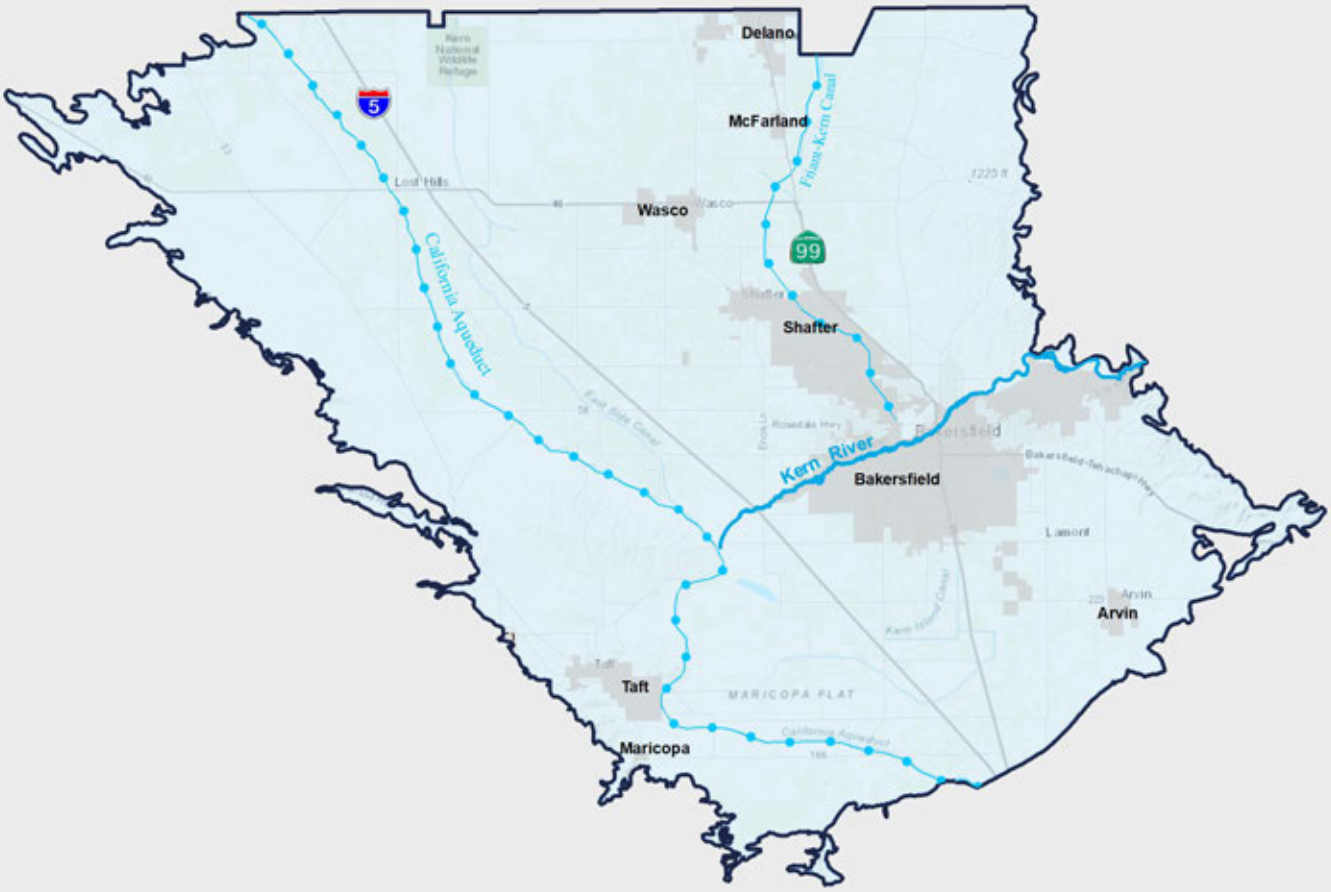
Kern County Subbasin
Groundwater Sustainability Agencies

Seventh Annual Report



Water Year 2025







Kern County Subbasin
Groundwater Sustainability Agencies

Kern County Subbasin

Basin No. 5-022.14

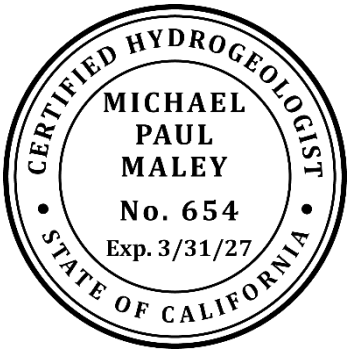
Groundwater Sustainability Plan
Seventh Annual Report
Water Year 2025

(October 2024 through September 2025)

March 31, 2026

TODD GROUNDWATER
1301 Marina Village Parkway, Suite 320
Alameda, CA 94501
510.747.6920
www.toddgroundwater.com

SIGNATURE PAGE



Michael Maley, PE, PG, CHg

Principal Hydrogeologist

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List of Acronyms and Abbreviations

2025 Plan	Amended Kern County Subbasin Groundwater Sustainability Plans adopted in 2025
AEWSD	Arvin-Edison Water Storage District
AF	Acre Feet
AFY	Acre Feet per Year
Aqueduct	California Aqueduct
BMP	Best Management Practices
C2VSimFG-Kern	California Central Valley Groundwater-Surface Water Simulation Model, Fine-Grid, Kern County Update for the Kern County Subbasin
CASP	California Aqueduct Subsidence Program (DWR)
COC	Constituent of Concern
CCR	California Code of Regulations
CGPS	Continuous Global Positioning System
CVP	Central Valley Project
DAC/SDAC	Disadvantaged Communities/Severely Disadvantaged Communities
DMS	Data Management System
DWR	Department of Water Resources
ET	Evapotranspiration
ETc	Crop Evapotranspiration
FKC	Friant Kern Canal
ft	feet
GDEs	Groundwater Dependent Ecosystems
GSA	Groundwater Sustainability Agency
GSE	Ground Surface Elevation
GSP	Groundwater Sustainability Plan
HCM	Hydrogeological Conceptual Model
ID4	Improvement District 4, Kern County Water Agency
IDC	Independent Demand Calculator
IM	Interim Milestone
InSAR	Interferometric Synthetic Aperture Radar
ITRC	Irrigation Training and Research Center
IWFM	Integrated Water Flow Model
Kern-IWFM	Kern County Subbasin IWFM groundwater model updated in 2025
Kern Subbasin	Kern County Subbasin (DWR 5-022-14)

KMEC	Kern Subbasin Mitigation Evaluation Committee
KNDLA	Kern Non-Districted Lands Authority
KRGSA	Kern River Groundwater Sustainability Agency
KSB	Kern County Subbasin
LHOF	Lost Hills Oil Field
METRIC	Mapping Evapotranspiration at high Resolution with Internalized Calibration
MO	Measurable Objective
MP	Mile Post
MT	Minimum Threshold
NCCAG	Natural Communities Commonly Associated with Groundwater
PMA or P/MA	Projects and Management Actions
RMSE	Root Mean Square Error
RMN	Representative Monitoring Network
RMN-GWL	Representative Monitoring Network for groundwater levels
RMS	Representative Monitoring Sites
RMW	Representative Monitoring Wells
RMW-WQ	Representative Monitoring Wells for Water Quality
SGM	Sustainable Groundwater Management
SGMA	Sustainable Groundwater Management Act
Subbasin	Kern County Subbasin (when capitalized)
SWID	Shafter-Wasco Irrigation District
SMC	Sustainable Management Criteria
SWP	State Water Project
SWRCB	State Water Resources Control Board
TCP	1,2,3-Trichloropropane
TDS	Total Dissolved Solids
UR	Undesirable Result
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
WD	Water District
WDWA	Westside District Water Authority
WQO	Water Quality Objective
WY	Water Year, October 1 through September 30

EXECUTIVE SUMMARY

The Kern County Subbasin (Kern Subbasin or Subbasin), identified by Department of Water Resources (DWR) as Basin No. 5-022.14, is the largest subbasin in the State, has been designated as critically overdrafted, and is governed by a myriad of water districts, water storage districts, irrigation districts, and municipalities. These agencies manage a complex water supply system, a large portfolio of local and imported water sources, access to flood waters throughout the State, locally managed aquifer recharge projects, and numerous large water banking projects, collectively providing both local and State-wide water supply and water quality benefits.

Groundwater Sustainability Plan (GSP)

To comply with the Sustainable Groundwater Management Act (SGMA), local agencies in the Kern Subbasin were organized in WY2024 into twenty (20) Groundwater Sustainability Agencies (GSAs). The Kern Subbasin GSAs have coordinated to produce an amended GSP covering the entire Subbasin in WY2025 (2025 Plan).

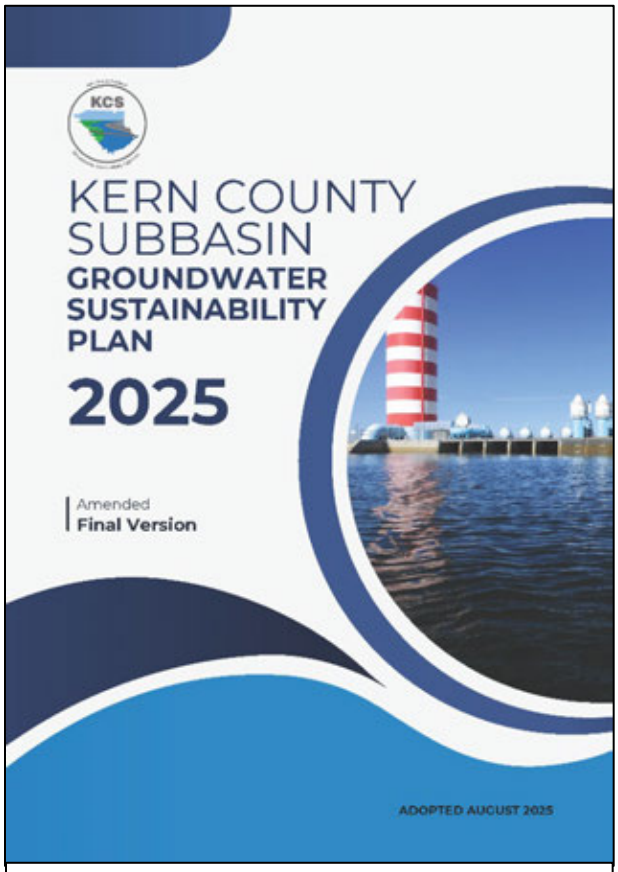


Figure ES-1 – Amended Kern County Subbasin GSP (2025 Plan)

The Subbasin sustainability goal is to implement the 2025 Plan (Figure ES-1) to achieve sustainable groundwater management within the SGMA 20-year implementation period. Achieving the sustainability goal will be demonstrated by eliminating chronic lowering of groundwater levels caused by overdraft conditions and avoiding Undesirable Results for groundwater levels, groundwater storage, land subsidence, and groundwater quality.

The Kern Subbasin enhanced its Community Outreach and Engagement efforts throughout the development of the 2025 Plan and has reaffirmed its commitments to sustain these efforts during implementation. These efforts include maintaining social media outreach, hosting a subbasin-wide annual workshop, and keeping an up-to-date meeting calendar on the Kern Subbasin GSAs' Website (https://kerngsp.com/stay-engaged/) under the 2025 Plan's Stakeholder Communication and Engagement Plan. The Kern Subbasin GSAs coordinated Community Outreach and Engagement activities conducted in 2025 included multiple public meetings, workshops and presentations.

Progress Made on Addressing GSP Deficiencies

Since March 2023, a variety of Subbasin-wide coordination activities were conducted to address deficiencies and corrective actions identified by DWR and State Water Resources Control Board (SWRCB) on the prior GSP (Figure ES-2). The 2025 Plan provides a clear and coordinated path to achieve sustainable groundwater management in the Kern Subbasin. At the September 17, 2025, Public Hearing, the SWRCB issued Resolution 2025-0029 that stated the State Board:

> *Finds that designating the Kern County Subbasin as probationary under SGMA is not necessary at this time and that the Kern County Subbasin should be returned to the oversight of the Department of Water Resources under Chapter 10 of SGMA.*

Subsequently, SWRCB staff confirmed that the revised 2025 Plan addressed their remaining deficiencies and transmitted a letter to DWR formalizing the return of the Kern County Subbasin to DWR jurisdiction on December 8, 2025. This Seventh Annual Report documents the implementation of the 2025 Plan towards achieving the Subbasin's sustainability goals.

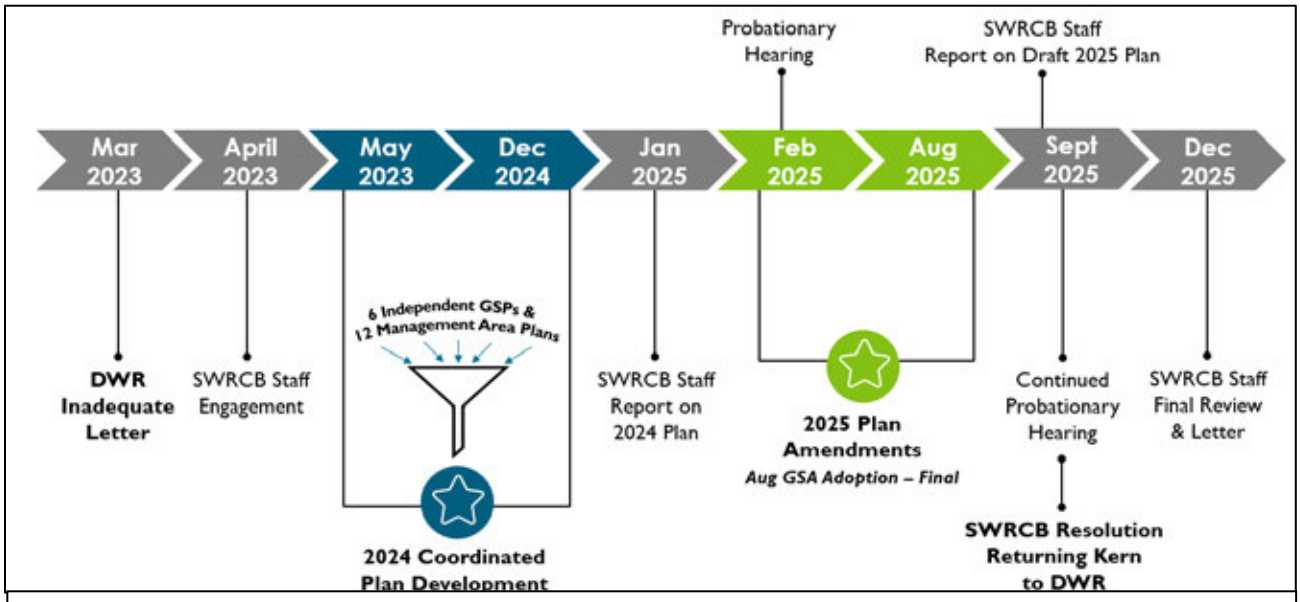


Figure ES-2 – Timeline of coordination with SWRCB to address GSP deficiencies

The Subbasin made major Plan updates in response to DWR Corrective Actions. These updates were made in the 2024 Plan, and subsequently included in the 2025 Plan, to incorporate new information, data, and the best available science:

- Updated the HCM and revised the Basin Setting sections to incorporate new information based on the Basin Study work to date.
- Developed updated Subbasin-wide water budgets using the Subbasin's numerical surface water-groundwater flow model, including impacts of climate change.

- Applied a consistent and coordinated Subbasin-wide water level SMC methodology and conducted a Subbasin-wide well impact analysis using the updated Kern well inventory to assess potential impacts to beneficial users at revised groundwater level SMCs.
- Applied a consistent and coordinated Subbasin-wide subsidence SMC methodology, based on avoiding significant and unreasonable impacts to critical infrastructure and supported by a comprehensive subsidence monitoring program and exceedance action plan.
- Identified constituents of concern (COCs) for the Subbasin and established Degraded Water Quality SMCs for key COCs using common data and methodologies.
- Assessed potential impacts to surface land uses/infrastructure from differential subsidence.
- Conducted a Subbasin-wide assessment of the SGMA Monitoring Network for all Sustainability Indicators, updated the SGMA Monitoring Network, and identified areas with data gaps and a plan to fill those data gaps.
- Updated the P/MAs based on the updated water budget forecasts and developed a consistent methodology for tracking progress and benefits. Estimated the benefits from all P/MAs to ensure the Kern Subbasin GSAs will meet the targeted deficit reduction schedule to ensure sustainable groundwater management by 2040.
- Established partnerships with Self-Help Enterprises and Kern Water Collaborative to assist in mitigating potential impacts to drinking water users.

The 2025 Plan amendments focus on addressing remaining SWRCB Corrective Actions to Address the Deficiencies. Key revisions include:

1. Re-evaluation of groundwater level and groundwater quality monitoring network data gaps, and development of a P/MA that includes expanding the well inventory and adding additional wells to the monitoring network to fill those data gaps.
2. Refinements of MTs and UR definition for Chronic Lowering of Groundwater Levels targeting additional protection of local beneficial uses and users.
3. Revisions of Sustainable Management Criteria (SMCs) and the Undesirable Results (UR) definition for Degraded Water Quality to provide additional protection of beneficial uses and users.
4. Additions to the Exceedance Policy and associated Action Plans for Groundwater Levels, Degraded Water Quality, and Land Subsidence that elaborates on factors used to evaluate and act on groundwater level, quality, and subsidence related exceedances and expands on the GSAs' commitment to ongoing collaboration with key critical infrastructure operators, respectively.
5. Development of a Degraded Water Quality Implementation Provisions document that includes summaries of related water quality provisions including notification procedures for an exceedance, investigation procedures when representative monitoring well (RMW) data exceed MTs, coordination efforts among existing programs, and Degraded Water Quality Mitigation.

6. Expansion of the Kern Subbasin Well Mitigation Program to include additional provisions (under a separate "Degraded Water Quality Mitigation Track") related to domestic well mitigation for Degraded Water Quality.
7. Subbasin-wide coordination among all Kern Subbasin GSAs on all GSP revisions and extensive community outreach and engagement, including initiation of the Community Outreach and Engagement Strategy.

This Seventh Annual Report documents the implementation of the 2025 Plan towards achieving the Subbasin's sustainability goals.

Groundwater Elevations

Groundwater elevations were compiled from wells in the GSP representative monitoring network for the preparation of hydrographs across the Subbasin. Available data, including sustainable management criteria, are presented on 173 well hydrographs compiled in Appendix C. The hydrographs are developed using the Kern Subbasin DMS so that the most complete and current groundwater elevations, ground surface elevation, minimum thresholds (MTs) and measurable objectives (MOs) are shown on the hydrographs. A public version of the data management system, including the hydrographs for each RMW, is accessible to Kern Subbasin GSAs and the public through the Subbasin website (https://dms.geiconsultants.com/kern).

GSP regulations require that hydrographs of groundwater elevations, groundwater use, the annual change in groundwater in storage, and the cumulative change of groundwater in storage be shown with respect to the water year type representative for the Subbasin. The WY2025 San Joaquin Valley Index, calculated by DWR, was 2.55, which is classified as a Below Normal water year type (CDEC, 2025). The Kern River Computed Natural Flow at First Point was 80 percent of the long-term average (COB, 2025). This index indicates a below normal water year condition for the Kern Subbasin.

A statistical analysis was conducted with historical groundwater elevation data from 157 RMW locations in the Primary Alluvial Principal Aquifer with sufficient data for this analysis (Table ES-1). During WY2025 (a below-normal water year), the average Fall groundwater elevation increased by 4 feet relative to Fall WY2024, with increasing trends slightly outnumbering decreasing trends (just over 5:4). A similar analysis of 12 RMWs in the Santa Margarita and Olcese Principal Aquifers showed an average Fall-to-Fall groundwater elevation decrease of 10 feet from WY2024 to WY2025, with decreasing trends outnumbering increasing trends by 3:1 (Table ES-1).

Data for the SGMA monitoring network are combined with supplemental water level data from the Kern Subbasin DMS to prepare groundwater elevation contour maps for the Primary Alluvial Principal Aquifer for Fall 2024 and Spring 2025. Groundwater elevation contour maps for Fall 2024 and Spring 2025 are provided for the following (Section 3.5):

- Primary Alluvial Principal Aquifer,
- Olcese Sand Principal Aquifer
- Santa Margarita Principal Aquifer.

The 2025 Plan defines any water bearing zone within the areal extent and depth interval of an oilfield aquifer exemption as being located below the bottom of the Kern Subbasin and are, therefore, not included within the principal aquifers.

Table ES-1. Annual Fall-to-Fall Groundwater Elevation Change at RMW locations in the Subbasin Principal Aquifers

Comparison Periods	Annual Change in Groundwater Elevation (feet)	
	WY2023 to WY2024	WY2024 to WY2025
Water Year Type	Above Normal	Below Normal
Primary Alluvial Principal Aquifer - Fall Monitoring Period		
Number of Wells	150	157
Average change	30	4
Median change	18	0
Percentage Increasing	86%	55%
Percentage Decreasing	14%	45%
Santa Margarita and Olcese Principal Aquifers = Fall Monitoring Period		
Number of Wells	11	12
Average change	30	-10
Median change	26	-7
Percentage Increasing	91%	25%
Percentage Decreasing	9%	75%

Water Budget

Subbasin water supply and use are reported consistent with the regulations 23 CCR § 356.2(b) and the reporting requirements of the DWR data templates that include water supply by source and water use sector. The WY2025 water supply and use data are uploaded to the DMS as part of the DWR annual reporting requirements. Table ES-2 summarizes the Kern Subbasin water supply and use for WY2025 consistent with the DWR data templates.

The volume of groundwater extraction in the Subbasin was compiled for WY2025. Groundwater extraction data for the Subbasin were compiled using two methods:

- Directly measured groundwater extraction data collected by local water agencies.
- Estimated groundwater extractions based on land use methods using the Integrated Water Flow Model (IWFM) Demand Calculator (IDC) tool developed by DWR (Dogrul, Kadir and Brush, 2017), which is dynamically linked to the Subbasin groundwater model.

Following this methodology, groundwater extractions in the Subbasin during WY2025 totaled 1,214,614 acre feet (Table ES-2). Required graphs and a map of groundwater extractions are included to illustrate the volume and general location of groundwater extractions in the Subbasin.

Table ES-2. Subbasin Water Supply and Use Summary for WY2025

Water Source	Ground Water	Surface Water	Recycled Water	Reused Water	Other Sources	Total Water Use
Water Use	**Acre-ft**	**Acre-ft**	**Acre-ft**	**Acre-ft**	**Acre-ft**	**Acre-ft**
Urban	160,542	48,711	0	0	0	**209,253**
Industrial	5,973	0	0	0	0	**5,973**
Agricultural	856,449	1,039,377	46,517	533	0	**1,942,876**
Managed Wetland	0	22,153	0	0	0	**22,153**
Managed Recharge	145,826	98,3481	0	0	0	**244,174**
Native Vegetation	0	0	0	0	0	**0**
Other Water Use	45,823	251,280	0	0	0	**297,103**
Total Water Supply	**1,214,614**	**1,459,869**	**46,517**	**533**	**0**	**2,721,532**

Measured surface water data were provided by local agricultural districts, urban water purveyors and city water departments for this Annual Report. Surface water data were collected by measurement devices with a high level of accuracy consistent with relevant standards. In WY2025, 1,459,869 acre feet of surface water, 46,517 acre feet of recycled water and 533 acre feet of reused water were delivered into the Subbasin. The total water supply in the Subbasin during WY2025 was 2,721,532 acre feet (Table ES-2).

Water use in the Subbasin primarily went to agricultural use which accounted for 71% of the total Subbasin water use. Urban use, managed recharge operations, and other water uses account for between 8% to 11% each of the total Subbasin water use. Industrial and managed wetlands each accounted for less than 1%. The water supply and use data are combined on Table ES-2 to show the breakdown of water use by the general water supply source.

Change in Groundwater in Storage

Groundwater in storage decreased by 636,929 acre-feet in WY2025. This exceeds the historical average annual change of groundwater in storage over the 20-year base period (WYs 1995 through 2014), of a decline of 274,200 acre-feet per year (AFY). However, the WY2025 decline is consistent with declines that occurred during similar below normal water year types in 2003 and 2018. Drier conditions typically result in lower availability of surface water supplies for agricultural use, reduced recharge at the Subbasin conjunctive use and water banking operations, and increased groundwater extraction.

Figure ES-3 compares the Historical simulation of groundwater storage change with the Projected Future 2030 Climate Change Scenarios, both with and without Projects and Management Actions (P/MAs). The difference between the “2030 Climate Change” and “2030 Climate Change + Projects” scenarios represents the annual benefits of P/MAs. As shown in Figure ES-3, the “2030 Climate Change + Projects” scenario demonstrates a pathway to Subbasin sustainability by WY2040. Superimposing the cumulative storage change for the historical simulations shows the Subbasin on track to meeting its sustainability goals in WY2025 despite the Subbasin having experienced multiple below normal to critically dry conditions during WYs 2021 to 2025.

During WYs 2021 to 2025, the five-year average San Joaquin Valley Index was 3.0, reflecting below-normal conditions. Over the equivalent period in the 2030 scenarios, the average SJVI index was 3.5, indicating above-normal conditions. This comparison shows that the historical period experienced less favorable hydrology than the projected future scenario with P/MAs, further demonstrating that GSP implementation is improving aquifer conditions.

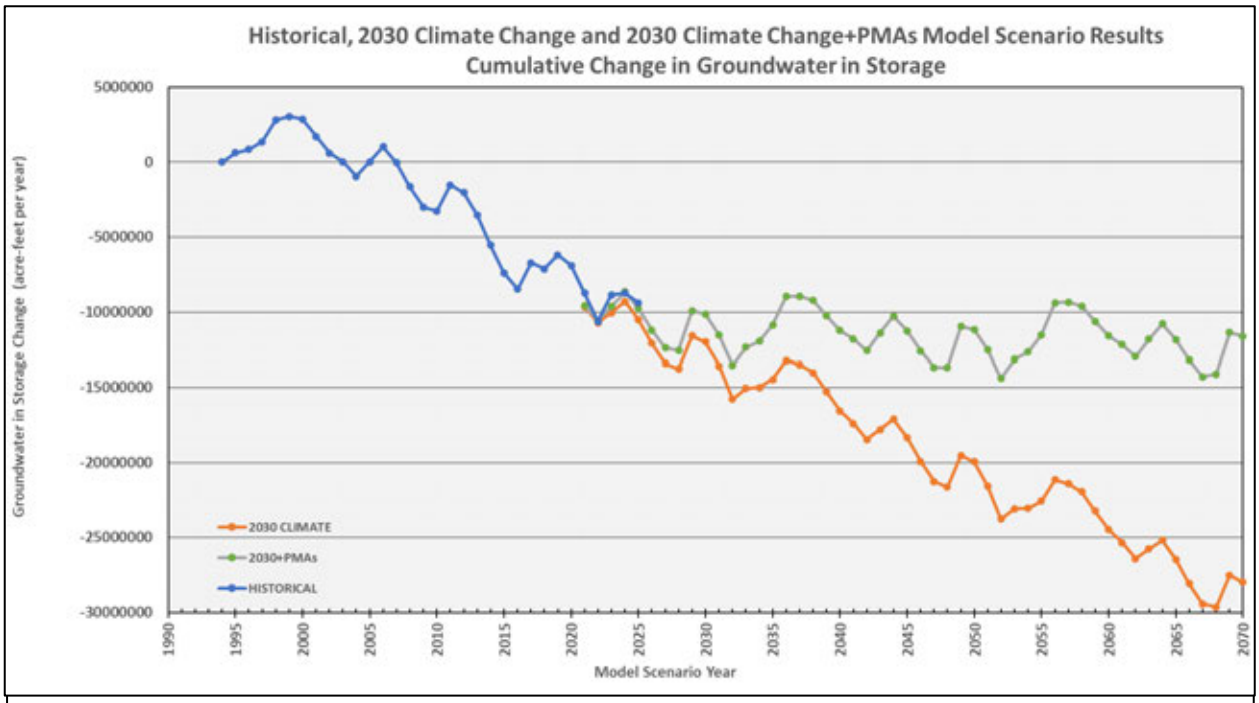


Figure ES-3 – Simulated Change in Storage for Historical and 2030 Project-Future Scenarios

Current Conditions for Sustainability Indicators

This Seventh Annual Report includes information about the five relevant sustainability indicators for the Kern Subbasin (no seawater intrusion is present). Consistent with the SGMA regulations (23 CCR § 356.2(c)), the GSAs should describe, tabulate, and provide graphical representation of current sustainability indicators. These indicators include:

- Chronic lowering of groundwater levels
- Reduction of groundwater storage
- Degradation of water quality
- Land subsidence

This Annual Report presents current and historical conditions relative to the sustainability indicators from the 2025 Plan. These sustainability indicators supersede those presented in prior annual reports

based on 2020 and 2022 GSPs that were deemed inadequate by DWR. The 2025 Plan sustainability indicators were deemed sufficient for SWRCB to return the Subbasin to DWR's jurisdiction.

The chronic lowering of groundwater levels sustainability indicator is based on groundwater elevations collected from 187 RMW locations during the Fall 2024 and Spring 2025 semi-annual monitoring periods that occurred in WY2025. The 2025 Plan has established a quantitative undesirable result (UR) definition based on the following three conditions:

1) The MTs for Chronic Lowering of Groundwater Levels are exceeded at least 25 percent of the RMW-WLs over a single year (*i.e*. two consecutive seasonal measurements).
2) More than 15 drinking water wells are reported as dry in any given year.
3) A GSA is unable to meet well mitigation needs according to the 2025 Plan.

MT exceedances occurred at 3 of the 187 RMW locations during WY2025. Two dry wells were reported either to a Subbasin GSA or to the DWR Dry Well Reporting System web site. The Arvin GSA received one report of a dry well in WY2025 (Appendix F). Staff are investigating the report. No other GSAs received a report of a dry well in WY2025. As such, the assessment of MT exceedances following the 2025 Plan found that no UR occurred in the Subbasin during WY2025 with respect to the chronic lowering of groundwater levels.

The 2025 Plan determined that the Chronic Lowering of Groundwater Levels SMCs serve as a proxy for Reduction of Groundwater Storage pursuant to 23 CCR §354.28(d). Analysis in the 2025 Plan found that the annual change groundwater elevations are well correlated with the simulated change in water in storage. Therefore, no undesirable result (UR) occurred in the Subbasin during WY2025 with respect to the Reduction of Groundwater Storage.

The 2025 Plan established MTs for six constituents of concern for 55 RMW-WQs. Constituents of concern in the Kern Subbasin include arsenic, nitrate, nitrite, 1,2,3-trichloropropane (TCP), total dissolved solids, and uranium. The 2025 Plan establishes SMCs (including MOs and MTs), defines potential impacts to beneficial users, quantifies triggers to an UR, and outlines the methodology for counting URs. Additional wells will be added to the monitoring network as data gaps are filled in WY2026. Because the Subbasin-wide approach to water quality will be implemented in WY2026, this Annual Report summarizes the baseline conditions outlined in the 2025 Plan that will be evaluated in future annual reports.

For land subsidence, the 2025 Plan defines Sustainable Management Criteria (SMC) at the individual RMS, including Minimum Threshold (MT) rates and extents, Interim Milestones (IM), and Measurable Objectives (MOs). Consistent with the 2025 Plan, quarterly and annual SMC assessments are conducted to evaluate land subsidence conditions using InSAR displacement rates and cumulative InSAR displacement since January 1, 2024. In order to identify and classify infrastructure in the Kern Subbasin potentially affected by land subsidence, the Kern Subbasin GSAs have adopted three classifications for critical infrastructure: Regional Critical Infrastructure, GSA Area Critical Infrastructure, and other infrastructure.

Regional Critical Infrastructure consists of the California Aqueduct (Aqueduct) and the Friant-Kern Canal (FKC). The 2025 Plan establishes a Representative Monitoring Network and associated Representative Monitoring Sites (RMS) along Regional Critical Infrastructure, including ninety-one mileposts (MPs) along the California Aqueduct and thirty-one MPs along the Friant-Kern Canal. A summary of the SMC analysis for the Regional Critical Infrastructure includes:

- Along the Aqueduct in WY2025, observed land displacement rates ranged from +0.13 to -0.10 feet/year. MPs 194–215, located adjacent to the Lost Hills Oil Field, continues to show subsidence. Based on InSAR displacement observed over WY2025, four MPs in Pool 24 exceeded their MT rate and 11 MPs in pools 23 to 25 exceeded their MT extent. Based on quarterly InSAR displacement tracking, a total of 41 MPs are on the "Watch List". Per the Exceedance Policy, an exceedance investigation has been initiated. As discussed in the 2025 Plan, subsidence in these pools (i.e., Mile Posts 194 to 215) is likely not associated with GSA activities. Nonetheless, several preemptive P/MAs have been implemented by the Westside District Water Authority (WDWA) GSA within the CASP 5-mile-wide Aqueduct Monitoring Zone, including a pumping moratorium between Aqueduct Mile Posts (MP) 195 to 215.
- Along the FKC in WY2025, fourteen MPs are on the "Watch List," with one occurring in Poso Creek, five in Shafter Wasco, and eight in Kern River pools. No exceedance investigations have been triggered along the Friant-Kern Canal within the Subbasin.
- A newly instrumented extensometer at Kimberlina Road, operational since January 2026.

GSA Area Critical Infrastructure is defined as infrastructure located within a particular GSA whose loss of significant functionality due to subsidence if caused by GSA-related groundwater extractions would have significant impacts to beneficial users within that GSA. GSA Area Critical Infrastructure within the Kern Subbasin includes the Calloway Canal, Lerdo Canal, Beardsley Canal, Cross Valley Canal, Kern River Canal, Arvin-Edison Water Storage District Canal, Olcese Canal, Interstate-5, and Highway 99. Based on the InSAR data for WY2025, no "Watch List" or exceedance investigations have been triggered for the GSA Critical Infrastructure.

Other infrastructure is defined as infrastructure not included under Regional Critical Infrastructure or GSA Area Critical Infrastructure. Following the 2025 Plan, MTs are defined for land subsidence rates and extents by averaging the InSAR displacement across each HCM Area. Based on the InSAR data for WY2025, no exceedance investigations have been triggered for the HCM Areas.

Progress on GSP Implementation

A key component of 2025 Plan are the P/MAs that address existing or potential future overdraft conditions that could cause Undesirable Results for the identified relevant Sustainability Indicators. The Subbasins GSAs developed 182 P/MAs for the 2025 Plan. In addition, another 56 P/MAs are included on an as-needed basis that could be implemented if necessary to achieve the sustainability goal.

Each Subbasin GSA has provided an implementation progress report to provide specific information on their GSP implementation activities in WY2025. WY2025 PMA implementation updates are required to be submitted via the DWR PMA Module on April 1, 2026, as part of the Annual Report submission. The

WY2025 updates will utilize the information provided on the GSA implementation progress reports. In addition, the Kern Subbasin GSAs are also coordinating on the review and updating of the PMA base information provided by DWR by the required due date of April 6, 2026.

The P/MAs are grouped into two categories. Demand Reduction P/MA benefits are derived from reducing water usage, whereas Water Supply Augmentation P/MA benefits are derived from increasing the available water supply above and beyond existing water supplies. Demand Reduction P/MAs are the primary means and Water Supply Augmentation P/MAs are the secondary means of implementation to close the 2025 Plan "deficit" for the Subbasin. Demand Reduction P/MAs are the primary means because these P/MAs, especially those that use permanent land or water use changes, typically provide a more consistent benefit of reducing water use over time. In contrast, many water augmentation P/MAs rely on acquisition of supplemental water supplies that are more variable from year to year.

For WY2025, each GSA provided their quantitative benefits from implementation of each of their P/MAs consistent with how each P/MA was quantified for the 2025 Plan. A summary of the reported P/MA quantitative benefits for WY2025 is provided in Table ES-3. For water supply augmentation, the benefit is quantified directly through the measurement of those flows. For demand reduction P/MAs, the benefit was determined as the net reduction in water usage attributed to P/MA implementation relative to prior water usage without the P/MA in place.

Table ES-3 summarizes P/MA implementation at the Subbasin level by category. Reported demand reduction is 133,757 acre-feet for WY2025. Demand reduction includes both permanent and temporary demand reduction. Temporary demand reduction from drought fallowing programs accounts for much of the demand reduction from WY2020 to WY2022. Permanent demand reduction from land retirement and land use conversion has risen to 12,522 acres in WY2025. Water supply augmentation is highly variable. In WY2025, total P/MA water supply augmentation was 162,742 acre-feet. Historically, additional surface water supplies are generally greater in wet years. Wet conditions during WY2023 and WY2024 led to significant volumes of available surface water. With the high capacity of recharge basins, the Kern Subbasin GSAs were able to take advantage of these surface water supplies in both WY2023 and WY2024 to help improve Subbasin conditions.

At this time, the cumulative (WY2020 to WY2025) P/MA benefits indicates that the Kern Subbasin GSAs are actively implementing their P/MAs, and that their P/MA implementation is on track with the schedule outlined in the 2025 Plan. To help address this uncertainty, the 2025 Plan has planned a P/MA implementation schedule that is forecasted to exceed the target deficit reduction by the 2040 milestone with a safety factor of 2.3, illustrating a high degree of P/MA redundancy. The Kern Subbasin GSAs will continue to review and improve the methodology for tracking P/MA implementation and evaluating how well the implementation of the P/MAs translates into benefits for the Subbasin groundwater conditions.

Table ES-3. Summary Table of WY2025 P/MA Implementation Benefits

Category	WY2025 Benefit – WATER VOLUME (acre-feet)	WY2025 Benefit – CUMLATIVE LAND AREA (acres)
WY2025 Demand Reduction P/MAs		
Land Retirement	30,316	11,540
Demand Reduction	99,879	n/a
Ag to Urban Conversion	1,922	839
Water Conservation Efficiency	1,944	n/a
Subtotal	**134,061**	**12,378**
WY2025 Water Supply Augmentation P/MAs		
Supplemental Water Recharge	5,899	n/a
Supplemental Water Use	65,181	n/a
Third-Party Banking	0	n/a
New Local Supply	42,727	n/a
Exercise of Rights	48,935	n/a
Subtotal	**162,742**	n/a
Grand Total	**296,803**	**12,378**

Note: The GSA P/MA Implementation Quantitative Benefit Summary is based on self-reported data from the GSAs that is summarized in Section 7 and the GSP Implementation Progress Reports for each GSA in Appendix F.

1 INTRODUCTION

This Water Year (WY) 2025 Annual Report for the Basin has been prepared in compliance with California Code of Regulations (CCR) Title 23 § 356.2 and is consistent with the California Department of Water Resources (DWR) October 2023 GSP Implementation guidelines (DWR, 2023). WY2025 includes the period from 1 October 2024 through 30 September 2025.

1.1 COMPLIANCE WITH SUSTAINABLE GROUNDWATER MANAGEMENT ACT (SGMA)

Water management entities within the Kern County Subbasin (Kern Subbasin or Subbasin) rely on a diverse portfolio of local and imported surface water supplies managed with flexible and interconnected water conveyance systems. For more than 100 years, conjunctive use has been a cornerstone of local water resources management, and the Subbasin is dominated by both regional and local water banking, conjunctive use and other managed aquifer recharge projects of both local and state-wide importance.

1.1.1 Kern County Subbasin (DWR Basin No. 5-022.14)

The Kern Subbasin (DWR Basin No. 5-022.14) is the largest subbasin in the State, covering 2,783 square miles (1,781,570 acres) of the southern San Joaquin Valley Groundwater Basin. The northern boundary of the Subbasin is a jurisdictional boundary, which is the border between Kern County and Tulare County and Kings County (Figure 1). The Subbasin borders four other DWR groundwater basins, which include:

- Tulare Lake Subbasin (Subbasin 5-22.12, DWR, 2006)
- Tule Subbasin (Subbasin 5-22.13, DWR, 2006)
- Kettleman Plain Subbasin (Subbasin 5-22.17, DWR, 2006)
- White Wolf Subbasin (Subbasin 5-22.18, DWR, 2018)

A map of the Subbasin and adjacent subbasins is shown in Figure 1. The Subbasin, along with the adjacent Tulare Lake, Tule, and eight additional subbasins, has been designated as critically-overdrafted by DWR.

1.1.2 Kern County Subbasin Groundwater Sustainability Agencies

The Subbasin water resources are managed by a myriad of water districts, water storage districts, irrigation districts, and municipalities. The Subbasin is covered by 20 Groundwater Sustainability Agencies (GSAs) listed in the DWR SGMA Portal (DWR, 2026) as shown in Figure 2, along with the city limits of local municipalities. These 20 GSAs, collectively referred to as the Kern Subbasin GSAs, provide SMGA management over the entire Subbasin.

1.1.3 Groundwater Sustainability Plan

GSPs were originally submitted to DWR in January 2020 and amended in July 2022 following an incomplete determination by DWR. In March 2023, DWR deemed the GSPs inadequate and primary jurisdiction shifted from DWR to the State Water Resources Control Board (SWRCB). Since March 2023,

a variety of Subbasin-wide coordination and GSP revision activities were conducted to address deficiencies and corrective actions identified by DWR and SWRCB on the prior GSPs. Additional information of the coordination with SWRCB staff to address deficiencies is provided in Section 2.

In August 2025, the Kern Subbasin GSAs adopted the "2025 Plan" that consists of one "foundation subbasin-wide GSP" with six additional GSPs. The six additional GSPs consist of the entire foundational GSP without change but include supplemental GSA-specific information highlighted in "blue pages". All seven GSPs are closely coordinated and use consistent SMC and UR definitions. The 2025 Plan addresses deficiencies identified by DWR and address additional deficiencies and potential actions identified by SWRCB staff as described in Section 2.

In a Public Hearing held on September 17, 2025, the SWRCB determined that a probationary designation for the Kern County Subbasin was not necessary and that the subbasin can be returned to DWR jurisdiction, pending final review and approval from SWRCB staff. Subsequently, SWRCB staff confirmed that the revised 2025 Plan addressed their remaining deficiencies and transmitted a letter to DWR formalizing the return of the Kern County Subbasin to DWR jurisdiction on December 8, 2025. This Seventh Annual Report documents the implementation of the 2025 Plan towards achieving the Subbasin's sustainability goals.

1.1.4 Kern County Subbasin Sustainability Goal

The Subbasin sustainability goal is to implement the 2025 Plan to achieve sustainable groundwater management within the SGMA 20-year implementation period. Achieving the sustainability goal will be demonstrated by eliminating chronic lowering of groundwater levels caused by overdraft conditions and avoiding Undesirable Results for groundwater levels, groundwater storage, land subsidence, and groundwater quality. This goal will be accomplished through the following objectives:

- Implement the Stakeholder Communication and Engagement Plan.
- Eliminate long-term groundwater overdraft and attain sustainability through conjunctive use, water banking, and demand management programs.
- Continuously monitor and evaluate groundwater conditions to avoid undesirable results.
- Maintain long-term sustainability of water resources available to the Subbasin.
- Maintain a comprehensive database of beneficial uses and users to inform on the efficacy of groundwater management policies and programs.

1.2 KERN COUNTY SUBBASIN COORDINATION

Since the submittal of the original 2020 GSPs, the Kern Subbasin GSAs have coordinated on GSP development, monitoring, and annual reports to comply with SGMA regulations 23 CCR§ 357.4. The Kern Subbasin Coordination Agreement for the 2025 Plan was developed to establish the governance structure for the Kern Subbasin GSAs cooperative and coordinated exercise of authorities and responsibilities under SGMA. Each GSA has designated representative(s) to help lead or participate in coordination activities among GSAs, State agencies, local governments, local water suppliers,

neighboring entities, non-governmental organizations, and other interested parties. Pursuant to Title 23 of the California Code of Regulations (CCR) §357.4(b)(1), a single point-of-contact was established for the purposes of organizing the various coordination activities and ensuring cohesion between GSA activities.

1.3 Stakeholder Outreach

The Kern Subbasin enhanced its Community Outreach and Engagement efforts throughout the development of the 2025 Plan (2025 Plan Appendix F-3) and has reaffirmed its commitments to sustain these efforts during implementation. These efforts include maintaining social media outreach, hosting a subbasin-wide annual workshop, and keeping an up-to-date meeting calendar on the Kern Subbasin GSAs Website (https://kerngsp.com/stay-engaged/) under the 2025 Plan's Stakeholder Communication and Engagement Plan (2025 Plan, Appendix F-1).

The Kern Subbasin GSAs maintained a comprehensive meeting calendar through 2025, listing all public GSA meetings with their dates and locations (2025 Plan Appendix F-4). The calendar is also available in English, Spanish, and Punjabi on the Kern Subbasin GSAs Website (https://kerngsp.com/stay-engaged/).

1.4 Kern County Subbasin Annual Report

GSP regulations (*§356.2(b)(5)(C)*) require GSAs to describe progress towards implementing a GSP in the Annual Report "including achieving interim milestones, and implementation of projects or management actions." This Annual Report is prepared following GSP regulations and the guidance of *Groundwater Sustainability Plan Implementation: A Guide to Annual Reports, Periodic Evaluations, & Plan Amendments (DWR, 2023)*. This Annual Report also contains available and appropriate historical information back to calendar year 2015, as required by CCR 23 §356.2 (b).

1.4.1 Coordinated Submittal

Since the First Annual Report was submitted to DWR April 1, 2020, the Kern Subbasin GSAs have coordinated to prepare a single combined Annual Report for the entire Subbasin. This successful Subbasin-wide coordination continues with the production of this Seventh Annual Report.

1.4.2 Consistent Subbasin-Wide Methodologies

This Seventh Annual Report provides an update on the WY2025 groundwater conditions (Reporting Period), and documents continuing progress with GSP implementation. Data and analyses cover the Reporting Period (October 1, 2024, through September 30, 2025) plus the required analyses to use "historical data to the greatest extent available including from January 1, 2015, to the current reporting year." (§356.2 (b)(1)(B) and §356.2 (b)(5)(B)), including historical data (i.e., hydrographs and change in groundwater in storage).

In the 2025 Plan, a consistent Subbasin-wide data set with historical data "to the greatest extent available" was developed for the historical and current study period from WY1995 through WY2023.

This subbasin-wide water budget analysis was conducted over this period using the integrated surface water-groundwater model (2025 Plan, Section 9). This process ensured that the Subbasin uses consistent data and methodologies for the Subbasin-wide water budget analysis as required by GSP regulations.

The First Annual Report updated that model from WY2016 through WY2019. Each successive annual report provides updates to the historical data for the preceding water year to support consistent analyses. This Seventh Annual Report updates historical data for the Subbasin through WY2025.

1.4.3 Coordinated Data Compilation

Data and analyses for the Seventh Annual Report include compilation of water level data; development of hydrographs and groundwater elevation contour maps; tabulation of groundwater extraction, surface water supply, and total water use data; and analysis of changes in groundwater in storage. Data and analyses cover the Reporting Period of WY2025, except for hydrographs and changes in groundwater in storage, which are presented from WY1995 through WY2025.

Following guidance from Article 7 of the GSP regulations and the October 2023 guidance provided by DWR, data were compiled from GSAs, member agencies, and other entities throughout the Subbasin. As documented in previous sections throughout this Seventh Annual Report, GSAs and associated member agencies in the Subbasin have collaborated and contributed to the technical analyses and the tabulation of water use data presented in this report. Table 1 lists over 40 agencies who contributed directly measured or reported data in support of this Annual Report.

1.4.4 Application of the Kern County Subbasin DMS

Data compilation from the Kern Subbasin GSAs is conducted using the Kern County Subbasin Data Management System (Kern Subbasin DMS). Agencies (Table 1) utilize DMS templates to report data directly into the online DMS. These data and information are utilized to update the DWR Data Templates submitted along with the Annual Report, and the Subbasin model in support of the Annual Report water budgets. Accordingly, this submittal of the Seventh Annual Report represents continued cooperation on an important GSP implementation measure demonstrating ongoing Subbasin-wide coordination.

Table 1. List of Kern County Subbasin Agencies Contributing Data

Water Districts	Urban Water Agencies
Arvin-Edison Water Storage District	Arvin Community Services District
Belridge Water Storage District	Buttonwillow County Water District
Berrenda Mesa Water District	Cal Water - Bakersfield
Buena Vista Water Storage District	City Of Bakersfield
Cawelo Water District	City Of Delano
Eastside Water Management Area	City Of McFarland
Henry Miller Water District	City Of Shafter
Kern County Water Agency ID4	City Of Wasco
Kern Delta Water District	East Niles Community Services District
Kern-Tulare Water District	Greenfield County Water District
Lost Hills Water District	Lamont Public Utility District
North Kern Water Storage District	North Of The River Sanitation District
Olcese Water District	Oildale Mutual Water Company
Rosedale-Rio Bravo Water Storage District	Vaughn Water Company
Rosedale Ranch Improvement District	West Kern Water District
Semitropic Water Storage District	**Other Water Agencies**
Shafter-Wasco Irrigation District	Berrenda Mesa Banking Project
7th Standard Annex Water Management Area	County Of Kern Parks and Recreation - BVARA
Southern San Joaquin Municipal Utility District	Kern County Water Agency
Tejon-Castac Water District	Kern Water Bank Authority
Wheeler Ridge-Maricopa Water Storage District	Kern National Wildlife Refuge
	Pioneer Banking Project

1.4.5 Subbasin Model Update

To facilitate cooperative and coordinated plan implementation, the Kern County Subbasin Coordination Agreement for the 2025 Plan states that the Kern Subbasin GSAs agree to utilize the same groundwater models, descriptions of the physical setting and characteristics of the separate aquifer systems within the Subbasin. In previous Annual Reports and the 2025 Plan, development of the Subbasin water budgets were supported using the local groundwater-surface water model C2VSimFG-Kern (Maley and Brush, 2020). The Kern Subbasin GSAs have coordinated to update this model as part of the Round 1 SGM grant funded under the SGM Grant Program authorized by the California Budget Act of 2021 and Proposition 68 for projects that encourage sustainable management of groundwater resources that support SGMA. Because the grant project was conducted concurrently with the development of the WY2025 Plan, the 2025 Plan continued to utilize the C2VSimFG-Kern model.

The Round 1 SGM grant project for the model update was completed in December 2025 and the technical report of the model update (Todd Groundwater, 2025) was submitted to DWR as part of the grant project closure. The updated model, referred to as Kern-IWFM, has shifted from simulating the entire Central Valley, as was done in C2VSimFG-Kern, to a more Kern County focused model domain as shown in Figure 3. Through this grant-funded project, many of the known data gaps and the availability of historical data were addressed that resulted in a significantly improved calibration over the

C2VSimFG-Kern model (Todd Groundwater, 2025). Therefore, the estimated level of uncertainty of the overall water budget using Kern-IWFM is determined to be on the order of 5 to 10 percent. The Kern-IWFM model produced an average annual decline of groundwater in storage of 276,847 acre-feet per year (AFY) for the historical base period (WY1995 to WY2014), which is comparable to the 274,200 AFY average annual decline of groundwater in storage of provided in the 2025 Plan water budgets using C2VSimFG-Kern.

Ongoing model improvements to Kern-IWFM are planned for WY2026, following the completion of the grant-funded project, to further improve model simulation of water budget and groundwater elevations along with other local calibration issues. Stakeholder input will be sought and incorporated throughout this process to ensure the model reflects both technical understanding and local knowledge. Pending completion of these ongoing model improvements, the Kern-IWFM version presented in the Basin Study Technical Report to DWR (Todd Groundwater, 2025) will serve as the Subbasin Model, replacing the C2VSimFG-Kern Model.

For this Annual Report model update, WY2025 data were added to the Kern-IWFM data structure and model input files. In addition, new recovery wells and recharge operations that became operational during the update period were added to the model input. Monthly data were requested and provided by the local agencies through their respective GSA. The monthly data for the Subbasin includes:

- Surface water imports and diversions for various uses including agricultural, urban, seasonal refuge, and managed aquifer recharge/water banking.
- Recharge volumes for managed aquifer recharge/water banking operations.
- Measured pumping volumes for managed aquifer recharge/water banking recovery operations for local use and pump-ins to regional aqueducts.
- Urban water supply, both surface water and groundwater, for the larger cities with emphasis on the Metropolitan Bakersfield Area.
- Stream inflows to the Subbasin for the Kern River and Poso Creek.
- Other locally important water supply or demand data provided by local agencies.

In addition to the agency provided data (Table 1), regional data sets were also utilized to provide climatic data sets for the Kern-IWFM update. Monthly evapotranspiration (ET) rates and precipitation data for WY2025 are provided by LandIQ under the Subbasin's SGM GSP Implementation Round 1 SGM Grant (Section 7.3.8). Likewise, LandIQ also provided WY2025 land use areas and crop type acreages for the Subbasin.

The Kern-IWFM water budgets and sustainable yield estimates are based on available data and the current level of model calibration and are considered appropriate to support SGMA planning efforts. Annual Report water budgets are not intended for determination of individual landowner allocations or groundwater rights. Additional technical, policy, and legal analysis, along with stakeholder involvement, is necessary to fully quantify the sustainable and native yields in the Subbasin.

1.4.6 DWR Data Templates

DWR has provided Microsoft Excel data templates for agencies to report their Subbasin-wide groundwater extraction volumes, measurement methods, surface water supplies, and total water use. DWR requires GSAs to use these templates to provide for consistent statewide reporting of Subbasin water use. A description of the data provided for these templates is included in the following sections. These include:

- **Part A. Groundwater Extractions** – Description of groundwater extractions by water use sector data (23 CCR §356.2(b)(2)).
- **Part B. Groundwater Extraction Methods** – Description of groundwater extraction measurement methods (23 CCR §356.2(b)(2)).
- **Part C. Surface Water Supply** – Description of surface water supply by water source type (23 CCR §356.2(b)(3)).
- **Part D. Total Water Use** – Description of total water supply and use (23 CCR §356.2(b)(4)).

As part of the submission of this Annual Report, the DWR data templates will be uploaded to the Monitoring Network Module on the SGMA Portal, the same system used to upload GSP monitoring data.

1.4.7 GSA Implementation Progress

Each Kern Subbasin GSA has provided an implementation progress report to provide specific information on their GSP implementation activities in WY2025. Each GSA provided a concise reports that documents their progress toward GSP implementation. These reports provide consistent information from the multiple agencies coordinating with the Kern Subbasin GSAs on the implementation progress on the 2025 Plan PMAs. These reports are presented in Appendix F.

On March 5, 2026, DWR contacted the Subbasin Point-of-Contact that DWR staff had completed their initial populating of the Subbasins P/MAs into the SGMA Portal's Projects and Management Actions (PMA) Module using the information provided in the 2025 Plan. DWR requested that the Kern Subbasin GSAs complete their review and update the PMA base information provided by DWR and to return the updated spreadsheet back to DWR by April 6, 2026. DWR will batch update the PMAs' base information on the PMA Module on behalf of the Subbasin. However, DWR also required that the Subbasin submit WY2025 PMA implementation updates SGMA Portal as required by April 1, 2026, prior to completing the process of verifying your PMA's base information (requested by April 6, 2026). The Kern Subbasin GSAs are coordinating on the completion of these tasks by the requested dates. The WY2025 updates in the Portal utilize the information provided on the GSA implementation progress reports.

1.5 REPORT ORGANIZATION

This Seventh Annual Report is organized according to the order of topics presented in Article 7 of the GSP regulations. The Kern Subbasin GSAs coordinated the implementation activities for the 2025 Plan. These activities are summarized in the following sections:

- The coordinated efforts of the Kern Subbasin GSAs to work with SWRCB staff to address deficiencies with the 2022 GSPs and 2024 Plan are summarized in Section 2 - *Progress Made on Addressing Deficiencies in DWR Determination Letter*.
- Subbasin groundwater conditions are provided in Section 3.
- Development of a Subbasin-wide coordinated water budget and change in storage are provided in Sections 4 and 5.
- Subbasin-wide assessment of Sustainable Management Criteria (SMC) compliance to minimum thresholds (MTs) for Groundwater Levels, Groundwater in Storage, Water Quality and Land Subsidence is provided in Section 6.
- Progress on implementing GSA and Subbasin-wide Projects and/or Management Actions (P/MAs) is summarized in Section 7 – *GSA Implementation of Projects and Management Actions*.

During WY2025, the Kern Subbasin GSAs have made considerable progress with GSP implementation and are collectively committed to achieving sustainable groundwater management. Regularly scheduled meetings continue to be held by the Coordination Committee, GSA manager groups, and technical consultants leading coordinated Subbasin-wide GSP activities. Substantial compliance with the requirements of the Annual Report is demonstrated throughout this WY2025 Annual Report.

2 PROGRESS MADE ON ADDRESSING GSP DEFICIENCIES

The Coordination Committee and Kern Subbasin GSAs have coordinated a variety of Subbasin-wide GSP implementation activities as demonstrated by the accomplishments summarized below.

2.1 KERN COUNTY SUBBASIN GSP

The Kern Subbasin GSAs have coordinated to produce multiple versions of GSPs covering the entire Subbasin that have been submitted to the DWR and the SWRCB. In WY2025, the Kern Subbasin GSAs coordinated with the SWRCB to refine the 2024 Plan, leading to the adoption of the amended 2025 Plan.

2.1.1 Current Plan

In WY2025, the Kern Subbasin GSAs coordinated with the SWRCB to refine the 2024 Plan, The SWRCB published the Kern Subbasin Probationary Hearing Final Staff Report in January 2025 that provided a detailed GSP review that identified certain deficiencies. The Kern Subbasin GSAs coordinated with SWRCB staff to sufficiently resolve these deficiencies and revise the 2024 Plan, leading to the adoption of the amended 2025 Plan. The 2025 Plan is composed of a foundational subbasin-wide GSP and six "blue" page GSPs, which are all based on the foundational GSP but contain additional GSA-specific supplemental information (includes as "blue pages" in relevant GSP sections). All seven GSPs are bound by the Kern Subbasin Coordination Agreement. The "blue page" GSPs were reviewed and coordinated by all GSAs and entirely consistent with the foundational GSP, in terms of the datasets, hydrogeologic conceptual model (HCM), water budgets, sustainable management criteria (SMCs), undesirable results, and monitoring programs.

The status of the Kern Subbasin was addressed in two SWRCB Board meetings:

- The SWRCB held a hearing to consider the Kern Subbasin's status on February 20, 2025, at which time the SWRCB adopted Resolution 2025-0007 to continue the Kern Subbasin's probationary hearing to September 17, 2025.

- At the September 17, 2025, hearing, SWRCB adopted Resolution 2025-0029 - *Returning the Kern County Groundwater Subbasin Back to the Department of Water Resources Consistent with the Sustainable Groundwater Management Act*.

In a December 8, 2025, SWRCB returned jurisdiction of the Kern Subbasin back to DWR. Copies of Resolution 2025-0007, Resolution 2025-0029 and the December 8, 2025, letter are provided in Appendix A. Additional information on coordination activities with SWRCB staff in WY2025 is provided in Section 2.

2.1.2 Prior Plans

The Kern Subbasin GSAs have coordinated to produce multiple GSP versions covering the entire Subbasin that have been submitted to the DWR and the SWRCB since 2020. The following provides a list of how each of these GSP versions are referred to in this report:

- **2020 GSPs** – five GSPs adopted in January 2020 were submitted to DWR.
- **2022 GSPs** – six GSPs adopted in July 2022 to address identified deficiencies with the 2020 GSPs in response to an *Incomplete Determination* issued by DWR in January 2022.
- **2024 Plan** – one foundational and six supplementary ("blue page") GSPs were adopted and submitted to SWRCB in December 2024 to address deficiencies identified in DWR's *Inadequate Determination*.
- **2025 Plan** – one foundational and six supplementary ("blue page") GSPs were adopted in August 2025 to address deficiencies identified in the DWR's *Inadequate Determination*, SWRCB's *Final Staff Report*, and as per SWRCB Resolution 2025-0007. Based on the 2025 Plan, the SWRCB adopted Resolution 2025-0029 to return the Subbasin to DWR.

To comply with SGMA, local water agencies originally organized into 11 GSAs that covered the entire Subbasin to develop the 2020 GSPs that were submitted to DWR in January 2020. In January 2022, DWR notified the Subbasin that the 2020 GSPs were incomplete and provided corrective actions for meeting GSP regulations. Subsequently, the Kern Subbasin GSAs adopted and submitted the 2022 GSPs to DWR in July 2022 to address these corrective actions .

In March 2023, DWR notified the Kern Subbasin GSAs that, collectively, the 2022 GSPs were inadequate to fully address the previous corrective actions and transferred oversight of the Subbasin to the SWRCB. At this time, the Kern Subbasin GSAs began to work with SWRCB to address deficiencies of the GSPs, while continuing with coordinated implementation of the 2022 GSPs.

In response to the *Inadequate Determination* letter, the Kern Subbasin GSAs reorganized and substantially revised their plans into one consolidated GSP with six supplementary "blue page" GSPs. A draft 2024 Plan was submitted to SWRCB staff in May 2024. In July 2024, the SWRCB issued a Kern Subbasin Probationary Hearing Draft Staff Report (referred to as "Draft Staff Report") based on their full review of the 2022 GSPs and a preliminary review of the 2024 Plan. The Draft Staff Report incorporated the DWR deficiencies and identified five additional deficiencies. The Kern Subbasin GSAs adopted the 2024 Plan in December 2024.

In January 2025, the SWRCB published the Kern Subbasin Probationary Hearing Final Staff Report (referred to herein as the "Final Staff Report") based on their review of the 2024 Plan. The SWRCB held a hearing to consider the Kern County Subbasin's status on February 20, 2025, at which time the SWRCB adopted Resolution 2025-0007 to continue the Kern Subbasin's probationary hearing on September 17, 2025.

The Kern Subbasin GSAs continued to work with SWRCB staff on revising the 2024 Plan during WY2025. The 2025 Plan was adopted by the Kern Subbasin GSAs in August 2025. At the September 17, 2025, hearing, SWRCB adopted Resolution 2025-0029 to return jurisdiction of the Subbasin to DWR as outlined above.

2.2 COORDINATION WITH SWRCB

From March 2023 through September 2025, the Kern Subbasin worked closely with SWRCB staff to respond to the DWR identified deficiencies and additional concerns from SWRCB staff. The technical meetings addressed the Kern Subbasin GSAs' coordinated approach in the 2025 Plan for:

- Groundwater conditions and HCM
- Monitoring Network
- Sustainable Management Criteria (Water Levels, Water Quality, Subsidence, Storage)
- Water Budgets
- Well Inventory
- Well Mitigation Program
- Project and Management Actions (P/MAs)

These meetings provided updates and requested input on the Subbasin's coordinated response to the DWR and SWRCB staff-identified deficiencies, including technical justifications for SMCs and Subbasin Plan revisions. The Final 2025 Plan was prepared in response to feedback received at these SWRCB staff meetings. In addition, the Plan Manager led ongoing communication efforts with SWRCB staff and Board Members in seeking clarification on issues related to Plan review schedule and process.

In addition, Kern Subbasin GSAs hosted SWRCB Board and Staff for tours of the groundwater subbasin. Three tours were held in August and September and included visits to numerous GSA offices, and drive-by locations of interest were identified at each section of the tour for in-person visualization of relevant corresponding elements of the 2025 Plan. Representatives from GSAs, local disadvantaged community (DAC) members involved with the 2025 Plan development, and entities participating in the tour presented localized information and answered questions relating to the 2025 Plan and the materials presented on the tour.

2.3 AMENDED GSP STAKEHOLDER OUTREACH

Kern Subbasin GSAs developed a Subbasin-wide Stakeholder Communication and Engagement Plan (2025 Plan Appendix F-1) to describe their strategy for successful engagement throughout the 2024 and 2025 Plan development process, and to provide a framework to guide effective outreach during GSP implementation. In preparation for releasing the public review draft of the 2025 Plan, the Kern Subbasin GSAs developed and implemented a robust Community Outreach and Engagement Strategy (2025 Plan Appendix F-3) designed to foster trust, enhance public understanding of SGMA principles and GSA objectives, and promote participation by interested parties in the GSP amendment process. The initiative featured multiple outreach strategies, including the creation of new educational materials on the GSAs' website, establishment of dedicated social media channels, and development of a public

engagement toolkit. To ensure inclusive participation, the GSAs conducted focus groups with community members, hosted pop-up events in five disadvantaged communities, and organized three public workshops. Additionally, monthly coordination calls were held with non-governmental organizations (NGOs) and nonprofit organizations representing drinking water users, small growers, and underrepresented agricultural stakeholders.

The Kern Subbasin GSAs maintained a comprehensive meeting calendar through 2025, listing all public GSA meetings with their dates and locations (2025 Plan Appendix F-4). The calendar is also available in English, Spanish, and Punjabi on the Kern Subbasin website at www.kerngsp.com/stay-engaged/.

2.4 Addressing GSP Deficiencies

Throughout WY2025, the Kern Subbasin GSAs have continued to meet and provide oversight on various Subbasin-wide activities for GSP implementation as required by SGMA, including development of Amended GSP(s) which are currently under review by DWR.

2.4.1 Coordination on Addressing GSP Deficiencies

The Subbasin has made significant progress to address the identified deficiencies in the DWR Letter in consultation with SWRCB staff. In addition, the Kern Subbasin GSAs have held 180 managers meetings, 70 TWG meetings, and 130 Subbasin Coordination meetings to discuss the development of the 2024 and 2025 Plans and SGMA implementation.

2.4.2 Addressing Deficiencies from DWR's Inadequate Determination

The 2025 Plan was revised to address deficiencies, incorporate SWRCB staff feedback, incorporate new information and update data through Water Year 2023, and utilize the best available data and science. The revised Subbasin-wide approach to establishing and justifying SMCs directly addresses the deficiencies DWR identified in its Inadequate Determination letter.

Appendix B of this Annual Report provides a "crosswalk" summary table from 2025 Plan (2025 Plan, Appendix B-3) of major Plan updates in response to DWR Corrective Actions. These updates were made in the 2024 Plan, and subsequently included in the 2025 Plan, to incorporate new information, data, and the best available science:

- Updated the HCM and revised the Basin Setting sections to incorporate new information based on the Basin Study work to date.
- Developed updated Subbasin-wide water budgets using the Subbasin's numerical surface water-groundwater flow model, including impacts of climate change.
- Applied a consistent and coordinated Subbasin-wide water level SMC methodology and conducted a Subbasin-wide well impact analysis using the updated Kern well inventory to assess potential impacts to beneficial users at revised groundwater level SMCs.

- Applied a consistent and coordinated Subbasin-wide subsidence SMC methodology, based on avoiding significant and unreasonable impacts to critical infrastructure and supported by a comprehensive subsidence monitoring program and exceedance action plan.
- Identified constituents of concern (COCs) for the Subbasin and established Degraded Water Quality SMCs for key COCs using common data and methodologies.
- Assessed potential impacts to surface land uses/infrastructure from differential subsidence.
- Conducted a Subbasin-wide assessment of the SGMA Monitoring Network for all Sustainability Indicators, updated the SGMA Monitoring Network, and identified areas with data gaps and a plan to fill those data gaps.
- Updated the P/MAs based on the updated water budget forecasts and developed a consistent methodology for tracking progress and benefits. Estimated the benefits from all P/MAs to ensure the Kern Subbasin GSAs will meet the targeted deficit reduction schedule to ensure sustainable groundwater management by 2040.
- Established partnerships with Self-Help Enterprises and Kern Water Collaborative to assist in mitigating potential impacts to drinking water users.

2.4.3 SWRCB Probationary Hearing Process

In July 2024, the SWRCB issued preliminary review of the Draft 2024 Plan in a Kern Subbasin Probationary Hearing Draft Staff Report (referred to as the "Draft Staff Report"). The Draft Staff Report provided a detailed review of the 2020 GSPs and the 2022 GSPs, and a preliminary review of the Draft 2024 Plan. The Draft Staff Report included the DWR deficiencies while identifying five additional deficiencies and recommended designating the Kern Subbasin as probationary. The Kern Subbasin GSAs submitted a subsequent coordinated GSP in December 2024 ("Final 2024 Plan") addressing deficiencies identified by DWR and by the SWRCB staff in its Draft Staff Report.

The 2025 Plan amends the Final 2024 Plan. The 2024 Plan was a completely reorganized and substantially revised GSP that addressed the Kern Subbasin's coordination deficiency and focused on addressing other deficiencies in DWR's Inadequate Determination letter, as well as feedback received through November 2024 from SWRCB staff. A summary of major updates to address these deficiencies was provided in the 2025 Plan (2025 Plan, Appendix B-4) that is included as Appendix B of this Annual Report.

Key aspects of the 2025 Plan revisions that address the SWRCB potential actions to correct the deficiencies identified by SWRCB staff in the Final Staff Report include:

1. Re-evaluation of groundwater level and groundwater quality monitoring network data gaps, and development of a P/MA that includes expanding the well inventory and adding additional wells to fill those data gaps.
2. Refinements of MTs and UR definition for Chronic Lowering of Groundwater Levels targeting additional protection of local beneficial uses and users.

3. Revisions of SMCs and the UR definition for Degraded Water Quality to provide additional protection of beneficial uses and users.
4. Additions to the Exceedance Policy and associated Action Plans for Chronic Lowering of Groundwater Levels, Degraded Water Quality, and Land Subsidence (2025 Plan, Appendix K-1) that elaborates on factors used to evaluate and act on groundwater level-, quality-, and subsidence-related exceedances and expands on the GSAs' commitment to ongoing collaboration with key critical infrastructure operators, respectively.
5. Development of a Degraded Water Quality Implementation Provisions (2025 Plan, Appendix K-2) that includes summaries of related water quality provisions including, notification procedures for an exceedance, investigation procedures when representative monitoring well data indicates MT exceedances (2025 Plan, Appendix K-1), coordination efforts among existing programs, and Degraded Water Quality Mitigation (2025 Plan, Appendix G-1).
6. Expansion of the Kern Subbasin Well Mitigation Program to include additional provisions (under a separate Degraded Water Quality Mitigation Track) related to domestic well mitigation for Degraded Water Quality (2025 Plan, Appendix G-1).
7. Subbasin-wide coordination among all Kern Subbasin GSAs on all GSP revisions and extensive community outreach and engagement, including initiation of the Community Outreach and Engagement Strategy (2025 Plan, Appendix F-3).

2.4.4 Consideration of Beneficial Uses and Users

Key elements of this 2025 Plan that consider potential impacts to beneficial uses and users of groundwater include:

- The process for developing SMCs related to Chronic Lowering of Groundwater Levels, Land Subsidence, Degraded Water Quality, and Groundwater Storage included the evaluation of potential impacts on local beneficial users and land surfaces. Results of impact analyses were presented at public meetings for stakeholder input including monthly GSA board meetings and GSA group meetings (e.g., South of Kern River Executive Committee), to key beneficial users of regional critical infrastructure, and to SWRCB staff during consultation meetings.

- Kern Subbasin GSAs are working collaboratively to avoid impacts, especially to domestic and small community system wells. The 2025 Plan addresses potential impacts to drinking water users in the Kern Subbasin through a robust well impacts analysis and establishment of an Exceedance Policy (2025 Plan, Appendix K-1) and Well Mitigation Program (2025 Plan, Appendix G-1). Including a numeric threshold for dewatered drinking water wells in the Undesirable Results (UR) definition for Chronic Lowering of Groundwater Levels and the well impacts analyses presented in the 2025 Plan demonstrates how the most sensitive beneficial users of groundwater (i.e., drinking water users) were considered during the 2025 Plan development. These potential impacts and the Well Mitigation Program were discussed at Kern Subbasin stakeholder workshops in October and with NGOs at a focused workshop held in

November 2024 and continued through the 2025 Plan development process as described in the 2025 Community Outreach and Engagement Strategy (2025 Plan, Appendix F-3).

- The purpose of the Kern Subbasin's SGMA Monitoring Network is to collect sufficient data to assess relevant sustainability indicators and potential impacts to beneficial uses and users of groundwater and demonstrates the GSAs' commitment to ensure the P/MAs, policies, and programs succeed in sustainably managing groundwater resources in the subbasin.. The data gaps analysis focused on identifying areas of the Kern Subbasin that may lack monitoring for shallow domestic groundwater users.

Kern Subbasin GSAs continue to implement the Stakeholder Communication and Engagement Plan (2025 Plan, Appendix F-1) and conducted additional outreach through the 2025 Plan development process (2025 Plan, Appendix F-3) to achieve active engagement and input of beneficial users across the Kern Subbasin.

3 GROUNDWATER ELEVATIONS

This Seventh Annual Report presents the semi-annual monitoring groundwater elevations measured in the Subbasin RMWs for WY2025 (Figure 4). These data have been compiled for the Kern Subbasin through WY2025 to provide the following required analyses:

- Preparation of water level hydrographs for each of the Subbasin RMWs to illustrate long-term trends and fluctuations and to demonstrate compliance relative to sustainable management criteria. The location of each of the Subbasin RMWs that had an MT exceedance in WY2025 are shown symbolically on Figure 4.
- Development of water level contour maps for Kern Subbasin Principal Aquifers, illustrating the seasonal high and seasonal low levels during the Reporting Period of WY2025 (i.e., Fall 2024 and Spring 2025).

The WY2025 data were also uploaded to the DWR Monitoring Network Module as required in compliance with DWR semi-annual reporting requirements (by January 1, 2025, for Fall 2024 water levels and July 1, 2025, for Spring 2025 water levels). These data uploads are now coordinated through the Kern Subbasin DMS.

3.1 HYDROLOGIC WATER YEAR TYPE

GSP regulations require that hydrographs of groundwater elevations, groundwater use, the annual change in groundwater in storage, and the cumulative change in groundwater in storage be shown with respect to the water year type representative for the Subbasin (§356.2(b)(1)(B) and §356.2(b)(5)(B). Previous annual reports have included both the DWR San Joaquin Valley Water Year Type Index (CDEC, 2025, 2026), and the Kern River Natural Flow at the First Point of Measurement (Figure 1) water-year average to represent the water year type for the Kern Subbasin (City of Bakersfield, 2026). These two indices have been updated in this Seventh Annual Report to include WY2025 water year type as described below and presented in Figure 5.

The annual water year type, as represented by the San Joaquin Valley Index, is shown by the graph on the bottom of Figure 5. The San Joaquin Valley index is calculated by DWR using Stanislaus, Tuolumne, Merced and San Joaquin Rivers inflow into downstream reservoirs. The WY2025 San Joaquin Valley Index, calculated by DWR, was 2.55, which is classified as a Below Normal water year type (CDEC, 2026). The water year type based on the San Joaquin Valley Index over the historical period from WY1995 through WY2025 is shown on Figure 5.

The City of Bakersfield calculates the regulated flow, computed at First Point of Measurement, for the Kern River Annual Hydrographic Reports (City of Bakersfield, 2026). The annual flow rate is also calculated as a percentage of the average long-term flow rate for the Kern River since 1894 for April through July runoff, by calendar year, and by water year. For this Seventh Annual Report, Kern River indices by water year have been updated by the City for WY1995 through WY2025 to align with the San Joaquin Valley Index and the Reporting Period (see top graph on Figure 5). As shown by the Kern River

index for WY2025, the Kern River Computed Natural Flow at First Point was 80 percent of the long-term average (COB, 2025). This index indicates a below normal water year condition for the Subbasin.

A comparison of the San Joaquin Valley (SJV) Index and Kern River water-year flow averages (Figure 5) shows relatively good agreement for wet and dry cycles over the historical period from WY1995 through WY2025. Table 2 provides an additional comparison that illustrates how the range of Kern River water-year flow averages compares to the number of occurrences of the different SJV Index water year types over the historical and current periods. These comparisons show the general alignment between the two indices.

Table 2. Hydrologic Water Year Type for San Joaquin Valley Index and Kern River

Water Year Type Index	Historical Period WY1995 to WY2014		Current Period WY2015 to WY2025	
	San Joaquin Valley Index	Kern River Water-Year Flow Average	San Joaquin Valley Index	Kern River Water-Year Flow Average
Wate Year Type	**Occurrences**	**Percentage Range**	**Occurrences**	**Percentage Range**
Wet (W)	7	134% to 233%	3	271% to 321%
Above Normal (AN)	3	66% to 111%	1	101%
Below Normal (BN)	2	81%	2	59% to 80%
Dry (D)	4	50% to 63%	2	50% to 54%
Critically Dry (C)	4	25% to 30% (70%)[1]	3	18% to 29%

[1] Hydrologic mismatch in 2008 with SJV Index critically dry year corresponding to Kern River 70% of average flow.

This oscillation between wet and critically dry years highlights the need to be able to recharge water when available and recover when needed. Since the beginning of the WY2012 drought, ten of the last fourteen years are characterized by the San Joaquin Valley Index as drought years with two Below Normal (BN), three Dry (D), and five Critically Dry (C) water year types. For each of those ten years, the Kern River hydrographic reports (COB, 2025) indicated flows at or below 80 percent of its long-term average, with the five critically dry WYs at or below 30 percent (Figure 5). The WYs 2013, 2014, 2015, 2021, and 2022 represent the five most-recent critically dry years in the period for both the Kern River and the SJV Index. While the recent wet conditions help improve conditions in the Subbasin, additional wet years are required for the Subbasin to reach hydrologic balance.

3.2 Hydrogeological Conceptual Model Overview

The hydrogeological conceptual model (HCM) provides an understanding of the physical characteristics that affect the occurrence and movement of groundwater based on the Subbasin's geology, hydrology, land use, delineation of aquifers and aquitards, and water quality. This HCM serves as a foundation for subsequent development of water budgets, sustainable management criteria, monitoring network and numerical models.

3.2.1 Hydrogeological Conceptual Model Areas

The Subbasin is large and geologically complex with regional faulting, folding and a thick sequence of consolidated and unconsolidated sedimentary deposits. The groundwater resources in the Subbasin are significant, and most of the water supply for the area comes from underground aquifers, usually occurring in the uppermost 3,000 feet (Page, 1973).

For purposes of the 2025 Plan, the Kern Subbasin has been separated into five Hydrogeological Conceptual Model Areas (HCM Areas) that are characterized by specific geologic and hydrogeologic attributes that dictate land and water uses in the area but have distinguishing characteristics that differentiate them from the other HCM areas of the Kern Subbasin (Figure 6). Defining these HCM Areas enables readers to understand the hydrogeologic complexity of the Kern Subbasin, and for GSAs to succinctly explain why their management approach may be different from neighboring GSAs. Note that the HCM Areas (based on hydrogeology and aquifer characteristics) are distinct from Management Areas. The following points summarize the characteristics of each HCM Area:

- **North Basin HCM Area** – This area corresponds to the large alluvial basin north of the Kern River Fan area that is a major agricultural area. This area is underlain by a thick sequence of alluvial sediments that form a highly productive aquifer. The presence of clay layers, primarily the E-Clay, influences vertical flow of groundwater to form distinctive aquifer zones in some areas.
- **Kern River Fan HCM Area** – This area corresponds to the Kern River Alluvial Fan. The Kern River is a large hydrologic feature that provides both a major local surface water supply and source of groundwater recharge. The coarse alluvial sediments with limited clay layers make this the prime area for managed recharge and water banking. These operations generate a distinctive groundwater response seen on hydrographs.
- **South Basin HCM Area** – This area corresponds to the large alluvial basin south of the Kern River Fan area that is the other major agricultural area that is underlain by a thick highly productive alluvial aquifer.
- **Eastern Margin HCM Area** – This area along the eastern Subbasin margin where water supply is derived from older geologic units. In the northeast area, the Santa Margarita and Olcese Principal Aquifers provide water supply. This area includes several large fault-bounded oil fields. In the southeast, the Edison Fault forms a groundwater flow barrier.
- **Western Fold Belt HCM Area** – The western Subbasin margin is characterized by distinctive geological structures of the West Side Fold Belt (Bartow, 1991). This area is dominated by open range land, large oil fields and poor-quality water. Only minimal groundwater pumping occurs in this HCM Area due to the poor water quality; therefore, agricultural and urban water supplies primarily rely on imported water from outside the Subbasin or from other HCM areas.

The five HCM areas are conceptual designations used in the 2025 Plan to help organize the HCM discussions. Because the HCM Areas are defined on hydrogeological condition, some Kern Subbasin GSAs are included in multiple HCM areas (Figure 7). Additional information defining the hydrogeological characteristics of each HCM area are provided in the 2025 Plan.

3.2.2 Subbasin Principal Aquifers

A “Principal Aquifer” refers to aquifers or aquifer systems that store, transmit, and yield significant or economic quantities of groundwater to wells, springs, or surface water systems (DWR, 2016). Kern Subbasin's groundwater aquifers are geologically diverse with groundwater use widely varying across Kern Subbasin, both geographically and historically, because of differing hydrogeological conditions as well as overlying land use. In Kern Subbasin, there are three distinct geology-based groundwater occurrences (Davis et al., 1964; Hilton, 1963) based on the following conditions:

Continental deposits that overlie the marine deposits provide the most productive freshwater aquifers in Kern Subbasin (Bertoldi et al., 1991). The marine sediments with confined fresh water provide local areas of productive freshwater aquifers in Kern Subbasin. The isolated marine rocks with saline connate water are not considered as usable water sources because of their poor water quality and lack of recharge. There are three distinct geology-based groundwater occurrences in Kern Subbasin (Davis et al., 1964; Hilton, 1963).

- Unconfined, semiconfined and confined fresh water in nonmarine alluvial deposits of Recent, Pleistocene, and possibly late Pliocene age. These unconsolidated continental deposits overlie the marine deposits and contain most of the freshwater in Kern Subbasin.

- Confined fresh water, contained in marine sediments of Miocene age where surface recharge from outcrop areas has flushed the original saline connate water and the sediments now contain freshwater. This condition occurs in limited areas, primarily along the eastern Kern Subbasin margin, which form locally important aquifers.

- Saline, connate water contained in marine sediments of middle Pliocene or older age, which underlies the fresh-water body throughout the area. The majority of the marine sediments in Kern Subbasin contain highly saline, connate water. These conditions are not considered as a source of freshwater in Kern Subbasin.

Three Principal Aquifers are defined for Kern Subbasin according to the criteria listed above. The Kern Subbasin is large and geologically complex with regional faulting, folding, and three principal aquifers. The location and extent of the principal aquifers is shown on Figure 8 and listed in Table 3. A brief description of these principal aquifers is provided below:

1. **Primary Alluvial Principal Aquifer:** The Primary Alluvial Principal Aquifer extends over most of the Kern Subbasin and consists of the Tulare and Kern River Formations plus the overlying recent alluvium. It exhibits varying groundwater conditions and is classified as “confined” in areas with laterally extensive clay aquitards, “semiconfined” where vertical flow is impeded, and “unconfined” in various portions of the Kern Subbasin. The Primary Alluvial Principal Aquifer is the most productive freshwater aquifer, and the source of nearly all groundwater used within the Kern Subbasin.

2. **Santa Margarita Principal Aquifer:** The Santa Margarita Principal Aquifer is a confined unit located in the northeastern portion of the Kern Subbasin and is comprised of both the Santa Margarita Formation and Olcese Sand.

3. **Olcese Principal Aquifer:** The Olcese Principal Aquifer is a confined unit located in the vicinity of where the Kern River enters the eastern portion of the Kern Subbasin and consists of the Olcese Sand.

Table 3. Local Principal Aquifers in the Kern County Subbasin

Principal Aquifer	HCM Area	Subbasin Area
Primary Alluvial	All five HCM areas	Continental deposits that overlie marine deposits over the entire Subbasin
Olcese Sand	Eastern Margin HCM	Along the eastern Subbasin boundary adjacent to the Kern River
Combined Santa Margarita Formation and Olcese Sand	Eastern Margin HCM	Northeastern corner of the Subbasin

While the Primary Alluvial Principal Aquifer essentially extends over the entire Subbasin and is the source for nearly all groundwater used within the Subbasin, there are two notable occurrences of localized shallow groundwater conditions within the Kern Subbasin that have developed over two different clay layers. One such occurrence has developed along the northern Subbasin margin where both the A-Clay (or equivalent) and the underlying E-Clay have developed localized shallow groundwater conditions . There is minimal groundwater use from these localized shallow groundwater zones. These areas are discussed in the 2025 Plan; however, since they are not identified as principal aquifers, they are not discussed in this Annual Report.

3.3 HYDROGRAPHS FROM WY1995 THROUGH WY2025

Hydrograph development and observations on trends and fluctuations, along with information on compliance with SMCs, are described below. The groundwater elevation data were used to generate hydrographs for each of the 200 RMW wells where Minimum Thresholds (MTs) and Measurable Objectives (MOs) – and, in some cases, interim milestones (IMs) – have been established. MTs and MOs are provided on each hydrograph in Appendix C.

3.3.1 Coordinated Basin-Wide Monitoring

The Kern Subbasin GSAs continue to coordinate the timing and methods for semi-annual data collection, and report data collected through semi-annual upload to the Kern Subbasin DMS for compilation and reporting.

3.3.2 Hydrograph Development

Hydrographs in this Seventh Annual Report are presented in Appendix C for each RMW in the monitoring network that is shown in Figure 4**.** The hydrographs are publicly available on the Kern Subbasin DMS In compliance with GSP regulations Article 4, the hydrographs are submitted electronically, and each hydrograph includes a unique site identification number (Site Code and Local Identifier), monitoring agency, and the GSE. In addition, hydrographs have incorporated the same datum and scaling to the greatest extent practical (§352.4(e)).

Hydrographs for each of the 187 RMW locations identified in the 2025 Plan are presented in a consistent format in Appendix C. Four hydrographs from relatively closely spaced RMW locations are shown on a single sheet. Each sheet has a table for each RMW showing the well ID, location, well completion and MT/MO. The sheet numbers for the RMW locations for each GSAs' set of hydrographs are provided in Appendix C and are summarized in Table 4. The hydrographs are presented in two groups. The Primary Alluvial Principal Aquifer consists of 173 RMW locations as one group. The second group includes 14 RMW locations for both the Santa Margarita and Olcese Sand Principal Aquifers.

For each hydrograph, the groundwater elevation data are shown in blue. A solid black horizontal line shows the ground surface elevation (GSE). The MT and MO are represented by orange and green lines, respectively. The vertical scale on all graphs spans 700 feet, with the elevations ranging from 500 to -200 feet (NAVD, 1983). This range allows for a direct comparison of the groundwater elevations, GSE, MT and MO for nearly all RMW locations. Some areas along the eastern and western margin have more extreme ranges, and the 700-foot vertical scale is adjusted accordingly. The hydrographs are grouped together by GSA and are ordered to group together as best as possible a set of four wells in relatively close proximity to each other.

The hydrographs include measured groundwater elevation data from October 1, 1995, through September 30, 2025, to include the current reporting year (§356.2(b)(1)(B)). The 2025 Plan defines WYs 1995 to 2014 as the historical baseline period that represents a balanced hydrological period for evaluating the Subbasin water budget and sustainable yield. The following eleven-year period (WYs 2015 through 2025) represents the current hydrological period to provide water budgets for the years following the historical period; however, the current period is not defined as being hydrologically balanced. Accordingly, the hydrographs show the historical record of measured groundwater elevations of each well within the 31-year period from WY1995 through WY2025. Some wells have a long historical record whereas new monitoring wells may only have a limited number of recent measurements. The hydrographs are developed using the Kern Subbasin DMS so that the most complete set of groundwater elevations is used.

Table 4. Hydrograph Sheet Number by GSA in Appendix C

GSA	Primary Alluvial Principal Aquifer	Santa Margarita and Olcese Principal Aquifers
Pioneer GSA	Sheet 1 - 2	NA
Kern Water Bank Authority	Sheet 2	NA
Rosedale-Rio Bravo Water Storage District	Sheet 3 - 7	NA
West Kern Water District	Sheet 7 - 8	NA
Kern River GSA	Sheet 8 - 17	NA
Cawelo Water District GSA	Sheet 17 - 19	NA
Kern Non-Districted Lands Authority (KNDLA) GSA	Sheet 19, 35	Sheet 46
Kern Tulare Water District GSA	Sheet 19 - 20	Sheet 47
Southern San Joaquin Municipal Utility District GSA	Sheet 20 - 23	NA
North Kern Water Storage District GSA	Sheet 23 - 25	NA
Shafter-Wasco Irrigation District GSA	Sheet 25 - 27	NA
Semitropic Water Storage District	Sheet 28 - 31	NA
Westside District Water Authority	Sheet 31 - 32	NA
Buena Vista Water Storage District GSA	Sheet 32 - 34	NA
Arvin GSA	Sheet 35 - 39	NA
Wheeler Ridge-Maricopa GSA	Sheet 39 - 42	NA
Henry Miller Water District GSA	Sheet 42 - 43	NA
Tejon-Castac Water District GSA	Sheet 44	NA
Eastside Water Management Area	NA	Sheet 45 - 46
Olcese Water District GSA	NA	Sheet 48

Note: KNDLA – Kern Groundwater Authority was renamed Kern Non-Districted Land Authority in 2024

3.4 GROUNDWATER LEVEL TRENDS AND FLUCTUATIONS

The historical groundwater elevation trends, as seen on the hydrographs (Appendix C), are generally stable in response to water year type (Figure 5); however, these trends vary across the Subbasin. To evaluate the changes in groundwater elevations over time, a statistical comparison of year-to-year changes in groundwater elevations was developed for the period from WY2021 to WY2025. This period includes one wet, one above normal, one below normal and two critically dry water year types. Separate analyses were conducted for the Fall semi-annual monitoring period (September 15 to November 15) and the Spring semi-annual monitoring period (January 15 to March 30). Tables 5 and 6 provide a statistical comparison of the change in groundwater elevations of 168 of 173 RMW well locations from the 2025 Plan monitoring network that have sufficient groundwater elevation measurements over the past five water years based on the data presented in Appendix C.

3.4.1 Overview of Historical Trends

Historically, groundwater elevation trends in the Subbasin generally show an increase during the wet water years and a decrease during dry ones. This was observed during multiple wet water year types (WY1995 to WY1998, WY2005, WY2006, WY2010, WY2011, WY2017 and WY2019). During these wet years, there was an increase in both natural and managed aquifer recharge accompanied by a rise in groundwater elevations. This increase in groundwater elevations was more pronounced in the areas with managed aquifer recharge and banking operations.

Conversely, historical periods with multiple below normal, dry and critically dry water year types (WY2001 to WY2004, WY2007 to WY2009, and WY2012 to WY2016) result in decreased natural recharge and increased groundwater pumping for recovery of surface water stored in regional aquifers. As expected, groundwater elevations generally decreased across the Subbasin during these years. During the 5-year drought period from WY2012 to WY2016, the Subbasin experienced two dry and three critically dry water years. As a result, some areas in the Subbasin experienced historic low groundwater elevations.

3.4.2 Trends in the Primary Alluvial Principal Aquifer

Table 5 presents the data for 157 of 173 RMW locations the Primary Alluvial Principal Aquifer with sufficient data for this analysis. The following discussion summarizes the results of the statistical comparison of year-to-year changes in groundwater elevations from WY2021 to WY2025.

- Both WY2021 and WY2022 were critically dry water year types and groundwater levels show declining trends consistent with critically dry conditions. The average annual groundwater elevation change during this period ranged from declines of 6 to 22 feet. RMWs with decreasing trends outnumbered those with increasing trends by a ratio of 2.5:1 to 6:1.

- WY2023 was a wet water year type; however, the change in groundwater elevations show a delayed recharge effect. The average annual groundwater elevation change ranged from decline of 14 feet in the fall to an increase of 1 foot in the Spring. During the Fall period, RMWs with decreasing trends outnumbered those with increasing trends by a ratio of 3:1 whereas in the Spring this improved to about a 1:1 ratio.

- WY2024 was an above normal water year type. The average annual groundwater elevation change was a 30-foot increase for both the Fall and Spring periods. RMWs with increasing trends outnumbered those with decreasing trends by a ratio of nearly 7:1 for both the Fall and Spring periods. The delayed recharge effect from WY2023 contributes to the increases.

- WY2025 was a below normal water year type. The average annual groundwater elevation change ranged from an increase of 4 feet in the Fall a decline of 3 feet in the Spring. RMWs with increasing trends outnumbered those with decreasing trends by a ratio of slightly above 1:1.

The change in groundwater elevations in the Primary Alluvial Principal Aquifer from WY2021 to WY2024 are generally consistent with historical trends. However, the groundwater elevations trends in WY2025, a below normal water year type, show a slightly increasing trend whereas a slightly decreasing trend would be anticipated. This may be due to continued delayed recharge effect from WY2023 and WY2024 but may also represent the added impact from the implementation of P/MAs by the Kern Subbasin GSAs.

3.4.3 Trends in the Santa Margarita and Olcese Principal Aquifers

Table 6 presents the data for 12 of 14 RMW locations the either the Santa Margarita or Olcese Principal Aquifers with sufficient data for this analysis. These two principal aquifers are grouped together for the statistical comparison due to a limited number of RMWs for these principal aquifers. The following discussion summarizes the results of the statistical comparison of year-to-year changes in groundwater elevations from WY2021 to WY2025.

- Both WY2021 and WY2022 were critically dry water year types. The average annual groundwater elevation changes during this period ranged from declines of 7 to 26 feet. RMWs with decreasing trends outnumbered those with increasing trends by a ratio of 1.5:1 to all RMWs decreasing.

- WY2023 was a wet water year type; however, groundwater elevations show a similar delayed recharge effect. The average annual groundwater elevation changes during this period ranged from declines of 5 to 12 feet. RMWs with decreasing trends outnumbered those with increasing trends by a ratio of about 1.5:1.

- WY2024 was an above normal water year type. The average annual groundwater elevation changes during this period ranged from increases of 11 to 30 feet. RMWs with increasing trends outnumbered those with decreasing trends by a ratio of 10:1 or greater.

- WY2025 was a below normal water year type. The average annual groundwater elevation changes during this period decreased by 4 to 10 feet. RMWs with decreasing trends outnumbered those with increasing trends by a ratio of 1.5:1 to 3:1 ratio.

The change in groundwater elevations in the Santa Margarita or Olcese Principal Aquifers from WY2021 to WY2025 are generally consistent with historical trends for their respective water year types.

Table 5. Annual Fall-to-Fall Groundwater Elevation Change at RMW locations in the Primary Alluvial Principal Aquifer

Comparison Periods	Annual Change in Groundwater Elevation (feet)				
	WY2020 to WY2021	WY2021 to WY2022	WY2022 to WY2023	WY2023 to WY2024	WY2024 to WY2025
Water Year Type	Critically Dry	Critically Dry	Wet	Above Normal	Below Normal
	Fall Period (September to November) semi-annual monitoring period				
Number of Wells	119	142	143	150	157
Average change	-12	-22	-14	30	4
Median change	-6	-15	-9	18	0
Percentage Increasing	31%	14%	24%	86%	55%
Percentage Decreasing	68%	85%	75%	14%	45%
	Spring Period (January to March) semi-annual monitoring period				
Number of Wells	146	151	155	157	157
Average change	-10	-19	1	24	-3
Median change	-6	-15	-2	14	0
Percentage Increasing	28%	13%	43%	87%	52%
Percentage Decreasing	72%	87%	56%	13%	47%

Notes: Fall Period - September 15 to November 15 semi-annual monitoring period.
Spring Period - January 15 to March 30 semi-annual monitoring period.

Table 6. Annual Fall-to-Fall Groundwater Elevation Change at RMW locations in the Santa Margarita and Olcese Principal Aquifers

Comparison Periods	Annual Change in Groundwater Elevation (feet)				
	WY2021 to WY2022	WY2022 to WY2023	WY2022 to WY2023	WY2023 to WY2024	WY2024 to WY2025
Water Year Type	Critically Dry	Critically Dry	Wet	Above Normal	Below Normal
	Fall Period (September to November) semi-annual monitoring period				
Number of Wells	6	10	10	11	12
Average change	-21	-26	-12	30	-10
Median change	-19	-25	10	26	-7
Percentage Increasing	0%	30%	60%	91%	25%
Percentage Decreasing	100%	70%	40%	9%	75%
	Spring Period (January to March) semi-annual monitoring period				
Number of Wells	10	10	11	12	14
Average change	-9	-7	-5	11	-4
Median change	-17	-12	2	7	-1
Percentage Increasing	20%	40%	55%	100%	43%
Percentage Decreasing	80%	60%	45%	0%	57%

Notes: Fall Period - September 15 to November 15 semi-annual monitoring period.
Spring Period - January 15 to March 30 semi-annual monitoring period.

3.5 GROUNDWATER ELEVATION CONTOURS FOR SUBBASIN PRINCIPAL AQUIFERS

Groundwater elevation contour maps were developed for each principal aquifer within the Subbasin, including the Primary Alluvial Principal Aquifer and the Santa Margarita and Olcese Sand Principal Aquifers. Maps were developed using groundwater elevation data collected during two monitoring periods inWY2025:

- Fall 2024 (September 15 to November 15, 2024)
- Spring 2025 (January 15 to March 30, 2025)

Data were obtained from measurements submitted by GSAs to the Subbasin Data Management System (DMS), including the GSP representative monitoring network, and supplemented with additional local data where available. For the Seventh Annual Report, two maps were prepared for each aquifer to represent the two monitoring periods using mapping methods are consistent with those used in the 2025 Plan. All elevations are referenced to the North American Vertical Datum of 1988 (NAVD88).

3.5.1 Primary Alluvial Principal Aquifer

Groundwater elevation contour maps for the Primary Alluvial Principal Aquifer for Fall 2024 and Spring 2025 are shown on Figures 9 and 10, respectively. As described in the 2025 Plan, groundwater generally flows from higher elevations near recharge areas toward lower elevations associated with pumping or discharge zones. Flow patterns are also influenced by geologic structures, including faults and anticlines, particularly within the Eastern Margin, Western Fold Belt and far western portions of the North Basin HCM Areas.

In the Kern River Fan HCM Area, the highest groundwater elevations occur along the Kern River corridor, which traverses the central Subbasin from northeast to southwest as well as through seepage through river channels and unlined canals. During WY2025, groundwater elevations in this area remained relatively stable, generally ranging from 150 to 250 feet. These operations contribute to locally variable groundwater conditions observed in hydrographs from several GSAs (Appendix C). Groundwater generally flows radially away from the Kern River Fan toward the North and South Basin HCM Areas, with water levels declining by more than 50 feet within several miles of the river. Elevations continue to decrease with distance north and south of the Kern River.

In the North Basin HCM Area, groundwater elevations below sea level are widespread. The lowest elevations in the Subbasin, less than –100 feet, occur near the northern Subbasin boundary, with measured lows of –163 feet in Fall 2024 and –106 feet in Spring 2025. This area also exhibits the greatest seasonal variability, with spring elevations 20 to 50 feet higher than fall levels. These conditions reflect both local pumping and groundwater outflow toward adjacent subbasins to the north.

Groundwater elevation data in the Western Fold Belt HCM Area are sparse due to limited groundwater use associated with poor water quality. Water supplies in this area are primarily derived from imported surface water or groundwater from other HCM Areas. Large anticlines and synclines significantly influence groundwater flow, with anticlines acting as barriers and synclines funneling flow. Groundwater

elevations exceed 300 feet along the northwestern Subbasin margin and decline to approximately 100 feet along the eastern boundary, with contour orientations reflecting flow around geologic structures. These structures also extend into the western portions of the North Basin HCM Area.

A hydrogeologically distinct area exists between the Western Fold Belt and North Basin HCM Areas that is shown as gray shading on Figures 9 and 10. In this area, groundwater occurs both above and below the E-Clay. The groundwater elevation maps depict the interval above the E-Clay, which represents the most actively pumped zone. Above the E-Clay, groundwater elevations range from approximately 250 to 100 feet with a southeasterly gradient influenced by anticlines. Below the E-Clay, groundwater elevations range from –50 to 100 feet and exhibit a generally eastward gradient with less structural influence.

In the South Basin HCM Area, groundwater elevations typically range from 50 to 150 feet. Contours indicate localized highs and lows with no clear regional outflow, and little to no groundwater exchange occurs with adjacent HCM Areas or subbasins. The White Wolf Fault forms a significant groundwater barrier along the southern boundary, limiting inflow from the White Wolf Subbasin despite generally higher groundwater elevations to the south.

In the Eastern Margin HCM Area, the highest groundwater elevations occur along the eastern Subbasin boundary, with a maximum measured elevation of 1,315 feet at RMW-322. Elevations decrease westward toward the North Basin HCM Area, where they range from approximately 150 to 300 feet. South of the Kern River, groundwater flow is strongly influenced by the Edison Fault, which deflects groundwater northward toward the Kern River before allowing flow into the South Basin HCM Area.

Portions of the Subbasin overlap USEPA-designated aquifer exemption areas associated with active oil fields (40 CFR §144.3). An aquifer exemption is an action by USEPA to remove an aquifer or portion of an aquifer from protection as an underground source of drinking water (USDW) under the Safe Drinking Water Act because it does not serve as a source of drinking water either currently or will in the future. Consistent with the 2025 Plan, exempted water-bearing zones within principal aquifers are considered as occurring below the Subbasin bottom and are excluded from the Subbasin for SGMA purposes and are not included in the groundwater elevation contour maps shown on Figures 9 and 10.

The 2025 Plan also identified areas of localized shallow groundwater conditions in the North Basin HCM Area, formed by shallow clay layers that restrict vertical recharge. These zones, including areas within the Kern National Wildlife Refuge, are hydraulically isolated from the Primary Alluvial Principal Aquifer and do not provide sufficient supply for beneficial use. Accordingly, they are not mapped as separate principal aquifers in this Annual Report.

3.5.2 Santa Margarita and Olcese Principal Aquifers

Two additional principal aquifers of limited extent occur within Miocene-age marine sandstones in the Eastern Margin HCM Area, as shown on Figures 11 and 12. These aquifers are hydrogeologically distinct from the Primary Alluvial Principal Aquifer and serve as important local water supplies.

The Santa Margarita Principal Aquifer is located in the northeastern portion of the Subbasin and consists of the confined Santa Margarita Sandstone, which is separated from the Primary Alluvial Principal Aquifer by Plio-Miocene shale aquitards. Recharge occurs primarily from surface water infiltration at sandstone outcrops outside the Subbasin. Wells completed in this aquifer typically range from 1,000 to 2,000 feet deep. Groundwater elevations are highest near recharge areas to the east, reaching approximately 397 feet, and decline to about –30 feet near areas of pumping. To the west, the Miocene sandstones occur at greater depths, limiting well penetration and data availability.

The Olcese Sand Principal Aquifer is located near where the Kern River enters the Subbasin and generally coincides with the Olcese GSA. The aquifer consists of the confined Olcese Sandstone, separated from overlying alluvial deposits by aquitards of the Round Mountain Silt Formation. Recharge is primarily derived from surface water infiltration at outcrops outside the Subbasin. Groundwater elevations measured at three wells during WY2025 ranged from 362 to 394 feet, with seasonal variation of approximately 32 feet. In contrast, the Canyon View Ranch Well (RMW-044), completed in the shallow alluvial aquifer, recorded consistent elevations of 647 feet during both monitoring periods, indicating that the Round Mountain Silt acts as an effective aquitard between the Primary Alluvial and Olcese Sand Principal Aquifers.

4 SUBBASIN WATER SUPPLY AND USE

This Seventh Annual Report includes information on water supply and use within the Kern Subbasin. Consistent with the regulations 23 CCR § 356.2(b) that includes the following required components for WY2025:

- Groundwater extraction
- Surface water supply
- Total water supply and use

The WY2025 water supply and use data are uploaded to DWR as part of the DWR annual reporting requirements.

4.1 GROUNDWATER EXTRACTIONS

The volume of groundwater extraction in the Subbasin is provided for WY2025 per GSP Regulations (23 CCR §356.2(b)(2)). Data presentation follows the DWR data templates that list groundwater extractions by water use sector and identify the method of measurement and accuracy of measurements (Table 7). A map of groundwater extractions (Figure 13) is provided to illustrate the general location and volume of groundwater extractions in the Kern Subbasin.

4.1.1 Groundwater Extraction Data Methods

Total groundwater extractions for the Subbasin for WY2025 have been compiled and summarized in this section. The data were collected using the "best available measurement methods." For the Subbasin the groundwater extraction data were compiled using two methods:

- Directly measured groundwater extraction data collected by local water agencies.
- Estimated groundwater extractions using the IWFM Demand Calculator (IDC) tool developed by DWR (Dogrul, Kadir and Brush, 2017).

Directly measured groundwater extractions were collected using meters and other appropriate comparable measuring devices by local water agencies (Table 1), in accordance with the monitoring protocols of the respective local water agency. This data was compiled and provided by the local water agency to support this Annual Report via the Kern Subbasin DMS. These directly measured data were obtained using high accuracy measuring devices and methodologies (see Section 4.5).

The remaining estimated groundwater extractions are based on the IDC tool (Dogrul, Kadir and Brush, 2017) to estimate agricultural, urban and other pumping. IDC is a standalone module used in the IWFM-based Kern-IWFM model that solves the soil moisture balance in the root zone using local soil properties to compute the monthly agricultural and urban water demand for each model element. If water demand is not satisfied with precipitation and applied surface water, the IDC tool calculates the groundwater pumping needed to eliminate any assumed deficit (Dogrul, Kadir and Brush, 2017). The groundwater extraction calculated by IDC is dynamically linked to the Kern-IWFM model to provide the overall pumping data for the groundwater model component.

For the Subbasin, IDC calculates only the groundwater extraction necessary to meet the crop and soil moisture demand after accounting for the contribution from surface water supplies and precipitation. WY2025 surface water supplies are based on measured data provided by local agencies (Table 1), and regional distribution of WY2025 precipitation is based on data developed by LandIQ as part of the Round 1 SGM grant from DWR (see Section 7.3.8)

IDC calculates agricultural demand based on annual crop type distribution and evapotranspiration (ET) rates for irrigated crop types, urban areas, and managed seasonal wetlands at the Kern National Wildlife Refuge. From WY1993 through WY2022, ET rates were developed using the satellite-based data processed at the Irrigation Training & Research Center (ITRC) at California Polytechnic State University, San Luis Obispo (Howes, 2023). Starting in October 2022, monthly ET rates were developed for the entire Subbasin by Land IQ. Land IQ installed instrumentation over the agricultural areas within the Subbasin as part of the Round 1 SGM grant from DWR (see Section 7.3.8). These stations provide improved field-scale ET data based on approximately 24 instrumentation stations. Application of the ITRC and LandIQ ET data were re-evaluated and remapped at the field scale as part of the Basin Study (see Section 7.3.8). The ET rates assigned for WY2025 are based on the remapped Land IQ ET data.

Similarly, urban demands in the Kern-IWFM model are based on agency supplied information and/or regional population and per-capita water demand. The population and per-capita water demand was remapped and recalculated as part the Basin Study (see Section 7.3.8) to provide higher local resolution of the distribution of population and to more accurately locate pumping from urban water purveyors, small water systems and private domestic pumping. This approach ensures that the entire population accounted for in census data is assigned to a drinking water supply. Additional industrial pumping identified by the Basin Study and within the 2025 Plan are now included in the Kern-IWFM model, which had not been accounted for in prior models (Todd Groundwater, 2025).

4.1.2 Groundwater Extractions for WY2025

Using the methods described above, the total groundwater extractions in the Kern Subbasin for WY2025 were tabulated. Table 7 summarizes the Subbasin groundwater extractions by water use type and measurement method, consistent with the DWR data templates, for WY2025. The data show that 1,214,614 acre-feet of groundwater extractions occurred in WY2025 (a below normal water year type). The total pumping in WY2025 was slightly higher than in WY2024 (an above normal water year type). However, the WY2025 pumping is about half of the total pumping that occurred during either of the critically dry water years of WY2021 or WY2022. For the Kern Subbasin, the water use sectors are described as follows:

- **Urban** – Urban groundwater extractions account for all urban water uses including residential, commercial, municipal, industrial, and other uses. These are supplemented with urban derived extractions estimated by the Kern-IWFM groundwater model. The total urban groundwater extraction for WY2025 is 160,542 acre-feet, with most of this volume based on metered data. Urban pumping accounts for about 13 percent of the WY2025 total pumping.

Table 7. Groundwater Extractions in the Kern County Subbasin for WY2025

Groundwater Extraction	Total Groundwater Extractions	Metered Volume	Electrical Records Volume	Land Use Volume	Groundwater Model Volume	Other Methods Volume
Water Use Type	**Acre-ft**	**Acre-ft**	**Acre-ft**	**Acre-ft**	**Acre-ft**	**Acre-ft**
Urban	160,542	104,146	0	0	56,396	0
Industrial	5,973	4,109	0	0	1,864	0
Agricultural	856,449	6,056	0	0	850,393	0
Managed Wetlands	0	0	0	0	0	0
Managed Recharge	145,826	145,826	0	0	0	0
Native Vegetation	0	0	0	0	0	0
Other	45,823	6,611	0	0	39,212	0
Total	1,214,614	266,748	0	0	947,866	0

- **Industrial** – This category accounts for industrial pumping from private wells that were either reported for WY2025 or estimated from the Kern-IWFM groundwater model. The total industrial groundwater extraction for WY2025 is 5,973 acre-feet, with most of this based on metered data. Urban pumping accounts for less than one percent of the WY2025 total pumping.
- **Agricultural** – This category accounts groundwater extractions for irrigated crops. Metered data are reported pumping volumes by local water agencies for agricultural use. Private agricultural pumping is determined by using the IDC tool within the Kern-IWFM based on the Land IQ ET and crop data. The WY2025 total agricultural groundwater extraction is 856,449 acre-feet, which accounts for about 71 percent of the total pumping.
- **Managed Wetlands** – The Kern National Wildlife Refuge has historical groundwater use but currently relies on surface water supplies. No managed wetland groundwater extractions were reported for WY2025 for the Kern National Wildlife Refuge.
- **Managed Recharge** – This category includes groundwater extractions of stored surface water from prior water years as part of district managed conjunctive use and water banking operations. The total groundwater extraction of stored surface water for managed recharge recovery, as defined above, is 145,826 acre-feet, which accounts for about 12 percent of the WY2025 total pumping.
- **Native Vegetation** – Currently, no groundwater extractions are used for maintaining native vegetation in the Kern Subbasin.
- **Other Sector** – This category includes groundwater extractions for water use sectors that do not fit within the categories listed above. Examples include groundwater pumping for use outside of the Kern Subbasin, lake level management, unspecified uses or multiple water-uses. The total groundwater extraction for other uses in the Kern Subbasin is 45,823 acre-feet, which accounts for 4 percent of the total pumping in WY2025.

Groundwater extractions presented here represent the current best estimate of groundwater pumping in the Kern Subbasin. The use of Kern-IWFM, including the IDC tool, provides a consistent, basin-wide method for estimating the unmeasured pumping in accordance with the Kern County Subbasin Coordination Agreement.

4.1.3 Groundwater Extractions Map

In accordance with 23 CCR §356.2 (b)(2), this Annual Report includes a map (Figure 13) illustrating the general distribution and rate of groundwater extractions for WY2025 derived from the simulation results of the Kern-IWFM model. The specified metered pumping is directly input into the Kern-IWFM model while the IDC tool estimates the unmeasured portion of agricultural and urban pumping based on land use calculations (Todd Groundwater 2025).

Developing a map required accessing the groundwater extraction for each element from the binary output files of model results. The model output is the total volume of groundwater extracted within a model element. Because model elements vary in size, the simulated groundwater extraction rate from Kern-IWFM was normalized to the rate of acre-feet per square mile for the entire water year. These groundwater extraction rates were then interpolated onto a uniform one-square mile grid superimposed over the Kern Subbasin. Therefore, the Kern-IWFM model results represent the total pumping over the entire Subbasin.

Figure 13 shows the distribution of total groundwater extractions over the Subbasin. Because agricultural pumping accounts for 71 percent of the total WY2025 groundwater extractions, the pumping distribution generally corresponds to the distribution of irrigated agriculture and urban areas. The exception is in the northwestern Subbasin where irrigated agriculture depends solely upon imported surface water supplies due to poor local groundwater quality, which is unsuitable for irrigation. In general, groundwater extraction in the irrigated areas ranges between 250 to greater than 1,000 acre-feet per square mile. Areas with minimal pumping represent sparsely populated areas, areas with little or no agriculture or agricultural areas with large surface water supplies that utilized little to no groundwater in WY2025.

More localized areas of higher pumping are typically associated with recovery of previously “banked” surface water at conjunctive use and water banking operations. In WY2025, recovery of stored surface water was higher than WY2024, but less than in prior years. Therefore, localized areas of higher pumping occur in North Basin and South Basin HCM Areas. Unlike prior water years, the Kern Fan HCM Area does not show an area of elevated pumping in WY2025. This is due to low recovery operations at the multiple water banking operations in this area relative to prior below normal or dry water years.

4.2 Surface Water Supply

The volume of surface water supplies delivered to the Kern Subbasin is provided per GSP Regulations (23 CCR §356.2(b)(3). Surface water supplies for the Subbasin for WY2025 were compiled from data collected using the “best available measurement methods.” Surface water supplies are directly measured by local water agencies at the point of diversion from a river, stream or canal. The measured

surface water supplies were provided by local agricultural water districts, urban water purveyors and city water departments. Metered data were compiled by local water agencies following their monitoring protocols. Therefore, these data were obtained using a "high accuracy" method consistent with typical accuracy ranges of surface water diversions.

Using the methods described above, the surface water supply by source in the Subbasin for WY2025 was tabulated and is summarized in Table 8. The water source types are defined in 23 CCR §351 (a-k). The user can identify a different water source type than those predefined by selecting "*other source type*" in the template and providing a description of the source type with the data. Figure 14 is a map showing the primary surface water supply infrastructure and features in the Kern Subbasin.

In WY2025, surface water supplies delivered to the Subbasin totaled 1,506,919 acre-feet. Surface water supplies in WY2025 were about 600,000 acre-feet less than in WY2024, which is about half of what was delivered in WY2023, a wet water year. In contrast, the WY2025 surface water supplies are about 700,000 acre-feet higher than occurred in the critically dry water years of WY2021 or WY2022.

Table 8. Surface Water Supplies in the Kern County Subbasin for WY2025

Surface Water Supply	Surface Water Supply Volume
Surface Water Supply Source	**Acre-ft**
Central Valley Project	271,936
State Water Project	683,928
Colorado River Project	0
Local Supplies	438,144
Local Imported Supplies	65,861
Recycled Water	46,517
Desalination	0
Other Water Source	533
Total Surface Water Supply	1,506,919

Following the DWR templates, the surface water supplies are presented by water source. For the Subbasin, the water supply sources are described as follows:

- **Central Valley Project (CVP)**: surface water deliveries from the CVP are primarily diverted from the Friant-Kern Canal. In WY2025, 271,936 acre-feet of CVP water were reported as delivered to local agencies, representing about 18 percent of total surface water supplies.
- **State Water Project (SWP)**: surface water deliveries from the SWP are diverted from the California Aqueduct. In WY2025, 683,928 acre-feet of SWP water were reported as delivered to local agencies, representing about 45 percent of total surface water supplies.
- **Colorado River Project**: Currently, no surface water from the Colorado River is delivered to the Kern Subbasin.

- **Local Supplies**: surface water diversions from local surface water sources. The primary local supply is from the Kern River but also includes other local sources such as Poso Creek and water exchanges. In WY2025, 438,144 acre-feet of local surface water were reported as delivered to local agencies, representing about 29 percent of total surface water supplies.
- **Local Imported Supplies:** surface water from local sources imported from areas outside of the Kern Subbasin. The primary source of local imported water is from recycled produced water[1]. In WY2025, 65,861 acre-feet of local imported water supplies were delivered, representing about 4 percent of total surface water supplies.
- **Recycled Water:** wastewater and recovered stormwater that is treated and used for either agriculture or groundwater recharge. In WY2025, 46,517 acre-feet of recycled water were used, representing about 3 percent of total surface water supplies.
- **Desalination Water:** poor-quality surface water or groundwater that is treated to levels where it can be used for beneficial use. Currently, no desalination occurs in the Subbasin; however, proposed Subbasin P/MAs include this source as a future water supply.
- **Other Water Source**: surface water obtained from sources other than those listed above. In WY2025, 533 acre-feet of tailwater was diverted back for irrigated agriculture water supply, representing less than 1 percent of total surface water supplies.

The surface water supplies in the Subbasin vary from year-to-year due to water year type, statewide water demand and operational considerations. WY2025 was a below normal water year according to the San Joaquin Valley Index; flows on the Kern River Computed Natural Flow was 80 percent of the long-term average, which is also consistent with normal to above normal conditions (Figure 5).

4.3 Total Water Supply and Use

The total water supply and use for the Kern Subbasin is provided for WY2025 per GSP Regulations 23 CCR §356.2(b)(4). Data are summarized following the DWR data templates for total water supply and use.

4.3.1 Total Water Supply By Source

The total water supply utilizes the same data compiled for WY2025 groundwater extractions and surface water supplies as presented in Sections 4.1 and 4.2. The data show a total water use for the Subbasin of 2,721,532 acre-feet in WY2025. The total water supply is summarized in Table 9**.**

[1] Recycled produced water is water entrained with the oil and gas produced from hydrocarbon reservoirs. Produced water is primarily used for enhanced oil recovery operations (e.g., water flood, steam injection etc.); however, excess is injected into exempt aquifers. In recent years some recycled produced water, processed at a treatment plant to meet regulatory requirements for beneficial use, is provided to water agencies as local imported surface water derived from outside of the Kern County Subbasin.

Table 9. Total Water Supply by Source in the Kern County Subbasin for WY2025

Total Water Supply	Total Water Supply by Volume
Water Source	**Acre-ft**
Groundwater	1,214,614
Surface Water	1,459,869
Recycled Water	46,517
Reused Water	533
Other Water Source Type	0
Total Water Supply	2,721,532

The water supply types shown on Table 9 are described as follows:

- **Groundwater** includes groundwater extractions for all uses. In WY2025, the groundwater supply totaled 1,214,614 acre-feet representing about 44 percent of total supplies in WY2025.
- **Surface water** includes surface water deliveries for all uses. In WY2025, the surface water supply totaled 1,459,869 acre-feet representing about 54 percent of total water supplies in WY2025.
- **Recycled water** includes treated wastewater and stormwater for all use. In WY2025, recycled water supply totaled 46,517 acre-feet representing about 2 percent of total water supplies in WY2025.
- **Reused water** includes reuse of tailwater, or irrigation return flow that re-enters local surface water system and is then diverted back for irrigated agriculture water supply. In WY2025, reused water supply totaled 533 acre-feet representing less than 0.01 percent of total water supplies in WY2025.
- **Other Water Source Type** - No *other* water source type is noted for the Kern Subbasin.

In this case, the total surface water supply from Section 4.2 that is shown distributed by water source in Table 8 is presented in Table 9 distributed by water supply type. Specifically, the total surface water supply shown on Table 8 is distributed among surface water, recycled water and reused water on Table 9.

4.3.2 Total Water Use By Water Use Sector

The total water use also utilizes the same data that was compiled for WY2025 groundwater extractions and surface water supplies presented in Sections 4.1 and 4.2. In this case, the total urban and agricultural water use is taken from the IDC tool within the Kern-IWFM model. The data show a total water use for the Subbasin was 2,721,532 acre-feet in WY2025 as summarized by the water use sector in Table 10.

Table 10. Total Water Use by Sector in the Kern County Subbasin for WY2025

Total Water Use	Total Water Use Volume
Water Use Sector	**Acre-ft**
Urban	209,253
Industrial	5,973
Agricultural	1,942,876
Managed Wetland	22,153
Managed Recharge	244,174
Native Vegetation	0
Other Water Use Type	297,103
Total Water Use	2,721,532

The water use sectors shown in Table 10 are described as follows:

- **Urban** includes total water use for all urban water uses including residential, commercial, municipal, industrial, landscaping and other uses. In WY2025, urban water use totaled 209,253 acre-feet, representing about 8 percent of the total water use.
- **Industrial** includes total water use for industrial use. Industrial from private wells is tabulated in this category, whereas industrial supply provided by water purveyors is included under Urban use. In WY2025, urban water use totaled 5,973 acre-feet, representing less than one percent of the total water use.
- **Agricultural** includes total applied water for all agricultural water uses including consumptive use and return flows. In WY2025, total applied water for agricultural use totaled 1,942,876 acre-feet, representing about 71 percent of the total water use.
- **Managed Wetlands** includes total water use for maintaining managed wetlands at the Kern National Wildlife Refuge. In WY2025, managed wetlands water use totaled 22,153 acre-feet, representing less than 1 percent of the total water use.
- **Managed Recharge** includes total water use for active recharge at the managed recharge and water banking operations. In WY2025, managed recharge use totaled 244,174 acre-feet, representing about 9 percent of the total water use.
- **Native Vegetation** includes total water use for maintaining native vegetation. In WY2025, no groundwater extractions or surface water deliveries were used on native vegetation.
- **Other Water Use** includes total water use for uses other than those listed above or from unspecified uses. Groundwater extractions for managed recharge (Table 7) are also listed here because they have multiple potential uses. In WY2025, Other Water Uses totaled 297,103 acre-feet, representing about 11 percent of the total water use.

The total water use also utilizes the same data that was compiled for WY2025 groundwater extractions and surface water supplies presented in Sections 4.1 and 4.2. In this case, the total urban and agricultural water use is taken from the IDC tool within the Kern-IWFM model.

4.4 DWR DATA TEMPLATES

As part of the Annual Report submittal, DWR requires that a series of Excel spreadsheets be completed to summarize key water supply and use volumes for WY2025 for the entire Subbasin. DWR requires the submittal of this data as separate spreadsheets along with the Annual Report. These include:

- **Part A. Groundwater Extractions** - groundwater extractions for WY2024 by water use sector (23 CCR §356.2(b)(2)). Data summarized in Table 7.
- **Part B. Groundwater Extraction Methods** - the volume of groundwater extractions for WY2024 by different measurement methods (23 CCR §356.2(b)(2)). Data summarized in Table 7.
- **Part C. Surface Water Supply** – the surface water supply for WY2024 based on quantitative data and listed by water source type (23 CCR §356.2(b)(3)). Data summarized in Table 8.
- **Part D. Total Water Use** – the total water supply by water use type and total water uses by water use sector for the preceding water year (WY2024) for the entire Kern Subbasin (23 CCR §356.2(b)(4)). Data summarized in Tables 9 and 10.

Accuracy of measurement is required on the DWR templates. For the Kern Subbasin, the estimated accuracy of the data reported to DWR is summarized below.

4.5 ACCURACY OF MEASUREMENT

In accordance with 23 CCR §356.2 (b)(2), the user must define the method of measurement (direct or indirect) and the accuracy of measurements for collecting water supply and use data.

Groundwater extractions are based on either reported metered pumping data or simulation results of the groundwater model. Metered data are collected by experienced agency staff from agricultural, urban and county water agencies (Table 1) in accordance with their monitoring protocols. The measuring devices used by these agencies are considered to be well maintained and consistently monitored; therefore, reported data meet high accuracy levels in compliance with AWWA (2006, 2012) and other relevant standards. In accordance with these standards, meter accuracy is considered high, ranging between 0 percent and 5 percent.

Estimated groundwater extractions are based on simulation results of the IDC tool within Kern-IWFM model. The water balance accuracy of the groundwater model is considered medium, approximately ranging between 5 percent and 10 percent (Todd Groundwater, 2025). The agricultural pumping, which is the largest component of groundwater extraction, is estimated based on ET rates and land use from Land IQ.

Measurement of surface water supplies for the Kern Subbasin includes a variety of methods, but all are considered reliable and accurate. Water agencies typically measure surface water deliveries with a combination of weirs and meters that are read and reported by agency staff. Senate Bill x7-7 (SBx7-7) requires flow measurement devices to be maintained within an acceptable range of accuracy that is defined as a volumetric flow measurement within +/- 12 percent (§597.3(a)(1))). Weirs and meters used

in the Kern Subbasin conform to the SBx7-7 volumetric accounting standards (ITRC, 2012, USBR, 2001, AWWA 2006, 2012) as documented in local water district agricultural water management plans. Procedures employed by water agencies have been standardized to further reduce potential sources of error to range between 1 percent to 10 percent depending on the measurement device. In the Part C template, an error range of 5 percent to 10 percent is listed as a conservative assumption for this Annual Report.

5 CHANGE IN GROUNDWATER IN STORAGE

GSP regulation §356.2(b)(5) requires inclusion of the following maps and graphs in the Annual Report for the entire Kern Subbasin:

- Change in groundwater in storage maps for each principal aquifer in the basin.
- Graphs depicting water year type, groundwater use, annual change in groundwater in storage, and cumulative change in groundwater in storage for the basin based on historical data to the greatest extent available, including from January 1, 2015, to the current reporting year.

This section provides a description of the methodology used to develop the required annual change in groundwater in storage maps and graphs.

5.1 METHODOLOGY

The Kern Subbasin GSAs have coordinated on the approach and documentation (in maps and graphs) of change in groundwater in storage for the entire Subbasin; these are based on the updated Kern-IWFM model results. The Kern County Subbasin Coordination Agreement refers to the local groundwater-surface water model as the agreed upon method for generating coordinated water budgets for the Subbasin. The Kern-IWFM model uses comparable data sets and methodologies over the entire Subbasin that meet the requirements for basin-wide coordination, as required in §357.4.

The change in storage update is based on the recently updated Subbasin groundwater model, Kern-IWFM, that was completed in 2025 (Todd Groundwater, 2025). The Kern-IWFM model includes updates to water budget inputs. The model was recalibrated to improve the correlation of simulated to observed groundwater elevations relative to the prior model. A summary of Kern-IWFM model development is provided in Section 7.3.4, and additional documentation is available in the Basin Study technical report (Todd Groundwater, 2025).

5.2 GRAPHS OF CHANGE IN GROUNDWATER IN STORAGE

GSP Regulation §356.2(b)(5)(B) requires that the Annual Report include graphs of the following basin-wide information. The graphs are to include historical data, to the greatest extent available, including from January 1, 2015, to the current reporting year.

5.2.1 Change in Groundwater in Storage Graph

The simulated change in groundwater in storage for the Kern Subbasin over the 30-year period from WY1995 through WY2025 is shown graphically in Figure 15. The water year type based on the San Joaquin Valley Index (CDEC, 2025) is shown on Figure 15 to provide a comparison of water year type and the calculated change in groundwater in storage for the Subbasin.

The variation in the simulated change in groundwater in storage over the historical period generally corresponds with the variation in climatic conditions and surface water supply availability (Figure 15).

During the periods WY1995 to WY1999, WY2005 to WY2006 and WY2011, the groundwater storage volume has a stable to increasing trend, this correlates to the above average rainfall and surface water availability during these times. During the periods WY2000 to WY2004, WY2007 to WY2010 and WY2012 to WY2015, groundwater storage volume decreased, correlated to periods of drought and low surface water availability.

For WY2025, a below normal water year type (Figure 5), the groundwater in storage decreased by 636,929 acre-feet. This exceeds the historical average annual change in groundwater in storage over the 20-year base period (WYs 1995 through 2014), which was a decline of 274,200 AFY. However, the WY2025 decline is the range of declines that occurred during prior below normal water year types in 2003 and 2018 (Figure 15). Drier conditions typically result in lower availability of surface water supplies for consumptive use, reduced recharge at the Subbasin conjunctive use and water banking operations and increased groundwater extraction. Each water year has its own unique balance of inflows and outflows; therefore, this comparison with prior similar water year types is provided only as a general comparison that does not directly assess performance with GSP implementation (see Section 5.4).

5.2.2 Groundwater Use Graph

For WY2025, the Kern Subbasin had a total groundwater pumping of 1,214,614 acre-feet. Of that total volume, 71 percent was for agricultural use, 13 percent for urban and industrial use, 12 percent for water bank recovery[2] and about 4 percent for other uses. Figure 16 graphically shows the simulated groundwater use based on updated Kern-IWFM model results along with the water year type based on the San Joaquin Valley Index (CDEC, 2025).

The total groundwater pumping in WY2025 is about 15% higher than in WY2024, which was an above normal water year type. However, total groundwater pumping in WY2025 is about 50 percent lower compared to the previous two critically dry years of WYs 2021 and 2022.

Agricultural pumping in WY2025 is similar to recent below normal to dry water year types (WYs 2016, 2018 and 2020) whereas agricultural pumping is about 30% to 40% lower than what occurred during the recent critically dry year types (WYs 2021 and 2022). This illustrates the clear inverse relationship between the availability of surface water and agricultural pumping. Compared to the historical base period for the Subbasin (WYs 1995 to 2014), the WY2025 agricultural pumping is about 280,000 acre-feet lower, or about 25% less, than during the historical period average.

Urban pumping in WY2025 remains lower by about 70,000 AFY, or about 30% less, than during the historical period due to increased use of surface water and implementation of water conservation measures. Groundwater recovery pumping for conjunctive use and water banking operations in WY2025 is 150,000 to 350,000 AFY lower than occurred during other below normal to dry water years (WYs 2016, 2018 and 2020).

[2] Recovery pumping associated with water banking extracts local and imported surface water that was stored in the aquifer in previous years.

5.3 Map of Change in Groundwater in Storage for the Subbasin

GSP regulation §356.2(b)(5)(A) requires inclusion of an annual change in groundwater in storage map in the Annual Report. The WY2025 Annual Report presents the change in groundwater in storage for the entire Subbasin.

5.3.1 WY2025 Change in Groundwater in Storage Map

The change in groundwater storage map was developed using the same methodology applied to the groundwater extraction map. Kern-IWFM model output files were used to obtain storage changes for each model element and layer. Because element sizes vary, the storage change volumes were normalized to acre-feet per square mile and interpolated onto a uniform one square mile grid covering the Kern Subbasin.

Figure 17 provides a maps showing the annual Subbasin-wide change in groundwater storage for WY2025. Positive values indicate increased aquifer storage, reflected by rising groundwater levels, while negative values indicate decreased storage and declining groundwater levels. WY2025 was classified as a below normal water year under the San Joaquin Valley Index, and Kern River flows were 80 percent of average.

Reduced operations, both recharge and recovery, at major water banks along the Kern River occurred in WY2025. The decline in the change in storage in the banking area seen on Figure 17 represents a dissipation of the mound formed during the preceding wet years when recharge was more prevalent. As a result, the change in storage does not show the pronounced storage changes seen in prior years. Localized declines correspond to recovery activities at conjunctive use projects in both the North and South Basin HCM areas.

Minor decreases in storage also appear along major stream corridors and the eastern Subbasin margin, reflecting reduced watershed recharge. Agricultural areas show modest annual changes on Figure 17, consistent with limited surface water availability and slightly elevated groundwater use (to make up for the limited surface-water supplies). As with the groundwater extraction map (Figure 13), areas with minimal change typically include sparsely populated regions, lands with little or no agriculture, or agricultural areas with substantial surface water supplies and minimal groundwater reliance during WY2025.

5.4 Groundwater Storage Change Assessment

As the GSP implementation progresses, the Subbasin will be evaluating performance towards attaining sustainability. A key indicator is the water budget. For the Annual Report, the historical simulation using the Kern-IWFM model has been updated through WY2025 (see Section 4). Because of the year-to-year variability, results from the Historical simulation are compared to the Projected-Future 2030 Climate Change Scenarios from the 2025 Plan. The projected-future P/MAs scenario simulates a set of GSA P/MAs that achieve sustainability by 2040 for the overall Subbasin. This provides a performance

measure for assessing the overall progress of the Kern Subbasin GSAs towards implementing the 2025 Plan.

5.4.1 Assessment of Change in Groundwater in Storage

Changes in groundwater storage provide an important measure of progress toward sustainability. As shown in Figure 15, annual storage change in the Kern Subbasin varies significantly based on water year type, availability of imported surface water, and groundwater use. In WY2022, a critically dry year, groundwater storage declined by 1,720,570 acre-feet. In contrast, WY2023—a wet year—showed an increase of 2,288,787 acre-feet. In WY2025, a below normal year, storage decreased by 636,929 acre-feet.

Figure 18 (upper) compares the Historical simulation of groundwater storage change with the Projected Future 2030 Climate Change Scenarios, both with and without P/MAs. Both the Historical and 2030 scenarios indicate that year to year variability will continue through the SGMA implementation period. The Historical results for WYs 2021–2025 generally align with the "2030 Climate Change + Projects" scenario.

The difference between the "2030 Climate Change" and "2030 Climate Change + Projects" scenarios represents the annual benefits of P/MAs. Summing these annual effects produces the cumulative change in groundwater storage shown in Figure 18 (lower). The "2030 Climate Change + Projects" scenario demonstrates a pathway to Subbasin sustainability by WY2040. Historical cumulative change compares favorably to this scenario, indicating that the Subbasin remains on track to meeting the sustainability goal.

During WYs 2021 to 2025, the five-year average San Joaquin Valley Index (SJVI) was 3.0, reflecting below normal conditions. Over the equivalent period in the 2030 scenarios, the average SJVI was 3.5, indicating above normal conditions. This comparison shows that the historical period experienced less favorable hydrology than the projected future scenario with P/MAs, further demonstrating that GSP implementation is improving aquifer conditions.

5.4.2 Assessment of Land Use and Consumptive Use

Long-term trends in total and agricultural groundwater pumping, irrigated acreage, and crop evapotranspiration provide an additional measure of Subbasin sustainability. Figure 19 (upper) presents annual total pumping from WY1995 to 2025 based on the Kern-IWFM model. Total pumping in WY2021 and WY2022 is consistent with the maximum pumping rates expected during critically dry years under the *2030 Climate Change + Projects* scenario. Pumping in WY2023 and WY2024 aligns with minimum rates typical of wet years for the same scenario.

Total pumping in WY2025 is less than projected for a below normal water year under the *2030 Climate Change + Projects* scenario. The WY2025 total pumping is 150,000 to 200,000 AFY lower than occurred in prior below normal water year types in 2003 and 2018. WY2009, another below normal water year, was about 700,000 AFY higher than in WY2025 with a high percentage of that difference associated with

recovery of stored surface water from Subbasin conjunctive use and water banking operations. This indicates that total pumping in WY2025 shows less reliance on the recovery of stored surface water consistent with Subbasin P/MAs that are being implemented.

Figure 19 (lower) shows agricultural pumping following a similar pattern. Historical pumping remains at or below *2030 Climate Change + Projects* scenario levels during WYs 2021 to 2025, indicating that groundwater production continues to align with the 2025 Plan sustainability goal and objectives. Similar to total pumping, Figure 19 (lower) shows WY2025 agricultural pumping 60,000 to 130,000 AFY lower than occurred in prior below normal water year types in 2003, 2009 and 2018. This indicates that agricultural pumping in WY2025 is less than in these prior below normal water year types which is consistent with the demand reduction P/MAs that are being implemented in the Subbasin.

Figure 20 summarizes irrigated land acreage and crop evapotranspiration (ETc). Figure 20 (upper) indicates that irrigated acreage has declined from roughly 900,000 acres in the 1990s to under 700,000 acres during WYs 2018–2025, with the lowest irrigated acreage occurring in WY2025. This is consistent with the 2025 Plan's focus on demand reduction to reach sustainable conditions. Figure 20 (lower) shows a corresponding decrease in agricultural water demand based on ETc.

Multiple factors may contribute to these land use changes, including water supply limitations, economic conditions, and drought response. In addition, Kern Subbasin GSAs began implementing P/MAs in WY2020, including land fallowing and land retirement. The WY2025 irrigated agricultural ET was from 60,000 to 130,000 lower than occurred in prior below normal water year types in 2003 and 2018. In WY2009 irrigated agricultural ET was about equal to what occurred in WY2025. This indicates that irrigated agricultural water demand in WY2025 is less than in these prior below normal water year types which is consistent with the demand reduction P/MAs that are being implemented in the Subbasin.

5.5 Accuracy of Change in Groundwater in Storage

The change in groundwater in storage is based on the recently updated Kern-IWFM model developed as part of the Basin Study (see Section 7.3.4). The estimated level of uncertainty of the overall water budget was determined to be on the order of 5 percent to 10 percent based on the improved model calibration (Todd Groundwater, 2025).

6 CURRENT CONDITIONS FOR SUSTAINABILITY INDICATORS

This Seventh Annual Report includes information about the five sustainability indicators relevant in the Kern Subbasin (no sea water intrusion is present). Consistent with the regulations 23 CCR § 356.2(c), the GSAs should describe, tabulate, and provide graphical representation of current sustainability indicators. These sustainability indicators include:

- Chronic lowering of groundwater levels
- Reduction of groundwater storage
- Degradation of water quality
- Land subsidence
- Interconnected surface water depletions

This Annual Report presents the current conditions relative to the sustainability indicators from the 2025 Plan. These sustainability indicators supersede those presented in prior annual reports based on 2020 and 2022 GSPs.

6.1 CHRONIC LOWERING OF GROUNDWATER LEVELS

The hydrographs for the 187 RMWs in the 2025 Plan monitoring network illustrate how groundwater elevations compare to their designated MOs and MTs during the reporting period (Appendix C). The location of the RMWs is shown on Figure 4. As discussed in Section 3, the WY2025 monitoring periods include:

- WY2025 Fall monitoring period - September 15 to November 15, 2024
- WY2025 Spring monitoring period - January 15 to March 30, 2025

MT exceedances occurred at 3 of the 187 RMW locations during WY2025 (Figure 4). During the Fall 2024 monitoring period, groundwater elevations at 3 RMWs were below their designated MT value (Table 11). During the Spring 2025 monitoring period, the groundwater elevation at one RMW was below its designated MT value. The following assessment of MT exceedances following the 2025 Plan found that no undesirable result (UR) occurred in the Subbasin during WY2025 with respect to the Chronic Lowering of Groundwater Levels. The following discussion summarizes the results of this assessment.

Per Section 354.26(b)(2) of the GSP Emergency Regulations, the description of undesirable results (URs) must include the criteria used to define when and where the effects of groundwater conditions cause URs, based on a quantitative description of the combination of MT exceedances that cause significant and unreasonable effects in the Subbasin. Given this requirement, the Kern Subbasin has established a quantitative UR definition that would be triggered if one of the following three conditions is met:

1) The MTs for Chronic Lowering of Groundwater Levels are exceeded in at least 25 percent of the RMW-WLs over a single year (i.e., two consecutive seasonal measurements).

2) More than 15 drinking water wells are reported as dry in any given year. If 15 drinking water wells were impacted every year, no more than 255 drinking water wells cumulatively would be impacted by 2040.

3) A GSA is unable to meet their well mitigation needs as defined in the Kern Subbasin Well Mitigation Program (2025 Plan, Appendix G-1).

Based on the evaluation of the three UR criteria for WY2025, changes in groundwater elevations did not lead to a Subbasin-wide undesirable result in WY2025 as demonstrated by the following analysis.

The first UR criterion requires that MTs are exceeded in at least 25 percent of RMW-WLs over two consecutive seasonal measurements. Table 11 provides the MT Exceedances under the 2025 Plan from Spring 2024 through Spring 2025 to provide sufficient range to evaluate MT exceedances over two consecutive seasonal measurements. From Table 11 only one of the 187 RMW locations had an MT exceedance over two consecutive seasonal measurements, which accounts for 0.5 percent of the RMW-WLs over a single year. This is well below the 25 percent listed in the first UR criteria. Groundwater levels at the other RMWs recovered to above their respective MT during the following monitoring period.

Table 11. MT Exceedances by GSA

GSA	RMW Name	MT Exceedances		
		Spring 2024	Fall 2024	Spring 2025
Buena Vista WSD GSA	RMW-113b	1	0	0
Cawelo WD GSA	RMW-172	0	1	0
Kern River GSA	RMW-218	1	1	1
Wheeler Ridge-Maricopa WSD GSA	RMW-232	0	1	0
TOTAL		2	3	1

To put the number of WY2025 MT exceedances into historical context for the Subbasin, Figure 21 (upper graph) shows the number of RMW locations with an MT exceedance during each of the semi-annual monitoring periods from WY2021 (Fall 2020) through WY2025 (Spring 2025). The historical MT exceedances are based on the MTs and monitoring network from the current 2025 Plan as shown in the hydrographs presented in Appendix C. During the period of persistent dry conditions from WY2020 into early WY2023, the number of MT exceedances grew from 2 in Fall 2020 to 10 in Fall 2022. During WY2023, increasing groundwater elevations resulting from wet water year conditions reduced the number of MT exceedances to 6 in Spring 2023 and 2 in Fall 2023. Fall 2022 is considered as part of a wet water year type of WY2023. However, the high rainfall conditions did not occur until after the Fall 2022 monitoring period, so it really represents conditions related to the preceding two year critically dry water period. The number of MT exceedances from Fall 2023 to Spring 2025 has ranged from 1 to 3 exceedances.

The second UR criterion requires more than 15 drinking water wells to be reported dry in any given year. During WY2025, one dry well was reported to the DWR Dry Well Reporting System web site (Table 12).

The Arvin GSA received one report of a dry well in WY2025 (Appendix F). Staff are investigating the report. No other GSAs received a report of a dry well in WY2025. From Table 12, a total of two dry wells were reported (one dry well was reported to the GSAs, and one dry well was reported to DWR). This is well below the 15 drinking water wells per year listed in the second UR criteria. The location of the current WY2025 MT exceedances and the location of the reported dry wells are shown in Figure 22.

Table 12. Reported Dry Wells in WY2025

Status	Water Issues	Approximate Issue Start Date	GSA
DWR MyDryWell.com	**Well is dry (no longer producing water)**	**8/19/2025**	**KRGSA**
Reported to GSA	**Dry well**	**2025**	**Arvin GSA**

Figure 21 (lower graph) puts the WY2025 reported dry wells into historical context for the Subbasin. Wells can go dry due to multiple reasons, not necessarily due to the chronic lowering of groundwater levels. The dry wells listed here are those that are reported; however, the dry well conditions are not associated with a specific cause.

In WY2025, a total of two dry wells were reported either to the DWR Dry Well Reporting System web site or to a Subbasin GSA. This follows WY2024 where no dry wells were reported. Similarly, no dry wells were reported in WY2018 and WY2020, which also occurred during years that followed a wet water year type. In contrast, persistent dry conditions during WY2015 and WY2016 resulted in 2 and 9 reported dry wells, respectively for those years. The return to wet and above normal conditions in WYs 2017 through WY2019 led to a decrease with 2 reported dry wells in WY2017 and none in either WY2018 or WY2020. During the critically dry conditions in WYs 2021 through early WY2023, the number of reported dry wells increased to a maximum of 12 reported dry wells in WY2022. The lingering effects of the critically dry conditions resulted in 7 reported dry wells in WY2023.

The third UR criterion is if a GSA is unable to meet well mitigation needs as defined in the Kern Subbasin Well Mitigation Program. No well mitigations were being implemented by the Kern Subbasin Mitigation Evaluation Committee (KMEC) to be paid for by a Subbasin GSA in WY2025; therefore, this UR condition does not apply.

6.2 REDUCTION OF GROUNDWATER IN STORAGE

The 2025 Plan determined that the Chronic Lowering of Groundwater Levels SMCs serve as a proxy for Reduction of Groundwater Storage pursuant to 23 CCR §354.28(d). Analysis in the 2025 Plan found that the annual change groundwater elevations was well correlated with the simulated change in water in storage; therefore, groundwater level measurements provide a reasonable proxy to estimate changes in groundwater storage. As such, the criterion used to define URs for Reduction of Groundwater Storage is based on the criteria used to define URs for Chronic Lowering of Groundwater Levels, as follows:

- The MTs for Chronic Lowering of Groundwater Levels are exceeded in at least 25 percent of the RMW-WLs over a single year (i.e., two consecutive seasonal measurements).

As noted in the preceding section, only one of the 187 RMW locations had an MT exceedance over two consecutive seasonal measurements (Table 11), which accounts for 0.5 percent of the RMW-WLs over a single year. This is well below the 25 percent listed in the first UR criteria. Groundwater levels at the other RMWs recovered to above their respective MT during the following monitoring period. This assessment of MT exceedances following the 2025 Plan found that no URs occurred in the Subbasin during WY2025 with respect to the Reduction of Groundwater Storage.

6.3 WATER QUALITY

The 2025 Plan characterizes groundwater quality by HCM Area and identifies the driving mechanisms for degradation. To support sustainable groundwater management, MTs were established for six constituents of concern (COC) using baseline data from each RMW-WQ, or proxy data from nearby wells that represent local groundwater conditions. Appendix D presents a series of chemographs that graphically show changes in COC concentrations over time at each RMW-WQ. The 2025 Plan establishes SMCs (including MOs and MTs), defines potential impacts to beneficial users, quantifies triggers to an UR, and outlines the methodology for counting URs. The GSP identified 55 RMW-WQs (Figure 23). Additional wells will be added to the monitoring network as data gaps are filled in WY2026.

To support consistency amongst all GSAs during data collection, Standard Operating Procedures (SOPs) were prepared to guide collection of representative seasonal monitoring data. Constituents of concern in the Kern Subbasin include arsenic, nitrate, nitrite, 1,2,3-trichloropropane (TCP), total dissolved solids, and uranium (2025 Plan, Appendix M-2). To evaluate the relationship between each constituent and groundwater levels, water quality samples are collected within 2 weeks of groundwater elevation measurements from the same or nearby RMW-WQ.

Since the Subbasin-wide approach to water quality will be implemented starting in WY2026, this section summarizes conditions outlined in the GSP to provide baseline conditions that will be evaluated in each subsequent annual report. 12 GSAs collected water quality samples in WY2025 and reported results to the Kern Subbasin DMS. All other GSAs reported that samples were not collected in WY2025 due to wells not operating, reliance on surface water, operational issues, or monitoring starting in a later water year. The following discussion provides an overview of baseline conditions for the six COCs identified for the Subbasin.

The Subbasin's monitoring approach is designed to clearly depict the relationship between groundwater management actions with water quality response by aligning constituent sampling with groundwater level measurements. This framework improves the ability to evaluate whether changes in pumping, recharge, or water level conditions influence constituent concentrations, while maintaining consistency across hydrogeologic settings.

1,2,3 Trichloropropane (TCP)

TCP is the constituent with the most widespread occurrence in the Subbasin, with exceedances concentrated in Kern River Fan, North Basin, and South Basin. The source of contamination is a legacy fumigant impurity (D D/Telone era, 1950–1984). In groundwater, TCP has a long half-life (hundreds of years). Of the 494 wells sampled, 220 (45%) have results that exceed the Water Quality Objective (WQO). Chemographs of TCP at the 55 RMW-WQs are provided in Appendix D.

Data trending in the GSP explains how historical TCP concentrations are often highly variable and appear to be most strongly correlated with well operation patterns. There does not appear to be a correlation between chronic lowering of groundwater levels and increasing concentrations, and no consistent linkage to basin management activities has been identified.

Arsenic

Arsenic is a naturally occurring constituent that tends to be elevated near E-Clay and lakebed deposits (portions of the North and South Basin HCM areas, the western side of the alluvium, and common in the Santa Margarita and Olcese formations). Concentrations in each well are strongly tied to well construction. Median values are typically below the WQO, but exceedances are present. Of the 495 well sampled, 113 (23%) have results that exceed the WQO. Chemographs of Arsenic at the 55 RMW-WQs are provided in Appendix D.

Driving mechanisms for mobilization are reducing conditions; depth-dependent trends (elevated below E-Clay or near base of fresh water). Some wells show slight correlation with lower water levels (reduced dilution), but lithology and well construction dominate.

Nitrate / Nitrite / Nitrate+Nitrite

Nitrate and related nitrogen species are predominantly anthropogenic constituents, with exceedances most common in the North Basin and localized portions of the South Basin, particularly east and west of former lakebeds where the E Clay thins. Nitrite is largely non-detect, and exceedances are driven almost entirely by nitrate. Subbasin-wide, 112 of 740 wells (15.1%) exceed the WQO for nitrate as nitrogen, while 53 of 213 wells (24.9%) exceed the combined nitrate+nitrite WQO (reflecting a smaller sample size). Nitrite alone exceeds its MCL in 11 of 623 wells (1.8%). Small community systems are disproportionately affected, with approximately 23% (maximum) and 15% (median) of wells exceeding the nitrate WQO. Chemographs of nitrate and nitrite at the 55 RMW-WQs are provided in Appendix D.

Primary drivers include agricultural fertilizer applications, dairies, or confined animal facilities as the dominant sources, with septic systems contributing notable localized impacts. The E-Clay commonly limits downward migration, resulting in higher concentrations in shallower zones, while banking operations in the Kern River Fan tend to dilute nitrate in affected areas.

Uranium

Uranium is a naturally occurring constituent in the Subbasin, with elevated concentrations generally associated with oxidizing groundwater conditions and contact with uranium bearing sediments derived from granitic and volcanic source materials. Exceedances are most commonly observed in portions of the North and South Basins, and East Margin, particularly in areas influenced by recharge from the Kern

River and alluvial fan deposits, where bicarbonate rich waters enhance uranium mobility. Concentrations are strongly influenced by redox conditions, groundwater chemistry, and well construction, with higher values typically observed in shallower to intermediate depths above or near the E-Clay, and lower concentrations where reducing conditions prevail. Chemographs of uranium at the 55 RMW-WQs are provided in Appendix D.

Mobilization is driven primarily by oxidizing conditions and elevated alkalinity, which promote uranium desorption and complexation, increasing solubility. In contrast to arsenic, uranium tends to decrease with depth where reducing environments below the E-Clay limit mobility. Local dilution effects are evident in areas of active recharge and banking operations, while localized exceedances may occur where wells are screened across multiple zones or intersect preferential flow paths. Subbasin-wide, median uranium concentrations are generally below the WQO; however, exceedances remain present and spatially clustered, reflecting the combined influence of lithology, geochemistry, and well design rather than anthropogenic sources.

Total Dissolved Solids (TDS)

Total dissolved solids (TDS) reflect both natural geologic controls and legacy anthropogenic influences, with naturally high concentrations found across the Western Fold Belt. These higher values are associated primarily with marine derived sediments and fine-grained E-Clay and lakebed deposits, where reduced flushing and longer groundwater residence times result in higher salinity. In contrast, lower TDS concentrations occur toward the eastern alluvial recharge areas, where fresher recharge from surface water and coarse alluvium promotes dilution.

Subbasin-wide, only 65 of 541 wells (12.0%) exceed the WQO (upper limit) of 1,000 ppm. Median TDS concentrations within the Western Fold Belt exceed 1,000 ppm, indicating regionally persistent salinity, while medians elsewhere in the basin remain below the SMCL but exhibit localized exceedance tails. These patterns suggest that lithology and depositional environment are the dominant controls on TDS distribution, with secondary contributions from historical land and water use in select areas. Chemographs of TDS at the 55 RMW-WQs are provided in Appendix D.

6.4 LAND SUBSIDENCE

SGMA defines an UR for Land Subsidence as “significant and unreasonable land subsidence that substantially interferes with surface land uses” (CWC §10721(x)). The Subbasin-wide UR for Land Subsidence is defined as follows:

> *The point at which the amount of subsidence, if caused by GSA-related groundwater extractions in the Subbasin, creates a significant and unreasonable impact on surface land uses or critical infrastructure. Loss in functionality that could be mitigated by the GSAs would not be considered an undesirable result.*

Land subsidence has been documented in the southern San Joaquin Valley for more than 100 years and recent investigations using satellite imagery, global positioning system (GPS) stations and spirit leveling indicate continuing land subsidence across much of the southern San Joaquin Valley.

6.4.1 InSAR Data for Kern County and Adjacent Subbasins

To assess land subsidence, Interferometric Synthetic Aperture Radar (InSAR) satellite data were downloaded from the SGMA Portal of the areal distribution of vertical displacement in the Kern County and adjacent subbasins. The benefit of InSAR is that large areas of land can be accurately surveyed with no invasive actions or land surface access complications. The accuracy of measurement of InSAR satellite data is +/-0.066 feet at a 95% confidence level according to Towill (2025). However, InSAR measures change in the land surface; therefore, minor vertical displacements may reflect the influence of factors other than land subsidence.

Figure 24 provides a map showing the DWR InSAR vertical displacement from October 2015 through September 2025 (DWR, 2025) to provide a long-term view over the past ten years of land subsidence. The following provides a brief summary of the degree of subsidence based on the InSAR satellite data for the Kern Subbasin and adjacent areas:

- Maximum cumulative subsidence in the Kern Subbasin of 2.0 to 2.7 feet has occurred along a narrow stretch along the northern Subbasin boundary with the Tule Subbasin.
- North of the Kern Subbasin, maximum subsidence of up to about 7.7 feet with relatively large areas of subsidence ranging from 3 to 7 feet, which is greater than the maximum subsidence in the Kern Subbasin during this same period.
- Cumulative subsidence ranging from 0.5 to 2.0 feet has occurred in scattered areas across the Kern Subbasin, with the largest area along the northern Subbasin boundary. There are identified non-GSA-related activities in some of these areas.
- Cumulative subsidence of less than 0.5 foot covers the majority of the Kern Subbasin. Increases in vertical land displacement ranging from 0 to 0.3 feet occur along the eastern and western margins of the Kern Subbasin and along the Kern River.

The WY2025 map showing the DWR InSAR vertical displacement (Figure 25) shows a pattern that generally follows the pattern shown on Figure 24. As noted above, InSAR measures change in the land surface; therefore, minor vertical displacements may reflect the influence of factors other than land subsidence. Therefore, the WY2025 results below are reported as vertical displacement rather than subsidence since these minor changes may be due to multiple causes, not all of which are GSA related. Determination of subsidence requires a multiple year assessment. Overall, the Kern Subbasin has highly localized areas of potential land subsidence with most of the Subbasin experiencing minimal to no land subsidence.

- Within the Subbasin, the maximum InSAR vertical displacement of -0.27 feet occurred along the northern Subbasin boundary.
- North of the Kern Subbasin, the maximum InSAR vertical displacement of -0.55 feet.
- WY2025 InSAR vertical displacement ranging from 0.066 to 0.27 feet has occurred in scattered areas across the Kern Subbasin, with the largest area along the northern Subbasin boundary. There are identified non-GSA-related activities in some of these areas.

- WY20205 InSAR vertical displacement of less than 0.066 foot covers the majority of the Subbasin.

Along the Kern River, these areas where the WY2025 InSAR vertical displacement show increasing trends may represent an elastic response to rising groundwater elevations resulting from extensive managed water recharge operations following a period of recovery pumping; however, this positive displacement may also be influenced by other factors.

6.4.2 Accuracy of Measurement of InSAR Data

Accuracy of measurement is required by DWR for reporting monitoring data in the annual report. Towill (2025) assessed the TRE Altamira vertical InSAR measurement data against vertical displacements from an independent set of 186 continuous Global Positioning System (CGPS) stations. Data was aligned temporally and spatially (<100 m difference) in order to develop a Root Mean Square Error (RMSE) for each station. RMSE values for individual stations ranged from 33.60 to 1.61 mm (with a consolidated state-wide RMSE value of 10.14 mm) leading to "strong evidence that the InSAR data accurately models change in ground elevation to an accuracy tested to be 20 mm (0.066 ft) at 95% confidence." This approach assumes that the CGPS stations adequately represent the entire study area and InSAR dataset and that CGPS is an independent source of higher accuracy. Reported accuracy was last conducted for data spanning Jan 1, 2015 to Oct 1, 2024.

6.4.3 2025 Plan Application of Land Subsidence MTs

In order to identify and classify infrastructure in the Kern Subbasin potentially affected by land subsidence, the Kern Subbasin GSAs have adopted three classifications for critical infrastructure: Regional Critical Infrastructure, GSA Area Critical Infrastructure, and other infrastructure, which are defined as follows.

- Regional Critical Infrastructure (Figure 26) is defined as infrastructure located within the Kern Subbasin that serves multiple areas of the Kern Subbasin and whose loss of significant functionality due to subsidence, if caused by GSA-related groundwater extractions in the Subbasin, would have significant impacts to beneficial users. The Kern Subbasin GSAs have collectively determined that the only infrastructure that meets the definition for Regional Critical Infrastructure are the California Aqueduct (Aqueduct) and the Friant-Kern Canal (FKC).
- GSA Area Critical Infrastructure (Figure 29) is defined as infrastructure located within a particular GSA whose loss of significant functionality due to subsidence if caused by GSA-related groundwater extractions would have significant impacts to beneficial users within that GSA. Each Kern Subbasin GSA has identified their respective GSA Area Critical Infrastructure.
- Other infrastructure (Figure 30) is defined as other water supply, water conveyance, water treatment, transportation, or interstate gas distribution pipelines not included under Regional Critical Infrastructure or GSA Area Critical Infrastructure.

The subsidence evaluation is based on the analysis of the InSAR data related to the designated infrastructure by 1) cumulative displacement relative to the SMC baseline reference date of

January 1, 2024, and 2) evaluation of displacement rate relative to established MT rates over the water year. The InSAR data shown on Figures 26, 29 and 30 represents the cumulative displacement since January 1, 2024. The WY2025 displacement is presented on Figure 25.

The 2025 Plan establishes a Representative Monitoring Network and associated Representative Monitoring Sites (RMS) along Regional Critical Infrastructure, including ninety-one mileposts (MPs) along the California Aqueduct and thirty-one MPs along the Friant-Kern Canal (see Figure 26). The 2025 Plan defines Sustainable Management Criteria (SMC) at the individual RMS, including Minimum Threshold (MT) rates and extents from 2024 to 2040, Interim Milestone (IM) extents in five-year intervals (i.e., 2025, 2030, 2035), and Measurable Objective (MO) rates and extents for 2040 and beyond.

Regional Critical Infrastructure

Consistent with the 2025 Plan, quarterly and annual SMC assessments are conducted to evaluate land subsidence conditions using InSAR displacement rates and cumulative InSAR displacement since January 1, 2024. The assessment compares monitored land subsidence against SMCs to identify RMS where an investigation or targeted P/MAs may be warranted based on MT rate, MT extent, and/or IM extent exceedances. The WY2025 assessment follows the methodology described in the 2025 Plan. Key evaluation steps include:

1. Extraction of InSAR displacement values at each RMS.
2. Calculation of cumulative displacement relative to the SMC baseline reference date of January 1, 2024.
3. Evaluation of displacement rate relative to established MT rates by quarter and over the water year.
4. Evaluation of total displacement since January 1, 2024, relative to established MT extents and IM extents by quarter and over the water year.
5. RMS status classification into four compliance categories based on defined exceedance criteria. Given the various methods used to monitor subsidence and differing subsidence measured therein, it is necessary to incorporate measurement uncertainty into the classification process. InSAR accuracy is specified as ±20 mm (±0.066 ft) based on the Towill (2025) study. RMS status is therefore assigned to compliance categories as follows:
    - "OK" is defined as fewer than two quarterly MT rate/MT extent/IM extent exceedances or where annual displacement is less than the MT/IM.
    - "Watch List" is defined as two or more quarterly MT rate/MT extent/IM extent exceedances (but not consecutive exceedances). Watch List also includes two or more consecutive quarterly MT rate/MT extent/IM extent exceedances or where annual MT rate/MT extent/IM extent exceedances are less than the reported method acquisition accuracy.
    - "Investigation" is defined as two or more consecutive quarterly MT rate/MT extent/IM extent exceedances or where annual MT rate/MT extent/IM extent exceedances are in excess of the reported method acquisition accuracy.

- "Targeted P/MAs" are defined as RMS that have four or more consecutive quarterly MT extent/IM extent exceedances in excess of the reported accuracy. Exceedance investigation report findings will be used to inform development of appropriate, targeted P/MAs.

Table 13 provides a summary of land subsidence MT exceedances counts by compliance category for each critical infrastructure classification.

GSA Critical and Other Infrastructure

For the GSA Area Critical Infrastructure and Other Infrastructure, SMCs are established using the subsidence potential based on historical cumulative subsidence observed along the infrastructure within each GSA as described in the 2025 Plan. In summary, for portions of the designated infrastructure that have minimal subsidence potential, MTs are set as the average historical subsidence rates and estimated 2024-2040 extents in each HCM Area (2025 Plan). For other portions of the designated infrastructure that have low to moderate subsidence potential, MTs are set using the subsidence potential extent intervals and associated subsidence rates. The MTs for all other areas of the Kern Subbasin are set as the average historical subsidence rates and estimated 2024-2040 extents in each HCM Area. Following the 2025 Plan, land subsidence rates and extents will be compared against MTs annually both locally along GSA Area Critical Infrastructure and regionally averaging the InSAR displacement across each HCM Area. The RMS status classification has been divided into four compliance categories based on defined exceedance criteria using the same categories as used for the regional critical infrastructure.

Table 13. Summary of Land Subsidence MT Exceedances, Water Year 2025

Identifier	MT Extent			MT Rate		
	Watch List	Investi-gation	Targeted P/MAs	Watch List	Investi-gation	Targeted P/MAs
Pool	**California Aqueduct - Regional Critical Infrastructure**					
23	0	0	1	4	0	0
24	2	0	9	7	4	0
25	5	0	1	7	0	0
26	1	0	0	2	0	0
27	0	0	0	0	0	0
28	0	0	0	0	0	0
29	0	0	0	0	0	0
30	0	0	0	0	0	0
31	3	0	0	0	0	0
32	0	0	0	0	0	0
33	0	0	0	0	0	0
34	0	0	0	0	0	0
35	0	0	0	0	0	0
Pool	**Friant-Kern Canal - Regional Critical Infrastructure**					
Poso Creek	0	0	0	1	0	0
Shafter-Wasco	0	0	0	5	0	0
Kern River	0	0	0	8	0	0
Infrastructure	**GSA Area Critical Infrastructure**					
Calloway Canal	0	0	0	0	0	0
Lerdo Canal	0	0	0	0	0	0
Beardsley Canal	0	0	0	0	0	0
Cross Valley Canal	0	0	0	0	0	0
Kern River Canal	0	0	0	0	0	0
AEWSD Canal	0	0	0	0	0	0
Olcese Canal	0	0	0	0	0	0
I-5	0	0	0	0	0	0
Hwy 99	0	0	0	0	0	0
HCM Area	**Other Infrastructure**					
North Basin	0	0	N/A	0	0	N/A
Kern River Fan	0	0	N/A	0	0	N/A
South Basin	0	0	N/A	0	0	N/A
Western Fold Belt	0	0	N/A	1	0	N/A
East Margin	0	0	N/A	0	0	N/A

Notes:

1. MT Exceedances are based on InSAR data. InSAR data for 1 January 2024 through September 2025 is provisional at the time of this Annual Report and subject to change.
2. InSAR accuracy is specified at 20 mm based on Towill, Inc. 2025. InSAR Data Accuracy for California Groundwater Basins CGPS Data Comparative Analysis January 2015 to October 2024.
3. Watch List is defined as Water Year MT exceedances less than the reported accuracy.
4. Investigation is defined as Water Year MT exceedances in excess of the reported accuracy.
5. Targeted P/MAs is defined as four or more consecutive quarters with MT extent exceedances in excess of the reported accuracy. Exceedance investigation report findings will be used to inform development of appropriate targeted P/MAs.

