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March 27, 2024

Mr. Christopher Ioan
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California Department of Toxic Substances Control
5796 Corporate Avenue
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Subject: *Fourth Quarter 2023 Well Performance Report, PG&E Topock Compressor Station, Needles, California* (PGE20180115A)

Dear Mr. Ioan:

Enclosed is the Fourth Quarter 2023 Well Performance Report for the Pacific Gas and Electric Company (PG&E) Topock Compressor Station located in Needles, California (the Site). In December 2021, startup began for Phase 1 of the groundwater remedy system, including start of National Trails Highway in-situ reactive zone (IRZ) system operation, maintenance, and monitoring to address hexavalent chromium in groundwater. Operation of the IRZ injection and extraction wells continued in Fourth Quarter 2023.

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 2023 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
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Topock Project Executive Abstract

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Is this a regulatory requirement?	☒ Yes ☐ No If no, why is the document needed?
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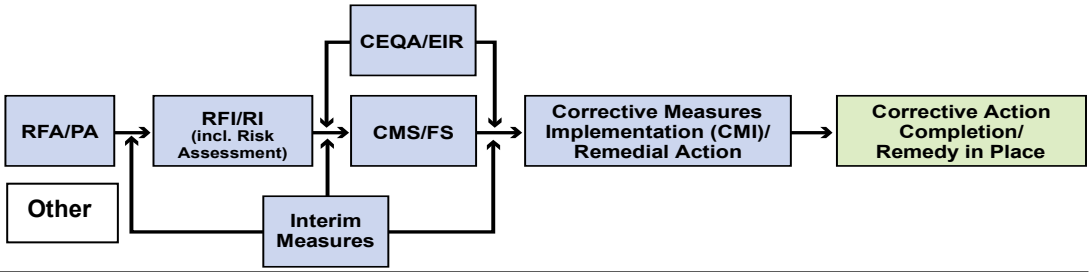
Other Justification/s:	☐ Permit ☐ Other / Explain:
Brief Summary of Attached Document:	In December 2021, startup began for Phase 1 of the groundwater remedy system, including start of National Trails Highway in-situ reactive zone (IRZ) system operation, maintenance, and monitoring to address hexavalent chromium in groundwater. Operation of the IRZ injection and extraction wells continued in Fourth Quarter 2023. 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 2023 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

ARCADIS

Pacific Gas and Electric Company

Fourth Quarter 2023 Well Performance Report

Topock Compressor Station

Needles, California

March 27, 2024

Fourth Quarter 2023 Well Performance Report

Topock Compressor Station

Needles, California

March 27, 2024

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Contents

Acronyms and Abbreviations iv
1 Introduction 1
2 NTH IRZ Well Maintenance Program 3
2.1 Routine Maintenance 3
2.2 Long-Term Performance Tracking 3
2.2.1 Specific Capacity Monitoring 4
2.2.2 Water Quality Monitoring 5
3 NTH IRZ Well Performance 6
3.1 System Operation Summary 6
3.2 NTH IRZ Extraction Well Performance 7
3.2.1 Extraction Well O&M and Specific Capacity Summary 7
3.2.2 Extraction Well Inspections 8
3.2.3 Extraction Well Water Quality 8
3.2.4 PTI-1D Operations 9
3.3 NTH IRZ Injection Well Performance 10
3.3.1 Well Rehabilitation Procedure 10
3.3.2 Wellhead Dosing Procedure 11
3.3.3 Injection Well O&M and Specific Capacity Summary 11
3.3.4 Injection Well Inspections 13
3.3.5 Injection Well Water Quality 13
4 Monitoring Well Performance 14
4.1 Wellhead Condition 14
4.2 Turbidity 14
4.3 Depth to Well Bottom 14
4.4 Specific Capacity 15
4.5 Response to Monitoring Well Performance Evaluation 15
5 Recommendations and Planned Activities for Next Reporting Period 16
6 References 17

Exhibits (in text)

Exhibit 2.1 Routine Maintenance Matrix for Injection and Extraction Wells

Exhibit 2.2 Performance Monitoring Frequencies

Exhibit 3.1 Fourth Quarter 2023 NTH IRZ Extraction Well Analytical Results

Tables

Table 3.1 Summary of NTH IRZ Well Operations

Table 3.2 NTH IRZ System Operations and Non-Routine Maintenance Log

Table 3.3 Summary of NTH IRZ Well Specific Capacities

Table 3.4 Fourth Quarter 2023 Water Quality Field Parameters

Table 4.1 Monitoring Well Inspection Results

Table 4.2 Monitoring Well Water Levels and Specific Capacities

Figures

Figure 1.1 Partial Remedy System Layout

Figure 3.1 Extraction Well Specific Capacity Trends

Figure 3.2 Injection Well Specific Capacity Trends Part 1

Figure 3.3 Injection Well Specific Capacity Trends Part 2

Figure 3.4 Injection Well Specific Capacity Trends Part 3

Figure 4.1 Monitoring Well Network

Appendix

Appendix A Laboratory Report, Fourth Quarter 2023

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 and Construction/Remedial Action Work Plan for the Final Groundwater Remedy
gpm	gallons per minute
IRZ	in-situ reactive zone
mg/L	milligrams per liter
NTH	National Trails Highway
NTU	nephelometric turbidity unit
O&M	operation and maintenance
PG&E	Pacific Gas and Electric Company
Site	PG&E Topock Compressor Station, located in eastern San Bernardino County, 15 miles southeast of the City of Needles, California
TCS	Topock Compressor Station
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 (TCS) 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 TCS 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 TCS (DTSC and DOI 2011). In a coordinated effort, the Agencies selected the final groundwater remedy to address chromium 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 final 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 in December 2021 sufficient for initial system startup. The design was modified during construction to accommodate 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 to Phase 2 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 single intervals by packers. The NTH IRZ extraction wells include IRZ-9, IRZ-13S, IRZ-13D, IRZ-23, and newly added 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/upper middle), IRZ-27 (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 the start of NTH IRZ system operation, maintenance, and monitoring. O&M are being performed in accordance with the O&M Manual (Appendix L, Volume 1; CH2M Hill 2015a). This report documents well maintenance and well performance from October 1 to December 31, 2023 (the Fourth Quarter 2023). 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 for the NTH IRZ remedial wells.

- Section 4 summarizes monitoring well performance.
- Section 5 provides recommendations for modifications to the well maintenance program and planned activities for the next 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 the initially planned maintenance for NTH IRZ wells. 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 planned to occur weekly during operations. Mechanical rehabilitation physically agitates and removes dislodged and detached deposits. Chemical rehabilitation uses additives to remove deposits (for example, by increasing solubility). Mechanical and chemical rehabilitation was planned to occur after periods of extended injection well operation and before planned extended downtime (approximately every 6 months to 1.5 years). The frequencies of injection well rehabilitation initially planned are presented in Exhibit 2.1 in this section, but frequency or manner of application may change in response to well performance monitoring data as detailed in Section 2.2. Extraction wells are less prone to fouling and, as such, the frequency of routine rehabilitation is significantly lower than for the injection wells. The O&M Manual (Appendix L, Volume 1; CH2M Hill 2015a) recommended mechanical rehabilitation (i.e., pumping and surging) for routine maintenance as needed. 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
Weekly	6 months to 1.5 years	As needed

2.2 Long-Term Performance Tracking

The purpose of well performance tracking is to assess the frequency and methods required for well maintenance, report well performance trends, and identify potential performance declines within the IRZ system and monitoring wells. Routine preventative maintenance is performed regularly to aid in maintaining well health as described in Section 2.1. Long-term performance monitoring consists of specific capacity monitoring, water quality monitoring, and wellhead inspection. Exhibit 2.2 in this section presents the 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 total organic carbon (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 parameter screening includes 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), calcium, potassium, magnesium, sodium (total), chloride, fluoride, bromide, nitrate, nitrite, sulfate, alkalinity (total, carbonate, and bicarbonate), and hardness as calcium carbonate. Parameters measured during baseline only include Title 22 metals (total and dissolved), sulfide, phosphate, total phosphorus, silica, ammonia as nitrogen, total Kjeldahl nitrogen, and biochemical oxygen demand.

2.2.1 Specific Capacity Monitoring

One measure that will be used to assess well performance is a specific capacity evaluation. The specific capacity for each extraction, injection, and monitoring 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 = gallons 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 below. Extraction well IRZ-9 and injection wells IRZ-21 and IRZ-25 did not operate continuously in 2022 or in 2023; therefore, sufficient data were not available to establish baselines for these wells. IRZ-39 operated for most of First Quarter 2023; however, IRZ-39 flowrates were low and unsustainable. IRZ-39 is not currently needed for treatment based on Cr6 concentrations at nearby performance monitoring wells, as discussed in the First Quarter 2023 Quarterly Progress Report (Arcadis 2023b); therefore, this well remained offline following the mid-March 2023 storm. Baseline capacities were established for IRZ-15 (upper) and IRZ-15 (lower) in Second Quarter 2023 and Third Quarter 2023, respectively, following continuous operation at 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 following approximately 2 months of operation.

Static water levels were collected for each injection and extraction well during well development. There is a natural variation in static water level depending on the time of year. To account for this natural variation, the static water levels collected before system operation were adjusted by the typically observed difference in water levels at time of development and in January, which is the month in which water levels are at their lowest at the Site. Specific capacity values may be affected by planned IRZ operational changes such as setting a new target flowrate. Where this occurs, baseline specific capacity values may be adjusted.

Starting in Third Quarter 2022, specific capacities for each well were calculated monthly and compared to the baseline values to assess well performance decline over time. As presented in the O&M Manual (Appendix L, Volume 1; CH2M Hill 2015a), specific capacities greater than or equal to 90 percent of the baseline capacities will be classified as having good performance; specific capacities that fall between 80 and 90 percent of the baseline capacities will be classified as having fair performance; specific capacities below 80 percent of the baseline capacities will be classified as having poor performance. Specific capacities that fall below 80 percent of the baseline capacities will be flagged as needing evaluation and potential additional maintenance such as increasing the frequency of backwashing or rehabilitation. Specific capacity data collected during operations are presented in Section 3. Additional data evaluation and establishment of baseline specific capacities for the remaining injection wells (IRZ-21, IRZ-25, and IRZ-39) will occur once those wells have been operating continuously and specific capacities stabilize.

2.2.2 Water Quality Monitoring

Water quality monitoring, including field parameter collection and sampling, provides information on system status, which may help diagnose well clogging issues and provide information for designing 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; CH2M Hill 2015a). Additionally, extraction wells were sampled quarterly during Fourth Quarter 2023 as stated in Exhibit 2.2 and in alignment with expectations in the O&M Manual (Appendix L, Volumes 1 and 2; CH2M Hill 2015a) for extraction of constituents associated with in-situ injections including TOC and dissolved metals. Samples were collected and analyzed according to standard operating procedures presented in Appendix B to the Phase 1 Interim Monitoring Plan (Arcadis 2021) and the PG&E Program Quality Assurance Project Plan (CH2M Hill 2014; Critigen 2020). Sample results are discussed in Sections 3.2.2 and 3.3.2 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 the Fourth Quarter 2023.

3.1 System Operation Summary

Throughout Fourth Quarter 2023, routine operation of the IRZ system continued with IRZ-23 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. On November 2, 2023, construction of extraction well PTI-1D was completed and the well was brought online along with extraction wells IRZ-13S and IRZ-13D.

On September 15, 2023, IRZ-23 was upgraded to allow for increased extraction rates between 120 to 140 gpm. IRZ-23 operated at these increased extraction rates from September 15 to November 2, 2023. PG&E began groundwater extraction from PTI-1D on November 2, 2023 at an extraction rate of 30 gpm in accordance with the PTI-1D Floodplain Extraction Test Work Plan (Arcadis 2023d). When PTI-1D was brought online, the flowrate at extraction well IRZ-23 decreased to a target of 65 gpm, and extraction wells IRZ-13S and IRZ-13D were brought online at approximately 20 to 30 gpm (split between both wells). Operation during Fourth Quarter 2023 prioritized maximizing extraction flowrates at IRZ-23 and PTI-1D for plume control; therefore, the primary focus was ensuring that all IRZ injection wells operated at their target flowrates. System runtime, ethanol, and recirculated groundwater injection volumes and flowrates, and average flowrates, are summarized in Table 3.1. An IRZ system operations and non-routine maintenance log is presented as Table 3.2. Further discussion regarding plume control and the decision to adjust extraction flowrates is provided in the Fourth Quarter 2023 Quarterly Progress Report (Arcadis 2023a).

From October through early November 2023, ethanol was injected into operational injection wells once weekly while the system was operating at a dose of approximately 26 milligrams per liter (mg/L) TOC time-weighted target average. By November 9, 2023, the injection wells that exhibited reduced performance were rehabilitated and brought back online at target flowrates, which allowed the ethanol dosing frequency to return to twice weekly in the southern wells. Therefore, the amount of ethanol dosed per week was a time-weighted target average of 60 mg/L TOC. The northern injection wells continued to be dosed one time per week.

Chemical and mechanical well rehabilitation of the operating northern and southern 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) occurred from September 25 to December 20, 2023. Chemical application at the wellhead was trialed at injection wells IRZ-31 and IRZ-37 during Third Quarter 2023. The results of the wellhead chemical application were positive, which led to routine implementation of this method at two to three well intervals weekly. Further discussion regarding well performance, rehabilitation, and well maintenance is provided in Table 3.2 and Section 3.3.

Average systemwide uptime was 99 percent in Fourth Quarter 2023[1]. The following notable events occurred in Fourth Quarter 2023:

- Injection wells IRZ-16 (upper), IRZ-17 (upper), IRZ-18 (upper), and IRZ-20 (upper) were off for the majority of Third Quarter 2023 because northern shallow wells had been operating for approximately 16 months to build

[1] Systemwide uptime is calculated using total run time hours (run time in hours are calculated from extraction well operating hours during the month) divided by total possible run time hours in Fourth Quarter 2023.

reducing capacity, and sample results indicated that treatment objectives were met. IRZ-16 (upper), IRZ-17 (upper), and IRZ-20 (upper) were brought back online at the end of September 2023 to maximize the extraction rate at IRZ-23 once the upgrades were complete. IRZ-18 (upper) was brought online at the end of October 2023. All wells remained online through the remainder of Fourth Quarter, except for a one- to two-week period for rehabilitation of each well.

- On December 22 and 23, 2023, extraction wells IRZ-13S, IRZ-13D, and IRZ-23 and most injection wells (IRZ-18 [upper], IRZ-27 [upper/middle], IRZ-29, IRZ-31, IRZ-33, IRZ-35, and IRZ-27) were shut down for 9 hours due to rainwater infiltration in the IRZ-35 and IRZ-37 metering vault. Extraction well PTI-1D remained operational and fed 34 gpm into injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18 (lower), IRZ-20, and IRZ-27 (lower) during the 9-hour period.

3.2 NTH IRZ Extraction Well Performance

Extraction wells in Phase 1 of the groundwater remedy include IRZ-9, IRZ-13S, IRZ-13D, IRZ-23, and PTI-1D. Extraction well run time, including monthly average extraction well flowrates and average water levels, is documented in Table 3.1. A discussion of observed extraction well performance in Fourth Quarter 2023 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 been established for extraction well IRZ-9 due to limited and inconsistent operation during 2022 and 2023.

Extraction well specific capacities calculated during Fourth Quarter 2023 are documented in Table 3.3. Graphs of average daily specific capacity for extraction wells IRZ-13S, IRZ-13D, IRZ-23, and PTI-1D during this period are presented on Figure 3.1. Average daily specific capacities are presented as percentages compared to the baseline specific capacities for each well. Extraction well IRZ-23 operated throughout October 2023 at approximately 120 to 130 gpm, resulting in increased specific capacity. On November 2, 2023, the target flowrate at IRZ-23 was reduced to 65 gpm to accommodate the additional extraction at PTI-1D. The reduced specific capacity at IRZ-23 observed in November and December 2023 corresponds to the reduced flowrate and does not indicate fouling because the specific capacity steadily increased as the water levels restabilized at the lower extraction rate. Extraction wells IRZ-13S and IRZ-13D operated in November and December 2023 to accommodate increased injection flowrates from southern injection wells returning to operation following rehabilitation. IRZ-13S and IRZ-13D primarily operated below 80 percent baseline capacity in Fourth Quarter 2023. The low specific capacities reflect the low target flowrates (varying from 5 gpm to 30 gpm per well throughout the quarter) and do not indicate fouling. Extraction well PTI-1D began operation in November 2023, and a baseline capacity was established using December 2023 data, when water levels stabilized following continuous operation.

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 2023.

3.2.2 Extraction Well Inspections

Extraction wells are inspected quarterly at 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 as an additional measure to identify maintenance needs in a timely manner. Notable damage to extraction wells and/or non-routine maintenance during Fourth Quarter 2023 included the following:

- On November 8, 2023, the variable frequency drive at IRZ-23 was replaced. Extraction well IRZ-9 operated for approximately 2.7 hours while IRZ-23 was offline for this maintenance.
- In November and December 2023, seven spent bag filters were generated from PTI-1D. The filters were replaced frequently to maintain a 30 gpm flowrate at PTI-1D. A deposit sample was collected from the PTI-1D bag filter on December 26, 2023 to determine fouling composition.
- On December 4, 2023, the PTI-1D pressure transmitter in the Carbon Amendment Building was removed, sealed, and reinstalled after a leak was identified. The reinstallation stopped the leak.

3.2.3 Extraction Well Water Quality

The potential for extraction well fouling resulting from carbon injection is monitored during system operations. This monitoring includes measuring TOC and metal byproduct concentrations at the extraction wells for conditions that may generate well fouling. The Fourth Quarter 2023 Quarterly Progress Report (Arcadis 2023e) 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). Baseline analytical data were collected during December 2021, January 2022, and March 2022, when extraction wells were respectively brought online.

Exhibit 3.1 in this section presents the quarterly analytical results from extraction wells IRZ-9, IRZ-23, IRZ-13S, I RZ-13D, and PTI-1D for Fourth Quarter 2023 and includes the baseline analytical results of key indicator parameters as a reference. The extraction wells were sampled in November 2023 (quarterly); however, IRZ-23 was also sampled in October 2023 to evaluate the influence of increased extraction on this extraction well. Extraction well IRZ-9 was not operated in Fourth Quarter 2023, except for approximately 2.7 hours in November 2023 to accommodate maintenance work at IRZ-23. PTI-1D was sampled in November 2023 and December 2023. At the extraction wells, TOC, total iron, dissolved iron, and dissolved manganese concentrations were generally lower than the reporting limits and/or baseline concentrations, with a few isolated exceptions. The isolated detections do not indicate a consistent trend that would be of concern for causing well fouling. Therefore, no adjustments to operations were needed in Fourth Quarter 2023. The iron and manganese results for PTI-1D are further discussed in Section 3.2.4.

Exhibit 3.1. Fourth Quarter 2023 NTH IRZ Extraction Well Analytical Results

Extraction Well	Sample Date	Active Time Operating (percent)	Total Organic Carbon 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

Extraction Well	Sample Date	Active Time Operating (percent)	Total Organic Carbon Method 5310B (mg/L)	Total Iron (mg/L)	Dissolved Iron (mg/L)	Dissolved Manganese (mg/L)
IRZ-9	November 2023	0.4	Less than 1	Less than 0.02	Less than 0.02	0.0016
IRZ-23	Baseline: December 2021	8	--	0.69	0.091 J	Less than 0.0005
IRZ-23	October 2023	97	--	0.02	Less than 0.02	Less than 0.0005
IRZ-23	November 2023	99	Less than 1	Less than 0.02	Less than 0.02	Less than 0.0005
IRZ-13S	Baseline: March 2022	53	--	0.06	Less than 0.02	Less than 0.0005
IRZ-13S	November 2023	89	Less than 1	Less than 0.02	Less than 0.02	Less than 0.0005
IRZ-13D	Baseline: March 2022	53	--	Less than 0.02	0.059	0.062
IRZ-13D	November 2023	89	Less than 1	0.033	0.026	0.00064
PTI-1D	November 2023	94	--	1.3	1.1	4.2 J
PTI-1D	December 2023	99	--	1.9 J	0.19	0.99 J

Notes:
--= not analyzed
J = estimated concentration

Table 3.4 includes field parameter data (temperature, pH, specific conductance, turbidity, dissolved oxygen, and redox potential) for extraction wells IRZ-13S, IRZ-13D, and IRZ-23 collected during Fourth Quarter 2023.

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 Work Plan (Arcadis 2023d), to improve hydraulic control of the Cr6 plume and limit potential eastward migration. PTI-1D has been running at a target extraction flowrate of 30 gpm since it was turned on.

The PTI-1D Floodplain Extraction Test Work Plan 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 (Arcadis 2023d). In Fourth Quarter 2023, hydraulic and analytical data were collected and evaluated against the metrics, as described in the Fourth Quarter 2023 Quarterly Progress Report (Arcadis 2023a). Results relevant to PTI-1D well operations, maintenance, and performance are described below.

- *Sustainable PTI-1D extraction*. Sustainable extraction at PTI-1D is defined by 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 stabilized following two months of sustained operation. Specific capacity was maintained at PTI-1D through the end of December 2023 and will continue to be monitored in First Quarter 2024. PTI-1D was sampled for dissolved manganese and dissolved

iron in November 2023 and December 2023 to evaluate concentrations during active extraction at PTI-1D. Dissolved manganese and dissolved iron concentrations decreased from 4.2 mg/L and 1.1 mg/L in November 2023 to 0.99 mg/L and 0.19 mg/L in December 2023, respectively (see Exhibit 3.1). Although decreasing, the elevated dissolved manganese and dissolved iron could contribute to fouling. Therefore, in addition to sampling, the filter bags at PTI-1D were checked and replaced (if necessary) weekly at minimum. Bag filter replacements are noted in Table 3.2. On December 12, 2023, the flowrate at PTI-1D decreased, indicating that the extraction well was beginning to foul. Red (presumably iron) precipitates were observed in the bag filter, but biological (slimy) material indicating microbial growth was not observed. The bag filter was replaced, and the flowrates returned to target. Following that incident, the flowrates at PTI-1D were carefully monitored and bag filters were replaced twice weekly at minimum. On December 26, 2023, a deposit sample was collected from the PTI-1D bag filter to analyze fouling composition. Lab results confirmed that the majority of the deposits are iron, and that there are not excess iron and manganese oxidizing bacteria contributing to fouling, consistent with field observations of the bag filters. The lab report is included as Appendix A. In First Quarter 2024, PTI-1D bag filters will continue to be checked and replaced twice weekly at minimum. Biological fouling by iron and manganese oxidizing bacteria can be difficult to control; therefore, the lack of growth of these organisms is promising. Results of filter change-outs to date indicate this management practice is working, and operations of PTI-1D are so far sustainable.

3.3 NTH IRZ Injection Well Performance

Injection wells of the Phase 1 groundwater remedy include 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 well flowrates and average water levels, is documented in Table 3.1. A discussion of observed injection well performance and procedures implemented in Fourth Quarter 2023 is provided in the following subsections.

3.3.1 Well Rehabilitation Procedure

Well rehabilitation was performed on injection well IRZ-27 in Third Quarter 2023 and on the remaining injection wells (IRZ-15, IRZ-16, IRZ-17, IRZ-18, IRZ-20, IRZ-29, IRZ-31, IRZ-33, IRZ-35, and IRZ-37) in Fourth Quarter 2023.

Rehabilitation for each well involved the following process:

- 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. Inspect equipment during removal 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 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. 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. Downwell camera surveys and well performance following previous well rehabilitation events suggest that the previous rehabilitation procedures have been effective at treating fouling within the well

casing but ineffective at treating fouling in the filter pack. Adding jetting to the procedure is intended to distribute the chemical solution further into the filter pack and reduce fouling in the filter pack.

- If using a packer, install packer following jetting and swabbing of the chemicals in all screens.
- Allow the chemicals to sit in the well overnight. The following day, check pH of screen intervals.
- Once pH is above 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.

3.3.2 Wellhead Dosing Procedure

In Fourth Quarter 2023, wellhead dosing was performed on IRZ-18, IRZ-27 (upper/middle), IRZ-31, IRZ-35, and IRZ-37. 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 2023f), potential advantages of implementing wellhead dosing as an additional well maintenance strategy include the ability to inject reagent further into the filter pack than the original rehabilitation procedure that did not include jetting, the reduced intrusiveness compared to well rehabilitation, and the ability to complete wellhead dosing at increased frequency compared to well rehabilitation.

Wellhead dosing for each well involved the following process:

- Deliver chemical solution of NuWell phosphoric acid and NuWell biodispersant into the injection well injection pipe using a peristaltic pump. Immediately following injection of chemical solution, inject well with recirculated groundwater from the IRZ system.
- Turn off injection well and let sit overnight.
- The following day, inject 250 gallons of remedy water from the IRZ system into each screen. Bump the backwash pump in each screen interval to collect a pH reading in the sampling port in the metering vault.
    - If pH is below 2.0: Add 250 gallons of remedy water to buffer. Wait 30 minutes, then retest pH using backwash pump.
    - If pH is above 2.0: Purge approximately 2,000 gallons of water from each screen interval. Collect pH readings every 5 minutes until pH shows clear increasing trend. Operation of backwash pump will be monitored from control room, and purge will be stopped when water level decreases below 10 feet above the pump to prevent cycling. Pumping will resume after water level recovers. Collect final pH reading at the end of the 2,000-gallon purge. Additionally, collect pH reading of 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.

3.3.3 Injection Well O&M and Specific Capacity Summary

Injection wells operating at the beginning of Fourth Quarter 2023 included IRZ-15, IRZ-16, IRZ-17, IRZ-18 (lower), IRZ-20, IRZ-27, IRZ-29, IRZ-31, IRZ-33, IRZ-35, and IRZ-37. IRZ-18 (upper) was brought online on October 26, 2023 shortly after rehabilitation was completed. Injection wells IRZ-21, IRZ-25, and IRZ-39 remained offline throughout the quarter.

Routine injection well maintenance during Fourth Quarter 2023 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 planned once weekly backwash described in Section 2.1, to proactively manage the well health and water levels at injection wells.

Routine operation for injection wells includes daily monitoring of injection well flowrates and water levels. Corresponding injection well average monthly specific capacities, calculated from Fourth Quarter 2023 operational data, are documented in Table 3.3. Graphs of average daily specific capacities for injection wells operating from Third Quarter 2022 through Fourth Quarter 2023 are plotted on Figures 3.2 through 3.4. Average specific capacities are plotted as percentage values compared to the baseline specific capacities established in 2022 and 2023. In the BOD, values between 80 and 90 percent were considered fair and were specified as values to indicate that backwashing frequency should increase to once every 0.75 week. Values below 80 percent were considered poor and indicated that backwashing frequency should increase or additional well maintenance should be considered to manage fouling. As operations began in 2022 and carried into 2023, the BOD metrics have indicated that the baseline program of once-a-week backwashing and well rehabilitation every 6 months are insufficient. The well maintenance program is being improved in response to the overall specific capacity trends. The specific capacity trends are proving more useful than specific percentage thresholds specified in the BOD for maintaining performance.

In response to reduced specific capacities observed in Third Quarter 2023, a third round of mechanical and chemical rehabilitation (with a modified procedure) was conducted from September 25, 2023 through December 17, 2023. Rehabilitation was conducted following approximately 3 to 4 months of operation after the second round of rehabilitation (for IRZ-18 and southern injection wells) and 6 to 9 months of operation after the first round of rehabilitation (for northern injection wells). As described in Section 3.3.1, jetting was added to the rehabilitation procedure during Third and Fourth Quarter 2023 to deliver chemicals further into the filter pack.

Well performance following rehabilitation using the modified procedure resulted in larger improvements than those observed following previous rehabilitation events, as shown by the higher specific capacities achieved in Fourth Quarter 2023 on Figures 3.2 through 3.4, with many wells improving over baseline (greater than 100 percent) after rehabilitation. Although the updated procedure was effective at improving and prolonging well health for the majority of wells, some wells (IRZ-18, IRZ-27, IRZ-31, and IRZ-37) began to foul after approximately 1 to 2 months of operation following rehabilitation. In 2024, quarterly mechanical and chemical rehabilitation will be conducted at injection wells IRZ-18, IRZ-27, IRZ-31, and IRZ-37 using the improved rehabilitation procedure to maintain well performance. Mechanical and chemical rehabilitation will be conducted on the remaining injection wells (IRZ-15, IRZ-16, IRZ-17, IRZ-20, IRZ-29, IRZ-33, and IRZ-35) every 4 to 5 months based on prolonged performance observed following Fourth Quarter 2023 rehabilitation.

As an additional well maintenance strategy, wellhead dosing was conducted in Third and Fourth Quarter 2023 with positive results. The procedure used is described in Section 3.3.2. The wellhead dosing procedure was first implemented on IRZ-31 and IRZ-37 in Third Quarter 2023. Following wellhead dosing, water levels declined and the injection wells that were dosed (IRZ-31 and IRZ-37) were increased to their target flowrates, sustaining operations and improving specific capacities. In Fourth Quarter 2023, wellhead dosing was performed on IRZ-31 and IRZ-37 again following rehabilitation and on additional injection wells (IRZ-18, IRZ-27 (upper/middle), and IRZ-35). Given the improvement in specific capacity from wellhead dosing, the procedure will be implemented on a routine schedule starting in First Quarter 2024. The frequency of wellhead dosing for each well will vary depending on injection well performance, though wells will on average be dosed every 3 to 8 weeks.

3.3.4 Injection Well Inspections

Injection wells are inspected quarterly at 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 as an additional measure to identify maintenance needs in a timely manner. Notable damage to injection wells and/or non-routine maintenance during Fourth Quarter 2023 included the following:

- On November 14, 2023, injection well IRZ-27 was shut down to replace the packer and motor. The well returned to operation on November 15, 2023.
- On November 30, 2023, a downwell camera survey was conducted at IRZ-15 to determine if branches observed on the drop pipe during well rehabilitation indicated compromised casing integrity. The camera survey showed the well casing intact and in good condition.
- On December 26, 2023, a deposit sample was collected from injection well y-strainers to analyze fouling composition.

3.3.5 Injection Well Water Quality

The potential for well fouling at IRZ injection wells as the result of carbon injection is monitored during system operation. 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 indicates that the monitoring well screen and filter pack are intact and functioning.
- Depth to bottom of the well indicates infill (siltation).
- Specific capacity evaluation confirms 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 in the field tablet. The inspection results are presented in Table 4.1. Overall, the wellheads were in good condition in Fourth Quarter 2023.

4.2 Turbidity

In accordance with Section 4.2.4 of the O&M Manual (Appendix L, Volume 1; CH2M Hill 2015a), wells that consistently yield turbidity above the range of 20 to 30 nephelometric turbidity units (NTUs) will undergo additional evaluation to determine if redevelopment is warranted, potentially including evaluation of previous purge data, specific capacity, and longer-term pressure transducer data. Turbidity data are presented in Table 3.4. A summary of monitoring wells that exhibited turbidity above 30 NTUs is provided below.

Monitoring wells MW-24B, MW-35-060, MW-35-135, MW-39-060, MW-60-125, MW-72-080, MW-75-033, MW-77-102, MW-78-070, MW-79-102, MW-81-043, MW-82-046, MW-93-050, and MW-97-042 yielded turbidity readings greater than 30 NTU in three consecutive sampling events. 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

Depths to bottom are measured manually during sampling events 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 depth for consecutive sampling events suggests 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. There were no new wells recommended for redevelopment in Fourth Quarter 2023 based on this criterion. Refer to Table 4.2 for ongoing issues of monitoring wells that are not recommended for redevelopment as discussed in the Second Quarter 2023 Well Performance Report (Arcadis 2023c).

4.4 Specific Capacity

Purging is 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. If drawdown of greater than 1 foot is observed for a fluvial or alluvial well, 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. No wells were identified for potential rehabilitation in Fourth Quarter 2023 based on this criterion.

4.5 Response to Monitoring Well Performance Evaluation

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

In Second Quarter 2023, during bailing at MW-28-025, MW-30-030, and MW-39-040, sediment infiltrated the well and inhibited the ability to effectively remove sediment and complete redevelopment. Due to the high volume of sediment, the surge block at MW-30-030 became stuck and could not be removed by jetting and mechanical means. Additionally, during attempted surge block removal, the well casing and monument moved approximately 3 inches, causing the field team to cease efforts to retrieve the surge block.

Well MW-30-030 was over-drilled and replaced with new well MW-30-030R in October 2023. Updated well construction details are provided in the Fourth Quarter 2023 Quarterly Progress Report (Arcadis 2024). Additionally, a new well pad was installed at MW-30-050 in October 2023.

As a result of the experiences at MW-28-025, MW-30-030, and MW-39-040, the following adjustments were implemented following Second Quarter 2023 redevelopment and will continue moving forward:

- Wells will be 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, will not be 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 will not be considered for future redevelopment.

Based on Fourth Quarter 2023 monitoring well inspection results, no monitoring wells are planned for resurvey or redevelopment in First Quarter 2024.

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 2024 (January to March 2024) in accordance with the O&M Manual (Appendix L, Volume 1; CH2M Hill 2015a) and Phase 1 Interim Monitoring Plan (Arcadis 2021). Arcadis recommends the following modifications to the well maintenance program:

- Complete quarterly mechanical and chemical rehabilitation at injection wells IRZ-18, IRZ-27, IRZ-31, and IRZ-37 using the updated rehabilitation procedure.
- 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.
- Implement routine wellhead chemical application at injection wells to prolong well performance between rehabilitation events.

In addition to routine groundwater remedy operations and monitoring, the following activities related to well performance are planned for First Quarter 2024:

- Continue operation of target extraction and injection wells.
- Continue quarterly extraction and injection well monitoring to evaluate the potential for well fouling of the IRZ injection wells.
- Continue three times weekly injection well backwashing during operation.
- Monitor average specific capacities for remedial and monitoring wells to determine if additional maintenance is needed.
- Continue quarterly inspections of sampled monitoring wells.

Well performance monitoring will be reported in a First Quarter 2024 Well Performance Report. A First Quarter 2024 Quarterly Progress Report will also be submitted to document operations and monitoring results in accordance with the O&M Manual (Appendix L, Volume 1; CH2M Hill 2015a).

