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March 12, 2025

Christopher Ioan
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California Department of Toxic Substances Control
5796 Corporate Avenue
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Subject: *Fourth Quarter 2024 Well Performance Report, PG&E Topock Compressor Station, Needles, California* (PGE20180115A)

Dear Christopher Ioan:

Enclosed is the Fourth Quarter 2024 Well Performance Report for the Pacific Gas and Electric Company Topock Compressor Station located in Needles, California. In December 2021, startup began for Phase 1 of the groundwater remedy system including the start of National Trails Highway In Situ Reactive Zone system operation, maintenance, and monitoring to address hexavalent chromium in groundwater. Operation of the In Situ Reactive Zone injection and extraction wells continued in Fourth Quarter 2024.

In accordance with the reporting requirements outlined in the Basis of Design Report/Final (100%) Design Submittal, this well performance report presents an overview of the groundwater remedy and well maintenance objectives; a summary of Fourth Quarter 2024 well operations, maintenance, and performance monitoring activities; and recommendations and planned activities for the next reporting period.

Please contact me at (628) 219-4369 if you have any questions about the well performance report.

Sincerely,

John Glass
Pacific Gas and Electric Co
Program Manager

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

Topock Project Executive Abstract

Document Title:	Fourth Quarter 2024 Well Performance Report, PG&E Topock Compressor Station, Needles CA
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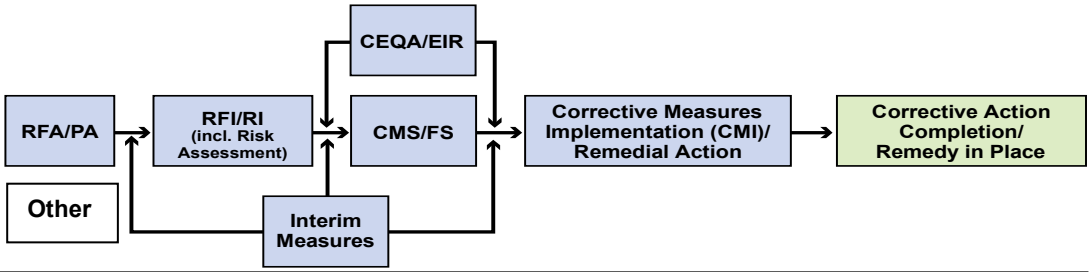
Is this a regulatory requirement?	☒ Yes ☐ No If no, why is the document needed?
What is the consequence of NOT doing this item? What is the consequence of DOING this item?	Submittal of this report is a compliance requirement under DTSC and DOI requirements.
Other Justification/s:	☐ Permit ☐ Other / Explain:
Brief Summary of Attached Document:	In December 2021, startup began for Phase 1 of the groundwater remedy system including start of National Trails Highway In Situ Reactive Zone system operation, maintenance, and monitoring to address hexavalent chromium in groundwater. Operation of the In Situ Reactive Zone injection and extraction wells continued in Fourth Quarter 2024. In accordance with the reporting requirements outlined in the Basis of Design Report/Final (100%) Design Submittal, this well performance report presents an overview of the groundwater remedy and well maintenance objectives; a summary of Fourth Quarter 2024 well operations, maintenance, and performance monitoring activities; and recommendations and planned activities for the next reporting period. Written by: PG&E
Recommendations:	None.
How is this information related to the Final Remedy or Regulatory Requirements?:	This report is required by DTSC and DOI as part of the Basis of Design Report/Final (100%) Design Submittal for the Final Groundwater Remedy.

Other requirements of this information?:	None.
Related Reports and Documents:	Click any boxes in the Regulatory Road Map (below) to be linked to the Documents Library on the DTSC Topock Web Site (www.dtsc-topock.com).  **Legend** RFA/PA – RCRA Facility Assessment/Preliminary Assessment RFI/RI – RCRA Facility Investigation/CERCLA Remedial Investigation (including Risk Assessment) CMS/FS – RCRA Corrective Measure Study/CERCLA Feasibility Study CEQA/EIR – California Environmental Quality Act/Environmental Impact Report

Version 9

Pacific Gas and Electric Company

Fourth Quarter 2024 Well Performance Report

Topock Compressor Station

Needles, California

March 12, 2025

Fourth Quarter 2024 Well Performance Report

Topock Compressor Station

Needles, California

March 12, 2025

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Acronyms and Abbreviations

Agencies	U.S. Department of the Interior and the California Department of Toxic Substances Control
CH2M Hill	CH2M Hill, Inc.
Cr6	hexavalent chromium
DOI	U.S. Department of the Interior
DTSC	California Department of Toxic Substances Control
Final BOD	Basis of Design Report/Final (100%) Design Submittal
gpm	gallon per minute
IRZ	In Situ Reactive Zone
mg/L	milligram per liter
NTH	National Trails Highway
NTU	nephelometric turbidity unit
O&M	operation and maintenance
PG&E	Pacific Gas and Electric Company
Site	Pacific Gas and Electric Company Topock Compressor Station, located in eastern San Bernardino County, 15 miles southeast of the City of Needles, California
TOC	total organic carbon

1 Introduction

Pacific Gas and Electric Company (PG&E) is implementing a final groundwater remedy to address hexavalent chromium (Cr6) in groundwater near the PG&E Topock Compressor Station located in eastern San Bernardino County, 15 miles southeast of the City of Needles, California (the Site). PG&E is implementing the groundwater remedy at the Topock Compressor Station in conformance with the requirements of the Resource Conservation and Recovery Act and the Comprehensive Environmental Response, Compensation, and Liability Act. The U.S. Department of the Interior (DOI) and the California Department of Toxic Substances Control (DTSC), collectively known as the Agencies, executed a Memorandum of Understanding on November 22, 2011, which established coordination guidelines for overseeing implementation of a groundwater response action at the Site (DTSC and DOI 2011). In a coordinated effort, the Agencies selected the final groundwater remedy to address Cr6 in groundwater, which is presented in the Record of Decision (DOI 2010).

In November 2015, PG&E submitted a Basis of Design Report/Final (100%) Design Submittal (Final BOD), which presents the design basis, design criteria, drawings, specifications, and operation and maintenance (O&M) requirements for the groundwater remedy (CH2M Hill, Inc. [CH2M Hill] 2015a). The infrastructure for the groundwater remedy is being constructed following the plans and procedures documented in the Construction/Remedial Action Work Plan (CH2M Hill 2015b). Construction and startup of the groundwater remedy is proceeding in phases.

Construction of Phase 1 began in October 2018 and was completed sufficiently in December 2021 for initial system startup. Design modifications were incorporated during construction to accommodate actual conditions encountered, including a plume footprint smaller than that documented in the Final BOD (CH2M Hill 2015a). As a result, the National Trails Highway (NTH) In Situ Reactive Zone (IRZ) system was installed with 10 fewer wells than planned in the Final BOD, with these 10 wells being deferred from Phase 1 of construction.

The NTH IRZ is a recirculation system in which water is extracted from up to five NTH IRZ extraction wells, amended with carbon substrate, and injected into up to 25 NTH IRZ injection intervals. In wells with triple screens (IRZ-25 and IRZ-27), two of the three well screens are combined into a single interval using a packer. The NTH IRZ extraction wells include IRZ-9, IRZ-13S, IRZ-13D, IRZ-23, and pilot test well PTI-1D.

Injection well intervals include IRZ-15 (upper), IRZ-15 (lower), IRZ-16 (upper), IRZ-16 (lower), IRZ-17 (upper), IRZ-17 (lower), IRZ-18 (upper), IRZ-18 (lower), IRZ-20 (upper), IRZ-20 (lower), IRZ-21 (upper), IRZ-21 (lower), IRZ-25 (upper/upper middle), IRZ-25 (lower), IRZ-27 (upper)[1], IRZ-27 (middle/lower), IRZ-29 (upper), IRZ-29 (lower), IRZ-31 (upper), IRZ-31 (lower), IRZ-33 (upper), IRZ-33 (lower), IRZ-35, IRZ-37, and IRZ-39.

A site layout, including locations of the extraction wells, the remedy-produced water conditioning system, and the carbon amendment system, is shown on Figure 1.1.

In December 2021, startup began for Phase 1 of the groundwater remedy system including operation, maintenance, and monitoring of the NTH IRZ system. O&M is being performed in accordance with the O&M Manual (Appendix L, Volume 1 of the Final BOD; CH2M Hill 2015a). This report documents well maintenance and

[1] Injection well IRZ-27 is a triple-screened well and is separated into two injection intervals using a packer. The packer is installed between the upper screen and the middle screen, subdividing the well into an upper screen interval and a middle/lower screen interval. The packer will be reinstalled to subdivide the well into an upper/middle interval and a lower interval in First Quarter 2025 to prioritize Cr6 treatment in the lower screen interval.

well performance from October 1 to December 31, 2024 (Fourth Quarter 2024) in accordance with the O&M Manual (Appendix L, Volume 1 of the Final BOD; CH2M Hill 2015a). The remainder of this report is organized into the following sections:

- Section 2 provides an overview of the well maintenance program.
- Section 3 summarizes the well performance and maintenance of the NTH IRZ remediation wells.
- Section 4 summarizes the well performance and maintenance of the monitoring wells.
- Section 5 provides recommendations for modifications to the well maintenance program and planned activities for the next quarterly reporting period.
- Section 6 provides the references for the documents cited throughout this report.

2 NTH IRZ Well Maintenance Program

The well maintenance program consists of routine maintenance and performance tracking, including tracking well performance over time, collecting analytical data, and inspecting wells to evaluate well integrity over time. This section summarizes these activities.

2.1 Routine Maintenance

Well maintenance is incorporated into the routine operations of the NTH IRZ. Exhibit 2.1 in this section summarizes estimated maintenance activity frequencies for the NTH IRZ wells as presented in the O&M Manual (Appendix L, Volume 1 of the Final BOD; CH2M Hill 2015a). Injection wells are prone to fouling as the injection of organic carbon stimulates the growth of bacteria, generation of gases such as carbon dioxide, and formation of mineral precipitates. To mitigate fouling resulting from these processes, routine maintenance plans include backwashing and mechanical and chemical rehabilitation. Injection wells are backwashed by extracting groundwater for a short period using a downhole pump to loosen and remove sediments and deposits present on the well screen or in the filter pack. Backwashing of injection wells was initially anticipated to occur weekly during operations (Exhibit 2.1). Mechanical rehabilitation of wells involves physical agitation and subsequent removal of dislodged and detached deposits. Chemical rehabilitation uses additives to remove deposits (for example, by increasing solubility). Mechanical and chemical rehabilitation were planned to occur after periods of extended injection well operation and before planned extended downtime (approximately every 6 months to 1.5 years; see Exhibit 2.1). However, as discussed in the O&M Manual (Appendix L, Volume 1 of the Final BOD; CH2M Hill 2015a), the frequency and manner of injection well rehabilitation are subject to change in response to well performance monitoring data, which are detailed in Section 2.2. Currently, maintenance is performed more frequently than what was planned in the initial schedule that was presented in the O&M Manual (Appendix L, Volume 1 of the Final BOD; CH2M Hill 2015a), as shown in Exhibit 2.1.

Extraction wells are less prone to fouling and, as such, the frequency of routine rehabilitation for extraction wells is significantly lower than that for the injection wells. The O&M Manual (Appendix L, Volume 1 of the Final BOD; CH2M Hill 2015a) recommended mechanical rehabilitation (i.e., pumping and surging) for as needed maintenance of the extraction wells. Chemical rehabilitation may be warranted in some cases.

Exhibit 2.1 Routine Maintenance Matrix for Injection and Extraction Wells

	Injection Well Backwashing Frequency	**Injection Well Chemical/Mechanical Rehabilitation Frequency**	**Extraction Well Mechanical Rehabilitation Frequency**
Initial frequency	Weekly	6 months to 1.5 years	As needed
Current frequency	Three times per week	3 to 5 months	As needed

2.2 Long-Term Performance Tracking

Well performance is tracked to establish well performance trends, identify potential performance declines within the IRZ system, and inform the frequency and methods used for routine well maintenance (see Section 2.1). Long-term performance tracking consists of specific capacity monitoring, water quality monitoring, and wellhead inspection. Exhibit 2.2 in this section presents the minimum planned frequency of these activities, and specific capacity and water quality monitoring are detailed in the following subsections.

Exhibit 2.2. Performance Monitoring Frequencies

Performance Monitoring Activity	Injection Wells	Extraction Wells
Specific capacity evaluation	Monthly	Monthly
Water quality monitoring	Baseline, then as needed	Baseline as well as the following: Monthly TOC, manganese, iron, and field parameter screening in 2022 and First and Second Quarters 2023, then quarterly for the remainder of 2023, then annually or as needed thereafter. Annual or as needed biological and geochemical sampling. Annual or as needed biological activity tests, sand content tests, and modified fouling index tests.
Wellhead inspection	Quarterly	Quarterly

Notes:
1. Field parameters include temperature, pH, specific conductance, turbidity, dissolved oxygen, and oxidation–reduction potential.
2. Biological and geochemical sampling parameters for extraction wells include TOC, total dissolved solids, iron and manganese (total and dissolved), cations (calcium, potassium, magnesium, sodium; total), anions (chloride, fluoride, bromide, nitrate, nitrite, sulfate), alkalinity (total, carbonate, and bicarbonate), and hardness as calcium carbonate. Parameters measured only at baseline include Title 22 metals (total and dissolved), sulfide, phosphate, total phosphorus, silica, ammonia as nitrogen, total Kjeldahl nitrogen, and biochemical oxygen demand.
3. Baseline sampling included parameters listed in Notes 1 and 2.
TOC = total organic carbon

2.2.1 Specific Capacity Monitoring

One measure that is used to assess well performance is a specific capacity evaluation. The specific capacity for each extraction or injection well is determined by the rate of extraction or injection per unit of drawdown or draw-up in the well. Mathematically, this is calculated using the following equation.

$$Specific\ Capacity\ \left(\frac{gpm}{ft}\right) = \frac{discharge\ rate\ (gpm)}{operating\ water\ level\ (ft) - static\ water\ level\ (ft)}$$

where:
ft = foot/feet
gpm = gallon per minute

As discussed in the First Quarter 2022 Well Performance Report (Arcadis 2022a), baseline specific capacities are determined for each extraction and injection well once the wells are operating consistently and the flowrates and water levels stabilize. Baseline capacities were established in Second Quarter 2022 for wells that operated continuously for most of the quarter including IRZ-13S, IRZ-13D, IRZ-16, IRZ-17, IRZ-18, IRZ-20, IRZ-23, IRZ-27, IRZ-29, IRZ-31, IRZ-33, IRZ-35, and IRZ-37 (Arcadis 2022b, 2022c). Baseline capacities were modified in Third Quarter 2022 for extraction wells IRZ-13S, IRZ-13D, and IRZ-23 as explained in the Third Quarter 2022 Well Performance Report (Arcadis 2022d). Baseline capacities were established for IRZ-15 (upper) and IRZ-15 (lower) in Second Quarter 2023 and Third Quarter 2023, respectively, following continuous injection into these intervals at their target flowrates for an extended period of time. Extraction well PTI-1D began operation in Fourth Quarter 2023, and a baseline capacity was established in December 2023 following approximately 2 months of operation. Extraction well IRZ-9 and injection wells IRZ-21 and IRZ-25 have not operated continuously since NTH IRZ operations began; therefore, sufficient data were not available to establish baseline specific capacities for these wells. Injection well IRZ-39 operated for most of First Quarter 2023; however, IRZ-39 flowrates were low and unsustainable. IRZ-39 was shut down and remained offline until December 24, 2024. Baseline specific capacities for extraction well IRZ-9 and injection wells IRZ-21, IRZ-25, and IRZ-39 will be established once these wells have been operating continuously and conditions have stabilized.

Static water levels were collected for each injection and extraction well during well development. Static water levels vary naturally depending on the time of year. To account for this natural variation and to use the most conservative static water level, the static water levels collected before system operation were all adjusted to be representative of a low river stage condition (i.e., conditions in January) at the Site. This was done by reviewing historical water level data and calculating an adjustment factor based on that historical data. Specific capacity values may be affected by planned NTH IRZ well operational changes such as the setting of a new target flowrate. When this occurs, baseline specific capacity values may be adjusted.

Starting in Third Quarter 2022, specific capacities for each well have been calculated and compared to the baseline values to assess well performance decline over time. In accordance with the O&M Manual (Appendix L, Volume 1 of the Final BOD; CH2M Hill 2015a), well performance has previously been classified as “good” (specific capacity greater than or equal to 90 percent of baseline), “fair” (specific capacity between 80 and 90 percent of baseline), or “poor” (specific capacity less than 80 percent of baseline) based on the monthly average specific capacity. This initial classification system is oversimplified and no longer practical for identifying and prioritizing NTH IRZ wells for maintenance. Since start-up of the NTH IRZ system in December 2021, the frequencies of routine injection well maintenance activities have been increased (see Exhibit 2.1) and well

rehabilitation procedures have been enhanced (e.g., increased surging time, added jetting) for the injection wells. Starting in Fourth Quarter 2024, the “good,” “fair,” and “poor” designations are no longer presented as a metric for evaluating performance of the NTH IRZ wells or effectiveness of the well maintenance procedures at each well. Instead, specific capacities are reviewed in tandem with well flowrate and water level trends over time with the overarching goal of maintaining overall NTH IRZ injection system performance.

2.2.2 Water Quality Monitoring

Water quality monitoring, including field parameter screening and sample collection for laboratory analysis, provides data to help diagnose well clogging issues and determine corrective measures. Baseline water quality sampling included biological, geochemical, and field parameters as specified in Exhibits 4.1-1 and 4.1-2 of the O&M Manual (Appendix L, Volume 1 of the Final BOD; CH2M Hill 2015a). Extraction wells are sampled annually or as needed, as summarized in Exhibit 2.2 and in alignment with the O&M Manual (Appendix L, Volumes 1 and 2 of the Final BOD; CH2M Hill 2015a), for extraction of constituents associated with the in situ injections including TOC and dissolved metals. Samples were collected during Fourth Quarter 2024 and analyzed for select parameters according to standard operating procedures presented in Appendix B of the Groundwater Remedy Phase 1 Interim Monitoring Plan (Arcadis 2021) and the Final PG&E Program Quality Assurance Project Plan and addendum (CH2M Hill 2014; Critigen 2020). Sample results are discussed in Section 3.2.3 of this report.

3 NTH IRZ Well Performance

This section summarizes NTH IRZ system operational changes, well specific capacities, and water quality monitoring that occurred during Fourth Quarter 2024.

3.1 System Operation Summary

Throughout Fourth Quarter 2024, routine operation of the NTH IRZ system continued, with extraction wells IRZ-23, IRZ-13S, and IRZ-13D; pilot test well PTI-1D; and injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18, IRZ-20, IRZ-27, IRZ-29, IRZ-31, IRZ-33, IRZ-35, and IRZ-37 operating with periodic well rehabilitation. Operation of injection well IRZ-39 was resumed in December 2024 in response to increasing concentrations of nitrate (a chemical of potential concern at the Site) at monitoring well MW-71-035, as discussed in the Third Quarter 2024 Quarterly Progress Report (Arcadis 2024e). IRZ-39 had been offline since a storm in mid-March 2023 because it was not previously needed for treatment based on Cr6 concentrations at nearby performance monitoring wells.

Operation during Fourth Quarter 2024 prioritized maximizing extraction rates at IRZ-23 and PTI-1D for plume control, and NTH IRZ injection wells were operated at their target flowrates, when possible, to accommodate the extracted water[2]. Total recirculation flowrate varied throughout the quarter as maintenance requiring operational downtime was performed at each NTH IRZ injection well. This maintenance consisted of either chemical application at the wellhead (generally 2 to 3 days of downtime) or full chemical and mechanical well rehabilitation (1 to 2 weeks of downtime).

In accordance with the PTI-1D Floodplain Extraction Test Workplan (Arcadis 2023a), IRZ-23 and PTI-1D were operated at target extraction rates of 65 and 30 gpm, respectively. The average extraction rate at PTI-1D ranged from 26 to 27 gpm due to variations in forcemain backpressure as flow varied over time to operating injection wells. Injection flowrates were increased, when possible, to alleviate backpressure and increase the PTI-1D extraction rate. When the total extraction flowrate exceeded approximately 105 gpm, extraction well IRZ-13D was turned on at a flowrate of 10 to 20 gpm. If the flowrate at IRZ-13D exceeded 20 gpm, extraction well IRZ-13S was turned on, and the excess flow greater than 95 gpm was split evenly between IRZ-13S and IRZ-13D. Extraction wells IRZ-13S and IRZ-13D operated intermittently in Fourth Quarter 2024 and generally when only one injection well was down for rehabilitation at a time. IRZ-13S was operational for 0.10 percent of the time in October 2024, 43 percent in November 2024, and 27 percent in December 2024. IRZ-13D was actively operational for 73 percent of the time in October 2024, 81 percent in November 2024, and 83 percent in December 2024.

The ethanol dosing frequency in Fourth Quarter 2024 remained once weekly for the northern and southern NTH IRZ injection wells to maintain higher injection flowrates in the wells by limiting the potential for fouling in the wells. During this time, the amount of ethanol dosed per week into the northern and southern NTH IRZ wells was at a time-weighted target average concentration of 26 milligrams per liter (mg/L) TOC, which is approximately 30 percent of the nominal design dosing specified in the Final BOD (CH2M Hill 2015a). A total of 989 gallons of ethanol were injected in Fourth Quarter 2024. System run time, ethanol and recirculated groundwater injection volumes, and average flowrates are summarized in Table 3.1. An NTH IRZ system operations and non-routine maintenance log is presented in Table 3.2.

[2] In Fourth Quarter 2024, target flowrates for the northern IRZ injection wells were based on the nominal design flowrates specified in the Final BOD (CH2M Hill 2015a). Target flowrates for the southern IRZ injection wells were based on 1.5 times the nominal design flowrates specified in the Final BOD.

Chemical and mechanical well rehabilitation occurred at the following IRZ injection wells in Fourth Quarter 2024: IRZ-17, IRZ-18, IRZ-20, IRZ-27, IRZ-29, IRZ-31, IRZ-35, IRZ-37, and IRZ-39. Average systemwide uptime was 97 percent in Fourth Quarter 2024[3]. The following notable events occurred in Fourth Quarter 2024:

- To reach the extraction flowrate objectives, all operating injection wells remained online throughout Fourth Quarter 2024, except when a well was offline for rehabilitation.
- On October 13, 2024, PG&E submitted a work variance request to the Agencies to relocate equipment in the underground IRZ-39 well vault to a new aboveground panel to restore operability of IRZ-39. The Agencies approved the work variance request on October 30, 2024 (DTSC 2024b). IRZ-39 equipment was relocated and re-programmed in Fourth Quarter 2024, and IRZ-39 resumed operation in December 2024. Prior to resuming operation of IRZ-39, mechanical and chemical rehabilitation were completed at this well.
- Starting on October 30, the system was offline for approximately 16 hours due to a leak detection alarm in the IRZ-9 vault. A leak in the manual flow valve union caused the alarm. The system resumed operation following replacement of the union.
- On November 4 and November 5, the system was offline for approximately 14 hours due to a leak detection alarm in the IRZ-31 vault. The water level transducer malfunctioned, causing water to overflow the well casing. Following troubleshooting to confirm transducer operability, a manual water-level reading was collected, and the transducer offset was adjusted in order to prevent reoccurrence.
- On November 18 and November 19, the system was offline for approximately 11 hours due to a leak detection alarm caused by a leaking air relief fitting along the IRZ-18 (upper) vault piping. The piping was repaired on November 19, and the system resumed operation.

3.2 NTH IRZ Extraction Well Performance

Extraction wells operated as part of Phase 1 of the groundwater remedy include IRZ-9, IRZ-13S, IRZ-13D, IRZ-23, and pilot test well PTI-1D. Extraction well run time, volume of extracted groundwater, and average extraction well flowrate (per month) are documented in Table 3.1. A discussion of observed extraction well performance in Fourth Quarter 2024 is provided in the following subsections.

3.2.1 Extraction Well O&M and Specific Capacity Summary

As described in Section 2.2.1 of this report, average specific capacities from July 2022 were established as the baseline specific capacities for extraction wells IRZ-23, IRZ-13S, and IRZ-13D. A baseline specific capacity was established for PTI-1D in Fourth Quarter 2023. A baseline specific capacity has not yet been established for extraction well IRZ-9 due to limited and inconsistent operation of this well since NTH IRZ system operations began.

Graphs of average daily specific capacity over time for extraction wells IRZ-13S, IRZ-13D, IRZ-23, and pilot test well PTI-1D are presented on Figure 3.1 (Third Quarter 2022 through Fourth Quarter 2024). Average daily specific capacities are presented as percentages of the baseline specific capacities for each well. To date, changes in extraction well specific capacity have been a function of variations in target flow and river stage, as detailed below, rather than an indicator of well fouling:

[3] Systemwide uptime is calculated using total run time hours (run time in hours is calculated from extraction well operating hours) divided by total possible run time hours in Fourth Quarter 2024.

- **IRZ-23** operated throughout Fourth Quarter 2024 with a monthly average flowrate of 65 to 66 gpm. Specific capacity improved from October through December 2024 as the river stage lowered.
- **IRZ-13S** operated intermittently in Fourth Quarter 2024 with average flowrates between 8 and 14 gpm. The relatively low specific capacities calculated for this well in Fourth Quarter 2024 are due to low target flowrates.
- **IRZ-13D** primarily operated at greater than 100 percent baseline specific capacity in Fourth Quarter 2024, with monthly average flowrates between 12 and 14 gpm.
- **PTI-1D** operated at greater than 80 percent of baseline specific capacity throughout Fourth Quarter 2024, with monthly average flowrates between 26 and 27 gpm. In general, a decline in specific capacity has been observed since November 2024, and this well will continue to be monitored to determine whether maintenance is needed to maintain performance.

In accordance with the Final BOD (CH2M Hill 2015a), routine maintenance of extraction wells could include pump-and-surge redevelopment as needed. No routine maintenance was performed on the extraction wells in Fourth Quarter 2024.

3.2.2 Extraction Well Inspections

Extraction wells are inspected quarterly (at a minimum) for visible leaks and damage. Any notable damage or equipment needing replacement is identified in Table 3.2. Leak detection switches within the vaults are also used to identify maintenance needs in a timely manner. There was no notable damage to extraction wells, and no non-routine maintenance was performed on these wells during Fourth Quarter 2024. The filters at PTI-1D were replaced once weekly, at a minimum, to maintain a target flowrate of 26 to 30 gpm. The filters were replaced at a reduced frequency compared to past quarters due to reduced fouling observed on the filters. In Fourth Quarter 2024, 16 spent bag filters were generated from PTI-1D.

3.2.3 Extraction Well Water Quality

The potential for increased well fouling, resulting from the extraction of groundwater with residual carbon substrate and/or reduced metals from the nearby carbon injection activity, is monitored during system operations. This monitoring includes measuring TOC and metal byproduct concentrations at the extraction wells. The Fourth Quarter 2024 Quarterly Progress Report (Arcadis, in progress) provides the extraction well monitoring analytical results; however, the results are also summarized and discussed herein.

Baseline analytical data for extraction wells are provided in Table 3.4 of the First Quarter 2022 Well Performance Report (Arcadis 2022a) and in Exhibit 3.1 in this section (key indicator parameters only). Baseline analytical data were collected during December 2021, January 2022, March 2022, and November 2023, when extraction wells were respectively brought online (Exhibit 3.1).

Exhibit 3.1 in this section presents the Fourth Quarter 2024 analytical results from extraction wells IRZ-9, IRZ-23, IRZ-13S, IRZ-13D, and PTI-1D. Extraction wells IRZ-9, IRZ-23, IRZ-13S, and IRZ-13D were sampled in November 2024 (quarterly), and PTI-1D was sampled in October, November, and December 2024 (monthly). Extraction well IRZ-9 was not operated in Fourth Quarter 2024, except for routine sampling conducted in November 2024.

At the extraction wells, total iron, dissolved iron, and dissolved manganese concentrations were generally lower than the reporting limits or baseline concentrations, except for low concentrations of dissolved iron and dissolved manganese at IRZ-13S. These results are not indicative of fouling because IRZ-13S was only operated

intermittently prior to the sampling event. Although baseline TOC concentrations are not available for the extraction wells, TOC concentrations remained relatively low in Fourth Quarter 2024 (ranging from 1 to 2.5 mg/L). The isolated detections do not indicate a consistent trend that would be of concern for well fouling. Therefore, no adjustments to operations of the extraction wells were needed in Fourth Quarter 2024 based on the water quality results. The iron and manganese results for PTI-1D are further discussed in Section 3.2.4.

Exhibit 3.1. Fourth Quarter 2024 NTH IRZ Extraction Well Analytical Results

Extraction Well	Sample Date	Active Time Operating (percent)	TOC: Method 5310B (mg/L)	Total Iron (mg/L)	Dissolved Iron (mg/L)	Dissolved Manganese (mg/L)
IRZ-9	Baseline: January 2022	9	--	Less than 0.02	Less than 0.02	0.0027
IRZ-9	November 2024	0.8	1.0	Less than 0.02	Less than 0.02	0.0011
IRZ-23	Baseline: December 2021	8	--	0.69	0.091 J	Less than 0.0005
IRZ-23	November 2024	94	2.2	Less than 0.02	Less than 0.02	Less than 0.0005
IRZ-13S	Baseline: March 2022	53	--	0.06	Less than 0.02 J	Less than 0.0005
IRZ-13S	November 2024	43	1.3	Less than 0.02	0.032	0.0012
IRZ-13D	Baseline: March 2022	53	--	Less than 0.02	0.059 J	0.062
IRZ-13D	November 2024	81	2.5	Less than 0.02	Less than 0.02	0.0019
PTI-1D	Baseline: November 2023	94	--	1.3	1.1	4.2 J
PTI-1D	October 2024	97	--	0.10	0.092	0.58
PTI-1D	November 2024	95	--	0.092	0.089	0.66
PTI-1D	December 2024	99	--	0.10	0.086	0.68

Notes:
-- = not analyzed
J = estimated concentration

Table 3.3 includes field parameter data (temperature, pH, specific conductance, turbidity, dissolved oxygen, and redox potential) for extraction wells IRZ-13S, IRZ-13D, IRZ-23, and PTI-1D collected during Fourth Quarter 2024.

3.2.4 PTI-1D Operations

Starting on November 2, 2023, PG&E began extracting groundwater from pilot test extraction well PTI-1D, in accordance with the PTI-1D Floodplain Extraction Test Workplan (Arcadis 2023a), to improve hydraulic control and limit potential eastward migration of the Cr6 plume. PTI-1D has been running at a target extraction flowrate of 26 to 30 gpm since it was turned on.

The PTI-1D Floodplain Extraction Test Workplan (Arcadis 2023a) outlines the metrics that will be used to evaluate PTI-1D performance and provides indicators that will help determine if operational changes are needed and/or when the PTI-1D test is complete. On September 20, 2024, PG&E requested continuation of the PTI-1D extraction test (PG&E 2024). The DTSC and DOI conditionally approved a 1-year extension of the PTI-1D extraction test (DTSC 2024a; DOI 2024). The conditions included in the DTSC's September 24, 2023 conditional approval letter (DTSC 2023) remain in effect. In Fourth Quarter 2024, hydrogeologic and analytical data were collected and evaluated against the metrics, as described in the Fourth Quarter 2024 Quarterly Progress Report (Arcadis, in progress). Results relevant to PTI-1D well operations, maintenance, and performance are described in the text that follows.

Sustainable extraction at PTI-1D is defined as sustained specific capacity and low iron and manganese concentrations. PTI-1D began operation in November 2023, and baseline specific capacity was established using December 2023 data once water levels had stabilized following 2 months of sustained operation. The average extraction rate at PTI-1D ranged from 26 to 27 gpm due to variations in forcemain backpressure as flow varied over time to operating injection wells. Injection flowrates were increased, when possible, to alleviate backpressure and increase the PTI-1D extraction rate. Specific capacity at PTI-1D was maintained at greater than 80 percent of baseline specific capacity throughout Fourth Quarter, as presented on Figure 3.1. As discussed in Section 3.2.1, a general decline in specific capacity has been observed at PTI-1D since November 2024, and this well will continue to be monitored to determine whether maintenance is needed to maintain performance. PTI-1D was sampled for dissolved manganese and dissolved iron in October, November, and December 2024 to evaluate concentrations during active extraction at PTI-1D. Dissolved manganese and dissolved iron concentrations decreased from November 2023 to December 2023 and remained consistently low through Fourth Quarter 2024, with dissolved manganese concentrations ranging from 0.58 to 0.68 mg/L and dissolved iron concentrations ranging from 0.086 to 0.092 mg/L (Exhibit 3.1). In Fourth Quarter 2024, PTI-1D bag filters were checked and replaced once weekly, at a minimum, to monitor for microbial growth. Bag filter replacements are noted in Table 3.2. The specific capacity results, analytical results, and bag filter observations indicate that operation of PTI-1D is sustainable.

3.3 NTH IRZ Injection Well Performance

Phase 1 of the groundwater remedy includes NTH IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18, IRZ-20, IRZ-21, IRZ-25, IRZ-27, IRZ-29, IRZ-31, IRZ-33, IRZ-35, IRZ-37, and IRZ-39. Injection well run time, including average flowrates, is documented in Table 3.1. A discussion of observed injection well performance in Fourth Quarter 2024 is provided in the following subsections.

3.3.1 Well Maintenance Procedures

In the Fourth Quarter 2023 Well Performance Report (Arcadis 2024a), the following adjustments to the well rehabilitation program were planned:

- Complete quarterly mechanical and chemical rehabilitation at injection wells IRZ-18, IRZ-27, IRZ-31, and IRZ-37 using the updated rehabilitation procedure described in Section 3.3.1.1.
- Complete mechanical and chemical rehabilitation approximately every 4 to 5 months at injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-20, IRZ-29, IRZ-33, and IRZ-35 using the updated rehabilitation procedure described in Section 3.3.1.1.
- Implement routine wellhead chemical application (wellhead dosing) using an updated method at injection wells to prolong well performance between rehabilitation events.

Wellhead dosing involves delivering rehabilitation chemicals at the wellhead and is intended to supplement rehabilitation events. As discussed in the Third Quarter 2023 Well Performance Report (Arcadis 2023b), potential advantages of implementing wellhead dosing as an additional well maintenance strategy include the ability to inject reagent further into the filter pack (compared to the original rehabilitation procedure, which did not include jetting), the reduced intrusiveness compared to well rehabilitation, and the ability to complete dosing at an increased frequency compared to well rehabilitation.

As described in the First Quarter 2024 Well Performance Report and Second Quarter 2024 Well Performance Report (Arcadis 2024b, 2024c), during rehabilitation events it was observed that the chemical solution used for wellhead dosing was sinking into the sump of the injection wells, resulting in acidic conditions in the sump; therefore, an updated procedure was implemented at the end of First Quarter 2024. The updated procedure involved running the injection well at a low flowrate while delivering the chemical solution to obtain better mixing and limit potential for chemicals to sink into the sump. The updated wellhead dosing method was effective in preventing acidic conditions in the sump and has continued to be implemented as part of the wellhead dosing procedure during subsequent wellhead dosing events.

The injection well rehabilitation frequency schedule outlined in the Fourth Quarter 2023 Well Performance Report (Arcadis 2024a) is reviewed each quarter and adjusted as needed based on observed well performance and/or treatment objectives. In the Second Quarter 2024 Well Performance Report (Arcadis 2024c), the well rehabilitation program was updated to include IRZ-29 in the quarterly mechanical and chemical rehabilitation schedule. In the Third Quarter 2024 Well Performance Report (Arcadis 2024d), the well rehabilitation program was updated to include IRZ-33 in the quarterly mechanical and chemical rehabilitation schedule and to remove IRZ-37 from the quarterly mechanical and chemical rehabilitation schedule based on overall well performance. Instead of quarterly rehabilitation, IRZ-37 will now be rehabilitated approximately every 4 to 5 months. Notable rehabilitation adjustments that occurred in Fourth Quarter 2024 are provided in the list that follows.

- Prioritized rehabilitation of the southern NTH IRZ injection wells because operation of these wells at their target flowrates is important to achieve the IRZ treatment objectives. Further discussion of the IRZ treatment objectives is provided in the Fourth Quarter 2024 Quarterly Progress Report (Arcadis, in progress).
- Completed rehabilitation after approximately 3 months of operation at injection wells IRZ-17 and IRZ-29. Prior to rehabilitation, these injection wells had been operated at less than their target flowrates to manage high water levels. Rehabilitation significantly improved water levels and flowrates at these wells.