6.4.4 Regional Critical Infrastructure – California Aqueduct

The California Aqueduct, the SWP's principal conveyance feature, transports water from the Delta along the west side of the San Joaquin Valley to the Kern Subbasin. The California Aqueduct extends north to south across the entire Kern Subbasin, entering in the northwest corner of Kern Subbasin and continuing along Kern Subbasin's western side (Figure 26). South of Buena Vista Lake, the California Aqueduct bends to the east and exits the Kern Subbasin at the boundary with the adjacent White Wolf Subbasin.

Land subsidence along the California Aqueduct is monitored at the individual mile post RMS using three types of data, including:

- InSAR displacement data, providing spatially continuous monitoring of monthly land surface displacement compared to June 2015;
- California Aqueduct Subsidence Program (CASP) survey measurements, providing ground-based land surface elevation at designated liner marks along the California Aqueduct, collected once a year generally in February; and
- CGPS stations located adjacent to the California Aqueduct.

CASP Survey Data SMC Assessment Results

Figure 27 (upper) is a profile transect along the California Aqueduct showing annual historical land displacement since 2016 based on the CASP survey data. The land subsidence measured during February 2024 through February 2025 remains generally consistent with historical patterns, and land subsidence at most RMS is less than the MTs. Observed land displacement rates during 2024 ranged from +0.13 to −0.10 feet/year. As shown in Figure 27 (upper), subsidence rates in Pools 26, 27, 28, and 34 have slowed compared to prior years. However, localized MT exceedances were identified within historically active subsidence areas and/or areas with elevated subsidence risk.

- MPs 194–215, located adjacent to the Lost Hills Oil Field (LHOF), continue to show subsidence, with some rates lower than prior years. A total of 6 MPs in pools 24 and 25 are under Investigation (due to MT rate and extent exceedances), while 12 MPs are on the Watch List across this portion of the aqueduct. Per the Exceedance Policy, an exceedance investigation has been initiated. As discussed in the 2025 Plan, subsidence in these pools (i.e., Mile Posts 194 to 215) is likely not associated with GSA activities. Nonetheless, several preemptive P/MAs have been implemented by the Westside District Water Authority (WDWA) GSA within the CASP 5-mile-wide Aqueduct Monitoring Zone, including a groundwater pumping moratorium.
- MPs within pools 26 through 35 are predominantly classified as OK, indicating subsidence over 2024 was less than the MT. 12 MPs are on the Watch List, and two MPs in pool 31 and 33 exceeded the MT rate.

Table E-2 in Appendix E provides a tabulation of the land subsidence measured by both the CASP survey data and InSAR compared against SMCs, along with IM extent comparisons.

InSAR Data SMC Assessment Results

Figure 27 (lower) is a profile transect along the California Aqueduct showing historical land displacement since 2015 based on InSAR data. Land subsidence along the California Aqueduct measured during WY2025 remains generally consistent with historical patterns, and land subsidence at most RMS is less than the MTs. Observed land displacement rates during WY2025 ranged from approximately +0.06 to -0.10 feet/year. As shown in Figure 27 (lower), WY2025 subsidence rates in pools 29, 30, 31, 33, 34, and 35 have slowed compared to prior years. However, localized MT exceedances were identified within historically active subsidence areas and/or areas with elevated subsidence risk. A brief summary of California Aqueduct MT exceedance analysis based on WY2025 land subsidence is as follows:

- MPs 194–215, located adjacent to the LHOF, continue to show elevated subsidence rates consistent with prior WYs, with MP 203.34 exhibiting the highest subsidence rate. These MPs are adjacent to LHOF activities. MPs in pools 23, 24, 25, and 26 are on the Watch List, and four MPs in Pool 24 are under Investigation. 11 MPs located in pools 23, 24, and 25 have MT extent exceedances and may require targeted P/MAs once the cause of subsidence has been assessed. Per the Exceedance Policy, an exceedance investigation has been initiated.
- MPs within pools 27 through 35 are predominantly classified as OK, indicating subsidence over WY2025 was less than the MT. Based on the InSAR data, no exceedance investigations in pools 27 to 35 have been triggered.

Table 13 summarizes the RMS status classification into four compliance categories based on defined exceedance criteria for the California Aqueduct. A more detailed analysis, including the quarterly status for Action Plan triggers and IM extent comparisons is presented in California Aqueduct Table E-1 of Appendix E.

Comparison between CASP and InSAR SMC Assessments

A comparison between the CASP survey data and InSAR-derived displacement indicates that most RMS classifications are generally consistent between the two monitoring methods. However, there are clear deviations in both the measured displacement over time and the compliance status. Refer to Table E-2 in Appendix E for more details.

CASP survey data indicates MT rate exceedances at MPs 254.11 and 263. However, the InSAR data indicates subsidence rates at these MPs are less than the MT and therefore do not trigger an Investigation. Given the discrepancy in the two measurement methods, the Kern Subbasin GSAs have initiated a conversation with CASP to understand the surveying methodology, including measurement date, field data collection method, and uncertainty. Until the Kern Subbasin GSAs receive more information from CASP on the survey methodology, for consistency with the other RMS across the Subbasin, the InSAR data is used herein for the SMC compliance assessments and Exceedance Investigation triggers.

6.4.5 Regional Critical Infrastructure – Friant Kern Canal

The FKC, completed in 1951, is the principal conveyance for the eastside CVP. The FKC diverts water from Friant Dam and Millerton Reservoir, completed in 1944 on the San Joaquin River, and extends southward a distance of 152 miles through Fresno, Tulare, and Kern counties. Within Kern County, the

FKC extends from approximately mile post 122 at the Subbasin boundary near the City of Delano and flows south for approximately 30 miles to mile post 152 near Bakersfield at the FKC terminus at the Kern River (Figure 26).

Land subsidence along the Friant-Kern Canal is monitored at the individual MP RMS using three types of data, including:

- InSAR displacement data, providing spatially continuous monitoring of monthly land surface displacement compared to July 2015.
- Survey measurements, providing ground-based land surface elevation at designated liner marks along and nearby the Friant-Kern Canal, collected ad hoc.
- A newly instrumented extensometer at Kimberlina Road, operational since January 2026.

Figure 28 illustrates a profile transect along the Friant-Kern Canal within Kern County showing historical land displacement since 2015 based on InSAR data. Land subsidence along the Friant-Kern Canal measured during WY2025 remains generally consistent with historical patterns, and land subsidence at over half the RMS is less than the MT. Observed land displacement rates during WY2025 ranged from approximately +0.03 to −0.12 feet/year. While WY2025 subsidence rates are generally lower than in drought years (e.g. WY2020, WY2021, and WY2022), RMS along the southern portion of the profile experienced MT rate exceedances categorized as “Watch List” conditions. WY2025 conditions by MP are displayed on Figure 28 and summarized as follows:

- Fourteen MPs are on the “Watch List,” with one occurring in Poso Creek, five in Shafter Wasco, and eight in Kern River pools.
- Seventeen MPs are classified as “OK” indicating subsidence over WY2025 was less than the MT rate and extent.
- Higher subsidence rates occurred during Fourth Quarter 2024 (October to December 2024) at every MP. However, only five MPs had two or more quarterly MT rate exceedances – four in Shafter Wasco and one in Kern River pools. The higher rates of subsidence during Fourth Quarter 2024 strongly influenced the total WY2025 subsidence rates leading to the fourteen “Watch List” MPs.
- No exceedance investigations along the Friant-Kern Canal within Kern County have been triggered.

Table 13 summarizes the RMS status classification into four compliance categories based on defined exceedance criteria for the Friant-Kern Canal. A more detailed analysis is presented in the Friant-Kern Canal section of Appendix E.

6.4.6 GSA Critical and Other Infrastructure

GSA Area Critical Infrastructure is defined as infrastructure located within a particular GSA whose loss of significant functionality due to subsidence if caused by GSA-related groundwater extractions would have significant impacts to beneficial users within that GSA. Each Kern Subbasin GSA has identified their

respective GSA Area Critical Infrastructure. GSA Area Critical Infrastructure within the Kern Subbasin includes the Calloway Canal, Lerdo Canal, Beardsley Canal, Cross Valley Canal, Kern River Canal, Arvin-Edison Water Storage District Canal, Olcese Canal, Interstate-5 (I-5), and Highway 99 (Figure 29). Following the 2025 Plan, land subsidence rates and extents will be compared against MTs annually both locally along GSA Area Critical Infrastructure (determined by on a GSA based segment) and regionally averaging the InSAR displacement across each HCM Area.

Table 13 summarizes the RMS status classification into four compliance categories based on defined exceedance criteria for the GSA Area Critical Infrastructure. Additional analysis is presented in Appendix E. Observed land displacement rates during WY2025 ranged from approximately +0.02 to −0.10 feet/year. WY2025 conditions by MP are summarized as follows:

- Seventeen MPs, based on GSA based segments of the Calloway Canal, Lerdo Canal, Beardsley Canal, Cross Valley Canal, Kern River Canal, Arvin-Edison Water Storage District Canal, and Olcese Canal were rated as “OK” indicating subsidence over WY2025 was less than the MT rate and extent.
- Fourteen MPs, based on GSA based segments of Interstate-5 (I-5), and Highway 99 were rated as “OK” indicating subsidence over WY2025 was less than the MT rate and extent.
- No exceedance investigations for the GSA Critical Infrastructure within Kern County have been triggered.

Table 13 summarizes the RMS status classification into four compliance categories based on defined exceedance criteria for the GSA Area Critical Infrastructure. A more detailed analysis is presented in GSA Area Critical Infrastructure section of Appendix E.

6.4.7 Other Infrastructure

Other infrastructure is defined as other water supply, water conveyance, water treatment, transportation, or interstate gas distribution pipelines not included under Regional Critical Infrastructure or GSA Area Critical Infrastructure. Other infrastructure includes wells, railroads, interstate gas pipelines, county roadways, and other locally identified water facilities. Following the 2025 Plan, land subsidence rates and extents will be compared against MTs annually by averaging the InSAR displacement across each HCM Area (Figure 30). Division of the RMS status classification into four compliance categories is based on defined exceedance criteria using the same categories as used for the regional critical infrastructure.

Table 13 summarizes the RMS status classification into four compliance categories based on defined exceedance criteria for the Friant-Kern Canal. A more detailed analysis is presented in Appendix E. Observed land displacement rates during WY2025 ranged from approximately +0.00 to −0.06 feet/year. WY2025 conditions by MP for HCM Areas are summarized as follows:

- Four HCM Areas were rated as “OK” indicating subsidence over WY2025 was less than the MT rate and extent.

- One HCM Area (Western Fold Belt HCM Area) is on the "Watch List," based on an average WY2025 displacement rate of -0.01 feet that exceeded the annual MT rate of 0.00 feet.
- No exceedance investigations for the HCM Areas within Kern County have been triggered.

The Western Fold Belt HCM Area is an area with identified non-GSA-related activities. As an initial screening analysis, the HCM Area analysis for the Western Fold Belt was rerun to exclude the administrative areas of the major oil fields (Figure 30) that are known to produce hydrocarbons from within the Tulare Formation. The result of this analysis shows Western Fold Belt average WY2025 displacement rate lowered to 0.00 feet, which would not exceed the annual MT rate of 0.00 feet.

Table 13 summarizes the RMS status classification by four compliance categories based on defined exceedance criteria for the HCM Area Other Infrastructure. A more detailed analysis is presented in HCM Area Other Infrastructure section of Appendix E.

6.4.8 Next Step for WY2026

The Kern Subbasin GSAs plan to conduct the following land subsidence-related work efforts during WY2026:

- Continue conducting quarterly and annual SMC assessments using InSAR datasets.
- Update RMS status classification based on quarterly InSAR SMC assessments and initiate exceedance investigation(s) if warranted.
- Compare CGPS data to InSAR datasets to better understand uncertainty and accuracy constraints.
- Conduct exceedance investigation(s) following the Exceedance Policy.
- Finalize the template for the exceedance investigation report.
- Coordinate with California Aqueduct Subsidence Program to discuss survey methodology, subsidence trends and exceedance investigation results.
- Revise the 2025 Plan and/or Action Plan for Land Subsidence based on a review of the Final DWR Best Management Practices for Land Subsidence, if warranted.
- Coordinate with United States Geological Survey to evaluate data collected for the Kimberlina Road extensometer.

6.5 Interconnected Surface Water

Interconnected surface water (ISW) is defined by the SGMA Regulations as surface water that is hydraulically connected at any point by a continuous saturated zone to the underlying aquifer and the overlying surface water is not completely depleted (CCR 23 §351). As described in Section 8, the Natural Communities Commonly Associated with Groundwater (NCCAG) dataset, which maps vegetation and wetland features that could indicate dependence on groundwater, was used to assess whether surface water features in each HCM Area were considered interconnected surface water. Available data and information indicate that major surface water features within the Kern Subbasin are largely fed by surface water and are not considered interconnected surface water features due to groundwater level

depths significantly below the surface water features. Furthermore, no groundwater dependent ecosystems (GDEs) were identified in any of the five HCM Areas. Therefore, based on the analysis presented in the 2025 Plan using multiple lines of information (i.e., water quality data, hydro-stratigraphy, and water levels) suggest that the Primary Alluvial Principal Aquifer is hydraulically separated from the Shallow Alluvium and surface water bodies interconnected thereto, and depletion of interconnected surface water has not been observed within the Kern Subbasin.

The GSP Emergency Regulations state that "An Agency that is able to demonstrate that undesirable results related to one or more sustainability indicators are not present and are not likely to occur in a basin shall not be required to establish criteria for undesirable results related to those sustainability indicators" (23 CCR §354.26(d)). Because evidence suggests that depletion of interconnected surface water within the Kern Subbasin is not present and not likely to occur, the Depletions of Interconnected Surface Water Sustainability Indicator is not applicable. Therefore, no SMCs for this Sustainability Indicator are defined in the Kern Subbasin.

DWR is in the process of developing new guidelines for interconnected surface water and SGMA implementation. The Kern Subbasin will continue to monitor the status of these new guidelines and will adapt management of the Depletions of Interconnected Surface Water Sustainability Indicator if needed in the next five-year Plan update.

7 PROGRESS MADE IN IMPLEMENTATION OF GSP PROJECTS AND MANAGEMENT ACTIONS

A key component of 2025 Plan are the Projects and Management Actions (P/MAs) that address existing or potential future overdraft conditions that could cause Undesirable Results for the identified relevant Sustainability Indicators. This section presents the P/MAs that are cumulatively proposed to achieve the Subbasin's Sustainability Goal and provides a summary of the coordinated project/management action implementation by Kern Subbasin GSAs in WY2025.

7.1 GSA Implementation Progress Reports

To provide consistent information and a reasonable level of effort for the numerous agencies coordinating on the Annual Report, the outline below has been developed from GSP regulations (§356.2(c)) and used as a guide for the progress report summaries. Each GSA implementation progress report is organized around the following topics:

1) Compliance with Groundwater Levels SMC
2) Implementation of P/MAs
3) Stakeholder Outreach
4) Summary of Other GSP-related Special Studies or Activities

To demonstrate the significant progress that each GSA has been making on specific P/MAs, a more complete description of each project/management action in the respective GSA is provided in Appendix F. GSAs/member agencies have provided meaningful narratives that address the most significant progress toward GSP implementation; however, narratives are purposefully concise and do not repeat all details associated with each P/MA in the GSP. The GSA implementation progress reports are presented in alphabetical order by GSA in Appendix F.

7.2 GSA P/MA Implementation Progress

The Subbasins GSAs developed 182 P/MAs for inclusion in the 2025 Plan and identified an additional 56 as-needed P/MAs that could be implemented if necessary to achieve the sustainability goal.

7.2.1 GSA Projects and Management Actions

The P/MAs are grouped into two categories. Demand Reduction P/MAs provide benefits from reducing water usage, and Water Supply Augmentation P/MAs provide benefits from increasing the available water supply above existing water supplies. These two categories are further refined to different P/MA types.

Demand Reduction P/MAs are the primary means of implementation to close the 2025 Plan "deficit" for the Subbasin. The demand reduction P/MAs have been grouped into different types that include:

- Land Retirement: Permanent change from irrigated to non-irrigated.

- Demand Reduction: Program to reduce applied groundwater including (temporary, rotational, cropping changes, and possible permanent changes).
- Ag to Urban Conversion: Conversion of land from irrigated land to urban.
- Water Conservation-Efficiency: Incentives to improve water use practices.

Water Supply Augmentation P/MAs are the secondary means of implementation to close the 2025 Plan "deficit" for the Subbasin. The water supply augmentation P/MAs have been grouped into different types that include:

- Supplemental Water Recharge: Increased recharge projects during wet years.
- Supplemental Water Use: Purchase imported water for current year.
- Third-Party Banking: Local benefit derived from third-party Banking.
- New Local Supplies: Use of recycled water supplies.
- Exercise of Rights: Improved utilization of existing water supplies/rights (banked or surface).

In addition, P/MAs have estimated benefits related to water quantity for each P/MA. For water supply augmentation, the benefit is quantified directly through the measurement of those flows. For demand reduction P/MAs, the benefit was determined as the change in water usage resulting from demand reduction P/MAs relative to prior water usage without the P/MA in place. For both P/MA categories, the quantitative benefit is based on surface observations and measurements.

7.2.2 WY2025 P/MA Implementation

For WY2025, each GSA provided their quantitative benefits from implementation of each of their P/MAs consistent with how each P/MA was quantified for the 2025 Plan. For water supply augmentation, the benefit is quantified directly through the measurement of those flows. For demand reduction P/MAs, the benefit was determined as the change in water usage resulting from demand reduction P/MA relative to prior water usage without the P/MA in place.

Table 14 summarizes the WY2025 quantitative benefits from each GSA for implementation of their P/MAs by category and type. The data reported by the GSAs indicates implementation of demand reduction P/MAs resulted in 133,757 acre-feet of reduced water usage that includes 11,540 acres of land retirement and 983 acres of agricultural to urban conversion. Due to the overall availability of water supply to the Subbasin, the GSAs reported 162,742 acre-feet of increased water supply resulting from the implementation of water supply augmentation P/MAs. Combined, the total quantitative benefit of the Subbasin P/MAs is reported as 296,499 acre-feet.

For both P/MA categories, the quantitative benefit is based on surface observations and measurements. Therefore, the P/MA implementation progress is a measure of the implementation of the P/MAs relative to the schedule.

Table 14. WY2025 GSA P/MA Implementation Reported Quantitative Benefit Summary

GSA	WY2025 Demand Reduction						WY2025 Water Supply Augmentation					TOTALS	
	By Volume				By Land Area		By Volume					By Volume	By Land Area
	Land Retirement VOLUME (acre-feet)	Demand Reduction VOLUME (acre-feet)	Ag to Urban Conversion VOLUME (acre-feet)	Water Conservation Efficiency VOLUME (acre-feet)	Cumulative Land Retirement AREA (acres)	Cumulative Ag to Urban Conversion AREA (acres)	Supplemental Water Recharge VOLUME (acre-feet)	Supplemental Water Use VOLUME (acre-feet)	Third-Party Banking VOLUME (acre-feet)	New Local Supply VOLUME (acre-feet)	Exercise of Rights VOLUME (acre-feet)	Volumetric Benefit Total (acre-feet)	Cumulative Areal Demand Reduction (acres)
Arvin GSA	910	0	0	0	310	0	23	0	0	3,850	0	4,783	310
Buena Vista WSD GSA	11,154	0	0	0	4,290	0	0	0	0	0	0	11,154	4,290
Cawelo WD GSA	39	0	1,445	0	15	545	0	5,400	0	0	0	6,884	560
Eastside Water Management Area	0	0	0	0	0	0	0	0	0	0	0	0	0
Henry Miller WD GSA	0	21,191	0	0	0	0	0	3,750	0	0	0	24,941	0
Kern River GSA	556	3,728	396	0	206	147	0	0	0	29,246	45,630	79,556	353
Kern Water Bank Authority GSA	0	0	0	0	0	0	0	0	0	0	0	0	0
Kern-Tulare WD GSA	0	5,905	0	0	0	0	0	0	0	0	0	5,905	0
North Kern WSD GSA	525	0	46	1,753	202	23	1,279	0	0	9,631	0	13,234	225
Olcese WD GSA	0	0	0	0	0	0	0	0	0	0	0	0	0
Pioneer GSA	0	0	0	0	0	0	0	0	0	0	0	0	0
Rosedale-Rio Bravo WSD GSA	2,210	1,800	249	0	850	166	0	0	0	0	631	4,890	1,016
Semitropic WSD GSA	0	54,565	0	0	0	0	0	19,441	0	0	0	74,006	0
Shafter-Wasco ID GSA	2,986	0	0	0	628	0	4,597	3,722	0	0	784	12,089	628
7th Standard Annex - (SWID GSA)	0	3,000	0	0	0	0	0	0	0	0	0	3,000	0
Southern San Joaquin MUD GSA	2,494	0	175	0	1,262	102	0	0	0	0	1,890	4,559	1,364
Tejon-Castac WD GSA	0	0	0	0	0	0	0	0	0	0	0	0	0
West Kern WD GSA	0	0	0	191	0	0	0	0	0	0	0	191	0
Westside DWA GSA	0	184	0	0	0	0	0	0	0	0	0	184	0
Wheeler Ridge-Maricopa WSD GSA	9,443	8,770	0	0	3,777	0	0	32,868	0	0	0	51,081	3,777
Whitelands (KNDLA GSA)	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBBASIN TOTALS	**30,316**	**99,143**	**2,311**	**1,944**	**11,540**	**983**	**5,899**	**65,181**	**0**	**42,727**	**48,935**	**296,456**	**12,522**

Note: The GSA P/MA Implementation Quantitative Benefit Summary is based on self-reported data from the GSAs that is summarized in the GSP Implementation Progress Reports in Section 10 for each GSA.

7.2.3 Subbasin P/MA Glide Path

Based on the 2025 Plan, implementation of P/MAs began in 2020 and is planned to continue along a glide path through WY2040 to offset the estimated Subbasin groundwater deficit of 372,000 AFY, which was estimated based on the projected 2030 Climate Change Scenario. This glide path is designed to reduce 25 percent (93,000 AFY) of the projected deficit of 372,000 AFY during each five-year interim milestone through 2040. The anticipated P/MA implementation schedule is forecasted to exceed the target deficit reduction by 2030 and exceed the 2040 milestone with a safety factor of 2.3, illustrating an extremely high degree of P/MA redundancy and reliability (2025 Plan, Section 14.1). Furthermore, the 2025 Plan includes 387,000 AFY of demand reduction P/MAs to mitigate the 372,000 AFY projected deficit and has identified as-needed projects available for development that would provide an additional estimated 71,000 AFY of deficit reduction capacity, bringing the total safety factor to 2.4 times the planned goal.

Figure 31 summarizes the P/MA implementation by the GSAs at the Subbasin level by category. Demand reduction benefits have increased from 91,000 acre-feet in 2020 to 131,000 acre-feet in WY2025. Demand reduction includes both permanent and temporary demand reduction. Temporary demand reduction from drought fallowing programs accounts for much of the demand reduction from WY2020 to WY2022. Permanent land retirement and land use conversion has increased from 3,743 acres in WY2020 to 12,522 acres in WY2025. This has led to an increase in observed benefits as a result of permanent demand reduction from 8,000 AF in WY2020 to 32,000 AF in WY2025. Water supply augmentation is highly variable and is generally highest in wet years and very low in dry and critically dry water year types. This was shown in WY2023 when unusually wet conditions led to high availability of excess surface water. With its high volume of recharge capacity, the Kern Subbasin GSAs were able to take advantage of this excess availability of surface water in both WY2023 and WY2024.

Table 15 summarizes the average annual quantitative benefits from each GSA for P/MA implementation over the period from WY2020 to WY2025 to assess the degree of implementation of P/MAs for the entire Subbasin relative to the WY2025 Interim Milestone. Table 15 includes information from the 2025 Plan that provides the target deficit reduction and P/MA schedule over the sustainability period (WY2020 to WY2040), including the WY2025 Interim Milestone. The Reported Project and Management Actions by Type provides the average annual reported P/MA benefits from the GSAs.

Figure 32 provides a graphical representation of the Glide Path data shown on Table 15. This compilation shows that the Kern Subbasin GSAs are on track with implementing their P/MAs and that they are achieving the intended benefits based on the surface observations and measurements by the GSA. Therefore, the P/MA implementation progress is a measure of the implementation of the P/MAs relative to the schedule. Based on the data compiled from the GSAs, the Subbasin is meeting its goals for P/MA implementation.

Table 15. Subbasin Glide Path of Reported P/MA Implementation Table (AFY)

Subbasin Projected-Future Scenario Deficit Reduction "Glide Path" 354.44 (b)(2)		2020	2025	2030	2035	2040
Projected Deficit			-372,000			
Target Deficit Reduction (%)		0	25%	50%	75%	100%
Target Deficit Reduction		**372000**	**-93,000**	**-186,000**	**-279,000**	**-372,000**
Deficit Reduction "Glide Path" Milestones		**-372,000**	**-279,000**	**-186,000**	**-93,000**	**0**
Reported Project and Management Action, by Type (AFY)						
Reported Demand Reduction	Land Retirement	8,268	30,360			
	Demand Reduction	83,270	83,610			
	Ag to Urban Conversion	0	2,311			
	Water Conservation-Efficiency	0	511			
	Subtotal	**91,538**	**116,792**	**0**	**0**	**0**
Reported Water Supply Augmentation	Supplemental Water Recharge	7,578	40,203			
	Supplemental Water Use	27,108	73,341			
	Third-Party Banking	0	4,542			
	New Local Supply	36,750	42,761			
	Exercise of Rights	36,684	124,180			
	Subtotal	**108,120**	**285,028**	**0**	**0**	**0**
P/MA Implementation Schedule*		**199,658**	**401,819**	**0**	**0**	**0**
Total As-Needed P/MA Deficit Benefits		*0*	*530*	*4,800*	*51,826*	*71,645*
Planned P/MA Deficit Reduction Schedule*		**-172,342**	**29,819**			

* The reported quantitative benefit is based on the surface observations and m... Target = 0

The Kern Subbasin GSAs began implementation of P/MAs in 2020 and have continued to implement additional P/MAs since that time. This glide path is designed to address 25 percent (93,000 AFY) of the projected deficit of 372,000 AFY by WY2025, which in turn will improve conditions for the relevant Sustainability Indicators based on the assumption that those conditions are directly related to the balance of supplies and demands within the Subbasin.

The surface observations of water use applied to quantify implementation of the P/MAs does not directly represent changes in groundwater conditions in the Subbasin and remains a source of uncertainty. Difficulty in determining groundwater conditions without P/MAs introduces further uncertainty in quantification of the benefits. To help address these uncertainties, the 2025 Plan has presented a P/MA implementation schedule that is forecasted to exceed the target deficit reduction by the 2040 milestone with a safety factor of 2.3, illustrating a high degree of P/MA redundancy.

At this time, the Glide Path provides a measure showing that the Kern Subbasin GSAs are actively implementing their P/MAs, and that their P/MA implementation is on track with the P/MA implementation schedule outlined in the 2025 Plan. The Kern Subbasin GSAs will continue to review and improve the methodology for tracking P/MA implementation and evaluating how well the implementation of these P/MAs translates into improvements of Subbasin groundwater conditions.

7.3 SUBBASIN P/MA SUMMARY

In addition to the GSA specific P/MAs discussed above, the 2025 Plan defines ten Subbasin-wide P/MAs to implement the 2025 Plan and to address identified data-gaps by the coordinated efforts of the Kern Subbasin GSAs. The Subbasin P/MAs discussed in the following subsections are either currently being implemented or have been implemented to contribute to data-gap filling and mitigation efforts. They are briefly described below:

- KSB-1 Friant-Kern Canal Capacity Mitigation
- KSB-2 Coordination with Groundwater Regulatory Programs
- KSB-3 Exceedance Policy
- KSB-4 Coordination with Basin Study
- KSB-5 Domestic Well Mitigation
- KSB-6 White Land Demand Management
- KSB-7 Well Registry
- KSB-8 Consumptive-Use Study
- KSB-9 California Aqueduct Subsidence Action Plan
- KSB-10 RMW Data Gaps

The following provides a discussion of progress on these ten Subbasin-wide P/MAs.

7.3.1 KSB-1 Friant-Kern Canal Capacity Mitigation

Conveyance conditions of the Friant-Kern Canal (FKC) have been impacted by historical subsidence and will potentially be impacted by future subsidence. The Friant Water Authority (FWA) position regarding subsidence along the FKC is that "any unmitigated conveyance loss due to subsidence beyond 2020 would lead to undesirable results."

The Kern Subbasin is currently working to implement this project. As part of this P/MA, the Kern Subbasin will implement the following:

- participate in a program that monitors and tracks ongoing subsidence regionally within the Kern Subbasin and locally along the FKC,
- compare observed rates of subsidence to established SMCs along the FKC and take action (i.e. pumping reductions) should future observed subsidence rates exceed interim milestones and the minimum threshold,
- collaborate with FWA to develop cost estimates for the Lower Reach Capacity Correction and evaluate the degree of post-2020 lost capacity attributable to subsidence,
- develop an attribution analysis of post-2020 subsidence impacts using either a numerical model to perform predictive analysis or another suitable tool, and

- develop and implement a cost-sharing and funding mechanism based on the subsidence attribution analysis to pay for post-2020 conveyance impacts on the FKC attributable to subsidence.

Additional details on the preliminary FKC mitigation assessment, cost-sharing agreement by GSAs for additional data collection and modeling; and progress on subsidence modeling to support FKC mitigation assessments are presented in the 2025 Plan (2025 Plan Appendix G-2). A letter of support for the FKC mitigation framework from the FWA on this topic is also provided in the 2025 Plan (2025 Plan Appendix G-3).

7.3.2 KSB-2 Coordination with Groundwater Regulatory Programs

The Kern Subbasin will continue to coordinate with various water quality regulatory programs implemented by local, state, and federal agencies. Some of these programs include the Irrigated Lands Regulatory Program (ILRP), Central Valley Salinity Alternatives for Long-term Sustainability (CV-SALTS), as well as local Groundwater Banking Memorandums of Understanding (MOUs), which mandate the sampling of monitoring wells and adherence to mitigation measures to protect groundwater quality.

7.3.3 KSB-3 Exceedance Policy

The Kern Subbasin Exceedance Policy and Action Plans were completed and are included in the 2025 Plan (2025 Plan Appendix K-1). These plans outline what measures are taken if an MT is exceeded for groundwater levels, groundwater quality, and/or land subsidence. This P/MA involves the implementation of action plans surrounding investigation into the exceedance, notifications to nearby beneficial users, as appropriate, and the documentation of those activities. Progress in the implementation of the Exceedance Policy will be included in Section 6 Current Conditions for Sustainability Indicators of this and future annual reports.

7.3.4 KSB-4 Coordination with Basin Study

The Kern Subbasin has coordinated to perform an updated Basin Study. The Basin Study involves a systematic, basin-wide technical analysis of the water budget components and an updated Subbasin Model based on a comprehensive compilation and analysis of the relevant data. Additional information on the data compilation and analysis developed by the Basin Study Grant Project is documented in a technical report that was submitted to DWR in December 2025 (Todd Groundwater, 2025).

The overall project objective is to provide local water managers, policy makers and stakeholders with a comprehensive and useful Subbasin-wide model to support planning and implementation efforts in achieving long-term groundwater sustainability for the Subbasin. To meet this objective, the Basin Study applied a systematic technical analysis to better represent the flow of groundwater and surface water into, through and out of the Subbasin based on a review of all available data in the Subbasin.

The technical analysis of the Basin Study was used in updating key parts of the 2025 Plan including the supporting analysis for developing the sustainability criteria for the Subbasin. A summary of these key elements of the Basin Study incorporated into the 2025 Plan include the following:

- **Hydrogeological Conceptual Model**: The updated model provides a more accurate representation of the Subbasin's complex geology to better represent groundwater flow paths across the Subbasin. Enhancements include mapping of the basin bottom, identification of aquifer and aquitard (confining) layers, integration of geologic structures such as faults and folds, and consideration of aquifer exemption areas.
- **Hydrology**: Streams and small watersheds within the Subbasin were redefined, and simulation parameters were refined to more accurately represent runoff and other hydrologic processes. Stream simulation now utilizes options better suited for local stream conditions to improve simulation of stream-aquifer interactions.
- **Land Use and ET Data**: A comprehensive land use dataset was developed for the Subbasin, drawing on multiple sources and structured for ongoing updates. Monthly evapotranspiration (ET) data were compiled using METRIC and LandIQ data and applying industry standard methodologies.
- **Urban, Domestic, and Industrial Water Use**: Water supply and demand estimates were refined to better reflect urban and domestic water use including DAC/SDAC (Disadvantaged Communities/Severely Disadvantaged Communities) populations. The model includes small water systems, domestic wells and industrial users not previously included in C2VSimFG. Drinking water supply is now assigned to the entire census population in the entire Subbasin, aligning with California's Human Right to Water policy objectives.
- **Subsidence**: Subsidence modeling capability was added, consistent with the latest DWR C2VSimFG model (Version 1.5). Input parameters were adjusted to more accurately represent the extent and magnitude of subsidence in the Subbasin.

The results of this analysis were then incorporated into the updated Subbasin Model (referred to as the Kern-IWFM Model) to provide a basin-wide planning model designed to support SGMA compliance through a consistent basin-wide approach for determining regional water budgets and evaluating groundwater and surface water conditions for the Subbasin. However, the model update and recalibration was not completed in time to be included in the 2025 Plan, which relied on the results of the prior Subbasin Model referred to as C2VSimFG-Kern.

Based on hydrograph trends and statistical analyses, the Kern-IWFM model meets the standards for a well calibrated model at the Subbasin scale. These represent substantial calibration improvements over the previous C2VSimFG-Kern model. In addition, groundwater elevation contour maps were developed to assess groundwater flow directions for the historical simulation period. The simulated groundwater flow in the Subbasin is consistent with groundwater flow directions presented in the 2025 Plan. However, localized areas within the Subbasin have a less robust model calibration. These areas will be addressed following the Grant Project as part of ongoing model improvements.

These remaining issues will be addressed as part of ongoing model improvements following the completion of the Grant Project along with the local calibration issues noted above. Stakeholder input will be sought and incorporated throughout this process to ensure the model reflects both technical understanding and local knowledge. Pending completion of these ongoing model improvements, the

model version presented in the Basin Study Technical Report to DWR (Todd Groundwater, 2025) will serve as the Subbasin Model, replacing the C2VSimFG-Kern Model.

7.3.5 KSB-5 Domestic Well Mitigation

The Kern Subbasin has developed and adopted a comprehensive Well Mitigation Program (2025 Plan Appendix G-1) to fund and implement a Subbasin-wide mitigation program starting January 1, 2025. As part of the 2025 Plan, the Well Mitigation Program was further revised to include a specific mitigation program track that applies to Degraded Water Quality. Additional implementation details related to groundwater quality public notification and mitigation are discussed in the 2025 Plan (2025 Plan Appendices K-1 (Action Plan for Degraded Water Quality) and K-2 (Provisions Part IV)).

The Kern Subbasin Well Mitigation Program was developed to support domestic well owners and water systems that have been impacted by groundwater management activities as defined under SGMA. The program provides emergency bottled water, interim supplies, technical assistance, and long-term solutions (as needed) to address loss of access to drinking water or degradation of water quality when these impacts are linked to groundwater management activities occurring after January 1, 2015. With a focus on domestic wells, multi-use domestic wells, community water systems, and state small systems, the program is designed to be adaptive, evolving as new data, tools, and funding structures become available. The Kern Subbasin has contracted with Self Help Enterprises, which serves as the primary point of contact for residents and administers emergency response, field assessments, and long-term mitigation coordination.

Version 2.0 of the program introduces three distinct assistance tracks: the Dry Well Mitigation Track (for domestic and multi-use domestic wells), offering emergency bottled water within 24 hours, interim tanked water within 72 hours (if applicable), and long term solutions such as well deepening or replacement; the Dry Well Technical Assistance Track, providing up to $50,000 for planning and feasibility work for state small water systems and public water systems that are also community water systems; and the Degraded Water Quality Mitigation Track, which offers alternative drinking water for users that rely on domestic wells and multi-use domestic wells when primary maximum contaminant levels (MCLs) are exceeded for identified constituents. Each track follows a structured application and evaluation process that includes onsite assessments, technical review by qualified professionals, and recommendations from the Kern Mitigation Evaluation Committee (KMEC), ensuring transparent and consistent decision making. The program includes an appeal process and maintains strong public outreach, emphasizing multilingual communication and accessibility.

The Well Mitigation Program seeks to safeguard access to safe, reliable drinking water during the transition toward groundwater sustainability. With a two-year initial budget of up to $3.5 million, the program supports emergency needs as well as long term resiliency, while preparing for future enhancements such as impact based cost attribution and potential expansion of funding opportunities for state small water systems.

Two applications were submitted to the Kern Subbasin Well Mitigation Program late in WY2025, marking the first set of requests received. In accordance with the program's structured review procedures, the applicable GSAs engaged the qualified professional to evaluate these applications for eligibility under the Well Mitigation Program. This review includes initial screening, a technical

assessment, and recommendation to the KMEC. The KMEC will subsequently provide a recommendation to the GSA Board of Directors for their consideration and approval. Both applications are anticipated to be processed in early Water Year 2026.

7.3.6 KSB-6 White Land Demand Management

The Kern Non-Districted Lands Authority (KNDLA) is an amended and restated joint powers agreement amongst public entities. The KNDLA board consists of non-districted landowners, public water agencies, and water districts with non-districted lands. The Kern Subbasin has submitted all required documents to DWR clarifying that KNDLA has the proper authority to enforce SGMA within its management area.

The Subbasin is developing a governance structure and demand reduction action for Subbasin white lands (lands not within a district). Approximately 7,200 acres of white lands (less than 1 percent of the Subbasin) remain currently using groundwater (irrigated agriculture and urban) but have not yet had management actions assigned.

KSB-4 Basin Study will provide added technical data to support setting water budgets necessary to implement a demand reduction schedule for an estimated 23,920 AFY over the planning period of 2030 to 2040. Additional details are provided in the Kern Non-District Lands Authority Joint Powers Authority governance document in the 2025 Plan (2025 Plan, Appendix C-2).

7.3.7 KSB-7 Well Registry

To meet SGMA requirements to identify and protect all beneficial uses and users of groundwater, in October 2023, the Kern Subbasin GSAs initiated a Subbasin-wide Well Inventory to develop a comprehensive dataset of wells and groundwater-dependent communities. Records were collected from multiple public agencies, then the GSAs undertook a phased, multi-year effort to reconcile records and conduct field surveys to identify the location, status, and the current use of wells across the Subbasin. To date, 13 of 20 GSAs have completed field surveys, which identified wells with no well completion report record. The results of the Well Inventory are provided in Table 16.

Table 16. Summary of Well Inventory by Planned Use Category

User Type	Well Count	Planned Use Category
Agricultural	4,393	Irrigation, Stock Watering, Public Irrigation
Recovery	164	Banked Water Recovery
Domestic	2,001	Domestic, Domestic/Irrigation, Non-Public, Non-Potable
Non-Potable	8	Identified as domestic but are only used for sanitation
Industrial	243	Industrial, Public/Industrial
Public	469	Public/Municipal, Public/Commercial, Public/Prison
Small Community	90	Public/School, Public/Small Community
Total	**7,368**	

Next steps in the process are to incorporate the well inventory into the Kern Subbasin DMS. The final step converts the inventory into a Well Registry by matching verified wells and assigned APNs with each district's tax roll. The Well Registry will be maintained as a living database with at least annual updates to support SGMA implementation, well impact analysis, and mitigation planning across the Kern Subbasin.

7.3.8 KSB-8 Consumptive-Use Study

The Kern Subbasin has contracted with LandIQ for monthly providing field-by-field evapotranspiration data, precipitation, crop type, and permanent crop age for the Kern Subbasin for both planning and, in some GSAs, for groundwater extraction fee calculation purposes. Beginning in 2016, Land IQ began providing field-by-field ET, precipitation, crop type, and permanent crop age to approximately 30% of the area of the Kern Subbasin. From October 2022 to March 2023, Land IQ provided these deliverables for the entire Subbasin footprint through a grant from DWR SGM GSP Implementation Grant Program, Round 1. The grant timeframe ended with the March 2025 deliverables. The Kern Subbasin will continue this effort and invest in improved technology and processes for improved accuracy by extending the LandIQ services for the entire Subbasin for an additional three years (April 1, 2025 through March 2028).

For the DWR SGM GSP Implementation Grant, Land IQ provided instrumentation over the agricultural areas within the Subbasin. These stations provide improved calculation of ET on a field-by-field and crop-by-crop basis; field data are used for the calibration and validation of ET models using satellite imagery. Approximately 24 stations are installed in areas where improved ET values would support more accurate groundwater extraction estimates, especially in agricultural areas. Using the calibration data from the climatic stations, basin-wide ET rates are then modeled on a field-by-field basis and delivered on a monthly timestep.

A web tool is used to relay the results each month to the Kern Subbasin GSAs. All of these spatial results significantly enhance the ability to understand the overall water balance within the Subbasin and comply with necessary regulatory requirements. Because the results are landscape-wide for the Kern Subbasin, they will serve all communities within the Subbasin.

The Kern Subbasin uses the service provided by Land IQ for all irrigated agricultural areas within the Subbasin. This will provide a consistent basin-wide methodology for calculating ET based on local climatic and cropping data.

7.3.9 KSB-9 California Aqueduct Subsidence Action Plan

The Kern Subbasin has developed a five-step Action Plan for Land Subsidence in the 2025 Plan to monitor, evaluate, and manage subsidence IM/MT exceedances (2025 Plan, Appendix K-1). As discussed in the Exceedance Policy, this Action Plan will be reviewed and revised based on lessons learned, resolution of data gaps, new monitoring data and/or information, and new analytical methodologies. There are two anticipated review and revision cycles for the Subsidence Action Plan:

- Within six (6) months of receipt of the final DWR land subsidence Best Management Practices (BMPs), this Action Plan will be revised and may be revised, as appropriate, to identify specific standardized criteria for protocols, actionable timelines, and proposed project and/or management action (P/MA) responses consistent with the relevant BMPs.
- Once the California Aqueduct Subsidence Program (CASP) publishes the framework for California Aqueduct long-term rehabilitation (expected to be completed in the next few years), Step 4 of this Action Plan will be reviewed and may be revised, as appropriate, to include mitigation alternative(s) as a P/MA.

DWR released their Final Land Subsidence BMP on January 26, 2026; therefore, the Action Plan for Land Subsidence will be revised, as needed, to identify specific standardized criteria for protocols, actionable timelines, and proposed P/MA responses during WY2026.

7.3.10 KSB-10 RMW Data Gaps

During Water Year 2025, the Kern Subbasin GSAs advanced the implementation of basin-wide Management Action KSB-10 by refining their understanding of Representative Monitoring Network (RMN) data gaps initially identified in the 2024 Plan, which was adopted in December 2024.

The Final 2024 GSP included a vertical representation assessment of the groundwater level Representative Monitoring Network (RMN-GWL) to evaluate representation of domestic and agricultural beneficial users at different depths. The assessment identified RMN-GWL data gaps related to the vertical representation of domestic wells (nine data gaps) and additional monitoring limitations, including representative monitoring wells (RMWs) that lacked complete construction information. The vertical representation assessment conducted for the Final 2024 GSP was limited to the groundwater level monitoring network and did not include an evaluation of the groundwater quality RMN.

During Winter 2024 through early Summer 2025, the GSAs coordinated with SWRCB staff as part of the SGMA GSP review and State intervention process. Based on SWRCB staff feedback, the GSAs refined the vertical representation assessment approach.

In Spring 2025, the GSAs completed a refined vertical representation assessment that incorporated SWRCB staff feedback and expanded the analysis to include both the groundwater level (RMN-GWL) and groundwater quality (RMN-GWQ) monitoring networks. This refined assessment, documented in Section 15 of the 2025 Plan, identified three RMN-GWL Data Gaps, seven RMN-GWL Potential Data Gaps, and 30 RMN-GWQ Data Gaps. The 2025 Plan committed the GSAs to address these data gaps by identifying suitable existing wells, where feasible, and, where existing wells could not be secured, by constructing new dedicated monitoring wells by December 31, 2026. The 2025 Plan also committed the GSAs to identifying well construction information for all RMWs.

7.4 SGM GSP Implementation Grant Program, Round 1

The Kern Subbasin received a Round 1 SGM grant for critically overdrafted basins under the SGM Grant Program authorized by the California Budget Act of 2021 and Proposition 68 for projects that encourage

sustainable management of groundwater resources that support SGMA. The contract between DWR and the KNDLA on behalf of the Kern Subbasin GSAs was signed on August 8, 2022. The five components include:

- Component 1: Grant Agreement Administration: Grant administration supports the development of Environmental Information Form, Grant Completion Report, project reports and invoices, and other grant management requirements for the grant.

- Component 2: Kern Subbasin - Basin Study: The Basin Study is a systematic, basin-wide analysis to address technical data gaps in the HCM, water budgets and model calibration. Additional details are provided in Section 7.3.4 above.

- Component 3: Kern Subbasin - Evapotranspiration Analysis & Study - Field by Field: This component developed a consistent basin-wide methodology for calculating field-scale ET data to calibrate and validate ET models using satellite imagery using instrumentation provided by Land IQ. Additional details are provided in Section 7.3.8 above.

- Component 4: Subsidence Investigation and Study - Priority Area #1 - The USGS, in coordination with the Kern Subbasin GSAs, completed installation of two extensometers (at 500 ft. bgs. and 1,000 ft. bgs) and four discrete-depth piezometers at a location adjacent to the Friant-Kern Canal at Kimberlina Road. The piezometers are screened from shallowest to deepest at 535 to 555 ft. bgs., 655 to 675 ft. bgs., 795 to 815 ft. bgs., and 1,010 to 1,030 ft. bgs. The USGS is currently in the process of calibrating the extensometers with the system anticipated to be fully operational by late 2026.

- Component 5: Monitoring Wells - Improved the existing monitoring network by repairing existing monitoring wells, conducting video surveys to document screen intervals, and converting existing municipal and/or agricultural wells to monitoring wells.

Work on the five grant components was completed in 2025. The work conducted for this grant provided data, methodologies and models for a more complete understanding of the groundwater subbasin that will support long-term sustainable groundwater management.

8 REFERENCES

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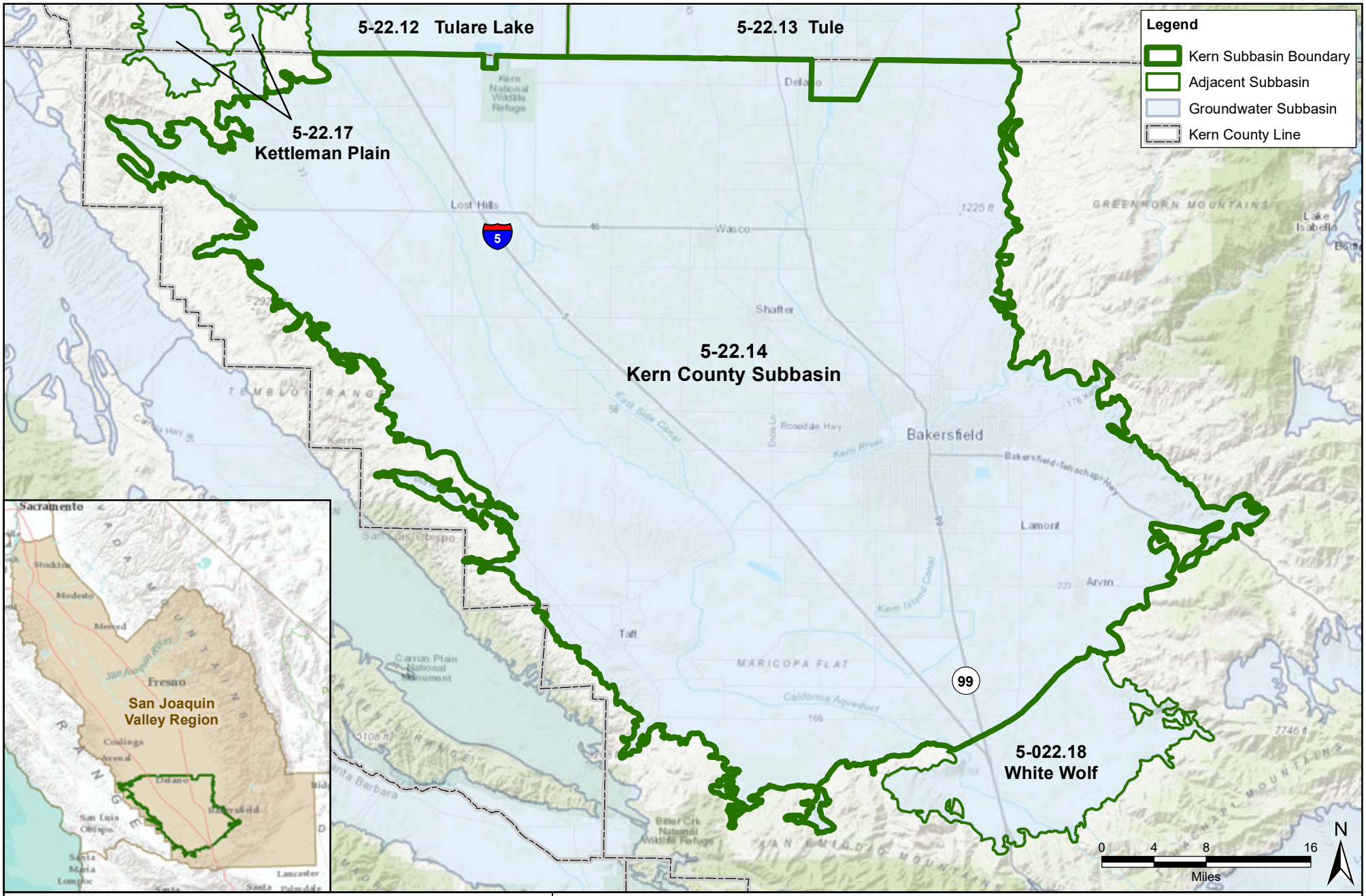
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FIGURES



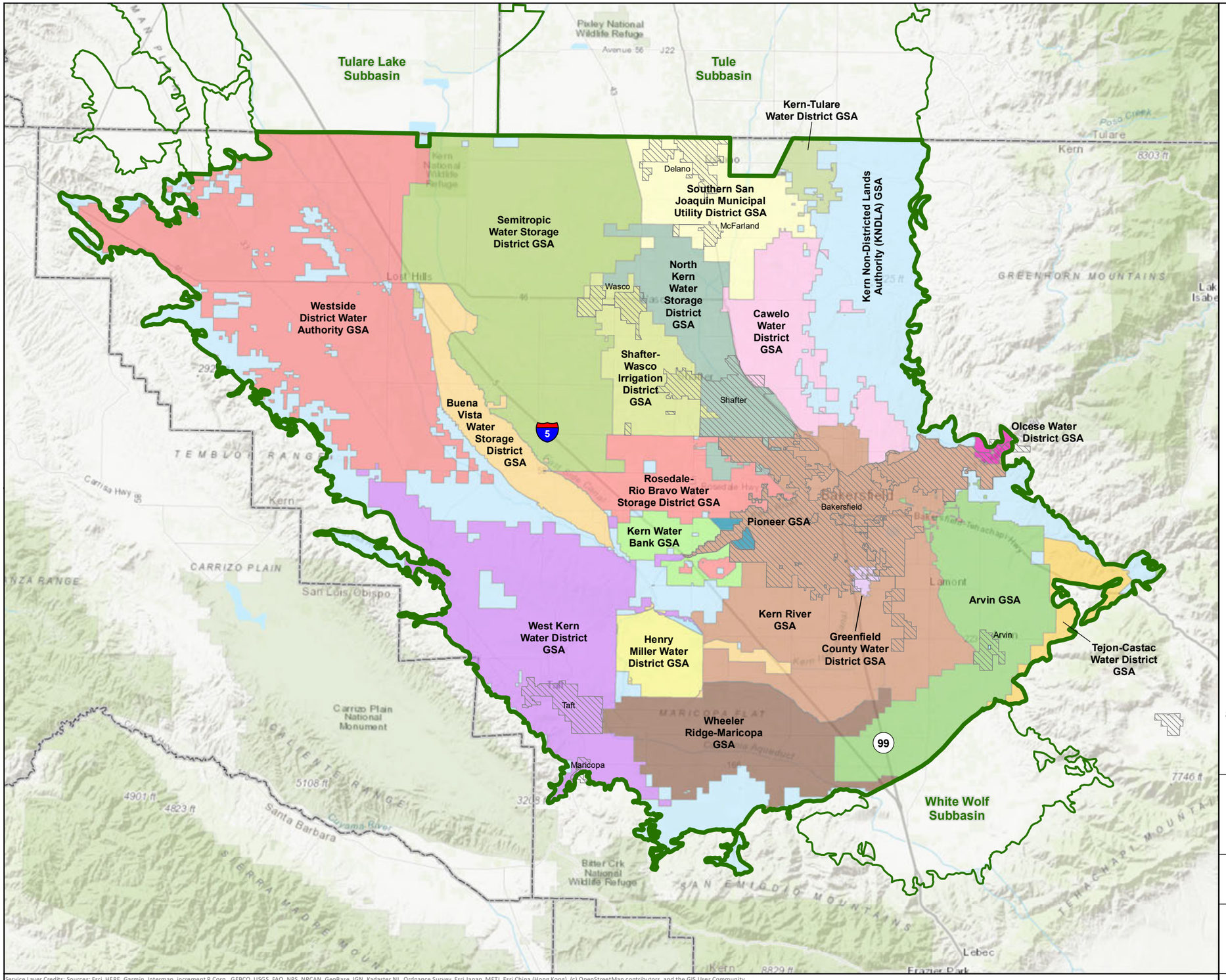
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Figure 1
Kern County Subbasin

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Legend

- Kern Subbasin Boundary
- Adjacent Subbasin
- City Limits
- Arvin GSA
- Buena Vista Water Storage District GSA
- Cawelo Water District GSA
- Greenfield County Water District GSA
- Henry Miller Water District GSA
- Kern Non-Districted Lands Authority (KNDLA) GSA
- Kern River GSA
- Kern Water Bank Groundwater Sustainability Agency
- Kern-Tulare Water District GSA
- North Kern Water Storage District GSA
- Olcese Water District GSA
- Pioneer GSA
- Rosedale-Rio Bravo Water Storage District GSA
- Semitropic Water Storage District GSA
- Shafter-Wasco Irrigation District GSA
- Southern San Joaquin Municipal Utility District GSA
- Tejon-Castac Water District GSA
- West Kern Water District GSA
- Westside District Water Authority GSA
- Wheeler Ridge-Maricopa GSA

Sources:

Figure 2
Kern County Subbasin Groundwater Sustainability Agencies (GSAs)

Kern County Subbasin
Water Year 2025 Annual Report

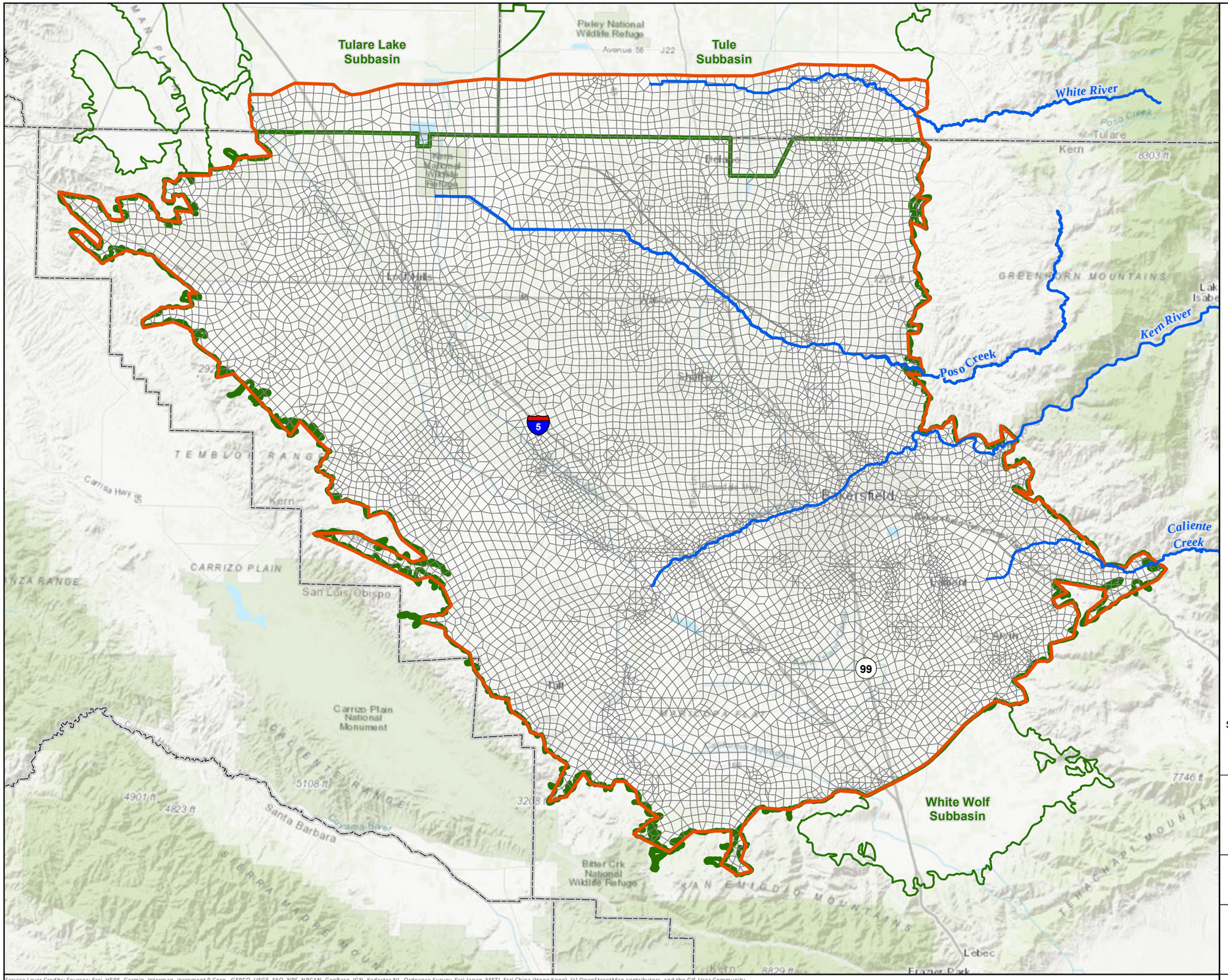
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20260324 \\todd-file\data\Projects\Kern 7th ANNUAL REPORT 62325\GIS\MAPS\Figure 2 Kern County Subbasin Groundwater Sustainability Agencies (GSAs).mxd TODD/MW



Legend

- Kern Subbasin Boundary
- Adjacent Subbasin
- Kern IWFM Model Boundary
- Kern IWFM Model Elements

Sources:

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20260324 T:\Projects\Kern 7th ANNUAL REPORT 62325\GIS\MAPS\Figure 3 Kern-IWFM Model Grid.mxd TODD/MW

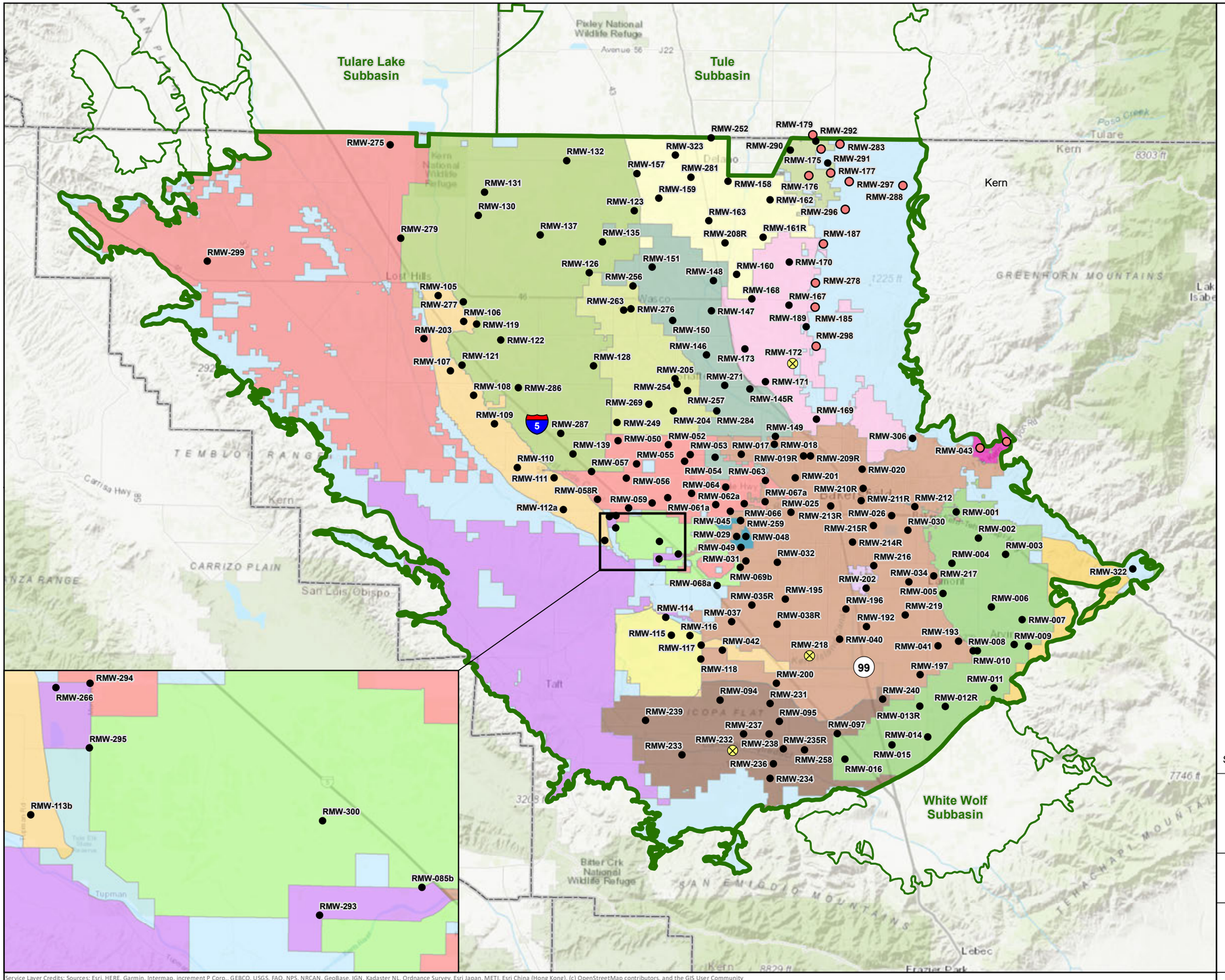
Figure 3
Kern-IWFM Model Grid

Kern County Subbasin
Water Year 2025 Annual Report

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Legend

- Primary Alluvial Aquifer Monitoring
- Santa Margarita and Olcese Aquifer Monitoring Well
- MT Exceedance
- Kern Subbasin Boundary
- Adjacent Subbasin
- Arvin GSA
- Buena Vista Water Storage District GSA
- Cawelo Water District GSA
- Greenfield County Water District GSA
- Henry Miller Water District GSA
- Kern Non-Districted Lands Authority (KNDLA) GSA
- Kern River GSA
- Kern Water Bank Groundwater Sustainability Agency
- Kern-Tulare Water District GSA
- North Kern Water Storage District GSA
- Olcese Water District GSA
- Pioneer GSA
- Rosedale-Rio Bravo Water Storage District GSA
- Semitropic Water Storage District GSA
- Shafter-Wasco Irrigation District GSA
- Southern San Joaquin Municipal Utility District GSA
- Tejon-Castac Water District GSA
- West Kern Water District GSA
- Westside District Water Authority GSA
- Wheeler Ridge-Maricopa GSA

Sources:

Figure 4
Basin-Wide Groundwater Level Monitoring Network

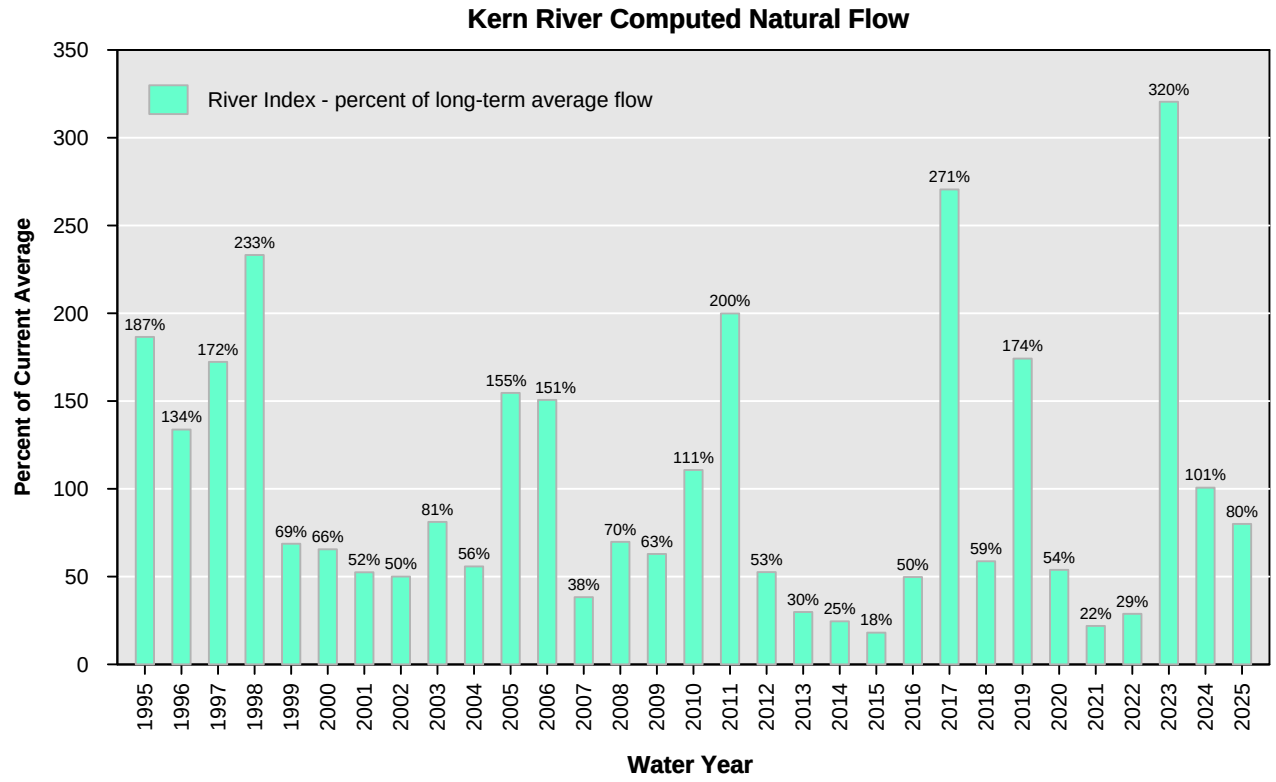
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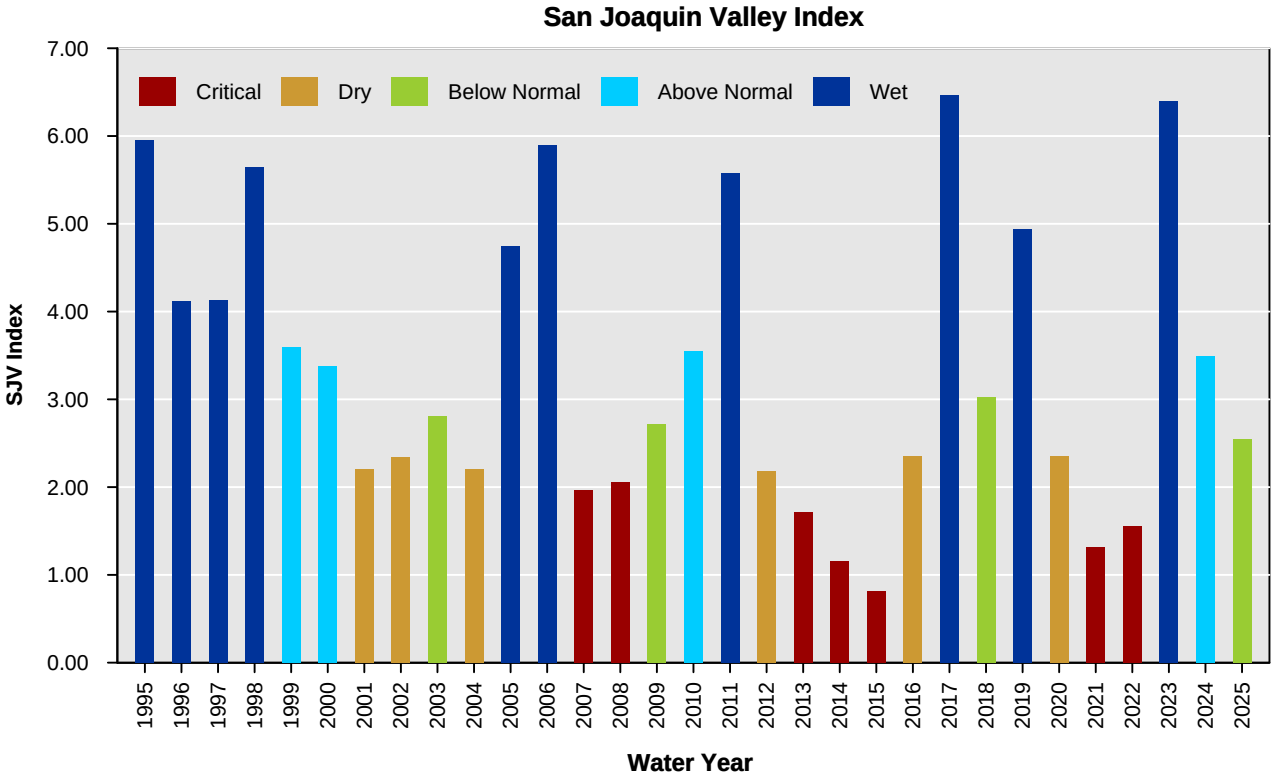
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Kern County Subbasin
Water Year 2025 Annual Report

Sources: California Data Exchange Center (CDEC, 202_)
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Figure 5
Water Year Types, Kern River and San Joaquin Valley Indices, WY 1995-2025

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Figure 6 Water Year Types, Kern River and San Joaquin Valley Indices, WY 1995-2025.gpj

Tulare Lake Subbasin
Tule Subbasin
Kettleman Plain Subbasin
North Basin HCM Area
East Margin HCM Area
Western Fold Belt HCM Area
Kern River Fan HCM Area
South Basin HCM Area
White Wolf Subbasin
KETTLEMEN HILLS
ANTELOPE PLAIN
ELK HILLS
MARICOPA FLAT
GREENHORN MOUNTAINS
Tulare
Kern
Blue Mountain
Wasco
Shafter
Bakersfield
Lamont
Arvin
Buena Vista Lake Bed
Kern Lake Bed
Buena Vista Valley
Oildale
Tejon Hills
Pleito Hills
Santa Barbara
San Luis Obispo
CUYAMA VALLEY
SAN EMIGDIO MOUNTAINS
TEHACHAPI MOUNTAINS
MOJAVE
5
99
58
43
46
33
166

Legend

- Kern Subbasin Boundary
- Adjacent Subbasin
- Kern County Line
- Recent Alluvium
- Recent Basin Deposits
- Quaternary Lake Deposits
- Quaternary Alluvial Fan Deposits
- Tulare/Kern River Formations
- Pliocene Marine Sedimentary Rock
- Pliocene Nonmarine Sedimentary Rock
- Miocene Marine Sedimentary Rock
- Miocene Nonmarine Sedimentary Rock
- Lower Tertiary Sedimentary Rock; Tc
- Cretaceous Marine Sedimentary Rocks
- Undifferentiated Volcanic Rock
- Undifferentiated Igneous/Metamorphic Rock

Sources:

Service Layer Credits: Sources: Esri, USGS, NOAA

20260324 T:\Projects\Kern 7th ANNUAL REPORT 62325\GIS\MAPS\Figure 6 Location of the HCM Areas Relative to the Geologic Setting.mxd TODD/MW

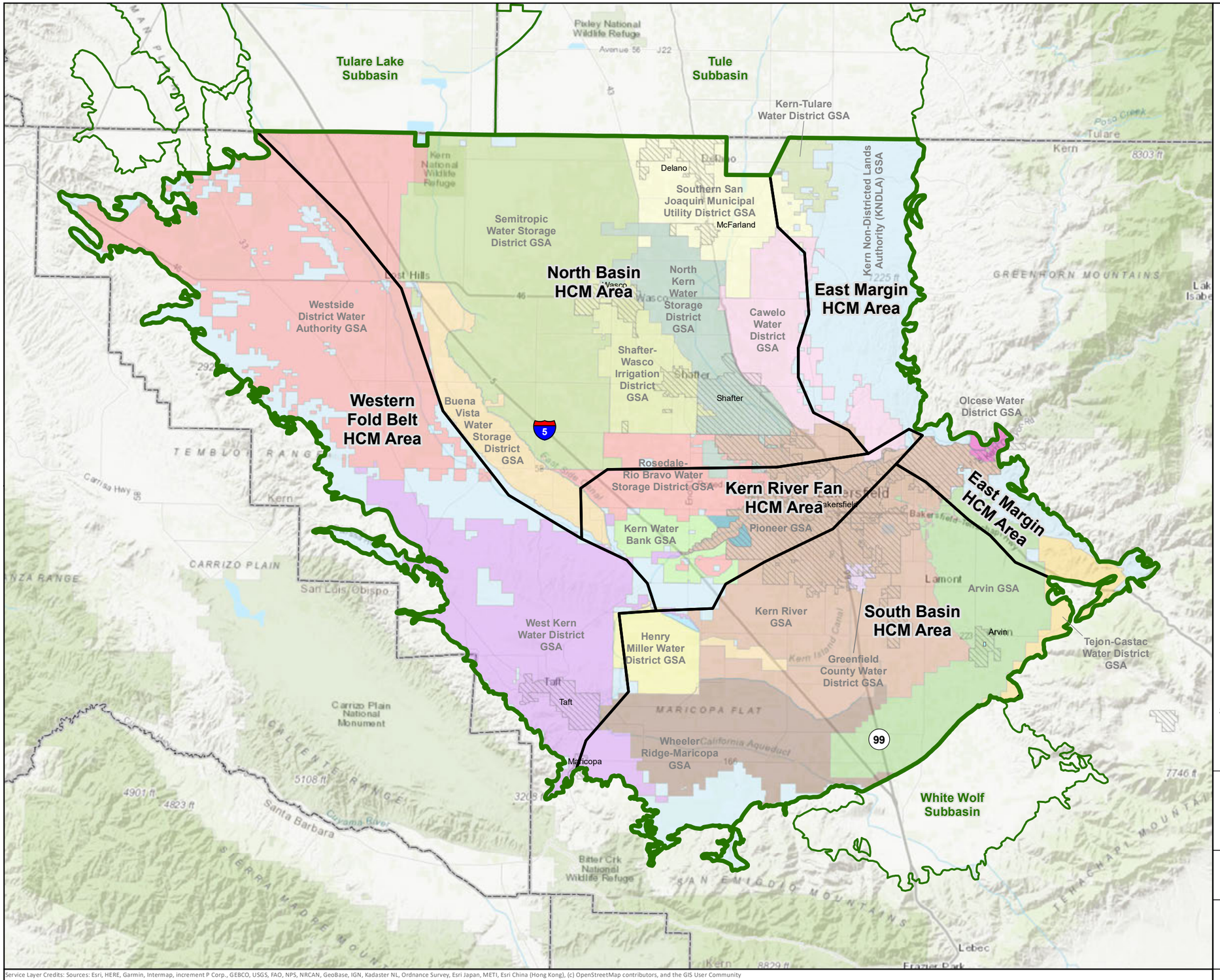
Figure 6
Location of the HCM Areas Relative to the Geologic Setting

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Water Year 2025 Annual Report

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Legend

- Kern Subbasin Boundary
- Adjacent Subbasin
- City Limits
- Arvin GSA
- Buena Vista Water Storage District GSA
- Cawelo Water District GSA
- Greenfield County Water District GSA
- Henry Miller Water District GSA
- Kern Non-Districted Lands Authority (KNDLA) GSA
- Kern River GSA
- Kern Water Bank Groundwater Sustainability Agency
- Kern-Tulare Water District GSA
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- Tejon-Castac Water District GSA
- West Kern Water District GSA
- Westside District Water Authority GSA
- Wheeler Ridge-Maricopa GSA

Sources:

Figure 7
Comparison of HCM Areas to GSA Boundaries

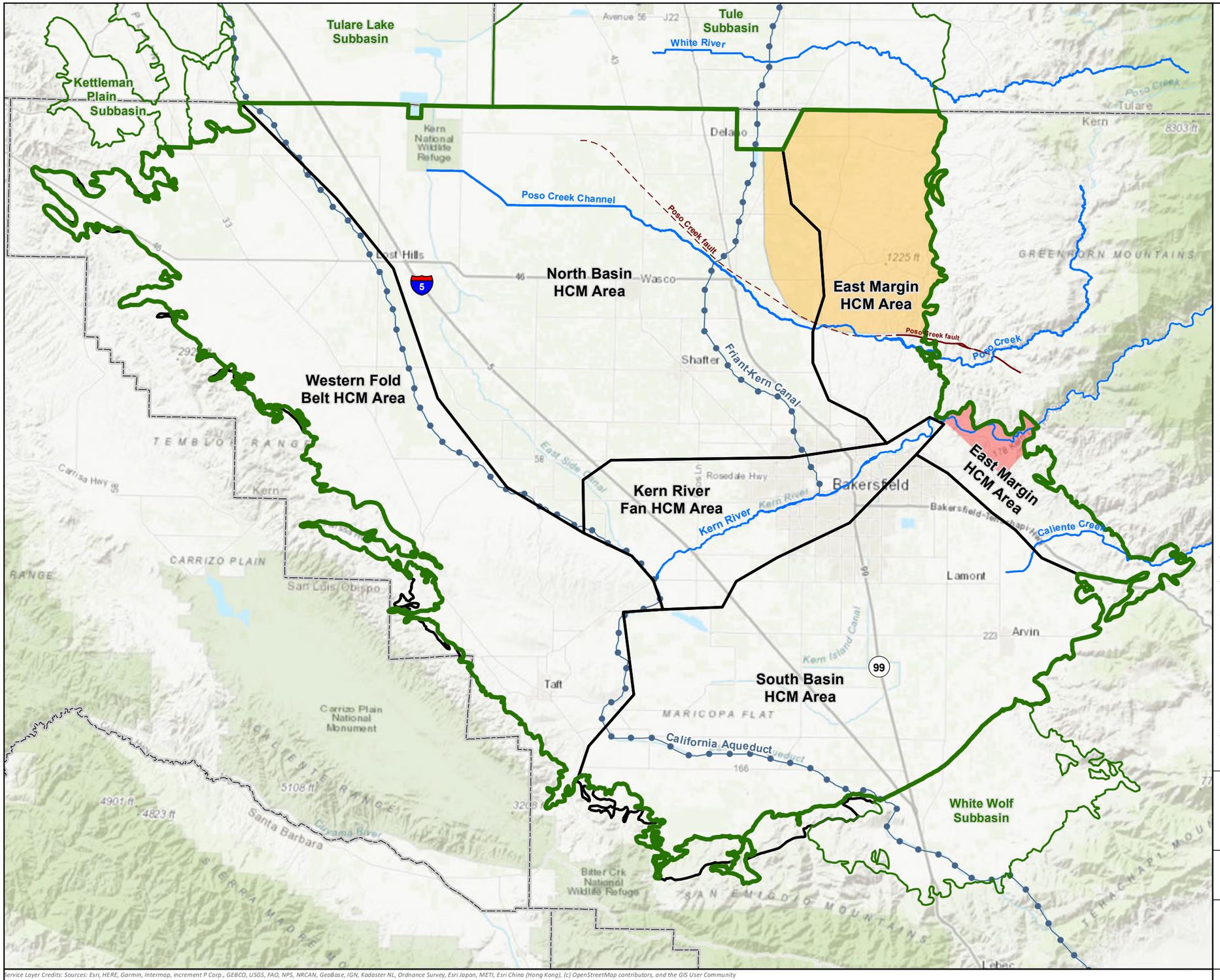
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20260324 T:\Projects\Kern 7th ANNUAL REPORT 62325\GIS\MAPS\Figure 8 Location of Local Principal Aquifers.mxd TODD/MW

Legend

- Kern_HCM_Areas
- Olcese Principal Aquifer
- Santa Margarita Principal Aquifer
- Kern Subbasin Boundary
- Adjacent Subbasin
- Kern County Line
- Aqueducts
- Other Streams
- Well Constrained Fault
- Inferred Fault

Sources:

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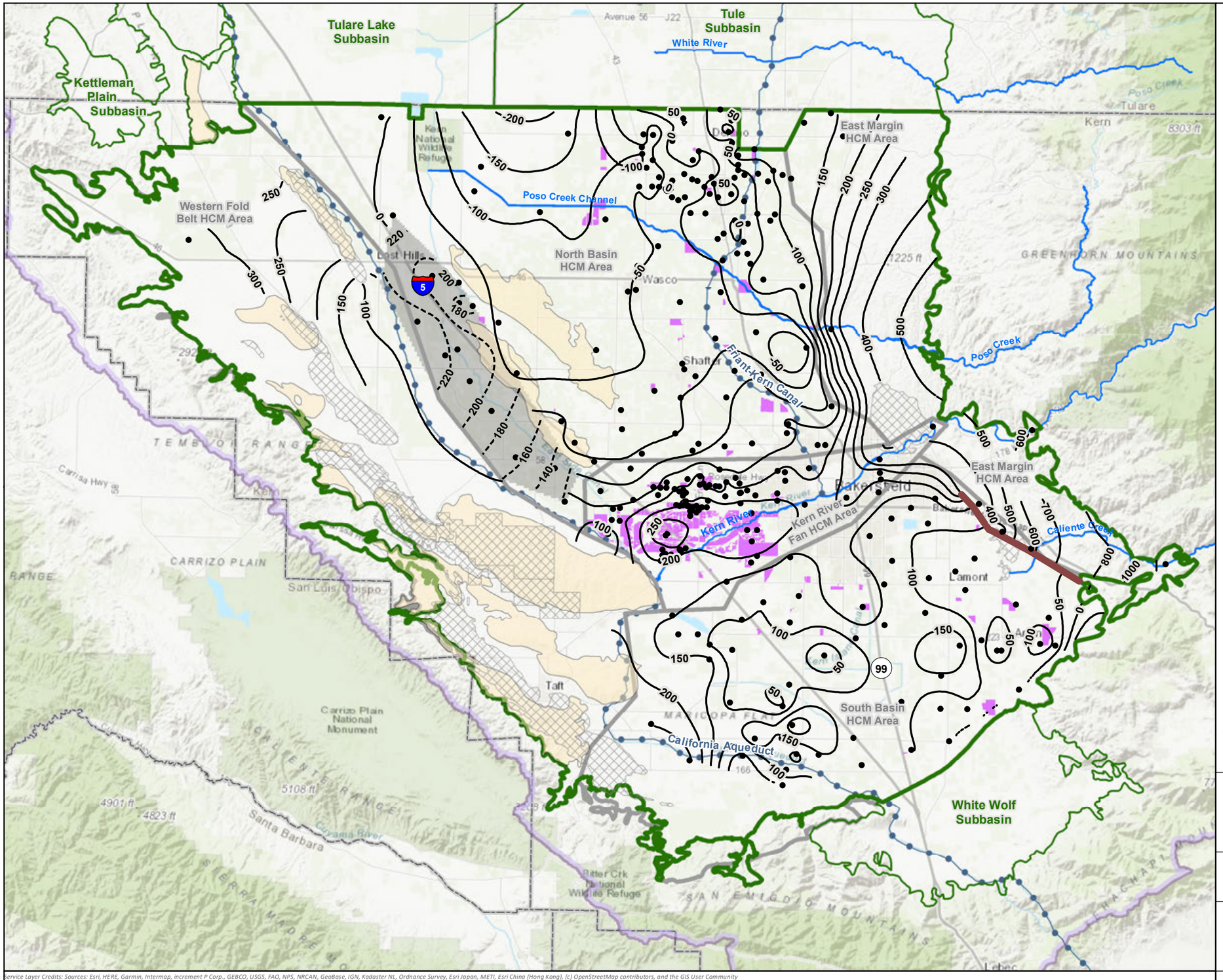
Figure 8
Location of Local Principal Aquifers

Kern County Subbasin
Water Year 2025 Annual Report

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Legend

- Wells Used in Contouring
- WY 2025 Primary Contours - Fall 2024
- HCM Area
- US EPA USDW Aquifer Exemption Areas
- Kern County Recharge Facilities
- West Side Fold Belt Anticlines
- Tulare Lake Hydrologic Area
- Hydraulic Interconnected Zone Above the E-Clay
- Kern Subbasin Boundary
- Adjacent Subbasin
- Kern County Line
- Aqueducts
- Other Streams
- Edison Fault Flow Discontinuity

Sources:

Figure 9
Fall 2024 Groundwater Elevation Contour Map, Primary Alluvial Principal Aquifer

Kern County Subbasin
Water Year 2025 Annual Report

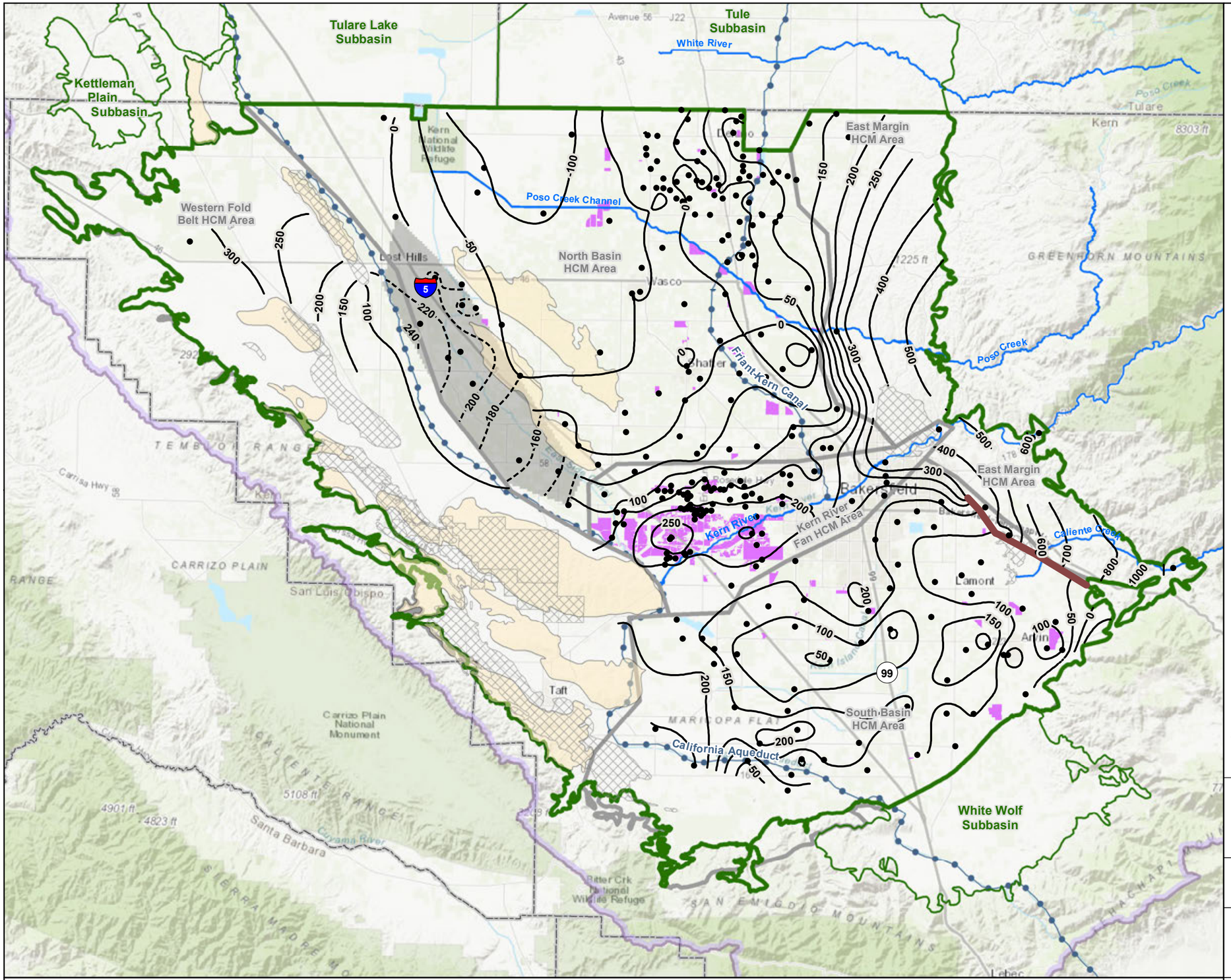
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20260330 T:\Projects\Kern 7th ANNUAL REPORT 62325\GIS\MAPS\Figure 9 Fall 2024 Groundwater Elevation Contour Map, Primary Alluvial Principal Aquifer.mxd TODD/MW



Legend

- Wells Used in Contouring
- WY 2025 Primary Contours - Spring 2025
- HCM Area
- US EPA USDW Aquifer Exemption Areas
- Kern County Recharge Facilities
- West Side Fold Belt Anticlines
- Tulare Lake Hydrologic Area
- Hydraulic Interconnected Zone Above the E-Clay
- Kern Subbasin Boundary
- Adjacent Subbasin
- Kern County Line
- Aqueducts
- Other Streams
- Edison Fault Flow Discontinuity

Sources:

Figure 10
Spring 2025 Groundwater Elevation Contour Map, Primary Alluvial Principal Aquifer

Kern County Subbasin
Water Year 2025 Annual Report

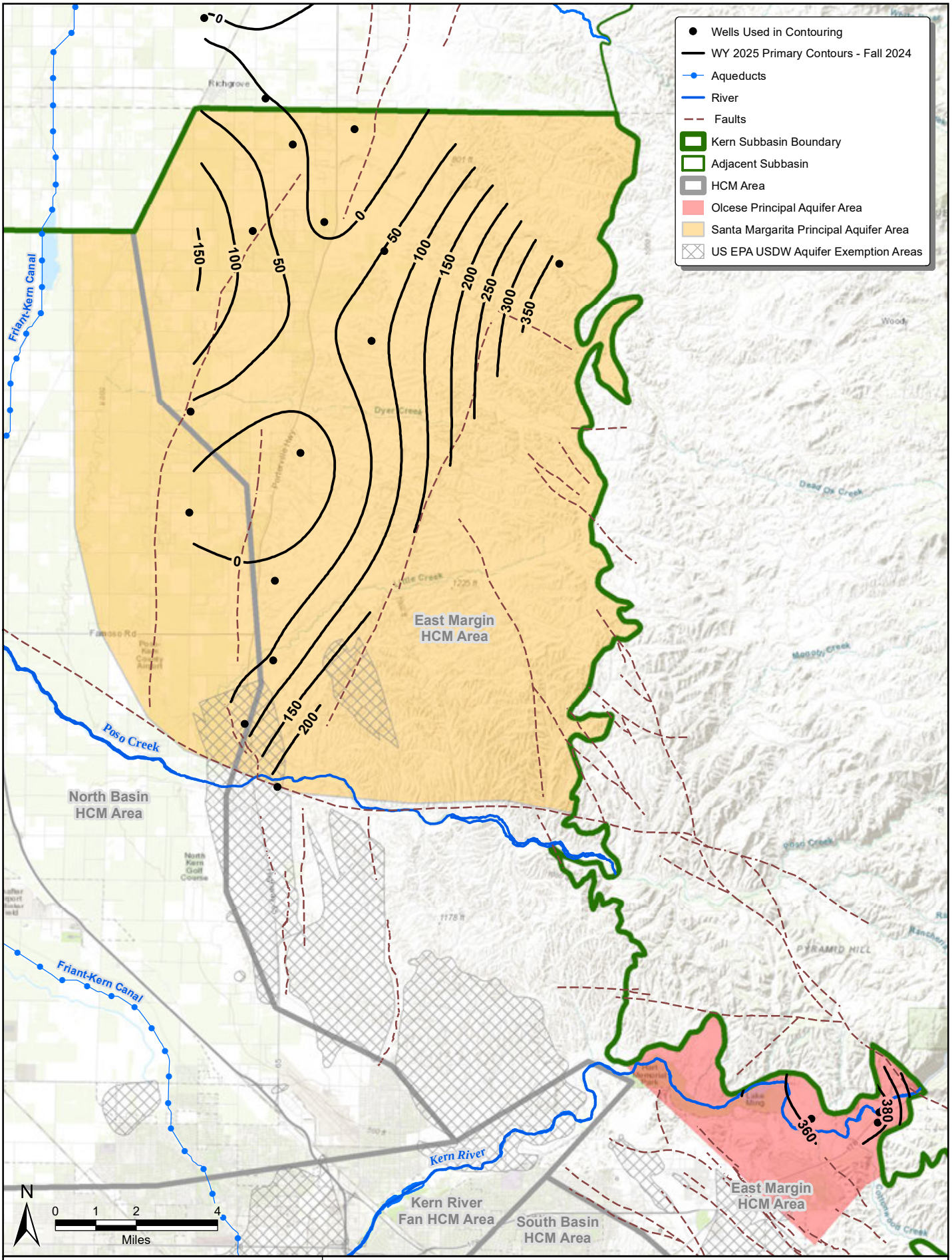
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20260330 T:\Projects\Kern 7th ANNUAL REPORT 62325\GIS\MAPS\Figure 10 Spring 2025 Groundwater Elevation Contour Map, Primary Alluvial Principal Aquifer.mxd TODD/MW



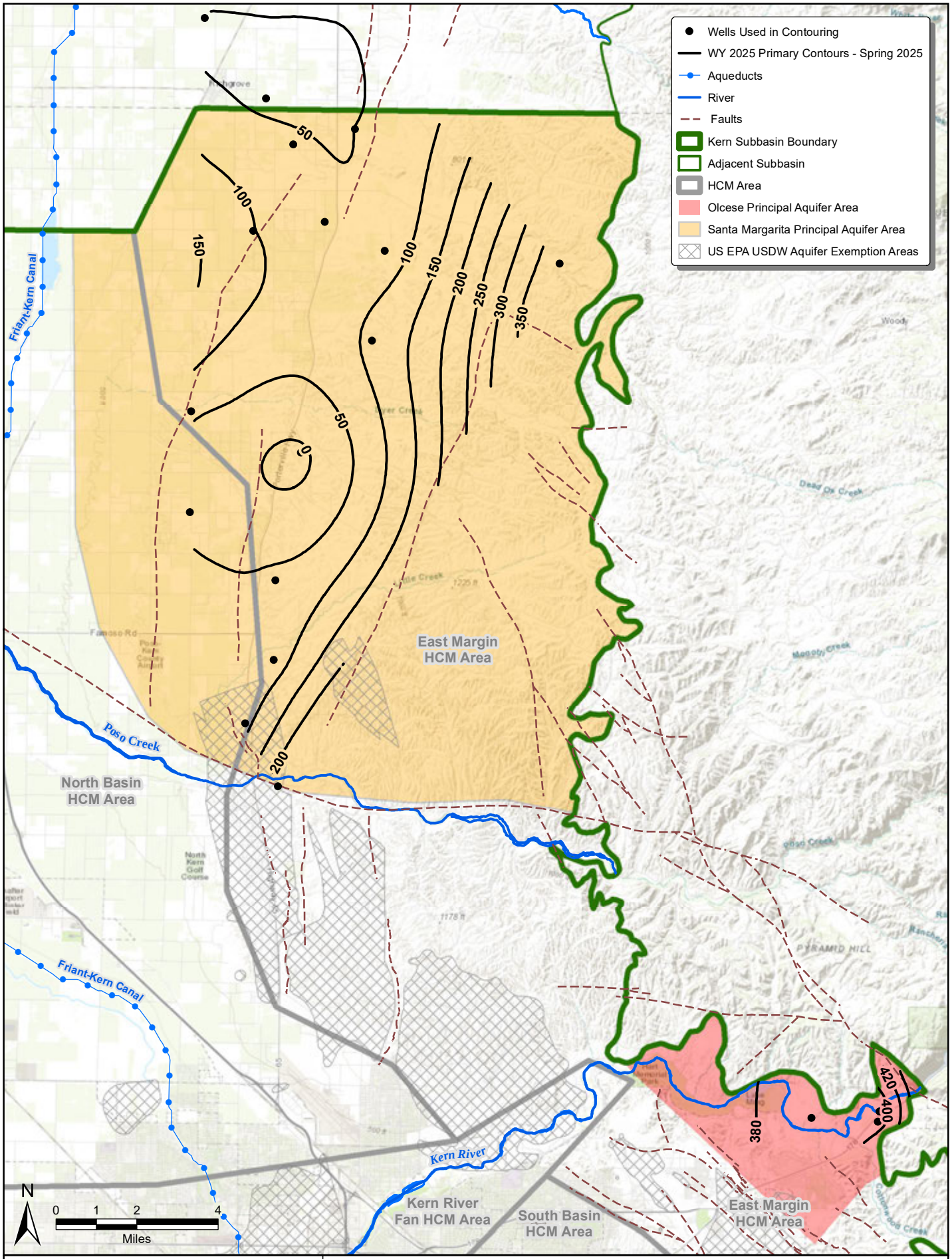
Kern County Subbasin
Water Year 2025 Annual Report

Sources:

Figure 11 Fall 2024 Groundwater Elevation Contour Maps for Santa Margarita and Olcese Principal Aquifer

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Figure 11 Fall 2024 Groundwater Elevation Contour Maps for Santa Margarita and Olcese Principal Aquifer.mxd - 20260330



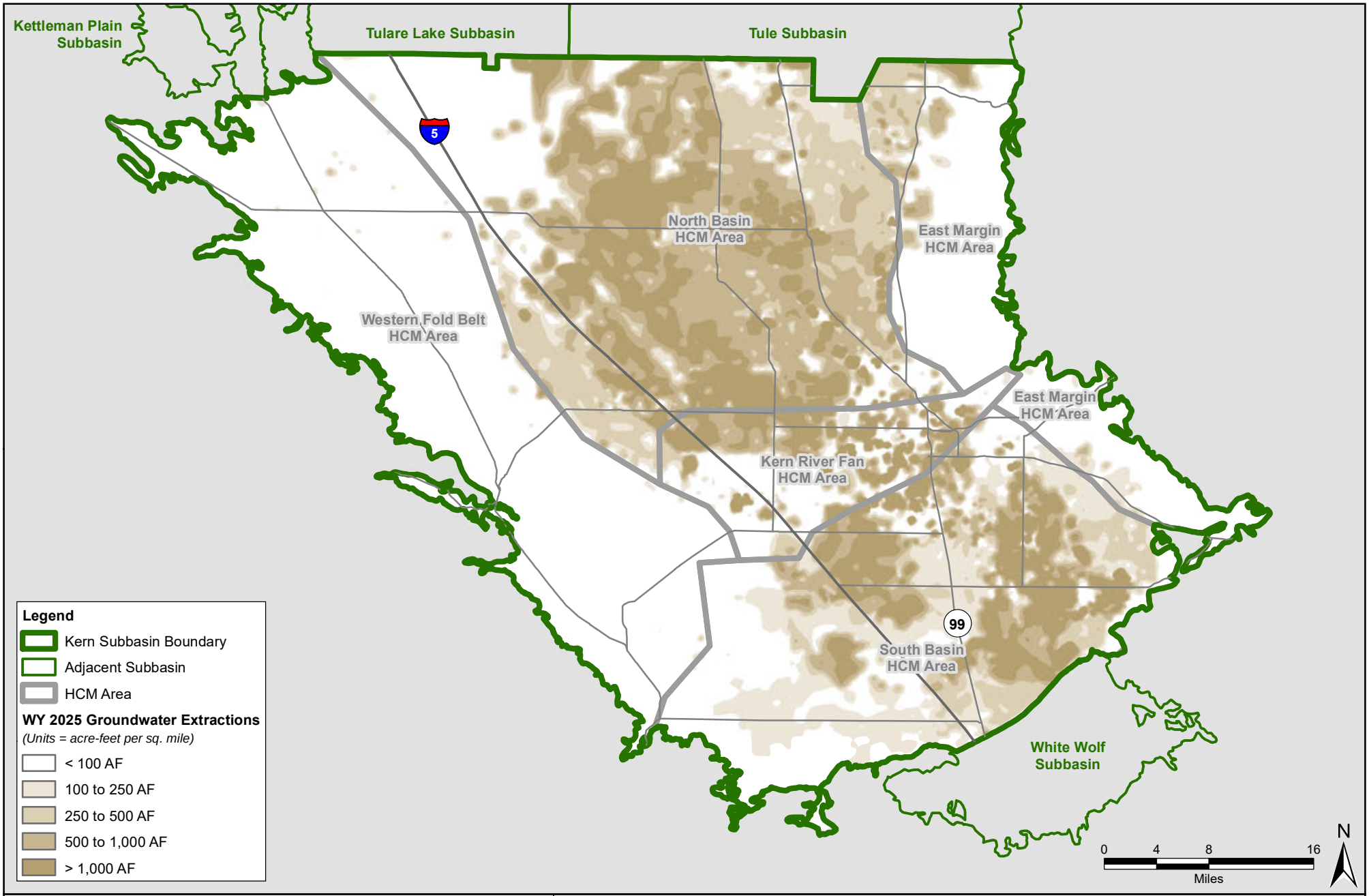
Kern County Subbasin
Water Year 2025 Annual Report

Sources:

Figure 12 Spring 2025 Groundwater Elevation Contour Maps for Santa Margarita and Olcese Principal Aquifer

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Figure 12 Spring 2025 Groundwater Elevation Contour Maps for Santa Margarita and Olcese Principal Aquifer.mxd - 20260330



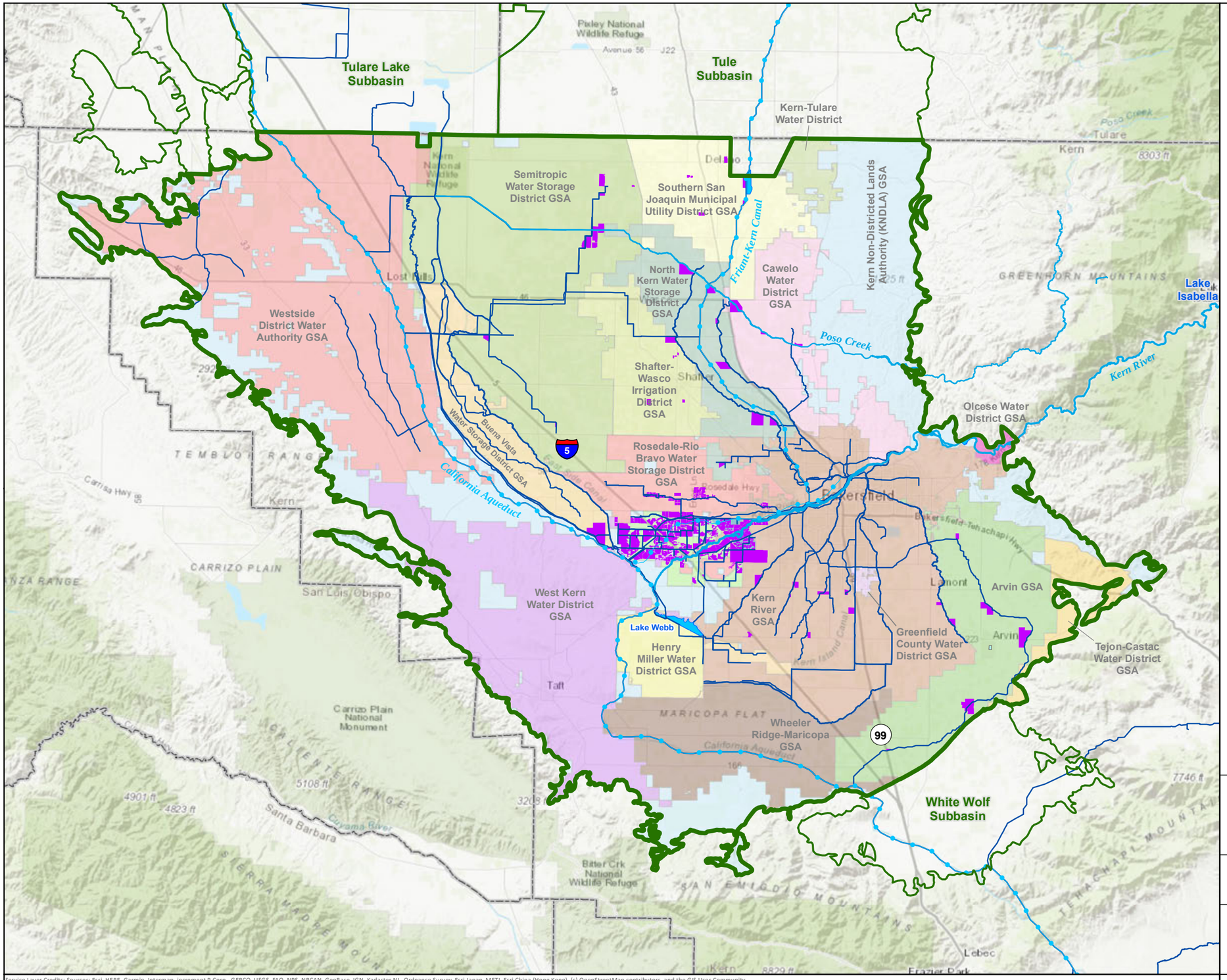
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Service Layer Credits:

Figure 13
WY2025 Groundwater Extraction Map, Kern County Subbasin

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Figure 13 WY2025 Groundwater Extraction Map, Kern County Subbasin.mxd - 20260330



Legend

- Kern River
- Regional Canal
- Distribution Canal
- Kern County Recharge Facilities
- Kern Subbasin Boundary
- Adjacent Subbasin
- Arvin GSA
- Buena Vista Water Storage District GSA
- Cawelo Water District GSA
- Greenfield County Water District GSA
- Henry Miller Water District GSA
- Kern Non-Districted Lands Authority (KNDLA) GSA
- Kern River GSA
- Kern Water Bank Groundwater Sustainability Agency
- Kern-Tulare Water District GSA
- North Kern Water Storage District GSA
- Olcese Water District GSA
- Pioneer GSA
- Rosedale-Rio Bravo Water Storage District GSA
- Semitropic Water Storage District GSA
- Shafter-Wasco Irrigation District GSA
- Southern San Joaquin Municipal Utility District GSA
- Tejon-Castac Water District GSA
- West Kern Water District GSA
- Westside District Water Authority
- Wheeler Ridge-Maricopa GSA

Figure 14
Surface Water Features
Kern County Subbasin

Kern County Subbasin
Water Year 2025 Annual Report

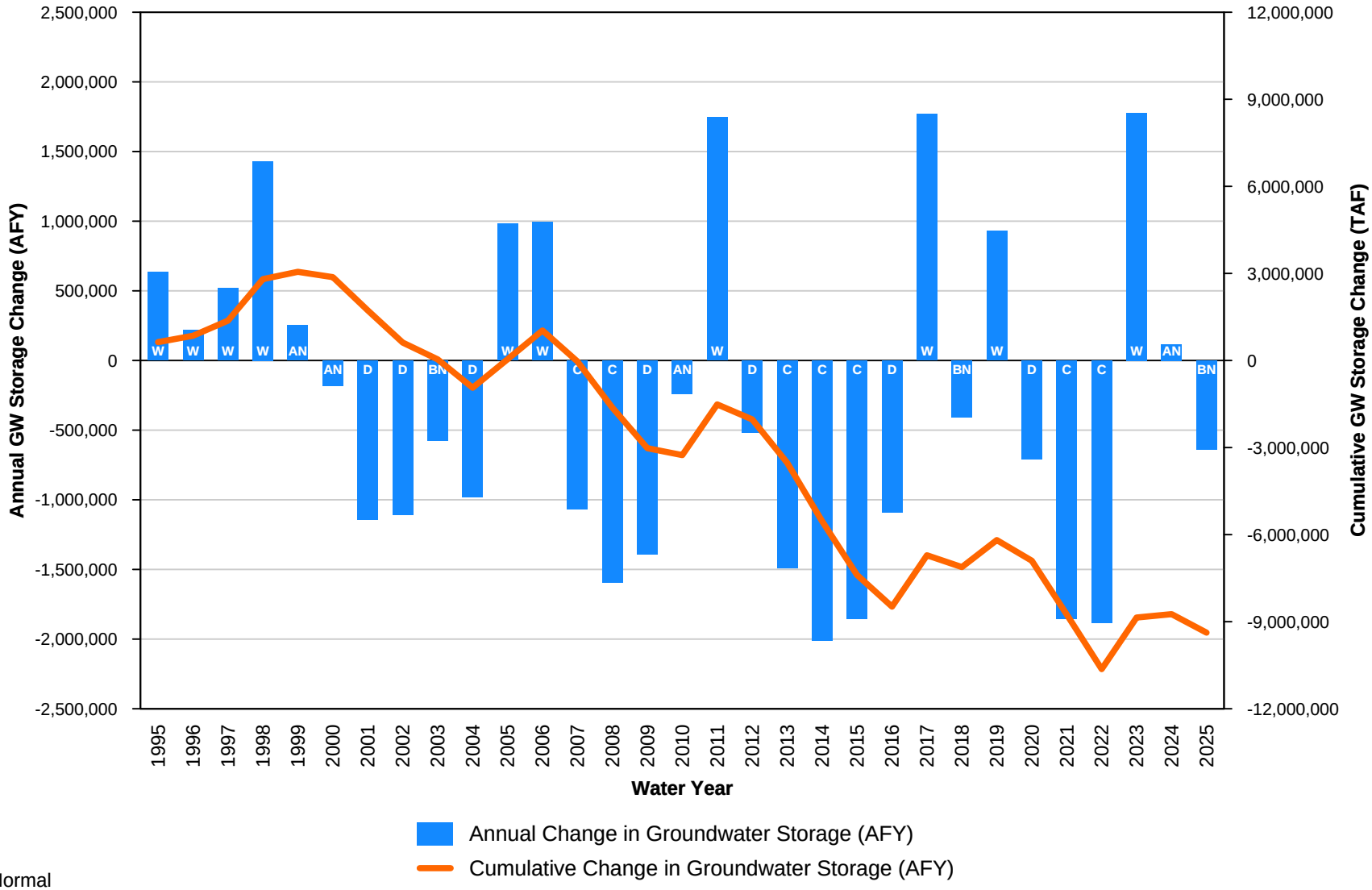
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20260330 T:\Projects\Kern 7th ANNUAL REPORT 62325\GIS\MAPS\Figure 14 Surface Water Features Kern County Subbasin.mxd TODD/MW



W Wet
AN Above Normal
BN Below Normal
D Dry
C Critically Dry

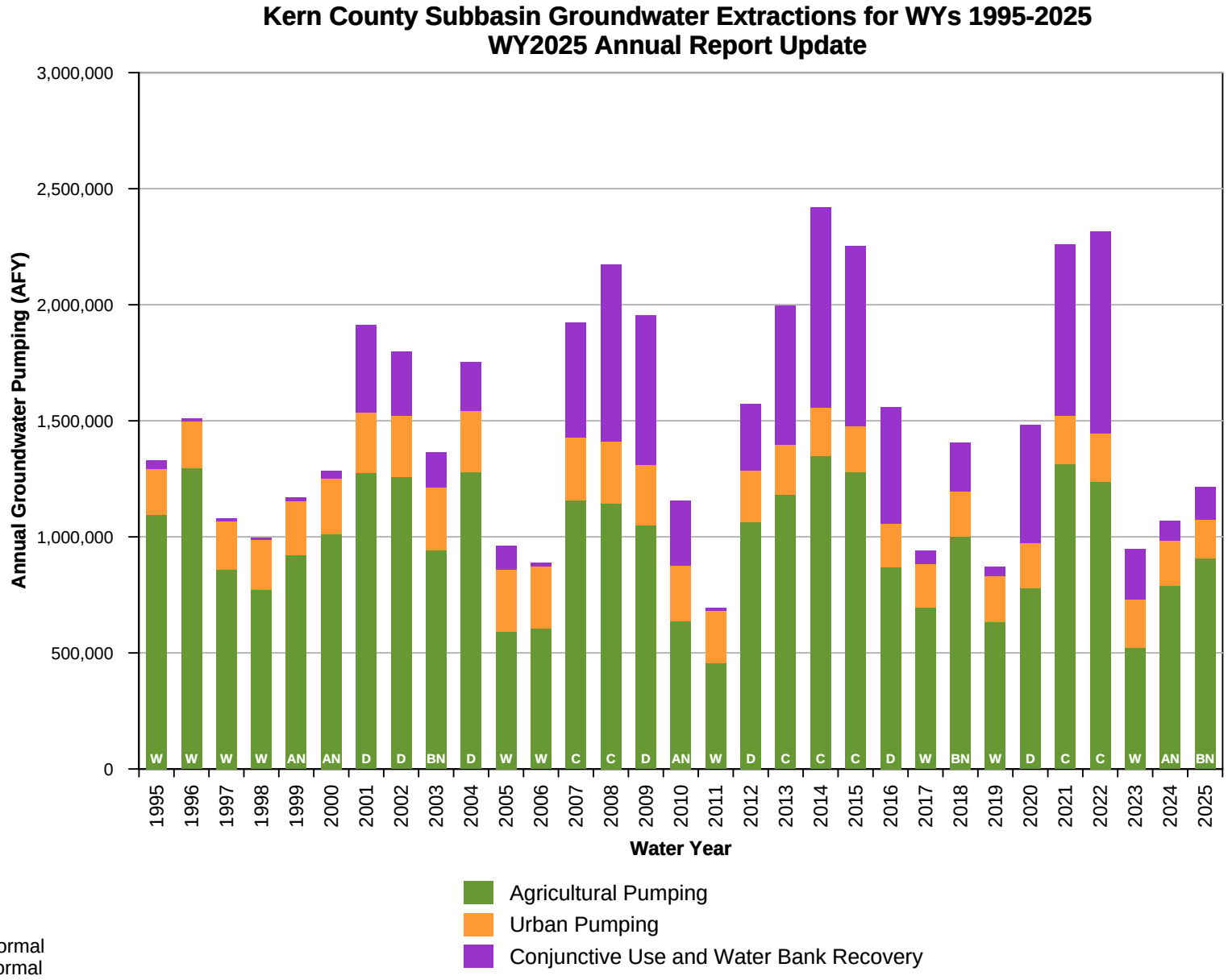
Kern County Subbasin
Water Year 2025 Annual Report

Sources:

Figure 15
Annual Change in Groundwater in Storage Graph Kern County Subbasin WYs 1995 to 2025

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Figure 15 Annual Change in Groundwater in Storage Graph Kern County Subbasin WYs 1995 to 2025.gpj



W Wet
AN Above Normal
BN Below Normal
D Dry
C Critically Dry

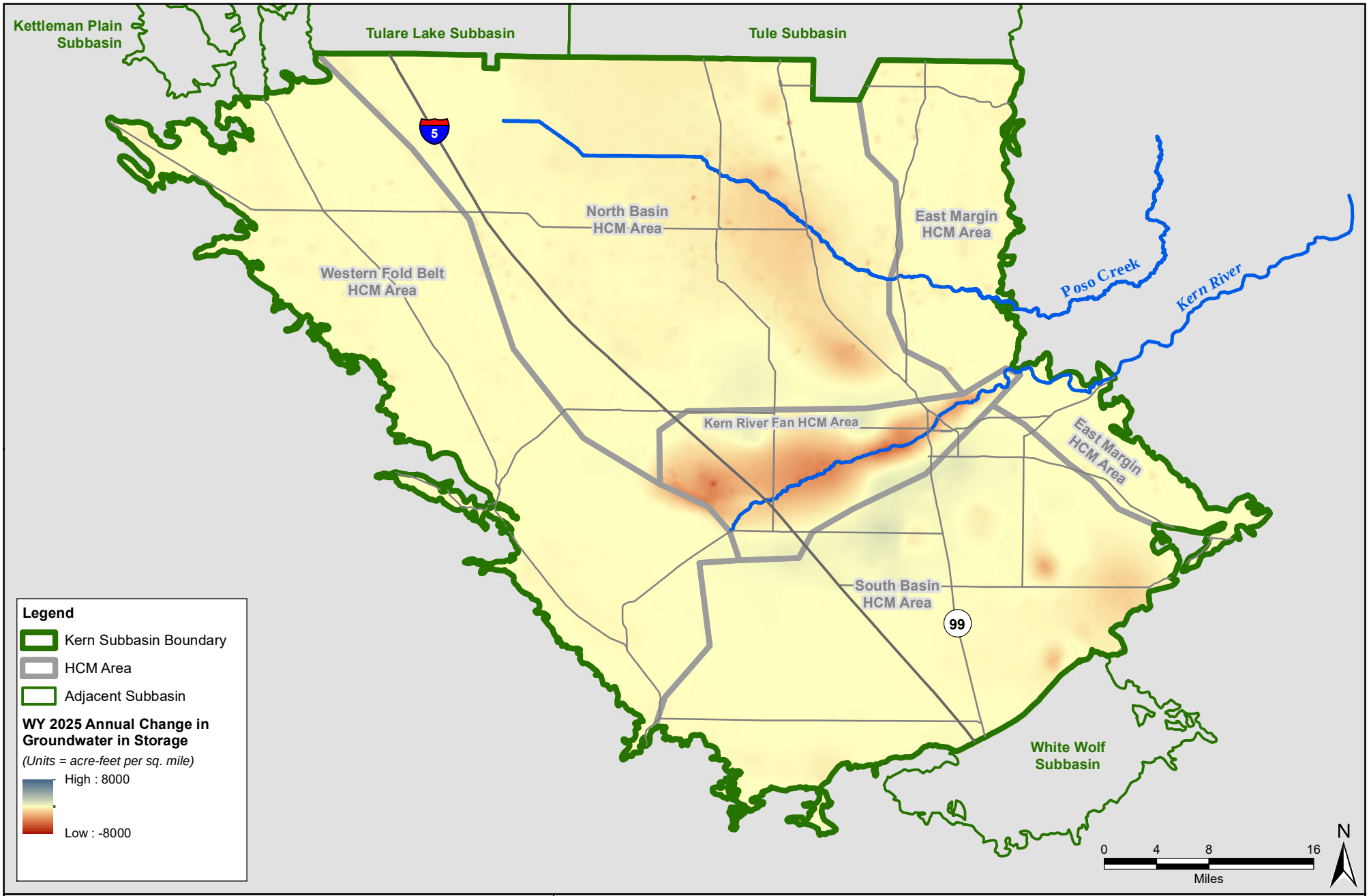
Kern County Subbasin
Water Year 2025 Annual Report

Sources:

Figure 16
Annual Groundwater Extraction Graph Kern County Subbasin WYs 1995 to 2025

MARCH 2026

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Figure 16 Annual Groundwater Extraction Graph Kern County Subbasin WYs 1995 to 2025.gpj



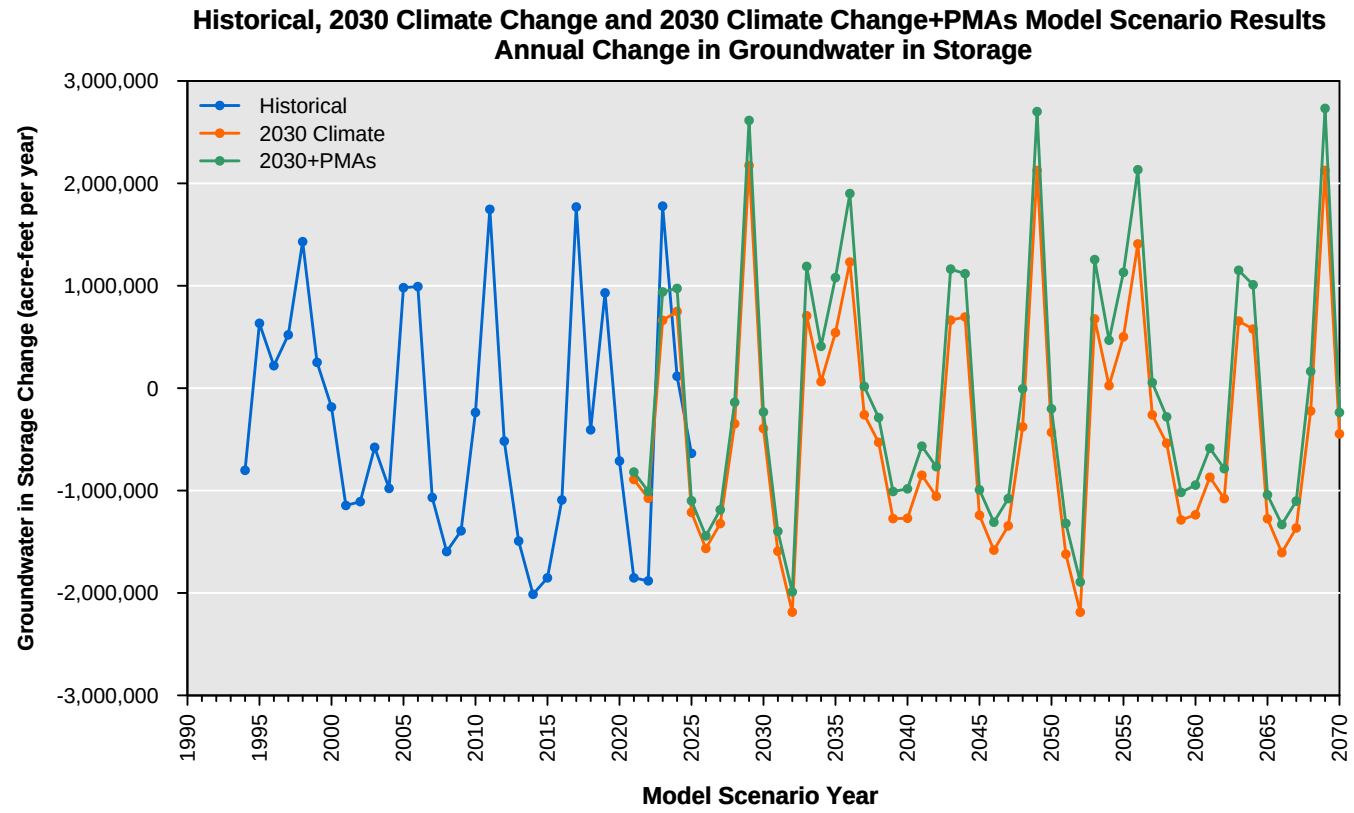
Kern County Subbasin
Water Year 2025 Annual Report

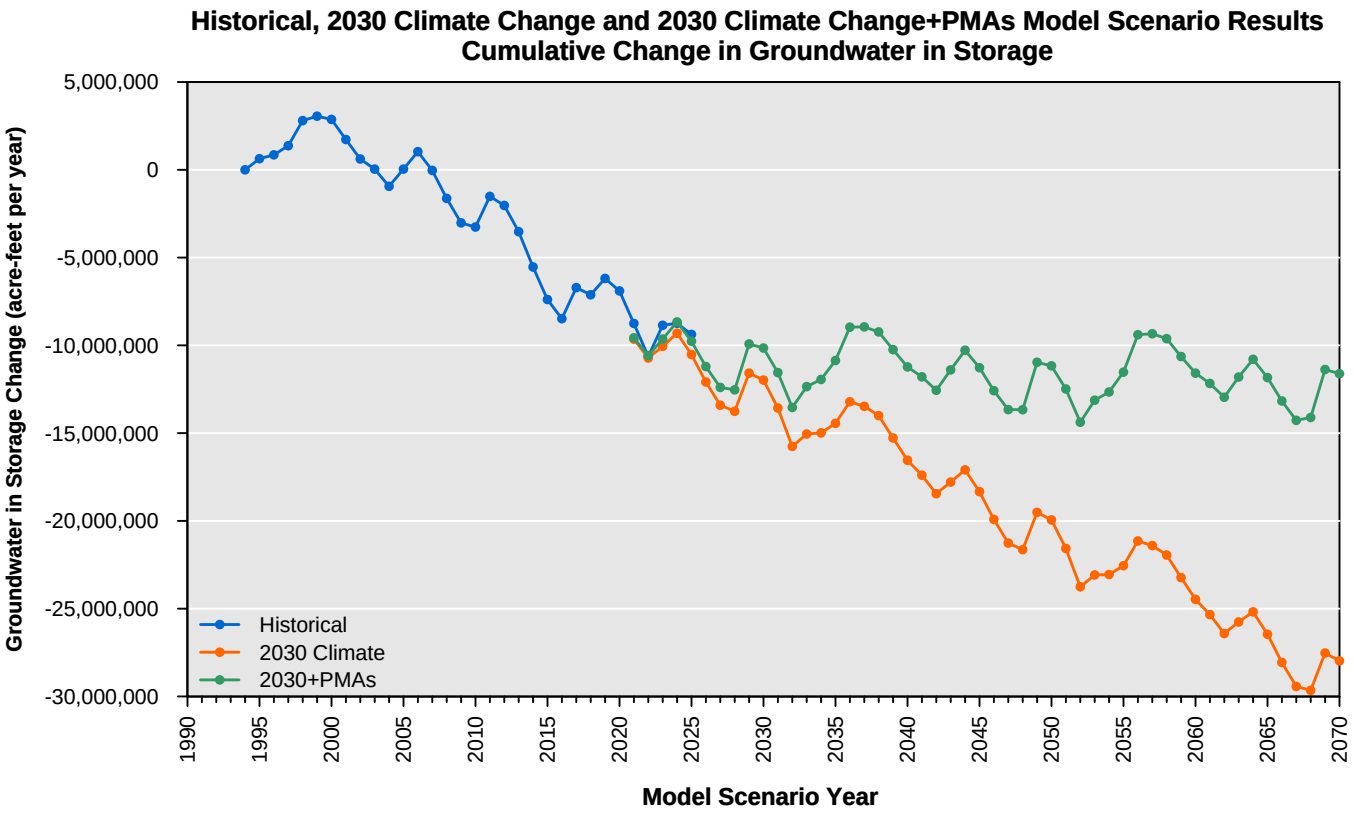
Service Layer Credits:

Figure 17
WY2025 Change in Groundwater in Storage Map, Kern County Subbasin

MARCH 2026

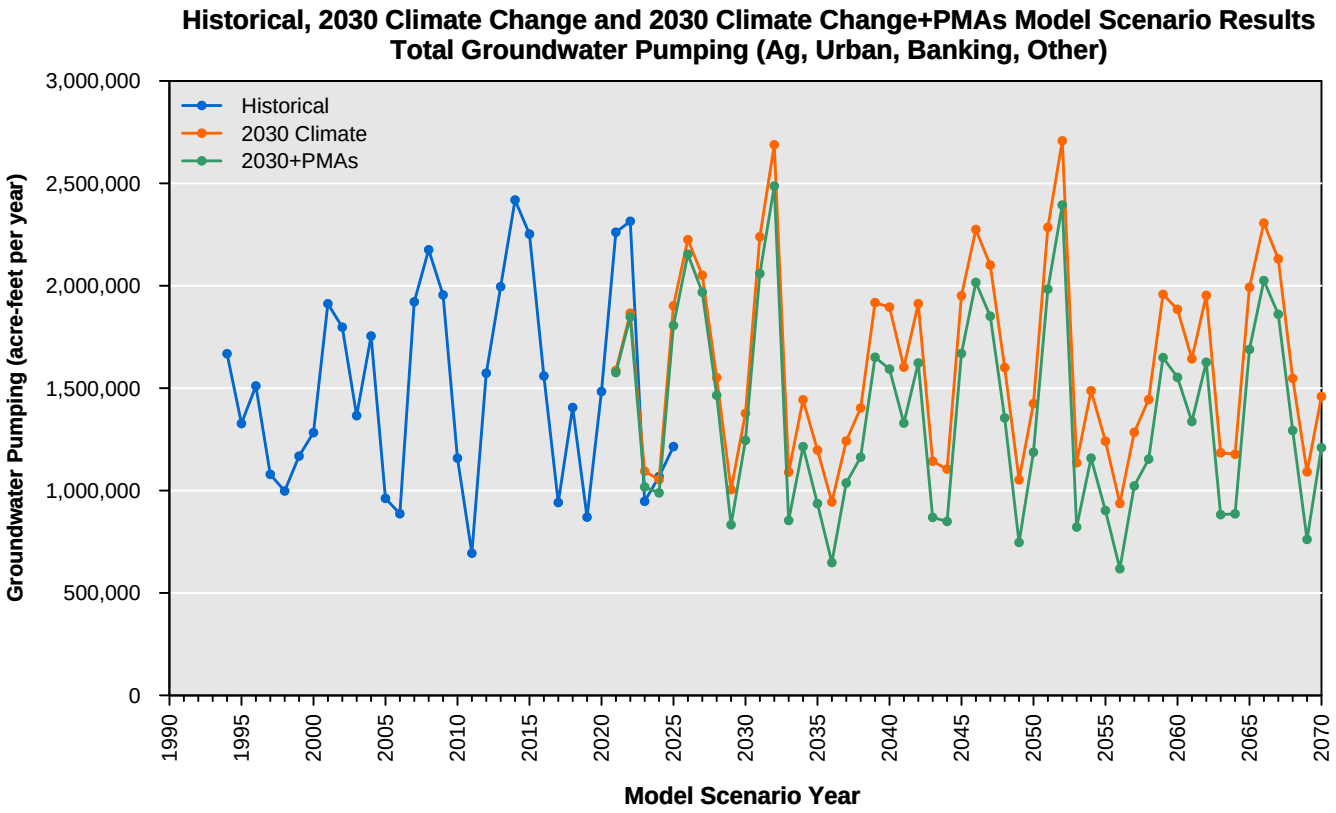
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Figure 17 WY2025 Change in Groundwater in Storage Map, Kern County Subbasin.mxd - 20260330

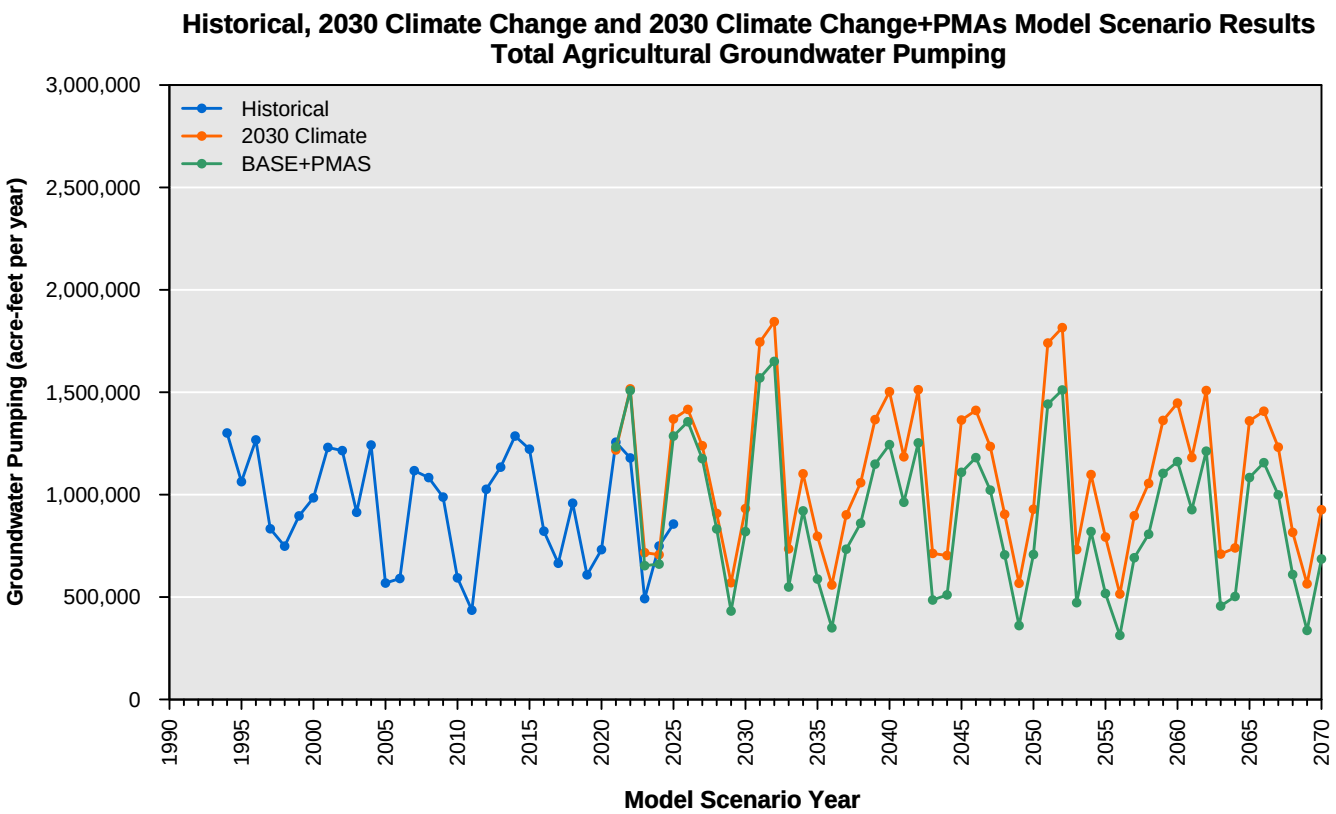




Kern County Subbasin Water Year 2025 Annual Report	Figure 18 Historical to Projected-Future Scenario Change in Storage Comparison
Sources:	MARCH 2026

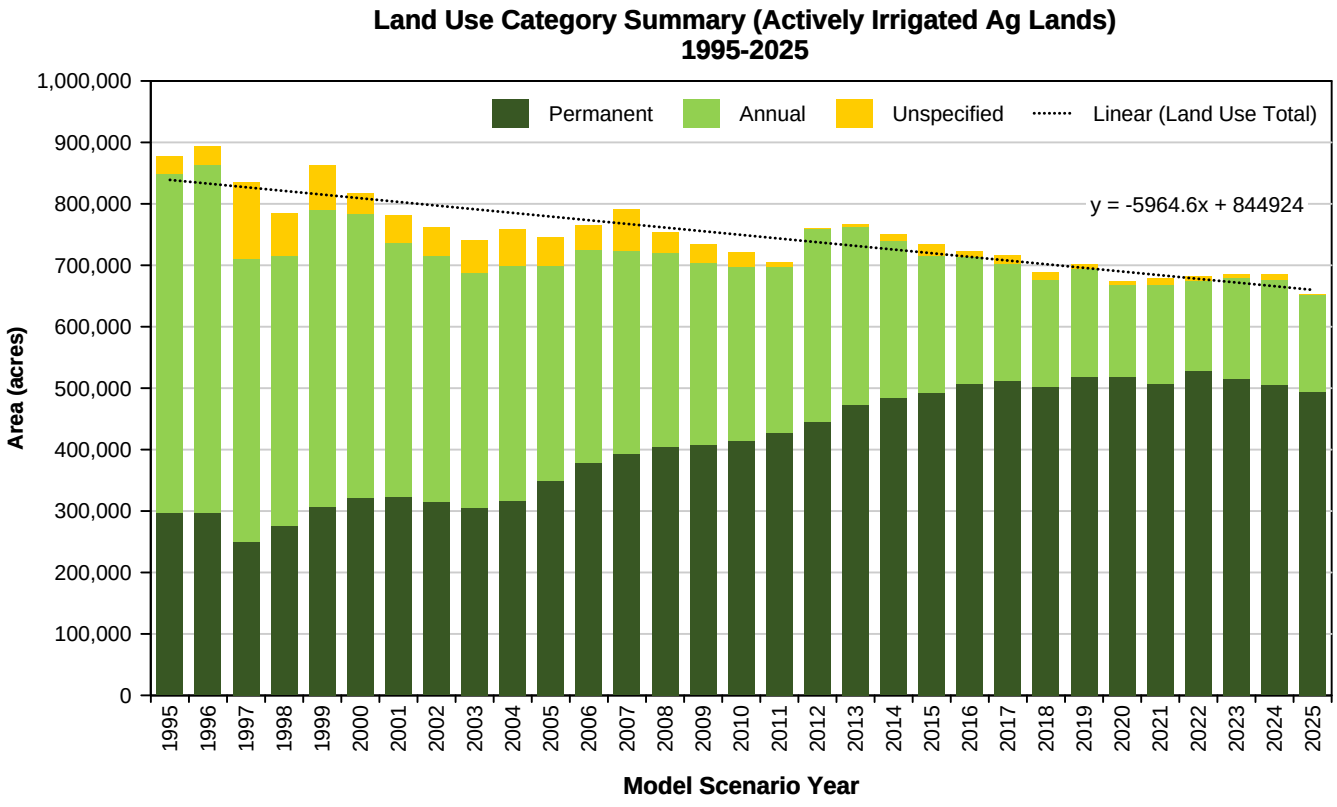
TODD/MW \\todd-file\data\Projects\Kern 7th ANNUAL REPORT 62325\GRAPHICS\
Figure 18 Historical to Projected-Future Scenario Change in Storage Comparison.gpj





Kern County Subbasin Water Year 2025 Annual Report	Figure 19 Groundwater Pumping Historical to Projected-Future Scenario Comparison
Sources:	MARCH 2026

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Figure 19 Groundwater Pumping Historical to Projected-Future Scenario Comparison.gpj



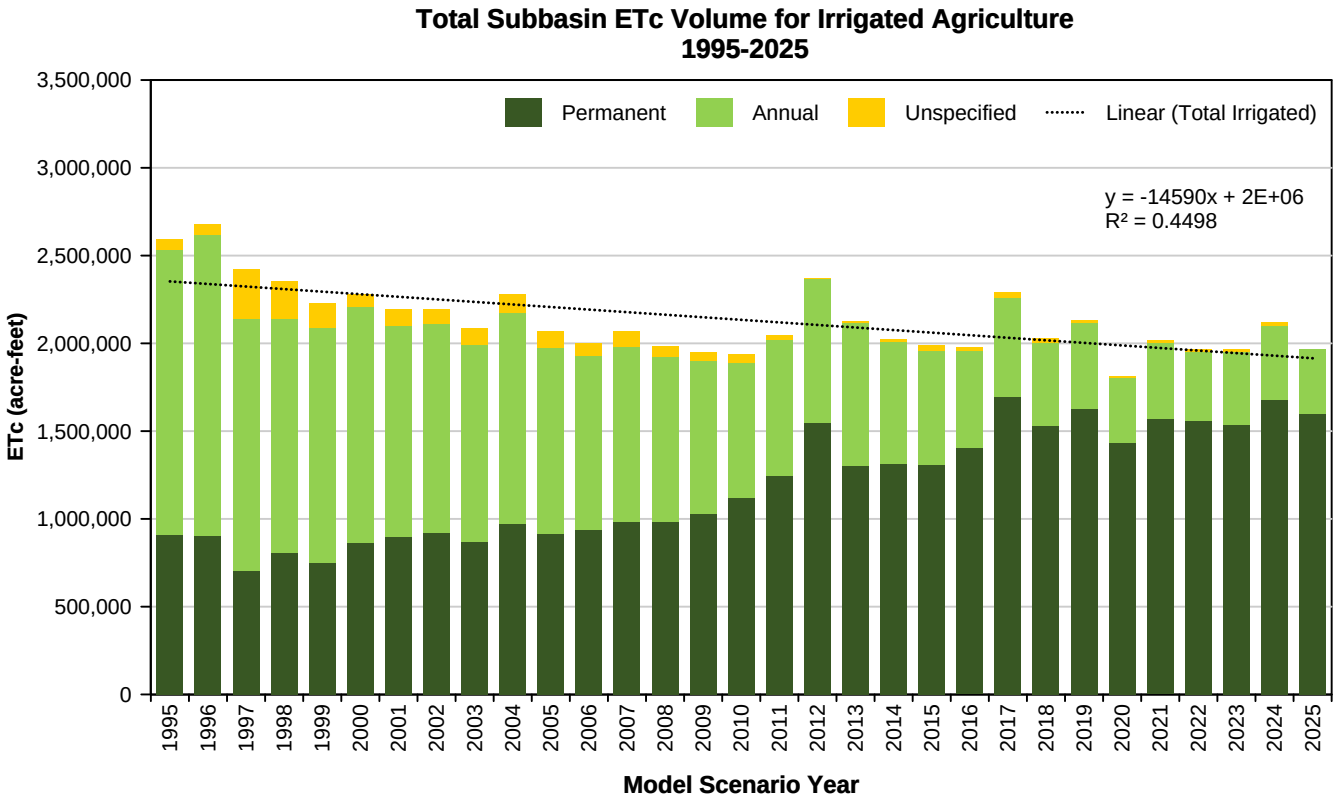
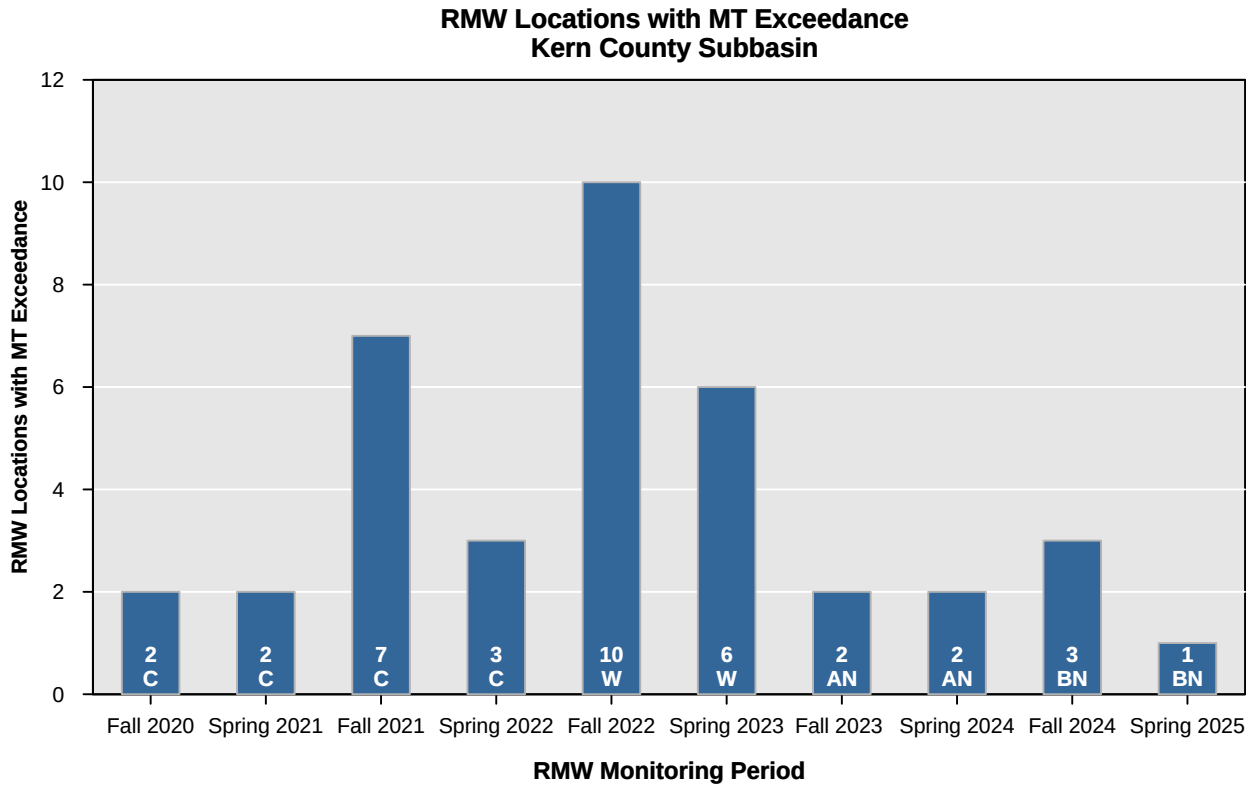
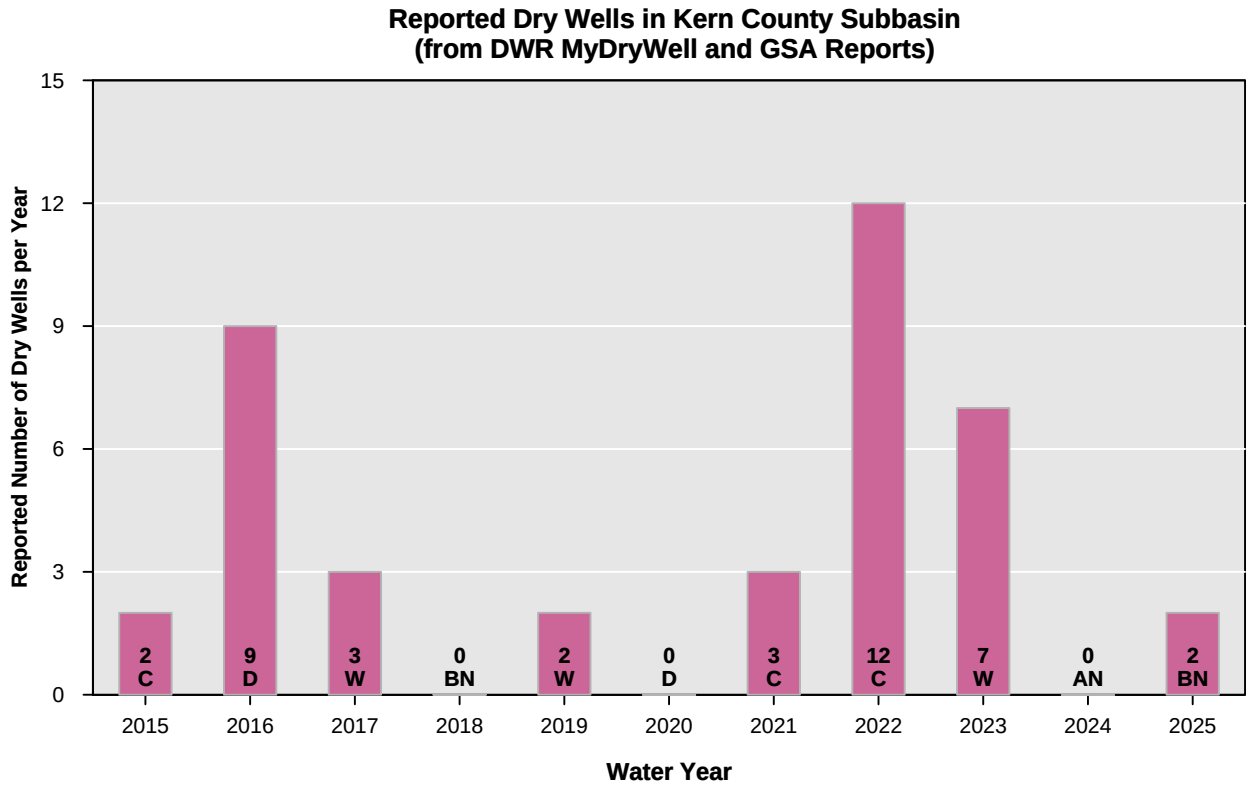


Figure 20
Land Use and ETc Change WYs 1995 to 2025

Sources:

TODD/MW \\todd-file\data\Projects\Kern 7th ANNUAL REPORT 62325\GRAPHICS\
Figure 19 Groundwater Pumping Historical to Projected-Future Scenario Comparison.gpj





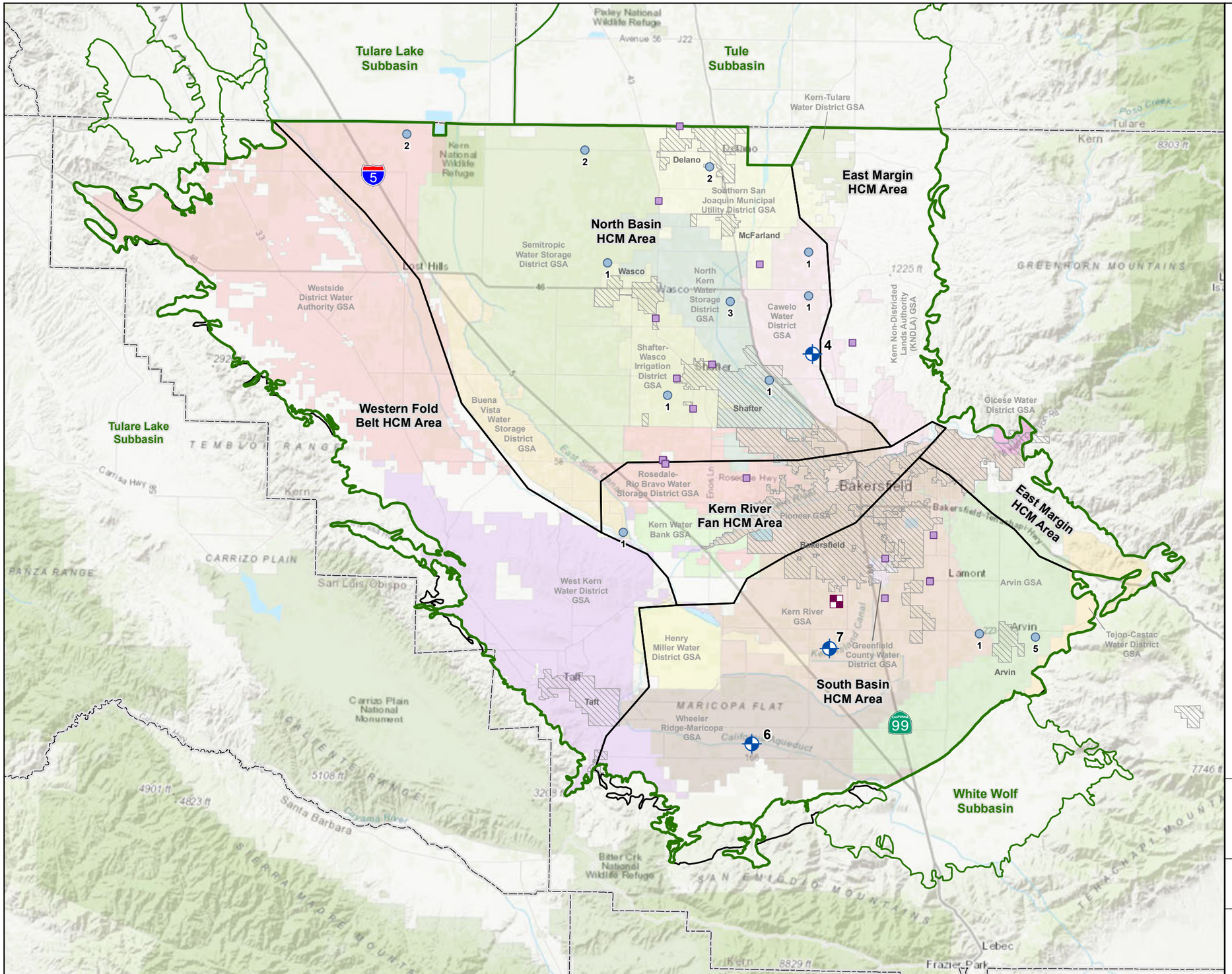
Kern County Subbasin
Water Year 2025 Annual Report

Sources: California Data Exchange Center (CDEC, 202_)
City of Bakersfield, Updated Kern River Indices by WY (received 2/202_)

Figure 21
MT Exceedance and Report Dry Well Graphs for Kern County Subbasin

MARCH 2026

TODD/MW \\todd-file\data\Projects\Kern 7th ANNUAL REPORT 62325\GRAPHICS\
Figure 21 MT Exceedance and Report Dry Well Graphs for Kern County Subbasin.gpj



Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

20260330 T:\Projects\Kern 7th ANNUAL REPORT 62325\GIS\MAPS\Figure 22 Location of MT Exceedances and Dry Wells in Kern County Subbasin.mxd TODD/MW

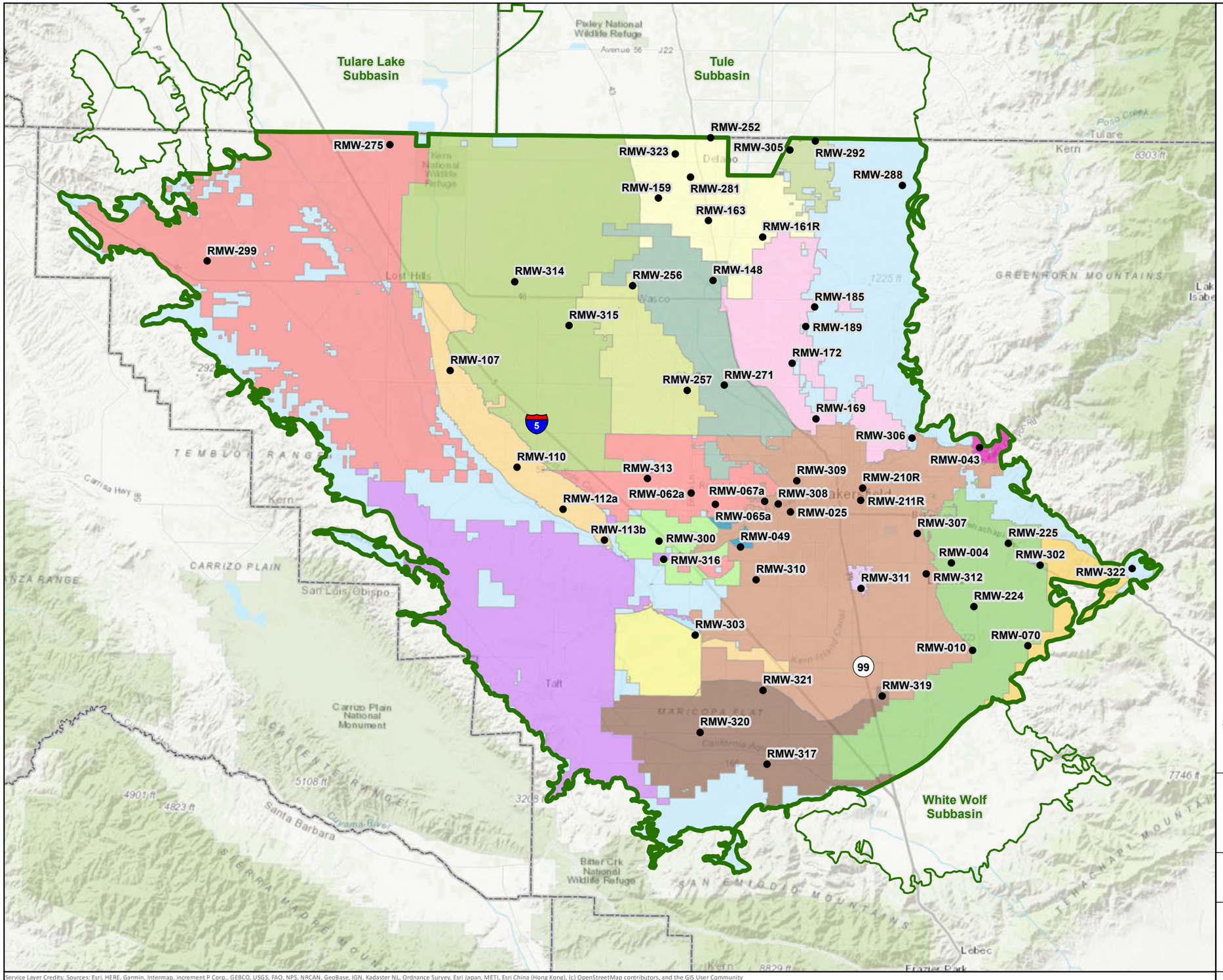
Figure 22
Location of MT Exceedances and Dry Wells in Kern County Subbasin

Kern County Subbasin
Water Year 2025 Annual Report

0 2 4 8 12 16
Miles

N

MARCH 2026



Legend

- Water Quality Monitoring Network Location
- Kern Subbasin Boundary
- Adjacent Subbasin
- Arvin GSA
- Buena Vista Water Storage District GSA
- Cawelo Water District GSA
- Greenfield County Water District GSA
- Henry Miller Water District GSA
- Kern Non-Districted Lands Authority (KNDLA) GSA
- Kern River GSA
- Kern Water Bank Groundwater Sustainability Agency
- Kern-Tulare Water District GSA
- North Kern Water Storage District GSA
- Olcese Water District GSA
- Pioneer GSA
- Rosedale-Rio Bravo Water Storage District GSA
- Semitropic Water Storage District GSA
- Shafter-Wasco Irrigation District GSA
- Southern San Joaquin Municipal Utility District GSA
- Tejon-Castac Water District GSA
- West Kern Water District GSA
- Westside District Water Authority
- Wheeler Ridge-Maricopa GSA

Sources:

Figure 23
Subbasin Water Quality Monitoring Network WY 2025

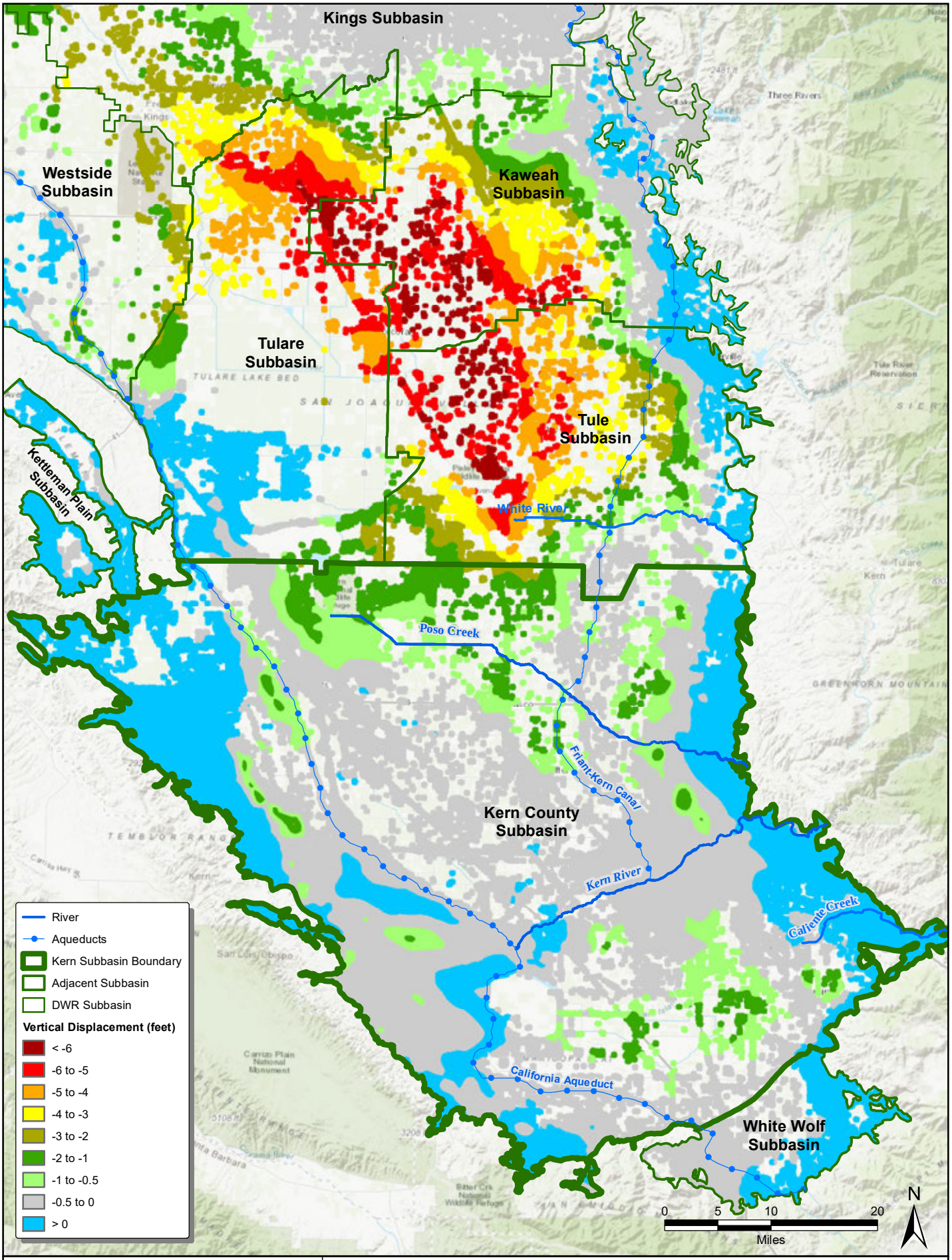
Kern County Subbasin
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MARCH 2026

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community



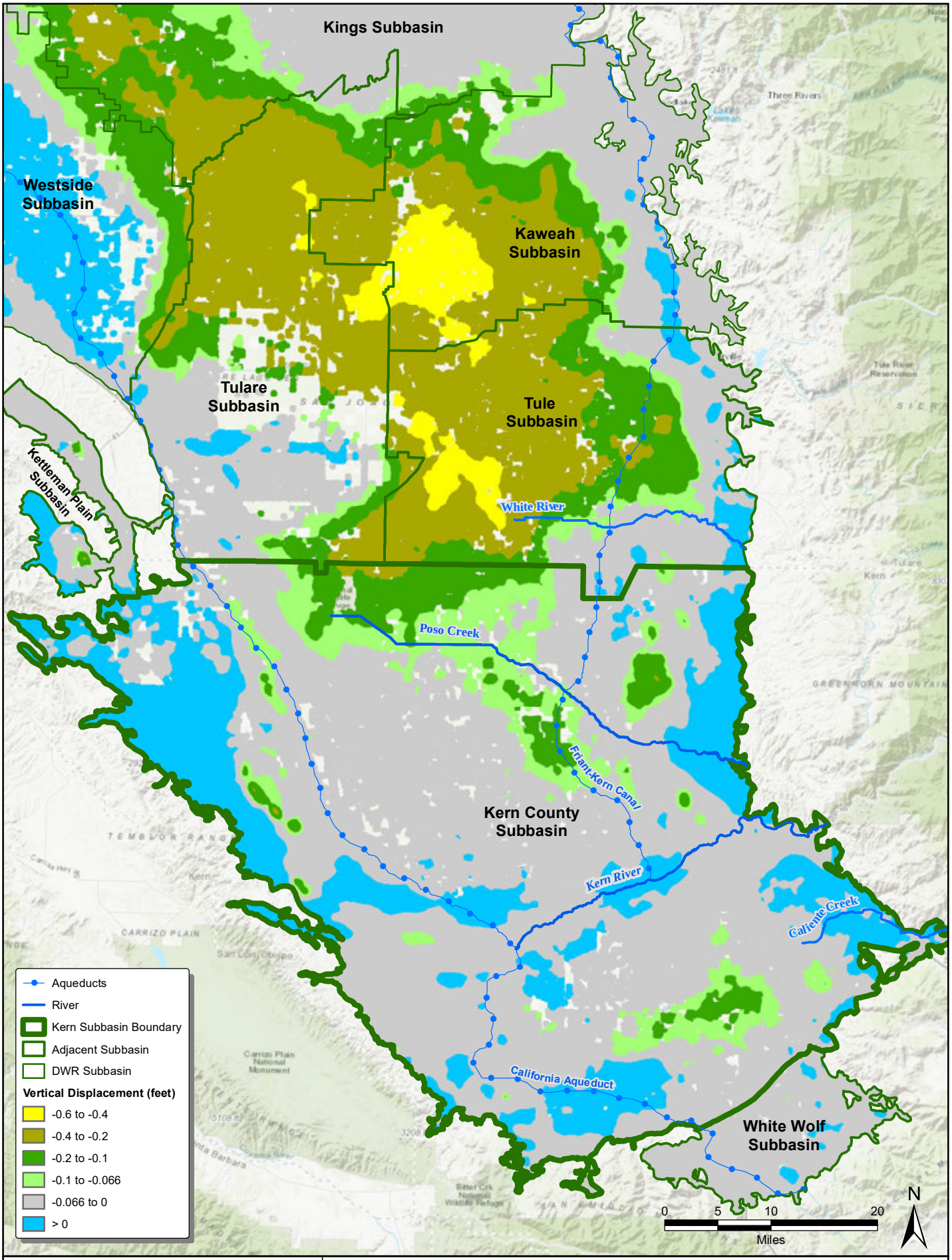
Kern County Subbasin
Water Year 2025 Annual Report

Sources:
https://gis.water.ca.gov/arcgisimg/rest/services/SAR/Kern_Vertical_Displacement_TRE_ALTAMIRA_Total_Since_20150613_20251001/

Figure 24
2015-2025 Total Vertical Displacement based on InSAR Data

MARCH 2026

TODD/MW T:\Projects\Kern 7th ANNUAL REPORT 62325\GIS\MAPS\Figure 24 2015-2025 Total Vertical Displacement based on InSAR Data.mxd - 20260324



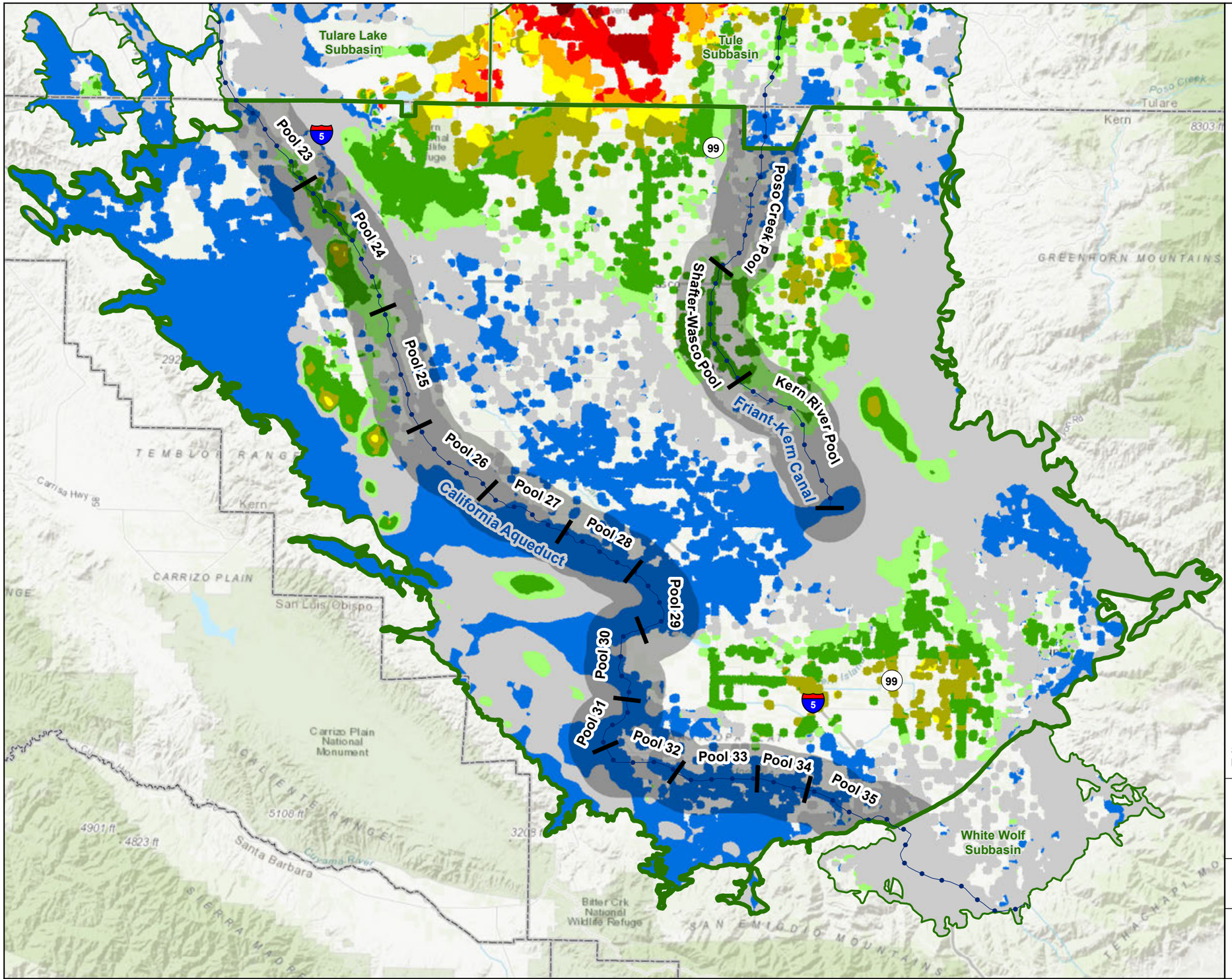
Kern County Subbasin
Water Year 2025 Annual Report

Sources:
https://gis.water.ca.gov/arcgisimg/rest/services/SAR/Vertical_Displacement_TRE_ALTAMIRA_Annual_Rate_20241001_20251001

Figure 25
WY2025 Total Vertical Displacement based on InSAR Data

MARCH 2026

TODD/MW T:\Projects\Kern 7th ANNUAL REPORT 62325\GIS\MAPS\
Figure 25 WY2025 Total Vertical Displacement based on InSAR Data.mxd - 20260324



Legend

- Regional Critical Infrastructure
- Regional Critical Infrastructure Pool Delineator
- Regional Critical Infrastructure Pool Buffer
- Kern Subbasin Boundary
- Adjacent Subbasin

Vertical Displacement (feet)

(Jan. 1 2024 to Oct. 1 2025)

- < -1
- -1 to -0.75
- -0.75 to -0.5
- -0.5 to -0.4
- -0.4 to -0.3
- -0.3 to -0.2
- -0.2 to -0.1
- -0.1 to -0.0656
- -0.0656 to 0
- > 0

Sources:
https://gis.water.ca.gov/arcgisimg/rest/services/SAR/

Figure 26
Regional Critical Infrastructure with 2024-2025 Subsidence

Kern County Subbasin
Water Year 2025 Annual Report

0 1.75 3.5 7 10.5 14
Miles

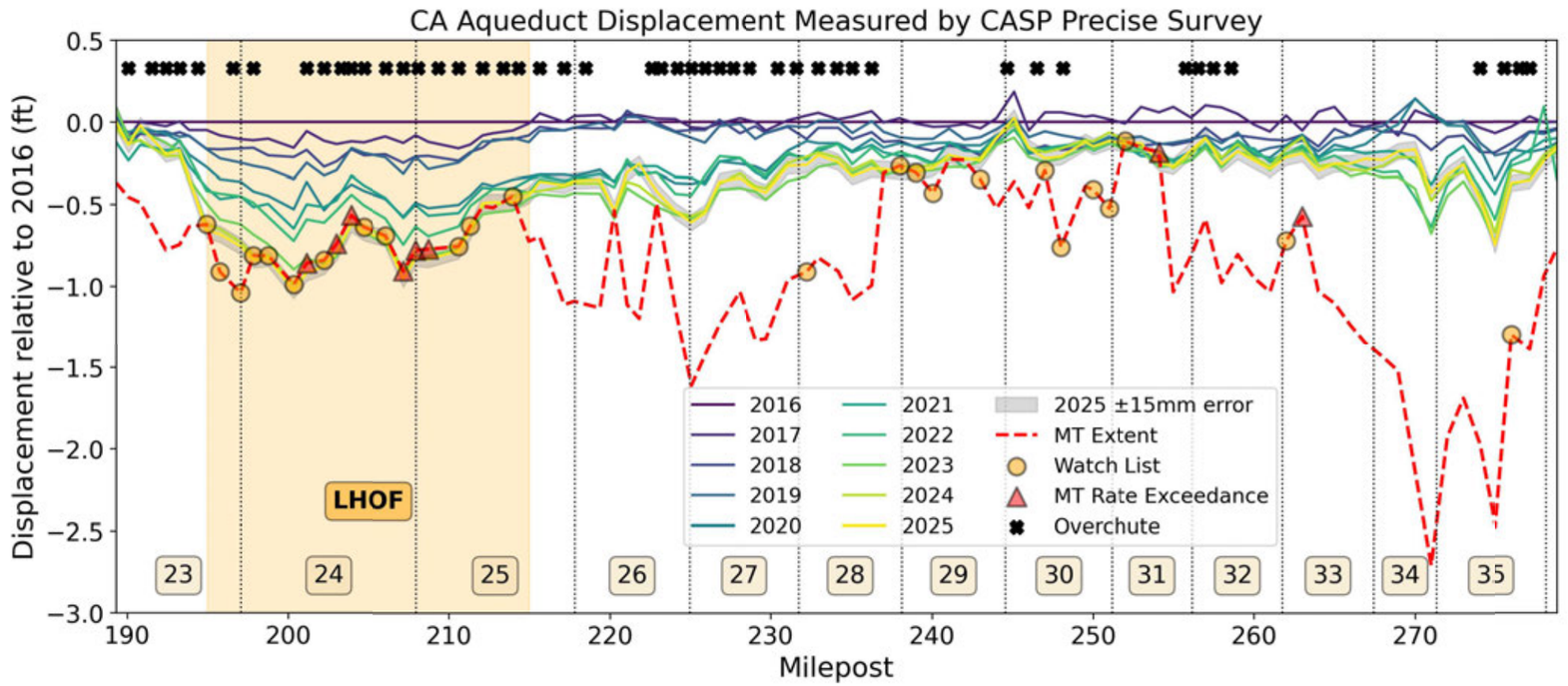
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MARCH 2026

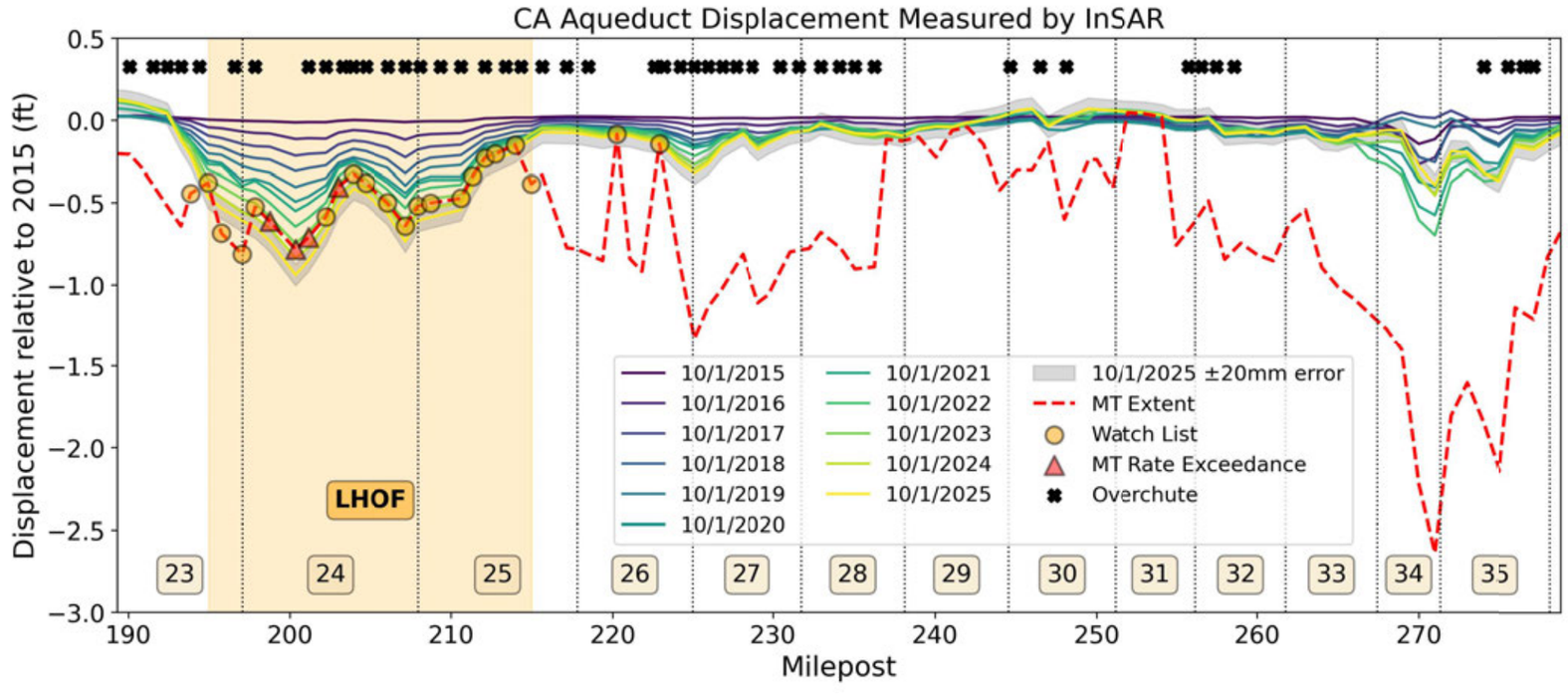
Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

20260330 T:\Projects\Kern 7th ANNUAL REPORT 62325\GIS\MAPS\Figure 26 Regional Critical Infrastructure with 2024-2025 Subsidence.mxd TODD/MW

A)



B)



Abbreviations

- CASP -- California Aqueduct Subsidence Program
- InSAR -- Interferometric Synthetic Aperture Radar
- MT -- Minimum Threshold
- WY -- Water Year
- RMN --Representative Monitoring Network
- CA -- California
- IM – Interim Milestone
- LHOF -- Lost Hills Oil Field
- ft -- feet

Note

- CASP precise survey displacement is shown relative to 2016 baseline
- InSAR displacement is shown relative to October 1, 2015 baseline.
- MT extent values are defined relative to 2024 baseline conditions
- MT extent values (2024–2040 projections) are vertically shifted to align with cumulative displacement curves.
- InSAR 2025 displacement includes ±20 mm uncertainty band.
- CASP survey includes ±15 mm uncertainty band.
- MT rate exceedance based on displacement rate measured by InSAR over Water Year 2025.
- Watch List is defined based on InSAR as mileposts that have two or more quarters with MT / IM exceedances (but not consecutive exceedances). Watch List also includes mileposts that have two or more consecutive quarters or WY MT / IM exceedances less than the reported accuracy.

