019		LF	ND (0.2)	ND (1.0)
MW-44-070	MA	12/11/2019		LF	ND (0.2)	ND (1.0)
MW-44-070	MA	06/23/2020		LF	ND (0.2)	ND (1.0)
MW-44-115	DA	02/20/2018		LF	13	12
MW-44-115	DA	02/20/2018	FD	LF	13	12
MW-44-115	DA	04/24/2018		LF	9	10
MW-44-115	DA	10/01/2018		LF	6	7
MW-44-115	DA	12/05/2018		LF	6	6
MW-44-115	DA	02/15/2019		LF	10	17
MW-44-115	DA	04/24/2019		LF	6	6
MW-44-115	DA	10/01/2019		LF	6	6
MW-44-115	DA	12/11/2019		LF	7	7
MW-44-115	DA	02/21/2020		LF	5	6
MW-44-115	DA	06/23/2020		LF	4	4
MW-44-125	DA	04/24/2018		LF	ND (0.2)	3
MW-44-125	DA	12/05/2018		LF	ND (1.0)	ND (1.0)
MW-44-125	DA	12/05/2018	FD	LF	ND (1.0)	ND (1.0)
MW-44-125	DA	04/24/2019		LF	2	10
MW-44-125	DA	12/11/2019		LF	3	4
MW-44-125	DA	06/23/2020		LF	ND (0.2)	1
MW-46-175	DA	02/20/2018		LF	13	12
MW-46-175	DA	04/25/2018		LF	7	8
MW-46-175	DA	10/02/2018		LF	7	7
MW-46-175	DA	10/02/2018	FD	LF	7	7
MW-46-175	DA	12/13/2018		LF	8	12

Appendix B

Historical Cr(VI) and Dissolved Chromium Concentrations, January 2018 through June 2020

Second Quarter 2020 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 Type	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)
MW-46-175	DA	02/15/2019		LF	8	18
MW-46-175	DA	02/15/2019	FD	LF	8	20
MW-46-175	DA	05/21/2019		LF	8	9
MW-46-175	DA	10/01/2019		LF	6	6
MW-46-175	DA	12/04/2019		LF	5	6
MW-46-175	DA	02/21/2020		LF	9	17
MW-46-175	DA	06/23/2020		LF	5	23
MW-46-205	DA	04/25/2018		LF	ND (1.0)	ND (1.0)
MW-46-205	DA	12/13/2018		LF	ND (1.0)	ND (1.0)
MW-46-205	DA	05/21/2019		LF	2	3
MW-46-205	DA	12/04/2019		LF	ND (1.0)	6
MW-46-205	DA	06/23/2020		LF	1	2
MW-47-055	SA	04/26/2018		LF	15	15
MW-47-055	SA	04/26/2018	FD	LF	14	14
MW-47-055	SA	12/10/2018		LF	21	21
MW-47-055	SA	05/16/2019		LF	17	15
MW-47-055	SA	05/16/2019	FD	LF	17	15
MW-47-055	SA	12/04/2019		LF	21	18
MW-47-055	SA	06/25/2020		LF	16	16
MW-47-115	DA	04/25/2018		LF	23	23
MW-47-115	DA	12/10/2018		LF	15	15
MW-47-115	DA	12/10/2018	FD	LF	15	15
MW-47-115	DA	05/16/2019		LF	27	23
MW-47-115	DA	12/04/2019		LF	16	22
MW-47-115	DA	06/25/2020		LF	24	24
MW-48	BR	05/03/2018		LF	ND (1.0)	ND (1.0)
MW-48	BR	12/13/2018		LF	ND (1.0)	ND (5.0)
MW-48	BR	05/23/2019		LF	ND (1.0)	ND (1.0)
MW-48	BR	12/19/2019		3V	ND (1.0)	ND (1.0)
MW-48	BR	05/01/2020		3V	ND (1.0)	ND (1.0)
MW-50-095	MA	04/27/2018		LF	11	10
MW-50-095	MA	12/10/2018		LF	13	14
MW-50-095	MA	05/20/2019		LF	13	12
MW-50-095	MA	12/12/2019		LF	13	14
MW-50-095	MA	06/24/2020		LF	13	14
MW-50-200	DA	04/27/2018		LF	6,500	6,800
MW-50-200	DA	12/10/2018		LF	3,100	3,700
MW-50-200	DA	05/20/2019		LF	5,800	6,200
MW-50-200	DA	12/12/2019		LF	2,200	2,100
MW-50-200	DA	12/12/2019	FD	--	2,200	2,100
MW-50-200	DA	06/24/2020		LF	3,600	3,500
MW-51	MA	05/01/2018		LF	3,500	3,700
MW-51	MA	12/10/2018		LF	3,300	3,800

Appendix B

Historical Cr(VI) and Dissolved Chromium Concentrations, January 2018 through June 2020

Second Quarter 2020 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 Type	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)
MW-51	MA	05/22/2019		LF	3,300	3,800
MW-51	MA	12/12/2019		LF	3,600	3,900
MW-51	MA	12/12/2019	FD	--	3,600	4,000
MW-51	MA	04/27/2020		LF	3,200	3,200
MW-51	MA	04/27/2020	FD	--	3,300	3,200
MW-52D	DA	04/23/2018		LF	ND (1.0)	ND (5.0)
MW-52D	DA	12/04/2018		LF	ND (1.0)	ND (1.0)
MW-52D	DA	04/23/2019		LF	ND (1.0)	ND (1.0)
MW-52D	DA	04/23/2019	FD	LF	ND (1.0)	ND (1.0)
MW-52D	DA	12/12/2019		LF	ND (1.0)	ND (1.0)
MW-52D	DA	06/16/2020		LF	ND (1.0)	ND (1.0)
MW-52M	DA	04/23/2018		LF	ND (1.0)	ND (5.0)
MW-52M	DA	12/04/2018		LF	ND (1.0)	ND (1.0)
MW-52M	DA	04/23/2019		LF	ND (1.0)	ND (1.0)
MW-52M	DA	12/12/2019		LF	ND (1.0)	ND (1.0)
MW-52M	DA	06/16/2020		LF	ND (1.0)	ND (1.0)
MW-52S	MA	04/24/2018		LF	ND (1.0)	ND (1.0)
MW-52S	MA	12/04/2018		LF	ND (1.0)	ND (1.0)
MW-52S	MA	04/23/2019		LF	ND (0.2)	ND (1.0)
MW-52S	MA	12/12/2019		LF	ND (0.2)	ND (1.0)
MW-52S	MA	06/16/2020		LF	ND (0.2)	ND (1.0)
MW-53D	DA	04/23/2018		LF	ND (1.0)	ND (1.0)
MW-53D	DA	12/04/2018		LF	ND (1.0)	ND (1.0)
MW-53D	DA	04/23/2019		LF	ND (1.0)	ND (1.0)
MW-53D	DA	12/12/2019		LF	ND (1.0)	ND (1.0)
MW-53D	DA	06/16/2020		LF	ND (1.0)	ND (1.0)
MW-53M	DA	04/23/2018		LF	ND (1.0)	ND (1.0)
MW-53M	DA	12/04/2018		LF	ND (1.0)	ND (1.0)
MW-53M	DA	04/23/2019		LF	ND (1.0)	ND (1.0)
MW-53M	DA	12/12/2019		LF	ND (1.0)	ND (1.0)
MW-53M	DA	06/16/2020		LF	ND (1.0)	ND (1.0)
MW-54-085	DA	05/04/2018	(a)	LF	ND (0.1)	ND (0.2)
MW-54-085	DA	12/13/2018	(a)	LF	ND (0.1 J)	ND (2.0)
MW-54-085	DA	05/23/2019	(a)	LF	ND (0.1)	ND (2.0)
MW-54-085	DA	12/10/2019	(a)	LF	ND (0.1)	ND (1.0)
MW-54-085	DA	06/19/2020	(a)	LF	ND (0.1)	ND (0.2)
MW-54-140	DA	05/04/2018	(a)	LF	5	ND (0.2)
MW-54-140	DA	12/13/2018	(a)	LF	ND (0.5 J)	ND (2.0)
MW-54-140	DA	05/23/2019	(a)	LF	ND (0.5)	ND (2.0)
MW-54-140	DA	12/10/2019	(a)	LF	ND (0.5)	ND (1.0)
MW-54-140	DA	06/19/2020	(a)	LF	ND (0.5)	ND (0.2)
MW-54-195	DA	05/04/2018	(a)	LF	5	ND (0.2)
MW-54-195	DA	12/13/2018	(a)	LF	ND (0.5 J)	ND (2.0)

Appendix B

Historical Cr(VI) and Dissolved Chromium Concentrations, January 2018 through June 2020

Second Quarter 2020 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 Type	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)
MW-54-195	DA	05/23/2019	(a)	LF	ND (0.5)	15
MW-54-195	DA	08/22/2019	(a)	LF	ND (0.5)	ND (2.0)
MW-54-195	DA	08/22/2019	(a)	LF	ND (0.5)	ND (2.0)
MW-54-195	DA	12/10/2019	(a)	LF	ND (0.5)	ND (1.0)
MW-54-195	DA	06/19/2020	(a)	LF	ND (0.5)	ND (0.2)
MW-55-045	MA	05/03/2018	(a)	LF	ND (0.1)	ND (0.2)
MW-55-045	MA	12/13/2018	(a)	LF	ND (0.1 J)	ND (0.2)
MW-55-045	MA	05/23/2019	(a)	LF	ND (0.1)	ND (2.0)
MW-55-045	MA	12/10/2019	(a)	LF	ND (0.1)	ND (1.0)
MW-55-045	MA	06/19/2020	(a)	LF	ND (0.1)	ND (0.2)
MW-55-120	DA	05/03/2018	(a)	LF	8	8
MW-55-120	DA	12/13/2018	(a)	LF	8.29 J	ND (2.0)
MW-55-120	DA	05/23/2019	(a)	LF	7	ND (2.0)
MW-55-120	DA	12/10/2019	(a)	LF	7	8
MW-55-120	DA	06/19/2020	(a)	LF	8	9
MW-55-120	DA	06/19/2020	FD(a)	--	8	9
MW-56D	DA	05/02/2018	(a)	LF	5	ND (0.2)
MW-56D	DA	12/13/2018	(a)	LF	ND (0.5 J)	ND (2.0)
MW-56D	DA	12/13/2018	FD(a)	LF	ND (0.5 J)	ND (2.0)
MW-56D	DA	05/23/2019	(a)	LF	ND (0.5)	ND (2.0)
MW-56D	DA	12/10/2019	(a)	LF	ND (0.5)	ND (1.0)
MW-56D	DA	12/10/2019	FD(a)	LF	ND (0.5)	ND (1.0)
MW-56D	DA	06/19/2020	(a)	LF	ND (0.5)	ND (0.2)
MW-56M	DA	05/02/2018	(a)	LF	5	ND (0.2)
MW-56M	DA	12/13/2018	(a)	LF	ND (0.5 J)	ND (2.0)
MW-56M	DA	05/23/2019	(a)	LF	ND (0.5)	ND (2.0)
MW-56M	DA	12/10/2019	(a)	LF	ND (0.5)	ND (1.0)
MW-56M	DA	06/19/2020	(a)	LF	ND (0.5)	ND (0.2)
MW-56S	SA	05/02/2018	(a)	LF	ND (0.1)	ND (0.2)
MW-56S	SA	12/13/2018	(a)	LF	ND (0.1 J)	ND (2.0)
MW-56S	SA	05/23/2019	(a)	LF	ND (0.1)	ND (2.0)
MW-56S	SA	12/10/2019	(a)	LF	ND (0.1)	ND (1.0)
MW-56S	SA	06/19/2020	(a)	LF	ND (0.1)	ND (0.2)
MW-57-070	BR	05/03/2018		LF	340	360
MW-57-070	BR	12/07/2018		LF	410	420
MW-57-070	BR	05/20/2019		LF	380	400
MW-57-070	BR	12/06/2019		LF	420	390
MW-57-070	BR	06/22/2020		LF	610	530
MW-57-185	BR	05/03/2018		3V	8	8
MW-57-185	BR	12/07/2018		3V	6	6
MW-57-185	BR	05/20/2019		LF	5	5
MW-57-185	BR	05/20/2019	FD	LF	5	5
MW-57-185	BR	12/06/2019		LF	4	3

Appendix B

Historical Cr(VI) and Dissolved Chromium Concentrations, January 2018 through June 2020

Second Quarter 2020 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 Type	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)
MW-57-185	BR	06/22/2020		LF	1	2
MW-57-185	BR	06/22/2020	FD	--	1	2
MW-57-185_D	BR	05/03/2018		LF	5	5
MW-57-185_D	BR	12/07/2018		LF	6	6
MW-57-185_S	BR	05/03/2018		LF	5	5
MW-57-185_S	BR	12/07/2018		LF	5	6
MW-58BR	BR	02/19/2018		LF	13	11
MW-58BR	BR	05/03/2018		LF	9	9
MW-58BR	BR	09/27/2018		LF	10	10
MW-58BR	BR	12/13/2018		LF	10	11
MW-58BR	BR	02/14/2019		LF	7	9
MW-58BR	BR	05/21/2019		LF	12	14
MW-58BR	BR	08/19/2019		LF	90	88 J
MW-58BR	BR	08/19/2019	FD	--	90	89 J
MW-58BR	BR	12/13/2019		LF	76	70
MW-58BR	BR	02/17/2020		LF	120	120
MW-58BR	BR	05/01/2020		LF	43	41
MW-59-100	SA	05/03/2018		LF	2,800	3,000
MW-59-100	SA	12/07/2018		LF	3,100	3,300
MW-59-100	SA	12/07/2018	FD	LF	3,100	3,100
MW-59-100	SA	05/20/2019		LF	2,000	2,200
MW-59-100	SA	05/20/2019	FD	LF	2,200	2,300
MW-59-100	SA	12/13/2019		LF	2,700	2,800
MW-59-100	SA	12/13/2019	FD	--	2,700	2,700
MW-59-100	SA	06/22/2020		LF	2,100	2,200
MW-60-125	BR	05/02/2018		LF	510	470
MW-60-125	BR	12/06/2018		LF	980	950
MW-60-125	BR	05/22/2019		LF	880	890
MW-60-125	BR	12/06/2019		LF	580	540
MW-60-125	BR	06/24/2020		LF	660	630
MW-60BR-245	BR	02/21/2018		3V	69	59
MW-60BR-245	BR	05/02/2018		3V	73	67
MW-60BR-245	BR	09/25/2018		3V	76	81
MW-60BR-245	BR	12/06/2018		3V	110	120
MW-60BR-245	BR	02/14/2019		3V	110	110
MW-60BR-245	BR	05/22/2019		3V	130	120
MW-60BR-245	BR	12/12/2019		3V	64	52
MW-60BR-245	BR	02/20/2020		3V	52	44
MW-60BR-245_D	BR	02/21/2018		LF	4	39
MW-60BR-245_D	BR	05/02/2018		LF	1	2
MW-60BR-245_D	BR	09/25/2018		LF	6	6
MW-60BR-245_D	BR	12/06/2018		LF	20	21
MW-60BR-245_D	BR	02/14/2019		LF	18	17

Appendix B

Historical Cr(VI) and Dissolved Chromium Concentrations, January 2018 through June 2020

Second Quarter 2020 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 Type	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)
MW-60BR-245_D	BR	05/23/2019		LF	68	61
MW-60BR-245_D	BR	12/13/2019		LF	75	61
MW-60BR-245_D	BR	02/21/2020		LF	72	62
MW-60BR-245_S	BR	02/21/2018		LF	ND (1.0)	8
MW-60BR-245_S	BR	05/02/2018		LF	1	2
MW-60BR-245_S	BR	09/25/2018		LF	ND (1.0)	ND (1.0)
MW-60BR-245_S	BR	12/06/2018		LF	17	17
MW-60BR-245_S	BR	02/14/2019		LF	25	29
MW-60BR-245_S	BR	05/23/2019		LF	85	74
MW-60BR-245_S	BR	12/13/2019		LF	86	76
MW-60BR-245_S	BR	02/21/2020		LF	96	85
MW-60BR-245-LF_S	BR	6/24/2020		LF	44	42
MW-61-110	BR	05/04/2018		LF	330	340
MW-61-110	BR	12/13/2018		LF	430	460
MW-61-110	BR	12/13/2018	FD	LF	460	470
MW-61-110	BR	05/23/2019		LF	280	280
MW-61-110	BR	12/06/2019		LF	480	460
MW-62-065	BR	02/19/2018		LF	560	510
MW-62-065	BR	02/19/2018	FD	LF	550	530
MW-62-065	BR	05/01/2018		LF	520	530
MW-62-065	BR	09/26/2018		LF	540	570
MW-62-065	BR	12/07/2018		LF	540	610
MW-62-065	BR	02/11/2019		LF	470	550
MW-62-065	BR	05/21/2019		LF	570	560
MW-62-065	BR	10/01/2019		LF	490	530
MW-62-065	BR	12/03/2019		LF	560	540
MW-62-065	BR	02/19/2020		LF	480	460
MW-62-065	BR	04/28/2020		LF	580	550
MW-62-110	BR	02/21/2018		Tap	ND (1.0)	ND (1.0)
MW-62-110	BR	05/03/2018		G	ND (1.0)	ND (1.0)
MW-62-110	BR	09/26/2018		3V	ND (1.0)	ND (1.0)
MW-62-110	BR	12/13/2018		G	0	3
MW-62-110	BR	02/14/2019		LF	ND (1.0)	ND (1.0)
MW-62-110	BR	05/22/2019		G	ND (1.0)	ND (1.0)
MW-62-110	BR	09/25/2019		G	ND (1.0)	ND (1.0)
MW-62-110	BR	12/04/2019		G	1	ND (1.0)
MW-62-110	BR	02/18/2020		G	ND (0.2)	ND (1.0)
MW-62-110	BR	04/29/2020		Tap	ND (1.0)	ND (1.0)
MW-62-190	BR	05/03/2018		G	ND (1.0)	ND (1.0)
MW-62-190	BR	12/13/2018		LF	ND (1.0)	ND (1.0)
MW-62-190	BR	05/22/2019		G	ND (1.0)	ND (1.0)
MW-62-190	BR	12/04/2019		LF	ND (1.0)	ND (1.0)
MW-62-190	BR	04/29/2020		Tap	ND (1.0)	ND (1.0)

Appendix B

Historical Cr(VI) and Dissolved Chromium Concentrations, January 2018 through June 2020

Second Quarter 2020 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 Type	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)
MW-62-190	BR	04/29/2020	FD	--	ND (1.0)	ND (1.0)
MW-63-065	BR	02/21/2018		LF	1	2
MW-63-065	BR	04/26/2018		LF	1	1
MW-63-065	BR	09/24/2018		LF	1	1
MW-63-065	BR	09/24/2018	FD	LF	1	2
MW-63-065	BR	12/12/2018		LF	1	2
MW-63-065	BR	02/14/2019		LF	1	1
MW-63-065	BR	05/21/2019		LF	1	3
MW-63-065	BR	09/26/2019		LF	1	1
MW-63-065	BR	09/26/2019	FD	--	1	1
MW-63-065	BR	12/06/2019		LF	1	3
MW-63-065	BR	02/19/2020		LF	1	3
MW-63-065	BR	02/19/2020	FD	--	1	3
MW-63-065	BR	06/24/2020		LF	1	3
MW-64BR	BR	02/19/2018		LF	ND (1.0)	ND (1.0)
MW-64BR	BR	02/19/2018	FD	LF	ND (1.0)	ND (1.0)
MW-64BR	BR	05/02/2018		LF	ND (1.0)	ND (1.0)
MW-64BR	BR	09/24/2018		LF	ND (1.0)	ND (1.0)
MW-64BR	BR	12/13/2018		LF	ND (1.0)	ND (1.0)
MW-64BR	BR	02/13/2019		LF	ND (1.0)	ND (1.0)
MW-64BR	BR	05/21/2019		LF	ND (1.0)	ND (1.0)
MW-64BR	BR	08/22/2019		LF	ND (1.0)	ND (1.0)
MW-64BR	BR	12/06/2019		LF	ND (1.0)	ND (1.0)
MW-64BR	BR	02/21/2020		LF	ND (1.0)	ND (1.0)
MW-64BR	BR	05/01/2020		LF	ND (0.2)	2
MW-65-160	SA	02/22/2018		LF	190	170
MW-65-160	SA	04/30/2018		LF	160	170
MW-65-160	SA	09/27/2018		LF	170	170
MW-65-160	SA	12/05/2018		LF	160	220
MW-65-160	SA	02/13/2019		LF	220	220
MW-65-160	SA	05/16/2019		LF	160	190
MW-65-160	SA	09/26/2019		LF	150	160
MW-65-160	SA	12/03/2019		LF	260	260
MW-65-160	SA	02/20/2020		LF	250	250
MW-65-160	SA	04/29/2020		LF	190	210
MW-65-225	DA	02/22/2018		LF	510	520
MW-65-225	DA	04/30/2018		LF	110	100
MW-65-225	DA	09/27/2018		LF	180	170
MW-65-225	DA	09/27/2018	FD	LF	180	170
MW-65-225	DA	12/05/2018		LF	220	220
MW-65-225	DA	02/13/2019		LF	490	490
MW-65-225	DA	05/16/2019		LF	180	160
MW-65-225	DA	09/26/2019		LF	330	340

Appendix B

Historical Cr(VI) and Dissolved Chromium Concentrations, January 2018 through June 2020

Second Quarter 2020 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 Type	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)
MW-65-225	DA	09/26/2019	FD	--	330	320
MW-65-225	DA	12/03/2019		LF	480	450
MW-65-225	DA	02/20/2020		LF	460	470
MW-65-225	DA	04/29/2020		LF	280	260
MW-66-165	SA	04/30/2018		LF	540	540
MW-66-165	SA	12/05/2018		LF	480	500
MW-66-165	SA	05/16/2019		LF	550	570
MW-66-165	SA	05/16/2019	FD	LF	540	580
MW-66-165	SA	12/03/2019		LF	480	480
MW-66-165	SA	04/29/2020		LF	530	520
MW-66-230	DA	04/30/2018		LF	6,700	6,900
MW-66-230	DA	04/30/2018	FD	LF	6,800	6,900
MW-66-230	DA	12/05/2018		LF	6,100	6,200
MW-66-230	DA	05/16/2019		LF	6,400	7,000
MW-66-230	DA	12/03/2019		LF	6,800	6,600
MW-66-230	DA	04/29/2020		LF	6,700	6,300
MW-66-230	DA	04/29/2020	FD	--	6,600	6,600
MW-66BR-270	BR	05/02/2018		3V	ND (1.0)	ND (1.0)
MW-66BR-270	BR	12/07/2018		3V	ND (1.0)	ND (1.0)
MW-66BR-270	BR	05/22/2019		3V	ND (1.0)	ND (1.0)
MW-66BR-270	BR	12/10/2019		3V	ND (1.0)	ND (1.0)
MW-66BR-270	BR	06/24/2020		3V	ND (1.0)	ND (1.0)
MW-67-185	SA	04/30/2018		LF	1,800	1,700
MW-67-185	SA	12/05/2018		LF	1,800	2,000
MW-67-185	SA	05/16/2019		LF	2,100	2,200
MW-67-185	SA	12/04/2019		LF	3,100	2,900 J
MW-67-185	SA	04/30/2020		LF	2,000	2,000
MW-67-225	MA	04/30/2018		LF	2,800	2,800
MW-67-225	MA	12/05/2018		LF	2,900	3,000
MW-67-225	MA	05/16/2019		LF	3,100	3,300
MW-67-225	MA	12/04/2019		LF	3,300	3,300
MW-67-225	MA	04/30/2020		LF	3,000	3,200
MW-67-260	DA	04/30/2018		LF	820	830
MW-67-260	DA	12/05/2018		LF	660	710 J
MW-67-260	DA	05/16/2019		LF	800	850
MW-67-260	DA	12/04/2019		LF	390	360
MW-67-260	DA	04/30/2020		LF	1,100	1,100
MW-68-180	SA	02/22/2018		LF	24,000	24,000
MW-68-180	SA	05/01/2018		LF	5,600	6,100
MW-68-180	SA	09/27/2018		LF	8,500	8,900
MW-68-180	SA	12/07/2018		LF	22,000	24,000
MW-68-180	SA	02/13/2019		LF	37,000	42,000
MW-68-180	SA	05/22/2019		LF	5,400	6,200

Appendix B

Historical Cr(VI) and Dissolved Chromium Concentrations, January 2018 through June 2020

Second Quarter 2020 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 Type	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)
MW-68-180	SA	09/26/2019		LF	9,700	11,000
MW-68-180	SA	12/04/2019		LF	34,000	37,000
MW-68-180	SA	02/20/2020		LF	25,000	27,000
MW-68-180	SA	04/30/2020		LF	41,000	43,000
MW-68-240	DA	02/22/2018		LF	2,100	2,000
MW-68-240	DA	05/01/2018		LF	2,000	2,100
MW-68-240	DA	12/05/2018		LF	2,000	1,900
MW-68-240	DA	05/23/2019		LF	2,000	2,000
MW-68-240	DA	05/23/2019	FD	LF	1,900	2,100
MW-68-240	DA	12/04/2019		LF	2,100	1,900
MW-68-240	DA	04/30/2020		LF	2,000	2,000
MW-68BR-280	BR	02/22/2018		LF	ND (1.0)	ND (1.0)
MW-68BR-280	BR	05/01/2018		LF	ND (1.0)	ND (5.0)
MW-68BR-280	BR	12/05/2018		LF	ND (1.0)	ND (1.0)
MW-68BR-280	BR	05/22/2019		LF	ND (1.0)	ND (1.0)
MW-68BR-280	BR	12/04/2019		LF	ND (1.0)	ND (1.0)
MW-68BR-280	BR	04/30/2020		3V	ND (1.0)	ND (1.0)
MW-69-195	BR	02/22/2018		LF	120	110
MW-69-195	BR	05/01/2018		LF	210	210
MW-69-195	BR	09/27/2018		LF	460	450
MW-69-195	BR	12/07/2018		LF	460	470
MW-69-195	BR	02/13/2019		LF	110	100
MW-69-195	BR	05/16/2019		LF	120	120
MW-69-195	BR	09/26/2019		LF	78	77
MW-69-195	BR	12/03/2019		LF	180	150
MW-69-195	BR	02/25/2020		LF	150	140
MW-69-195	BR	05/01/2020		LF	170	170
MW-69-195	BR	05/01/2020	FD	--	180	170
MW-70-105	BR	05/03/2018		LF	160	150
MW-70-105	BR	12/13/2018		LF	120	130
MW-70-105	BR	05/21/2019		LF	170	170
MW-70-105	BR	12/17/2019		LF	60	55
MW-70BR-225	BR	05/03/2018		LF	1,300	1,300
MW-70BR-225	BR	05/03/2018		3V	1,800	1,800
MW-70BR-225	BR	12/13/2018		LF	1,200	1,400
MW-70BR-225	BR	12/13/2018		3V	1,800	1,900
MW-70BR-225	BR	05/21/2019		LF	1,600	1,700
MW-70BR-225	BR	12/17/2019		LF	1,300	1,200
MW-71-035	SA	05/02/2018		LF	ND (1.0)	ND (1.0)
MW-71-035	SA	12/11/2018		LF	ND (1.0)	ND (1.0)
MW-71-035	SA	12/11/2018	FD	LF	ND (1.0)	1
MW-71-035	SA	05/23/2019		LF	ND (1.0)	ND (1.0)
MW-71-035	SA	12/18/2019		LF	ND (1.0)	ND (1.0)

Appendix B

Historical Cr(VI) and Dissolved Chromium Concentrations, January 2018 through June 2020

Second Quarter 2020 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 Type	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)
MW-71-035	SA	05/01/2020		LF	ND (1.0)	ND (1.0)
MW-72-080	BR	02/20/2018		LF	90	78
MW-72-080	BR	04/26/2018		LF	68	62
MW-72-080	BR	09/26/2018		LF	91	100
MW-72-080	BR	12/06/2018		LF	82	73
MW-72-080	BR	02/11/2019		LF	77	92
MW-72-080	BR	05/24/2019		LF	55	51
MW-72-080	BR	08/22/2019		LF	93	91
MW-72-080	BR	12/06/2019		LF	120	110
MW-72-080	BR	02/20/2020		LF	96	85
MW-72-080	BR	04/28/2020		LF	100	95
MW-72BR-200	BR	02/20/2018		3V	5	4
MW-72BR-200	BR	04/26/2018		3V	3	3
MW-72BR-200	BR	09/26/2018		3V	3	3
MW-72BR-200	BR	12/06/2018		3V	5	3
MW-72BR-200	BR	02/12/2019		3V	5	5
MW-72BR-200	BR	08/22/2019		LF	ND (1.0)	ND (1.0)
MW-72BR-200	BR	12/06/2019		LF	2	4
MW-72BR-200	BR	02/20/2020		LF	1	3
MW-72BR-200	BR	04/28/2020		LF	ND (1.0)	2
MW-72BR-200_D	BR	02/20/2018		LF	2	2
MW-72BR-200_D	BR	04/26/2018		LF	ND (1.0)	ND (1.0)
MW-72BR-200_D	BR	09/26/2018		LF	ND (1.0)	ND (1.0)
MW-72BR-200_D	BR	12/06/2018		LF	ND (1.0)	ND (1.0)
MW-72BR-200_D	BR	02/12/2019		LF	ND (1.0)	ND (1.0)
MW-72BR-200_S	BR	02/20/2018		LF	ND (1.0)	1
MW-72BR-200_S	BR	04/26/2018		LF	ND (1.0)	2
MW-72BR-200_S	BR	09/26/2018		LF	ND (1.0)	ND (1.0)
MW-72BR-200_S	BR	12/06/2018		LF	ND (1.0)	ND (1.0)
MW-72BR-200_S	BR	02/12/2019		LF	ND (1.0)	1
MW-72BR-200_S	BR	05/23/2019		LF	ND (1.0)	ND (1.0)
MW-73-080	BR	02/20/2018		LF	22	21
MW-73-080	BR	05/01/2018		LF	57	58
MW-73-080	BR	09/24/2018		LF	36	39
MW-73-080	BR	12/06/2018		LF	29	26
MW-73-080	BR	02/11/2019		LF	29	34 J
MW-73-080	BR	05/23/2019		LF	34	35
MW-73-080	BR	08/22/2019		LF	20	18
MW-73-080	BR	12/06/2019		LF	19	19
MW-73-080	BR	02/20/2020		LF	21	19
MW-73-080	BR	04/28/2020		LF	26	24
MW-74-240	BR	05/02/2018		LF	0	ND (1.0)
MW-74-240	BR	12/07/2018		LF	0	ND (1.0)

