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March 15, 2021

Mr. Aaron Yue
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Subject: *Fourth Quarter 2020 and Annual 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 Fourth Quarter 2020 and Annual 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 Fourth Quarter (November through December 2020) performance monitoring results for the IM-3 hydraulic containment system and provides the annual performance evaluation for the 2020 Annual Reporting Period (January through December 2020). This report also presents groundwater and surface water monitoring activities, results, and analyses related to the Groundwater and Surface Water Monitoring Programs during the Fourth Quarter 2020 and 2020 Annual Reporting Period.

The IM quarterly performance monitoring report is submitted in conformance with the reporting requirements in the California Environmental Protection Agency, Department of Toxic Substances Control's (DTSC) IM directive, dated February 14, 2005, and updates and modifications approved by DTSC in letters or emails dated October 12, 2007; July 14, 2008; July 17, 2008; March 3, 2010; April 28, 2010; July 23, 2010; June 27, 2014; 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:	Fourth Quarter 2020 and Annual Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report, PG&E Topock Compressor Station, Needles CA
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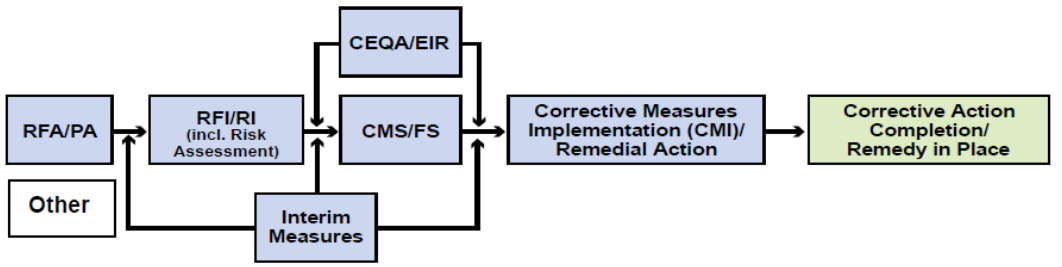
Action Required:	☒ Information Only ☐ Review & Comment Return to: _____ By Date: _____ ☐ Other / Explain:
What does this information pertain to?	☐ Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA)/Preliminary Assessment (PA) ☐ RCRA Facility Investigation (RFI)/Remedial Investigation (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, which indicate that 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 Fourth Quarter 2020 and the 2020 Annual 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 November 1, 2020 through December 31, 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).  **Legend** RFA/PA – RCRA Facility Assessment/Preliminary Assessment RFI/RI – RCRA Facility Investigation/CERCLA Remedial Investigation (including Risk Assessment) CMS/FS – RCRA Corrective Measure Study/CERCLA Feasibility Study CEQA/EIR – California Environmental Quality Act/Environmental Impact Report

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Pacific Gas and Electric Company

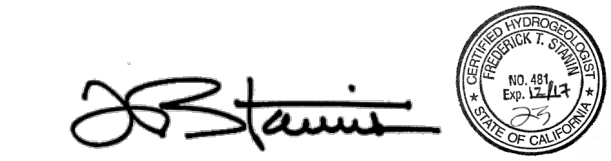
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT

Topock Compressor Station,

Needles, California

March 15, 2021

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



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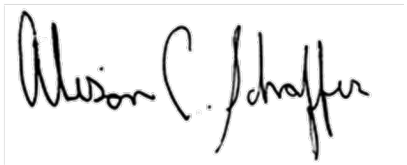

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FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT

Topock Compressor Station,
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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
ft/ft	foot per foot
GMP	Groundwater Monitoring Program
gpm	gallon per minute
ID	identification
IM	interim measure
IM-3	Interim Measures number 3
IMCP	Interim Measures Contingency Plan
MCL	maximum contaminant level
MS	matrix spike
MSD	matrix spike duplicate
ORP	oxidation-reduction potential
PG&E	Pacific Gas and Electric Company
PMP	Performance Monitoring Program
RCRA	Resource Conservation and Recovery Act
RMP	Surface Water Monitoring Program
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 quarterly and annual 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 (PG&E'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 (DTSC).

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 Fourth 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 Fourth 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 November 1 through December 31, 2020 (hereafter referred to as "Fourth Quarter 2020"). In addition, this report serves as an annual report and summarizes monitoring data collected from the GMP, RMP, and PMP programs between January 1 and December 31, 2020 (hereafter referred to as the "Annual Reporting Period"). Table 1-1 shows the current reporting schedule for these programs.

This report is divided into eight sections:

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

Section 2 describes the Fourth Quarter 2020 monitoring and site operations conducted in support of these programs.

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

Section 4 presents GMP and RMP monitoring results for the Annual Reporting Period.

Section 5 presents PMP monitoring results and the IM evaluation for the Fourth Quarter 2020.

Section 6 presents PMP monitoring results and the IM evaluation for the Annual Reporting Period.

Section 7 describes upcoming monitoring events for the First Quarter 2021.

Section 8 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 Fourth Quarter 2020 Regulatory Communication

PG&E communications with the DTSC in Fourth Quarter 2020 associated with the GMP, RMP, and/or PMP programs are outlined below. Communications from First, Second, and Third Quarters 2020 are provided in previous reports (Arcadis 2020a, 2020b, 2020c).

- The Third Quarter 2020 Interim Measures Performance Monitoring and Site-Wide Groundwater and Surface Water Monitoring Report (PMP-GMP Report) was submitted to the DTSC on December 15, 2020 (Arcadis 2020c).
- Required GMP, RMP, and PMP notifications submitted for Fourth Quarter 2020 included:
    - On January 11, 2021, Arcadis sent a quarterly email notification to PG&E providing hexavalent chromium (chromium-6) and dissolved chromium results from the November 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 February 25, 2021, 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 Fourth Quarter 2020, chromium-6 and/or dissolved chromium concentrations at eight monitoring wells (MW-26, MW-31-135, MW-33-040, MW-33-210, MW-36-090, MW-39-080, MW-39-100, and MW-47-055) exceeded the notification levels, and a notification email was submitted to the DTSC on February 26, 2021.

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 2021).

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 2009b). 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 conducted in Fourth Quarter 2020 and during the Annual Reporting Period.

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 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 (ft/ft) 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: chromium monitoring network, IM extraction wells, IM hydraulic monitoring network, IM Contingency Plan [IMCP] monitoring wells, and 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 containment of chromium-6 concentrations greater than 20 µg/L in the floodplain area 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 ft/ft (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 ft/ft 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).

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 FOURTH QUARTER 2020 MONITORING ACTIVITIES

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

2.1 Groundwater Monitoring Program

The Fourth 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 November and December 2020 and consisted of groundwater sampling. IM extraction well PE-01 was not sampled in Fourth Quarter 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, performed November 30 through December 17, 2020, consisted of groundwater sampling and inspection of 140 monitoring wells. Monitoring wells MW-57-050 and MW-58-065 were dry during the monitoring event, and monitoring wells TW-02D and TW-02S 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 of the following methods: low-flow, three-volume purge, grab, or HydraSleeve (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 wells in Arizona were sent to EMAX Laboratories, Inc. in Torrance, California and Eurofins Eaton Analytical in Monrovia, 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 (samples collected from Park Moabi wells Park Moabi-3 and Park Moabi-4 were also analyzed for total chromium)
- General chemistry parameters: Specific conductivity
- COPCs: dissolved molybdenum, dissolved selenium, and nitrate/nitrite as nitrogen

- In-situ byproducts: dissolved arsenic, dissolved iron, and dissolved manganese
- Cations: dissolved calcium, dissolved magnesium, dissolved potassium, and dissolved sodium.

In addition, 10 monitoring wells (MW-10, MW-12, MW-14, MW-22, MW-24A, MW-24B, MW-26, MW-35-060, MW-35-135, and MW-59-100) were analyzed for Title 22 metals, listed in California Code of Regulations, Title 22, Section 66261.24(a)(2)(A), which consist of the following constituents (dissolved): antimony, arsenic, barium, beryllium, cadmium, cobalt, chromium, copper, lead, mercury, molybdenum, nickel, selenium, silver, thallium, vanadium, and zinc.

2.2 Surface Water Monitoring Program

Fourth Quarter 2020 RMP monitoring was performed on November 18 and 19, 2020. 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
- COPCs: 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 Fourth Quarter 2020 consisted of groundwater chromium monitoring within the floodplain area, a review of IM extraction system operation, IM hydraulic monitoring, and IM chemical performance 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. One-hundred and forty monitoring wells were sampled for chromium-6 in November or December 2020. Extraction well TW-03D was sampled monthly in November and December 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 November and December 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.

2.3.2.1 Wells Monitored for Conditional Shutdown of PE-01

Forty-six GMP monitoring wells were sampled for chromium-6 and dissolved chromium in Fourth 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 Fourth Quarter 2020 during the first two weeks of each month (November and December) 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

Twenty-four IMCP monitoring wells were sampled for chromium-6 as part of the Fourth 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).

2.3.5 IM Chemical Performance Monitoring

Ten monitoring wells and one river monitoring location (R-28) were sampled in December 2020 as part of IM Chemical Performance Monitoring, an expanded chemistry suite used to evaluate long-term trends in general water quality response to IM groundwater extraction. The monitoring well locations are shown on Figure 1-4 and listed in Table 1-2. Field parameters, including temperature, pH, specific conductivity, ORP, turbidity, TDS, and salinity, were collected during collection of each groundwater sample. Samples were sent to Asset Laboratories in Las Vegas, Nevada for analysis of the following constituents:

- Boron
- Bromide
- Cations (calcium, magnesium, potassium, sodium)
- Chloride
- Nitrate/nitrite as nitrogen
- Stable isotopes (as δ18O and δ2H)
- Sulfate
- Total alkalinity as calcium carbonate
- TDS.

3 FOURTH QUARTER 2020 SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING RESULTS

This section summarizes results from the groundwater and surface water monitoring performed during Fourth 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 Fourth 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 Fourth Quarter 2020 are provided in Appendix A.

Figures 3-1a, 3-1b, and 3-1c show the distribution of 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. 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 2009b). The extent of the chromium-6 plume is consistent with previous years.

During Fourth Quarter 2020, the maximum detected chromium-6 and dissolved chromium concentrations were 61,000 µg/L and 66,000 µg/L (both at MW-68-180), respectively.

3.1.2 Contaminants of Potential Concern and In-Situ Byproducts

Table 3-1 presents the Fourth Quarter 2020 groundwater sample results for COPCs (dissolved molybdenum, dissolved selenium, and nitrate/nitrite as nitrogen) and in-situ byproducts (dissolved arsenic, dissolved iron, and dissolved manganese).

Figures 3-2a through 3-2e present Fourth Quarter 2020 COPC and in-situ byproduct results in plan view for wells monitoring the upper-depth (shallow), mid-depth, and lower-depth (deep) intervals of the Alluvial Aquifer and bedrock. Results are compared to the calculated background UTLs from the background study (CH2M Hill 2009a, 2009b) and United States Environmental Protection Agency (USEPA) maximum contaminant levels (MCLs; USEPA 2009) where available. Background UTLs were only calculated for regional alluvial wells during the background study; therefore, these background UTLs may not be appropriate for bedrock wells. The figures also show the interpreted extent of groundwater chromium-6 concentrations higher than 32 µg/L (calculated natural background UTL) for each depth interval.

A summary of Fourth Quarter 2020 COPC and in-situ byproduct results is provided in the table below.

Summary of Fourth Quarter 2020 COPC and In-Situ Byproduct Results

Constituent (No. of wells sampled)	Calculated Background UTL (No. of exceedances in Q4 2020)	USEPA MCL (No. of exceedances in Q4 2020)	Q4 2020 Highest Detected Concentration (Location)
Dissolved molybdenum (138)	36.3 µg/L (39)	None	440 µg/L (MW-33-040)
Dissolved selenium (138)	10.3 µg/L (11)	50 µg/L (3)	330 µg/L (MW-67-185)
Nitrate/nitrite as nitrogen (77)	5.03 mg/L (18)	10 mg/L (13)	89 mg/L (MW-67-185)
Dissolved arsenic (107)	24.3 µg/L (2)	10 µg/L (10)	48 µg/L (MW-12)
Dissolved iron (135)	None	300 µg/L* (34)	30,000 µg/L (MW-66BR-270)
Dissolved manganese (140)	1,320 µg/L (2)	50 µg/L* (59)	4,100 µg/L (MW-22)

Notes:
1. Except for nitrite/nitrite as nitrogen, calculated background UTLs are applicable to only the dissolved fractions for the listed analytes, while the USEPA MCLs are applicable to total fractions.
2. If a field duplicate sample was collected, the maximum concentration between the primary and field duplicate sample is presented.
* = Secondary MCL
No. = number

3.1.3 Title 22 Metals

Table 3-2 presents the Title 22 metals groundwater sample results for Fourth Quarter 2020. Results are compared to the California MCLs where available.

Groundwater concentrations for the Title 22 metals were below the California MCLs at the 10 monitoring wells where samples were analyzed for all of the Title 22 metals (MW-10, MW-12, MW-14, MW-22, MW-24A, MW-24B, MW-26, MW-35-060, MW-35-135, and MW-59-100) with the following exceptions:

- Dissolved arsenic (MCL 10 µg/L): MW-12 (48 µg/L), MW-22 (15 µg/L)
- Dissolved chromium (MCL 50 µg/L): MW-10 (120 µg/L), MW-12 (1,900 µg/L), MW-24B (65 µg/L), MW-26 (2,500 µg/L), and MW-59-100 (2,900 µg/L).

3.1.4 Well Maintenance

Monitoring wells were inspected during groundwater sampling in Fourth Quarter 2020. The j-plug for monitoring well MW-57-185 was missing during the well inspection; the j-plug was replaced in December 2020. No other corrective or maintenance actions were needed. Appendix B provides a summary of the inspection results.

3.2 Surface Water Monitoring Results

3.2.1 Chromium-6 and Dissolved Chromium

Table 3-3 presents the Fourth 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 were not detected at concentrations higher than reporting limits at any surface water monitoring location. The laboratory reports for samples analyzed during Fourth Quarter 2020 are provided in Appendix A.

3.2.2 Contaminants of Potential Concern and In-Situ Byproducts

Table 3-3 presents the Fourth 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: 4.8 µg/L (C-MAR-D)
- Dissolved selenium: 1.7 µg/L (C-I-3-S, C-NR4-S, C-CON-D)
- Nitrate/nitrite as nitrogen: 0.44 mg/L (C-I-3-S)
- Dissolved arsenic: 2.5 µg/L (C-1-3-S, C-R27-S, R-28)
- Total iron: 350 µg/L (C-MAR-D)
- Dissolved iron: 27 µg/L (C-R22A-S)
- Dissolved manganese: 9.9 µg/L (C-MAR-D)
- Dissolved barium: 120 µg/L (C-NR4-S)
- TSS: 14 mg/L (C-MAR-D).

3.3 Data Validation and Completeness

Project chemists reviewed laboratory analytical data from the Fourth Quarter 2020 sampling events to assess data quality and to identify deviations from analytical requirements. Data validation flags were assigned according to the quality assurance project plans (CH2M Hill 2014; Critigen 2020). Data validation qualifiers for groundwater and surface water analytical results are shown in Tables 3-1 and 3-3, respectively.

The Fourth Quarter 2020 analytical results were evaluated using the criteria of precision, accuracy, representativeness, comparability, and completeness (PARCC) to demonstrate that a sufficient number of representative samples were collected, and the resulting analytical data can be used to support the decision-making process as measured by the PARCC findings. The following summary highlights the PARCC findings:

- Precision of the data was verified through the review of the laboratory data quality indicators that include matrix spike/matrix spike duplicate (MS/MSD) and field duplicate relative percent differences.

Precision was generally acceptable for all analytes with a few exceptions; data validation qualifiers were applied for results that did not meet quality control criteria.

- Accuracy of the data was verified through the review of the calibration, laboratory control samples, MS/MSDs, as well as the evaluation of method/field blank data. Accuracy was acceptable for all analyses with a few exceptions; data validation qualifiers were applied for results that did not meet quality control criteria.
- Representativeness of the data was verified through the samples' collection, storage, and preservation procedures and the verification of holding-time compliance. The laboratory did not note any problems with the samples' collection, holding time, and storage, but did note some issues with the preservation check procedures; these issues did not affect the ability to use the data. Chain of custody issues were minor and resolved and documented in the data packages.
- Comparability of the data was ensured using standard analytical procedures and standard units for reporting. Results obtained are comparable to industry standards in that the collection and analytical techniques followed approved, documented procedures.
- Completeness is a measure of the number of valid measurements obtained in relation to the total number of measurements planned. Completeness is expressed as the percentage of valid or usable measurements compared to planned measurements. Valid data are defined as all data that are not rejected for project use and flagged "R" for rejected during validation. All data are considered valid, except for one dissolved nickel analysis. Therefore, the completeness goal of 90 percent was met for all method/analyte combinations.

4 ANNUAL SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING RESULTS

This section summarizes groundwater and surface water monitoring results from the Annual Reporting Period for the GMP and RMP programs. Field forms and a summary of field parameters from the groundwater and surface water monitoring events performed January through December 2020 are provided in Appendices C and D, respectively.

4.1 Groundwater Monitoring Results

4.1.1 Chromium-6 and Dissolved Chromium

Chromium-6 and dissolved chromium analytical results from January through December 2020 are presented in Table 3-1. Historical chromium-6 and dissolved chromium concentration analytical results from January 2019 through December 2020 are presented in Appendix E.

During the Annual Reporting Period, the maximum detected chromium-6 and dissolved chromium concentrations were collected at monitoring well MW-68-180 (61,000 and 66,000 µg/L, respectively).

Appendix F presents concentration-versus-time graphs for chromium-6. Throughout the Annual Reporting Period, chromium-6 concentrations were generally within historical ranges and/or consistent with historical concentration trends. Additional discussion about the distribution of chromium-6 across the floodplain is presented in Sections 5.1 and 6.1.

4.1.2 Contaminants of Potential Concern and In-Situ Byproducts

Groundwater COPCs (dissolved molybdenum, dissolved selenium, and nitrate/nitrite as nitrogen) and in-situ byproduct (dissolved arsenic, dissolved iron, and dissolved manganese) results from January through December 2020 are presented in Table 3-1.

4.1.2.1 COPC Evaluation

Maximum COPC concentrations detected during the Annual Reporting Period are summarized below (with associated locations):

- Dissolved molybdenum: 340 µg/L (MW-46-205)
- Dissolved selenium: 380 µg/L (MW-67-185)
- Nitrate/nitrite as nitrogen: 91 mg/L (MW-67-185).

Appendix F presents concentration-versus-time graphs for the COPCs. Throughout the Annual Reporting Period, concentrations of these constituents were generally within historical ranges and/or consistent with historical concentration trends.

4.1.2.2 In-Situ Byproduct Evaluation

Dissolved arsenic, dissolved iron, and dissolved manganese samples were collected during the Annual Reporting Period to establish baseline conditions of in-situ byproducts that may be released upon implementation of the groundwater remedy. Figure 4-1 shows comparisons of these in-situ byproducts to chromium-6 concentrations and other redox indicators (i.e., nitrate/nitrite as nitrogen and ORP) in plan view for wells monitoring the upper-depth, mid-depth, and lower-depth intervals of the Alluvial Aquifer and bedrock. Figure 4-2 shows these same comparisons along cross-section A, oriented west-to-east across the floodplain. The location of cross-section A is shown on Figure 1-4.

The distribution of the redox indicators across the site is generally consistent with previous years. Reducing conditions are prevalent in wells located near the Colorado River, where there is a higher level of organic material in the fluvial sediments compared to wells completed in alluvial sediments with a lower organic carbon content located farther west from the Colorado River.

4.2 Surface Water Monitoring Results

4.2.1 Chromium-6 and Dissolved Chromium

Chromium-6 and dissolved chromium were not detected at concentrations higher than reporting limits at any surface water monitoring location during the Annual Reporting Period. Surface water sampling results from January through December 2020 are presented in Table 3-3.

4.2.2 Contaminants of Potential Concern and In-Situ Byproducts

Sampling results from January through December 2020 for surface water 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 (barium and TSS) are presented in Table 3-3.

Maximum concentrations for each constituent detected during the Annual Reporting Period are summarized below (with associated locations):

- Dissolved molybdenum: 7 µg/L (RRB)
- Dissolved selenium: 2.9 µg/L (RRB)
- Nitrate/nitrite as nitrogen: 2.5 mg/L (C-TAZ-S)
- Dissolved arsenic: 2.7 µg/L (C-MAR-S)
- Total iron: 1,400 µg/L (C-MAR-S)
- Dissolved iron: 880 J µg/L (C-MAR-S)
- Dissolved manganese: 110 J µg/L (C-MAR-S)
- Dissolved barium: 130 µg/L (C-MAR-D, C-MAR-S, C-R22A-S)
- TSS: 36 mg/L (C-MAR-S).

4.3 Annual Groundwater and Surface Water Monitoring Summary

A summary of groundwater and surface water results from the Annual Reporting Period is provided below.

- Chromium-6 and COPC (dissolved molybdenum, dissolved selenium, and nitrate/nitrite as nitrogen) concentrations in groundwater were generally within historical ranges and/or consistent with historical concentration trends.
- Reducing conditions are prevalent in wells located near the Colorado River, where there is a higher level of organic material in the fluvial sediments compared to wells located farther west from the Colorado River completed in alluvial sediments with a lower organic carbon content.
- Chromium-6 and dissolved chromium concentrations were below reporting limits at the Colorado River monitoring locations.

5 FOURTH QUARTER 2020 IM PERFORMANCE MONITORING PROGRAM EVALUATION

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

5.1 Distribution of Hexavalent Chromium in the Floodplain

Chromium-6 data collected as part of the Fourth 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 5-1. Figure 5-2 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 5-1. 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.

5.2 IM Extraction System Operation

During Fourth Quarter 2020, IM extraction wells TW-03D and TW-02D were operated at an average pumping rate of 125.2 gallons per minute (gpm) to support hydraulic control. The target pumping rate was 135 gpm. Extraction well TW-02D was only operated for a brief period to support IM-3 maintenance. Extraction wells PE-01 and TW-02S were not operated.

The IM-3 system extracted and treated 10,998,836 gallons of groundwater during Fourth Quarter 2020, and an estimated 55 pounds (25.1 kilograms) of chromium were removed from the aquifer between October 1 and December 31, 2020 (Table 5-1). Note that groundwater extraction is reported on a different schedule than chromium removal reporting (i.e., November through December and October through December, respectively; Table 5-1). The operational runtime percentage for the IM-3 system during Fourth Quarter 2020 was 93.4 percent. Appendix G provides the operations log for the IM-3 system including planned and unplanned downtime.

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

During Fourth Quarter 2020, chromium-6 and dissolved chromium concentrations in 38 out of 46 monitoring wells were lower than the 2014 (or 2013 where appropriate) maximum concentrations (i.e., notification levels). Chromium-6 concentrations detected at monitoring wells MW-31-135 (15 µg/L), MW-39-080 (0.47 µg/L), MW-39-100 (120 µg/L), and MW-47-055 (17 µg/L) exceeded their respective notification levels. Similarly, dissolved chromium concentrations detected at monitoring wells MW-26 (2,500 µg/L), MW-31-135 (13 J µg/L), MW-33-040 (1.8 µg/L), MW-33-210 (15 µg/L), MW-36-090 (1.7 µg/L), MW-39-080 (1.2 µg/L), MW-39-100 (110 µg/L), and MW-47-055 (17 µg/L) exceeded their respective notification levels. The DTSC was notified of the exceedances at the eight locations via email on February 26, 2021. Shutdown of extraction well PE-01 continued through the end of Fourth Quarter

2020. Table 5-2 presents the chromium-6 and dissolved chromium concentrations and their associated notification levels.

5.3 IM Hydraulic Monitoring Results

Table 5-3 presents the Fourth 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 H. Groundwater elevations were adjusted for temperature and salinity differences among wells (i.e., adjusted to a common freshwater equivalent).

5.3.1 Hydraulic Gradient Evaluation: California Floodplain

Figures 5-3a, 5-3b, and 5-3c present the average Fourth Quarter 2020 groundwater elevations and associated groundwater contours for the shallow, mid-depth, and deep wells, respectively. Figure 5-4 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 5-3a, 5-3b, 5-3c, or 5-4.

During Fourth 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 ft/ft must be maintained to demonstrate compliance with the performance standard. Table 5-4 presents the monthly average hydraulic gradients measured for each of the gradient well pairs in Fourth Quarter 2020, as well as the overall average of all well pairs. The overall monthly average gradients for all well pairs was 0.0032 ft/ft for both November and December 2020. Landward gradients measured each month exceeded the 0.001 ft/ft requirement, as shown in Table 5-4. Figure 5-5 illustrates the measured hydraulic gradients during Fourth Quarter 2020 with the concurrent Colorado River elevations and IM-3 pumping rates.

5.3.2 Hydraulic Gradient Evaluation: Arizona Side of the Colorado River

During Fourth 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 5-3b and 5-3c 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 5-3b). Average quarterly water levels at the MW-54 and MW-55 well clusters indicate that water 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.

5.4 IM Contingency Plan Monitoring Results

During Fourth Quarter 2020, chromium-6 concentrations in the 24 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 5-5.

5.5 IM Chemical Performance Monitoring Results

Table 5-6 presents Fourth Quarter 2020 IM chemical performance monitoring results. Appendix I presents the chemical performance monitoring results from March 2005 through December 2020.

5.5.1 Stable Isotope Evaluation

Analysis of δ18O and δ2H provides a method of tracking the mixing occurring in floodplain groundwater as a result of IM extraction. The lighter isotopic signatures (left side of Figure 5-6) are generally found in the Colorado River (R-28) and fluvial “non-plume” well samples, whereas the heaviest isotopic signatures are found in selected alluvial “plume” wells (e.g., MW-20-130 on the right side of the plot), which likely contain higher percentages of water that has flowed from the upland areas (Figure 5-6).

Previous reports evaluated the effects of IM pumping on the isotopic signature of floodplain wells. In 2015, isotopic data suggested that the isotopic signature in most plume wells has progressed towards a river water signature since IM pumping began. This is likely a result of the continuous landward gradient created by IM pumping, which has caused mixing of plume groundwater with river-influenced groundwater (CH2M Hill 2015).

Figure 5-6 shows the water isotope results for alluvial plume wells, alluvial non-plume wells, fluvial plume wells, and fluvial non-plume wells collected from 2017 through 2020. Overall, few wells exhibit a consistent, uniform trend from 2017 through 2020; rather, most wells demonstrate some degree of oscillation which may be due to true temporal variability in water sources and mixing and/or measurement uncertainty (particularly in the δ18O results, which tend to exhibit larger swings from year to year inconsistent with [i.e., not parallel to] the meteoric water line). However, some wells may be exhibiting a slow shift in the water isotopic signature over time. Of the alluvial and fluvial plume wells, the MW-20 cluster, MW-34-100, and MW-36-100 may be exhibiting an overall lightening (indicating a shift toward river water), albeit with some fluctuation from year to year. In contrast, MW-25, MW-26, and MW-31-060 do not exhibit an overall shift. Of the alluvial and fluvial non-plume wells, MW-44-115 and MW-39-100 may be showing a progressive isotopic lightening, whereas others exhibit small oscillations about a mean value. MW-44-125 exhibits the strongest observed changes, but with an oscillatory behavior suggesting variable levels of mixing without a predominant trend.

5.6 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 5-7 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 January 2021 is based on the December 2020 USBR projections of Davis Dam release and Lake Havasu level. Future projections of Colorado River stage, shown on Figure 5-7, are based on USBR long-range projections of Davis Dam releases and Lake Havasu levels from December 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 5-7, show that the projected Davis Dam release for January 2021 is 7,100 cubic feet per second, and the predicted Colorado River elevation at the I-3 gauge is 452.97 feet above mean sea level.

5.7 Fourth Quarter 2020 Performance Monitoring Program Evaluation Summary

A summary of the Fourth 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 operated to support hydraulic control. A total of 10,998,836 gallons of groundwater were extracted by the IM-3 system, and an estimated 55 pounds (25.1 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, except at eight wells. The DTSC was notified with results from the eight wells and extraction well PE-01 remained shut down through the end of the reporting period. The seasonal cycles of the Colorado River levels are associated with fluctuations in chromium concentrations, and the changes observed at these monitoring wells are consistent with past variations during GMP monitoring.
- 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 November and December 2020 were approximately 3.2 times the required minimum magnitude of 0.001 ft/ft.

- Chromium-6 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.

6 ANNUAL IM PERFORMANCE MONITORING PROGRAM EVALUATION

This section summarizes results of the Annual Reporting Period PMP evaluation.

6.1 Distribution of Hexavalent Chromium in the Floodplain

Appendix F provides chromium-6 concentration time series charts for monitoring wells in the floodplain 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 and 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. During the Annual Reporting Period, chromium-6 concentrations at the six wells were below 20 µg/L (Appendices E and F). In general, wells showing marked decreases in chromium-6 concentration are generally located in the floodplain area, where IM pumping is removing chromium in groundwater. Wells with historical detections near or at reporting limits remained at these levels during Fourth Quarter 2020. Chromium-6 concentrations have remained steady or have decreased in many wells since IM pumping began in 2005 (Appendix F).

6.2 IM Extraction System Operation

During the Annual Reporting Period, IM extraction well TW-03D was primarily operated to support hydraulic control. The target pumping rate was 135 gpm. Extraction wells TW-02S and TW-02D were not operated except during a brief period to support IM-3 maintenance and sampling. Extraction well PE-01 was not operated. The IM-3 system extracted and treated 62,555,612 gallons of groundwater between January and December 2020, and an estimated 221 pounds (100 kilograms) of chromium were removed from the aquifer between January 1 and December 31, 2020 (Tables 5-1 and 6-1).

Extraction well TW-03D operated at an average annual pumping rate of 119.1 gpm including periods of planned and unplanned downtime. Figure 5-8 shows the average monthly pumping rates, cumulative groundwater volumes extracted, and the percentage of time during which the extraction system was in operation during the Annual Reporting Period. Table 6-1 shows the average monthly pumping rates throughout the Annual Reporting Period.

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

During the Annual Reporting Period, chromium-6 and dissolved chromium concentrations in 35 out of 46 wells monitored were lower than the 2014 (or 2013 where appropriate) maximum concentrations (i.e., notification levels). Chromium-6 and/or dissolved chromium exceedances of the notification levels in 2020 included:

- First Quarter 2020: No exceedances
- Second Quarter 2020 (five monitoring wells): MW-20-070, MW-33-150, MW-33-210, MW-39-100, and MW-47-115
- Third Quarter 2020: No exceedances
- Fourth Quarter 2020 (eight monitoring wells): MW-26, MW-31-135, MW-33-040, MW-33-210, MW-36-090, MW-39-080, MW-39-100, and MW-47-055.

The DTSC was notified of the exceedances for each quarter after the end of the quarterly GMP sampling event. Extraction well PE-01 remained shut down throughout the Annual Reporting Period. Table 5-2 presents the chromium-6 and dissolved chromium concentrations for subject wells during the Annual Reporting Period in comparison to the notification levels.

6.3 IM Hydraulic Monitoring Results

6.3.1 Hydraulic Gradient Evaluation: California Floodplain

During the Annual Reporting Period, 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 throughout Annual Reporting Period):

- 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.

Table 6-2 presents the average monthly hydraulic gradients measured for each of the gradient well pairs, as well as the overall monthly averages of all well pairs, during the Annual Reporting Period. Landward gradients measured each month exceeded the 0.001 ft/ft requirement. Groundwater potentiometric maps of shallow, mid-depth, and deep wells from First Quarter 2020 (Arcadis 2020a), Second Quarter 2020 (Arcadis 2020b), Third Quarter 2020 (Arcadis 2020c), and Fourth Quarter 2020 (Figures 5-3a, 5-3b, and 5-3c) show the landward hydraulic gradient maintained throughout the year. Figure 5-5 further illustrates the measured hydraulic gradients during the Annual Reporting Period with the concurrent Colorado River elevations and IM-3 pumping rates.

6.3.2 Hydraulic Gradient Evaluation: Arizona Side of the Colorado River

During the Annual Reporting Period, potentiometric levels in monitoring wells in Arizona were higher than those in wells across the river on the California floodplain (Arcadis 2020a, 2020b, and 2020c; Figures 5-3a, 5-3b, and 5-3c). As stated in Section 5.3, this indicates that the apparent hydraulic gradient on the Arizona side of the river is westward, which is consistent with the site conceptual model and the current numerical groundwater flow model.

6.4 IM Contingency Plan Monitoring Results

During the Annual Reporting Period, chromium-6 concentrations in the 24 IMCP monitoring wells were lower than the established trigger levels (Table 5-5); therefore, implementation of the contingency plan was not needed.

Trigger levels are re-evaluated annually to determine if any changes need to be made. During the Annual Reporting Period, chromium-6 concentrations in the 24 IMCP monitoring wells remained below their respective trigger levels, which were established in August 2006 and approved in July 2008 (CH2M Hill 2006; DTSC 2008c; the trigger level for MW-47-115 was updated and approved in June 2009). Wells with chromium-6 concentrations greater than the IM performance standard of 20 µg/L show stable or decreasing trends; therefore, changes to trigger levels are not recommended at this time.

6.5 Annual Performance Monitoring Program Evaluation Summary

A summary of the Annual Reporting Period PMP evaluation is provided below.

- Chromium-6 isoconcentration maps from First Quarter, Second Quarter, Third Quarter, and Fourth Quarter 2020 indicated that chromium-6 concentrations greater than 20 µg/L in the floodplain area were hydraulically controlled. Chromium-6 concentrations in the floodplain are generally stable or decreasing.
- Throughout 2020, IM extraction well TW-03D was primarily operated to support hydraulic control. A total of 62,555,612 gallons of groundwater were extracted by the IM-3 system, and an estimated 221 pounds (100 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 2014 (or 2013 where appropriate) maximum concentrations, except at 11 wells. The DTSC was notified of the exceedances each quarter, and extraction well PE-01 remained shut down through the end of the Annual Reporting Period. The seasonal cycles of Colorado River levels are associated with small fluctuations in chromium concentrations, and the changes observed at these monitoring wells are consistent with past variations during GMP monitoring.
- Groundwater potentiometric surface maps and the gradient analysis from designated well pairs throughout 2020 provide evidence of hydraulic containment of the chromium-6 plume. The overall monthly average landward gradients throughout the Annual Reporting Period met the required minimum gradient of 0.001 ft/ft. The average monthly IM pumping rates, ranging between 91.5 and 131.9 gpm (Table 6-1), were sufficient to meet this requirement and maintain hydraulic control of the chromium-6 plume.
- Each quarter, chromium-6 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.

7 UPCOMING OPERATION AND MONITORING EVENTS

GMP, RMP, and PMP monitoring will continue under direction from the DTSC in First Quarter 2021. Monitoring and results will be reported in the First Quarter 2021 PMP-GMP Report (planned for submittal by April 30, 2021).

7.1 Groundwater Monitoring Program

7.1.1 Monthly Groundwater Monitoring

Monthly GMP monitoring events are planned for January, February, and March 2021 at extraction wells TW-03D and PE-01; however, PE-01 may be inaccessible in First Quarter 2021 due to construction associated with the final groundwater remedy at the site.

7.1.2 Quarterly Groundwater Sampling

The quarterly GMP monitoring event was conducted in February 2021. This event consisted of groundwater sampling and inspection of 20 monitoring wells. Any necessary corrective actions to monitoring wells were performed in a timely manner.

If rainfall in First Quarter 2021 causes surface water flow in Bat Cave Wash, monitoring wells MW-09, MW-10, and MW-11 will be sampled.

7.2 Surface Water Monitoring Program

Two surface water monitoring events were performed in First Quarter 2021. The first event was completed in January 2021 during low-flow conditions, and the second event was conducted in February 2021. Both events consisted of surface water sampling at 16 locations.

7.3 IM Performance Monitoring Program

7.3.1 Chromium Monitoring

Chromium will be monitored as part of the First Quarter 2021 GMP monthly and quarterly monitoring events. Chromium-6 data will be collected from a total of 22 monitoring wells.

7.3.2 IM Extraction System Operation

During First Quarter 2021, 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.

First Quarter 2021 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.

7.3.3 IM Hydraulic Monitoring

The IM hydraulic monitoring network will continue to be used to demonstrate compliance of the required 0.001 ft/ft landward hydraulic gradient. During the first 2 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 ft/ft landward gradients are maintained.

7.3.4 IM Contingency Plan Monitoring

First Quarter 2021 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).

7.4 Quarterly Notifications

Email notifications will be sent in First Quarter 2021 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.

7.5 Monitoring Well Installation

In accordance with the Basis of Design Report (CH2M Hill 2015), new monitoring wells, extraction wells, and injection wells have been installed as part of the final groundwater remedy at the site. A summary of field activities and monitoring results associated with the new wells is reported under separate cover as part of the monthly reporting process associated with construction of the final groundwater remedy and in the final project record documentation.

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TABLES

Table 1-1

Topock Monitoring Reporting Schedule

Fourth Quarter 2020 and Annual 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 15	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
Fourth Quarter 2020 and Annual 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	486.67	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	543.19	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	--	--	--	--	

Table 1-2
GMP, RMP, and PMP Monitoring Summary
Fourth Quarter 2020 and Annual 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-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	--	--	--	--	

Table 1-2
GMP, RMP, and PMP Monitoring Summary
Fourth Quarter 2020 and Annual 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-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, 2020 Annual Reporting Period

Fourth Quarter 2020 and Annual 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)	Total 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	04/24/2020	N	LF	130	130	--	2,900	6.8	5.3	11	1.1	2.1	--	100	6.9	3.5
MW-09	SA	12/01/2020	N	LF	120	120	--	3,200	4.4	5.3	--	1.8	1.7	ND (20)	25	8.1	5.0
MW-10	SA	04/23/2020	N	LF	150	150	--	2,900	19	6.1	12	--	--	--	90	6.9	20.1
MW-10	SA	11/30/2020	N	LF	120	120	--	2,300	21	6.0	12	2.2	7.1	29 J	52	7.4	48
MW-10	SA	11/30/2020	FD	--	120	120	--	2,300	20	5.3	12	2.2	6.7	26 J	--	--	--
MW-11	SA	04/23/2020	N	LF	43	43	--	2,200	5.8	4.0	5.2	0.9	1.3	--	91	6.9	5.0
MW-11	SA	12/10/2020	N	LF	33	33	--	2,400	5.1 J	4.0	4.4	1.4	0.6	100 J	120	6.4	5.0
MW-12	SA	04/28/2020	N	LF	2,700	2,800	--	7,200	8.8	13	15	45	1.4	--	51	7.7	5.0
MW-12	SA	12/14/2020	N	LF	1,600	1,900	--	6,400	10	28	15	45	2.2	68 J	84	7.9	7.0
MW-12	SA	12/14/2020	FD	--	1,600	1,900	--	6,500	10	28	14	48	2.3	120 J	--	--	--
MW-13	SA	12/14/2020	N	LF	23	24	--	2,600	12	3.3	--	1.9	2.6	43 J	49	7.5	7.0
MW-14	SA	06/24/2020	N	LF	12	12	--	3,300	10	1.8	3.2	0.12	0.79	--	240	7.6	9.0
MW-14	SA	06/24/2020	FD	--	12	12	--	3,300	10	2.0	2.8	0.18 J	0.72	--	--	--	--
MW-14	SA	12/10/2020	N	LF	13	13	--	3,200	10	2.0	2.8	ND (0.1)	0.97	67 J	110	7.7	6.0
MW-15	SA	12/10/2020	N	LF	15	14	--	2,300	3.1	3.5	--	--	ND (0.5)	69 J	160	7.5	1.0
MW-16	SA	12/10/2020	N	LF	10	10	--	1,100	13	2.1	--	--	ND (0.5)	29 J	100	8.0	5.0
MW-17	SA	12/10/2020	N	LF	10	12	--	1,200	11	7.7	--	--	1.2	29 J	93	7.9	6.0
MW-18	SA	12/10/2020	N	LF	19	20	--	1,600	5.5	3.6	--	--	ND (0.5)	41 J	100	7.8	6.0
MW-19	SA	04/27/2020	N	LF	32	40	--	2,000	--	--	--	--	--	--	84	6.8	17
MW-19	SA	12/07/2020	N	LF	94	92 J	--	2,200	6.6 J	3.2 J	--	--	ND (0.5)	22 J	-60	8.1	6.0
MW-20-070	SA	04/24/2020	N	LF	2,500	2,500	--	2,000	29	7.7	13	2.2	2.2	--	90	7.1	3.1
MW-20-070	SA	12/04/2020	N	LF	1,600 J	1,700	--	2,200	27	11	17	--	ND (0.5)	24 J	29	8.2	4.0
MW-20-100	MA	04/24/2020	N	LF	750	760	--	1,900	4.8	5.4	7.5	1.3	1.1	--	96	6.8	2.31
MW-20-100	MA	12/04/2020	N	LF	610 J	660	--	2,000	3.8	5.6	6.7	--	ND (0.5)	ND (20 J)	32	7.9	9.0
MW-20-130	DA	04/24/2020	N	LF	5,900	6,100	--	11,000	42	22	11	0.97	0.84	--	72	7.0	4.3
MW-20-130	DA	12/04/2020	N	LF	4,000 J	4,400	--	7,700	20	53	11	ND (0.1)	2.5	92 J	14	7.9	3.0
MW-20-130	DA	12/04/2020	FD	--	4,100 J	4,500	--	8,900	19	51	11	ND (0.1)	2.3	23 J	--	--	--
MW-21	SA	04/30/2020	N	LF	4.6	5.4	--	11,000	46	42	2.8	--	--	--	-130	6.9	36
MW-21	SA	12/15/2020	N	LF	ND (1.0)	ND (1.0)	--	15,000	64	4.7	0.21	--	38	ND (100)	110	7.5	7.0
MW-22	SA	06/16/2020	N	LF	ND (0.2)	ND (1.0)	--	11,000	--	--	--	3.2	1,600	--	-110	6.8	40
MW-22	SA	12/08/2020	N	LF	ND (1.0)	ND (1.0)	--	24,000	32	ND (0.5)	--	14	4,000	8,800 J	-100	6.8	33
MW-22	SA	12/08/2020	FD	--	ND (1.0)	ND (1.0)	--	23,000	33	ND (0.5)	--	15	4,100	9,100 J	--	--	--
MW-23-060	BR	06/18/2020	N	LF	40	37	--	15,000	--	--	--	0.86 J	1.0	--	83	9.0	40
MW-23-060	BR	12/08/2020	N	LF	42	40	--	16,000	21	4.8	--	4.5	0.95	ND (100 J)	59	9.1	4.0
MW-23-080	BR	06/18/2020	N	LF	ND (1.0)	ND (1.0)	--	16,000	--	--	--	4.9 J	1.2	--	44	9.7	12
MW-23-080	BR	12/08/2020	N	LF	ND (1.0)	ND (1.0)	--	16,000	45	5.0	--	5.9	1.0	ND (100 J)	14	9.9	6.0
MW-24A	SA	05/01/2020	N	LF	ND (0.2)	2.9	--	1,900	100	ND (0.5)	ND (0.05)	ND (0.1)	17	--	-140	7.8	4.0
MW-24A	SA	10/05/2020	N	LF	ND (0.2)	3.3	--	--	--	--	--	--	--	--	-80	8.3	3.0
MW-24A	SA	12/01/2020	N	LF	ND (0.2)	ND (1.0)	--	1,800	120	ND (0.5)	--	0.43	20	--	-42	8.4	5.0
MW-24A	SA	12/01/2020	FD	--	ND (0.2)	ND (1.0)	--	1,800	110	ND (0.5)	--	0.35	20	--	--	--	--
MW-24B	DA	05/01/2020	N	LF	120	140	--	20,000	56	ND (2.5)	0.87	ND (0.5)	96	--	-180	7.4	9.0
MW-24B	DA	10/05/2020	N	LF	ND (1.0)	57	--	--	--	--	--	--	--	--	-280	7.6	10
MW-24B	DA	12/01/2020	N	LF	64	65	--	20,000	63	1.8	--	3.8	120	--	-140	7.9	8.0
MW-24BR	BR	12/02/2020	N	3V	ND (1.0)	ND (1.0)	--	13,000	58	ND (0.5)	ND (0.1)	0.63	160	800	-210	8.4	2.0
MW-25	SA	06/24/2020	N	LF	56	55	--	2,000	4.3	7.5	13	0.96	2.7	--	230	7.4	5.0
MW-25	SA	06/24/2020	FD	--	57	56	--	2,100	4.4	7.4	12	0.93	3.2	--	--	--	--
MW-25	SA	12/07/2020	N	LF	68	65 J	--	2,000	5.9 J	6.7 J	--	0.79	0.55	32 J	-25	7.9	5.0
MW-26	SA	04/27/2020	N	LF	2,300	2,300	--	3,600	35	39	21	0.88	1.5	--	130	6.8	22
MW-26	SA	12/03/2020	N	LF	2,200	2,200	--	3,500	33	31 J	18	0.74	ND (0.5)	84	16	8.0	8.0
MW-26	SA	12/03/2020	FD	--	2,200	2,500	--	3,500	32	31 J	18	0.88	ND (0.5)	74	--	--	--
MW-27-020	SA	12/03/2020	N	LF	ND (0.2)	ND (1.0)	--	960	5.8	0.54	ND (0.1)	0.86 J	12	100 J	77	7.4	15
MW-27-060	MA	12/03/2020	N	LF	ND (0.2)	ND (1.0)	--	960	4.6	ND (0.5)	ND (0.1)	9.8 J	280	350 J	46	7.4	3.0
MW-27-085	DA	06/18/2020	N	LF	ND (0.2)	ND (1.0)	--	11,000	16	ND (0.5)	ND (0.05)	ND (0.1)	110	--	-25	7.3	1.0
MW-27-085	DA	12/03/2020	N	LF	ND (1.0)	ND (1.0)	--	10,000	21	ND (0.5)	ND (0.1)	ND (0.1 J)	78	100 J	120	7.4	6.0
MW-28-025	SA	06/23/2020	N	LF	ND (0.2)	ND (1.0)	--	1,100	4.1	1.5	ND (0.05)	0.52	2.2	--	33	7.5	6.0
MW-28-025	SA	12/15/2020	N	LF	ND (0.2)	ND (1.0)	--	1,200	4.5	1.5	ND (0.05)	0.58	3.1	ND (20)	43	7.6	5.0
MW-28-090	DA	06/23/2020	N	LF	ND (0.2)	ND (1.0)	--	5,100	20	ND (0.5)	ND (0.05)	1.0	280	--	-24	7.1	6.0
MW-28-090	DA	12/15/2020	N	LF	ND (0.2)	ND (1.0)	--	7,200	24	ND (0.5)	ND (0.05)	2.0	120	430 J	-61	7.5	8.0
MW-29	SA	06/23/2020	N	LF	ND (0.2)	ND (1.0)	--	2,600	18	3.3	0.13	8.4	290	--	-110	7.3	5.0
MW-29	SA	12/04/2020	N	LF	ND (0.2)	ND (1.0)	--	1,800	9.2	1.5	ND (0.1)	15	220	1,400 J	-150	7.6	8.0
MW-30-030	SA	12/07/2020	N	LF	ND (1.0)	ND (1.0 J)	--	7,300	57 J	1.6 J	--	0.91	250	850 J	-97	7.9	7.0
MW-30-050	MA	12/07/2020	N	LF	ND (0.2)	ND (1.0 J)	--	920	4.3 J	ND (0.5)	--	2.7	200	62 J	2.0	7.8	1.0

Table 3-1

Groundwater Sampling Results, 2020 Annual Reporting Period

Fourth Quarter 2020 and Annual 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)	Total 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-31-060	SA	06/24/2020	N	LF	320	280	--	3,600	--	--	--	0.36	ND (0.5)	--	200	7.5	3.0
MW-31-060	SA	12/07/2020	N	LF	410	400 J	--	3,100	22 J	3.3 J	--	0.53	1.0	30 J	-29	8.2	5.0
MW-31-135	DA	12/07/2020	N	LF	15	13 J	--	13,000	26 J	0.72 J	--	ND (0.1)	ND (0.5)	ND (100 J)	-50	8.2	6.0
MW-32-020	SA	12/07/2020	N	LF	ND (1.0)	ND (1.0 J)	--	21,000	160 J	1.5 J	--	3.8	160	6,100 J	-150	7.2	3.0
MW-32-035	SA	06/18/2020	N	LF	ND (0.2)	ND (1.0)	--	7,800	--	--	--	26 J	610	--	-180	7.3	25
MW-32-035	SA	12/07/2020	N	LF	ND (1.0)	ND (1.0 J)	--	7,800	13 J	ND (0.5)	--	17	750	11,000 J	-160	7.2	12
MW-32-035	SA	12/07/2020	FD	--	ND (1.0)	ND (1.0 J)	--	7,900	13 J	ND (0.5)	--	17	730	10,000 J	--	--	--
MW-33-040	SA	06/17/2020	N	LF	ND (0.2)	ND (1.0)	--	8,200	120	ND (0.5)	0.077	5.5	54	--	93	8.0	5.0
MW-33-040	SA	12/02/2020	N	LF	ND (1.0)	1.8	--	20,000	440	11	0.41	9.3	16	ND (100)	100	7.4	28
MW-33-090	MA	06/17/2020	N	LF	3.3	6.3	--	8,900	8.2	ND (0.5)	1.1	ND (0.1)	11	--	85	7.2	9.0
MW-33-090	MA	12/02/2020	N	LF	3.1	11	--	10,000	9.9	ND (0.5)	0.99	1.1	23	420	74	7.4	8.0
MW-33-150	DA	06/17/2020	N	LF	4.9	11	--	14,000	48	0.83	1.4	ND (0.1)	8.3	--	87	7.4	8.0
MW-33-150	DA	12/02/2020	N	LF	5.0	8.8	--	16,000	41	0.61	1.4	1.3	12	280	81	7.4	9.0
MW-33-210	DA	06/17/2020	N	LF	7.2	15	--	17,000	22	ND (0.5)	1.7	ND (0.1)	7.2	--	89	7.4	3.0
MW-33-210	DA	12/02/2020	N	LF	12	15	--	19,000	20	0.75	1.7	1.2	12	240	96	7.4	7.0
MW-34-055	MA	12/03/2020	N	LF	ND (0.2)	ND (1.0)	--	900	5.2	ND (0.5)	ND (0.1)	2.7 J	68	33 J	75	7.5	15
MW-34-055	MA	12/03/2020	FD	--	ND (0.2)	ND (1.0)	--	920	5.4	ND (0.5)	ND (0.1)	2.8 J	70	22 J	--	--	--
MW-34-080	DA	06/18/2020	N	LF	ND (0.2)	ND (1.0)	--	8,400	--	--	ND (0.05)	ND (0.1)	66	--	-10	7.3	2.0
MW-34-080	DA	12/03/2020	N	LF	ND (0.2)	ND (1.0)	--	7,900	13	ND (0.5)	ND (0.1)	ND (0.1 J)	52	170 J	-18	7.4	8.0
MW-34-100	DA	02/20/2020	N	LF	ND (0.2)	4.0	--	11,000	53	ND (0.5)	ND (0.05)	ND (0.1)	86	--	-64	7.7	5.0
MW-34-100	DA	06/18/2020	N	LF	ND (0.2)	ND (1.0)	--	11,000	64	ND (0.5)	0.18	ND (0.1)	110	--	-52	7.6	6.0
MW-34-100	DA	10/01/2020	N	LF	ND (0.2)	ND (1.0)	--	8,500	85	ND (0.5)	ND (0.05)	ND (0.1)	190	--	38	7.1	8.0
MW-34-100	DA	12/03/2020	N	LF	ND (1.0)	ND (1.0)	--	10,000	57	ND (0.5)	ND (0.1)	ND (0.1 J)	180	88 J	58	7.3	6.0
MW-34-100	DA	12/03/2020	FD	--	ND (1.0)	ND (1.0)	--	10,000	60	ND (0.5)	ND (0.1)	ND (0.1 J)	170	100 J	--	--	--
MW-35-060	SA	04/27/2020	N	LF	32	32	--	3,900	15	1.5	2.8	0.45	1.1	--	50	6.8	35
MW-35-060	SA	12/08/2020	N	LF	21	21	--	7,000	10	1.3	2.0	1.3	1.0	44 J	27	7.6	6.0
MW-35-060	SA	12/08/2020	FD	--	20	21	--	6,800	9.8	0.99	2.1	1.2	0.81	ND (100 J)	--	--	--
MW-35-135	DA	04/27/2020	N	LF	25	24	--	11,000	20	0.92	2.6	ND (0.1)	8.4	--	24	7.1	41
MW-35-135	DA	12/08/2020	N	LF	27	27	--	11,000	21	1.0	2.6	0.97	0.72	ND (100 J)	17	7.9	7.0
MW-35-135	DA	12/08/2020	FD	--	28	27	--	11,000	21	1.1	2.6	1.0	0.69	ND (20 J)	--	--	--
MW-36-020	SA	12/15/2020	N	LF	ND (0.2)	ND (1.0)	--	6,500	21	ND (0.5)	--	2.2	450	2,200 J	-54	7.4	3.0
MW-36-040	SA	12/15/2020	N	LF	ND (0.2)	ND (1.0)	--	1,100	2.9	ND (0.5)	ND (0.05)	4.5	120	340 J	-85	8.1	5.0
MW-36-050	MA	12/15/2020	N	LF	ND (0.2)	ND (1.0)	--	1,000	3.9	ND (0.5)	--	5.6	210	93 J	-100	7.8	6.0
MW-36-070	MA	12/15/2020	N	LF	0.2	ND (1.0)	--	1,000	5.0	ND (0.5)	--	1.9	140	ND (20)	-81	7.8	2.0
MW-36-090	DA	06/16/2020	N	LF	ND (0.2)	ND (1.0)	--	4,800	--	--	--	1.3	51	--	-100	7.3	4.0
MW-36-090	DA	12/15/2020	N	LF	ND (0.2)	1.7	--	4,400	9.6	ND (0.5)	--	5.2	34	110 J	-88	7.7	4.0
MW-36-100	DA	06/16/2020	N	LF	12	11	--	6,500	20	ND (0.5)	ND (0.05)	1.5	240	--	-86	7.3	9.0
MW-36-100	DA	12/15/2020	N	LF	4.5	6.0	--	7,100	19	ND (0.5)	ND (0.05)	2.9	220	180 J	-30	7.5	8.0
MW-37D	DA	06/24/2020	N	LF	5.0	6.5	--	13,000	63	0.66	0.92	--	--	--	190	7.9	6.0
MW-37D	DA	12/10/2020	N	LF	4.5	5.7	--	12,000	65	1.1	0.98	--	2.3	ND (100 J)	-9.9	7.9	2.0
MW-37S	MA	12/10/2020	N	LF	12	13	--	7,200	15 J	0.82	--	2.0	6.0	130 J	-14	7.7	23
MW-38D	DA	04/23/2020	N	LF	19	16	--	21,000	78	ND (2.5)	ND (0.05)	7.3	27	--	-48	7.5	21
MW-38D	DA	10/05/2020	N	LF	20	21	--	--	--	--	--	--	--	--	-12	8.1	10
MW-38D	DA	11/30/2020	N	LF	--	--	--	--	--	--	--	--	--	--	53	7.4	8.0
MW-38D	DA	12/14/2020	N	LF	17	19	--	--	--	--	--	--	--	--	-23	8.1	9.0
MW-38D	DA	12/15/2020	N	LF	19	18	--	20,000	89	ND (0.5)	0.52	8.5	29	ND (100)	-55	8.3	10
MW-38S	SA	02/25/2020	N	LF	3.8	3.3	--	1,500	25	2.5	4.7	6.6	48	--	-4.0	7.2	4.0
MW-38S	SA	02/25/2020	FD	--	3.9	3.2	--	1,400	22	2.4	5.1	6.6	48	--	--	--	--
MW-38S	SA	04/23/2020	N	LF	4.0	4.4	--	1,600	21	2.9	5.1	5.7	69	--	61	7.3	5.41
MW-38S	SA	04/23/2020	FD	--	4.0	4.6	--	1,600	22	3.1	5.5	5.8	75	--	--	--	--
MW-38S	SA	11/30/2020	N	LF	7.2	7.8	--	1,600	20	3.0	5.6	6.5	61	ND (20)	2.4	7.3	8.0
MW-38S-SMT	SA	09/30/2020	N	LF	4.5	5.4	--	1,600	22	3.9 J	6.0	6.3	140	--	110	7.4	8.0
MW-39-040	SA	12/11/2020	N	LF	ND (0.2)	ND (1.0)	--	1,000	--	--	--	18	99	--	-190	8.1	36
MW-39-050	MA	12/11/2020	N	LF	ND (0.2)	ND (1.0)	--	880	4.5 J	ND (0.5)	--	2.0	170	150 J	7.5	7.9	5.0
MW-39-060	MA	12/11/2020	N	LF	ND (0.2)	ND (1.0)	--	920	5.2 J	ND (0.5)	ND (0.05)	2.7	110	120 J	21	7.9	39
MW-39-070	MA	12/11/2020	N	LF	ND (0.2)	ND (1.0)	--	1,900	16 J	ND (0.5)	--	--	3.6	220 J	47	7.9	5.0
MW-39-080	DA	12/11/2020	N	LF	0.47	1.2	--	5,200	26 J	ND (0.5)	--	--	4.2	32 J	-53	7.7	3.0
MW-39-100	DA	06/18/2020	N	LF	93	91	--	13,000	7.5	ND (0.5)	0.083	ND (0.1)	4.2	--	71	7.0	9.0
MW-39-100	DA	12/15/2020	N	LF	120	110	--	13,000	7.5	ND (0.5)	0.11	2.3	7.0	ND (100)	91	7.3	8.0
MW-40D	DA	06/17/2020	N	LF	12	11	--	14,000	41	0.78	0.57	ND (0.1)	13	--	--	--	--
MW-40D	DA	12/10/2020	N	LF	31	29	--	16,000	41	1.0	2.0	4.7	6.4	ND (100 J)	34	7.5	7.0
MW-40S	SA	06/17/2020	N	H	18	28	--	1,700	30	6.1	10	3.2	5.8	--	-28	7.2	9.0

Table 3-1

Groundwater Sampling Results, 2020 Annual Reporting Period

Fourth Quarter 2020 and Annual 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)	Total 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-40S	SA	12/10/2020	N	H	5.9	29	--	3,300	5.2	1.8	3.5	0.55	8.2	--	130	7.6	24
MW-41D	DA	06/24/2020	N	LF	ND (1.0)	ND (1.0)	--	18,000	80	ND (0.5)	0.14	2.4	120	--	-80	7.9	4.0
MW-41D	DA	06/24/2020	FD	--	ND (1.0)	ND (1.0)	--	18,000	82	ND (0.5)	1.1	2.4	120	--	--	--	--
MW-41D	DA	12/17/2020	N	LF	1.1	1.4	--	20,000	81	0.55	0.61	ND (0.1)	47	ND (100)	200	7.7	5.0
MW-41M	DA	12/17/2020	N	LF	9.5	8.3	--	14,000	26	ND (0.5)	0.59	ND (0.1)	ND (0.5)	ND (100)	-0.90	8.0	7.0
MW-41S	SA	12/17/2020	N	LF	5.5	5.2	--	6,800	13	1.9	2.5	ND (0.1)	ND (0.5)	21	19	8.1	5.0
MW-42-030	SA	12/16/2020	N	LF	ND (0.2)	ND (1.0)	--	3,300	27 J	ND (0.5)	ND (0.05)	2.0	110	--	-110	8.0	39
MW-42-055	MA	06/18/2020	N	LF	ND (0.2)	ND (1.0)	--	1,000	--	--	--	12 J	150	--	-72	7.8	2.0
MW-42-055	MA	12/16/2020	N	LF	ND (0.2)	ND (1.0)	--	1,100	3.9 J	ND (0.5)	--	16	300	530 J	-37	7.8	3.0
MW-42-065	MA	06/18/2020	N	LF	ND (0.2)	ND (1.0)	--	2,600	--	--	--	5.9 J	650	--	20	7.5	2.0
MW-42-065	MA	12/16/2020	N	LF	ND (0.2)	ND (1.0)	--	3,600	9.5 J	ND (0.5)	--	6.0	1,300	53 J	-3.1	7.6	6.0
MW-43-025	SA	12/08/2020	N	LF	ND (0.2)	ND (1.0)	--	2,000	6.7	ND (0.5)	--	32	360	5,400 J	-160	7.5	15
MW-43-075	DA	12/08/2020	N	LF	ND (0.2)	ND (1.0)	--	11,000	16	ND (0.5)	--	13	580	4,500 J	-140	7.5	2.68
MW-43-090	DA	12/08/2020	N	LF	ND (1.0)	ND (1.0)	--	18,000	30	ND (0.5)	--	3.1	420	1,400 J	-46	7.6	8.0
MW-44-070	MA	06/23/2020	N	LF	ND (0.2)	ND (1.0)	--	2,000	--	--	--	1.8	230	--	27	7.5	7.0
MW-44-070	MA	12/11/2020	N	LF	ND (0.2)	ND (1.0)	--	1,600	8.8 J	ND (0.5)	--	2.7	190	410 J	-46	7.7	8.0
MW-44-115	DA	02/21/2020	N	LF	4.8	5.9	--	9,400	62	ND (0.5)	ND (0.05)	2.1	6.4	--	-75	7.4	9.0
MW-44-115	DA	06/23/2020	N	LF	4.0	3.7	--	11,000	68	ND (0.5)	ND (0.05)	2.3	5.0	--	13	7.5	10
MW-44-115	DA	10/01/2020	N	LF	3.4	4.1	--	9,600	55 J	ND (0.5)	ND (0.05)	2.2	6.5	--	-19	7.3	6.0
MW-44-115	DA	10/01/2020	FD	--	3.4	3.9	--	9,300	84 J	ND (0.5)	ND (0.05)	1.9	5.9	--	--	--	--
MW-44-115	DA	12/11/2020	N	LF	2.7	4.4	--	10,000	71 J	ND (0.5)	ND (0.05)	5.7	6.0	230 J	-46	7.9	1.0
MW-44-125	DA	06/23/2020	N	LF	ND (0.2)	1.0	--	2,200	13	ND (0.5)	0.18	2.6	330	--	-47	7.6	4.0
MW-44-125	DA	12/11/2020	N	LF	ND (0.2)	ND (1.0)	--	8,200	27 J	ND (0.5)	ND (0.05)	2.5	170	310 J	-30	7.7	6.0
MW-46-175	DA	02/21/2020	N	LF	9.1	17	--	19,000	190	ND (2.5)	1.0	--	--	--	-44	7.6	4.0
MW-46-175	DA	06/23/2020	N	LF	5.3	23	--	19,000	180	0.55	1.1	--	--	--	65	8.6	2.0
MW-46-175	DA	10/01/2020	N	LF	5.1	5.5	--	16,000	190	1.0	0.92	--	--	--	100	7.2	8.0
MW-46-175	DA	12/15/2020	N	LF	7.9	9.0	--	22,000	190	ND (0.5)	1.0	--	15	ND (100)	98	8.5	2.0
MW-46-205	DA	06/23/2020	N	LF	1.2	2.1	--	22,000	--	--	--	--	--	--	120	8.6	3.0
MW-46-205	DA	12/15/2020	N	LF	ND (1.0)	3.6	--	27,000	340	0.91	--	--	53	ND (100)	93	8.5	5.0
MW-47-055	SA	06/25/2020	N	LF	16	16	--	4,700	--	--	--	0.17	ND (0.5)	--	130	7.5	17
MW-47-055	SA	11/30/2020	N	LF	17	17	--	5,000	9.1	0.86	--	1.2	0.56	ND (20)	18	7.6	4.0
MW-47-115	DA	06/25/2020	N	LF	24	24	--	13,000	--	--	--	--	--	--	160	7.6	16
MW-47-115	DA	11/30/2020	N	LF	18	18	--	14,000	24	0.95	--	--	3.2	ND (20)	13	7.6	7.0
MW-48	BR	05/01/2020	N	3V	ND (1.0)	ND (1.0)	--	18,000	--	--	--	--	--	--	18	7.1	5.0
MW-48	BR	12/16/2020	N	G	ND (1.0)	ND (1.0)	--	18,000	9.4 J	ND (0.5)	--	--	4.4	25 J	97	7.7	8.0
MW-49-135	DA	12/04/2020	N	LF	8.6 J	11	--	13,000	30	1.2	--	ND (0.1)	100	180 J	130	7.6	17
MW-49-275	DA	12/04/2020	N	LF	ND (1.0)	ND (1.0)	--	22,000	260	ND (0.5)	--	--	310	ND (100 J)	110	8.3	7.0
MW-49-365	DA	12/04/2020	N	LF	ND (1.0)	ND (1.0)	--	31,000	200	ND (0.5)	--	--	64	180 J	140	7.4	5.0
MW-50-095	MA	06/24/2020	N	LF	13	14	--	5,800	--	--	--	--	--	--	180	7.6	8.0
MW-50-095	MA	12/07/2020	N	LF	13	14 J	--	6,200	17 J	0.76 J	--	--	8.3	64 J	74	7.9	8.0
MW-50-200	DA	06/24/2020	N	LF	3,600	3,500	--	20,000	--	--	--	--	--	--	150	7.6	5.0
MW-50-200	DA	12/07/2020	N	LF	2,300	2,100 J	--	20,000	44 J	1.6 J	--	3.8	ND (0.5)	110 J	77	7.8	8.0
MW-50-200	DA	12/07/2020	FD	--	2,300	2,100 J	--	20,000	44 J	1.6 J	--	3.8	ND (0.5)	ND (100 J)	--	--	--
MW-51	MA	04/27/2020	N	LF	3,200	3,200	--	12,000	40	19	9.2	ND (0.1)	ND (0.5)	--	96	7.0	3.0
MW-51	MA	04/27/2020	FD	--	3,300	3,200	--	13,000	42	20	9.2	ND (0.1)	ND (0.5)	--	--	--	--
MW-51	MA	12/03/2020	N	LF	3,300	3,500	--	11,000	40	33 J	12	ND (0.1)	ND (0.5)	81 J	17	8.1	4.0
MW-51	MA	12/03/2020	FD	--	3,300	3,700	--	11,000	40	32 J	12	ND (0.1)	ND (0.5)	23 J	--	--	--
MW-52D	DA	06/16/2020	N	LF	ND (1.0)	ND (1.0)	--	20,000	--	--	--	ND (0.1)	250	--	-19	7.6	8.0
MW-52D	DA	12/08/2020	N	LF	ND (1.0)	ND (1.0)	--	22,000	67	ND (0.5)	--	2.3	230	950 J	-100	7.5	1.0
MW-52M	DA	06/16/2020	N	LF	ND (1.0)	ND (1.0)	--	15,000	--	--	--	ND (0.1)	150	--	-150	7.1	4.0
MW-52M	DA	12/08/2020	N	LF	ND (1.0)	ND (1.0)	--	16,000	34	ND (0.5)	--	1.2	160	1,600 J	-110	7.5	3.0
MW-52S	MA	06/16/2020	N	LF	ND (0.2)	ND (1.0)	--	8,800	--	--	--	ND (0.1)	1,300	--	-150	6.8	9.0
MW-52S	MA	12/08/2020	N	LF	ND (1.0)	ND (1.0)	--	15,000	25	1.9	--	1.7	1,200	27,000 J	-97	7.2	3.0
MW-53D	DA	06/16/2020	N	LF	ND (1.0)	ND (1.0)	--	24,000	--	--	--	ND (0.1)	1,100	--	-130	7.5	2.0
MW-53D	DA	12/08/2020	N	LF	ND (1.0)	ND (1.0)	--	27,000	160	ND (0.5)	--	3.3	1,100	460 J	-110	7.9	1.0
MW-53M	DA	06/16/2020	N	LF	ND (1.0)	ND (1.0)	--	17,000	--	--	--	ND (0.1)	450	--	-59	7.5	3.0
MW-53M	DA	12/08/2020	N	LF	ND (1.0)	ND (1.0)	--	21,000	61	ND (0.5)	--	0.77	410	550 J	-110	8.0	6.0
MW-54-085	DA	06/19/2020	N	LF	ND (0.1)	ND (0.2)	--	5,590	--	--	--	5.19	472	--	-14	7.7	30
MW-54-085	DA	12/09/2020	N	LF	ND (0.05)	ND (2.5)	--	7,600	ND (5.0)	ND (3.0)	--	ND (2.5)	733	ND (100)	-35	7.8	2.0
MW-54-140	DA	06/19/2020	N	LF	ND (0.5)	ND (0.2)	--	9,360	--	--	--	2.66	106	--	-2.6	7.8	25
MW-54-140	DA	12/09/2020	N	LF	ND (0.25)	ND (2.5)	--	10,800	ND (5.0)	ND (3.0)	--	ND (2.5)	ND (5.0)	ND (100)	-88	8.0	5.0
MW-54-195	DA	06/19/2020	N	LF	ND (0.5)	ND (0.2)	--	16,300	--	--	--	ND (0.2)	350	--	-16	8.1	10

Table 3-1

Groundwater Sampling Results, 2020 Annual Reporting Period

Fourth Quarter 2020 and Annual 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)	Total 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-54-195	DA	12/09/2020	N	LF	ND (0.25)	ND (2.5)	--	16,800	107	ND (3.0)	--	ND (2.5)	331	ND (100)	-190	8.3	1.0
MW-55-045	MA	06/19/2020	N	LF	ND (0.1)	ND (0.2)	--	963	--	--	--	--	--	--	-74	7.9	9.0
MW-55-045	MA	12/09/2020	N	LF	ND (0.05)	ND (2.5)	--	1,190	ND (5.0)	ND (3.0)	--	--	789	ND (100)	-67	7.9	28
MW-55-120	DA	06/19/2020	N	LF	7.94	9.2	--	5,970	--	--	--	--	--	--	250	8.2	5.0
MW-55-120	DA	06/19/2020	FD	--	7.99	9.23	--	6,170	--	--	--	--	--	--	--	--	--
MW-55-120	DA	12/09/2020	N	LF	7.51	ND (2.5)	--	6,460	ND (5.0)	ND (3.0)	--	--	ND (5.0)	ND (100)	-35	8.3	9.0
MW-56D	DA	06/19/2020	N	LF	ND (0.5)	ND (0.2)	--	16,100	--	--	--	--	--	--	170	7.6	3.0
MW-56D	DA	12/09/2020	N	LF	ND (0.25)	ND (2.5)	--	16,800	ND (5.0)	ND (3.0)	--	--	812	1,060	-38	7.2	5.0
MW-56M	DA	06/19/2020	N	LF	ND (0.5)	ND (0.2)	--	6,120	--	--	--	--	--	--	210	7.8	2.0
MW-56M	DA	12/09/2020	N	LF	ND (0.25)	ND (2.5)	--	9,910	ND (5.0)	ND (3.0)	--	--	675	2,970	8.5	7.3	3.0
MW-56M	DA	12/09/2020	FD	--	ND (0.25)	ND (2.5)	--	9,730	ND (5.0)	ND (3.0)	--	--	654	2,950	--	--	--
MW-56S	SA	06/19/2020	N	LF	ND (0.1)	ND (0.2)	--	4,010	--	--	--	--	--	--	-140	7.2	5.0
MW-56S	SA	12/09/2020	N	LF	ND (0.05)	ND (2.5)	--	4,380	ND (5.0)	ND (3.0)	--	--	754	4,920	-110	7.2	1.0
MW-57-070	BR	06/22/2020	N	LF	610	530	--	1,900	2.4	2.8	8.8	1.3	1.5	--	-40	7.1	9.0
MW-57-070	BR	12/04/2020	N	LF	630 J	660	--	2,000	2.6	3.2	8.5	1.3	0.98	ND (20 J)	180	7.4	10
MW-57-185	BR	06/22/2020	N	LF	1.3	1.9	--	17,000	78	ND (0.5)	0.14	4.3	2.0	--	-200	9.2	3.0
MW-57-185	BR	06/22/2020	FD	--	1.4	2.0	--	17,000	75	ND (0.5)	0.12	4.1	2.1	--	--	--	--
MW-57-185	BR	12/04/2020	N	LF	4.4 J	5.0	--	16,000	83	ND (0.5)	0.18	5.4	1.4	ND (100 J)	70	9.1	8.0
MW-58BR	BR	02/17/2020	N	LF	120	120	--	8,100	22	2.7	1.8	0.11	160	--	50	7.2	3.0
MW-58BR	BR	05/01/2020	N	LF	43	41	--	4,700	24	1.9	0.77	1.9	140	--	140	7.8	5.0
MW-58BR	BR	09/29/2020	N	LF	3.9	4.5	--	6,000	29	2.0	0.39	1.0	290	--	-22	7.9	5.0
MW-58BR	BR	11/30/2020	N	LF	5.2	5.7	--	7,400	27	2.3	0.5	2.4	330	ND (20)	110	7.7	8.0
MW-59-100	SA	06/22/2020	N	LF	2,100	2,200	--	13,000	9.0	1.9	2.1	ND (0.1)	10	--	-65	6.9	15
MW-59-100	SA	12/08/2020	N	LF	2,700	2,900	--	9,300	4.8	3.2 J	3.4	2.2	1.5	42 J	100	7.0	5.0
MW-59-100	SA	12/08/2020	FD	--	2,700	2,800	--	9,500	4.7	4.1 J	3.5	2.2	1.3	270 J	--	--	--
MW-60-125	BR	06/24/2020	N	LF	660	630	--	9,100	17	5.2	3.8	ND (0.1)	4.7	--	180	7.6	3.0
MW-60-125	BR	10/01/2020	N	LF	580	570	--	7,800	18	6.5	4.1	ND (0.1)	5.0	ND (20)	-130	7.4	8.0
MW-60BR-245	BR	02/20/2020	N	3V	52	44	--	16,000	57	3.0	0.22	6.0	7.0	--	-8.8	7.4	2.0
MW-60BR-245	BR	09/30/2020	N	LF	21	22	--	17,000	63	3.4 J	0.18	ND (0.1)	2.0	--	-64	8.0	5.0
MW-60BR-245	BR	12/17/2020	N	LF	16	15	--	17,000	65	2.9	0.18	ND (0.1)	1.6	ND (100)	110	8.1	3.0
MW-60BR-245_D	BR	02/21/2020	N	LF	72	62	--	17,000	61	2.6	0.15	9.0	5.4	--	11	7.2	2.0
MW-60BR-245_S	BR	02/21/2020	N	LF	96	85	--	17,000	58	2.8	0.23	7.5	8.1	--	-7.0	7.3	2.0
MW-61-110	BR	12/04/2020	N	LF	430 J	440	--	15,000	22	1.3	0.8	ND (0.1)	240	ND (100 J)	53	7.8	7.0
MW-62-065	BR	02/19/2020	N	LF	480	460	--	6,100	13	3.8	5.1	0.13	3.5	--	2.7	7.2	18
MW-62-065	BR	04/28/2020	N	LF	580	550	--	6,500	15	3.8	4.6	ND (0.1)	4.9	--	35	6.9	44
MW-62-065	BR	09/30/2020	N	LF	590	610	--	6,000	13	4.7 J	5.1	ND (0.1)	3.3	--	13	7.6	10
MW-62-065	BR	12/04/2020	N	LF	620	570	--	5,900	12	3.5	4.6	ND (0.1)	ND (0.5)	ND (20 J)	24	8.0	5.0
MW-62-110	BR	02/18/2020	N	LF	ND (0.2)	ND (1.0)	--	8,800	49	ND (0.5)	0.055	5.7	150	--	-44	7.9	5.0
MW-62-110	BR	04/29/2020	N	Tap	ND (1.0)	ND (1.0)	--	14,000	71	ND (0.5)	3.3	2.9	130	--	-180	7.0	2.0
MW-62-110	BR	09/30/2020	N	LF	ND (1.0)	ND (1.0)	--	12,000	47	ND (0.5)	ND (0.05)	ND (0.1)	140	--	-81	7.1	4.0
MW-62-110	BR	12/02/2020	N	LF	ND (0.2)	ND (1.0)	--	9,500	50	ND (0.5)	ND (0.1)	8.1	210	350	-200	7.8	2.0
MW-62-190	BR	04/29/2020	N	Tap	ND (1.0)	ND (1.0)	--	19,000	41	ND (2.5)	ND (0.05)	ND (0.5)	700	--	-240	6.4	1.0
MW-62-190	BR	04/29/2020	FD	--	ND (1.0)	ND (1.0)	--	19,000	40	ND (2.5)	ND (0.05)	ND (0.5)	720	--	--	--	--
MW-62-190	BR	12/02/2020	N	LF	ND (1.0)	ND (1.0)	--	17,000	43	ND (0.5)	ND (0.1)	3.4	900	1,400	-180	7.8	2.0
MW-63-065	BR	02/19/2020	N	LF	1.2	2.5	--	6,600	18	0.89	1.0	ND (0.1)	14	--	7.4	7.0	28
MW-63-065	BR	02/19/2020	FD	--	1.2	2.8	--	6,400	18	0.86	1.1	ND (0.1)	17	--	--	--	--
MW-63-065	BR	06/24/2020	N	LF	1.3	2.6	--	7,300	15	0.89	1.8	ND (0.1)	10	--	190	7.0	8.0
MW-63-065	BR	09/30/2020	N	LF	1.3	2.3	--	6,800	17	1.3 J	2.4	ND (0.1)	1.7	--	-8.8	7.3	10
MW-63-065	BR	12/07/2020	N	LF	1.7	2.7 J	--	7,200	16 J	1.2 J	--	ND (0.1)	1.4	34 J	57	7.4	7.0
MW-64BR	BR	02/21/2020	N	LF	ND (1.0)	ND (1.0)	--	13,000	61	ND (0.5)	ND (0.05)	3.2	910	--	-5.0	7.0	4.0
MW-64BR	BR	05/01/2020	N	LF	ND (0.2)	1.8	--	740	37	ND (0.5)	0.056	0.77	160	--	130	7.9	9.0
MW-64BR	BR	09/30/2020	N	LF	ND (1.0)	ND (1.0)	--	13,000	66	ND (0.5)	ND (0.05)	ND (0.1)	1,000	--	-140	7.7	3.0
MW-64BR	BR	11/30/2020	N	LF	ND (1.0)	ND (1.0)	--	13,000	68	ND (0.5)	ND (0.1)	2.3	1,000	710 J	1.1	7.4	5.0
MW-65-160	SA	02/20/2020	N	LF	250	250	--	3,600	28	9.2	14	0.34	0.52	--	-5.0	7.0	12
MW-65-160	SA	04/29/2020	N	LF	190	210	--	3,100	40	7.2	10	0.63	52	--	69	7.4	46
MW-65-160	SA	09/29/2020	N	LF	240	240	--	3,800	26	9.7	13	0.35	29	--	7.0	7.7	31
MW-65-160	SA	12/03/2020	N	LF	210	240	--	4,000	27	9.0 J	11	ND (0.1)	51	620	120	7.5	16
MW-65-225	DA	02/20/2020	N	LF	460	470	--	6,600	27	6.9	10	0.34	4.4	--	-16	7.0	10
MW-65-225	DA	04/29/2020	N	LF	280	260	--	14,000	43	3.7	4.9	ND (0.1)	92	--	33	7.0	39
MW-65-225	DA	09/29/2020	N	LF	260	250	--	12,000	43	3.7	4.0	ND (0.1)	45	--	-36	7.8	29
MW-65-225	DA	12/03/2020	N	LF	360	350	--	10,000	32	5.2 J	6.0	ND (0.1)	26	98	120	7.5	16
MW-66-165	SA	04/29/2020	N	LF	530	520	--	4,200	6.2	29	29	0.39	7.7	--	86	6.9	45

Table 3-1

Groundwater Sampling Results, 2020 Annual Reporting Period

Fourth Quarter 2020 and Annual 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)	Total 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-66-165	SA	12/03/2020	N	LF	400	390	--	3,600	5.8	19	24	0.69 J	3.0	200 J	120	7.7	45
MW-66-165	SA	12/03/2020	FD	--	410	420	--	3,600	5.5	19 J	23	0.42	3.1	160	--	--	--
MW-66-230	DA	04/29/2020	N	LF	6,700	6,300	--	19,000	79	17	23	8.4	2.3	--	61	7.4	9.0
MW-66-230	DA	04/29/2020	FD	--	6,600	6,600	--	19,000	81	17	23	8.7	2.3	--	--	--	--
MW-66-230	DA	12/03/2020	N	LF	6,500	6,400	--	19,000	72	12	13	8.0 J	1.3	ND (100 J)	130	7.9	5.0
MW-66-230	DA	12/03/2020	FD	--	6,300	6,500	--	19,000	75	12	14	8.0 J	1.4	ND (100 J)	--	--	--
MW-66BR-270	BR	06/24/2020	N	3V	ND (1.0)	ND (1.0)	--	17,000	1.1	ND (0.5)	0.47	ND (0.1)	6,700	--	-220	8.4	9.0
MW-66BR-270	BR	12/16/2020	N	3V	ND (1.0)	1.2	--	18,000	3.1	ND (0.5)	ND (0.05)	ND (0.1)	2,700	30,000	-140	8.1	32
MW-66BR-270	BR	12/16/2020	FD	--	ND (1.0)	ND (1.0)	--	18,000	3.0	ND (0.5)	ND (0.05)	ND (0.1)	2,800	27,000 J	--	--	--
MW-67-185	SA	04/30/2020	N	LF	2,000	2,000	--	7,600	5.1	380	91	ND (0.1)	ND (0.5)	--	91	6.8	13
MW-67-185	SA	10/06/2020	N	LF	2,000	2,000	--	--	--	--	--	--	--	--	93	7.3	5.0
MW-67-185	SA	12/02/2020	N	LF	2,900	3,000	--	6,800	14	330	89	0.74	2.7	110	75	7.5	9.0
MW-67-225	MA	04/30/2020	N	LF	3,000	3,200	--	7,500	48	87	27	1.3	5.2	--	81	7.1	10
MW-67-225	MA	12/02/2020	N	LF	3,800	4,000	--	6,400	58	100	28	5.0	58	2,300	38	8.6	45
MW-67-260	DA	04/30/2020	N	LF	1,100	1,100	--	19,000	67	ND (2.5)	0.62	11	120	--	20	8.3	9.0
MW-67-260	DA	12/02/2020	N	LF	250	250	--	14,000	24	1.1	0.61	1.6	1.5	180	-110	8.5	6.0
MW-68-180	SA	02/20/2020	N	LF	25,000	27,000	--	4,200	63	15	29	1.8	6.1	--	16	7.2	4.0
MW-68-180	SA	04/30/2020	N	LF	41,000	43,000	--	5,500	53	21	36	1.8	9.6	--	100	6.8	4.0
MW-68-180	SA	09/29/2020	N	LF	54,000	51,000	--	4,900	57	28	35	2.4	6.9	--	42	7.6	47
MW-68-180	SA	12/16/2020	N	LF	61,000	66,000	--	5,600	53	22	24 J	3.1	0.79	100 J	120	7.6	8.0
MW-68-180	SA	12/16/2020	FD	--	61,000	63,000	--	5,700	54	24	10 J	3.1	2.8	ND (100 J)	--	--	--
MW-68-240	DA	04/30/2020	N	LF	2,000	2,000	--	17,000	22	3.7	4.1	ND (0.5)	17	--	51	7.0	4.0
MW-68-240	DA	12/16/2020	N	LF	2,000	2,000	--	17,000	24	3.8	3.7	1.7	20	ND (20 J)	140	7.4	6.0
MW-68-240	DA	12/16/2020	FD	--	2,000	1,900	--	17,000	24	3.3	4.0	1.9	19	ND (20 J)	--	--	--
MW-68BR-280	BR	04/30/2020	N	3V	ND (1.0)	ND (1.0)	--	22,000	13	ND (2.5)	ND (0.05)	0.36	110	--	-160	8.7	5.0
MW-68BR-280	BR	12/16/2020	N	LF	ND (1.0)	ND (1.0)	--	22,000	17 J	ND (0.5)	ND (0.1)	0.35	59	30 J	-86	8.6	2.0
MW-68BR-280	BR	12/16/2020	FD	--	ND (1.0)	1.4	--	22,000	18 J	ND (0.5)	ND (0.05)	0.46	60	27 J	--	--	--
MW-69-195	BR	02/25/2020	N	LF	150	140	--	2,400	68	7.9	11	2.0	6.5	--	-5.6	7.1	7.0
MW-69-195	BR	05/01/2020	N	LF	170	170	--	2,800	53	7.0	11	1.6	12 J	--	65	7.0	9.0
MW-69-195	BR	05/01/2020	FD	--	180	170	--	2,800	52	7.2	9.6	1.6	9.2 J	--	--	--	--
MW-69-195	BR	09/29/2020	N	LF	350	380	--	2,500	58	10	20	3.3	160	--	3.0	7.9	40
MW-69-195	BR	12/03/2020	N	LF	6.0	9.4	--	2,500	70	6.0 J	5.5	1.7	23	490	110	7.7	34
MW-70-105	BR	11/30/2020	N	LF	150	150	--	3,200	84	3.2	2.9	4.3	48	ND (20)	160	7.9	8.0
MW-70BR-225	BR	11/30/2020	N	LF	1,300	1,300	--	13,000	19	2.2	3.2	1.7	7.1	ND (20)	190	7.7	8.0
MW-71-035	SA	05/01/2020	N	LF	ND (1.0)	ND (1.0)	--	13,000	15	ND (0.5)	0.19	2.2	66	--	110	7.0	39
MW-71-035	SA	12/15/2020	N	G	ND (1.0)	ND (1.0)	--	18,000	16	ND (0.5)	0.092	1.3	280	ND (100)	68	7.2	17
MW-72-080	BR	02/20/2020	N	LF	96	85	--	15,000	75	ND (2.5)	0.63	12	15	--	110	7.4	7.0
MW-72-080	BR	04/28/2020	N	LF	100	95	--	16,000	74	1.3	1.0	6.5	89	--	-2.7	7.3	44
MW-72-080	BR	09/29/2020	N	LF	79	75	--	13,000	81	1.4	0.59	6.8	86	--	-20	7.9	5.0
MW-72-080	BR	12/03/2020	N	LF	86	78	--	15,000	76	1.6	1.3	12 J	44	450 J	150	7.9	7.0
MW-72BR-200	BR	02/20/2020	N	LF	1.2	2.9	--	15,000	71	ND (0.5)	ND (0.05)	12	100	--	-59	7.4	7.0
MW-72BR-200	BR	04/28/2020	N	LF	ND (1.0)	2.1	--	16,000	73	ND (0.5)	ND (0.05)	6.5	200	--	-210	7.6	12
MW-72BR-200	BR	09/29/2020	N	LF	ND (1.0)	1.7	--	14,000	83	ND (0.5)	ND (0.05)	13	150	--	-110	8.3	4.0
MW-72BR-200	BR	12/03/2020	N	LF	ND (1.0)	ND (1.0)	--	17,000	77	ND (0.5)	ND (0.1)	14 J	120	ND (100 J)	-160	8.2	9.0
MW-73-080	BR	02/20/2020	N	LF	21	19	--	9,600	33	3.7	2.9	ND (0.1)	9.4	--	19	7.2	8.0
MW-73-080	BR	04/28/2020	N	LF	26	24	--	9,500	36	4.2	3.9	ND (0.1)	4.5	--	21	6.9	28
MW-73-080	BR	09/30/2020	N	LF	18	21	--	6,400	47	4.6 J	4.5	0.29	8.3	--	27	7.5	8.0
MW-73-080	BR	12/03/2020	N	LF	11	11	--	9,800	36	4.1	3.2	ND (0.1 J)	5.7	25 J	54	7.6	6.0
MW-74-240	BR	04/30/2020	N	3V	ND (0.2)	1.5	--	700	20	ND (0.5)	ND (0.05)	11	17	--	44	7.8	112
MW-74-240	BR	12/03/2020	N	3V	ND (0.2)	ND (1.0)	--	720	26	ND (0.5)	ND (0.1)	9.9 J	4.3	120 J	29	8.8	26
OW-03D	DA	12/11/2020	N	LF	12	13	--	9,600	23 J	ND (0.5)	--	--	2.1	54 J	18	8.3	5.0
OW-03M	MA	12/11/2020	N	LF	17	17	--	6,200	15 J	ND (0.5)	--	--	0.5	420 J	22	8.4	4.0
OW-03S	SA	12/11/2020	N	LF	19	20	--	1,400	7.5 J	5.3	--	--	0.7	56 J	130	6.7	6.0
PGE-07BR	BR	12/03/2020	N	3V	ND (1.0)	ND (1.0)	--	18,000	8.1	ND (0.5 J)	--	--	320	140	-180	8.7	93
PGE-08	BR	12/09/2020	N	3V	ND (1.0)	ND (1.0)	--	18,000	110	ND (0.5)	ND (0.05)	--	450	80 J	-35	7.9	2.0
PM-03	MA	12/14/2020	N	G	9.6	9.5	9.6	1,300	5.8	1.7	3.2	--	0.8	110 J	88	8.0	2.0
PM-04	MA	12/14/2020	N	G	16	16	16	2,400	5.4	1.4	2.2	--	2.9	39 J	97	7.6	2.0
TW-01	SA	11/04/2020	N	--	1,400	1,400	1,400	--	26	10	13	0.71	ND (0.5)	ND (20)	--	--	--

Table 3-1

Groundwater Sampling Results, 2020 Annual Reporting Period

Fourth Quarter 2020 and Annual 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)	Total 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)
TW-02D	DA	02/19/2020	N	Tap	740	670	--	5,200	18	3.4	--	--	140	--	130	8.1	2.0
TW-03D	DA	01/08/2020	N	Tap	470	460	--	6,900	--	--	2.6	--	20	ND (20)	150	7.3	1.0
TW-03D	DA	02/05/2020	N	Tap	460	480	--	7,900	--	--	2.5	--	21	ND (20)	98	7.5	9.0
TW-03D	DA	03/04/2020	N	Tap	450	390	--	7,400	--	--	2.9	--	19 J	ND (20)	180	6.8	2.0
TW-03D	DA	04/07/2020	N	Tap	440	420	--	6,800	--	--	2.9	--	21	ND (100 J)	93	7.0	1.0
TW-03D	DA	05/05/2020	N	Tap	450	410	--	7,600	--	--	3.4	--	19	ND (20)	52	7.8	3.0
TW-03D	DA	07/23/2020	N	Tap	390	410	--	7,000	--	--	2.3	--	19	ND (20)	110	7.4	6.0
TW-03D	DA	08/04/2020	N	Tap	440	430	--	7,200	--	--	2.5	--	19	ND (100)	140	8.2	3.0
TW-03D	DA	09/01/2020	N	Tap	430	420	--	7,000	--	--	2.9	--	20	36 J	120	7.3	3.0
TW-03D	DA	10/07/2020	N	Tap	420	400	--	7,000	--	--	2.8	--	19	93 J	88	7.2	1.0
TW-03D	DA	11/03/2020	N	Tap	440	420	--	7,200	--	--	2.5	--	19	79 J	150	7.3	4.0
TW-03D	DA	12/03/2020	N	Tap	440	430	--	7,400	--	--	--	--	17	ND (20)	96	7.5	2.0
TW-04	DA	06/25/2020	N	LF	3.7	4.1	--	20,000	41	0.58	--	--	70	--	120	7.5	13
TW-04	DA	11/30/2020	N	LF	6.4	6.6	--	19,000	56	0.63	--	--	48	ND (100)	-1.0	8.0	6.0
TW-05	DA	06/25/2020	N	LF	12	12	--	12,000	32	0.58	--	--	4.6	--	180	7.9	22
TW-05	DA	12/07/2020	N	LF	18	16 J	--	16,000	25 J	0.96 J	--	--	1.5	ND (100 J)	85	7.8	6.0

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 arsenic, dissolved manganese, dissolved molybdenum, dissolved selenium = Method SW6020 or SW6020A (EXMT)
   PE-01/TW-03D: dissolved and total chromium, dissolved manganese = USEPA Method 200.8; dissolved iron = USEPA Method 200.7
   Dissolved Iron = SW6010B or SW6020A (EXMT)
   Specific conductance = USEPA Method 120.1
   Nitrate/Nitrate as Nitrogen = SM 4500-NO3 F
   Total Chromium = USEPA 200.8
3. Monitoring wells MW-57-050 and MW-58-065 were dry during the Fourth Quarter 2020 sampling event. Extraction wells PE-01, TW-02D, and TW-02S were not sampled in Fourth Quarter 2020 due to construction associated with the final groundwater remedy at the site.
4. Monitoring locations sampled in Fourth Quarter 2020 are highlighted in grey.

-- = not applicable or not reportable.
µg/L = micrograms per liter.
µS/cm = microSiemens per centimeter.
3V = three volume purge.
BR = bedrock.
DA = deep interval of Alluvial Aquifer.
DTSC = Department of Toxic Substance Control.
FD = field duplicate.
G = Grab sample.
H = HydraSleeve.
J = concentration or reporting limit (RL) estimated by laboratory or data validation.
LF = Low Flow (minimal drawdown)
mg/L = milligrams per liter.
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

Title 22 Metals Groundwater Sampling Results, Fourth Quarter 2020

Fourth Quarter 2020 and Annual 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	Dissolved Antimony (µg/L)	Dissolved Arsenic (µg/L)	Dissolved Barium (µg/L)	Dissolved Beryllium (µg/L)	Dissolved Cadmium (µg/L)	Dissolved Cobalt (µg/L)	Dissolved Chromium (µg/L)	Dissolved Copper (µg/L)	Dissolved Lead (µg/L)	Dissolved Mercury (µg/L)	Dissolved Molybdenum (µg/L)	Dissolved Nickel (µg/L)	Dissolved Selenium (µg/L)	Dissolved Silver (µg/L)	Dissolved Thallium (µg/L)	Dissolved Vanadium (µg/L)	Dissolved Zinc (µg/L)
California MCL	--	--	--	--	**6**	**10**	**1,000**	**4**	**5**	**NE**	**50**	**1,000***	**15**	**2**	**NE**	**100**	**50**	**100***	**2**	**NE**	**5,000***
MW-10	SA	11/30/2020	N	LF	ND (0.5)	2.2	51	ND (0.5 J)	ND (0.5)	ND (0.5)	**120**	ND (1.0)	ND (1.0)	ND (0.2)	21	11	6.0	ND (0.5)	ND (0.5 J)	14	ND (10)
MW-10	SA	11/30/2020	FD	--	ND (0.5)	2.2	50	ND (0.5 J)	ND (0.5)	ND (0.5)	**120**	ND (1.0)	ND (1.0)	ND (0.2)	20	11	5.3	ND (0.5)	ND (0.5 J)	14	ND (10)
MW-12	SA	12/14/2020	N	LF	ND (0.5)	**45**	41	ND (0.5 J)	ND (0.5)	ND (0.5)	**1,900**	ND (1.0)	ND (1.0)	ND (0.2 J)	10	8.4 J	28	ND (0.5)	ND (0.5 J)	20	ND (10)
MW-12	SA	12/14/2020	FD	--	ND (0.5)	**48**	43	ND (0.5 J)	ND (0.5)	ND (0.5)	**1,900**	ND (1.0)	ND (1.0)	ND (0.2 J)	10	6.5 J	28	ND (0.5)	ND (0.5 J)	20	ND (10)
MW-14	SA	12/10/2020	N	LF	ND (0.5)	ND (0.1)	190	ND (0.5)	ND (0.5)	ND (0.5)	13	ND (1.0)	ND (1.0)	ND (0.2 J)	10	ND (1.0 J)	2.0	ND (0.5)	ND (0.5)	2.5	ND (10)
MW-22	SA	12/8/2020	N	LF	ND (0.5)	**14**	120	ND (0.5)	ND (0.5)	3.0	ND (1.0)	ND (1.0)	1.4	ND (0.2)	32	4.4	ND (0.5)	ND (0.5)	ND (0.5)	1.1	12
MW-22	SA	12/8/2020	FD	--	ND (0.5)	**15**	130	ND (0.5)	ND (0.5)	3.2	ND (1.0)	ND (1.0)	1.5	ND (0.2)	33	4.6	ND (0.5)	ND (0.5)	ND (0.5)	1.1	12
MW-24A	SA	12/1/2020	N	LF	ND (0.5)	0.43	23	ND (0.5 J)	ND (0.5)	ND (0.5)	ND (1.0)	ND (1.0)	ND (1.0)	ND (0.2 J)	120	1.2	ND (0.5)	ND (0.5)	ND (0.5 J)	ND (1.0)	ND (10)
MW-24A	SA	12/1/2020	FD	--	ND (0.5)	0.35	23	ND (0.5 J)	ND (0.5)	ND (0.5)	ND (1.0)	ND (1.0)	ND (1.0)	0.61 J	110	1.4	ND (0.5)	ND (0.5)	ND (0.5 J)	ND (1.0)	ND (10)
MW-24B	DA	12/1/2020	N	LF	ND (0.5)	3.8	74	ND (2.5 J)	ND (0.5)	ND (0.5)	**65**	ND (1.0)	ND (1.0)	ND (0.2)	63	3.4	1.8	ND (0.5)	ND (0.5 J)	3.6	ND (10)
MW-26	SA	12/3/2020	N	LF	ND (0.5)	0.74	33 J	ND (0.5)	ND (0.5)	ND (0.5)	**2,200**	ND (1.0)	ND (1.0)	ND (0.2 J)	33	ND (1.0)	31 J	ND (0.5 J)	ND (0.5)	7.5	ND (10)
MW-26	SA	12/3/2020	FD	--	ND (0.5)	0.88	33 J	ND (0.5)	ND (0.5)	ND (0.5)	**2,500**	ND (1.0)	ND (1.0)	ND (0.2 J)	32	ND (1.0)	31 J	ND (0.5 J)	ND (0.5)	7.9	ND (10)
MW-35-060	SA	12/8/2020	N	LF	ND (0.5)	1.3	72	ND (0.5)	ND (0.5)	ND (0.5)	21	1.7	ND (1.0)	ND (0.2)	10	1.3	1.3	ND (0.5)	ND (0.5)	2.9	ND (10)
MW-35-060	SA	12/8/2020	FD	--	ND (0.5)	1.2	72	ND (0.5)	ND (0.5)	ND (0.5)	21	1.5	ND (1.0)	ND (0.2)	9.8	1.2	0.99	ND (0.5)	ND (0.5)	3.0	ND (10)
MW-35-135	DA	12/8/2020	N	LF	ND (0.5)	0.97	38	ND (0.5)	ND (0.5)	ND (0.5)	27	2.6	ND (1.0)	ND (0.2)	21	1.7	1.0	ND (0.5)	ND (0.5)	1.5	ND (10)
MW-35-135	DA	12/8/2020	FD	--	ND (0.5)	1.0	38	ND (0.5)	ND (0.5)	ND (0.5)	27	2.6	ND (1.0)	ND (0.2)	21	1.7	1.1	ND (0.5)	ND (0.5)	1.6	ND (10)
MW-59-100	SA	12/8/2020	N	LF	ND (0.5)	2.2	69	ND (0.5)	ND (0.5)	ND (0.5)	**2,900**	ND (1.0)	ND (1.0)	ND (0.2)	4.8	2.1	3.2 J	ND (0.5)	ND (0.5)	ND (1.0)	ND (10)
MW-59-100	SA	12/8/2020	FD	--	ND (0.5)	2.2	70	ND (0.5)	ND (0.5)	ND (0.5)	**2,800**	ND (1.0)	ND (1.0)	ND (0.2)	4.7	2.2	4.1 J	ND (0.5)	ND (0.5)	ND (1.0)	ND (10)

Notes:

1. Title 22 metals are the metals listed in California Code of Regulations, Title 22, Section 66261.24(a)(2)(A).
2. Metals were analyzed by USEPA Methods SW6020 or SW7470A (mercury).
3. The MCLs listed are the California primary drinking water standards, except where noted. The MCLs are intended to apply to total fraction.
4. Bold values exceed the California MCLs.

* = Secondary USEPA MCL.
-- = not applicable or not reportable.
µg/L = micrograms per liter.
DA = deep interval of Alluvial Aquifer.
FD = field duplicate.
ID = identification.
J = concentration or reporting limit estimated by laboratory or data validation.
LF = Low Flow (minimal drawdown)
MCL = maximum contaminant level.
ND = not detected at listed reporting limit.
NE = not established.
SA = shallow interval of Alluvial Aquifer.
USEPA = United States Environmental Protection Agency.