Sources

- CASP precise survey data from CASP (https://data.ca.gov/dataset/california-aqueduct-subsidence-study)
- InSAR data from DWR (https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer#landsub)
- Sustainable Management Criteria tables (Table 1-1 CA AQ)

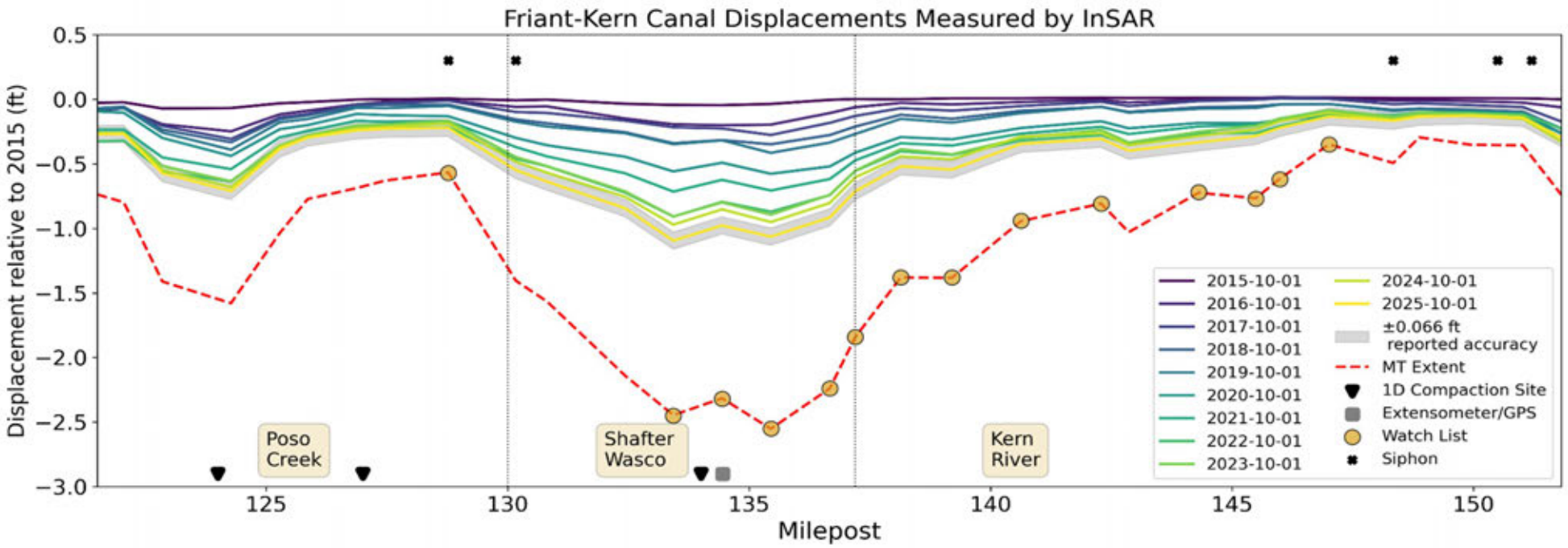
Figure 27
CA AQ Subsidence Status 2025 Insar+CASP

Kern County Subbasin
Water Year 2025 Annual Report

February 2026

Service Layer Credits:

20250715 X:\C20055.00\C20055.03\Maps\2025\06\Fig_3-1_GSAs.mxd EKI, ENVIRONMENT AND WATER, INC.



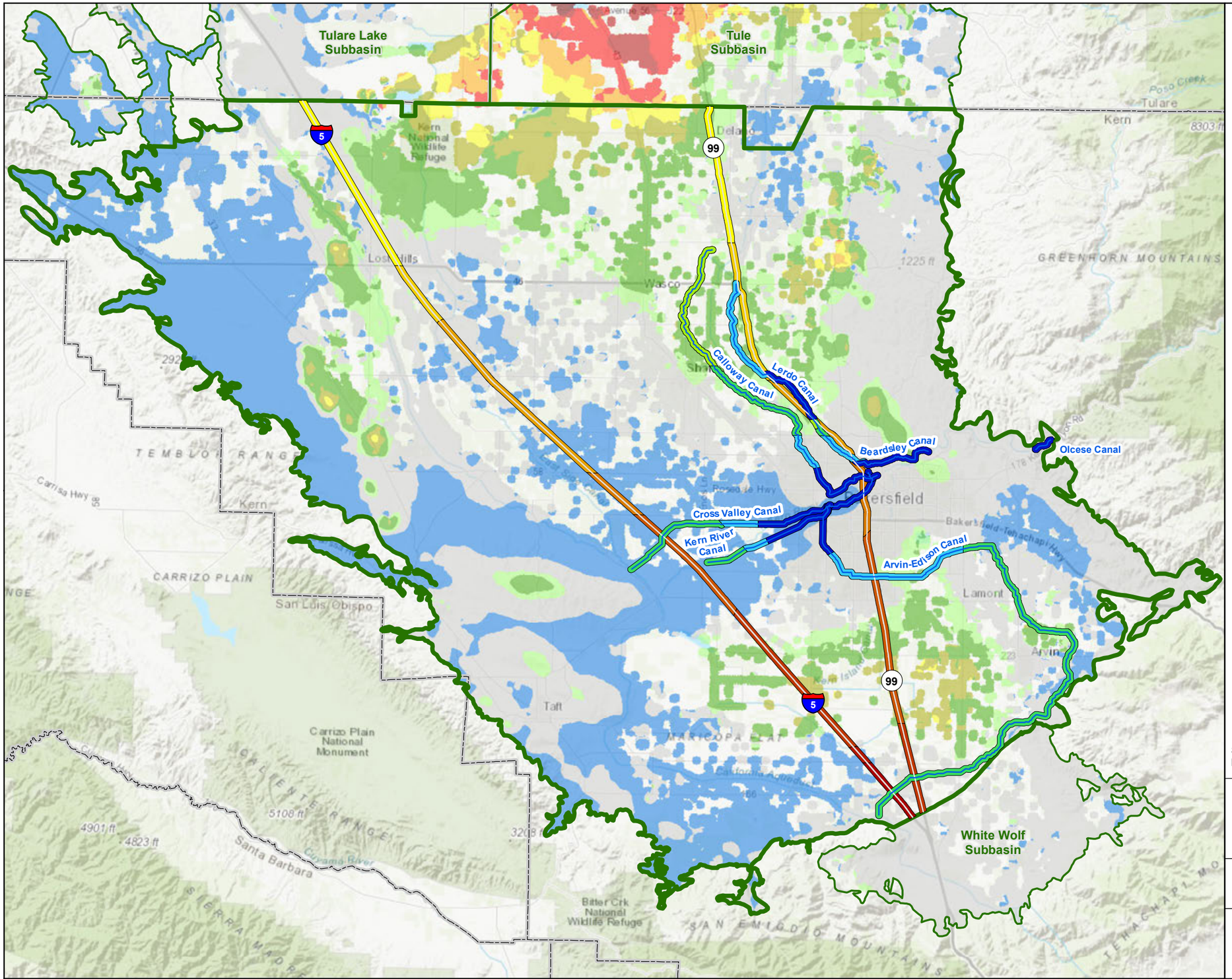
Kern County Subbasin
Water Year 2025 Annual Report

Sources: Intera Incorporated, March 2026.

Figure 28
Friant-Kern Canal Land Surface Displacements Measured by InSAR 2015 to 2025

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Figure 28 Friant-Kern Canal Land Surface Displacements Measured by InSAR 2015 to 2025.ai



Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

20260324 T:\Projects\Kern 7th ANNUAL REPORT 62325\GIS\MAPS\Figure 29 GSA Area Critical Infrastructure with 2024-2025 Subsidence.mxd TODD/MW

Legend

- Kern Subbasin Boundary
- Adjacent Subbasin

Infrastructure Buffer (1/4-mile) - Highways

- Segment 1
- Segment 2
- Segment 3
- Segment 4
- Segment 5
- Segment 6
- Segment 7
- Segment 8

Infrastructure Buffer (1/4-mile) - Canals

- Segment 1
- Segment 2
- Segment 3
- Segment 4

Vertical Displacement (feet)

(Jan. 1 2024 to Oct. 1 2025)

- < -1
- -1 to -0.75
- -0.75 to -0.5
- -0.5 to -0.4
- -0.4 to -0.3
- -0.3 to -0.2
- -0.2 to -0.1
- -0.1 to -0.0656
- -0.0656 to 0
- > 0

Sources:
https://gis.water.ca.gov/arcgisimg/rest/services/SAR/

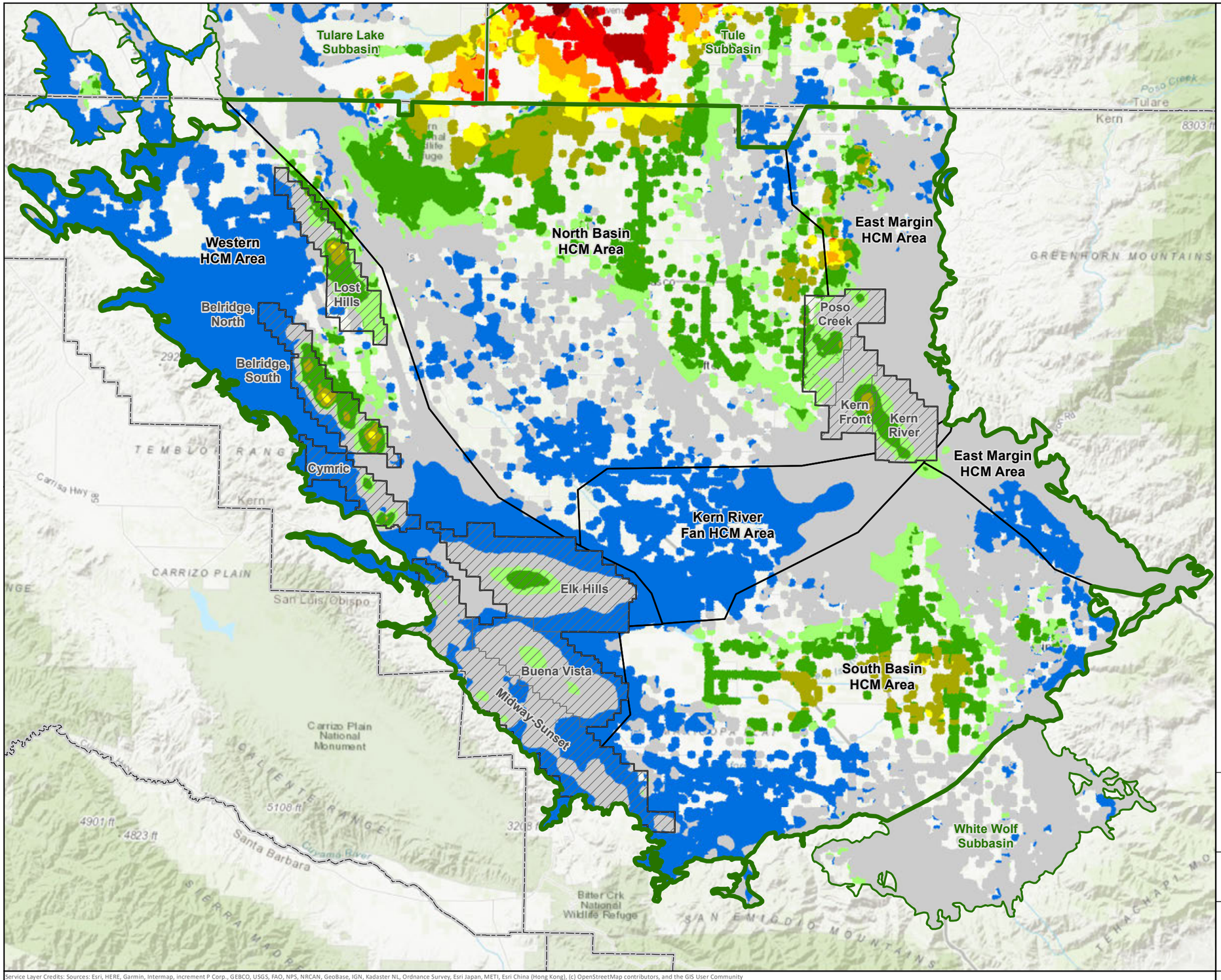
Figure 29
GSA Area Critical Infrastructure with 2024-2025 Subsidence

Kern County Subbasin
Water Year 2025 Annual Report

0 1.75 3.5 7 10.5 14
Miles

N

MARCH 2026



Legend

- Kern Subbasin Boundary
- Adjacent Subbasin
- Oil and Gas Administrative Area
- Kern County HCM Area

Vertical Displacement (feet)

(Jan. 1 2024 to Oct. 1 2025)

- < -1
- -1 to -0.75
- -0.75 to -0.5
- -0.5 to -0.4
- -0.4 to -0.3
- -0.3 to -0.2
- -0.2 to -0.1
- -0.1 to -0.0656
- -0.0656 to 0
- > 0

Note:
Oil and Gas Administrative Areas on this map is limited to the administrative areas of fields that have known production or water disposal within the Tulare or Kern River Formations.

Sources:
https://gis.water.ca.gov/arcgisimg/rest/services/SAR/

Figure 30
HCM Areas with 2024-2025 Subsidence

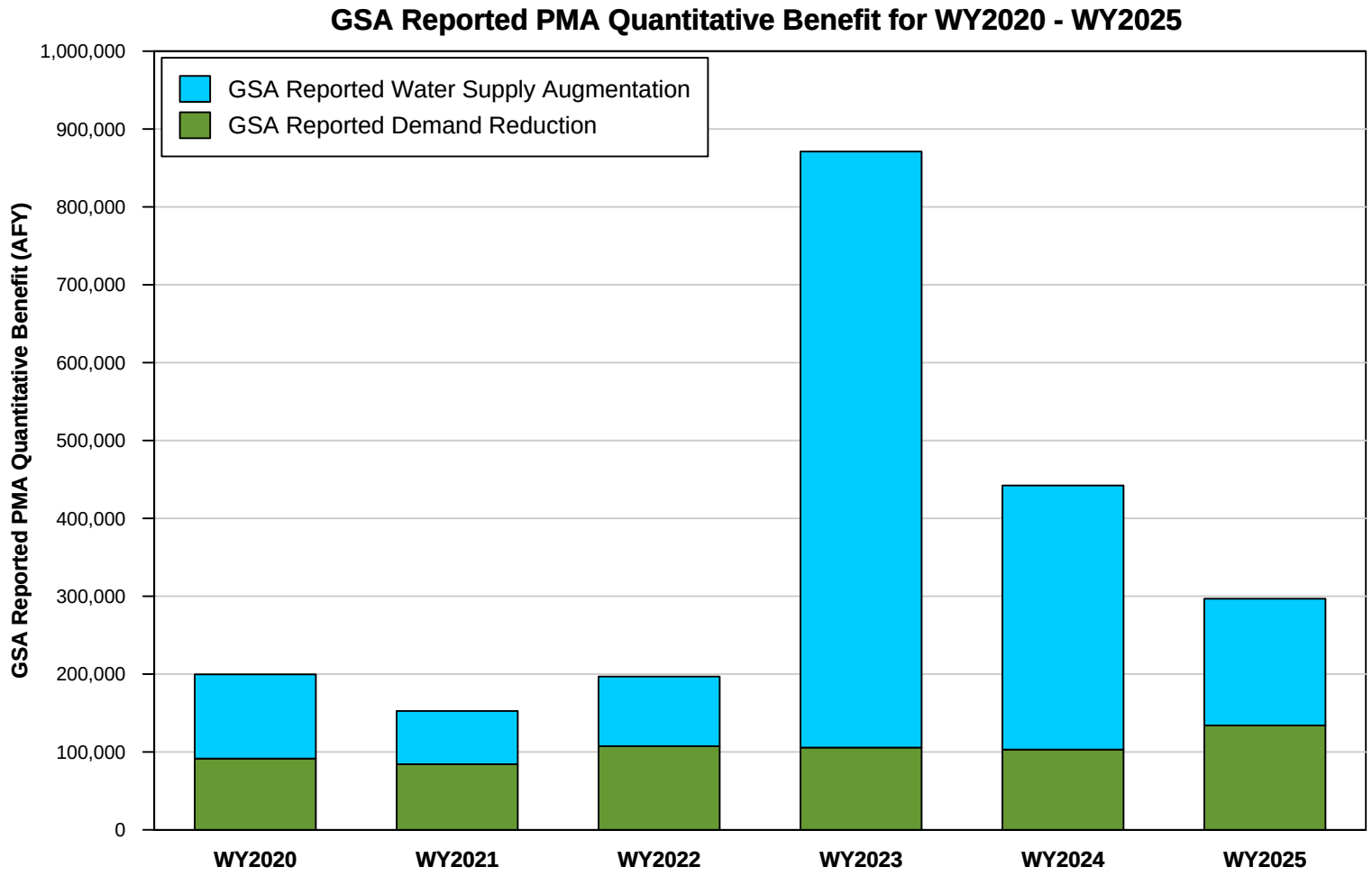
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0 1.75 3.5 7 10.5 14
Miles

N

MARCH 2026

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community



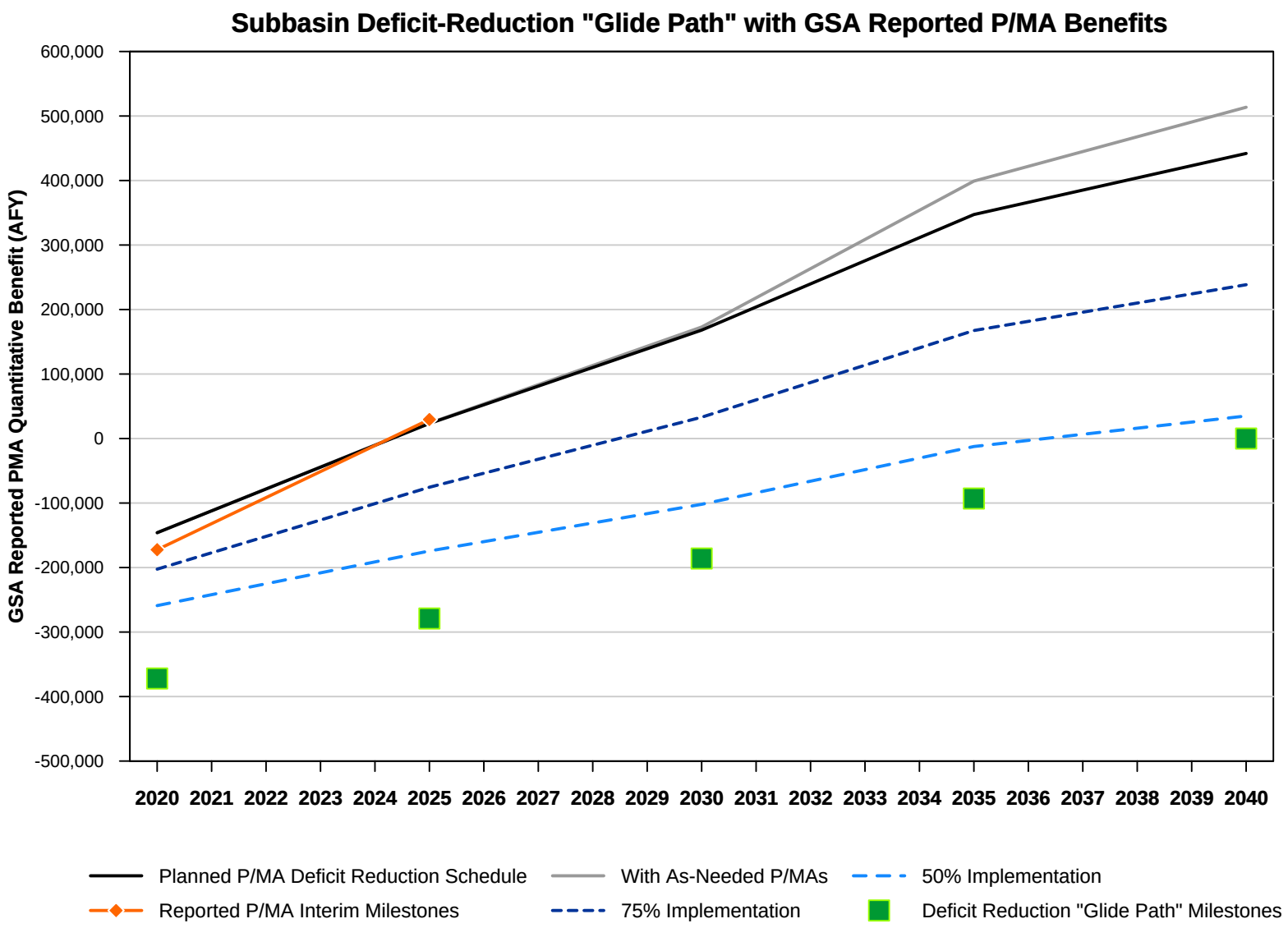
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Sources:

Figure 31
P/MA Milestone Implementation WY2020 to WY2025 by Category

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Sources:

Figure 32
Subbasin Deficit-Reduction "Glide Path" with GSA Reported P/MA Benefits

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Figure 32 Subbasin Deficit-Reduction 'Glide Path' with GSA Reported P_MA Benefits.gpj

APPENDICES

Appendix A

SWRCB Resolutions and Letter transferring Kern County Subbasin back to DWR

SWRCB Resolution No. 2025-0007

SWRCB Resolution No. 2025-0029

December 8, 2025 SWRCB Letter - Returning The Kern County Subbasin to the Jurisdiction of the Department of Water Resources under the Sustainable Groundwater Management Act

SWRCB Resolution No. 2025-0007

STATE WATER RESOURCES CONTROL BOARD
RESOLUTION NO. 2025-0007

CONTINUATION OF HEARING REGARDING DESIGNATION OF THE KERN COUNTY GROUNDWATER SUBBASIN AS PROBATIONARY UNDER THE SUSTAINABLE GROUNDWATER MANAGEMENT ACT

WHEREAS:

1. Groundwater provides a significant portion of California's water supply, making up more than one-half of the water used by Californians in drought years when surface water is limited. Properly managed groundwater resources can provide for communities, farms, and the environment and help protect against prolonged dry periods and climate change, preserving water supplies for existing and potential beneficial uses. However, excessive groundwater extraction can cause long-term overdraft, failed wells, deteriorated water quality, environmental damage, and irreversible land subsidence that damages infrastructure and diminishes the capacity of aquifers to store water for the future, all of which can have substantial societal and economic impacts. Additionally, failure to manage groundwater to prevent long-term overdraft can potentially infringe on rights to or use of groundwater or interconnected surface water.

2. In 2014, the State of California enacted Assembly Bill 1739, and Senate Bills 1168 and 1319, collectively referred to as the Sustainable Groundwater Management Act (SGMA). SGMA is intended to ensure the proper and sustainable management of groundwater resources in California.

3. The State Water Resources Control Board (State Water Board or Board) recognizes that near-term SGMA implementation has the potential to result in substantial economic impacts in overdrafted basins. The State Water Board further recognizes that the goal of SGMA is sustainable groundwater management that will ensure the long-term viability of groundwater resources for future use by communities, farms, businesses, and the environment.

4. SGMA allows local public agencies overlying alluvial groundwater basins to form Groundwater Sustainability Agencies (GSAs) and prepare and implement Groundwater Sustainability Plans (GSPs) to achieve sustainable management of the basin. SGMA requires that groundwater basins determined to be high or medium priority by the Department of Water Resources (Department) must do so.

5. SGMA requires GSAs, whose planning and management actions can have broad impacts within their basins, to consider the interests of all beneficial uses and users of groundwater and to encourage the active involvement of diverse elements of the population of a groundwater basin during the development and implementation of GSPs.

6. SGMA recognizes that groundwater management is best accomplished locally; however, if local agencies in a high or medium priority groundwater basin fail to form a GSA or prepare a GSP, or the Department determines that the GSP is inadequate or not being implemented in a way that is likely to achieve SGMA's sustainability goal, SGMA authorizes the State Water Board to intervene in the basin to ensure that the basin is managed sustainably. This is called the state intervention process.

7. To implement SGMA's state intervention process, the State Water Board may designate a basin as probationary. If the State Water Board designates a basin as probationary, it must identify the deficiencies in the GSP, identify potential actions to remedy the deficiencies, and exclude from probationary status any portion of a basin for which a GSA demonstrates compliance with SGMA's sustainability goal. The State Water Board may exclude a class or category of extractions from the reporting and fee requirement that applies to probationary basins under Water Code section 5202 if those extractions are adequately managed under an applicable plan or program or are likely to have a minimal impact on basin withdrawals.

8. The deadline for GSAs in critically overdrafted high- and medium-priority basins to adopt and submit GSPs for review by the Department was January 31, 2020.

9. The Kern County Subbasin is a critically overdrafted high-priority basin.

10. As of the date of this resolution, the Department recognizes the following GSAs for the Kern County Subbasin: Arvin Groundwater Sustainability Agency, Buena Vista Water Storage District Groundwater Sustainability Agency, Cawelo Water District Groundwater Sustainability Agency, Greenfield County Water District Groundwater Sustainability Agency, Henry Miller Water District Groundwater Sustainability Agency, Kern Groundwater Authority Groundwater Sustainability Agency, Kern River Groundwater Sustainability Agency, Kern Water Bank Groundwater Sustainability Agency, Kern-Tulare Water District Groundwater Sustainability Agency - Kern County, North Kern Water Storage District Groundwater Sustainability Agency, Olcese Water District Groundwater Sustainability Agency, Pioneer Groundwater

Sustainability Agency, Rosedale-Rio Bravo Water Storage District Groundwater Sustainability Agency, Semitropic Water Storage District Groundwater Sustainability Agency, Shafter-Wasco Irrigation District Groundwater Sustainability Agency, Southern San Joaquin Municipal Utility District Groundwater Sustainability Agency, Tejon-Castac Water District Groundwater Sustainability Agency, West Kern Water District Groundwater Sustainability Agency, Westside District Water Authority Groundwater Sustainability Agency, Wheeler Ridge-Maricopa Groundwater Sustainability Agency (collectively, the Kern County Subbasin GSAs[1]).

11. The Kern County Subbasin GSAs submitted the Kern County Subbasin 2020 GSPs to the Department for review between January 22 and 30, 2020.

12. On January 28, 2022, the Department issued a determination that the Kern County Subbasin 2020 GSPs were incomplete and provided the Kern County Subbasin GSAs with 180 days to address the deficiencies identified in the incomplete determination.

13. The Kern County Subbasin GSAs submitted Revised Kern County Subbasin GSPs to the Department for review on July 27, 2022.

14. The Department evaluated the Revised Kern County Subbasin GSPs and on March 2, 2023, issued its "Inadequate Determination of the Revised 2020 Groundwater Sustainability Plans Submitted for the San Joaquin Valley – Kern County Subbasin" which is available on the Department's online SGMA portal.

15. The State Water Board reviewed the Kern County Subbasin 2022 GSPs and the Department's determination of inadequacy, and Board staff prepared a draft staff report that described the GSPs' deficiencies, recommended potential actions that GSAs could take to remedy the deficiencies, and supported designating the Kern County Subbasin as a probationary basin under SGMA.

[1] The number of GSAs in the Kern County Subbasin has changed at different times between the initial submission of GSPs to the Department in January 2020 and the most recent submission of GSPs to the State Water Board in December 2024. The 2024 Kern County Subbasin GSPs identify Kern Non-Districted Lands Authority Groundwater Sustainability Agency to replace Kern Groundwater Authority Groundwater Sustainability Agency.

16. On May 29, 2024 the Kern County Subbasin GSAs submitted the 2024 Draft GSPs to the State Water Board for review.

17. On July 25, 2024, the State Water Board made the draft staff report available to the public and issued notice of public staff workshops, opportunities to comment on the draft staff report, and the date of the board hearing for the proposed designation of the Kern County Subbasin as a probationary basin.

18. When issuing the notice, the State Water Board posted the notice on its website and sent the notice by electronic mail to its SGMA email listserv, to the Department, to each city and county within which any part of the Kern County Subbasin is situated, and to the points of contact for each of the Kern County Subbasin GSAs.

19. On July 26, 2024, the State Water Board mailed the notice to all persons known to the Board who extract or who propose to extract water from the basin.

20. The public comment period for the probationary hearing notice and draft staff report ran from July 26, 2024, to September 23, 2024.

21. The State Water Board staff held informational workshops on August 26, 2024, and August 29, 2024, to explain the draft staff report, share more about how to participate in the State Water Board's state intervention process, and accept verbal public comments regarding the draft staff report.

22. The Kern County Subbasin GSAs submitted the 2024 Final GSPs, which were adopted by all 20 GSAs, to the State Water Board for review on December 16, 2024.

23. State Water Board staff, after reviewing and considering comments made at the workshops and submitted during the public comment period, and reviewing the 2024 Draft GSPs and 2024 Final GSPs, revised and finalized the staff report, which supports the staff recommendation that the State Water Board designate the Kern County Subbasin as a probationary basin under SGMA.

24. The State Water Board reviewed and considered the draft staff report, final staff report, and comments received during the public comment period and at the probationary hearing.

25. The State Water Board acknowledges and appreciates the efforts of the - Subbasin GSPs, including continued constructive engagement with State Water Board staff on technical information and approaches to remedy deficiencies, but these efforts have not yet been sufficient to rectify deficiencies in the GSPs. Based on this review and consideration, the State Water Board is continuing the hearing regarding designating the Kern County Subbasin as a probationary basin under SGMA.

26. The State Water Board, in balancing the need for state intervention in the basin, potential harm to beneficial users and uses, and the likelihood that the Kern County Subbasin GSAs are capable of promptly rectifying the remaining deficiencies, is requesting that the Kern County GSAs submit revised GSPs to the State Water Board by a date certain. This is to serve the dual purposes of ensuring the GSAs maintain progress in correcting identified deficiencies in their GSPs, with the appropriate urgency for implementing plans that will achieve sustainable groundwater management in the subbasin on the statutory timeline and providing time for adequate Board review of updated submittals in advance of further Board consideration of a potential probationary designation at the continued hearing.

THEREFORE BE IT RESOLVED THAT:

The State Water Board:

1. Finds that the Kern County Subbasin is subject to Water Code section 10720.7, subdivision (a)(1), and that the Department, in consultation with the State Water Board, has determined that the groundwater sustainability plans for the Kern County Subbasin are inadequate.

2. Requires that the Kern County Subbasin GSAs provide revised draft GSPs, if any, to State Water Board staff by June 20, 2025, in order to allow time for State Water Board members and staff to evaluate and consider those revised draft GSPs in advance of the continued hearing.

3. Continues the hearing to September 17, 2025, at 9:00 a.m. in the California Environmental Protection Agency Headquarters Building, 1001 I Street, 2nd Floor, Sacramento, California 95814.

4. As a condition of granting this continuance,

    a. expects the GSAs to enhance community outreach and engagement so that impacted communities, including customers of drinking water systems within the Kern County Subbasin, receive information about the GSPs' impact on their systems;

    b. expects that the GSAs will work with local community groups to create and to implement a plan for additional community outreach in making and adopting revisions to the GSPs; and

    c. expects the GSAs to provide, no later than one month from the date of adoption of this resolution, Board staff with plans for community outreach in amending their GSPs, and to include in any submittals to the Board by June 20, 2025, a description of the GSAs' actions in furtherance of this resolved paragraph.

5. Directs staff to provide notice and opportunity for public comment on any revised or newly submitted GSPs as soon as practicable after receipt, and at least 30 days before September 17, 2025.

CERTIFICATION

The undersigned Clerk to the Board does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the State Water Resources Control Board held on February 20, 2025.

AYE:	Chair E. Joaquin Esquivel Board Member Sean Maguire Board Member Laurel Firestone Board Member Nichole Morgan
NAY:	None
ABSENT:	Vice Chair Dorene D'Adamo
ABSTAIN:	None

Courtney Tyler
Clerk to the Board

SWRCB Resolution No. 2025-0029

STATE WATER RESOURCES CONTROL BOARD
RESOLUTION NO. 2025-0029

RETURNING THE KERN COUNTY GROUNDWATER SUBBASIN BACK TO THE DEPARTMENT OF WATER RESOURCES CONSISTENT WITH THE SUSTAINABLE GROUNDWATER MANAGEMENT ACT

WHEREAS:

1. Groundwater provides a significant portion of California's water supply, making up more than one-half of the water used by Californians in drought years when surface water is limited. Properly managed groundwater resources can provide for communities, farms, and the environment and help protect against prolonged dry periods and climate change, preserving water supplies for existing and potential beneficial uses. However, excessive groundwater extraction can cause long-term overdraft, failed wells, deteriorated water quality, environmental damage, and irreversible land subsidence that damages infrastructure and diminishes the capacity of aquifers to store water for the future, all of which can have substantial societal and economic impacts. Additionally, failure to manage groundwater to prevent long-term overdraft can potentially infringe on rights to or use of groundwater or interconnected surface water.

2. In 2014, the State of California enacted Assembly Bill 1739, and Senate Bills 1168 and 1319, collectively referred to as the Sustainable Groundwater Management Act (SGMA). SGMA is intended to ensure the proper and sustainable management of groundwater resources in California.

3. The State Water Resources Control Board (State Water Board or Board) recognizes that near-term SGMA implementation has the potential to result in substantial economic impacts in overdrafted basins. The State Water Board further recognizes that the goal of SGMA is sustainable groundwater management that will ensure the long-term viability of groundwater resources for future use by communities, farms, businesses, and the environment.

4. SGMA allows local public agencies overlying alluvial groundwater basins to form Groundwater Sustainability Agencies (GSAs) and prepare and implement Groundwater Sustainability Plans (GSPs) to achieve

sustainable management of the basin. SGMA requires that groundwater basins determined to be high or medium priority by the Department of Water Resources (Department) must do so.

5. SGMA requires GSAs, whose planning and management actions can have broad impacts within their basins, to consider the interests of all beneficial uses and users of groundwater and to encourage the active involvement of diverse elements of the population of a groundwater basin during the development and implementation of GSPs.

6. SGMA recognizes that groundwater management is best accomplished locally; however, if local agencies in a high or medium priority groundwater basin fail to form a GSA or prepare a GSP, or the Department determines that the GSP is inadequate or not being implemented in a way that is likely to achieve SGMA's sustainability goal, SGMA authorizes the State Water Board to intervene in the basin to ensure that the basin is managed sustainably. This is called the state intervention process.

7. To implement SGMA's state intervention process, the State Water Board may designate a basin as probationary. If the State Water Board designates a basin as probationary, the Board must identify the deficiencies in the GSP, identify potential actions to remedy the deficiencies, and exclude from probationary status any portion of a basin for which a GSA demonstrates compliance with SGMA's sustainability goal. The State Water Board may exclude a class or category of extractions from the reporting and fee requirement that applies to probationary basins under Water Code section 5202 if those extractions are adequately managed under an applicable plan or program or are likely to have a minimal impact on basin withdrawals.

8. The deadline for GSAs in critically overdrafted high- and medium-priority basins to adopt and submit GSPs for review by the Department was January 31, 2020.

9. The Kern County Subbasin is a critically overdrafted high-priority basin.

10. As of the date of this resolution, the Department recognizes the following GSAs for the Kern County Subbasin: Arvin Groundwater Sustainability Agency, Buena Vista Water Storage District Groundwater Sustainability Agency, Cawelo Water District Groundwater Sustainability Agency,

Greenfield County Water District Groundwater Sustainability Agency, Henry Miller Water District Groundwater Sustainability Agency, Kern Non-Districted Land Authority Groundwater Sustainability Agency, Kern River Groundwater Sustainability Agency, Kern Water Bank Groundwater Sustainability Agency, Kern-Tulare Water District Groundwater Sustainability Agency - Kern County, North Kern Water Storage District Groundwater Sustainability Agency, Olcese Water District Groundwater Sustainability Agency, Pioneer Groundwater Sustainability Agency, Rosedale-Rio Bravo Water Storage District Groundwater Sustainability Agency, Semitropic Water Storage District Groundwater Sustainability Agency, Shafter-Wasco Irrigation District Groundwater Sustainability Agency, Southern San Joaquin Municipal Utility District Groundwater Sustainability Agency, Tejon-Castac Water District Groundwater Sustainability Agency, West Kern Water District Groundwater Sustainability Agency, Westside District Water Authority Groundwater Sustainability Agency, Wheeler Ridge-Maricopa Groundwater Sustainability Agency (collectively, the Kern County Subbasin GSAs1).

11. The Kern County Subbasin GSAs submitted the Kern County Subbasin 2020 GSPs to the Department for review between January 22 and 30, 2020.

12. On January 28, 2022, the Department issued a determination that the Kern County Subbasin 2020 GSPs were incomplete and provided the Kern County Subbasin GSAs with 180 days to address the deficiencies identified in the incomplete determination.

13. The Kern County Subbasin GSAs submitted Revised Kern County Subbasin GSPs to the Department for review on July 27, 2022.

14. The Department evaluated the Revised Kern County Subbasin GSPs and on March 2, 2023, issued its “Inadequate Determination of the Revised 2020 Groundwater Sustainability Plans Submitted for the San Joaquin Valley – Kern County Subbasin” (Inadequate Determination) and referred the Subbasin to the State Water Board for potential state intervention.

[1] The number of GSAs in the Kern County Subbasin changed at different times between the initial submission of GSPs to the Department in January 2020 and the most recent submission of GSPs to the State Water Board in September 2025.

15. In an effort to further address the deficiencies identified by the Department, the Kern County Subbasin GSAs developed revised draft GSPs and submitted those Kern County Subbasin 2024 Draft GSPs (2024 Draft GSPs) to the State Water Board for review on May 28, 2024.

16. The State Water Board reviewed the Kern County Subbasin 2022 GSPs, the Department's determination of inadequacy, and the 2024 Draft GSPs. Board staff prepared a draft staff report that described the 2022 GSPs' deficiencies, the 2024 Draft GSPs' further changes, recommended potential actions that GSAs could take to remedy remaining deficiencies, and supported designating the Kern County Subbasin as a probationary basin under SGMA.

17. On July 25, 2024, the State Water Board made the draft staff report available to the public and issued notice of public staff workshops, opportunities to comment, and the date of the board hearing for the proposed designation of the Kern County Subbasin as a probationary basin.

18. When issuing the notice, the State Water Board posted the notice on its website and sent the notice by electronic mail to its SGMA email listserv, to the Department, to each city and county within which any part of the Kern County Subbasin is situated, and to the points of contact for each of the Kern County Subbasin GSAs.

19. On July 26, 2024, the State Water Board mailed the notice to all persons known to the Board who extract or who propose to extract water from the basin.

20. The public comment period for the probationary hearing notice and draft staff report ran from July 26, 2024, to September 23, 2024.

21. State Water Board staff held informational workshops on August 26, 2024, and August 29, 2024, to explain the draft staff report, share more about how to participate in the State Water Board's state intervention process, and accept verbal public comments regarding the draft staff report.

22. The Kern County Subbasin GSAs incorporated additional revisions and submitted the Kern County Subbasin 2024 adopted GSPs (2024 Final GSPs) to the State Water Board for review on December 16, 2024.

23. State Water Board staff revised and finalized the Staff Report after considering public comment and reviewing the 2024 Final GSPs. The report recommended that the State Water Board designate the Kern County Subbasin as a probationary basin under SGMA.

24. On February 20, 2025, the State Water Board opened a hearing to determine whether to place the Kern County Subbasin on probation. In recognition of the substantial progress the Kern County Subbasin GSAs made in revising the GSPs since the Department issued its 2023 Inadequate Determination, the Board adopted Resolution 2025-0007 continuing the hearing to September 17, 2025 so that remaining deficiencies might be resolved without the need for the Board to designate the subbasin probationary, and directing the GSAs to increase community engagement to assist in the resolution of outstanding issues.

25. The Kern County Subbasin GSAs submitted the Kern County Subbasin Community Outreach and Engagement Strategy to the State Water Board for review on March 20, 2025.

26. The Kern County Subbasin GSAs submitted the Kern County Subbasin 2025 Draft GSPs (2025 Draft GSPs) to the State Water Board for review on June 20, 2025.

27. On June 23, 2025, the State Water Board made the 2025 Draft GSPs available to the public, and the Board accepted written public comments regarding the 2025 Draft GSPs until August 7, 2025. Comments included, but were not limited to, concerns regarding potential impacts of groundwater management on drinking water wells and potential loss of wetland habitat.

28. Board staff reviewed the 2025 Draft GSPs and concluded that the GSAs substantially, though not completely, addressed the deficiencies identified in the previous GSPs, identifying three primary issues that, if resolved, staff would recommend returning the Kern County Subbasin to the Department's oversight. Kern County Subbasin GSAs continued working diligently with Board staff to try to resolve these priority issues, which relate to drinking water wells, including contaminants such as 1,2,3-trichloropropane (1,2,3-TCP), and durable governance. Subsequently, the GSAs represented that changes were or are being made to address the three priority deficiencies identified by Board staff.

29. The State Water Board recognizes the challenge 1,2,3-TCP poses for GSAs as an anthropogenic contaminant introduced as an impurity in agricultural soil fumigants and that responsibility for introduction and remediation of 1,2,3-TCP is the subject of past and pending litigation with responsible parties. Notwithstanding GSAs bearing no responsibility for introduction of 1,2,3-TCP, the State Water Board recognizes GSAs' commitments to take steps to assist well owners impacted by 1,2,3-TCP due to GSA management activities while preserving recovery from responsible parties.

30. The Kern County Subbasin GSAs incorporated additional revisions and submitted the Kern County Subbasin 2025 adopted GSPs (2025 Final GSPs) to the State Water Board for review on September 2, 2025.

THEREFORE BE IT RESOLVED THAT:

The State Water Board:

1. Finds that the Department of Water Resources' determination that the GSPs for the Kern County Subbasin were inadequate made the Kern County Subbasin subject to state intervention under Chapter 11 of SGMA.

2. Finds that the Kern County Subbasin GSAs substantially addressed the deficiencies identified in the Department of Water Resources' Inadequacy Determination and additional issues identified by State Water Board staff.

3. Finds that designating the Kern County Subbasin as probationary under SGMA is not necessary at this time and that the Kern County Subbasin should be returned to the oversight of the Department of Water Resources under Chapter 10 of SGMA.

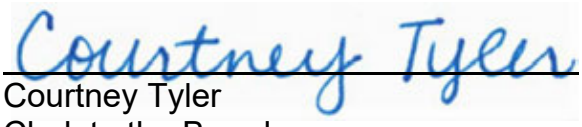
4. Directs Office of Sustainable Groundwater Management staff to review the revised Kern County Subbasin adopted 2025 GSPs for consistency with the 2025 Draft GSPs and representations regarding changes to be made to address the three priority deficiencies identified by staff, and, if satisfactorily resolved, to transmit a letter to the Department of Water Resources formalizing the return of the Kern County Subbasin to the Department's oversight consistent with the above findings.

5. Encourages the Kern County Subbasin GSAs to continue to engage with parties representing wetland interests and to consider approaches that can meet the needs of this habitat given its statewide importance.

CERTIFICATION

The undersigned Clerk to the Board does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the State Water Resources Control Board held on September 17, 2025.

AYE:	Chair E. Joaquin Esquivel Vice Chair Dorene D'Adamo Board Member Sean Maguire Board Member Laurel Firestone Board Member Nichole Morgan
NAY:	None
ABSENT:	None
ABSTAIN:	None



Courtney Tyler
Clerk to the Board

December 8, 2025 SWRCB Letter - Returning The Kern County Subbasin to the Jurisdiction of the Department of Water Resources under the Sustainable Groundwater Management Act

State Water Resources Control Board

December 8, 2025

Paul Gosselin
Deputy Director
Sustainable Groundwater Management Office
Department of Water Resources

Sent via Email: Paul.Gosselin@water.ca.gov

RETURNING THE KERN COUNTY SUBBASIN TO THE JURISDICTION OF THE DEPARTMENT OF WATER RESOURCES UNDER THE SUSTAINABLE GROUNDWATER MANAGEMENT ACT

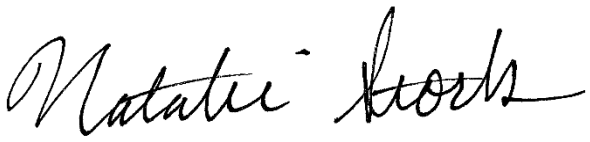
On March 2, 2023, the Department of Water Resources (Department) found, pursuant to the Sustainable Groundwater Management Act (SGMA), that the Groundwater Sustainability Plans (GSPs) for the Kern County Subbasin were inadequate (2022 GSP Inadequate Determination). Upon the Department's 2022 GSP Inadequate Determination, the State Water Resources Control Board (State Water Board or Board) assumed regulatory oversight over the Subbasin. On September 17, 2025, the State Water Board adopted Resolution No. 2025-0029, finding that revisions in the Kern County Subbasin's draft GSPs submitted to the Board on June 20, 2025 (draft 2025 GSPs) substantially addressed the deficiencies identified in the 2022 GSP Inadequate Determination as well as additional issues raised by State Water Board staff during review of subsequent GSPs. Resolution No. 2025-0029 directed staff to transmit a letter to the Department formalizing the return of the Kern County Subbasin to Department's jurisdiction, pending Board staff's review of the Kern County Subbasin's adopted GSPs submitted to the Board on September 2, 2025 (adopted 2025 GSPs). Board staff completed review of the adopted GSPs, and this letter serves as notice to the Department that the State Water Board is returning the Kern County Subbasin to the Department's jurisdiction.

In accordance with the Board's directive to return the subbasin to the Department's jurisdiction, Board staff reviewed the adopted 2025 GSPs for consistency with the draft 2025 GSPs and changes needed to address three priority deficiencies that Board staff identified in the draft 2025 GSPs: (1) providing an adequate mitigation program for drinking water wells impacted by any constituent for which a minimum threshold is established in the GSPs, where groundwater management activities cause concentrations to exceed those minimum thresholds; (2) providing an adequate mitigation program for state small water system wells impacted by groundwater

management activities; and (3) eliminating the sunset provision in the Kern Non-Districted Land Authority Groundwater Sustainability Agency's Joint Exercise of Powers Agreement. Following review, Board staff determined that the adopted 2025 GSPs were consistent with the draft 2025 GSPs. Board staff further determined that the adopted 2025 GSPs, along with a memorandum that Kern County Subbasin Groundwater Sustainability Agencies (GSAs) submitted to Board staff on October 21, 2025, describing the progress of developing the mitigation program for state small water system wells impacted by groundwater management activities (enclosed here) satisfactorily resolved the three identified priority deficiencies. Accordingly, designation of the Kern County Subbasin as a probationary basin is unnecessary at this time and the Subbasin is being returned to the jurisdiction of the Department under Chapter 10 of SGMA (Wat. Code, § 10733, seq.) in accordance with Resolution No. 2025-0029.

While the State Water Board found the Kern County Subbasin's adopted 2025 GSPs, along with the October 21, 2025, memorandum on well mitigation program, are sufficient to return the subbasin to the Department's jurisdiction, Board staff included recommendations for GSP improvement in the Board Staff Review (released on September 5, 2025) to further SGMA's sustainability goals. For the GSAs' consideration and for the Department's awareness during annual and periodic reviews under Water Code sections 10733.4 and 10733.8, both the GSAs and the Department may consider the recommendations for GSP improvement contained in Section 4.0 of the Board Staff Review.

Please contact me at Natalie.Stork@waterboards.ca.gov if you have any questions.



Natalie Stork, P.G.
Director
Office of Sustainable Groundwater Management
State Water Resources Control Board

Enclosure: Kern County Subbasin State Small Water System Financial Assistance Track Updates Memorandum

Kern County Subbasin
Groundwater Sustainability Agencies

M E M O R A N D U M

Date:	October 20, 2025
To:	Natalie Stork Sustainable Groundwater Management Director State Water Resources Control Board P.O. Box 100 Sacramento, California 95812-1000
Via:	Electronic Mail
From:	Kristin Pittack Kern County Subbasin Plan Manager / Point-of-Contact kernsubbasinpoc@rinconconsultants.com
Subject:	Kern County Subbasin State Small Water System Financial Assistance Track Updates

This memorandum is submitted on behalf of the Kern County Subbasin Groundwater Sustainability Agencies (Kern Subbasin). On September 17, 2025, before the State Water Resources Control Board (SWRCB), the Kern Subbasin shared their commitment to develop a State Small Water System Financial Assistance Track, which would be incorporated into the Kern Subbasin Well Mitigation Program. This memorandum further documents that commitment and the anticipated process for development and adoption of the State Small Water System Financial Assistance Track (Financial Assistance Track) for inclusion into the Kern Subbasin Well Mitigation Program.

As conveyed at the SWRCB public hearing on September 17, the Financial Assistance Track will be available to State Small Water Systems, as defined by the Health and Safety Code as being systems "for the provision of piped water to the public for human consumption that serves at least five, but not more than 14, service connections and does not regularly serve drinking water to more than an average of 25 individuals daily for more than 60 days out of the year" (Health & Safety Code, § 116275(n)). State Small Water Systems are not considered public water systems.

In general, the Kern Subbasin will provide financial assistance up to $100,000 per system in the event that a groundwater well serving the system becomes dry after January 1, 2015, if determined that the impact is due to GSA groundwater management activities, and the State Small Water System otherwise meets application eligibility criteria for assistance. Further, under the Financial Assistance Track, emergency drinking water will be supplied to residents served by the system. To determine how best to disseminate financial assistance, the Kern Subbasin expects to conduct a case-by-case analysis to evaluate available options. Examples of such options include working with a third-party contractor such as Self-Help Enterprises to assist the State Small Water System, working with a Technical Assistance Provider through the SWRCB SAFER program, and engaging an independent contractor to implement the solution for the groundwater well in question.

Currently, the Kern Subbasin is working on draft language to revise the Kern Subbasin Well Mitigation Program. This draft language well set forth the framework for such assistance as well as the application submittal and review process. Once the revisions are completed, the revised Kern Subbasin Well Mitigation Program document will need to be considered by each GSA for approval because it would be considered as a minor amendment to the Kern Subbasin 2025 Groundwater Sustainability Plans. With respect to timing, the Kern Subbasin set a goal for completing this task by the end of 2025, or early 2026 at the latest. In the meantime, the Kern Subbasin is actively considering

requests from State Small Water Systems for assistance and conducting case-by-case analysis as to eligibility for assistance.

Please contact Kristin Pittack at kernsubbasinpoc@rinconconsultants.com if you have further questions regarding the State Small Water System Financial Assistance Track.

Sincerely,



Kristin Pittack, MS
Kern County Subbasin Plan Manager / Point-of-Contact

Appendix B

Crosswalk Summary of Major 2025 Plan Updates in Response to DWR Corrective Actions

2025 Plan – Appendix B-3 Table 2. Crosswalk Summary of Major 2024 Plan Updates in Response to DWR Corrective Actions

2025 Plan – Appendix B-4 Comparison of Identified Deficiencies, SGMA Requirements, and Potential Corrective Actions

2025 Plan – Appendix B-3 Table 2. Crosswalk Summary of Major 2024 Plan Updates in Response to DWR Corrective Actions

Table 2. Crosswalk Summary of Major 2024 Plan Updates in Response to DWR Corrective Actions

DWR Deficiency	DWR Corrective Actions	Summary of Plan Revisions	Final 2024 Plan Revision Location
Deficiency #1: The GSPs do not establish undesirable results that are consistent for the entire Kern Subbasin.	**1a)** • "Explain how the undesirable results definitions are consistent with the requirements of SGMA and the GSP Regulations." • "Include descriptions of how the Plans have utilized the same data and methodologies to define the Subbasin-wide undesirable results and how the Plan has considered the interests of beneficial uses and users of groundwater."	• The Final 2024 Plan uses the same data and methodologies to define Subbasin-wide definitions for URs, MTs, and MOs for each applicable Sustainability Indicator. • The approaches to develop the UR definitions are consistent with the requirements of SGMA and the GSP Regulations and reflect feedback received from SWRCB staff during our multiple meetings to date. • Completely revised the Chronic Lowering of Groundwater Levels UR definition to a two-part definition that considers direct impacts on drinking water wells (no more than 15 dewatered per year or 255 total by 2040) and a Subbasin-wide percentage of MT exceedances (25 percent) to account for the variability of beneficial users and representative monitoring wells across the Kern Subbasin. • Conducted a robust Subbasin-wide well impacts analysis using the revised MTs and the Subbasin-wide well inventory to quantify potential impacts to beneficial users at the MTs as compared to the Chronic Lowering of Groundwater Levels URs definition. Under the worst-case scenario, a total of 260-307 drinking water wells are potentially impacted if all of RMW-WLs reach the MTs. Therefore, significantly fewer would be impacted at the UR definition of 25 percent of the MTs being reached, or 15 drinking water wells going dry in any given year.	Section 11 Section 2 & 12 Sections 13.1.1, 13.2.1, 13.3.1, and 13.5.1 Section 13.1.2.4 Appendix Q
Deficiency #1: The GSPs do not establish undesirable results that are consistent for the entire Kern Subbasin.	**1b)** • "Commit to comprehensively reporting on the status of minimum threshold exceedances by area in the annual reports and describe how groundwater conditions at or below the minimum thresholds may impact beneficial uses and users prior to the occurrence of a formal undesirable result."	• Established a Subbasin-wide MT Exceedance Policy to trigger GSA action in the event of a single MT exceedance for Chronic Lowering of Groundwater Levels, Degraded Water Quality, and/or Land Subsidence. • Established an MT Exceedance Action Plan Standard Operating Procedure (SOP) with standardized steps a GSA must take upon an MT exceedance. • Updated functionality of the Kern Subbasin Data Management System (DMS) so that all GSAs are notified when an MT exceedance is uploaded. • Established a detailed Subbasin-wide Well Mitigation Program to address impacts of Chronic Lowering of Groundwater Levels and Degraded Water Quality on domestic and small community groundwater users, in partnership with Self-Help Enterprises, to be operational by January 2025.	Section 5.10.3.4 Section 2 & 12 Section 16.2.1 Sections 13.1, 13.3, and 13.5 Appendices F, H, and W

DWR Deficiency	DWR Corrective Actions	Summary of Plan Revisions	Final 2024 Plan Revision Location
Deficiency #1: The GSPs do not establish undesirable results that are consistent for the entire Kern Subbasin.	**1c)** • "Adopt clear and consistent terminology to ensure the various plans are comparable and reviewable by the GSAs, interested parties, and Department staff. This terminology should also adhere to the definitions of various terms in SGMA and the GSP Regulations including the understanding that undesirable results are conditions occurring throughout the Kern Subbasin." • "Clearly document how all of the various undesirable results definitions and methodologies achieve the same common sustainability goal."	• Used common language and templates (and data and methodologies) for all 2024 Plan sections, demonstrating a high degree of coordination and collaboration. In this manner the review time by SWRCB, DWR and the public will be significantly shortened because the GSPs included in the Final 2024 Plan are essentially identical. • Used clear and consistent terminology for the Subbasin-wide definitions for URs, MTs, and MOs for each applicable Sustainability Indicator and to describe how the Kern Subbasin will be managed to achieve the Sustainability Goal. • Defined and used consistent, Subbasin-wide terminology to establish SMCs for Land Subsidence.	Section 11 Section 13 Section 5 Section 2 & 12 Section 8.5.2
Deficiency #2: The Kern Subbasin's chronic lowering of groundwater levels sustainable management criteria do not satisfy the requirements of SGMA and the GSP Emergency Regulations.	**2. (All GSPs)** • "Demonstrate the relationship between the minimum thresholds for each sustainability indicator, including an explanation of how the GSA has determined that basin conditions at each minimum threshold will avoid undesirable results for each of the sustainability indicators." • "The GSAs should address the specific corrective actions identified for the various GSPs and management area plans, as well as the corrective actions that apply to all the GSPs identified in Table 2. Where addressing those corrective actions includes modifications to the respective GSPs minimum thresholds, the GSPs should evaluate whether	• Established a Subbasin-wide methodology for setting MTs and MOs for Chronic Lowering of Groundwater Levels using an iterative process that considered more than 11 potential MT methodologies that were vetted against the Kern Subbasin UR definition, potential well impacts, and stakeholders, including SWRCB staff. • Conducted a robust Subbasin-wide well impacts analysis using the Kern Subbasin well inventory, MTs and the quantitative criteria for URs to better quantify potential impacts to beneficial users. Under the worst-case scenario, a total of 260-307 drinking water wells are projected to be dewatered, which is well within the scope and budget of the Well Mitigation Program. • Conducted a "depletion of supply" analysis to quantify the percentage of urban supply that may be impacted at MTs and the UR definition. Under the worst-case scenario, less than one percent of the total estimated urban water supply would be impacted by 2040. • Identified potential impacts of lowered groundwater levels on other Sustainability Indicators. • Selected RMWs in areas with a potential correlation between groundwater levels and water quality to facilitate ongoing	Sections 13.1 and 13.2 Section 8.1 Section 15.2.1 Appendix O

DWR Deficiency	DWR Corrective Actions	Summary of Plan Revisions	Final 2024 Plan Revision Location
	the Kern Subbasin's 'with-projects' modeling scenarios still indicate that implementation of the projects and management actions would avoid minimum threshold exceedances. If not, the GSAs should modify their projects and management actions accordingly."	monitoring and reporting in these areas potentially affected by groundwater management activities. • Determined that groundwater level MTs are protective of URs for land subsidence through an analysis that projects the extent of subsidence that would occur under groundwater level MTs. This analysis will be refined in future Subbasin-wide modeling efforts. • Estimated the reduction of groundwater storage that would occur at MT groundwater levels and determined this decline in storage (3 to 9 percent) is not significant and unreasonable relative to the volume of total usable storage in the Kern Subbasin. • Coordinated with neighboring basins on the MOs and MTs.	
Deficiency #2: The Kern Subbasin's chronic lowering of groundwater levels sustainable management criteria do not satisfy the requirements of SGMA and the GSP Regulations.	2. Kern Groundwater Authority GSP (Areas Outside of Management Areas): • "Provide a comprehensive discussion of areas covered by the KGA GSP, but that are not contained within the various management area plans. Among other items, provide maps of these areas, describe the uses and users of groundwater in these areas, and either set sustainable management criteria for these areas or include robust discussions justifying why sustainable management criteria are not required."	• Provided maps and descriptions of all areas covered by the 2024 Plan. • Described beneficial uses and users of groundwater across the entire Kern Subbasin. • The Final 2024 Plan uses the same data and methodologies to define Subbasin-wide definitions for URs, MTs, and MOs for each applicable Sustainability Indicator. • Conducted a robust Subbasin-wide well impacts analysis using the Kern Subbasin well inventory, MTs and the quantitative criteria for URs to better quantify potential impacts to beneficial users. Under the worst-case scenario, a total of 260-307 drinking water wells are estimated to be dewatered, which is well within the scope and budget of the Well Mitigation Program. • Added representative monitoring sites in under-represented areas that will be monitored for groundwater level and groundwater quality with SMCs established.	Section 1.3.1 Section 5.2.1 Section 13 Section 13.1.2.4 Section 15.5.1 Appendix Q
	2. Kern Groundwater Authority GSP (Cawelo Water District Management Area; Eastside Water Management Area) • "Describe how the minimum thresholds … may affect the interests of beneficial uses and users of groundwater or land uses and property interests."	• Conducted a robust Subbasin-wide well impacts analysis using the Kern Subbasin well inventory, MTs and the quantitative criteria for URs to better quantify potential impacts to beneficial users. Under the worst-case scenario, a total of 260-307 drinking water wells are estimated to be dewatered, which is well within the scope and budget of the Well Mitigation Program. • Conducted a "depletion of supply" analysis to quantify the percentage of urban supply that may be impacted at MTs and the UR definition. Under the worst-case scenario, less than one percent of the total estimated urban water supply would be impacted by 2040.	Section 13.1.2.4 Appendix Q

DWR Deficiency	DWR Corrective Actions	Summary of Plan Revisions	Final 2024 Plan Revision Location
Deficiency #2: The Kern Subbasin's chronic lowering of groundwater levels sustainable management criteria do not satisfy the requirements of SGMA and the GSP Regulations.	2. Kern Groundwater Authority GSP (Kern Water Bank Management Area) • Provide an explanation of how the Joint Operation Plan meets the requirements of SGMA and the GSP Regulations. • The Joint Operation Plan expired on January 31, 2019. Provide an updated explanation if these thresholds have changed and the latest Joint Operation Plan if applicable."	• MTs for the area covered by the Kern Water Bank GSA are no longer set using thresholds in the Joint Operation Plan, and instead use the Subbasin-wide SMC approach.	Section 13.1
	2. Kern Groundwater Authority GSP (Kern-Tulare Water District Management Area) • "Provide an explanation of how minimum thresholds within the Kern-Tulare management area at the monitoring sites are consistent with the requirement to be based on a groundwater elevation indicating a significant and unreasonable depletion of supply at a given location. • Provide a discussion identifying how the minimum thresholds may affect the interests of beneficial uses and users of groundwater or land uses and property interests."	• The Final 2024 Plan uses the same data and methodologies to define Subbasin-wide definitions for URs, MTs, and MOs for Chronic Lowering of Groundwater Levels that are based on a groundwater elevation indicating a significant and unreasonable depletion of supply at each RMW-WL. • Conducted a robust Subbasin-wide well impacts analysis using the Kern Subbasin well inventory, MTs and the quantitative criteria for URs to better quantify potential impacts to beneficial users. Under the worst-case scenario, a total of 260-307 drinking water wells are estimated to be dewatered, which is well within the scope and budget of the Well Mitigation Program. • Conducted a "depletion of supply" analysis to quantify the percentage of urban supply that may be impacted at MTs and the UR definition. Under the worst-case scenario, less than one percent of the total estimated urban water supply would be impacted by 2040.	Section 13.1 Section 13.1.2.4
Deficiency #2: The Kern Subbasin's chronic lowering of groundwater levels sustainable management criteria do not satisfy the	2. Kern Groundwater Authority GSP (North Kern Water Storage District / Shafter-Wasco Irrigation District Management Area) • "Establish sustainable management criteria for management area NKWSD-MA-2.	• The Final 2024 Plan uses the same data and methodologies to define Subbasin-wide definitions for URs, MTs, and MOs for Chronic Lowering of Groundwater Levels that are based on a groundwater elevation indicating a significant and unreasonable depletion of supply at each RMW-WL. • Conducted a robust Subbasin-wide well impacts analysis using the Kern Subbasin well inventory, MTs and the quantitative criteria for URs to better quantify potential impacts to beneficial users. Under the worst-case scenario, a total of 260-307 drinking water	Section 13.1 Section 13.1.2.4 Section 16.2.1.1 Appendix Q Appendix K

DWR Deficiency	DWR Corrective Actions	Summary of Plan Revisions	Final 2024 Plan Revision Location
requirements of SGMA and the GSP Regulations.	• Explain how minimum thresholds … are consistent with the requirement to be based on a groundwater elevation indicating a significant and unreasonable depletion of supply at a given location. • Verify how the subset of wells used in the well impact analysis is representative of the wells in the management area. • Provide an explanation of the mitigation plan for domestic wells."	wells are estimated to be dewatered, which is well within the scope and budget of the Well Mitigation Program • Conducted a "depletion of supply" analysis to quantify the percentage of urban supply that may be impacted at MTs and the UR definition. Under the worst-case scenario, less than one percent of the total estimated urban water supply would be impacted by 2040. • Established a detailed Subbasin-wide Well Mitigation Program to address impacts of Chronic Lowering of Groundwater Levels and Degraded Water Quality on domestic groundwater users, in partnership with Self-Help Enterprises, to be operational by January 2025.	
Deficiency #2: The Kern Subbasin's chronic lowering of groundwater levels sustainable management criteria do not satisfy the requirements of SGMA and the GSP Regulations.	2. Kern Groundwater Authority GSP (Kern County Water Agency Pioneer GSA Management Area; Shafter-Wasco Irrigation District [7th Standard Rd] Management Area; West Kern Water District Management Area; Westside District Authority Management Area) • "Explain the selection of groundwater level minimum thresholds for the Pioneer management area, including how they represent site-specific levels of depletion that could cause undesirable results, how they may affect the interests of beneficial uses and users of groundwater, and the relationship between this sustainability indicator and other sustainability indicators such as degradation of groundwater quality and subsidence, both of which can be exacerbated by lowering groundwater levels."	• The Final 2024 Plan uses the same data and methodologies to define Subbasin-wide definitions for URs, MTs, and MOs for Chronic Lowering of Groundwater Levels that are based on a groundwater elevation indicating a significant and unreasonable depletion of supply at each RMW-WL. • Conducted a robust Subbasin-wide well impacts analysis using the Kern Subbasin well inventory, MTs and the quantitative criteria for URs to better quantify potential impacts to beneficial users. Under the worst-case scenario, a total of 260-307 drinking water wells are estimated to be dewatered, which is well within the scope and budget of the Well Mitigation Program. • Conducted a "depletion of supply" analysis to quantify the percentage of urban supply that may be impacted at MTs and the UR definition. Under the worst-case scenario, less than one percent of the total estimated urban water supply would be impacted by 2040. • Identified potential impacts of lowered groundwater levels on other Sustainability Indicators. • Selected RMWs in areas with a potential correlation between groundwater levels and water quality to facilitate ongoing monitoring and reporting in these areas potentially affected by groundwater management activities. • Determined that groundwater level MTs are protective of URs for land subsidence through an analysis that projects the extent of	Section 13.1 Section 13.1.2.4 Section 15.2 Section 16.2.1.1 Appendix Q Appendix K

DWR Deficiency	DWR Corrective Actions	Summary of Plan Revisions	Final 2024 Plan Revision Location
		subsidence that would occur under groundwater level MTs. This analysis will be refined in future Subbasin-wide modeling efforts. • Estimated the reduction of groundwater storage that would occur at MT groundwater levels and determined this decline in storage (3 to 9 percent) is not significant and unreasonable relative to the volume of total usable storage in the Kern Subbasin.	
Deficiency #2: The Kern Subbasin's chronic lowering of groundwater levels sustainable management criteria do not satisfy the requirements of SGMA and the GSP Regulations.	2. Kern Groundwater Authority GSP (Rosedale Rio Bravo Management Area) • "Provide clarification regarding why minimum threshold exceedances are allowed to occur in one of the North, Central, or South of the Rive zones for this management area (i.e., why it takes two of those zones to exceed their threshold before the management area plan considers an undesirable result to have occurred). • Describe any projects or management actions that may be implemented if the minimum threshold is exceeded in one of those areas and users are impacted but an undesirable result is not triggered."	• The Final 2024 Plan uses the same data and methodologies to define Subbasin-wide definitions for URs, MTs, and MOs for Chronic Lowering of Groundwater Levels that are based on a groundwater elevation indicating a significant and unreasonable depletion of supply at each RMW-WL. • Established a Subbasin-wide MT Exceedance Policy to trigger GSA action in the event of a single MT exceedance for Chronic Lowering of Groundwater Levels, Degraded Water Quality, and/or Land Subsidence.	Section 13.1 Section 16.2.1 Appendix W
Deficiency #2: The Kern Subbasin's chronic lowering of groundwater levels sustainable management criteria do not satisfy the requirements of SGMA and the	• 2. Kern Groundwater Authority GSP (Semitropic Water Storage District Management Area; Southern San Joaquin Municipal Utility District Management Area:) • "Explain the selection of groundwater level minimum thresholds … including how they represent site-specific levels of depletion that could cause undesirable results and the relationship between this	• The Final 2024 Plan uses the same data and methodologies to define Subbasin-wide definitions for URs, MTs, and MOs for Chronic Lowering of Groundwater Levels that are based on a groundwater elevation indicating a significant and unreasonable depletion of supply at each RMW-WL. • Conducted a robust Subbasin-wide well impacts analysis using the Kern Subbasin well inventory, MTs and the quantitative criteria for URs to better quantify potential impacts to beneficial users. Under the worst-case scenario, a total of 260-307 drinking water wells are estimated to be dewatered, which is well within the scope and budget of the Well Mitigation Program. • Conducted a "depletion of supply" analysis to quantify the percentage of urban supply that may be impacted at MTs and the	Section 13.1 Section 15.2 Section 16.2.1.1 Appendix Q Appendix K

DWR Deficiency	DWR Corrective Actions	Summary of Plan Revisions	Final 2024 Plan Revision Location
GSP Regulations.	sustainability indicator and other sustainability indicators such as degradation of groundwater quality and subsidence, both of which can be exacerbated by lowering groundwater levels. If minimum thresholds were not set consistent with levels indicating a depletion of supply, the minimum thresholds should be revised accordingly. • Verify how the subset of wells used in the well impact analysis is representative of the wells in the management area. • Provide an explanation of the mitigation plan for domestic wells."	UR definition. Under the worst-case scenario, less than one percent of the total estimated urban water supply would be impacted by 2040. • Identified potential impacts of lowered groundwater levels on other Sustainability Indicators. • Selected RMWs in areas with a potential correlation between groundwater levels and water quality to facilitate ongoing monitoring and reporting in these areas potentially affected by groundwater management activities. • Determined that groundwater level MTs are protective of URs for land subsidence through an analysis that projects the extent of subsidence that would occur under groundwater level MTs. This analysis will be refined in future Subbasin-wide modeling efforts. • Estimated the reduction of groundwater storage that would occur at MT groundwater levels and determined this decline in storage (3 to 9 percent) is not significant and unreasonable relative to the volume of total usable storage in the Kern Subbasin. • Established a detailed Subbasin-wide Well Mitigation Program to address impacts of Chronic Lowering of Groundwater Levels and Degraded Water Quality on domestic and small community groundwater users, in partnership with Self-Help Enterprises, to be operational by January 2025.	
Deficiency #2: The Kern Subbasin's chronic lowering of groundwater levels sustainable management criteria do not satisfy the requirements of SGMA and the GSP Regulations.	**2. Kern River GSP** • "Provide clarification regarding the management action mentioned in the sustainable management criteria section of the GSP related to identification of well users, including domestic users and small water systems, in the agricultural subareas of the Agricultural Management Area."	• A Subbasin-wide well inventory was conducted to better understand the distribution of beneficial groundwater users in the Kern Subbasin. The inventory includes records from DWR's Online System of Well Completion Reports (OSWCR), the Kern County Environmental Health Services (KCEHS), and United States Geological Survey (USGS). Additionally, data were downloaded from California Open Data including well information from the Department of Drinking Water (DDW) and Irrigated Lands Regulatory Program.	Section 1.3

DWR Deficiency	DWR Corrective Actions	Summary of Plan Revisions	Final 2024 Plan Revision Location
Deficiency #2: The Kern Subbasin's chronic lowering of groundwater levels sustainable management criteria do not satisfy the requirements of SGMA and the GSP Regulations.	**2. Buena Vista GSP** • "Include sustainable management criteria, including groundwater level minimum thresholds, for the Maples Management Area." • "[Provide] similar detail regarding the hydrogeologic and beneficial user considerations as were provided for the Buttonwillow Management Area sustainable management criteria development."	• The Final 2024 Plan uses the same data and methodologies to define Subbasin-wide definitions for URs, MTs, and MOs for Chronic Lowering of Groundwater Levels that are based on a groundwater elevation indicating a significant and unreasonable depletion of supply at each RMW-WL. • Conducted a robust Subbasin-wide well impacts analysis using the Kern Subbasin well inventory, MTs and the quantitative criteria for URs to better quantify potential impacts to beneficial users. Under the worst-case scenario, a total of 260-307 drinking water wells are estimated to be dewatered, which is well within the scope and budget of the Well Mitigation Program. • Conducted a "depletion of supply" analysis to quantify the percentage of urban supply that may be impacted at MTs and the UR definition. Under the worst-case scenario, less than one percent of the total estimated urban water supply would be impacted by 2040. • Identified potential impacts of lowered groundwater levels on other Sustainability Indicators.	Section 13.1 Appendix Q
Deficiency #2: The Kern Subbasin's chronic lowering of groundwater levels sustainable management criteria do not satisfy the requirements of SGMA and the GSP Regulations.	**2. Henry Miller GSP** • "Provide a sufficient description of the selection of groundwater level minimum thresholds, including how they represent site-specific levels of significant and unreasonable depletion of supply that could cause undesirable results, how they may affect the interests of beneficial uses and users of groundwater, and the relationship between this sustainability indicator and other sustainability indicators such as degradation of groundwater quality and subsidence, both of which can be exacerbated by lowering groundwater levels."	• The Final 2024 Plan uses the same data and methodologies to define Subbasin-wide definitions for URs, MTs, and MOs for Chronic Lowering of Groundwater Levels that are based on a groundwater elevation indicating a significant and unreasonable depletion of supply at each RMW-WL. • Conducted a robust Subbasin-wide well impacts analysis using the Kern Subbasin well inventory, MTs and the quantitative criteria for URs to better quantify potential impacts to beneficial users. Under the worst-case scenario, a total of 260-307 drinking water wells are estimated to be dewatered, which is well within the scope and budget of the Well Mitigation Program. • Conducted a "depletion of supply" analysis to quantify the percentage of urban supply that may be impacted at MTs and the UR definition. Under the worst-case scenario, less than one percent of the total estimated urban water supply would be impacted by 2040. • Identified potential impacts of lowered groundwater levels on other Sustainability Indicators. • Selected RMWs in areas with a potential correlation between groundwater levels and water quality to facilitate ongoing	Section 13.1 Section 15.2 Appendix Q

DWR Deficiency	DWR Corrective Actions	Summary of Plan Revisions	Final 2024 Plan Revision Location
		monitoring and reporting in these areas potentially affected by groundwater management activities. • Determined that groundwater level MTs are protective of URs for land subsidence through an analysis that projects the extent of HCM Area subsidence that would occur under groundwater level MTs. This analysis will be refined in future Subbasin-wide modeling efforts. • Estimated the reduction of groundwater storage that would occur at MT groundwater levels and determined this decline in storage (3 to 9 percent) is not significant and unreasonable relative to the volume of total usable storage in the Kern Subbasin.	
Deficiency #2: The Kern Subbasin's chronic lowering of groundwater levels sustainable management criteria do not satisfy the requirements of SGMA and the GSP Regulations.	**2. South of Kern River GSP (Arvin-Edison Water Storage District Management Area; Wheeler Ridge-Maricopa Water Storage District Management Area)** • Provide specific details, including timeline for implementation, of the [Well Mitigation] program. Describe the scope of the program and how users impacted by continued groundwater level decline, particularly early in implementation of the Plan, will be addressed.	• Established a detailed Subbasin-wide Well Mitigation Program to address impacts of Chronic Lowering of Groundwater Levels and Degraded Water Quality on domestic and small community groundwater users, in partnership with Self-Help Enterprises, to be operational by January 2025. • Established a Subbasin-wide MT Exceedance Policy to trigger GSA action in the event of a single MT exceedance for Chronic Lowering of Groundwater Levels, Degraded Water Quality, and/or Land Subsidence.	Section 16.2.1 Appendix K Appendix W
	2. South of Kern River GSP (Tejon-Castac Water District Management Area) • "Explain the selection of groundwater level minimum thresholds for the Tejon-Castac management area, including how they represent site-specific levels of depletion that could cause undesirable results, how they may affect the interests of beneficial uses and users of groundwater, and the relationship between this	• Same revisions as listed above for the Henry Miller GSP.	Section 13.1 Section 15.2 Appendix Q

DWR Deficiency	DWR Corrective Actions	Summary of Plan Revisions	Final 2024 Plan Revision Location
	sustainability indicator and other sustainability indicators such as degradation of groundwater quality and subsidence, both of which can be exacerbated by lowering groundwater levels."		
Deficiency #3: The Kern Subbasin's land subsidence sustainable management criteria do not satisfy the requirements of SGMA and the GSP Regulations.	**3. (Subbasin)** • "Coordinate and collectively satisfy the requirements of SGMA and the GSP Regulations to develop the sustainable management criteria for land subsidence." • "Document the conditions for undesirable results for which the GSAs are trying to avoid, supported by their understanding of land uses and critical infrastructure in the Kern Subbasin and the amount of subsidence that would substantially interfere with those uses." • "Identify the rate and extent of subsidence corresponding with substantial interference that will serve as the minimum threshold." • "Clearly identify the undesirable result parameters for each of the GSPs, management areas, and management area plans so it is clear how the various plans work together at the Subbasin-wide level." • "Explain how implementing projects and management actions proposed in the various GSPs is consistent with avoiding subsidence minimum thresholds."	• Referenced and discussed key findings from the six independent subsidence studies to fill data gaps, including the installation of a new extensometer. • Conducted extensive studies and data collection and provided and explained InSAR time series justification and methodologies to differentiate between subsidence caused by activities within and outside of the GSAs' authority to control (i.e., GSA-related vs. non-GSA-related), in coordination with State Water Project California Aqueduct Subsidence Program (CASP) and Friant Water Authority. • Developed Subbasin-wide definitions for Regional and GSA Area Critical Infrastructure. • Developed a Subbasin-wide data-driven approach to land subsidence SMCs. • The GSAs have committed to minimize GSA-related subsidence by 2040. • Established land subsidence SMCs across the entire Kern Subbasin based on a projection of the average historical subsidence rate across each HCM Area and along regional critical infrastructure. • Assessed the potential for differential subsidence using a change in slope analysis between 2024 and the MT extent to confirm minimal impacts to land surface uses and infrastructure. • Assessed potential impacts on regional critical infrastructure from future GSA-related subsidence, including impacts to canal freeboard that would cause substantial interference to conveyance capacity, and identified potential mitigation needs. • Coordinated with key beneficial users of regional critical infrastructure, including the Friant Water Authority and CASP. • Updated the Subbasin-wide Land Subsidence monitoring network.	Section 8.5 Section 13.5 Section 15.2.5

DWR Deficiency	DWR Corrective Actions	Summary of Plan Revisions	Final 2024 Plan Revision Location
	• "If land subsidence is not applicable to parts of the Kern Subbasin, provide supported justification of such."		

2025 Plan – Appendix B-4 Comparison of Identified Deficiencies, SGMA Requirements, and Potential Corrective Actions

Comparison of Identified Deficiencies, SGMA Requirements, and Potential Corrective Actions				
Deficiency	**SGMA Requirements**	**Deficiency Summary**	**Potential Actions to Correct the Deficiency**	**Recommendation re Kern GSAs' Response**
Deficiency Coordination 1 (CRD)-1: Undesirable results and SMC are not coordinated. • **Deficiency CRD-1a –** Undesirable results are poorly described, unworkably complex, and inconsistently implemented. • **Deficiency CRD-1b** – Sustainable management criteria rely on inconsistent datasets and methodologies.	SGMA requires that "Agencies intending to develop and implement multiple plans pursuant to Water Code § 10727(b)(3) shall enter into a coordination agreement to ensure that the Plans are developed and implemented utilizing the same data and methodologies…", and Regulations requires that "elements of the Plans necessary to achieve the sustainability goal for the basin are based upon consistent interpretations of the basin setting" (Cal. Code Regs., tit. 23, § 357.4, subd. (a)). In defining undesirable results, GSAs are required to "describe the process and criteria relied upon do define undesirable results [that would occur when significant and unreasonable effects are caused by groundwater condition in the Subbasin]" (Cal. Code Regs., tit. 23, § 354.26, subd. (a)). The undesirable result definition should include the cause of groundwater conditions occurring throughout the Subbasin that has or may lead to an undesirable result, the criteria used to define when and where the effects of groundwater conditions cause undesirable results, and the impacts on beneficial uses and users (Cal. Code Regs., tit. 23, § 354.26 subd. (b)). In establishing SMC, GSAs must "establish minimum thresholds that quantify groundwater conditions for each applicable sustainability indicator at each monitoring site or representative monitoring site established pursuant to Section 354.36. The numeric value used to define minimum thresholds shall represent a point in the basin that, if exceeded, may cause undesirable results as described in Section 354.26." (Cal. Code Regs. tit. 23 § 354.28). Discussion of the MTs should include among other things the "relationship between the minimum thresholds for each sustainability indicator, including an explanation of how the Agency has determined that basin conditions at each minimum threshold will avoid undesirable results for each of the sustainability indicators." (Cal. Code Regs. tit. 23 § 354.28). Undesirable results and SMC should be consistent with key details in the Coordination Agreement. Agencies should describe how they use the same data and methodologies for assumptions described in Water Code § 10727.6 by including monitoring objectives, a coordinated basin water budget, and sustainable yield for the basin supported by a description of an undesirable result for the basin, and an explanation of how the minimum threshold and measurable objectives relate to the undesirable result (Cal. Code Regs., tit. 23, § 357.4, subd. (b)(3)). The coordination agreement shall also explain how the Plans implemented together, satisfy the requirements of the Act (Cal. Code Regs., tit. 23, § 357.4, subd. (c)). An Agency may create "one or more management areas within a basin if the Agency has determined that creation of management areas will facilitate implementation of the Plan. Management areas may define different minimum thresholds and be operated to different measurable objectives than the basin at large, provided that undesirable results are defined consistently throughout the	**DWR Inadequate Determination summary:** Ultimately, the fragmented management area approach to groundwater management, particularly in establishing minimum thresholds and measurable objectives, undermines the GSAs ability to clearly define the Subbasin-wide significant and unreasonable effects they hope to avoid. It is, therefore, unclear to Department staff how or whether the sustainable groundwater management approach described in the Plan will achieve the sustainability goals included in the amended Coordination Agreement (2022 Inadequate Determination). **Board issues:** None	**Potential Action CRD-1a –** Develop consistent, clear undesirable results. **Potential Action CRD-1b –** Use consistent data and methods to develop SMC.	**Deficiency CRD-1 is already corrected within the 2024 Plan that was submitted to the SWRCB for review.** **CRD-1a –** The 2024 Plan has consistent and clear definitions of undesirable results (URs) that are Subbasin-wide. Clear plain language definitions of URs are provided, and supplemented with very specific quantitative criteria (based on impacts to beneficial users) that would trigger an UR: • Water levels: Sections 13.1.1 and 13.1.1.4 • Storage: Sections 13.2.1 and 13.2.1.4 • Water quality: Sections 13.3.1 and 13.3.1.4 • Land subsidence: Sections 13.5.1 and 13.5.1.4 Further, as shown in Table ES-3 and Table 11-1, each sustainability indicator has a consistent UR, Minimum Threshold (MT), and Measurable Objective (MO) definition across the Subbasin, all of which are demonstrated to be protective of (and avoid significant and unreasonable impacts to) beneficial uses and users. **CRD-1b –** All of the Sustainable Management Criteria (SMCs) in the 2024 Plan were developed using consistent data and methodologies across the Subbasin. For example, the Subbasin groundwater level SMCs rely on the same method using one compiled dataset of available historical well-specific data, while necessarily reflecting the differing conditions across the largest Subbasin in California that includes highly variable and complex geology and water use patterns and conditions and distribution of beneficial users. The modeling conducted by the Subbasin demonstrates that the SMCs and planned projects and management actions (P/MAs) will support the Subbasin to avoid URs and achieve the Sustainability Goal. Adoption of the Subbasin MT Exceedance Policy further demonstrates that the GSAs have a plan to proactively address any issues and impacts to beneficial users before they become an UR. Implementation of the coordinated 2024 Well

Comparison of Identified Deficiencies, SGMA Requirements, and Potential Corrective Actions				
Deficiency	**SGMA Requirements**	**Deficiency Summary**	**Potential Actions to Correct the Deficiency**	**Recommendation re Kern GSAs' Response**
	basin" (Cal. Code Regs., tit. 23, § 350.20).			Mitigation Program further demonstrates that the GSAs are committed to address impacts to beneficial users.

Comparison of Identified Deficiencies, SGMA Requirements, and Potential Corrective Actions				
Deficiency	**SGMA Requirements**	**Deficiency Summary**	**Potential Actions to Correct the Deficiency**	**Recommendation re Kern GSAs' Response**
Deficiency CRD-2: The Coordination Agreement, GSPs, and Management Area Plans lack key details necessary for coordinated implementation. • **Deficiency CRD-2a** – The Coordination Agreement is not sufficient to address disputes. • **Deficiency CRD-2b** – GSAs do not explain how the multiple plans will satisfy SGMA requirements, particularly for Management Areas.	The coordination agreement should be adopted by all relevant parties, explain how the multiple plans will satisfy SGMA requirements, should ensure that the agreement is binding on all parties and sufficient to address any disputes, and satisfies SGMA requirements (Code Regs., tit. 23, § 355.4, subd. (b)(8) and Cal. Code Regs., tit. 23, §357.4). GSP Regulations allow agencies to create "one or more management areas within a basin if the Agency has determined that creation of management areas will facilitate implementation of the Plan. Management areas may define different minimum thresholds and be operated to different measurable objectives than the basin at large, provided that undesirable results are defined consistently throughout the basin" (Cal. Code Regs., tit. 23, § 350.20).	**DWR Inadequate Determination summary:** None **Board issues:** GSP and Coordination agreements do not have a basin wide exceedance policy to properly demonstrate how exceedances are investigated for relevance to SGMA or addressed if driving mechanism is outside of the local management area.	**Potential Action CRD-2a –** The Coordination Agreement should include a basin-wide minimum threshold exceedance plan. **Potential Action CRD-2b –** GSAs should revise plans to demonstrate the necessity and compliance of Management Areas.	Deficiency CRD-2 **not** identified by DWR. **Deficiency CRD-2 is already corrected within the 2024 Plan.** **CRD-2a -** The Subbasin-wide MT Exceedance Policy is included as Appendix W of the Subbasin 2024 Plan. **CRD-2b -** Most Management Areas are no longer relevant. The 2024 Plan relies on GSAs to cover the entirety of the Subbasin. There are two exceptions, with two management areas defined for two GSAs under special circumstances. See Section 10 for details.

Comparison of Identified Deficiencies, SGMA Requirements, and Potential Corrective Actions				
Deficiency	**SGMA Requirements**	**Deficiency Summary**	**Potential Actions to Correct the Deficiency**	**Recommendation re Kern GSAs' Response**
Deficiency CRD-3 – GSAs in the Subbasin have not demonstrated Basin-wide management.	Any *local agency* –a local public agency with water supply, water management, or land use responsibilities (Wat. Code, § 10721, subd. (n)) – or combination of local agencies overlying a groundwater basin may decide to become a GSA for that basin (Wat. Code, § 10723, subd. (a)). The statute allows some private and non-governmental water entities to *participate* in a GSA, but SGMA does not provide them any additional authorities (Wat. Code, § 10723.6, subd. (b)). Private entities therefore do not have authorities to manage the subbasin, so all areas of a GSA must still be covered by a local agency. GSAs are required to develop "one or more groundwater sustainability plans that will collectively serve as a groundwater sustainability plan for the entire basin" (Water Code § 10735.2, subd. (1)(B)). Portions of high- and medium-priority basins not within the management area of a GSA are considered unmanaged (Water Code § 10724.6, subd. (a)). Groundwater extractors in unmanaged areas must report extractions and pay fees to the State Water Board (Water Code § 10724.6, subd. (b)).	**DWR Inadequate Determination summary:** None **Board issues:** Board staff are concerned that the subbasin may not be able to reach sustainability because it lacks authority to manage pumping across the entire basin. Board staff are unable to properly evaluate basin management due to the complex arrangement of agencies involved and lack of clear detail demonstrating adequate coverage. Board staff note that inadequate coverage could undermine the subbasin's ability to reach sustainability, as pumping could shift to unmanaged areas where no GSA has authority to limit extractions.	**Potential Action CRD-3a –** GSAs should clearly define relationships and responsibilities consistent with SGMA requirements.	Deficiency CRD-3 **not** identified by DWR. **Deficiency CRD-3 is already corrected within the 2024 Plan.** The Subbasin is fully covered by GSAs, as shown in Figure 3-1 of the 2024 Plan. The Kern Non-Districted Land Authority (KNDLA) GSA was established in 2024, with the GSAs participating in the JPA as participating entities. This results in KNDLA GSA having the authority to limit groundwater extraction in unmanaged lands. The "white lands" areas covered by KNDLA GSA have a minimum target P/MA goal of 20,410 AFY (see Table 14-2), which will be addressed primarily through demand management. As discussed in P/MA KSB-6, the KNDLA GSA will establish white lands water budgets necessary to implement a linear demand reduction schedule of 10 percent per year, between 2030-2040. See KSB-6 details in Section 14.2.1 and Appendix D of the 2024 Plan.

Comparison of Identified Deficiencies, SGMA Requirements, and Potential Corrective Actions				
Deficiency	**SGMA Requirements**	**Deficiency Summary**	**Potential Actions to Correct the Deficiency**	**Recommendation re Kern GSAs' Response**
Deficiency Groundwater Level 1 (GL-1) – Groundwater Level undesirable results and SMC are not coordinated. • **Deficiency GL-1a** – Undesirable results are poorly described, unworkably complex, and inconsistently implemented. • **Deficiency GL-1b** – SMC rely on inconsistent datasets and methodologies.	SGMA requires that "Agencies intending to develop and implement multiple plans pursuant to Water Code § 10727(b)(3) shall enter into a coordination agreement to ensure that the Plans are developed and implemented utilizing the same data and methodologies…", and Regulations requires that "elements of the Plans necessary to achieve the sustainability goal for the basin are based upon consistent interpretations of the basin setting" (Cal. Code Regs., tit. 23, § 357.4, subd. (a)). In defining undesirable results, GSA are required to "describe the process and criteria relied upon do define undesirable results [that would occur when significant and unreasonable effects are caused by groundwater condition in the Subbasin]" (Cal. Code Regs., tit. 23, § 354.26, subd. (a)). The undesirable result definition should include the cause of groundwater conditions occurring throughout the Subbasin that has or may lead to an undesirable result, the criteria used to define when and where the effects of groundwater conditions cause undesirable results, and the impacts on beneficial uses and users (Cal. Code Regs., tit. 23, § 354.26 subd. (b)). In establishing SMC, GSAs must "establish minimum thresholds that quantify groundwater conditions for each applicable sustainability indicator at each monitoring site or representative monitoring site established pursuant to Section 354.36. The numeric value used to define minimum thresholds shall represent a point in the basin that, if exceeded, may cause undesirable results as described in Section 354.26." (Cal. Code Regs. tit. 23 § 354.28). Discussion of the MTs should include among other things the "relationship between the minimum thresholds for each sustainability indicator, including an explanation of how the Agency has determined that basin conditions at each minimum threshold will avoid undesirable results for each of the sustainability indicators." (Cal. Code Regs. tit. 23 § 354.28). Undesirable results and SMC should be consistent with key details in the Coordination Agreement. Agencies should describe how they use the same data and methodologies for assumptions described in Water Code § 10727.6 by including monitoring objectives, coordinated basin water budget, and sustainable yield for the basin supported by a description of an undesirable result for the basin, and an explanation of how the minimum threshold and measurable objectives relate to the undesirable result (Cal. Code Regs., tit. 23, § 357.4, subd. (b)(3)). The coordination agreement shall also explain how the Plans implemented together, satisfy the requirements of the Act (Cal. Code Regs., tit. 23, § 357.4, subd. (c)). GSP Regulations allow agencies to create "one or more management areas within a basin if the Agency has determined that creation of management areas will facilitate implementation of the Plan. Management areas may define different minimum thresholds and be operated to different measurable objectives than the basin at large, provided that undesirable results are defined consistently throughout the basin" (Cal. Code Regs., tit. 23, § 350.20).	This is the corresponding subsidence level deficiency for coordination deficiency CRD-1. **DWR Inadequate Determination summary:** The Coordination Agreement requires two conditions to trigger an undesirable result: 1) an MT exceedance must occur in 40% of RMS for four consecutive measurements (at least 2 years) for a management area to contribute to an undesirable result and 2) three adjacent management areas (accounting for at least 15% of basin area) or any management areas accounting for 30% or more of the basin area must be contributing to the undesirable results. DWR found that it "may allow for situations where groundwater conditions could degrade for sustained periods of time for portions of the Subbasin without triggering an undesirable result" (2022 Inadequate Determination, p. 10). DWR also found that the SMC set by each management are, to avoid MA exceedance (40% of MTs for 2 years), were set using various methods and sources and are not easily comparable across plans. **Board issues:** None	**Potential Action GL-1a –** Develop consistent, clear undesirable results. **Potential Action GL-1b –** Use consistent data and methods to develop SMC.	**Deficiency GL-1 is already corrected within the 2024 Plan.** **GL-1a -** See response to CRD-1. As discussed with SWRCB staff, the 2024 Plan completely replaced the prior UR criteria and SMCs. The criteria for triggering URs for groundwater levels are specified based at the Subbasin-level, and have specific quantifiable metrics based on either representative groundwater monitoring or impacts to beneficial users (e.g., well dewatering). The UR criteria are extremely strict and protective of all beneficial users. For example, it would be an UR if more than 15 drinking water wells went dry in a single year across a 1.8 million acre Subbasin that pumps an average of around 1.5 million AFY from approximately 7,200 wells. **GL-1b -** All of the groundwater level SMCs were developed and calculated using the same data and methodologies (i.e., one compiled dataset of available historical well-specific data), while necessarily reflecting the differing conditions across the largest basin in California that includes highly variable and complex geology, water use patterns and conditions, and distribution of beneficial users. The groundwater level SMC values are clearly specified in Table 13-2 and visualized on Figures 13-3, 13-4, 13-12, and 13-13. These table and figures are consistent across all 2024 GSPs.

Comparison of Identified Deficiencies, SGMA Requirements, and Potential Corrective Actions				
Deficiency	**SGMA Requirements**	**Deficiency Summary**	**Potential Actions to Correct the Deficiency**	**Recommendation re Kern GSAs' Response**
Deficiency GL-2 – The GSPs and Coordination Agreement lack necessary detail about well mitigation.	Although SGMA and the GSP Regulations do not require development of a well impact mitigation plan, the State Water Board considers them to be an important component of SGMA implementation to ensure for availability of water for all beneficial uses and users in the subbasin.	**DWR Inadequate Determination summary:** The 2022 GSPs are not implementing or plan to implement a well mitigation plan. **Board issues:** There is a lack of coordination on well mitigation plans for the subbasin and when present, discussion of well mitigation does not contain sufficient detail and is not yet implemented.	**Potential Action GL-2 –** Establish accessible, comprehensive, and appropriately funded well impact mitigation programs that mitigate impacts to wells affected by lowering of groundwater levels and/or degradation of water quality with clear triggers, eligibility requirements, and funding sources.	**Deficiency GL-2 is already corrected within the 2024 Plan.** As discussed with SWRCB staff on 6 March 2024, a Subbasin-wide Well Mitigation Program is under final development. Subbasin GSAs have signed a letter of intent with Self-Help Enterprises to help develop and administer a well mitigation program, see Appendix K of the 2024 Plan. A well mitigation subcommittee is concluding work on the Subbasin well mitigation program with a target implementation date of January 2025. Water quality mitigation is under development through the Subbasin's memorandum of understanding (MOU) with the Kern Water Collaborative, which is the lead entity responsible for providing nitrate sampling and mitigation to wells owners with nitrate above the MCL (See Appendix F of the 2024 Plan) and a Letter of Intent with Self-Help Enterprises, who offers implementations services (See Appendix K of the 2024 Plan).

Comparison of Identified Deficiencies, SGMA Requirements, and Potential Corrective Actions				
Deficiency	**SGMA Requirements**	**Deficiency Summary**	**Potential Actions to Correct the Deficiency**	**Recommendation re Kern GSAs' Response**
Deficiency GL-3 – The GSPs do not describe a feasible path for halting chronic lowering of groundwater levels.	Each GSP is required to include a description of the projects and management actions the GSA has determined will achieve groundwater sustainability in the basin. The description must include project and management actions, a summary of data used to support proposed actions, and a review of the uncertainty associated with the basin setting when developing projects or management actions. The GSP must also describe the criteria that would trigger implementing or stopping a project or management action and the process for determining whether that trigger has occurred (Cal. Code Regs., tit. 23, § 354.44). More fundamentally, for basins in a condition of overdraft, the GSP "shall describe projects or management actions, including a quantification of demand reduction or other methods, for the mitigation of overdraft" (Cal. Code Regs., tit. 23, § 354.44, subd. (b)(2)) GSPs need to include a description of the management of groundwater extractions and recharge to ensure that chronic lowering of groundwater levels or depletion of supply during periods of drought is offset by increases in groundwater levels or storage during other periods (Cal. Code Regs., tit. 23, § 354.44, subd. (b)(9)). In reviewing GSPs, DWR must consider, among other questions, "whether sustainable management criteria and projects and management actions are commensurate with the level of understanding of the basin setting, based on the level of uncertainty, as reflected in the plan" and "whether the projects and management actions are feasible and likely to prevent undesirable results and ensure that the basin is operated within its sustainable yield" (Cal. Code Regs., tit. 23, § 355.4, subds. (b)(3), (5)).	**DWR Inadequate Determination summary:** The 2022 GSPs do not demonstrate feasibility of projects, but they rely heavily on projects to demonstrate future sustainability. DWR notes in its 2022 Inadequate Determination that the GSPs rely on more than 180 projects and management actions to reach sustainability and that, without these projects and management actions, "extractions would exceed the estimated sustainable yield by 25 to 34 percent" (2022 Inadequate Determination, p. 32). **Board issues:** Demand management actions in the 2022 GSP appear voluntary and therefore unlikely to provide sufficient contingency in case GSAs fail to secure new supplies or overdraft is greater than estimated.	**Potential Action GL-3a –** Evaluate the feasibility of proposed supply augmentation projects. **Potential Action GL-3b –** Develop basin-wide allocations or utilize another demand management structure to help bring the subbasin into balance and meet basin sustainability goals. **Potential Action GL-3c –** Identify key indicator wells in each aquifer, with sufficient spatial coverage to represent beneficial uses and users in each aquifer and identify groundwater levels that will trigger specific demand management.	**Deficiency GL-3 is already corrected within the 2024 Plan or not applicable.** **GL-3a –** The 2024 Plan includes 762,000 AFY of P/MAs by 2040, 80% of which are a result of demand management. Modeling conducted to represent and quantify the benefits of these P/MAs indicates that these P/MAs will be more than enough to achieve the Subbasin's Sustainability Goal, even under climate change. **GL-3b –** Several GSAs have already implemented groundwater allocations within their boundaries to address local deficits (e.g., the Semitropic WSD and Rosedale Rio Bravo WSD GSAs). Noting that in some cases these GSAs are larger than entire groundwater basins. Some other GSAs have a balanced water budget and/or conduct almost no groundwater extraction. These examples show why a basin-wide allocation is not applicable or appropriate in a Subbasin as large and complex as Kern. **GL-3c –** The Subbasin's updated Representative Monitoring Network (RMN) presented in Section 15 of the 2024 Plan coupled with the MT Exceedance Policy (see Appendix W of the 2024 Plan) achieves this objective.

Comparison of Identified Deficiencies, SGMA Requirements, and Potential Corrective Actions				
Deficiency	**SGMA Requirements**	**Deficiency Summary**	**Potential Actions to Correct the Deficiency**	**Recommendation re Kern GSAs' Response**
Deficiency Land Subsidence 1 (LS-1) – Land Subsidence undesirable results and SMC are not coordinated. • **Deficiency LS-1a** – Undesirable results are poorly described, unworkably complex, and inconsistently implemented. • **Deficiency LS-1b** – SMC rely on inconsistent datasets and methodologies.	SGMA requires that "Agencies intending to develop and implement multiple plans pursuant to Water Code § 10727(b)(3) shall enter into a coordination agreement to ensure that the Plans are developed and implemented utilizing the same data and methodologies…", and Regulations requires that "elements of the Plans necessary to achieve the sustainability goal for the basin are based upon consistent interpretations of the basin setting" (Cal. Code Regs., tit. 23, § 357.4, subd. (a)). In defining undesirable results, GSA are required to "describe the process and criteria relied upon do define undesirable results [that would occur when significant and unreasonable effects are caused by groundwater condition in the Subbasin]" (Cal. Code Regs., tit. 23, § 354.26, subd. (a)). The undesirable result definition should include the cause of groundwater conditions occurring throughout the Subbasin that has or may lead to an undesirable result, the criteria used to define when and where the effects of groundwater conditions cause undesirable results, and the impacts on beneficial uses and users (Cal. Code Regs., tit. 23, § 354.26 subd. (b)). In establishing SMC, GSAs must "establish minimum thresholds that quantify groundwater conditions for each applicable sustainability indicator at each monitoring site or representative monitoring site established pursuant to Section 354.36. The numeric value used to define minimum thresholds shall represent a point in the basin that, if exceeded, may cause undesirable results as described in Section 354.26." (Cal. Code Regs. tit. 23 § 354.28). Discussion of the MTs should include among other things the "relationship between the minimum thresholds for each sustainability indicator, including an explanation of how the Agency has determined that basin conditions at each minimum threshold will avoid undesirable results for each of the sustainability indicators." (Cal. Code Regs. tit. 23 § 354.28). Undesirable results and SMC should be consistent with key details in the Coordination Agreement. Agencies should describe how they use the same data and methodologies for assumptions described in Water Code § 10727.6 by including monitoring objectives, coordinated basin water budget, and sustainable yield for the basin supported by a description of an undesirable result for the basin, and an explanation of how the minimum threshold and measurable objectives relate to the undesirable result (Cal. Code Regs., tit. 23, § 357.4, subd. (b)(3)). The coordination agreement shall also explain how the Plans implemented together, satisfy the requirements of the Act (Cal. Code Regs., tit. 23, § 357.4, subd. (c)). GSP Regulations allow agencies to create "one or more management areas within a basin if the Agency has determined that creation of management areas will facilitate implementation of the Plan. Management areas may define different minimum thresholds and be operated to different measurable objectives than the basin at large, provided that undesirable results are defined consistently throughout the basin" (Cal. Code Regs., tit. 23, § 350.20).	This is the corresponding subsidence level deficiency for coordination deficiency CRD-1. **DWR Inadequate Determination summary:** The DWR Inadequate Determination found that GSPs and Management Area plans did not consistently identify critical infrastructure. DWR further notes that, "[s]ome GSPs or management area plans defined Management Area Critical Infrastructure but did not develop sustainable management criteria…" (ibid, p. 38). **Board issues:** Board staff agree and further note that GSPs and Management Areas do not consistently define "significant and unreasonable," as evidenced by evidence in text and additional inconsistent definitions of the quantitative undesirable results.	**Potential Action LS-1a –** Develop consistent, clear undesirable results. **Potential Action LS-1b –** Use consistent data and methods to develop subsidence MTs.	**Deficiency LS-1 is already corrected within the 2024 Plan.** See response to CRD-1. To reiterate, the 2024 Plan submitted to the SWRCB for review completely replaced the prior UR criteria and SMCs. Per the 2024 Plan, the Kern Subbasin is using a regional, consistent, coordinated, risk-based framework for the evaluation of subsidence undesirable results and SMCs. While using best available and consistent subsidence datasets the framework also accounts for differences in sub-regional hydrogeology (Section 7), causes of subsidence (Section 8.5.2), and risk/severity of historical and future magnitude and impacts from subsidence on GSA and Regional infrastructure (Sections 8.5.1, 8.5.3 and 13.5.2.1) in the final SMC determination. See Section 13.5 of the 2024 Plan for additional details on the approach for definition of URs, MTs, MOs, and interim milestones for Land Subsidence in the Kern Subbasin. **LS-1a —** Consistent with the regulatory requirements under SGMA, Section 13.5.1 of the 2024 Plan has clearly defined actionable criteria for responding to URs from land subsidence impacts on beneficial users and regional and GSA-specific infrastructure (Section 13.5.1.1). The URs have specific quantifiable metrics (Section 13.5.1.4) based on representative land subsidence monitoring (utilizing DWR's regional InSAR dataset and other local subsidence data) that consider potential impacts to beneficial users (Section 13.5.1.2) as well as the causes of the undesirable results (Section 13.5.1.3). **LS-1b** –Consistent with the regulatory requirements under SGMA, Section 13.5.2 and 13.5.3 present a regionally coordinated and consistent approach to the development of GSA-related subsidence MTs, MOs, and interim milestones. It is important to note that the Kern Subbasin aims to stabilize water levels by 2030 and minimize subsidence by 2040

Comparison of Identified Deficiencies, SGMA Requirements, and Potential Corrective Actions				
Deficiency	**SGMA Requirements**	**Deficiency Summary**	**Potential Actions to Correct the Deficiency**	**Recommendation re Kern GSAs' Response**
				(accounting for residual subsidence after water levels stabilize), which is the statutory intent of SGMA. The subsidence SMCs have been developed to avoid significant and unreasonable impacts on infrastructure and, where needed, necessary mitigation measures to address impacts during the implementation period (Section 13.5.2.1.1, 14.2.3, and Appendix T). These SMCs were coordinated with Friant Water Authority (FWA) (see Appendix J for a Letter of Support from the FWA), the California Aqueduct Subsidence Program (CASP), as well as other key stakeholders. Moreover, Sections 13.1.2.2 and 13.5.2.2. of the 2024 Plan demonstrate the consistency between water levels and subsidence SMCs. As demonstrated in these sections, subsidence associated with groundwater level declines to Chronic Lowering of Groundwater Level MTs is not projected to exceed the established Land Subsidence MTs. The approach and metrics for water level and subsidence SMCs were also presented to the SWRCB Staff during several meetings (6/23/2023, 10/4/2023, 11/1/2023, 12/1/2023, 4/3/2024).

Comparison of Identified Deficiencies, SGMA Requirements, and Potential Corrective Actions				
Deficiency	**SGMA Requirements**	**Deficiency Summary**	**Potential Actions to Correct the Deficiency**	**Recommendation re Kern GSAs' Response**
Deficiency LS-2 – The GSPs do not provide adequate implementation details.	Each GSP is required to include a description of the projects and management actions the GSA has determined will achieve groundwater sustainability in the basin. The description must include project management actions, summary of data used to support proposed actions, and a review of the uncertainty associated with the basin setting when developing projects or management actions (Cal. Code Regs., tit. 23, § 354.44). In reviewing GSPs, DWR must consider, among other questions, "whether sustainable management criteria and projects and management actions are commensurate with the level of understanding of the basin setting, based on the level of uncertainty, as reflected in the plan" and "whether the projects and management actions are feasible and likely to prevent undesirable results and ensure that the basin is operated within its sustainable yield" (Cal. Code Regs., tit. 23, § 355.4, subd. (b)(3), (5)).	**DWR Inadequate Determination summary:** None. **Board issues:** The 2022 Coordination Agreement does not provide details about projects and management actions to slow subsidence for both regional and Management Area critical infrastructure. The 2022 Coordination Agreement states that "it is apparent that key data gaps pertaining to the various causes and rates of subsidence in the [Kern County Subbasin] still remain and that further study is needed to better define realistic management objectives for the [Subbasin]." (2022 Amended Coordination Agreement, pdf, p. 356).	**Potential Action LS-2a –** Develop and implement a plan to trigger sufficient management actions when subsidence exceeds defined thresholds, especially near critical infrastructure/facilities. **Potential Action LS-2b –** Reduce pumping and do not allow new wells in areas where subsidence threatens critical infrastructure. **Potential Action LS-2c –** Develop infrastructure mitigation programs with clear triggers, eligibility requirements, metrics, and funding sources.	Deficiency **not** identified by DWR. **Deficiency LS-2 is corrected within the 2024 Plan.** **LS-2a** - Sections 13.5.1.4, 13.5.2.1.1, 14.2.4, and Appendix W of the 2024 Plan detail the MT Exceedance Policy, which includes discussion of measures and actions taken when water level, subsidence, and other MTs are exceeded in the Kern Subbasin. **LS-2b** - The 2024 Plan includes P/MAs (including pumping reductions) to a) stabilize water levels by 2030, b) minimize GSA-related subsidence by 2040, and c) mitigate potential impacts during the implementation period. The combination of demand reduction and recharge has been demonstrated to keep water levels and subsidence above the minimum thresholds. Furthermore, GSAs have already initiated P/MAs to protect Regional Critical Infrastructure. For example, WDWA GSA has a well moratorium P/MA that results in no additional wells within the 2.5-mile CASP Aqueduct Buffer Zone) and that all new replacement wells in the CASP Buffer Zone be metered. Other GSAs with Regional Critical Infrastructure within their jurisdiction continue to assess developing similar P/MAs. **LS-2c** - Section 14.2.3 and Appendix T of the 2024 Plan includes discussion of mitigation along the FKC, which is the only infrastructure currently identified within the Kern Subbasin that may have significant and unreasonable impacts from subsidence due to GSA activities during the implementation period (2015 – 2040). Work on the FKC mitigation program is under development, with collaboration and support of Friant Water Authority (See Appendices J and T of the 2024 Plan). With respect to potential actions **LS-2a – LS-2c**, it is important to note that there are multiple causes of subsidence in the Subbasin and not all subsidence can be attributed to causes in which the GSAs have the authority to control ("GSA-related"). The Subbasin has conducted several studies and

Comparison of Identified Deficiencies, SGMA Requirements, and Potential Corrective Actions				
Deficiency	**SGMA Requirements**	**Deficiency Summary**	**Potential Actions to Correct the Deficiency**	**Recommendation re Kern GSAs' Response**
				worked cooperatively with DWR, CASP, CALGEM, and the FWA to identify and monitor subsidence causes and rates within the respective buffer zones for the California Aqueduct and Friant-Kern Canal. These drivers of subsidence and the implications of non-GSA related activities on future subsidence and subsidence SMCs were also presented to the SWRCB Staff during the 13 December 2023 technical meeting. These causes of subsidence with references to the historical studies are detailed in Section 8.5.2 of the 2024 Plan. The 2024 Plan lays out the various causes of subsidence in the Kern Subbasin and establishes protective MTs across the Subbasin while establishing P/MAs and mitigation measures to manage GSA-related activities and their potential impact on subsidence. For example, the Subbasin has utilized InSAR time series and other data to refine subsidence data and to help differentiate between GSA and Non-GSA related subsidence between Aqueduct Milepost (MP) 195 and 215, an area of identified subsidence and concentrated non-GSA extraction activity. To help ameliorate subsidence rates in this area of interest the WDWA GSA has proactively implemented a P/MA that requires no net increase in GSA wells in the buffer zone between MP 195 and 215 and that all replacement wells be metered among other measures. The subject P/MAs are described in Section 14.2 of the 2024 Plan.

Comparison of Identified Deficiencies, SGMA Requirements, and Potential Corrective Actions				
Deficiency	**SGMA Requirements**	**Deficiency Summary**	**Potential Actions to Correct the Deficiency**	**Recommendation re Kern GSAs' Response**
Deficiency Groundwater Quality 1 (GWQ-1) – Groundwater Quality undesirable results and SMC are not coordinated. • **Deficiency GWQ-1a –** Undesirable results are poorly described, unworkably complex, and inconsistently implemented. • **Deficiency GWQ-1b –** SMC rely on inconsistent datasets and methodologies.	SGMA requires that "Agencies intending to develop and implement multiple plans pursuant to Water Code § 10727(b)(3) shall enter into a coordination agreement to ensure that the Plans are developed and implemented utilizing the same data and methodologies…", and Regulations requires that "elements of the Plans necessary to achieve the sustainability goal for the basin are based upon consistent interpretations of the basin setting" (Cal. Code Regs., tit. 23, § 357.4, subd. (a)). In defining undesirable results, GSA are required to "describe the process and criteria relied upon do define undesirable results [that would occur when significant and unreasonable effects are caused by groundwater condition in the Subbasin]" (Cal. Code Regs., tit. 23, § 354.26, subd. (a)). The undesirable result definition should include the cause of groundwater conditions occurring throughout the Subbasin that has or may lead to an undesirable result, the criteria used to define when and where the effects of groundwater conditions cause undesirable results, and the impacts on beneficial uses and users (Cal. Code Regs., tit. 23, § 354.26 subd. (b)). In establishing SMC, GSAs must "establish minimum thresholds that quantify groundwater conditions for each applicable sustainability indicator at each monitoring site or representative monitoring site established pursuant to Section 354.36. The numeric value used to define minimum thresholds shall represent a point in the basin that, if exceeded, may cause undesirable results as described in Section 354.26." (Cal. Code Regs. tit. 23 § 354.28). Discussion of the MTs should include among other things the "relationship between the minimum thresholds for each sustainability indicator, including an explanation of how the Agency has determined that basin conditions at each minimum threshold will avoid undesirable results for each of the sustainability indicators." (Cal. Code Regs. tit. 23 § 354.28). Undesirable results and SMC should be consistent with key details in the Coordination Agreement. Agencies should describe how they use the same data and methodologies for assumptions described in Water Code § 10727.6 by including monitoring objectives, coordinated basin water budget, and sustainable yield for the basin supported by a description of an undesirable result for the basin, and an explanation of how the minimum threshold and measurable objectives relate to the undesirable result (Cal. Code Regs., tit. 23, § 357.4, subd. (b)(3)). The coordination agreement shall also explain how the Plans implemented together, satisfy the requirements of the Act (Cal. Code Regs., tit. 23, § 357.4, subd. (c)). GSP Regulations allow agencies to create "one or more management areas within a basin if the Agency has determined that creation of management areas will facilitate implementation of the Plan. Management areas may define different minimum thresholds and be operated to different measurable objectives than the basin at large, provided that undesirable results are defined consistently throughout the basin" (Cal. Code Regs., tit. 23, § 350.20).	This is the corresponding groundwater quality deficiency for coordination deficiency CRD-1. **DWR Inadequate Determination summary:** Not specific to groundwater quality, see CRD - 1. **Board issues:** Board staff agree and elaborate that the fragmented approach for setting SMC would result in localized disproportional impacts in the subbasin without triggering undesirable results. The fragment approach is further exacerbated by lack of coordination between GSAs using inconsistent data and methodologies for monitoring groundwater quality throughout the subbasin.	**Potential Action GWQ-1a –** Develop consistent, clear undesirable results. **Potential Action GWQ-1b –** The GSPs should use consistent data and methods to develop groundwater level MTs.	Deficiency **not** identified by DWR. **Deficiency GWQ-1 is already corrected within the 2024 Plan.** See response to CRD-1. Additionally, the 2024 Plan includes a water quality monitoring program that is coordinated with groundwater level monitoring (refer to Section 15.3 Monitoring Protocols and Appendix Z. Water Quality Sampling SOP). The monitoring network identifies wells that will be used to evaluate the relationship between sustainability indicators (i.e. water quality, subsidence, and groundwater levels) and the monitoring protocols and SOP specify a coordinated approach to data collection.

Comparison of Identified Deficiencies, SGMA Requirements, and Potential Corrective Actions				
Deficiency	**SGMA Requirements**	**Deficiency Summary**	**Potential Actions to Correct the Deficiency**	**Recommendation re Kern GSAs' Response**
Deficiency GWQ-2 – Groundwater quality monitoring networks are not consistent with SGMA requirements. • **Deficiency GWQ-2a –** The Monitoring Networks are not protective of all beneficial uses and users in the subbasin. • **Deficiency GWQ-2b –** Data collection sampling frequencies are sometimes inadequate. • **Deficiency GWQ-2c –** It is unclear how monitoring networks are monitoring for recharge projects.	The GSP Regulations require GSPs to include a description of the monitoring network objectives for the basin including how the GSA will "monitor impacts to the beneficial uses or users of groundwater" (Cal. Code Regs., tit. 23, § 354.34, subd. (b)(2)). The monitoring network must be "capable of collecting sufficient data to demonstrate short-term, seasonal, and long-term trends in groundwater and related surface conditions, and yield representative information about groundwater conditions as necessary to evaluate [GSP] implementation" (Cal. Code Regs., tit. 23, § 354.34, subd. (a)). Data collected must be of "sufficient quality, frequency, and distribution" to characterize and evaluate groundwater conditions (Cal. Code Regs., tit. 23, § 354.32). GSAs "may designate a subset of monitoring sites as representative of conditions in the basin or an area of the basin...", known as RMSs (Cal. Code Regs., tit. 23, § 354.36). GSAs identify MTs, MOs, and Interim Milestones at these sites. "The designation of [an RMS] shall be supported by adequate evidence demonstrating that the site reflects general conditions in the area" (Cal. Code Regs., tit. 23, § 354.36, subds. (a) & (c)).	**DWR Inadequate Determination summary:** None. **Board issues:** Board staff find that the GSPs monitoring networks are not protective of beneficial uses and users and do not promote the sufficient quality and collection of data, frequency, and distribution to characterize groundwater quality conditions and evaluate changing conditions that occur throughout the implementation of the GSP.	**Potential Action GWQ-2a –** GSAs should add additional wells to monitoring well networks. **Potential Action GWQ-2b –** Revise GSPs and monitoring well networks and exercise coordination with existing regulatory programs to meet the goals of SGMA. **Potential Action GWQ-2c –** GSAs should define RMS that will be used to ensure PMAs do not impact groundwater quality in the Subbasin.	Deficiency **not** identified by DWR. **Deficiency GWQ-2 is already corrected within the 2024 Plan.** **GWQ-2a -** The Subbasin GSAs added water quality RMWs across the Subbasin with consideration (density and distribution) of beneficial users and with sufficient data collection frequency (i.e., seasonal high and seasonal low). **GWQ-2b -** The water quality monitoring network was strategically developed to include representative wells from existing water quality regulatory programs such as the Irrigated Lands Regulatory Program (ILRP) and public supply wells regulated by Division of Drinking Water (DDW). The IRLP wells have been vetted by the Central Valley Regional Board as representing first encountered groundwater quality. Additionally, the monitoring and reporting protocols state that public data from ILRP and DDW programs will be used, in addition to data collected by the GSAs, to evaluate groundwater conditions annually. The Subbasin's annual report to DWR will include a comprehensive summary of all data. **GWQ-2c -** The 2024 Plan also identifies water quality RMWs to represent the relationships between sustainability indicators (i.e. subsidence) and near key recharge facilities (i.e., P/MAs).

Comparison of Identified Deficiencies, SGMA Requirements, and Potential Corrective Actions				
Deficiency	**SGMA Requirements**	**Deficiency Summary**	**Potential Actions to Correct the Deficiency**	**Recommendation re Kern GSAs' Response**
Deficiency GWQ-3 – Management actions are not responsive to water quality degradation. • **Deficiency GWQ-3a –** Additional sampling is not triggered when Minimum Thresholds are exceeded. • **Deficiency GWQ-3b –** Well mitigation plans don't address water quality degradation.	Each GSP is required to include a description of the projects and management actions the GSA has determined will achieve groundwater sustainability in the basin. The GSAs must include projects and management actions "that may be utilized to meet interim milestones, the exceedance of minimum thresholds, or where undesirable results have occurred or are imminent" (Cal. Code Regs., tit. 23, § 354.44, subd. (b)(1)). The description must include project and management actions, a summary of data used to support proposed actions, and a review of the uncertainty associated with the basin setting when developing projects or management actions (Cal. Code Regs., tit. 23, § 354.44). In reviewing GSPs, DWR must consider, among other questions, "whether sustainable management criteria and projects and management actions are commensurate with the level of understanding of the basin setting, based on the level of uncertainty, as reflected in the plan" (Cal. Code Regs., tit. 23, § 355.4, subd. (b)(3)).	**DWR Inadequate Determination summary:** None. **Board issues:** To ensure the human right to water, GSAs should develop mitigation plans for sustainability indicators impacted by basin management. Board staff note that elevated concentrations of arsenic, nitrate, uranium, gross alpha, 1,2,3,-Trichloropropane, and other constituents detected above regulatory thresholds in the Subbasin can severely impact human health (See Table 3-2). Given the potential for these exceedances to occur, GSAs do not propose PMA to mitigate for groundwater quality exceedances as a result of groundwater management activities in the Subbasin.	**Potential Action GWQ-3a –** Plan additional sampling when water quality is degraded. **Potential Action GWQ 3b** is addressed by Groundwater Level Potential Action GL-2.	Deficiency **not** identified by DWR. **Deficiency GWC-3 is already corrected within the 2024 Plan.** The 2024 Plan includes water quality SMCs and semi-annual monitoring for total dissolved solids, arsenic, nitrate and nitrite, uranium, and 1,2,3-TCP. Confirmation sampling is required if an MT exceedance occurs (refer to Section 13.3.1 and Appendix Z. Water Quality Sampling SOP).

Comparison of Identified Deficiencies, SGMA Requirements, and Potential Corrective Actions				
Deficiency	**SGMA Requirements**	**Deficiency Summary**	**Potential Actions to Correct the Deficiency**	**Recommendation re Kern GSAs' Response**
Deficiency Interconnected Surface Water 1 (ISW-1) – Interconnected Surface Water undesirable results and SMC are not coordinated. • **Deficiency ISW-1a –** Undesirable results are poorly described, unworkably complex, and inconsistently implemented	SGMA requires that "Agencies intending to develop and implement multiple plans pursuant to Water Code § 10727(b)(3) shall enter into a coordination agreement to ensure that the Plans are developed and implemented utilizing the same data and methodologies…", and Regulations requires that "elements of the Plans necessary to achieve the sustainability goal for the basin are based upon consistent interpretations of the basin setting" (Cal. Code Regs., tit. 23, § 357.4, subd. (a)). In identifying ISWs, GSP Regulations state that ISWs refer to "surface water that is hydraulically connected at any point by a continuous saturated zone to the underlying aquifer and the overlying surface water is not completely depleted," (Cal. Code Regs., tit. 23, § 351, (o)). The GSP Regulations require GSAs to provide "Identification of interconnected surface water systems within the basin and an estimate of the quantity and timing of depletions of those systems, utilizing data available from the Department, as specified in Section 353.2, or the best available information," (Cal. Code Regs., tit. 23, § 354.16, (f)). Where ISWs are identified, GSPs define ISW undesirable results unless they demonstrate that ISWs undesirable results are "not present and are not likely to occur…" (Cal. Code Regs., tit. 23, §354.26, (d)). In defining undesirable results, GSA are required to "describe the process and criteria relied upon do define undesirable results [that would occur when significant and unreasonable effects are caused by groundwater condition in the Subbasin]" (Cal. Code Regs., tit. 23, § 354.26, subd. (a)). The undesirable result definition should include the cause of groundwater conditions occurring throughout the Subbasin that has or may lead to an undesirable result, the criteria used to define when and where the effects of groundwater conditions cause undesirable results, and the impacts on beneficial uses and users (Cal. Code Regs., tit. 23, § 354.26 subd. (b)). In establishing SMC, GSAs must "establish minimum thresholds that quantify groundwater conditions for each applicable sustainability indicator at each monitoring site or representative monitoring site established pursuant to Section 354.36. The numeric value used to define minimum thresholds shall represent a point in the basin that, if exceeded, may cause undesirable results as described in Section 354.26." (Cal. Code Regs. tit. 23 § 354.28). Discussion of the MTs should include among other things the "relationship between the minimum thresholds for each sustainability indicator, including an explanation of how the Agency has determined that basin conditions at each minimum threshold will avoid undesirable results for each of the sustainability indicators." (Cal. Code Regs. tit. 23 § 354.28). Undesirable results and SMC should be consistent with key details in the Coordination Agreement. Agencies should describe how they use the same data and methodologies for assumptions described in Water Code § 10727.6	**DWR Inadequate Determination summary:** None. **Board issues:** This is the corresponding Interconnected Surface Water level deficiency for CRD-1. Deficiency CRD-1 concerns undesirable results and SMC that are poorly coordinated across the subbasin. And, Despite the fact that GSAs and Management areas claim there is no ISW and therefore no potential undesirable results, the methods used to determine that there are no potential undesirable results are inconsistent. And in some cases, the GSPs do not provide adequate technical justification to demonstrate ISW is not present in the subbasin.	**Potential Action ISW-1a –** Revise GSPs to use best available consistent Data and Methodologies to evaluate for ISW.	Deficiency ISW-1 **not** identified by DWR. **Deficiency ISW-1 is already corrected within the 2024 Plan.** The presence or absence of interconnected surface waters (ISW) was systematically evaluated based on the best available data in accordance with the GSP regulations (§ 354.16 (f)) and available DWR Guidance (part 1 of 3). The GSAs relied on ISW mapping provided by DWR in support of SGMA including the Natural Communities Commonly Associated with Groundwater (NCCAG) dataset and ICONS: Interconnected Surface Water in the Central Valley. The identified ISWs in these datasets were reviewed for their active connection to the principal aquifers. As documented in the 2024 Plan, the principal aquifers have limited connection with identified ISWs and do not contribute to Groundwater Dependent Ecosystems (GDEs). Undesirable results from ISWs are identified as "not present and are not likely to occur…" (Cal. Code Regs., tit. 23, §354.26, (d)). However, the continued monitoring of ISWs was included in management actions for several GSAs including Semitropic WSD and Olcese Water District. DWR is still developing a multi-paper series on ISW and depletions of ISW to provide GSAs with tools to better incorporate quantitative approaches in GSPs. The Kern Subbasin GSAs plans to review and incorporate this guidance when available for inclusion in future periodic evaluations.

Comparison of Identified Deficiencies, SGMA Requirements, and Potential Corrective Actions				
Deficiency	**SGMA Requirements**	**Deficiency Summary**	**Potential Actions to Correct the Deficiency**	**Recommendation re Kern GSAs' Response**
	by including monitoring objectives, coordinated basin water budget, and sustainable yield for the basin supported by a description of an undesirable result for the basin, and an explanation of how the minimum threshold and measurable objectives relate to the undesirable result (Cal. Code Regs., tit. 23, § 357.4, subd. (b)(3)). The coordination agreement shall also explain how the Plans implemented together, satisfy the requirements of the Act (Cal. Code Regs., tit. 23, § 357.4, subd. (c)). GSP Regulations allow agencies to create "one or more management areas within a basin if the Agency has determined that creation of management areas will facilitate implementation of the Plan. Management areas may define different minimum thresholds and be operated to different measurable objectives than the basin at large, provided that undesirable results are defined consistently throughout the basin" (Cal. Code Regs., tit. 23, § 350.20).			

Appendix C

Hydrographs of Groundwater Elevations, GSP Monitoring Network Wells, Kern County Subbasin, WY2025 Annual Report

Index Table for Linking Representative Monitoring Wells to Graph location in Appendix

Primary Alluvial Principal Aquifer Hydrographs

Santa Margarita and Olcese Principal Aquifers Hydrographs

Index Table for Linking Representative Monitoring Wells to Graph location in Appendix

Table A-1 – Identification information for GSP Representative Monitoring Well hydrographs for DWR Basin 5-022-14 (Kern County Subbasin). Wells shown in numerical order for RMW ID to correspond to well locations shown by RMW ID on Figure 5.

RMW ID	Well Name	Graph ID	Reporting Agency	DWR Master Site Code	WY2025 MT Exceedance
Primary Alluvial Principal Aquifer Groundwater Elevation Hydrographs					
RMW-001	29S29E33N001M	Sheet-35B	Arvin GSA	353577N1188771W001	
RMW-002	30S29E11N001M	Sheet-35C	Arvin GSA	353269N1188418W001	
RMW-003	30S30E19E001M	Sheet-35D	Arvin GSA	353072N1188037W001	
RMW-004	30S29E29A001M	Sheet-36A	Arvin GSA	352958N1188807W001	
RMW-005	31S29E05E001M	Sheet-36B	Arvin GSA	352605N1188932W001	
RMW-006	31S29E12M001M	Sheet-36C	Arvin GSA	352452N1188243W001	
RMW-007	31S30E17K001M	Sheet-36D	Arvin GSA	352311N1187790W001	
RMW-008	31S29E34A001M	Sheet-37A	Arvin GSA	351944N1188423W001	
RMW-009	31S30E30J001M	Sheet-37B	Arvin GSA	352017N1187987W001	
RMW-010	ACSD Well #14	Sheet-37C	Arvin GSA	351942N1188484W001	
RMW-011	32S29E12P001M	Sheet-37D	Arvin GSA	351522N1188199W001	
RMW-012R	32S29E20L001M	Sheet-38A	Arvin GSA	351290N1189325W001	
RMW-013R	32S28E23F001M	Sheet-38B	Arvin GSA	351292N1189236W001	
RMW-014	32S29E31N001M	Sheet-38C	Arvin GSA	350931N1189123W001	
RMW-015	12N20W36G001S	Sheet-38D	Arvin GSA	350833N1189632W001	
RMW-016	11N20W05J001S	Sheet-39A	Arvin GSA	350669N1190295W001	
RMW-017	RMW-017	Sheet-14A	Kern River GSA	354206N1191817W001	
RMW-018	RMW-018	Sheet-14B	Kern River GSA	354344N1191337W001	
RMW-019R	RMW-019R	Sheet-17A	Kern River GSA	354199N1190930W001	
RMW-020	RMW-020	Sheet-9A	Kern River GSA	354048N1190102W001	
RMW-025	RMW-025	Sheet-9B	Kern River GSA	353539N1191118W001	
RMW-026	RMW-026	Sheet-10C	Kern River GSA	353512N1189673W001	
RMW-029	RMW-029	Sheet-8C	Kern River GSA	353247N1191870W001	
RMW-030	RMW-030	Sheet-10D	Kern River GSA	353328N1189409W001	
RMW-031	RMW-031	Sheet-8D	Kern River GSA	352964N1191741W003	
RMW-032	RMW-032	Sheet-11A	Kern River GSA	352953N1191285W001	
RMW-034	RMW-034	Sheet-11B	Kern River GSA	352747N1189435W001	
RMW-035R	RMW-035R	Sheet-11C	Kern River GSA	352450N1191640W001	
RMW-037	RMW-037	Sheet-11D	Kern River GSA	352269N1191923W001	
RMW-038R	RMW-038R	Sheet-12A	Kern River GSA	352230N1191278W001	
RMW-040	RMW-040	Sheet-12B	Kern River GSA	352083N1190362W001	

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RMW ID	Well Name	Graph ID	Reporting Agency	DWR Master Site Code	WY2025 MT Exceedance
RMW-041	RMW-041	Sheet-12C	Kern River GSA	352027N1188996W001	
RMW-042	RMW-042	Sheet-12D	Kern River GSA	351922N1192052W001	
RMW-045	30S/26E-04D003M	Sheet-1A	Pioneer GSA	353543N1191966W001	
RMW-048	30S/26E-10P004M	Sheet-1B	Pioneer GSA	353250N1191739W001	
RMW-049	30S/26E-15N003M	Sheet-1C	Pioneer GSA	353123N1191805W001	
RMW-050	Bushnell	Sheet-2C	Rosedale-Rio Bravo GSA	354350N1193586W001	
RMW-052	L.R. Stout	Sheet-2D	Rosedale-Rio Bravo GSA	354309N1192859W001	
RMW-053	RBG School	Sheet-3A	Rosedale-Rio Bravo GSA	354197N1192544W001	
RMW-054	P. Enns Domestic	Sheet-3B	Rosedale-Rio Bravo GSA	354121N1192623W001	
RMW-055	Section 18	Sheet-3C	Rosedale-Rio Bravo GSA	354090N1193318W001	
RMW-056	Blacco HQ	Sheet-3D	Rosedale-Rio Bravo GSA	353915N1193454W001	
RMW-057	Cauzza	Sheet-4A	Rosedale-Rio Bravo GSA	353986N1193948W001	
RMW-058R	Parsons New	Sheet-4B	Rosedale-Rio Bravo GSA	353660N1193859W001	
RMW-059	West I-5	Sheet-4C	Rosedale-Rio Bravo GSA	353564N1193412W001	
RMW-060	Virgil Bussell	Sheet-4D	Rosedale-Rio Bravo GSA	353619N1193099W001	
RMW-061a	27N Mayer	Sheet-5A	Rosedale-Rio Bravo GSA	353699N1192856W002	
RMW-062a	25M Enos	Sheet-5B	Rosedale-Rio Bravo GSA	353760N1192498W002	
RMW-063	Chet Reed	Sheet-5C	Rosedale-Rio Bravo GSA	353890N1191471W001	
RMW-064	Home Place	Sheet-5D	Rosedale-Rio Bravo GSA	353824N1192035W001	
RMW-065a	31H Greeley	Sheet-6A	Rosedale-Rio Bravo GSA	353618N1192169W001	
RMW-066	Harvest Ranch	Sheet-6B	Rosedale-Rio Bravo GSA	353634N1191766W001	
RMW-067a	35H RRBWSD Shop	Sheet-6C	Rosedale-Rio Bravo GSA	353620N1191457W002	
RMW-068a	32N Triple	Sheet-6D	Rosedale-Rio Bravo GSA	352673N1192138W002	
RMW-069b	28J Triple	Sheet-7A	Rosedale-Rio Bravo GSA	352889N1191814W001	
RMW-070	Caratan Well (RMS-1)	Sheet-44A	Tejon-Castac GSA	352002N1187698W001	
RMW-085b	WKWD 23M-M	Sheet-7B	West Kern WD GSA	353037N1192699W002	
RMW-094	32S26E20G001M	Sheet-39B	Wheeler Ridge-Maricopa GSA	351303N1192078W001	
RMW-095	32S27E30N001M	Sheet-39C	Wheeler Ridge-Maricopa GSA	351092N1191270W001	
RMW-097	32S27E35R001M	Sheet-39D	Wheeler Ridge-Maricopa GSA	350961N1190435W001	
RMW-105	DMW01	Sheet-32D	Buena Vista GSA	356014N1196176W001	
RMW-106	DMW02	Sheet-33A	Buena Vista GSA	355716N1195808W001	
RMW-107	DMW04	Sheet-33B	Buena Vista GSA	355137N1195985W001	

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RMW ID	Well Name	Graph ID	Reporting Agency	DWR Master Site Code	WY2025 MT Exceedance
RMW-108	DMW05	Sheet-33C	Buena Vista GSA	354854N1195648W001	
RMW-109	DMW06	Sheet-33D	Buena Vista GSA	354527N1195347W001	
RMW-110	DMW07	Sheet-34A	Buena Vista GSA	354021N1195011W001	
RMW-111	DMW08	Sheet-34B	Buena Vista GSA	353905N1194480W001	
RMW-112a	DMW10a	Sheet-34C	Buena Vista GSA	353536N1194341W001	
RMW-113b	DMW12b	Sheet-34D	Buena Vista GSA	353187N1193747W001	
RMW-114	HMWD #20	Sheet-42D	Henry Miller GSA	352294N1192865W001	
RMW-115	HMWD #28	Sheet-43A	Henry Miller GSA	352086N1192783W001	
RMW-116	HMWD #27	Sheet-43B	Henry Miller GSA	352088N1192520W001	
RMW-117	HMWD #26	Sheet-43C	Henry Miller GSA	351976N1192358W001	
RMW-118	HMWD #18	Sheet-43D	Henry Miller GSA	351811N1192358W001	
RMW-119	S-2	Sheet-28A	Semitropic GSA	355687N1195623W001	
RMW-121	S-4	Sheet-28B	Semitropic GSA	355205N1195821W001	
RMW-122	S-5	Sheet-28C	Semitropic GSA	355506N1195271W001	
RMW-123	S-6	Sheet-30A	Semitropic GSA	357036N1193392W001	
RMW-126	S-8A Cluster 1 of 2	Sheet-29A	Semitropic GSA	356305N1194021W001	
RMW-128	S-9A Cluster 1 of 2	Sheet-29B	Semitropic GSA	355219N1193943W001	
RMW-130	S-11	Sheet-29C	Semitropic GSA	356956N1195623W001	
RMW-131	S-12	Sheet-29D	Semitropic GSA	357228N1195538W001	
RMW-132	S-13A Cluster 1 of 2	Sheet-30B	Semitropic GSA	357609N1194366W001	
RMW-135	S-14B Cluster 2 of 2	Sheet-30C	Semitropic GSA	356668N1193841W002	
RMW-137	26S-23E-15A1	Sheet-30D	Semitropic GSA	356736N1194735W001	
RMW-139	948L02 Cluster1 of 2	Sheet-28D	Semitropic GSA	354189N1194216W001	
RMW-145R	88-03-009R	Sheet-23B	North Kern GSA	354970N1191706W001	
RMW-146	88-09-009	Sheet-23C	North Kern GSA	355364N1192330W001	
RMW-147	88-21-005	Sheet-23D	North Kern GSA	355878N1192269W001	
RMW-148	88-29-014	Sheet-24A	North Kern GSA	356232N1192245W001	
RMW-149	99-00-003	Sheet-25A	North Kern GSA	354424N1191332W001	
RMW-150	99-00-081	Sheet-24B	North Kern GSA	355764N1192818W001	
RMW-151	99-22-084	Sheet-24C	North Kern GSA	356380N1193124W001	
RMW-157	SSJMUD 8	Sheet-22B	Southern San Joaquin GSA	357470N1193360W001	
RMW-158	SSJMUD 14	Sheet-22A	Southern San Joaquin GSA	357395N1192052W001	

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RMW ID	Well Name	Graph ID	Reporting Agency	DWR Master Site Code	WY2025 MT Exceedance
RMW-159	SSJMUD 23	Sheet-22C	Southern San Joaquin GSA	357185N1193042W001	
RMW-160	SSJMUD 53	Sheet-20D	Southern San Joaquin GSA	356307N1191912W001	
RMW-161R	SSJMUD 67	Sheet-20C	Southern San Joaquin GSA	356746N1191542W001	
RMW-162	SSJMUD 62	Sheet-23A	Southern San Joaquin GSA	357184N1191449W001	
RMW-163	SSJMUD 42	Sheet-21C	Southern San Joaquin GSA	356930N1192320W001	
RMW-167	Well 12H	Sheet-18B	Cawelo GSA	355954N1191160W001	
RMW-168	Well 4R	Sheet-18A	Cawelo GSA	356023N1191690W001	
RMW-169	Well 28L	Sheet-17D	Cawelo GSA	356023N1191691W001	
RMW-170	Well 24R	Sheet-18C	Cawelo GSA	356469N1191175W001	
RMW-171	Well 11M	Sheet-18D	Cawelo GSA	355044N1191502W001	
RMW-172	Well 6C	Sheet-19A	Cawelo GSA	355274N1191100W001	**YES**
RMW-173	Well 33C	Sheet-19B	Cawelo GSA	355439N1191781W001	
RMW-189	EWMA #41	Sheet-19C	KNDLA GSA	355706N1190911W001	
RMW-192	RMW-192	Sheet-13A	Kern River GSA	352220N1190000W001	
RMW-193	RMW-193	Sheet-13B	Kern River GSA	352080N1188710W001	
RMW-195	RMW-195	Sheet-13C	Kern River GSA	352510N1191160W001	
RMW-196	RMW-196	Sheet-13D	Kern River GSA	352410N1190280W001	
RMW-197	RMW-197	Sheet-16A	Kern River GSA	351656N1189234W001	
RMW-200	RMW-200	Sheet-16B	Kern River GSA	351541N1191289W001	
RMW-201	RMW-201	Sheet-9C	Kern River GSA	353941N1191043W001	
RMW-202	RMW-202	Sheet-14C	Kern River GSA	352662N1190015W001	
RMW-203	7106-63	Sheet-31D	WDWA GSA	355505N1196368W001	
RMW-204	Shafter Well 15	Sheet-25D	Shafter-Wasco GSA	354705N1192792W001	
RMW-205	Shafter Well 7	Sheet-26A	Shafter-Wasco GSA	355080N1192777W001	
RMW-208R	SSJMUD 47	Sheet-22D	Southern San Joaquin GSA	356675N1192087W001	
RMW-209R	RMW-209R	Sheet-17B	Kern River GSA	351200N1190830W001	
RMW-210R	RMW-210R	Sheet-9D	Kern River GSA	353825N1190073W001	
RMW-211R	RMW-211R	Sheet-10A	Kern River GSA	353671N1190197W001	
RMW-212	RMW-212	Sheet-14D	Kern River GSA	353618N1189334W001	
RMW-213R	RMW-213R	Sheet-10B	Kern River GSA	353617N1190534W001	
RMW-214R	RMW-214R	Sheet-15A	Kern River GSA	353198N1190224W001	
RMW-215R	RMW-215R	Sheet-15B	Kern River GSA	353391N1189921W001	

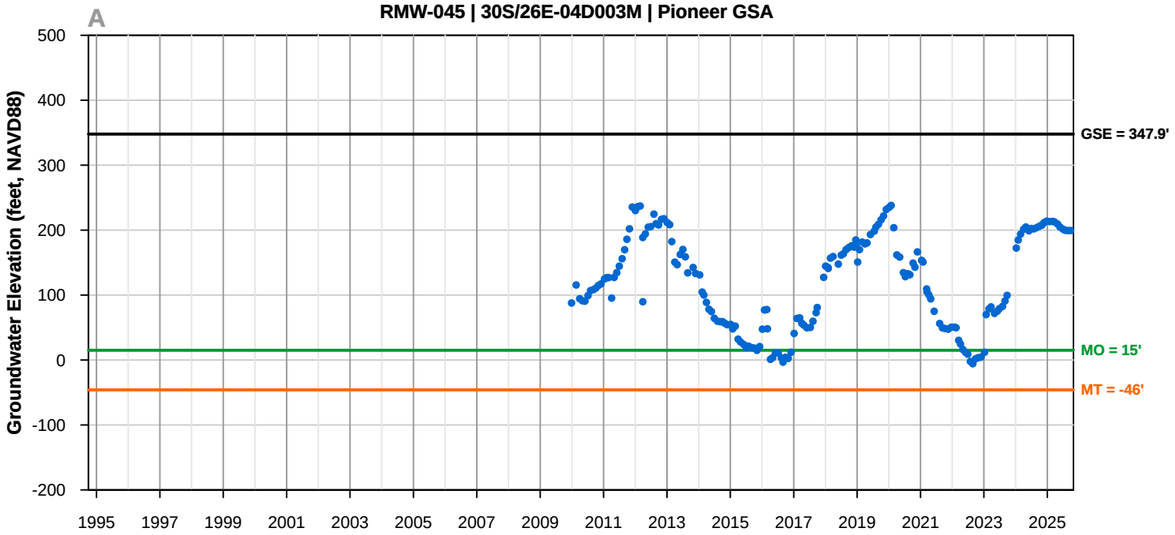
Table A-1 – Identification information for GSP Representative Monitoring Well hydrographs for DWR Basin 5-022-14 (Kern County Subbasin). Wells shown in numerical order for RMW ID to correspond to well locations shown by RMW ID on Figure 5.

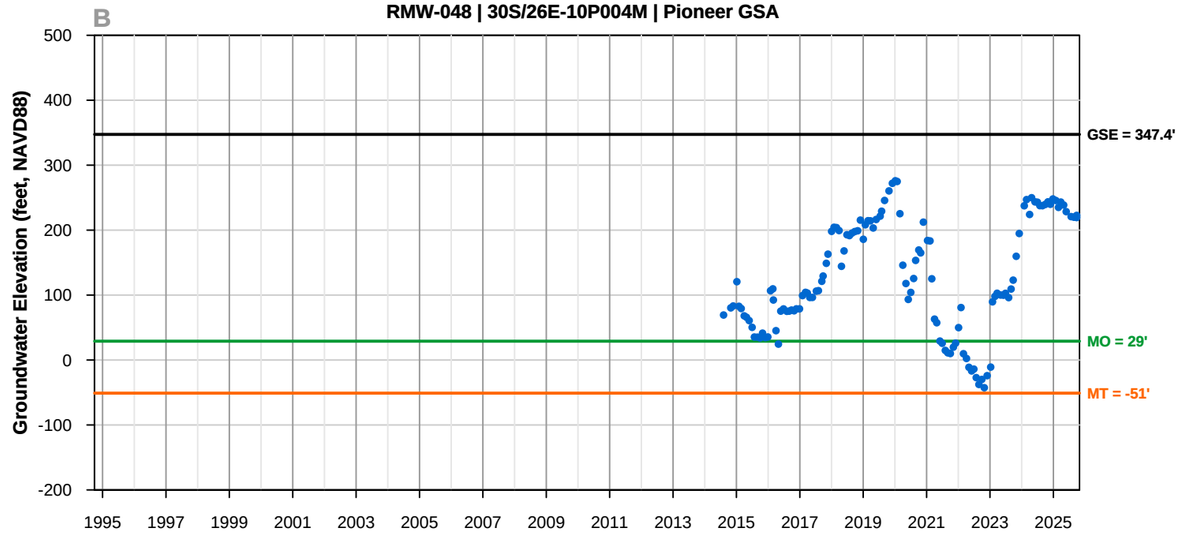
RMW ID	Well Name	Graph ID	Reporting Agency	DWR Master Site Code	WY2025 MT Exceedance
RMW-216	RMW-216	Sheet-15C	Kern River GSA	352924N1189911W001	
RMW-217	RMW-217	Sheet-15D	Kern River GSA	352800N1189080W001	
RMW-218	RMW-218	Sheet-16C	Kern River GSA	351867N1190820W001	**YES**
RMW-219	RMW-219	Sheet-16D	Kern River GSA	352389N1189485W001	
RMW-231	32S26E24K001M	Sheet-40A	Wheeler Ridge-Maricopa GSA	351304N1191366W001	
RMW-232	11N22W01D001S	Sheet-40B	Wheeler Ridge-Maricopa GSA	350750N1191892W001	**YES**
RMW-233	11N22W06H001S	Sheet-40C	Wheeler Ridge-Maricopa GSA	350686N1192609W001	
RMW-234	11N21W16E001S	Sheet-40D	Wheeler Ridge-Maricopa GSA	350428N1191355W001	
RMW-235R	12N21W34N001S	Sheet-41A	Wheeler Ridge-Maricopa GSA	350772N1191178W001	
RMW-236	11N21W09C001S	Sheet-41B	Wheeler Ridge-Maricopa GSA	350592N1191328W001	
RMW-237	32S26E34P001M	Sheet-41C	Wheeler Ridge-Maricopa GSA	350943N1191736W001	
RMW-238	32S26E36P002M	Sheet-41D	Wheeler Ridge-Maricopa GSA	350947N1191370W001	
RMW-239	32S25E29Q001M	Sheet-42A	Wheeler Ridge-Maricopa GSA	351083N1193140W001	
RMW-240	32S28E16P001M	Sheet-42B	Wheeler Ridge-Maricopa GSA	351397N1189767W001	
RMW-249	28S/24E-35C	Sheet-26B	Shafter-Wasco GSA	354561N1193595W001	
RMW-252	Delano 30	Sheet-21A	Southern San Joaquin GSA	357898N1192302W001	
RMW-254	Shafter Well 12	Sheet-26C	Shafter-Wasco GSA	355020N1192748W001	
RMW-256	Wasco 12	Sheet-26D	Shafter-Wasco GSA	356157N1193397W001	
RMW-257	Shafter Well 14	Sheet-27A	Shafter-Wasco GSA	354943N1192593W001	
RMW-258	12N21W35Q001S	Sheet-42C	Wheeler Ridge-Maricopa GSA	350769N1190871W001	
RMW-259	30S/26E-04J003M	Sheet-1D	Pioneer GSA	353434N1191816W002	
RMW-263	Wasco 8A	Sheet-27B	Shafter-Wasco GSA	355874N1193523W001	
RMW-266	NWM1-M	Sheet-7C	West Kern WD GSA	353464N1193684W006	
RMW-269	28S25E19G	Sheet-27C	Shafter-Wasco GSA	354779N1193145W001	
RMW-271	Shafter Well 18	Sheet-24D	North Kern GSA	355010N1192067W001	
RMW-275	7108-66	Sheet-32A	WDWA GSA	357762N1196902W001	
RMW-276	Wasco 11	Sheet-27D	Shafter-Wasco GSA	355891N1193417W001	
RMW-277	S-1	Sheet-31A	Semitropic GSA	355944N1195814W001	
RMW-279	S#14	Sheet-32B	WDWA GSA	356675N1196724W001	
RMW-281	Delano 34	Sheet-21D	Southern San Joaquin GSA	357436N1192587W001	
RMW-284	3361-62	Sheet-25B	North Kern GSA	354714N1192174W001	
RMW-285	DW097	Sheet-25C	North Kern GSA	354172N1192190W001	

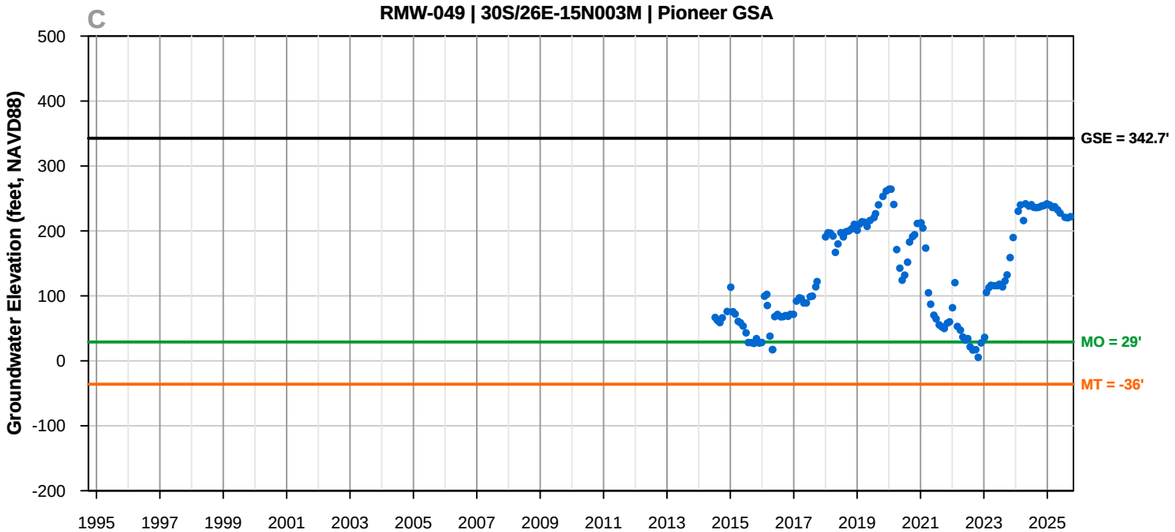
Table A-1 – Identification information for GSP Representative Monitoring Well hydrographs for DWR Basin 5-022-14 (Kern County Subbasin). Wells shown in numerical order for RMW ID to correspond to well locations shown by RMW ID on Figure 5.