Appendix B

Historical Cr(VI) and Dissolved Chromium Concentrations, January 2018 through June 2020

Second Quarter 2020 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 Type	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)
MW-74-240	BR	05/22/2019		LF	1	ND (1.0)
MW-74-240	BR	12/05/2019		LF	ND (0.2)	ND (1.0)
MW-74-240	BR	04/30/2020		3V	ND (0.2)	2
PE-01	DA	01/04/2018		Tap	ND (0.2)	ND (1.0)
PE-01	DA	02/07/2018		Tap	1	ND (1.0)
PE-01	DA	03/07/2018		Tap	2	2
PE-01	DA	04/03/2018		Tap	ND (0.2)	ND (1.0)
PE-01	DA	05/04/2018		Tap	ND (0.2)	2
PE-01	DA	06/07/2018		Tap	ND (0.2)	ND (1.0)
PE-01	DA	07/03/2018		Tap	ND (0.2)	ND (1.0)
PE-01	DA	08/01/2018		Tap	ND (0.2)	ND (1.0)
PE-01	DA	09/06/2018		Tap	ND (0.2)	ND (1.0)
PE-01	DA	10/02/2018		Tap	8	6
PE-01	DA	11/07/2018		Tap	ND (0.2)	ND (1.0)
PE-01	DA	12/04/2018		Tap	1	3
PE-01	DA	01/03/2019		Tap	ND (0.2)	ND (1.0)
PE-01	DA	02/14/2019		Tap	ND (0.2)	ND (1.0)
PE-01	DA	03/05/2019		Tap	ND (0.2)	ND (1.0)
PE-01	DA	04/23/2019		Tap	ND (0.2)	ND (1.0)
PE-01	DA	05/09/2019		Tap	ND (0.2)	ND (1.0)
PE-01	DA	06/05/2019		Tap	ND (0.2)	ND (1.0)
PE-01	DA	07/24/2019		Tap	ND (0.2)	ND (1.0)
PE-01	DA	08/22/2019		Tap	ND (0.2)	ND (1.0)
PE-01	DA	09/04/2019		Tap	1	ND (1.0)
PE-01	DA	10/03/2019		Tap	ND (0.2)	ND (1.0)
PE-01	DA	11/07/2019		Tap	ND (0.2)	ND (1.0)
PE-01	DA	12/04/2019		Tap	ND (0.2)	ND (1.0)
TW-01	SA	05/01/2018		3V	2,400	3,100
TW-01	SA	12/05/2018		3V	2,100	2,100
TW-01	SA	05/24/2019		LF	2,300	2,400
TW-01	SA	12/03/2019		LF	2,200	2,100
TW-02D	DA	02/23/2018		LF	140	140
TW-02D	DA	02/23/2018	FD	LF	150	140
TW-02D	DA	05/04/2018		Tap	150	150
TW-02D	DA	05/04/2018	FD	Tap	150	140
TW-02D	DA	09/26/2018		Tap	ND (0.2)	ND (1.0)
TW-02D	DA	09/26/2018	FD	Tap	ND (0.2)	ND (1.0)
TW-02D	DA	12/04/2018		Tap	140	110
TW-02D	DA	02/14/2019		Tap	120	140
TW-02D	DA	02/14/2019	FD	Tap	120	130
TW-02D	DA	04/23/2019		Tap	93	46
TW-02D	DA	10/03/2019		Tap	95	110
TW-02D	DA	12/04/2019		Tap	2	52

Appendix B

Historical Cr(VI) and Dissolved Chromium Concentrations, January 2018 through June 2020

Second Quarter 2020 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 Type	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)
TW-02D	DA	02/19/2020		Tap	740	670
TW-03D	DA	01/04/2018		Tap	550	590
TW-03D	DA	02/07/2018		Tap	550	540
TW-03D	DA	03/07/2018		Tap	530	520
TW-03D	DA	04/03/2018		Tap	570	550
TW-03D	DA	05/04/2018		Tap	490	490
TW-03D	DA	06/07/2018		Tap	470	480
TW-03D	DA	07/03/2018		Tap	480	500
TW-03D	DA	08/01/2018		Tap	480	480
TW-03D	DA	09/06/2018		Tap	500	510
TW-03D	DA	10/02/2018		Tap	480	500
TW-03D	DA	11/07/2018		Tap	490	510
TW-03D	DA	12/04/2018		Tap	480	490
TW-03D	DA	01/03/2019		Tap	500	480
TW-03D	DA	02/14/2019		Tap	420	520
TW-03D	DA	03/05/2019		Tap	500	520
TW-03D	DA	04/23/2019		Tap	470	480
TW-03D	DA	05/09/2019		Tap	460	440
TW-03D	DA	06/05/2019		Tap	450	440
TW-03D	DA	07/24/2019		Tap	450	430
TW-03D	DA	08/22/2019		Tap	410	430
TW-03D	DA	09/04/2019		Tap	500	450
TW-03D	DA	10/03/2019		Tap	410	430
TW-03D	DA	11/07/2019		Tap	440	430
TW-03D	DA	12/04/2019		Tap	480	480
TW-03D	DA	01/08/2020		G	470	460
TW-03D	DA	02/05/2020		G	460	480
TW-03D	DA	03/04/2020		G	450	390
TW-03D	DA	04/07/2020		Tap	440	420
TW-03D	DA	05/05/2020		Tap	450	410
TW-04	DA	04/26/2018		LF	ND (1.0)	ND (5.0)
TW-04	DA	04/26/2018		3V	9	9
TW-04	DA	12/11/2018		LF	4	5
TW-04	DA	12/11/2018		3V	8	8
TW-04	DA	12/11/2018	FD	3V	8	8
TW-04	DA	05/16/2019		LF	5	5
TW-04	DA	12/12/2019		LF	6	6
TW-04	DA	06/25/2020		LF	4	4
TW-05	DA	05/01/2018		LF	9	9
TW-05	DA	05/01/2018		3V	11	11
TW-05	DA	12/04/2018		LF	10	9
TW-05	DA	12/04/2018		3V	14	14
TW-05	DA	05/20/2019		LF	11	10

Appendix B

Historical Cr(VI) and Dissolved Chromium Concentrations, January 2018 through June 2020

Second Quarter 2020 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 Type	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)
TW-05	DA	05/20/2019	FD	LF	11	10
TW-05	DA	12/12/2019		LF	18	17
TW-05	DA	06/25/2020		LF	12	12

Notes:

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

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

-- = not applicable.
µg/L = micrograms per liter.
3V = three volume.
BR = bedrock.
DA = deep interval of Alluvial Aquifer.
DTSC = Department of Toxic Substance Control.
FD = field duplicate.
G = Grab sample.
H = HydraSleeve.
ID = identification.
J = concentration or reporting limit (RL) estimated by laboratory or data validation.
LF = Low Flow (minimal drawdown).
MA = mid-depth interval of Alluvial Aquifer.
ND = not detected at listed reporting limit.
SA = shallow interval of Alluvial Aquifer.
Tap = sampled from tap of extraction well.

APPENDIX C

Well Inspection and Maintenance Log, Second Quarter 2020

Appendix C

Well Inspection and Maintenance Log, Second Quarter 2020

Second Quarter 2020 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? (Yes/No)	Standing or Ponded Water? (Yes/No)	Lock in Place? (Yes/No)	Evidence of Well Subsidence? (Yes/No)	Well Labeled on Casing or Pad? (Yes/No)	Traffic Poles Intact? (Yes/No)	Concrete Pad Intact? (Yes/No)	Erosion Around Wellhead? (Yes/No)	Steel Casing Intact? (Yes/No)	PVC Cap Present? (Yes/No)	Standing Water in Annulus? (Yes/No)	Well Casing Intact? (Yes/No)	Photo Taken? (Yes/No)	Action Completed? (Yes/No)
MW-09	04/24/2020	Yes	No	Yes	No	Yes	No	Yes	No	Yes	Yes	No	Yes	No	--
MW-10	04/23/2020	Yes	No	Yes	No	Yes	No	Yes	No	Yes	Yes	No	Yes	No	--
MW-11	04/23/2020	Yes	No	Yes	No	Yes	No	Yes	No	Yes	Yes	No	Yes	No	--
MW-12	04/28/2020	Yes	No	Yes	No	Yes	Yes	--	No	Yes	Yes	No	Yes	No	--
MW-14	06/24/2020	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-19	04/27/2020	Yes	No	Yes	No	Yes	Yes	--	No	Yes	Yes	No	Yes	No	--
MW-20-070	04/24/2020	Yes	No	Yes	No	Yes	No	Yes	No	No	Yes	No	Yes	No	--
MW-20-100	04/24/2020	Yes	No	Yes	No	Yes	No	--	Yes	No	Yes	No	Yes	No	--
MW-20-130	04/24/2020	Yes	No	Yes	No	Yes	No	Yes	No	No	Yes	No	Yes	No	--
MW-21	04/29/2020	Yes	No	No	No	No	--	Yes	No	No	Yes	No	No	No	--
MW-22	06/16/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-23-060	06/18/2020	No	No	Yes	No	Yes	No	Yes	No	Yes	Yes	No	Yes	No	--
MW-23-080	06/18/2020	Yes	No	Yes	No	Yes	No	Yes	No	Yes	Yes	No	No	No	--
MW-25	06/24/2020	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-26	04/27/2020	Yes	No	Yes	No	No	--	Yes	No	--	Yes	No	Yes	No	--
MW-27-085	06/18/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-28-025	06/23/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-28-090	06/23/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-29	06/23/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-31-060	06/24/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-32-035	06/18/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-33-040	06/17/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-33-090	06/17/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-33-150	06/17/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	--	No	Yes	--
MW-33-210	06/17/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-34-080	06/18/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-34-100	06/18/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-35-060	04/27/2020	Yes	No	No	No	Yes	--	Yes	No	--	Yes	Yes	Yes	No	--
MW-35-135	04/27/2020	Yes	No	No	No	Yes	--	Yes	No	--	Yes	Yes	Yes	No	--
MW-36-090	06/16/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-36-100	06/16/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-37D	06/24/2020	Yes	No	Yes	--	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-38D	04/23/2020	Yes	No	Yes	No	Yes	No	Yes	No	Yes	Yes	No	Yes	No	--
MW-38S	04/23/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-39-100	06/18/2020	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-40D	06/17/2020	Yes	No	Yes	No	Yes	--	Yes	No	--	Yes	No	Yes	Yes	--
MW-40S	06/17/2020	Yes	No	Yes	No	Yes	--	Yes	No	--	Yes	No	Yes	No	--
MW-41D	06/24/2020	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-42-055	06/18/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-42-065	06/18/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-44-070	06/23/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-44-115	06/23/2020	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	--	No	--
MW-44-125	06/23/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-46-175	06/23/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-46-205	06/23/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-47-055	06/25/2020	Yes	No	--	No	Yes	--	--	No	Yes	Yes	No	Yes	Yes	--
MW-47-115	06/25/2020	Yes	No	--	No	Yes	--	--	No	Yes	Yes	No	--	Yes	--
MW-48	04/29/2020	Yes	No	Yes	No	Yes	Yes	--	No	Yes	Yes	No	Yes	No	--

Appendix C

Well Inspection and Maintenance Log, Second Quarter 2020

Second Quarter 2020 Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
PG&E Topock Compressor Station, Needles, California

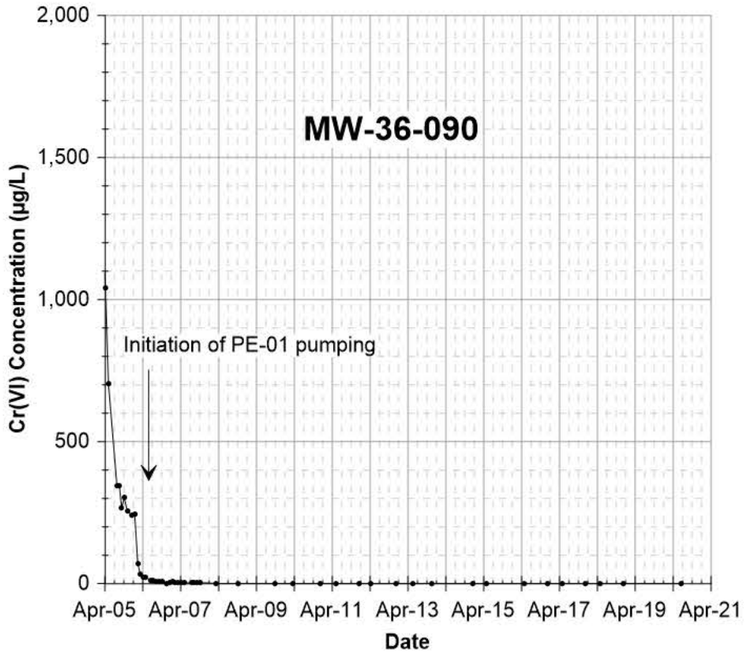
Well/Piezometer	Inspection Date	Survey Mark Present? (Yes/No)	Standing or Ponded Water? (Yes/No)	Lock in Place? (Yes/No)	Evidence of Well Subsidence? (Yes/No)	Well Labeled on Casing or Pad? (Yes/No)	Traffic Poles Intact? (Yes/No)	Concrete Pad Intact? (Yes/No)	Erosion Around Wellhead? (Yes/No)	Steel Casing Intact? (Yes/No)	PVC Cap Present? (Yes/No)	Standing Water in Annulus? (Yes/No)	Well Casing Intact? (Yes/No)	Photo Taken? (Yes/No)	Action Completed? (Yes/No)
MW-50-095	06/24/2020	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-50-200	06/24/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-51	04/27/2020	Yes	No	No	No	No	--	Yes	No	--	Yes	No	Yes	No	--
MW-52D	06/16/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-52M	06/16/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-52S	06/16/2020	Yes	No	Yes	--	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-53D	06/16/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-53M	06/16/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-54-085	06/19/2020	Yes	No	Yes	No	Yes	No	Yes	No	Yes	Yes	No	Yes	No	--
MW-54-140	06/19/2020	Yes	No	Yes	No	Yes	No	Yes	No	Yes	Yes	No	Yes	No	--
MW-54-195	06/19/2020	Yes	No	Yes	No	Yes	No	Yes	No	Yes	Yes	No	Yes	No	--
MW-55-045	06/19/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-55-120	06/19/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-56D	06/19/2020	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-56M	06/19/2020	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-56S	06/19/2020	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-57-050	06/22/2020	Yes	No	Yes	No	Yes	--	Yes	No	--	Yes	No	Yes	No	--
MW-57-070	06/22/2020	Yes	No	Yes	No	Yes	--	Yes	No	--	Yes	No	Yes	No	--
MW-57-185	06/22/2020	Yes	No	Yes	No	Yes	--	Yes	No	--	Yes	No	Yes	No	--
MW-59-100	06/22/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-60-125	06/24/2020	Yes	No	Yes	No	Yes	--	Yes	No	--	Yes	No	Yes	Yes	--
MW-60BR-245	06/24/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-62-065	04/28/2020	Yes	No	No	No	Yes	--	Yes	No	--	Yes	No	Yes	No	--
MW-62-110	04/28/2020	--	No	No	No	Yes	--	Yes	No	--	Yes	No	Yes	No	--
MW-62-190	04/28/2020	No	No	No	No	Yes	--	Yes	No	--	Yes	No	Yes	No	--
MW-63-065	06/23/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-65-160	04/29/2020	Yes	No	No	No	No	--	Yes	No	--	Yes	No	Yes	No	--
MW-65-225	04/29/2020	Yes	No	No	No	No	--	Yes	No	--	Yes	No	Yes	No	--
MW-66-165	04/29/2020	Yes	No	No	No	No	--	Yes	No	--	Yes	No	Yes	No	--
MW-66-230	04/29/2020	Yes	No	No	No	Yes	--	Yes	No	--	Yes	No	Yes	No	--
MW-66BR-270	06/17/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-67-185	04/30/2020	No	No	No	No	No	--	Yes	No	--	Yes	Yes	Yes	No	--
MW-67-225	04/30/2020	No	No	No	No	No	--	Yes	No	--	Yes	Yes	Yes	No	--
MW-67-260	04/30/2020	No	No	No	No	No	--	Yes	No	--	Yes	Yes	Yes	No	--
MW-68-180	04/30/2020	No	No	No	No	Yes	--	Yes	No	--	Yes	No	Yes	--	--
MW-68-240	04/30/2020	No	No	No	No	No	--	Yes	No	--	Yes	No	Yes	No	--
MW-68BR-280	04/30/2020	No	No	Yes	No	No	--	Yes	No	--	Yes	No	Yes	No	--
MW-71-035	04/29/2020	Yes	No	No	No	Yes	--	Yes	No	--	Yes	Yes	No	No	--
MW-72-080	04/28/2020	No	No	No	No	No	--	Yes	No	--	Yes	No	Yes	No	--
MW-72BR-200	04/28/2020	No	No	No	No	No	--	No	No	--	Yes	No	Yes	No	--
MW-73-080	04/28/2020	No	Yes	No	Yes	No	--	No	No	--	Yes	Yes	Yes	No	--
MW-74-240	04/28/2020	Yes	No	No	No	No	--	Yes	No	--	No	No	Yes	No	--
TW-04	06/25/2020	Yes	No	--	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
TW-05	06/25/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--

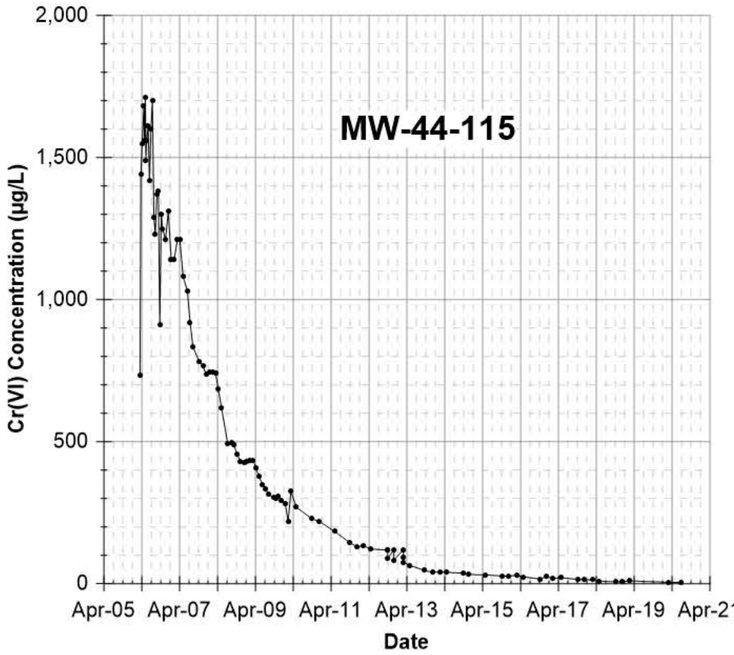
Notes:

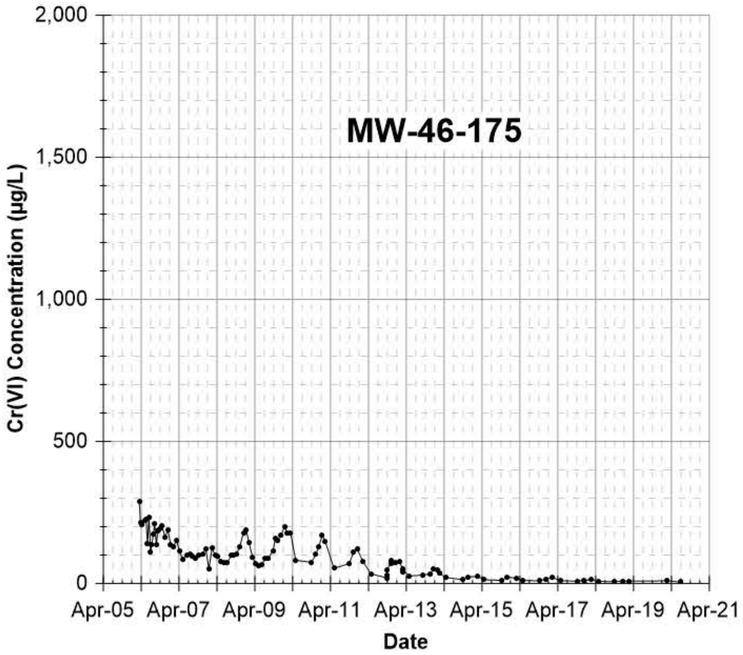
-- = not applicable

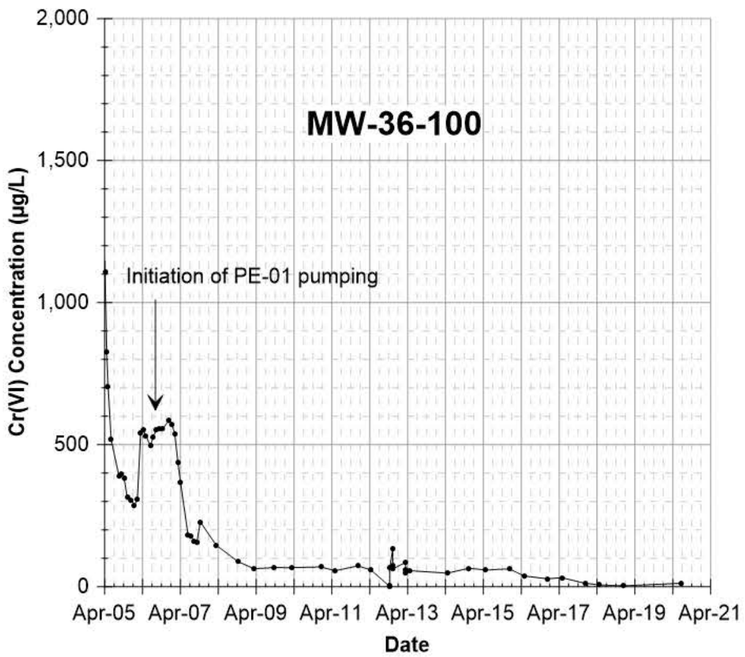
APPENDIX D

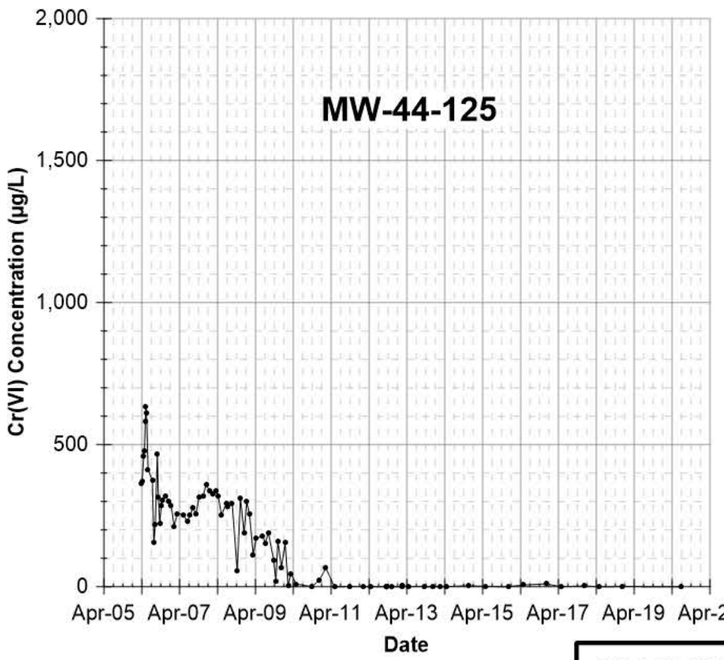
Concentration Time Series Charts, Second Quarter 2020

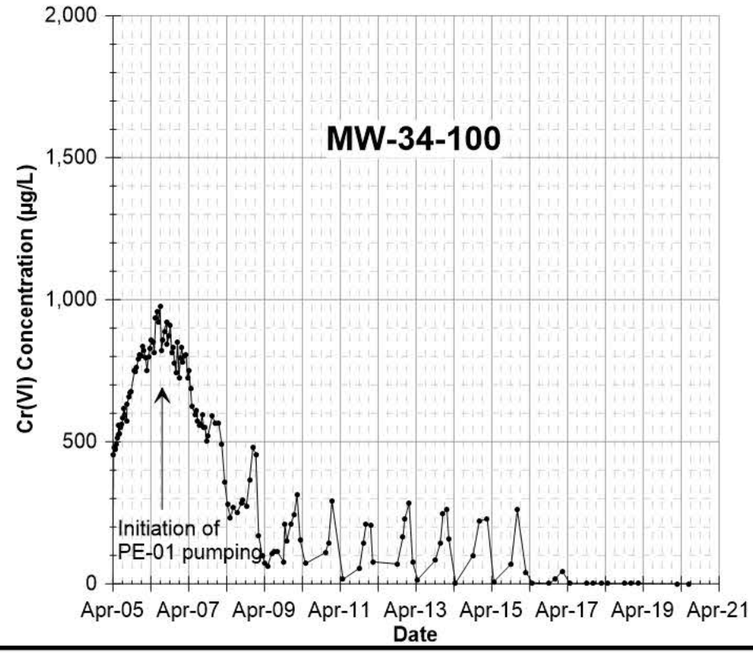








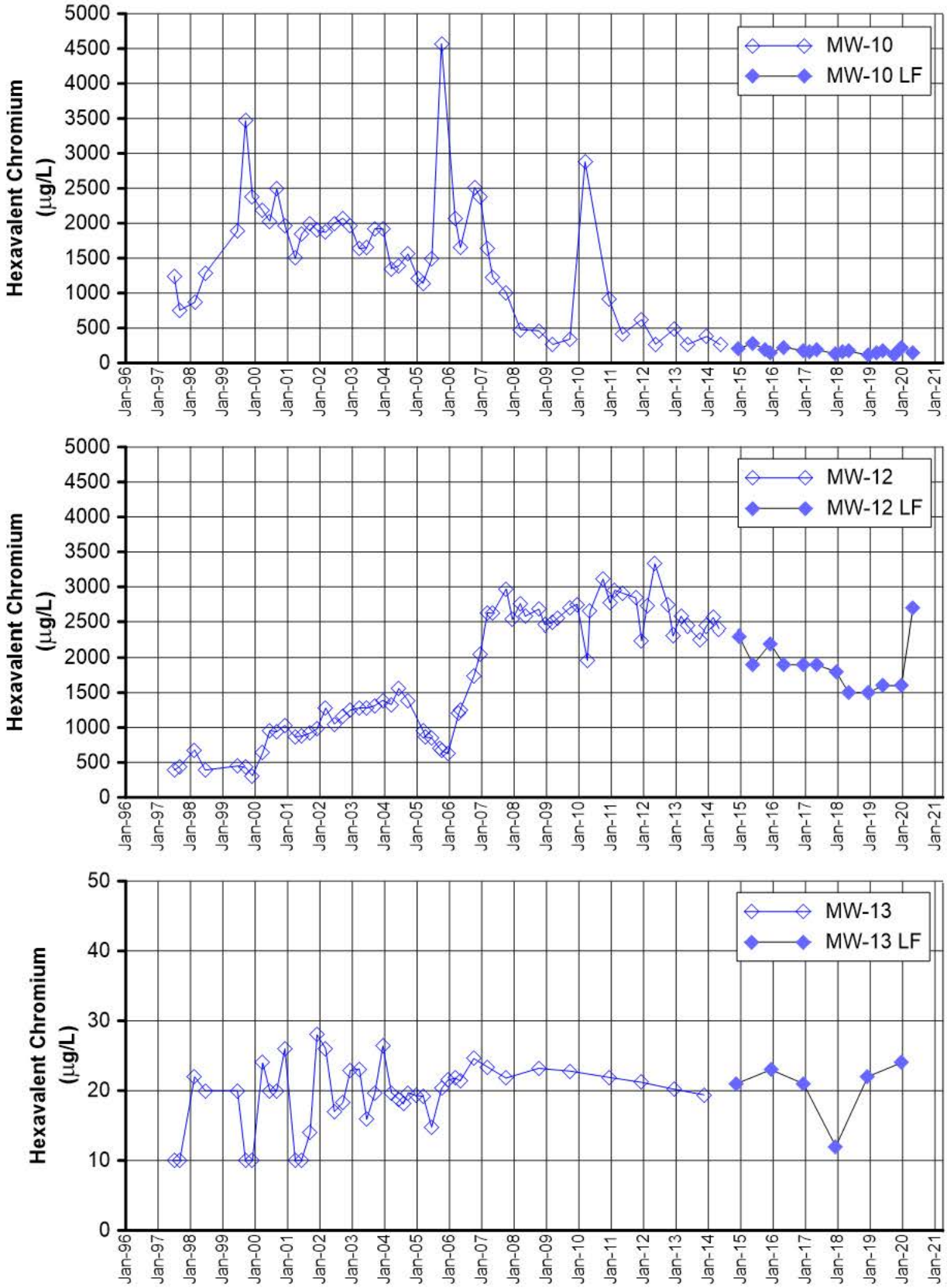




Notes:
1. Hexavalent chromium [Cr(VI)] results in micrograms per liter (µg/L), equivalent to parts per billion (ppb).
2. Results plotted are maximum concentrations from primary and duplicate samples; see Table 3-1 for complete results.
3. MW-36 wells selected to monitor effects of PE-01 pumping on plume west of PE-01. MW-44 wells, MW-46-175, and MW-34-100 selected to monitor concentrations within the plume.