Table 3-3

Surface Water Sampling Results, 2020 Annual Reporting Period

Fourth Quarter 2020 and Annual 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	1/29/2020	N	ND (0.2)	ND (1.0)	8.1	930	4.7	1.6	0.35	2.2	ND (20)	93	1.6	120	ND (5.0)
C-BNS	2/19/2020	N	ND (0.2)	ND (1.0)	8.2	850	4.6	1.6	0.32	2.2	80 J	130 J	1.3	120 J	7.5
C-BNS	4/29/2020	N	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-BNS	8/19/2020	N	ND (0.2)	ND (1.0)	8.4	880	4.7	1.5	0.39	2.6	23 J	51 J	0.54	120 J	ND (5.0)
C-BNS	11/18/2020	N	ND (0.2)	ND (1.0)	8.7	850	4.4	1.5	0.27	2.4	ND (20)	50	0.79	110	ND (5.0)
C-BNS	11/18/2020	FD	ND (0.2)	ND (1.0)	--	890	4.4	1.5	0.28	2.4	ND (20)	36	1.0	110	ND (5.0)
C-CON-D	1/30/2020	N	ND (0.2)	ND (1.0)	8.1	890	4.6	1.6	0.3	2.2	27 J	84	2.0 J	120	ND (5.0)
C-CON-D	2/20/2020	N	ND (0.2)	ND (1.0)	8.1	820	4.5 J	1.4	0.28	2.1	29	78	1.4	110	7.0
C-CON-D	4/30/2020	N	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-D	8/20/2020	N	ND (0.2)	ND (1.0)	8.6	820	4.8	1.6	0.43	2.6	ND (20 J)	32 J	2.1	110 J	ND (5.0)
C-CON-D	11/19/2020	N	ND (0.2)	ND (1.0)	8.7	870	4.7	1.7	--	2.3	ND (20)	26	0.96	110	ND (5.0)
C-CON-S	1/30/2020	N	ND (0.2)	ND (1.0)	8.1	890	4.6	1.6	0.36	2.2	32 J	53	2.2 J	110	ND (5.0)
C-CON-S	2/20/2020	N	ND (0.2)	ND (1.0)	8.2	830	4.6 J	1.4	0.33	2.1	28	67 J	1.2	110	5.0
C-CON-S	2/20/2020	FD	ND (0.2)	ND (1.0)	--	870	4.7	1.6	0.29	2.3	38	88	0.99	120 J	5.5
C-CON-S	4/30/2020	N	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-CON-S	8/20/2020	N	ND (0.2)	ND (1.0)	8.5	770	4.5	1.4	0.39	2.5	ND (20 J)	25 J	0.62	110 J	ND (5.0)
C-CON-S	11/19/2020	N	ND (0.2)	ND (1.0)	8.7	860	4.5	1.6	--	2.2	ND (20)	34	1.1	110	ND (5.0)
C-I-3-D	1/29/2020	N	ND (0.2)	ND (1.0)	8.1	920	4.4	1.6	0.35	2.1	ND (20)	75	1.2	110	10
C-I-3-D	2/19/2020	N	ND (0.2)	ND (1.0)	8.1	860	4.6	1.6	0.36	2.1	86 J	91 J	0.84	120 J	8.0
C-I-3-D	4/29/2020	N	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-D	8/19/2020	N	ND (0.2)	ND (1.0)	8.7	860	4.8	1.6	0.38	2.6	51 J	56 J	0.62	120 J	ND (5.0)
C-I-3-D	11/18/2020	N	ND (0.2)	ND (1.0)	8.7	860	4.6	1.6	0.33	2.4	ND (20)	90	1.3	110	ND (5.0)
C-I-3-S	1/29/2020	N	ND (0.2)	ND (1.0)	8.1	920	4.4	1.5	0.29	2.2	ND (20)	120	1.1	110	ND (5.0)
C-I-3-S	2/19/2020	N	ND (0.2)	ND (1.0)	8.2	860	4.6	1.6	0.35	2.2	44 J	75	1.1	120 J	5.0
C-I-3-S	4/29/2020	N	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-I-3-S	8/19/2020	N	ND (0.2 J)	ND (1.0)	8.5	880	4.7	1.6	0.46	2.5	38 J	40 J	ND (0.5)	120 J	ND (5.0)
C-I-3-S	11/18/2020	N	ND (0.2)	ND (1.0)	8.7	850	4.6	1.7	0.44	2.5	ND (20)	44	1.0	110	ND (5.0)
C-MAR-D	1/30/2020	N	ND (0.2)	ND (1.0)	8.8	1,000	5.1	1.6	0.31	2.6	380 J	1,100	92 J	130	28
C-MAR-D	2/20/2020	N	ND (0.2)	ND (1.0)	8.0	880	4.7 J	1.5	0.35	2.1	69	400 J	14	110	24
C-MAR-D	4/30/2020	N	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-D	8/20/2020	N	ND (0.2)	ND (1.0)	8.7	840	4.7	1.5	0.35	2.5	ND (20 J)	150 J	3.8	110 J	9.0
C-MAR-D	8/20/2020	FD	ND (0.2)	ND (1.0)	--	800	4.8	1.6	0.36	2.4	ND (20 J)	200 J	2.5	110 J	5.5
C-MAR-D	11/19/2020	N	ND (0.2)	ND (1.0)	8.6	940	4.8	1.5	--	2.3	ND (20)	350	9.9	110	14
C-MAR-S	1/30/2020	N	ND (0.2)	ND (1.0)	8.9	1,100	5.0	1.4	0.27	2.7	880 J	1,400	110 J	130	36
C-MAR-S	2/20/2020	N	ND (0.2)	ND (1.0)	8.1	880	4.7 J	1.5	0.28	2.3	250	430 J	21	120	30
C-MAR-S	4/30/2020	N	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-MAR-S	8/20/2020	N	ND (0.2)	ND (1.0)	8.8	790	4.9	1.5	0.39	2.6	ND (20 J)	200 J	5.5	110 J	11
C-MAR-S	11/19/2020	N	ND (0.2)	ND (1.0)	8.5	880	4.5	1.4	--	2.3	21 J	110	3.4	110	ND (5.0)
C-NR1-D	1/30/2020	N	ND (0.2)	ND (1.0)	8.1	900	4.5	1.7	0.27	2.2	ND (20 J)	57	2.0 J	110	ND (5.0)
C-NR1-D	2/20/2020	N	ND (0.2)	ND (1.0)	8.1	840	4.6 J	1.5	0.35	2.1	38 J	80 J	0.84	120	6.0
C-NR1-D	4/30/2020	N	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-D	8/20/2020	N	ND (0.2)	ND (1.0)	8.5	750	4.6	1.5	0.35	2.4	200 J	150 J	0.51	110	ND (5.0)
C-NR1-D	11/19/2020	N	ND (0.2)	ND (1.0)	8.7	850	4.6	1.5	--	2.4	ND (20)	34	0.96	110	ND (5.0)
C-NR1-S	1/30/2020	N	ND (0.2)	ND (1.0)	8.0	900	4.4	1.6	0.27	2.1	28 J	26	2.6 J	110	ND (5.0)
C-NR1-S	2/20/2020	N	ND (0.2)	ND (1.0)	8.1	840	4.6 J	1.5	0.35	2.2	ND (20 J)	83 J	1.1	120	ND (5.0)
C-NR1-S	4/30/2020	N	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)

Table 3-3

Surface Water Sampling Results, 2020 Annual Reporting Period

Fourth Quarter 2020 and Annual 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-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-NR1-S	8/20/2020	N	ND (0.2)	ND (1.0)	8.4	780	4.5	1.5	0.37	2.4	ND (20 J)	22 J	0.59	110 J	ND (5.0)
C-NR1-S	11/19/2020	N	ND (0.2)	ND (1.0)	8.7	860	4.5	1.5	--	2.3	ND (20)	ND (20)	0.98	110	ND (5.0)
C-NR3-D	1/30/2020	N	ND (0.2)	ND (1.0)	8.1	910	4.5	1.5	0.33	2.1	44 J	54	2.3 J	110	ND (5.0)
C-NR3-D	1/30/2020	FD	ND (0.2)	ND (1.0)	--	900	4.4	1.6	0.39	2.1	31 J	37	2.1 J	110	ND (5.0)
C-NR3-D	2/20/2020	N	ND (0.2)	ND (1.0)	8.1	820	4.6 J	1.6	0.27	2.1	66 J	120 J	1.7	120	5.0
C-NR3-D	4/30/2020	N	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-D	8/20/2020	N	ND (0.2)	ND (1.0)	8.5	800	4.6	1.4	0.39	2.4	ND (20 J)	25 J	0.6	110 J	ND (5.0)
C-NR3-D	11/19/2020	N	ND (0.2)	ND (1.0)	8.6	860	4.5	1.4	--	2.3	ND (20)	22	0.7	100	ND (5.0)
C-NR3-S	1/30/2020	N	ND (0.2)	ND (1.0)	8.1	910	4.3	1.6	0.33	2.0	51 J	97	1.7 J	110	ND (5.0)
C-NR3-S	2/20/2020	N	ND (0.2)	ND (1.0)	8.1	820	4.7 J	1.5	0.29	2.2	20 J	91 J	1.3	120	ND (5.0)
C-NR3-S	4/30/2020	N	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-NR3-S	8/20/2020	N	ND (0.2)	ND (1.0)	8.4	800	4.6	1.5	0.38	2.4	ND (20 J)	22 J	0.57	110 J	ND (5.0)
C-NR3-S	11/19/2020	N	ND (0.2)	ND (1.0)	8.6	870	4.6	1.5	--	2.3	ND (20)	ND (20)	0.68	110	ND (5.0)
C-NR3-S	11/19/2020	FD	ND (0.2)	ND (1.0)	--	870	4.5	1.5	--	2.2	ND (20)	22	0.67	100	ND (5.0)
C-NR4-D	1/30/2020	N	ND (0.2)	ND (1.0)	8.1	890	4.3	1.5	0.36	2.1	ND (20 J)	65	1.5 J	110	ND (5.0)
C-NR4-D	2/20/2020	N	ND (0.2)	ND (1.0)	8.1	880	4.7 J	1.5	0.38	2.1	22 J	72 J	1.0	120	5.5
C-NR4-D	4/30/2020	N	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-D	8/20/2020	N	ND (0.2 J)	ND (1.0)	8.4	850	4.7	1.5	0.44	2.4	ND (20 J)	21 J	0.71	110 J	ND (5.0)
C-NR4-D	8/20/2020	FD	ND (0.2)	ND (1.0)	--	780	4.7	1.6	0.54	2.4	ND (20 J)	27 J	1.0	110 J	ND (5.0)
C-NR4-D	11/19/2020	N	ND (0.2)	ND (1.0)	8.6	890	4.7	1.5	--	2.3	ND (20)	ND (20)	0.57	110	ND (5.0)
C-NR4-S	1/30/2020	N	ND (0.2)	ND (1.0)	8.1	890	4.4	1.5	0.36	2.1	22 J	38	1.5 J	110	ND (5.0)
C-NR4-S	2/20/2020	N	ND (0.2)	ND (1.0)	8.1	860	4.5 J	1.5	0.37	2.1	30	120 J	1.1	110	ND (5.0)
C-NR4-S	4/30/2020	N	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-NR4-S	8/20/2020	N	ND (0.2)	ND (1.0)	8.3	820	4.7	1.5	0.43	2.5	ND (20 J)	31 J	0.65	110 J	ND (5.0)
C-NR4-S	11/19/2020	N	ND (0.2)	ND (1.0)	8.6	860	4.7	1.7	--	2.4	ND (20)	ND (20)	0.62	120	ND (5.0)
C-R22A-D	1/29/2020	N	ND (0.2)	ND (1.0)	8.1	940	4.8	1.6	0.36	2.2	ND (20)	130	2.6	120	7.0
C-R22A-D	2/19/2020	N	ND (0.2)	ND (1.0)	8.1	890	4.5	1.6	0.33	2.2	110 J	130 J	1.2	120 J	ND (5.0)
C-R22A-D	4/29/2020	N	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-D	8/19/2020	N	ND (0.2)	ND (1.0)	8.5	800	4.6	1.4	0.32	2.4	37 J	47 J	0.65	110 J	ND (5.0)
C-R22A-D	11/18/2020	N	ND (0.2)	ND (1.0)	8.7	870	4.3	1.6	0.25	2.2	ND (20)	25	1.8	110	ND (5.0)
C-R22A-S	1/29/2020	N	ND (0.2)	ND (1.0)	8.1	950	4.6	1.6	0.35	2.3	ND (20)	120	2.7	120	7.0
C-R22A-S	1/29/2020	FD	ND (0.2)	ND (1.0)	--	930	4.9	1.6	0.36	2.3	27	160	2.9	130	6.5
C-R22A-S	2/19/2020	N	ND (0.2)	ND (1.0)	8.1	870	4.7	1.6	0.33	2.2	32 J	90	1.4	120 J	ND (5.0)
C-R22A-S	4/29/2020	N	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-R22A-S	8/19/2020	N	ND (0.2)	ND (1.0)	8.4	820	4.8	1.4	0.3	2.6	ND (20 J)	58 J	0.74	110 J	ND (5.0)
C-R22A-S	11/18/2020	N	ND (0.2)	ND (1.0)	8.7	860	4.4	1.5	0.26	2.3	27	60	1.6	110	ND (5.0)
C-R27-D	1/29/2020	N	ND (0.2)	ND (1.0)	8.1	940	4.6	1.6	0.25	2.1	110	180	4.0	120	14
C-R27-D	2/19/2020	N	ND (0.2)	ND (1.0)	8.1	870	4.6	1.6	0.28	2.1	39 J	260 J	2.1	120 J	5.0
C-R27-D	2/19/2020	FD	ND (0.2)	ND (1.0)	--	890	4.6	1.6	0.28	2.2	61 J	190 J	1.1	120 J	5.0
C-R27-D	4/29/2020	N	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-D	8/19/2020	N	ND (0.2)	ND (1.0)	8.4	860	4.6	1.5	0.34	2.4	23 J	54 J	0.67	110 J	ND (5.0)
C-R27-D	11/18/2020	N	ND (0.2)	ND (1.0)	8.7	880	4.4	1.5	0.24	2.4	ND (20)	32	1.0	110	ND (5.0)
C-R27-S	1/29/2020	N	ND (0.2)	ND (1.0)	8.1	960	4.6	1.5	0.31	2.2	ND (20)	170	2.0	120	10
C-R27-S	2/19/2020	N	ND (0.2)	ND (1.0)	8.1	860	4.7	1.7	0.28	2.3	58 J	270 J	1.1	120 J	ND (5.0)
C-R27-S	4/29/2020	N	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

Table 3-3

Surface Water Sampling Results, 2020 Annual Reporting Period

Fourth Quarter 2020 and Annual 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-R27-S	8/19/2020	N	ND (0.2 J)	ND (1.0)	8.4	850	4.6	1.4	0.34	2.4	22 J	58 J	0.6	110 J	ND (5.0)
C-R27-S	8/19/2020	FD	ND (0.2 J)	ND (1.0)	--	870	4.9	1.5	0.36	2.6	26 J	190 J	0.69	120 J	ND (5.0)
C-R27-S	11/18/2020	N	ND (0.2)	ND (1.0)	8.7	860	4.4	1.6	0.3	2.5	ND (20)	38	0.93	110	ND (5.0)
C-TAZ-D	1/29/2020	N	ND (0.2)	ND (1.0)	8.2	920	4.5	1.6	0.29	2.2	26	150	2.2	110	6.5
C-TAZ-D	2/19/2020	N	ND (0.2)	ND (1.0)	8.1	840	4.5	1.5	0.27	2.2	33 J	120 J	1.4	120 J	8.5
C-TAZ-D	4/29/2020	N	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-D	8/19/2020	N	ND (0.2)	ND (1.0)	8.7	880	4.6	1.5	0.35	2.5	ND (20 J)	53 J	ND (0.5)	120 J	ND (5.0)
C-TAZ-D	11/18/2020	N	ND (0.2)	ND (1.0)	8.7	850	4.5	1.5	0.27	2.4	ND (20)	42	1.3	110	5.5
C-TAZ-S	1/29/2020	N	ND (0.2)	ND (1.0)	8.2	920	4.6	1.7	0.35	2.2	ND (20)	100	1.6	110	5.5
C-TAZ-S	2/19/2020	N	ND (0.2)	ND (1.0)	8.1	850	4.4	1.6	0.32	2.2	30 J	84 J	1.0	120 J	5.0
C-TAZ-S	4/29/2020	N	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)
C-TAZ-S	8/19/2020	N	ND (0.2)	ND (1.0)	8.9	860	4.6	1.5	0.43	2.5	ND (20 J)	39 J	0.52	110 J	ND (5.0)
C-TAZ-S	11/18/2020	N	ND (0.2)	ND (1.0)	8.6	840	4.5	1.5	0.28	2.4	ND (20)	37	1.3	110	ND (5.0)
R-19	1/30/2020	N	ND (0.2)	ND (1.0)	8.0	890	4.7	1.6	0.37	2.1	38 J	47	2.5 J	110	ND (5.0)
R-19	2/20/2020	N	ND (0.2)	ND (1.0)	8.1	830	4.7 J	1.5	0.33	2.1	27 J	93 J	1.3	120	ND (5.0)
R-19	4/30/2020	N	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-19	8/20/2020	N	ND (0.2)	ND (1.0)	8.7	800	4.5	1.5	0.36	2.5	ND (20 J)	41 J	0.72	110 J	ND (5.0)
R-19	11/19/2020	N	ND (0.2)	ND (1.0)	8.6	860	4.7	1.4	--	2.4	ND (20)	ND (20)	1.6	110	ND (5.0)
R-28	1/29/2020	N	ND (0.2)	ND (1.0)	8.1	980	4.7	1.6	0.32	2.2	ND (20)	180	2.6	120	8.5
R-28	2/19/2020	N	ND (0.2)	ND (1.0)	8.1	860	4.6	1.6	0.33	2.1	63 J	150 J	1.8	120 J	7.5
R-28	4/29/2020	N	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)
R-28	8/19/2020	N	ND (0.2)	ND (1.0)	8.4	860	4.7	1.5	0.37	2.5	41 J	38 J	0.95	110 J	ND (5.0)
R-28	11/18/2020	N	ND (0.2)	ND (1.0)	8.7	890	4.5	1.6	0.28	2.5	ND (20)	40	1.5	110	ND (5.0)
R-28	11/18/2020	FD	ND (0.2)	ND (1.0)	--	890	4.5	1.5	0.3	2.5	ND (20)	45	1.3	110	ND (5.0)
R63	1/29/2020	N	ND (0.2)	ND (1.0)	8.1	920	4.4	1.6	0.3	2.1	ND (20)	110	3.6	110	ND (5.0)
R63	2/19/2020	N	ND (0.2)	ND (1.0)	8.2	860	4.8	1.6	0.28	2.3	43 J	170 J	2.9	120 J	ND (5.0)
R63	4/29/2020	N	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)
R63	8/19/2020	N	ND (0.2 J)	ND (1.0)	8.5	830	4.9	1.5	0.35	2.6	ND (20 J)	28 J	2.4	120 J	ND (5.0)
R63	11/18/2020	N	ND (0.2)	ND (1.0)	8.6	870	4.6	1.5	0.28	2.3	ND (20)	67	2.4	110	ND (5.0)
RRB	1/30/2020	N	ND (0.2)	ND (1.0)	7.8	2,800	7.0	2.3	1.1	2.4	ND (100 J)	1,100	21 J	80	15
RRB	2/20/2020	N	ND (0.2)	ND (1.0)	8.1	870	4.8	1.5	0.22	2.1	21	160	2.7	97 J	ND (5.0)
RRB	4/30/2020	N	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)
RRB	8/20/2020	N	ND (0.2)	ND (1.0)	8.3	850	4.7	1.4	0.25	2.3	ND (20 J)	30 J	7.1	110 J	ND (5.0)
RRB	11/19/2020	N	ND (0.2)	ND (1.0)	8.7	870	4.6	1.4	--	2.2	ND (20)	41	5.2	110	6.5
SW1	1/29/2020	N	ND (0.2)	ND (1.0)	8.5	1,100	--	--	--	--	--	--	--	--	--
SW1	2/19/2020	N	ND (0.2)	ND (1.0)	7.7	1,200	--	--	--	--	--	--	--	--	--
SW1	4/30/2020	N	ND (0.2)	ND (1.0)	7.7	950	--	--	--	--	--	--	--	--	--
SW1	8/20/2020	N	ND (0.2)	ND (1.0)	8.3	880	--	--	--	--	--	--	--	--	--
SW1	11/18/2020	N	ND (0.2)	ND (1.0)	8.3	930	--	--	--	--	--	--	--	--	--

Table 3-3

Surface Water Sampling Results, 2020 Annual Reporting Period

Fourth Quarter 2020 and Annual 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)
SW2	1/29/2020	N	ND (0.2)	ND (1.0)	7.4	1,500	--	--	--	--	--	--	--	--	--
SW2	2/19/2020	N	ND (0.2)	ND (1.0)	8.0	1,600	--	--	--	--	--	--	--	--	--
SW2	4/30/2020	N	ND (0.2)	ND (1.0)	7.6	940	--	--	--	--	--	--	--	--	--
SW2	8/20/2020	N	ND (0.2)	ND (1.0)	8.4	850	--	--	--	--	--	--	--	--	--
SW2	11/18/2020	N	ND (0.2)	ND (1.0)	8.1	910	--	--	--	--	--	--	--	--	--

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 manganese, dissolved molybdenum, dissolved selenium = SW6020
   Dissolved iron, total iron = SW6010B
   Specific conductance = USEPA 120.1
   Nitrate/Nitrate as Nitrogen = SM 4500-NO3 F
   Total suspended solids = SM 2540D
3. Monitoring locations sampled in Fourth Quarter 2020 are highlighted in grey.

-- = 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.

Table 5-1

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

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

PG&E Topock Compressor Station, Needles, California

Extraction Well ID	November 2020 Average Pumping Rate[a] (gpm)	November 2020 Volume Pumped (gal)	December 2020 Average Pumping Rate[a] (gpm)	December 2020 Volume Pumped (gal)	Fourth Quarter 2020 Average Pumping Rate[a] (gpm)	Fourth Quarter 2020 Volume Pumped (gal)	Annual 2020 Average Pumping Rate[a] (gpm)	Annual 2020 Volume Pumped (gal)
TW-02S	0.00	0	0.00	0	0.00	0	0.03	15,500
TW-02D	0.15	6,464	0.00	0	0.07	6,464	0.03	14,113
TW-03D	124.74	5,388,781	125.53	5,603,591	125.13	10,992,372	119.03	62,525,999
PE-01	0.00	0	0.00	0	0.00	0	0.00	0
TOTAL	**124.9**	**5,395,245**	**125.5**	**5,603,591**	**125.2**	**10,998,836**	**119.1**	**62,555,612**

Chromium Removed This Quarter (kg)	25.1
Chromium Removed This Year (kg)	100
Chromium Removed Project to Date (kg)	4,480
Chromium Removed This Quarter (lb)	55
Chromium Removed This Year (lb)	221
Chromium Removed Project to Date (lb)	9,880

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 October 1, 2020 through December 31, 2020.

gal = gallons.

gpm = gallons per minute.

ID = identification.

IM = Interim Measure.

kg = kilograms.

lb = pounds.

Table 5-2

Wells Monitored for Conditional Shutdown of PE-01, 2020 Annual Reporting Period

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

PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Q4 2020 Sample Date	Q4 2020 Sample Method	Hexavalent Chromium 2014 Maximum Concentration (µg/L)	Hexavalent Chromium Q1 2020 Result (µg/L)	Hexavalent Chromium Q2 2020 Result (µg/L)	Hexavalent Chromium Q3 2020 Result (µg/L)	Hexavalent Chromium Q4 2020 Result (µg/L)	Dissolved Chromium 2014 Maximum Concentration (µg/L)	Dissolved Chromium Q1 2020 Result (µg/L)	Dissolved Chromium Q2 2020 Result (µg/L)	Dissolved Chromium Q3 2020 Result (µg/L)	Dissolved Chromium Q4 2020 Result (µg/L)	Q4 2020 Result Exceeded 2014 Maximum Concentration?
MW-20-070	Shallow	12/04/2020	LF	2,200	--	**2,500**	--	1,600 J	2,400	--	**2,500**	--	1,700	No
MW-20-100	Middle	12/04/2020	LF	2,900	--	750	--	610 J	2,900	--	760	--	660	No
MW-20-130	Deep	12/04/2020	LF	9,100	--	5,900	--	4,100 J	9,000	--	6,100	--	4,500	No
MW-26	Shallow	12/03/2020	LF	2,400	--	2,300	--	2,200	2,300	--	2,300	--	**2,500**	**Yes**
MW-27-020	Shallow	12/03/2020	LF	ND (0.20)	--	--	--	ND (0.2)	ND (1.0)	--	--	--	ND (1.0)	No
MW-27-060	Middle	12/03/2020	LF	ND (0.20)	--	--	--	ND (0.2)	ND (1.0)	--	--	--	ND (1.0)	No
MW-27-085	Deep	12/03/2020	LF	ND (1.0)	--	ND (0.2)	--	ND (1.0)	ND (1.0)	--	ND (1.0)	--	ND (1.0)	No
MW-28-025	Shallow	12/15/2020	LF	ND (0.20)	--	ND (0.2)	--	ND (0.2)	ND (1.0)	--	ND (1.0)	--	ND (1.0)	No
MW-28-090	Deep	12/15/2020	LF	ND (0.20)	--	ND (0.2)	--	ND (0.2)	ND (1.0)	--	ND (1.0)	--	ND (1.0)	No
MW-30-030	Shallow	12/07/2020	LF	0.21	--	--	--	ND (1.0)	ND (1.0)	--	--	--	ND (1.0 J)	No
MW-30-050	Middle	12/07/2020	LF	ND (0.20)	--	--	--	ND (0.2)	ND (1.0)	--	--	--	ND (1.0 J)	No
MW-31-060	Shallow	12/07/2020	LF	600	--	320	--	410	660	--	280	--	400 J	No
MW-31-135	Deep	12/07/2020	LF	12	--	--	--	**15**	12	--	--	--	**13 J**	**Yes**
MW-32-020	Shallow	12/07/2020	LF	ND (1.0)	--	--	--	ND (1.0)	ND (5.0)	--	--	--	ND (1.0 J)	No
MW-32-035	Shallow	12/07/2020	LF	ND (1.0)	--	ND (0.2)	--	ND (1.0)	ND (1.0)	--	ND (1.0)	--	ND (1.0 J)	No
MW-33-040	Shallow	12/02/2020	LF	0.28	--	ND (0.2)	--	ND (1.0)	ND (1.0)	--	ND (1.0)	--	**1.8**	**Yes**
MW-33-090	Middle	12/02/2020	LF	13.3	--	3.3	--	3.1	15.5	--	6.3	--	11	No
MW-33-150	Deep	12/02/2020	LF	12	--	4.9	--	5	10.8	--	**11**	--	8.8	No
MW-33-210	Deep	12/02/2020	LF	13	--	7.2	--	12	13.5	--	**15**	--	**15**	**Yes**
MW-34-055	Middle	12/03/2020	LF	ND (0.20)	--	--	--	ND (0.2)	ND (1.0)	--	--	--	ND (1.0)	No
MW-34-080	Deep	12/03/2020	LF	ND (0.20)	--	ND (0.2)	--	ND (0.2)	ND (1.0)	--	ND (1.0)	--	ND (1.0)	No
MW-34-100	Deep	12/03/2020	LF	263	ND (0.20)	ND (0.2)	ND (0.2)	ND (1.0)	270	4	ND (1.0)	ND (1.0)	ND (1.0)	No
MW-36-020	Shallow	12/15/2020	LF	ND (0.20)	--	--	--	ND (0.2)	ND (1.0)	--	--	--	ND (1.0)	No
MW-36-040	Shallow	12/15/2020	LF	0.34	--	--	--	ND (0.2)	ND (1.0)	--	--	--	ND (1.0)	No
MW-36-050	Middle	12/15/2020	LF	ND (0.20)	--	--	--	ND (0.2)	ND (1.0)	--	--	--	ND (1.0)	No
MW-36-070	Middle	12/15/2020	LF	ND (0.20)	--	--	--	0.2	ND (1.0)	--	--	--	ND (1.0)	No
MW-36-090	Deep	12/15/2020	LF	ND (0.20)	--	ND (0.2)	--	ND (0.2)	ND (1.0)	--	ND (1.0)	--	**1.7**	**Yes**
MW-36-100	Deep	12/15/2020	LF	65	--	12	--	4.5	62	--	11	--	6	No
MW-39-040	Shallow	12/11/2020	LF	ND (0.20)	--	--	--	ND (0.2)	ND (1.0)	--	--	--	ND (1.0)	No
MW-39-050	Middle	12/11/2020	LF	ND (0.20)	--	--	--	ND (0.2)	ND (1.0)	--	--	--	ND (1.0)	No
MW-39-060	Middle	12/11/2020	LF	ND (0.20)	--	--	--	ND (0.2)	ND (1.0)	--	--	--	ND (1.0)	No
MW-39-070	Middle	12/11/2020	LF	ND (0.20)	--	--	--	ND (0.2)	ND (1.0)	--	--	--	ND (1.0)	No
MW-39-080	Deep	12/11/2020	LF	ND (0.20)	--	--	--	**0.47**	ND (1.0)	--	--	--	**1.2**	**Yes**
MW-39-100	Deep	12/15/2020	LF	57	--	**93**	--	**120**	49	--	**91**	--	**110**	**Yes**
MW-42-030	Shallow	12/16/2020	LF	0.54	--	--	--	ND (0.2)	ND (1.0)	--	--	--	ND (1.0)	No
MW-42-055	Middle	12/16/2020	LF	0.35	--	ND (0.20)	--	ND (0.20)	2.8	--	ND (1.0)	--	ND (1.0)	No
MW-42-065	Middle	12/16/2020	LF	ND (0.20)	--	ND (0.20)	--	ND (0.20)	ND (1.0)	--	ND (1.0)	--	ND (1.0)	No
MW-44-070	Middle	12/11/2020	LF	ND (0.20)	--	ND (0.20)	--	ND (0.20)	ND (1.0)	--	ND (1.0)	--	ND (1.0)	No
MW-44-115	Deep	12/11/2020	LF	41.6	4.8	4	3.4	2.7	42.9	5.9	3.7	4.1	4.4	No
MW-44-125	Deep	12/11/2020	LF	4.0 J	--	ND (0.2)	--	ND (0.20)	5.9	--	1	--	ND (1.0)	No
MW-45-095a	Deep	--	--	13.7*	--	--	--	--	14.2*	--	--	--	--	--
MW-46-175	Deep	12/15/2020	LF	46.3	9.1	5.3	5.1	7.9	46.1	17	23	5.5	9	No
MW-46-205	Deep	12/15/2020	LF	5.5	--	1.2	--	ND (1.0)	4.8	--	2.1	--	3.6	No
MW-47-055	Shallow	11/30/2020	LF	16	--	16	--	**17**	16	--	16	--	**17**	**Yes**
MW-47-115	Deep	11/30/2020	LF	24	--	24	--	18	20	--	**24**	--	18	No
MW-51	Middle	12/03/2020	LF	4,800	--	3,300	--	3,300	4,800	--	3,200	--	3,700	No
PE-01	Deep	--	--	5.6	--	--	--	--	6	--	--	--	--	--
TW-04	Deep	11/30/2020	LF	7.4*	--	3.7	--	6.4	20	--	4.1	--	6.6	No

Table 5-2

Wells Monitored for Conditional Shutdown of PE-01, 2020 Annual Reporting Period

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

PG&E Topock Compressor Station, Needles, California

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.
7. Monitoring results from Fourth Quarter 2020 are highlighted in grey.

-- = 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.
Q1 = first quarter.
Q2 = second quarter.
Q3 = third quarter.
Q4 = fourth quarter.
Tap = sampled from tap of extraction well.

Reference:

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 5-3

Groundwater Elevation Results, Fourth Quarter 2020

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

PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	November Average Groundwater Elevation (ft amsl)	December Average Groundwater Elevation (ft amsl)	Quarterly Average Groundwater Elevation (ft amsl)	Days in Quarterly Average
MW-20-070	Shallow	453.22	452.51	452.86	61
MW-22	Shallow	454.45	INC	INC	32
MW-25	Shallow	455.20	454.55	454.87	61
MW-26	Shallow	454.83	454.27	454.54	61
MW-27-020	Shallow	454.26	453.47	453.86	61
MW-28-025	Shallow	454.19	453.39	453.78	61
MW-31-060	Shallow	454.05	453.33	453.68	61
MW-32-035	Shallow	454.10	453.34	453.72	61
MW-33-040	Shallow	454.33	453.59	453.95	61
MW-35-060	Shallow	454.66	453.92	454.28	61
MW-36-020	Shallow	454.31	453.50	453.90	61
MW-36-040	Shallow	454.08	453.28	453.67	61
MW-39-040	Shallow	453.90	453.13	453.51	61
MW-42-030	Shallow	454.02	453.25	453.63	61
MW-43-025	Shallow	454.17	453.34	453.75	61
MW-47-055	Shallow	454.78	454.00	454.37	59
MW-20-100	Middle	452.58	451.88	452.23	61
MW-27-060	Middle	454.32	453.51	453.91	61
MW-30-050	Middle	453.93	453.16	453.54	61
MW-33-090	Middle	454.41	453.66	454.03	61
MW-34-055	Middle	454.24	453.40	453.81	61
MW-36-050	Middle	453.95	453.15	453.55	61
MW-36-070	Middle	454.05	453.25	453.65	61
MW-39-050	Middle	453.79	453.02	453.40	61
MW-39-060	Middle	453.68	452.87	453.27	61
MW-39-070	Middle	453.11	452.37	452.73	61
MW-42-065	Middle	453.98	453.22	453.59	61
MW-44-070	Middle	INC	453.56	INC	34
MW-50-095	Middle	454.56	453.92	454.23	61
MW-51	Middle	454.52	453.94	454.21	59
MW-55-045	Middle	455.77	455.33	455.55	61
MW-20-130	Deep	452.00	451.24	451.61	61
MW-27-085	Deep	454.18	453.35	453.76	61

Table 5-3

Groundwater Elevation Results, Fourth Quarter 2020

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

PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	November Average Groundwater Elevation (ft amsl)	December Average Groundwater Elevation (ft amsl)	Quarterly Average Groundwater Elevation (ft amsl)	Days in Quarterly Average
MW-28-090	Deep	454.16	453.37	453.76	61
MW-31-135	Deep	453.42	452.70	453.06	61
MW-33-150	Deep	454.64	453.96	454.29	61
MW-34-080	Deep	454.46	453.67	454.06	61
MW-34-100	Deep	454.19	453.43	453.80	61
MW-35-135	Deep	454.62	453.92	454.27	61
MW-36-090	Deep	INC	452.77	INC	30
MW-36-100	Deep	453.77	453.01	453.38	61
MW-39-080	Deep	453.14	452.36	452.75	61
MW-39-100	Deep	453.65	452.87	453.25	61
MW-43-090	Deep	454.30	453.43	453.86	61
MW-44-115	Deep	453.70	452.93	453.31	61
MW-44-125	Deep	454.05	453.28	453.66	61
MW-45-095a	Deep	453.85	453.06	453.45	61
MW-46-175	Deep	454.47	453.73	454.09	61
MW-47-115	Deep	454.36	453.66	454.00	61
MW-49-135	Deep	454.70	453.90	454.29	61
MW-54-085	Deep	454.53	453.71	454.11	61
MW-54-140	Deep	454.17	453.53	453.85	61
MW-54-195	Deep	454.74	454.17	454.45	61
MW-55-120	Deep	455.90	455.52	455.71	61
PT-2D	Deep	452.71	451.97	452.33	61
PT-5D	Deep	453.69	452.91	453.29	61
PT-6D	Deep	453.53	452.76	453.14	61
I-3	Surface water	454.64	453.75	454.18	61
RRB	Surface water	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 5-4

Average Hydraulic Gradients Measured at Well Pairs, Fourth Quarter 2020

Fourth Quarter 2020 and Annual 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	--	November	0.0032	--	No
Overall Average	--	December	0.0032	--	No
Northern Gradient Pair	MW-31-135 / MW-33-150	November	0.0025	30	No
Northern Gradient Pair	MW-31-135 / MW-33-150	December	0.0027	31	No
Central Gradient Pair (used when PE-01 is not run for gradient control)	MW-20-130 / MW-34-100	November	0.0038	30	No
Central Gradient Pair (used when PE-01 is not run for gradient control)	MW-20-130 / MW-34-100	December	0.0038	31	No
Southern Gradient Pair (used when PE-01 is not run for gradient control)	MW-20-130 / MW-27-085	November	0.0032	30	No
Southern Gradient Pair (used when PE-01 is not run for gradient control)	MW-20-130 / MW-27-085	December	0.0031	31	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 5-5

Interim Measure Contingency Plan Trigger Levels and Results, 2020 Annual Reporting Period

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

PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Q4 2020 Sample Date	Q4 2020 Sample Method	Hexavalent Chromium Trigger Level (µg/L)	Q1 2020 Hexavalent Chromium Result (µg/L)	Q2 2020 Hexavalent Chromium Result (µg/L)	Q3 2020 Hexavalent Chromium Result (µg/L)	Q4 2020 Hexavalent Chromium Result (µg/L)	Q4 2020 Result Exceeded Trigger Level?
MW-21	Shallow	12/15/2020	LF	20	--	4.6	--	ND (1.0)	No
MW-27-085	Deep	12/03/2020	LF	20	--	ND (0.2)	--	ND (1.0)	No
MW-28-090	Deep	12/15/2020	LF	20	--	ND (0.2)	--	ND (0.2)	No
MW-32-020	Shallow	12/07/2020	LF	20	--	--	--	ND (1.0)	No
MW-32-035	Shallow	12/07/2020	LF	20	--	ND (0.2)	--	ND (1.0)	No
MW-33-040	Shallow	12/02/2020	LF	20	--	ND (0.2)	--	ND (1.0)	No
MW-33-090	Middle	12/02/2020	LF	25	--	3.3	--	3.1	No
MW-33-150	Deep	12/02/2020	LF	20	--	4.9	--	5	No
MW-33-210	Deep	12/02/2020	LF	20	--	7.2	--	12	No
MW-34-080	Deep	12/03/2020	LF	20	--	ND (0.2)	--	ND (0.2)	No
MW-34-100	Deep	12/03/2020	LF	750	ND (0.20)	ND (0.2)	ND (0.2)	ND (1.0)	No
MW-36-070	Middle	12/15/2020	LF	20	--	--	--	0.2	No
MW-39-040	Shallow	12/11/2020	LF	20	--	--	--	ND (0.2)	No
MW-42-055	Middle	12/16/2020	LF	20	--	ND (0.20)	--	ND (0.20)	No
MW-42-065	Middle	12/16/2020	LF	20	--	ND (0.20)	--	ND (0.20)	No
MW-43-075	Deep	12/8/2020	LF	20	--	--	--	ND (0.2)	No
MW-43-090	Deep	12/8/2020	LF	20	--	--	--	ND (1.0)	No
MW-44-070	Middle	12/11/2020	LF	20	--	ND (0.20)	--	ND (0.20)	No
MW-44-115	Deep	12/11/2020	LF	1,200	4.8	4	3.4	2.7	No
MW-44-125	Deep	12/11/2020	LF	475	--	ND (0.2)	--	ND (0.2)	No
MW-46-175	Deep	12/15/2020	LF	225	9.1	5.3	5.1	7.9	No
MW-46-205	Deep	12/15/2020	LF	20	--	1.2	--	ND (1.0)	No
MW-47-055	Shallow	11/30/2020	LF	150	--	16	--	17	No
MW-47-115	Deep	11/30/2020	LF	31	--	24	--	18	No

Notes:

1. If a field duplicate sample was collected, the maximum concentration between the primary and field duplicate sample is presented.
2. Monitoring results from Fourth Quarter 2020 are highlighted in grey.
3. None of the results from the 2020 Annual Reporting Period 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.
Q1 = first quarter.
Q2 = second quarter.
Q3 = third quarter.
Q4 = fourth quarter.

Table 5-6

Annual Chemical Performance Monitoring Sampling Results, Fourth Quarter 2020

Fourth Quarter 2020 and Annual 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	Boron, Dissolved (mg/L)	Bromide (mg/L)	Calcium, Dissolved (mg/L)	Chloride (mg/L)	Deuterium (‰)	Magnesium, Dissolved (mg/L)	Nitrate/Nitrite as Nitrogen (mg/L)	Oxygen-18 (‰)	Potassium, Dissolved (mg/L)	Sodium, Dissolved (mg/L)	Sulfate (mg/L)	Total Alkalinity as $CaCO_3$ (mg/L)	Total Dissolved Solids (mg/L)
MW-20-070	SA	12/04/2020		LF	0.6 J	ND (1.0)	78	470	-64.1	22 J	17	-8.17	5.9	280	320	88	1,400
MW-20-100	MA	12/04/2020		LF	1.0 J	ND (1.0)	95	460	-66.2	19 J	6.7	-8.85	6.1 J	250	210	140	1,200
MW-20-130	DA	12/04/2020		LF	2.0 J	ND (2.5)	140	2,200	-61.2	20 J	11	-7.11	64	1,200	1,000	57 J	5,200
MW-20-130	DA	12/04/2020	FD	--	2.2 J	ND (2.5)	150	2,500	-60.3	21 J	11	-7.16	67 J	1,300	940	92 J	5,800
MW-25	SA	12/07/2020		LF	0.55 J	ND (2.5)	110 J	400	-65.9	27 J	12	-8.87	7.5 J	180 J	220	120	1,200
MW-26	SA	12/03/2020		LF	1.1	ND (2.5)	120	770	-63.5	40	18	-7.93	9.0	470	470	130	2,200
MW-26	SA	12/03/2020	FD	--	1.1	ND (2.5)	130	760	-64.2	41	18	-7.91	9.6	500	460	140	2,200
MW-31-060	SA	12/07/2020		LF	0.54 J	ND (2.5)	100 J	790	-67.3	19 J	4.1	-8.84	6.0 J	450 J	220	99	1,700
MW-32-035	SA	12/07/2020		LF	0.94 J	ND (5.0)	300 J	2,000	-90.6	210 J	ND (0.1)	-11.22	18 J	1,100 J	840	720	5,200
MW-32-035	SA	12/07/2020	FD	--	0.9 J	ND (5.0)	300 J	2,000	-90.1	200 J	ND (0.1)	-11.26	19 J	1,100 J	850	730	5,300
MW-34-055	MA	12/03/2020		LF	0.19	ND (1.0)	67	82	-100.9	23 J	ND (0.1)	-12.44	5.4 J	92 J	210	160	580
MW-34-055	MA	12/03/2020	FD	--	0.18	ND (1.0)	65	84	-100.2	22 J	ND (0.1)	-12.48	5.3 J	89 J	210	150	580
MW-34-080	DA	12/03/2020		LF	0.98	ND (2.5)	210	2,200	-86.3	93 J	ND (0.1)	-11.11	18 J	1,400 J	580	310	4,900
MW-34-100	DA	12/03/2020		LF	1.2 J	ND (1.0)	92	3,000	-88	25 J	ND (0.1)	-11.34	26 J	2,000 J	870	200	6,200
MW-34-100	DA	12/03/2020	FD	--	1.6 J	ND (1.0)	120	2,800	-88.1	32 J	ND (0.1)	-11.29	28 J	2,000 J	840	210	6,100
R-28	--	11/18/2020		--	ND (0.1)	ND (0.5)	58	88	-100.8	25	0.28	-12.34	4.7	86	210	140	580
R-28	--	11/18/2020	FD	--	0.13	ND (0.5)	59	88	-100.4	25	0.3	-12.27	4.7	86	210	140	580

Notes:

1. The following analytical methods were used:
   Dissolved boron, dissolved calcium, dissolved magnesium, dissolved potassium, dissolved sodium = SW 6010B
   Bromide, chloride, sulfate = USEPA Method 300.0
   Nitrate/nitrite as nitrogen = SM 4500-NO3 F and EPA 353.2
   Total alkalinity = SM 2320B
   Total dissolved solids = SM 2540C

-- = not applicable or not reportable.
‰ = parts per thousand.
$CaCO_3$ = calcium carbonate.
DA = deep interval of Alluvial Aquifer.
FD = field duplicate.
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.
mg/L = milligrams per liter.
ND = not detected at listed reporting limit.
SA = shallow interval of Alluvial Aquifer.
USEPA = United States Environmental Protection Agency.

Table 5-7

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

Fourth Quarter 2020 and Annual 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 5-7

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

Fourth Quarter 2020 and Annual 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	14,400	-200	455.92	456.50	-0.58
August 2020	13,000	13,400	-400	455.50	456.15	-0.65
September 2020	13,700	13,300	400	455.59	456.13	-0.54
October 2020	12,200	11,800	400	455.06	455.64	-0.58
November 2020	9,900	9,400	500	454.26	454.64	-0.38
December 2020	7,600	8,300	-700	453.13	453.75	-0.62
January 2021	7,100	--	--	452.97	--	--

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_01.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.

Table 6-1

Summary of Pumping Rates and Extracted Volumes for IM-3 System, 2020 Annual Reporting Period

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

PG&E Topock Compressor Station, Needles, California

Month	Average Monthly Pump Rate (gpm)	TW-02S Groundwater Volume Pumped (gallons)	TW-02D Groundwater Volume Pumped (gallons)	TW-03D Groundwater Volume Pumped (gallons)	PE-01 Groundwater Volume Pumped (gallons)	Total Groundwater Volume Pumped (gallons)
January 2020	128.9	--	--	5,754,306	--	5,754,306
February 2020	131.9	--	--	5,318,999	--	5,318,999
March 2020	122.7	15,500	7,346	5,452,429	--	5,475,275
April 2020	125.4	--	--	5,415,462	--	5,415,462
May 2020	91.5	--	--	4,085,942	--	4,085,942
June 2020	91.7	--	--	3,959,668	--	3,959,668
July 2020	127.3	--	--	5,680,458	--	5,680,458
August 2020	108.8	--	302	4,855,216	--	4,855,518
September 2020	121.6	--	--	5,251,265	--	5,251,265
October 2020	129.0	--	--	4,759,883	--	4,759,883
November 2020	124.9	--	6,464	5,388,781	--	5,395,245
December 2020	125.5	--	--	5,603,591	--	5,603,591
TOTAL	**119.1**	**15,500**	**14,112**	**61,526,000**	**--**	**61,555,612**

Notes:

1. The target pump rate was 135 gpm.

-- = not applicable.
gpm = gallons per minute.
IM = Interim Measure.

Table 6-2

Hydraulic Gradients Measured at Well Pairs, 2020 Annual Reporting Period

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

PG&E Topock Compressor Station, Needles, California

Month	Mean Landward Hydraulic Gradient (feet/foot) Overall Average	Mean Landward Hydraulic Gradient (feet/foot) Northern Gradient Pair MW-31-135 / MW-33-150	Mean Landward Hydraulic Gradient (feet/foot) Central Gradient Pair MW-20-130 / MW-34-100	Mean Landward Hydraulic Gradient (feet/foot) Southern Gradient Pair MW-20-130 / MW-27-085
January 2020	0.0037	0.0026	0.0048	0.0038
February 2020	0.0041	0.0034	0.0051	0.0039
March 2020	0.0039	0.0031	0.0048	0.0037
April 2020	0.0045	0.0033	0.0056	0.0045
May 2020	0.0037	0.0026	0.0048	0.0037
June 2020	0.0030	0.0018	0.0041	0.0032
July 2020	0.0040	0.0031	0.0048	0.0040
August 2020	0.0039	0.0043	0.0041	0.0033
September 2020	0.0042	0.0044	0.0045	0.0037
October 2020	0.0036	0.0029	0.0044	0.0036
November 2020	0.0032	0.0025	0.0038	0.0032
December 2020	0.0032	0.0027	0.0038	0.0031

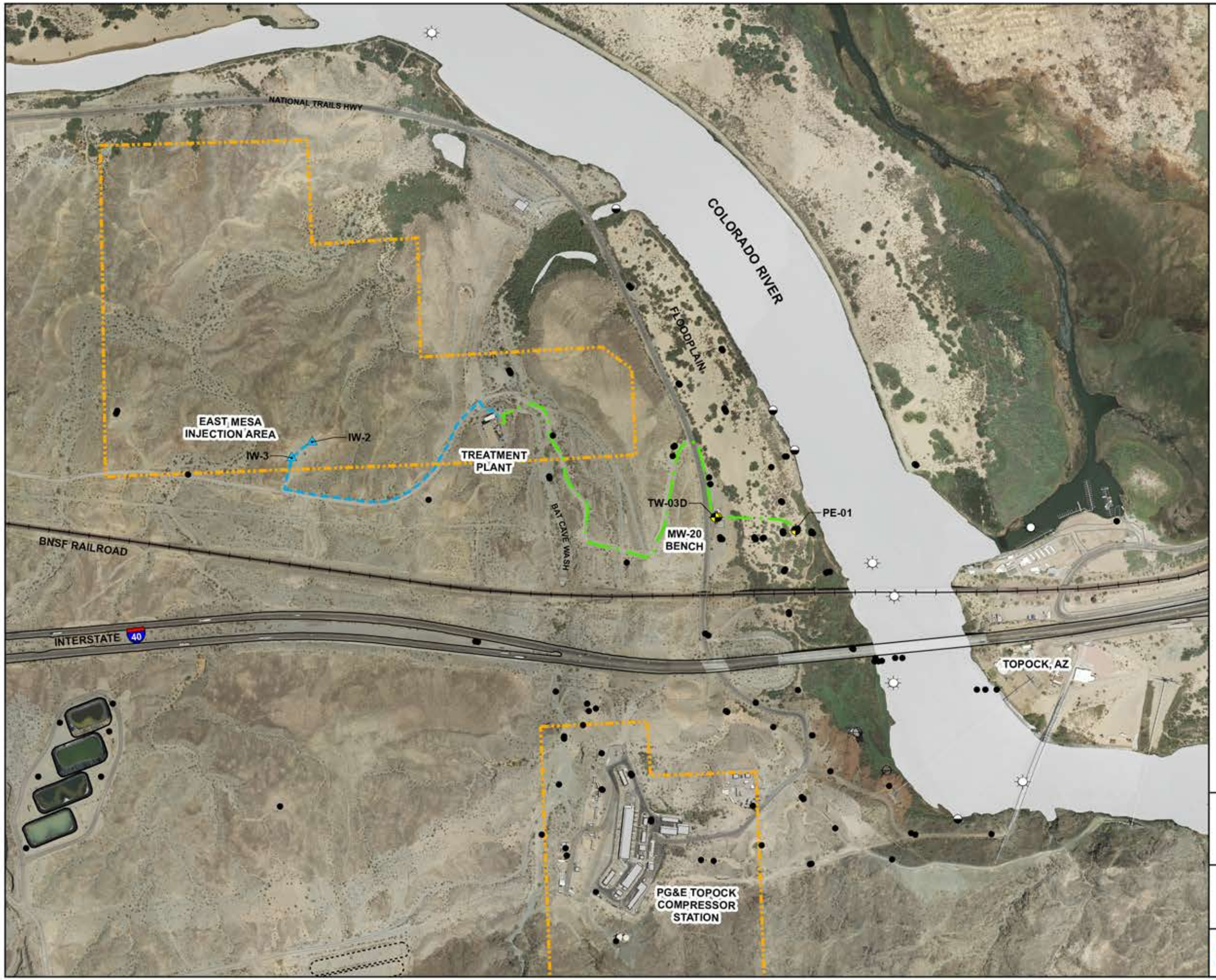
Notes:

1. The target mean landward hydraulic gradient for the selected well pairs is 0.001 feet/foot.

2. 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. PE-01 was not run for gradient control during the 2020 Annual Reporting Period.

3. The target mean landward hydraulic gradient was met throughout the 2020 Annual Reporting Period.

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

FOURTH QUARTER 2020 AND ANNUAL
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

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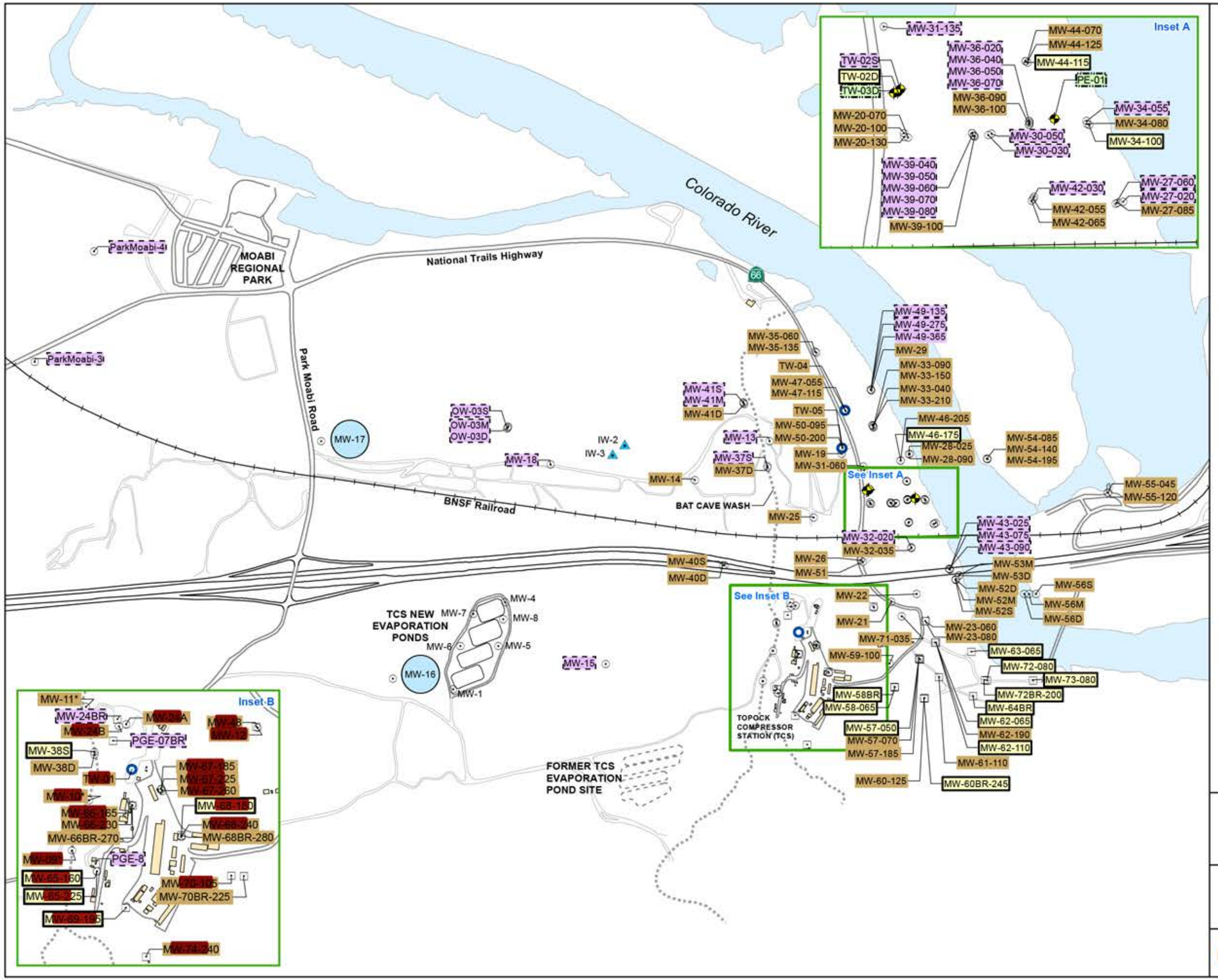
FIGURE
1-1

T:_ENV\PGE_TOPOCK\GEC\MXD\GMP\4Q20\FINAL\FIGURE1-1_IM3_GMP_LOCS_2020Q4.MXD 1/27/2021 4:38:35 PM



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

FOURTH QUARTER 2020 AND ANNUAL
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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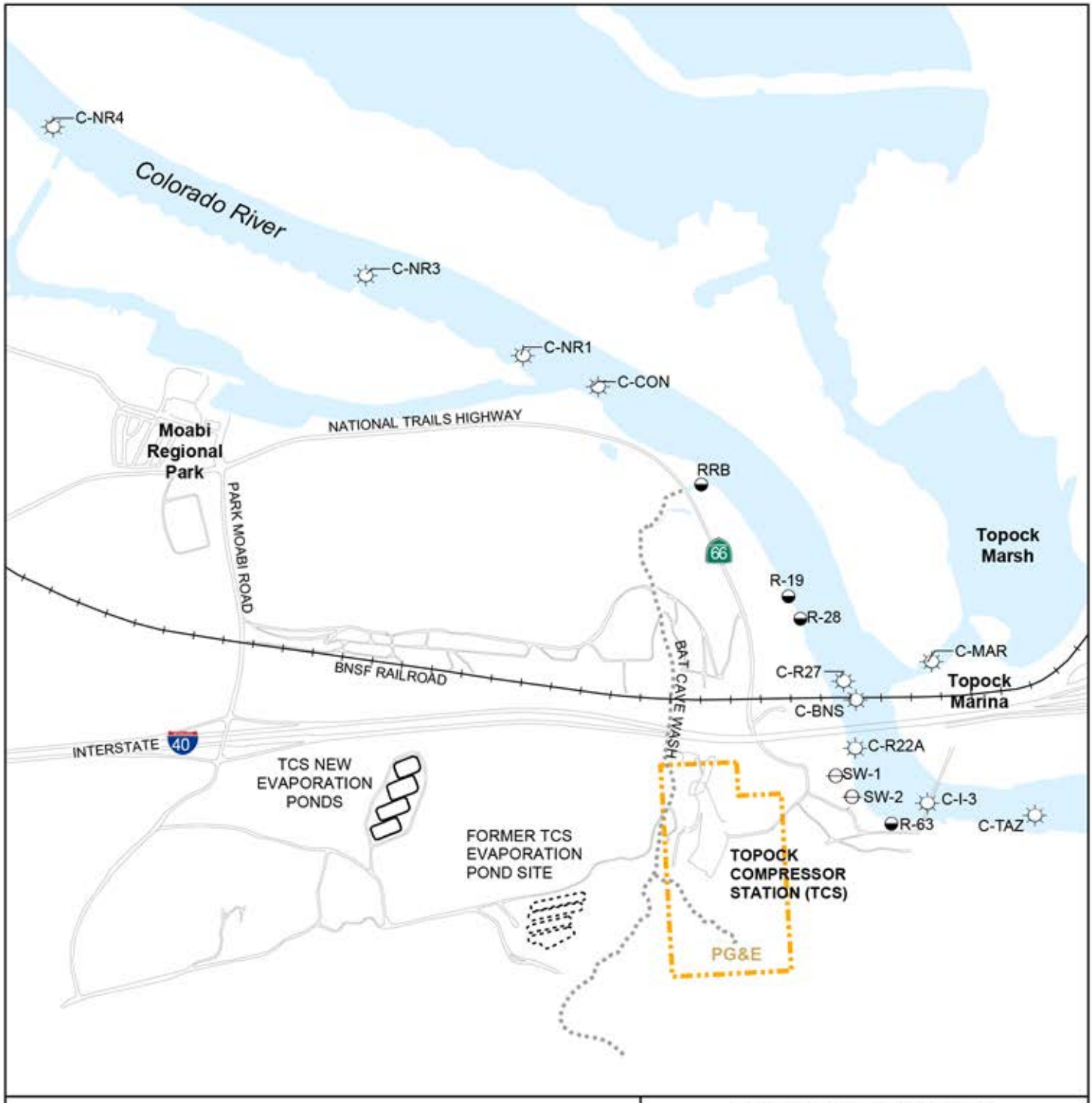
FIGURE 1-2

T:_ENV\PGE_TOPOCK\GE\MXD\GMP\4Q20\FINAL\FIGURE1-2_GMP_SAMPLING_FREQUENCY_2020Q4.MXD 1/27/2021 4:37:55 PM



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

FOURTH QUARTER 2020 AND ANNUAL 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

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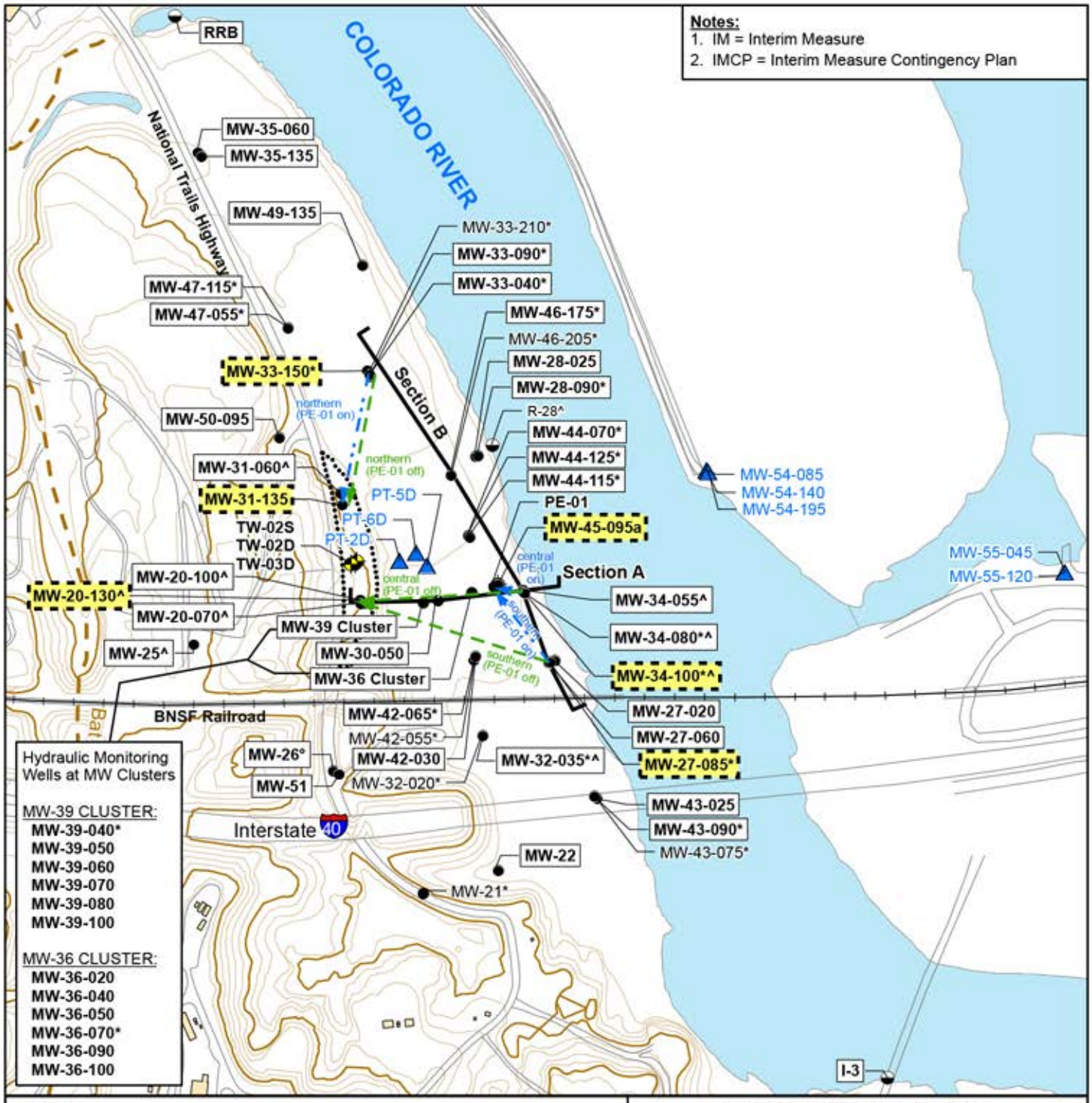
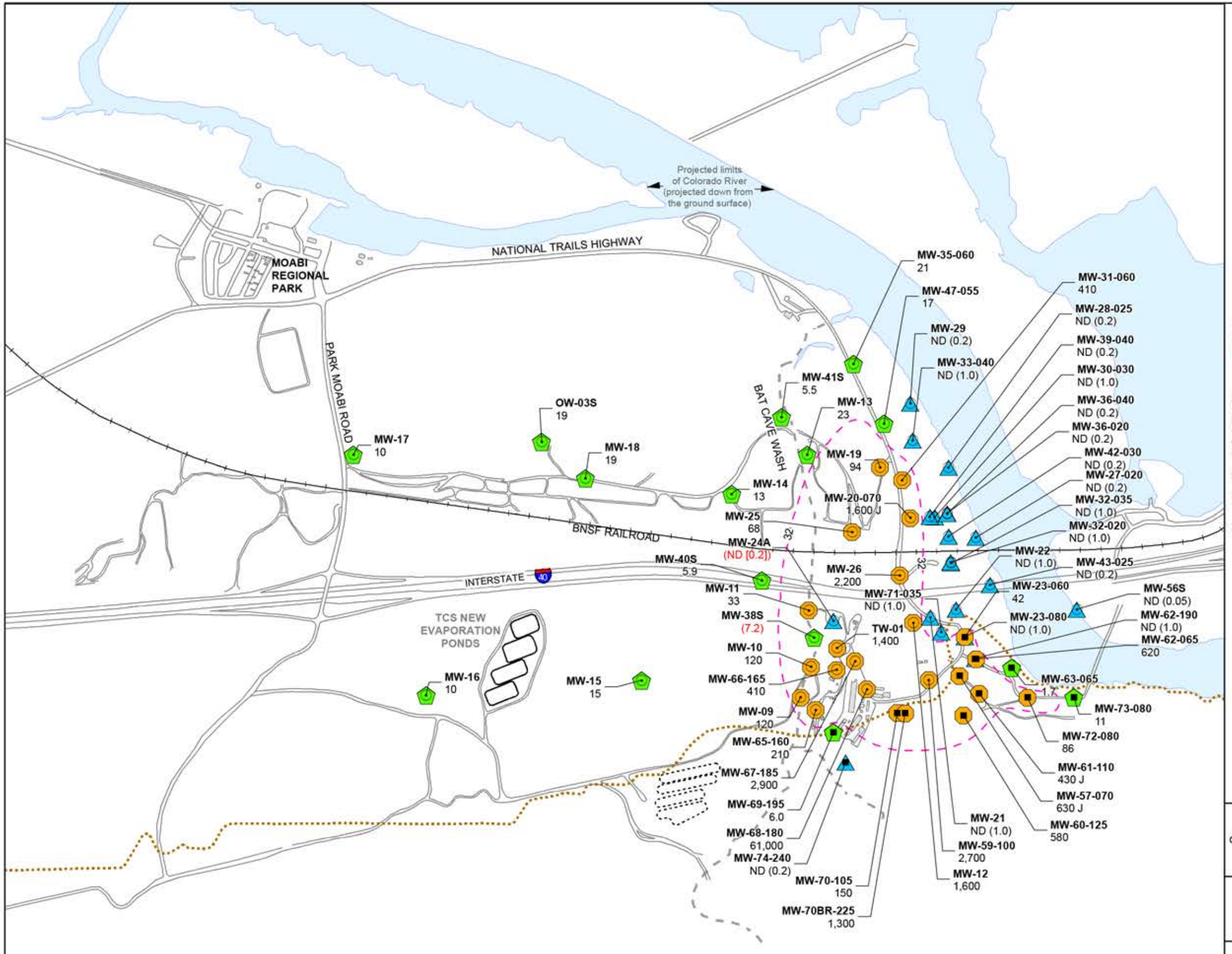
FIGURE

1-3

T:_ENV\PGE_TOPOCK\GEC\MXD\GMP\4Q20\FINAL\FIGURE1-3_GMP_RIVER_SWLOCS_2020Q4.MXD 1/27/2021 4:40:43 PM


Notes:
1. IM = Interim Measure
2. IMCP = Interim Measure Contingency Plan
RRB
COLORADO RIVER
National Trails Highway
MW-35-060
MW-35-135
MW-49-135
MW-47-115*
MW-47-055*
MW-33-150*
MW-50-095
MW-31-060^
MW-31-135
TW-02S
TW-02D
TW-03D
MW-20-100^
MW-20-130^
MW-20-070^
MW-25^
MW-39 Cluster
MW-30-050
MW-36 Cluster
BNSF Railroad
MW-26°
MW-51
MW-42-065*
MW-42-055*
MW-42-030
MW-32-020*
MW-32-035*^
Interstate 40
MW-22
MW-21*
MW-43-025
MW-43-090*
MW-43-075*
MW-27-085*
MW-27-060
MW-27-020
MW-34-100*^
MW-34-080*^
MW-34-055^
MW-55-120
MW-55-045
MW-54-195
MW-54-140
MW-54-085
MW-45-095a
PE-01
MW-44-115*
MW-44-125*
MW-44-070*
R-28^
MW-28-090*
MW-28-025
MW-46-205*
MW-46-175*
MW-33-040*
MW-33-090*
MW-33-210*
Section B
Section A
northern (PE-01 on)
northern (PE-01 off)
central (PE-01 on)
central (PE-01 off)
southern (PE-01 on)
southern (PE-01 off)
PT-5D
PT-6D
PT-2D
I-3
Hydraulic Monitoring Wells at MW Clusters
MW-39 CLUSTER:
MW-39-040*
MW-39-050
MW-39-060
MW-39-070
MW-39-080
MW-39-100
MW-36 CLUSTER:
MW-36-020
MW-36-040
MW-36-050
MW-36-070*
MW-36-090
MW-36-100
LEGEND
Hydraulic Monitoring Network (59 Wells)
MW-35-060 Hydraulic Monitoring Network Well
MW-31-135 Hydraulic Monitoring Well - used for gradient calculation
MW-54-085 Hydraulic Monitoring Well - used but not required
Chemical Performance Monitoring Network (11 Locations)
R-28^ Monitored Annually
MW-26° Monitored Biennially
IM Contingency Plan Network (24 wells)
* IMCP Monitoring Well
Other IM Features
IM Extraction Well
River Gage Station or Sampling Location
Key Well Gradient Pair (PE-01 on)
Key Well Gradient Pair (PE-01 off)
Hydrogeologic Section
0 300 600
Feet
FOURTH QUARTER 2020 AND ANNUAL 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
T:_ENV\PGE_TOPOCK\GEC\MXD\GMP\4Q20\FINAL\FIGURE1-4_IMP_XSECTION_2020Q4.MXD 1/27/2021 4:42:15 PM



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/L
- 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
21 — Groundwater Cr(VI) Concentration (µg/L)
(7.2) — Groundwater Cr(VI) Concentration (ug/L) not used for contouring

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

0 500 1,000
Feet

FOURTH QUARTER 2020 AND ANNUAL 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, FOURTH QUARTER 2020

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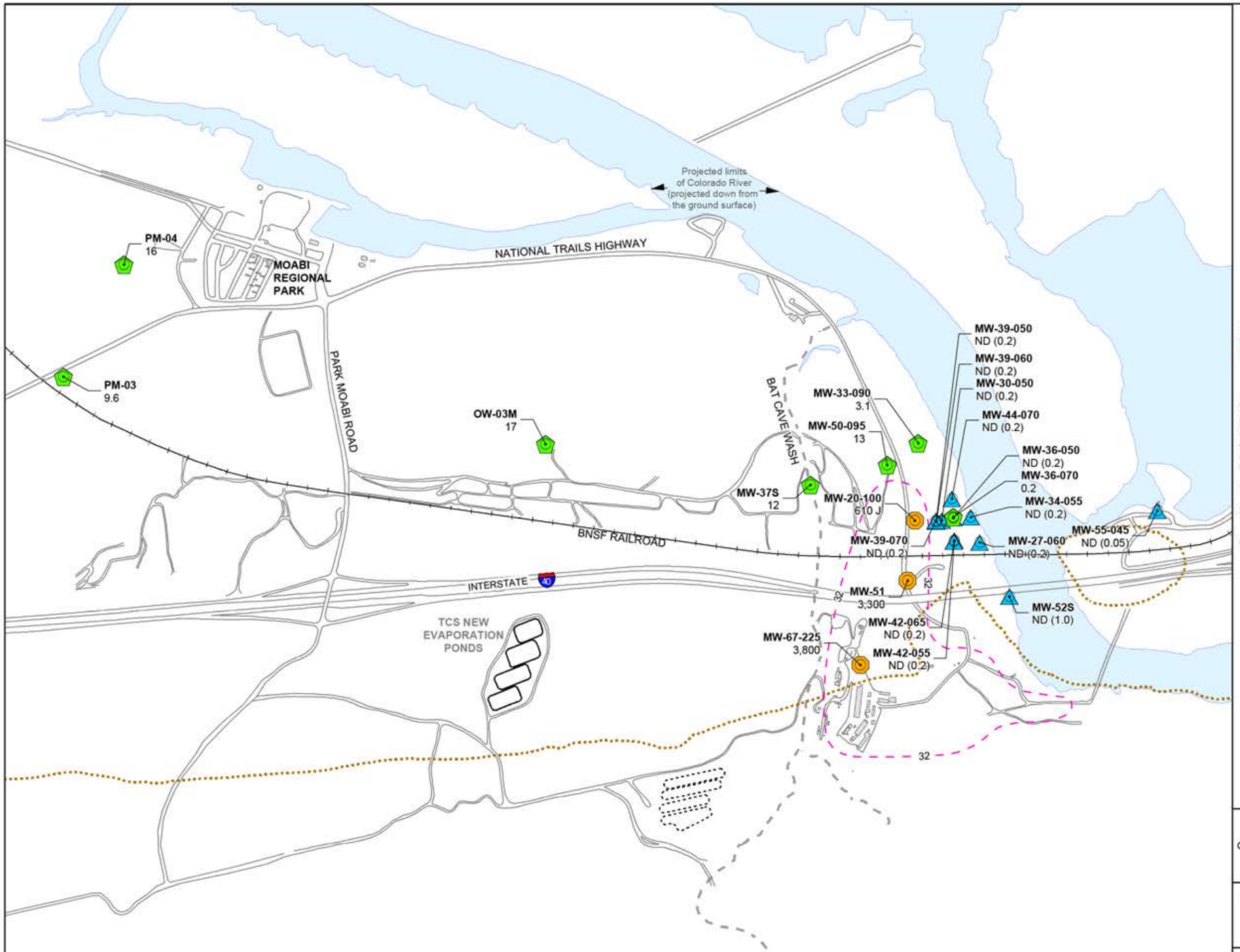
FIGURE 3-1a

T:_ENV\PGE_TOPOCK\GEC\MXD\GMP\4Q20\FINAL\FIGURE3-1A_CRVI_SHALLOW_2020Q4.MXD PSI01045 03/03/2021 2:50:14 PM



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 425 feet above mean sea level.

MW-33-090 — Sampling Location
3.1 — Groundwater Cr(VI) Concentration (µg/L)
(4.8) — Groundwater Cr(VI) Concentration (ug/L) not used for contouring

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

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

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

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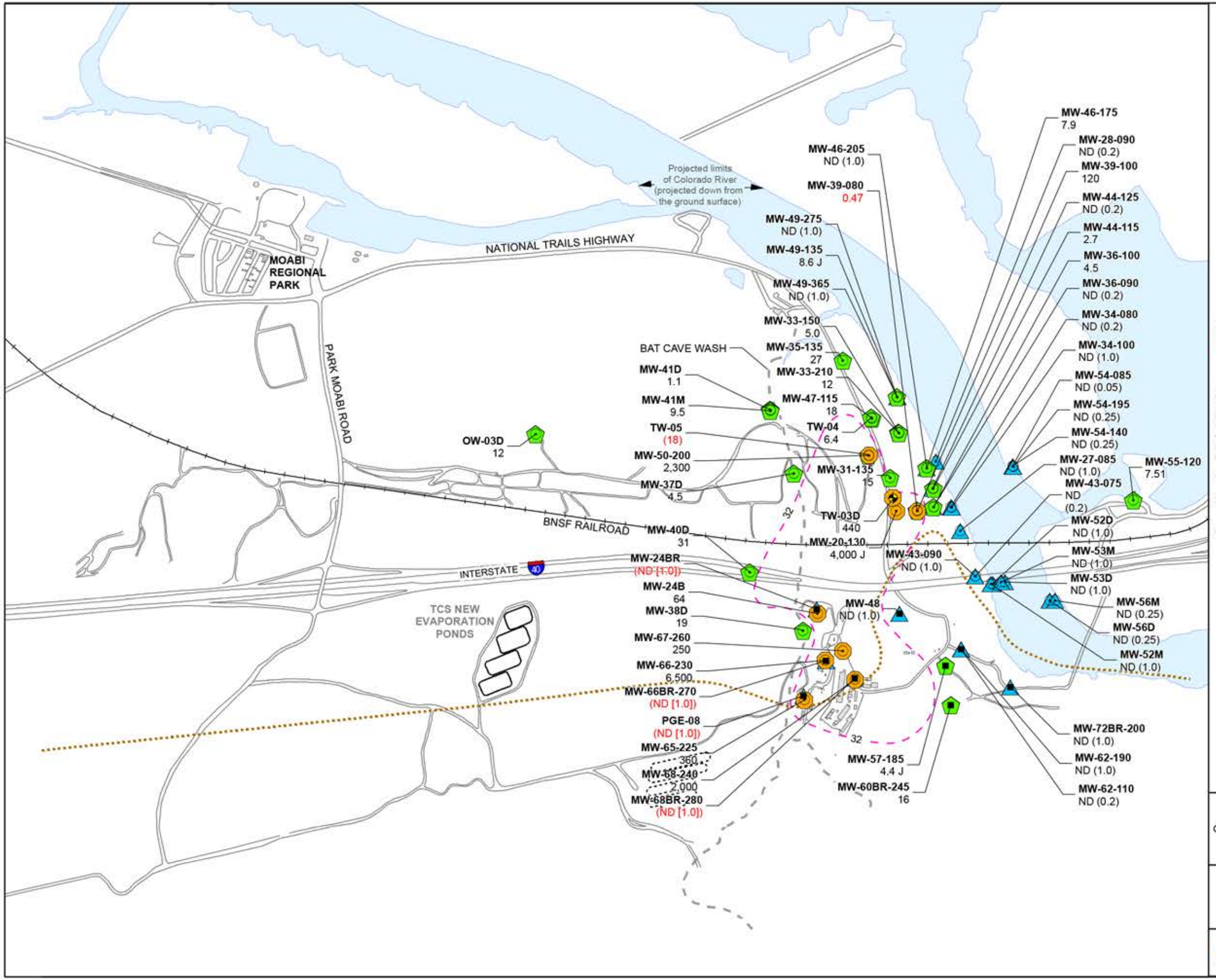
FIGURE 3-1b

T:_ENV\PGE_TOPOCK\GEC\MXD\GMP\4Q20\FINAL\FIGURE3-1B_CRVI_DEEP_2020Q4.MXD PSI01045 02/17/2021 1:21:47 PM



LEGEND

- Alluvial Aquifer well sampled during sampling event
- Alluvial Aquifer 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-39-100 — Sampling Location
120 — Groundwater Cr(VI) Concentration (µg/L)
(18) — Groundwater Cr(VI) Concentration (ug/L) not used for contouring

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

FOURTH QUARTER 2020 AND ANNUAL 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, FOURTH QUARTER 2020

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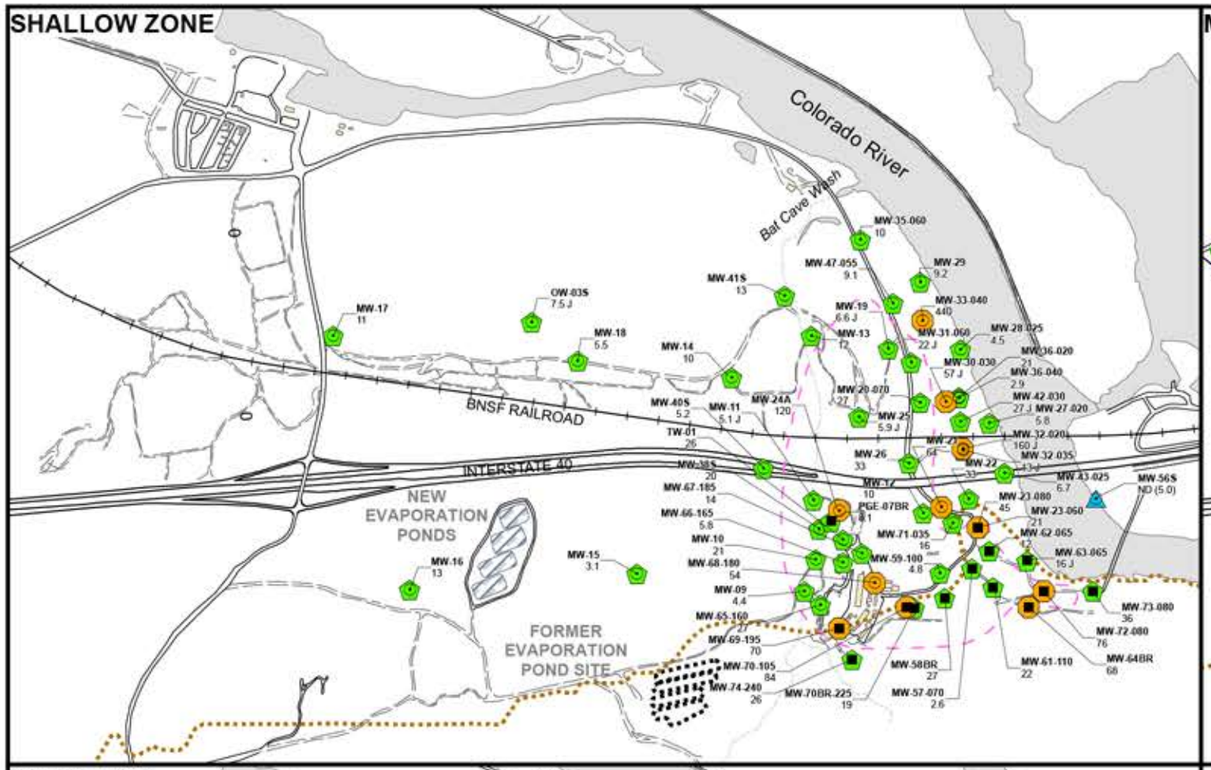
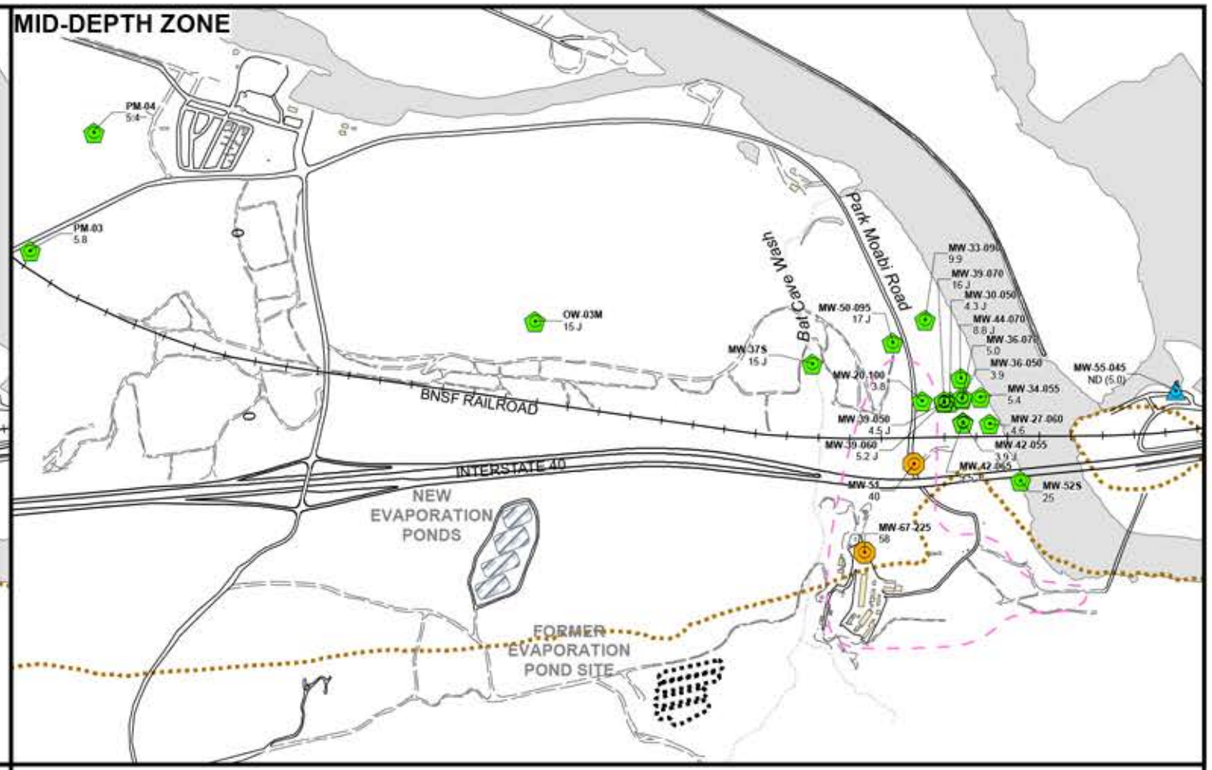
FIGURE 3-1c

T:_ENV\PGE_TOPOCK\GEC\MXD\GMPM\Q20\FINAL\FIGURE3-1C_CRVI_DEEP_2020Q4.MXD PSI01045 3/4/2021 11:26:12 AM

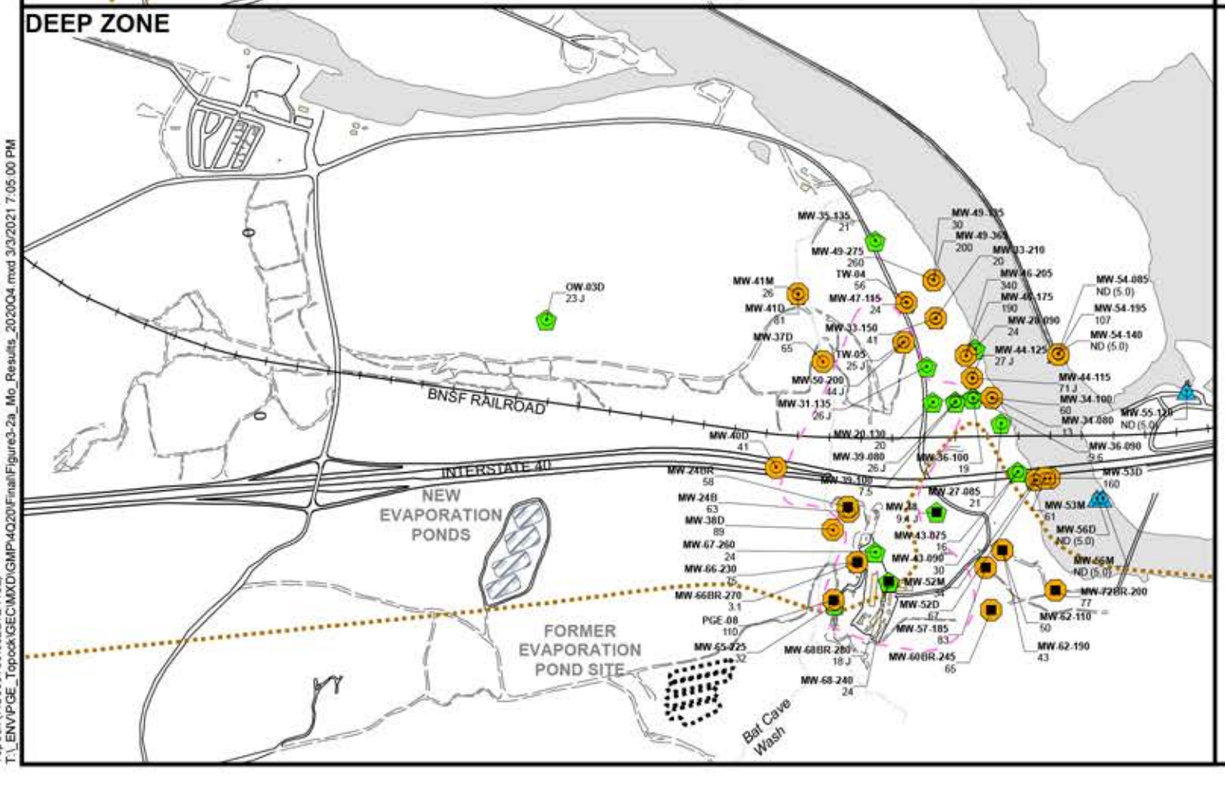
SHALLOW ZONE



MID-DEPTH ZONE



DEEP ZONE



LEGEND

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

Dissolved Molybdenum Concentrations

- Not detected at analytical reporting limit
- Concentration between reporting limit and 36.3 µg/L
- Concentration ≥ 36.3 µg/L
- Approximate boundary of hexavalent chromium concentrations ≥ 32 µg/L
- Approximate bedrock contact (per depth interval)

MW-68-240 ——— Sampling Location
24 ——— Groundwater Dissolved Molybdenum Concentration (µg/L)

0 1,000 2,000 Feet
GRAPHIC SCALE

N

Notes:

1. ND = Not detected at listed reporting limit
2. µg/L = micrograms per liter
3. ≥ = Greater than or equal to
4. J = The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.
5. USEPA = United States Environmental Protection Agency
6. Results plotted are maximum concentration from primary and duplicate samples.
7. Dissolved molybdenum background study upper tolerance limit (UTL) = 36.3 µg/L. The background study UTL was developed for alluvial wells only.
8. There is no USEPA or California maximum contaminant level for molybdenum.
9. Long-screened wells and wells screened across more than one depth interval are generally not posted on this map.

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

DISSOLVED MOLYBDENUM SAMPLING RESULTS, FOURTH QUARTER 2020

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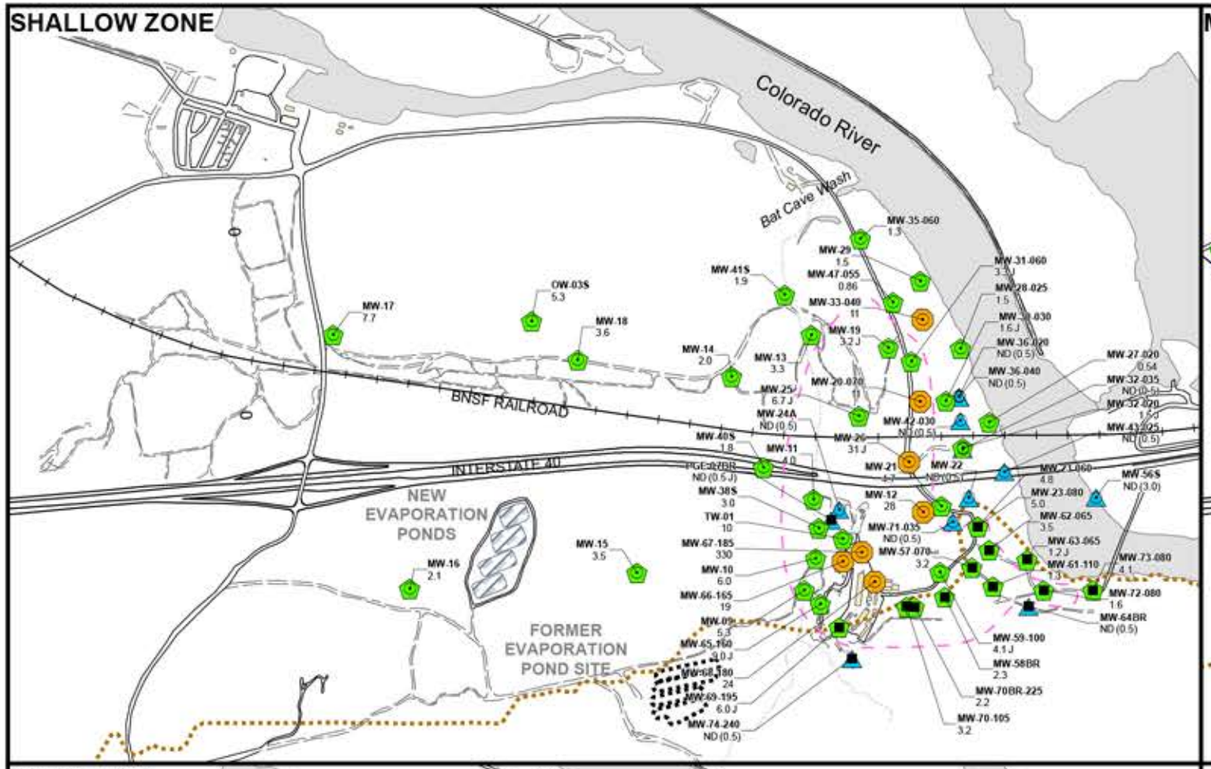
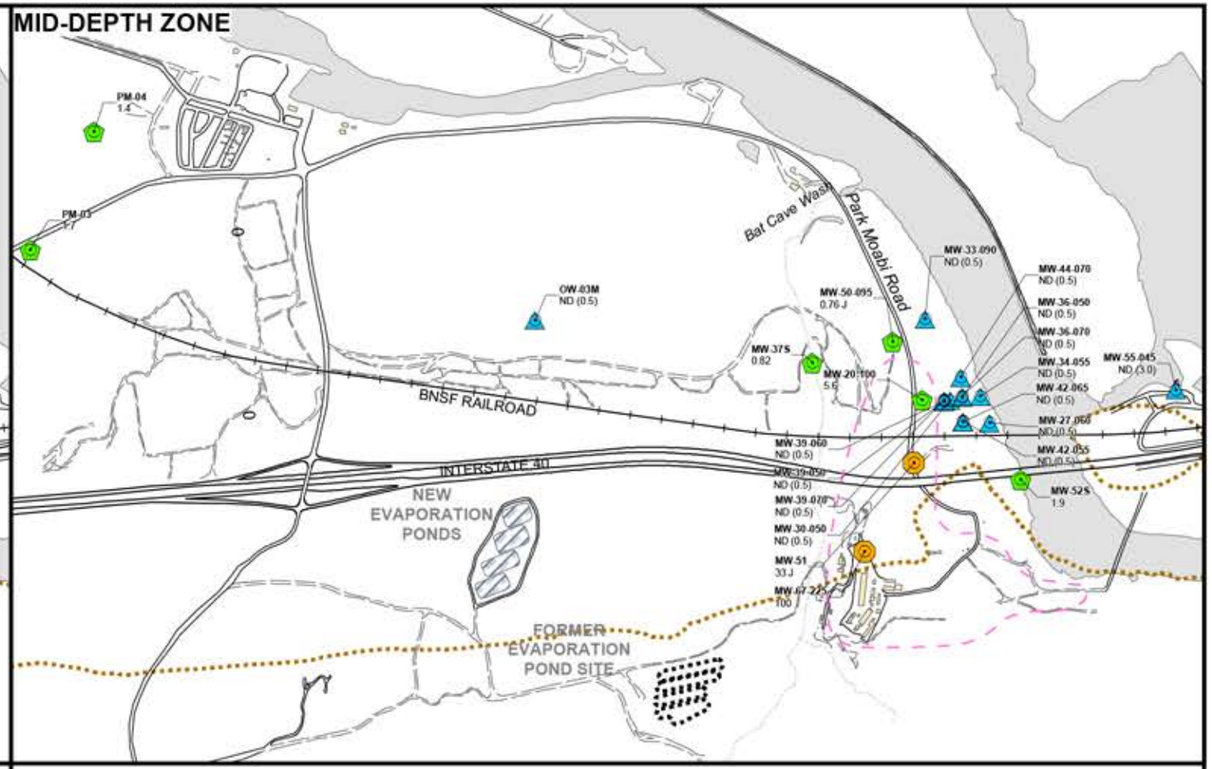
FIGURE **3-2a**

City: Citrix DivGroup: IM Created By: K. SINSABAUGH Last Saved By: PS101045
Topock \RC090753.8002D Q418\2)
T:_ENV\PGE_Topock\GEC\MXD\GMP\4Q20\Final\Figure3-2a_Mo_Results_2020Q4.mxd 3/3/2021 7:05:00 PM

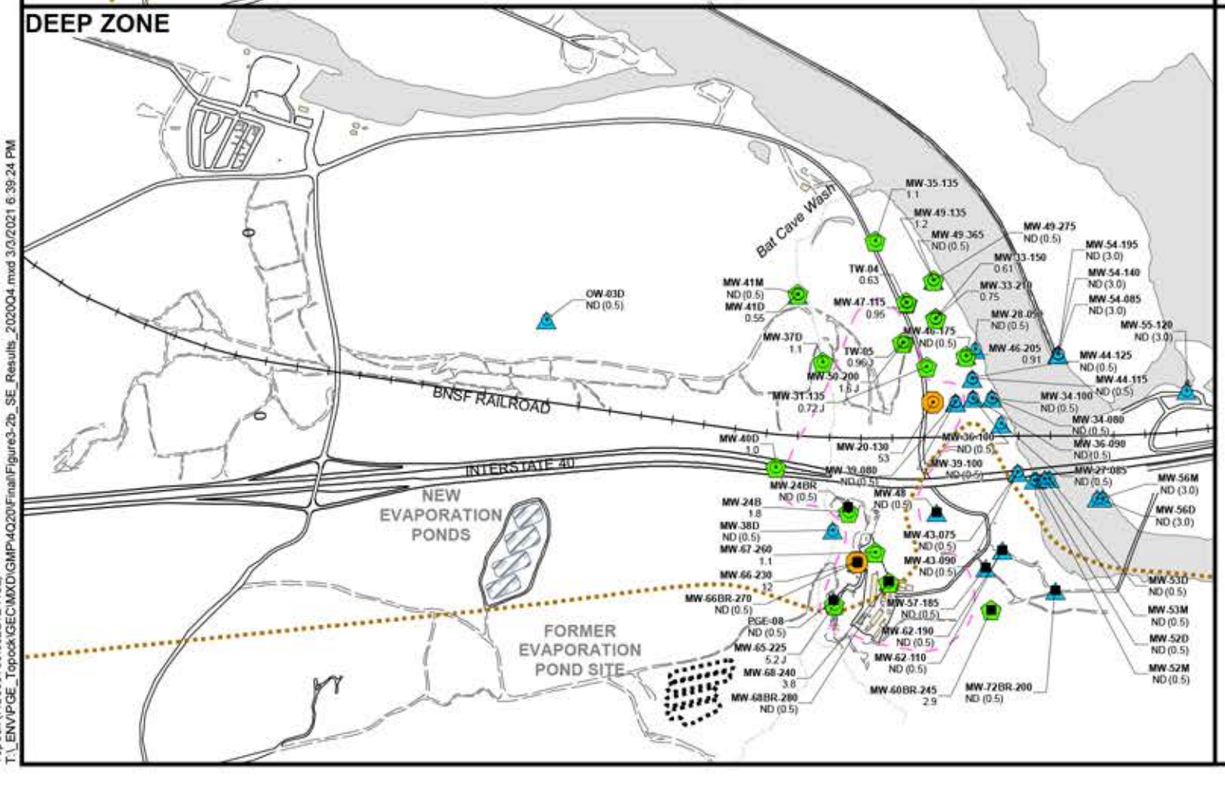
SHALLOW ZONE



MID-DEPTH ZONE



DEEP ZONE



LEGEND

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

Dissolved Selenium Concentrations

- Not detected at analytical reporting limit
- Concentration between reporting limit and 10.3 µg/L
- Concentration ≥ 10.3 µg/L
- Approximate boundary of hexavalent chromium concentrations ≥ 32 µg/L
- Approximate bedrock contact (per depth interval)

MW-68-240 ——— Sampling Location
3.8 ——— Groundwater Dissolved Selenium Concentration (µg/L)

0 1,000 2,000 Feet
GRAPHIC SCALE

N

Notes:

1. ND = Not detected at listed reporting limit
2. µg/L = micrograms per liter
3. ≥ = Greater than or equal to
4. J = The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.
5. USEPA = United States Environmental Protection Agency
6. Results plotted are maximum concentration from primary and duplicate samples.
7. Dissolved selenium background study upper tolerance limit (UTL) = 10.3 µg/L. The background study UTL was developed for alluvial wells only.
8. USEPA and California maximum contaminant level (MCL) = 50 ug/L. Comparison to the MCL is not shown on the figure.
9. Long-screened wells and wells screened across more than one depth interval are generally not posted on this map.

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

DISSOLVED SELENIUM SAMPLING RESULTS, FOURTH QUARTER 2020

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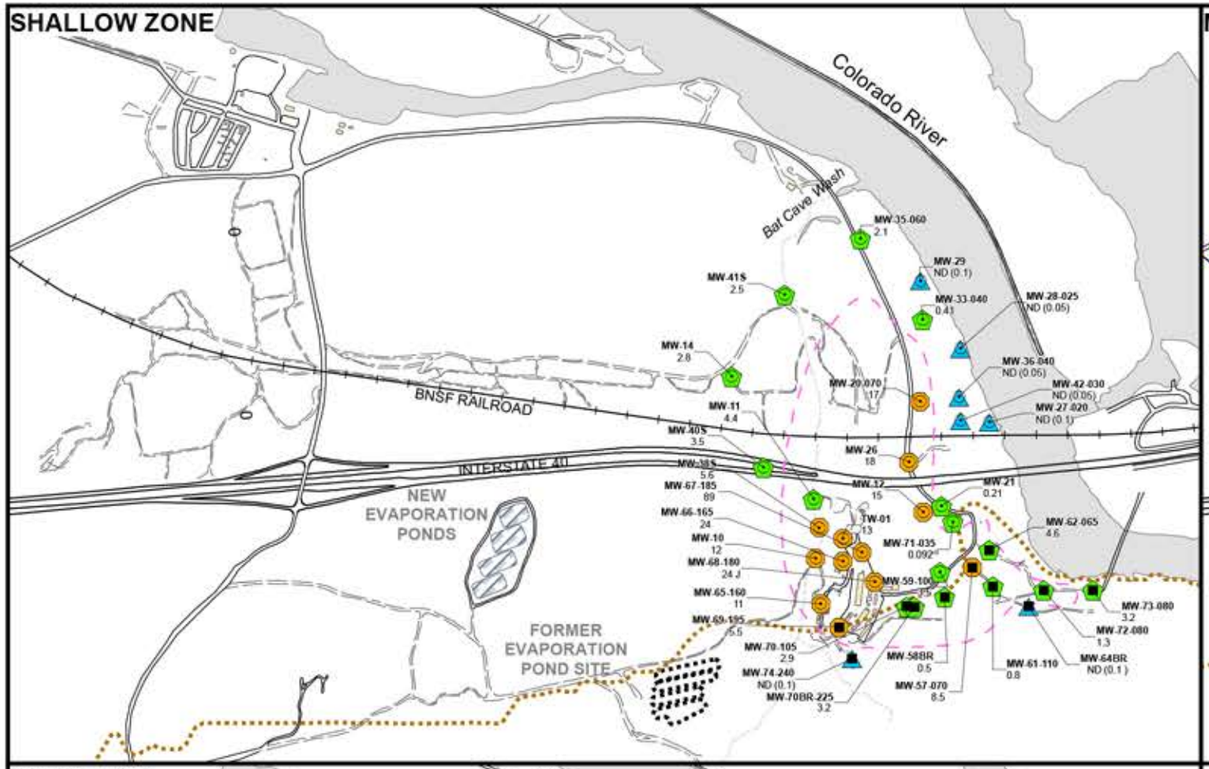
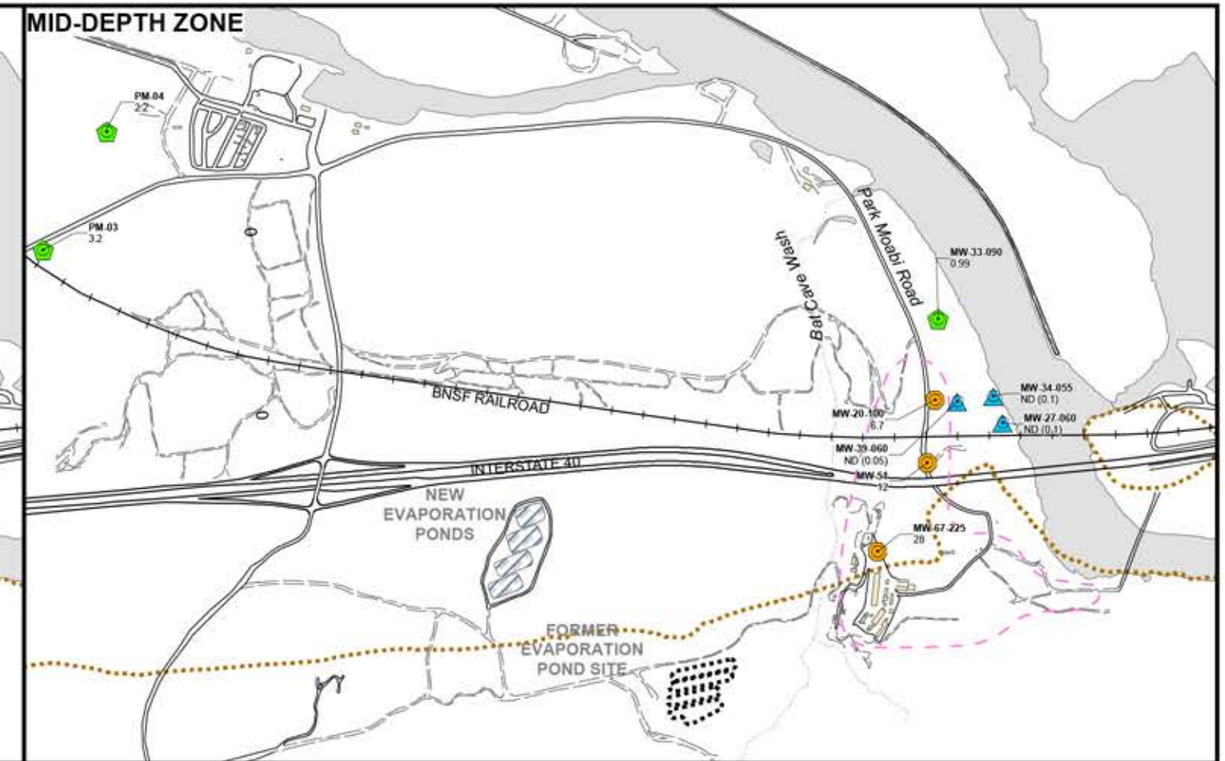
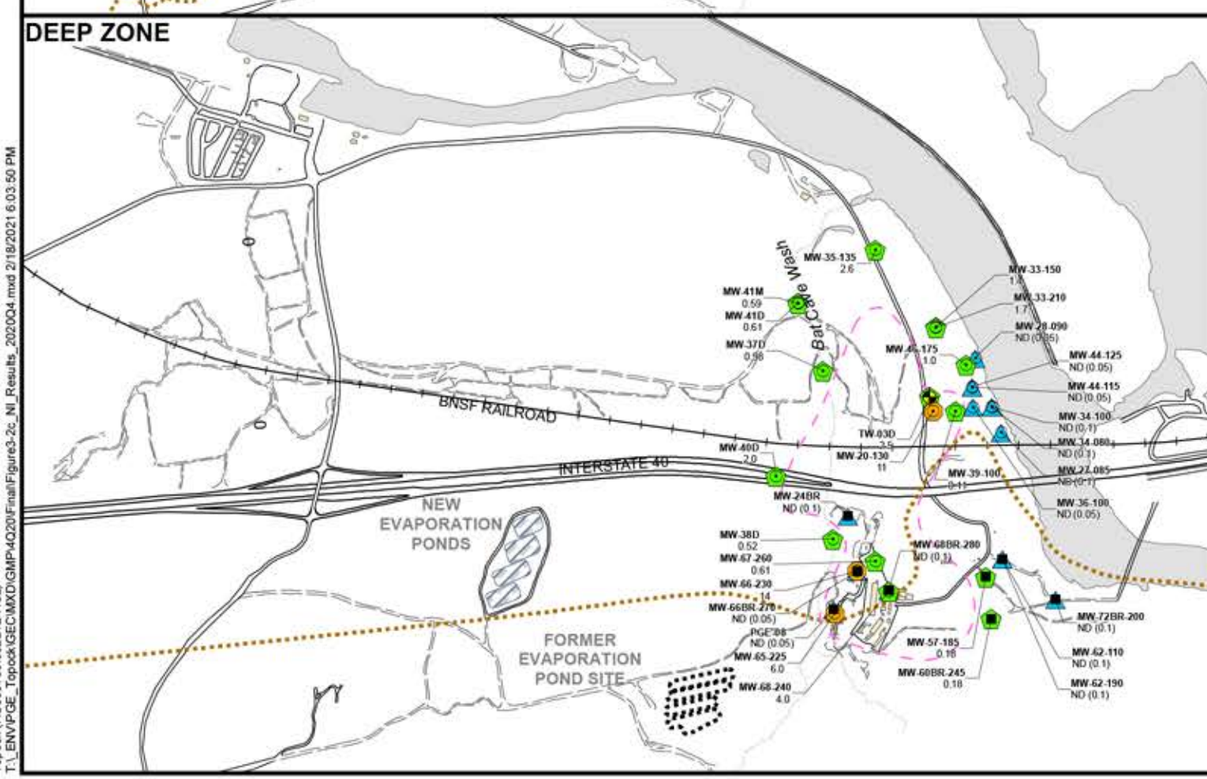
FIGURE **3-2b**

City: Citrix DivGroup: IM Created By: K. SINSABAUGH Last Saved By: PS010045
Topock (RC090753.802D Q418(2)
T:_ENV\PGE_Topock\GEC\MXD\GMP\4Q20\Final\Figure3-2b_SE_Results_2020Q4.mxd 3/3/2021 6:39:24 PM







LEGEND

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

Nitrate / Nitrite as Nitrogen Concentrations

- Not detected at analytical reporting limit
- Concentration between reporting limit and 5.03 mg/L
- Concentration ≥ 5.03 mg/L
- Approximate boundary of hexavalent chromium concentrations ≥ 32 µg/L
- Approximate bedrock contact (per depth interval)

MW-68-240 —— Sampling Location
4.0 —— Groundwater Nitrate/Nitrite as Nitrogen Concentration (mg/L)

0 1,000 2,000 Feet
GRAPHIC SCALE

N

Notes:

1. ND = Not detected at listed reporting limit
2. mg/L = milligrams per liter
3. µg/L = micrograms per liter
4. ≥ = Greater than or equal to
5. J = The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.
6. Results plotted are maximum concentration from primary and duplicate samples.
7. Nitrate/nitrite as nitrogen background study upper tolerance limit (UTL) = 5.03 mg/L. The background study UTL was developed for alluvial wells only.
8. The United States Environmental Protection Agency maximum contaminant level (MCL) for nitrate/nitrite as nitrogen = 10 mg/L. Comparison to the MCL is not shown on the figure.
9. Long-screened wells and wells screened across more than one depth interval are generally not posted on this map.

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

NITRATE / NITRITE AS NITROGEN SAMPLING RESULTS, FOURTH QUARTER 2020

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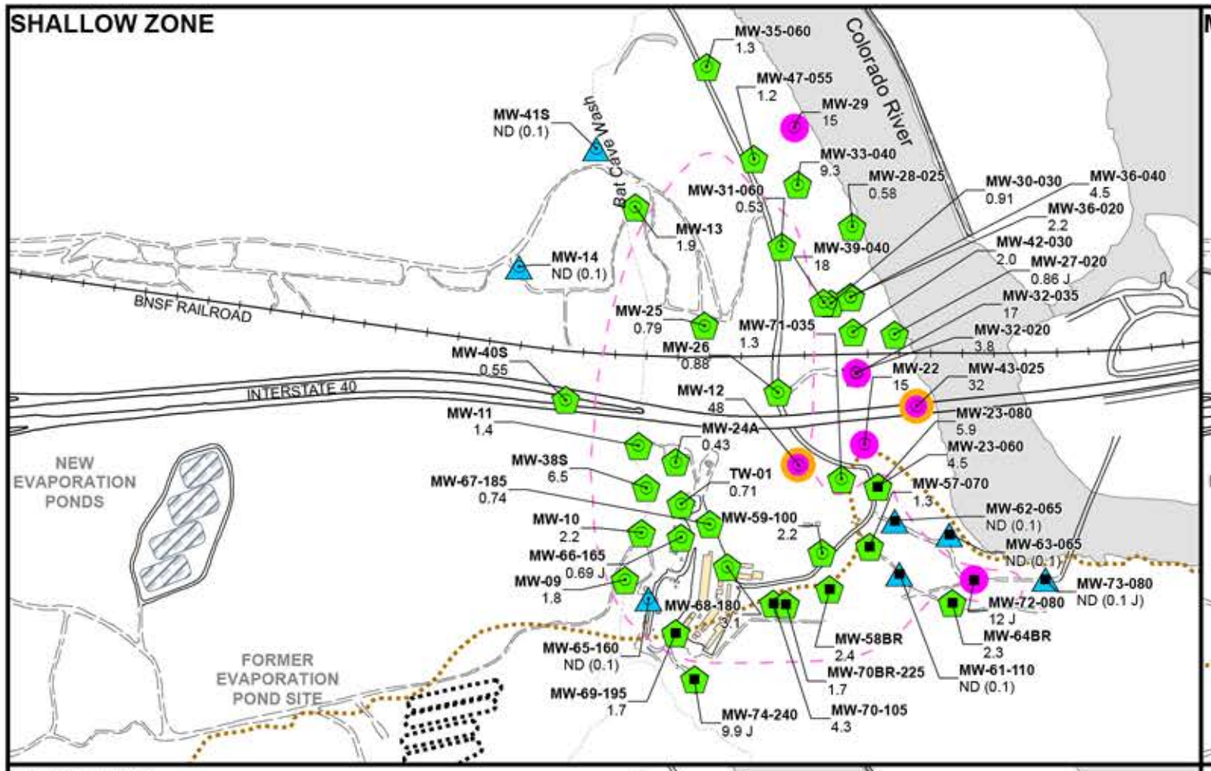
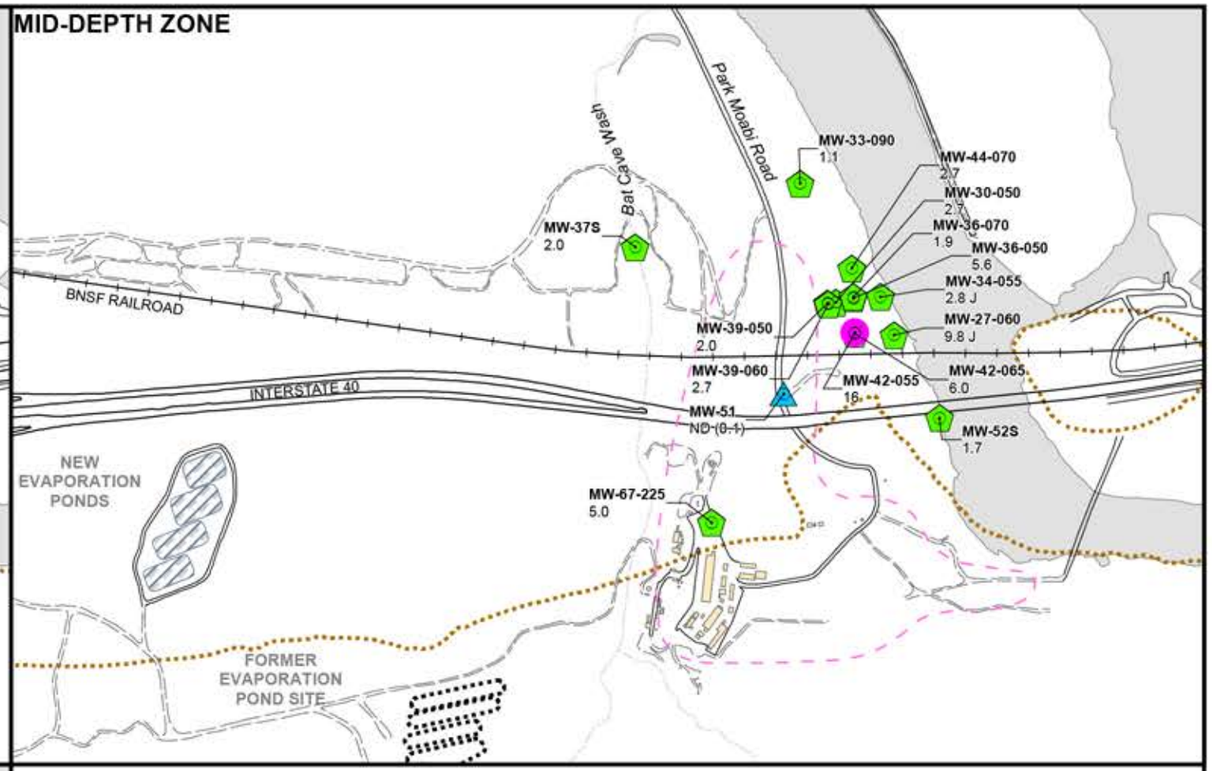
FIGURE
3-2c

City: Citrix Div/Group: IM Created By: K. SINSABAUGH Last Saved By: PSI01045
Topock (RC000753.802D.Q4182)
T:_ENV\PGE_Topock\GEC\MXD\GMP\4Q20\Final\Figure3-2c_NI_Results_2020Q4.mxd 2/18/2021 6:03:50 PM

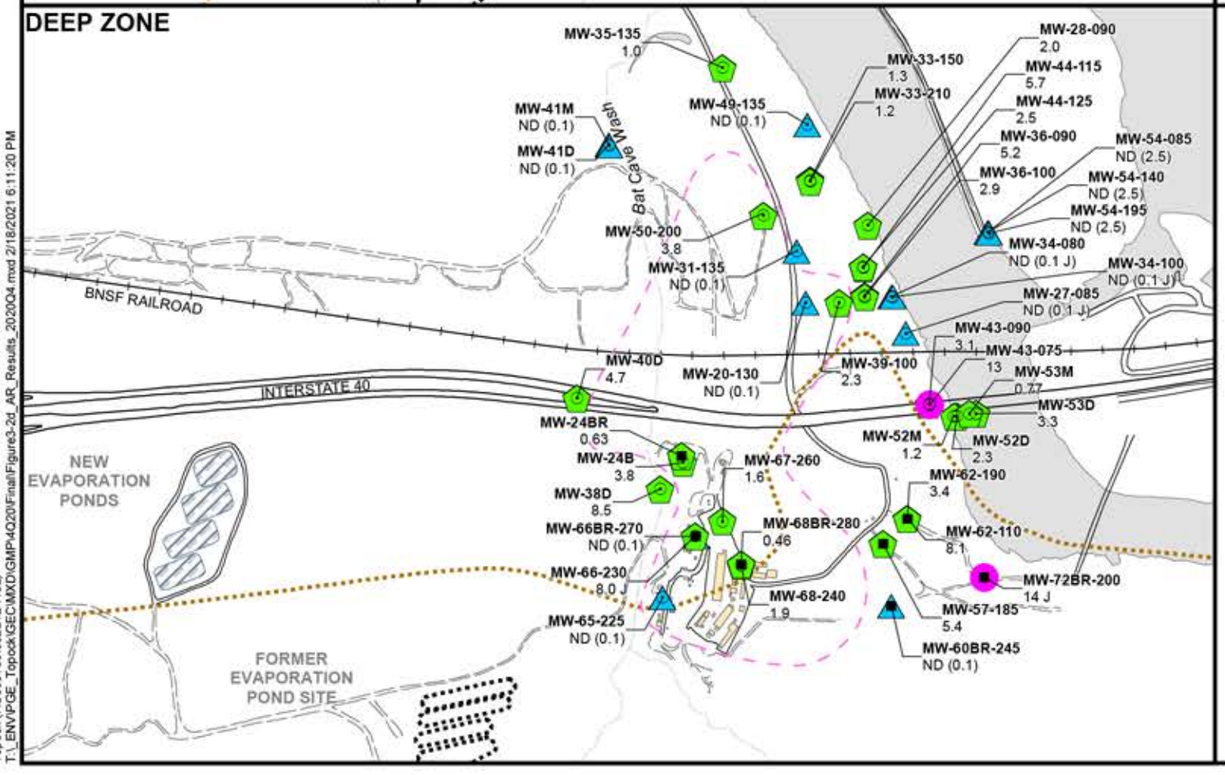
SHALLOW ZONE



MID-DEPTH ZONE



DEEP ZONE



LEGEND

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

Dissolved Arsenic Concentrations

- Not detected at analytical reporting limit
- Concentration ≤ 10.0 µg/L
- Concentration > 10.0 µg/L and < 24.3 µg/L
- Concentration ≥ 24.3 µg/L

- Approximate boundary of hexavalent chromium concentrations ≥ 32 µg/L
- Approximate bedrock contact (per depth interval)

MW-68-240 ——— Sampling Location
1.9 ——— Groundwater Dissolved Arsenic Concentration (µg/L)

0 1,000 2,000 Feet
GRAPHIC SCALE

N

Notes:

1. ND = Not detected at listed reporting limit
2. µg/L = micrograms per liter
3. ≤ = Less than or equal to
4. ≥ = Greater than or equal to
5. United States Environmental Protection Agency and California maximum containment level = 10.0 µg/L.
6. Results plotted are maximum concentration from primary and duplicate samples.
7. Dissolved arsenic background study upper tolerance limit (UTL) = 24.3 µg/L. The background study UTL was developed for alluvial wells only.
8. Long-screened wells and wells screened across more than one depth interval are generally not posted on this map.