- Decreased the rehabilitation frequency at IRZ-37 due to good well performance. The latest rehabilitation occurred approximately 4 months after the previous rehabilitation event.
- Implemented routine wellhead dosing using the updated method at injection well IRZ-27 (lower) to prolong well performance between rehabilitation events. Routine wellhead dosing was paused following implementation at IRZ-27 (lower) due to the limited improvement in well performance observed following the wellhead dosing events in Third and Fourth Quarters 2024. The well rehabilitation procedure is being reevaluated to assess whether an alternative approach can achieve a more prolonged improvement in well performance compared to the combined wellhead dosing and well rehabilitation procedures previously implemented.

3.3.1.1 Well Rehabilitation Procedure

Rehabilitation for each well involves the following process, which was updated to add jetting in Third Quarter 2023.

- Confirm injection well is offline.
- Open well vault and begin continuous air monitoring.
- Remove downhole equipment, including packer (if applicable), drop pipe, and pump(s), from injection well. During removal, inspect equipment for corrosion, damage, deposits, and/or odor. Brush, clean, and/or pressure-wash equipment if needed.
- Mechanically clean the well casing and screen section(s) using a double-surge block.
- Jet the mixed well chemical solution down the well using a jetting tool, first into the lower well screen, then the upper screen, and surge screen intervals. The well chemical solution includes fresh water, NuWell phosphoric acid, and a NuWell biodispersant. Following jetting, install a dual-swab block brush and swab the screen intervals. Jetting was added to the procedure to distribute the chemical solution further into the filter pack and reduce fouling in the filter pack.
- If using a packer, reinstall the packer following jetting and swabbing of the chemicals in all screens.
- Allow the chemicals to sit in the well overnight. The following day, check the pH of the screen intervals.
- Once pH is greater than 3, remove the packer (if applicable) and conduct mechanical rehabilitation. Add fresh water as needed to adjust pH.
- Pump purge water into backwash piping.
- Reinstall downhole well equipment and restart well.

3.3.1.2 Wellhead Dosing Procedure

The updated wellhead dosing procedure used since Second Quarter 2024 is as follows:

- Deliver the chemical solution of NuWell phosphoric acid and NuWell biodispersant into the injection pipe while also running the injection well at a flowrate of approximately 5 gpm.
- Turn off the injection well and let it sit overnight.
- The following day, inject 250 gallons of remedy water from the NTH IRZ system into each screen. Bump the backwash pump in each screen interval to collect a pH reading from the sampling port in the metering vault.

- If pH is less than 2.0: Add 250 gallons of remedy water to buffer. Wait 30 minutes, then retest pH using the backwash pump.
- If pH is greater than 2.0: Purge approximately 2,000 gallons of water from each screen interval. Collect pH readings every 5 minutes until they show a clear increasing trend. Operation of the backwash pump will be monitored from the control room, and purging will be stopped when water level decreases below 10 feet above the pump to prevent cycling. Pumping will resume after water level recovers. Collect a final pH reading at the end of the 2,000-gallon purge. Additionally, collect a pH reading from the backwash tank following the 2,000-gallon purge to confirm that pH is within the acceptable range for conditioning (6.5 to 8.5).

- Turn on injection well at target operational flowrate.

3.3.2 Injection Well O&M and Specific Capacity Summary

Injection wells operating during Fourth Quarter 2024 included IRZ-15, IRZ-16, IRZ-17, IRZ-18, IRZ-20, IRZ-27, IRZ-29, IRZ-31, IRZ-33, IRZ-35, IRZ-37, and IRZ-39. Injection wells were taken offline as needed throughout the quarter for well rehabilitation or wellhead dosing. Injection wells IRZ-21 and IRZ-25 remained offline throughout the quarter.

Routine injection well maintenance during Fourth Quarter 2024 included backwashing of injection wells during system operation as detailed in Table 3.2. Each operating injection well was backwashed to remove solids that may have accumulated in the well screen and gravel pack during injections. Backwashing occurred three times weekly, an increase from the estimated once weekly backwash described in Section 2.1, to proactively manage well health and water levels at injection wells.

Routine operation for injection wells includes daily monitoring of injection flowrates and water levels. Graphs of average daily specific capacity over time for operating injection wells with an established baseline specific capacity are plotted on Figures 3.2 through 3.4 (Third Quarter 2022 through Fourth Quarter 2024). Average daily specific capacities are plotted as percentages of the baseline specific capacities established in 2022 and 2023.

The procedures used for well rehabilitation and wellhead dosing are provided in Section 3.3.1. Rehabilitation resulted in increased injection well specific capacities in Fourth Quarter 2024, as shown on Figures 3.2 through 3.4. Specific capacities for injection wells IRZ-18 (upper), IRZ-20, IRZ-29 (upper), IRZ-31 (upper), and IRZ-35 returned to greater than 80 percent of baseline following rehabilitation, although, for a majority of these wells, specific capacities then declined over time with continued operation. Specific capacities for injection wells IRZ-17, IRZ-27, IRZ-31 (lower), and IRZ-37 increased following rehabilitation (and flowrates also increased compared to pre-rehabilitation rates); however, specific capacities did not return to greater than 80 percent of baseline. Specific capacities for injection well IRZ-18 (lower) did not significantly improve following rehabilitation in Fourth Quarter 2024.

Although most wells exhibited improved performance following rehabilitation events in recent quarters, the well maintenance procedure will be updated in First Quarter 2025 due to the inability of a subset of injection wells to sustain target flowrates for a prolonged period following rehabilitation. The injection wells exhibiting reduced responsiveness to recent rehabilitation events include IRZ-17, IRZ-18 (lower), IRZ-27, IRZ-29 (lower), IRZ-31 (lower), and IRZ-33 (lower), as shown on Figures 3.2 through 3.4. Downhole camera surveys were conducted immediately following rehabilitation at IRZ-17, IRZ-18, and IRZ-27 in Fourth Quarter 2024. The camera surveys indicated that the rehabilitation procedure continues to be effective in removing fouling from within the well

screens. Thus, the decline in the performance of these wells is likely due to fouling in the filter packs and/or surrounding formation, which is not visible via a camera survey. The rehabilitation procedure in First Quarter 2025 will include a new jetting tool with nozzle inserts that allow for pump velocity adjustments. Additional updates to the well rehabilitation procedure are under discussion and will be presented in the First Quarter 2025 Well Performance Report.

Injection well IRZ-29 (lower) data were not included in the specific capacity evaluation for August 2024 through October 24, 2024 because the transducer recorded inaccurate water-level data following the July 2024 rehabilitation event. IRZ-29 was offline for rehabilitation from October 4 through October 21, 2024, and the transducer in IRZ-29 (lower) was replaced on October 24, 2024. Further details are provided in Section 3.3.3 of this report.

In Fourth Quarter 2024, wellhead dosing was conducted at injection well IRZ-27 (lower). However, wellhead dosing was paused for the remainder of Fourth Quarter 2024 based on the results from wellhead dosing events in Third and Fourth Quarter 2024. In most cases, the wells exhibited improved performance immediately following wellhead dosing; however, well performance then quickly deteriorated over the following weeks. Due to the limited long-term effectiveness of wellhead dosing, wellhead dosing will not be implemented in First Quarter 2025. Instead, the well rehabilitation procedure, outlined in Section 3.3.1, will be reviewed and updated to better target suspected fouling beyond the well screen. The updated well rehabilitation procedure will be finalized in First Quarter 2025 and presented in the First Quarter 2025 Well Performance Report.

3.3.3 Injection Well Inspections

Injection wells are inspected quarterly (at a minimum) for visible leaks and damage. Any notable damage or equipment needing replacement is identified in Table 3.2. Leak detection switches within the vaults are also used to identify maintenance needs in a timely manner. Notable damage to injection wells and/or non-routine maintenance performed on these wells during Fourth Quarter 2024 included the following:

- The transducer in injection well IRZ-29 (lower) continued to undergo troubleshooting due to abnormal water level readings, as previously discussed in the Third Quarter 2024 Well Performance Report (Arcadis 2024d). On October 24, 2024, the surge protector and transducer at IRZ-29 (lower) were replaced. Manual water level readings were collected following transducer installation to confirm the new transducer was operating as expected.
- On October 24, 2024, the transducer at IRZ-37 was replaced due to inaccurate water level data. Manual water level readings taken after the transducer installation confirmed the new transducer readings were accurate.
- On October 31, 2024, the manual flow valve union within the IRZ-9 vault was replaced due to a leak.
- On November 15, 2024, the transducer in injection well IRZ-29 (upper) was replaced due to abnormal water level readings, as previously discussed in the Third Quarter 2024 Well Performance Report (Arcadis 2024d). The new transducer continued to record inaccurate readings. The instrumentation and controls team continues to troubleshoot this issue.
- On December 13, 2024, the air relief valve for IRZ-27 (lower) was replaced.

3.3.4 Injection Well Water Quality

Injection well water quality monitoring includes the collection of baseline data followed by as-needed sampling for biological, geochemical, and/or field parameters. Baseline analytical results for each injection well are provided in the First Quarter 2022 Well Performance Report (Arcadis 2022a). Baseline analytical data were collected during December 2021 and January 2022. Future analytical results will be collected as needed for fouling troubleshooting purposes.

4 Monitoring Well Performance

Monitoring wells are inspected to determine whether monitoring well maintenance, such as wellhead repair or well screen redevelopment, is needed. Monitoring well inspections include the following:

- Wellhead condition is assessed to determine if well protection features, including the well seal, well vault/protective casing, and concrete pad, are in place and functioning as designed.
- Turbidity is measured as an indicator of whether the monitoring well screen and filter pack are intact and functioning.
- Depth to bottom of the well is measured as an indicator of infill (siltation).
- Specific capacity is evaluated to confirm consistency with sampling standard operating procedures.

This section provides a summary of each of these parameters.

4.1 Wellhead Condition

Wellheads are inspected routinely during sampling, and observations are documented. The inspection results for Fourth Quarter 2024 are presented in Table 4.1. Overall, the wellheads were in good condition in Fourth Quarter 2024.

4.2 Turbidity

In accordance with Section 4.2.4 of the O&M Manual (Appendix L, Volume 1 of the Final BOD; CH2M Hill 2015a), wells that consistently yield turbidity greater than the range of 20 to 30 nephelometric turbidity units (NTU) undergo additional evaluation to determine if redevelopment is warranted. The additional evaluation can include evaluation of previous purge data, specific capacity, and longer-term pressure transducer data. Turbidity data collected from monitoring wells in Fourth Quarter 2024 are included in Table 3.3. A summary of the monitoring wells that exhibited turbidity greater than 30 NTU during consecutive monitoring events is provided in the text that follows.

Monitoring wells MW-10D, MW-41S, MW-65-160, MW-69-195, MW-72-080, MW-82-046, MW-87-109, MW-89-273, and MW-93-050 yielded turbidity readings greater than 30 NTU for consecutive sampling events (Table 4.2). These wells are not recommended for redevelopment at this time because the wellhead condition, depth to well bottom, and specific capacity assessments for these wells indicate that well integrity is intact and siltation is not sufficient to warrant redevelopment.

4.3 Depth to Well Bottom

Depth to well bottom is measured manually during sampling using a water-level meter and compared to the as-constructed well depth and bottom of the screened interval to assess siltation, integrity of the well screen, and integrity of the well casing. Monitoring well depth-to-bottom data are presented in Table 4.2. If the measured well depths for consecutive sampling events suggest that at least 20 percent of the screened interval is silted in, the well will be flagged for further evaluation to determine if redevelopment is necessary.

Monitoring wells MW-27-020, MW-30-050, MW-32-020, MW-39-040, MW-45-095a, and MW-54-195 met this criterion in Fourth Quarter 2024 but are not recommended for redevelopment. MW-39-040 is not recommended for redevelopment because previous redevelopment of the well did not improve performance, as discussed in the Third Quarter 2023 Well Performance Report (Arcadis 2023b). The remaining wells that met the well depth criterion are not recommended for redevelopment because they are screened in fluvial sediments, and redevelopment in these sediments would increase the potential for sediment infiltration.

Monitoring well MW-77-046 also met the well depth criterion in Fourth Quarter 2024, and this well was redeveloped following the October 2024 sampling event. The specific capacities and turbidity readings measured at MW-77-046 during the November and December 2024 sampling events indicated good yield and low suspended solids. Therefore, additional redevelopment or maintenance of MW-77-046 is not recommended at this time. Additional discussion of well redevelopment is provided in Section 4.5.

4.4 Specific Capacity

Monitoring well purging is generally conducted at rates between 100 and 500 milliliters per minute, and drawdown at these rates typically ranges from a few hundredths to a few tenths of a foot. Wells with casing diameters greater than 4 inches may be purged at rates higher than 500 milliliters per minute because a larger submersible pump is used in these cases. If drawdown of greater than 1 foot is observed for a fluvial or alluvial well during purging, the well will be flagged for further evaluation to determine if it needs rehabilitation. Bedrock wells are excluded from this evaluation method due to the potential for larger drawdown during purging. Purging data, including purge rate, drawdown, and calculated specific capacity, are presented in Table 4.2. Specific capacity is calculated using the equation provided in Section 2.2.1.

Greater than 1 foot of drawdown was measured during purging of monitoring well MW-36-090 in Fourth Quarter 2024 (Table 4.2). The water level dropped 4.73 feet during the first 5 minutes of purging, then stabilized at 20.33 feet below the top of casing for the remainder of purging, indicating the well has sufficient yield. Therefore, redevelopment of MW-36-090 is not recommended at this time.

4.5 Response to Monitoring Well Performance Evaluation

The locations of the monitoring wells inspected are shown on Figure 4.1.

Based on experience redeveloping MW-28-025, MW-30-030, and MW-39-040 and as discussed in the Third Quarter 2023 Well Performance Report (Arcadis 2023b), the following adjustments are being implemented, starting in Third Quarter 2023:

- Wells are redeveloped using a smaller-diameter surge block to reduce the risk of the surge block being lodged between sediment and the well casing.
- Wells located in fluvial sediments (see Well Screen Lithology column in Table 4.2), where sediment infiltration is likely given the screen slot size and/or filter pack combination, are not redeveloped. Redevelopment of these wells is expected to have a detrimental effect on well performance due to increased potential for sediment infiltration.
- Wells in which significant sediment infiltration occurs during redevelopment are not considered for future redevelopment.

Monitoring wells MW-59-100 and MW-77-046 were redeveloped in Fourth Quarter 2024, as recommended in the Third Quarter 2024 Well Performance Report (Arcadis 2024d), due to siltation. The monitoring wells were redeveloped until sufficient sediment was removed and field parameter measurements had stabilized. The well redevelopment logs are included in Appendix A. At MW-59-100, siltation improved from 3.49 feet in Second Quarter 2024 (pre-redevelopment) to 0.30 foot in Fourth Quarter 2024 (post-redevelopment), indicating redevelopment was effective. At MW-77-046, siltation did not significantly improve following redevelopment because sediment continued to infiltrate the well during the redevelopment swabbing procedure. After swabbing, the well was allowed to sit for approximately 20 minutes so that any sediment could settle. Then, the sediment was removed using a bailer and monsoon pump. In total, approximately 15 feet of sediment were removed from MW-77-046 during redevelopment. During subsequent sampling events at MW-77-046, turbidity remained low (13 NTU and 24 NTU measured in November and December 2024, respectively), minimal drawdown occurred during purging, and specific capacity indicated good yield from the well. Therefore, additional redevelopment is not recommended at MW-77-046 at this time.

5 Recommendations and Planned Activities for Next Reporting Period

Phase 1 groundwater remedy operations and the Phase 1 monitoring program will continue in First Quarter 2025 (January through March 2025) in accordance with the O&M Manual (Appendix L, Volume 1 of the Final BOD; CH2M Hill 2015a) and Phase 1 Interim Monitoring Plan (Arcadis 2021). It is recommended that adjustments to the well maintenance program discussed in the Fourth Quarter 2023 Well Performance Report (Arcadis 2024a) continue to be implemented with the following modifications:

- Quarterly mechanical and chemical rehabilitation will be completed at injection wells IRZ-17, IRZ-18, IRZ-27, IRZ-29, IRZ-31, and IRZ-33.
- Mechanical and chemical rehabilitation will be completed approximately every 4 to 5 months at injection wells IRZ-15, IRZ-16, IRZ-20, IRZ-35, and IRZ-37.
- An updated rehabilitation procedure will be tested in First Quarter 2025 on a subset of wells and discussed in the First Quarter 2025 Well Performance Report.
- Chemical application at the wellhead (i.e., wellhead dosing) will not be performed as an additional maintenance strategy in First Quarter 2025 due to its recent limited effectiveness at improving well performance over a sustained period.

In addition to routine groundwater remedy operations and monitoring, the following activities related to well performance are planned for First Quarter 2025:

- Continue operating target NTH IRZ extraction and injection wells.
- Continue monitoring the NTH IRZ extraction and injection wells for potential well fouling.
- Continue backwashing injection wells three times weekly during operation.
- Monitor average specific capacities for NTH IRZ extraction/injection wells and monitoring wells to determine if additional maintenance is needed.
- Continue inspections of monitoring wells as part of scheduled routine sampling.

Well performance monitoring and well maintenance activities will be reported in the First Quarter 2025 Well Performance Report. The First Quarter 2025 Quarterly Progress Report will also be submitted to document operations and monitoring results in accordance with the O&M Manual (Appendix L, Volume 2 of the Final BOD; CH2M Hill 2015a).

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Tables

Table 3.1
Summary of NTH IRZ Well Operations
Fourth Quarter 2024 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Well ID	Aquifer Interval	Well Type	Operating Period	Recirculated Groundwater Volume (gal)	Ethanol Volume (gal)	Total Hours Operating (hours)	Active Time Operating (percent)	Average Flow Rate When Operating (gpm)
IRZ-15	Upper	Injection	Jan-24	526,585	35	646	87	14
IRZ-15	Upper	Injection	Feb-24	134,661	7.7	573	82	3.9
IRZ-15	Upper	Injection	Mar-24	113,140	8.3	613	82	3.1
IRZ-15	Upper	Injection	Apr-24	72,921	5.3	468	65	2.6
IRZ-15	Upper	Injection	May-24	293,667	17	737	99	6.6
IRZ-15	Upper	Injection	Jun-24	263,697	16	705	98	6.2
IRZ-15	Upper	Injection	Jul-24	242,046	14	691	93	5.8
IRZ-15	Upper	Injection	Aug-24	122,389	7.1	559	75	3.6
IRZ-15	Upper	Injection	Sep-24	189,024	12	469	65	6.7
IRZ-15	**Upper**	**Injection**	**Oct-24**	**282,415**	**22**	**721**	**97**	**6.5**
IRZ-15	**Upper**	**Injection**	**Nov-24**	**261,058**	**18**	**681**	**95**	**6.4**
IRZ-15	**Upper**	**Injection**	**Dec-24**	**207,119**	**15**	**733**	**99**	**4.7**
IRZ-15	Lower	Injection	Jan-24	199,870	13	365	49	9.1
IRZ-15	Lower	Injection	Feb-24	595,234	44	629	90	16
IRZ-15	Lower	Injection	Mar-24	435,967	31	657	88	11
IRZ-15	Lower	Injection	Apr-24	306,104	21	469	65	11
IRZ-15	Lower	Injection	May-24	756,475	44	737	99	17
IRZ-15	Lower	Injection	Jun-24	730,615	43	708	98	17
IRZ-15	Lower	Injection	Jul-24	581,523	43	722	97	13
IRZ-15	Lower	Injection	Aug-24	496,045	26	609	82	14
IRZ-15	Lower	Injection	Sep-24	502,939	29	473	66	18
IRZ-15	**Lower**	**Injection**	**Oct-24**	**690,625**	**53**	**722**	**97**	**16**
IRZ-15	**Lower**	**Injection**	**Nov-24**	**609,219**	**41**	**684**	**95**	**15**
IRZ-15	**Lower**	**Injection**	**Dec-24**	**612,129**	**44**	**734**	**99**	**14**
IRZ-16	Upper	Injection	Jan-24	202,327	16	663	89	5.1
IRZ-16	Upper	Injection	Feb-24	181,968	14	623	90	4.9
IRZ-16	Upper	Injection	Mar-24	162,238	11	618	83	4.4
IRZ-16	Upper	Injection	Apr-24	146,202	11	708	98	3.4
IRZ-16	Upper	Injection	May-24	139,026	8.0	490	66	4.7
IRZ-16	Upper	Injection	Jun-24	266,990	16	708	98	6.3
IRZ-16	Upper	Injection	Jul-24	210,265	15	723	97	4.8
IRZ-16	Upper	Injection	Aug-24	213,487	13	725	97	4.9
IRZ-16	Upper	Injection	Sep-24	101,553	6.1	360	50	4.7
IRZ-16	**Upper**	**Injection**	**Oct-24**	**220,664**	**17**	**724**	**97**	**5.1**
IRZ-16	**Upper**	**Injection**	**Nov-24**	**241,553**	**16**	**685**	**95**	**5.9**
IRZ-16	**Upper**	**Injection**	**Dec-24**	**232,129**	**17**	**736**	**99**	**5.3**

Table 3.1
Summary of NTH IRZ Well Operations
Fourth Quarter 2024 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Well ID	Aquifer Interval	Well Type	Operating Period	Recirculated Groundwater Volume (gal)	Ethanol Volume (gal)	Total Hours Operating (hours)	Active Time Operating (percent)	Average Flow Rate When Operating (gpm)
IRZ-16	Lower	Injection	Jan-24	399,795	32	645	87	10
IRZ-16	Lower	Injection	Feb-24	377,871	27	627	90	10
IRZ-16	Lower	Injection	Mar-24	405,869	28	651	88	10
IRZ-16	Lower	Injection	Apr-24	493,037	35	708	98	12
IRZ-16	Lower	Injection	May-24	379,102	16	490	66	13
IRZ-16	Lower	Injection	Jun-24	457,050	27	709	98	11
IRZ-16	Lower	Injection	Jul-24	408,848	25	701	94	9.7
IRZ-16	Lower	Injection	Aug-24	428,887	25	725	97	9.9
IRZ-16	Lower	Injection	Sep-24	194,473	12	360	50	9.0
IRZ-16	**Lower**	**Injection**	**Oct-24**	**447,217**	**35**	**723**	**97**	**10**
IRZ-16	**Lower**	**Injection**	**Nov-24**	**405,293**	**26**	**684**	**95**	**9.9**
IRZ-16	**Lower**	**Injection**	**Dec-24**	**384,922**	**26**	**735**	**99**	**8.7**
IRZ-17	Upper	Injection	Jan-24	264,408	21	643	86	6.9
IRZ-17	Upper	Injection	Feb-24	133,407	10	370	53	6.0
IRZ-17	Upper	Injection	Mar-24	31,250	0.0	89	12	5.9
IRZ-17	Upper	Injection	Apr-24	246,846	19	709	98	5.8
IRZ-17	Upper	Injection	May-24	241,963	10	737	99	5.5
IRZ-17	Upper	Injection	Jun-24	217,803	13	709	98	5.1
IRZ-17	Upper	Injection	Jul-24	112,979	10	479	64	3.9
IRZ-17	Upper	Injection	Aug-24	210,039	12	549	74	6.4
IRZ-17	Upper	Injection	Sep-24	223,760	14	655	91	5.7
IRZ-17	**Upper**	**Injection**	**Oct-24**	**180,898**	**13**	**725**	**97**	**4.2**
IRZ-17	**Upper**	**Injection**	**Nov-24**	**104,561**	**7.9**	**356**	**49**	**4.9**
IRZ-17	**Upper**	**Injection**	**Dec-24**	**181,328**	**13**	**729**	**98**	**4.1**
IRZ-17	Lower	Injection	Jan-24	314,111	30	595	80	8.8
IRZ-17	Lower	Injection	Feb-24	322,998	23	617	89	8.7
IRZ-17	Lower	Injection	Mar-24	248,809	12	447	60	9.3
IRZ-17	Lower	Injection	Apr-24	262,871	19	708	98	6.2
IRZ-17	Lower	Injection	May-24	236,513	13	737	99	5.3
IRZ-17	Lower	Injection	Jun-24	212,676	12	708	98	5.0
IRZ-17	Lower	Injection	Jul-24	182,314	10	532	72	5.7
IRZ-17	Lower	Injection	Aug-24	216,650	12	566	76	6.4
IRZ-17	Lower	Injection	Sep-24	171,768	11	638	89	4.5
IRZ-17	**Lower**	**Injection**	**Oct-24**	**127,354**	**10**	**723**	**97**	**2.9**
IRZ-17	**Lower**	**Injection**	**Nov-24**	**64,043**	**4.0**	**359**	**50**	**3.0**
IRZ-17	**Lower**	**Injection**	**Dec-24**	**152,793**	**11**	**728**	**98**	**3.5**

Table 3.1
Summary of NTH IRZ Well Operations
Fourth Quarter 2024 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Well ID	Aquifer Interval	Well Type	Operating Period	Recirculated Groundwater Volume (gal)	Ethanol Volume (gal)	Total Hours Operating (hours)	Active Time Operating (percent)	Average Flow Rate When Operating (gpm)
IRZ-18	Upper	Injection	Jan-24	125,112	9.1	401	54	5.2
IRZ-18	Upper	Injection	Feb-24	186,092	15	531	76	5.8
IRZ-18	Upper	Injection	Mar-24	70,178	2.7	449	60	2.6
IRZ-18	Upper	Injection	Apr-24	13,233	0.97	169	23	1.3
IRZ-18	Upper	Injection	May-24	206,972	13	544	73	6.3
IRZ-18	Upper	Injection	Jun-24	253,277	16	660	92	6.4
IRZ-18	Upper	Injection	Jul-24	235,089	17	721	97	5.4
IRZ-18	Upper	Injection	Aug-24	96,784	6.0	330	44	4.9
IRZ-18	Upper	Injection	Sep-24	59,218	3.9	280	39	3.5
IRZ-18	**Upper**	**Injection**	**Oct-24**	**192,518**	**11**	**711**	**96**	**4.5**
IRZ-18	**Upper**	**Injection**	**Nov-24**	**143,670**	**7.6**	**359**	**50**	**6.7**
IRZ-18	**Upper**	**Injection**	**Dec-24**	**257,531**	**18**	**694**	**93**	**6.2**
IRZ-18	Lower	Injection	Jan-24	255,850	23	488	66	8.7
IRZ-18	Lower	Injection	Feb-24	187,723	14	485	70	6.5
IRZ-18	Lower	Injection	Mar-24	208,844	15	652	88	5.3
IRZ-18	Lower	Injection	Apr-24	48,447	2.8	169	23	4.8
IRZ-18	Lower	Injection	May-24	161,858	9.0	542	73	5.0
IRZ-18	Lower	Injection	Jun-24	178,744	11	708	98	4.2
IRZ-18	Lower	Injection	Jul-24	168,344	12	722	97	3.9
IRZ-18	Lower	Injection	Aug-24	119,667	6.9	330	44	6.0
IRZ-18	Lower	Injection	Sep-24	273,527	18	443	62	10
IRZ-18	**Lower**	**Injection**	**Oct-24**	**117,294**	**6.1**	**712**	**96**	**2.7**
IRZ-18	**Lower**	**Injection**	**Nov-24**	**68,737**	**3.7**	**342**	**48**	**3.3**
IRZ-18	**Lower**	**Injection**	**Dec-24**	**135,562**	**9.9**	**726**	**98**	**3.1**
IRZ-20	Upper	Injection	Jan-24	211,096	17	661	89	5.3
IRZ-20	Upper	Injection	Feb-24	210,565	15	627	90	5.6
IRZ-20	Upper	Injection	Mar-24	217,352	15	651	88	5.6
IRZ-20	Upper	Injection	Apr-24	312,435	23	707	98	7.4
IRZ-20	Upper	Injection	May-24	265,069	15	736	99	6.0
IRZ-20	Upper	Injection	Jun-24	237,932	11	686	95	5.8
IRZ-20	Upper	Injection	Jul-24	156,543	11	570	77	4.6
IRZ-20	Upper	Injection	Aug-24	148,685	10	452	61	5.5
IRZ-20	Upper	Injection	Sep-24	132,479	11	383	53	5.8
IRZ-20	**Upper**	**Injection**	**Oct-24**	**228,113**	**13**	**716**	**96**	**5.3**
IRZ-20	**Upper**	**Injection**	**Nov-24**	**211,406**	**14**	**683**	**95**	**5.2**
IRZ-20	**Upper**	**Injection**	**Dec-24**	**125,092**	**10**	**407**	**55**	**5.1**

Table 3.1
Summary of NTH IRZ Well Operations
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Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Well ID	Aquifer Interval	Well Type	Operating Period	Recirculated Groundwater Volume (gal)	Ethanol Volume (gal)	Total Hours Operating (hours)	Active Time Operating (percent)	Average Flow Rate When Operating (gpm)
IRZ-20	Lower	Injection	Jan-24	408,809	33	662	89	10
IRZ-20	Lower	Injection	Feb-24	372,744	26	615	88	10
IRZ-20	Lower	Injection	Mar-24	391,602	28	637	86	10
IRZ-20	Lower	Injection	Apr-24	504,904	37	707	98	12
IRZ-20	Lower	Injection	May-24	411,604	26	737	99	9.3
IRZ-20	Lower	Injection	Jun-24	385,146	18	686	95	9.4
IRZ-20	Lower	Injection	Jul-24	326,680	23	590	79	9.2
IRZ-20	Lower	Injection	Aug-24	264,658	19	451	61	9.8
IRZ-20	Lower	Injection	Sep-24	183,867	16	366	51	8.4
IRZ-20	**Lower**	**Injection**	**Oct-24**	**306,230**	**18**	**715**	**96**	**7.1**
IRZ-20	**Lower**	**Injection**	**Nov-24**	**289,131**	**20**	**683**	**95**	**7.1**
IRZ-20	**Lower**	**Injection**	**Dec-24**	**210,713**	**15**	**407**	**55**	**8.6**
IRZ-21	Upper	Injection	Jan-24	--	--	--	--	--
IRZ-21	Upper	Injection	Feb-24	--	--	--	--	--
IRZ-21	Upper	Injection	Mar-24	--	--	--	--	--
IRZ-21	Upper	Injection	Apr-24	--	--	--	--	--
IRZ-21	Upper	Injection	May-24	--	--	--	--	--
IRZ-21	Upper	Injection	Jun-24	--	--	--	--	--
IRZ-21	Upper	Injection	Jul-24	--	--	--	--	--
IRZ-21	Upper	Injection	Aug-24	--	--	--	--	--
IRZ-21	Upper	Injection	Sep-24	--	--	--	--	--
IRZ-21	**Upper**	**Injection**	**Oct-24**	**--**	**--**	**--**	**--**	**--**
IRZ-21	**Upper**	**Injection**	**Nov-24**	**--**	**--**	**--**	**--**	**--**
IRZ-21	**Upper**	**Injection**	**Dec-24**	**--**	**--**	**--**	**--**	**--**
IRZ-21	Lower	Injection	Jan-24	--	--	--	--	--
IRZ-21	Lower	Injection	Feb-24	--	--	--	--	--
IRZ-21	Lower	Injection	Mar-24	--	--	--	--	--
IRZ-21	Lower	Injection	Apr-24	--	--	--	--	--
IRZ-21	Lower	Injection	May-24	--	--	--	--	--
IRZ-21	Lower	Injection	Jun-24	--	--	--	--	--
IRZ-21	Lower	Injection	Jul-24	--	--	--	--	--
IRZ-21	Lower	Injection	Aug-24	--	--	--	--	--
IRZ-21	Lower	Injection	Sep-24	--	--	--	--	--
IRZ-21	**Lower**	**Injection**	**Oct-24**	**--**	**--**	**--**	**--**	**--**
IRZ-21	**Lower**	**Injection**	**Nov-24**	**--**	**--**	**--**	**--**	**--**
IRZ-21	**Lower**	**Injection**	**Dec-24**	**--**	**--**	**--**	**--**	**--**

Table 3.1
Summary of NTH IRZ Well Operations
Fourth Quarter 2024 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Well ID	Aquifer Interval	Well Type	Operating Period	Recirculated Groundwater Volume (gal)	Ethanol Volume (gal)	Total Hours Operating (hours)	Active Time Operating (percent)	Average Flow Rate When Operating (gpm)
IRZ-25	Upper / Upper Middle	Injection	Jan-24	--	--	--	--	--
IRZ-25	Upper / Upper Middle	Injection	Feb-24	--	--	--	--	--
IRZ-25	Upper / Upper Middle	Injection	Mar-24	--	--	--	--	--
IRZ-25	Upper / Upper Middle	Injection	Apr-24	--	--	--	--	--
IRZ-25	Upper / Upper Middle	Injection	May-24	--	--	--	--	--
IRZ-25	Upper / Upper Middle	Injection	Jun-24	--	--	--	--	--
IRZ-25	Upper / Upper Middle	Injection	Jul-24	--	--	--	--	--
IRZ-25	Upper / Upper Middle	Injection	Aug-24	--	--	--	--	--
IRZ-25	Upper / Upper Middle	Injection	Sep-24	--	--	--	--	--
IRZ-25	**Upper / Upper Middle**	**Injection**	**Oct-24**	**--**	**--**	**--**	**--**	**--**
IRZ-25	**Upper / Upper Middle**	**Injection**	**Nov-24**	**--**	**--**	**--**	**--**	**--**
IRZ-25	**Upper / Upper Middle**	**Injection**	**Dec-24**	**--**	**--**	**--**	**--**	**--**
IRZ-25	Lower	Injection	Jan-24	--	--	--	--	--
IRZ-25	Lower	Injection	Feb-24	--	--	--	--	--
IRZ-25	Lower	Injection	Mar-24	--	--	--	--	--
IRZ-25	Lower	Injection	Apr-24	--	--	--	--	--
IRZ-25	Lower	Injection	May-24	--	--	--	--	--
IRZ-25	Lower	Injection	Jun-24	--	--	--	--	--
IRZ-25	Lower	Injection	Jul-24	--	--	--	--	--
IRZ-25	Lower	Injection	Aug-24	--	--	--	--	--
IRZ-25	Lower	Injection	Sep-24	--	--	--	--	--
IRZ-25	**Lower**	**Injection**	**Oct-24**	**--**	**--**	**--**	**--**	**--**
IRZ-25	**Lower**	**Injection**	**Nov-24**	**--**	**--**	**--**	**--**	**--**
IRZ-25	**Lower**	**Injection**	**Dec-24**	**--**	**--**	**--**	**--**	**--**
IRZ-27	Upper / Upper Middle	Injection	Jan-24	73,602	7.2	467	63	2.6
IRZ-27	Upper / Upper Middle	Injection	Feb-24	175,391	26	511	73	5.7
IRZ-27	Upper / Upper Middle	Injection	Mar-24	119,236	12	561	75	3.5
IRZ-27	Upper / Upper Middle	Injection	Apr-24	116,944	16	708	98	2.8
IRZ-27	Upper / Upper Middle	Injection	May-24	64,753	5.8	247	33	4.4
IRZ-27	Upper / Upper Middle	Injection	Jun-24	168,334	11	641	89	4.4
IRZ-27	Upper / Upper Middle	Injection	Jul-24	176,092	13	723	97	4.1
IRZ-27	Upper / Upper Middle	Injection	Aug-24	82,460	1.7	390	52	3.5
IRZ-27	Upper / Upper Middle	Injection	Sep-24	156,523	11	638	89	4.1
IRZ-27	**Upper / Upper Middle**	**Injection**	**Oct-24**	**128,365**	**9.9**	**705**	**95**	**3.0**
IRZ-27	**Upper / Upper Middle**	**Injection**	**Nov-24**	**79,458**	**5.6**	**651**	**90**	**2.0**
IRZ-27	**Upper / Upper Middle**	**Injection**	**Dec-24**	**117,685**	**7.6**	**510**	**69**	**3.8**