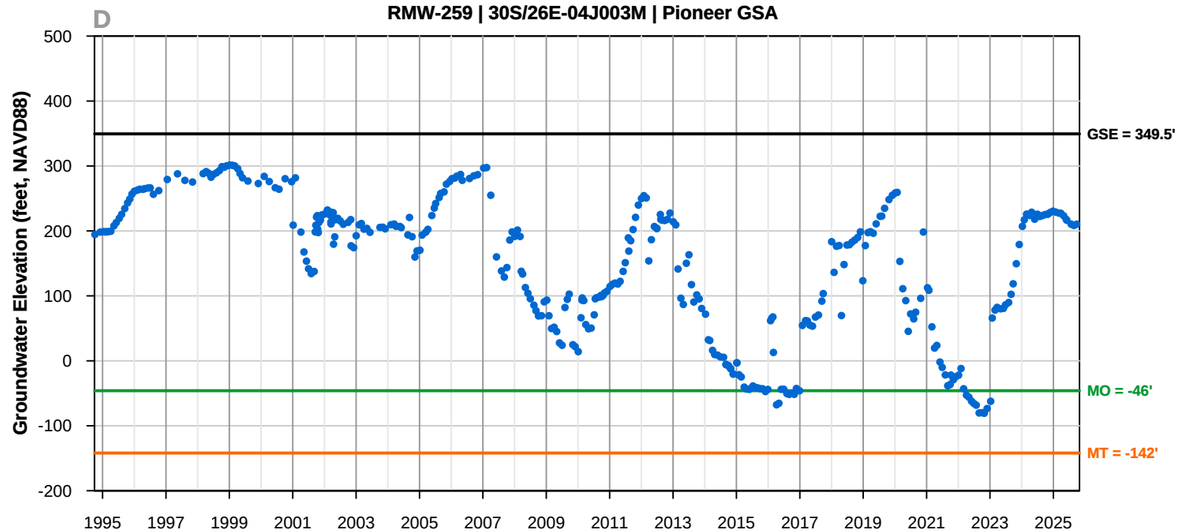
RMW ID	Well Name	Graph ID	Reporting Agency	DWR Master Site Code	WY2025 MT Exceedance
RMW-286	28/23/16/G	Sheet-31B	Semitropic GSA	354950N1195013W001	
RMW-287	28/23/36/R	Sheet-31C	Semitropic GSA	354426N1194398W001	
RMW-289	30S/26E-04J002M	Sheet-2A	Pioneer GSA	353434N1191816W001	
RMW-290	Well 12A	Sheet-19D	Kern-Tulare GSA	354635N1190659W001	
RMW-291	Well 15D1	Sheet-20A	Kern-Tulare GSA	357617N1190628W002	
RMW-292	Well 4D1	Sheet-20B	Kern-Tulare GSA	357873N1190801W001	
RMW-293	7-01	Sheet-7D	West Kern WD GSA	352973N1192972W001	
RMW-294	WKWD North Ag	Sheet-8A	West Kern WD GSA	353475N1193600W001	
RMW-295	WKWD South Ag	Sheet-8B	West Kern WD GSA	353336N1193607W001	
RMW-299	Berenda Mesa #3	Sheet-32C	WDWA GSA	356364N1199486W001	
RMW-300	30S/25E-16L01	Sheet-2B	Kern Water Bank GSA	353180N1192968W001	
RMW-306	Meadows of the Kern W3	Sheet-17C	KNDLA GSA	354416N1189378W001	
RMW-322	The Nature Conservancy	Sheet-35A	KNDLA GSA	352911N1186220W001	
RMW-323	SSJMUD 68	Sheet-21B	Southern San Joaquin GSA	357691N1192810W001	
Santa Margarita and Olcese Principal Aquifers Groundwater Elevation Hydrographs					
RMW-043	Well #4	Sheet-48A	Olcese GSA	354310N1188411W002	
RMW-044	Canyon View Ranch	Sheet-48B	Olcese GSA	354386N1188035W002	
RMW-175	Well 4P1	Sheet-47A	Kern-Tulare GSA	357781N1190720W001	
RMW-176	Well 20C1	Sheet-47B	Kern-Tulare GSA	357464N1190898W001	
RMW-177	Well 15P1	Sheet-47C	Kern-Tulare GSA	357503N1190578W001	
RMW-179	Well 32M1	Sheet-47D	Kern-Tulare GSA	357944N1190845W001	
RMW-185	EWMA #21	Sheet-45A	KNDLA GSA	355935N1190787W001	
RMW-187	EWMA #30	Sheet-45B	KNDLA GSA	356421N1190690W001	
RMW-278	EWMA #23	Sheet-45C	KNDLA GSA	356220N1190790W001	
RMW-283	EWMA #04	Sheet-45D	KNDLA GSA	357840N1190456W001	
RMW-288	EWMA #49	Sheet-46A	KNDLA GSA	357364N1189549W001	
RMW-296	EWMA #11	Sheet-46B	KNDLA GSA	357082N1190370W001	
RMW-297	Cameo Old Well #13	Sheet-46C	KNDLA GSA	357404N1190318W001	
RMW-298	Poso Well #1	Sheet-46D	KNDLA GSA	355480N1190764W001	

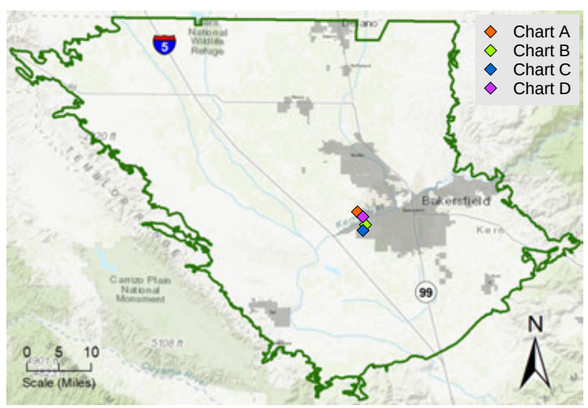
Primary Alluvial Principal Aquifer Hydrographs











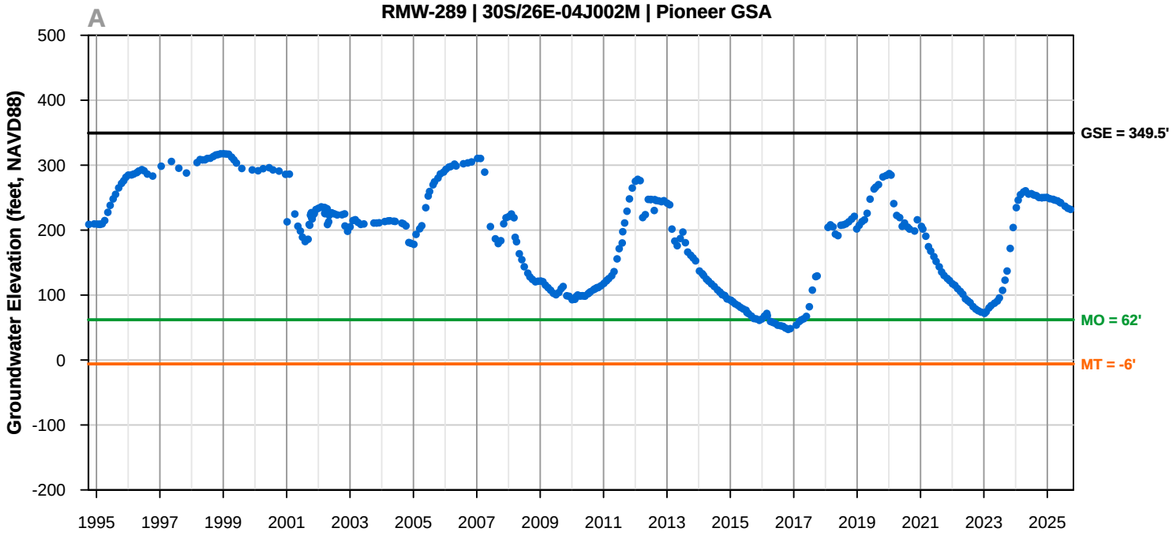
Well Information

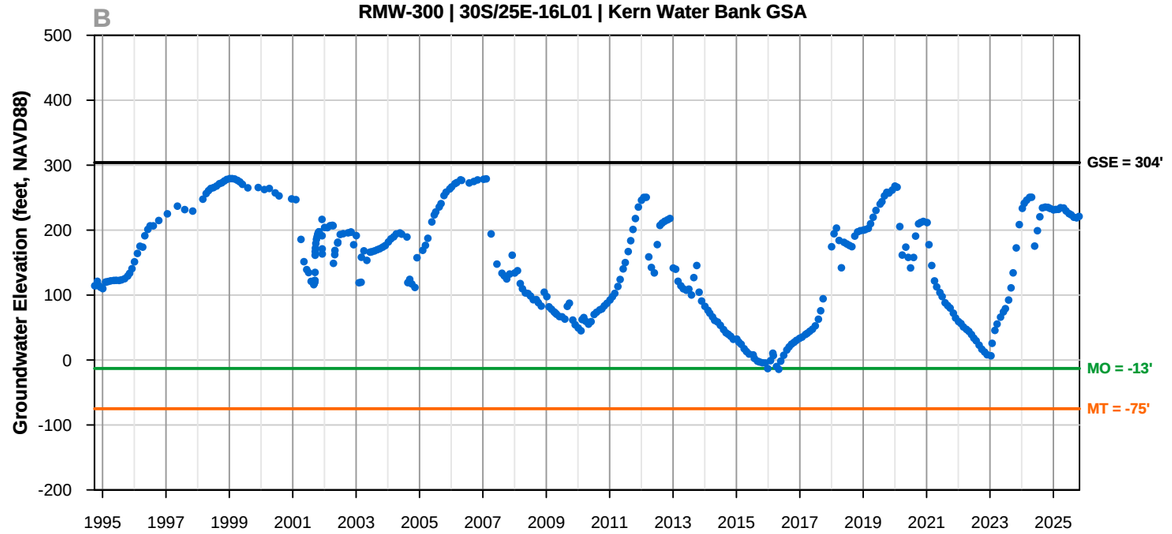
	RMW-045	RMW-048	RMW-049	RMW-259
RMW ID:				
Local Well Name:	30S/26E-04D003M	30S/26E-10P004M	30S/26E-15N003M	30S/26E-04J003M
Site Code:	353543N1191966W001	353250N1191739W001	353123N1191805W001	353434N1191816W002
GSA:	Pioneer GSA	Pioneer GSA	Pioneer GSA	Pioneer GSA
Latitude:	35.35427	35.32503	35.31229	35.3434
Longitude:	-119.19655	-119.17385	-119.18052	-119.18163
HCM Area:	Kern River Fan	Kern River Fan	Kern River Fan	Kern River Fan
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	-232.11	-317.62	-167.3	-210.55
Bottom Perforation (feet bgs):	-352.11	-357.62	-207.3	-300.55
Ground Surface Elevation:	347.89	347.38	342.7	349.45
Measureable Objective (MO):	15	29	29	-46
Minimum Threshold (MT):	-46	-51	-36	-142

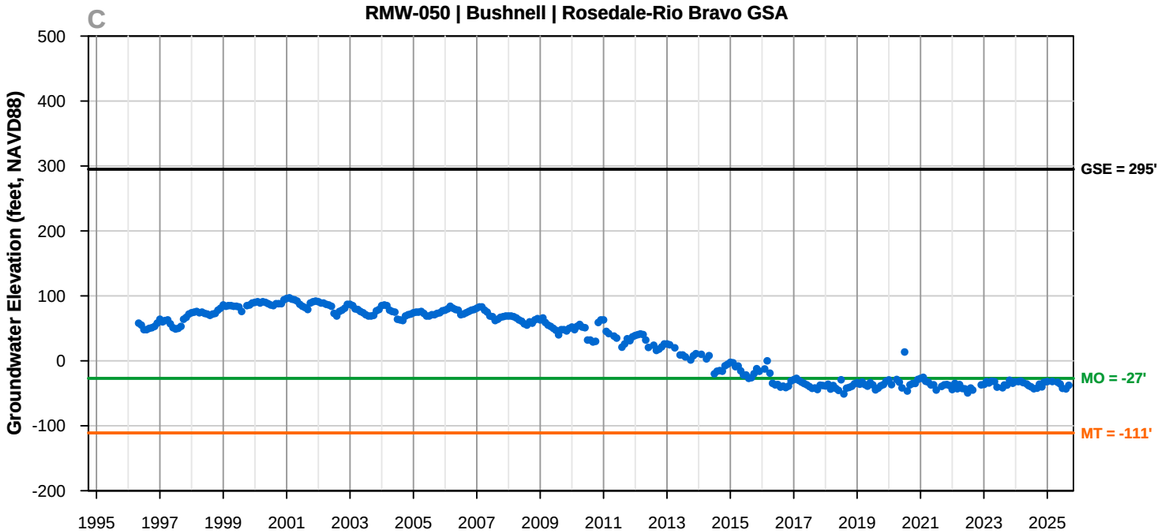
Notes:
1. Well has been added to the RMW-WL network to address data gaps within the Kern Subbasin. SMCs for Chronic Lowering of Groundwater Levels are pending and will be established following the collection of five water level measurements at this well.

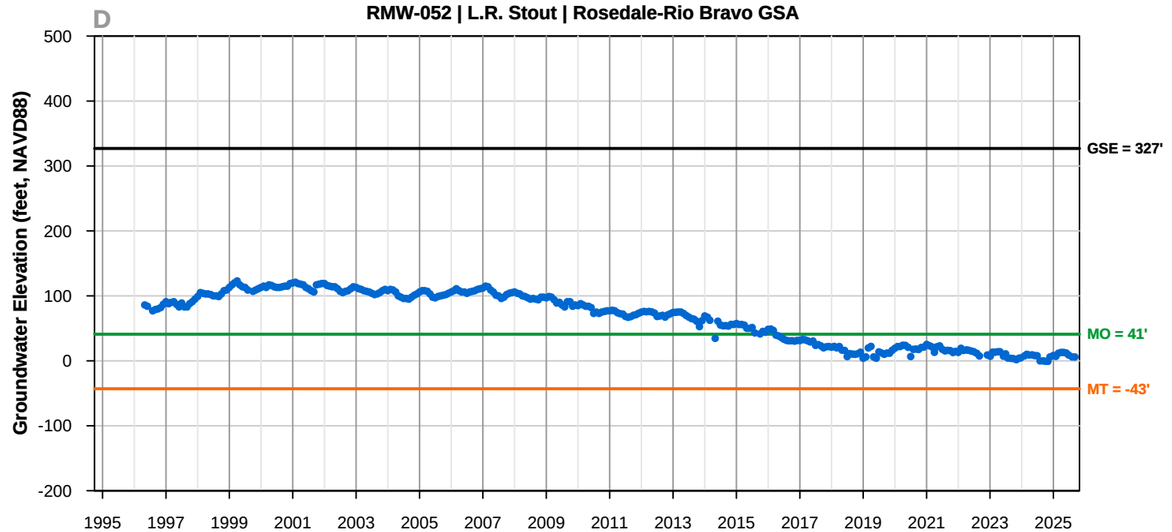
KNDLA - Kern Non-Districted Lands Authority GSA
WDWA - Westside District Water Authority GSA

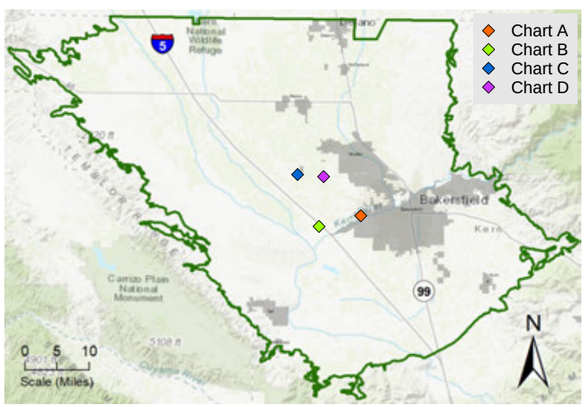
Sheet 1
Kern Groundwater Subbasin Hydrographs, WY 2025











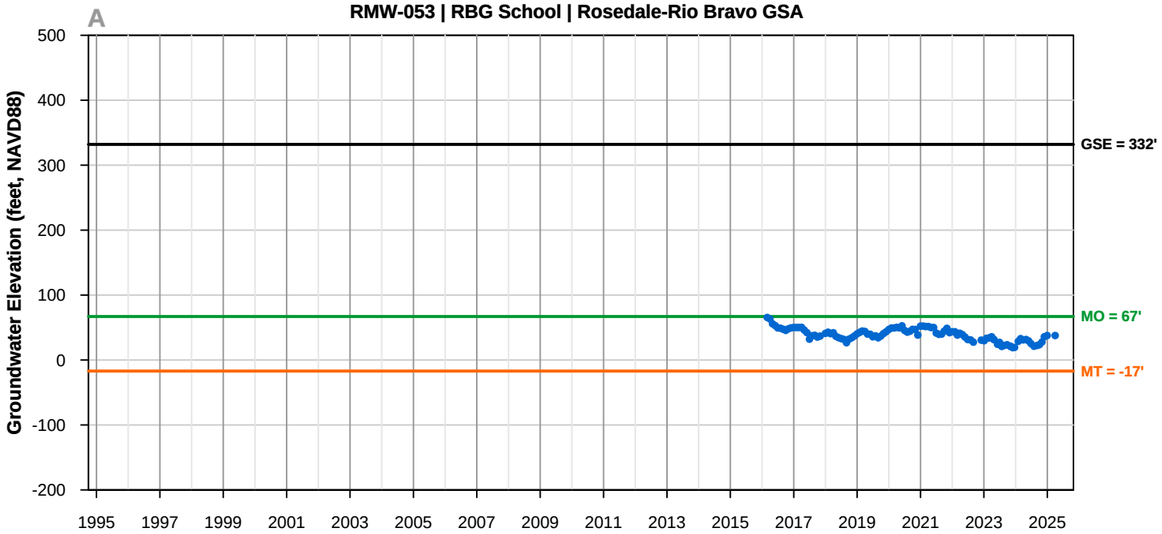
Well Information

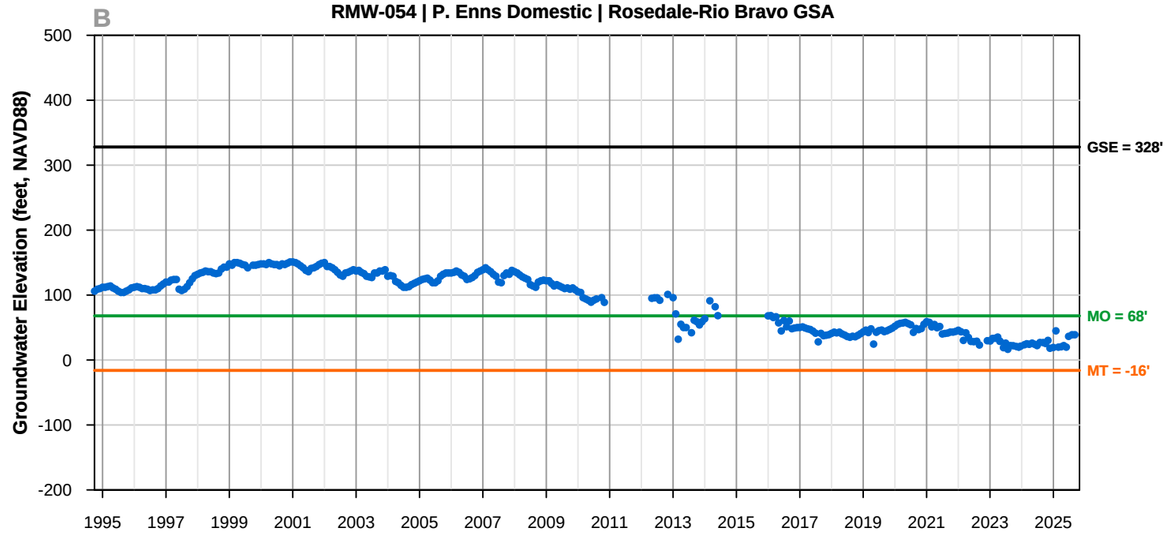
	RMW-289	RMW-300	RMW-050	RMW-052
RMW ID:				
Local Well Name:	30S/26E-04J002M	30S/25E-16L01	Bushnell	L.R. Stout
Site Code:	353434N1191816W001	353180N1192968W001	354350N1193586W001	354309N1192859W001
GSA:	Pioneer GSA	Kern Water Bank GSA	Rosedale-Rio Bravo GSA	Rosedale-Rio Bravo GSA
Latitude:	35.3434	35.318013	35.434919	35.43092
Longitude:	-119.18163	-119.296736	-119.358003	-119.28588
HCM Area:	Kern River Fan	Kern River Fan	North Basin	North Basin
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	126.45	19	-125	77
Bottom Perforation (feet bgs):	-25.55	-41	-525	-173
Ground Surface Elevation:	349.45	304	295	327
Measureable Objective (MO):	62	-13	-27	41
Minimum Threshold (MT):	-6	-75	-111	-43

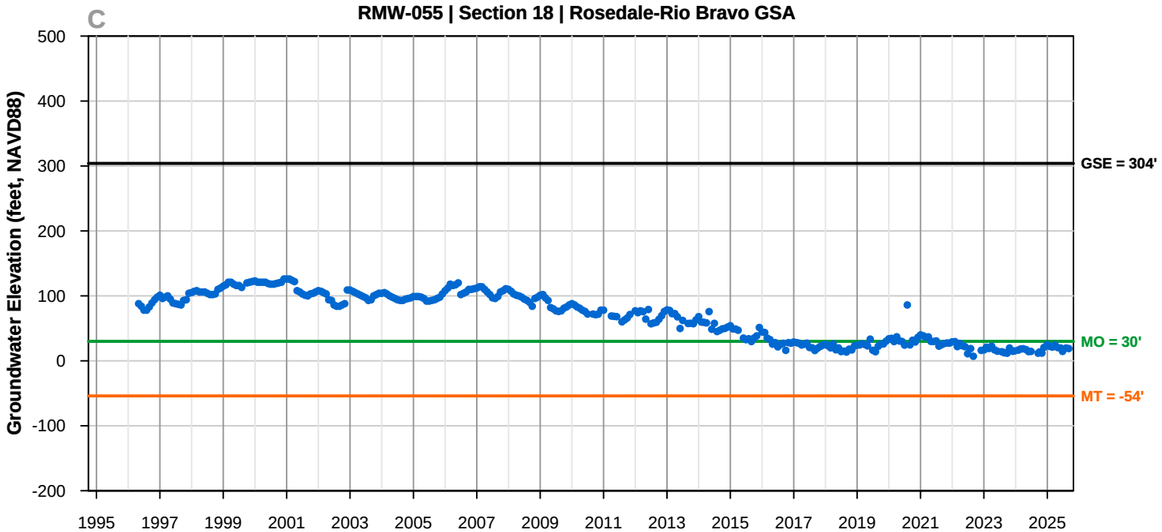
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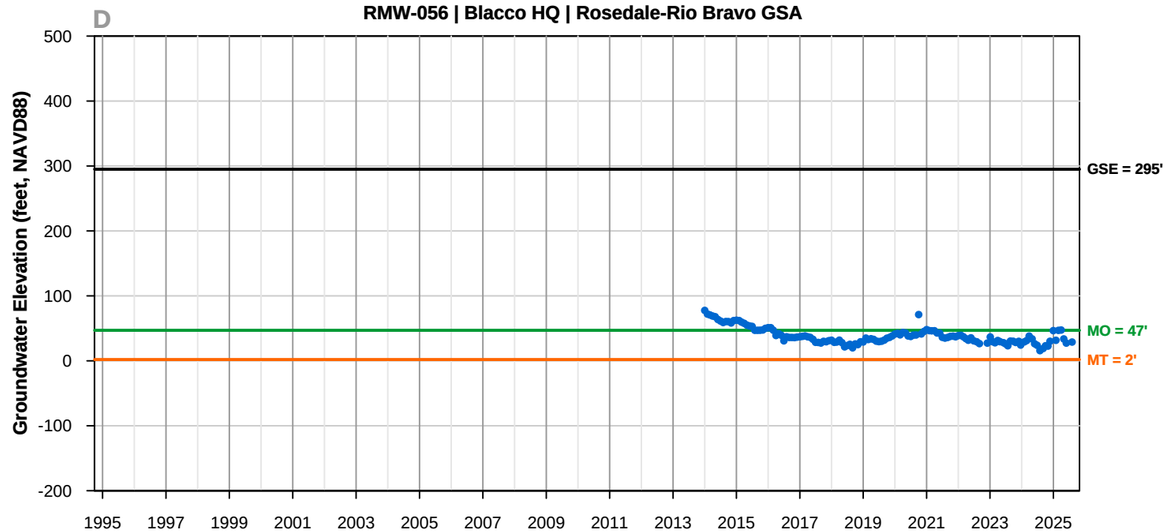
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WDWA - Westside District Water Authority GSA

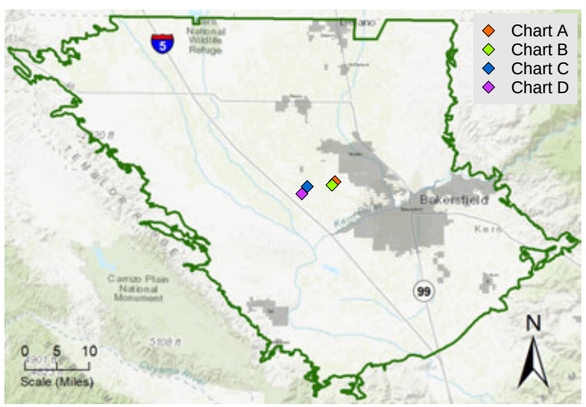
Sheet 2
Kern Groundwater Subbasin Hydrographs, WY 2025











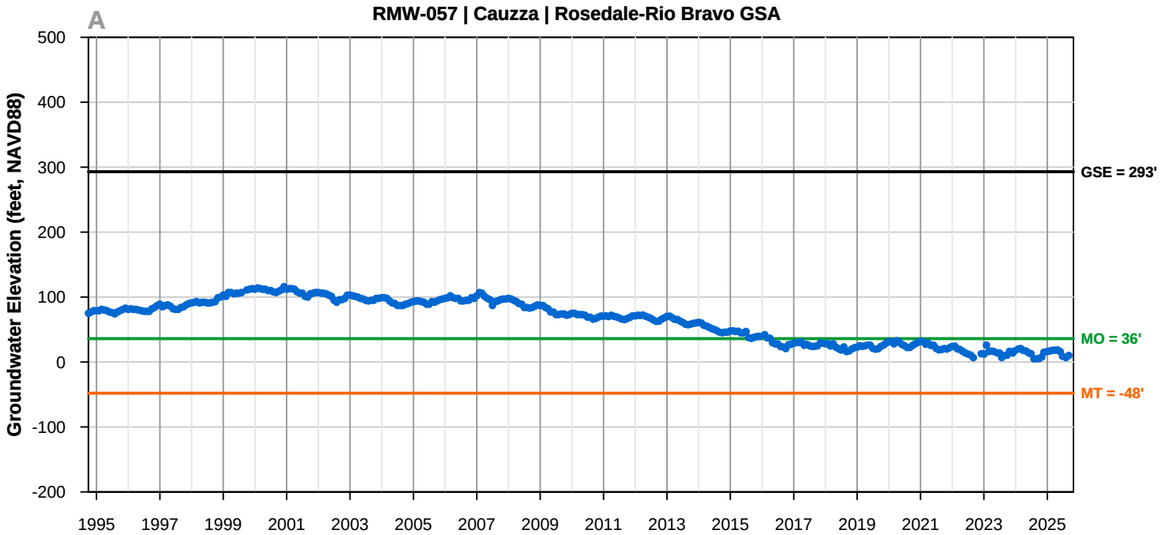
Well Information

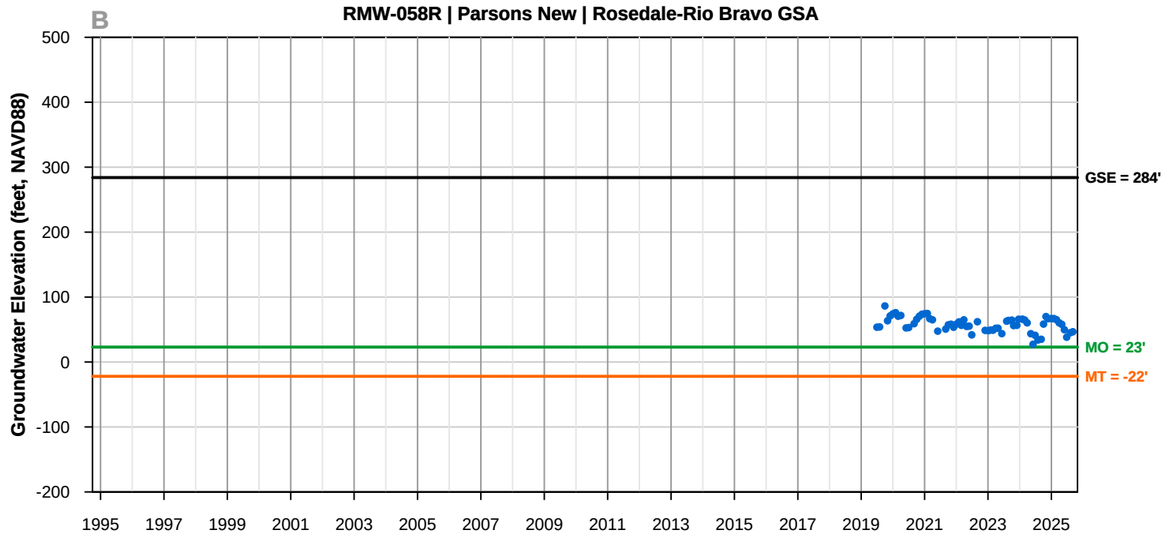
	RMW-053	RMW-054	RMW-055	RMW-056
RMW ID:				
Local Well Name:	RBG School	P. Enns Domestic	Section 18	Blacco HQ
Site Code:	354197N1192544W001	354121N1192623W001	354090N1193318W001	353915N1193454W001
GSA:	Rosedale-Rio Bravo GSA	Rosedale-Rio Bravo GSA	Rosedale-Rio Bravo GSA	Rosedale-Rio Bravo GSA
Latitude:	35.4197	35.41209	35.408092	35.39146
Longitude:	-119.25437	-119.262342	-119.330726	-119.34535
HCM Area:	North Basin	North Basin	North Basin	Kern River Fan
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	122	28	4	5
Bottom Perforation (feet bgs):	-168	-172	-397	-415
Ground Surface Elevation:	332	328	304	295
Measureable Objective (MO):	67	68	30	47
Minimum Threshold (MT):	-17	-16	-54	2

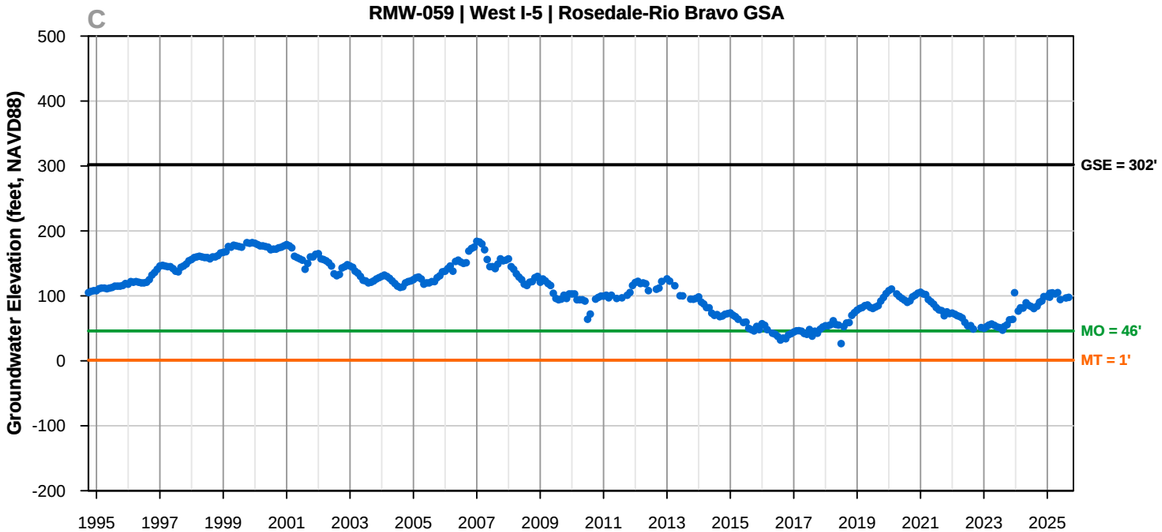
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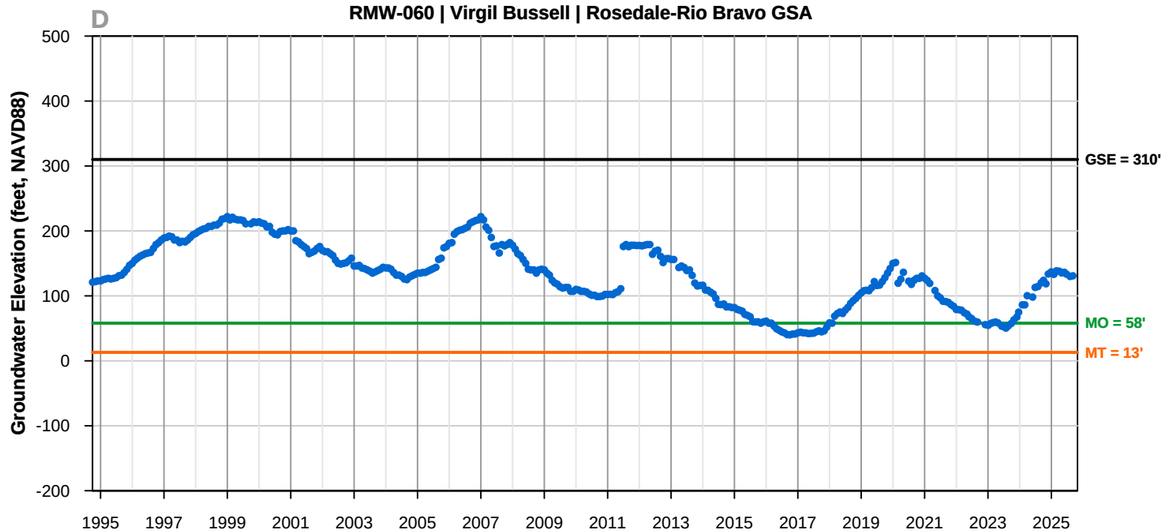
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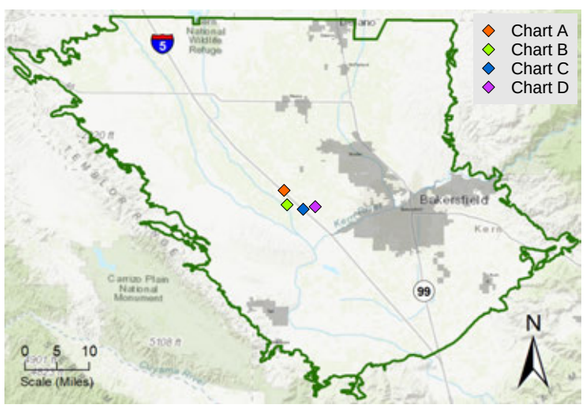
Sheet 3
Kern Groundwater Subbasin Hydrographs, WY 2025











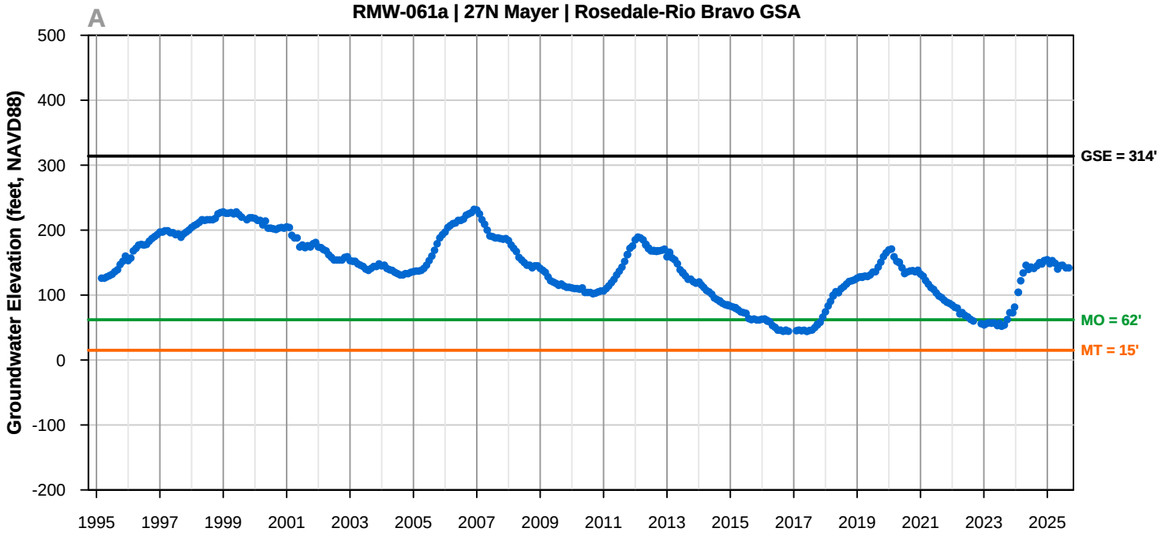
Well Information

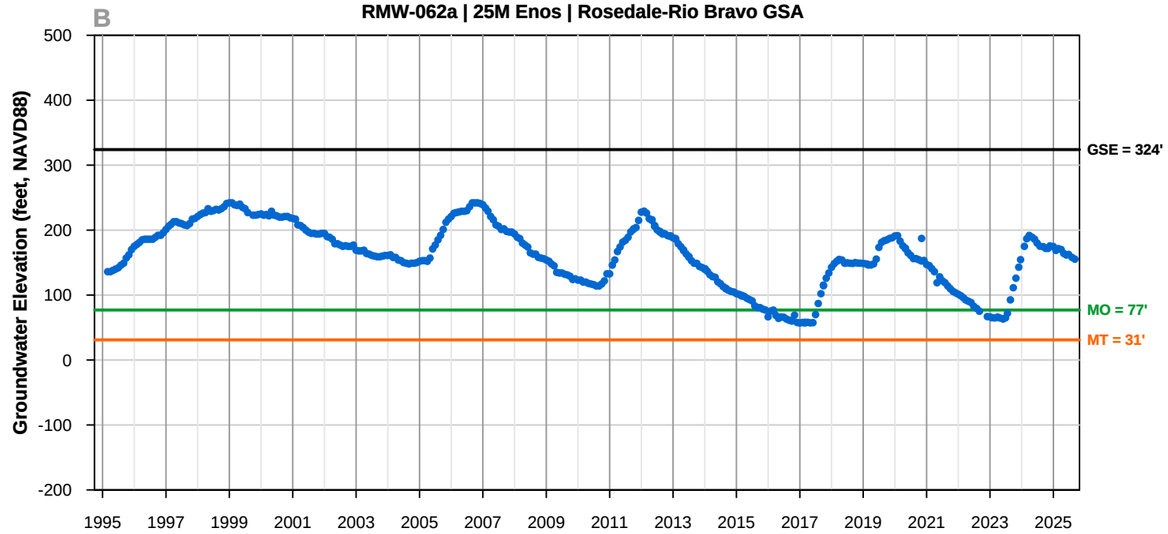
	RMW-057	RMW-058R	RMW-059	RMW-060
RMW ID:	**RMW-057**	**RMW-058R**	**RMW-059**	**RMW-060**
Local Well Name:	Cauzza	Parsons New	West I-5	Virgil Bussell
Site Code:	353986N1193948W001	353660N1193859W001	353564N1193412W001	353619N1193099W001
GSA:	Rosedale-Rio Bravo GSA	Rosedale-Rio Bravo GSA	Rosedale-Rio Bravo GSA	Rosedale-Rio Bravo GSA
Latitude:	35.39859	35.36609	35.35642	35.362585
Longitude:	-119.39481	-119.38596	-119.34122	-119.307951
HCM Area:	North Basin	Kern River Fan	Kern River Fan	Kern River Fan
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	113	-81	102	110
Bottom Perforation (feet bgs):	-133	-386	-148	-140
Ground Surface Elevation:	293	284	302	310
Measureable Objective (MO):	36	23	46	58
Minimum Threshold (MT):	-48	-22	1	13

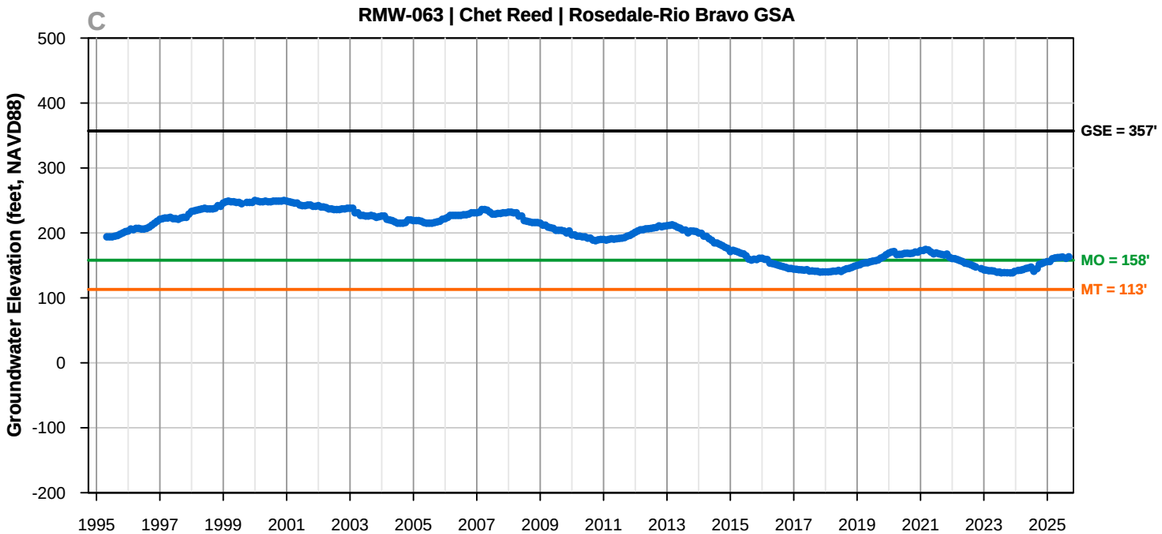
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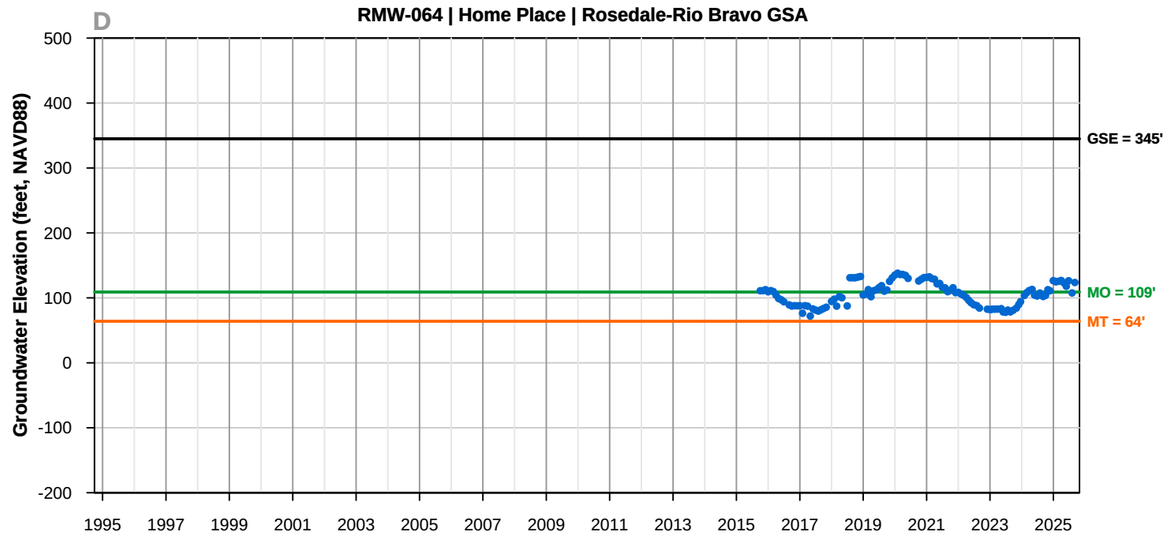
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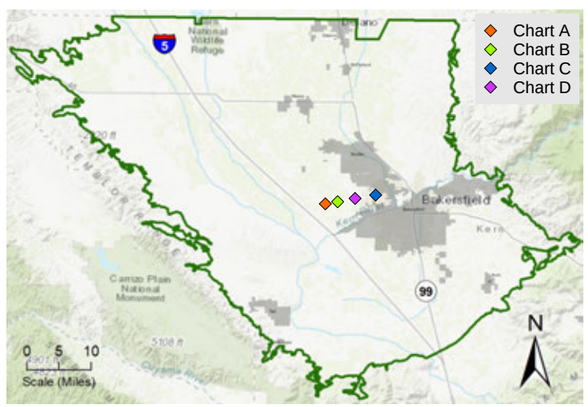
Sheet 4
Kern Groundwater Subbasin Hydrographs, WY 2025











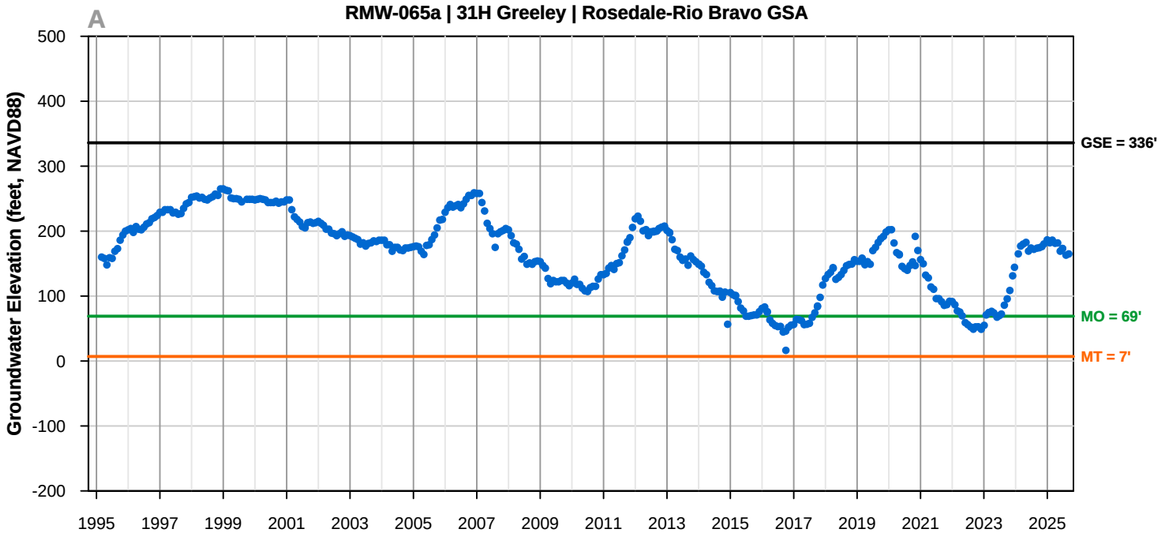
Well Information

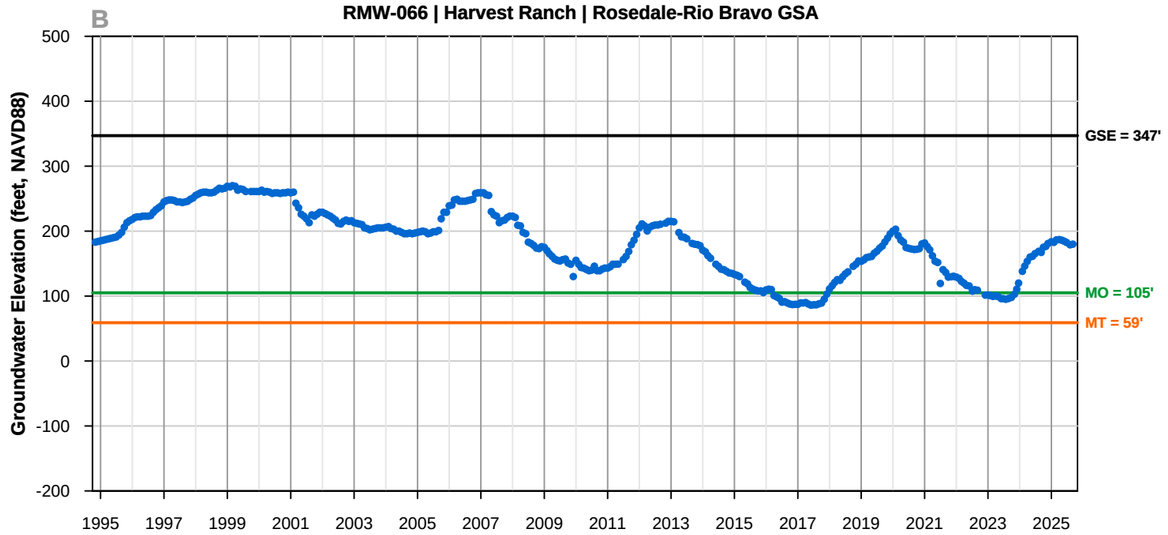
	RMW-061a	RMW-062a	RMW-063	RMW-064
RMW ID:				
Local Well Name:	27N Mayer	25M Enos	Chet Reed	Home Place
Site Code:	353699N1192856W002	353760N1192498W002	353890N1191471W001	353824N1192035W001
GSA:	Rosedale-Rio Bravo GSA	Rosedale-Rio Bravo GSA	Rosedale-Rio Bravo GSA	Rosedale-Rio Bravo GSA
Latitude:	35.3693	35.374433	35.39065	35.382422
Longitude:	-119.28563	-119.251718	-119.14686	-119.20354
HCM Area:	Kern River Fan	Kern River Fan	Kern River Fan	Kern River Fan
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	104	64	127	145
Bottom Perforation (feet bgs):	4	-26	7	-105
Ground Surface Elevation:	314	324	357	345
Measureable Objective (MO):	62	77	158	109
Minimum Threshold (MT):	15	31	113	64

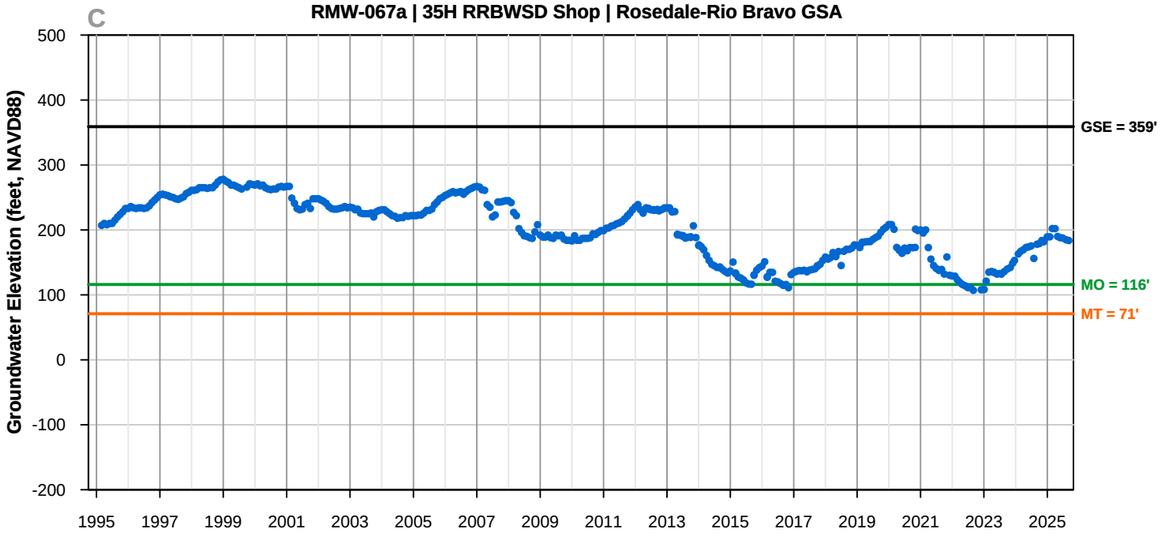
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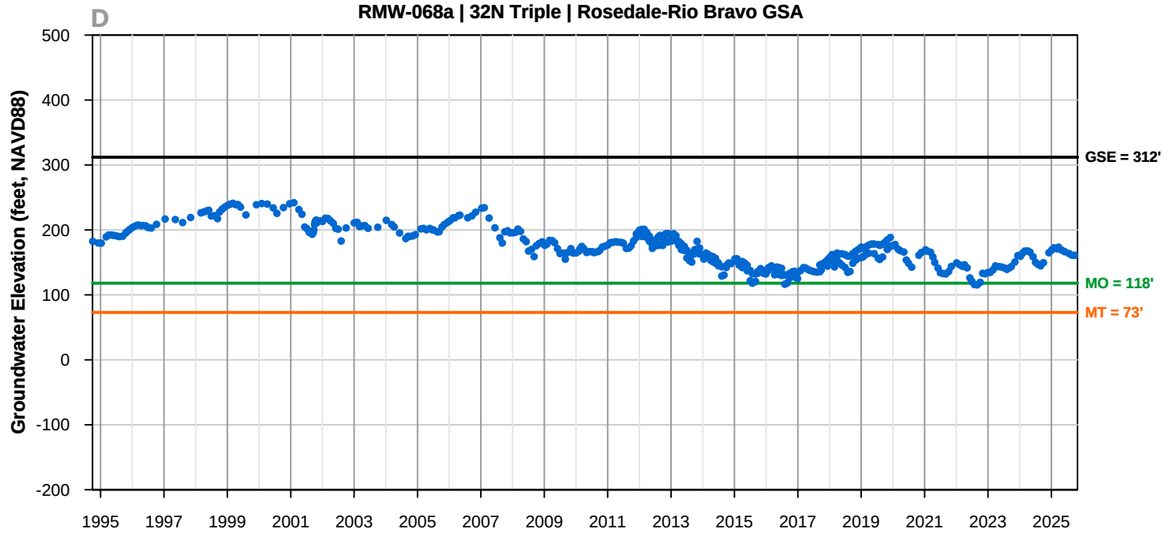
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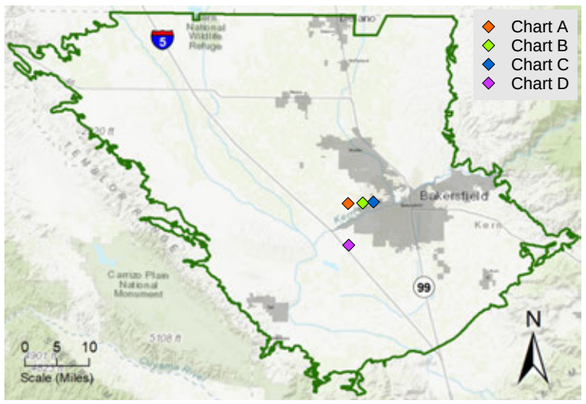
Sheet 5
Kern Groundwater Subbasin Hydrographs, WY 2025











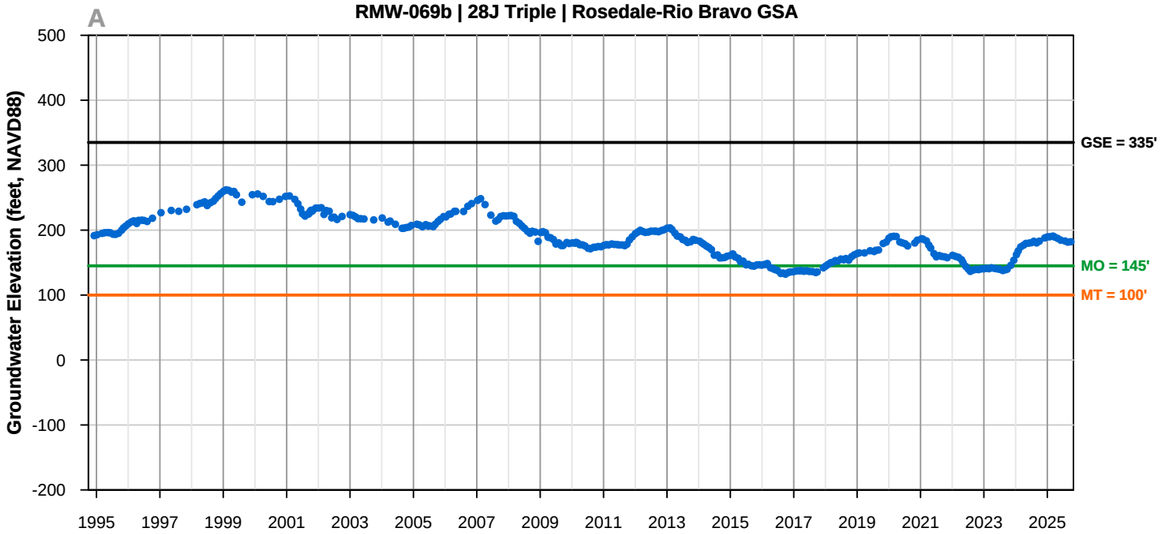
Well Information

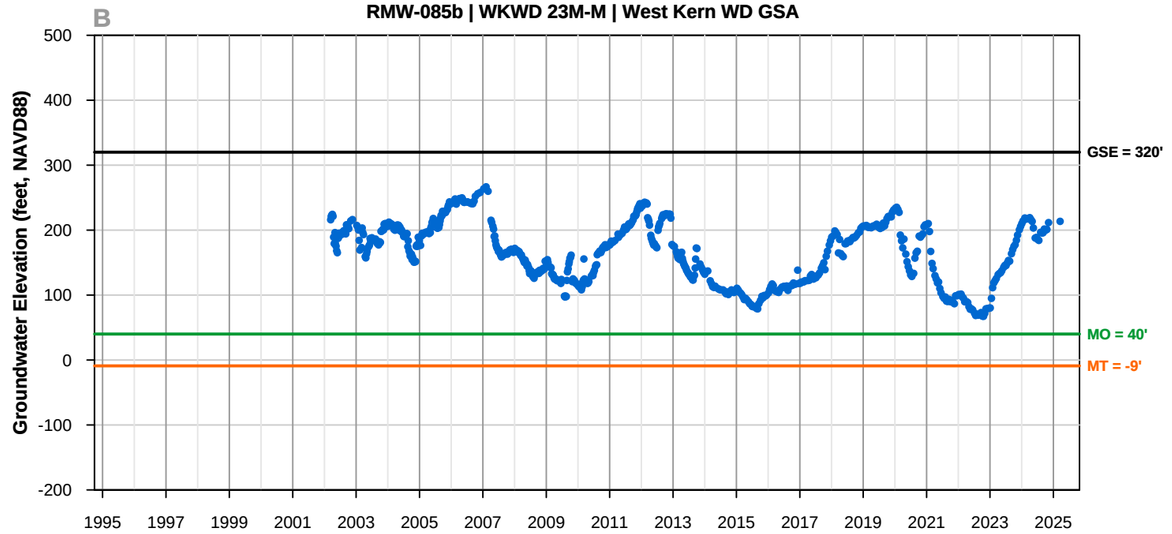
	RMW-065a	RMW-066	RMW-067a	RMW-068a
RMW ID:				
Local Well Name:	31H Greeley	Harvest Ranch	35H RRBWSD Shop	32N Triple
Site Code:	353618N1192169W001	353634N1191766W001	353620N1191457W002	352673N1192138W002
GSA:	Rosedale-Rio Bravo GSA	Rosedale-Rio Bravo GSA	Rosedale-Rio Bravo GSA	Rosedale-Rio Bravo GSA
Latitude:	35.361718	35.36336	35.36585	35.26735
Longitude:	-119.217063	-119.17655	-119.147041	-119.21383
HCM Area:	Kern River Fan	Kern River Fan	Kern River Fan	Kern River Fan
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	-24	95	49	-78
Bottom Perforation (feet bgs):	-94	-255	-51	-128
Ground Surface Elevation:	336	347	359	312
Measureable Objective (MO):	69	105	116	118
Minimum Threshold (MT):	7	59	71	73

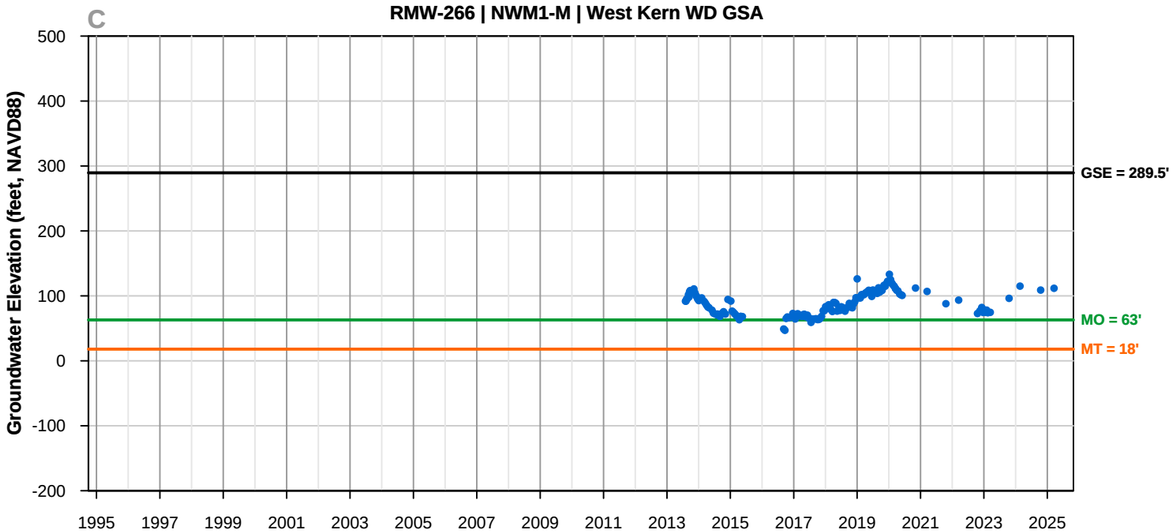
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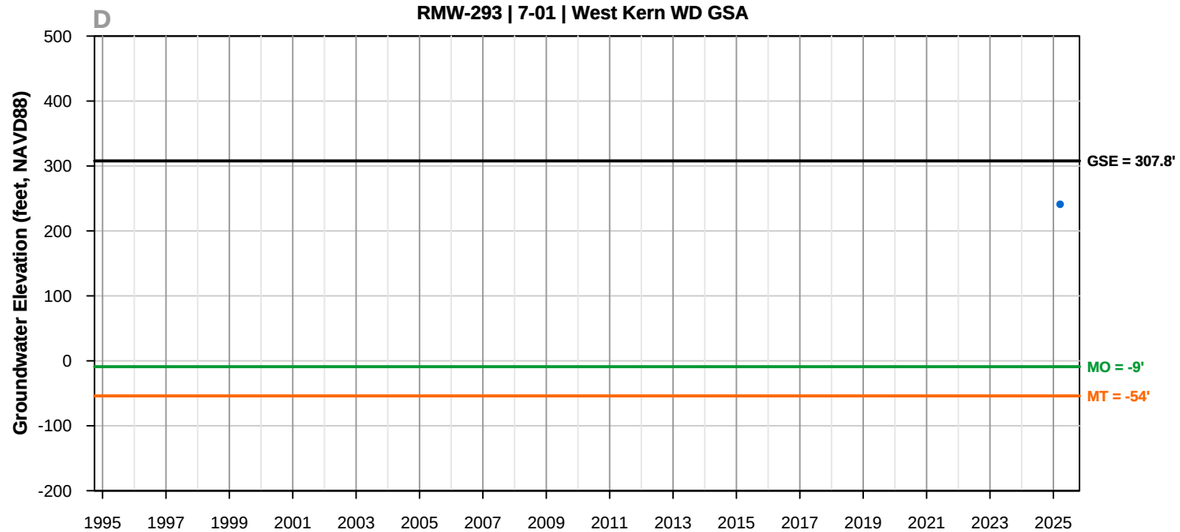
KNDLA - Kern Non-Districted Lands Authority GSA
WDWA - Westside District Water Authority GSA

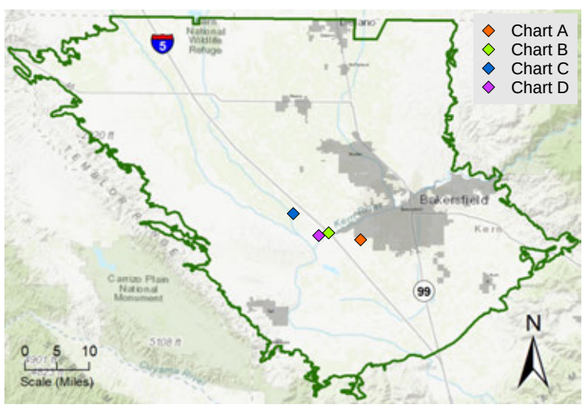
Sheet 6
Kern Groundwater Subbasin Hydrographs, WY 2025











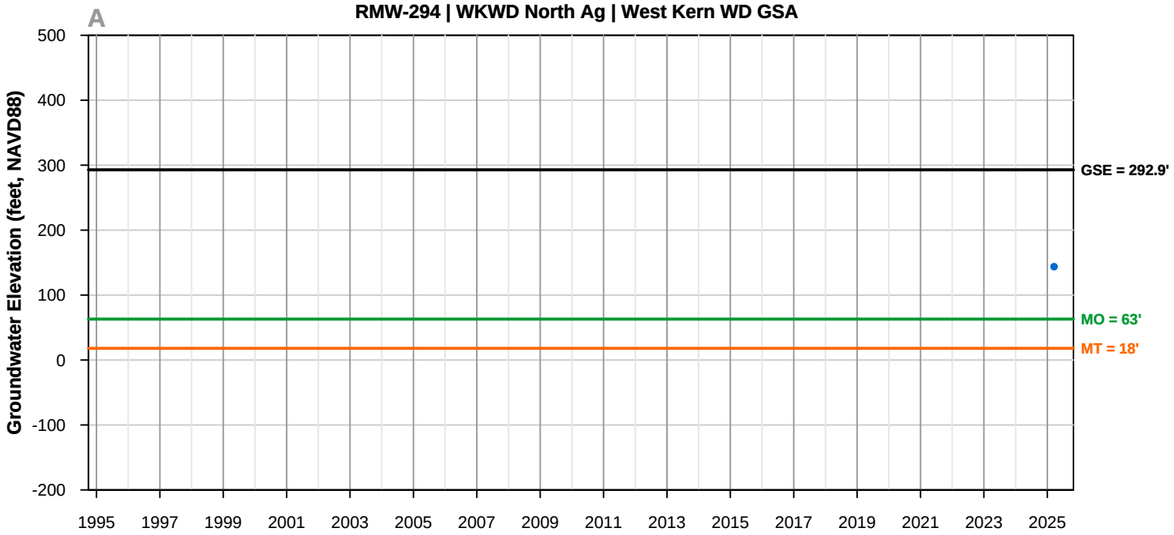
Well Information

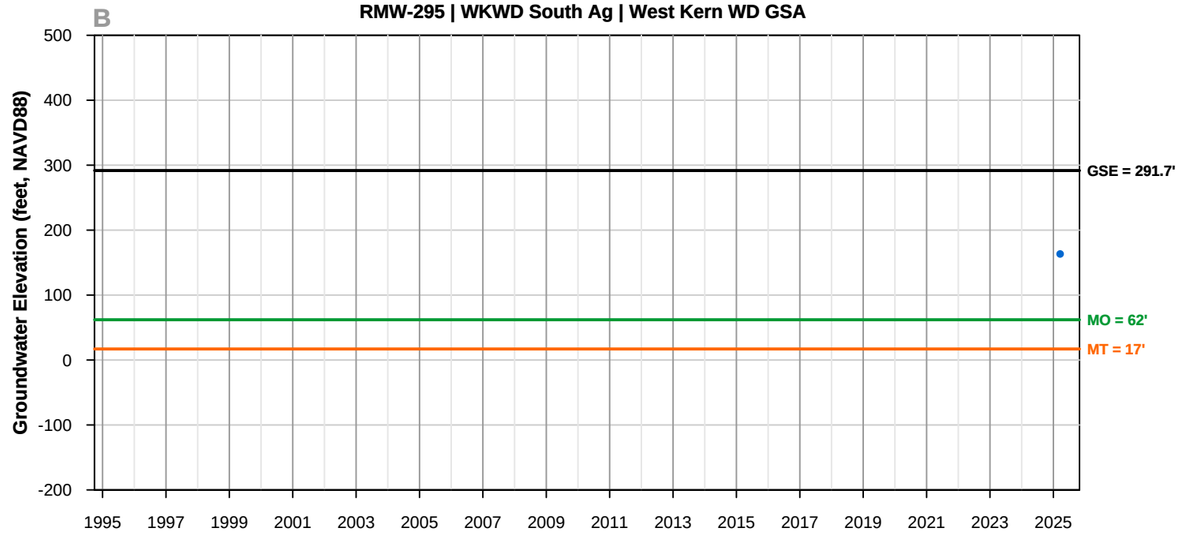
	RMW-069b	RMW-085b	RMW-266	RMW-293
RMW ID:				
Local Well Name:	28J Triple	WKWD 23M-M	NWM1-M	7-01
Site Code:	352889N1191814W001	353037N1192699W002	353464N1193684W006	352973N1192972W001
GSA:	Rosedale-Rio Bravo GSA	West Kern WD GSA	West Kern WD GSA	West Kern WD GSA
Latitude:	35.28892	35.30373	35.346363	35.29734
Longitude:	-119.18136	-119.26992	-119.368446	-119.29722
HCM Area:	Kern River Fan	Kern River Fan	Kern River Fan	Kern River Fan
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	55	-119.97	-90.51	-312.17
Bottom Perforation (feet bgs):	15	-159.97	-110.51	-352.17
Ground Surface Elevation:	335	320.03	289.49	307.83
Measureable Objective (MO):	145	40	63	-9
Minimum Threshold (MT):	100	-9	18	-54

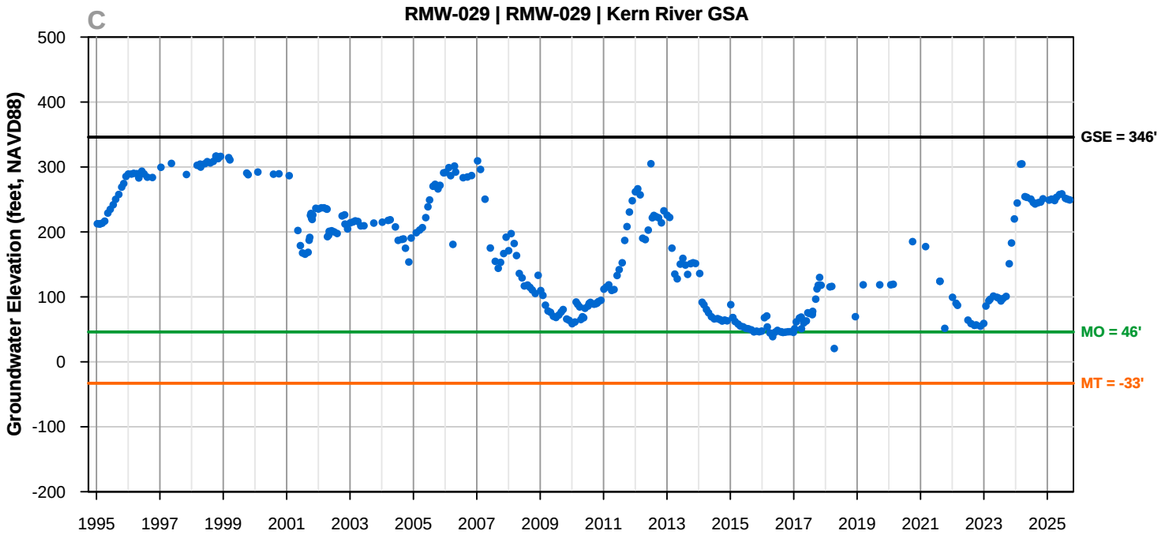
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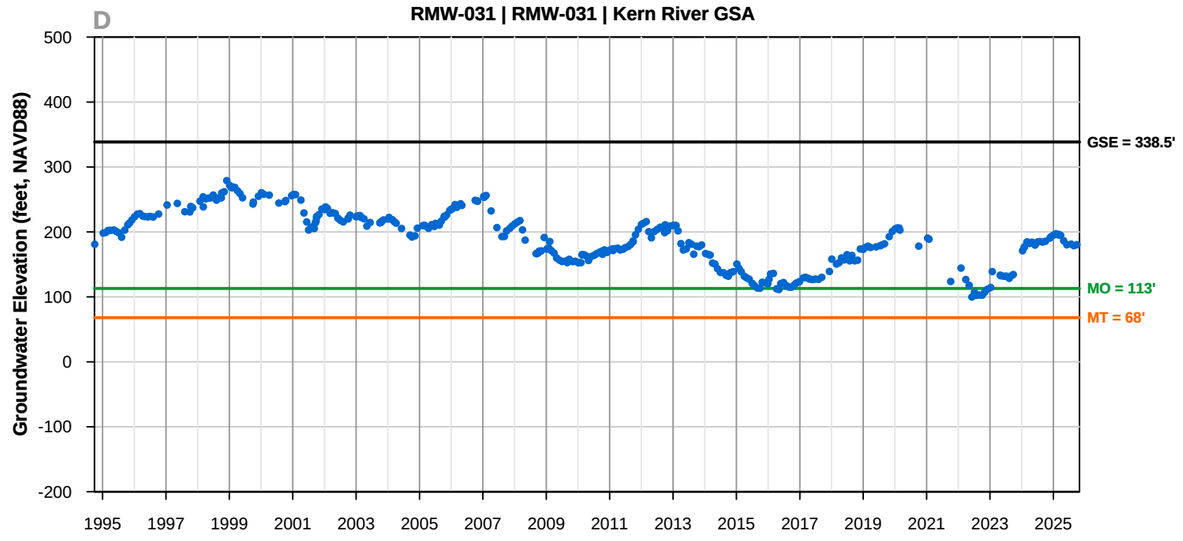
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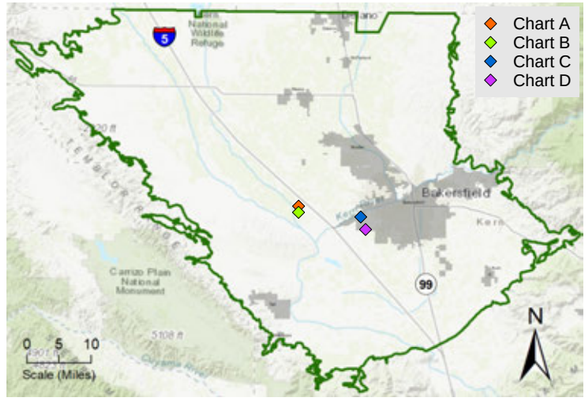
Sheet 7
Kern Groundwater Subbasin Hydrographs, WY 2025











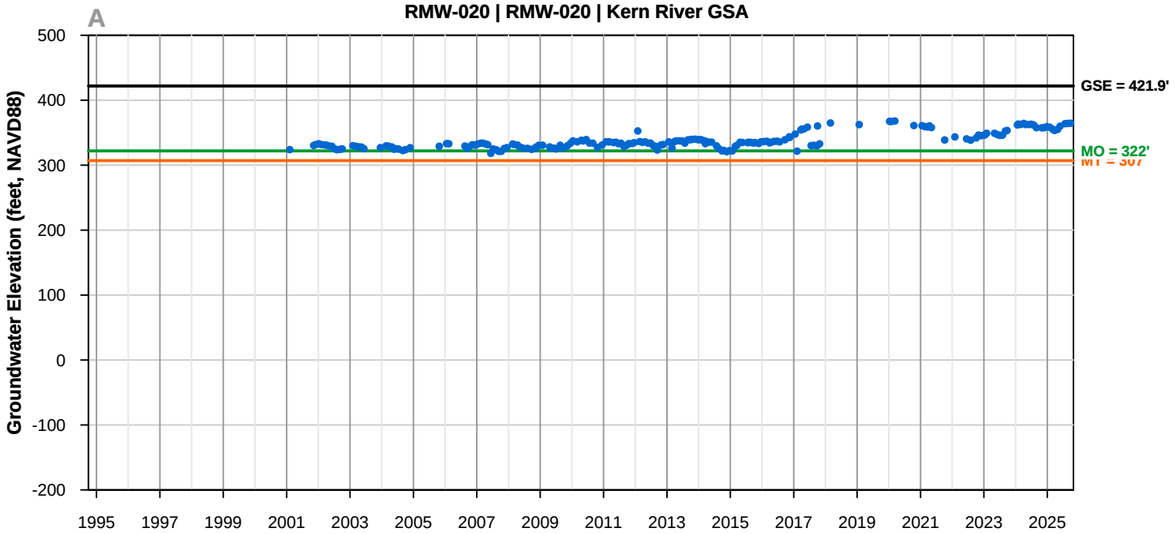
Well Information

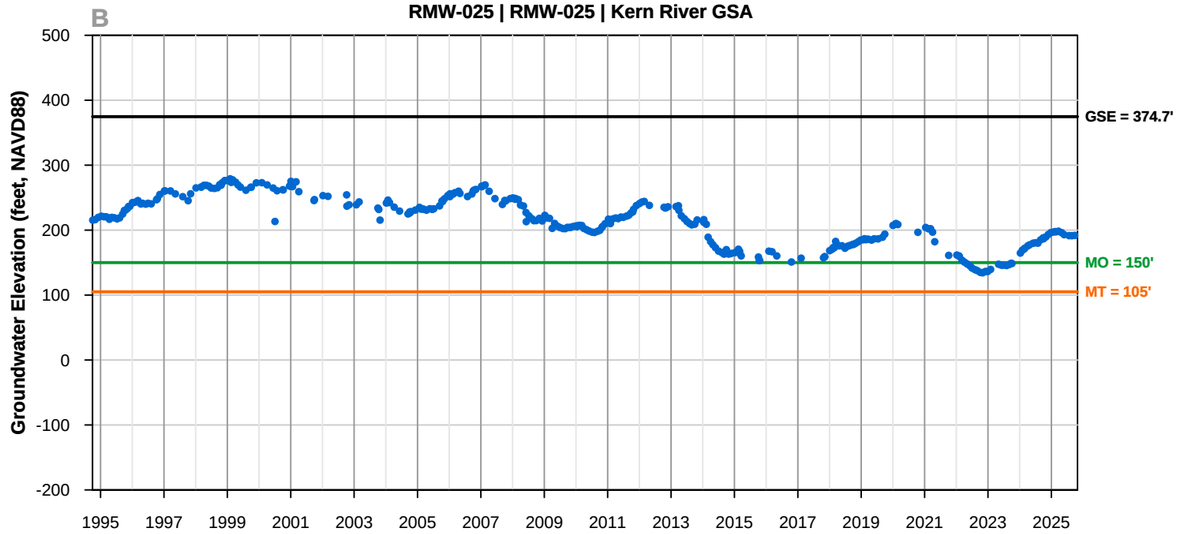
	RMW-294	RMW-295	RMW-029	RMW-031
RMW ID:				
Local Well Name:	WKWD North Ag	WKWD South Ag	RMW-029	RMW-031
Site Code:	353475N1193600W001	353336N1193607W001	353247N1191870W001	352964N1191741W003
GSA:	West Kern WD GSA	West Kern WD GSA	Kern River GSA	Kern River GSA
Latitude:	35.34743	35.33333	35.324712	35.296439
Longitude:	-119.35931	-119.35928	-119.18704	-119.173357
HCM Area:	Kern River Fan	Kern River Fan	Kern River Fan	Kern River Fan
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	44.85	33.74	46	8.5
Bottom Perforation (feet bgs):	-275.15	-288.26	-44	-81.5
Ground Surface Elevation:	292.85	291.74	346	338.5
Measureable Objective (MO):	63	62	46	113
Minimum Threshold (MT):	18	17	-33	68

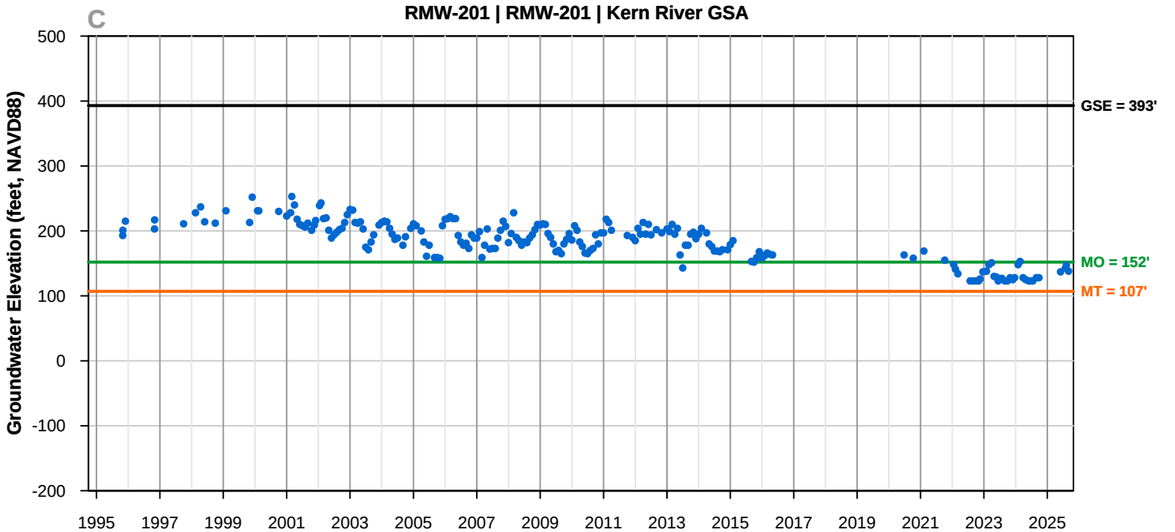
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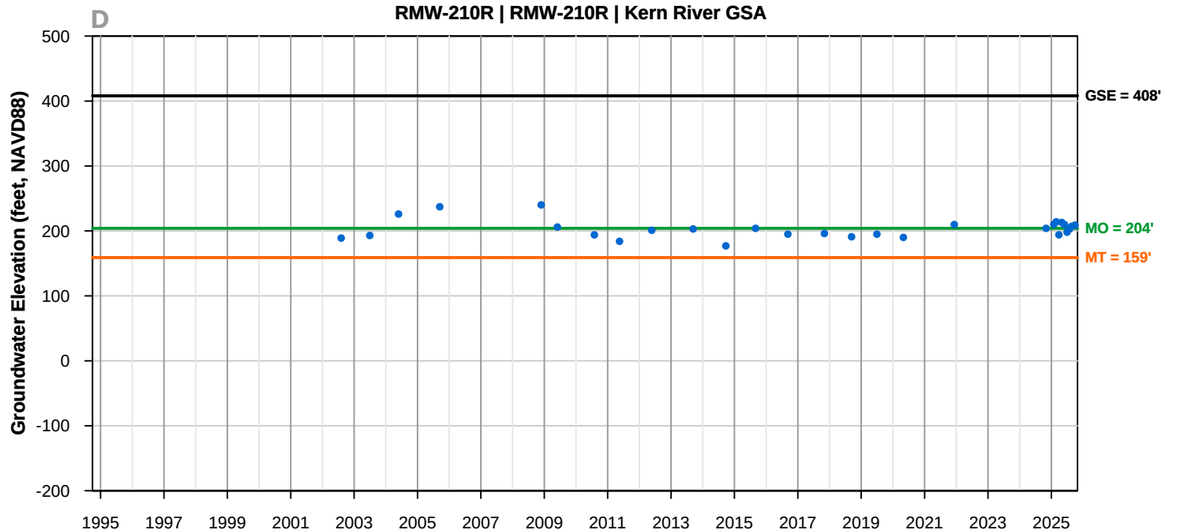
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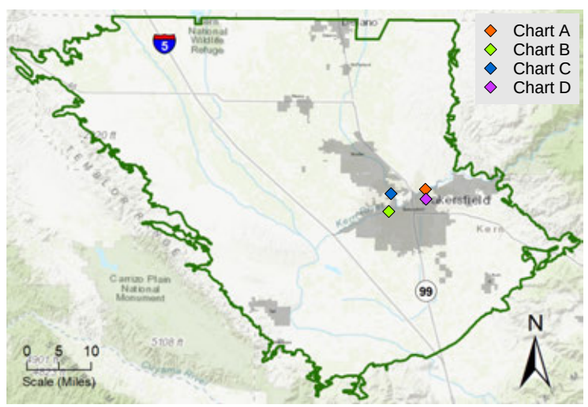
Sheet 8
Kern Groundwater Subbasin Hydrographs, WY 2025











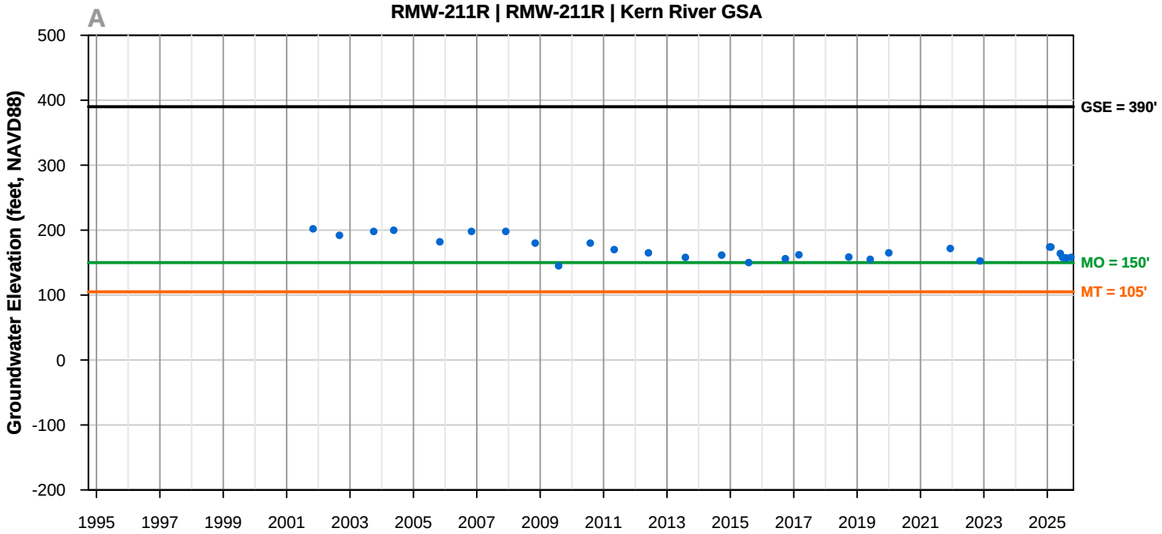
Well Information

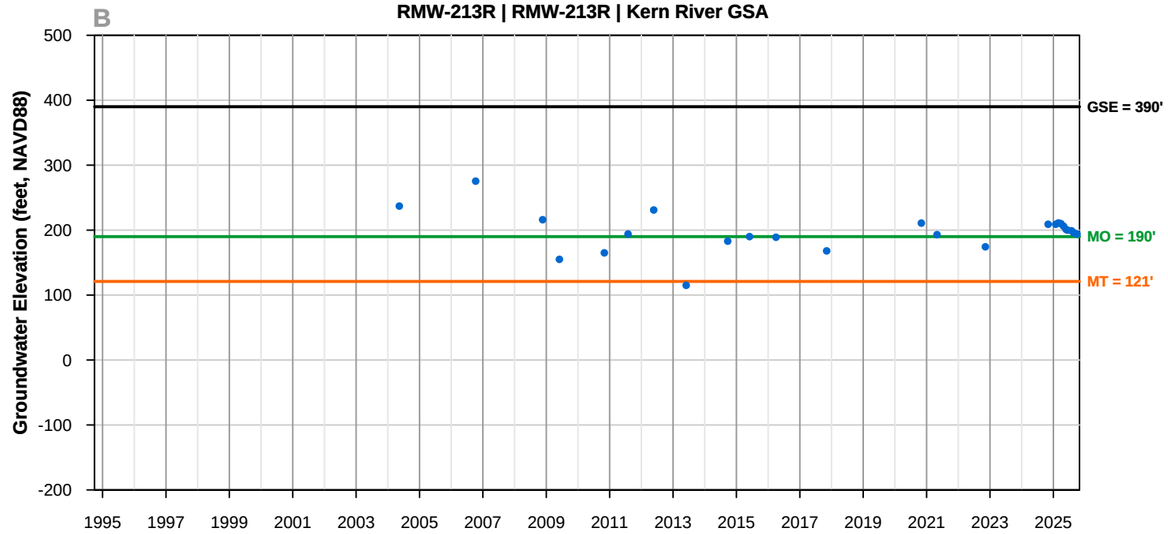
	RMW-020	RMW-025	RMW-201	RMW-210R
RMW ID:	**RMW-020**	**RMW-025**	**RMW-201**	**RMW-210R**
Local Well Name:	RMW-020	RMW-025	RMW-201	RMW-210R
Site Code:	354048N1190102W001	353539N1191118W001	353941N1191043W001	353825N1190073W001
GSA:	Kern River GSA	Kern River GSA	Kern River GSA	Kern River GSA
Latitude:	35.404844	35.353686	35.394086	35.382581
Longitude:	-119.00925	-119.109828	-119.104328	-119.00738
HCM Area:	Kern River Fan	Kern River Fan	Kern River Fan	Kern River Fan
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	201.9	289.7	18	98
Bottom Perforation (feet bgs):	-118.1	-129.3	-282	-397
Ground Surface Elevation:	421.9	374.7	393	408
Measureable Objective (MO):	322	150	152	204
Minimum Threshold (MT):	307	105	107	159

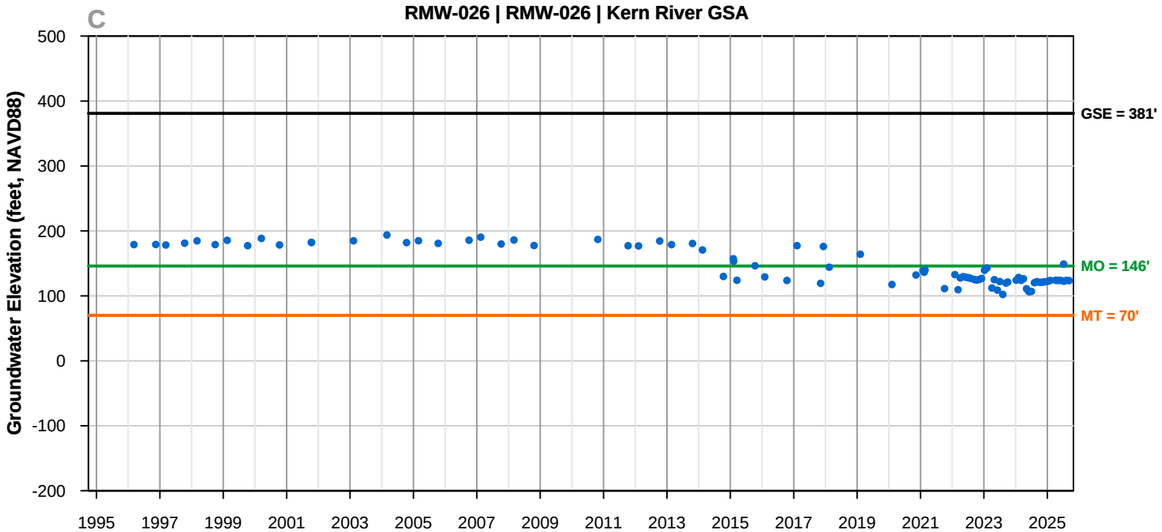
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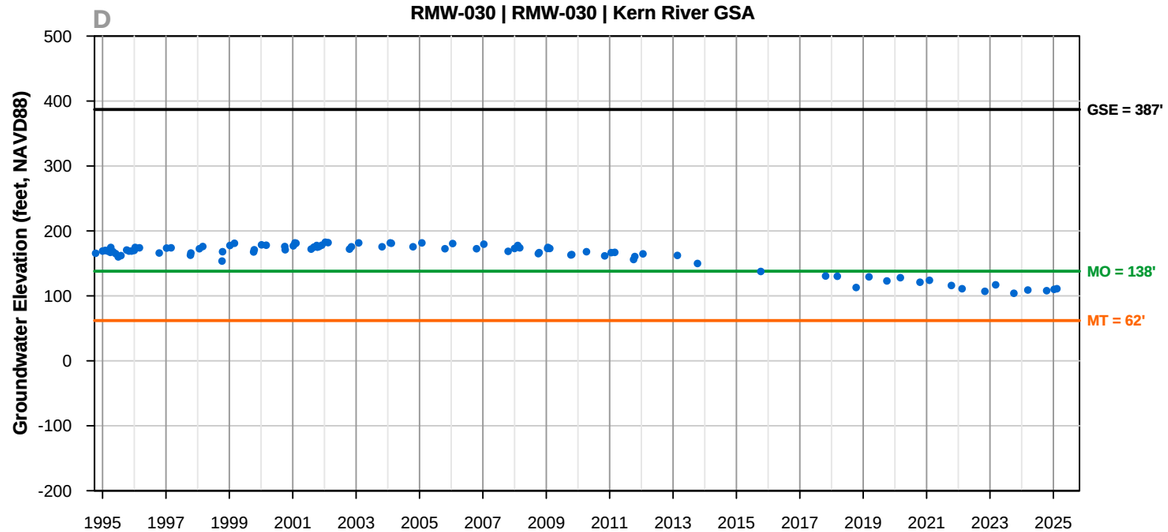
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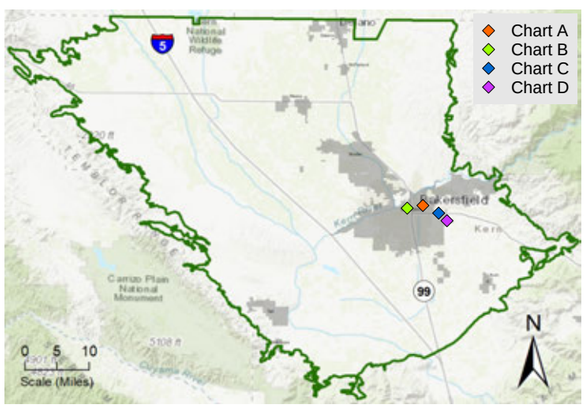
Sheet 9
Kern Groundwater Subbasin Hydrographs, WY 2025











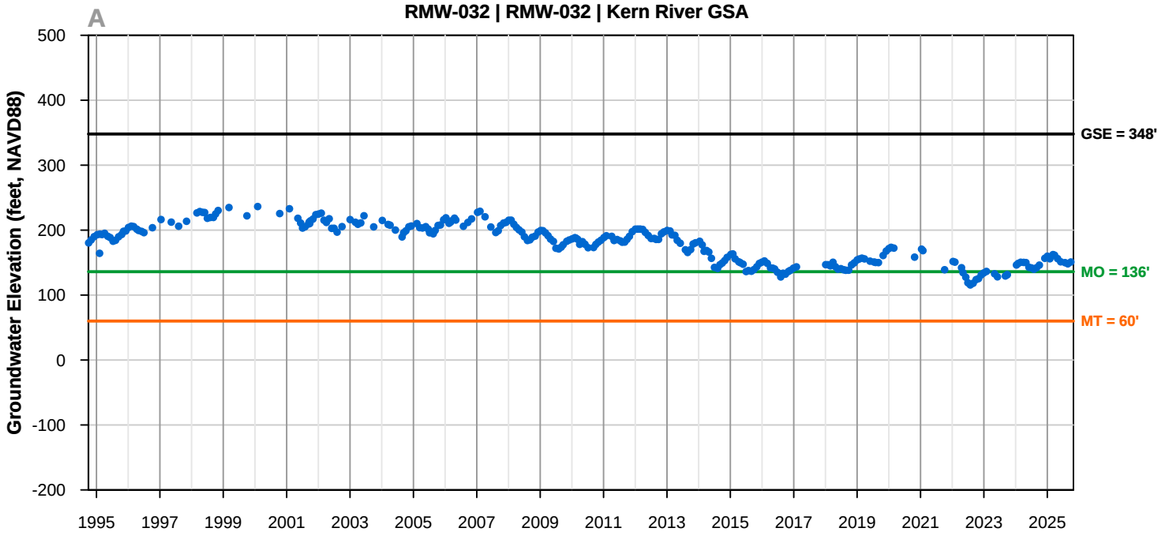
Well Information

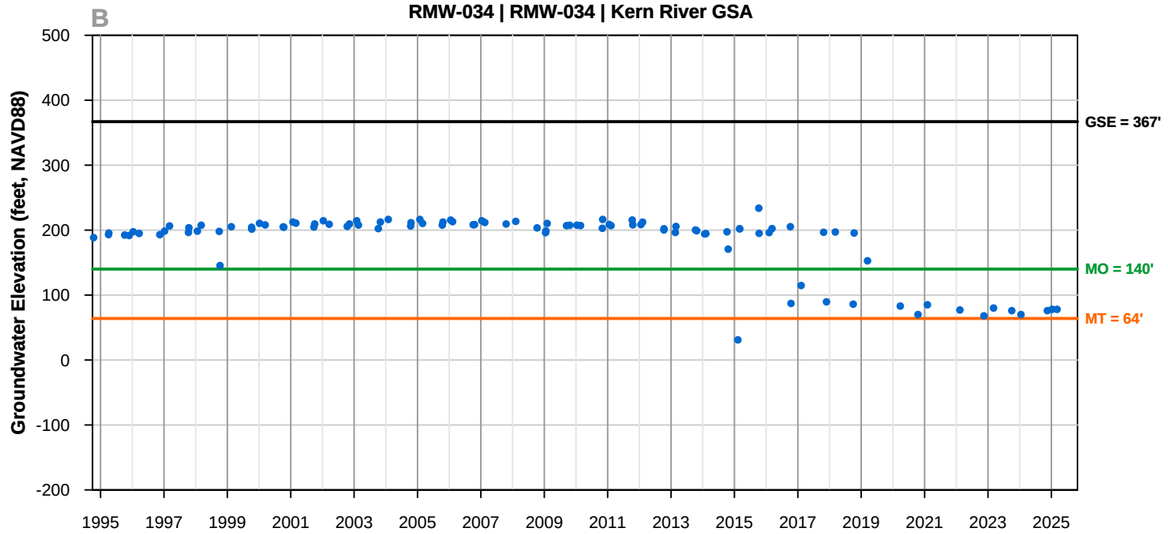
	RMW-211R	RMW-213R	RMW-026	RMW-030
RMW ID:				
Local Well Name:	RMW-211R	RMW-213R	RMW-026	RMW-030
Site Code:	353671N1190197W001	353617N1190534W001	353512N1189673W001	353328N1189409W001
GSA:	Kern River GSA	Kern River GSA	Kern River GSA	Kern River GSA
Latitude:	35.368129	35.361779	35.35125	35.33418
Longitude:	-119.010147	-119.053423	-118.96633	-118.94313
HCM Area:	Kern River Fan	Kern River Fan	South Basin	South Basin
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	-3	170	81	81
Bottom Perforation (feet bgs):	-303	-330	-423	-213
Ground Surface Elevation:	390	390	381	387
Measureable Objective (MO):	150	190	146	138
Minimum Threshold (MT):	105	121	70	62

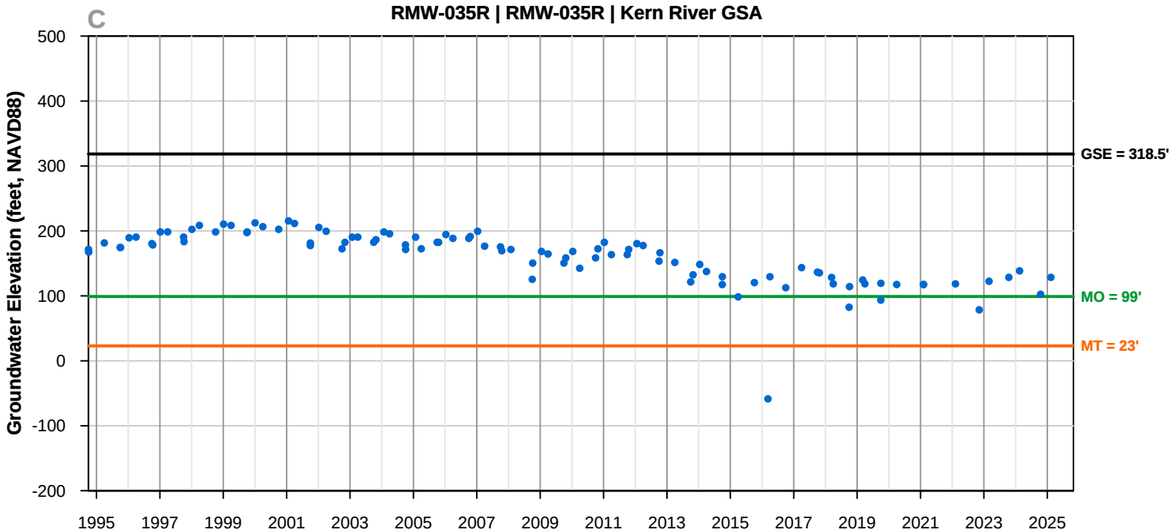
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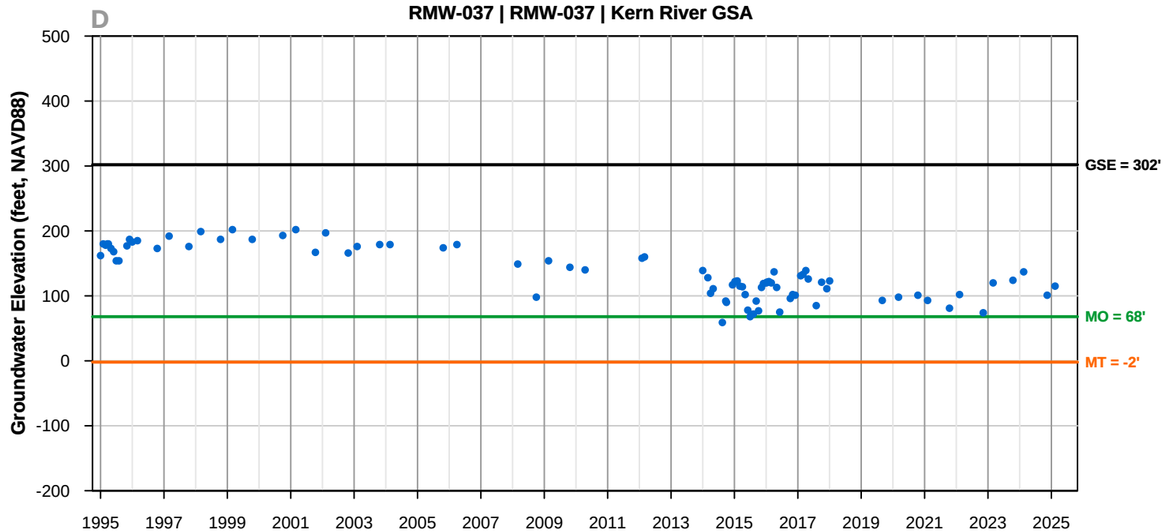
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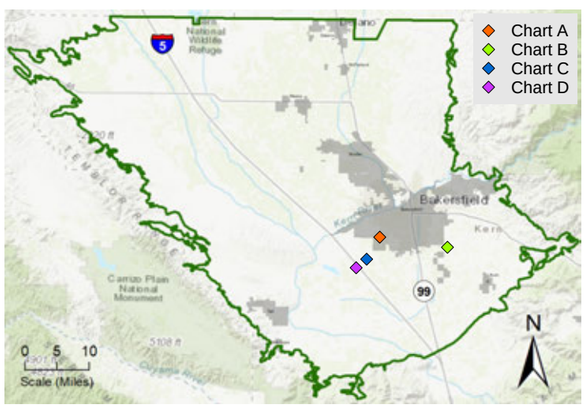
Sheet 10
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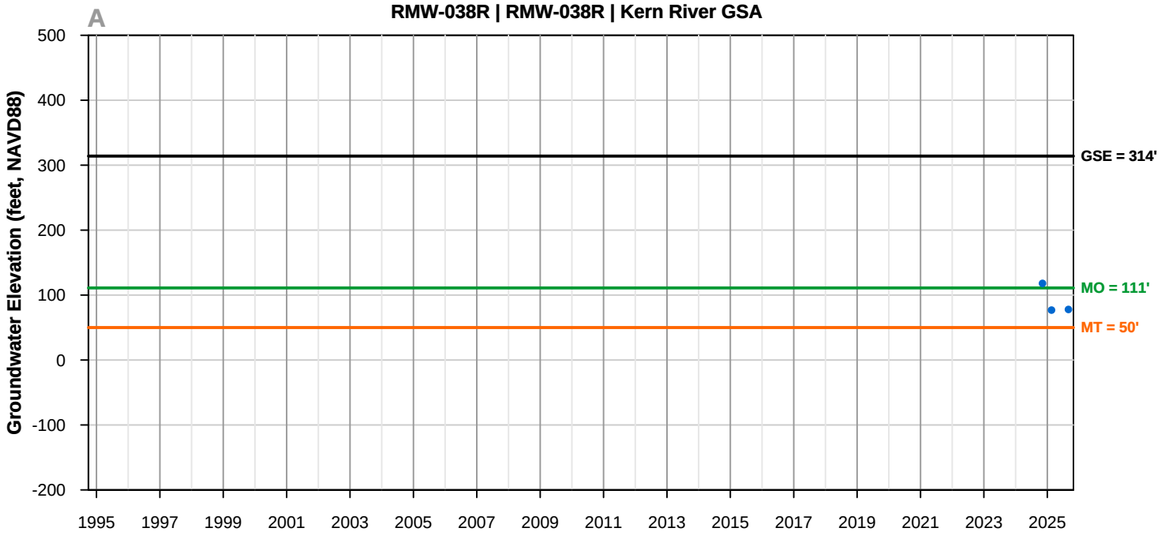
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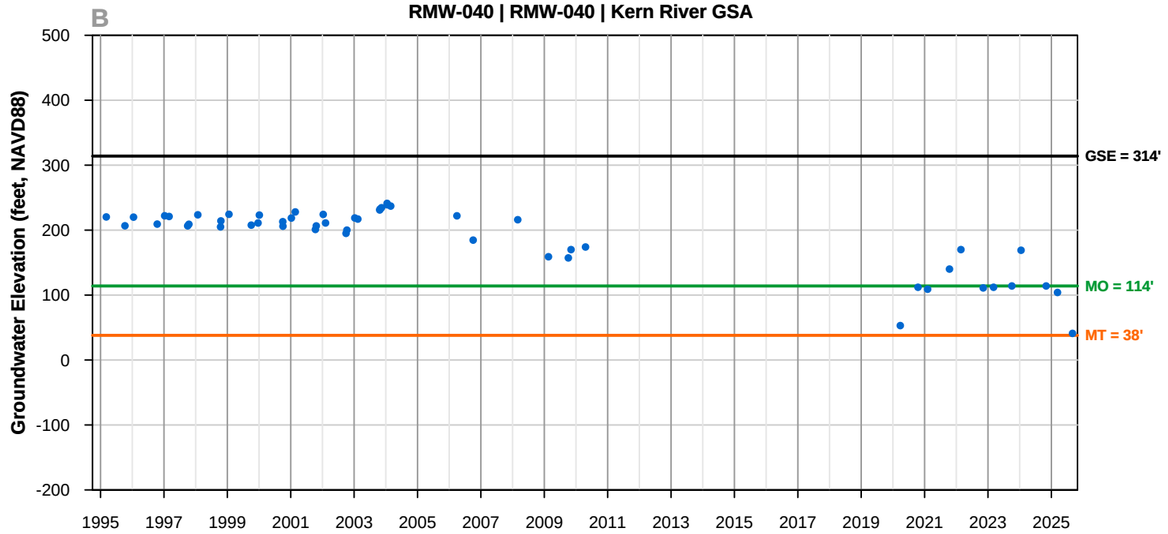
	RMW-032	RMW-034	RMW-035R	RMW-037
RMW ID:				
Local Well Name:	RMW-032	RMW-034	RMW-035R	RMW-037
Site Code:	352953N1191285W001	352747N1189435W001	352450N1191640W001	352269N1191923W001
GSA:	Kern River GSA	Kern River GSA	Kern River GSA	Kern River GSA
Latitude:	35.295346	35.274	35.24508	35.2254
Longitude:	-119.128495	-118.94114	-119.16403	-119.192763
HCM Area:	South Basin	South Basin	South Basin	South Basin
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	58	NA	318.5	52
Bottom Perforation (feet bgs):	-342	NA	-81.5	-398
Ground Surface Elevation:	348	367	318.5	302
Measureable Objective (MO):	136	140	99	68
Minimum Threshold (MT):	60	64	23	-2

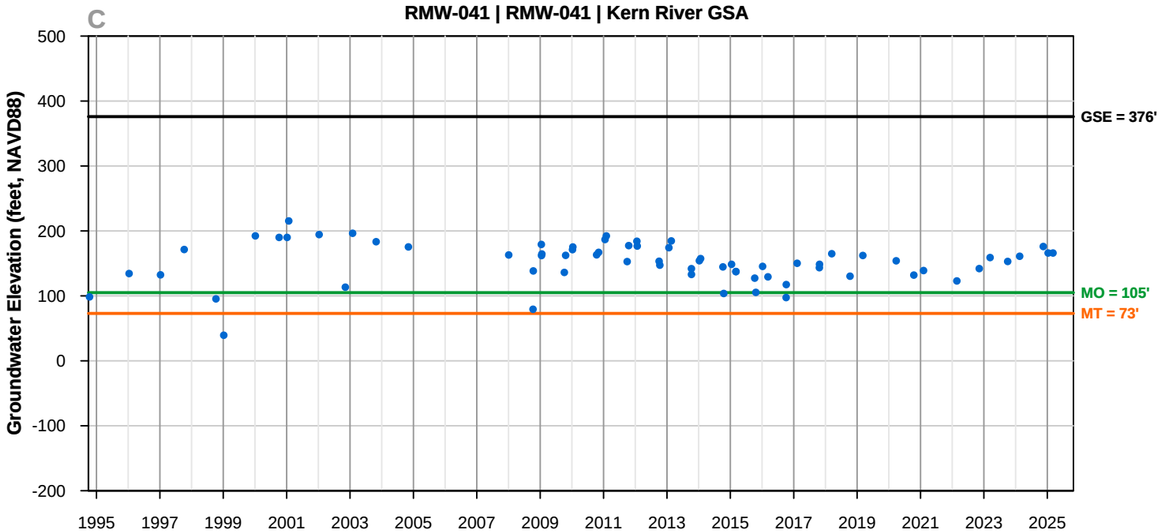
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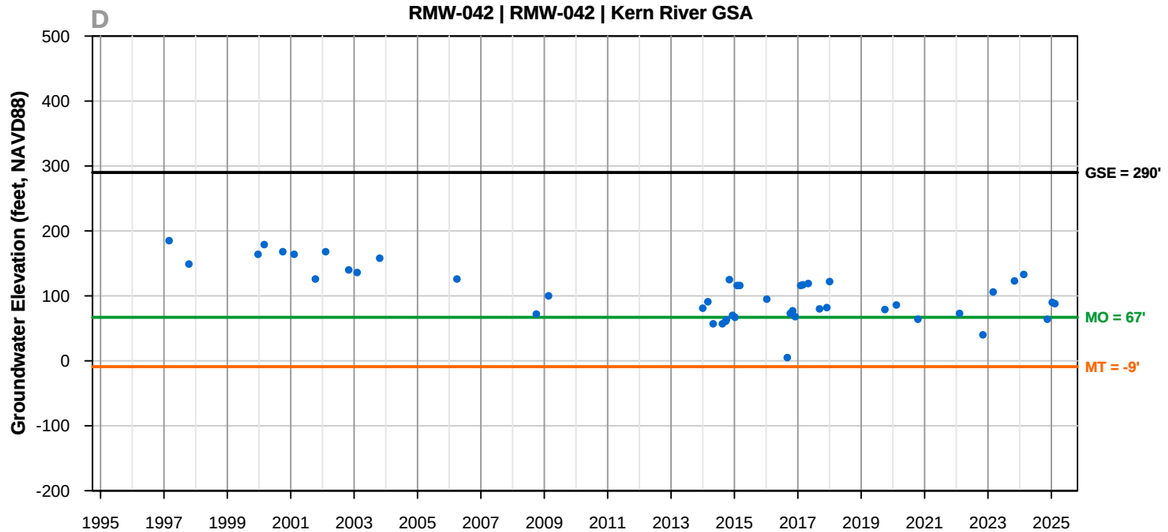
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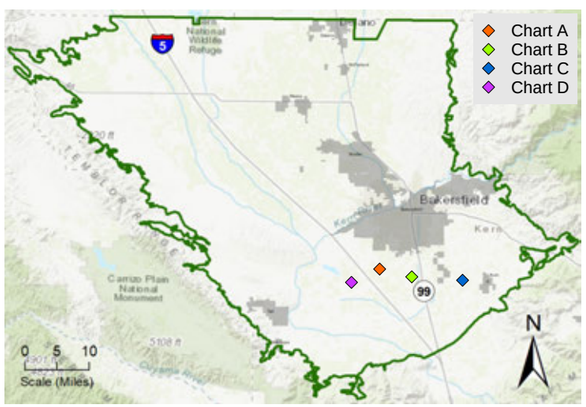
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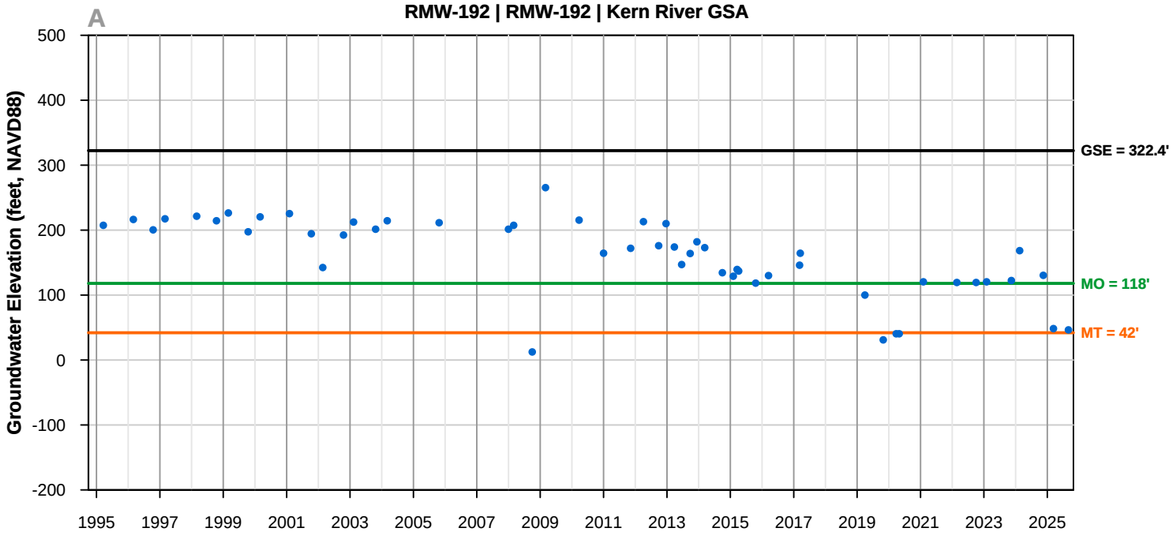
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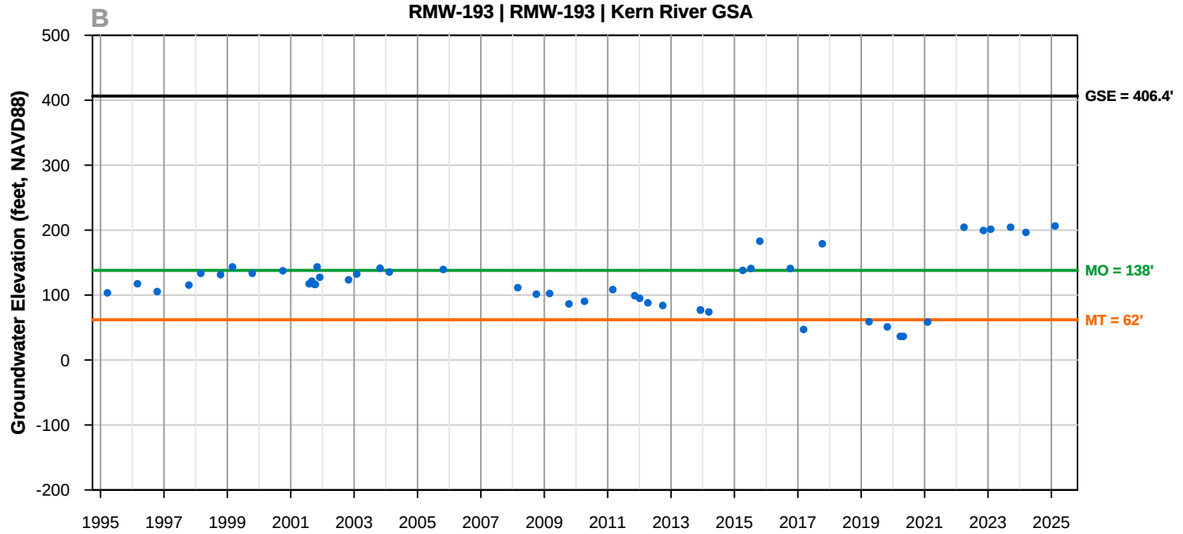
	RMW-038R	RMW-040	RMW-041	RMW-042
RMW ID:				
Local Well Name:	RMW-038R	RMW-040	RMW-041	RMW-042
Site Code:	352230N1191278W001	352083N1190362W001	352027N1188996W001	351922N1192052W001
GSA:	Kern River GSA	Kern River GSA	Kern River GSA	Kern River GSA
Latitude:	35.22306	35.206242	35.199567	35.192165
Longitude:	-119.12783	-119.038881	-118.898542	-119.205224
HCM Area:	South Basin	South Basin	South Basin	South Basin
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	14	NA	NA	NA
Bottom Perforation (feet bgs):	-394	NA	NA	NA
Ground Surface Elevation:	314	314	376	290
Measureable Objective (MO):	111	114	105	67
Minimum Threshold (MT):	50	38	73	-9

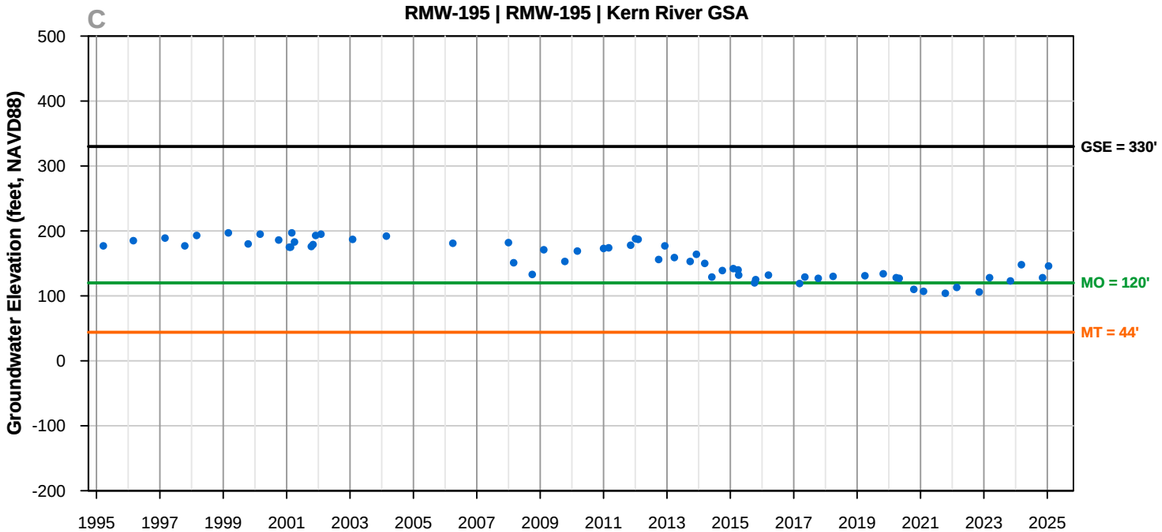
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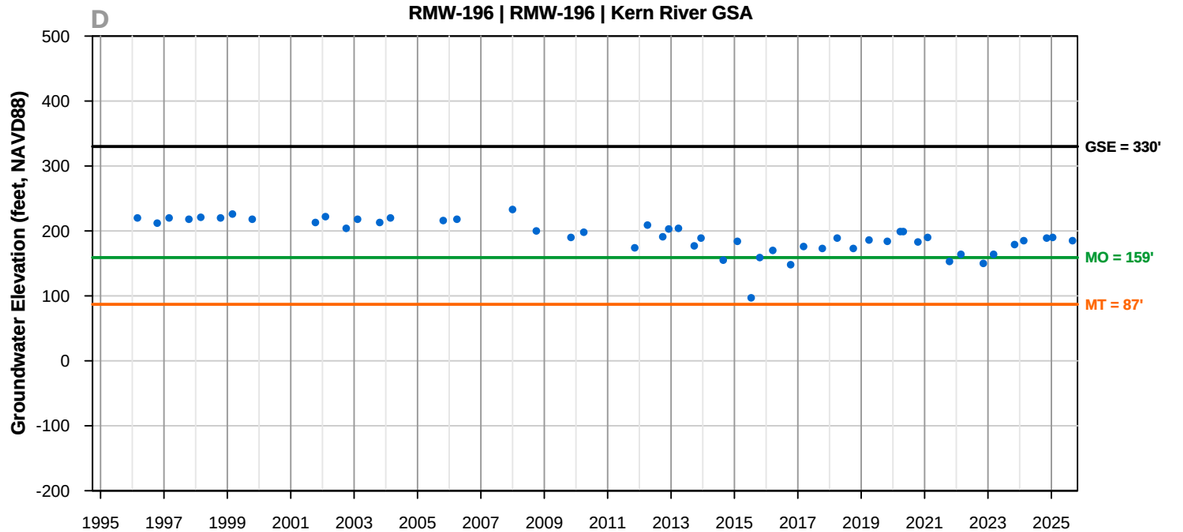
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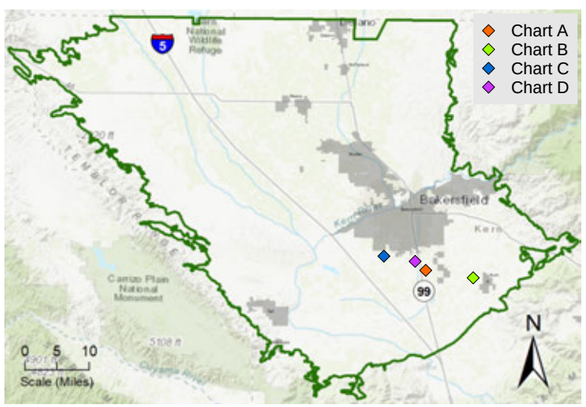
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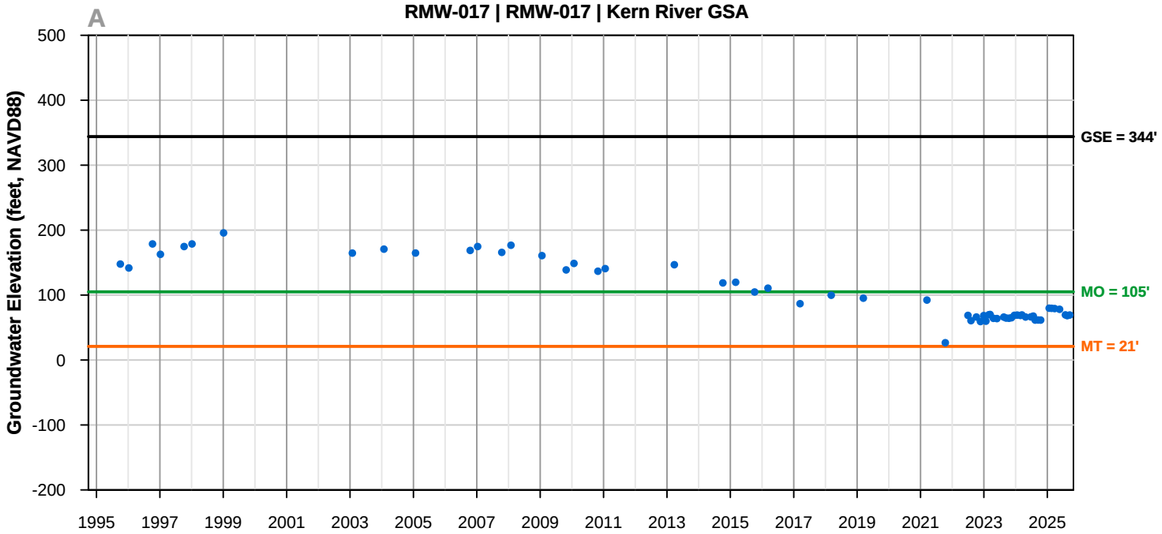
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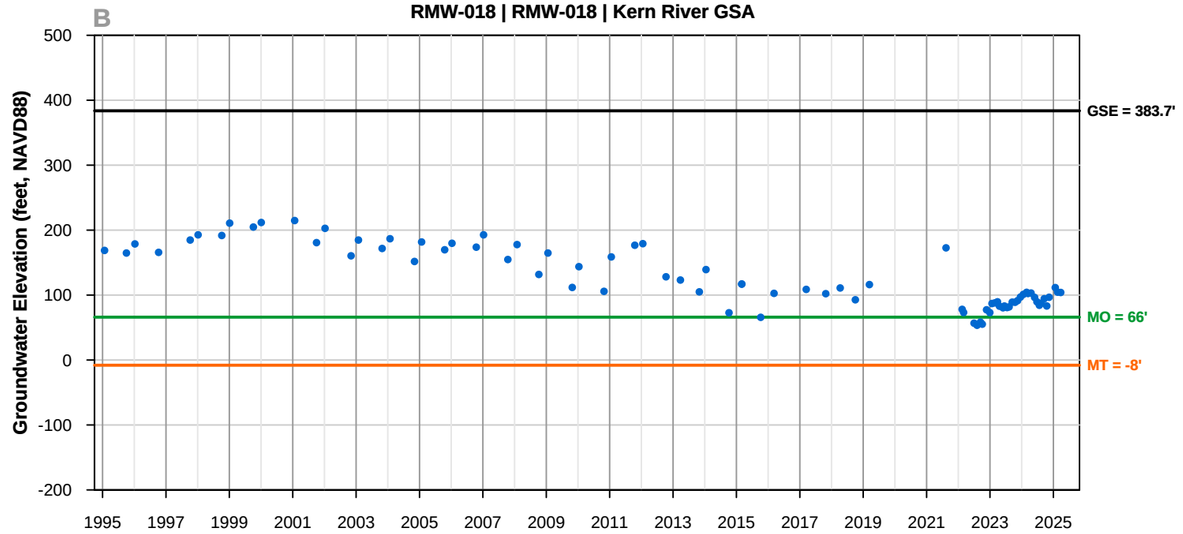
	RMW-192	RMW-193	RMW-195	RMW-196
RMW ID:				
Local Well Name:	RMW-192	RMW-193	RMW-195	RMW-196
Site Code:	352220N1190000W001	352080N1188710W001	352510N1191160W001	352410N1190280W001
GSA:	Kern River GSA	Kern River GSA	Kern River GSA	Kern River GSA
Latitude:	35.22126	35.205295	35.25245	35.241412
Longitude:	-119.00047	-118.869276	-119.116462	-119.030045
HCM Area:	South Basin	South Basin	South Basin	South Basin
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	117.38	126.43	18	-40
Bottom Perforation (feet bgs):	-184.62	-123.57	-300	-367
Ground Surface Elevation:	322.38	406.43	330	330
Measureable Objective (MO):	118	138	120	159
Minimum Threshold (MT):	42	62	44	87

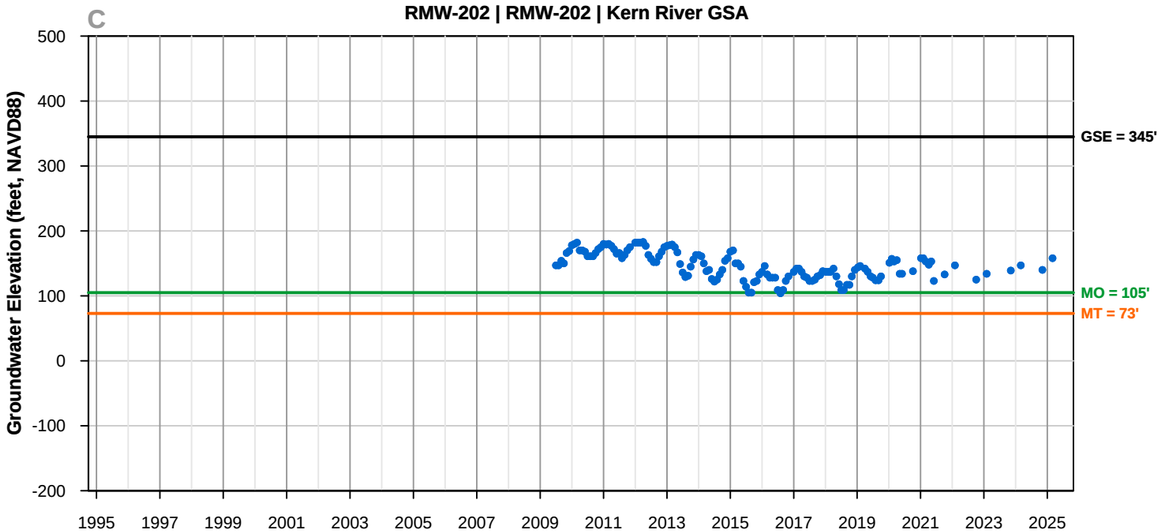
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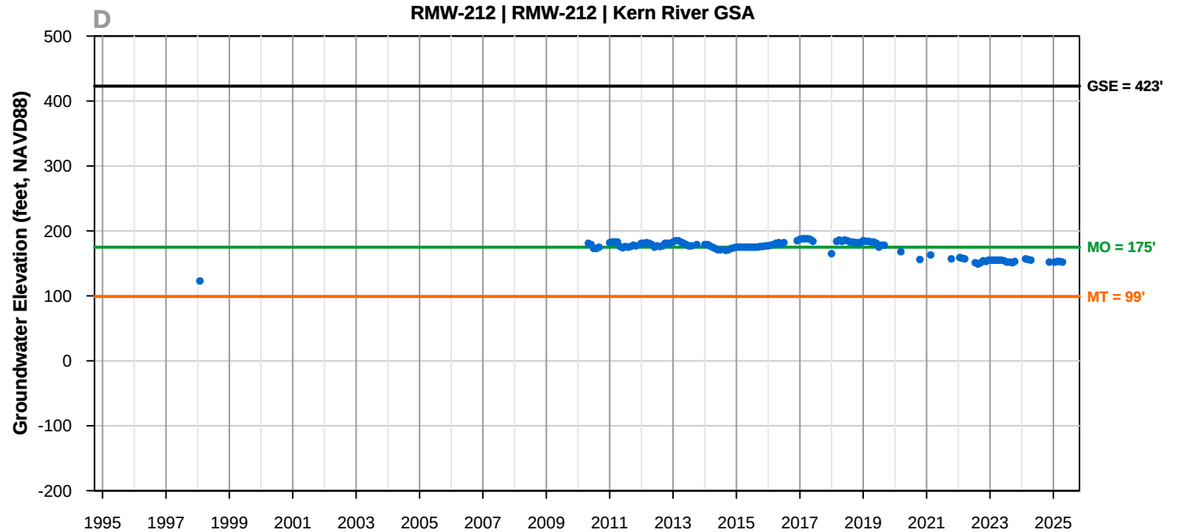
KNDLA - Kern Non-Districted Lands Authority GSA
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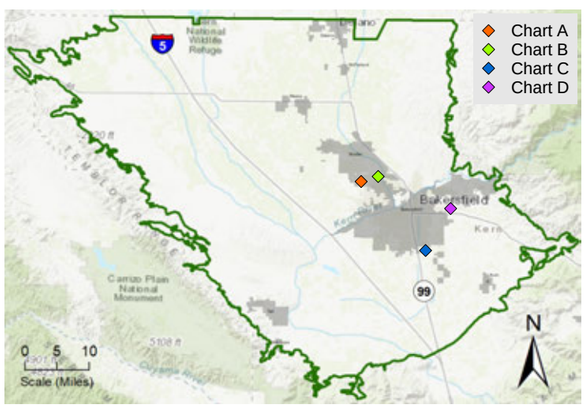
Sheet 13
Kern Groundwater Subbasin Hydrographs, WY 2025











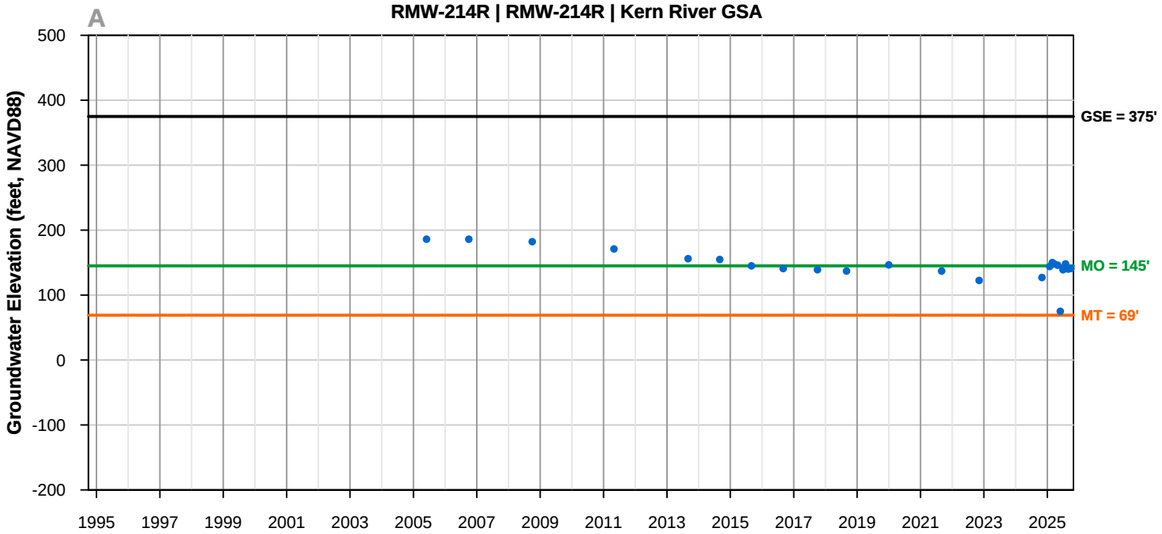
Well Information

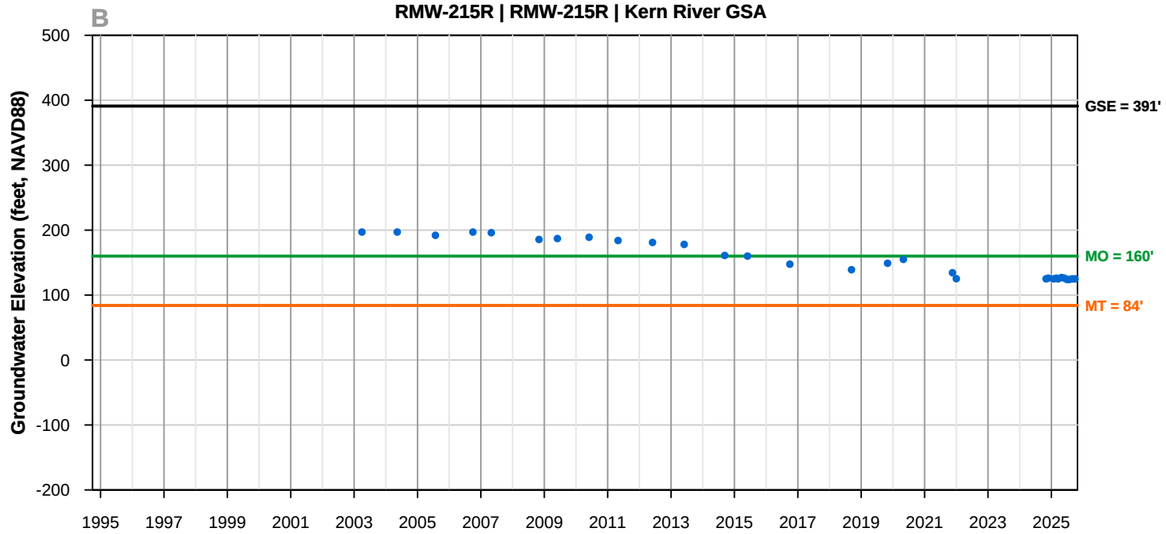
	RMW-017	RMW-018	RMW-202	RMW-212
RMW ID:				
Local Well Name:	RMW-017	RMW-018	RMW-202	RMW-212
Site Code:	354206N1191817W001	354344N1191337W001	352662N1190015W001	353618N1189334W001
GSA:	Kern River GSA	Kern River GSA	Kern River GSA	Kern River GSA
Latitude:	35.420895	35.432778	35.266228	35.361806
Longitude:	-119.181743	-119.134811	-119.001478	-118.933408
HCM Area:	North Basin	North Basin	South Basin	South Basin
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	44	-36.27	165	NA
Bottom Perforation (feet bgs):	-356	-566.27	-75	NA
Ground Surface Elevation:	344	383.73	345	423
Measureable Objective (MO):	105	66	105	175
Minimum Threshold (MT):	21	-8	73	99

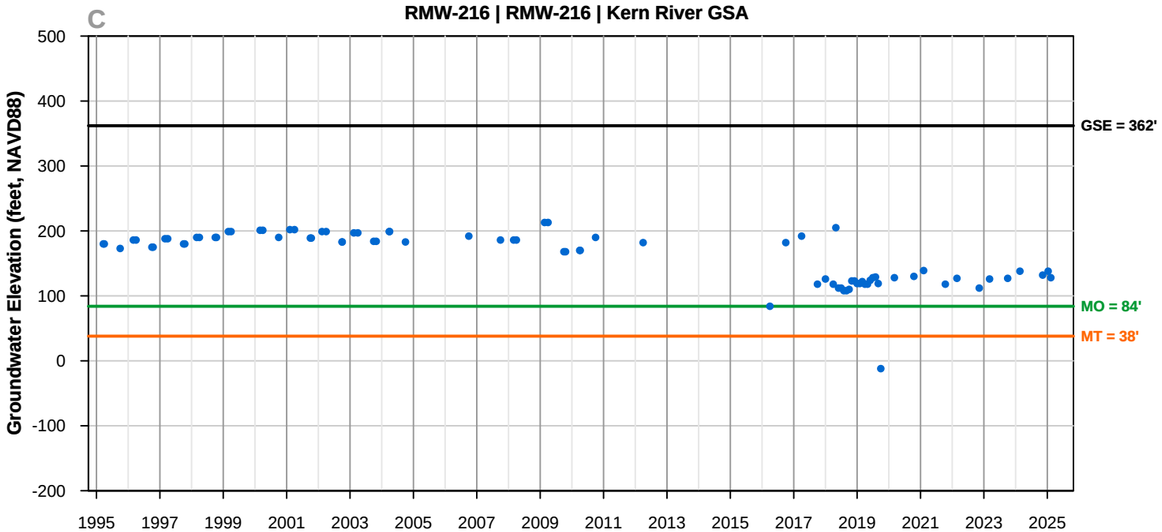
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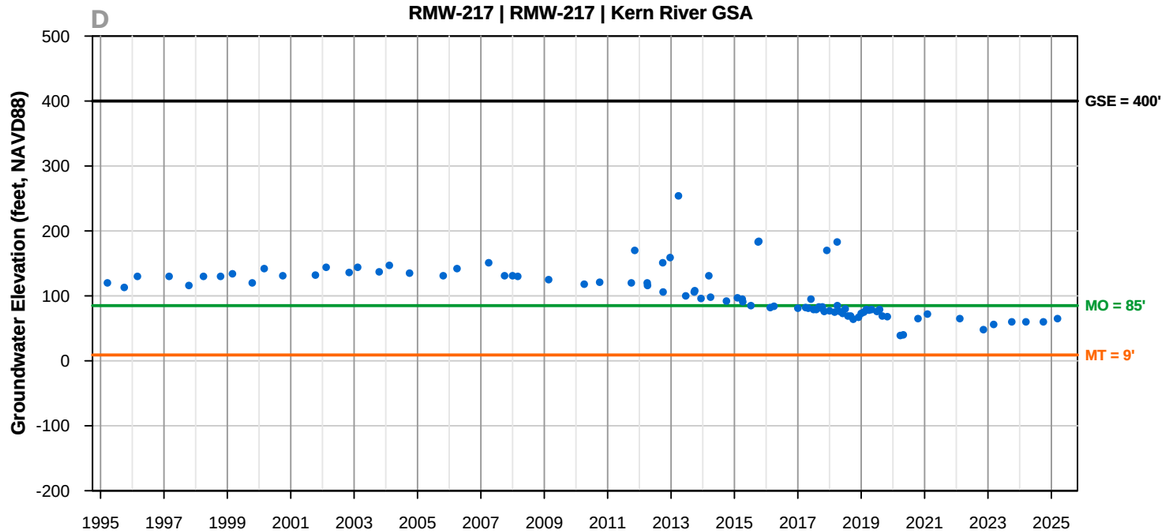
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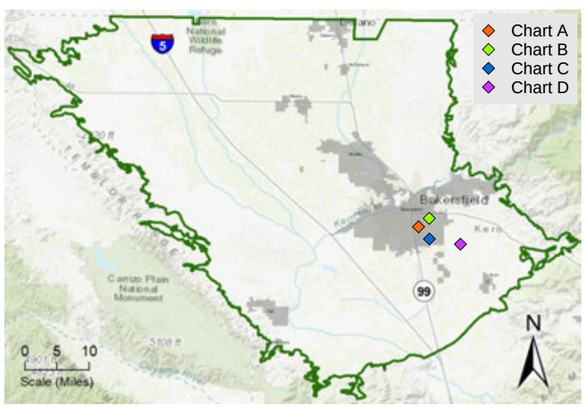
Sheet 14
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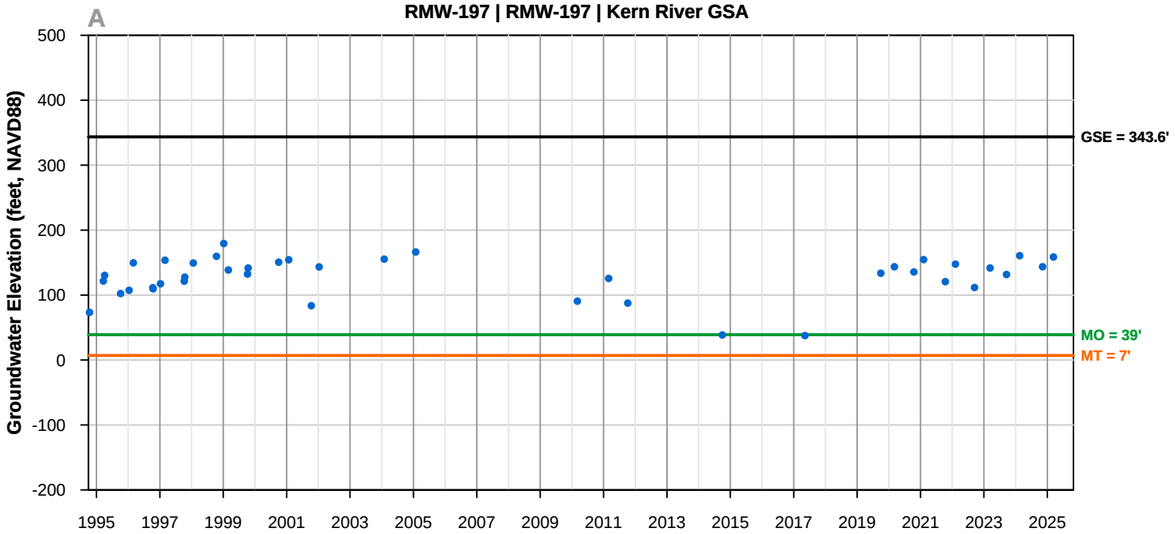
Well Information

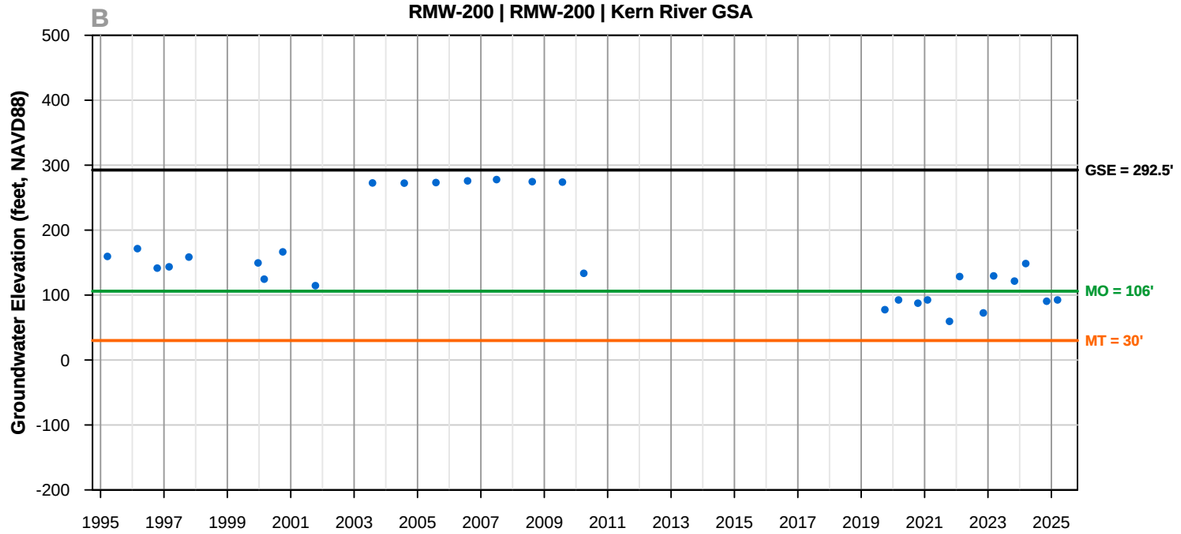
	RMW-214R	RMW-215R	RMW-216	RMW-217
RMW ID:				
Local Well Name:	RMW-214R	RMW-215R	RMW-216	RMW-217
Site Code:	353198N1190224W001	353391N1189921W001	352924N1189911W001	352800N1189080W001
GSA:	Kern River GSA	Kern River GSA	Kern River GSA	Kern River GSA
Latitude:	35.319765	35.339213	35.292436	35.28125
Longitude:	-119.021597	-118.992194	-118.991139	-118.90542
HCM Area:	South Basin	South Basin	South Basin	South Basin
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	155	191	62	NA
Bottom Perforation (feet bgs):	-345	-229	-348	NA
Ground Surface Elevation:	375	391	362	400
Measureable Objective (MO):	145	160	84	85
Minimum Threshold (MT):	69	84	38	9

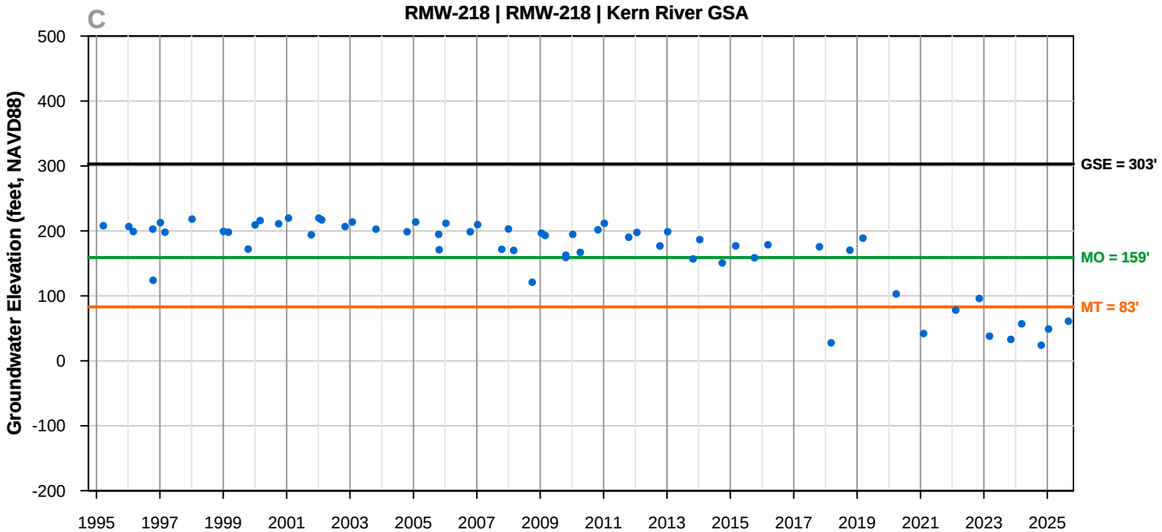
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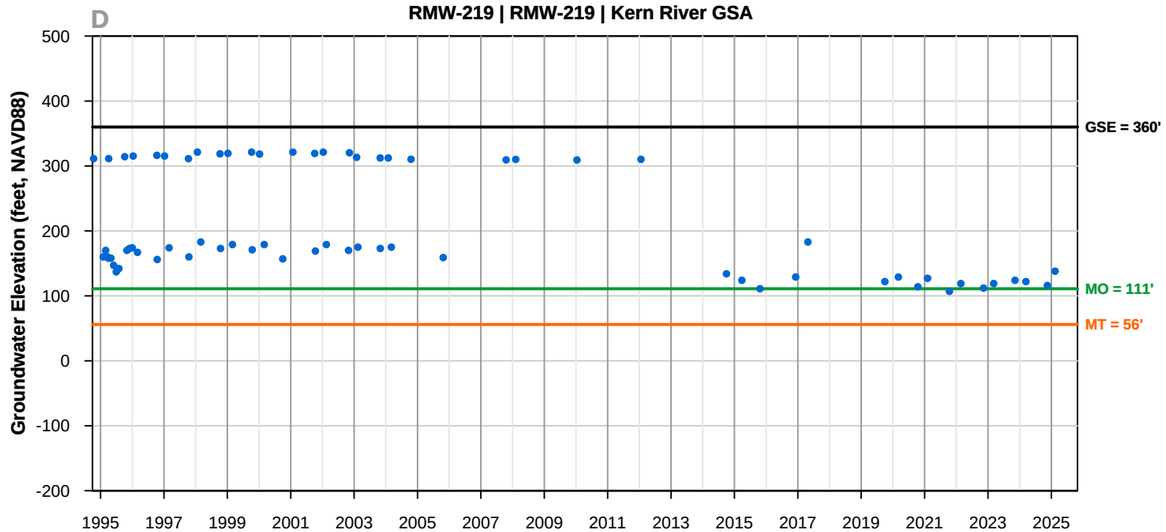
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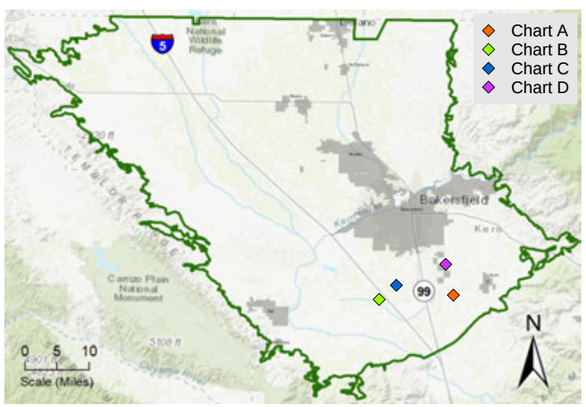
Sheet 15
Kern Groundwater Subbasin Hydrographs, WY 2025











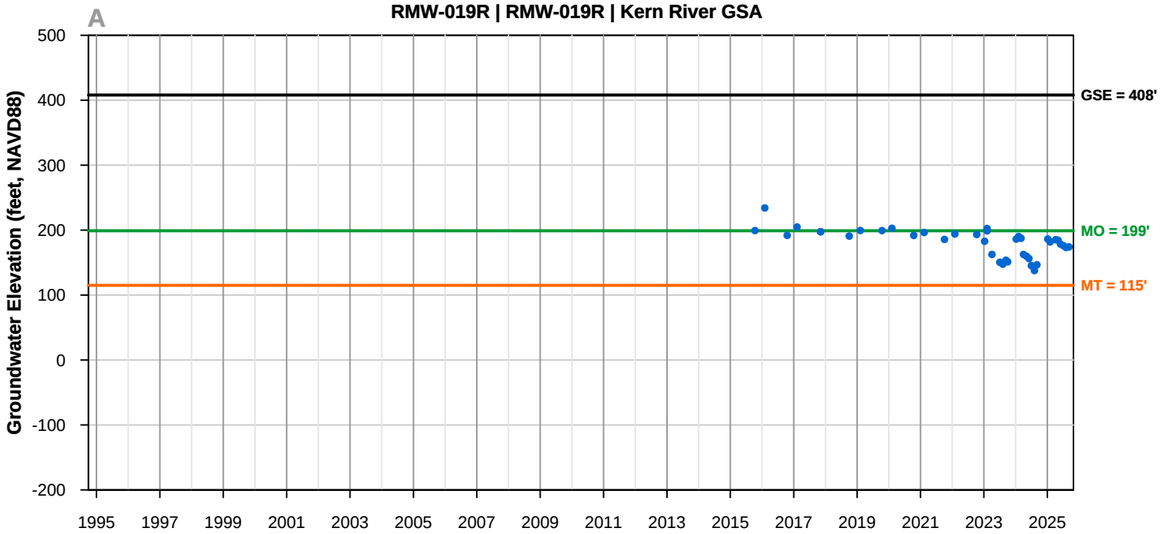
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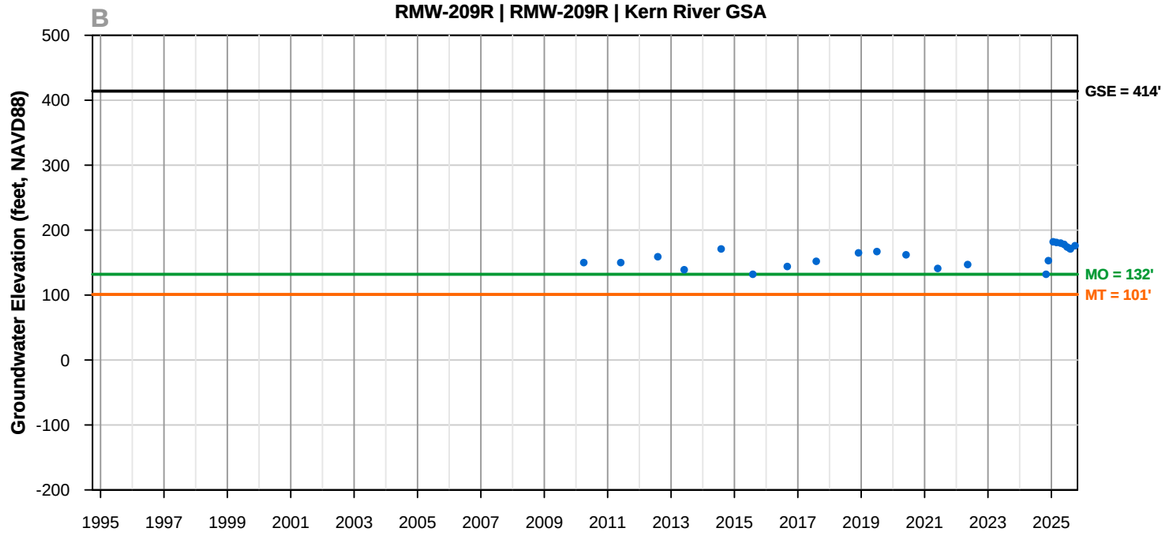
	RMW-197	RMW-200	RMW-218	RMW-219
RMW ID:				
Local Well Name:	RMW-197	RMW-200	RMW-218	RMW-219
Site Code:	351656N1189234W001	351541N1191289W001	351867N1190820W001	352389N1189485W001
GSA:	Kern River GSA	Kern River GSA	Kern River GSA	Kern River GSA
Latitude:	35.16573	35.15416	35.18677	35.235366
Longitude:	-118.92356	-119.12814	-119.081213	-118.945542
HCM Area:	South Basin	South Basin	South Basin	South Basin
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	NA	NA	123	210
Bottom Perforation (feet bgs):	NA	NA	-287	-63
Ground Surface Elevation:	343.62	292.52	303	360
Measureable Objective (MO):	39	106	159	111
Minimum Threshold (MT):	7	30	83	56

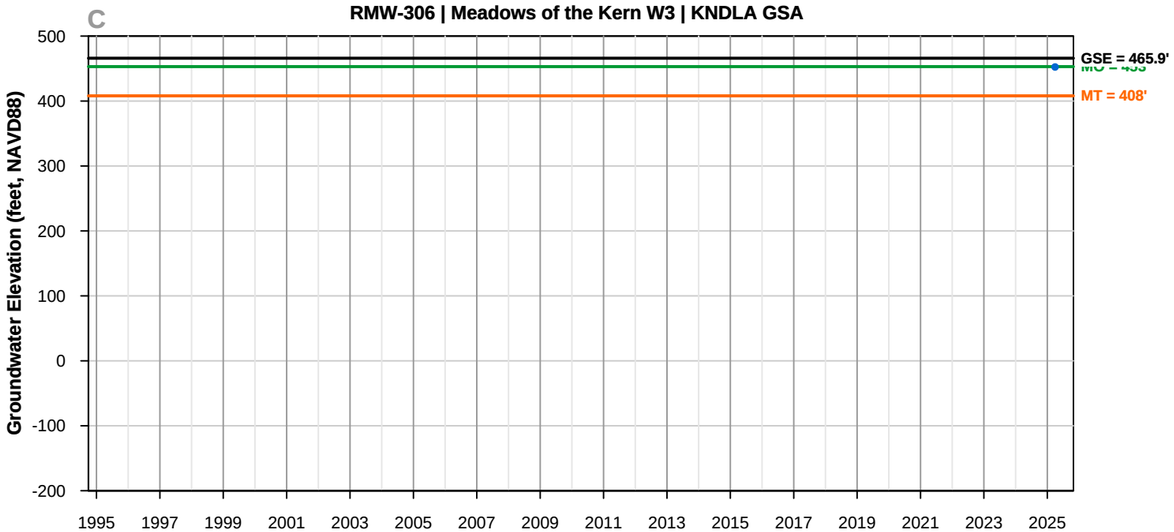
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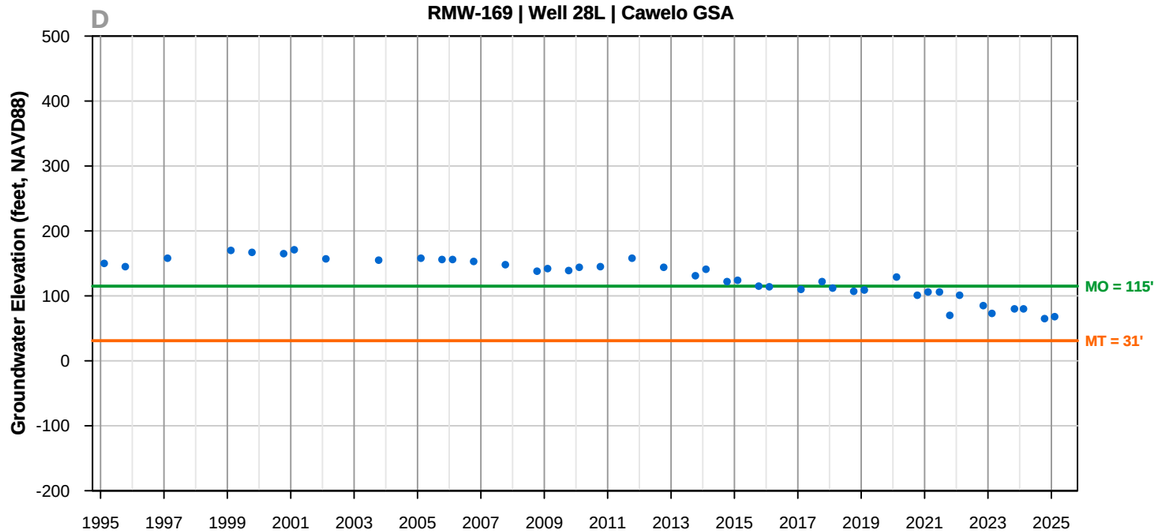
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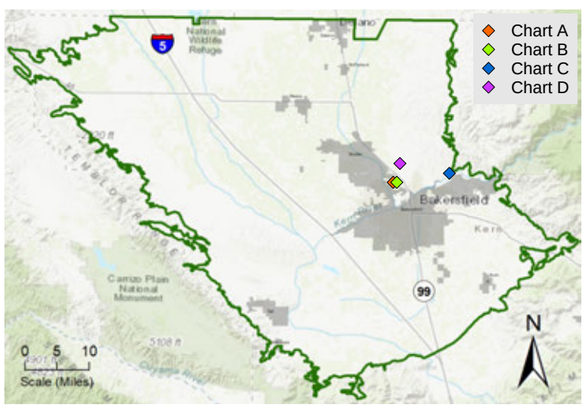
Sheet 16
Kern Groundwater Subbasin Hydrographs, WY 2025