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

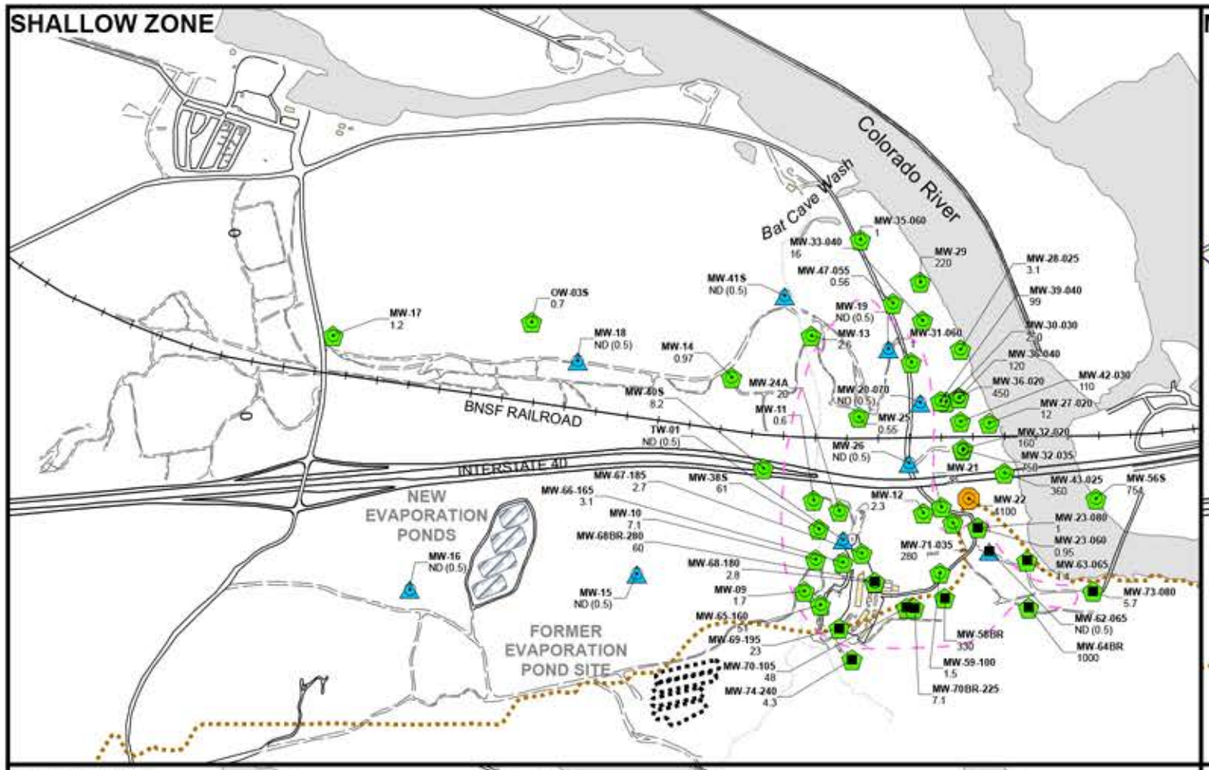
DISSOLVED ARSENIC SAMPLING RESULTS, FOURTH QUARTER 2020

ARCADIS Design & Consultancy for natural and built assets

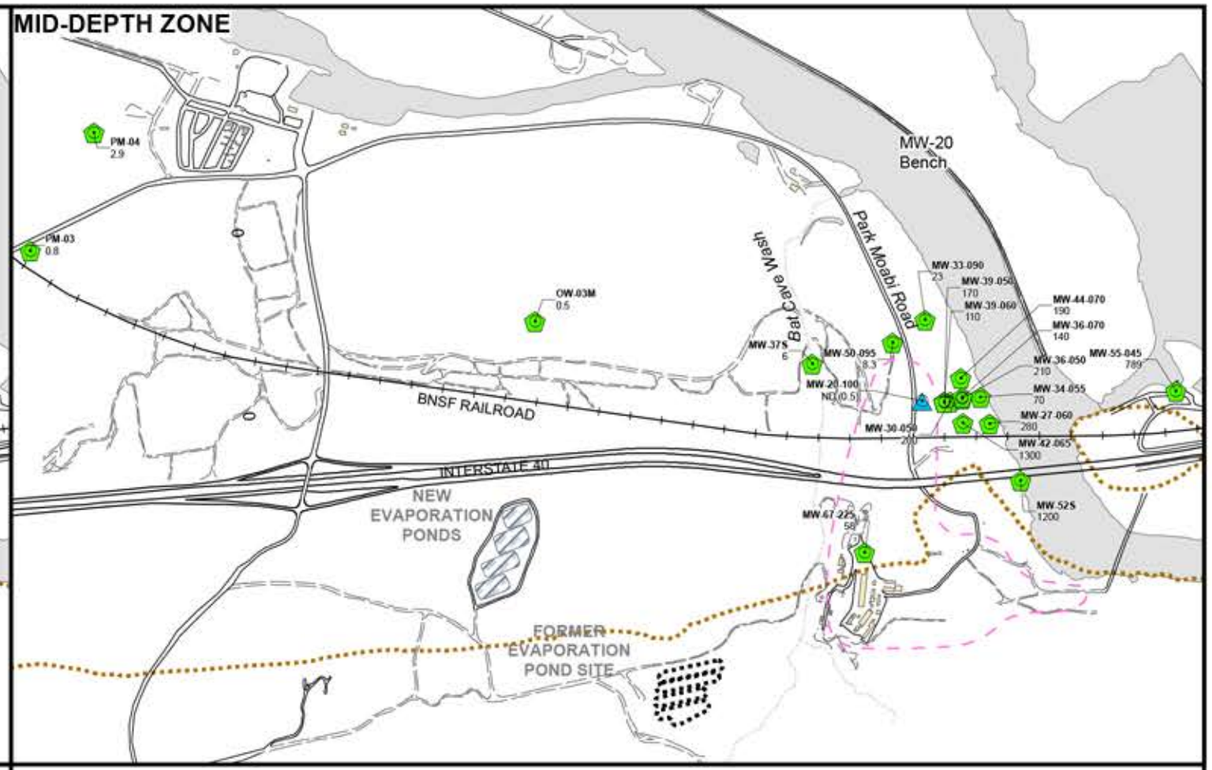
FIGURE **3-2d**

City: Citrix DivGroup: IM Created By: K. SINSABAUGH Last Saved By: PS010045
Topock (RC000753.8020.Q418.2)
T:_ENV\PGE_Topock\GEC\MXD\GMP\4Q20\Final\Figure3-2d_AR_Results_2020Q4.mxd 2/18/2021 6:11:20 PM

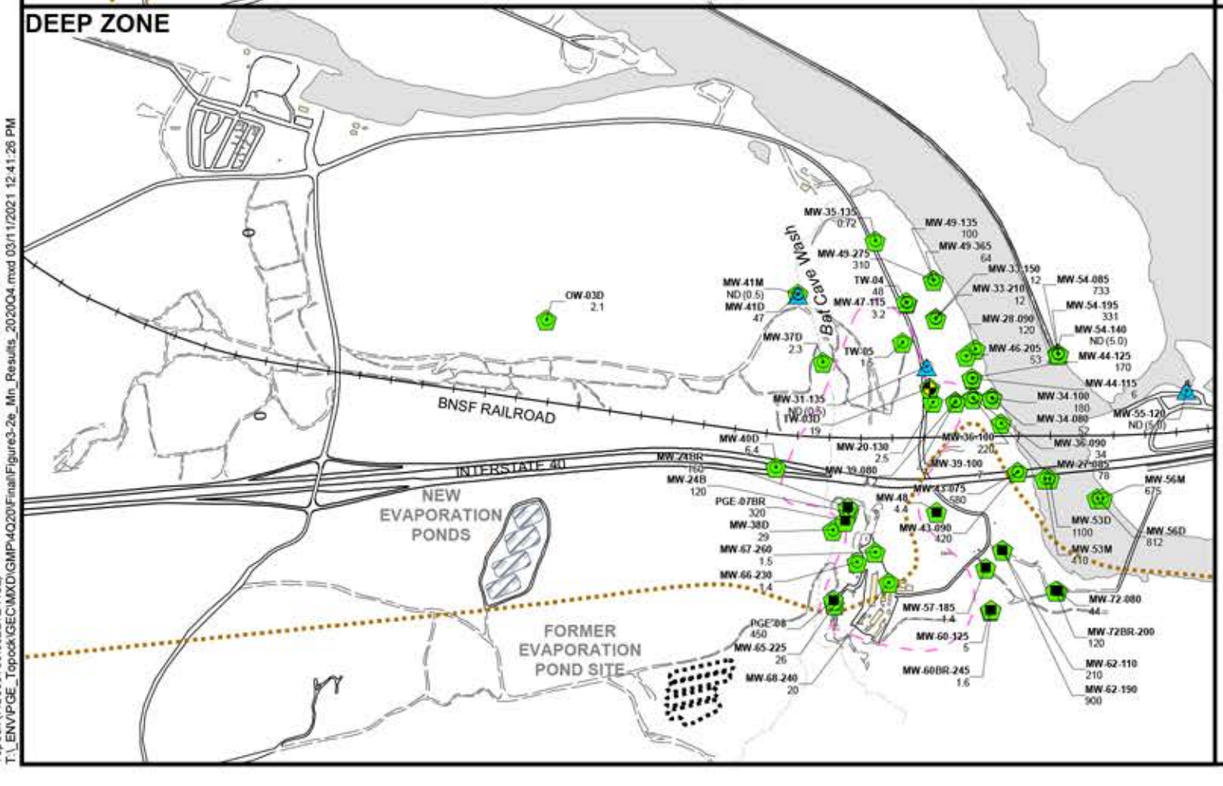
SHALLOW ZONE



MID-DEPTH ZONE



DEEP ZONE



LEGEND

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

Dissolved Manganese Concentrations

- Not detected at analytical reporting limit
- Concentration between reporting limit and 1320 µg/L
- Concentration ≥ 1320 µg/L
- Approximate boundary of hexavalent chromium concentrations ≥ 32 µg/L
- Approximate bedrock contact (per depth interval)

MW-56M ——— Sampling Location
675 ——— Groundwater Dissolved Manganese Concentration (µg/L)

0 1,000 2,000 Feet
GRAPHIC SCALE

N

Notes:

1. ND = Not detected at listed reporting limit
2. µg/L = micrograms per liter
3. ≥ = Greater than or equal to
4. J = The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.
5. Results plotted are maximum concentration from primary and duplicate samples.
6. Dissolved manganese background study upper tolerance limit (UTL) = 1320 µg/L. The background study UTL was developed for alluvial wells only.
7. There is no primary United States Environmental Protection Agency or California maximum contaminant level (MCL) for manganese. The secondary MCL is 50 ug/L. Comparison to the secondary MCL is not shown on the figure.
8. Long-screened wells and wells screened across more than one depth interval are generally not posted on this map.

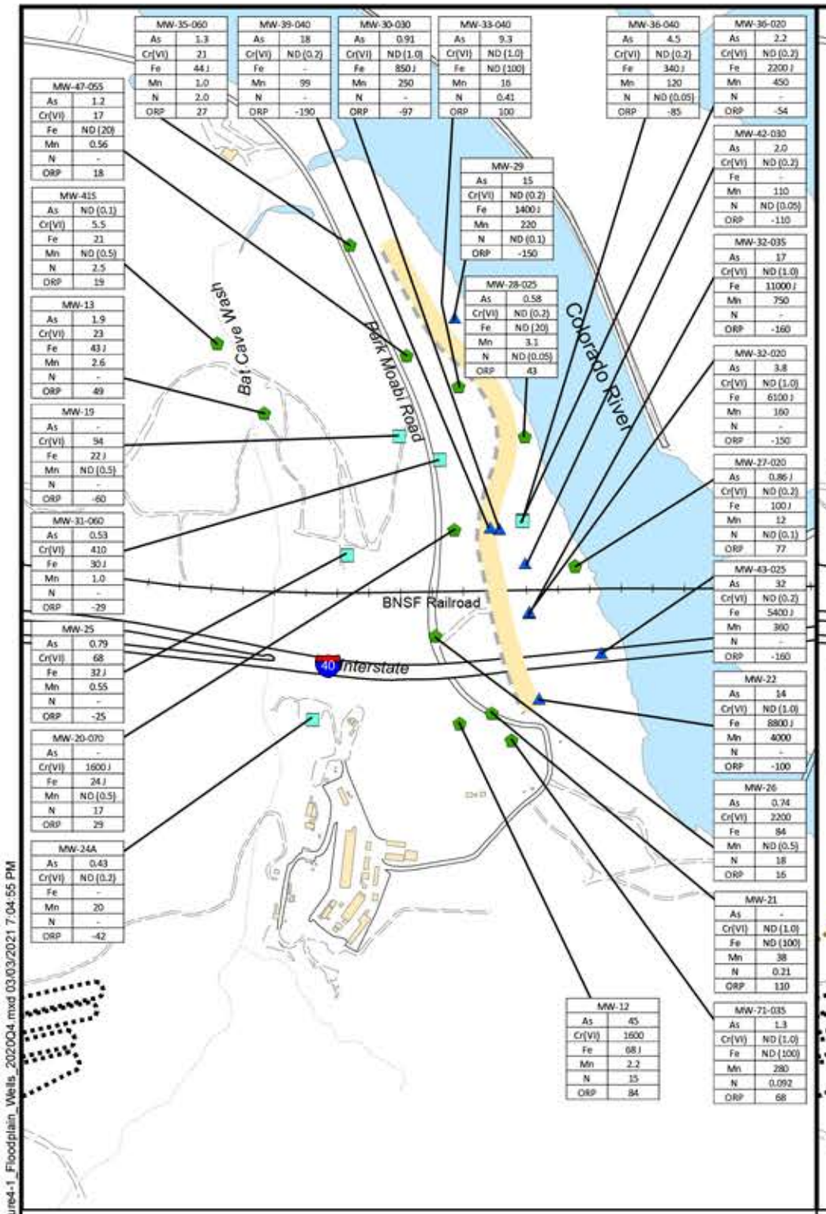
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

DISSOLVED MANGANESE SAMPLING RESULTS, FOURTH QUARTER 2020

ARCADIS Design & Consultancy for natural and built assets

FIGURE **3-2e**

City: Citrix DivGroup: IM Created By: K. SINSABAUGH Last Saved By: PS010045
Topock (RC090753.802D Q4182)
T:_ENV\PGE_Topock\GEC\MXD\GMP\4Q20\Final\Figure3-2e_Mn_Results_2020Q4.mxd 03/11/2021 12:41:26 PM



MW-35-060	
As	1.3
Cr(VI)	21
Fe	44 J
Mn	1.0
N	2.0
ORP	27

MW-39-040	
As	18
Cr(VI)	ND (0.2)
Fe	-
Mn	99
N	-
ORP	-190

MW-30-030	
As	0.91
Cr(VI)	ND (1.0)
Fe	850 J
Mn	250
N	-
ORP	-97

MW-33-040	
As	9.3
Cr(VI)	ND (1.0)
Fe	ND (100)
Mn	16
N	0.41
ORP	100

MW-36-040	
As	4.5
Cr(VI)	ND (0.2)
Fe	340 J
Mn	120
N	ND (0.05)
ORP	-85

MW-36-020	
As	2.2
Cr(VI)	ND (0.2)
Fe	2200 J
Mn	450
N	-
ORP	-54

MW-47-055	
As	1.2
Cr(VI)	17
Fe	ND (20)
Mn	0.56
N	-
ORP	18

MW-29	
As	15
Cr(VI)	ND (0.2)
Fe	1400 J
Mn	220
N	ND (0.1)
ORP	-150

MW-42-030	
As	2.0
Cr(VI)	ND (0.2)
Fe	-
Mn	110
N	ND (0.05)
ORP	-110

MW-41S	
As	ND (0.1)
Cr(VI)	5.5
Fe	21
Mn	ND (0.5)
N	2.5
ORP	19

MW-28-025	
As	0.58
Cr(VI)	ND (0.2)
Fe	ND (20)
Mn	3.1
N	ND (0.05)
ORP	43

MW-32-035	
As	17
Cr(VI)	ND (1.0)
Fe	11000 J
Mn	750
N	-
ORP	-160

MW-13	
As	1.9
Cr(VI)	23
Fe	43 J
Mn	2.6
N	-
ORP	49

MW-32-020	
As	3.8
Cr(VI)	ND (1.0)
Fe	6100 J
Mn	160
N	-
ORP	-150

MW-19	
As	-
Cr(VI)	94
Fe	22 J
Mn	ND (0.5)
N	-
ORP	-60

MW-27-020	
As	0.86 J
Cr(VI)	ND (0.2)
Fe	100 J
Mn	12
N	ND (0.1)
ORP	77

MW-31-060	
As	0.53
Cr(VI)	410
Fe	30 J
Mn	1.0
N	-
ORP	-29

MW-43-025	
As	32
Cr(VI)	ND (0.2)
Fe	5400 J
Mn	360
N	-
ORP	-160

MW-25	
As	0.79
Cr(VI)	68
Fe	32 J
Mn	0.55
N	-
ORP	-25

MW-22	
As	14
Cr(VI)	ND (1.0)
Fe	8800 J
Mn	4000
N	-
ORP	-100

MW-20-070	
As	-
Cr(VI)	1600 J
Fe	24 J
Mn	ND (0.5)
N	17
ORP	29

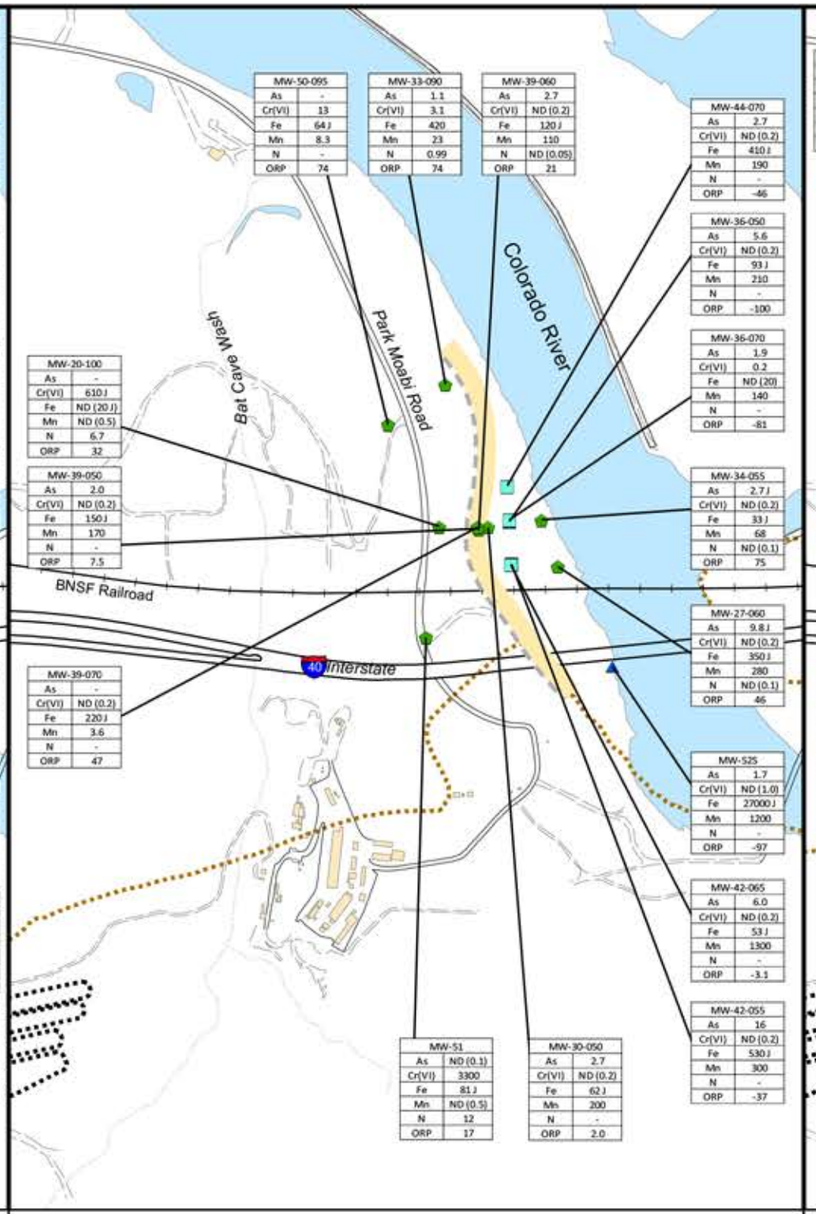
MW-26	
As	0.74
Cr(VI)	2200
Fe	84
Mn	ND (0.5)
N	18
ORP	16

MW-24A	
As	0.43
Cr(VI)	ND (0.3)
Fe	-
Mn	20
N	-
ORP	-42

MW-21	
As	-
Cr(VI)	ND (1.0)
Fe	ND (100)
Mn	38
N	0.21
ORP	110

MW-12	
As	45
Cr(VI)	1600
Fe	68 J
Mn	2.2
N	15
ORP	84

MW-71-035	
As	1.3
Cr(VI)	ND (1.0)
Fe	ND (100)
Mn	280
N	0.092
ORP	68



MW-50-095	
As	-
Cr(VI)	13
Fe	64 J
Mn	8.3
N	-
ORP	74

MW-33-090	
As	1.1
Cr(VI)	3.1
Fe	420
Mn	23
N	0.99
ORP	74

MW-39-060	
As	2.7
Cr(VI)	ND (0.2)
Fe	120 J
Mn	110
N	ND (0.05)
ORP	21

MW-44-070	
As	2.7
Cr(VI)	ND (0.2)
Fe	410 J
Mn	190
N	-
ORP	-46

MW-36-050	
As	5.6
Cr(VI)	ND (0.2)
Fe	93 J
Mn	210
N	-
ORP	-100

MW-20-100	
As	-
Cr(VI)	610 J
Fe	ND (20 J)
Mn	ND (0.5)
N	6.7
ORP	32

MW-36-070	
As	1.9
Cr(VI)	0.2
Fe	ND (20)
Mn	140
N	-
ORP	-81

MW-39-050	
As	2.0
Cr(VI)	ND (0.2)
Fe	150 J
Mn	170
N	-
ORP	7.5

MW-34-055	
As	2.7 J
Cr(VI)	ND (0.2)
Fe	33 J
Mn	68
N	ND (0.1)
ORP	75

MW-27-060	
As	9.8 J
Cr(VI)	ND (0.2)
Fe	350 J
Mn	280
N	ND (0.1)
ORP	46

MW-39-070	
As	-
Cr(VI)	ND (0.2)
Fe	220 J
Mn	3.6
N	-
ORP	47

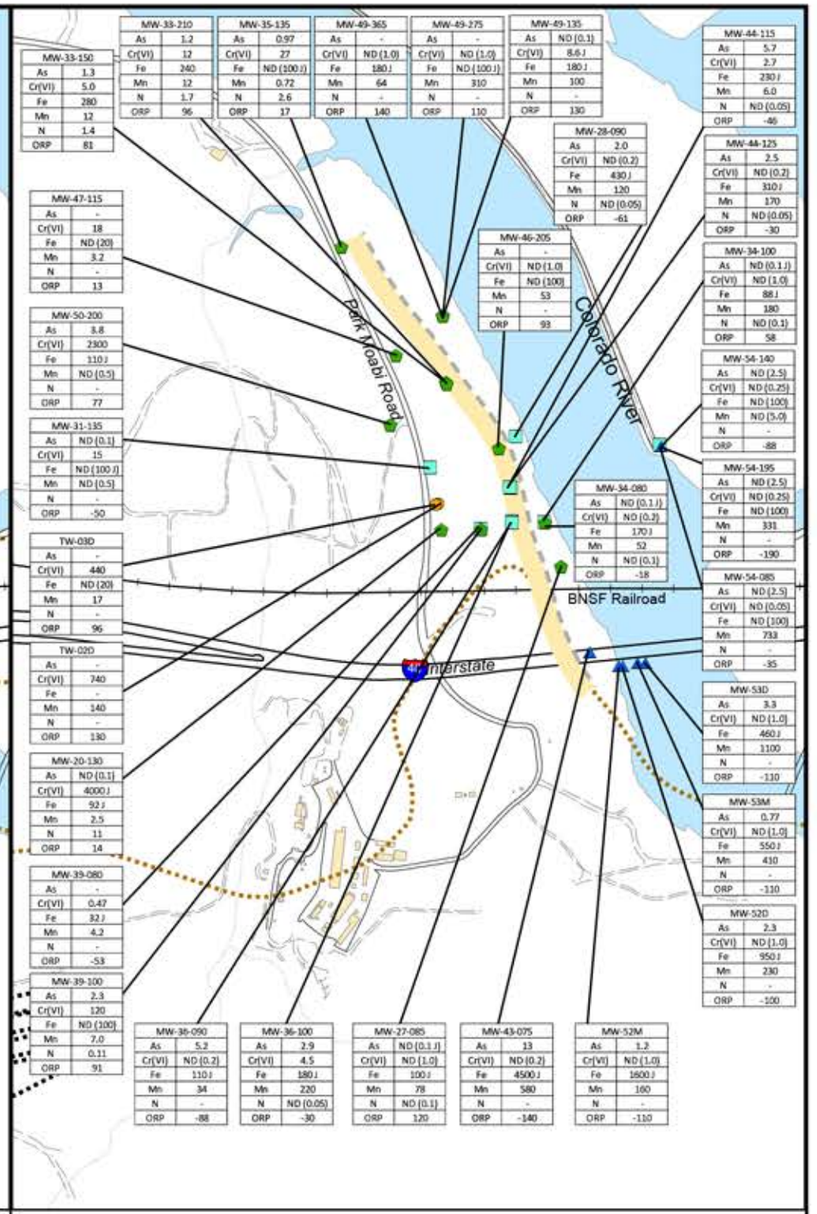
MW-52S	
As	1.7
Cr(VI)	ND (1.0)
Fe	27000 J
Mn	1200
N	-
ORP	-97

MW-42-065	
As	6.0
Cr(VI)	ND (0.2)
Fe	53 J
Mn	1300
N	-
ORP	-3.1

MW-51	
As	ND (0.1)
Cr(VI)	3300
Fe	81 J
Mn	ND (0.5)
N	12
ORP	17

MW-30-050	
As	2.7
Cr(VI)	ND (0.2)
Fe	62 J
Mn	200
N	-
ORP	2.0

MW-42-055	
As	16
Cr(VI)	ND (0.2)
Fe	530 J
Mn	300
N	-
ORP	-37



MW-33-210	
As	1.2
Cr(VI)	12
Fe	240
Mn	12
N	1.7
ORP	96

MW-35-135	
As	0.97
Cr(VI)	27
Fe	ND (100 J)
Mn	0.72
N	2.6
ORP	17

MW-49-365	
As	-
Cr(VI)	ND (1.0)
Fe	180 J
Mn	64
N	-
ORP	140

MW-49-275	
As	-
Cr(VI)	ND (1.0)
Fe	ND (100 J)
Mn	310
N	-
ORP	110

MW-49-135	
As	ND (0.1)
Cr(VI)	8.6 J
Fe	180 J
Mn	100
N	-
ORP	130

MW-33-150	
As	1.3
Cr(VI)	5.0
Fe	280
Mn	12
N	1.4
ORP	81

MW-28-090	
As	2.0
Cr(VI)	ND (0.2)
Fe	430 J
Mn	120
N	ND (0.05)
ORP	-61

MW-44-115	
As	5.7
Cr(VI)	2.7
Fe	230 J
Mn	6.0
N	ND (0.05)
ORP	-46

MW-47-115	
As	-
Cr(VI)	18
Fe	ND (20)
Mn	3.2
N	-
ORP	13

MW-46-205	
As	-
Cr(VI)	ND (1.0)
Fe	ND (100)
Mn	53
N	-
ORP	93

MW-44-125	
As	2.5
Cr(VI)	ND (0.2)
Fe	310 J
Mn	170
N	ND (0.05)
ORP	-30

MW-50-200	
As	3.8
Cr(VI)	2300
Fe	110 J
Mn	ND (0.5)
N	-
ORP	77

MW-34-100	
As	ND (0.1 J)
Cr(VI)	ND (1.0)
Fe	88 J
Mn	180
N	ND (0.1)
ORP	58

MW-54-140	
As	ND (2.5)
Cr(VI)	ND (0.25)
Fe	ND (100)
Mn	ND (5.0)
N	-
ORP	-88

MW-31-135	
As	ND (0.1)
Cr(VI)	15
Fe	ND (100 J)
Mn	ND (0.5)
N	-
ORP	-50

MW-34-080	
As	ND (0.1 J)
Cr(VI)	ND (0.2)
Fe	170 J
Mn	52
N	ND (0.1)
ORP	-18

MW-54-195	
As	ND (2.5)
Cr(VI)	ND (0.25)
Fe	ND (100)
Mn	331
N	-
ORP	-190

TW-03D	
As	-
Cr(VI)	440
Fe	ND (20)
Mn	17
N	-
ORP	96

MW-54-085	
As	ND (2.5)
Cr(VI)	ND (0.05)
Fe	ND (100)
Mn	733
N	-
ORP	-35

TW-02D	
As	-
Cr(VI)	740
Fe	-
Mn	140
N	-
ORP	130

MW-53D	
As	3.3
Cr(VI)	ND (1.0)
Fe	460 J
Mn	1100
N	-
ORP	-130

MW-20-130	
As	ND (0.1)
Cr(VI)	4000 J
Fe	92 J
Mn	2.5
N	11
ORP	14

MW-53M	
As	0.77
Cr(VI)	ND (1.0)
Fe	550 J
Mn	410
N	-
ORP	-110

MW-39-080	
As	-
Cr(VI)	0.47
Fe	32 J
Mn	4.2
N	-
ORP	-53

MW-52D	
As	2.3
Cr(VI)	ND (1.0)
Fe	950 J
Mn	230
N	-
ORP	-100

MW-39-100	
As	2.3
Cr(VI)	120
Fe	ND (100)
Mn	7.0
N	0.11
ORP	91

MW-38-090	
As	5.2
Cr(VI)	ND (0.2)
Fe	110 J
Mn	34
N	-
ORP	-88

MW-36-100	
As	2.9
Cr(VI)	4.5
Fe	180 J
Mn	220
N	ND (0.05)
ORP	-30

MW-27-085	
As	ND (0.1 J)
Cr(VI)	ND (1.0)
Fe	100 J
Mn	78
N	ND (0.1)
ORP	120

MW-43-075	
As	13
Cr(VI)	ND (0.2)
Fe	4500 J
Mn	580
N	-
ORP	-140

MW-52M	
As	1.2
Cr(VI)	ND (1.0)
Fe	1600 J
Mn	160
N	-
ORP	-110

SHALLOW WELLS (UPPER DEPTH INTERVAL) - 2020

MID-DEPTH WELLS (MIDDLE DEPTH INTERVAL) - 2020

DEEP WELLS (LOWER DEPTH INTERVAL) - 2020

LEGEND

- Approximate limit of reducing groundwater based upon a combination of redox indicator parameters and historical data trends
- Groundwater ORP < -90mV
- -90 mV< Groundwater ORP < 1 mV
- Groundwater ORP > 1 mV
- IM-3 Extraction Wells (TW-02D, TW-03D)

Notes:

1. ND = Not detected at listed reporting limit.
2. J = The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.
3. mg/L - milligrams per liter
4. mV = millivolts
5. µg/L = micrograms per liter
6. < = Less than
7. > = Greater than

Location ID	
As	Dissolved arsenic (µg/L)
Cr(VI)	Hexavalent chromium (µg/L)
Fe	Dissolved iron (µg/L)
Mn	Dissolved manganese (µg/L)
N	Nitrate/nitrite as nitrogen (mg/L)
ORP	Oxidation reduction potential (mV)

0 400 800 Feet

GRAPHIC SCALE

N

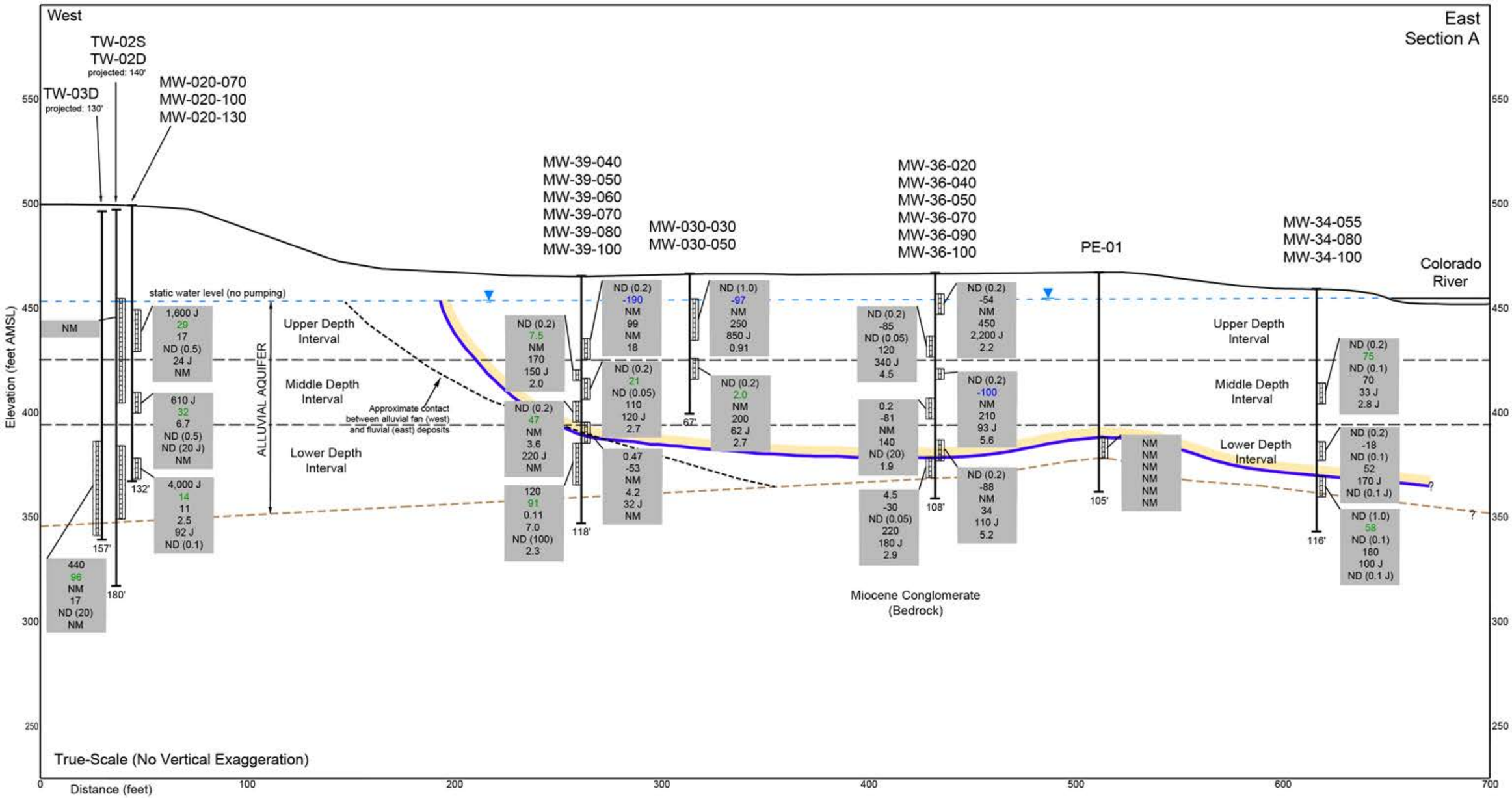
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

DISTRIBUTION OF CR(VI), GEOCHEMICAL INDICATOR PARAMETERS, AND IN-SITU BY-PRODUCTS IN FLOODPLAIN WELLS, FOURTH QUARTER 2020

ARCADIS Design & Consultancy for natural and built assets

FIGURE 4-1

City: Citrix Div/Group: IM Created By: K. SIMSABAUGH Last Saved By: PS01045
Topock \RC000753.8002\D 04182\
T:_ENV\PGE_Topock\GEC\MXD\GMP\4Q20\Final\Figure4-1_Floodplain_Wells_202004.mxd 03/03/2021 7:04:55 PM



Legend

water level

well screen

boring depth (feet)

ND (0.2)
-100
NM
210
96 J
5.6

157'

Groundwater Results

Hexavalent chromium, micrograms per liter (µg/L)
Oxidation reduction potential (ORP), millivolts (mV)
Nitrate/Nitrite as nitrogen, milligrams per liter (mg/L)
Dissolved manganese (Mn), (µg/L)
Dissolved iron (Fe), (µg/L)
Dissolved arsenic (As), (µg/L)

Approximate limit of reducing water; based on a combination of redox indicator parameters and historical data trends.

Notes:
> = greater than
< = less than
J = concentration or reporting limit estimated by laboratory or data validation
ND = not detected at listed reporting limit
NM = not measured
Groundwater ORP < -90 mV
-90 mV < Groundwater ORP < 1 mV
Groundwater ORP > 1 mV

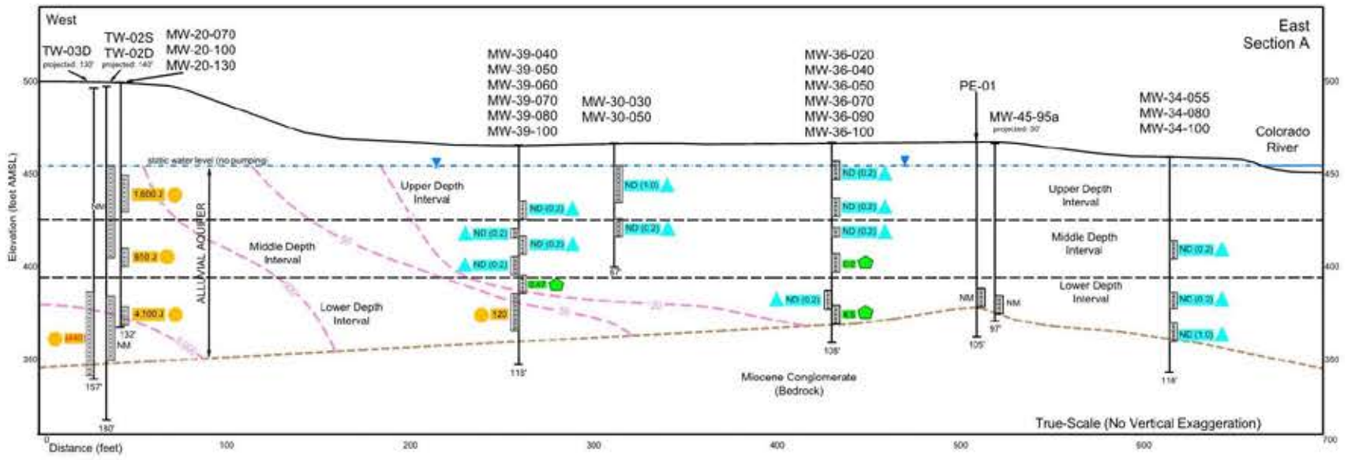
FOURTH QUARTER 2020 AND ANNUAL INTERIM-MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

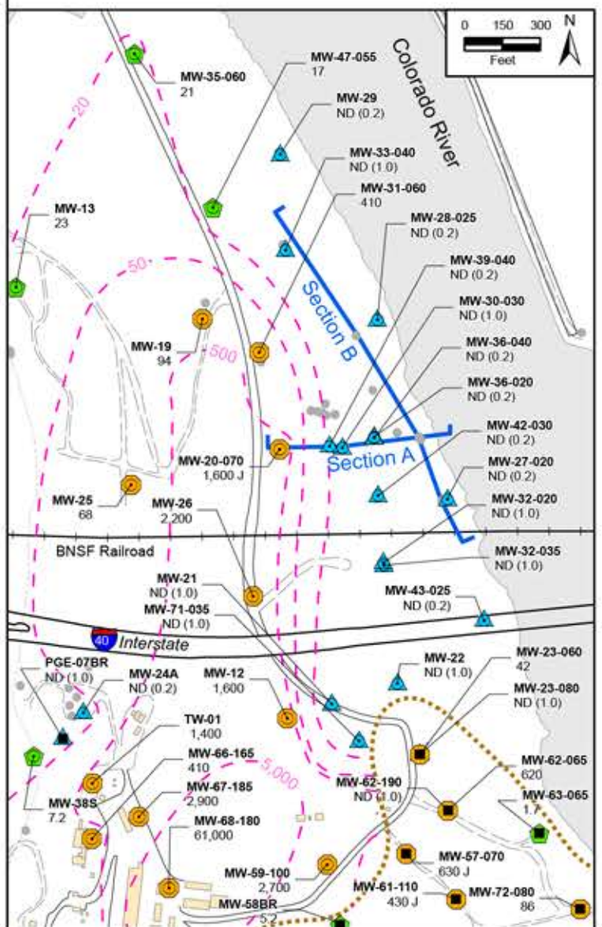
DISTRIBUTION OF CR(VI), GEOCHEMICAL INDICATOR PARAMETERS, AND IN-SITU BYPRODUCTS IN FLOODPLAIN WELLS CROSS-SECTION A, FOURTH QUARTER 2020

ARCADIS Design & Consultancy for natural and built assets

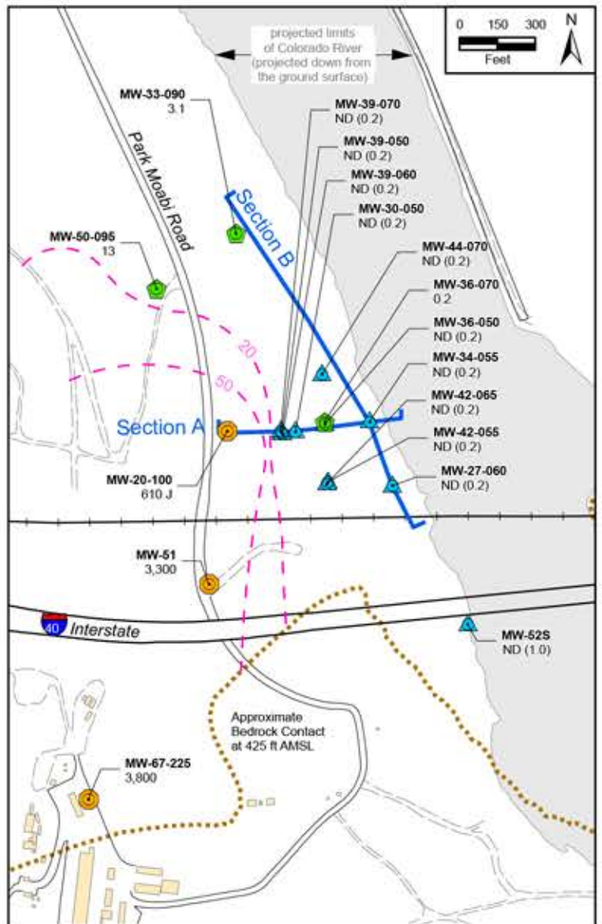
FIGURE
4-2

CITY:(Reqd) DIV/GROUP:(Reqd) DB:(Reqd) LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
C:\Users\ms0285\BIM 360\Arcadis\ANA - PACIFIC GAS & ELECTRIC\Project Files\TOPOCK GW MONITORING REPORTING\2021\30035275\01-DWG\GWM-2020Q4-F4-2-CROSS SECTION.dwg LAYOUT: 4-2 SAVED: 3/4/2021 6:48 AM ACADVER: 23.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE:
PLTFULL.CTB PLOTTED: 3/5/2021 4:06 PM BY: M. SARAVANAPRIYA
XREFS: IMAGES: PROJECTNAME: ----

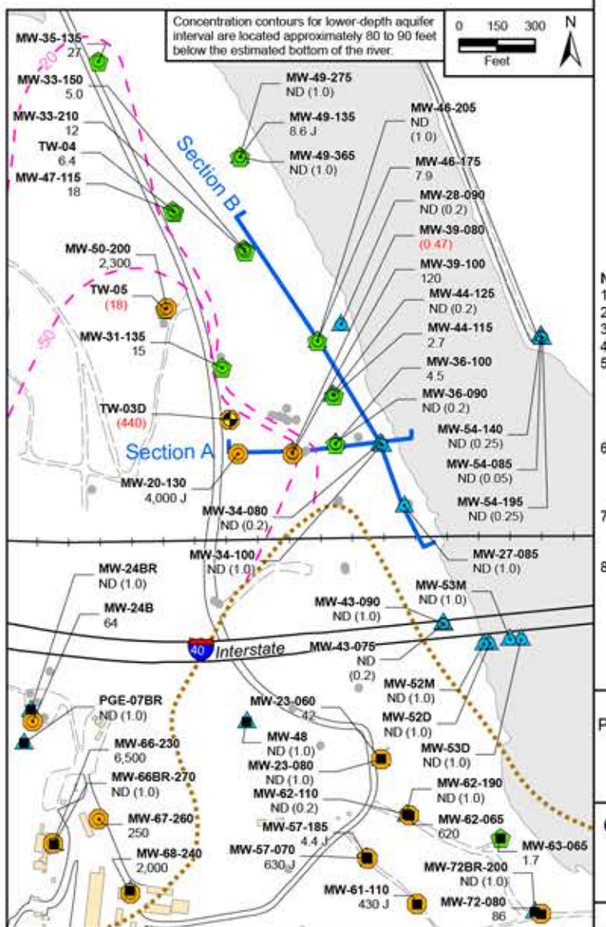




Shallow Wells (Upper Depth Interval)



Mid-Depth Wells (Middle Depth Interval)



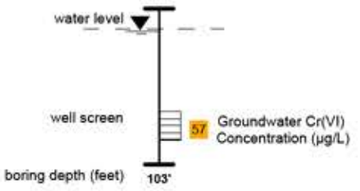
Deep Wells (Lower Depth Interval)

LEGEND

- Alluvial Aquifer well sampled during sampling event
- Bedrock well 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-19 — Sampling Location
94 — Groundwater Cr(VI) Concentration (µg/L)
(440) — 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.

FOURTH QUARTER 2020 AND ANNUAL 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, FOURTH QUARTER 2020

ARCADIS Design & Consultancy for natural and built assets

FIGURE 5-1

T:_ENV\PGE_TOPOCK\GEC\MXD\GMP\4Q20\FINAL\FIGURE5-1_GMP_CR6_2020Q4_MAX.MXD 3/10/2021 10:50:42 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 (1.0)
3.1
5.0
12
237'

ND (0.2)
ND (0.2)
7.9
ND (1.0)
216'

ND (0.2)
ND (0.2)
2.7
ND (0.2)
134'

ND (0.2)
ND (0.2)
ND (0.2)
ND (1.0)
116'

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

Miocene Conglomerate
(Bedrock)

True-Scale (No Vertical Exaggeration)

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

Notes:
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 5-1 for location of this cross-section.

Legend

water level

well screen

boring depth (feet) 103'

7.9 Groundwater Cr(VI) Concentration (µg/L)

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

FOURTH QUARTER 2020 ANNUAL 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, FOURTH QUARTER 2020

ARCADIS Design & Consultancy for natural and built assets

FIGURE
5-2

DIV/GROUP: IMDIV DB: G.STOWELL PM: (Req'd) LYR: ON=*;OFF=*REF* ACADVER: 24.0S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 3/4/2021 12:05 PM BY: SHAIKH, MOHAMMAD
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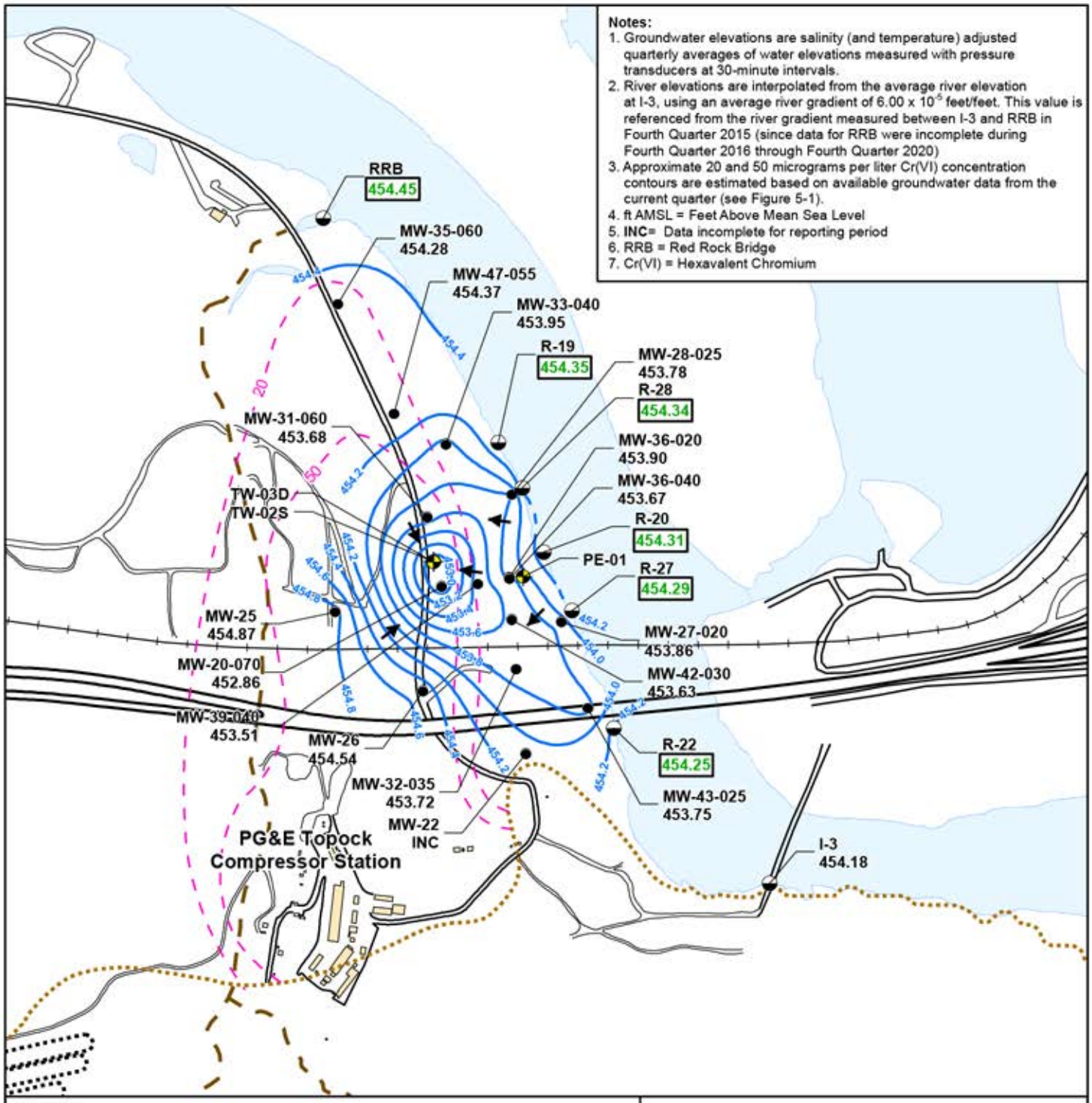


FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT

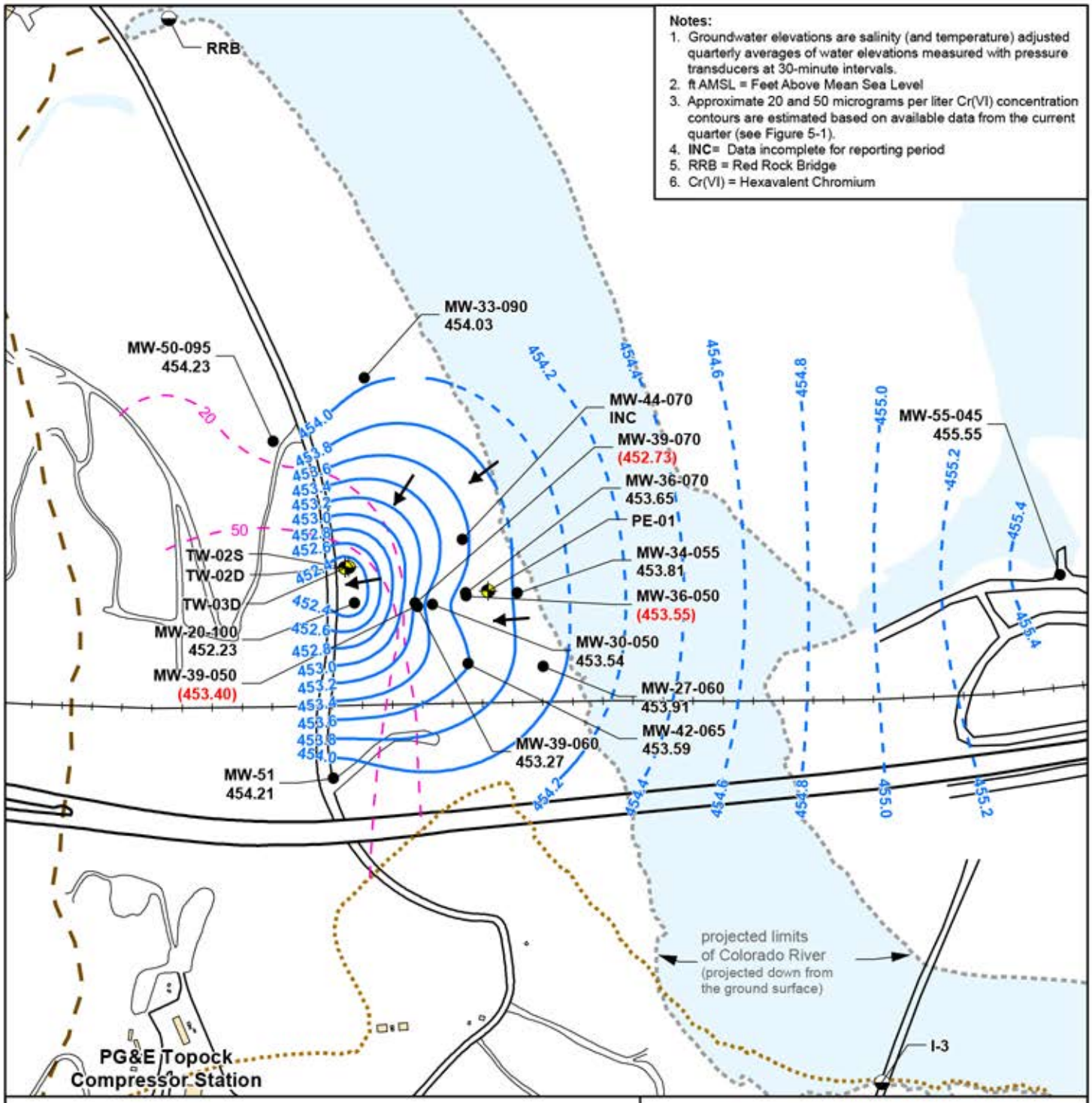
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

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

ARCADIS Design & Consultancy for natural and built assets

FIGURE
5-3a

T:_ENV\PGE_TOPOCK\GEC\MXD\GMP\4Q20\FINAL\FIGURE5-3A_GWE_SHALLOW_2020Q4.MXD 2/3/2021 10:11:22 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 5-1).
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-39-060 — Gauging Location
453.27 — Average Groundwater Elevation (ft AMSL)
(453.40) — Elevation in red parentheses not used for contouring

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

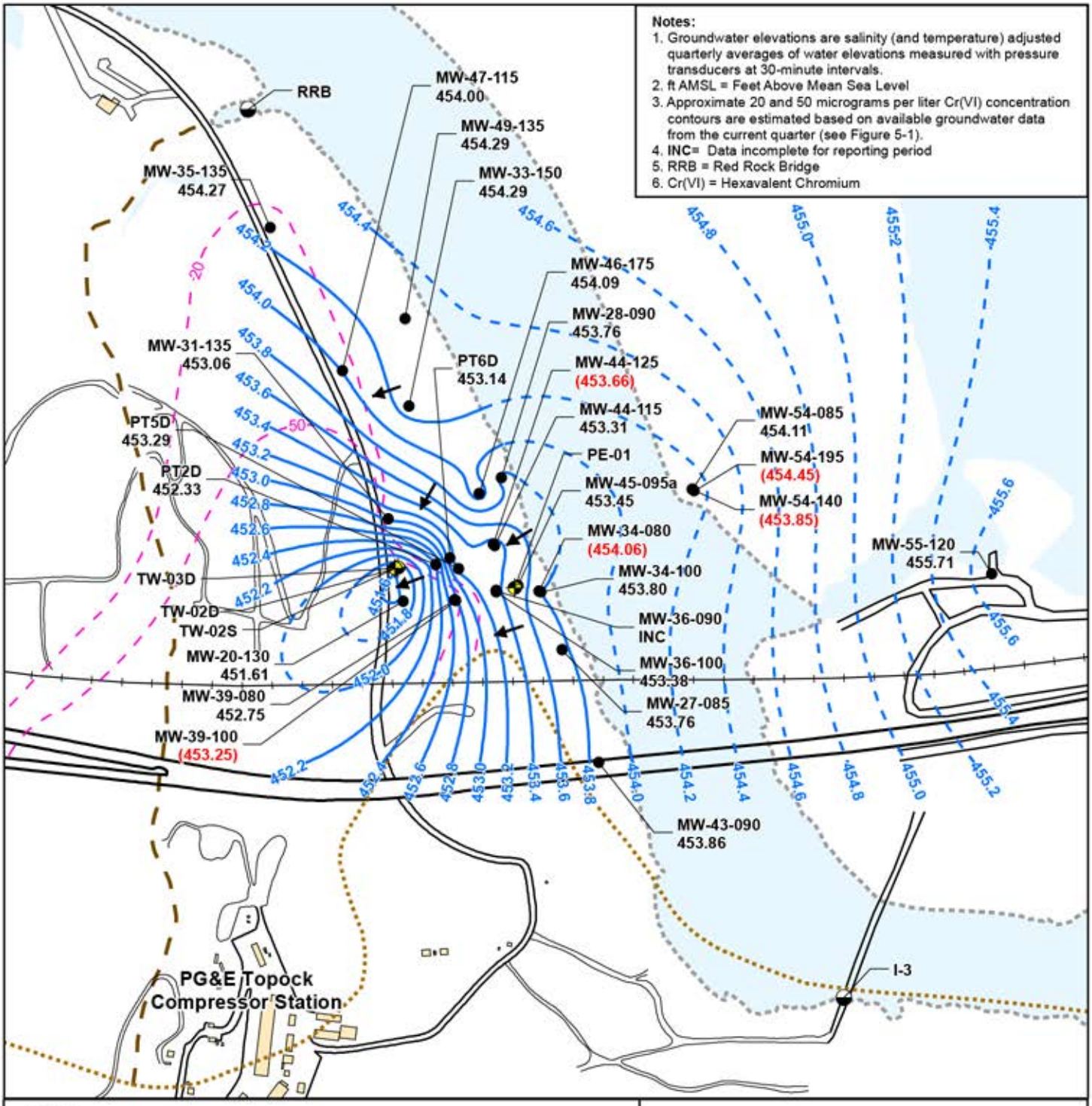
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

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

ARCADIS Design & Consultancy for natural and built assets

FIGURE
5-3b

T:_ENV\PGE_TOPOCK\GEC\MXD\GMP\4Q20\FINAL\FIGURE5-3B_GWE_MIDDEPTH_2020Q4.MXD 2/3/2021 10:13:17 AM



FOURTH QUARTER 2020 AND ANNUAL 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, FOURTH QUARTER 2020

ARCADIS Design & Consultancy for natural and built assets

FIGURE **5-3c**

T:_ENV\PGE_TOPOCK\GEC\MXD\GMP\4Q20\FINAL\FIGURE5-3C_GWE_DEEP_2020Q4.MXD 2/3/2021 10:14:33 AM

West

East

Section A

TW-02S
TW-02D
projected: 140'

TW-03D
projected: 130'

MW-20-070
MW-20-100
MW-20-130

MW-39-040
MW-39-050
MW-39-060
MW-39-070
MW-39-080
MW-39-100

MW-30-30
MW-30-050

MW-36-020
MW-36-040
MW-36-050
MW-36-070
MW-36-090
MW-36-100

PE-01

MW-45-095a
projected:30'

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

Colorado River

static water level (no pumping)

Elevation (feet AMSL)

550
500
450
400
350
300
250

NM
452.86
452.23
451.61
157'
132'
180'

453.51
(453.40)
(453.27)
452.73
(452.75)
453.25
118'

NM
453.54
67'

453.90
453.67
(453.55)
453.65
INC
453.38
108'

NM
453.45
97'
105'

453.81
454.06
453.80
116'

454.31

Miocene Conglomerate
(Bedrock)

True-Scale (No Vertical Exaggeration)

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

Notes:

1. Results show average groundwater elevations for November and December 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 Fourth Quarter 2020 average from R-20 river monitoring location.
4. The hexavalent chromium contour lines are from Figure 5-1.
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)

453.54

boring depth (feet)

67'

Inferred groundwater head contour

Interpreted groundwater flow direction

20

Inferred hexavalent chromium contour (ppb) in Alluvial Aquifer

FOURTH QUARTER 2020 AND ANNUAL 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, FOURTH QUARTER 2020

ARCADIS Design & Consultancy for natural and built assets

FIGURE
5-4

DIV/GROUP:IMDV DB:G.STOWELL PM:(Req'd) LYR:ON=*;OFF=*REF* ACADVER: 24.0S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: ---
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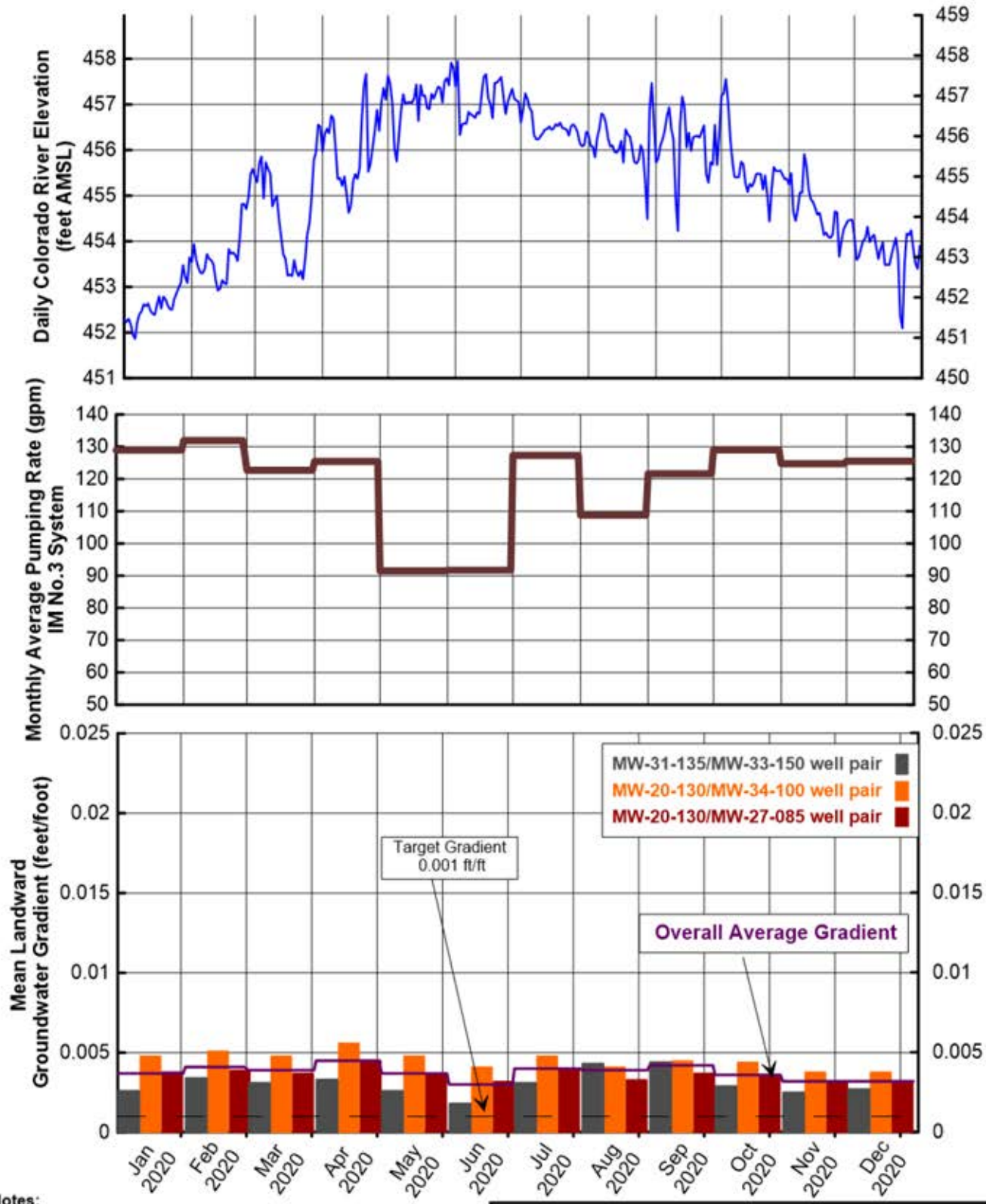
XREFS: IMAGES:

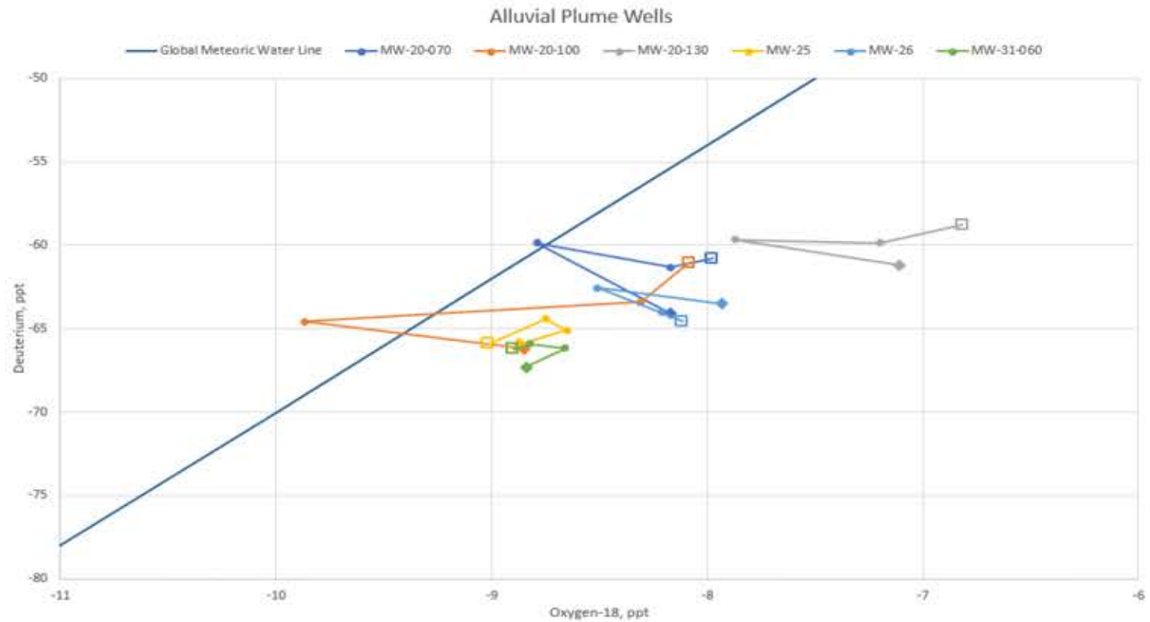


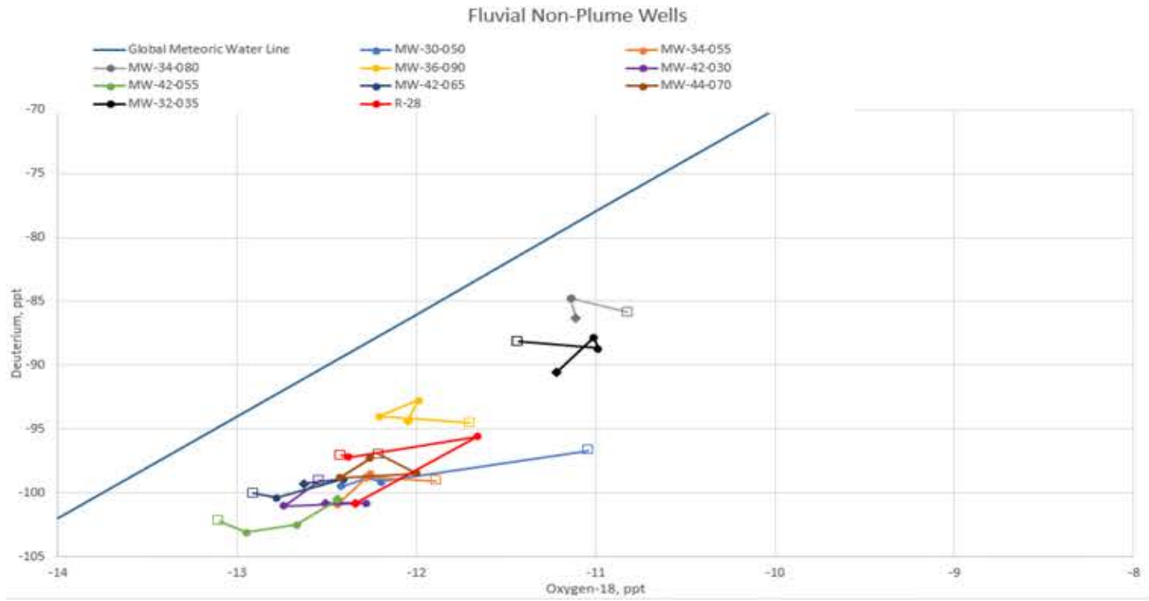
Notes:

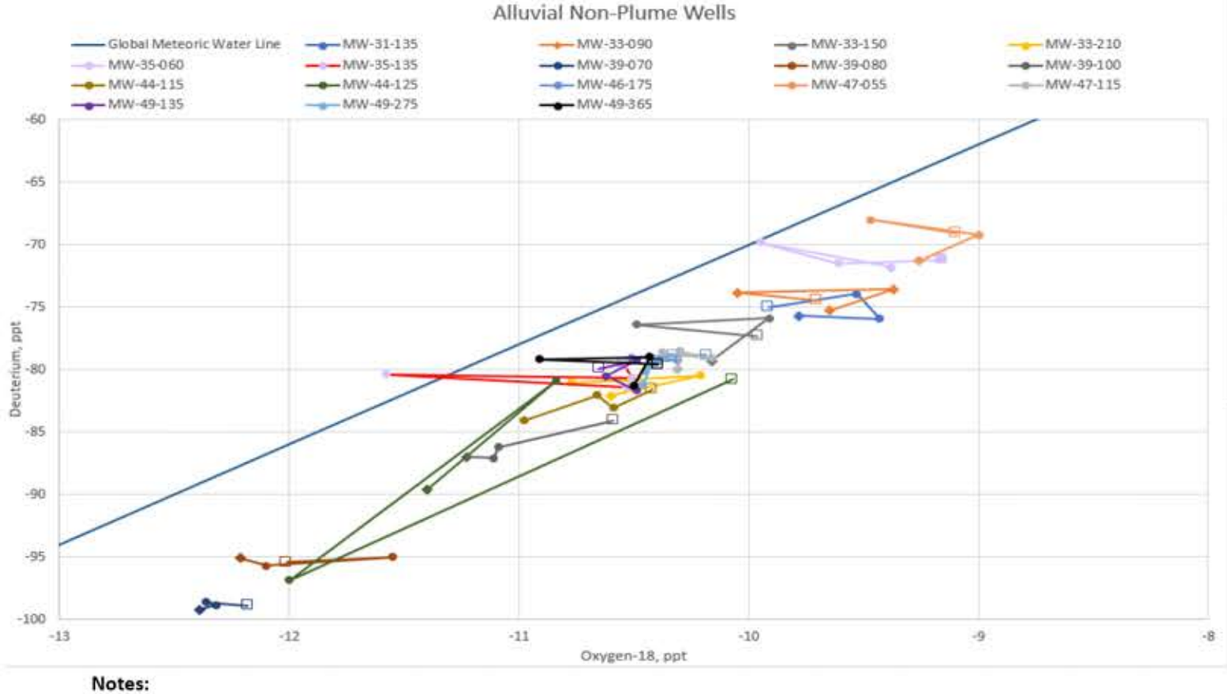
1. For IM pumping, the target landward gradient for well pairs is 0.001 feet/foot.
2. Refer to Table 5-1 and Section 6.2 for discussion of pumping data.
3. Pumping rate plotted is the combined rate of extraction wells TW-03D and PE-01 in operation each month.
4. Beginning August 2017, MW-20-130 approved 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.
5. AMSL = above mean sea level.
6. gpm = gallons per minute

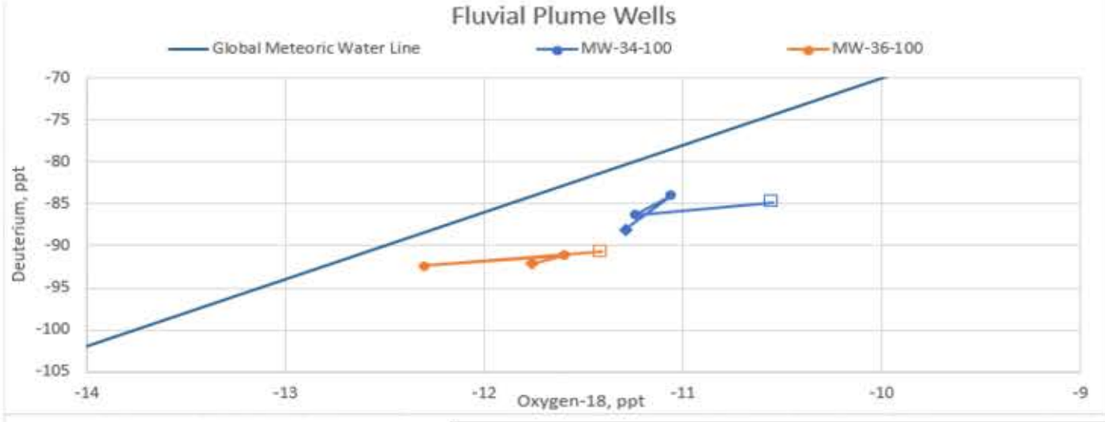
FIGURE 5-5
MEASURED HYDRAULIC GRADIENTS, RIVER ELEVATION, AND PUMPING RATE, 2020 ANNUAL REPORTING PERIOD
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

ARCADIS









Notes:

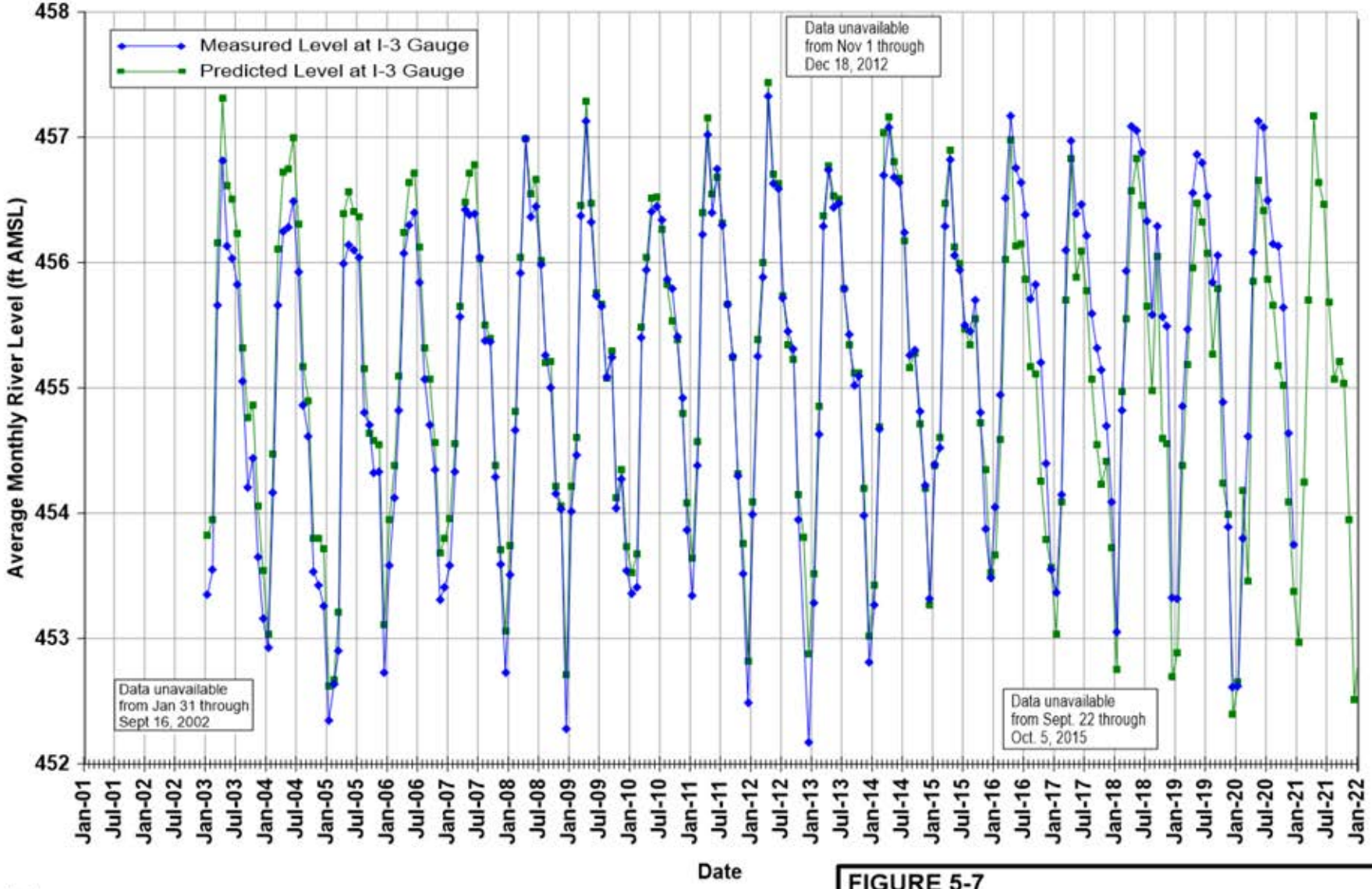
1. Oxygen-18 and deuterium are presented in parts per thousand.
2. An open square represents 2017 results. A closed diamond represents 2020 results.

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

STABLE ISOTOPES OF OXYGEN AND DEUTERIUM, FOURTH QUARTER 2020

ARCADIS Design & Consultancy for natural and built assets

FIGURE
5-6



Note:
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 I-3 are based upon USBR projections presented in the January 24-Month Study (Report dated January 12, 2020). These data are reported monthly by the US Department of Interior, at https://www.usbr.gov/uc/water/crsp/studies/24Month_01.pdf

ft AMSL = feet above mean sea level

FIGURE 5-7
PAST AND PREDICTED FUTURE RIVER LEVELS AT TOPOCK COMPRESSOR STATION
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

ARCADIS

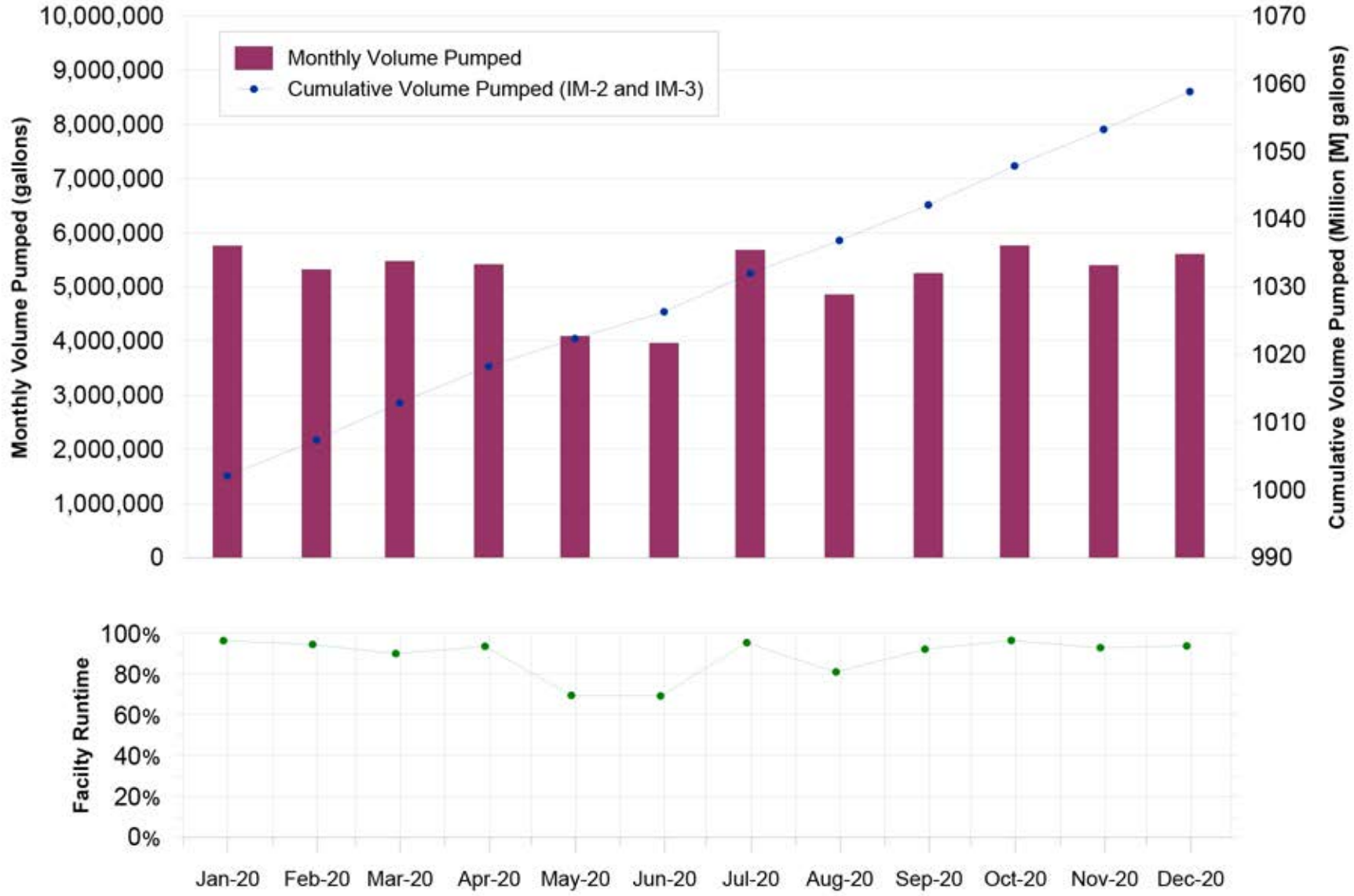


FIGURE 5-8
MONTHLY COMBINED PUMPING VOLUMES AND PERCENT UPTIME, 2020 ANNUAL REPORTING PERIOD
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATERAND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

JACOBS

APPENDIX A

Lab Reports, Fourth 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

Well Inspection and Maintenance Log, Fourth Quarter 2020

Appendix B

Well Inspection and Maintenance Log, Fourth Quarter 2020

Fourth Quarter 2020 and Annual 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	12/01/2020	No	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-10	11/30/2020	Yes	Yes	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-11	12/10/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	--	Yes	Yes	--
MW-12	12/14/2020	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-13	12/14/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-14	12/10/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-15	12/10/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-16	12/10/2020	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-17	12/10/2020	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-18	12/10/2020	Yes	No	No	No	Yes	--	Yes	No	--	Yes	No	Yes	Yes	--
MW-19	12/07/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-20-070	12/04/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-20-100	12/04/2020	Yes	No	Yes	No	Yes	No	Yes	No	Yes	Yes	No	Yes	No	--
MW-20-130	12/04/2020	Yes	No	Yes	No	Yes	No	Yes	No	Yes	Yes	No	Yes	No	--
MW-21	12/14/2020	Yes	No	No	No	No	--	Yes	No	--	Yes	No	Yes	Yes	--
MW-22	12/08/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-23-060	12/08/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	--	Yes	Yes	--
MW-23-080	12/08/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	--	Yes	Yes	--
MW-24A	12/01/2020	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-24B	12/01/2020	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-24BR	12/01/2020	Yes	No	Yes	No	Yes	Yes	Yes	No	--	Yes	No	Yes	Yes	--
MW-25	12/07/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	--	Yes	Yes	--
MW-26	12/03/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-27-020	12/03/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-27-060	12/03/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-27-085	12/03/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-28-025	12/15/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-28-090	12/15/2020	Yes	--	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-29	12/04/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-30-030	12/07/2020	Yes	No	Yes	No	Yes	Yes	--	No	Yes	Yes	No	Yes	Yes	--
MW-30-050	12/07/2020	Yes	No	Yes	--	Yes	Yes	--	No	Yes	Yes	No	Yes	Yes	--
MW-31-060	12/07/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-31-135	12/07/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-32-020	12/07/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-32-035	12/07/2020	Yes	No	Yes	--	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-33-040	12/02/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-33-090	12/02/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-33-150	12/02/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-33-210	12/02/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-34-055	12/03/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-34-080	12/03/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-34-100	12/03/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-35-060	12/08/2020	Yes	No	Yes	No	Yes	--	Yes	No	--	Yes	No	Yes	Yes	--
MW-35-135	12/08/2020	Yes	No	No	No	Yes	--	Yes	No	--	Yes	No	Yes	Yes	--
MW-36-020	12/15/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-36-040	12/15/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-36-050	12/15/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-36-070	12/15/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-36-090	12/15/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-36-100	12/15/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-37D	12/10/2020	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	No	--
MW-37S	12/10/2020	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	No	--
MW-38D	11/30/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-38D	12/14/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	--	Yes	Yes	--
MW-38S	11/30/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-39-040	12/11/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-39-050	12/11/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-39-060	12/11/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-39-070	12/11/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-39-080	12/11/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-39-100	12/15/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-40D	12/10/2020	Yes	No	No	No	Yes	--	Yes	No	--	Yes	No	Yes	Yes	--

Appendix B

Well Inspection and Maintenance Log, Fourth Quarter 2020

Fourth Quarter 2020 and Annual 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-40S	12/10/2020	Yes	No	No	No	Yes	--	Yes	No	--	Yes	No	Yes	Yes	--
MW-41D	12/17/2020	Yes	No	Yes	No	Yes	--	Yes	No	--	Yes	No	Yes	Yes	--
MW-41M	12/17/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	--	Yes	Yes	--
MW-41S	12/17/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	--	Yes	Yes	--
MW-42-030	12/16/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-42-055	12/16/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-42-065	12/16/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-43-025	12/08/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-43-075	12/08/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-43-090	12/08/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-44-070	12/11/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-44-115	12/11/2020	Yes	No	Yes	No	Yes	--	Yes	No	--	Yes	No	Yes	No	--
MW-44-125	12/11/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-46-175	12/15/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-46-205	12/15/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-47-055	11/30/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-47-115	11/30/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-48	11/30/2020	Yes	No	--	--	--	--	--	--	--	--	--	--	--	--
MW-48	12/14/2020	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-49-135	12/04/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-49-275	12/04/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-49-365	12/04/2020	Yes	No	Yes	No	Yes	--	Yes	--	Yes	Yes	No	Yes	Yes	--
MW-50-095	12/07/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-50-200	12/07/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-51	12/03/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-52D	12/08/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-52M	12/08/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-52S	12/08/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-53D	12/08/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-53M	12/08/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	--	--
MW-54-085	12/09/2020	Yes	No	No	No	Yes	--	Yes	No	--	Yes	No	Yes	Yes	--
MW-54-140	12/09/2020	Yes	No	No	No	Yes	--	Yes	No	--	Yes	--	Yes	Yes	--
MW-54-195	12/09/2020	Yes	No	No	No	Yes	--	Yes	No	--	Yes	No	Yes	Yes	--
MW-55-045	12/09/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-55-120	12/09/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-56D	12/09/2020	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	No	--
MW-56M	12/09/2020	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-56S	12/09/2020	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	No	--
MW-57-050	12/04/2020	Yes	No	No	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-57-070	12/04/2020	Yes	No	No	No	Yes	--	Yes	No	--	Yes	No	Yes	Yes	--
MW-57-185	12/04/2020	Yes	No	No	No	Yes	--	Yes	No	Yes	No	No	Yes	Yes	Yes
MW-58-065	11/30/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-58BR	11/30/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-59-100	12/08/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	--	Yes	Yes	--
MW-60BR-245	12/17/2020	Yes	No	Yes	No	Yes	--	Yes	No	--	Yes	No	Yes	Yes	--
MW-61-110	12/04/2020	No	No	No	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--
MW-62-065	12/04/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
MW-62-110	12/01/2020	--	No	--	No	Yes	--	Yes	No	--	Yes	No	Yes	Yes	--
MW-62-190	12/01/2020	--	No	--	No	Yes	--	Yes	No	--	--	No	Yes	Yes	--
MW-63-065	12/07/2020	Yes	No	No	No	Yes	--	Yes	No	--	Yes	No	Yes	Yes	--
MW-64BR	11/30/2020	Yes	No	Yes	No	Yes	--	Yes	No	--	Yes	No	Yes	Yes	--
MW-65-160	12/03/2020	Yes	No	No	No	Yes	--	Yes	No	--	Yes	No	Yes	Yes	--
MW-65-225	12/03/2020	Yes	No	No	--	Yes	--	Yes	No	--	Yes	No	Yes	Yes	--
MW-66-165	12/03/2020	Yes	No	No	No	Yes	--	Yes	No	--	Yes	No	Yes	Yes	--
MW-66-230	12/03/2020	Yes	No	No	No	Yes	--	Yes	No	--	Yes	No	Yes	Yes	--
MW-66BR-270	12/01/2020	--	No	No	Yes	No	--	Yes	No	--	--	No	Yes	Yes	--
MW-66BR-270	12/16/2020	Yes	No	No	No	No	--	Yes	No	--	--	No	Yes	Yes	--
MW-67-185	12/02/2020	Yes	No	No	No	Yes	--	Yes	No	--	Yes	No	Yes	Yes	--
MW-67-225	12/02/2020	Yes	No	No	No	Yes	--	Yes	No	--	Yes	No	Yes	Yes	--
MW-67-260	12/02/2020	Yes	No	No	No	Yes	--	Yes	No	--	Yes	No	Yes	Yes	--
MW-68-180	12/16/2020	Yes	No	No	No	Yes	--	Yes	No	--	Yes	No	Yes	Yes	--
MW-68-240	12/16/2020	Yes	No	No	No	Yes	--	Yes	No	--	Yes	No	Yes	Yes	--

Appendix B

Well Inspection and Maintenance Log, Fourth Quarter 2020

Fourth Quarter 2020 and Annual 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-68BR-280	12/16/2020	Yes	No	Yes	No	Yes	--	Yes	No	--	Yes	No	Yes	Yes	--
MW-69-195	12/03/2020	Yes	No	No	No	Yes	--	Yes	--	--	Yes	No	Yes	Yes	--
MW-70-105	11/30/2020	Yes	No	Yes	No	Yes	--	Yes	No	--	Yes	No	Yes	Yes	--
MW-70BR-225	11/30/2020	Yes	No	Yes	No	Yes	--	Yes	No	--	Yes	No	Yes	Yes	--
MW-71-035	12/14/2020	Yes	No	No	No	Yes	--	Yes	No	--	Yes	No	Yes	Yes	--
MW-72-080	12/03/2020	Yes	No	No	No	Yes	--	Yes	No	--	Yes	No	Yes	Yes	--
MW-72BR-200	12/03/2020	Yes	No	No	No	No	--	Yes	No	--	Yes	No	Yes	Yes	--
MW-73-080	12/03/2020	Yes	No	No	No	Yes	--	Yes	No	--	Yes	No	Yes	Yes	--
MW-74-240	12/01/2020	Yes	No	No	No	Yes	--	Yes	No	--	Yes	No	Yes	Yes	--
OW-03D	12/11/2020	Yes	No	Yes	No	No	--	Yes	No	Yes	Yes	--	Yes	Yes	--
OW-03M	12/11/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	--	Yes	Yes	--
OW-03S	12/11/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	--	Yes	Yes	--
PGE-07BR	12/01/2020	--	No	Yes	No	Yes	--	Yes	No	Yes	--	No	Yes	Yes	--
PGE-08	12/09/2020	Yes	No	Yes	No	No	Yes	Yes	No	--	Yes	No	Yes	Yes	--
PM-03	12/14/2020	--	No	Yes	No	Yes	--	Yes	No	Yes	--	--	Yes	Yes	--
PM-04	12/14/2020	--	No	Yes	No	Yes	--	Yes	No	--	--	No	Yes	Yes	--
TW-03D	12/03/2020	--	No	--	No	Yes	--	Yes	No	--	--	No	Yes	Yes	--
TW-04	11/30/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	No	--
TW-05	12/07/2020	Yes	No	Yes	No	Yes	--	Yes	No	Yes	Yes	No	Yes	Yes	--

Notes:
-- = not applicable

APPENDIX C

Field Forms, 2020 Annual Reporting Period (Provided on CD with Hard Copy Submittal)

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

APPENDIX D

Field Water Quality Parameters, 2020 Annual Reporting Period

Appendix D

Field Water Quality Parameters, 2020 Annual Reporting Period

Fourth Quarter 2020 and Annual 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	Matrix	Temperature (°C)	pH (SU)	Specific Conductance (µS/cm)	ORP (mV)	Turbidity (NTU)	Total Dissolved Solids (mg/L)	Salinity (PPT)
MW-09	SA	04/24/20	GW	30.00	6.9	3,330	100	3.5	2,150	1.72
MW-09	SA	12/01/20	GW	29.70	8.1	3,230	25	5	2,140	1.72
MW-10	SA	04/23/20	GW	29.40	6.9	3,190	90	20.1	2,070	1.65
MW-10	SA	11/30/20	GW	28.40	7.4	2,570	52	48	1,670	1.32
MW-11	SA	04/23/20	GW	31.00	6.9	2,450	91	5	1,590	1.24
MW-11	SA	12/10/20	GW	30.30	6.4	2,460	120	5	1,600	1.25
MW-12	SA	04/28/20	GW	30.90	7.7	6,970	51	5	4,530	3.81
MW-12	SA	12/14/20	GW	28.00	7.9	6,650	84	7	4,320	3.62
MW-13	SA	12/14/20	GW	29.50	7.5	2,730	49	7	1,770	1.40
MW-14	SA	06/24/20	GW	32.40	7.6	3,500	240	9	2,230	1.82
MW-14	SA	12/10/20	GW	29.60	7.7	3,370	110	6	2,170	1.74
MW-15	SA	12/10/20	GW	26.70	7.5	2,300	160	1	1,510	1.19
MW-16	SA	12/10/20	GW	27.60	8	1,160	100	5	740	0.57
MW-17	SA	12/10/20	GW	29.10	7.9	1,300	93	6	830	0.64
MW-18	SA	12/10/20	GW	29.20	7.8	1,670	100	6	1,070	0.82
MW-19	SA	04/27/20	GW	29.90	6.8	2,130	84	17	1,380	1.08
MW-19	SA	12/07/20	GW	28.90	8.1	2,200	-60	6	1,430	1.12
MW-20-070	SA	04/24/20	GW	30.70	7.1	2,220	90	3.1	1,430	1.12
MW-20-070	SA	12/04/20	GW	28.70	8.2	2,450	29	4	1,590	1.25
MW-20-100	MA	04/24/20	GW	29.40	6.8	2,140	96	2.31	1,390	1.08
MW-20-100	MA	12/04/20	GW	28.90	7.9	2,230	32	9	1,440	1.12
MW-20-130	DA	04/24/20	GW	29.90	7	12,500	72	4.3	8,110	7.07
MW-20-130	DA	12/04/20	GW	25.90	7.9	10,100	14	3	6,530	5.66
MW-21	SA	04/30/20	GW	31.00	6.9	12,000	-130	36	7,470	6.45
MW-21	SA	12/15/20	GW	23.90	7.5	14,100	110	7	9,150	8.15
MW-22	SA	06/16/20	GW	26.80	6.8	11,600	-110	40	7,610	6.64
MW-22	SA	12/08/20	GW	24.30	6.8	23,100	-100	33	15,050	13.97
MW-23-060	BR	06/18/20	GW	31.90	9	13,400	83	40	7,680	6.68
MW-23-060	BR	12/08/20	GW	27.70	9.1	17,400	59	4	11,240	10.15
MW-23-080	BR	06/18/20	GW	31.10	9.7	13,700	44	12	7,940	6.93
MW-23-080	BR	12/08/20	GW	25.80	9.9	18,000	14	6	11,640	10.56
MW-24A	SA	10/05/20	GW	34.80	8.3	2,200	-80	3	1,190	0.92
MW-24A	SA	05/01/20	GW	32.50	7.8	1,810	-140	4	1,180	0.89
MW-24A	SA	12/01/20	GW	28.80	8.4	1,690	-42	5	1,080	0.83
MW-24B	DA	10/05/20	GW	31.80	7.6	18,700	-280	10	12,120	10.95
MW-24B	DA	05/01/20	GW	30.70	7.4	20,400	-180	9	13,290	12.09
MW-24B	DA	12/01/20	GW	29.40	7.9	20,600	-140	8	13,330	12.20
MW-24BR	BR	12/02/20	GW	30.30	8.4	14,700	-210	2	9,510	8.46
MW-25	SA	06/24/20	GW	33.40	7.4	2,140	230	5	1,390	1.08
MW-25	SA	12/07/20	GW	30.40	7.9	2,060	-25	5	1,350	1.05
MW-26	SA	04/27/20	GW	30.90	6.8	3,830	130	22	2,490	2.00
MW-26	SA	12/03/20	GW	29.20	8	3,690	16	8	2,410	1.94
MW-27-020	SA	12/03/20	GW	19.70	7.4	1,100	77	15	710	0.55
MW-27-060	MA	12/03/20	GW	19.10	7.4	1,100	46	3	730	0.56
MW-27-085	DA	06/18/20	GW	20.50	7.3	11,000	-25	1	7,110	6.23
MW-27-085	DA	12/03/20	GW	18.60	7.4	10,500	120	6	6,740	6.19
MW-28-025	SA	06/23/20	GW	22.80	7.5	1,050	33	6	680	0.52
MW-28-025	SA	12/15/20	GW	22.50	7.6	1,220	43	5	790	0.61
MW-28-090	DA	06/23/20	GW	23.20	7.1	20,500	-24	6	1,570	1.15
MW-28-090	DA	12/15/20	GW	19.6	7.5	7,030	-61	8	4,590	3.89
MW-29	SA	06/23/20	GW	25.7	7.3	2,780	-110	5	1,780	1.41
MW-29	SA	12/04/20	GW	23.4	7.6	2,030	-150	8	1,310	1.03
MW-30-030	SA	12/07/20	GW	25.7	7.9	7,880	-97	7	5,120	4.35
MW-30-050	MA	12/07/20	GW	22.1	7.8	1,020	2	1	660	0.50

Appendix D

Field Water Quality Parameters, 2020 Annual Reporting Period

Fourth Quarter 2020 and Annual 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	Matrix	Temperature (°C)	pH (SU)	Specific Conductance (µS/cm)	ORP (mV)	Turbidity (NTU)	Total Dissolved Solids (mg/L)	Salinity (PPT)
MW-31-060	SA	06/24/20	GW	31.2	7.5	3,630	200	3	2,350	1.89
MW-31-060	SA	12/07/20	GW	28.9	8.2	3,120	-29	5	2,010	1.60
MW-31-135	DA	12/07/20	GW	28.6	8.2	12,500	-50	6	8,020	7.03
MW-32-020	SA	12/07/20	GW	26.5	7.2	23,500	-150	3	15,280	14.21
MW-32-035	SA	06/18/20	GW	26.1	7.3	7,210	-180	25	5,030	4.27
MW-32-035	SA	12/07/20	GW	24.9	7.2	8,910	-160	12	5,790	4.97
MW-33-040	SA	06/17/20	GW	28.3	8	8,590	93	5	5,580	4.76
MW-33-040	SA	12/02/20	GW	25.1	7.4	21,600	100	28	13,840	12.58
MW-33-090	MA	06/17/20	GW	27.5	7.2	9,500	85	9	6,170	5.31
MW-33-090	MA	12/02/20	GW	24.9	7.4	13,400	74	8	8,560	7.70
MW-33-150	DA	06/17/20	GW	30.4	7.4	14,800	87	8	9,610	8.53
MW-33-150	DA	12/02/20	GW	24.7	7.4	16,300	81	9	10,440	9.37
MW-33-210	DA	06/17/20	GW	29.5	7.4	19,100	89	3	12,390	11.25
MW-33-210	DA	12/02/20	GW	23.3	7.4	19,900	96	7	12,740	11.50
MW-34-055	MA	12/03/20	GW	18.5	7.5	1,040	75	15	670	0.53
MW-34-080	DA	06/18/20	GW	20.6	7.3	8,480	-10	2	5,510	4.73
MW-34-080	DA	12/03/20	GW	18.7	7.4	8,090	-18	8	5,170	4.80
MW-34-100	DA	02/20/20	GW	19.6	7.7	11,700	-64	5	7,610	6.71
MW-34-100	DA	06/18/20	GW	20.3	7.6	10,400	-52	6	6,780	5.92
MW-34-100	DA	10/01/20	GW	20.3	7.1	9,510	38	8	6,180	5.36
MW-34-100	DA	12/03/20	GW	18.6	7.3	9,260	58	6	5,890	5.30
MW-35-060	SA	04/27/20	GW	28.9	6.8	3,950	50	35	2,570	2.08
MW-35-060	SA	12/08/20	GW	27.2	7.6	7,190	27	6	4,700	3.91
MW-35-135	DA	04/27/20	GW	27.6	7.1	11,000	24	41	7,140	6.22
MW-35-135	DA	12/08/20	GW	26.9	7.9	11,600	17	7	7,480	6.53
MW-36-020	SA	12/15/20	GW	21.4	7.4	6,850	-54	3	4,450	3.76
MW-36-040	SA	12/15/20	GW	20.8	8.1	1,080	-85	5	700	0.53
MW-36-050	MA	12/15/20	GW	20.1	7.8	1,010	-100	6	650	0.50
MW-36-070	MA	12/15/20	GW	20.2	7.8	1,020	-81	2	660	0.51
MW-36-090	DA	06/16/20	GW	23.3	7.3	5,150	-100	4	3,340	2.77
MW-36-090	DA	12/15/20	GW	20.1	7.7	3,440	-88	4	2,220	1.81
MW-36-100	DA	06/16/20	GW	22.3	7.3	6,890	-86	9	4,530	3.81
MW-36-100	DA	12/15/20	GW	20.5	7.5	7,540	-30	8	4,890	4.12
MW-37D	DA	06/24/20	GW	30.4	7.9	12,900	190	6	8,390	7.37
MW-37D	DA	12/10/20	GW	28.6	7.9	13,100	-9.9	2	8,520	7.52
MW-37S	MA	12/10/20	GW	29.1	7.7	7,650	-14	23	4,970	4.20
MW-38D	DA	10/05/20	GW	31.3	8.1	21,400	-12	10	13,920	12.74
MW-38D	DA	12/14/20	GW	30.2	8.1	17,800	-23	9	10,970	9.84
MW-38D	DA	12/15/20	GW	28.2	8.3	18,000	-55	10	11,740	10.63
MW-38D	DA	04/23/20	GW	31.2	7.5	22,700	-48	21	14,770	13.62
MW-38D	DA	11/30/20	GW	29.8	7.4	16,000	53	8	10,240	9.44
MW-38S	SA	02/25/20	GW	29.9	7.2	1,720	-4	4	1,040	0.82
MW-38S	SA	04/23/20	GW	31.2	7.3	1,670	61	5.41	1,090	0.83
MW-38S	SA	11/30/20	GW	31.2	7.3	1,800	2.4	8	1,170	0.90
MW-38S-SMT	SA	09/30/20	GW	30.9	7.4	1,690	110	8	1,040	0.79
MW-39-040	SA	12/11/20	GW	20.6	8.1	1,120	-190	36	720	0.56
MW-39-050	MA	12/11/20	GW	20.5	7.9	1,010	7.5	5	660	0.50
MW-39-060	MA	12/11/20	GW	20.3	7.9	11	21	39	680	0.52
MW-39-070	MA	12/11/20	GW	20.3	7.9	2,090	47	5	1,360	1.07
MW-39-080	DA	12/11/20	GW	20.3	7.7	5,490	-53	3	3,560	2.97
MW-39-100	DA	06/18/20	GW	23.1	7	12,800	71	9	8,300	7.34
MW-39-100	DA	12/15/20	GW	21.5	7.3	13,200	91	8	8,560	7.51
MW-40D	DA	12/10/20	GW	29.8	7.5	15,600	34	7	10,150	9.04
MW-40S	SA	06/17/20	GW	30.2	7.2	2,720	-28	9	6,230	5.15

Appendix D

Field Water Quality Parameters, 2020 Annual Reporting Period

Fourth Quarter 2020 and Annual 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	Matrix	Temperature (°C)	pH (SU)	Specific Conductance (µS/cm)	ORP (mV)	Turbidity (NTU)	Total Dissolved Solids (mg/L)	Salinity (PPT)
MW-40S	SA	12/10/20	GW	22.6	7.6	3,850	130	24	2,500	2.03
MW-41D	DA	06/24/20	GW	30.8	7.9	18,700	-80	4	12,160	11.00
MW-41D	DA	12/17/20	GW	28.2	7.7	21,800	200	5	14,170	13.05
MW-41M	DA	12/17/20	GW	28.9	8	14,800	-0.9	7	9,600	8.53
MW-41S	SA	12/17/20	GW	28.1	8.1	7,040	19	5	4,580	3.84
MW-42-030	SA	12/16/20	GW	22.3	8	3,430	-110	39	2,230	1.81
MW-42-055	MA	06/18/20	GW	22.8	7.8	1,020	-72	2	660	0.50
MW-42-055	MA	12/16/20	GW	20.8	7.8	1,080	-37	3	700	0.54
MW-42-065	MA	06/18/20	GW	22.7	7.5	2,490	20	2	1,610	1.28
MW-42-065	MA	12/16/20	GW	20.6	7.6	3,570	-3.1	6	2,320	1.89
MW-43-025	SA	12/08/20	GW	22.3	7.5	1,940	-160	15	1,260	0.99
MW-43-075	DA	12/08/20	GW	21.6	7.5	10,500	-140	2.68	6,680	5.95
MW-43-090	DA	12/08/20	GW	22	7.6	17,900	-46	8	11,640	10.66
MW-44-070	MA	06/23/20	GW	23.1	7.5	1,790	27	7	1,400	1.10
MW-44-070	MA	12/11/20	GW	20	7.7	1,770	-46	8	1,150	0.91
MW-44-115	DA	02/21/20	GW	20.6	7.4	10,800	-75	9	6,990	6.11
MW-44-115	DA	06/23/20	GW	24.6	7.5	10,900	13	10	7,090	6.20
MW-44-115	DA	10/01/20	GW	21.6	7.3	9,890	-19	6	6,410	5.57
MW-44-115	DA	12/11/20	GW	20.1	7.9	10,900	-46	1	7,090	6.21
MW-44-125	DA	06/23/20	GW	23.2	7.6	2,100	-47	4	1,350	1.07
MW-44-125	DA	12/11/20	GW	20.1	7.7	1,690	-30	6	1,090	0.86
MW-46-175	DA	02/21/20	GW	20	7.6	18,700	-44	4	12,120	11.09
MW-46-175	DA	06/23/20	GW	22.5	8.6	18,000	65	2	11,680	10.61
MW-46-175	DA	10/01/20	GW	23.4	7.2	17,800	100	8	11,690	10.50
MW-46-175	DA	12/15/20	GW	20.8	8.5	18,800	98	2	12,210	11.17
MW-46-205	DA	06/23/20	GW	23.7	8.6	20,700	120	3	13,480	12.41
MW-46-205	DA	12/15/20	GW	20.8	8.5	21,500	93	5	13,940	12.91
MW-47-055	SA	06/25/20	GW	29.3	7.5	3,600	130	17	2,110	1.69
MW-47-055	SA	11/30/20	GW	28.1	7.6	5,530	18	4	3,540	2.92
MW-47-115	DA	06/25/20	GW	29.3	7.6	9,660	160	16	5,780	4.94
MW-47-115	DA	11/30/20	GW	27.9	7.6	14,100	13	7	8,410	7.40
MW-48	BR	05/01/20	GW	29	7.1	18,300	18	5	11,860	10.74
MW-48	BR	12/16/20	GW	22.1	7.7	18,700	97	8	12,150	11.09
MW-49-135	DA	12/04/20	GW	23.7	7.6	14,000	130	17	9,020	8.03
MW-49-275	DA	12/04/20	GW	23.8	8.3	25,300	110	7	16,480	15.44
MW-49-365	DA	12/04/20	GW	22.8	7.4	35,800	140	5	23,220	22.58
MW-50-095	MA	06/24/20	GW	29.9	7.6	4,380	180	8	2,610	2.11
MW-50-095	MA	12/07/20	GW	28.2	7.9	6,470	74	8	4,170	3.49
MW-50-200	DA	06/24/20	GW	30.9	7.6	16,200	150	5	9,480	8.40
MW-50-200	DA	12/07/20	GW	28.9	7.8	20,800	77	8	13,560	12.40
MW-51	MA	04/27/20	GW	30.9	7	12,400	96	3	8,030	7.06
MW-51	MA	12/03/20	GW	29.5	8.1	10,900	17	4	7,050	6.10
MW-52D	DA	06/16/20	GW	22.7	7.6	20,900	-19	8	13,520	12.46
MW-52D	DA	12/08/20	GW	19.8	7.5	21,800	-100	1	14,110	13.16
MW-52M	DA	06/16/20	GW	21.9	7.1	16,000	-150	4	10,400	9.38
MW-52M	DA	12/08/20	GW	19.4	7.5	16,500	-110	3	10,800	9.61
MW-52S	MA	06/16/20	GW	21.4	6.8	9,880	-150	9	6,540	5.70
MW-52S	MA	12/08/20	GW	22	7.2	17,200	-97	3	10,890	9.88
MW-53D	DA	06/16/20	GW	23.7	7.5	25,700	-130	2	16,620	15.62
MW-53D	DA	12/08/20	GW	19.5	7.9	26,700	-110	1	17,350	16.40
MW-53M	DA	06/16/20	GW	22.3	7.5	15,700	-59	3	10,750	9.67
MW-53M	DA	12/08/20	GW	19.4	8	19,900	-110	6	12,530	11.56
MW-54-085	DA	06/19/20	GW	29.4	7.7	5,580	-14	30	3,320	2.72
MW-54-085	DA	12/09/20	GW	27.1	7.8	9,910	-35	2	6,440	5.56