APPENDIX D
Cr(VI) CONCENTRATION TRENDS IN SELECTED PERFORMANCE MONITORING WELLS, APRIL 2005 THROUGH JUNE 2020
SECOND QUARTER 2020 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-1
HEXAVALENT CHROMIUM
IN MW-10, MW-12, AND MW-13
SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

ARCADIS

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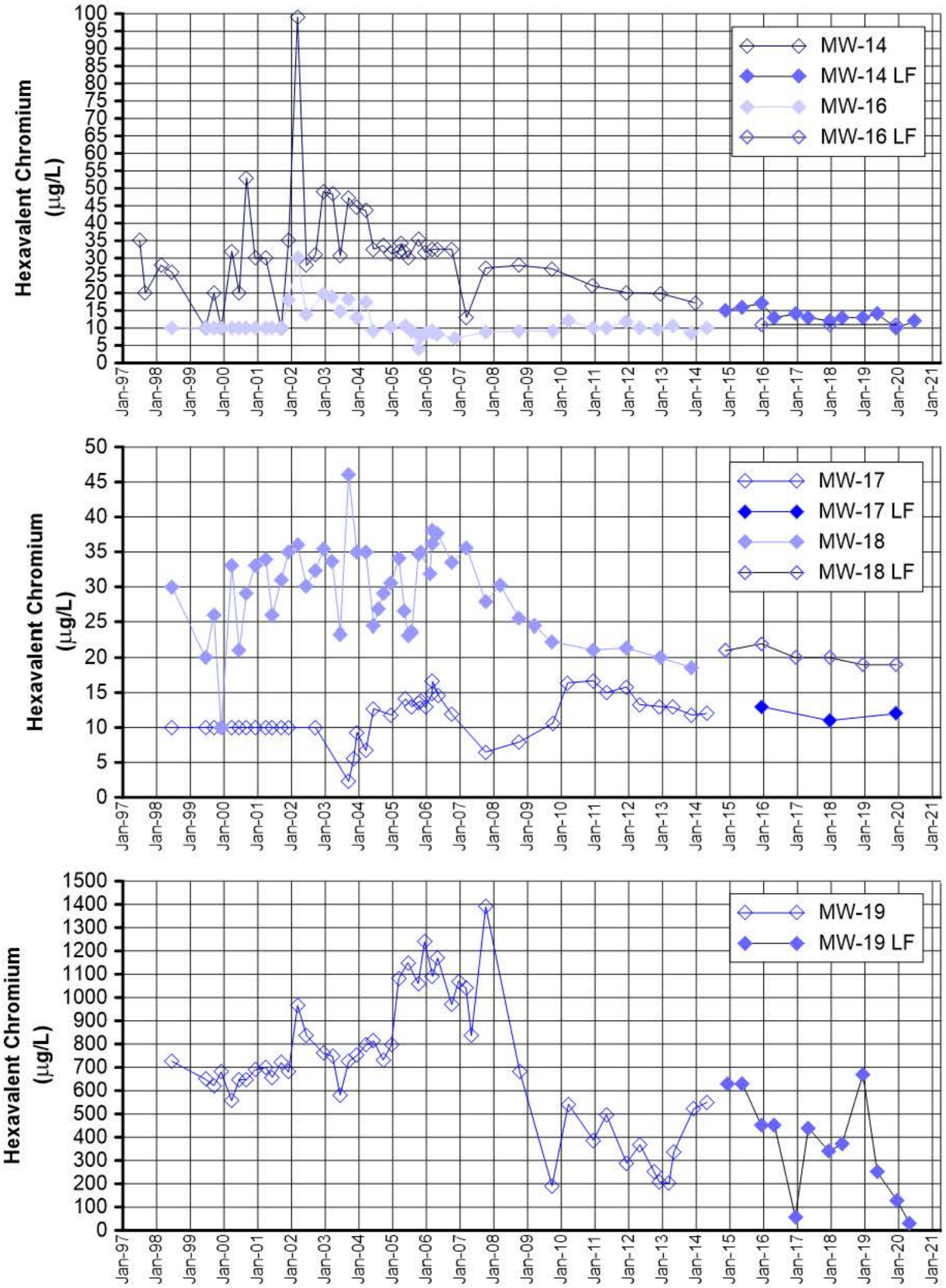

Notes:

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-2
HEXAVALENT CHROMIUM
IN MW-14, MW-16, MW-17, MW-18, AND MW-19
SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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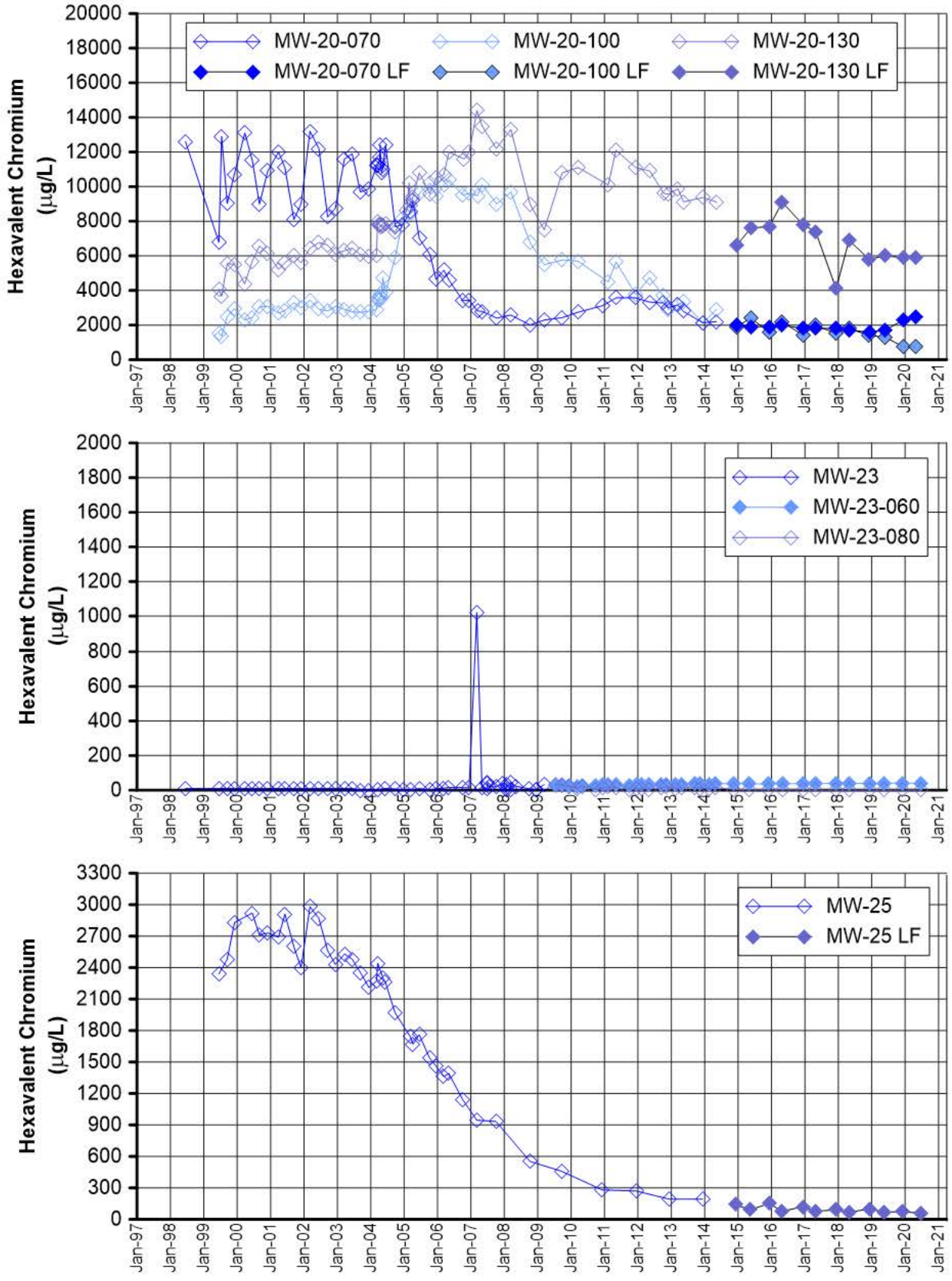

Notes:

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 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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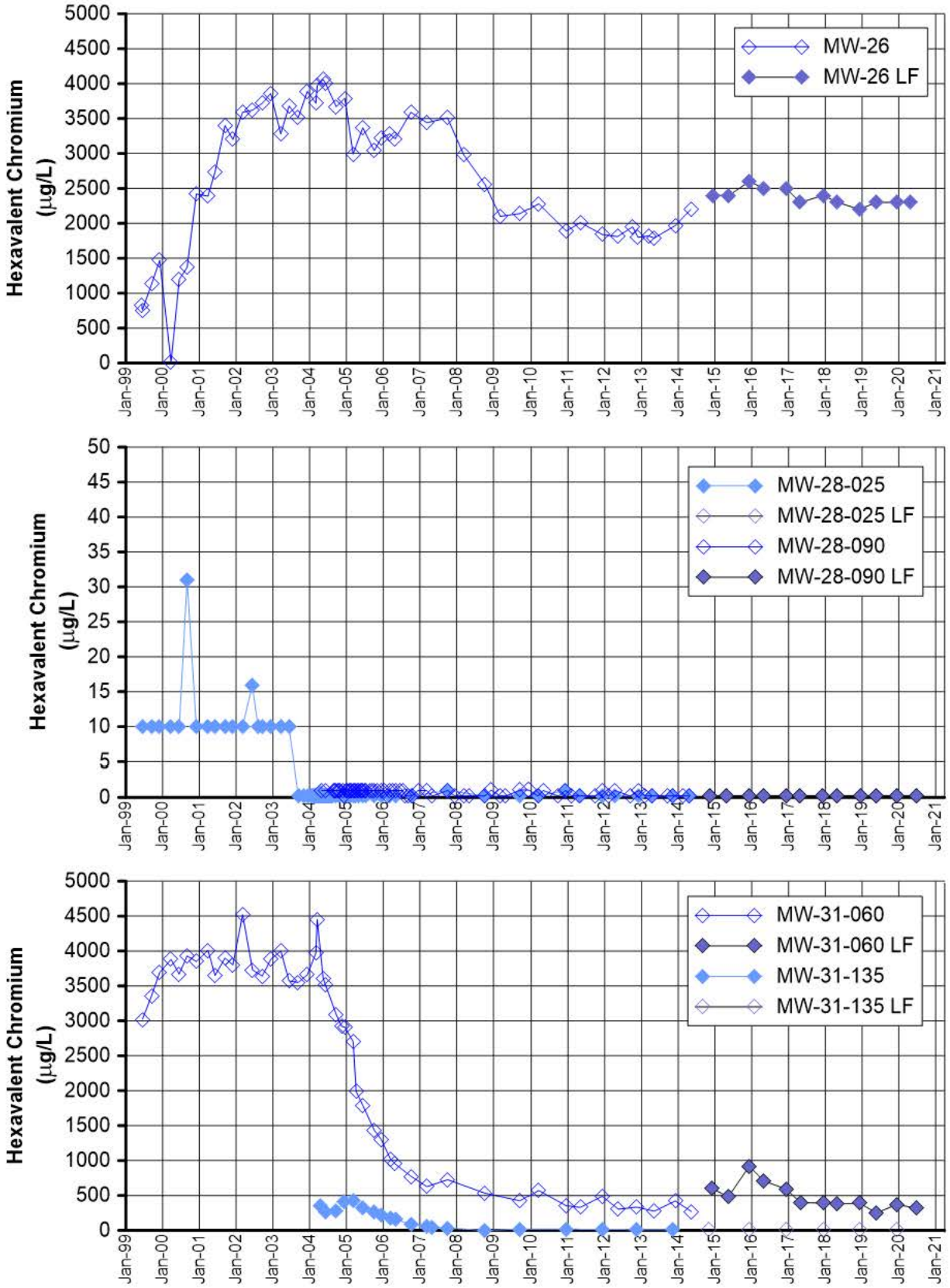

Notes:

1) 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 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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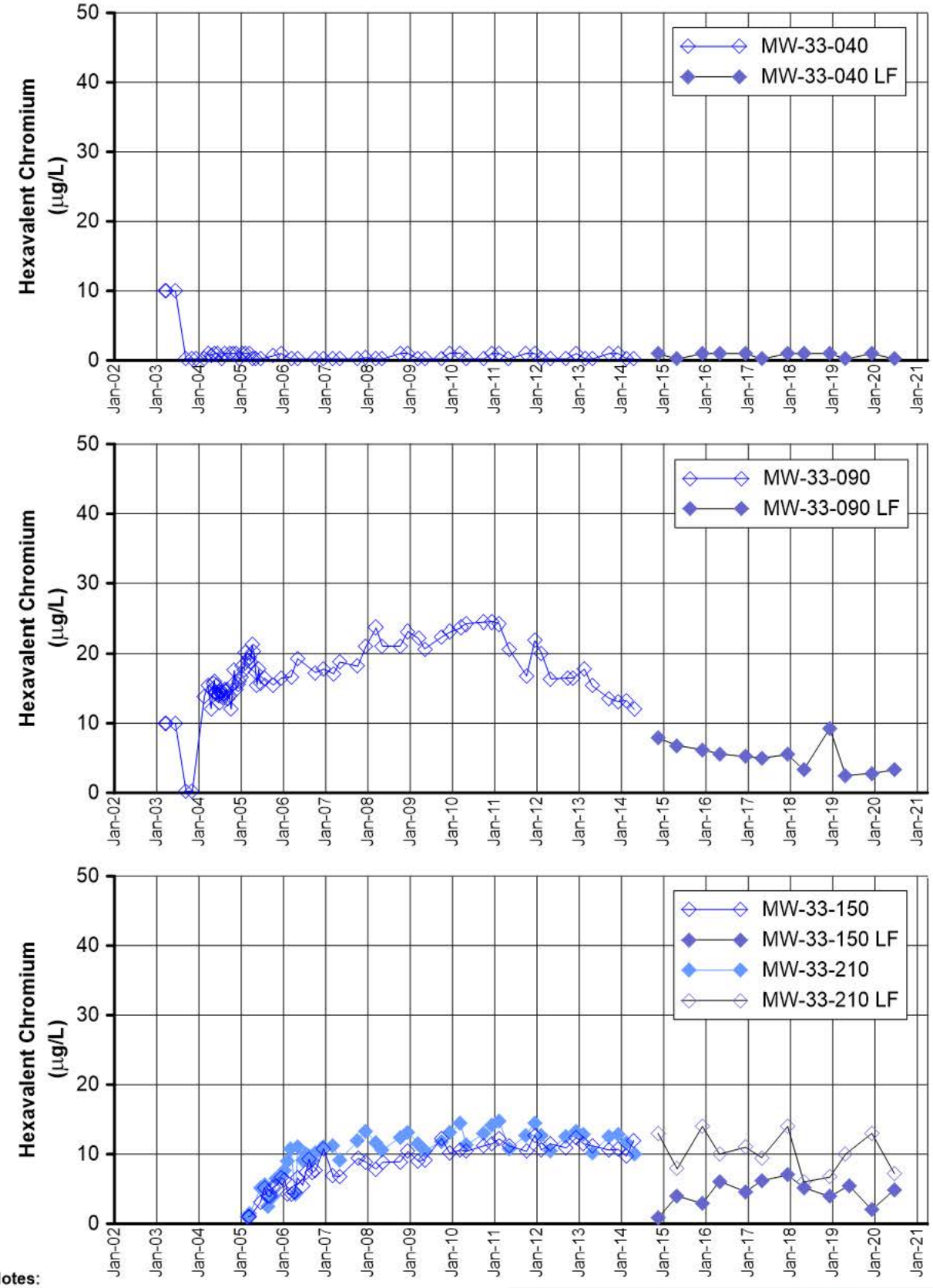

Notes:

1) 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 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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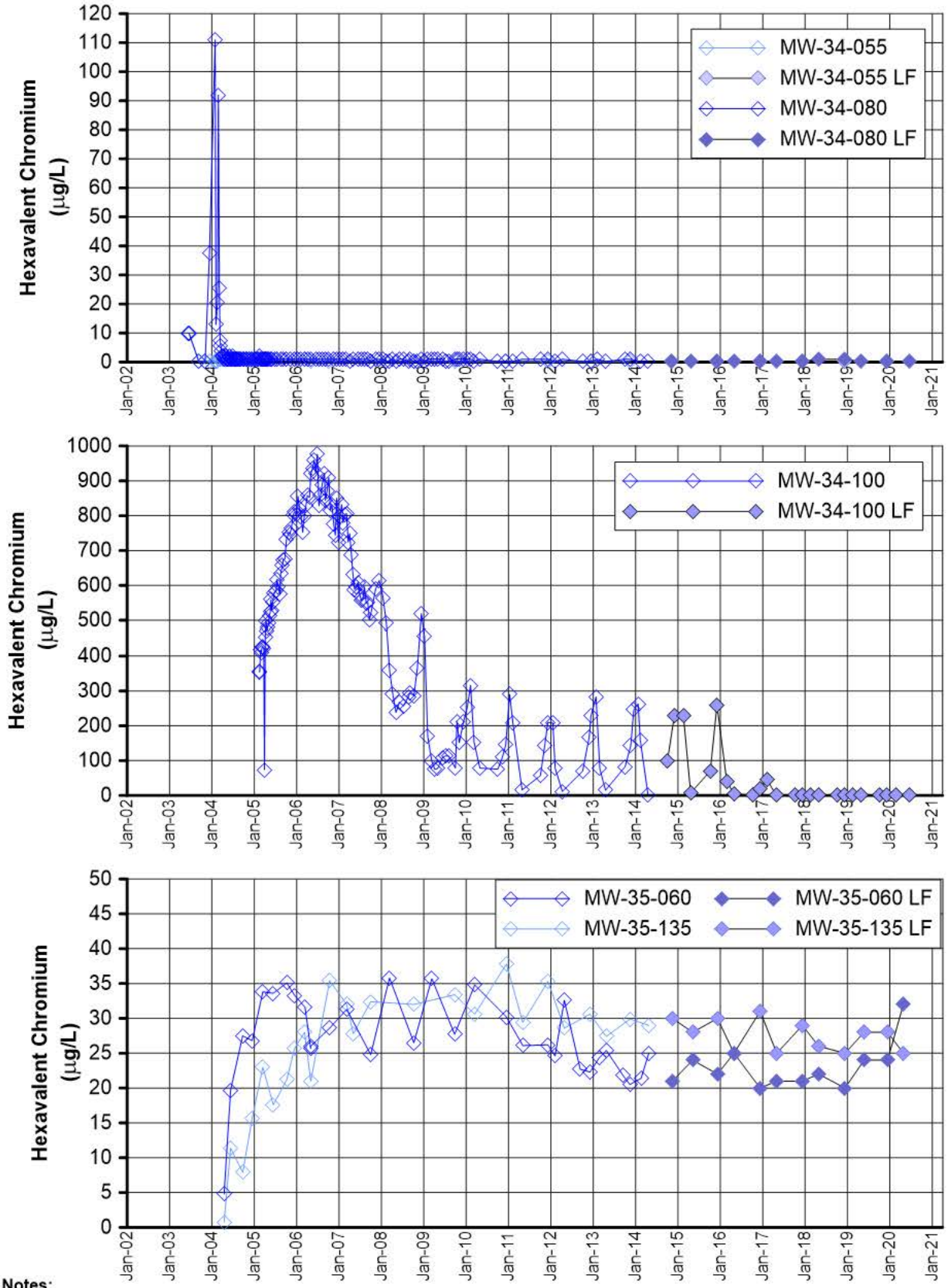

Notes:

1) 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 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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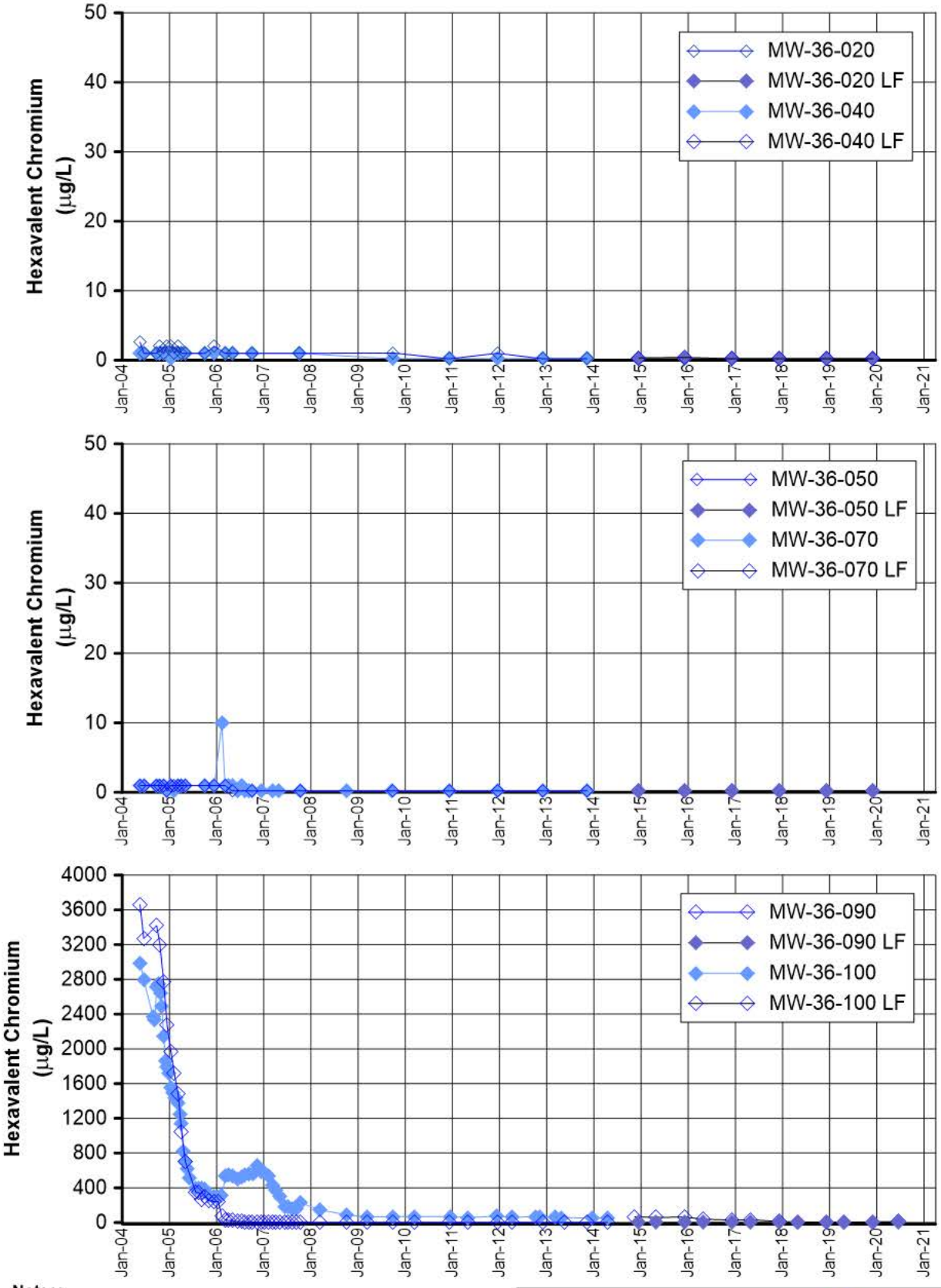

Notes:
1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
2) The trigger level for MW-36-070 is 20 µg/L.

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-7
HEXAVALENT CHROMIUM IN MW-36 CLUSTER
SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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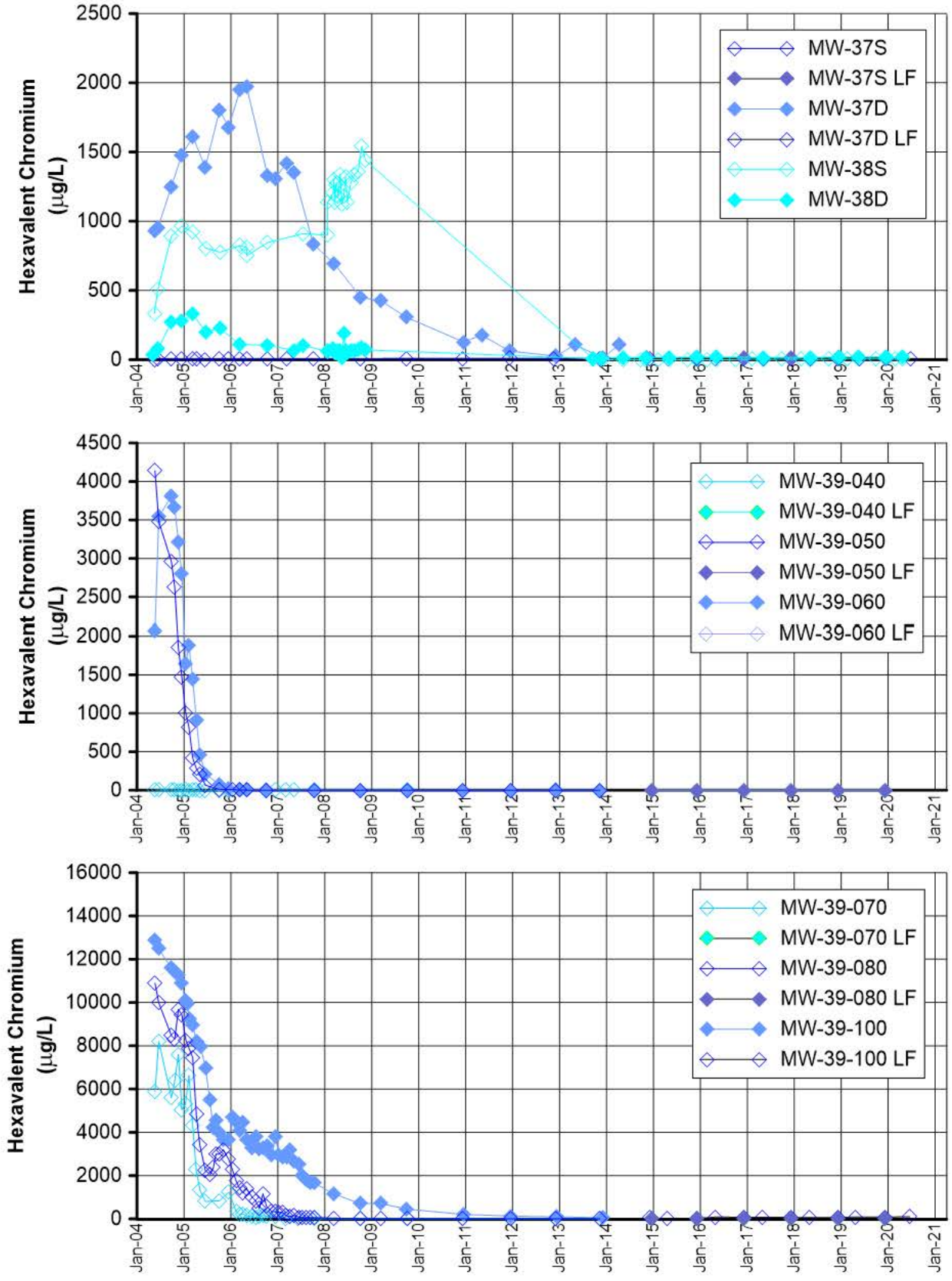

Notes:
1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
2) The trigger level for MW-39-040 is 20 µg/L.