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Well ID	Aquifer Interval	Well Type	Operating Period	Recirculated Groundwater Volume (gal)	Ethanol Volume (gal)	Total Hours Operating (hours)	Active Time Operating (percent)	Average Flow Rate When Operating (gpm)
IRZ-27	Lower	Injection	Jan-24	238,843	26	547	74	7.3
IRZ-27	Lower	Injection	Feb-24	252,176	35	510	73	8.2
IRZ-27	Lower	Injection	Mar-24	261,105	30	626	84	7.0
IRZ-27	Lower	Injection	Apr-24	223,568	33	708	98	5.3
IRZ-27	Lower	Injection	May-24	114,782	11	255	34	7.5
IRZ-27	Lower	Injection	Jun-24	336,869	20	705	98	8.0
IRZ-27	Lower	Injection	Jul-24	386,727	24	701	94	9.2
IRZ-27	Lower	Injection	Aug-24	182,788	5.4	377	51	8.1
IRZ-27	Lower	Injection	Sep-24	329,401	22	649	90	8.5
IRZ-27	**Lower**	**Injection**	**Oct-24**	**353,574**	**27**	**697**	**94**	**8.5**
IRZ-27	**Lower**	**Injection**	**Nov-24**	**297,676**	**22**	**684**	**95**	**7.3**
IRZ-27	**Lower**	**Injection**	**Dec-24**	**247,666**	**17**	**495**	**67**	**8.3**
IRZ-29	Upper	Injection	Jan-24	261,966	25	614	83	7.1
IRZ-29	Upper	Injection	Feb-24	94,913	22	229	33	6.9
IRZ-29	Upper	Injection	Mar-24	262,506	34	635	85	6.9
IRZ-29	Upper	Injection	Apr-24	206,761	28	531	74	6.5
IRZ-29	Upper	Injection	May-24	164,691	17	712	96	3.9
IRZ-29	Upper	Injection	Jun-24	135,092	8.0	708	98	3.2
IRZ-29	Upper	Injection	Jul-24	87,295	8.0	415	56	3.5
IRZ-29	Upper	Injection	Aug-24	224,909	9.7	499	67	7.5
IRZ-29	Upper	Injection	Sep-24	301,034	20	627	87	8.0
IRZ-29	**Upper**	**Injection**	**Oct-24**	**77,125**	**6.6**	**163**	**22**	**7.9**
IRZ-29	**Upper**	**Injection**	**Nov-24**	**292,205**	**21**	**673**	**93**	**7.2**
IRZ-29	**Upper**	**Injection**	**Dec-24**	**309,932**	**24**	**730**	**98**	**7.1**
IRZ-29	Lower	Injection	Jan-24	316,068	34	525	71	10
IRZ-29	Lower	Injection	Feb-24	105,233	25	229	33	7.7
IRZ-29	Lower	Injection	Mar-24	232,597	28	604	81	6.4
IRZ-29	Lower	Injection	Apr-24	146,803	21	532	74	4.6
IRZ-29	Lower	Injection	May-24	150,147	16	714	96	3.5
IRZ-29	Lower	Injection	Jun-24	94,732	4.0	685	95	2.3
IRZ-29	Lower	Injection	Jul-24	63,021	5.4	409	55	2.6
IRZ-29	Lower	Injection	Aug-24	176,012	6.1	503	68	5.8
IRZ-29	Lower	Injection	Sep-24	35,685	2.9	194	27	3.1
IRZ-29	**Lower**	**Injection**	**Oct-24**	**52,371**	**3.4**	**234**	**31**	**3.7**
IRZ-29	**Lower**	**Injection**	**Nov-24**	**132,920**	**11**	**668**	**93**	**3.3**
IRZ-29	**Lower**	**Injection**	**Dec-24**	**128,385**	**10**	**729**	**98**	**2.9**

Table 3.1
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Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Well ID	Aquifer Interval	Well Type	Operating Period	Recirculated Groundwater Volume (gal)	Ethanol Volume (gal)	Total Hours Operating (hours)	Active Time Operating (percent)	Average Flow Rate When Operating (gpm)
IRZ-31	Upper	Injection	Jan-24	99,087	9.3	282	38	5.9
IRZ-31	Upper	Injection	Feb-24	257,882	42	577	83	7.4
IRZ-31	Upper	Injection	Mar-24	118,726	17	440	59	4.5
IRZ-31	Upper	Injection	Apr-24	264,918	35	608	84	7.3
IRZ-31	Upper	Injection	May-24	181,817	18	712	96	4.3
IRZ-31	Upper	Injection	Jun-24	164,621	9.9	670	93	4.1
IRZ-31	Upper	Injection	Jul-24	181,767	13	424	57	7.1
IRZ-31	Upper	Injection	Aug-24	393,514	23	722	97	9.1
IRZ-31	Upper	Injection	Sep-24	309,452	22	555	77	9.3
IRZ-31	**Upper**	**Injection**	**Oct-24**	**266,020**	**18**	**484**	**65**	**9.2**
IRZ-31	**Upper**	**Injection**	**Nov-24**	**327,419**	**23**	**594**	**83**	**9.2**
IRZ-31	**Upper**	**Injection**	**Dec-24**	**399,950**	**30**	**731**	**98**	**9.1**
IRZ-31	Lower	Injection	Jan-24	215,030	24	379	51	9.5
IRZ-31	Lower	Injection	Feb-24	266,630	41	603	87	7.4
IRZ-31	Lower	Injection	Mar-24	118,766	15	414	56	4.8
IRZ-31	Lower	Injection	Apr-24	147,384	19	605	84	4.1
IRZ-31	Lower	Injection	May-24	86,965	8.6	703	94	2.1
IRZ-31	Lower	Injection	Jun-24	98,346	5.1	684	95	2.4
IRZ-31	Lower	Injection	Jul-24	174,951	13	424	57	6.9
IRZ-31	Lower	Injection	Aug-24	341,854	19	722	97	7.9
IRZ-31	Lower	Injection	Sep-24	131,038	9.2	554	77	3.9
IRZ-31	**Lower**	**Injection**	**Oct-24**	**71,950**	**6.5**	**462**	**62**	**2.6**
IRZ-31	**Lower**	**Injection**	**Nov-24**	**237,522**	**16**	**579**	**80**	**6.8**
IRZ-31	**Lower**	**Injection**	**Dec-24**	**179,875**	**13**	**725**	**97**	**4.1**
IRZ-33	Upper	Injection	Jan-24	201,977	20	612	82	5.5
IRZ-33	Upper	Injection	Feb-24	80,779	16	247	35	5.5
IRZ-33	Upper	Injection	Mar-24	197,813	26	623	84	5.3
IRZ-33	Upper	Injection	Apr-24	114,241	14	670	93	2.8
IRZ-33	Upper	Injection	May-24	41,201	2.1	440	59	1.6
IRZ-33	Upper	Injection	Jun-24	210,955	15	599	83	5.9
IRZ-33	Upper	Injection	Jul-24	268,842	20	737	99	6.1
IRZ-33	Upper	Injection	Aug-24	283,286	16	721	97	6.5
IRZ-33	Upper	Injection	Sep-24	79,117	4.0	212	29	6.2
IRZ-33	**Upper**	**Injection**	**Oct-24**	**278,782**	**20**	**722**	**97**	**6.4**
IRZ-33	**Upper**	**Injection**	**Nov-24**	**280,333**	**20**	**671**	**93**	**7.0**
IRZ-33	**Upper**	**Injection**	**Dec-24**	**251,706**	**17**	**641**	**86**	**6.5**

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Well ID	Aquifer Interval	Well Type	Operating Period	Recirculated Groundwater Volume (gal)	Ethanol Volume (gal)	Total Hours Operating (hours)	Active Time Operating (percent)	Average Flow Rate When Operating (gpm)
IRZ-33	Lower	Injection	Jan-24	159,876	13	479	64	5.6
IRZ-33	Lower	Injection	Feb-24	82,951	16	259	37	5.3
IRZ-33	Lower	Injection	Mar-24	160,957	22	647	87	4.1
IRZ-33	Lower	Injection	Apr-24	124,320	16	670	93	3.1
IRZ-33	Lower	Injection	May-24	69,779	7.0	481	65	2.4
IRZ-33	Lower	Injection	Jun-24	144,201	11	599	83	4.0
IRZ-33	Lower	Injection	Jul-24	173,619	13	698	94	4.1
IRZ-33	Lower	Injection	Aug-24	148,615	8.4	722	97	3.4
IRZ-33	Lower	Injection	Sep-24	23,603	2.0	131	18	3.0
IRZ-33	**Lower**	**Injection**	**Oct-24**	**113,091**	**7.9**	**675**	**91**	**2.8**
IRZ-33	**Lower**	**Injection**	**Nov-24**	**130,047**	**8.0**	**593**	**82**	**3.7**
IRZ-33	**Lower**	**Injection**	**Dec-24**	**106,364**	**8.0**	**593**	**80**	**3.0**
IRZ-35	Upper	Injection	Jan-24	196,271	25	494	66	6.6
IRZ-35	Upper	Injection	Feb-24	173,669	29	384	55	7.5
IRZ-35	Upper	Injection	Mar-24	155,542	17	541	73	4.8
IRZ-35	Upper	Injection	Apr-24	262,316	39	709	98	6.2
IRZ-35	Upper	Injection	May-24	286,549	26	630	85	7.6
IRZ-35	Upper	Injection	Jun-24	250,024	14	564	78	7.4
IRZ-35	Upper	Injection	Jul-24	325,728	25	724	97	7.5
IRZ-35	Upper	Injection	Aug-24	339,671	19	724	97	7.8
IRZ-35	Upper	Injection	Sep-24	285,438	19	647	90	7.4
IRZ-35	**Upper**	**Injection**	**Oct-24**	**257,843**	**21**	**550**	**74**	**7.8**
IRZ-35	**Upper**	**Injection**	**Nov-24**	**315,568**	**18**	**678**	**94**	**7.8**
IRZ-35	**Upper**	**Injection**	**Dec-24**	**342,244**	**26**	**734**	**99**	**7.8**
IRZ-37	Upper	Injection	Jan-24	98,666	7.6	512	69	3.2
IRZ-37	Upper	Injection	Feb-24	52,051	8.2	243	35	3.6
IRZ-37	Upper	Injection	Mar-24	114,652	14	634	85	3.0
IRZ-37	Upper	Injection	Apr-24	38,474	2.2	598	83	1.1
IRZ-37	Upper	Injection	May-24	61,864	3.7	597	80	1.7
IRZ-37	Upper	Injection	Jun-24	108,576	5.5	413	57	4.4
IRZ-37	Upper	Injection	Jul-24	202,798	15	723	97	4.7
IRZ-37	Upper	Injection	Aug-24	218,954	13	722	97	5.1
IRZ-37	Upper	Injection	Sep-24	116,444	8.8	467	65	4.2
IRZ-37	**Upper**	**Injection**	**Oct-24**	**156,725**	**11**	**562**	**76**	**4.6**
IRZ-37	**Upper**	**Injection**	**Nov-24**	**181,647**	**11**	**622**	**86**	**4.9**
IRZ-37	**Upper**	**Injection**	**Dec-24**	**173,539**	**14**	**667**	**90**	**4.3**

Table 3.1
Summary of NTH IRZ Well Operations
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Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Well ID	Aquifer Interval	Well Type	Operating Period	Recirculated Groundwater Volume (gal)	Ethanol Volume (gal)	Total Hours Operating (hours)	Active Time Operating (percent)	Average Flow Rate When Operating (gpm)
IRZ-39	Upper	Injection	Jan-24	--	--	--	--	--
IRZ-39	Upper	Injection	Feb-24	--	--	--	--	--
IRZ-39	Upper	Injection	Mar-24	--	--	--	--	--
IRZ-39	Upper	Injection	Apr-24	--	--	--	--	--
IRZ-39	Upper	Injection	May-24	--	--	--	--	--
IRZ-39	Upper	Injection	Jun-24	--	--	--	--	--
IRZ-39	Upper	Injection	Jul-24	--	--	--	--	--
IRZ-39	Upper	Injection	Aug-24	--	--	--	--	--
IRZ-39	Upper	Injection	Sep-24	--	--	--	--	--
IRZ-39	**Upper**	**Injection**	**Oct-24**	**--**	**--**	**--**	**--**	**--**
IRZ-39	**Upper**	**Injection**	**Nov-24**	**--**	**--**	**--**	**--**	**--**
IRZ-39	**Upper**	**Injection**	**Dec-24**	**5,743**	**0.56**	**98**	**13**	**1.0**
IRZ-9	Upper	Extraction	Jan-24	--	--	--	--	--
IRZ-9	Upper	Extraction	Feb-24	7,888	--	2.8	0.40	47
IRZ-9	Upper	Extraction	Mar-24	--	--	--	--	--
IRZ-9	Upper	Extraction	Apr-24	--	--	--	--	--
IRZ-9	Upper	Extraction	May-24	3,814	--	1.5	0.20	42
IRZ-9	Upper	Extraction	Jun-24	--	--	--	--	--
IRZ-9	Upper	Extraction	Jul-24	2,542	--	2.2	0.29	20
IRZ-9	Upper	Extraction	Aug-24	--	--	--	--	--
IRZ-9	Upper	Extraction	Sep-24	--	--	--	--	--
IRZ-9	**Upper**	**Extraction**	**Oct-24**	**--**	**--**	**--**	**--**	**--**
IRZ-9	**Upper**	**Extraction**	**Nov-24**	**1,992**	**--**	**5.8**	**0.80**	**5.8**
IRZ-9	**Upper**	**Extraction**	**Dec-24**	**--**	**--**	**--**	**--**	**--**
IRZ-13D	Lower	Extraction	Jan-24	535,371	--	487	65	18
IRZ-13D	Lower	Extraction	Feb-24	461,162	--	493	71	16
IRZ-13D	Lower	Extraction	Mar-24	298,994	--	362	49	14
IRZ-13D	Lower	Extraction	Apr-24	72,597	--	100	14	12
IRZ-13D	Lower	Extraction	May-24	299,688	--	296	40	17
IRZ-13D	Lower	Extraction	Jun-24	560,996	--	625	87	15
IRZ-13D	Lower	Extraction	Jul-24	406,621	--	574	77	12
IRZ-13D	Lower	Extraction	Aug-24	341,514	--	508	68	11
IRZ-13D	Lower	Extraction	Sep-24	165,371	--	246	34	11
IRZ-13D	**Lower**	**Extraction**	**Oct-24**	**387,900**	**--**	**542**	**73**	**12**
IRZ-13D	**Lower**	**Extraction**	**Nov-24**	**482,110**	**--**	**581**	**81**	**14**
IRZ-13D	**Lower**	**Extraction**	**Dec-24**	**466,875**	**--**	**620**	**83**	**13**

Table 3.1
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Well ID	Aquifer Interval	Well Type	Operating Period	Recirculated Groundwater Volume (gal)	Ethanol Volume (gal)	Total Hours Operating (hours)	Active Time Operating (percent)	Average Flow Rate When Operating (gpm)
IRZ-13S	Upper	Extraction	Jan-24	340,508	--	357	48	16
IRZ-13S	Upper	Extraction	Feb-24	256,563	--	261	38	16
IRZ-13S	Upper	Extraction	Mar-24	92,363	--	148	20	10
IRZ-13S	Upper	Extraction	Apr-24	127	--	0.20	0.03	11
IRZ-13S	Upper	Extraction	May-24	20,234	--	21	2.8	16
IRZ-13S	Upper	Extraction	Jun-24	334,336	--	462	64	12
IRZ-13S	Upper	Extraction	Jul-24	136,689	--	151	20	15
IRZ-13S	Upper	Extraction	Aug-24	172,822	--	280	38	10
IRZ-13S	Upper	Extraction	Sep-24	52,969	--	85	12	10
IRZ-13S	**Upper**	**Extraction**	**Oct-24**	**381**	**--**	**0.75**	**0.10**	**8.5**
IRZ-13S	**Upper**	**Extraction**	**Nov-24**	**249,512**	**--**	**306**	**43**	**14**
IRZ-13S	**Upper**	**Extraction**	**Dec-24**	**129,434**	**--**	**199**	**27**	**11**
IRZ-23	Lower	Extraction	Jan-24	2,605,208	--	663	89	65
IRZ-23	Lower	Extraction	Feb-24	2,386,651	--	623	90	64
IRZ-23	Lower	Extraction	Mar-24	2,470,525	--	652	88	63
IRZ-23	Lower	Extraction	Apr-24	2,769,068	--	710	99	65
IRZ-23	Lower	Extraction	May-24	2,765,486	--	738	99	62
IRZ-23	Lower	Extraction	Jun-24	2,763,783	--	707	98	65
IRZ-23	Lower	Extraction	Jul-24	3,113,367	--	723	97	72
IRZ-23	Lower	Extraction	Aug-24	2,833,943	--	723	97	65
IRZ-23	Lower	Extraction	Sep-24	2,474,602	--	646	90	64
IRZ-23	**Lower**	**Extraction**	**Oct-24**	**2,850,554**	**--**	**726**	**98**	**65**
IRZ-23	**Lower**	**Extraction**	**Nov-24**	**2,677,695**	**--**	**679**	**94**	**66**
IRZ-23	**Lower**	**Extraction**	**Dec-24**	**2,871,965**	**--**	**739**	**99**	**65**
PTI-1D	Lower	Extraction	Jan-24	1,134,482	--	664	89	28
PTI-1D	Lower	Extraction	Feb-24	1,019,004	--	618	89	27
PTI-1D	Lower	Extraction	Mar-24	1,061,465	--	649	87	27
PTI-1D	Lower	Extraction	Apr-24	1,113,849	--	707	98	26
PTI-1D	Lower	Extraction	May-24	1,142,089	--	739	99	26
PTI-1D	Lower	Extraction	Jun-24	1,132,422	--	710	99	27
PTI-1D	Lower	Extraction	Jul-24	867,158	--	548	74	26

Table 3.1
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Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Well ID	Aquifer Interval	Well Type	Operating Period	Recirculated Groundwater Volume (gal)	Ethanol Volume (gal)	Total Hours Operating (hours)	Active Time Operating (percent)	Average Flow Rate When Operating (gpm)
PTI-1D	Lower	Extraction	Aug-24	1,167,071	--	721	97	27
PTI-1D	Lower	Extraction	Sep-24	982,480	--	641	89	26
PTI-1D	**Lower**	**Extraction**	**Oct-24**	**1,165,830**	**--**	**725**	**97**	**27**
PTI-1D	**Lower**	**Extraction**	**Nov-24**	**1,064,531**	**--**	**685**	**95**	**26**
PTI-1D	**Lower**	**Extraction**	**Dec-24**	**1,154,600**	**--**	**739**	**99**	**26**

Note:
1. Results collected during the reporting period are bolded.

Acronyms and Abbreviations:
-- = not applicable
gal = gallon
gpm = gallon per minute
ID = identification
IRZ = In Situ Reactive Zone
NTH = National Trails Highway

Table 3.2
NTH IRZ System Operations and Non-Routine Maintenance Log
Fourth Quarter 2024 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Date	Approximate IRZ Systemwide Down Time (days)	Operations and Maintenance Log	Notes
10/1/2024	--	PTI-1D filter replaced.	--
10/1/2024 through 10/6/2024	--	IRZ-37 offline for well rehabilitation.	--
10/1/2024	--	Ethanol dosing occurred.	--
10/2/2024	0.1	IRZ system offline.	Leak detection alarms in IRZ-18 and IRZ-29 vaults due to water overflowing well casings in IRZ-18 (lower) and IRZ-29 (upper). Water was contained within sumps. Collected manual water level readings and adjusted flowrates to prevent overflow.
10/2/2024	--	Backwashed IRZ injection wells IRZ-17, IRZ-18, and IRZ-33.	--
10/2/2024 through 10/3/2024	--	Dosed IRZ injection well IRZ-27 (lower) with chemical solution of NuWell phosphoric acid and NuWell biodispersant at wellhead.	--
10/2/2024 through 10/3/2024	--	Reinjected conditioned water into injection wells.	--
10/4/2024	--	PTI-1D filter replaced.	--
10/4/2024	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18, IRZ-20, IRZ-27, IRZ-31, and IRZ-33.	--
10/4/2024 through 10/10/2024	--	IRZ-35 offline for well rehabilitation.	--
10/4/2024 through 10/21/2024	--	IRZ-29 offline for well rehabilitation.	--
10/7/2024	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18, IRZ-20, IRZ-27, IRZ-31, and IRZ-33.	--
10/8/2024	--	PTI-1D filter replaced.	--
10/8/2024	--	Ethanol dosing occurred.	--
10/9/2024	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18, IRZ-20, IRZ-27, IRZ-31, IRZ-33, and IRZ-37.	--
10/9/2024 through 10/12/2024	--	Reinjected conditioned water into injection wells.	--
10/11/2024	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18, IRZ-20, IRZ-27, IRZ-31, IRZ-33, IRZ-35, and IRZ-37.	--
10/11/2024	--	PTI-1D filter replaced.	--

Table 3.2
NTH IRZ System Operations and Non-Routine Maintenance Log
Fourth Quarter 2024 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Date	Approximate IRZ Systemwide Down Time (days)	Operations and Maintenance Log	Notes
10/14/2024	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18, IRZ-20, IRZ-27, IRZ-31, IRZ-33, IRZ-35, and IRZ-37.	--
10/15/2024	--	PTI-1D filter replaced.	--
10/15/2024	--	Ethanol dosing occurred.	--
10/16/2024	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18, IRZ-20, IRZ-27, IRZ-31, IRZ-33, IRZ-35, and IRZ-37.	--
10/17/2024	--	Reinjected conditioned water into injection wells.	--
10/18/2024	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18, IRZ-20, IRZ-27, IRZ-31, IRZ-33, IRZ-35, and IRZ-37.	--
10/18/2024	--	PTI-1D filter replaced.	--
10/21/2024	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18, IRZ-20, IRZ-27, IRZ-33, IRZ-35, and IRZ-37.	--
10/21/2024 through 11/3/2024	--	IRZ-31 offline for well rehabilitation.	--
10/23/2024	--	Ethanol dosing occurred.	--
10/23/2024 through 10/25/2024	--	Reinjected conditioned water into injection wells.	--
10/23/2024 through 10/28/2024	--	Injection well IRZ-29 (upper) transducer recording inaccurate water-level readings. Manual water-level reading collected, and HMI offset adjusted on October 28 to correct transducer water-level readings.	--
10/24/2024	--	Replaced transducer at IRZ-37, transducer at IRZ-29, and surge protector at IRZ-29. Collected manual water-level readings to confirm new transducers are operating as expected.	Previous IRZ-37 transducer was recording inaccurate water-level readings. Previous IRZ-29 surge protector was bypassed due to inoperability, and the transducer was unable to record accurate water level readings until surge protector was replaced.
10/25/2024	--	PTI-1D filter replaced.	--
10/25/2024	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18, IRZ-20, IRZ-27, IRZ-29, IRZ-33, IRZ-35, and IRZ-37.	--
10/28/2024	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18, IRZ-20, IRZ-27, IRZ-29, IRZ-33, IRZ-35, and IRZ-37.	--
10/29/2024	--	Ethanol dosing occurred.	--

Table 3.2
NTH IRZ System Operations and Non-Routine Maintenance Log
Fourth Quarter 2024 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Date	Approximate IRZ Systemwide Down Time (days)	Operations and Maintenance Log	Notes
10/30/2024	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18, IRZ-20, IRZ-27, IRZ-29, IRZ-33, IRZ-35, and IRZ-37.	--
10/30/2024 through 10/31/2024	0.6	IRZ system offline.	Vault leak detection alarm in IRZ-9 vault due to a leak in the manual flow valve union. The union was replaced and system restarted.
10/31/2024 through 11/1/2024	--	Reinjected conditioned water into injection wells.	Reinjected conditioned water when system was operating. Did not reinject when system was offline.
11/1/2024 through 11/14/2024	--	IRZ-18 offline for well rehabilitation.	--
11/1/2024	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-20, IRZ-27, IRZ-29, IRZ-33, IRZ-35, and IRZ-37.	--
11/1/2024	--	PTI-1D filter replaced.	--
11/4/2024	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-20, IRZ-27, IRZ-29, IRZ-33, IRZ-35, and IRZ-37.	--
11/6/2024 through 11/7/2024	--	Reinjected conditioned water into injection wells.	--
11/5/2024	--	Ethanol dosing occurred.	--
11/5/2024 through 11/19/2024	--	IRZ-17 offline for well rehabilitation.	--
11/4/2024 through 11/5/2024	0.6	IRZ system offline.	Leak detection alarm in IRZ-31 vault due to water overflowing the IRZ-31 lower well casing. Water overflowed casing due to water level transducer malfunction. Manual water-level reading collected, and transducer offset adjusted following troubleshooting.
11/6/2024	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-20, IRZ-27, IRZ-29, IRZ-33, IRZ-35, and IRZ-37.	--
11/6/2024	--	Collected manual water level readings at IRZ injection wells IRZ-15, IRZ-16, IRZ-20, IRZ-27, IRZ-29, IRZ-31, IRZ-33, IRZ-35, and IRZ-37.	--
11/8/2024	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-20, IRZ-27, IRZ-29, IRZ-31, IRZ-33, IRZ-35, and IRZ-37.	--
11/8/2024	--	PTI-1D filter replaced.	--
11/11/2024	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-20, IRZ-27, IRZ-29, IRZ-31, IRZ-33, IRZ-35, and IRZ-37.	--
11/12/2024	--	Ethanol dosing occurred.	--

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Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Date	Approximate IRZ Systemwide Down Time (days)	Operations and Maintenance Log	Notes
11/13/2024	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-20, IRZ-27, IRZ-29, IRZ-31, IRZ-33, IRZ-35, and IRZ-37.	--
11/14/2024	0.1	IRZ system offline.	Vault alarms testing.
11/14/2024 through 12/6/2024	--	IRZ-17 (lower) and IRZ-18 (lower) unable to be pressurized, resulting in alarm level adjustments to 5 and 3 feet below top of casing for the warning and shutoff levels, respectively.	Leaks in stilling well seals. Replacement seals ordered.
11/15/2024	--	PTI-1D filter replaced.	--
11/15/2024	--	Reinjected conditioned water into injection wells.	--
11/15/2024	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-18, IRZ-20, IRZ-27, IRZ-29, IRZ-31, IRZ-33, IRZ-35, and IRZ-37.	--
11/15/2024	--	Replaced transducer at IRZ-29 upper.	Transducer producing inaccurate water-level readings. New transducer continuing to record inaccurate readings. Instrumentation and controls team to continue troubleshooting.
11/17/2024	--	Mechanical rehabilitation performed at IRZ-39.	--
11/18/2024 through 11/20/2024	--	Reinjected conditioned water into injection wells.	--
11/18/2024	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-18, IRZ-20, IRZ-27, IRZ-29, IRZ-31, IRZ-33, IRZ-35, and IRZ-37.	--
11/18/2024 through 11/19/2024	0.5	IRZ system offline.	Air relief fitting leak along IRZ-18 upper vault piping. Repaired piping on November 19, and system resumed operation.
11/19/2024 through 11/22/2024	--	IRZ-33 lower offline.	Actuator fault. IRZ-33 lower resumed operation following troubleshooting.
11/20/2024	--	Ethanol dosing occurred.	--
11/20/2024	--	Conducted quarterly sampling on extraction wells IRZ-9, IRZ-13S, IRZ-13D, and IRZ-23, and pilot test well PTI-1D.	--
11/22/2024	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18, IRZ-20, IRZ-27, IRZ-29, IRZ-31, IRZ-33, IRZ-35, and IRZ-37.	--
11/21/2024	--	Collected manual water level readings at IRZ injection wells IRZ-29, IRZ-31 (lower), IRZ-35, and IRZ-37.	--
11/22/2024	--	PTI-1D filter replaced	--
11/23/2024	0.2	IRZ system offline.	TCS generator failed, resulting in overload on operating power units and causing system shutdown.

Table 3.2
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Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Date	Approximate IRZ Systemwide Down Time (days)	Operations and Maintenance Log	Notes
11/25/2024	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18, IRZ-20, IRZ-27, IRZ-29, IRZ-31, IRZ-33, IRZ-35, and IRZ-37.	--
11/25/2024 through 11/27/2024	--	Reinjected conditioned water into injection wells.	--
11/26/2024	--	Ethanol dosing occurred.	--
11/26/2024	--	PTI-1D filter replaced.	--
12/2/2024	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18, IRZ-20, IRZ-27, IRZ-29, IRZ-31, IRZ-33, IRZ-35, and IRZ-37.	--
12/3/2024	--	Ethanol dosing occurred.	--
12/3/2024 through 12/12/2024	--	IRZ-27 offline for well rehabilitation.	--
12/4/2024	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18, IRZ-20, IRZ-29, IRZ-31, IRZ-33, IRZ-35, and IRZ-37.	--
12/4/2024	--	Collected manual water-level readings at IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18, IRZ-20, IRZ-29, IRZ-31, IRZ-33, IRZ-35, and IRZ-37.	--
12/5/2024	--	Reinjected conditioned water into injection wells.	--
12/6/2024	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18, IRZ-20, IRZ-29, IRZ-31, IRZ-33, IRZ-35, and IRZ-37.	--
12/6/2024	--	PTI-1D filter replaced.	--
12/7/2024 through 12/17/2024	--	IRZ-39 offline for well rehabilitation.	--
12/7/2024 through 12/19/2024	--	IRZ-20 offline for well rehabilitation.	--
12/9/2024	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18, IRZ-29, IRZ-31, IRZ-33, IRZ-35, and IRZ-37.	--
12/10/2024	--	Ethanol dosing occurred.	--
12/11/2024 through 12/12/2024	--	Reinject conditioned water into injection wells.	--
12/11/2024	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18, IRZ-27, IRZ-29, IRZ-31, IRZ-33, IRZ-35, and IRZ-37.	--
12/12/2024 through 12/13/2024	--	IRZ-27 lower remained offline after rehabilitation.	Broken air relief valve at deep interval. IRZ-27 (lower) remained offline until air relief valve was replaced.

Table 3.2
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Fourth Quarter 2024 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Date	Approximate IRZ Systemwide Down Time (days)	Operations and Maintenance Log	Notes
12/12/2024	0.1	IRZ system offline.	Testing leak detection float alarms in well vaults.
12/13/2024	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18, IRZ-27, IRZ-29, IRZ-31, IRZ-33, IRZ-35, and IRZ-37.	--
12/13/2024	--	PTI-1D filter replaced.	--
12/16/2024	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18, IRZ-27, IRZ-29, IRZ-31, IRZ-33, IRZ-35, and IRZ-37.	--
12/17/2024	--	Ethanol dosing occurred.	--
12/17/2024	0.1	IRZ system offline.	Leak detect alarm in IRZ-39 during re-programming of IRZ-39 resulted in system shutdown. Communications to IRZ-39 temporarily disabled to allow system to resume operation while continuing to re-program IRZ-39. Communications re-enabled once re-programming was completed.
12/18/2024	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18, IRZ-27, IRZ-29, IRZ-31, IRZ-33, IRZ-35, and IRZ-37.	--
12/18/2024 through 12/19/2024	--	Reinjected conditioned water into injection wells.	--
12/20/2024	--	PTI-1D filter replaced.	--
12/20/2024	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18, IRZ-20, IRZ-27, IRZ-29, IRZ-31, IRZ-33, IRZ-35, and IRZ-37.	--
12/23/2024	--	Ethanol dosing occurred.	--
12/24/2024	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18, IRZ-20, IRZ-27, IRZ-29, IRZ-31, IRZ-33, IRZ-35, IRZ-37, and IRZ-39.	--
12/24/2024	--	IRZ-39 brought online.	High nitrate data at MW-71-035 resulted in operational adjustment.
12/27/2024	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18, IRZ-20, IRZ-27, IRZ-29, IRZ-31, IRZ-33, IRZ-35, IRZ-37, and IRZ-39.	--
12/27/2024	--	PTI-1D filter replaced.	--

Table 3.2
NTH IRZ System Operations and Non-Routine Maintenance Log
Fourth Quarter 2024 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Date	Approximate IRZ Systemwide Down Time (days)	Operations and Maintenance Log	Notes
12/30/2024	--	Ethanol dosing occurred.	--
12/31/2024	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18, IRZ-20, IRZ-27, IRZ-29, IRZ-31, IRZ-33, IRZ-35, IRZ-37, and IRZ-39.	--

Acronyms and Abbreviations:
-- = not applicable
HMI = human machine interface
IRZ = In Situ Reactive Zone
NTH = National Trails Highway
TCS = Topock Compressor Station

Table 3.3
Fourth Quarter 2024 Water Quality Field Parameters
Fourth Quarter 2024 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Well ID	Sample Date	Depth to Water (ft bTOC)	pH	Specific Conductance (µS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (deg C)	Salinity (ppt)	Total Dissolved Solids (mg/L)	ORP (mV)
Extraction Wells										
IRZ-09-100	11/20/2024	nm	7.54	7,395	6.80	2.41	25.0	nm	nm	18.7
IRZ-13D-210	11/20/2024	nm	7.48	9,637	0.10	1.33	25.0	nm	nm	15.7
IRZ-13S-095	11/20/2024	nm	7.31	6,796	3.50	3.80	26.4	nm	nm	22.1
IRZ-23-143	11/20/2024	nm	6.98	6,420	1.40	1.35	19.6	nm	nm	156.0
PTI-1D	10/24/2024	nm	6.66	9,490	2.10	0.82	25.3	nm	nm	15.6
PTI-1D	11/26/2024	nm	6.74	7,124	3.10	1.70	19.6	nm	nm	27.3
PTI-1D	12/10/2024	nm	6.60	7,319	5.90	1.18	20.0	nm	nm	86.7
Monitoring Wells										
CW-01D	11/21/2024	109.05	7.23	6,682	16.00	6.14	26.8	3.65	4,350	82.4
CW-01M	11/21/2024	108.3	7.42	7,285	11.00	7.11	26.3	4.01	4,740	94.6
CW-02D	12/12/2024	94.37	7.55	7,642	5.00	4.77	25.3	4.14	4,870	62.5
CW-02M	12/12/2024	94.41	7.57	7,654	3.00	4.63	25.2	4.18	4,910	61.8
CW-03D	12/12/2024	78.94	7.64	7,719	5.00	4.68	25.3	4.25	4,990	63.2
CW-03M	12/12/2024	79.28	7.71	7,690	8.00	4.25	25.3	4.19	4,930	62.2
CW-04D	11/21/2024	63.12	8.01	7,989	9.00	4.95	27.8	4.34	5,110	84.9
CW-04M	11/21/2024	63.09	7.91	7,645	15.00	4.68	27.8	4.11	4,850	88.6
IRZ-21-065	11/20/2024	nm	7.36	6,477	2.40	1.69	23.0	nm	nm	26.1
IRZ-21-157	11/20/2024	nm	7.48	3,676	3.50	0.67	24.6	nm	nm	15.6
IRZ-25-100	11/20/2024	nm	7.05	6,470	199.00	20.30	23.0	nm	nm	77.4
IRZ-25-166	11/20/2024	nm	7.11	4,932	4.00	1.15	24.9	nm	nm	-13.6
MW-09	10/10/2024	80.8	7.40	3,028	11.00	2.33	27.0	1.57	1,960	25.0
MW-09	10/30/2024	81.1	nm	nm	nm	nm	nm	nm	nm	nm
MW-10	11/25/2024	76.11	7.25	1,382	30.00	4.90	27.8	0.69	890	112.2
MW-10D	11/25/2024	76.64	7.36	3,349	42.00	1.37	25.4	1.75	2,170	72.0
MW-11	11/25/2024	66.96	7.30	2,004	45.00	4.49	28.1	1.02	1,300	103.6
MW-11D	11/25/2024	67.93	7.28	6,625	50.00	2.16	28.5	3.61	4,300	93.7
MW-12	12/02/2024	28.45	7.51	9,052	7.00	2.59	26.9	5.05	5,890	64.1
MW-13	12/12/2024	32.41	7.61	2,945	31.00	3.20	26.8	1.53	1,910	66.6
MW-14	11/21/2024	116.51	7.09	3,864	35.00	4.70	25.0	2.04	2,510	88.3
MW-15	11/20/2024	186.27	7.65	2,446	3.00	4.64	26.8	1.22	1,540	84.1
MW-19	12/03/2024	45.78	6.84	2,835	13.00	1.22	25.1	1.44	1,820	223.6
MW-20-070	10/08/2024	44.88	7.23	2,206	17.00	6.15	29.7	1.12	1,420	45.5