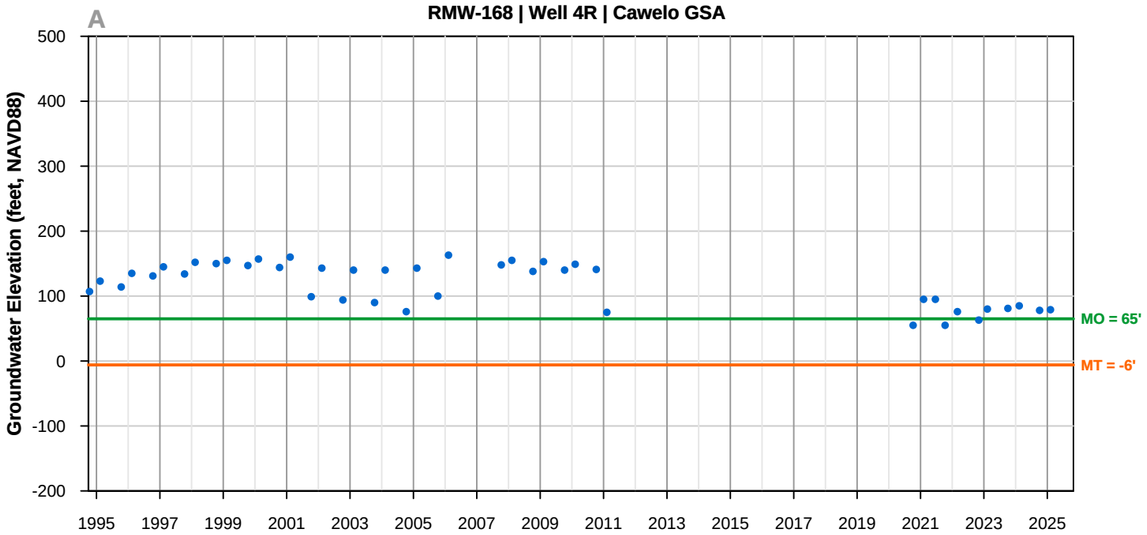
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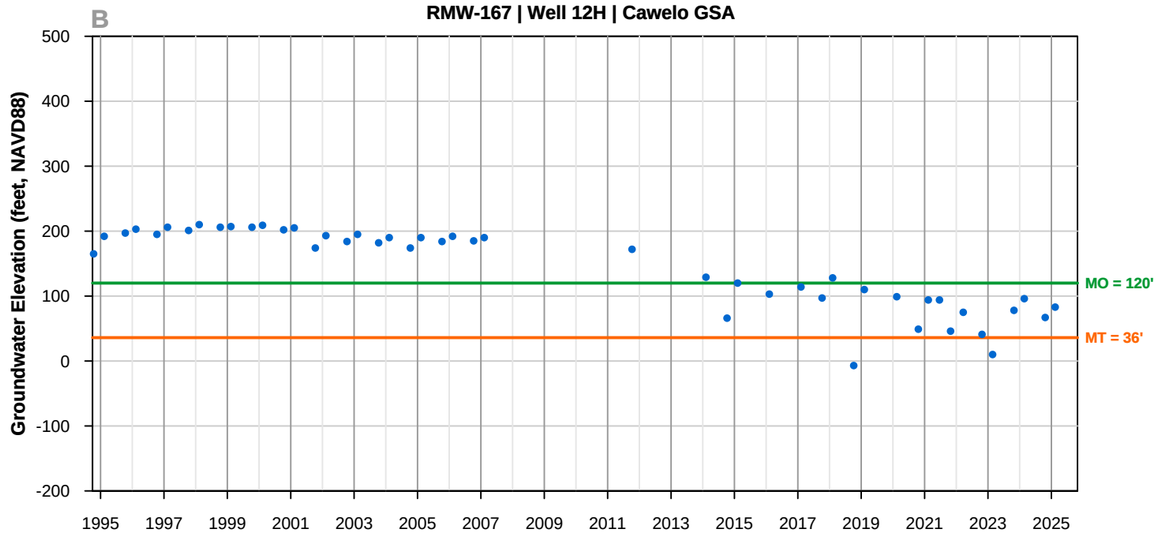
	RMW-019R	RMW-209R	RMW-306	RMW-169
RMW ID:	**RMW-019R**	**RMW-209R**	**RMW-306**	**RMW-169**
Local Well Name:	RMW-019R	RMW-209R	Meadows of the Kern W3	Well 28L
Site Code:	354199N1190930W001	351200N1190830W001	354416N1189378W001	356023N1191691W001
GSA:	Kern River GSA	Kern River GSA	KNDLA GSA	Cawelo GSA
Latitude:	35.419936	35.420048	35.4416611	35.462763
Longitude:	-119.093097	-119.083077	-118.9378333	-119.074941
HCM Area:	North Basin	North Basin	Kern River Fan	North Basin
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	28	4	285.93	36
Bottom Perforation (feet bgs):	-72	-264	245.93	-4
Ground Surface Elevation:	408	414	465.93	580
Measureable Objective (MO):	199	132	453	115
Minimum Threshold (MT):	115	101	408	31

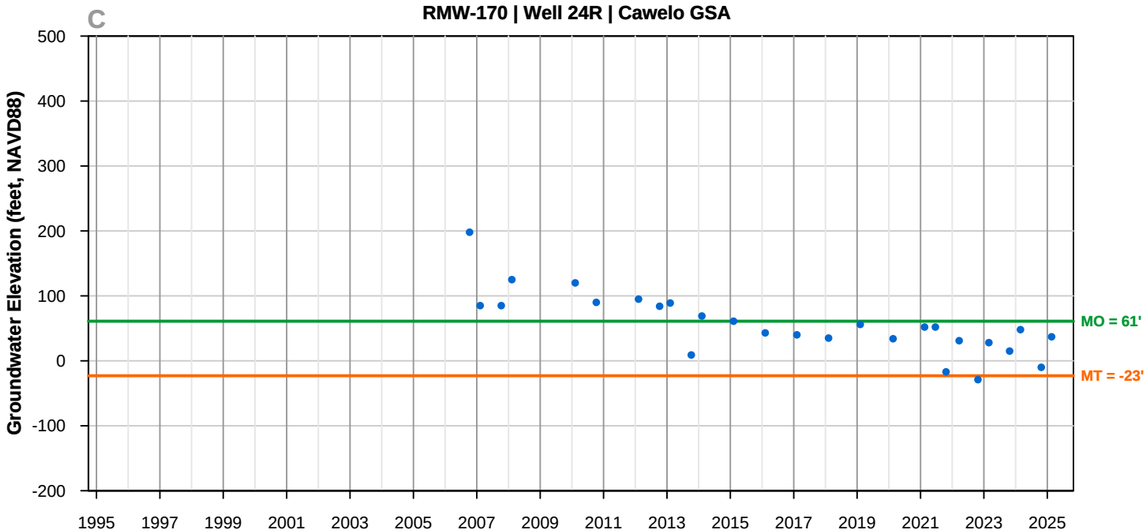
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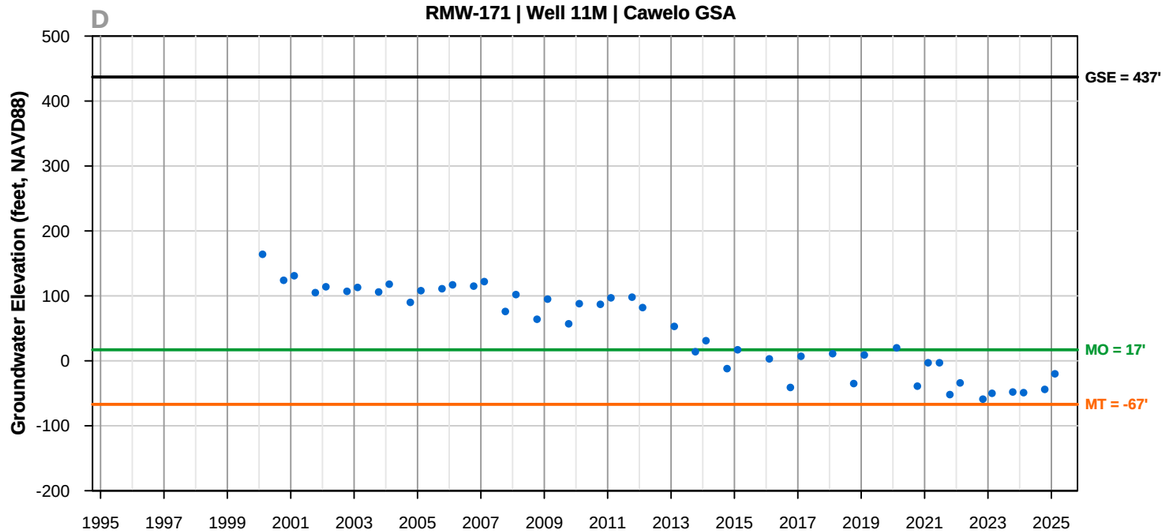
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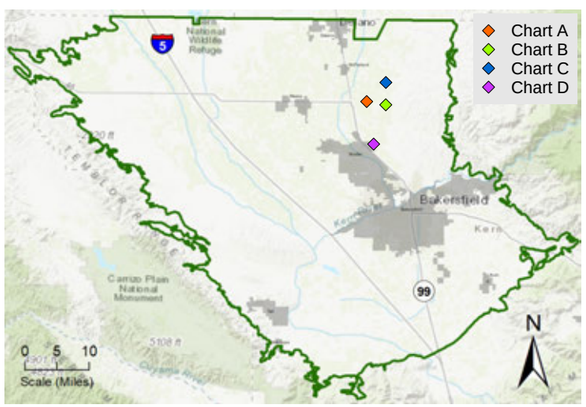
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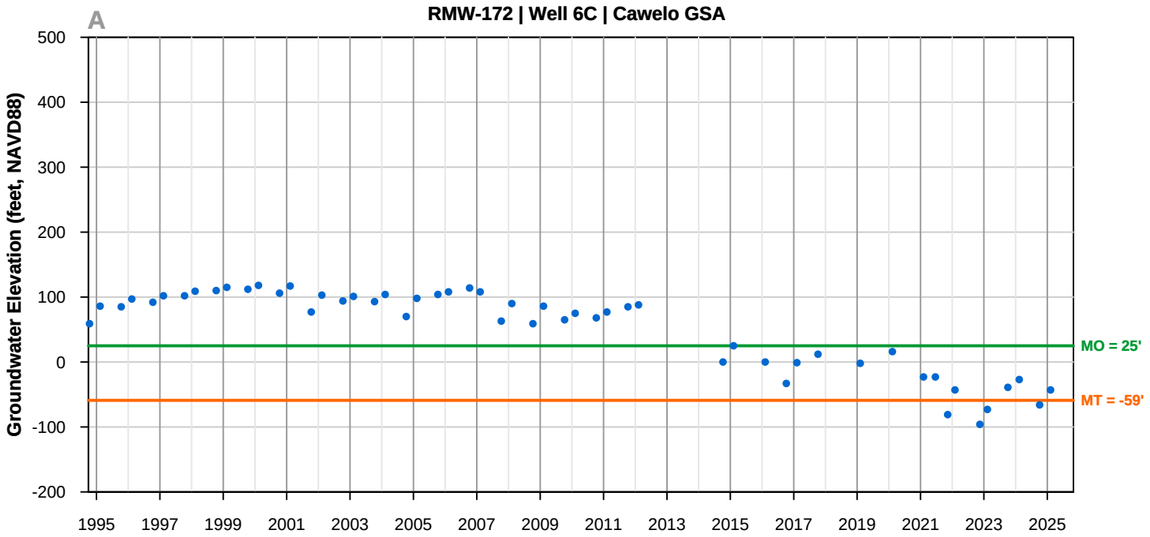
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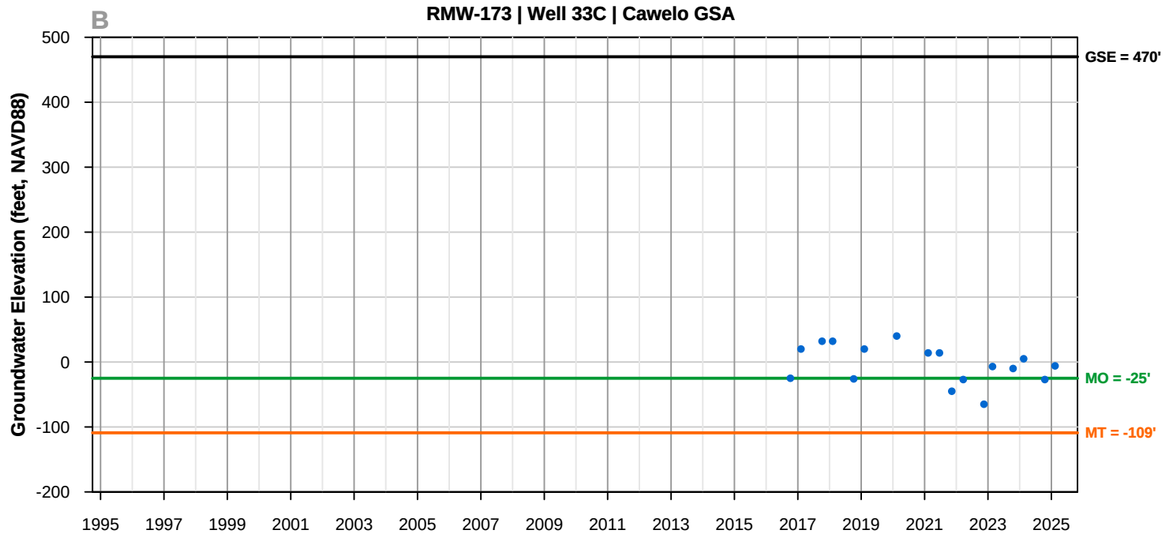
	RMW-168	RMW-167	RMW-170	RMW-171
RMW ID:				
Local Well Name:	Well 4R	Well 12H	Well 24R	Well 11M
Site Code:	356023N1191690W001	355954N1191160W001	356469N1191175W001	355044N1191502W001
GSA:	Cawelo GSA	Cawelo GSA	Cawelo GSA	Cawelo GSA
Latitude:	35.6023	35.59541	35.64601	35.5061
Longitude:	-119.169	-119.11595	-119.11639	-119.14837
HCM Area:	North Basin	North Basin	North Basin	North Basin
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	-5	180	-75	-385
Bottom Perforation (feet bgs):	-695	-540	-115	-628
Ground Surface Elevation:	505	680	690	437
Measureable Objective (MO):	65	120	61	17
Minimum Threshold (MT):	-6	36	-23	-67

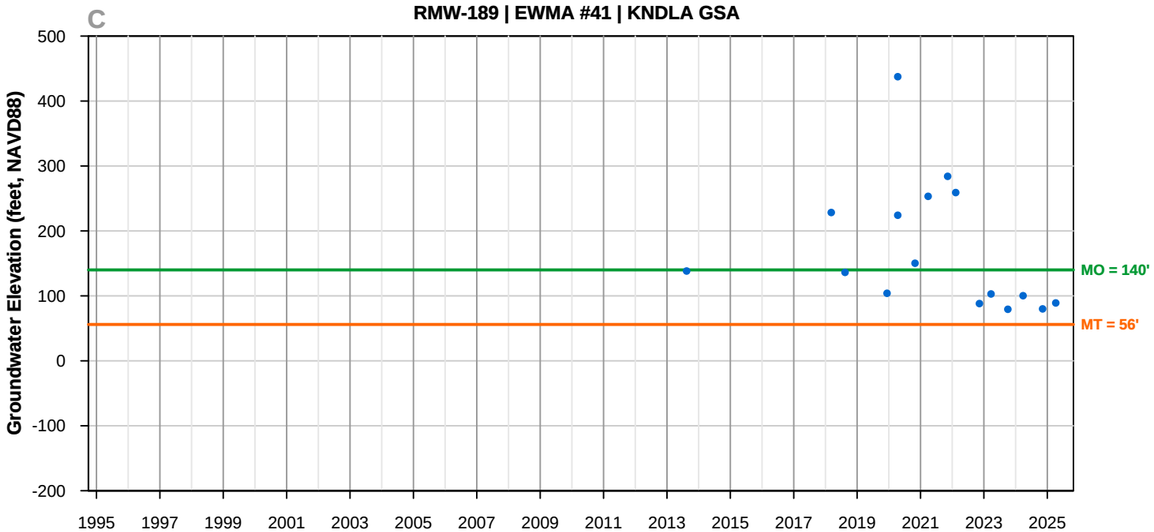
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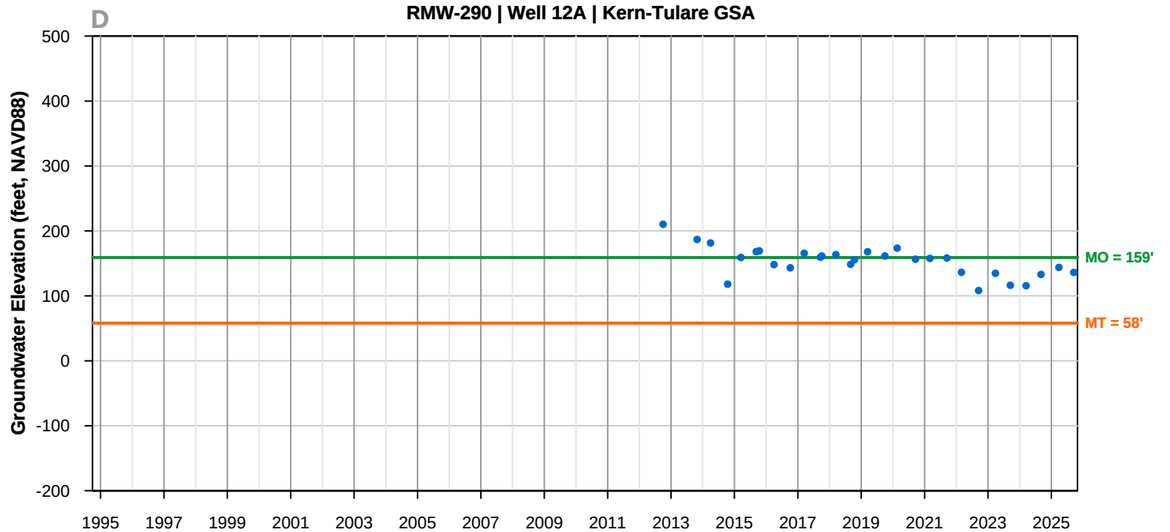
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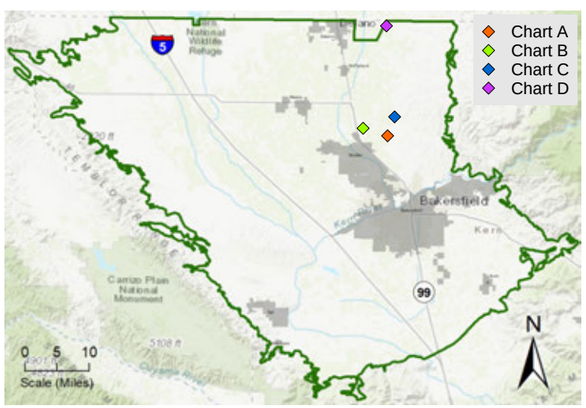
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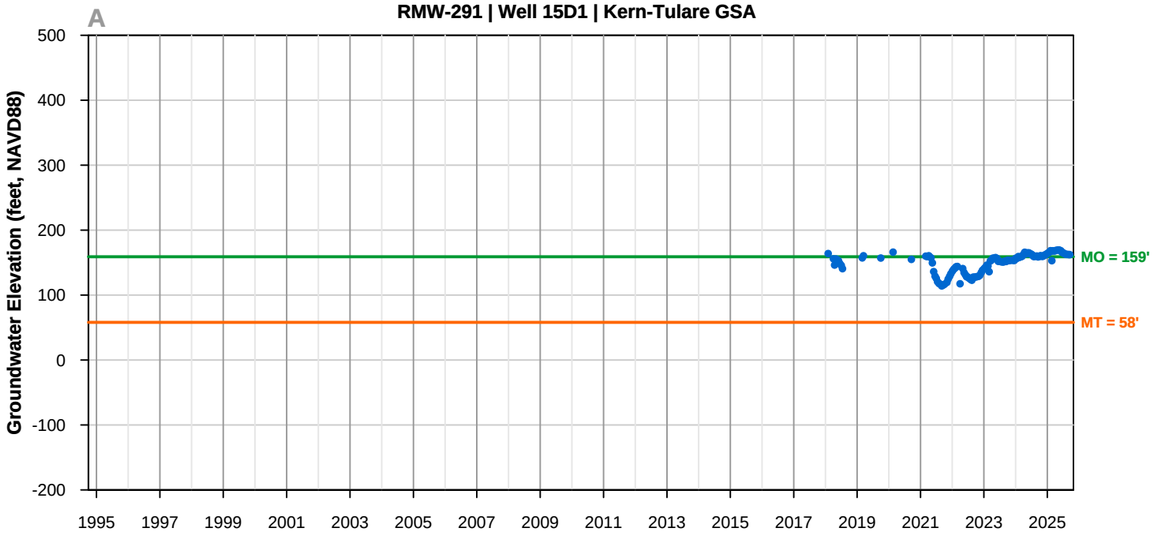
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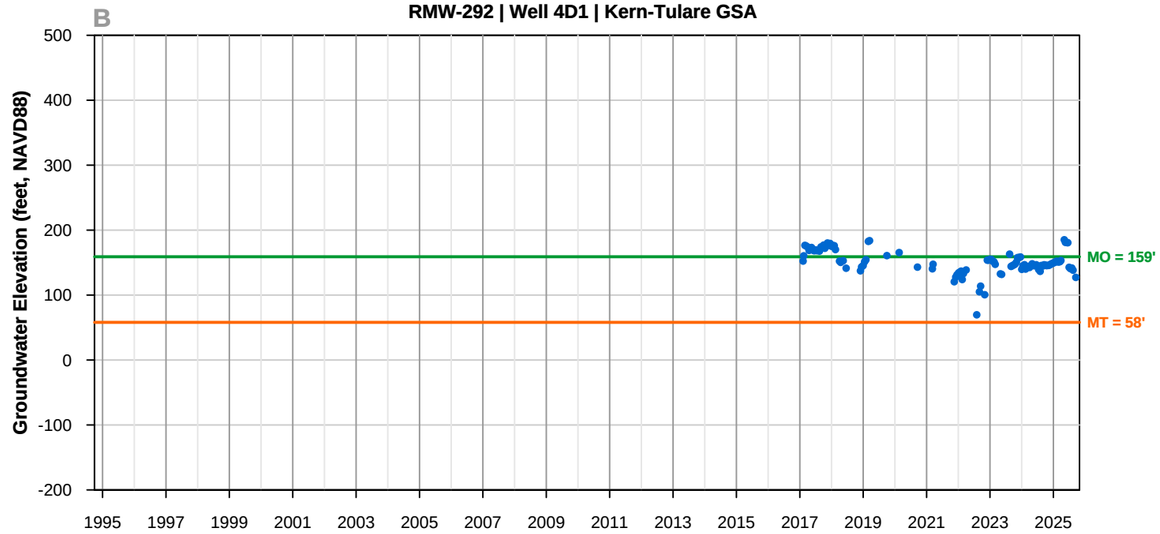
	RMW-172	RMW-173	RMW-189	RMW-290
RMW ID:				
Local Well Name:	Well 6C	Well 33C	EWMA #41	Well 12A
Site Code:	355274N1191100W001	355439N1191781W001	355706N1190911W001	354635N1190659W001
GSA:	Cawelo GSA	Cawelo GSA	KNDLA GSA	Kern-Tulare GSA
Latitude:	35.52744	35.54391	35.570531	35.776516
Longitude:	-119.10998	-119.17809	-119.091094	-119.116495
HCM Area:	North Basin	North Basin	North Basin	East Margin
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	42	-210	-188.84	-146.32
Bottom Perforation (feet bgs):	-613	-1160	-258.84	-446.32
Ground Surface Elevation:	602	470	661.16	513.68
Measureable Objective (MO):	25	-25	140	159
Minimum Threshold (MT):	-59	-109	56	58

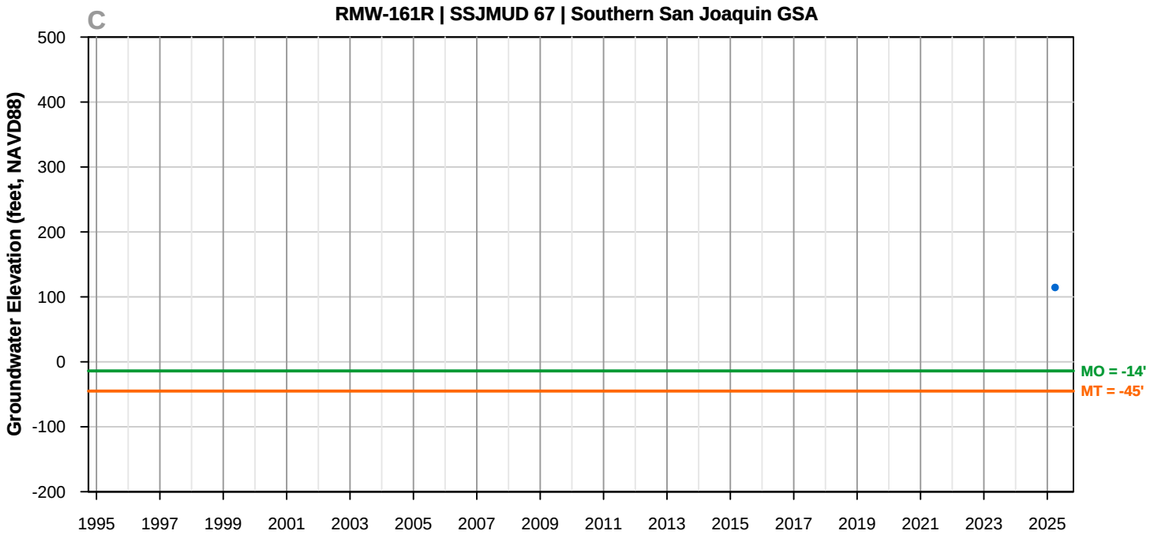
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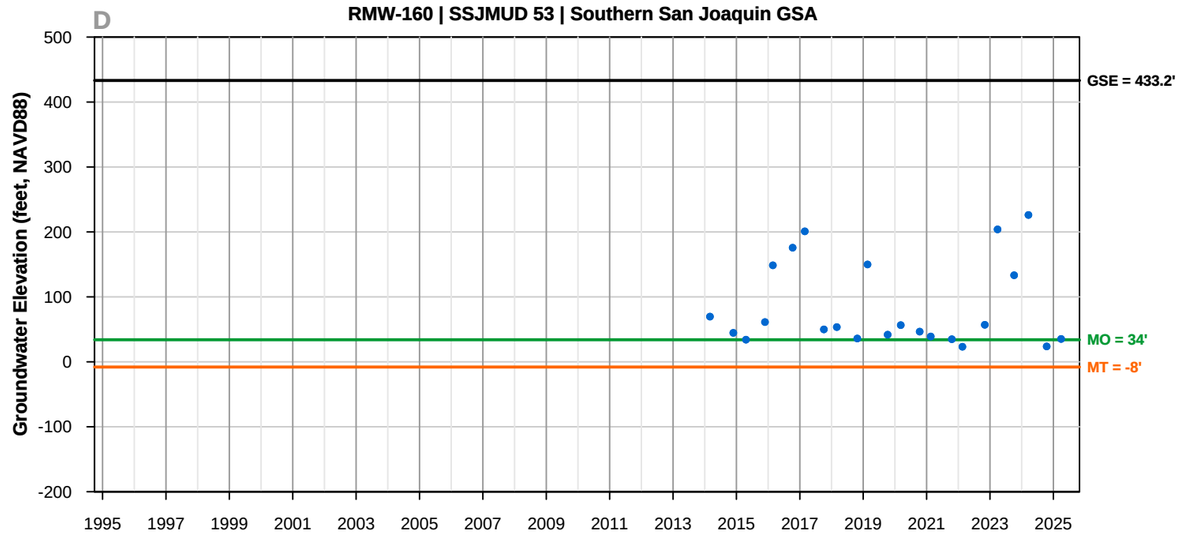
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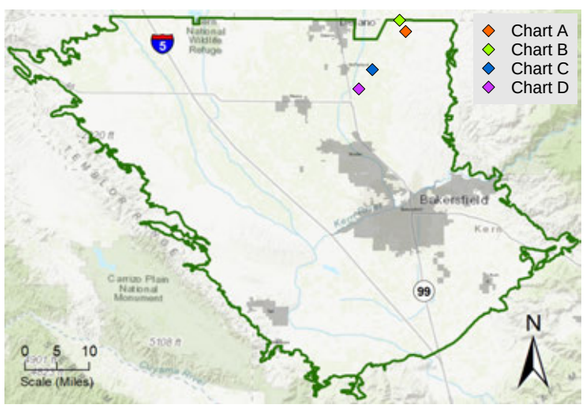
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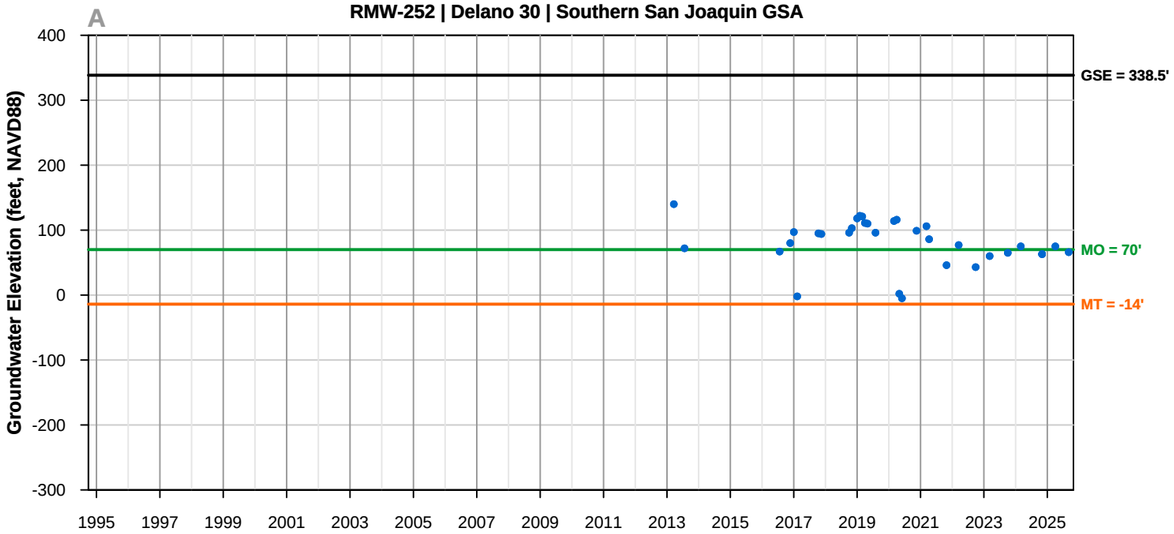
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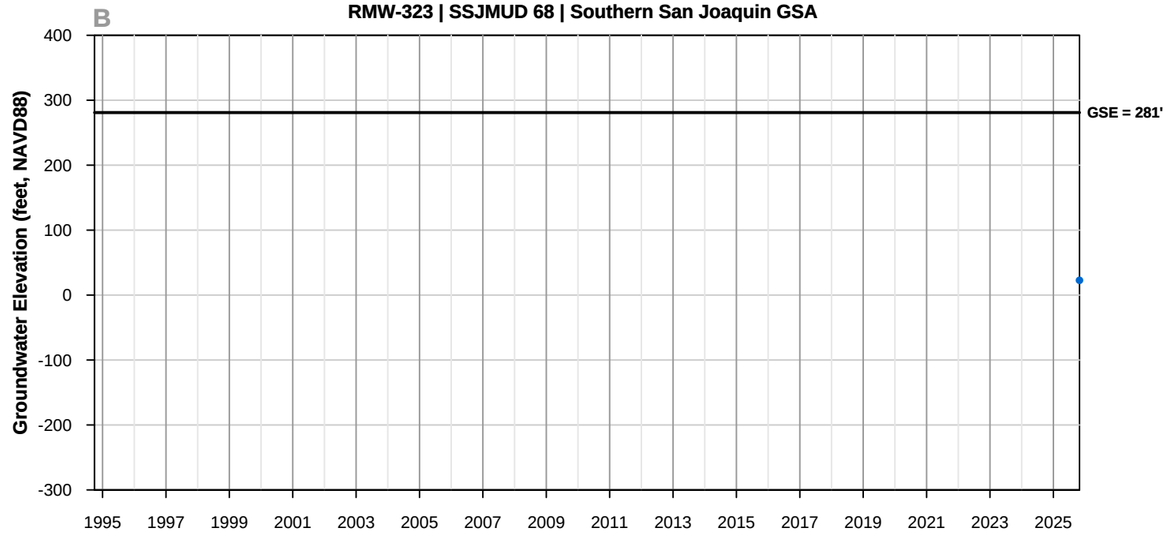
	RMW-291	RMW-292	RMW-161R	RMW-160
RMW ID:				
Local Well Name:	Well 15D1	Well 4D1	SSJMUD 67	SSJMUD 53
Site Code:	357617N1190628W002	357873N1190801W001	356746N1191542W001	356307N1191912W001
GSA:	Kern-Tulare GSA	Kern-Tulare GSA	Southern San Joaquin GSA	Southern San Joaquin GSA
Latitude:	35.762	35.787289	35.674688	35.63068
Longitude:	-119.063	-119.080074	-119.154277	-119.1912
HCM Area:	East Margin	East Margin	North Basin	North Basin
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	138.31	155.49	229	33.2
Bottom Perforation (feet bgs):	-61.69	-244.51	149	-566.8
Ground Surface Elevation:	618.31	555.49	509	433.2
Measureable Objective (MO):	159	159	-14	34
Minimum Threshold (MT):	58	58	-45	-8

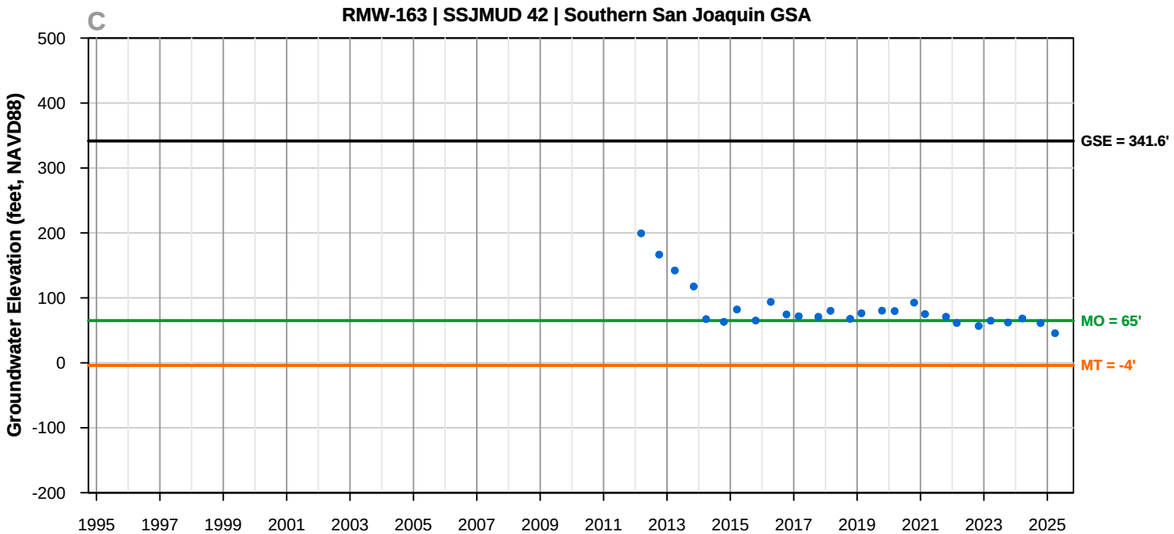
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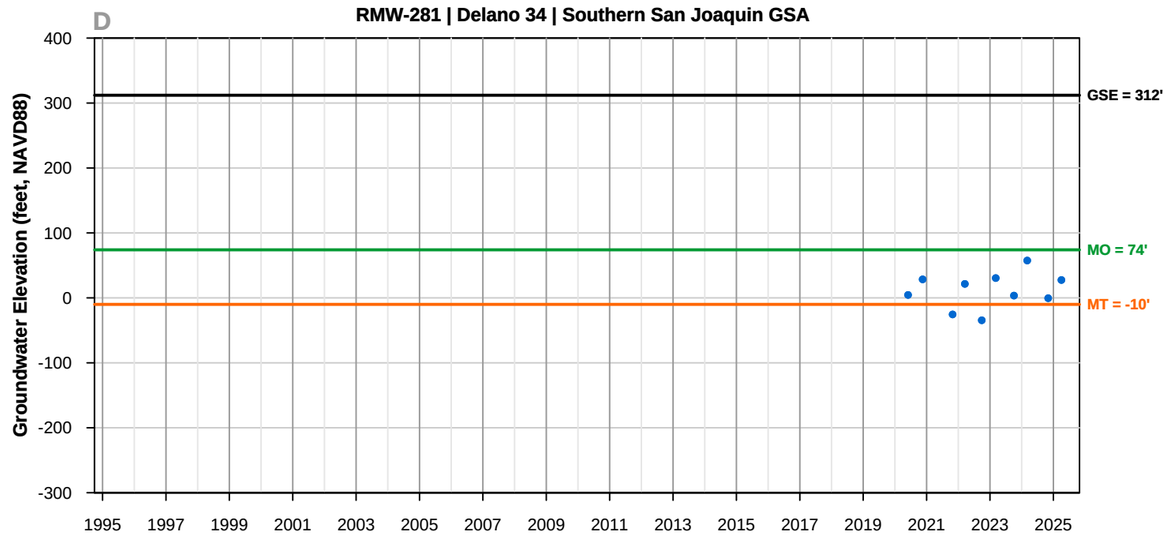
KNDLA - Kern Non-Districted Lands Authority GSA
WDWA - Westside District Water Authority GSA

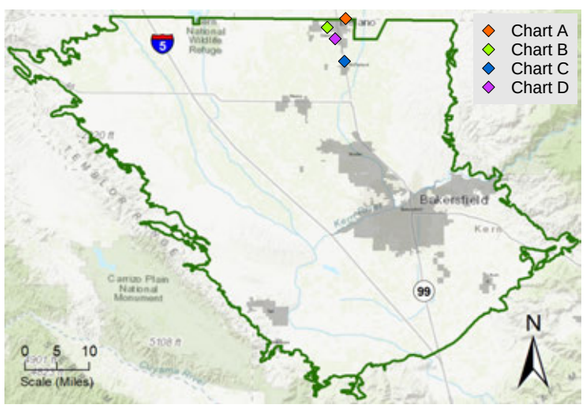
Sheet 20
Kern Groundwater Subbasin Hydrographs, WY 2025











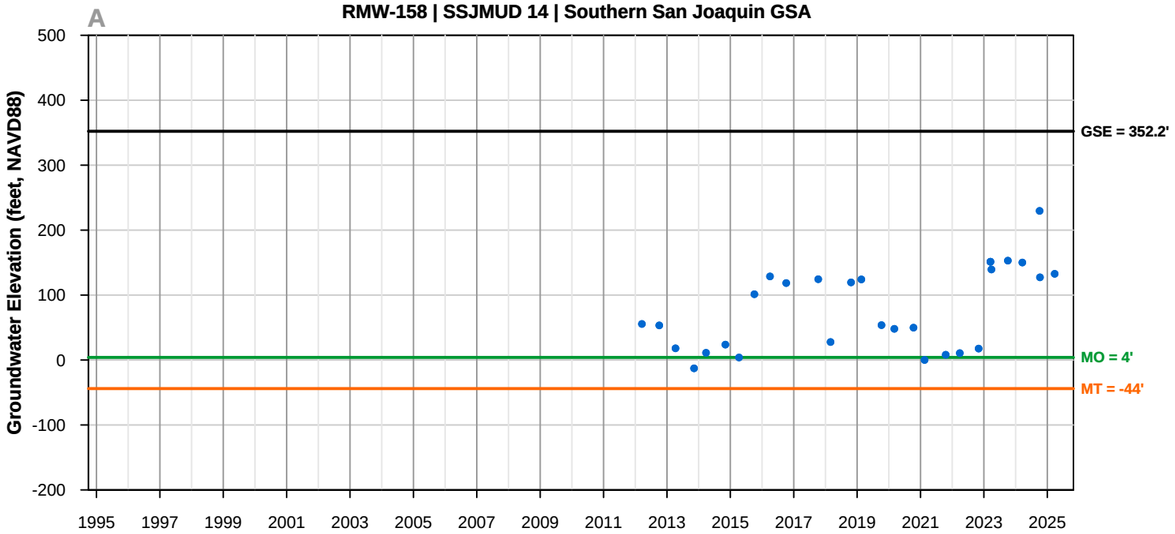
Well Information

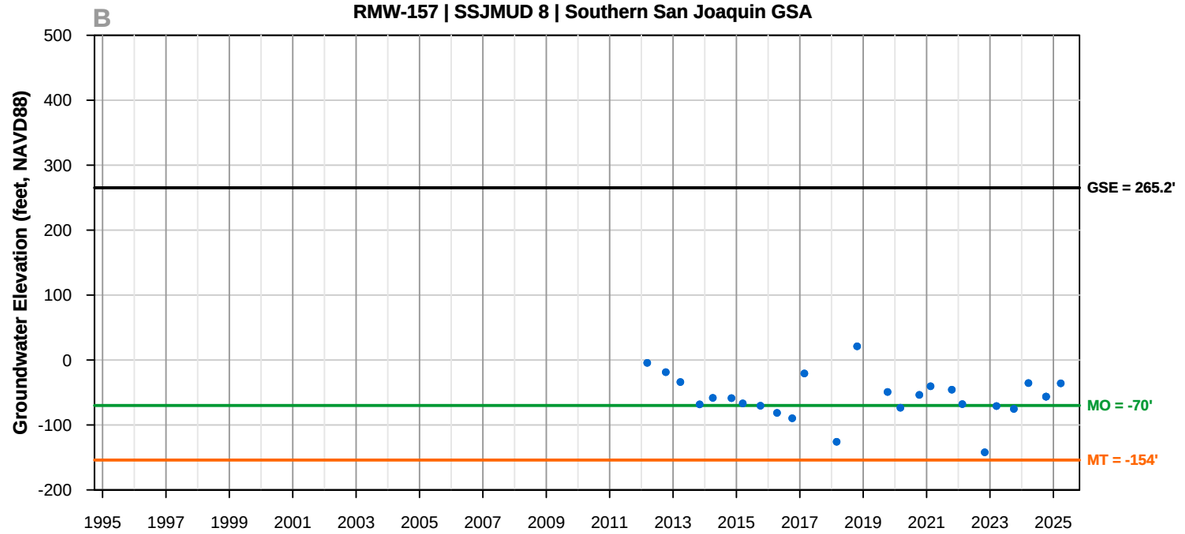
	RMW-252	RMW-323	RMW-163	RMW-281
RMW ID:				
Local Well Name:	Delano 30	SSJMUD 68	SSJMUD 42	Delano 34
Site Code:	357898N1192302W001	357691N1192810W001	356930N1192320W001	357436N1192587W001
GSA:	Southern San Joaquin GSA	Southern San Joaquin GSA	Southern San Joaquin GSA	Southern San Joaquin GSA
Latitude:	35.78979	35.769147	35.69295	35.74363
Longitude:	-119.23024	-119.2810369	-119.232	-119.25874
HCM Area:	North Basin	North Basin	North Basin	North Basin
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	-186.51	131	101.6	-158
Bottom Perforation (feet bgs):	-351.51	-19	-378.4	-393
Ground Surface Elevation:	338.49	281	341.6	312
Measureable Objective (MO):	70		65	74
Minimum Threshold (MT):	-14	(Note 1)	-4	-10

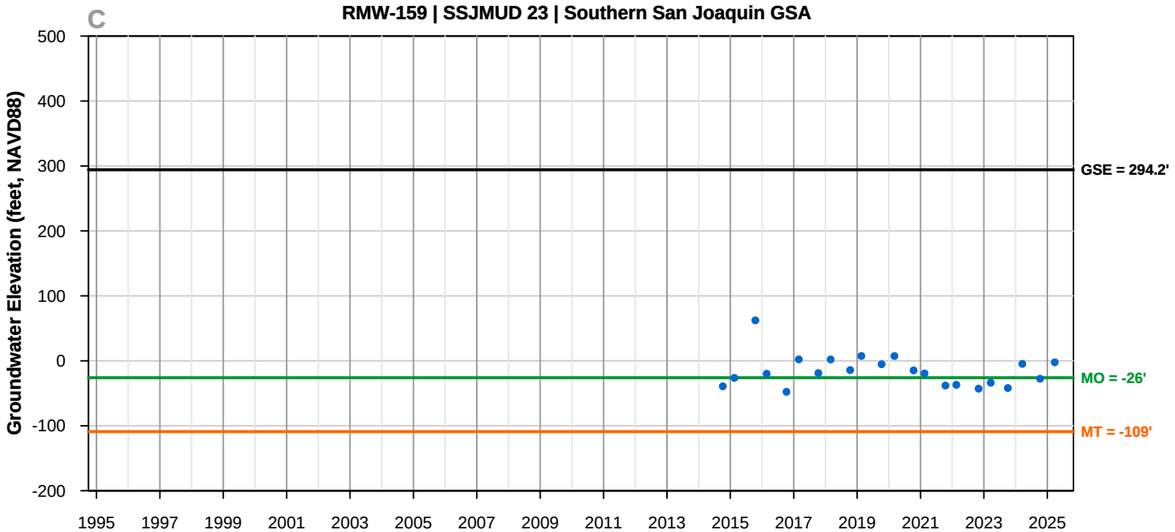
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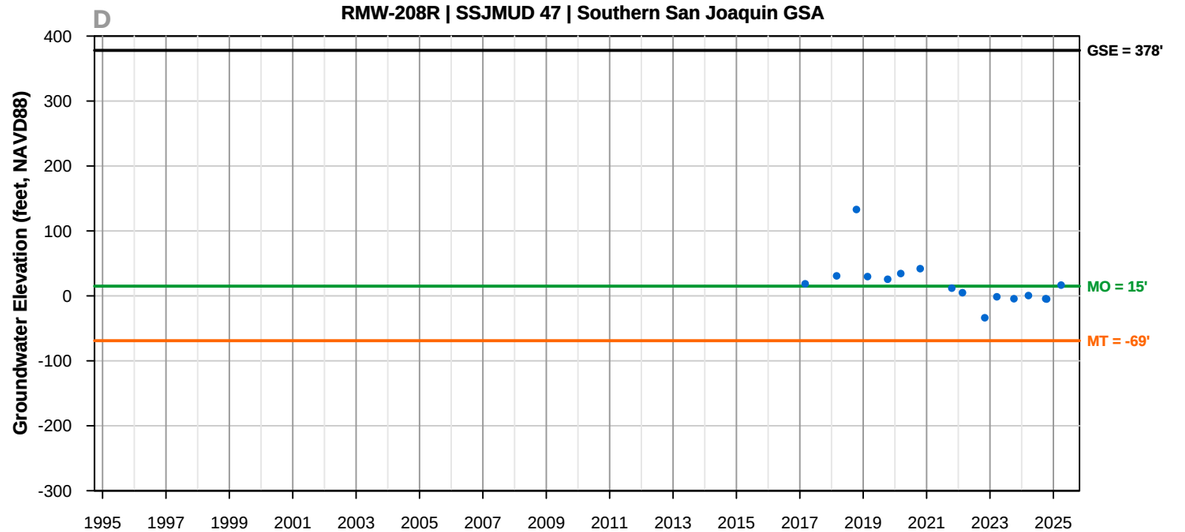
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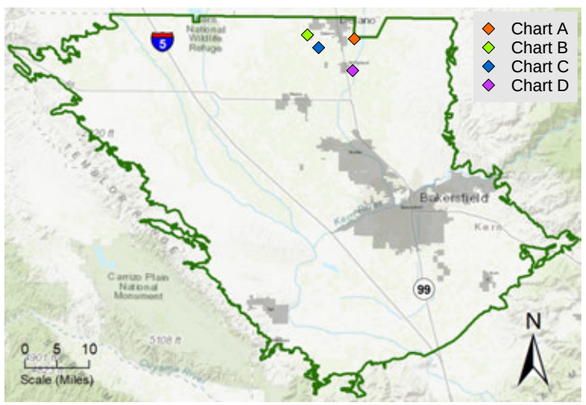
Sheet 21
Kern Groundwater Subbasin Hydrographs, WY 2025











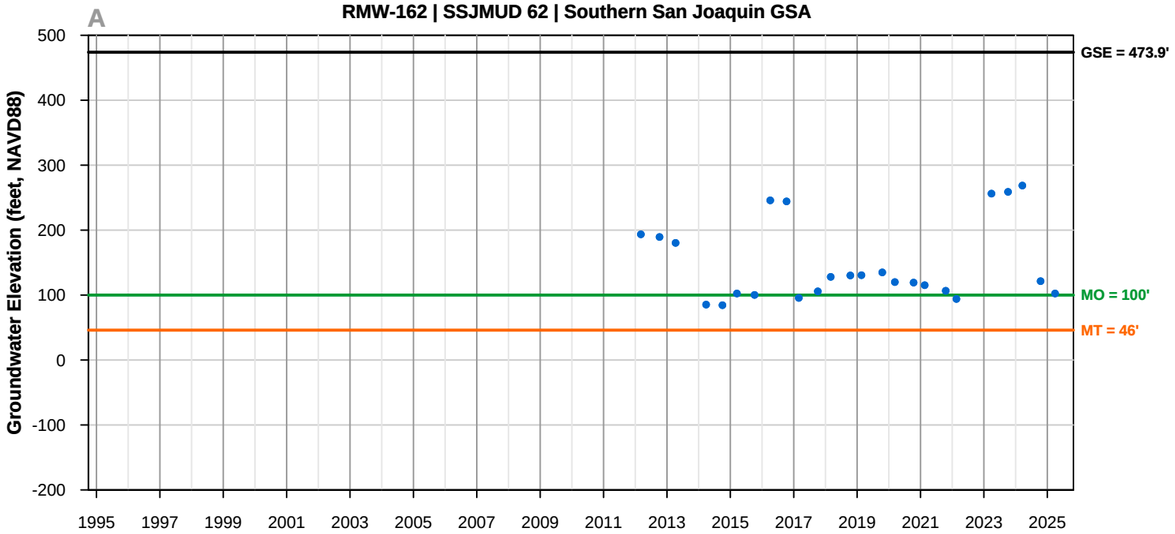
Well Information

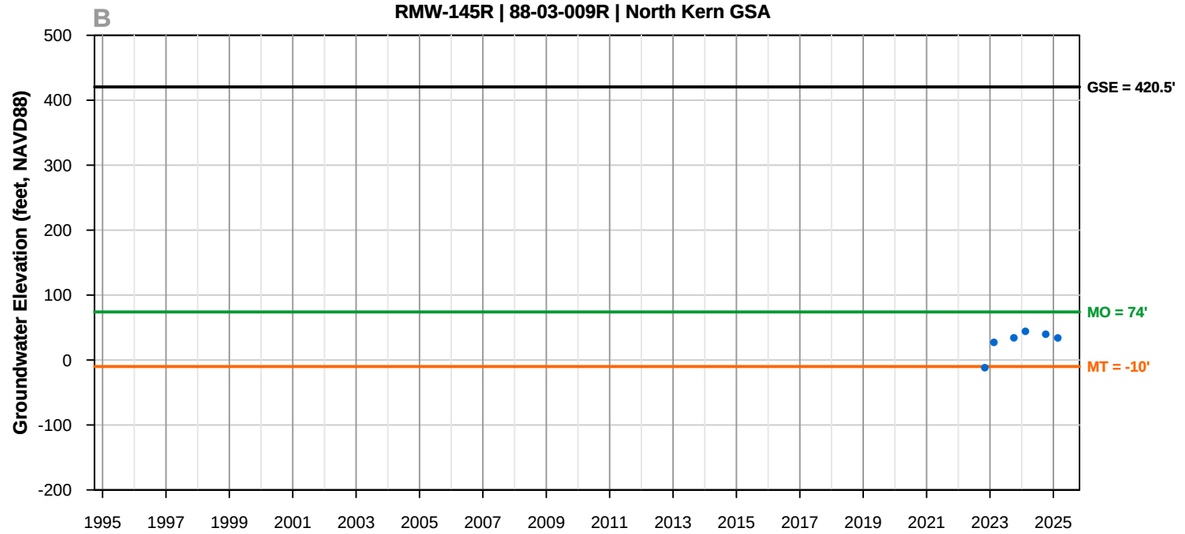
	RMW-158	RMW-157	RMW-159	RMW-208R
RMW ID:				
Local Well Name:	SSJMUD 14	SSJMUD 8	SSJMUD 23	SSJMUD 47
Site Code:	357395N1192052W001	357470N1193360W001	357185N1193042W001	356675N1192087W001
GSA:	Southern San Joaquin GSA	Southern San Joaquin GSA	Southern San Joaquin GSA	Southern San Joaquin GSA
Latitude:	35.73947	35.74702	35.7185	35.6675
Longitude:	-119.20539	-119.336	-119.3042	-119.2087
HCM Area:	North Basin	North Basin	North Basin	North Basin
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	136.2	-134.8	-5.8	-122
Bottom Perforation (feet bgs):	-147.8	-434.8	-745.8	-662
Ground Surface Elevation:	352.2	265.2	294.2	378
Measureable Objective (MO):	4	-70	-26	15
Minimum Threshold (MT):	-44	-154	-109	-69

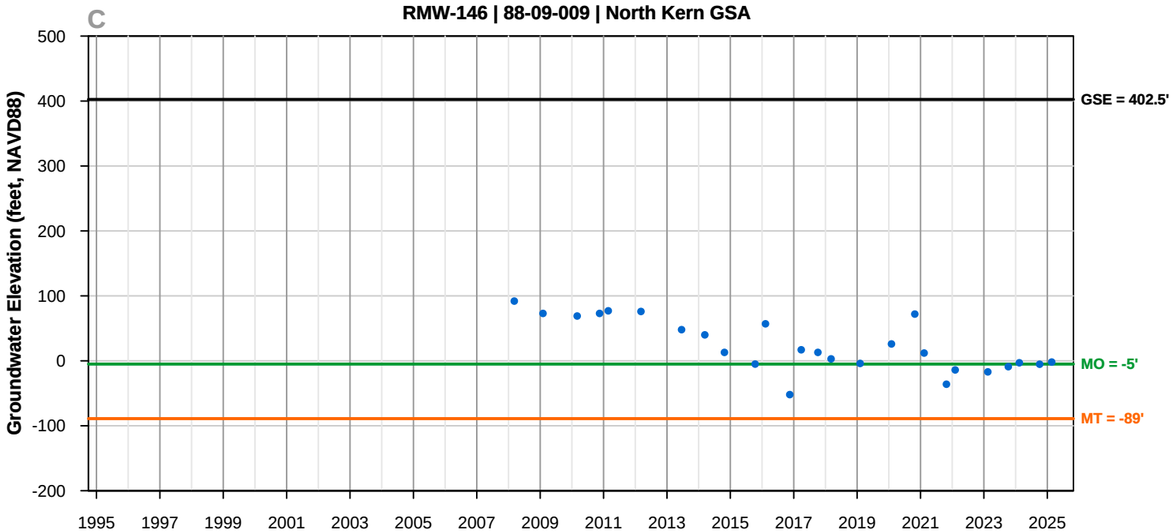
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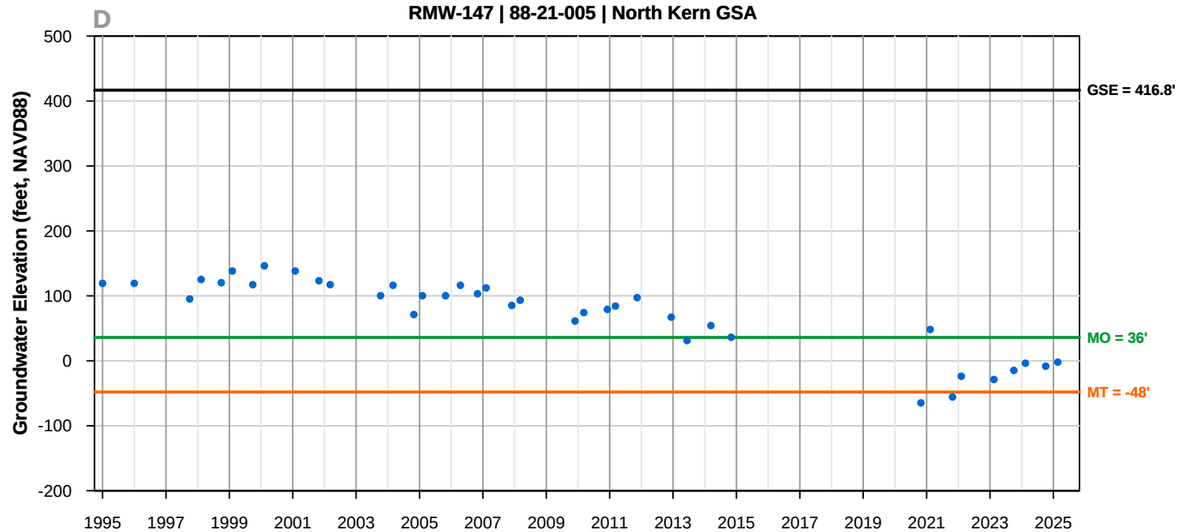
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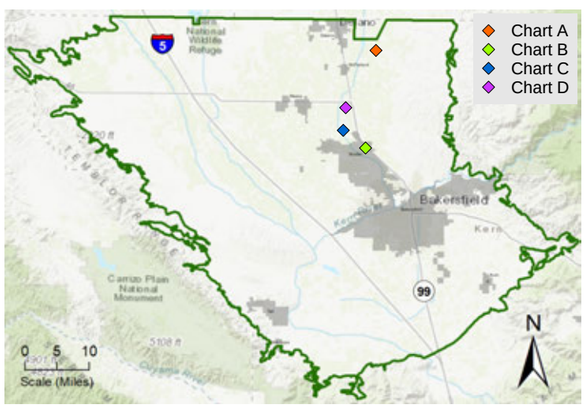
Sheet 22
Kern Groundwater Subbasin
Hydrographs, WY 2025











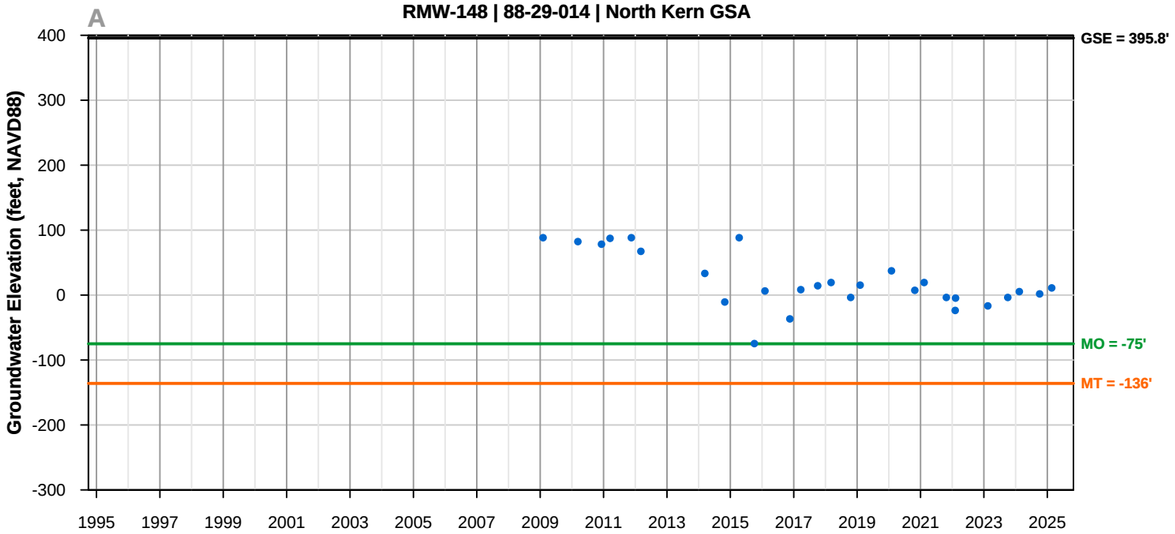
Well Information

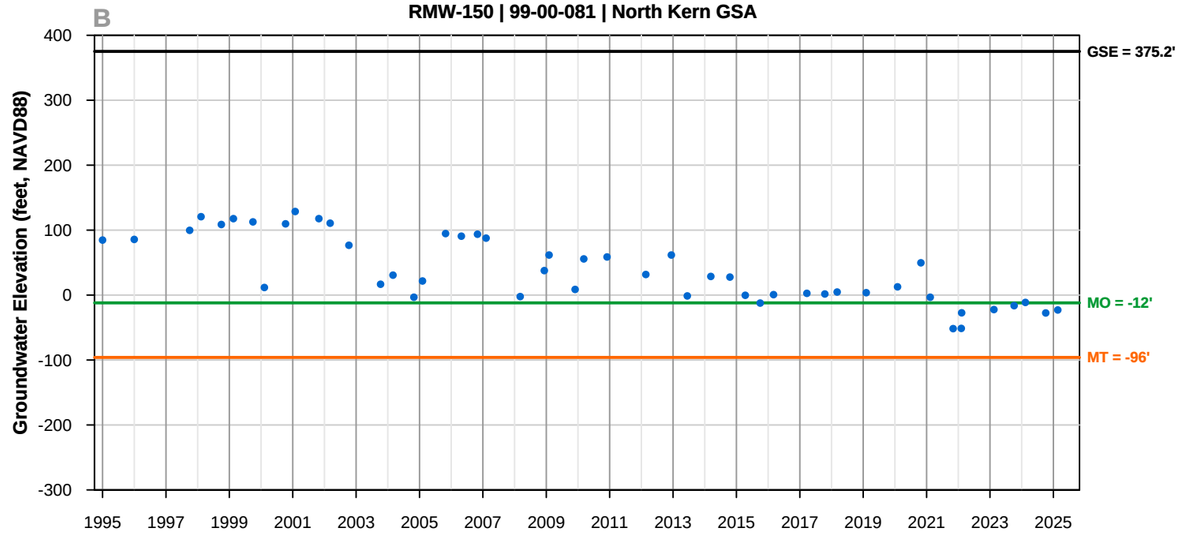
	RMW-162	RMW-145R	RMW-146	RMW-147
RMW ID:				
Local Well Name:	SSJMUD 62	88-03-009R	88-09-009	88-21-005
Site Code:	357184N1191449W001	354970N1191706W001	355364N1192330W001	355878N1192269W001
GSA:	Southern San Joaquin GSA	North Kern GSA	North Kern GSA	North Kern GSA
Latitude:	35.71837	35.49703	35.536413	35.587778
Longitude:	-119.1449	-119.170627	-119.233014	-119.226935
HCM Area:	North Basin	North Basin	North Basin	North Basin
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	138.9	-49.544	-87.52	-143.24
Bottom Perforation (feet bgs):	-936.1	-729.544	-600.52	-563.24
Ground Surface Elevation:	473.9	420.456	402.48	416.76
Measureable Objective (MO):	100	74	-5	36
Minimum Threshold (MT):	46	-10	-89	-48

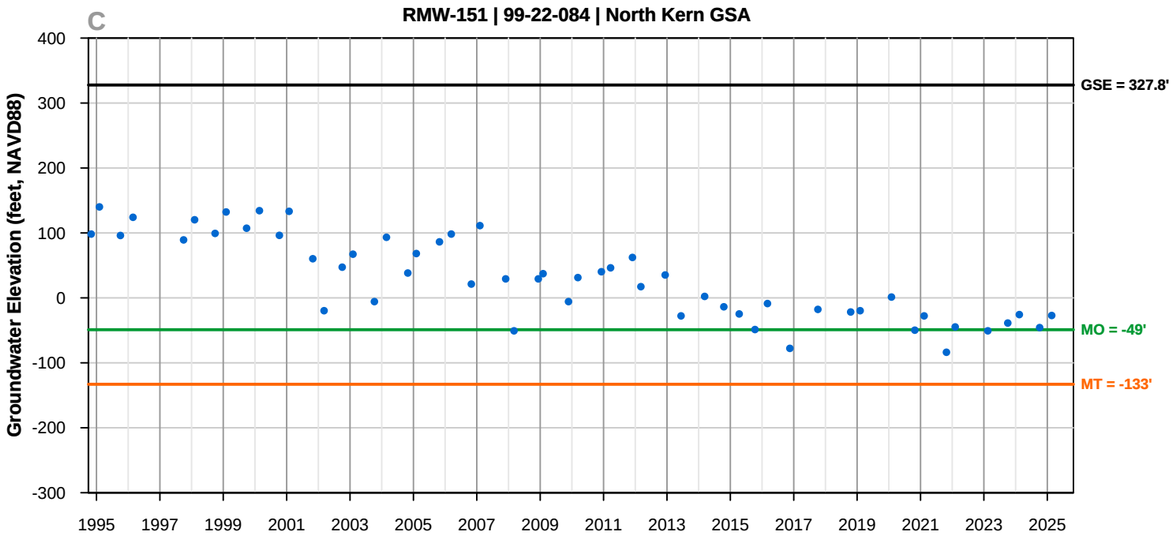
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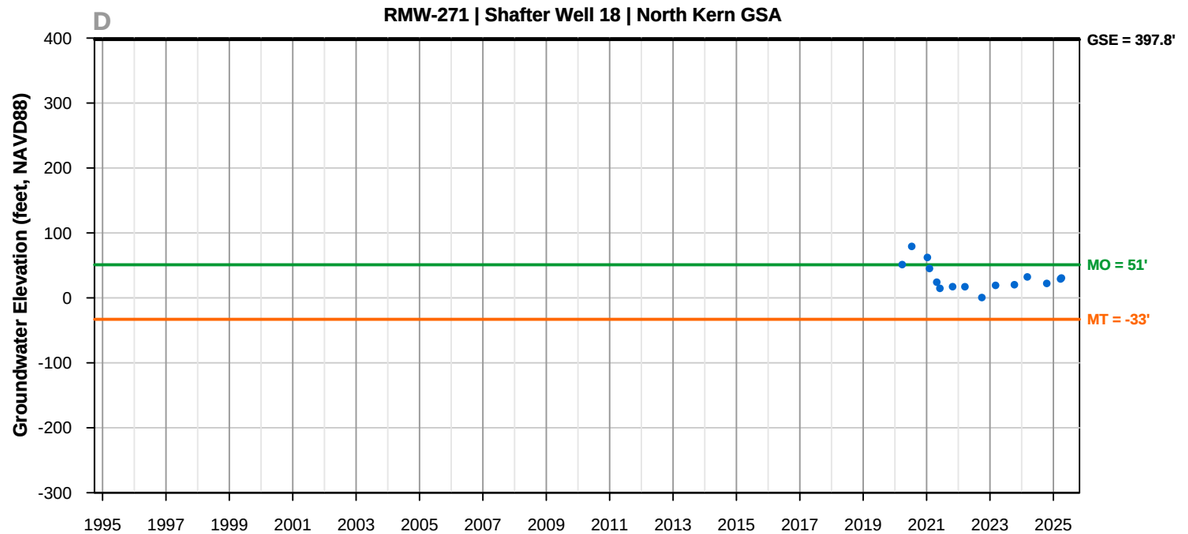
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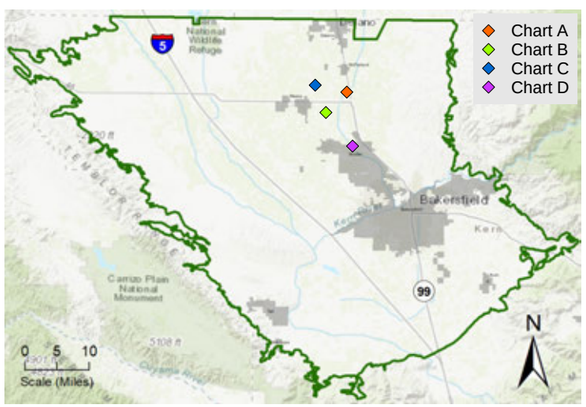
Sheet 23
Kern Groundwater Subbasin Hydrographs, WY 2025











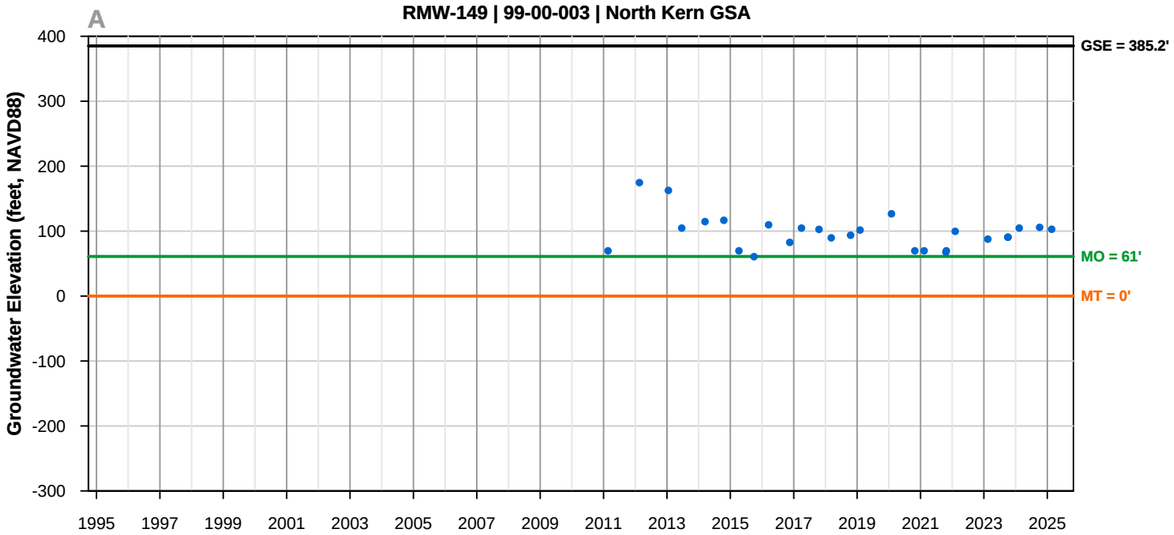
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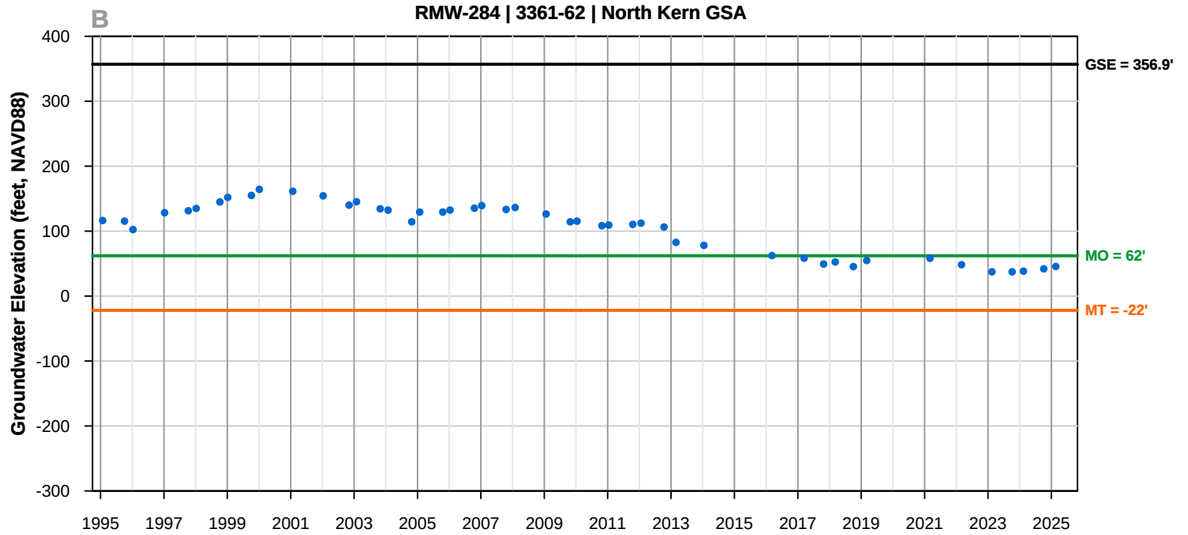
	RMW-148	RMW-150	RMW-151	RMW-271
RMW ID:				
Local Well Name:	88-29-014	99-00-081	99-22-084	Shafter Well 18
Site Code:	356232N1192245W001	355764N1192818W001	356380N1193124W001	355010N1192067W001
GSA:	North Kern GSA	North Kern GSA	North Kern GSA	North Kern GSA
Latitude:	35.623163	35.57636	35.638001	35.500964
Longitude:	-119.224495	-119.281784	-119.31244	-119.206717
HCM Area:	North Basin	North Basin	North Basin	North Basin
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	-104.18	34.17	-12.24	-177.24
Bottom Perforation (feet bgs):	-604.18	-424.83	-472.24	-357.24
Ground Surface Elevation:	395.82	375.17	327.76	397.76
Measureable Objective (MO):	-75	-12	-49	51
Minimum Threshold (MT):	-136	-96	-133	-33

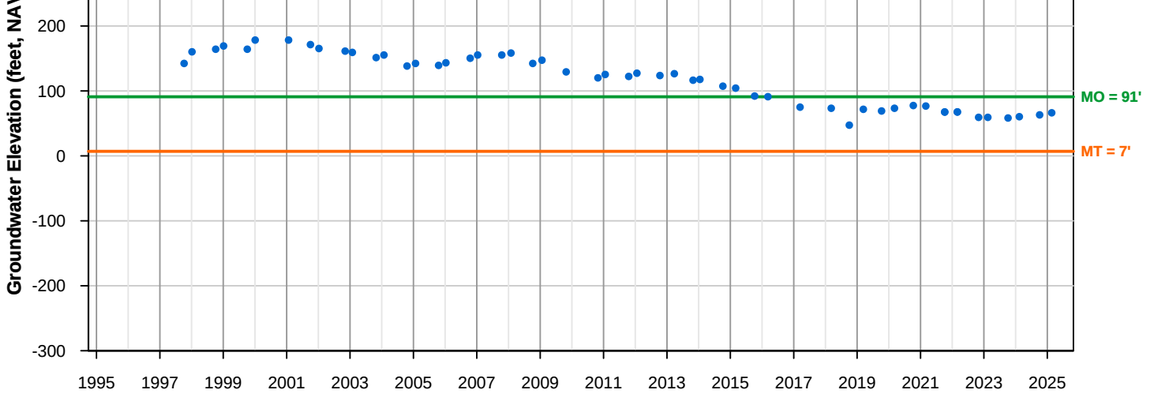
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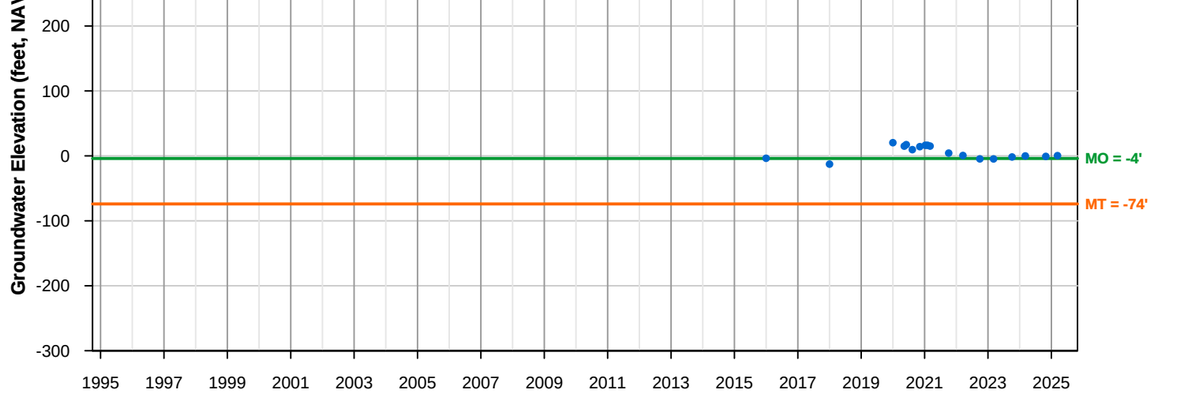
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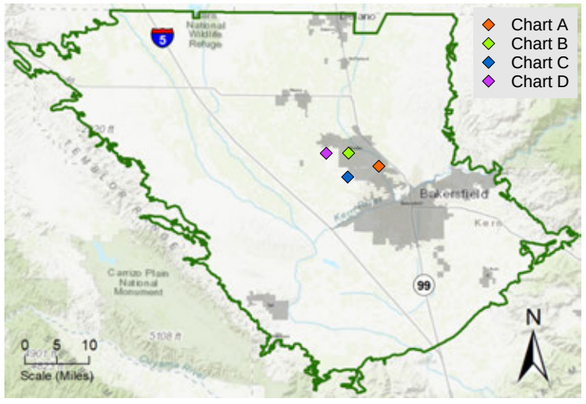
Sheet 24
Kern Groundwater Subbasin Hydrographs, WY 2025











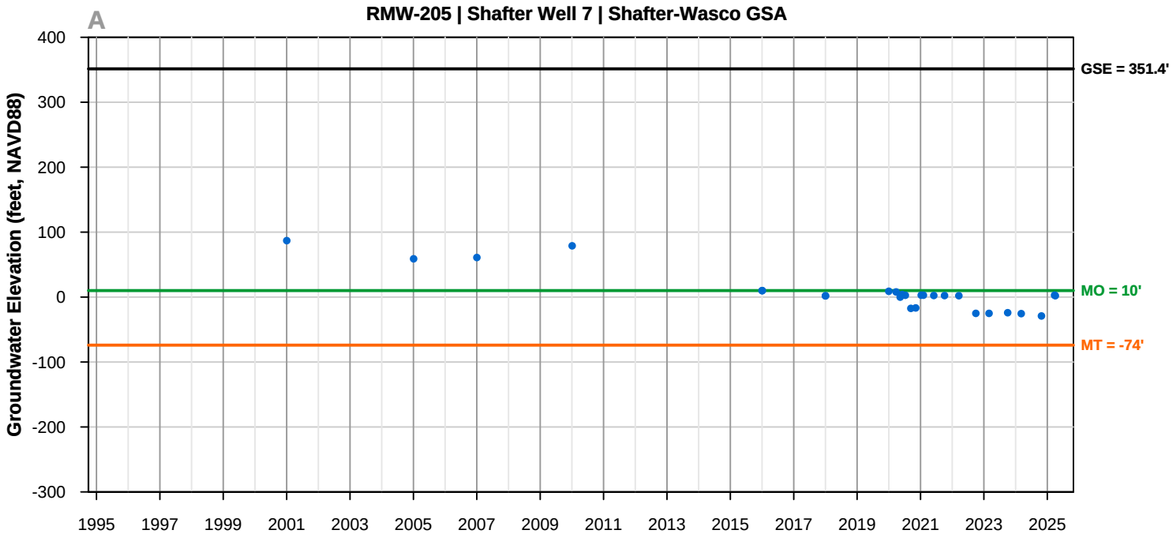
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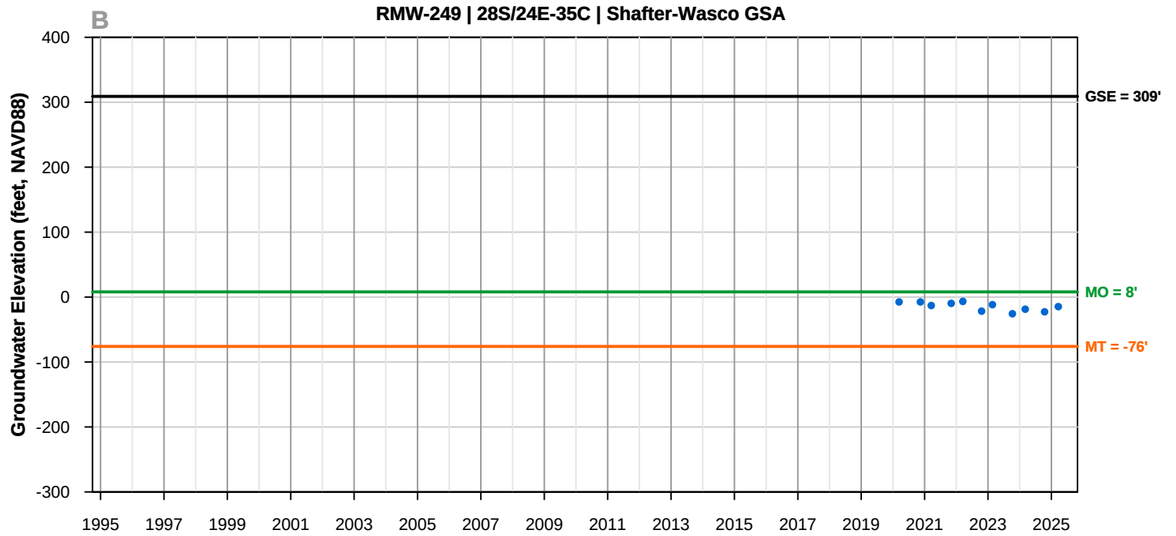
	RMW-149	RMW-284	RMW-285	RMW-204
RMW ID:				
Local Well Name:	99-00-003	3361-62	DW097	Shafter Well 15
Site Code:	354424N1191332W001	354714N1192174W001	354172N1192190W001	354705N1192792W001
GSA:	North Kern GSA	North Kern GSA	North Kern GSA	Shafter-Wasco GSA
Latitude:	35.442406	35.4714	35.4172	35.470462
Longitude:	-119.133177	-119.2174	-119.219	-119.279183
HCM Area:	North Basin	North Basin	North Basin	North Basin
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	85.16	106.91	133.22	-172.2
Bottom Perforation (feet bgs):	-318.84	-251.09	-91.78	-472.2
Ground Surface Elevation:	385.16	356.91	337.22	327.8
Measureable Objective (MO):	61	62	91	-4
Minimum Threshold (MT):	0	-22	7	-74

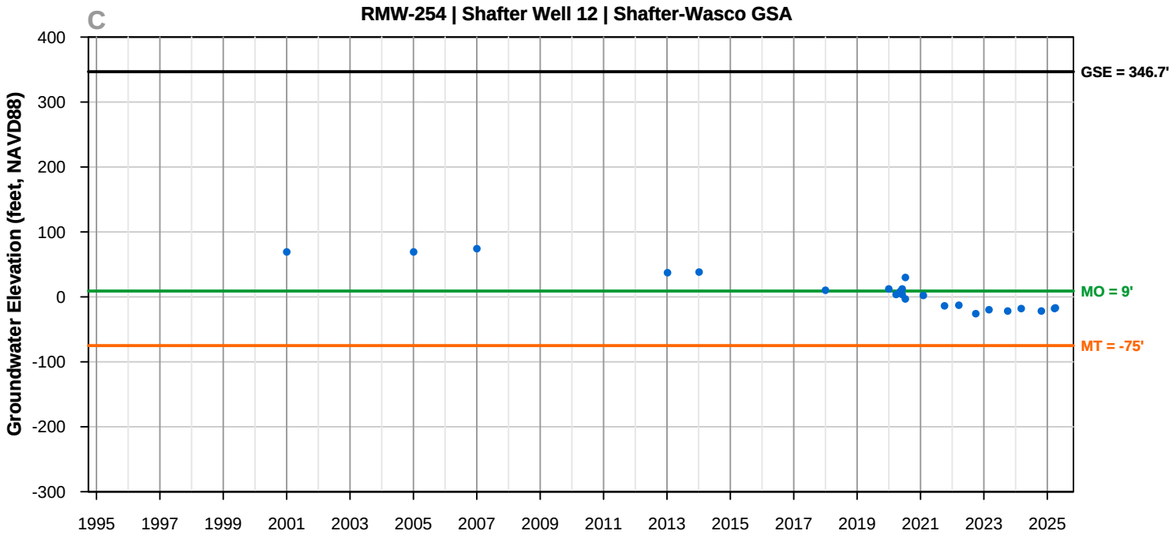
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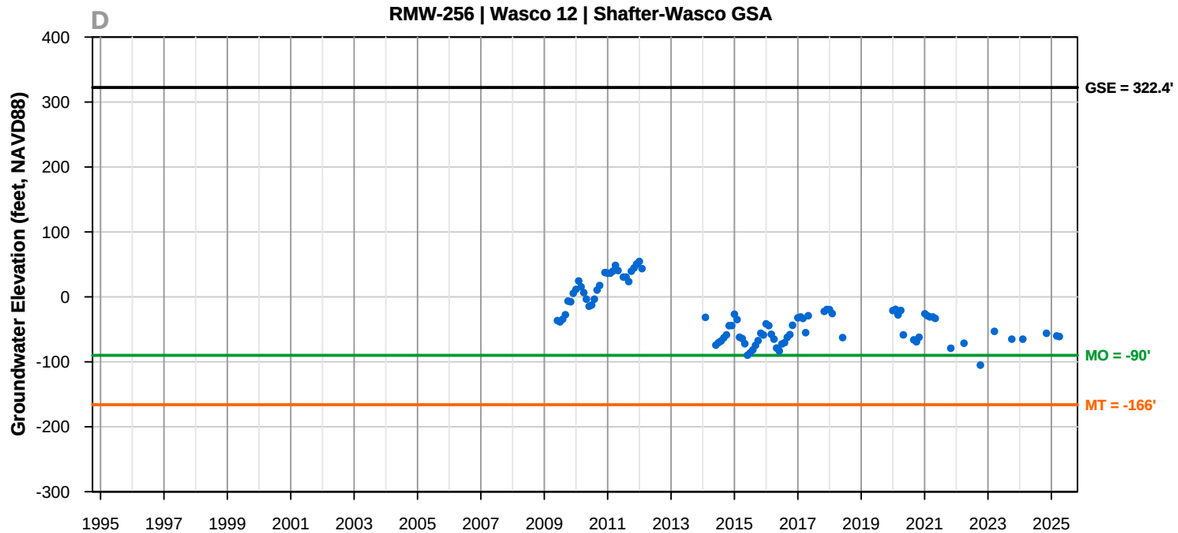
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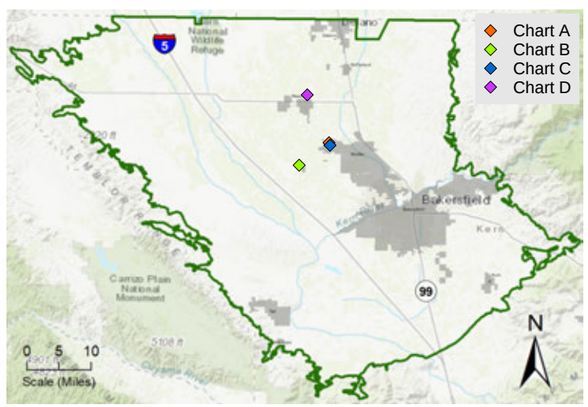
Sheet 25
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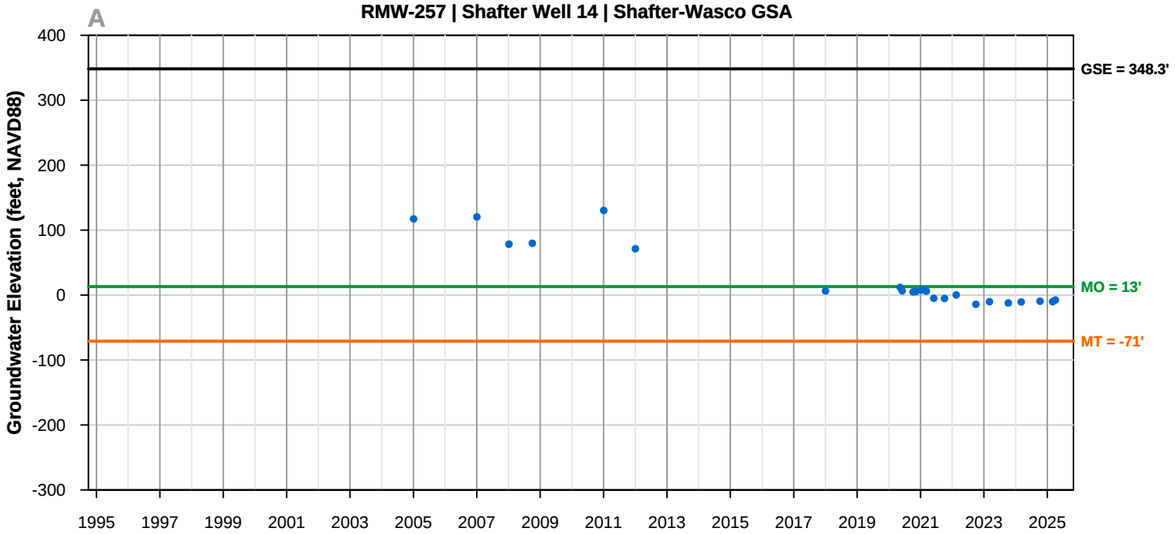
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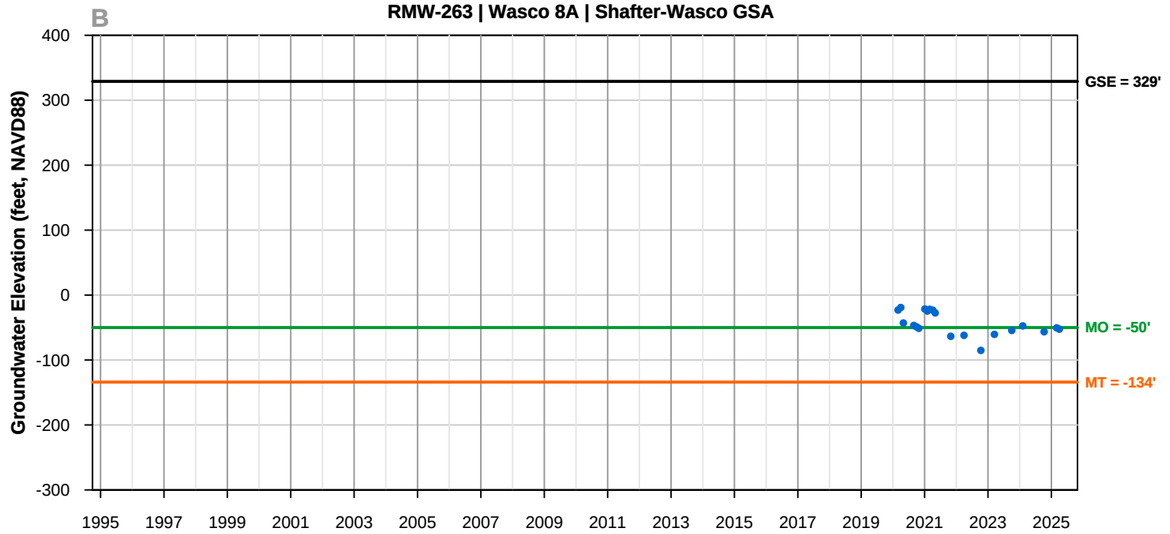
	RMW-205	RMW-249	RMW-254	RMW-256
RMW ID:				
Local Well Name:	Shafter Well 7	28S/24E-35C	Shafter Well 12	Wasco 12
Site Code:	355080N1192777W001	354561N1193595W001	355020N1192748W001	356157N1193397W001
GSA:	Shafter-Wasco GSA	Shafter-Wasco GSA	Shafter-Wasco GSA	Shafter-Wasco GSA
Latitude:	35.507996	35.4561	35.50201	35.61569
Longitude:	-119.277661	-119.3595	-119.2748	-119.339678
HCM Area:	North Basin	North Basin	North Basin	North Basin
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	-148.6	-189	-153.3	-177.6
Bottom Perforation (feet bgs):	-348.6	-591	-453.3	-677.6
Ground Surface Elevation:	351.4	309	346.7	322.4
Measureable Objective (MO):	10	8	9	-90
Minimum Threshold (MT):	-74	-76	-75	-166

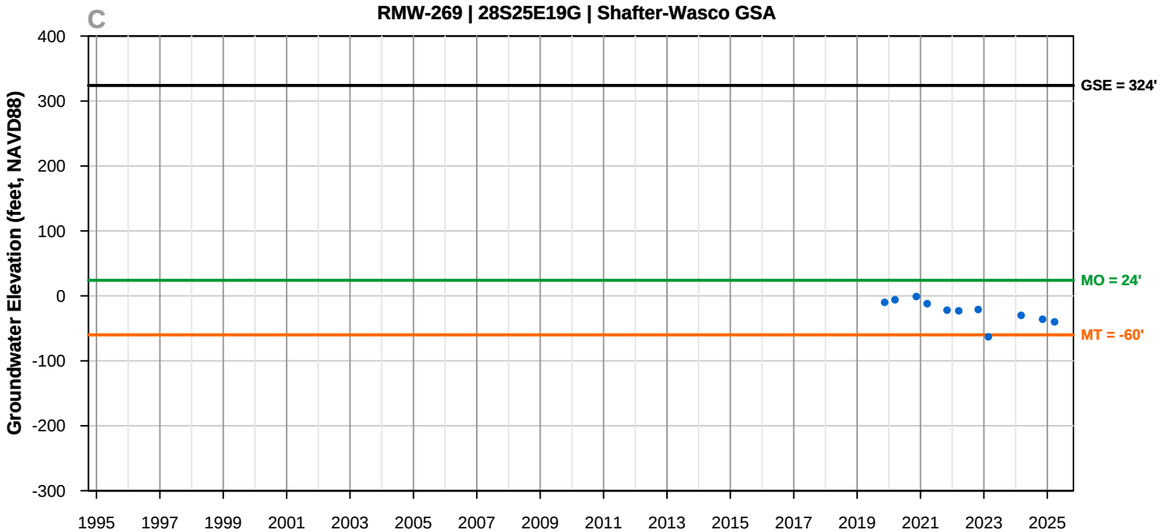
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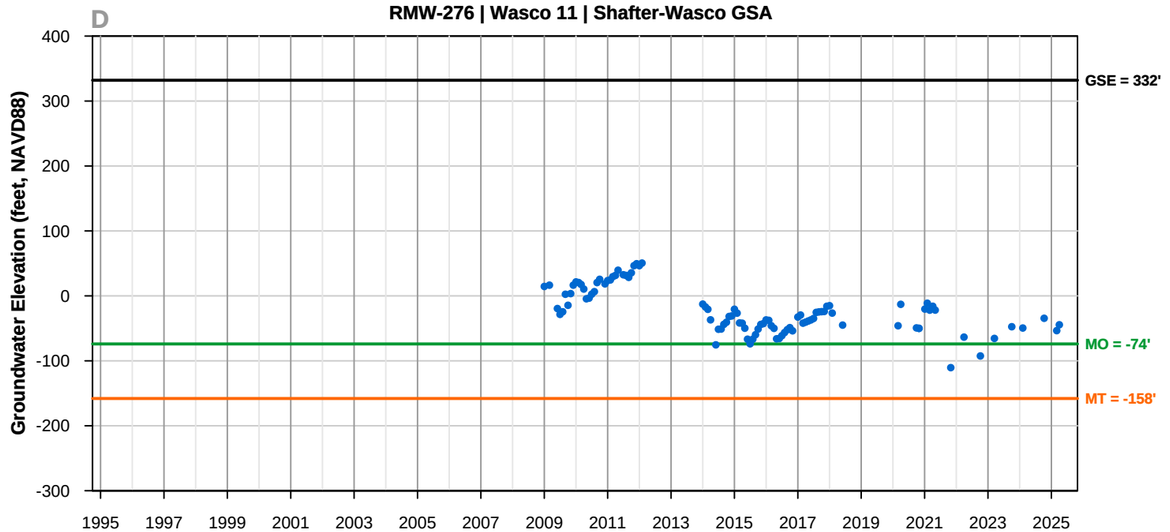
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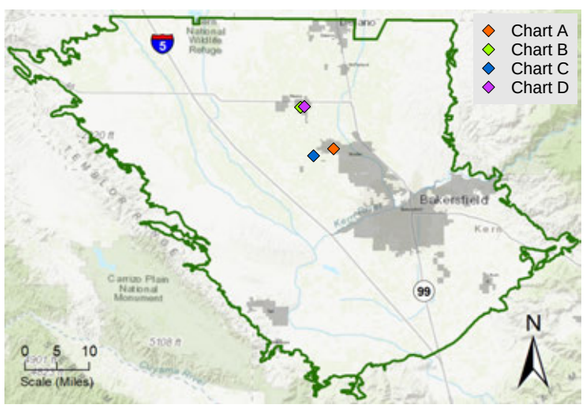
Sheet 26
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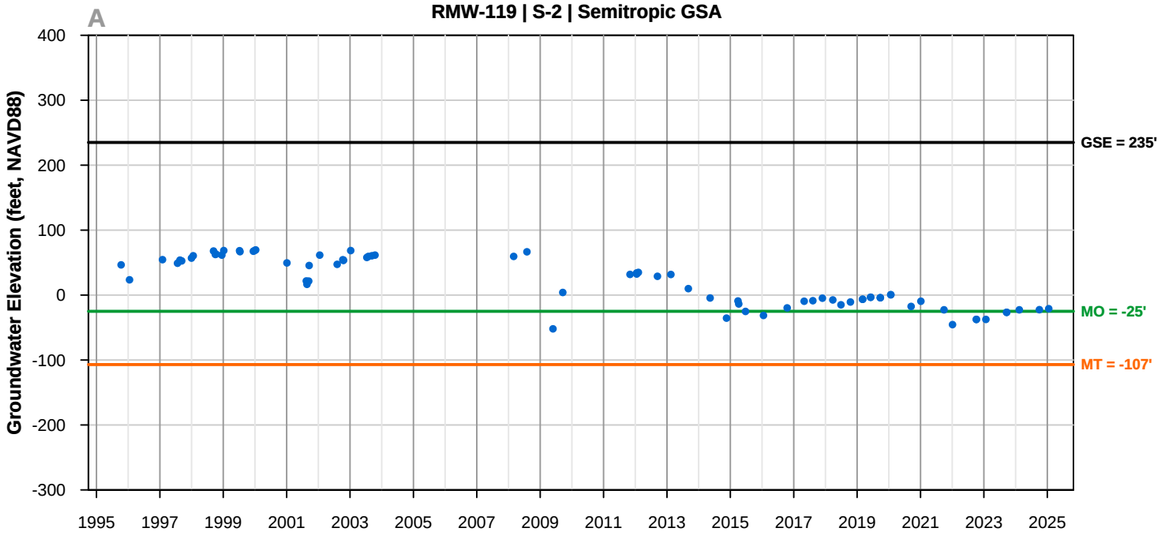
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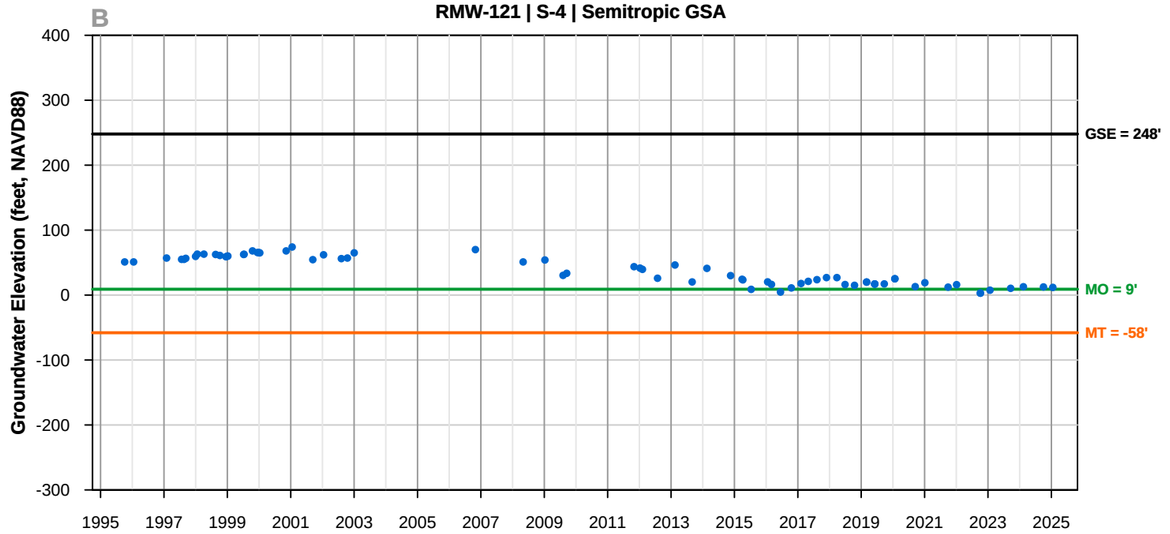
	RMW-257	RMW-263	RMW-269	RMW-276
RMW ID:	**RMW-257**	**RMW-263**	**RMW-269**	**RMW-276**
Local Well Name:	Shafter Well 14	Wasco 8A	28S25E19G	Wasco 11
Site Code:	354943N1192593W001	355874N1193523W001	354779N1193145W001	355891N1193417W001
GSA:	Shafter-Wasco GSA	Shafter-Wasco GSA	Shafter-Wasco GSA	Shafter-Wasco GSA
Latitude:	35.494288	35.58739	35.4779	35.5891
Longitude:	-119.259271	-119.3523	-119.3145	-119.3417
HCM Area:	North Basin	North Basin	North Basin	North Basin
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	-151.7	-171	-176	-173
Bottom Perforation (feet bgs):	-452.7	-583	-636	-596
Ground Surface Elevation:	348.3	329	324	332
Measureable Objective (MO):	13	-50	24	-74
Minimum Threshold (MT):	-71	-134	-60	-158

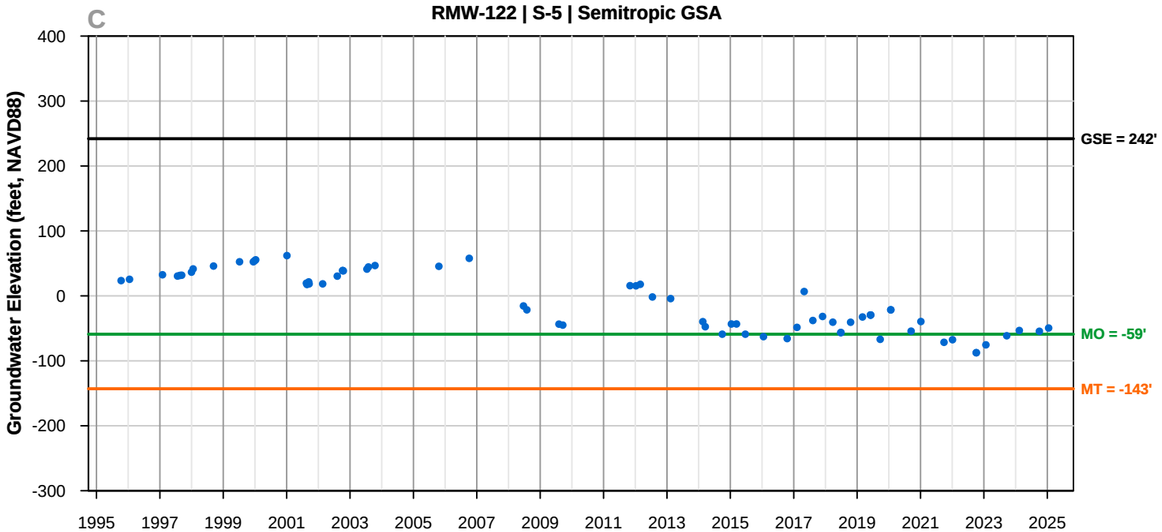
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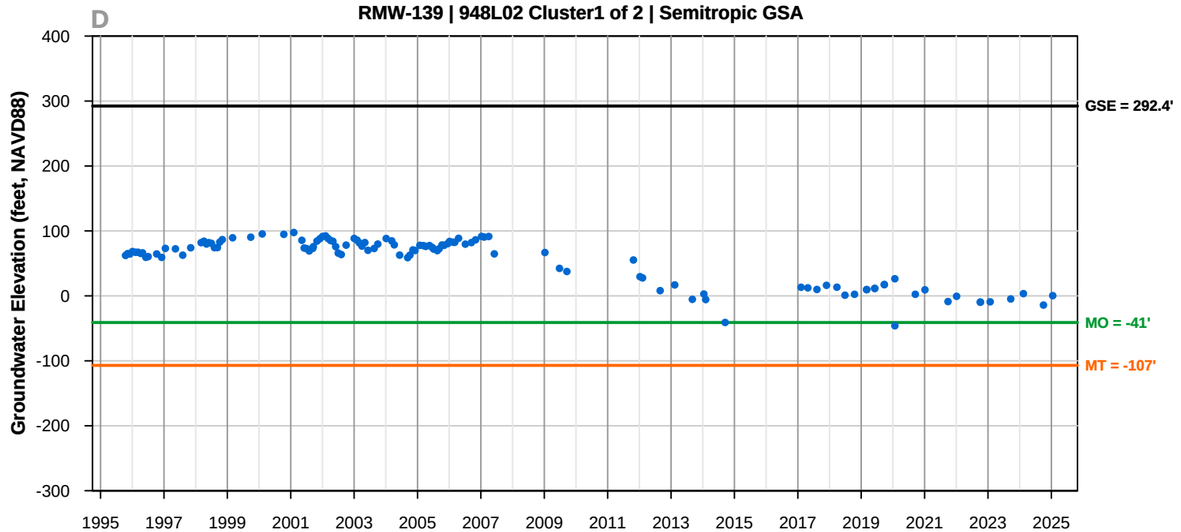
KNDLA - Kern Non-Districted Lands Authority GSA
WDWA - Westside District Water Authority GSA

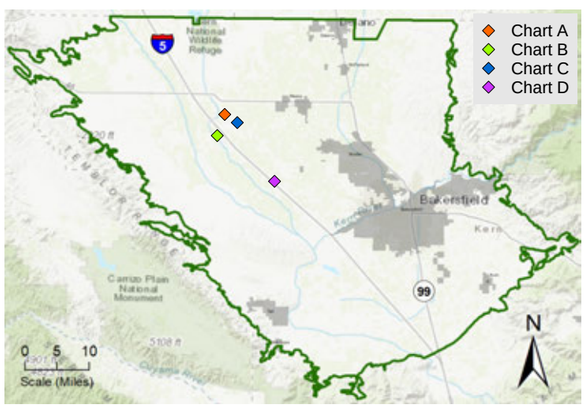
Sheet 27
Kern Groundwater Subbasin Hydrographs, WY 2025











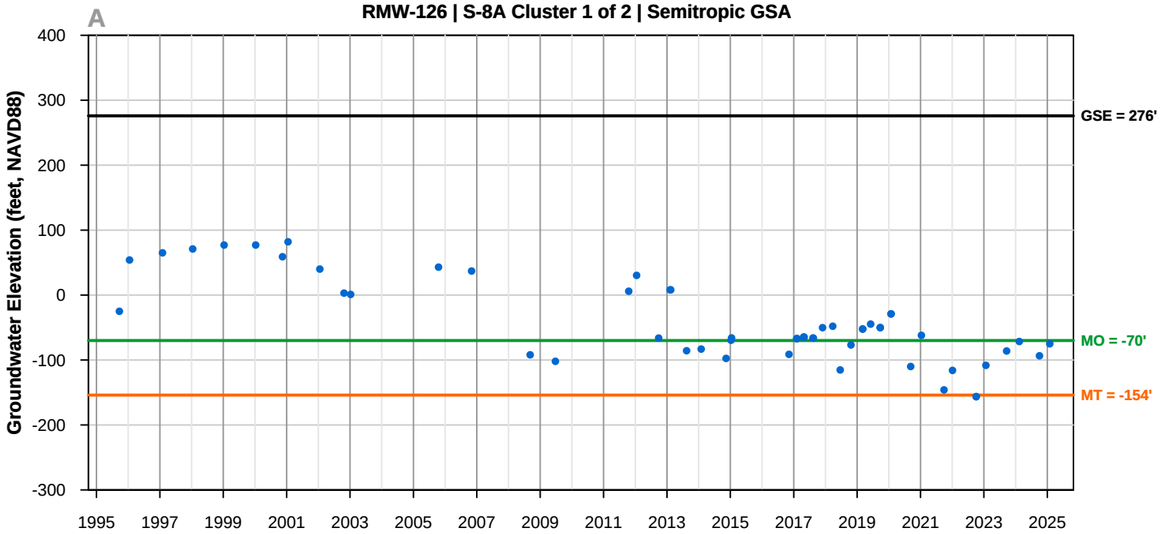
Well Information

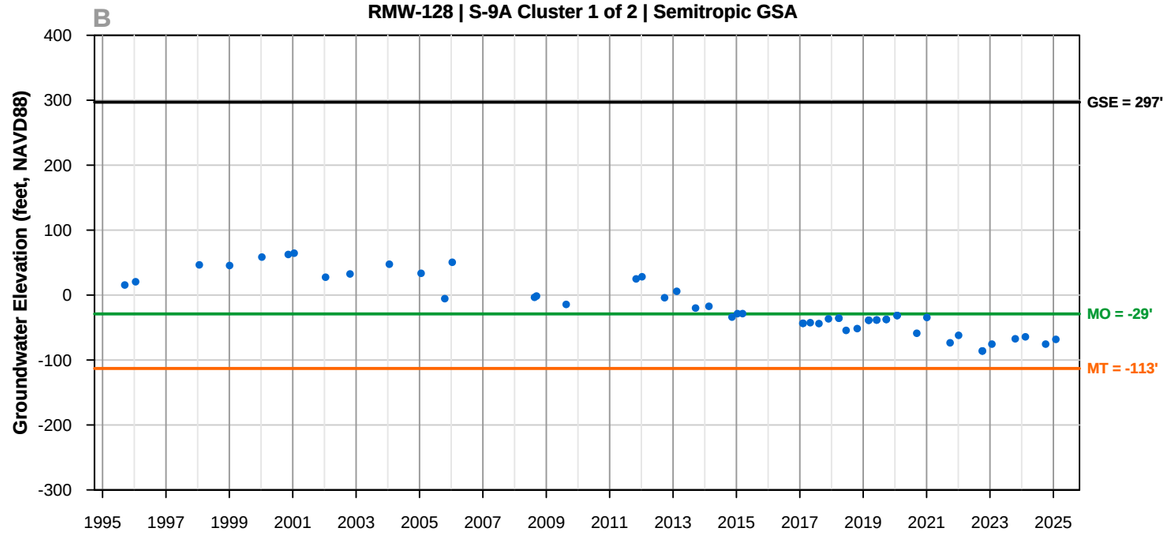
	RMW-119	RMW-121	RMW-122	RMW-139
RMW ID:				
Local Well Name:	S-2	S-4	S-5	948L02 Cluster1 of 2
Site Code:	355687N1195623W001	355205N1195821W001	355506N1195271W001	354189N1194216W001
GSA:	Semitropic GSA	Semitropic GSA	Semitropic GSA	Semitropic GSA
Latitude:	35.568704	35.520514	35.550636	35.41889
Longitude:	-119.562328	-119.582118	-119.527138	-119.421573
HCM Area:	North Basin	North Basin	North Basin	North Basin
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	-135	-142	-138	-232.65
Bottom Perforation (feet bgs):	-175	-172	-168	-332.65
Ground Surface Elevation:	235	248	242	292.35
Measureable Objective (MO):	-25	9	-59	-41
Minimum Threshold (MT):	-107	-58	-143	-107

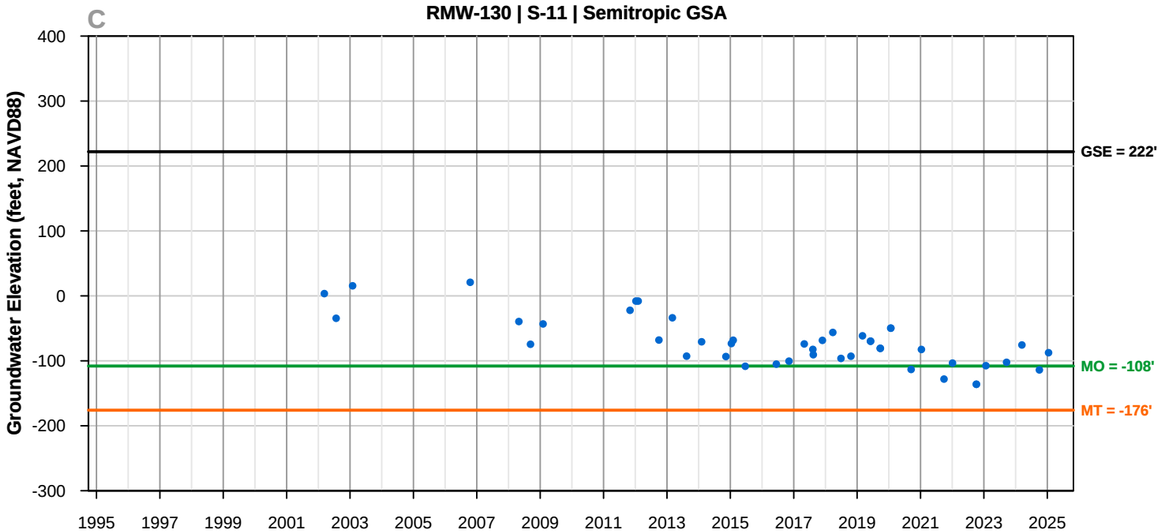
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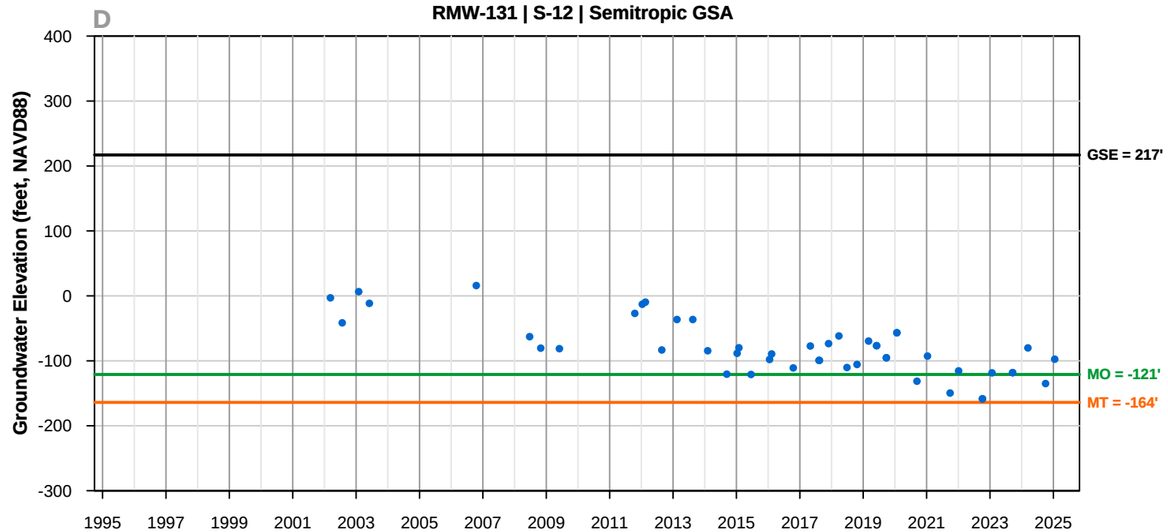
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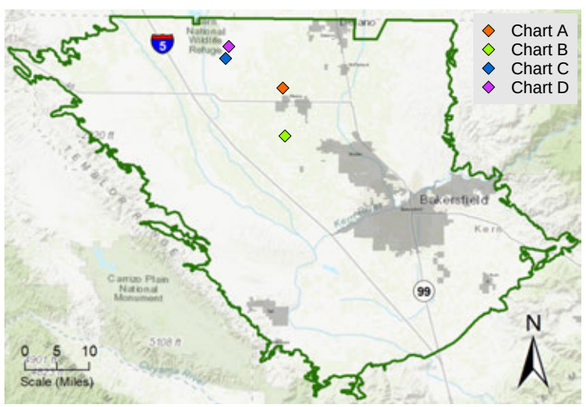
Sheet 28
Kern Groundwater Subbasin
Hydrographs, WY 2025











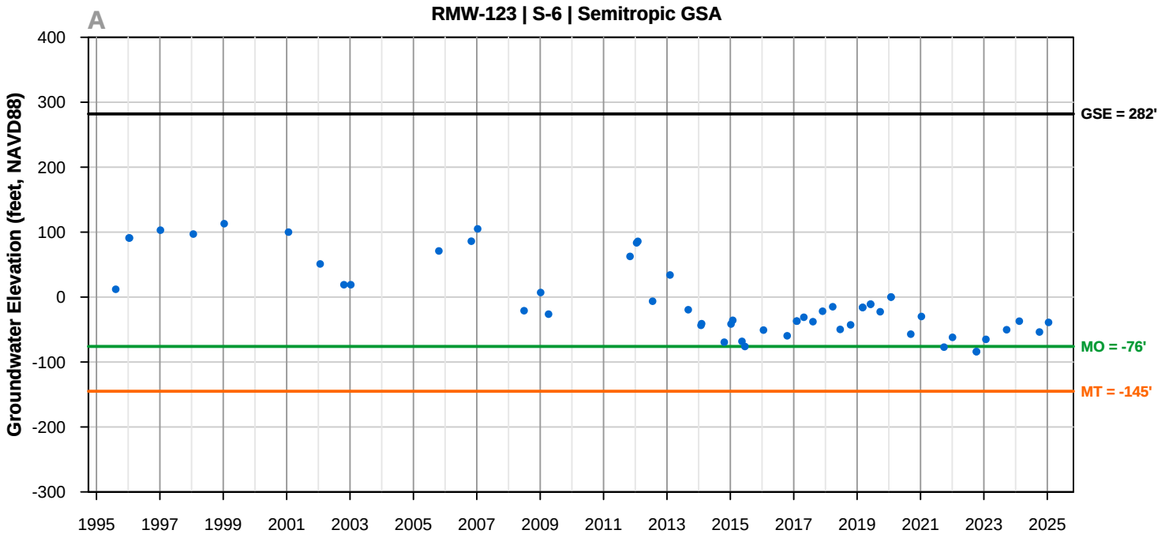
Well Information

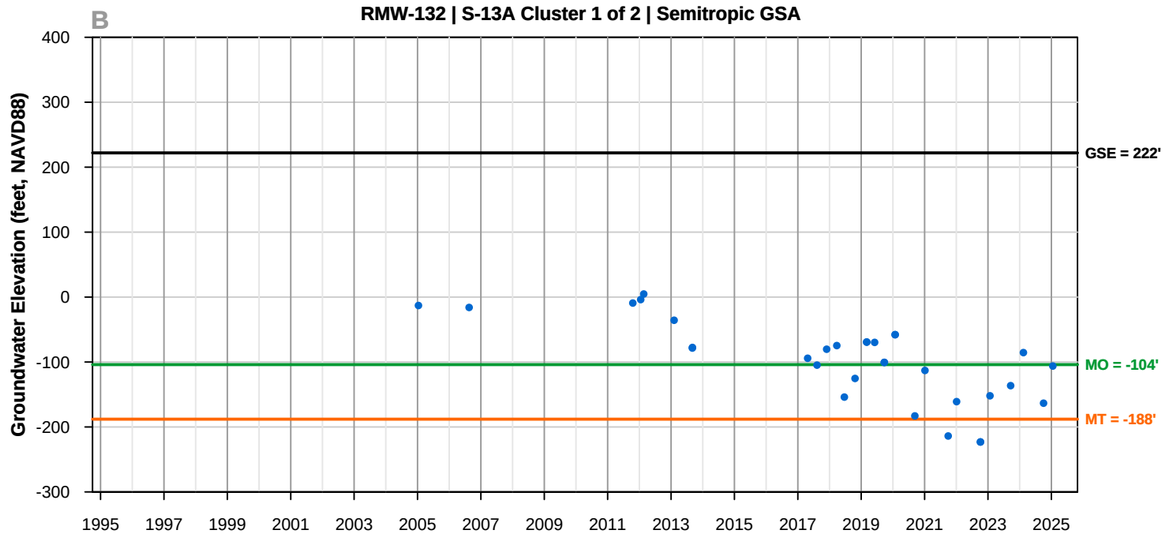
	RMW-126	RMW-128	RMW-130	RMW-131
RMW ID:				
Local Well Name:	S-8A Cluster 1 of 2	S-9A Cluster 1 of 2	S-11	S-12
Site Code:	356305N1194021W001	355219N1193943W001	356956N1195623W001	357228N1195538W001
GSA:	Semitropic GSA	Semitropic GSA	Semitropic GSA	Semitropic GSA
Latitude:	35.630484	35.521942	35.695554	35.722805
Longitude:	-119.402125	-119.394311	-119.562279	-119.553797
HCM Area:	North Basin	North Basin	North Basin	North Basin
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	-361	-363	-328	-293
Bottom Perforation (feet bgs):	-411	-393	-478	-523
Ground Surface Elevation:	276	297	222	217
Measureable Objective (MO):	-70	-29	-108	-121
Minimum Threshold (MT):	-154	-113	-176	-164

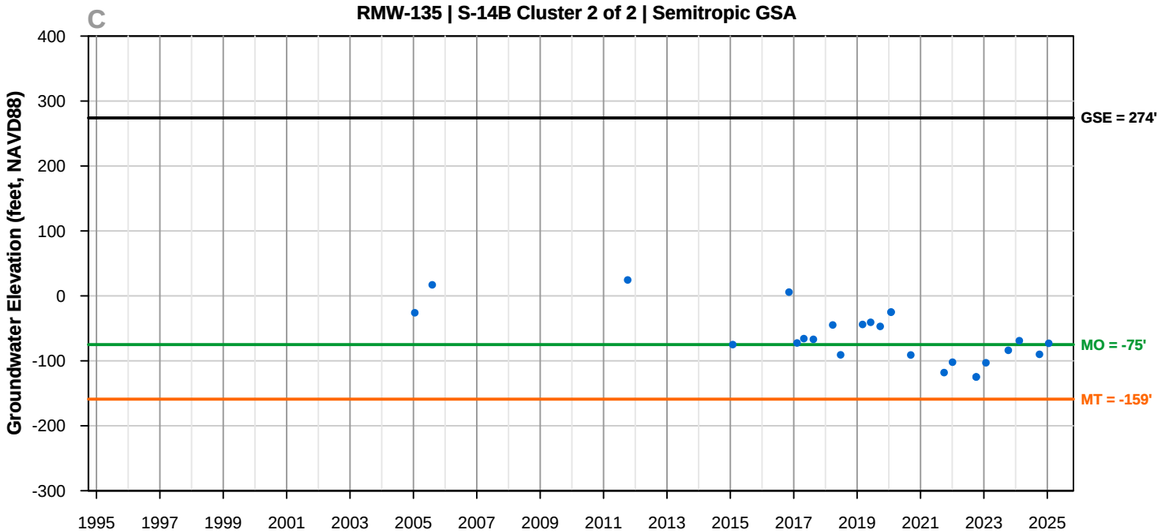
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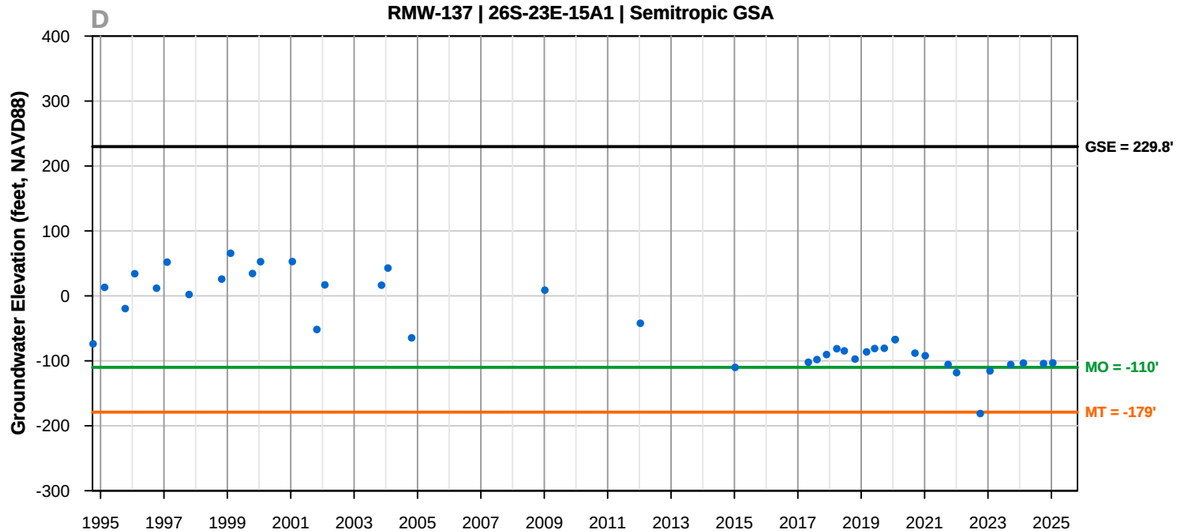
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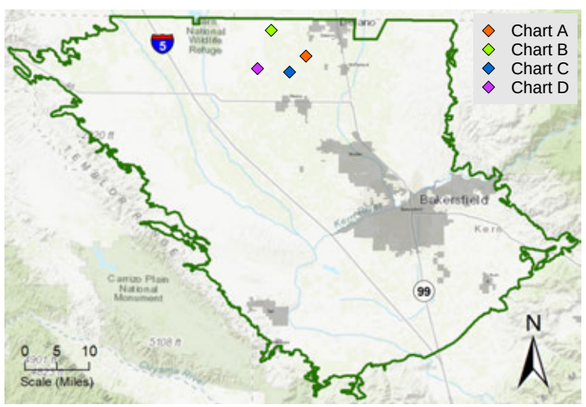
Sheet 29
Kern Groundwater Subbasin Hydrographs, WY 2025











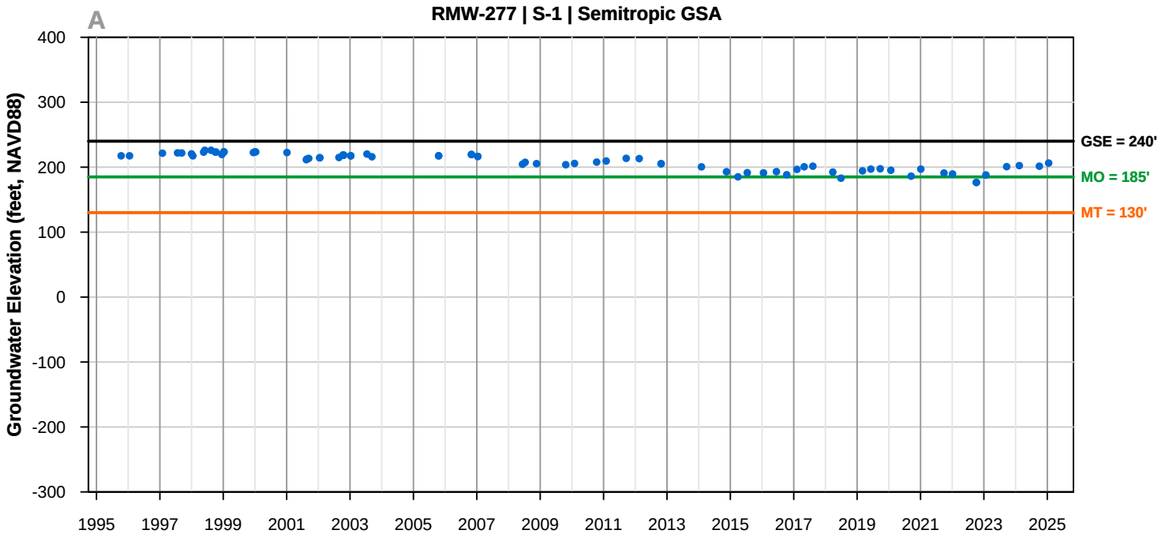
Well Information

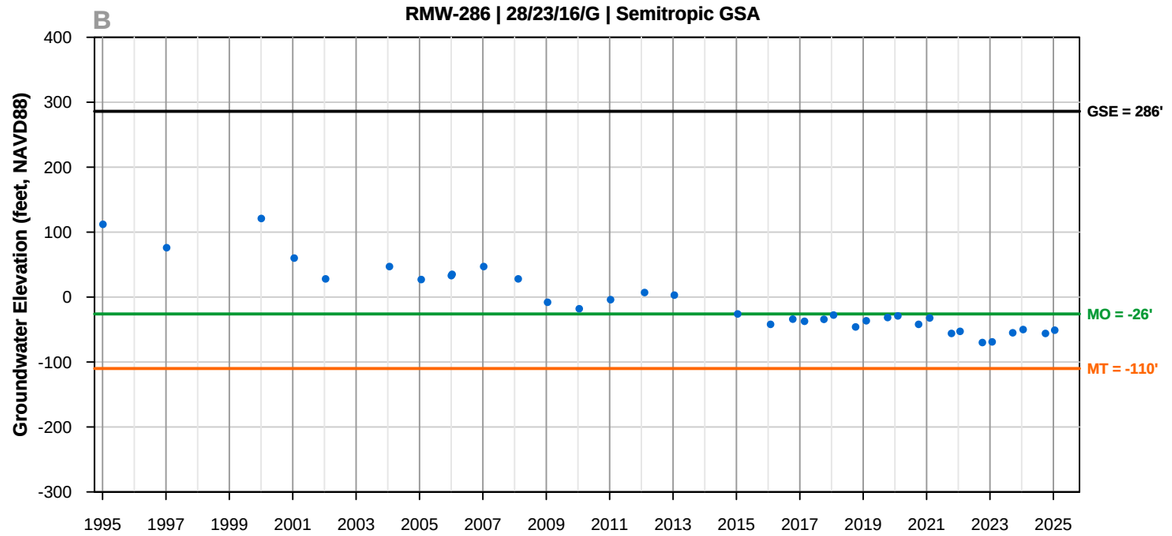
	RMW-123	RMW-132	RMW-135	RMW-137
RMW ID:				
Local Well Name:	S-6	S-13A Cluster 1 of 2	S-14B Cluster 2 of 2	26S-23E-15A1
Site Code:	357036N1193392W001	357609N1194366W001	356668N1193841W002	356736N1194735W001
GSA:	Semitropic GSA	Semitropic GSA	Semitropic GSA	Semitropic GSA
Latitude:	35.703571	35.760891	35.666848	35.673653
Longitude:	-119.339174	-119.436645	-119.384129	-119.473336
HCM Area:	North Basin	North Basin	North Basin	North Basin
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	-99	-438	-156	-80.17
Bottom Perforation (feet bgs):	-149	-468	-206	-120.17
Ground Surface Elevation:	282	222	274	229.83
Measureable Objective (MO):	-76	-104	-75	-110
Minimum Threshold (MT):	-145	-188	-159	-179

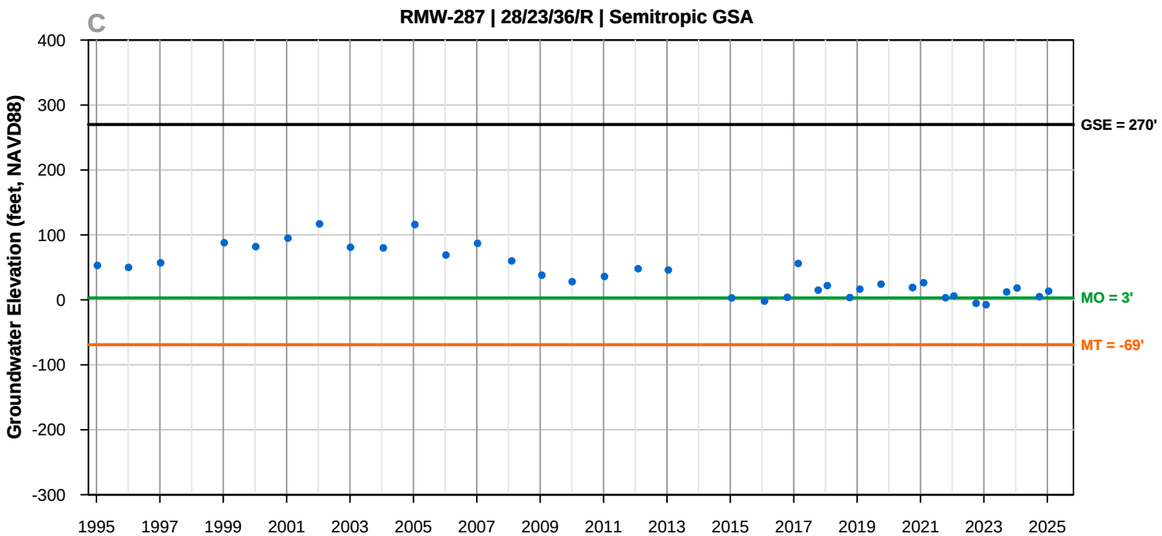
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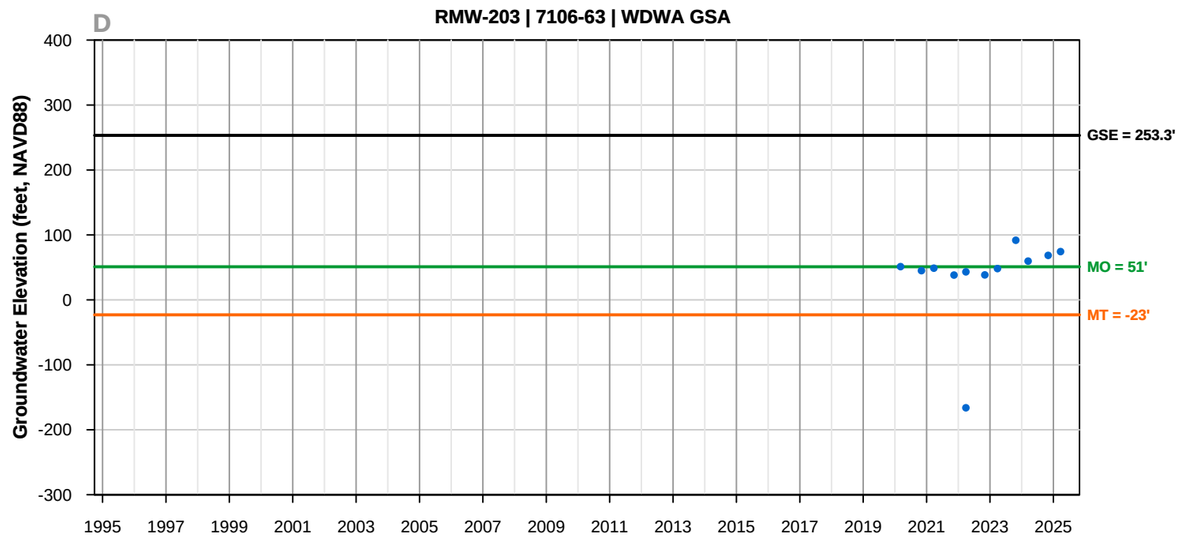
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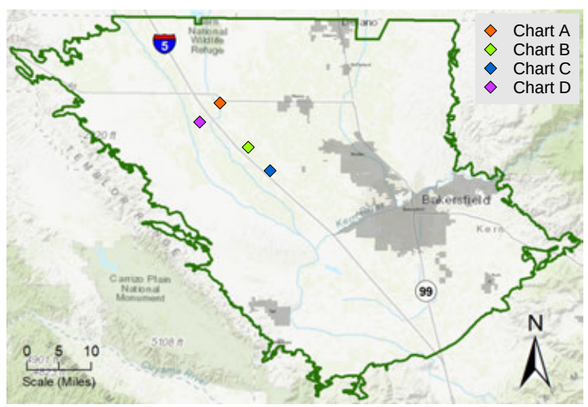
Sheet 30
Kern Groundwater Subbasin Hydrographs, WY 2025











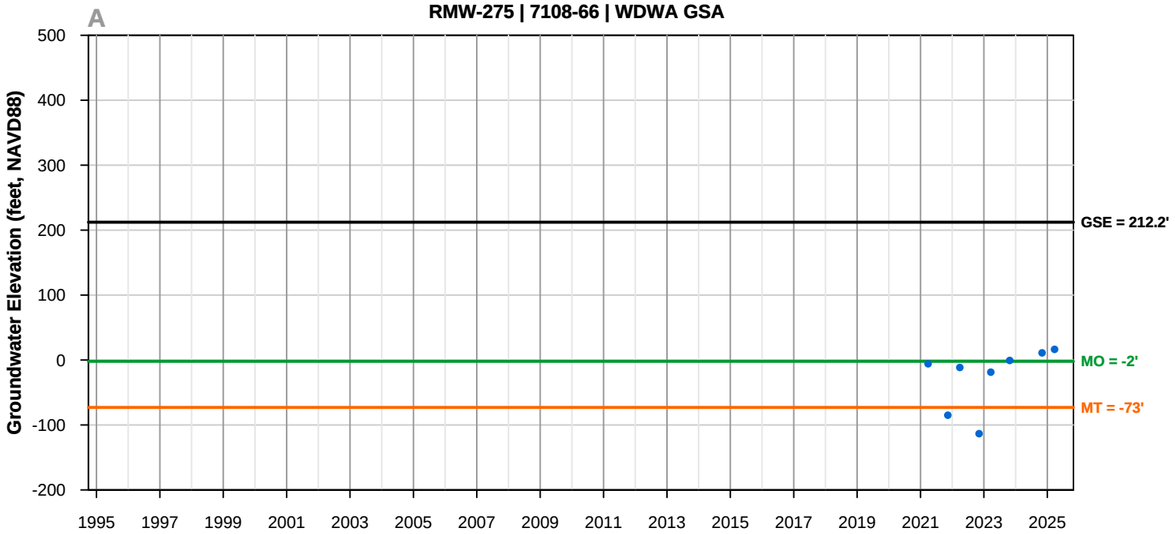
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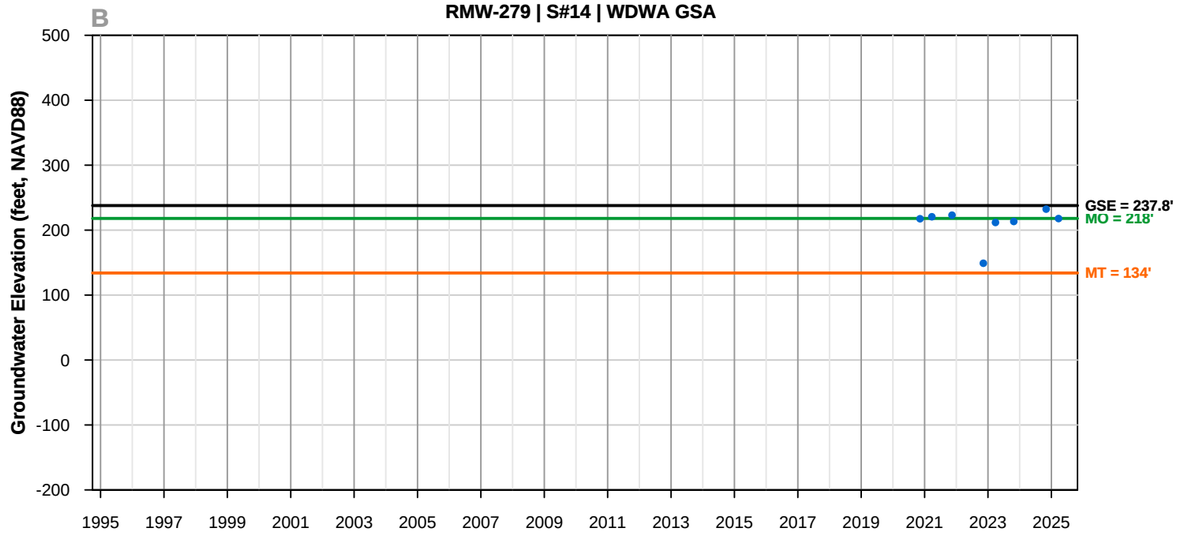
	RMW-277	RMW-286	RMW-287	RMW-203
RMW ID:				
Local Well Name:	S-1	28/23/16/G	28/23/36/R	7106-63
Site Code:	355944N1195814W001	354950N1195013W001	354426N1194398W001	355505N1196368W001
GSA:	Semitropic GSA	Semitropic GSA	Semitropic GSA	WDWA GSA
Latitude:	35.59441	35.49503	35.44265	35.55051
Longitude:	-119.58141	-119.50134	-119.43983	-119.63684
HCM Area:	North Basin	North Basin	North Basin	North Basin
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	-45	-82	59	-266.7
Bottom Perforation (feet bgs):	-75	-239	-157	-406.7
Ground Surface Elevation:	240	286	270	253.3
Measureable Objective (MO):	185	-26	3	51
Minimum Threshold (MT):	130	-110	-69	-23

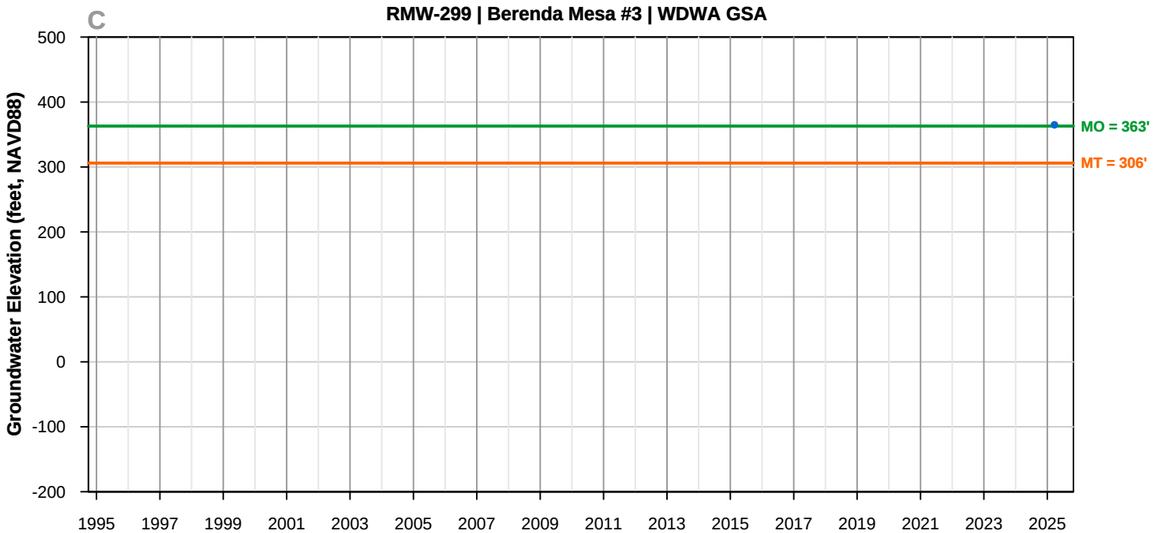
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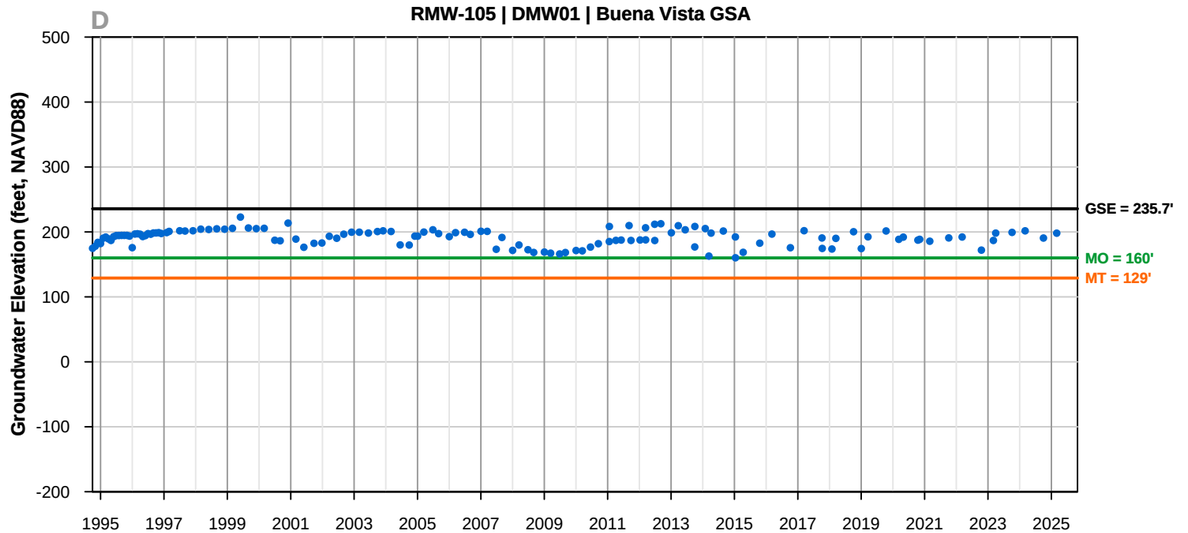
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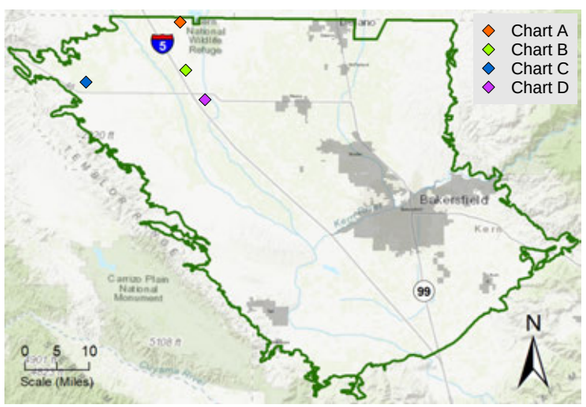
Sheet 31
Kern Groundwater Subbasin Hydrographs, WY 2025











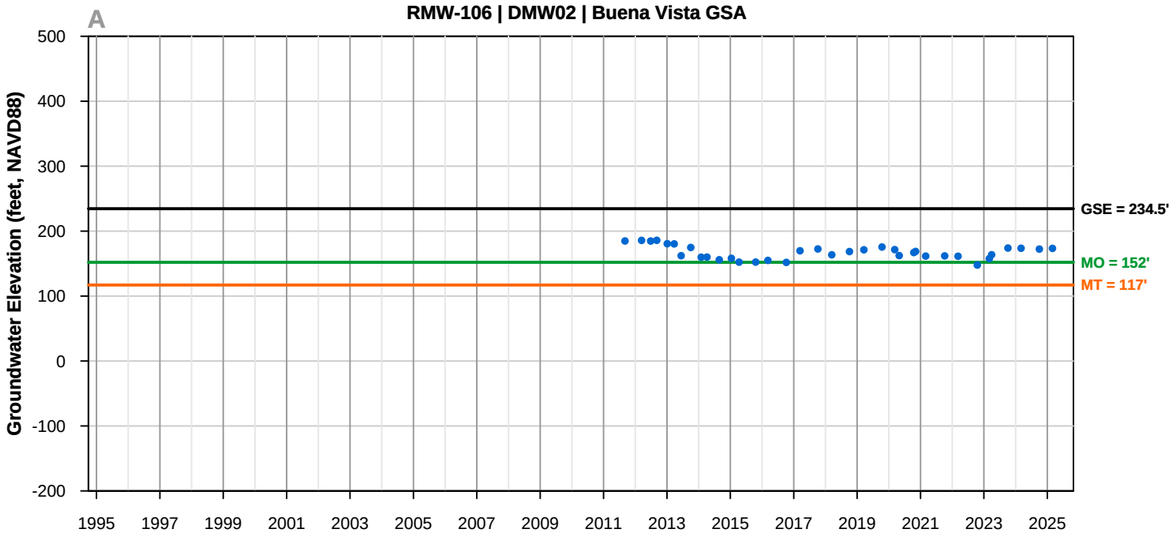
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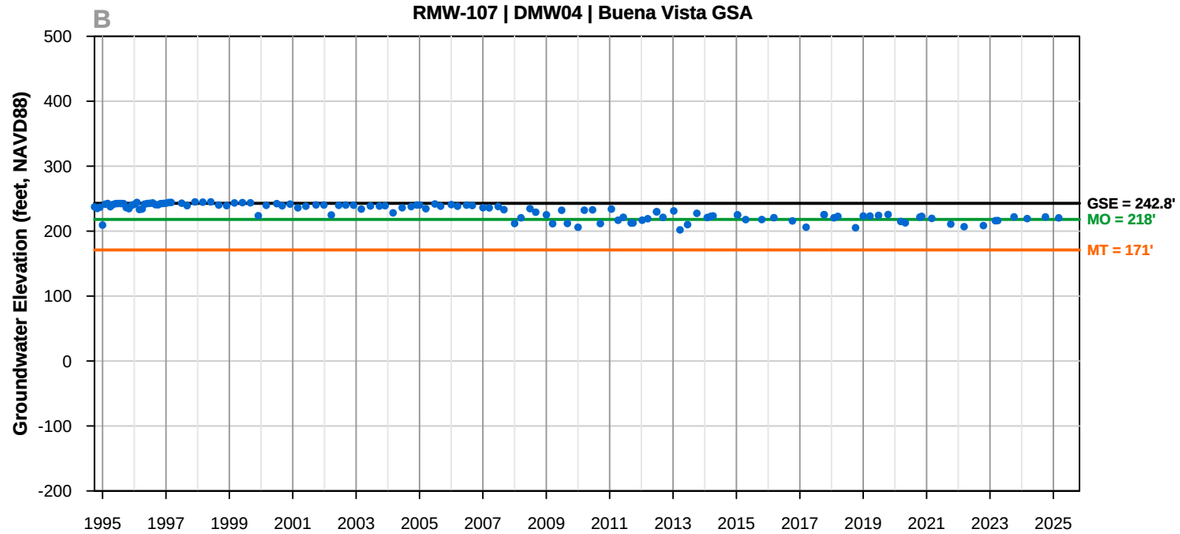
	RMW-275	RMW-279	RMW-299	RMW-105
RMW ID:				
Local Well Name:	7108-66	S#14	Berenda Mesa #3	DMW01
Site Code:	357762N1196902W001	356675N1196724W001	356364N1199486W001	356014N1196176W001
GSA:	WDWA GSA	WDWA GSA	WDWA GSA	Buena Vista GSA
Latitude:	35.77623	35.667499	35.63648	35.60135
Longitude:	-119.69017	-119.672443	-119.948621	-119.61765
HCM Area:	North Basin	North Basin	Western Fold Belt	North Basin
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	-569.8	77.82	41	-44.32
Bottom Perforation (feet bgs):	-769.8	-362.18	-164	-64.32
Ground Surface Elevation:	212.2	237.82	756	235.68
Measureable Objective (MO):	-2	218	363	160
Minimum Threshold (MT):	-73	134	306	129

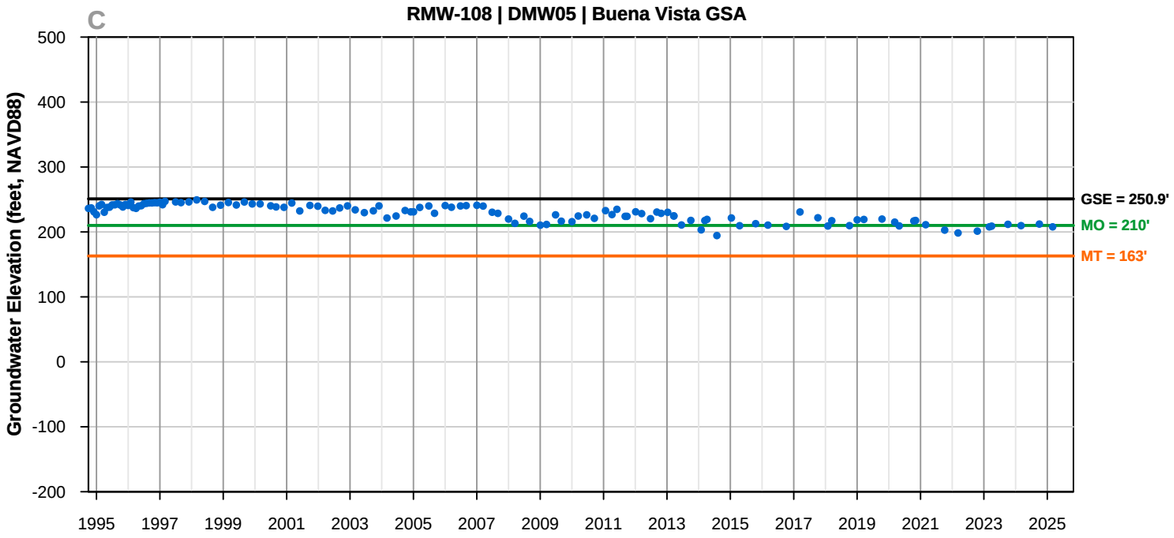
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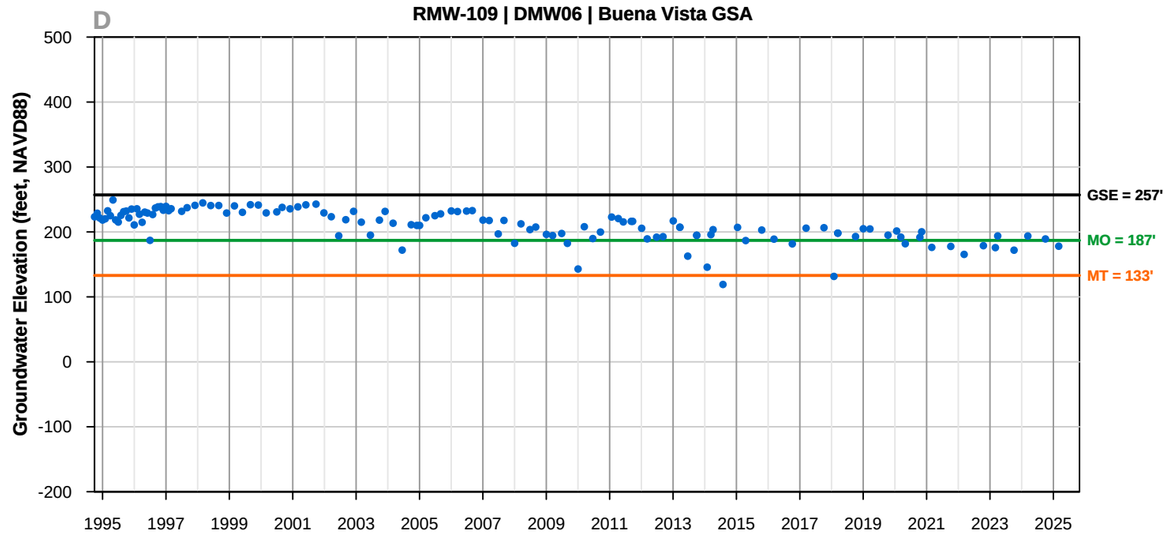
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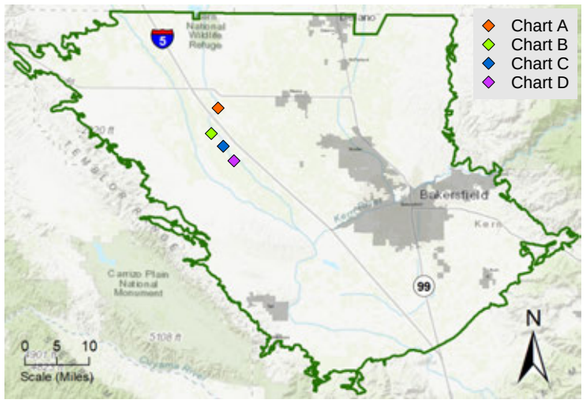
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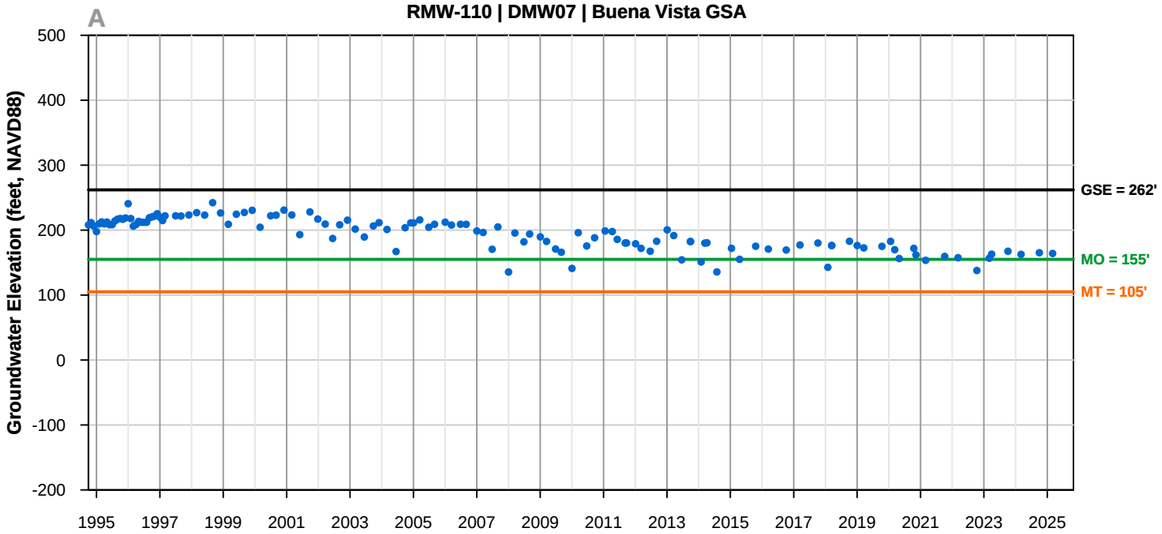
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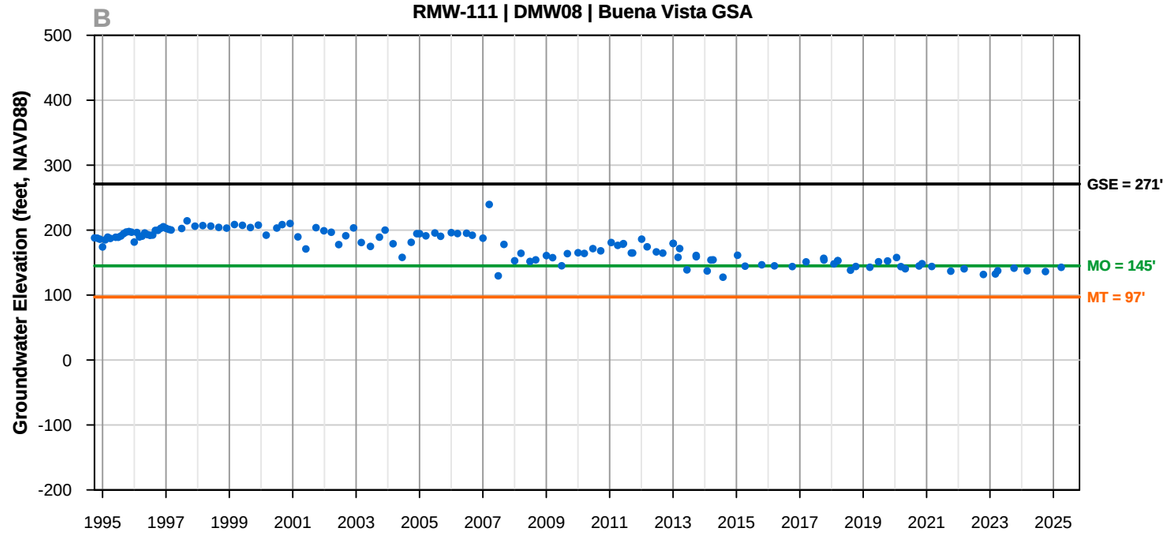
	RMW-106	RMW-107	RMW-108	RMW-109
RMW ID:				
Local Well Name:	DMW02	DMW04	DMW05	DMW06
Site Code:	355716N1195808W001	355137N1195985W001	354854N1195648W001	354527N1195347W001
GSA:	Buena Vista GSA	Buena Vista GSA	Buena Vista GSA	Buena Vista GSA
Latitude:	35.57164	35.51369	35.48532	35.45265
Longitude:	-119.58081	-119.59844	-119.56483	-119.5346
HCM Area:	North Basin	North Basin	North Basin	North Basin
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	-25.48	-91.19	10.9	-153
Bottom Perforation (feet bgs):	-65.48	-131.19	-59.1	-183
Ground Surface Elevation:	234.52	242.81	250.9	257
Measureable Objective (MO):	152	218	210	187
Minimum Threshold (MT):	117	171	163	133