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-8
HEXAVALENT CHROMIUM IN MW-37, MW-38 AND MW-39 CLUSTERS
SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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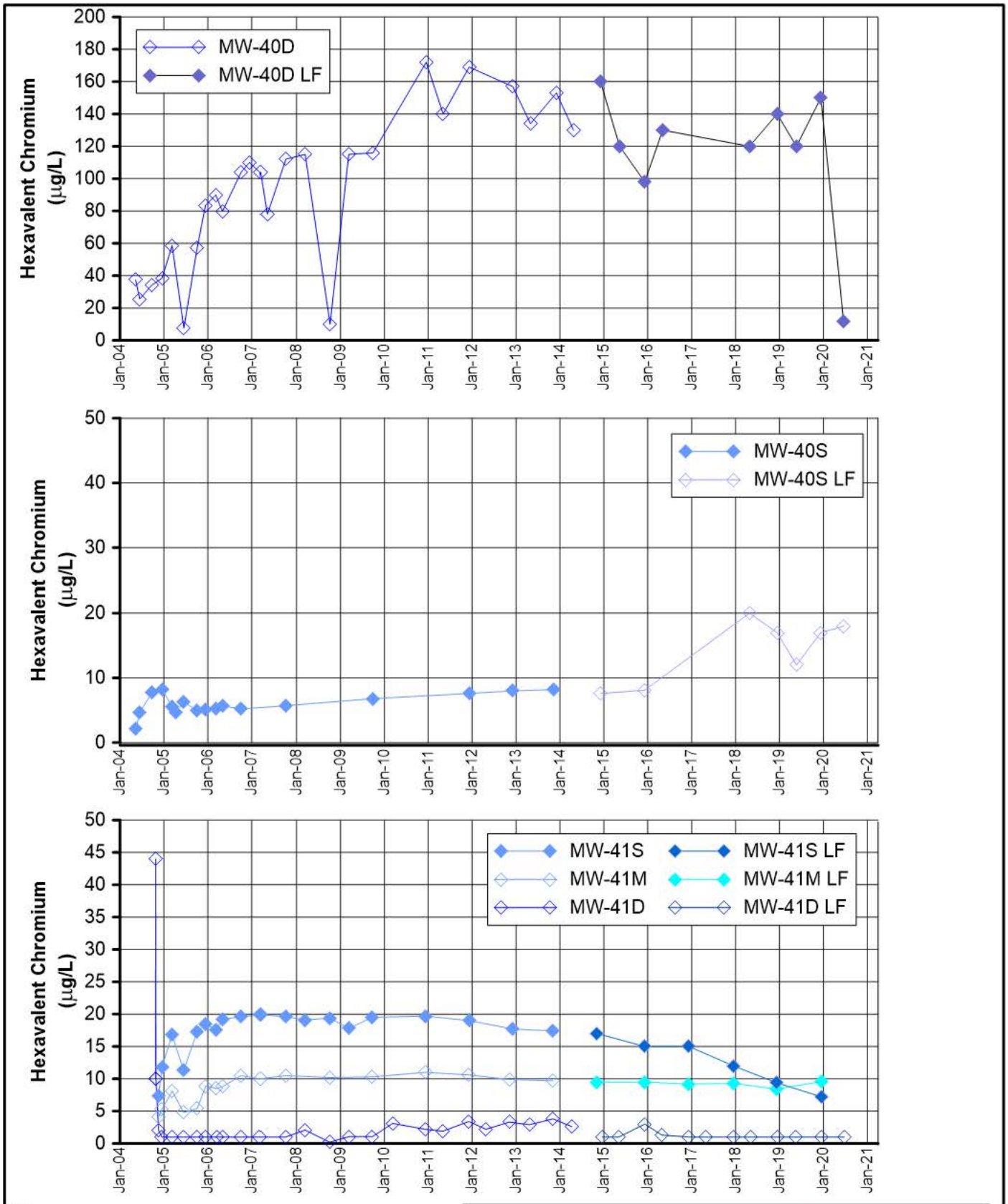

Notes:

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 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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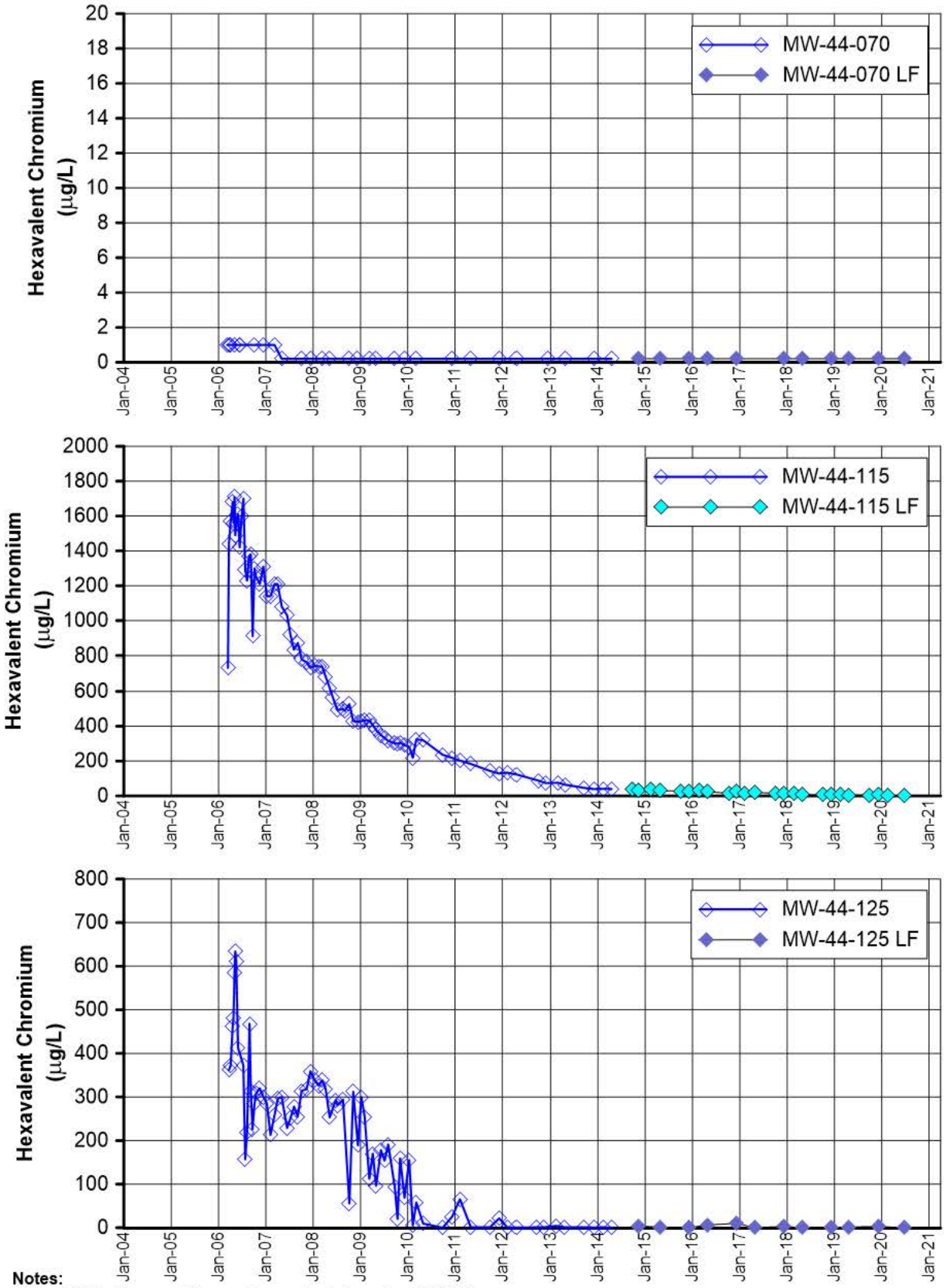

Notes:

1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
2) The trigger level for MW-44-070 is 20 µg/L.
3) The trigger level for MW-44-115 is 1,200 µg/L.
4) The trigger level for MW-44-125 is 475 µg/L.

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-10
HEXAVALENT CHROMIUM IN MW-44 CLUSTER

SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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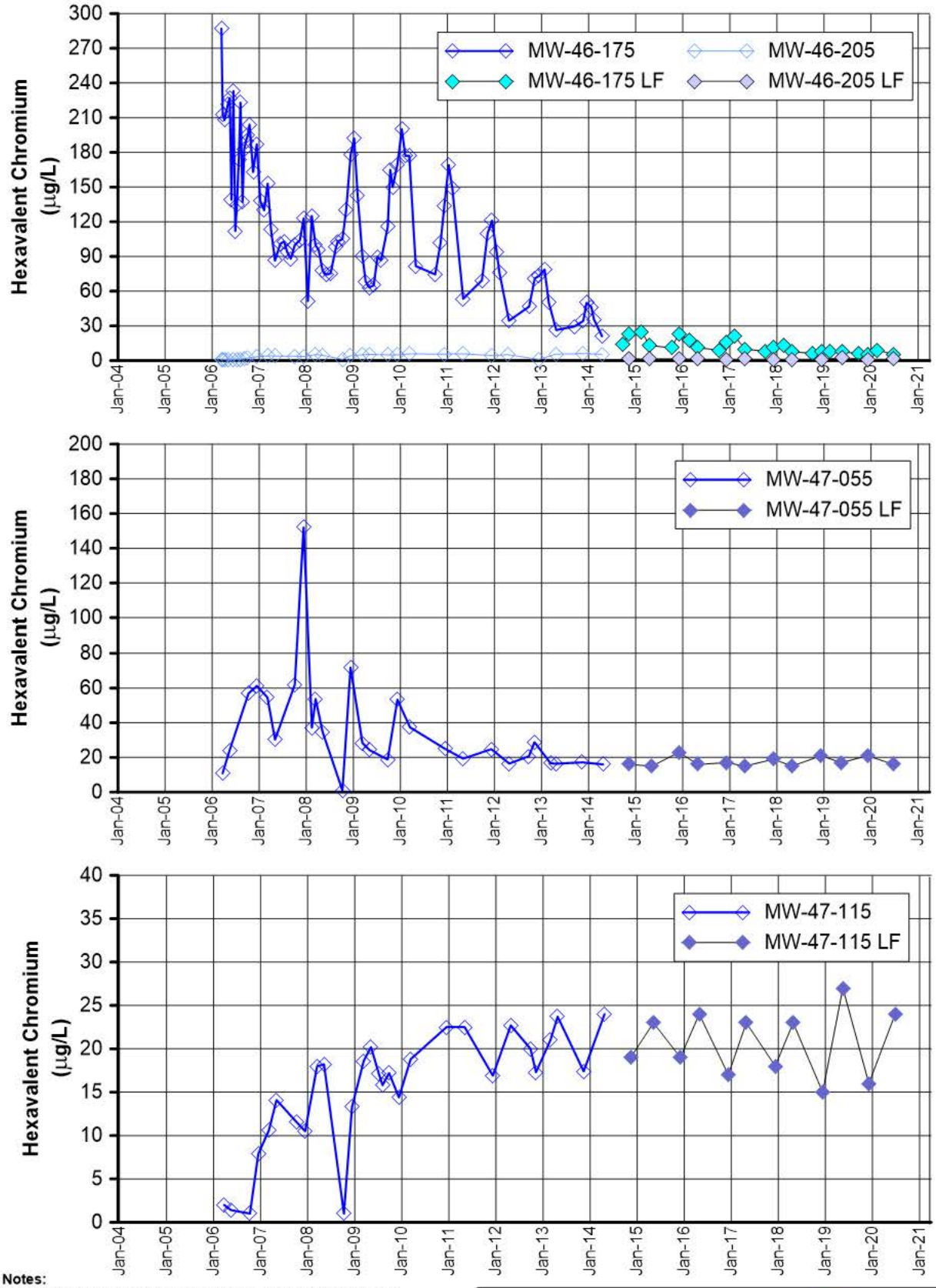

Notes:

1) The IM Contingency Plan and hexavalent chromium [Cr(VI)] trigger levels were updated July 17, 2008 (DTSC, 2008b).
2) The trigger level for MW-46-175 is 225 µg/L.
3) The trigger level for MW-46-205 is 20 µg/L.
4) The trigger level for MW-47-055 is 475 µg/L.
5) The trigger level for MW-47-115 is 31 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-11
HEXAVALENT CHROMIUM
IN MW-46 AND MW-47 CLUSTERS

SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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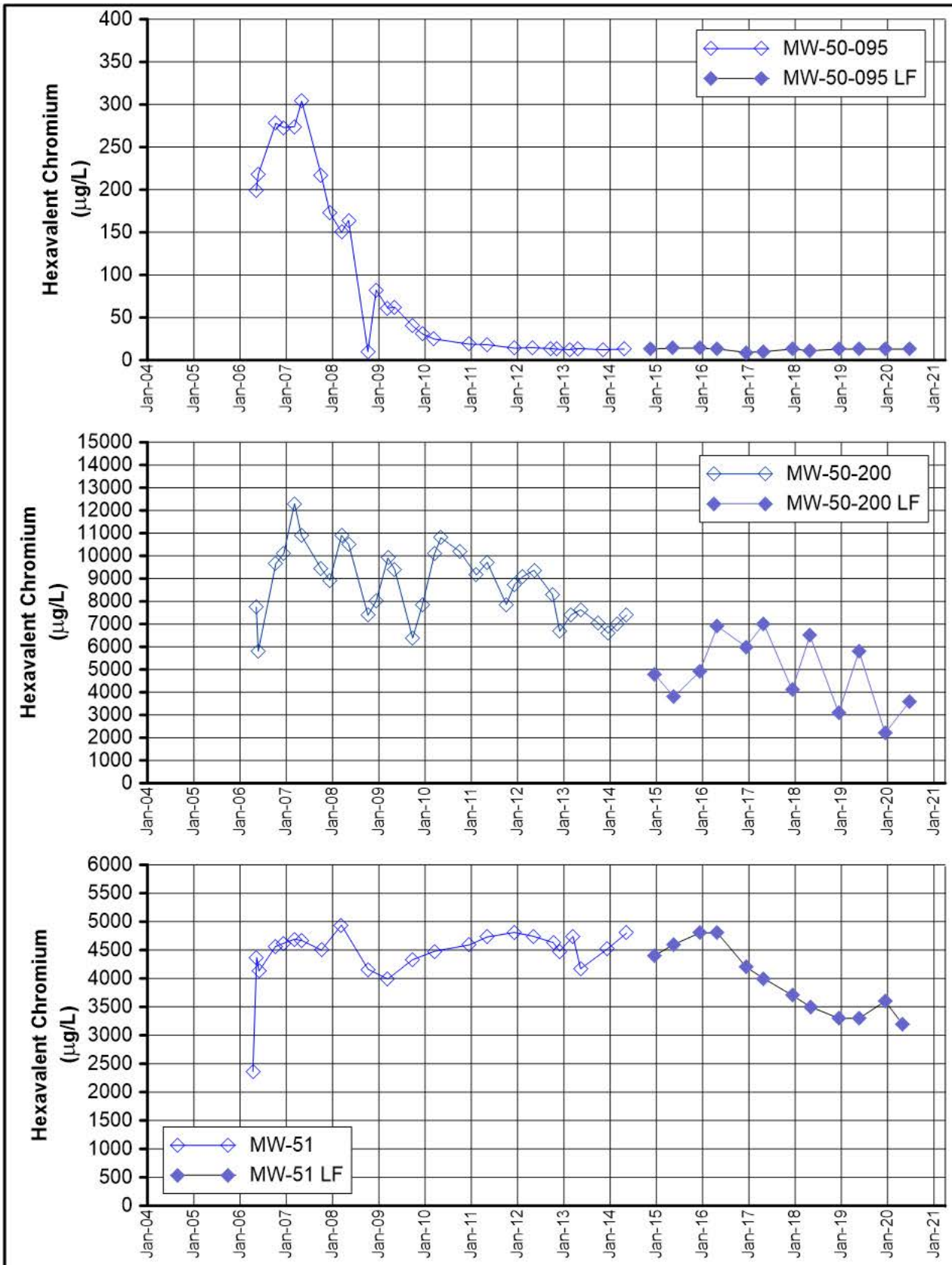

Notes:

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 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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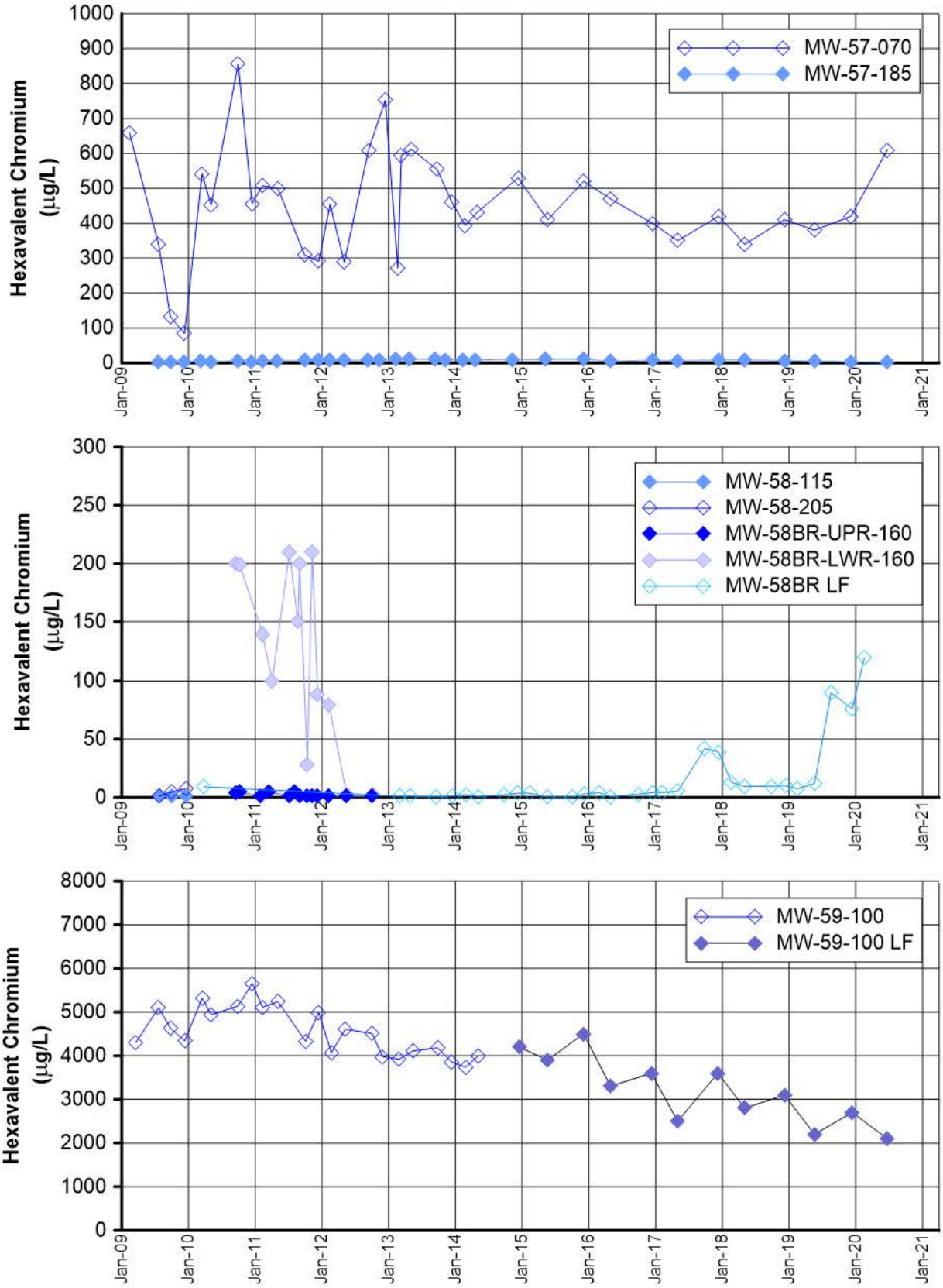

Note:

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-13
HEXAVALENT CHROMIUM
IN MW-57 CLUSTER, MW-58 CLUSTER AND MW-59-100
SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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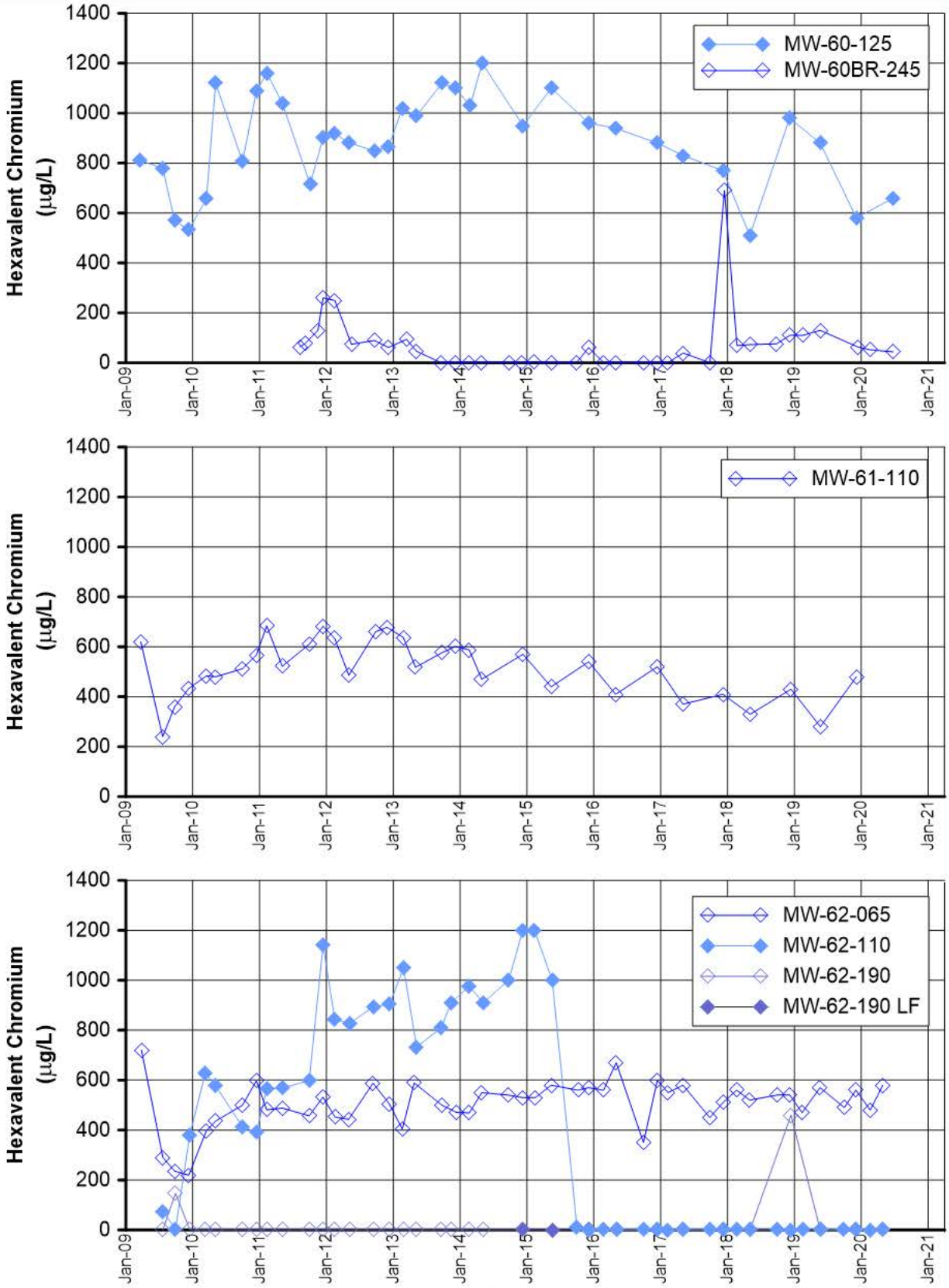

Notes:

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 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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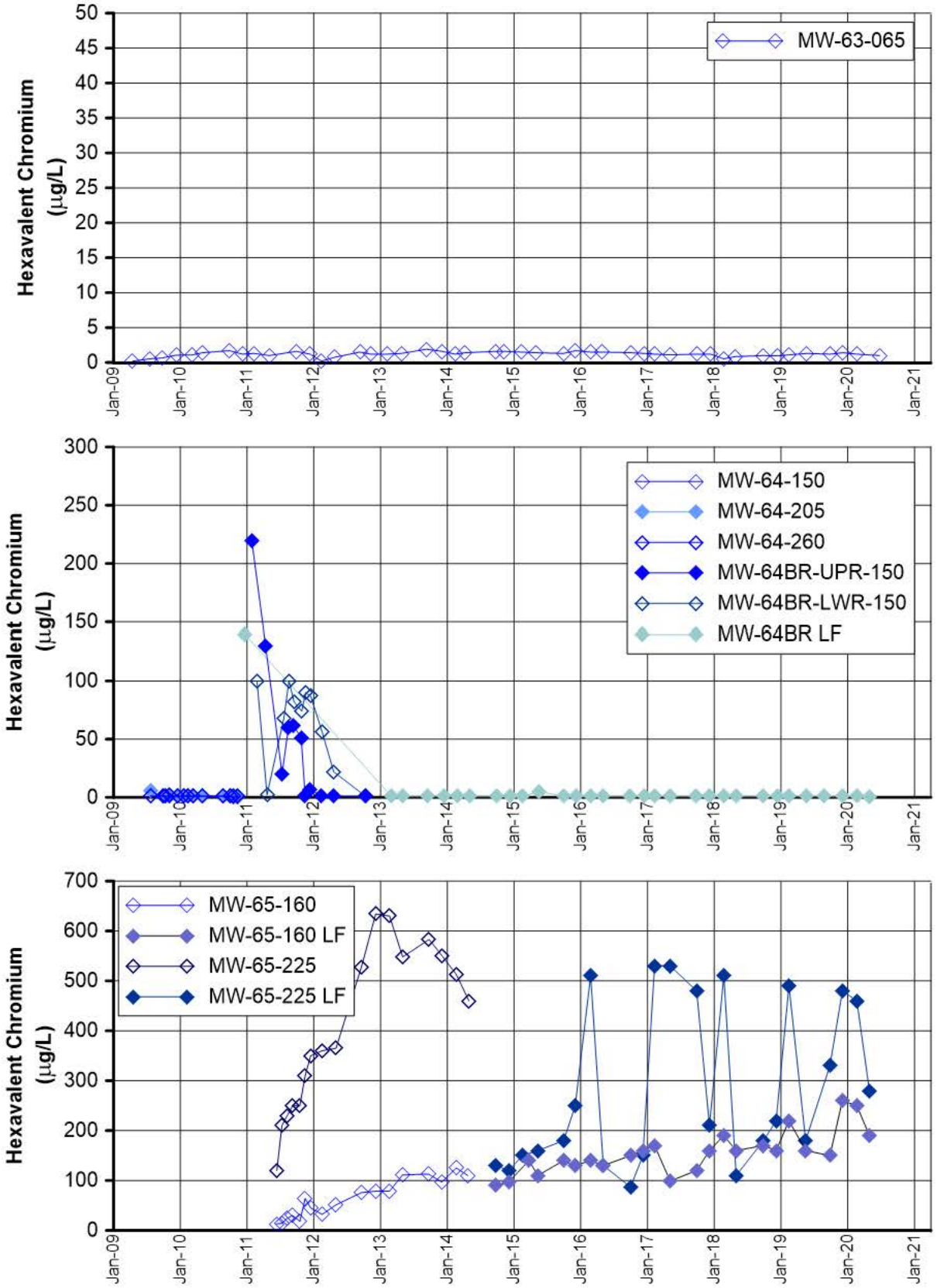

Notes:

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 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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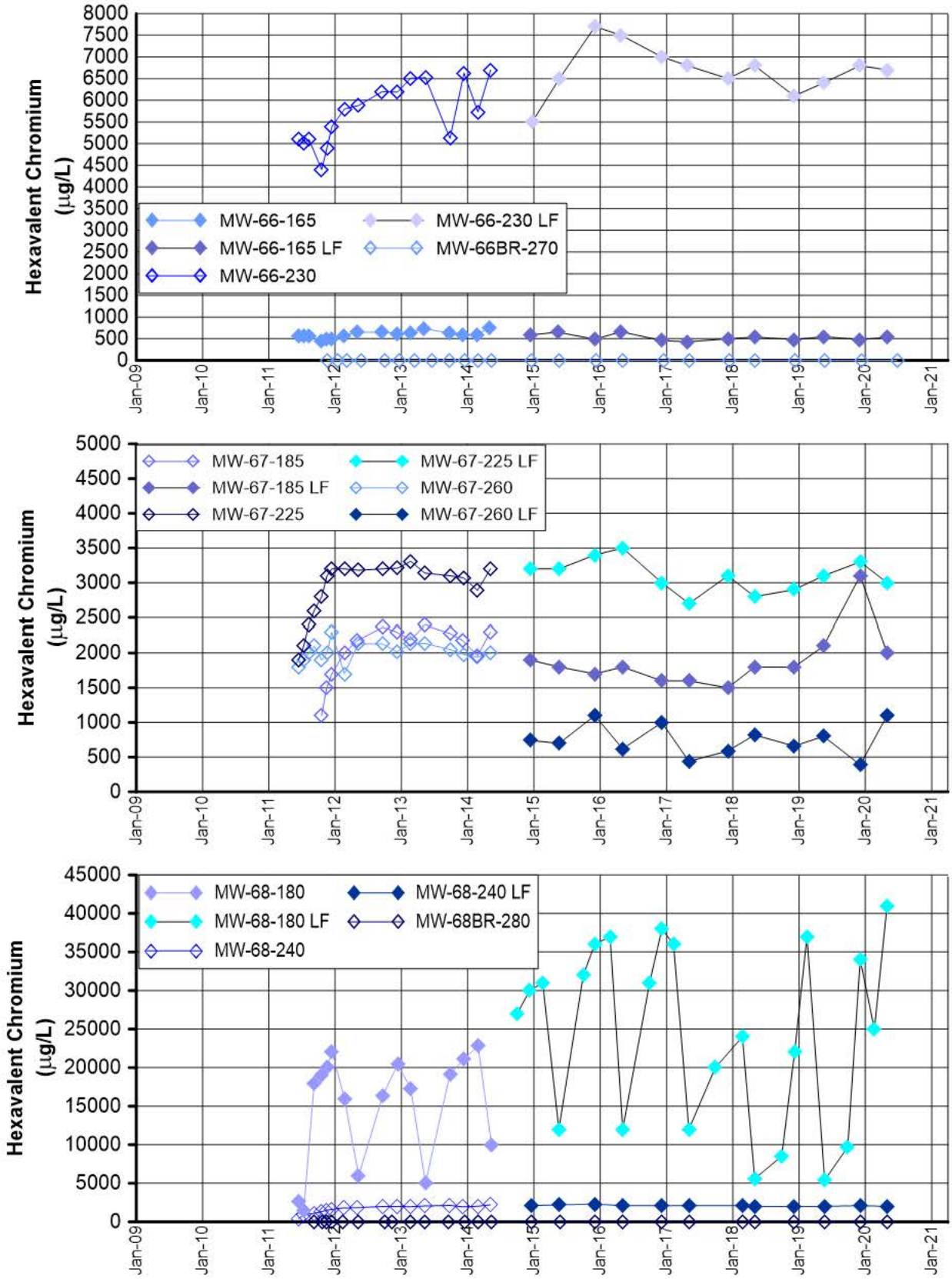