Table 3.3
Fourth Quarter 2024 Water Quality Field Parameters
Fourth Quarter 2024 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Well ID	Sample Date	Depth to Water (ft bTOC)	pH	Specific Conductance (µS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (deg C)	Salinity (ppt)	Total Dissolved Solids (mg/L)	ORP (mV)
MW-20-070	11/11/2024	45.13	7.11	2,177	10.00	5.72	28.1	1.11	1,410	53.0
MW-20-070	12/11/2024	46	7.05	2,885	11.00	1.51	24.7	1.50	1,876	199.3
MW-20-100	10/08/2024	45.2	7.23	4,313	10.00	3.29	31.1	2.27	2,800	35.8
MW-20-100	11/11/2024	45.52	7.06	4,303	20.00	3.77	27.0	2.27	2,780	81.7
MW-20-100	12/11/2024	51.35	6.49	7,184	10.00	4.23	25.2	3.92	4,631	207.9
MW-20-130	10/08/2024	45.71	7.18	9,957	14.00	0.60	30.5	5.57	6,480	22.6
MW-20-130	11/11/2024	45.98	7.04	9,932	8.00	0.58	27.5	5.57	6,460	57.6
MW-20-130	12/11/2024	46.5	6.46	12,045	13.00	1.65	23.4	7.10	8,072	200.3
MW-21	10/10/2024	49.42	7.28	12,403	27.00	0.48	35.2	7.00	8,050	-149.1
MW-21	11/11/2024	49.96	7.14	12,305	35.00	0.40	29.8	6.99	7,990	-145.8
MW-21	12/10/2024	49.44	6.58	15,285	9.00	1.01	24.3	8.98	10,030	151.3
MW-22	10/30/2024	4.01	6.46	28,563	22.00	0.01	30.2	0.16	16,910	16.9
MW-23-060	11/15/2024	50.85	8.99	12,180	13.00	2.14	26.4	6.93	6,080	-167.3
MW-23-080	11/15/2024	48.83	7.80	9,130	24.00	0.57	24.9	4.88	4,400	-240.4
MW-24A	12/05/2024	112	7.03	2,215	19.00	1.02	26.6	1.14	1,445	196.2
MW-24B	12/05/2024	109.95	6.78	18,298	8.00	2.65	21.6	0.11	12,390	197.8
MW-24BR	11/22/2024	108.61	8.47	14,622	3.00	0.36	31.3	8.25	9,300	-44.8
MW-25	11/21/2024	88.61	7.58	2,136	8.00	4.67	27.3	1.09	1,380	102.0
MW-26	10/10/2024	46.35	6.94	9,476	8.00	0.52	29.2	4.88	5,722	47.9
MW-26	11/13/2024	46.49	6.85	9,178	6.00	0.02	27.1	4.91	5,752	-4.2
MW-26	12/12/2024	47.72	6.60	10,811	8.00	1.79	24.8	6.17	7,060	170.6
MW-27-020	11/15/2024	6.7	7.39	1,156	27.00	0.13	21.1	0.58	750	2.6
MW-27-060	11/15/2024	7.23	7.38	4,459	5.00	0.97	19.6	2.39	2,890	-90.9
MW-27-085	11/15/2024	7	7.38	12,507	8.00	4.11	19.8	7.20	8,130	-54.7
MW-28-025	10/30/2024	12.15	7.24	1,815	7.00	5.00	23.0	0.94	1,221	23.2
MW-28-090	10/30/2024	12.76	7.33	7,601	12.00	0.02	21.6	4.49	5,263	20.3
MW-29	11/26/2024	31.25	8.11	6,331	12.00	2.89	25.3	3.49	4,160	43.9
MW-30-030R	11/14/2024	12.73	7.51	2,211	9.00	0.36	24.1	1.14	1,451	47.5
MW-30-050	10/08/2024	11.46	7.35	2,421	10.00	1.11	24.6	1.25	1,585	73.2
MW-30-050	11/14/2024	12.71	7.22	1,088	7.00	0.46	22.7	0.54	730	25.9
MW-30-050	12/10/2024	13.01	7.41	1,068	9.00	0.64	22.9	0.55	550	-187.0
MW-31-060	10/08/2024	39.05	7.33	8,129	8.00	0.13	28.8	4.49	5,290	-223.0
MW-31-060	11/11/2024	38.97	7.58	6,820	10.00	0.37	28.0	3.72	3,410	-286.8

Table 3.3
Fourth Quarter 2024 Water Quality Field Parameters
Fourth Quarter 2024 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Well ID	Sample Date	Depth to Water (ft bTOC)	pH	Specific Conductance (µS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (deg C)	Salinity (ppt)	Total Dissolved Solids (mg/L)	ORP (mV)
MW-31-060	12/11/2024	40.31	7.15	8,295	20.00	0.48	24.9	4.61	5,400	-320.2
MW-31-135	10/08/2024	40.5	7.30	9,927	9.00	0.34	29.4	5.55	6,450	-18.0
MW-31-135	11/11/2024	40.87	7.11	7,916	30.00	0.40	29.2	4.35	3,960	-128.8
MW-31-135	12/11/2024	41	7.44	7,809	16.00	1.15	24.1	4.32	3,900	-102.9
MW-32-020	11/14/2024	6.33	6.68	30,590	10.00	0.41	27.2	0.18	19,110	29.9
MW-32-035	11/14/2024	7.8	6.61	13,661	12.00	0.26	26.1	7.65	8,665	17.5
MW-33-040	11/14/2024	33.32	7.86	14,273	9.00	0.97	26.5	7.14	8,260	-41.1
MW-33-090	11/14/2024	33.45	7.74	9,516	7.00	0.71	26.6	4.75	5,320	-58.5
MW-33-150	11/14/2024	33.75	7.96	18,311	7.00	0.82	26.7	9.13	10,790	26.9
MW-33-210	11/14/2024	32.51	7.85	9,635	5.00	0.81	26.7	5.03	5,960	-42.4
MW-34-055	11/12/2024	6.42	7.20	3,123	7.00	0.42	20.2	1.80	2,222	27.2
MW-34-080	10/10/2024	5.91	7.08	8,815	4.00	0.13	21.8	4.93	5,730	-86.2
MW-34-080	11/12/2024	6.53	7.09	8,702	13.00	1.15	20.4	5.36	6,186	36.9
MW-34-080	12/12/2024	8.03	6.62	11,075	10.00	0.26	19.2	7.13	8,070	189.4
MW-34-100	10/10/2024	6.16	7.30	13,369	6.00	0.11	21.5	7.72	8,690	-131.3
MW-34-100	11/12/2024	6.65	7.64	12,935	13.00	0.71	20.0	8.35	9,293	24.0
MW-34-100	12/12/2024	8.15	7.03	15,364	10.00	0.35	19.2	0.10	11,470	187.9
MW-35-060	10/28/2024	27.34	7.11	7,483	12.00	2.24	28.1	3.76	4,591	63.4
MW-35-135	10/28/2024	26.53	7.32	12,333	10.00	0.55	27.5	6.68	7,653	62.7
MW-36-020	11/13/2024	13.46	6.91	3,866	6.00	0.10	23.8	2.01	1,910	-103.6
MW-36-040	11/13/2024	14.54	7.33	892	8.00	0.01	22.3	0.43	430	-187.2
MW-36-050	11/13/2024	15.3	7.00	932	9.00	0.09	22.5	0.44	450	-169.4
MW-36-070	11/13/2024	14.34	7.11	1,723	9.00	0.01	21.4	0.87	860	-192.1
MW-36-090	10/09/2024	15.2	7.42	6,665	9.00	0.21	33.5	3.06	3,722	53.9
MW-36-090	11/13/2024	15.39	6.97	6,226	8.00	2.98	21.9	3.40	3,120	-145.1
MW-36-090	12/11/2024	15.6	7.35	3,715	9.00	0.38	20.4	1.80	1,710	-182.0
MW-36-100	10/09/2024	15.26	7.31	12,732	8.00	0.52	33.3	6.14	7,123	56.6
MW-36-100	11/13/2024	15.54	6.92	8,595	9.00	0.02	22.1	4.76	4,270	-230.1
MW-36-100	12/11/2024	16.01	7.14	8,558	9.00	0.25	20.6	5.04	4,500	-172.1
MW-37D	10/29/2024	31.45	7.31	9,943	12.00	2.81	27.7	5.28	6,149	50.8
MW-37S	10/29/2024	31.55	7.43	8,315	11.00	2.11	27.6	4.39	5,162	45.4
MW-38D	10/30/2024	71.17	7.45	20,858	19.00	0.59	29.5	0.12	13,570	-6.1
MW-38S	10/30/2024	69.52	7.17	1,792	14.00	2.11	29.6	0.90	1,160	28.5

Table 3.3
Fourth Quarter 2024 Water Quality Field Parameters
Fourth Quarter 2024 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Well ID	Sample Date	Depth to Water (ft bTOC)	pH	Specific Conductance (µS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (deg C)	Salinity (ppt)	Total Dissolved Solids (mg/L)	ORP (mV)
MW-39-040	10/08/2024	13.02	7.73	1,126	9.00	0.22	29.0	0.52	686	35.4
MW-39-040	11/12/2024	13.46	7.67	815	9.00	0.29	23.7	0.41	420	-189.4
MW-39-040	12/10/2024	13.8	7.83	930	9.00	0.40	21.4	0.46	460	-123.7
MW-39-050	10/08/2024	13.03	7.42	2,071	22.00	0.32	26.1	1.03	1,315	80.8
MW-39-050	11/12/2024	13.5	7.04	1,677	9.00	0.54	23.0	0.85	840	-161.1
MW-39-050	12/10/2024	13.6	7.18	1,641	8.00	0.16	21.6	0.82	810	-33.4
MW-39-060	10/08/2024	13.11	7.51	2,173	6.00	0.41	25.8	1.05	1,391	76.9
MW-39-060	11/12/2024	13.58	7.07	1,688	10.00	0.49	22.9	0.86	850	-132.4
MW-39-060	12/10/2024	14.1	7.18	1,665	10.00	0.48	21.0	0.84	830	-27.3
MW-39-070	10/08/2024	13.4	7.58	2,665	10.00	0.20	27.0	1.31	1,665	77.8
MW-39-070	11/12/2024	13.81	7.25	1,980	9.00	1.29	23.4	1.01	990	-154.4
MW-39-070	12/10/2024	13.9	7.37	2,023	8.00	0.45	21.5	1.08	1,080	-60.6
MW-39-080	10/08/2024	13.41	7.56	4,414	11.00	0.21	27.3	2.25	2,753	78.2
MW-39-080	11/12/2024	14.03	7.23	3,312	8.00	0.15	24.1	1.82	1,710	-157.1
MW-39-080	12/10/2024	14.1	7.26	3,495	9.00	0.06	21.8	1.11	1,080	-51.7
MW-39-100	10/08/2024	13.64	7.29	14,753	8.00	0.31	24.1	8.81	9,751	73.5
MW-39-100	11/12/2024	14.11	6.80	10,638	9.00	0.22	23.2	6.03	5,320	-79.9
MW-39-100	12/10/2024	14.9	6.90	10,810	7.00	0.44	22.6	6.17	5,430	33.0
MW-40D	12/12/2024	111.93	7.34	13,919	5.00	1.59	27.6	7.94	8,910	34.9
MW-40S	12/12/2024	111.35	7.35	2,681	7.00	4.11	27.6	1.60	1,990	47.2
MW-41D	11/22/2024	25.3	7.37	18,458	5.00	0.65	27.7	0.11	12,020	146.6
MW-41M	11/22/2024	25.64	7.34	13,512	10.00	4.16	26.4	7.75	8,790	92.7
MW-41S	11/22/2024	25.91	7.26	6,989	41.00	4.13	26.8	3.83	4,550	95.6
MW-42-030	11/01/2024	9.31	7.74	1,243	7.00	0.40	22.1	0.64	848	-4.4
MW-42-055	11/01/2024	9.43	7.53	1,403	8.00	0.63	21.8	0.75	971	5.3
MW-42-065	11/01/2024	8.9	6.92	9,193	10.00	0.31	21.5	5.53	6,374	28.9
MW-43-025	10/10/2024	7.67	7.33	2,353	7.00	1.40	24.9	1.21	1,520	-139.3
MW-43-075	10/31/2024	8.19	7.63	12,566	6.00	1.39	21.8	7.22	8,170	-123.5
MW-43-090	10/31/2024	8.91	7.63	17,534	7.00	5.09	21.8	0.10	11,400	-103.8
MW-44-070	11/12/2024	17.7	7.02	4,796	13.00	0.54	24.3	2.60	3,150	20.9
MW-44-115	10/09/2024	17.9	8.05	15,583	13.00	0.71	23.6	9.35	10,413	69.5
MW-44-115	11/12/2024	18.21	7.78	15,363	13.00	0.01	22.1	9.51	10,550	32.5
MW-44-115	12/11/2024	18.72	8.15	12,580	10.00	0.14	19.1	7.25	6,290	-19.9

Table 3.3
Fourth Quarter 2024 Water Quality Field Parameters
Fourth Quarter 2024 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Well ID	Sample Date	Depth to Water (ft bTOC)	pH	Specific Conductance (µS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (deg C)	Salinity (ppt)	Total Dissolved Solids (mg/L)	ORP (mV)
MW-44-125	10/09/2024	17.02	8.37	16,025	12.00	0.45	25.8	9.21	10,261	56.9
MW-44-125	11/12/2024	17.83	8.01	15,571	6.00	0.45	24.0	9.28	10,310	34.2
MW-44-125	12/11/2024	18.1	8.25	11,943	6.00	0.18	20.2	6.85	5,980	-82.9
MW-45-095A	10/09/2024	13.52	7.53	10,265	7.00	0.35	26.7	5.56	6,447	63.5
MW-45-095A	11/12/2024	14.32	7.17	9,235	14.00	0.41	22.2	5.49	6,352	39.1
MW-45-095A	12/12/2024	14.67	7.60	7,327	12.00	0.13	20.1	4.06	3,670	4.3
MW-46-175	10/09/2024	28.14	7.47	18,118	15.00	0.20	25.8	0.11	11,780	10.3
MW-46-175	11/12/2024	28.63	7.15	18,224	21.00	0.33	23.1	0.11	11,850	16.8
MW-46-175	12/10/2024	29.19	7.55	18,200	11.00	0.26	20.5	0.11	11,830	56.6
MW-46-205	11/25/2024	28.92	8.21	20,328	4.00	2.82	23.2	0.12	13,200	48.6
MW-47-055	12/02/2024	29.8	6.68	6,464	10.00	2.24	26.1	3.44	4,100	208.2
MW-47-115	12/02/2024	30.3	6.35	17,668	9.00	0.83	25.4	0.10	11,380	186.2
MW-48	12/02/2024	31.22	7.50	17,506	22.00	1.69	27.5	0.10	11,380	72.2
MW-49-135	11/26/2024	30.57	8.27	14,392	8.00	1.21	24.9	8.02	9,010	-14.5
MW-49-275	11/26/2024	30.97	8.18	24,482	4.00	1.13	24.7	0.14	15,490	-18.8
MW-49-365	11/26/2024	32.61	8.08	35,201	3.00	1.07	24.4	0.21	22,190	40.9
MW-50-095	12/03/2024	42.5	6.83	7,302	12.00	2.10	25.3	3.95	4,697	200.1
MW-50-200	12/03/2024	35.41	6.63	15,225	14.00	1.82	21.1	9.65	10,670	202.9
MW-51	10/10/2024	46	5.94	1,295	8.00	0.31	29.9	0.58	763	-147.2
MW-51	11/13/2024	45.43	6.56	974	7.00	0.84	26.7	0.45	611	-82.9
MW-51	12/12/2024	46.45	6.23	9,554	14.00	0.65	25.1	5.35	6,226	64.5
MW-52D	10/31/2024	10.28	7.66	20,205	19.00	3.50	21.8	0.12	13,130	-87.3
MW-52M	10/31/2024	10.47	7.65	15,723	11.00	0.12	21.6	9.20	10,220	-117.9
MW-52S	10/31/2024	10.95	7.70	15,884	10.00	0.44	24.1	9.28	10,320	-135.6
MW-53D	10/31/2024	14.25	7.68	24,692	9.00	0.13	22.7	0.15	16,050	-110.3
MW-53M	10/31/2024	13.4	7.62	19,068	15.00	0.14	21.5	0.11	12,390	-113.8
MW-53S	10/10/2024	13.1	7.26	1,661	25.00	0.17	23.8	0.84	1,070	-161.6
MW-54-085	12/04/2024	13.14	7.26	8,959	15.00	5.24	27.8	4.99	5,820	-18.8
MW-54-140	12/05/2024	12.6	6.57	16,272	12.00	0.25	25.7	9.36	10,420	111.6
MW-54-195	12/04/2024	13.52	7.23	18,162	11.00	1.29	27.7	0.11	11,800	-183.9
MW-55-045	11/19/2024	11.08	7.28	1,418	10.00	0.09	26.5	0.70	900	-133.1
MW-55-120	11/19/2024	11.16	7.31	6,233	5.00	4.92	26.6	3.39	4,050	21.3
MW-56D	12/03/2024	16.33	7.29	21,307	6.00	0.14	23.3	0.13	13,850	-85.7

Table 3.3
Fourth Quarter 2024 Water Quality Field Parameters
Fourth Quarter 2024 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Well ID	Sample Date	Depth to Water (ft bTOC)	pH	Specific Conductance (µS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (deg C)	Salinity (ppt)	Total Dissolved Solids (mg/L)	ORP (mV)
MW-56M	12/03/2024	14.55	7.33	14,473	18.00	0.10	22.5	8.41	9,410	-113.0
MW-56S	12/03/2024	16.93	7.48	6,342	13.00	0.18	23.1	3.46	4,120	-128.6
MW-57-050	12/03/2024[a]	nm	nm	nm	nm	nm	nm	nm	nm	nm
MW-57-070	12/03/2024	53.66	6.41	2,593	13.00	0.73	25.9	1.31	1,654	205.2
MW-57-185	12/03/2024	53.6	8.91	8,045	9.00	0.41	25.1	4.45	5,235	130.5
MW-58-065	12/02/2024[a]	nm	nm	nm	nm	nm	nm	nm	nm	nm
MW-58BR	12/02/2024	68.24	7.12	7,778	9.00	0.09	28.0	4.28	5,060	28.9
MW-59-100	12/03/2024	83.47	7.25	8,598	47.00	4.38	28.4	4.76	5,590	84.8
MW-60-125	10/28/2024	99.8	7.42	7,543	7.00	0.89	27.9	4.15	4,900	18.6
MW-60BR-245	10/28/2024	99.63	7.47	17,238	9.00	2.58	35.1	0.10	11,230	18.8
MW-61-110	12/05/2024	88.9	6.75	20,911	12.00	0.87	26.7	0.12	13,130	196.3
MW-62-065	10/28/2024	48.53	6.90	7,186	12.00	2.72	28.4	3.67	4,385	61.3
MW-62-110	10/29/2024	nm	7.13	10,277	5.00	1.60	28.1	5.80	6,700	-109.9
MW-62-190	10/29/2024	nm	7.26	16,986	3.00	0.66	27.5	9.97	11,050	-199.1
MW-63-065	10/28/2024	50.14	6.93	7,013	19.00	1.93	26.4	3.72	4,433	60.4
MW-64BR	10/28/2024	120.62	7.34	12,422	6.00	0.19	30.3	7.06	8,070	-160.7
MW-65-160	11/21/2024	141.27	7.75	4,351	45.00	2.84	28.7	2.42	2,960	31.2
MW-65-225	11/21/2024	141.11	7.81	9,396	9.00	1.55	27.2	5.11	5,950	24.8
MW-66-165	11/15/2024	130.69	7.45	3,504	15.00	5.38	27.6	1.82	2,260	72.2
MW-66-230	11/15/2024	131.04	7.84	17,974	9.00	2.65	25.7	0.10	11,490	38.9
MW-66BR-270	10/31/2024	131.4	nm	nm	nm	nm	nm	nm	nm	nm
MW-66BR-270	11/15/2024	131.4	7.52	16,785	7.00	1.08	30.4	9.79	10,920	-209.0
MW-67-185	11/21/2024	170.68	7.81	5,041	21.00	1.33	25.5	2.70	3,260	32.9
MW-67-225	11/20/2024	170.51	7.80	5,093	9.00	2.95	26.6	2.75	3,320	43.1
MW-67-260	11/20/2024	170.55	10.66	18,862	8.00	0.68	26.8	0.11	11,940	-76.8
MW-68-180	11/20/2024	165.58	7.83	3,980	9.00	3.09	28.4	2.33	2,860	55.4
MW-68-240	11/20/2024	165.86	7.86	16,865	5.00	1.02	28.4	9.41	10,490	3.2
MW-68BR-280	11/20/2024	164.11	7.89	21,785	2.00	0.66	28.5	0.13	13,810	-37.2
MW-69-195	11/20/2024	175.5	7.67	2,915	47.00	3.84	25.2	1.40	1,760	52.5
MW-70-105	12/02/2024	82.65	6.97	3,167	36.00	2.15	27.4	1.65	2,050	79.4
MW-70BR-225	11/13/2024	80.87	8.59	12,468	4.00	2.19	26.3	6.92	7,810	6.9
MW-70BR-287	11/13/2024	82.26	8.33	16,525	5.00	2.32	26.3	9.55	10,600	10.2

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Fourth Quarter 2024 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Well ID	Sample Date	Depth to Water (ft bTOC)	pH	Specific Conductance (µS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (deg C)	Salinity (ppt)	Total Dissolved Solids (mg/L)	ORP (mV)
MW-71-035	10/10/2024	27.92	7.31	5,759	38.00	1.72	31.5	3.08	3,730	20.5
MW-71-035	11/11/2024	28.33	7.18	6,688	31.00	1.14	28.1	3.61	4,310	28.2
MW-71-035	12/10/2024	28	6.78	6,464	20.00	0.92	25.8	3.43	4,091	196.8
MW-72-080	11/01/2024	59.5	7.71	15,728	45.00	0.22	25.8	9.20	10,250	-41.1
MW-72BR-200	11/01/2024	59.53	7.71	15,613	23.00	0.51	25.7	9.09	10,140	-97.2
MW-73-080	11/01/2024	52.1	7.75	9,629	31.00	0.25	24.1	5.42	6,270	7.6
MW-74-240	11/20/2024	216.14	7.86	965	12.00	1.58	24.8	0.47	620	27.6
MW-75-033	11/26/2024	19.94	7.16	3,523	36.00	1.61	26.4	1.85	2,290	36.3
MW-75-117	11/26/2024	19.85	7.15	12,236	12.00	0.14	24.7	7.00	7,950	8.4
MW-75-202	11/26/2024	19.67	7.11	16,771	20.00	0.15	24.0	9.85	10,900	-62.7
MW-75-267	11/26/2024	19.48	7.04	21,774	34.00	5.24	22.6	0.13	14,160	-17.8
MW-75-337	11/26/2024	22.14	7.11	28,293	7.00	1.75	23.6	0.17	18,380	-124.3
MW-76-039	10/07/2024	26.32	7.16	8,469	23.00	0.46	29.4	4.68	5,500	24.9
MW-76-039	11/11/2024	26.54	6.65	9,544	7.00	0.01	28.1	5.01	5,845	71.5
MW-76-039	12/10/2024	25.78	6.62	11,091	6.00	0.76	25.0	6.27	7,200	192.8
MW-76-156	10/07/2024	27	7.25	8,342	19.00	0.29	31.4	4.59	5,430	-21.5
MW-76-156	11/11/2024	26.65	6.65	9,795	16.00	0.01	30.1	4.95	5,805	50.6
MW-76-156	12/10/2024	26.5	6.63	10,683	10.00	0.71	24.1	6.16	7,081	183.6
MW-76-181	10/07/2024	25.52	7.22	8,449	13.00	0.29	29.2	4.65	5,470	-0.2
MW-76-181	11/11/2024	26.26	6.55	9,997	8.00	0.02	30.7	5.00	5,863	-5.6
MW-76-181	12/10/2024	26.8	6.50	10,306	7.00	1.01	22.1	6.21	7,092	110.2
MW-76-218	10/07/2024	26.04	7.26	8,555	9.00	0.26	30.5	4.73	5,560	-120.2
MW-76-218	11/11/2024	26.36	6.70	9,383	10.00	0.01	26.1	5.09	5,930	-22.9
MW-76-218	12/10/2024	26.66	6.57	10,193	13.00	0.66	20.7	6.31	7,220	81.5
MW-77-046	10/07/2024	23.8	7.51	9,832	12.00	0.36	29.1	5.02	5,903	79.2
MW-77-046	11/14/2024	24.6	7.26	9,044	13.00	3.01	24.7	5.11	5,902	43.5
MW-77-046	12/09/2024	25.03	6.80	13,853	24.00	0.91	24.5	8.05	9,010	199.5
MW-77-102	10/07/2024	23.93	7.32	11,231	11.00	0.51	32.6	5.44	6,361	63.6
MW-77-102	11/14/2024	24.6	7.01	8,832	13.00	0.90	22.5	5.18	5,995	32.9
MW-77-102	12/09/2024	25.24	6.58	11,027	8.00	0.82	23.7	6.42	7,350	195.2
MW-77-158	10/07/2024	23.81	7.31	9,972	11.00	1.01	30.1	5.01	5,862	43.9
MW-77-158	11/14/2024	24.15	7.01	8,665	14.00	1.03	24.1	4.95	5,735	13.4
MW-77-158	12/09/2024	24.7	6.63	10,325	9.00	1.01	23.0	6.07	6,970	174.9

Table 3.3
Fourth Quarter 2024 Water Quality Field Parameters
Fourth Quarter 2024 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Well ID	Sample Date	Depth to Water (ft bTOC)	pH	Specific Conductance (µS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (deg C)	Salinity (ppt)	Total Dissolved Solids (mg/L)	ORP (mV)
MW-77-187	10/07/2024	23.03	7.17	11,905	13.00	1.26	39.5	5.12	6,058	127.3
MW-77-187	11/14/2024	23.84	7.91	8,549	12.00	2.91	21.0	5.21	6,024	-5.2
MW-77-187	12/09/2024	24.89	7.21	10,235	13.00	1.22	20.1	6.42	7,310	129.3
MW-78-070	10/10/2024	46.52	7.02	9,603	25.00	0.55	28.8	4.97	5,835	80.6
MW-78-070	11/13/2024	46.8	7.02	9,215	10.00	0.01	27.3	4.94	5,777	29.1
MW-78-070	12/12/2024	47.1	7.17	6,570	13.00	0.20	27.5	3.61	3,320	-186.0
MW-78-142	10/10/2024	47	7.02	10,663	16.00	0.41	28.7	5.55	6,473	87.6
MW-78-142	11/13/2024	47	7.16	10,124	22.00	0.02	26.3	5.51	6,393	42.8
MW-78-142	12/12/2024	47.3	7.25	7,495	12.00	1.14	26.4	4.09	3,700	-131.0
MW-79-058	10/10/2024	45.62	6.91	9,403	13.00	0.73	28.1	4.91	5,751	74.6
MW-79-058	11/13/2024	45.4	6.90	9,111	10.00	0.73	26.7	4.90	5,723	33.9
MW-79-058	12/12/2024	45.6	7.37	6,694	10.00	6.69	25.2	3.65	3,320	-36.3
MW-79-102	10/10/2024	45.65	6.91	9,633	8.00	0.65	28.4	4.91	5,853	60.9
MW-79-102	11/13/2024	45.5	6.64	8,301	14.00	0.72	26.7	4.49	5,233	-30.4
MW-79-102	12/12/2024	45.83	7.05	6,640	10.00	0.44	27.3	3.60	3,320	-157.9
MW-80-057	10/10/2024	48	6.95	8,844	14.00	0.41	30.6	4.40	5,205	57.3
MW-80-057	11/13/2024	47.41	6.95	9,393	18.00	0.51	28.3	4.90	5,738	37.4
MW-80-057	12/12/2024	47.78	6.53	11,205	7.00	0.43	26.7	6.10	7,042	194.6
MW-80-082	10/10/2024	47.76	6.83	9,454	6.00	0.55	30.2	4.71	5,552	38.1
MW-80-082	11/13/2024	47.22	6.91	9,455	14.00	0.61	28.1	4.93	5,801	31.9
MW-80-082	12/12/2024	47.83	6.46	10,775	11.00	0.81	24.6	6.15	7,040	173.6
MW-81-043	10/09/2024	23.22	7.34	8,625	7.00	1.21	31.9	4.76	5,610	26.1
MW-81-043	11/14/2024	23.25	7.11	6,959	7.00	1.15	28.6	3.80	3,490	-156.3
MW-81-043	12/09/2024	23.15	7.21	6,815	5.00	0.88	26.5	3.72	3,410	-122.8
MW-81-098	10/09/2024	23.28	7.28	8,906	6.00	1.22	31.0	4.93	5,790	7.6
MW-81-098	11/14/2024	23.31	7.06	7,087	6.00	1.75	28.0	3.88	3,550	-139.3
MW-81-098	12/09/2024	23.7	7.22	7,003	8.00	2.49	25.9	3.83	3,500	-136.1
MW-82-046	10/09/2024	30	7.30	13,076	50.00	0.16	27.1	7.50	8,500	-137.3
MW-82-046	11/12/2024	30.45	7.11	13,634	49.00	0.15	25.8	7.87	8,870	-138.2
MW-82-046	12/11/2024	29.25	6.50	17,334	18.00	0.93	22.6	0.11	11,820	151.5
MW-82-112	11/12/2024	30.33	7.14	9,311	16.00	0.13	26.2	5.21	6,060	-58.3
MW-82-168	10/09/2024	28.9	7.32	8,515	29.00	0.19	28.7	4.72	5,540	-33.2
MW-82-168	11/12/2024	29.1	7.13	8,474	9.00	0.31	26.2	4.71	5,510	-22.5

Table 3.3
Fourth Quarter 2024 Water Quality Field Parameters
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Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Well ID	Sample Date	Depth to Water (ft bTOC)	pH	Specific Conductance (µS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (deg C)	Salinity (ppt)	Total Dissolved Solids (mg/L)	ORP (mV)
MW-82-168	12/11/2024	29.25	6.58	9,505	12.00	1.16	18.2	6.17	7,043	173.6
MW-82-198	10/09/2024	28.45	7.35	8,599	19.00	0.40	27.8	4.77	5,590	-115.9
MW-82-198	11/12/2024	29.19	7.16	8,755	11.00	0.35	26.0	4.88	5,690	-93.0
MW-82-198	12/11/2024	29	7.06	10,212	10.00	0.75	19.8	6.43	7,355	170.6
MW-83-090	10/29/2024	74	7.30	1,950	8.00	6.81	28.5	0.98	1,260	69.9
MW-83-180	10/29/2024	74.61	7.09	10,474	10.00	2.32	29.4	5.89	6,810	64.2
MW-83-225	10/29/2024	75.52	7.15	13,614	13.00	1.49	29.2	7.79	8,830	45.2
MW-83-245	10/29/2024	74.45	7.20	686	19.00	5.98	29.1	0.31	420	40.6
MW-84-057	10/29/2024	45.3	7.22	2,243	12.00	3.73	27.6	1.09	1,391	53.5
MW-84-095	10/29/2024	45.3	6.81	5,876	8.00	1.05	27.6	3.00	3,623	53.2
MW-84-132	10/29/2024	45.82	6.43	7,792	16.00	0.81	28.9	3.97	4,717	81.3
MW-84-193	10/29/2024	42.76	6.42	11,162	8.00	0.73	28.2	5.87	6,802	52.8
MW-85-129	10/30/2024	114.67	7.16	2,155	7.00	7.88	28.6	1.10	1,400	75.7
MW-85-217	10/30/2024	114.9	7.14	8,197	8.00	4.98	28.6	4.53	5,340	71.0
MW-85-237	10/30/2024	115	7.13	12,894	27.00	4.91	28.7	7.38	8,390	73.4
MW-86-030	10/30/2024	13.63	7.41	1,175	16.00	1.01	18.7	0.67	873	-9.9
MW-86-066	10/30/2024	13.11	7.27	7,212	8.00	1.91	17.3	4.72	5,482	23.8
MW-86-120	10/30/2024	13.62	7.02	10,033	16.00	1.64	19.7	6.35	7,243	-78.2
MW-86-140	10/30/2024	13.83	7.01	12,631	8.00	0.35	20.4	8.01	9,020	-68.9
MW-87-109	11/21/2024	92.4	7.34	2,994	49.00	3.38	27.6	1.54	1,930	84.0
MW-87-139	11/21/2024	91.86	7.41	7,656	16.00	2.71	28.8	4.17	4,940	40.7
MW-87-192	11/21/2024	92.69	7.30	8,988	19.00	4.12	27.7	5.02	5,860	95.8
MW-87-275	11/21/2024	92.57	7.32	10,083	7.00	5.23	27.5	5.66	6,560	97.8
MW-88-107	10/30/2024	91.08	7.54	800	12.00	4.89	28.1	0.39	520	68.1
MW-89-183	12/12/2024	132.55	7.89	6,924	19.00	4.30	25.9	3.80	4,510	64.1
MW-89-273	12/12/2024	132.62	7.78	7,219	37.00	6.08	24.4	3.97	4,690	55.6
MW-90-031	10/30/2024	5	6.66	19,043	7.00	0.01	26.1	0.11	12,110	4.2
MW-91-045	12/05/2024	12.2	7.12	1,999	12.00	0.47	23.3	1.05	1,339	194.7
MW-91-120	12/04/2024	11.9	nm	nm	nm	nm	nm	nm	nm	nm
MW-91-170	12/05/2024	11.32	7.11	14,954	22.00	0.25	24.1	8.91	9,920	137.3
MW-91-320	12/04/2024	13.52	6.42	36,802	18.00	0.23	22.9	0.24	24,920	93.4
MW-92-037	12/04/2024	8.62	7.20	1,646	24.00	0.09	26.6	0.83	1,070	-172.2
MW-92-072	12/04/2024	8.51	7.24	2,244	7.00	0.08	27.4	1.14	1,450	-127.1

Table 3.3
Fourth Quarter 2024 Water Quality Field Parameters
Fourth Quarter 2024 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Well ID	Sample Date	Depth to Water (ft bTOC)	pH	Specific Conductance (µS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (deg C)	Salinity (ppt)	Total Dissolved Solids (mg/L)	ORP (mV)
MW-92-102	12/04/2024	8.91	7.17	3,222	5.00	0.89	26.8	1.68	2,090	-13.4
MW-92-122	12/04/2024	9.08	7.10	10,842	8.00	0.08	26.2	6.13	7,050	-165.5
MW-93-050	11/26/2024	33.11	7.16	3,957	47.00	2.02	27.4	2.09	2,570	34.9
MW-93-213	11/26/2024	32.6	7.14	11,039	19.00	0.28	27.0	6.24	7,170	-123.4
MW-95-113	11/25/2024	98.32	7.65	1,515	37.00	2.94	28.3	0.73	960	52.6
MW-95-157	11/25/2024	98.29	7.82	5,175	19.00	2.76	28.2	2.64	3,200	51.2
MW-96-045	11/26/2024	30.12	8.11	12,610	19.00	1.26	25.4	7.14	8,090	25.4
MW-96-217	11/26/2024	30.31	8.05	19,147	8.00	1.38	25.7	0.11	12,270	13.5
MW-97-042	11/26/2024	28.22	7.18	3,340	49.00	1.15	27.3	1.74	2,170	19.8
MW-97-202	11/26/2024	28.98	7.20	18,405	10.00	0.24	27.0	0.11	11,950	-71.8
MW-98-055	11/15/2024	46.5	7.77	4,135	8.00	1.21	20.2	2.44	2,962	57.5
MW-98-077	11/15/2024	44.2	7.50	8,110	13.00	4.53	22.5	4.74	5,503	59.2
OW-01D	12/11/2024	95.42	7.89	6,882	12.00	1.66	26.0	3.79	4,490	77.9
OW-01M	12/11/2024	95.52	7.56	7,039	8.00	6.35	25.5	3.87	4,580	119.6
OW-01S	12/11/2024	95.49	7.29	6,997	11.00	6.27	25.3	3.83	4,540	140.4
OW-02D	12/11/2024	93.88	8.08	6,824	6.00	2.98	25.2	3.74	4,430	101.1
OW-02M	12/11/2024	93.61	8.04	6,866	10.00	6.83	22.5	3.77	4,460	107.0
OW-02S	12/11/2024	94.03	7.16	2,967	14.00	6.74	21.7	1.55	1,920	105.2
OW-05D	12/12/2024	97.13	7.57	6,841	7.00	5.43	26.9	3.74	4,440	71.5
OW-05M	12/12/2024	96.63	7.65	6,757	13.00	5.39	26.0	3.70	4,390	69.8
OW-05S	12/12/2024	96.89	7.62	4,363	14.00	4.49	24.2	2.32	2,830	70.7
PGE-07BR	12/05/2024	111.62	7.30	15,982	3.00	0.05	30.4	9.28	10,380	-210.8
PGE-08	11/18/2024	143.52	7.42	19,322	4.00	0.64	32.2	0.11	12,560	-116.2
PT5D	10/09/2024	19.75	7.22	9,643	8.00	0.31	35.1	4.41	5,251	66.2
PT5D	11/14/2024	19.91	6.94	6,540	8.00	0.23	22.5	3.56	3,260	-219.4
PT5D	12/09/2024	21.18	7.35	479	8.00	0.37	21.1	5.09	4,500	-265.9
PT5M	11/14/2024	18.6	7.33	5,636	9.00	0.17	23.1	3.05	2,810	-243.2
PT5S	10/09/2024	18.54	7.63	1,355	5.00	0.43	30.7	0.60	791	47.1
PT6D	10/09/2024	20.73	7.21	6,622	8.00	0.01	29.7	3.27	3,937	73.6
PT6D	11/14/2024	21.03	6.71	4,513	9.00	0.19	22.3	2.41	2,260	-149.9
PT6D	12/09/2024	23.1	7.04	4,916	9.00	0.03	22.6	2.61	2,440	-280.3
PT8D	12/05/2024	107	7.32	12,588	24.00	5.38	28.2	7.18	8,170	46.4
PT9D	12/05/2024	104.46	7.33	13,668	9.00	4.97	29.2	7.85	8,890	71.8

Table 3.3
Fourth Quarter 2024 Water Quality Field Parameters
Fourth Quarter 2024 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Well ID	Sample Date	Depth to Water (ft bTOC)	pH	Specific Conductance (µS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (deg C)	Salinity (ppt)	Total Dissolved Solids (mg/L)	ORP (mV)
PT9M	12/05/2024	104.33	7.33	11,048	15.00	3.68	29.1	6.23	7,180	78.3
PT9S	12/05/2024	104.61	7.38	3,248	12.00	4.73	29.0	1.75	2,180	25.5
TW-01	11/22/2024	165.12	7.26	10,361	2.00	1.42	28.4	5.82	6,710	25.1
TW-02D	10/08/2024	39.03	7.35	8,660	8.00	0.06	29.2	4.79	5,630	6.4
TW-02D	11/12/2024	39.57	7.11	8,708	3.00	0.07	28.4	4.83	5,660	31.9
TW-02D	12/10/2024	40.41	7.14	8,679	3.00	0.06	27.9	4.82	5,640	47.6
TW-02S	10/08/2024	39.6	7.33	8,373	4.00	0.79	28.9	4.63	5,440	33.9
TW-02S	11/12/2024	40.05	7.06	8,459	5.00	0.70	28.3	4.69	5,500	65.5
TW-02S	12/10/2024	40.31	7.21	8,372	4.00	0.65	27.8	4.63	5,440	79.4
TW-03D	10/08/2024[a]	Dry	7.31	8,883	9.00	0.10	29.1	4.93	5,770	13.9
TW-03D	11/12/2024	39.36	7.17	8,412	6.00	0.81	28.6	4.65	5,470	63.1
TW-03D	12/10/2024	40.12	7.22	9,610	6.00	0.12	28.3	5.37	6,240	60.4
TW-04	10/29/2024	30.46	7.25	19,200	9.00	2.78	28.2	0.11	12,500	49.2
TW-05	12/02/2024	42.22	6.28	13,014	17.00	1.21	26.1	7.26	8,265	225.2

Note:
[a] Well was not sampled this reporting period because there was an insufficient volume of groundwater.