6 References

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Tables

Table 3.1
Summary of NTH IRZ Well Operations
Fourth Quarter 2023 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-23	--	--	--	--	--
IRZ-15	Upper	Injection	Feb-23	--	--	--	--	--
IRZ-15	Upper	Injection	Mar-23	209,677	22	547	74	6.4
IRZ-15	Upper	Injection	Apr-23	249,997	18	648	90	6.4
IRZ-15	Upper	Injection	May-23	221,166	17	599	81	6.2
IRZ-15	Upper	Injection	Jun-23	219,524	20	615	85	5.9
IRZ-15	Upper	Injection	Jul-23	241,926	16	644	87	6.3
IRZ-15	Upper	Injection	Aug-23	189,775	17	487	65	6.5
IRZ-15	Upper	Injection	Sep-23	246,561	16	640	89	6.4
IRZ-15	Upper	Injection	Oct-23	195,641	13	719	97	4.5
IRZ-15	Upper	Injection	Nov-23	27,337	0.93	246	34	1.9
IRZ-15	Upper	Injection	Dec-23	595,215	41	659	89	15.1
IRZ-15	Lower	Injection	Jan-23	--	--	--	--	--
IRZ-15	Lower	Injection	Feb-23	--	--	--	--	--
IRZ-15	Lower	Injection	Mar-23	--	--	--	--	--
IRZ-15	Lower	Injection	Apr-23	204,824	16	260	36	13
IRZ-15	Lower	Injection	May-23	503,129	36	599	81	14
IRZ-15	Lower	Injection	Jun-23	636,661	58	616	86	17
IRZ-15	Lower	Injection	Jul-23	579,185	39	644	87	15
IRZ-15	Lower	Injection	Aug-23	388,099	34	485	65	13
IRZ-15	Lower	Injection	Sep-23	506,905	34	637	88	13
IRZ-15	Lower	Injection	Oct-23	591,197	42	719	97	14
IRZ-15	Lower	Injection	Nov-23	311,294	17	389	54	13
IRZ-15	Lower	Injection	Dec-23	254,388	17	660	89	6.4
IRZ-16	Upper	Injection	Jan-23	179,946	28	577	78	5.2
IRZ-16	Upper	Injection	Feb-23	93,902	13	320	48	4.9
IRZ-16	Upper	Injection	Mar-23	184,780	28	652	88	4.7
IRZ-16	Upper	Injection	Apr-23	202,478	25	696	97	4.8
IRZ-16	Upper	Injection	May-23	117,004	9.2	663	89	2.9
IRZ-16	Upper	Injection	Jun-23	114,041	16	651	90	2.9
IRZ-16	Upper	Injection	Jul-23	41,861	2.3	219	29	3.2
IRZ-16	Upper	Injection	Aug-23	--	--	--	--	--
IRZ-16	Upper	Injection	Sep-23	26,346	2.7	106	15	4.1
IRZ-16	Upper	Injection	Oct-23	131,508	10	719	97	3.0
IRZ-16	Upper	Injection	Nov-23	72,721	5.0	689	96	1.8
IRZ-16	Upper	Injection	Dec-23	132,729	6.6	439	59	5.0
IRZ-16	Lower	Injection	Jan-23	368,129	59	579	78	11
IRZ-16	Lower	Injection	Feb-23	175,091	24	306	46	10
IRZ-16	Lower	Injection	Mar-23	391,682	60	669	90	10
IRZ-16	Lower	Injection	Apr-23	437,161	53	709	98	10
IRZ-16	Lower	Injection	May-23	447,822	57	729	98	10
IRZ-16	Lower	Injection	Jun-23	417,451	56	695	97	10
IRZ-16	Lower	Injection	Jul-23	438,115	46	693	93	11
IRZ-16	Lower	Injection	Aug-23	322,725	34	513	69	10
IRZ-16	Lower	Injection	Sep-23	404,893	27	645	90	10
IRZ-16	Lower	Injection	Oct-23	442,529	33	717	96	10
IRZ-16	Lower	Injection	Nov-23	299,897	18	700	97	7.1
IRZ-16	Lower	Injection	Dec-23	258,579	13	447	60	10
IRZ-17	Upper	Injection	Jan-23	123,531	21	317	43	6.5

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-17	Upper	Injection	Feb-23	208,093	32	591	88	5.9
IRZ-17	Upper	Injection	Mar-23	247,211	38	668	90	6.2
IRZ-17	Upper	Injection	Apr-23	267,131	31	709	98	6.3
IRZ-17	Upper	Injection	May-23	223,798	28	730	98	5.1
IRZ-17	Upper	Injection	Jun-23	186,192	27	717	100	4.3
IRZ-17	Upper	Injection	Jul-23	66,365	3.1	226	30	4.9
IRZ-17	Upper	Injection	Aug-23	--	--	--	--	--
IRZ-17	Upper	Injection	Sep-23	36,626	3.5	110	15	5.5
IRZ-17	Upper	Injection	Oct-23	246,030	18	719	97	5.7
IRZ-17	Upper	Injection	Nov-23	135,604	7.9	695	97	3.3
IRZ-17	Upper	Injection	Dec-23	137,332	8.6	401	54	5.7
IRZ-17	Lower	Injection	Jan-23	161,918	28	319	43	8.5
IRZ-17	Lower	Injection	Feb-23	256,180	39	589	88	7.2
IRZ-17	Lower	Injection	Mar-23	173,037	26	666	90	4.3
IRZ-17	Lower	Injection	Apr-23	204,824	24	709	98	4.8
IRZ-17	Lower	Injection	May-23	254,746	32	731	98	5.8
IRZ-17	Lower	Injection	Jun-23	337,549	49	718	100	7.8
IRZ-17	Lower	Injection	Jul-23	320,752	33	694	93	7.7
IRZ-17	Lower	Injection	Aug-23	242,520	25	511	69	7.9
IRZ-17	Lower	Injection	Sep-23	298,115	20	644	89	7.7
IRZ-17	Lower	Injection	Oct-23	387,236	29	719	97	9.0
IRZ-17	Lower	Injection	Nov-23	373,379	22	718	100	8.7
IRZ-17	Lower	Injection	Dec-23	252,383	15	390	52	10.8
IRZ-18	Upper	Injection	Jan-23	230,695	35	600	81	6.4
IRZ-18	Upper	Injection	Feb-23	140,867	17	370	55	6.3
IRZ-18	Upper	Injection	Mar-23	80,539	13	206	28	6.5
IRZ-18	Upper	Injection	Apr-23	--	--	--	--	--
IRZ-18	Upper	Injection	May-23	5,070	--	13	2	6.5
IRZ-18	Upper	Injection	Jun-23	103,561	16	544	76	3.2
IRZ-18	Upper	Injection	Jul-23	14,210	--	108	15	2.2
IRZ-18	Upper	Injection	Aug-23	--	--	--	--	--
IRZ-18	Upper	Injection	Sep-23	3,430	--	22	3	2.6
IRZ-18	Upper	Injection	Oct-23	74,838	7.7	210	28	5.9
IRZ-18	Upper	Injection	Nov-23	117,583	7.2	670	93	2.9
IRZ-18	Upper	Injection	Dec-23	73,900	2.9	497	67	2.5
IRZ-18	Lower	Injection	Jan-23	490,939	74	602	81	14
IRZ-18	Lower	Injection	Feb-23	283,957	39	418	62	11
IRZ-18	Lower	Injection	Mar-23	151,097	23	207	28	12
IRZ-18	Lower	Injection	Apr-23	--	--	--	--	--
IRZ-18	Lower	Injection	May-23	9,360	--	13	2	12
IRZ-18	Lower	Injection	Jun-23	363,173	62	562	78	11
IRZ-18	Lower	Injection	Jul-23	409,395	42	696	94	10
IRZ-18	Lower	Injection	Aug-23	235,470	25	508	68	7.7
IRZ-18	Lower	Injection	Sep-23	275,619	19	625	87	7.3
IRZ-18	Lower	Injection	Oct-23	258,762	19	508	68	8.5
IRZ-18	Lower	Injection	Nov-23	436,156	28	680	94	10.7
IRZ-18	Lower	Injection	Dec-23	375,146	23	720	97	8.7
IRZ-20	Upper	Injection	Jan-23	153,460	21	416	56	6.1
IRZ-20	Upper	Injection	Feb-23	163,940	27	451	67	6.1

Table 3.1
Summary of NTH IRZ Well Operations
Fourth Quarter 2023 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-20	Upper	Injection	Mar-23	221,486	34	661	89	5.6
IRZ-20	Upper	Injection	Apr-23	254,618	30	705	98	6.0
IRZ-20	Upper	Injection	May-23	176,899	23	548	74	5.4
IRZ-20	Upper	Injection	Jun-23	127,028	10	533	74	4.0
IRZ-20	Upper	Injection	Jul-23	16,061	--	108	15	2.5
IRZ-20	Upper	Injection	Aug-23	--	--	--	--	--
IRZ-20	Upper	Injection	Sep-23	78,937	6.3	263	37	5.0
IRZ-20	Upper	Injection	Oct-23	187,847	13	719	97	4.4
IRZ-20	Upper	Injection	Nov-23	83,967	5.2	661	92	2.1
IRZ-20	Upper	Injection	Dec-23	105,338	3.6	434	58	4.0
IRZ-20	Lower	Injection	Jan-23	224,399	33	409	55	9.1
IRZ-20	Lower	Injection	Feb-23	282,155	48	451	67	10
IRZ-20	Lower	Injection	Mar-23	360,442	56	676	91	8.9
IRZ-20	Lower	Injection	Apr-23	347,887	42	679	94	8.5
IRZ-20	Lower	Injection	May-23	256,876	33	547	74	7.8
IRZ-20	Lower	Injection	Jun-23	320,118	49	619	86	8.6
IRZ-20	Lower	Injection	Jul-23	369,320	38	694	93	8.9
IRZ-20	Lower	Injection	Aug-23	277,611	29	507	68	9.1
IRZ-20	Lower	Injection	Sep-23	358,400	24	636	88	9.4
IRZ-20	Lower	Injection	Oct-23	435,625	32	719	97	10.1
IRZ-20	Lower	Injection	Nov-23	447,303	26	718	100	10.4
IRZ-20	Lower	Injection	Dec-23	347,132	22	570	77	10.2
IRZ-21	Upper	Injection	Jan-23	--	--	--	--	--
IRZ-21	Upper	Injection	Feb-23	--	--	--	--	--
IRZ-21	Upper	Injection	Mar-23	--	--	--	--	--
IRZ-21	Upper	Injection	Apr-23	--	--	--	--	--
IRZ-21	Upper	Injection	May-23	--	--	--	--	--
IRZ-21	Upper	Injection	Jun-23	--	--	--	--	--
IRZ-21	Upper	Injection	Jul-23	--	--	--	--	--
IRZ-21	Upper	Injection	Aug-23	--	--	--	--	--
IRZ-21	Upper	Injection	Sep-23	--	--	--	--	--
IRZ-21	Upper	Injection	Oct-23	--	--	--	--	--
IRZ-21	Upper	Injection	Nov-23	--	--	--	--	--
IRZ-21	Upper	Injection	Dec-23	--	--	--	--	--
IRZ-21	Lower	Injection	Jan-23	--	--	--	--	--
IRZ-21	Lower	Injection	Feb-23	--	--	--	--	--
IRZ-21	Lower	Injection	Mar-23	--	--	--	--	--
IRZ-21	Lower	Injection	Apr-23	--	--	--	--	--
IRZ-21	Lower	Injection	May-23	--	--	--	--	--
IRZ-21	Lower	Injection	Jun-23	--	--	--	--	--
IRZ-21	Lower	Injection	Jul-23	--	--	--	--	--
IRZ-21	Lower	Injection	Aug-23	--	--	--	--	--
IRZ-21	Lower	Injection	Sep-23	--	--	--	--	--
IRZ-21	Lower	Injection	Oct-23	--	--	--	--	--
IRZ-21	Lower	Injection	Nov-23	--	--	--	--	--
IRZ-21	Lower	Injection	Dec-23	--	--	--	--	--
IRZ-25	Upper / Upper Middle	Injection	Jan-23	--	--	--	--	--
IRZ-25	Upper / Upper Middle	Injection	Feb-23	--	--	--	--	--
IRZ-25	Upper / Upper Middle	Injection	Mar-23	--	--	--	--	--

Table 3.1
Summary of NTH IRZ Well Operations
Fourth Quarter 2023 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	Apr-23	--	--	--	--	--
IRZ-25	Upper / Upper Middle	Injection	May-23	--	--	--	--	--
IRZ-25	Upper / Upper Middle	Injection	Jun-23	--	--	--	--	--
IRZ-25	Upper / Upper Middle	Injection	Jul-23	--	--	--	--	--
IRZ-25	Upper / Upper Middle	Injection	Aug-23	--	--	--	--	--
IRZ-25	Upper / Upper Middle	Injection	Sep-23	--	--	--	--	--
IRZ-25	Upper / Upper Middle	Injection	Oct-23	--	--	--	--	--
IRZ-25	Upper / Upper Middle	Injection	Nov-23	--	--	--	--	--
IRZ-25	Upper / Upper Middle	Injection	Dec-23	--	--	--	--	--
IRZ-25	Lower	Injection	Jan-23	--	--	--	--	--
IRZ-25	Lower	Injection	Feb-23	--	--	--	--	--
IRZ-25	Lower	Injection	Mar-23	--	--	--	--	--
IRZ-25	Lower	Injection	Apr-23	--	--	--	--	--
IRZ-25	Lower	Injection	May-23	--	--	--	--	--
IRZ-25	Lower	Injection	Jun-23	--	--	--	--	--
IRZ-25	Lower	Injection	Jul-23	--	--	--	--	--
IRZ-25	Lower	Injection	Aug-23	--	--	--	--	--
IRZ-25	Lower	Injection	Sep-23	--	--	--	--	--
IRZ-25	Lower	Injection	Oct-23	--	--	--	--	--
IRZ-25	Lower	Injection	Nov-23	--	--	--	--	--
IRZ-25	Lower	Injection	Dec-23	--	--	--	--	--
IRZ-27	Upper / Upper Middle	Injection	Jan-23	267,621	40	419	56	11
IRZ-27	Upper / Upper Middle	Injection	Feb-23	383,975	56	585	87	11
IRZ-27	Upper / Upper Middle	Injection	Mar-23	177,753	12	314	42	9.4
IRZ-27	Upper / Upper Middle	Injection	Apr-23	--	--	--	--	--
IRZ-27	Upper / Upper Middle	Injection	May-23	--	--	--	--	--
IRZ-27	Upper / Upper Middle	Injection	Jun-23	311,822	46	536	74	9.7
IRZ-27	Upper / Upper Middle	Injection	Jul-23	354,065	40	692	93	8.5
IRZ-27	Upper / Upper Middle	Injection	Aug-23	179,084	19	508	68	5.9
IRZ-27	Upper / Upper Middle	Injection	Sep-23	100,528	4.0	286	40	5.9
IRZ-27	Upper / Upper Middle	Injection	Oct-23	308,131	24	523	70	9.8
IRZ-27	Upper / Upper Middle	Injection	Nov-23	326,599	26	602	84	9.0
IRZ-27	Upper / Upper Middle	Injection	Dec-23	209,544	23	710	95	4.9
IRZ-27	Lower	Injection	Jan-23	187,983	29	419	56	7.5
IRZ-27	Lower	Injection	Feb-23	261,555	39	588	88	7.4
IRZ-27	Lower	Injection	Mar-23	138,665	9.4	316	42	7.3
IRZ-27	Lower	Injection	Apr-23	--	--	--	--	--
IRZ-27	Lower	Injection	May-23	--	--	--	--	--
IRZ-27	Lower	Injection	Jun-23	202,855	43	480	67	7.0
IRZ-27	Lower	Injection	Jul-23	335,696	36	692	93	8.1
IRZ-27	Lower	Injection	Aug-23	244,538	24	510	69	8.0
IRZ-27	Lower	Injection	Sep-23	129,156	4.8	287	40	7.5
IRZ-27	Lower	Injection	Oct-23	247,371	19	524	70	7.9
IRZ-27	Lower	Injection	Nov-23	300,544	29	667	93	7.5
IRZ-27	Lower	Injection	Dec-23	317,168	34	731	98	7.2
IRZ-29	Upper	Injection	Jan-23	307,780	51	601	81	8.5
IRZ-29	Upper	Injection	Feb-23	143,630	20	302	45	7.9
IRZ-29	Upper	Injection	Mar-23	147,814	9.8	318	43	7.7

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Fourth Quarter 2023 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

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IRZ-29	Upper	Injection	Apr-23	--	--	--	--	--
IRZ-29	Upper	Injection	May-23	--	--	--	--	--
IRZ-29	Upper	Injection	Jun-23	--	--	--	--	--
IRZ-29	Upper	Injection	Jul-23	194,939	27	447	60	7.3
IRZ-29	Upper	Injection	Aug-23	221,466	23	509	68	7.3
IRZ-29	Upper	Injection	Sep-23	163,459	9.4	393	55	6.9
IRZ-29	Upper	Injection	Oct-23	312,875	23	717	96	7.3
IRZ-29	Upper	Injection	Nov-23	144,061	9.6	315	44	7.6
IRZ-29	Upper	Injection	Dec-23	337,939	36	725	97	7.8
IRZ-29	Lower	Injection	Jan-23	340,843	55	605	81	9.4
IRZ-29	Lower	Injection	Feb-23	176,202	26	301	45	10
IRZ-29	Lower	Injection	Mar-23	191,367	12	316	42	10
IRZ-29	Lower	Injection	Apr-23	--	--	--	--	--
IRZ-29	Lower	Injection	May-23	--	--	--	--	--
IRZ-29	Lower	Injection	Jun-23	--	--	--	--	--
IRZ-29	Lower	Injection	Jul-23	251,875	35	446	60	9.4
IRZ-29	Lower	Injection	Aug-23	234,683	25	508	68	7.7
IRZ-29	Lower	Injection	Sep-23	199,745	11	392	54	8.5
IRZ-29	Lower	Injection	Oct-23	428,198	32	717	96	10.0
IRZ-29	Lower	Injection	Nov-23	190,876	13	316	44	10.1
IRZ-29	Lower	Injection	Dec-23	468,707	50	726	98	10.8
IRZ-31	Upper	Injection	Jan-23	247,762	39	474	64	8.7
IRZ-31	Upper	Injection	Feb-23	305,888	45	588	88	8.7
IRZ-31	Upper	Injection	Mar-23	147,354	8.8	314	42	7.8
IRZ-31	Upper	Injection	Apr-23	--	--	--	--	--
IRZ-31	Upper	Injection	May-23	--	--	--	--	--
IRZ-31	Upper	Injection	Jun-23	--	--	--	--	--
IRZ-31	Upper	Injection	Jul-23	359,914	36	606	81	9.9
IRZ-31	Upper	Injection	Aug-23	157,794	18	508	68	5.2
IRZ-31	Upper	Injection	Sep-23	112,490	6.5	392	54	4.8
IRZ-31	Upper	Injection	Oct-23	152,899	11	418	56	6.1
IRZ-31	Upper	Injection	Nov-23	378,769	42	708	98	8.9
IRZ-31	Upper	Injection	Dec-23	251,716	20	673	90	6.2
IRZ-31	Lower	Injection	Jan-23	248,563	40	473	64	8.8
IRZ-31	Lower	Injection	Feb-23	304,637	45	588	88	8.6
IRZ-31	Lower	Injection	Mar-23	140,347	8.1	314	42	7.4
IRZ-31	Lower	Injection	Apr-23	--	--	--	--	--
IRZ-31	Lower	Injection	May-23	--	--	--	--	--
IRZ-31	Lower	Injection	Jun-23	--	--	--	--	--
IRZ-31	Lower	Injection	Jul-23	299,528	38	589	79	8.5
IRZ-31	Lower	Injection	Aug-23	236,772	25	508	68	7.8
IRZ-31	Lower	Injection	Sep-23	198,854	11	387	54	8.6
IRZ-31	Lower	Injection	Oct-23	235,280	17	443	60	8.9
IRZ-31	Lower	Injection	Nov-23	360,762	40	709	98	8.5
IRZ-31	Lower	Injection	Dec-23	324,226	24	675	91	8.0
IRZ-33	Upper	Injection	Jan-23	200,646	27	578	78	5.8
IRZ-33	Upper	Injection	Feb-23	196,782	29	586	87	5.6
IRZ-33	Upper	Injection	Mar-23	81,299	4.8	313	42	4.3

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Fourth Quarter 2023 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

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IRZ-33	Upper	Injection	Apr-23	--	--	--	--	--
IRZ-33	Upper	Injection	May-23	--	--	--	--	--
IRZ-33	Upper	Injection	Jun-23	--	--	--	--	--
IRZ-33	Upper	Injection	Jul-23	117,385	11	349	47	5.6
IRZ-33	Upper	Injection	Aug-23	182,385	18	507	68	6.0
IRZ-33	Upper	Injection	Sep-23	138,505	8.0	390	54	5.9
IRZ-33	Upper	Injection	Oct-23	258,142	19	714	96	6.0
IRZ-33	Upper	Injection	Nov-23	151,009	17	410	57	6.1
IRZ-33	Upper	Injection	Dec-23	260,843	28	725	97	6.0
IRZ-33	Lower	Injection	Jan-23	218,603	30	578	78	6.3
IRZ-33	Lower	Injection	Feb-23	211,466	31	586	87	6.0
IRZ-33	Lower	Injection	Mar-23	122,490	8.0	314	42	6.5
IRZ-33	Lower	Injection	Apr-23	--	--	--	--	--
IRZ-33	Lower	Injection	May-23	--	--	--	--	--
IRZ-33	Lower	Injection	Jun-23	--	--	--	--	--
IRZ-33	Lower	Injection	Jul-23	--	--	--	--	--
IRZ-33	Lower	Injection	Aug-23	--	--	--	--	--
IRZ-33	Lower	Injection	Sep-23	124,178	8.0	330	46	6.3
IRZ-33	Lower	Injection	Oct-23	256,482	20	714	96	6.0
IRZ-33	Lower	Injection	Nov-23	147,344	18	409	57	6.0
IRZ-33	Lower	Injection	Dec-23	251,896	28	723	97	5.8
IRZ-35	Upper	Injection	Jan-23	271,265	37	578	78	7.8
IRZ-35	Upper	Injection	Feb-23	195,571	29	426	63	7.7
IRZ-35	Upper	Injection	Mar-23	141,918	9.5	313	42	7.6
IRZ-35	Upper	Injection	Apr-23	--	--	--	--	--
IRZ-35	Upper	Injection	May-23	--	--	--	--	--
IRZ-35	Upper	Injection	Jun-23	--	--	--	--	--
IRZ-35	Upper	Injection	Jul-23	183,289	27	469	63	6.5
IRZ-35	Upper	Injection	Aug-23	184,739	21	484	65	6.4
IRZ-35	Upper	Injection	Sep-23	158,865	9.1	387	54	6.8
IRZ-35	Upper	Injection	Oct-23	227,212	14	515	69	7.4
IRZ-35	Upper	Injection	Nov-23	299,081	35	680	94	7.3
IRZ-35	Upper	Injection	Dec-23	270,454	28	690	93	6.5
IRZ-37	Upper	Injection	Jan-23	156,072	22	578	78	4.5
IRZ-37	Upper	Injection	Feb-23	119,166	19	465	69	4.3
IRZ-37	Upper	Injection	Mar-23	80,268	5.3	313	42	4.3
IRZ-37	Upper	Injection	Apr-23	--	--	--	--	--
IRZ-37	Upper	Injection	May-23	--	--	--	--	--
IRZ-37	Upper	Injection	Jun-23	--	--	--	--	--
IRZ-37	Upper	Injection	Jul-23	122,465	17	469	63	4.4
IRZ-37	Upper	Injection	Aug-23	92,012	10	501	67	3.1
IRZ-37	Upper	Injection	Sep-23	51,602	3.4	287	40	3.0
IRZ-37	Upper	Injection	Oct-23	119,214	7.4	493	66	4.0
IRZ-37	Upper	Injection	Nov-23	178,634	20	713	99	4.2
IRZ-37	Upper	Injection	Dec-23	165,952	15	678	91	4.1
IRZ-39	Upper	Injection	Jan-23	12,763	2.0	159	21	1.3
IRZ-39	Upper	Injection	Feb-23	31,539	4.3	540	80	1.0
IRZ-39	Upper	Injection	Mar-23	5,597	--	164	22	0.57
IRZ-39	Upper	Injection	Apr-23	--	--	--	--	--

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Summary of NTH IRZ Well Operations
Fourth Quarter 2023 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

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IRZ-39	Upper	Injection	May-23	--	--	--	--	--
IRZ-39	Upper	Injection	Jun-23	--	--	--	--	--
IRZ-39	Upper	Injection	Jul-23	--	--	--	--	--
IRZ-39	Upper	Injection	Aug-23	--	--	--	--	--
IRZ-39	Upper	Injection	Sep-23	--	--	--	--	--
IRZ-39	Upper	Injection	Oct-23	--	--	--	--	--
IRZ-39	Upper	Injection	Nov-23	--	--	--	--	--
IRZ-39	Upper	Injection	Dec-23	--	--	--	--	--
IRZ-9	Upper	Extraction	Jan-23	307,046	--	100	13	51
IRZ-9	Upper	Extraction	Feb-23	58,437	--	17	2.6	57
IRZ-9	Upper	Extraction	Mar-23	30,590	--	8.3	1.1	61
IRZ-9	Upper	Extraction	Apr-23	--	--	--	--	--
IRZ-9	Upper	Extraction	May-23	1,231	--	1.0	0.13	21
IRZ-9	Upper	Extraction	Jun-23	--	--	--	--	--
IRZ-9	Upper	Extraction	Jul-23	--	--	--	--	--
IRZ-9	Upper	Extraction	Aug-23	7,197	--	1.7	0.23	71
IRZ-9	Upper	Extraction	Sep-23	21,671	--	4.3	0.60	84
IRZ-9	Upper	Extraction	Oct-23	--	--	--	--	--
IRZ-9	Upper	Extraction	Nov-23	6,757	--	2.6	0.36	43
IRZ-9	Upper	Extraction	Dec-23	--	--	--	--	--
IRZ-13D	Lower	Extraction	Jan-23	962,725	--	434	58	37
IRZ-13D	Lower	Extraction	Feb-23	872,383	--	585	87	25
IRZ-13D	Lower	Extraction	Mar-23	491,660	--	330	44	25
IRZ-13D	Lower	Extraction	Apr-23	--	--	--	--	--
IRZ-13D	Lower	Extraction	May-23	254	--	1	0.13	4.2
IRZ-13D	Lower	Extraction	Jun-23	279,365	--	302	42	15
IRZ-13D	Lower	Extraction	Jul-23	991,621	--	612	82	27
IRZ-13D	Lower	Extraction	Aug-23	739,443	--	508	68	24
IRZ-13D	Lower	Extraction	Sep-23	504,512	--	297	41	28
IRZ-13D	Lower	Extraction	Oct-23	--	--	--	--	--
IRZ-13D	Lower	Extraction	Nov-23	377,061	--	639	89	10
IRZ-13D	Lower	Extraction	Dec-23	672,334	--	659	89	17
IRZ-13S	Upper	Extraction	Jan-23	973,076	--	434	58	37
IRZ-13S	Upper	Extraction	Feb-23	986,523	--	532	79	31
IRZ-13S	Upper	Extraction	Mar-23	726,270	--	330	44	37
IRZ-13S	Upper	Extraction	Apr-23	--	--	--	--	--
IRZ-13S	Upper	Extraction	May-23	7,568	--	12	1.6	11
IRZ-13S	Upper	Extraction	Jun-23	79,102	--	127	18	10
IRZ-13S	Upper	Extraction	Jul-23	341,748	--	320	43	18
IRZ-13S	Upper	Extraction	Aug-23	237,930	--	310	42	13
IRZ-13S	Upper	Extraction	Sep-23	336,885	--	260	36	22
IRZ-13S	Upper	Extraction	Oct-23	--	--	--	--	--
IRZ-13S	Upper	Extraction	Nov-23	540,645	--	641	89	14
IRZ-13S	Upper	Extraction	Dec-23	610,586	--	629	85	16
IRZ-23	Lower	Extraction	Jan-23	1,952,979	--	541	73	60
IRZ-23	Lower	Extraction	Feb-23	1,829,473	--	516	77	59
IRZ-23	Lower	Extraction	Mar-23	1,942,227	--	673	90	48
IRZ-23	Lower	Extraction	Apr-23	2,058,390	--	708	98	48
IRZ-23	Lower	Extraction	May-23	2,126,924	--	728	98	49

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Fourth Quarter 2023 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-23	Lower	Extraction	Jun-23	3,033,291	--	718	100	70
IRZ-23	Lower	Extraction	Jul-23	3,178,936	--	695	93	76
IRZ-23	Lower	Extraction	Aug-23	2,272,188	--	508	68	75
IRZ-23	Lower	Extraction	Sep-23	2,704,317	--	394	55	114
IRZ-23	Lower	Extraction	Oct-23	5,550,485	--	719	97	129
IRZ-23	Lower	Extraction	Nov-23	2,555,679	--	710	99	60
IRZ-23	Lower	Extraction	Dec-23	2,659,019	--	730	98	61
PTI-1D	Lower	Extraction	Oct-23	--	--	--	--	--
PTI-1D	Lower	Extraction	Nov-23	1,218,035	--	679	94	30
PTI-1D	Lower	Extraction	Dec-23	1,278,946	--	735	99	29

Abbreviations:
-- = not applicable
gal = gallon
gpm = gallons 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 2023 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
10/2/2023	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-20, IRZ-29, IRZ-31, IRZ-33, IRZ-35, and IRZ-37.	--
10/2/2023 through 10/11/2023	--	Injection well IRZ-18 offline for rehabilitation.	--
10/3/2023	0.1	IRZ system shutdown.	Planned TCS outage.
10/3/2023 through 10/4/2023	--	Reinjected conditioned water into injection wells.	--
10/4/2023	--	Backwashed IRZ injection wells IRZ-15 and IRZ-29.	--
10/4/2023	--	Ethanol dosing occurred.	--
10/5/2023	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-20, IRZ-31, IRZ-33, IRZ-35, and IRZ-37.	--
10/5/2023	0.2	IRZ system shutdown.	Pressure transmitter error resulted in system shutdown. Adjusted alarms and retested equipment to confirm functionality.
10/9/2023	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-20, IRZ-29 IRZ-31, IRZ-33, IRZ-35, and IRZ-37.	--
10/10/2023 through 10/19/2023	--	Injection well IRZ-37 offline for rehabilitation.	--
10/10/2023	--	Ethanol dosing occurred.	--
10/11/2023	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-20, IRZ-27, IRZ-29, IRZ-31, IRZ-33 and IRZ-35.	--
10/11/2023	0.5	IRZ system shutdown.	PTI-1D tie-in construction work.
10/12/2023 through 10/13/2023	--	Reinjected conditioned water into injection wells.	--
10/12/2023	--	IRZ injection well IRZ-18 (lower) brought online. Upper interval remained off.	--
10/13/2023	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-20, IRZ-27, IRZ-29 IRZ-31, IRZ-33, and IRZ-35.	--
10/16/2023	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18 (lower), IRZ-20, IRZ-27, IRZ-29, IRZ-31, IRZ-33, and IRZ-35.	--
10/16/2023	0.2	IRZ system shutdown.	Testing conducted to resolve IRZ-23 flowrate discrepancy between instantaneous flowmeter and SCADA flow totalizer that resulted following the modifications to increase pumping capacity at IRZ-23.

Table 3.2
NTH IRZ System Operations and Non-Routine Maintenance Log
Fourth Quarter 2023 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
10/17/2023	--	Replaced effluent pH meter AE-1481A at RPWC system.	--
10/17/2023	--	Ethanol dosing occurred.	--
10/18/2023	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18 (lower), IRZ-20, IRZ-27, IRZ-29, IRZ-31, IRZ-33, and IRZ-35.	--
10/19/2023	0.1	IRZ system offline.	TCS load shedding.
10/20/2023	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18 (lower), IRZ-20, IRZ-27, IRZ-29, IRZ-33, and IRZ-37.	--
10/21/2023 through 10/31/2023		Injection well IRZ-31 offline for rehabilitation.	--
10/23/2023	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18 (lower), IRZ-20, IRZ-27, IRZ-29, IRZ-33, and IRZ-37.	--
10/23/2023 through 11/1/2023	--	Injection well IRZ-35 offline for rehabilitation.	--
10/24/2023 through 10/26/2023	--	Reinjected conditioned water into injection wells.	--
10/25/2023	--	Ethanol dosing occurred.	--
10/26/2023	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18, IRZ-20, IRZ-27, IRZ-29, IRZ-33 and IRZ-37.	--
10/27/2023	--	Backwashed IRZ injection wells IRZ-16 and IRZ-17.	High water levels observed in IRZ-16 and IRZ-17. Remaining injection wells were not backwashed due to being backwashed the previous day.
10/30/2023	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18, IRZ-20, IRZ-27, IRZ-29, IRZ-33 and IRZ-37.	--
10/31/2023	--	Ethanol dosing occurred.	--
11/1/2023	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18, IRZ-20, IRZ-27, IRZ-29, IRZ-31, IRZ-33 and IRZ-37.	--
11/2/2023 through 11/15/2023	--	Injection well IRZ-33 offline for rehabilitation.	--
11/2/2023	--	Extraction well PTI-1D brought online at 30gpm. Extraction wells IRZ-13 (upper) and IRZ-13 (lower) brought online at 15gpm and 10gpm, respectively. Reduced target flowrate at extraction well IRZ-23 from 125 gpm to 65 gpm.	To enhance gradients toward PTI-1D while also removing Cr6 mass which will be treated in the IRZ.
11/3/2023	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18, IRZ-20, IRZ-27, IRZ-29, IRZ-31, and IRZ-37.	--

Table 3.2
NTH IRZ System Operations and Non-Routine Maintenance Log
Fourth Quarter 2023 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
11/3/2023 through 11/19/2023	--	Injection well IRZ-29 offline for rehabilitation.	--
11/6/2023	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18, IRZ-20, IRZ-27, IRZ-31 and IRZ-37.	--
11/7/2023	--	Ethanol dosing occurred.	--
11/8/2023	--	IRZ-23 ran for approximately 10 hours. IRZ-9 brought online for 2.7 hours to accomodate maintenance work at IRZ-23.	Variable frequency drive (VFD) replaced at IRZ-23.
11/8/2023	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18, IRZ-20, IRZ-27, IRZ-31, IRZ-35 and IRZ-37.	--
11/8/2023 through 11/10/2023	--	Reinjected conditioned water into injection wells.	--
11/9/2023	--	Ethanol dosing occurred in southern IRZ.	Reduced frequency of ethanol dosing in northern IRZ to once weekly based on observed treatment in analytical results and to proactively manage fouling and well health in the north.
11/10/2023	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18, IRZ-20, IRZ-31 (upper), IRZ-35 and IRZ-37.	--
11/10/2023 through 11/13/2023	--	IRZ-15 (upper) shutdown Friday night and remained off until Monday morning.	High water levels activated shutoff alarm.
11/13/2023	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18, IRZ-20, IRZ-27, IRZ-31, IRZ-35 and IRZ-37.	--
11/14/2023	--	Ethanol dosing occurred.	--
11/14/2023 through 11/15/2023	--	Injection well IRZ-27 offline.	Packer and motor replacement.
11/15/2023	--	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.	--
11/16/2023	--	Ethanol dosing occurred in southern IRZ.	--
11/17/2023 through 12/1/2023	--	Injection well IRZ-15 offline for rehabilitation.	--
11/17/2023	--	Backwashed IRZ injection wells IRZ-16, IRZ-17, IRZ-18, IRZ-20, IRZ-27, IRZ-31, IRZ-33, IRZ-35 and IRZ-37.	--
11/20/2023	--	Backwashed IRZ injection wells IRZ-16, IRZ-17, IRZ-18, IRZ-20, IRZ-27, IRZ-31, IRZ-33, IRZ-35 and IRZ-37.	--
11/21/2023	--	Ethanol dosing occurred.	--
11/22/2023	--	Backwashed IRZ injection wells IRZ-16, IRZ-17, IRZ-18, IRZ-20, IRZ-27, IRZ-29, IRZ-31, IRZ-33, IRZ-35 and IRZ-37.	--

