Pacific Gas and Electric Company

Veen Chee Foong
Pacific Gas and Electric Co
Technical Remediation Cslt, Principal

Topock Compressor Station
145453 National Trails Hwy
Needles, CA 92363

Mailing Address
P.O. Box 337
Needles, CA 92363

(925) 302-3659
Veen.Foong@pge.com

August 29, 2025

Chris Ioan
Project Manager
California Department of Toxic Substances Control
5796 Corporate Avenue
Cypress, CA 90630

Subject: *IRZ-9 Extended Aquifer Test Summary Report, PG&E Topock Compressor Station, Needles, California*

Dear Chris Ioan:

Enclosed is the IRZ-9 Extended Aquifer Test Summary Report for the Pacific Gas and Electric Company Topock Compressor Station site. This summary report documents the field and data analysis activities conducted for the extended aquifer test that was implemented between June and July 2025 using existing extraction well IRZ-9, located at the northern end of the National Trails Highway In Situ Reactive Zone.

Please contact me at 925.302.3659 if you have any questions about this summary report.

Sincerely,

Veen Chee Foong
Pacific Gas and Electric Co
Technical Remediation Cslt, Principal

Cc: Chris Guerre/DTSC
Greg Neal/DTSC
Karen Baker/DTSC
Veronica Dickerson/DOI

Pacific Gas and Electric Company

IRZ-9 Extended Aquifer Test Summary Report

Topock Compressor Station
Needles, California

August 29, 2025

IRZ-9 Extended Aquifer Test Summary Report

Topock Compressor Station
Needles, California

August 29, 2025

Prepared By:
Arcadis U.S., Inc.
100 Montgomery Street
Suite 300
San Francisco
California 94104
Phone: 415 374 2744
Fax: 415 374 2745

Prepared For:
Pacific Gas and Electric Company

Our Ref:
30220453

Emily Sheu, P.E.
Principal Environmental Engineer

Gregory Foote, CPG
Principal Hydrogeologist

Contents

Table

Figures

Appendices

Acronyms and Abbreviations

µg/L	microgram per liter
Arcadis	Arcadis U.S., Inc.
bgs	below ground surface
CH2M	CH2M Hill, Inc.
Cr6	hexavalent chromium
DTSC	Department of Toxic Substances Control
gpm	gallon per minute
northern shallow plume	shallow detached hexavalent chromium plume in the area of monitoring wells MW-75-033 and MW-97-042
NTH IRZ	National Trails Highway In Situ Reactive Zone
PG&E	Pacific Gas and Electric Company
PST	Pacific Standard Time
Site	Pacific Gas and Electric Company Topock Compressor Station site located in San Bernardino County, 15 miles southeast of the city of Needles, California
Summary Report	IRZ-9 Extended Aquifer Test Summary Report
Work Plan	IRZ-9 and IRZ-13S Extended Aquifer Test Work Plan

1 Introduction

On behalf of Pacific Gas and Electric Company (PG&E), Arcadis U.S., Inc. (Arcadis) has prepared this IRZ-9 Extended Aquifer Test Summary Report (Summary Report) for the PG&E Topock Compressor Station site located in San Bernardino County, 15 miles southeast of the city of Needles, California (the Site). This Summary Report documents the field and data analysis activities conducted during an extended aquifer test using existing extraction well IRZ-9, located at the northern end of the National Trails Highway In Situ Reactive Zone (NTH IRZ). The aquifer test was implemented between June and July 2025 in accordance with the IRZ-9 and IRZ-13S Extended Aquifer Test Work Plan (Work Plan; Arcadis 2025b) to evaluate the efficacy of using existing extraction infrastructure for improved hydraulic influence of the shallow detached hexavalent chromium (Cr6) plume in the area of monitoring wells MW-75-033 and MW-97-042 (hereinafter referred to as the northern shallow plume; Figure 1). The California Department of Toxic Substances Control (DTSC) had recommended implementation of the Work Plan on June 3, 2025 (DTSC 2025c), provided that this Summary Report be submitted following completion of the aquifer test and that responses be provided for the DTSC's comments on the Work Plan (sent via e-mail on May 21, 2025; DTSC 2025b). Responses to the DTSC's comments were submitted via e-mail on June 12, 2025 (Arcadis 2025d).

2 Background

Phase 1 of the final groundwater remedy for the Site (CH2M Hill Inc. [CH2M] 2015), which includes the NTH IRZ system, has been in operation since December 2021 to address Cr6 in groundwater. Operation and performance monitoring results for the Phase 1 groundwater remedy are reported in quarterly progress reports that are submitted to the DTSC. On the northern end of the NTH IRZ (where the northern shallow plume is located), the NTH IRZ system is designed to mitigate potential migration of Cr6 through groundwater extraction.

The following sections provide background information on the northern shallow plume, including the plume extents and the geology of the area.

2.1 Hexavalent Chromium Extents

The northern shallow plume (Figure 1) is defined by monitoring wells MW-75-033 and MW-97-042, which are screened across the water table. Monitoring well MW-75-033 is screened from 18 to 33 feet below ground surface (bgs), with an average depth to water of 18 feet bgs, and monitoring well MW-97-042 is screened from 22 to 42 feet bgs, with an average depth to water of 27 feet bgs. At monitoring well MW-75-033, Cr6 concentrations have fluctuated seasonally but generally exhibited an increasing trend, with a maximum concentration of 99 micrograms per liter (µg/L) observed in February 2024. In Fourth Quarter 2024, the Cr6 concentration at monitoring well MW-75-033 was 66 µg/L (Figure 1). A similar concentration was observed in First Quarter 2025 (73 µg/L), but concentrations decreased to 29 µg/L in Second Quarter 2025. At monitoring well MW-97-042, Cr6 concentrations increased to greater than 32 µg/L (i.e., the cleanup goal) for the first time in Fourth Quarter 2022 after the well had equilibrated with the aquifer. Since then, concentrations have fluctuated seasonally between being greater than and less than 32 µg/L, with peak concentrations consistently observed in Fourth Quarter for the past 3 years. In Fourth Quarter 2024, the Cr6 concentration at monitoring well MW-97-042 was greater than 32 µg/L (60 µg/L; Figure 1). However, consistent with past observations, Cr6 concentrations decreased to less than 32 µg/L in First Quarter 2025 (15 µg/L) and Second Quarter 2025 (17 µg/L). Cr6 concentrations are less than 32 µg/L in monitoring well MW-47-055, which is a shallow monitoring well that is screened deeper than monitoring wells MW-75-033 and MW-97-042 (i.e., from 45 to 55 feet bgs; Figure 1). At monitoring wells in the floodplain to the east of monitoring wells MW-75-033 and MW-97-042, including monitoring wells MW-29 and MW-96-045, Cr6 concentrations have been less than detectable limits (Figure 1), and high dissolved iron concentrations reported at monitoring well MW-29 (up to 7.1 milligrams per liter) indicate natural Cr6 reducing conditions in this area (likely associated with the rind, as discussed in the Fourth Quarter 2024 Quarterly Progress Report [Arcadis 2025a]), which are expected to control Cr6 migration to the river.

2.2 Local Geology

The geology in the area of the northern shallow plume consists of Miocene conglomerate and pre-tertiary metamorphic and igneous bedrock, which is overlain by younger, unconsolidated sedimentary deposits, referred to as the Alluvial Aquifer (CH2M 2009, 2015). The Alluvial Aquifer consists of alluvial sands, gravels, and fines shed from the local mountain chains and fluvial material deposited by the Colorado River (CH2M 2015).

Figure 2 shows the alignment of two cross-sections (A-A’ and B-B’) that run through the monitoring well MW-75 well cluster. Detailed cross-sectional views of the Site’s geology, oriented from north to south (A-A’) and west to east (B-B’), are shown on Figures 3 and 4, respectively. As shown on these detailed cross-sections, the Alluvial

Aquifer thickens to the north and is heterogenous, consisting of a mix of gravels, sands, and silts of various sorting. This variability likely influences groundwater flow paths and impacts the observed influence from extraction wells IRZ-9 and IRZ-13S in this area.

3 Test Objectives and Overview

During a call with stakeholder agencies, including the DTSC and United States Department of the Interior, on January 28, 2025, PG&E proposed the option of conducting an aquifer test to evaluate the efficacy of using existing extraction infrastructure (e.g., IRZ-9) for improved hydraulic influence of the northern shallow plume. The DTSC concurred with this option in a letter dated February 18, 2025 (DTSC 2025a).

Extraction well IRZ-9 is located within the lateral extent of the northern shallow plume but showed little to no influence at the water table (e.g., at MW-75-033) during the previous short-duration (4-hour) aquifer testing conducted at this well in September 2023. The results of that testing, detailed in the Work Plan (Arcadis 2025b), attributed an uneven distribution of drawdown observed at the end of the 2023 short-duration test to shallow heterogeneities in the geology around IRZ-9. Thus, an objective of the proposed longer-duration aquifer test described herein was to evaluate if pumping for an extended period at IRZ-9 would allow the time necessary for drawdown to propagate to the shallow zone of the aquifer near monitoring well MW-75-033.

The aquifer test was conducted in three phases as follows. During the testing, typical operation of the NTH IRZ system was adjusted to accommodate the flow from the aquifer test.

1. Background monitoring (initiated on June 16, 2025): During this phase, the extraction rate at NTH IRZ extraction well IRZ-23 (located in the central portion of the NTH IRZ) was reduced to 30 gallons per minute (gpm) and all other extraction wells were turned off. Water level data collected during this period were used to establish background conditions with no extraction from well IRZ-9 and limited extraction at IRZ-23 until the beginning of the constant-rate testing.
2. Constant-rate testing (initiated on June 25, 2025): During this phase, IRZ-9 was pumped continuously at the maximum design rate of approximately 80 gpm until the beginning of the cycle testing.
3. Cycle testing (performed on July 7, 2025, and July 9, 2025): During this phase, IRZ-9 was cycled off for a 24-hour period on July 7, 2025, and again on July 9, 2025.

During the constant-rate testing and cycle testing, IRZ-23 continued to be pumped at a flow rate of approximately 10 to 30 gpm depending on the remaining injection capacity of the NTH IRZ system.

The Work Plan also included procedures for potential combined extraction from wells IRZ-9 and IRZ-13S if no influence was observed at the surrounding shallow monitoring wells (e.g., MW-75-033 and MW-97-042) from operation of extraction well IRZ-9 alone (Arcadis 2025b). However, these procedures were not necessary and ultimately not used because hydraulic influence was observed in these wells from pumping IRZ-9 (see Section 5). For the purposes of this aquifer test, hydraulic influence was defined as an observed decrease in water levels of at least 0.2 foot based on data that have been adjusted for barometric pressure, temperature and salinity, and river stage fluctuations to account for diurnal variation.

4 Test Methodology

The following sections provide information on the aquifer test methodology, including equipment setup, pumping operations, water level monitoring, river stage monitoring, and extraction well sampling.

4.1 Equipment Setup

To observe the hydraulic influence on shallow groundwater from the operation of extraction well IRZ-9 at its maximum design rate, groundwater levels were monitored using pressure transducers installed in 12 monitoring wells in accordance with the Work Plan (Arcadis 2025b): MW-29, MW-33-040, MW-33-090, MW-35-060, MW-35-135, MW-47-055, MW-47-115, MW-75-033, MW-75-117, MW-76-039, MW-96-045, and MW-97-042 (Figure 5). Ten of these wells were already equipped with pressure transducers as part of the routine monitoring program for the NTH IRZ. For the remaining two wells, MW-29 and MW-47-055, pressure transducers were deployed prior to the start of testing. Well construction details for these wells are provided in Table 1.

The pressure transducers used for monitoring during the aquifer test were non-vented Solinst Leveloggers, which recorded water level and temperature measurements. Because these pressure transducers were not vented to the atmosphere, ambient barometric pressure data were collected simultaneously using a barometric transducer (Solinst Barologger) located at the Site. Each of the pressure transducers was equipped with a direct-read cable to minimize movement of the instrument during data downloads.

Two weeks prior to the planned start of constant-rate testing at IRZ-9, during the week of June 8, 2025, the existing pressure transducers were checked to confirm their functionality, and manual depth-to-water measurements were collected for reference. In addition, pressure transducers were deployed at monitoring wells MW-29 and MW-47-055. The pressure transducers were programmed to record linear measurements every 30 minutes for background data collection.

The pressure transducers were reprogrammed 2 days prior to the start of constant-rate testing at IRZ-9 as follows, in accordance with the Work Plan (Arcadis 2025b):

- Pressure transducers in monitoring wells nearest to IRZ-9 (i.e., MW-47-055, MW-47-115, MW-75-033, MW-75-117, MW-96-045, and MW-97-042) were reprogrammed for linear data collection every 5 minutes until 10 minutes before the planned start of extraction, at which time data collection occurred every 1 second. Once extraction began at IRZ-9, the pressure transducers collected measurements logarithmically until a 5-minute collection rate was obtained, approximately 21 hours after the start of extraction. The pressure transducers then continued to collect data at a linear 5-minute rate for the remainder of the test. The purpose of having logarithmic data collection at these select locations was to observe any rapid changes in depth to water occurring immediately after the start of extraction.
- All other pressure transducers were programmed for consistent data collection at a linear 5-minute interval for the remainder of the test.

Once the aquifer test concluded, all monitoring well pressure transducers were reprogrammed for linear data collection at 30-minute intervals for the routine NTH IRZ monitoring.

4.2 Pump Operation

Background monitoring was initiated on June 16, 2025. During this period starting on June 16, 2025, in accordance with the Work Plan (Arcadis 2025b), the extraction rate at NTH IRZ extraction well IRZ-23 (located in the central portion of the NTH IRZ) was reduced to 30 gpm and all other extraction wells were turned off for the full duration of the IRZ-9 test.

Pumping at IRZ-9 at the maximum design rate of 80 gpm for constant-rate testing began on June 25, 2025, at 6:00 a.m. Pacific Standard Time (PST). Constant-rate testing continued until July 7, 2025, when a cycle test began. During the cycle test, pumping at IRZ-9 was suspended for a 24-hour period on July 7, 2025, and again on July 9, 2025. The purpose of the cycle testing was to confirm the hydraulic influence observed during the constant-rate testing. Following the cycle test, constant-rate pumping continued until the test concluded and pumping ceased at IRZ-9 on July 15, 2025.

The average daily flow rates measured at IRZ-9 during the aquifer test are presented on Figure 6. On average, a flow rate of approximately 80 gpm was sustained at IRZ-9 while this well was operational. Approximately 2,088,898 gallons of groundwater were extracted during the operation of IRZ-9 between June 25 and July 15, 2025.

4.3 Water Level Monitoring

During the aquifer test, water levels were monitored at 12 select monitoring wells using pressure transducers (Figure 5). Periodic manual water level measurements were also collected to compare with the transducer data. Before constant-rate testing began at IRZ-9, data were downloaded from the pressure transducers and manual water level measurements were collected for reference. These data were processed to understand background conditions as described in Section 5.1. Once extraction from IRZ-9 started on June 25, 2025, data were downloaded from the pressure transducers daily, and manual water level measurements were taken twice a day when access was possible. The final data collection occurred on July 11, 2025. Collected data were processed daily to track test progress and confirm whether operational adjustments were necessary.

4.4 River Stage Monitoring

River stage was also monitored throughout the aquifer test using a pressure transducer installed in a stilling well (I-3) in the Colorado River. Manual water level measurements were also taken at the stilling well for reference. The stilling well is located near the west bank of the river as shown on Figure 2. River stage data were used to evaluate the influence of diurnal river stage fluctuations on groundwater levels and isolate the hydraulic effects of the IRZ-9 pumping.

4.5 Extraction Well Sampling

Grab water samples were collected from IRZ-9 before, during, and at the end of the aquifer test and were analyzed for Cr6 concentrations. The objective of this sampling was to assess trends in Cr6 concentrations in the extracted water stream over the course of the aquifer test. A background grab sample was collected during the routine quarterly sampling on May 15, 2025. After the start of extraction at IRZ-9, a grab water sample was

collected on June 30, 2025, during the testing phase. Before ceasing extraction at IRZ-9 on July 15, 2025, an end-of-test grab water sample was collected on July 14, 2025.

The samples were collected from the sample port in the well vault and submitted under chain-of-custody protocol to Asset Laboratories in Las Vegas, Nevada, for analysis of Cr6 by United States Environmental Protection Agency Method 218.6. Sample collection, analysis, and data validation were conducted in accordance with the quality assurance project plan and addendum (CH2M 2014; Critigen 2020).

5 Data Analysis

Water level data that were collected over the duration of the aquifer test (as described in Section 4) were processed, adjusted for river stage variations, and then used to analyze the hydraulic effects of pumping at IRZ-9. The following sections detail the processing of the water level data, the adjustment of the processed water level data to exclude river stage influence, and the data analyses that were conducted to evaluate hydraulic influence.

5.1 Water Level Data Processing

Barometric pressure, manual water level measurements, and density were taken into consideration when processing the pressure transducer data as outlined in the sections below.

5.1.1 Barometric Pressure Adjustment

The pressure transducers used for the aquifer test were absolute transducers, meaning they were not vented to the atmosphere; therefore, these pressure transducers measured both the pressure of the water column above the sensor and the pressure of the atmosphere acting on the water surface. To isolate the data for only the pressure of the water column, the atmospheric pressure recorded by the onsite barometric transducer was subtracted from the total measurement. The Solinst Levelogger software was used to calculate this barometric compensation using the following equation:

$$P_w = P_T - P_A$$

where

P_w = pressure from the water column above the pressure transducer sensor;

P_T = total pressure measured by the pressure transducer; and

P_A = barometric pressure measured by the barometric transducer.

The adjusted water level pressure data were then used, along with surveyed top-of-well-casing elevation data, to calculate groundwater elevations.

5.1.2 Manual Water Level Measurement Adjustment

The barometric corrected groundwater elevations were compared to manual water level measurements collected with a water level meter to a 0.01-foot accuracy. Offset adjustments were applied as needed to align the pressure transducer groundwater elevation data with the groundwater elevations calculated based on the manual water level measurements. Pressure transducers are subject to measurement inaccuracies, drifts, and non-linearities. Pressure transducers can also be inadvertently repositioned during field data collection, such as during the manual measurement of water levels or the downloading of data logs. When necessary, pressure transducer measurements were excluded from the datasets or were adjusted to correspond to the manual water level measurements recorded for each of the wells.

5.1.3 Density Adjustment

Because there is a range of groundwater salinity at the Site, it is standard site practice to adjust pressure transducer data for variations in water density caused by salinity or temperature differences. The salinity and temperature adjustments were implemented in accordance with Standard Operating Procedure A22 (CH2M 2015) for the PG&E Topock Program, which was developed to convert groundwater elevations to a standard density (i.e., freshwater equivalent head) based on averaged laboratory or field measurements of salinity, specific conductance, and/or total dissolved solids and temperature data from the pressure transducers.

5.2 River Stage Influence on Groundwater Levels

Groundwater levels in the monitoring wells at the Site have been observed to fluctuate in response to changes in the stage of the Colorado River. The stage and flow of the Colorado River adjacent to the Site is largely controlled by releases from Lake Mohave through Davis Dam, located approximately 33 miles upstream of the Site. Davis Dam further regulates releases from the Hoover Dam and Lake Meade located further upstream. Releases from the Davis Dam are made to meet downstream municipal and agricultural water needs. Releases tend to be greatest from late spring to early summer and least from late fall to early winter. Releases also fluctuate daily, with the greatest flow typically occurring in the late evening and the least flow typically occurring in the early morning.

Groundwater elevations for monitoring wells in the aquifer test network and the river stage elevation measured at the I-3 stilling well are shown on Figure 7. The groundwater elevations have been adjusted as outlined in Section 5.1 but have not been isolated from the influence of river stage. As shown on Figure 7, each of the monitoring wells exhibited short-term daily fluctuations related to changes in the stage of the Colorado River. To isolate the influence of extraction at IRZ-9, groundwater elevations were adjusted for river stage influence, and the resulting groundwater elevations are shown on Figure 8. The following sections provide details on the adjustment of groundwater elevations for river stage influence.

5.2.1 River Stage Influence Lag Time

In general, there was a delay between when a change in river stage was observed and when a corresponding change in groundwater levels was observed. The length of this delay (i.e., lag time) varied depending on the distance of the monitoring well from the river, with some variations likely caused by geologic heterogeneity. In general, monitoring wells closer to the river experienced greater influence from the river stage (i.e., a greater magnitude of groundwater level fluctuations) and a shorter lag time. To calculate the lag time at each monitoring well, a correlation coefficient was calculated from normalized background data collected between June 1, 2025, and the start of constant-rate testing on June 25, 2025. The correlation coefficient was calculated on this background dataset using the Pearson correlation coefficient formula:

$$r = \frac{n\Sigma(x_i y_i) - \Sigma x_i \, \Sigma y_i}{\sqrt{([n\Sigma({x_i}^2) - (\Sigma x_i)^2][n\Sigma({y_i}^2) - (\Sigma y_i)^2])}}$$

where

r = correlation coefficient;

n = number of measurements in the correlation range, with a minimum of 30 measurements;

x_i = individual normalized groundwater elevation from monitoring well to the i-th observation; and

y_i = individual normalized river stage elevation from the river to the i-th observation.

The best-fit correlation coefficient was evaluated by applying a series of lag times to the normalized river stage elevation measurements, advancing them by successive half-hour intervals, and comparing them to the normalized monitoring well groundwater elevations. The highest correlation coefficient from this series of lag time tests corresponded to the lag time that best represented the influence of the river stage on the monitoring well.

The only location that was unable to have a best-fit lag time calculated was MW-47-055. This was due to a field error made when programming the pressure transducer that resulted in background data only being collected 1 day prior to the beginning of extraction at IRZ-9. The lag time for MW-47-055 was established by graphical comparison of the adjusted groundwater elevations to river stage changes during the aquifer test.

The lag times observed at the monitoring wells during the background monitoring phase of the aquifer test ranged from 60 to 270 minutes (Exhibit 1), with longer lag times generally occurring at wells located farther from the Colorado River and at shallow wells (i.e., wells screened in groundwater model layer 1). Monitoring well MW-29 exhibited a longer lag time than anticipated given its proximity to the Colorado River, which may be attributed to greater hydraulic resistance caused by geologic heterogeneities in the shallow aquifer.

Exhibit 1 Averaged River Stage Efficiency and Lag Time for Aquifer Test Monitoring Network

Well ID	Average River Stage Efficiency	Lag Time (minutes)	Groundwater Model Layer[a]	Approximate Distance to River (feet)
MW-29	4%	240	1	100
MW-33-040	30%	120	1	280
MW-33-090	38%	60	2 and 3	280
MW-35-060	28%	90	1 and 2	440
MW-35-135	18%	90	3 and 4	440
MW-47-055	21%	180	1	460
MW-47-115	21%	90	3	460
MW-75-033	13%	270	1	430
MW-75-117	18%	120	3	430
MW-76-039	20%	210	1	430
MW-96-045	31%	180	1	240
MW-97-042	7%	270	1	460

Note:

[a] Groundwater model layers are based on the well screen depth above mean sea level and are divided as follows:

- Layer 1 = greater than 425 feet above mean sea level;
- Layer 2 = 400 to 425 feet above mean sea level;

- Layer 3 = 350 to 400 feet above mean sea level; and
- Layer 4 = 300 to 350 feet above mean sea level.

5.2.2 River Stage Efficiency

To account for the influence of river stage on groundwater levels, an average river stage efficiency value was also calculated for each monitoring well based on the background dataset. For each monitoring well, river stage efficiency was calculated using the following equation:

$$RE = \frac{\Delta h_w}{\Delta h_r} * 100\%$$

where

RE = river stage efficiency;

Δh_w = change in groundwater level; and

Δh_r = corresponding change in river level at the appropriate lagged time.

MW-47-055 had a reduced amount of data for determining the river stage efficiency value due to the limited period for background data collection for this well as described in Section 5.2.1. This location had an average river stage efficiency value based on background data from June 24, 2025, to the start of constant-rate testing on June 25, 2025, which was confirmed by visual evaluation of the influence on the resulting hydrograph.

In general, high river stage efficiency indicates that a significant portion of the change in river stage is reflected in the groundwater elevation at a monitoring well. Conversely, low river stage efficiency indicates that the influence of river stage on groundwater elevation at the monitoring well is limited. The average river stage efficiency calculated using the background dataset ranged from 4 to 38% (see Exhibit 1), with lower river efficiencies generally occurring at wells located farther from the Colorado River and at shallow wells (i.e., wells screened in groundwater model layer 1). In addition to a longer lag time, monitoring well MW-29 also exhibited a lower river stage efficiency value than anticipated given its proximity to the Colorado River. This result supports the finding, discussed in Section 5.2.1, that there are geologic heterogeneities in the shallow aquifer that are contributing to greater hydraulic resistance in the area of MW-29.

5.2.3 River Stage Compensation

To isolate the influence of extraction at IRZ-9 from river stage influence, the lag time and the average river stage efficiencies were used to adjust groundwater elevation levels with the following equation:

$$h_w{}' = h_w - RE * (h_{c+l} - h_{ci})$$

where

h_w' = groundwater level at time t isolated from the influence of river stage;

h_w = measured groundwater level at the monitoring well at time t;

RE = average river stage efficiency;

h_{c+l} = river stage measurement for the specified monitoring well at time t minus the lag time; and

h_{ci} = baseline river stage measurement at the start of the aquifer test.

This calculation focused on removing the influence of short-term daily fluctuations in the river stage. Because the aquifer test took place over a relatively short duration (i.e., on the order of weeks), long-term seasonal variations in river stage are not considered significant for interpretation of the groundwater elevation data. Hydrographs showing groundwater elevations for all monitoring wells in the aquifer test network prior to and following this calculation are depicted on Figures 7 and 8, respectively. Hydrographs for individual wells showing groundwater elevations that have been adjusted for the river stage are shown in Appendix A.

5.3 Aquifer Test Analysis

The data analyses that were conducted to evaluate hydraulic influence from pumping at IRZ-9 are summarized below. In this section, the term “adjusted” is used to describe groundwater elevation data (or values calculated from groundwater elevation data) derived from pressure transducer data that have been processed as described in Section 5.1 and adjusted for river stage influence as described in Section 5.2.

5.3.1 Aquifer Response

Drawdown values were calculated by subtracting adjusted groundwater elevations during the aquifer test from the baseline adjusted groundwater elevation measured prior to the start of extraction. A semi-logarithmic plot illustrating these adjusted drawdown data versus time at all locations following the start of extraction from IRZ-9 is presented on Figure 9, with individual plots shown in Appendix B. Figure 10 shows drawdown at locations proximate to IRZ-9, whereas Figure 11 shows drawdown at more distant locations.

For most of the wells near IRZ-9 (Figure 10), significant drawdown (i.e., 0.2 foot or more) was observed within minutes (MW-47-055, MW-47-115, and MW-75-117) to within several hours (MW-96-045 and MW-97-042) of the start of constant-rate testing at IRZ-9. The greatest drawdown was observed at the deeper wells MW-47-115 and MW-75-117. Significant drawdown was also observed at shallow (water table) well MW-75-033 but was slower to develop. After approximately 1,000 minutes (16.5 hours) of pumping, all nearby shallow monitoring wells (MW-75-033, MW-97-042, MW-96-046, and MW-47-055) exhibited a drawdown of at least 0.2 foot, meeting the criteria for hydraulic influence. For wells located farther from IRZ-9 (Figure 11), significant drawdown was generally not observed over the duration of constant-rate testing at IRZ-9.

As discussed in Section 4.2, cycle testing was conducted following the constant-rate testing to verify the hydraulic influence observed during the constant-rate test. For the cycle testing, extraction was suspended at IRZ-9 for a 24-hour period on both July 7 and July 9, 2025. Plots of adjusted drawdown over time during the cycle test are presented on Figure 12, for monitoring wells proximal to IRZ-9, and on Figure 13, for monitoring wells located farther from IRZ-9. Data collected during the cycle testing demonstrated a reduction in drawdown in the monitoring wells located near IRZ-9 during periods of suspended pumping (Figure 12), confirming the observations of hydraulic influence at these wells during the constant-rate test. Locations farther from IRZ-9 did not display a defined pattern of response to the cycling (Figure 13), except for MW-35-135 (approximately 540 feet from IRZ-9), which was the farthest well to demonstrate a clear and rapid response to operation of IRZ-9 with significant drawdown. The hydraulic effects of IRZ-9 pumping on MW-35-135 were less evident during the constant-rate testing, although a drawdown of greater than 0.2 foot was observed in this well shortly after the initiation of pumping at IRZ-9. However, the magnitude of drawdown subsequently decreased and remained less than 0.2 foot for the remainder of the constant-rate test. It should be noted that a sharp drop in groundwater elevation was observed in MW-35-135 immediately prior to the start of pumping at IRZ-9, and use of these

elevation data may have resulted in calculated drawdowns for MW-35-135 that are artificially low. Thus, there is uncertainty in the drawdown test results for MW-35-135 with a potential for low bias.