Notes:

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-16
HEXAVALENT CHROMIUM
IN MW-66, MW-67, AND MW-68 CLUSTERS
SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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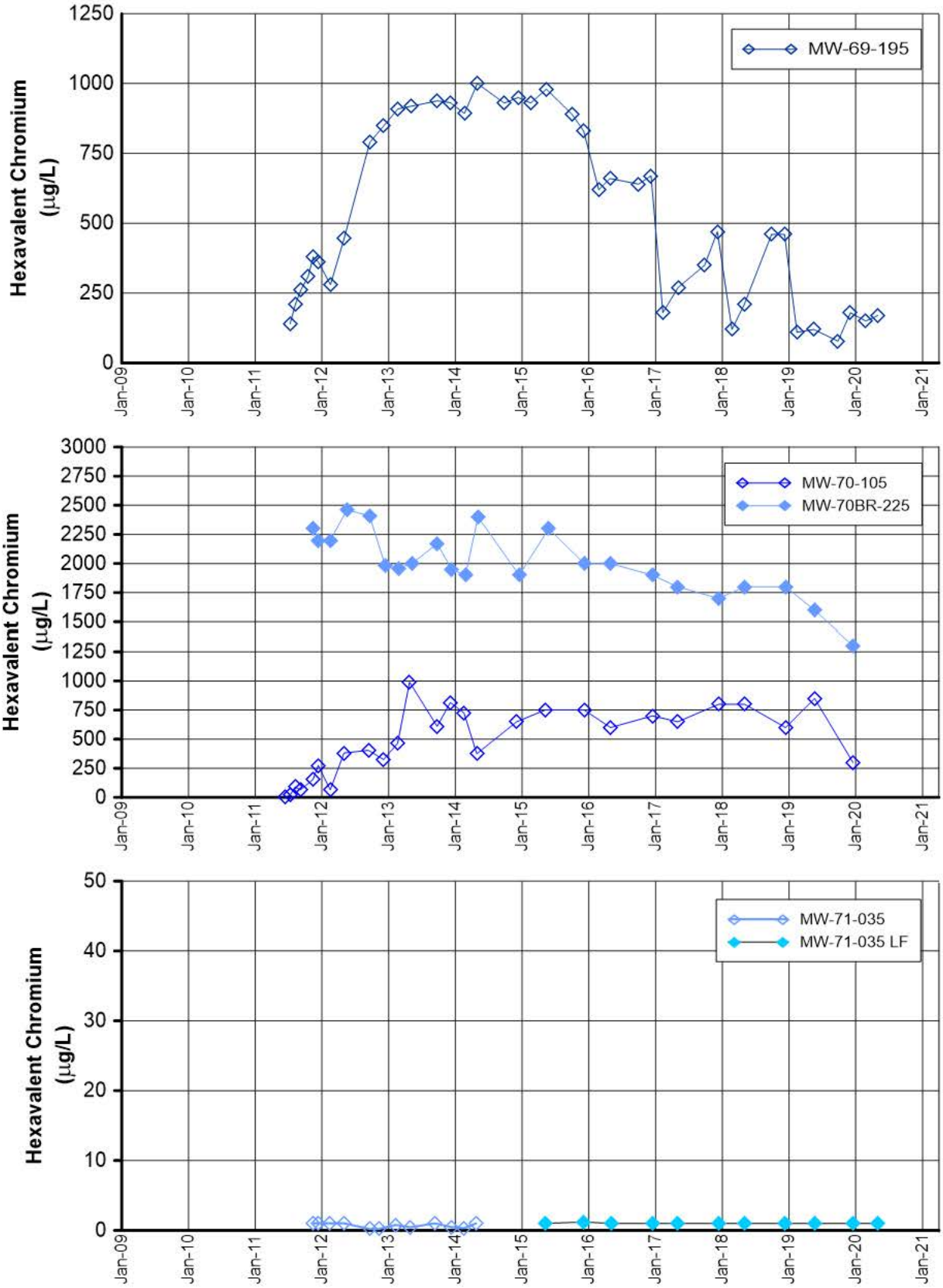

Notes:

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 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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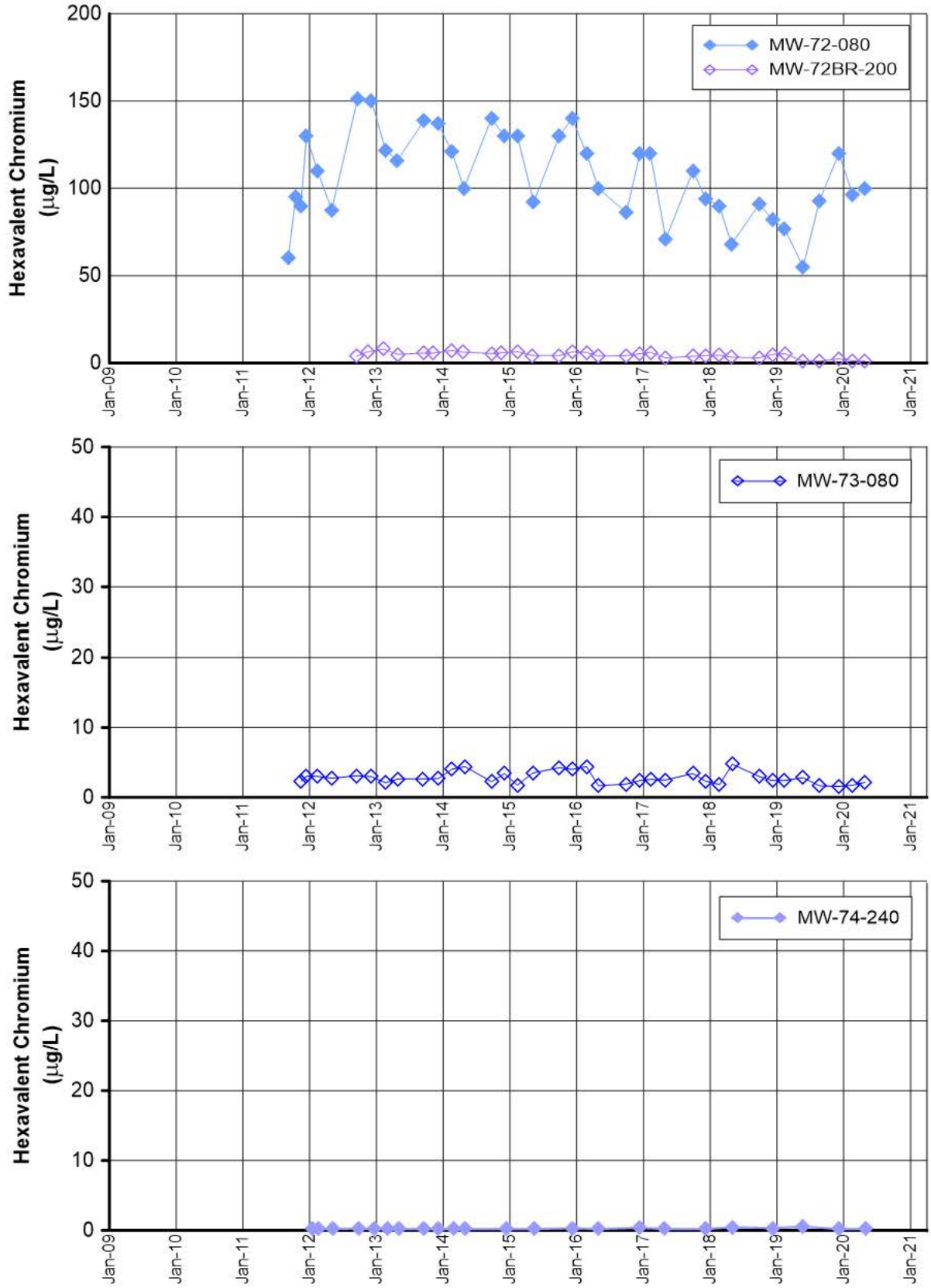

FIGURE D-18
HEXAVALENT CHROMIUM
IN MW-72 CLUSTER, MW-73-080, AND MW-74-240
SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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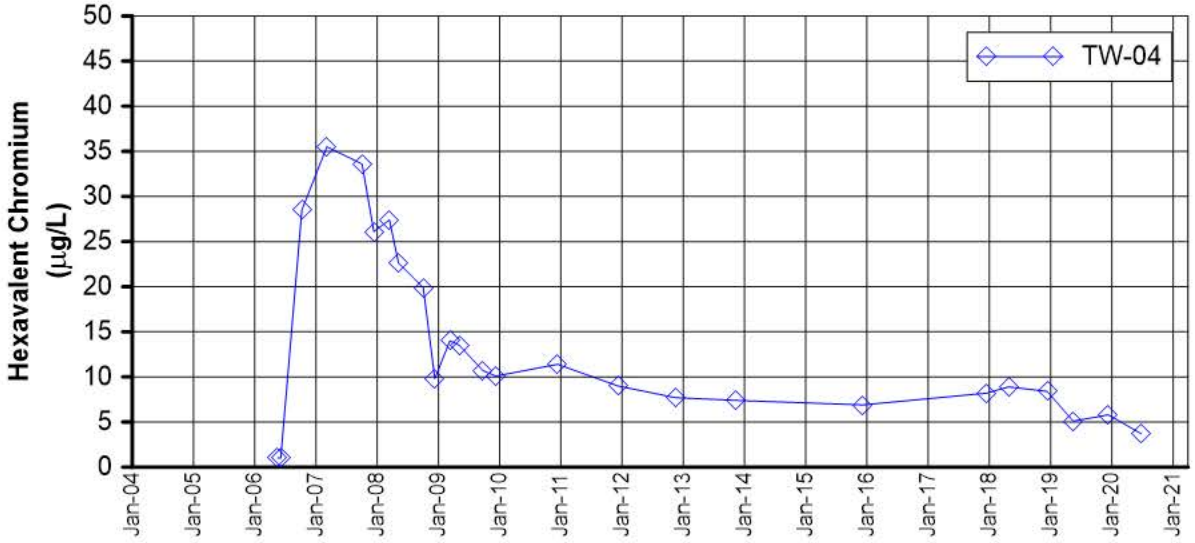

FIGURE D-19
HEXAVALENT CHROMIUM
IN TW-04
SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
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APPENDIX E

Interim Measures Extraction System Operations Log,
Second Quarter 2020

APPENDIX E

Interim Measures Extraction System Operations Log, Second Quarter 2020, PG&E Topock Performance Monitoring Program

During Second Quarter 2020 (April through June), extraction well TW-3D operated at a target pump rate of at 135 gallons per minute, excluding periods of planned and unplanned downtime. Extraction wells TW-2S, TW-2D and PE-01 were not operated during Second Quarter 2020. A portion of the piping/conduit for PE-01 at the MW-20 Bench was disconnected from the IM-3 system on December 18, 2019 to allow for remedy construction activities without crossing under the PE-01 piping/conduit. The operational run time for the Interim Measures groundwater extraction system (combined or individual pumping) was approximately 77.5 percent during Third Quarter 2020.

The Interim Measure Number 3 (IM-3) facility treated approximately 13,461,071 gallons of extracted groundwater during Second Quarter 2020. The IM-3 facility also treated approximately 27,500 gallons of injection well backwashing/re-development water, 980 gallons of purge water from site sampling activities, and 121,300 gallons from remedy wastewater generated from remedy well construction activities. Eight containers of solids (sludge) were transported offsite from the IM-3 facility during the reporting period.

Periods of planned and unplanned extraction system downtime (that together resulted in approximately 22.5 percent of downtime during Second Quarter 2020) 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.

E.1 April 2020

- **April 1, 2020 (unplanned):** The extraction well system was offline from 5:30 a.m. to 6:00 a.m. due to a high-water level in Raw Water Storage Tank (T-100). The plant was shut down so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 30 minutes.
- **April 1, 2020 (planned):** The extraction well system was offline from 6:20 a.m. to 1:48 p.m. due to plant maintenance to locate a blockage. Blockage was found in the piping connecting Iron Oxidation Reactor T-301B and C. Extraction system downtime was 7 hours 28 minutes.
- **April 1, 2020 (unplanned):** The extraction well system was offline from 1:50 p.m. to 2:04 p.m., and from 2:06 p.m. to 2:48 p.m. due to a PLC and HMI connectivity issue. Extraction system downtime was 36 minutes.
- **April 2, 2020 (unplanned):** The extraction well system was offline from 7:24 p.m. to 8:32 p.m. due to a high-water level in T-100. The plant was shut down so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 1 hour 8 minutes.
- **April 3, 2020 (planned):** The extraction well system was offline from 7:40 a.m. to 8:00 a.m. and from 8:02 a.m. to 8:14 a.m. to process wastewater generated from remedy well construction activities. Extraction system downtime was 32 minutes.
- **April 3, 2020 (unplanned):** The extraction well system was offline from 8:52 a.m. to 10:28 a.m. due to replacing microfilter modules. Extraction system downtime was 1 hour 36 minutes.
- **April 4-10, 2020 (unplanned):** The extraction well system was offline from 7:18 p.m. to 8:42 p.m. on April 4, 2020; from 2:54 a.m. to 3:30 a.m. on April 6, 2020; from 12:50 a.m. to 1:38 a.m. and from 10:10 p.m. to 10:52 p.m. on April 7, 2020; from 1:32 a.m. to 2:24 a.m. on April 9, 2020; and from 2:34 a.m. to 3:04 a.m. on April 10, 2020 due to a high-water level in T-100. The plant was shut down so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 4 hours 52 minutes.

- **April 11, 2020 (unplanned):** The extraction well system was offline from 6:58 a.m. to 8:56 a.m. due to replacing microfilter modules. Extraction system downtime was 1 hour 58 minutes.
- **April 11-14, 2020 (unplanned):** The extraction well system was offline from 9:46 p.m. to 10:28 p.m. on April 11, 2020; from 12:08 a.m. to 1:00 a.m. on April 13, 2020; and from 12:00 a.m. to 12:52 a.m. on April 14, 2020 due to a high-water level in T-100. The plant was shut down so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 2 hours 26 minutes.
- **April 14, 2020 (unplanned):** The extraction well system was offline from 7:00 p.m. to 7:58 p.m. due to replacing microfilter modules. Extraction system downtime was 58 minutes.
- **April 15-17, 2020 (unplanned):** The extraction well system was offline from 2:30 p.m. to 3:36 p.m. on April 15, 2020 and from 1:52 a.m. to 2:26 a.m. on April 17, 2020 due to a high-water level in T-100. The plant was shut down so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 1 hours 40 minutes.
- **April 18, 2020 (unplanned):** The extraction well system was offline from 2:46 a.m. to 4:22 a.m. due to clogged pre-filters in the Primary Reverse Osmosis system. Clogged filters caused the secondary RO to shut down due to safety interlocks. The operator changed the pre-filter cartridges and the plant was returned to service. Extraction system downtime was 1 hour 36 minutes.
- **April 20, 2020 (unplanned):** The extraction well system was offline from 7:02 p.m. to 7:58 p.m. due to a high-water level in T-100. The plant was shut down so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 56 minutes.
- **April 21, 2020 (unplanned):** The extraction well system was offline from 7:12 a.m. to 8:18 a.m. due to replacing microfilter modules. Extraction system downtime was 1 hour 6 minutes.
- **April 22-26, 2020 (unplanned):** The extraction well system was offline from 7:44 p.m. to 8:38 p.m. on April 22, 2020; from 2:14 a.m. to 3:00 a.m. and from 8:02 p.m. to 8:56 p.m. on April 24, 2020; and from 1:58 a.m. to 3:04 a.m. and from 9:38 p.m. to 10:30 p.m. on April 26, 2020 due to a high-water level in T-100. The plant was shut down so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 4 hours 32 minutes.
- **April 27, 2020 (planned):** The extraction well system was offline from 10:00 a.m. on to 10:26 a.m. due to a failed air release valve on the extraction line. The line was replaced and the plant returned to service. Extraction system downtime was 26 minutes.
- **April 27-28, 2020 (unplanned):** The extraction well system was offline from 11:32 p.m. on April 27, 2020 to 12:36 a.m. on April 28, 2020 due to a high-water level in T-100. The plant was shut down so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 1 hour 4 minutes.
- **April 28-29, 2020 (unplanned):** The extraction well system was offline from 6:56 a.m. to 11:58 a.m. on April 28, 2020 and from 6:12 a.m. to 9:54 a.m. on April 29, 2020 to process wastewater generated from remedy well construction activities. Extraction system downtime was 5 hours 2 minutes.
- **April 29, 2020 (unplanned):** The extraction well system was offline from 5:42 p.m. to 6:58 p.m. due to a high flow alarm on TW-3D causing it to shut down. Extraction system downtime was 1 hour 16 minutes.
- **April 30, 2019 (unplanned):** The extraction well system was offline from 11:24 a.m. to 11:40 a.m. due to the City of Needles needing to adjust the incoming power at the electrical transformer (also known as a voltage tap adjustment). Extraction system downtime was 16 minutes.

April 30, 2020 (unplanned): The extraction well system was offline from 7:10 p.m. to 7:34 p.m. and from 7:36 p.m. to 8:40 p.m. due to a high-water level in T-100. The plant was shut down so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 1 hour 28 minutes.

E.2 May 2020

- **May 1-2, 2020 (unplanned):** The extraction well system was offline from 7:42 p.m. to 8:36 p.m. on May 1, 2020; and from 3:06 a.m. to 3:52 a.m. on May 2, 2020 due to a high-water level in Raw Water Storage Tank (T-100). The operator shut down extraction so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 1 hour 40 minutes.
- **May 2, 2020 (unplanned):** The extraction well system was offline from 9:16 a.m. to 9:18 p.m. due to a PLC and HMI connectivity issue. Extraction system downtime was 2 minutes.
- **May 3-5, 2020 (unplanned):** The extraction well system was offline from 12:42 a.m. to 2:02 a.m., from 10:28 p.m. to 11:08 p.m., and from 11:10 p.m. to 11:30 p.m. on May 3, 2020; from 7:10 p.m. to 8:26 p.m. on May 4, 2020; and from 10:08 a.m. to 10:46 a.m. on May 5, 2020 due to a high-water level in T-100. The operator shut down extraction so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 4 hour 14 minutes.
- **May 5, 2020 (unplanned):** The extraction well system was offline from 10:48 a.m. to 10:58 a.m.; from 11:00 a.m. to 11:10 a.m.; and from 3:12 p.m. to 3:14 p.m. due to a PLC and HMI connectivity issue. Extraction system downtime was 22 minutes.
- **May 6, 2020 (unplanned):** The extraction well system was offline from 6:40 a.m. to 7:38 a.m. because of a high level in T-100 due to backwashing of the injection wells. Extraction system downtime was 58 minutes.
- **May 7, 2020 (unplanned):** The extraction well system was offline from 12:02 a.m. to 12:56 a.m. due to a high-water level in T-100. The operator shut down extraction so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 54 minutes.
- **May 7, 2020 (unplanned):** The extraction well system was offline from 8:12 a.m. to 9:00 a.m. because of a high level in T-100 due to backwashing of the injection wells. Extraction system downtime was 48 minutes.
- **May 7, 2020 (unplanned):** The extraction well system was offline from 8:12 a.m. to 9:00 a.m.; from 1:06 p.m. to 1:30 p.m.; from 1:32 p.m. to 2:12 p.m.; from 2:14 p.m. to 2:20 p.m.; from 2:22 p.m. to 2:42 p.m.; from 2:44 p.m. to 2:52 p.m.; from 2:54 p.m. to 3:16 p.m.; and from 3:18 p.m. to 3:24 p.m. because of a high level in T-100 due to backwashing of the injection wells. Extraction system downtime was 1 hour 54 minutes.
- **May 8, 2020 (unplanned):** The extraction well system was offline from 7:42 p.m. to 8:08 p.m.; and from 8:10 p.m. to 8:46 p.m. due to a high-water level in T-100. The operator shut down extraction so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 1 hour 2 minutes.
- **May 9, 2020 (unplanned):** The extraction well system was offline from 2:16 a.m. to 4:08 a.m. due to replacing microfilter modules. Extraction system downtime was 1 hour 52 minutes.
- **May 9, 2020 (unplanned):** The extraction well system was offline from 11:56 a.m. to 11:58 a.m. due to a PLC and HMI connectivity issue. Extraction system downtime was 2 minutes.
- **May 10, 2020 (unplanned):** The extraction well system was offline from 12:10 a.m. to 12:36 a.m.; from 12:38 a.m. to 1:06 a.m.; from 1:08 a.m. to 1:28 a.m. due to a high-water level in T-100. The operator shut down extraction so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 1 hour 14 minutes.
- **May 10, 2020 (unplanned):** The extraction well system was offline from 4:16 p.m. to 4:18 a.m. due to a PLC and HMI connectivity issue. Extraction system downtime was 2 minutes.

- **May 10, 2020 (unplanned):** The extraction well system was offline from 8:44 p.m. to 9:46 p.m. due to a high-water level in T-100. The operator shut down extraction so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 1 hour 2 minutes.
- **May 11-15, 2020 (planned):** The extraction well system was offline from 6:22 a.m. to 6:30 a.m., from 6:32 a.m. to 7:30 a.m., from 7:36 a.m. to 8:32 a.m., from 8:34 a.m. to 8:38 a.m., from 8:40 a.m. to 9:16 a.m., from 9:18 a.m. to 9:20 a.m., from 9:24 a.m. to 9:38 a.m., from 9:40 a.m. to 9:52 a.m., from 9:54 a.m. to 10:04 a.m., from 10:06 a.m. to 10:28 a.m., from 10:30 a.m. to 10:46 a.m., from 10:48 a.m. to 4:52 p.m., from 4:54 p.m. to 6:14 p.m., and from 6:16 p.m. to 8:32 p.m. on May 11, 2020; from 10:34 p.m. on May 11, 2020 to 9:22 a.m. on May 15, 2020; and from 11:48 a.m. to 1:10 p.m. on May 15, 2020 for the semiannual scheduled maintenance. Extraction system downtime was 4 days 3 hours 48 minutes.
- **May 16-19, 2020 (unplanned):** The extraction well system was offline from 8:50 a.m. to 9:24 a.m. on May 16, 2020; from 2:14 a.m. to 3:16 a.m. on May 17, 2020; from 8:50 a.m. to 10:42 on May 18, 2020; and from 2:26 a.m. to 2:52 a.m. and from 7:18 p.m. to 8:14 p.m. on May 19, 2020 due to a high-water level in T-100. The operator shut down extraction so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 4 hour 50 minutes.
- **May 20, 2020 (unplanned):** The extraction well system was offline from 6:34 a.m. to 10:04 a.m.; from 10:06 a.m. to 10:16 a.m.; from 10:18 a.m. to 11:42 a.m.; and from 11:44 a.m. to 1:56 p.m. due to replacing two failed check valves stuck in the open position from buildup. Operator also replaced plugged microfilter modules. Groundwater Partners made modifications to TW-3D in preparation for the 72-hour test. Extraction system downtime was 7 hour 16 minutes.
- **May 21, 2020 (unplanned):** The extraction well system was offline from 1:34 p.m. to 1:56 p.m. due the air compressor failing due to high temperatures causing the shutdown. Operator switched to the backup compressor and started the plant back up. Extraction system downtime was 22 minutes.
- **May 22, 2020 (unplanned):** The extraction well system was offline from 8:18 p.m. to 9:08 p.m. due to a high-water level in T-100. The operator shut down extraction so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 50 minutes.
- **May 23, 2020 (planned):** The extraction well system was offline from 8:50 a.m. to 9:38 a.m. due to testing of the pipeline critical alarms and leak detection system and also to process wastewater generated from remedy well construction activities. Extraction system downtime was 48 minutes.
- **May 24, 2020 (unplanned):** The extraction well system was offline from 2:10 a.m. to 3:02 a.m. due to a high-water level in T-100. The operator shut down extraction so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 52 minutes.
- **May 24, 2020 (planned):** The extraction well system was offline from 8:18 a.m. to 8:36 a.m. and from 11:02 to 11:16 to process wastewater generated from remedy well construction activities. Extraction system downtime was 32 minutes.
- **May 25, 2020 (unplanned):** The extraction well system was offline from 2:16 a.m. to 3:06 a.m. due to a high-water level in T-100. The operator shut down extraction so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 50 minutes.
- **May 25, 2020 (planned):** The extraction well system was offline from 4:44 a.m. to 4:58 a.m.; from 11:10 a.m. to 12:16 p.m.; and from 7:32 p.m. to 11:28 p.m. to process wastewater generated from remedy well construction activities. Extraction system downtime was 5 hours 16 minutes.
- **May 26, 2020 (unplanned):** The extraction well system was offline from 5:58 p.m. to 6:42 p.m. due to a high-water level in T-100. The operator shut down extraction so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 44 minutes.

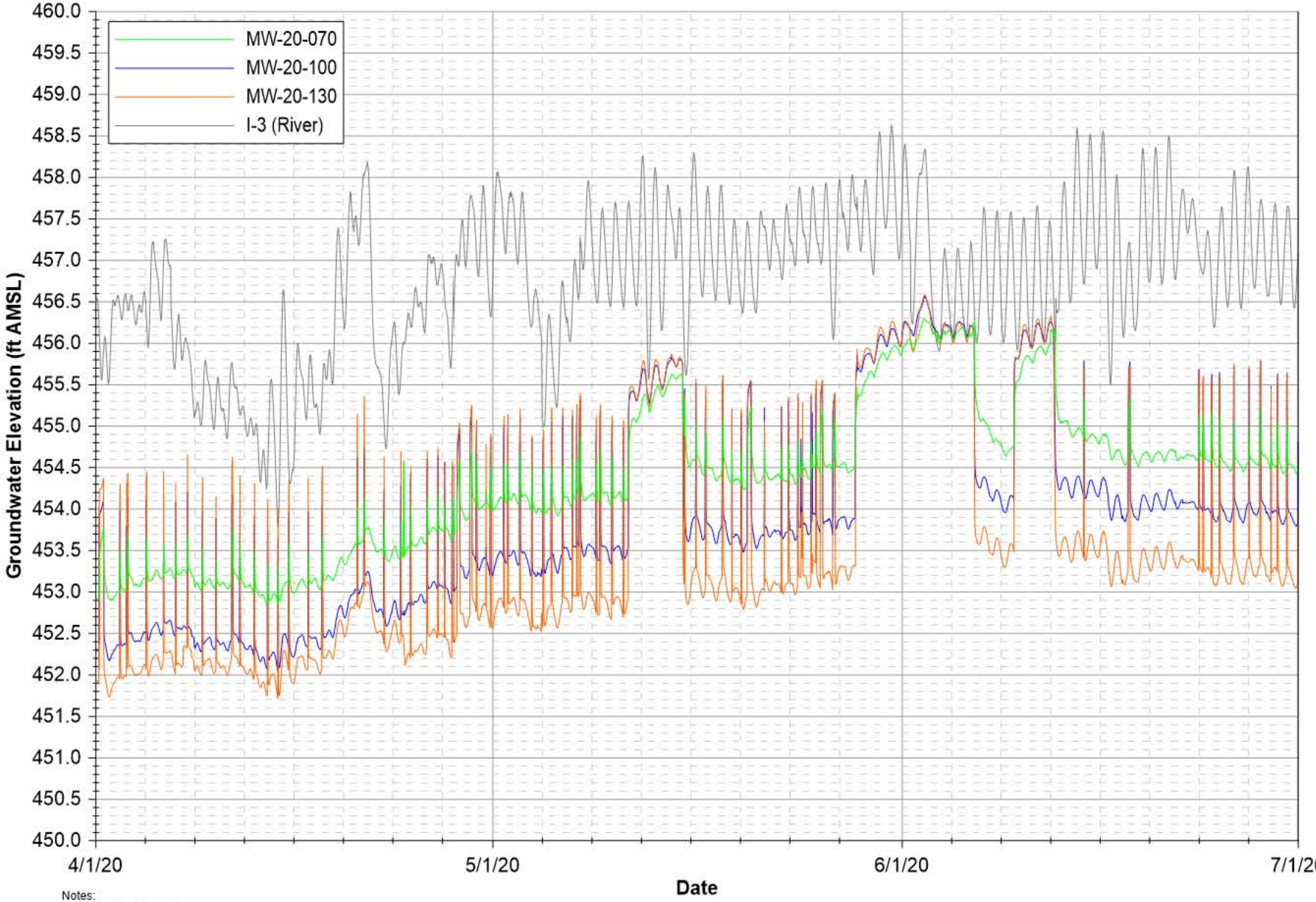
- **May 26, 2020 (unplanned):** The extraction well system was offline from 6:58 p.m. to 10:10 p.m. due to replacing microfilter modules, replacing the microfiltration skid pump (P-501), and cleaning and descaling pipe near the pump. Extraction system downtime was 3 hours 12 minutes.
- **May 28-31, 2020 (planned):** The extraction well system was offline from 11:14 a.m. on May 28, 2020 to midnight on May 31, 2020 to shut down for pre-recovery for the planned 72-hour test. Extraction system downtime was 3 days 12 hours 46 minutes.