Acronyms and Abbreviations:
µS/cm = microSiemen per centimeter
deg C = degree Celsius
ft bTOC = feet below the top of casing
ID = identification
mg/L = milligram per liter
mV = millivolt
nm = parameter was not measured
NTU = nephelometric turbidity unit
ORP = oxidation-reduction potential
ppt = part per thousand

Table 4.1
Monitoring Well Inspection Results
Fourth Quarter 2024 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Location	Date	Well Inspection Completed?	Is the Well Labeled Properly?	Is the Well in Good Condition?	Description of Deficiencies (if noted)	Well Inspection Comments
ER-01	11-26-2024	Yes	Yes	Good	--	--
ER-02	11-26-2024	Yes	Yes	Good	--	--
ER-03	11-19-2024	Yes	Yes	Good	--	--
ER-04	11-19-2024	Yes	Yes	Good	--	--
FW-02B-127	10-31-2024	Yes	Yes	Good	--	--
HNWR-01A-174	11-14-2024	Yes	Yes	Good	--	--
HNWR-01A-98	11-14-2024	Yes	Yes	Good	--	--
Marina-1	11-19-2024	Yes	Yes	Good	--	--
MTS-1	11-13-2024	Yes	Yes	Good	--	--
MTS-2	11-13-2024	Yes	Yes	Good	--	--
MW-09	10-10-2024	Yes	Yes	Good	--	--
MW-10	11-25-2024	Yes	Yes	Good	--	--
MW-10D	11-25-2024	Yes	Yes	Good	--	--
MW-11	11-25-2024	Yes	Yes	Good	--	--
MW-11D	11-25-2024	Yes	Yes	Good	--	--
MW-12	12-02-2024	Yes	Yes	Good	--	--
MW-13	12-12-2024	Yes	Yes	Good	--	--
MW-14	11-21-2024	Yes	Yes	Good	--	--
MW-15	11-20-2024	Yes	Yes	Good	--	--
MW-19	12-03-2024	Yes	Yes	Good	--	--
MW-20-070	10-08-2024	Yes	Yes	Good	--	--
MW-20-070	11-11-2024	Yes	Yes	Good	--	--
MW-20-070	12-11-2024	Yes	Yes	Good	--	--
MW-20-100	10-08-2024	Yes	Yes	Good	--	--
MW-20-100	11-11-2024	Yes	Yes	Good	--	--
MW-20-100	12-11-2024	Yes	Yes	Good	--	--
MW-20-130	10-08-2024	Yes	Yes	Good	--	--
MW-20-130	11-11-2024	Yes	Yes	Good	--	--
MW-20-130	12-11-2024	Yes	Yes	Good	--	--
MW-21	10-10-2024	Yes	Yes	Good	--	--
MW-21	11-11-2024	Yes	Yes	Good	--	--
MW-21	12-10-2024	Yes	Yes	Good	--	--
MW-22	10-30-2024	Yes	Yes	Good	--	--
MW-23-060	11-15-2024	Yes	Yes	Good	--	--
MW-23-080	11-15-2024	Yes	Yes	Good	--	--
MW-24A	12-05-2024	Yes	Yes	Good	--	--
MW-24B	12-05-2024	Yes	Yes	Good	--	--
MW-24BR	11-21-2024	Yes	Yes	Good	--	--
MW-25	11-21-2024	Yes	Yes	Good	--	--
MW-26	10-10-2024	Yes	Yes	Good	--	--
MW-26	11-13-2024	Yes	Yes	Good	--	--

Table 4.1
Monitoring Well Inspection Results
Fourth Quarter 2024 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Location	Date	Well Inspection Completed?	Is the Well Labeled Properly?	Is the Well in Good Condition?	Description of Deficiencies (if noted)	Well Inspection Comments
MW-26	12-12-2024	Yes	Yes	Good	--	--
MW-27-020	11-15-2024	Yes	Yes	Good	--	--
MW-27-060	11-15-2024	Yes	Yes	Good	--	--
MW-27-085	11-15-2024	Yes	Yes	Good	--	--
MW-28-025	10-30-2024	Yes	Yes	Good	--	--
MW-28-090	10-30-2024	Yes	Yes	Good	--	--
MW-30-030R	11-14-2024	Yes	Yes	Good	--	--
MW-30-050	10-08-2024	Yes	Yes	Good	--	--
MW-30-050	11-14-2024	Yes	Yes	Good	--	--
MW-30-050	12-10-2024	Yes	Yes	Good	--	--
MW-31-060	10-08-2024	Yes	Yes	Good	--	--
MW-31-060	11-11-2024	Yes	Yes	Good	--	--
MW-31-060	12-11-2024	Yes	Yes	Good	--	--
MW-31-135	10-08-2024	Yes	Yes	Good	--	--
MW-31-135	11-11-2024	Yes	Yes	Good	--	--
MW-31-135	12-11-2024	Yes	Yes	Good	--	--
MW-32-020	11-14-2024	Yes	Yes	Good	--	--
MW-32-035	11-14-2024	Yes	Yes	Good	--	--
MW-33-040	11-14-2024	Yes	Yes	Good	--	--
MW-33-090	11-14-2024	Yes	Yes	Good	--	--
MW-33-150	11-14-2024	Yes	Yes	Good	--	--
MW-33-210	11-14-2024	Yes	Yes	Good	--	--
MW-34-055	11-12-2024	Yes	Yes	Good	--	--
MW-34-080	10-10-2024	Yes	Yes	Good	--	--
MW-34-080	11-12-2024	Yes	Yes	Good	--	--
MW-34-080	12-12-2024	Yes	Yes	Good	--	--
MW-34-100	10-10-2024	Yes	Yes	Good	--	--
MW-34-100	11-12-2024	Yes	Yes	Good	--	--
MW-34-100	12-12-2024	Yes	Yes	Good	--	--
MW-35-060	10-28-2024	Yes	Yes	Good	--	--
MW-35-135	10-28-2024	Yes	Yes	Good	--	--
MW-36-020	11-13-2024	Yes	Yes	Good	--	--
MW-36-040	11-13-2024	Yes	Yes	Good	--	--
MW-36-050	11-13-2024	Yes	Yes	Good	--	--
MW-36-070	11-13-2024	Yes	Yes	Good	--	--
MW-36-090	10-09-2024	Yes	Yes	Good	--	--
MW-36-090	12-11-2024	Yes	Yes	Good	--	--
MW-36-100	10-09-2024	Yes	Yes	Good	--	--
MW-36-100	11-13-2024	Yes	Yes	Good	--	--
MW-36-100	12-11-2024	Yes	Yes	Good	--	--
MW-37D	10-29-2024	Yes	Yes	Good	--	--

Table 4.1
Monitoring Well Inspection Results
Fourth Quarter 2024 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Location	Date	Well Inspection Completed?	Is the Well Labeled Properly?	Is the Well in Good Condition?	Description of Deficiencies (if noted)	Well Inspection Comments
MW-37S	10-29-2024	Yes	Yes	Good	--	--
MW-38D	10-30-2024	Yes	Yes	Good	--	--
MW-38S	10-30-2024	Yes	Yes	Good	--	--
MW-39-040	10-08-2024	Yes	Yes	Good	--	--
MW-39-040	11-12-2024	Yes	Yes	Good	--	--
MW-39-050	10-08-2024	Yes	Yes	Good	--	--
MW-39-050	11-12-2024	Yes	Yes	Good	--	--
MW-39-050	12-10-2024	Yes	Yes	Good	--	--
MW-39-060	10-08-2024	Yes	Yes	Good	--	--
MW-39-060	11-12-2024	Yes	Yes	Good	--	--
MW-39-070	10-08-2024	Yes	Yes	Good	--	--
MW-39-070	11-12-2024	Yes	Yes	Good	--	--
MW-39-070	12-10-2024	Yes	Yes	Good	--	--
MW-39-080	10-08-2024	Yes	Yes	Good	--	--
MW-39-080	11-12-2024	Yes	Yes	Good	--	--
MW-39-080	12-10-2024	Yes	Yes	Good	--	--
MW-39-100	10-08-2024	Yes	Yes	Good	--	--
MW-39-100	11-12-2024	Yes	Yes	Good	--	--
MW-40D	12-12-2024	Yes	Yes	Good	--	--
MW-40S	12-12-2024	Yes	Yes	Good	--	--
MW-41D	11-22-2024	Yes	Yes	Good	--	--
MW-41M	11-22-2024	Yes	Yes	Good	--	--
MW-41S	11-22-2024	Yes	Yes	Good	--	--
MW-42-030	11-01-2024	Yes	Yes	Good	--	--
MW-42-055	11-01-2024	Yes	Yes	Good	--	--
MW-42-065	11-01-2024	Yes	Yes	Good	--	--
MW-43-025	10-10-2024	Yes	Yes	Good	--	--
MW-43-075	10-31-2024	Yes	Yes	Good	--	--
MW-43-090	10-31-2024	Yes	Yes	Good	--	--
MW-44-070	11-12-2024	Yes	Yes	Good	--	--
MW-44-115	10-09-2024	Yes	Yes	Good	--	--
MW-44-115	11-12-2024	Yes	Yes	Good	--	--
MW-44-115	12-11-2024	Yes	Yes	Good	--	--
MW-44-125	10-09-2024	Yes	Yes	Good	--	--
MW-44-125	11-12-2024	Yes	Yes	Good	--	--
MW-44-125	12-11-2024	Yes	Yes	Good	--	--
MW-45-095a	10-09-2024	Yes	Yes	Good	--	--
MW-45-095a	11-12-2024	Yes	Yes	Good	--	--
MW-46-175	10-09-2024	Yes	Yes	Good	--	--
MW-46-175	11-12-2024	Yes	Yes	Good	--	--
MW-46-175	12-10-2024	Yes	Yes	Good	--	--

Table 4.1
Monitoring Well Inspection Results
Fourth Quarter 2024 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Location	Date	Well Inspection Completed?	Is the Well Labeled Properly?	Is the Well in Good Condition?	Description of Deficiencies (if noted)	Well Inspection Comments
MW-46-205	11-25-2024	Yes	Yes	Good	--	--
MW-47-055	12-02-2024	Yes	Yes	Good	--	--
MW-47-115	12-02-2024	Yes	Yes	Good	--	--
MW-48	12-02-2024	Yes	Yes	Good	--	--
MW-49-135	11-26-2024	Yes	Yes	Good	--	--
MW-49-275	11-26-2024	Yes	Yes	Good	--	--
MW-49-365	11-26-2024	Yes	Yes	Good	--	--
MW-50-095	12-03-2024	Yes	Yes	Good	--	--
MW-50-200	12-03-2024	Yes	Yes	Good	--	--
MW-51	10-10-2024	Yes	Yes	Good	--	--
MW-51	11-13-2024	Yes	Yes	Good	--	--
MW-51	12-12-2024	Yes	Yes	Good	--	--
MW-52D	10-31-2024	Yes	Yes	Good	--	--
MW-52M	10-31-2024	Yes	Yes	Good	--	--
MW-52S	10-31-2024	Yes	Yes	Good	--	--
MW-53D	10-31-2024	Yes	Yes	Good	--	--
MW-53M	10-31-2024	Yes	Yes	Good	--	--
MW-53S	10-10-2024	Yes	Yes	Good	--	--
MW-54-085	12-04-2024	Yes	Yes	Good	--	--
MW-54-140	12-04-2024	Yes	Yes	Good	--	--
MW-54-195	12-04-2024	Yes	Yes	Good	--	--
MW-55-045	11-19-2024	Yes	Yes	Good	--	--
MW-55-120	11-19-2024	Yes	Yes	Good	--	--
MW-56D	12-03-2024	Yes	Yes	Good	--	--
MW-56M	12-03-2024	Yes	Yes	Good	--	--
MW-56S	12-03-2024	Yes	Yes	Good	--	--
MW-57-050	12-03-2024	Yes	Yes	Good	--	--
MW-57-070	12-03-2024	Yes	Yes	Good	--	--
MW-57-185	12-03-2024	Yes	Yes	Good	--	--
MW-58-065	12-02-2024	Yes	Yes	Good	--	--
MW-58BR	12-02-2024	Yes	Yes	Good	--	--
MW-59-100	12-03-2024	Yes	Yes	Good	--	--
MW-60-125	10-28-2024	Yes	Yes	Good	--	--
MW-60BR-245	10-28-2024	Yes	Yes	Good	--	--
MW-61-110	12-05-2024	Yes	Yes	Good	--	--
MW-62-065	10-28-2024	Yes	Yes	Good	--	--
MW-62-110	10-28-2024	Yes	Yes	Good	--	--
MW-62-190	10-28-2024	Yes	Yes	Good	--	--
MW-63-065	10-28-2024	Yes	Yes	Good	--	--
MW-64BR	10-28-2024	Yes	Yes	Good	--	--
MW-65-160	11-21-2024	Yes	Yes	Good	--	--

Table 4.1
Monitoring Well Inspection Results
Fourth Quarter 2024 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Location	Date	Well Inspection Completed?	Is the Well Labeled Properly?	Is the Well in Good Condition?	Description of Deficiencies (if noted)	Well Inspection Comments
MW-65-225	11-21-2024	Yes	Yes	Good	--	--
MW-66-165	11-15-2024	Yes	Yes	Good	--	--
MW-66-230	11-15-2024	Yes	Yes	Good	--	--
MW-66BR-270	10-31-2024	Yes	Yes	Good	--	--
MW-67-185	11-21-2024	Yes	Yes	Good	--	--
MW-67-225	11-20-2024	Yes	Yes	Good	--	--
MW-67-260	11-20-2024	Yes	Yes	Good	--	--
MW-68-180	11-20-2024	Yes	Yes	Good	--	--
MW-68-240	11-20-2024	Yes	Yes	Good	--	--
MW-68BR-280	11-20-2024	Yes	Yes	Good	--	--
MW-69-195	11-20-2024	Yes	Yes	Good	--	--
MW-70-105	12-02-2024	Yes	Yes	Good	--	--
MW-70BR-225	11-13-2024	Yes	Yes	Good	--	--
MW-70BR-287	11-13-2024	Yes	Yes	Good	--	--
MW-71-035	10-10-2024	Yes	Yes	Good	--	--
MW-71-035	11-11-2024	Yes	Yes	Good	--	--
MW-72-080	11-01-2024	Yes	Yes	Good	--	--
MW-72BR-200	11-01-2024	Yes	Yes	Good	--	--
MW-73-080	11-01-2024	Yes	Yes	Good	--	--
MW-74-240	11-20-2024	Yes	Yes	Good	--	--
MW-75-033	11-26-2024	Yes	Yes	Good	--	--
MW-75-117	11-26-2024	Yes	Yes	Good	--	--
MW-75-202	11-26-2024	Yes	Yes	Good	--	--
MW-75-267	11-26-2024	Yes	Yes	Good	--	--
MW-75-337	11-26-2024	Yes	Yes	Good	--	--
MW-76-039	10-07-2024	Yes	Yes	Good	--	--
MW-76-039	11-11-2024	Yes	Yes	Good	--	--
MW-76-039	12-10-2024	Yes	Yes	Good	--	--
MW-76-156	10-07-2024	Yes	Yes	Good	--	--
MW-76-156	11-11-2024	Yes	Yes	Good	--	--
MW-76-156	12-10-2024	Yes	Yes	Good	--	--
MW-76-181	10-07-2024	Yes	Yes	Good	--	--
MW-76-181	11-11-2024	Yes	Yes	Good	--	--
MW-76-181	12-10-2024	Yes	Yes	Good	--	--
MW-76-218	10-07-2024	Yes	Yes	Good	--	--
MW-76-218	11-11-2024	Yes	Yes	Good	--	--
MW-76-218	12-10-2024	Yes	Yes	Good	--	--
MW-77-046	10-07-2024	Yes	Yes	Good	--	--
MW-77-046	11-14-2024	Yes	Yes	Good	--	--
MW-77-046	12-09-2024	Yes	Yes	Good	--	--
MW-77-102	10-07-2024	Yes	Yes	Good	--	--

Table 4.1
Monitoring Well Inspection Results
Fourth Quarter 2024 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Location	Date	Well Inspection Completed?	Is the Well Labeled Properly?	Is the Well in Good Condition?	Description of Deficiencies (if noted)	Well Inspection Comments
MW-77-102	11-14-2024	Yes	Yes	Good	--	--
MW-77-102	12-09-2024	Yes	Yes	Good	--	--
MW-77-158	10-07-2024	Yes	Yes	Good	--	--
MW-77-158	11-14-2024	Yes	Yes	Good	--	--
MW-77-158	12-09-2024	Yes	Yes	Good	--	--
MW-77-187	10-07-2024	Yes	Yes	Good	--	--
MW-77-187	11-14-2024	Yes	Yes	Good	--	--
MW-77-187	12-09-2024	Yes	Yes	Good	--	--
MW-78-070	10-10-2024	Yes	Yes	Good	--	--
MW-78-070	11-13-2024	Yes	Yes	Good	--	--
MW-78-070	12-12-2024	Yes	Yes	Good	--	--
MW-78-142	10-10-2024	Yes	Yes	Good	--	--
MW-78-142	11-13-2024	Yes	Yes	Good	--	--
MW-78-142	12-12-2024	Yes	Yes	Good	--	--
MW-79-058	10-10-2024	Yes	Yes	Good	--	--
MW-79-058	11-13-2024	Yes	Yes	Good	--	--
MW-79-102	10-10-2024	Yes	Yes	Good	--	--
MW-79-102	11-13-2024	Yes	Yes	Good	--	--
MW-79-102	12-12-2024	Yes	Yes	Good	--	--
MW-80-057	10-10-2024	Yes	Yes	Good	--	--
MW-80-057	11-13-2024	Yes	Yes	Good	--	--
MW-80-057	12-12-2024	Yes	Yes	Good	--	--
MW-80-082	10-10-2024	Yes	Yes	Good	--	--
MW-80-082	11-13-2024	Yes	Yes	Good	--	--
MW-80-082	12-12-2024	Yes	Yes	Good	--	--
MW-81-043	10-09-2024	Yes	Yes	Good	--	--
MW-81-043	11-14-2024	Yes	Yes	Good	--	--
MW-81-043	12-09-2024	Yes	Yes	Good	--	--
MW-81-098	10-09-2024	Yes	Yes	Good	--	--
MW-81-098	11-14-2024	Yes	Yes	Good	--	--
MW-81-098	12-09-2024	Yes	Yes	Good	--	--
MW-82-046	10-09-2024	Yes	Yes	Good	--	--
MW-82-046	11-12-2024	Yes	Yes	Good	--	--
MW-82-046	12-11-2024	Yes	Yes	Good	--	--
MW-82-112	11-12-2024	Yes	Yes	Good	--	--
MW-82-168	10-09-2024	Yes	Yes	Good	--	--
MW-82-168	11-12-2024	Yes	Yes	Good	--	--
MW-82-168	12-11-2024	Yes	Yes	Good	--	--
MW-82-198	10-09-2024	Yes	Yes	Good	--	--
MW-82-198	11-12-2024	Yes	Yes	Good	--	--
MW-82-198	12-11-2024	Yes	Yes	Good	--	--

Table 4.1
Monitoring Well Inspection Results
Fourth Quarter 2024 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Location	Date	Well Inspection Completed?	Is the Well Labeled Properly?	Is the Well in Good Condition?	Description of Deficiencies (if noted)	Well Inspection Comments
MW-83-090	10-29-2024	Yes	Yes	Good	--	--
MW-83-180	10-29-2024	Yes	Yes	Good	--	--
MW-83-225	10-29-2024	Yes	Yes	Good	--	--
MW-83-245	10-29-2024	Yes	Yes	Good	--	--
MW-84-057	10-29-2024	Yes	Yes	Good	--	--
MW-84-095	10-29-2024	Yes	Yes	Good	--	--
MW-84-132	10-29-2024	Yes	Yes	Good	--	--
MW-84-193	10-29-2024	Yes	Yes	Good	--	--
MW-85-129	10-30-2024	Yes	Yes	Good	--	--
MW-85-217	10-30-2024	Yes	Yes	Good	--	--
MW-85-237	10-30-2024	Yes	Yes	Good	--	--
MW-86-030	10-30-2024	Yes	Yes	Good	--	--
MW-86-066	10-30-2024	Yes	Yes	Good	--	--
MW-86-120	10-30-2024	Yes	Yes	Good	--	--
MW-86-140	10-30-2024	Yes	Yes	Good	--	--
MW-87-109	11-21-2024	Yes	Yes	Good	--	--
MW-87-139	11-21-2024	Yes	Yes	Good	--	--
MW-87-192	11-21-2024	Yes	Yes	Good	--	--
MW-87-275	11-21-2024	Yes	Yes	Good	--	--
MW-88-107	10-30-2024	Yes	Yes	Good	--	--
MW-89-183	12-12-2024	Yes	Yes	Good	--	--
MW-89-273	12-12-2024	Yes	Yes	Good	--	--
MW-90-031	10-30-2024	Yes	Yes	Good	--	--
MW-91-045	12-04-2024	Yes	Yes	Good	--	--
MW-91-120	12-04-2024	Yes	Yes	Good	--	--
MW-91-170	12-04-2024	Yes	Yes	Good	--	--
MW-91-320	12-04-2024	Yes	Yes	Good	--	--
MW-92-037	12-04-2024	Yes	Yes	Good	--	--
MW-92-072	12-04-2024	Yes	Yes	Good	--	--
MW-92-102	12-04-2024	Yes	Yes	Good	--	--
MW-92-122	12-04-2024	Yes	Yes	Good	--	--
MW-93-050	11-26-2024	Yes	Yes	Good	--	--
MW-93-213	11-26-2024	Yes	Yes	Good	--	--
MW-94-030	11-13-2024	Yes	Yes	Good	--	--
MW-94-100	11-13-2024	Yes	Yes	Good	--	--
MW-94-175	11-13-2024	Yes	Yes	Good	--	--
MW-95-113	11-25-2024	Yes	Yes	Good	--	--
MW-95-157	11-25-2024	Yes	Yes	Good	--	--
MW-96-045	11-26-2024	Yes	Yes	Good	--	--
MW-96-217	11-26-2024	Yes	Yes	Good	--	--
MW-97-042	11-26-2024	Yes	Yes	Good	--	--

Table 4.1
Monitoring Well Inspection Results
Fourth Quarter 2024 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Location	Date	Well Inspection Completed?	Is the Well Labeled Properly?	Is the Well in Good Condition?	Description of Deficiencies (if noted)	Well Inspection Comments
MW-97-202	11-26-2024	Yes	Yes	Good	--	--
MW-98-055	11-15-2024	Yes	Yes	Good	--	--
MW-98-077	11-15-2024	Yes	Yes	Good	--	--
MW-99-060	12-03-2024	Yes	Yes	Good	--	--
MW-99-140	12-03-2024	Yes	Yes	Good	--	--
MWP-08	11-20-2024	Yes	Yes	Good	--	--
OW-01D	12-11-2024	Yes	Yes	Good	--	--
OW-01M	12-11-2024	Yes	Yes	Good	--	--
OW-01S	12-11-2024	Yes	Yes	Good	--	--
OW-02D	12-11-2024	Yes	Yes	Good	--	--
OW-02M	12-11-2024	Yes	Yes	Good	--	--
OW-02S	12-11-2024	Yes	Yes	Good	--	--
OW-05D	12-12-2024	Yes	Yes	Good	--	--
OW-05M	12-12-2024	Yes	Yes	Good	--	--
OW-05S	12-12-2024	Yes	Yes	Good	--	--
PGE-07BR	12-05-2024	Yes	Yes	Good	--	--
PGE-08	11-18-2024	Yes	Yes	Good	--	--
PGE-09N	11-19-2024	Yes	Yes	Good	--	--
PGE-09S	11-19-2024	Yes	Yes	Good	--	--
PM-03	11-19-2024	Yes	Yes	Good	--	--
PM-04	11-19-2024	Yes	Yes	Good	--	--
PT5D	10-09-2024	Yes	Yes	Good	--	--
PT5D	11-14-2024	Yes	Yes	Good	--	--
PT5D	12-09-2024	Yes	Yes	Good	--	--
PT5M	11-14-2024	Yes	Yes	Good	--	--
PT5S	10-09-2024	Yes	Yes	Good	--	--
PT6D	10-09-2024	Yes	Yes	Good	--	--
PT6D	11-14-2024	Yes	Yes	Good	--	--
PT6D	12-09-2024	Yes	Yes	Good	--	--
PT8D	12-05-2024	Yes	Yes	Good	--	--
PT9D	12-05-2024	Yes	Yes	Good	--	--
PT9M	12-05-2024	Yes	Yes	Good	--	--
PT9S	12-05-2024	Yes	Yes	Good	--	--
Site B-165	11-14-2024	Yes	Yes	Good	--	--
Site B-220	11-14-2024	Yes	Yes	Good	--	--
Site B-285	11-14-2024	Yes	Yes	Good	--	--
TW-01	11-22-2024	Yes	Yes	Good	--	--
TW-02D	10-08-2024	Yes	Yes	Good	--	--
TW-02D	11-12-2024	Yes	Yes	Good	--	--
TW-02D	12-10-2024	Yes	Yes	Good	--	--
TW-02S	10-08-2024	Yes	Yes	Good	--	--

Table 4.1
Monitoring Well Inspection Results
Fourth Quarter 2024 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Location	Date	Well Inspection Completed?	Is the Well Labeled Properly?	Is the Well in Good Condition?	Description of Deficiencies (if noted)	Well Inspection Comments
TW-02S	11-12-2024	Yes	Yes	Good	--	--
TW-02S	12-10-2024	Yes	Yes	Good	--	--
TW-03D	10-08-2024	Yes	Yes	Good	--	--
TW-03D	11-12-2024	Yes	Yes	Good	--	--
TW-03D	12-10-2024	Yes	Yes	Good	--	--
TW-04	10-29-2024	Yes	Yes	Good	--	--
TW-05	12-02-2024	Yes	Yes	Good	--	--
TWB-01	10-29-2024	Yes	Yes	Good	--	--

Acronyms and Abbreviations:

-- = no comment

Table 4.2
Monitoring Well Water Levels and Specific Capacities
Fourth Quarter 2024 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Well ID	Well Screen Lithology	Sample Date	Constructed Well Depth (feet bTOC)	Measured Well Depth (feet bTOC)	Difference in Constructed and Measured Well Depth (feet)	Screen Start Depth (feet bTOC)	Screen End Depth (feet bTOC)	Pre-Purge Depth to Water (feet bTOC)	Post-Purge Depth to Water (feet bTOC)	Drawdown During Purging (feet)	Purging Rate (mL/min)	Specific Capacity (gpm/foot)	Measured Depth Covering Greater than 20% of screen?	Notes	Date of Last Redevelopment
CW-01D	Alluvial	11/21/2024	302.89	300.08	2.81	252.69	302.69	109.05	N/A	N/A	N/A	N/A	No		
CW-01M	Alluvial	11/21/2024	192.71	187.02	5.69	142.71	192.71	108.30	N/A	N/A	N/A	N/A	No		
CW-02D	Alluvial	12/12/2024	357.71	N/A	N/A	287.71	337.71	94.37	N/A	N/A	N/A	N/A	N/A	Total depth not recorded due to dedicated pump in well.	
CW-02M	Alluvial	12/12/2024	211.12	N/A	N/A	154.81	204.81	94.41	N/A	N/A	N/A	N/A	N/A	Total depth not recorded due to dedicated pump in well.	
CW-03D	Alluvial	12/12/2024	342.61	N/A	N/A	272.61	322.61	78.94	N/A	N/A	N/A	N/A	N/A	Total depth not recorded due to dedicated pump in well.	
CW-03M	Alluvial	12/12/2024	224.55	N/A	N/A	174.55	224.55	79.28	N/A	N/A	N/A	N/A	N/A	Total depth not recorded due to dedicated pump in well.	
CW-04D	Alluvial	11/21/2024	305.64	N/A	N/A	235.64	285.64	63.12	N/A	N/A	N/A	N/A	N/A	Total depth not recorded due to dedicated pump in well.	
CW-04M	Alluvial	11/21/2024	172.55	N/A	N/A	122.25	172.25	63.06	N/A	N/A	N/A	N/A	N/A	Total depth not recorded due to dedicated pump in well.	
MW-09	Alluvial	10/10/2024	88.82	89.09	-0.27	77.82	87.82	80.80	80.87	0.07	500	1.89	No		9/25/2024
MW-10	Alluvial	11/25/2024	95.73	96.88	-1.15	74.73	94.73	76.11	76.13	0.02	500	6.60	No		
MW-10D	Alluvial	11/25/2024	127.7	127.40	0.30	110.20	125.20	76.64	76.66	0.02	500	6.60	No	High turbidity in Fourth Quarter 2023 and Second and Fourth Quarters 2024. Not recommended for redevelopment at this time given measured well depth and specific capacity indicates good yield.	
MW-11	Alluvial	11/25/2024	88.21	84.14	4.07	64.60	84.60	66.96	66.98	0.02	500	6.60	No	High turbidity. Continue to monitor for consecutive high turbidity readings.	3/13/2023
MW-11D	Alluvial	11/25/2024	134.59	133.80	0.79	112.19	132.19	67.93	67.95	0.02	500	6.60	No	High turbidity. Continue to monitor for consecutive high turbidity readings.	
MW-12	Alluvial	12/02/2024	48.47	49.86	-1.39	27.47	47.47	28.45	28.48	0.03	500	4.40	No		
MW-13	Alluvial	12/12/2024	51.92	49.04	2.88	28.42	48.42	32.41	32.44	0.03	500	4.40	No	High turbidity. Continue to monitor for consecutive high turbidity readings.	
MW-14	Alluvial	11/21/2024	133.99	133.71	0.28	112.99	132.99	116.51	116.53	0.02	500	6.60	No	High turbidity. Continue to monitor for consecutive high turbidity readings.	

Table 4.2
Monitoring Well Water Levels and Specific Capacities
Fourth Quarter 2024 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Well ID	Well Screen Lithology	Sample Date	Constructed Well Depth (feet bTOC)	Measured Well Depth (feet bTOC)	Difference in Constructed and Measured Well Depth (feet)	Screen Start Depth (feet bTOC)	Screen End Depth (feet bTOC)	Pre-Purge Depth to Water (feet bTOC)	Post-Purge Depth to Water (feet bTOC)	Drawdown During Purging (feet)	Purging Rate (mL/min)	Specific Capacity (gpm/foot)	Measured Depth Covering Greater than 20% of screen?	Notes	Date of Last Redevelopment
MW-15	Alluvial	11/20/2024	204.90	200.50	4.40	182.40	202.40	186.27	186.33	0.06	500	2.20	No		
MW-19	Alluvial	12/03/2024	66.32	65.75	0.57	46.32	65.32	45.78	45.80	0.02	500	6.60	No		
MW-20-070	Alluvial	10/08/2024	69.69	68.40	1.29	49.69	69.69	44.88	44.93	0.05	500	2.64	No		
MW-20-070	Alluvial	11/11/2024	69.69	68.39	1.30	49.69	69.69	45.13	45.15	0.02	500	6.60	No		
MW-20-070	Alluvial	12/11/2024	69.69	68.32	1.37	49.69	69.69	46.00	46.02	0.02	500	6.60	No		
MW-20-100	Alluvial	10/08/2024	100.49	98.10	2.39	88.59	98.59	45.20	45.23	0.03	500	4.40	No		
MW-20-100	Alluvial	11/11/2024	100.49	98.08	2.41	88.59	98.59	45.22	45.25	0.03	500	4.40	No		
MW-20-100	Alluvial	12/11/2024	100.49	98.19	2.30	88.59	98.59	51.35	51.36	0.01	500	13.21	No		
MW-20-130	Alluvial	10/08/2024	131.49	129.57	1.92	120.15	130.15	45.71	45.75	0.04	500	3.30	No		
MW-20-130	Alluvial	11/11/2024	131.49	129.55	1.94	120.15	130.15	45.98	46.00	0.02	500	6.60	No		
MW-20-130	Alluvial	12/11/2024	131.49	129.40	2.09	120.15	130.15	49.50	46.52	-2.98	500	-0.04	No		
MW-21	Alluvial	10/10/2024	58.95	58.36	0.59	38.45	58.45	49.42	50.16	0.74	100	0.04	No		
MW-21	Alluvial	11/11/2024	58.95	58.33	0.62	38.45	58.45	49.96	50.45	0.49	100	0.05	No	High turbidity. Turbidity declined during December sampling event.	
MW-21	Alluvial	12/10/2024	58.95	58.30	0.65	38.45	58.45	49.44	49.46	0.02	500	6.60	No		
MW-22	Fluvial	10/30/2024	12.05	10.96	1.09	5.15	10.15	7.00	7.02	0.02	500	6.60	No		
MW-23-060	Bedrock	11/15/2024	62.69	59.61	3.08	49.69	59.69	50.85	50.85	0.00	500	N/A	No		
MW-23-080	Bedrock	11/15/2024	79.75	80.29	-0.54	74.75	79.75	49.80	49.80	0.00	500	N/A	No		
MW-24A	Alluvial	12/05/2024	129.91	127.30	2.61	106.43	126.43	112.00	112.03	0.03	500	4.40	No		
MW-24B	Alluvial	12/05/2024	216.85	213.61	3.24	195.01	215.01	109.95	109.95	0.00	500	N/A	No		
MW-24BR	Bedrock	11/22/2024	439.47	N/A	N/A	379.47	438.47	108.61	184.25	75.64	18,927	0.07	N/A		
MW-25	Alluvial	11/21/2024	106.53	106.33	0.20	86.53	106.53	88.61	88.66	0.05	500	2.64	No		
MW-26	Alluvial	10/10/2024	70.82	69.00	1.82	50.82	70.82	46.35	46.37	0.02	500	6.60	No		
MW-26	Alluvial	11/13/2024	70.82	68.98	1.84	50.82	70.82	46.49	46.51	0.02	500	6.60	No		
MW-26	Alluvial	12/12/2024	70.82	68.99	1.83	50.82	70.82	47.72	47.74	0.02	500	6.60	No		
MW-27-020	Fluvial	11/15/2024	18.92	13.89	5.03	8.92	18.92	6.70	6.72	0.02	500	6.60	Yes	Siltation. Not recommended for redevelopment based on location and fluvial sediments.	
MW-27-060	Fluvial	11/15/2024	60.52	58.81	1.71	50.32	60.32	7.23	7.25	0.02	500	6.60	No		
MW-27-085	Fluvial	11/15/2024	100.05	100.37	-0.32	80.05	90.05	7.00	7.01	0.01	500	13.21	No		
MW-28-025	Fluvial	10/30/2024	25.10	23.81	1.29	15.10	25.10	12.15	12.17	0.02	500	6.60	No		5/16/2023
MW-28-090	Fluvial	10/30/2024	101.46	97.73	3.73	73.10	93.10	12.76	12.76	0.00	500	N/A	No		
MW-29	Fluvial	11/26/2024	43.73	40.75	2.98	31.71	41.71	31.25	31.32	0.07	500	1.89	No		
MW-30-030R	Fluvial	11/14/2024	32.43	32.09	0.34	12.03	32.03	12.73	12.74	0.01	500	13.21	No		
MW-30-050	Fluvial	10/08/2024	55.01	50.22	4.79	42.41	52.41	11.46	11.47	0.01	500	13.21	Yes	Siltation. Not recommended for redevelopment based on location and fluvial sediments.	
MW-30-050	Fluvial	11/14/2024	55.01	50.20	4.81	42.41	52.41	12.71	12.72	0.01	500	13.21	Yes	Siltation. Not recommended for redevelopment based on location and fluvial sediments.	
MW-30-050	Fluvial	12/10/2024	55.01	50.18	4.83	42.41	52.41	13.01	13.01	0.00	500	N/A	Yes	Siltation. Not recommended for redevelopment based on location and fluvial sediments.	