5.3.2 Distribution of Drawdown

To illustrate the extent and distribution of the cone of depression resulting from extraction at IRZ-9, semi-logarithmic plots of the adjusted drawdown versus distance at 1,000 minutes (approximately 16.5 hours), 10,000 minutes (approximately 7 days), and 23,000 minutes (approximately 16 days) after the start of the test are presented on Figures 14A through 14F. Separate plots are provided for monitoring wells screened in groundwater model layer 1 (425 to 455 feet above mean sea level) and monitoring wells screened in groundwater model layers 2, 3, or 4 (300 to 425 feet above mean sea level).

In general, drawdown values calculated for the monitoring wells followed a relatively consistent linear trend. However, values for shallow monitoring wells in groundwater model layer 1 generally exhibited more variation around the trendline compared to wells in the deeper groundwater model layers (2 through 4) likely due to shallow geologic heterogeneities.

To approximate the extent of hydraulic influence from IRZ-9 extraction, a logarithmic trendline was extrapolated for each distance drawdown plot to the point where drawdown approaches zero. The estimated lateral extent of hydraulic influence is summarized below in Exhibit 2. These results show that the area of influence increased over the duration of pumping at IRZ-9. Calculated drawdown values at 1,000 minutes and 10,000 minutes were also plotted on plan view maps, as shown on Figures 15A and 15B and Figure 15C and 15D, respectively, to illustrate the spatial distribution of drawdown in groundwater model layer 1 and groundwater model layers 2 through 4. Calculated drawdown values at 1,000 minutes and 10,000 minutes are also plotted on the geologic cross-sections (Figures 3 and 4) to illustrate the variation in drawdown with depth.

Exhibit 2 Approximate Extent of Hydraulic Influence from IRZ-9

Time After Extraction at IRZ-9 Began (minutes)	Groundwater Model Layer[a]	Approximate Distance (feet) to Drawdown Less Than 0.2 Foot[b]	Approximate Distance (feet) to Drawdown of 0 Feet[b]
1,000 (6/25/2025 22:40 PST)	1	220	485
	2 to 4	370	535
10,000 (7/2/2025 04:40 PST)	1	290	555
	2 to 4	400	590
23,000 (7/11/2025 05:20 PST)	1	408	730
	2 to 4	458	650

Notes:

[a] Groundwater model layers are based on the well screen depth above mean sea level and are divided as follows:

- Layer 1 = greater than 425 feet above mean sea level;
- Layer 2 = 400 to 425 feet above mean sea level;

- Layer 3 = 350 to 400 feet above mean sea level; and
- Layer 4 = 300 to 350 feet above mean sea level.

[b] Distances (from IRZ-9) were calculated based on the logarithmic trendlines from the distance drawdown plots.

5.3.3 Hexavalent Chromium Concentrations in Extracted Water

As detailed in Section 4.5, grab water samples were collected from IRZ-9 prior to, during, and at the conclusion of the aquifer test and analyzed for Cr6. These data were plotted, along with historical Cr6 data from IRZ-9, to assess whether there were any changes in Cr6 concentrations potentially due to pumping at IRZ-9 (Figure 16).

Previous data from IRZ-9, beginning in 2024, show variable quarterly Cr6 concentrations ranging from 9.8 to 15 µg/L. The background sample taken from IRZ-9 on May 15, 2025, prior to initiating the aquifer test, had a Cr6 concentration of 13 µg/L. Over the duration of pumping at IRZ-9, Cr6 concentrations increased to 19 µg/L (after approximately 5 days of pumping) and then to 20 µg/L (at the conclusion of the aquifer test), a historical maximum. The increase in Cr6 concentrations at IRZ-9 suggests that groundwater extracted from IRZ-9 included contributions from the northern shallow plume. However, Cr6 concentrations at IRZ-9 did not exceed the 32 µg/L cleanup goal.

6 Summary and Conclusions

The aquifer test demonstrated that improved hydraulic influence in the area of the northern shallow plume can be achieved by pumping at the existing IRZ-9 extraction well. Significant drawdown of at least 0.2 foot was observed at monitoring wells proximal to IRZ-9, including MW-75-033 and MW-97-042, which define the northern shallow plume, confirming hydraulic influence under the conditions in place at the time of the test.

Hydraulic influence at nearby monitoring wells was observed within approximately 1,000 minutes (16.5 hours) following the start of extraction at IRZ-9. This influence was further confirmed through cycle testing, which showed adequate recovery of drawdown when extraction was temporarily suspended. Deeper-screened monitoring wells exhibited a more rapid response to extraction and a greater magnitude of drawdown compared to shallow-screened wells. Proximal shallow monitoring well MW-75-033, to the north of IRZ-9, showed a delayed response to IRZ-9 extraction, likely due to heterogeneities in the lithology of the shallow groundwater zone. These lithological complexities appear to influence the timing and distribution of hydraulic responses.

The approximate lateral extent of hydraulic influence increased throughout the duration of the aquifer test and did not stabilize by the end of the test, suggesting that prolonged extraction could result in a larger cone of depression than that observed during the test period. The increase in Cr6 concentrations in samples collected from IRZ-9 over the duration of the test also suggests that water extracted at IRZ-9 included contributions from the northern shallow plume.

It is important to note that the results of this aquifer test (e.g., the magnitude and extent of hydraulic influence) are specific to the high river stage period during which the test was conducted and may not represent conditions during other seasonal periods when river flow dynamics differ. High river stage conditions provide for a natural inward gradient from the Colorado River, and the aquifer test was intentionally scheduled for a high river stage period so that flow could be temporarily diverted from the central floodplain extraction wells (IRZ-23 and PTI-1D) without losing capture of the central floodplain plume. PG&E is currently pursuing installation of a shallow monitoring well (MW-JJ) in the floodplain immediately downgradient of MW-75-033 to monitor potential Cr6 plume migration toward the river from the MW-75-033 area (Arcadis 2025c). If sampling of this well indicates Cr6 concentrations less than the cleanup goal of 32 µg/L, continuous operation of IRZ-9 may not be warranted, and seasonal/cycled operation of this well will be considered to expedite mass removal. If sampling indicates that the Cr6 plume has migrated into the floodplain and continuous operation of IRZ-9 is warranted, additional testing will be implemented to further evaluate seasonal hydraulic behavior and potential variations in the extent of influence under low river stage conditions. Based on the results of this test, it is anticipated that any additional testing may be conducted over a shorter period (i.e., on the order of days) and as part of the routine operation of the NTH IRZ.

7 References

Arcadis. 2025a. Fourth Quarter 2024 Quarterly Progress Report, Topock Compressor Station, Needles, California. March 25.

Arcadis. 2025b. IRZ-9 and IRZ-13S Extended Aquifer Test Work Plan, Topock Compressor Station, Needles, California. May 2.

Arcadis. 2025c. Northern Shallow Floodplain Monitoring Well Installation Work Plan. PG&E Topock Compressor Station, Needles, California. May 15.

Arcadis. 2025d. Email from E. Sheu (Arcadis) to C. Ioan (DTSC). RE: TPK GW Well Northern Plume LTR. June 12.

CH2M. 2009. Final RCRA Facility Investigation/Remedial Investigation Report. Volume 2—Hydrogeologic Characterization and Results of Groundwater and Surface Water Investigation. PG&E Topock Compressor Station, Needles, California. February 11.

CH2M. 2014. Final PG&E Program Quality Assurance Project Plan. November.

CH2M. 2015. Basis of Design Report/Final (100%) Design Submittal for the Final Groundwater Remedy. PG&E Topock Compressor Station, Needles, California. November.

Critigen. 2020. Addendum to the PG&E Program Quality Assurance Project Plan for Groundwater and Surface Water Sampling at the Topock Chromium Site. April.

DTSC. 2025a. Request for the Installation of Groundwater Monitoring Well Downgradient of Northern Shallow Floodplain Plume Pacific Gas and Electric (PG&E) Topock Compressor Station Needles, California (EPA I.D. 080011729). February 18.

DTSC. 2025b. Email from C.Guerre (DTSC) to J. Glass (PG&E). RE: TPK GW Well Northern Plume LTR. May 21.

DTSC. 2025c. Email from C.Ioan (DTSC) to J. Glass (PG&E). RE: TPK GW Well Northern Plume LTR. June 3.

Table

Table 1
IRZ-9 Extended Aquifer Test Well Construction Details
Pacific Gas and Electric Company
Topock Compressor Station
Needles, California

Location ID	Aquifer	Groundwater Model Layer[a,b]	Top of Casing Elevation (feet amsl)	Top of Screen (feet bgs)	Bottom of Screen (feet bgs)	Historic High Depth to Water (feet btoc)	Pressure Transducer Type[c]	Approximate Distance from Extraction Well IRZ-9 (feet)	River Stage Adjusted Groundwater Elevation Before Extraction Began[d,e] (feet amsl)	Drawdown 1,000 Minutes (16.5 hours) After Extraction Start[e,f] (feet)	Drawdown 10,000 Minutes (7 days) After Extraction Start[e,f] (feet)	Drawdown 23,000 Minutes (16 days) After Extraction Start[e,f] (feet)
I-3	River stage	Surface water	460.30	NA	NA	NA	Levelogger 5	NA	NA	NA	NA	NA
IRZ-9	Alluvial	Layers 2 and 3	477.01	55	100	NA	NA	NA	NA	NA	NA	NA
MW-29	Fluvial	Layer 1	485.21	30	40	28.46	Levelogger 5	345	455.62	0	0	0.15
MW-33-040	Fluvial/alluvial	Layer 1	487.38	29	39	30.88	Levelogger Edge	450	455.81	0.04	0.09	0.13
MW-33-090	Alluvial	Layers 2 and 3	487.55	69	89	30.77	Levelogger 5	445	455.87	0.07	0.04	0.12
MW-35-060	Alluvial	Layers 1 and 2	482.06	41	61	24.85	Levelogger Edge	555	455.77	0.02	0.13	0.24
MW-35-135	Alluvial	Layers 3 and 4	481.72	116	136	24.80	Levelogger 5	540	455.99	0	0.13	0.18
MW-47-055	Alluvial	Layer 1	483.83	45	55	27.10	Levelogger 5	130	455.50	0.42	0.52	0.64
MW-47-115	Alluvial	Layer 3	472.01	105	115	27.48	Levelogger 5	130	455.85	0.65	0.64	0.77
MW-75-033	Fluvial/alluvial	Layer 1	473.24	18	33	16.05	Levelogger 5	145	455.72	0.19	0.33	0.47
MW-75-117	Alluvial	Layer 3	473.33	97	117	16.42	Levelogger 5	145	455.89	0.92	0.93	1.04
MW-76-039	Fluvial/alluvial	Layer 1	481.24	24	39	24.43	Levelogger 5	380	455.73	0	0.01	0.10
MW-96-045	Fluvial/alluvial	Layer 1	483.84	25	45	27.12	Levelogger 5	250	455.82	0.28	0.35	0.47
MW-97-042	Fluvial/alluvial	Layer 1	481.81	22	42	24.77	Levelogger 5	145	455.67	0.32	0.49	0.61

Notes:

[a] The groundwater monitoring network for the IRZ-9 extended aquifer test only includes wells screened within groundwater model layers 1, 2, or 3 to target the shallow fluvial/alluvial aquifer.

[b] Groundwater model layers are based on the well screen depth above mean sea level and are divided as follows:
Layer 1 = greater than 425 feet amsl
Layer 2 = 400 to 425 feet amsl
Layer 3 = 350 to 400 feet amsl
Layer 4 = 300 to 350 feet amsl

[c] The Levelogger 5 and Levelogger Edge transducer types record water level and temperature.

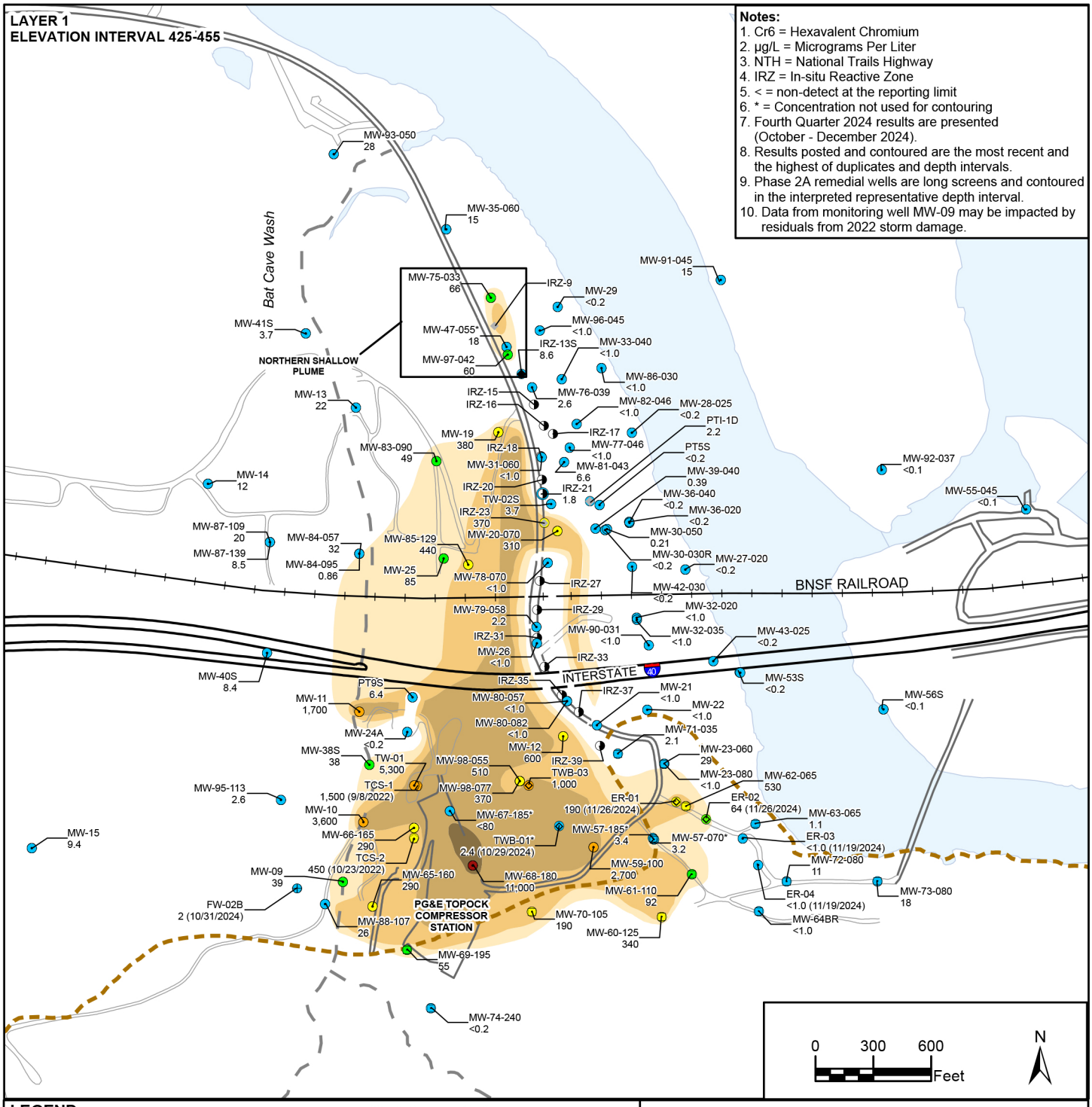
[d] Extraction at IRZ-9 started on June 25, 2025, at 6:00 a.m. Pacific Standard Time at the maximum design rate of 80 gallons per minute.

[e] Pressure transducer data were corrected for barometric pressure and adjusted for temperature, salinity, and river stage influence.

[f] Drawdown was calculated by subtracting the adjusted groundwater elevation during the test from the adjusted groundwater elevation prior to the start of the test.

Acronyms and Abbreviations:
amsl = above mean sea level
bgs = below ground surface
btoc = below top of casing
ID = identification
NA = not applicable

Figures



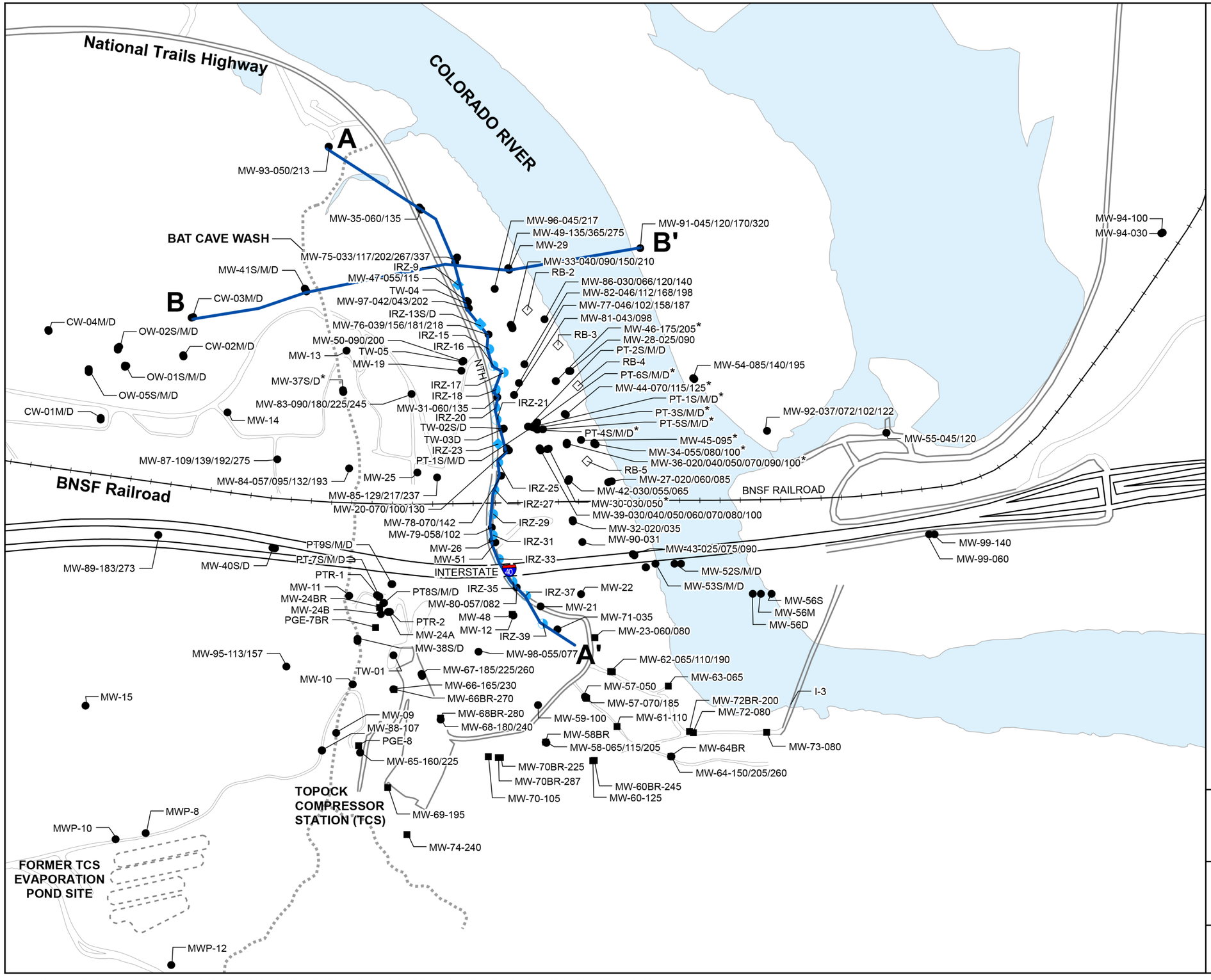
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

SHALLOW HEXAVALENT CHROMIUM PLUME

ARCADIS

FIGURE
1

T:_ENV\PGE_TOPOCK\GEC\ARC_PRO\2025\EXTENDED AQUIFER TEST\EXTENDED AQUIFER TEST.APRX 4/15/2025 3:21 PM



LEGEND

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

Notes:

1. NTH = National Trails Highway
2. IRZ = In Situ Reactive Zone
3. * Wells in these clusters were in a former hot-spot area but concentrations have decreased due to IM-3 operation/treatment pilot testing.

0 500 1,000

Feet

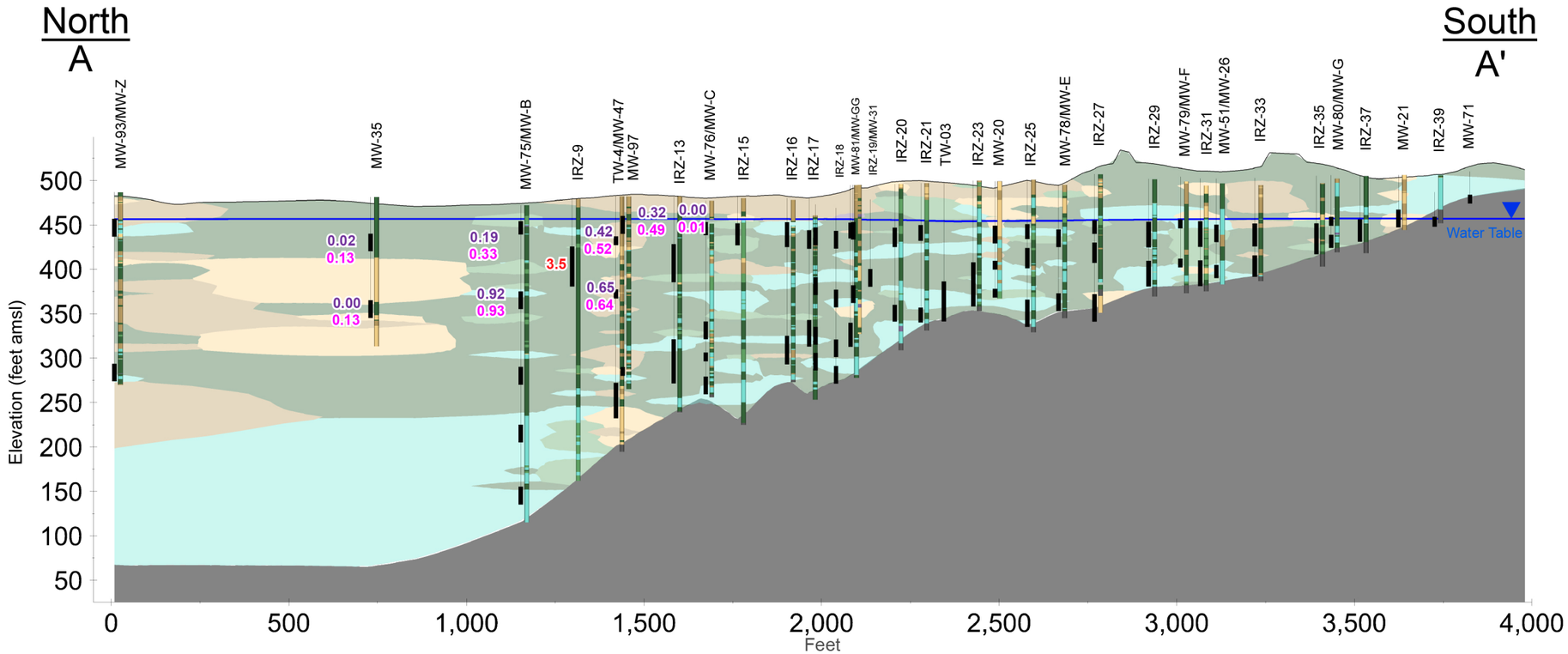
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

CROSS-SECTION ALIGNMENTS

ARCADIS

FIGURE
2

\\ARCADIS-US.COM\APP\GIS\PROCESSING_ENV\PGE_TOPOCK\GEC\ARC_PRO\GMP\PHASE2_CROSS_SECTIONS\PHASE2_CROSS_SECTIONS.APRX 4/28/2025 12:25 PM



LEGEND

Borehole Lithology

- GP, GW, GP-GM, GW-GM, GW-GC
- SW, SP, SW-SM, SW-SC, SP-SM, SP-SC
- GM
- SM
- ML, MH, ML-MH, GC, SC
- CL, CL-MH, CH

Well screen

0.02 = Drawdown value calculated at 1,000 minutes

0.02 = Drawdown value calculated at 10,000 minutes

3.5 = Drawdown average from IRZ-9

Notes:

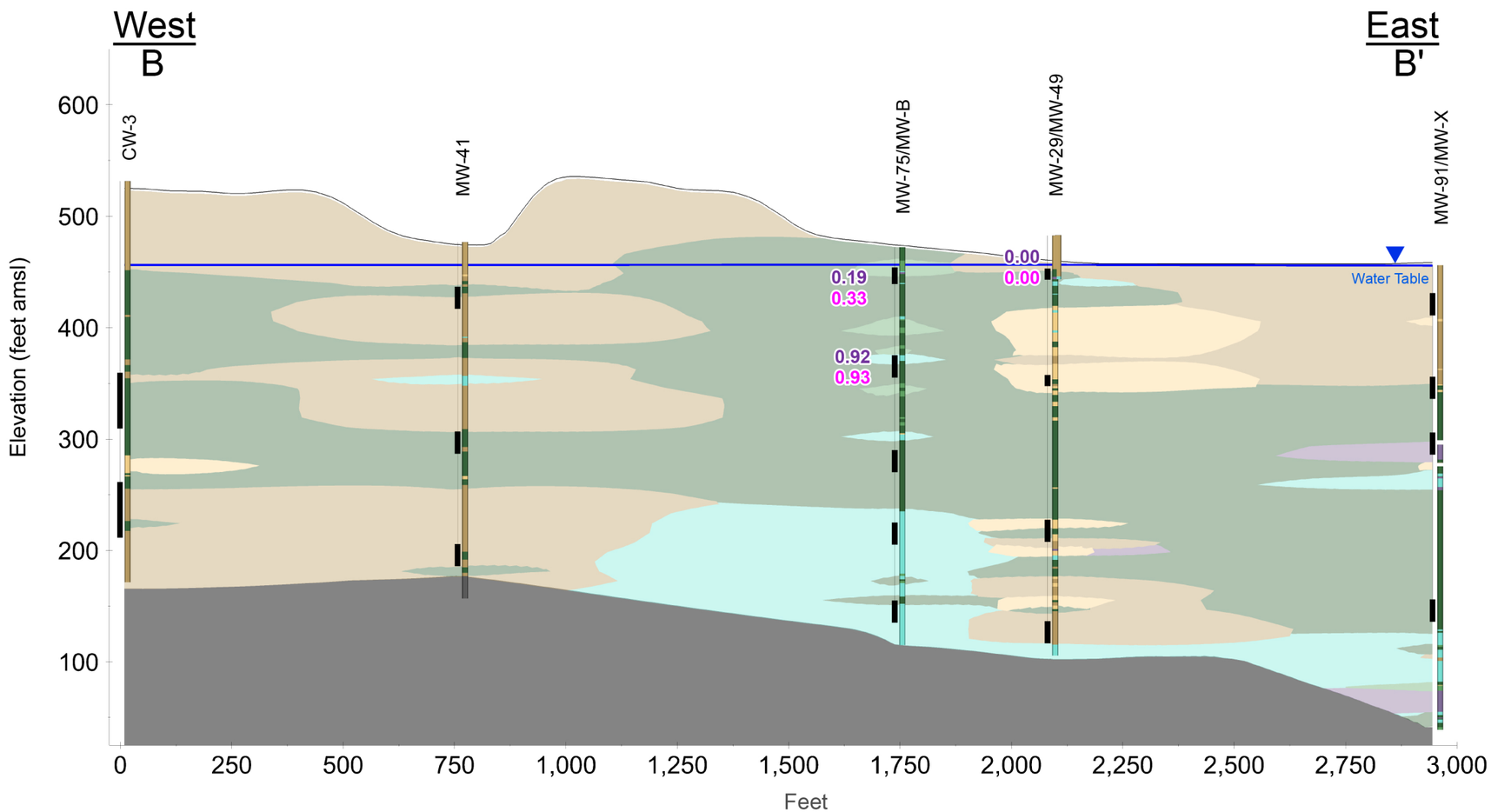
1. IRZ = In Situ Reactive Zone
2. amsl = Above Mean Sea Level
3. NTH = National Trails Highway
4. Extraction well IRZ-9 started extraction on June 25, 2025 at 6:00 AM Pacific Standard Time at approximately the maximum designed extraction rate of 80 gallons per minute.
5. Drawdown values shown were calculated by subtracting the adjusted groundwater elevation at 1,000 minutes (approximately 16.5 hours) and 10,000 minutes (approximately 7 days) following the start of extraction at IRZ-9 from the adjusted groundwater elevation prior to the start of extraction.
6. Groundwater elevations used to calculate the drawdown values were adjusted for the influence of river stage.