Table 3.2
NTH IRZ System Operations and Non-Routine Maintenance Log
Fourth Quarter 2023 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
11/27/2023	--	Backwashed IRZ injection wells IRZ-16, IRZ-17, IRZ-18, IRZ-20, IRZ-27, IRZ-29, IRZ-31, IRZ-33, IRZ-35 and IRZ-37.	--
11/27/2023	--	PTI-1D filter replaced.	--
11/28/2023	--	Ethanol dosing occurred.	--
11/29/2023	--	Backwashed IRZ injection wells IRZ-16, IRZ-17, IRZ-20, IRZ-27, IRZ-29, IRZ-31, IRZ-33, IRZ-35 and IRZ-37.	--
11/29/2023 through 12/1/2023	--	Dosed IRZ injection wells IRZ-18 and IRZ-27 (upper/middle) with chemical solution of NuWell phosphoric acid and NuWell biodispersant at wellhead.	Chemicals used are for well maintenance to manage fouling.
11/30/2023	--	Ethanol dosing occurred in southern IRZ.	--
11/30/2023	--	Conducted downwell camera survey at IRZ-15.	Observe if branches found on drop pipe indicate compromised well casing integrity. Camera survey showed well casing intact and in good condition, with minimal biological deposits in well.
12/1/2023 through 12/12/2023	--	Injection well IRZ-16 offline for rehabilitation.	--
12/1/2023	--	Backwashed IRZ injection wells IRZ-17, IRZ-18, IRZ-20, IRZ-27 (lower), IRZ-29, IRZ-31, IRZ-33, IRZ-35 and IRZ-37.	--
12/4/2023	--	Backwashed IRZ injection wells IRZ-20, IRZ-27, IRZ-29, IRZ-31, IRZ-33, IRZ-35 and IRZ-37.	--
12/4/2023	--	Leak in PTI-1D pressure transmitter in Carbon Amendment Building. Transmitter was removed, sealed, and reinstalled to prevent leaking.	Reinstallation stopped the leak.
12/4/2023 through 12/17/2023	--	Injection well IRZ-17 offline for rehabilitation.	--
12/5/2023	--	PTI-1D filter replaced.	--
12/5/2023	--	Ethanol dosing occurred.	--
12/6/2023 through 12/7/2023	--	Dosed IRZ injection well IRZ-31 with chemical solution of NuWell phosphoric acid and NuWell biodispersant at wellhead.	--
12/6/2023	--	Backwashed IRZ injection wells IRZ-15, IRZ-18, IRZ-20, IRZ-27, IRZ-29, IRZ-33, IRZ-35 and IRZ-37.	--
12/6/2023 through 12/8/2023	--	Reinjected conditioned water into injection wells.	--
12/7/2023	--	Ethanol dosing occurred in southern IRZ.	--

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NTH IRZ System Operations and Non-Routine Maintenance Log
Fourth Quarter 2023 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
12/8/2023	--	Backwashed IRZ injection wells IRZ-15, IRZ-18, IRZ-20, IRZ-27, IRZ-29, IRZ-31, IRZ-33, IRZ-35 and IRZ-37.	--
12/11/2023	--	Backwashed IRZ injection wells IRZ-15, IRZ-18, IRZ-20, IRZ-27, IRZ-29, IRZ-31, IRZ-33, IRZ-35 and IRZ-37.	--
12/11/2023 through 12/14/2023	--	Conducted alarms testing on IRZ-18 and IRZ-27. Alarms confirmed to function as expected.	--
12/12/2023	--	Ethanol dosing occurred.	--
12/12/2023	--	PTI-1D filter replaced.	Flowrate dropped approximately 10 gpm prior to filter changeout. Flowrate returned to target rate (30 gpm) following filter replacement.
12/13/2023	--	Backwashed IRZ injection wells IRZ-15, IRZ-18, IRZ-27, IRZ-29, IRZ-31, and IRZ-33.	--
12/13/2023 through 12/14/2023	--	Dosed IRZ injection wells IRZ-35 and IRZ-37 with chemical solution of NuWell phosphoric acid and NuWell biodispersant at wellhead.	--
12/14/2023	--	Ethanol dosing occurred in southern IRZ.	--
12/15/2023	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-18, IRZ-27, IRZ-29, IRZ-31, IRZ-33, IRZ-35, and IRZ-37.	--
12/18/2023	--	Backwashed IRZ injection wells IRZ-15, IRZ-16, IRZ-18, IRZ-27, IRZ-29, IRZ-31, IRZ-33, IRZ-35, and IRZ-37.	--
12/18/2023	--	PTI-1D filter replaced.	--
12/19/2023	--	Ethanol dosing occurred.	--
12/20/2023	--	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.	--
12/20/2023 through 12/21/2023	--	Reinjected conditioned water into injection wells.	--
12/20/2023 through 12/21/2023	--	Dosed IRZ injection wells IRZ-31 with chemical solution of NuWell phosphoric acid and NuWell biodispersant at wellhead.	--
12/21/2023	--	Ethanol dosing occurred in southern IRZ.	--
12/22/2023	--	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.	--
12/22/2023	--	PTI-1D filter replaced.	--

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NTH IRZ System Operations and Non-Routine Maintenance Log
Fourth Quarter 2023 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
12/22/2023 through 12/23/2023	--	Extraction wells IRZ-13S, IRZ-13D, and IRZ-23 and injection wells IRZ-18 (upper), IRZ-27 (upper/middle), IRZ-29, IRZ-31, IRZ-33, IRZ-35, IRZ-37 shut down for 9 hours. Extraction well PTI-1D remained operational and fed 34 gpm into injection wells IRZ-15, IRZ-16, IRZ-17, IRZ-18 (lower), IRZ-20, and IRZ-27 (lower) during the 9 hour period.	Rainwater infiltrated IRZ-35 and IRZ-37 metering vault, causing system shutdown. Instrumentation and controls at PTI-1D did not result in the extraction well shutting down with the rest of the system. Instrumentation and controls team adjusted PTI-1D controls to prevent reoccurrence.
12/26/2023	--	PTI-1D filter replaced. Collected deposit samples from PTI-1D bag filter and injection well y-strainers.	--
12/27/2023	--	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.	--
12/28/2023	--	Ethanol dosing occurred.	--
12/29/2023	--	PTI-1D filter replaced.	--
12/29/2023	--	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.	--

Abbreviations:
-- = not applicable
CAB = Carbon Amendment Building
IRZ = In-Situ Reactive Zone
NTH = National Trails Highway
TCS = Topock Compressor Station

Table 3.3
Summary of NTH IRZ Well Specific Capacities
Fourth Quarter 2023 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Well ID	Aquifer Interval	Well Type	Operating Period	Monthly Average Specific Capacity (gpm/ft)	Baseline Specific Capacity	Well Performance	Response
IRZ-15	Upper	Injection	Jan-23	--	--	--	NC
IRZ-15	Upper	Injection	Feb-23	--	--	--	NC
IRZ-15	Upper	Injection	Mar-23	1.1	--	--	NC
IRZ-15	Upper	Injection	Apr-23	0.89	--	--	NC
IRZ-15	Upper	Injection	May-23	0.71	--	--	NC
IRZ-15	Upper	Injection	Jun-23	0.52	0.52	Good	None needed. Well performance is good.
IRZ-15	Upper	Injection	Jul-23	0.57	0.52	Good	None needed. Well performance is good.
IRZ-15	Upper	Injection	Aug-23	0.56	0.52	Good	None needed. Well performance is good.
IRZ-15	Upper	Injection	Sep-23	0.47	0.52	Good	None needed. Well performance is good.
IRZ-15	Upper	Injection	Oct-23	0.36	0.52	Poor	Well operating at reduced flowrate in late October 2023 due to high water levels, resulting in lower specific capacity. Well scheduled for rehabilitation in November 2023.
IRZ-15	Upper	Injection	Nov-23	0.11	0.52	Poor	Specific capacity continued to decline as flowrate decreased. Well rehabilitation occurred in late November 2023.
IRZ-15	Upper	Injection	Dec-23	1.8	0.52	Good	None needed. Well performance is good.
IRZ-15	Lower	Injection	Jan-23	--	--	--	NC
IRZ-15	Lower	Injection	Feb-23	--	--	--	NC
IRZ-15	Lower	Injection	Mar-23	--	--	--	NC
IRZ-15	Lower	Injection	Apr-23	1.3	--	--	NC
IRZ-15	Lower	Injection	May-23	1.4	--	--	NC
IRZ-15	Lower	Injection	Jun-23	1.8	--	--	NC
IRZ-15	Lower	Injection	Jul-23	1.7	--	--	NC
IRZ-15	Lower	Injection	Aug-23	1.6	1.6	Good	None needed. Well performance is good.
IRZ-15	Lower	Injection	Sep-23	1.4	1.6	Fair	Backwashing occurred three times weekly to manage high water levels. Reduced specific capacity in late September suggests well may be starting to foul. Continue to monitor and recommend rehabilitation in Fourth Quarter 2023 if reduced capacity continues.
IRZ-15	Lower	Injection	Oct-23	1.5	1.6	Good	None needed. Well performance is good.
IRZ-15	Lower	Injection	Nov-23	2.1	1.6	Good	Well rehabilitation occurred.
IRZ-15	Lower	Injection	Dec-23	1.5	1.6	Good	None needed. Well performance is good.
IRZ-16	Upper	Injection	Jan-23	0.82	0.60	Good	None needed. Well performance is good.
IRZ-16	Upper	Injection	Feb-23	0.80	0.60	Good	None needed. Well performance is good.
IRZ-16	Upper	Injection	Mar-23	0.48	0.60	Fair	Well rehabilitation occurred in February and March 2023. Backwashing frequency increased to three times weekly.
IRZ-16	Upper	Injection	Apr-23	0.37	0.60	Poor	Lower specific capacity coincides with days where flowrate was reduced to manage ethanol mounding and higher water levels resulting from seasonal river stage. Not interpreted as fouling.
IRZ-16	Upper	Injection	May-23	0.18	0.60	Poor	Well operating at reduced flowrate due to high water levels caused by high river stage, resulting in lower specific capacity.
IRZ-16	Upper	Injection	Jun-23	0.17	0.60	Poor	Well operating at reduced flowrate due to high water levels caused by high river stage, resulting in lower specific capacity.
IRZ-16	Upper	Injection	Jul-23	0.17	0.60	Poor, but sustained	Well operating at reduced flowrate due to high water levels caused by high river stage, resulting in lower specific capacity. Well was shut down in early July following completion of treatment in northern upper zone. Well will be monitored upon restart.

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Summary of NTH IRZ Well Specific Capacities
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Well ID	Aquifer Interval	Well Type	Operating Period	Monthly Average Specific Capacity (gpm/ft)	Baseline Specific Capacity	Well Performance	Response
IRZ-16	Upper	Injection	Aug-23	--	0.60	--	NC
IRZ-16	Upper	Injection	Sep-23	0.27	0.60	Poor, but improving	Well operating at reduced flowrate due to high water levels caused by high river stage, resulting in lower specific capacity.
IRZ-16	Upper	Injection	Oct-23	0.20	0.60	Poor	Specific capacity stabilized, then deteriorated through late October 2023 as the flowrate was reduced to manage water levels. Well rehabilitation scheduled for December 2023.
IRZ-16	Upper	Injection	Nov-23	0.11	0.60	Poor	Specific capacity deteriorated as well operated at reduced flowrate to manage water levels. Well rehabilitation scheduled for December 2023.
IRZ-16	Upper	Injection	Dec-23	0.55	0.60	Good	Well rehabilitation occurred.
IRZ-16	Lower	Injection	Jan-23	0.59	0.78	Poor	Backwashing frequency continued twice weekly. Well rehabilitation scheduled for February 2023.
IRZ-16	Lower	Injection	Feb-23	0.39	0.78	Poor	Well rehabilitation occurred.
IRZ-16	Lower	Injection	Mar-23	0.48	0.78	Poor	Well rehabilitation occurred in February and March 2023. Backwashing frequency increased to three times weekly.
IRZ-16	Lower	Injection	Apr-23	0.40	0.78	Poor	Lower specific capacity coincides with days where flowrate was reduced to manage ethanol mounding and higher water levels resulting from seasonal river stage. Not interpreted as fouling.
IRZ-16	Lower	Injection	May-23	0.39	0.78	Poor	Well operating at reduced flowrate as river stage increased, contributing to lower specific capacity.
IRZ-16	Lower	Injection	Jun-23	0.36	0.78	Poor	Lower specific capacity coincides with days where flowrate was reduced. Well is highly sensitive to minor adjustments to flowrate. Continue to monitor in Third Quarter as river stage has settled to determine if fouled.
IRZ-16	Lower	Injection	Jul-23	0.49	0.78	Poor, but improving	Lower specific capacity coincides with days where flowrate was reduced. Well is highly sensitive to minor adjustments to flowrate. Continue to monitor as river stage decreases.
IRZ-16	Lower	Injection	Aug-23	0.58	0.78	Poor, but improving	Well performance is improving. Gradual decrease in water level potentially associated with decreasing river stage. Continue to monitor as water level settles.
IRZ-16	Lower	Injection	Sep-23	0.51	0.78	Poor, but sustained	Well operating at or above target flowrate. Water level remained relatively stable. Not currently recommended for rehabilitation based on ability to maintain water level at target flowrate.
IRZ-16	Lower	Injection	Oct-23	0.57	0.78	Poor, but sustained	Well operating at target flowrate. Water level remained relatively stable. Not currently recommended for rehabilitation based on ability to maintain water level at target flowrate.
IRZ-16	Lower	Injection	Nov-23	0.38	0.78	Poor	Specific capacity declined as well operated at reduced flowrate to manage water levels. Well rehabilitation scheduled for December 2023.
IRZ-16	Lower	Injection	Dec-23	0.75	0.78	Good	Well rehabilitation occurred.
IRZ-17	Upper	Injection	Jan-23	0.98	0.76	Good	None needed. Well performance is good.
IRZ-17	Upper	Injection	Feb-23	0.90	0.76	Good	None needed. Well performance is good.
IRZ-17	Upper	Injection	Mar-23	0.54	0.76	Poor	Backwashing frequency increased to three times weekly. Well operating at reduced flowrate due to high water levels, resulting in lower specific capacity.
IRZ-17	Upper	Injection	Apr-23	0.41	0.76	Poor	Well operating at reduced flowrate as river stage increased, contributing to lower specific capacity.
IRZ-17	Upper	Injection	May-23	0.36	0.76	Poor	Well operating at reduced flowrate as river stage increased, contributing to lower specific capacity.

Table 3.3
Summary of NTH IRZ Well Specific Capacities
Fourth Quarter 2023 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Well ID	Aquifer Interval	Well Type	Operating Period	Monthly Average Specific Capacity (gpm/ft)	Baseline Specific Capacity	Well Performance	Response
IRZ-17	Upper	Injection	Jun-23	0.26	0.76	Poor	Lower specific capacity coincides with beginning of the month when flowrate was low to manage higher water levels resulting from seasonal river stage. As river stage settled, flowrate increased 3 gpm and specific capacity improved.
IRZ-17	Upper	Injection	Jul-23	0.30	0.76	Poor, but improving	Lower specific capacity coincides with reduced flowrate. Specific capacity gradually improved from June as river stage settled. Well was shut down in early July following completion of treatment in northern upper zone. Well will be monitored upon restart.
IRZ-17	Upper	Injection	Aug-23	--	0.76	--	NC
IRZ-17	Upper	Injection	Sep-23	0.37	0.76	Poor, but improving	Injection well returned to operation on September 25th and flowrate gradually increased. Well will continue to be monitored for improvement in Fourth Quarter 2023.
IRZ-17	Upper	Injection	Oct-23	0.39	0.76	Poor, but sustained	Well performance stabilized below target flow rate at 5 gpm. No further action needed.
IRZ-17	Upper	Injection	Nov-23	0.24	0.76	Poor	Well performance declined with continued operation. Flowrate unable to be maintained. Well scheduled for rehabilitation in December 2023.
IRZ-17	Upper	Injection	Dec-23	0.61	0.76	Fair	Well rehabilitation occurred.
IRZ-17	Lower	Injection	Jan-23	0.38	0.71	Poor	Well rehabilitation conducted in January.
IRZ-17	Lower	Injection	Feb-23	0.30	0.71	Poor	Backwashing continued twice weekly. Well operating at reduced flowrate due to high water levels, resulting in lower specific capacity.
IRZ-17	Lower	Injection	Mar-23	0.19	0.71	Poor	Backwashing increased to three times weekly. Well operating at reduced flowrate due to high water levels, resulting in lower specific capacity.
IRZ-17	Lower	Injection	Apr-23	0.22	0.71	Poor	Well operating at reduced flowrate as river stage increased, contributing to lower specific capacity.
IRZ-17	Lower	Injection	May-23	0.29	0.71	Poor	Well operating at reduced flowrate as river stage increased, contributing to lower specific capacity.
IRZ-17	Lower	Injection	Jun-23	0.37	0.71	Poor	Capacity improved as seasonal river stage relaxed and flowrate increased 3gpm. Not indicative of fouling.
IRZ-17	Lower	Injection	Jul-23	0.37	0.71	Poor, but sustained	Well performance stabilized below target flow rate at 8 gpm. Further action not needed.
IRZ-17	Lower	Injection	Aug-23	0.40	0.71	Poor, but sustained	Well performance stabilized below target flow rate at 8 gpm. Further action not needed.
IRZ-17	Lower	Injection	Sep-23	0.37	0.71	Poor, but sustained	Well performance stabilized below target flow rate at 8 gpm. Further action not needed.
IRZ-17	Lower	Injection	Oct-23	0.38	0.71	Poor, but sustained	Well performance stabilized below target flow rate at 8 gpm. Further action not needed.
IRZ-17	Lower	Injection	Nov-23	0.36	0.71	Poor, but sustained	Well performance decreased when flow rate increased to 10 gpm. Well scheduled for rehabilitation in December 2023.
IRZ-17	Lower	Injection	Dec-23	0.41	0.71	Poor, but improving	Well rehabilitation occurred.
IRZ-18	Upper	Injection	Jan-23	0.36	0.61	Poor	Backwashing conducted twice weekly.
IRZ-18	Upper	Injection	Feb-23	0.27	0.61	Poor	Second well rehabilitation conducted in February.
IRZ-18	Upper	Injection	Mar-23	0.36	0.61	Poor	Backwashing frequency increased to three times weekly.
IRZ-18	Upper	Injection	Apr-23	--	0.61	--	NC
IRZ-18	Upper	Injection	May-23	--	0.61	--	Specific capacity was unable to be determined due to SCADA data loss. IRZ-18 operated on May 31, 2023 only.

Table 3.3
Summary of NTH IRZ Well Specific Capacities
Fourth Quarter 2023 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Well ID	Aquifer Interval	Well Type	Operating Period	Monthly Average Specific Capacity (gpm/ft)	Baseline Specific Capacity	Well Performance	Response
IRZ-18	Upper	Injection	Jun-23	0.13	0.61	Poor	Well operating at reduced flowrate due to high water levels caused by high river stage, resulting in lower specific capacity. Well will continue to be monitored in Third Quarter 2023 to determine if well is fouled following period of downtime in Second Quarter 2023.
IRZ-18	Upper	Injection	Jul-23	0.11	0.61	Poor	Well operated at reduced flowrate due to high water levels, resulting in lower specific capacity. Well was shut down in early July following completion of treatment in northern upper zone. Well will be monitored upon restart.
IRZ-18	Upper	Injection	Aug-23	--	0.61	--	NC
IRZ-18	Upper	Injection	Sep-23	0.08	0.61	Poor	Well operated for two days, then shut down due to high water levels. Well performance was impacted by check valve installed in well to relieve pressure on lower well interval. Check valve will be removed and performance will continue to be monitored for fouling upon restart.
IRZ-18	Upper	Injection	Oct-23	0.61	0.61	Good	Well rehabilitation occurred.
IRZ-18	Upper	Injection	Nov-23	0.12	0.61	Poor	Well performance improved after rehabilitation, but deteriorated with continued operation. Wellhead dosing occurred at the end of November 2023 to manage fouling.
IRZ-18	Upper	Injection	Dec-23	0.13	0.61	Poor	Wellhead dosing initially improved performance but unable to maintain target flowrate and water levels. Scheduled for January 2024 rehabilitation and more frequent wellhead dosing to manage fouling.
IRZ-18	Lower	Injection	Jan-23	0.50	0.73	Poor	Backwashing conducted twice weekly.
IRZ-18	Lower	Injection	Feb-23	0.33	0.73	Poor	Second well rehabilitation conducted in February.
IRZ-18	Lower	Injection	Mar-23	0.40	0.73	Poor	Backwashing frequency increased to three times weekly.
IRZ-18	Lower	Injection	Apr-23	--	0.73	--	NC
IRZ-18	Lower	Injection	May-23	--	0.73	--	Specific capacity was unable to be determined due to SCADA data loss. IRZ-18 operated on May 31, 2023 only.
IRZ-18	Lower	Injection	Jun-23	0.33	0.73	Poor	Well will continue to be monitored in Third Quarter 2023 to determine if seasonal river stage is affecting capacity or if well is fouled following period of downtime in Second Quarter 2023.
IRZ-18	Lower	Injection	Jul-23	0.26	0.73	Poor	Well operating at reduced flowrates throughout the month to manage water levels with seasonal river stage. Continue to monitor to see if capacity stabilizes at lower flowrate.
IRZ-18	Lower	Injection	Aug-23	0.21	0.73	Poor, but sustained	Specific capacity is sustained at reduced flowrate. No further action needed.
IRZ-18	Lower	Injection	Sep-23	0.20	0.73	Poor, but sustained	Well scheduled for inspection and rehabilitation in early October 2023 due to observations at IRZ-18 upper.
IRZ-18	Lower	Injection	Oct-23	0.32	0.73	Poor, but improving	Well rehabilitation occurred.
IRZ-18	Lower	Injection	Nov-23	0.27	0.73	Poor	Well performance improved after rehabilitation, but deteriorated with continued operation. Wellhead dosing occurred at the end of November 2023 to manage fouling.
IRZ-18	Lower	Injection	Dec-23	0.21	0.73	Poor	Wellhead dosing initially improved performance but unable to maintain target flowrate and water levels. Scheduled for January 2024 rehabilitation and more frequent wellhead dosing to manage fouling.
IRZ-20	Upper	Injection	Jan-23	0.52	0.59	Fair	Well rehabilitation occurred.

Table 3.3
Summary of NTH IRZ Well Specific Capacities
Fourth Quarter 2023 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Well ID	Aquifer Interval	Well Type	Operating Period	Monthly Average Specific Capacity (gpm/ft)	Baseline Specific Capacity	Well Performance	Response
IRZ-20	Upper	Injection	Feb-23	0.63	0.59	Good	None needed. Well performance is good.
IRZ-20	Upper	Injection	Mar-23	0.36	0.59	Poor	Backwashing frequency increased to three times weekly.
IRZ-20	Upper	Injection	Apr-23	0.32	0.59	Poor	Well operating at reduced flowrate as river stage increased, contributing to lower specific capacity.
IRZ-20	Upper	Injection	May-23	0.25	0.59	Poor	Well operating at reduced flowrate as river stage increased, contributing to lower specific capacity.
IRZ-20	Upper	Injection	Jun-23	0.16	0.59	Poor	Well operating at reduced flowrate. Well is likely fouling as seasonal river stage settles in June. Continued operation at reduced flowrates to complete treatment in northern upper zone.
IRZ-20	Upper	Injection	Jul-23	0.11	0.59	Poor	Well operated at reduced flowrate due to high water levels, resulting in lower specific capacity. Well was shut down in early July following completion of treatment in northern upper zone. Well will be monitored upon restart.
IRZ-20	Upper	Injection	Aug-23	--	0.59	--	NC
IRZ-20	Upper	Injection	Sep-23	0.20	0.59	Poor, but improving	Specific capacity improved as flowrate returned to target rate and water levels continue to decrease with seasonal river stage. Will continue to monitor for possible rehabilitation after completion of rehabilitation of southern injection wells, since target flowrate is currently able to be maintained despite possible fouling.
IRZ-20	Upper	Injection	Oct-23	0.70	0.59	Good	None needed. Well performance is good.
IRZ-20	Upper	Injection	Nov-23	0.57	0.59	Good	None needed. Well performance is good.
IRZ-20	Upper	Injection	Dec-23	0.58	0.59	Good	Well rehabilitation occurred.
IRZ-20	Lower	Injection	Jan-23	0.24	0.54	Poor	Well rehabilitation occurred.
IRZ-20	Lower	Injection	Feb-23	0.39	0.54	Poor	Backwashing occurred twice weekly.
IRZ-20	Lower	Injection	Mar-23	0.25	0.54	Poor	Backwashing frequency increased to three times weekly.
IRZ-20	Lower	Injection	Apr-23	0.21	0.54	Poor	Well operating at reduced flowrate as river stage increased, contributing to lower specific capacity.
IRZ-20	Lower	Injection	May-23	0.22	0.54	Poor	Well operating at reduced flowrate as river stage increased, contributing to lower specific capacity.
IRZ-20	Lower	Injection	Jun-23	0.32	0.54	Poor	Flowrate marginally increased after short period of downtime relaxed water levels, contributing to increased specific capacity.
IRZ-20	Lower	Injection	Jul-23	0.40	0.54	Poor, but improving	Specific capacity is poor, but improving throughout the month. Well continuing to operate at reduced flowrate due to seasonal river stage. Continue to monitor.
IRZ-20	Lower	Injection	Aug-23	0.70	0.54	Good	None needed. Well performance is good.
IRZ-20	Lower	Injection	Sep-23	0.59	0.54	Good	None needed. Well performance is good.
IRZ-20	Lower	Injection	Oct-23	0.70	0.54	Good	None needed. Well performance is good.
IRZ-20	Lower	Injection	Nov-23	0.57	0.54	Good	None needed. Well performance is good.
IRZ-20	Lower	Injection	Dec-23	0.98	0.54	Good	Well rehabilitation occurred.
IRZ-21	Upper	Injection	Jan-23	--	--	--	NC
IRZ-21	Upper	Injection	Feb-23	--	--	--	NC
IRZ-21	Upper	Injection	Mar-23	--	--	--	NC
IRZ-21	Upper	Injection	Apr-23	--	--	--	NC
IRZ-21	Upper	Injection	May-23	--	--	--	NC
IRZ-21	Upper	Injection	Jun-23	--	--	--	NC
IRZ-21	Upper	Injection	Jul-23	--	--	--	NC

Table 3.3
Summary of NTH IRZ Well Specific Capacities
Fourth Quarter 2023 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Well ID	Aquifer Interval	Well Type	Operating Period	Monthly Average Specific Capacity (gpm/ft)	Baseline Specific Capacity	Well Performance	Response
IRZ-21	Upper	Injection	Aug-23	--	--	--	NC
IRZ-21	Upper	Injection	Sep-23	--	--	--	NC
IRZ-21	Upper	Injection	Oct-23	--	--	--	NC
IRZ-21	Upper	Injection	Nov-23	--	--	--	NC
IRZ-21	Upper	Injection	Dec-23	--	--	--	NC
IRZ-21	Lower	Injection	Jan-23	--	--	--	NC
IRZ-21	Lower	Injection	Feb-23	--	--	--	NC
IRZ-21	Lower	Injection	Mar-23	--	--	--	NC
IRZ-21	Lower	Injection	Apr-23	--	--	--	NC
IRZ-21	Lower	Injection	May-23	--	--	--	NC
IRZ-21	Lower	Injection	Jun-23	--	--	--	NC
IRZ-21	Lower	Injection	Jul-23	--	--	--	NC
IRZ-21	Lower	Injection	Aug-23	--	--	--	NC
IRZ-21	Lower	Injection	Sep-23	--	--	--	NC
IRZ-21	Lower	Injection	Oct-23	--	--	--	NC
IRZ-21	Lower	Injection	Nov-23	--	--	--	NC
IRZ-21	Lower	Injection	Dec-23	--	--	--	NC
IRZ-25	Upper / Upper Middle	Injection	Jan-23	--	--	--	NC
IRZ-25	Upper / Upper Middle	Injection	Feb-23	--	--	--	NC
IRZ-25	Upper / Upper Middle	Injection	Mar-23	--	--	--	NC
IRZ-25	Upper / Upper Middle	Injection	Apr-23	--	--	--	NC
IRZ-25	Upper / Upper Middle	Injection	May-23	--	--	--	NC
IRZ-25	Upper / Upper Middle	Injection	Jun-23	--	--	--	NC
IRZ-25	Upper / Upper Middle	Injection	Jul-23	--	--	--	NC
IRZ-25	Upper / Upper Middle	Injection	Aug-23	--	--	--	NC
IRZ-25	Upper / Upper Middle	Injection	Sep-23	--	--	--	NC
IRZ-25	Upper / Upper Middle	Injection	Oct-23	--	--	--	NC
IRZ-25	Upper / Upper Middle	Injection	Nov-23	--	--	--	NC
IRZ-25	Upper / Upper Middle	Injection	Dec-23	--	--	--	NC
IRZ-25	Lower	Injection	Jan-23	--	--	--	NC
IRZ-25	Lower	Injection	Feb-23	--	--	--	NC
IRZ-25	Lower	Injection	Mar-23	--	--	--	NC
IRZ-25	Lower	Injection	Apr-23	--	--	--	NC
IRZ-25	Lower	Injection	May-23	--	--	--	NC
IRZ-25	Lower	Injection	Jun-23	--	--	--	NC
IRZ-25	Lower	Injection	Jul-23	--	--	--	NC
IRZ-25	Lower	Injection	Aug-23	--	--	--	NC
IRZ-25	Lower	Injection	Sep-23	--	--	--	NC
IRZ-25	Lower	Injection	Oct-23	--	--	--	NC
IRZ-25	Lower	Injection	Nov-23	--	--	--	NC
IRZ-25	Lower	Injection	Dec-23	--	--	--	NC
IRZ-27	Upper / Upper Middle	Injection	Jan-23	0.48	0.67	Poor	Well rehabilitation occurred.
IRZ-27	Upper / Upper Middle	Injection	Feb-23	0.42	0.67	Poor	Backwashing conducted twice weekly.
IRZ-27	Upper / Upper Middle	Injection	Mar-23	0.35	0.67	Poor	Backwashing frequency increased to three times weekly.
IRZ-27	Upper / Upper Middle	Injection	Apr-23	--	0.67	--	NC
IRZ-27	Upper / Upper Middle	Injection	May-23	--	0.67	--	NC
IRZ-27	Upper / Upper Middle	Injection	Jun-23	0.33	0.67	Poor	Rehabilitation conducted April through May 2023. Backwashing conducted thrice weekly starting in June. Reduced performance possibly influenced by seasonal river stage resulting in higher water levels. Will continue to monitor in Third Quarter to assess rehabilitation effectiveness.

Table 3.3
Summary of NTH IRZ Well Specific Capacities
Fourth Quarter 2023 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Well ID	Aquifer Interval	Well Type	Operating Period	Monthly Average Specific Capacity (gpm/ft)	Baseline Specific Capacity	Well Performance	Response
IRZ-27	Upper / Upper Middle	Injection	Jul-23	0.25	0.67	Poor	Well performance initially improved after rehabilitation, but deteriorated following a few weeks of operation. Well operating at reduced flowrate, contributing to reduced specific capacity. Continue to monitor as water levels relax with seasonal river stage to determine if fouled.
IRZ-27	Upper / Upper Middle	Injection	Aug-23	0.17	0.67	Poor	Well rehabilitation scheduled for September 2023. Unable to maintain target flowrates with water levels.
IRZ-27	Upper / Upper Middle	Injection	Sep-23	0.16	0.67	Poor	Rehabilitation occurred end of September 2023 with modified procedure and will continue in Fourth Quarter 2023. See Section 3.3 for additional information.
IRZ-27	Upper / Upper Middle	Injection	Oct-23	0.49	0.67	Poor, but improving	Well rehabilitation occurred.
IRZ-27	Upper / Upper Middle	Injection	Nov-23	0.30	0.67	Poor	Well performance initially improved after rehabilitation, but deteriorated with continued operation. Reduced flowrate to maintain water levels. Wellhead dosing occurred at the end of November 2023.
IRZ-27	Upper / Upper Middle	Injection	Dec-23	0.17	0.67	Poor	Wellhead dosing improved specific capacity, but well performance deteriorated following a week of operation. Well rehabilitation scheduled for First Quarter 2024.
IRZ-27	Lower	Injection	Jan-23	0.47	0.49	Good	Well rehabilitation occurred.
IRZ-27	Lower	Injection	Feb-23	0.40	0.49	Fair	Backwashing conducted twice weekly.
IRZ-27	Lower	Injection	Mar-23	0.33	0.49	Poor	Backwashing frequency increased to three times weekly.
IRZ-27	Lower	Injection	Apr-23	--	0.49	--	NC
IRZ-27	Lower	Injection	May-23	--	0.49	--	NC
IRZ-27	Lower	Injection	Jun-23	0.37	0.49	Poor	Rehabilitation conducted April through May 2023. Backwashing conducted thrice weekly starting in June. Reduced performance possibly influenced by seasonal river stage resulting in higher water levels. Will continue to monitor in Third Quarter to assess rehabilitation effectiveness.
IRZ-27	Lower	Injection	Jul-23	0.28	0.49	Poor	Well performance initially improved after rehabilitation, but deteriorated following a few weeks of operation. Reduced specific capacity coincides with days where flowrate was reduced to manage high water levels. Will continue to monitor as river stage decreases to determine if fouled.
IRZ-27	Lower	Injection	Aug-23	0.24	0.49	Poor	Specific capacity decreased with continued operation. Rehabilitation scheduled for September 2023.
IRZ-27	Lower	Injection	Sep-23	0.22	0.49	Poor	Rehabilitation occurred end of September 2023 with modified procedure and will continue in Fourth Quarter 2023. See Section 3.3 for additional information.
IRZ-27	Lower	Injection	Oct-23	0.46	0.49	Good	Well rehabilitation occurred.
IRZ-27	Lower	Injection	Nov-23	0.25	0.49	Poor	Well performance initially improved after rehabilitation, but deteriorated with continued operation. Target flowrate was maintained with increase in water levels.
IRZ-27	Lower	Injection	Dec-23	0.20	0.49	Poor, but sustained	Specific capacity is poor, but sustained. Well rehabilitation scheduled for First Quarter 2024.
IRZ-29	Upper	Injection	Jan-23	0.26	0.41	Poor	Backwashing frequency increased to twice weekly.
IRZ-29	Upper	Injection	Feb-23	0.37	0.41	Good	Well rehabilitation occurred.
IRZ-29	Upper	Injection	Mar-23	0.35	0.41	Fair	Backwashing frequency increased to three times weekly.
IRZ-29	Upper	Injection	Apr-23	--	0.41	--	NC
IRZ-29	Upper	Injection	May-23	--	0.41	--	Well rehabilitation occurred.