Table 4.2
Monitoring Well Water Levels and Specific Capacities
Fourth Quarter 2024 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Well ID	Well Screen Lithology	Sample Date	Constructed Well Depth (feet bTOC)	Measured Well Depth (feet bTOC)	Difference in Constructed and Measured Well Depth (feet)	Screen Start Depth (feet bTOC)	Screen End Depth (feet bTOC)	Pre-Purge Depth to Water (feet bTOC)	Post-Purge Depth to Water (feet bTOC)	Drawdown During Purging (feet)	Purging Rate (mL/min)	Specific Capacity (gpm/foot)	Measured Depth Covering Greater than 20% of screen?	Notes	Date of Last Redevelopment
MW-31-060	Alluvial	10/08/2024	65.71	61.39	4.32	43.21	63.21	39.05	39.08	0.03	500	4.40	No		
MW-31-060	Alluvial	11/11/2024	65.71	61.36	4.35	43.21	63.21	38.97	38.97	0.00	500	N/A	No		
MW-31-060	Alluvial	12/11/2024	65.71	61.34	4.37	43.21	63.21	40.31	40.33	0.02	500	6.60	No		
MW-31-135	Alluvial	10/08/2024	133.16	131.03	2.13	112.86	132.86	40.50	40.55	0.05	500	2.64	No		
MW-31-135	Alluvial	11/11/2024	133.16	130.87	2.29	112.86	132.86	40.87	41.20	0.33	500	0.40	No	High turbidity. Turbidity declined during December sampling event.	
MW-31-135	Alluvial	12/11/2024	133.16	130.85	2.31	112.86	132.86	41.00	41.00	0.00	500	N/A	No		
MW-32-020	Fluvial	11/14/2024	22.41	19.15	3.26	12.41	22.41	6.33	6.36	0.03	500	4.40	Yes	Siltation. Not recommended for redevelopment based on location and fluvial sediments. Specific capacity indicates good yield because drawdown did not occur during purging.	
MW-32-035	Fluvial	11/14/2024	39.58	37.00	2.58	29.93	37.43	7.80	7.82	0.02	500	6.60	No		
MW-33-040	Fluvial	11/14/2024	44.64	40.96	3.68	31.80	41.80	33.32	33.40	0.08	500	1.65	No		
MW-33-090	Alluvial	11/14/2024	91.83	88.11	3.72	71.83	91.11	33.45	33.51	0.06	500	2.20	No		
MW-33-150	Alluvial	11/14/2024	158.15	155.06	3.09	134.77	154.77	33.75	33.82	0.07	500	1.89	No		
MW-33-210	Alluvial	11/14/2024	225.64	222.18	3.46	192.64	212.64	32.51	32.60	0.09	500	1.47	No		
MW-34-055	Fluvial	11/12/2024	58.81	56.28	2.53	47.21	57.21	6.42	6.45	0.03	500	4.40	No		
MW-34-080	Fluvial	10/10/2024	86.56	84.07	2.49	75.26	85.26	5.91	5.95	0.04	500	3.30	No		
MW-34-080	Fluvial	11/12/2024	86.56	84.05	2.51	75.26	85.26	6.53	6.54	0.01	500	13.21	No		
MW-34-080	Fluvial	12/12/2024	86.56	84.01	2.55	75.26	85.26	8.03	8.03	0.00	500	N/A	No		
MW-34-100	Fluvial	10/10/2024	116.44	115.72	0.72	91.44	101.44	6.19	6.22	0.03	500	4.40	No		
MW-34-100	Fluvial	11/12/2024	116.44	115.70	0.74	91.44	101.44	6.65	6.66	0.01	500	13.21	No		
MW-34-100	Fluvial	12/12/2024	116.44	115.72	0.72	91.44	101.44	8.15	8.16	0.01	500	13.21	No		
MW-35-060	Alluvial	10/28/2024	61.63	57.92	3.71	41.33	61.33	27.34	27.36	0.02	500	6.60	No		5/9/2023
MW-35-135	Alluvial	10/28/2024	158.98	154.46	4.52	116.28	136.28	26.53	26.55	0.02	500	6.60	No		
MW-36-020	Fluvial	11/13/2024	23.08	22.27	0.81	12.78	22.78	13.46	13.98	0.52	500	0.25	No		
MW-36-040	Fluvial	11/13/2024	43.15	39.98	3.17	32.85	42.85	14.54	14.54	0.00	500	N/A	Yes	Monitor for consecutive siltation observations during next sampling event.	
MW-36-050	Fluvial	11/13/2024	55.79	52.80	2.99	48.79	53.79	15.30	15.30	0.00	500	N/A	No		
MW-36-070	Fluvial	11/13/2024	73.02	72.20	0.82	62.72	72.72	14.34	14.34	0.00	500	N/A	No		
MW-36-090	Fluvial	10/09/2024	93.34	91.92	1.42	83.04	93.04	15.20	15.23	0.03	500	4.40	No		
MW-36-090	Fluvial	11/13/2024	93.34	91.90	1.44	83.04	93.04	15.39	15.39	0.00	500	N/A	No		
MW-36-090	Fluvial	12/11/2024	93.34	91.89	1.45	83.04	93.04	15.60	20.33	4.73	500	0.03	No	Drawdown stabilized at 20.33 feet bTOC during purging after initial water-level decline. Continue to monitor for improved specific capacity next sampling event.	
MW-36-100	Fluvial	10/09/2024	111.36	116.12	-4.76	91.36	101.36	15.26	15.26	0.00	500	N/A	No		
MW-36-100	Fluvial	11/13/2024	111.36	116.00	-4.64	91.36	101.36	15.54	15.54	0.00	500	N/A	No		
MW-36-100	Fluvial	12/11/2024	111.36	116.00	-4.64	91.36	101.36	16.01	16.01	0.00	500	N/A	No		
MW-37D	Alluvial	10/29/2024	229.21	225.95	3.26	182.49	202.49	31.45	31.47	0.02	500	6.60	No		

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MW-37S	Alluvial	10/29/2024	87.47	86.72	0.75	66.47	86.47	31.55	31.58	0.03	500	4.40	No		
MW-38D	Alluvial	10/30/2024	186.58	184.80	1.78	166.28	186.28	71.17	71.20	0.03	500	4.40	No		8/19/2022
MW-38S	Alluvial	10/30/2024	97.77	97.44	0.33	77.47	97.47	69.52	69.55	0.03	500	4.40	No		7/25/2022
MW-39-040	Alluvial	10/08/2024	43.33	39.72	3.61	33.03	43.03	13.02	13.02	0.00	500	N/A	Yes	Second Quarter 2023 redevelopment with Waterra pump did not improve siltation. Well will not be considered for future redevelopment.	5/14/2023
MW-39-040	Alluvial	11/12/2024	43.33	39.69	3.64	33.03	43.03	13.46	13.46	0.00	500	N/A	Yes	Second Quarter 2023 redevelopment with Waterra pump did not improve siltation. Well will not be considered for future redevelopment.	5/14/2023
MW-39-040	Alluvial	12/10/2024	43.33	39.65	3.68	33.03	43.03	13.80	13.80	0.00	500	N/A	Yes	Second Quarter 2023 redevelopment with Waterra pump did not improve siltation. Well will not be considered for future redevelopment.	5/14/2023
MW-39-050	Alluvial	10/08/2024	57.43	54.53	2.90	49.83	54.83	13.03	13.04	0.01	500	13.21	No		
MW-39-050	Alluvial	11/12/2024	57.43	54.50	2.93	49.83	54.83	13.50	13.50	0.00	500	N/A	No		
MW-39-050	Alluvial	12/10/2024	57.43	54.51	2.92	49.83	54.83	13.60	13.60	0.00	500	N/A	No		
MW-39-060	Alluvial	10/08/2024	69.00	60.02	8.98	51.70	61.70	13.11	13.14	0.03	500	4.40	No		
MW-39-060	Alluvial	11/12/2024	69.00	60.00	9.00	51.70	61.70	13.58	13.58	0.00	500	N/A	No		
MW-39-060	Alluvial	12/10/2024	69.00	60.00	9.00	51.70	61.70	14.10	14.10	0.00	500	N/A	No		
MW-39-070	Alluvial	10/08/2024	74.51	71.32	3.19	62.82	72.82	13.40	13.42	0.02	500	6.60	No		
MW-39-070	Alluvial	11/12/2024	74.51	71.27	3.24	62.82	72.82	13.81	13.81	0.00	500	N/A	No		
MW-39-070	Alluvial	12/10/2024	74.51	71.25	3.26	62.82	72.82	13.90	13.90	0.00	500	N/A	No		
MW-39-080	Alluvial	10/08/2024	85.37	81.91	3.46	72.82	82.82	13.41	13.42	0.01	500	13.21	No		
MW-39-080	Alluvial	11/12/2024	85.37	81.87	3.50	72.82	82.82	14.01	14.01	0.00	500	N/A	No		
MW-39-080	Alluvial	12/10/2024	85.37	81.85	3.52	72.82	82.82	14.10	14.10	0.00	500	N/A	No		
MW-39-100	Alluvial	10/08/2024	120.53	116.52	4.01	82.82	102.82	13.64	13.64	0.00	500	N/A	No		
MW-39-100	Alluvial	11/12/2024	120.53	116.40	4.13	82.82	102.82	14.11	14.11	0.00	500	N/A	No		
MW-39-100	Alluvial	12/10/2024	120.53	116.40	4.13	82.82	102.82	14.90	14.90	0.00	500	N/A	No		
MW-40D	Alluvial	12/12/2024	265.58	265.48	0.10	239.58	259.58	111.93	111.99	0.06	500	2.20	No		
MW-40S	Alluvial	12/12/2024	135.04	133.80	1.24	114.74	134.74	111.35	111.44	0.09	500	1.47	No		
MW-41D	Alluvial	11/22/2024	314.04	311.00	3.04	273.54	293.54	25.30	25.33	0.03	500	4.40	No		
MW-41M	Alluvial	11/22/2024	192.78	192.20	0.58	172.78	192.78	25.64	25.66	0.02	500	6.60	No		
MW-41S	Alluvial	11/22/2024	62.66	61.33	1.33	42.66	62.66	25.91	25.93	0.02	500	6.60	No	High turbidity in Second and Fourth Quarters 2024. Not recommended for redevelopment given measured well depth and specific capacity indicates good yield.	
MW-42-030	Fluvial	11/01/2024	32.55	30.85	1.70	12.25	32.25	9.31	9.32	0.01	500	13.21	No		
MW-42-055	Fluvial	11/01/2024	55.29	55.12	0.17	44.99	54.99	9.43	9.45	0.02	500	6.60	No		
MW-42-065	Fluvial	11/01/2024	83.47	68.09	15.38	58.47	68.47	8.90	8.91	0.01	500	13.21	No		
MW-43-025	Fluvial	10/10/2024	27.52	26.50	1.02	17.52	27.52	7.67	7.70	0.03	500	4.40	No		
MW-43-075	Fluvial	10/31/2024	77.79	77.50	0.29	67.79	77.79	8.19	8.20	0.01	500	13.21	No		

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MW-43-090	Fluvial	10/31/2024	99.82	102.60	-2.78	82.82	92.82	8.91	8.93	0.02	500	6.60	No		
MW-44-070	Fluvial	11/12/2024	72.10	72.08	0.02	62.10	72.10	17.70	17.71	0.01	500	13.21	No		
MW-44-115	Alluvial	10/09/2024	114.52	114.00	0.52	106.52	114.52	17.60	17.92	0.32	500	0.41	No		
MW-44-115	Alluvial	11/12/2024	114.52	113.98	0.54	106.52	114.52	18.21	18.21	0.00	500	N/A	No		
MW-44-115	Alluvial	12/11/2024	114.52	113.95	0.57	106.52	114.52	18.72	18.72	0.00	500	N/A	No		
MW-44-125	Alluvial	10/09/2024	130.35	128.25	2.10	117.55	126.55	17.02	17.03	0.01	500	13.21	No		
MW-44-125	Alluvial	11/12/2024	130.35	128.22	2.13	117.55	126.55	17.83	17.85	0.02	500	6.60	No		
MW-44-125	Alluvial	12/11/2024	130.35	128.20	2.15	117.55	126.55	18.10	18.10	0.00	500	N/A	No		
MW-45-095a	Fluvial	10/09/2024	96.90	93.87	3.03	86.40	96.40	13.52	13.54	0.02	500	6.61	Yes	Siltation. Not recommended for redevelopment based on low turbidity measurement during sampling and based on location and fluvial sediments.	
MW-45-095a	Fluvial	11/12/2024	96.90	93.85	3.05	86.40	96.40	14.32	14.34	0.02	500	6.61	Yes	Siltation. Not recommended for redevelopment based on low turbidity measurement during sampling and based on location and fluvial sediments.	
MW-45-095a	Fluvial	12/12/2024	96.90	93.80	3.10	86.40	96.40	14.67	14.67	0.00	500	N/A	Yes	Siltation. Not recommended for redevelopment based on low turbidity measurement during sampling and based on location and fluvial sediments.	
MW-46-175	Alluvial	10/09/2024	176.84	176.04	0.80	166.34	176.34	28.14	28.18	0.04	500	3.30	No		
MW-46-175	Alluvial	11/12/2024	176.84	176.06	0.78	166.34	176.34	28.63	28.65	0.02	500	6.60	No		
MW-46-175	Alluvial	12/10/2024	176.84	175.00	1.84	166.34	176.34	29.19	29.20	0.01	500	13.21	No		
MW-46-205	Alluvial	11/25/2024	209.49	218.67	-9.18	199.49	209.49	28.92	28.98	0.06	500	2.20	No		
MW-47-055	Alluvial	12/02/2024	56.94	56.69	0.25	46.94	56.94	29.80	29.81	0.01	500	13.21	No		
MW-47-115	Alluvial	12/02/2024	116.58	115.60	0.98	106.58	116.58	30.30	30.34	0.04	500	3.30	No		
MW-48	Bedrock	12/02/2024	139.81	136.44	3.37	125.81	135.81	31.22	32.55	1.33	100	0.02	No		
MW-49-135	Alluvial	11/26/2024	136.52	136.27	0.25	126.52	136.52	30.57	30.62	0.05	500	2.64	No		
MW-49-275	Alluvial	11/26/2024	276.45	271.75	4.70	256.45	276.45	30.97	31.03	0.06	500	2.20	Yes	Monitor for consecutive siltation observations during next sampling event.	
MW-49-365	Alluvial	11/26/2024	368.86	367.35	1.51	347.51	367.51	32.61	32.70	0.09	500	1.47	No		
MW-50-095	Alluvial	12/03/2024	97.16	96.17	0.99	87.16	97.16	42.50	42.51	0.01	500	13.21	No		
MW-50-200	Alluvial	12/03/2024	206.53	203.54	2.99	192.03	202.03	35.41	35.42	0.01	500	13.21	No		
MW-51	Alluvial	10/10/2024	112.94	123.90	-10.96	96.69	111.69	46.00	46.03	0.03	500	4.40	No		
MW-51	Alluvial	11/13/2024	112.94	123.89	-10.95	96.69	111.69	45.43	45.45	0.02	500	6.60	No		
MW-51	Alluvial	12/12/2024	112.94	123.90	-10.96	96.69	111.69	49.45	46.47	-2.98	500	-0.04	No		
MW-52D	Fluvial	10/31/2024	N/A	89.50	N/A	85.00	87.00	10.28	10.35	0.07	500	1.89	No	Slant well. Total depth not recorded.	
MW-52M	Fluvial	10/31/2024	N/A	70.50	N/A	66.00	68.00	10.47	11.60	1.13	200	0.05	No	Slant well. Total depth not recorded.	
MW-52S	Fluvial	10/31/2024	N/A	51.50	N/A	47.00	49.00	10.95	12.10	1.15	200	0.05	No	Slant well. Total depth not recorded.	
MW-53D	Fluvial	10/31/2024	N/A	125.00	N/A	123.50	125.00	14.25	14.50	0.25	500	0.53	No	Slant well. Total depth not recorded.	
MW-53M	Fluvial	10/31/2024	N/A	100.00	N/A	98.50	100.00	13.40	15.40	2.00	200	0.03	No	Slant well. Total depth not recorded.	

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MW-53S	Fluvial	10/31/2024	N/A	30.00	N/A	28.50	30.00	13.10	15.14	2.04	100	0.01	No	Slant well. Total depth not recorded.	
MW-54-085	Fluvial	12/04/2024	92.91	85.00	7.91	76.71	86.71	13.14	13.16	0.02	500	6.60	No		
MW-54-140	Fluvial	12/05/2024	137.59	135.82	1.77	127.59	137.59	12.60	12.63	0.03	500	4.40	No		
MW-54-195	Fluvial	12/04/2024	195.04	192.01	3.03	185.04	195.04	13.52	13.55	0.03	500	4.40	Yes	Siltation. Not recommended for redevelopment based on location and fluvial sediments.	
MW-55-045	Fluvial	11/19/2024	56.14	49.45	6.69	39.09	49.09	11.08	11.10	0.02	500	6.60	No		
MW-55-120	Fluvial	11/19/2024	122.14	120.54	1.60	109.89	119.89	11.16	11.17	0.01	500	13.21	No		
MW-56D	Fluvial	12/03/2024	N/A	105.50	N/A	104.93	106.93	16.33	16.43	0.10	500	1.32	N/A	Slant well. Total depth not recorded.	
MW-56M	Fluvial	12/03/2024	N/A	75.50	N/A	74.93	76.93	14.55	14.65	0.10	500	1.32	N/A	Slant well. Total depth not recorded.	
MW-56S	Fluvial	12/03/2024	N/A	35.50	N/A	34.93	36.93	16.93	17.13	0.20	500	0.66	N/A	Slant well. Total depth not recorded.	
MW-57-050	Bedrock	12/03/2024	49.14	51.07	-1.93	39.14	49.14	NM	NM	NM	NM	NM	N/A	Well dry. Not sampled.	
MW-57-070	Bedrock	12/03/2024	70.40	68.42	1.98	55.40	70.40	53.66	53.67	0.01	500	13.21	No		
MW-57-185	Bedrock	12/03/2024	184.70	180.79	3.91	70.00	184.00	53.60	53.63	0.03	500	4.40	No		
MW-58-065	Bedrock	12/02/2024	65.85	67.75	-1.90	55.85	65.85	NM	NM	NM	NM	NM	N/A	Well dry. Not sampled.	
MW-58BR	Bedrock	12/02/2024	209.13	204.20	4.93	69.13	209.13	68.24	68.27	0.03	500	4.40	No		
MW-59-100	Alluvial	12/03/2024	100.71	100.41	0.30	85.71	100.71	83.47	83.50	0.03	500	4.40	No	High turbidity in Second and Fourth Quarters 2024. Redeveloped in October 2024 and siltation improved. Continue to monitor turbidity.	10/18/2024
MW-60-125	Bedrock	10/28/2024	122.69	121.82	0.87	102.69	122.69	99.80	99.82	0.02	500	6.60	No		
MW-60BR-245	Bedrock	10/28/2024	244.09	244.02	0.07	135.09	244.09	99.63	99.40	-0.23	500	-0.57	No		
MW-61-110	Bedrock	12/05/2024	110.81	112.00	-1.19	90.81	110.81	88.90	88.94	0.04	500	3.30	No		
MW-62-065	Bedrock	10/28/2024	67.40	63.67	3.73	44.50	64.50	48.53	48.55	0.02	500	6.60	No		
MW-62-110	Bedrock	10/28/2024	191.55	NM	N/A	55.85	65.85	NM	NM	NM	NM	NM	N/A	Total depth not recorded due to dedicated sampling system at well.	
MW-62-190	Bedrock	10/28/2024	191.55	NM	N/A	84.55	109.55	NM	NM	NM	NM	NM	N/A	Total depth not recorded due to dedicated sampling system at well.	
MW-63-065	Bedrock	10/28/2024	65.47	63.15	2.32	45.47	65.47	50.14	50.16	0.02	500	6.60	No		
MW-64BR	Bedrock	10/28/2024	260.02	258.00	2.02	2.02	258.02	120.62	120.63	0.01	500	13.21	No		
MW-65-160	Alluvial	11/21/2024	159.70	160.41	-0.71	149.60	159.60	141.27	141.33	0.06	500	2.20	No	High turbidity in Second through Fourth Quarters 2024. Not recommended for redevelopment at this time because depth to well bottom and specific capacity indicate good yield.	
MW-65-225	Alluvial	11/21/2024	224.68	225.33	-0.65	214.59	224.59	141.11	141.20	0.09	500	1.47	No		
MW-66-165	Alluvial	11/15/2024	161.25	160.95	0.30	141.25	161.25	130.69	130.75	0.06	500	2.20	No		
MW-66-230	Alluvial	11/15/2024	227.31	227.08	0.23	217.31	227.31	131.04	131.12	0.08	500	1.65	No		

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MW-66BR-270	Bedrock	10/31/2024	270.65	NM	N/A	247.65	270.65	131.40	NM	NM	NM	NM	N/A	Total depth not recorded due to placement of dedicated pump.	
MW-67-185	Alluvial	11/21/2024	186.73	186.74	-0.01	176.73	186.73	170.68	170.75	0.07	500	1.89	No		
MW-67-225	Alluvial	11/20/2024	224.53	225.64	-1.11	209.53	224.53	170.51	170.58	0.07	500	1.89	No		
MW-67-260	Alluvial	11/20/2024	259.50	260.09	-0.59	249.50	259.50	170.55	170.60	0.05	500	2.64	No		
MW-68-180	Alluvial	11/20/2024	179.68	180.02	-0.34	164.59	179.59	165.58	165.65	0.07	500	1.89	No		
MW-68-240	Alluvial	11/20/2024	239.62	239.91	-0.29	219.62	239.62	165.86	165.91	0.05	500	2.64	No		
MW-68BR-280	Bedrock	11/20/2024	278.27	N/A	N/A	256.27	278.27	164.11	228.24	64.13	379	0.00	N/A		
MW-69-195	Bedrock	11/20/2024	195.27	195.56	-0.29	175.27	195.27	175.50	175.58	0.08	500	1.65	No	High turbidity in Third and Fourth Quarters 2024. Not recommended for redevelopment given it is a bedrock well and specific capacity indicates good yield.	
MW-70-105	Bedrock	12/02/2024	104.86	105.02	-0.16	84.86	104.86	82.65	82.69	0.04	500	3.30	No	High turbidity. Continue to monitor for consecutive high turbidity readings.	
MW-70BR-225	Bedrock	11/13/2024	228.89	221.59	7.30	119.61	226.61	80.87	80.95	0.08	500	1.65	No		5/7/2022
MW-70BR-287	Bedrock	11/13/2024	286.98	285.19	1.79	239.98	286.98	82.26	82.35	0.09	500	1.47	No		
MW-71-035	Bedrock	10/10/2024	35.90	35.30	0.60	25.70	35.70	27.92	28.52	0.60	100	0.04	No	High turbidity. Continue to monitor for consecutive high turbidity readings.	
MW-71-035	Bedrock	11/11/2024	35.90	35.50	0.40	25.70	35.70	28.33	29.22	0.89	100	0.03	No	High turbidity.Turbidity declined to 20 NTU in December.	
MW-71-035	Bedrock	12/10/2024	35.90	35.56	0.34	25.70	35.70	28.00	28.03	0.03	500	4.40	No		
MW-72-080	Bedrock	11/01/2024	79.88	79.08	0.80	59.79	79.79	59.50	59.53	0.03	500	4.40	No	Consecutive high turbidity readings. Not recommended for redevelopment given it is a bedrock well and specific capacity indicates good yield.	
MW-72BR-200	Bedrock	11/01/2024	199.29	200.00	-0.71	106.29	199.29	59.53	59.55	0.02	500	6.60	No		
MW-73-080	Bedrock	11/01/2024	79.52	79.69	-0.17	59.52	79.52	52.10	52.14	0.04	500	3.30	No	High turbidity. Continue to monitor for consecutive high turbidity readings.	
MW-74-240	Bedrock	11/20/2024	239.44	240.00	-0.56	219.44	239.44	216.14	216.94	0.80	100	0.03	No		
MW-75-033	Alluvial	11/26/2024	35.48	34.77	0.71	18.08	33.08	19.94	19.96	0.02	500	6.60	No	High turbidity. Continue to monitor for consecutive high turbidity readings.	
MW-75-117	Alluvial	11/26/2024	119.45	118.10	1.35	97.15	117.15	19.85	19.88	0.03	500	4.40	No		
MW-75-202	Alluvial	11/26/2024	204.49	204.29	0.20	182.49	202.49	19.67	19.68	0.01	500	13.21	No		
MW-75-267	Alluvial	11/26/2024	269.50	268.50	1.00	247.20	267.20	19.48	19.48	0.00	500	N/A	No	High turbidity. Continue to monitor for consecutive high turbidity readings.	
MW-75-337	Alluvial	11/26/2024	339.79	338.45	1.34	317.49	337.49	22.14	22.15	0.01	500	13.21	No		
MW-76-039	Alluvial	10/07/2024	39.10	38.69	0.41	23.60	38.60	26.32	26.36	0.04	500	3.30	No		

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MW-76-039	Alluvial	11/11/2024	39.10	38.61	0.49	23.60	38.60	25.41	25.43	0.02	500	6.60	No		
MW-76-039	Alluvial	12/10/2024	39.10	38.59	0.51	23.60	38.60	25.78	25.79	0.01	500	13.21	No		
MW-76-156	Alluvial	10/07/2024	158.01	155.66	2.35	135.71	155.71	27.00	27.03	0.03	500	4.40	No		
MW-76-156	Alluvial	11/11/2024	158.01	155.64	2.37	135.71	155.71	26.65	26.66	0.01	500	13.21	No		
MW-76-156	Alluvial	12/10/2024	158.01	155.62	2.39	135.71	155.71	26.50	26.52	0.02	500	6.60	No		
MW-76-181	Alluvial	10/07/2024	183.12	182.66	0.46	170.82	180.82	25.52	25.55	0.03	500	4.40	No		
MW-76-181	Alluvial	11/11/2024	183.12	182.63	0.49	170.82	180.82	26.26	26.27	0.01	500	13.21	No		
MW-76-181	Alluvial	12/10/2024	183.12	182.60	0.52	170.82	180.82	26.80	26.83	0.03	500	4.40	No		
MW-76-218	Alluvial	10/07/2024	220.05	219.65	0.40	197.75	217.75	26.04	26.08	0.04	500	3.30	No		
MW-76-218	Alluvial	11/11/2024	220.05	219.62	0.43	197.75	217.75	26.36	26.38	0.02	500	6.60	No		
MW-76-218	Alluvial	12/10/2024	220.05	219.66	0.39	197.75	217.75	26.66	26.67	0.01	500	13.21	No		
MW-77-046	Alluvial	10/07/2024	48.15	39.55	8.60	25.85	45.85	23.80	23.83	0.03	500	4.40	Yes	Redevelopment occurred following October sampling event.	10/16/2024
MW-77-046	Alluvial	11/14/2024	48.15	39.57	8.58	25.85	45.85	24.60	24.63	0.03	500	4.40	Yes	Redevelopment occurred in October. Continue to monitor.	10/16/2024
MW-77-046	Alluvial	12/09/2024	48.15	39.60	8.55	25.85	45.85	25.03	25.06	0.03	500	4.40	Yes	Measured well depth continues to improve following redevelopment event. Continue to monitor during next sampling event.	10/16/2024
MW-77-102	Alluvial	10/07/2024	104.21	104.27	-0.06	81.91	101.91	23.93	23.93	0.00	500	N/A	No		
MW-77-102	Alluvial	11/14/2024	104.21	104.30	-0.09	81.91	101.91	24.60	24.61	0.01	500	13.21	No		
MW-77-102	Alluvial	12/09/2024	104.21	104.28	-0.07	81.91	101.91	25.24	24.56	-0.68	500	-0.19	No		
MW-77-158	Alluvial	10/07/2024	160.14	159.95	0.19	137.64	157.74	23.81	23.83	0.02	500	6.60	No		
MW-77-158	Alluvial	11/14/2024	160.14	159.97	0.17	137.64	157.74	24.15	24.17	0.02	500	6.60	No		
MW-77-158	Alluvial	12/09/2024	160.14	159.97	0.17	137.64	157.74	24.70	24.73	0.03	500	4.40	No		
MW-77-187	Alluvial	10/07/2024	189.21	188.95	0.26	166.71	186.81	23.03	23.05	0.02	500	6.60	No		
MW-77-187	Alluvial	11/14/2024	189.21	188.97	0.24	166.71	186.81	23.84	23.85	0.01	500	13.21	No		
MW-77-187	Alluvial	12/09/2024	189.21	188.94	0.27	166.71	186.81	24.89	24.71	-0.18	500	-0.73	No		
MW-78-070	Alluvial	10/10/2024	71.85	71.75	0.10	49.55	69.55	46.52	46.53	0.01	500	13.21	No		
MW-78-070	Alluvial	11/13/2024	71.85	71.73	0.12	49.55	69.55	46.80	46.80	0.00	500	N/A	No		
MW-78-070	Alluvial	12/12/2024	71.85	71.70	0.15	49.55	69.55	47.10	47.10	0.00	500	N/A	No		
MW-78-142	Alluvial	10/10/2024	141.76	141.32	0.44	121.46	141.46	47.00	47.02	0.02	500	6.60	No		
MW-78-142	Alluvial	11/13/2024	141.76	141.30	0.46	121.46	141.46	47.00	47.02	0.02	500	6.60	No		
MW-78-142	Alluvial	12/12/2024	141.76	141.28	0.48	121.46	141.46	47.30	47.30	0.00	500	N/A	No		
MW-79-058	Alluvial	10/10/2024	60.05	60.24	-0.19	47.55	57.55	45.62	45.63	0.01	500	13.21	No		
MW-79-058	Alluvial	11/13/2024	60.05	60.27	-0.22	47.55	57.55	45.40	45.42	0.02	500	6.60	No		
MW-79-058	Alluvial	12/12/2024	60.05	60.20	-0.15	47.55	57.55	45.60	45.60	0.00	500	N/A	No		
MW-79-102	Alluvial	10/10/2024	104.23	104.34	-0.11	91.43	101.43	45.65	45.65	0.00	500	N/A	No		
MW-79-102	Alluvial	11/13/2024	104.23	104.35	-0.12	91.43	101.43	45.50	45.52	0.02	500	6.60	No		
MW-79-102	Alluvial	12/12/2024	104.23	104.32	-0.09	91.43	101.43	45.83	N/A	N/A	500	0.00	N/A	Post-purge depth to water was incorrectly recorded as the measured well depth and therefore was excluded from evaluation. Well was not purged dry during sampling.	
MW-80-057	Alluvial	10/10/2024	59.46	58.56	0.90	46.96	56.96	48.00	48.02	0.02	500	6.60	No		
MW-80-057	Alluvial	11/13/2024	59.46	58.54	0.92	46.96	56.96	47.41	47.43	0.02	500	6.60	No		

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MW-80-057	Alluvial	12/12/2024	59.46	58.56	0.90	46.96	56.96	47.78	47.79	0.01	500	13.21	No		
MW-80-082	Alluvial	10/10/2024	84.00	83.50	0.50	66.50	81.50	47.76	47.77	0.01	500	13.21	No		
MW-80-082	Alluvial	11/13/2024	84.00	83.53	0.47	66.50	81.50	47.22	47.23	0.01	500	13.21	No		
MW-80-082	Alluvial	12/12/2024	84.00	83.51	0.49	66.50	81.50	47.83	47.84	0.01	500	13.21	No		
MW-81-043	Alluvial	10/09/2024	44.73	44.50	0.23	22.43	42.43	23.22	23.25	0.03	500	4.40	No		
MW-81-043	Alluvial	11/14/2024	44.73	44.53	0.20	22.43	42.43	23.25	23.25	0.00	500	N/A	No		
MW-81-043	Alluvial	12/09/2024	44.73	43.13	1.60	22.43	42.43	23.15	23.15	0.00	500	N/A	No		
MW-81-098	Alluvial	10/09/2024	99.82	99.35	0.47	77.52	97.52	23.28	23.30	0.02	500	6.60	No		
MW-81-098	Alluvial	11/14/2024	99.82	99.33	0.49	77.52	97.52	23.30	23.30	0.00	500	N/A	No		
MW-81-098	Alluvial	12/09/2024	99.82	99.30	0.52	77.52	97.52	23.70	23.70	0.00	500	N/A	No		
MW-82-046	Alluvial	10/09/2024	48.87	47.66	1.21	26.57	46.57	30.00	30.05	0.05	500	2.64	No	Consecutive high turbidity readings. Not recommended for redevelopment given measured well depth and specific capacity indicates good yield.	5/12/2023
MW-82-046	Alluvial	11/12/2024	48.87	47.65	1.22	26.57	46.57	30.45	30.47	0.02	500	6.60	No	High turbidity. Turbidity declined during December sampling event.	5/12/2023
MW-82-046	Alluvial	12/11/2024	48.87	47.67	1.20	26.57	46.57	29.25	29.26	0.01	500	13.21	No		5/12/2023
MW-82-112	Alluvial	11/12/2024	114.78	114.17	0.61	92.48	112.48	30.33	30.35	0.02	500	6.60	No		
MW-82-168	Alluvial	10/09/2024	170.34	169.30	1.04	148.04	168.04	28.90	28.95	0.05	500	2.64	No		
MW-82-168	Alluvial	11/12/2024	170.34	169.80	0.54	148.04	168.04	29.10	29.12	0.02	500	6.60	No		
MW-82-168	Alluvial	12/11/2024	170.34	169.83	0.51	148.04	168.04	29.25	29.27	0.02	500	6.60	No		
MW-82-198	Alluvial	10/09/2024	200.25	199.36	0.89	177.95	197.95	28.45	28.48	0.03	500	4.40	No		
MW-82-198	Alluvial	11/12/2024	200.25	199.46	0.79	177.95	197.95	29.19	29.20	0.01	500	13.21	No		
MW-82-198	Alluvial	12/11/2024	200.25	199.48	0.77	177.95	197.95	29.00	29.01	0.01	500	13.21	No		
MW-83-090	Alluvial	10/29/2024	91.59	91.88	-0.29	69.29	89.29	74.00	74.02	0.02	500	6.60	No		
MW-83-180	Alluvial	10/29/2024	181.18	181.40	-0.22	159.18	179.18	74.61	74.62	0.01	500	13.21	No		
MW-83-225	Alluvial	10/29/2024	227.55	224.70	2.85	205.15	225.15	75.52	75.55	0.03	500	4.40	No		
MW-83-245	Alluvial	10/29/2024	247.40	246.13	1.27	235.00	245.00	74.45	74.48	0.03	500	4.40	No		
MW-84-057	Alluvial	10/29/2024	59.38	58.13	1.25	41.98	56.98	45.30	45.32	0.02	500	6.60	No		
MW-84-095	Alluvial	10/29/2024	97.32	93.00	4.32	74.92	94.92	45.30	45.32	0.02	500	6.60	No		
MW-84-132	Alluvial	10/29/2024	134.39	134.05	0.34	111.99	131.99	45.82	45.85	0.03	500	4.40	No		
MW-84-193	Alluvial	10/29/2024	195.41	194.38	1.03	173.11	193.11	42.76	42.78	0.02	500	6.60	No		
MW-85-129	Alluvial	10/30/2024	131.13	131.17	-0.04	113.63	128.83	114.67	114.70	0.03	500	4.40	No		
MW-85-217	Alluvial	10/30/2024	218.70	217.33	1.37	196.40	216.40	114.90	114.94	0.04	500	3.30	No		
MW-85-237	Alluvial	10/30/2024	238.84	238.02	0.82	226.54	236.54	115.00	115.03	0.03	500	4.40	No		
MW-86-030	Alluvial	10/30/2024	34.51	31.62	2.89	12.21	32.21	13.63	13.64	0.01	500	13.21	No		
MW-86-066	Alluvial	10/30/2024	70.40	68.80	1.60	48.10	68.10	13.11	13.13	0.02	500	6.60	No		
MW-86-120	Alluvial	10/30/2024	124.67	122.64	2.03	102.37	122.37	13.62	13.64	0.02	500	6.60	No		
MW-86-140	Alluvial	10/30/2024	144.53	143.01	1.52	132.23	142.23	13.83	13.84	0.01	500	13.21	No		
MW-87-109	Alluvial	11/21/2024	111.14	109.00	2.14	88.84	108.84	92.40	92.42	0.02	500	6.60	No	High turbidity in Third and Fourth Quarters 2024. Not recommended for redevelopment given measured well depth and specific capacity indicates good yield.	
MW-87-139	Alluvial	11/21/2024	141.24	140.94	0.30	118.84	138.84	91.86	91.91	0.05	500	2.64	No		
MW-87-192	Alluvial	11/21/2024	194.21	193.11	1.10	171.91	191.91	92.69	92.70	0.01	500	13.21	No		
MW-87-275	Bedrock	11/21/2024	277.06	279.19	-2.13	254.76	274.76	92.57	92.60	0.03	500	4.40	No		