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

DETAILED
CROSS-SECTION A-A'

ARCADIS

FIGURE
3



LEGEND

Borehole Lithology

- GP, GW, GP-GM, GW-GM, GW-GC
- SW, SP, SW-SM, SW-SC, SP-SM, SP-SC
- GM
- SM
- ML, MH, ML-MH, GC, SC
- CL, CL-MH, CH

Well screen

0.02 = Drawdown value calculated at 1,000 Minutes

0.02 = Drawdown value calculated at 10,000 Minutes

Notes:

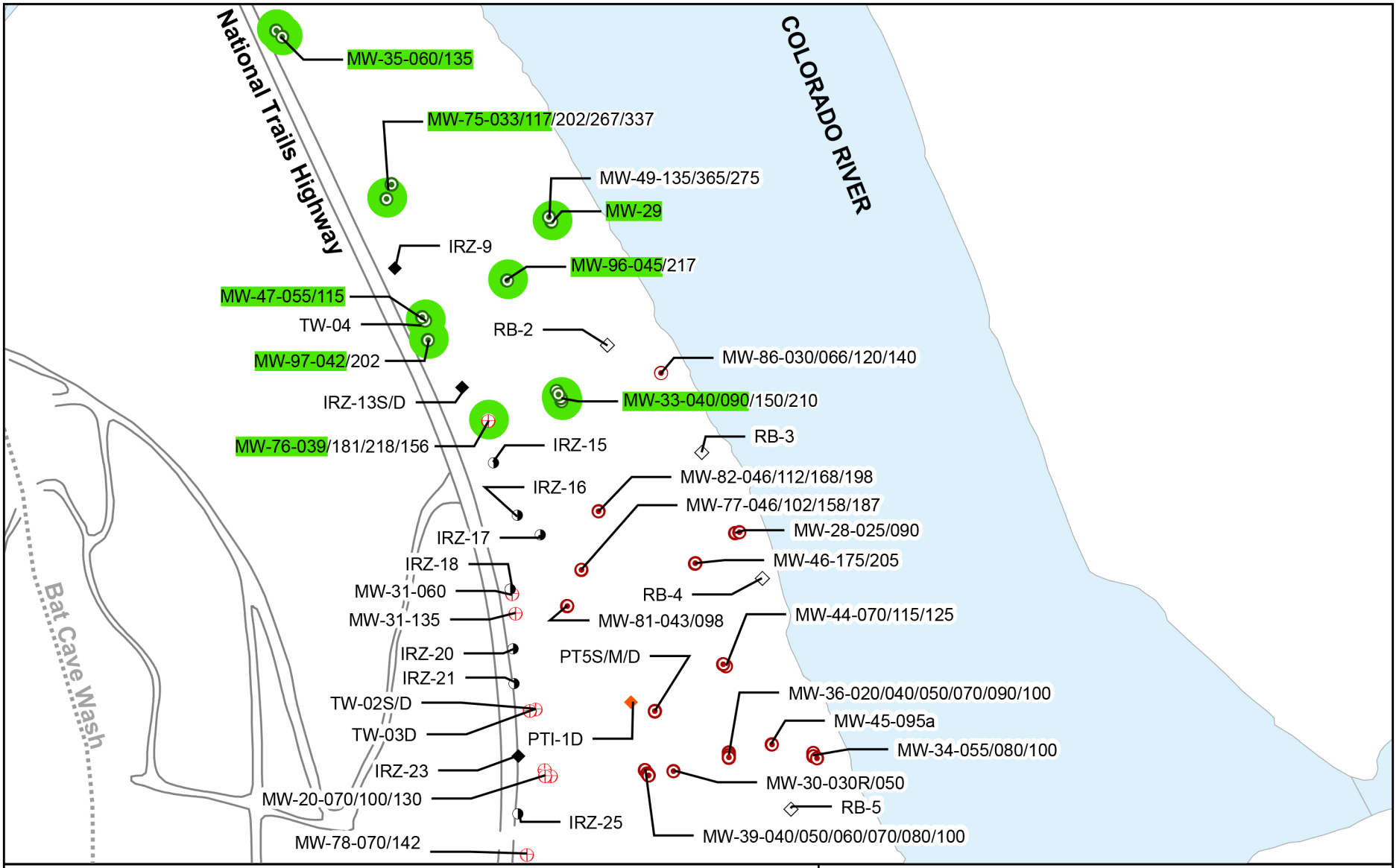
1. aml = Above Mean Sea Level
2. Extraction well IRZ-9 started extraction on June 25, 2025, at 6:00 AM pacific standard time at approximately the maximum designed extraction rate of 80 gallons per minute.
3. Drawdown values shown were calculated by subtracting the adjusted groundwater elevation at 1,000 minutes (approximately 16.5 hours) and 10,000 minutes (approximately 7 days) following the start of extraction at IRZ-9 from the adjusted groundwater elevation prior to the start of extraction.
4. Groundwater elevations used to calculate the drawdown values were adjusted for the influence of river stage.

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

DETAILED CROSS-SECTION B-B'

ARCADIS

FIGURE
4



LEGEND

- NTH IRZ DOSE RESPONSE MONITORING WELL
- NORTHERN IRZ EXTRACTION MONITORING WELL
- NTH IRZ DOWNGRADIENT MONITORING WELL
- REMEDIATION WELL (INJECTION)
- REMEDIATION WELL (EXTRACTION)
- REMEDIATION WELL (NOT PLUMBED INTO SYSTEM CURRENTLY)
- PILOT TEST WELL (EXTRACTION)
- MONITORING WELLS WITH A PRESSURE TRANSDUCER INVOLVED IN THE EXTENDED AQUIFER TEST AT IRZ-9

Notes:
1. NTH = National Trails Highway
2. IRZ = In Situ Reactive Zone

0 300 600
Feet

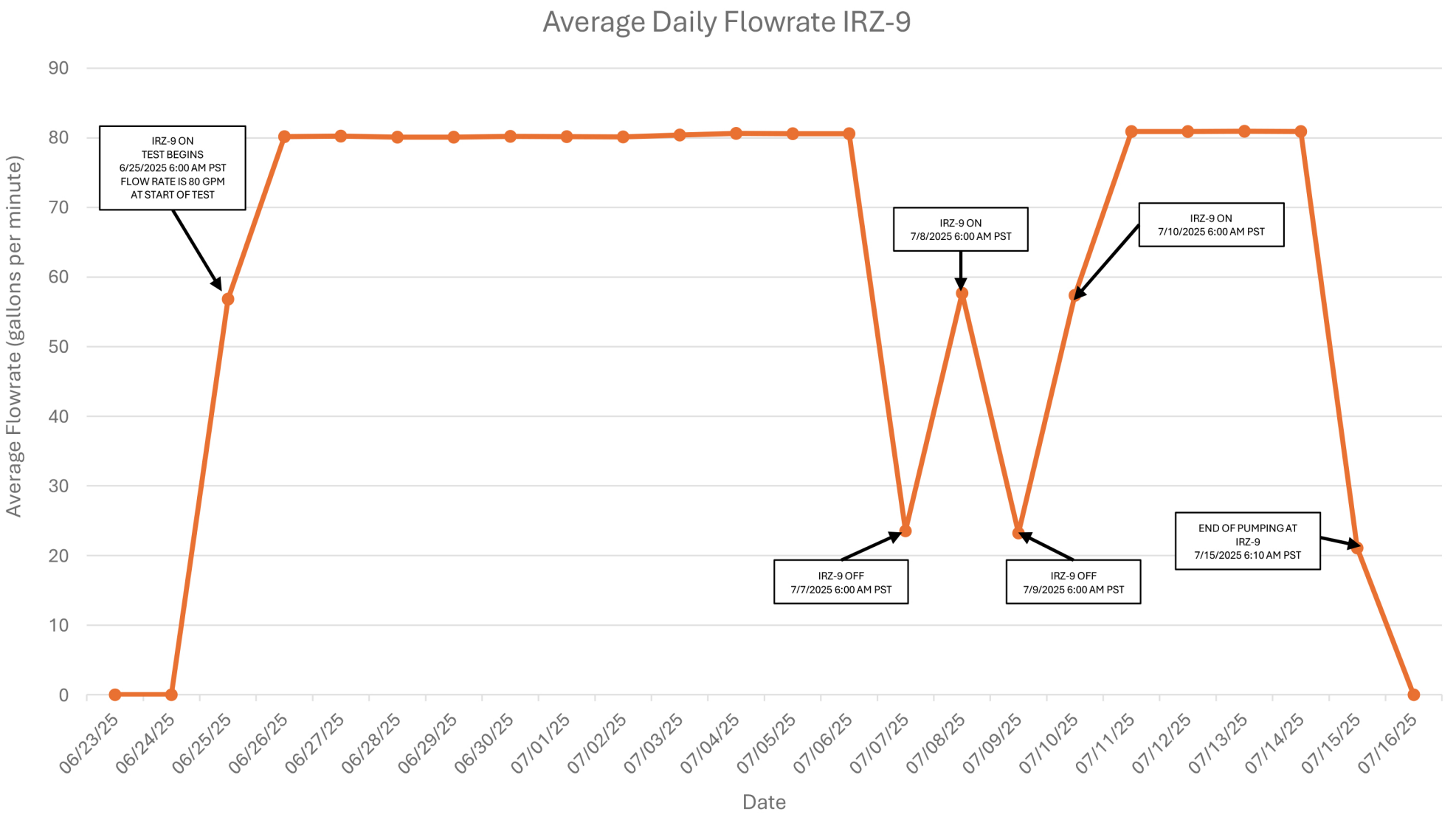
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

PRESSURE TRANSDUCER NETWORK EXTENDED AQUIFER TEST - IRZ-9

ARCADIS

FIGURE
5

T:_ENV\PGE_TOPOCK\GEC\ARC_PRO\2025\EXTENDED AQUIFER TEST\EXTENDED AQUIFER TEST.APRX 4/15/2025 4:56 PM



LEGEND

Average daily flow rate at extraction well IRZ-9

NOTES:

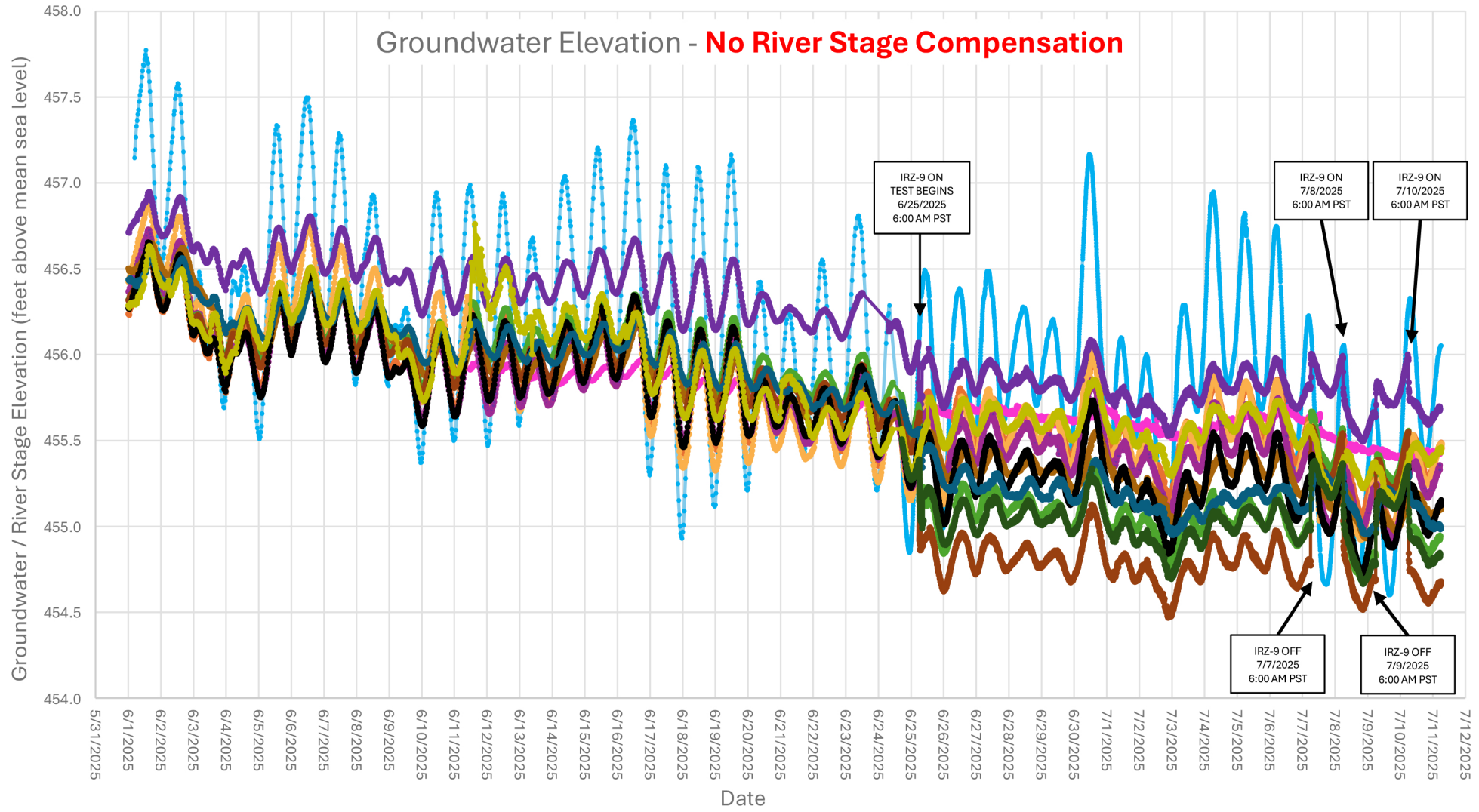
1. Extraction well IRZ-9 started extraction on 6/25/2025 at 6:00 AM PST at approximately the maximum design extraction rate of 80 gallons per minute and was cycled off for 24 hours starting on 7/7/2025 at 6:00 AM PST and again on 7/9/2025 at 6:00 AM PST
2. PST = Pacific Standard Time

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

AVERAGE DAILY FLOW RATE IRZ-9

ARCADIS

FIGURE
6



LEGEND

- River Stage
- MW-29
- MW-33-040
- MW-33-090
- MW-35-060
- MW-35-135
- MW-47-055
- MW-47-115
- MW-75-033
- MW-75-117
- MW-76-039
- MW-96-045
- MW-97-042

NOTES:

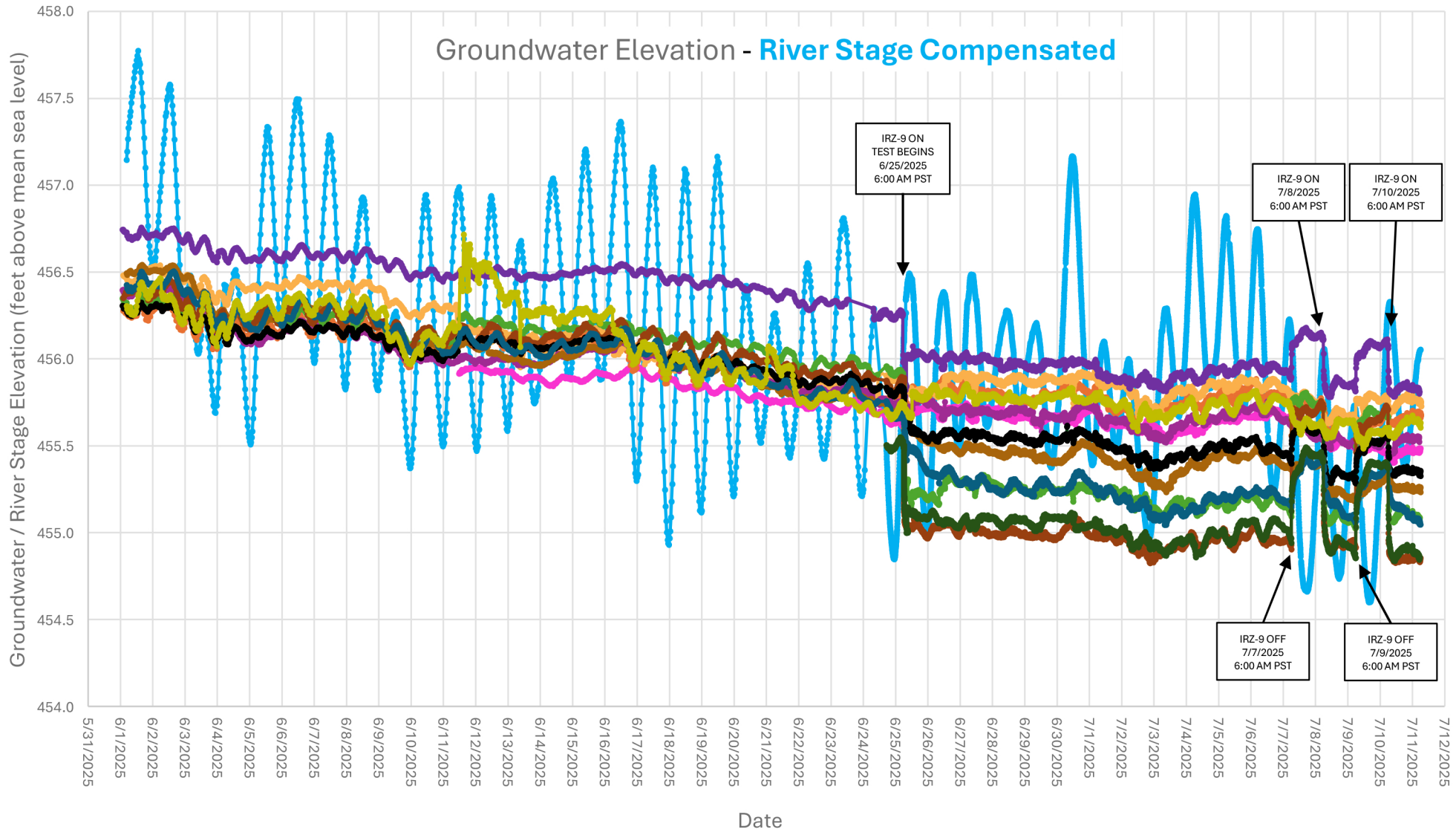
1. Extraction well IRZ-9 started extraction on 6/25/2025 at 6:00 AM PST at approximately the maximum design extraction rate of 80 gallons per minute and was cycled off for 24 hours starting on 7/7/2025 at 6:00 AM PST and again on 7/9/2025 at 6:00 AM PST
2. Pressure transducer data presented were corrected for barometric pressure and adjusted for temperature and salinity
3. Groundwater elevations shown are not adjusted for river stage influence
4. PST = Pacific Standard Time

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

IRZ-9 AQUIFER TEST HYDROGRAPH
NO RIVER STAGE COMPENSATION

ARCADIS

FIGURE
7



LEGEND

- River Stage
- MW-29
- MW-33-040
- MW-33-090
- MW-35-060
- MW-35-135
- MW-47-055
- MW-47-115
- MW-75-033
- MW-75-117
- MW-76-039
- MW-96-045
- MW-97-042

NOTES:

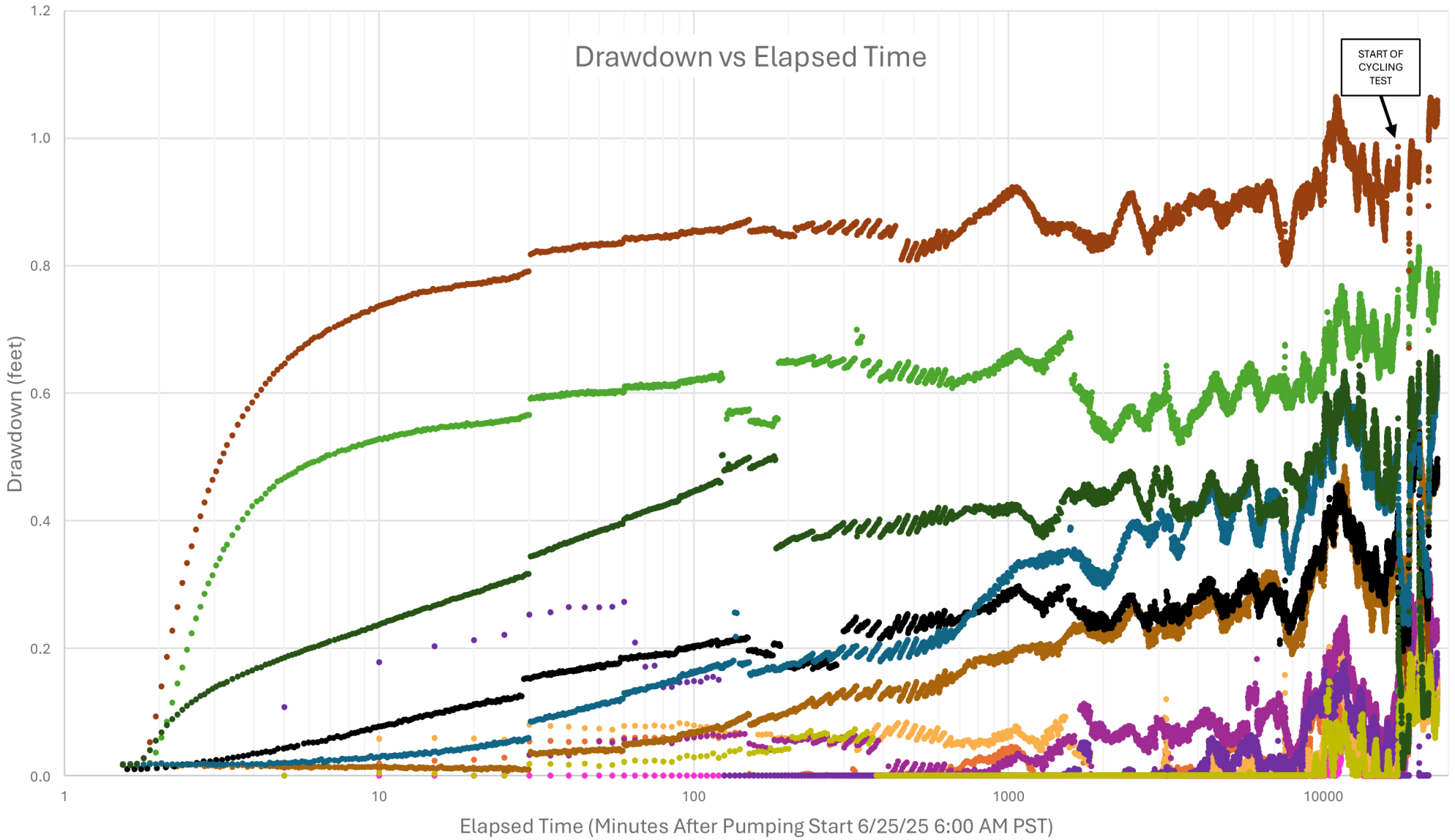
1. Extraction well IRZ-9 started extraction on 6/25/2025 at 6:00 AM PST at approximately the maximum design extraction rate of 80 gallons per minute and was cycled off for 24 hours starting on 7/7/2025 at 6:00 AM PST and again on 7/9/2025 at 6:00 AM PST
2. Pressure transducer data presented were corrected for barometric pressure and adjusted for temperature, salinity, and river stage influence
3. PST = Pacific Standard Time

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

IRZ-9 AQUIFER TEST HYDROGRAPH
RIVER STAGE COMPENSATION

ARCADIS

FIGURE
8



LEGEND

- MW-29
- MW-33-040
- MW-33-090
- MW-35-060
- MW-35-135
- MW-47-055
- MW-47-115
- MW-75-033
- MW-75-117
- MW-76-039
- MW-96-045
- MW-97-042

NOTES:

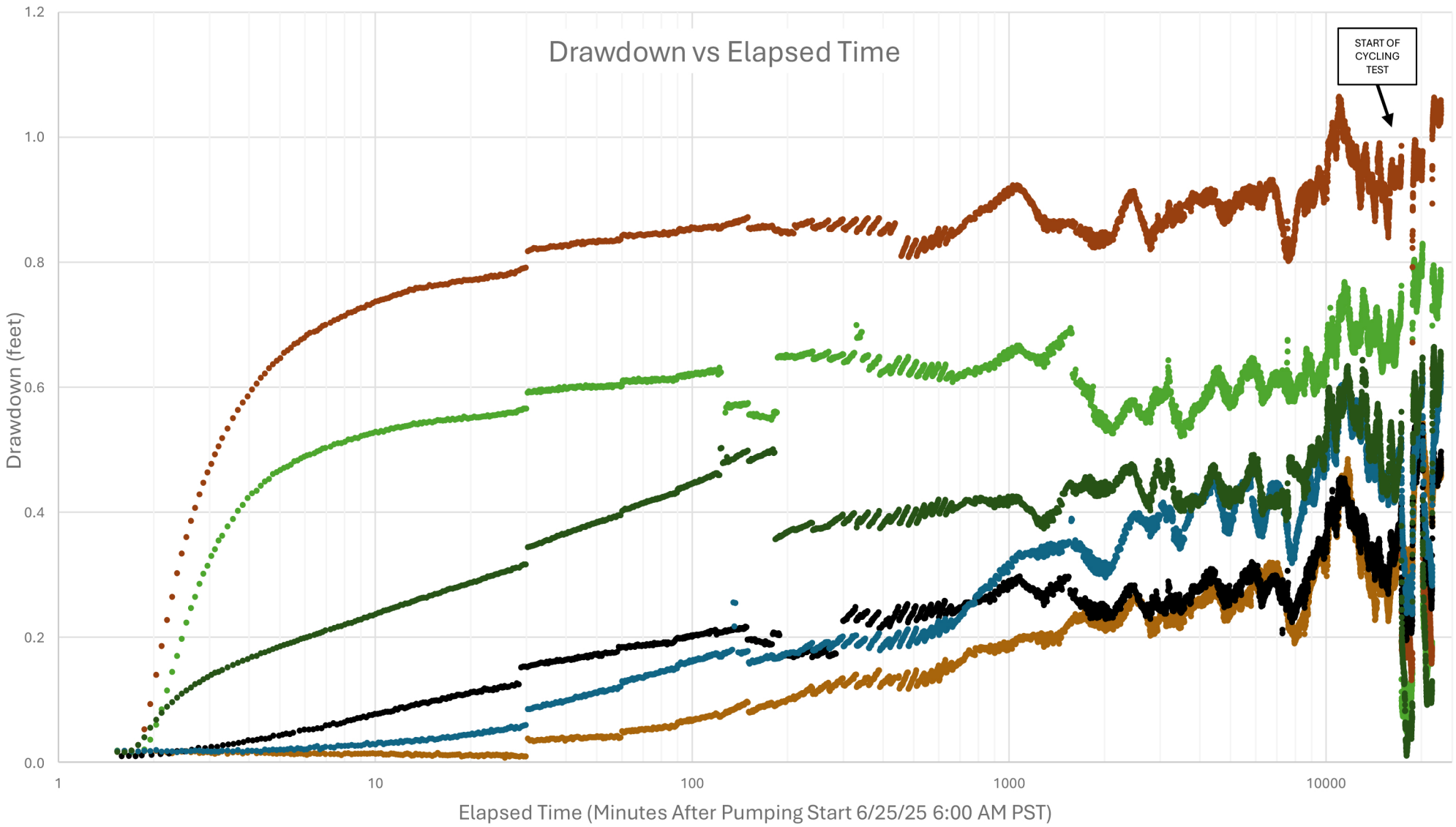
1. Extraction well IRZ-9 started extraction on 6/25/2025 at 6:00 AM PST at approximately the maximum design extraction rate of 80 gallons per minute and was cycled off for 24 hours starting on 7/7/2025 at 6:00 AM PST and again on 7/9/2025 at 6:00 AM PST
2. Pressure transducer data presented were corrected for barometric pressure and adjusted for temperature, salinity, and river stage influence
3. Drawdown was calculated by subtracting the adjusted groundwater elevation from the adjusted groundwater elevation prior to the start of extraction
4. PST = Pacific Standard Time