Table 3.3
Summary of NTH IRZ Well Specific Capacities
Fourth Quarter 2023 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Well ID	Aquifer Interval	Well Type	Operating Period	Monthly Average Specific Capacity (gpm/ft)	Baseline Specific Capacity	Well Performance	Response
IRZ-29	Upper	Injection	Jun-23	--	0.41	--	NC
IRZ-29	Upper	Injection	Jul-23	0.41	0.41	Good	None needed. Well performance is good.
IRZ-29	Upper	Injection	Aug-23	0.28	0.41	Poor, but sustained	Well performance initially improved after rehabilitation, but deteriorated with continued operation. Performance is poor, but specific capacity began to stabilize in August. Continue to monitor as river stage decreases.
IRZ-29	Upper	Injection	Sep-23	0.28	0.41	Poor, but sustained	Specific capacity is sustained. Well scheduled for rehabilitation in Fourth Quarter 2023.
IRZ-29	Upper	Injection	Oct-23	0.30	0.41	Poor, but sustained	Specific capacity is sustained. Well scheduled for rehabilitation in November 2023.
IRZ-29	Upper	Injection	Nov-23	0.59	0.41	Good	Well rehabilitation occurred.
IRZ-29	Upper	Injection	Dec-23	0.38	0.41	Good	None needed. Well performance is good.
IRZ-29	Lower	Injection	Jan-23	0.37	0.52	Poor	Backwashing frequency increased to twice weekly.
IRZ-29	Lower	Injection	Feb-23	0.38	0.52	Poor	Well rehabilitation occurred.
IRZ-29	Lower	Injection	Mar-23	0.36	0.52	Poor	Backwashing frequency increased to three times weekly.
IRZ-29	Lower	Injection	Apr-23	--	0.52	--	NC
IRZ-29	Lower	Injection	May-23	--	0.52	--	Well rehabilitation occurred.
IRZ-29	Lower	Injection	Jun-23	--	0.52	--	NC
IRZ-29	Lower	Injection	Jul-23	0.30	0.52	Poor	Well performance initially improved after rehabilitation, but deteriorated with continued operation. Well operated at reduced flowrate due to seasonal river stage, contributing to reduced specific capacity. Continue to monitor as river stage relaxes to determine if fouled.
IRZ-29	Lower	Injection	Aug-23	0.28	0.52	Poor, but sustained	Specific capacity is poor, but stabilized at reduced flowrates. Continue to monitor as river stage decreases. Rehabilitation procedure is being reviewed.
IRZ-29	Lower	Injection	Sep-23	0.38	0.52	Poor, but improving	Specific capacity is improving. Well scheduled for rehabilitation in Fourth Quarter 2023.
IRZ-29	Lower	Injection	Oct-23	0.35	0.52	Poor, but sustained	Specific capacity is sustained. Well scheduled for rehabilitation in November 2023.
IRZ-29	Lower	Injection	Nov-23	0.60	0.52	Good	Well rehabilitation occurred.
IRZ-29	Lower	Injection	Dec-23	0.42	0.52	Fair	Well performance initially improved after rehabilitation, but deteriorated with continued operation. Wellhead dosing scheduled for January 2024.
IRZ-31	Upper	Injection	Jan-23	0.43	0.58	Poor	Well rehabilitation occurred.
IRZ-31	Upper	Injection	Feb-23	0.41	0.58	Poor	Backwashing frequency occurred twice weekly.
IRZ-31	Upper	Injection	Mar-23	0.33	0.58	Poor	Backwashing frequency increased to three times weekly.
IRZ-31	Upper	Injection	Apr-23	--	0.58	--	NC
IRZ-31	Upper	Injection	May-23	--	0.58	--	Well rehabilitation occurred.
IRZ-31	Upper	Injection	Jun-23	--	0.58	--	NC
IRZ-31	Upper	Injection	Jul-23	0.38	0.58	Poor	Well performance initially improved after rehabilitation, but deteriorated with continued operation. Well operated at reduced flowrate due to seasonal river stage, contributing to reduced specific capacity. Continue to monitor as river stage relaxes to determine if fouled.
IRZ-31	Upper	Injection	Aug-23	0.21	0.58	Poor	Flowrate reduced to manage high water levels. Fouling is suspected. Well rehabilitation procedure is being reviewed to improve effectiveness.

Table 3.3
Summary of NTH IRZ Well Specific Capacities
Fourth Quarter 2023 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Well ID	Aquifer Interval	Well Type	Operating Period	Monthly Average Specific Capacity (gpm/ft)	Baseline Specific Capacity	Well Performance	Response
IRZ-31	Upper	Injection	Sep-23	0.26	0.58	Poor, but improving	Wellhead dosing conducted on well as additional maintenance strategy to manage fouling. See Table 3.2. Well performance improved following wellhead dosing. Well scheduled for rehabilitation in Fourth Quarter 2023.
IRZ-31	Upper	Injection	Oct-23	0.27	0.58	Poor	Well rehabilitation occurred.
IRZ-31	Upper	Injection	Nov-23	0.51	0.58	Fair	Well performance initially improved after rehabilitation, but deteriorated with continued operation. Wellhead dosing scheduled for December 2023.
IRZ-31	Upper	Injection	Dec-23	0.29	0.58	Poor	Wellhead dosing occurred twice during the month to manage water levels. Increased specific capacity associated with wellhead dosing events. Well rehabilitation scheduled for First Quarter 2024.
IRZ-31	Lower	Injection	Jan-23	0.31	0.46	Poor	Well rehabilitation occurred.
IRZ-31	Lower	Injection	Feb-23	0.30	0.46	Poor	Backwashing frequency occurred twice weekly.
IRZ-31	Lower	Injection	Mar-23	0.25	0.46	Poor	Backwashing frequency increased to three times weekly.
IRZ-31	Lower	Injection	Apr-23	--	0.46	--	NC
IRZ-31	Lower	Injection	May-23	--	0.46	--	Well rehabilitation occurred.
IRZ-31	Lower	Injection	Jun-23	--	0.46	--	NC
IRZ-31	Lower	Injection	Jul-23	0.31	0.46	Poor	Well performance initially improved after rehabilitation, but deteriorated with continued operation. Well operated at reduced flowrate due to seasonal river stage, contributing to reduced specific capacity. Continue to monitor as river stage relaxes to determine if fouled.
IRZ-31	Lower	Injection	Aug-23	0.27	0.46	Poor	Flowrate reduced to manage high water levels. Fouling is suspected. Well rehabilitation procedure is being reviewed to improve effectiveness.
IRZ-31	Lower	Injection	Sep-23	0.33	0.46	Poor, but improving	Wellhead dosing conducted on well as additional maintenance strategy to manage fouling. See Table 3.2. Well performance improved following wellhead dosing. Well scheduled for rehabilitation in Fourth Quarter 2023.
IRZ-31	Lower	Injection	Oct-23	0.32	0.46	Poor	Well rehabilitation occurred.
IRZ-31	Lower	Injection	Nov-23	0.36	0.46	Poor	Well performance initially improved after rehabilitation, but deteriorated with continued operation. Well operated at reduced flowrate at end of month. Wellhead dosing scheduled for December 2023.
IRZ-31	Lower	Injection	Dec-23	0.31	0.46	Poor	Wellhead dosing occurred twice during the month to manage water levels. Increased specific capacity associated with wellhead dosing events. Well rehabilitation scheduled for First Quarter 2024.
IRZ-33	Upper	Injection	Jan-23	0.36	0.50	Poor	Backwashing frequency increased to twice weekly.
IRZ-33	Upper	Injection	Feb-23	0.23	0.50	Poor	Backwashing continued twice weekly.
IRZ-33	Upper	Injection	Mar-23	0.18	0.50	Poor	Backwashing frequency increased to three times weekly.
IRZ-33	Upper	Injection	Apr-23	--	0.50	--	NC
IRZ-33	Upper	Injection	May-23	--	0.50	--	Well rehabilitation occurred.
IRZ-33	Upper	Injection	Jun-23	--	0.50	--	NC
IRZ-33	Upper	Injection	Jul-23	0.28	0.50	Poor	Well rehabilitation occurred in Second Quarter 2023 and well returned to operation by mid-July 2023. Well performance initially improved after rehabilitation. Continue to monitor in August to determine rehabilitation effectiveness.

Table 3.3
Summary of NTH IRZ Well Specific Capacities
Fourth Quarter 2023 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Well ID	Aquifer Interval	Well Type	Operating Period	Monthly Average Specific Capacity (gpm/ft)	Baseline Specific Capacity	Well Performance	Response
IRZ-33	Upper	Injection	Aug-23	0.27	0.50	Poor, but sustained	Specific capacity is sustained. Well rehabilitation procedure is being reviewed and well is planned for rehabilitation in Fourth Quarter 2023.
IRZ-33	Upper	Injection	Sep-23	0.27	0.50	Poor, but sustained	Specific capacity is sustained. Well scheduled for rehabilitation in Fourth Quarter 2023.
IRZ-33	Upper	Injection	Oct-23	0.31	0.50	Poor, but sustained	Specific capacity is sustained. Well scheduled for rehabilitation in November 2023. Target flowrate able to be maintained.
IRZ-33	Upper	Injection	Nov-23	0.50	0.50	Good	Well rehabilitation occurred.
IRZ-33	Upper	Injection	Dec-23	0.33	0.50	Poor	Reduced well performance following approximately a month of operation after rehabilitation. Target flowrate able to be maintained. Scheduled for wellhead dosing in January 2023.
IRZ-33	Lower	Injection	Jan-23	0.28	0.36	Poor	Backwashing frequency increased to twice weekly.
IRZ-33	Lower	Injection	Feb-23	0.22	0.36	Poor	Backwashing continued twice weekly.
IRZ-33	Lower	Injection	Mar-23	0.20	0.36	Poor	Backwashing frequency increased to three times weekly.
IRZ-33	Lower	Injection	Apr-23	--	0.36	--	NC
IRZ-33	Lower	Injection	May-23	--	0.36	--	Well rehabilitation occurred.
IRZ-33	Lower	Injection	Jun-23	--	0.36	--	NC
IRZ-33	Lower	Injection	Jul-23	0.98	0.36	Good	None needed. Well performance is good.
IRZ-33	Lower	Injection	Aug-23	--	0.36	--	NC
IRZ-33	Lower	Injection	Sep-23	0.23	0.36	Poor	Well scheduled for rehabilitation in Fourth Quarter 2023.
IRZ-33	Lower	Injection	Oct-23	0.22	0.36	Poor, but sustained	Well scheduled for rehabilitation in November 2023. Specific capacity decreased as water levels increased. Target flowrate able to be maintained.
IRZ-33	Lower	Injection	Nov-23	0.27	0.36	Poor, but improving	Well rehabilitation occurred.
IRZ-33	Lower	Injection	Dec-23	0.20	0.36	Poor, but sustained	Reduced well performance following approximately a month of operation after rehabilitation. Specific capacity remained consistent throughout most of the month. Scheduled for wellhead dosing in January 2023.
IRZ-35	Upper	Injection	Jan-23	0.33	0.48	Poor	Backwashing frequency increased to twice weekly.
IRZ-35	Upper	Injection	Feb-23	0.33	0.48	Poor	Well rehabilitation occurred.
IRZ-35	Upper	Injection	Mar-23	0.28	0.48	Poor	Backwashing frequency increased to three times weekly.
IRZ-35	Upper	Injection	Apr-23	--	0.48	--	NC
IRZ-35	Upper	Injection	May-23	--	0.48	--	Well rehabilitation occurred.
IRZ-35	Upper	Injection	Jun-23	--	0.48	--	NC
IRZ-35	Upper	Injection	Jul-23	0.30	0.48	Poor	Well rehabilitation occurred in Second Quarter 2023 and well returned to operation by mid-July 2023. Well performance initially improved after rehabilitation. Continue to monitor in August to determine rehabilitation effectiveness.
IRZ-35	Upper	Injection	Aug-23	0.28	0.48	Poor	Well operating at reduced flowrate to manage water levels, contributing to reduced specific capacity. Well rehabilitation procedure is being reviewed and well is planned for rehabilitation in Fourth Quarter 2023.
IRZ-35	Upper	Injection	Sep-23	4.9	0.48	Good	None needed. Well performance is good.
IRZ-35	Upper	Injection	Oct-23	4.9	0.48	Good	Well rehabilitation occurred.
IRZ-35	Upper	Injection	Nov-23	1.4	0.48	Good	None needed. Well performance is good.
IRZ-35	Upper	Injection	Dec-23	0.36	0.48	Poor	Wellhead dosing occurred. Reduced flowrate temporarily to manage high water levels. Scheduled for well rehabilitation in First Quarter 2023.
IRZ-37	Upper	Injection	Jan-23	0.22	0.35	Poor	Well rehabilitation occurred.

Table 3.3
Summary of NTH IRZ Well Specific Capacities
Fourth Quarter 2023 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Well ID	Aquifer Interval	Well Type	Operating Period	Monthly Average Specific Capacity (gpm/ft)	Baseline Specific Capacity	Well Performance	Response
IRZ-37	Upper	Injection	Feb-23	0.22	0.35	Poor	Backwashing conducted twice weekly.
IRZ-37	Upper	Injection	Mar-23	0.18	0.35	Poor	Backwashing frequency increased to three times weekly.
IRZ-37	Upper	Injection	Apr-23	--	--	--	NC
IRZ-37	Upper	Injection	May-23	--	--	--	Well rehabilitation occurred.
IRZ-37	Upper	Injection	Jun-23	--	--	--	NC
IRZ-37	Upper	Injection	Jul-23	0.19	0.35	Poor	Well performance initially improved after rehabilitation but began to deteriorate after continued operation. Target flowrate was unable to be maintained due to high water levels. Well rehabilitation procedure is being reviewed.
IRZ-37	Upper	Injection	Aug-23	0.12	0.35	Poor	Well operated at reduced flowrate to manage high water levels, contributing to reduced specific capacity. Specific capacity stabilized by the end of the month.
IRZ-37	Upper	Injection	Sep-23	0.12	0.35	Poor, but sustained	Wellhead dosing conducted on well as additional maintenance strategy to manage fouling. Well scheduled for rehabilitation in October 2023.
IRZ-37	Upper	Injection	Oct-23	0.64	0.35	Good	Well rehabilitation occurred.
IRZ-37	Upper	Injection	Nov-23	0.23	0.35	Poor	Well performance initially improved after rehabilitation but began to deteriorate after continued operation. Target flowrate was unable to be maintained due to high water levels. Scheduled for wellhead dosing in December.
IRZ-37	Upper	Injection	Dec-23	0.20	0.35	Poor	Water levels improved following wellhead dosing and flowrate was able to be increased to target. Well performance deteriorated at the end of the month. Recommend more frequent wellhead dosing to manage performance.
IRZ-39	Upper	Injection	Jan-23	0.06	--	--	NC
IRZ-39	Upper	Injection	Feb-23	0.11	--	--	NC
IRZ-39	Upper	Injection	Mar-23	0.03	--	--	NC
IRZ-39	Upper	Injection	Apr-23	--	--	--	NC
IRZ-39	Upper	Injection	May-23	--	--	--	NC
IRZ-39	Upper	Injection	Jun-23	--	--	--	NC
IRZ-39	Upper	Injection	Jul-23	--	--	--	NC
IRZ-39	Upper	Injection	Aug-23	--	--	--	NC
IRZ-39	Upper	Injection	Sep-23	--	--	--	NC
IRZ-39	Upper	Injection	Oct-23	--	--	--	NC
IRZ-39	Upper	Injection	Nov-23	--	--	--	NC
IRZ-39	Upper	Injection	Dec-23	--	--	--	NC
IRZ-9	Upper	Extraction	Jan-23	47	--	--	NC
IRZ-9	Upper	Extraction	Feb-23	72	--	--	NC
IRZ-9	Upper	Extraction	Mar-23	39	--	--	NC
IRZ-9	Upper	Extraction	Apr-23	--	--	--	NC
IRZ-9	Upper	Extraction	May-23	--	--	--	NC
IRZ-9	Upper	Extraction	Jun-23	--	--	--	NC
IRZ-9	Upper	Extraction	Jul-23	--	--	--	NC
IRZ-9	Upper	Extraction	Aug-23	62	--	--	NC
IRZ-9	Upper	Extraction	Sep-23	--	--	--	NC
IRZ-9	Upper	Extraction	Oct-23	--	--	--	NC
IRZ-9	Upper	Extraction	Nov-23	--	--	--	NC
IRZ-9	Upper	Extraction	Dec-23	--	--	--	NC
IRZ-13D	Lower	Extraction	Jan-23	6.1	6.2	Good	None needed. Well performance is good.
IRZ-13D	Lower	Extraction	Feb-23	18	6.2	Good	None needed. Well performance is good.

Table 3.3
Summary of NTH IRZ Well Specific Capacities
Fourth Quarter 2023 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Well ID	Aquifer Interval	Well Type	Operating Period	Monthly Average Specific Capacity (gpm/ft)	Baseline Specific Capacity	Well Performance	Response
IRZ-13D	Lower	Extraction	Mar-23	5.1	6.2	Fair	Lower specific capacities measured when flowrate decreased. Not interpreted as fouling. No action taken.
IRZ-13D	Lower	Extraction	Apr-23	--	--	--	NC
IRZ-13D	Lower	Extraction	May-23	--	--	--	NC
IRZ-13D	Lower	Extraction	Jun-23	1.4	6.2	Poor	Well operated intermittently. Lower specific capacities measured when flowrate decreased. Not interpreted as fouling. No action taken.
IRZ-13D	Lower	Extraction	Jul-23	4.9	6.2	Poor	Well operated intermittently. Lower specific capacities measured when flowrate decreased. Not interpreted as fouling. No action taken.
IRZ-13D	Lower	Extraction	Aug-23	5.2	6.2	Fair	Well operated intermittently. Lower specific capacities measured when flowrate decreased. Not interpreted as fouling. No action taken.
IRZ-13D	Lower	Extraction	Sep-23	6.4	6.2	Good	None needed. Well performance is good.
IRZ-13D	Lower	Extraction	Oct-23	--	--	--	NC
IRZ-13D	Lower	Extraction	Nov-23	0.77	6.2	Poor	Lower specific capacities measured when flowrate decreased and higher specific capacities measured when flowrate increased. Not interpreted as fouling. No action taken.
IRZ-13D	Lower	Extraction	Dec-23	2.5	6.2	Poor	Lower specific capacities measured when flowrate decreased and higher specific capacities measured when flowrate increased. Not interpreted as fouling. No action taken.
IRZ-13S	Upper	Extraction	Jan-23	16	9.3	Good	None needed. Well performance is good.
IRZ-13S	Upper	Extraction	Feb-23	10	9.3	Good	None needed. Well performance is good.
IRZ-13S	Upper	Extraction	Mar-23	9.4	9.3	Good	None needed. Well performance is good.
IRZ-13S	Upper	Extraction	Apr-23	--	--	--	NC
IRZ-13S	Upper	Extraction	May-23	1.6	9.3	Poor	Well operated intermittently. Lower specific capacities measured when flowrate decreased. Not interpreted as fouling. No action taken.
IRZ-13S	Upper	Extraction	Jun-23	1.6	9.3	Poor	Well operated intermittently. Lower specific capacities measured when flowrate decreased. Not interpreted as fouling. No action taken.
IRZ-13S	Upper	Extraction	Jul-23	3.2	9.3	Poor	Well operated intermittently. Lower specific capacities measured when flowrate decreased. Not interpreted as fouling. No action taken.
IRZ-13S	Upper	Extraction	Aug-23	2.4	9.3	Poor	Well operated intermittently. Lower specific capacities measured when flowrate decreased. Not interpreted as fouling. No action taken.
IRZ-13S	Upper	Extraction	Sep-23	3.7	9.3	Poor	Well operated intermittently. Lower specific capacities measured when flowrate decreased. Not interpreted as fouling. No action taken.
IRZ-13S	Upper	Extraction	Oct-23	--	--	--	NC
IRZ-13S	Upper	Extraction	Nov-23	3.2	9.3	Poor	Lower specific capacities measured when flowrate decreased and higher specific capacities measured when flowrate increased. Not interpreted as fouling. No action taken.
IRZ-13S	Upper	Extraction	Dec-23	4.6	9.3	Poor	Lower specific capacities measured when flowrate decreased and higher specific capacities measured when flowrate increased. Not interpreted as fouling. No action taken.
IRZ-23	Lower	Extraction	Jan-23	17	41	Poor	Low specific capacity continued at higher flowrate. Specific capacity returned when flowrate reduced, confirming not fouling. No action needed.

Table 3.3
Summary of NTH IRZ Well Specific Capacities
Fourth Quarter 2023 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Well ID	Aquifer Interval	Well Type	Operating Period	Monthly Average Specific Capacity (gpm/ft)	Baseline Specific Capacity	Well Performance	Response
IRZ-23	Lower	Extraction	Feb-23	16	41	Poor	Low specific capacity continued at higher flowrate. Specific capacity returned when flowrate reduced, confirming not fouling. No action needed.
IRZ-23	Lower	Extraction	Mar-23	8.9	41	Poor	Low specific capacity continued at higher flowrate. Specific capacity returned when flowrate reduced, confirming not fouling. No action needed.
IRZ-23	Lower	Extraction	Apr-23	6.1	41	Poor	Low specific capacity continued at higher flowrate. Specific capacity returned when flowrate reduced, confirming not fouling. No action needed.
IRZ-23	Lower	Extraction	May-23	6.2	41	Poor	Low specific capacity continued at higher flowrate. Specific capacity returned when flowrate reduced, confirming not fouling. No action needed.
IRZ-23	Lower	Extraction	Jun-23	22	41	Poor	Low specific capacity continued at higher flowrate. Specific capacity returned when flowrate reduced, confirming not fouling. No action needed.
IRZ-23	Lower	Extraction	Jul-23	32	41	Poor	Low specific capacity continued at higher flowrate. Specific capacity returned when flowrate reduced, confirming not fouling. No action needed.
IRZ-23	Lower	Extraction	Aug-23	57	41	Good	None needed. Well performance is good.
IRZ-23	Lower	Extraction	Sep-23	70	41	Good	None needed. Well performance is good.
IRZ-23	Lower	Extraction	Oct-23	133	41	Good	None needed. Well performance is good.
IRZ-23	Lower	Extraction	Nov-23	20	41	Poor	Target November flowrate was less than half of target October flowrate. Water level increased as expected at reduced flowrate. Continue to monitor as extraction continues at lower target flowrate.
IRZ-23	Lower	Extraction	Dec-23	24	41	Poor, but improving	Low specific capacity continued but improved as extraction continued at lower target flowrate.
PTI-1D	Lower	Extraction	Oct-23	--	--	--	NC
PTI-1D	Lower	Extraction	Nov-23	3.7	--	--	NC
PTI-1D	Lower	Extraction	Dec-23	3.3	3.3	Good	None needed. Well performance is good.

Notes:
1. Specific capacities are calculated on five-minute intervals as flowrates measured from flowmeters divided by the change in water level measured from transducers compared to baseline. Baseline static water levels were adjusted by the typically observed difference in water levels at time of development and January, which is the month where water levels are at their lowest at the Site. Average monthly specific capacities were then calculated by averaging the five-minute interval specific capacities.
2. Target flowrates in the north (IRZ-15, IRZ-16, IRZ-17, IRZ-18, IRZ-20) are the nominal design flowrates. Target flowrates in the south (IRZ-27, IRZ-29, IRZ-31, IRZ-33, IRZ-35, IRZ-37, IRZ-39) are 1.5 times the nominal design flowrate.

Acronyms and Abbreviations:
-- = not operating or not applicable due to baseline not having been established yet
btoc = below top of casing
ft = foot
gpm = gallon per minute
ID = identification
IRZ = in-situ reactive zone
NC = no comment
NTH = National Trails Highway
SCADA = supervisory data control and acquisition

Table 3.4
Fourth Quarter 2023 Water Quality Field Parameters
Fourth Quarter 2023 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)
C-BNS	11/15/2023	nm	7.99	1,058	2.00	8.11	18.5	0.53	680	105.8
C-CON-D	11/16/2023	nm	8.08	1,052	2.00	8.43	18.2	0.52	680	103.5
C-CON-S	11/16/2023	nm	8.05	1,053	2.00	8.46	18.2	0.52	680	103.9
C-I-3-D	11/15/2023	nm	7.99	1,054	1.00	8.45	18.1	0.52	680	99.6
C-I-3-S	11/15/2023	nm	8.04	1,055	1.00	8.33	18.1	0.52	680	101.8
C-MAR-D	11/16/2023	nm	7.85	1,068	6.00	6.96	17.6	0.53	690	78.8
C-MAR-S	11/16/2023	nm	7.82	1,071	7.00	7.21	17.7	0.53	690	81.2
C-NR1-D	11/16/2023	nm	8.04	1,051	1.00	8.48	18.2	0.52	680	103.5
C-NR1-S	11/16/2023	nm	8.01	1,051	1.00	8.29	18.2	0.52	680	101.2
C-NR3-D	11/16/2023	nm	8.03	1,051	1.00	8.38	18.2	0.52	680	102.5
C-NR3-S	11/16/2023	nm	8.03	1,051	1.00	8.42	18.2	0.52	680	102.9
C-NR4-D	11/16/2023	nm	8.04	1,052	1.00	8.38	18.2	0.52	680	102.1
C-NR4-S	11/16/2023	nm	8.01	1,051	1.00	8.20	18.2	0.52	680	102.6
C-R22A-D	11/15/2023	nm	7.87	1,063	2.00	8.38	18.5	0.53	690	103.9
C-R22A-S	11/15/2023	nm	7.98	1,062	2.00	8.25	18.5	0.53	690	102.1
C-R27-D	11/15/2023	nm	7.99	1,055	2.00	7.96	18.6	0.53	680	102.5
C-R27-S	11/15/2023	nm	8.02	1,059	2.00	8.03	18.5	0.53	680	102.9
C-TAZ-D	11/15/2023	nm	7.99	1,059	2.00	8.78	18.1	0.53	680	100.3
C-TAZ-S	11/15/2023	nm	7.99	1,057	1.00	8.72	18.1	0.53	680	102.3
CW-01D	12/13/2023	109.1	7.69	7,414	11.00	8.52	27.1	3.70	4,100	175.6
CW-01M	12/13/2023	108.58	7.65	8,094	12.00	8.60	27.1	4.04	4,470	157.9
CW-02D	12/13/2023	94.86	7.68	7,499	2.00	2.71	25.7	4.11	4,850	60.8
CW-02M	12/13/2023	94.92	7.61	7,365	2.00	2.72	25.7	4.10	4,850	65.1
CW-03D	12/13/2023	79.44	7.59	7,433	2.00	2.50	25.8	4.10	4,930	33.9
CW-03M	12/13/2023	79.75	7.72	7,367	3.00	2.56	25.7	4.09	4,860	50.2
CW-04D	12/13/2023	63.77	7.62	7,544	2.00	3.31	26.8	4.20	4,960	80.2
CW-04M	12/13/2023	63.8	7.61	7,242	5.00	3.70	25.9	4.02	4,700	51.2
IRZ-09-100	11/08/2023	nm	7.93	10,048	1.60	2.43	24.0	nm	nm	19.1
IRZ-13D-210	11/08/2023	nm	7.79	15,280	2.30	1.60	24.4	nm	nm	24.2
IRZ-13S-095	11/08/2023	nm	7.88	8,684	3.80	4.96	24.0	nm	nm	26.2
IRZ-21-065	11/08/2023	nm	7.45	8,814	0.50	2.15	25.4	nm	nm	19.2
IRZ-21-157	11/08/2023	nm	7.44	9,568	0.90	1.01	24.7	nm	nm	-48.2
IRZ-23-143	10/12/2023	nm	7.10	8,769	1.80	2.19	26.2	nm	nm	103.2

Table 3.4
Fourth Quarter 2023 Water Quality Field Parameters
Fourth Quarter 2023 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)
IRZ-23-143	11/08/2023	nm	7.59	8,771	2.60	1.94	23.8	nm	nm	39.8
IRZ-25-100	11/08/2023	nm	7.38	9,779	1.40	3.01	27.8	nm	nm	-10.3
IRZ-25-166	11/08/2023	nm	7.76	11,125	2.10	1.89	26.8	nm	nm	37.7
MTS-1	11/14/2023	113.4	7.51	2,126	7.00	0.21	20.4	1.10	1,390	66.0
MTS-2	11/14/2023	32.6	7.95	2,256	10.00	0.11	28.3	1.11	1,410	36.9
MW-10	11/30/2023	75.79	7.34	1,519	13.80	7.36	26.2	0.74	959	105.8
MW-10D	11/30/2023	77.11	8.36	3,617	46.00	0.76	24.0	1.96	2,382	107.3
MW-11	11/30/2023	67.9	7.37	2,163	17.10	5.57	26.7	1.09	1,360	110.7
MW-11D	11/30/2023	68.81	7.11	4,289	8.70	4.48	25.0	3.68	4,372	118.9
MW-12	11/30/2023	28.12	7.98	8,592	15.00	0.95	26.4	4.79	5,590	74.0
MW-13	12/01/2023	31.34	7.37	3,049	9.00	5.61	26.0	1.53	1,920	86.8
MW-14	12/01/2023	117.73	7.43	4,119	4.80	5.58	21.1	2.23	2,729	111.4
MW-15	11/28/2023	186.49	7.42	2,337	2.00	4.69	25.3	1.16	1,190	137.6
MW-19	11/28/2023	46.34	7.38	2,429	10.30	5.20	27.0	1.20	1,530	109.9
MW-20-070	10/11/2023	44.85	7.56	3,371	32.00	1.36	28.7	1.74	2,170	13.9
MW-20-070	11/10/2023	45.55	7.79	2,452	30.00	0.27	26.3	1.26	1,590	42.4
MW-20-070	12/13/2023	46.42	7.37	3,568	11.00	6.91	26.5	1.87	2,310	31.3
MW-20-100	10/11/2023	44.52	7.04	4,778	6.00	0.60	28.1	2.54	3,100	-62.7
MW-20-100	11/10/2023	48.56	7.12	3,954	14.00	0.12	27.0	2.08	2,560	-52.2
MW-20-100	12/13/2023	46.61	7.07	3,784	2.00	3.78	26.2	1.99	2,460	17.5
MW-20-130	10/11/2023	45.14	7.23	10,915	11.00	0.66	28.5	6.15	7,090	-14.2
MW-20-130	11/10/2023	45.93	7.01	8,609	9.00	0.01	27.1	4.77	5,590	-54.2
MW-20-130	12/13/2023	47.07	6.76	10,327	9.00	1.47	27.1	5.80	6,700	10.9
MW-21	10/11/2023	49.5	7.37	8,698	20.00	0.82	34.2	4.79	5,650	-44.4
MW-21	11/07/2023	49.36	7.65	7,674	19.00	0.01	30.6	4.19	4,970	9.6
MW-21	12/13/2023	49.5	7.12	9,185	17.00	0.57	25.3	5.13	5,960	-108.5
MW-22	11/14/2023	6.38	6.58	30,948	47.00	0.14	29.6	0.18	19,160	-55.7
MW-23-060	11/28/2023	50.83	9.15	18,323	20.90	1.81	24.2	0.11	11,760	113.9
MW-23-080	11/28/2023	50.68	10.01	18,680	24.20	0.67	24.7	0.12	12,800	89.0
MW-24A	11/30/2023	112.05	7.93	1,614	8.00	0.71	26.5	0.81	1,050	-57.6
MW-24B	11/30/2023	110.14	7.05	12,665	37.00	0.19	25.5	7.22	8,190	34.1
MW-24BR	11/30/2023	108.79	nm	nm	nm	nm	nm	nm	nm	nm
MW-24BR	12/01/2023	nm	7.87	14,243	2.00	0.13	26.8	7.13	8,220	-140.8

Table 3.4
Fourth Quarter 2023 Water Quality Field Parameters
Fourth Quarter 2023 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-25	11/29/2023	89	7.22	2,504	21.50	7.73	27.6	1.20	1,541	109.6
MW-26	10/11/2023	46.63	7.28	8,294	10.00	0.82	30.0	4.57	5,380	12.3
MW-26	11/09/2023	46.81	7.03	9,785	13.70	0.52	28.4	5.10	5,960	43.0
MW-26	12/13/2023	46.87	6.98	11,115	21.80	0.90	27.0	6.05	6,920	-81.9
MW-27-020	11/27/2023	7.73	7.32	1,612	6.00	1.98	20.5	0.75	930	35.8
MW-27-060	11/27/2023	8.67	7.56	2,209	5.00	1.43	19.7	1.14	1,440	31.4
MW-27-085	11/27/2023	8.43	7.52	13,821	4.00	1.87	19.9	8.00	8,950	21.9
MW-28-025	11/13/2023	13.59	7.16	1,669	4.30	2.60	24.6	0.84	1,088	73.8
MW-28-090	11/13/2023	14.4	7.11	6,399	10.20	4.08	23.8	3.39	4,105	-65.8
MW-29	11/27/2023	31.82	7.08	4,610	9.00	0.05	23.2	2.27	2,440	-104.1
MW-30-030	11/09/2023	13.02	nm	nm	nm	nm	nm	nm	nm	nm
MW-30-050	10/11/2023	12.48	8.82	1,950	4.30	1.34	26.8	0.99	1,250	13.0
MW-30-050	11/07/2023	12.94	7.25	1,269	14.00	0.01	23.9	0.63	820	59.0
MW-30-050	12/14/2023	13.9	7.54	1,119	10.60	0.03	23.2	0.57	749	-63.2
MW-31-060	10/12/2023	40.85	8.58	8,780	27.90	0.48	27.3	4.89	5,550	201.0
MW-31-060	11/10/2023	40.8	7.53	11,058	4.30	0.39	26.9	6.03	6,930	-329.0
MW-31-060	12/13/2023	41.71	7.50	8,964	2.00	0.18	24.1	5.00	5,820	-284.9
MW-31-135	10/12/2023	41.32	8.75	1,150	47.10	1.13	27.1	6.56	7,130	10.0
MW-31-135	11/10/2023	41.75	7.35	12,190	9.30	0.60	27.4	6.58	7,530	85.9
MW-31-135	12/13/2023	42.58	7.34	9,799	34.00	0.22	26.8	5.49	6,370	-48.6
MW-32-020	11/14/2023	8.19	6.86	30,490	5.20	0.80	27.0	0.18	18,830	-66.9
MW-32-035	11/14/2023	9.3	6.81	13,339	2.90	0.18	26.4	7.39	8,260	-86.9
MW-33-040	11/15/2023	34.35	7.48	13,178	1.70	0.93	25.5	7.50	8,490	72.5
MW-33-090	11/15/2023	34.33	7.15	10,159	2.60	0.87	25.5	5.64	6,500	67.3
MW-33-150	11/15/2023	34.55	7.36	17,368	4.00	0.21	26.1	0.10	11,270	-17.2
MW-33-210	11/15/2023	33.8	7.79	13,485	6.00	0.38	26.2	7.78	8,780	-11.2
MW-34-055	11/08/2023	7.34	7.58	831	4.00	1.27	19.6	0.45	650	95.4
MW-34-080	10/11/2023	6.9	7.55	8,961	3.00	1.26	21.3	5.02	5,830	27.2
MW-34-080	11/08/2023	7.55	8.20	7,884	8.00	0.47	20.0	4.33	5,050	-35.2
MW-34-080	12/12/2023	8.44	7.32	8,967	7.00	0.10	19.9	5.02	5,820	-123.3
MW-34-100	11/08/2023	7.57	7.47	11,314	4.00	7.56	20.4	6.46	7,350	104.5
MW-34-100	12/12/2023	8.52	7.60	12,750	3.00	0.10	20.1	7.35	8,290	-73.5
MW-35-060	11/16/2023	28.6	7.24	8,102	47.80	1.40	26.2	4.37	5,130	73.9