Appendix D

Field Water Quality Parameters, 2020 Annual Reporting Period

Fourth Quarter 2020 and Annual 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	Matrix	Temperature (°C)	pH (SU)	Specific Conductance (µS/cm)	ORP (mV)	Turbidity (NTU)	Total Dissolved Solids (mg/L)	Salinity (PPT)
MW-54-140	DA	06/19/20	GW	28.4	7.8	9,130	-2.6	25	5,560	4.74
MW-54-140	DA	12/09/20	GW	26.4	8	13,000	-88	5	8,410	7.42
MW-54-195	DA	06/19/20	GW	27.9	8.1	13,600	-16	10	8,380	7.38
MW-54-195	DA	12/09/20	GW	25.6	8.3	19,200	-190	1	12,500	11.40
MW-55-045	MA	06/19/20	GW	28.5	7.9	1,290	-74	9	830	0.64
MW-55-045	MA	12/09/20	GW	27.8	7.9	1,370	-67	28	890	0.68
MW-55-120	DA	06/19/20	GW	28.5	8.2	7,300	250	5	4,740	3.99
MW-55-120	DA	12/09/20	GW	27.2	8.3	7,470	-35	9	4,850	4.10
MW-56D	DA	06/19/20	GW	29.3	7.6	21,900	170	3	14,280	13.05
MW-56D	DA	12/09/20	GW	22.6	7.2	22,600	-38	5	14,700	13.66
MW-56M	DA	06/19/20	GW	30.7	7.8	9,460	210	2	6,140	5.25
MW-56M	DA	12/09/20	GW	23.2	7.3	14,900	8.5	3	9,890	8.66
MW-56S	SA	06/19/20	GW	26.4	7.2	5,910	-140	5	3,840	3.20
MW-56S	SA	12/09/20	GW	23.5	7.2	6,230	-110	1	4,040	3.39
MW-57-070	BR	06/22/20	GW	25.9	7.1	2,810	-40	9	3,700	2.65
MW-57-070	BR	12/04/20	GW	26.3	7.4	2,320	180	10	1,500	1.18
MW-57-185	BR	06/22/20	GW	25.7	9.2	20,700	-200	3	8,230	6.53
MW-57-185	BR	12/04/20	GW	23.4	9.1	18,300	70	8	11,740	10.52
MW-58BR	BR	02/17/20	GW	27	7.2	8,290	50	3	5,380	4.59
MW-58BR	BR	05/01/20	GW	27.9	7.8	5,080	140	5	3,280	2.70
MW-58BR	BR	09/29/20	GW	30.1	7.9	6,350	-22	5	4,120	3.48
MW-58BR	BR	11/30/20	GW	27	7.7	7,700	110	8	5,010	4.25
MW-59-100	SA	06/22/20	GW	34.3	6.9	13,500	-65	15	8,730	7.65
MW-59-100	SA	12/08/20	GW	30	7	10,200	100	5	6,830	5.90
MW-60-125	BR	06/24/20	GW	32.5	7.6	9,900	180	3	6,440	5.51
MW-60-125	BR	10/01/20	GW	31.5	7.4	9,610	-130	8	8,280	6.13
MW-60BR-245	BR	02/20/20	GW	27.1	7.4	17,900	-8.8	2	11,610	10.52
MW-60BR-245	BR	09/30/20	GW	27.8	8	19,000	-64	5	10,220	9.13
MW-60BR-245	BR	12/17/20	GW	27.4	8.1	18,100	110	3	11,780	10.68
MW-60BR-245_D	BR	02/21/20	GW	27.2	7.2	17,900	11	2	11,650	10.54
MW-60BR-245_S	BR	02/21/20	GW	25.6	7.3	18,000	-7	2	11,660	10.54
MW-61-110	BR	12/04/20	GW	29.8	7.8	17,200	53	7	11,040	10.24
MW-62-065	BR	02/19/20	GW	--	7.2	6,420	2.7	18	4,160	3.50
MW-62-065	BR	04/28/20	GW	32.4	6.9	6,520	35	44	4,230	3.49
MW-62-065	BR	09/30/20	GW	31.8	7.6	5,660	13	10	3,680	3.01
MW-62-065	BR	12/04/20	GW	24.2	8	6,440	24	5	4,240	3.54
MW-62-110	BR	02/18/20	GW	27	7.9	10,100	-44	5	6,620	5.73
MW-62-110	BR	04/29/20	GW	28	7	13,500	-180	2	8,780	7.76
MW-62-110	BR	09/30/20	GW	27.1	7.1	12,400	-81	4	8,050	7.07
MW-62-110	BR	12/02/20	GW	27.1	7.8	10,500	-200	2	6,870	5.97
MW-62-190	BR	04/29/20	GW	28.9	6.4	18,100	-240	1	11,750	10.64
MW-62-190	BR	12/02/20	GW	26.4	7.8	18,800	-180	2	12,200	11.13
MW-63-065	BR	02/19/20	GW	27.4	7	7,030	7.4	28	4,560	3.84
MW-63-065	BR	06/24/20	GW	28	7	5,370	190	8	3,290	2.71
MW-63-065	BR	09/30/20	GW	28.1	7.3	6,360	-8.8	10	4,130	3.45
MW-63-065	BR	12/07/20	GW	26.8	7.4	7,260	57	7	4,710	3.97
MW-64BR	BR	02/21/20	GW	24.7	7	13,900	-5	4	9,040	8.04
MW-64BR	BR	05/01/20	GW	25.8	7.9	843	130	9	570	0.45
MW-64BR	BR	09/30/20	GW	28.5	7.7	14,200	-140	3	7,930	6.94
MW-64BR	BR	11/30/20	GW	23.6	7.4	13,900	1.1	5	9,070	8.08
MW-65-160	SA	02/20/20	GW	23.5	7	4,120	-5	12	2,680	2.18
MW-65-160	SA	04/29/20	GW	28.6	7.4	2,930	69	46	1,990	1.52
MW-65-160	SA	09/29/20	GW	29	7.7	3,890	7	31	2,520	2.04
MW-65-160	SA	12/03/20	GW	26.7	7.5	4,540	120	16	2,920	2.40

Appendix D

Field Water Quality Parameters, 2020 Annual Reporting Period

Fourth Quarter 2020 and Annual 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	Matrix	Temperature (°C)	pH (SU)	Specific Conductance (µS/cm)	ORP (mV)	Turbidity (NTU)	Total Dissolved Solids (mg/L)	Salinity (PPT)
MW-65-225	DA	02/20/20	GW	28.5	7	6,500	-16	10	4,200	3.50
MW-65-225	DA	04/29/20	GW	31.1	7	14,400	33	39	9,050	8.00
MW-65-225	DA	09/29/20	GW	30.8	7.8	12,000	-36	29	7,840	6.84
MW-65-225	DA	12/03/20	GW	28.7	7.5	11,100	120	16	7,160	6.23
MW-66-165	SA	04/29/20	GW	32.6	6.9	4,250	86	45	2,760	2.33
MW-66-165	SA	12/03/20	GW	29.2	7.7	3,380	120	45	2,200	1.76
MW-66-230	DA	04/29/20	GW	32.2	7.4	18,600	61	9	12,060	10.96
MW-66-230	DA	12/03/20	GW	27.8	7.9	18,800	130	5	12,180	11.10
MW-66BR-270	BR	06/24/20	GW	30.9	8.4	17,900	-220	9	11,550	10.40
MW-66BR-270	BR	12/16/20	GW	27.5	8.1	18,300	-140	32	11,860	10.76
MW-67-185	SA	10/06/20	GW	32	7.3	7,890	93	5	5,000	4.32
MW-67-185	SA	04/30/20	GW	34.2	6.8	8,220	91	13	5,350	4.50
MW-67-185	SA	12/02/20	GW	25.3	7.5	7,300	75	9	4,690	3.98
MW-67-225	MA	04/30/20	GW	32.1	7.1	7,420	81	10	4,820	4.05
MW-67-225	MA	12/02/20	GW	29.7	8.6	6,510	38	45	4,200	3.52
MW-67-260	DA	04/30/20	GW	31.5	8.3	19,000	20	9	12,400	11.26
MW-67-260	DA	12/02/20	GW	29.8	8.5	14,000	-110	6	9,050	8.03
MW-68-180	SA	02/20/20	GW	23.1	7.2	5,380	16	4	3,490	2.90
MW-68-180	SA	04/30/20	GW	31.3	6.8	5,240	100	4	3,600	2.97
MW-68-180	SA	09/29/20	GW	31.1	7.6	5,220	42	47	3,380	2.78
MW-68-180	SA	12/16/20	GW	26.8	7.6	5,820	120	8	3,740	3.15
MW-68-240	DA	04/30/20	GW	30.8	7	17,100	51	4	11,120	9.98
MW-68-240	DA	12/16/20	GW	30.3	7.4	17,100	140	6	11,130	10.01
MW-68BR-280	BR	04/30/20	GW	30	8.7	22,100	-160	5	14,350	13.18
MW-68BR-280	BR	12/16/20	GW	27.3	8.6	22,200	-86	2	14,240	13.19
MW-69-195	BR	02/25/20	GW	27	7.1	2,700	-5.6	7	1,750	1.38
MW-69-195	BR	05/01/20	GW	29.2	7	2,670	65	9	1,730	1.37
MW-69-195	BR	09/29/20	GW	30.2	7.9	2,390	3	40	1,550	1.22
MW-69-195	BR	12/03/20	GW	26.7	7.7	2,690	110	34	1,740	1.38
MW-70-105	BR	11/30/20	GW	29.6	7.9	3,420	160	8	2,210	1.77
MW-70BR-225	BR	11/30/20	GW	29.8	7.7	13,200	190	8	8,520	7.50
MW-71-035	SA	05/01/20	GW	29.8	7	13,200	110	39	8,580	7.55
MW-71-035	SA	12/15/20	GW	24.3	7.2	17,400	68	17	11,310	10.25
MW-72-080	BR	02/20/20	GW	29	7.4	18,800	110	7	12,200	11.00
MW-72-080	BR	04/28/20	GW	28.9	7.3	16,300	-2.7	44	10,580	9.49
MW-72-080	BR	09/29/20	GW	28.8	7.9	17,200	-20	5	8,920	7.87
MW-72-080	BR	12/03/20	GW	26.8	7.9	16,300	150	7	10,620	9.55
MW-72BR-200	BR	02/20/20	GW	27	7.4	17,700	-59	7	11,400	10.30
MW-72BR-200	BR	04/28/20	GW	27.9	7.6	16,000	-210	12	10,430	9.36
MW-72BR-200	BR	09/29/20	GW	28.2	8.3	17,000	-110	4	9,290	8.22
MW-72BR-200	BR	12/03/20	GW	27.3	8.2	16,500	-160	9	10,680	9.61
MW-73-080	BR	02/20/20	GW	28.3	7.2	11,600	19	8	7,540	6.57
MW-73-080	BR	04/28/20	GW	29	6.9	9,980	21	28	6,420	5.53
MW-73-080	BR	09/30/20	GW	28.6	7.5	11,100	27	8	3,890	3.25
MW-73-080	BR	12/03/20	GW	26.6	7.6	9,650	54	6	6,260	5.40
MW-74-240	BR	04/30/20	GW	30.4	7.8	1,130	44	112	730	0.55
MW-74-240	BR	12/03/20	GW	27.9	8.8	824	29	26	530	0.40
OW-03D	DA	12/11/20	GW	28.7	8.3	10,400	18	5	6,670	5.74
OW-03M	MA	12/11/20	GW	29.3	8.4	6,610	22	4	4,290	3.59
OW-03S	SA	12/11/20	GW	29.9	6.7	1,460	130	6	940	0.73
PGE-07BR	BR	12/03/20	GW	30.4	8.7	20,600	-180	93	13,360	12.20
PGE-08	BR	12/09/20	GW	29.1	7.9	20,100	-35	2	13,050	11.93
PM-03	MA	12/14/20	GW	28.8	8	1,330	88	2	870	0.66
PM-04	MA	12/14/20	GW	28.6	7.6	2,630	97	2	1,710	1.35

Appendix D

Field Water Quality Parameters, 2020 Annual Reporting Period

Fourth Quarter 2020 and Annual 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	Matrix	Temperature (°C)	pH (SU)	Specific Conductance (µS/cm)	ORP (mV)	Turbidity (NTU)	Total Dissolved Solids (mg/L)	Salinity (PPT)
TW-02D	DA	02/19/20	GW	20.1	8.1	5,280	130	2	3,430	2.86
TW-03D	DA	01/08/20	GW	19.7	7.3	7,890	150	1	5,103	4.36
TW-03D	DA	02/05/20	GW	23.1	7.5	7,630	98	9	--	--
TW-03D	DA	03/04/20	GW	26.3	6.8	4,680	180	2	2,960	2.42
TW-03D	DA	04/07/20	GW	26.1	7	8,050	93	1	--	--
TW-03D	DA	05/05/20	GW	25.9	7.8	8,520	52	3	5,580	4.78
TW-03D	DA	07/23/20	GW	29.8	7.4	8,150	110	6	5,290	4.49
TW-03D	DA	08/04/20	GW	28.4	8.2	7,300	140	3	4,700	3.96
TW-03D	DA	09/01/20	GW	26.4	7.3	7,680	120	3	4,740	4.01
TW-03D	DA	10/07/20	GW	23.8	7.2	2,810	88	1	--	--
TW-03D	DA	11/03/20	GW	25.7	7.3	7,470	150	4	5,280	5.10
TW-03D	DA	12/03/20	GW	22.6	7.5	5,360	96	2	4,860	4.06
TW-04	DA	06/25/20	GW	28.8	7.5	14,900	120	13	8,970	7.98
TW-04	DA	11/30/20	GW	26.6	8	22,000	-1	6	14,390	13.25
TW-05	DA	06/25/20	GW	29.6	7.9	12,000	180	22	7,840	6.85
TW-05	DA	12/07/20	GW	28.5	7.8	16,500	85	6	10,750	9.63
C-BNS	--	01/29/20	SW	12.90	8.1	925	170	2	600	0.46
C-BNS	--	02/19/20	SW	13.20	8.2	943	130	3	610	0.47
C-BNS	--	04/29/20	SW	18.70	7.1	909	140	2	590	0.45
C-BNS	--	08/19/20	SW	22.60	8.4	914	130	2	590	0.45
C-BNS	--	11/18/20	SW	17.10	8.7	816	15	2	530	0.40
C-CON-D	--	01/30/20	SW	11.90	8.1	922	170	4	590	0.46
C-CON-D	--	02/20/20	SW	12.00	8.1	923	180	3	590	0.46
C-CON-D	--	04/30/20	SW	18.70	8.4	911	230	2	590	0.45
C-CON-D	--	08/20/20	SW	21.90	8.6	912	110	3	590	0.45
C-CON-D	--	11/19/20	SW	17.00	8.7	816	8.6	3	530	0.40
C-CON-S	--	01/30/20	SW	12.10	8.1	923	180	3	590	0.46
C-CON-S	--	02/20/20	SW	11.90	8.2	920	180	3	590	0.45
C-CON-S	--	04/30/20	SW	18.80	8.3	911	240	2	590	0.45
C-CON-S	--	08/20/20	SW	22.40	8.5	912	120	5	590	0.45
C-CON-S	--	11/19/20	SW	17.00	8.7	816	9.8	4	530	0.40
C-I-3-D	--	01/29/20	SW	12.30	8.1	916	160	--	590	0.45
C-I-3-D	--	02/19/20	SW	11.50	8.1	942	150	3	590	0.46
C-I-3-D	--	04/29/20	SW	18.00	8.2	908	190	2	590	0.45
C-I-3-D	--	08/19/20	SW	22.00	8.7	913	120	4	590	0.45
C-I-3-D	--	11/18/20	SW	16.80	8.7	818	13	1	530	0.40
C-I-3-S	--	01/29/20	SW	12.20	8.1	916	150	2	590	0.45
C-I-3-S	--	02/19/20	SW	11.50	8.2	9	150	3	590	0.45
C-I-3-S	--	04/29/20	SW	18.10	8.3	908	190	3	590	0.45
C-I-3-S	--	08/19/20	SW	21.90	8.5	912	130	3	590	0.45
C-I-3-S	--	11/18/20	SW	16.80	8.7	816	13	4	530	0.40
C-MAR-D	--	01/30/20	SW	11.30	8.8	1,070	160	6	700	0.54
C-MAR-D	--	02/20/20	SW	11.30	8	948	160	6	610	0.47
C-MAR-D	--	04/30/20	SW	18.80	8.1	908	260	3	590	0.45
C-MAR-D	--	08/20/20	SW	22.50	8.7	915	140	3	590	0.45
C-MAR-D	--	11/19/20	SW	16.40	8.6	841	12	7	550	0.42
C-MAR-S	--	01/30/20	SW	11.50	8.9	1,100	170	7	710	0.55
C-MAR-S	--	02/20/20	SW	11.40	8.1	945	170	7	610	0.46
C-MAR-S	--	04/30/20	SW	18.80	8.2	908	270	3	590	0.45
C-MAR-S	--	08/20/20	SW	22.30	8.8	912	130	2	590	0.45
C-MAR-S	--	11/19/20	SW	16.60	8.5	830	2.7	5	530	0.41
C-NR1-D	--	01/30/20	SW	12.20	8.1	924	180	3	590	0.46
C-NR1-D	--	02/20/20	SW	11.90	8.1	921	190	2	590	0.46
C-NR1-D	--	04/30/20	SW	18.70	8.3	910	240	1	590	0.45

Appendix D

Field Water Quality Parameters, 2020 Annual Reporting Period

Fourth Quarter 2020 and Annual 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	Matrix	Temperature (°C)	pH (SU)	Specific Conductance (µS/cm)	ORP (mV)	Turbidity (NTU)	Total Dissolved Solids (mg/L)	Salinity (PPT)
C-NR1-D	--	08/20/20	SW	22.00	8.5	912	120	4	590	0.45
C-NR1-D	--	11/19/20	SW	17.10	8.7	815	10	1	520	0.40
C-NR1-S	--	01/30/20	SW	13.00	8	924	180	2	590	0.46
C-NR1-S	--	02/20/20	SW	12.00	8.1	920	190	4	590	0.46
C-NR1-S	--	04/30/20	SW	19.60	8.2	912	250	1	590	0.45
C-NR1-S	--	08/20/20	SW	24.50	8.4	916	120	2	590	0.45
C-NR1-S	--	11/19/20	SW	17.20	8.7	815	11	3	520	0.40
C-NR3-D	--	01/30/20	SW	12.30	8.1	923	180	2	590	0.46
C-NR3-D	--	02/20/20	SW	12.10	8.1	919	190	3	590	0.46
C-NR3-D	--	04/30/20	SW	19.00	8.3	910	250	1	590	0.45
C-NR3-D	--	08/20/20	SW	24.20	8.5	913	120	1	590	0.45
C-NR3-D	--	11/19/20	SW	17.20	8.6	814	13	2	520	0.40
C-NR3-S	--	01/30/20	SW	12.20	8.1	922	180	2	590	0.46
C-NR3-S	--	02/20/20	SW	12.00	8.1	918	190	5	590	0.46
C-NR3-S	--	04/30/20	SW	19.50	8.3	912	250	1	590	0.45
C-NR3-S	--	08/20/20	SW	22.50	8.4	913	120	6	590	0.45
C-NR3-S	--	11/19/20	SW	17.10	8.6	814	14	5	530	0.40
C-NR4-D	--	01/30/20	SW	12.20	8.1	921	180	3	590	0.46
C-NR4-D	--	02/20/20	SW	11.90	8.1	918	190	3	590	0.45
C-NR4-D	--	04/30/20	SW	19.30	8.3	912	240	1	590	0.45
C-NR4-D	--	08/20/20	SW	22.00	8.4	912	120	1	590	0.45
C-NR4-D	--	11/19/20	SW	17.00	8.6	816	19	1	530	0.40
C-NR4-S	--	01/30/20	SW	12.20	8.1	920	180	2	590	0.46
C-NR4-S	--	02/20/20	SW	11.80	8.1	916	190	2	590	0.45
C-NR4-S	--	04/30/20	SW	20.20	8.3	914	240	1	590	0.54
C-NR4-S	--	08/20/20	SW	22.50	8.3	913	120	2	590	0.45
C-NR4-S	--	11/19/20	SW	17.00	8.6	813	20	5	520	0.40
C-R22A-D	--	01/29/20	SW	12.80	8.1	951	170	2	610	0.47
C-R22A-D	--	02/19/20	SW	13.10	8.1	943	140	2	610	0.47
C-R22A-D	--	04/29/20	SW	18.90	7.8	909	160	1	590	0.45
C-R22A-D	--	08/19/20	SW	23.50	8.5	915	130	5	590	0.45
C-R22A-D	--	11/18/20	SW	17.00	8.7	817	13	2	530	0.40
C-R22A-S	--	01/29/20	SW	12.70	8.1	955	170	2	610	0.47
C-R22A-S	--	02/19/20	SW	14.00	8.1	923	130	3	590	0.46
C-R22A-S	--	04/29/20	SW	19.30	7.4	910	150	3	590	0.45
C-R22A-S	--	08/19/20	SW	23.70	8.4	915	130	3	590	0.45
C-R22A-S	--	11/18/20	SW	17.00	8.7	818	13	4	530	0.40
C-R27-D	--	01/29/20	SW	12.70	8.1	950	170	2	610	0.47
C-R27-D	--	02/19/20	SW	13.60	8.1	950	130	4	610	0.47
C-R27-D	--	04/29/20	SW	18.80	7.2	909	140	1	590	0.45
C-R27-D	--	08/19/20	SW	23.10	8.4	914	130	3	590	0.45
C-R27-D	--	11/18/20	SW	17.30	8.7	814	18	2	530	0.40
C-R27-S	--	01/29/20	SW	12.90	8.1	963	180	2	620	0.48
C-R27-S	--	02/19/20	SW	13.10	8.1	947	140	4	610	0.47
C-R27-S	--	04/29/20	SW	18.80	7.4	90	140	1	590	0.45
C-R27-S	--	08/19/20	SW	23.10	8.4	915	130	4	590	0.45
C-R27-S	--	11/18/20	SW	17.30	8.7	814	18	7	530	0.40
C-TAZ-D	--	01/29/20	SW	12.10	8.2	923	110	3	590	0.46
C-TAZ-D	--	02/19/20	SW	11.60	8.1	943	130	3	610	0.47
C-TAZ-D	--	04/29/20	SW	18.20	8.2	906	180	1	590	0.45
C-TAZ-D	--	08/19/20	SW	22.10	8.7	921	61	3	590	0.45
C-TAZ-D	--	11/18/20	SW	16.70	8.7	823	2.9	3	530	0.41
C-TAZ-S	--	01/29/20	SW	12.30	8.2	915	140	2	590	0.45
C-TAZ-S	--	02/19/20	SW	11.40	8.1	921	150	2	590	0.46

Appendix D

Field Water Quality Parameters, 2020 Annual Reporting Period

Fourth Quarter 2020 and Annual 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	Matrix	Temperature (°C)	pH (SU)	Specific Conductance (µS/cm)	ORP (mV)	Turbidity (NTU)	Total Dissolved Solids (mg/L)	Salinity (PPT)
C-TAZ-S	--	04/29/20	SW	18.10	8.2	905	160	2	590	0.45
C-TAZ-S	--	08/19/20	SW	22.20	8.9	912	110	2	590	0.45
C-TAZ-S	--	11/18/20	SW	16.60	8.6	820	12	2	530	0.41
R-19	--	01/30/20	SW	11.7	8	923	170	3	590	0.46
R-19	--	02/20/20	SW	11.9	8.1	924	170	2	590	0.46
R-19	--	04/30/20	SW	19	8.3	909	260	1	590	0.45
R-19	--	08/20/20	SW	22.6	8.7	912	130	3	590	0.45
R-19	--	11/19/20	SW	16.8	8.6	817	2	3	530	0.40
R-28	--	01/29/20	SW	12.8	8.1	958	180	1	630	0.48
R-28	--	02/19/20	SW	13.6	8.1	944	120	5	610	0.47
R-28	--	04/29/20	SW	19.6	8.2	910	140	1	590	0.45
R-28	--	08/19/20	SW	23.5	8.4	915	120	1	590	0.45
R-28	--	11/18/20	SW	17.5	8.7	818	19	6	530	0.40
R63	--	01/29/20	SW	12.2	8.1	920	170	3	590	0.46
R63	--	02/19/20	SW	12.3	8.2	934	150	4	610	0.46
R63	--	04/29/20	SW	19	7.9	909	180	2	590	0.45
R63	--	08/19/20	SW	23.5	8.5	917	130	1	590	0.45
R63	--	11/18/20	SW	16.6	8.6	818	11	8	530	0.40
RRB	--	01/30/20	SW	10.1	7.8	2,970	190	8	1,940	1.56
RRB	--	02/20/20	SW	11.9	8.1	944	140	4	590	0.46
RRB	--	04/30/20	SW	20.7	8.3	922	250	1	590	0.46
RRB	--	08/20/20	SW	22.3	8.3	913	130	8	590	0.45
RRB	--	11/19/20	SW	15	8.7	818	13	9	530	0.40
SW1	--	01/29/20	SW	12.7	8.5	1,110	190	--	720	0.56
SW1	--	02/19/20	SW	19.7	7.7	1,470	130	8	950	0.74
SW1	--	04/30/20	SW	19	7.7	979	210	8	630	0.48
SW1	--	08/20/20	SW	21.9	8.3	913	120	9	590	0.45
SW1	--	11/18/20	SW	20.4	8.3	884	29	9	570	0.44
SW2	--	01/29/20	SW	12.8	7.4	1,590	180	5	1,040	0.81
SW2	--	02/19/20	SW	16.1	8	1,820	150	8	1,180	0.93
SW2	--	04/30/20	SW	19.5	7.6	955	210	7	620	0.47
SW2	--	08/20/20	SW	22	8.4	915	130	7	590	0.45
SW2	--	11/18/20	SW	16	8.1	876	32	8	570	0.43

Notes:

1. All field measurements were collected during groundwater and surface water sampling using a YSI multi-parameter water quality meter or an in-situ multi-parameter water quality meter.

-- = not applicable.
°C = degrees Celsius.
µS/cm = microSiemens per centimeter.
BR = bedrock.
DA = deep interval of Alluvial Aquifer.
GW = groundwater
ID = identification.
MA = mid-depth interval of Alluvial Aquifer.
mg/L = milligrams per liter.
mV = millivolts.
NTU = nephelometric turbidity units.
ORP = oxidation-reduction potential.
PPT = parts per thousand
SA = shallow interval of Alluvial Aquifer.
SU = standard units.
SW = surface water

APPENDIX E

Historical Chromium-6 and Dissolved Chromium Concentrations, January 2019 through December 2020

Appendix E

Historical Cr(VI) and Dissolved Chromium Concentrations, January 2019 through December 2020

Fourth Quarter 2020 and Annual 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	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-09	SA	12/01/2020		LF	120	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-10	SA	11/30/2020		LF	120	120
MW-10	SA	11/30/2020	FD	--	120	120
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-11	SA	12/10/2020		LF	33	33
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-12	SA	12/14/2020		LF	1,600	1,900
MW-12	SA	12/14/2020	FD	--	1,600	1,900
MW-13	SA	12/19/2019		LF	24	22
MW-13	SA	12/14/2020		LF	23	24
MW-14	SA	05/15/2019		LF	14	13
MW-14	SA	12/09/2019		LF	10	8.8
MW-14	SA	06/24/2020		LF	12	12
MW-14	SA	06/24/2020	FD	--	12	12
MW-14	SA	12/10/2020		LF	13	13
MW-15	SA	12/12/2019		LF	14	14
MW-15	SA	12/10/2020		LF	15	14
MW-16	SA	12/09/2019		LF	11	10
MW-16	SA	12/10/2020		LF	10	10
MW-17	SA	12/09/2019		LF	12	11
MW-17	SA	12/10/2020		LF	10	12
MW-18	SA	12/09/2019		LF	19	19
MW-18	SA	12/10/2020		LF	19	20
MW-19	SA	05/15/2019		LF	250	250
MW-19	SA	12/12/2019		LF	130	120
MW-19	SA	04/27/2020		LF	32	40
MW-19	SA	12/07/2020		LF	94	92 J
MW-20-070	SA	05/24/2019		LF	1,700	1,800
MW-20-070	SA	12/13/2019		LF	2,300	2,200

Appendix E

Historical Cr(VI) and Dissolved Chromium Concentrations, January 2019 through December 2020

Fourth Quarter 2020 and Annual 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-20-070	SA	04/24/2020		LF	2,500	2,500
MW-20-070	SA	12/04/2020		LF	1,600 J	1,700
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-20-100	MA	12/04/2020		LF	610 J	660
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-20-130	DA	12/04/2020		LF	4,000 J	4,400
MW-20-130	DA	12/04/2020	FD	--	4,100 J	4,500
MW-21	SA	05/23/2019		LF	6.5	6.7
MW-21	SA	12/13/2019		LF	ND (1.0)	8.9
MW-21	SA	04/30/2020		LF	4.6	5.4
MW-21	SA	12/15/2020		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-22	SA	12/08/2020		LF	ND (1.0)	ND (1.0)
MW-22	SA	12/08/2020	FD	--	ND (1.0)	ND (1.0)
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-23-060	BR	12/08/2020		LF	42	40
MW-23-080	BR	05/21/2019		LF	ND (1.0)	1.1
MW-23-080	BR	12/09/2019		LF	ND (1.0)	1.1
MW-23-080	BR	06/18/2020		LF	ND (1.0)	ND (1.0)
MW-23-080	BR	12/08/2020		LF	ND (1.0)	ND (1.0)
MW-24A	SA	05/17/2019		LF	ND (0.2)	ND (1.0)
MW-24A	SA	12/03/2019		LF	ND (0.2)	1.8
MW-24A	SA	05/01/2020		LF	ND (0.2)	2.9
MW-24A	SA	10/05/2020		LF	ND (0.2)	3.3
MW-24A	SA	12/01/2020		LF	ND (0.2)	ND (1.0)
MW-24A	SA	12/01/2020	FD	--	ND (0.2)	ND (1.0)
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-24B	DA	10/05/2020		LF	ND (1.0)	57
MW-24B	DA	12/01/2020		LF	64	65
MW-24BR	BR	12/04/2019		LF	ND (1.0)	ND (1.0)
MW-24BR	BR	12/02/2020		3V	ND (1.0)	ND (1.0)
MW-25	SA	05/15/2019		LF	68	66
MW-25	SA	12/09/2019		LF	72	69

Appendix E

Historical Cr(VI) and Dissolved Chromium Concentrations, January 2019 through December 2020

Fourth Quarter 2020 and Annual 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-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-25	SA	12/07/2020		LF	68	65 J
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-26	SA	12/03/2020		LF	2,200	2,200
MW-26	SA	12/03/2020	FD	--	2,200	2,500
MW-27-020	SA	12/10/2019		LF	ND (0.2)	1.1
MW-27-020	SA	12/03/2020		LF	ND (0.2)	ND (1.0)
MW-27-060	MA	12/10/2019		LF	ND (0.2)	ND (1.0)
MW-27-060	MA	12/03/2020		LF	ND (0.2)	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-27-085	DA	12/03/2020		LF	ND (1.0)	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-28-025	SA	12/15/2020		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-28-090	DA	12/15/2020		LF	ND (0.2)	ND (1.0)
MW-29	SA	05/21/2019		LF	ND (0.2)	ND (1.0)
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-29	SA	12/04/2020		LF	ND (0.2)	ND (1.0)
MW-30-030	SA	12/05/2019		LF	ND (1.0)	ND (1.0)
MW-30-030	SA	12/07/2020		LF	ND (1.0)	ND (1.0 J)
MW-30-050	MA	12/05/2019		LF	ND (0.2)	ND (1.0)
MW-30-050	MA	12/07/2020		LF	ND (0.2)	ND (1.0 J)
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-31-060	SA	12/07/2020		LF	410	400 J
MW-31-135	DA	12/12/2019		LF	13	14
MW-31-135	DA	12/07/2020		LF	15	13 J
MW-32-020	SA	12/09/2019		LF	ND (1.0)	ND (1.0)
MW-32-020	SA	12/07/2020		LF	ND (1.0)	ND (1.0 J)
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)

Appendix E

Historical Cr(VI) and Dissolved Chromium Concentrations, January 2019 through December 2020

Fourth Quarter 2020 and Annual Interim Measures Performance Monitoring and Site-wide Groundwater and Surface Water Monitoring Report,
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Location ID	Aquifer Zone	Sample Date	Sample Type	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)
MW-32-035	SA	12/07/2020		LF	ND (1.0)	ND (1.0 J)
MW-32-035	SA	12/07/2020	FD	--	ND (1.0)	ND (1.0 J)
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-33-040	SA	12/02/2020		LF	ND (1.0)	1.8
MW-33-090	MA	04/22/2019		LF	2.5	5.5
MW-33-090	MA	12/05/2019		LF	2.7	3.8
MW-33-090	MA	12/05/2019	FD	--	2.8	3.9
MW-33-090	MA	06/17/2020		LF	3.3	6.3
MW-33-090	MA	12/02/2020		LF	3.1	11
MW-33-150	DA	05/21/2019		LF	5.5	21
MW-33-150	DA	12/05/2019		LF	2.0	7.7
MW-33-150	DA	12/05/2019	FD	--	1.9	7.6
MW-33-150	DA	06/17/2020		LF	4.9	11
MW-33-150	DA	12/02/2020		LF	5.0	8.8
MW-33-210	DA	04/22/2019		LF	10	9.2
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	7.2	15
MW-33-210	DA	12/02/2020		LF	12	15
MW-34-055	MA	12/10/2019		LF	ND (0.2)	ND (1.0)
MW-34-055	MA	12/10/2019	FD	--	ND (0.2)	ND (1.0)
MW-34-055	MA	12/03/2020		LF	ND (0.2)	ND (1.0)
MW-34-055	MA	12/03/2020	FD	--	ND (0.2)	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)
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-34-080	DA	12/03/2020		LF	ND (0.2)	ND (1.0)
MW-34-100	DA	02/14/2019		LF	ND (1.0)	1.7
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)	1.6
MW-34-100	DA	12/10/2019	FD	--	ND (1.0)	1.9
MW-34-100	DA	02/20/2020		LF	ND (0.2)	4.0
MW-34-100	DA	06/18/2020		LF	ND (0.2)	ND (1.0)
MW-34-100	DA	10/01/2020		LF	ND (0.2)	ND (1.0)
MW-34-100	DA	12/03/2020		LF	ND (1.0)	ND (1.0)
MW-34-100	DA	12/03/2020	FD	--	ND (1.0)	ND (1.0)
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-35-060	SA	12/08/2020		LF	21	21
MW-35-060	SA	12/08/2020	FD	--	20	21
MW-35-135	DA	05/24/2019		LF	28	24

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Location ID	Aquifer Zone	Sample Date	Sample Type	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)
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-35-135	DA	12/08/2020		LF	27	27
MW-35-135	DA	12/08/2020	FD	--	28	27
MW-36-020	SA	12/04/2019		LF	ND (0.2)	ND (1.0)
MW-36-020	SA	12/15/2020		LF	ND (0.2)	ND (1.0)
MW-36-040	SA	12/04/2019		LF	ND (0.2)	ND (1.0)
MW-36-040	SA	12/15/2020		LF	ND (0.2)	ND (1.0)
MW-36-050	MA	12/04/2019		LF	ND (0.2)	ND (1.0)
MW-36-050	MA	12/15/2020		LF	ND (0.2)	ND (1.0)
MW-36-070	MA	12/04/2019		LF	ND (0.2)	ND (1.0)
MW-36-070	MA	12/15/2020		LF	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-36-090	DA	12/15/2020		LF	ND (0.2)	1.7
MW-36-100	DA	04/24/2019		LF	7.4	11
MW-36-100	DA	04/24/2019	FD	LF	7.1	11
MW-36-100	DA	12/04/2019		LF	7.5	10
MW-36-100	DA	06/16/2020		LF	12	11
MW-36-100	DA	12/15/2020		LF	4.5	6.0
MW-37D	DA	05/20/2019		LF	6.2	6.0
MW-37D	DA	12/19/2019		LF	4.8	4.5
MW-37D	DA	06/24/2020		LF	5.0	6.5
MW-37D	DA	12/10/2020		LF	4.5	5.7
MW-37S	MA	12/19/2019		LF	12	11
MW-37S	MA	12/10/2020		LF	12	13
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-38D	DA	10/05/2020		LF	20	21
MW-38D	DA	12/14/2020		LF	17	19
MW-38D	DA	12/15/2020		--	19	18
MW-38S	SA	02/13/2019		LF	5.1	5.6
MW-38S	SA	05/17/2019		LF	6.0	5.7
MW-38S	SA	09/25/2019		LF	4.8	4.7
MW-38S	SA	12/18/2019		LF	4.7	4.5
MW-38S	SA	02/25/2020		LF	3.8	3.3
MW-38S	SA	02/25/2020	FD	--	3.9	3.2
MW-38S	SA	04/23/2020		LF	4.0	4.4
MW-38S	SA	04/23/2020	FD	--	4.0	4.6
MW-38S	SA	11/30/2020		LF	7.2	7.8
MW-38S-SMT	SA	02/13/2019		3V	3.7	3.8
MW-38S-SMT	SA	09/30/2020		LF	4.5	5.4
MW-39-040	SA	12/05/2019		LF	ND (0.2)	ND (1.0)
MW-39-040	SA	12/11/2020		LF	ND (0.2)	ND (1.0)

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Location ID	Aquifer Zone	Sample Date	Sample Type	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)
MW-39-050	MA	12/05/2019		LF	ND (0.2)	ND (1.0)
MW-39-050	MA	12/11/2020		LF	ND (0.2)	ND (1.0)
MW-39-060	MA	12/05/2019		LF	ND (0.2)	ND (1.0)
MW-39-060	MA	12/11/2020		LF	ND (0.2)	ND (1.0)
MW-39-070	MA	12/05/2019		LF	ND (0.2)	ND (1.0)
MW-39-070	MA	12/11/2020		LF	ND (0.2)	ND (1.0)
MW-39-080	DA	12/05/2019		LF	0.52	2.5
MW-39-080	DA	12/11/2020		LF	0.47	1.2
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-39-100	DA	12/15/2020		LF	120	110
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		LF	12	11
MW-40D	DA	12/10/2020		LF	31	29
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
MW-40S	SA	12/10/2020		H	5.9	29
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-41D	DA	12/17/2020		LF	1.1	1.4
MW-41M	DA	12/17/2019		LF	9.6	11
MW-41M	DA	12/17/2020		LF	9.5	8.3
MW-41S	SA	12/17/2019		LF	7.2	6.8
MW-41S	SA	12/17/2020		LF	5.5	5.2
MW-42-030	SA	12/11/2019		LF	ND (1.0)	ND (1.0)
MW-42-030	SA	12/16/2020		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-42-055	MA	12/16/2020		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-42-065	MA	12/16/2020		LF	ND (0.2)	ND (1.0)
MW-43-025	SA	12/12/2019		LF	ND (0.2)	1.9
MW-43-025	SA	12/08/2020		LF	ND (0.2)	ND (1.0)
MW-43-075	DA	12/12/2019		LF	ND (1.0)	ND (1.0)
MW-43-075	DA	12/08/2020		LF	ND (0.2)	ND (1.0)
MW-43-090	DA	12/12/2019		LF	ND (1.0)	ND (1.0)
MW-43-090	DA	12/08/2020		LF	ND (1.0)	ND (1.0)
MW-44-070	MA	04/24/2019		LF	ND (0.2)	ND (1.0)

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Location ID	Aquifer Zone	Sample Date	Sample Type	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)
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-44-070	MA	12/11/2020		LF	ND (0.2)	ND (1.0)
MW-44-115	DA	02/15/2019		LF	10	17
MW-44-115	DA	04/24/2019		LF	6.0	6.1
MW-44-115	DA	10/01/2019		LF	6.2	6.3
MW-44-115	DA	12/11/2019		LF	6.7	7.3
MW-44-115	DA	02/21/2020		LF	4.8	5.9
MW-44-115	DA	06/23/2020		LF	4.0	3.7
MW-44-115	DA	10/01/2020		LF	3.4	4.1
MW-44-115	DA	10/01/2020	FD	--	3.4	3.9
MW-44-115	DA	12/11/2020		LF	2.7	4.4
MW-44-125	DA	04/24/2019		LF	1.9	10
MW-44-125	DA	12/11/2019		LF	2.6	3.8
MW-44-125	DA	06/23/2020		LF	ND (0.2)	1.0
MW-44-125	DA	12/11/2020		LF	ND (0.2)	ND (1.0)
MW-46-175	DA	02/15/2019		LF	8.1	18
MW-46-175	DA	02/15/2019	FD	LF	7.9	20
MW-46-175	DA	05/21/2019		LF	7.6	9.1
MW-46-175	DA	10/01/2019		LF	6.0	6.1
MW-46-175	DA	12/04/2019		LF	5.1	6.3
MW-46-175	DA	02/21/2020		LF	9.1	17
MW-46-175	DA	06/23/2020		LF	5.3	23
MW-46-175	DA	10/01/2020		LF	5.1	5.5
MW-46-175	DA	12/15/2020		LF	7.9	9.0
MW-46-205	DA	05/21/2019		LF	2.4	2.7
MW-46-205	DA	12/04/2019		LF	ND (1.0)	6.2
MW-46-205	DA	06/23/2020		LF	1.2	2.1
MW-46-205	DA	12/15/2020		LF	ND (1.0)	3.6
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-47-055	SA	11/30/2020		LF	17	17
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-47-115	DA	11/30/2020		LF	18	18
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-48	BR	12/16/2020		G	ND (1.0)	ND (1.0)
MW-49-135	DA	12/10/2019		3V	1.7	5.3
MW-49-135	DA	12/04/2020		LF	8.6 J	11
MW-49-275	DA	12/05/2019		LF	ND (1.0)	31
MW-49-275	DA	12/04/2020		LF	ND (1.0)	ND (1.0)
MW-49-365	DA	12/05/2019		LF	ND (1.0)	ND (5.0)

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Location ID	Aquifer Zone	Sample Date	Sample Type	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)
MW-49-365	DA	12/04/2020		LF	ND (1.0)	ND (1.0)
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-50-095	MA	12/07/2020		LF	13	14 J
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-50-200	DA	12/07/2020		LF	2,300	2,100 J
MW-50-200	DA	12/07/2020	FD	--	2,300	2,100 J
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-51	MA	12/03/2020		LF	3,300	3,500
MW-51	MA	12/03/2020	FD	--	3,300	3,700
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-52D	DA	12/08/2020		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-52M	DA	12/08/2020		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-52S	MA	12/08/2020		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-53D	DA	12/08/2020		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-53M	DA	12/08/2020		LF	ND (1.0)	ND (1.0)
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-54-085	DA	12/09/2020	(a)	LF	ND (0.05)	ND (2.5)
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-54-140	DA	12/09/2020	(a)	LF	ND (0.25)	ND (2.5)

Appendix E

Historical Cr(VI) and Dissolved Chromium Concentrations, January 2019 through December 2020

Fourth Quarter 2020 and Annual 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-54-195	DA	12/09/2020	(a)	LF	ND (0.25)	ND (2.5)
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-55-045	MA	12/09/2020	(a)	LF	ND (0.05)	ND (2.5)
MW-55-120	DA	05/23/2019	(a)	LF	7.5	ND (2.0)
MW-55-120	DA	12/10/2019	(a)	LF	6.6	8.2
MW-55-120	DA	06/19/2020	(a)	LF	7.9	9.2
MW-55-120	DA	06/19/2020	FD(a)	--	8.0	9.2
MW-55-120	DA	12/09/2020	(a)	LF	7.5	ND (2.5)
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-56D	DA	12/09/2020	(a)	LF	ND (0.25)	ND (2.5)
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-56M	DA	12/09/2020	(a)	LF	ND (0.25)	ND (2.5)
MW-56M	DA	12/09/2020	FD(a)	--	ND (0.25)	ND (2.5)
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-56S	SA	12/09/2020	(a)	LF	ND (0.05)	ND (2.5)
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-57-070	BR	12/04/2020		LF	630 J	660
MW-57-185	BR	05/20/2019		LF	4.6	5.2
MW-57-185	BR	05/20/2019	FD	LF	4.7	5.1
MW-57-185	BR	12/06/2019		LF	3.7	3.4
MW-57-185	BR	06/22/2020		LF	1.3	1.9
MW-57-185	BR	06/22/2020	FD	--	1.4	2.0
MW-57-185	BR	12/04/2020		LF	4.4 J	5.0
MW-58BR	BR	02/14/2019		LF	7.4	9.4
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-58BR	BR	09/29/2020		LF	3.9	4.5

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Location ID	Aquifer Zone	Sample Date	Sample Type	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)
MW-58BR	BR	11/30/2020		LF	5.2	5.7
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-59-100	SA	12/08/2020		LF	2,700	2,900
MW-59-100	SA	12/08/2020	FD	--	2,700	2,800
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-60-125	BR	10/01/2020		LF	580	570
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	BR	09/30/2020		LF	21	22
MW-60BR-245	BR	12/17/2020		LF	16	15
MW-60BR-245_D	BR	02/14/2019		LF	18	17
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	02/14/2019		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-61-110	BR	05/23/2019		LF	280	280
MW-61-110	BR	12/06/2019		LF	480	460
MW-61-110	BR	12/04/2020		LF	430 J	440
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-62-065	BR	09/30/2020		LF	590	610
MW-62-065	BR	12/04/2020		LF	620	570
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	0.59	ND (1.0)
MW-62-110	BR	02/18/2020		LF	ND (0.2)	ND (1.0)
MW-62-110	BR	04/29/2020		Tap	ND (1.0)	ND (1.0)
MW-62-110	BR	09/30/2020		LF	ND (1.0)	ND (1.0)
MW-62-110	BR	12/02/2020		--	ND (0.2)	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)

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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		Tap	ND (1.0)	ND (1.0)
MW-62-190	BR	04/29/2020	FD	--	ND (1.0)	ND (1.0)
MW-62-190	BR	12/02/2020		--	ND (1.0)	ND (1.0)
MW-63-065	BR	02/14/2019		LF	1.1	1.3
MW-63-065	BR	05/21/2019		LF	1.3	2.8
MW-63-065	BR	09/26/2019		LF	1.2	1.0
MW-63-065	BR	09/26/2019	FD	--	1.2	1.1
MW-63-065	BR	12/06/2019		LF	1.4	3.0
MW-63-065	BR	02/19/2020		LF	1.2	2.5
MW-63-065	BR	02/19/2020	FD	--	1.2	2.8
MW-63-065	BR	06/24/2020		LF	1.3	2.6
MW-63-065	BR	09/30/2020		LF	1.3	2.3
MW-63-065	BR	12/07/2020		LF	1.7	2.7 J
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)	1.8
MW-64BR	BR	09/30/2020		LF	ND (1.0)	ND (1.0)
MW-64BR	BR	11/30/2020		LF	ND (1.0)	ND (1.0)
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-65-160	SA	09/29/2020		LF	240	240
MW-65-160	SA	12/03/2020		LF	210	240
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
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-65-225	DA	09/29/2020		LF	260	250
MW-65-225	DA	12/03/2020		LF	360	350
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-66-165	SA	12/03/2020		LF	400	390
MW-66-165	SA	12/03/2020	FD	--	410	420
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

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Historical Cr(VI) and Dissolved Chromium Concentrations, January 2019 through December 2020

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Location ID	Aquifer Zone	Sample Date	Sample Type	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)
MW-66-230	DA	04/29/2020	FD	--	6,600	6,600
MW-66-230	DA	12/03/2020		LF	6,500	6,400
MW-66-230	DA	12/03/2020	FD	--	6,300	6,500
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-66BR-270	BR	12/16/2020		3V	ND (1.0)	1.2
MW-66BR-270	BR	12/16/2020	FD	--	ND (1.0)	ND (1.0)
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-67-185	SA	10/06/2020		LF	2,000	2,000
MW-67-185	SA	12/02/2020		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-67-225	MA	12/02/2020		LF	3,800	4,000
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-67-260	DA	12/02/2020		LF	250	250
MW-68-180	SA	02/13/2019		LF	37,000	42,000
MW-68-180	SA	05/22/2019		LF	5,400	6,200
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-68-180	SA	09/29/2020		LF	54,000	51,000
MW-68-180	SA	12/16/2020		LF	61,000	66,000
MW-68-180	SA	12/16/2020	FD	--	61,000	63,000
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-68-240	DA	12/16/2020		LF	2,000	2,000
MW-68-240	DA	12/16/2020	FD	--	2,000	1,900
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-68BR-280	BR	12/16/2020		LF	ND (1.0)	ND (1.0)
MW-68BR-280	BR	12/16/2020	FD	--	ND (1.0)	1.4
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

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Location ID	Aquifer Zone	Sample Date	Sample Type	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)
MW-69-195	BR	05/01/2020	FD	--	180	170
MW-69-195	BR	09/29/2020		LF	350	380
MW-69-195	BR	12/03/2020		LF	6.0	9.4
MW-70-105	BR	05/21/2019		LF	170	170
MW-70-105	BR	12/17/2019		LF	60	55
MW-70-105	BR	11/30/2020		LF	150	150
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-70BR-225	BR	11/30/2020		LF	1,300	1,300
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)
MW-71-035	SA	05/01/2020		LF	ND (1.0)	ND (1.0)
MW-71-035	SA	12/15/2020		G	ND (1.0)	ND (1.0)
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-72-080	BR	09/29/2020		LF	79	75
MW-72-080	BR	12/03/2020		LF	86	78
MW-72BR-200	BR	02/12/2019		3V	5.3	5.4
MW-72BR-200	BR	08/22/2019		LF	ND (1.0)	ND (1.0)
MW-72BR-200	BR	12/06/2019		LF	2.4	3.5
MW-72BR-200	BR	02/20/2020		LF	1.2	2.9
MW-72BR-200	BR	04/28/2020		LF	ND (1.0)	2.1
MW-72BR-200	BR	09/29/2020		LF	ND (1.0)	1.7
MW-72BR-200	BR	12/03/2020		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	02/12/2019		LF	ND (1.0)	1.3
MW-72BR-200_S	BR	05/23/2019		LF	ND (1.0)	ND (1.0)
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-73-080	BR	09/30/2020		LF	18	21
MW-73-080	BR	12/03/2020		LF	11	11
MW-74-240	BR	05/22/2019		LF	0.6	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)	1.5
MW-74-240	BR	12/03/2020		3V	ND (0.2)	ND (1.0)
OW-03D	DA	12/19/2019		LF	13	12
OW-03D	DA	12/11/2020		LF	12	13
OW-03M	MA	12/19/2019		LF	18	16
OW-03M	MA	12/11/2020		LF	17	17

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Location ID	Aquifer Zone	Sample Date	Sample Type	Sample Method	Hexavalent Chromium (µg/L)	Dissolved Chromium (µg/L)
OW-03S	SA	12/19/2019		LF	29	28
OW-03S	SA	12/11/2020		LF	19	20
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	0.7	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)
PGE-07BR	BR	12/04/2019		LF	ND (1.0)	4.4
PGE-07BR	BR	12/03/2020		3V	ND (1.0)	ND (1.0)
PGE-08	BR	12/10/2019		3V	ND (1.0)	1.2
PGE-08	BR	12/09/2020		3V	ND (1.0)	ND (1.0)
PM-03	MA	12/16/2019		Tap	10	10
PM-03	MA	12/14/2020		G	9.6	9.5
PM-04	MA	12/16/2019		Tap	17	16
PM-04	MA	12/14/2020		G	16	16
TW-01	SA	05/24/2019		LF	2,300	2,400
TW-01	SA	12/03/2019		LF	2,200	2,100
TW-01	SA	11/04/2020		--	1,400	1,400
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	2.3	52
TW-02D	DA	02/19/2020		Tap	740	670
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		Tap	470	460
TW-03D	DA	02/05/2020		Tap	460	480
TW-03D	DA	03/04/2020		Tap	450	390
TW-03D	DA	04/07/2020		Tap	440	420

Appendix E

Historical Cr(VI) and Dissolved Chromium Concentrations, January 2019 through December 2020

Fourth Quarter 2020 and Annual 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-03D	DA	05/05/2020		Tap	450	410
TW-03D	DA	07/23/2020		Tap	390	410
TW-03D	DA	08/04/2020		Tap	440	430
TW-03D	DA	09/01/2020		Tap	430	420
TW-03D	DA	10/07/2020		Tap	420	400
TW-03D	DA	11/03/2020		LF	440	420
TW-03D	DA	12/03/2020		Tap	440	430
TW-04	DA	05/16/2019		LF	5.1	4.5
TW-04	DA	12/12/2019		LF	5.8	5.6
TW-04	DA	06/25/2020		LF	3.7	4.1
TW-04	DA	11/30/2020		LF	6.4	6.6
TW-05	DA	05/20/2019		LF	11	10
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
TW-05	DA	12/07/2020		LF	18	16 J

Notes:

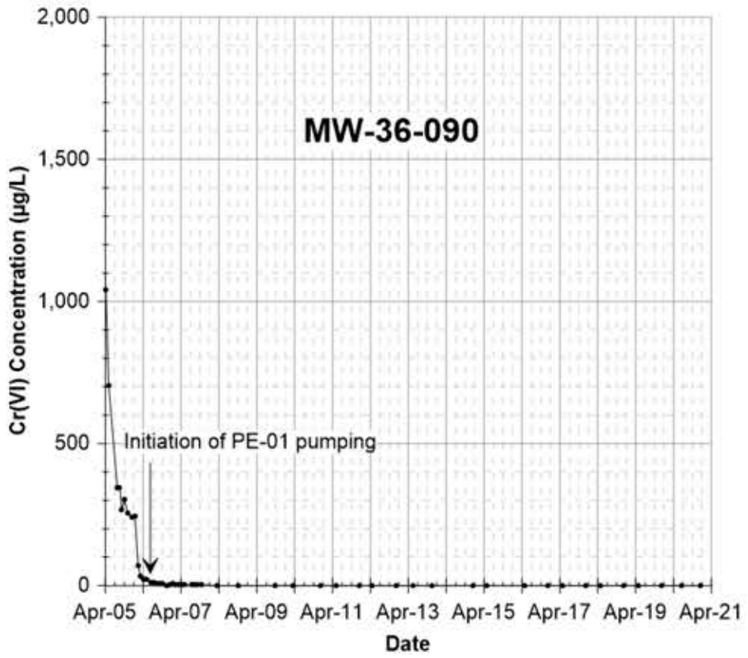
(a) = data were analyzed by an Arizona certified laboratory.

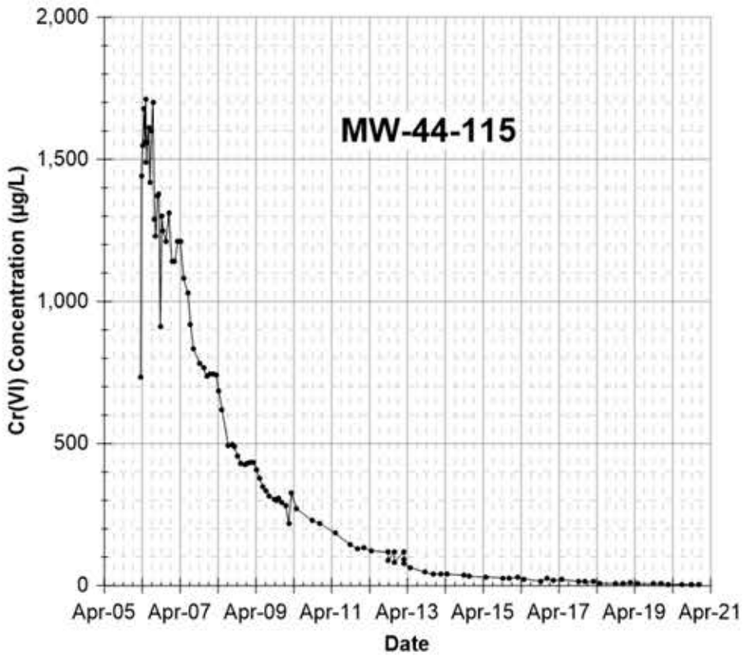
1. Beginning February 1, 2008, hexavalent chromium samples are field-filtered per DTSC-approved change from analysis Method SW7199 to E218.6.

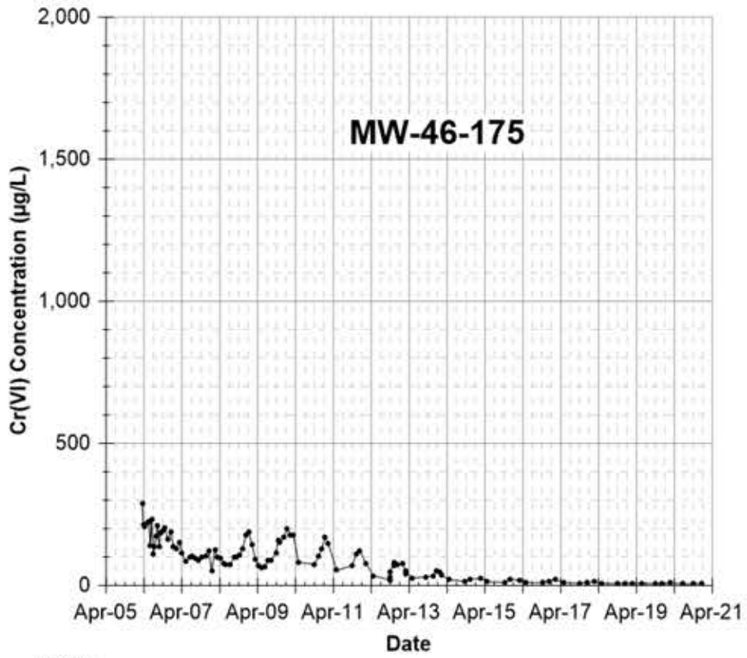
-- = not applicable.
µg/L = micrograms per liter.
3V = three volume.
BR = bedrock.
DA = deep interval of Alluvial Aquifer.
DTSC = Department of Toxic Substance Control.
FD = field duplicate.
G = Grab sample.
H = HydraSleeve.
ID = identification.
J = concentration or reporting limit (RL) estimated by 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.

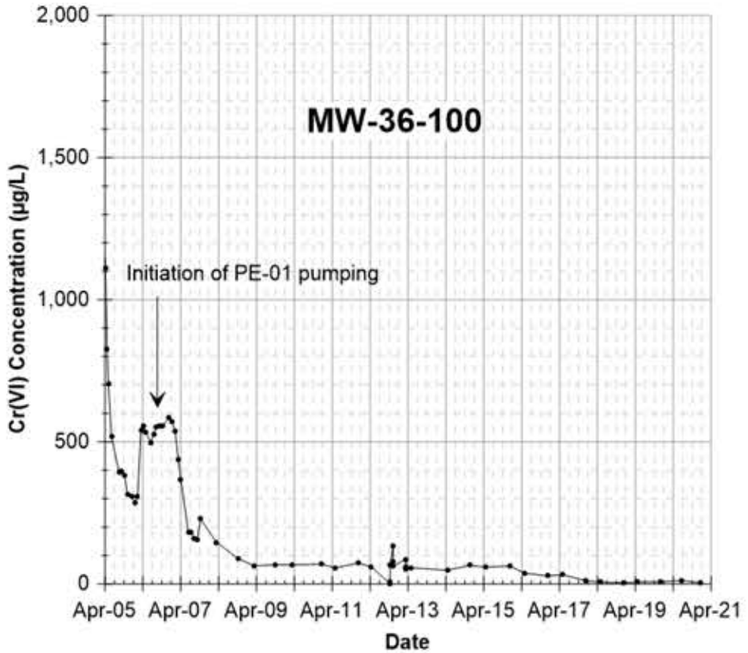
APPENDIX F

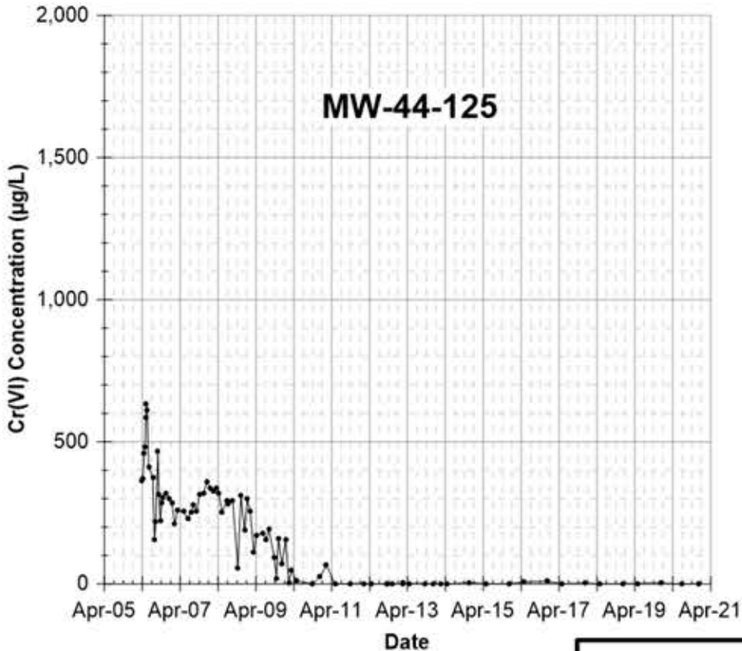
Concentration Time Series Charts, Fourth Quarter 2020

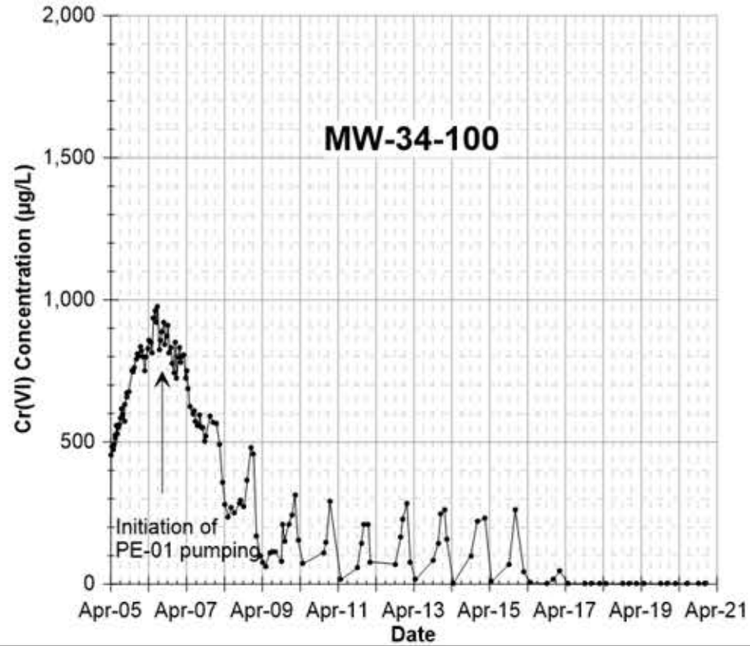












Notes:
1. Hexavalent chromium [Cr(VI)] results in micrograms per liter (µg/L), equivalent to parts per billion (ppb).
2. Results plotted are maximum concentrations from primary and duplicate samples; see Table 3-1 for complete results.
3. MW-36 wells selected to monitor effects of PE-01 pumping on plume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

APPENDIX F
Cr(VI) CONCENTRATION TRENDS IN SELECTED PERFORMANCE MONITORING WELLS, APRIL 2005 THROUGH DECEMBER 2020
FOURTH 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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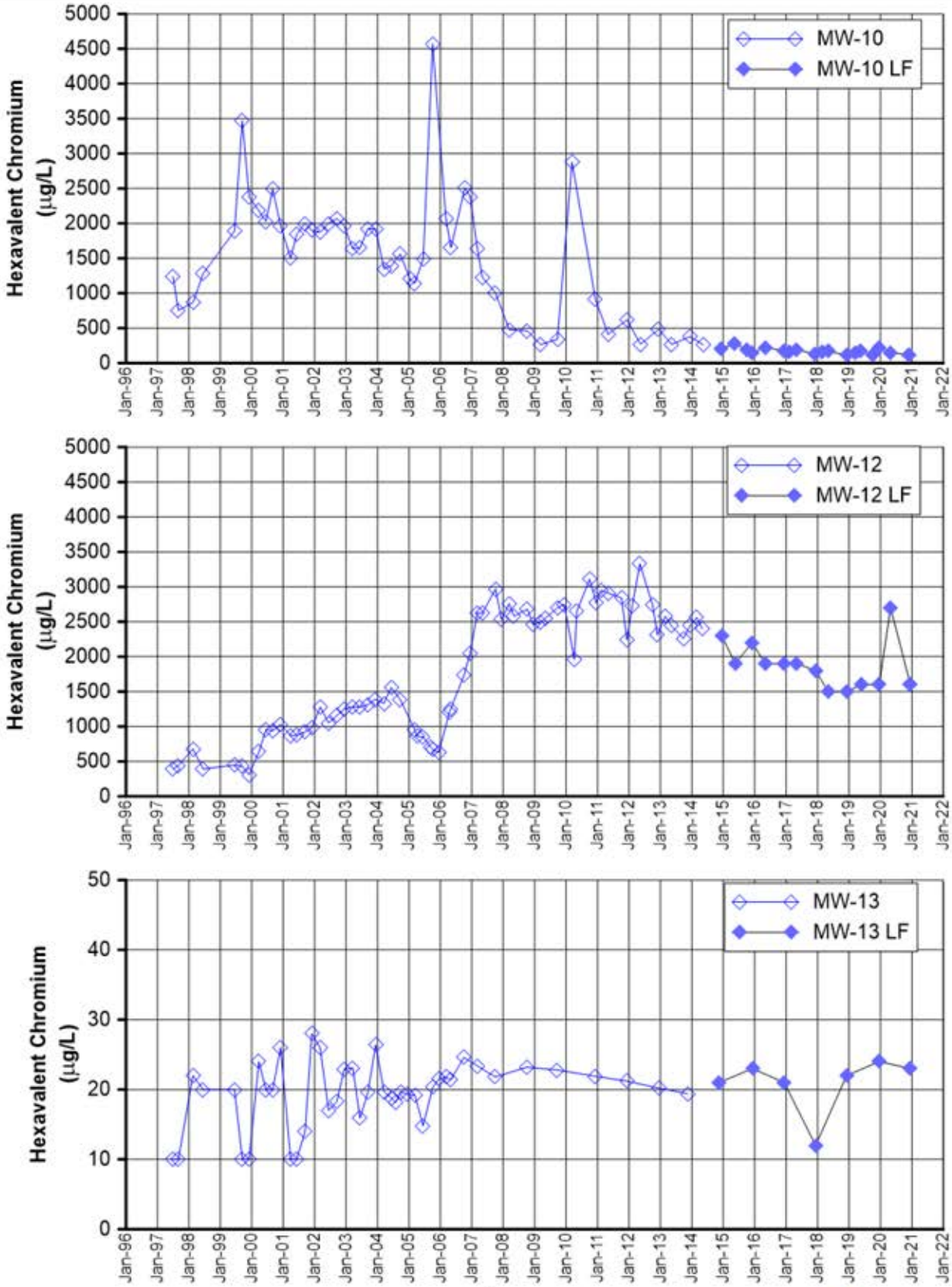

Notes:

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 F-1
HEXAVALENT CHROMIUM
IN MW-10, MW-12, AND MW-13
FOURTH 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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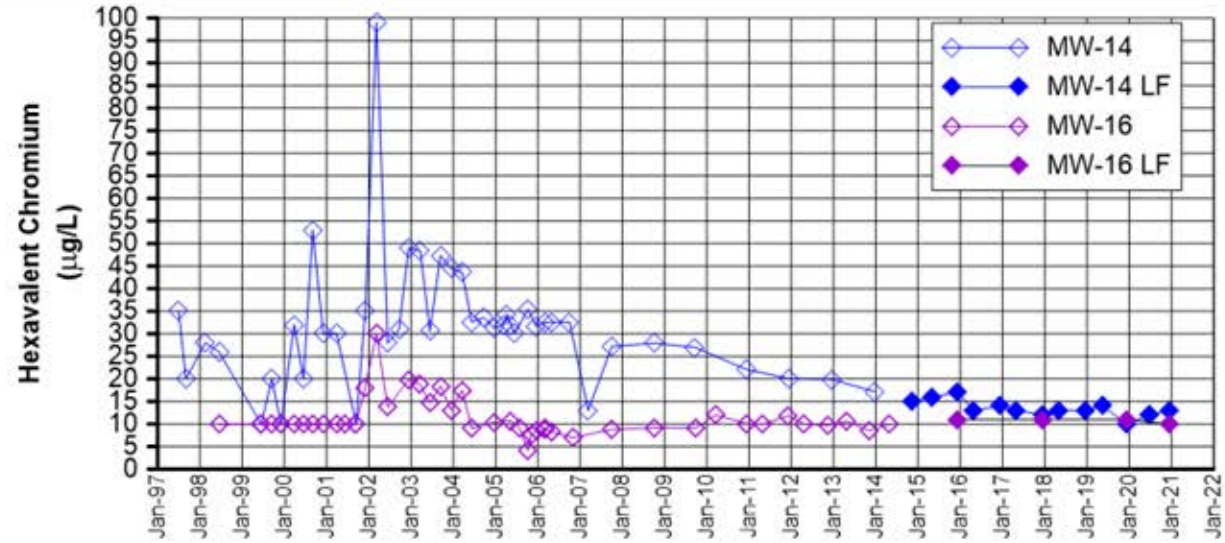

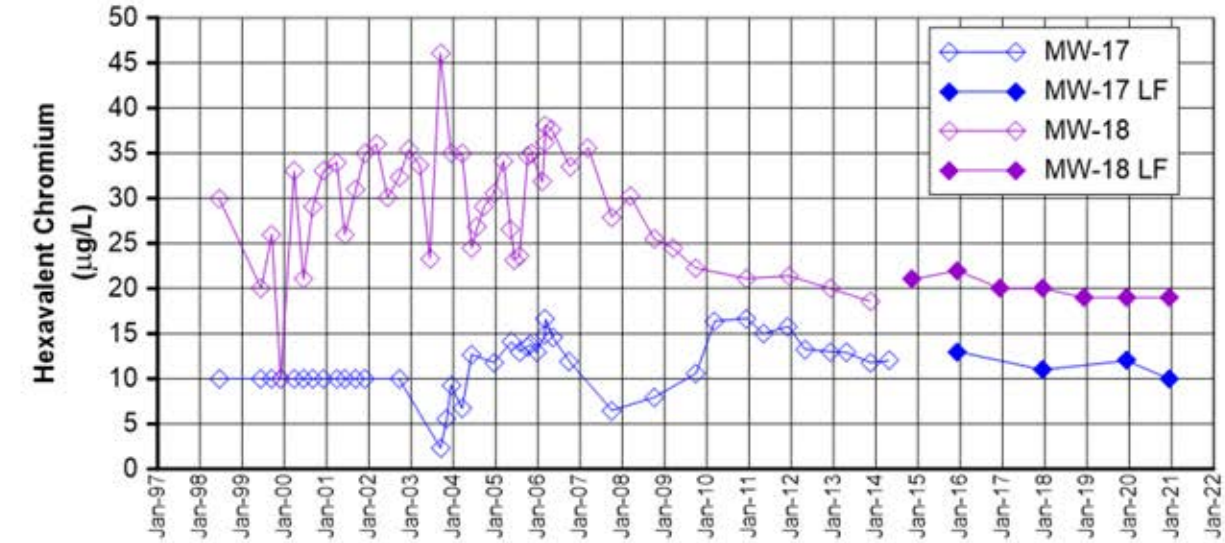

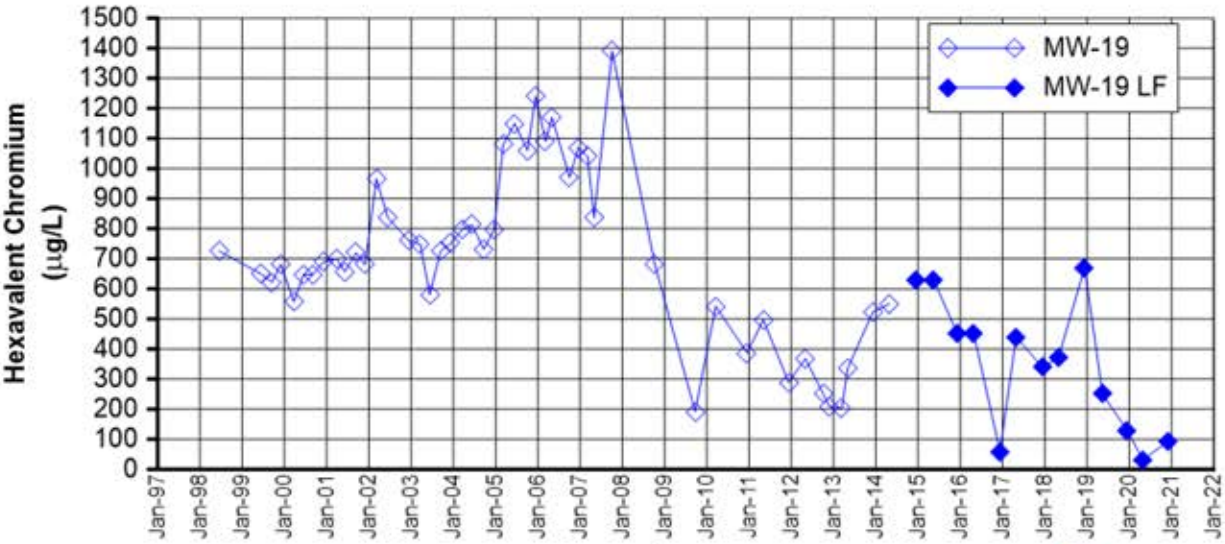

Notes:

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 F-2
HEXAVALENT CHROMIUM
IN MW-14, MW-16, MW-17, MW-18, AND MW-19
FOURTH 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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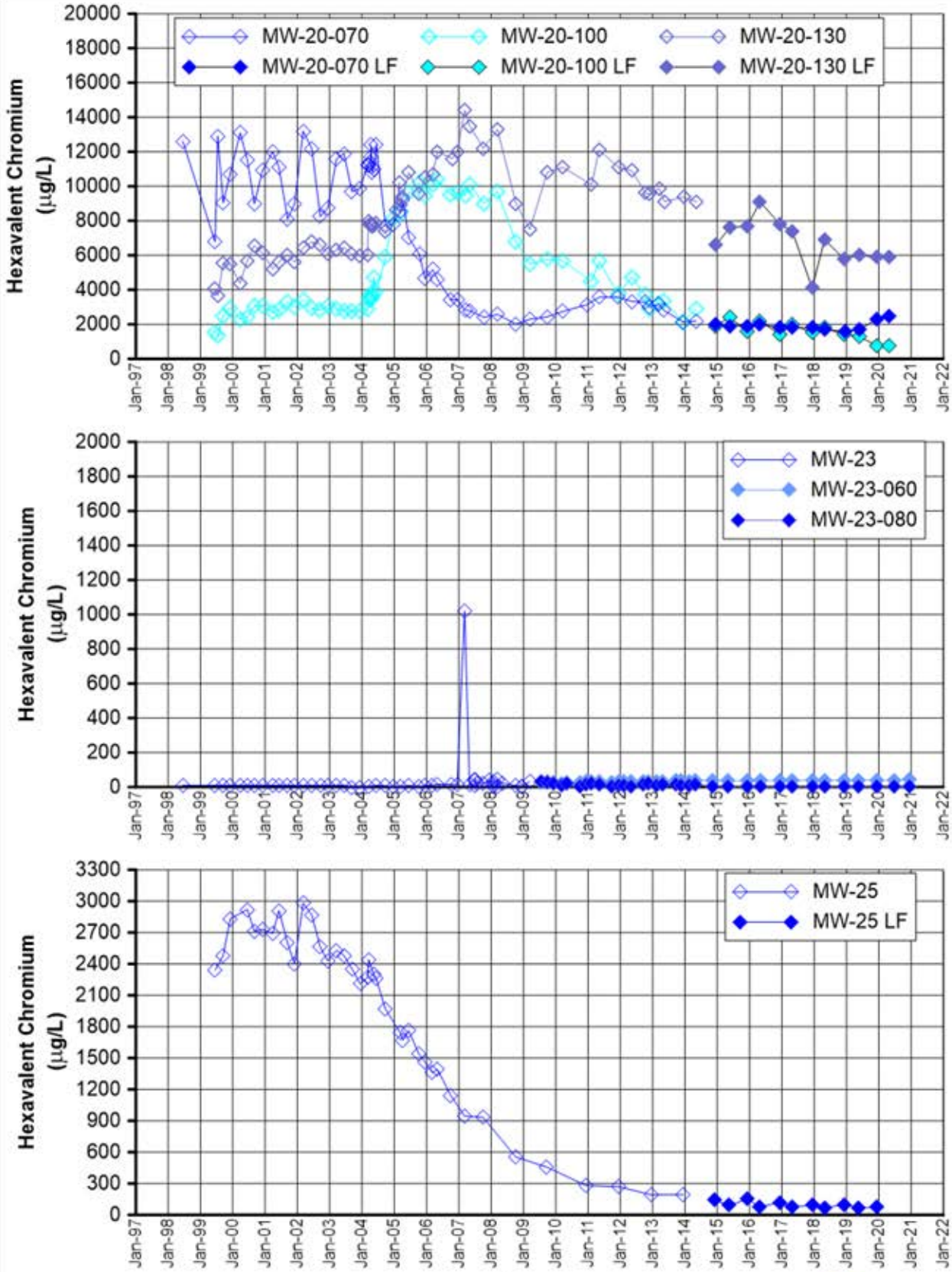

Notes:

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 F-3
HEXAVALENT CHROMIUM
IN MW-20 AND MW-23 CLUSTERS AND MW-25
FOURTH QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
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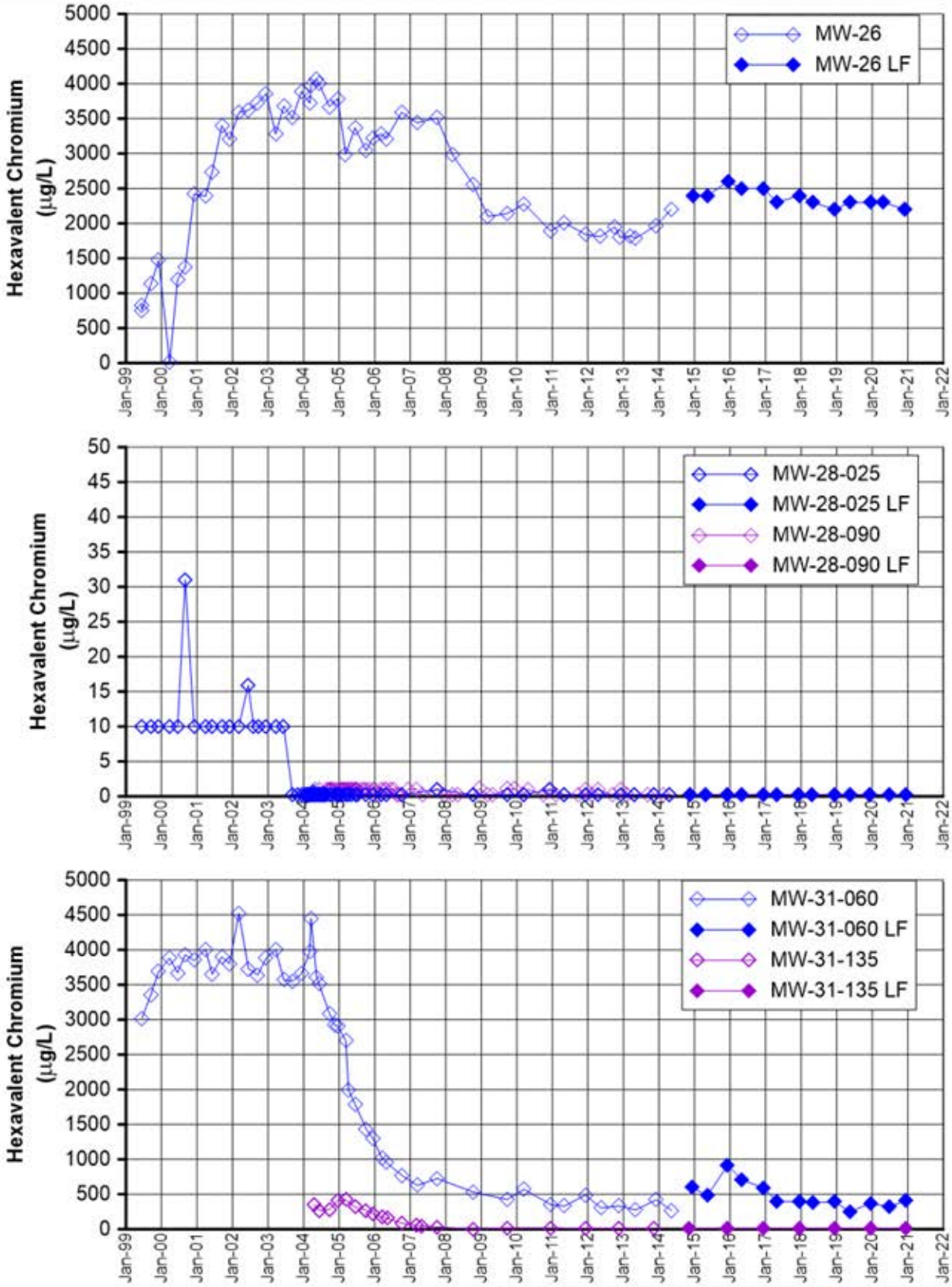

Notes:

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 F-4
HEXAVALENT CHROMIUM
IN MW-26, MW-28, AND MW-31 CLUSTERS
FOURTH 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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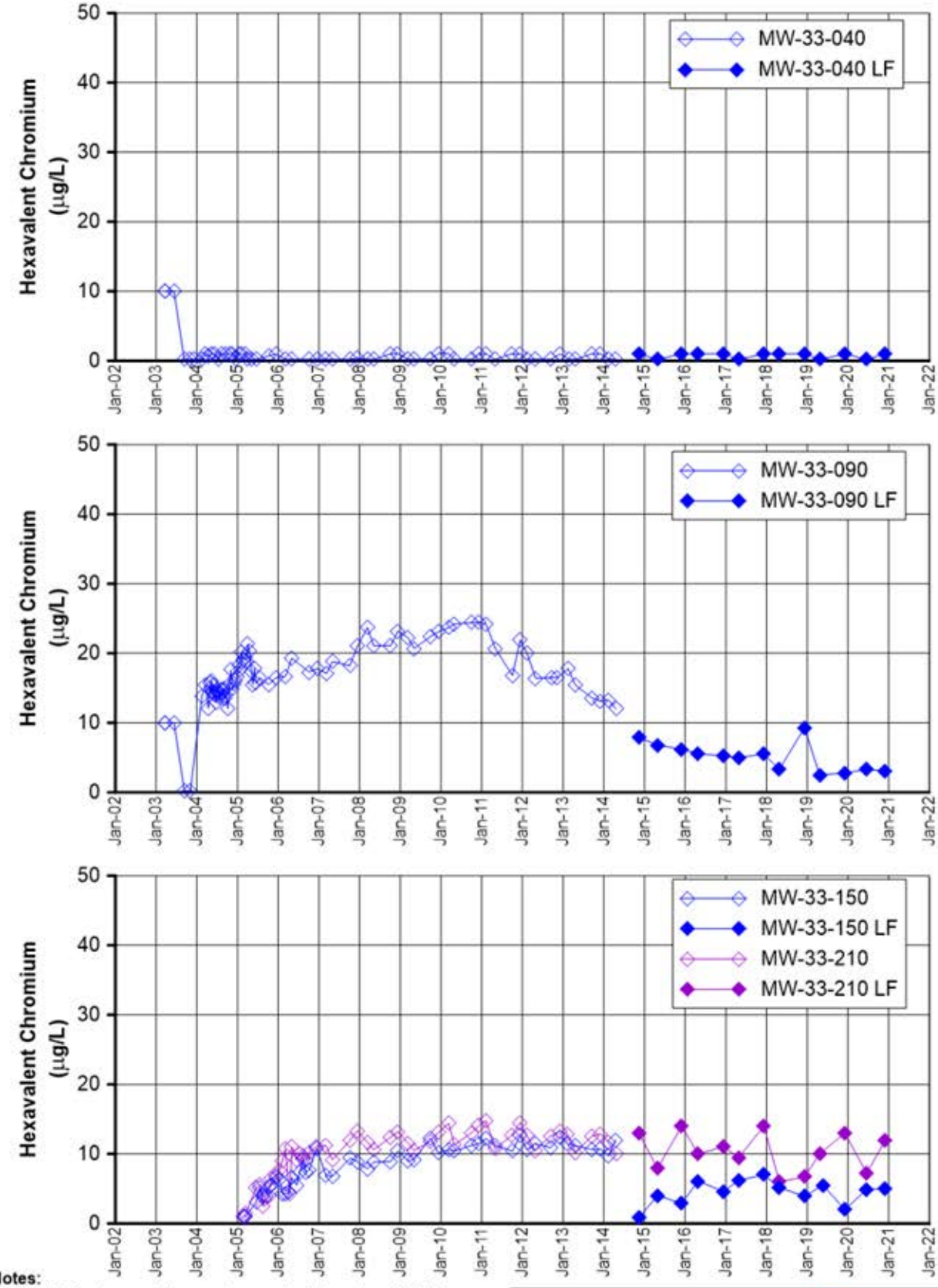

Notes:

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 F-5
HEXAVALENT CHROMIUM IN MW-33 CLUSTER
FOURTH 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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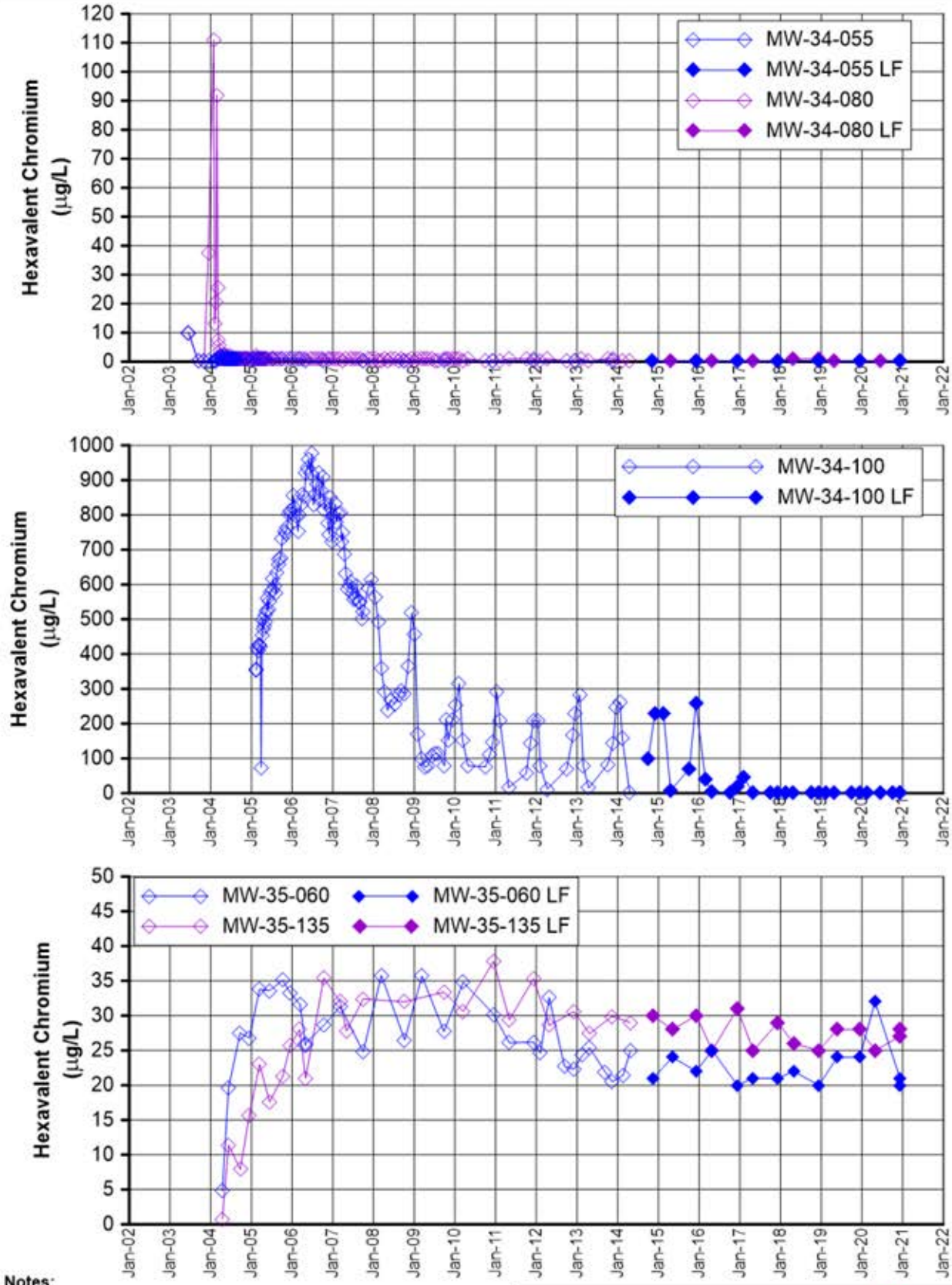

Notes:

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 F-6
HEXAVALENT CHROMIUM IN MW-34 AND MW-35 CLUSTERS
FOURTH 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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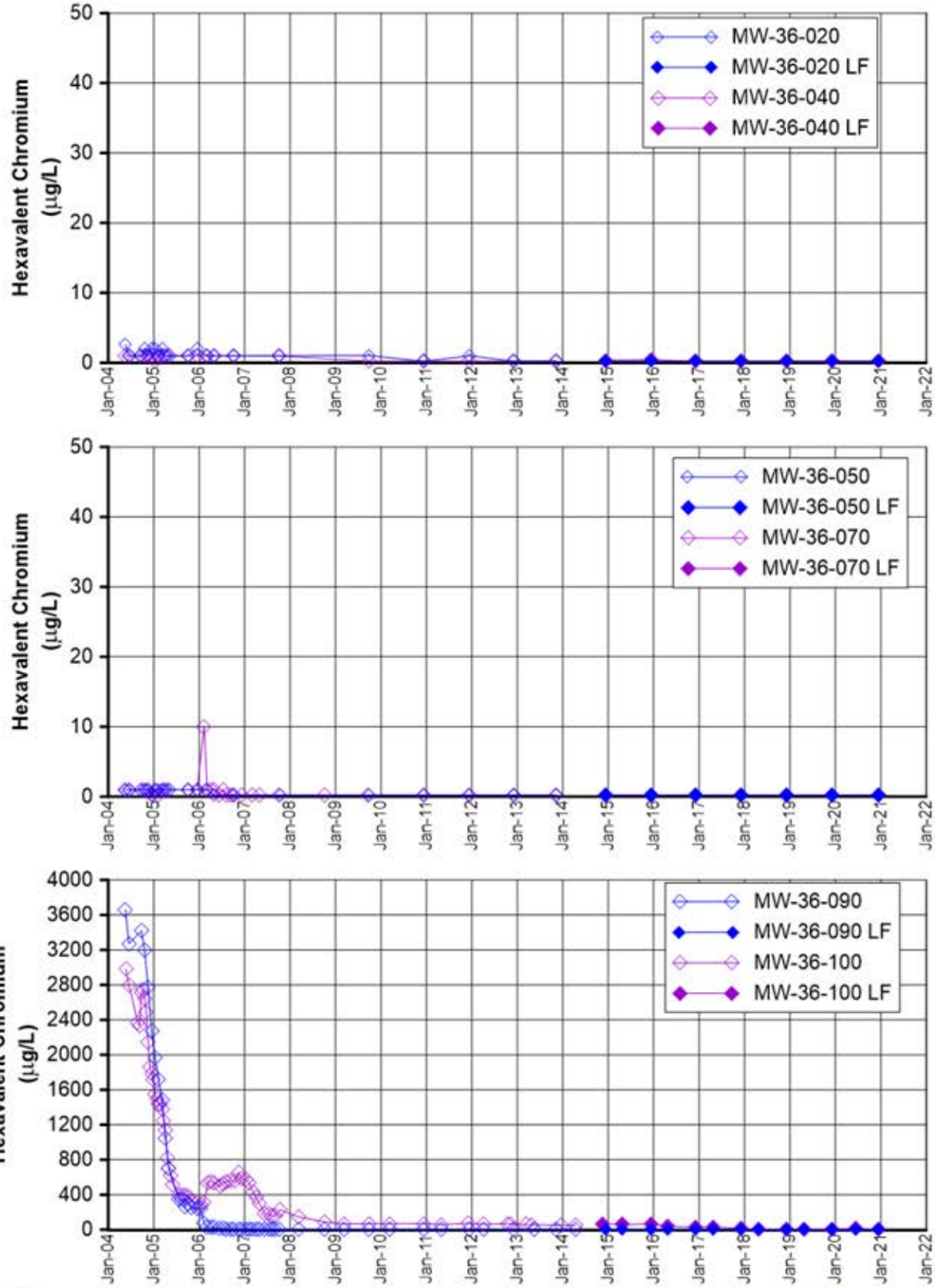

Notes:

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 F-7
HEXAVALENT CHROMIUM IN MW-36 CLUSTER
FOURTH 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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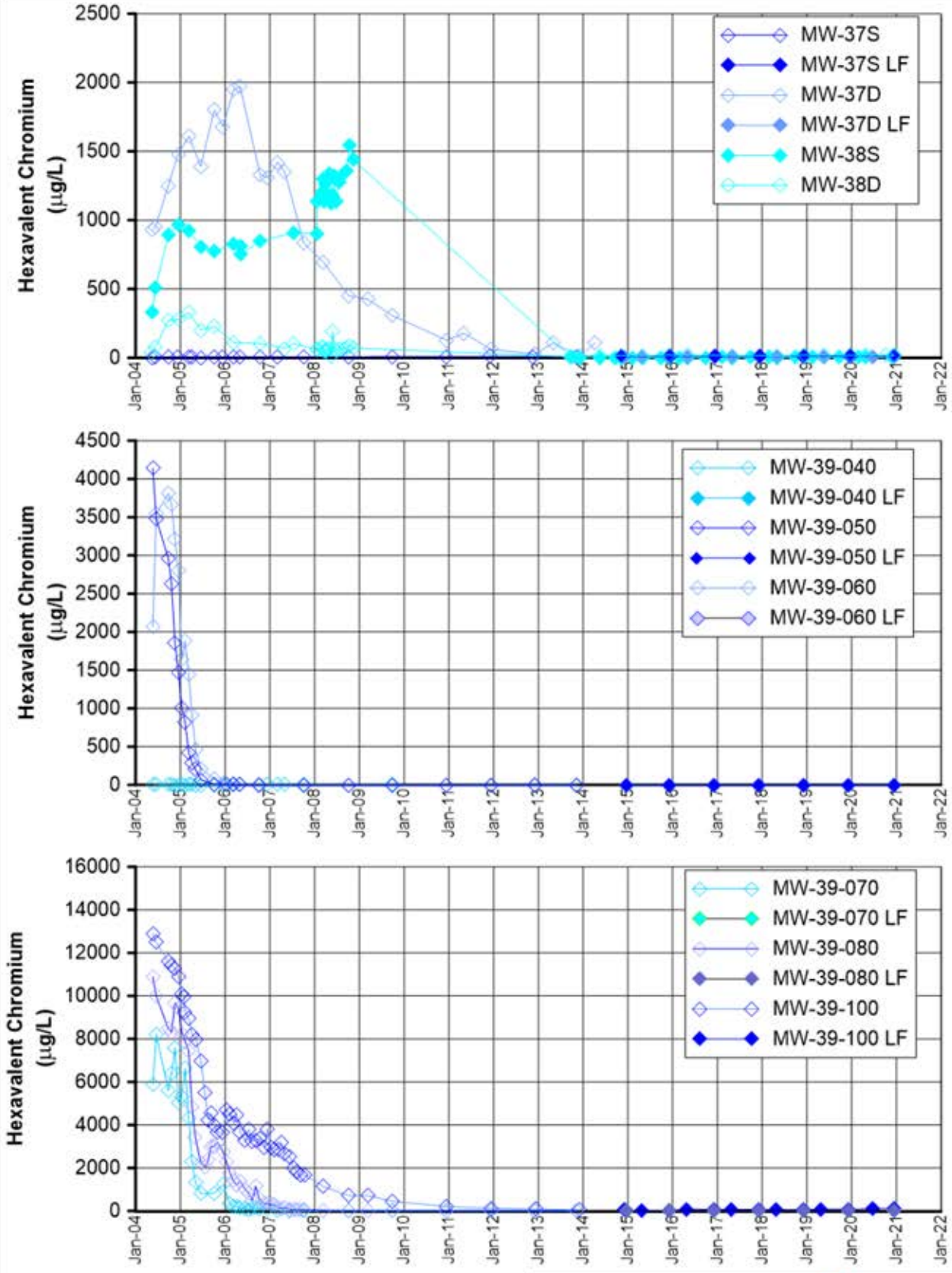

Notes:

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 F-8
HEXAVALENT CHROMIUM IN MW-37, MW-38 AND MW-39 CLUSTERS
FOURTH 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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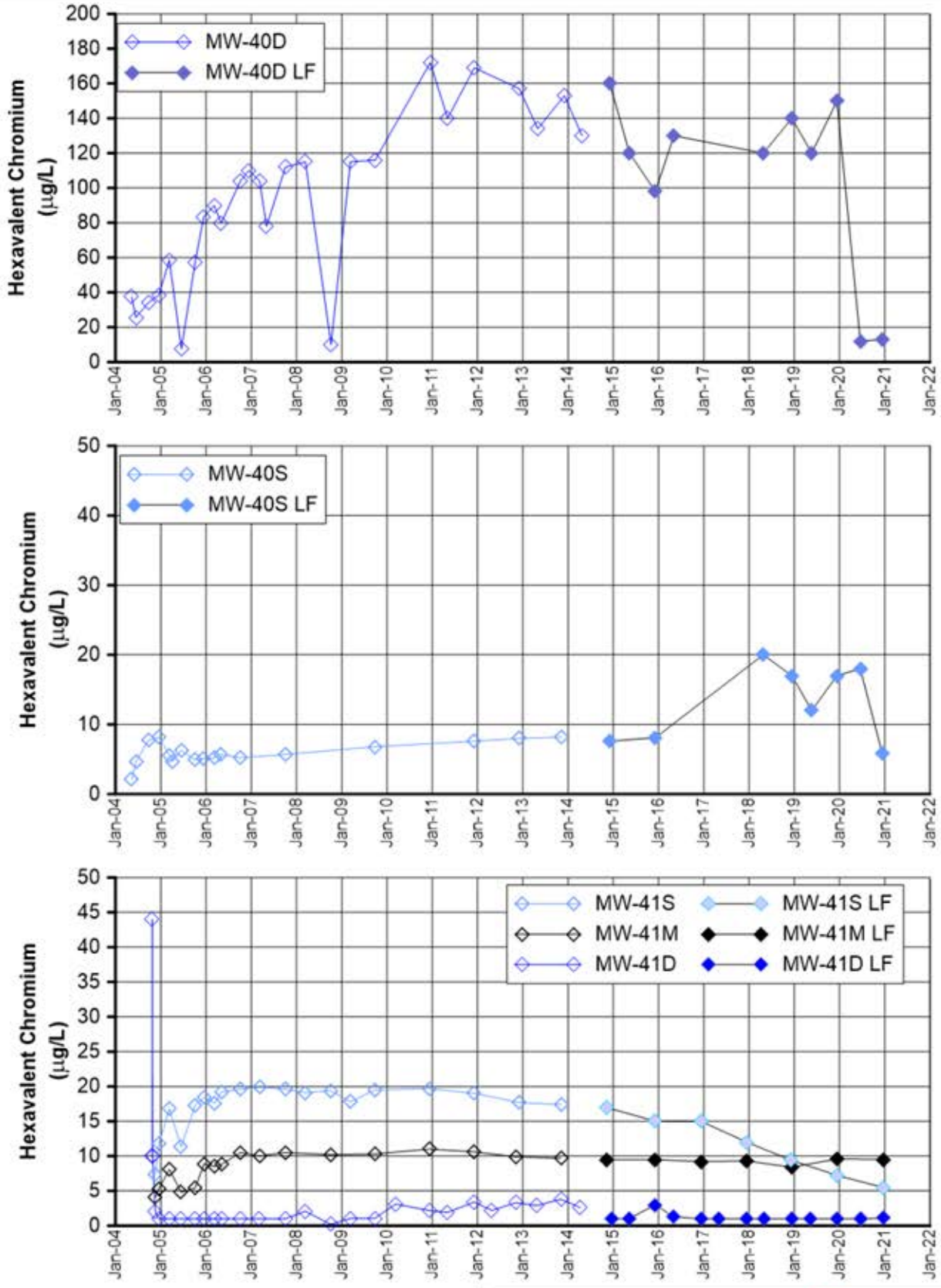

Notes:

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 F-9
HEXAVALENT CHROMIUM
IN MW-40 AND MW-41 CLUSTERS
FOURTH 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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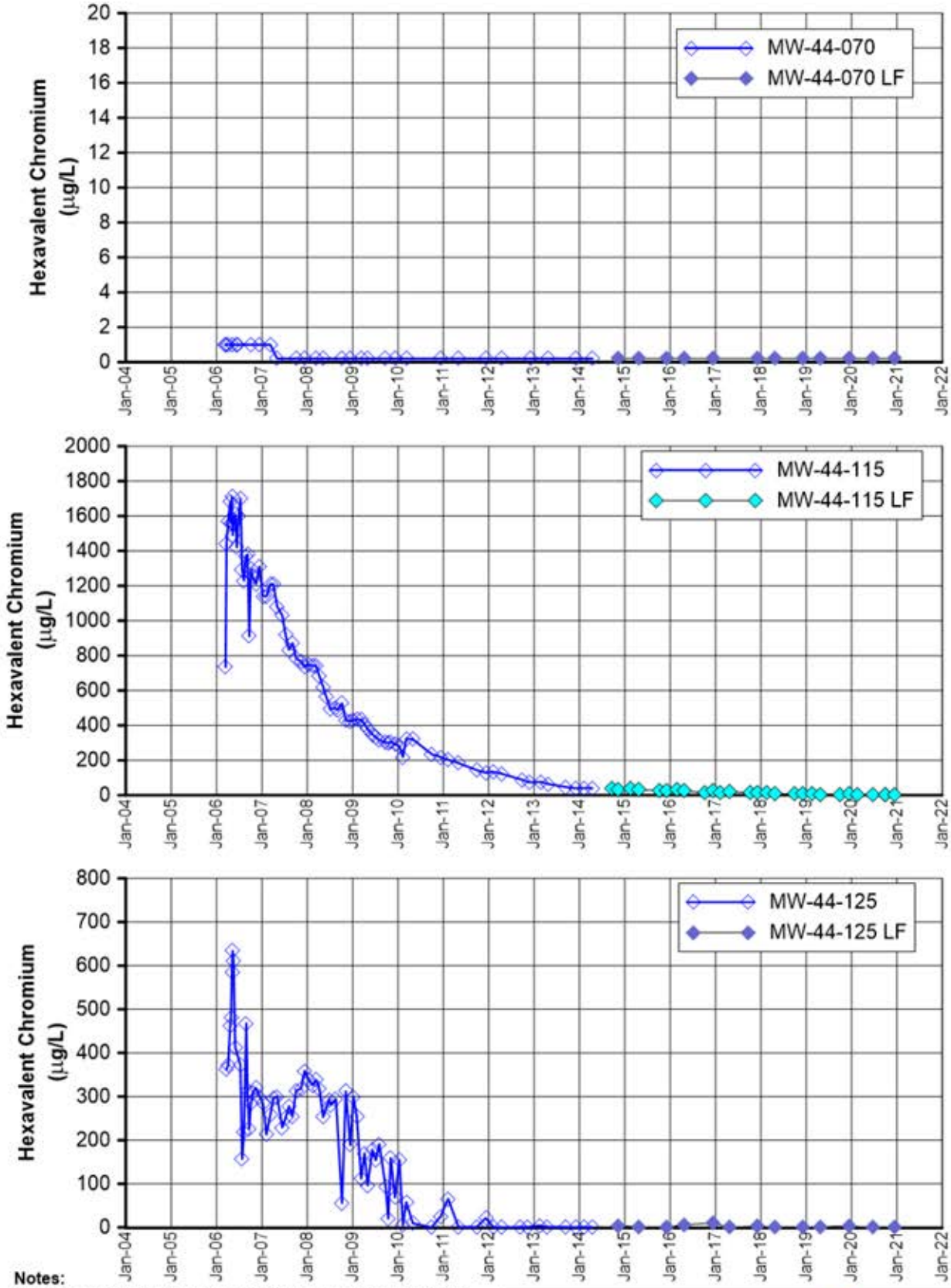

Notes:

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 F-10
HEXAVALENT CHROMIUM IN MW-44 CLUSTER

FOURTH 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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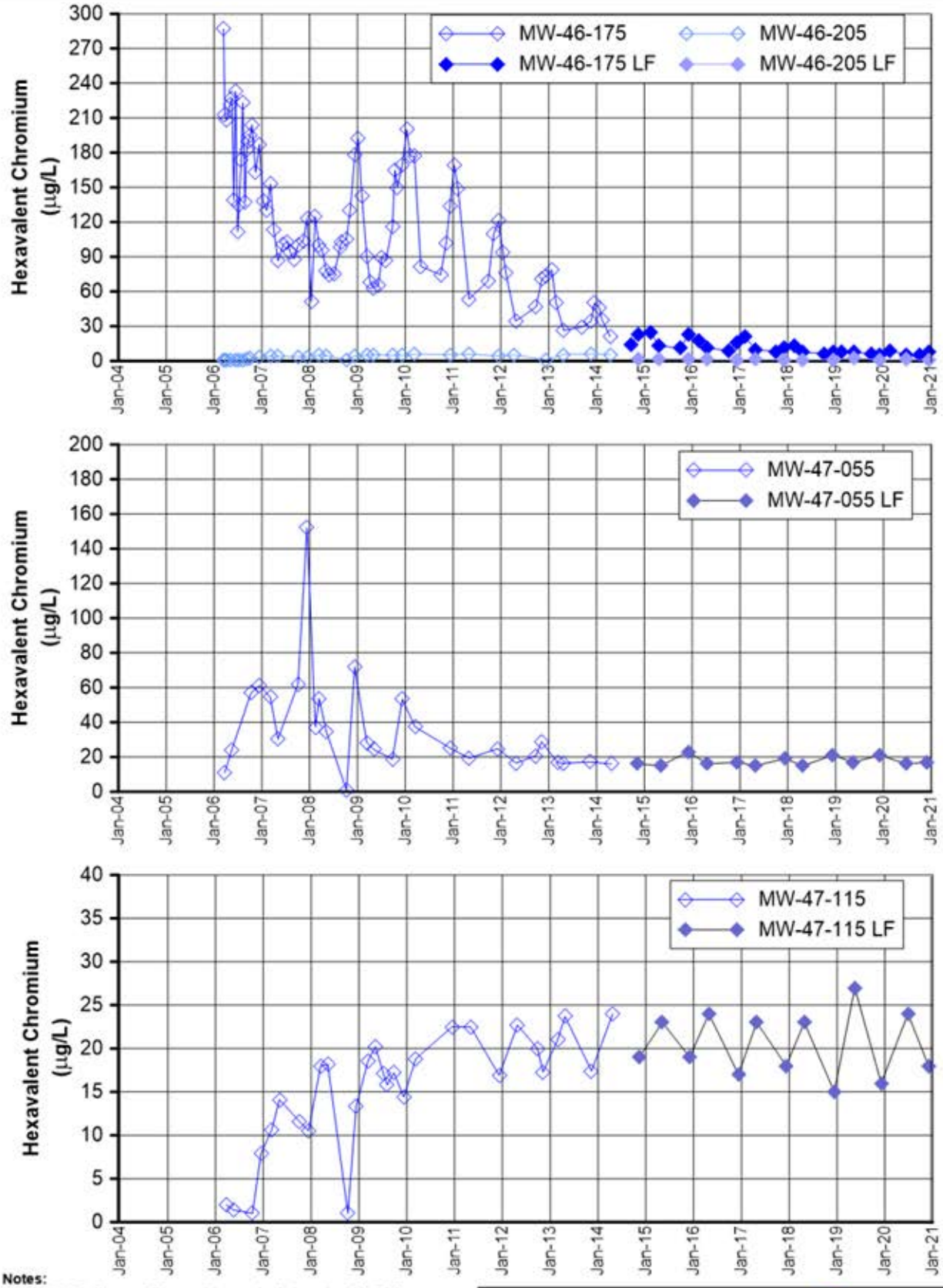

Notes:

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 F-11
HEXAVALENT CHROMIUM
IN MW-46 AND MW-47 CLUSTERS

FOURTH 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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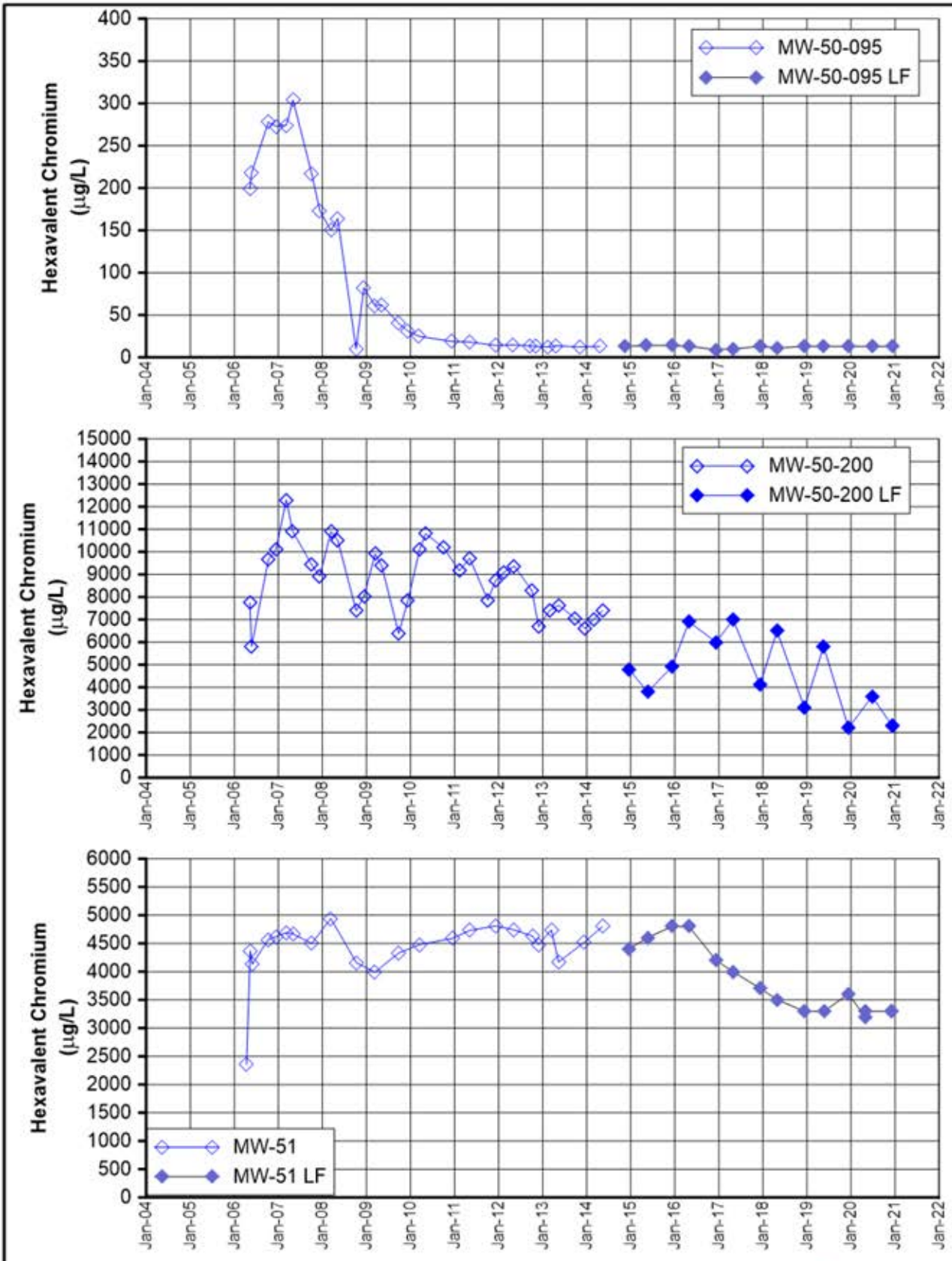