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

IRZ-9 AQUIFER TEST DRAWDOWN

ARCADIS

FIGURE
9



LEGEND

- MW-47-055
- MW-47-115
- MW-75-033
- MW-75-117
- MW-96-045
- MW-97-042

NOTES:

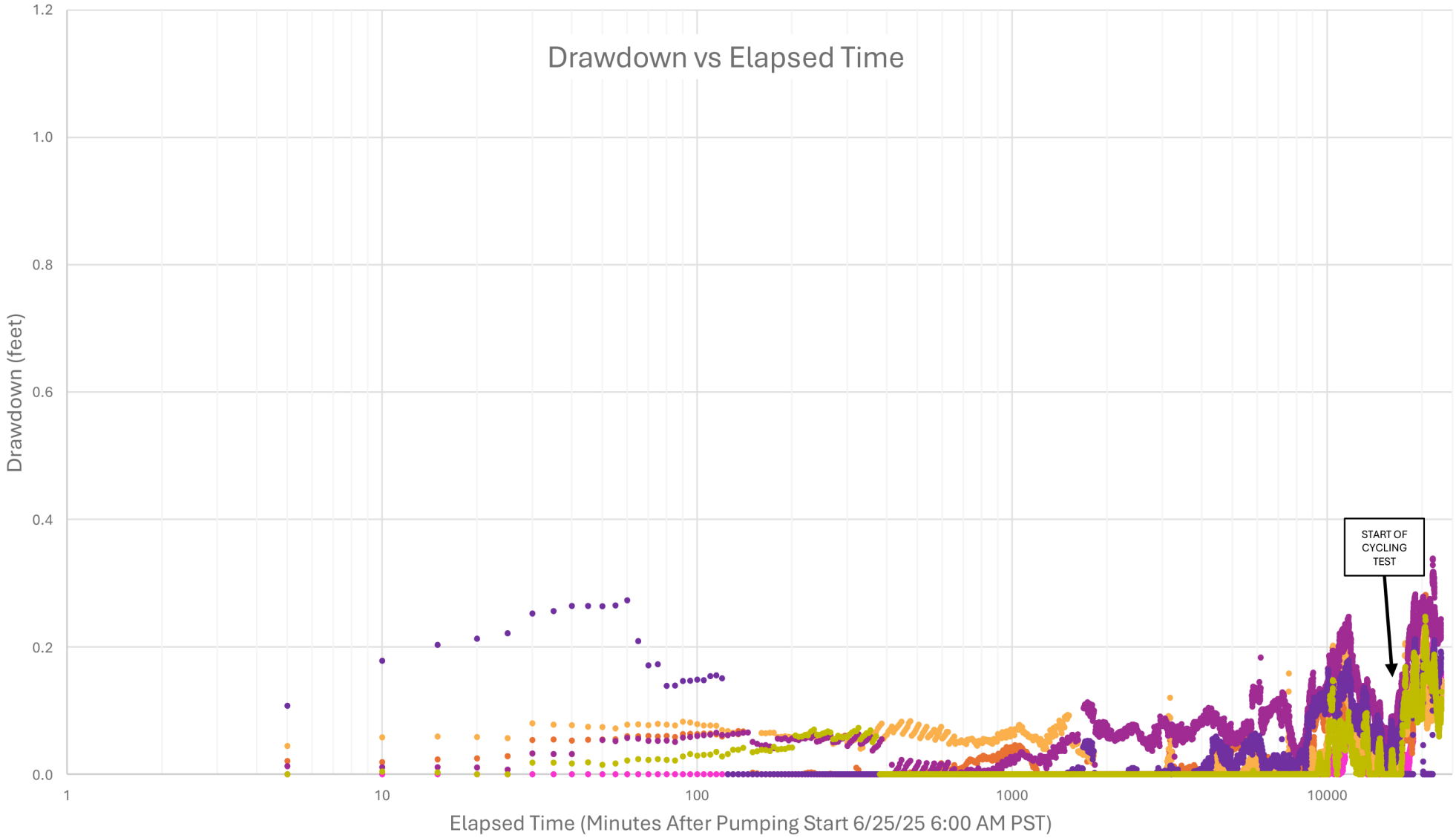
1. Extraction well IRZ-9 started extraction on 6/25/2025 at 6:00 AM PST at approximately the maximum design extraction rate of 80 gallons per minute and was cycled off for 24 hours starting on 7/7/2025 at 6:00 AM PST and 7/9/2025 at 6:00 AM PST
2. Pressure transducer data presented were corrected for barometric pressure and adjusted for temperature, salinity, and river stage influence
3. Drawdown was calculated by subtracting the adjusted groundwater elevation from the adjusted groundwater elevation prior to the start of extraction
4. Locations shown are within 260 feet of extraction well IRZ-9
5. PST = Pacific Standard Time

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

DRAWDOWN AT LOCATIONS PROXIMAL TO IRZ-9

ARCADIS

FIGURE 10



LEGEND

- MW-29
- MW-33-040
- MW-33-090
- MW-35-060
- MW-35-135
- MW-76-039

NOTES:

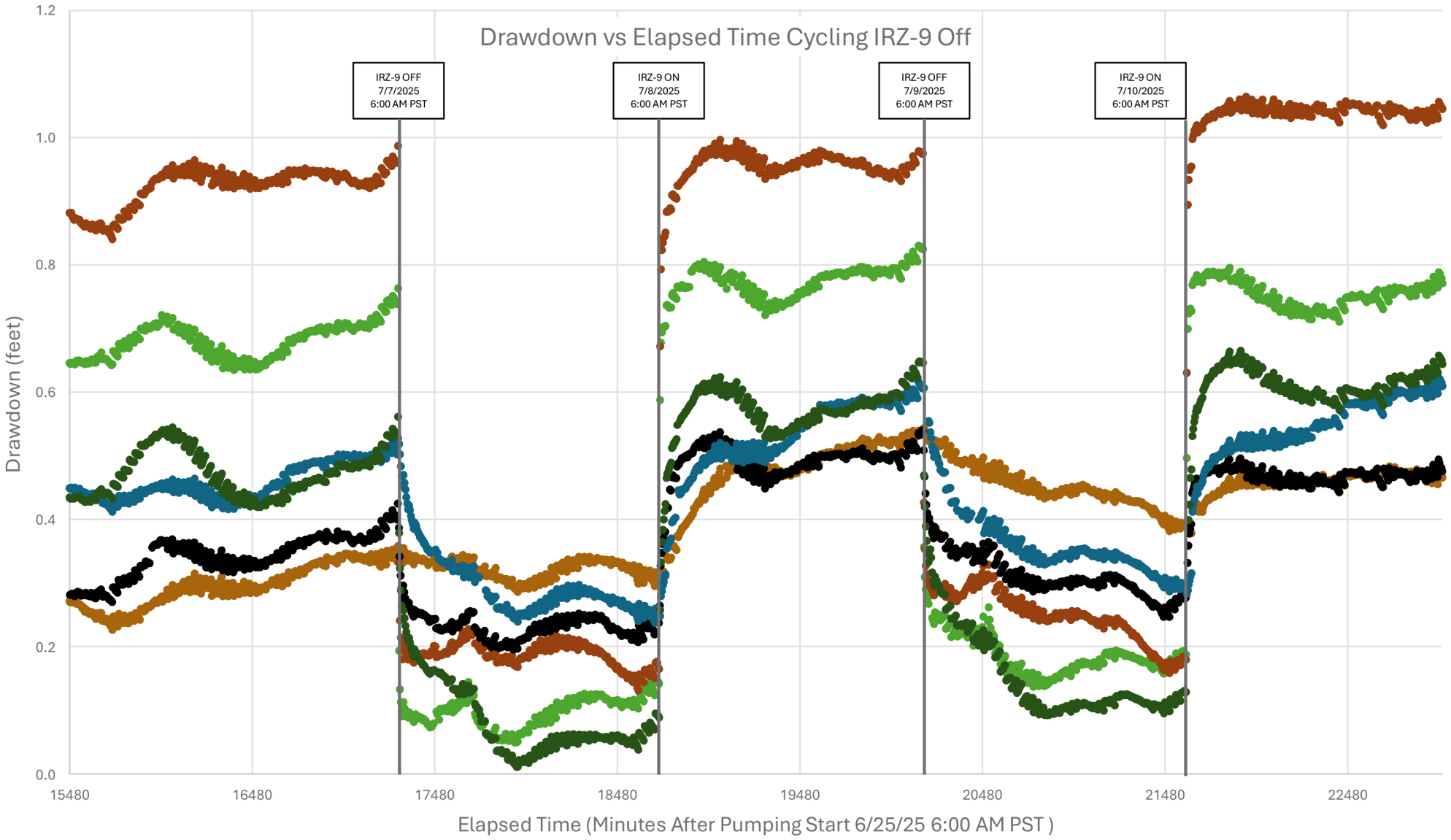
1. Extraction well IRZ-9 started extraction on 6/25/2025 at 6:00 AM PST at approximately the maximum design extraction rate of 80 gallons per minute and was cycled off for 24 hours starting on 7/7/2025 at 6:00 AM PST and again on 7/9/2025 at 6:00 AM PST
2. Pressure transducer data presented were corrected for barometric pressure and adjusted for temperature, salinity, and river stage influence
3. Drawdown was calculated by subtracting the adjusted groundwater elevation from the adjusted groundwater elevation prior to the start of extraction
4. Locations shown are greater than 260 feet from IRZ-9
5. PST = Pacific Standard Time

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

DRAWDOWN AT LOCATIONS DISTAL TO IRZ-9

ARCADIS

FIGURE 11



LEGEND

- MW-47-055
- MW-47-115
- MW-75-033
- MW-75-117
- MW-96-045
- MW-97-042

NOTES:

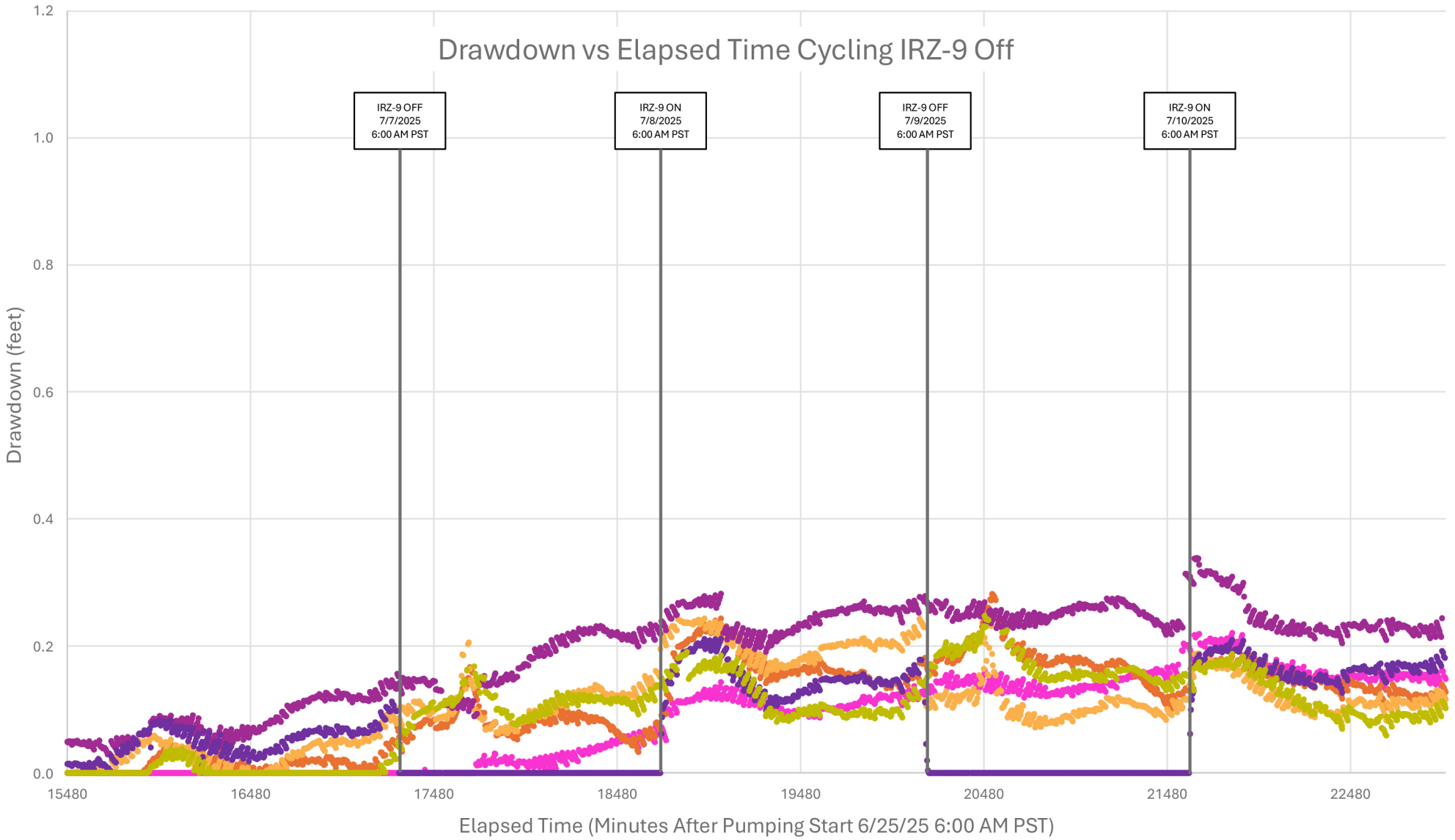
1. Extraction well IRZ-9 started extraction on 6/25/2025 at 6:00 AM PST at approximately the maximum design extraction rate of 80 gallons per minute and was cycled off for 24 hours starting on 7/7/2025 at 6:00 AM PST and again on 7/9/2025 at 6:00 AM PST
2. Pressure transducer data presented were corrected for barometric pressure and adjusted for temperature, salinity, and river stage influence
3. Drawdown was calculated by subtracting the adjusted groundwater elevation from the adjusted groundwater elevation prior to the start of extraction
4. Locations shown are located within 260 feet of extraction well IRZ-9
5. PST = Pacific Standard Time

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

DRAWDOWN DURING CYCLING AT LOCATIONS PROXIMAL TO IRZ-9

ARCADIS

FIGURE
12



LEGEND

- MW-29
- MW-33-040
- MW-33-090
- MW-35-060
- MW-35-135
- MW-76-039

NOTES:

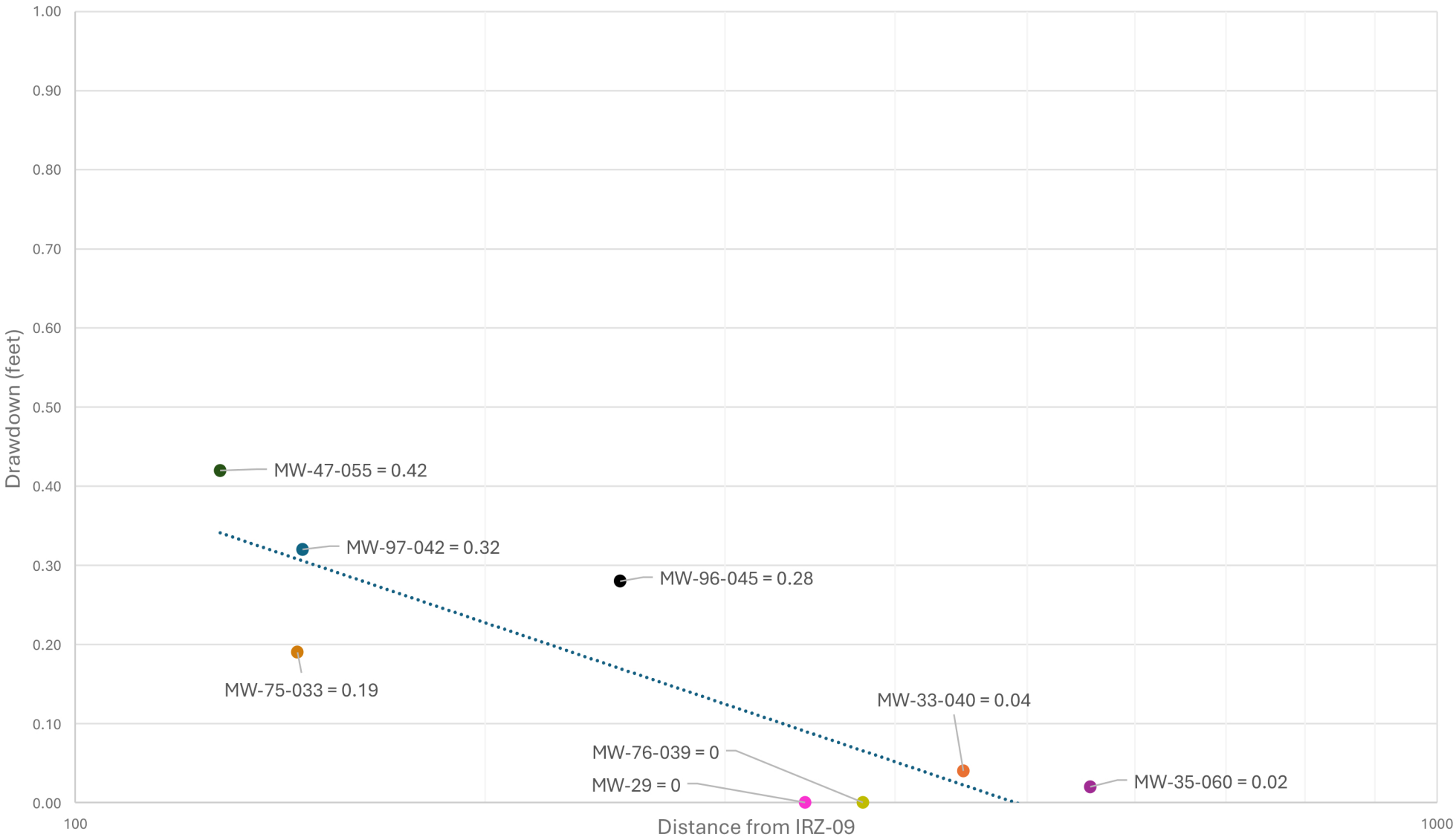
1. Extraction well IRZ-9 started extraction on 6/25/2025 at 6:00 AM PST at approximately the maximum design extraction rate of 80 gallons per minute and was cycled off for 24 hours starting on 7/7/2025 at 6:00 AM PST and again on 7/9/2025 at 6:00 AM PST
2. Pressure transducer data presented were corrected for barometric pressure and adjusted for temperature, salinity, and river stage influence
3. Drawdown was calculated by subtracting the adjusted groundwater elevation from the adjusted groundwater elevation prior to the start of extraction
4. Locations shown are located greater than 260 feet from IRZ-9
5. PST = Pacific Standard Time

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

DRAWDOWN DURING CYCLING AT LOCATIONS DISTAL TO IRZ-9

ARCADIS

FIGURE 13



LEGEND

- MW-29
- MW-33-040
- MW-35-060
- MW-47-055
- MW-75-033
- MW-76-039
- MW-96-045
- MW-97-042

NOTES:

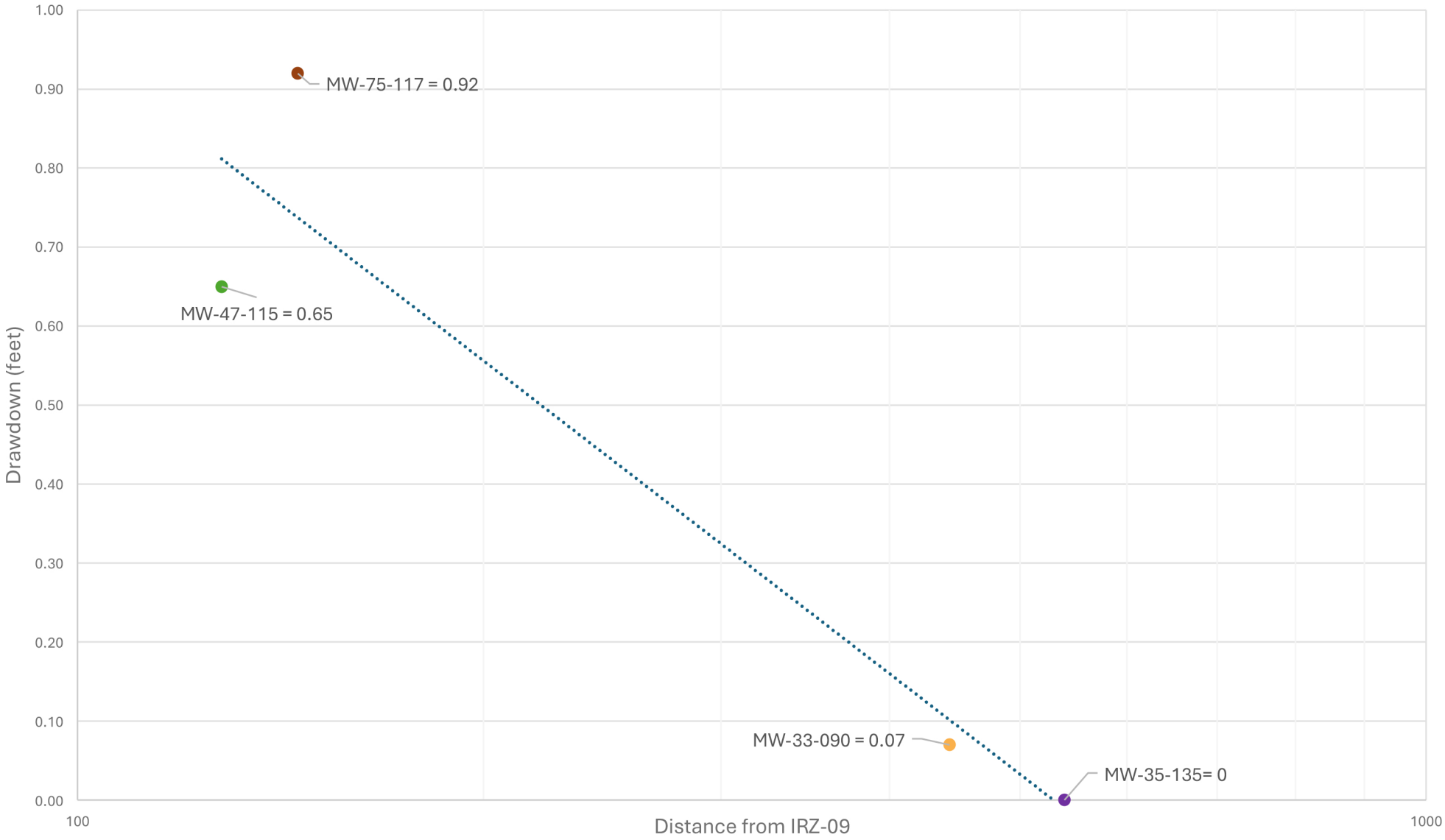
1. Extraction well IRZ-9 started extraction on 6/25/2025 at 6:00 AM PST at approximately the maximum design extraction rate of 80 gallons per minute
2. Drawdown was calculated by subtracting the adjusted groundwater elevation at 1,000 minutes (approximately 16.5 hours) from the adjusted groundwater elevation prior to the start of extraction
3. Drawdown is shown for monitoring well locations screened in groundwater model layer 1 which is between 425 and 455 feet above mean sea level
4. Logarithmic trendline is extrapolated to estimate the limit of influence from extraction at IRZ-9 (approximately 485 feet at 1,000 minutes in layer 1)
5. PST = Pacific Standard Time

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

DISTANCE DRAWDOWN 1,000 MINUTES
LAYER 1 (425–455 feet amsl)

ARCADIS

FIGURE
14A



LEGEND

- MW-33-090
- MW-35-135
- MW-47-115
- MW-75-117

NOTES:

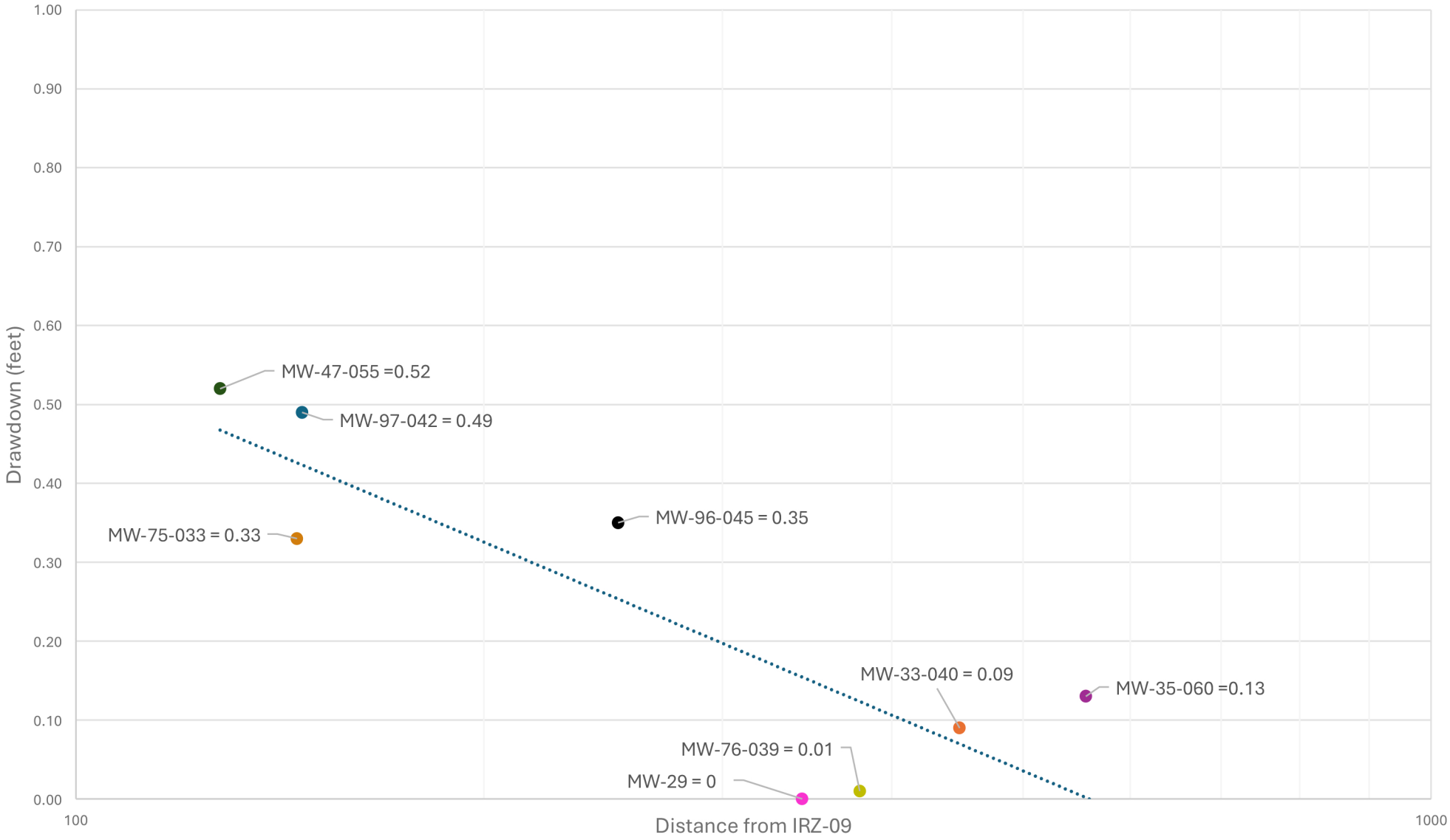
1. Extraction well IRZ-9 started extraction on 6/25/2025 at 6:00 AM PST at approximately the maximum design extraction rate of 80 gallons per minute
2. Drawdown was calculated by subtracting the adjusted groundwater elevation at 1,000 minutes (approximately 16.5 hours) from the adjusted groundwater elevation prior to the start of extraction
3. Drawdown is shown for monitoring well locations screened in groundwater model layers 2 through 4 which is between 300 and 425 feet above mean sea level
4. Logarithmic trendline is extrapolated to estimate the limit of influence from extraction at IRZ-9 (approximately 535 feet at 1,000 minutes in layers 2 - 4)
5. PST = Pacific Standard Time

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

DISTANCE DRAWDOWN 1,000 MINUTES
LAYERS 2-4 (300-425 feet amsl)