Table 3.4
Fourth Quarter 2023 Water Quality Field Parameters
Fourth Quarter 2023 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-35-135	11/16/2023	28.63	7.42	12,430	47.10	0.40	26.0	6.95	7,410	63.7
MW-36-020	11/08/2023	15.42	7.08	4,315	44.10	0.19	24.6	2.38	2,895	20.0
MW-36-040	11/08/2023	15.92	7.61	1,431	7.50	0.20	22.3	0.76	979	-94.4
MW-36-050	11/08/2023	15.84	7.40	1,570	6.20	0.22	21.5	0.70	909	-9.9
MW-36-070	11/08/2023	15.85	7.46	1,169	3.90	0.18	22.4	0.59	767	60.7
MW-36-090	10/11/2023	15.65	8.41	7,750	14.20	0.19	22.4	4.89	5,530	64.0
MW-36-090	11/08/2023	16.21	7.20	8,481	4.70	0.15	22.2	5.01	5,820	62.7
MW-36-090	12/12/2023	17.43	7.22	8,676	15.00	2.42	20.6	5.33	6,160	-3.9
MW-36-100	10/11/2023	15.53	8.35	8,670	30.30	0.32	23.5	4.87	5,510	105.0
MW-36-100	11/08/2023	17.02	7.14	8,753	16.30	0.26	21.7	5.27	6,100	44.5
MW-36-100	12/12/2023	17.45	7.15	9,389	17.50	0.24	20.6	5.81	6,670	-0.4
MW-37D	11/28/2023	32.17	8.29	9,735	6.00	3.78	28.1	5.44	6,320	-9.9
MW-37S	11/28/2023	32.32	7.72	7,671	8.00	1.45	27.6	4.22	4,980	10.9
MW-38D	11/30/2023	71.41	10.43	19,599	13.60	0.26	26.4	0.11	12,290	70.9
MW-38S	11/30/2023	70.33	8.11	2,029	9.00	0.72	27.6	0.59	659	103.1
MW-39-040	10/10/2023	13.58	9.38	1,229	37.50	0.30	23.9	0.60	778	217.0
MW-39-040	11/07/2023	14.14	7.72	1,266	26.80	0.46	26.7	0.61	795	-101.7
MW-39-040	12/14/2023	15.93	7.87	1,449	47.00	0.54	21.2	0.78	1,009	-80.0
MW-39-050	10/10/2023	13.6	8.77	1,250	6.20	0.15	25.0	0.63	794	76.0
MW-39-050	11/07/2023	14.24	7.39	1,336	4.90	0.29	26.4	0.64	831	47.1
MW-39-050	12/14/2023	15.39	7.50	1,186	15.80	0.87	20.5	0.66	839	15.9
MW-39-060	10/10/2023	14	8.74	1,340	47.80	0.16	26.0	0.67	858	63.0
MW-39-060	11/07/2023	14.45	7.42	1,316	37.10	0.30	26.3	0.64	803	59.5
MW-39-070	10/10/2023	13.92	8.20	8,403	31.20	0.24	23.2	4.74	5,360	9.0
MW-39-070	11/07/2023	14.39	7.12	3,847	17.80	0.31	25.3	2.01	2,483	-15.1
MW-39-070	12/14/2023	15.85	7.28	2,619	49.70	0.54	20.9	1.27	1,604	-4.2
MW-39-080	10/10/2023	13.9	8.30	12,371	12.50	0.14	27.9	7.15	7,750	2.0
MW-39-080	11/07/2023	14.52	7.02	1,339	5.20	0.29	28.0	5.95	6,870	76.2
MW-39-080	12/14/2023	15.91	7.16	8,002	6.80	0.54	20.7	4.83	5,660	46.9
MW-39-100	10/10/2023	14.32	8.14	13,094	36.10	0.11	26.1	7.50	8,100	62.0
MW-39-100	11/07/2023	14.6	6.98	7,412	42.10	0.22	24.8	0.10	11,340	80.0
MW-39-100	12/12/2023	15.65	7.08	12,103	16.70	0.28	22.0	8.34	8,280	55.9
MW-40D	11/29/2023	112.05	6.99	14,326	4.00	3.32	28.2	7.15	8,250	45.1

Table 3.4
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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-40S	11/29/2023	111.41	7.45	2,792	9.00	4.12	27.2	1.39	1,430	92.6
MW-41D	12/01/2023	25.51	7.37	19,569	5.00	0.01	27.5	0.12	12,710	-48.3
MW-41M	12/01/2023	25.74	7.67	14,179	45.00	0.51	27.9	8.17	9,240	-8.2
MW-41S	12/01/2023	26.21	7.84	7,162	22.00	5.24	27.6	3.91	4,650	48.0
MW-42-030	11/13/2023	10.78	7.53	2,326	3.20	0.19	25.5	1.18	1,496	-103.5
MW-42-055	11/13/2023	10.55	7.53	1,272	2.90	0.57	24.9	0.63	828	-15.9
MW-42-065	11/13/2023	10	7.04	9,580	1.20	3.31	24.1	5.58	6,450	84.8
MW-43-025	11/14/2023	9.15	7.14	2,073	3.90	2.68	23.0	1.14	1,424	-96.2
MW-43-075	11/14/2023	10	7.18	12,450	2.80	2.92	21.9	7.60	8,560	-69.2
MW-43-090	11/14/2023	9.95	7.30	17,540	8.20	9.63	22.2	0.11	12,100	-43.8
MW-44-070	11/08/2023	18.68	7.47	2,171	13.00	0.08	22.0	1.11	1,470	-50.3
MW-44-115	10/11/2023	18	7.39	12,563	15.00	1.38	27.2	7.14	8,120	128.8
MW-44-115	11/08/2023	18.9	7.40	12,595	7.00	2.33	22.3	7.36	8,240	118.3
MW-44-115	12/12/2023	20.29	7.78	16,029	23.70	2.31	20.8	0.10	11,340	51.5
MW-44-125	10/11/2023	17.98	7.92	13,870	5.00	0.50	23.2	8.03	9,020	-52.8
MW-44-125	11/08/2023	18.7	7.72	12,375	6.00	0.66	21.5	6.41	7,310	-50.4
MW-44-125	12/12/2023	19.86	7.93	14,959	7.20	0.74	21.1	9.47	10,490	28.9
MW-45-095A	10/11/2023	14.2	7.65	8,825	18.00	0.73	22.5	4.93	5,730	-3.5
MW-45-095A	11/08/2023	15.03	7.49	7,633	3.00	1.57	21.2	4.23	4,960	73.4
MW-45-095A	12/14/2023	15.93	7.20	9,929	10.70	1.52	22.6	5.92	6,790	48.5
MW-46-175	11/16/2023	29.21	8.08	18,361	4.00	0.23	22.2	0.11	11,950	9.2
MW-46-205	11/16/2023	29.39	8.11	21,378	6.00	2.32	22.4	0.13	13,880	40.5
MW-47-115	11/16/2023	30.5	7.33	14,269	44.10	0.50	26.0	8.01	8,890	73.5
MW-48	11/30/2023	30.9	7.83	18,531	46.00	0.00	23.9	0.11	12,050	42.1
MW-49-135	11/27/2023	31.22	7.63	14,348	9.00	0.16	24.5	7.18	8,300	38.5
MW-49-275	11/27/2023	31.5	7.69	23,305	2.00	0.08	23.1	0.12	14,130	-42.5
MW-49-365	11/27/2023	33.05	7.35	36,385	2.00	0.10	23.9	0.18	23,390	-63.8
MW-50-095	11/28/2023	43.56	7.61	7,044	11.40	1.88	26.4	3.74	4,440	115.9
MW-50-200	11/28/2023	42.87	7.54	15,619	9.60	2.73	24.6	9.16	10,200	126.9
MW-51	10/11/2023	46.01	7.11	4,140	13.00	0.69	29.6	2.21	2,720	-74.3
MW-51	11/09/2023	82.5	7.10	9,399	6.90	0.71	28.1	4.93	5,750	71.2
MW-51	12/13/2023	46.1	7.10	10,115	8.10	0.87	28.0	5.34	6,210	30.9
MW-52D	11/15/2023	15.68	7.09	20,399	2.80	0.23	21.0	0.13	14,410	-10.9

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Fourth Quarter 2023 Water Quality Field Parameters
Fourth Quarter 2023 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-52M	11/15/2023	15.48	6.89	16,228	6.50	0.31	21.4	0.10	11,370	-24.9
MW-52S	11/15/2023	12.92	6.74	11,309	3.20	0.21	20.8	7.06	8,000	-48.9
MW-53D	11/15/2023	18.1	7.29	24,744	1.20	0.56	20.0	0.17	17,800	35.9
MW-53M	11/15/2023	18.25	7.01	16,499	1.10	0.14	20.0	0.11	11,720	19.2
MW-53S	11/15/2023	18.49	7.10	1,318	1.10	0.22	20.7	0.75	968	-89.8
MW-54-085	11/17/2023	12.68	7.64	9,862	16.10	9.24	25.0	5.71	6,470	41.2
MW-54-140	11/17/2023	12.69	7.76	14,082	47.80	0.16	27.0	7.79	8,800	-27.0
MW-54-195	11/17/2023	13.42	7.90	20,556	4.20	0.85	27.0	0.12	12,830	-164.9
MW-55-045	11/14/2023	10.82	7.81	1,146	37.00	0.46	27.2	0.57	740	18.1
MW-55-120	11/14/2023	10.8	7.18	5,864	14.00	0.52	27.6	3.16	3,800	46.7
MW-56D	11/15/2023	17.98	7.40	18,214	8.00	0.33	24.0	0.11	11,800	45.1
MW-56M	11/15/2023	17.52	7.78	11,928	10.00	0.02	23.0	6.82	7,760	-62.4
MW-56S	11/15/2023	17.28	8.07	5,347	24.00	0.32	23.0	2.70	3,260	-36.4
MW-57-070	11/29/2023	55.12	7.03	1,979	41.80	0.31	27.5	0.96	1,228	46.9
MW-57-185	11/29/2023	53.58	10.59	6,229	40.40	0.43	26.0	3.27	3,959	101.8
MW-58-065	11/29/2023[a]	Dry	nm	nm	nm	nm	nm	nm	nm	nm
MW-58BR	11/29/2023	67.98	7.45	8,585	5.00	0.11	27.3	4.28	4,760	-39.8
MW-59-100	11/29/2023	84.48	6.77	5,659	12.50	4.10	23.9	3.18	3,772	121.5
MW-60-125	11/30/2023	100.27	7.66	7,718	49.00	1.42	25.4	4.25	5,010	8.3
MW-60BR-245	11/29/2023	100.29	8.00	14,738	6.00	0.55	26.4	8.54	9,580	-36.1
MW-61-110	11/30/2023	88.94	7.23	16,532	21.00	0.56	27.1	9.66	10,750	-41.3
MW-62-065	11/29/2023	49.92	7.24	8,869	11.00	1.32	25.6	3.61	4,407	114.9
MW-62-110	11/29/2023	nm	7.05	13,425	3.00	0.49	24.8	6.78	7,730	-93.9
MW-62-190	11/29/2023	nm	6.98	18,546	2.00	0.12	24.7	9.28	11,020	-161.9
MW-63-065	11/29/2023	53.21	7.31	6,634	44.00	2.94	24.4	3.79	4,487	126.2
MW-64BR	11/29/2023	121.84	6.94	10,849	5.00	0.20	25.6	6.13	7,040	29.7
MW-65-160	11/28/2023	141.56	7.11	3,470	8.00	0.65	25.9	1.82	2,260	62.3
MW-65-225	11/28/2023	141.32	7.31	6,206	4.00	0.06	25.9	3.32	4,000	8.2
MW-66-165	11/28/2023	131.04	7.21	2,522	19.00	3.01	27.4	1.23	1,280	95.1
MW-66-230	11/28/2023	131.46	7.37	18,582	14.00	1.70	27.7	9.29	10,950	53.2
MW-66BR-270	11/14/2023	132.41	nm	nm	nm	nm	nm	nm	nm	nm
MW-66BR-270	11/28/2023	132.41	8.81	18,180	9.00	0.06	27.1	9.28	10,960	-149.6
MW-67-185	10/13/2023	170.66	7.56	4,859	14.00	0.85	27.7	2.60	3,160	50.2

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Fourth Quarter 2023 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-67-185	11/30/2023	170.92	7.47	5,363	25.00	0.75	26.5	2.89	3,490	86.7
MW-67-185	12/14/2023	171.14	7.21	5,445	18.00	2.62	24.2	2.72	2,940	167.2
MW-67-225	11/30/2023	170.81	7.65	5,303	8.00	3.60	27.4	2.65	2,840	76.2
MW-67-260	11/30/2023	170.92	9.48	19,593	13.00	0.55	25.9	9.78	11,620	-70.1
MW-68-180	10/13/2023	165.6	7.79	4,478	20.00	1.75	28.5	2.34	2,870	92.5
MW-68-180	11/30/2023	165.83	7.75	4,846	39.00	0.58	28.1	2.58	3,150	80.6
MW-68-180	12/14/2023	166.34	7.30	4,261	16.00	6.94	26.2	2.13	2,260	176.7
MW-68-240	12/01/2023	166.25	7.84	16,919	10.00	0.05	26.9	9.89	10,960	-74.6
MW-68BR-280	11/30/2023	164.44	8.87	22,109	3.00	0.30	29.6	0.11	13,140	-144.1
MW-69-195	11/28/2023	175.77	7.32	3,352	8.00	0.91	23.8	1.66	1,750	50.5
MW-70-105	11/29/2023	82.12	7.54	3,609	5.00	1.41	26.3	1.80	1,890	42.5
MW-70BR-225	11/29/2023	81.26	7.46	13,320	3.00	0.12	27.8	6.64	7,640	15.1
MW-70BR-287	11/29/2023	82.65	9.62	17,238	4.00	0.08	25.3	8.62	10,130	-38.9
MW-71-035	10/10/2023	27.8	7.46	7,406	48.00	1.89	32.4	4.03	4,810	36.2
MW-71-035	11/07/2023	27.98	7.55	8,394	30.00	0.49	28.7	4.64	5,460	42.0
MW-71-035	12/13/2023	28.19	7.42	8,362	31.00	0.45	25.1	4.31	5,390	37.2
MW-72-080	11/29/2023	60.43	7.21	13,349	50.00	0.40	25.1	7.68	8,670	30.4
MW-72BR-200	11/29/2023	60.3	7.81	13,380	13.00	0.22	25.6	7.69	8,690	-104.6
MW-73-080	11/29/2023	53.5	7.30	8,543	3.00	1.38	23.8	4.79	5,590	89.7
MW-74-240	12/14/2023	216.65	8.07	709	29.00	0.81	26.2	0.42	590	20.9
MW-75-033	11/13/2023	19.6	7.15	2,973	32.00	0.45	26.6	1.56	1,960	40.6
MW-75-117	11/13/2023	19.62	7.66	10,687	7.00	1.29	26.7	6.03	6,940	70.1
MW-75-202	11/13/2023	19.3	7.66	14,651	8.00	0.11	26.6	8.48	9,520	-183.9
MW-75-267	11/13/2023	18.96	7.86	19,017	13.00	1.20	26.2	0.11	12,350	-32.4
MW-75-337	11/13/2023	21.36	7.75	24,636	6.00	0.39	26.7	0.15	16,020	20.6
MW-76-039	10/09/2023	26.01	7.31	9,253	8.00	1.38	28.7	5.11	6,000	68.3
MW-76-039	11/06/2023	26.96	7.40	8,108	31.00	2.50	28.0	4.48	5,270	125.0
MW-76-039	12/11/2023	27.1	7.39	9,218	32.00	3.81	26.4	5.15	5,990	36.1
MW-76-156	10/09/2023	25.96	7.35	9,389	11.00	1.16	29.7	5.21	6,090	110.6
MW-76-156	11/06/2023	25.78	7.93	8,228	12.00	1.83	28.7	4.53	5,340	145.5
MW-76-156	12/11/2023	28.38	7.89	11,086	8.00	0.55	24.8	6.29	7,200	-132.1
MW-76-181	10/09/2023	25.7	8.18	9,409	16.00	0.88	30.5	5.23	6,110	22.5
MW-76-181	11/06/2023	27.34	8.15	8,037	7.00	2.02	28.7	4.43	5,230	155.6

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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-76-181	12/11/2023	28.41	8.16	10,067	6.00	0.39	26.8	5.66	6,550	-159.1
MW-76-218	10/09/2023	25.5	7.80	9,686	24.00	1.13	31.6	5.39	6,290	66.6
MW-76-218	11/06/2023	26.93	7.77	8,446	8.00	1.88	31.1	4.63	5,460	136.3
MW-76-218	12/11/2023	28.08	7.74	12,410	7.00	0.36	26.5	7.12	8,080	-92.1
MW-77-046	10/11/2023	24.47	8.58	7,650	3.40	0.10	30.6	4.22	4,830	61.0
MW-77-046	11/06/2023	24.95	7.84	6,214	48.00	1.41	26.5	3.37	4,040	180.2
MW-77-046	12/11/2023	25.68	7.26	11,882	48.10	1.55	25.7	6.68	7,640	-21.9
MW-77-102	10/11/2023	24.75	7.60	8,201	43.00	0.64	27.8	4.52	5,350	-127.7
MW-77-102	11/06/2023	24.9	7.15	7,940	45.00	2.39	28.0	4.38	5,150	166.3
MW-77-102	12/11/2023	26.58	7.09	10,207	48.20	2.90	24.6	5.79	6,660	4.9
MW-77-158	10/11/2023	24.74	8.28	10,356	2.10	0.16	32.7	5.88	6,470	78.0
MW-77-158	11/06/2023	23.94	7.02	7,123	5.00	2.30	29.0	3.89	4,630	178.7
MW-77-158	12/11/2023	25.51	7.08	9,912	8.40	2.81	24.6	5.61	6,470	-3.6
MW-77-187	10/11/2023	24.27	9.47	9,430	5.60	1.43	35.3	5.03	5,710	59.0
MW-77-187	11/08/2023	23.72	7.61	7,212	11.00	0.01	24.1	3.97	4,680	184.3
MW-77-187	12/11/2023	25.76	7.84	13,859	5.30	0.01	24.2	8.15	9,120	10.9
MW-78-070	10/13/2023	47.3	8.07	9,660	48.60	0.34	27.2	5.40	6,030	99.0
MW-78-070	11/09/2023	47.1	6.91	1,084	48.20	0.66	26.8	5.49	6,380	77.0
MW-78-070	12/13/2023	47.8	6.97	10,579	49.20	0.86	27.3	5.69	6,580	43.7
MW-78-142	10/13/2023	47.6	8.49	10,343	18.60	0.36	28.0	5.84	6,450	89.0
MW-78-142	11/09/2023	47.17	7.09	10,739	40.10	0.65	26.6	5.89	6,740	77.0
MW-78-142	12/13/2023	48.3	7.15	11,199	49.00	0.90	26.4	6.19	7,120	46.9
MW-79-058	10/12/2023	45.97	8.18	9,300	25.10	1.09	28.4	5.31	5,980	99.0
MW-79-058	11/09/2023	45.94	6.89	10,733	48.10	1.84	28.0	5.61	6,590	77.9
MW-79-058	12/13/2023	46.66	6.88	10,806	49.00	1.89	27.6	5.79	6,690	43.4
MW-79-102	10/12/2023	45.6	8.45	9,960	46.10	0.32	28.1	5.70	6,280	59.0
MW-79-102	11/09/2023	45.83	7.13	10,078	48.90	0.56	27.2	5.37	6,190	42.9
MW-79-102	12/13/2023	46.74	7.07	11,299	10.80	0.90	27.4	6.12	7,020	-10.0
MW-79-102	12/14/2023	46.04	7.10	10,350	31.00	0.00	27.5	5.17	5,820	-25.6
MW-80-057	10/12/2023	47.8	8.21	8,870	16.80	0.60	30.3	4.97	5,620	25.0
MW-80-057	11/09/2023	48.6	6.88	10,849	15.10	3.14	29.1	5.40	6,280	99.9
MW-80-057	12/13/2023	48.81	6.87	11,029	45.00	2.96	28.6	5.82	6,860	52.9
MW-80-082	10/12/2023	47.6	8.36	8,990	29.30	0.41	29.8	5.00	5,650	22.0

Table 3.4
Fourth Quarter 2023 Water Quality Field Parameters
Fourth Quarter 2023 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-80-082	11/09/2023	47.48	7.04	9,749	20.90	0.54	29.0	5.02	5,870	74.1
MW-80-082	12/13/2023	49.19	6.96	11,359	13.00	0.68	28.5	5.99	6,920	67.4
MW-81-043	10/10/2023	23.37	7.42	7,734	39.00	1.28	30.5	4.23	5,010	50.4
MW-81-043	11/08/2023	24.22	7.13	9,043	49.30	0.63	27.0	4.88	5,700	95.0
MW-81-043	12/12/2023	25.54	7.16	9,749	35.50	0.67	25.6	5.36	6,230	49.9
MW-81-098	10/10/2023	23.66	7.70	10,054	9.00	1.79	29.8	5.63	6,540	-109.8
MW-81-098	11/08/2023	24.7	7.05	10,042	4.70	3.05	26.0	5.53	6,400	85.3
MW-81-098	12/12/2023	25.27	7.04	10,639	6.50	2.97	25.3	5.99	6,880	49.3
MW-82-046	10/10/2023	30.02	7.92	12,467	45.00	0.88	26.0	7.13	8,100	-114.8
MW-82-046	11/07/2023	30.45	7.34	10,749	47.00	0.17	25.8	6.07	6,980	87.0
MW-82-046	12/12/2023	30.83	7.15	11,862	50.00	0.27	24.9	6.75	7,690	-131.5
MW-82-112	11/07/2023	30.3	7.44	7,696	27.00	0.47	25.0	4.19	4,350	53.0
MW-82-168	10/10/2023	28.27	7.97	8,875	8.00	0.66	26.5	4.94	5,760	-46.6
MW-82-168	11/07/2023	29.05	7.62	8,224	4.00	0.00	25.6	4.55	5,340	77.9
MW-82-168	12/12/2023	30.7	7.14	8,510	2.00	0.42	24.6	4.73	5,520	-68.7
MW-82-198	10/10/2023	28.03	7.82	9,073	7.00	1.41	26.7	5.06	5,910	80.3
MW-82-198	11/07/2023	29	7.93	7,395	8.00	0.01	26.2	4.07	4,810	68.0
MW-82-198	12/12/2023	30.44	7.69	8,376	6.00	0.24	25.3	4.65	5,440	-140.7
MW-83-090	11/27/2023	75.3	7.77	1,761	44.00	1.01	27.2	0.89	1,140	133.2
MW-83-180	11/27/2023	75.15	7.58	9,137	22.00	1.23	27.1	5.12	5,960	57.6
MW-83-225	11/27/2023	75.92	7.09	11,851	15.00	0.52	26.7	6.73	7,710	-71.5
MW-83-245	11/27/2023	75.77	7.31	14,942	5.00	0.43	27.3	8.63	9,690	-87.7
MW-84-057	11/28/2023	46.16	7.51	1,930	9.00	3.71	27.6	0.98	1,260	50.1
MW-84-095	11/28/2023	46.05	7.24	5,243	4.00	1.05	28.2	2.81	3,400	22.9
MW-84-132	11/28/2023	46.65	7.63	7,369	11.00	2.33	28.7	4.04	4,780	11.8
MW-84-193	11/28/2023	46.54	7.90	10,607	23.00	2.99	28.2	5.97	6,890	15.1
MW-85-129	11/28/2023	115.6	7.74	1,839	8.00	2.29	26.6	0.93	1,190	85.0
MW-85-217	11/28/2023	115.04	7.75	8,985	7.00	0.42	25.6	5.03	5,880	21.8
MW-85-237	11/28/2023	115.31	7.63	11,265	6.00	0.34	26.8	6.35	7,300	-55.1
MW-86-030	11/27/2023	15.9	7.16	1,399	12.80	1.62	22.5	0.76	979	77.3
MW-86-066	11/27/2023	15.22	7.07	7,688	16.80	2.42	21.6	5.37	4,590	63.2
MW-86-120	11/27/2023	15.73	7.40	10,845	12.40	0.09	21.5	6.64	7,560	-137.2
MW-86-140	11/27/2023	15.82	7.16	12,985	11.10	9.00	22.3	8.04	8,910	3.0

Table 3.4
Fourth Quarter 2023 Water Quality Field Parameters
Fourth Quarter 2023 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-87-109	11/28/2023	92.25	7.46	2,964	17.00	3.72	27.8	1.48	1,540	54.8
MW-87-139	11/28/2023	92.21	7.24	8,015	46.00	2.28	24.0	4.01	4,440	103.9
MW-87-192	11/28/2023	92.63	7.27	7,882	5.00	0.89	27.1	4.33	5,100	60.5
MW-87-275	11/28/2023	92.53	7.55	8,583	7.00	1.51	27.0	4.76	5,570	68.4
MW-88-107	10/12/2023	90.94	7.55	752	25.00	2.58	26.4	0.36	480	95.4
MW-88-107	11/09/2023	90.98	7.79	758	18.00	0.22	27.8	0.37	490	145.8
MW-88-107	12/14/2023	91.68	7.83	769	15.00	1.06	25.9	0.36	480	36.2
MW-89-183	11/29/2023	132.66	7.79	5,860	8.00	1.40	25.2	3.17	3,800	60.0
MW-89-273	11/29/2023	132.72	7.35	6,148	4.00	0.32	22.6	3.33	3,990	22.4
MW-90-031	11/14/2023	6.29	6.66	21,088	23.50	0.14	26.3	0.12	13,380	-51.9
MW-91-045	11/17/2023	12.05	9.00	1,122	31.00	0.04	25.1	0.56	720	129.4
MW-91-120	11/17/2023	11.6	8.11	8,372	40.00	1.55	24.2	4.58	5,360	133.3
MW-91-170	11/17/2023	11.45	8.03	10,313	48.00	0.20	24.7	5.84	6,750	179.4
MW-91-320	11/17/2023	13.33	8.78	25,484	8.00	0.00	23.9	0.16	16,550	-103.3
MW-92-037	11/17/2023	7.9	7.96	1,744	2.00	0.19	27.8	0.87	1,120	-47.9
MW-92-072	11/17/2023	7.85	7.96	2,232	3.00	0.22	28.2	1.13	1,440	-52.2
MW-92-102	11/17/2023	8.22	8.08	3,312	3.00	0.40	27.6	1.72	2,140	-36.3
MW-92-122	11/17/2023	8.68	7.45	11,493	2.00	0.23	27.6	6.52	7,480	-79.3
MW-93-050	11/16/2023	33.15	7.36	5,539	48.70	2.04	27.0	2.87	3,468	68.9
MW-93-213	11/16/2023	33.15	6.78	12,684	47.10	0.93	26.7	6.98	7,950	79.9
MW-95-113	12/14/2023	98.93	7.69	1,229	18.00	3.55	26.8	0.67	950	64.2
MW-95-157	12/14/2023	98.88	7.48	4,476	13.00	2.58	25.2	2.39	2,890	45.1
MW-96-045	11/16/2023	25	7.24	14,762	30.60	0.82	27.3	8.31	9,360	81.4
MW-96-217	11/16/2023	30.46	7.26	18,909	5.00	2.09	26.7	0.11	12,280	41.1
MW-97-042	11/16/2023	28.5	7.48	3,634	49.10	1.97	27.0	1.85	2,264	67.1
MW-97-202	11/16/2023	29.24	7.03	18,966	45.10	0.40	25.0	0.11	12,060	-93.5
MW-98-055	11/28/2023	47.02	7.85	3,927	19.50	1.27	22.1	2.25	2,740	28.2
MW-98-077	11/28/2023	47.21	7.54	8,339	24.70	4.92	25.0	4.61	5,400	118.9
OW-01D	12/12/2023	95.79	7.68	7,582	47.00	8.93	26.0	3.78	4,170	18.2
OW-01M	12/12/2023	95.94	7.37	7,736	7.00	7.64	26.7	3.86	4,260	168.9
OW-01S	12/13/2023	95.93	6.55	6,171	40.00	7.24	27.1	3.09	3,350	219.4
OW-02D	12/12/2023	94.31	7.32	7,370	6.00	5.67	25.3	3.68	4,050	131.3
OW-02M	12/12/2023	94.03	7.44	7,592	8.00	9.11	25.1	3.79	4,180	127.1

Table 3.4
Fourth Quarter 2023 Water Quality Field Parameters
Fourth Quarter 2023 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)
OW-02S	12/13/2023	94.6	7.77	3,268	5.00	7.82	24.2	1.63	1,710	207.2
OW-05D	12/12/2023	97.53	7.10	7,255	4.00	8.77	26.0	3.63	3,980	164.3
OW-05M	12/12/2023	96.98	7.52	7,466	5.00	7.40	27.1	3.73	4,110	144.9
OW-05S	12/13/2023	97.44	7.32	5,003	6.00	7.72	26.3	2.50	2,670	194.3
PGE-07BR	11/30/2023	111.25	7.40	18,584	7.00	0.17	30.3	0.11	12,070	-117.0
PGE-08	12/14/2023	144.22	7.41	18,396	4.00	0.55	26.8	0.11	12,020	-91.2
PT5D	10/11/2023	19.5	9.27	15,826	6.30	0.14	24.5	9.26	9,830	41.0
PT5D	11/08/2023	20.98	7.98	11,054	5.00	0.18	22.3	6.36	7,260	13.0
PT5D	12/12/2023	22.42	7.52	11,472	4.20	0.44	20.7	7.20	8,130	38.9
PT5M	11/15/2023	20.81	7.26	4,469	7.60	0.50	21.0	2.59	3,132	69.9
PT5S	11/15/2023	20.24	7.62	1,349	5.50	0.21	22.0	0.72	929	-79.0
PT8D	11/30/2023	107.43	6.80	11,242	11.00	0.31	27.7	6.38	7,320	-50.7
PT9D	11/30/2023	104.33	7.57	14,949	5.00	2.31	27.1	8.68	9,730	37.2
PT9M	11/30/2023	104.28	6.91	9,414	15.00	1.01	26.1	5.26	6,140	47.2
PT9S	11/30/2023	104.28	7.56	2,929	4.00	1.85	27.5	1.47	1,850	10.5
R-19	11/16/2023	nm	8.01	1,058	2.00	8.27	18.0	0.53	680	99.6
R-28	11/15/2023	nm	8.04	1,062	3.00	8.25	18.5	0.53	690	101.1
R-63	11/15/2023	nm	7.80	1,101	2.00	7.46	17.8	0.55	710	95.6
RRB	11/16/2023	nm	7.98	1,048	3.00	6.33	18.1	0.51	670	85.8
SW1	11/15/2023	nm	7.90	1,072	2.00	6.93	18.5	0.53	690	78.8
SW2	11/15/2023	nm	7.64	1,076	2.00	7.06	18.4	0.53	690	83.9
TOPOCK-2	11/30/2023	nm	8.09	1,166	2.00	2.18	33.1	0.58	620	35.8
TOPOCK-3	11/30/2023	nm	8.16	1,731	2.00	3.88	33.2	0.85	860	12.8
TW-01	12/01/2023	165.49	7.37	7,553	4.00	0.55	27.9	3.76	4,140	28.4
TW-02D	10/10/2023	39.9	7.49	8,555	5.00	1.43	29.1	4.73	5,550	68.8
TW-02D	11/07/2023	39.61	7.41	7,792	5.00	0.22	27.5	4.26	5,040	55.4
TW-02D	12/12/2023	40.43	7.30	8,779	1.00	0.07	28.1	4.86	5,700	-18.8
TW-02S	10/10/2023	39.76	7.72	7,612	17.00	3.41	27.8	4.18	4,940	74.5
TW-02S	11/07/2023	39.81	7.07	6,490	7.00	0.16	26.4	3.53	4,210	31.5
TW-02S	12/12/2023	40.75	6.84	7,400	4.00	2.47	28.1	4.06	4,810	39.1
TW-03D	10/10/2023	39.75	7.98	7,533	6.00	3.29	28.8	4.13	4,890	71.4
TW-03D	11/07/2023	39.35	7.03	6,511	6.00	0.57	27.8	3.54	4,270	66.1
TW-03D	12/12/2023	40.3	7.26	9,067	2.00	0.10	28.5	5.06	5,890	50.4

Table 3.4
Fourth Quarter 2023 Water Quality Field Parameters
Fourth Quarter 2023 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)
TW-04	11/30/2023	31.1	8.08	22,985	6.00	0.46	24.5	0.14	14,990	31.3
TW-05	11/28/2023	42.93	7.50	17,722	17.10	1.25	26.2	0.10	11,310	120.5

Notes:
deg C = degrees Celsius
ft bTOC = feet below the top of casing
mg/L = milligrams per liter
mV = millivolts
nm = parameter was not measured
NTU = nephelometric turbidity units
ORP = oxidation-reduction potential
ppt = parts per thousand
µS/cm = microsiemens per centimeter

Table 4.1
Monitoring Well Inspection Results
Fourth Quarter 2023 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Well ID	Date	Well Labeled On Casing Or Pad	Traffic Poles Intact	Concrete Pad Intact?	Erosion Around Wellhead?	Steel Casing Or Well Box Intact?	Any Tabs Stripped Or Missing?	Water In Well Box?	J Plug Replaced Properly?	Well Locked At Arrival?	All Bolts Present?	Comments
CW-01D	12/13/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
CW-01M	12/13/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
CW-02D	12/13/2023	yes	n/a	yes	no	yes	n/a	no	yes	yes	n/a	
CW-02M	12/13/2023	yes	n/a	yes	no	yes	n/a	no	yes	yes	n/a	
CW-03D	12/13/2023	yes	n/a	yes	no	yes	n/a	no	yes	yes	n/a	
CW-03M	12/13/2023	yes	n/a	yes	no	yes	n/a	no	yes	yes	n/a	
CW-04D	12/13/2023	yes	n/a	yes	no	yes	n/a	no	yes	yes	n/a	
CW-04M	12/13/2023	yes	n/a	yes	no	yes	n/a	no	yes	yes	n/a	
ER-01	11/29/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
ER-02	11/29/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
ER-03	11/29/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
ER-04	11/29/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
FW-02B-127	10/12/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
FW-02B-127	11/9/2023	yes	n/a	yes	no	yes	n/a	n/a	yes	yes	n/a	
FW-02B-127	12/14/2023	yes	n/a	yes	no	yes	n/a	n/a	yes	n/a	n/a	
HNWR-01A-098	11/16/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
HNWR-01A-174	11/16/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
IRZ-09-100	11/8/2023	no	n/a	yes	no	yes	n/a	no	yes	yes	n/a	Extraction well vault. Interior of vault is labeled.
IRZ-13D-210	11/8/2023	no	n/a	yes	no	yes	n/a	no	yes	yes	n/a	Extraction well vault. Interior of vault is labeled.
IRZ-13S-095	11/8/2023	no	n/a	yes	no	yes	n/a	no	yes	yes	n/a	Extraction well vault. Interior of vault is labeled.
IRZ-21-065	11/8/2023	no	n/a	yes	no	yes	n/a	no	yes	yes	n/a	Injection well vault. Interior of vault is labeled.
IRZ-21-157	11/8/2023	no	n/a	yes	no	yes	n/a	no	yes	yes	n/a	Injection well vault. Interior of vault is labeled.
IRZ-23-143	10/12/2023	no	n/a	yes	no	yes	n/a	no	yes	yes	n/a	Extraction well vault. Interior of vault is labeled.
IRZ-23-143	11/8/2023	no	n/a	yes	no	yes	n/a	no	yes	yes	n/a	Extraction well vault. Interior of vault is labeled.
IRZ-25-100	11/8/2023	no	n/a	yes	no	yes	n/a	no	yes	yes	n/a	Injection well vault. Interior of vault is labeled.
IRZ-25-166	11/8/2023	no	n/a	yes	no	yes	n/a	no	yes	yes	n/a	Injection well vault. Interior of vault is labeled.
MTS-1	11/14/2023	yes	yes	yes	no	yes	no	no	yes	yes	yes	
MTS-2	11/14/2023	yes	yes	yes	no	yes	no	no	yes	yes	yes	
MW-10	11/30/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-10D	11/30/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-11	11/30/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-11D	11/30/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-12	11/30/2023	yes	yes	yes	no	yes	no	no	yes	yes	yes	
MW-13	12/1/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-14	12/1/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-19	11/28/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-20-070	10/11/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-20-070	11/10/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-20-070	12/13/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	

Table 4.1
Monitoring Well Inspection Results
Fourth Quarter 2023 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Well ID	Date	Well Labeled On Casing Or Pad	Traffic Poles Intact	Concrete Pad Intact?	Erosion Around Wellhead?	Steel Casing Or Well Box Intact?	Any Tabs Stripped Or Missing?	Water In Well Box?	J Plug Replaced Properly?	Well Locked At Arrival?	All Bolts Present?	Comments
MW-20-100	10/11/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-20-100	11/10/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-20-100	12/13/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-20-130	10/11/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-20-130	11/10/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-20-130	12/13/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-21	10/11/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-21	11/7/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-21	12/13/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-22	11/14/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-23-060	11/28/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-23-080	11/28/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-24A	11/30/2023	yes	n/a	yes	no	yes	n/a	no	yes	yes	n/a	
MW-24B	11/30/2023	yes	yes	yes	no	yes	no	no	yes	yes	yes	
MW-24BR	11/30/2023	yes	n/a	yes	no	yes	n/a	no	yes	yes	n/a	
MW-25	11/29/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-26	10/11/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-26	11/9/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-26	12/13/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-27-020	11/27/2023	yes	n/a	yes	no	yes	n/a	no	yes	yes	n/a	
MW-27-060	11/27/2023	yes	n/a	yes	no	yes	n/a	no	yes	yes	n/a	
MW-27-085	11/27/2023	yes	n/a	yes	no	yes	n/a	no	yes	yes	n/a	
MW-28-025	11/13/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-28-090	11/13/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-29	11/27/2023	yes	n/a	yes	no	yes	n/a	no	yes	yes	n/a	
MW-30-030	11/9/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-30-050	10/11/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-30-050	11/7/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-30-050	12/14/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-31-060	10/12/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-31-060	11/10/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-31-060	12/13/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-31-135	10/12/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-31-135	11/10/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-31-135	12/13/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-32-020	11/14/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-32-035	11/14/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-33-040	11/15/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-33-090	11/15/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-33-150	11/15/2023	yes	n/a	yes	no	yes	n/a	no	yes	yes	n/a	
MW-33-210	11/15/2023	yes	n/a	yes	no	yes	n/a	no	yes	yes	n/a	
MW-34-055	11/8/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-34-080	10/11/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-34-080	11/8/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-34-080	12/12/2023	yes	n/a	yes	no	yes	n/a	no	yes	yes	n/a	
MW-34-100	11/8/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-34-100	12/12/2023	yes	n/a	yes	no	yes	n/a	no	yes	yes	n/a	
MW-35-060	11/16/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	