Notes:

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 F-12
HEXAVALENT CHROMIUM
IN MW-50 AND MW-51 CLUSTERS
FOURTH 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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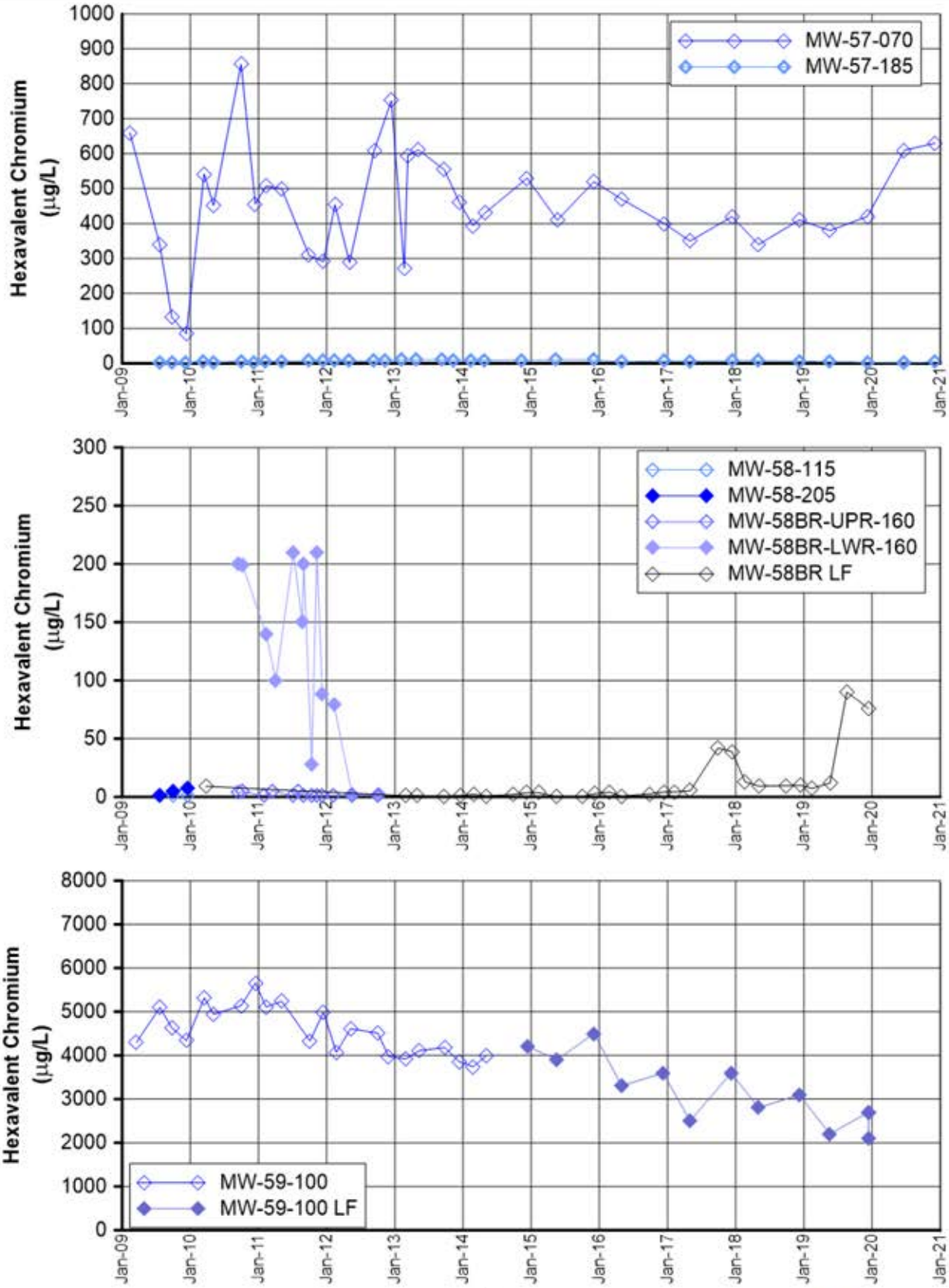

Note:

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 F-13
HEXAVALENT CHROMIUM
IN MW-57 CLUSTER, MW-58 CLUSTER AND MW-59-100
FOURTH 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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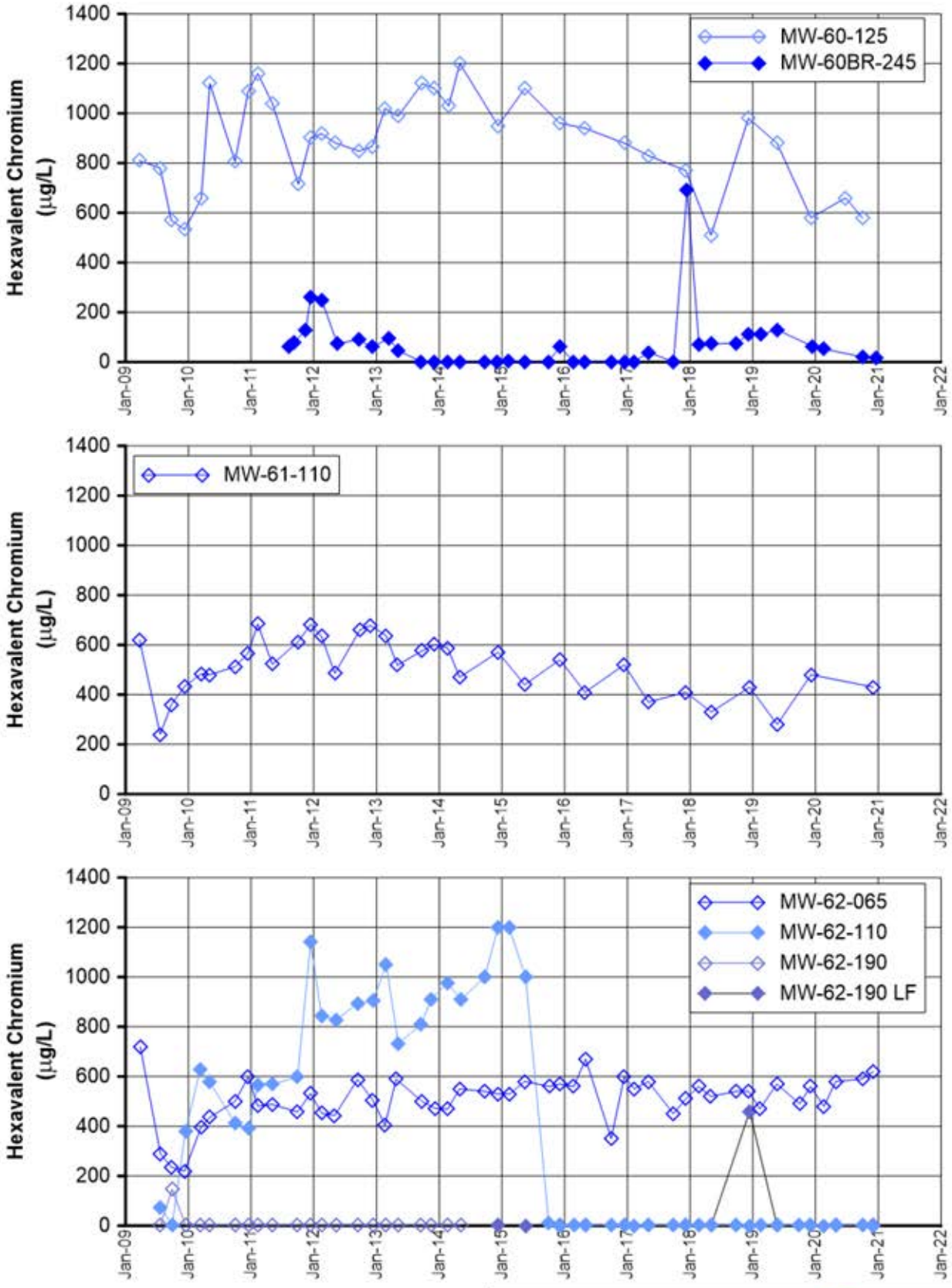

Notes:

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 F-14
HEXAVALENT CHROMIUM
IN MW-60 CLUSTER, MW-61-110 AND MW-62 CLUSTER
FOURTH 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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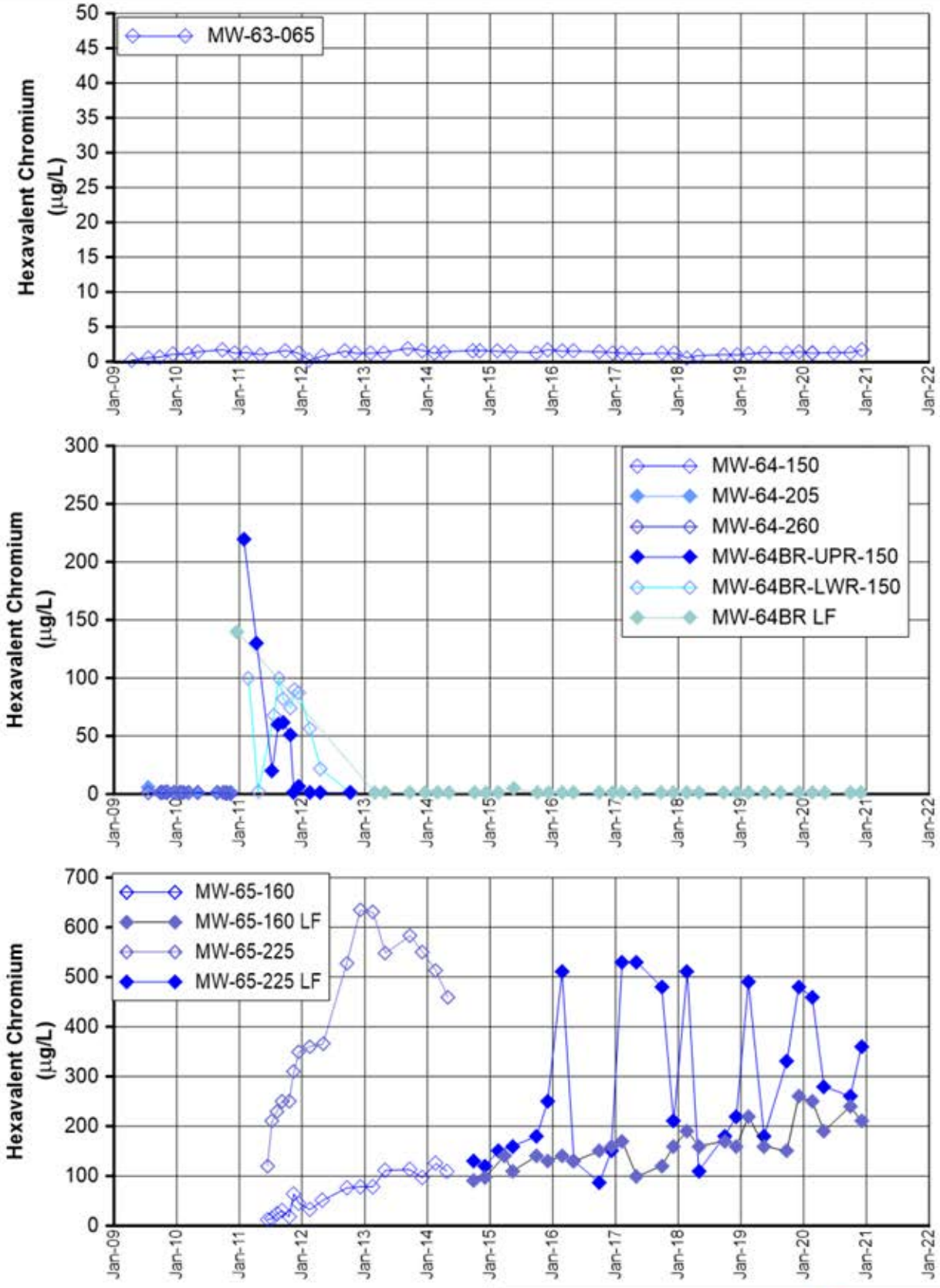

Notes:

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 F-15
HEXAVALENT CHROMIUM
IN MW-63-065, MW-64 CLUSTER AND MW-65 CLUSTER
FOURTH 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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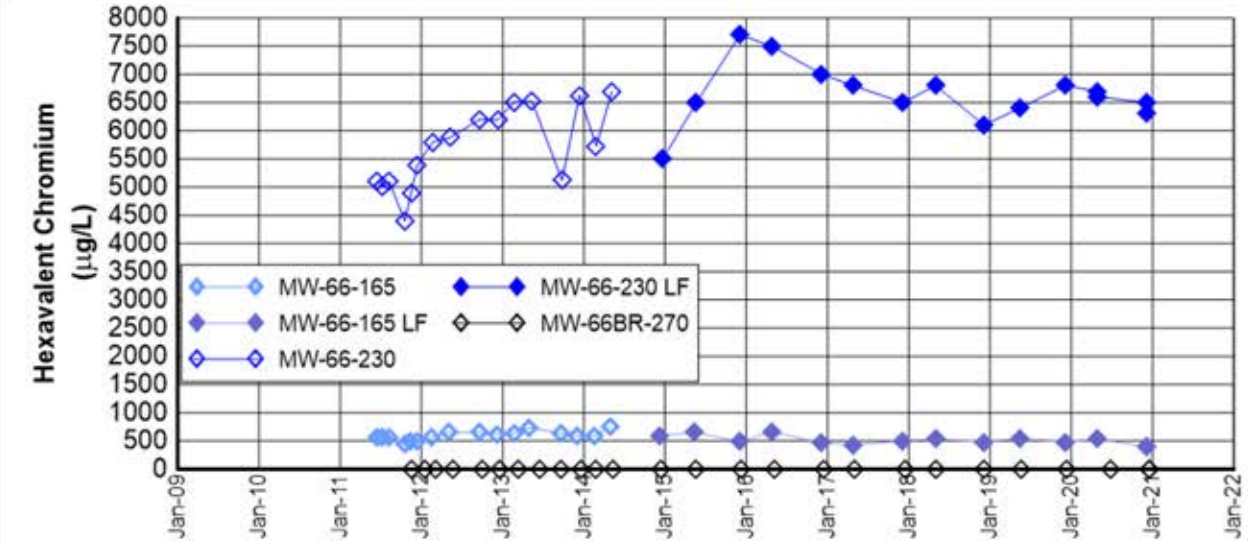

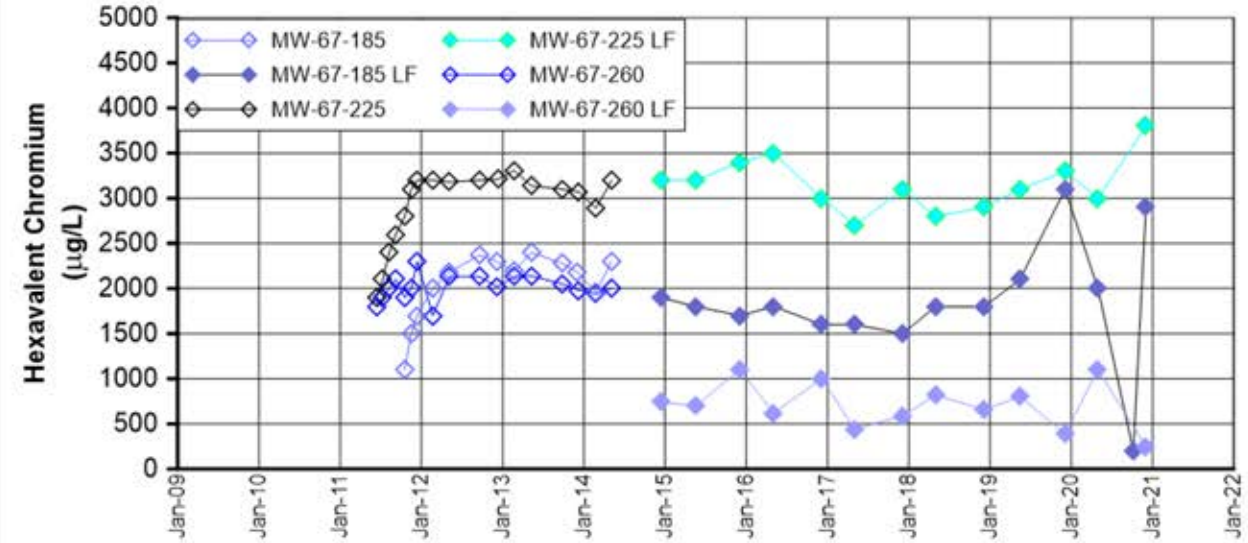

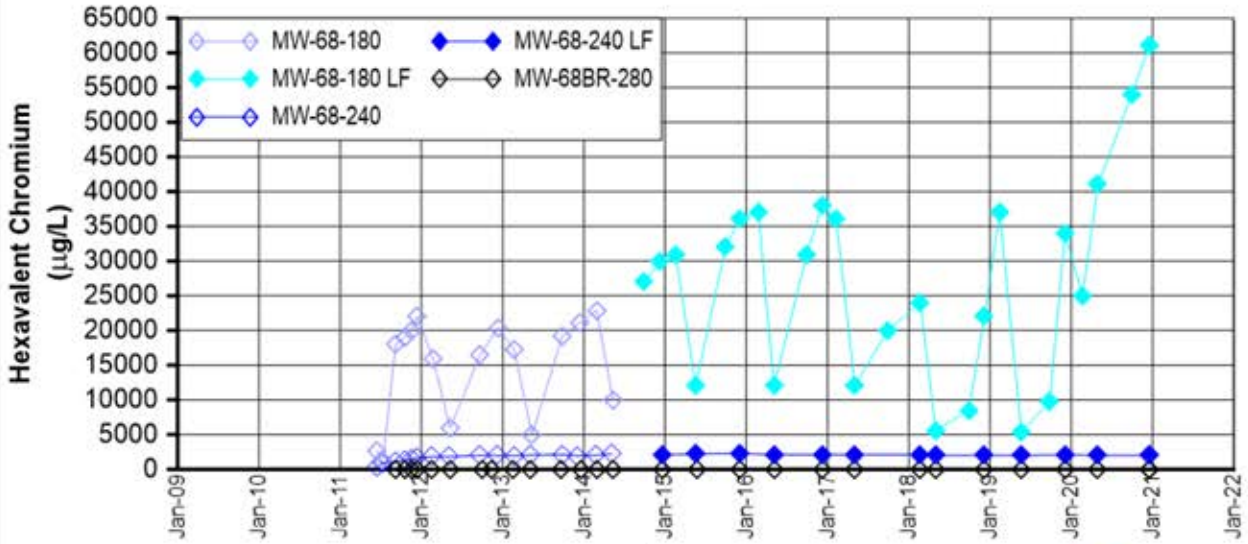

Notes:

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 F-16
HEXAVALENT CHROMIUM
IN MW-66, MW-67, AND MW-68 CLUSTERS
FOURTH 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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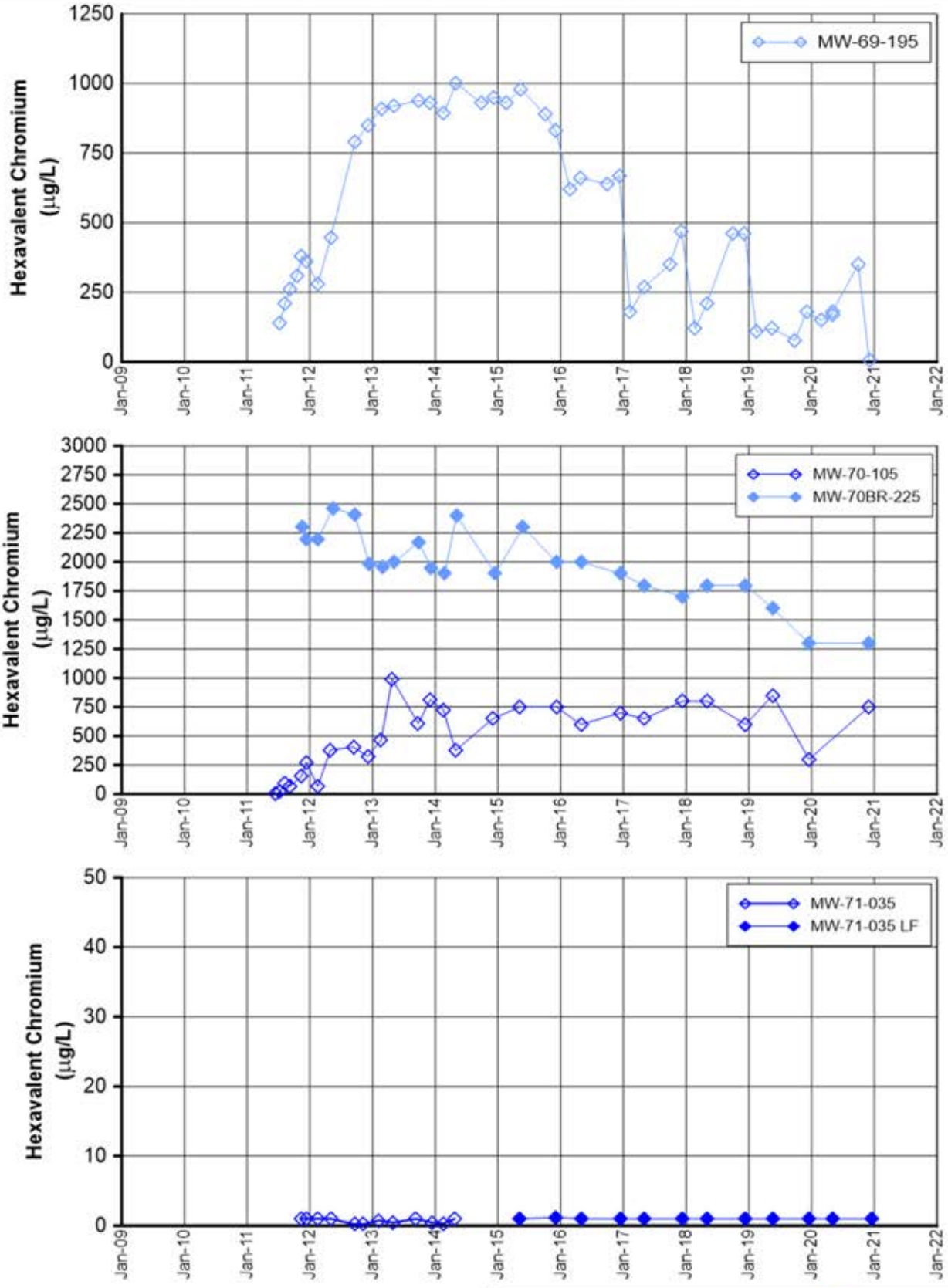

Notes:

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 F-17
HEXAVALENT CHROMIUM
IN MW-69-195, MW-70 CLUSTER, AND MW-71-035
FOURTH 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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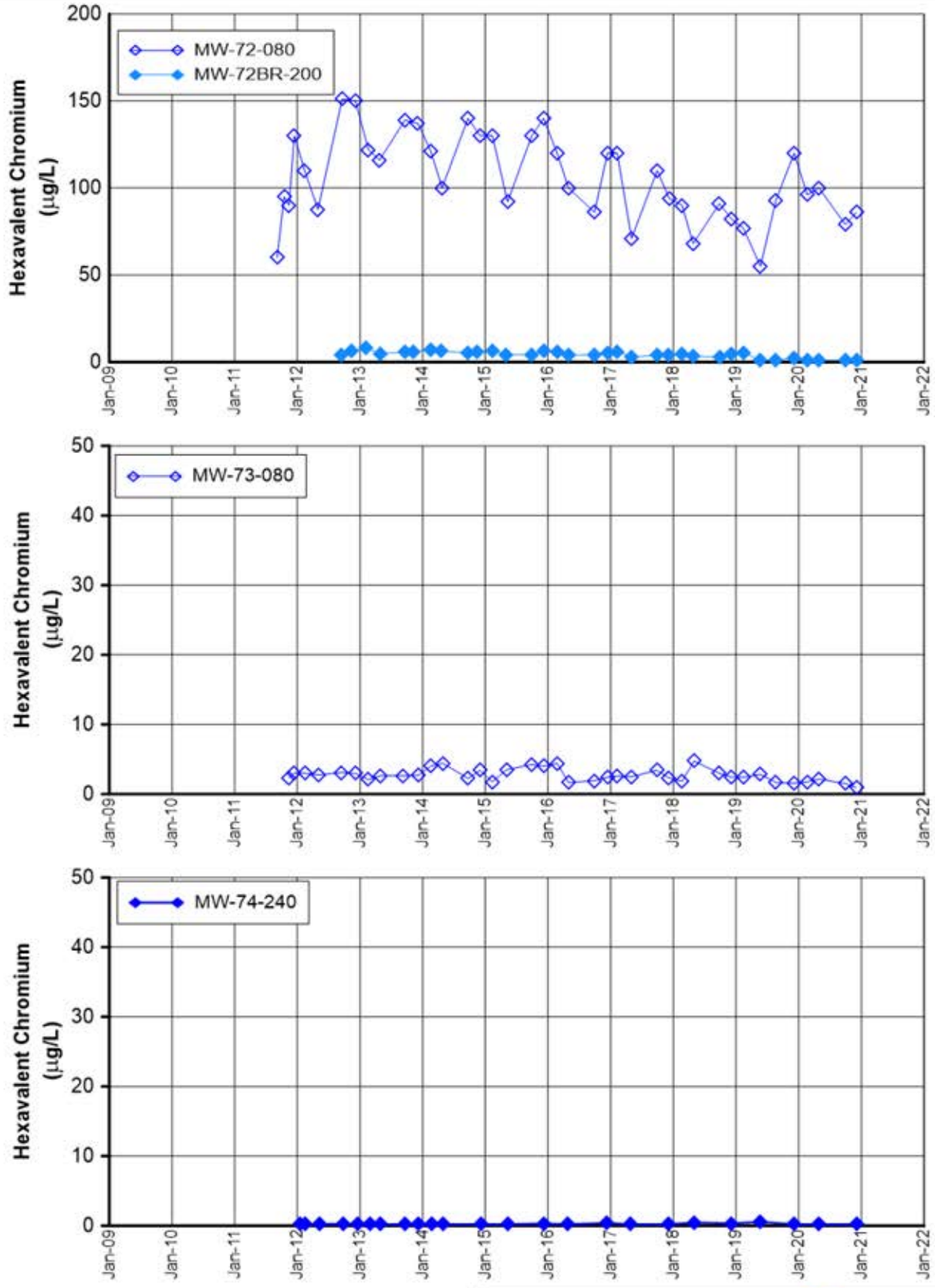

FIGURE F-18
HEXAVALENT CHROMIUM
IN MW-72 CLUSTER, MW-73-080, AND MW-74-240
FOURTH QUARTER 2020 INTERIM MEASURES PERFORMANCE
MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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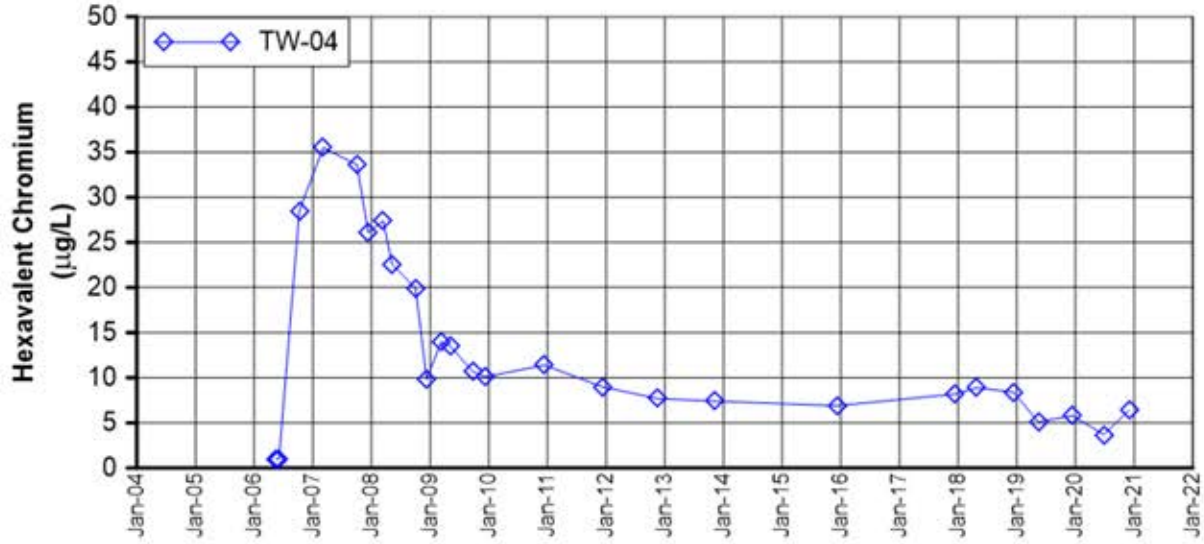

FIGURE F-19
HEXAVALENT CHROMIUM IN TW-04
FOURTH QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT, PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

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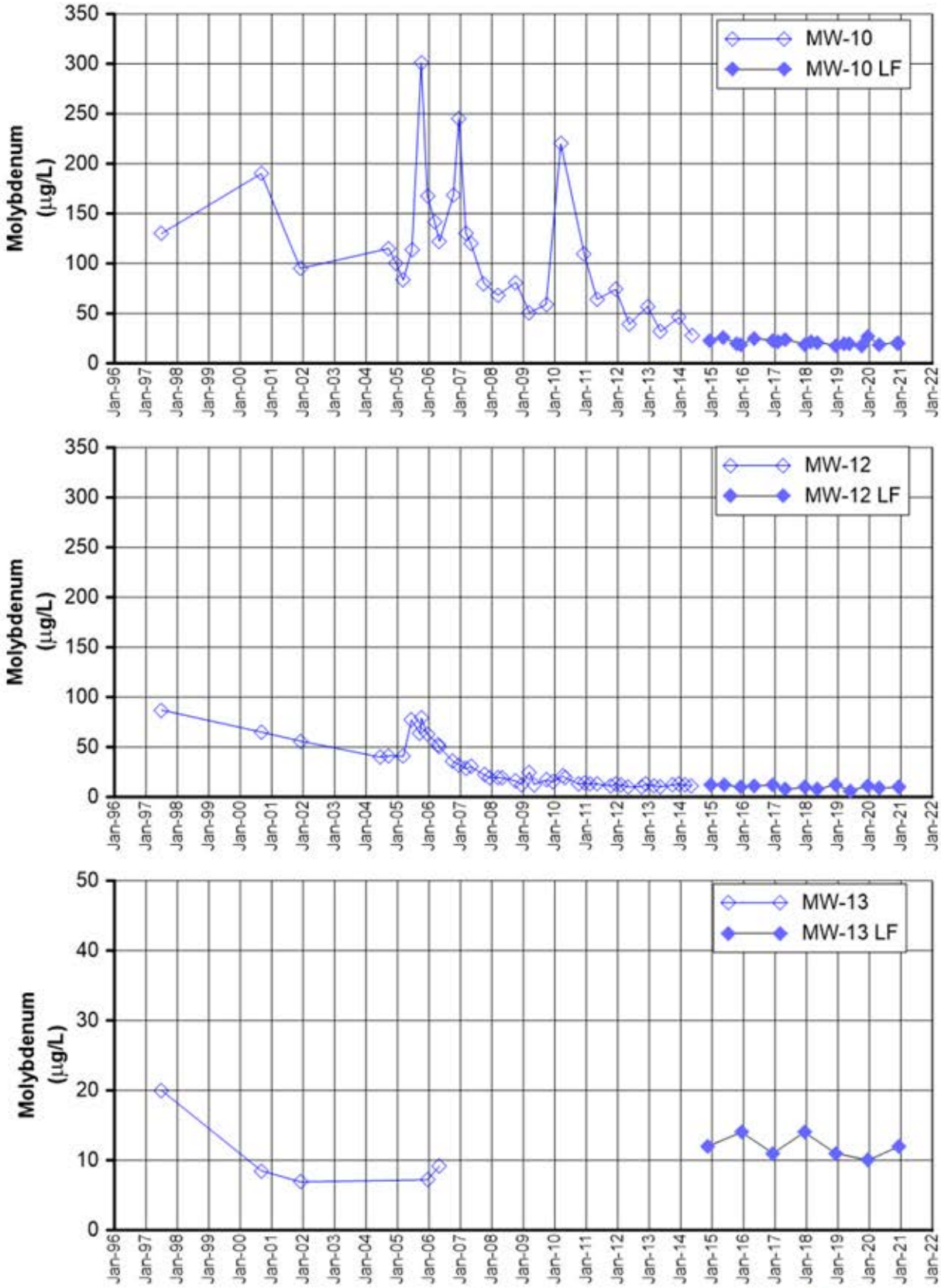

Notes:

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 F-20
MOLYBDENUM
IN MW-10, MW-12, AND MW-13
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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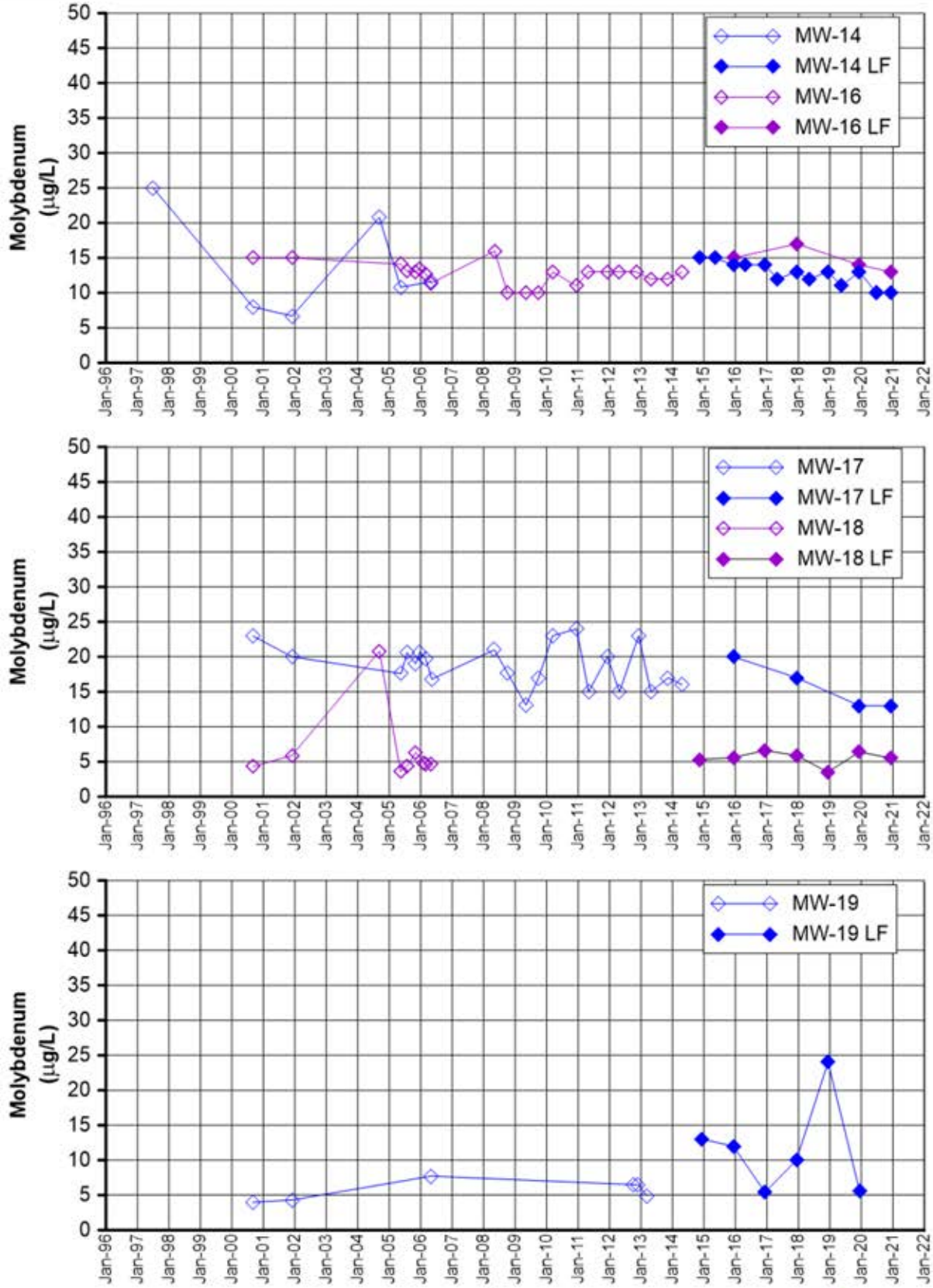

Notes:

1. 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 F-21
MOLYBDENUM
IN MW-14, MW-16, MW-17, MW-18, AND MW-19
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
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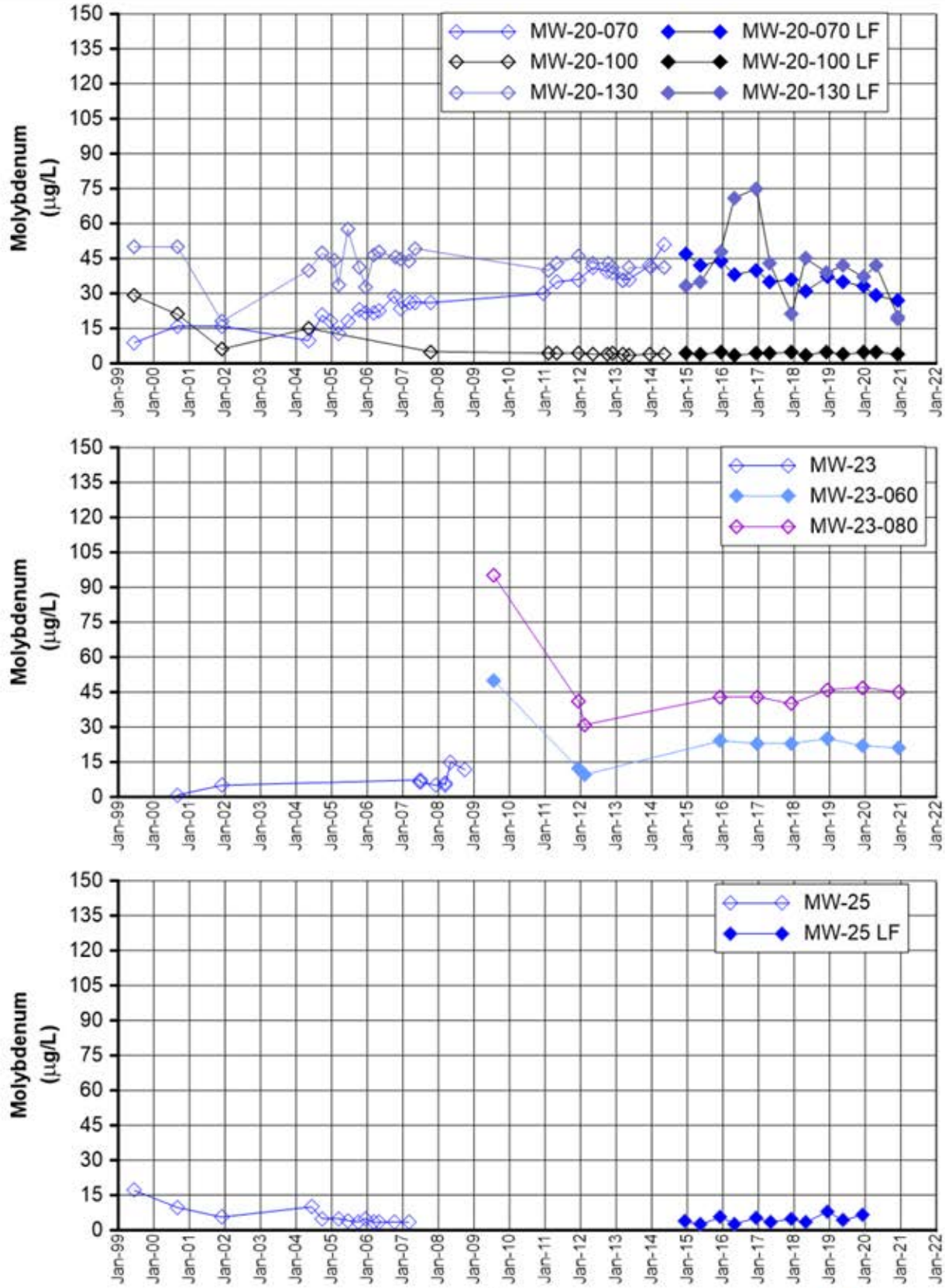

Notes:

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 F-22
MOLYBDENUM
IN MW-20, MW-23, AND MW-25 CLUSTERS
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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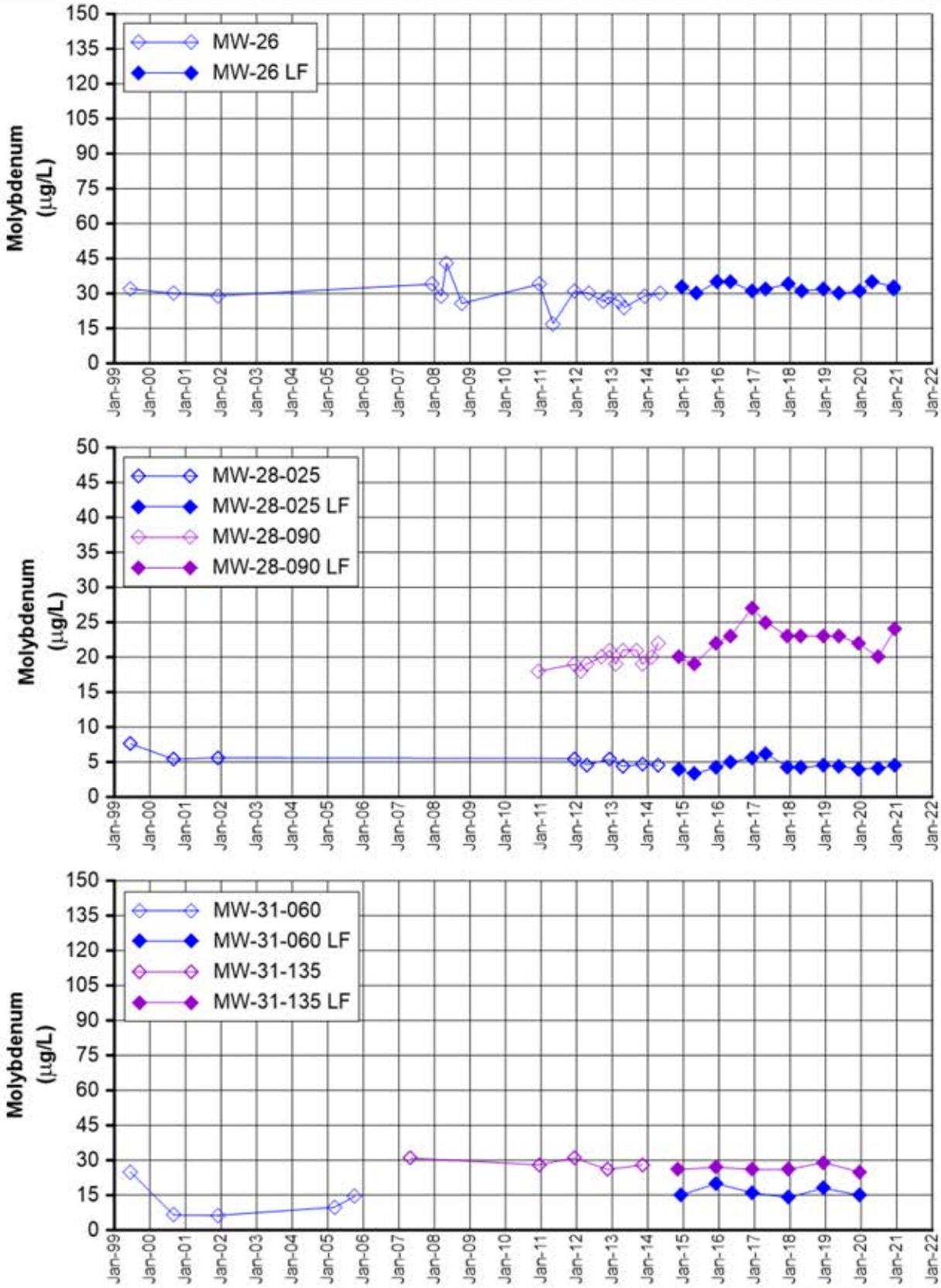

Notes:

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 F-23
MOLYBDENUM
IN MW-26, MW-28, AND MW-31 CLUSTERS
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
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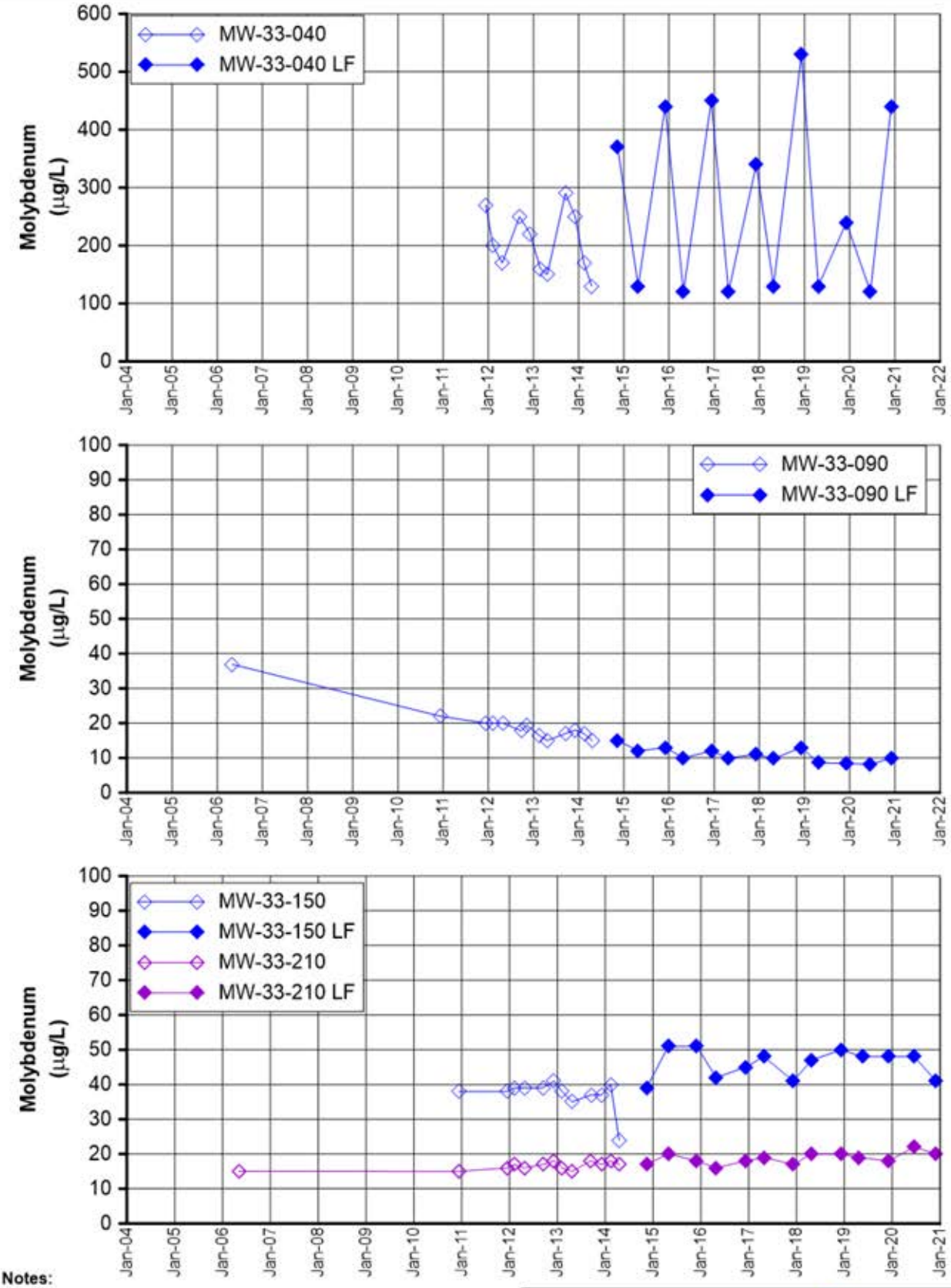

Notes:

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 F-24
MOLYBDENUM
IN MW-33 CLUSTER
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
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NEEDLES, CALIFORNIA

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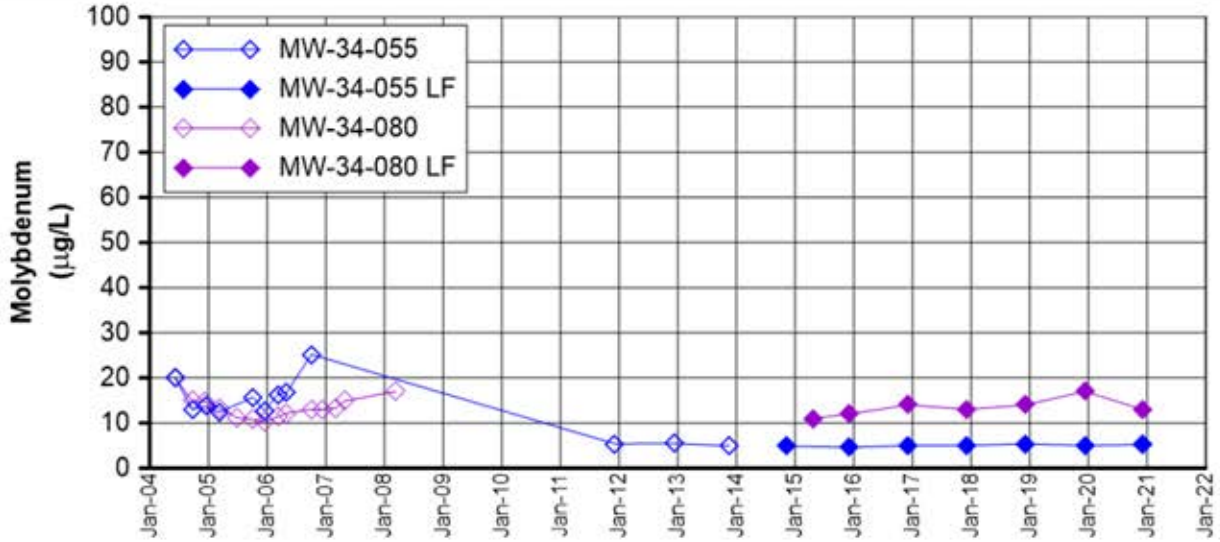

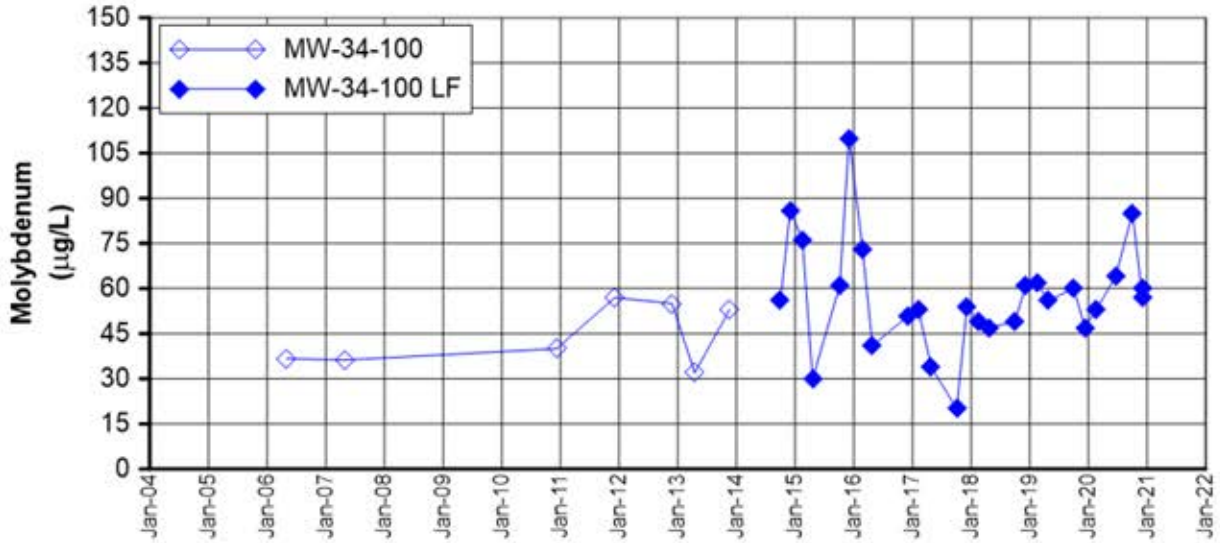

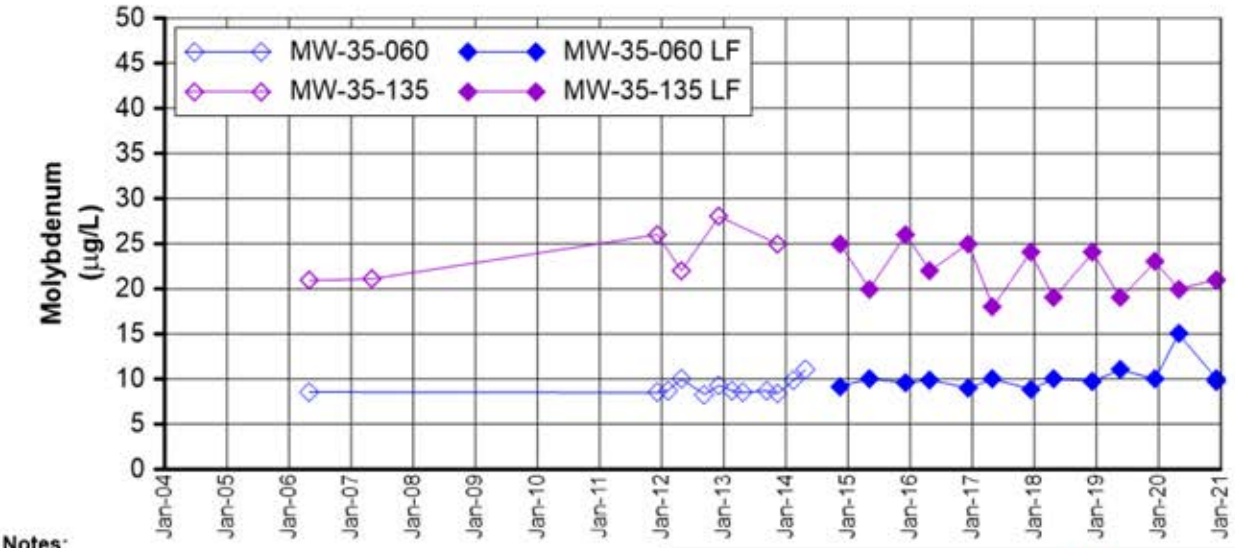

Notes:

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 F-25
MOLYBDENUM
IN MW-34 AND MW-35 CLUSTERS
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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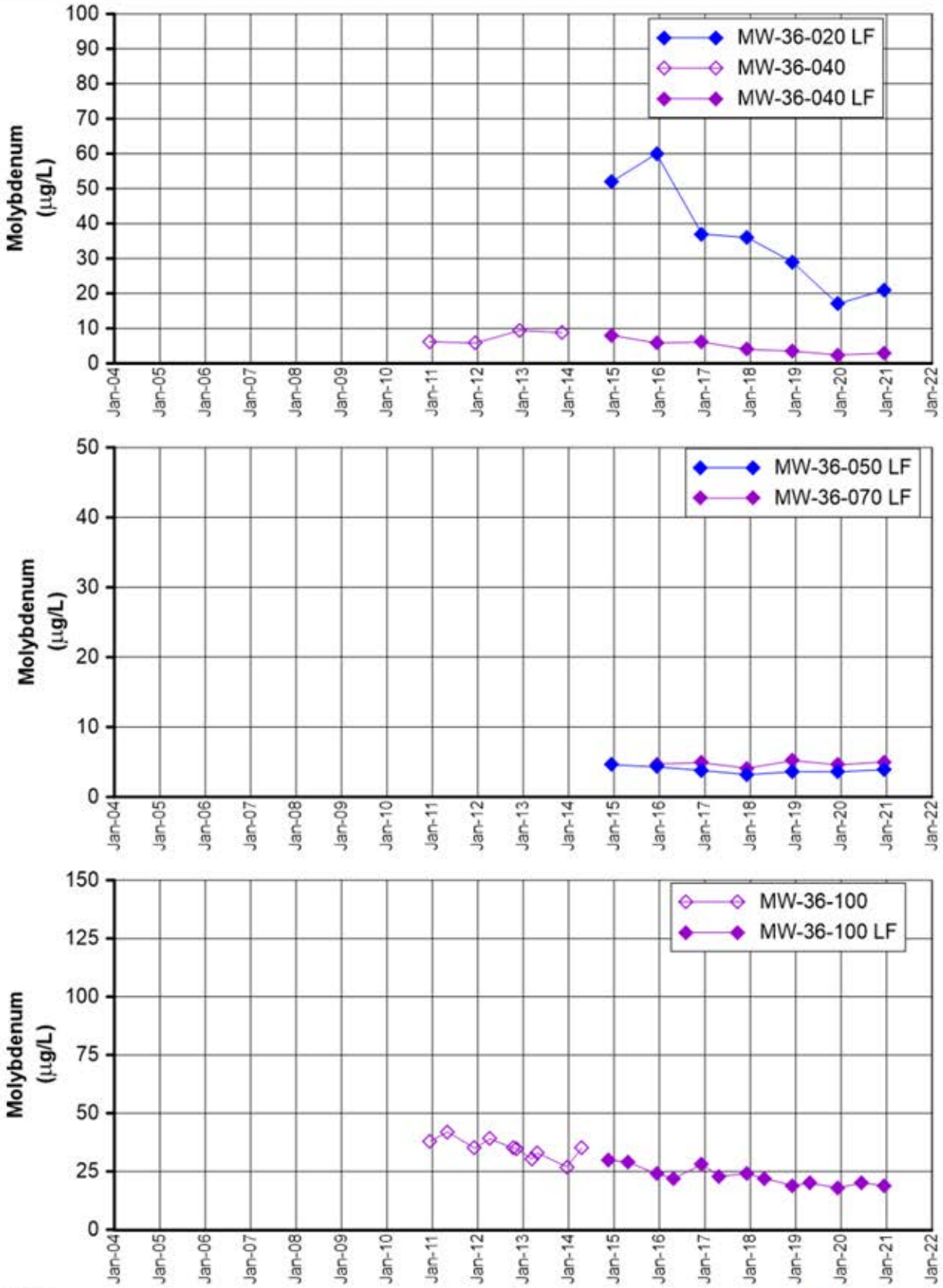

Notes:

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 F-26
MOLYBDENUM
IN MW-36 CLUSTER
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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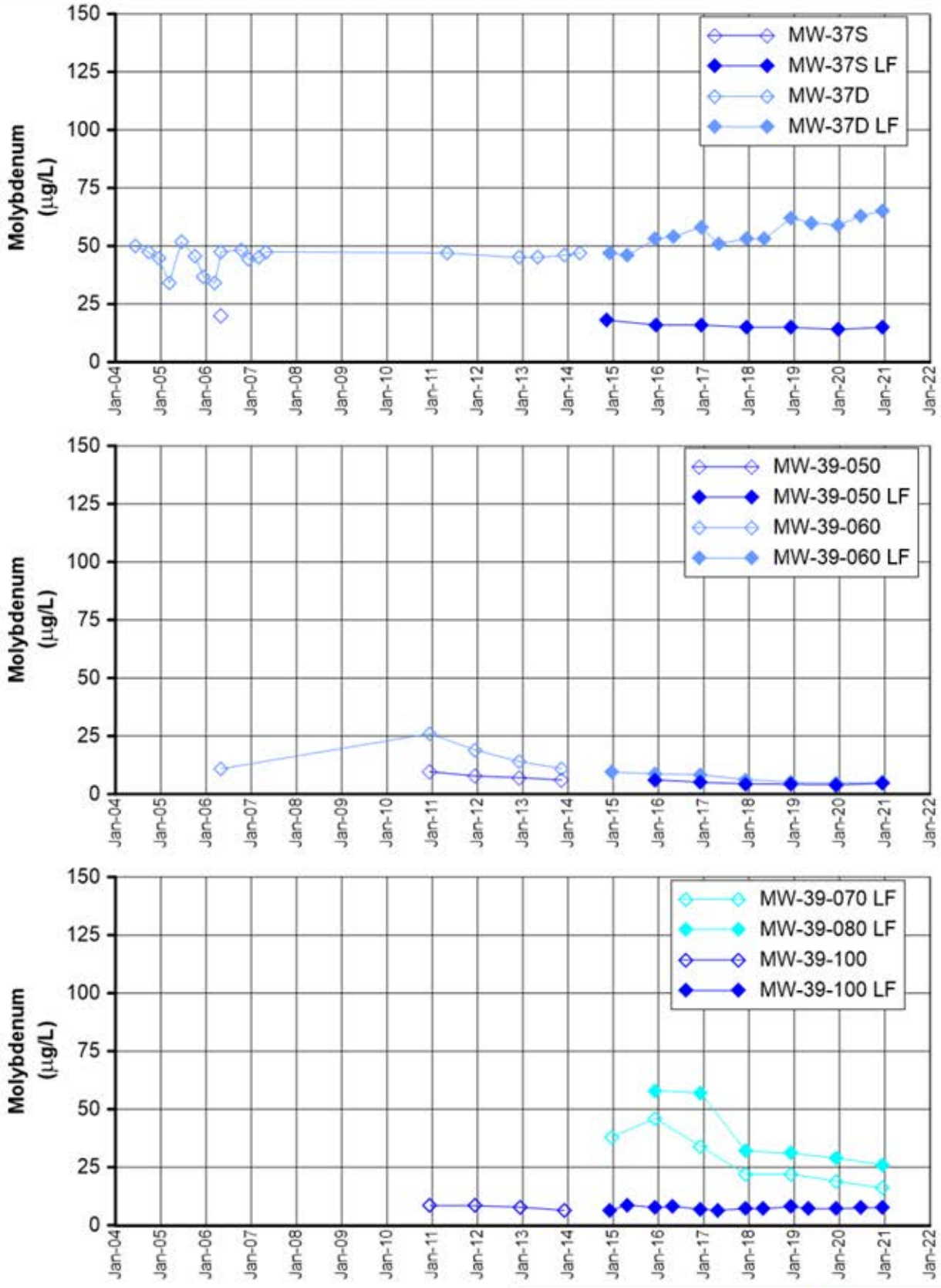

Notes:

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 F-27
MOLYBDENUM
IN MW-37 AND MW-39 CLUSTERS
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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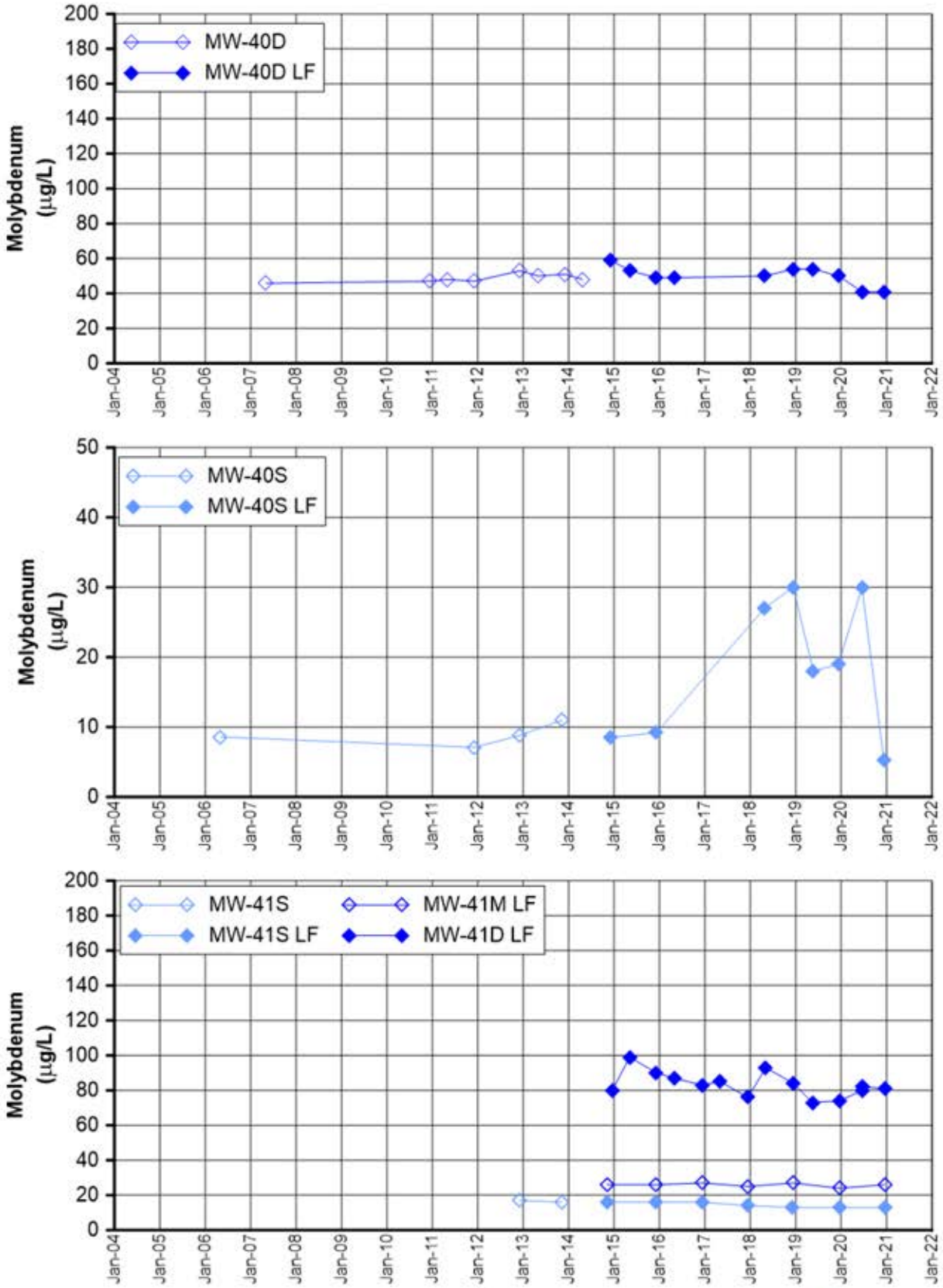

Notes:

1. 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.
2. MW-40D and MW-40S were not sampled during 4th Quarter 2017 due to traffic control issues.

FIGURE F-28
MOLYBDENUM
IN MW-40 AND MW-41 CLUSTERS
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
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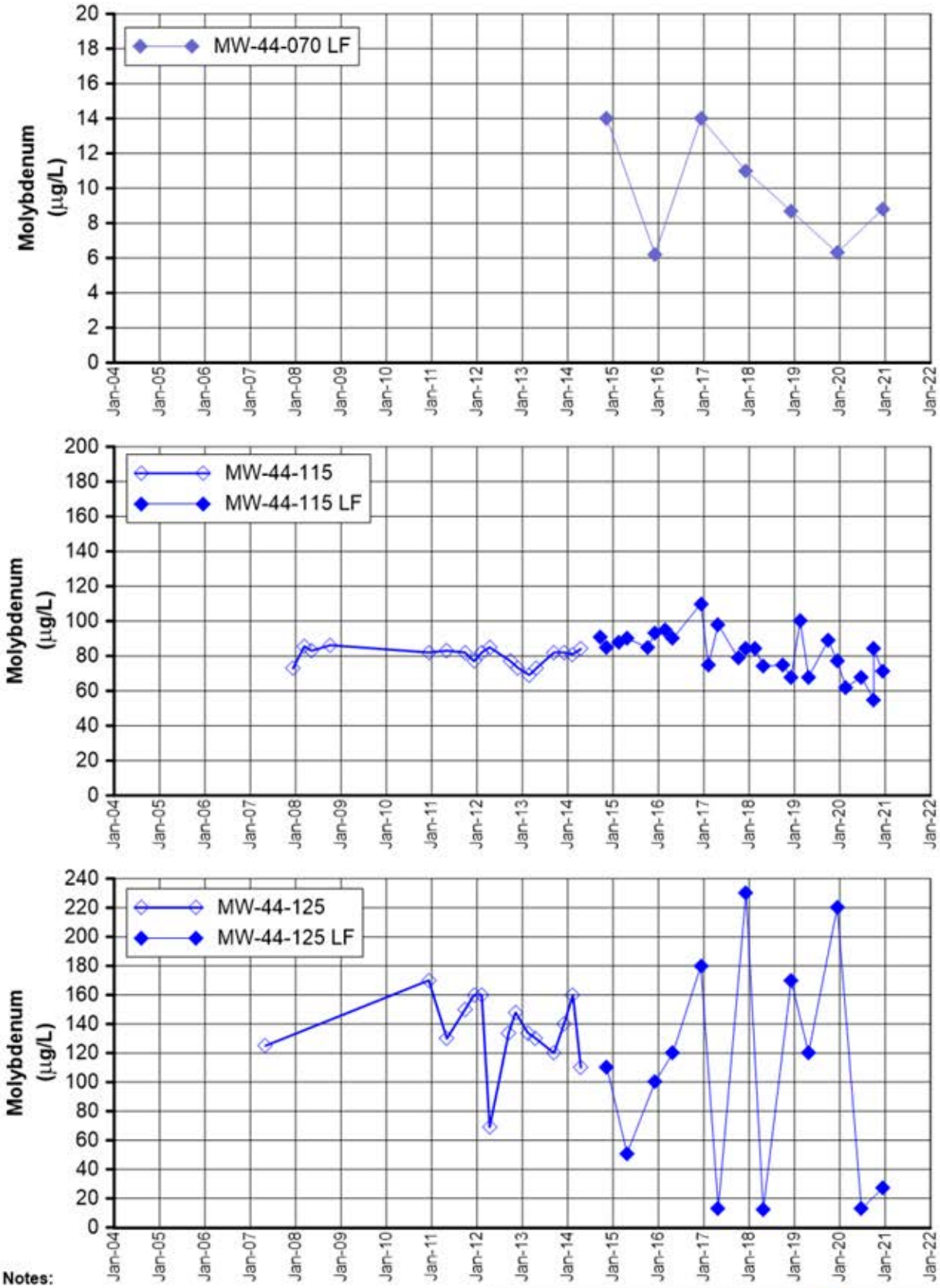

Notes:

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 F-29
MOLYBDENUM
IN MW-44 CLUSTER

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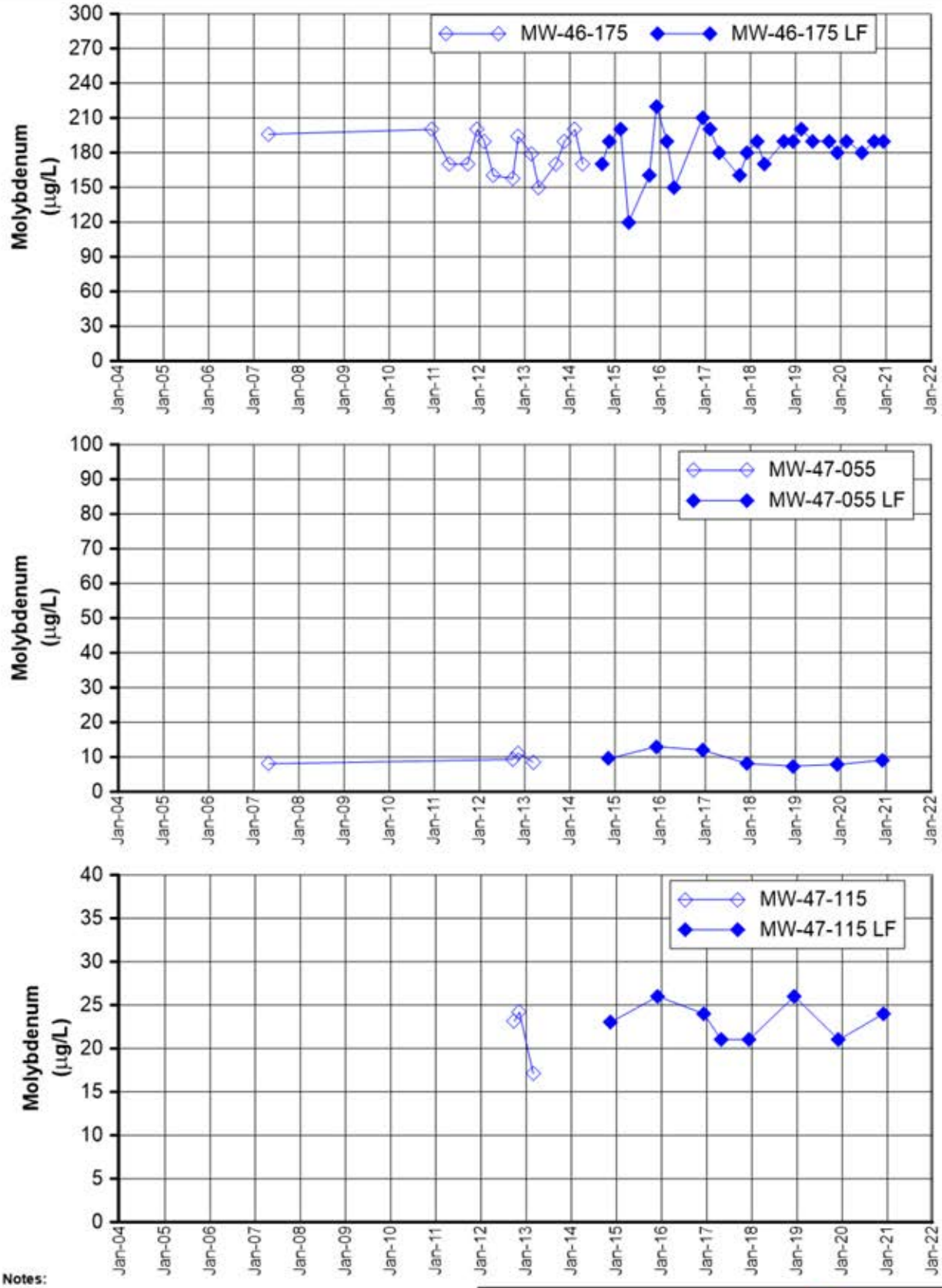

Notes:

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 F-30
MOLYBDENUM
IN MW-46 AND MW-47 CLUSTERS
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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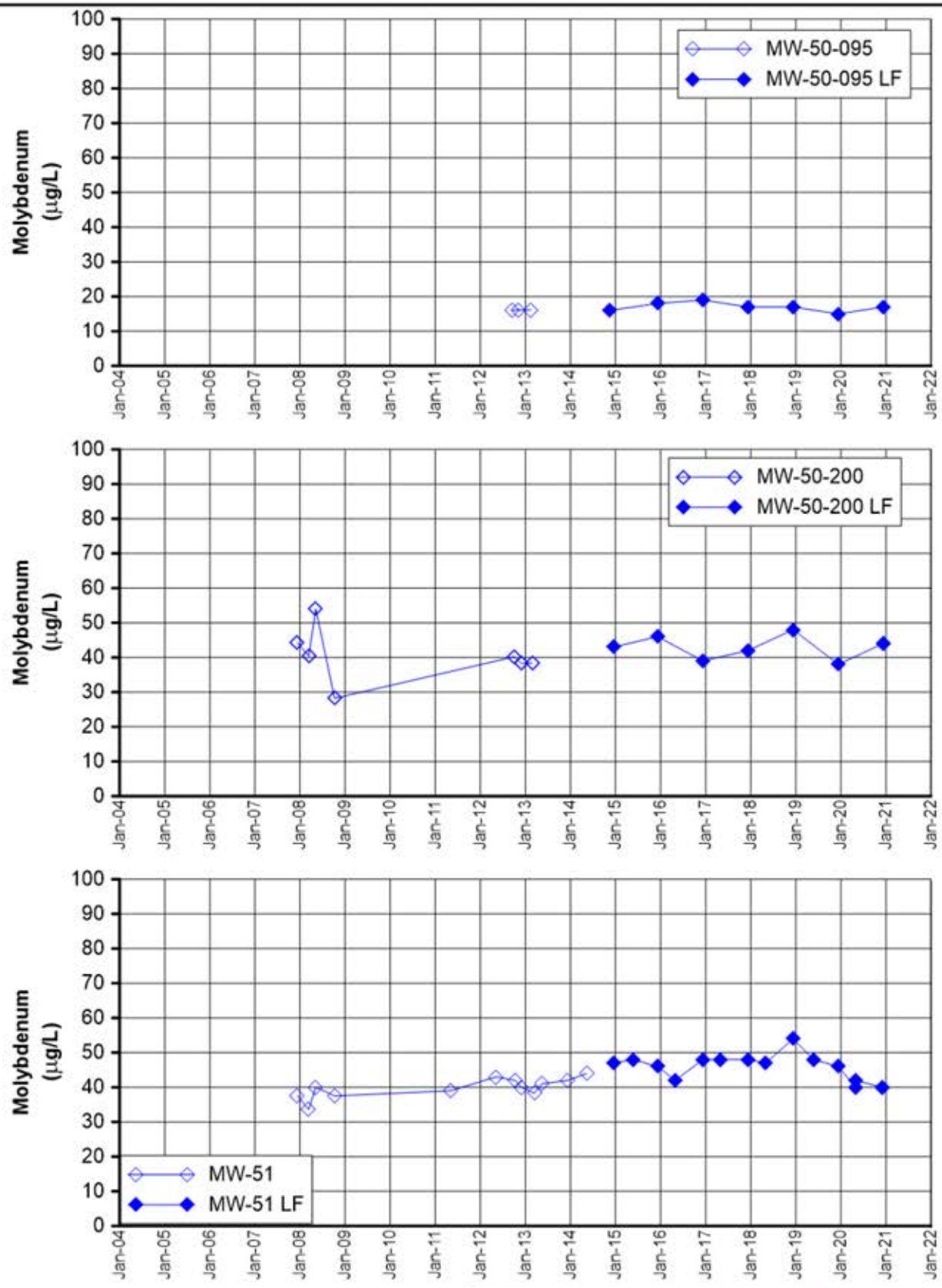

Notes:

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 F-31
MOLYBDENUM
IN MW-50 AND MW-51 CLUSTERS
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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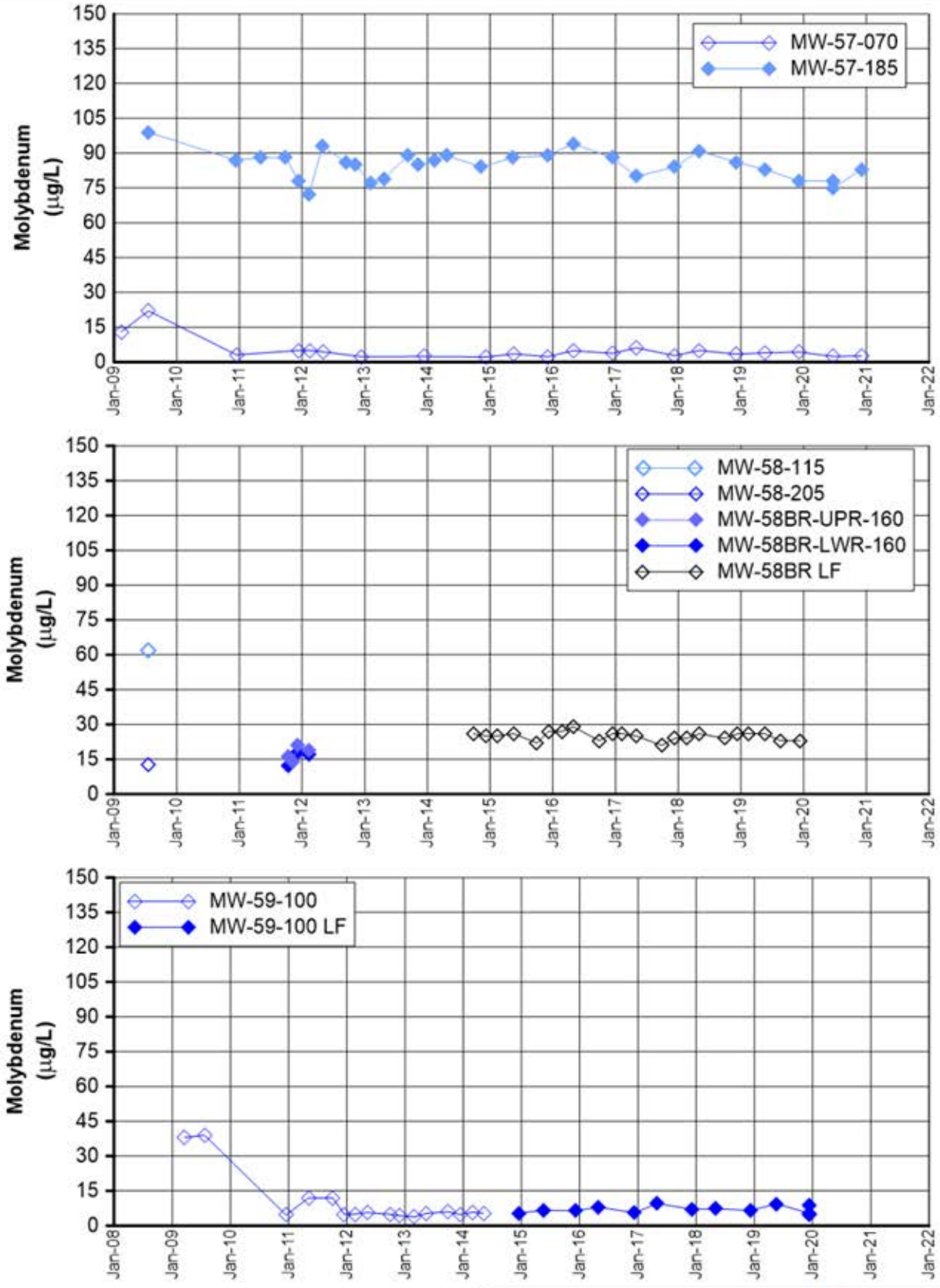

Note:

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 F-32
MOLYBDENUM
IN MW-57 CLUSTER, MW-58 CLUSTER AND MW-59-100
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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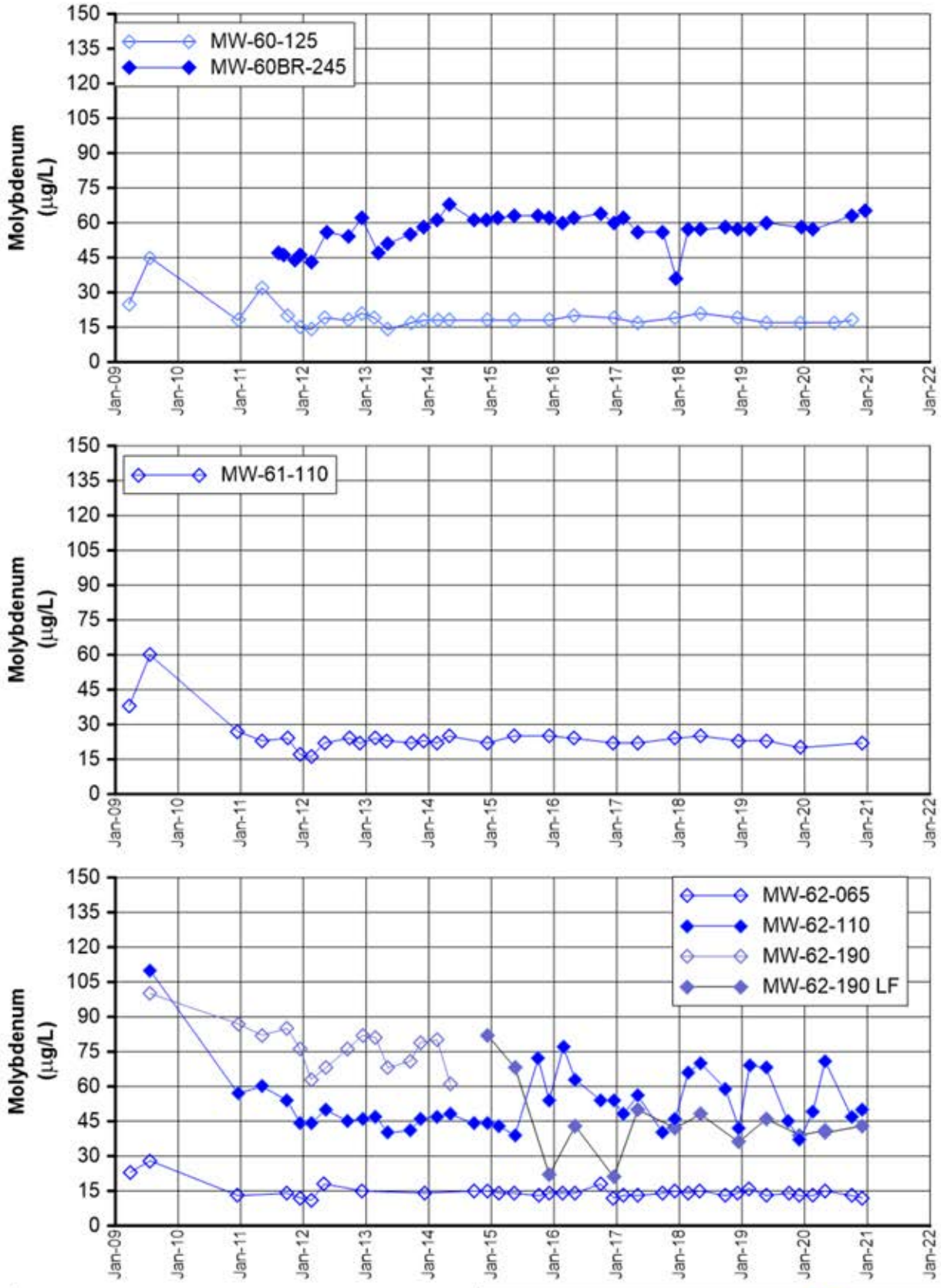

Notes:

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.

1. MW-60-125 sampled using LF method on 5/02/2017 & 12/06/2017.
2. MW-62-065 sampled using LF method on 5/02/2017, 9/25/2017, & 12/06/2017.

FIGURE F-33
MOLYBDENUM
IN MW-60 CLUSTER, MW-61-110, AND MW-62 CLUSTER
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
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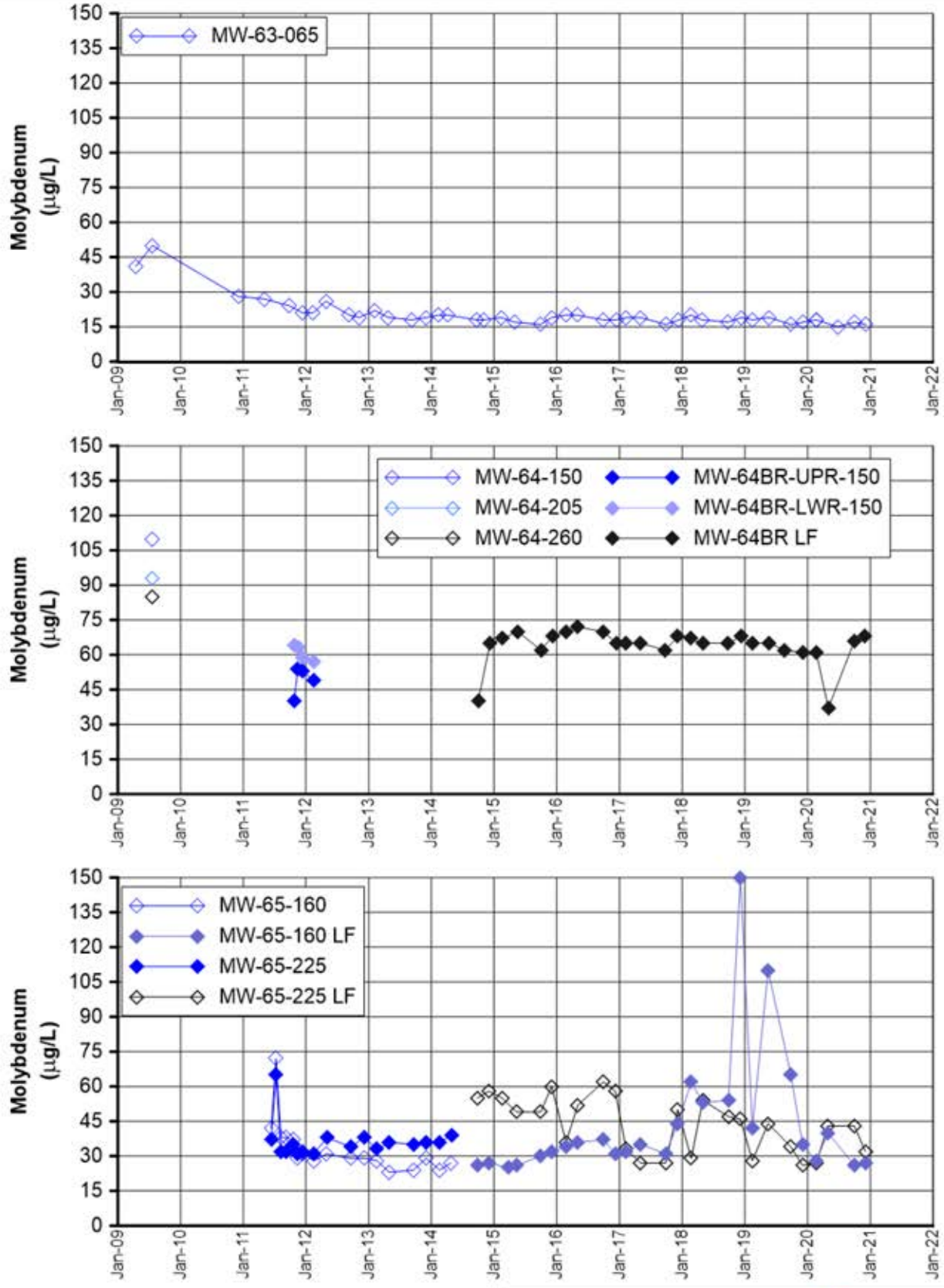

Notes:

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.

1. MW-63-065 sampled using LF method on 5/02/2017, 9/28/2017, & 12/12/2017.

FIGURE F-34
MOLYBDENUM
IN MW-63-065, MW-64 CLUSTER AND MW-65 CLUSTER
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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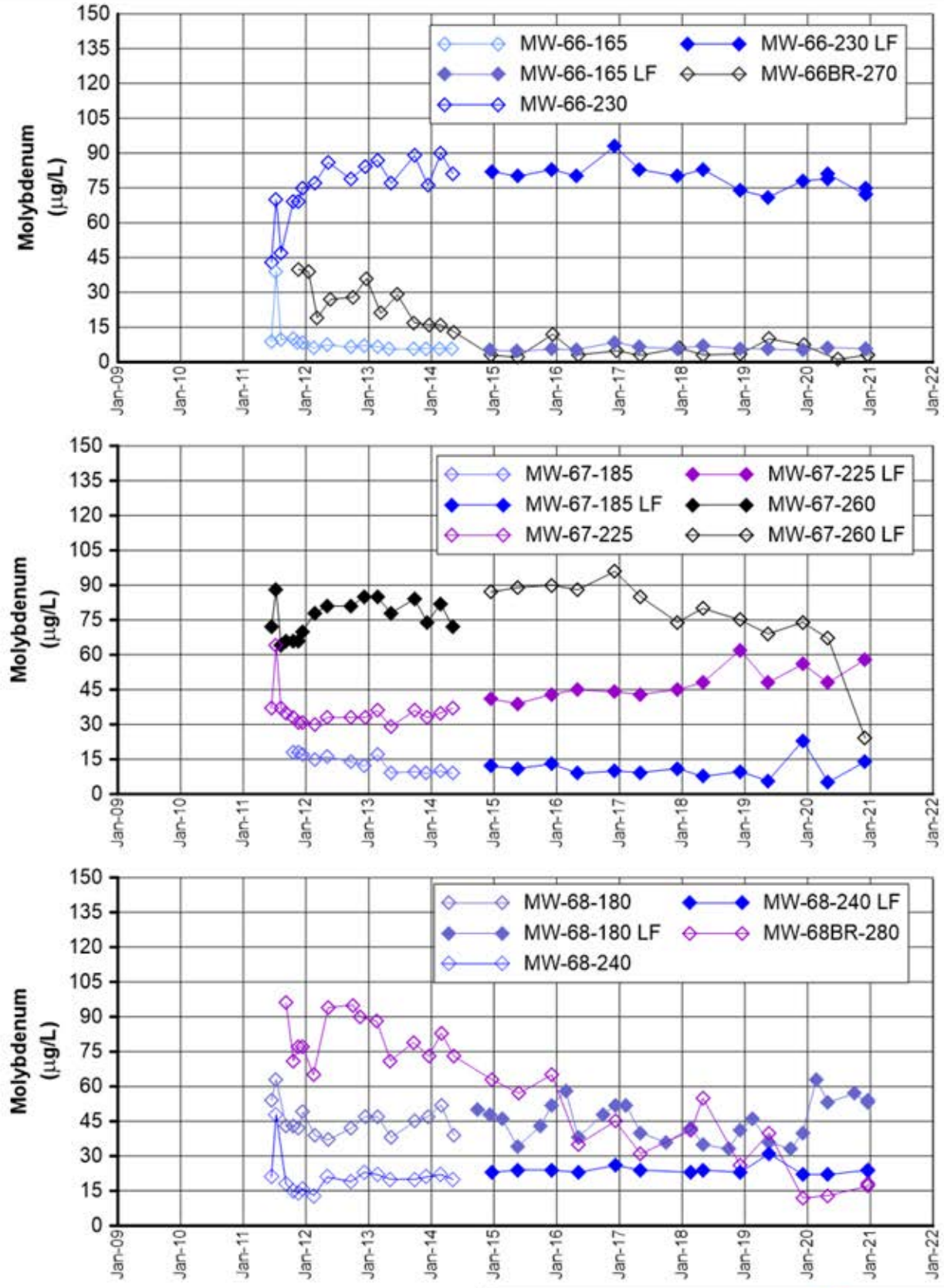

Notes:

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 F-35
MOLYBDENUM
IN MW-66, MW-67, AND MW-68 CLUSTERS
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
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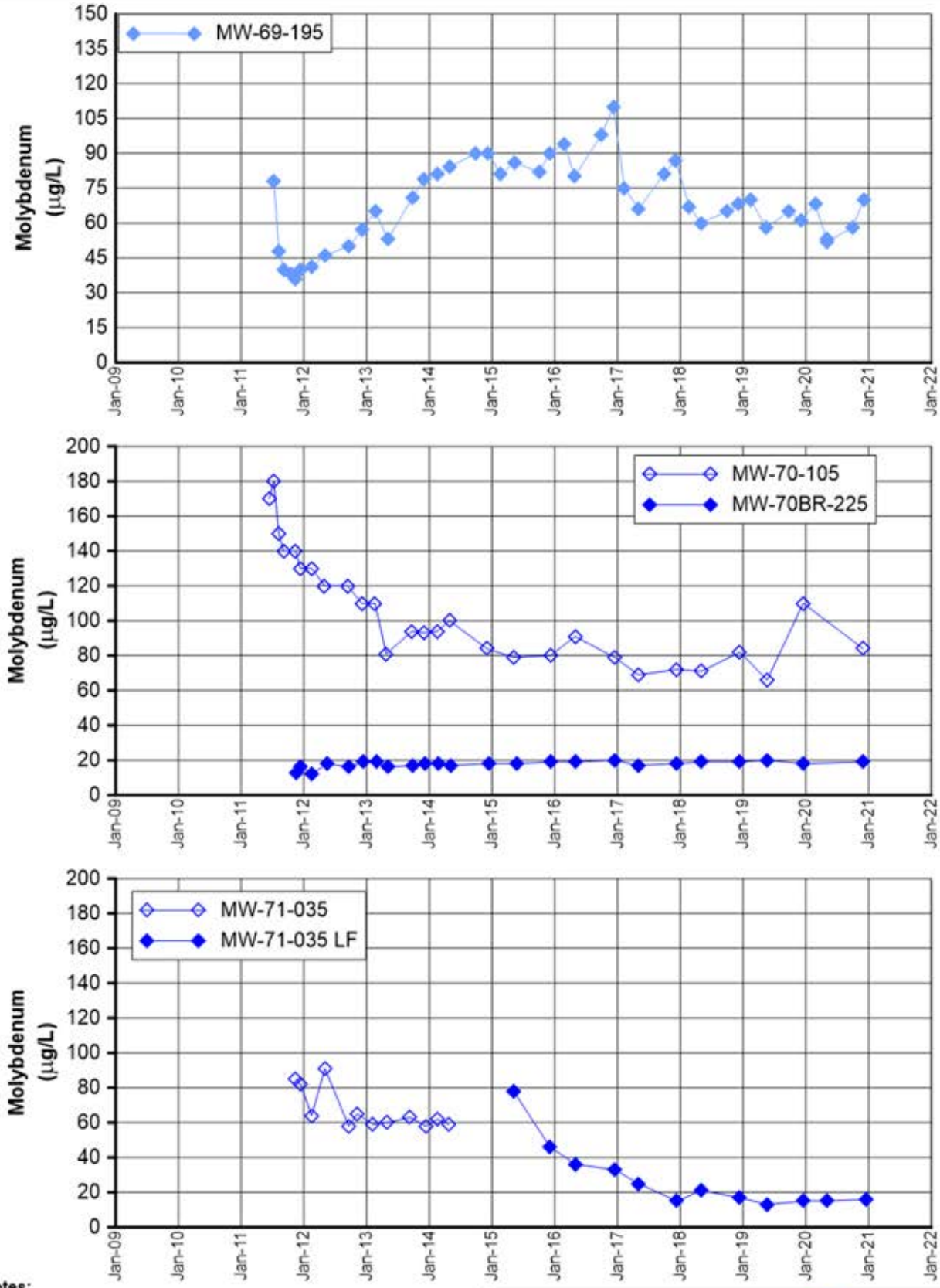

Notes:

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.

1. MW-69-195 sampled using LF method on 2/09/2017, 5/03/2017, 9/26/2017, & 12/04/2017.
2. MW-70-105 sampled using LF method on 5/02/2017 & 12/11/2017.

FIGURE F-36
MOLYBDENUM
IN MW-69-195, THE MW-70 CLUSTER, AND MW-71-035
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
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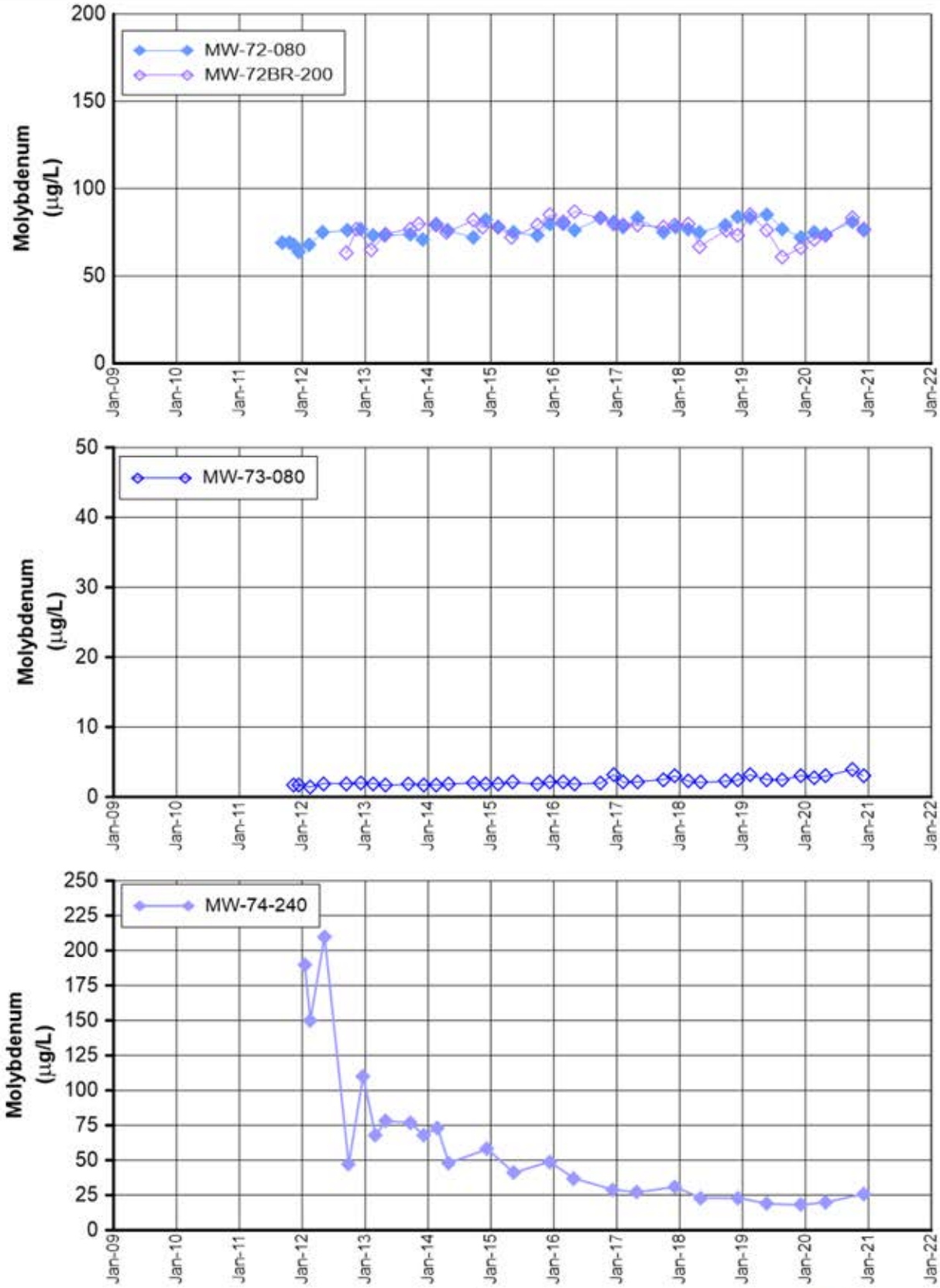

Notes:

1. MW-72-080 sampled using low flow sampling method on 5/02/2017 & 12/07/2017.
2. MW-73-080 sampled using low flow sampling method on 5/02/2017, 9/27/2017, & 12/06/2017.
3. MW-74-240 sampled using low flow sampling method on 4/27/2017 & 12/06/2017.

FIGURE F-37
MOLYBDENUM
IN MW-72 CLUSTER, MW-73-080, AND MW-74-240
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
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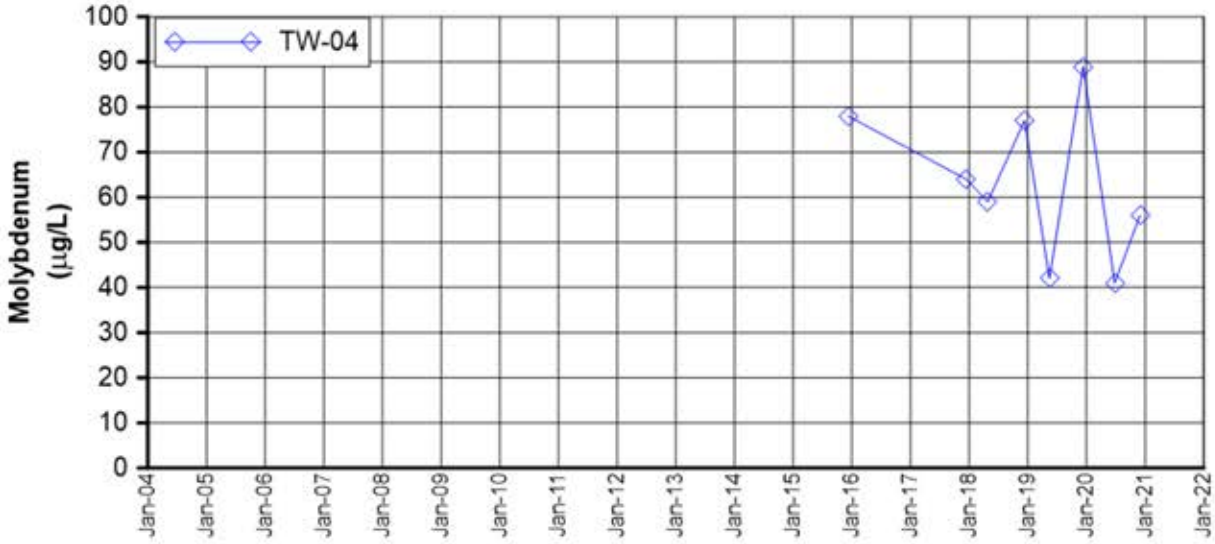

FIGURE F-38
MOLYBDENUM
IN TW-04
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES
PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER
AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
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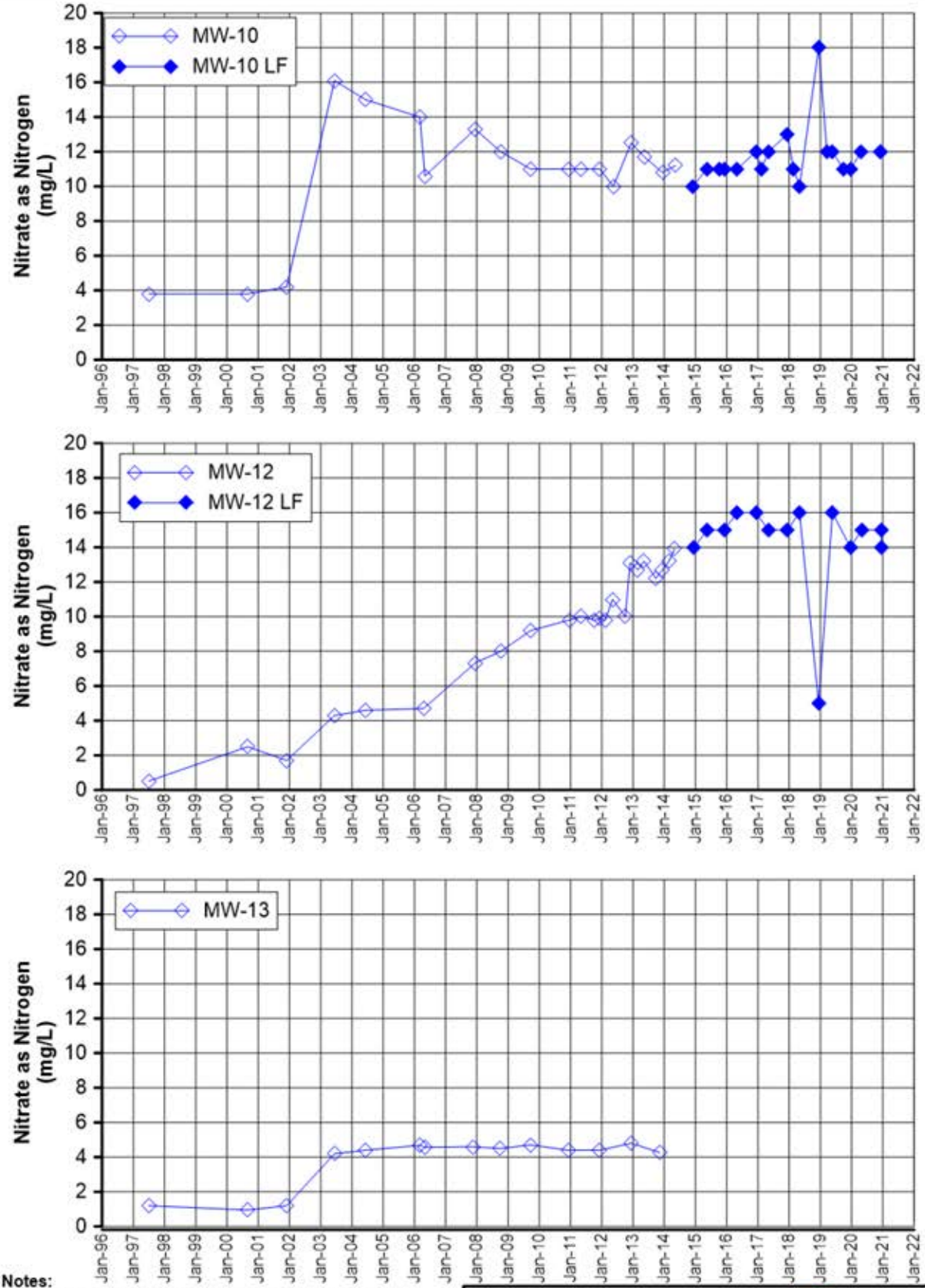

Notes:

1. Starting in Fourth Quarter 2012 nitrate samples were analyzed using method USEPA 353.2, which reports a combination of nitrate and nitrite. The contribution of nitrite to the reported result of nitrate plus nitrite as nitrogen is expected to be negligible; therefore, sample results for method USEPA 353.2 are expected to be essentially the same as previous samples analyzed using method USEPA 300.0 and reported as nitrate as nitrogen.
2. 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 F-39
NITRATE as NITROGEN
IN MW-10, MW-12, AND MW-13
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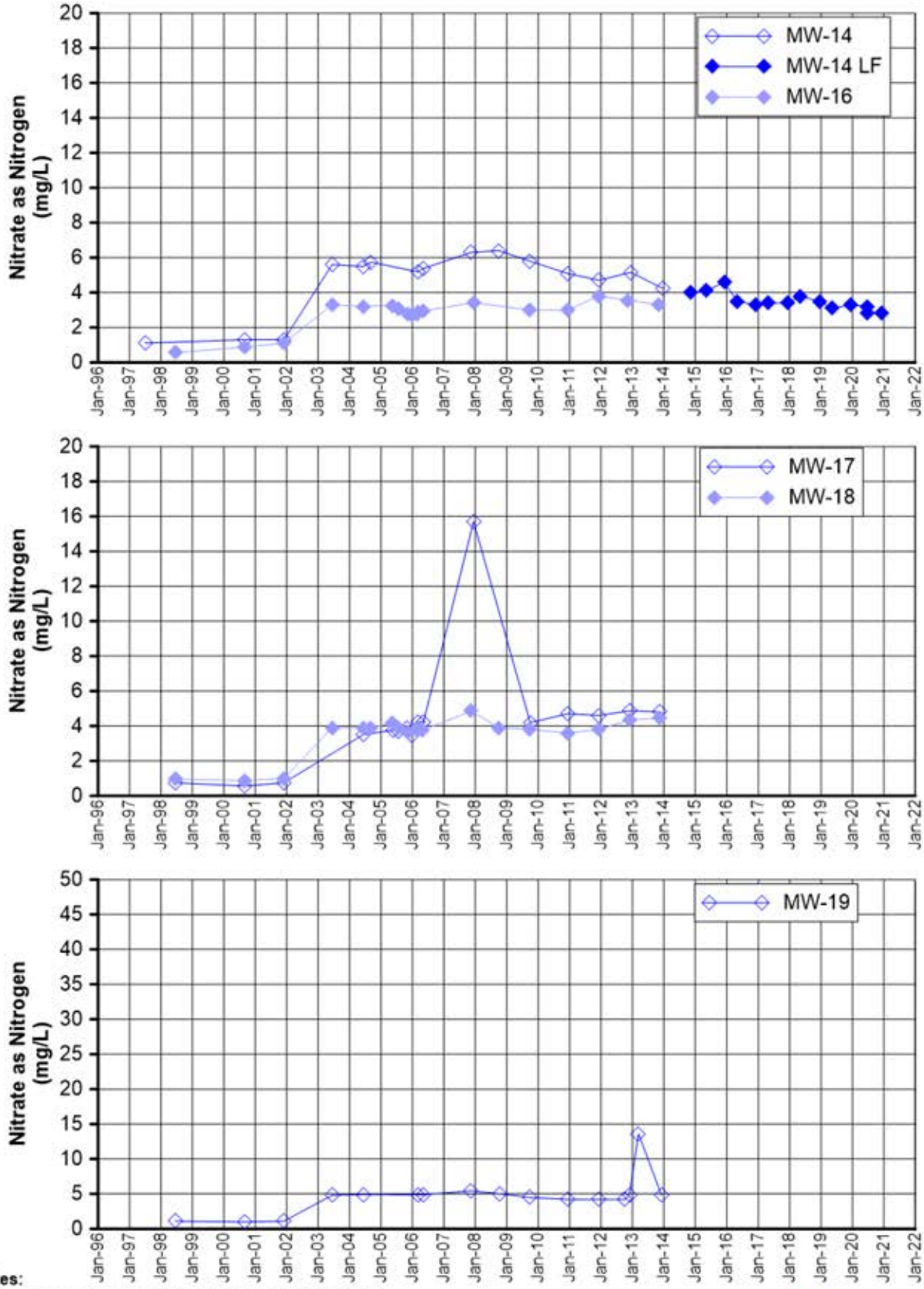

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2. LF = low flow, hexavalent chromium sample collected using low flow sampling method. Data not indicated with (LF) was collected using the three-volume purge sampling method.