ARCADIS

FIGURE
14B



LEGEND

- MW-29
- MW-33-040
- MW-35-060
- MW-47-055
- MW-75-033
- MW-76-039
- MW-96-045
- MW-97-042

NOTES:

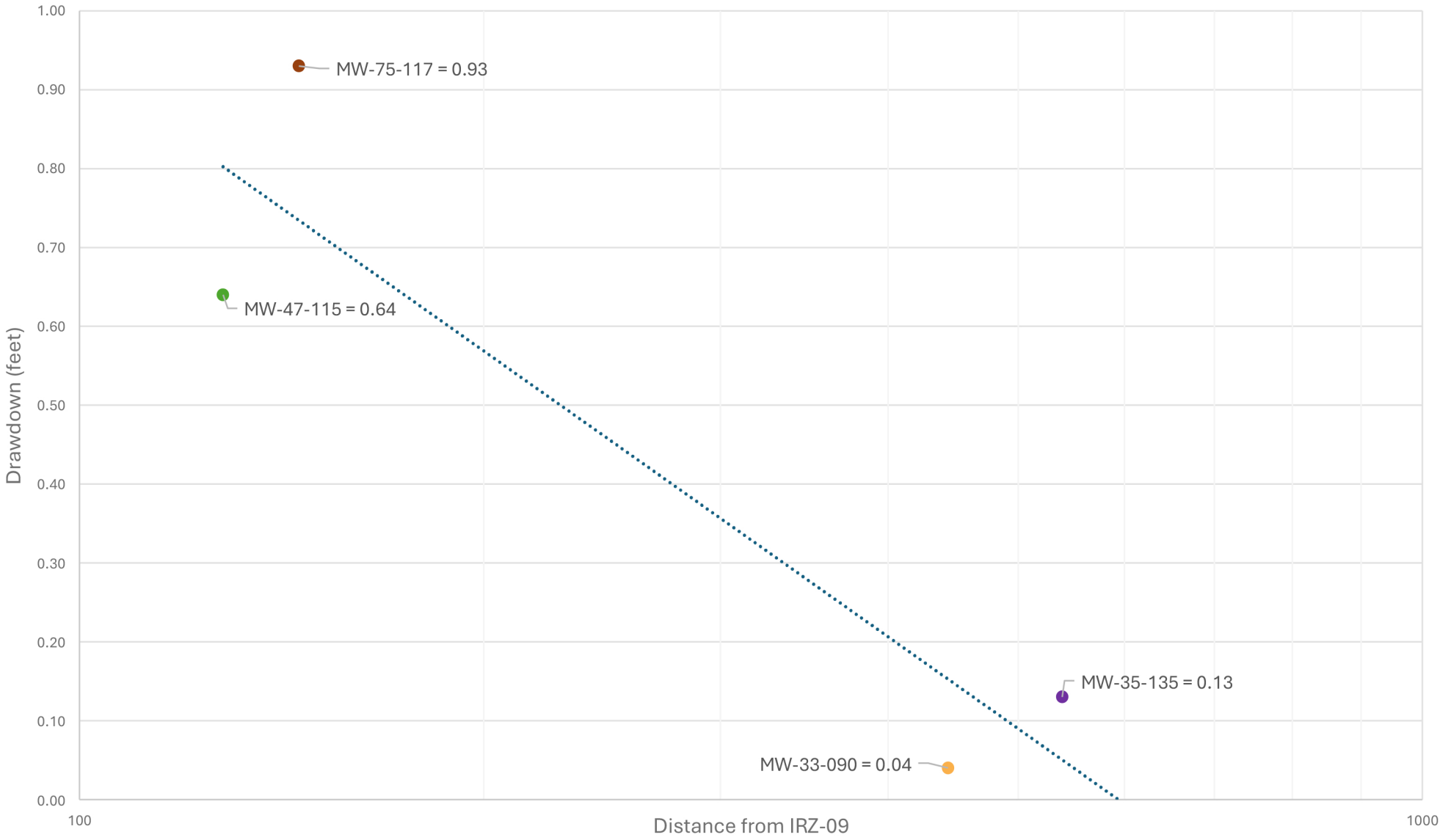
1. Extraction well IRZ-9 started extraction on 6/25/2025 at 6:00 AM PST at approximately the maximum design extraction rate of 80 gallons per minute
2. Drawdown was calculated by subtracting the adjusted groundwater elevation at 10,000 minutes (approximately 7 days) from the adjusted groundwater elevation prior to the start of extraction
3. Drawdown is shown for monitoring well locations screened in groundwater model layer 1 which is between 425 and 455 feet above mean sea level
4. Logarithmic trendline is extrapolated to estimate the limit of influence from extraction at IRZ-9 (approximately 555 feet at 10,000 minutes in layer 1)
5. PST = Pacific Standard Time

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

DISTANCE DRAWDOWN 10,000 MINUTES
LAYER 1 (425–455 feet amsl)

ARCADIS

FIGURE
14C



LEGEND

- MW-33-090
- MW-35-135
- MW-47-115
- MW-75-117

NOTES:

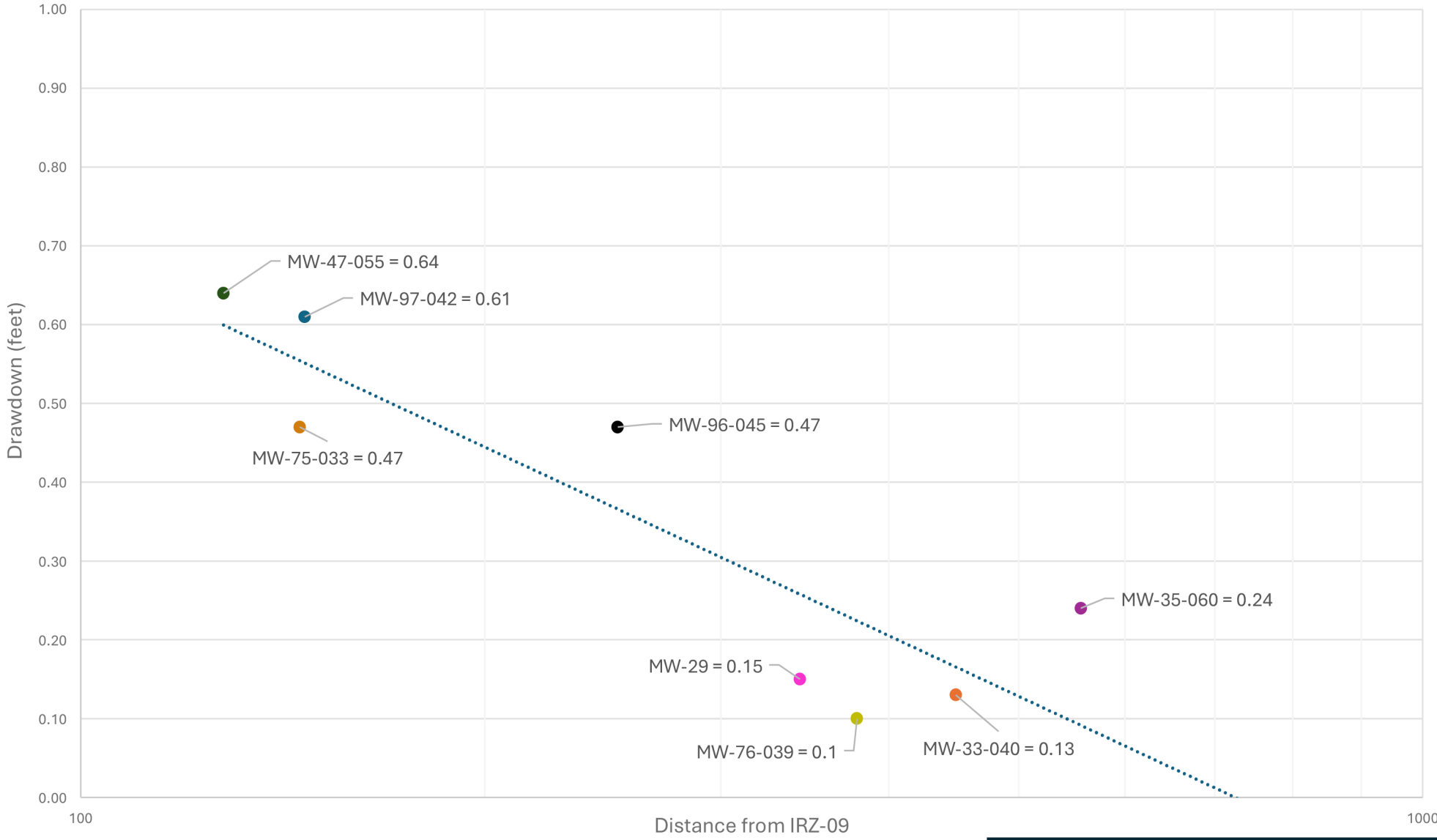
1. Extraction well IRZ-9 started extraction on 6/25/2025 at 6:00 AM PST at approximately the maximum design extraction rate of 80 gallons per minute
2. Drawdown was calculated by subtracting the adjusted groundwater elevation at 10,000 minutes (approximately 7 days) from the adjusted groundwater elevation prior to the start of extraction
3. Drawdown is shown for monitoring well locations screened in groundwater model layers 2 through 4 which is between 300 and 425 feet above mean sea level
4. Logarithmic trendline is extrapolated to estimate the limit of influence from extraction at IRZ-9 (approximately 590 feet at 10,000 minutes in layers 2 - 4)
5. PST = Pacific Standard Time

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

DISTANCE DRAWDOWN 10,000 MINUTES
LAYERS 2-4 (300-425 feet amsl)

ARCADIS

FIGURE
14D



LEGEND

- MW-29
- MW-33-040
- MW-35-060
- MW-47-055
- MW-75-033
- MW-76-039
- MW-96-045
- MW-97-042

NOTES:

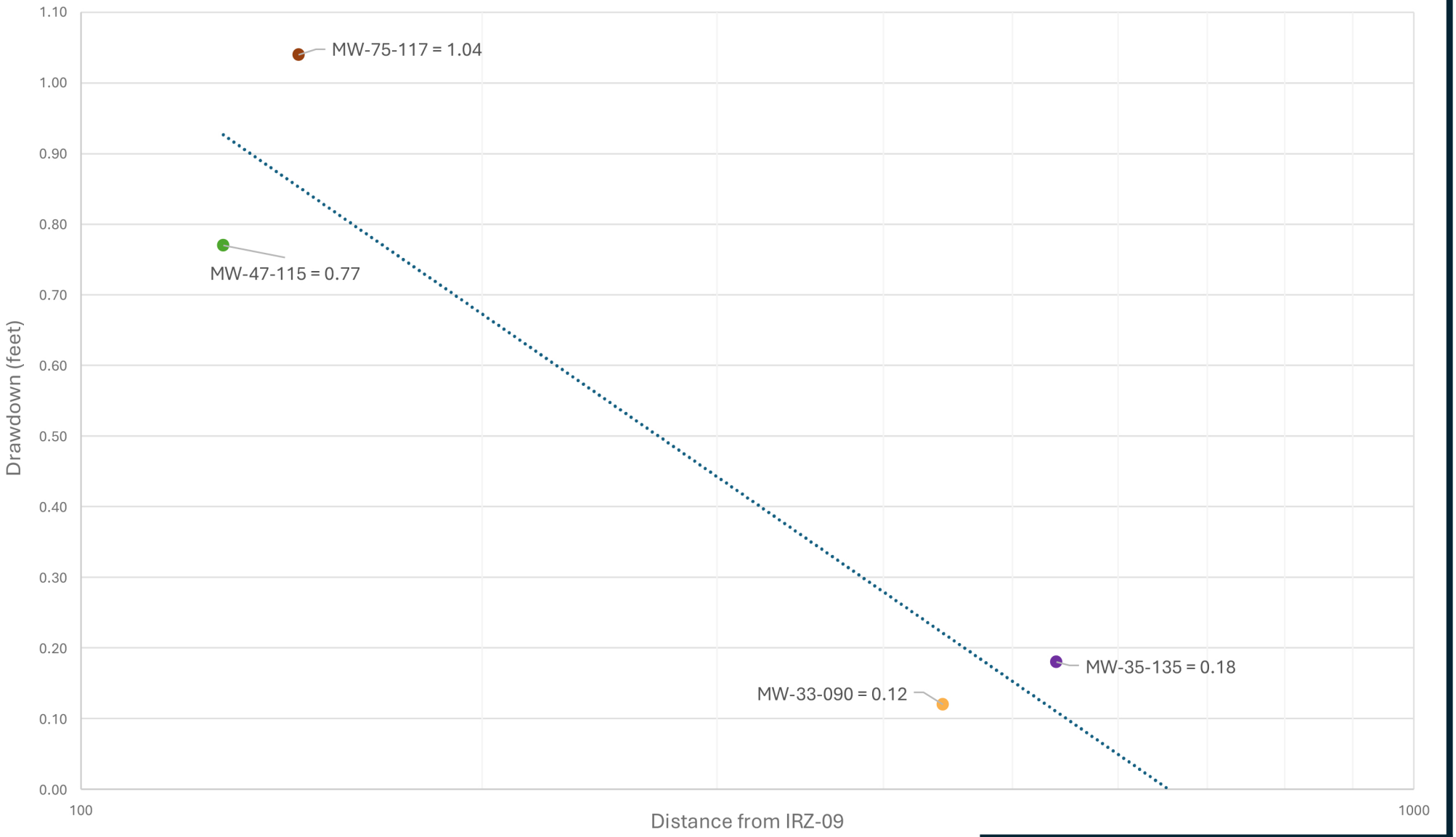
1. Extraction well IRZ-9 started extraction on 6/25/2025 at 6:00 AM PST at approximately the maximum design extraction rate of 80 gallons per minute
2. Drawdown was calculated by subtracting the adjusted groundwater elevation at 23,000 minutes (approximately 16 days) from the adjusted groundwater elevation prior to the start of extraction
3. Drawdown is shown for monitoring well locations screened in groundwater model layer 1 which is between 425 and 455 feet above mean sea level
4. Logarithmic trendline is extrapolated to estimate the limit of influence from extraction at IRZ-9 (approximately 730 feet at 23,000 minutes in layer 1)
5. PST = Pacific Standard Time

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

DISTANCE DRAWDOWN 23,000 MINUTES
LAYER 1 (425–455 feet amsl)

ARCADIS

FIGURE
14E



LEGEND

- MW-33-090
- MW-35-135
- MW-47-115
- MW-75-117

NOTES:

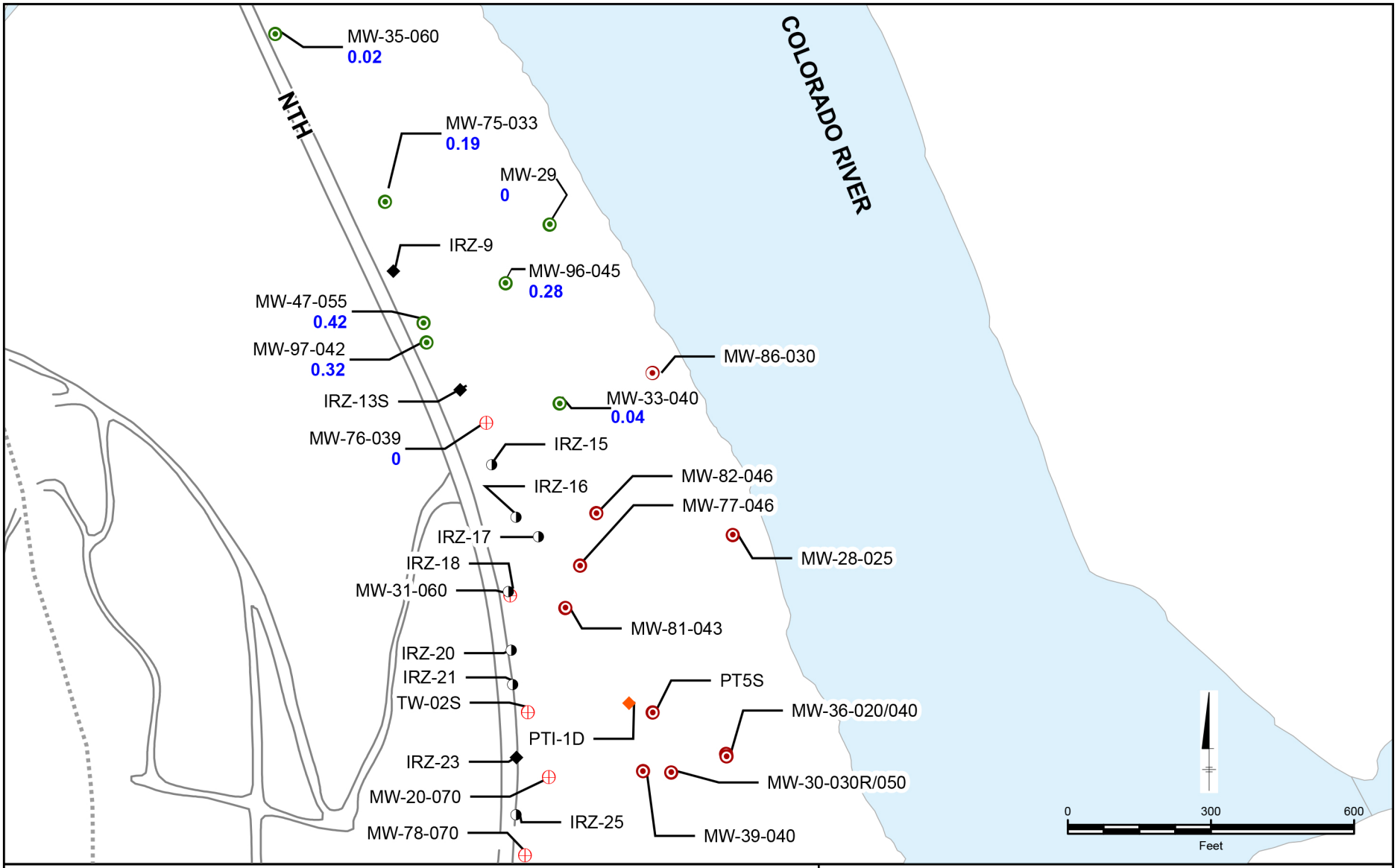
1. Extraction well IRZ-9 started extraction on 6/25/2025 at 6:00 AM PST at approximately the maximum design extraction rate of 80 gallons per minute
2. Drawdown was calculated by subtracting the adjusted groundwater elevation at 23,000 minutes (approximately 16 days) from the adjusted groundwater elevation prior to the start of extraction
3. Drawdown is shown for monitoring well locations screened in groundwater model layers 2 through 4 which is between 300 and 425 feet above mean sea level
4. Logarithmic trendline is extrapolated to estimate the limit of influence from extraction at IRZ-9 (approximately 650 feet at 23,000 minutes in layers 2 - 4)
5. PST = Pacific Standard Time

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

DISTANCE DRAWDOWN 23,000 MINUTES
LAYERS 2-4 (300-425 feet amsl)

ARCADIS

FIGURE
14F



LEGEND

- NTH IRZ DOSE RESPONSE MONITORING WELL
- NORTHERN IRZ EXTRACTION MONITORING WELL
- NTH IRZ DOWNGRADIENT MONITORING WELL
- REMEDIATION WELL (INJECTION)
- REMEDIATION WELL (EXTRACTION)
- REMEDIATION WELL (NOT PLUMBED INTO SYSTEM CURRENTLY)
- PILOT TEST WELL (EXTRACTION)
- BAT CAVE WASH

Notes:
1. NTH = National Trails Highway
2. IRZ = In Situ Reactive Zone

0.04 Drawdown calculated from adjusted groundwater elevation at 1,000 minutes subtracted from adjusted groundwater elevation before extraction at IRZ-9 on 6/25/2025 6:00 AM Pacific Standard Time

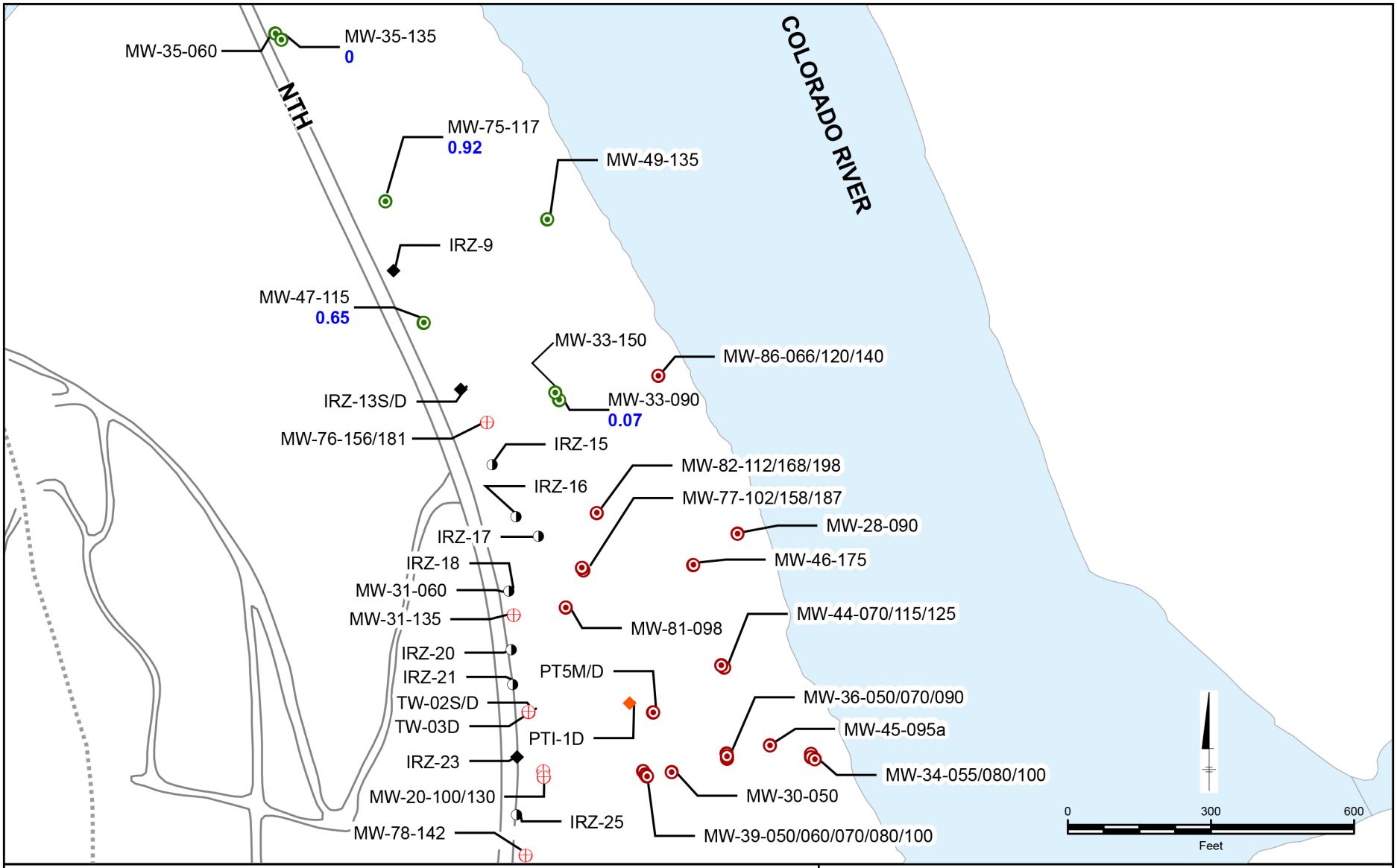
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

SPATIAL DRAWDOWN 1,000 MINUTES
LAYER 1 (425-455 feet amsl)

ARCADIS

FIGURE
15A

T:_ENV\PGE_TOPOCK\GEC\ARC_PRO\2025\TOPOCK - IRZ-9 PUMP TEST - FIGURE\TOPOCK - IRZ-9 PUMP TEST - FIGURES.APRX 05/08/2025 16:36



LEGEND

- NTH IRZ DOSE RESPONSE MONITORING WELL
- NORTHERN IRZ EXTRACTION MONITORING WELL
- NTH IRZ DOWNGRADIENT MONITORING WELL
- REMEDIATION WELL (INJECTION)
- REMEDIATION WELL (EXTRACTION)
- REMEDIATION WELL (NOT PLUMBED INTO SYSTEM CURRENTLY)
- PILOT TEST WELL (EXTRACTION)
- BAT CAVE WASH

Notes:
1. NTH = National Trails Highway
2. IRZ = In-Situ Reactive Zone

0.07 Drawdown calculated from adjusted groundwater elevation at 1,000 minutes subtracted from adjusted groundwater elevation before extraction at IRZ-9 on 6/25/2025 6:00 AM Pacific Standard Time

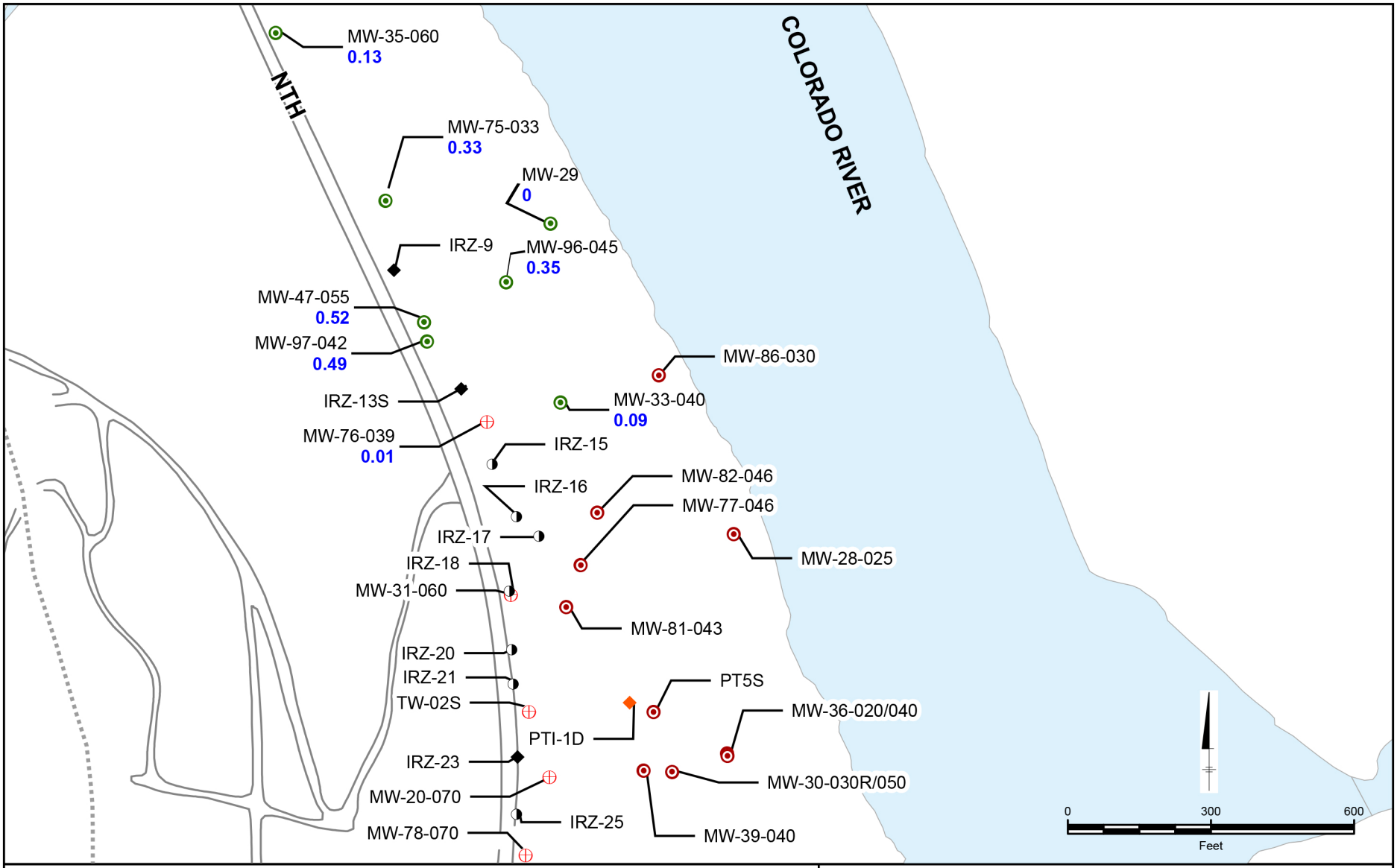
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