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Monitoring Well Inspection Results
Fourth Quarter 2023 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

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MW-35-135	11/16/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-36-020	11/8/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-36-040	11/8/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-36-050	11/8/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-36-070	11/8/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-36-090	10/11/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-36-090	11/8/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-36-090	12/12/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-36-100	10/11/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-36-100	11/8/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-36-100	12/12/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-37D	11/28/2023	yes	n/a	yes	no	yes	n/a	no	yes	yes	n/a	
MW-37S	11/28/2023	yes	n/a	yes	no	yes	n/a	no	yes	yes	n/a	
MW-38D	11/30/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-38S	11/30/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-39-040	10/10/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-39-040	11/7/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-39-040	12/14/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-39-050	10/10/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-39-050	11/7/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-39-050	12/14/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-39-060	10/10/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-39-060	11/7/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-39-070	10/10/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-39-070	11/7/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-39-070	12/14/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-39-080	10/10/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-39-080	11/7/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-39-080	12/14/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-39-100	10/10/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-39-100	11/7/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-39-100	12/12/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-40D	11/29/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-40S	11/29/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-41D	12/1/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-41M	12/1/2023	yes	n/a	yes	no	yes	n/a	no	yes	yes	n/a	
MW-41S	12/1/2023	yes	n/a	yes	no	yes	n/a	no	yes	yes	n/a	
MW-42-030	11/13/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-42-055	11/13/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-42-065	11/13/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-43-025	11/14/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-43-075	11/14/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-43-090	11/14/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-44-070	11/8/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-44-115	10/11/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-44-115	11/8/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-44-115	12/12/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-44-125	10/11/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	

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Monitoring Well Inspection Results
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MW-44-125	11/8/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-44-125	12/12/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-45-095a	10/11/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-45-095a	11/8/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-45-095a	12/14/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-46-175	11/16/2023	yes	n/a	yes	no	yes	n/a	no	yes	yes	n/a	
MW-46-205	11/16/2023	yes	n/a	yes	no	yes	n/a	no	yes	yes	n/a	
MW-47-115	11/16/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-48	11/30/2023	yes	yes	yes	no	yes	no	no	yes	yes	yes	
MW-49-135	11/27/2023	yes	n/a	yes	no	yes	n/a	no	yes	yes	n/a	
MW-49-275	11/27/2023	yes	n/a	yes	no	yes	n/a	no	yes	yes	n/a	
MW-49-365	11/27/2023	yes	n/a	yes	no	yes	n/a	no	yes	yes	n/a	
MW-50-095	11/28/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-50-200	11/28/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-51	10/11/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-51	11/9/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-51	12/13/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-52D	11/15/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-52M	11/15/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-52S	11/15/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-53D	11/15/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-53M	11/15/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-53S	11/15/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-54-085	11/17/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-54-140	11/17/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-54-195	11/17/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-55-045	11/14/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-55-120	11/14/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-56D	11/15/2023	yes	yes	yes	no	yes	no	no	yes	yes	yes	
MW-56M	11/15/2023	yes	yes	yes	no	yes	no	no	yes	yes	yes	
MW-56S	11/15/2023	yes	yes	yes	no	yes	no	no	yes	yes	yes	
MW-57-050	11/29/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-57-070	11/29/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-57-185	11/29/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-58-065	11/29/2023	yes	n/a	yes	no	yes	n/a	no	yes	yes	n/a	
MW-58BR	11/29/2023	yes	n/a	yes	no	yes	n/a	no	yes	yes	n/a	
MW-59-100	11/29/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-60-125	11/30/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-60BR-245	11/29/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-61-110	11/30/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-62-065	11/29/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-62-110	11/28/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-62-190	11/28/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-63-065	11/29/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-64BR	11/29/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-65-160	11/28/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-65-225	11/28/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-66BR-270	11/14/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	

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Monitoring Well Inspection Results
Fourth Quarter 2023 Well Performance Report
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MW-67-185	10/13/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-67-185	11/30/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-67-185	12/14/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-67-225	11/30/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-67-260	11/30/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-68-180	10/13/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-68-180	11/30/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-68-180	12/14/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-68-240	12/1/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-68BR-280	11/30/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-70-105	11/29/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-70BR-225	11/29/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-96-045	11/16/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-86-030	11/27/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-86-066	11/27/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-86-120	11/27/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
PTI-1D	11/2/2023	yes	yes	yes	no	yes	no	no	yes	yes	yes	
MW-15	11/28/2023	yes	n/a	yes	no	yes	n/a	no	yes	yes	n/a	
MW-69-195	11/28/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-66-165	11/28/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-66-230	11/28/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-70BR-287	11/29/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-71-035	10/10/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-71-035	11/7/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-71-035	12/13/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-72-080	11/29/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-72BR-200	11/29/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-73-080	11/29/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-74-240	12/14/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-75-033	11/13/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-75-117	11/13/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-75-202	11/13/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-75-267	11/13/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-75-337	11/13/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-76-039	10/9/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-76-039	11/6/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-76-039	12/11/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-76-156	10/9/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-76-156	11/6/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-76-156	12/11/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-76-181	10/9/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-76-181	11/6/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-76-181	12/11/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-76-218	10/9/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-76-218	11/6/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-76-218	12/11/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-77-046	10/11/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-77-046	11/6/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	

Table 4.1
Monitoring Well Inspection Results
Fourth Quarter 2023 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

Well ID	Date	Well Labeled On Casing Or Pad	Traffic Poles Intact	Concrete Pad Intact?	Erosion Around Wellhead?	Steel Casing Or Well Box Intact?	Any Tabs Stripped Or Missing?	Water In Well Box?	J Plug Replaced Properly?	Well Locked At Arrival?	All Bolts Present?	Comments
MW-77-046	12/11/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-77-102	10/11/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-77-102	11/6/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-77-102	12/11/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-77-158	10/11/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-77-158	11/6/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-77-158	12/11/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-77-187	10/11/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-77-187	11/8/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-77-187	12/11/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-78-070	10/13/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-78-070	11/9/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-78-070	12/13/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-78-142	10/13/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-78-142	11/9/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-78-142	12/13/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-79-058	10/12/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-79-058	11/9/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-79-058	12/13/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-79-102	10/12/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-79-102	11/9/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-79-102	12/13/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-79-102	12/14/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-80-057	10/12/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-80-057	11/9/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-80-057	12/13/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-80-082	10/12/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-80-082	11/9/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-80-082	12/13/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-81-043	10/10/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-81-043	11/8/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-81-043	12/12/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-81-098	10/10/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-81-098	11/8/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-81-098	12/12/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-82-046	10/10/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-82-046	11/7/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-82-046	12/12/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-82-112	11/7/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-82-168	10/10/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-82-168	11/7/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-82-168	12/12/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-82-198	10/10/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-82-198	11/7/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-82-198	12/12/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-83-090	11/27/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-83-180	11/27/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-83-225	11/27/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	

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MW-83-245	11/27/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-84-057	11/28/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-84-095	11/28/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-84-132	11/28/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-84-193	11/28/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-85-129	11/28/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-85-217	11/28/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-85-237	11/28/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-86-140	11/27/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-87-109	11/28/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-87-139	11/28/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-87-192	11/28/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-87-275	11/28/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-88-107	10/12/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-88-107	11/9/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-88-107	12/14/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-89-183	11/29/2023	yes	yes	yes	no	yes	no	no	yes	yes	yes	
MW-89-273	11/29/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-90-031	11/14/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-91-045	11/17/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-91-120	11/17/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-91-170	11/17/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-91-320	11/17/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-92-037	11/17/2023	yes	n/a	yes	no	yes	n/a	no	yes	yes	n/a	
MW-92-072	11/17/2023	yes	n/a	yes	no	yes	n/a	no	yes	yes	n/a	
MW-92-102	11/17/2023	yes	n/a	yes	no	yes	n/a	no	yes	yes	n/a	
MW-92-122	11/17/2023	yes	n/a	yes	no	yes	n/a	no	yes	yes	n/a	
MW-93-050	11/16/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-93-213	11/16/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-94-030	11/14/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-94-100	11/14/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-94-175	11/14/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-95-113	12/14/2023	yes	n/a	yes	no	yes	n/a	no	yes	yes	n/a	
MW-95-157	12/14/2023	yes	n/a	yes	no	yes	n/a	no	yes	yes	n/a	
MW-96-217	11/16/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-97-042	11/16/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-97-202	11/16/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-98-055	11/28/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-98-077	11/28/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-99-060	11/15/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
MW-99-140	11/15/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
OW-01D	12/12/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
OW-01M	12/12/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
OW-01S	12/13/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
OW-02D	12/12/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
OW-02M	12/12/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
OW-02S	12/13/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
OW-05D	12/12/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	

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OW-05M	12/12/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
OW-05S	12/13/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
PGE-07BR	11/30/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
PGE-08	12/14/2023	yes	yes	yes	no	yes	no	no	yes	yes	yes	
PGE-09N	11/15/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
PGE-09S	11/15/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
PT5D	10/11/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
PT5D	11/8/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
PT5D	12/12/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
PT5M	11/15/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
PT5S	11/15/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
PT6D	10/9/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
PT6D	11/10/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
PT6D	12/14/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
PT8D	11/30/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
PT9D	11/30/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
PT9M	11/30/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
PT9S	11/30/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
PTI-1D	12/14/2023	yes	yes	yes	no	yes	no	no	yes	n/a	yes	
Site B-165	11/16/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
Site B-220	11/16/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
Site B-285	11/16/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
Topock-2	11/30/2023	yes	n/a	yes	no	yes	n/a	no	yes	yes	n/a	
Topock-3	11/30/2023	yes	n/a	yes	no	yes	n/a	no	yes	yes	n/a	
TW-01	12/1/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
TW-02D	10/10/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
TW-02D	11/7/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
TW-02D	12/12/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
TW-02S	10/10/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
TW-02S	11/7/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
TW-02S	12/12/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
TW-03D	10/10/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
TW-03D	11/7/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
TW-03D	12/12/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
TW-04	11/30/2023	yes	yes	yes	no	yes	no	no	yes	yes	yes	
TW-05	11/28/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	
TWB-01	11/29/2023	yes	n/a	yes	no	yes	no	no	yes	yes	yes	

Acronyms and Abbreviations:
ID = identification
n/a = not applicable
-- = no comment

Table 4.2
Monitoring Well Water Levels and Specific Capacities
Fourth Quarter 2023 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/feet)	Measured Depth Covering Greater than 20% of screen?	Flagged for Evaluation	Planned for Resurvey	Planned for Redevelopment	Notes
CW-01D	Alluvial	12/13/2023	302.89	300.10	2.79	252.69	302.69	109.10	109.20	0.10	500	1.32	No				
CW-01M	Alluvial	12/13/2023	192.71	187.05	5.66	142.71	192.71	108.58	108.70	0.12	500	1.10	No				
CW-02D	Alluvial	12/13/2023	357.71	355.00	2.71	287.71	337.71	94.86	94.95	0.09	500	1.47	No				
CW-02M	Alluvial	12/13/2023	211.12	201.82	9.30	154.81	204.81	94.92	94.96	0.04	500	3.30	No				
CW-03D	Alluvial	12/13/2023	342.61	340.00	2.61	272.61	322.61	79.44	79.51	0.07	500	1.89	No				
CW-03M	Alluvial	12/13/2023	224.55	221.25	3.30	174.55	224.55	79.75	79.82	0.07	500	1.89	No				
CW-04D	Alluvial	12/13/2023	305.64	303.00	2.64	235.64	285.64	63.77	63.83	0.06	500	2.20	No				
CW-04M	Alluvial	12/13/2023	172.55	171.31	1.24	122.25	172.25	63.80	63.85	0.05	500	2.64	No				
MW-10	Alluvial	11/30/2023	98.28	95.24	3.04	75.35	95.35	75.79	75.79	0.00	500	N/A	No				
MW-10D	Alluvial	11/30/2023	127.70	127.65	0.05	110.20	125.20	77.11	77.13	0.02	500	6.61	No	X			High turbidity. Continue to monitor for consecutive high turbidity readings.
MW-11	Alluvial	11/30/2023	88.21	84.22	3.99	64.60	84.60	67.90	67.95	0.05	500	2.64	No				
MW-11D	Alluvial	11/30/2023	134.59	133.66	0.93	112.19	132.19	68.81	68.87	0.06	500	2.20	No				
MW-12	Alluvial	11/30/2023	51.31	49.86	1.45	28.41	48.41	28.12	28.22	0.10	500	1.32	No				
MW-13	Alluvial	12/01/2023	51.92	49.08	2.84	28.42	48.42	31.34	31.39	0.05	500	2.64	No				
MW-14	Alluvial	12/01/2023	134.62	133.74	0.88	111.79	131.79	117.73	117.75	0.02	500	6.61	No				
MW-15	Alluvial	11/28/2023	204.9	200.50	4.40	182.40	202.40	186.49	186.52	0.03	500	4.40	No				
MW-19	Alluvial	11/28/2023	66.62	65.70	0.92	46.62	66.62	46.34	46.39	0.05	500	2.64	No				
MW-20-070	Alluvial	10/11/2023	69.69	68.40	1.29	49.69	69.69	44.85	44.90	0.05	500	2.64	No	X			High turbidity. Not repeated in consecutive sampling events.
MW-20-070	Alluvial	11/10/2023	69.69	68.37	1.32	49.69	69.69	45.55	45.60	0.05	500	2.64	No				
MW-20-070	Alluvial	12/13/2023	69.69	68.37	1.32	49.69	69.69	46.42	46.47	0.05	500	2.64	No				
MW-20-100	Alluvial	10/11/2023	100.49	98.08	2.41	88.59	98.59	44.52	44.60	0.08	500	1.65	No				
MW-20-100	Alluvial	11/10/2023	100.49	98.08	2.41	88.59	98.59	48.56	48.60	0.04	500	3.30	No				
MW-20-100	Alluvial	12/13/2023	100.49	98.09	2.40	88.59	98.59	46.61	46.65	0.04	500	3.30	No				
MW-20-130	Alluvial	10/11/2023	131.49	129.55	1.94	120.15	130.15	45.14	45.20	0.06	500	2.20	No				
MW-20-130	Alluvial	11/10/2023	131.49	129.51	1.98	120.15	130.15	45.93	46.00	0.07	500	1.89	No				
MW-20-130	Alluvial	12/13/2023	131.49	129.51	1.98	120.15	130.15	47.07	47.14	0.07	500	1.89	No				
MW-21	Alluvial	10/11/2023	58.95	58.38	0.57	38.45	58.45	49.50	50.33	0.83	100	0.03	No				
MW-21	Alluvial	11/07/2023	58.95	58.36	0.59	38.45	58.45	49.36	50.10	0.74	100	0.04	No				
MW-21	Alluvial	12/13/2023	58.95	58.35	0.60	38.45	58.45	49.50	50.25	0.75	100	0.04	No				
MW-22	Fluvial	11/14/2023	12.05	11.13	0.92	5.15	10.15	6.38	6.42	0.04	500	3.30	No	X			High turbidity. Continue to monitor for consecutive high turbidity readings.
MW-23-060	Bedrock	11/28/2023	59.84	60.03	-0.19	49.64	59.64	50.83	50.86	0.03	500	4.40	No				
MW-23-080	Bedrock	11/28/2023	80.44	80.60	-0.16	74.69	79.69	50.68	50.73	0.05	500	2.64	No				
MW-24A	Alluvial	11/30/2023	129.91	127.20	2.71	106.43	126.43	112.05	112.12	0.07	500	1.89	No				
MW-24B	Alluvial	11/30/2023	216.85	213.69	3.16	195.01	215.01	110.14	110.20	0.06	500	2.20	No	X			High turbidity. Not recommended for redevelopment at this time given measured well depth and specific capacity indicates good yield.
MW-25	Alluvial	11/29/2023	108.44	106.28	2.16	86.40	106.40	89.00	89.05	0.05	500	2.64	No				
MW-26	Alluvial	10/11/2023	70.82	69.20	1.62	50.82	70.82	46.63	46.70	0.07	500	1.89	No				
MW-26	Alluvial	11/09/2023	70.82	69.15	1.67	50.82	70.82	46.81	46.85	0.04	500	3.30	No				
MW-26	Alluvial	12/13/2023	70.82	69.19	1.63	50.82	70.82	46.87	46.90	0.03	500	4.40	No				
MW-27-020	Fluvial	11/27/2023	18.92	13.81	5.11	8.92	18.92	7.73	7.81	0.08	500	1.65	Yes	X			Siltation. Not recommended for redevelopment based on location and fluvial sediments.
MW-27-060	Fluvial	11/27/2023	61.91	58.81	3.10	50.21	60.21	8.67	8.72	0.05	500	2.64	Yes	X			Siltation. Not recommended for redevelopment based on location and fluvial sediments.
MW-27-085	Fluvial	11/27/2023	100.05	100.36	-0.31	80.05	90.05	8.43	8.46	0.03	500	4.40	No				

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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/feet)	Measured Depth Covering Greater than 20% of screen?	Flagged for Evaluation	Planned for Resurvey	Planned for Redevelopment	Notes
MW-28-025	Fluvial	11/13/2023	25.10	23.84	1.26	15.10	25.10	13.59	13.59	0.00	500	N/A	No				
MW-28-090	Fluvial	11/13/2023	101.46	98.08	3.38	73.10	93.10	14.40	13.59	-0.81	500	0.16	No				
MW-29	Fluvial	11/27/2023	43.73	40.70	3.03	31.71	41.71	31.82	31.84	0.02	500	6.61	Yes	X			Siltation. Not recommended for redevelopment based on location and fluvial sediments.
MW-30-050	Fluvial	10/11/2023	55.01	50.30	4.71	42.41	52.41	12.48	12.57	0.09	500	1.47	Yes	X			Siltation. Not recommended for redevelopment based on location and fluvial sediments.
MW-30-050	Fluvial	11/07/2023	55.01	50.22	4.79	42.41	52.41	12.94	13.00	0.06	500	2.20	Yes	X			Siltation. Not recommended for redevelopment based on location and fluvial sediments.
MW-30-050	Fluvial	12/14/2023	55.01	50.10	4.91	42.41	52.41	13.90	13.93	0.03	500	4.40	Yes	X			Siltation. Not recommended for redevelopment based on location and fluvial sediments.
MW-31-060	Alluvial	10/12/2023	65.71	61.48	4.23	43.21	63.21	40.85	40.93	0.08	500	1.65	No				
MW-31-060	Alluvial	11/10/2023	65.71	61.64	4.07	43.21	63.21	40.80	40.81	0.01	500	13.21	No				
MW-31-060	Alluvial	12/13/2023	65.71	61.64	4.07	43.21	63.21	41.71	41.73	0.02	500	6.61	No				
MW-31-135	Alluvial	10/12/2023	133.16	131.00	2.16	112.86	132.86	41.32	41.43	0.11	500	1.20	No	X			High turbidity. Not repeated in November. Not recommended for redevelopment at this time.
MW-31-135	Alluvial	11/10/2023	133.16	130.74	2.42	112.86	132.86	41.75	41.75	0.00	200	N/A	No				
MW-31-135	Alluvial	12/13/2023	133.16	130.76	2.40	112.86	132.86	42.58	42.63	0.05	500	2.64	No	X			High turbidity. Not recommended for redevelopment at this time given specific capacity indicates good yield.
MW-32-020	Fluvial	11/14/2023	22.41	19.17	3.24	12.41	22.41	8.19	8.22	0.03	500	4.40	Yes	X			Not recommended for redevelopment based on location and fluvial sediments.
MW-32-035	Fluvial	11/14/2023	39.58	37.00	2.58	29.93	37.43	9.30	9.35	0.05	500	2.64	No				
MW-33-040	Fluvial	11/15/2023	44.64	40.98	3.66	31.80	41.80	34.35	34.39	0.04	500	3.30	No				
MW-33-090	Alluvial	11/15/2023	91.83	88.20	3.63	71.83	91.11	34.33	34.39	0.06	500	2.20	No				
MW-33-150	Alluvial	11/15/2023	158.15	155.04	3.11	134.77	154.77	34.55	34.60	0.05	500	2.64	No				
MW-33-210	Alluvial	11/15/2023	225.64	222.13	3.51	192.64	212.64	33.80	33.88	0.08	500	1.65	No				
MW-34-055	Fluvial	11/08/2023	58.81	56.27	2.54	47.21	57.21	7.34	7.40	0.06	500	2.20	No				
MW-34-080	Fluvial	10/11/2023	86.56	84.13	2.43	75.26	85.26	6.90	7.00	0.10	500	1.32	No				
MW-34-080	Fluvial	11/08/2023	86.56	84.10	2.46	75.26	85.26	7.55	7.60	0.05	500	2.64	No				
MW-34-080	Fluvial	12/12/2023	86.56	84.13	2.43	75.26	85.26	8.44	8.48	0.04	500	3.30	No				
MW-34-100	Fluvial	11/08/2023	116.44	115.76	0.68	91.44	101.44	7.57	7.60	0.03	500	4.40	No				
MW-34-100	Fluvial	12/12/2023	116.44	115.76	0.68	91.44	101.44	8.52	8.55	0.03	500	4.40	No				
MW-35-060	Alluvial	11/16/2023	61.63	57.97	3.66	41.33	61.33	28.60	28.66	0.06	500	2.20	No	X			Consecutive high turbidity readings. Turbidity readings consistent with data following Second Quarter 2023 redevelopment.
MW-35-135	Alluvial	11/16/2023	158.98	154.60	4.38	116.28	136.28	28.63	28.69	0.06	500	2.20	No	X			Consecutive high turbidity readings. Not recommended for redevelopment given screen remains clear and specific capacity indicates good yield.
MW-36-020	Fluvial	11/08/2023	23.08	22.20	0.88	12.78	22.78	15.42	15.47	0.05	500	2.64	No	X			High turbidity. Continue to monitor for consecutive high turbidity readings.
MW-36-040	Fluvial	11/08/2023	43.15	42.15	1.00	32.85	42.85	15.92	15.95	0.03	500	4.40	No				
MW-36-050	Fluvial	11/08/2023	55.79	53.02	2.77	48.79	53.79	15.84	15.87	0.03	500	4.40	No				
MW-36-070	Fluvial	11/08/2023	73.02	72.32	0.70	62.72	72.72	15.85	15.85	0.00	500	N/A	No				

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MW-36-090	Fluvial	10/11/2023	93.35	92.14	1.21	83.05	93.05	15.65	15.73	0.08	500	1.65	No				
MW-36-090	Fluvial	11/08/2023	93.35	NM	N/A	83.05	93.05	16.21	16.27	0.06	500	2.20	N/A				Incorrect total depth measured. Confirmed during December sampling event.
MW-36-090	Fluvial	12/12/2023	93.35	92.00	1.35	83.05	93.05	17.43	17.45	0.02	500	6.61	No				
MW-36-100	Fluvial	10/11/2023	111.36	109.30	2.06	91.36	101.36	15.53	15.64	0.11	500	1.20	No	X			High turbidity. Not repeated in consecutive sampling events.
MW-36-100	Fluvial	11/08/2023	111.36	109.37	1.99	91.36	101.36	17.02	17.09	0.07	500	1.89	No				
MW-36-100	Fluvial	12/12/2023	111.36	109.43	1.93	91.36	101.36	17.45	17.47	0.02	500	6.61	No				
MW-37D	Alluvial	11/28/2023	229.21	225.95	3.26	182.49	202.49	32.17	32.21	0.04	500	3.30	No				
MW-37S	Alluvial	11/28/2023	87.47	86.80	0.67	66.47	86.47	32.32	32.39	0.07	500	1.89	No				
MW-38D	Alluvial	11/30/2023	186.58	184.80	1.78	166.28	186.28	71.41	71.45	0.04	500	3.30	No				
MW-38S	Alluvial	11/30/2023	97.77	98.82	-1.05	77.47	97.47	70.33	70.36	0.03	500	4.40	No				
MW-39-040	Alluvial	10/10/2023	45.13	38.01	7.12	33.03	43.03	13.58	13.80	0.22	500	0.60	Yes	X			Second Quarter 2023 redevelopment with Waterra pump did not improve siltation. Well will not be considered for future redevelopment.
MW-39-040	Alluvial	11/07/2023	45.13	38.53	6.60	33.03	43.03	14.14	14.19	0.05	200	1.06	Yes	X			Second Quarter 2023 redevelopment with Waterra pump did not improve siltation. Well will not be considered for future redevelopment.
MW-39-040	Alluvial	12/14/2023	45.13	38.40	6.73	33.03	43.03	15.93	15.97	0.04	500	3.30	Yes	X			Second Quarter 2023 redevelopment with Waterra pump did not improve siltation. Well will not be considered for future redevelopment.
MW-39-050	Alluvial	10/10/2023	57.43	54.52	2.91	49.83	54.83	13.60	13.73	0.13	500	1.02	No				
MW-39-050	Alluvial	11/07/2023	57.43	54.43	3.00	49.83	54.83	14.24	14.28	0.04	200	1.32	No				
MW-39-050	Alluvial	12/14/2023	57.43	54.49	2.94	49.83	54.83	15.39	15.44	0.05	500	2.64	No				
MW-39-060	Alluvial	10/10/2023	69.00	60.61	8.39	51.70	61.70	14.00	14.11	0.11	500	1.20	No	X			High turbidity. Continue to monitor for consecutive high turbidity readings.
MW-39-060	Alluvial	11/07/2023	69.00	60.78	8.22	51.70	61.70	14.45	14.17	-0.28	200	0.19	No	X			High turbidity. Not recommended for redevelopment at this time given measured well depth and well location in the floodplain.
MW-39-070	Alluvial	10/10/2023	74.51	71.56	2.95	62.82	72.82	13.92	14.02	0.10	500	1.32	No	X			High turbidity. Not repeated in November sampling event. Continue to monitor.
MW-39-070	Alluvial	11/07/2023	74.51	71.50	3.01	62.82	72.82	14.39	14.43	0.04	200	1.32	No				
MW-39-070	Alluvial	12/14/2023	74.51	71.72	2.79	62.82	72.82	15.85	15.86	0.01	500	13.21	No	X			High turbidity. Not recommended for redevelopment at this time given specific capacity indicates good yield.
MW-39-080	Alluvial	10/10/2023	85.37	82.22	3.15	72.82	82.82	13.90	14.02	0.12	500	1.10	No				
MW-39-080	Alluvial	11/07/2023	85.37	82.04	3.33	72.82	82.82	14.52	14.58	0.06	200	0.88	No				
MW-39-080	Alluvial	12/14/2023	85.37	82.11	3.26	72.82	82.82	15.91	15.96	0.05	500	2.64	No				
MW-39-100	Alluvial	10/10/2023	120.53	116.65	3.88	82.82	102.82	14.32	14.45	0.13	500	1.02	No	X			High turbidity. Continue to monitor for repeated high turbidity in consecutive sampling events.

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MW-39-100	Alluvial	11/07/2023	120.53	116.55	3.98	82.82	102.82	14.60	14.65	0.05	200	1.06	No	X			High turbidity. Not repeated in December sampling event.
MW-39-100	Alluvial	12/12/2023	120.53	116.49	4.04	82.82	102.82	15.65	15.69	0.04	500	3.30	No				
MW-40D	Alluvial	11/29/2023	265.58	265.48	0.10	239.58	259.58	112.05	112.12	0.07	500	1.89	No				
MW-40S	Alluvial	11/29/2023	135.04	133.75	1.29	114.74	134.74	111.41	111.41	0.00	N/A	N/A	No				
MW-41D	Alluvial	12/01/2023	314.04	311.00	3.04	273.54	293.54	25.51	25.55	0.04	500	3.30	No				
MW-41M	Alluvial	12/01/2023	192.78	192.25	0.53	172.78	192.78	25.74	25.84	0.10	500	1.32	No	X			High turbidity. Continue to monitor for consecutive high turbidity readings.
MW-41S	Alluvial	12/01/2023	62.66	61.44	1.22	42.66	62.66	26.21	26.27	0.06	500	2.20	No				
MW-42-030	Fluvial	11/13/2023	32.55	31.02	1.53	12.25	32.25	10.78	10.79	0.01	500	13.21	No				
MW-42-055	Fluvial	11/13/2023	55.29	55.23	0.06	44.99	54.99	10.55	10.58	0.03	500	4.40	No				
MW-42-065	Fluvial	11/13/2023	82.52	83.70	-1.19	58.72	68.72	10.00	10.60	0.60	500	0.22	No				
MW-43-025	Fluvial	11/14/2023	27.52	26.60	0.92	17.52	27.52	9.15	9.17	0.02	500	6.61	No				
MW-43-075	Fluvial	11/14/2023	77.79	77.50	0.29	67.79	77.79	10.00	10.05	0.05	500	2.64	No				
MW-43-090	Fluvial	11/14/2023	99.82	102.65	-2.83	82.82	92.82	9.95	9.97	0.02	500	6.61	No				
MW-44-070	Fluvial	11/08/2023	72.10	70.00	2.10	62.10	72.10	18.68	18.75	0.07	500	1.89	Yes	X			Siltation. Not recommended for redevelopment at this time given low turbidity and specific capacity indicates good yield.
MW-44-115	Alluvial	10/11/2023	114.52	114.38	0.14	106.52	114.52	18.00	18.10	0.10	500	1.32	No				
MW-44-115	Alluvial	11/08/2023	114.52	114.36	0.16	106.52	114.52	18.90	19.00	0.10	500	1.32	No				
MW-44-115	Alluvial	12/12/2023	114.52	114.18	0.34	106.52	114.52	20.29	20.29	0.00	500	N/A	No				
MW-44-125	Alluvial	10/11/2023	130.35	125.00	5.35	117.55	126.55	17.98	18.10	0.12	500	1.10	No				
MW-44-125	Alluvial	11/08/2023	130.35	128.57	1.78	117.55	126.55	18.70	18.78	0.08	500	1.65	No				
MW-44-125	Alluvial	12/12/2023	130.35	128.60	1.75	117.55	126.55	19.86	19.88	0.02	500	6.61	No				
MW-46-175	Alluvial	11/16/2023	176.84	176.15	0.69	166.34	176.34	29.21	29.28	0.07	500	1.89	No				
MW-46-205	Alluvial	11/16/2023	209.49	218.72	-9.23	199.49	209.49	29.39	29.45	0.06	500	2.20	No				
MW-47-115	Alluvial	11/16/2023	116.47	115.23	1.24	106.47	116.47	30.50	30.56	0.06	500	2.20	No	X			High turbidity. Continue to monitor for consecutive high turbidity readings.
MW-48	Bedrock	11/30/2023	139.81	136.60	3.21	125.81	135.81	30.90	31.52	0.62	100	0.04	No	X			High turbidity. Continue to monitor for consecutive high turbidity readings.
MW-49-135	Alluvial	11/27/2023	136.52	136.30	0.22	126.52	136.52	31.22	31.26	0.04	500	3.30	No				
MW-49-275	Alluvial	11/27/2023	276.45	274.75	1.70	256.45	276.45	31.50	31.56	0.06	500	2.20	No				
MW-49-365	Alluvial	11/27/2023	368.86	367.38	1.48	347.51	367.51	33.05	33.09	0.04	500	3.30	No				
MW-50-095	Alluvial	11/28/2023	97.17	96.19	0.98	87.17	97.17	43.56	43.59	0.03	500	4.40	No				
MW-50-200	Alluvial	11/28/2023	206.53	203.92	2.61	192.03	202.03	42.87	42.93	0.06	500	2.20	No				
MW-51	Alluvial	10/11/2023	112.94	113.28	-0.34	96.69	111.69	46.01	46.10	0.09	500	1.47	No				
MW-51	Alluvial	11/09/2023	112.94	112.64	0.30	96.69	111.69	82.50	82.57	0.07	500	1.89	No				
MW-51	Alluvial	12/13/2023	112.94	113.21	-0.27	96.69	111.69	46.10	46.14	0.04	500	3.30	No				
MW-54-085	Fluvial	11/17/2023	92.91	86.70	6.21	76.71	86.71	12.68	12.72	0.04	500	3.30	No				
MW-54-140	Fluvial	11/17/2023	137.59	136.63	0.96	127.59	137.59	12.69	12.73	0.04	500	3.30	No	X			High turbidity. Continue to monitor for consecutive high turbidity readings.
MW-54-195	Fluvial	11/17/2023	195.04	192.01	3.03	185.04	195.04	13.42	13.48	0.06	500	2.20	Yes	X			Not recommended for redevelopment based on location and fluvial sediments.
MW-55-045	Fluvial	11/14/2023	56.14	49.48	6.66	39.09	49.09	10.82	10.85	0.03	500	4.40	No	X			High turbidity. Continue to monitor for consecutive high turbidity readings.
MW-55-120	Fluvial	11/14/2023	122.14	120.08	2.06	109.89	119.89	10.80	10.84	0.04	500	3.30	No				
MW-56D	Fluvial	11/15/2023	106.93	105.50	1.43	N/A	N/A	17.98	18.10	0.12	500	1.10	N/A				Slant well.