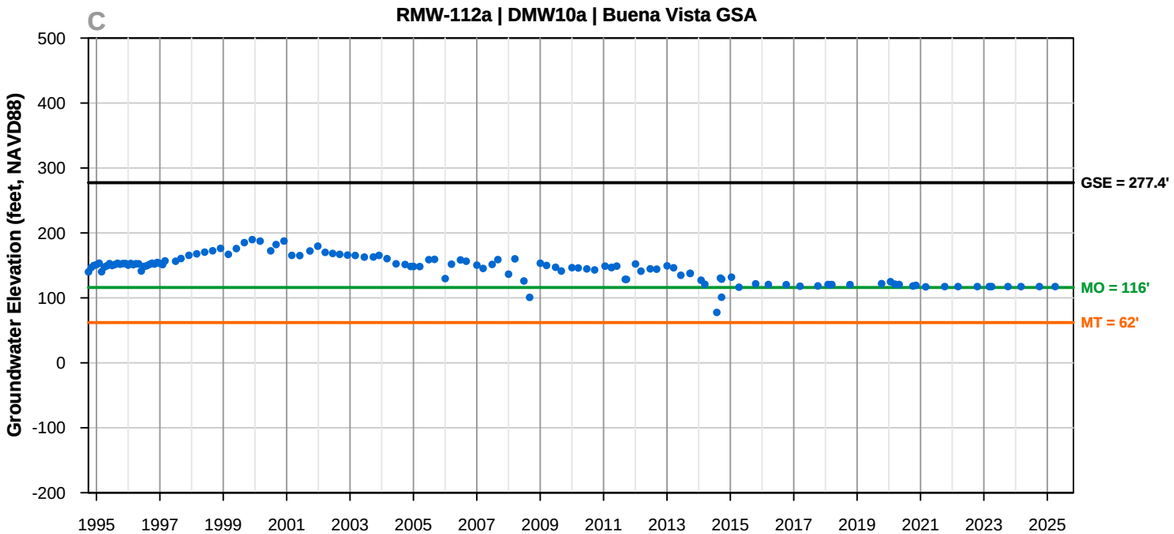
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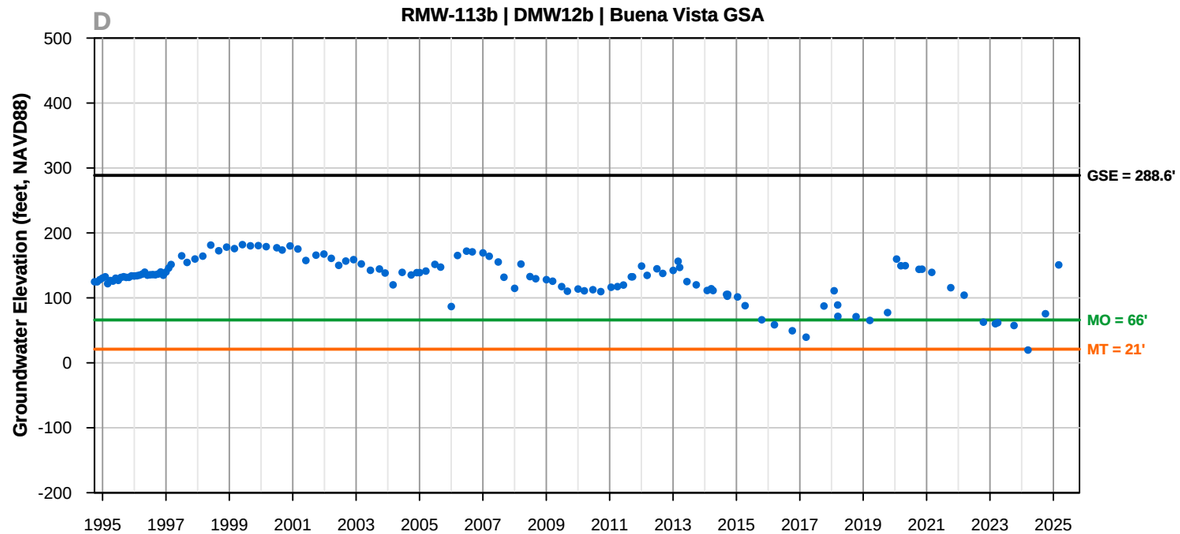
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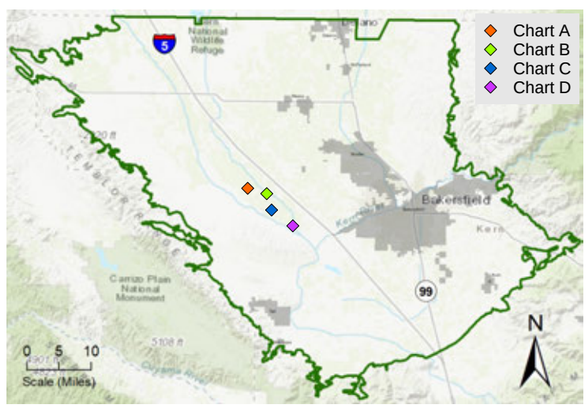
Sheet 33
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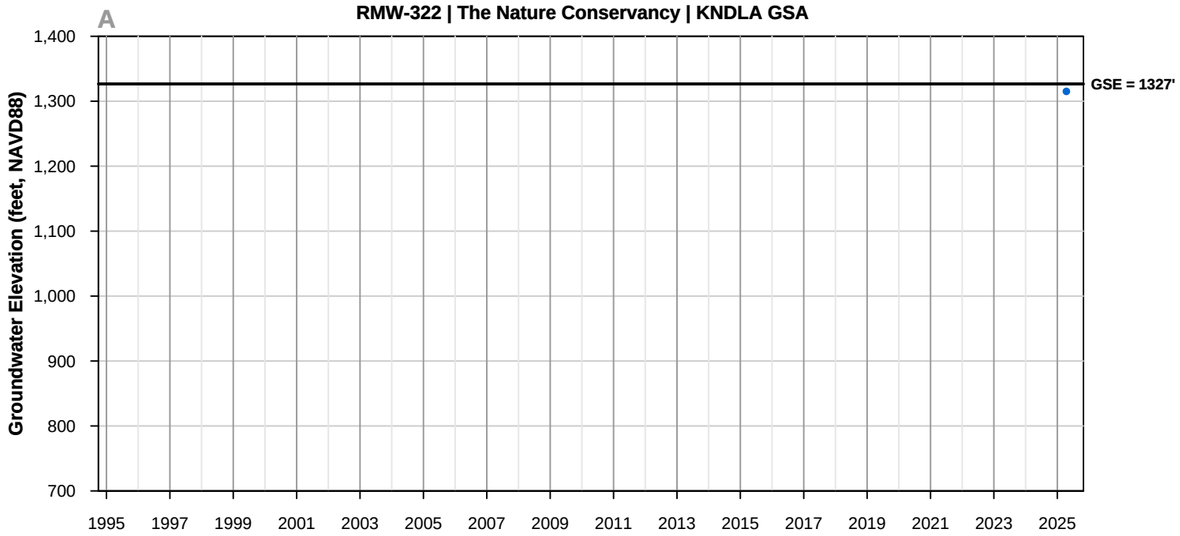
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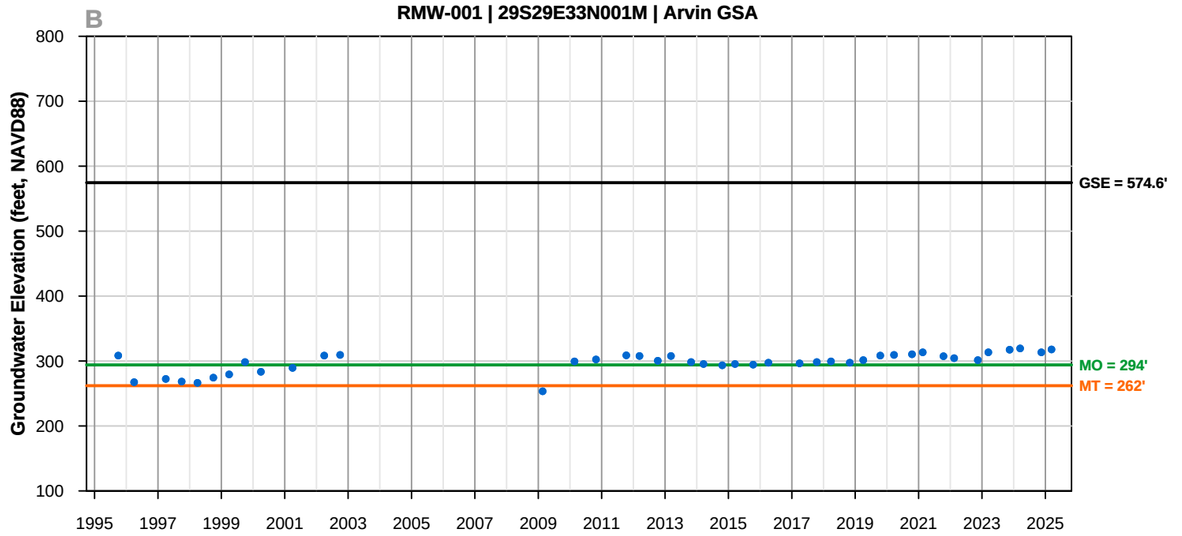
	RMW-110	RMW-111	RMW-112a	RMW-113b
RMW ID:	**RMW-110**	**RMW-111**	**RMW-112a**	**RMW-113b**
Local Well Name:	DMW07	DMW08	DMW10a	DMW12b
Site Code:	354021N1195011W001	353905N1194480W001	353536N1194341W001	353187N1193747W001
GSA:	Buena Vista GSA	Buena Vista GSA	Buena Vista GSA	Buena Vista GSA
Latitude:	35.40209	35.39058	35.35362	35.31847
Longitude:	-119.5011	-119.44817	-119.43412	-119.37473
HCM Area:	North Basin	North Basin	North Basin	Kern River Fan
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	-148	-103	-92.65	-66.38
Bottom Perforation (feet bgs):	-178	-133	-172.65	-166.38
Ground Surface Elevation:	262	271	277.35	288.62
Measureable Objective (MO):	155	145	116	66
Minimum Threshold (MT):	105	97	62	21

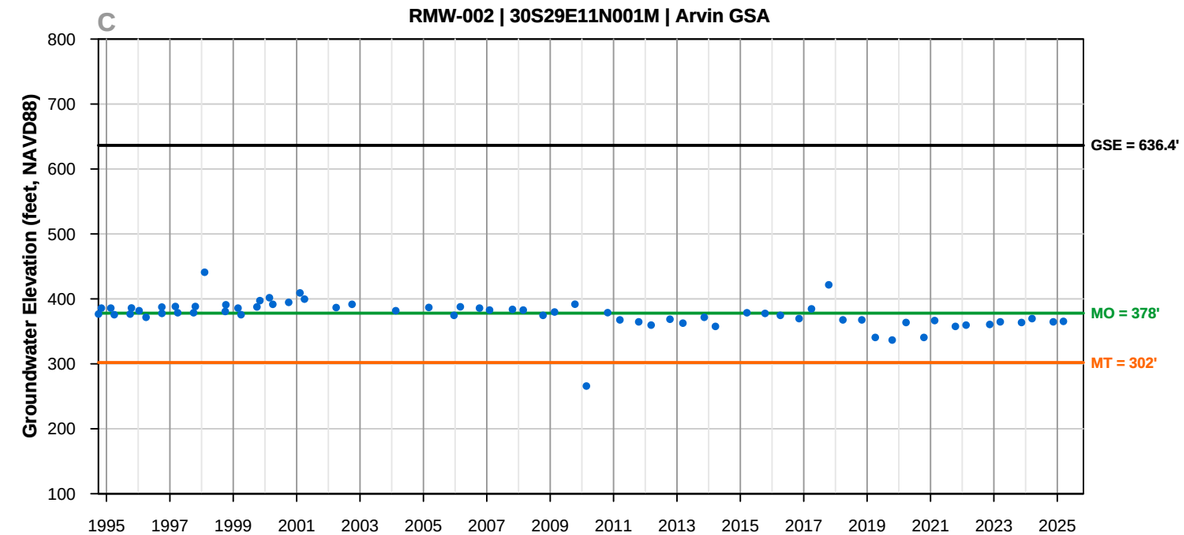
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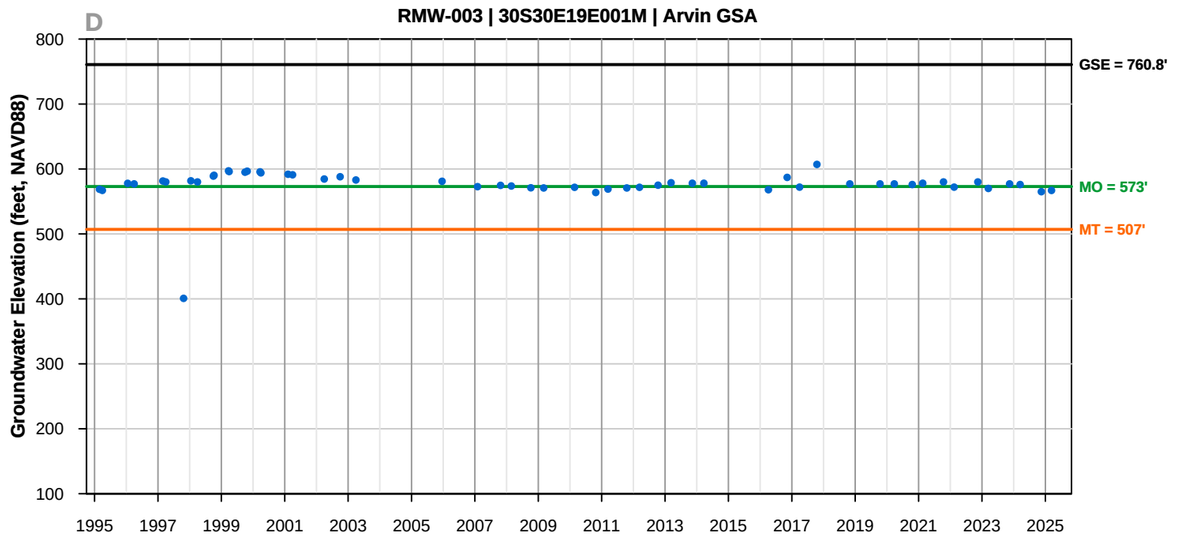
KNDLA - Kern Non-Districted Lands Authority GSA
WDWA - Westside District Water Authority GSA

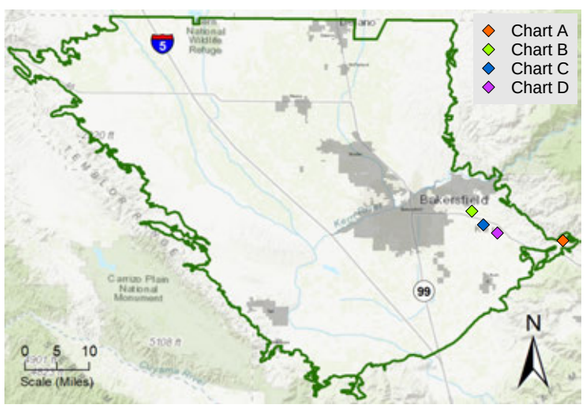
Sheet 34
Kern Groundwater Subbasin Hydrographs, WY 2025











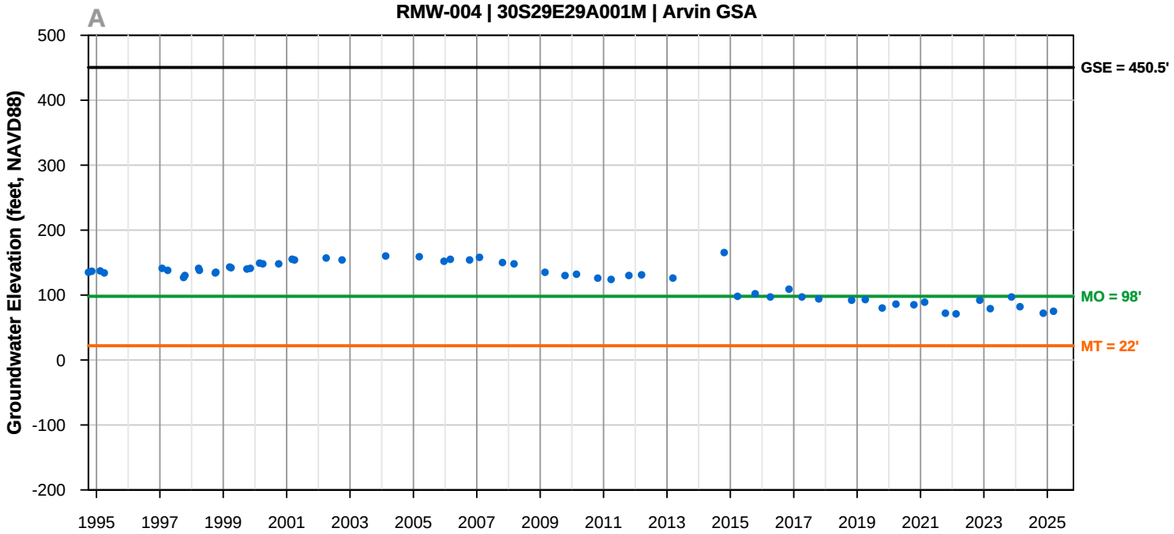
Well Information

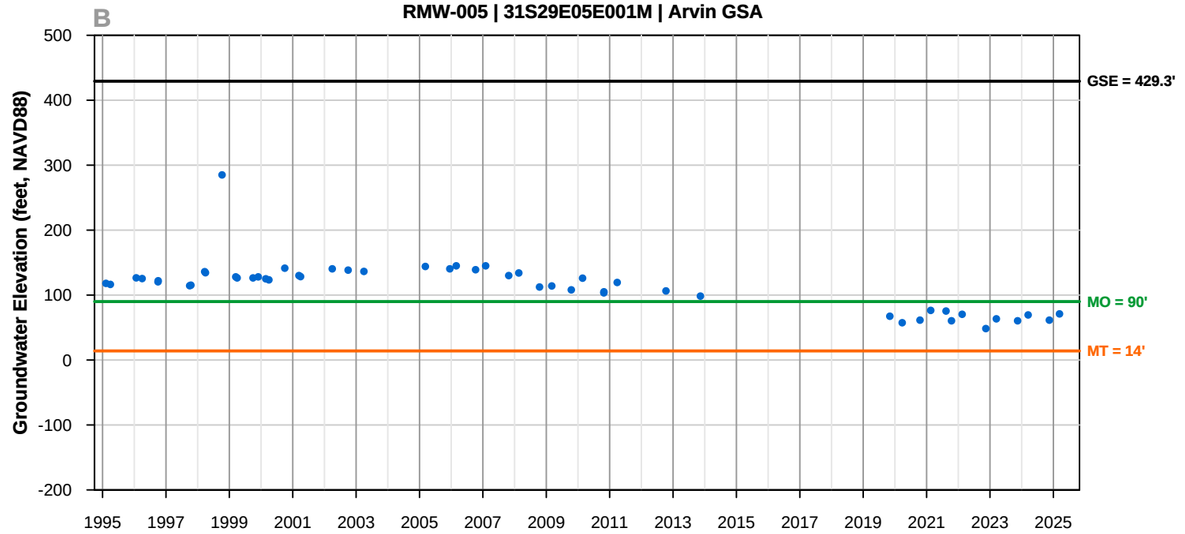
	RMW-322	RMW-001	RMW-002	RMW-003
RMW ID:				
Local Well Name:	The Nature Conservancy	29S29E33N001M	30S29E11N001M	30S30E19E001M
Site Code:	352911N1186220W001	353577N1188771W001	353269N1188418W001	353072N1188037W001
GSA:	KNDLA GSA	Arvin GSA	Arvin GSA	Arvin GSA
Latitude:	35.2911444444	35.356287	35.325742	35.307303
Longitude:	-118.622027777	-118.874542	-118.842402	-118.80349
HCM Area:	East Margin	South Basin	South Basin	South Basin
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	NA	-51.41	238.37	710.75
Bottom Perforation (feet bgs):	NA	-271.21	166.87	474.75
Ground Surface Elevation:	1326.61	574.59	636.37	760.75
Measureable Objective (MO):		294	378	573
Minimum Threshold (MT):	(Note 1)	262	302	507

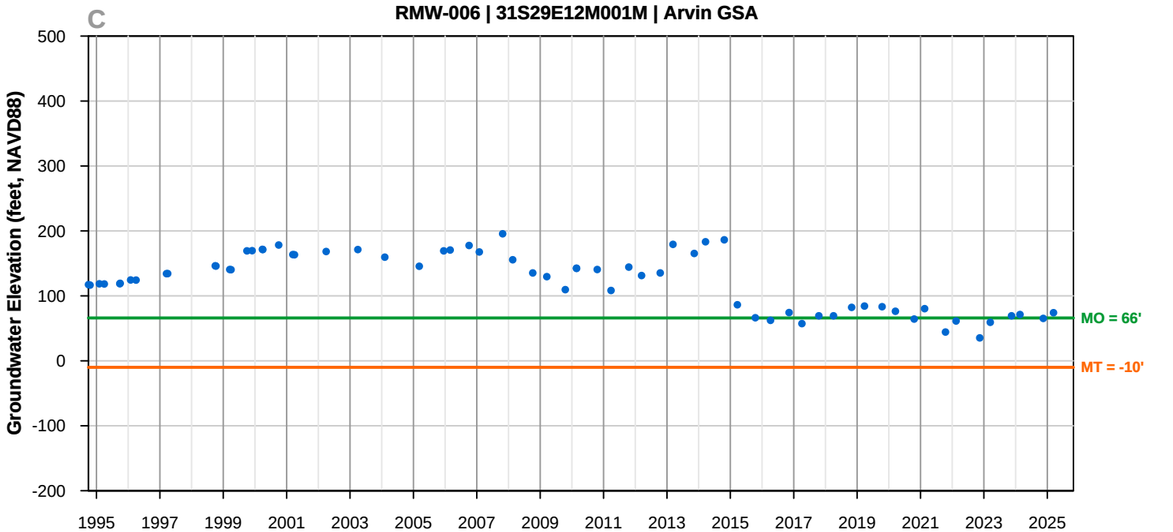
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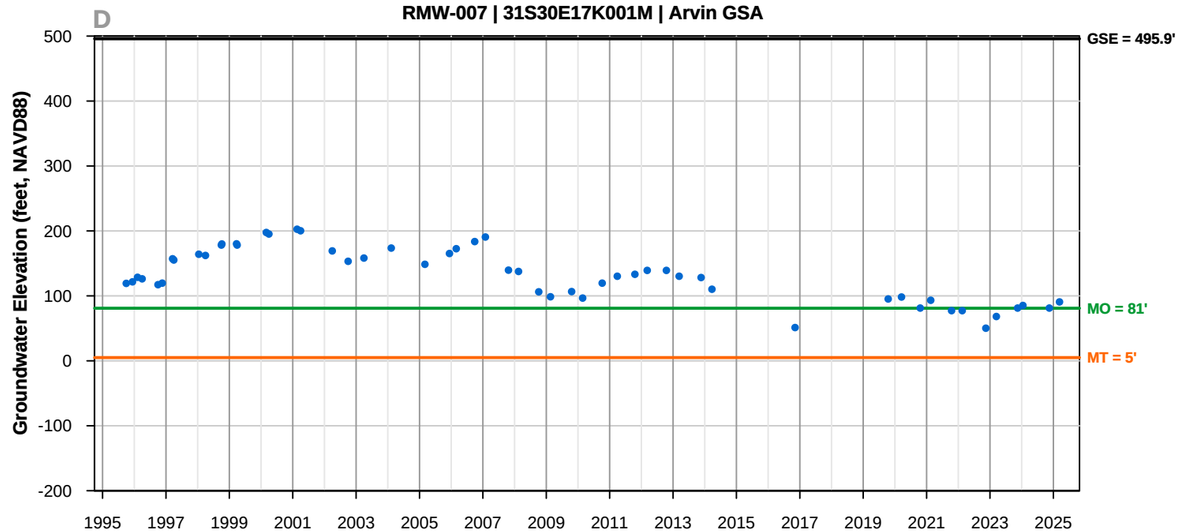
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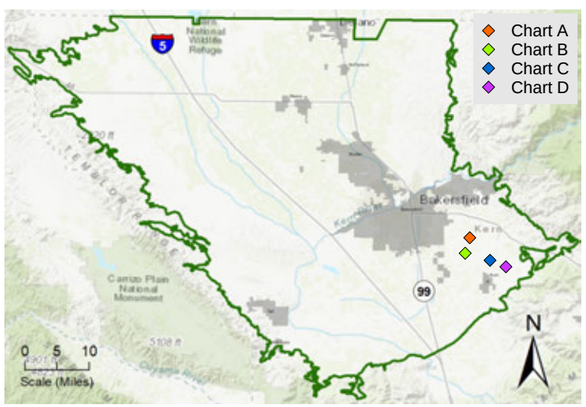
Sheet 35
Kern Groundwater Subbasin
Hydrographs, WY 2025











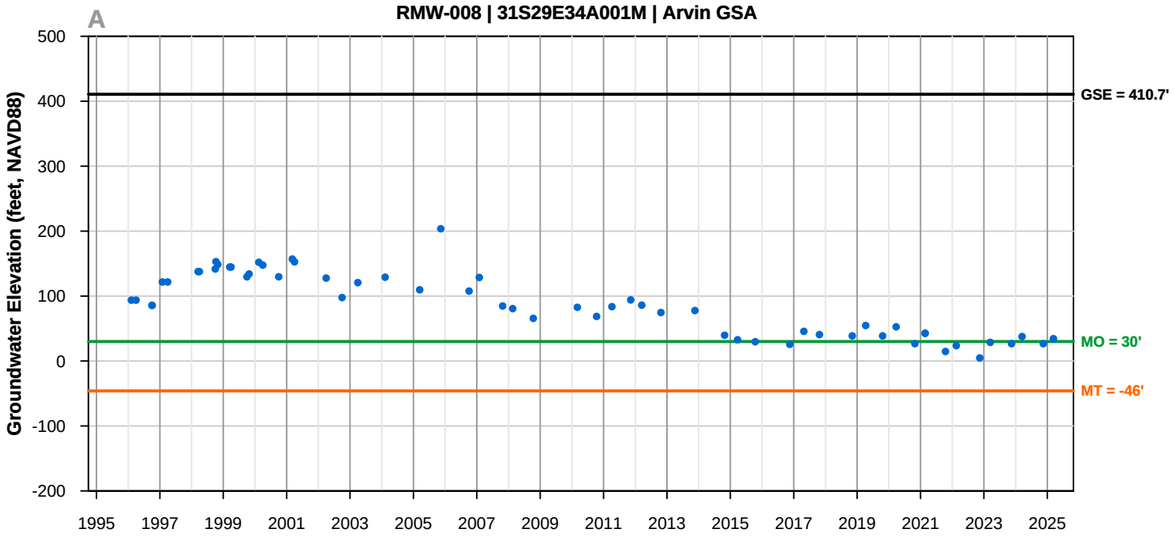
Well Information

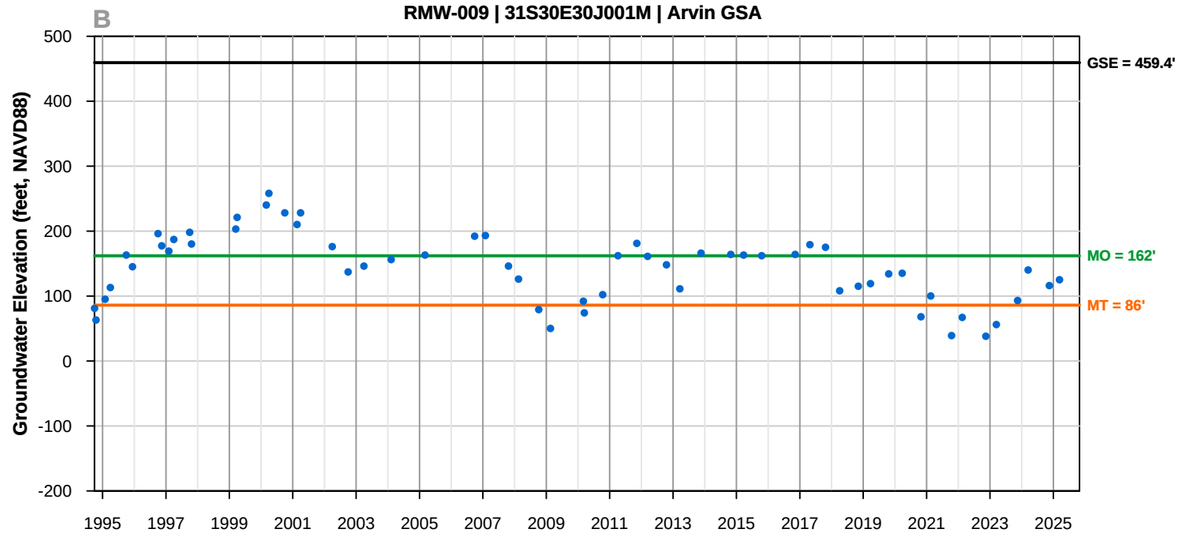
	RMW-004	RMW-005	RMW-006	RMW-007
RMW ID:				
Local Well Name:	30S29E29A001M	31S29E05E001M	31S29E12M001M	31S30E17K001M
Site Code:	352958N1188807W001	352605N1188932W001	352452N1188243W001	352311N1187790W001
GSA:	Arvin GSA	Arvin GSA	Arvin GSA	Arvin GSA
Latitude:	35.296069	35.260893	35.245311	35.230892
Longitude:	-118.879708	-118.891989	-118.823183	-118.779145
HCM Area:	South Basin	South Basin	South Basin	South Basin
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	181.27	39.29	213.64	92.88
Bottom Perforation (feet bgs):	-192.13	-262.21	-468.36	-290.12
Ground Surface Elevation:	450.47	429.29	513.64	495.88
Measureable Objective (MO):	98	90	66	81
Minimum Threshold (MT):	22	14	-10	5

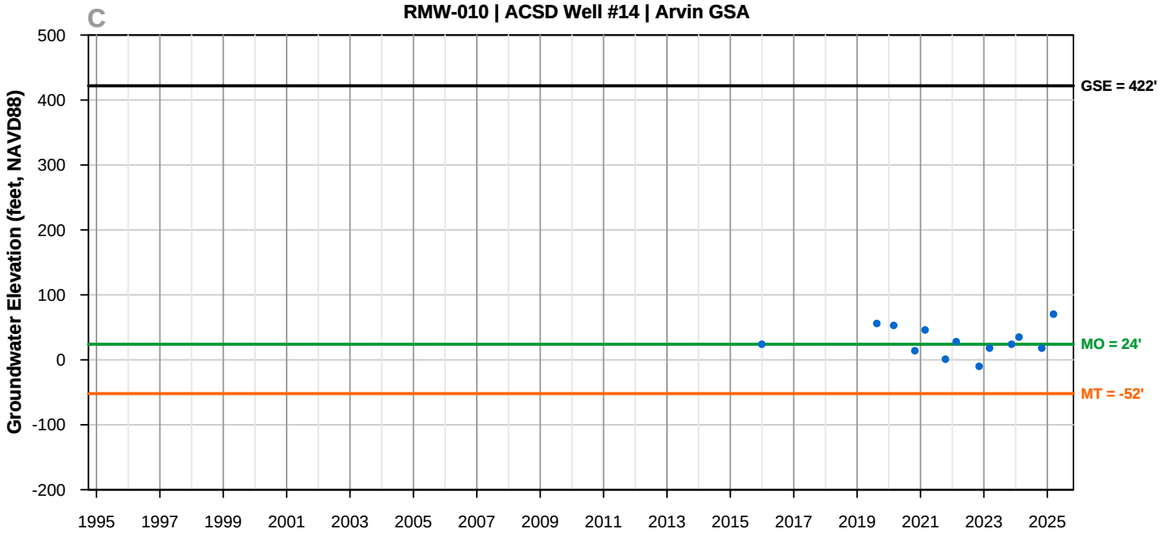
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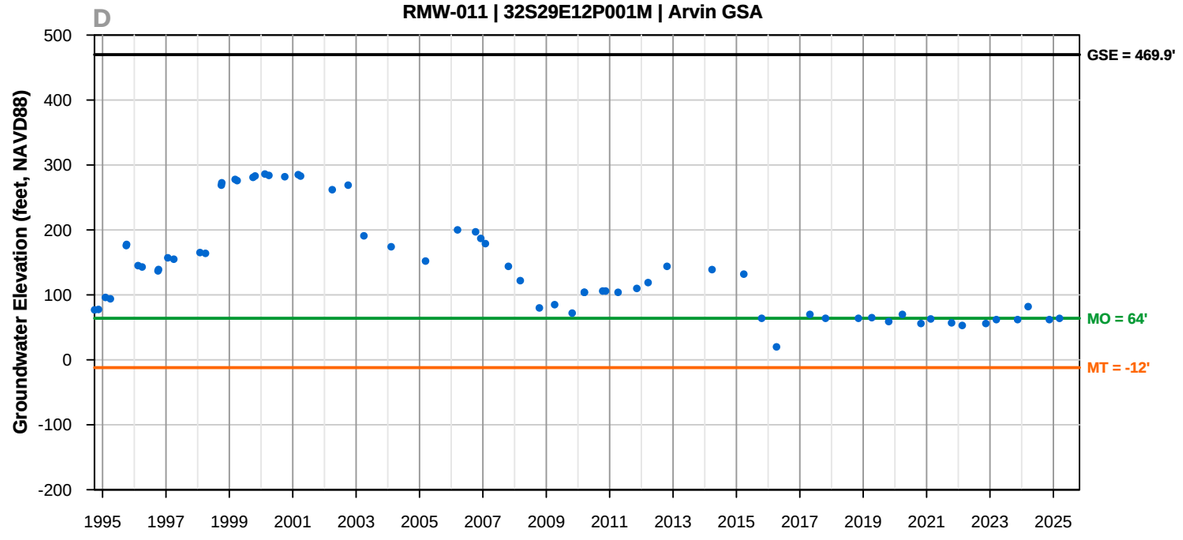
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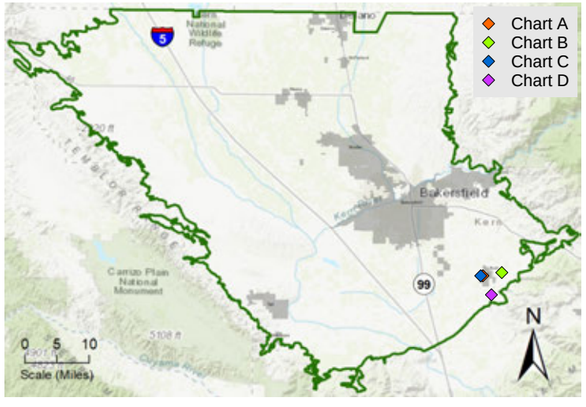
Sheet 36
Kern Groundwater Subbasin Hydrographs, WY 2025











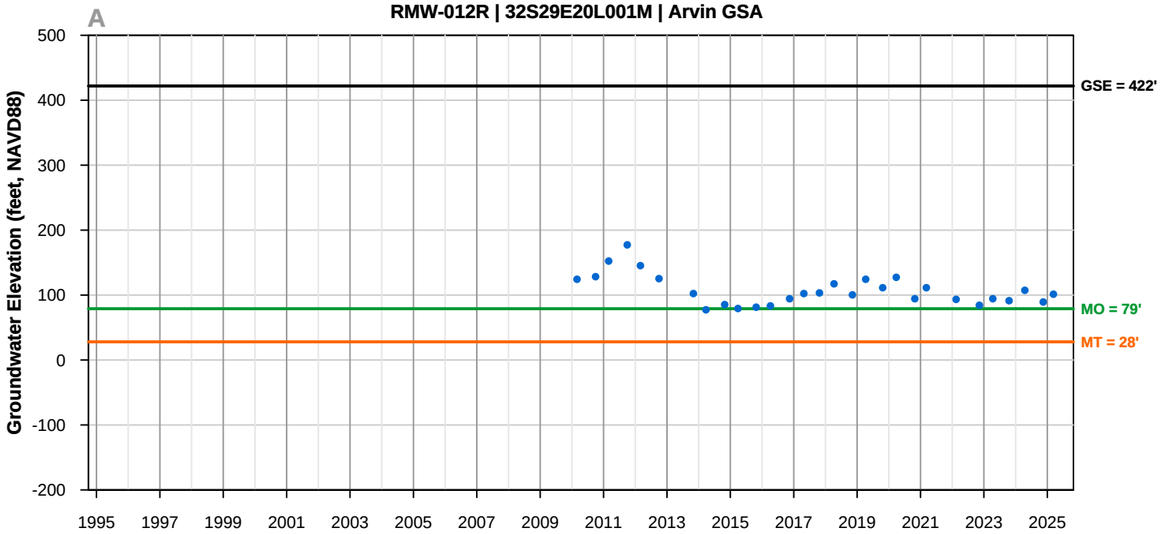
Well Information

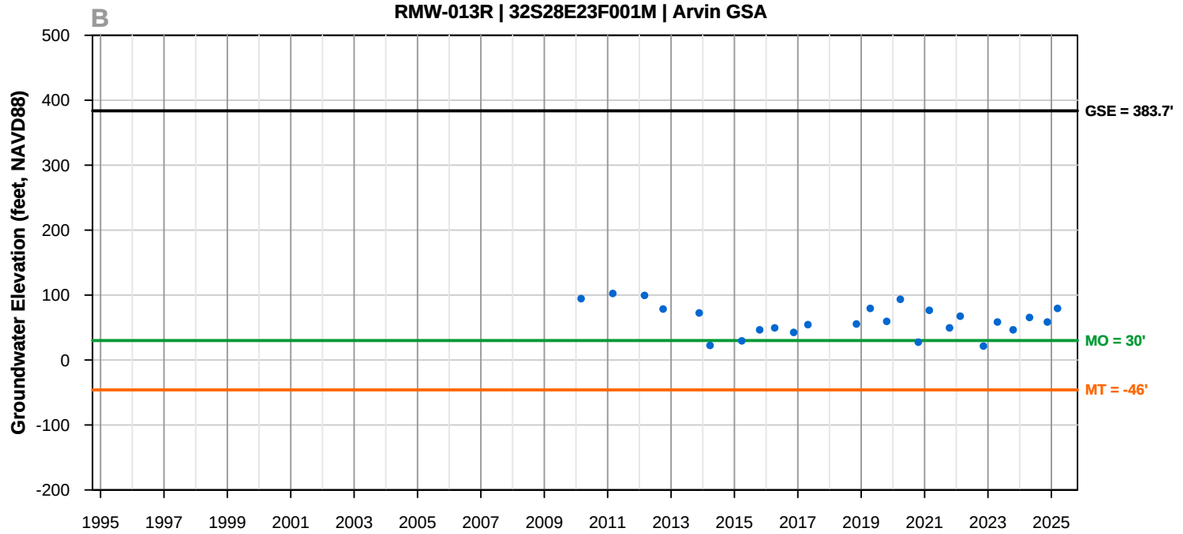
	RMW-008	RMW-009	RMW-010	RMW-011
RMW ID:				
Local Well Name:	31S29E34A001M	31S30E30J001M	ACSD Well #14	32S29E12P001M
Site Code:	351944N1188423W001	352017N1187987W001	351942N1188484W001	351522N1188199W001
GSA:	Arvin GSA	Arvin GSA	Arvin GSA	Arvin GSA
Latitude:	35.19424	35.201883	35.194193	35.151312
Longitude:	-118.842512	-118.790224	-118.848387	-118.818399
HCM Area:	South Basin	South Basin	South Basin	South Basin
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	7.71	194.59	-178.05	49.89
Bottom Perforation (feet bgs):	-285.29	-111.11	-228.05	-50.11
Ground Surface Elevation:	410.71	459.39	421.95	469.89
Measureable Objective (MO):	30	162	24	64
Minimum Threshold (MT):	-46	86	-52	-12

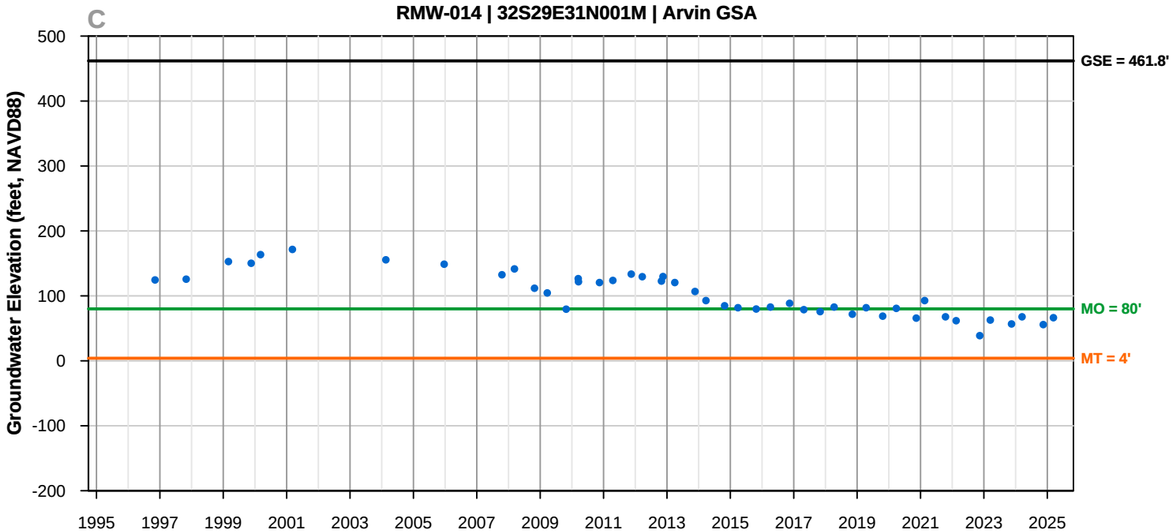
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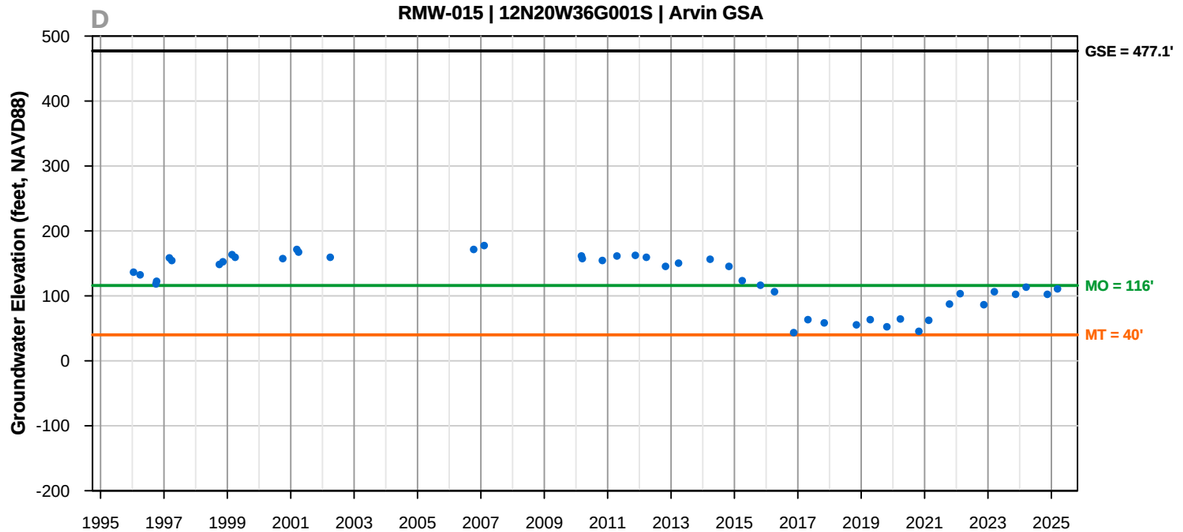
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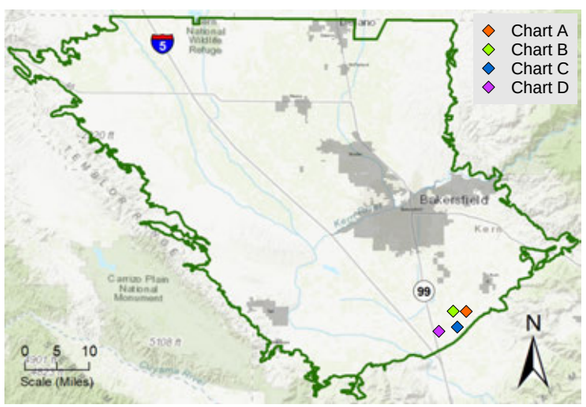
Sheet 37
Kern Groundwater Subbasin
Hydrographs, WY 2025











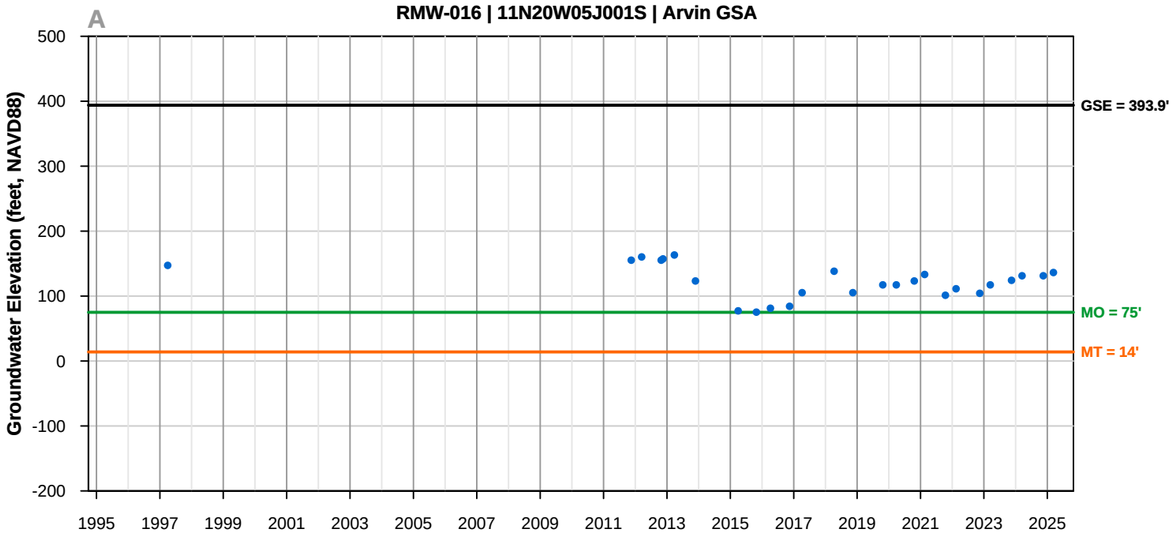
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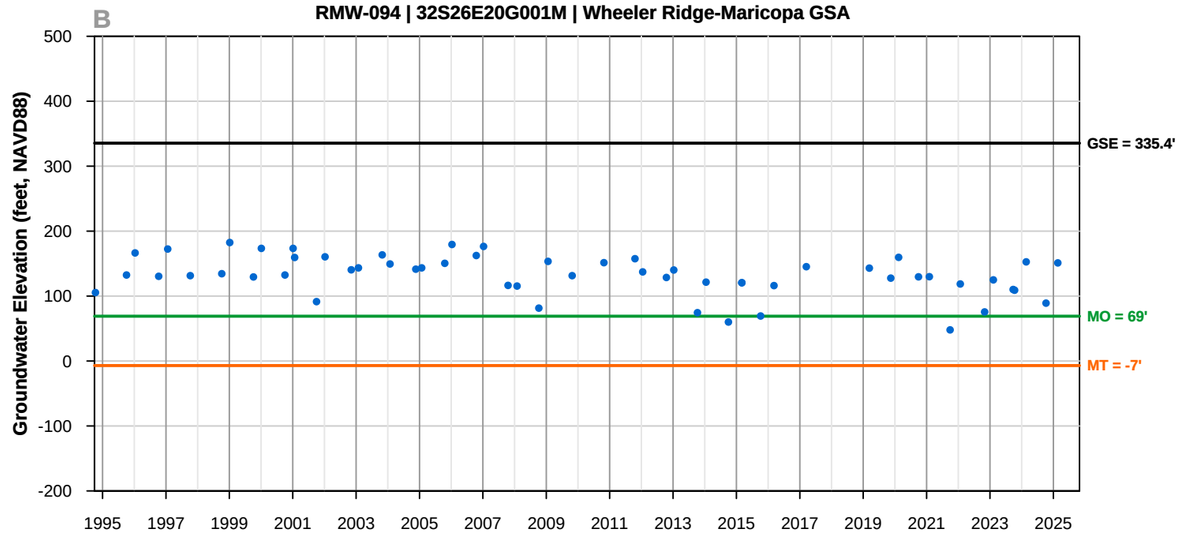
	RMW-012R	RMW-013R	RMW-014	RMW-015
RMW ID:				
Local Well Name:	32S29E20L001M	32S28E23F001M	32S29E31N001M	12N20W36G001S
Site Code:	351290N1189325W001	351292N1189236W001	350931N1189123W001	350833N1189632W001
GSA:	Arvin GSA	Arvin GSA	Arvin GSA	Arvin GSA
Latitude:	35.129014	35.129263	35.093378	35.083415
Longitude:	-118.88769	-118.923661	-118.911893	-118.962564
HCM Area:	South Basin	South Basin	South Basin	South Basin
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	121.95	-127.31	-38.17	77.13
Bottom Perforation (feet bgs):	-312.05	-598.31	-518.17	-522.87
Ground Surface Elevation:	421.95	383.69	461.83	477.13
Measureable Objective (MO):	79	30	80	116
Minimum Threshold (MT):	28	-46	4	40

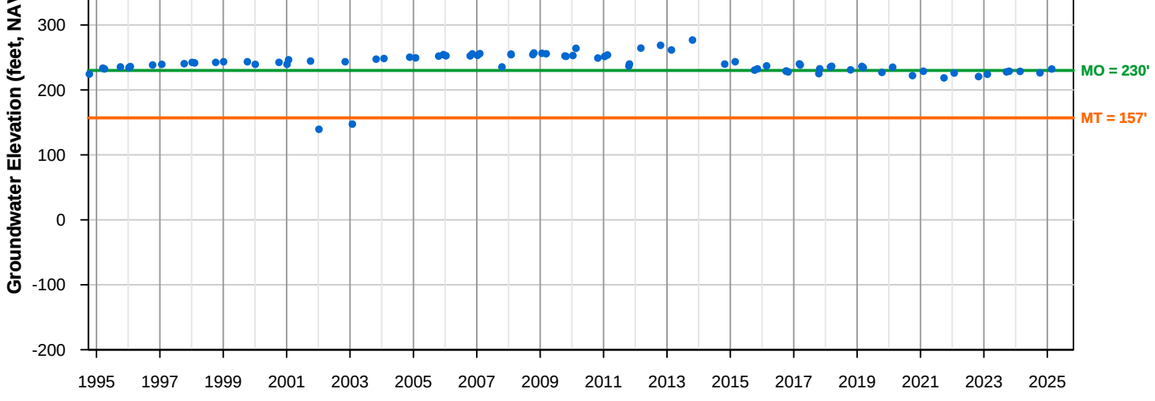
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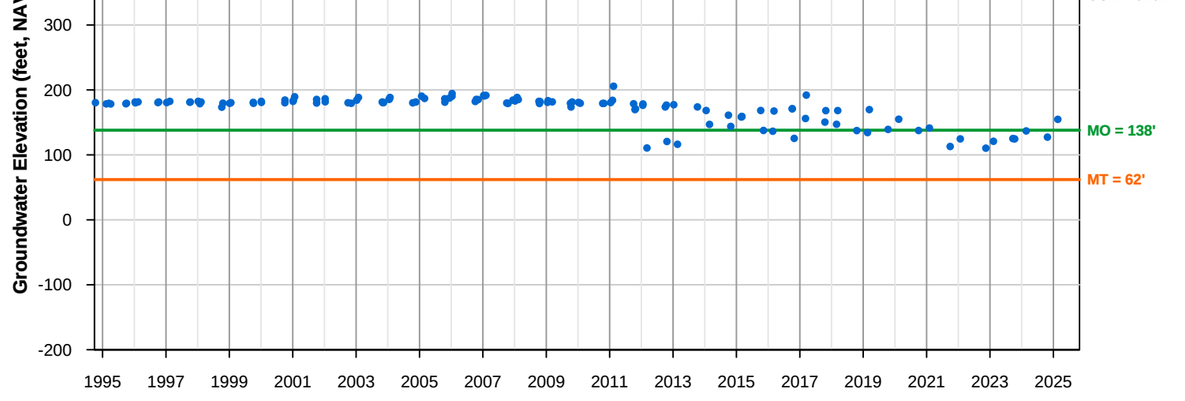
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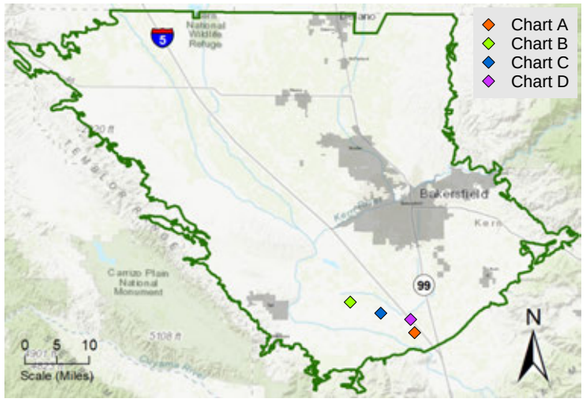
Sheet 38
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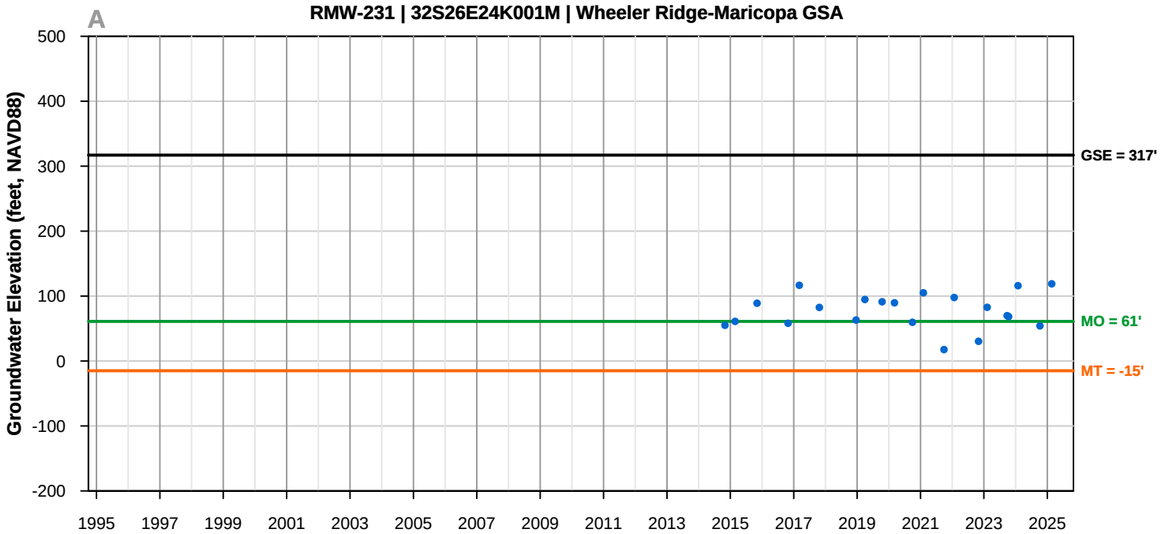
Well Information

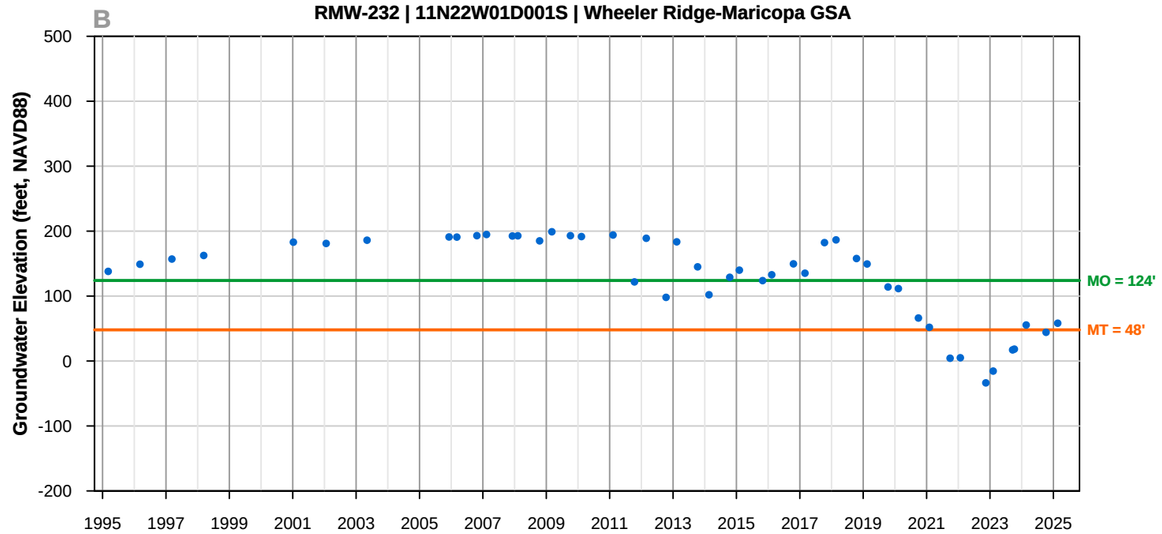
	RMW-016	RMW-094	RMW-095	RMW-097
RMW ID:				
Local Well Name:	11N20W05J001S	32S26E20G001M	32S27E30N001M	32S27E35R001M
Site Code:	350669N1190295W001	351303N1192078W001	351092N1191270W001	350961N1190435W001
GSA:	Arvin GSA	Wheeler Ridge-Maricopa GSA	Wheeler Ridge-Maricopa GSA	Wheeler Ridge-Maricopa GSA
Latitude:	35.06618	35.13376	35.109479	35.096023
Longitude:	-119.029422	-119.207679	-119.123197	-119.04069
HCM Area:	South Basin	South Basin	South Basin	South Basin
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	-3.74	-260.58	100.39	-300.59
Bottom Perforation (feet bgs):	-462.64	-865.58	-649.61	-967.59
Ground Surface Elevation:	393.86	335.42	352.39	346.41
Measureable Objective (MO):	75	69	230	138
Minimum Threshold (MT):	14	-7	157	62

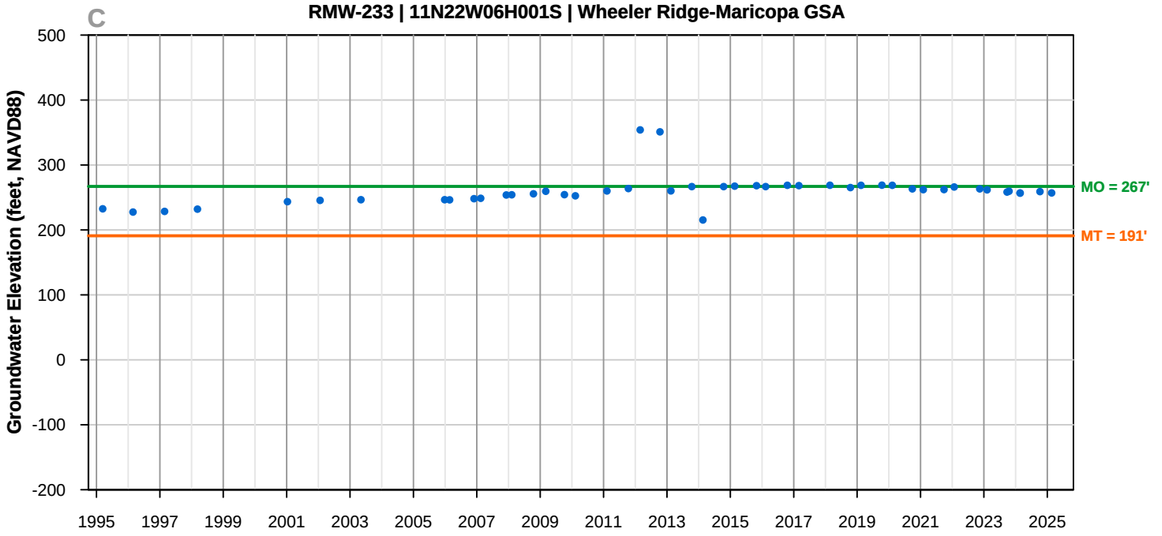
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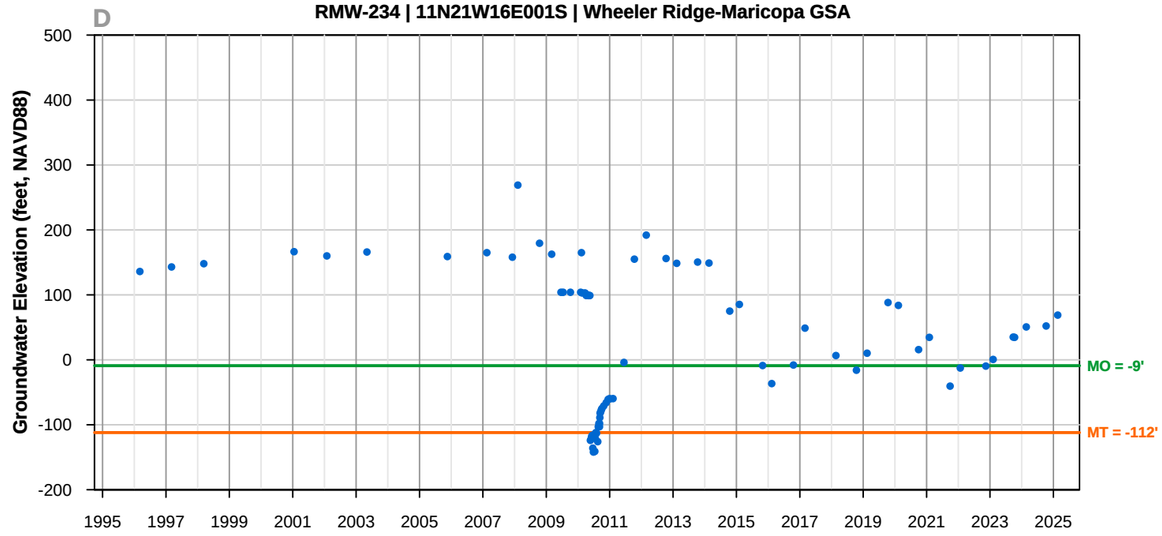
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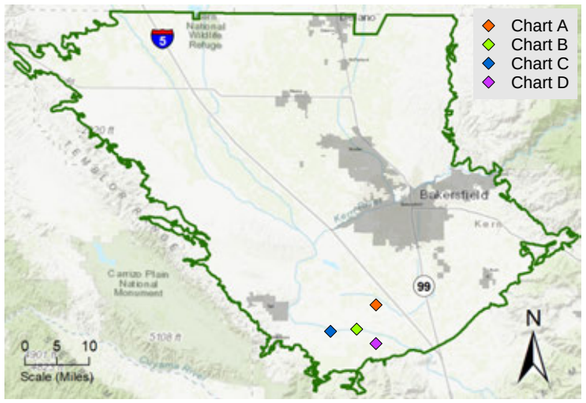
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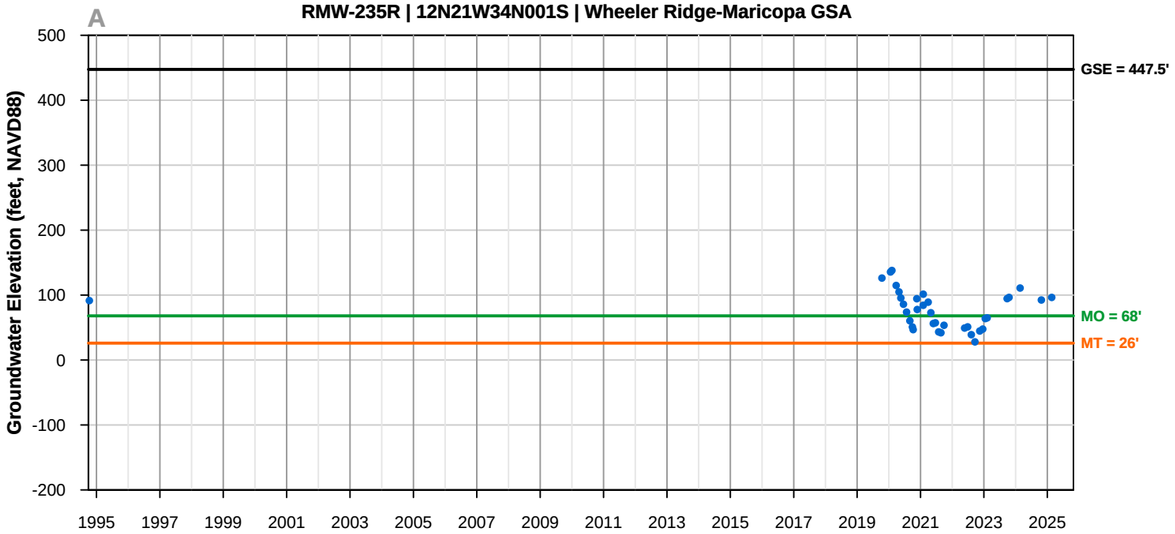
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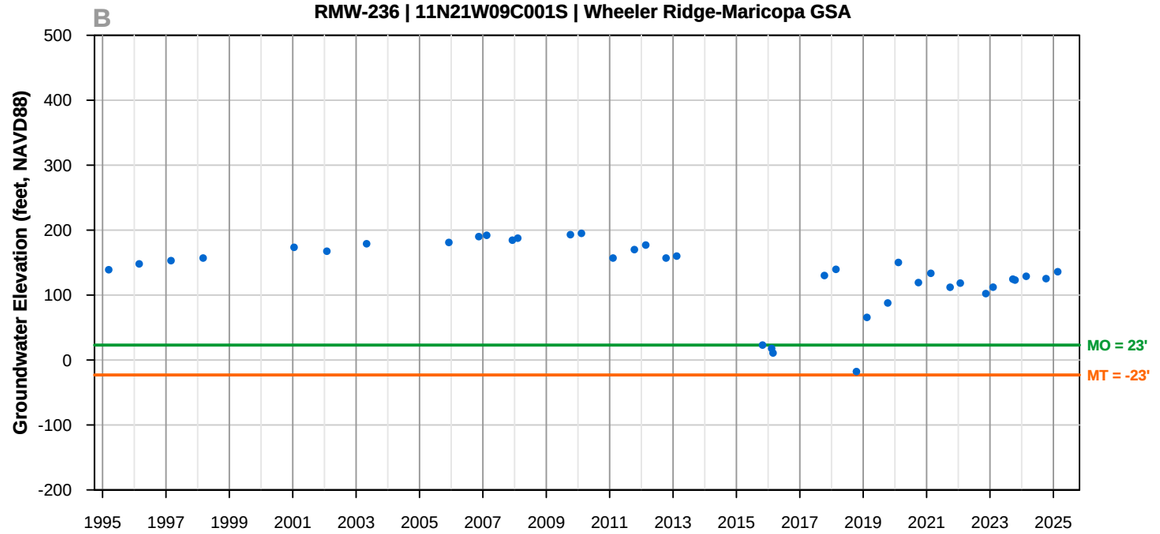
	RMW-231	RMW-232	RMW-233	RMW-234
RMW ID:				
Local Well Name:	32S26E24K001M	11N22W01D001S	11N22W06H001S	11N21W16E001S
Site Code:	351304N1191366W001	350750N1191892W001	350686N1192609W001	350428N1191355W001
GSA:	Wheeler Ridge-Maricopa GSA	Wheeler Ridge-Maricopa GSA	Wheeler Ridge-Maricopa GSA	Wheeler Ridge-Maricopa GSA
Latitude:	35.130445	35.074957	35.069237	35.042829
Longitude:	-119.136596	-119.189203	-119.261172	-119.135542
HCM Area:	South Basin	South Basin	South Basin	South Basin
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	-79	-319	212.51	24
Bottom Perforation (feet bgs):	-604	-1357	-467.49	-1636
Ground Surface Elevation:	317	501	542.51	644
Measureable Objective (MO):	61	124	267	-9
Minimum Threshold (MT):	-15	48	191	-112

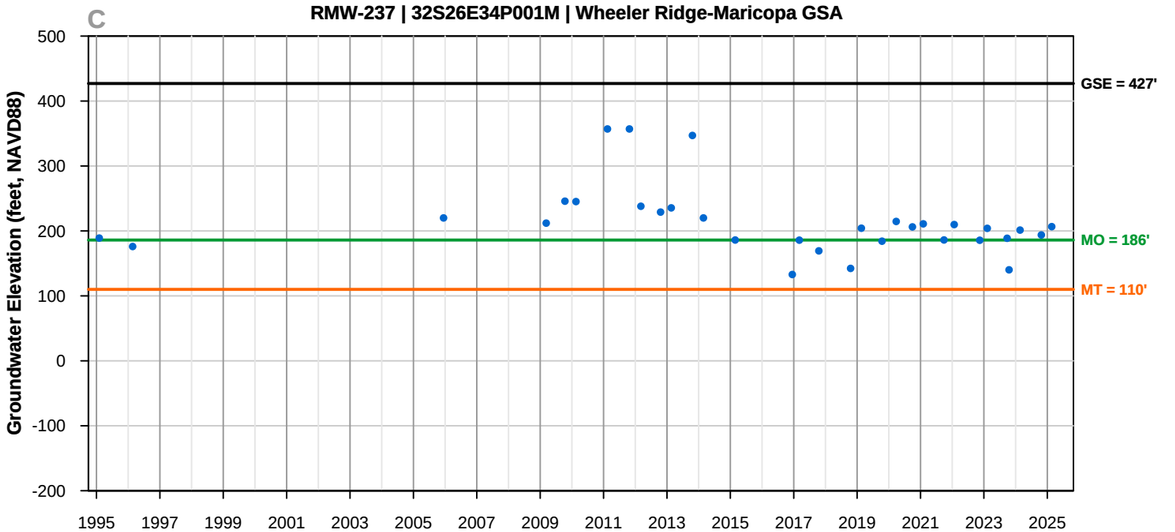
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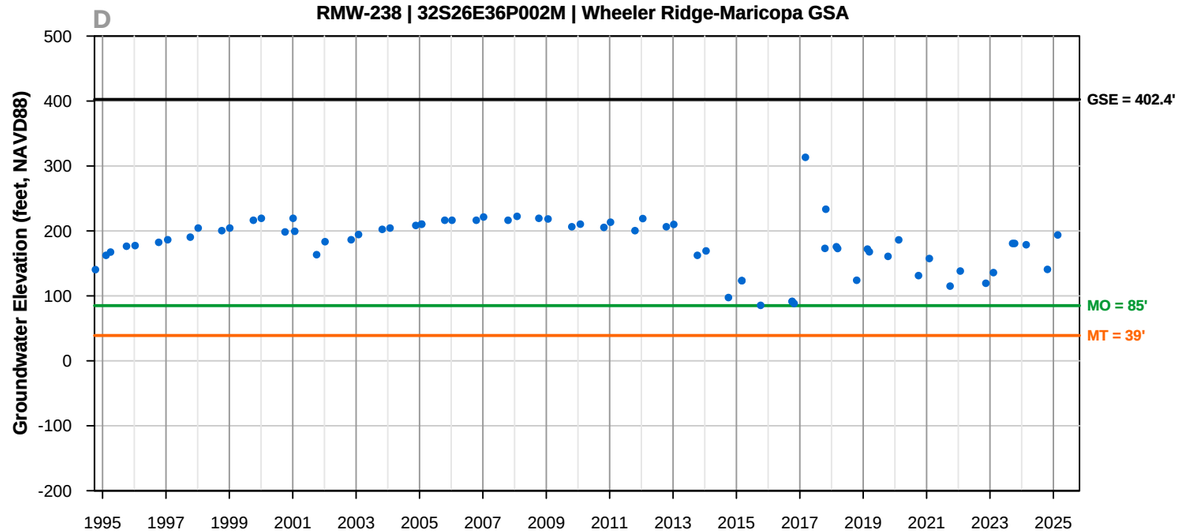
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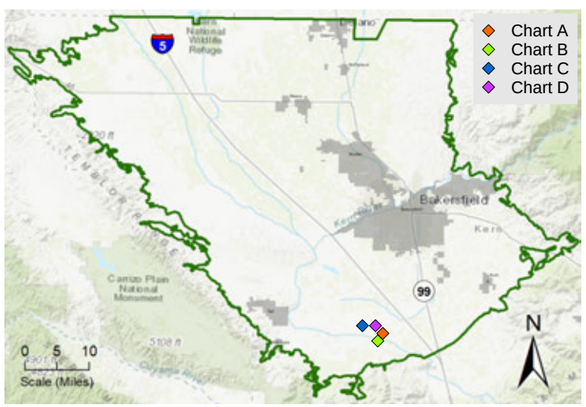
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Kern Groundwater Subbasin
Hydrographs, WY 2025











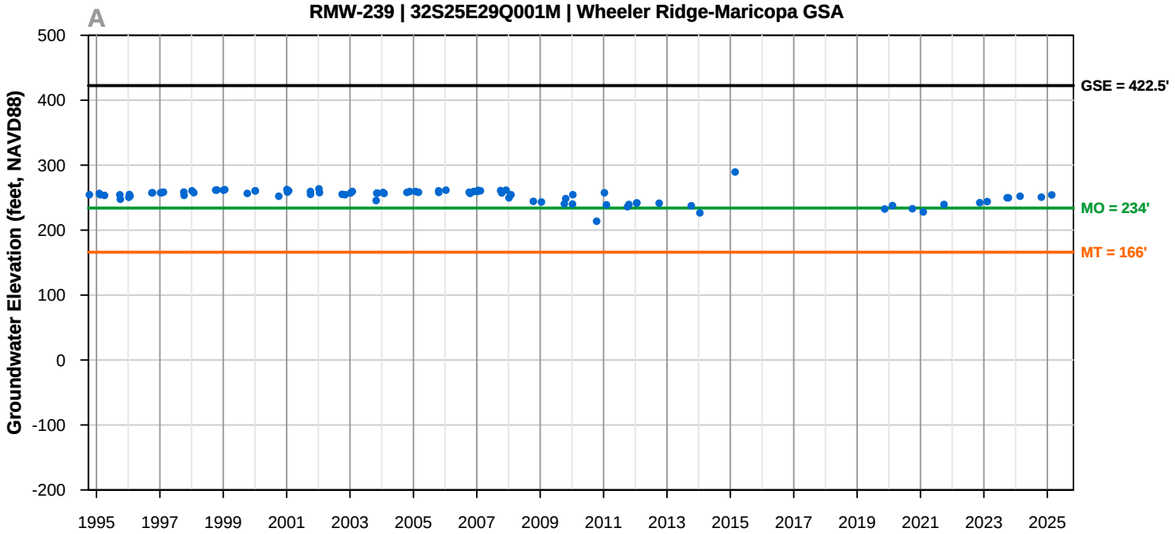
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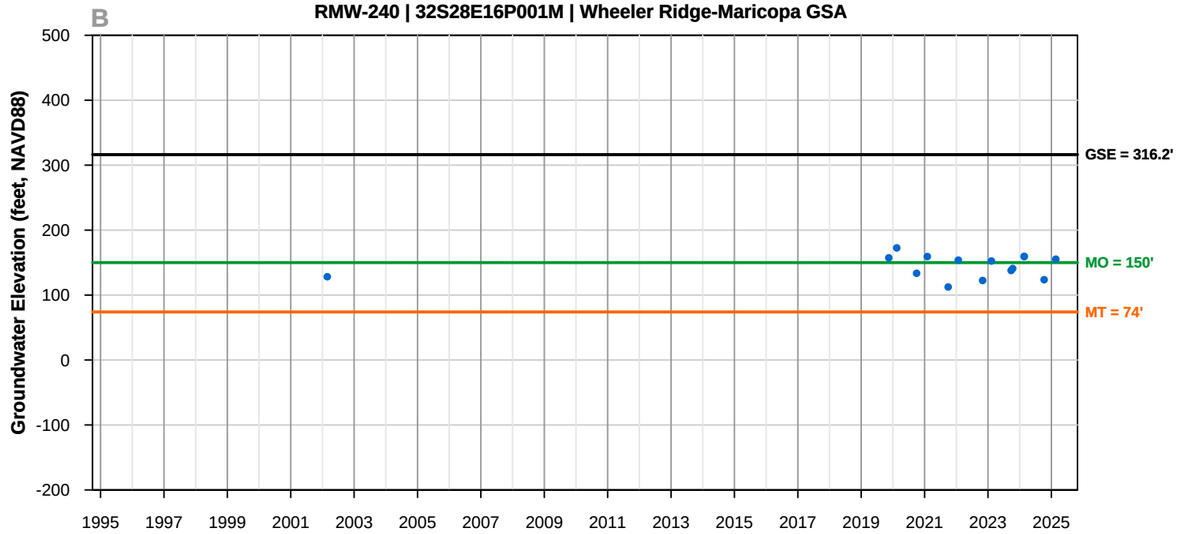
	RMW-235R	RMW-236	RMW-237	RMW-238
RMW ID:				
Local Well Name:	12N21W34N001S	11N21W09C001S	32S26E34P001M	32S26E36P002M
Site Code:	350772N1191178W001	350592N1191328W001	350943N1191736W001	350947N1191370W001
GSA:	Wheeler Ridge-Maricopa GSA	Wheeler Ridge-Maricopa GSA	Wheeler Ridge-Maricopa GSA	Wheeler Ridge-Maricopa GSA
Latitude:	35.077426	35.0601	35.094297	35.09466
Longitude:	-119.117207	-119.130881	-119.173551	-119.13748
HCM Area:	South Basin	South Basin	South Basin	South Basin
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	-199.54	-254.49	77	-149.57
Bottom Perforation (feet bgs):	-1554.54	-1554.49	-273	-1399.57
Ground Surface Elevation:	447.46	545.51	427	402.43
Measureable Objective (MO):	68	23	186	85
Minimum Threshold (MT):	26	-23	110	39

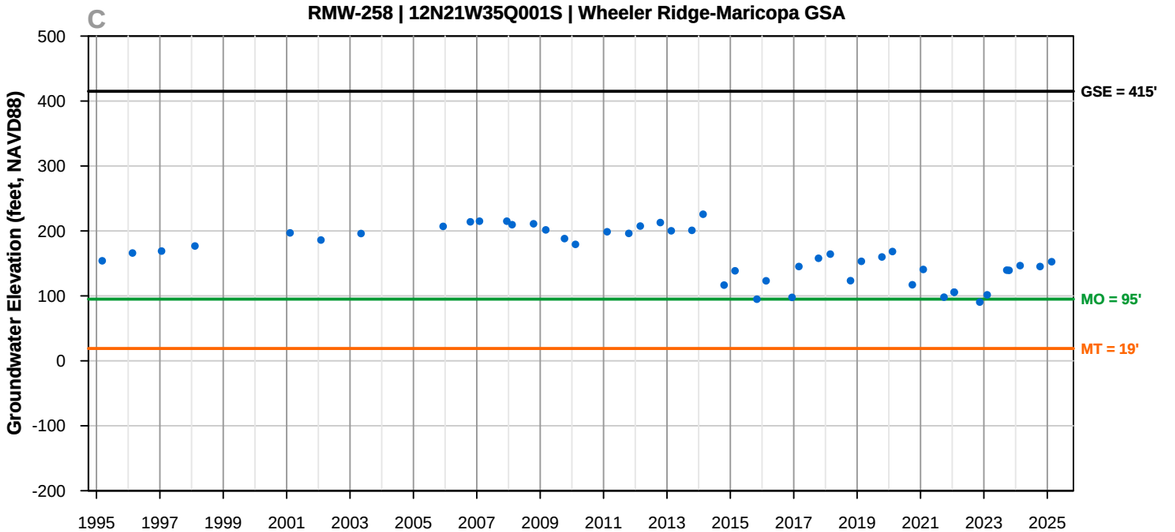
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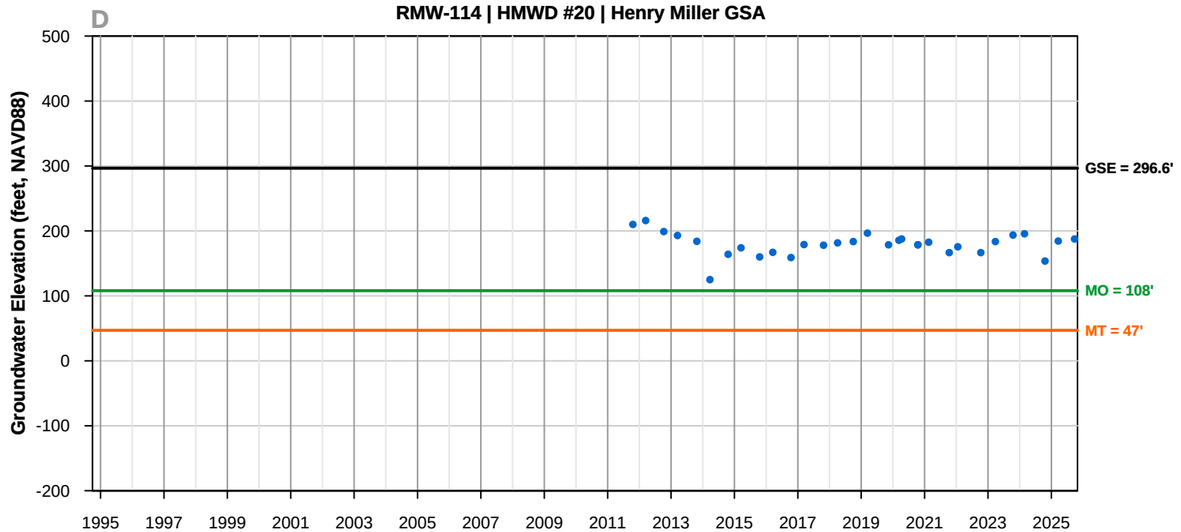
KNDLA - Kern Non-Districted Lands Authority GSA
WDWA - Westside District Water Authority GSA

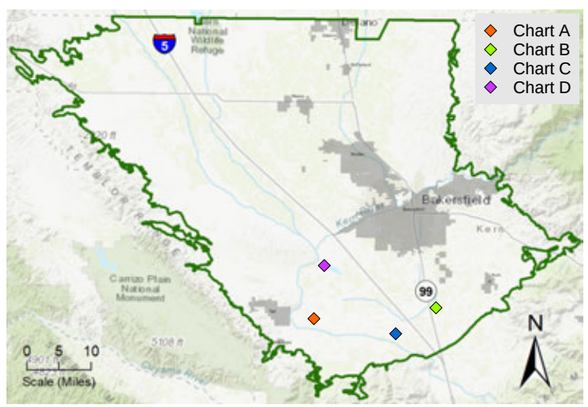
Sheet 41
Kern Groundwater Subbasin Hydrographs, WY 2025











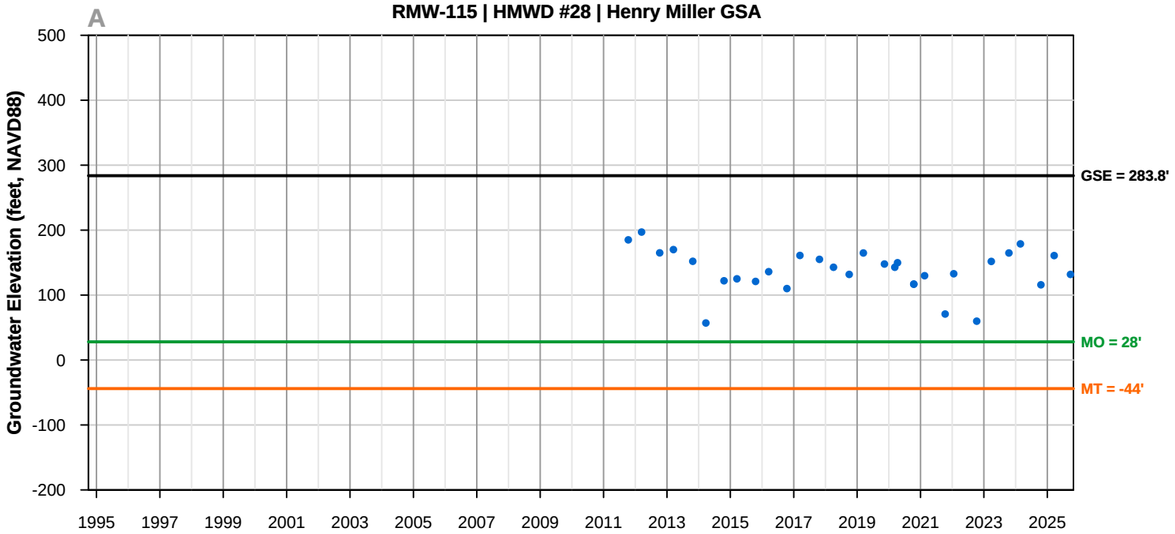
Well Information

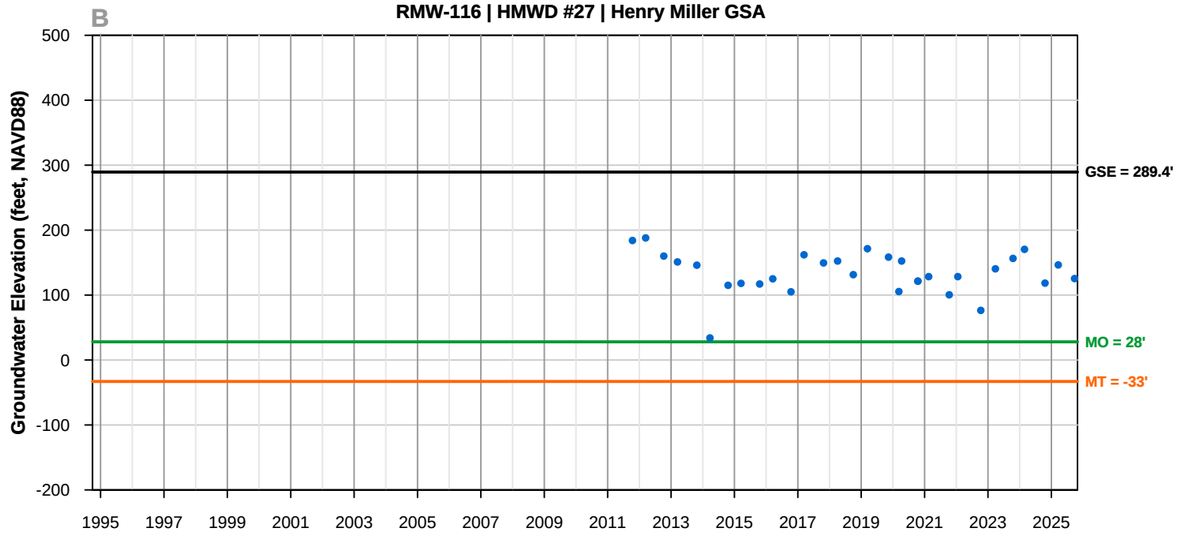
	RMW-239	RMW-240	RMW-258	RMW-114
RMW ID:				
Local Well Name:	32S25E29Q001M	32S28E16P001M	12N21W35Q001S	HMWD #20
Site Code:	351083N1193140W001	351397N1189767W001	350769N1190871W001	352294N1192865W001
GSA:	Wheeler Ridge-Maricopa GSA	Wheeler Ridge-Maricopa GSA	Wheeler Ridge-Maricopa GSA	Henry Miller GSA
Latitude:	35.108763	35.136678	35.07685	35.22944
Longitude:	-119.313135	-118.976775	-119.087138	-119.28645
HCM Area:	South Basin	South Basin	South Basin	South Basin
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	-219.49	-33.77	-35	-3.4
Bottom Perforation (feet bgs):	-579.49	-383.77	-815	-703.4
Ground Surface Elevation:	422.51	316.23	415	296.6
Measureable Objective (MO):	234	150	95	108
Minimum Threshold (MT):	166	74	19	47

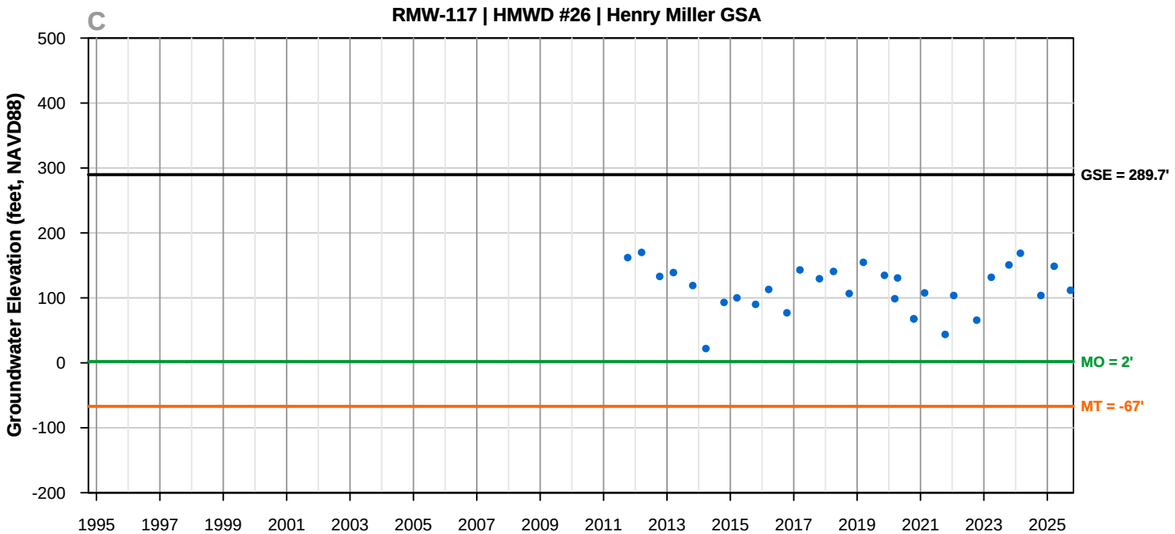
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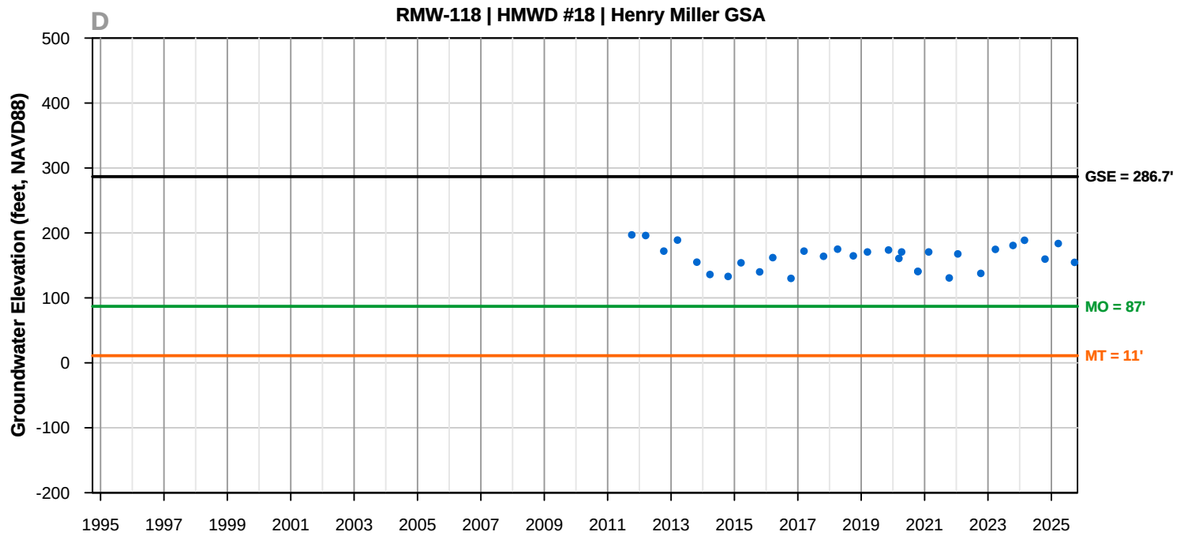
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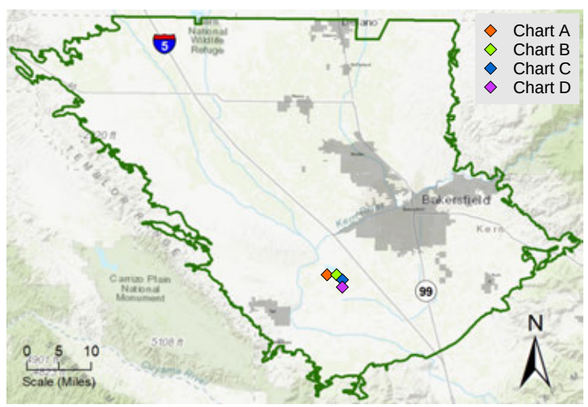
Sheet 42
Kern Groundwater Subbasin Hydrographs, WY 2025











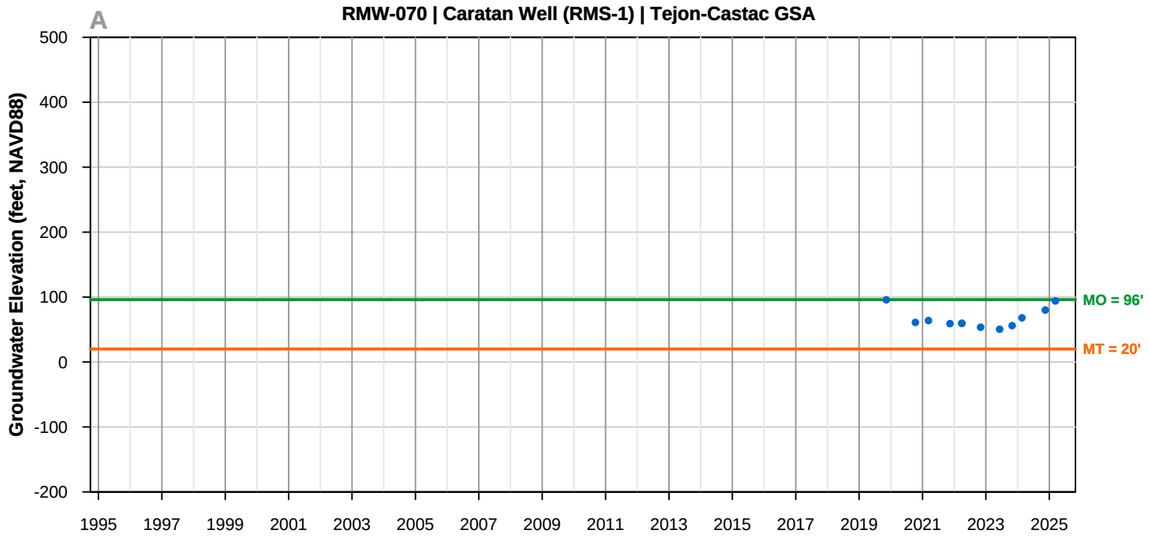
Well Information

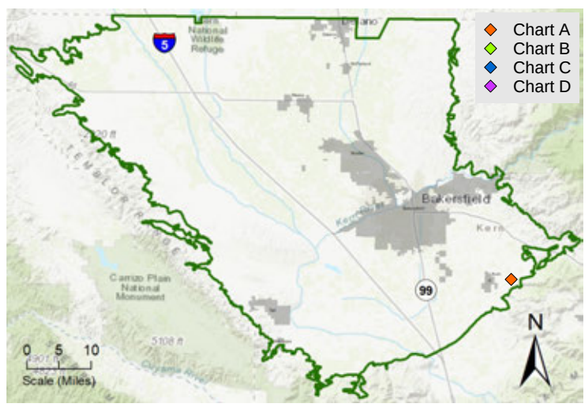
	RMW-115	RMW-116	RMW-117	RMW-118
RMW ID:				
Local Well Name:	HMWD #28	HMWD #27	HMWD #26	HMWD #18
Site Code:	352086N1192783W001	352088N1192520W001	351976N1192358W001	351811N1192358W001
GSA:	Henry Miller GSA	Henry Miller GSA	Henry Miller GSA	Henry Miller GSA
Latitude:	35.2086	35.20876	35.19757	35.1811
Longitude:	-119.27828	-119.25197	-119.23575	-119.23581
HCM Area:	South Basin	South Basin	South Basin	South Basin
Principal Aquifer:	Primary Alluvial	Primary Alluvial	Primary Alluvial	Primary Alluvial
Top Perforation (feet bgs):	3.8	-10.6	19.7	-37.3
Bottom Perforation (feet bgs):	-676.2	-710.6	-680.3	-721.3
Ground Surface Elevation:	283.8	289.4	289.7	286.7
Measureable Objective (MO):	28	28	2	87
Minimum Threshold (MT):	-44	-33	-67	11

Notes:
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KNDLA - Kern Non-Districted Lands Authority GSA
WDWA - Westside District Water Authority GSA

Sheet 43
Kern Groundwater Subbasin Hydrographs, WY 2025





Well Information

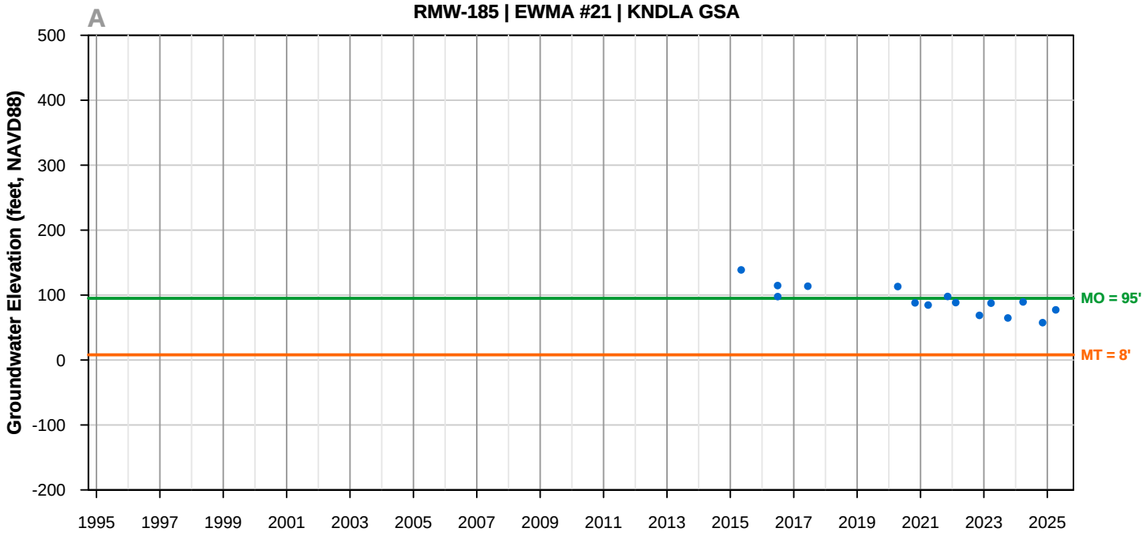
RMW ID:	**RMW-070**
Local Well Name:	Caratan Well (RMS-1)
Site Code:	352002N1187698W001
GSA:	Tejon-Castac GSA
Latitude:	35.200176
Longitude:	-118.769775
HCM Area:	South Basin
Principal Aquifer:	Primary Alluvial
Top Perforation (feet bgs):	86
Bottom Perforation (feet bgs):	-254
Ground Surface Elevation:	546
Measureable Objective (MO):	96
Minimum Threshold (MT):	20

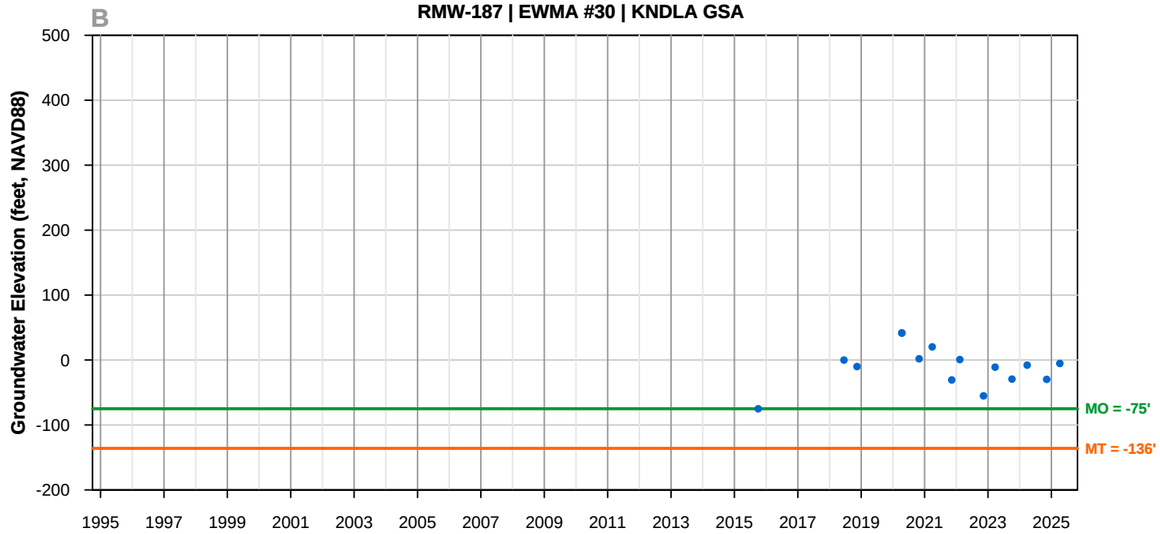
Notes:
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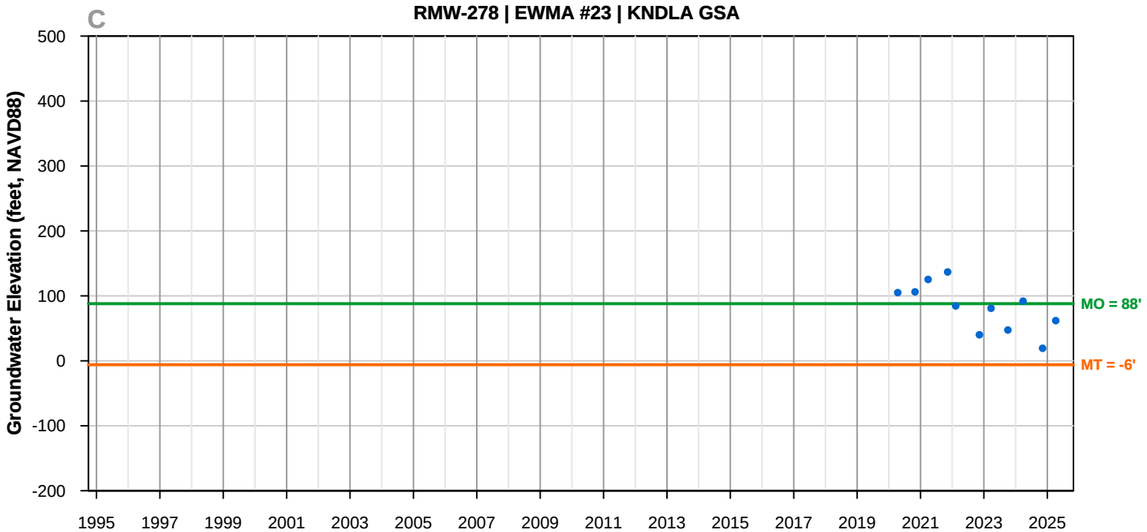
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WDWA - Westside District Water Authority GSA

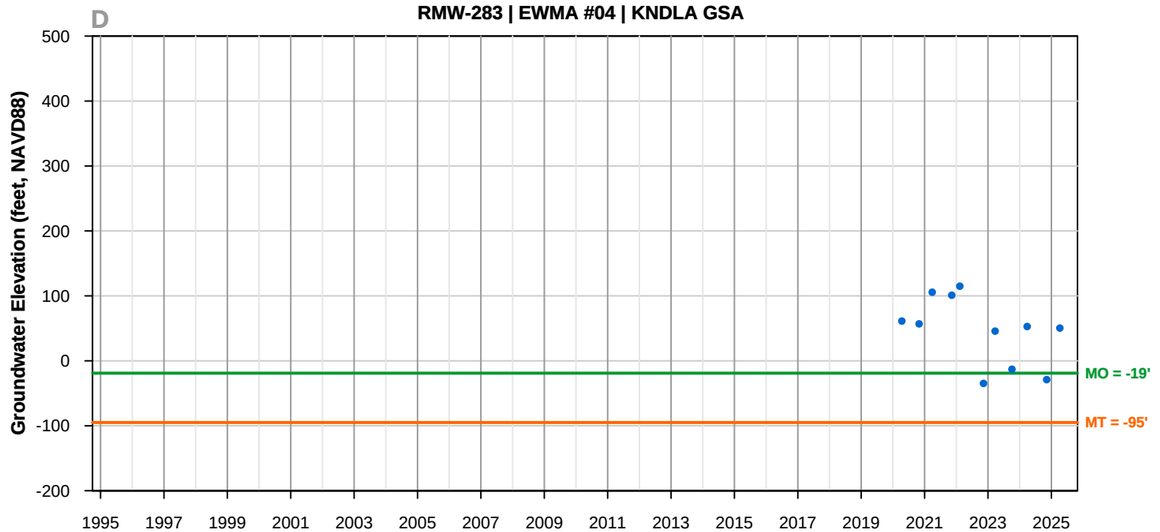
Sheet 44
Kern Groundwater Subbasin
Hydrographs, WY 2025

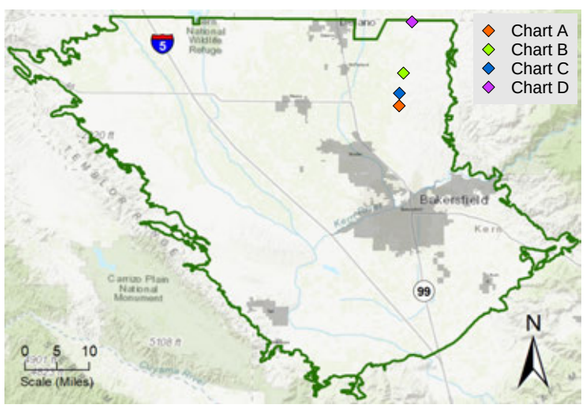
Santa Margarita and Olcese Principal Aquifers Hydrographs











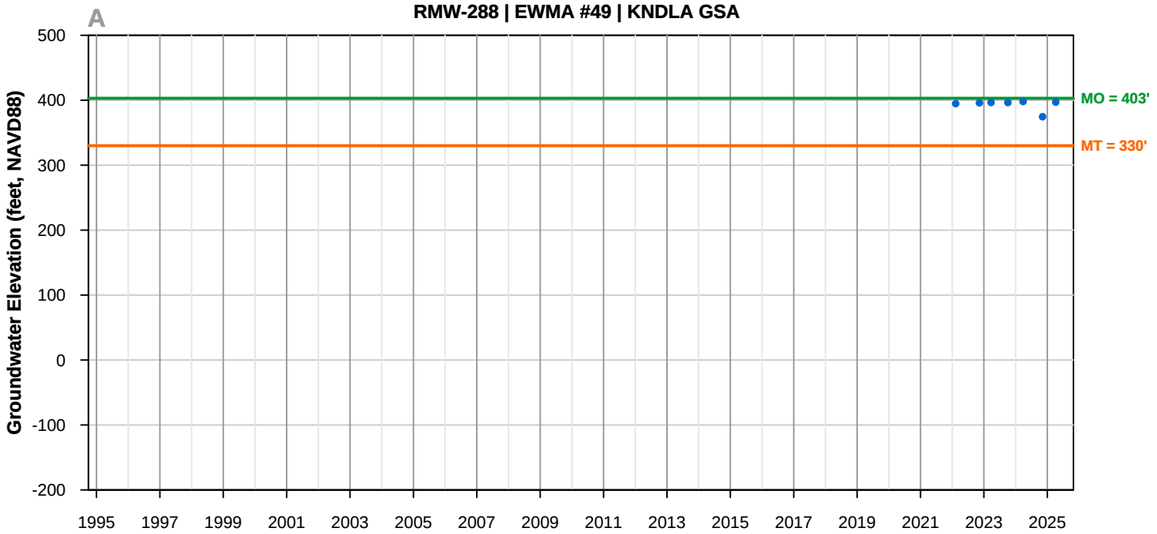
Well Information

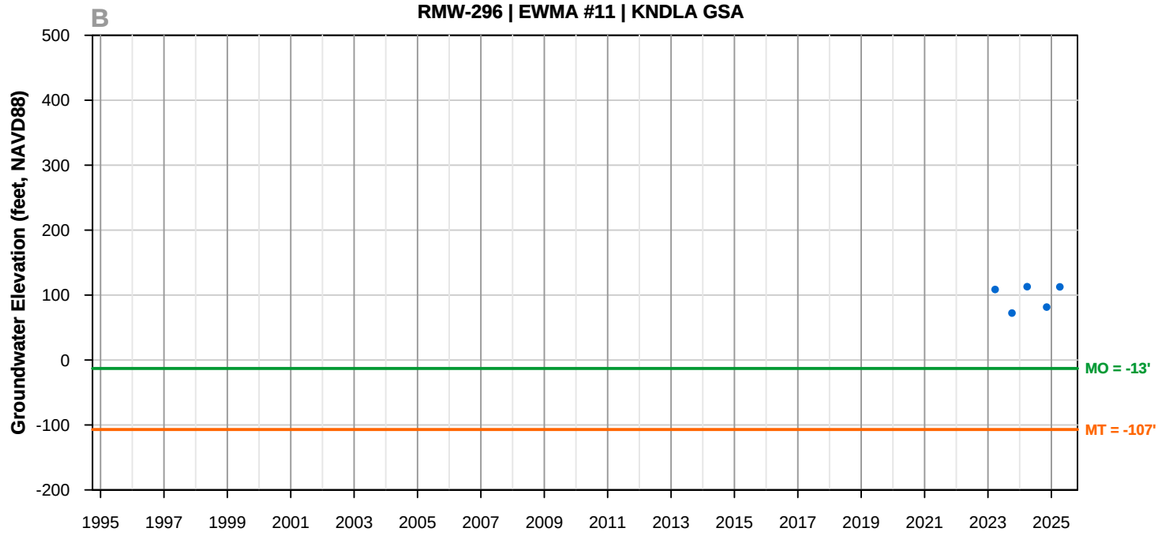
	RMW-185	RMW-187	RMW-278	RMW-283
RMW ID:	**RMW-185**	**RMW-187**	**RMW-278**	**RMW-283**
Local Well Name:	EWMA #21	EWMA #30	EWMA #23	EWMA #04
Site Code:	355935N1190787W001	356421N1190690W001	356220N1190790W001	357840N1190456W001
GSA:	KNDLA GSA	KNDLA GSA	KNDLA GSA	KNDLA GSA
Latitude:	35.593428	35.667733	35.621978	35.784003
Longitude:	-119.078767	-119.067811	-119.078483	-119.045589
HCM Area:	East Margin	East Margin	East Margin	East Margin
Principal Aquifer:	Santa Margarita and Olcese	Santa Margarita and Olcese	Santa Margarita and Olcese	Santa Margarita and Olcese
Top Perforation (feet bgs):	-11.37	-237.11	46	-134.79
Bottom Perforation (feet bgs):	-1089.37	-547.11	-1085	-894.79
Ground Surface Elevation:	830.63	802.89	865	675.21
Measureable Objective (MO):	95	-75	88	-19
Minimum Threshold (MT):	8	-136	-6	-95

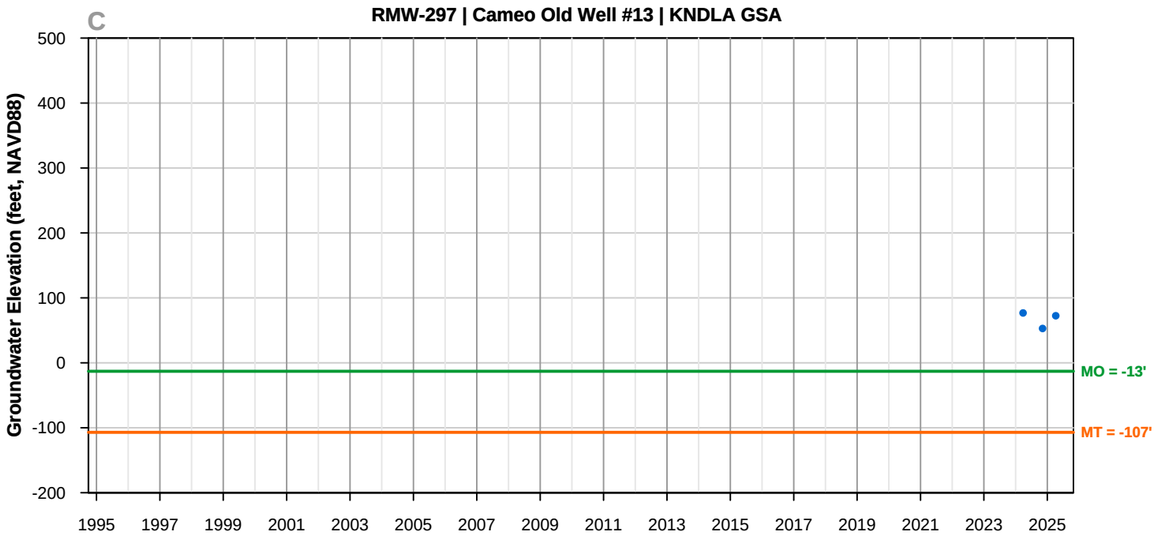
Notes:
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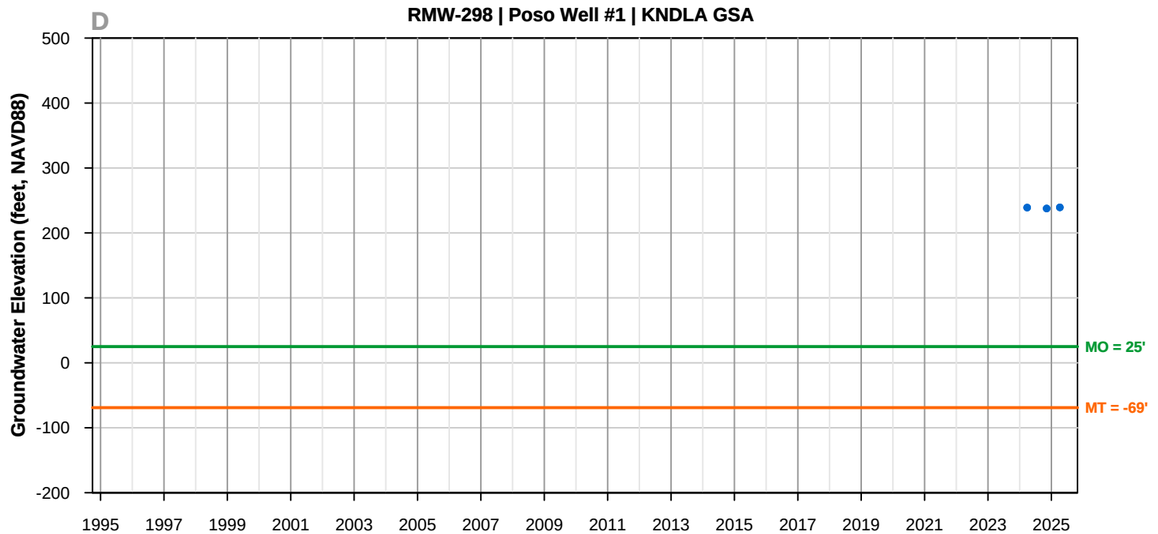
KNDLA - Kern Non-Districted Lands Authority GSA
WDWA - Westside District Water Authority GSA

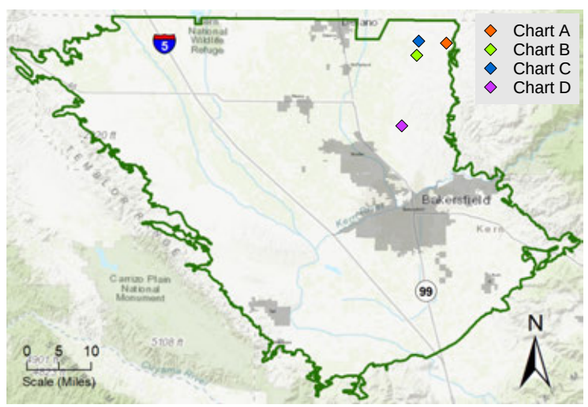
Sheet 45
Kern Groundwater Subbasin Hydrographs, WY 2025











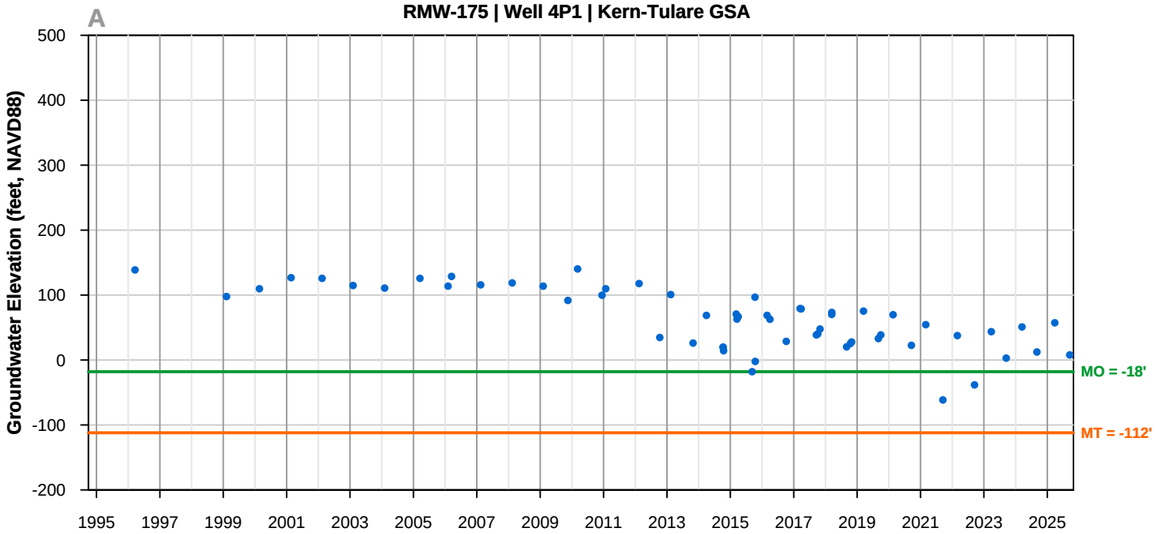
Well Information

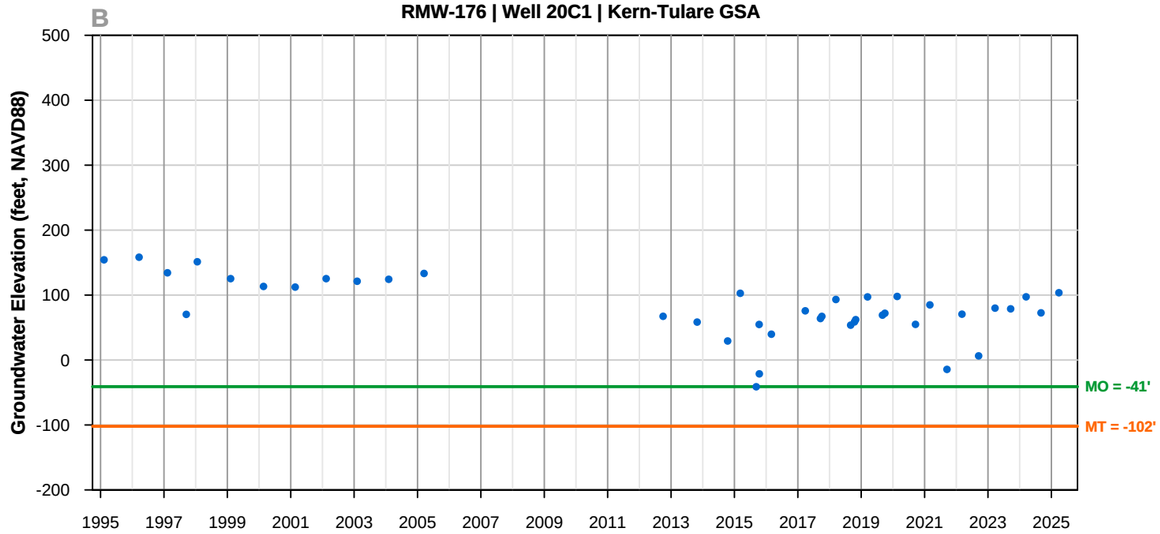
	RMW-288	RMW-296	RMW-297	RMW-298
RMW ID:	**RMW-288**	**RMW-296**	**RMW-297**	**RMW-298**
Local Well Name:	EWMA #49	EWMA #11	Cameo Old Well #13	Poso Well #1
Site Code:	357364N1189549W001	357082N1190370W001	357404N1190318W001	355480N1190764W001
GSA:	KNDLA GSA	KNDLA GSA	KNDLA GSA	KNDLA GSA
Latitude:	35.736472	35.70822	35.740417	35.548049
Longitude:	-118.954953	-119.03701	-119.031822	-119.076429
HCM Area:	East Margin	East Margin	East Margin	East Margin
Principal Aquifer:	Santa Margarita and Olcese	Santa Margarita and Olcese	Santa Margarita and Olcese	Santa Margarita and Olcese
Top Perforation (feet bgs):	471.5	186	231.28	-268.57
Bottom Perforation (feet bgs):	57.5	-850	-788.72	-848.57
Ground Surface Elevation:	771.5	850	731.28	571.43
Measureable Objective (MO):	403	-13	-13	25
Minimum Threshold (MT):	330	-107	-107	-69

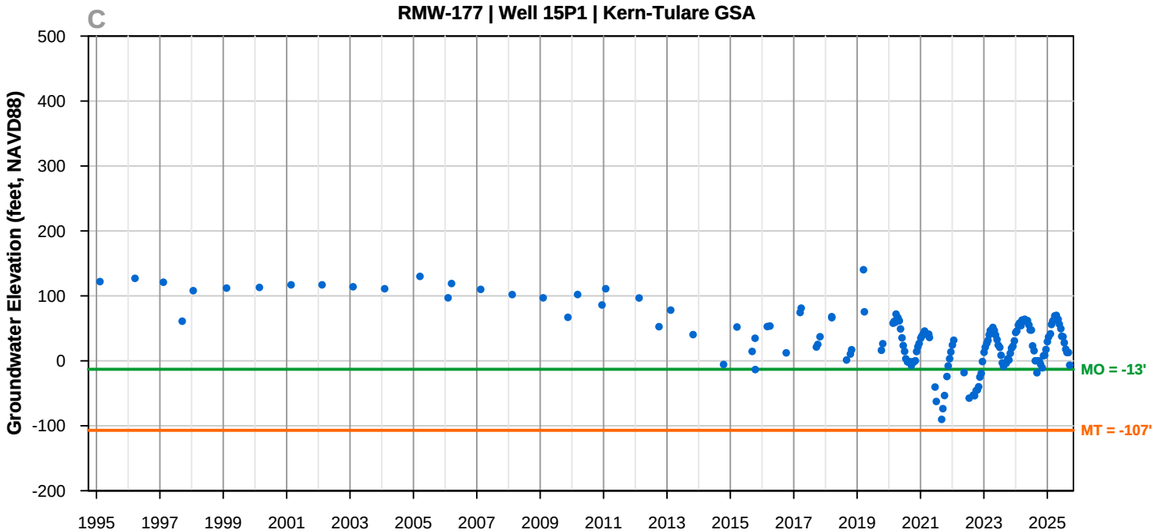
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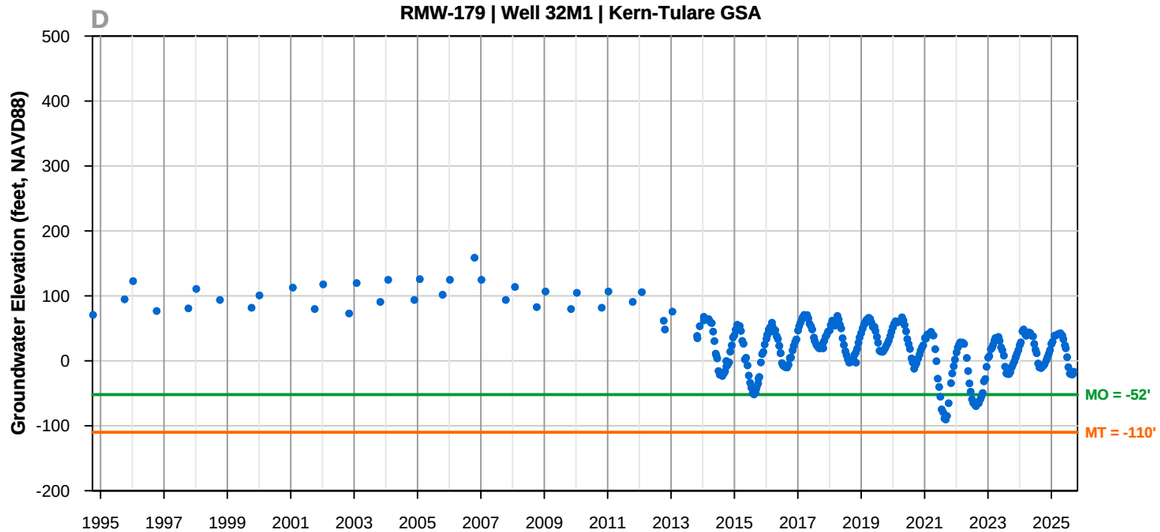
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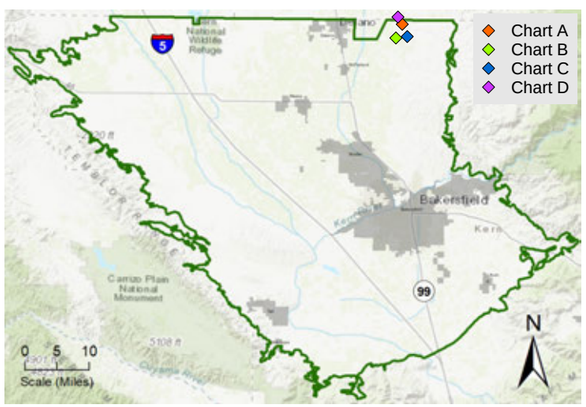
Sheet 46
Kern Groundwater Subbasin
Hydrographs, WY 2025











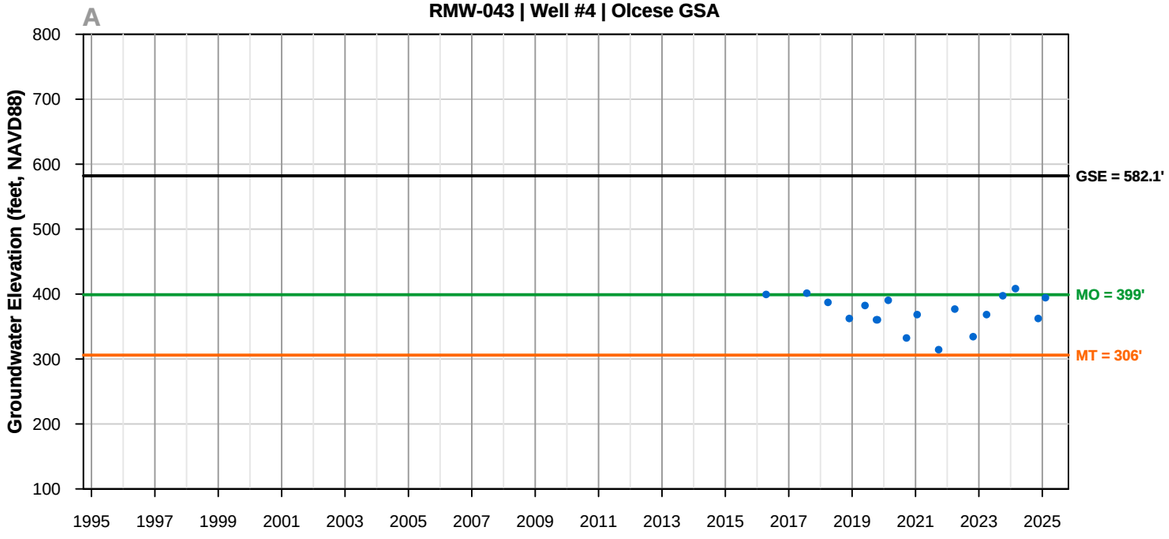
Well Information

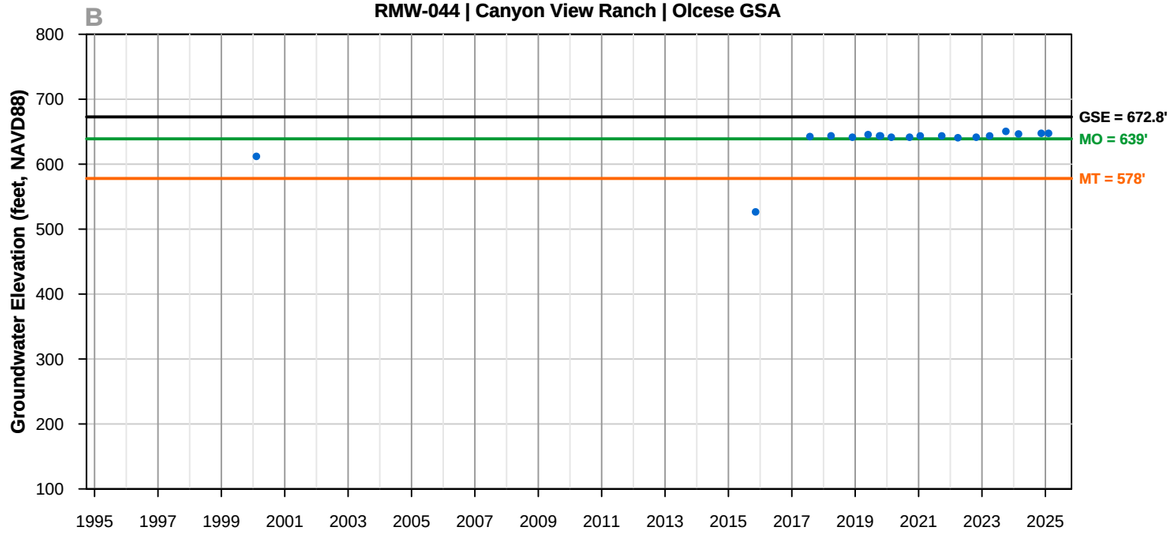
	RMW-175	RMW-176	RMW-177	RMW-179
RMW ID:				
Local Well Name:	Well 4P1	Well 20C1	Well 15P1	Well 32M1
Site Code:	357781N1190720W001	357464N1190898W001	357503N1190578W001	357944N1190845W001
GSA:	Kern-Tulare GSA	Kern-Tulare GSA	Kern-Tulare GSA	Kern-Tulare GSA
Latitude:	35.778296	35.7471	35.75054	35.794573
Longitude:	-119.0726	-119.08988	-119.05834	-119.084745
HCM Area:	East Margin	East Margin	East Margin	East Margin
Principal Aquifer:	Santa Margarita and Olcese	Santa Margarita and Olcese	Santa Margarita and Olcese	Santa Margarita and Olcese
Top Perforation (feet bgs):	74.71	-108.64	-218.4	36.31
Bottom Perforation (feet bgs):	-1879.29	-1407.64	-947.4	-1263.69
Ground Surface Elevation:	580.71	592.36	679.6	536.31
Measureable Objective (MO):	-18	-41	-13	-52
Minimum Threshold (MT):	-112	-102	-107	-110

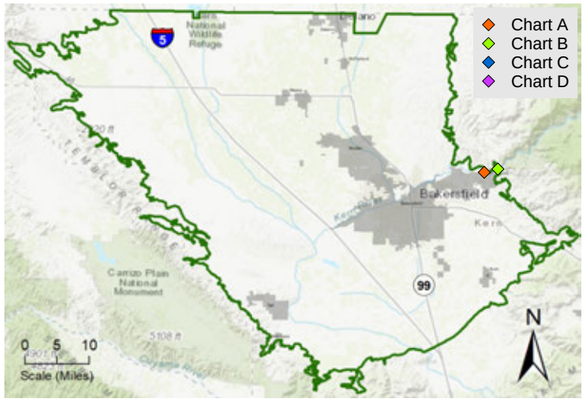
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WDWA - Westside District Water Authority GSA

Sheet 47
Kern Groundwater Subbasin Hydrographs, WY 2025







Well Information

	RMW-043	RMW-044
RMW ID:		
Local Well Name:	Well #4	Canyon View Ranch
Site Code:	354310N1188411W002	354386N1188035W002
GSA:	Olcese GSA	Olcese GSA
Latitude:	35.430995	35.438639
Longitude:	-118.841056	-118.803472
HCM Area:	East Margin	East Margin
Principal Aquifer:	Santa Margarita and Olcese	Santa Margarita and Olcese
Top Perforation (feet bgs):	-277.92	532.8
Bottom Perforation (feet bgs):	-1417.92	332.8
Ground Surface Elevation:	582.08	672.8
Measureable Objective (MO):	399	639
Minimum Threshold (MT):	306	578

Notes:
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Sheet 48
Kern Groundwater Subbasin
Hydrographs, WY 2025

Appendix D

2025 Plan Appendix I-4

Degraded Water Quality Representative Monitoring Well Chemographs with Sustainable Management Criteria

Arsenic

Nitrate

Nitrite

1,2,3-Trichloropropane (TCP)

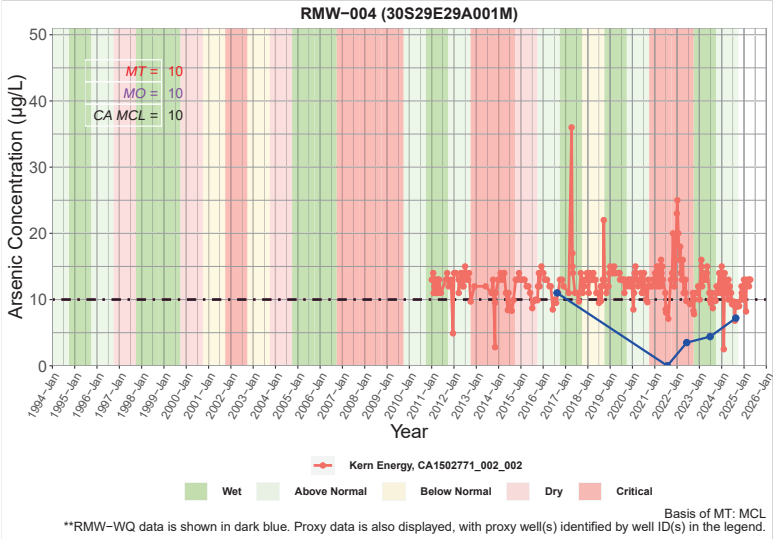
Total Dissolved Solids (TDS)

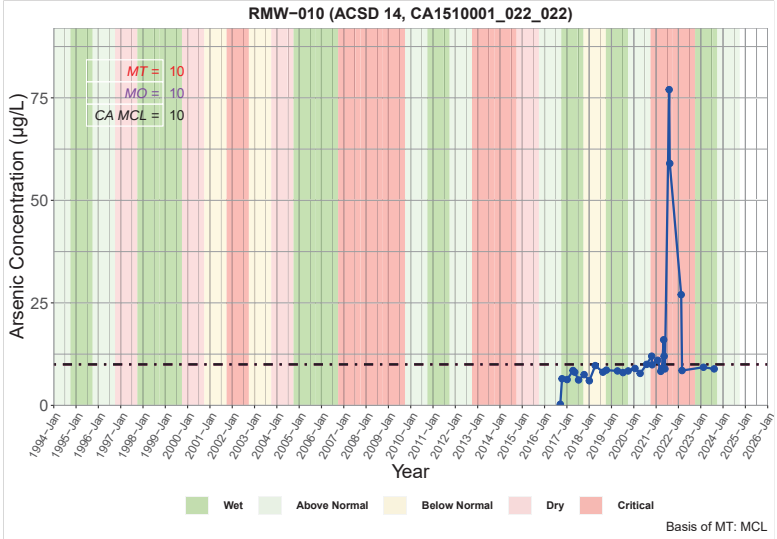
Uranium

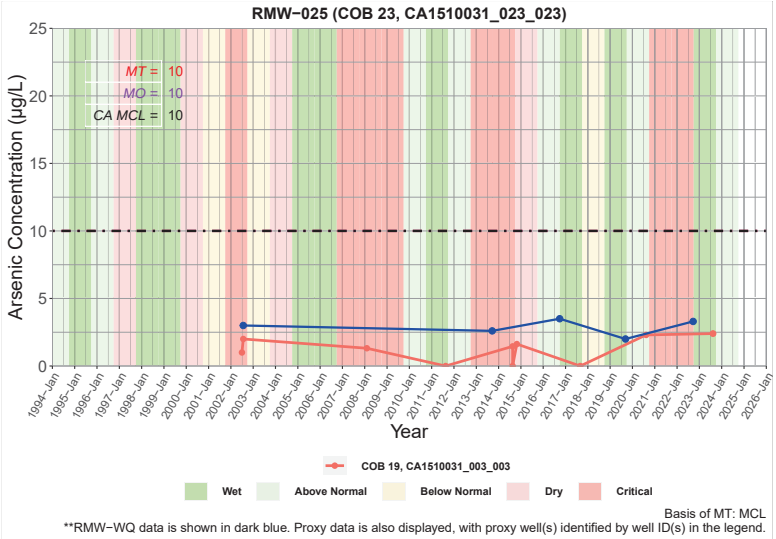
2025 Plan Appendix I-4

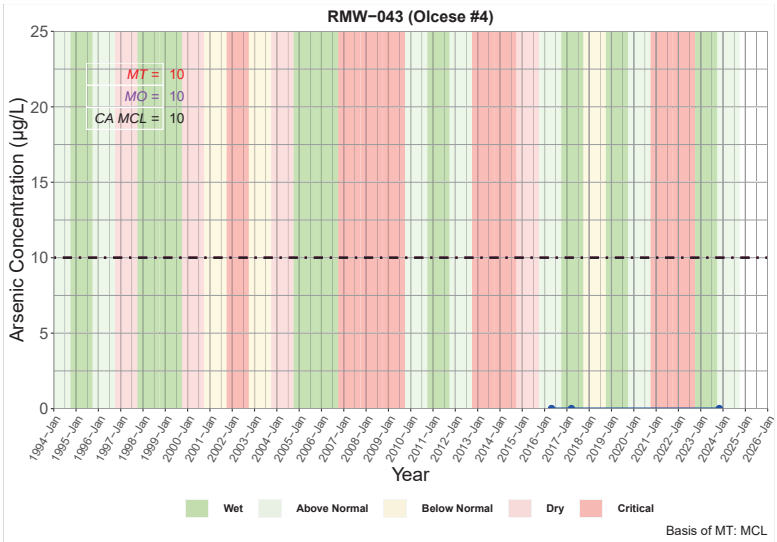
Water Quality Representative Monitoring Well Chemographs

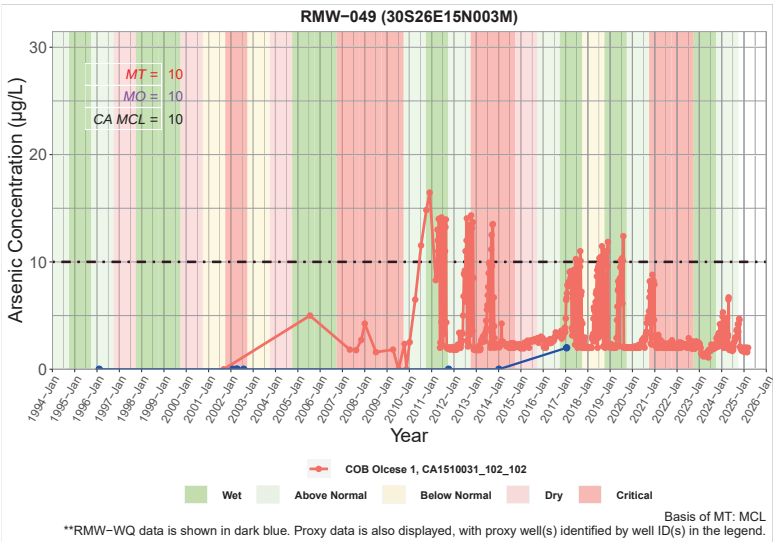
ARSENIC

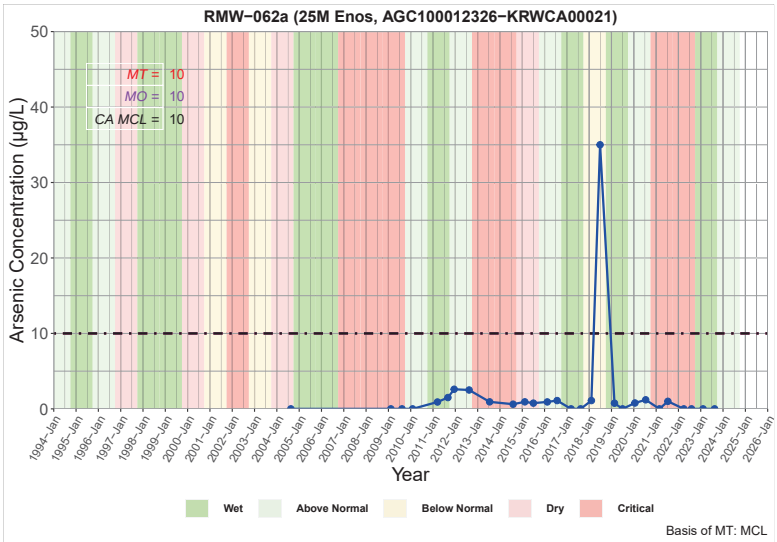

RMW−004 (30S29E29A001M)
MT = 10
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
Kern Energy, CA1502771_002_002
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.

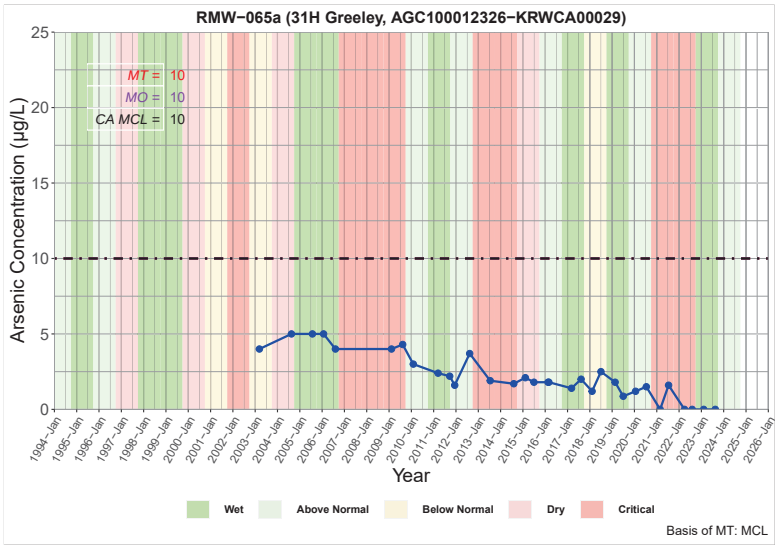

RMW−010 (ACSD 14, CA1510001_022_022)
MT = 10
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

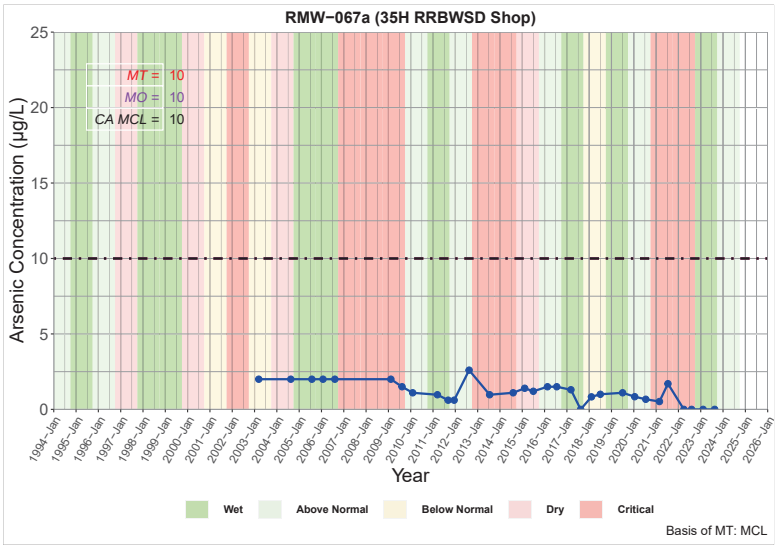

RMW−025 (COB 23, CA1510031_023_023)
MT = 10
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
COB 19, CA1510031_003_003
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.

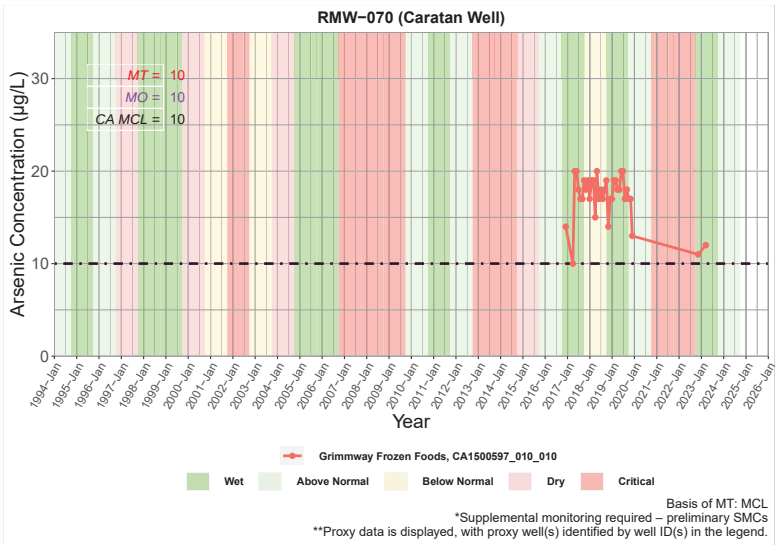

RMW−043 (Olcese #4)
MT = 10
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

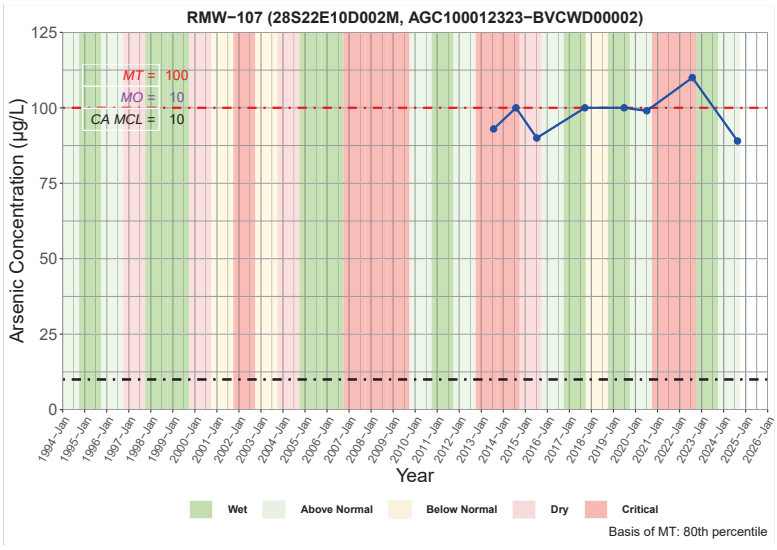

RMW−049 (30S26E15N003M)
MT = 10
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
COB Olcese 1, CA1510031_102_102
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.

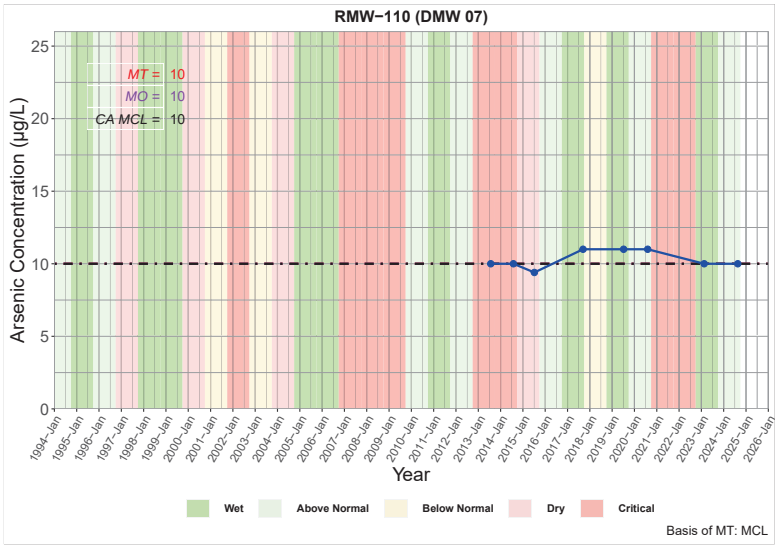

RMW−062a (25M Enos, AGC100012326−KRWCA00021)
MT = 10
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

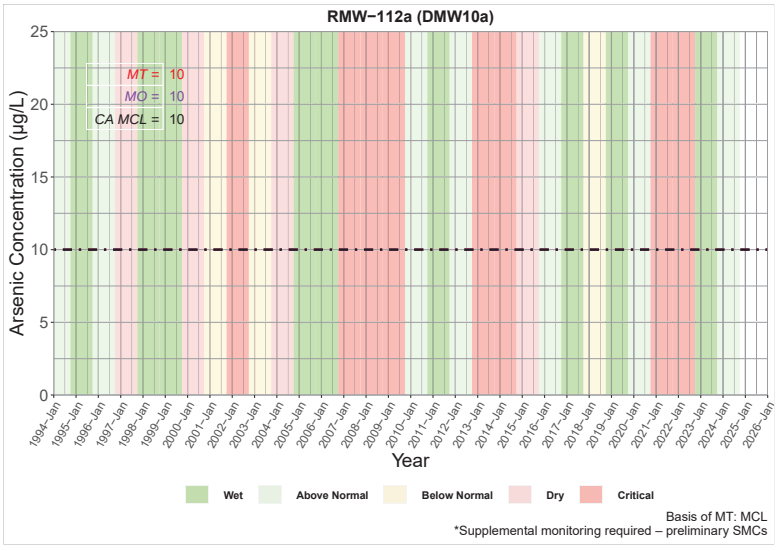

RMW−065a (31H Greeley, AGC100012326−KRWCA00029)
MT = 10
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

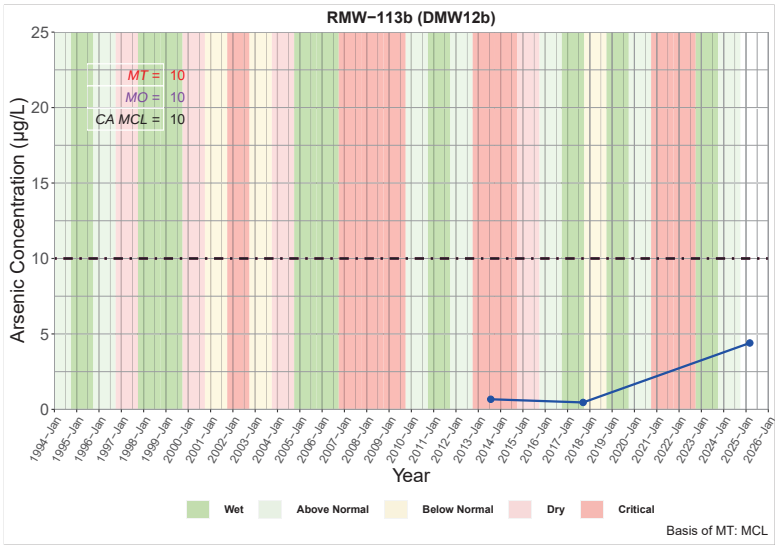

RMW−067a (35H RRBWSD Shop)
MT = 10
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

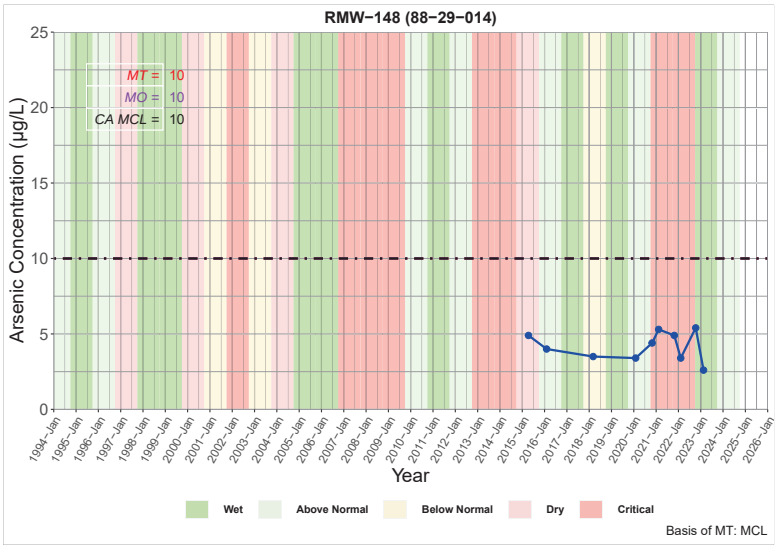

RMW−070 (Caratan Well)
MT = 10
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
Grimmway Frozen Foods, CA1500597_010_010
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs
**Proxy data is displayed, with proxy well(s) identified by well ID(s) in the legend.

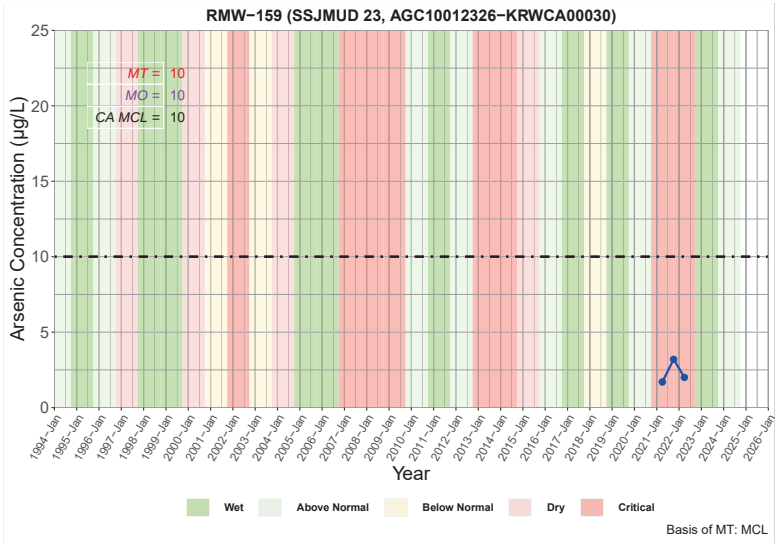

RMW−107 (28S22E10D002M, AGC100012323−BVCWD00002)
MT = 100
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: 80th percentile

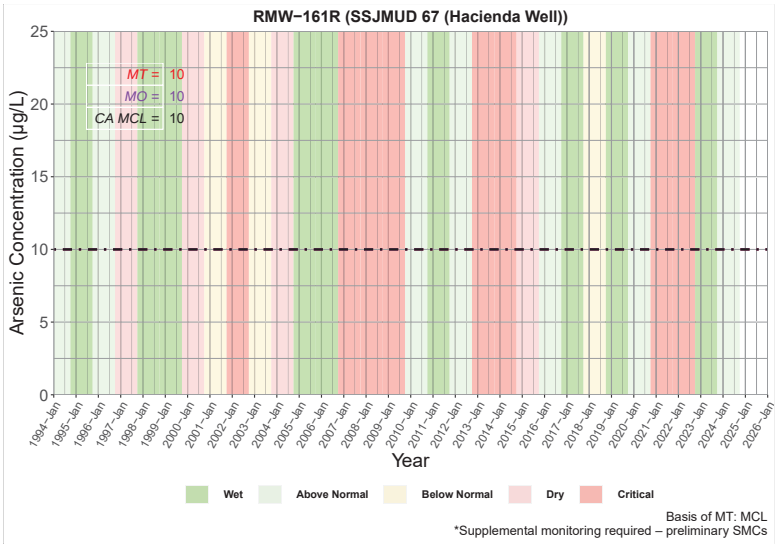

RMW−110 (DMW 07)
MT = 10
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

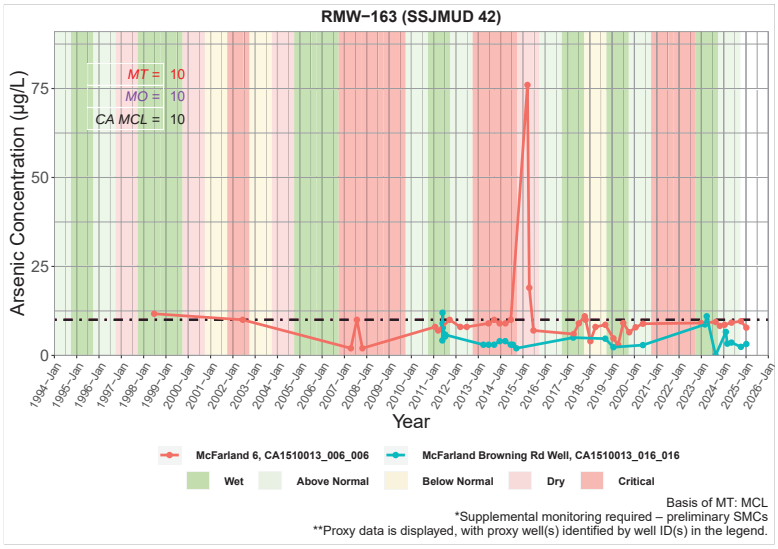

RMW−112a (DMW10a)
MT = 10
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

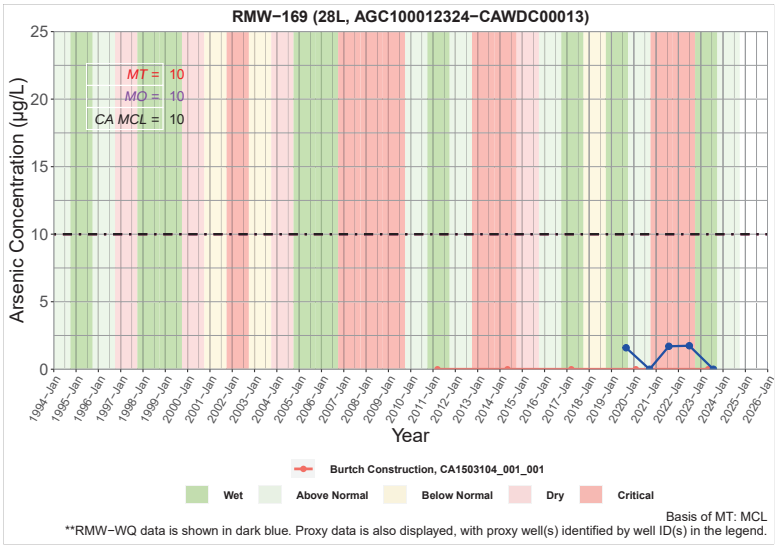

RMW−113b (DMW12b)
MT = 10
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

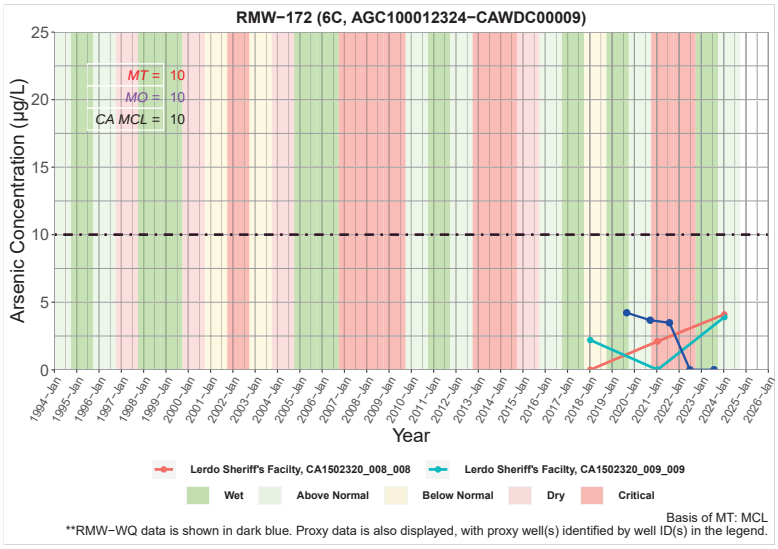

RMW−148 (88−29−014)
MT = 10
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL


RMW−159 (SSJMUD 23, AGC10012326−KRWCA00030)
MT = 10
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL


RMW−161R (SSJMUD 67 (Hacienda Well))
MT = 10
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

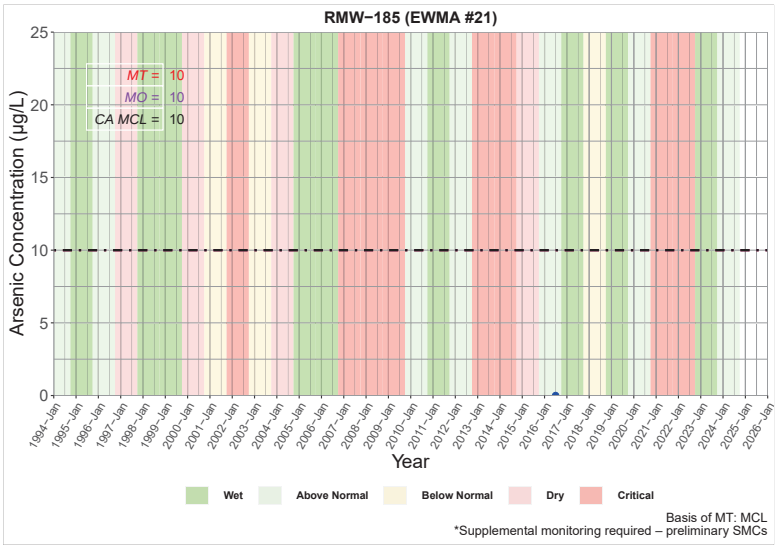

RMW−163 (SSJMUD 42)
MT = 10
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
McFarland 6, CA1510013_006_006
McFarland Browning Rd Well, CA1510013_016_016
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs
**Proxy data is displayed, with proxy well(s) identified by well ID(s) in the legend.


RMW−169 (28L, AGC100012324−CAWDC00013)
MT = 10
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
Burtch Construction, CA1503104_001_001
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.