SPATIAL DRAWDOWN 1,000 MINUTES
LAYERS 2-4 (300-425 feet amsl)

ARCADIS

FIGURE
15B

T:_ENV\PGE_TOPOCK\GEC\ARC_PRO\2025\TOPOCK - IRZ-9 PUMP TEST - FIGURE\TOPOCK - IRZ-9 PUMP TEST - FIGURES.APRX 05/08/2025 16:36



LEGEND

- NTH IRZ DOSE RESPONSE MONITORING WELL
- NORTHERN IRZ EXTRACTION MONITORING WELL
- NTH IRZ DOWNGRADIENT MONITORING WELL
- REMEDIATION WELL (INJECTION)
- REMEDIATION WELL (EXTRACTION)
- REMEDIATION WELL (NOT PLUMBED INTO SYSTEM CURRENTLY)
- PILOT TEST WELL (EXTRACTION)
- BAT CAVE WASH

Notes:
1. NTH = National Trails Highway
2. IRZ = In Situ Reactive Zone

0.49 Drawdown calculated from adjusted groundwater elevation at 10,000 minutes subtracted from adjusted groundwater elevation before extraction at IRZ-9 on 6/25/2025 6:00 AM Pacific Standard Time

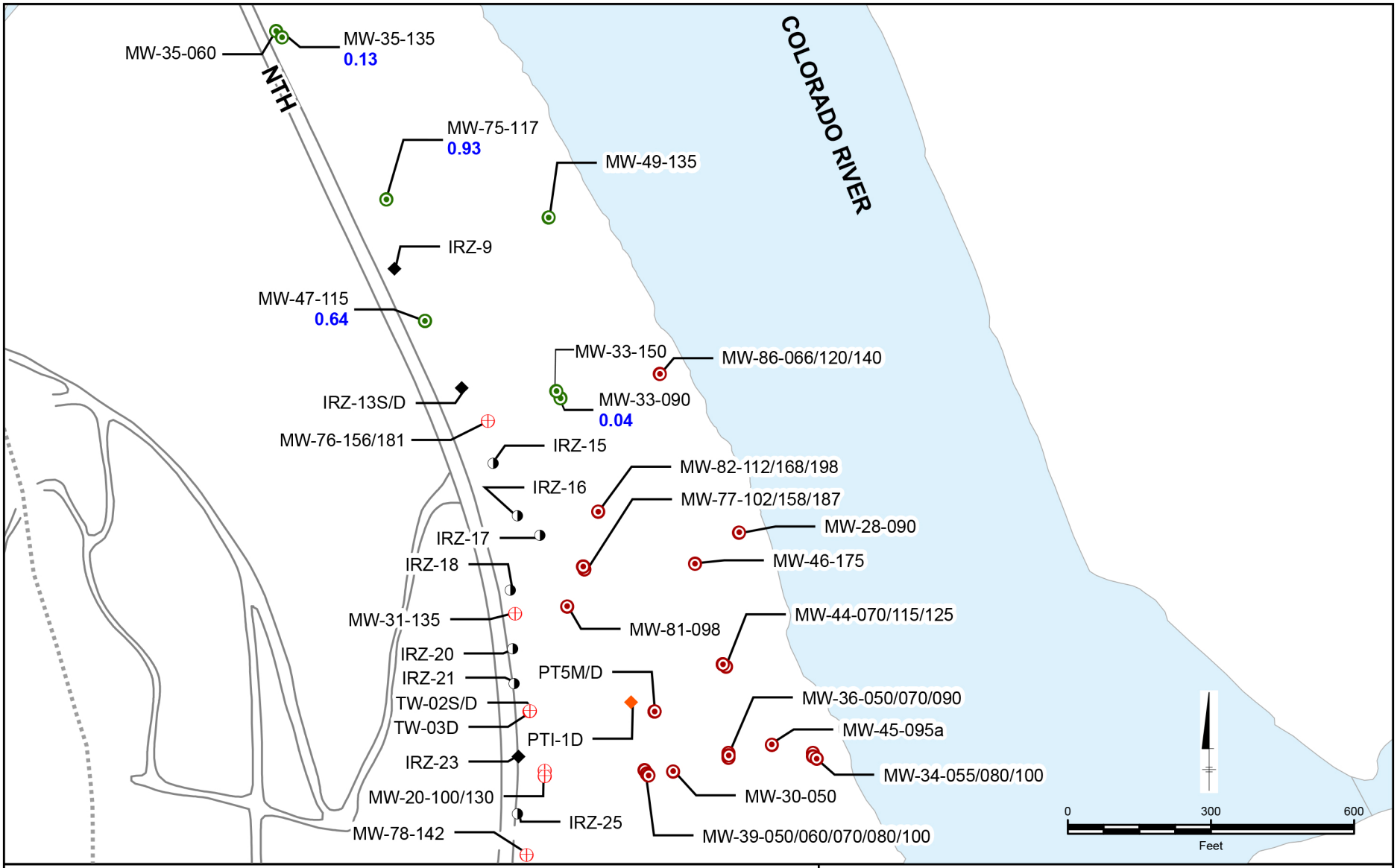
PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

SPATIAL DRAWDOWN 10,000 MINUTES
LAYER 1 (425-455 feet amsl)

ARCADIS

FIGURE
15C

T:_ENV\PGE_TOPOCK\GEC\ARC_PRO\2025\TOPOCK - IRZ-9 PUMP TEST - FIGURE\TOPOCK - IRZ-9 PUMP TEST - FIGURES.APRX 05/08/2025 16:36



LEGEND

- NTH IRZ DOSE RESPONSE MONITORING WELL
- NORTHERN IRZ EXTRACTION MONITORING WELL
- NTH IRZ DOWNGRADIENT MONITORING WELL
- REMEDIATION WELL (INJECTION)
- REMEDIATION WELL (EXTRACTION)
- REMEDIATION WELL (NOT PLUMBED INTO SYSTEM CURRENTLY)
- PILOT TEST WELL (EXTRACTION)
- BAT CAVE WASH

Notes:
1. NTH = National Trails Highway
2. IRZ = In Situ Reactive Zone

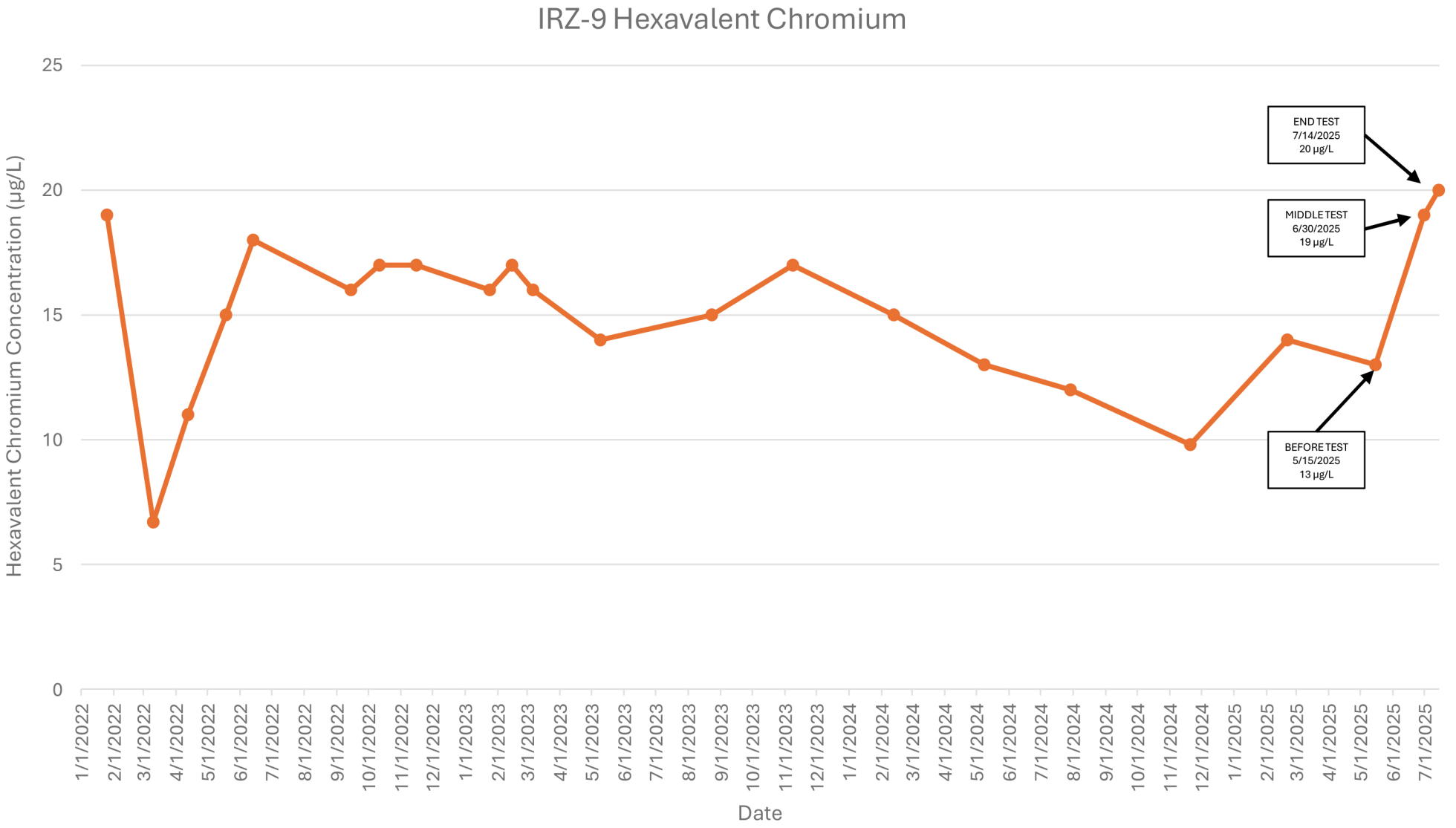
0.13 Drawdown calculated from adjusted groundwater elevation at 10,000 minutes subtracted from adjusted groundwater elevation before extraction at IRZ-9 on 6/25/2025 6:00 AM Pacific Standard Time

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

SPATIAL DRAWDOWN 10,000 MINUTES
LAYERS 2-4 (300-425 feet amsl)

ARCADIS

FIGURE
15D



LEGEND

Hexavalent Chromium Concentration at IRZ-9

NOTES:

1. Extraction well IRZ-9 started extraction on 6/25/2025 at 6:00 AM PST at approximately the maximum design extraction rate of 80 gallons per minute and was cycled off for 24 hours starting on 7/7/2025 at 6:00 AM PST and again on 7/9/2025 at 6:00 AM PST
2. µg/L = micrograms per liter
3. PST = Pacific Standard Time

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

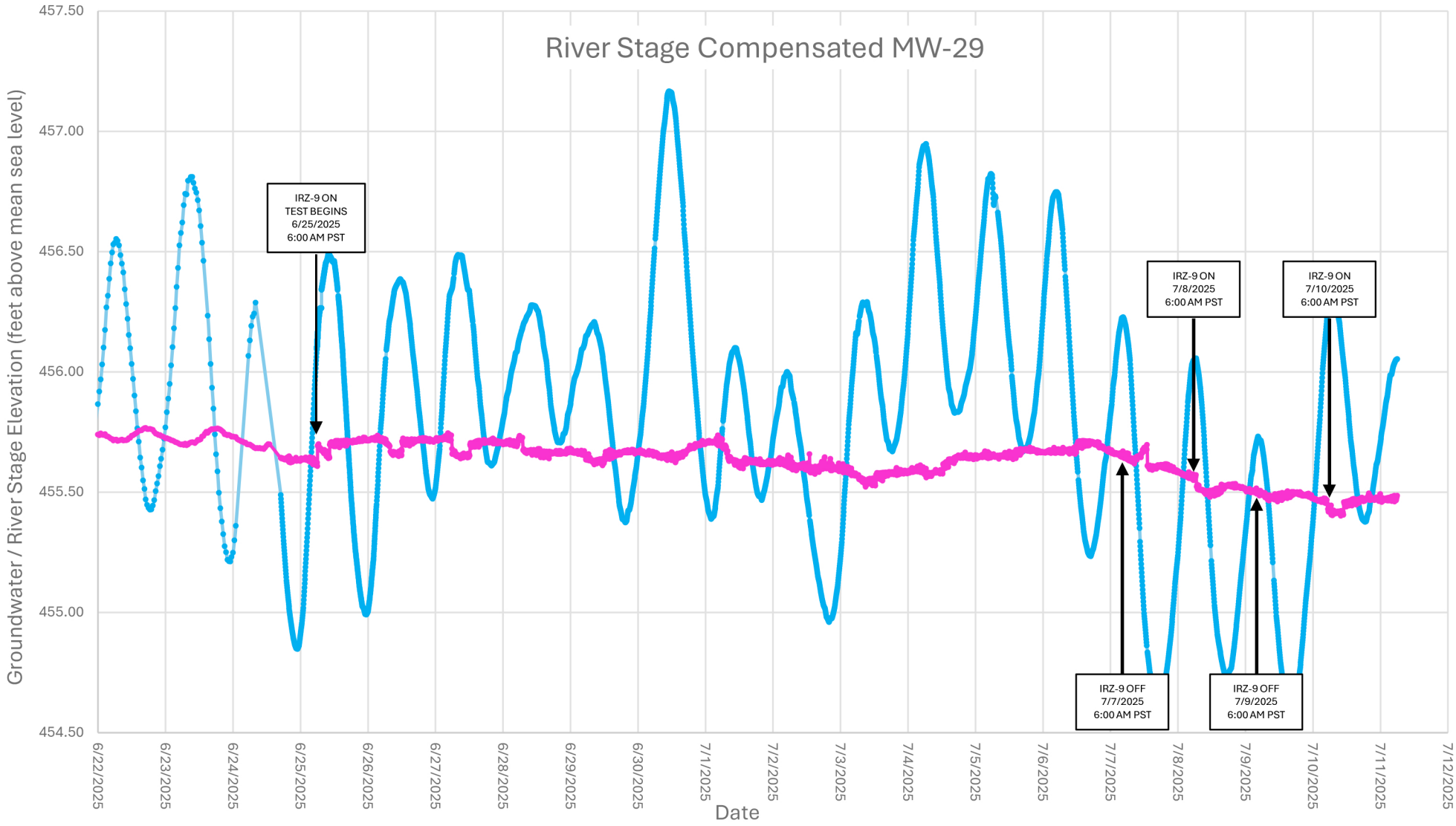
HEXAVALENT CHROMIUM AT IRZ-9

ARCADIS

FIGURE
16

Appendix A

IRZ-9 Test Individual River Stage Compensated Hydrographs



LEGEND

- River Stage
- MW-29

NOTES:

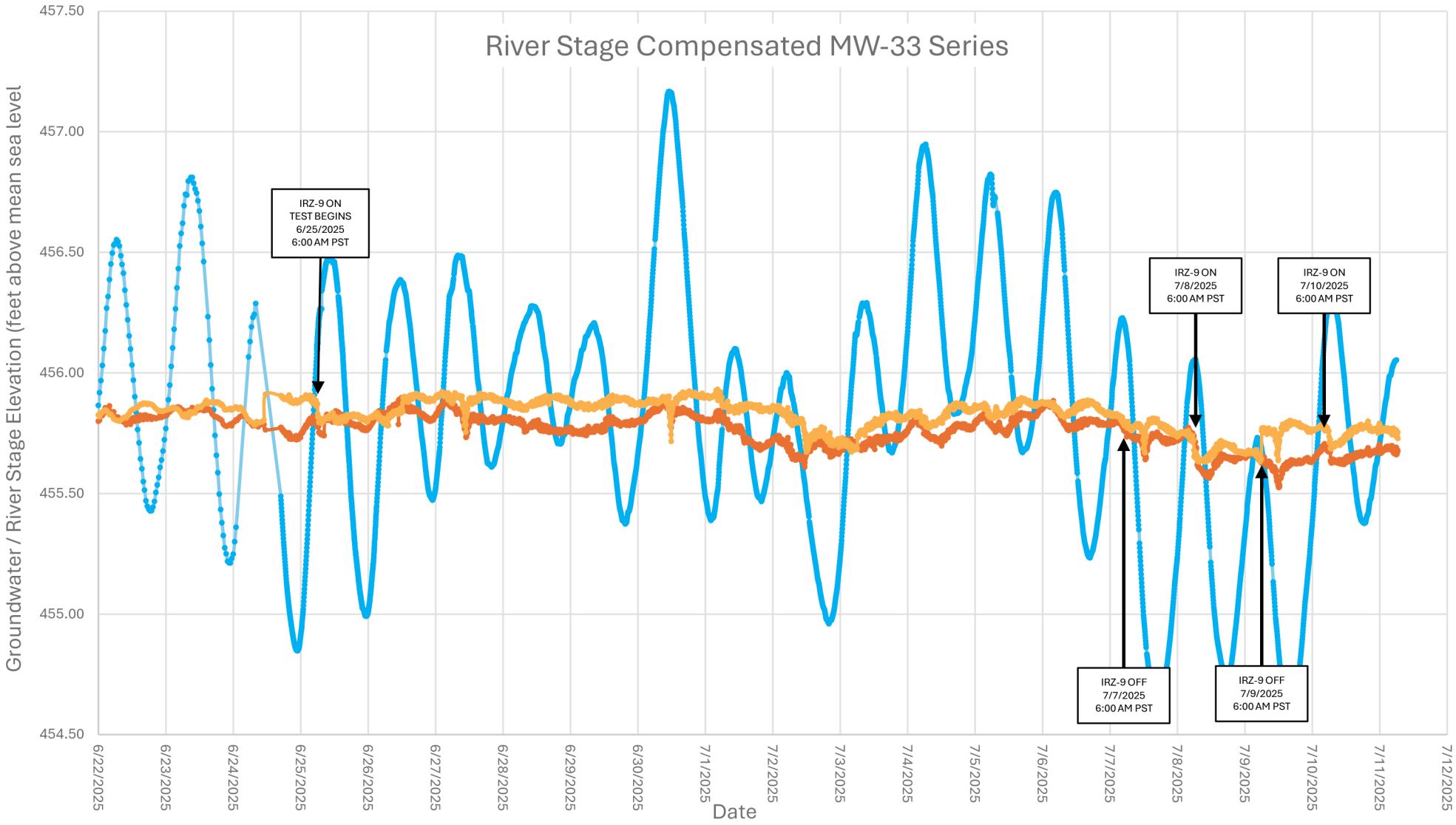
1. Extraction well IRZ-9 (screened 55 - 100 ft bgs) started extraction on 6/25/2025 at 6:00 AM PST at approximately the maximum design extraction rate of 80 gallons per minute and was cycled off for 24 hours starting on 7/7/2025 at 6:00 AM PST and again on 7/9/2025 at 6:00 AM PST
2. Monitoring wells MW-29 (screened 30 – 40 ft bgs) is approximately 345 feet northwest of extraction well IRZ-9
3. Pressure transducer data presented were corrected for barometric pressure and adjusted for temperature, salinity, and river stage influence
4. ft bgs = feet below ground surface
5. PST = Pacific Standard Time

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

RIVER STAGE COMPENSATED MW-29 HYDROGRAPH

ARCADIS

APPENDIX
A



LEGEND

- River Stage
- MW-33-040
- MW-33-090

NOTES:

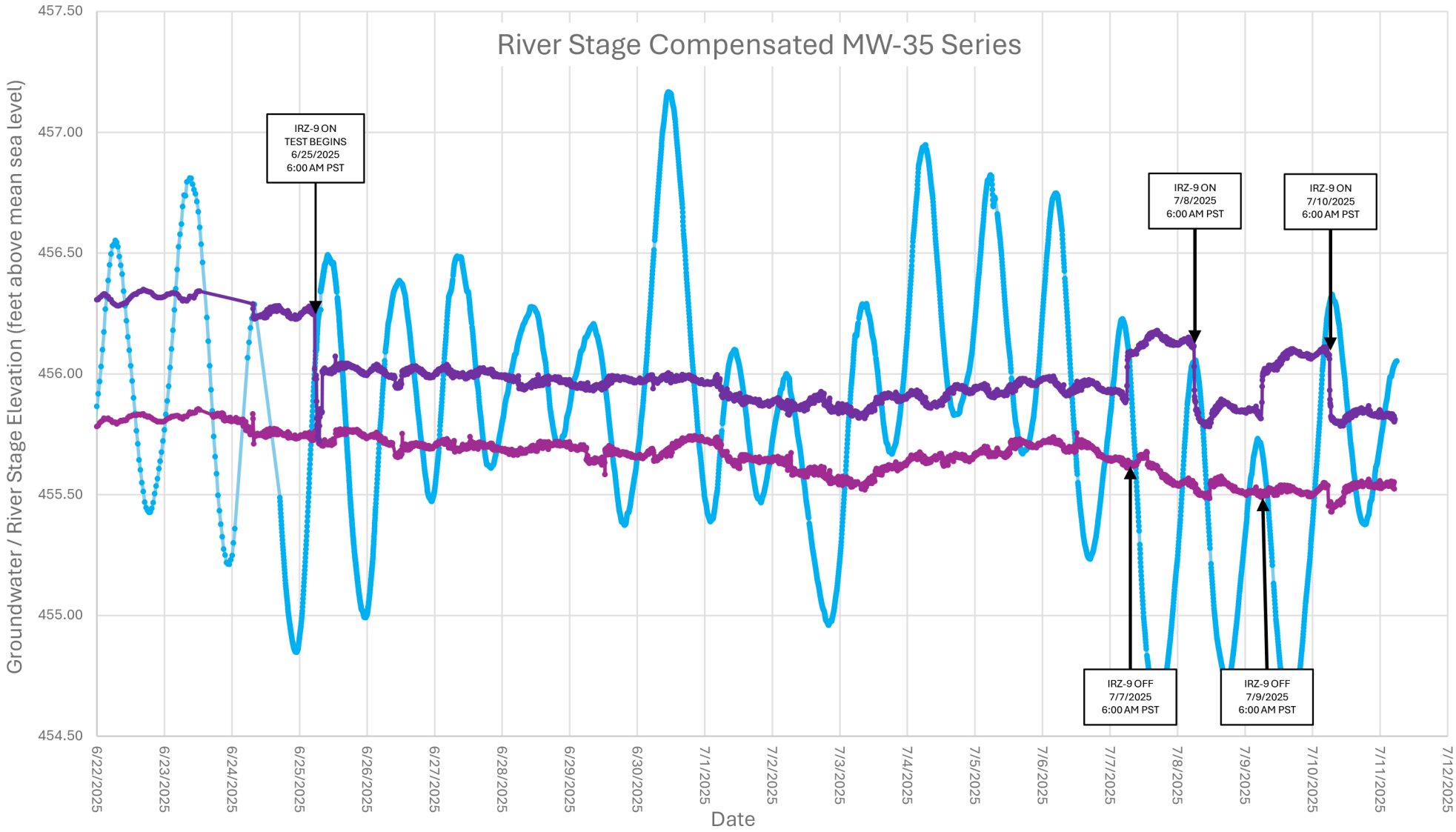
1. Extraction well IRZ-9 (screened 55 - 100 ft bgs) started extraction on 6/25/2025 at 6:00 AM PST at approximately the maximum design extraction rate of 80 gallons per minute and was cycled off for 24 hours starting on 7/7/2025 at 6:00 AM PST and again on 7/9/2025 at 6:00 AM PST
2. Monitoring wells MW-33-040 (screened 29 – 39 ft bgs) and MW-33-090 (screened 69 – 89 ft bgs) are approximately 450 feet southeast of extraction well IRZ-9
3. Pressure transducer data presented were corrected for barometric pressure and adjusted for temperature, salinity, and river stage influence
4. ft bgs = feet below ground surface
5. PST = Pacific Standard Time

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

RIVER STAGE COMPENSATED MW-33 SERIES HYDROGRAPH

ARCADIS

APPENDIX
A



LEGEND

- River Stage
- MW-35-060
- MW-35-135

NOTES:

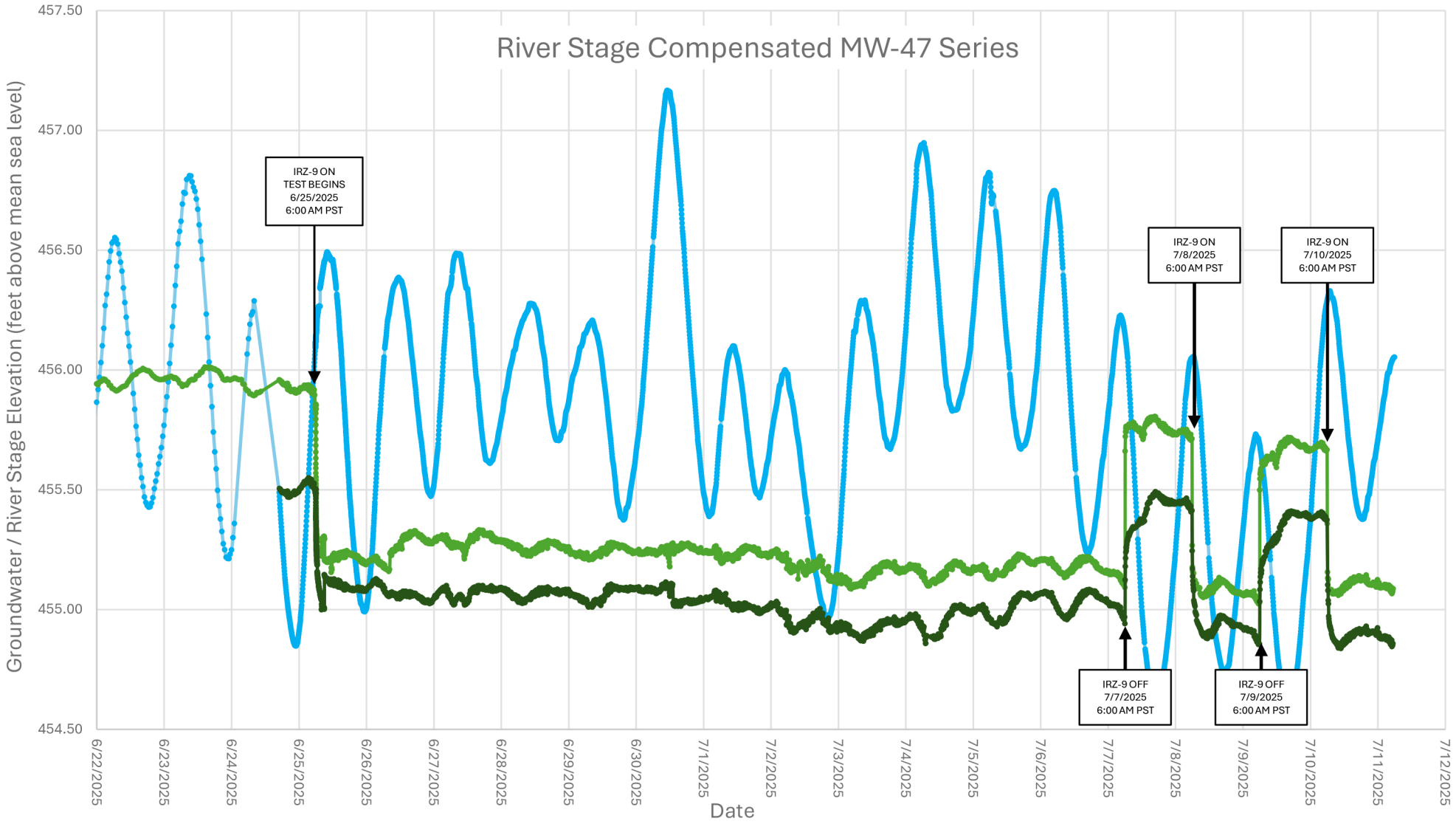
1. Extraction well IRZ-9 (screened 55 - 100 ft bgs) started extraction on 6/25/2025 at 6:00 AM PST at approximately the maximum design extraction rate of 80 gallons per minute and was cycled off for 24 hours starting on 7/7/2025 at 6:00 AM PST and again on 7/9/2025 at 6:00 AM PST
2. Monitoring wells MW-35-060 (screened 41 – 61 ft bgs) and MW-35-135 (screened 116 – 136 ft bgs) are approximately 550 feet northwest of extraction well IRZ-9
3. Pressure transducer data presented were corrected for barometric pressure and adjusted for temperature, salinity, and river stage influence
4. ft bgs = feet below ground surface
5. PST = Pacific Standard Time