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MW-56M	Fluvial	11/15/2023	76.93	75.50	1.43	N/A	N/A	17.52	17.70	0.18	500	0.73	N/A				Slant well.
MW-56S	Fluvial	11/15/2023	36.93	35.50	1.43	N/A	N/A	17.28	17.36	0.08	500	1.65	N/A				Slant well.
MW-57-070	Bedrock	11/29/2023	70.40	68.46	1.94	55.40	70.40	55.12	55.18	0.06	500	2.20	No	X			High turbidity. Continue to monitor for consecutive high turbidity readings.
MW-57-185	Bedrock	11/29/2023	184.70	180.39	4.31	70.00	184.00	53.58	53.63	0.05	500	2.64	No	X			High turbidity. Continue to monitor for consecutive high turbidity readings.
MW-58BR	Bedrock	11/29/2023	209.14	204.22	4.92	57.14	209.14	67.98	68.03	0.05	500	2.64	No				
MW-59-100	Alluvial	11/29/2023	103.67	97.28	6.39	88.67	103.67	84.48	84.53	0.05	500	2.64	Yes	X			Siltation. Not recommended for redevelopment at this time given low turbidity and specific capacity indicates good yield.
MW-60-125	Bedrock	11/30/2023	122.69	121.82	0.87	102.69	122.69	100.27	100.36	0.09	500	1.47	No	X			High turbidity. Not recommended for redevelopment at this time given measured well depth and specific capacity indicates good yield.
MW-60BR-245	Bedrock	11/29/2023	244.09	244.04	0.05	135.09	244.09	100.29	100.40	0.11	500	1.20	No				
MW-61-110	Bedrock	11/30/2023	112.41	112.06	0.35	91.91	111.91	88.94	89.05	0.11	500	1.20	No				
MW-62-065	Bedrock	11/29/2023	67.40	63.59	3.81	44.50	64.50	49.92	49.96	0.04	500	3.30	No				
MW-63-065	Bedrock	11/29/2023	65.42	63.04	2.38	45.42	65.42	53.21	53.27	0.06	500	2.20	No	X			High turbidity. Continue to monitor for consecutive high turbidity readings.
MW-64BR	Bedrock	11/29/2023	260.02	258.00	2.02	2.02	258.02	121.84	121.90	0.06	500	2.20	No				
MW-65-160	Alluvial	11/28/2023	159.70	160.38	-0.68	149.60	159.60	141.56	141.60	0.04	500	3.30	No				
MW-65-225	Alluvial	11/28/2023	224.68	225.27	-0.59	214.59	224.59	141.32	141.38	0.06	500	2.20	No				
MW-66-165	Alluvial	11/28/2023	161.62	160.96	0.66	141.56	161.56	131.04	131.09	0.05	500	2.64	No				
MW-66-230	Alluvial	11/28/2023	227.74	227.05	0.69	217.62	227.62	131.46	131.51	0.05	500	2.64	No				
MW-66BR-270	Bedrock	11/28/2023	270.61	NM	N/A	247.61	270.61	132.41	151.22	18.81	18,927	0.27	N/A				Unable to record total depth.
MW-67-185	Alluvial	10/13/2023	186.73	186.69	0.04	176.73	186.73	170.66	170.70	0.04	500	3.30	No				
MW-67-185	Alluvial	11/30/2023	186.73	186.70	0.03	176.73	186.73	170.92	170.98	0.06	500	2.20	No				
MW-67-185	Alluvial	12/14/2023	186.73	186.69	0.04	176.73	186.73	171.14	171.20	0.06	500	2.20	No				
MW-67-225	Alluvial	11/30/2023	224.52	225.17	-0.65	209.51	224.51	170.81	170.86	0.05	500	2.64	No				
MW-67-260	Alluvial	11/30/2023	259.48	260.05	-0.57	249.49	259.49	170.92	170.96	0.04	500	3.30	No				
MW-68-180	Alluvial	10/13/2023	179.68	180.00	-0.32	164.59	179.59	165.60	165.65	0.05	500	2.64	No				
MW-68-180	Alluvial	11/30/2023	179.68	180.02	-0.34	164.59	179.59	165.83	165.88	0.05	500	2.64	No	X			High turbidity. Not repeated in December. Continue to monitor.
MW-68-180	Alluvial	12/14/2023	179.68	180.02	-0.34	164.59	179.59	166.34	166.40	0.06	500	2.20	No				
MW-68-240	Alluvial	12/01/2023	239.69	239.88	-0.19	219.59	239.59	166.25	166.30	0.05	500	2.64	No				
MW-68BR-280	Bedrock	11/30/2023	278.23	NM	N/A	256.23	278.23	164.44	228.86	64.42	379	0.00	N/A				Unable to record total depth.
MW-69-195	Bedrock	11/28/2023	195.27	195.49	-0.22	175.27	195.27	175.77	175.82	0.05	500	2.64	No				
MW-70-105	Bedrock	11/29/2023	110.44	105.02	5.42	87.60	107.60	82.12	82.15	0.03	500	4.40	No				
MW-70BR-225	Bedrock	11/29/2023	228.89	221.58	7.31	119.61	226.61	81.26	81.32	0.06	500	2.20	No				
MW-70BR-287	Bedrock	11/29/2023	286.98	285.13	1.85	239.98	286.98	82.65	82.69	0.04	500	3.30	No				

Table 4.2
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Fourth Quarter 2023 Well Performance Report
Pacific Gas and Electric Company, Topock Compressor Station, Needles, California

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MW-71-035	Bedrock	10/10/2023	35.90	35.63	0.27	25.70	35.70	27.80	28.40	0.60	100	0.04	No	X			High turbidity. Not repeated in November. Continue to monitor.
MW-71-035	Bedrock	11/07/2023	35.90	35.62	0.28	25.70	35.70	27.98	28.55	0.57	100	0.05	No				
MW-71-035	Bedrock	12/13/2023	35.90	35.61	0.29	25.70	35.70	28.19	28.76	0.57	100	0.05	No	X			High turbidity. Continue to monitor for consecutive high turbidity readings.
MW-72-080	Bedrock	11/29/2023	79.88	79.09	0.79	59.79	79.79	60.43	60.50	0.07	500	1.89	No	X			High turbidity. Not recommended for redevelopment at this time given measured well depth and specific capacity indicates good yield.
MW-72BR-200	Bedrock	11/29/2023	199.29	200.00	-0.71	106.29	199.29	60.30	60.50	0.20	500	0.66	No				
MW-73-080	Bedrock	11/29/2023	79.52	79.64	-0.12	59.52	79.52	53.50	53.70	0.20	500	0.66	No				
MW-74-240	Bedrock	12/14/2023	239.44	240.57	-1.13	219.44	239.44	216.65	216.99	0.34	100	0.08	No				
MW-75-033	Alluvial	11/13/2023	35.48	34.78	0.70	18.08	33.08	19.60	19.65	0.05	500	2.64	No	X			High turbidity. Not recommended for redevelopment at this time given screen is clear and specific capacity indicates good yield.
MW-75-117	Alluvial	11/13/2023	119.45	118.10	1.35	97.15	117.15	19.62	19.70	0.08	500	1.65	No				
MW-75-202	Alluvial	11/13/2023	204.49	204.30	0.19	182.49	202.49	19.30	19.35	0.05	500	2.64	No				
MW-75-267	Alluvial	11/13/2023	269.50	268.53	0.97	247.20	267.20	18.96	19.05	0.09	500	1.47	No				
MW-75-337	Alluvial	11/13/2023	339.79	338.48	1.31	317.49	337.49	21.36	21.40	0.04	500	3.30	No				
MW-76-039	Alluvial	10/09/2023	39.10	38.62	0.48	23.60	38.60	26.01	26.05	0.04	500	3.30	No				
MW-76-039	Alluvial	11/06/2023	39.10	38.65	0.45	23.60	38.60	26.96	27.00	0.04	500	3.30	No	X			High turbidity. Continue to monitor for three consecutive high turbidity readings.
MW-76-039	Alluvial	12/11/2023	39.10	38.65	0.45	23.60	38.60	27.10	27.14	0.04	500	3.30	No	X			High turbidity. Not recommended for redevelopment at this time given screen is clear and specific capacity indicates good yield.
MW-76-156	Alluvial	10/09/2023	158.01	155.58	2.43	135.71	155.71	25.96	26.00	0.04	500	3.30	No				
MW-76-156	Alluvial	11/06/2023	158.01	155.52	2.49	135.71	155.71	25.78	25.80	0.02	500	6.61	No				
MW-76-156	Alluvial	12/11/2023	158.01	155.51	2.50	135.71	155.71	28.38	28.40	0.02	500	6.61	No				
MW-76-181	Alluvial	10/09/2023	183.12	182.51	0.61	170.82	180.82	25.70	25.80	0.10	500	1.32	No				
MW-76-181	Alluvial	11/06/2023	183.12	182.48	0.64	170.82	180.82	27.34	27.40	0.06	500	2.20	No				
MW-76-181	Alluvial	12/11/2023	183.12	182.49	0.63	170.82	180.82	28.41	28.47	0.06	500	2.20	No				
MW-76-218	Alluvial	10/09/2023	220.05	219.52	0.53	197.75	217.75	25.50	25.60	0.10	500	1.32	No				
MW-76-218	Alluvial	11/06/2023	220.05	219.50	0.55	197.75	217.75	26.93	27.00	0.07	500	1.89	No				
MW-76-218	Alluvial	12/11/2023	220.05	219.52	0.53	197.75	217.75	28.08	28.15	0.07	500	1.89	No				
MW-77-046	Alluvial	10/11/2023	48.15	39.60	8.55	25.85	45.85	24.47	24.53	0.06	500	2.20	Yes	X			Siltation. Not recommended for redevelopment at this time given low turbidity readings and specific capacity indicates good yield.

Table 4.2
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Fourth Quarter 2023 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/feet)	Measured Depth Covering Greater than 20% of screen?	Flagged for Evaluation	Planned for Resurvey	Planned for Redevelopment	Notes
MW-77-046	Alluvial	11/06/2023	48.15	39.50	8.65	25.85	45.85	24.95	25.00	0.05	500	2.64	Yes	X			Siltation and high turbidity. Not recommended for redevelopment at this time given specific capacity indicates good yield.
MW-77-046	Alluvial	12/11/2023	48.15	39.53	8.62	25.85	45.85	25.68	25.73	0.05	500	2.64	Yes	X			Siltation and high turbidity. Not recommended for redevelopment at this time given specific capacity indicates good yield.
MW-77-102	Alluvial	10/11/2023	104.21	104.15	0.06	81.91	101.91	24.75	24.85	0.10	500	1.32	No	X			High turbidity. Continue to monitor for three consecutive high turbidity readings.
MW-77-102	Alluvial	11/06/2023	104.21	104.61	-0.40	81.91	101.91	24.90	25.00	0.10	500	1.32	No	X			High turbidity. Not recommended for redevelopment at this time given screen is clear and specific capacity indicates good yield.
MW-77-102	Alluvial	12/11/2023	104.21	104.46	-0.25	81.91	101.91	26.58	26.63	0.05	500	2.64	No	X			High turbidity. Not recommended for redevelopment at this time given screen is clear and specific capacity indicates good yield.
MW-77-158	Alluvial	10/11/2023	160.14	159.52	0.62	137.64	157.74	24.74	24.85	0.11	500	1.20	No				
MW-77-158	Alluvial	11/06/2023	160.14	159.60	0.54	137.64	157.74	23.94	24.00	0.06	500	2.20	No				
MW-77-158	Alluvial	12/11/2023	160.14	160.00	0.14	137.64	157.74	25.51	25.55	0.04	500	3.30	No				
MW-77-187	Alluvial	10/11/2023	189.21	189.09	0.12	166.71	186.81	24.27	24.36	0.09	500	1.47	No				
MW-77-187	Alluvial	11/08/2023	189.21	189.08	0.13	166.71	186.81	23.72	23.80	0.08	500	1.65	No				
MW-77-187	Alluvial	12/11/2023	189.21	188.84	0.37	166.71	186.81	25.76	25.79	0.03	500	4.40	No				
MW-78-070	Alluvial	10/13/2023	72.21	72.18	0.03	49.91	69.91	47.30	47.41	0.11	500	1.20	No	X			High turbidity. Not recommended for redevelopment at this time given screen is clear and specific capacity indicates good yield.
MW-78-070	Alluvial	11/09/2023	72.21	72.00	0.21	49.91	69.91	47.10	47.15	0.05	500	2.64	No	X			High turbidity. Not recommended for redevelopment at this time given screen is clear and specific capacity indicates good yield.
MW-78-070	Alluvial	12/13/2023	72.21	71.95	0.26	49.91	69.91	47.80	47.84	0.04	500	3.30	No	X			High turbidity. Not recommended for redevelopment at this time given screen is clear and specific capacity indicates good yield.
MW-78-142	Alluvial	10/13/2023	142.12	141.70	0.42	121.82	141.82	47.60	47.72	0.12	500	1.10	No				
MW-78-142	Alluvial	11/09/2023	142.12	141.53	0.59	121.82	141.82	47.17	47.23	0.06	500	2.20	No	X			High turbidity. Continue to monitor for consecutive high turbidity readings.
MW-78-142	Alluvial	12/13/2023	142.12	142.30	-0.18	121.82	141.82	48.30	48.35	0.05	500	2.64	No	X			High turbidity. Not recommended for redevelopment at this time given screen is clear and specific capacity indicates good yield.

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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/feet)	Measured Depth Covering Greater than 20% of screen?	Flagged for Evaluation	Planned for Resurvey	Planned for Redevelopment	Notes
MW-79-058	Alluvial	10/12/2023	60.05	60.48	-0.43	47.55	57.55	45.97	46.07	0.10	500	1.32	No				
MW-79-058	Alluvial	11/09/2023	60.05	60.32	-0.27	47.55	57.55	45.94	45.99	0.05	500	2.64	No	X			High turbidity. Continue to monitor for consecutive high turbidity readings.
MW-79-058	Alluvial	12/13/2023	60.05	60.22	-0.17	47.55	57.55	46.66	46.68	0.02	500	6.61	No	X			High turbidity. Not recommended for redevelopment at this time given screen is clear and specific capacity indicates good yield.
MW-79-102	Alluvial	10/12/2023	104.23	104.57	-0.34	91.43	101.43	45.60	45.72	0.12	500	1.10	No	X			High turbidity. Continue to monitor for consecutive high turbidity readings.
MW-79-102	Alluvial	11/09/2023	104.23	101.40	2.83	91.43	101.43	45.83	45.89	0.06	500	2.20	No	X			High turbidity. Not recommended for redevelopment at this time given specific capacity indicates good yield.
MW-79-102	Alluvial	12/14/2023	104.23	104.32	-0.09	91.43	101.43	46.04	46.10	0.06	500	2.20	No	X			High turbidity. Not recommended for redevelopment at this time given screen is clear and specific capacity indicates good yield.
MW-80-057	Alluvial	10/12/2023	59.46	59.12	0.34	46.96	56.96	47.80	47.91	0.11	500	1.20	No				
MW-80-057	Alluvial	11/09/2023	59.46	58.95	0.51	46.96	56.96	48.60	48.65	0.05	500	2.64	No				
MW-80-057	Alluvial	12/13/2023	59.46	59.00	0.46	46.96	56.96	48.81	48.85	0.04	500	3.30	No	X			High turbidity. Continue to monitor for consecutive high turbidity readings.
MW-80-082	Alluvial	10/12/2023	84.00	84.03	-0.03	66.50	81.50	47.60	47.73	0.13	500	1.02	No				
MW-80-082	Alluvial	11/09/2023	84.00	83.89	0.11	66.50	81.50	47.48	47.54	0.06	500	2.20	No				
MW-80-082	Alluvial	12/13/2023	84.00	83.92	0.08	66.50	81.50	49.19	49.19	0.00	500	N/A	No				
MW-81-043	Alluvial	10/10/2023	44.73	43.31	1.42	22.43	42.43	23.37	23.40	0.03	500	4.40	No	X			High turbidity. Continue to monitor for consecutive high turbidity readings.
MW-81-043	Alluvial	11/08/2023	44.73	43.33	1.40	22.43	42.43	24.22	24.25	0.03	200	1.76	No	X			High turbidity. Not recommended for redevelopment at this time given screen is clear and specific capacity indicates good yield.
MW-81-043	Alluvial	12/12/2023	44.73	43.23	1.50	22.43	42.43	25.54	25.58	0.04	500	3.30	No	X			High turbidity. Not recommended for redevelopment at this time given screen is clear and specific capacity indicates good yield.
MW-81-098	Alluvial	10/10/2023	99.82	99.38	0.44	77.52	97.52	23.66	23.70	0.04	500	3.30	No				
MW-81-098	Alluvial	11/08/2023	99.82	99.87	-0.05	77.52	97.52	24.70	24.73	0.03	200	1.76	No				
MW-81-098	Alluvial	12/12/2023	99.82	99.70	0.12	77.52	97.52	25.27	25.40	0.13	500	1.02	No				
MW-82-046	Alluvial	10/10/2023	48.87	47.66	1.21	26.57	46.57	30.02	30.10	0.08	500	1.65	No	X			Consecutive high turbidity readings. Well redeveloped in Second Quarter 2023 and consistent turbidity readings followed.

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MW-82-046	Alluvial	11/07/2023	48.87	47.62	1.25	26.57	46.57	30.45	30.50	0.05	500	2.64	No	X			Consecutive high turbidity readings. Well redeveloped in Second Quarter 2023 and consistent turbidity readings followed.
MW-82-046	Alluvial	12/12/2023	48.87	47.60	1.27	26.57	46.57	30.83	30.88	0.05	500	2.64	No	X			Consecutive high turbidity readings. Well redeveloped in Second Quarter 2023 and consistent turbidity readings followed.
MW-82-112	Alluvial	11/07/2023	114.78	114.18	0.60	92.48	112.48	30.30	30.35	0.05	500	2.64	No				
MW-82-168	Alluvial	10/10/2023	170.34	169.80	0.54	148.04	168.04	28.27	28.35	0.08	500	1.65	No				
MW-82-168	Alluvial	11/07/2023	170.34	169.78	0.56	148.04	168.04	29.05	29.10	0.05	500	2.64	No				
MW-82-168	Alluvial	12/12/2023	170.34	169.79	0.55	148.04	168.04	30.70	30.75	0.05	500	2.64	No				
MW-82-198	Alluvial	10/10/2023	200.25	199.45	0.80	177.95	197.95	28.03	28.10	0.07	500	1.89	No				
MW-82-198	Alluvial	11/07/2023	200.25	199.42	0.83	177.95	197.95	29.00	29.10	0.10	500	1.32	No				
MW-82-198	Alluvial	12/12/2023	200.25	199.40	0.85	177.95	197.95	30.44	30.54	0.10	500	1.32	No				
MW-83-090	Alluvial	11/27/2023	91.89	90.93	0.96	69.59	89.59	75.30	75.35	0.05	500	2.64	No	X			High turbidity. Continue to monitor for consecutive high turbidity readings.
MW-83-180	Alluvial	11/27/2023	181.48	181.19	0.29	159.48	179.48	75.15	75.20	0.05	500	2.64	No				
MW-83-225	Alluvial	11/27/2023	227.25	224.40	2.85	204.85	224.85	75.92	76.00	0.08	500	1.65	No				
MW-83-245	Alluvial	11/27/2023	257.10	246.38	10.72	234.70	244.70	75.77	75.80	0.03	500	4.40	No				
MW-84-057	Alluvial	11/28/2023	58.48	58.36	0.12	41.98	56.98	46.16	46.22	0.06	500	2.20	No				
MW-84-095	Alluvial	11/28/2023	97.32	93.46	3.86	74.92	94.92	46.05	46.15	0.10	500	1.32	No				
MW-84-132	Alluvial	11/28/2023	134.39	134.03	0.36	111.99	131.99	46.65	46.73	0.08	500	1.65	No				
MW-84-193	Alluvial	11/28/2023	195.41	194.46	0.95	172.91	192.91	46.54	46.57	0.03	500	4.40	No				
MW-85-129	Alluvial	11/28/2023	130.32	131.25	-0.93	113.02	128.02	115.60	115.65	0.05	500	2.64	No				
MW-85-217	Alluvial	11/28/2023	218.70	217.29	1.41	196.70	216.70	115.04	115.10	0.06	500	2.20	No				
MW-85-237	Alluvial	11/28/2023	238.84	237.95	0.89	226.84	236.84	115.31	115.40	0.09	500	1.47	No				
MW-86-030	Alluvial	11/27/2023	34.51	31.71	2.80	12.21	32.21	15.90	15.97	0.07	500	1.89	No				
MW-86-066	Alluvial	11/27/2023	70.40	68.98	1.42	48.10	68.10	15.22	15.27	0.05	500	2.64	No				
MW-86-120	Alluvial	11/27/2023	124.67	122.33	2.34	102.37	122.37	15.73	15.77	0.04	500	3.30	No				
MW-86-140	Alluvial	11/27/2023	144.53	142.60	1.93	132.23	142.23	15.82	15.86	0.04	500	3.30	No				
MW-87-109	Alluvial	11/28/2023	111.14	110.56	0.58	88.84	108.84	92.25	92.30	0.05	500	2.64	No				
MW-87-139	Alluvial	11/28/2023	141.24	140.90	0.34	118.84	138.84	92.21	92.25	0.04	500	3.30	No	X			High turbidity. Continue to monitor for consecutive high turbidity readings.
MW-87-192	Alluvial	11/28/2023	194.21	193.10	1.11	171.91	191.91	92.63	92.70	0.07	500	1.89	No				
MW-87-275	Bedrock	11/28/2023	277.06	276.15	0.91	254.76	274.76	92.53	92.60	0.07	500	1.89	No				
MW-88-107	Bedrock	10/12/2023	109.30	109.11	0.19	87.00	107.00	90.94	91.00	0.06	500	2.20	No				
MW-88-107	Bedrock	11/09/2023	109.30	109.13	0.17	87.00	107.00	90.98	91.10	0.12	500	1.10	No				
MW-88-107	Bedrock	12/14/2023	109.30	109.05	0.25	87.00	107.00	91.68	91.73	0.05	500	2.64	No				
MW-89-183	Alluvial	11/29/2023	185.42	185.12	0.30	162.82	182.82	132.66	132.76	0.10	500	1.32	No				
MW-89-273	Alluvial	11/29/2023	275.56	274.69	0.87	252.96	272.96	132.72	132.82	0.10	500	1.32	No				
MW-90-031	Alluvial	11/14/2023	33.60	31.15	2.45	21.30	31.30	6.29	6.32	0.03	500	4.40	No				
MW-91-045	Fluvial	11/17/2023	46.51	46.72	-0.21	25.01	45.01	12.05	12.10	0.05	500	2.64	No	X			High turbidity. Continue to monitor for consecutive high turbidity readings.
MW-91-120	Alluvial	11/17/2023	122.00	122.15	-0.15	99.90	119.90	11.60	11.70	0.10	500	1.32	No	X			High turbidity. Continue to monitor for consecutive high turbidity readings.
MW-91-170	Alluvial	11/17/2023	173.14	172.69	0.45	149.94	169.94	11.45	11.50	0.05	500	2.64	No	X			High turbidity. Continue to monitor for consecutive high turbidity readings.

Table 4.2
Monitoring Well Water Levels and Specific Capacities
Fourth Quarter 2023 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/feet)	Measured Depth Covering Greater than 20% of screen?	Flagged for Evaluation	Planned for Resurvey	Planned for Redevelopment	Notes
MW-91-320	Alluvial	11/17/2023	323.05	321.55	1.50	299.85	319.85	13.33	13.40	0.07	500	1.89	No				
MW-92-037	Fluvial	11/17/2023	39.40	40.63	-1.23	17.00	37.00	7.90	7.93	0.03	500	4.40	No				
MW-92-072	Fluvial	11/17/2023	74.40	75.59	-1.19	52.00	72.00	7.85	7.88	0.03	500	4.40	No				
MW-92-102	Fluvial	11/17/2023	106.72	106.13	0.59	84.42	104.42	8.22	8.26	0.04	500	3.30	No				
MW-92-122	Bedrock	11/17/2023	126.64	126.02	0.62	114.34	124.34	8.68	8.71	0.03	500	4.40	No				
MW-93-050	Alluvial	11/16/2023	51.90	50.84	1.06	29.60	49.60	33.15	33.15	0.00	500	N/A	No	X			High turbidity. Not recommended for redevelopment at this time given purging rate and measured well depth indicates screen is clear.
MW-93-213	Alluvial	11/16/2023	214.82	214.30	0.52	192.52	212.52	33.15	33.19	0.04	500	3.30	No	X			High turbidity. Continue to monitor for consecutive high turbidity readings.
MW-95-113	Alluvial	12/14/2023	117.60	117.71	-0.11	95.30	115.30	98.93	98.99	0.06	500	2.20	No				
MW-95-157	Alluvial	12/14/2023	161.56	161.44	0.12	139.26	159.26	98.88	98.93	0.05	500	2.64	No				
MW-96-045	Alluvial	11/16/2023	47.52	46.19	1.33	25.22	45.22	25.00	25.03	0.03	500	4.40	No	X			High turbidity. Continue to monitor for consecutive high turbidity readings.
MW-96-217	Alluvial	11/16/2023	219.33	218.41	0.92	197.03	217.03	30.46	30.46	0.00	500	N/A	No				
MW-97-042	Alluvial	11/16/2023	42.63	41.73	0.90	22.13	42.13	28.50	28.58	0.08	500	1.65	No	X			High turbidity. Not recommended for redevelopment given measured well depth and specific capacity indicates good yield.
MW-97-202	Alluvial	11/16/2023	201.47	200.98	0.49	190.97	200.97	29.24	29.27	0.03	500	4.40	No	X			High turbidity. Continue to monitor for consecutive high turbidity readings.
MW-98-055	Alluvial	11/28/2023	59.69	59.11	0.58	42.39	57.39	47.02	47.09	0.07	500	1.89	No				
MW-98-077	Alluvial	11/28/2023	81.58	80.87	0.71	69.28	79.28	47.21	47.27	0.06	500	2.20	No				
OW-01D	Fluvial	12/12/2023	279.90	277.00	2.90	259.60	279.60	95.79	95.90	0.11	500	1.20	No	X			High turbidity. Continue to monitor for consecutive high turbidity readings.
OW-01M	Fluvial	12/12/2023	188.41	185.45	2.96	167.61	187.61	95.94	96.10	0.16	500	0.83	No				
OW-01S	Fluvial	12/13/2023	116.12	113.60	2.52	86.12	116.12	95.93	96.00	0.07	500	1.89	No	X			High turbidity. Continue to monitor for consecutive high turbidity readings.
OW-02D	Alluvial	12/12/2023	342.34	340.00	2.34	312.34	332.34	94.31	94.40	0.09	500	1.47	No				
OW-02M	Alluvial	12/12/2023	212.95	211.18	1.77	192.65	212.65	94.03	94.10	0.07	500	1.89	No				
OW-02S	Alluvial	12/13/2023	106.29	102.20	4.09	73.71	103.71	94.60	94.65	0.05	500	2.64	No				
OW-05D	Alluvial	12/12/2023	352.89	350.00	2.89	302.89	322.89	97.53	97.60	0.07	500	1.89	No				
OW-05M	Alluvial	12/12/2023	253.10	250.00	3.10	212.80	252.80	96.98	97.05	0.07	500	1.89	No				
OW-05S	Fluvial	12/13/2023	113.01	112.90	0.11	72.71	112.71	97.44	97.50	0.06	500	2.20	No				
PGE-08	Bedrock	12/14/2023	564.71	NM	N/A	405.71	554.71	144.22	144.28	0.06	37,854	166.67	N/A				Unable to record total depth.
PT5D	Alluvial	10/11/2023	107.37	107.46	-0.09	97.37	107.37	19.50	19.64	0.14	500	0.94	No				
PT5D	Alluvial	11/08/2023	107.37	107.38	-0.01	97.37	107.37	20.98	21.15	0.17	500	0.78	No				
PT5D	Alluvial	12/12/2023	107.37	107.43	-0.06	97.37	107.37	22.42	22.45	0.03	500	4.40	No				
PT5M	Alluvial	11/15/2023	72.37	72.91	-0.54	62.37	72.37	20.81	20.83	0.02	500	6.61	No				
PT5S	Alluvial	11/15/2023	47.35	47.92	-0.57	37.35	47.35	20.24	20.29	0.05	500	2.64	No				
PT8D	Alluvial	11/30/2023	211.95	210.58	1.37	189.45	209.45	107.43	107.50	0.07	500	1.89	No				
PT9D	Alluvial	11/30/2023	212.10	210.20	1.90	189.60	209.60	104.33	104.48	0.15	500	0.88	No				
PT9M	Alluvial	11/30/2023	186.64	185.62	1.02	161.64	181.64	104.28	104.38	0.10	500	1.32	No				
PT9S	Alluvial	11/30/2023	152.76	152.84	-0.08	127.76	147.76	104.28	104.30	0.02	500	6.61	No				
TW-01	Alluvial	12/01/2023	270.55	265.74	4.81	168.55	268.55	165.49	165.86	0.37	15,142	10.81	No				

Table 4.2
Monitoring Well Water Levels and Specific Capacities
Fourth Quarter 2023 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/feet)	Measured Depth Covering Greater than 20% of screen?	Flagged for Evaluation	Planned for Resurvey	Planned for Redevelopment	Notes
TW-02D	Alluvial	10/10/2023	146.88	149.61	-2.73	106.88	141.88	39.90	39.95	0.05	3,785	20.00	No				
TW-02D	Alluvial	11/07/2023	146.88	149.61	-2.73	106.88	141.88	39.61	39.70	0.09	3,785	11.11	No				
TW-02D	Alluvial	12/12/2023	146.88	149.60	-2.72	106.88	141.88	40.43	40.52	0.09	3,785	11.11	No				
TW-02S	Alluvial	10/10/2023	91.33	96.27	-4.94	36.33	86.33	39.76	39.80	0.04	3,785	25.00	No				
TW-02S	Alluvial	11/07/2023	91.33	96.27	-4.94	36.33	86.33	39.81	39.90	0.09	3,785	11.11	No				
TW-02S	Alluvial	12/12/2023	91.33	96.29	-4.96	36.33	86.33	40.75	40.84	0.09	3,785	11.11	No				
TW-03D	Alluvial	10/10/2023	150.41	152.32	-1.91	105.41	150.41	39.75	39.80	0.05	3,785	20.00	No				
TW-03D	Alluvial	11/07/2023	150.41	152.32	-1.91	105.41	150.41	39.35	39.40	0.05	3,785	20.00	No				
TW-03D	Alluvial	12/12/2023	150.41	152.34	-1.93	105.41	150.41	40.30	40.35	0.05	3,785	20.00	No				
TW-04	Alluvial	11/30/2023	256.49	253.90	2.59	211.49	251.49	31.10	31.15	0.05	500	2.64	No				
TW-05	Alluvial	11/28/2023	156.33	155.78	0.55	111.33	151.33	42.93	42.95	0.02	500	6.61	No				

Notes and Abbreviations:
1. Slant wells (MW-52D, MW-52M, MW-52S, MW-53D, MW-53M, and MW-53S) are not included in this evaluation.
2. Specific capacity is evaluated for alluvial and fluvial wells. Bedrock wells are not included in this evaluation.
3. Monitoring wells MW-20-70, MW-20-100, MW-20-130, MW-22, MW-22, MW-38-D, MW-38-S, PGE-9N, and PGE-9S were resurveyed on July 25, 2022 due to observed discrepancies between constructed and measured well depths.
4. Monitoring wells MW-75-33 and MW-75-117 were resurveyed on August 25, 2022 due to observed discrepancies between constructed and measured well depths.
5. Monitoring wells MW-15, MW-31-135, MW-34-100, MW-39-40, MW-39-60, MW-45-95, MW-57-50, MW-64BR, MW-70BR-200, MW-70BR-225, MW-70BR-287, MW-72BR-200, MW-99-60, and MW-99-140 were resurveyed on November 15, 2022 due to observed discrepancies between constructed and measured well depths.
6. Monitoring wells MW-75-202 and MW-75-267 were resurveyed on April 25, 2023 due to observed discrepancies between constructed and measured well depths.
7. Monitoring well MW-46-205 was resurveyed on August 31, 2023 due to observed discrepancies between constructed and measured well depths.
N/A = Not Applicable
NM = Not Measured

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. IRZ = In-Situ Reactive Zone

N

0 625 1,250

Feet

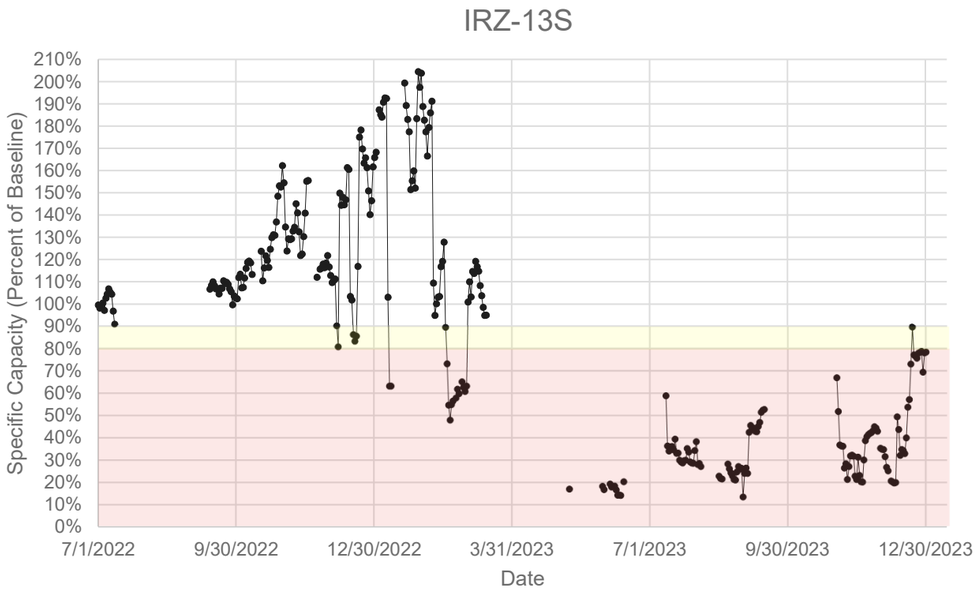
FOURTH QUARTER 2023
WELL PERFORMANCE REPORT
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

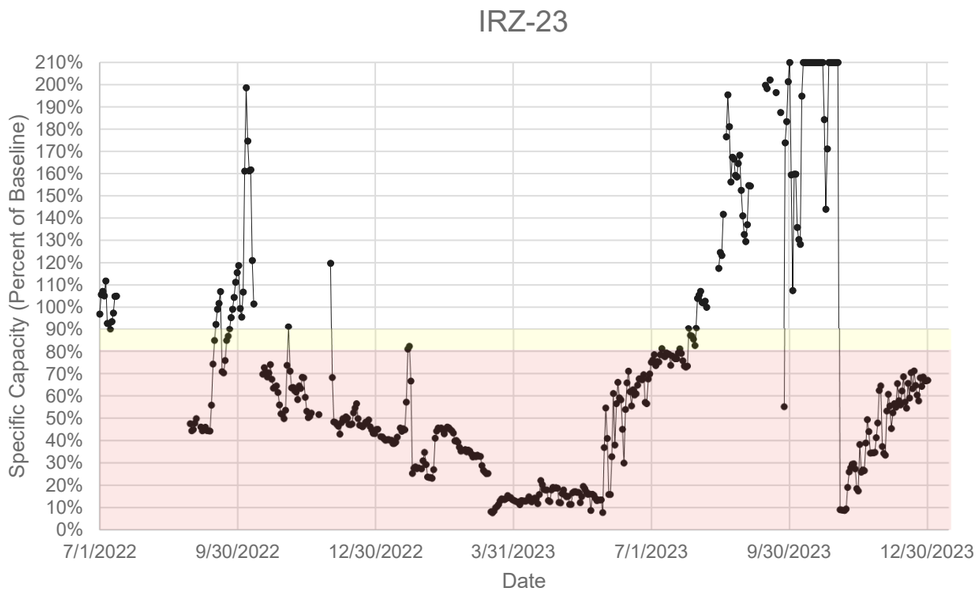
PARTIAL REMEDY SYSTEM LAYOUT

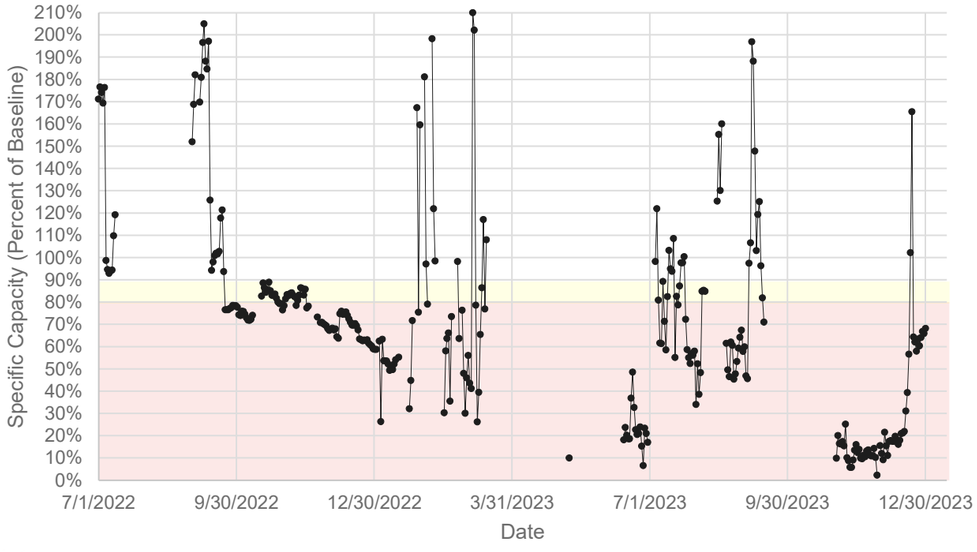
ARCADIS

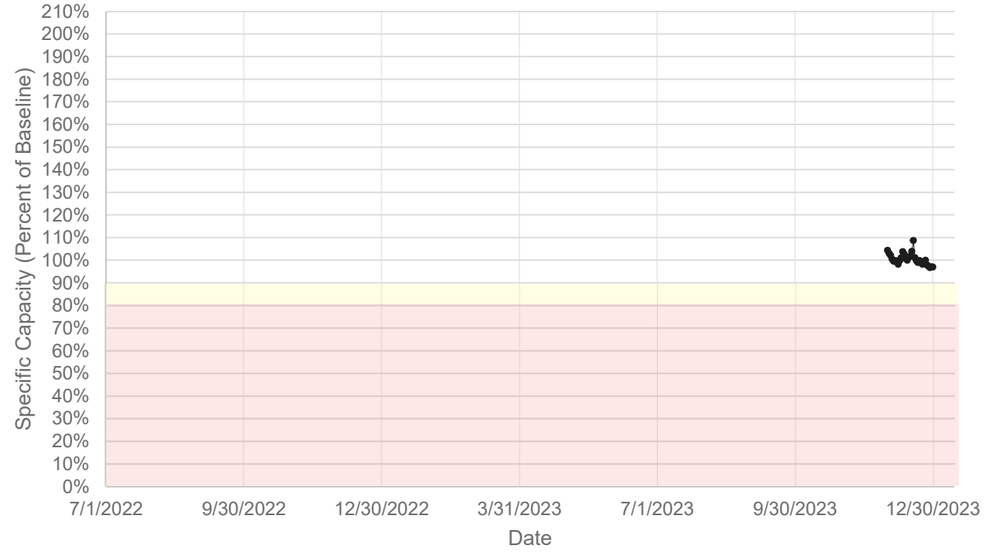
FIGURE
1.1

T:_ENV\PGE_TOPOCK\GEC\ARC_PRO\GMP\4Q23\FIGURE1_1_PARTIAL REMEDY SYSTEM LAYOUT.APRX 22-03-2024 15:23









Notes:

1. % - percent
2. Baseline specific capacity for each screen interval is represented as 100% on the y-axis.
3. Values greater than 100% indicate performance exceeding baseline. Values between 80% and 90% are considered fair. Values under 80% are considered poor. Values in the 80% to 90% range are shown in yellow, and values in the under 80% range are shown in red. Extraction wells consistently operating below 80% of baseline will be evaluated for potential rehabilitation.
4. 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 was not collected during these timeframes due to a SCADA error and therefore specific capacities were not calculated.
5. Baseline specific capacity has not been established for IRZ-9 due to limited operation. Therefore, a graph of IRZ-9 is not included.
6. Specific capacity exceeded 210% at IRZ-23 for most of October 2023 due to an increased extraction rate. Specific capacities greater than or equal to 210% during this time are shown as 210% to indicate well was operational at a high specific capacity.
7. 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.