FIGURE F-40
NITRATE as NITROGEN
IN MW-14, MW-16, MW-17, MW-18, AND MW-19
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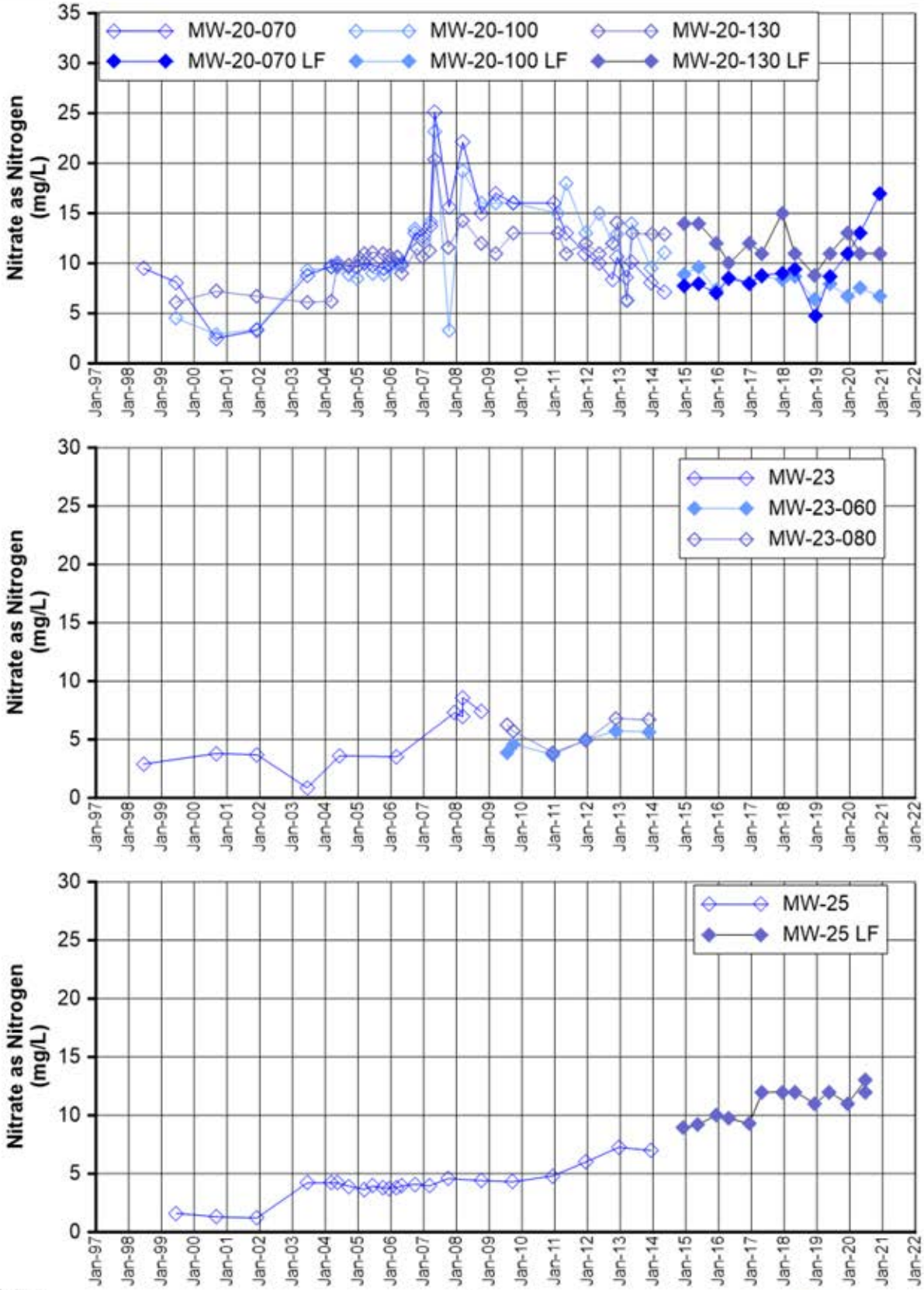

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2. LF = low flow, hexavalent chromium sample collected using low flow sampling method. Data not indicated with (LF) was collected using the three-volume purge sampling method.

FIGURE F-41
NITRATE as NITROGEN
IN MW-20, MW-23, AND MW-25 CLUSTERS
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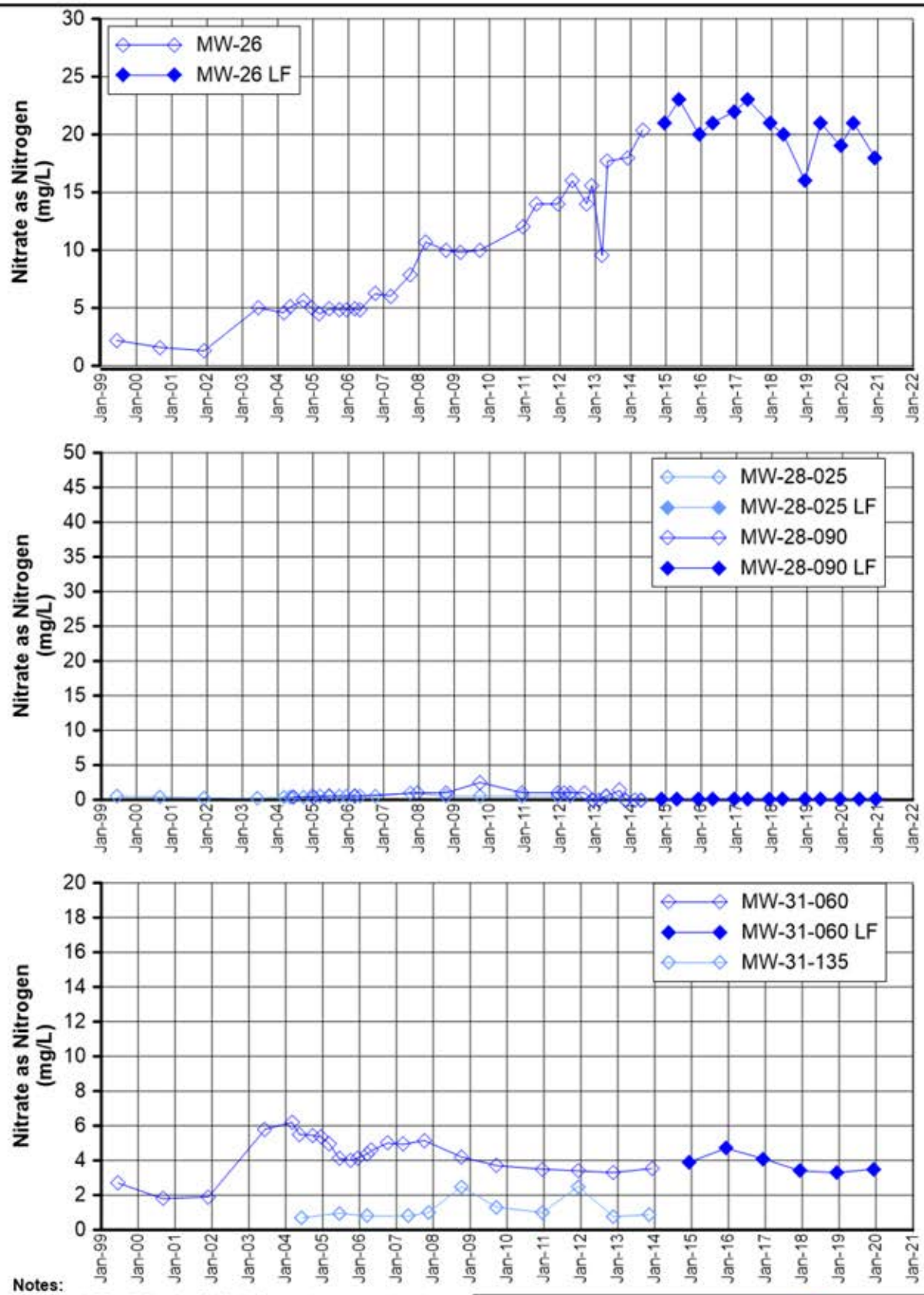

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2. LF = low flow, hexavalent chromium sample collected using low flow sampling method. Data not indicated with (LF) was collected using the three-volume purge sampling method

FIGURE F-42
NITRATE as NITROGEN
IN MW-26, MW-28, AND MW-31 CLUSTERS
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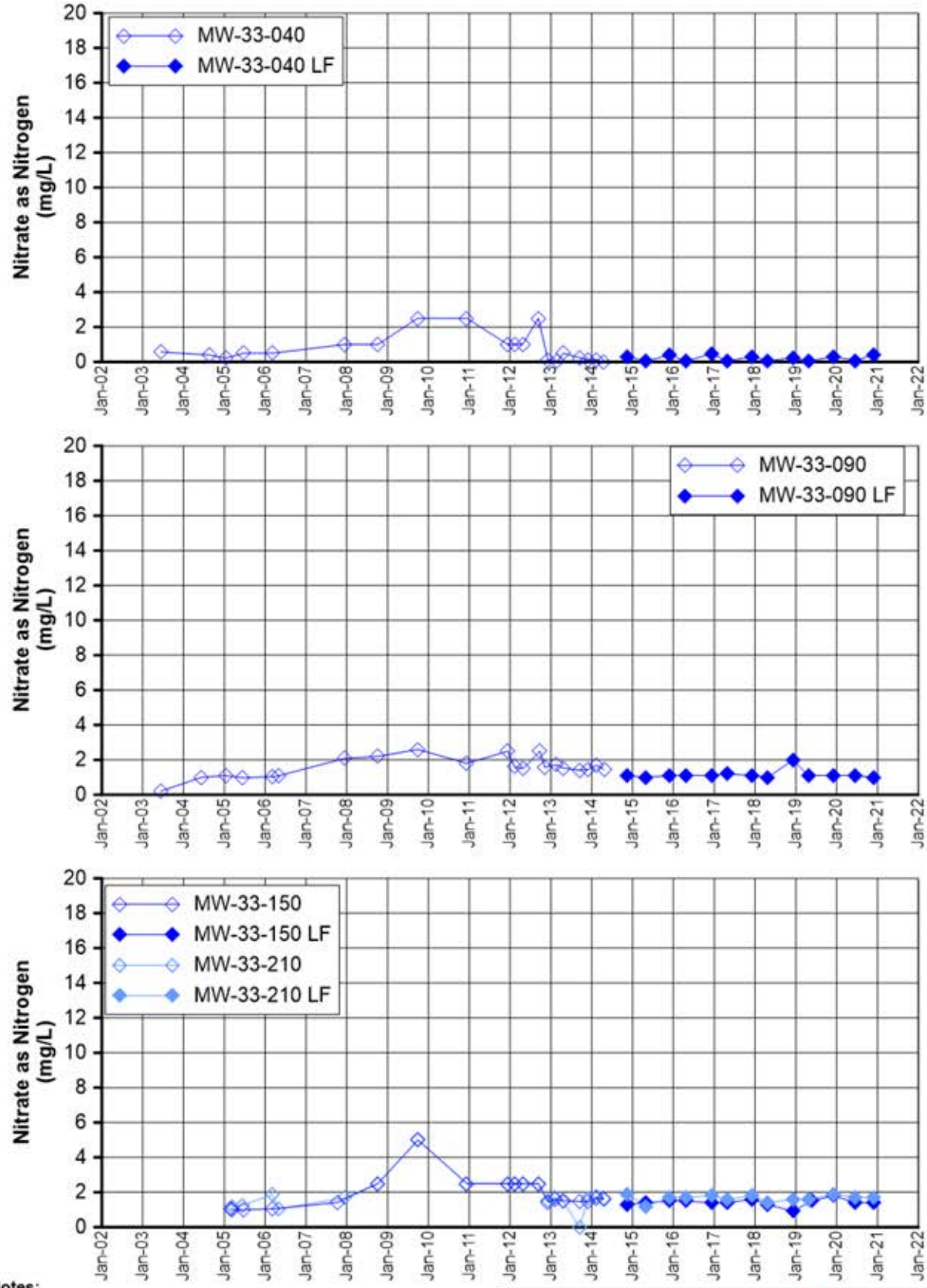

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2. LF = low flow, hexavalent chromium sample collected using low flow sampling method. Data not indicated with (LF) was collected using the three-volume purge sampling method.

FIGURE F-43
NITRATE as NITROGEN
IN MW-33 CLUSTER
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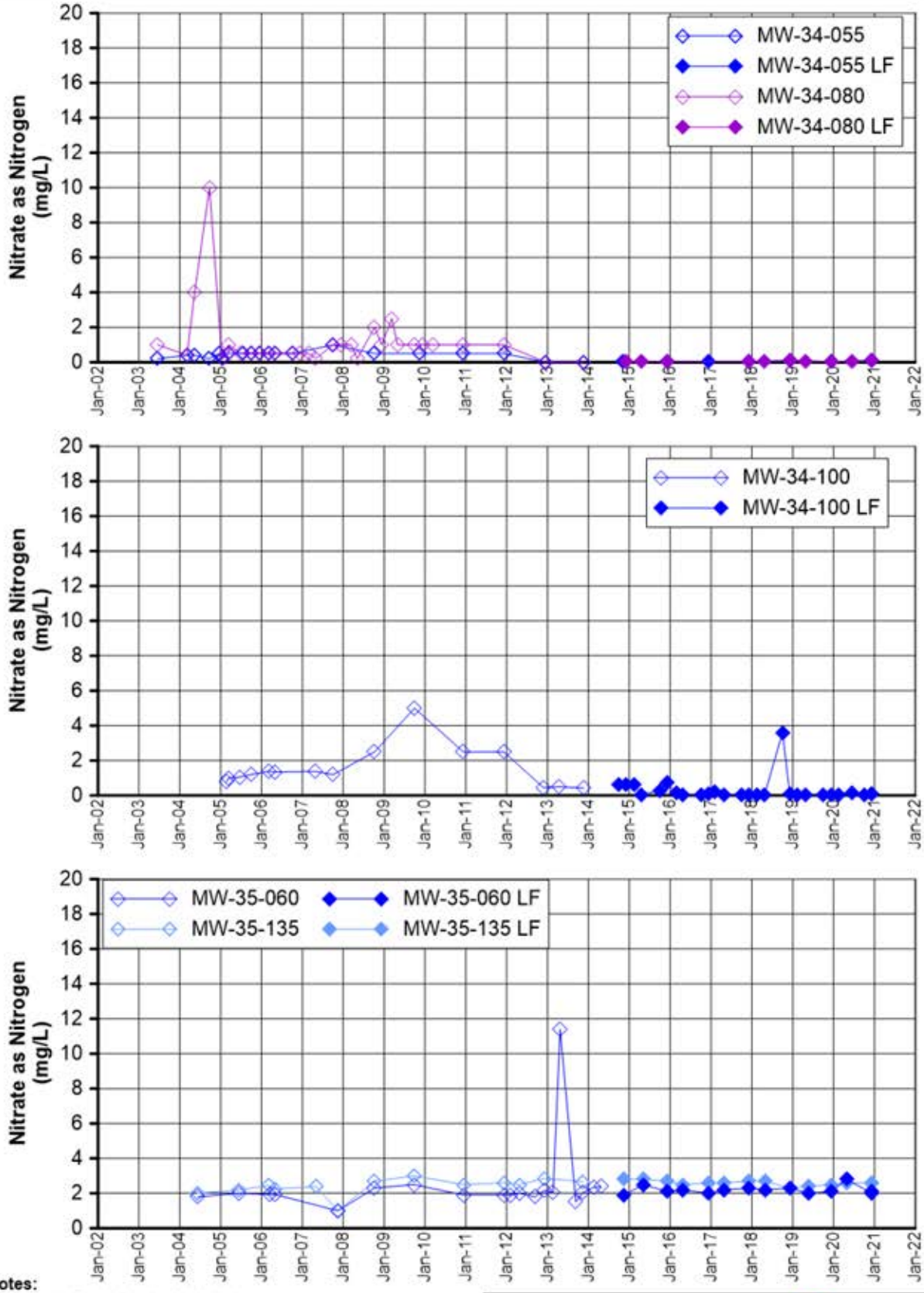

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2. LF = low flow, hexavalent chromium sample collected using low flow sampling method. Data not indicated with (LF) was collected using the three-volume purge sampling method.

FIGURE F-44
NITRATE as NITROGEN
IN MW-34 AND MW-35 CLUSTERS
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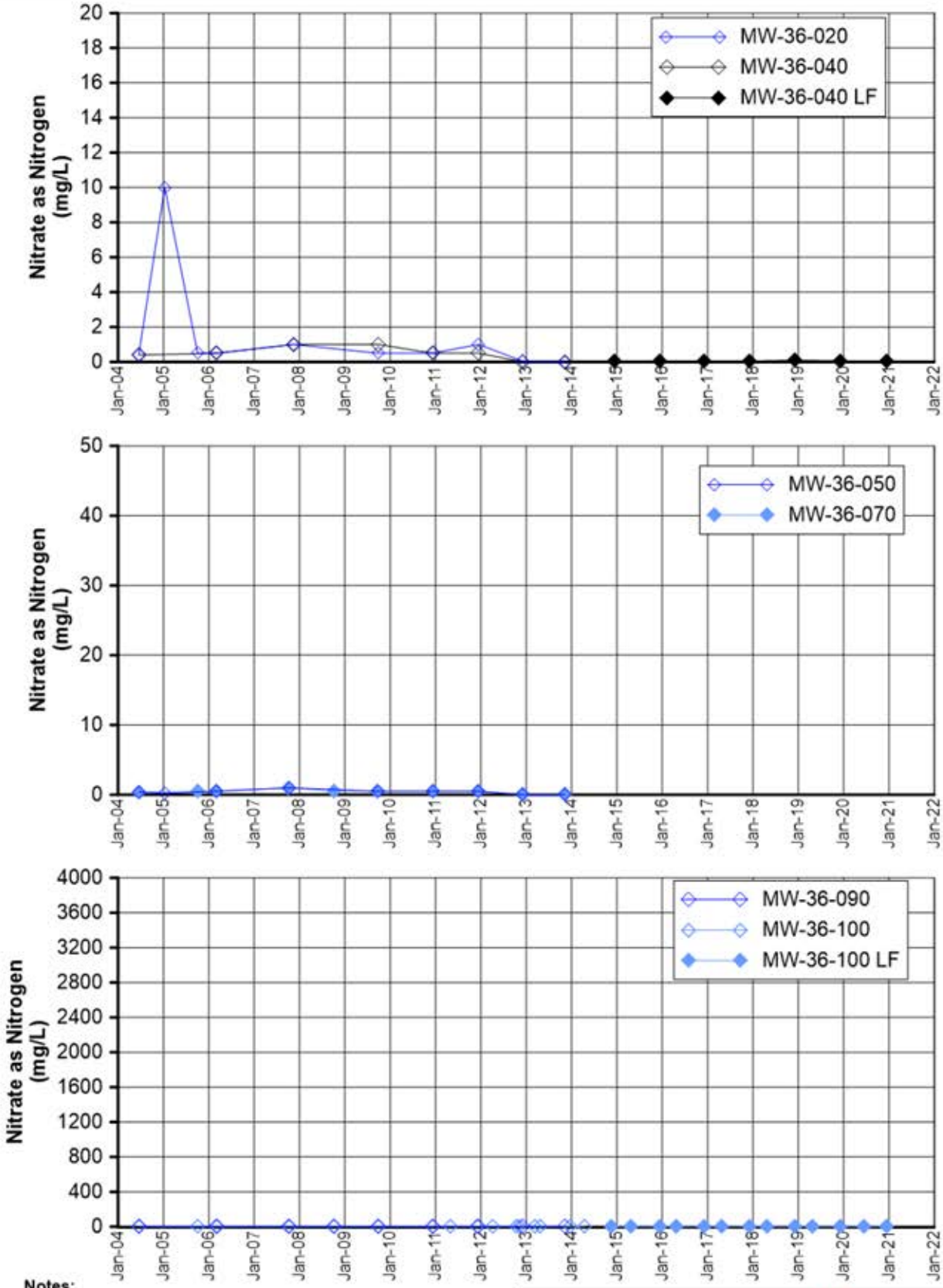

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2. LF = low flow, hexavalent chromium sample collected using low flow sampling method. Data not indicated with (LF) was collected using the three-volume purge sampling method.

FIGURE F-45
NITRATE as NITROGEN
IN MW-36 CLUSTER
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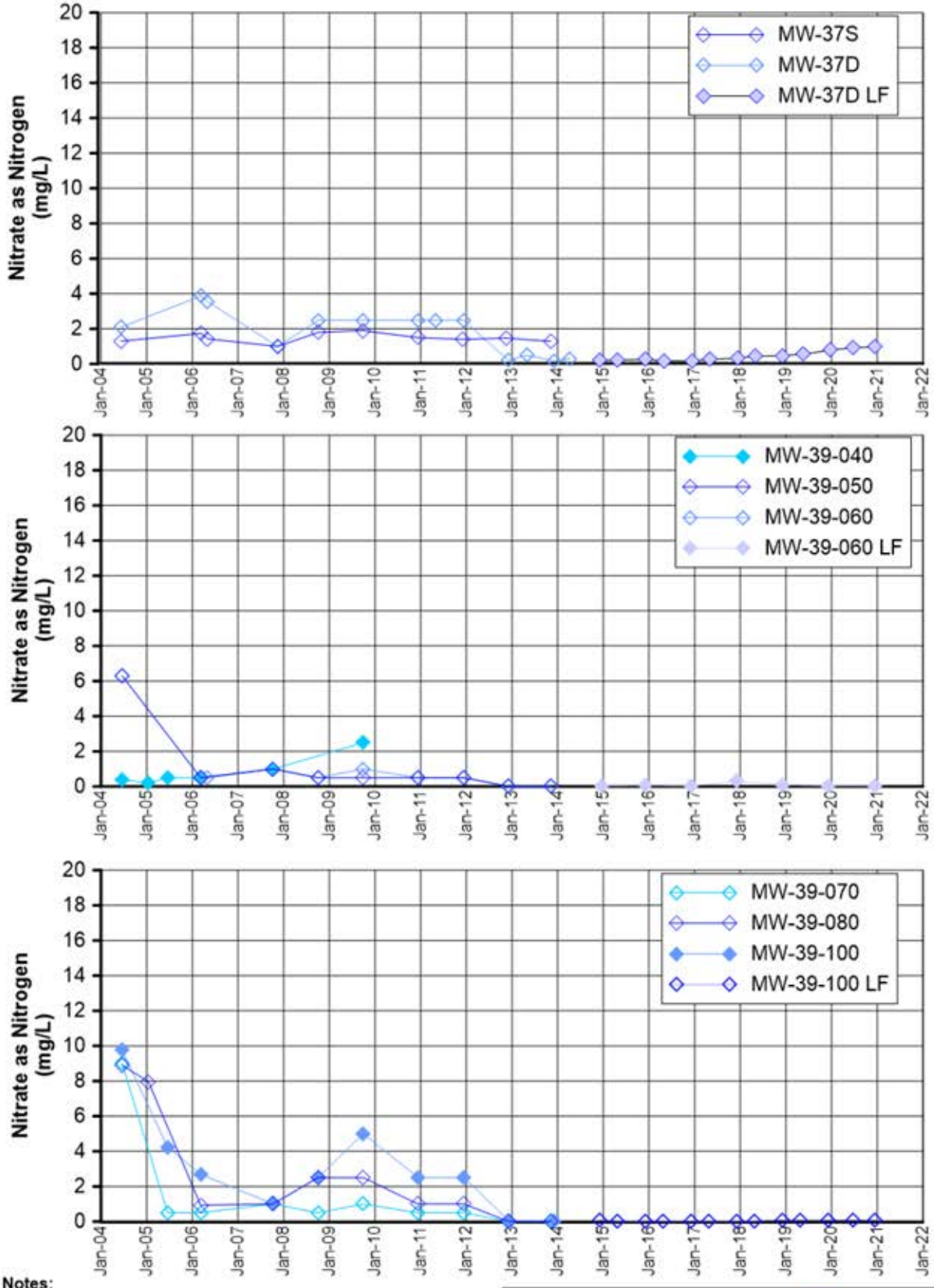

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2. LF = low flow, hexavalent chromium sample collected using low flow sampling method. Data not indicated with (LF) was collected using the three-volume purge sampling method.

FIGURE F-46
NITRATE as NITROGEN
IN MW-37 AND MW-39 CLUSTERS
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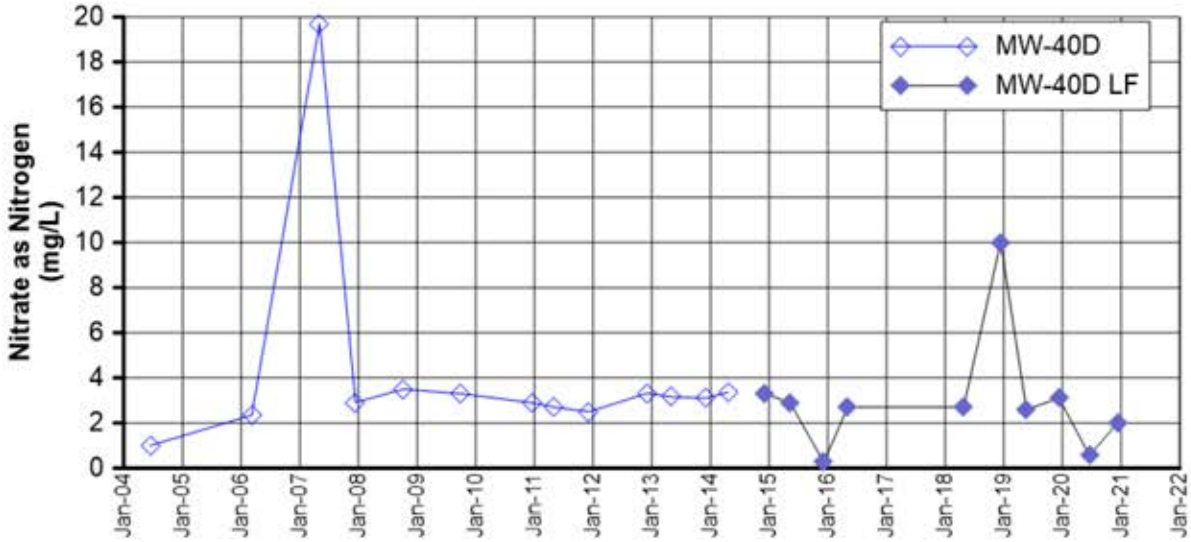

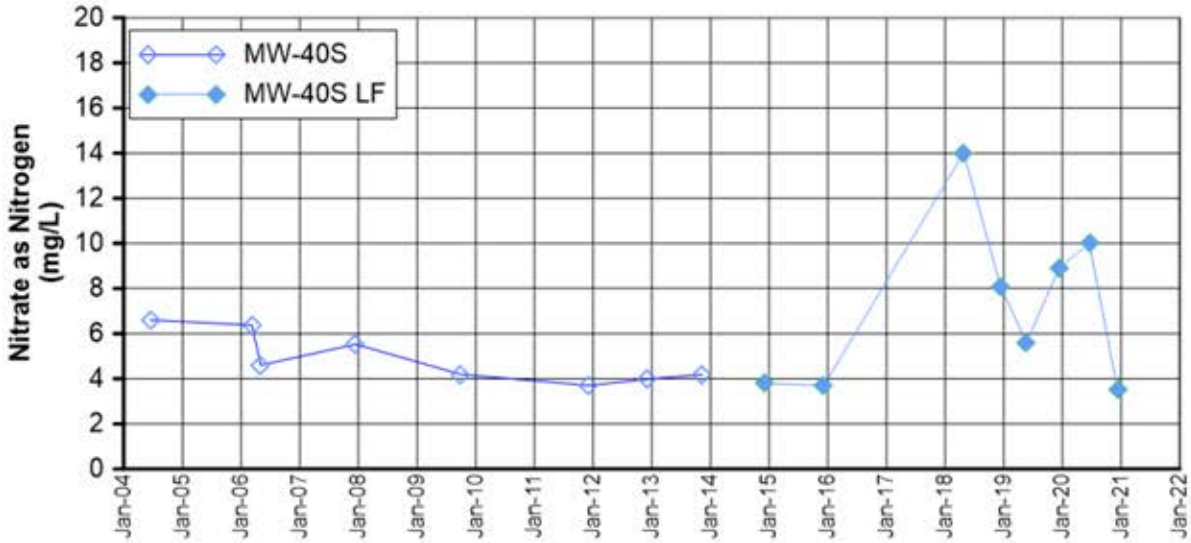

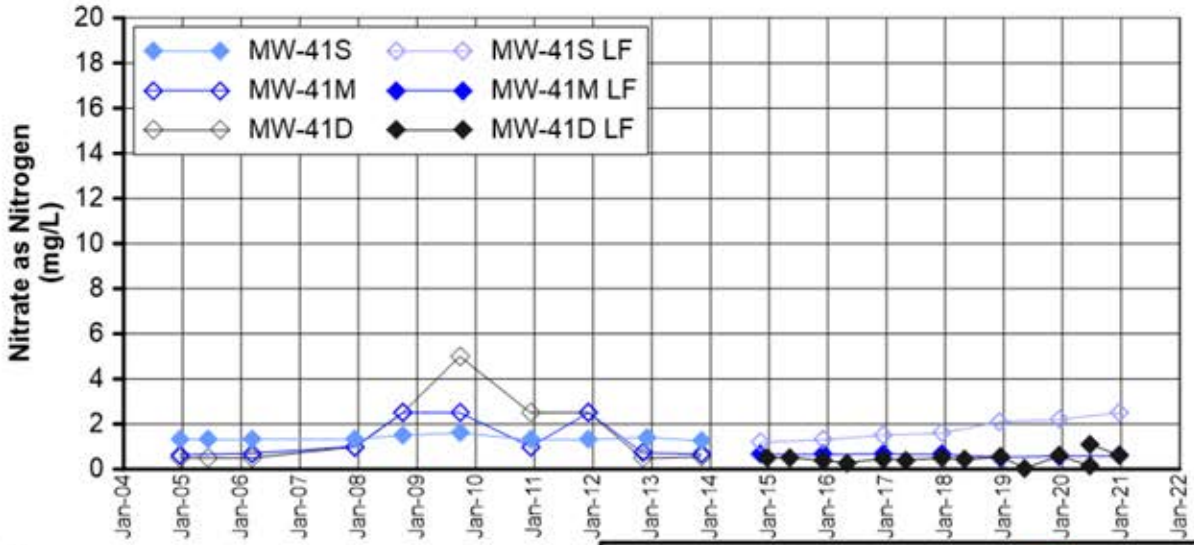

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2. LF = low flow, hexavalent chromium sample collected using low flow sampling method. Data not indicated with (LF) was collected using the three-volume purge sampling method.
3. MW-40D and MW-40S were not sampled during 4th Quarter 2017 due to traffic control issues.

FIGURE F-47
NITRATE as NITROGEN
IN MW-40 AND MW-41 CLUSTERS
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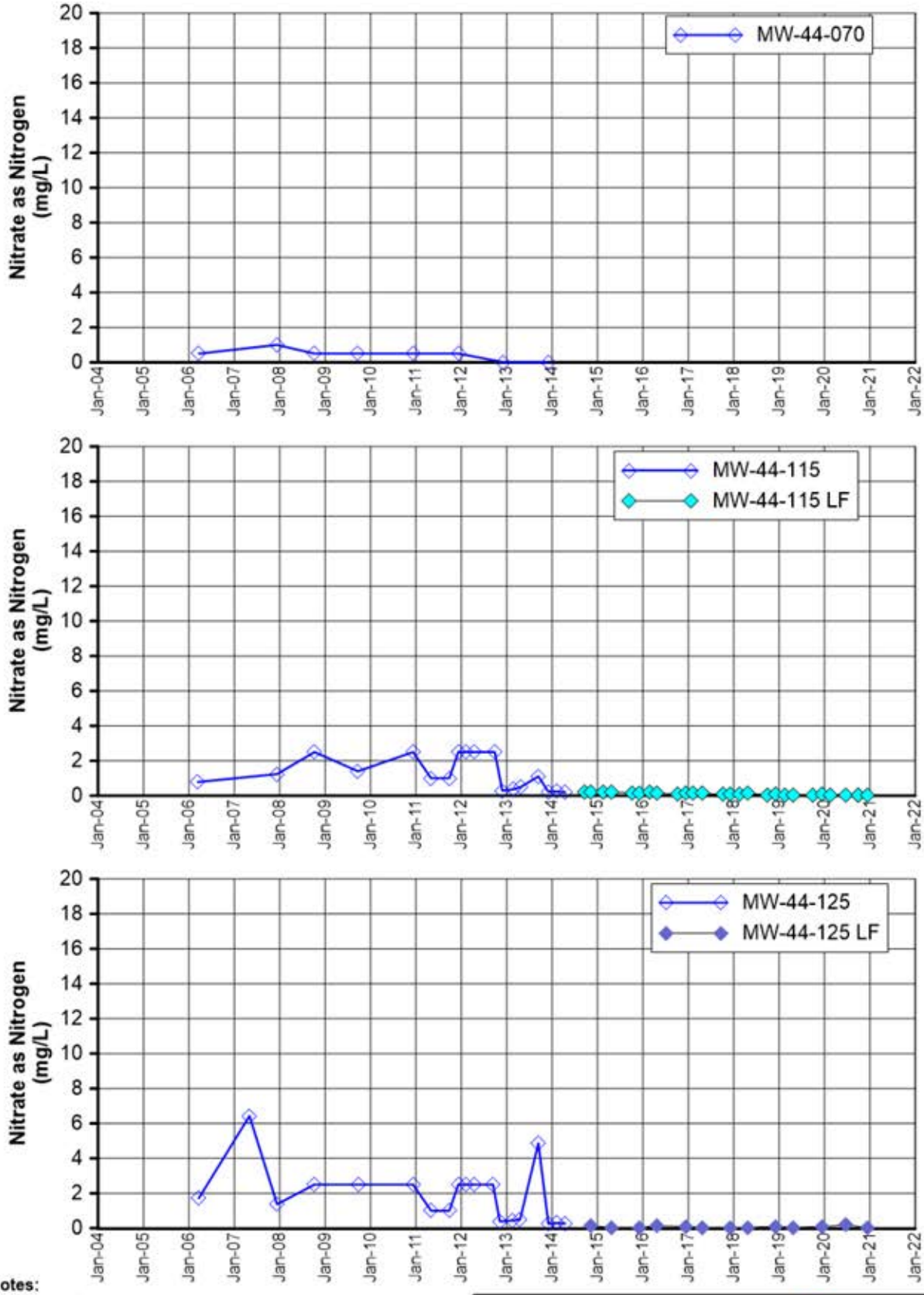

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2. LF = low flow, hexavalent chromium sample collected using low flow sampling method. Data not indicated with (LF) was collected using the three-volume purge sampling method.

FIGURE F-48
NITRATE as NITROGEN
IN MW-44 CLUSTER

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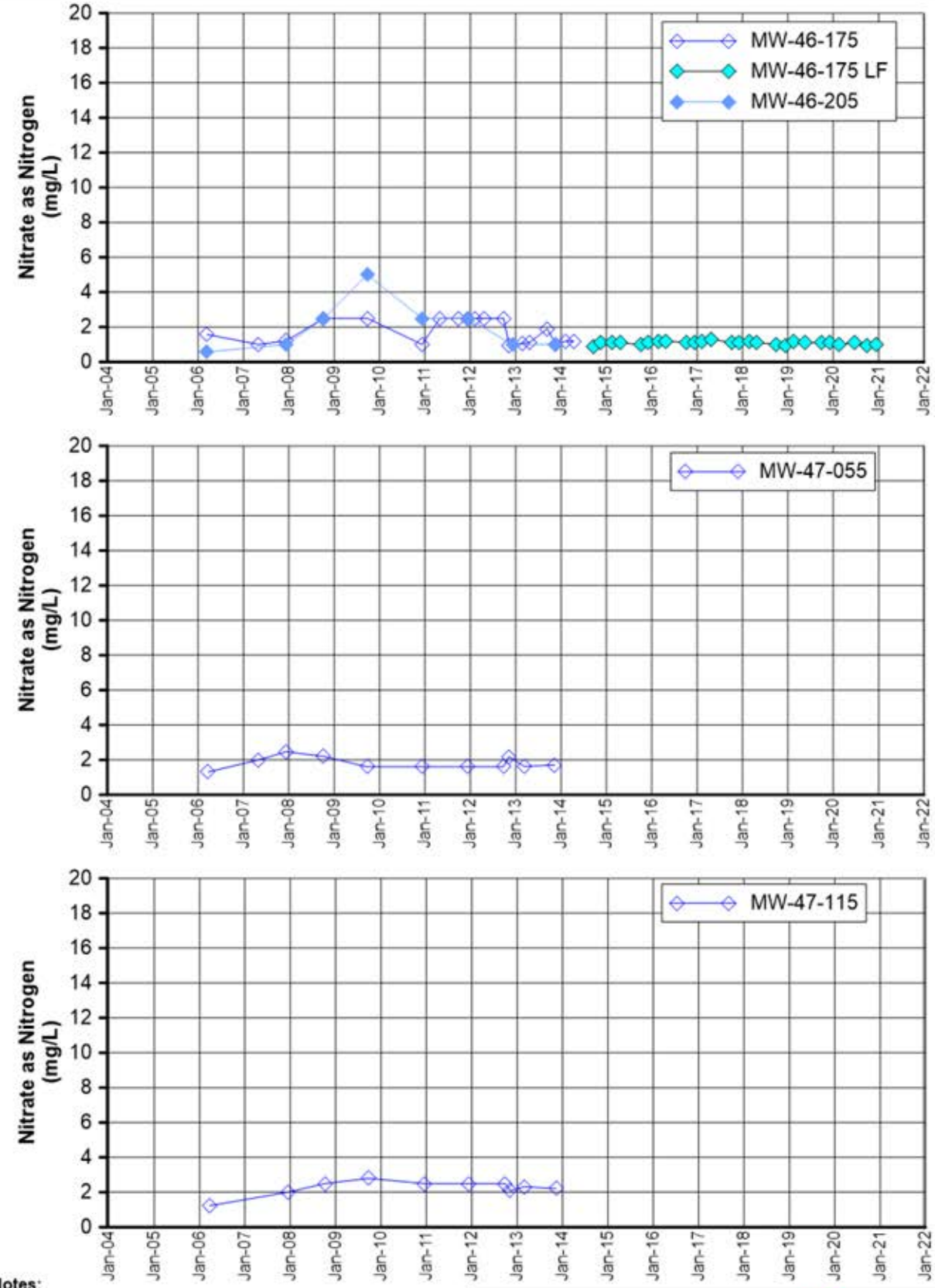

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2. LF = low flow, hexavalent chromium sample collected using low flow sampling method. Data not indicated with (LF) was collected using the three-volume purge sampling method.

FIGURE F-49
NITRATE as NITROGEN
IN MW-46 AND MW-47 CLUSTERS
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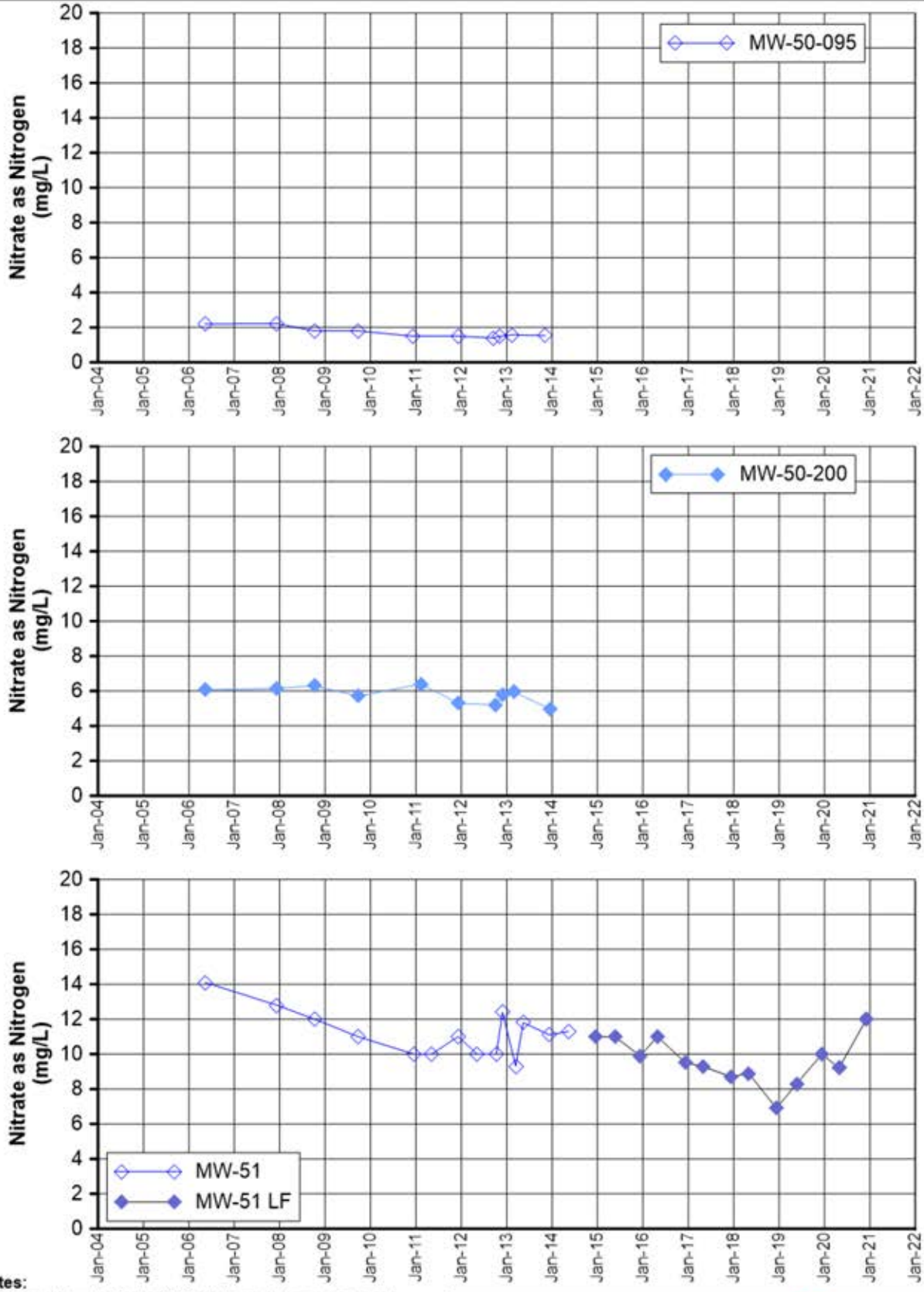

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2. LF = low flow, hexavalent chromium sample collected using low flow sampling method. Data not indicated with (LF) was collected using the three-volume purge sampling method.

FIGURE F-50
NITRATE as NITROGEN
IN MW-50 AND MW-51 CLUSTERS
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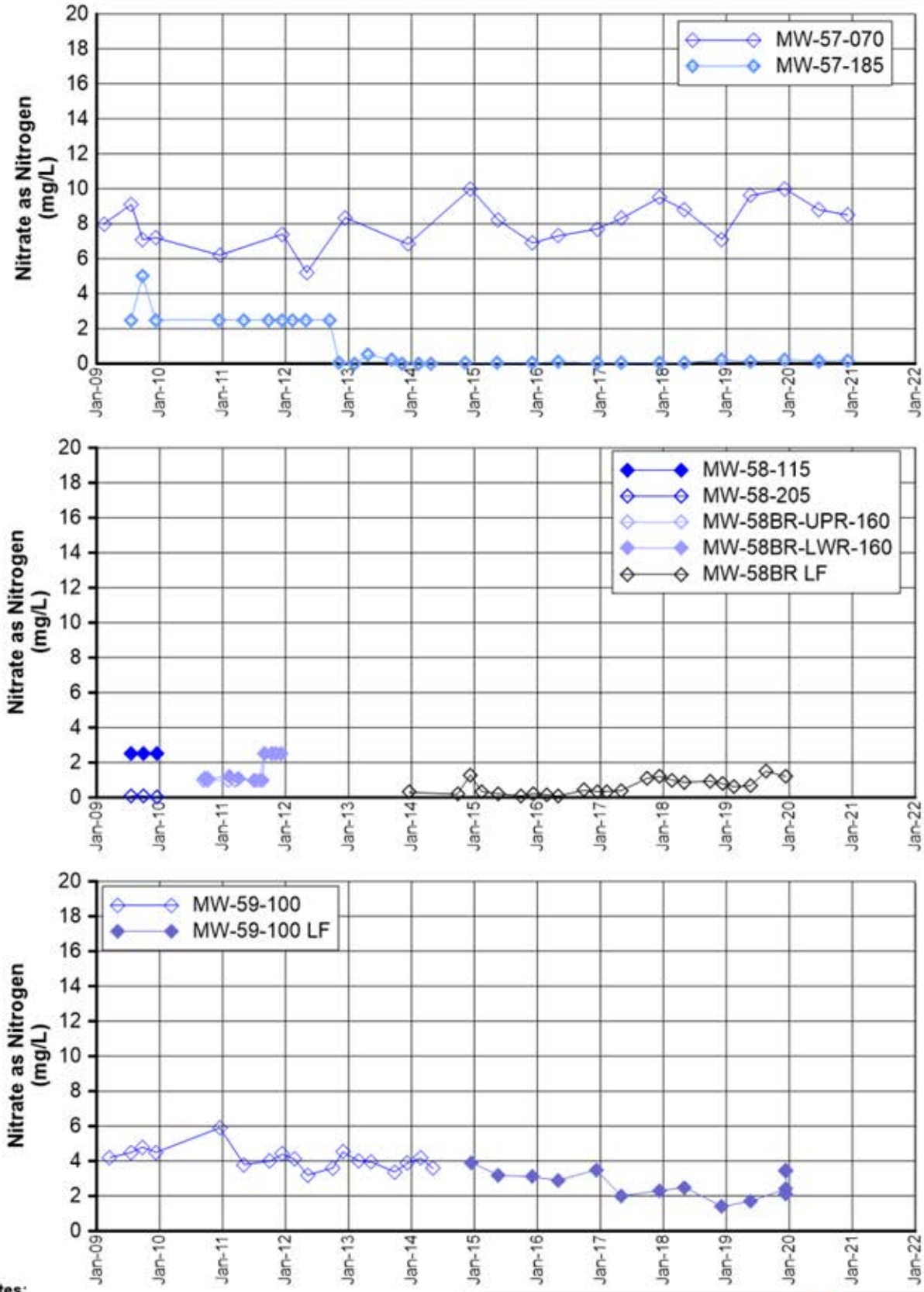

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2. LF = low flow, hexavalent chromium sample collected using low flow sampling method. Data not indicated with (LF) was collected using the three-volume purge sampling method.

FIGURE F-51
NITRATE as NITROGEN
IN MW-57 CLUSTER, MW-58 CLUSTER AND MW-59-100
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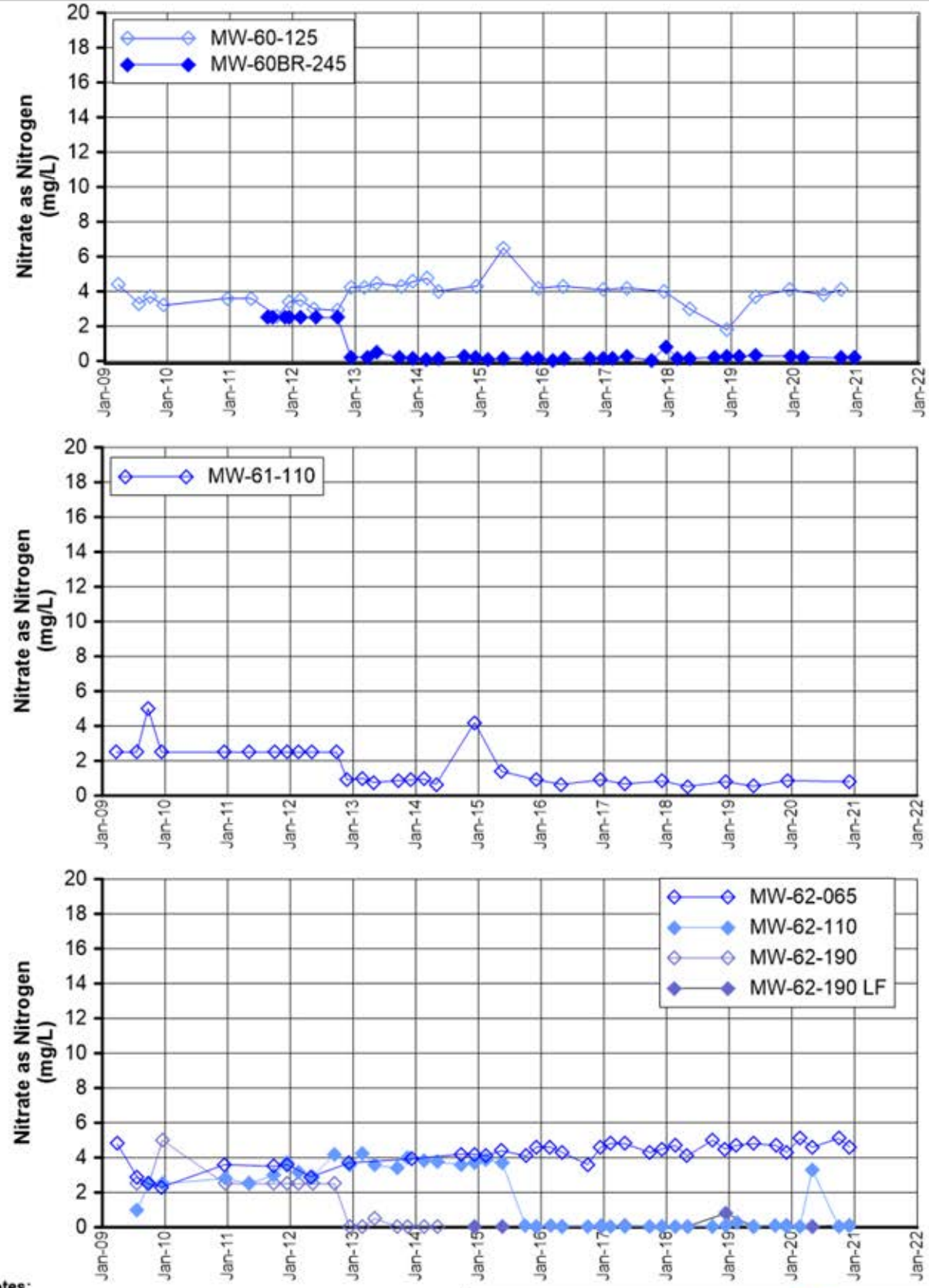

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2. LF = low flow, hexavalent chromium sample collected using low flow sampling method. Data not indicated with (LF) was collected using the three-volume purge sampling method.

FIGURE F-52
NITRATE as NITROGEN
IN MW-60 CLUSTER, MW-61-110, AND MW-62 CLUSTER
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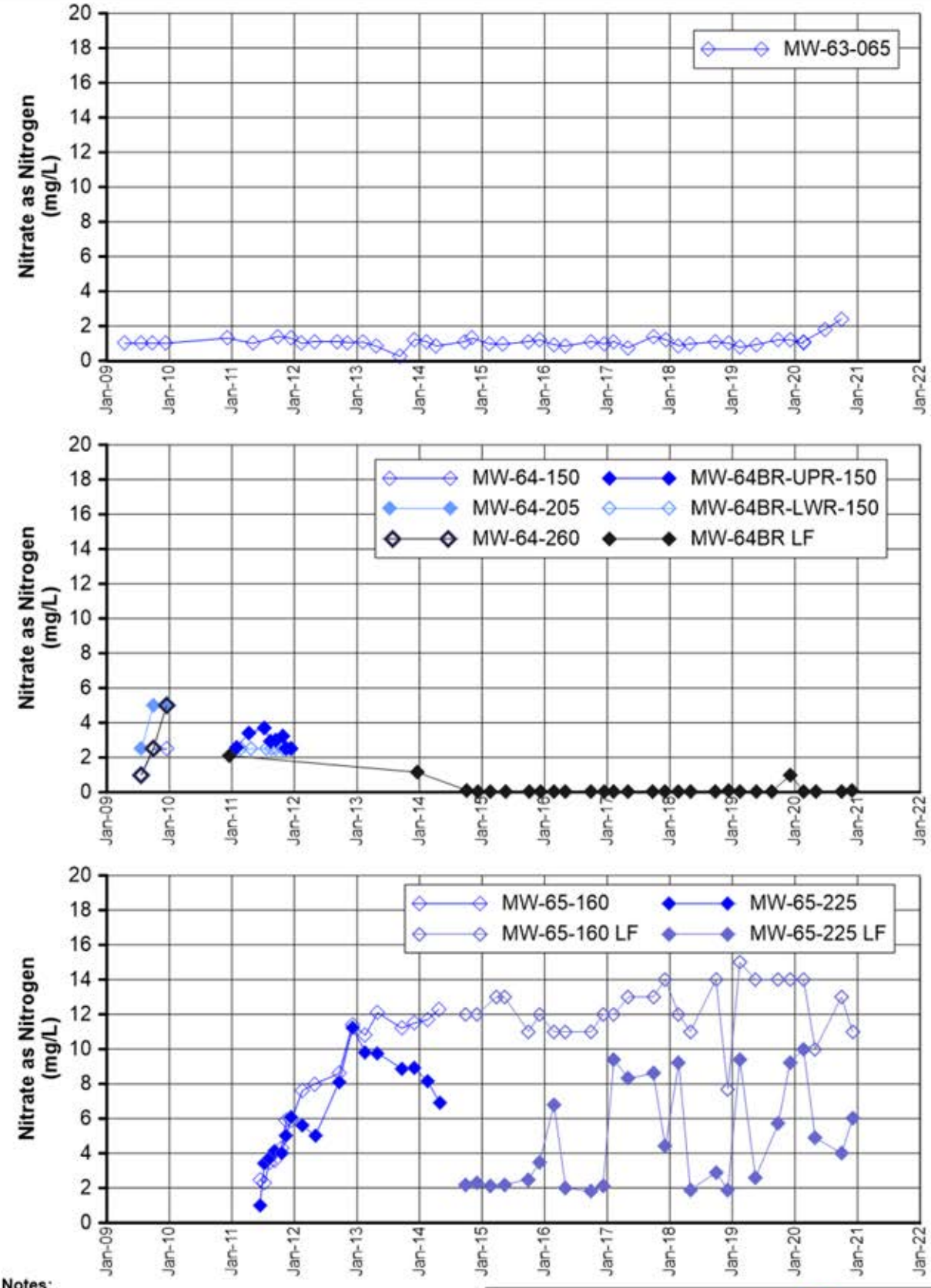

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2. LF = low flow, hexavalent chromium sample collected using low flow sampling method. Data not indicated with (LF) was collected using the three-volume purge sampling method.

FIGURE F-53
NITRATE as NITROGEN
IN MW-63-065, MW-64 CLUSTER AND MW-65 CLUSTER
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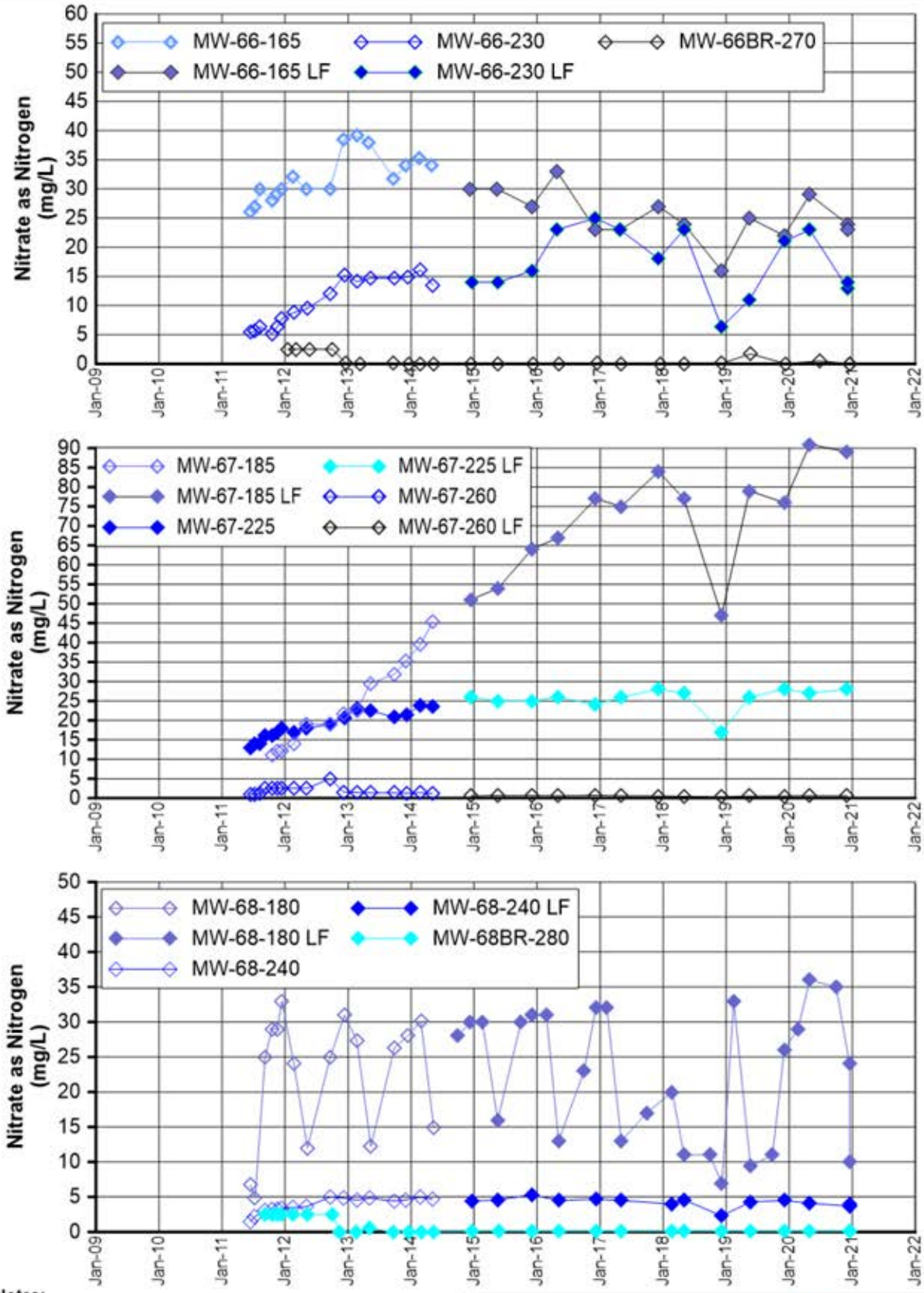

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2. LF = low flow, hexavalent chromium sample collected using low flow sampling method. Data not indicated with (LF) was collected using the three-volume purge sampling method.

FIGURE F-54
NITRATE as NITROGEN
IN MW-66, MW-67, AND MW-68 CLUSTERS
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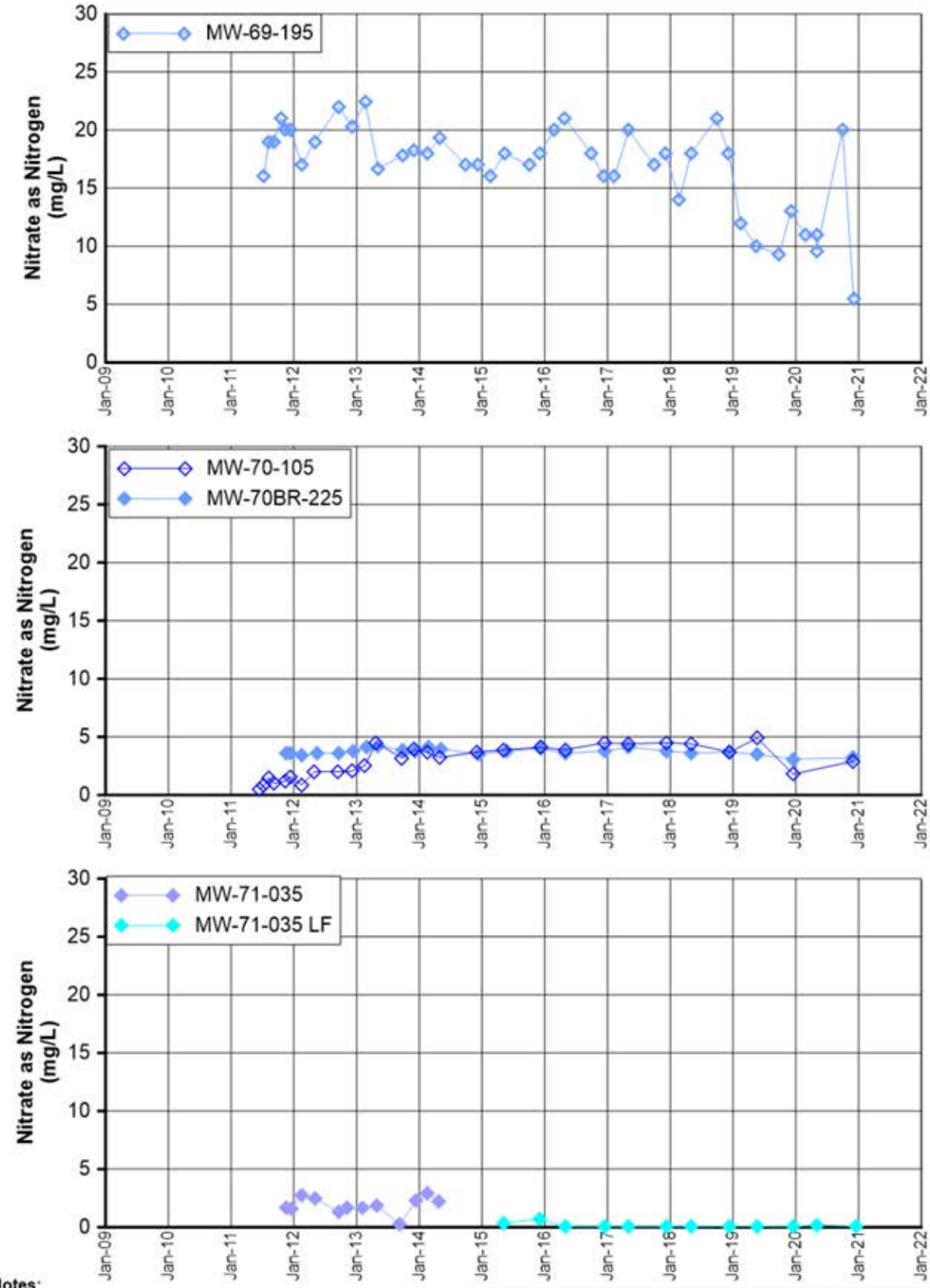

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2. LF = low flow, hexavalent chromium sample collected using low flow sampling method. Data not indicated with (LF) was collected using the three-volume purge sampling method.

FIGURE F-55
NITRATE as NITROGEN
IN MW-69-195, THE MW-70 CLUSTER, AND MW-71-035
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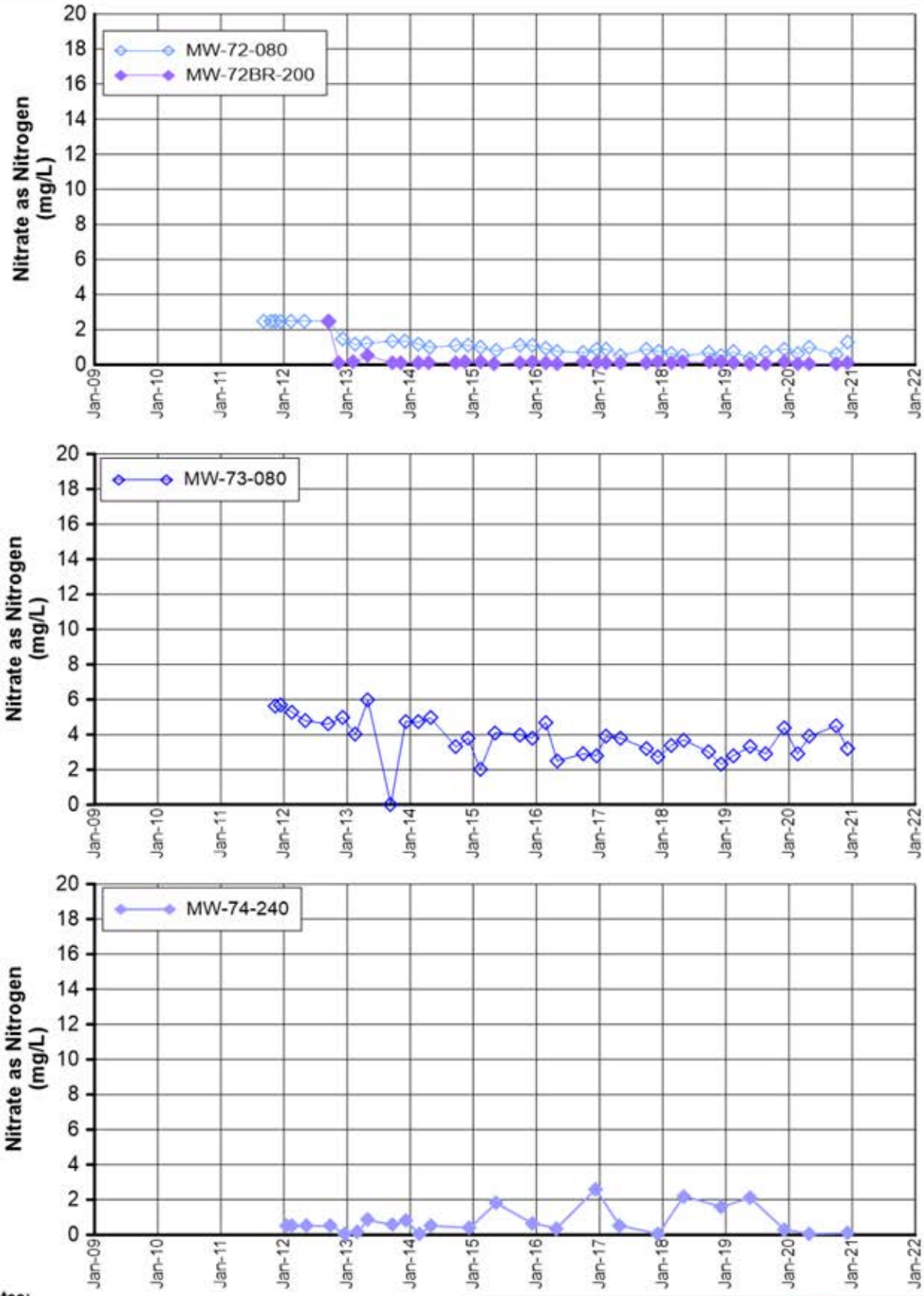

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2. LF = low flow, hexavalent chromium sample collected using low flow sampling method. Data not indicated with (LF) was collected using the three-volume purge sampling method.

FIGURE F-56
NITRATE as NITROGEN
IN MW-72 CLUSTER, MW-73-080, AND MW-74-240
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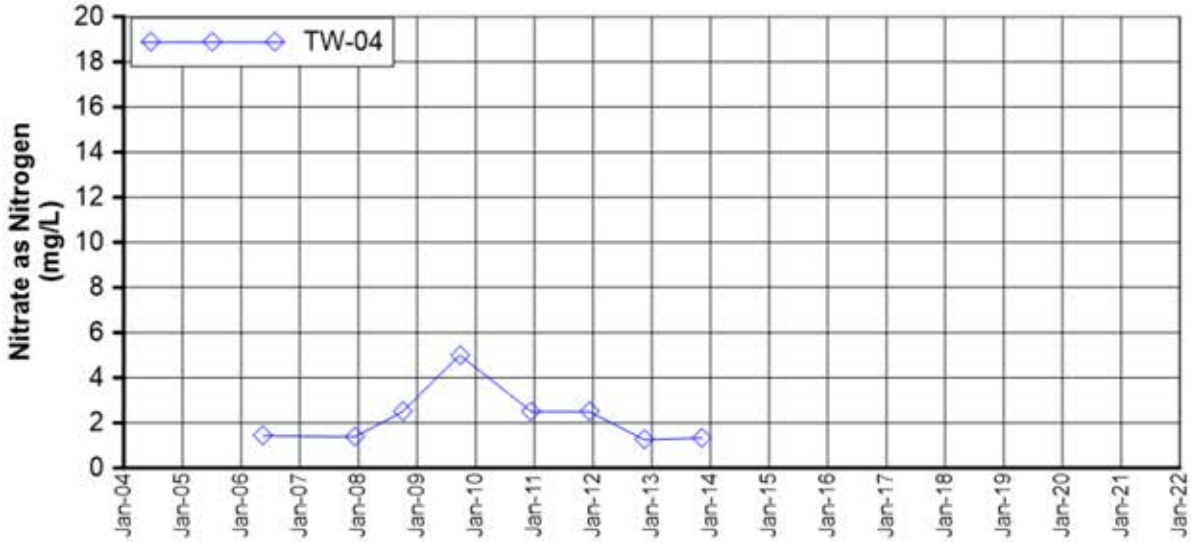

Notes:

1. Starting in Fourth Quarter 2012 nitrate samples were analyzed using method USEPA 353.2, which reports a combination of nitrate and nitrite. The contribution of nitrite to the reported result of nitrate plus nitrite as nitrogen is expected to be negligible; therefore, sample results for method USEPA 353.2 are expected to be essentially the same as previous samples analyzed using method USEPA 300.0 and reported as nitrate as nitrogen.

FIGURE F-57
NITRATE as NITROGEN IN TW-04
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
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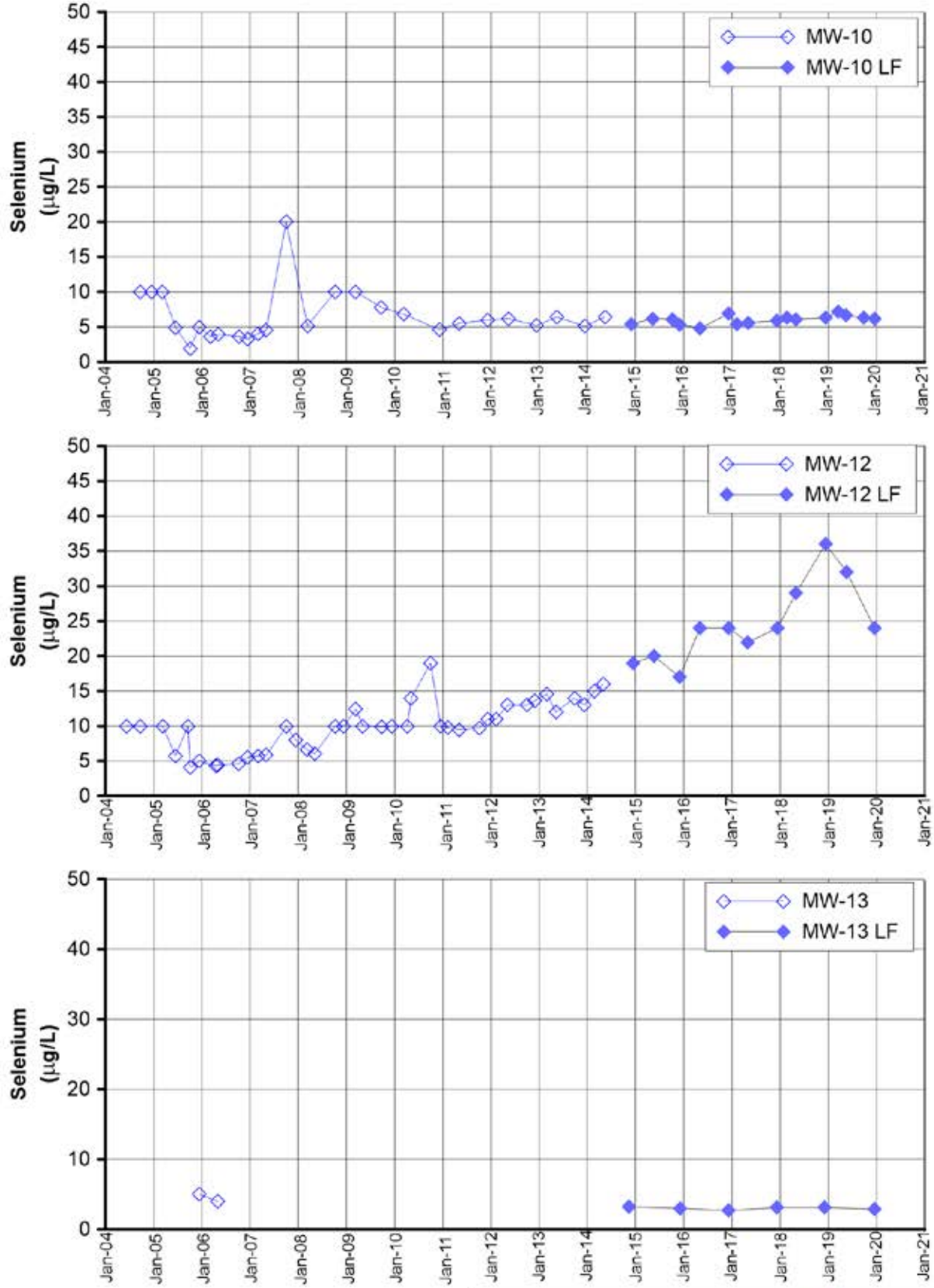

Notes:

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 F-58
SELENIUM
IN MW-10, MW-12, AND MW-13
FOURTH QUARTER 2019 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
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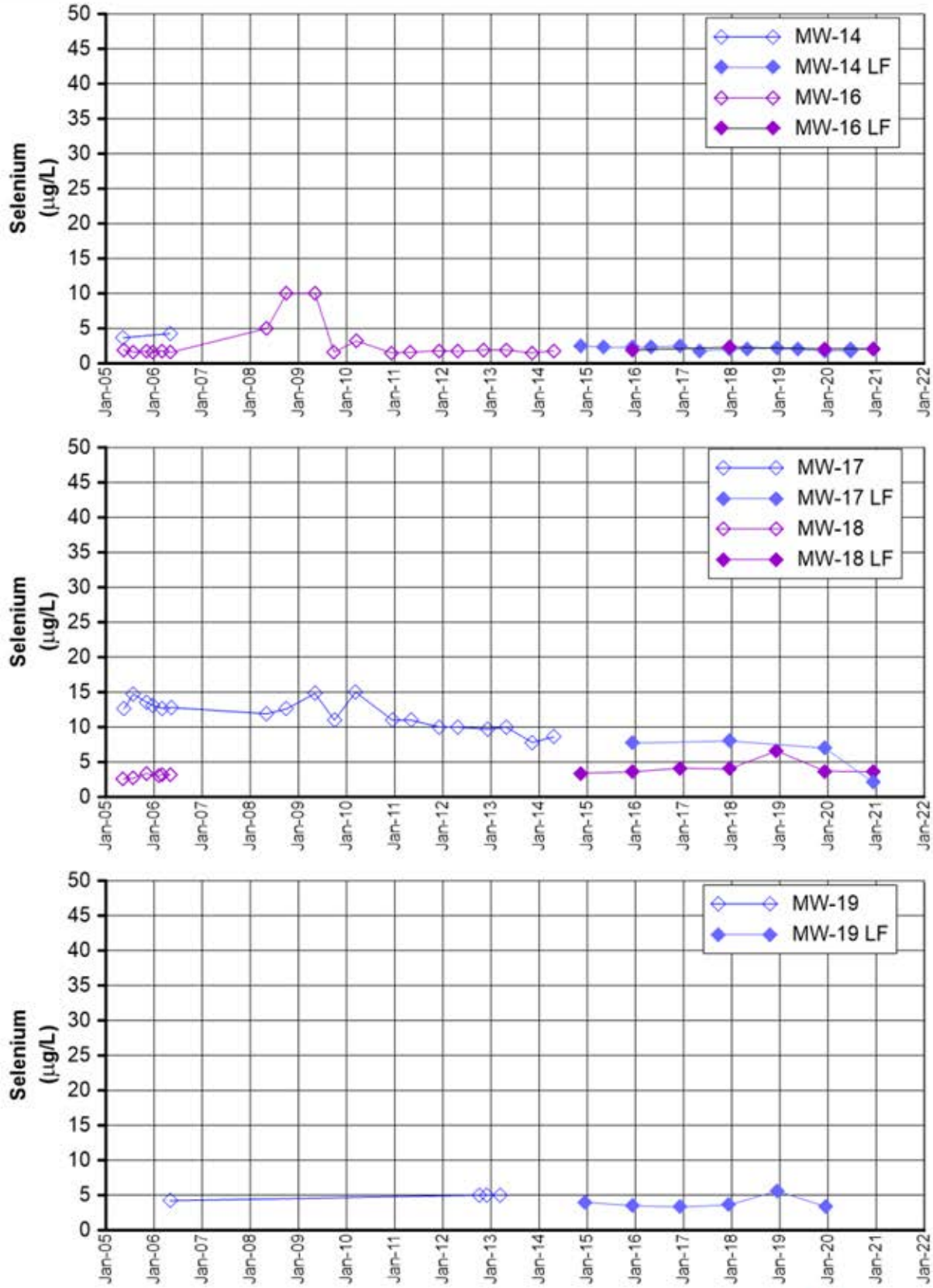

Notes:

1. 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 F-59
SELENIUM
IN MW-14, MW-16, MW-17, MW-18, AND MW-19
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
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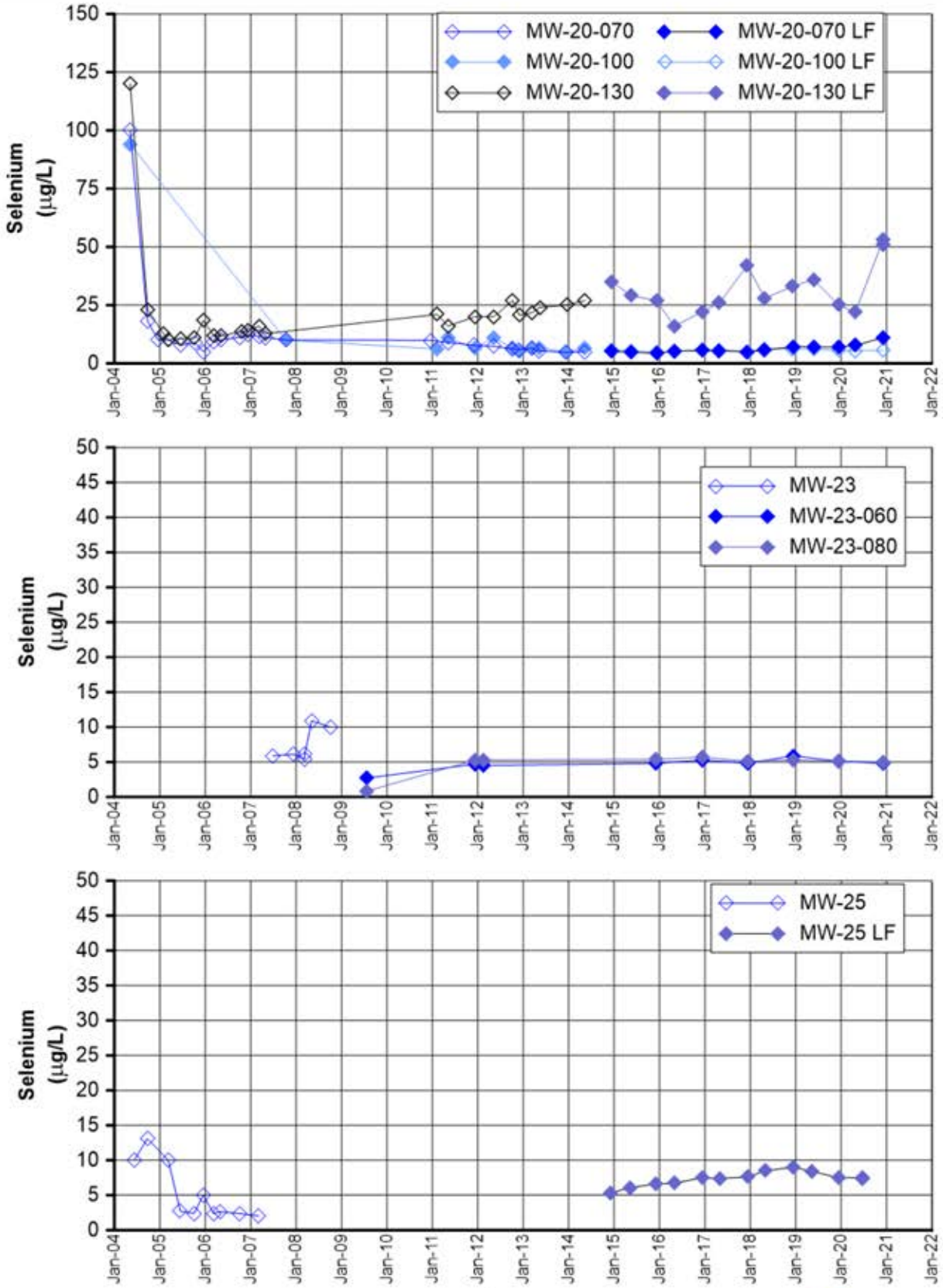

Notes:

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 F-60
SELENIUM
IN MW-20 AND MW-23 CLUSTERS AND MW-25
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
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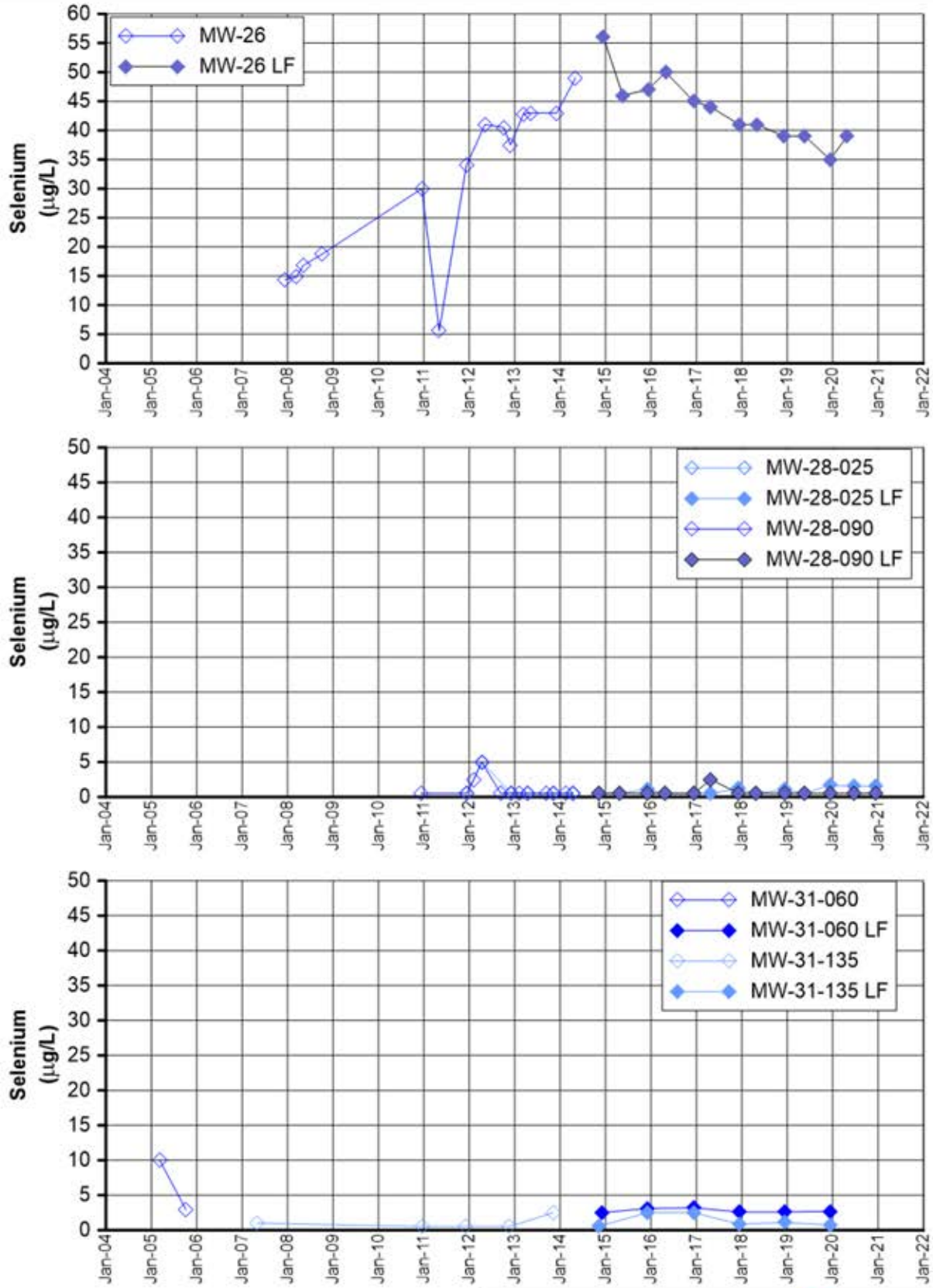

Notes:

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 F-61
SELENIUM
IN MW-26, MW-28, AND MW-31 CLUSTERS
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
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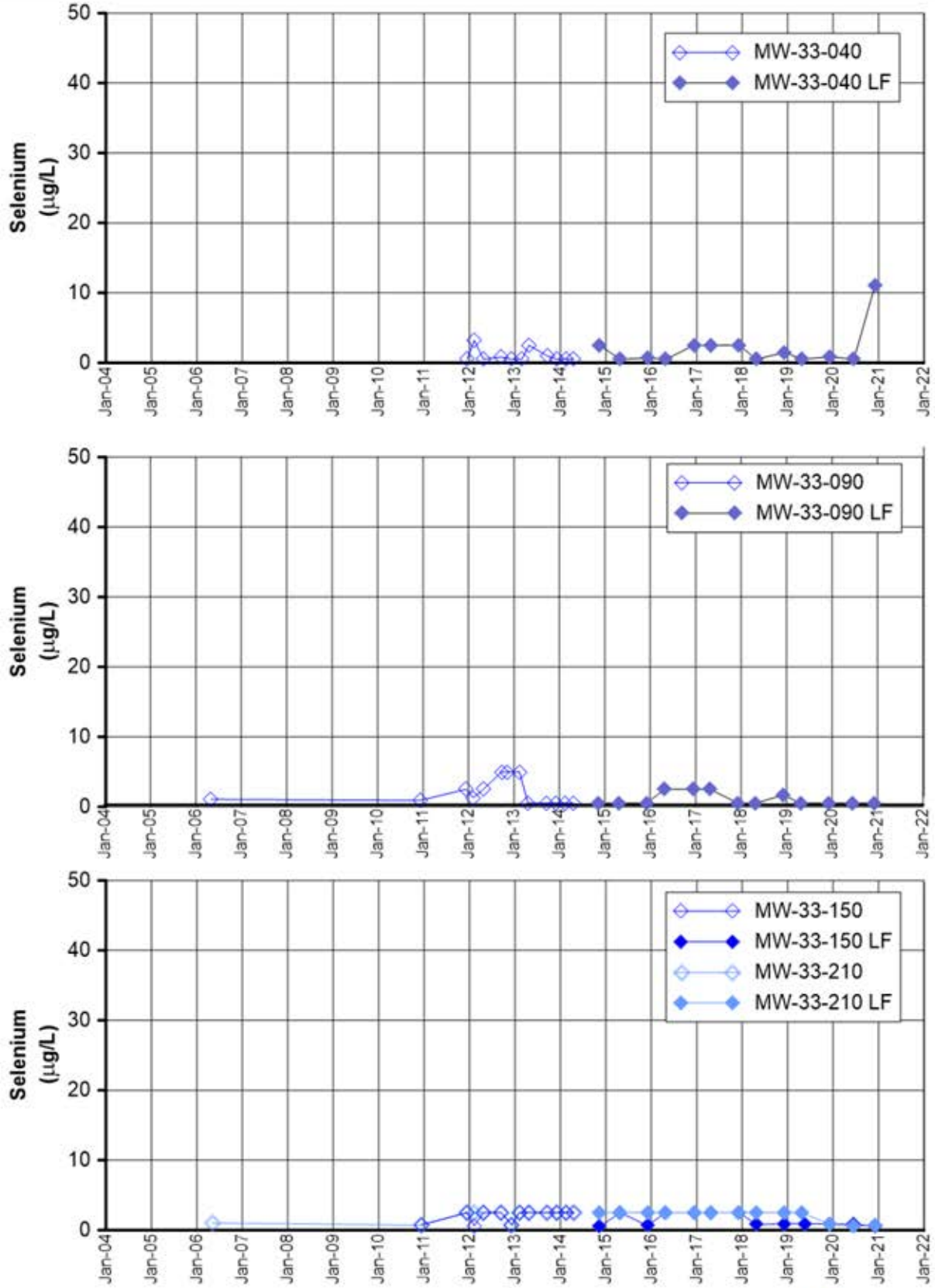

Notes:

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 F-62
SELENIUM
IN MW-33 CLUSTER
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
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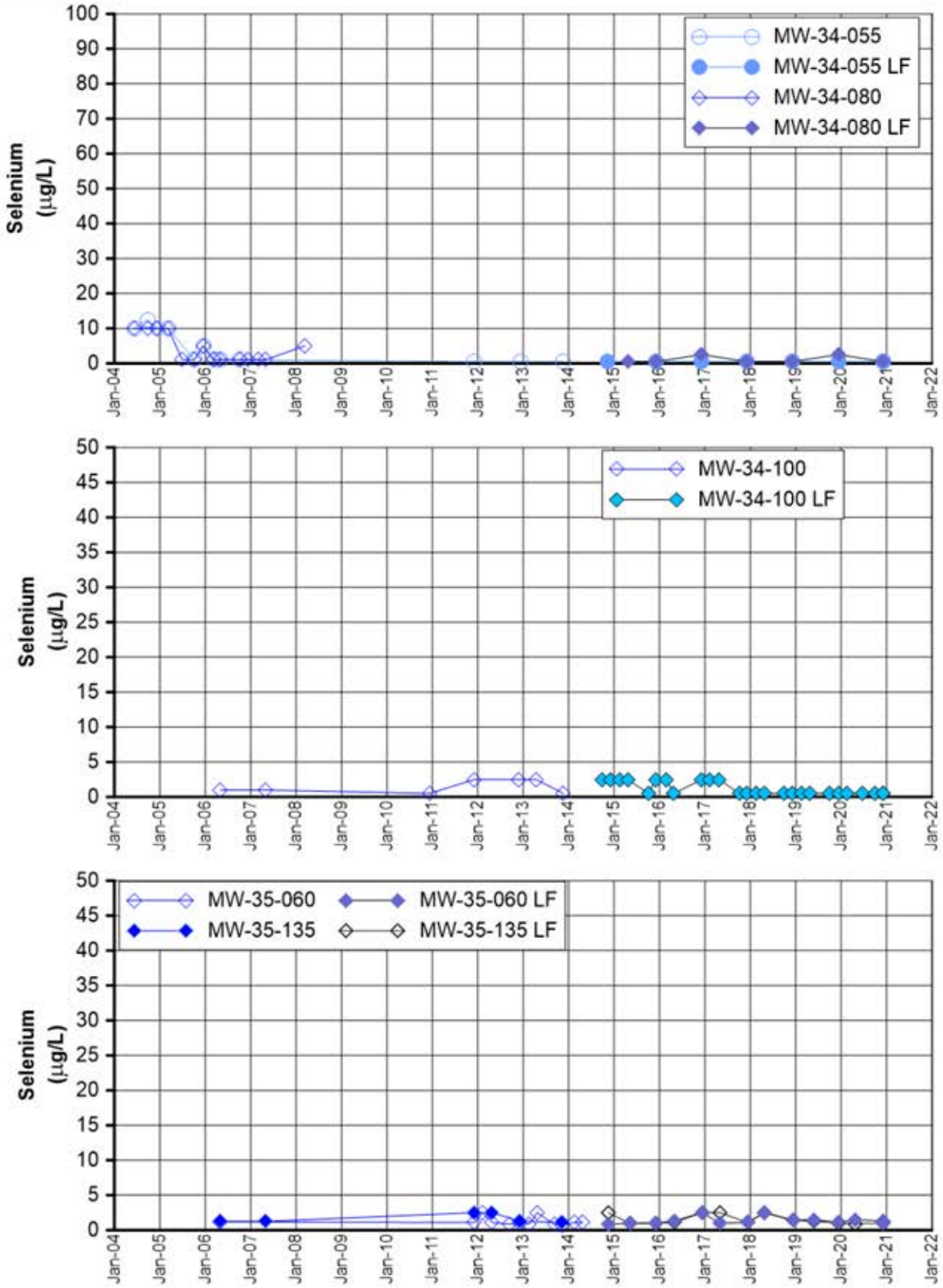

Notes:

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 F-63
SELENIUM
IN MW-34 AND MW-35 CLUSTERS
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
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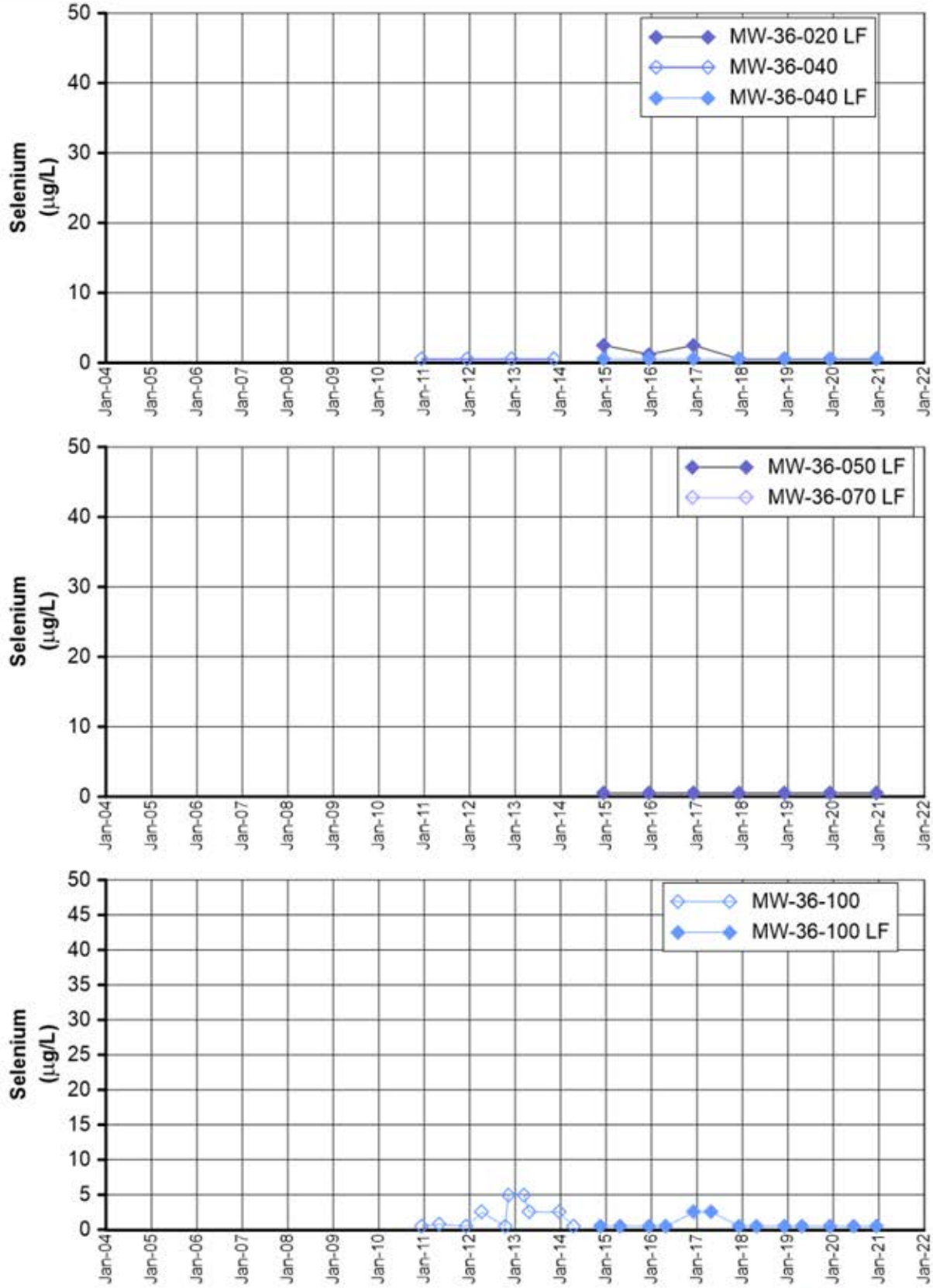

Notes:

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 F-64
SELENIUM
IN MW-36 CLUSTER
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
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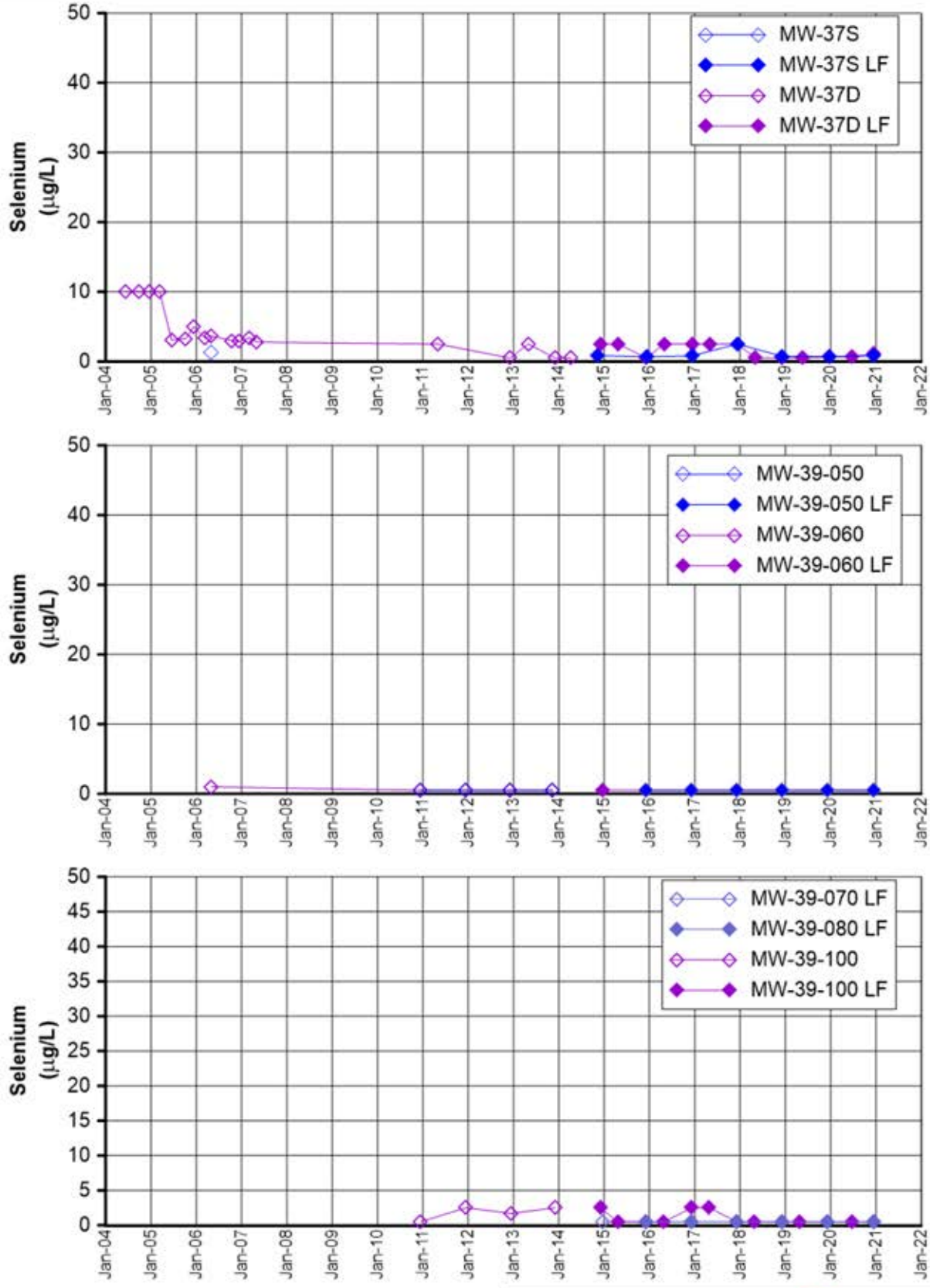

Notes:

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 F-65
SELENIUM
IN MW-37 AND MW-39 CLUSTERS
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
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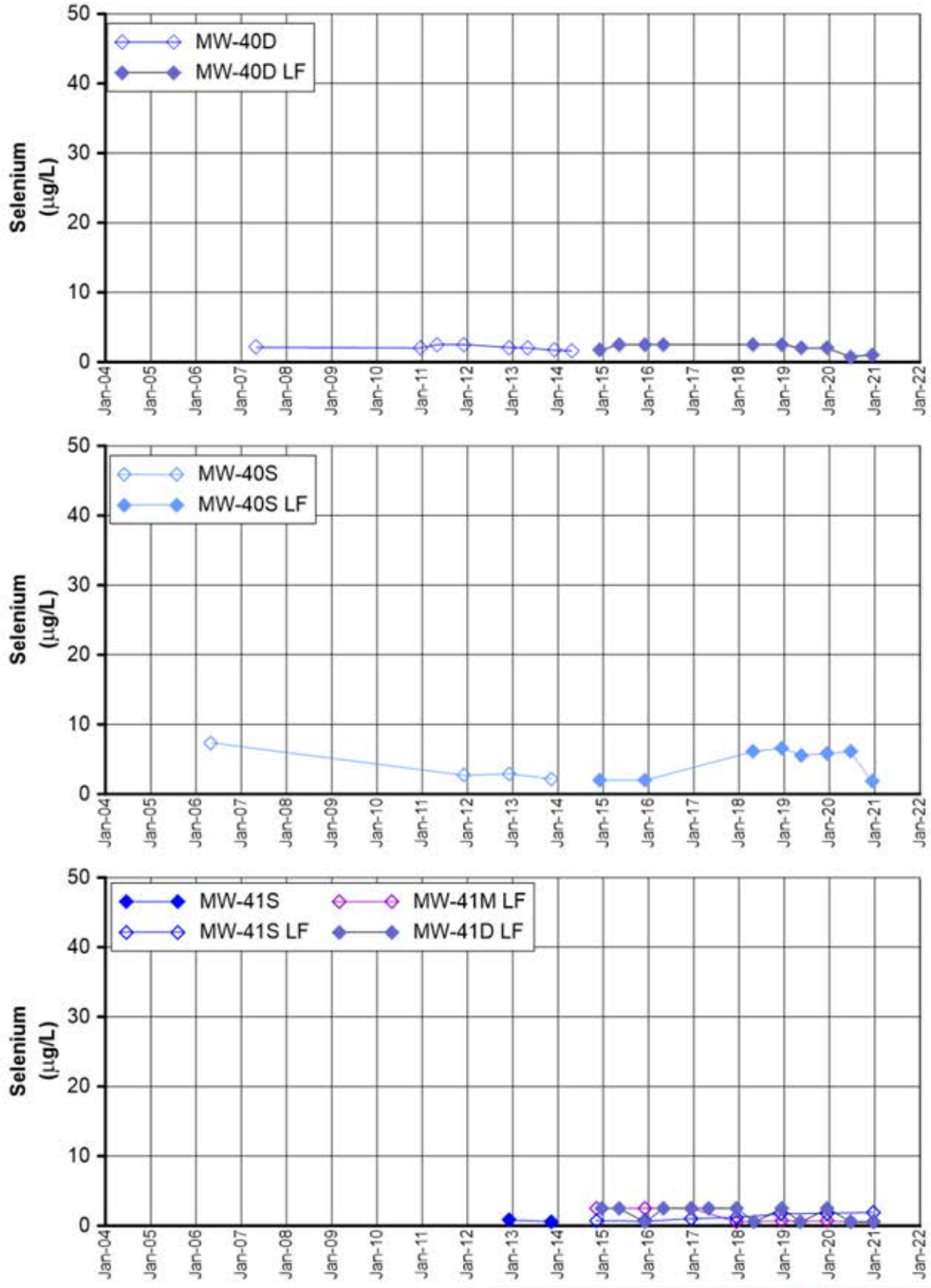

Notes:

1. 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.
2. MW-40D and MW-40S were not sampled during 4th Quarter 2017 due to traffic control issues.