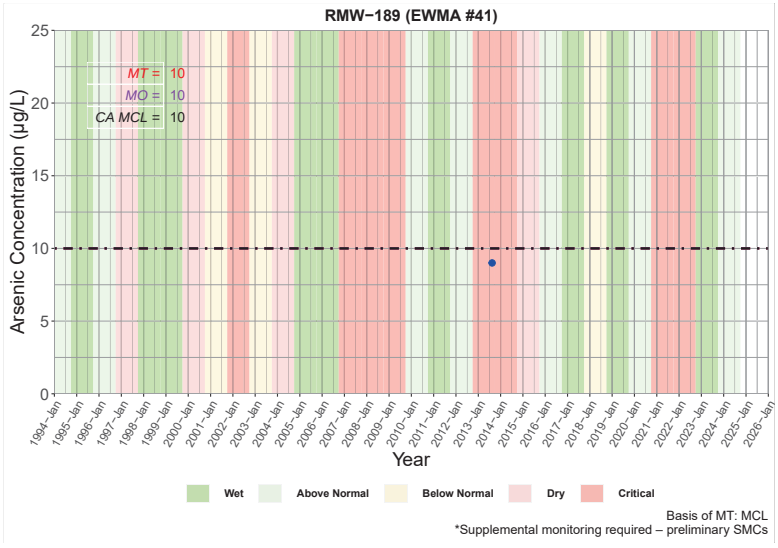
Basis of MT: MCL

**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.



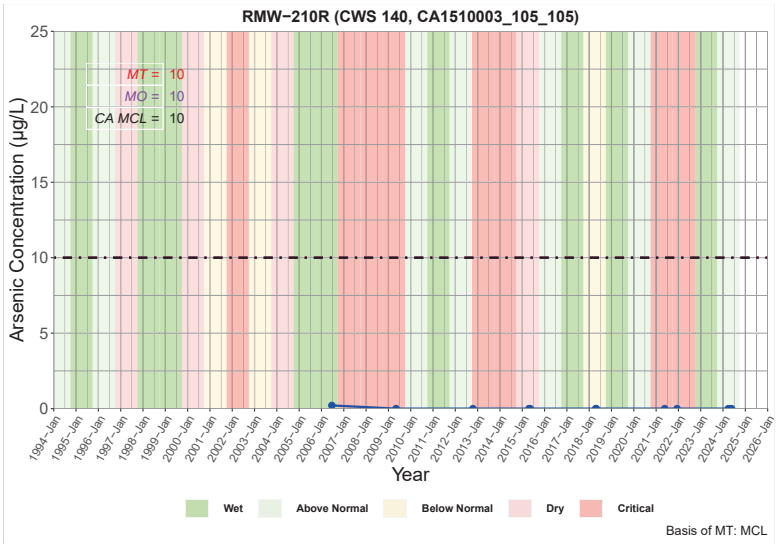
Basis of MT: MCL

*Supplemental monitoring required – preliminary SMCs

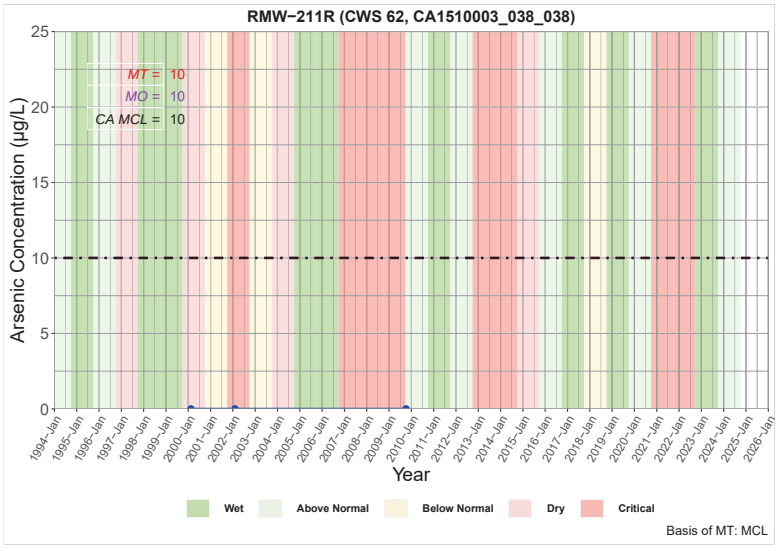


Basis of MT: MCL

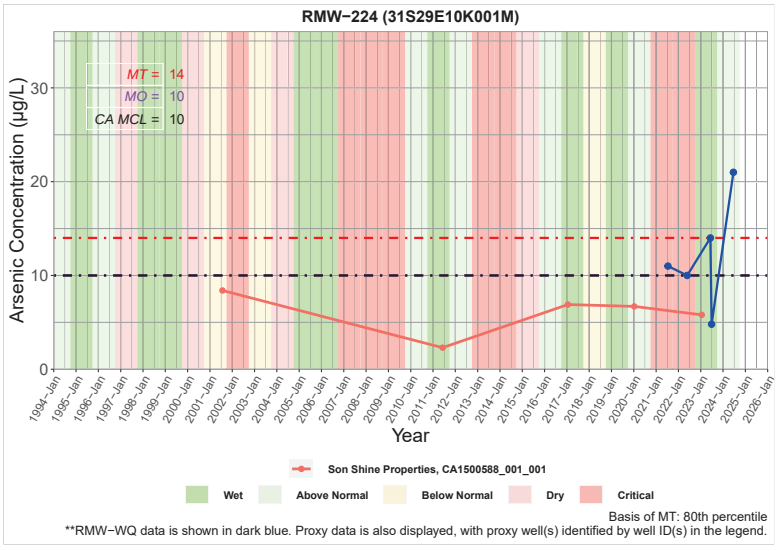
*Supplemental monitoring required – preliminary SMCs



Basis of MT: MCL

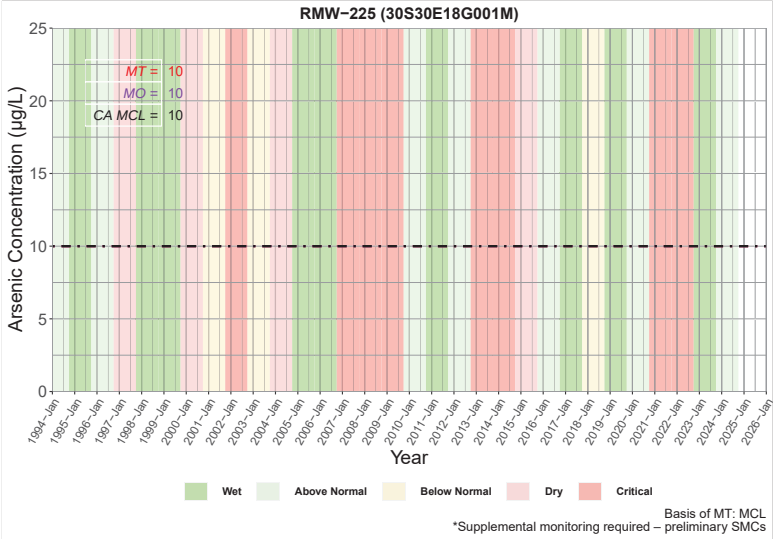


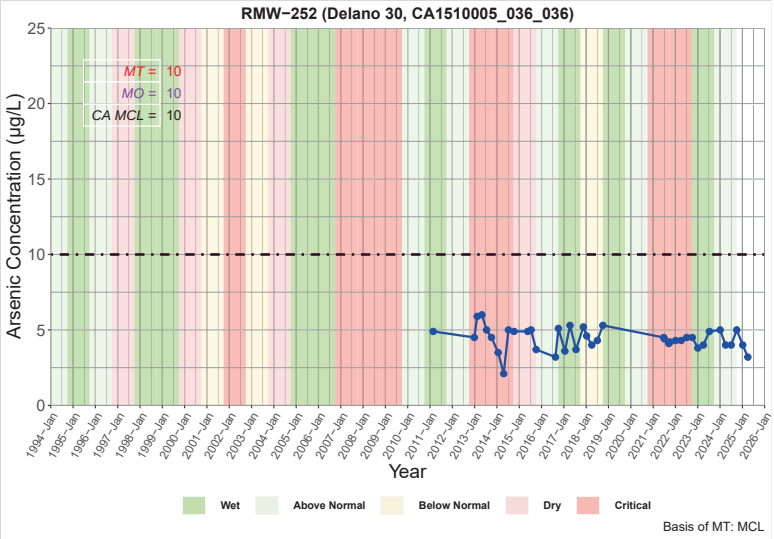
Basis of MT: MCL

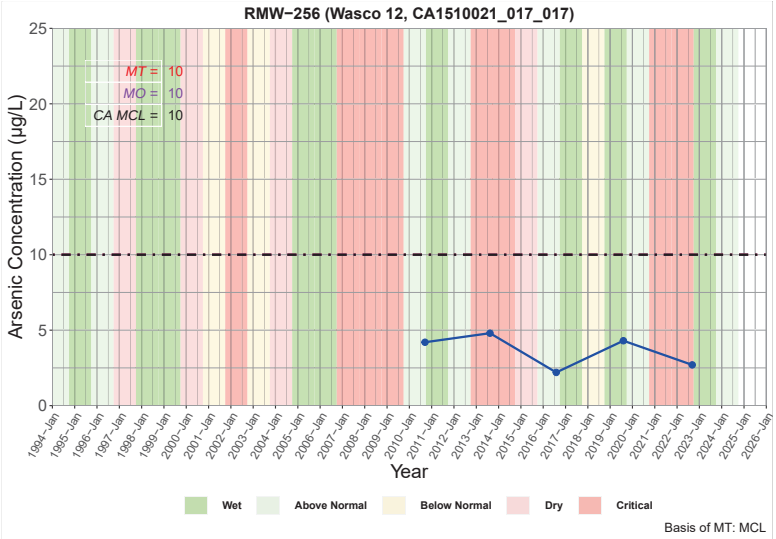


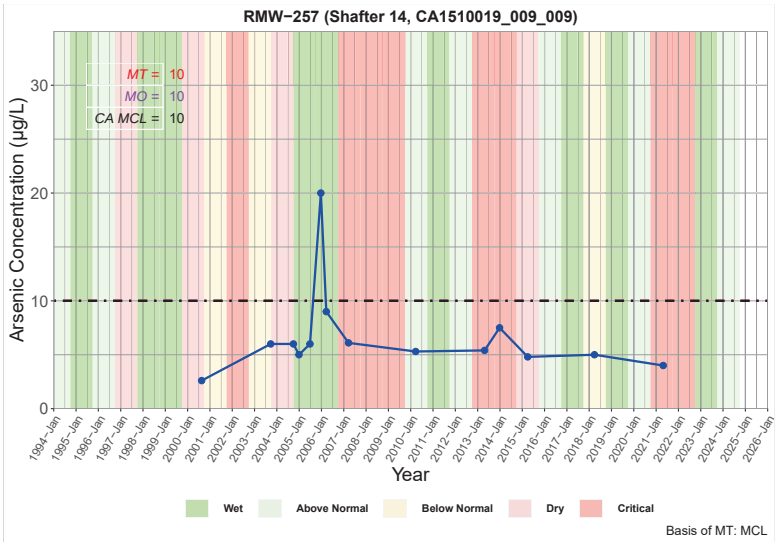
Basis of MT: 80th percentile

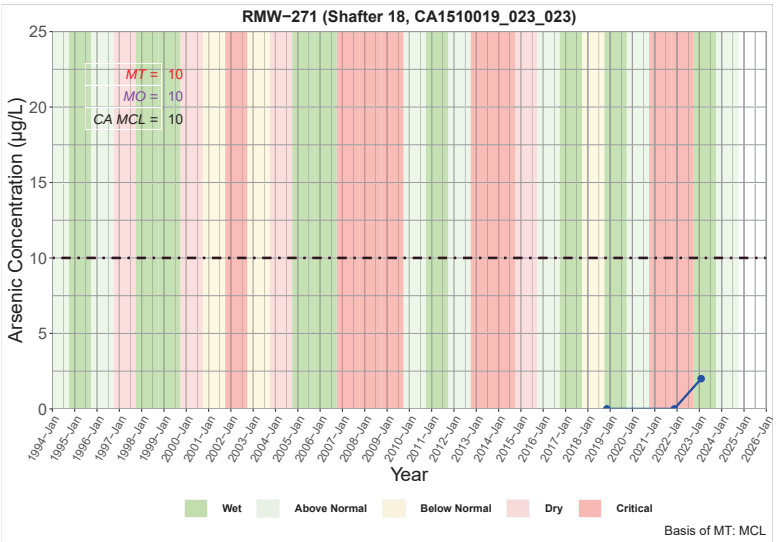
**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.

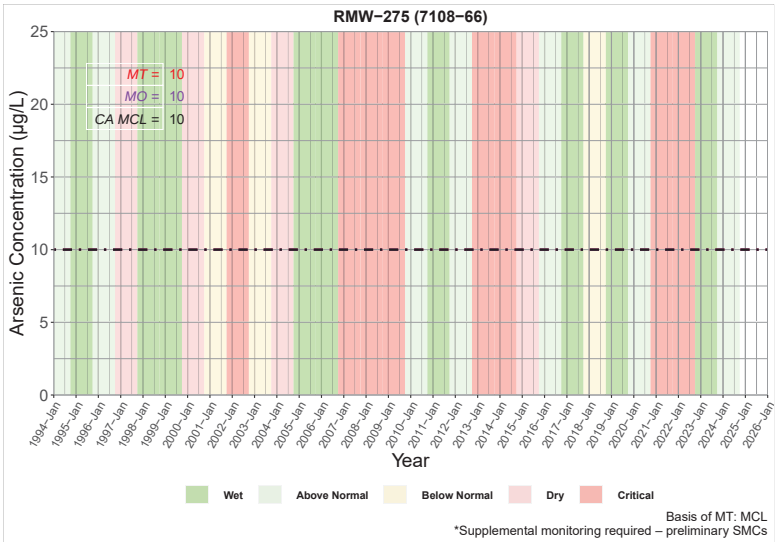

RMW-225 (30S30E18G001M)
MT = 10
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

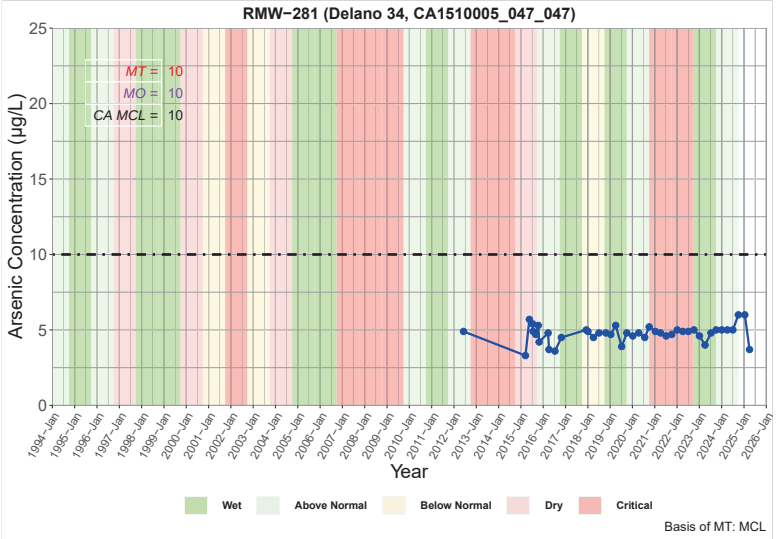

RMW-252 (Delano 30, CA1510005_036_036)
MT = 10
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

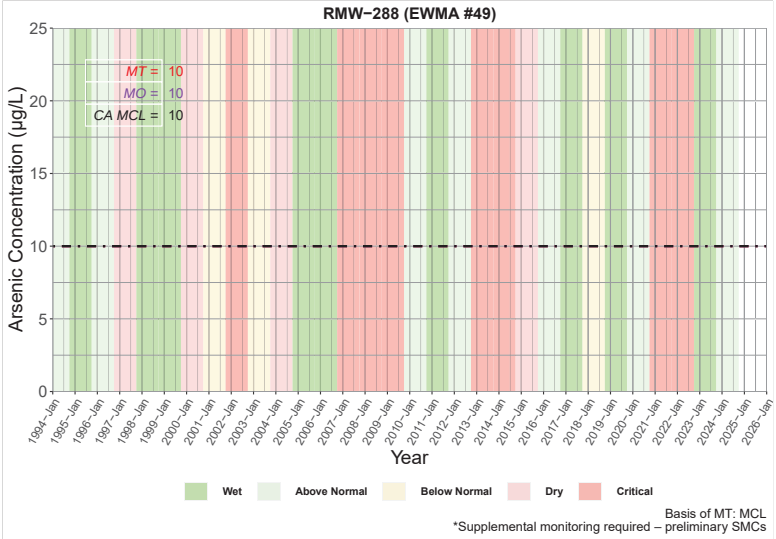

RMW-256 (Wasco 12, CA1510021_017_017)
MT = 10
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

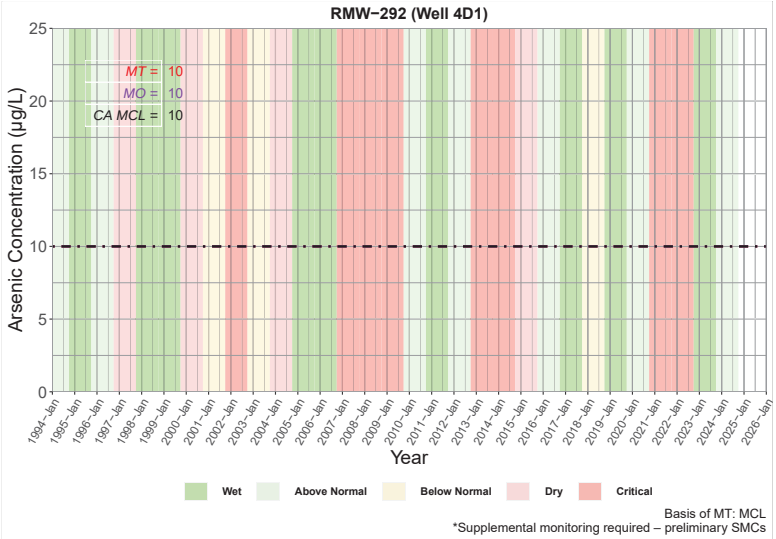

RMW-257 (Shafter 14, CA1510019_009_009)
MT = 10
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

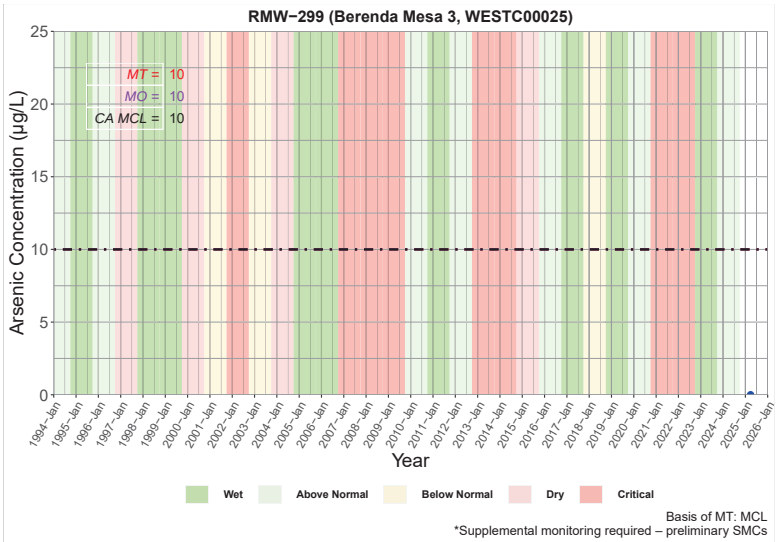

RMW-271 (Shafter 18, CA1510019_023_023)
MT = 10
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

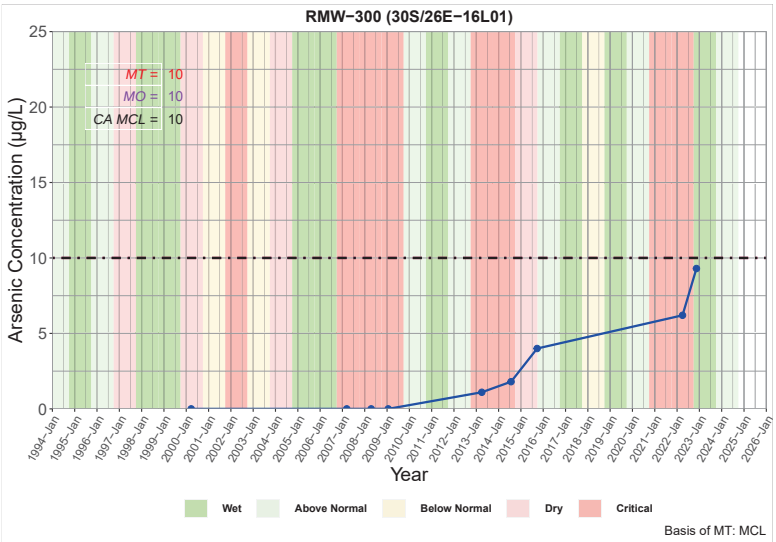

RMW-275 (7108-66)
MT = 10
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

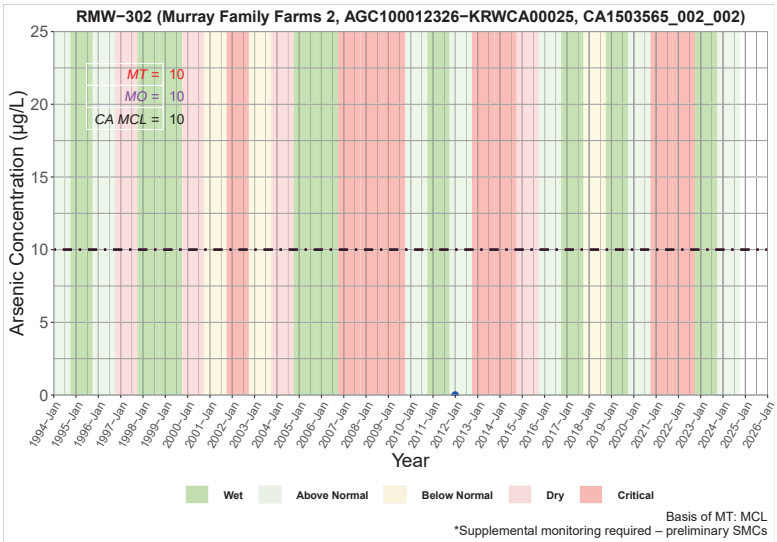

RMW-281 (Delano 34, CA1510005_047_047)
MT = 10
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

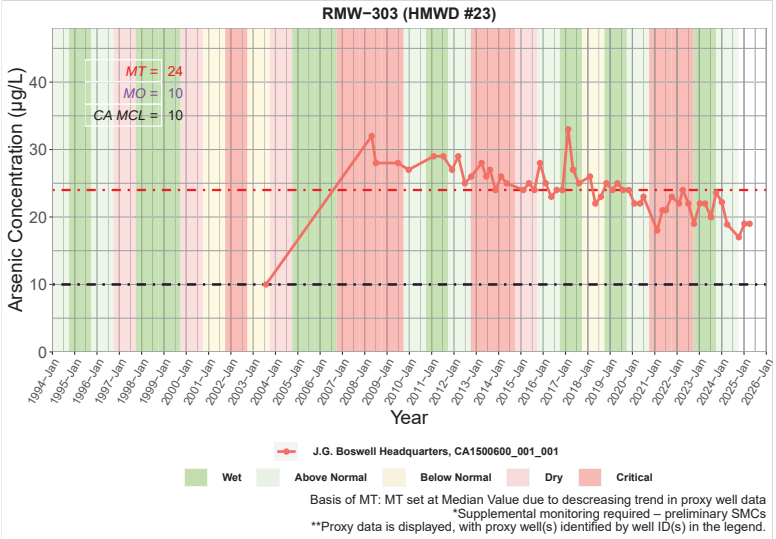

RMW-288 (EWMA #49)
MT = 10
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs


RMW-292 (Well 4D1)
MT = 10
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

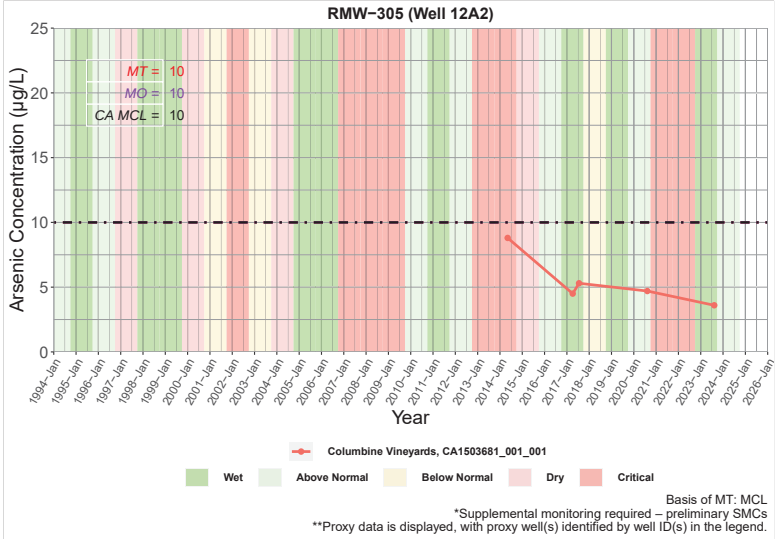

RMW-299 (Berenda Mesa 3, WESTC00025)
MT = 10
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs


RMW-300 (30S/26E-16L01)
MT = 10
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

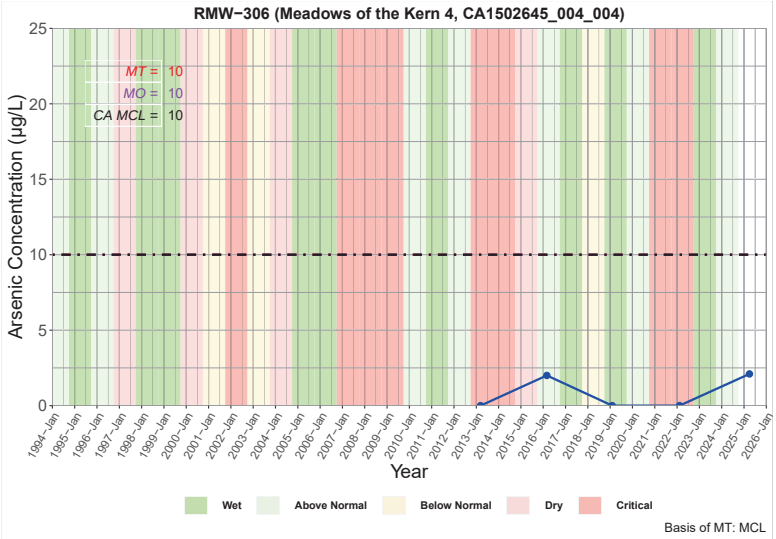

RMW-302 (Murray Family Farms 2, AGC100012326-KRWCA00025, CA1503565_002_002)
MT = 10
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs



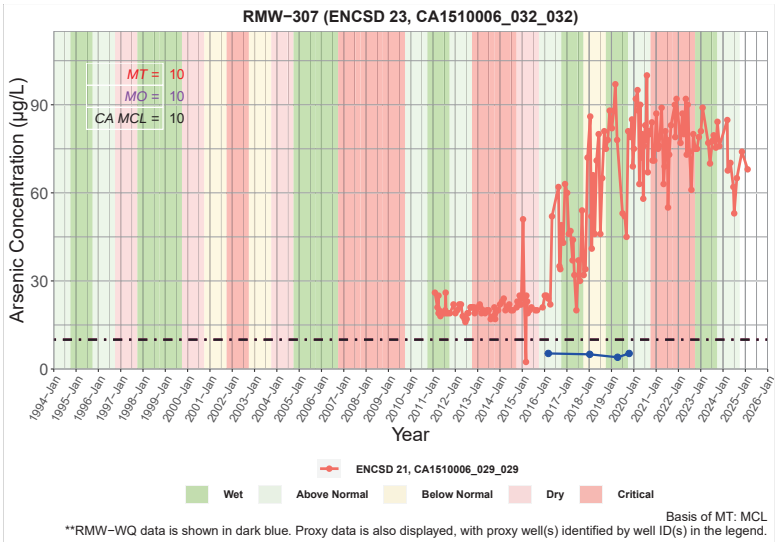
Basis of MT: MT set at Median Value due to descreasing trend in proxy well data
*Supplemental monitoring required – preliminary SMCs
**Proxy data is displayed, with proxy well(s) identified by well ID(s) in the legend.



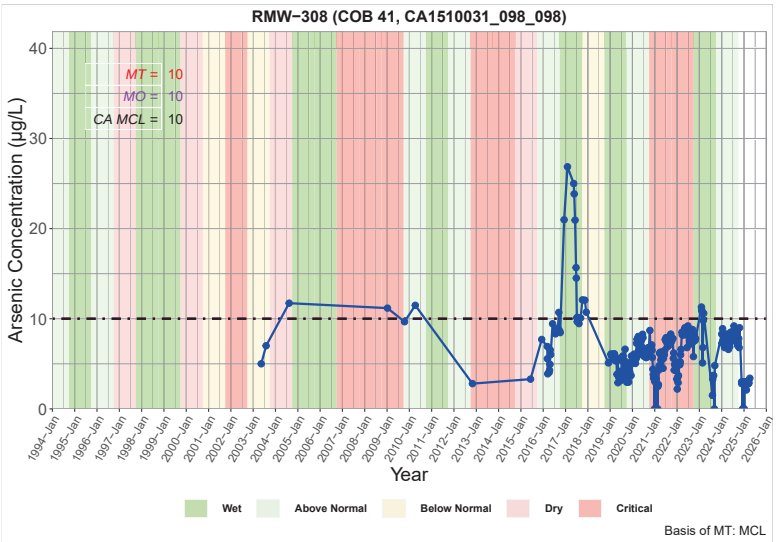
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs
**Proxy data is displayed, with proxy well(s) identified by well ID(s) in the legend.



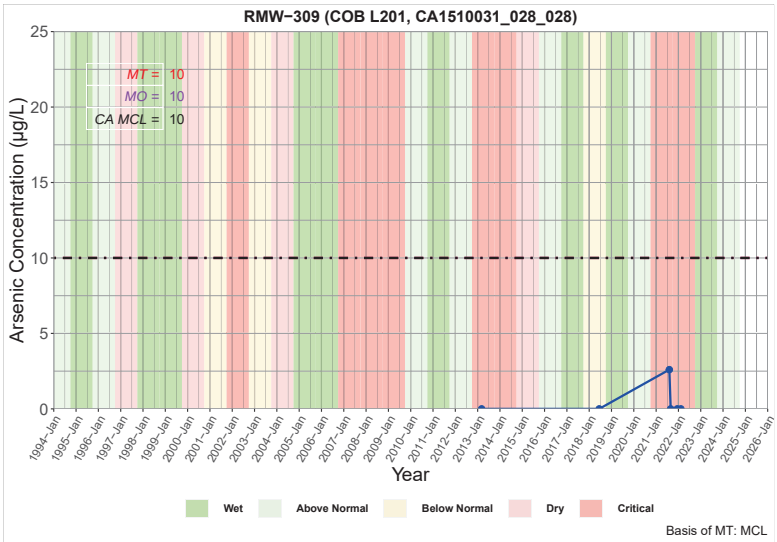
Basis of MT: MCL



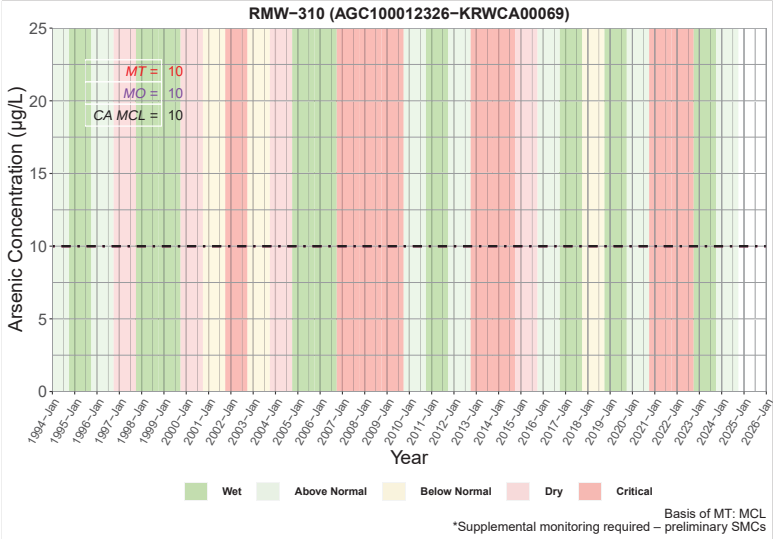
Basis of MT: MCL
**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.

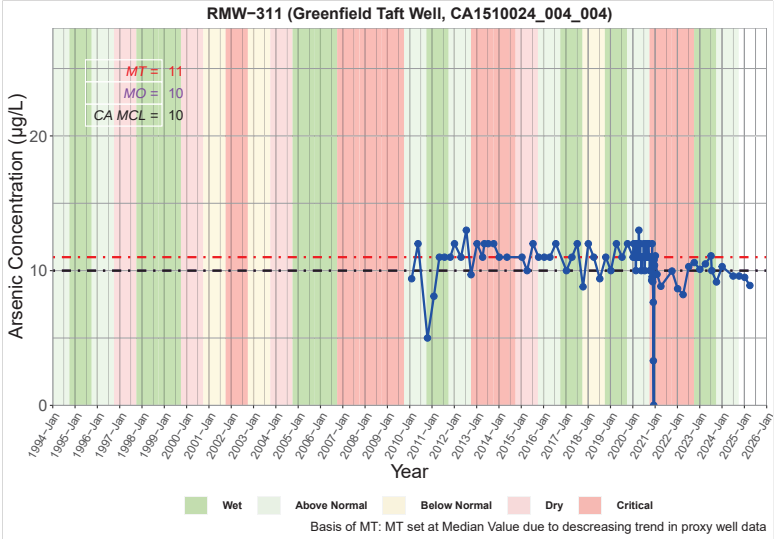


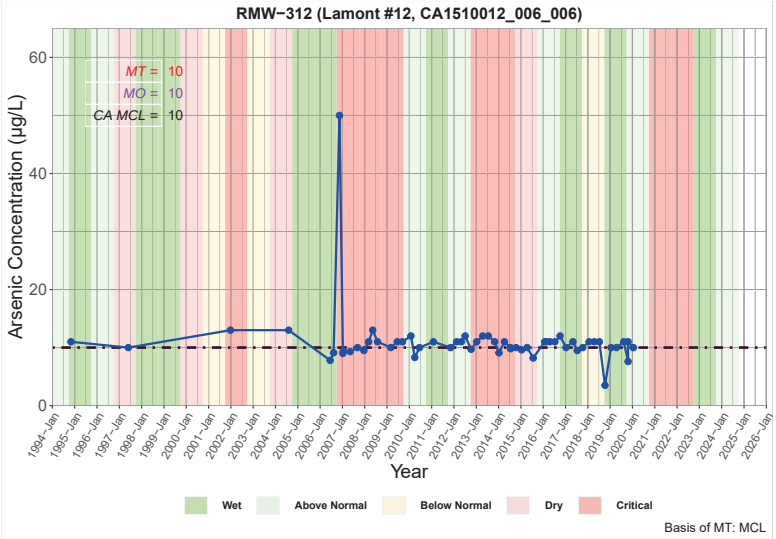
Basis of MT: MCL

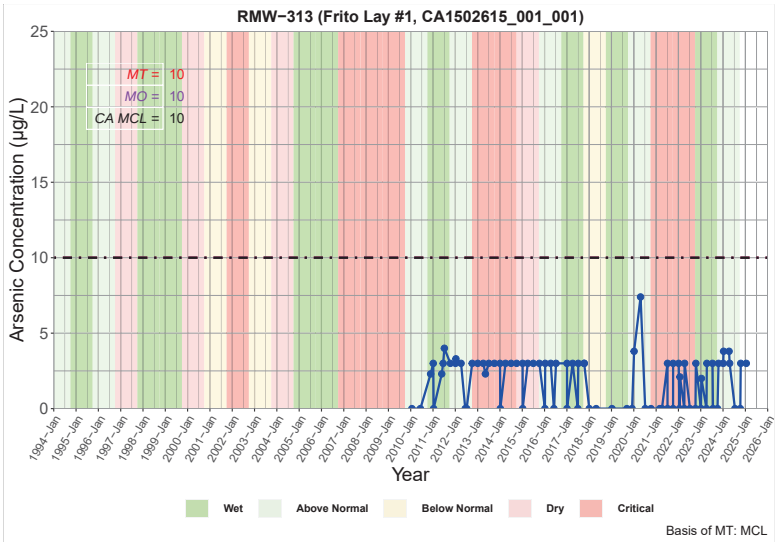


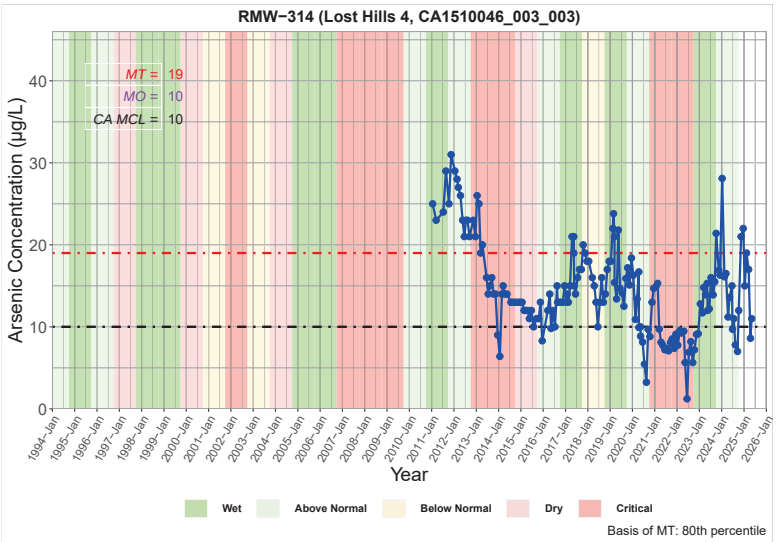
Basis of MT: MCL

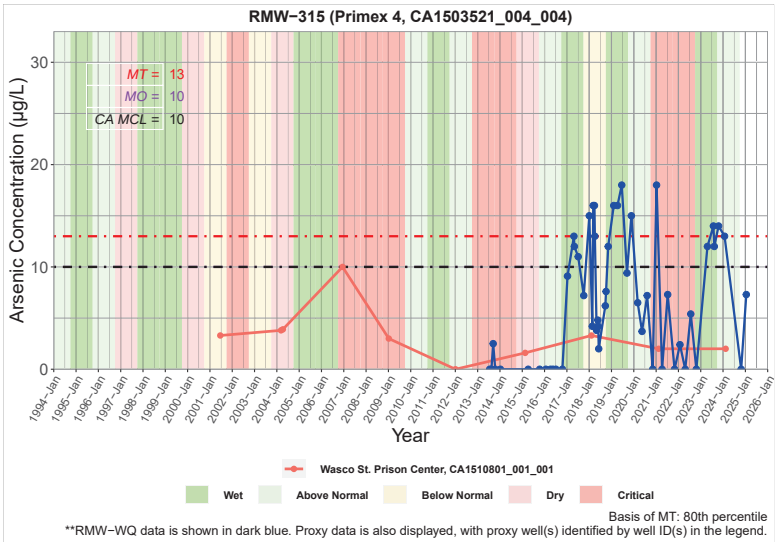

RMW−310 (AGC100012326−KRWCA00069)
MT = 10
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

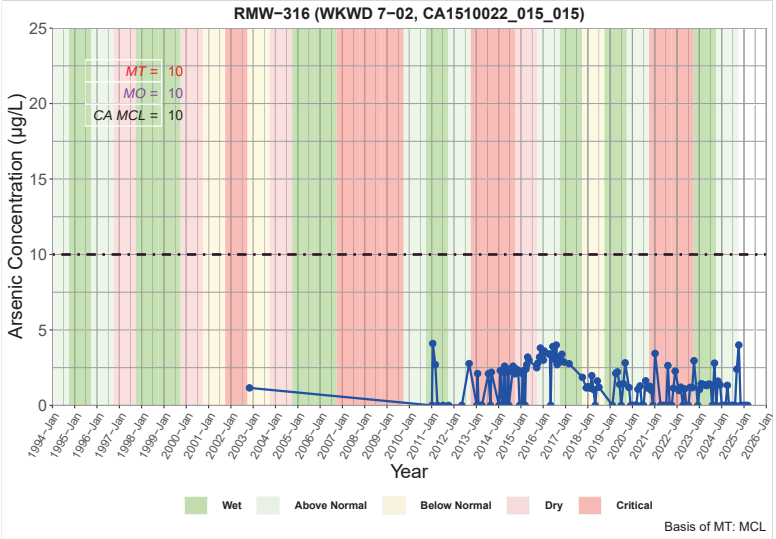

RMW−311 (Greenfield Taft Well, CA1510024_004_004)
MT = 11
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MT set at Median Value due to descreasing trend in proxy well data

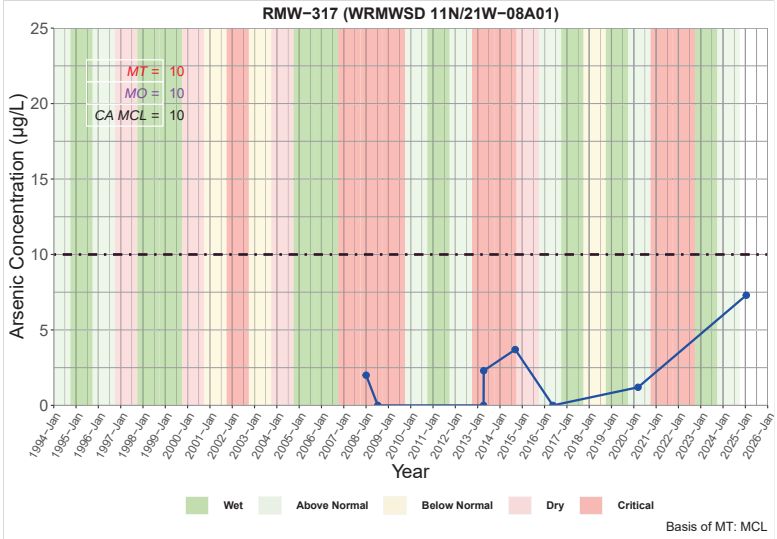

RMW−312 (Lamont #12, CA1510012_006_006)
MT = 10
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

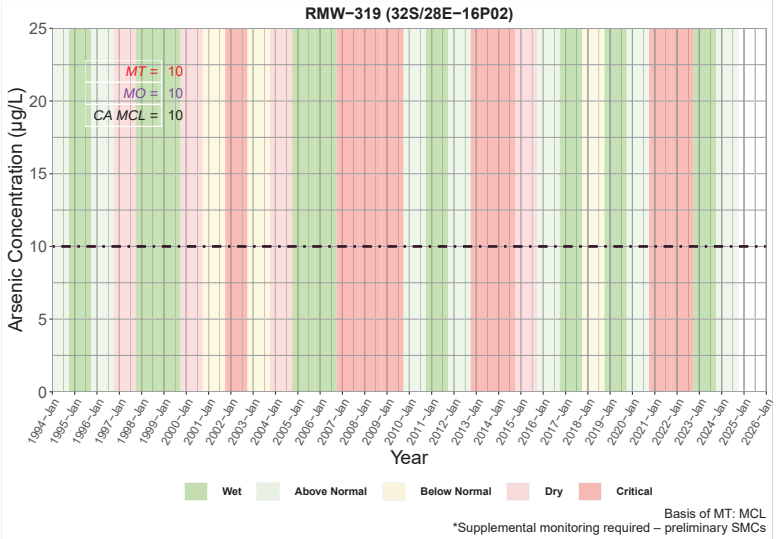

RMW−313 (Frito Lay #1, CA1502615_001_001)
MT = 10
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

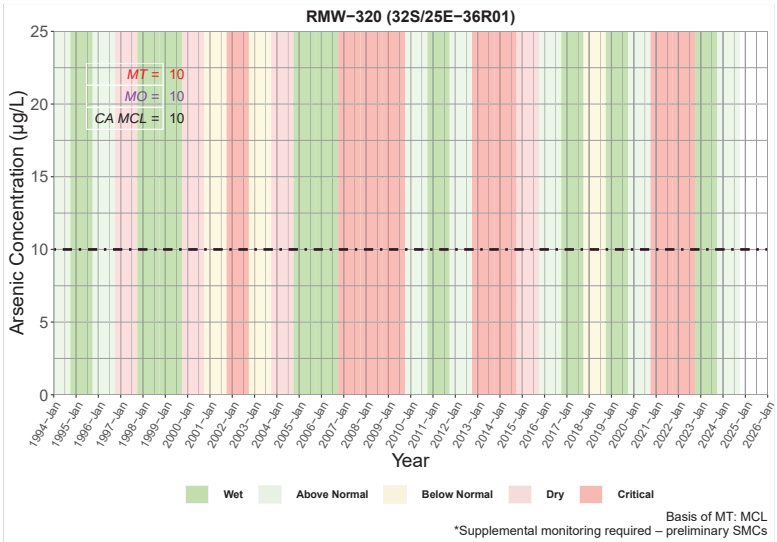

RMW−314 (Lost Hills 4, CA1510046_003_003)
MT = 19
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: 80th percentile

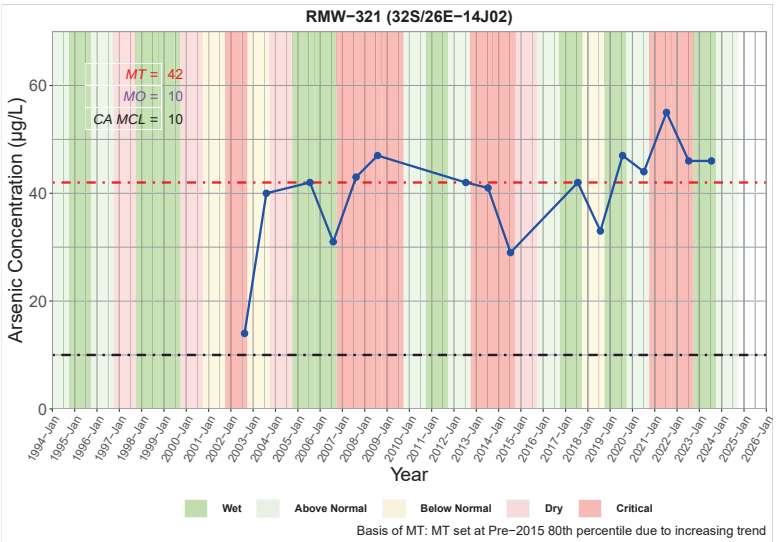

RMW−315 (Primex 4, CA1503521_004_004)
MT = 13
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
Wasco St. Prison Center, CA1510801_001_001
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: 80th percentile
**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.

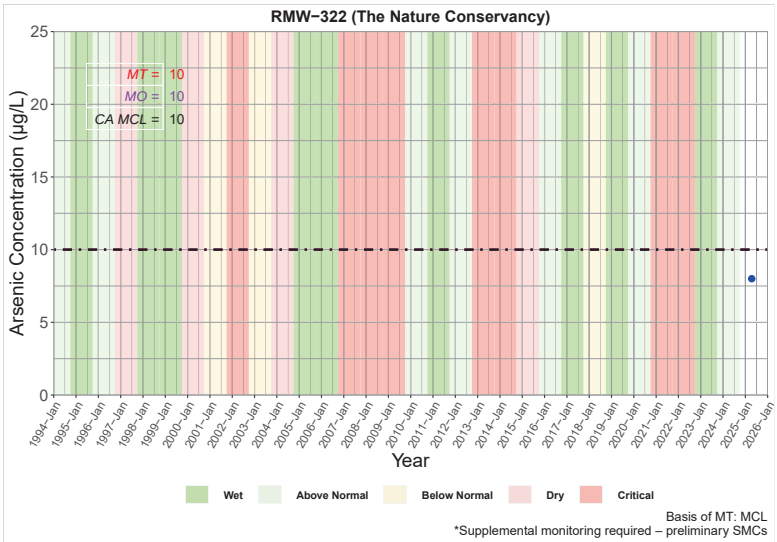

RMW−316 (WKWD 7−02, CA1510022_015_015)
MT = 10
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

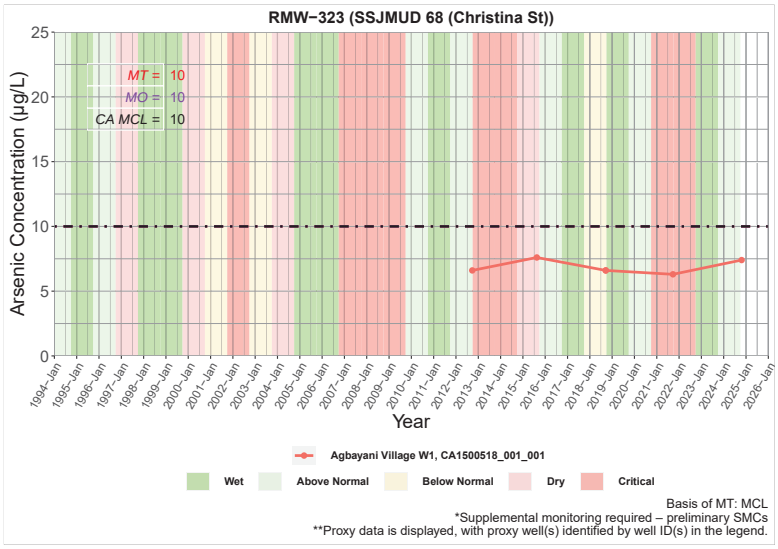

RMW−317 (WRMWSD 11N/21W−08A01)
MT = 10
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL


RMW−319 (32S/28E−16P02)
MT = 10
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs


RMW−320 (32S/25E−36R01)
MT = 10
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs


RMW−321 (32S/26E−14J02)
MT = 42
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MT set at Pre−2015 80th percentile due to increasing trend


RMW−322 (The Nature Conservancy)
MT = 10
MO = 10
CA MCL = 10
Arsenic Concentration (µg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

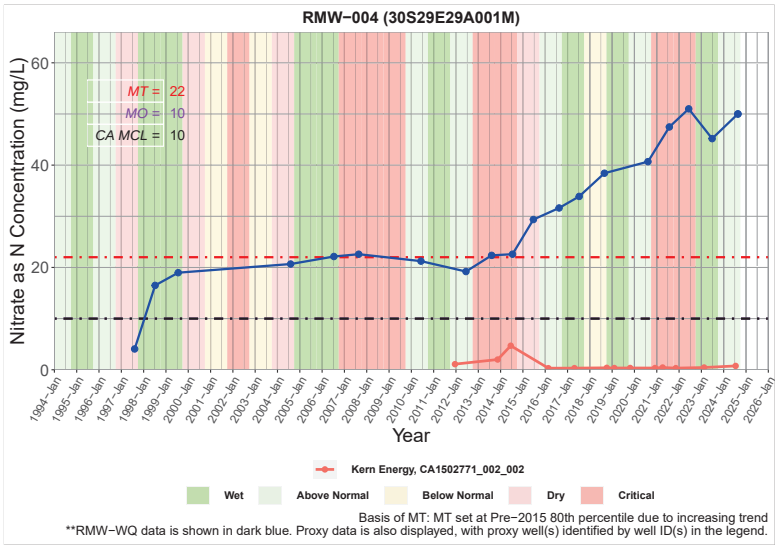


Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs
**Proxy data is displayed, with proxy well(s) identified by well ID(s) in the legend.

2025 Plan Appendix I-4:

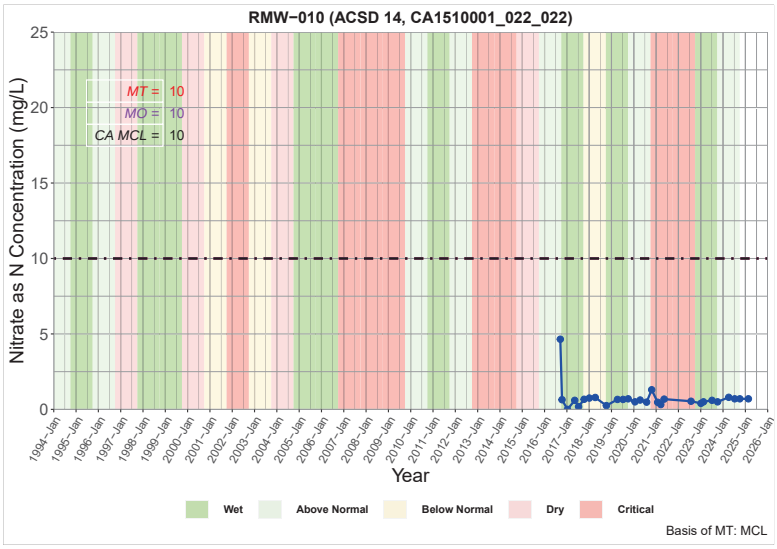
Water Quality Representative Monitoring Well Chemographs

NITRATE

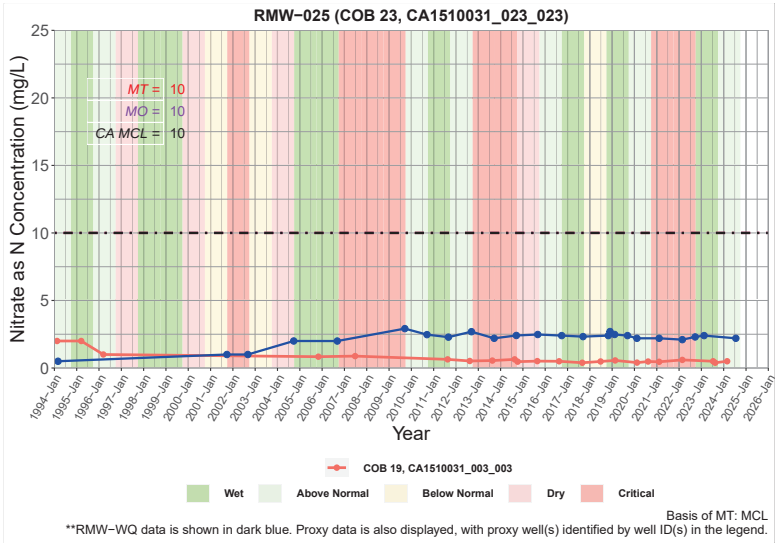


Basis of MT: MT set at Pre−2015 80th percentile due to increasing trend

**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.

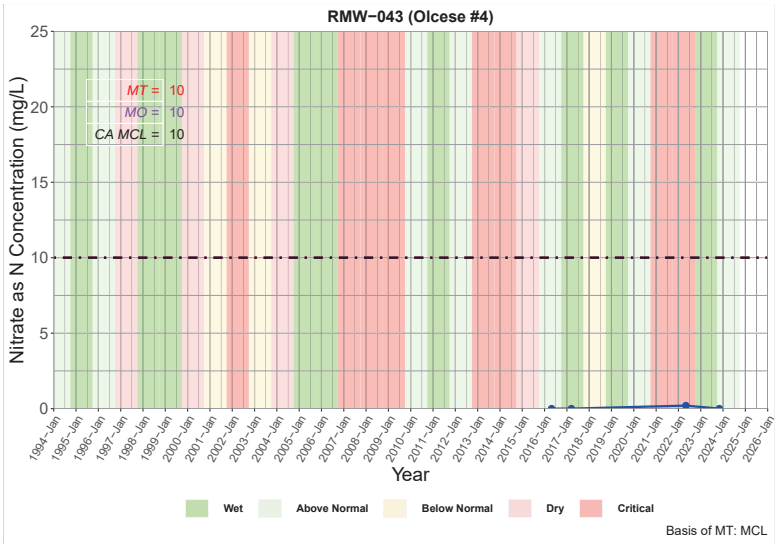


Basis of MT: MCL

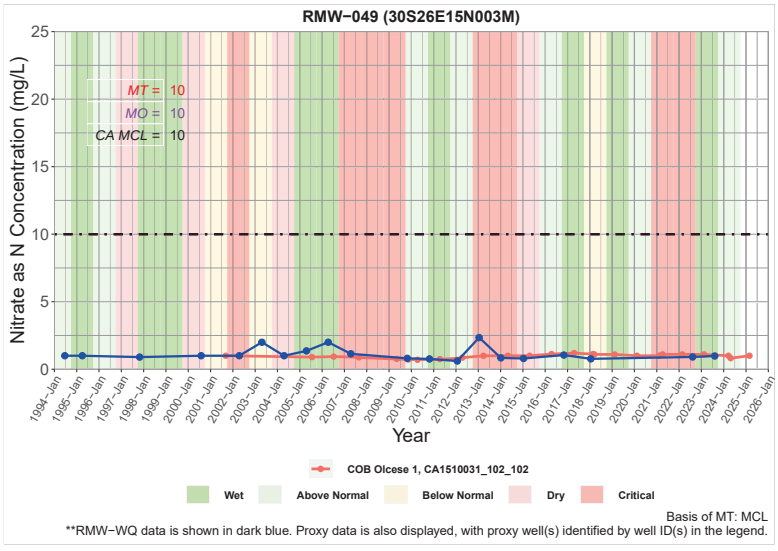


Basis of MT: MCL

**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.

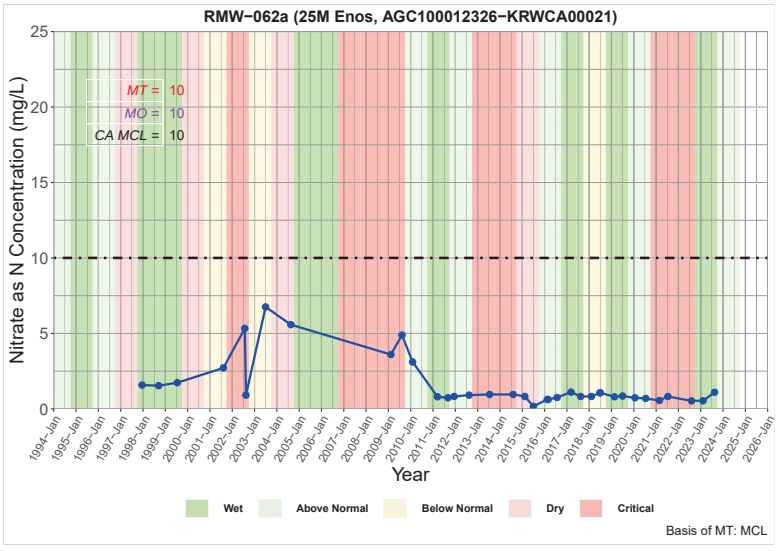


Basis of MT: MCL

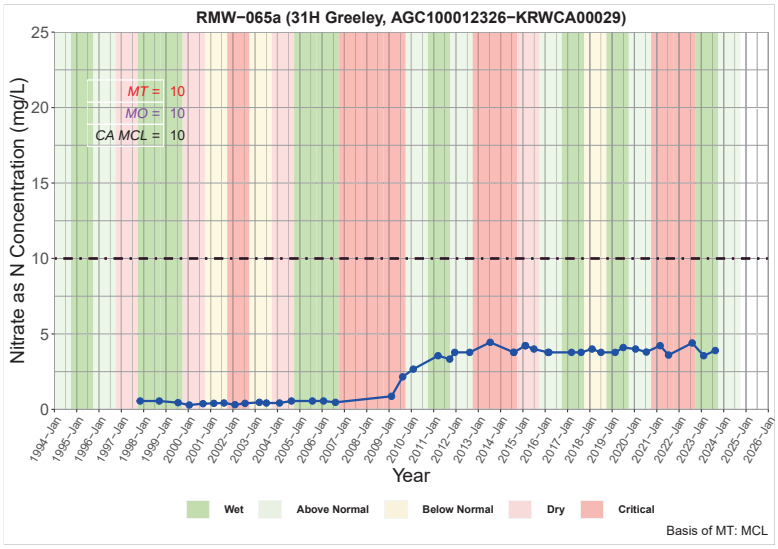


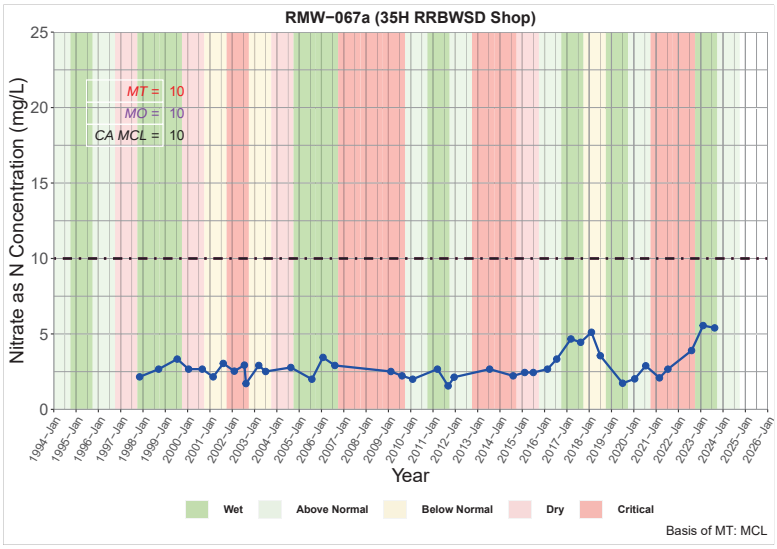
Basis of MT: MCL

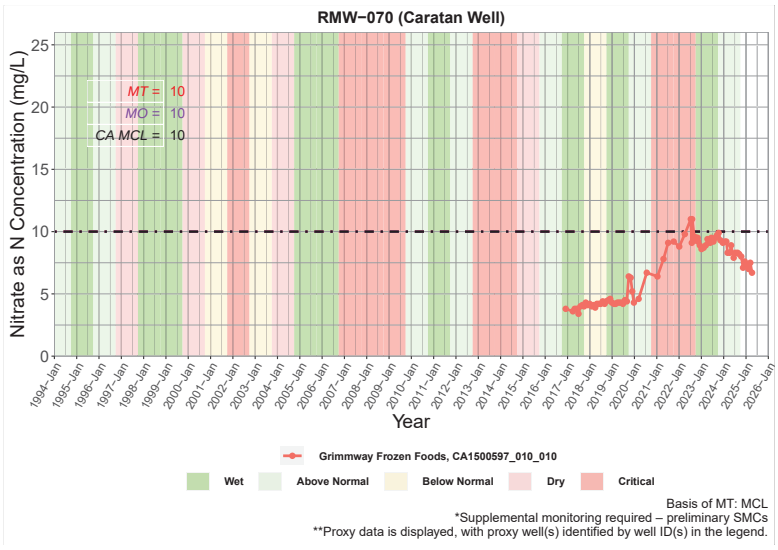
**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.

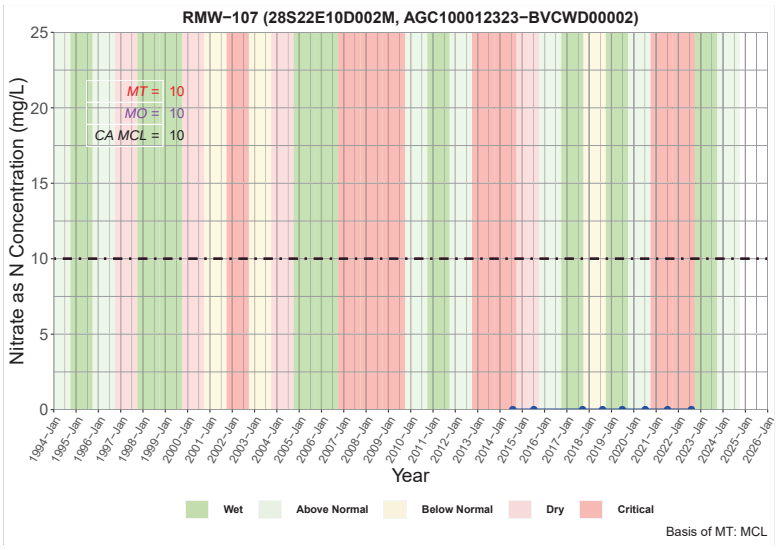


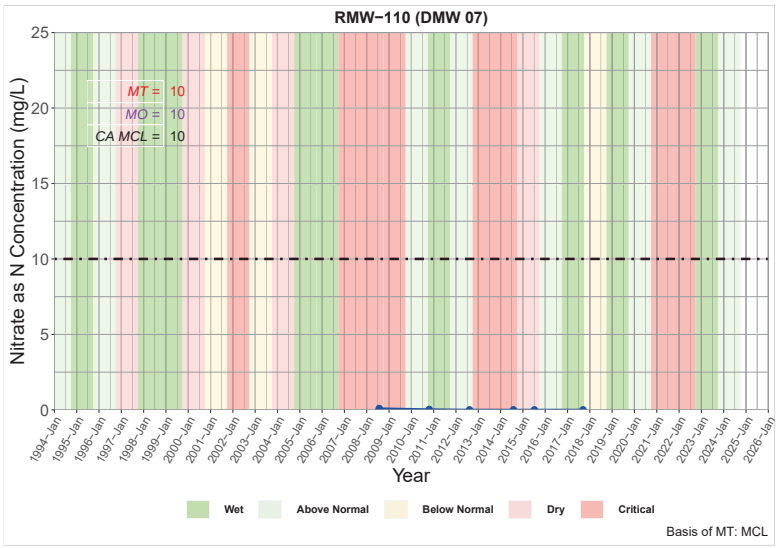
Basis of MT: MCL

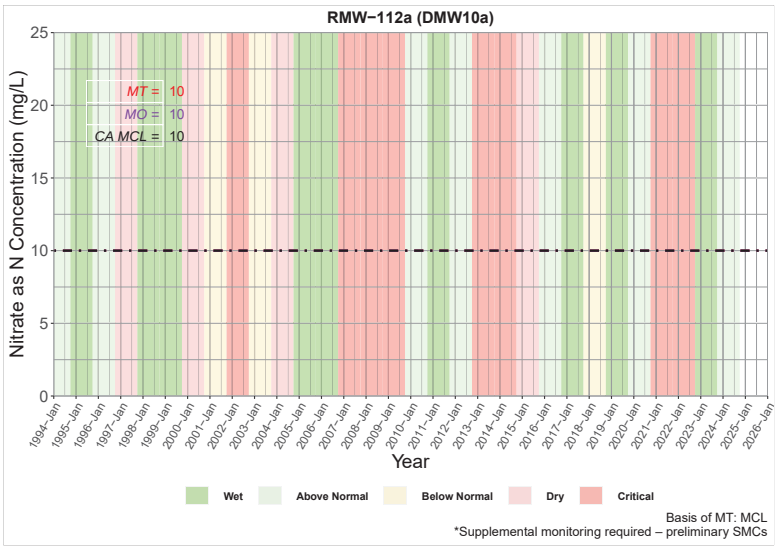

RMW−065a (31H Greeley, AGC100012326−KRWCA00029)
MT = 10
MO = 10
CA MCL = 10
Nitrate as N Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

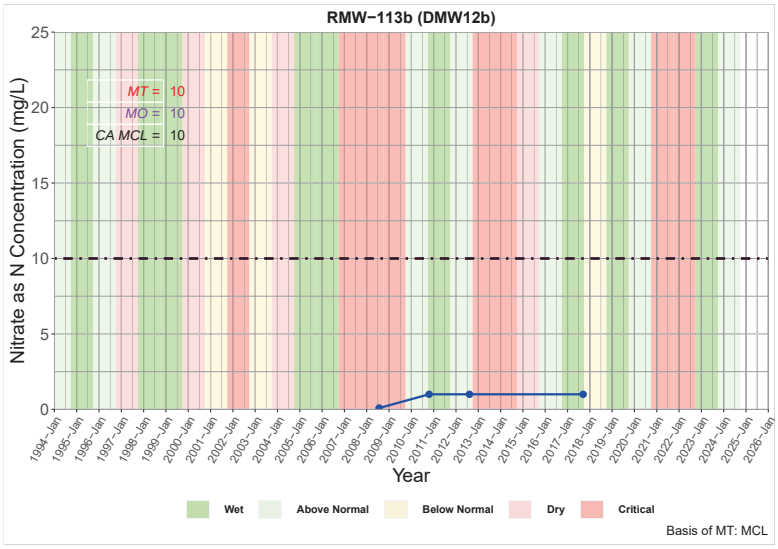

RMW−067a (35H RRBWSD Shop)
MT = 10
MO = 10
CA MCL = 10
Nitrate as N Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

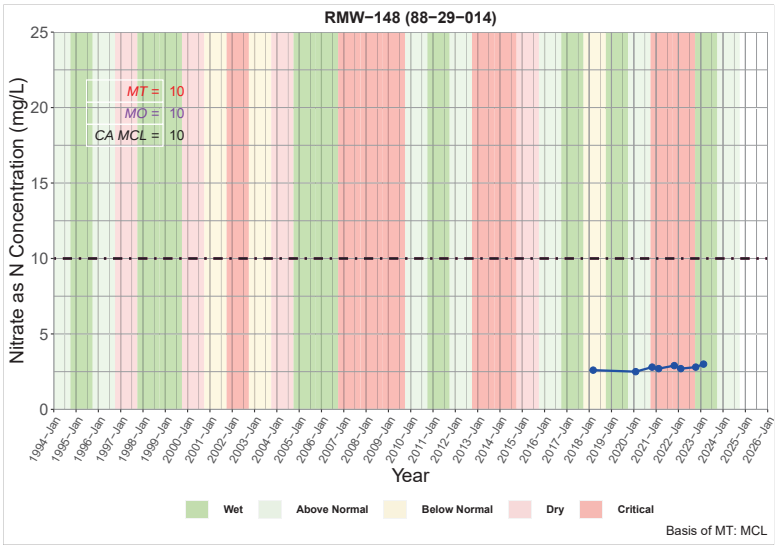

RMW−070 (Caratan Well)
MT = 10
MO = 10
CA MCL = 10
Nitrate as N Concentration (mg/L)
Year
Grimmway Frozen Foods, CA1500597_010_010
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs
**Proxy data is displayed, with proxy well(s) identified by well ID(s) in the legend.

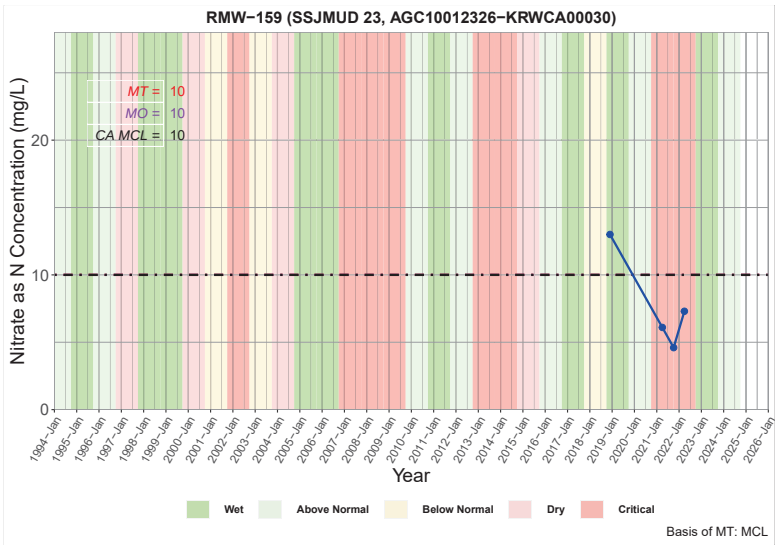

RMW−107 (28S22E10D002M, AGC100012323−BVCWD00002)
MT = 10
MO = 10
CA MCL = 10
Nitrate as N Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

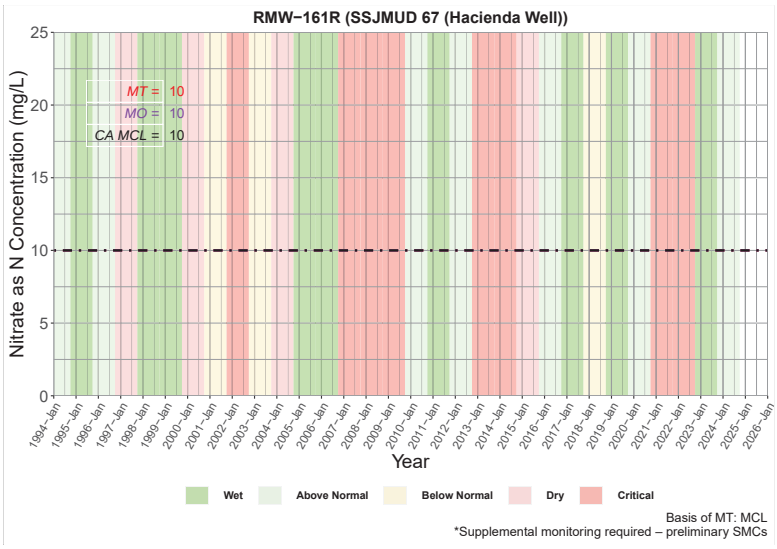

RMW−110 (DMW 07)
MT = 10
MO = 10
CA MCL = 10
Nitrate as N Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

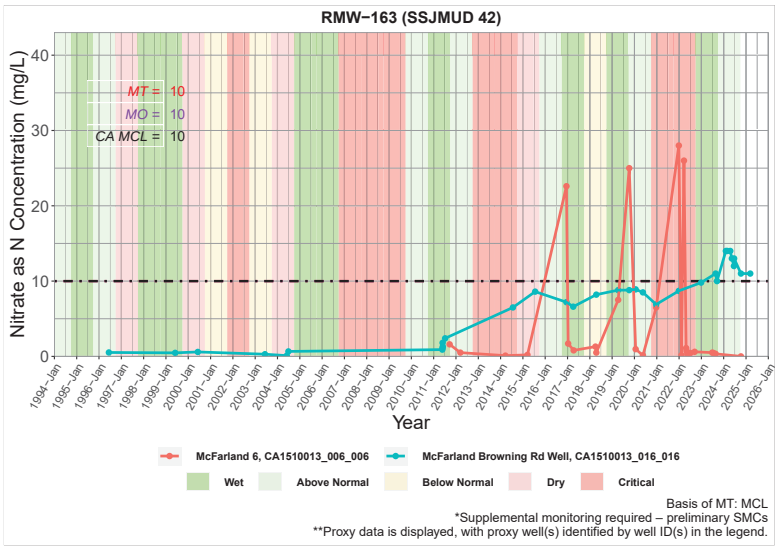

RMW−112a (DMW10a)
MT = 10
MO = 10
CA MCL = 10
Nitrate as N Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

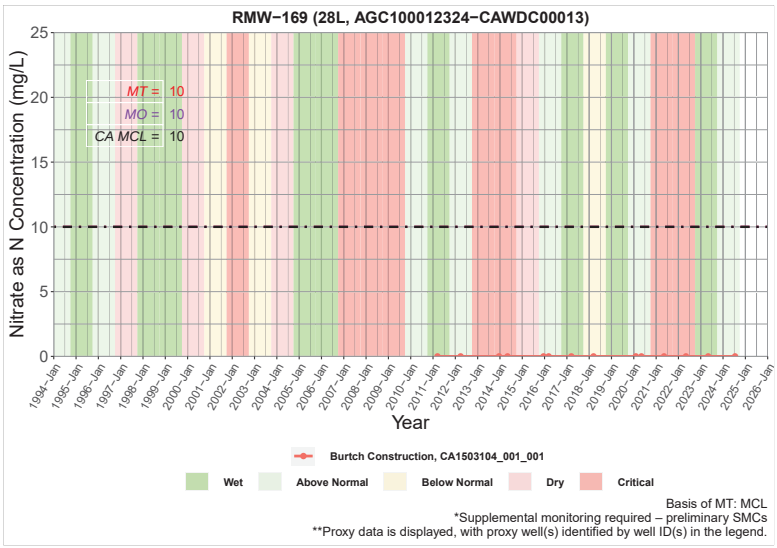

RMW−113b (DMW12b)
Nitrate as N Concentration (mg/L)
MT = 10
MO = 10
CA MCL = 10
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

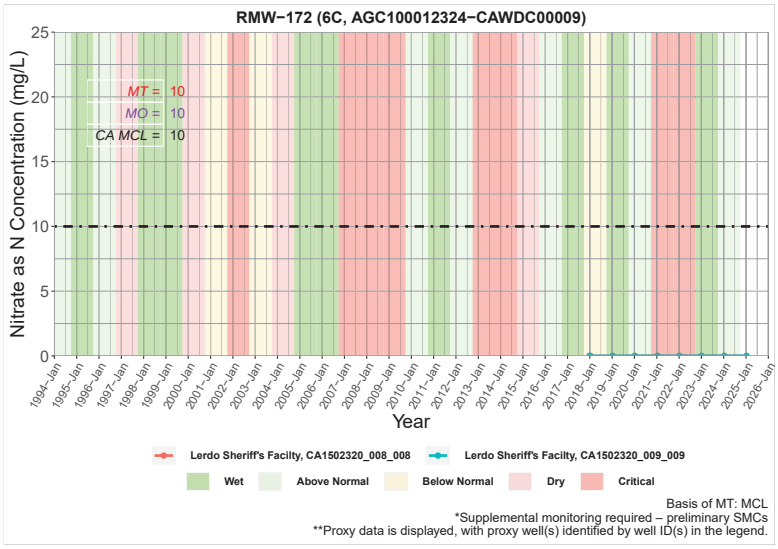

RMW−148 (88−29−014)
Nitrate as N Concentration (mg/L)
MT = 10
MO = 10
CA MCL = 10
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL


RMW−159 (SSJMUD 23, AGC10012326−KRWCA00030)
Nitrate as N Concentration (mg/L)
MT = 10
MO = 10
CA MCL = 10
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

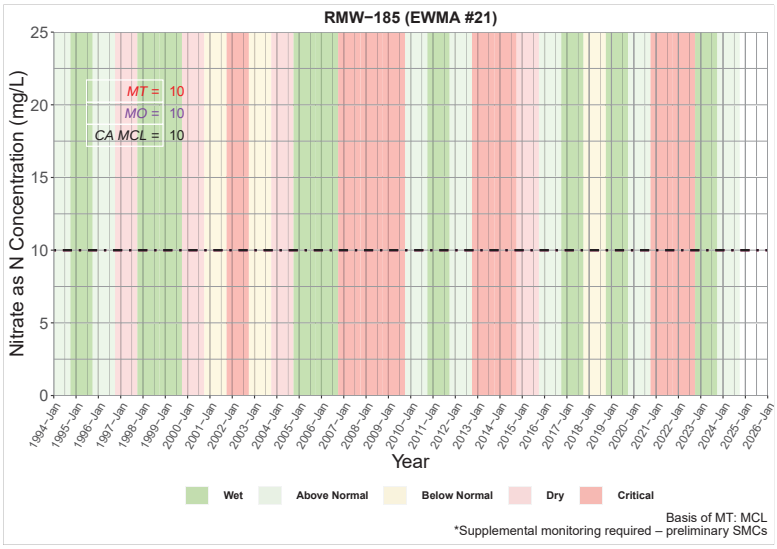

RMW−161R (SSJMUD 67 (Hacienda Well))
Nitrate as N Concentration (mg/L)
MT = 10
MO = 10
CA MCL = 10
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs


RMW−163 (SSJMUD 42)
Nitrate as N Concentration (mg/L)
MT = 10
MO = 10
CA MCL = 10
Year
McFarland 6, CA1510013_006_006
McFarland Browning Rd Well, CA1510013_016_016
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs
**Proxy data is displayed, with proxy well(s) identified by well ID(s) in the legend.

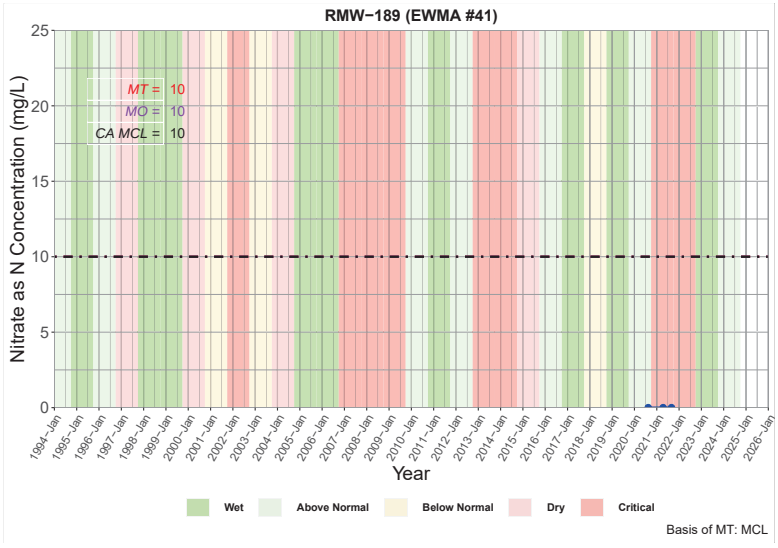

RMW−169 (28L, AGC100012324−CAWDC00013)
Nitrate as N Concentration (mg/L)
MT = 10
MO = 10
CA MCL = 10
Year
Burtch Construction, CA1503104_001_001
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs
**Proxy data is displayed, with proxy well(s) identified by well ID(s) in the legend.



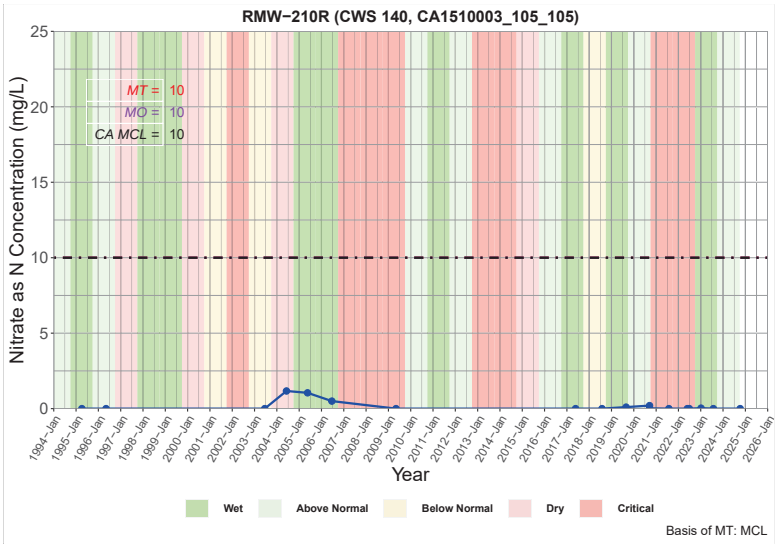
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs
**Proxy data is displayed, with proxy well(s) identified by well ID(s) in the legend.



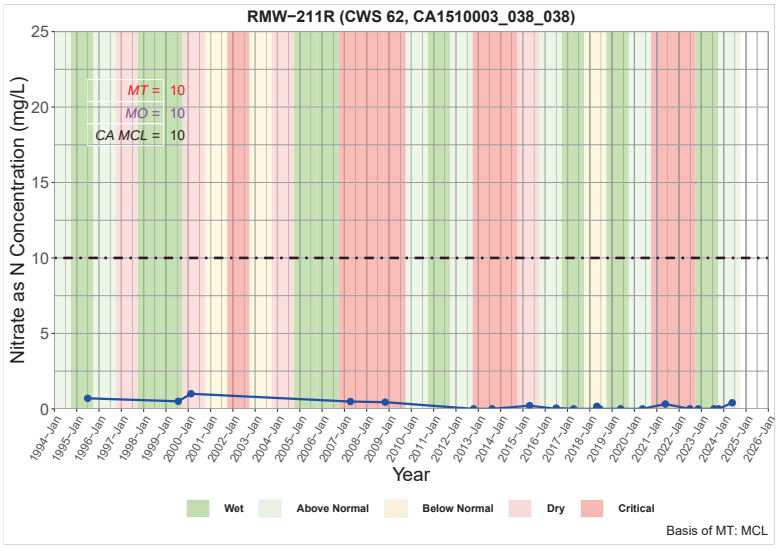
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs



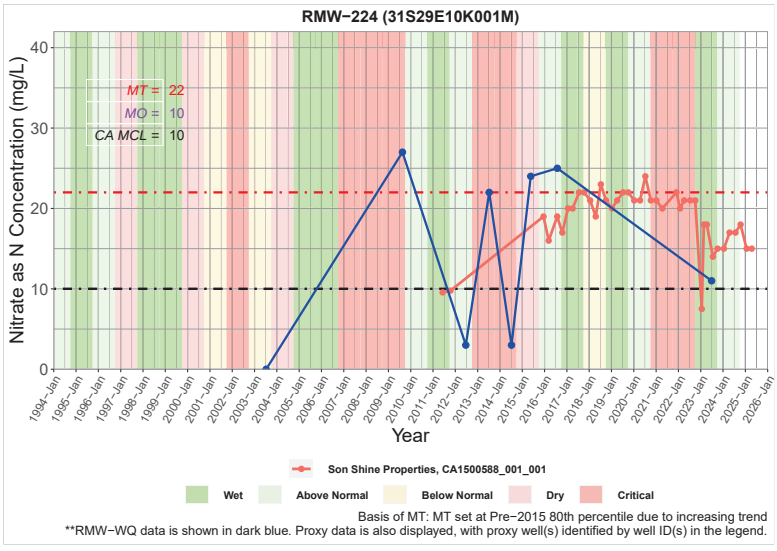
Basis of MT: MCL



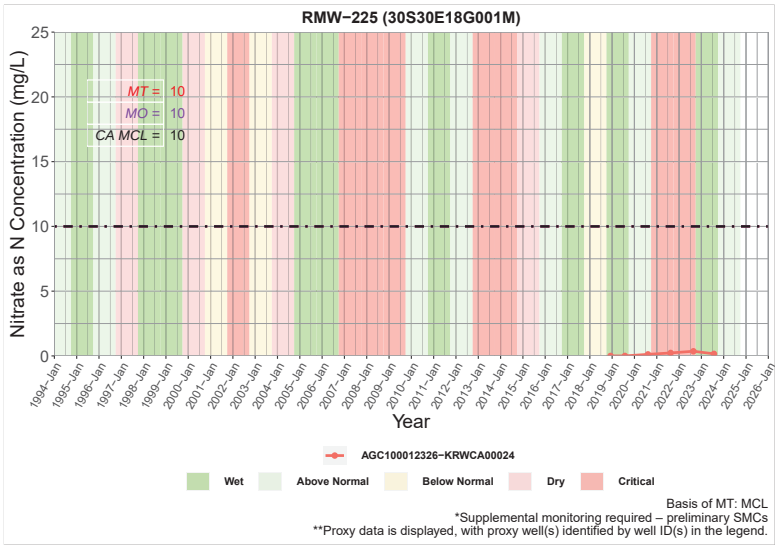
Basis of MT: MCL

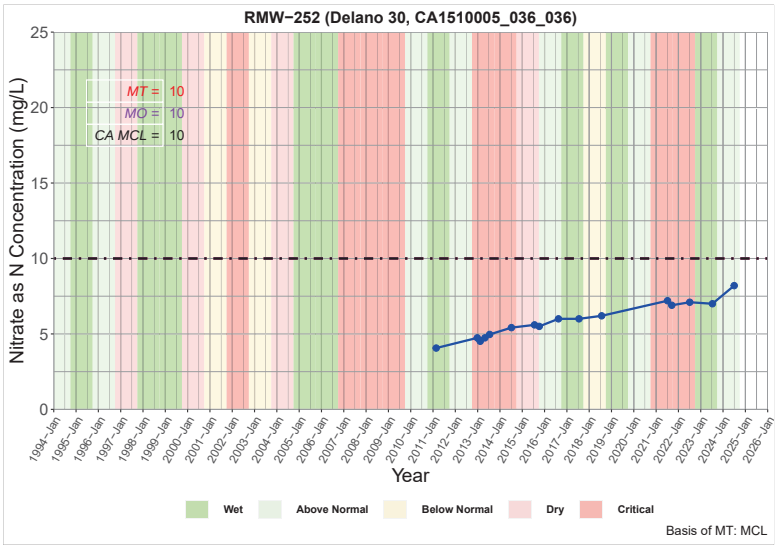


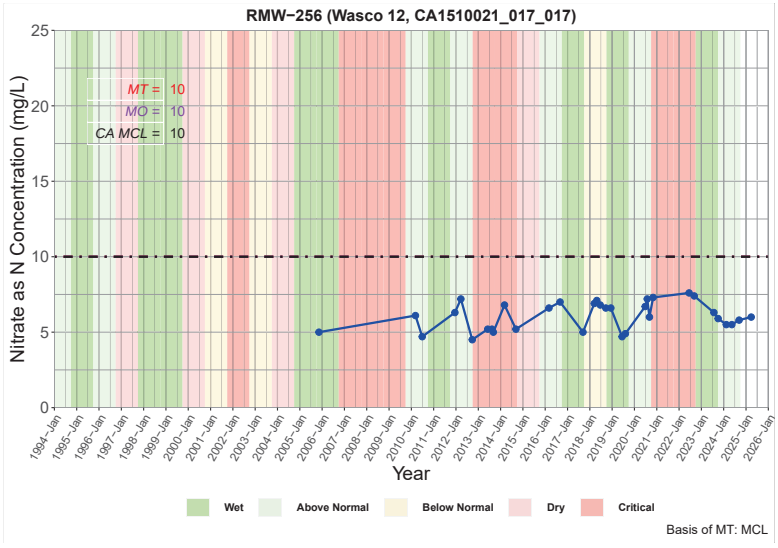
Basis of MT: MCL

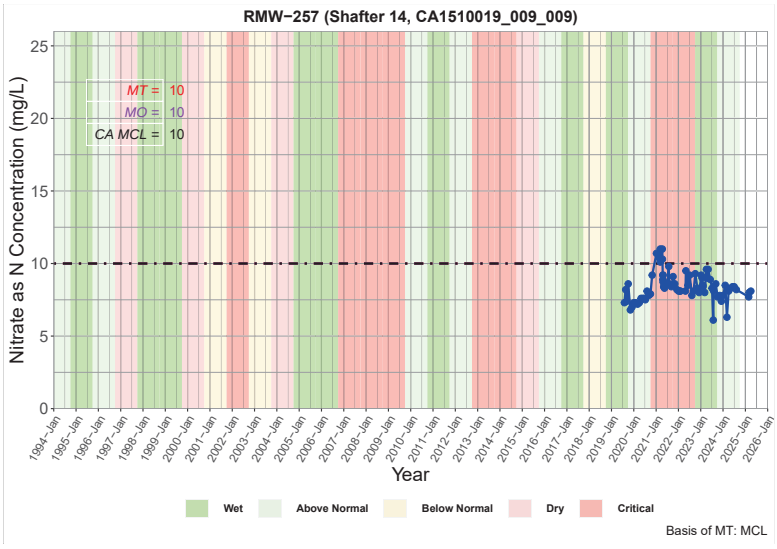


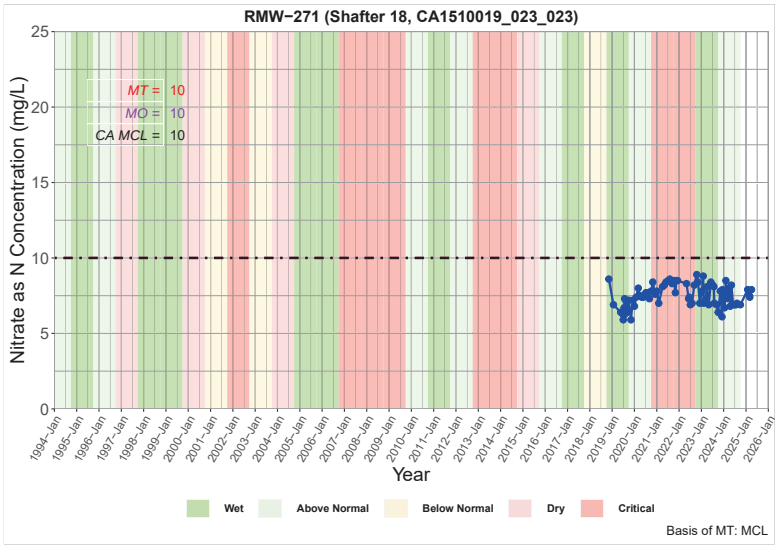
Basis of MT: MT set at Pre−2015 80th percentile due to increasing trend
**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.

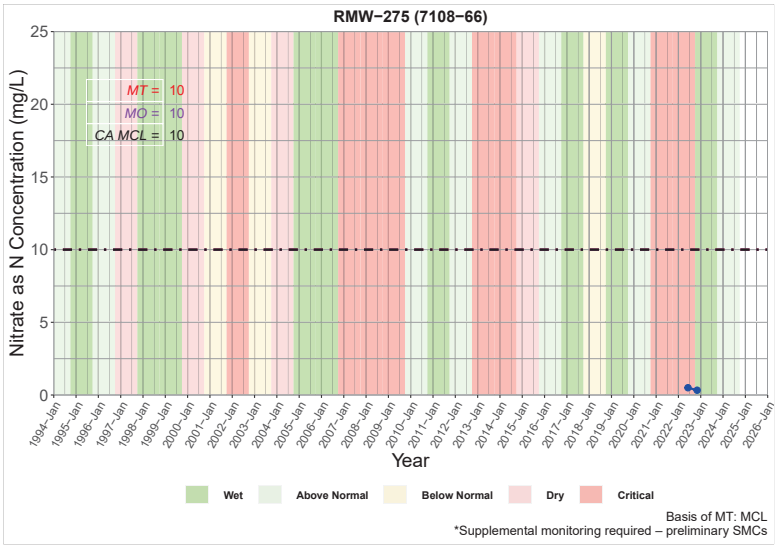

RMW-225 (30S30E18G001M)
Nitrate as N Concentration (mg/L)
MT = 10
MO = 10
CA MCL = 10
Year
AGC100012326-KRWCA00024
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs
**Proxy data is displayed, with proxy well(s) identified by well ID(s) in the legend.

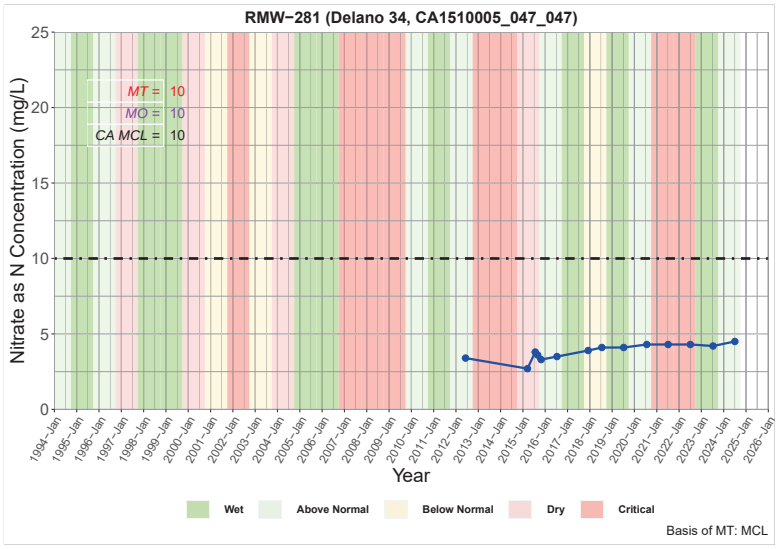

RMW-252 (Delano 30, CA1510005_036_036)
Nitrate as N Concentration (mg/L)
MT = 10
MO = 10
CA MCL = 10
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

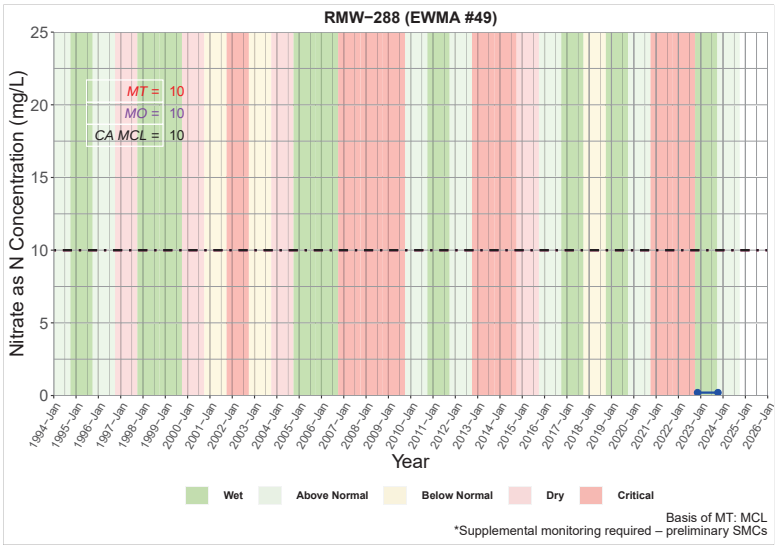

RMW-256 (Wasco 12, CA1510021_017_017)
Nitrate as N Concentration (mg/L)
MT = 10
MO = 10
CA MCL = 10
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

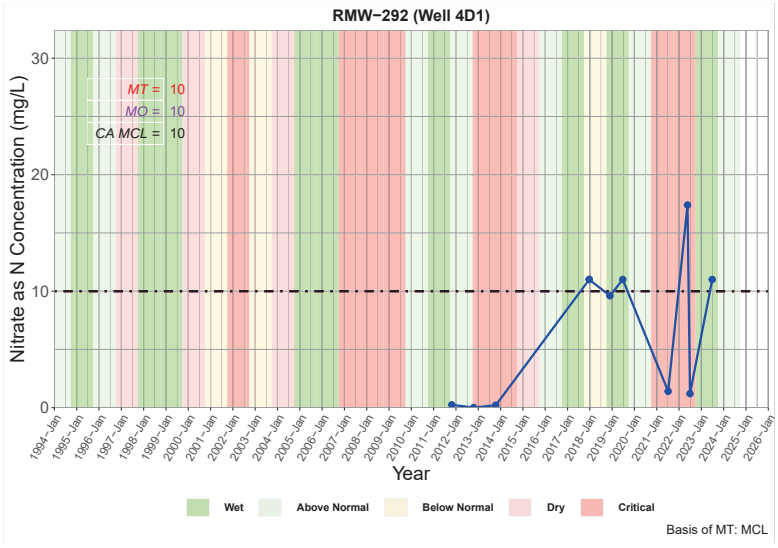

RMW-257 (Shafter 14, CA1510019_009_009)
Nitrate as N Concentration (mg/L)
MT = 10
MO = 10
CA MCL = 10
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

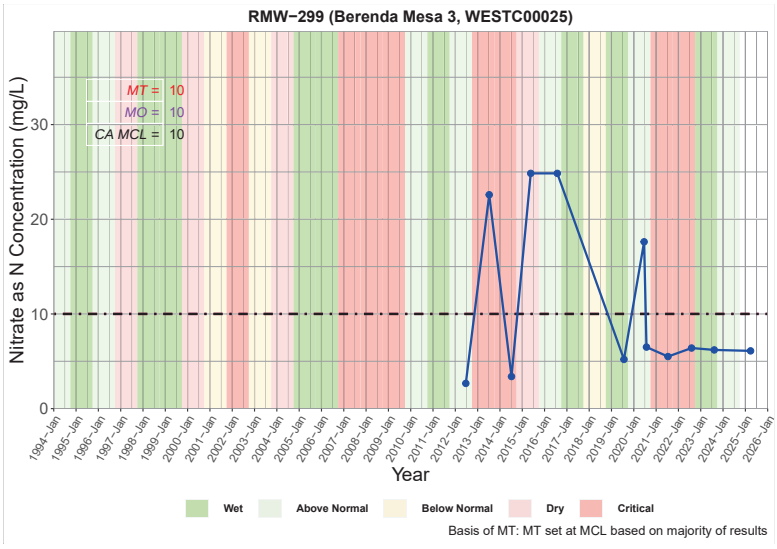

RMW-271 (Shafter 18, CA1510019_023_023)
Nitrate as N Concentration (mg/L)
MT = 10
MO = 10
CA MCL = 10
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

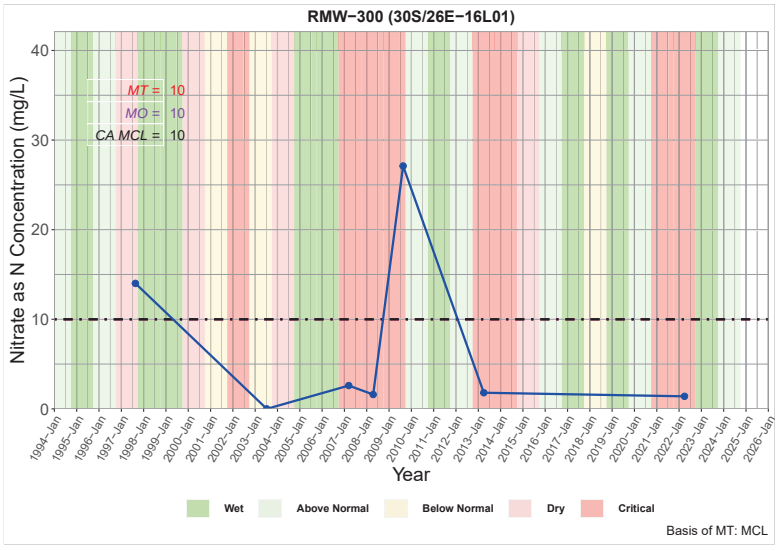

RMW-275 (7108-66)
Nitrate as N Concentration (mg/L)
MT = 10
MO = 10
CA MCL = 10
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

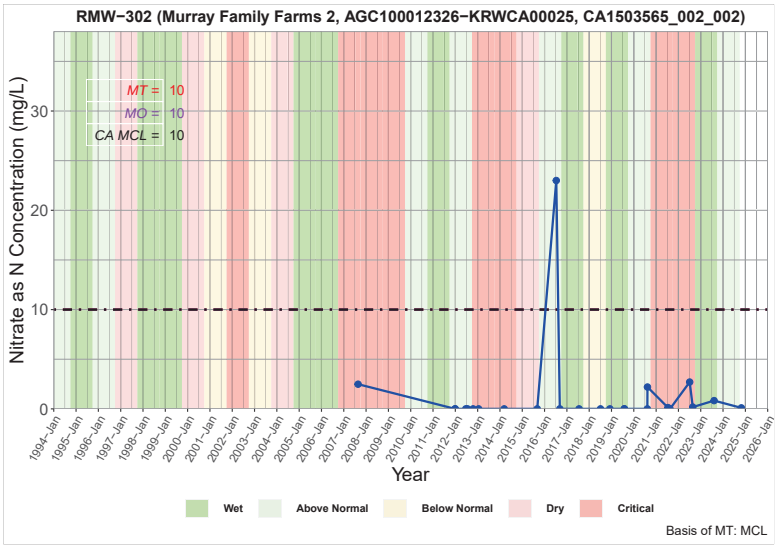

RMW−281 (Delano 34, CA1510005_047_047)
Nitrate as N Concentration (mg/L)
MT = 10
MO = 10
CA MCL = 10
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

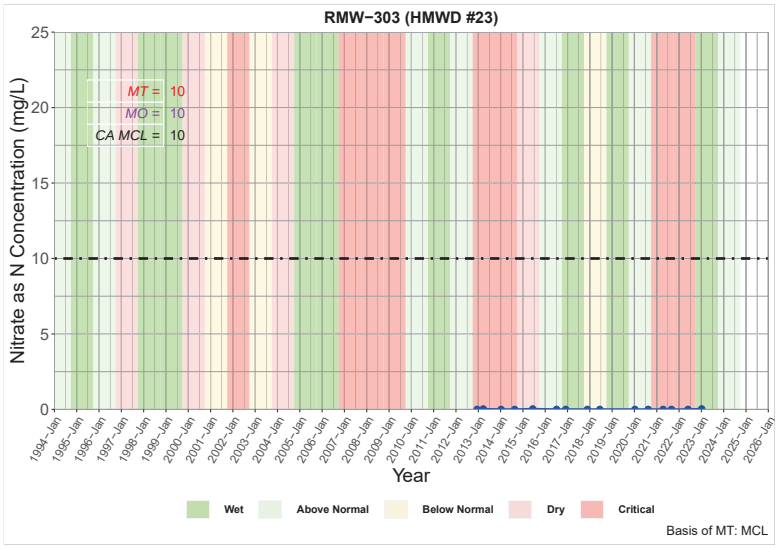

RMW−288 (EWMA #49)
Nitrate as N Concentration (mg/L)
MT = 10
MO = 10
CA MCL = 10
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

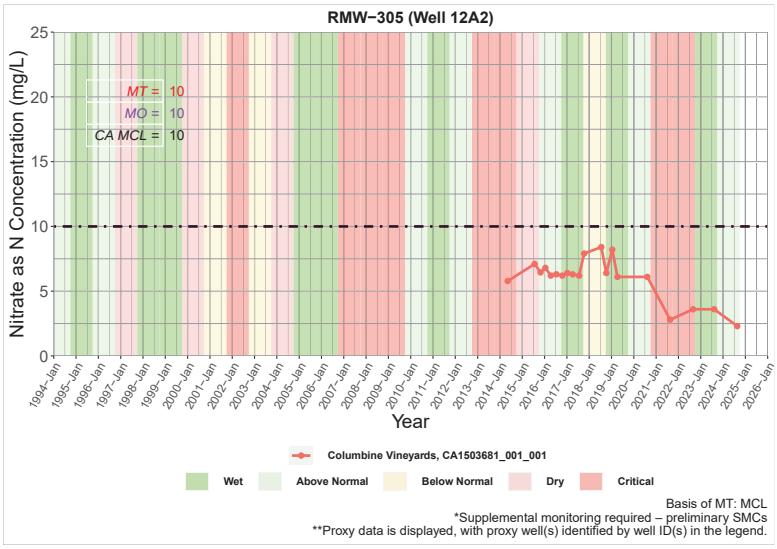

RMW−292 (Well 4D1)
Nitrate as N Concentration (mg/L)
MT = 10
MO = 10
CA MCL = 10
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

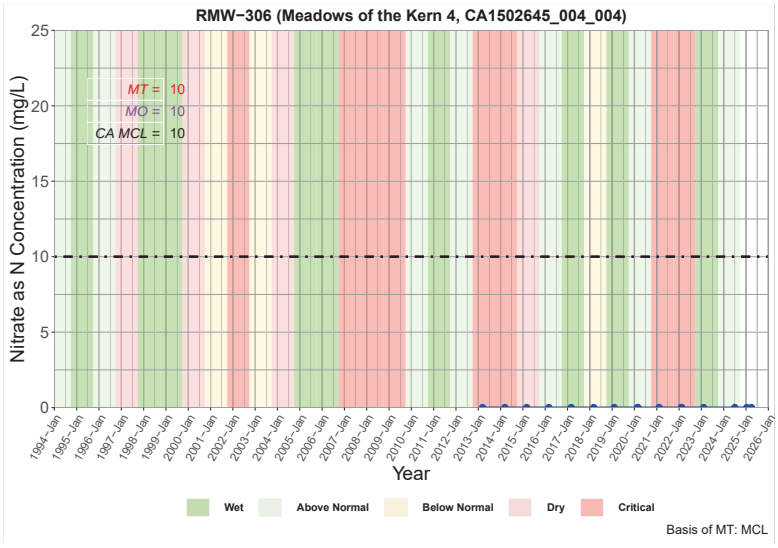

RMW−299 (Berenda Mesa 3, WESTC00025)
Nitrate as N Concentration (mg/L)
MT = 10
MO = 10
CA MCL = 10
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MT set at MCL based on majority of results

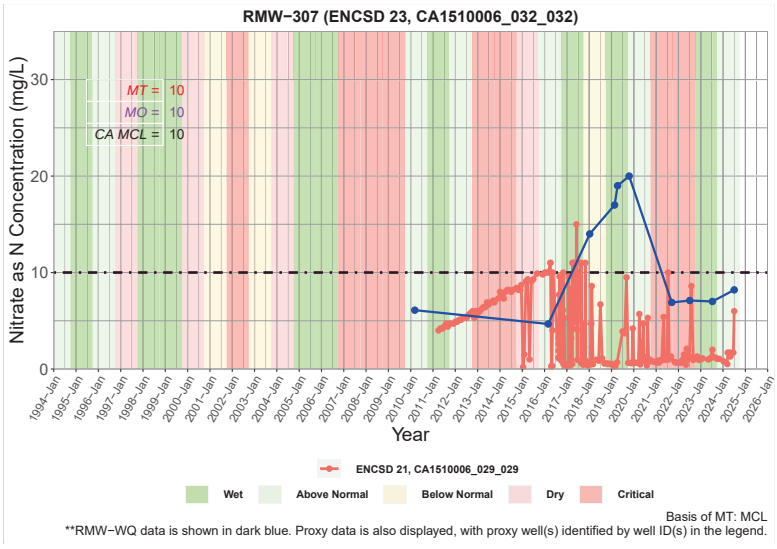

RMW−300 (30S/26E−16L01)
Nitrate as N Concentration (mg/L)
MT = 10
MO = 10
CA MCL = 10
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

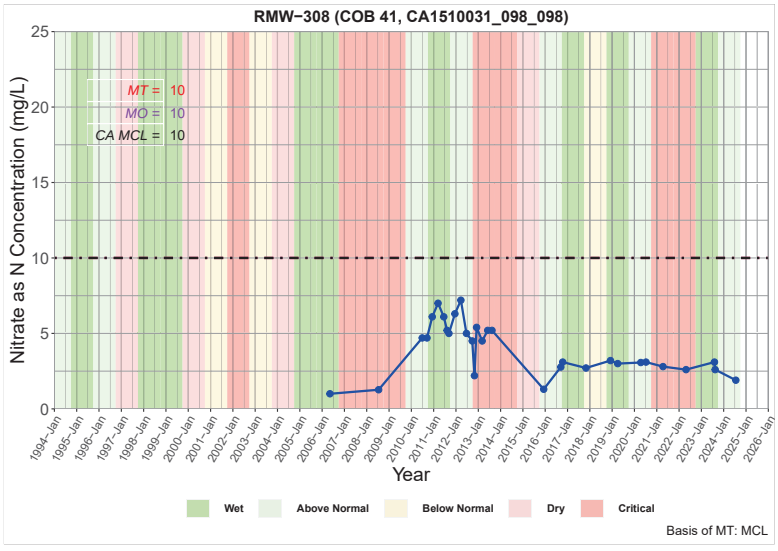

RMW−302 (Murray Family Farms 2, AGC100012326−KRWCA00025, CA1503565_002_002)
Nitrate as N Concentration (mg/L)
MT = 10
MO = 10
CA MCL = 10
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

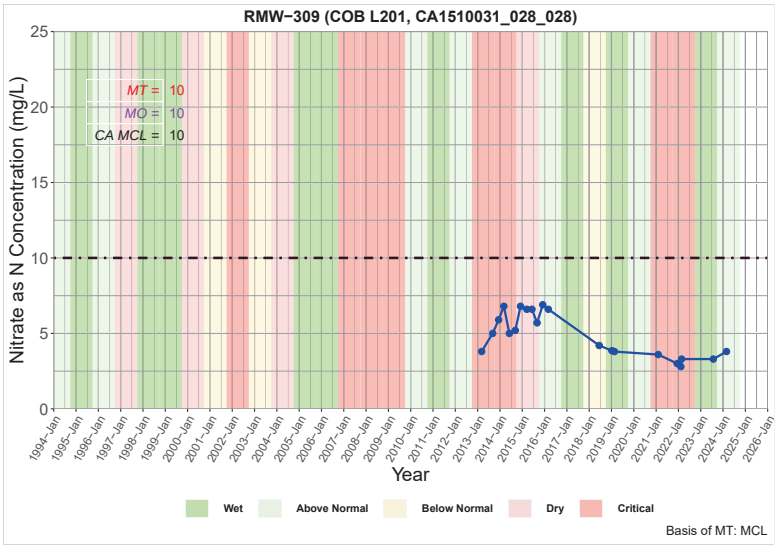

RMW−303 (HMWD #23)
Nitrate as N Concentration (mg/L)
MT = 10
MO = 10
CA MCL = 10
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

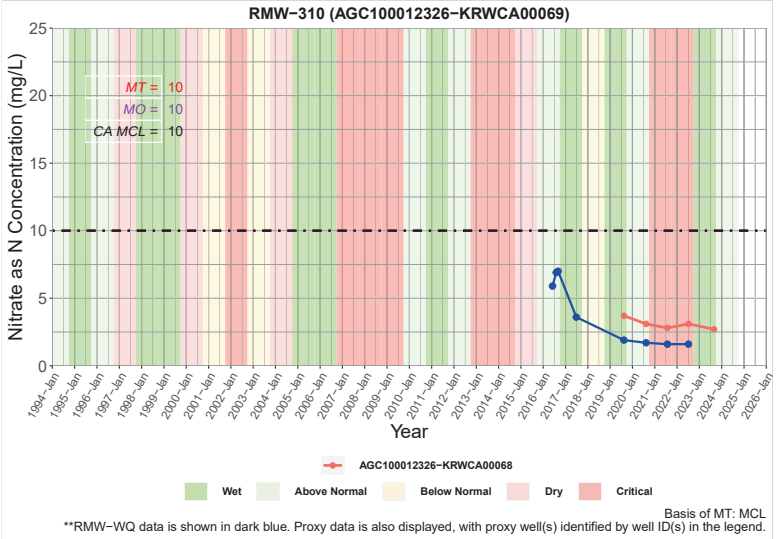

RMW−305 (Well 12A2)
Nitrate as N Concentration (mg/L)
MT = 10
MO = 10
CA MCL = 10
Year
Columbine Vineyards, CA1503681_001_001
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs
**Proxy data is displayed, with proxy well(s) identified by well ID(s) in the legend.


RMW−306 (Meadows of the Kern 4, CA1502645_004_004)
Nitrate as N Concentration (mg/L)
MT = 10
MO = 10
CA MCL = 10
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL


RMW−307 (ENCSD 23, CA1510006_032_032)
Nitrate as N Concentration (mg/L)
MT = 10
MO = 10
CA MCL = 10
Year
ENCSD 21, CA1510006_029_029
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.

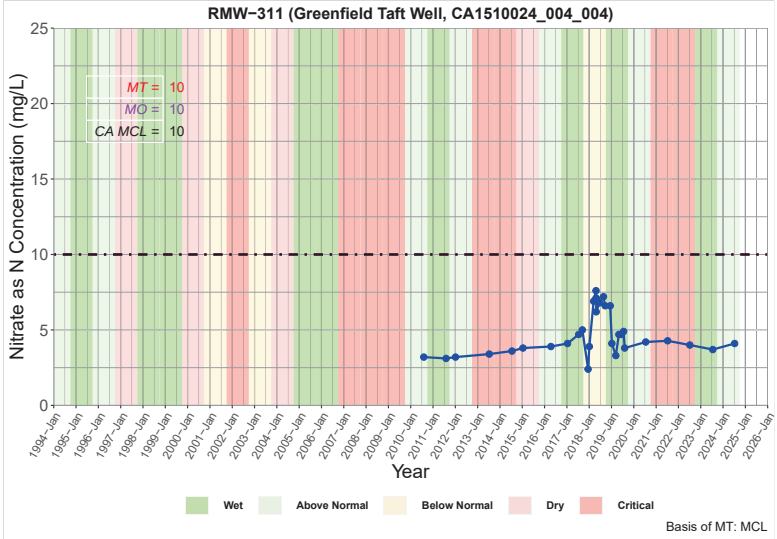

RMW−308 (COB 41, CA1510031_098_098)
Nitrate as N Concentration (mg/L)
MT = 10
MO = 10
CA MCL = 10
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL


RMW−309 (COB L201, CA1510031_028_028)
Nitrate as N Concentration (mg/L)
MT = 10
MO = 10
CA MCL = 10
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

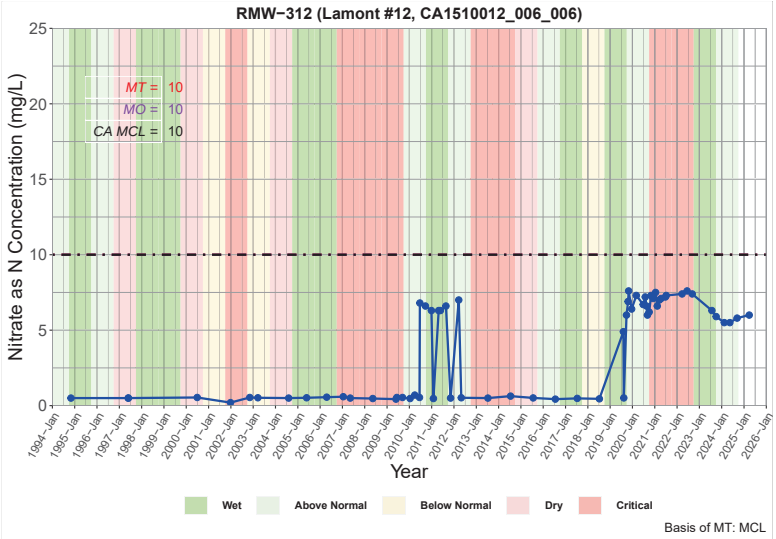


Basis of MT: MCL

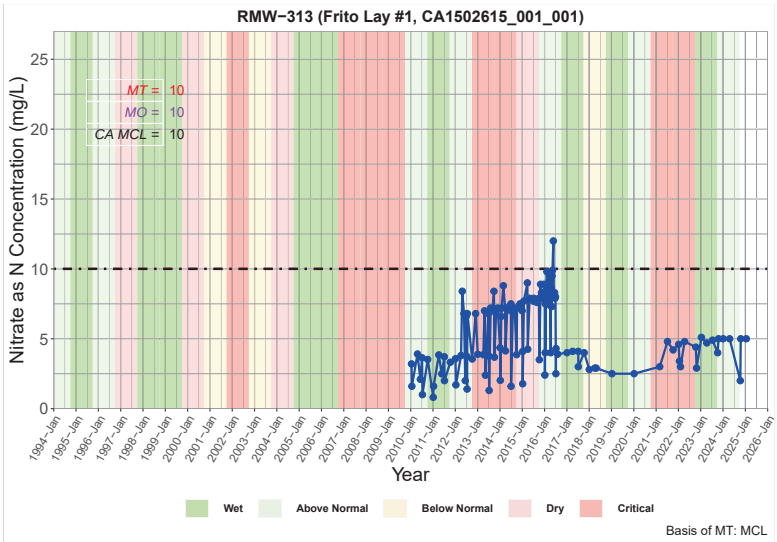
**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.



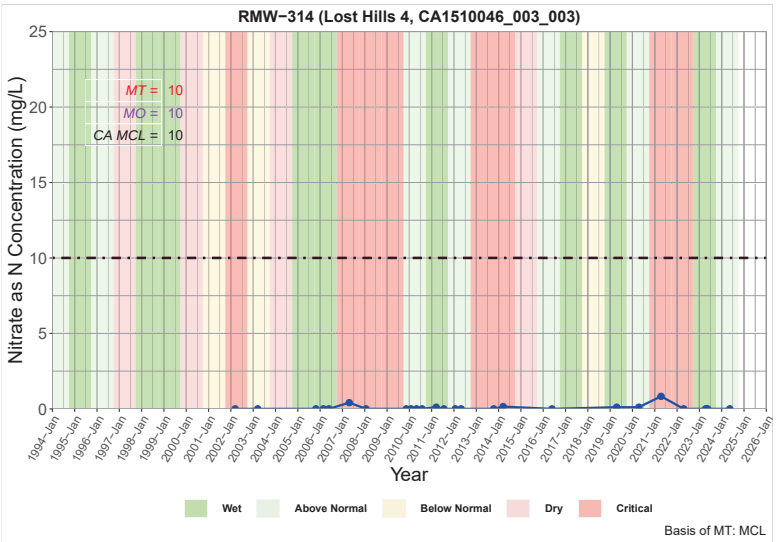
Basis of MT: MCL



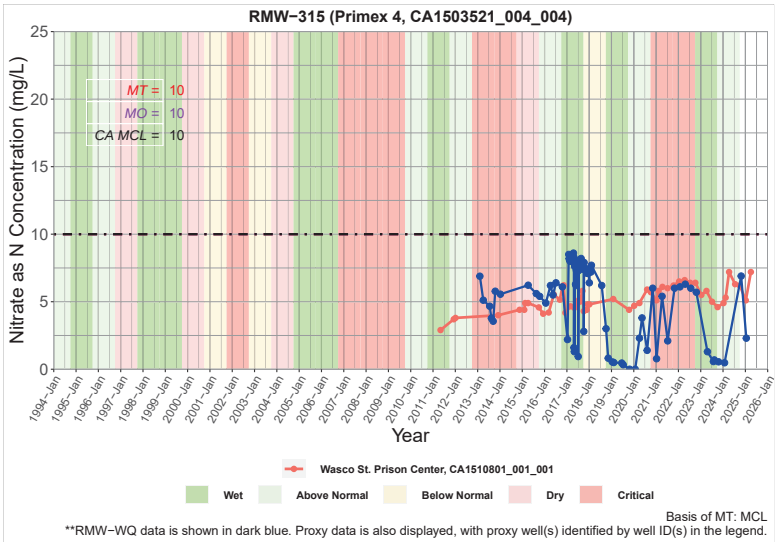
Basis of MT: MCL



Basis of MT: MCL

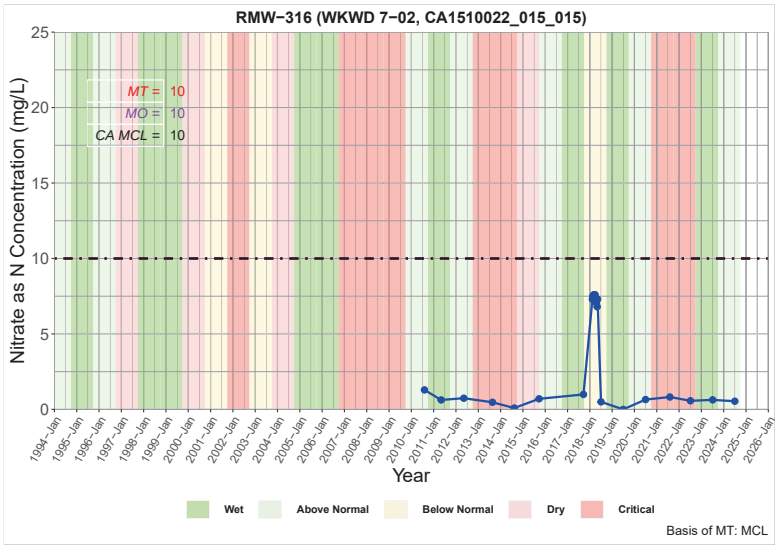


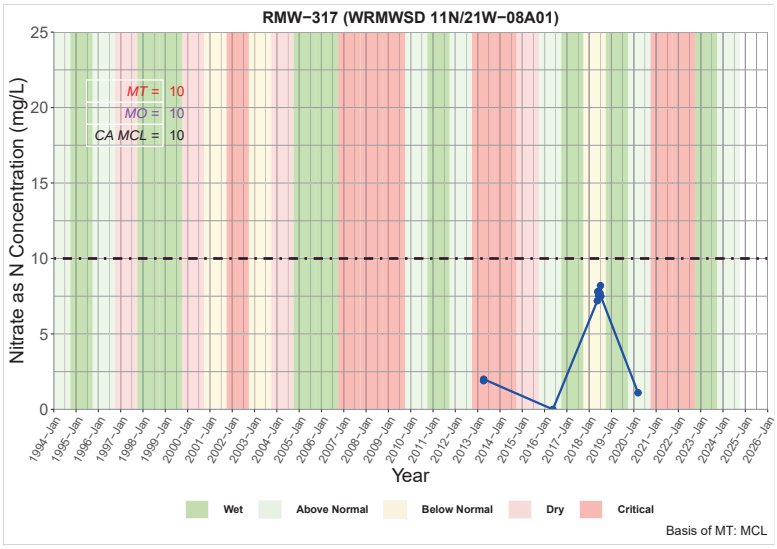
Basis of MT: MCL

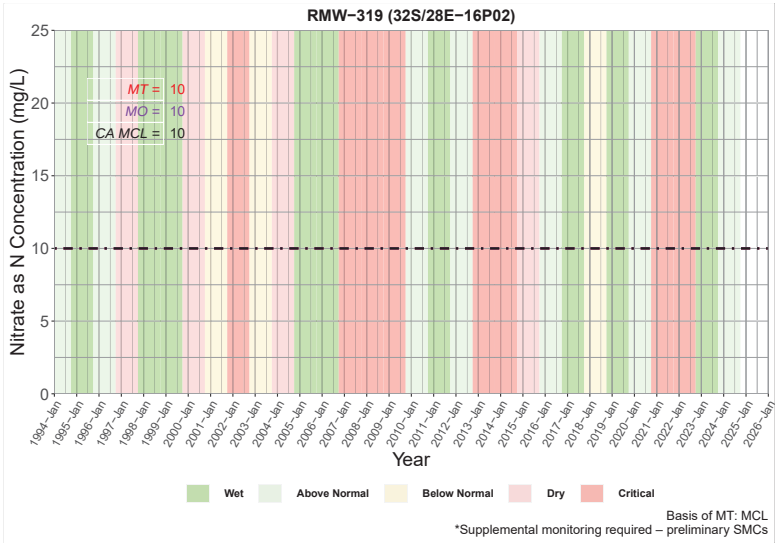


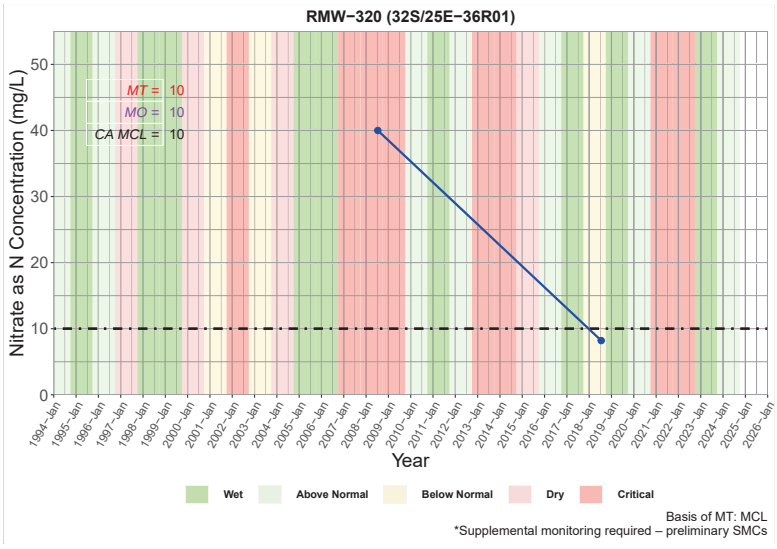
Basis of MT: MCL

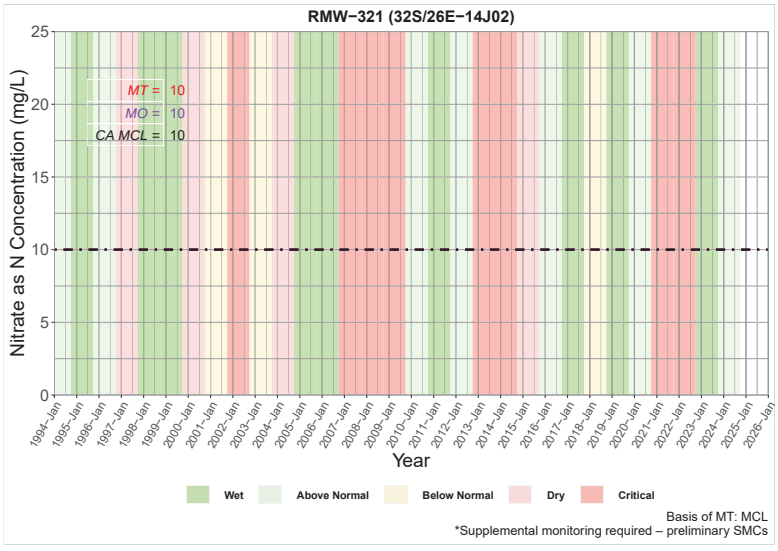
**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.

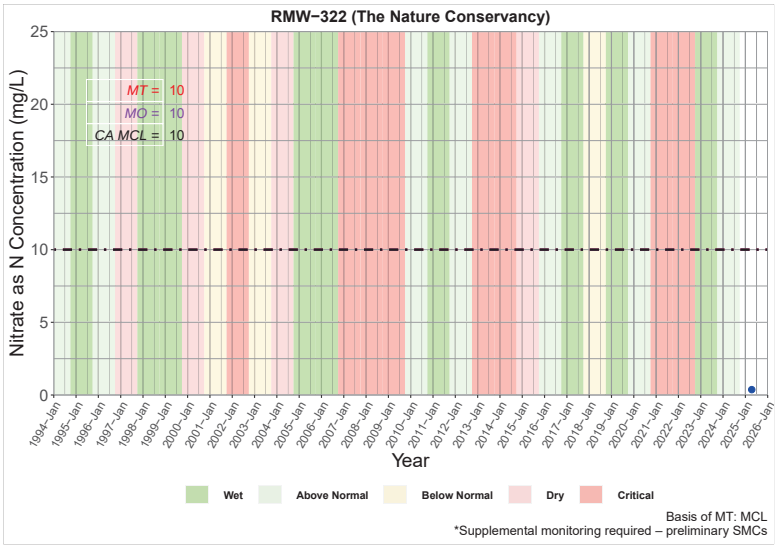

RMW−316 (WKWD 7−02, CA1510022_015_015)
Nitrate as N Concentration (mg/L)
MT = 10
MO = 10
CA MCL = 10
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

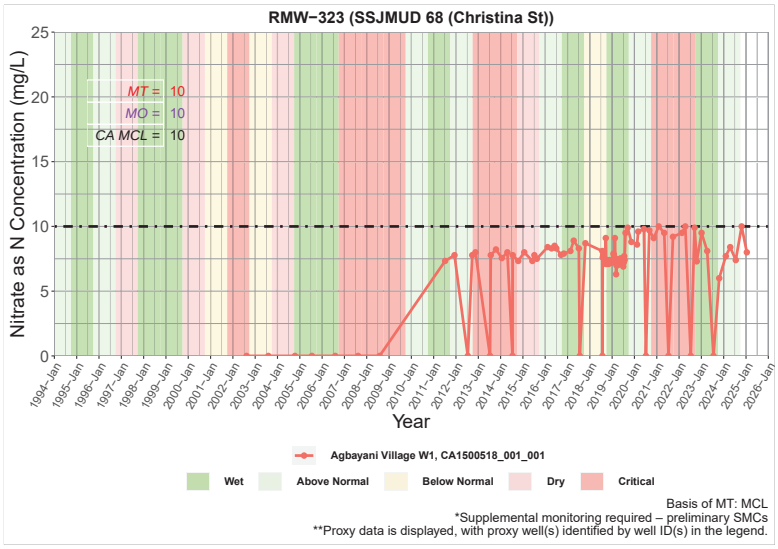

RMW−317 (WRMWSD 11N/21W−08A01)
Nitrate as N Concentration (mg/L)
MT = 10
MO = 10
CA MCL = 10
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL


RMW−319 (32S/28E−16P02)
Nitrate as N Concentration (mg/L)
MT = 10
MO = 10
CA MCL = 10
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs


RMW−320 (32S/25E−36R01)
Nitrate as N Concentration (mg/L)
MT = 10
MO = 10
CA MCL = 10
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs


RMW−321 (32S/26E−14J02)
Nitrate as N Concentration (mg/L)
MT = 10
MO = 10
CA MCL = 10
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs


RMW−322 (The Nature Conservancy)
Nitrate as N Concentration (mg/L)
MT = 10
MO = 10
CA MCL = 10
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

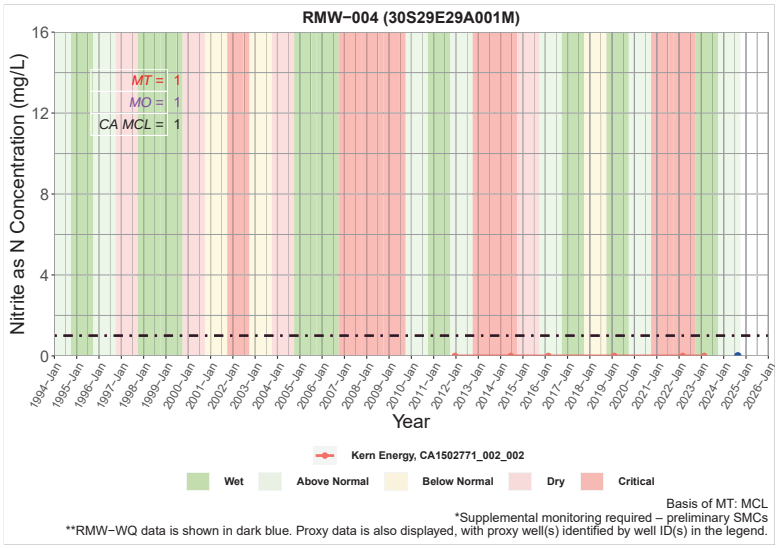


Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs
**Proxy data is displayed, with proxy well(s) identified by well ID(s) in the legend.

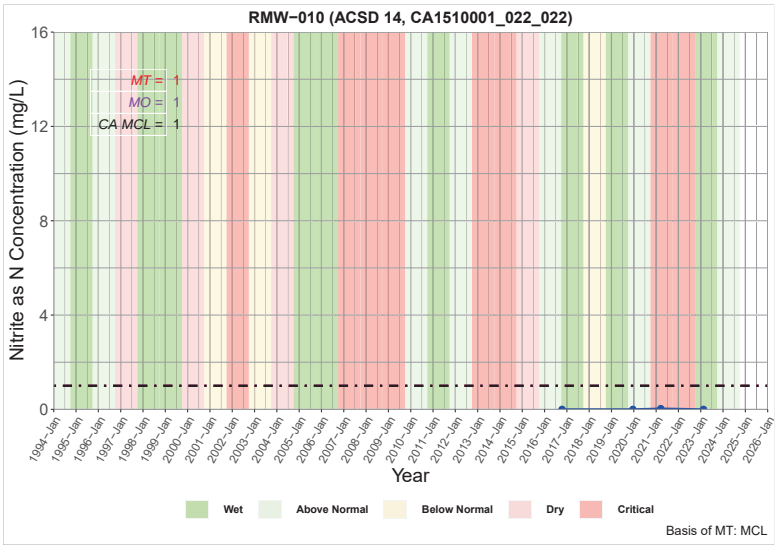
2025 Plan Appendix I-4:

Water Quality Representative Monitoring Well Chemographs

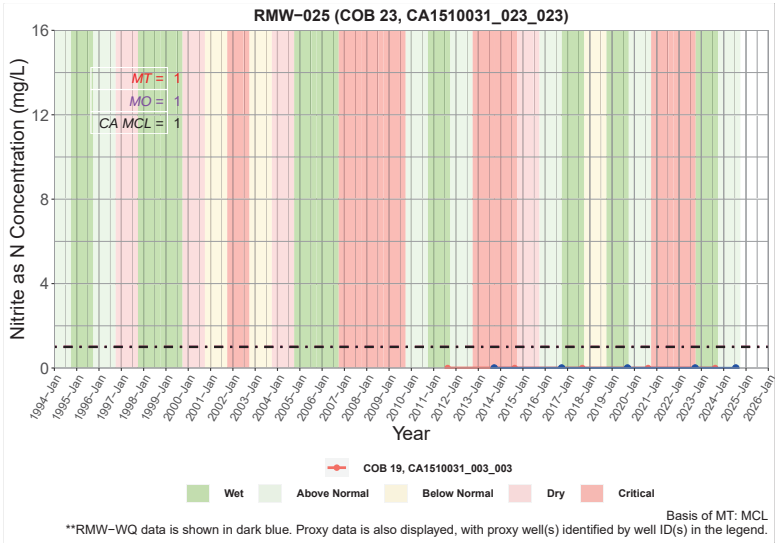
NITRITE



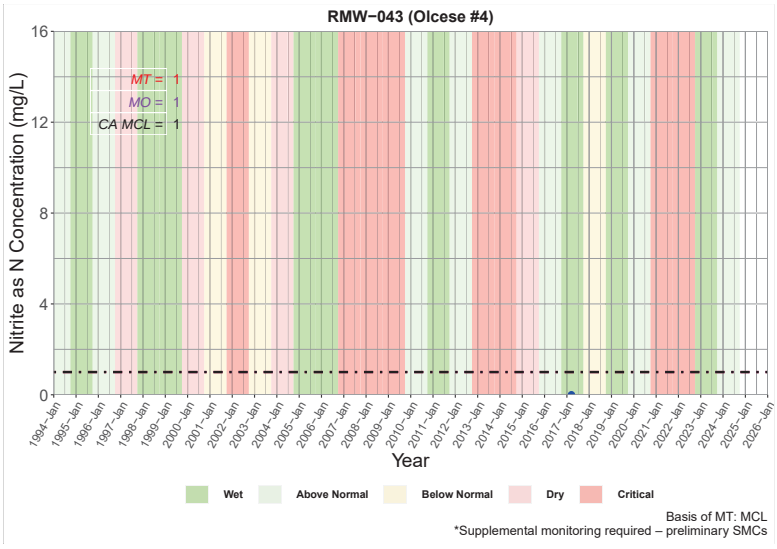
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs
**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.



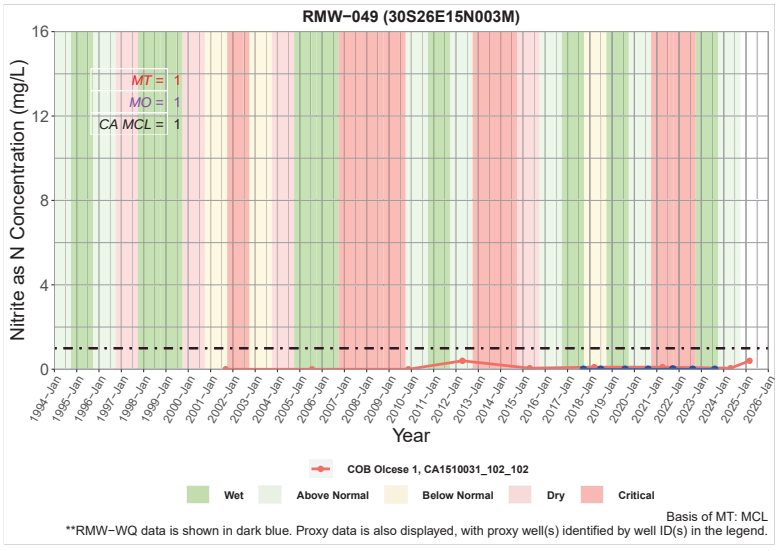
Basis of MT: MCL



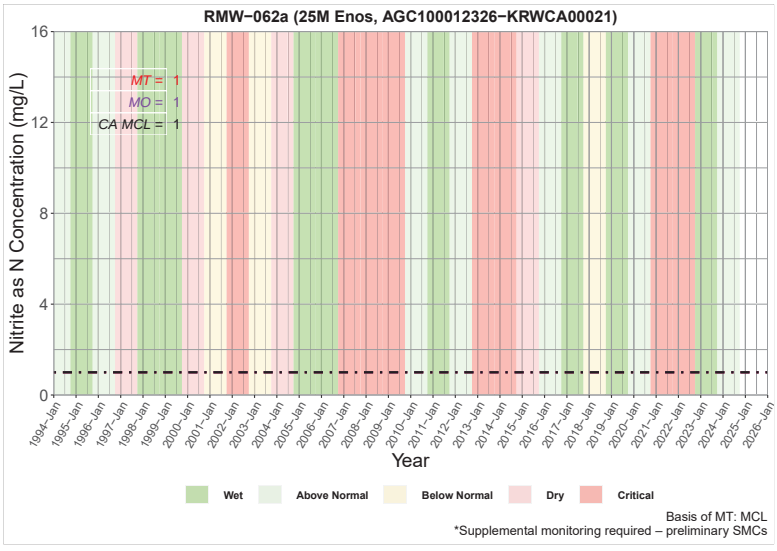
Basis of MT: MCL
**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.



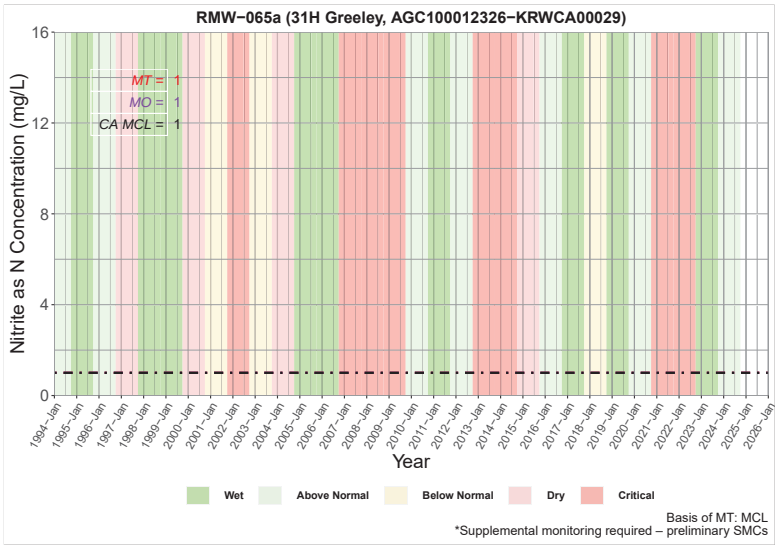
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

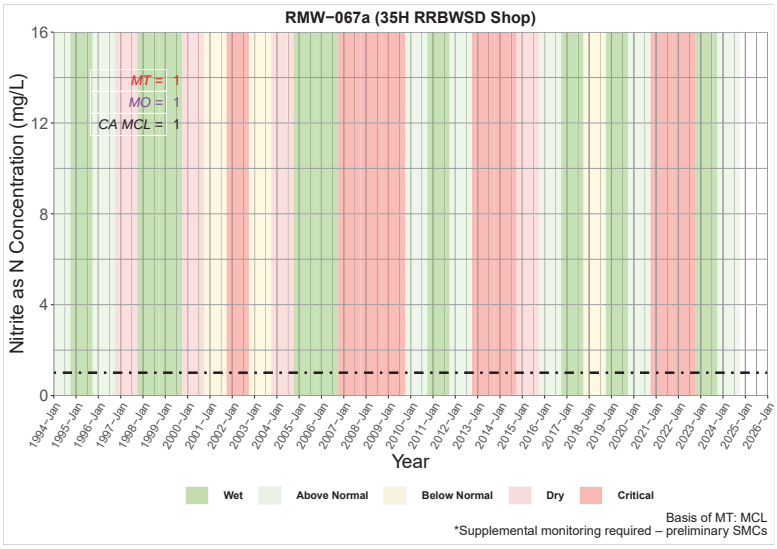


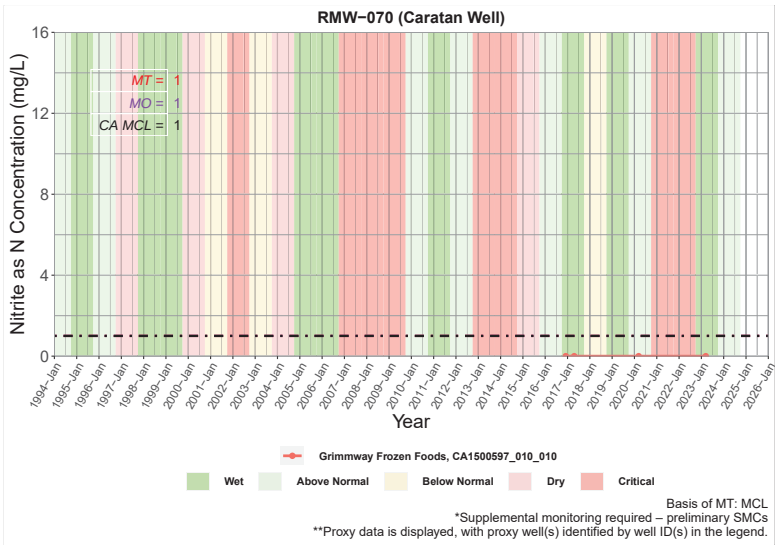
Basis of MT: MCL
**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.

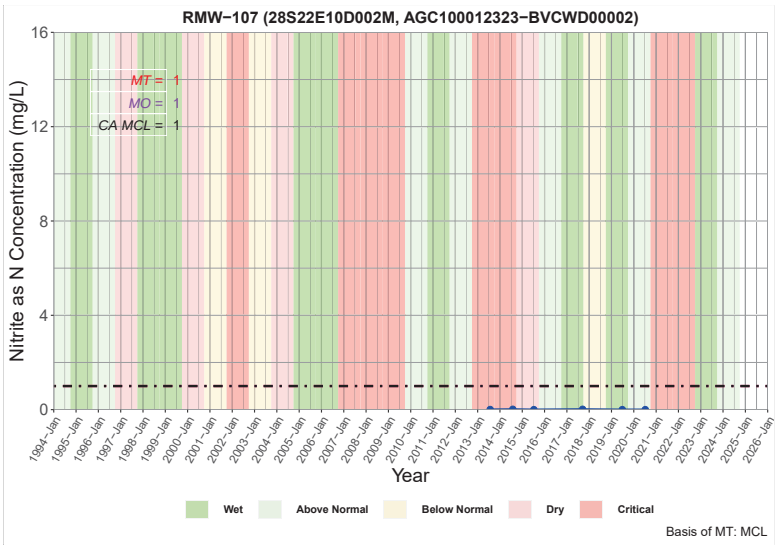


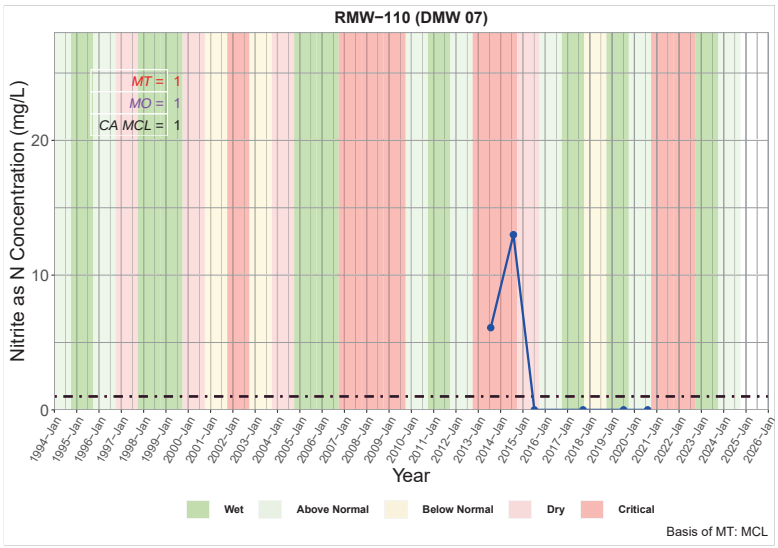
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

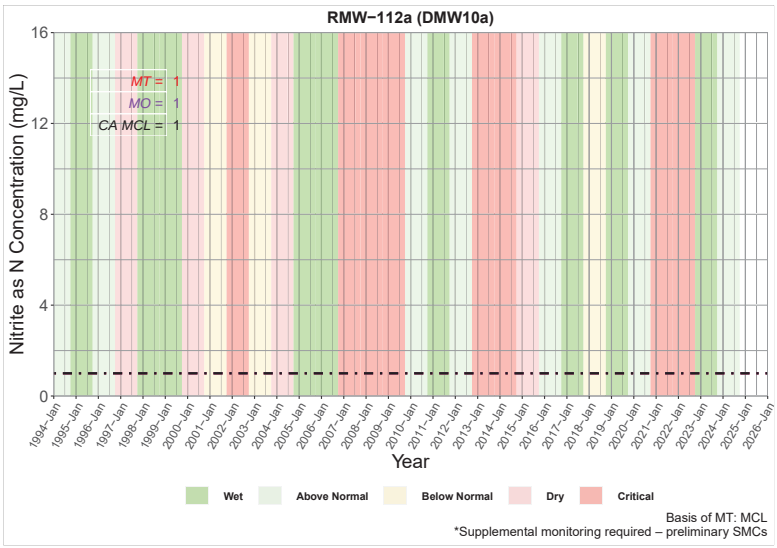

RMW−065a (31H Greeley, AGC100012326−KRWCA00029)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

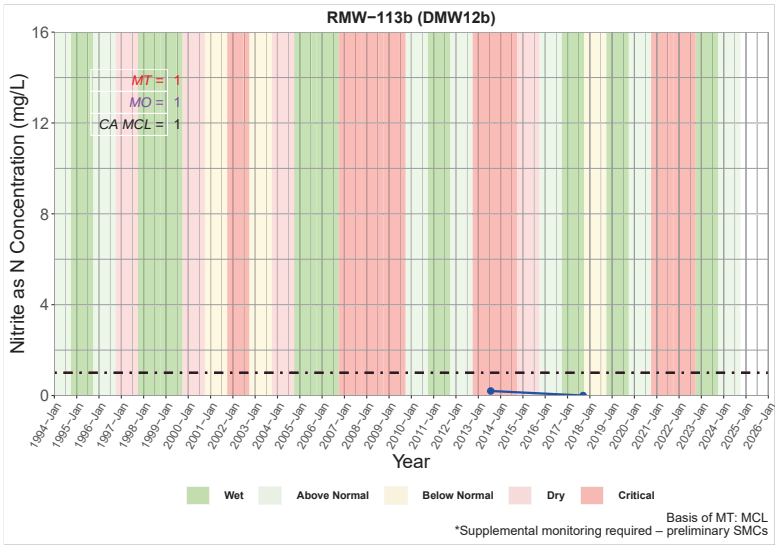

RMW−067a (35H RRBWSD Shop)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

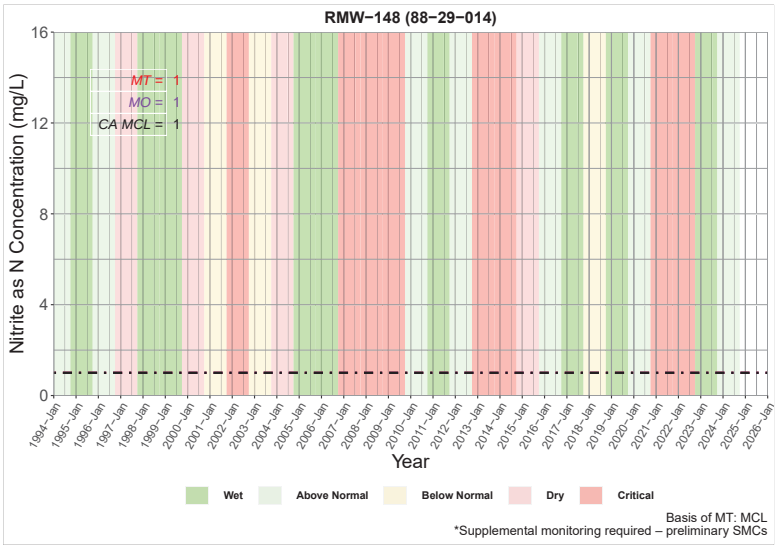

RMW−070 (Caratan Well)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
Grimmway Frozen Foods, CA1500597_010_010
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs
**Proxy data is displayed, with proxy well(s) identified by well ID(s) in the legend.

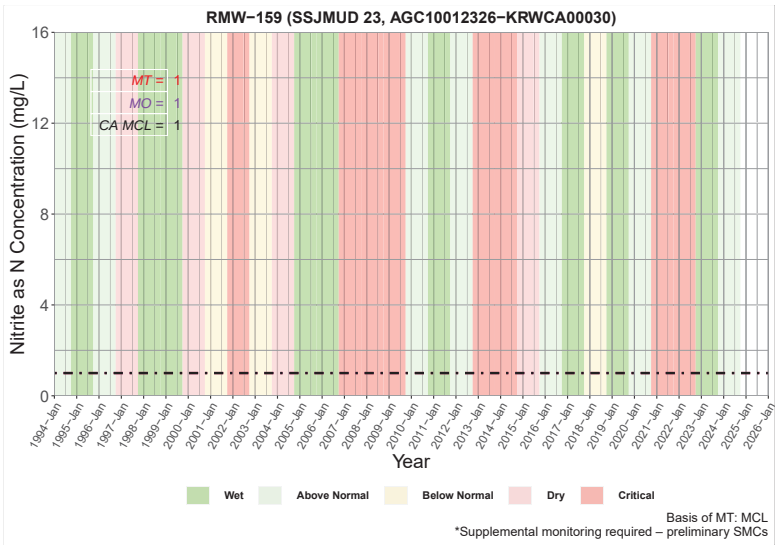

RMW−107 (28S22E10D002M, AGC100012323−BVCWD00002)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

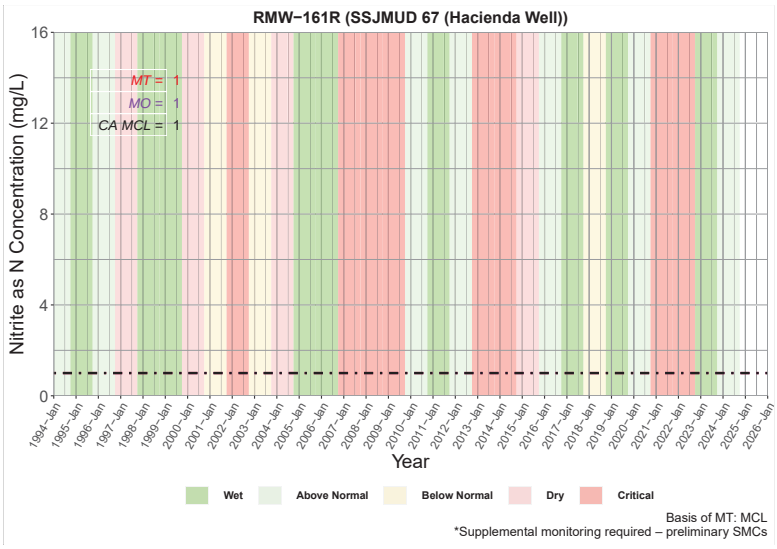

RMW−110 (DMW 07)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

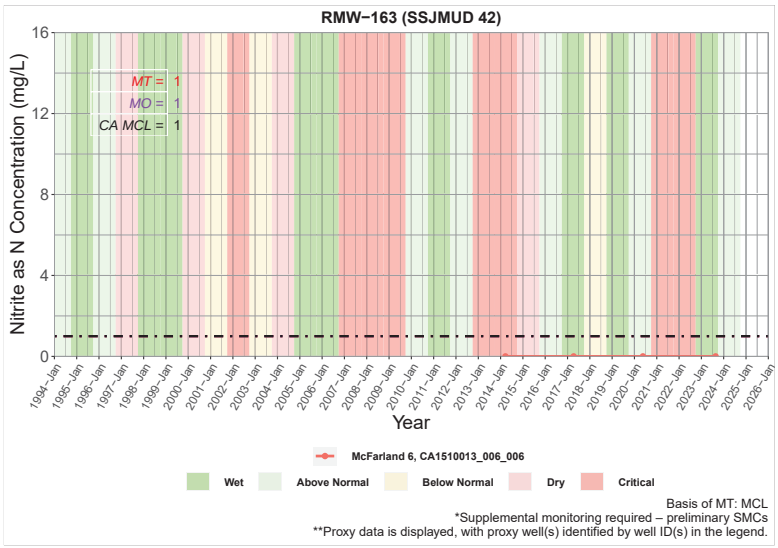

RMW−112a (DMW10a)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

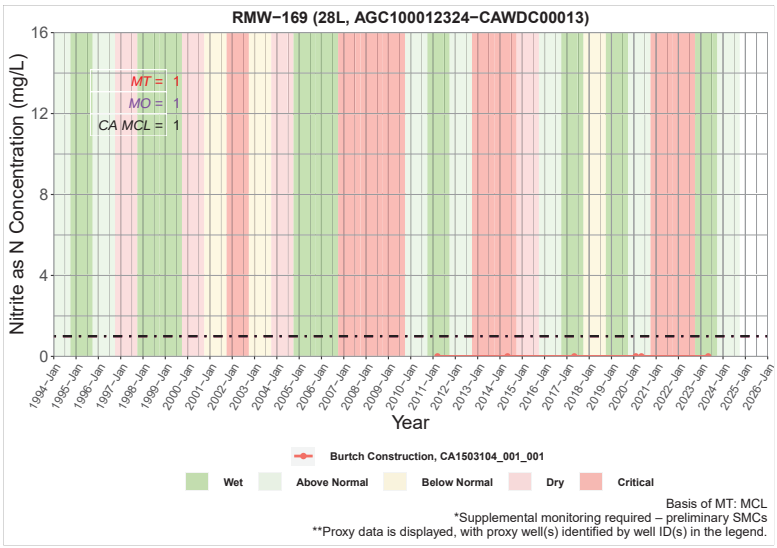

RMW−113b (DMW12b)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

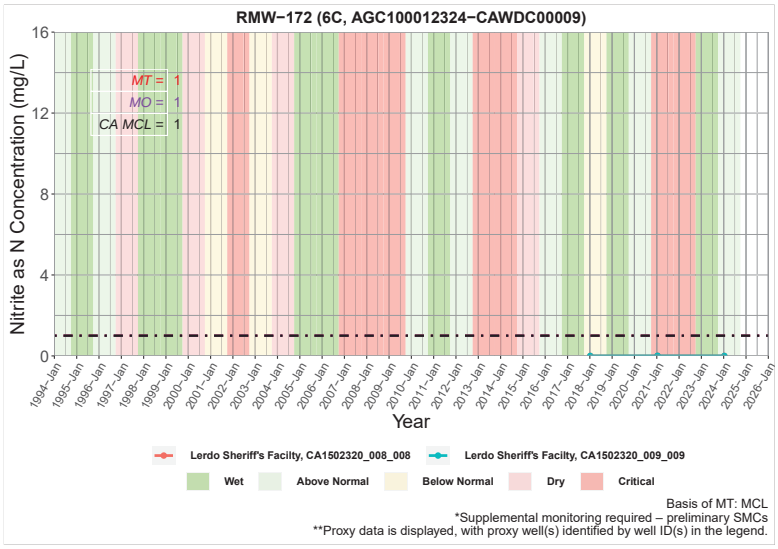

RMW−148 (88−29−014)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

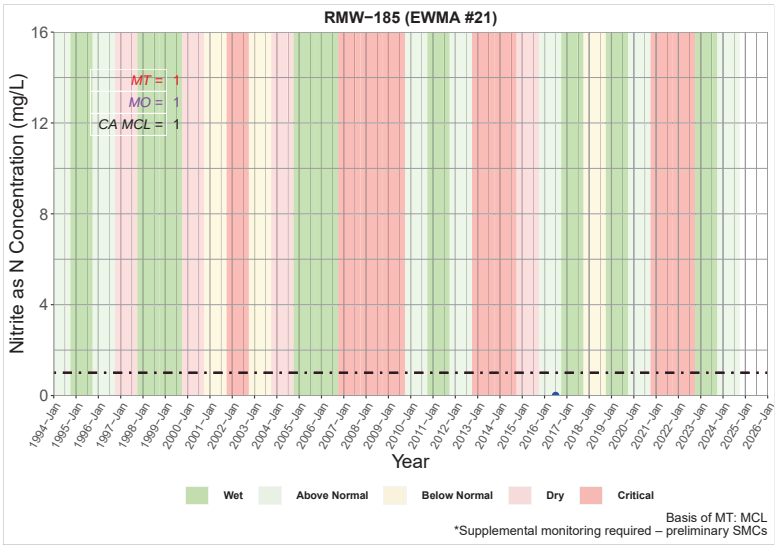

RMW−159 (SSJMUD 23, AGC10012326−KRWCA00030)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

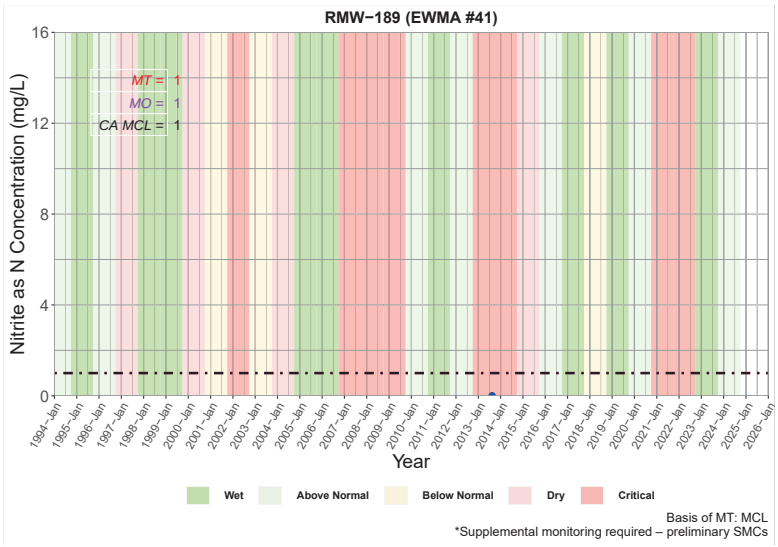

RMW−161R (SSJMUD 67 (Hacienda Well))
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

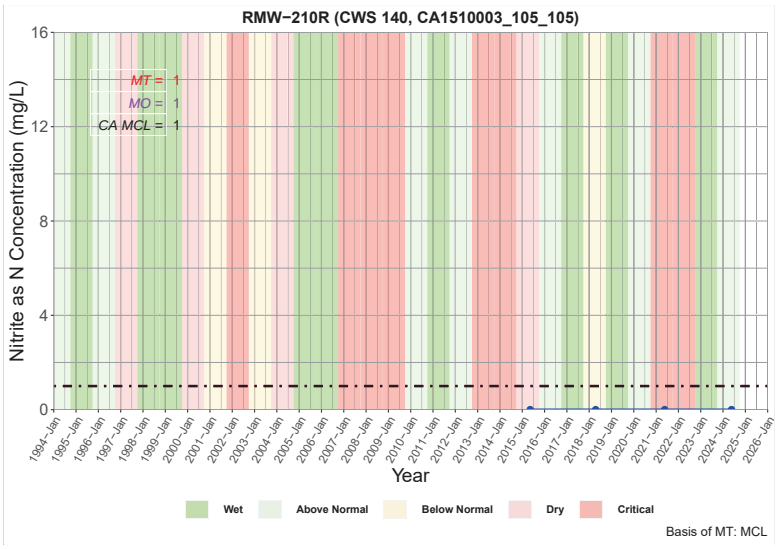

RMW−163 (SSJMUD 42)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
McFarland 6, CA1510013_006_006
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs
**Proxy data is displayed, with proxy well(s) identified by well ID(s) in the legend.

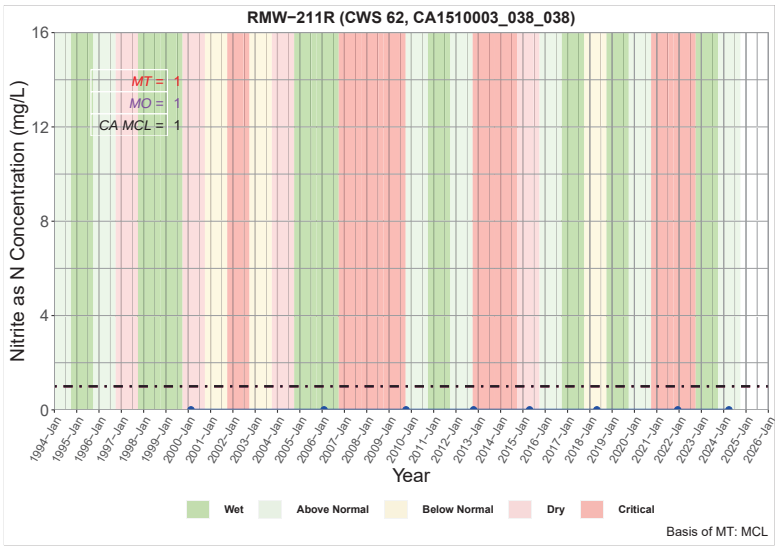

RMW−169 (28L, AGC100012324−CAWDC00013)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
Burtch Construction, CA1503104_001_001
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs
**Proxy data is displayed, with proxy well(s) identified by well ID(s) in the legend.