FOURTH QUARTER 2023
WELL PERFORMANCE REPORT

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

EXTRACTION WELL SPECIFIC CAPACITY TRENDS

ARCADIS

FIGURE
3.1

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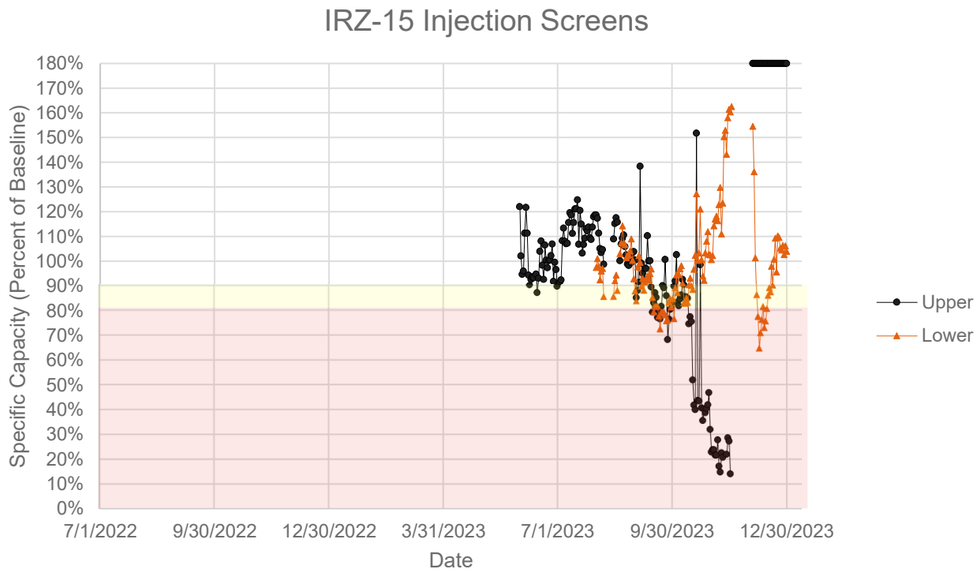
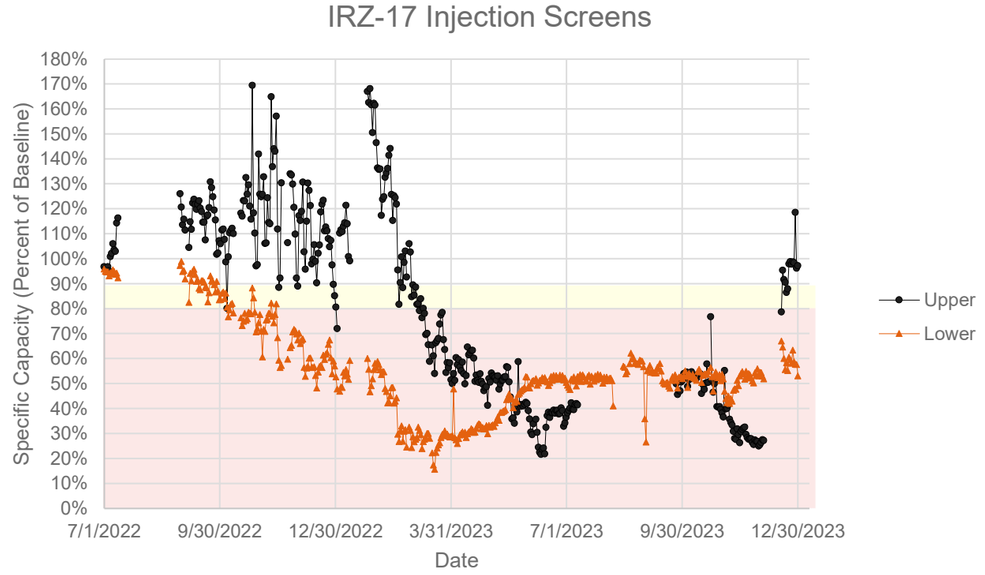
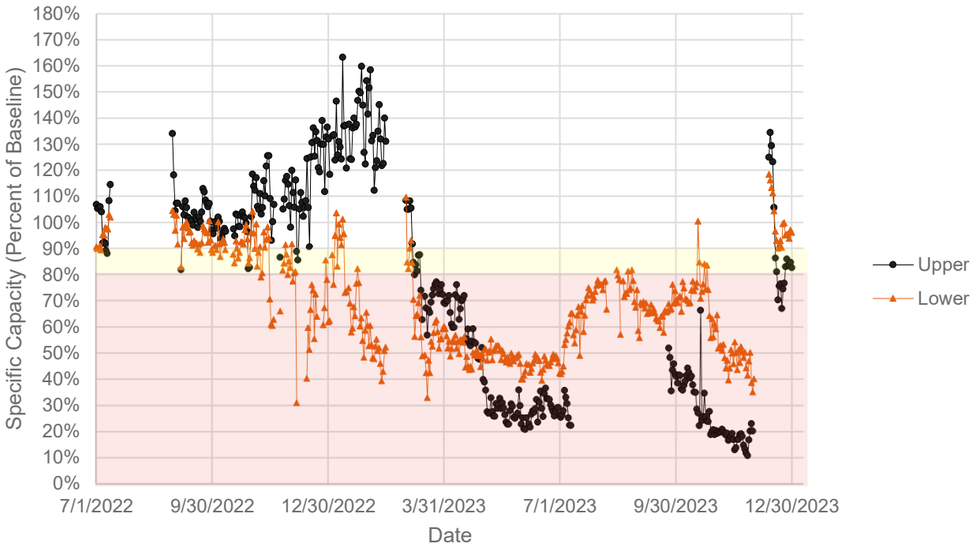
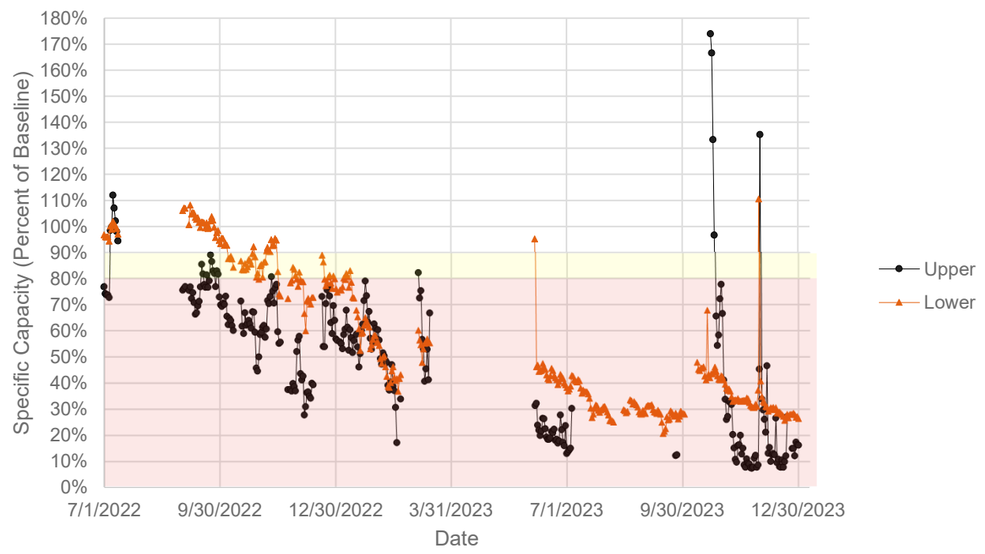








Notes:

1. % - percent
2. Baseline specific capacity for each screen interval is represented as 100% on the y-axis.
3. Specific capacity values greater than 100% indicate performance exceeding baseline. Values between 80% and 90% are considered fair and indicate backwashing frequency should increase to once every 0.75 weeks. Values under 80% are considered poor and indicate backwashing frequency should increase to twice weekly. Values in the 80% to 90% range are shown in yellow, and values in the under 80% range are shown in red.
4. 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.
5. Specific capacities greater than or equal to 180% are shown as 180% to indicate well was operational at a high specific capacity.

FOURTH QUARTER 2023
WELL PERFORMANCE REPORT

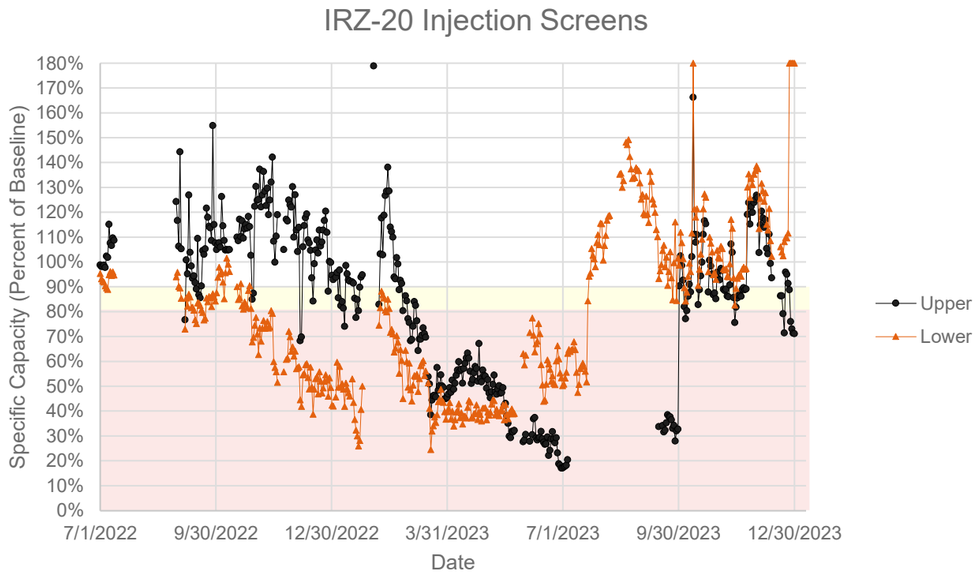
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

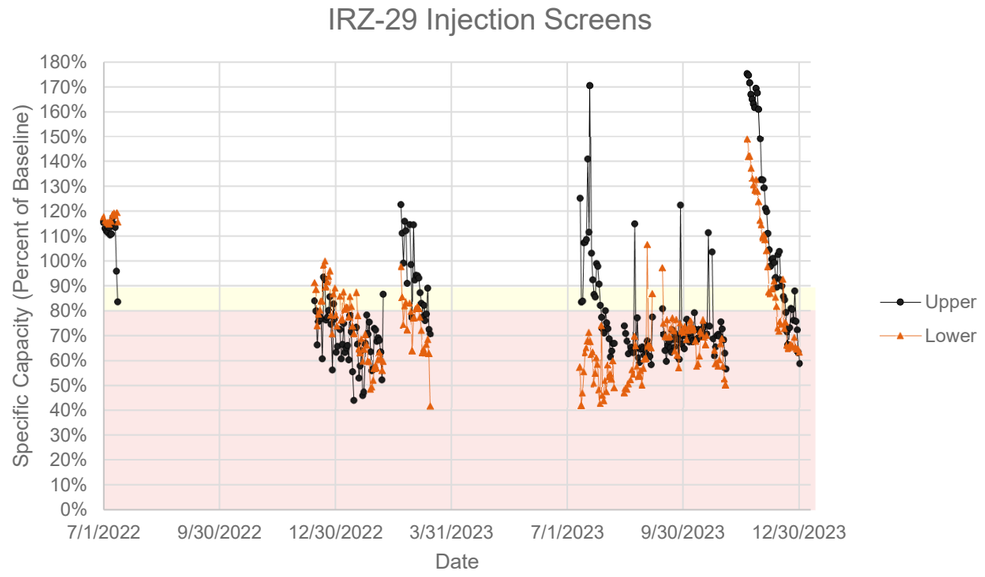
INJECTION WELL SPECIFIC CAPACITY TRENDS PART 1

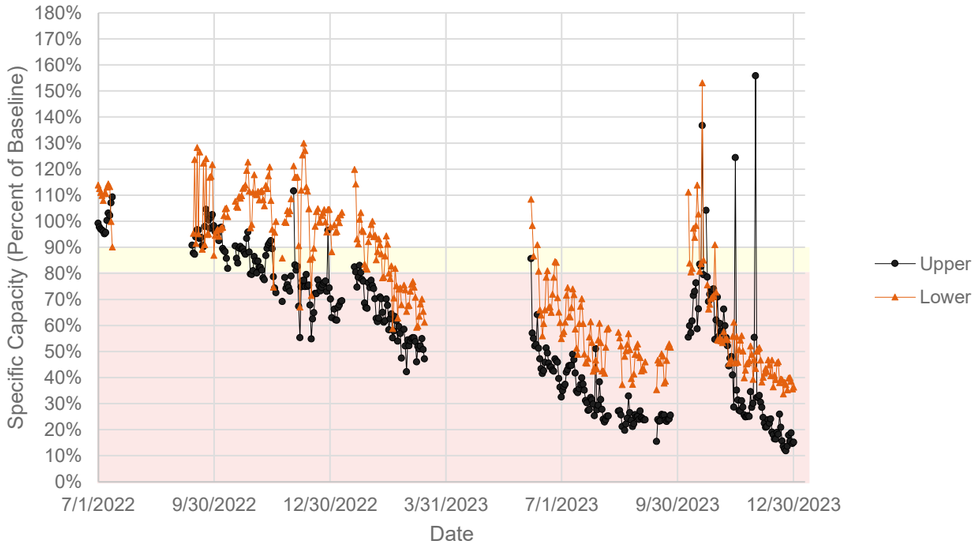
ARCADIS

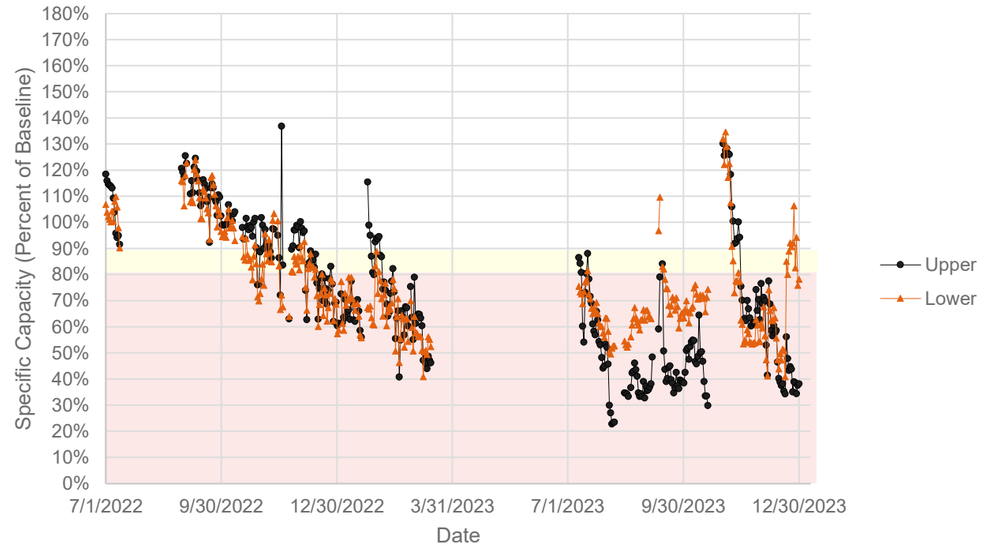
FIGURE
3.2

3/1/2024 1:03:57 PM









Notes:

1. % - percent
2. Baseline specific capacity for each screen interval is represented as 100% on the y-axis.
3. Specific capacity values greater than 100% indicate performance exceeding baseline. Values between 80% and 90% are considered fair and indicate backwashing frequency should increase to once every 0.75 weeks. Values under 80% are considered poor and indicate backwashing frequency should increase to twice weekly. Values in the 80% to 90% range are shown in yellow, and values in the under 80% range are shown in red.
4. Due to flow totalizer communication errors, data for IRZ-31 between July 5, 2023 and July 10, 2023 is unavailable. IRZ-31 was operational during this timeframe.
5. Specific capacities greater than or equal to 180% are shown as 180% to indicate well was operational at a high specific capacity.

FOURTH QUARTER 2023
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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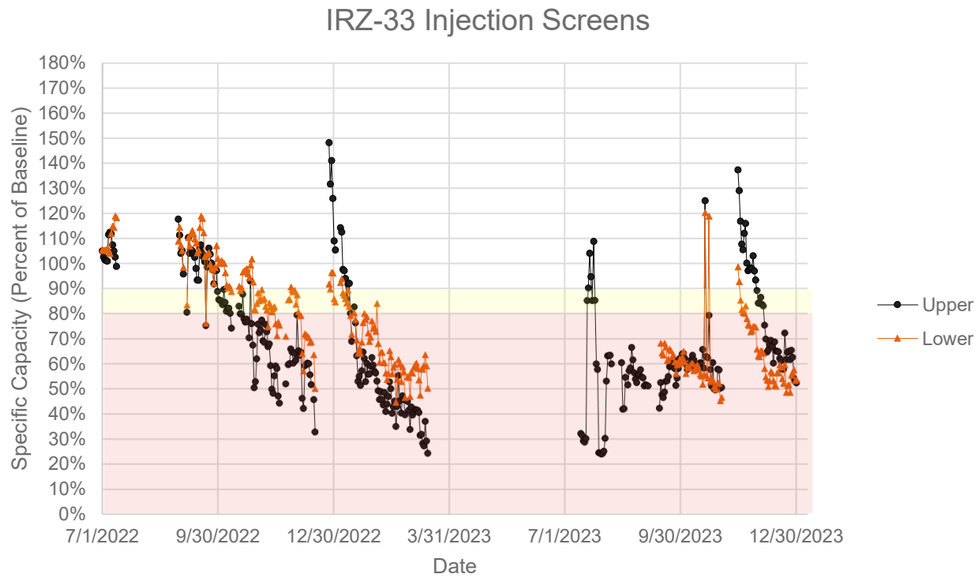

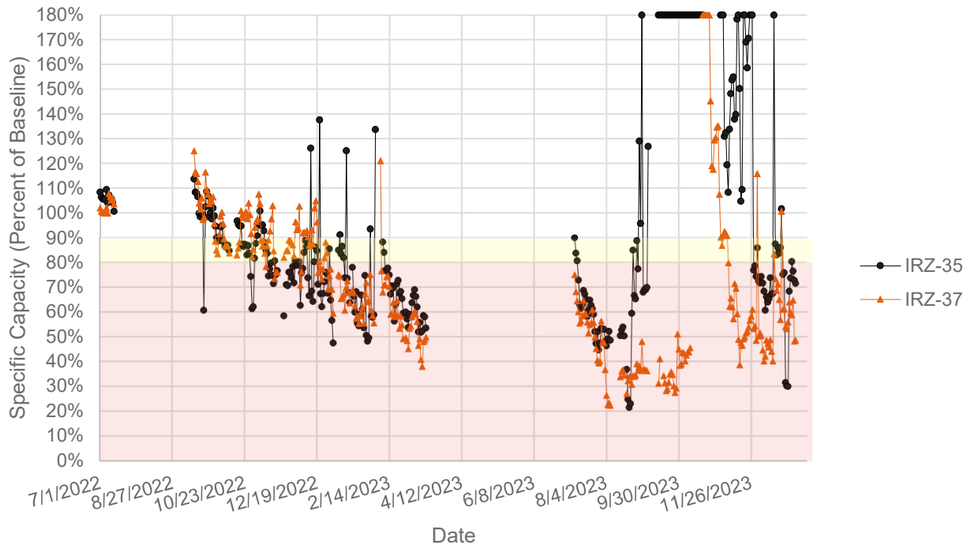

Notes:

1. % - percent
2. Baseline specific capacity for each screen interval is represented as 100% on the y-axis.
3. Specific capacity values greater than 100% indicate performance exceeding baseline. Values between 80% and 90% are considered fair and indicate backwashing frequency should increase to once every 0.75 weeks. Values under 80% are considered poor and indicate backwashing frequency should increase to twice weekly. Values in the 80% to 90% range are shown in yellow, and values in the under 80% range are shown in red.
4. 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 been determined for IRZ-39. Therefore, IRZ-39 is not included in Figures 3.2 through 3.4.
5. Specific capacities greater than or equal to 180% are shown as 180% to indicate well was operational at a high specific capacity.

FOURTH QUARTER 2023
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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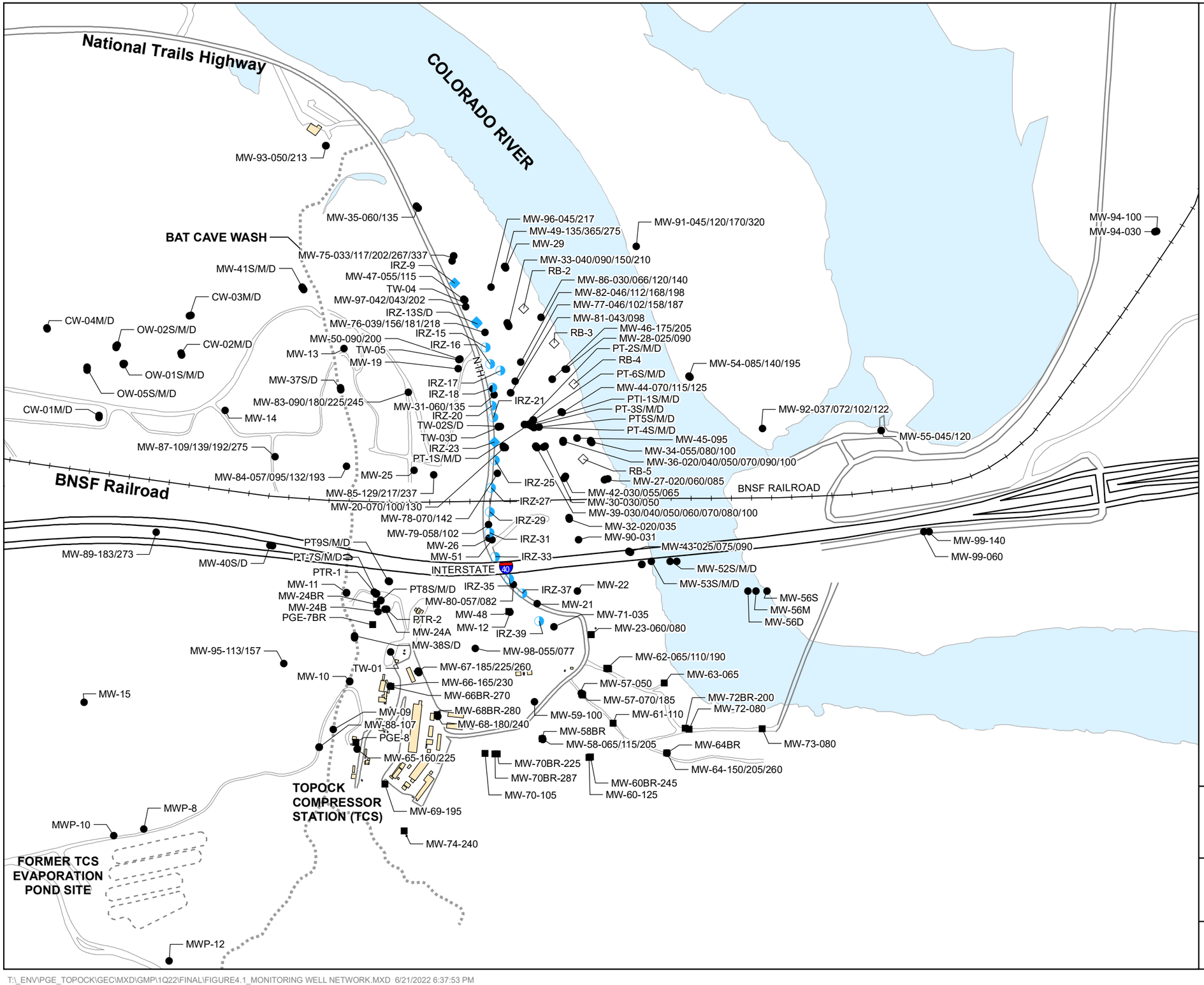

FOURTH QUARTER 2023
WELL PERFORMANCE REPORT

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

MONITORING WELL NETWORK

ARCADIS

FIGURE
4.1

T:_ENV\PGE_TOPOCK\GEC\MXD\GMP\1Q22\FINAL\FIGURE4.1_MONITORING WELL NETWORK.MXD 6/21/2022 6:37:53 PM

Appendix A

Laboratory Reports, Fourth Quarter 2023

For additional help with the information provided in the lab report, please contact Kimberly Wojcik, Arcadis Report Lead, at 312.953.3365.

Date: February 14, 2024

Lab Report No. 22948

Kim Wojcik
Arcadis
101 Creekside Ridge Court; STE 200
Roseville, CA 95678

Project Description: Pacific Gas and Electric, PTI-1D and IRZ Injection Well
Samples dated 12/26/2023; Deposit Analysis (2); PO# US3460012985

Test Description:

The deposit analysis is designed to assess the chemical, biological, and mechanical components of a given sample. Deposits are initially measured, photographed, and evaluated both macro and microscopically. Following initial evaluation, a pre-measured amount of sample is digested with acid and the solution is analyzed chemically for mineral analysis. A unique biological and gravimetric analysis is used to determine the organic portion and biological presence. Biological testing is performed in an effort to quantify the total bacterial population, assess anaerobic conditions, and identify the presence of iron related bacteria or sulfate reducing organisms. Following analysis, a dissolution test may be conducted to evaluate cleaning techniques.

Testing Procedures:

All laboratory testing procedures are performed according to the guidelines set forth in *Standard Methods for the Examination of Water and Wastewater* as established by the American Public Health Association (APHA), American Water Works Association (AWWA), and Water Environment Federation (WEF). Corrosion analyses are performed in accordance with the guidelines as set forth by the National Association of Corrosion Engineers (NACE). In general, these methods are approved by both the Environmental Protection Agency (EPA) and AWWA for the reporting of water and/or wastewater data.

Sample collection and shipment is the responsibility of the customer, performed according to protocol and procedures defined by the laboratory in advance of the sampling event with regards to the specific project and nature of the problem.

Disclaimer:

The data and interpretations presented are based on an evaluation of the samples and submitted data. Conclusions reached in this report are based upon the data available at the time of submittal and the accuracy of the report depends upon the validity of information submitted. Any recommendations presented are based on laboratory and field evaluations of similar fouling occurrences within potable water systems. Further investigative efforts, such as efficiency testing, site inspection, video survey, or other evaluation methods may offer additional insight into the system's condition and the degree of fouling present.

Client: Arcadis
Date: February 14, 2024
Lab Report No. 22948

Re: Pacific Gas and Electric, PTI-1D and IRZ Injection Well
Samples dated 12/26/2023; Deposit Analysis (2); PO# US3460012985

Deposit Analysis – IRZ Injection Well Line Filter Scale

Photographs of Sample:

Figure 1: Sample as received.

Figure 2: Raw sample material, as received.

Microscopic Evaluation:

IRZ Injection Well: Heavy visible bacterial activity, heavy number of protozoa, very low number of multicellular organisms, very low plant particulate, moderate iron oxide, heavy biomass with a heavy amount of *Crenothrix.*

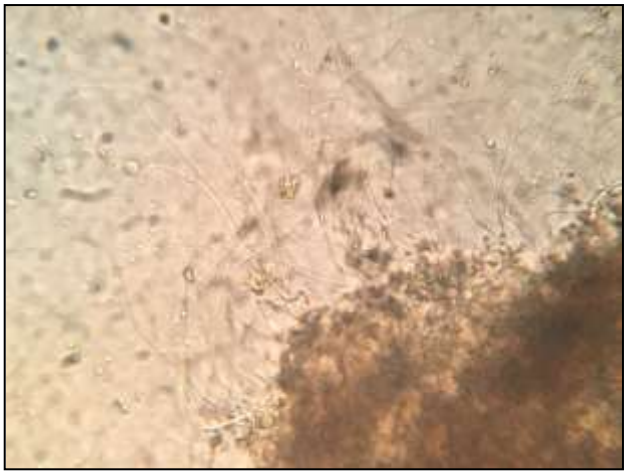

Figure 3: *Crenothrix* stalks proceeding from biomass, at 200x magnification.

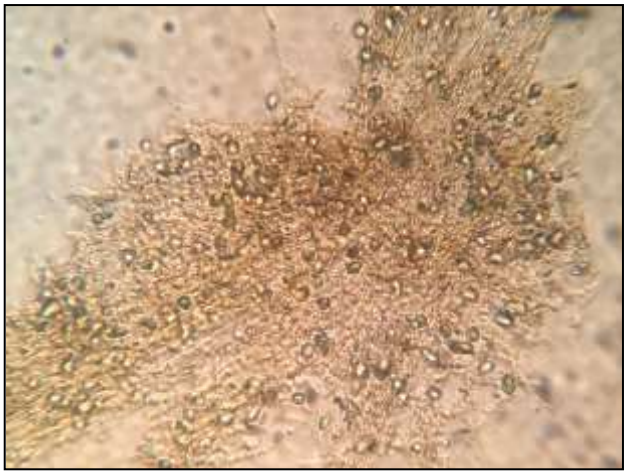

Figure 4: Microbial cysts entrained within biomass, at 200x magnification.

Microscopic Evaluation – *(continued)*:

Figure 5: Nematode at 200x magnification.

Figure 6: Amoeba at 200x magnification.

Figure 7: Plant particulate at 200x magnification.

Biological Analysis:

	IRZ Injection Well	Detection Limits
Plate Count (CFU/ml)	>1,500	NA
Anaerobic Growth (%)	50	NA
Sulfate Reducing Bacteria	Positive	NA
SRB Occurrence	*Excessive*	NA
Fe/Mn Oxidizing Bacteria	Positive	NA
ATP (cells per ml) Initial	1.4 Million	NA
Bacterial Identification	*Achromobacter insolitus*	NA
Bacterial Identification	*Bacillus cereus*	NA
Bacterial Identification	*Crenothrix*	NA

Chemical Analysis:

Component	Percent of Total Mass
Organic biomass, moisture	91.0
Insoluble material	2.1
Dissolvable mass	6.9
Total	100.0 %

Component	Percent by Weight of Dissolvable Mass
Calcium carbonate	4.5
Iron oxide	76.1
Manganese dioxide	4.8
Silica	1.4
Phosphate compounds	13.2
Total	100.0%

Deposit Analysis – PTI-1D Bag Filter

Photographs of Sample:

Figure 8: Sample as received.

Figure 9: Bag filter, as received, at 30x magnification.

Microscopic Evaluation:

PTI-1D: Excessive visible bacterial activity, very low amounts of crystalline debris, very low number of protozoa, very low plant particulate, moderate iron oxide with heavy biomass.

Microscopic Evaluation – *(continued)*:

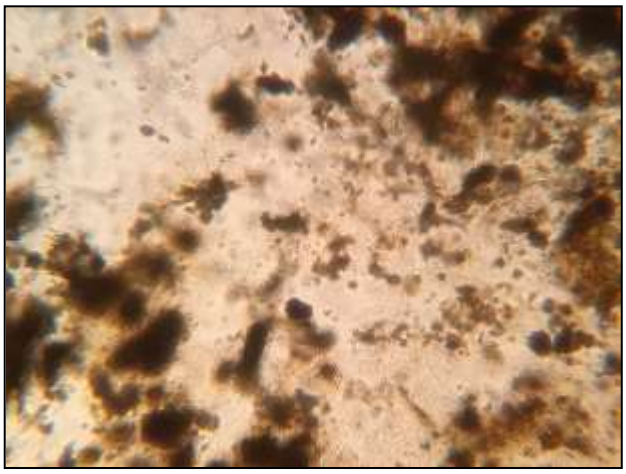

Figure 10: Biomass at 200x magnification.

Figure 11: Plant particulate at 200x Magnification.

Biological Analysis:

	PTI-1D Filter Bag	Detection Limits
Plate Count (CFU/ml)	>1,500	NA
Anaerobic Growth (%)	<10	NA
Sulfate Reducing Bacteria	Negative	NA
Fe/Mn Oxidizing Bacteria	Negative	NA
ATP (cells per ml) Initial	1.2 Million	NA
Bacterial Identification	*Pseudomonas stutzeri*	NA
Bacterial Identification	*Bacillus megaterium*	NA

Chemical Analysis:

Component	Percent by Weight of Dissolvable Mass
Calcium carbonate	13.0
Iron oxide	75.5
Silica	1.2
Phosphate compounds	10.0
Aluminum hydroxide	0.3
Total	100.0 %

Note:

This report reflects the request to provide data only. Should you have any questions or require additional information, please contact our office.

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