E.3 June 2020

- **June 1 - 6, 2020 (planned):** The extraction well system was offline from 12:00 a.m. on June 1, 2020 to 11:34 a.m. on June 6, 2020 to shut down for groundwater level recovery before the Final Groundwater Remedy 72-hour pumping test. Extraction system downtime was 5 days 11 hours 32 minutes.
- **June 9 - 12, 2020 (planned):** The extraction well system was offline from 11:34 a.m. on June 9, 2020 to 12:04 p.m. on June 12, 2020 to shut down for groundwater level recovery after the Final Groundwater Remedy 72-hour pumping test. Extraction system downtime was 3 days 30 minutes.
- **June 12, 2020 (unplanned):** The extraction well system was offline from 12:08 p.m. to 2:02 p.m. due to the ferrous feed pump shutting down. The pump was repaired. A repair was also made to the ferrous feed flow meter which was clogged by ferrous particles. Extraction system downtime was 1 hour 54 minutes.
- **June 14, 2020 (unplanned):** The extraction well system was offline from 5:50 p.m. to 6:50 p.m. due to a high-water level in Raw Water Storage Tank (T-100). The operator shut down extraction so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 1 hour.
- **June 18, 2020 (unplanned):** The extraction well system was offline from 3:10 a.m. to 6:16 a.m. due to ferrous feed system problems. Sludge buildup was found in the ferrous system and in the tote. The sludge was cleaned off, the extraction restarted, and the tote was taken offline and returned to the vendor. Extraction system downtime was 3 hours 6 minutes.
- **June 23, 2020 (unplanned):** The extraction well system was offline from 10:46 a.m. to 11:44 a.m. due to replacing microfilter modules. Extraction system downtime was 58 minutes.
- **June 23 - 24, 2020 (unplanned):** The extraction well system was offline from 6:48 p.m. to 7:44 p.m. on June 23, 2020; and from 9:50 a.m. to 11:38 a.m. on June 24, 2020 due to a high-water level in T-100. The operator shut down extraction so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 2 hours 44 minutes.
- **June 25, 2020 (unplanned):** The extraction well system was offline from 12:20 a.m. to 11:44 a.m. due to replacing microfilter modules. Extraction system downtime was 1 hour 22 minutes.
- **June 26 - 28, 2020 (unplanned):** The extraction well system was offline from 2:26 a.m. to 3:20 a.m. on June 26, 2020; from 6:16 a.m. to 6:46 a.m. on June 27, 2020; and from 2:24 a.m. to 3:48 a.m. on June 28, 2020 due to a high-water level in T-100. The operator shut down extraction so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 2 hours 48 minutes.
- **June 28, 2020 (unplanned):** The extraction well system was offline from 10:20 p.m. to 10:50 p.m. due to clogged pre-filters in the Primary Reverse Osmosis system. The operator changed the pre-filter cartridges and the plant was returned to service. Extraction system downtime was 30 minutes.
- **June 29 - 30, 2020 (unplanned):** The extraction well system was offline from 9:52 a.m. to 11:04 a.m. on June 29, 2020; from 2:46 a.m. to 3:52 a.m. on June 30, 2020; and from 11:42 p.m. to 11:58 p.m. on June 30, 2020 due to a high-water level in T-100. The operator shut down extraction so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 2 hours 34 minutes.

APPENDIX F

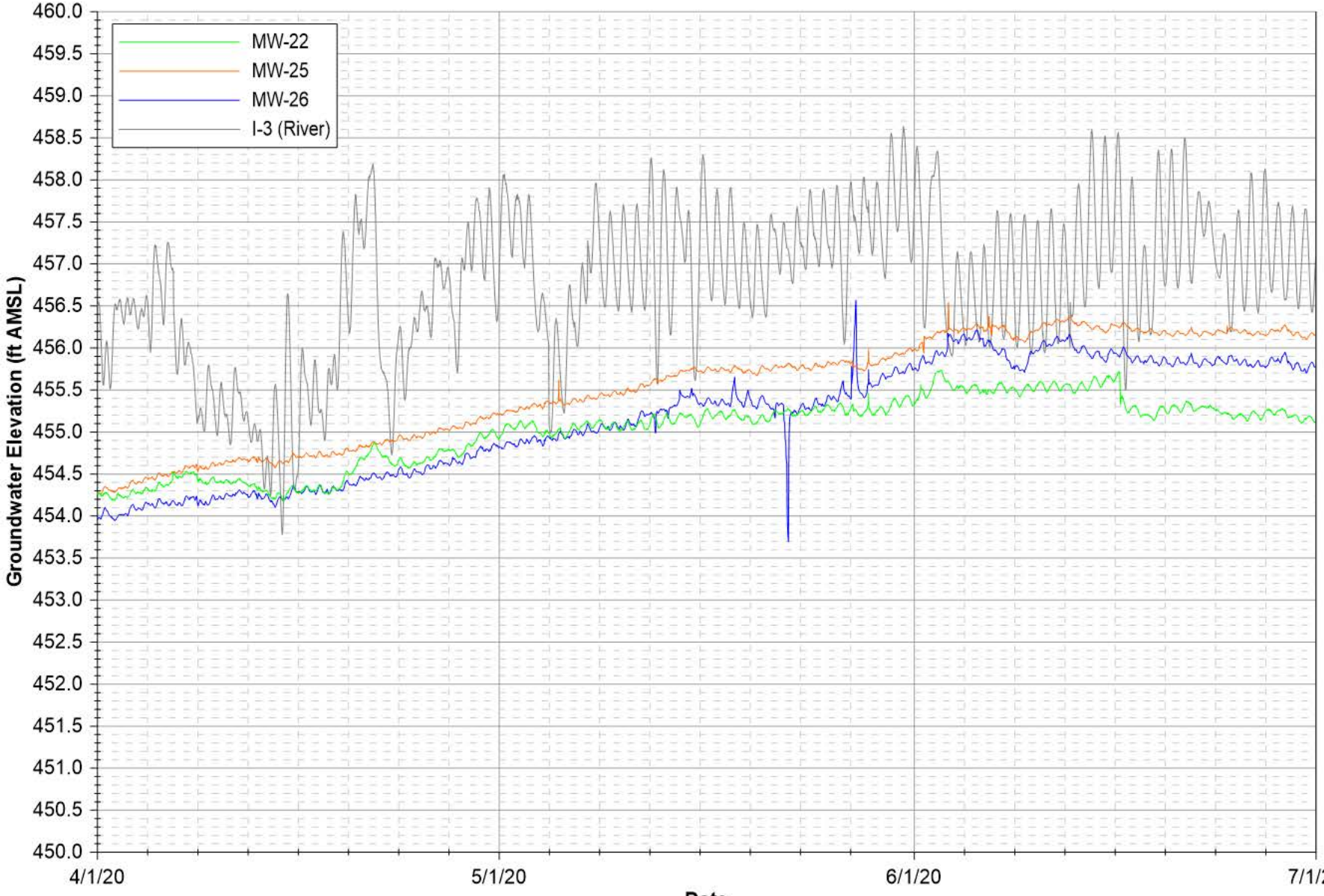
Hydrographs, Second Quarter 2020



Notes:
1. Data subject to review.
2. ft AMSL = feet above mean sea level.

FIGURE F-1A
MW-20 CLUSTER HYDROGRAPHS
SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

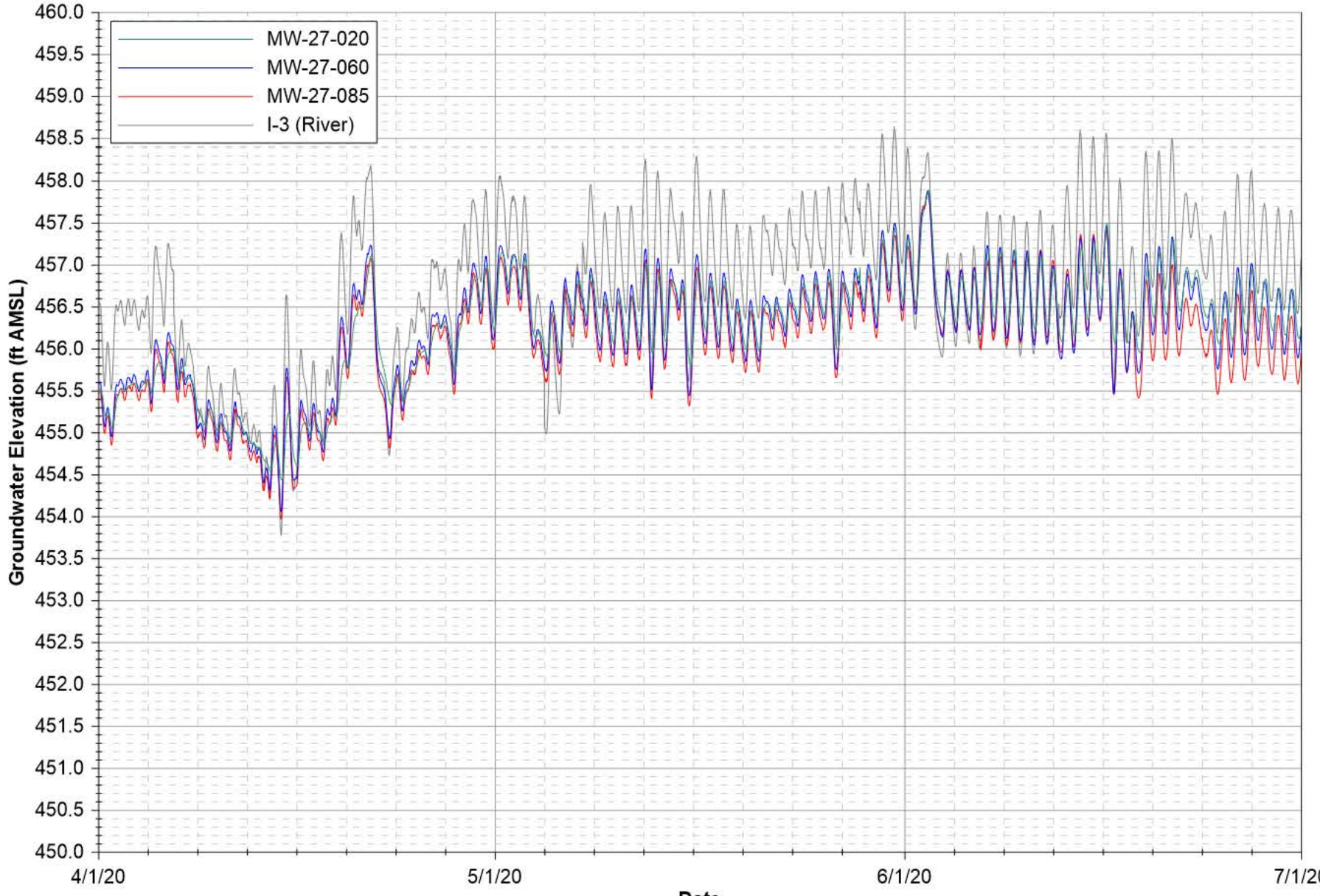
ARCADIS



Notes:
1. Data subject to review.
2. ft AMSL = feet above mean sea level.

FIGURE F-1B
MW-22, MW-25, AND MW-26 HYDROGRAPHS
SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

ARCADIS



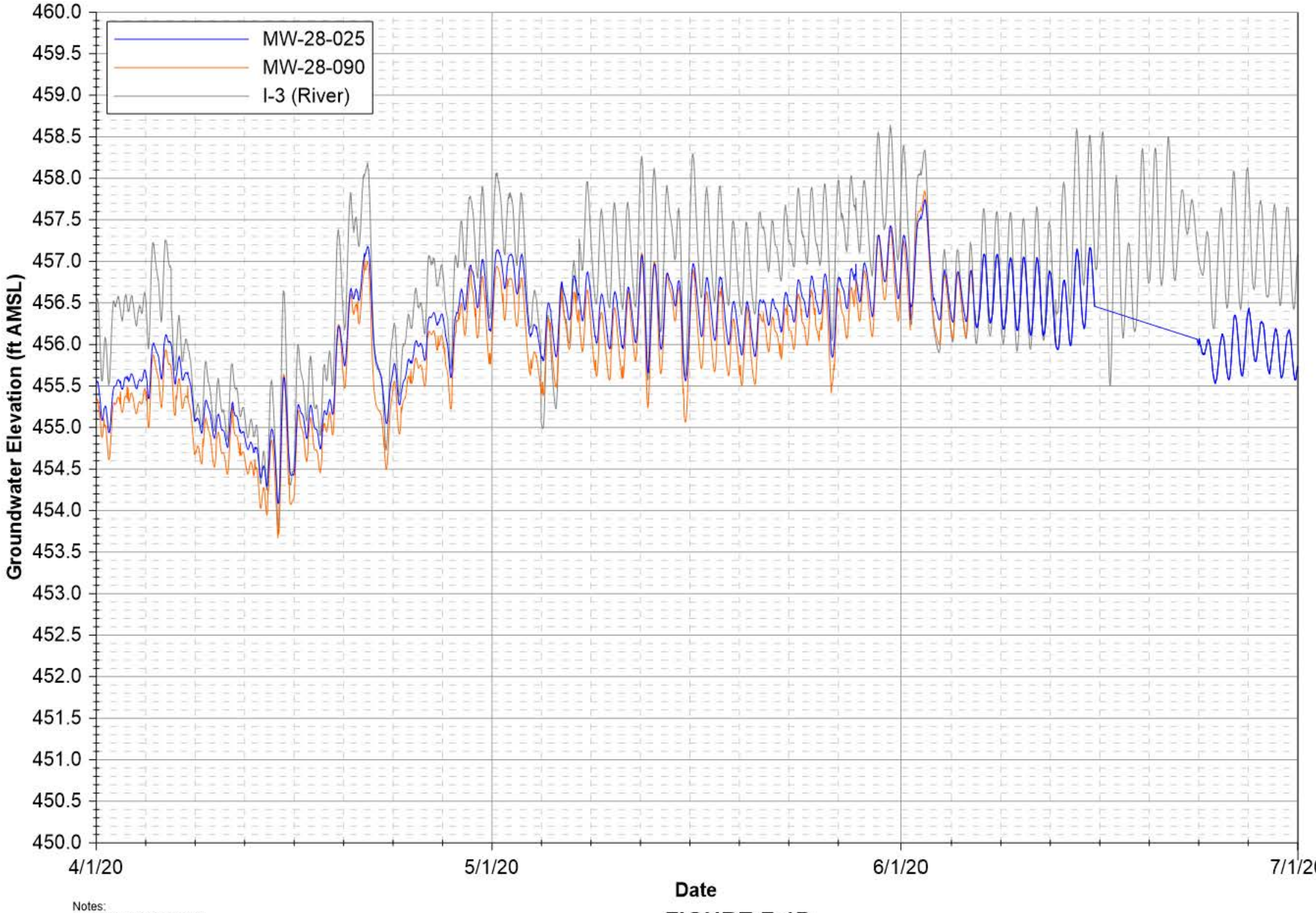
Notes:
1. Data subject to review.
2. ft AMSL = feet above mean sea level

FIGURE F-1C

MW-27 CLUSTER HYDROGRAPHS

SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

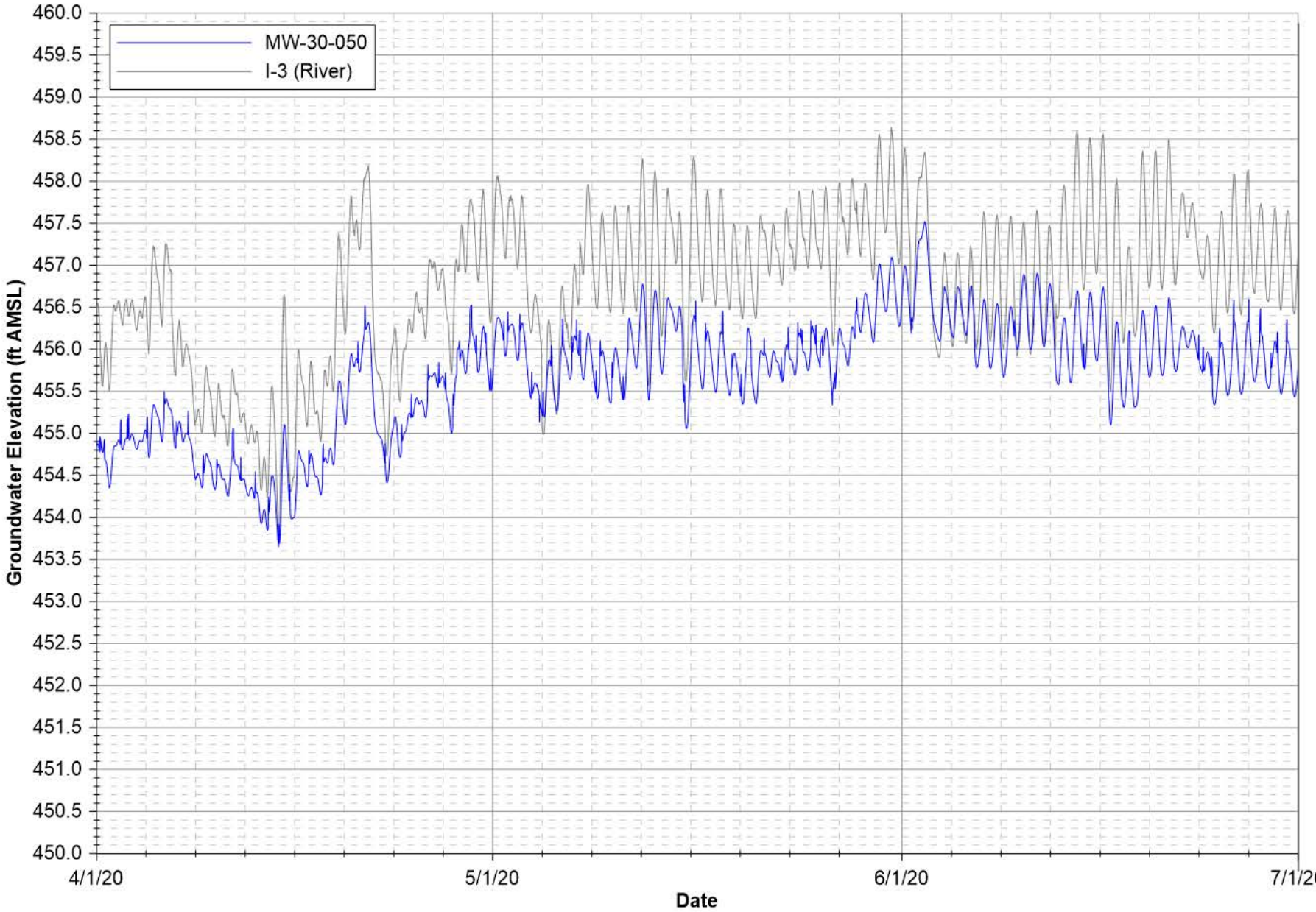
ARCADIS



Notes:
1. Data subject to review.
2. ft AMSL = feet above mean sea level.
3. MW-28-025 data unavailable from June 15, 2020 through June 23, 2020 due to transducer malfunction.
4. MW-28-090 data unavailable from June 6, 2020 through June 23, 2020 due to transducer malfunction.

FIGURE F-1D
MW-28 CLUSTER HYDROGRAPHS
SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

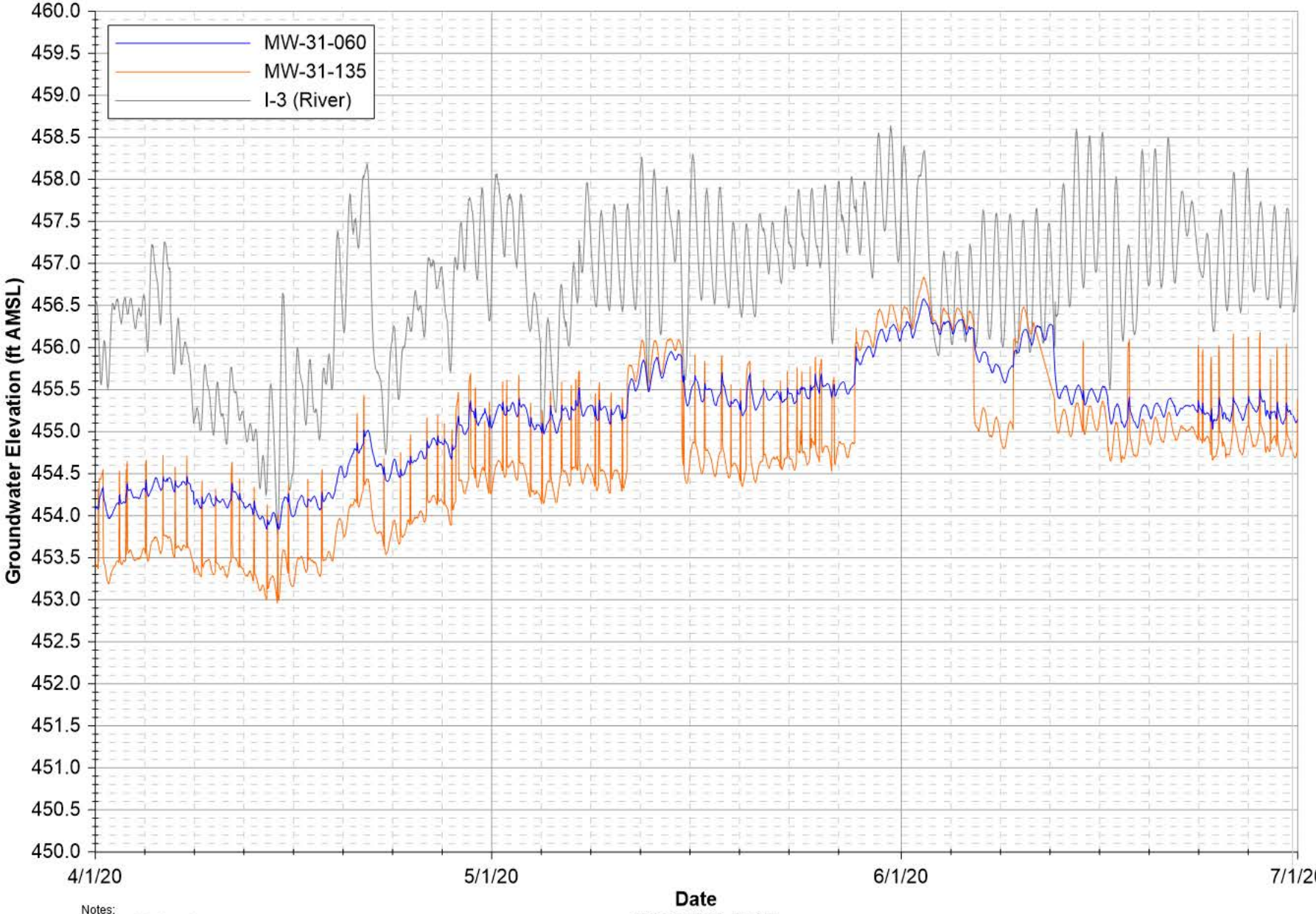
ARCADIS



Notes:
1. Data subject to review.
2. ft AMSL = feet above mean sea level.

FIGURE F-1E
MW-30-050 HYDROGRAPH
SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

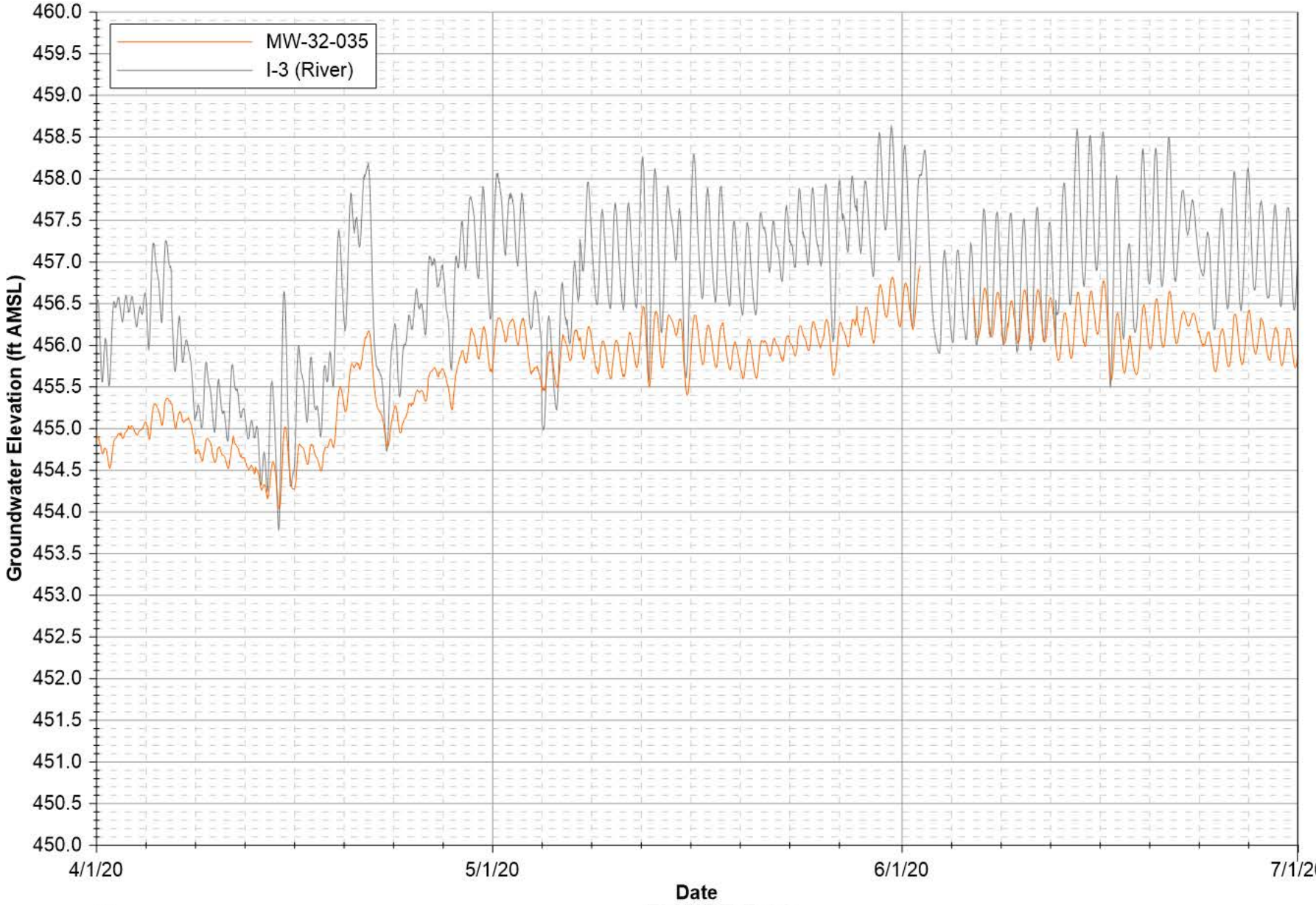
ARCADIS



Notes:
1. Data subject to review.
2. ft AMSL = feet above mean sea level.

FIGURE F-1F
MW-31 CLUSTER HYDROGRAPHS
SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

ARCADIS



Notes:
1. Data subject to review.
2. ft AMSL = feet above mean sea level.
3. MW-32-035 data unavailable from June 2, 2020 through June 6, 2020 due to transducer malfunction.