FIGURE F-66
SELENIUM
IN MW-40 AND MW-41 CLUSTERS
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
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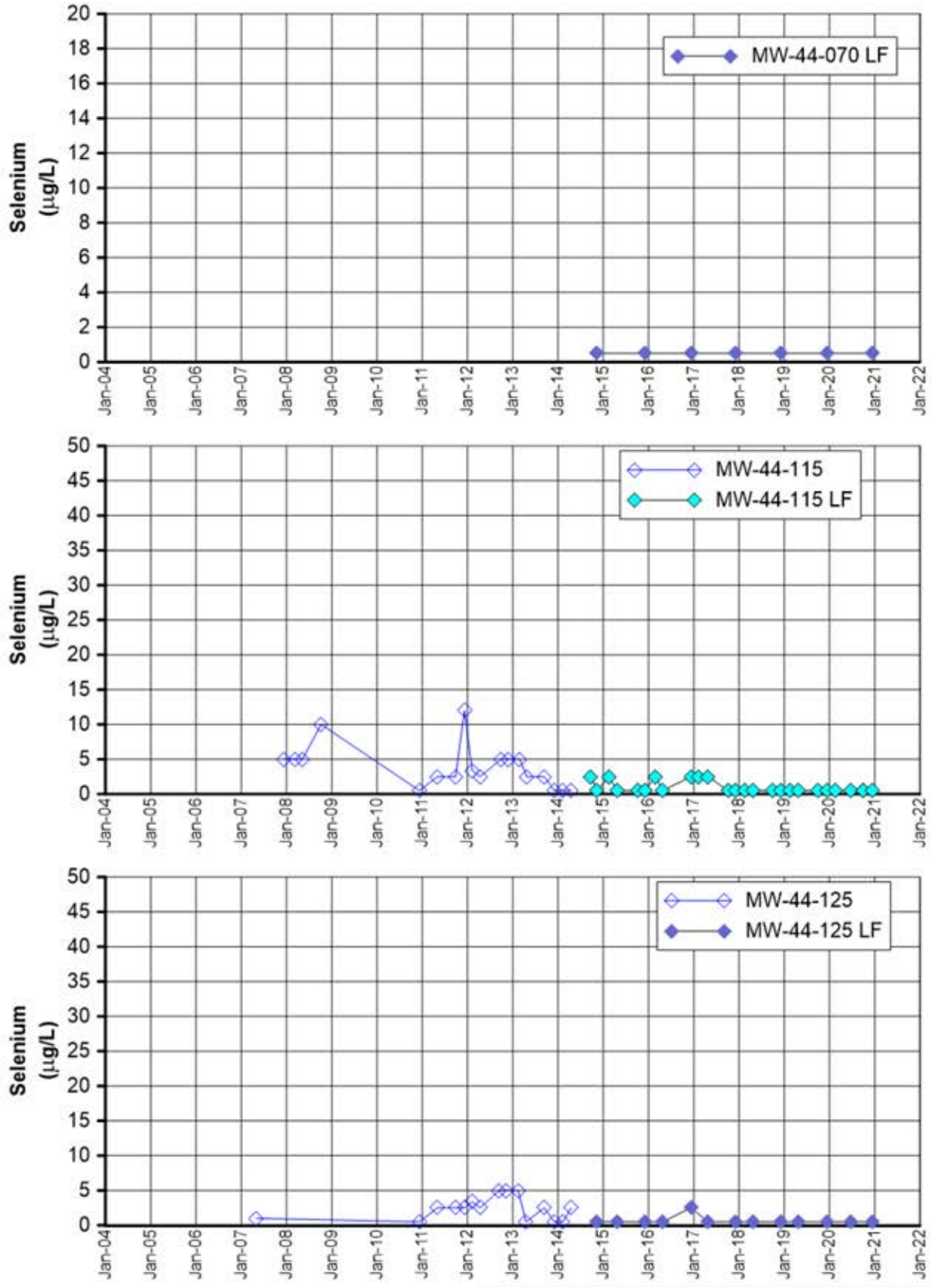

Notes:

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 F-67
SELENIUM
IN MW-44 CLUSTER
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
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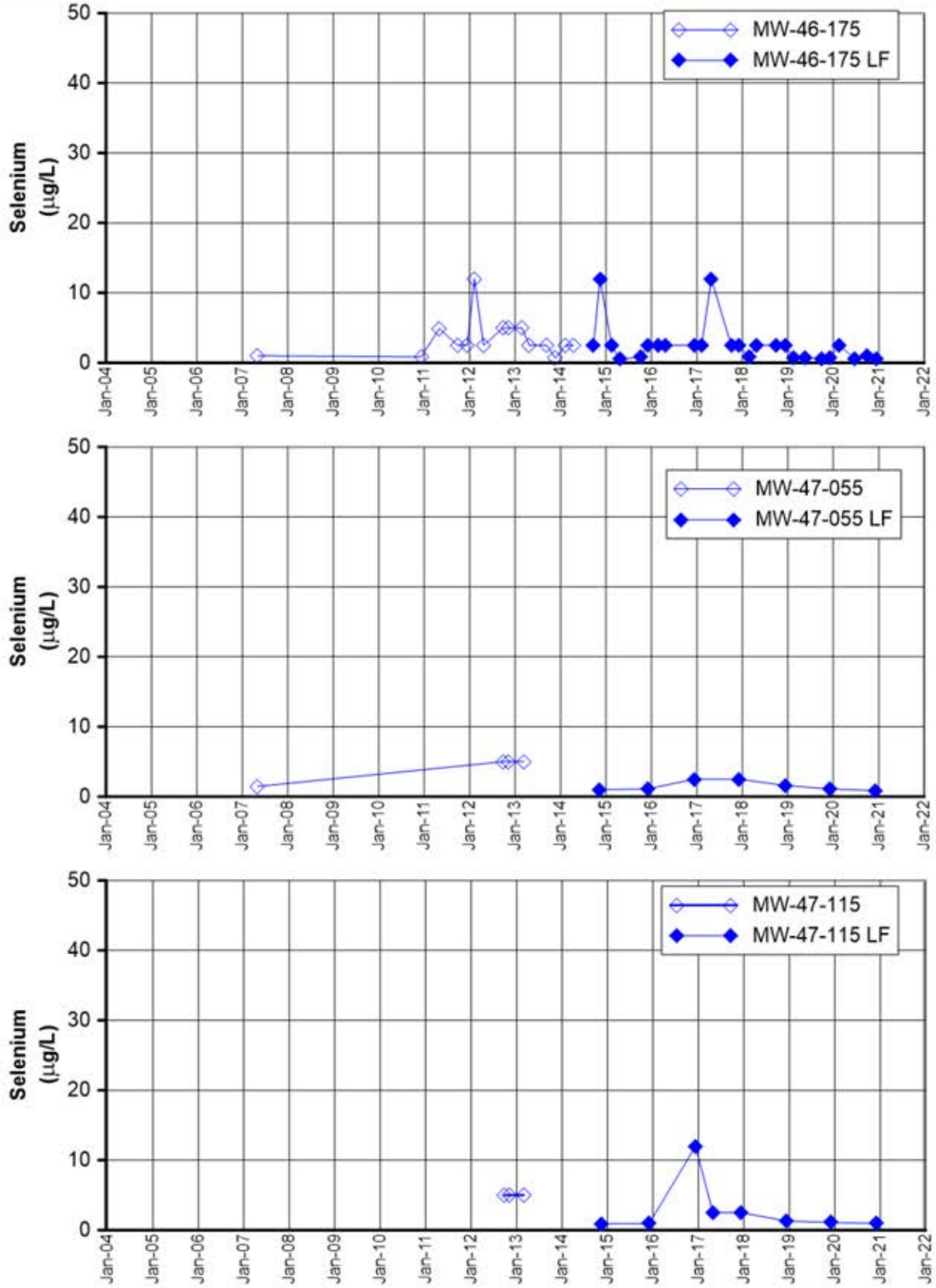

Notes:

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 F-68
SELENIUM
IN MW-46 AND MW-47 CLUSTERS
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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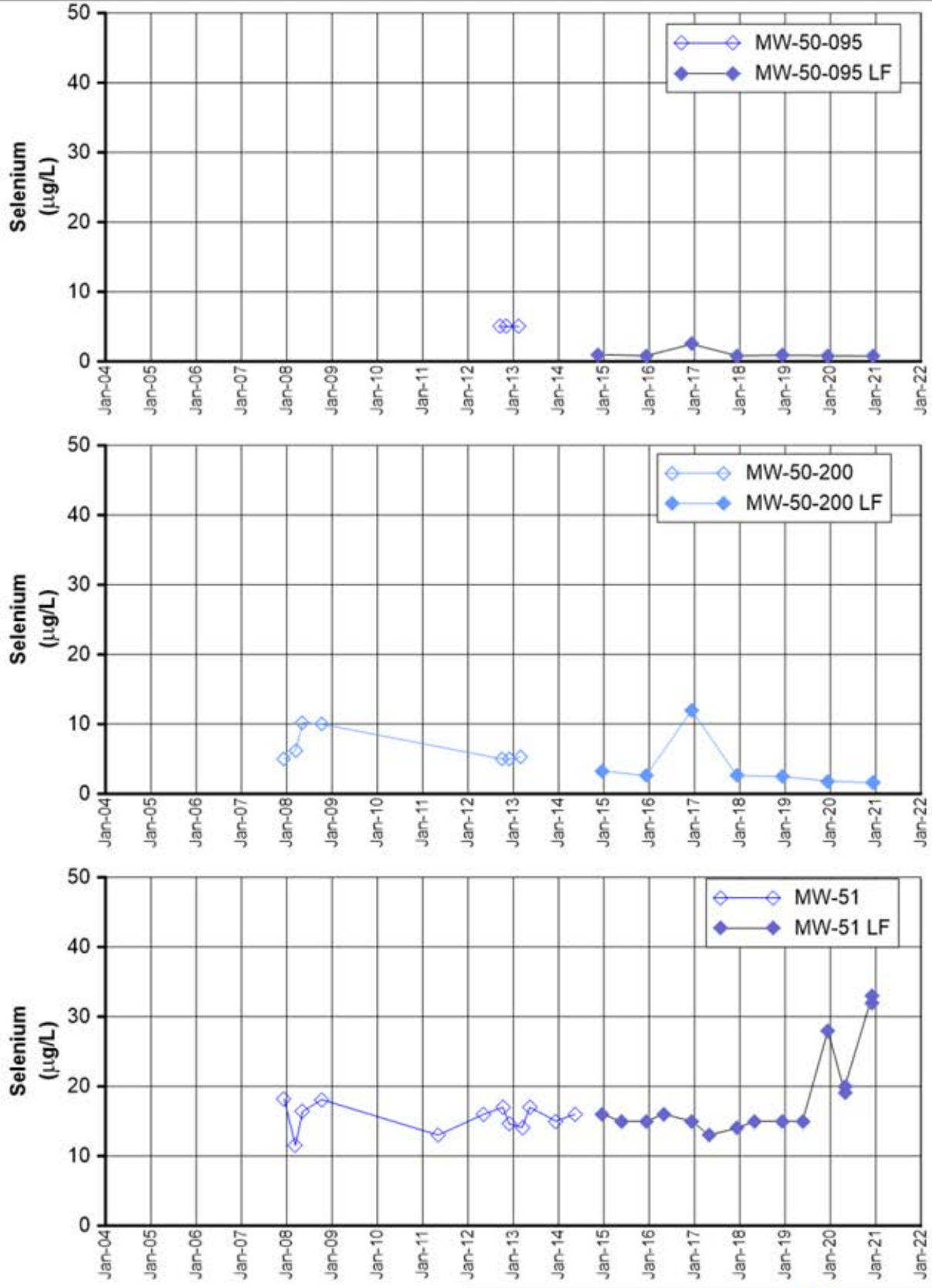

Notes:

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 F-69
SELENIUM
IN MW-50 AND MW-51 CLUSTERS
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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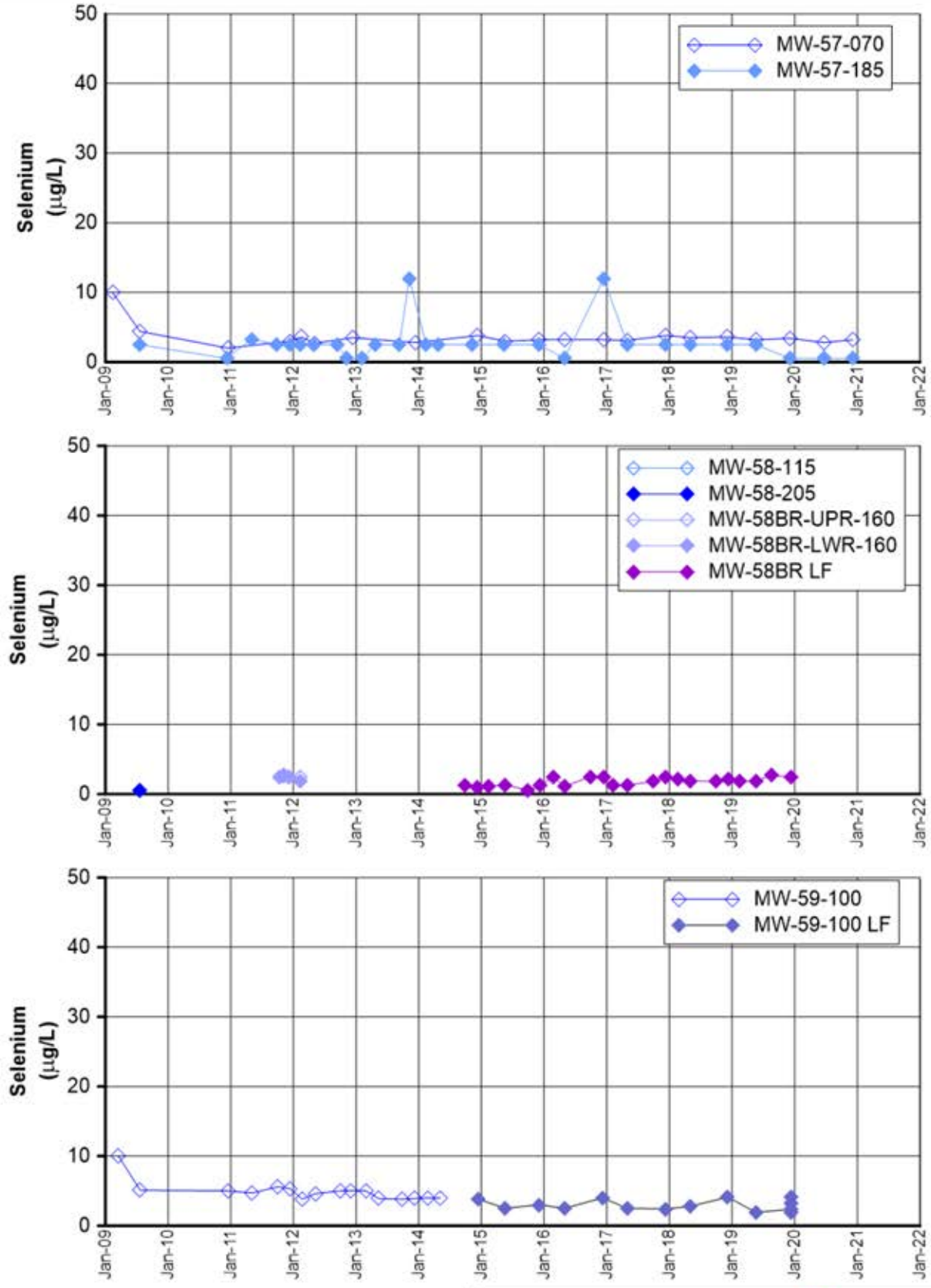

Note:

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 F-70
SELENIUM
IN MW-57 CLUSTER, MW-58 CLUSTER AND MW-59-100
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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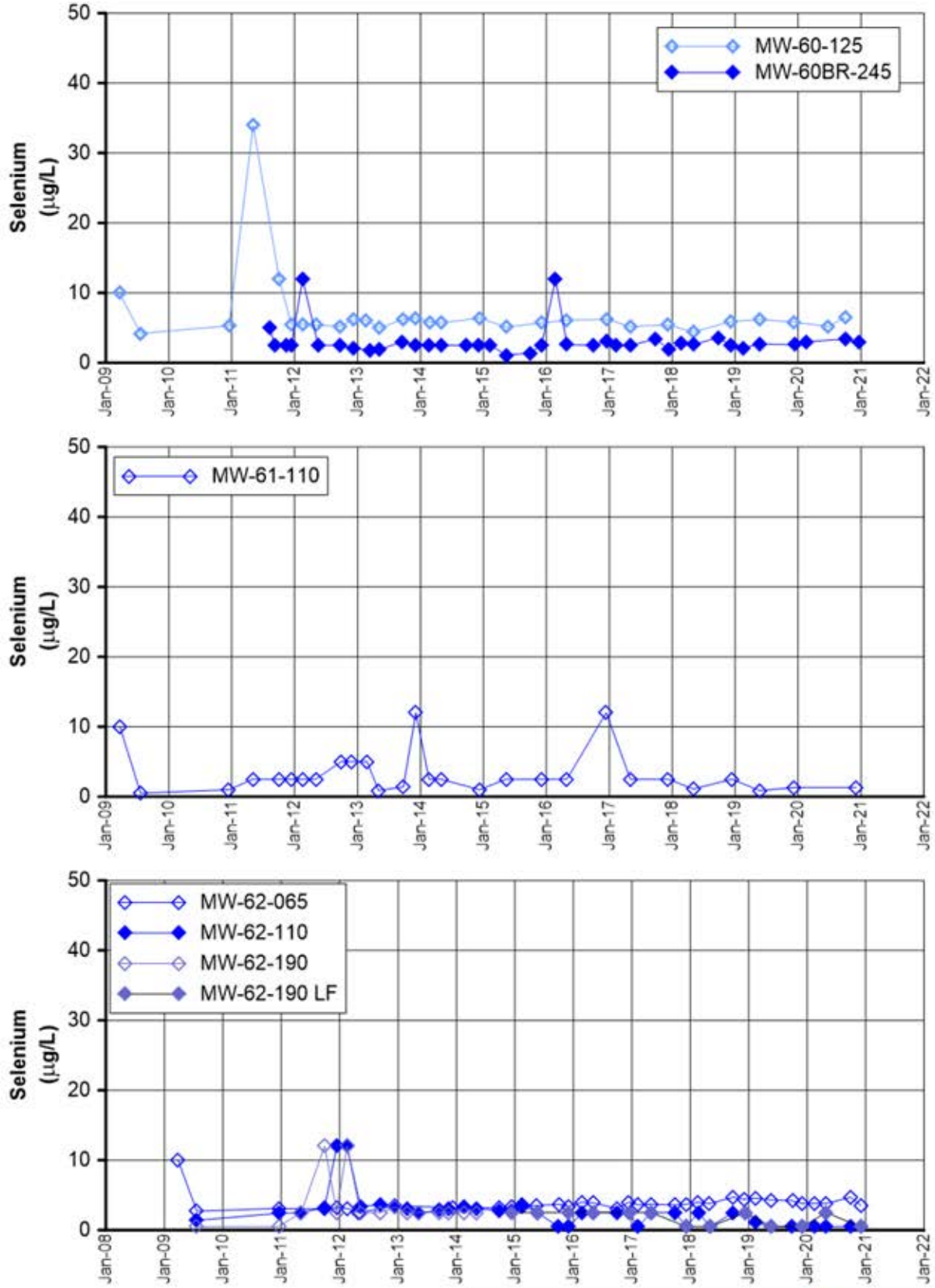

Notes:

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.

1. MW-60-125 sampled using LF method on 5/02/2017 & 12/06/2017.
2. MW-62-065 sampled using LF method on 5/02/2017, 9/25/2017, & 12/06/2017.

FIGURE F-71
SELENIUM
IN MW-60 CLUSTER, MW-61-110, AND MW-62 CLUSTER
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
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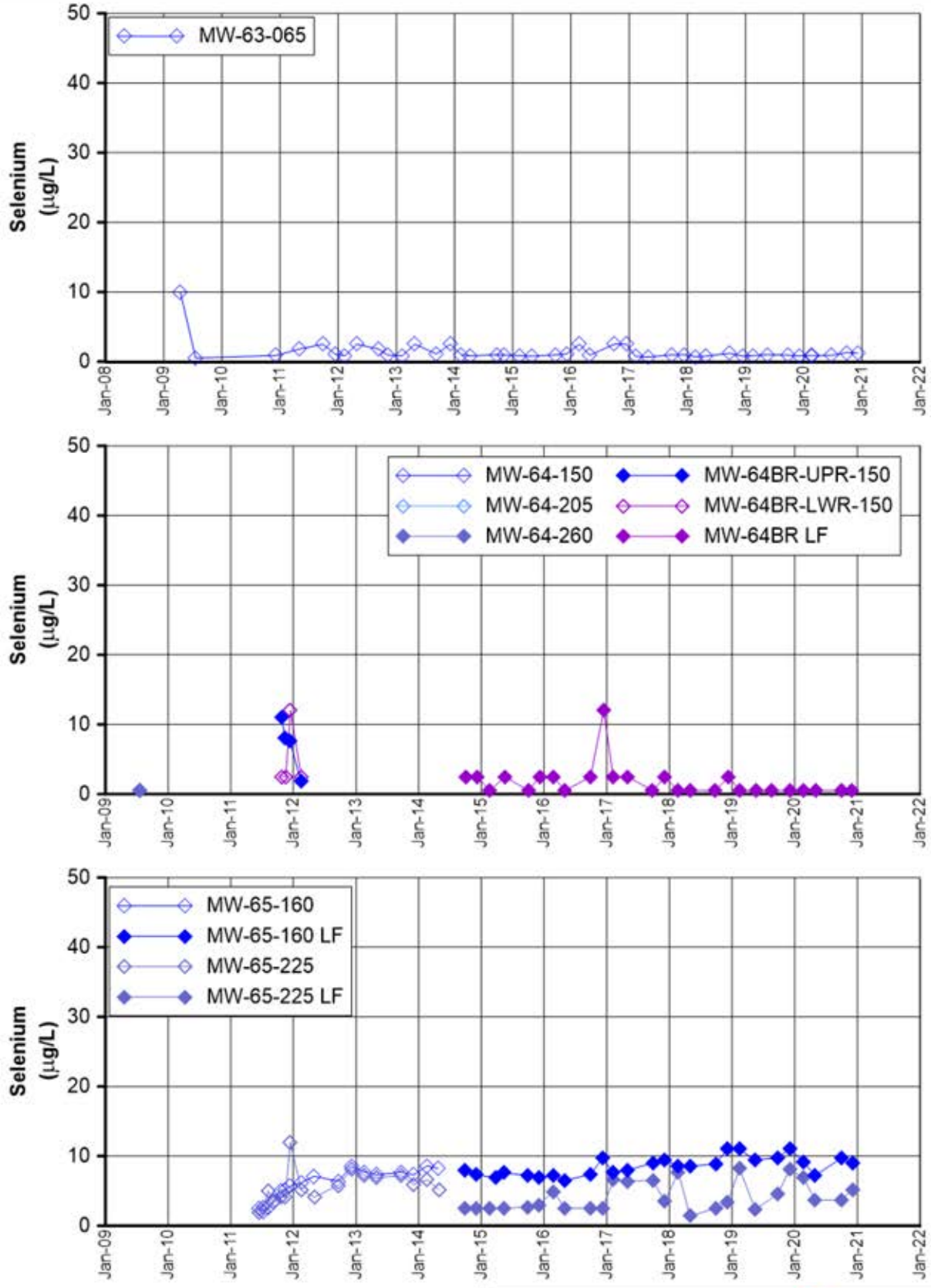

Notes:

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.

1. MW-63-065 sampled using LF method on 5/02/2017, 9/28/2017, & 12/12/2017.

FIGURE F-72
SELENIUM
IN MW-63-065, MW-64 CLUSTER AND MW-65 CLUSTER
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
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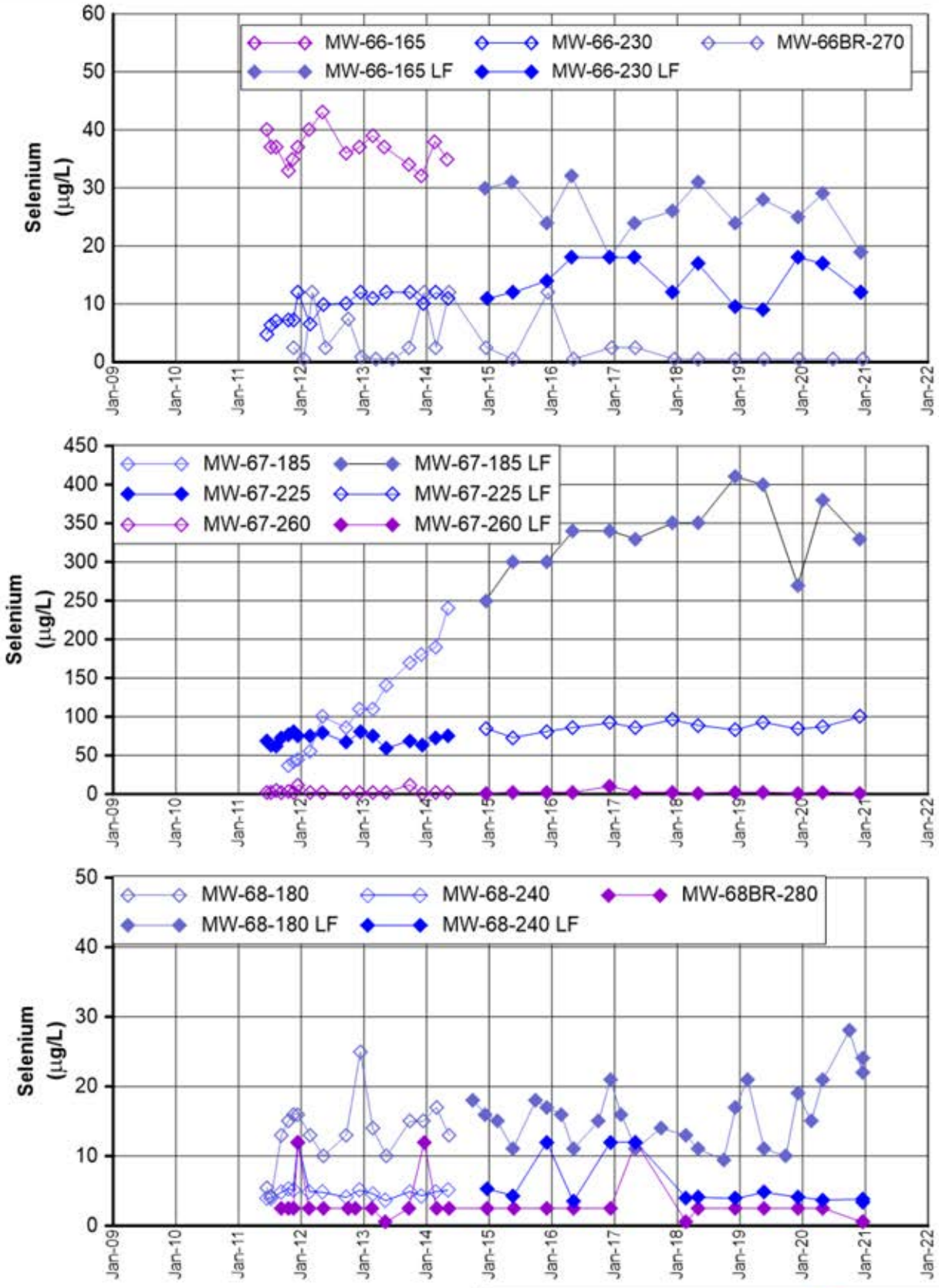

Notes:

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 F-73
SELENIUM
IN MW-66, MW-67, AND MW-68 CLUSTERS
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION,
NEEDLES, CALIFORNIA

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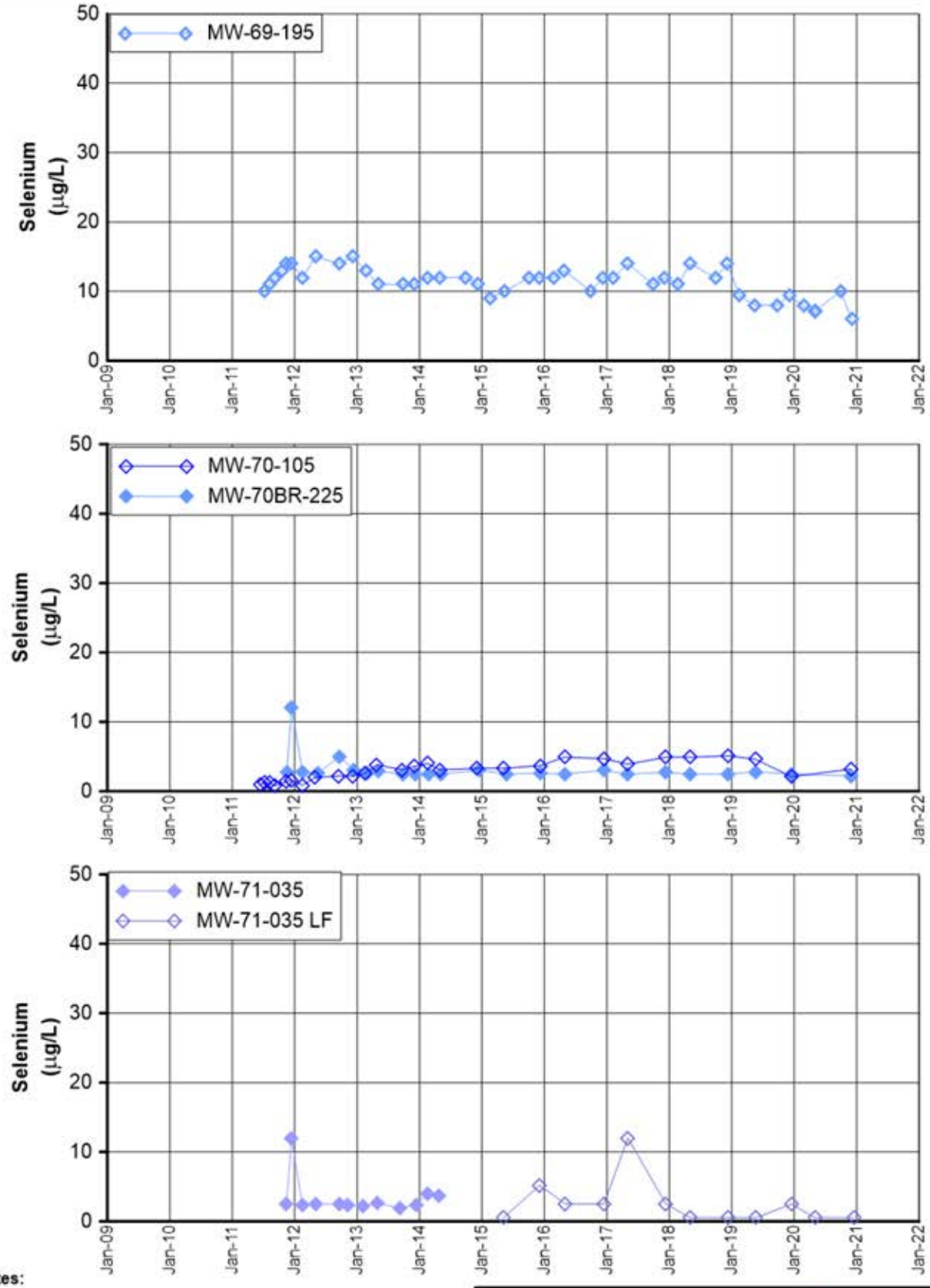

Notes:

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.

1. MW-69-195 sampled using LF method on 2/09/2017, 5/03/2017, 9/26/2017, & 12/04/2017.
2. MW-70-105 sampled using LF method on 5/02/2017 & 12/11/2017.

FIGURE F-74
SELENIUM
IN MW-69-195, THE MW-70 CLUSTER, AND MW-71-035
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
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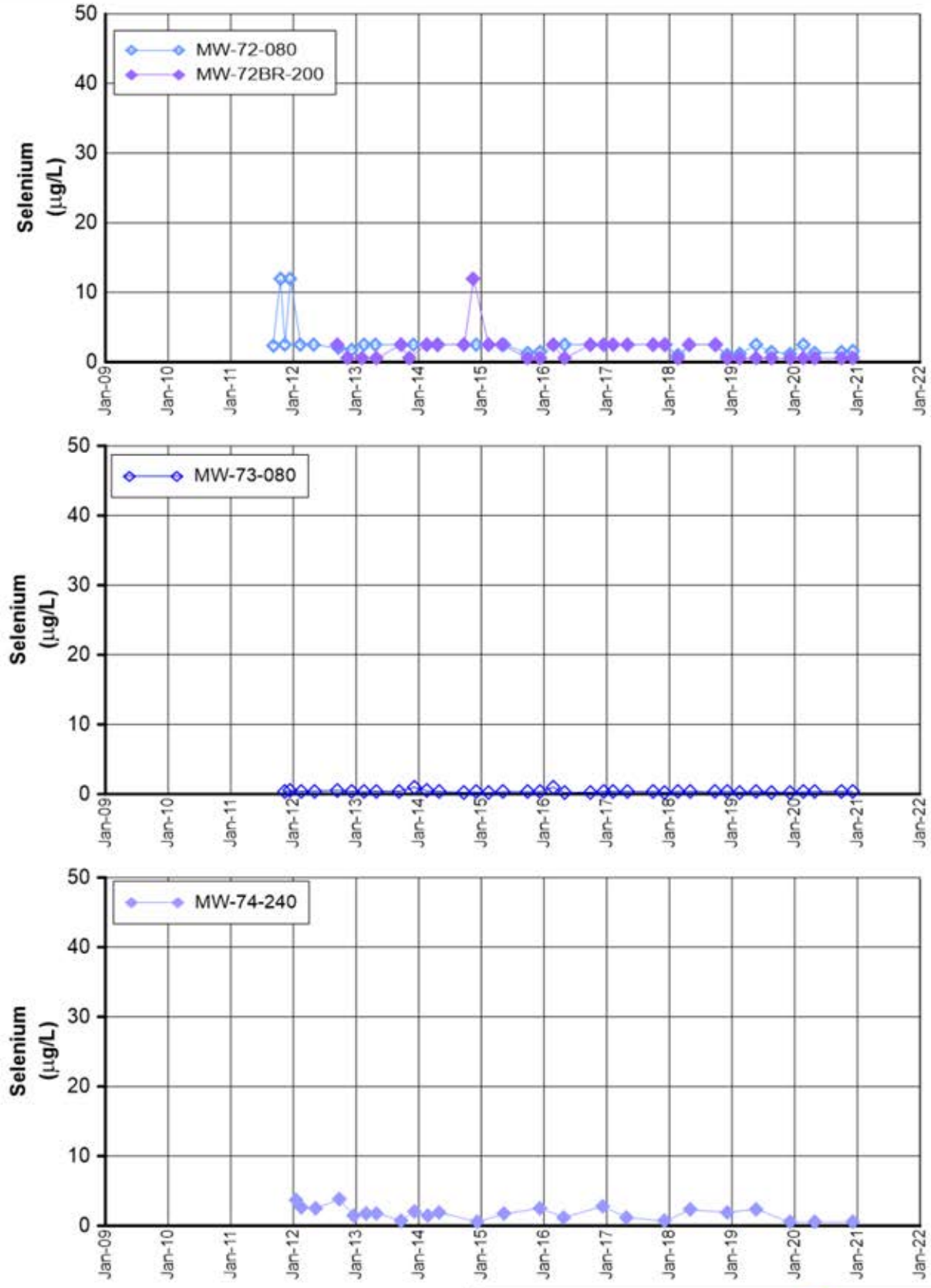

Notes:

1. MW-72-080 sampled using low flow sampling method on 5/02/2017 & 12/07/2017.
2. MW-73-080 sampled using low flow sampling method on 5/02/2017, 9/27/2017, & 12/06/2017
3. MW-74-240 sampled using low flow sampling method on 4/27/2017 & 12/06/2017.

FIGURE F-75
SELENIUM
IN MW-72 CLUSTER, MW-73-080, AND MW-74-240
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
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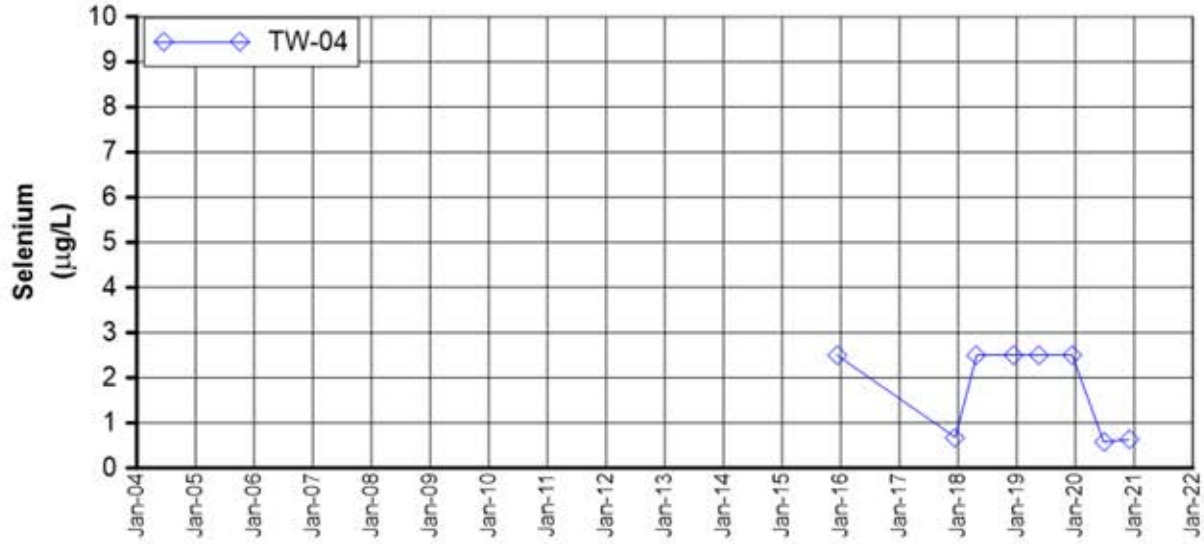

FIGURE F-76
SELENIUM
IN TW-04
FOURTH QUARTER 2020 AND ANNUAL INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
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APPENDIX G

Interim Measures Extraction System Operations Log, Fourth Quarter 2020

APPENDIX G

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

During Fourth Quarter 2020 (November through December), extraction wells TW-3D and TW-2D were operated at a target pump rate of at 135 gallons per minute, excluding periods of planned and unplanned downtime. Extraction wells TW-2S and PE-01 were not operated during Fourth 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 Measure groundwater extraction system (combined or individual pumping) was approximately 93.4 percent during Fourth Quarter 2020.

The Interim Measure Number 3 (IM-3) facility treated approximately 10,998,837 gallons of extracted groundwater during Fourth Quarter 2020. The IM-3 facility also treated approximately 32,000 gallons of injection well backwashing/re-development water, 2,200 gallons of purge water from site sampling activities, and 38,000 gallons from remedy wastewater generated from remedy well construction activities. Four 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 6.6 percent of downtime during Fourth 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.

G.1 November 2020

- **November 2, 2020 (planned):** The extraction well system was offline from 6:18 a.m. to 4:10 p.m. due to plant maintenance to install a new clarifier rake drive. Extraction system downtime was 9 hours 52 minutes.
- **November 8, 2020 (unplanned):** The extraction well system was offline from 7:54 p.m. to 8:48 p.m. due to a high-water level in the 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 54 minutes.
- **November 9, 2020 (unplanned):** The extraction well system was offline from 11:32 a.m. to 12:52 p.m. due to replacing microfilter modules. Extraction system downtime was 1 hour 20 minutes.
- **November 10-15, 2020 (unplanned):** The extraction well system was offline from 6:36 p.m. to 7:36 p.m. on November 10, 2020; from 10:46 p.m. to 11:56 p.m. on November 12, 2020; from 10:58 p.m. on November 14, 2020 to 12:06 a.m. on November 15, 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 3 hours 18 minutes.
- **November 16, 2020 (unplanned):** The extraction well system was offline from 7:46 p.m. to 10:14 p.m. due to replacing microfilter modules. Extraction system downtime was 2 hours 28 minutes.
- **November 17-19, 2020 (unplanned):** The extraction well system was offline from 7:14 p.m. to 10:18 p.m. on November 17, 2020; and from 10:42 p.m. to 11:56 p.m. on November 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 2 hours 18 minutes.

- **November 20, 2020 (unplanned):** The extraction well system was offline from 4:02 p.m. to 9:34 p.m. due to a City of Needles power outage that caused the motor to fail at TW-3D. Extraction was switched to TW-2D. Extraction system downtime was 5 hours 32 minutes.
- **November 21-22, 2020 (unplanned):** The extraction well system was offline from 10:28 p.m. on November 20, 2020 to 7:00 p.m. on November 21, 2020; from 7:06 p.m. to 8:16 p.m.; from 8:18 p.m. to 8:32 p.m.; from 8:36 p.m. to 8:48 p.m.; and from 9:08 p.m. to 9:20 p.m. on November 21, 2020 due to TW-2D shutting down. Operators investigated the cause and troubleshooted. TW-2D continued to fail. The motor at TW-3D was replaced and it was eventually brought back online. Extraction system downtime was 22 hours 20 minutes.
- **November 22-24, 2020 (unplanned):** The extraction well system was offline from 4:54 p.m. to 5:42 p.m. on November 22, 2020; and from 12:44 a.m. to 1:36 a.m. on November 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 1 hours 40 minutes.
- **November 25, 2020 (planned):** The extraction well system was offline from 5:36 a.m. to 6:36 a.m. to replace a level sensor in the Microfilter Feed Tank (T-500). Extraction system downtime was 1 hour.

G.2 December 2020

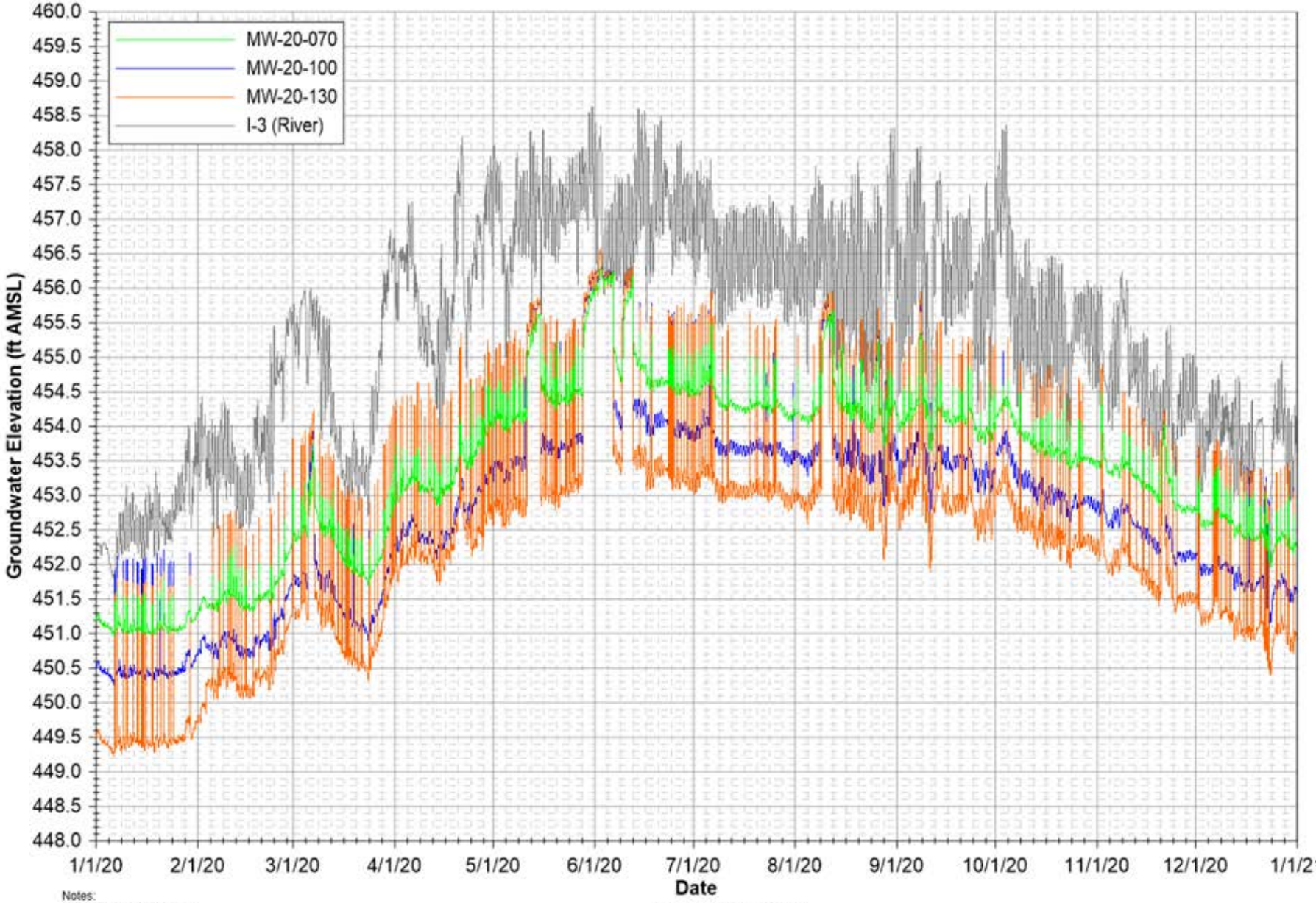
- **December 1, 2020 (unplanned):** The extraction well system was offline from 11:16 a.m. to 11:44 a.m.; from 11:46 a.m. to 11:52 a.m.; from 11:54 a.m. to 11:58 a.m.; 12:28 p.m. to 12:32 p.m.; 12:42 p.m. to 12:44 p.m. due to TW-3D failing due to electrical components in the Motor Control Center (MCC) enclosure (bucket) for TW-3D. Extraction system downtime was 44 minutes.
- **December 1, 2020 (unplanned):** The extraction well system was offline from 7:14 p.m. to 8:48 p.m. due to replacing microfilter modules. Extraction system downtime was 1 hour 34 minutes.
- **December 1, 2020 (unplanned):** The extraction well system was offline from 9:40 p.m. to 9:44 p.m.; from 10:06 p.m. to 10:12 p.m.; and from 11:48 p.m. to 11:58 p.m.; due to TW-3D failing due to electrical components in the MCC bucket for TW-3D. Extraction system downtime was 20 minutes.
- **December 2, 2020 (unplanned):** The extraction well system was offline from 12:58 a.m. to 2:00 a.m. and from 2:06 a.m. to 2:30 a.m. due to a high-water level in the Raw Water Storage Tank (T-100) and due to TW-3D failing due to electrical components in the MCC bucket for TW-3D. The operator shut down extraction so the tank could drain below the high-level alarm setpoint. Extraction system downtime was 1 hour 26 minutes.
- **December 6, 2020 (planned):** The extraction well system was offline from 11:32 a.m. to 11:42 a.m. and from 11:46 a.m. to 2:46 p.m. to process wastewater (22,000 gallons between December 6 and December 7) generated from remedy well construction activities. Extraction system downtime was 3 hours 10 minutes.
- **December 6-7, 2020 (unplanned):** The extraction well system was offline from 7:54 p.m. to 9:12 p.m. December 6 and from 5:16 a.m. to 6:46 a.m. on December 7 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.
- **December 7, 2020 (unplanned):** The extraction well system was offline from 3:36 p.m. to 6:14 p.m. due to replacing microfilter modules. Extraction system downtime was 2 hours 38 minutes.
- **December 8-9, 2020 (unplanned):** The extraction well system was offline from 6:40 p.m. to 8:20 p.m. on December 8; and from 8:34 p.m. to 9:22 p.m. on December 9 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 28 minutes.

- **December 10, 2020 (unplanned):** The extraction well system was offline from 11:24 a.m. to 12:26 p.m. due to the Raw Water Feed Pump (P-200) failing. Pump was replaced and extraction system downtime was 1 hour 2 minutes.
- **December 11, 2020 (unplanned):** The extraction well system was offline from 11:56 a.m. to 12:40 p.m. due to replacing the check valve of P-200. Extraction system downtime was 44 minutes.
- **December 11, 2020 (unplanned):** The extraction well system was offline from 2:36 p.m. to 3:46 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 10 minutes.
- **December 14, 2020 (planned):** The extraction well system was offline from 12:02 p.m. to 12:36 p.m. due testing of the pipeline critical alarms and leak detection system. Extraction system downtime was 34 minutes.
- **December 15, 2020 (unplanned):** The extraction well system was offline from 1:36 p.m. to 2:44 p.m. to change the belts on the blower and due to working on the electrical components in the MCC bucket for TW-3D. Extraction system downtime was 1 hour 8 minutes.
- **December 16, 2020 (unplanned):** The extraction well system was offline from 2:36 p.m. to 4:38 p.m. to check the tension on the belts on the blower and 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 2 minutes.
- **December 16, 2020 (unplanned):** The extraction well system was offline from 4:40 p.m. to 5:02 p.m. because the FV 100 valve of the T-100 tank was stuck in the closed position. The valve was reset and opened. Extraction system downtime was 22 minutes.
- **December 17, 2020 (unplanned):** The extraction well system was offline from 2:34 p.m. to 3:52 p.m. because a leak was found at clarifier feed pump, P-400. The P-400 discharge piping flange failed and was replaced; the leak was contained in secondary containment. Extraction system downtime was 1 hour 18 minutes.
- **December 18, 2020 (unplanned):** The extraction well system was offline from 11:04 a.m. to 2:28 p.m. due to replacing microfilter modules. Extraction system downtime was 3 hours 24 minutes.
- **December 18, 2020 (unplanned):** The extraction system was offline from 4:26 p.m. to 4:30 p.m. because the power supply to the HMI failed and shutdown extraction. Power was restored and extraction restarted. Extraction system downtime was 4 minutes.
- **December 20-22, 2020 (unplanned):** The extraction well system was offline from 8:58 p.m. to 9:46 p.m. on December 20, 2020; and from 2:18 a.m. to 3:08 a.m. on December 22, 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 1 hour 38 minutes.
- **December 22, 2020 (unplanned):** The extraction well system was offline from 8:00 a.m. to 1:50 p.m. because of an acid feed problem that caused a blockage. The plant was kept in recirculation until the blockage was cleared and extraction restarted. Extraction system downtime was 5 hours 50 minutes.
- **December 22-23, 2020 (unplanned):** The extraction well system was offline from 11:54 p.m. on December 22, 2020 to 12:44 a.m. on December 23, 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 50 minutes.
- **December 23, 2020 (unplanned):** The extraction well system was offline from 11:54 a.m. to 1:12 p.m. due to replacing microfilter modules. Extraction system downtime was 1 hour 18 minutes.

- **December 23, 2020 (unplanned):** The extraction well system was offline from 7:38 p.m. to 7:46 p.m. due to a City of Needles power outage. Extraction system downtime was 8 minutes.
- **December 25-28, 2020 (unplanned):** The extraction well system was offline from 3:22 p.m. to 4:22 p.m. on December 25, 2020; from 12:22 a.m. to 1:10 a.m. on December 27, 2020; and from 2:26 a.m. to 3:18 a.m. on December 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 40 minutes.
- **December 29, 2020 (unplanned):** The extraction well system was offline from 4:34 a.m. to 9:22 a.m. because there was a high pH at the reverse osmosis unit. The plant was kept in recirculation while the pH was fixed by adjusting the pumping rate of the acid. Extraction system downtime was 4 hours 48 minutes.
- **December 30, 2020 (unplanned):** The extraction well system was offline from 9:58 p.m. to 11:06 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 8 minutes.
- **December 31, 2020 (unplanned):** The extraction system was offline from 1:44 a.m. to 1:46 a.m. due to a PLC and HMI connectivity issue. Extraction system downtime was 2 minutes.

APPENDIX H

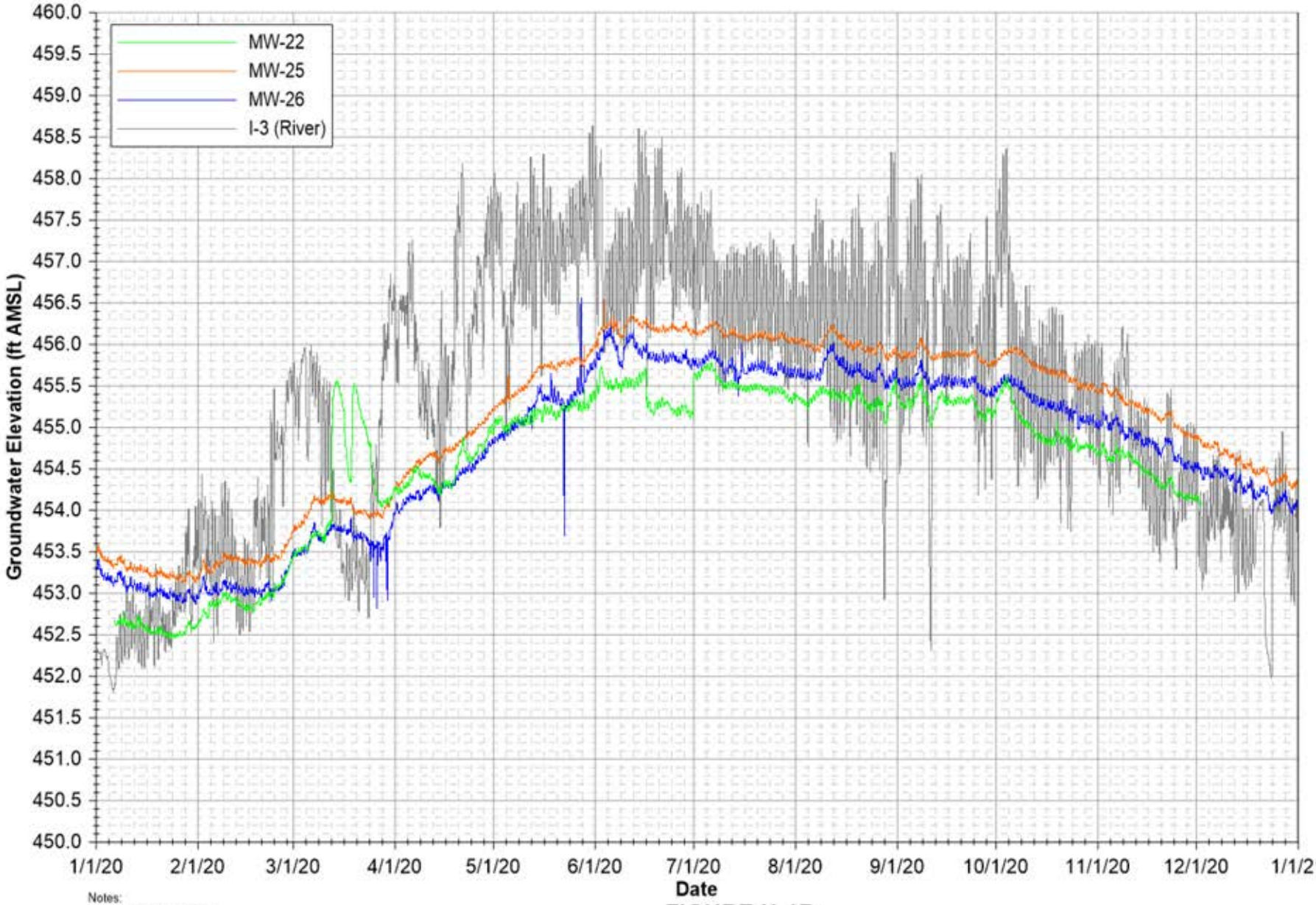
Hydrographs, Fourth Quarter 2020



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

FIGURE H-1A
MW-20 CLUSTER HYDROGRAPHS
FOURTH 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-22 data unavailable from Decemeber 2, 2020 through Decemeber 31, 2020 due to transducer malfunction.

FIGURE H-1B

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

FOURTH 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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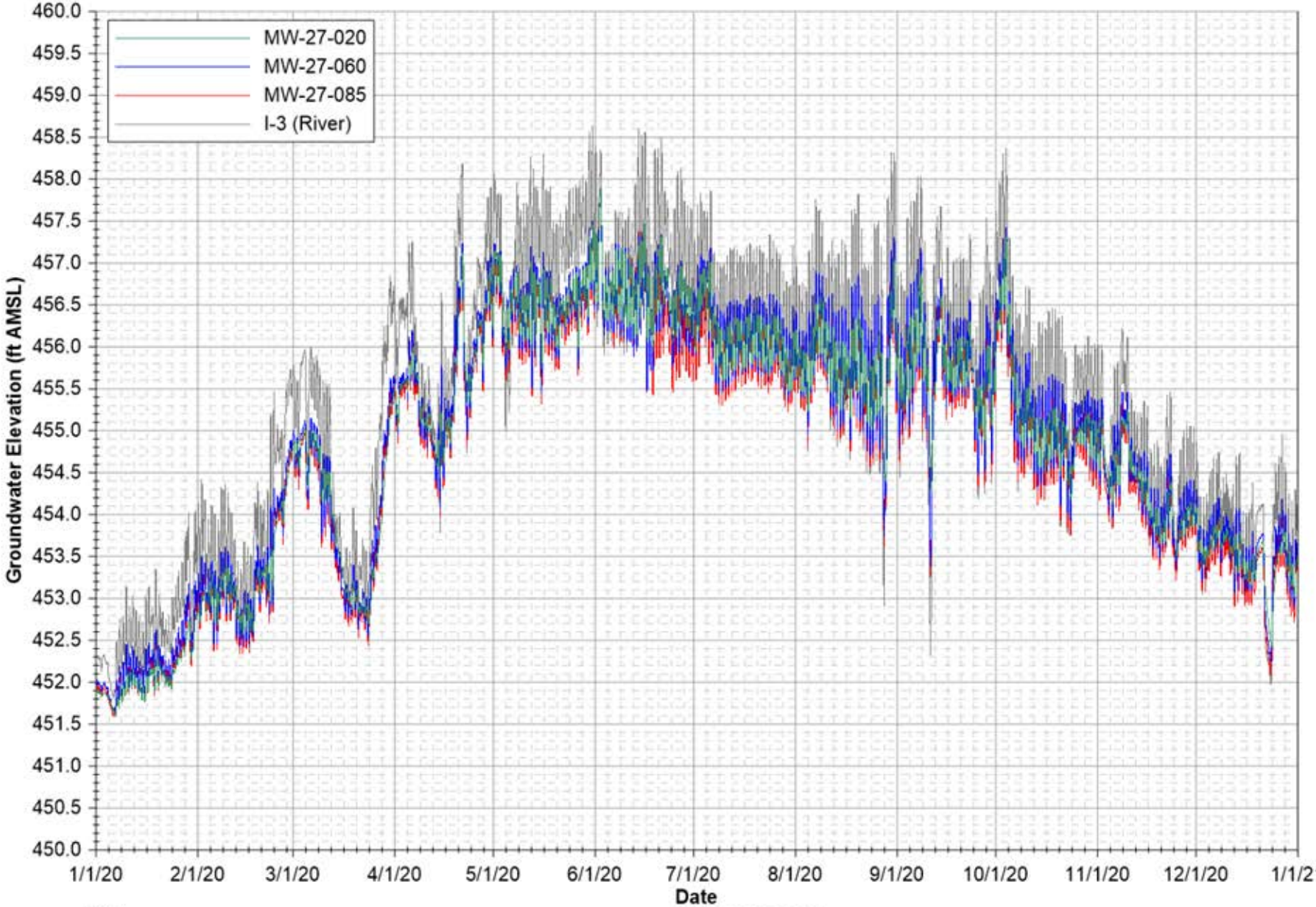


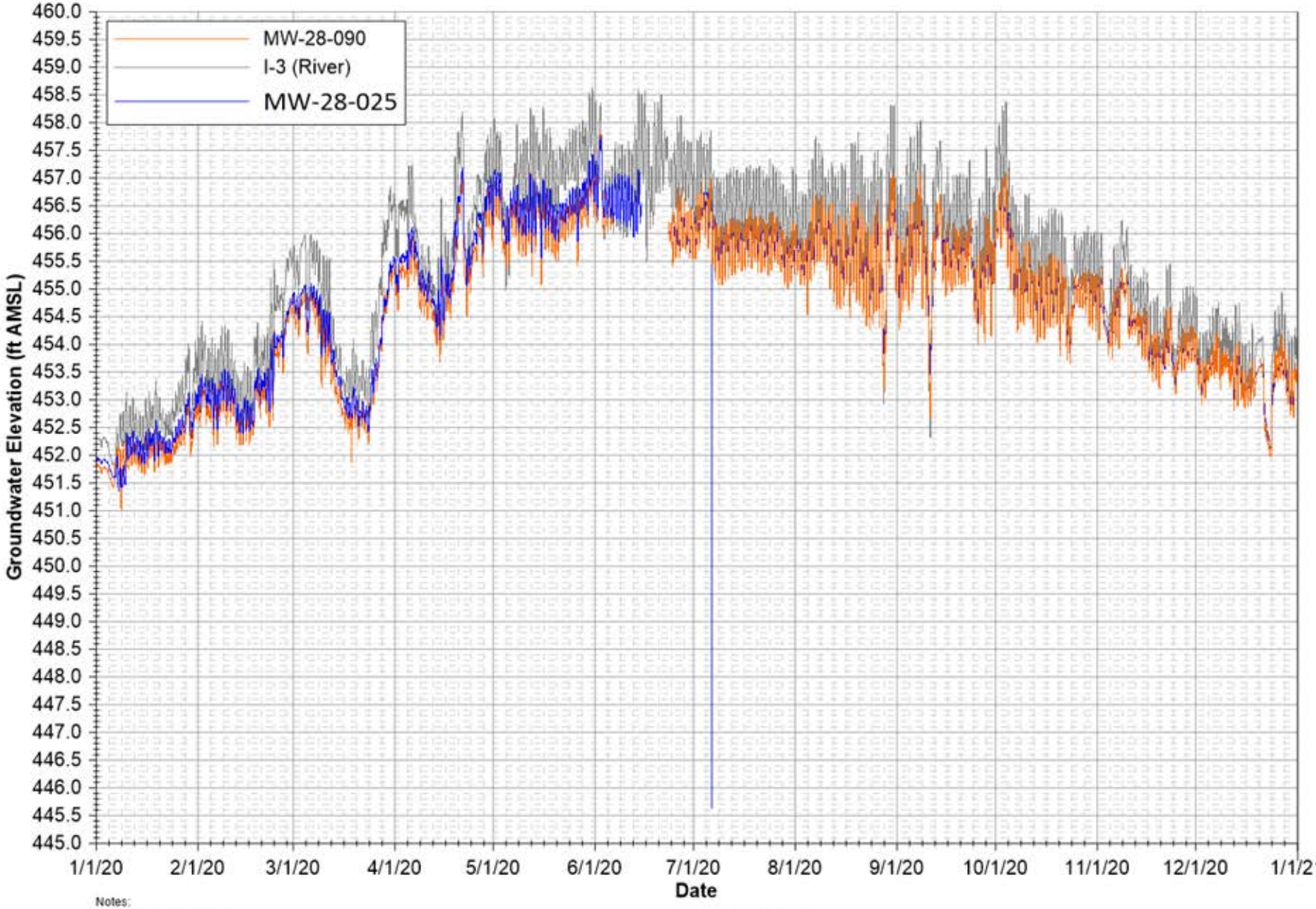
Notes:
1. Data subject to review.
2. ft AMSL = feet above mean sea level

FIGURE H-1C

MW-27 CLUSTER HYDROGRAPHS

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

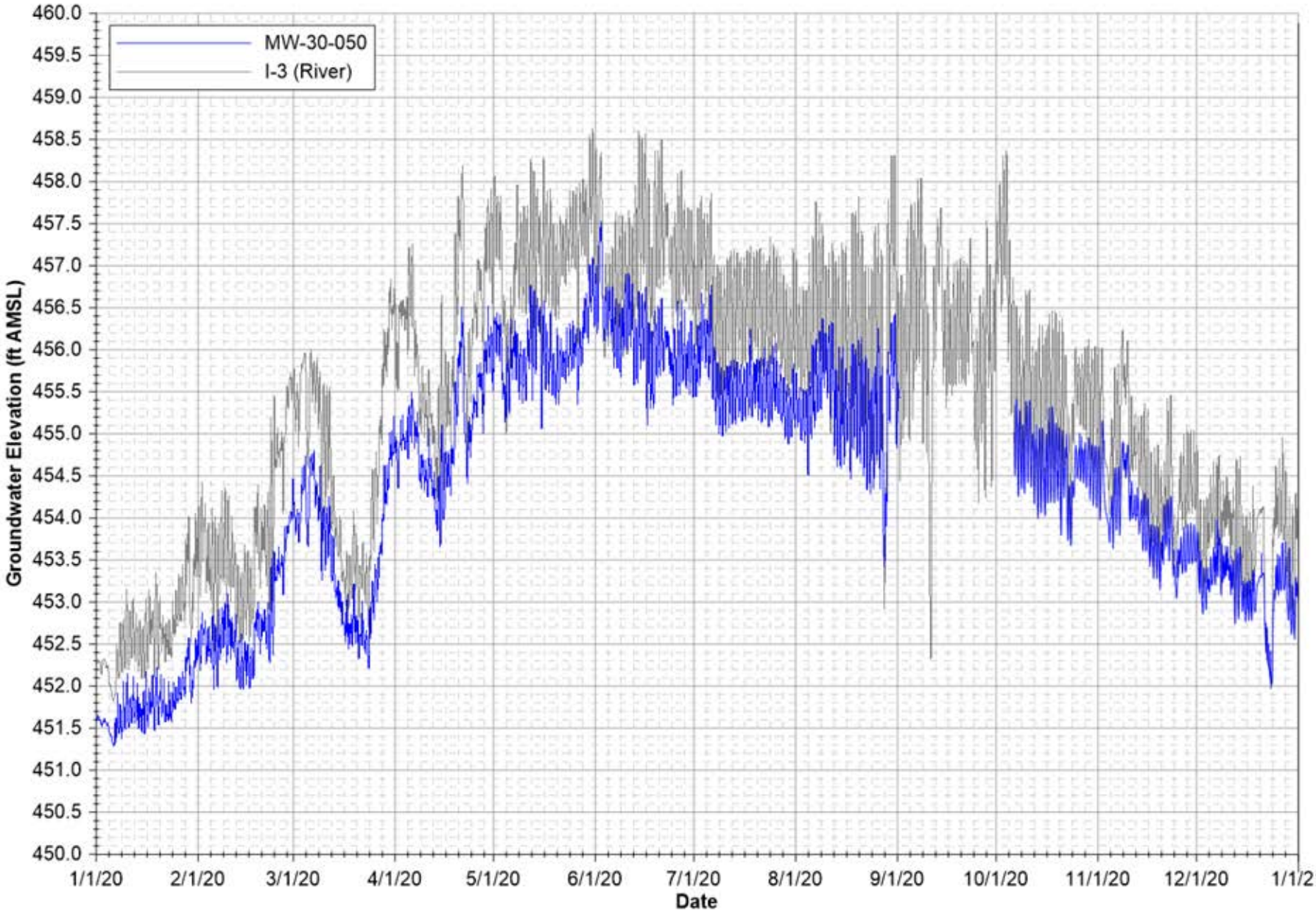
ARCADIS



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

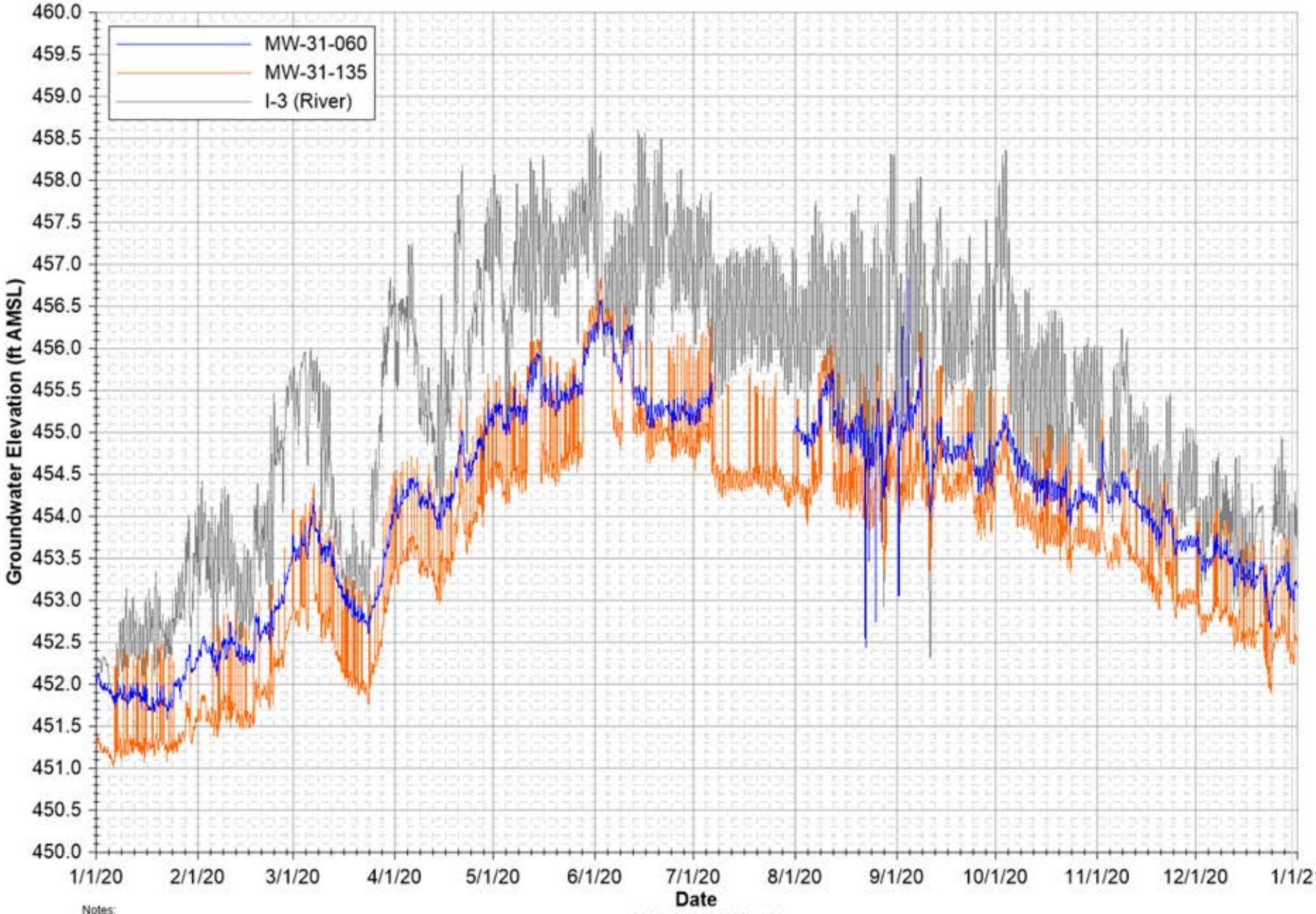
ARCADIS



Notes:
1. Data subject to review.
2. ft AMSL = feet above mean sea level.
3. MW-30-050 data unavailable from September 1, 2020 through October 6, 2020 due to transducer malfunction.

FIGURE H-1E
MW-30-050 HYDROGRAPH
FOURTH 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-31-060 data unavailale from 7/7/20 through 8/1/2020 due to transducer malfunction.

FIGURE H-1F
MW-31 CLUSTER HYDROGRAPHS
FOURTH 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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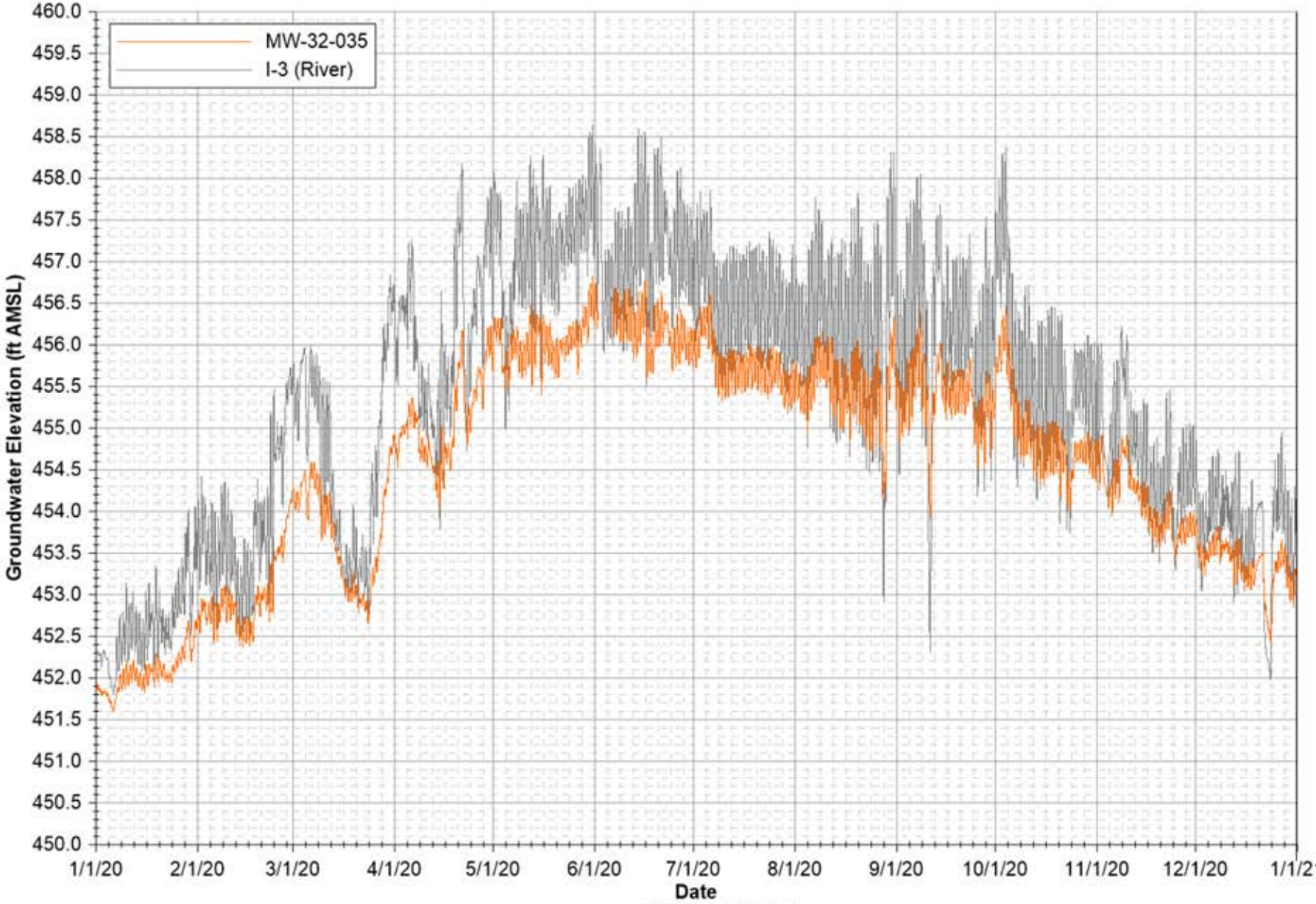
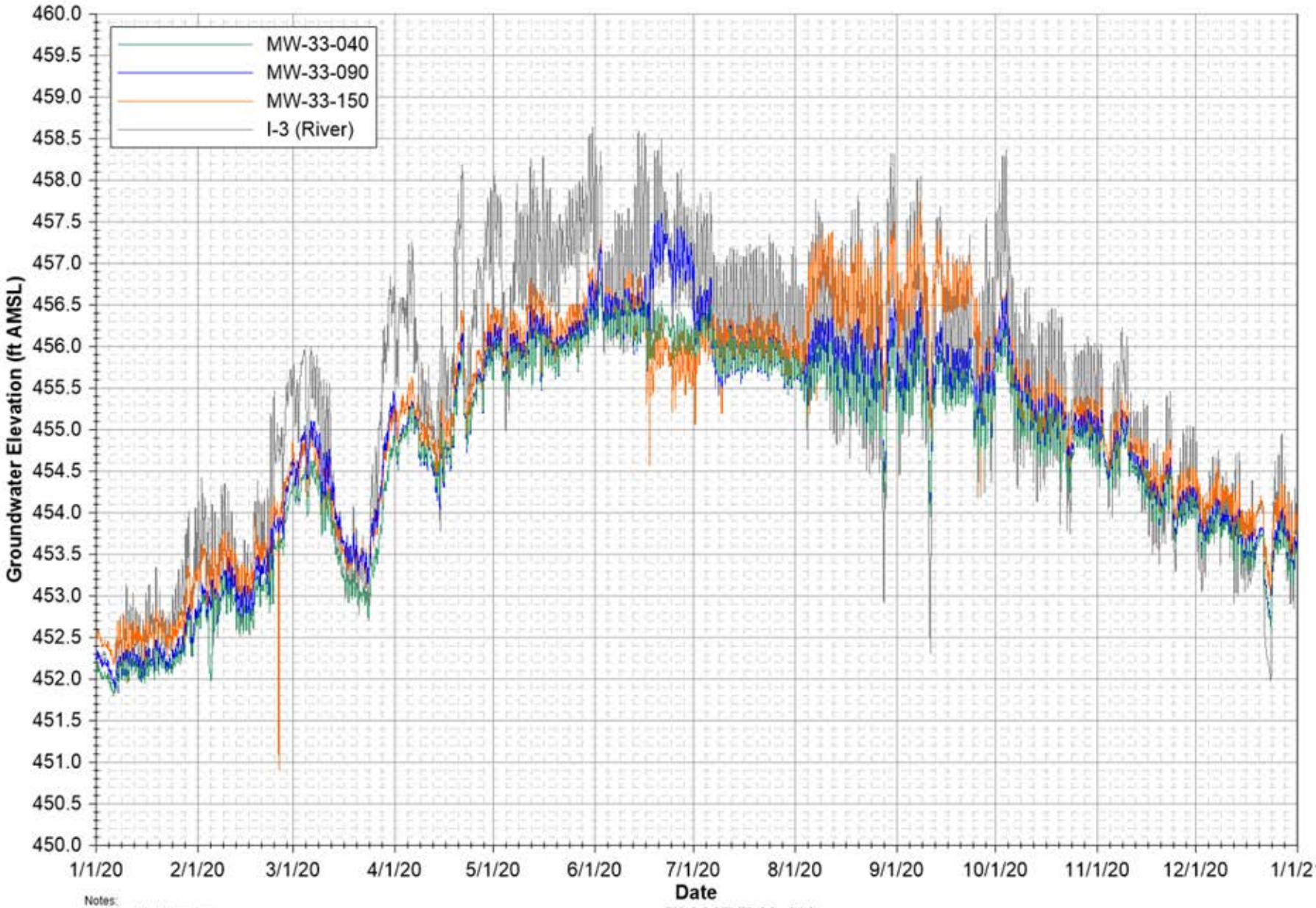


Notes:
1. Data subject to review.
2. ft AMSL = feet above mean sea level.
3. MW-32-035 data unavailable from June 2, 2020 through June 6, 2020 due to transducer malfunction.

FIGURE H-1G
MW-32 HYDROGRAPH
FOURTH QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

ARCADIS



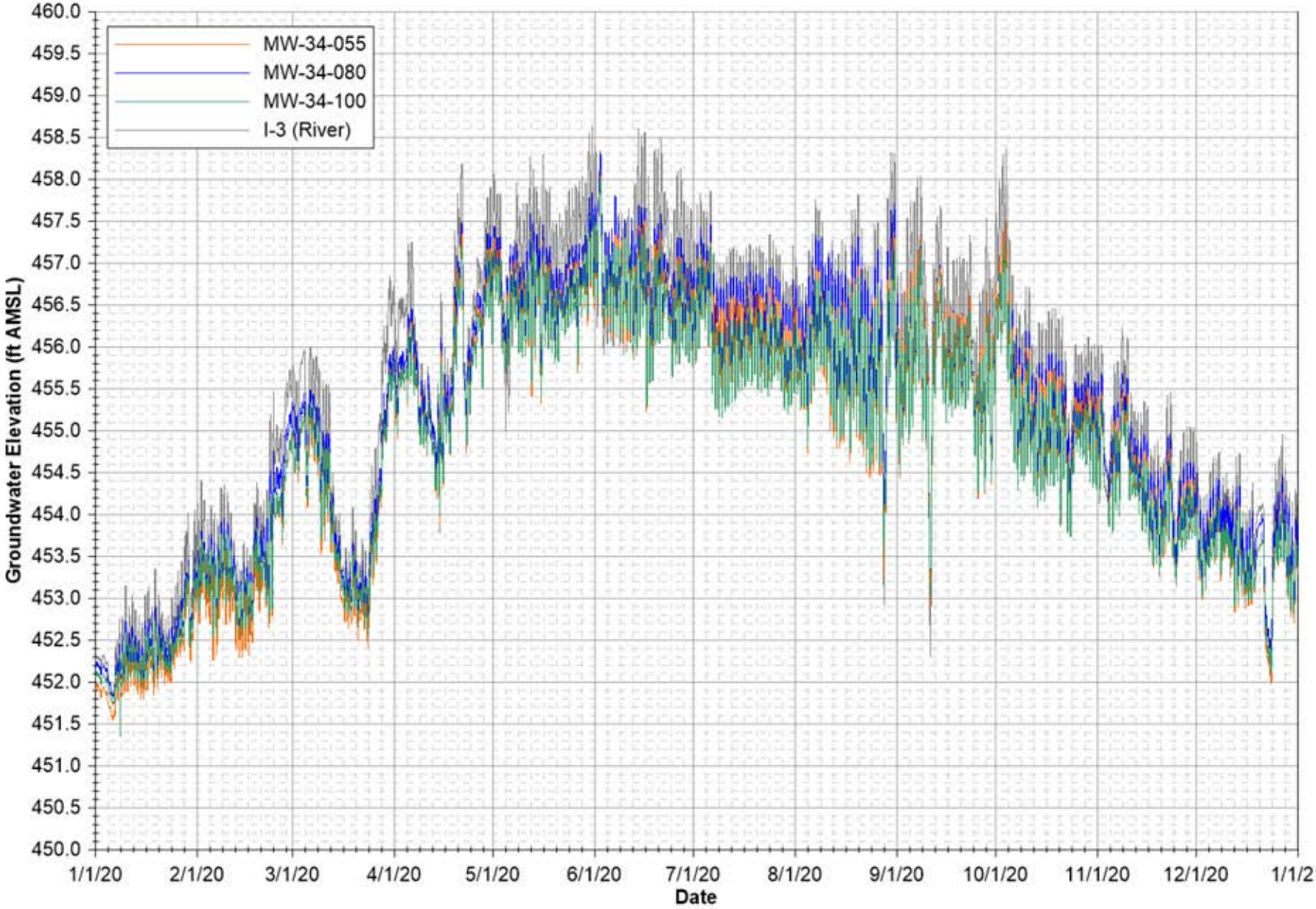
Notes:
1. Data subject to review.
2. ft AMSL = feet above mean sea level.

FIGURE H-1H

MW-33 CLUSTER HYDROGRAPHS

FOURTH 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 H-1I
MW-34 CLUSTER HYDROGRAPHS
FOURTH 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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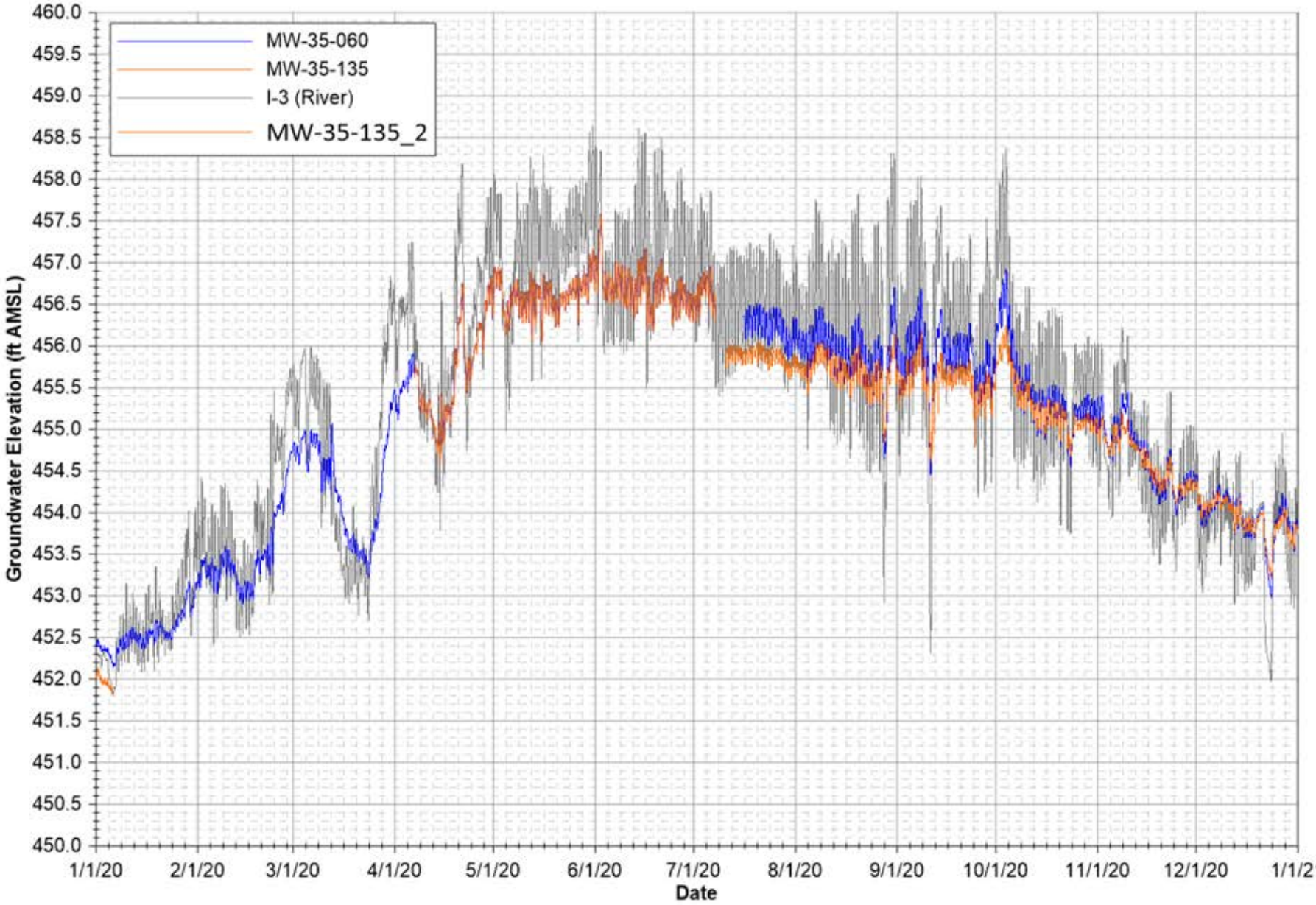
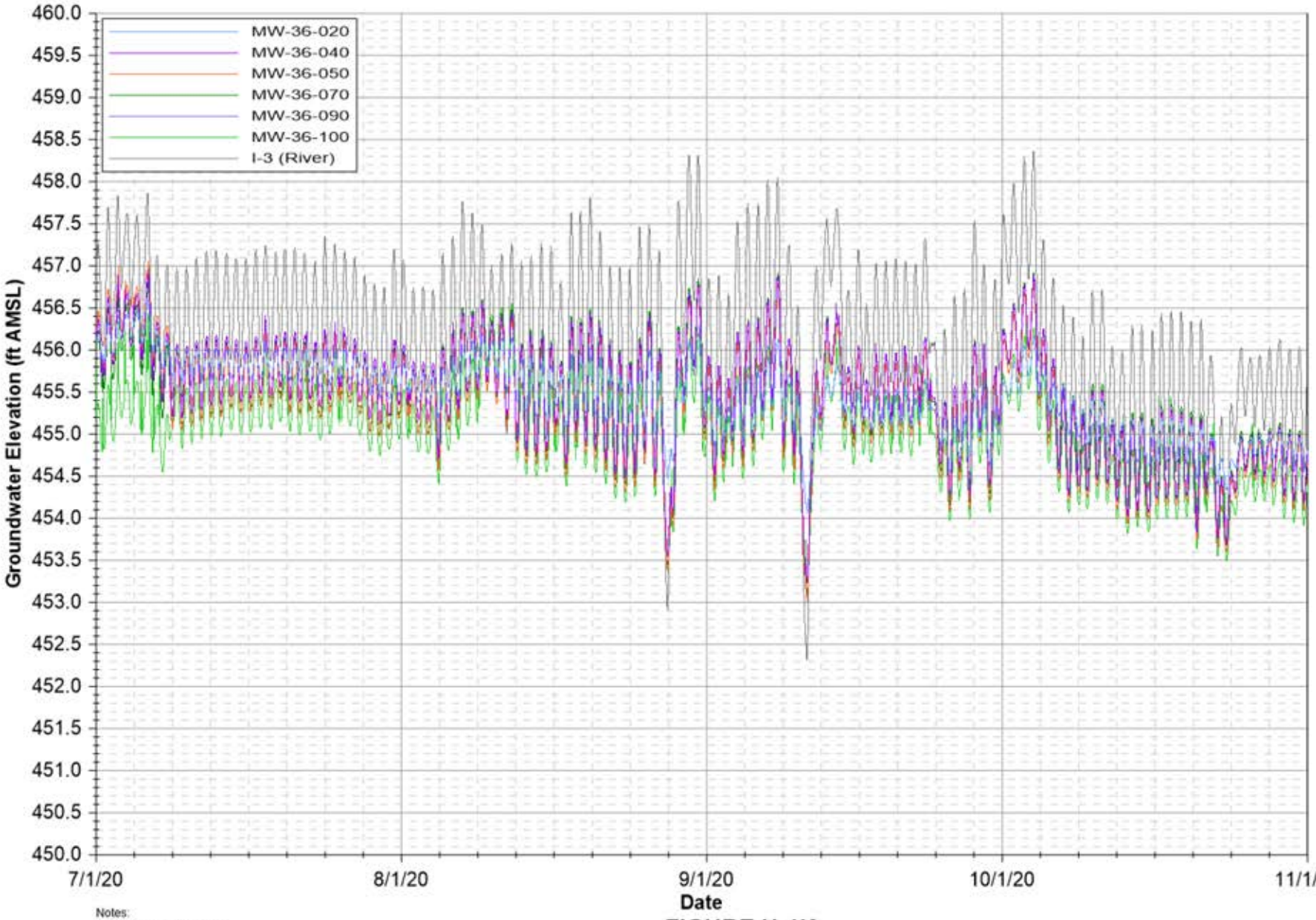


Notes:
1. Data subject to review.
2. ft AMSL = feet above mean sea level.
3. MW-35-060 data unavailable from July 8, 2020 through July 16, 2020 due to transducer malfunction.
4. MW-35-135 data unavailable from January 7, 2020 through April 7, 2020 and July 7, 2020 through July 10, 2020 due to transducer malfunction.

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

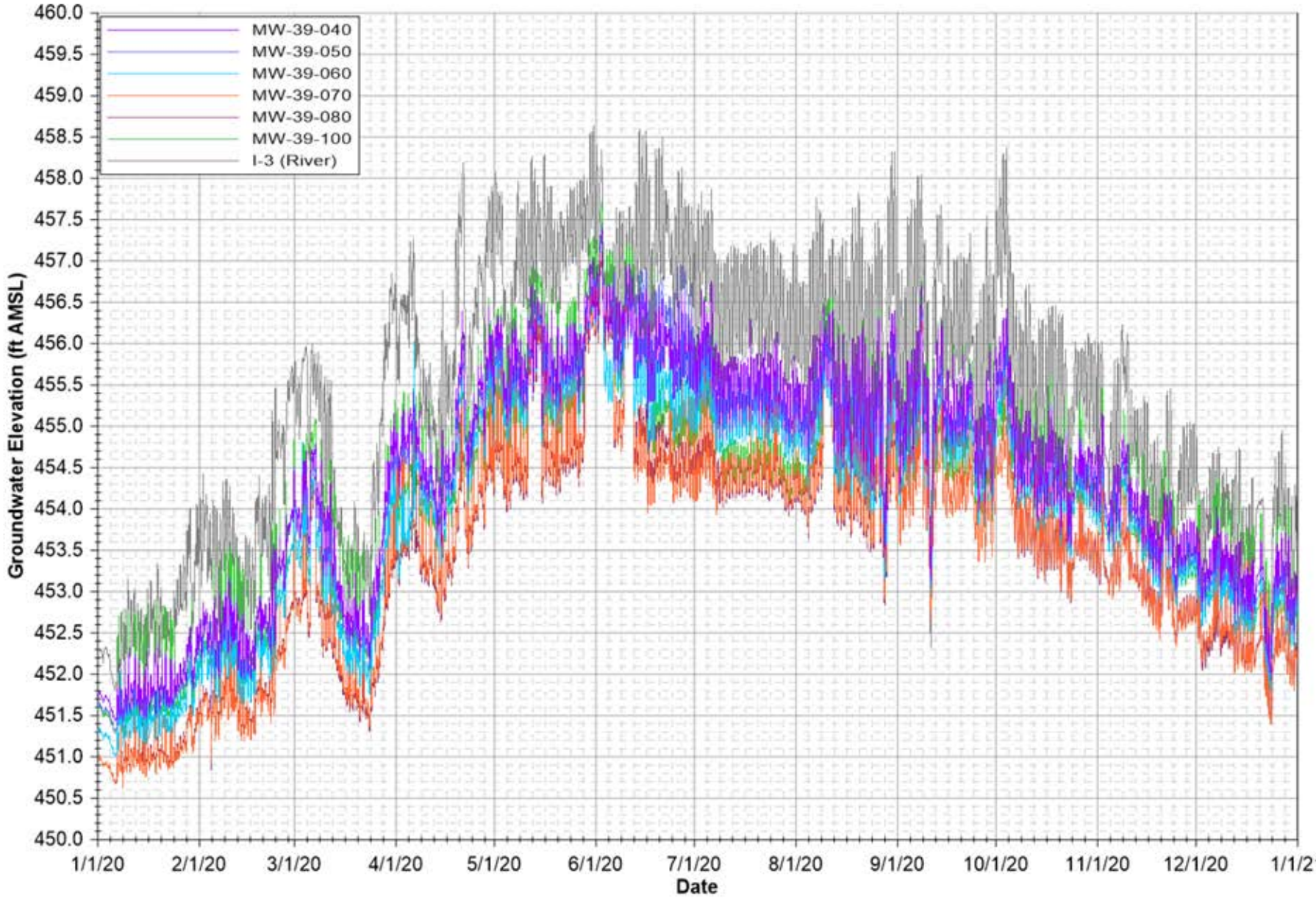
ARCADIS



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

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

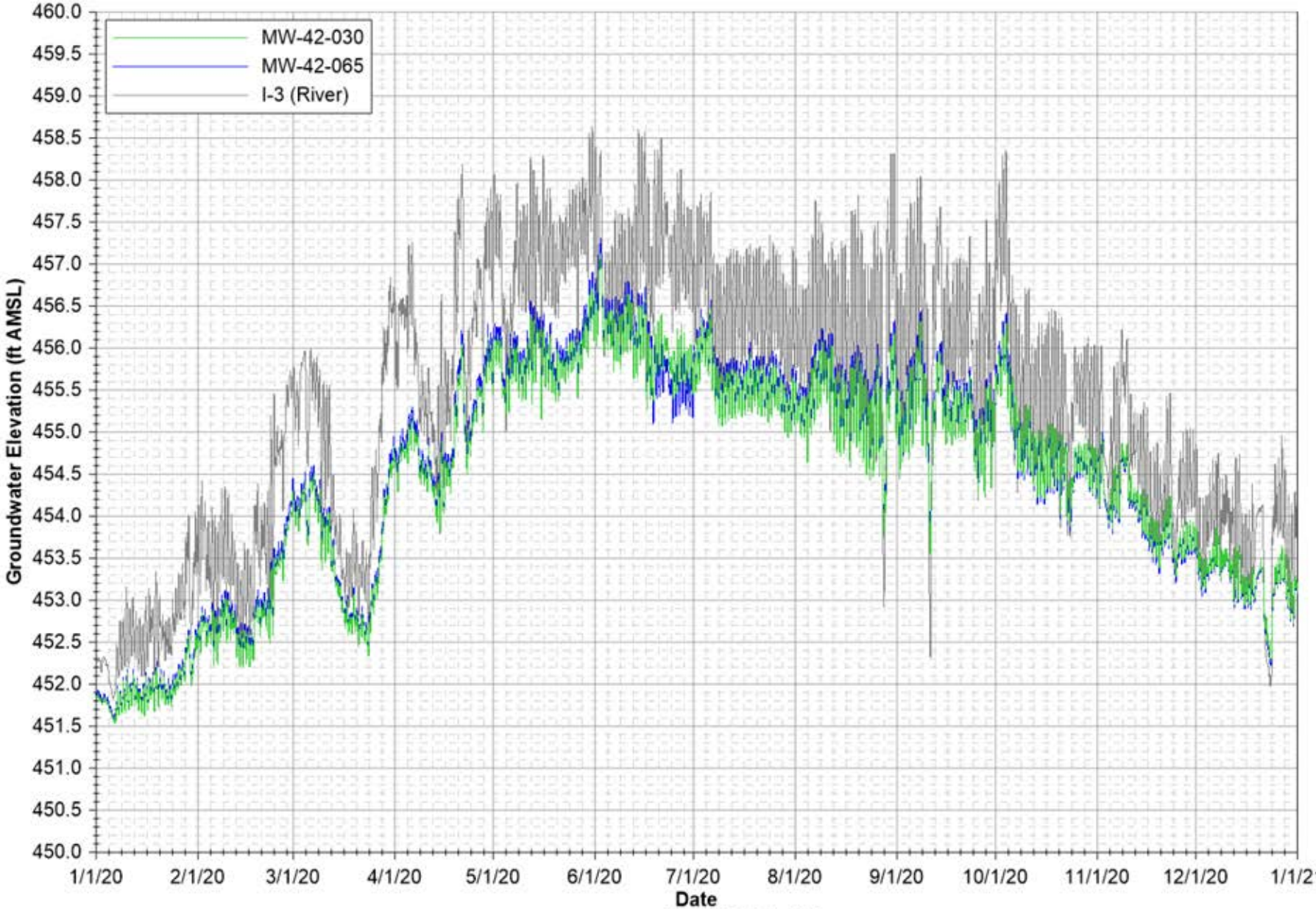
ARCADIS



Notes:
1. Data subject to review.
2. ft AMSL = feet above mean sea level.
3. MW-39-080 data unavailable from August 31, 2020 through October 6, 2020 due to transducer malfunction.

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

ARCADIS



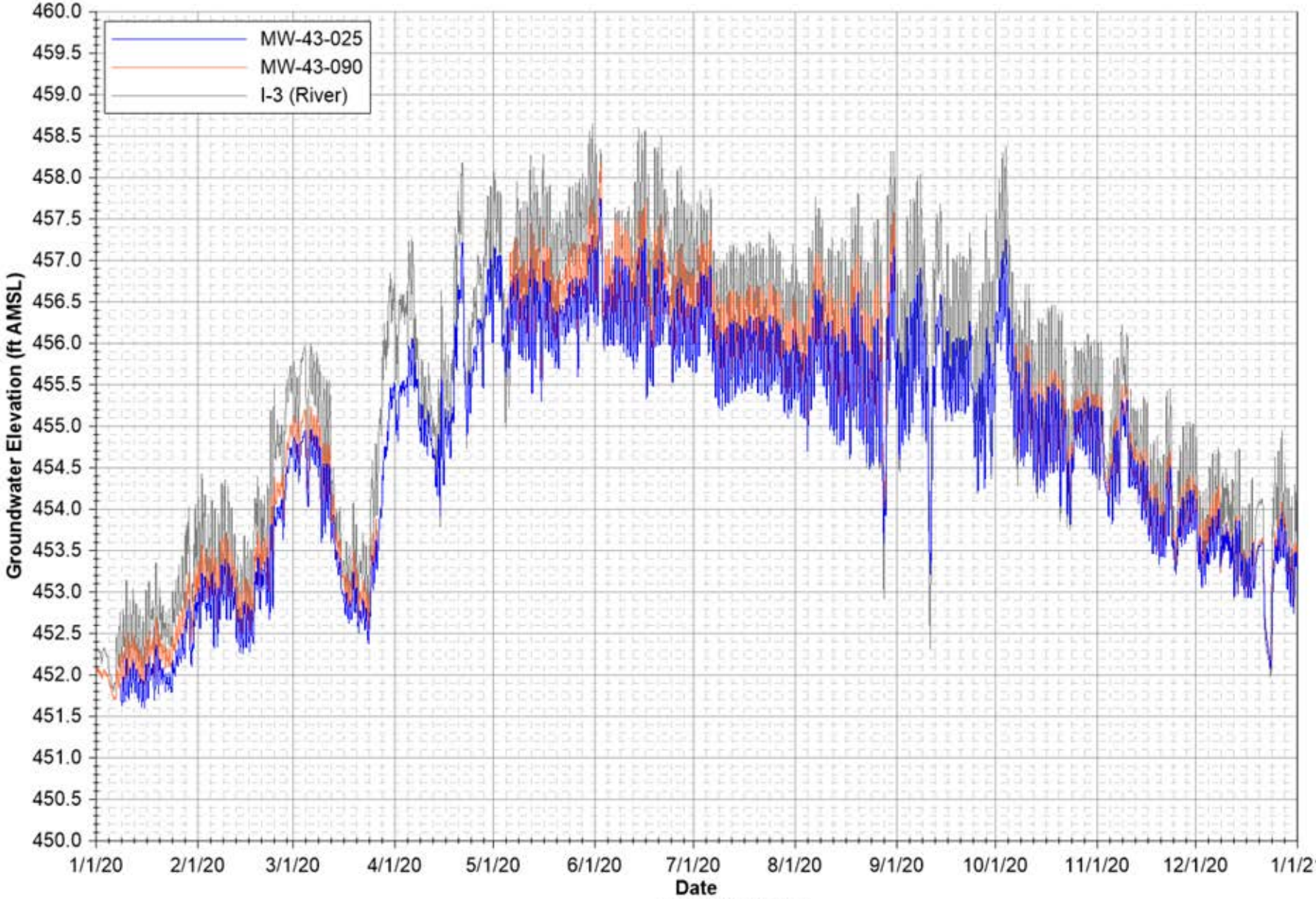
Notes:
1. Data subject to review.
2. ft AMSL = feet above mean sea level.

FIGURE H-1M

MW-42 CLUSTER HYDROGRAPHS

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

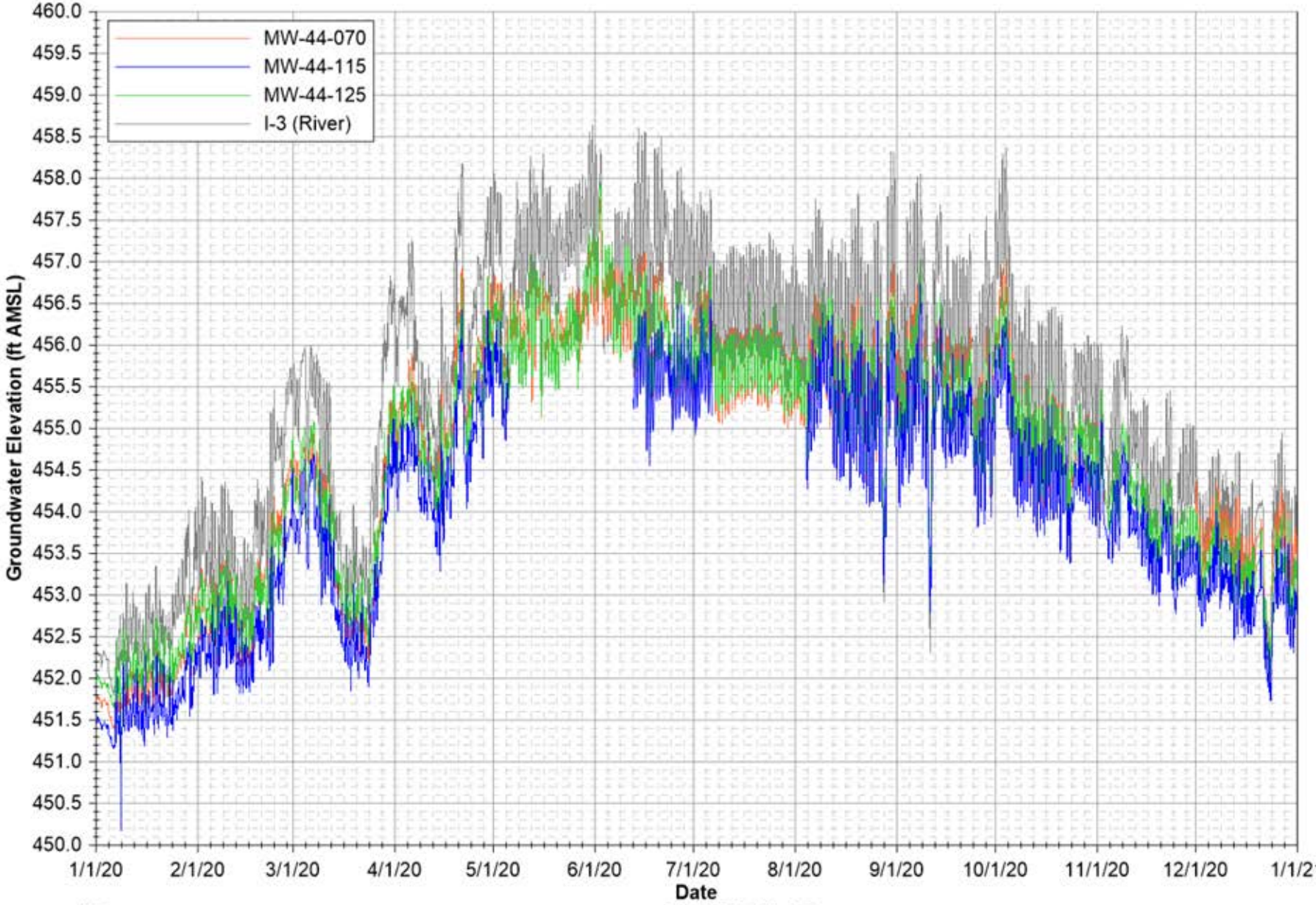
ARCADIS



Notes:
1. Data subject to review.
2. ft AMSL = feet above mean sea level.
3. MW-43-090 data unavailable from March 27, 2020 through May 5, 2020 and August 31, 2020 through October 6, 2020 due to transducer malfunction.

FIGURE H-1N
MW-43 CLUSTER HYDROGRAPHS
FOURTH QUARTER 2020 INTERIM MEASURES PERFORMANCE MONITORING AND SITE-WIDE GROUNDWATER AND SURFACE WATER MONITORING REPORT,
PG&E TOPOCK COMPRESSOR STATION, NEEDLES, CALIFORNIA

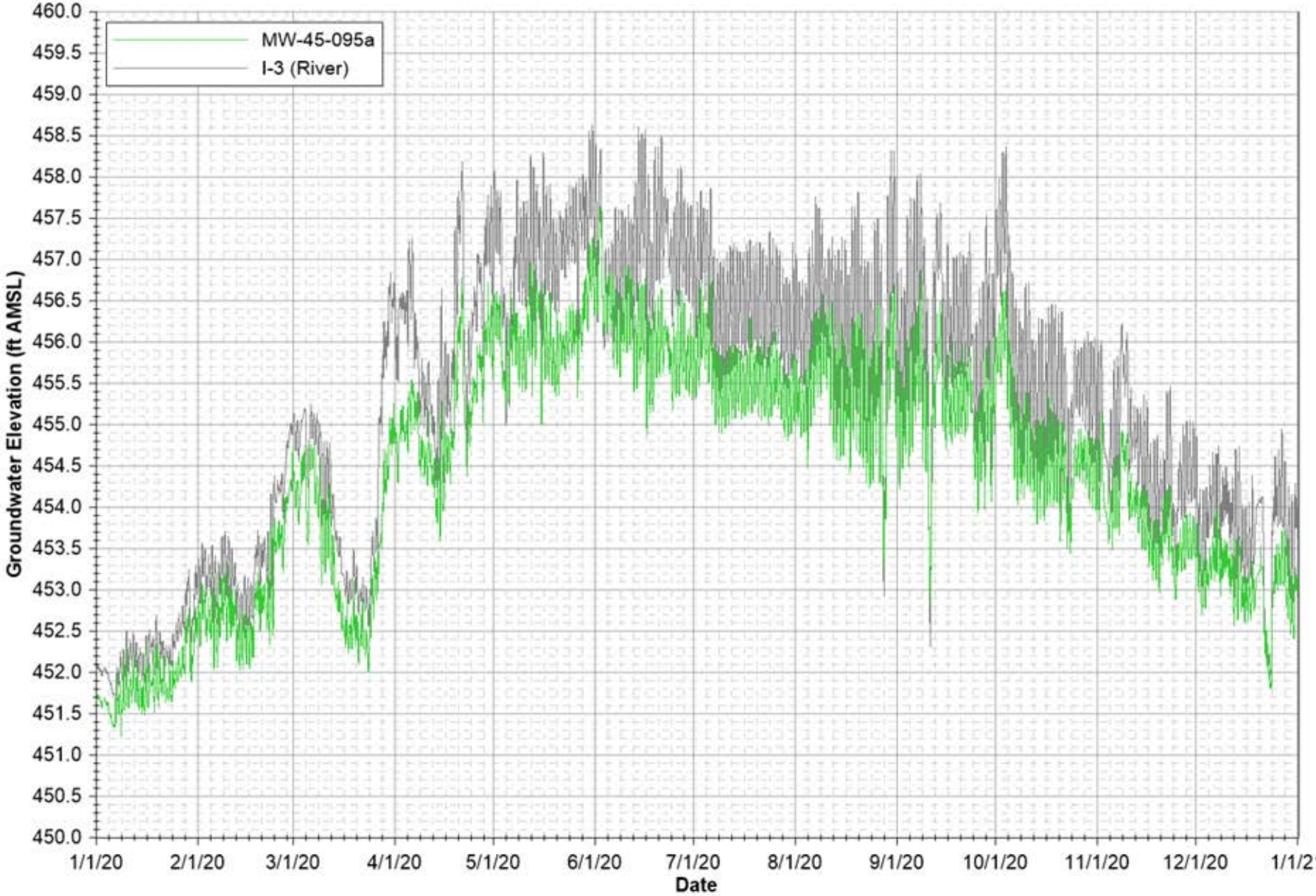
ARCADIS



Notes:
1. Data subject to review.
2. ft AMSL = feet above mean sea level.
3. MW-44-070 data unavailable from November 3, 2020 through December 1, 2020 due to transducer malfunction.
4. MW-44-115 data unavailable from May 5, 2020 through June 12, 2020 and from July 6, 2020 through August 4, 2020 due to transducer malfunction.