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

RIVER STAGE COMPENSATED MW-35 SERIES HYDROGRAPH

ARCADIS

APPENDIX
A



LEGEND

- River Stage
- MW-47-055
- MW-47-115

NOTES:

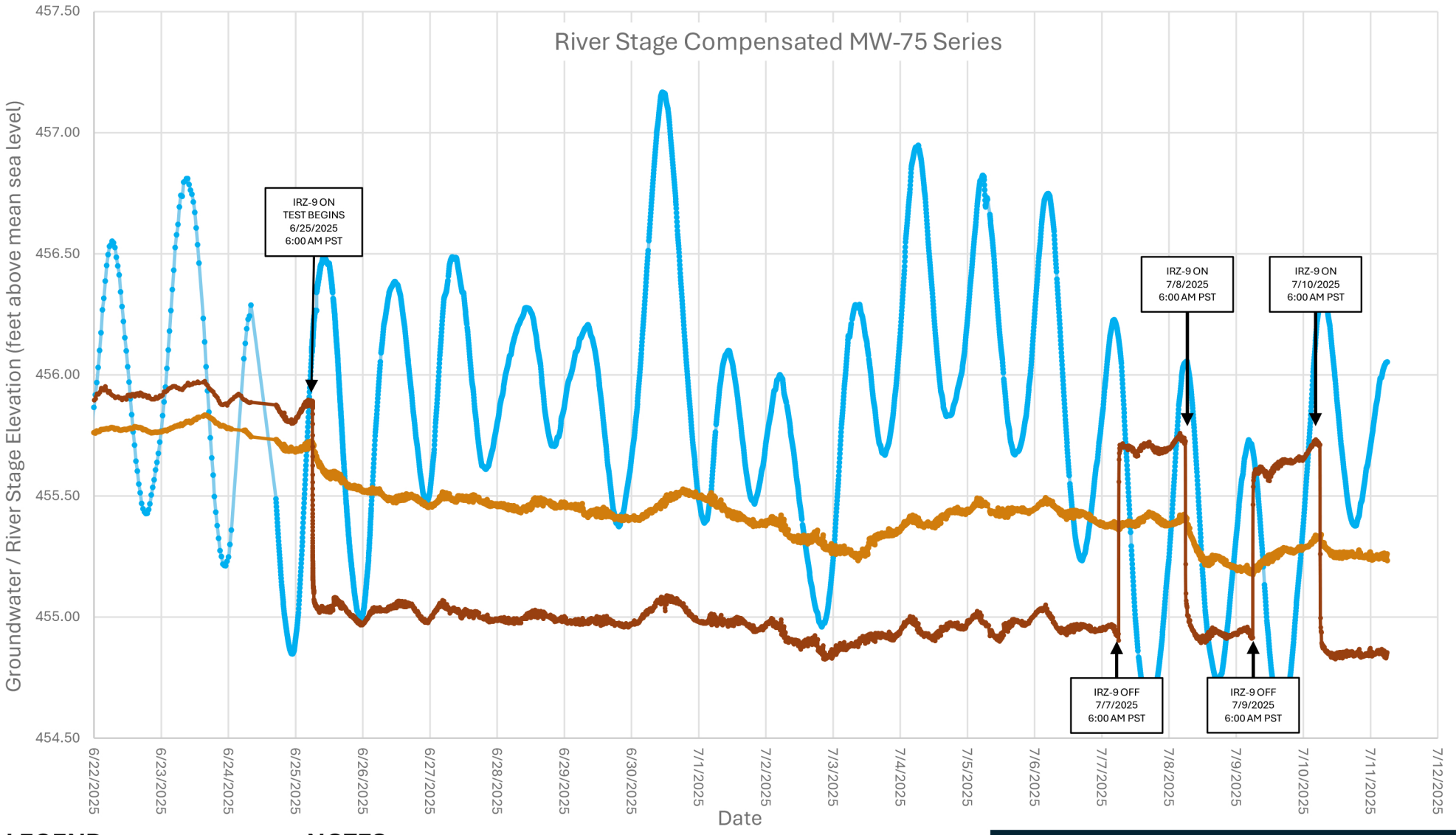
1. Extraction well IRZ-9 (screened 55 - 100 ft bgs) started extraction on 6/25/2025 at 6:00 AM PST at approximately the maximum design extraction rate of 80 gallons per minute and was cycled off for 24 hours starting on 7/7/2025 at 6:00 AM PST and again on 7/9/2025 at 6:00 AM PST
2. Monitoring wells MW-47-055 (screened 45 – 55 ft bgs) and MW-47-115 (screened 105 – 115 ft bgs) are approximately 130 feet southeast of extraction well IRZ-9
3. Pressure transducer data presented were corrected for barometric pressure and adjusted for temperature, salinity, and river stage influence
4. ft bgs = feet below ground surface
5. PST = Pacific Standard Time

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

RIVER STAGE COMPENSATED MW-47 SERIES HYDROGRAPH

ARCADIS

APPENDIX
A



LEGEND

- River Stage
- MW-75-033
- MW-75-117

NOTES:

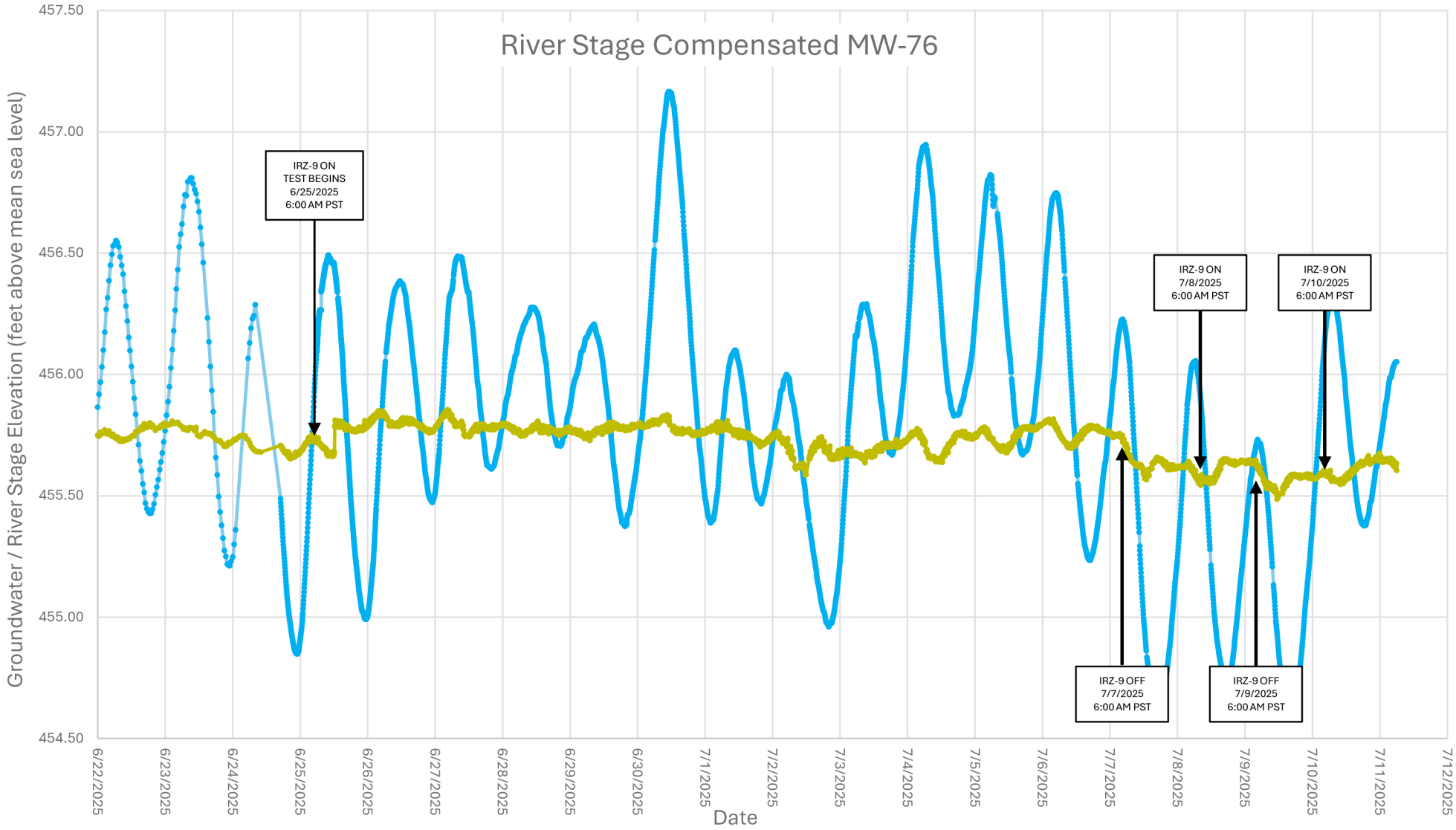
1. Extraction well IRZ-9 (screened 55 - 100 ft bgs) started extraction on 6/25/2025 at 6:00 AM PST at approximately the maximum design extraction rate of 80 gallons per minute and was cycled off for 24 hours starting on 7/7/2025 at 6:00 AM PST and again on 7/9/2025 at 6:00 AM PST
2. Monitoring wells MW-75-033 (screened 18 – 33 ft bgs) and MW-75-117 (screened 97-117 ft bgs) are approximately 145 feet north of extraction well IRZ-9
3. Pressure transducer data presented were corrected for barometric pressure and adjusted for temperature, salinity, and river stage influence
4. ft bgs = feet below ground surface
5. PST = Pacific Standard Time

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

RIVER STAGE COMPENSATED MW-75 SERIES HYDROGRAPH

ARCADIS

APPENDIX
A



LEGEND

- River Stage
- MW-76-039

NOTES:

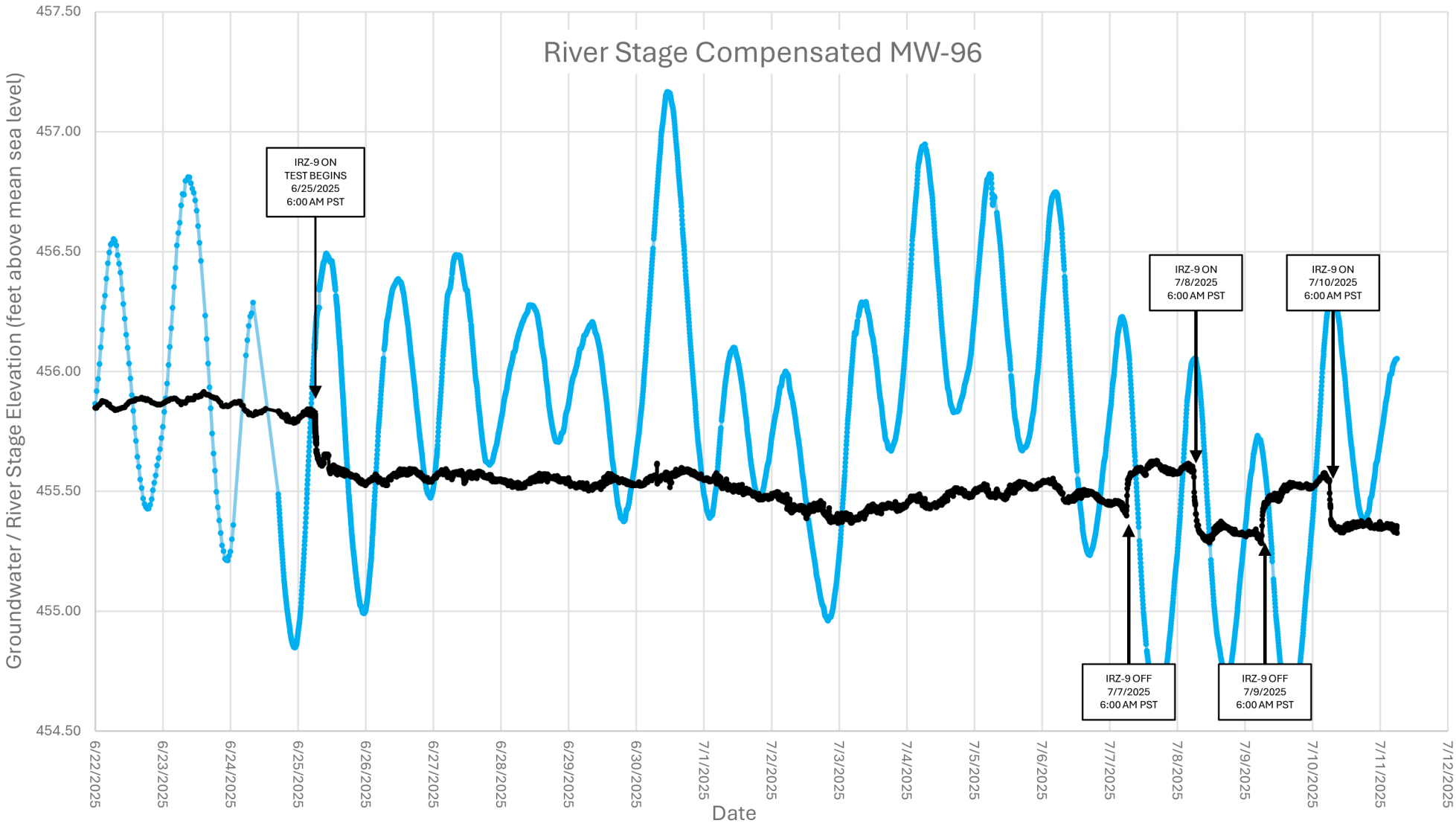
1. Extraction well IRZ-9 (screened 55 - 100 ft bgs) started extraction on 6/25/2025 at 6:00 AM PST at approximately the maximum design extraction rate of 80 gallons per minute and was cycled off for 24 hours starting on 7/7/2025 at 6:00 AM PST and again on 7/9/2025 at 6:00 AM PST
2. Monitoring well MW-76-039 (screened 24 – 39 ft bgs) is approximately 380 feet southeast of extraction well IRZ-9
3. Pressure transducer data presented were corrected for barometric pressure and adjusted for temperature, salinity, and river stage influence
4. ft bgs = feet below ground surface
5. PST = Pacific Standard Time

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

RIVER STAGE COMPENSATED MW-76 HYDROGRAPH

ARCADIS

APPENDIX
A



LEGEND

- River Stage
- MW-96-045

NOTES:

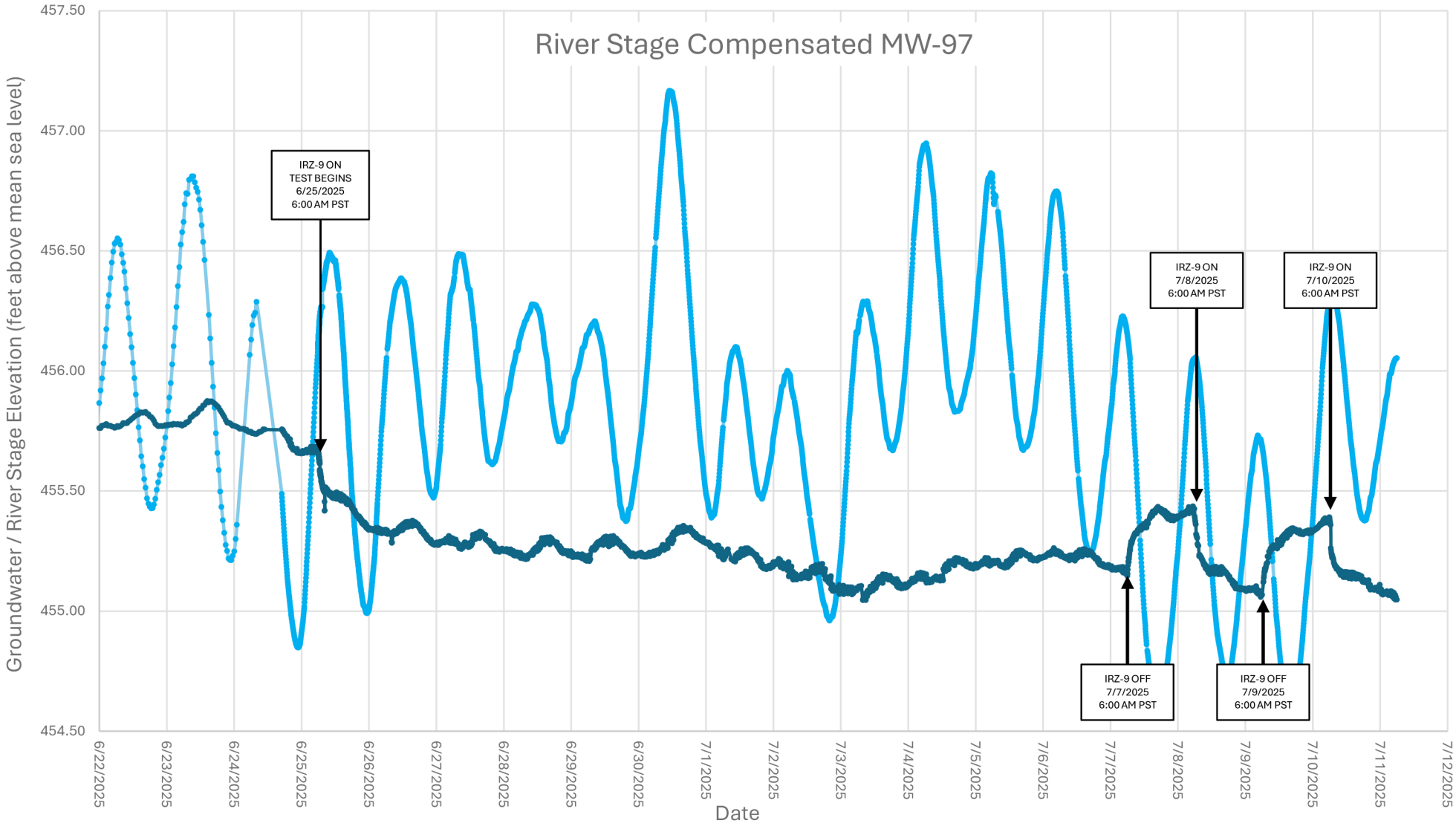
1. Extraction well IRZ-9 (screened 55 - 100 ft bgs) started extraction on 6/25/2025 at 6:00 AM PST at approximately the maximum design extraction rate of 80 gallons per minute and was cycled off for 24 hours starting on 7/7/2025 at 6:00 AM PST and again on 7/9/2025 at 6:00 AM PST
2. Monitoring well3 MW-96-045 (screened 25 – 45 ft bgs) is approximately 250 feet east of extraction well IRZ-9
3. Pressure transducer data presented were corrected for barometric pressure and adjusted for temperature, salinity, and river stage influence
4. ft bgs = feet below ground surface
5. PST = Pacific Standard Time

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

RIVER STAGE COMPENSATED MW-96 HYDROGRAPH

ARCADIS

APPENDIX
A



LEGEND

- River Stage
- MW-97-042

NOTES:

1. Extraction well IRZ-9 (screened 55 - 100 ft bgs) started extraction on 6/25/2025 at 6:00 AM PST at approximately the maximum design extraction rate of 80 gallons per minute and was cycled off for 24 hours starting on 7/7/2025 at 6:00 AM PST and again on 7/9/2025 at 6:00 AM PST
2. Monitoring well MW-97-042 (screened 22 – 42 ft bgs) is approximately 145 feet southeast of extraction well IRZ-9
3. Pressure transducers data presented were corrected for barometric pressure and adjusted for temperature, salinity, and river stage influence
4. ft bgs = feet below ground surface
5. PST = Pacific Standard Time

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

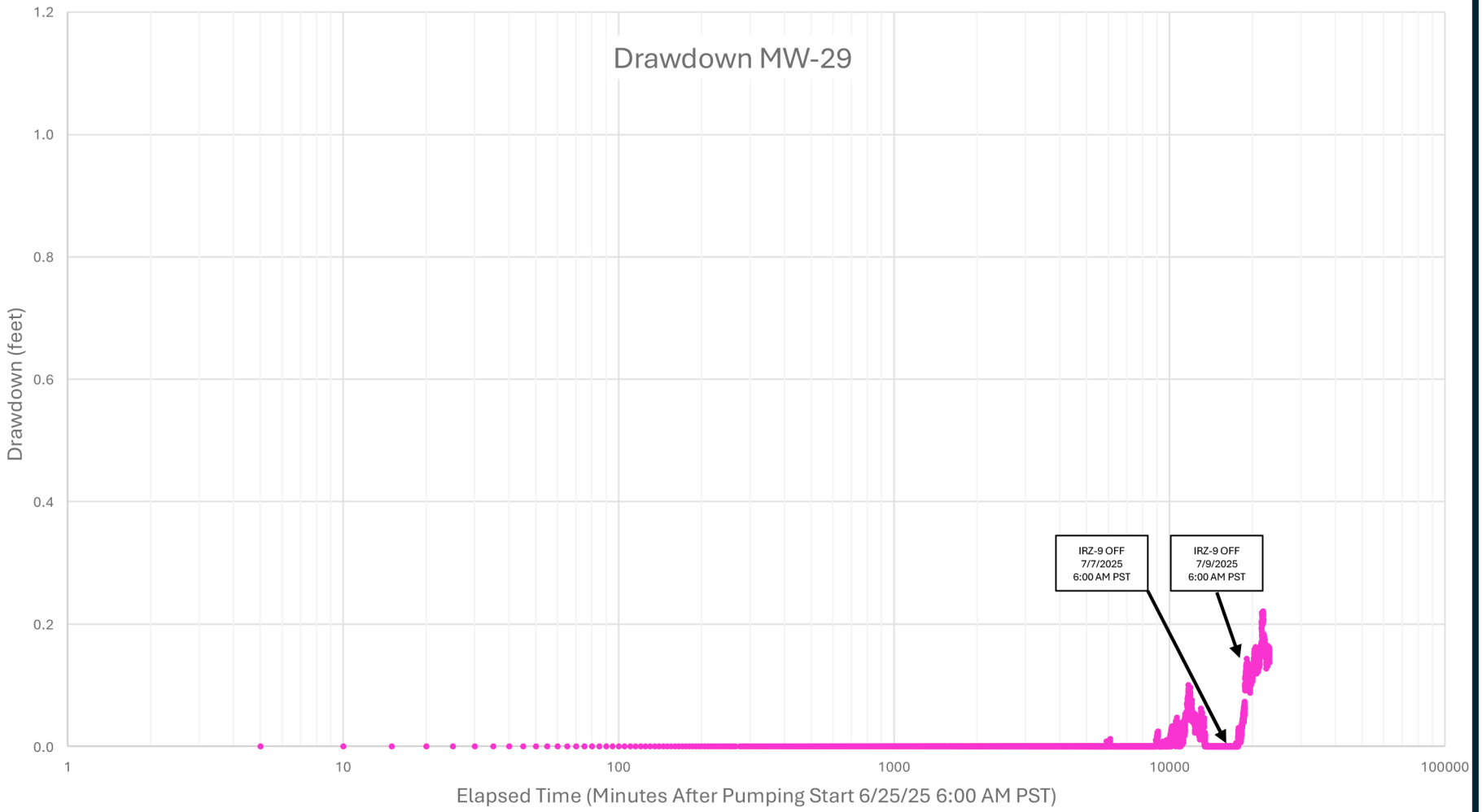
RIVER STAGE COMPENSATED MW-97 HYDROGRAPH

ARCADIS

APPENDIX
A

Appendix B

IRZ-9 Test Individual Drawdown Plots



LEGEND

MW-29

NOTES:

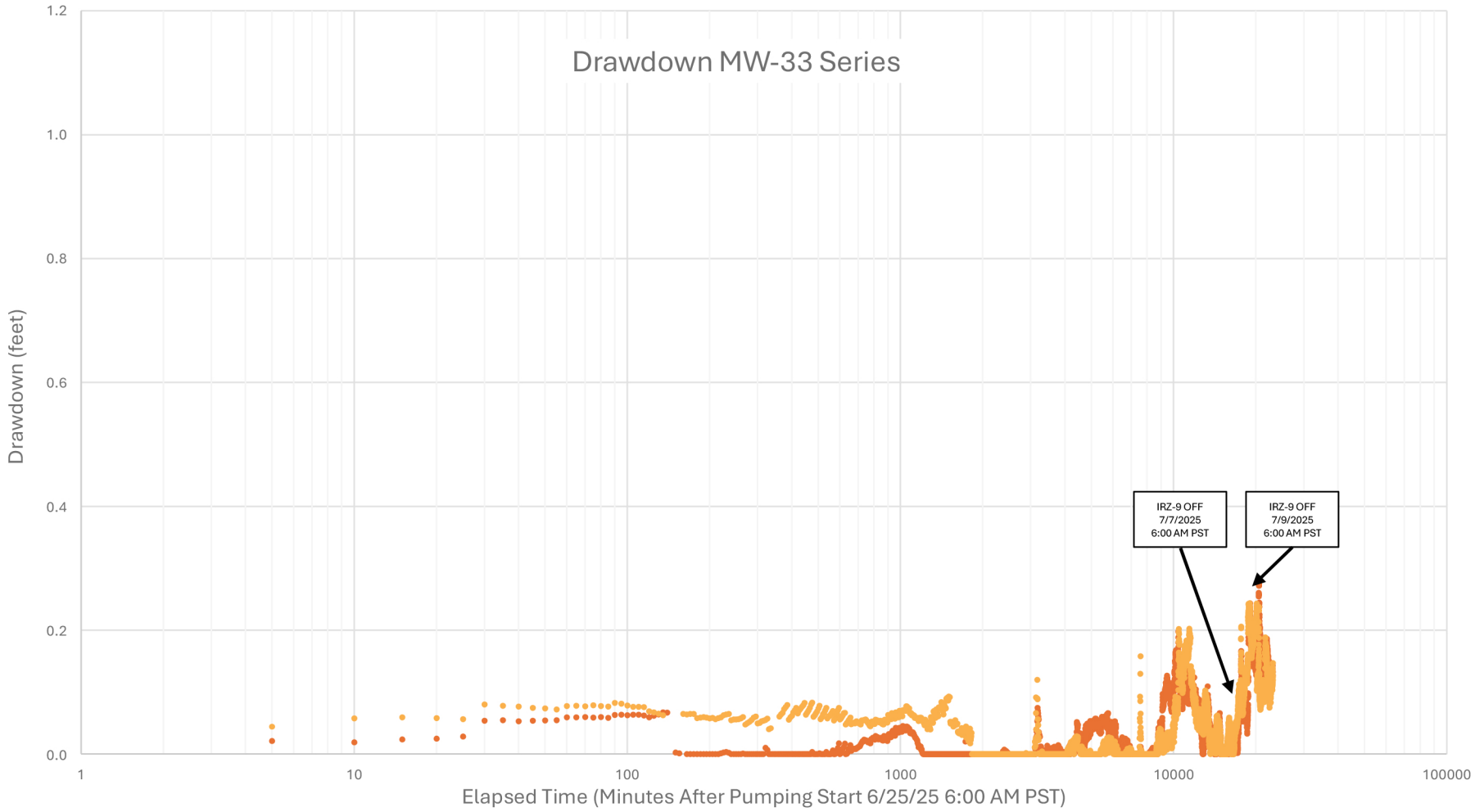
1. Extraction well IRZ-9 (screened 55 - 100 ft bgs) started extraction on 6/25/2025 at 6:00 AM PST at approximately the maximum design extraction rate of 80 gallons per minute and was cycled off for 24 hours starting on 7/7/2025 at 6:00 AM PST and again on 7/9/2025 at 6:00 AM PST
2. Monitoring wells MW-29 (screened 30 - 40 ft bgs) is approximately 345 feet northwest of extraction well IRZ-9
3. Drawdown was calculated by subtracting the adjusted groundwater elevation from the adjusted groundwater elevation prior to the start of extraction
4. Pressure transducer data presented were corrected for barometric pressure and adjusted for temperature, salinity, and river stage influence
5. ft bgs = feet below ground surface
6. PST = Pacific Standard Time

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

DRAWDOWN MW-29

ARCADIS

APPENDIX
B



LEGEND

- MW-33-040
- MW-33-090

NOTES:

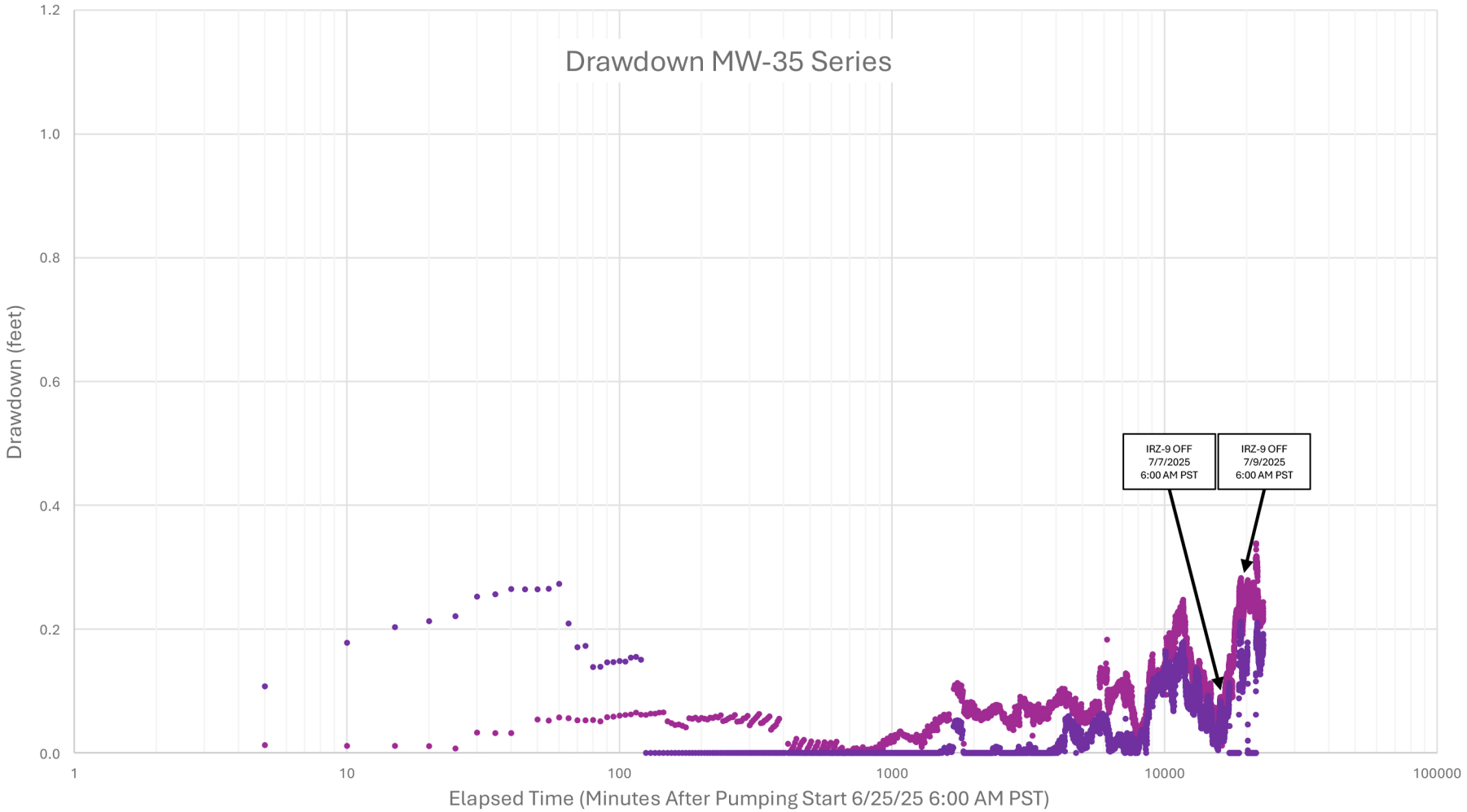
1. Extraction well IRZ-9 (screened 55 - 100 ft bgs) started extraction on 6/25/2025 at 6:00 AM PST at approximately the maximum design extraction rate of 80 gallons per minute and was cycled off for 24 hours starting on 7/7/2025 at 6:00 AM PST and again on 7/9/2025 at 6:00 AM PST
2. Monitoring wells MW-33-040 (screened 29 - 39 ft bgs) and MW-33-090 (screened 69 - 89 ft bgs) are approximately 450 feet southeast of extraction well IRZ-9
3. Drawdown was calculated by subtracting the adjusted groundwater elevation from the adjusted groundwater elevation prior to the start of extraction
4. Pressure transducer data presented were corrected for barometric pressure and adjusted for temperature, salinity, and river stage influence
5. ft bgs = feet below ground surface
6. PST = Pacific Standard Time

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

DRAWDOWN MW-33 SERIES

ARCADIS

APPENDIX
B



LEGEND

- MW-35-060
- MW-35-135

NOTES:

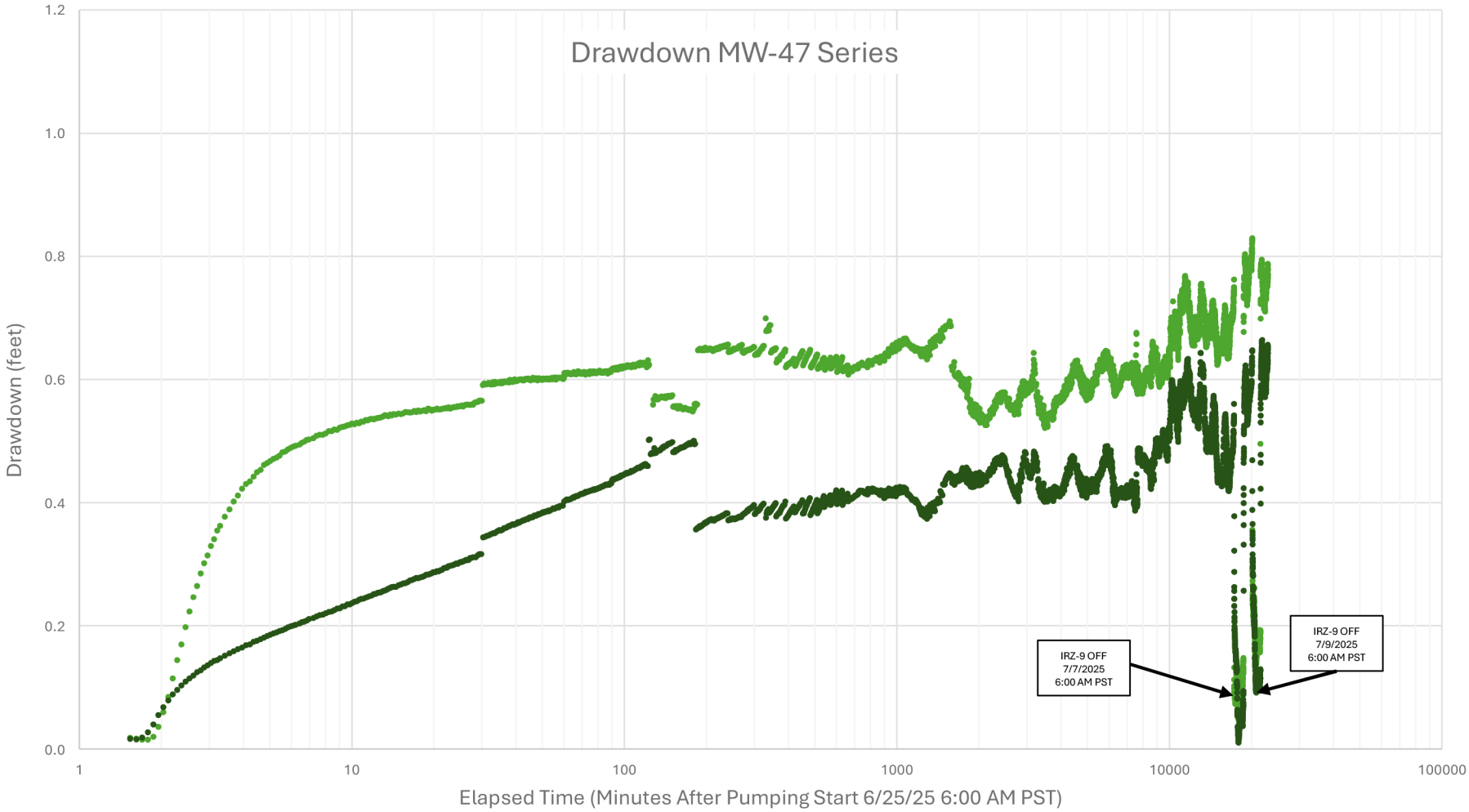
1. Extraction well IRZ-9 (screened 55 - 100 ft bgs) started extraction on 6/25/2025 at 6:00 AM PST at approximately the maximum design extraction rate of 80 gallons per minute and was cycled off for 24 hours starting on 7/7/2025 at 6:00 AM PST and again on 7/9/2025 at 6:00 AM PST
2. Monitoring wells MW-35-060 (screened 41 - 61 ft bgs) and MW-35-135 (screened 116 - 136 ft bgs) are approximately 550 feet northwest of extraction well IRZ-9
3. Drawdown was calculated by subtracting the adjusted groundwater elevation from the adjusted groundwater elevation prior to the start of extraction
4. Pressure transducer data presented were corrected for barometric pressure and adjusted for temperature, salinity, and river stage influence
5. ft bgs = feet below ground surface
6. PST = Pacific Standard Time

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

DRAWDOWN MW-35 SERIES

ARCADIS

APPENDIX
B



LEGEND

- MW-47-055
- MW-47-115

NOTES:

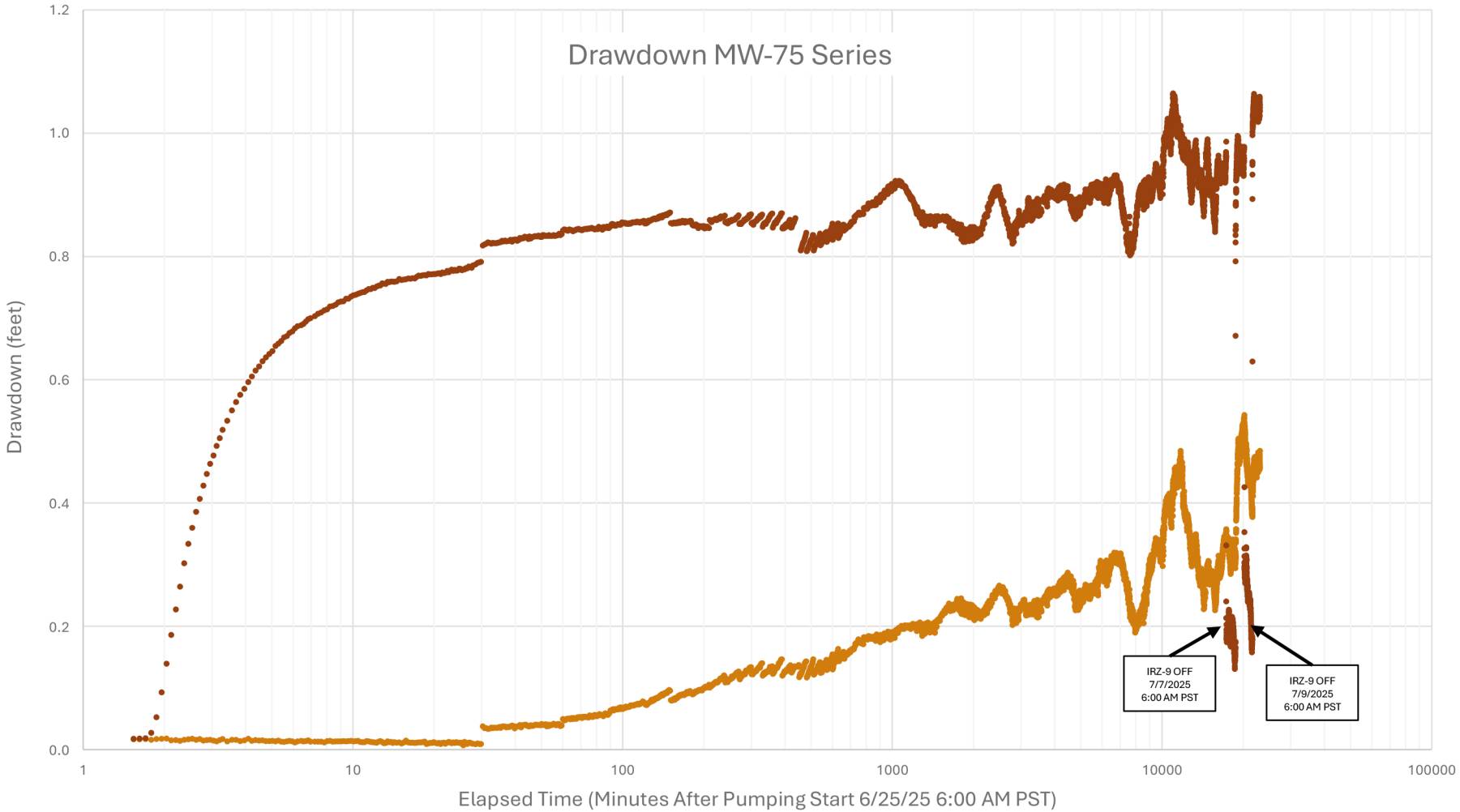
1. Extraction well IRZ-9 (screened 55 - 100 ft bgs) started extraction on 6/25/2025 at 6:00 AM PST at approximately the maximum design extraction rate of 80 gallons per minute and was cycled off for 24 hours starting on 7/7/2025 at 6:00 AM PST and again on 7/9/2025 at 6:00 AM PST
2. Monitoring wells MW-47-055 (screened 45 - 55 ft bgs) and MW-47-115 (screened 105 - 115 ft bgs) are approximately 130 feet southeast of extraction well IRZ-9
3. Drawdown was calculated by subtracting the adjusted groundwater elevation from the adjusted groundwater elevation prior to the start of extraction
4. Pressure transducer data presented were corrected for barometric pressure and adjusted for temperature, salinity, and river stage influence
5. ft bgs = feet below ground surface
6. PST = Pacific Standard Time

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

DRAWDOWN MW-47 SERIES

ARCADIS

APPENDIX
B



LEGEND

- MW-75-033
- MW-75-117

NOTES:

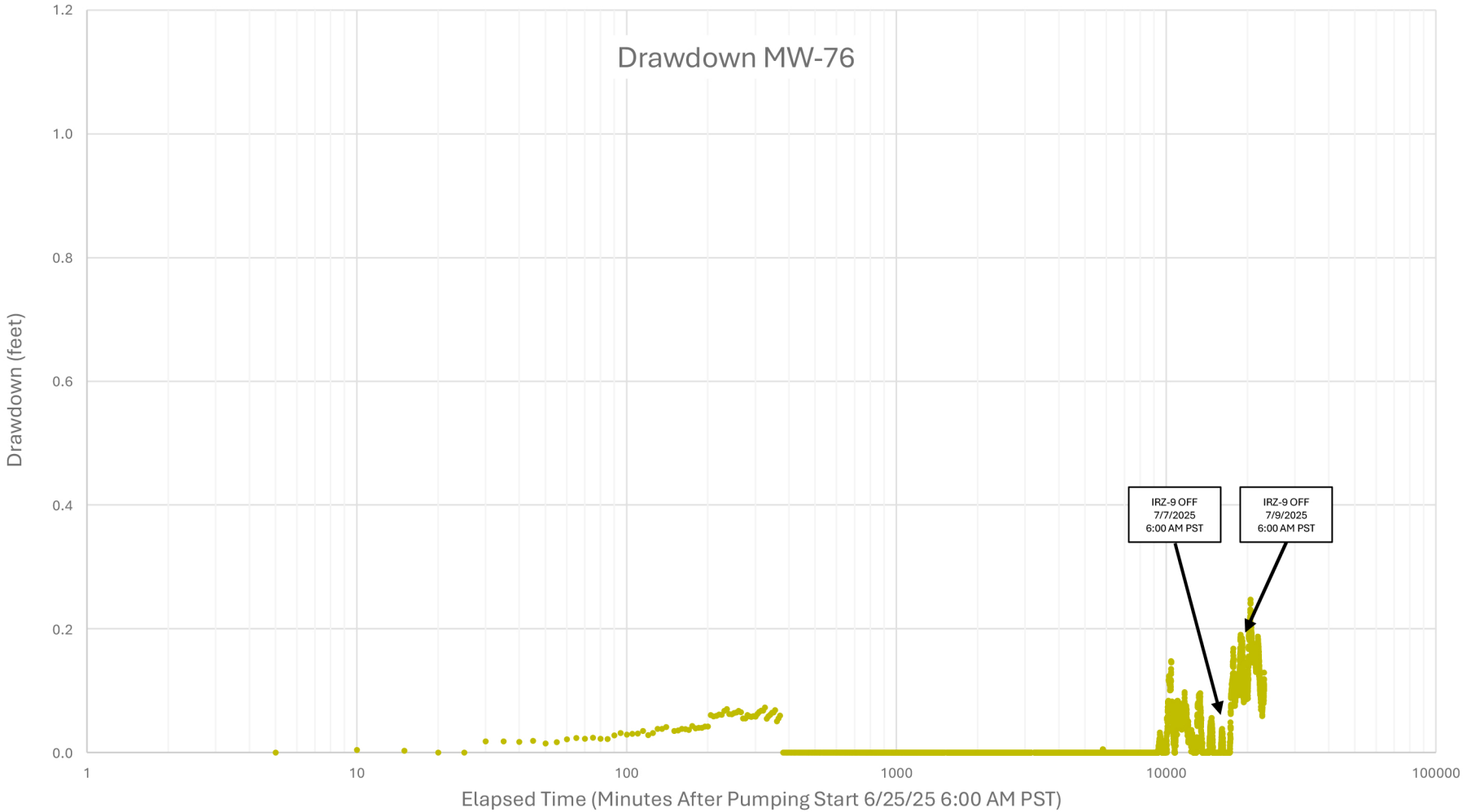
1. Extraction well IRZ-9 (screened 55 - 100 ft bgs) started extraction on 6/25/2025 at 6:00 AM PST at approximately the maximum design extraction rate of 80 gallons per minute and was cycled off for 24 hours starting on 7/7/2025 at 6:00 AM PST and again on 7/9/2025 at 6:00 AM PST
2. Monitoring wells MW-75-033 (screened 18 - 33 ft bgs) and MW-75-117 (screened 97 - 117 ft bgs) are approximately 145 feet north of extraction well IRZ-9
3. Drawdown was calculated by subtracting the adjusted groundwater elevation from the adjusted groundwater elevation prior to the start of extraction
4. Pressure transducer data presented were corrected for barometric pressure and adjusted for temperature, salinity, and river stage influence
5. ft bgs = feet below ground surface
6. PST = Pacific Standard Time

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

DRAWDOWN MW-75 SERIES

ARCADIS

APPENDIX
B



LEGEND

MW-76-039

NOTES:

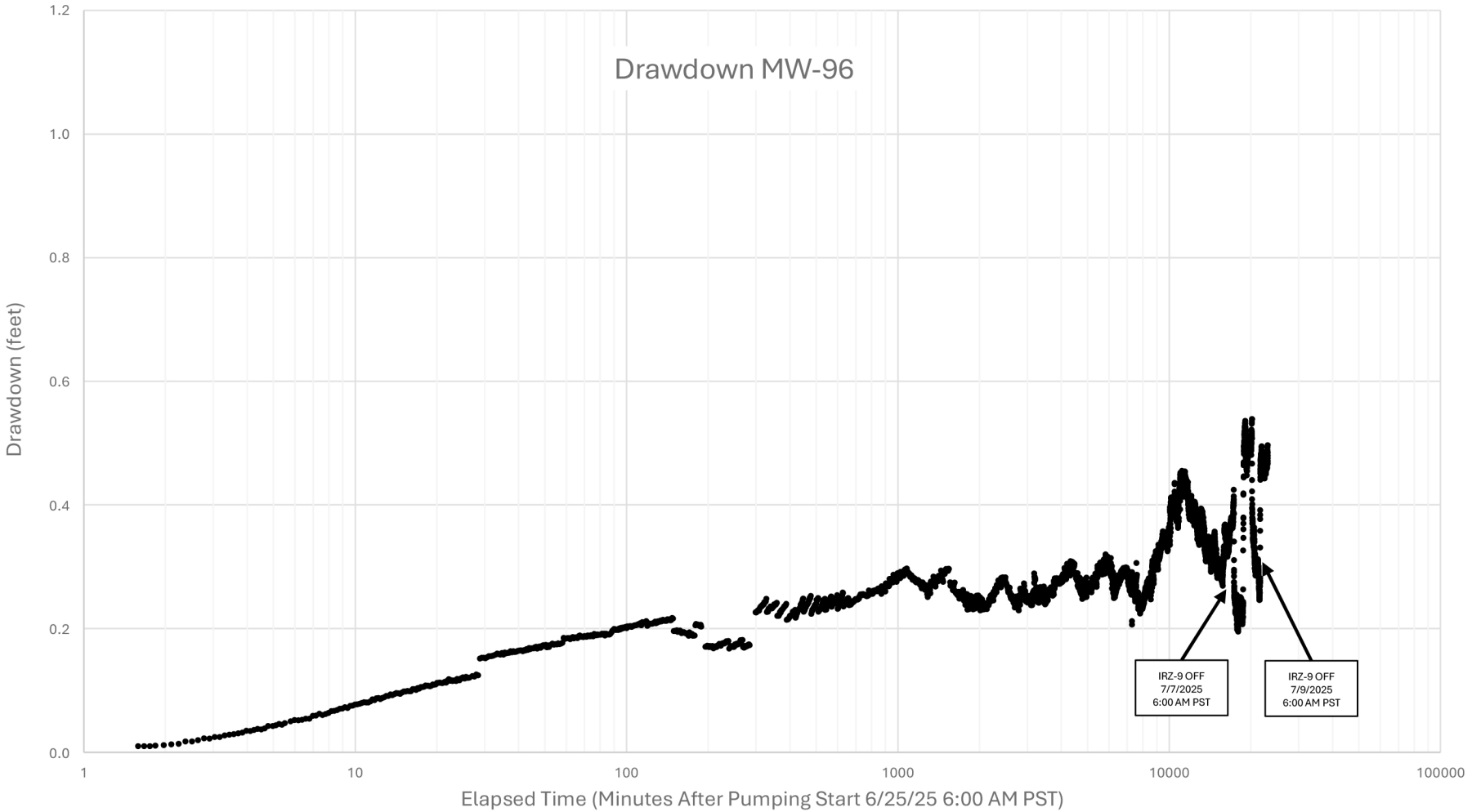
1. Extraction well IRZ-9 (screened 55 - 100 ft bgs) started extraction on 6/25/2025 at 6:00 AM PST at approximately the maximum design extraction rate of 80 gallons per minute and was cycled off for 24 hours starting on 7/7/2025 at 6:00 AM PST and again on 7/9/2025 at 6:00 AM PST
2. Monitoring well MW-76-039 (screened 24 - 39 ft bgs) is approximately 380 feet southeast of extraction well IRZ-9
3. Drawdown was calculated by subtracting the adjusted groundwater elevation from the adjusted groundwater elevation prior to the start of extraction
4. Pressure transducer data presented were corrected for barometric pressure and adjusted for temperature, salinity, and river stage influence
5. ft bgs = feet below ground surface
6. PST = Pacific Standard Time

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

DRAWDOWN MW-76

ARCADIS

APPENDIX
B



LEGEND

MW-96-045

NOTES:

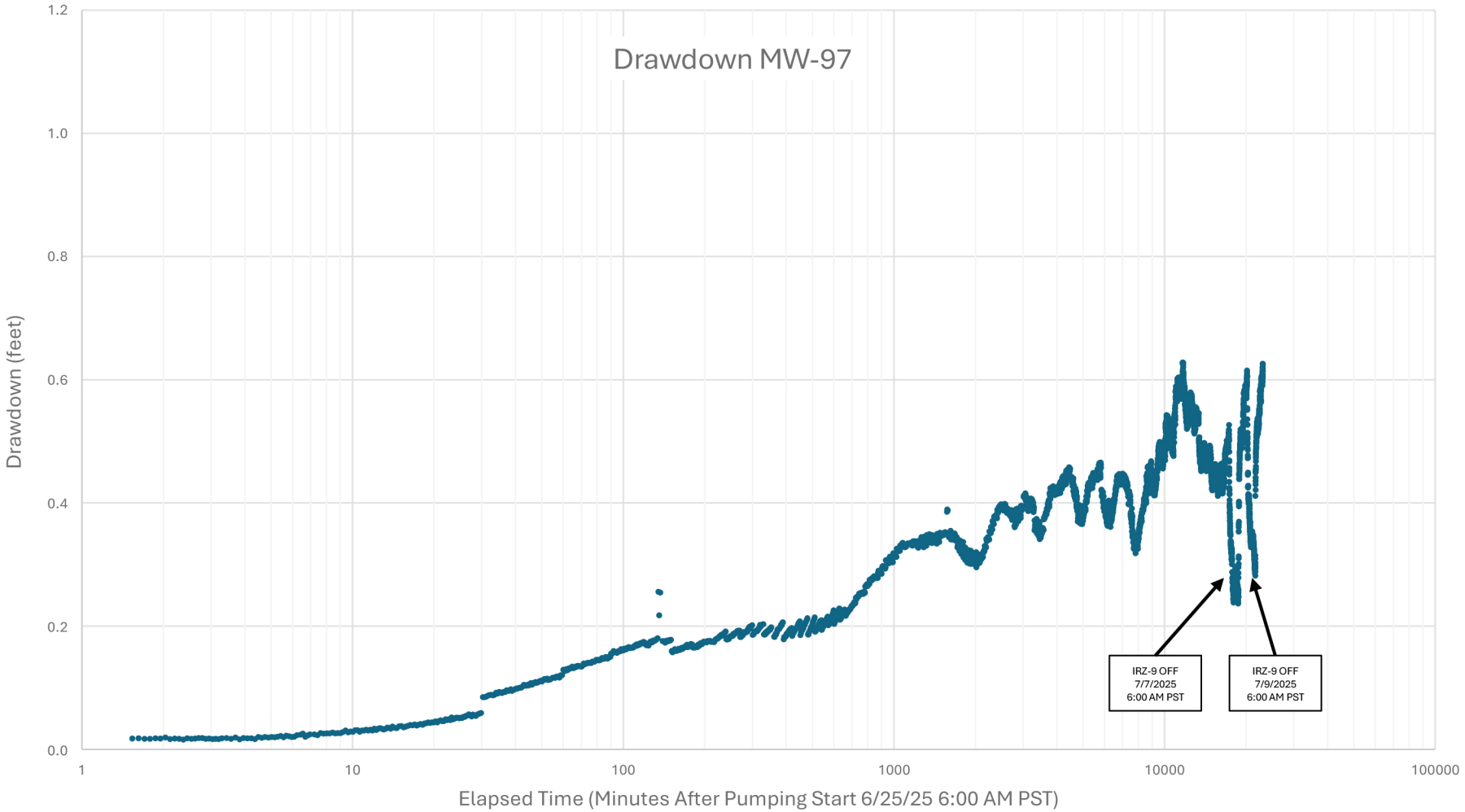
1. Extraction well IRZ-9 (screened 55 - 100 ft bgs) started extraction on 6/25/2025 at 6:00 AM PST at approximately the maximum design extraction rate of 80 gallons per minute and was cycled off for 24 hours starting on 7/7/2025 at 6:00 AM PST and again on 7/9/2025 at 6:00 AM PST
2. Monitoring wells MW-96-045 (screened 25 - 45 ft bgs) is approximately 250 feet east of extraction well IRZ-9
3. Drawdown was calculated by subtracting the adjusted groundwater elevation from the adjusted groundwater elevation prior to the start of extraction
4. Pressure transducer data presented were corrected for barometric pressure and adjusted for temperature, salinity, and river stage influence
5. ft bgs = feet below ground surface
6. PST = Pacific Standard Time

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

DRAWDOWN MW-96

ARCADIS

APPENDIX
B



LEGEND

MW-97-042

NOTES:

1. Extraction well IRZ-9 (screened 55 - 100 ft bgs) started extraction on 6/25/2025 at 6:00 AM PST at approximately the maximum design extraction rate of 80 gallons per minute and was cycled off for 24 hours starting on 7/7/2025 at 6:00 AM PST and again on 7/9/2025 at 6:00 AM PST
2. Monitoring well MW-97-042 (screened 22 - 42 ft bgs) is approximately 145 feet southeast of extraction well IRZ-9
3. Drawdown was calculated by subtracting the adjusted groundwater elevation from the adjusted groundwater elevation prior to the start of extraction
4. Pressure transducer data presented were corrected for barometric pressure and adjusted for temperature, salinity, and river stage influence
5. ft bgs = feet below ground surface
6. PST = Pacific Standard Time

PG&E TOPOCK COMPRESSOR STATION
NEEDLES, CALIFORNIA

DRAWDOWN MW-97

ARCADIS

APPENDIX
B