FIGURE F-1G

MW-32 HYDROGRAPH

SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

ARCADIS

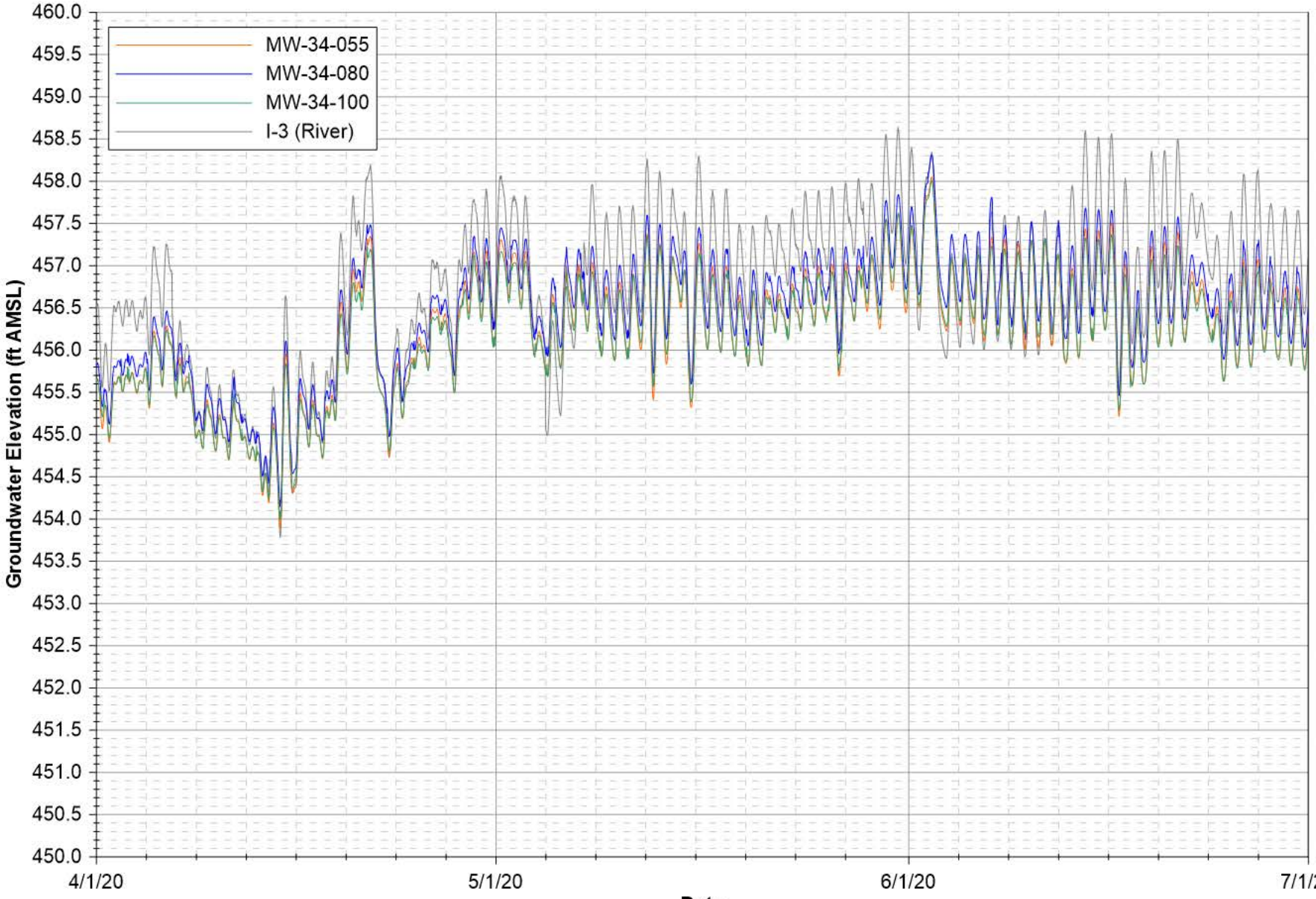
Notes:
1. Data subject to review.
2. ft AMSL = feet above mean sea level.

FIGURE F-1H

MW-33 CLUSTER HYDROGRAPHS

SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

ARCADIS



Notes:
1. Data subject to review.
2. ft AMSL = feet above mean sea level.

FIGURE F-1I
MW-34 CLUSTER HYDROGRAPHS
SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

ARCADIS

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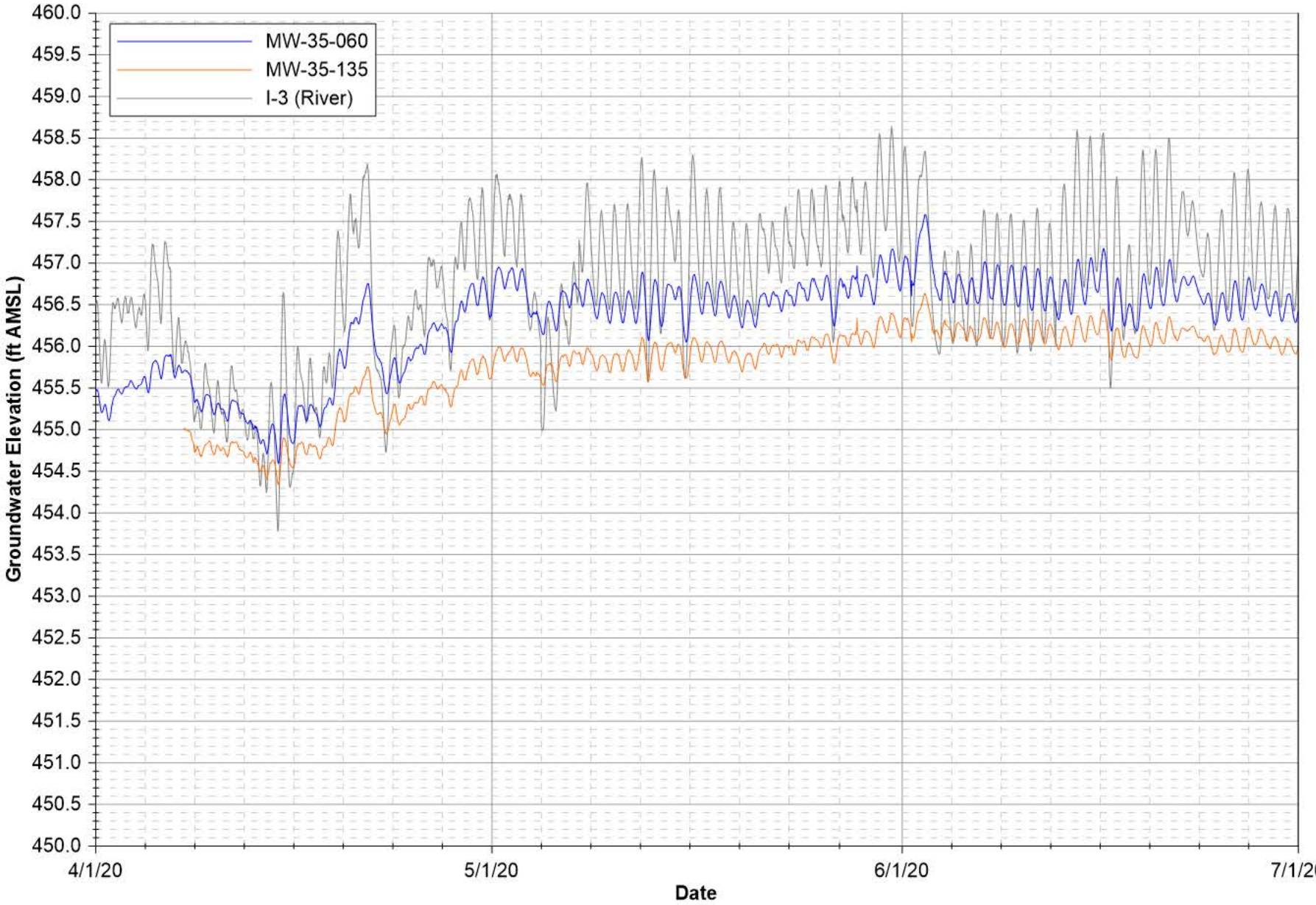
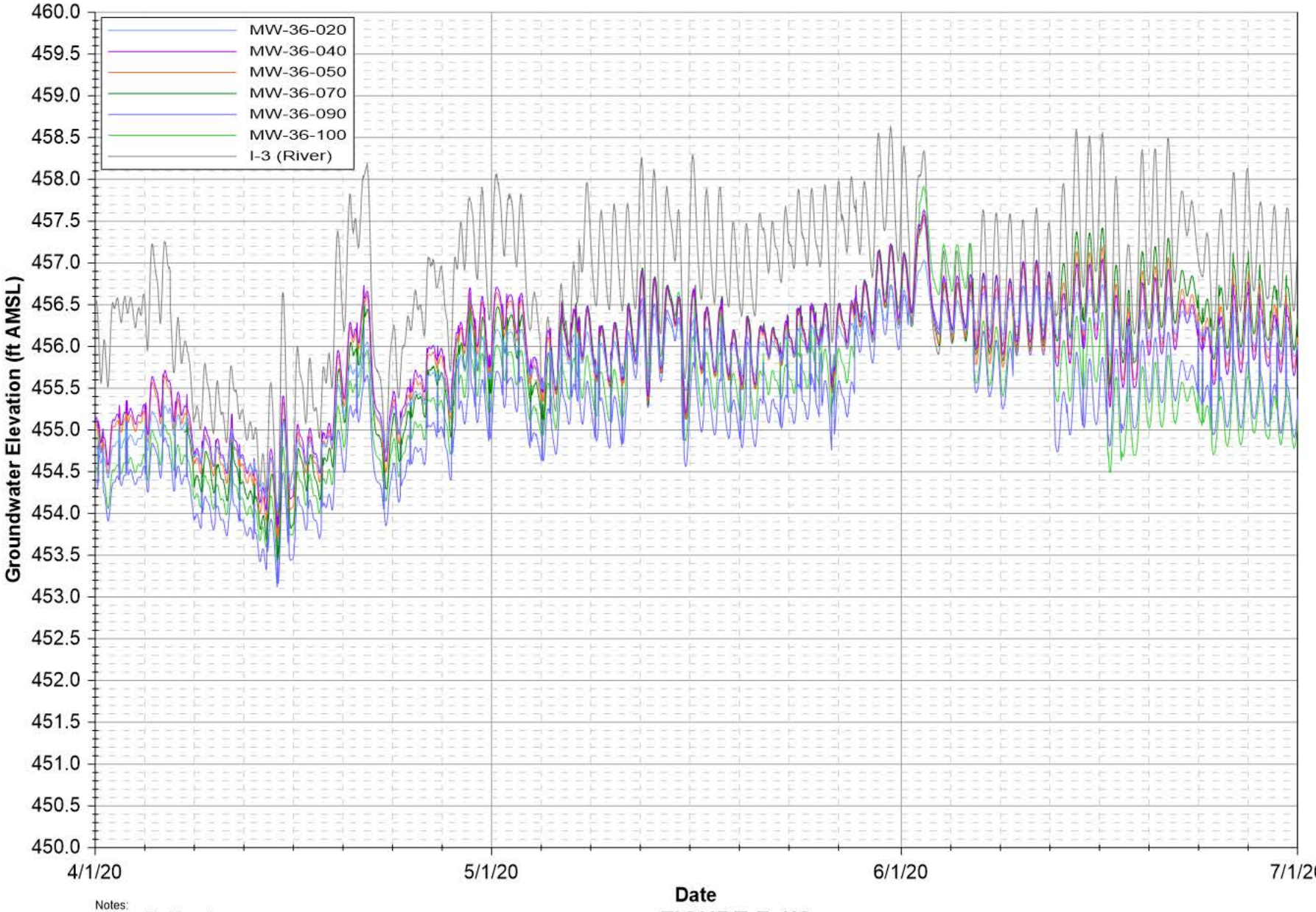


Notes:
1. Data subject to review.
2. ft AMSL = feet above mean sea level.
3. MW-35-135 data unavailable from April 1, 2020 through April 7, 2020 due to transducer malfunction.

FIGURE F-1J
MW-35 CLUSTER HYDROGRAPHS
SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

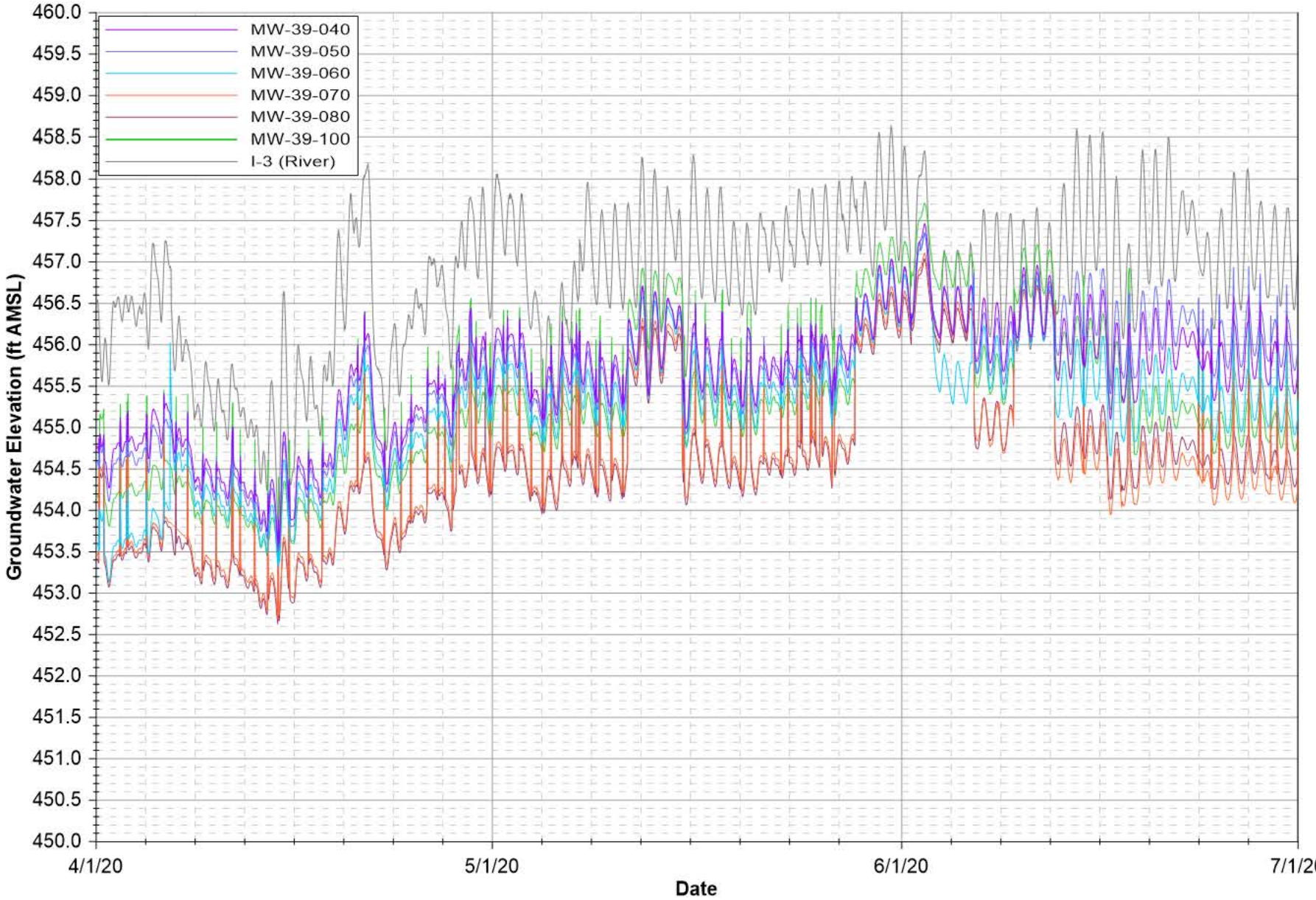
ARCADIS



Notes:
1. Data subject to review.
2. ft AMSL = feet above mean sea level.

FIGURE F-1K
MW-36 CLUSTER HYDROGRAPHS
SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

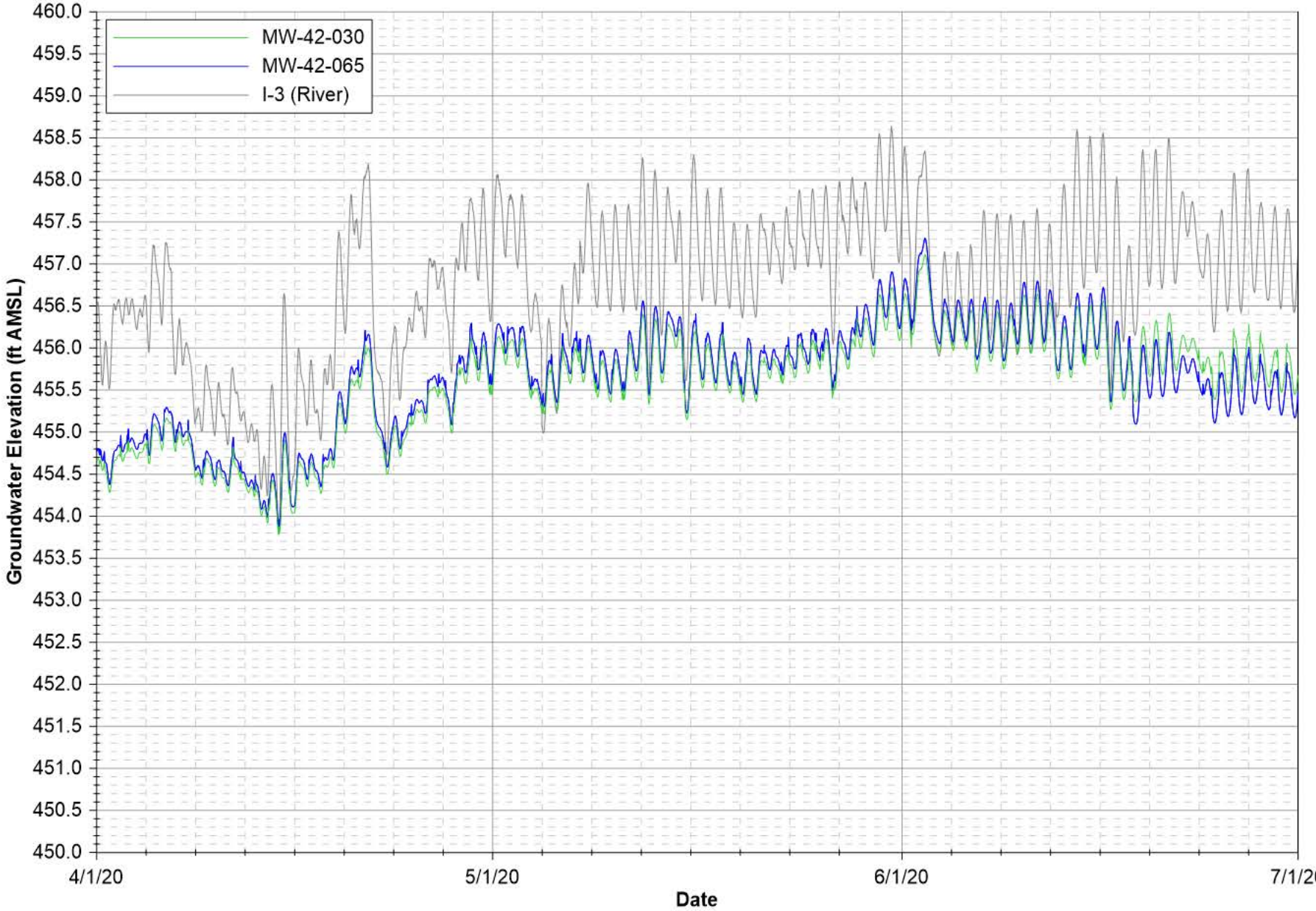
ARCADIS



Notes:
1. Data subject to review.
2. ft AMSL = feet above mean sea level.

FIGURE F-1L
MW-39 CLUSTER HYDROGRAPHS
SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

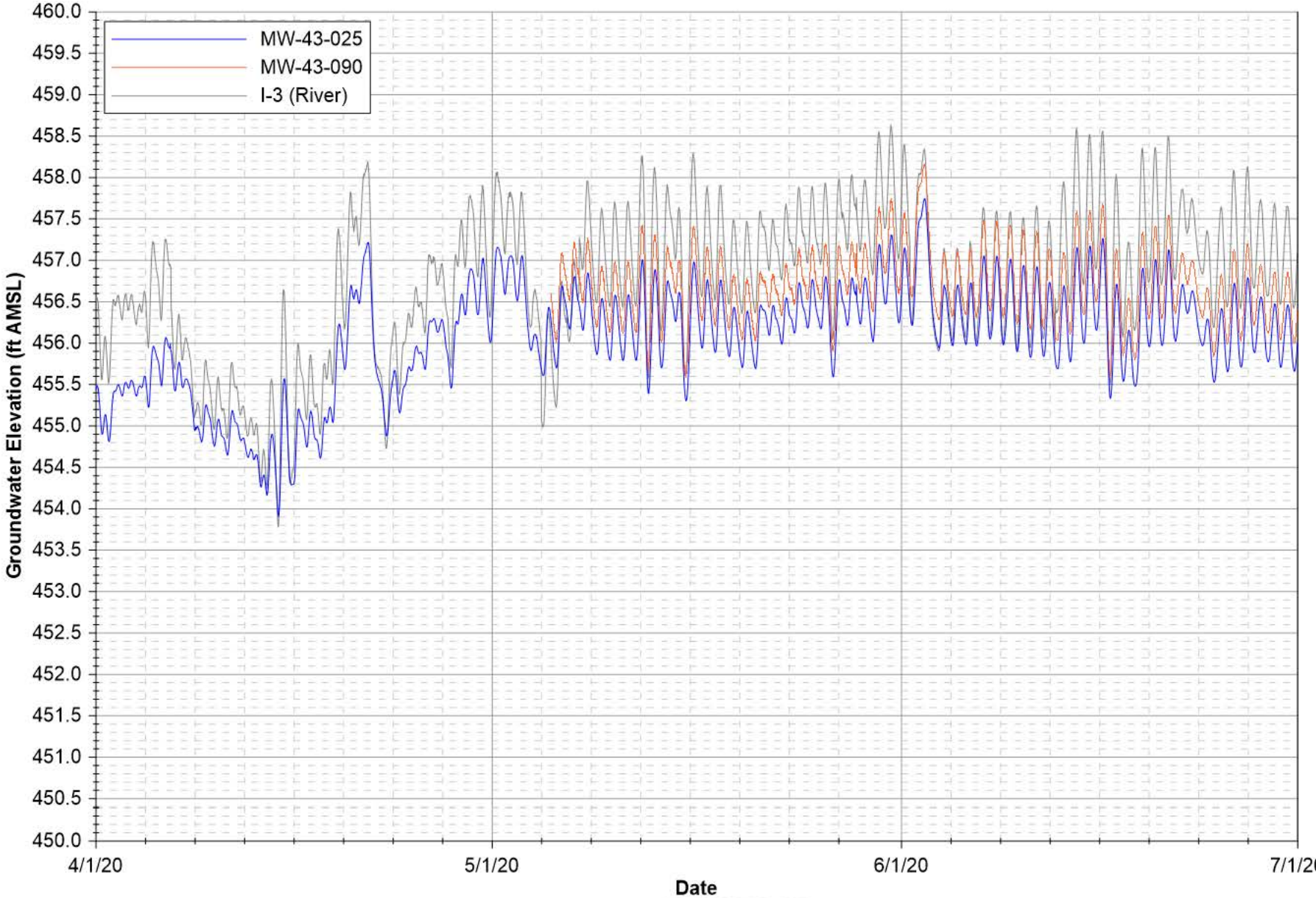
ARCADIS



Notes:
1. Data subject to review.
2. ft AMSL = feet above mean sea level.

FIGURE F-1M
MW-42 CLUSTER HYDROGRAPHS
SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

ARCADIS



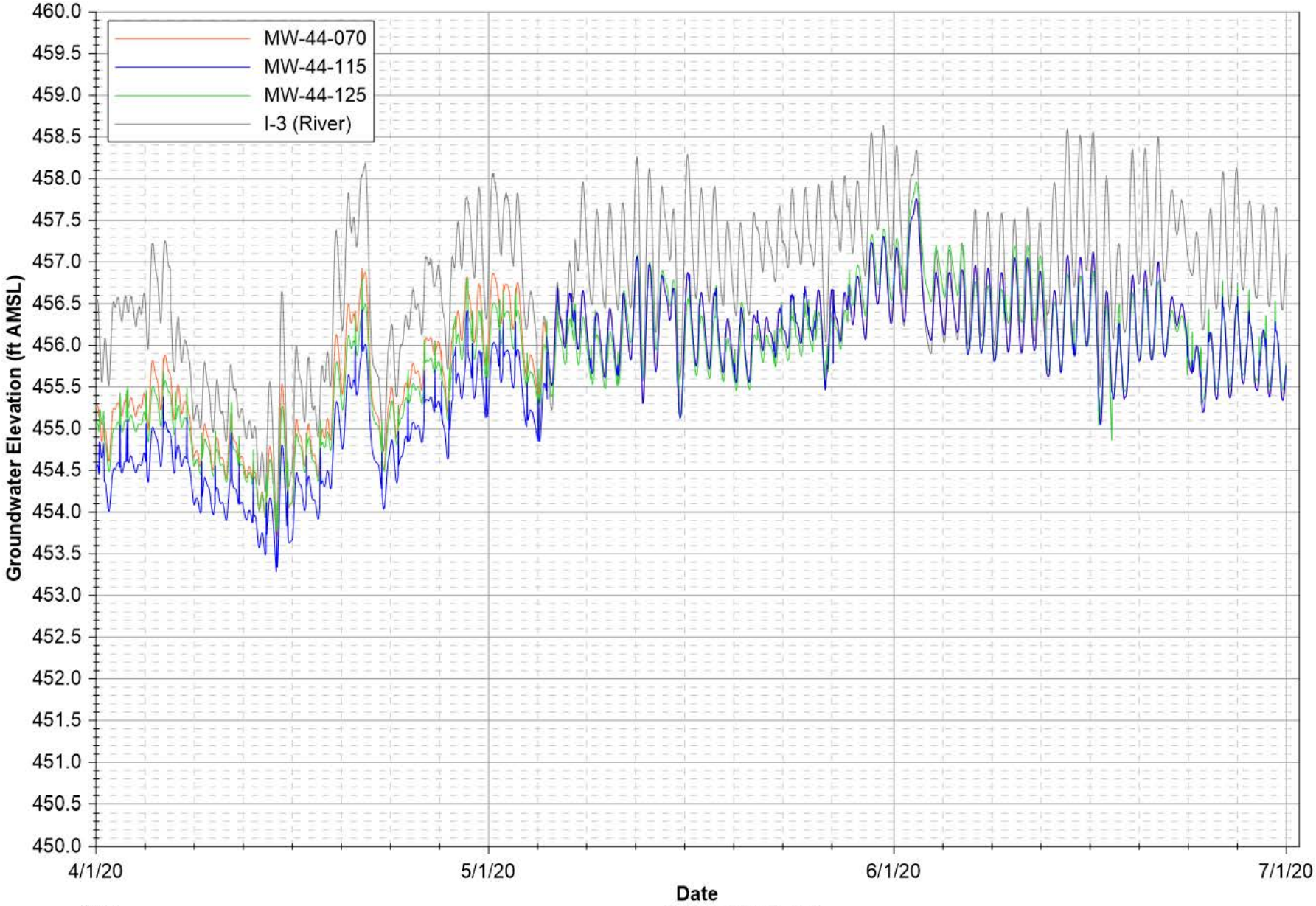
Notes:
1. Data subject to review.
2. ft AMSL = feet above mean sea level.
3. MW-43-090 data unavailable from April 1, 2020 through May 5, 2020 due to transducer malfunction.

FIGURE F-1N

MW-43 CLUSTER HYDROGRAPHS

SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

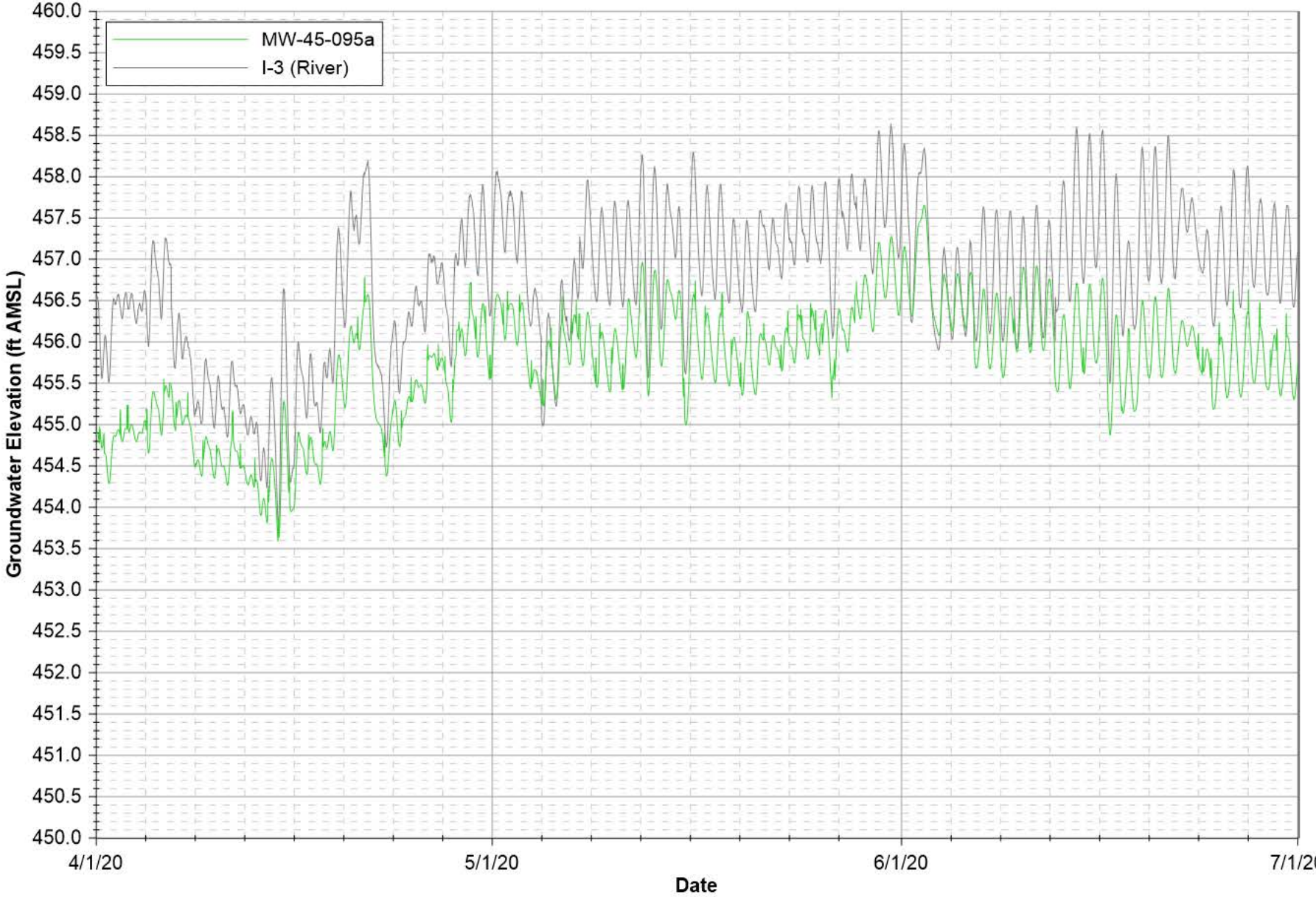
ARCADIS



Notes:
1. Data subject to review.
2. ft AMSL = feet above mean sea level.
3. MW-44-115 data unavailable from May 5, 2020 through June 6, 2020 due to transducer malfunction.