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

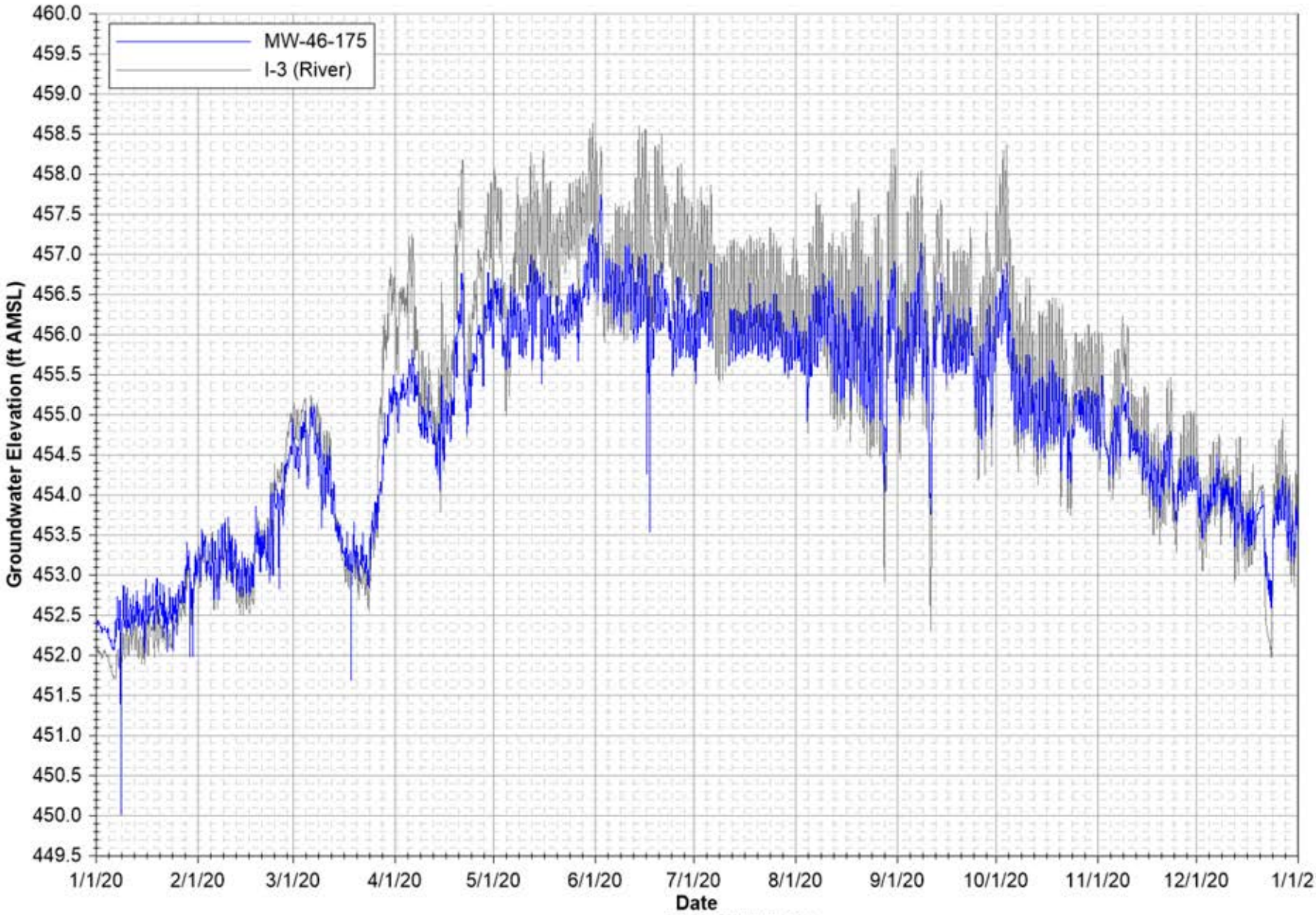
ARCADIS



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

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

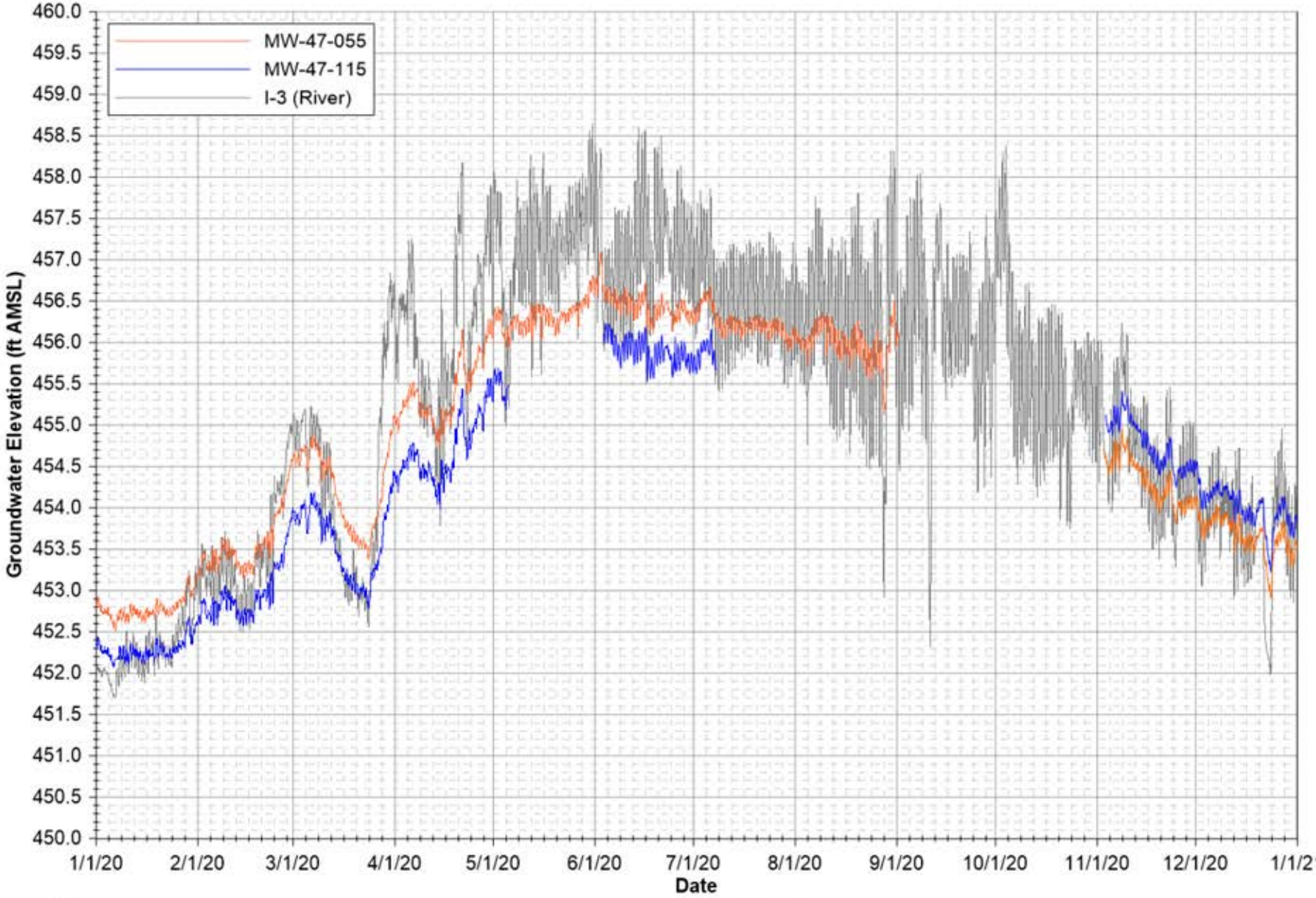
ARCADIS



Notes:
1. Data subject to review.
2. ft AMSL = feet above mean sea level.
3. MW-46-175 data unavailable from July 6, 2020 through July 11, 2020 due to transducer malfunction.

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

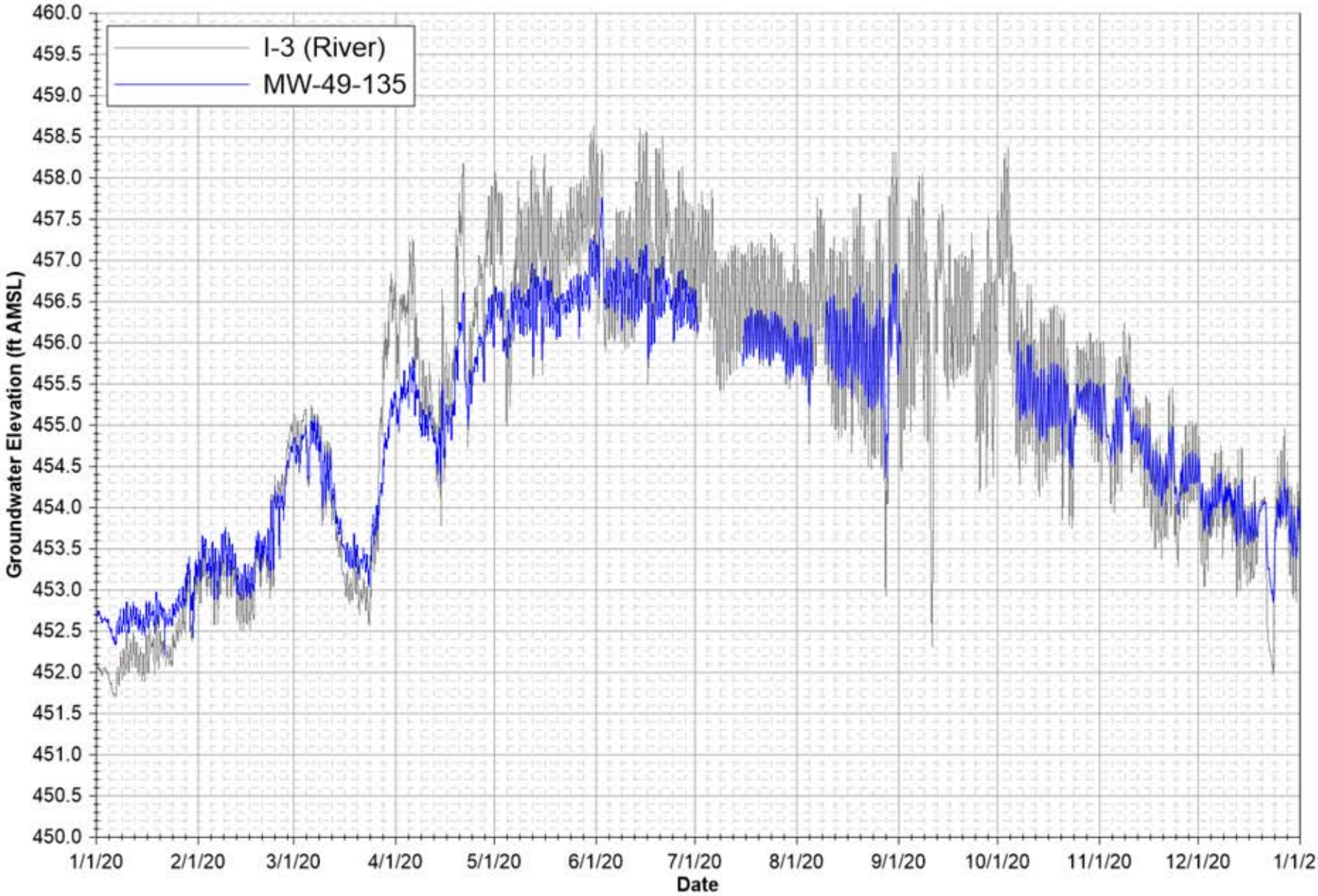
ARCADIS



Notes:
1. Data subject to review.
2. ft AMSL = feet above mean sea level.
3. MW-47-55 data unavailable from September 1, 2020 through November 3, 2020 due to transducer malfunction.
3. MW-47-115 data unavailable from May 5, 2020 through June 3, 2020 and from July 7, 2020 through September 29, 2020 due to transducer malfunction.

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

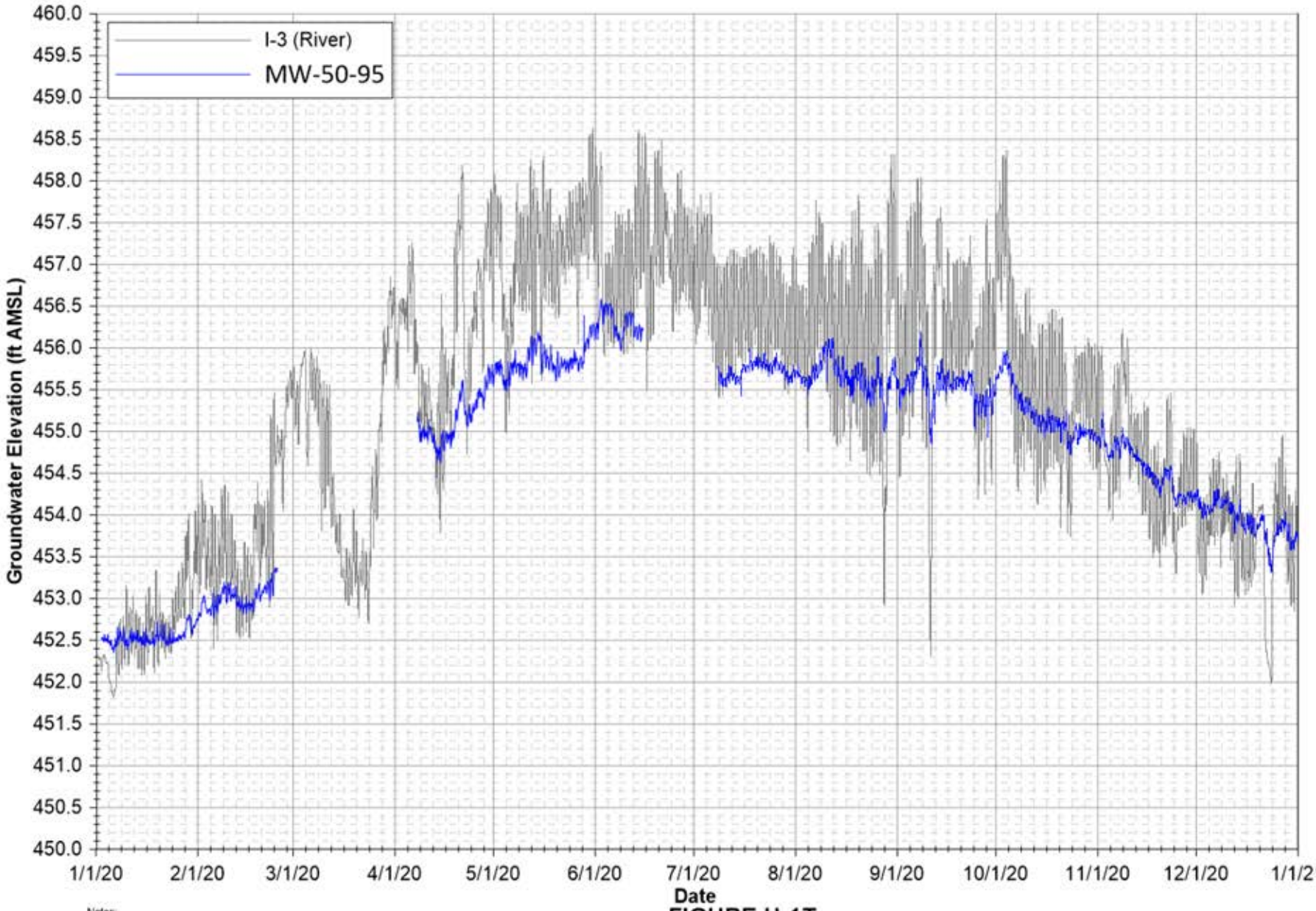
ARCADIS



Notes:
1. Data subject to review.
2. ft AMSL = feet above mean sea level.
3. MW-49-135 data unavailable from July 1, 2020 through July 15, 2020; August 5, 2020 through August 9, 2020 and September 1, 2020 through October 6, 2020 due to transducer malfunction.

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

ARCADIS



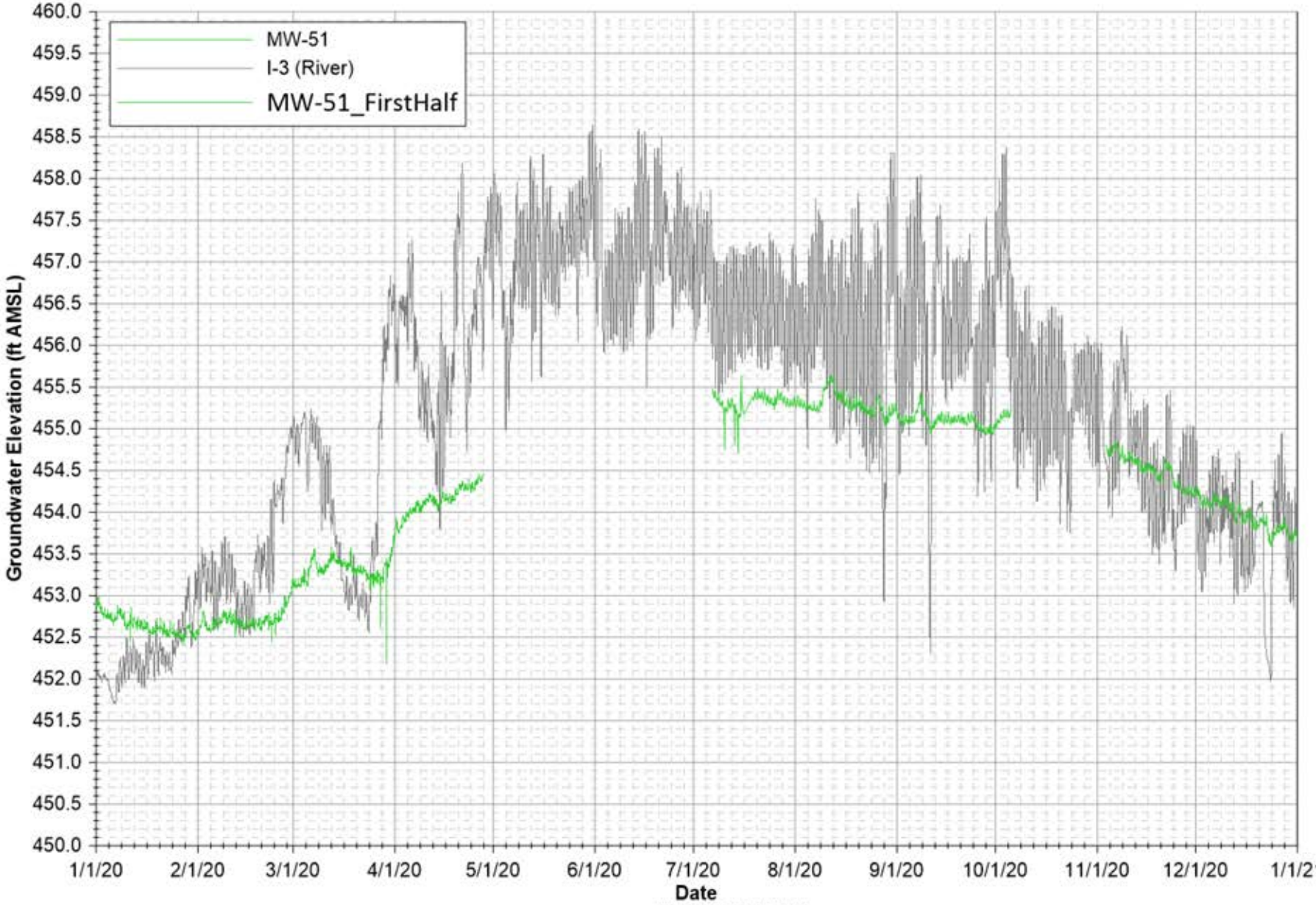
Notes:
1. Data subject to review.
2. ft AMSL = feet above mean sea level.
3. MW-50-095 data unavailable from February 25, 2020 through April 7, 2020 and from June 15, 2020 through July 8, 2020 due to transducer malfunction.

FIGURE H-1T

MW-50 HYDROGRAPH

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

ARCADIS



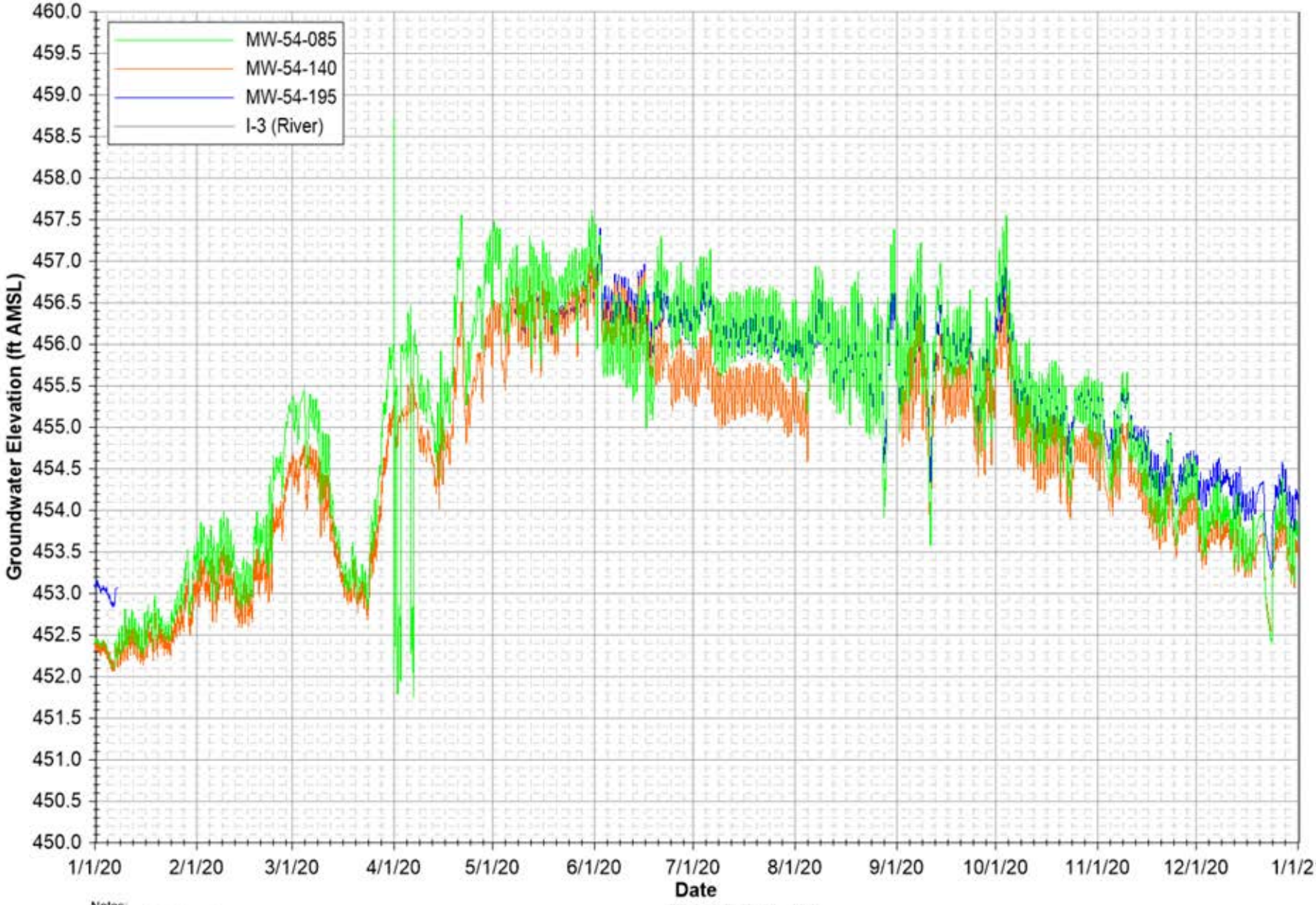
Notes:
1. Data subject to review.
2. ft AMSL = feet above mean sea level.
3. MW-51 data unavailable from April 27, 2020 through July 6, 2020 and from October 5, 2020 through November 3, 2020 due to transducer malfunction.

FIGURE H-1U

MW-51 HYDROGRAPHS

FOURTH 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-54-140 data unavailable from August 5, 2020 through September 2, 2020 due to transducer malfunction.
4. MW-54-195 data unavailable from January 7, 2020 through May 5, 2020 due to transducer malfunction.

FIGURE H-1V
MW-54 CLUSTER HYDROGRAPHS
FOURTH 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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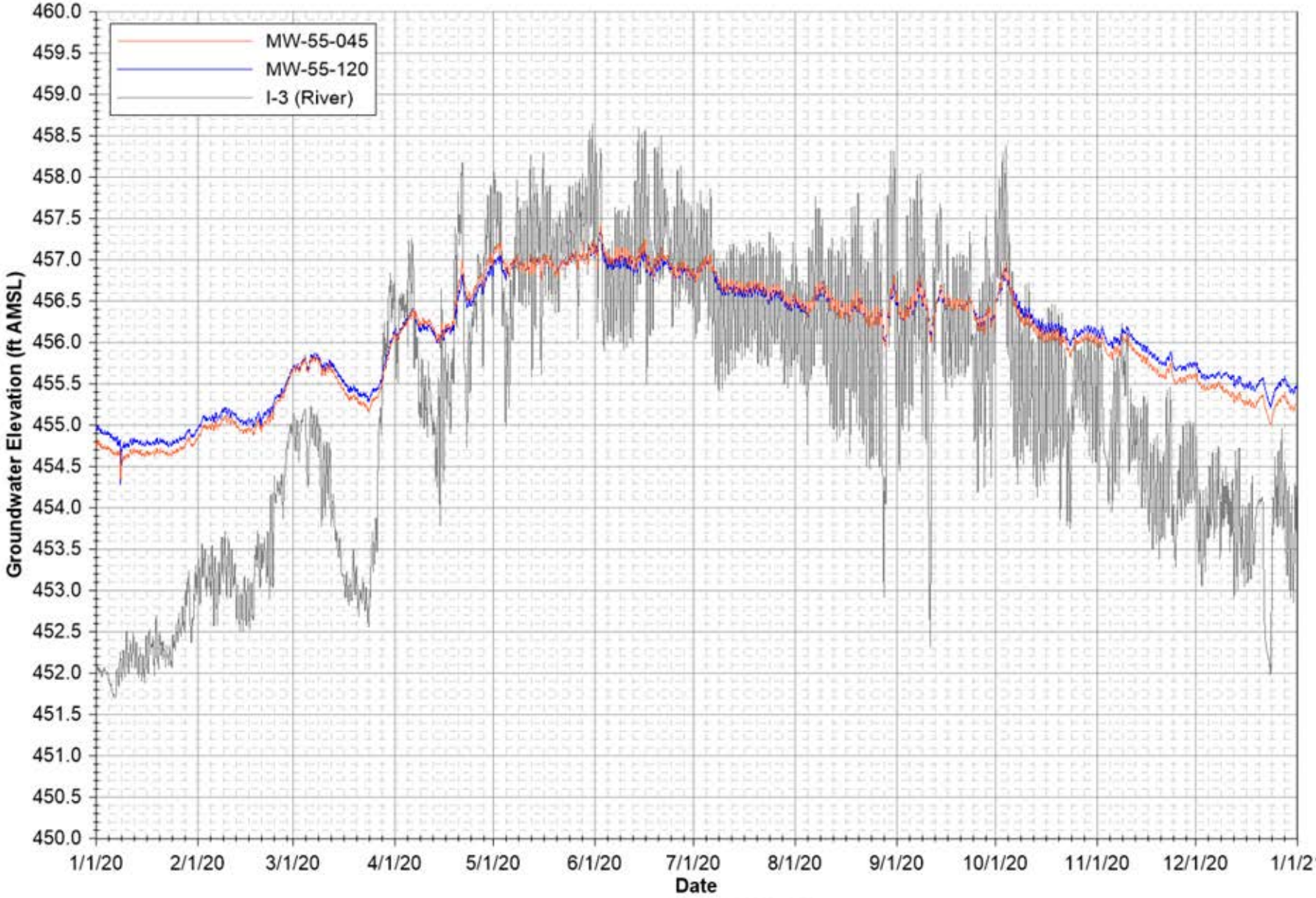
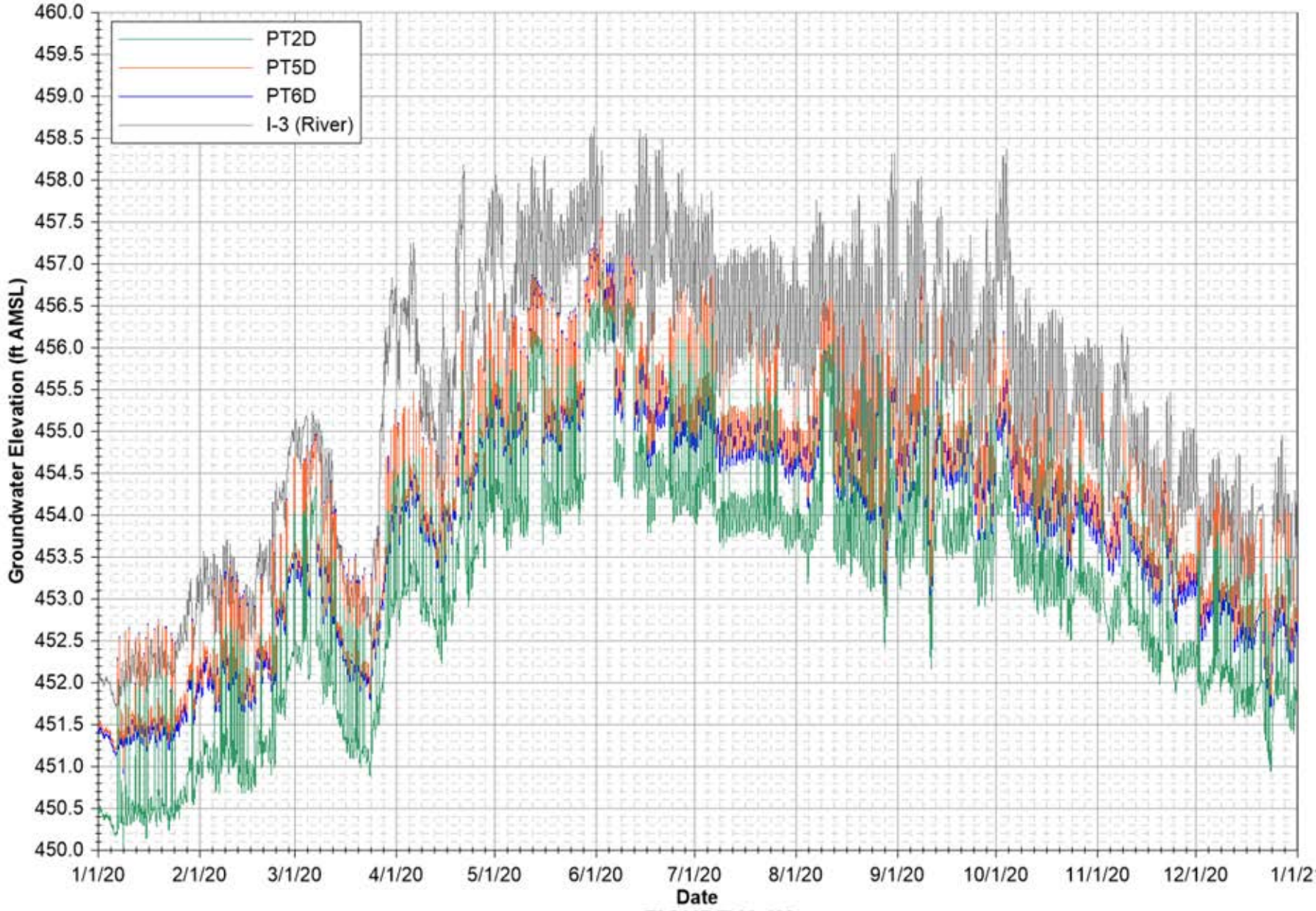


Notes:
1. Data subject to review.
2. ft AMSL = feet above mean sea level.

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

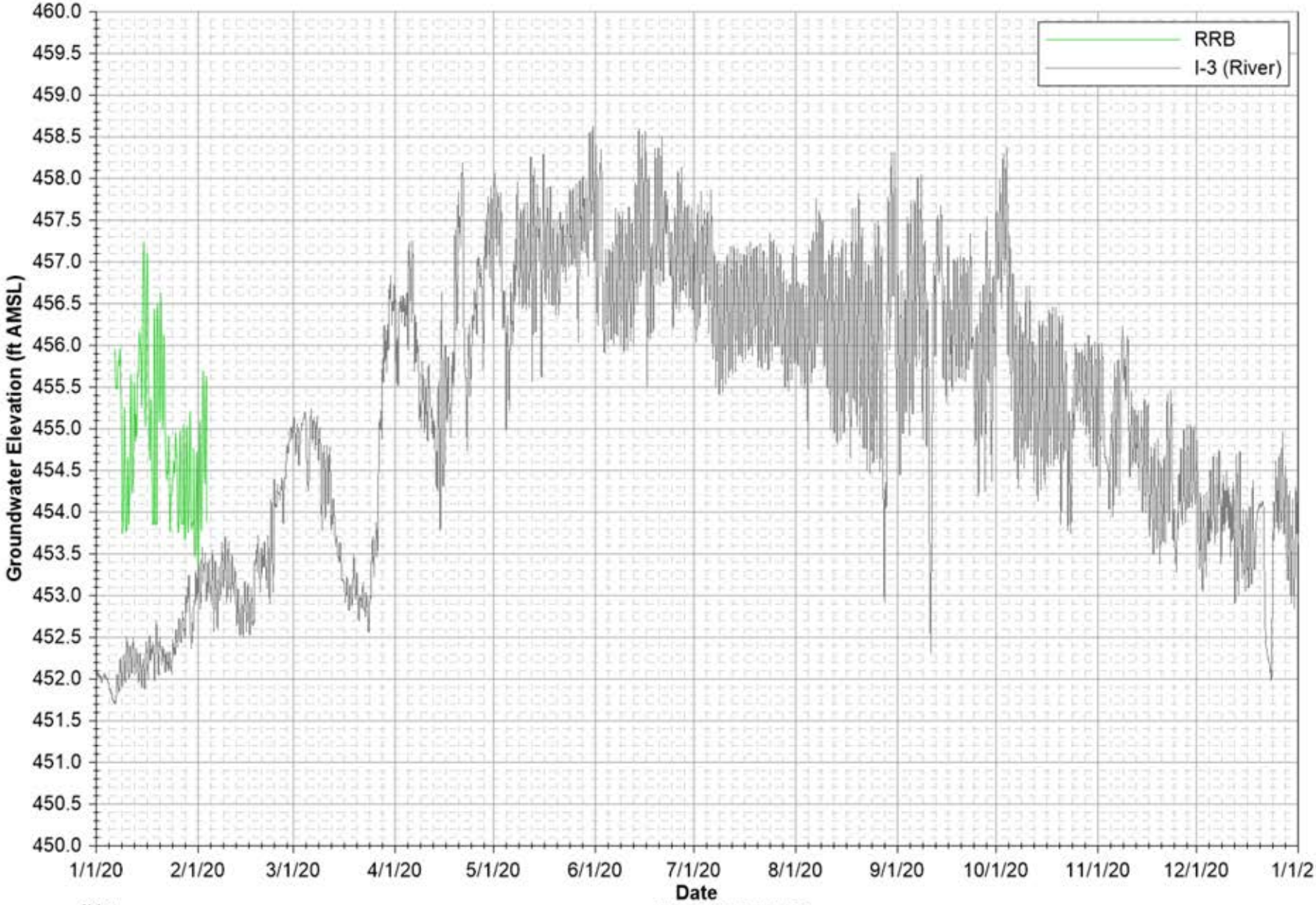
ARCADIS



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

FIGURE H-1X
INSITU PILOT STUDY WELL HYDROGRAPHS
FOURTH 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. RRB data unavailable from February 3, 2020 due to transducer malfunction.

FIGURE H-1Y
RRB HYDROGRAPH
FOURTH 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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APPENDIX I

Chemical Performance Monitoring Sampling Results, March 2005 through December 2020

Appendix I

Chemical Performance Monitoring Sampling Results, March 2005 through December 2020

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

Location ID	Aquifer Zone	Sample Date		Sample Method	Boron, Dissolved (mg/L)	Bromide (mg/L)	Calcium, Dissolved (mg/L)	Chloride (mg/L)	Deuterium (‰)	Magnesium, Dissolved (mg/L)	Nitrate/Nitrite as Nitrogen (mg/L)	Oxygen-18 (‰)	Potassium, Dissolved (mg/L)	Sodium, Dissolved (mg/L)	Sulfate (mg/L)	Total Alkalinity as $CaCO_3$ (mg/L)	Total Dissolved Solids (mg/L)
MW-20-070	SA	03/10/2005		3V	0.412	ND (1.0)	198	740	-59	55.4	--	-7.1	9.89	431	378	81.7	1,940
MW-20-070	SA	06/15/2005		3V	0.414	ND (1.0)	189	749	-60	55.4	--	-7	10.5	433	388	73.8	1,980
MW-20-070	SA	06/15/2005	FD	3V	0.445	ND (1.0)	204	760	-57	60.7	--	-8.3	11.4	468	392	71.3	2,050
MW-20-070	SA	10/11/2005		3V	0.402	0.641	198	737	-57	49.9	--	-7.2	14.6	323	359	69.9	1,950
MW-20-070	SA	12/15/2005		3V	0.441	ND (1.0)	138	645	-49	42.3	--	-7.1	14.5	267	326	77.8	1,830
MW-20-070	SA	03/10/2006		3V	0.427	ND (0.5)	161	679	-54	48.6	--	-7.2	9.22	424	358	82.2	1,940
MW-20-070	SA	05/05/2006		3V	0.476	0.574	162	696	-55.9	49.2	--	-8.2	9.55	461	376	74.5	1,750
MW-20-070	SA	10/03/2006		3V	0.535	ND (5.0)	158	677	-60.4	47.6	--	-8.1	9.82	472	357	85	1,890
MW-20-070	SA	10/03/2006	FD	3V	0.515	ND (5.0)	154	669	-60.5	45.9	--	-8.1	9.51	466	352	80	1,840
MW-20-070	SA	12/13/2006		3V	0.459	0.699	149	678	-61.2	44.3	--	-7.6	9.09	458	352	77.5	1,910
MW-20-070	SA	03/14/2007		3V	0.503	0.641	139	689	-64.3	42.2	--	-8.5	8.83	451	358	80	1,740
MW-20-070	SA	05/03/2007		3V	0.477	ND (1.0)	139	697	-66.7	41.2	--	-8.4	8.65	390	344	77.5	1,750
MW-20-070	SA	10/11/2007		3V	0.54	ND (1.0)	130	699	-63.9	39.1	--	-8.2	11	600	367	80	1,820
MW-20-070	SA	03/12/2008		3V	0.51	ND (1.0)	139	695	-65.2	41.2	--	-7.6	10.7	403	360	77	1,790
MW-20-070	SA	10/07/2008		3V	0.608	0.61	136	650	-64.4	37.9	--	-8.5	10.5	400	360	83	1,900
MW-20-070	SA	03/12/2009		3V	0.549	ND (1.0)	128	670	-60.82	40.2	--	-7.74	9.95	496	330	79	1,900
MW-20-070	SA	09/25/2009		3V	0.42	ND (2.5)	130	700	-66.43	33	--	-8.7	9.7	390	310	74	1,700
MW-20-070	SA	12/16/2010		3V	0.51	0.51	130	680	-62.3	33	--	-7.5	12	400	320	79	1,700
MW-20-070	SA	12/07/2011		3V	--	ND (0.5)	100	540	-61.9	25	--	-7.9	--	380	330	71	1,400
MW-20-070	SA	10/04/2012		3V	--	--	76.2	430	--	22.9	--	--	--	346	290	--	--
MW-20-070	SA	10/04/2012		H	--	--	71.1	420	--	19.9	--	--	--	327	280	--	--
MW-20-070	SA	10/04/2012		LF	--	--	72.7	430	--	20.9	--	--	--	342	270	--	--
MW-20-070	SA	11/27/2012		3V	0.484	ND (0.5)	79.2	450	-62.6	22.2	10.6	-7.8	8.07	350	290	89	1,400
MW-20-070	SA	11/27/2012		H	--	--	72.2	430	--	19.6	9.57	--	--	338	300	94	--
MW-20-070	SA	11/27/2012		LF	--	--	74.1	440	--	21.6	9.75	--	--	338	300	91	--
MW-20-070	SA	03/12/2013		3V	--	--	82.8	440	--	22.3	8.6	--	--	358	290	87	--
MW-20-070	SA	03/12/2013		H	--	--	65.5	380	--	16.1	7.54	--	--	336	270	100	--
MW-20-070	SA	03/12/2013		LF	--	--	77.3	420	--	19.4	8.14	--	--	344	280	90	--
MW-20-070	SA	05/09/2013		3V	--	--	--	--	--	--	10.1 J	--	--	--	--	--	--
MW-20-070	SA	12/11/2013		3V	0.51	ND (0.5)	70	390	-63.88	17	8.05	-8.12	15	580	260	91	1,200
MW-20-070	SA	05/07/2014		3V	--	--	--	--	--	--	7.15	--	--	--	--	--	--
MW-20-070	SA	12/15/2014		LF	0.43	ND (0.5)	49	330	-63.1	12	7.7	-8.07	4.4	310	230	100	1,100
MW-20-070	SA	05/19/2015		LF	--	--	--	--	--	--	7.9	--	--	--	--	--	--
MW-20-070	SA	05/19/2015	FD	LF	--	--	--	--	--	--	7.6	--	--	--	--	--	--
MW-20-070	SA	12/08/2015		LF	0.52	ND (1.0)	54	320	-61.7815	13	7	-7.97973	4.8	300	220	100	1,000
MW-20-070	SA	04/27/2016		LF	--	--	--	--	--	--	8.5	--	--	--	--	--	--
MW-20-070	SA	12/09/2016		LF	0.41	ND (0.5)	52 J	360	-61.8873	14 J	8	-7.85368	5.3	340	240	100	1,100
MW-20-070	SA	04/27/2017		LF	--	--	--	--	--	--	8.8	--	--	--	--	--	--
MW-20-070	SA	12/07/2017		LF	0.5	ND (0.5 J)	54	390	-60.7979	13	9	-7.97363	5.2	310	240	100	1,100
MW-20-070	SA	04/27/2018		LF	--	--	--	--	--	--	9.4	--	--	--	--	--	--
MW-20-070	SA	12/11/2018		LF	0.47	ND (0.5)	63	370	-61.33	16	2.8	-8.17	5.9	320	240	100	1,100
MW-20-070	SA	12/11/2018	FD	LF	0.47	ND (0.5)	65	360	-62.93	16	4.7	-8.33	6	340	240	100	1,100
MW-20-070	SA	05/24/2019		LF	--	--	--	--	--	--	8.7	--	--	--	--	--	--
MW-20-070	SA	12/13/2019		LF	--	ND (1.0)	--	400	-59.86	19	11	-8.79	5.7	--	280	98	1,300
MW-20-070	SA	04/24/2020		LF	--	--	--	--	--	--	13	--	--	--	--	--	--
MW-20-070	SA	12/04/2020		LF	0.6 J	ND (1.0)	78	470	-64.1	22 J	17	-8.17	5.9	280	320	88	1,400
MW-20-100	MA	03/10/2005		3V	0.859	ND (1.0)	133	466	-49	19.8	--	-5.2	8.98	712	511	84.2	2,490
MW-20-100	MA	06/15/2005		3V	0.713	ND (1.0)	137	921	-46	21.3	--	-4.7	9.06	592	506	84	2,500
MW-20-100	MA	10/11/2005		3V	0.718	0.731	170	887	-48	23.7	--	-5.3	15.2	500	484	82.3	2,400
MW-20-100	MA	12/15/2005		3V	0.709	ND (1.0)	136	813	-40	21.4	--	-5.4	14.8	406	404	82.7	2,340
MW-20-100	MA	03/10/2006		3V	0.803	ND (0.5)	171	861	-50.3	27	--	-5.6	7.75	597	475	92.5	2,500
MW-20-100	MA	05/05/2006		3V	0.716	ND (1.0)	193	927	-46.4	32	--	-5.1	10.8	577	522	82.5	2,260
MW-20-100	MA	10/03/2006		3V	0.874	ND (5.0)	202	863	-51.5	34.4	--	-5.8	10.9 J	568	456	90	2,320
MW-20-100	MA	12/13/2006		3V	0.889	0.83	205	861	-54.4	32.2	--	-6.2	11.4	579	459	97.5	1,960
MW-20-100	MA	12/13/2006	FD	3V	0.881	0.851	205	874	-54.5	32.2	--	-6.2	9.55	575	457	92.5	2,200
MW-20-100	MA	03/14/2007		3V	0.715	0.785	194	847	-57.8	31.7	--	-6.8	9.9	521	477	87.5	2,180
MW-20-100	MA	05/03/2007		3V	0.699	ND (1.0)	209	879	-59.2	36	--	-7.3	12 J	559	493	87.5	2,300
MW-20-100	MA	05/03/2007	FD	3V	0.686	ND (1.0)	208	888	-59.3	34.6	--	-6.7	9.63 J	532	484	87.5	2,330
MW-20-100	MA	10/10/2007		3V	0.81	ND (1.0)	190	858	-57.2	32	--	-7.2	15	560	468	92	2,160

Appendix I

Chemical Performance Monitoring Sampling Results, March 2005 through December 2020

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

Location ID	Aquifer Zone	Sample Date		Sample Method	Boron, Dissolved (mg/L)	Bromide (mg/L)	Calcium, Dissolved (mg/L)	Chloride (mg/L)	Deuterium (‰)	Magnesium, Dissolved (mg/L)	Nitrate/Nitrite as Nitrogen (mg/L)	Oxygen-18 (‰)	Potassium, Dissolved (mg/L)	Sodium, Dissolved (mg/L)	Sulfate (mg/L)	Total Alkalinity as $CaCO_3$ (mg/L)	Total Dissolved Solids (mg/L)
MW-20-100	MA	03/12/2008		3V	0.702	ND (1.0)	218	827	-58.3	35.4	--	-6.9	11.9	469	442	870	2,470
MW-20-100	MA	10/08/2008		3V	0.669	ND (1.0)	215	760	-60.2	36.8	--	-7.9	10.3	453	420	90	2,200
MW-20-100	MA	03/13/2009		3V	0.89	ND (1.0)	213	770	-58.2	36.4	--	-7.08	11.6	543	420	97	2,200
MW-20-100	MA	09/25/2009		3V	0.7	ND (2.5)	200	750	-62.84	30	--	-7.67	12	430	400	89	2,000
MW-20-100	MA	02/10/2011		3V	0.81	0.57	180	610	-58.8	28	--	-7	14	400	380	120	1,800
MW-20-100	MA	12/08/2011		3V	--	ND (0.5)	170	580	-55.6	25	--	-6.7	--	390	380	120	1,700
MW-20-100	MA	10/04/2012		3V	--	--	157	570	--	27.8	--	--	--	400	390	--	--
MW-20-100	MA	10/04/2012		H	--	--	157	530	--	26.8	--	--	--	382	380	--	--
MW-20-100	MA	10/04/2012		LF	--	--	152	530	--	26.5	--	--	--	374	380	--	--
MW-20-100	MA	11/29/2012		3V	0.952	ND (0.5)	149	570	-56.6	30.6	12.9	-7	9.64	376	350	110	1,700
MW-20-100	MA	11/29/2012		H	--	--	142	530	--	25.2	14.2	--	--	350	360	99	--
MW-20-100	MA	11/29/2012		LF	--	--	142	540	--	25.2	14.1	--	--	374	350	100	--
MW-20-100	MA	03/13/2013		3V	--	--	164	560	--	27.8	6.27	--	--	388	370	120	--
MW-20-100	MA	03/13/2013		H	--	--	150	510	--	25.2	6.34	--	--	357	350	100	--
MW-20-100	MA	03/13/2013		LF	--	--	155	500	--	25.7	6.5	--	--	365	360	110	--
MW-20-100	MA	05/09/2013		3V	--	--	--	--	--	--	14 J	--	--	--	--	--	--
MW-20-100	MA	12/11/2013		3V	1	ND (0.5)	140	550	-55.86	23	9.5	-7.46	8.2	400	290	110	1,600
MW-20-100	MA	05/07/2014		3V	--	--	--	--	--	--	11.1	--	--	--	--	--	--
MW-20-100	MA	12/15/2014		LF	0.76	ND (0.5)	120	530	-60.2	18	8.9	-7.62	6.4	340	260	120	1,500
MW-20-100	MA	05/19/2015		LF	--	--	--	--	--	--	9.6	--	--	--	--	--	--
MW-20-100	MA	12/08/2015		LF	0.92	ND (1.0)	120	510	-60.1171	20	7.3	-7.60373	7	340	240	110	1,300
MW-20-100	MA	04/27/2016		LF	--	--	--	--	--	--	8.6	--	--	--	--	--	--
MW-20-100	MA	12/09/2016		LF	0.83	0.62	110 J	500	-61.9035	19 J	8.1	-7.9278	7.2	330	250	130	1,300
MW-20-100	MA	04/27/2017		LF	--	--	--	--	--	--	8.7	--	--	--	--	--	--
MW-20-100	MA	12/08/2017		LF	0.88	0.57	110	480	-61.072	18	8.3	-8.08216	6.9	310	240	120 J	1,300
MW-20-100	MA	12/08/2017	FD	LF	0.9	0.58	110	490	-60.7743	18	8.4	-8.10333	7	320	270	92 J	1,300
MW-20-100	MA	04/27/2018		LF	--	--	--	--	--	--	8.7	--	--	--	--	--	--
MW-20-100	MA	12/04/2018		LF	0.9	0.66	110	450	-63.4	19	6.4	-8.31	6.8	340	240	130	1,300
MW-20-100	MA	05/24/2019		LF	--	--	--	--	--	--	7.9	--	--	--	--	--	--
MW-20-100	MA	12/13/2019		LF	--	0.63	--	460	-64.58	20	6.7	-9.87	6.8	--	320	130	1,300
MW-20-100	MA	04/24/2020		LF	--	--	--	--	--	--	7.5	--	--	--	--	--	--
MW-20-100	MA	12/04/2020		LF	1.0 J	ND (1.0)	95	460	-66.2	19 J	6.7	-8.85	6.1 J	250	210	140	1,200
MW-20-130	DA	03/02/2005		G	--	--	--	--	--	--	--	--	--	--	--	--	5,270 J
MW-20-130	DA	03/09/2005		3V	1.9	ND (1.0)	219	3120	-56	12.1	--	-5.8	24.7	2250	1080	68.9	5,520
MW-20-130	DA	03/09/2005	FD	3V	1.99	ND (1.0)	231	3080	-51	12.8	--	-5.4	25.4	2390	1080	68.9	6,200
MW-20-130	DA	06/15/2005		3V	2.75	ND (1.0)	352	3410	-48	23.2	--	-5	31.3	2980	1230	68.7	7,790
MW-20-130	DA	10/07/2005		3V	2.41	1.04 J	349	3010	-47	13.9	--	-5	38.4	2070	1210	72.4	7,330
MW-20-130	DA	12/16/2005		3V	1.98	ND (2.5)	324	3260	-43	16.3	--	-5.8	44.4	1780	1000	63.2	7,860
MW-20-130	DA	03/10/2006		3V	2.03	ND (0.5)	312	3370	-48.8	18.9	--	-5.5	27.7	2730	1250	74.5	8,610
MW-20-130	DA	05/05/2006		3V	2.4	ND (1.0)	349	3900	-47.2	20.3	--	-5.3	27.7	2810	1280	69.2	7,700
MW-20-130	DA	10/18/2006		3V	2.28	ND (5.0)	358	3680	-51.4	20.9	--	-6.3	28	2870	1100	70	8,450
MW-20-130	DA	12/13/2006		3V	2.31	0.896	335	3970	-54.9	19.7	--	-6	27.6	2900	1250	72.5	7,890
MW-20-130	DA	12/13/2006	FD	3V	2.24	1.09	328	3950	-54.4	19.1	--	-5.9	27.3	2830	1260	72.5	8,250
MW-20-130	DA	03/08/2007		3V	2.24	1.08	353	3930	-57.7	21.3	--	-6.5	27	2760	1240	70	8,450
MW-20-130	DA	03/08/2007	FD	3V	2.19	1.06	351	3900	-57.4	21.3	--	-6.6	26.8	2750	1210	72.5	8,510
MW-20-130	DA	05/03/2007		3V	2.49	ND (1.0)	338	4020	-60	22.5	--	-7.7	27.8	2550	1310	75	8,150
MW-20-130	DA	05/03/2007	FD	3V	2.47	ND (1.0)	338	3950	-60.1	21.9	--	-6.9	27.3	2550	1290	72.5	8,100
MW-20-130	DA	10/05/2007		3V	2.4	ND (1.0)	310	3670	-57.5	19	--	-7	31	2900	1070	77	7,980
MW-20-130	DA	03/12/2008		3V	2.07	ND (1.0)	342	3690	-58.7	23.4	--	-6.2	47	2260	1220	75	8,460
MW-20-130	DA	10/08/2008		3V	2.23	ND (2.5)	329	3500	-59.6	22	--	-7.3	40.1	1990	1200	81	7,800
MW-20-130	DA	03/13/2009		3V	2.16	ND (2.5)	350	3600	-56.41	22.7	--	-6.58	41.4	2550	1100	79	8,100
MW-20-130	DA	09/25/2009		3V	2	ND (2.5)	280	3500	-61.74	17	--	-7.59	33	2400	1100	76	6,500
MW-20-130	DA	02/10/2011		3V	2.2	1	310	3100	-59	18	--	-6.6	50	2100	1100	80	5,900
MW-20-130	DA	12/09/2011		3V	2.4	ND (2.5)	340	3300	-57.2	22	--	-6.6	33	2400	1200	74	6,200
MW-20-130	DA	10/09/2012		3V	--	--	283	3200	--	19.1	--	--	--	2140	1100	79	--
MW-20-130	DA	10/09/2012		H	--	--	282	2700	--	23.6	--	--	--	1890	1100	86	--
MW-20-130	DA	10/09/2012		LF	--	--	294	2400	--	25.8	--	--	--	1630	1100	92	--
MW-20-130	DA	11/29/2012		3V	2.13	ND (2.5)	286	3300	-59.5	24	14.1	-6.6	32.7	2310	1100	80	7,400
MW-20-130	DA	11/29/2012		H	--	--	281	--	--	26.2	17.9	--	--	1970	--	--	--

Appendix I

Chemical Performance Monitoring Sampling Results, March 2005 through December 2020

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

Location ID	Aquifer Zone	Sample Date		Sample Method	Boron, Dissolved (mg/L)	Bromide (mg/L)	Calcium, Dissolved (mg/L)	Chloride (mg/L)	Deuterium (‰)	Magnesium, Dissolved (mg/L)	Nitrate/Nitrite as Nitrogen (mg/L)	Oxygen-18 (‰)	Potassium, Dissolved (mg/L)	Sodium, Dissolved (mg/L)	Sulfate (mg/L)	Total Alkalinity as $CaCO_3$ (mg/L)	Total Dissolved Solids (mg/L)
MW-20-130	DA	11/29/2012		LF	--	--	280	2400	--	28.7	19.4	--	--	1750	1000	98	--
MW-20-130	DA	11/29/2012	FD	3V	2.06	ND (2.5)	284	3400	-60.4	24.2	14.1	-6.6	32.9	2410	1100	79	7,400
MW-20-130	DA	11/29/2012	FD	H	--	--	293	--	--	26.3	17.7	--	--	1940	--	--	--
MW-20-130	DA	11/29/2012	FD	LF	--	--	315	2400	--	29.2	18.6	--	--	1780	1000	96	--
MW-20-130	DA	12/12/2012		H	--	--	--	3000	--	--	--	--	--	--	1100	83	--
MW-20-130	DA	12/12/2012	FD	H	--	--	--	3000	--	--	--	--	--	--	1100	81	--
MW-20-130	DA	03/14/2013		3V	--	--	311	3400	--	21.7	6.32	--	--	2260	1100	76	--
MW-20-130	DA	03/14/2013		H	--	--	315	3000	--	25	6.9	--	--	2100	1100	100	--
MW-20-130	DA	03/14/2013		LF	--	--	331	2600	--	30.9	7.91	--	--	1760	1000	90	--
MW-20-130	DA	05/14/2013		3V	--	--	--	--	--	--	13	--	--	--	--	--	--
MW-20-130	DA	12/17/2013		3V	2.3	ND (1.0)	330	3200	-57.69	22	12.4	-6.4	26	2300	1100	80	7,400
MW-20-130	DA	12/17/2013	FD	3V	2.7	ND (1.0)	330	3200	-59.15	21	12.9	-6.52	27	2400	1100	78	7,300
MW-20-130	DA	05/12/2014		3V	--	--	--	--	--	--	12.9	--	--	--	--	--	--
MW-20-130	DA	12/15/2014		LF	1.9	ND (2.5)	310	2800	-59.6	21	14	-6.7	24	1800	1100	85	6,900
MW-20-130	DA	12/15/2014	FD	LF	1.8	ND (2.5)	290	2900	-59.6	20	15	-6.76	21	1700	1100	85	6,800
MW-20-130	DA	05/19/2015		LF	--	--	--	--	--	--	14	--	--	--	--	--	--
MW-20-130	DA	12/08/2015		LF	2.5	ND (2.5)	320	3300	-58.0354	19	12	-6.41678	25	2400	1000	76	7,100
MW-20-130	DA	12/08/2015	FD	LF	2.6	ND (2.5)	320	3100	-58.2233	19	13	-6.62848	25	2400	1100	80	6,600
MW-20-130	DA	04/27/2016		LF	--	--	--	--	--	--	10	--	--	--	--	--	--
MW-20-130	DA	12/09/2016		LF	2.3	ND (2.5)	260 J	3400	-60.0955	16 J	12	-6.88176	30	2600	1100	77	7,000
MW-20-130	DA	12/09/2016	FD	LF	2.4	ND (2.5)	250 J	3400	-60.3119	14 J	11	-6.81648	31	2700	1100	79	7,100
MW-20-130	DA	04/27/2017		LF	--	--	--	--	--	--	11	--	--	--	--	--	--
MW-20-130	DA	04/27/2017	FD	LF	--	--	--	--	--	--	11	--	--	--	--	--	--
MW-20-130	DA	12/07/2017		LF	2.1	ND (2.5)	240	2500	-58.7852	22	15	-6.81531	22	1600	1000	98	5,500
MW-20-130	DA	04/27/2018		LF	--	--	--	--	--	--	11	--	--	--	--	--	--
MW-20-130	DA	12/04/2018		LF	2.3	ND (2.5)	280	3000	-59.85	18	8.8	-7.2	27	2200	990	85	6,400
MW-20-130	DA	05/24/2019		LF	--	--	--	--	--	--	11	--	--	--	--	--	--
MW-20-130	DA	05/24/2019	FD	LF	--	--	--	--	--	--	11	--	--	--	--	--	--
MW-20-130	DA	12/13/2019		LF	--	ND (2.5)	--	3500	-59.67	25 J	13	-7.87	29	3100	990	85	7,900
MW-20-130	DA	04/24/2020		LF	--	--	--	--	--	--	11	--	--	--	--	--	--
MW-20-130	DA	12/04/2020		LF	2.0 J	ND (2.5)	140	2200	-61.2	20 J	11	-7.11	64	1200	1000	57 J	5,200
MW-20-130	DA	12/04/2020	FD	--	2.2 J	ND (2.5)	150	2500	-60.3	21 J	11	-7.16	67 J	1300	940	92 J	5,800
MW-25	SA	03/09/2005		3V	0.441	ND (0.5)	77.6	247	-62	16.1	--	-8.4	6.24	211	169	158	877
MW-25	SA	06/14/2005		3V	0.464	ND (0.5)	93.5	289	-61	20	--	-8.6	8.91	253	183	137	942
MW-25	SA	06/14/2005	FD	3V	0.475	ND (0.5)	100	294	-59	20.9	--	-7.2	9.06	268	185	137	980
MW-25	SA	10/04/2005		3V	0.362	ND (0.5)	83.3	252	-68	14.9	--	-8.2	9.93	164	171	141	950
MW-25	SA	10/04/2005	FD	3V	0.371	ND (0.5)	94.6	251	-60	15.3	--	-8.3	10.2	185	171	146	910
MW-25	SA	12/14/2005		3V	0.396	ND (0.5)	75.5	224	-55	14.5	--	-8.4	9.8	143	158	153	838
MW-25	SA	12/14/2005	FD	3V	0.382	ND (0.5)	73	219	-50	14.1	--	-8.4	9.71	151	155	156	896
MW-25	SA	03/09/2006		3V	0.39	ND (0.5)	76.4	245	-64.1	15.6	--	-8.4	6.97	210	164	170	910
MW-25	SA	05/03/2006		3V	0.418	ND (0.5)	78	272	-59.4	17.3	--	-9	7.38	222	172	150	907
MW-25	SA	05/03/2006	FD	3V	0.431	ND (0.5)	79.7	274	-61	17.8	--	-9	7.53	245	173	155	924
MW-25	SA	10/03/2006		3V	0.466	ND (0.5)	73.3	222	-62.7	15	--	-8.9	7.25	206	158	163	892
MW-25	SA	03/06/2007		3V	0.459	ND (0.5)	72.9	221	-66.9	14.4	--	-9	6.85	203	164	160	843
MW-25	SA	10/02/2007		3V	0.49	ND (1.0)	66	189	-65.8	14	--	-9	7.9	200	155	180	796
MW-25	SA	10/02/2007	FD	3V	0.46	ND (1.0)	63	195	-65.7	13	--	-9	7.7	220	157	190	758
MW-25	SA	10/07/2008		3V	0.559	ND (0.5)	59.2	170	-68.5	12.9	--	-9.9	9.89	143	150	200	740
MW-25	SA	10/07/2008	FD	3V	0.559	ND (0.5)	58.4	170	-69.1	12.9	--	-10.1	10.2	144	150	210	730
MW-25	SA	09/21/2009		3V	0.46	ND (0.5)	64	180	-69.89	12	--	-8.91	7.2	180	130	200	660
MW-25	SA	09/21/2009	FD	3V	0.47	ND (0.5)	64	180	-69.45	12	--	-8.87	7.9	190	130	200	650
MW-25	SA	12/07/2010		3V	0.43	ND (1.0)	74	220	-68.9	15	--	-9.4	10	180	120	180	780
MW-25	SA	12/15/2011		3V	0.49	ND (1.0)	89	270	-68.6	19	--	-9.2	8.5	210	120	170	860
MW-25	SA	12/15/2011	FD	3V	0.5	ND (0.5)	91	280	-66.7	19	--	-8.9	8	220	120	170	890
MW-25	SA	12/11/2012		3V	0.38	ND (0.5)	90	340	-67.6	19	7.25	-9.1	7.9	200	140	160	970
MW-25	SA	12/09/2013		3V	0.43	ND (0.5)	98	310	-68.72	20	6.99	-9.02	8.2	220	140	160	980
MW-25	SA	12/02/2014		LF	0.39	ND (0.5)	100	350	-67.9	19	8.9	-9.21	7.7	210	140	150	970
MW-25	SA	05/11/2015		LF	--	--	--	--	--	--	9.2	--	--	--	--	--	--
MW-25	SA	12/07/2015		LF	0.42	ND (0.5)	110	340	-67.0607	21	10	-8.99177	7.9	230	150	140	1,000
MW-25	SA	04/27/2016		LF	--	--	--	--	--	--	9.7	--	--	--	--	--	--

Appendix I

Chemical Performance Monitoring Sampling Results, March 2005 through December 2020

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

Location ID	Aquifer Zone	Sample Date		Sample Method	Boron, Dissolved (mg/L)	Bromide (mg/L)	Calcium, Dissolved (mg/L)	Chloride (mg/L)	Deuterium (‰)	Magnesium, Dissolved (mg/L)	Nitrate/Nitrite as Nitrogen (mg/L)	Oxygen-18 (‰)	Potassium, Dissolved (mg/L)	Sodium, Dissolved (mg/L)	Sulfate (mg/L)	Total Alkalinity as $CaCO_3$ (mg/L)	Total Dissolved Solids (mg/L)
MW-25	SA	12/08/2016		LF	0.41	ND (0.5)	110 J	380	-65.8821	22	9.3	-8.78942	8.4	220	180	130	1,100
MW-25	SA	05/01/2017		LF	--	--	--	--	--	--	12	--	--	--	--	--	--
MW-25	SA	12/08/2017		LF	0.37	ND (2.5)	120	420	-65.905	24	12	-9.01549	8.8	240	200	130	1,200
MW-25	SA	05/01/2018		LF	--	--	--	--	--	--	12	--	--	--	--	--	--
MW-25	SA	12/10/2018		LF	0.34	ND (2.5)	120	380	-64.42	26	11	-8.75	8.9	230	210	120	1,100
MW-25	SA	12/10/2018	FD	LF	0.33	ND (2.5)	120	370	-64.54	25	10	-9.09	8.7	230	210	120	1,100
MW-25	SA	05/15/2019		LF	--	--	--	--	--	--	12	--	--	--	--	--	--
MW-25	SA	12/09/2019		LF	0.37 J	ND (2.5)	120	400	-65.1	27	11	-8.65	8.2	220	210	130	1,300
MW-25	SA	12/09/2019	FD	--	0.39 J	ND (2.5)	130	390	-65.08	29	11	-8.62	8.8	240	210	120	1,200
MW-25	SA	06/24/2020		LF	--	--	--	--	--	--	13	--	--	--	--	--	--
MW-25	SA	06/24/2020	FD	--	--	--	--	--	--	--	12	--	--	--	--	--	--
MW-25	SA	12/07/2020		LF	0.55 J	ND (2.5)	110 J	400	-65.9	27 J	12	-8.87	7.5 J	180 J	220	120	1,200
MW-26	SA	03/08/2005		3V	0.557	ND (0.5)	166	756	-70	41.6	--	-8.8	10.7	439	370	98.7	1,840
MW-26	SA	03/08/2005	FD	3V	0.559	ND (0.5)	166	708	-70	40.9	--	-8.7	11.4	438	338	96.1	1,800
MW-26	SA	06/13/2005		3V	0.663	ND (0.5)	178	847	-65	44.6	--	-8.2	14	511	371	103	2,130
MW-26	SA	10/04/2005		3V	0.526	0.601	166	779	-68	40.4	--	-7.8	19.8	352	372	109	2,120
MW-26	SA	12/12/2005		3V	0.613	0.546	162	788	-55	39.9	--	-8.5	20.3	349	372	99.7	2,610
MW-26	SA	03/08/2006		3V	0.621	ND (0.5)	155	772	-60.4	38.1	--	-8.6	11.7	434 J	324	121	2,070
MW-26	SA	05/01/2006		3V	0.723	ND (0.5)	165	927	-62.7	42	--	-8.9	12.8	555	382	121	2,130
MW-26	SA	10/03/2006		3V	0.692	ND (2.5)	170	894	-63	43.9	--	-8.8	12.8	510	370	105	2,220
MW-26	SA	03/12/2007		3V	0.622	0.646	163	917	-67	41.6	--	-9	12.9	621	387	90	2,280
MW-26	SA	10/02/2007		3V	0.66	ND (1.0)	170	945	-66.3	42	--	-8.6	15	620	391	100	2,180
MW-26	SA	03/12/2008		3V	0.589	ND (1.0)	176	908	-67.2	44.1 J	--	-8.1	16.2 J	498	398	103	2,500
MW-26	SA	03/12/2008	FD	3V	0.601	ND (1.0)	160	905	-68.2	32.8 J	--	-8.9	12.7 J	462	398	102	2,420
MW-26	SA	10/08/2008		3V	0.591	ND (1.0)	183	930	-66.5	45.8	--	-8.7	14.6	555	440	110	2,400
MW-26	SA	03/10/2009		3V	0.604	1.4	172	870	-65.3	47.9	--	-8.41	14.8	585	440 J	100	2,300
MW-26	SA	03/10/2009	FD	3V	0.65	1.5	174	860	-65.76	46.2	--	-8.68	15.6	631	440 J	100	2,300
MW-26	SA	09/22/2009		3V	0.59	ND (1.0)	170	870	-68.25	39	--	-9.04	14	550	450	100	2,200
MW-26	SA	12/15/2010		3V	--	--	180	900	--	40	--	--	--	560	480	100	--
MW-26	SA	12/09/2011		3V	0.89	1.2	210	930	-65.2	47	--	-8.1	15	690	530	94	2,300
MW-26	SA	10/04/2012		3V	--	--	178	920	--	46.2	--	--	--	637	520	--	--
MW-26	SA	10/04/2012		H	--	--	162	930	--	42.3	--	--	--	661	530	--	--
MW-26	SA	10/04/2012		LF	--	--	165	960	--	43.7	--	--	--	702	550	--	--
MW-26	SA	11/27/2012		3V	--	--	168	930	--	45	15.6	--	--	564	520	100	--
MW-26	SA	11/27/2012		H	--	--	152	840	--	39.1	14.7	--	--	575	480	100	--
MW-26	SA	11/27/2012		LF	--	--	157	960	--	41.7	18.1	--	--	671	570	110	--
MW-26	SA	03/12/2013		3V	--	--	186	930	--	48.7	9.51	--	--	662	530	100	--
MW-26	SA	03/12/2013		H	--	--	181	950	--	48.4	19.5	--	--	705	550	100	--
MW-26	SA	03/12/2013		LF	--	--	174	950	--	46.8	19.2	--	--	683	560	100	--
MW-26	SA	05/07/2013		3V	--	--	--	--	--	--	17.7 J	--	--	--	--	--	--
MW-26	SA	12/04/2013		3V	0.93	1	160	890	-64.08	41	18	-8.41	12	670	520	110	2,600
MW-26	SA	05/05/2014		3V	--	--	--	--	--	--	20.4	--	--	--	--	--	--
MW-26	SA	12/15/2014		LF	0.79	1.1	150	910	-67.3	33	21	-8.33	--	470	530	110	2,700
MW-26	SA	12/15/2014	FD	LF	0.82	1	150	910	-66.9	34	22	-8.31	--	450	530	110	2,700
MW-26	SA	05/19/2015		LF	--	--	--	--	--	--	23	--	--	--	--	--	--
MW-26	SA	12/08/2015		LF	0.86	ND (1.0)	140	890	-65.4939	32	20	-8.19913	13	640	500	110	2,400
MW-26	SA	12/08/2015	FD	LF	0.81	ND (1.0)	140	870	-65.0305	30	20	-7.93156	14	640	520	110	2,500
MW-26	SA	04/28/2016		LF	--	--	--	--	--	--	21	--	--	--	--	--	--
MW-26	SA	12/08/2016		LF	1.1	ND (2.5)	160 J	890	-65.4433	41	22	-7.9186	13	650	520	120	2,400
MW-26	SA	12/08/2016	FD	LF	1.1	ND (2.5)	160 J	880	-65.5157	42	21	-7.98162	13	680	520	120	2,500
MW-26	SA	04/26/2017		LF	--	--	--	--	--	--	23	--	--	--	--	--	--
MW-26	SA	12/11/2017		LF	1	ND (2.5)	160	910	-64.5812	37	21	-8.11508	12	620	500	120	2,300
MW-26	SA	12/11/2017	FD	LF	0.99	ND (2.5)	150	900	-64.4695	36	20	-8.44161	12	600	510	120	2,300
MW-26	SA	05/01/2018		LF	--	--	--	--	--	--	20	--	--	--	--	--	--
MW-26	SA	12/07/2018		LF	1	ND (2.5)	150	820	-64.04	35	16	-8.21	13	630	490	120	2,300
MW-26	SA	05/22/2019		LF	--	--	--	--	--	--	21	--	--	--	--	--	--
MW-26	SA	12/12/2019		LF	1.1	ND (2.5)	160	790	-62.55	42	19	-8.51	12 J	560	470	130	2,300
MW-26	SA	12/12/2019	FD	--	1.1	ND (2.5)	150	800	-62.71	40	19	-8.57	9.3 J	440	470	130	2,300
MW-26	SA	04/27/2020		LF	--	--	--	--	--	--	21	--	--	--	--	--	--

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Location ID	Aquifer Zone	Sample Date		Sample Method	Boron, Dissolved (mg/L)	Bromide (mg/L)	Calcium, Dissolved (mg/L)	Chloride (mg/L)	Deuterium (‰)	Magnesium, Dissolved (mg/L)	Nitrate/Nitrite as Nitrogen (mg/L)	Oxygen-18 (‰)	Potassium, Dissolved (mg/L)	Sodium, Dissolved (mg/L)	Sulfate (mg/L)	Total Alkalinity as $CaCO_3$ (mg/L)	Total Dissolved Solids (mg/L)
MW-26	SA	12/03/2020		LF	1.1	ND (2.5)	120	770	-63.5	40	18	-7.93	9	470	470	130	2,200
MW-26	SA	12/03/2020	FD	--	1.1	ND (2.5)	130	760	-64.2	41	18	-7.91	9.6	500	460	140	2,200
MW-31-060	SA	03/09/2005		3V	0.401	ND (0.5)	108	649	-63	17.3	--	-8.6	5.97	424	210	76.6	1,540
MW-31-060	SA	06/13/2005		3V	0.388	ND (0.5)	121	745	-65	18.9	--	-8.2	6.57	403	207	70	1,660
MW-31-060	SA	10/06/2005		3V	0.462	ND (0.5)	109	691	-65	16.5	--	-8.6	9.75	308	206	77.3	1,660
MW-31-060	SA	12/13/2005		3V	0.359	ND (0.5)	87	669	-54	15.4	--	-8.7	9.32	275	199	73	1,620
MW-31-060	SA	03/15/2006		3V	0.393	ND (0.5)	106	661	-65.6	17.5	--	-8.6	7.3	403	191	89.3	1,560 J
MW-31-060	SA	03/15/2006	FD	3V	0.383	ND (0.5)	101	662	-64.9	16.8	--	-8.6	6.94	391	192	81.9	1,640 J
MW-31-060	SA	05/01/2006		3V	0.449	ND (0.5)	118	691	-63.2	20.1	--	-9.6	7.78	467	209	79.6	1,630
MW-31-060	SA	10/05/2006		3V	0.464	ND (0.5)	113	687	-66.3	20.6	--	-9.4	9.6 J	325	205	80	1,620
MW-31-060	SA	03/12/2007		3V	0.402 J	ND (0.5)	116	757	-69	20.3	--	-9.3	6.05	454	222	72.5	1,750
MW-31-060	SA	10/04/2007		3V	0.64	ND (1.0)	150	799	-69.6	26	--	-9.4	7.3	580	208	80	1,720
MW-31-060	SA	10/06/2008		3V	0.399	ND (1.0)	150	810	-72.2	26	--	-10.2	9.39	460	240	81	2,000
MW-31-060	SA	09/21/2009		3V	0.43	ND (1.0)	160	870	-72.11	26	--	-9.23	9.6	480	220	75	1,800
MW-31-060	SA	12/15/2010		3V	0.43	ND (0.5)	170	840	-69.3	27	--	-9	12	440	210	78	2,000
MW-31-060	SA	12/06/2011		3V	0.54	ND (1.0)	150	790	-67.9	24	--	-8.8	7.6	450	200	76	1,800
MW-31-060	SA	11/13/2012		3V	0.44	ND (0.5)	150	890	-71.8	24	3.3	-9.2	7.1	470	200	78	1,900
MW-31-060	SA	12/03/2013		3V	0.48	ND (0.5)	140	870	-66.39	24	3.53	-8.56	6.4	520	220	78	1,900
MW-31-060	SA	12/03/2014		LF	0.4	ND (0.5)	120	790	-68.5	19	3.9	-8.83	5.2	430	210	140	1,700
MW-31-060	SA	12/07/2015		LF	0.5	ND (0.5)	100	620	-64.5767	17	4.7	-8.2946	5.4	470	200	92	1,600
MW-31-060	SA	04/27/2016		LF	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-31-060	SA	12/09/2016		LF	0.42	ND (0.5)	120 J	750	-66.636	20 J	4.1	-8.48888	6.2	470	210	91	1,700
MW-31-060	SA	12/09/2016	FD	LF	0.42	ND (1.0)	120 J	760	-66.0943	22 J	4.1	-8.65932	6.6	470	220	93	1,700
MW-31-060	SA	04/27/2017		LF	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-31-060	SA	12/12/2017		LF	0.79	ND (2.5)	130	840	-66.2365	22	3.4	-8.89909	6.1	490	210	86	1,800
MW-31-060	SA	04/27/2018		LF	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-31-060	SA	12/10/2018		LF	0.49	ND (2.5)	150	910	-65.9	26	3.3	-8.82	7.2	560	220	89	1,900
MW-31-060	SA	05/20/2019		LF	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-31-060	SA	12/12/2019		LF	0.51	ND (2.5)	150	880	-66.19	24	3.5	-8.66	7.2	470	220	90	1,900
MW-31-060	SA	12/12/2019	FD	--	ND (0.5)	ND (2.5)	120	870	-66.28	23	3.3	-8.65	7	470	220	89	1,900
MW-31-060	SA	06/24/2020		LF	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-31-060	SA	12/07/2020		LF	0.54 J	ND (2.5)	100 J	790	-67.3	19 J	4.1	-8.84	6.0 J	450 J	220	99	1,700
MW-32-035	SA	03/09/2005		3V	1.07	0.845	312	1770	-68	85.5	--	-8.2	13	944	465	260	3,560
MW-32-035	SA	06/17/2005		3V	1.18	ND (2.5)	506	3520	-72	120	--	-9.5	14.8	2110	787	223	7,550
MW-32-035	SA	10/04/2005		3V	1.26	ND (5.0)	567	3840	-70	134	--	-8.3	29.3	1530	765	208	8,340
MW-32-035	SA	12/16/2005		3V	1.25	1.02	606	3510	-63	128	--	-8.8	30	1580	710	219	7,660
MW-32-035	SA	03/10/2006		3V	1.13	ND (0.5)	654	4210	-74	129	--	-8.6	19.2	2360	1010	234	9,230
MW-32-035	SA	05/04/2006		3V	1.38	ND (0.5)	693	4960	-67.8	148	--	-9.1	19.5	2800	1130	218	9,840
MW-32-035	SA	10/02/2006		3V	1.48	ND (2.5)	839	5430	-71.4	165	--	-9.4	23.9	3260	1050	290	11,200
MW-32-035	SA	12/11/2006		3V	1.43	1.9	845	5090	-70.4	173	--	-9	22.5	2620	1000	338	10,400
MW-32-035	SA	03/06/2007		3V	1.35	2.65	1080	6070	-75.4	209	--	-10.2	23.5	2910	1200	360	12,600
MW-32-035	SA	04/30/2007		3V	1.35	2.6	1250	6610	-78.7	273	--	-9.9	26.2	3280	1280	475	12,100
MW-32-035	SA	10/01/2007		3V	1.7	2.62	1000	6830	-72.7	390	--	-8.9	29	4000	1120	490	13,700
MW-32-035	SA	10/03/2008		3V	1.49	3.1	829	7600	-73.1	150	--	-9.8	52.3	3490	1300	550	15,000
MW-32-035	SA	09/22/2009		3V	1.7	2.8	880	6900	-75.2	400	--	-9.32	53	3100	1400	530	13,000
MW-32-035	SA	12/09/2010		3V	1.7 J	ND (2.5)	750	5500	-84.2	390 J	--	-10.2	51 J	3000	1600	590	11,000
MW-32-035	SA	12/09/2011		3V	1.7	ND (2.5)	680	5000	-84.2	310	--	-10.8	34	3100	1700	640	8,500
MW-32-035	SA	12/05/2012		3V	1.3	ND (5.0)	460	4300	-89	240	0.0274	-11	31	2700	1700	630	10,000
MW-32-035	SA	11/06/2013		3V	1.2	ND (2.5)	450	3500	-87.16	210	0.0482	-10.97	23	2500	1600	580	8,300
MW-32-035	SA	11/11/2014		LF	1.1	ND (0.5)	450	3100	-87.84	170	--	-10.39	18	2000	1500	550	5,800
MW-32-035	SA	12/01/2014		LF	--	--	--	--	--	--	0.093	--	--	--	--	--	--
MW-32-035	SA	04/20/2015		LF	--	--	--	--	--	--	2.3	--	--	--	--	--	--
MW-32-035	SA	12/03/2015		LF	1.2	ND (2.5)	450	2800	-87.49	220	0.058	-11.18	18	1900	1200	610	7,400
MW-32-035	SA	04/25/2016		LF	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-32-035	SA	12/06/2016		LF	0.99	ND (2.5)	370	2800	-87.0352	210	ND (0.05)	-10.7781	20	1800	1100	630	6,700
MW-32-035	SA	04/27/2017		LF	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-32-035	SA	12/04/2017		LF	1	ND (2.5)	360	2500	-88.18	160	ND (0.05)	-11.43	15	1600	1100	700	5,500
MW-32-035	SA	04/23/2018		LF	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-32-035	SA	12/04/2018		LF	0.91	ND (2.5)	400	2200	-88.68	170	ND (0.1)	-10.99	16	1500	960	570	5,500

Appendix I

Chemical Performance Monitoring Sampling Results, March 2005 through December 2020

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

Location ID	Aquifer Zone	Sample Date		Sample Method	Boron, Dissolved (mg/L)	Bromide (mg/L)	Calcium, Dissolved (mg/L)	Chloride (mg/L)	Deuterium (‰)	Magnesium, Dissolved (mg/L)	Nitrate/Nitrite as Nitrogen (mg/L)	Oxygen-18 (‰)	Potassium, Dissolved (mg/L)	Sodium, Dissolved (mg/L)	Sulfate (mg/L)	Total Alkalinity as $CaCO_3$ (mg/L)	Total Dissolved Solids (mg/L)
MW-32-035	SA	04/23/2019		LF	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-32-035	SA	12/09/2019		LF	1.0 J	ND (5.0)	380	2500	-87.84	270	0.051	-11.01	16	1400	740	740	5,700
MW-32-035	SA	06/18/2020		LF	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-32-035	SA	12/07/2020		LF	0.94 J	ND (5.0)	300 J	2000	-90.6	210 J	ND (0.1)	-11.22	18 J	1,100 J	840	720	5,200
MW-32-035	SA	12/07/2020	FD	--	0.9 J	ND (5.0)	300 J	2000	-90.1	200 J	ND (0.1)	-11.26	19 J	1,100 J	850	730	5,300
MW-34-055	MA	03/10/2005		3V	1.19	0.654	366	2620	-82	71.3	--	-10.8	29.1	1900	739	240	6,230
MW-34-055	MA	07/15/2005		3V	1.02	ND (0.5)	247	2250	-84	52	--	-10.3	16.5	1420	607	242	--
MW-34-055	MA	10/05/2005		3V	1.2	ND (0.5)	272	2170	-88	59.1	--	-10.6	25.8	1230	619	232	5,150
MW-34-055	MA	12/14/2005		3V	0.937	0.588	217	2150	-74	45	--	-10.8	27.2	965	552	236	5,100
MW-34-055	MA	03/08/2006		3V	0.956	ND (0.5)	256	2080	-86.8	54.2	--	-10.8	13.5	1640	593	272	4,850
MW-34-055	MA	05/03/2006		3V	0.846	ND (0.5)	198	2070	-84.3	44.8	--	-11.5	11.1	1360	500	302	4,320
MW-34-055	MA	10/04/2006		3V	0.54	ND (0.5)	37.6	443	-94.8	8.08	--	-12.2	4.59	536	230	368	1,680 J
MW-34-055	MA	10/03/2007		3V	0.26	ND (1.0)	15	109	-96.6	3.3	--	-11.3	3.3	290	266	190	730
MW-34-055	MA	10/07/2008		3V	0.248	--	72.4	100	-100	16.9	--	-13	5.26	192	250	170	700
MW-34-055	MA	09/30/2009		3V	0.15	--	77	--	-100.79	17	--	-12.26	4.4	120	--	160	700
MW-34-055	MA	11/17/2009		3V	--	ND (0.5)	--	93	--	--	--	--	--	--	240	--	--
MW-34-055	MA	12/07/2010		3V	0.1	ND (0.5)	81	87	-98.8	19	--	-12.1	5.1	100	230	140	590
MW-34-055	MA	12/06/2011		3V	0.19	ND (0.5)	81	83	-100.5	19	--	-12.3	4.6	100	220	160	630
MW-34-055	MA	12/12/2012		3V	0.15	ND (0.5)	75	78	-105	20	ND (0.01)	-12.7	3.7	100	210	140	630
MW-34-055	MA	11/20/2013		3V	0.13	ND (0.5)	69	72	-103.32	19	ND (0.01)	-13.09	4.3	88	210	150	600
MW-34-055	MA	11/06/2014		LF	ND (0.1)	ND (0.5)	72	76	-101.86	20	ND (0.05)	-12.43	4	85	200	140	640
MW-34-055	MA	12/03/2015		LF	0.19	ND (0.5)	80	83	-102.02	25	ND (0.05)	-13.02	4.7	86	230	150	630
MW-34-055	MA	12/06/2016		LF	0.11	ND (0.5)	77 J	89	-101.069	26	ND (0.05)	-12.4446	5.6	100	230	150	680
MW-34-055	MA	12/06/2017		LF	ND (0.5)	ND (0.5)	85	100	-99.07	27	ND (0.05)	-11.89	4.9	91	230	160	640
MW-34-055	MA	12/05/2018		LF	ND (0.12)	ND (0.5)	74	88	-98.79	24	ND (0.1)	-12.29	5.1	99	230	150	670
MW-34-055	MA	12/05/2018	FD	LF	ND (0.11)	ND (0.5)	73	87	-98.78	23	ND (0.1)	-12.29	5.1	98	230	150	660
MW-34-055	MA	12/10/2019		LF	ND (0.2)	ND (1.0)	77	84	-98.06	27	ND (0.05)	-12.28	4.9 J	92	220	160	640
MW-34-055	MA	12/10/2019	FD	--	ND (0.17)	ND (1.0)	71	83	-98.49	22	ND (0.05)	-12.26	4.7 J	90	210	150	630
MW-34-055	MA	12/03/2020		LF	0.19	ND (1.0)	67	82	-100.9	23 J	ND (0.1)	-12.44	5.4 J	92 J	210	160	580
MW-34-055	MA	12/03/2020	FD	--	0.18	ND (1.0)	65	84	-100.2	22 J	ND (0.1)	-12.48	5.3 J	89 J	210	150	580
MW-34-080	DA	03/08/2005		3V	1.65	1.01	439	4180	-83	68.1	--	-10.4	28	2750	1040	304	6,940
MW-34-080	DA	03/15/2005		3V	--	--	445	3920	--	65.7	--	--	29.7	2990	ND (5.0)	288	8,980
MW-34-080	DA	06/30/2005		3V	1.66	ND (0.5)	497	3910	-82	76.5	--	-8.4	27.7	2670	979	302	7,840
MW-34-080	DA	10/05/2005		3V	1.57	ND (0.5)	429	3880	-85	72.5	--	-10.1	47.4	1660	1060	302	10,200
MW-34-080	DA	12/14/2005		3V	1.54	0.854	432	3700	-71	68.3	--	-10.2	54.9	1710	880	297	8,800
MW-34-080	DA	03/09/2006		3V	1.49	ND (0.5)	383	3520	-86.8	65.8	--	-9.9	24	2420	986	313	7,830
MW-34-080	DA	05/03/2006		3V	1.38	ND (0.5)	425	3700	-77.6	70.3	--	-11.7	23.9	2480	921	297	7,950
MW-34-080	DA	10/04/2006		3V	1.31	0.737	341	3210	-81.8	65.4	--	-11.3	21.1	2170	786	268	7,080
MW-34-080	DA	12/12/2006		3V	1.26	0.742	298	3190	-80.9	62.9	--	-10.5	18.9	2040	789	288	6,510
MW-34-080	DA	03/05/2007		3V	1.29	0.72	315	3300	-85.8	68.3	--	-11.5	19.4	2020	783	205	6,360 J
MW-34-080	DA	04/30/2007		3V	1.33	ND (1.0)	282	3,320 J	-88.9	57	--	-11.5	18.6	2080	889 J	245	6,390
MW-34-080	DA	10/03/2007		3V	1.2	ND (1.0)	220	2630	-87.8	53	--	-11.3	21	2000	696	240	5,490
MW-34-080	DA	12/13/2007		3V	1.09	ND (1.0)	193	2380	-88.6	49.1	--	-10.9	25.4	1450	698	264	5,420
MW-34-080	DA	03/12/2008		3V	1.14	ND (1.0)	237	2510	-87.3	52.6	--	-11.4	19.2	2030	739	238	5,500
MW-34-080	DA	05/06/2008		3V	1.2	0.525	230	2460	-87.3	49	--	-11.4	30	1600	753	216	5,820
MW-34-080	DA	10/07/2008		3V	0.765	ND (2.0)	223	2400	-87.6	46.3	--	-11.8	22	1220	720	250	5,300
MW-34-080	DA	12/10/2008		3V	1.11	ND (1.0)	147	2190	-93.1	45.2	--	-10.97	20.6	3880	698	253	5,300
MW-34-080	DA	03/10/2009		3V	1.08	ND (2.5)	219	2300	-84.77	46.3	--	-10.85	22.2	1480	700 J	240	5,100
MW-34-080	DA	04/30/2009		3V	1.11	ND (1.0)	219	2340	-85.79	50	--	-11.45	24.6	1510	768	237	5,830
MW-34-080	DA	09/30/2009		3V	0.98	ND (1.0)	240	2300	-88.93	46	--	-10.79	22	1500	710	230	4,000
MW-34-080	DA	12/09/2009		3V	--	ND (1.0)	--	2200	-89.1	--	--	-11.88	--	--	690	230	4,580
MW-34-080	DA	03/10/2010		3V	0.93	ND (1.0)	220 J	2100	-91.56	41	--	-12.13	28	1,400 J	660	240	4,900
MW-34-080	DA	12/07/2010		3V	1	ND (1.0)	240	2300	-87.3	47	--	-11.1	24	1300	700	220	4,600
MW-34-080	DA	12/06/2011		3V	1.1	ND (1.0)	220	1900	-88.1	43	--	-11.1	16	1300	640	230	3,900
MW-34-080	DA	12/12/2012		3V	1	ND (1.0)	220	1800	-90.2	51	ND (0.01)	-11.2	17	1300	630	250	4,300
MW-34-080	DA	12/12/2012	FD	3V	--	--	210	1800	-89.3	48	ND (0.01)	-11.1	--	1300	630	250	--
MW-34-080	DA	11/20/2013		3V	0.96	ND (1.0)	210	1900	-87.99	52	ND (0.01)	-11.43	14	1300	620	260	4,500
MW-34-080	DA	11/20/2013	FD	3V	1	ND (1.0)	210	1900	-88.36	56	ND (0.01)	-11.18	14	1200	620	260	4,600
MW-34-080	DA	11/06/2014		LF	0.84	--	240	--	-90.9	50	--	-11.6	12	1200	--	280 J	--

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PG&E Topock Compressor Station, Needles, California

Location ID	Aquifer Zone	Sample Date		Sample Method	Boron, Dissolved (mg/L)	Bromide (mg/L)	Calcium, Dissolved (mg/L)	Chloride (mg/L)	Deuterium (‰)	Magnesium, Dissolved (mg/L)	Nitrate/Nitrite as Nitrogen (mg/L)	Oxygen-18 (‰)	Potassium, Dissolved (mg/L)	Sodium, Dissolved (mg/L)	Sulfate (mg/L)	Total Alkalinity as $CaCO_3$ (mg/L)	Total Dissolved Solids (mg/L)
MW-34-080	DA	12/01/2014		LF	--	--	--	--	--	--	ND (0.05)	--	--	--	--	--	--
MW-34-080	DA	04/20/2015		LF	--	--	--	--	--	--	ND (0.05)	--	--	--	--	--	--
MW-34-080	DA	12/03/2015		LF	0.83	ND (2.5)	220	1500	-92.07	48	ND (0.05)	-11.53	--	1000	510	300	3,600
MW-34-080	DA	04/26/2016		LF	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-34-080	DA	12/06/2016		LF	0.98	ND (2.5)	220 J	2000	-88.5807	47	--	-11.3322	15	1300	630	270	4,300
MW-34-080	DA	12/06/2016	FD	LF	0.98	ND (2.5)	230 J	1900	-88.0238	47	--	-10.9343	16	1300	620	290	4,200
MW-34-080	DA	04/27/2017		LF	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-34-080	DA	12/06/2017		LF	0.89	ND (2.5)	220	2400	-85.89	71	ND (0.05)	-10.82	14	1400	670	280	4,700
MW-34-080	DA	04/24/2018		LF	--	--	--	--	--	--	ND (0.05)	--	--	--	--	--	--
MW-34-080	DA	12/05/2018		LF	1	ND (2.5)	280	2300	-84.72	82	ND (0.1)	-11.14	17	1600	640	280	4,900
MW-34-080	DA	04/24/2019		LF	--	--	--	--	--	--	ND (0.05)	--	--	--	--	--	--
MW-34-080	DA	12/10/2019		LF	1.2 J	ND (2.5)	290	2400	-84.77	100	ND (0.05)	-11.14	17 J	1500	610	290	5,300
MW-34-080	DA	12/10/2019	FD	--	1.2 J	ND (2.5)	290	2300	-84.25	100	ND (0.05)	-10.75	18 J	1600	610	290	5,300
MW-34-080	DA	06/18/2020		LF	--	--	--	--	--	--	ND (0.05)	--	--	--	--	--	--
MW-34-080	DA	12/03/2020		LF	0.98	ND (2.5)	210	2200	-86.3	93 J	ND (0.1)	-11.11	18 J	1,400 J	580	310	4,900
MW-34-100	DA	03/14/2005		3V	--	--	221	5010	--	17.4	--	--	34.1	3600	1210	175	10,800
MW-34-100	DA	06/21/2005		3V	2.22	ND (0.5)	229	5350	-75	17.4	--	-9.7	27.1	3510	1270	179	11,300
MW-34-100	DA	06/21/2005	FD	3V	2.36	ND (0.5)	243	4920	-77	18.2	--	-9.5	32.1	3740	1180	179	10,900 J
MW-34-100	DA	10/05/2005		3V	2.57	ND (0.5)	171	4530	-83	13.8	--	-9.9	55.2	2450	1150	172	10,400
MW-34-100	DA	10/05/2005	FD	3V	2.57	ND (0.5)	228	4680	-83	14.1	--	-9.9	50.9	2730	1200	172	10,400
MW-34-100	DA	12/14/2005		3V	2.32	--	226	--	--	14.9	--	--	62.9	2530	--	--	--
MW-34-100	DA	12/14/2005	FD	3V	2.4	--	220	--	--	15.1	--	--	64.2	2530	--	--	--
MW-34-100	DA	03/08/2006		3V	2.41	--	179	4720	-75.5J	12.1	--	-11.4	32.5	3580	1180	152	10,000
MW-34-100	DA	03/08/2006	FD	3V	2.46	--	182	4920	-101.9J	11.9	--	-10.1	36.5	3530	1220	159	10,100
MW-34-100	DA	05/03/2006		3V	2.73	--	162	5060	-74.5	12	--	-10.5	31.1	3890	1200	133	9,940
MW-34-100	DA	05/03/2006	FD	3V	2.77	--	166	5170	-71.9	12.2	--	-10.6	31.3	3900	1230	136	9,990
MW-34-100	DA	04/30/2007		3V	2.39	--	186	5920	-80.7	12	--	-10.9	31.5	3840	1040	123	10,600
MW-34-100	DA	04/30/2007	FD	3V	2.4	--	189	5880	-82.1	12	--	-11.2	32.1	3920	1050	123	11,900
MW-34-100	DA	10/03/2007		3V	2.5	ND (1.0)	170	5350	-78.2	11	--	-10.2	44	4300	970	120	10,700
MW-34-100	DA	10/03/2007	FD	3V	2.4	ND (1.0)	160	5360	-78.4	10	--	-10.6	43	4300	953	120	10,500
MW-34-100	DA	10/07/2008		3V	2.35	ND (2.5)	158	5400	-80.8	10.6	--	-10.9	54.5	2,970 J	1200	140	11,000
MW-34-100	DA	10/07/2008	FD	3V	2.59	ND (2.5)	184	5600	-81.3	11.5	--	-11	56.7	3,880 J	1200	140	11,000
MW-34-100	DA	09/30/2009		3V	2.3	--	200	5500	--	11	--	--	73	3800	1300	170	--
MW-34-100	DA	09/30/2009	FD	3V	--	--	--	5600	--	--	--	--	--	--	1300	170	--
MW-34-100	DA	11/17/2009		3V	--	ND (1.0)	--	--	-82.38	--	--	-10.47	--	--	--	--	11,000
MW-34-100	DA	12/08/2010		3V	2.6	ND (2.5)	190	5800	-79.5	9.6	--	-9.8	52 J	4100	1300	140 J	10,000
MW-34-100	DA	12/08/2010	FD	3V	2.5	ND (1.0)	180	5700	-80.4	9.8	--	-10	60 J	4000	1200	89 J	9,900
MW-34-100	DA	12/06/2011		3V	2.7	ND (2.5)	170	5700	-79.2	7.6	--	-10.1	43	4000	1300	120	10,000
MW-34-100	DA	12/06/2011	FD	3V	2.7	ND (2.5)	160	5600	-79.5	7.4	--	-10	43 J	3900	1200	120	9,400
MW-34-100	DA	11/26/2012		3V	2.6	ND (2.5)	150	5900	-80.5	8.6	0.444	-10.1	47	3100	1200	120	11,000
MW-34-100	DA	11/26/2012	FD	3V	2.6	ND (2.5)	150	5900	-80.9	8.2	0.421	-10.2	47	3200	1200	130	11,000
MW-34-100	DA	04/16/2013		3V	--	--	--	--	--	--	ND (0.5)	--	--	--	--	--	--
MW-34-100	DA	04/16/2013	FD	3V	--	--	--	--	--	--	ND (0.5)	--	--	--	--	--	--
MW-34-100	DA	11/20/2013		3V	2.6	ND (2.5)	140	5300	-78.9	8	0.422	-10.18	35	3900	1200	120	10,000
MW-34-100	DA	11/20/2013	FD	3V	2.7	ND (2.5)	150	5300	-79.33	8.5	0.419	-9.81	35	3900	1100	120	10,000
MW-34-100	DA	10/02/2014		LF	--	--	--	--	--	--	0.64	--	--	--	--	--	--
MW-34-100	DA	12/01/2014		LF	2.2	ND (1.0)	140	5400	-76.95	5.6	0.58 J	-9.97	30	3900	1100	95	9,900
MW-34-100	DA	12/01/2014	FD	LF	2	ND (1.0)	140	5500	-77.2	5.6	0.61 J	-10.1	32	4000	1100	100	9,900
MW-34-100	DA	02/16/2015		LF	--	--	--	--	--	--	0.61	--	--	--	--	--	--
MW-34-100	DA	04/20/2015		LF	--	--	--	--	--	--	ND (0.05)	--	--	--	--	--	--
MW-34-100	DA	04/20/2015	FD	LF	--	--	--	--	--	--	ND (0.056)	--	--	--	--	--	--
MW-34-100	DA	10/06/2015		LF	--	--	--	--	--	--	0.29	--	--	--	--	--	--
MW-34-100	DA	12/03/2015		LF	2.7	ND (5.0)	150	5100	-79.04	6.7	0.74	-10.1	30	3700	980	100	9,900
MW-34-100	DA	12/03/2015	FD	LF	2.8	ND (5.0)	160	5200	-78.93	7.1	0.73	-10.16	31	3800	1000	94	9,600
MW-34-100	DA	02/25/2016		LF	--	--	--	--	--	--	0.13	--	--	--	--	--	--
MW-34-100	DA	04/26/2016		LF	--	--	--	--	--	--	ND (0.05)	--	--	--	--	--	--
MW-34-100	DA	10/06/2016		LF	--	--	--	--	--	--	ND (0.05)	--	--	--	--	--	--
MW-34-100	DA	12/06/2016		LF	2.3	0.59	140 J	4700	-81.5735	7.6	0.078	-10.6026	33	3600	1200	130	8,900
MW-34-100	DA	02/06/2017		LF	--	--	--	--	--	--	0.19	--	--	--	--	--	--

Appendix I

Chemical Performance Monitoring Sampling Results, March 2005 through December 2020

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

Location ID	Aquifer Zone	Sample Date		Sample Method	Boron, Dissolved (mg/L)	Bromide (mg/L)	Calcium, Dissolved (mg/L)	Chloride (mg/L)	Deuterium (‰)	Magnesium, Dissolved (mg/L)	Nitrate/Nitrite as Nitrogen (mg/L)	Oxygen-18 (‰)	Potassium, Dissolved (mg/L)	Sodium, Dissolved (mg/L)	Sulfate (mg/L)	Total Alkalinity as $CaCO_3$ (mg/L)	Total Dissolved Solids (mg/L)
MW-34-100	DA	02/06/2017	FD	LF	--	--	--	--	--	--	0.18	--	--	--	--	--	--
MW-34-100	DA	04/27/2017		LF	--	--	--	--	--	--	ND (0.05)	--	--	--	--	--	--
MW-34-100	DA	10/02/2017		LF	--	--	--	--	-84.83	--	ND (0.05)	-10.55	--	--	--	--	--
MW-34-100	DA	12/06/2017		LF	1.7	ND (2.5)	140	3500	--	21	ND (0.05)	--	24	2300	1000	170	6,800
MW-34-100	DA	02/20/2018		LF	--	--	--	--	--	--	ND (0.05)	--	--	--	--	--	--
MW-34-100	DA	04/24/2018		LF	--	--	--	--	--	--	ND (0.05)	--	--	--	--	--	--
MW-34-100	DA	04/24/2018	FD	LF	--	--	--	--	--	--	ND (0.05)	--	--	--	--	--	--
MW-34-100	DA	10/01/2018		LF	--	--	--	--	--	--	3.6	--	--	--	--	--	--
MW-34-100	DA	12/05/2018		LF	1.7	ND (1.0)	170	3100	-86.28	27	ND (0.1)	-11.24	24	2400	950	180	6,100
MW-34-100	DA	02/14/2019		LF	--	--	--	--	--	--	ND (0.05)	--	--	--	--	--	--
MW-34-100	DA	04/24/2019		LF	--	--	--	--	--	--	ND (0.05)	--	--	--	--	--	--
MW-34-100	DA	10/01/2019		LF	--	--	--	--	--	--	ND (0.05)	--	--	--	--	--	--
MW-34-100	DA	12/10/2019		LF	2.3 J	ND (1.0)	180	4000	-84	26	ND (0.05)	-11.06	31 J	3100	1100	150	9,200
MW-34-100	DA	12/10/2019	FD	--	2.4 J	ND (1.0)	180	4000	-83.92	26	ND (0.05)	-10.83	30 J	2900	1100	160	9,100
MW-34-100	DA	02/20/2020		LF	--	--	--	--	--	--	ND (0.05)	--	--	--	--	--	--
MW-34-100	DA	06/18/2020		LF	--	--	--	--	--	--	0.18	--	--	--	--	--	--
MW-34-100	DA	10/01/2020		LF	--	--	--	--	--	--	ND (0.05)	--	--	--	--	--	--
MW-34-100	DA	12/03/2020		LF	1.2 J	ND (1.0)	92	3000	-88	25 J	ND (0.1)	-11.34	26 J	2,000 J	870	200	6,200
MW-34-100	DA	12/03/2020	FD	--	1.6 J	ND (1.0)	120	2800	-88.1	32 J	ND (0.1)	-11.29	28 J	2,000 J	840	210	6,100
R-28	--	03/08/2005		G	ND (0.2)	ND (0.5)	83.7	90.4	-102	31.4	--	-12.5	5.02	107	231	132	651
R-28	--	06/14/2005		G	ND (0.2)	ND (0.5)	78.5	91.2	-95	28.5	--	-11.6	5.08	94.5	268	127	680
R-28	--	10/05/2005		G	ND (0.2)	ND (0.5)	85.7	85.5	-94	30.4	--	-11.6	6.3	77	255	122	672
R-28	--	12/16/2005		G	ND (0.2)	ND (0.5)	87.2	88.1	-83	29.8	--	-11.5	6.11	76.8	254	126	710
R-28	--	03/06/2006		G	ND (0.2)	ND (0.5)	76.6	91	-93.4	26.6	--	-12.3	5.22 J	91.5	270	146	675
R-28	--	05/03/2006		G	ND (0.2)	ND (0.5)	88.1	93.4	-92.1	31.4	--	-13	4.04 J	107	270	136	586
R-28	--	10/04/2006		G	ND (0.2)	ND (0.5)	84.2	90.9	-95.3	32.1	--	-12.6	6.17 J	96.5	259	133	644 J
R-28	--	12/20/2006		G	ND (0.2)	ND (0.5)	85.7	93.3	-99.6	32	--	-12.4	4.66	108	262	143	615
R-28	--	03/14/2007		G	ND (0.2)	ND (0.5)	87.9	96.7	-100.4	31	--	-12.8	5.71	105	268	133	710
R-28	--	05/09/2007		G	ND (0.2)	ND (0.5)	86.1	95.8	-102.3	30.5	--	-13	5.92	103	271	143	690
R-28	--	09/12/2007		G	ND (0.2)	ND (0.2)	73.8	106	-99.4	29.9	--	-12.4	6.36	89.2	296	122	682
R-28	--	12/06/2007		G	ND (0.2)	ND (0.2)	75.7	96.5	-98.6	30.4	--	-11.7	6.62	79.4	258	139	--
R-28	--	04/02/2008		G	0.467	ND (1.0)	84.7	92.5	--	31.4	--	--	5.58	108	309	137	--
R-28	--	06/18/2008		G	ND (0.2)	ND (1.0)	43.3	89.4	-101.7	31.1	--	-13.2	6.95	93.9	248	132	672
R-28	--	09/17/2008		G	ND (0.2)	ND (0.5)	83.4	91.4	--	31.2	--	--	6.48	78	256	132	640
R-28	--	12/04/2008		G	0.262	ND (1.0)	81.7	97.4	-97	30	--	-11.89	5.95	114	260	135	649
R-28	--	01/21/2009		G	ND (0.2)	ND (0.5)	79.2	91.5	-96.7	27.8	--	-11.97	6.01	91.7	253	134	652
R-28	--	04/09/2009		G	ND (0.2)	ND (0.5)	79.6	92.7	-97.81	28.8	--	-12.43	5.44	97	250	138	643
R-28	--	07/08/2009		G	ND (0.2)	ND (0.5)	79.6	84.5	-98.62	27.3	--	-12.78	6.17	86.9	239	131	632
R-28	--	09/09/2009		G	ND (0.2)	ND (1.0)	74.8	86	-99.06	26.2	--	-12.47	6.01	78.7	236	131	640
R-28	--	12/14/2009		G	ND (0.2)	ND (1.0)	73.5	89.7	-98.33	26.7	--	-13.03	4.98	88.2	244	131	612
R-28	--	12/21/2010		G	ND (0.2)	ND (0.5)	69.1	91	-101.8	24.8	--	-12.1	4.75	87.8	223	133	602
R-28	--	06/08/2011		G	--	--	--	--	--	--	--	--	--	--	--	116	--
R-28	--	08/23/2011		G	--	--	--	--	--	--	--	--	--	--	--	115	--
R-28	--	11/30/2011		G	--	--	--	--	--	--	--	--	--	--	--	119	--
R-28	--	01/11/2012		G	ND (0.2)	ND (0.5)	70.2	80.5	--	27.4	--	--	4.76	83.7	218	127	--
R-28	--	02/29/2012		G	--	--	--	--	--	--	--	--	--	--	--	123	--
R-28	--	05/22/2012		G	--	--	--	--	--	--	--	--	--	--	--	124	--
R-28	--	08/22/2012		G	--	--	--	--	--	--	--	--	--	--	--	126	--
R-28	--	11/01/2012		G	ND (0.2)	ND (0.5)	71.3	75.4	-102.2	27.5	--	-12.6	4.12	79.3	212	132	499
R-28	--	01/09/2013		G	--	--	--	--	--	--	--	--	--	--	--	130	--
R-28	--	03/05/2013		G	--	--	--	--	--	--	--	--	--	--	--	122	--
R-28	--	05/21/2013		G	--	--	--	--	--	--	ND (0.5)	--	--	--	--	127	--
R-28	--	07/16/2013		G	--	--	--	--	--	--	ND (0.5)	--	--	--	--	124	--
R-28	--	11/21/2013		G	0.121	ND (0.5)	73.2	80.4	-103.05	26.2	0.293	-12.79	4.44	84.7	220	131	564
R-28	--	01/14/2014		G	--	--	--	--	--	--	0.315	--	--	--	--	--	--
R-28	--	03/13/2014		G	--	--	--	--	--	--	0.41	--	--	--	--	--	--
R-28	--	05/22/2014		G	--	--	--	--	--	--	0.27	--	--	--	--	--	--
R-28	--	07/16/2014		G	--	--	--	--	--	--	0.37	--	--	--	--	--	--
R-28	--	11/20/2014		G	0.13	ND (0.5)	68	85	-99.96	23	0.29	-12.26	4.5	88	230	130	620

Appendix I

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Location ID	Aquifer Zone	Sample Date		Sample Method	Boron, Dissolved (mg/L)	Bromide (mg/L)	Calcium, Dissolved (mg/L)	Chloride (mg/L)	Deuterium (‰)	Magnesium, Dissolved (mg/L)	Nitrate/Nitrite as Nitrogen (mg/L)	Oxygen-18 (‰)	Potassium, Dissolved (mg/L)	Sodium, Dissolved (mg/L)	Sulfate (mg/L)	Total Alkalinity as $CaCO_3$ (mg/L)	Total Dissolved Solids (mg/L)
R-28	--	01/15/2015		G	--	--	--	--	--	--	0.33	--	--	--	--	--	--
R-28	--	02/25/2015		G	--	--	--	--	--	--	0.44	--	--	--	--	--	--
R-28	--	06/09/2015		G	--	--	--	--	--	--	0.37	--	--	--	--	--	--
R-28	--	09/16/2015		G	--	--	--	--	--	--	0.34	--	--	--	--	--	--
R-28	--	12/09/2015		G	0.13	ND (1.0)	61	94	-97.4889	20	0.38	-11.8759	4.7 J	100	250	120	640
R-28	--	01/26/2016		--	--	--	--	--	--	--	0.47	--	--	--	--	--	--
R-28	--	01/26/2016	FD	--	--	--	--	--	--	--	0.46	--	--	--	--	--	--
R-28	--	02/24/2016		--	--	--	--	--	--	--	0.52	--	--	--	--	--	--
R-28	--	04/27/2016		G	--	--	--	--	--	--	0.42	--	--	--	--	--	--
R-28	--	07/07/2016		G	--	--	--	--	--	--	0.44	--	--	--	--	--	--
R-28	--	11/29/2016		G	0.21	ND (1.0)	67 J	92	-101.7	22	0.31	-12.71	4.5	91	240	130	--
R-28	--	11/29/2016	FD	G	0.21	ND (1.0)	64 J	96	-101.1	22	0.42	-12.15	4.5	91	240	130	--
R-28	--	01/24/2017		G	--	--	--	--	--	--	0.38	--	--	--	--	--	--
R-28	--	02/21/2017		G	--	--	--	--	--	--	0.46	--	--	--	--	--	--
R-28	--	05/11/2017		G	--	--	--	--	--	--	0.42	--	--	--	--	--	--
R-28	--	08/16/2017		G	--	--	--	--	--	--	0.39	--	--	--	--	--	--
R-28	--	11/15/2017		G	0.12	ND (0.1)	60	91	-97.09	21	0.32	-12.42	4	88	230	130	580
R-28	--	01/03/2018		G	--	--	--	--	--	--	0.34	--	--	--	--	--	--
R-28	--	02/21/2018		G	--	--	--	--	--	--	0.48	--	--	--	--	--	--
R-28	--	06/12/2018		G	--	--	--	--	--	--	0.36	--	--	--	--	--	--
R-28	--	09/12/2018		G	--	--	--	--	--	--	0.36	--	--	--	--	--	--
R-28	--	12/11/2018		G	ND (0.13)	ND (0.5)	71	88	-97.19	25	0.29	-12.38	4.7	94	210	130	580
R-28	--	12/11/2018	FD	G	ND (0.13)	ND (0.5)	71	87	-98.12	25	0.28	-12.49	4.7	94	210	130	600
R-28	--	02/12/2019		G	--	--	--	--	--	--	0.32	--	--	--	--	--	--
R-28	--	03/19/2019		--	--	--	--	--	--	--	0.38	--	--	--	--	--	--
R-28	--	06/18/2019		--	--	--	--	--	--	--	0.38	--	--	--	--	--	--
R-28	--	08/21/2019		--	--	--	--	--	--	--	0.33	--	--	--	--	--	--
R-28	--	11/20/2019		--	0.17 J	ND (1.0)	68	87	-95.6	24	0.28	-11.66	4.4	90	210	130	580
R-28	--	01/29/2020		--	--	--	--	--	--	--	0.32	--	--	--	--	--	--
R-28	--	02/19/2020		--	--	--	--	--	--	--	0.33	--	--	--	--	--	--
R-28	--	04/29/2020		--	--	--	--	--	--	--	0.41	--	--	--	--	--	--
R-28	--	08/19/2020		LF	--	--	--	--	--	--	0.37	--	--	--	--	--	--
R-28	--	11/18/2020		LF	ND (0.1)	ND (0.5)	58	88	-100.8	25	0.28	-12.34	4.7	86	210	140	580
R-28	--	11/18/2020	FD	--	0.13	ND (0.5)	59	88	-100.4	25	0.3	-12.27	4.7	86	210	140	580

Notes:

-- = not applicable or not reportable.
‰ = parts per thousand.
3V = three volume purge.
$CaCO_3$ = calcium carbonate.
DA = deep interval of Alluvial Aquifer.
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.
mg/L = milligrams per liter.
ND = not detected at listed reporting limit.
SA = shallow interval of Alluvial Aquifer.

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