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MW-88-107	Bedrock	10/30/2024	109.06	108.81	0.25	86.76	106.76	91.08	91.10	0.02	500	6.60	No		
MW-89-183	Alluvial	12/12/2024	185.42	185.14	0.28	163.02	183.02	132.55	132.58	0.03	500	4.40	No		
MW-89-273	Alluvial	12/12/2024	275.56	274.69	0.87	253.16	273.16	132.62	132.66	0.04	500	3.30	No	High turbidity in Second and Fourth Quarters 2024. Not recommended for redevelopment given measured well depth and specific capacity indicates good yield.	
MW-90-031	Alluvial	10/30/2024	33.60	31.36	2.24	21.30	31.30	5.00	5.01	0.01	500	13.21	No		
MW-91-045	Fluvial	12/05/2024	46.51	46.90	-0.39	24.21	44.21	12.20	12.22	0.02	500	6.60	No		
MW-91-120	Alluvial	12/04/2024	122.00	122.00	0.00	99.70	119.70	11.90	11.92	0.02	500	6.61	No		
MW-91-170	Alluvial	12/05/2024	173.14	172.60	0.54	150.74	170.74	11.32	11.34	0.02	500	6.60	No		
MW-91-320	Alluvial	12/04/2024	323.05	321.50	1.55	300.65	320.65	13.52	13.53	0.01	500	13.21	No		
MW-92-037	Fluvial	12/04/2024	40.96	40.57	0.39	18.56	38.56	8.62	8.65	0.03	500	4.40	No		
MW-92-072	Fluvial	12/04/2024	75.93	75.50	0.43	53.53	73.53	8.51	8.55	0.04	500	3.30	No		
MW-92-102	Fluvial	12/04/2024	106.72	106.60	0.12	84.42	104.42	8.91	8.93	0.02	500	6.60	No		
MW-92-122	Bedrock	12/04/2024	126.64	126.02	0.62	114.34	124.34	9.08	9.10	0.02	500	6.60	No		
MW-93-050	Alluvial	11/26/2024	51.90	51.62	0.28	29.60	49.60	33.11	33.13	0.02	500	6.60	No	High turbidity in Second and Fourth Quarters 2024. Not recommended for redevelopment given measured well depth and specific capacity indicates good yield.	
MW-93-213	Alluvial	11/26/2024	214.82	214.50	0.32	192.52	212.52	32.60	32.62	0.02	500	6.60	No		
MW-95-113	Alluvial	11/25/2024	117.60	117.67	-0.07	95.30	115.30	98.32	98.40	0.08	500	1.65	No	High turbidity. Continue to monitor for consecutive high turbidity readings.	
MW-95-157	Alluvial	11/25/2024	161.56	161.31	0.25	139.26	159.26	98.29	98.38	0.09	500	1.47	No		
MW-96-045	Alluvial	11/26/2024	47.52	46.36	1.16	25.22	45.22	30.12	30.20	0.08	500	1.65	No		
MW-96-217	Alluvial	11/26/2024	219.33	218.59	0.74	197.03	217.03	30.31	30.31	0.00	500	N/A	No		
MW-97-042	Alluvial	11/26/2024	42.63	41.95	0.68	22.13	42.13	28.22	28.25	0.03	500	4.40	No	High turbidity. Continue to monitor for consecutive high turbidity readings.	
MW-97-202	Alluvial	11/26/2024	201.47	200.90	0.57	190.97	200.97	28.98	29.00	0.02	500	6.60	No		
MW-98-055	Alluvial	11/15/2024	59.69	59.16	0.53	42.29	57.39	46.50	45.52	-0.98	500	-0.13	No		
MW-98-077	Alluvial	11/15/2024	81.58	80.91	0.67	69.28	79.28	44.20	44.20	0.00	500	N/A	No		
OW-01D	Fluvial	12/11/2024	279.90	277.00	2.90	259.60	279.60	95.42	95.44	0.02	500	6.60	No		
OW-01M	Fluvial	12/11/2024	188.41	185.41	3.00	167.61	187.61	95.52	95.55	0.03	500	4.40	No		
OW-01S	Fluvial	12/11/2024	116.12	113.55	2.57	86.11	116.12	95.49	95.50	0.01	500	13.21	No		
OW-02D	Alluvial	12/11/2024	342.34	340.00	2.34	312.34	332.34	93.88	93.90	0.02	500	6.60	No		
OW-02M	Alluvial	12/11/2024	212.95	211.16	1.79	192.65	212.65	93.91	93.63	-0.28	500	-0.47	No		
OW-02S	Alluvial	12/11/2024	106.29	102.18	4.11	73.71	103.71	94.03	94.10	0.07	500	1.89	No		
OW-05D	Alluvial	12/12/2024	352.89	350.00	2.89	302.89	322.89	97.13	97.15	0.02	500	6.60	No		
OW-05M	Alluvial	12/12/2024	253.10	252.60	0.50	212.80	252.80	96.63	96.66	0.03	500	4.40	No		
OW-05S	Fluvial	12/12/2024	113.01	112.88	0.13	72.71	112.71	96.89	96.93	0.04	500	3.30	No		
PGE-07BR	Bedrock	12/05/2024	303.14	N/A	N/A	252.14	303.14	111.62	N/A	N/A	30,283	N/A	N/A		
PGE-08	Bedrock	11/18/2024	553.24	N/A	N/A	408.24	553.24	143.52	N/A	N/A	37,854	N/A	N/A		
PT5D	Alluvial	10/09/2024	107.37	107.18	0.19	97.37	107.37	19.75	19.75	0.00	500	N/A	No		
PT5D	Alluvial	11/14/2024	107.37	107.15	0.22	97.37	107.37	19.91	19.91	0.00	500	N/A	No		

Table 4.2
Monitoring Well Water Levels and Specific Capacities
Fourth Quarter 2024 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Well ID	Well Screen Lithology	Sample Date	Constructed Well Depth (feet bTOC)	Measured Well Depth (feet bTOC)	Difference in Constructed and Measured Well Depth (feet)	Screen Start Depth (feet bTOC)	Screen End Depth (feet bTOC)	Pre-Purge Depth to Water (feet bTOC)	Post-Purge Depth to Water (feet bTOC)	Drawdown During Purging (feet)	Purging Rate (mL/min)	Specific Capacity (gpm/foot)	Measured Depth Covering Greater than 20% of screen?	Notes	Date of Last Redevelopment
PT5D	Alluvial	12/09/2024	107.37	107.11	0.26	97.37	107.37	21.18	21.18	0.00	500	N/A	No		
PT5M	Alluvial	11/14/2024	72.37	72.80	-0.43	62.37	72.37	18.60	18.60	0.00	500	N/A	N/A		
PT5S	Alluvial	10/09/2024	47.35	47.68	-0.33	37.35	47.35	18.54	18.54	0.00	500	N/A	N/A		
PT8D	Alluvial	12/05/2024	211.95	210.60	1.35	189.45	209.45	107.00	107.05	0.05	500	2.64	No		
PT9D	Alluvial	12/05/2024	212.10	210.20	1.90	189.60	209.60	104.46	104.50	0.04	500	3.30	No		
PT9M	Alluvial	12/05/2024	186.64	185.60	1.04	161.64	181.64	104.33	104.37	0.04	500	3.30	No		
PT9S	Alluvial	12/05/2024	152.76	152.80	-0.04	127.76	147.76	104.61	104.63	0.02	500	6.60	No		
TW-01	Alluvial	11/22/2024	266.73	265.84	0.89	166.73	266.73	165.12	165.48	0.36	15,142	11.11	No		
TW-02D	Alluvial	10/08/2024	148.96	149.61	-0.65	108.96	143.96	39.03	39.07	0.04	3,785	25.00	No		
TW-02D	Alluvial	11/12/2024	148.96	149.61	-0.65	108.96	143.96	39.57	39.60	0.03	3,785	33.33	No		
TW-02D	Alluvial	12/10/2024	148.96	149.61	-0.65	108.96	143.96	40.41	40.42	0.01	3,785	100.00	No		
TW-02S	Alluvial	10/08/2024	94.39	96.27	-1.88	39.39	89.39	39.60	39.63	0.03	3,785	33.33	No		
TW-02S	Alluvial	11/12/2024	94.39	96.27	-1.88	39.39	89.39	40.05	40.06	0.01	3,785	100.00	No		
TW-02S	Alluvial	12/10/2024	94.39	96.27	-1.88	39.39	89.39	40.31	40.33	0.02	3,785	50.00	No		
TW-03D	Alluvial	10/08/2024	151.22	152.32	-1.10	106.22	151.22	38.80	38.83	0.03	3,785	33.33	No		
TW-03D	Alluvial	11/12/2024	151.22	152.23	-1.01	106.22	151.22	39.36	39.38	0.02	3,785	50.00	No		
TW-03D	Alluvial	12/10/2024	151.22	152.32	-1.10	106.22	151.22	40.12	40.15	0.03	3,785	33.33	No		
TW-04	Alluvial	10/29/2024	256.49	253.93	2.56	211.49	251.49	30.46	30.48	0.02	500	6.60	No		
TW-05	Alluvial	12/02/2024	156.33	155.72	0.61	111.33	151.33	42.22	42.27	0.05	500	2.64	No		

Note:
1. Specific capacity is evaluated for alluvial and fluvial wells. Bedrock wells and slant wells are not included in this evaluation.

Acronyms and Abbreviations:
-- = no drawdown during purging
bTOC = below top of casing
gpm/foot = gallon per minute per foot
mL/min = milliliter per minute
N/A = not applicable
NTU = nephelometric turbidity unit

Figures

LEGEND

- REMEDIATION WELL (EXTRACTION)
- REMEDIATION WELL (INJECTION)
- REMEDIATION WELL (NOT PLUMBED INTO SYSTEM CURRENTLY)
- PILOT TEST WELL (EXTRACTION)
- BAT CAVE WASH
- PIPELINE
- REMEDY STRUCTURE

Notes:
1. NTH = National Trails Highway
2. PG&E = Pacific Gas and Electric Company

N

0 625 1,250

Feet

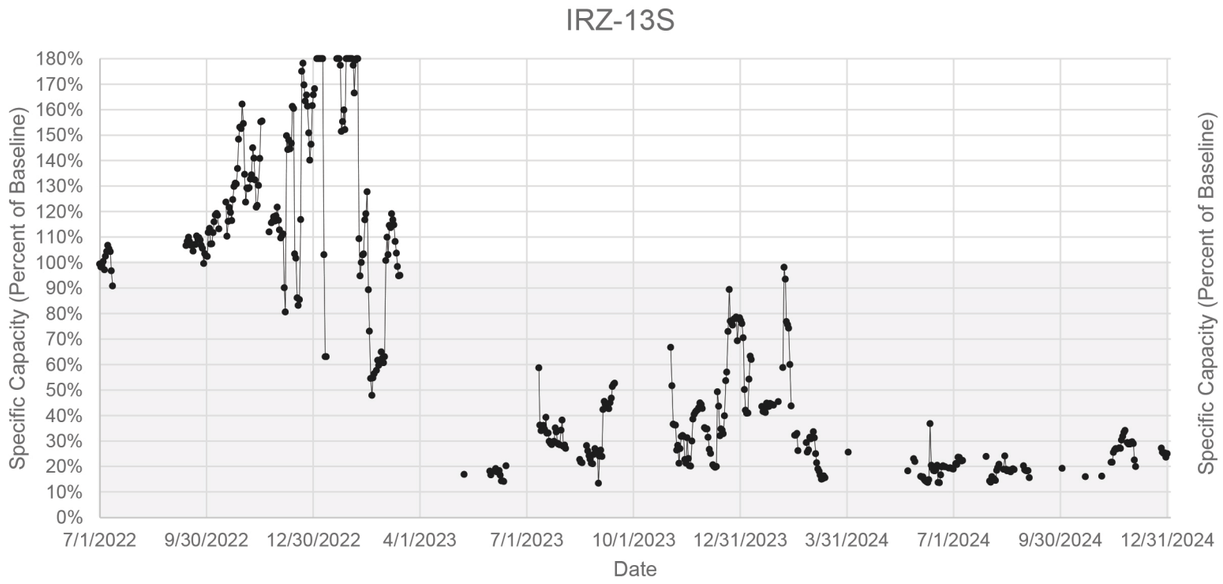
FOURTH QUARTER 2024
WELL PERFORMANCE REPORT
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

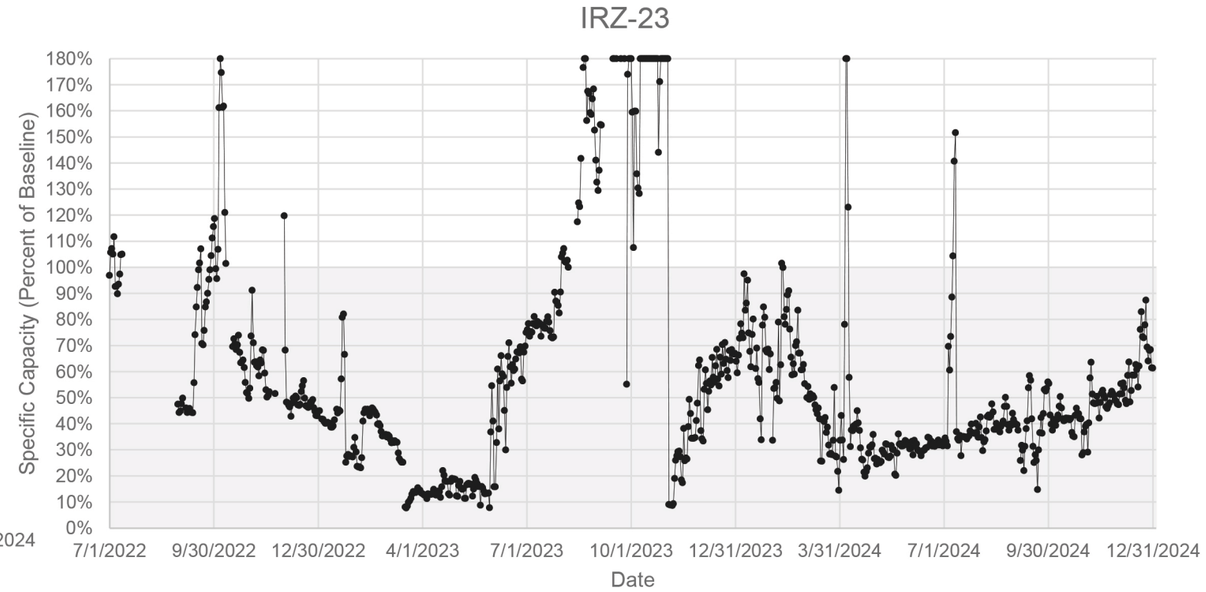
PARTIAL REMEDY SYSTEM LAYOUT

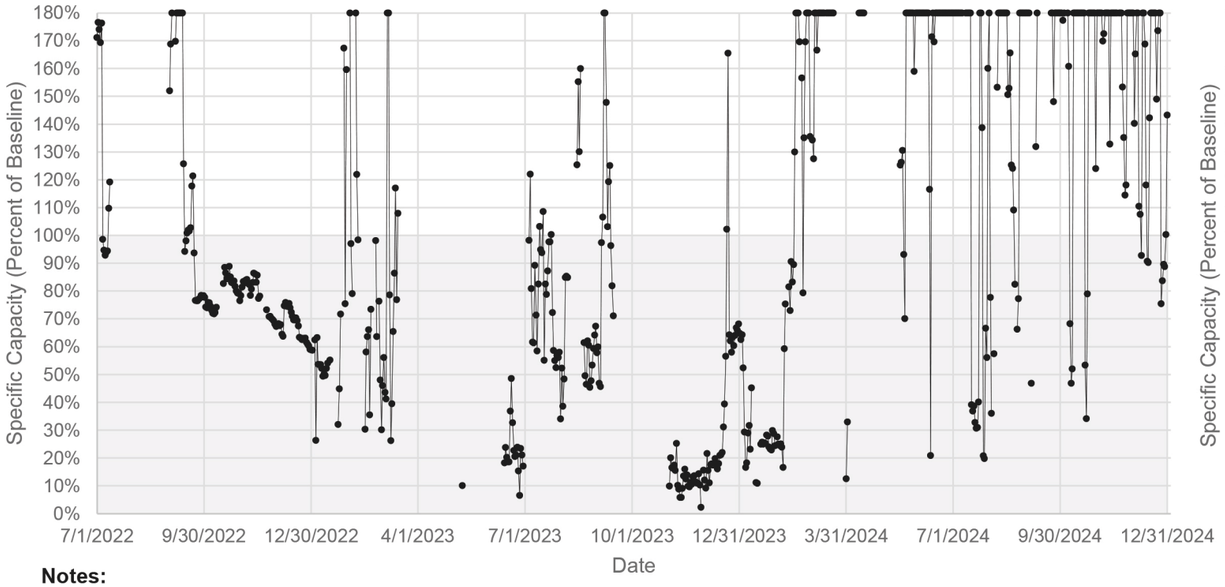
ARCADIS

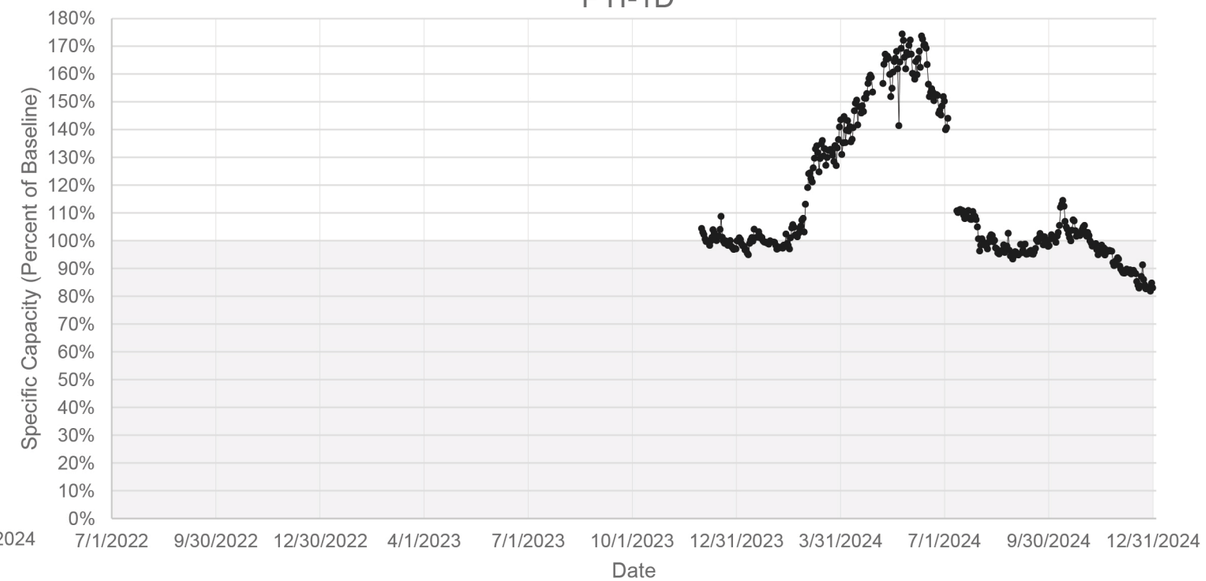
FIGURE
1.1

T:_ENV\PGE_TOPOCK\GEC\ARC_PRO\GMP\4Q24\FIGURE1_1_PARTIAL REMEDY SYSTEM LAYOUT_PERFORMANCEREPORT.APRX 2/14/2025 2:00 PM









Notes:

1. % - percent
2. Baseline specific capacity for each screen interval is represented as 100% on the y-axis. Values greater than 100% indicate performance exceeding baseline. Values less than 100% are shaded gray.
3. IRZ-13D, IRZ-13S, and IRZ-23 operated 10/11/22-10/15/22, 11/17/22-11/20/22, and 11/21/22-11/23/22. Water level data were not collected during these timeframes due to a SCADA error, and therefore specific capacities were not calculated.
4. Baseline specific capacity has not been established for IRZ-9 due to limited operation. Therefore, a graph of IRZ-9 is not included.
5. Specific capacities greater than or equal to 180% are shown as 180% to indicate well was operational at a high specific capacity.
6. PTI-1D began operation in November 2023. A baseline specific capacity was established for this well in December 2023. The graph excludes data collected prior to the baseline specific capacity being established.
7. Limited water level and flowrate data were collected between 4/30/24 and 5/8/24 due to a SCADA error. Extraction well IRZ-23 and pilot test well PTI-1D operated during this timeframe. Specific capacities during these dates were included in the graphs if sufficient data existed.

FOURTH QUARTER 2024
WELL PERFORMANCE REPORT

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

EXTRACTION WELL SPECIFIC CAPACITY TRENDS

ARCADIS

FIGURE
3.1

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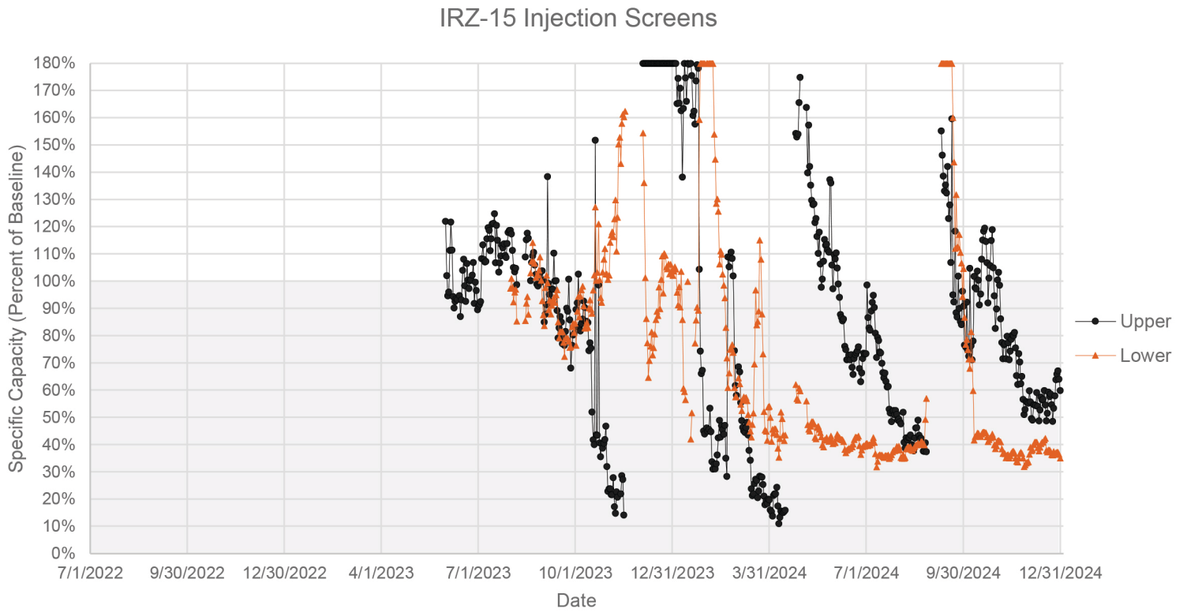
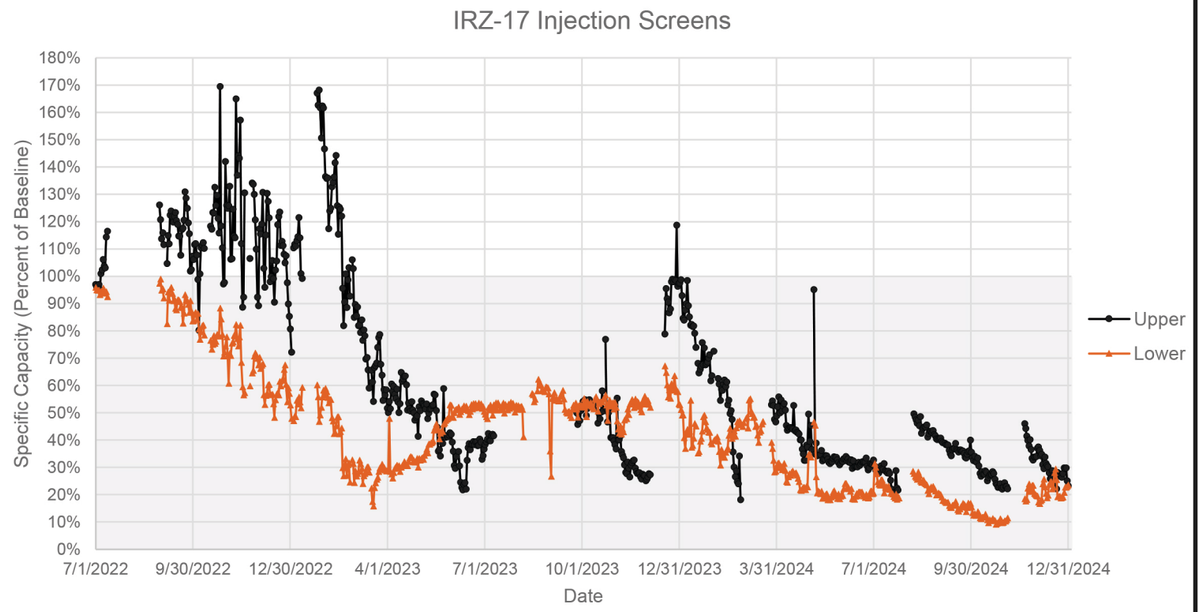
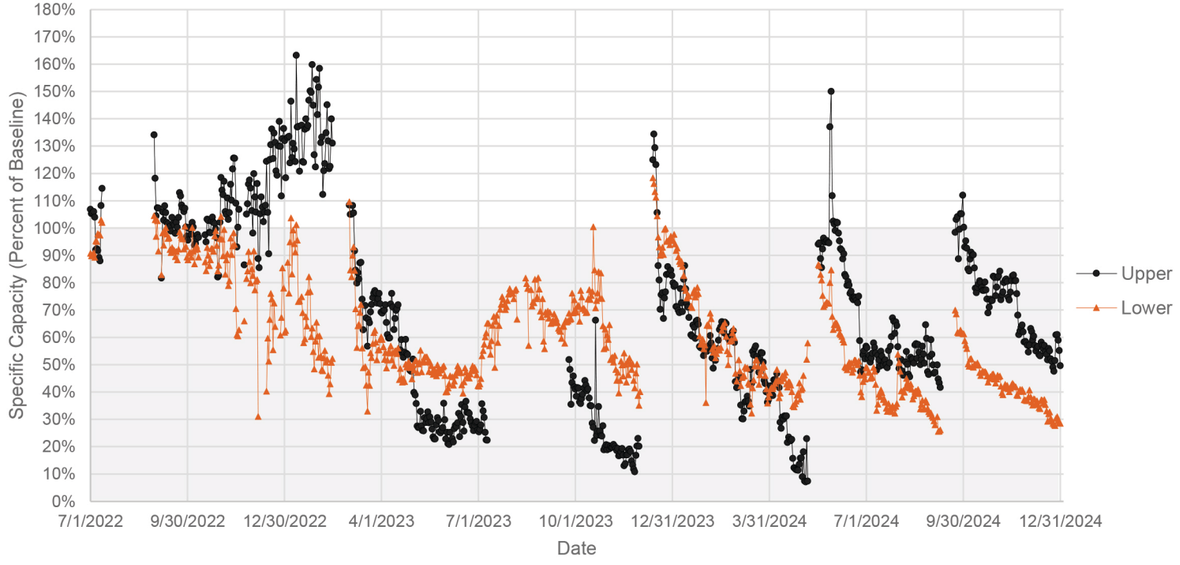
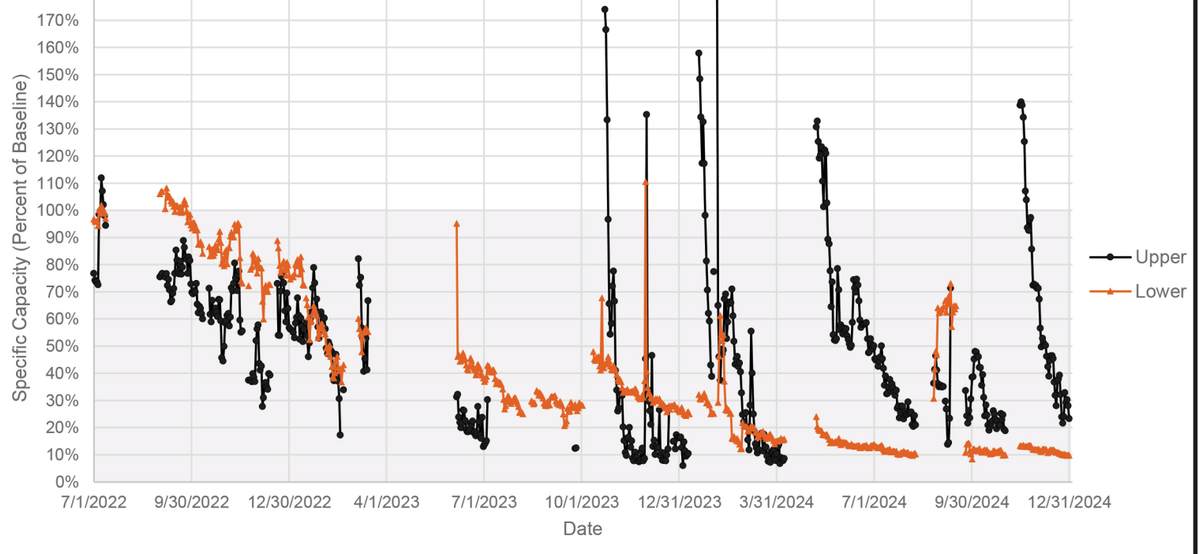








Notes:

1. % - percent
2. Baseline specific capacity for each screen interval is represented as 100% on the y-axis. Specific capacity values greater than 100% indicate performance exceeding baseline. Values less than 100% are shaded gray.
3. IRZ-15 (upper) began operation in March 2023. IRZ-15 (lower) began operation in April 2023. Baseline specific capacities were established for these wells in June and August 2023, respectively. The graphs exclude data collected prior to the baseline specific capacity being established.
4. Specific capacities greater than or equal to 180% are shown as 180% to indicate well was operational at a high specific capacity.
5. Limited water level and flowrate data were collected between 4/30/24 and 5/8/24 due to a SCADA error. Injection wells IRZ-15, IRZ-16, and IRZ-17 were operating during this timeframe. Specific capacities during these dates were included in the graphs if sufficient data existed.

FOURTH QUARTER 2024
WELL PERFORMANCE REPORT

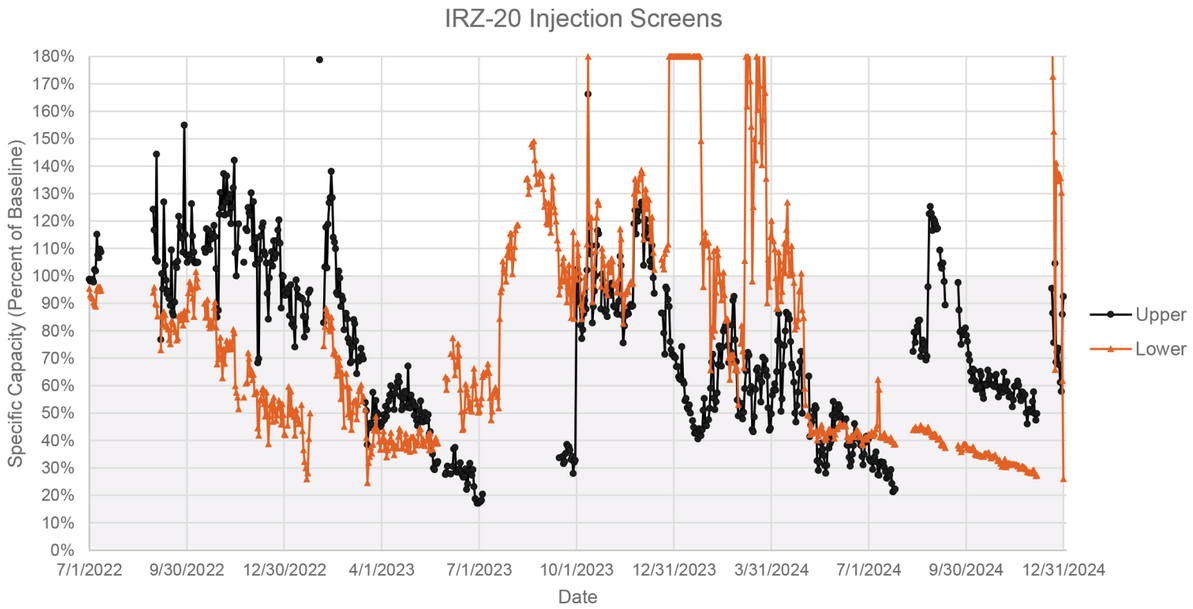
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

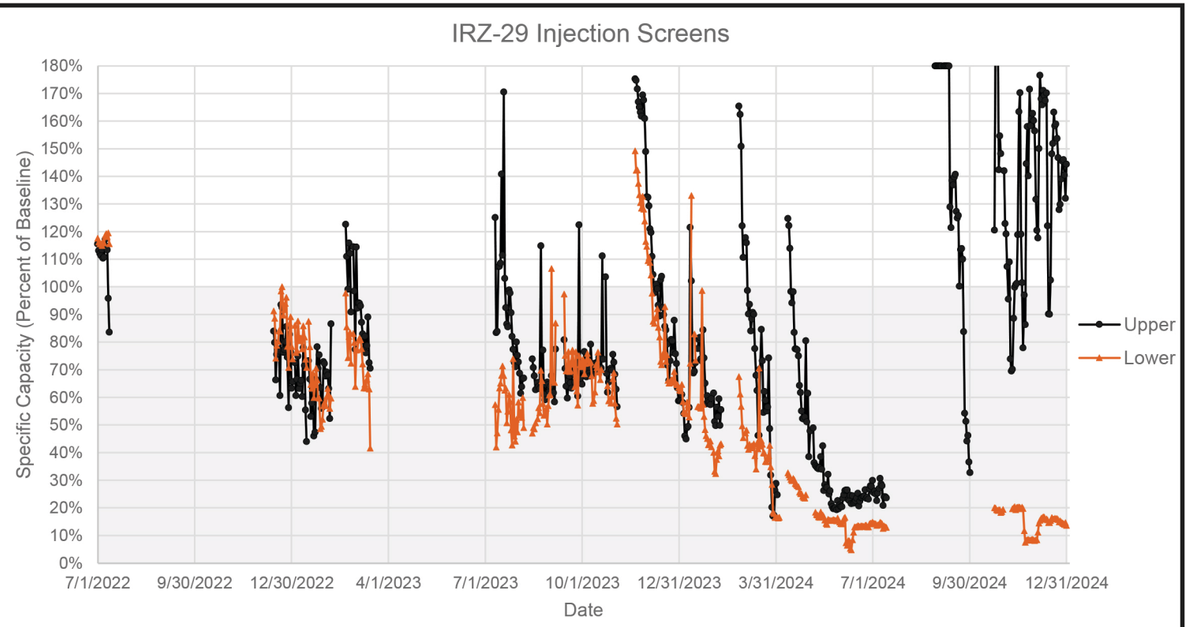
INJECTION WELL SPECIFIC CAPACITY TRENDS PART 1

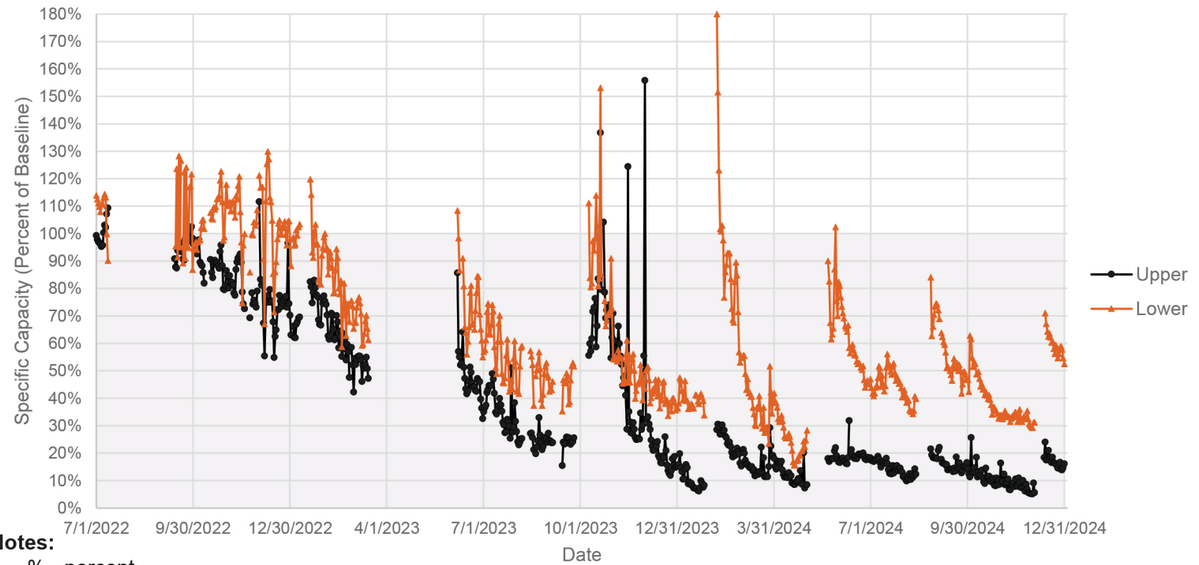
ARCADIS

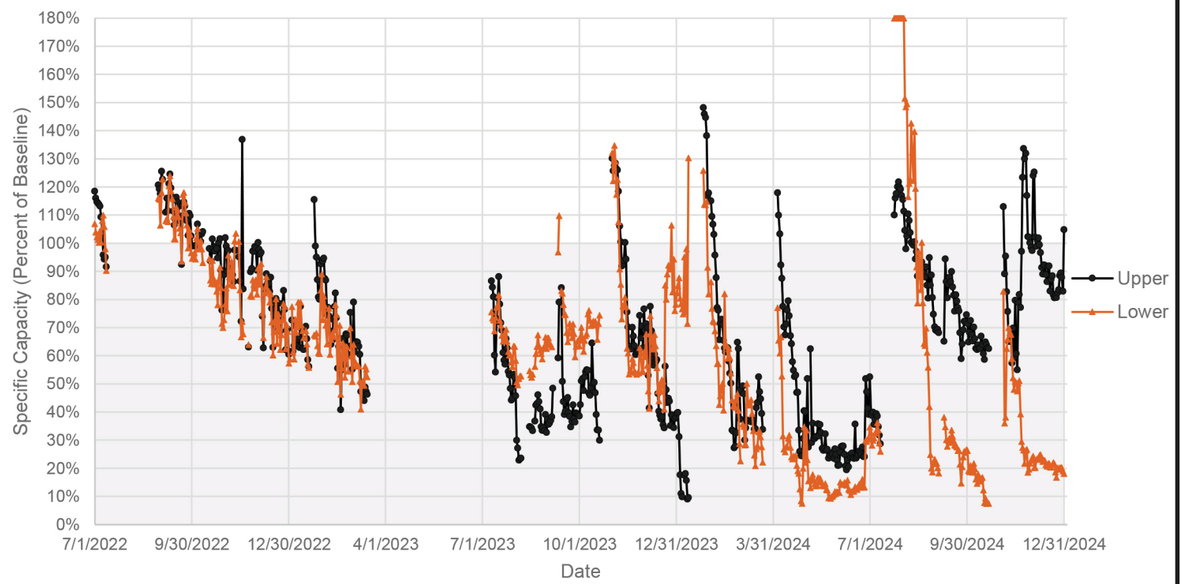
FIGURE
3.2

2/13/2025 1:00:30 PM









Notes:

1. % - percent
2. Baseline specific capacity for each screen interval is represented as 100% on the y-axis. Specific capacity values greater than 100% indicate performance exceeding baseline. Values less than 100% are shaded gray.
3. Due to flow totalizer communication errors, data for IRZ-31 between 7/5/23 and 7/10/23 are unavailable. IRZ-31 was operational during this timeframe.
4. Specific capacities greater than or equal to 180% are shown as 180% to indicate well was operational at a high specific capacity.
5. Limited water level and flowrate data were collected between 4/30/24 and 5/8/24 due to a SCADA error. Injection wells IRZ-20, IRZ-29, and IRZ-31 were operating during this timeframe. IRZ-27 operated during this timeframe until it was shut down for rehabilitation on 5/2/24. Specific capacities during these dates were included in the graphs if sufficient data existed.
6. Specific capacity data for injection wells IRZ-29 (upper) and IRZ-29 (lower) were not calculated from July 29 through August 29, 2024, because water level transducer readings were inaccurate during this timeframe. Injection wells IRZ-29 (upper) and IRZ-29 (lower) operated during this timeframe, with periods of downtime for troubleshooting. The transducers were re-wired on August 22, 2024. Although IRZ-29 (upper) and IRZ-29 (lower) operated throughout September 2024, the water level transducer in IRZ-29 (lower) continued to undergo troubleshooting due to abnormal water-level readings. Therefore, specific capacity data for IRZ-29 (lower) were not calculated in September 2024.