FIGURE F-1O
MW-44 CLUSTER HYDROGRAPHS
SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

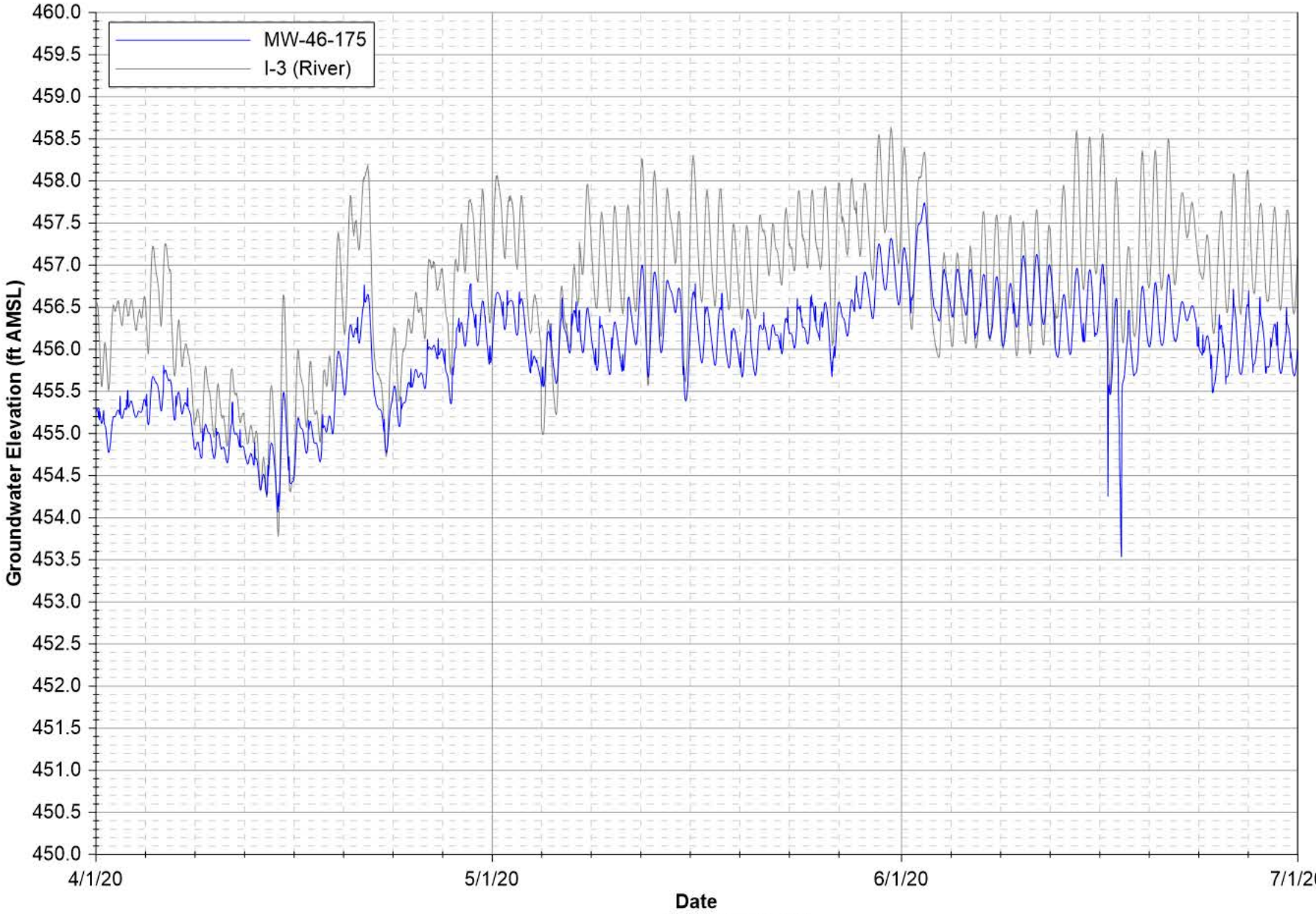
ARCADIS



Notes:
1. Data subject to review.
2. ft AMSL = feet above mean sea level.

FIGURE F-1P
MW-45-095a HYDROGRAPH
SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

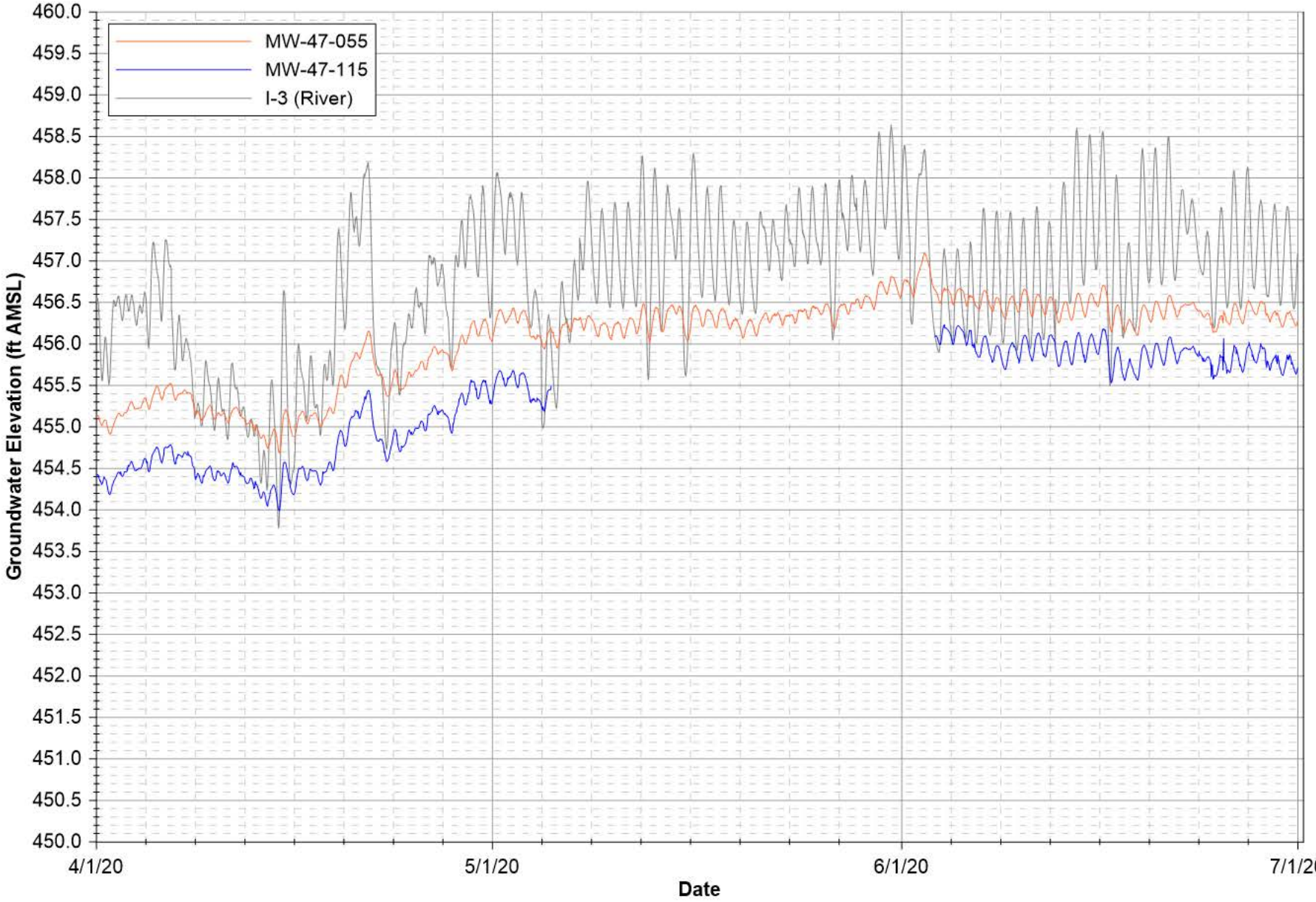
ARCADIS



Notes:
1. Data subject to review.
2. ft AMSL = feet above mean sea level.

FIGURE F-1Q
MW-46 HYDROGRAPH
SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

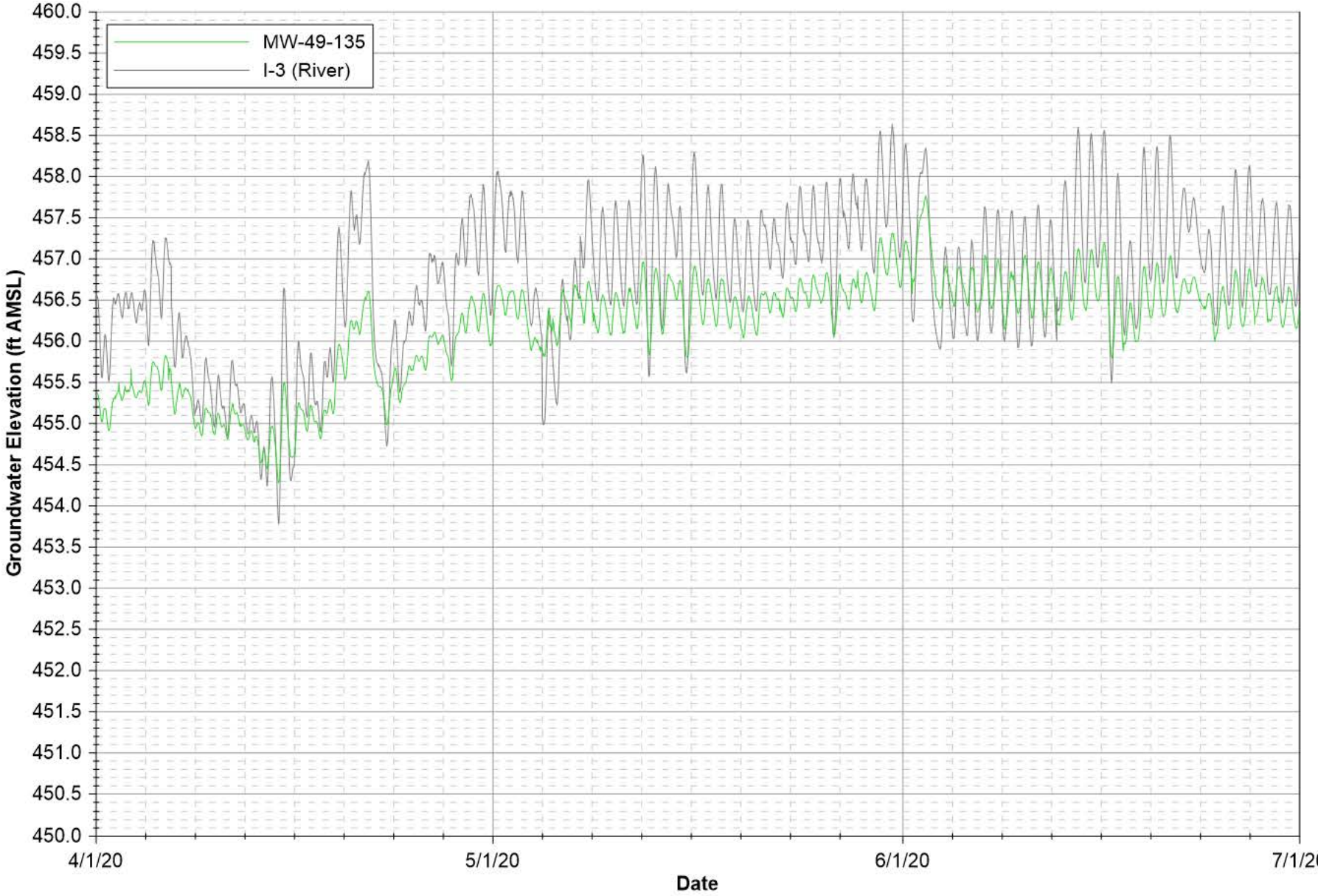
ARCADIS



Notes:
1. Data subject to review.
2. ft AMSL = feet above mean sea level.
3. MW-47-115 data unavailable from May 5, 2020 through June 3, 2020 due to transducer malfunction.

FIGURE F-1R
MW-47 CLUSTER HYDROGRAPHS
SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

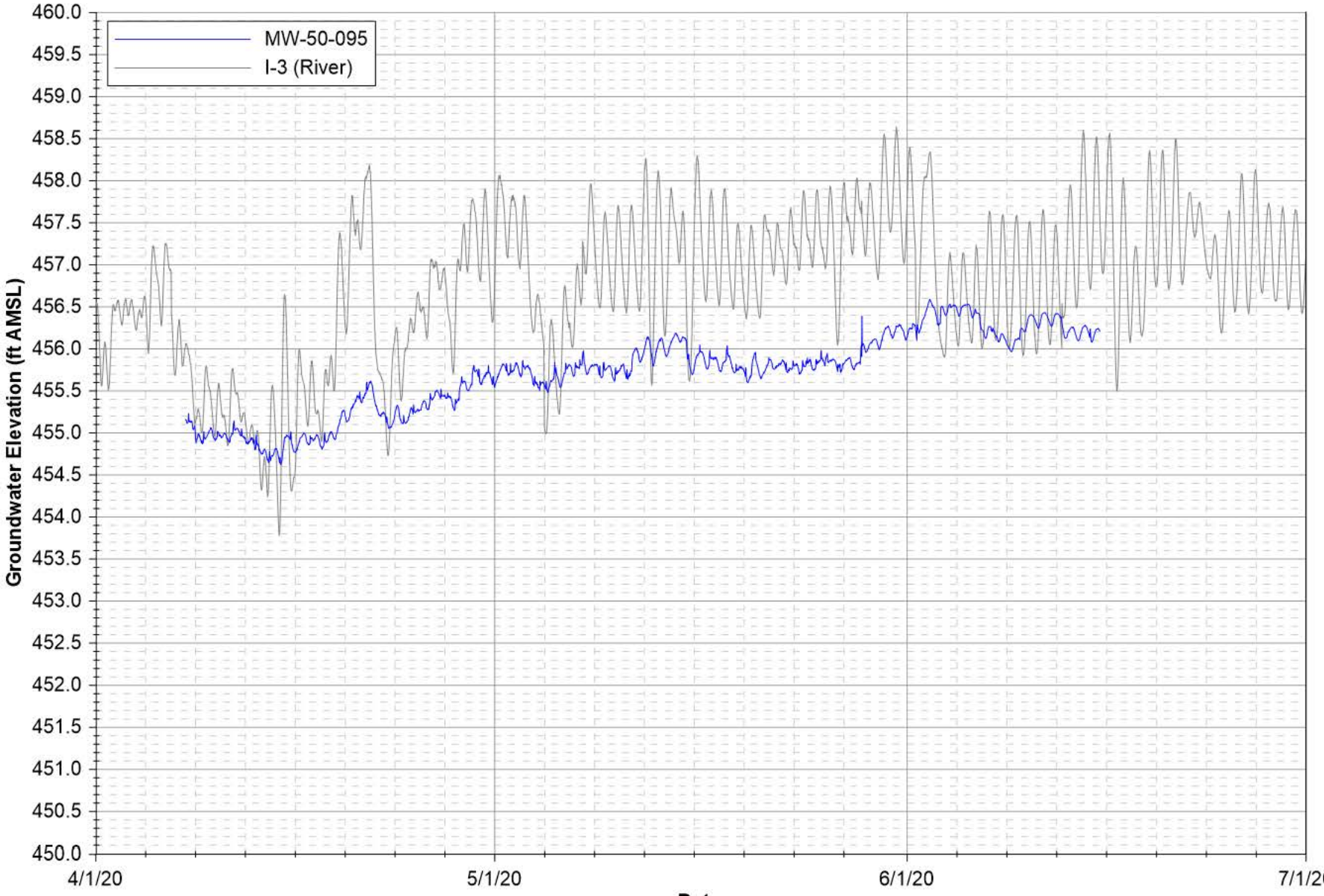
ARCADIS



Notes:
1. Data subject to review.
2. ft AMSL = feet above mean sea level.

FIGURE F-1S
MW-49 HYDROGRAPH
SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

ARCADIS



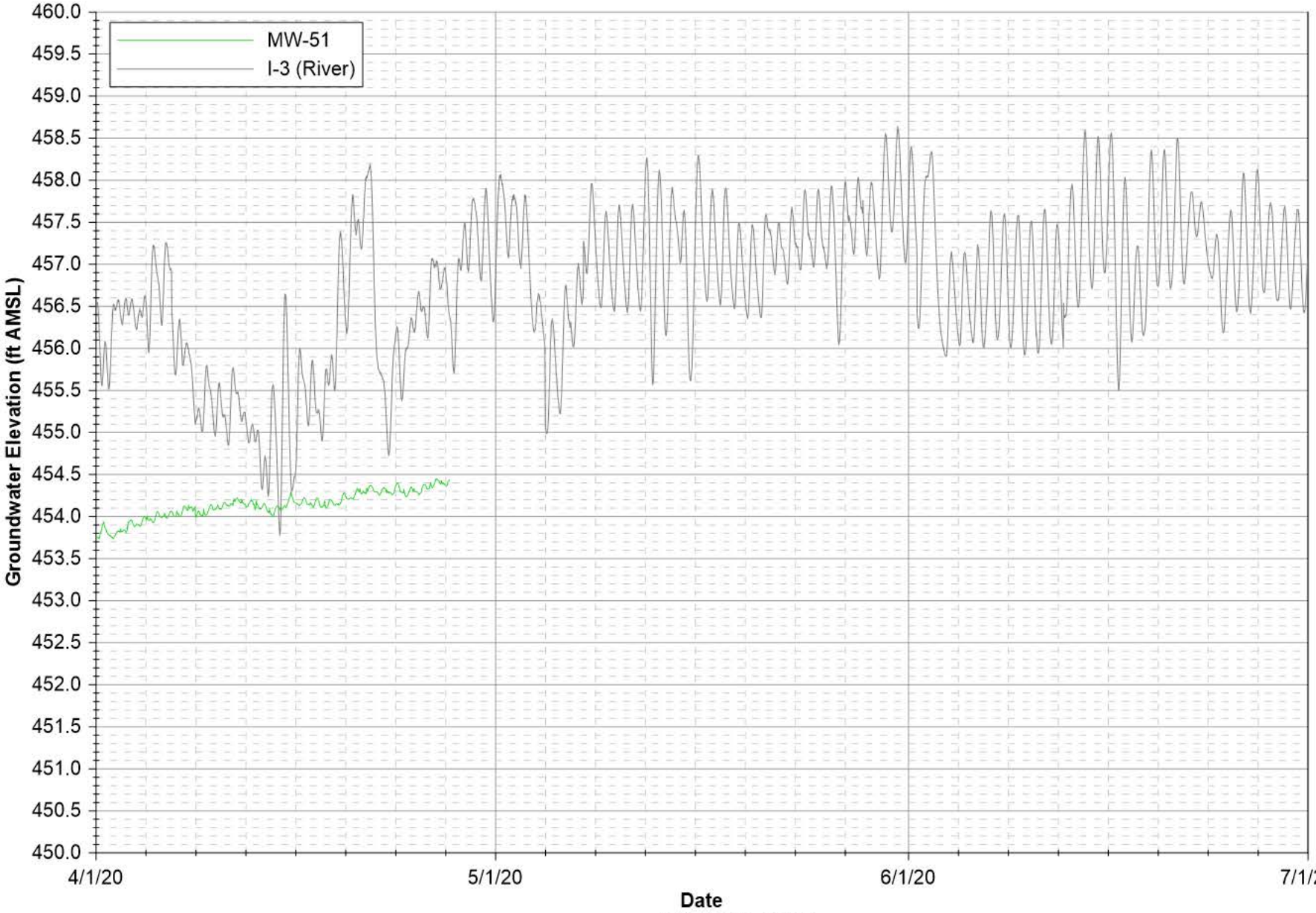
Notes:
1. Data subject to review.
2. ft AMSL = feet above mean sea level.
3. MW-50-095 data unavailable from April 1, 2020 through April 7, 2020 and June 16, 2020 through June 30, 2020 due to transducer malfunction.

FIGURE F-1T

MW-50 HYDROGRAPH

SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

ARCADIS



Notes:
1. Data subject to review.
2. ft AMSL = feet above mean sea level.
3. MW-51 data unavailable from April 27, 2020 due to transducer malfunction.

FIGURE F-1U
MW-51 HYDROGRAPHS
SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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Notes:
1. Data subject to review.
2. ft AMSL = feet above mean sea level.
3. MW-54-195 data unavailable from April 1, 2020 through May 5,2020 due to transducer malfunction.

FIGURE F-1V
MW-54 CLUSTER HYDROGRAPHS
SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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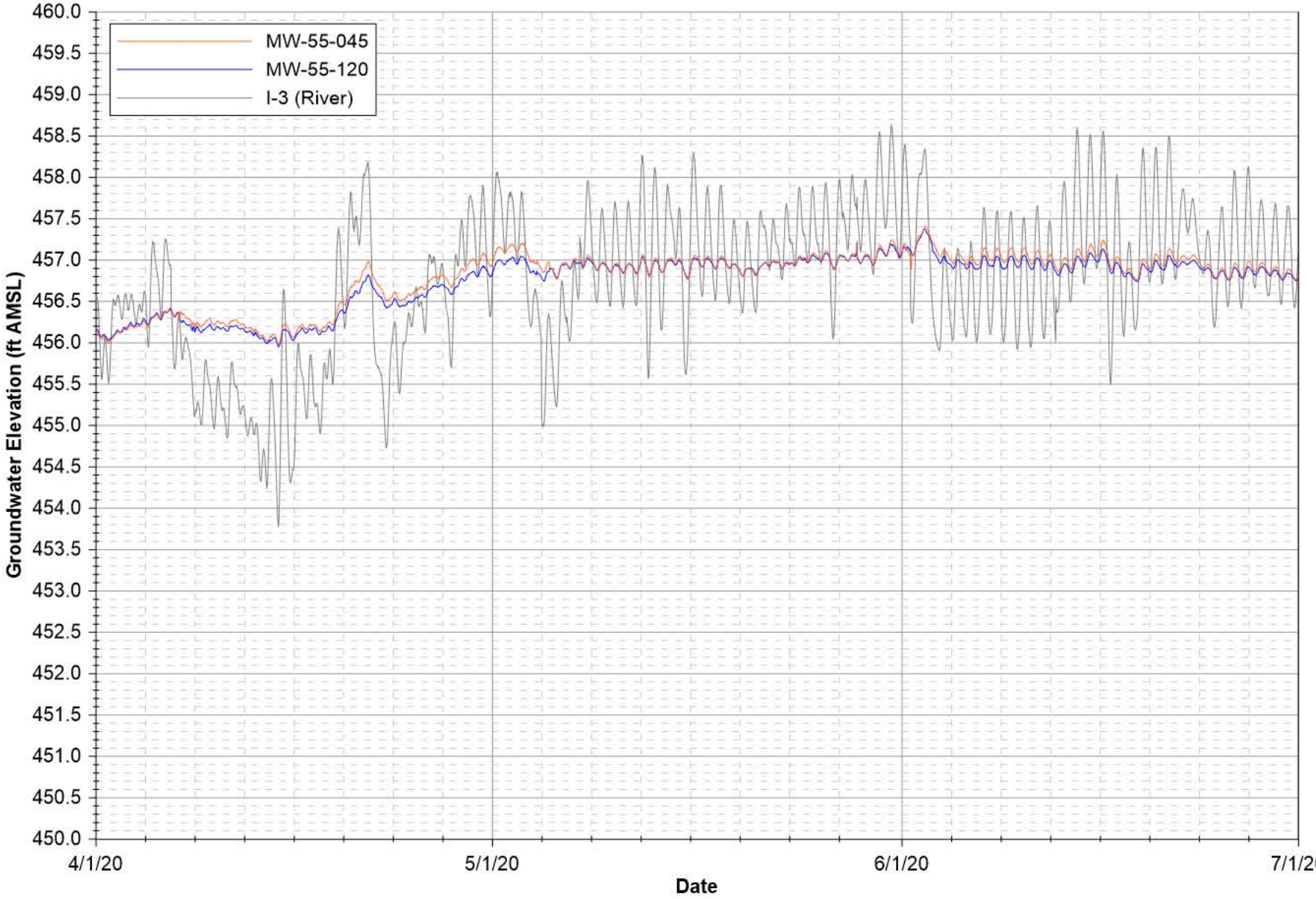

Notes:
1. Data subject to review.
2. ft AMSL = feet above mean sea level.

FIGURE F-1W
MW-55 CLUSTER HYDROGRAPHS
SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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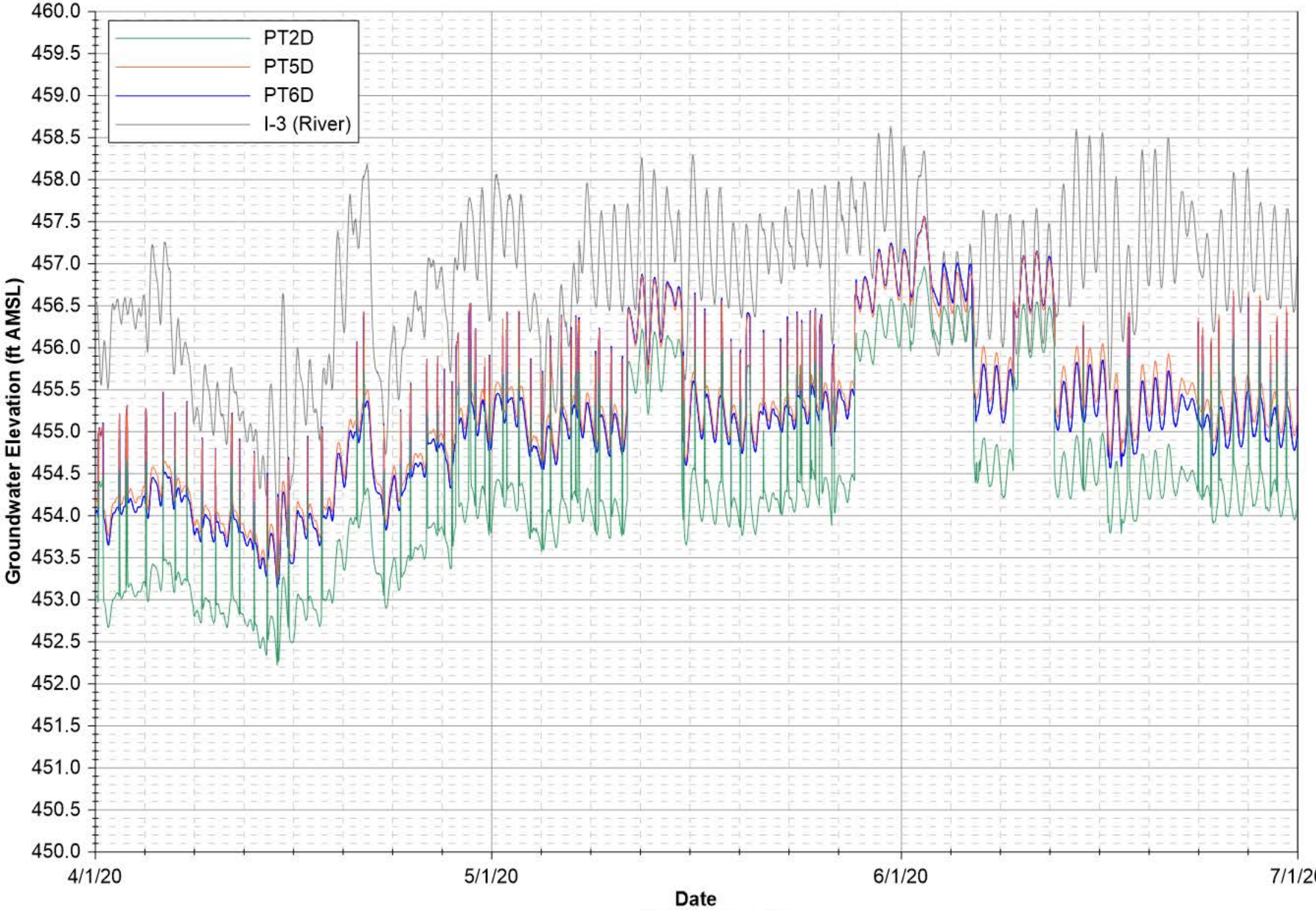

Note:
1. Data subject to review.
2. ft AMSL = feet above mean sea level.

FIGURE F-1X
INSITU PILOT STUDY WELL HYDROGRAPHS
SECOND QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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