FOURTH QUARTER 2024
WELL PERFORMANCE REPORT

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

INJECTION WELL SPECIFIC CAPACITY TRENDS PART 2

ARCADIS

FIGURE
3.3

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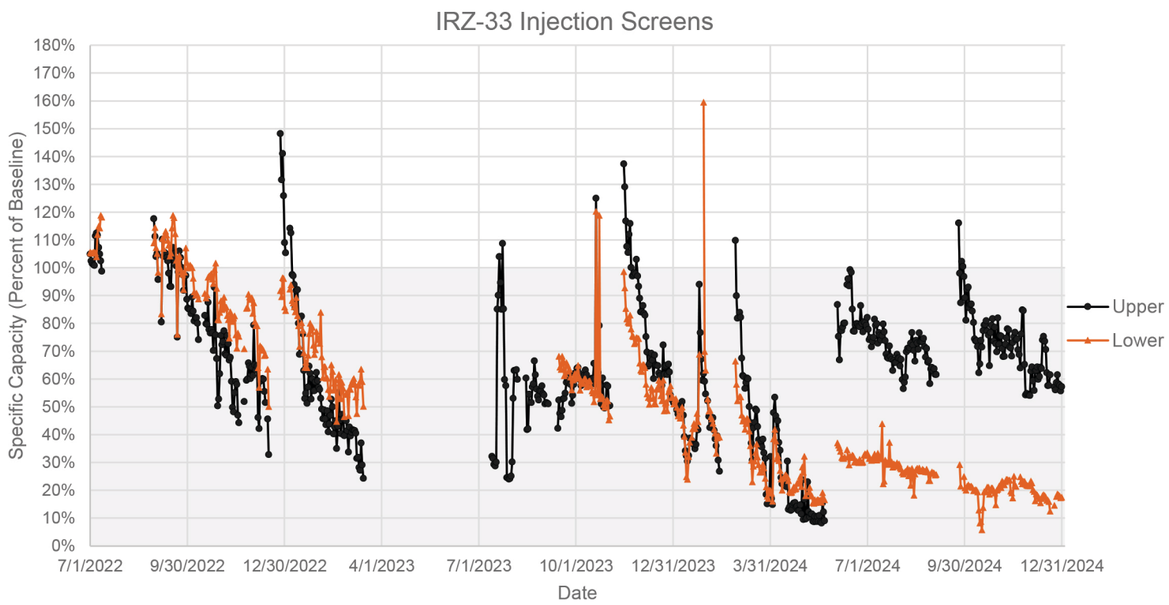

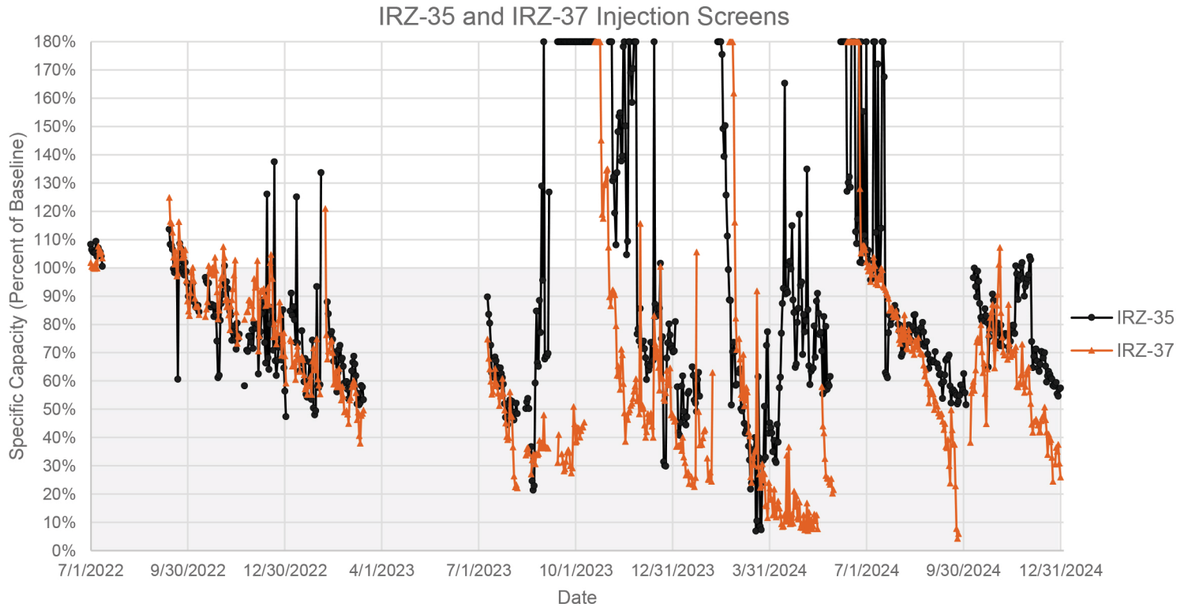

Notes:

1. % - percent
2. Baseline specific capacity for each screen interval is represented as 100% on the y-axis. Specific capacity values greater than 100% indicate performance exceeding baseline. Values less than 100% are shaded gray.
3. IRZ-39 did not operate in Third Quarter 2023, and previous quarter IRZ-39 flowrates were low and unsustainable. As a result, a baseline specific capacity has not yet been determined for IRZ-39. Therefore, IRZ-39 is not included in Figures 3.2 through 3.4.
4. Specific capacities greater than or equal to 180% are shown as 180% to indicate well was operational at a high specific capacity.
5. Limited water level and flowrate data were collected between 4/30/24 and 5/8/24 due to a SCADA error. Injection wells IRZ-33, IRZ-35, and IRZ-37 were operating during this timeframe. Specific capacities during these dates were included in the graphs if sufficient data existed.

FOURTH QUARTER 2024
WELL PERFORMANCE REPORT

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

INJECTION WELL SPECIFIC CAPACITY TRENDS PART 3

ARCADIS

FIGURE
3.4

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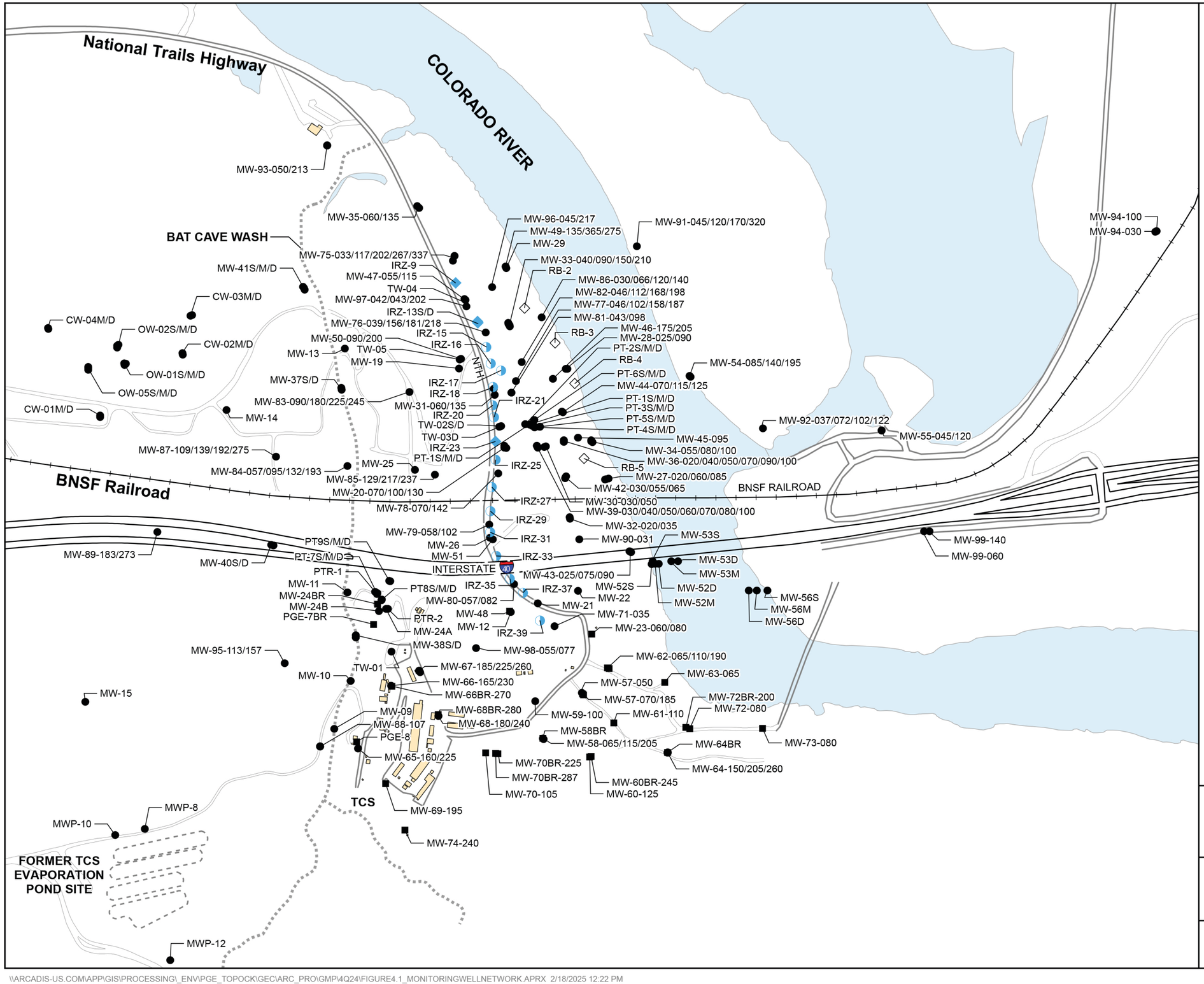


LEGEND

- GROUNDWATER MONITORING WELL
- REMEDIATION WELL (INJECTION)
- REMEDIATION WELL (EXTRACTION)
- REMEDIATION WELL (NOT PLUMBED INTO SYSTEM CURRENTLY)
- BEDROCK WELL
- BAT CAVE WASH

Notes:
1. NTH = National Trails Highway
2. TCS = Topock Compressor Station

0 500 1,000
Feet

FOURTH QUARTER 2024
WELL PERFORMANCE REPORT
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

MONITORING WELL NETWORK

ARCADIS

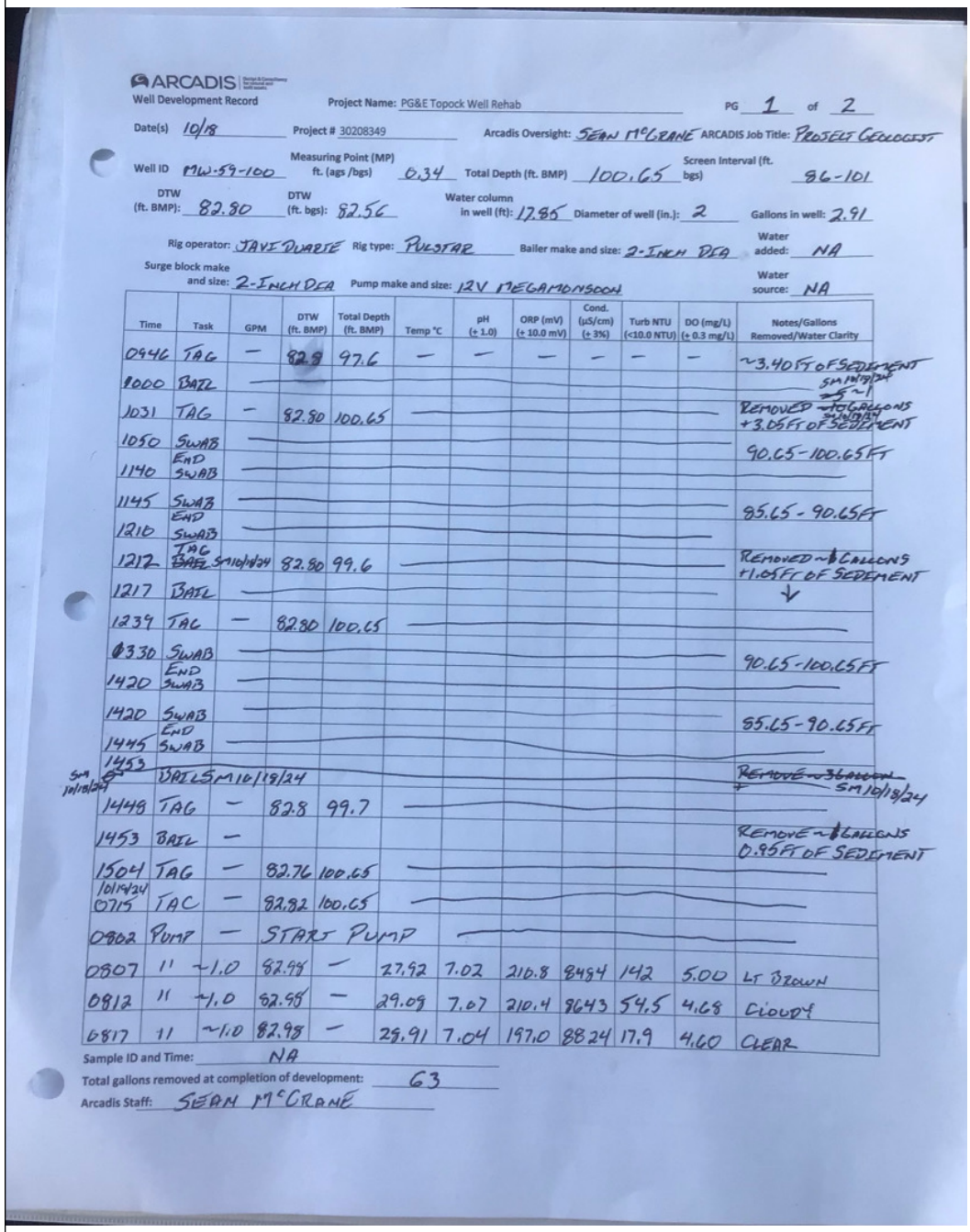
FIGURE 4.1

\\ARCADIS-US.COM\APP\GIS\PROCESSING_ENV\PGE_TOPOCK\GEC\ARC_PRO\GMP\4Q24\FIGURE4.1_MONITORINGWELLNETWORK.APRX 2/18/2025 12:22 PM

Appendix A

MW-59-100

MW-59-100 Well Development Log



ARCADIS

Well Development Record

Project Name: PG&E Topock Well Rehab

PG 1 of 2

Date(s): 10/18 Project #: 30208349 Arcadis Oversight: SEAN McCRANE ARCADIS Job Title: PROJECT GEOLOGIST

Well ID: MW-59-100 Measuring Point (MP) ft. (ags /bgs): 0.34 Total Depth (ft. BMP): 100.65 Screen Interval (ft. bgs): 86-101

DTW (ft. BMP): 82.80 DTW (ft. bgs): 82.56 Water column in well (ft): 17.85 Diameter of well (in.): 2 Gallons in well: 2.91

Rig operator: JAVI DUARTE Rig type: PULSTAR Bailer make and size: 2-INCH DFA Water added: NA

Surge block make and size: 2-INCH DFA Pump make and size: 12V MEGAMONSOON Water source: NA

Time	Task	GPM	DTW (ft. BMP)	Total Depth (ft. BMP)	Temp °C	pH (± 1.0)	ORP (mV) (± 10.0 mV)	Cond. (µS/cm) (± 3%)	Turb NTU (<10.0 NTU)	DO (mg/L) (± 0.3 mg/L)	Notes/Gallons Removed/Water Clarity
0946	TAG	—	82.8	97.6	—	—	—	—	—	—	~3.40FT OF SEDIMENT SM 10/19/24
1000	BAIL										~1
1031	TAG	—	82.80	100.65							REMOVED ~10 GALLONS SM 10/19/24 +3.05FT OF SEDIMENT
1050	SWAB										90.65-100.65FT
1140	END SWAB										
1145	SWAB										95.65-90.65FT
1210	END SWAB										
1212	TAG BAIL SM 10/19/24		82.80	99.6							REMOVED ~8 GALLONS +1.05FT OF SEDIMENT
1217	BAIL										↓
1239	TAG	—	82.80	100.65							
0330	SWAB										90.65-100.65FT
1420	END SWAB										
1420	SWAB										95.65-90.65FT
1445	END SWAB										
1453	BAIL SM 10/19/24										REMOVE ~3 GALLONS SM 10/19/24
1448	TAG	—	82.8	99.7							
1453	BAIL	—									REMOVE ~8 GALLONS 0.95FT OF SEDIMENT
1504	TAG	—	82.76	100.65							
10/20/24 0715	TAG	—	82.82	100.65							
0802	PUMP	—	START PUMP								
0807	11	~1.0	82.98	—	27.92	7.02	210.8	8484	142	5.00	LT BROWN
0812	11	~1.0	82.98	—	29.09	7.07	210.4	8643	54.5	4.68	CLOUDY
0817	11	~1.0	82.98	—	28.91	7.04	197.0	8824	17.9	4.60	CLEAR

Sample ID and Time: NA

Total gallons removed at completion of development: 63

Arcadis Staff: SEAN McCRANE

MW-59-100 Well Development Log

ARCADIS

Well Development Record

Project Name: PG&E Topock Well Rehab

PG 2 of 2

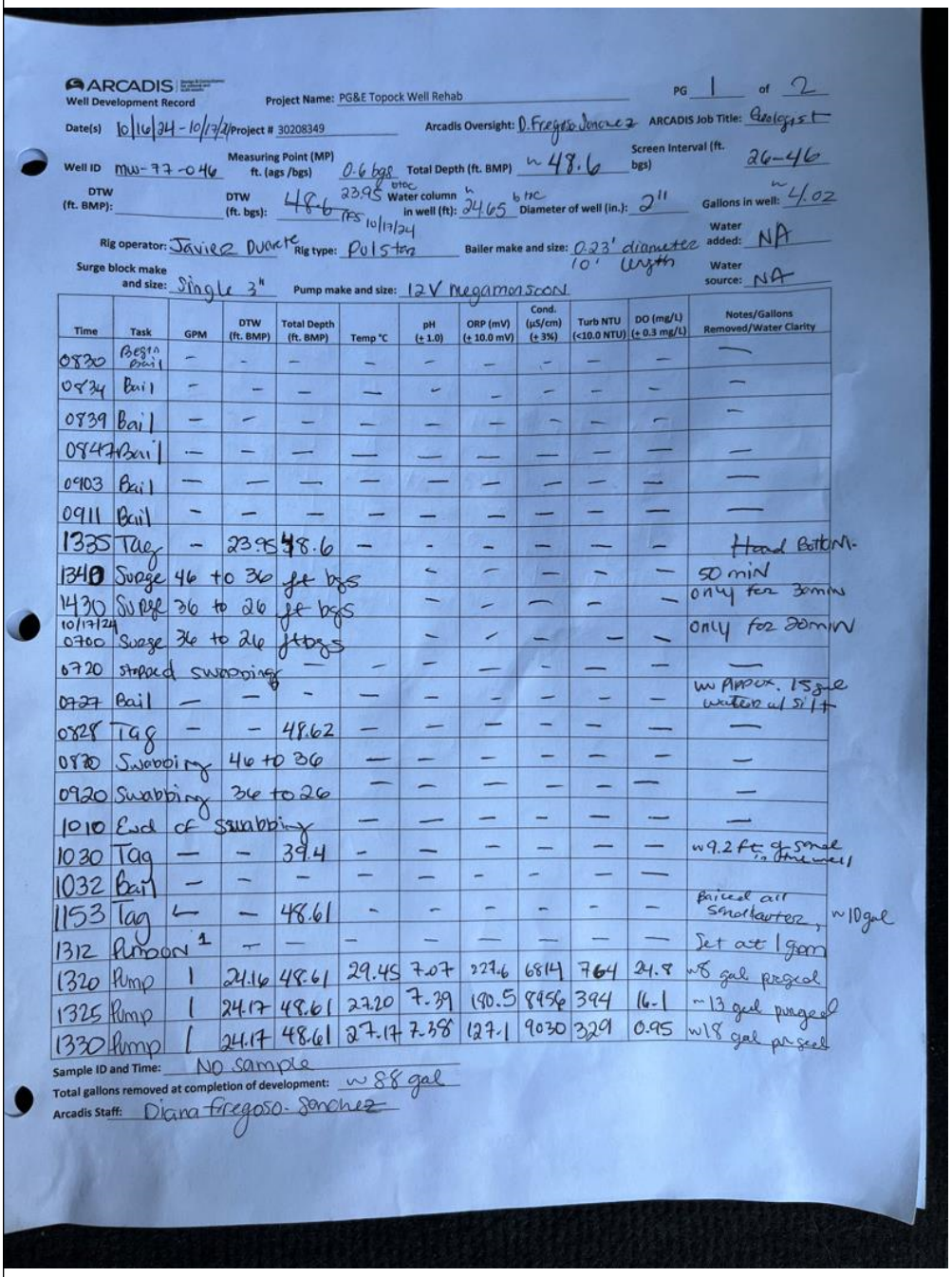
Date(s) 10/18-19/24 Project # 30208349 Arcadis Oversight: SEAN McGRANE Well ID MW-59-100

Time	Task	GPM	DTW (ft. BMP)	Total Depth (ft. BMP)	Temp °C	pH (± 1.0)	ORP (mV) (± 10.0 mV)	Cond. (µS/cm) (± 3%)	Turb NTU (<10.0 NTU)	DO (mg/L) (± 0.3 mg/L)	Notes/Gallons Removed/Water Clarity
0822	PUMP	~1.0	82.98	—	29.02	7.03	187.2	8968	8.81	4.70	CLEAR
0827	"	~1.0	82.98	—	29.01	7.02	177.5	9121	5.77	5.21	"
0832	"	~1.0	83.00	—	29.10	7.01	172.2	9256	4.03	5.19	"
0837	"	~1.0	83.00	—	29.03	7.01	165.7	9341	3.36	5.01	"
0842	"	~1.0	83.00	—	28.93	7.00	161.9	9487	2.17	5.00	"
0847	"	~1.0	83.00	—	29.19	7.00	157.8	9539	1.72	5.12	"
0848	DROP PUMP TO BOTTOM OF WELL. WATER BROWN										
0902	STOP PUMP BOTTOM OF WELL CLEAN 33.5 NTUS.										
	PURGED ~60 GALLONS										

10/19/24

MW-77-046

MW-77-046 Well Development Log



ARCADIS
Well Development Record

Project Name: PG&E Topock Well Rehab

PG 1 of 2

Date(s): 10/16/24 - 10/17/24 Project #: 30208349

Arcadis Oversight: D. Fregoso Sanchez ARCADIS Job Title: Geologist

Well ID: MW-77-046 Measuring Point (MP) ft. (ags /bgs): 0.6 bgs Total Depth (ft. BMP): ~48.6 Screen Interval (ft. bgs): 26-46

DTW (ft. BMP): DTW (ft. bgs): 48.6 23.95 btoc 10/17/24 Water column in well (ft): 24.65 Diameter of well (in.): 2" Gallons in well: ~4.02

Rig operator: Javier Duarte Rig type: Pulstar Bailer make and size: 0.23' diameter 10' length Water added: NA

Surge block make and size: Single 3" Pump make and size: 12V Megamonsoon Water source: NA

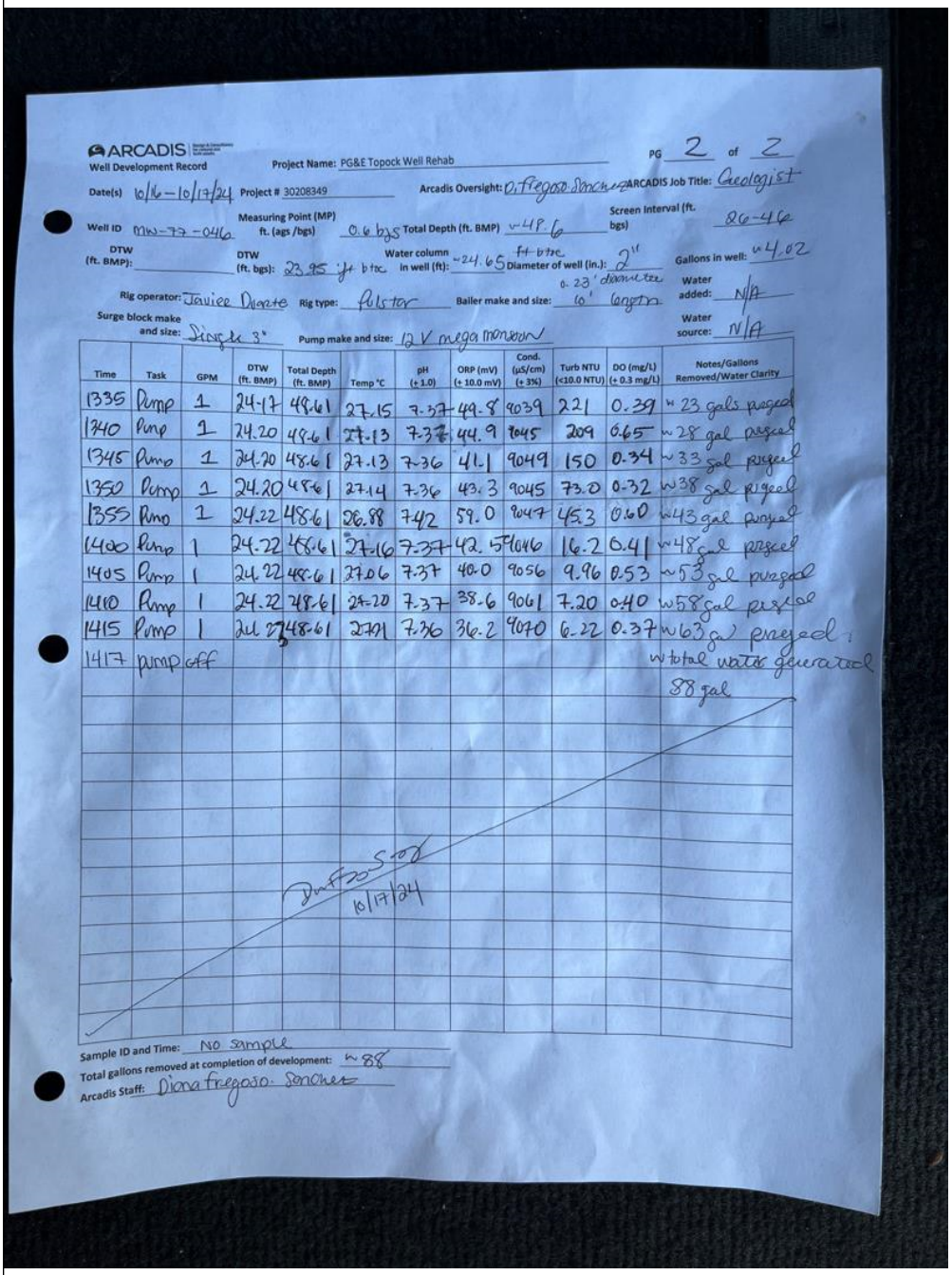
Time	Task	GPM	DTW (ft. BMP)	Total Depth (ft. BMP)	Temp °C	pH (± 1.0)	ORP (mV) (± 10.0 mV)	Cond. (µS/cm) (± 3%)	Turb NTU (<10.0 NTU)	DO (mg/L) (± 0.3 mg/L)	Notes/Gallons Removed/Water Clarity
0830	Begin Bail	-	-	-	-	-	-	-	-	-	-
0834	Bail	-	-	-	-	-	-	-	-	-	-
0839	Bail	-	-	-	-	-	-	-	-	-	-
0847	Bail	-	-	-	-	-	-	-	-	-	-
0903	Bail	-	-	-	-	-	-	-	-	-	-
0911	Bail	-	-	-	-	-	-	-	-	-	-
1335	Tag	-	23.95	48.6	-	-	-	-	-	-	Hard Bottom
1340	Surge	46 to 36 ft bgs				-	-	-	-	-	50 min
1430	Surge	36 to 26 ft bgs				-	-	-	-	-	only for 30min
10/17/24 0700	Surge	36 to 26 ft bgs				-	-	-	-	-	only for 20min
0720	Stopped swabbing	-	-	-	-	-	-	-	-	-	-
0727	Bail	-	-	-	-	-	-	-	-	-	w Approx. 15 gal water w/ silt
0828	Tag	-	-	48.62	-	-	-	-	-	-	-
0830	Swabbing	46 to 36			-	-	-	-	-	-	-
0920	Swabbing	36 to 26			-	-	-	-	-	-	-
1010	End of swabbing				-	-	-	-	-	-	-
1030	Tag	-	-	39.4	-	-	-	-	-	-	w 9.2 ft of Sand in the well
1032	Bail	-	-	-	-	-	-	-	-	-	-
1153	Tag	-	-	48.61	-	-	-	-	-	-	Bailed all Sand/water, w 10 gal
1312	Purge[1]	-	-	-	-	-	-	-	-	-	Set at 1 gpm
1320	Pump	1	24.16	48.61	29.45	7.07	227.6	6814	764	24.8	w 8 gal purged
1325	Pump	1	24.17	48.61	27.20	7.39	180.5	8956	394	16.1	~13 gal purged
1330	Pump	1	24.17	48.61	27.17	7.38	127.1	9030	329	0.95	w 18 gal purged

Sample ID and Time: No sample

Total gallons removed at completion of development: ~88 gal

Arcadis Staff: Diana Fregoso-Sanchez

MW-77-046 Well Development Log



ARCADIS
Well Development Record

Project Name: PG&E Topock Well Rehab

PG 2 of 2

Date(s): 10/16–10/17/24 Project #: 30208349 Arcadis Oversight: D. Fregoso Sanchez ARCADIS Job Title: Geologist

Well ID: MW-77-046 Measuring Point (MP) ft. (ags /bgs): 0.6 bgs Total Depth (ft. BMP): ~48.6 Screen Interval (ft. bgs): 26-46

DTW (ft. BMP): DTW (ft. bgs): 23.95 ft btoc Water column in well (ft): ~24.65 Diameter of well (in.): 2" 0.23' diameter Gallons in well: ~4.02

Rig operator: Javier Duarte Rig type: Polstar Bailer make and size: 10' length Water added: N/A

Surge block make and size: Single 3" Pump make and size: 12 V mega monsoon Water source: N/A

Time	Task	GPM	DTW (ft. BMP)	Total Depth (ft. BMP)	Temp °C	pH (± 1.0)	ORP (mV) (± 10.0 mV)	Cond. (µS/cm) (± 3%)	Turb NTU (<10.0 NTU)	DO (mg/L) (± 0.3 mg/L)	Notes/Gallons Removed/Water Clarity
1335	Pump	1	24.17	48.61	27.15	7.37	49.8	9039	221	0.39	~23 gals purged
1340	Pump	1	24.20	48.61	27.13	7.37	44.9	9045	209	0.65	~28 gal purged
1345	Pump	1	24.20	48.61	27.13	7.36	41.1	9049	150	0.34	~33 gal purged
1350	Pump	1	24.20	48.61	27.14	7.36	43.3	9045	73.0	0.32	~38 gal purged
1355	Pump	1	24.22	48.61	26.88	7.42	59.0	9047	45.3	0.60	~43 gal purged
1400	Pump	1	24.22	48.61	27.16	7.37	42.5	7046	16.2	0.41	~48 gal purged
1405	Pump	1	24.22	48.61	27.06	7.37	40.0	9056	9.96	0.53	~53 gal purged
1410	Pump	1	24.22	48.61	27.20	7.37	38.6	9061	7.20	0.40	~58 gal purged
1415	Pump	1	24.27	48.61	27.11	7.36	36.2	9070	6.22	0.37	~63 gal purged; ~total water generated ~68 gal
1417	pump off										

Drift 5.00 10/17/24

Sample ID and Time: No sample

Total gallons removed at completion of development: ~88

Arcadis Staff: Diana Fregoso-Sanchez

Photo Log

MW-77-046 - Sand from first round of bailing.

Photo Log

MW-77-046- Water and sediment removed by first bailer, first round of bailing.

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