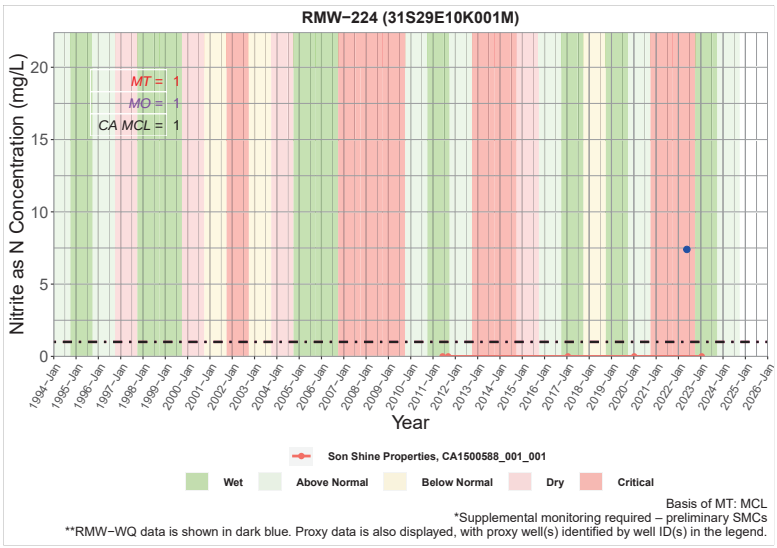

RMW−172 (6C, AGC100012324−CAWDC00009)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
Lerdo Sheriff's Facilty, CA1502320_008_008
Lerdo Sheriff's Facilty, CA1502320_009_009
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs
**Proxy data is displayed, with proxy well(s) identified by well ID(s) in the legend.

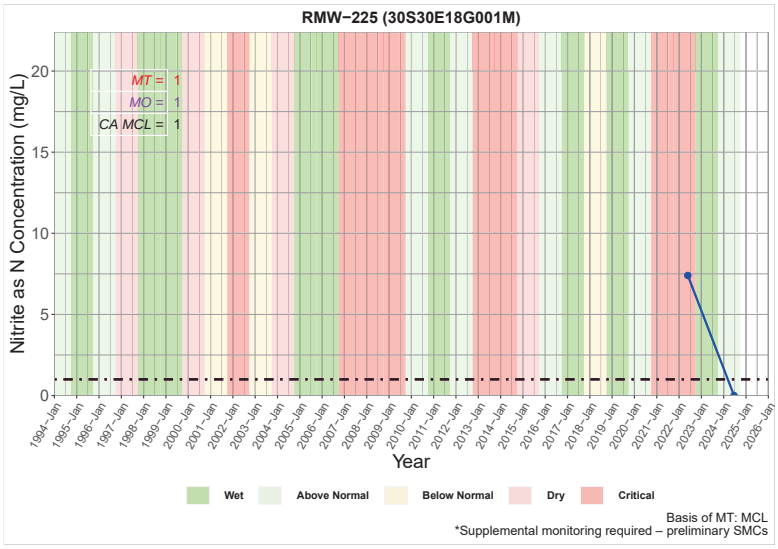

RMW−185 (EWMA #21)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

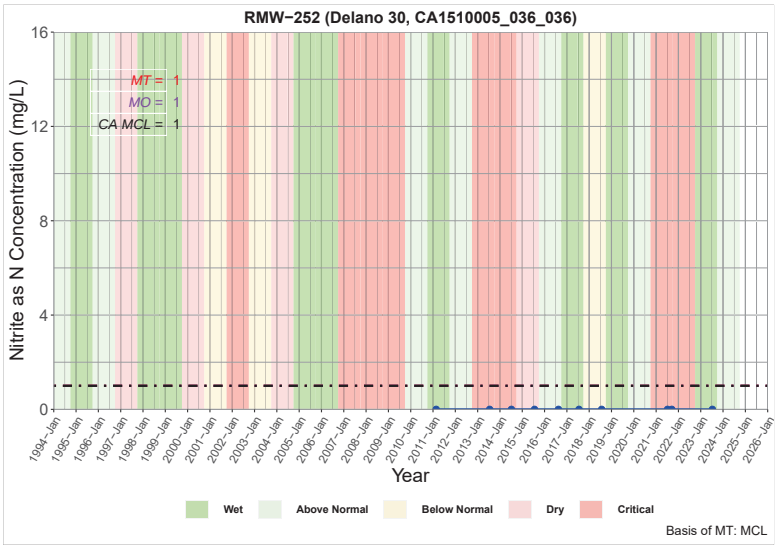

RMW−189 (EWMA #41)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

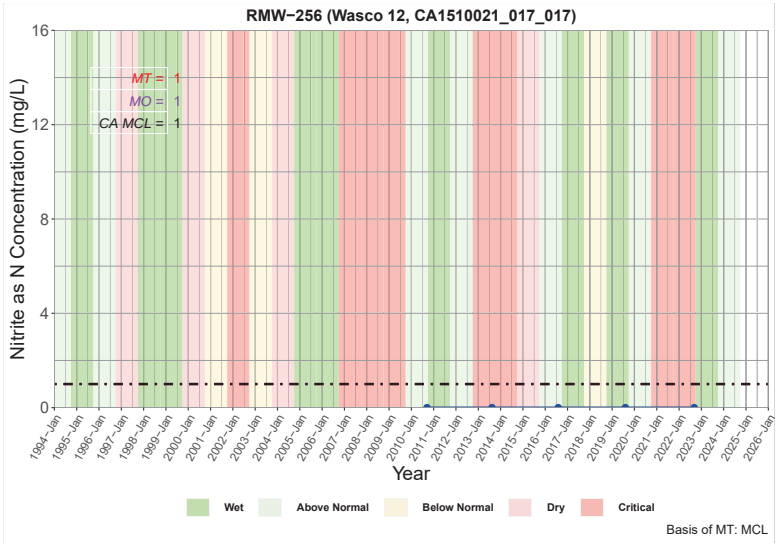

RMW−210R (CWS 140, CA1510003_105_105)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

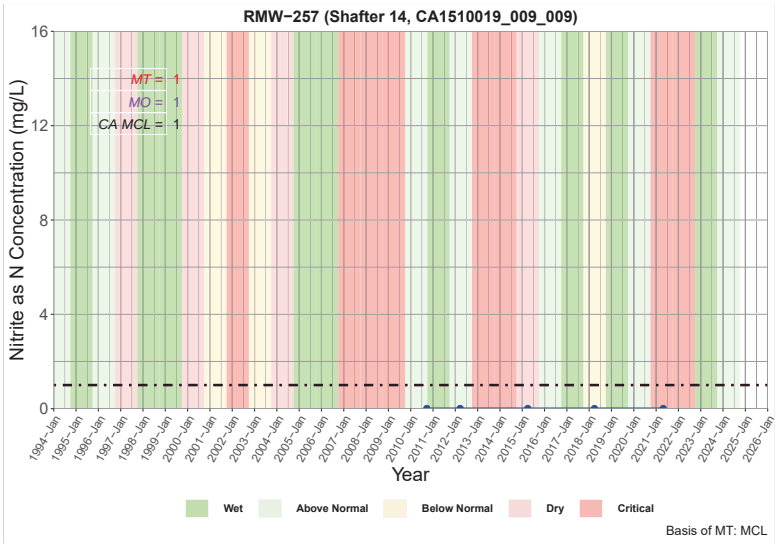

RMW−211R (CWS 62, CA1510003_038_038)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

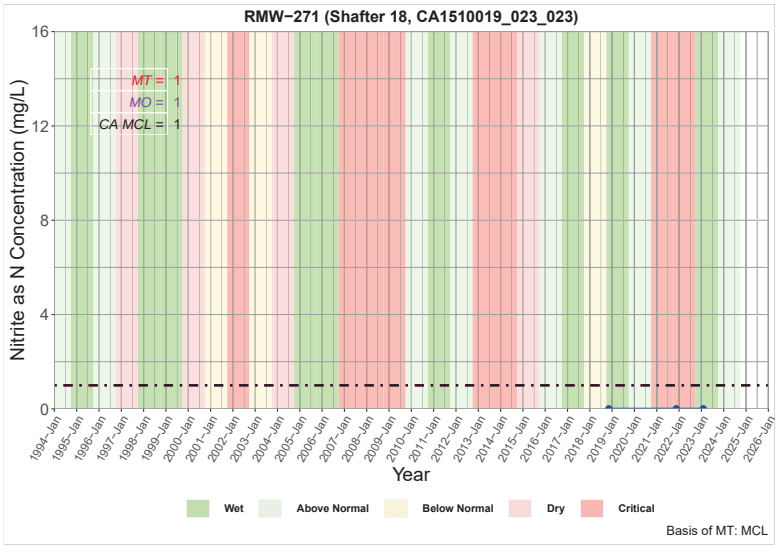

RMW−224 (31S29E10K001M)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
Son Shine Properties, CA1500588_001_001
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs
**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.

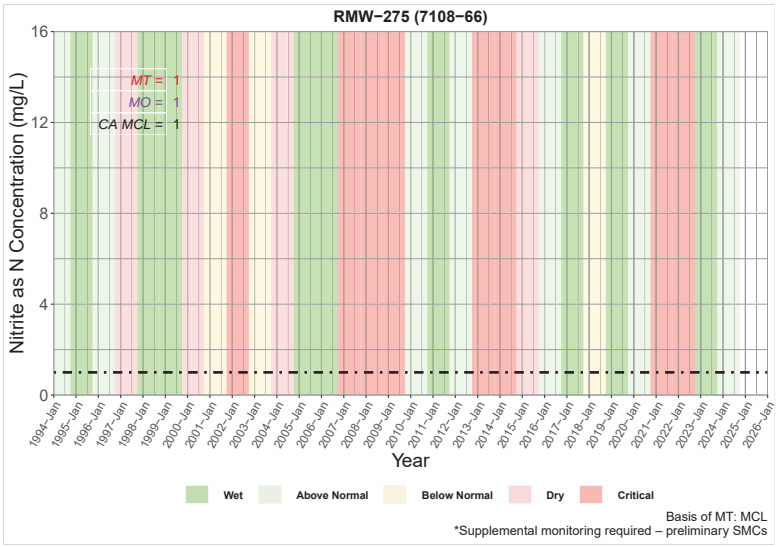

RMW−225 (30S30E18G001M)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

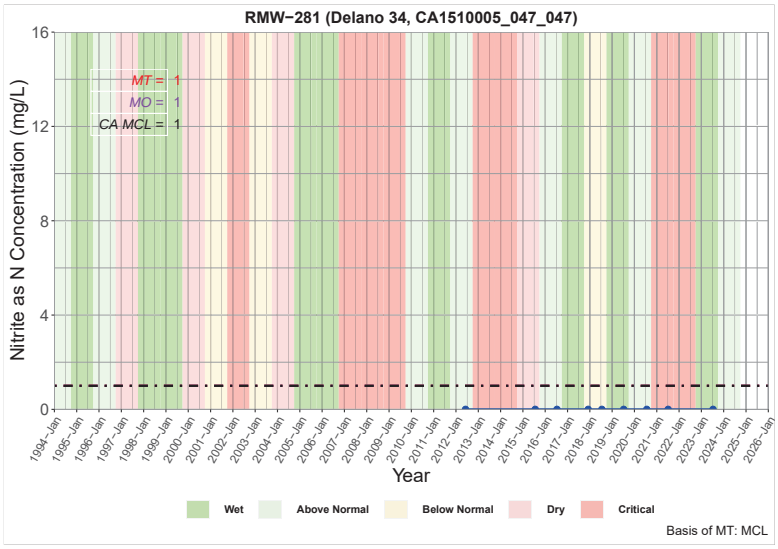

RMW−252 (Delano 30, CA1510005_036_036)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

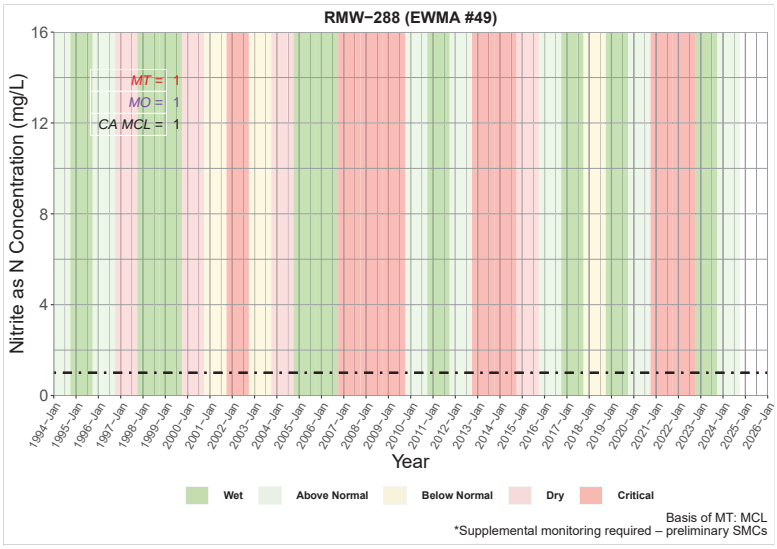

RMW−256 (Wasco 12, CA1510021_017_017)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

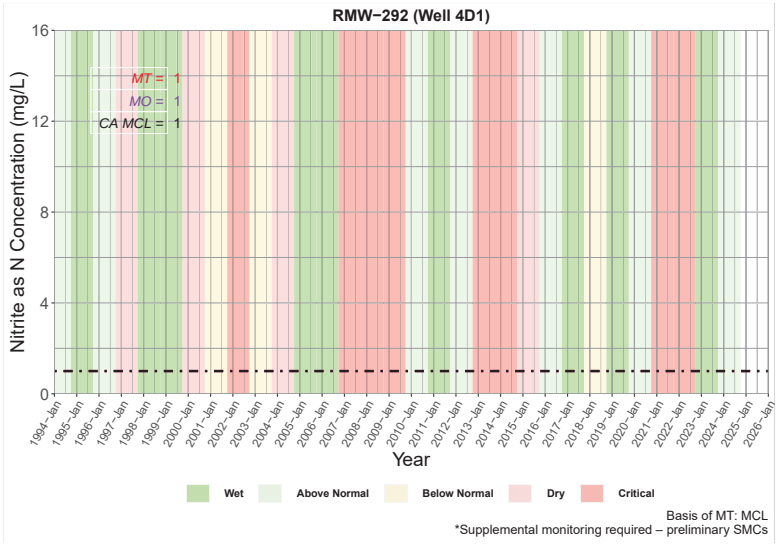

RMW−257 (Shafter 14, CA1510019_009_009)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

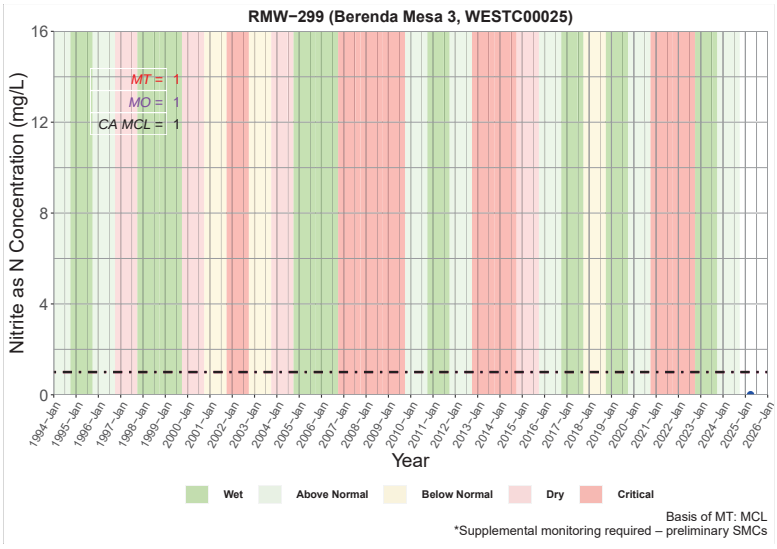

RMW−271 (Shafter 18, CA1510019_023_023)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

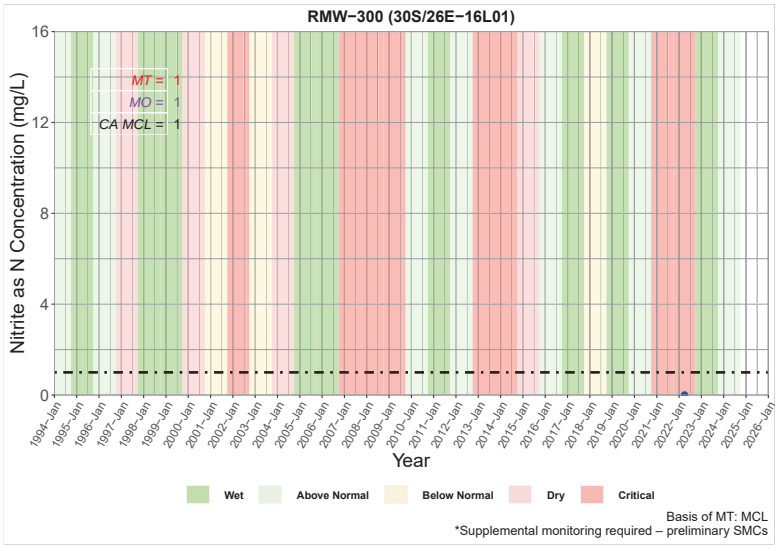

RMW−275 (7108−66)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

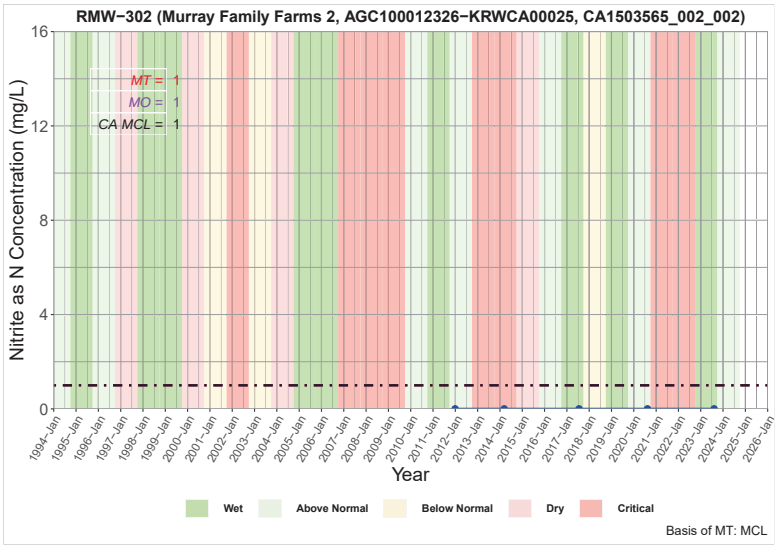

RMW−281 (Delano 34, CA1510005_047_047)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

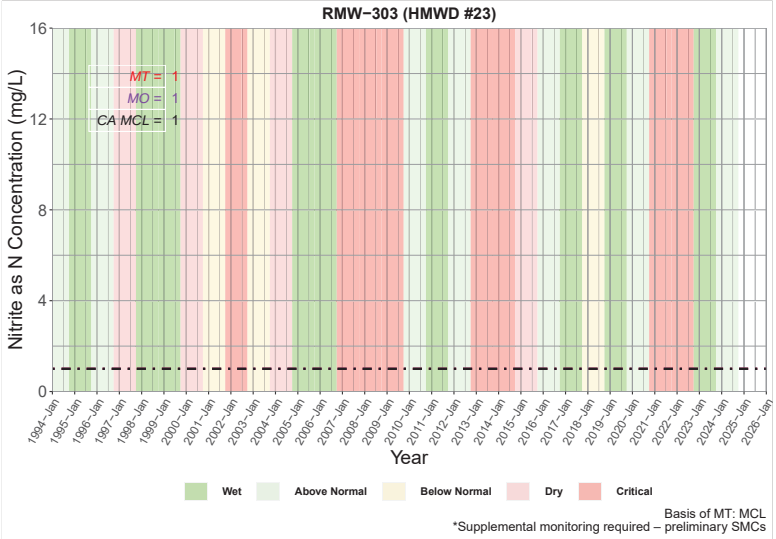

RMW−288 (EWMA #49)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

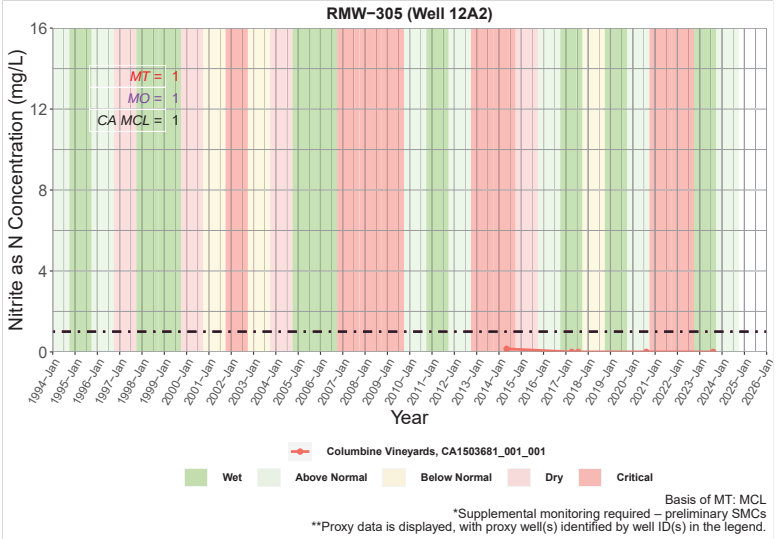

RMW−292 (Well 4D1)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

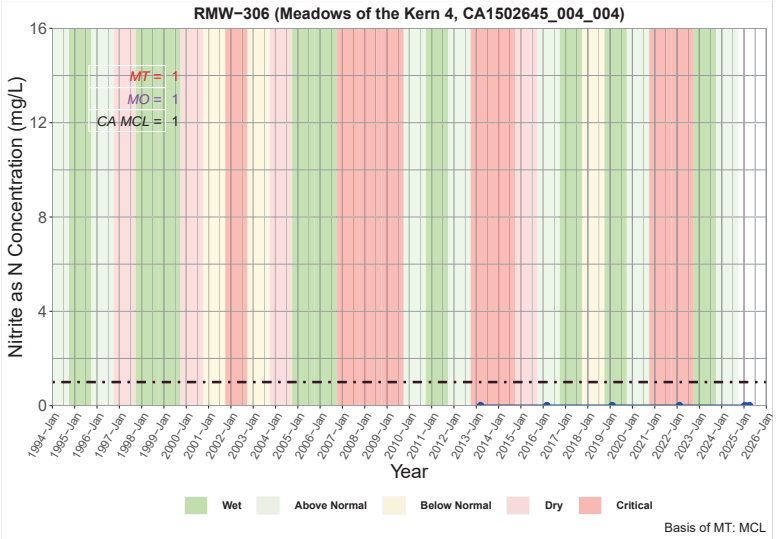

RMW−299 (Berenda Mesa 3, WESTC00025)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

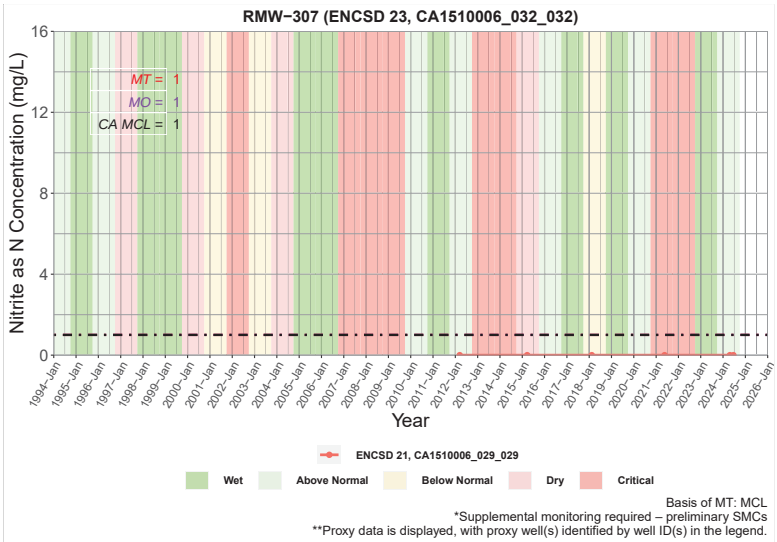

RMW−300 (30S/26E−16L01)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

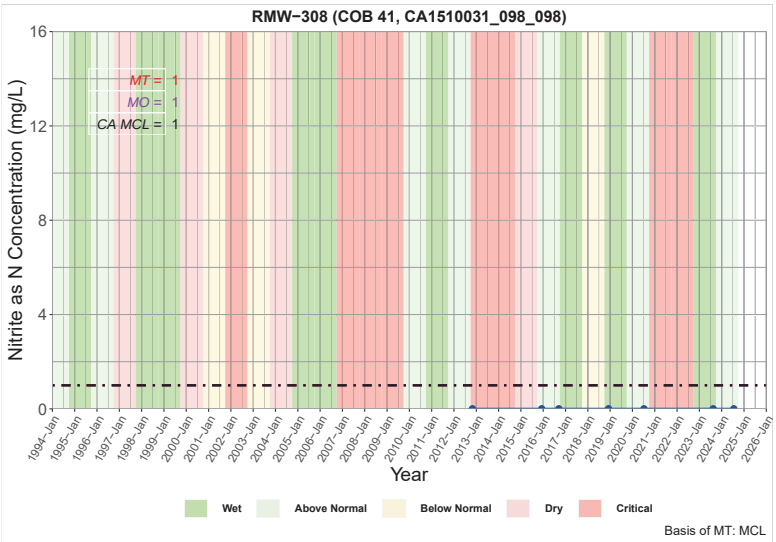

RMW−302 (Murray Family Farms 2, AGC100012326−KRWCA00025, CA1503565_002_002)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

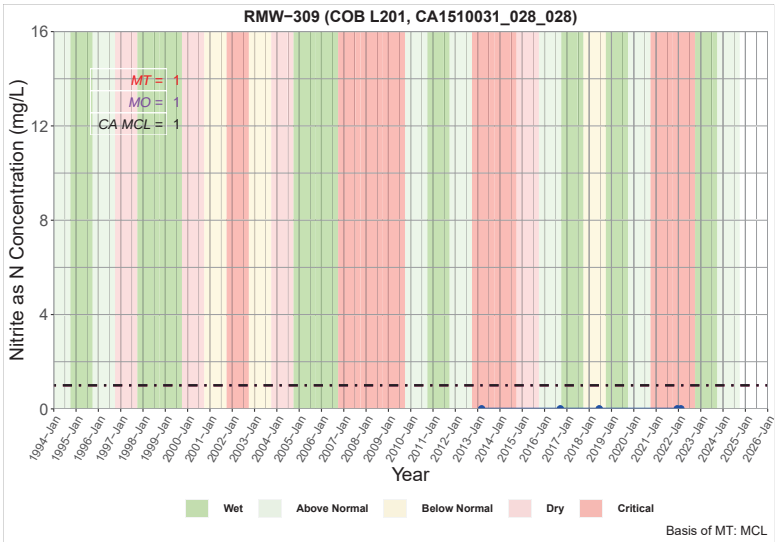

RMW−303 (HMWD #23)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

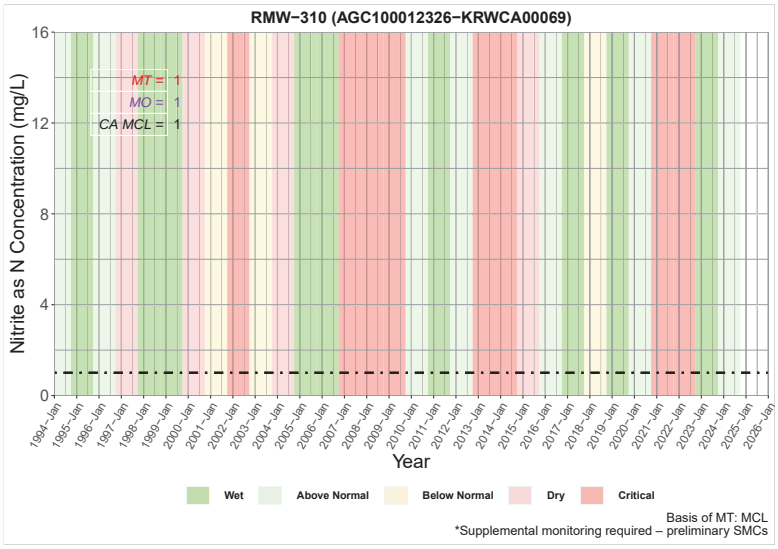

RMW−305 (Well 12A2)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
Columbine Vineyards, CA1503681_001_001
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs
**Proxy data is displayed, with proxy well(s) identified by well ID(s) in the legend.

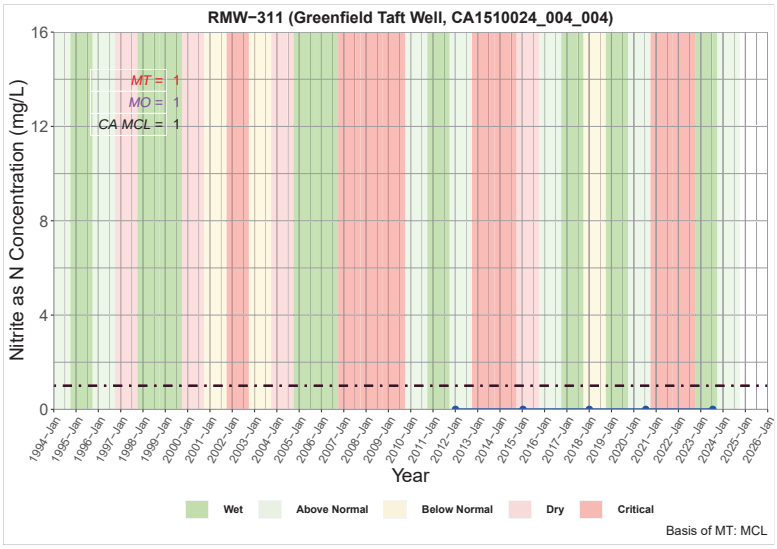

RMW−306 (Meadows of the Kern 4, CA1502645_004_004)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

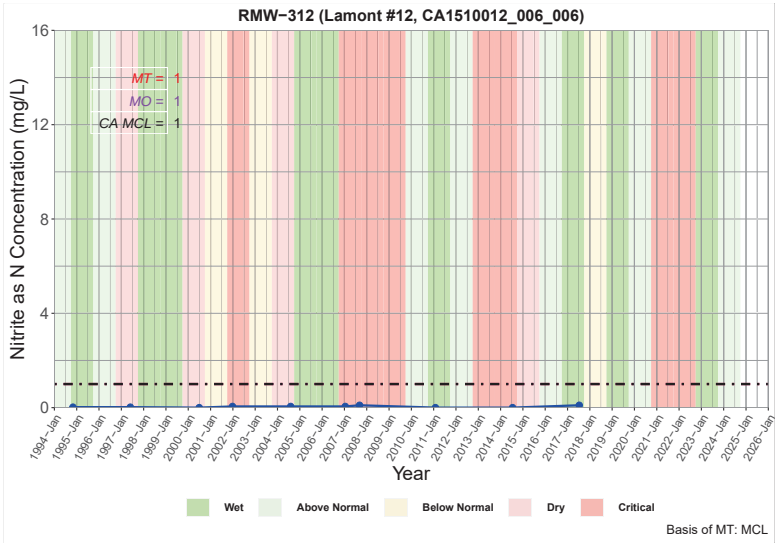

RMW−307 (ENCSD 23, CA1510006_032_032)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
ENCSD 21, CA1510006_029_029
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs
**Proxy data is displayed, with proxy well(s) identified by well ID(s) in the legend.

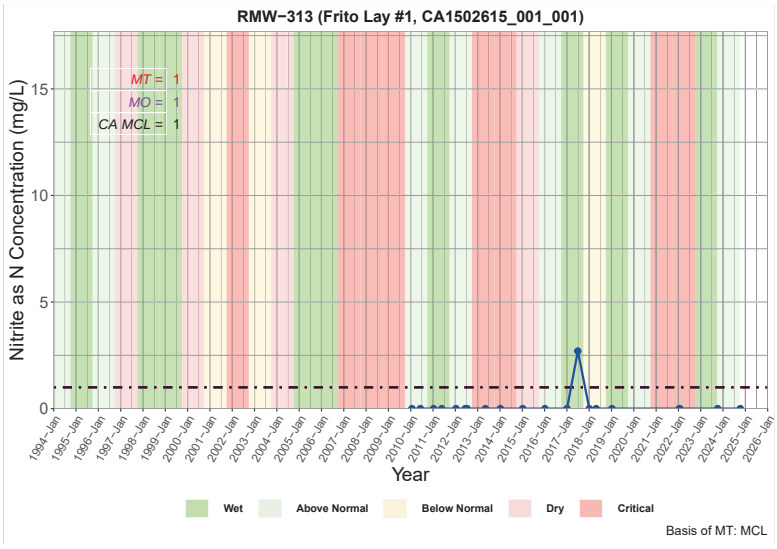

RMW−308 (COB 41, CA1510031_098_098)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

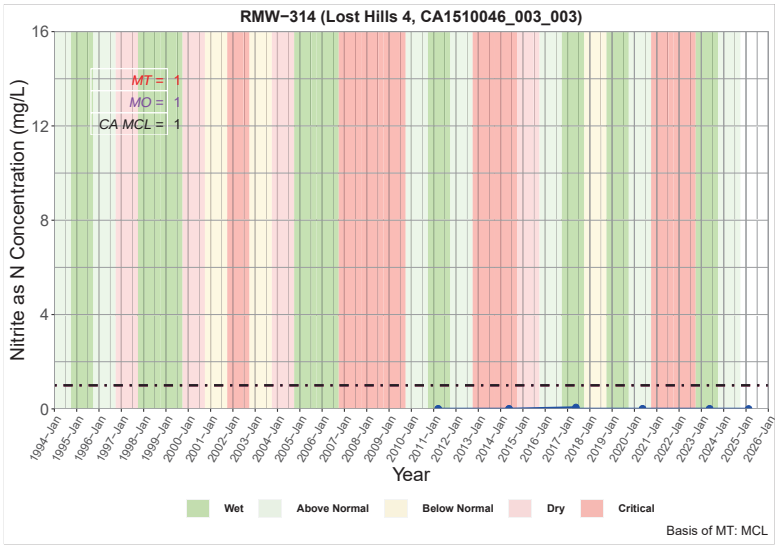

RMW−309 (COB L201, CA1510031_028_028)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

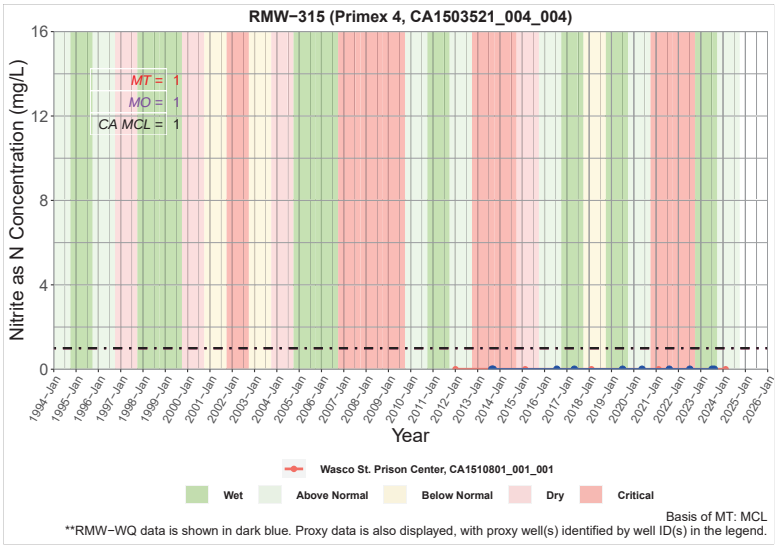

RMW−310 (AGC100012326−KRWCA00069)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

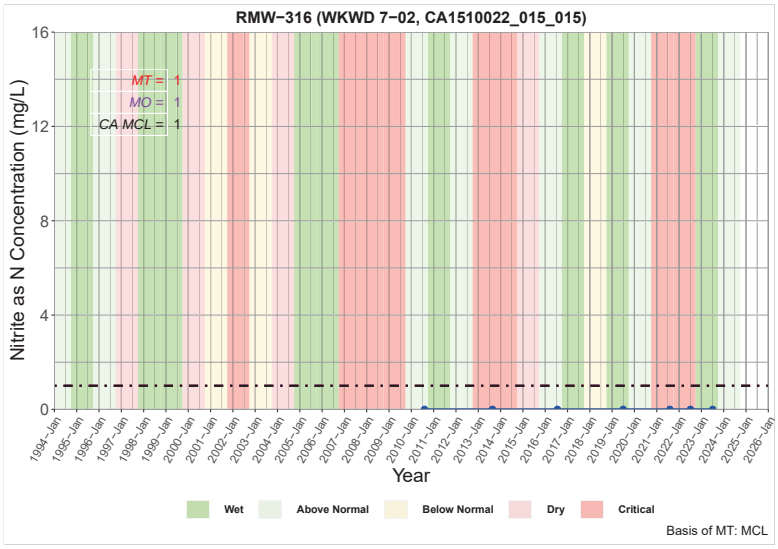

RMW−311 (Greenfield Taft Well, CA1510024_004_004)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

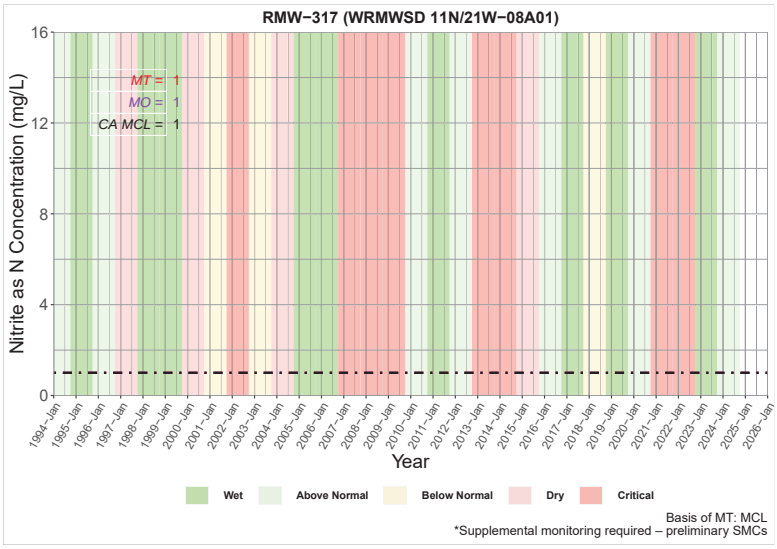

RMW−312 (Lamont #12, CA1510012_006_006)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

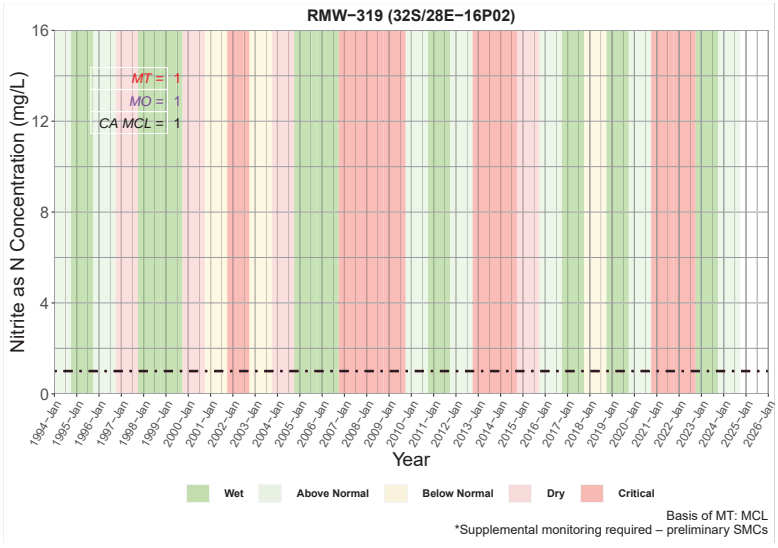

RMW−313 (Frito Lay #1, CA1502615_001_001)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

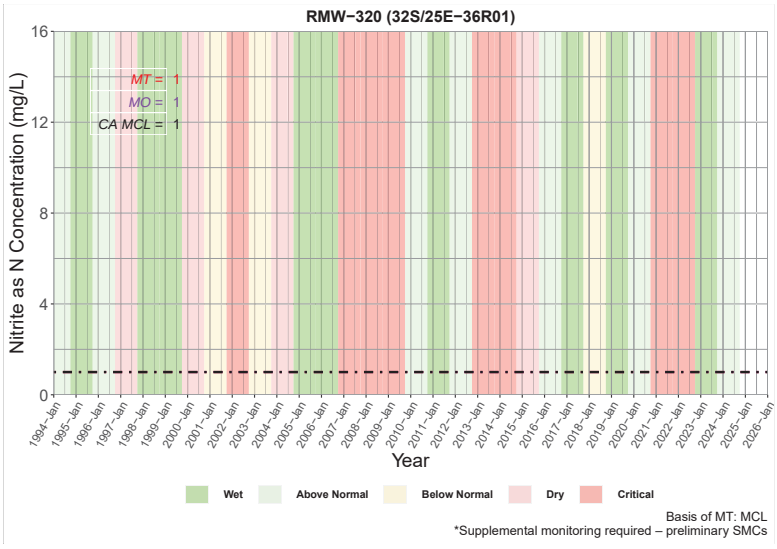

RMW−314 (Lost Hills 4, CA1510046_003_003)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

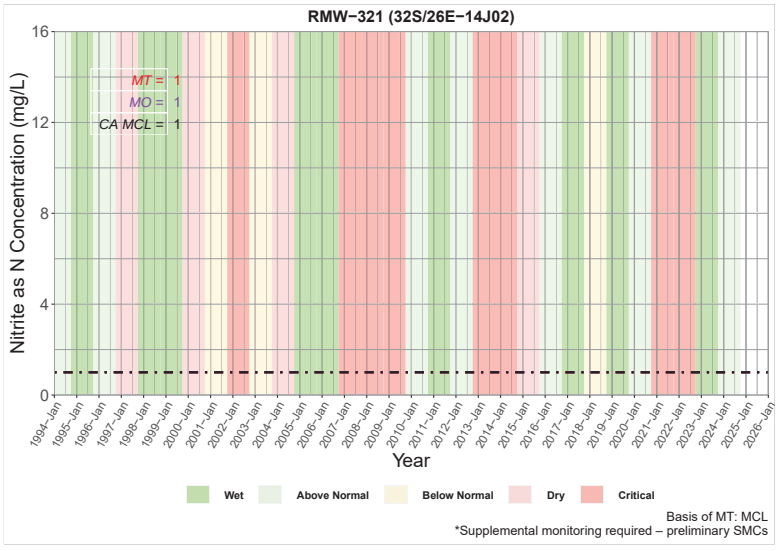

RMW−315 (Primex 4, CA1503521_004_004)
Nitrite as N Concentration (mg/L)
MT = 1
MO = 1
CA MCL = 1
Year
Wasco St. Prison Center, CA1510801_001_001
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.

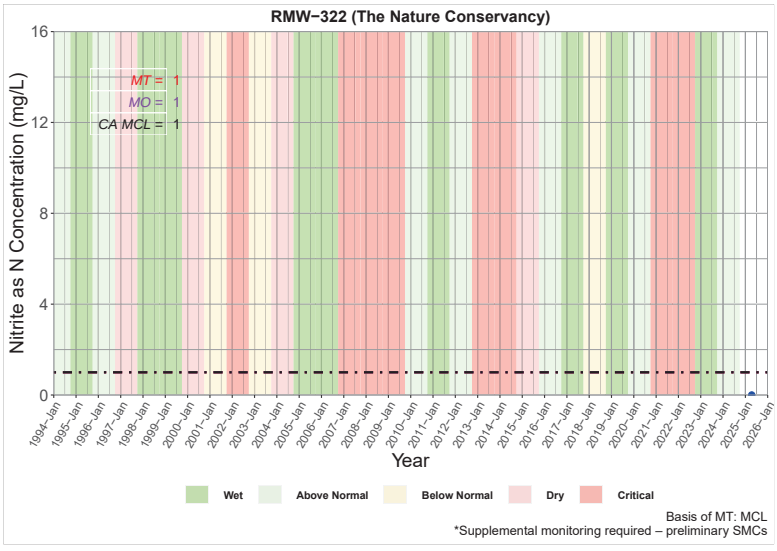

RMW−316 (WKWD 7−02, CA1510022_015_015)
MT = 1
MO = 1
CA MCL = 1
Nitrite as N Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

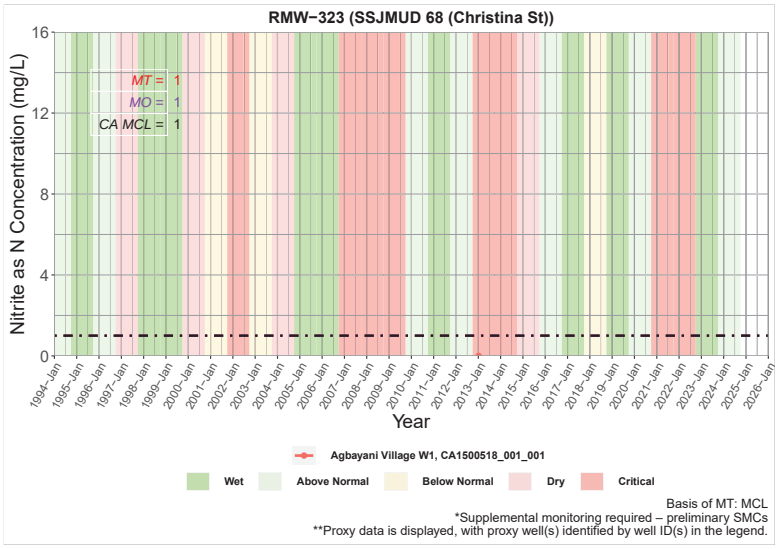

RMW−317 (WRMWSD 11N/21W−08A01)
MT = 1
MO = 1
CA MCL = 1
Nitrite as N Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs


RMW−319 (32S/28E−16P02)
MT = 1
MO = 1
CA MCL = 1
Nitrite as N Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs


RMW−320 (32S/25E−36R01)
MT = 1
MO = 1
CA MCL = 1
Nitrite as N Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs


RMW−321 (32S/26E−14J02)
MT = 1
MO = 1
CA MCL = 1
Nitrite as N Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs


RMW−322 (The Nature Conservancy)
MT = 1
MO = 1
CA MCL = 1
Nitrite as N Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

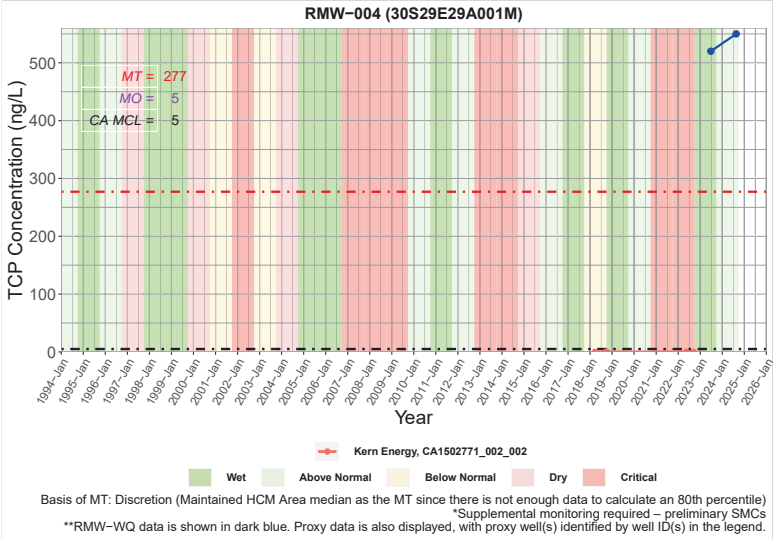


Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs
**Proxy data is displayed, with proxy well(s) identified by well ID(s) in the legend.

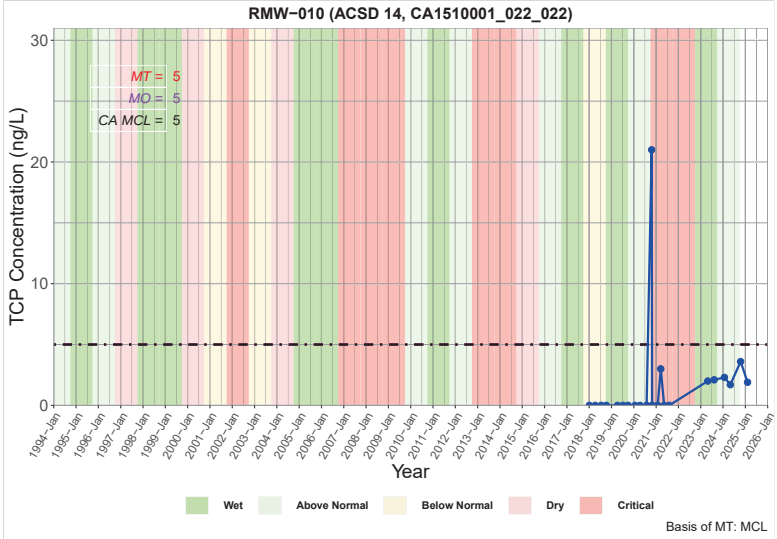
2025 Plan Appendix I-4:

Water Quality Representative Monitoring Well Chemographs

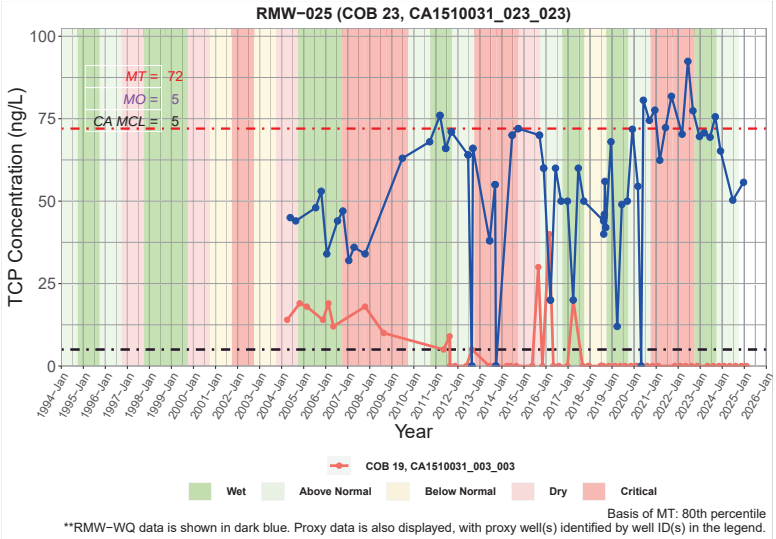
1,2,3-TRICHLOROPROPANE (TCP)



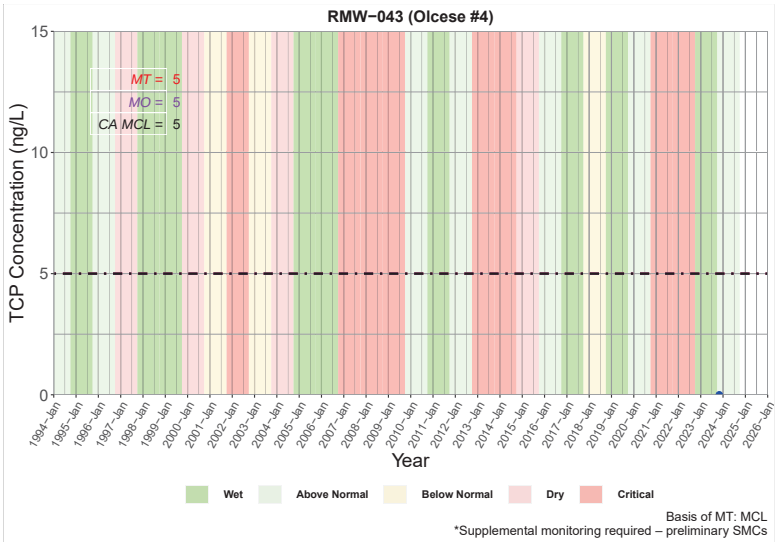
Basis of MT: Discretion (Maintained HCM Area median as the MT since there is not enough data to calculate an 80th percentile)
*Supplemental monitoring required – preliminary SMCs
**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.



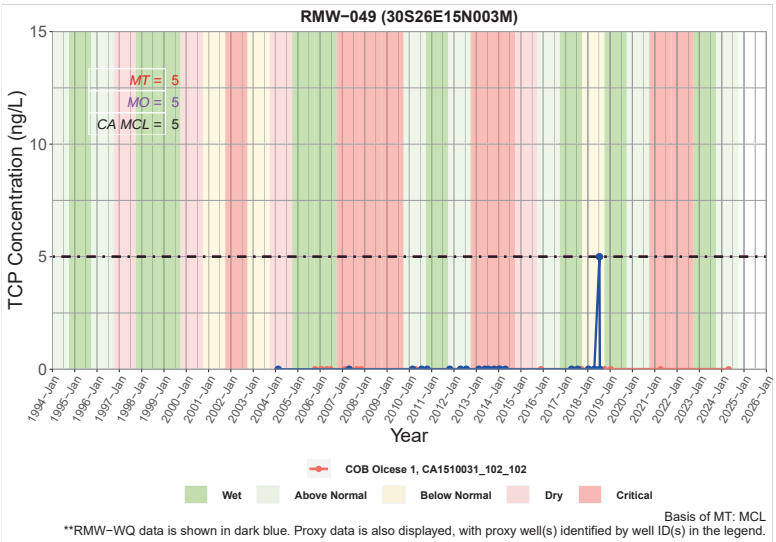
Basis of MT: MCL



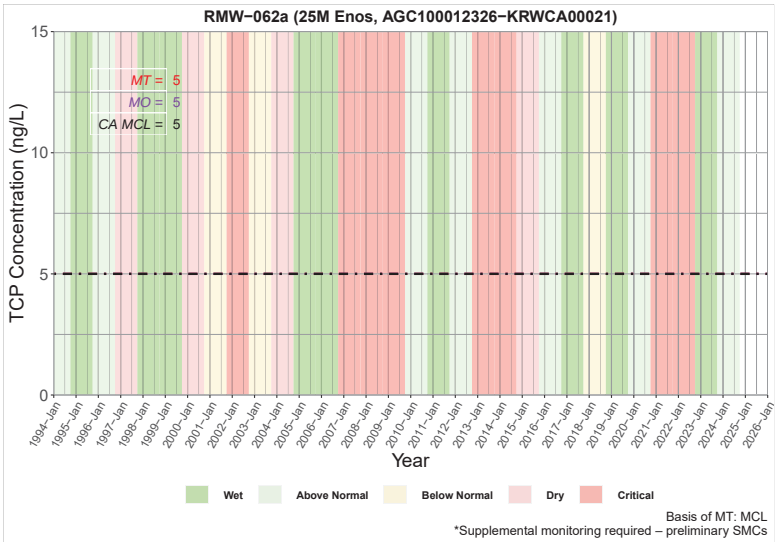
Basis of MT: 80th percentile
**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.



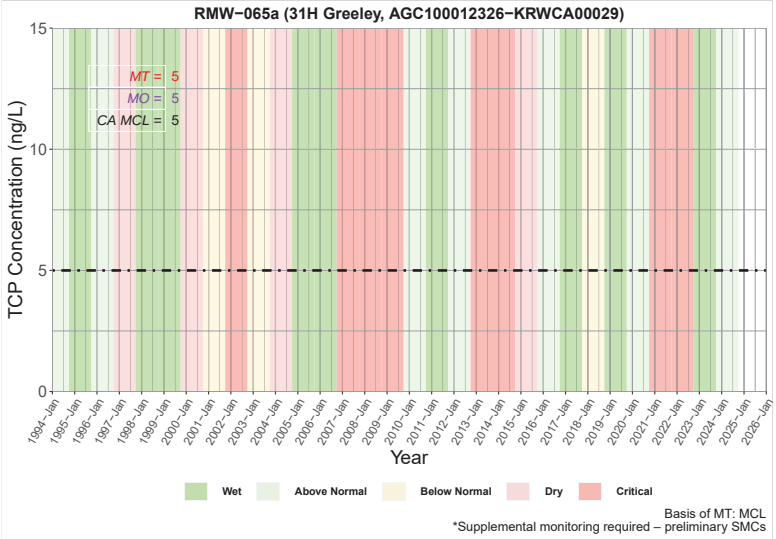
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

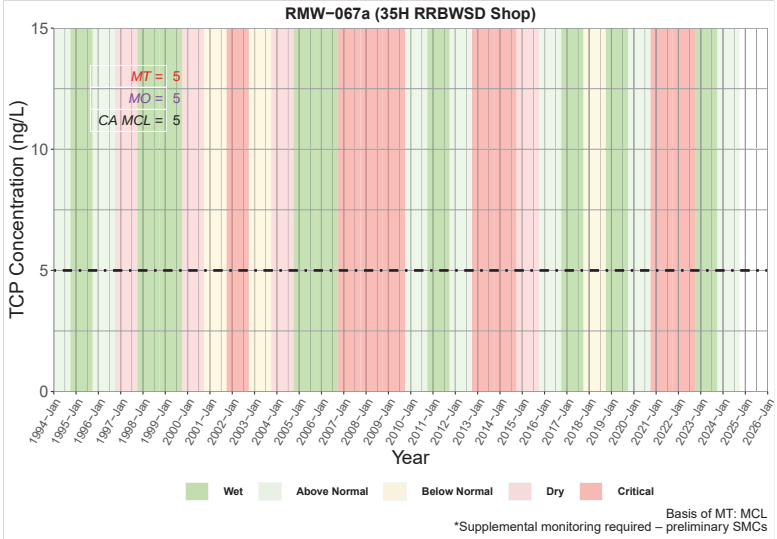


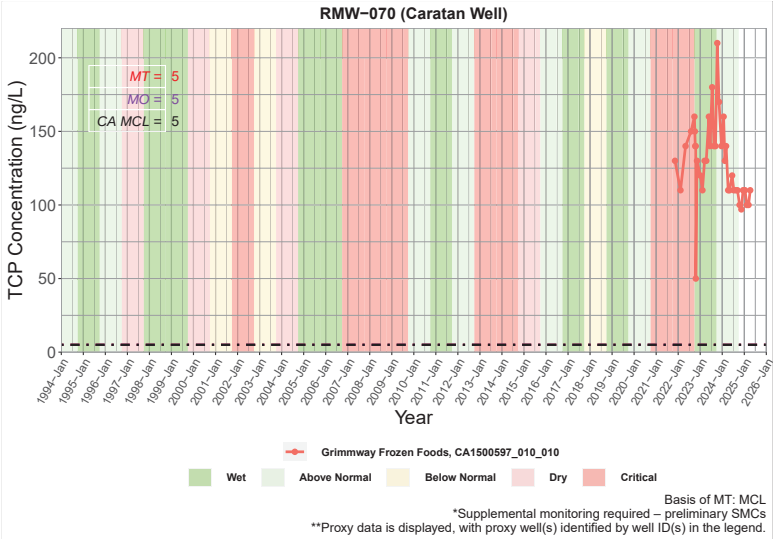
Basis of MT: MCL
**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.

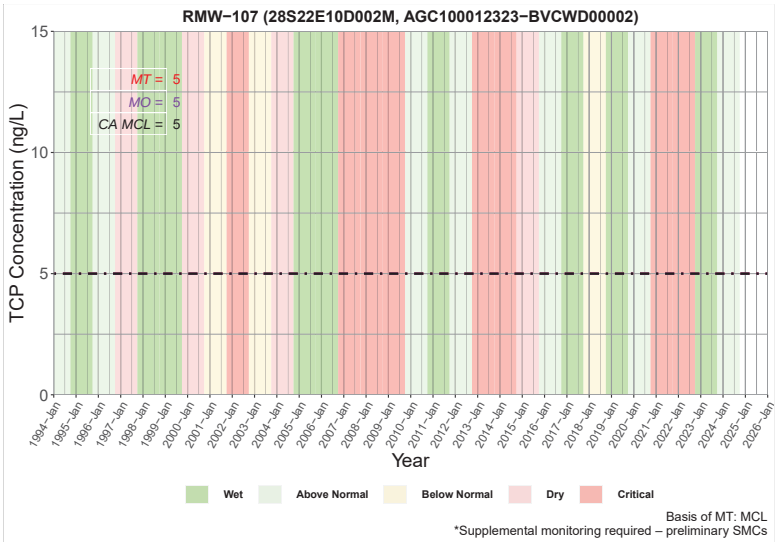


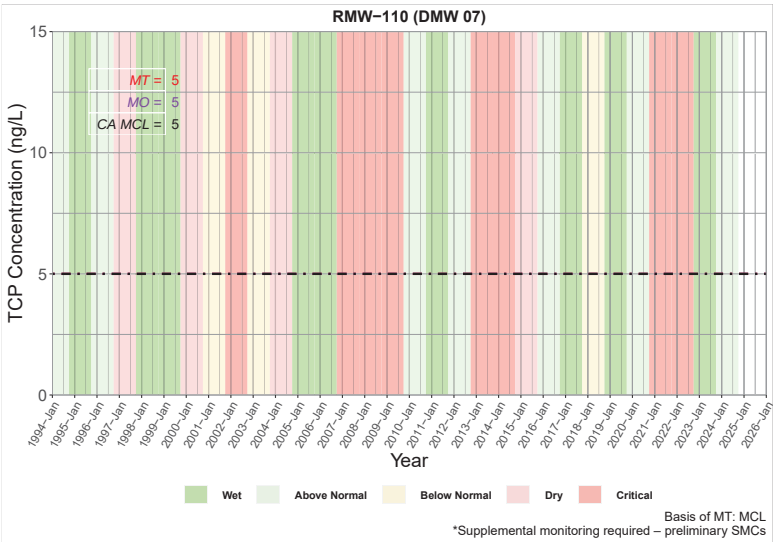
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

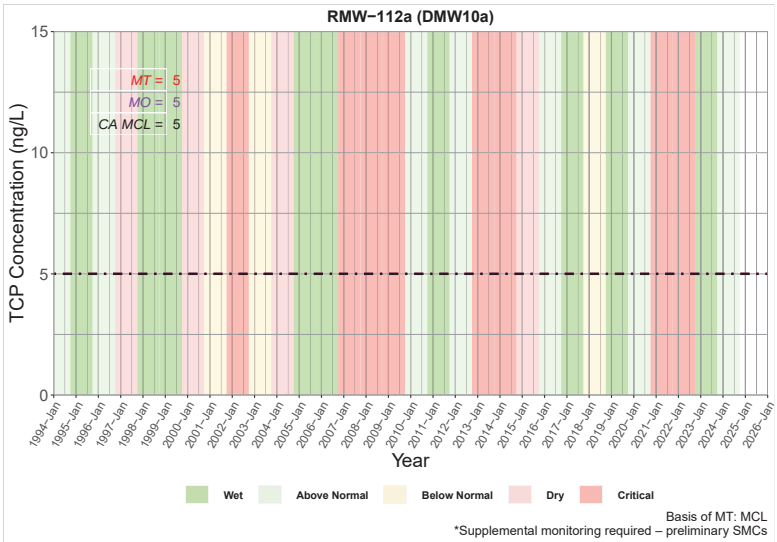

RMW−065a (31H Greeley, AGC100012326−KRWCA00029)
TCP Concentration (ng/L)
MT = 5
MO = 5
CA MCL = 5
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

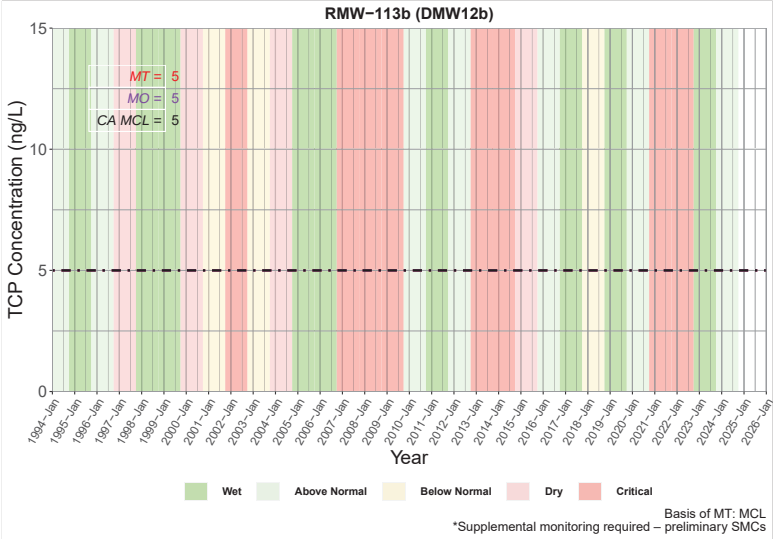

RMW−067a (35H RRBWSD Shop)
TCP Concentration (ng/L)
MT = 5
MO = 5
CA MCL = 5
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

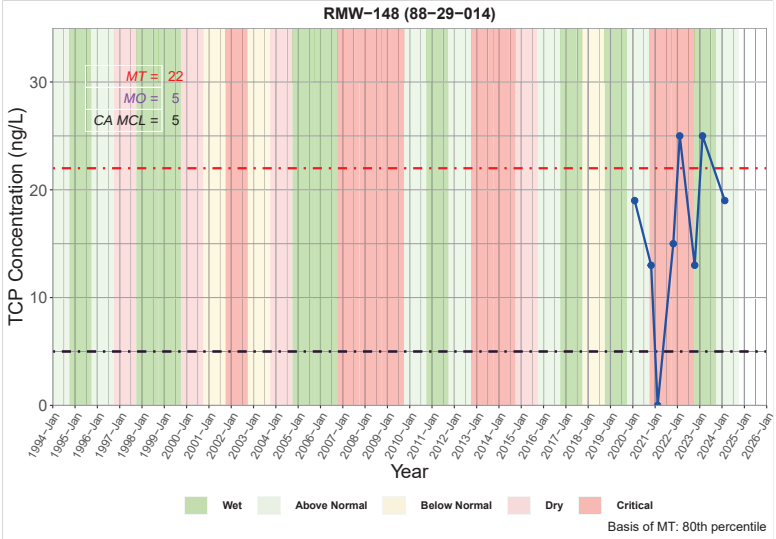

RMW−070 (Caratan Well)
TCP Concentration (ng/L)
MT = 5
MO = 5
CA MCL = 5
Year
Grimmway Frozen Foods, CA1500597_010_010
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs
**Proxy data is displayed, with proxy well(s) identified by well ID(s) in the legend.

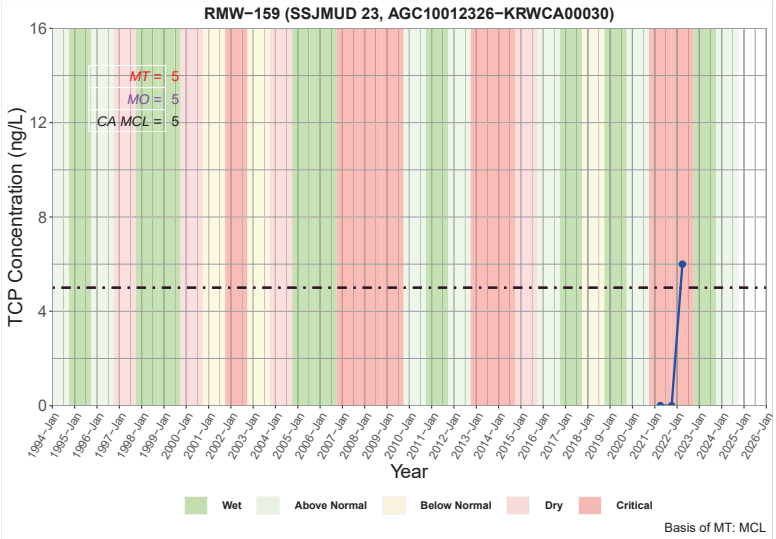

RMW−107 (28S22E10D002M, AGC100012323−BVCWD00002)
TCP Concentration (ng/L)
MT = 5
MO = 5
CA MCL = 5
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

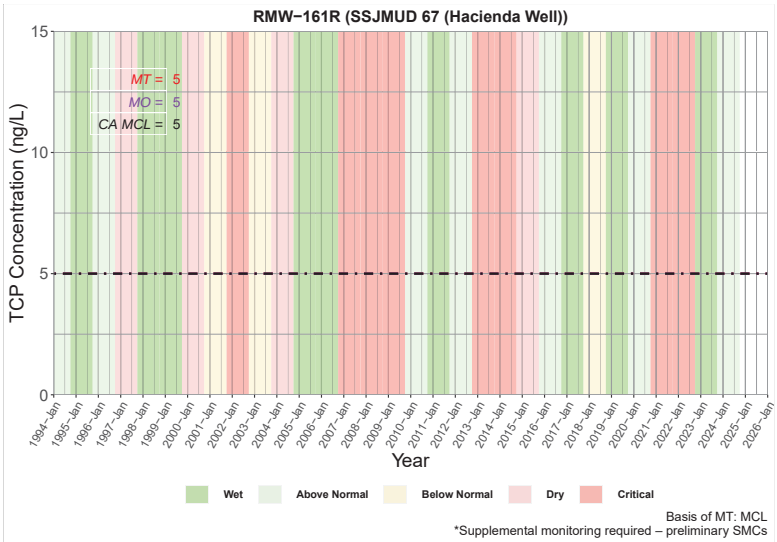

RMW−110 (DMW 07)
TCP Concentration (ng/L)
MT = 5
MO = 5
CA MCL = 5
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

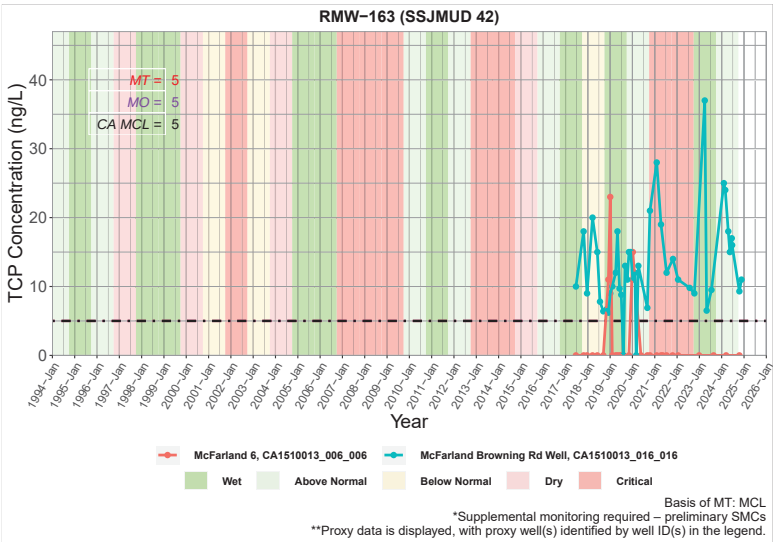

RMW−112a (DMW10a)
TCP Concentration (ng/L)
MT = 5
MO = 5
CA MCL = 5
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

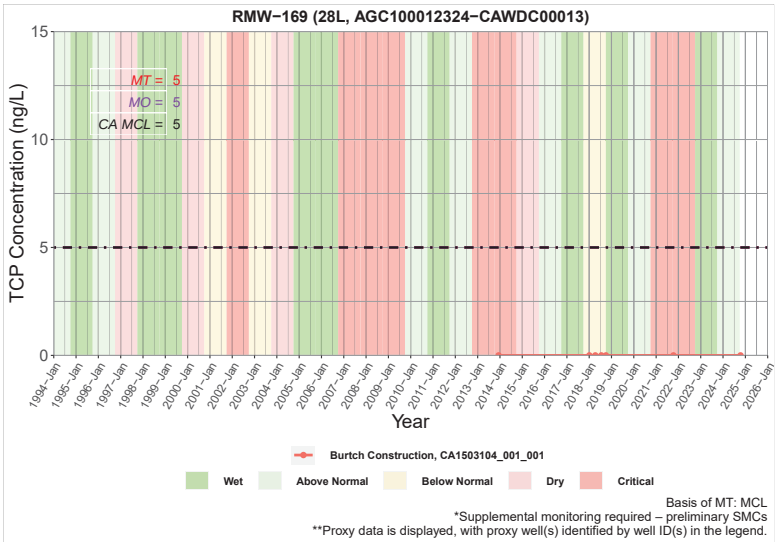

RMW−113b (DMW12b)
MT = 5
MO = 5
CA MCL = 5
TCP Concentration (ng/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

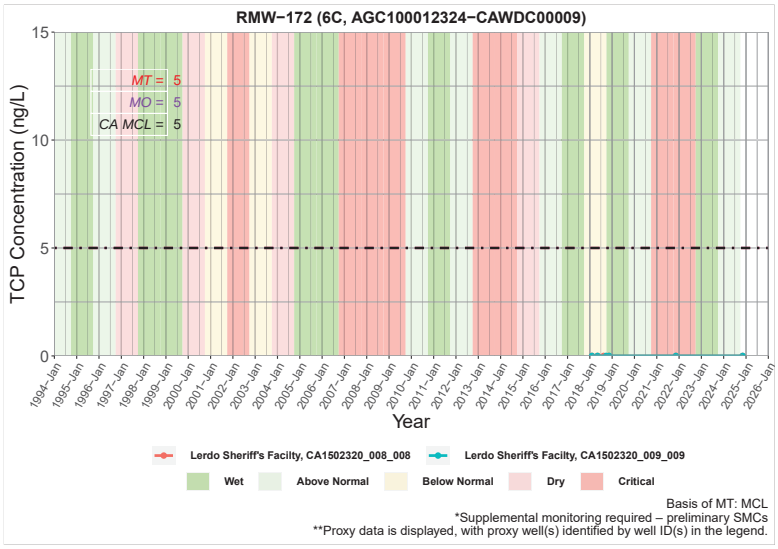

RMW−148 (88−29−014)
MT = 22
MO = 5
CA MCL = 5
TCP Concentration (ng/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: 80th percentile


RMW−159 (SSJMUD 23, AGC10012326−KRWCA00030)
MT = 5
MO = 5
CA MCL = 5
TCP Concentration (ng/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

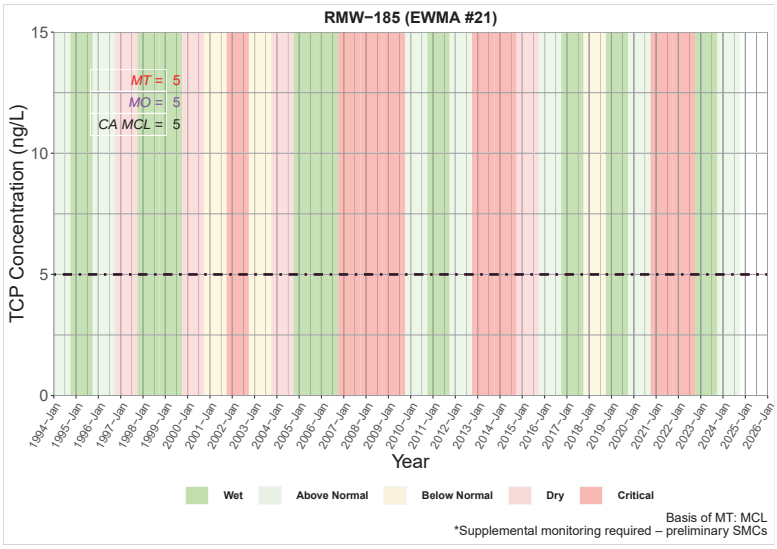

RMW−161R (SSJMUD 67 (Hacienda Well))
MT = 5
MO = 5
CA MCL = 5
TCP Concentration (ng/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs


RMW−163 (SSJMUD 42)
MT = 5
MO = 5
CA MCL = 5
TCP Concentration (ng/L)
Year
McFarland 6, CA1510013_006_006
McFarland Browning Rd Well, CA1510013_016_016
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs
**Proxy data is displayed, with proxy well(s) identified by well ID(s) in the legend.

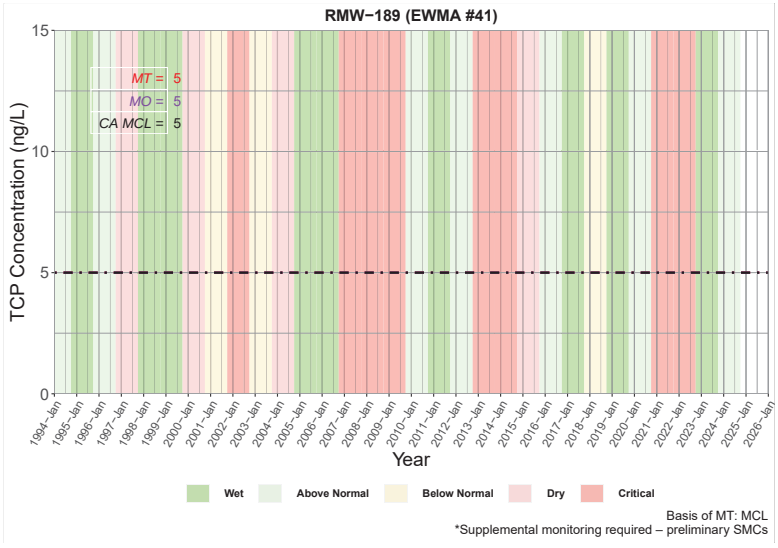

RMW−169 (28L, AGC100012324−CAWDC00013)
MT = 5
MO = 5
CA MCL = 5
TCP Concentration (ng/L)
Year
Burtch Construction, CA1503104_001_001
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs
**Proxy data is displayed, with proxy well(s) identified by well ID(s) in the legend.



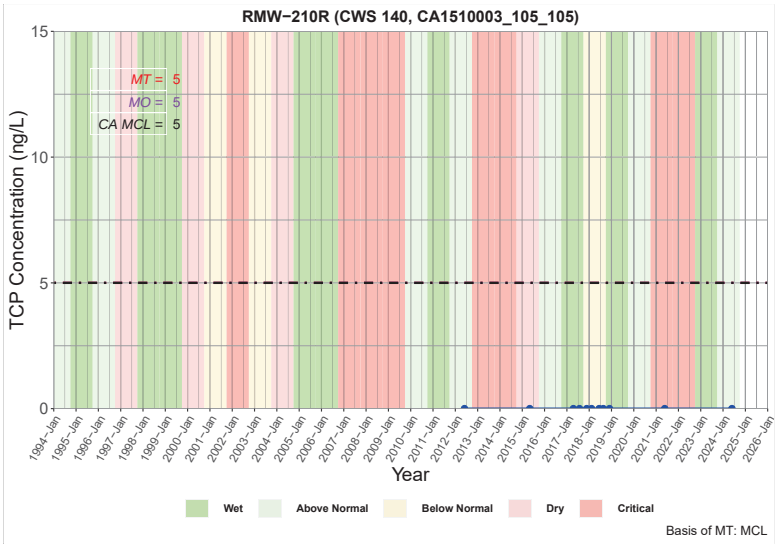
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs
**Proxy data is displayed, with proxy well(s) identified by well ID(s) in the legend.



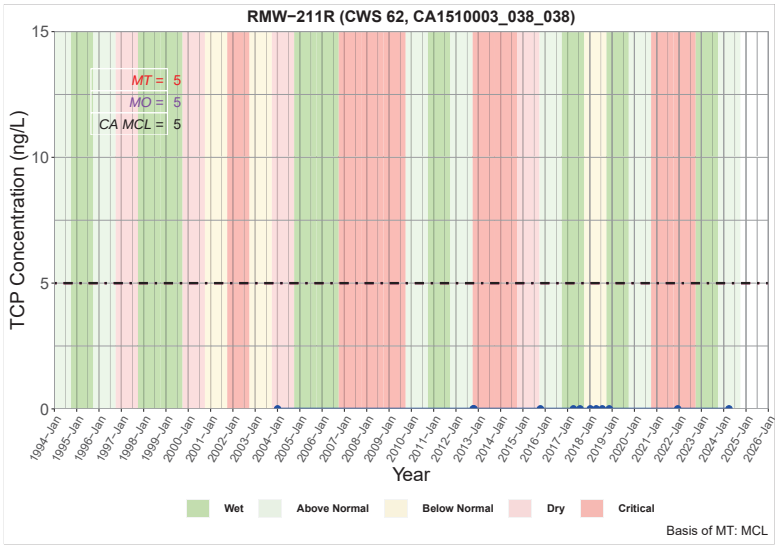
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs



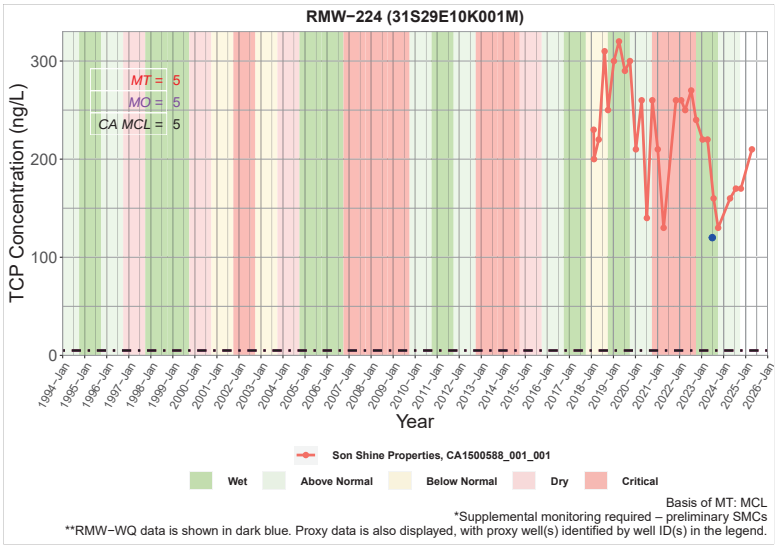
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs



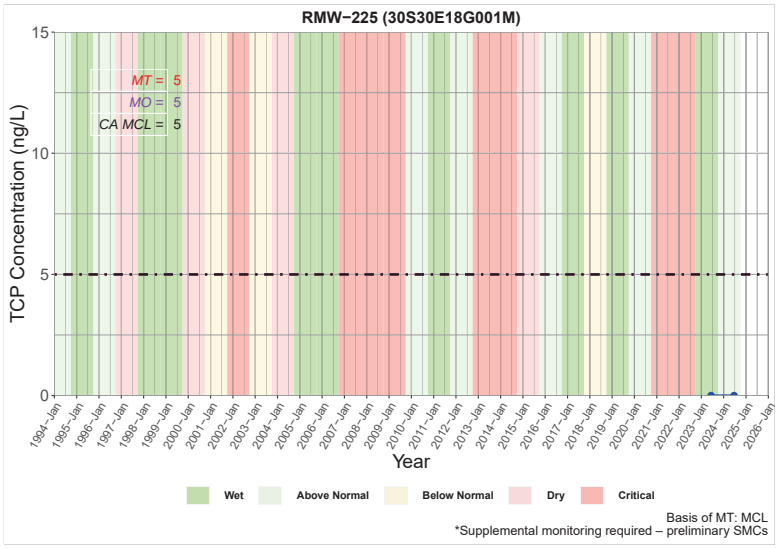
Basis of MT: MCL

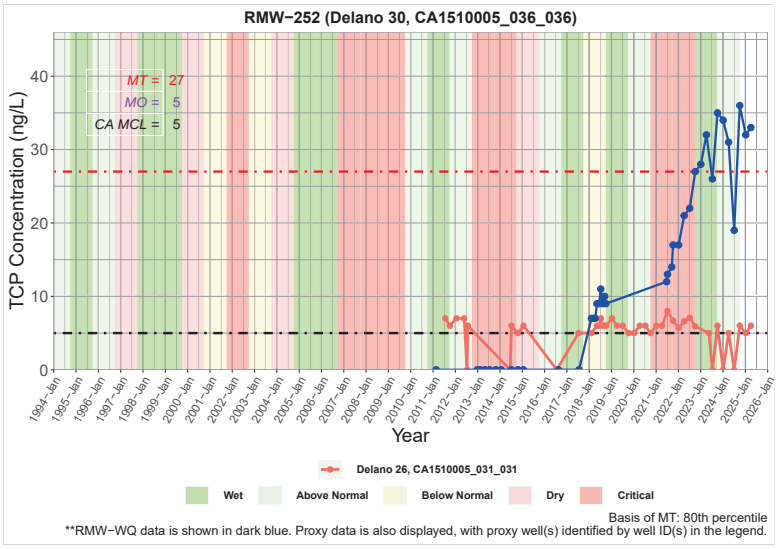


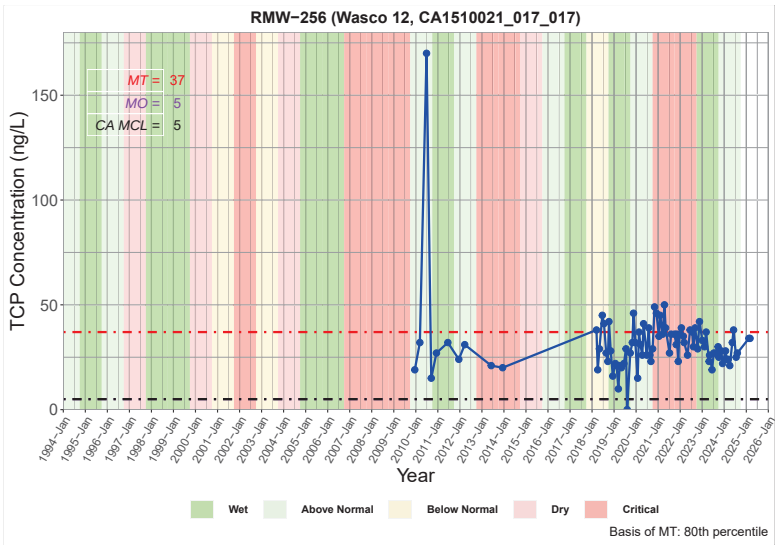
Basis of MT: MCL

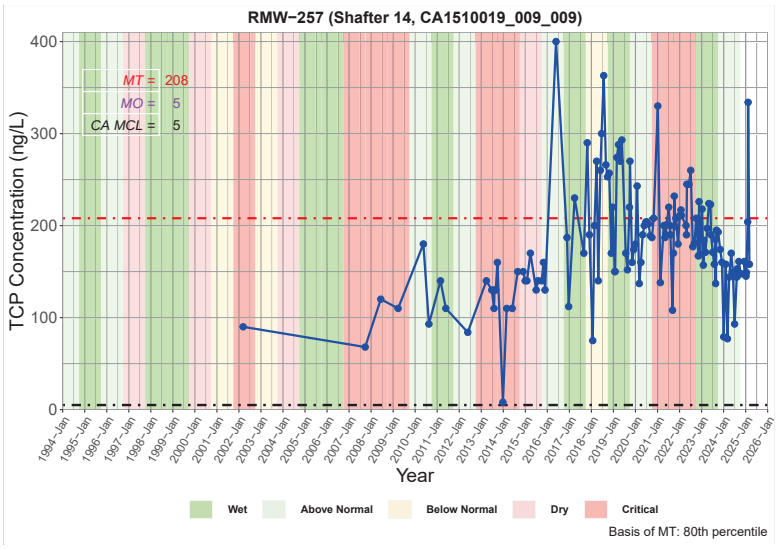


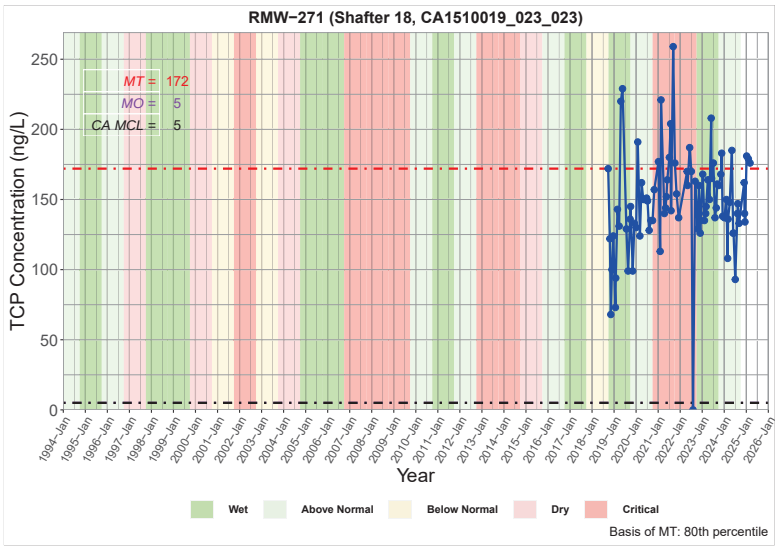
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs
**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.

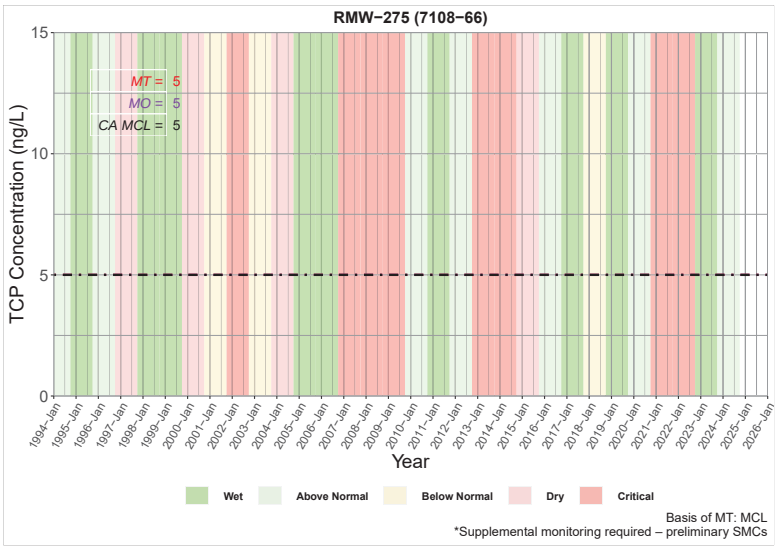

RMW−225 (30S30E18G001M)
MT = 5
MO = 5
CA MCL = 5
TCP Concentration (ng/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

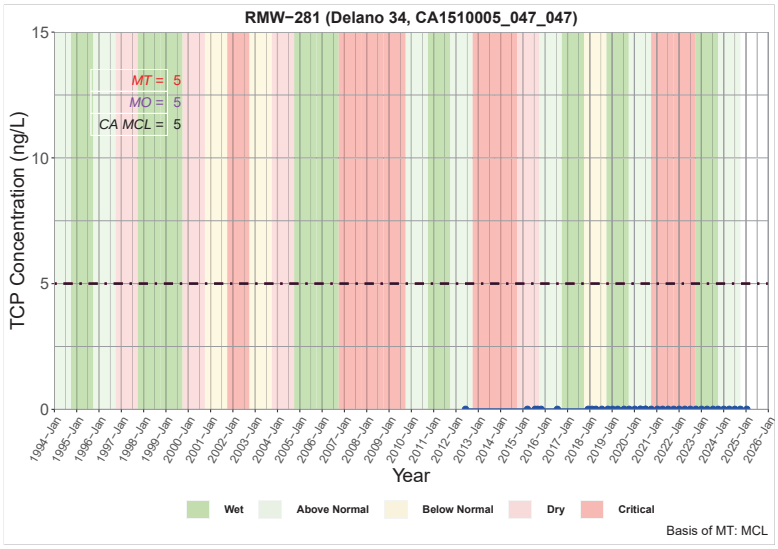

RMW−252 (Delano 30, CA1510005_036_036)
MT = 27
MO = 5
CA MCL = 5
TCP Concentration (ng/L)
Year
Delano 26, CA1510005_031_031
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: 80th percentile
**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.

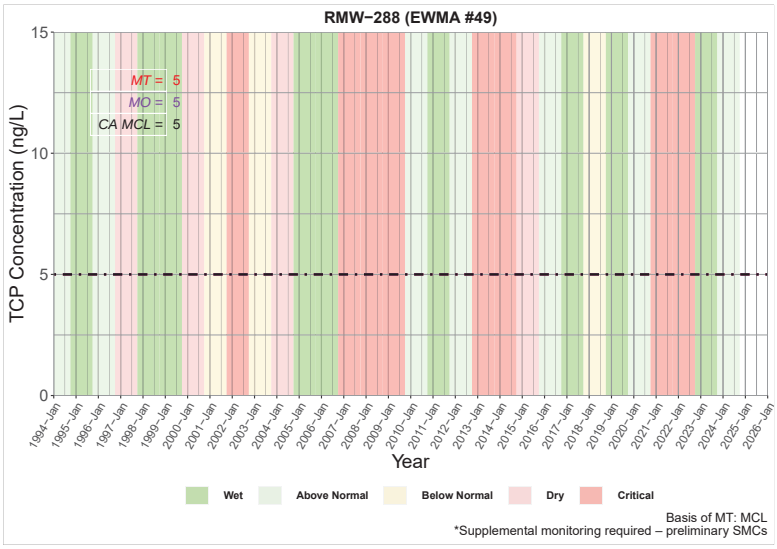

RMW−256 (Wasco 12, CA1510021_017_017)
MT = 37
MO = 5
CA MCL = 5
TCP Concentration (ng/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: 80th percentile

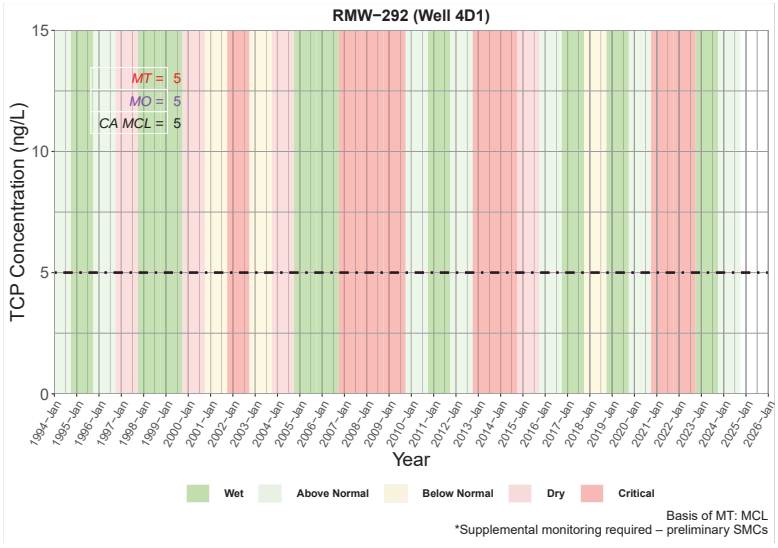

RMW−257 (Shafter 14, CA1510019_009_009)
MT = 208
MO = 5
CA MCL = 5
TCP Concentration (ng/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: 80th percentile

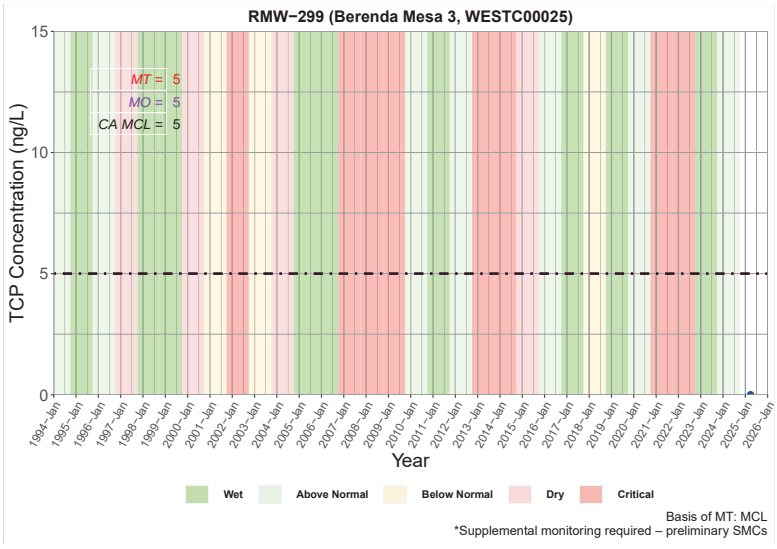

RMW−271 (Shafter 18, CA1510019_023_023)
MT = 172
MO = 5
CA MCL = 5
TCP Concentration (ng/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: 80th percentile

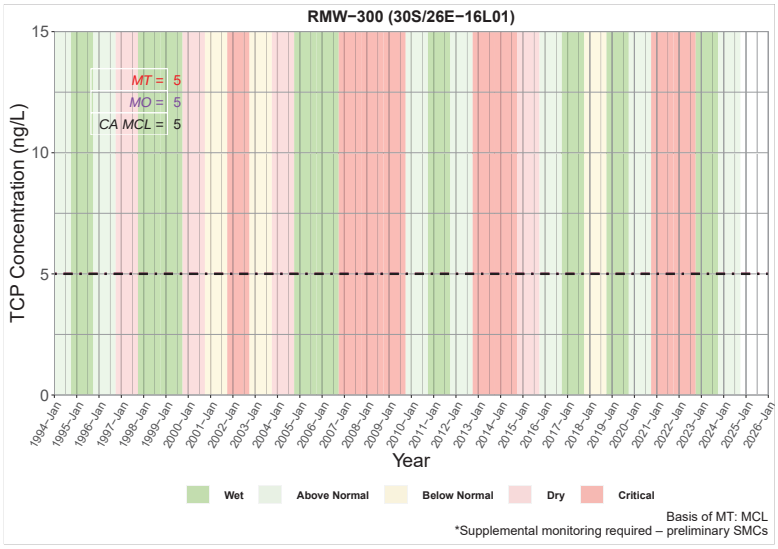

RMW−275 (7108−66)
MT = 5
MO = 5
CA MCL = 5
TCP Concentration (ng/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

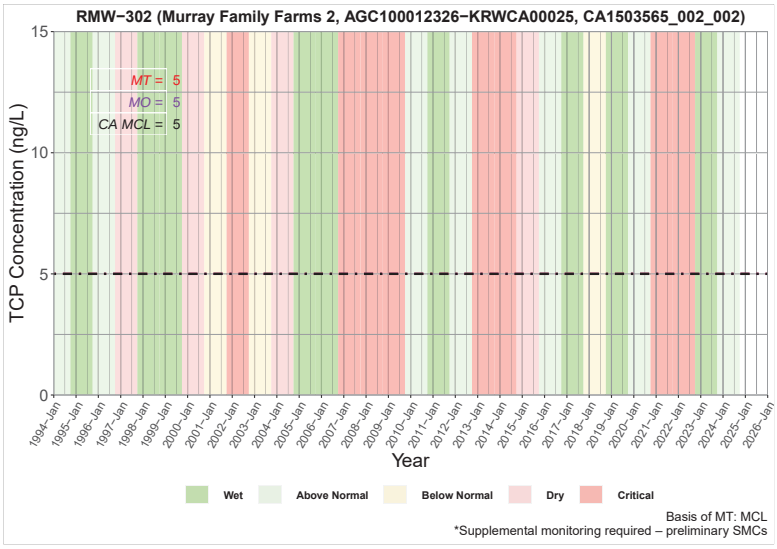

RMW−281 (Delano 34, CA1510005_047_047)
MT = 5
MO = 5
CA MCL = 5
TCP Concentration (ng/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

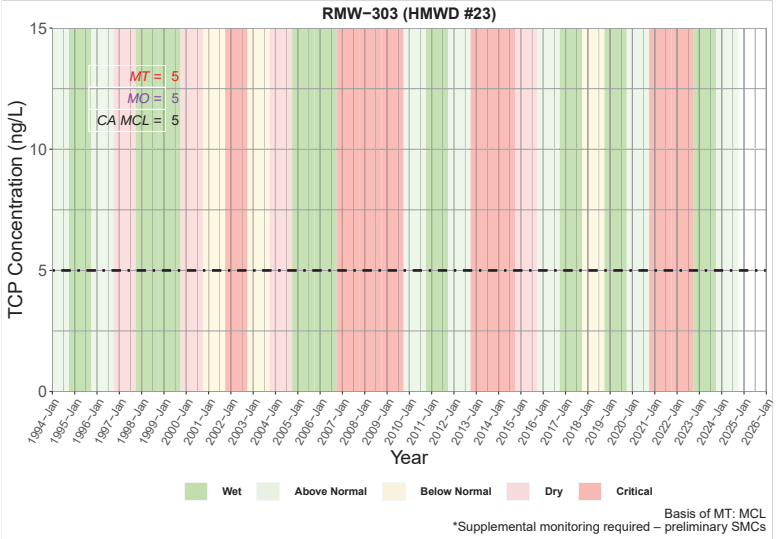

RMW−288 (EWMA #49)
MT = 5
MO = 5
CA MCL = 5
TCP Concentration (ng/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs


RMW−292 (Well 4D1)
MT = 5
MO = 5
CA MCL = 5
TCP Concentration (ng/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

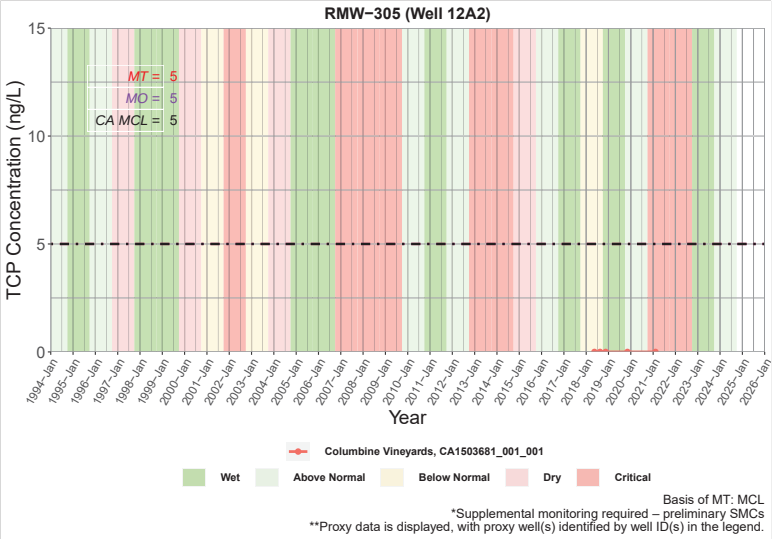

RMW−299 (Berenda Mesa 3, WESTC00025)
MT = 5
MO = 5
CA MCL = 5
TCP Concentration (ng/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs


RMW−300 (30S/26E−16L01)
MT = 5
MO = 5
CA MCL = 5
TCP Concentration (ng/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

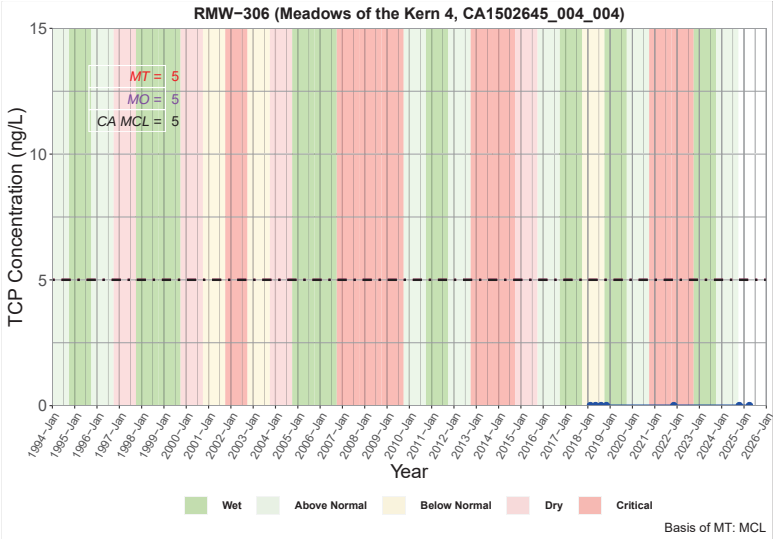

RMW−302 (Murray Family Farms 2, AGC100012326−KRWCA00025, CA1503565_002_002)
MT = 5
MO = 5
CA MCL = 5
TCP Concentration (ng/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs



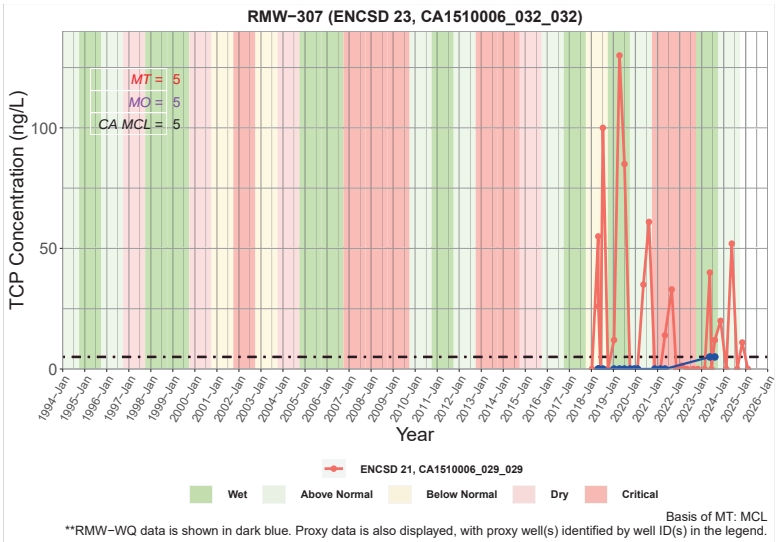
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs



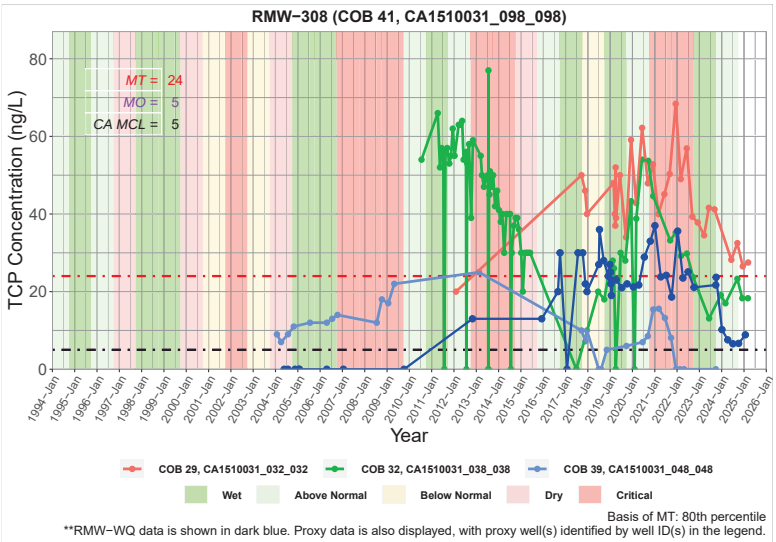
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs
**Proxy data is displayed, with proxy well(s) identified by well ID(s) in the legend.



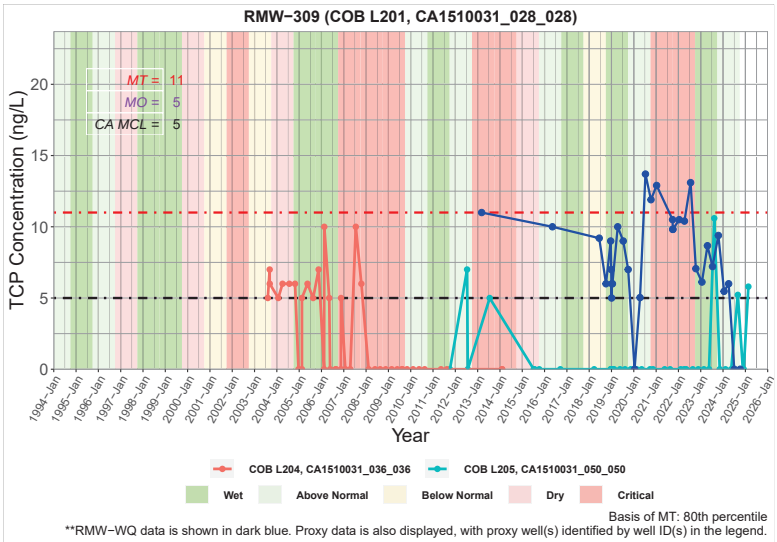
Basis of MT: MCL



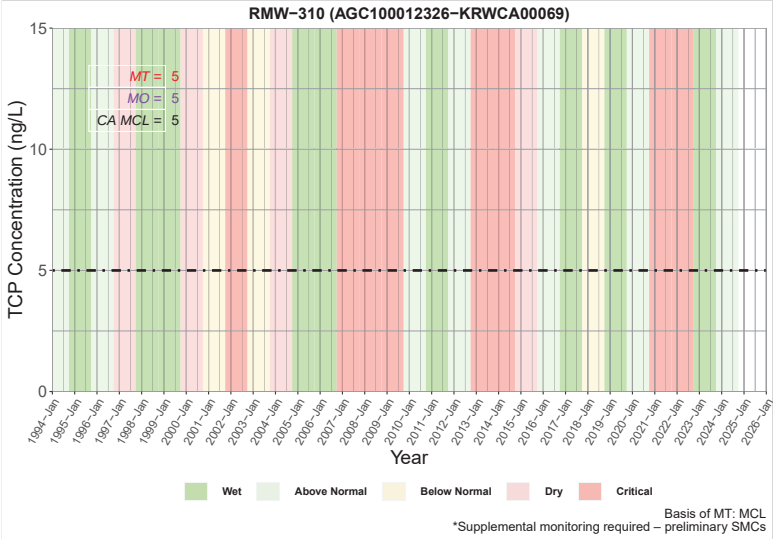
Basis of MT: MCL
**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.

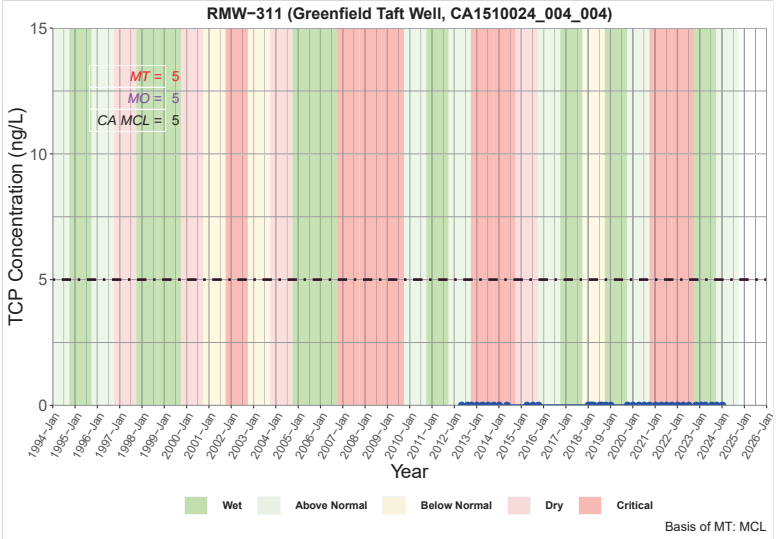


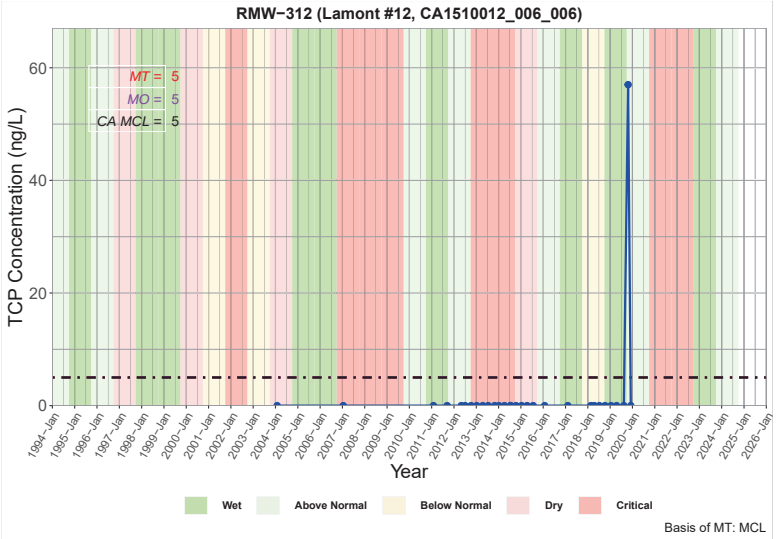
Basis of MT: 80th percentile
**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.

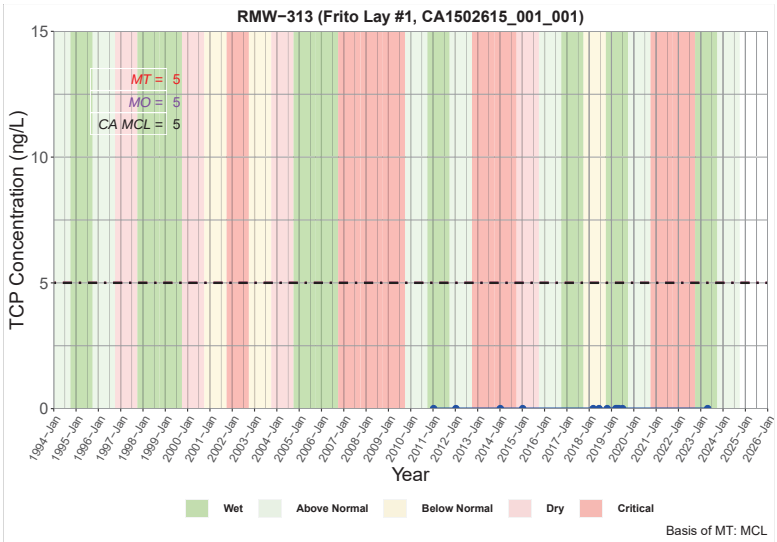


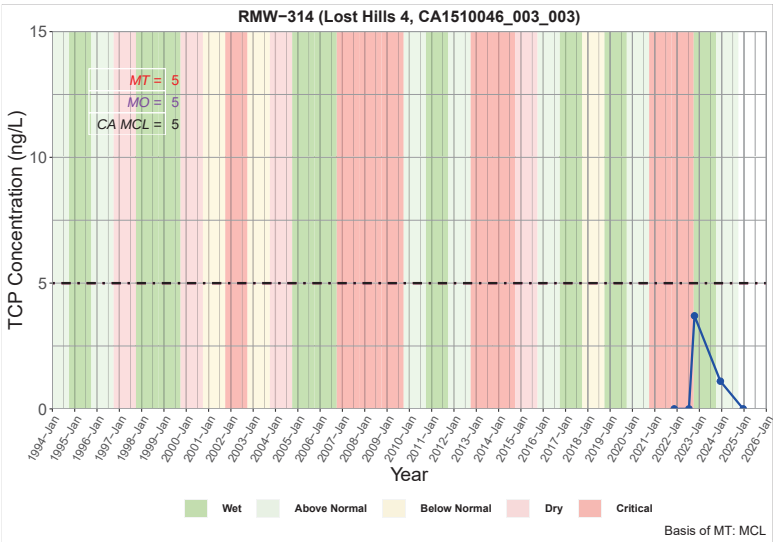
Basis of MT: 80th percentile
**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.

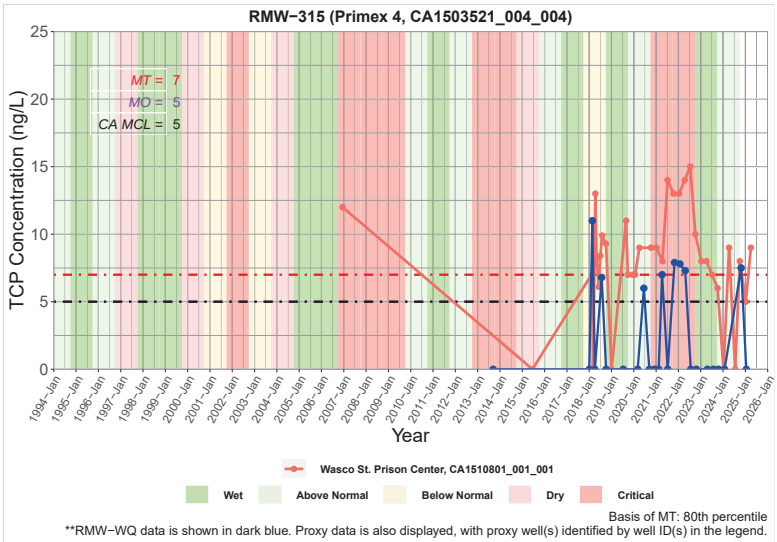

RMW−310 (AGC100012326−KRWCA00069)
MT = 5
MO = 5
CA MCL = 5
TCP Concentration (ng/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

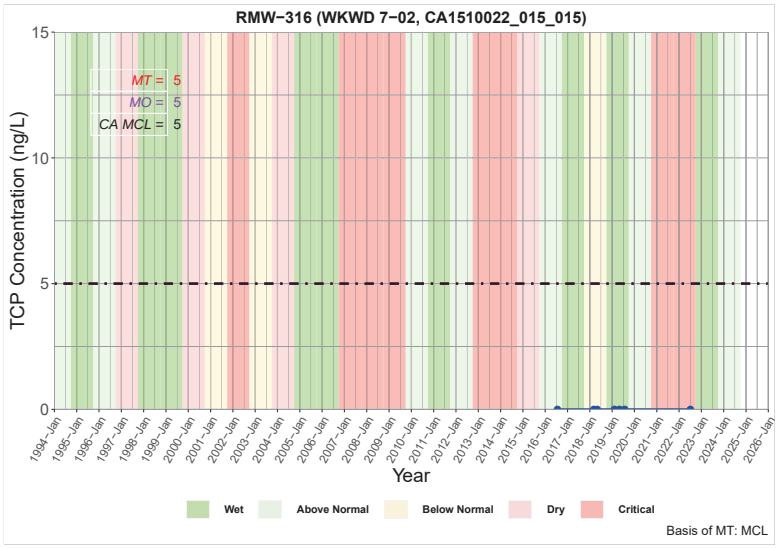

RMW−311 (Greenfield Taft Well, CA1510024_004_004)
MT = 5
MO = 5
CA MCL = 5
TCP Concentration (ng/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

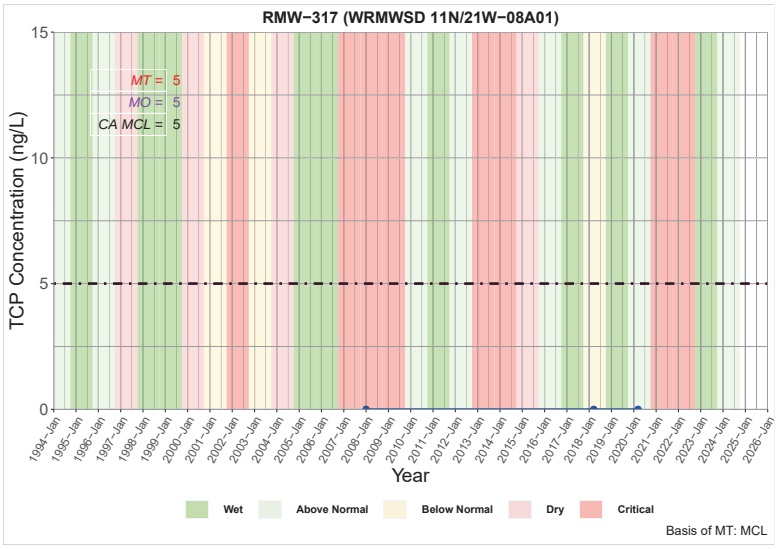

RMW−312 (Lamont #12, CA1510012_006_006)
MT = 5
MO = 5
CA MCL = 5
TCP Concentration (ng/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

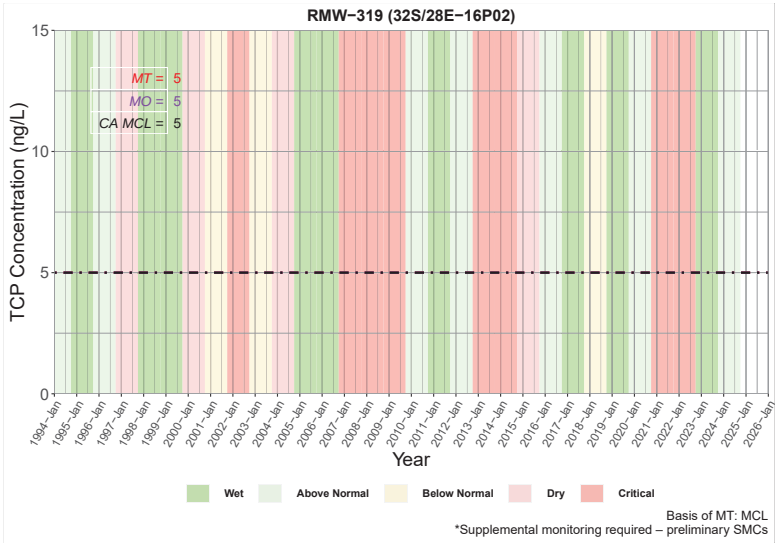

RMW−313 (Frito Lay #1, CA1502615_001_001)
MT = 5
MO = 5
CA MCL = 5
TCP Concentration (ng/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

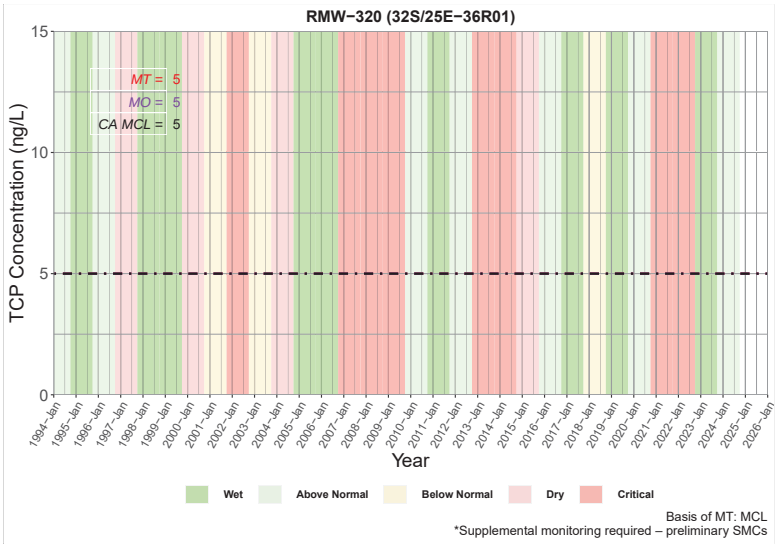

RMW−314 (Lost Hills 4, CA1510046_003_003)
MT = 5
MO = 5
CA MCL = 5
TCP Concentration (ng/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

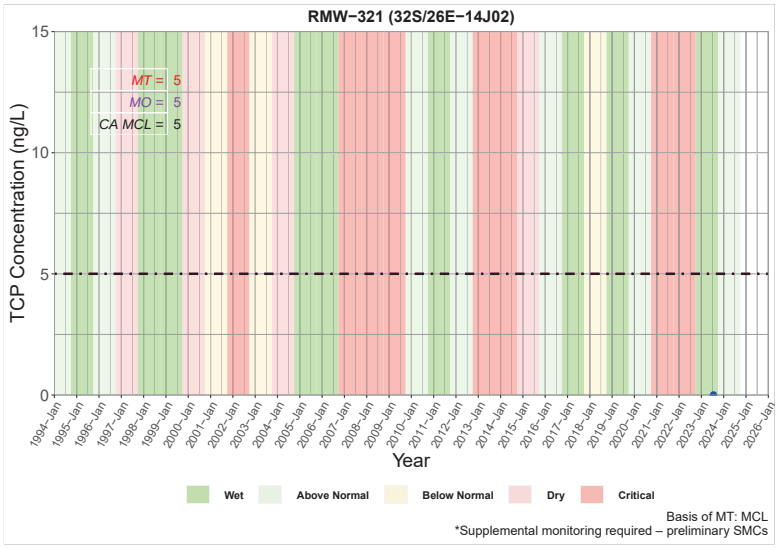

RMW−315 (Primex 4, CA1503521_004_004)
MT = 7
MO = 5
CA MCL = 5
TCP Concentration (ng/L)
Year
Wasco St. Prison Center, CA1510801_001_001
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: 80th percentile
**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.

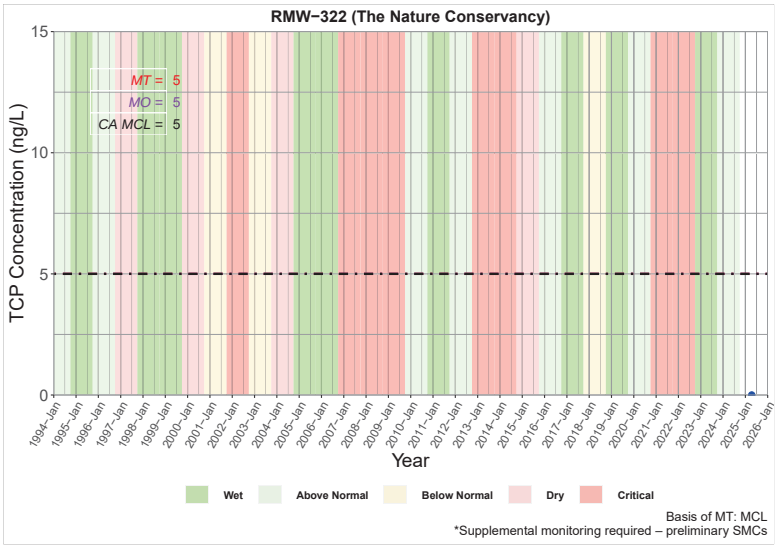

RMW−316 (WKWD 7−02, CA1510022_015_015)
MT = 5
MO = 5
CA MCL = 5
TCP Concentration (ng/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

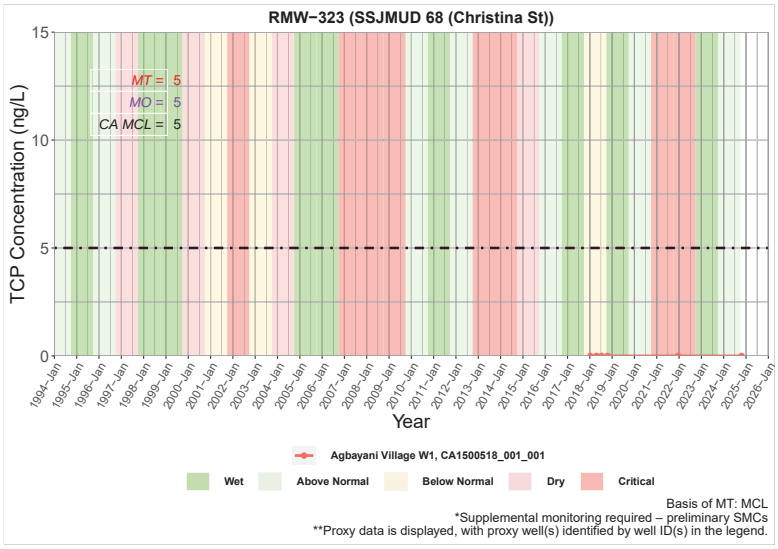

RMW−317 (WRMWSD 11N/21W−08A01)
MT = 5
MO = 5
CA MCL = 5
TCP Concentration (ng/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL


RMW−319 (32S/28E−16P02)
MT = 5
MO = 5
CA MCL = 5
TCP Concentration (ng/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs


RMW−320 (32S/25E−36R01)
MT = 5
MO = 5
CA MCL = 5
TCP Concentration (ng/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs


RMW−321 (32S/26E−14J02)
MT = 5
MO = 5
CA MCL = 5
TCP Concentration (ng/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs


RMW−322 (The Nature Conservancy)
MT = 5
MO = 5
CA MCL = 5
TCP Concentration (ng/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

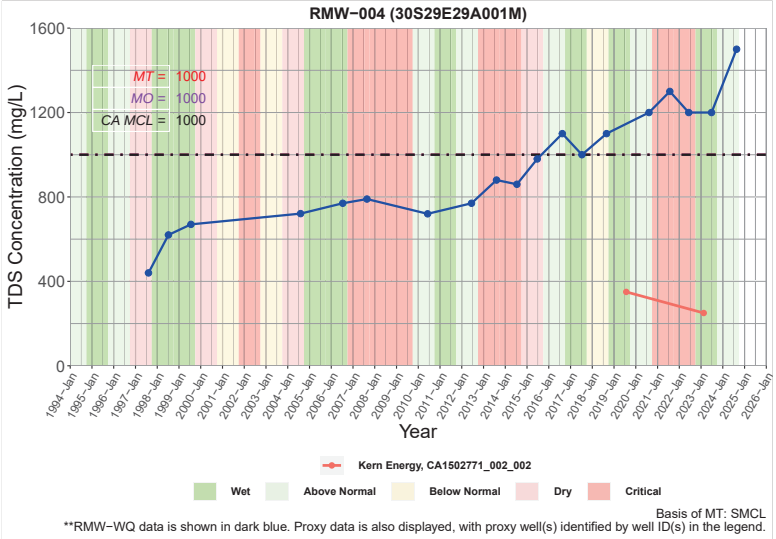


Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs
**Proxy data is displayed, with proxy well(s) identified by well ID(s) in the legend.

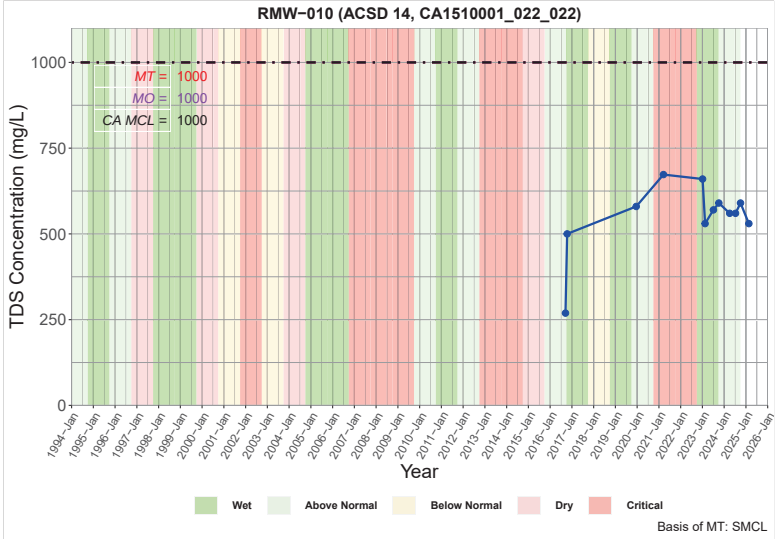
2025 Plan Appendix I-4:

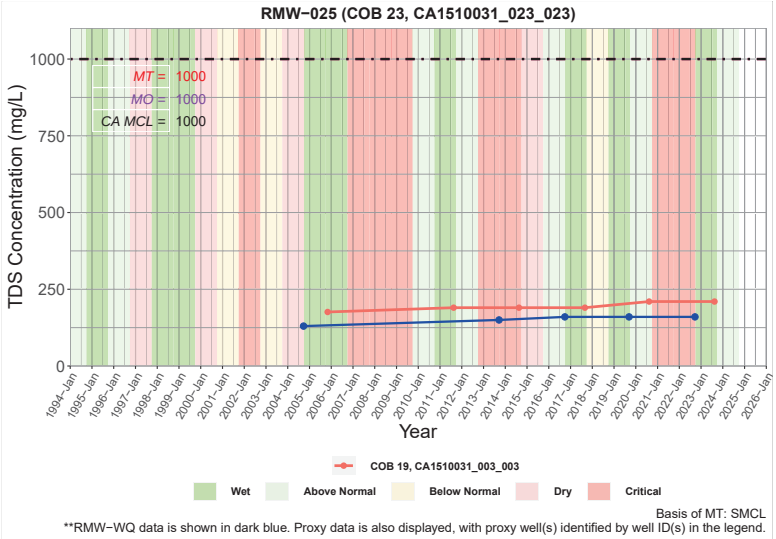
Water Quality Representative Monitoring Well Chemographs

TOTAL DISSOLVED SOLIDS (TDS)

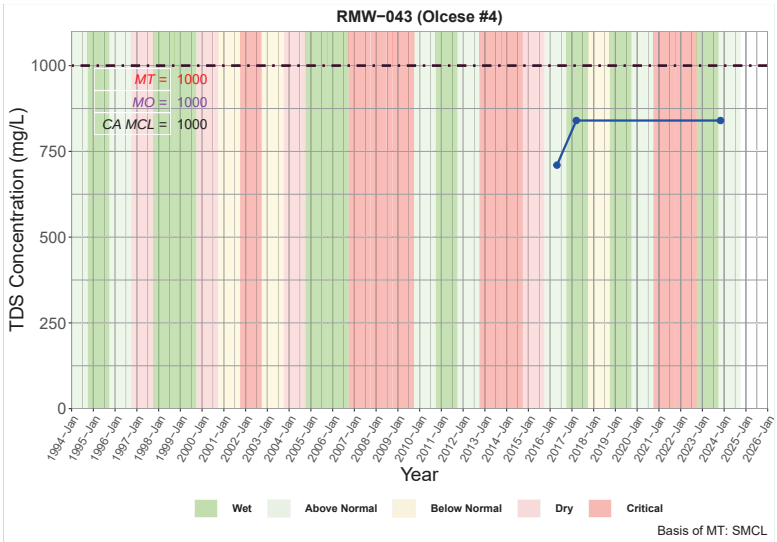


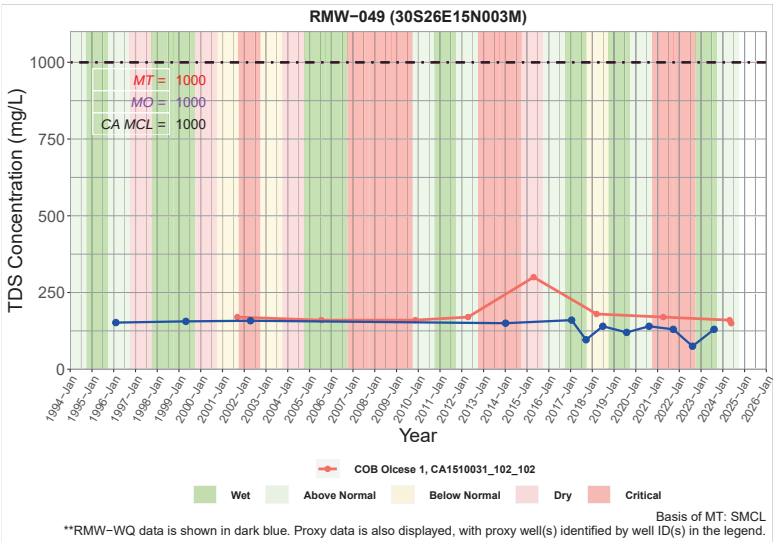
**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.



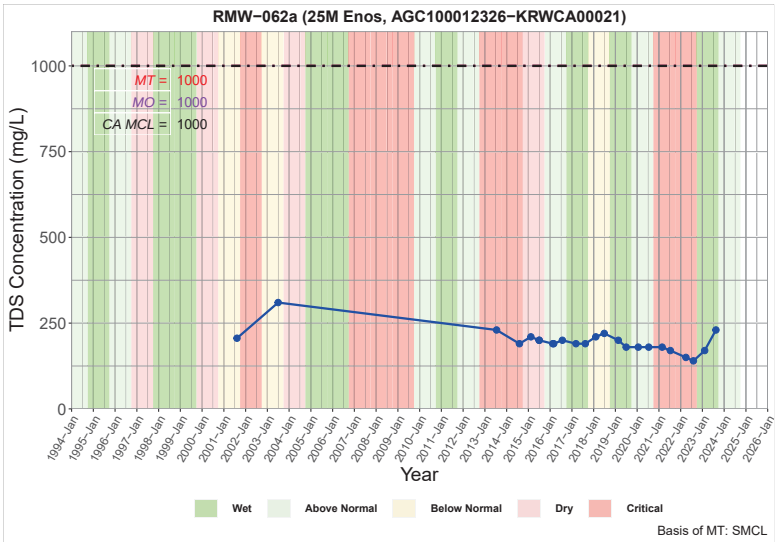


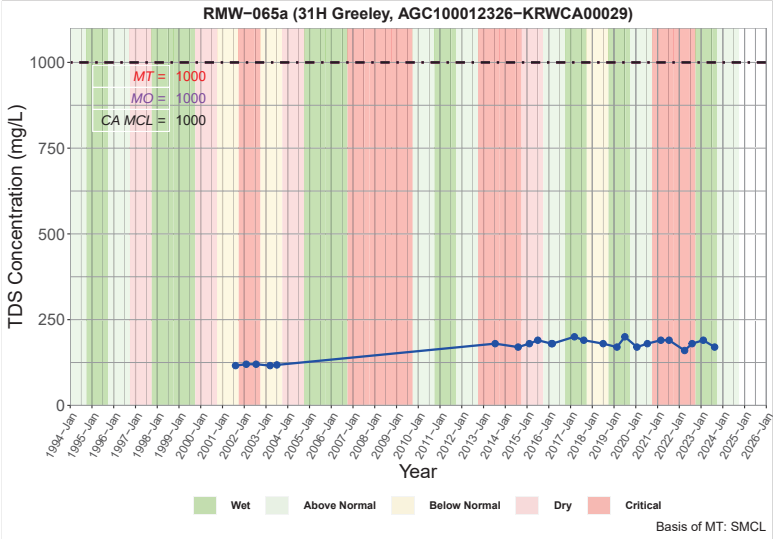
**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.

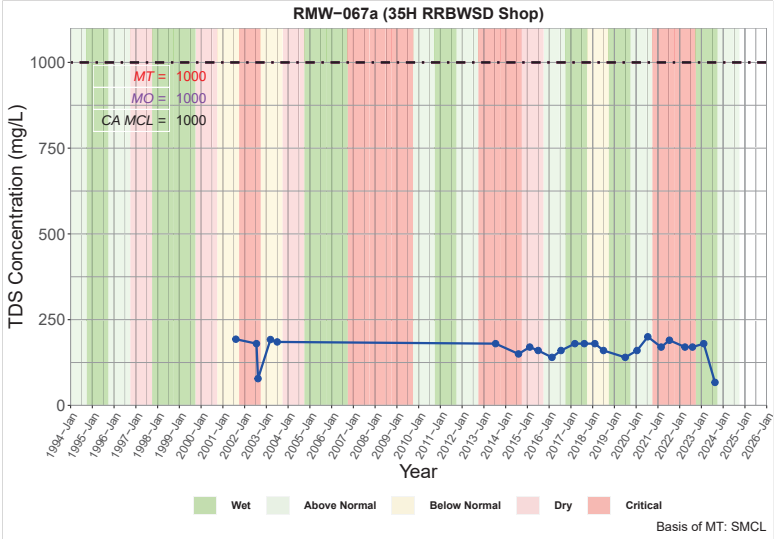


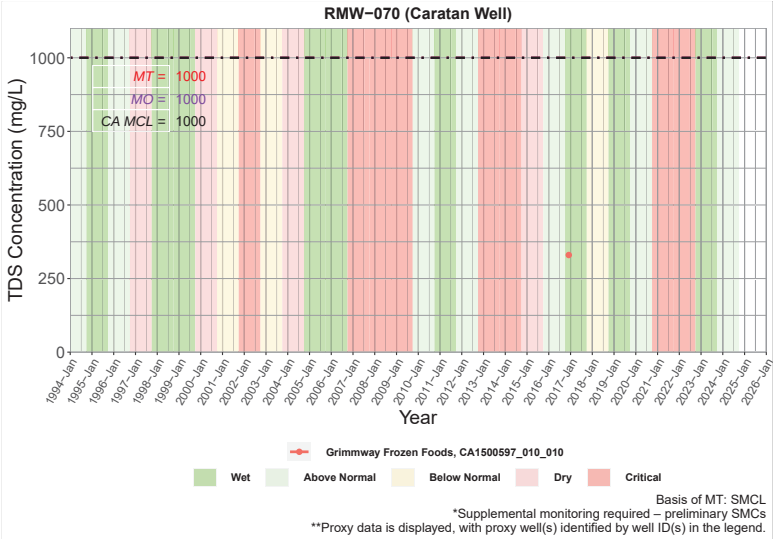


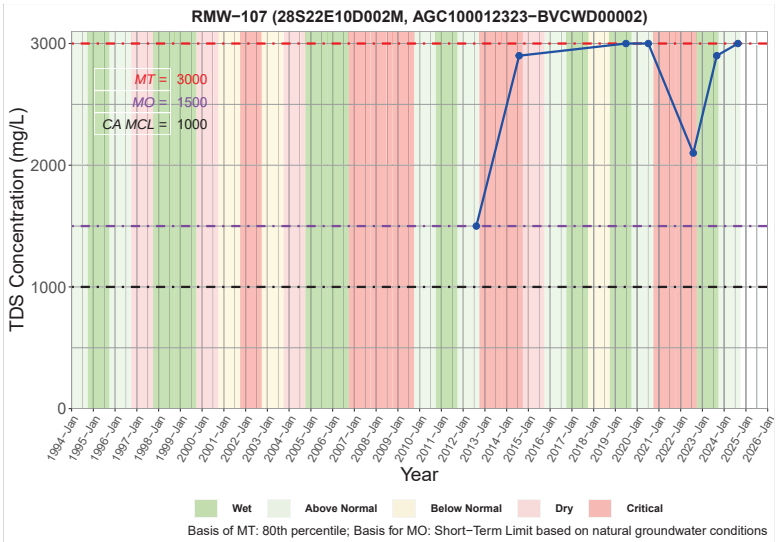
**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.

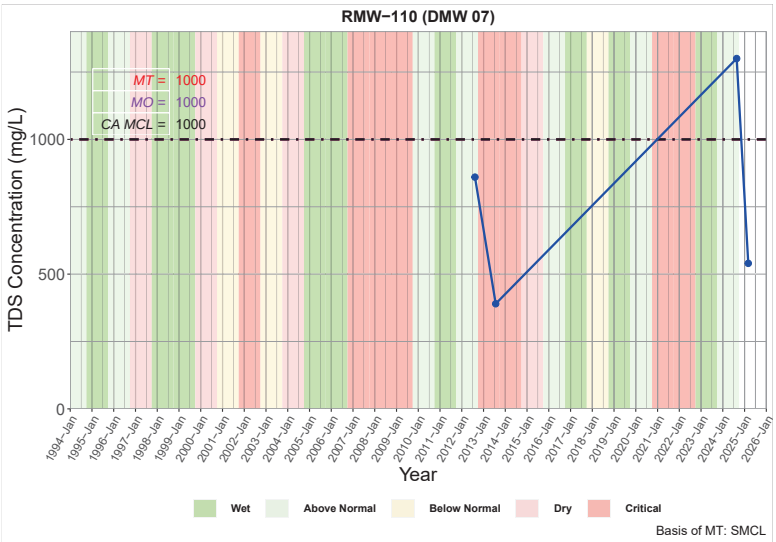


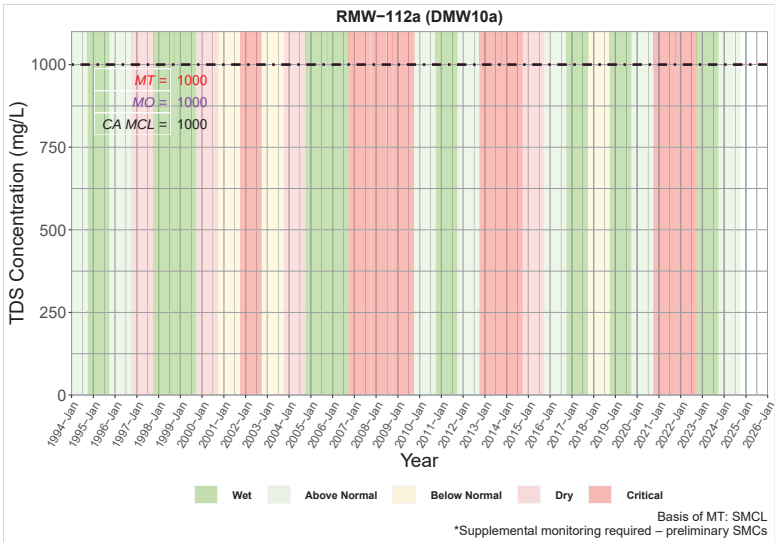

RMW−065a (31H Greeley, AGC100012326−KRWCA00029)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL

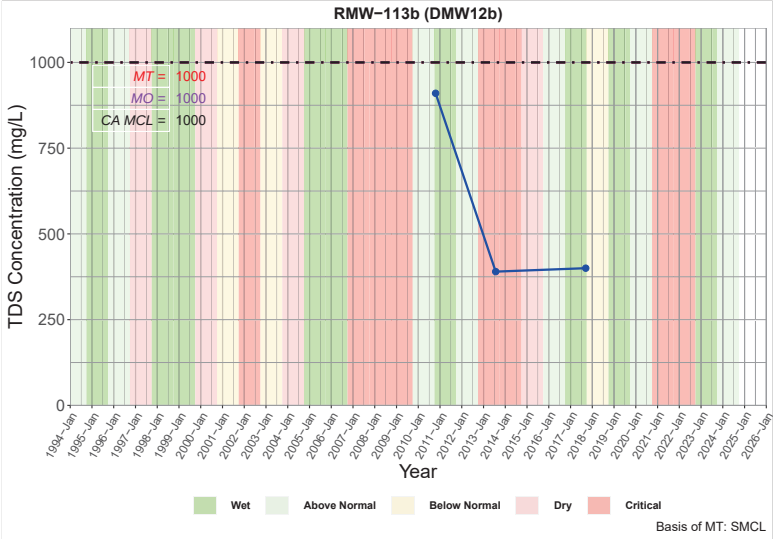

RMW−067a (35H RRBWSD Shop)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL

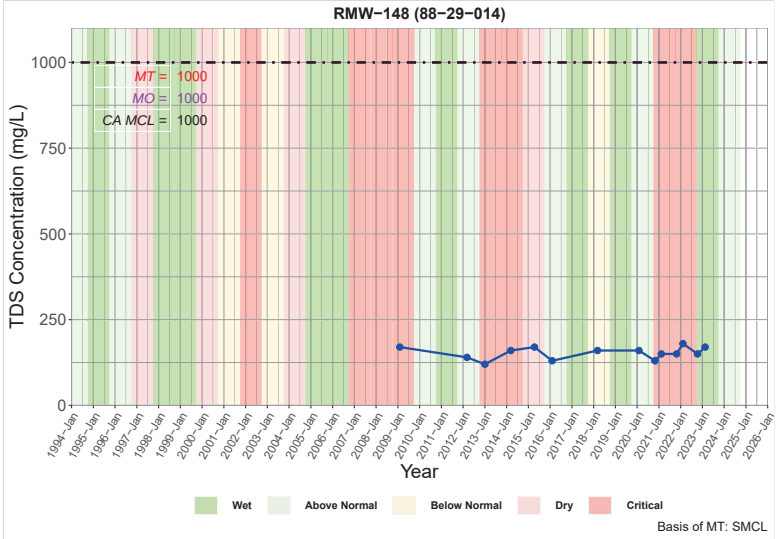

RMW−070 (Caratan Well)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Grimmway Frozen Foods, CA1500597_010_010
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL
*Supplemental monitoring required – preliminary SMCs
**Proxy data is displayed, with proxy well(s) identified by well ID(s) in the legend.

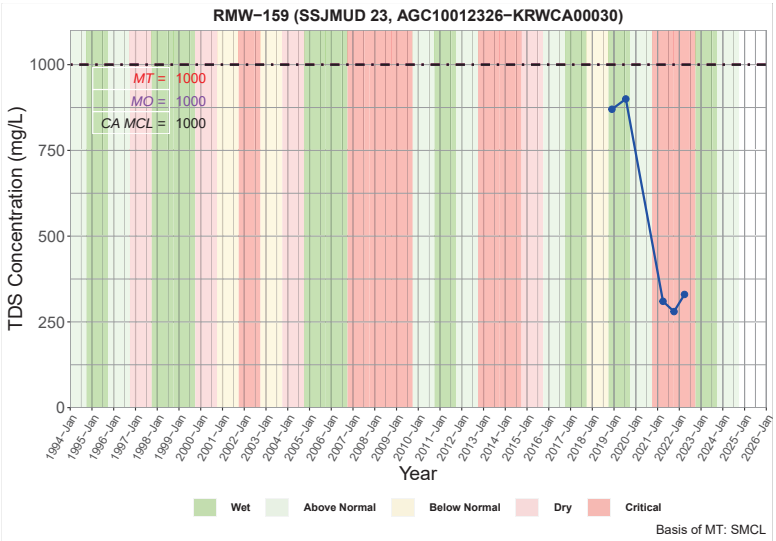

RMW−107 (28S22E10D002M, AGC100012323−BVCWD00002)
MT = 3000
MO = 1500
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: 80th percentile; Basis for MO: Short−Term Limit based on natural groundwater conditions

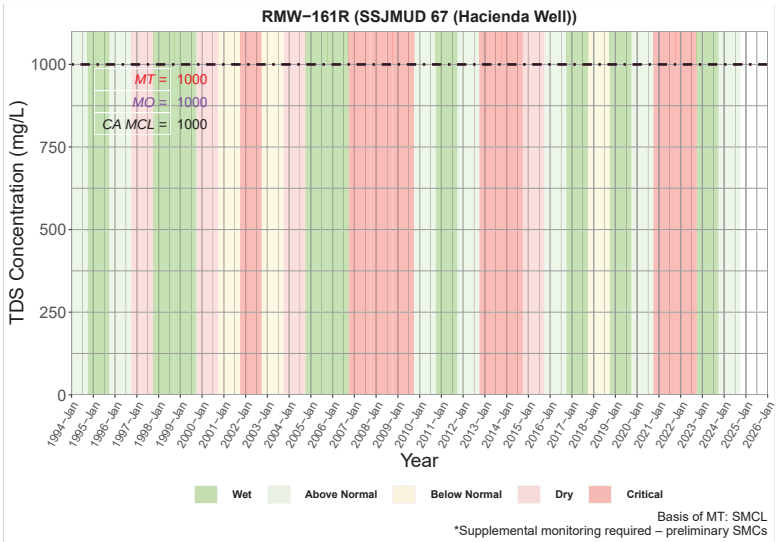

RMW−110 (DMW 07)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL

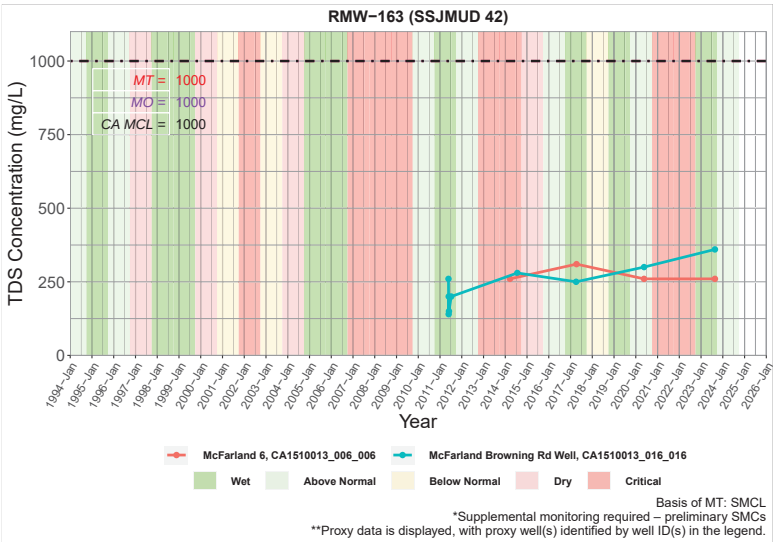

RMW−112a (DMW10a)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL
*Supplemental monitoring required – preliminary SMCs

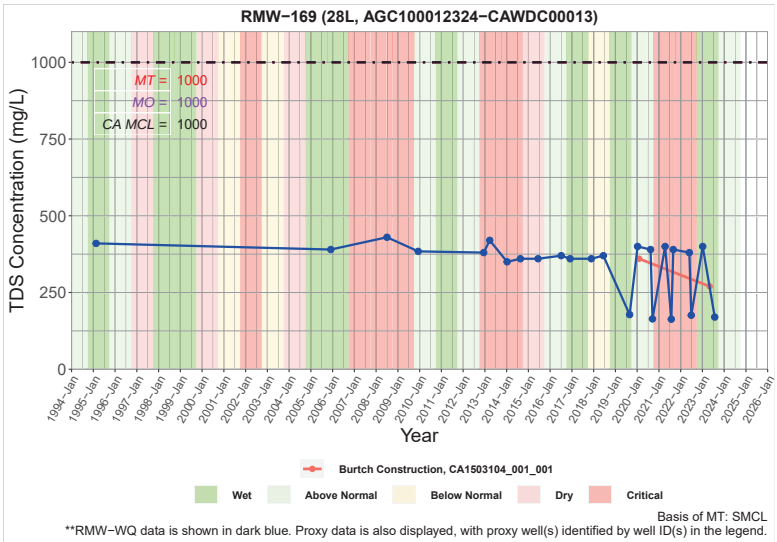

RMW−113b (DMW12b)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL

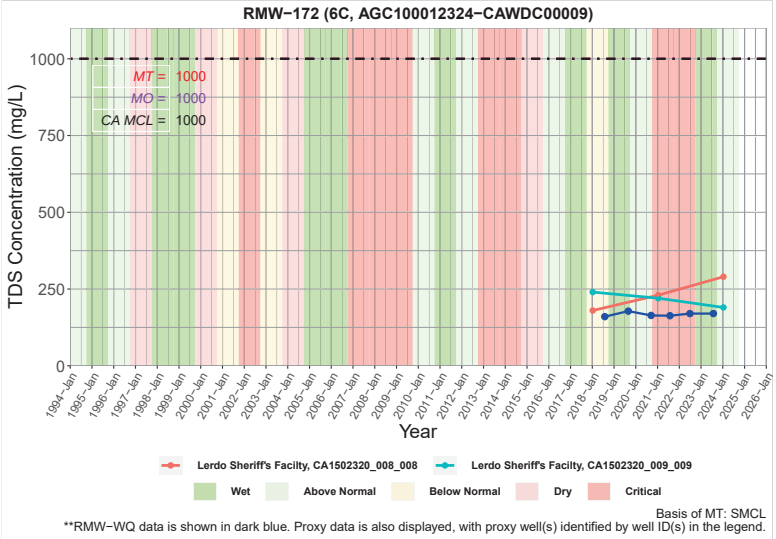

RMW−148 (88−29−014)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL

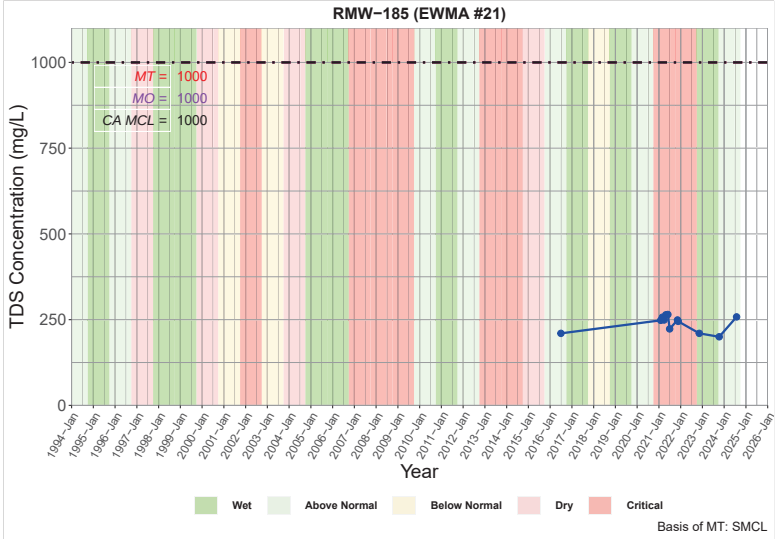

RMW−159 (SSJMUD 23, AGC10012326−KRWCA00030)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL

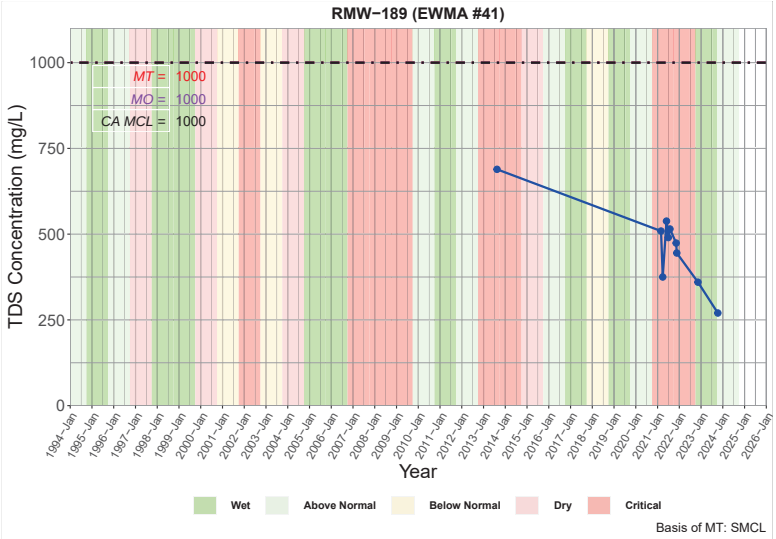

RMW−161R (SSJMUD 67 (Hacienda Well))
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL
*Supplemental monitoring required – preliminary SMCs

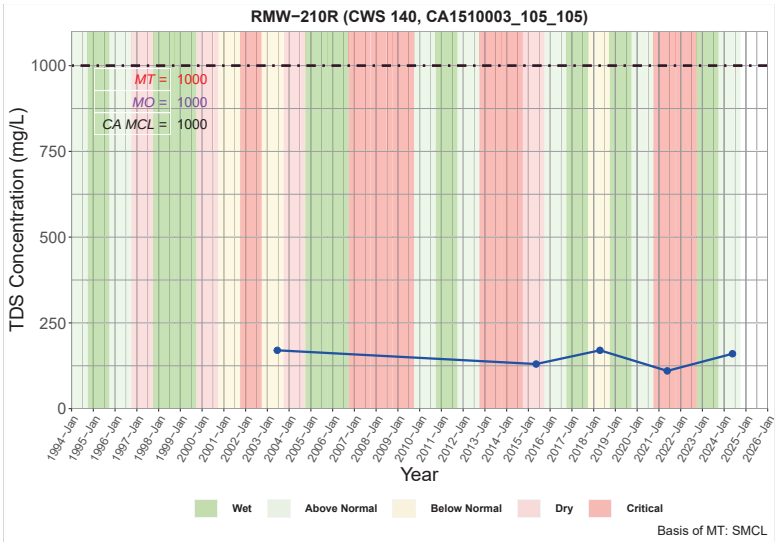

RMW−163 (SSJMUD 42)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
McFarland 6, CA1510013_006_006
McFarland Browning Rd Well, CA1510013_016_016
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL
*Supplemental monitoring required – preliminary SMCs
**Proxy data is displayed, with proxy well(s) identified by well ID(s) in the legend.

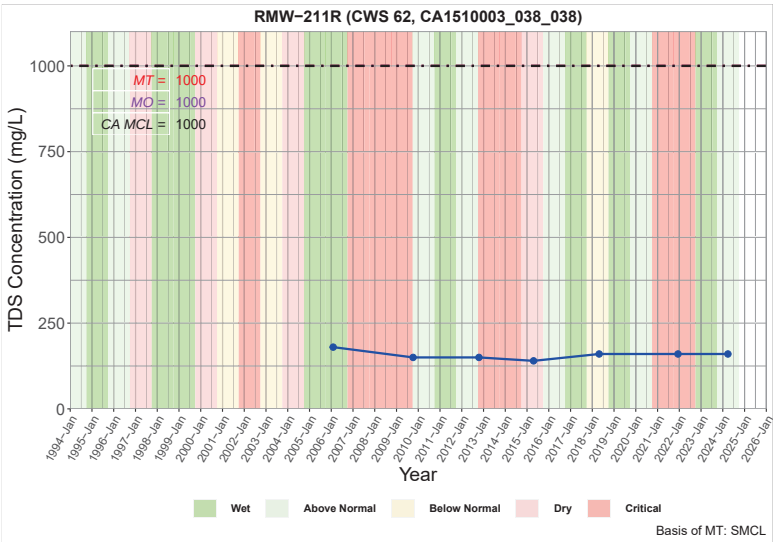

RMW−169 (28L, AGC100012324−CAWDC00013)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Burtch Construction, CA1503104_001_001
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL
**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.

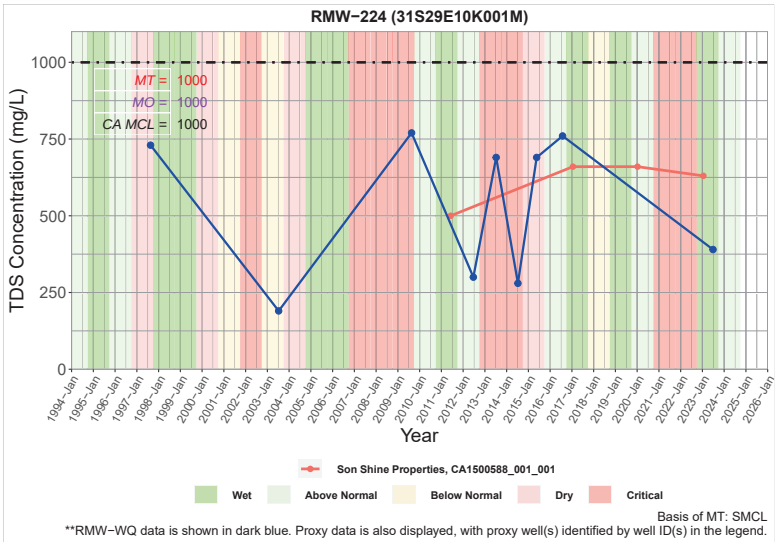

RMW−172 (6C, AGC100012324−CAWDC00009)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Lerdo Sheriff's Facilty, CA1502320_008_008
Lerdo Sheriff's Facilty, CA1502320_009_009
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL
**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.

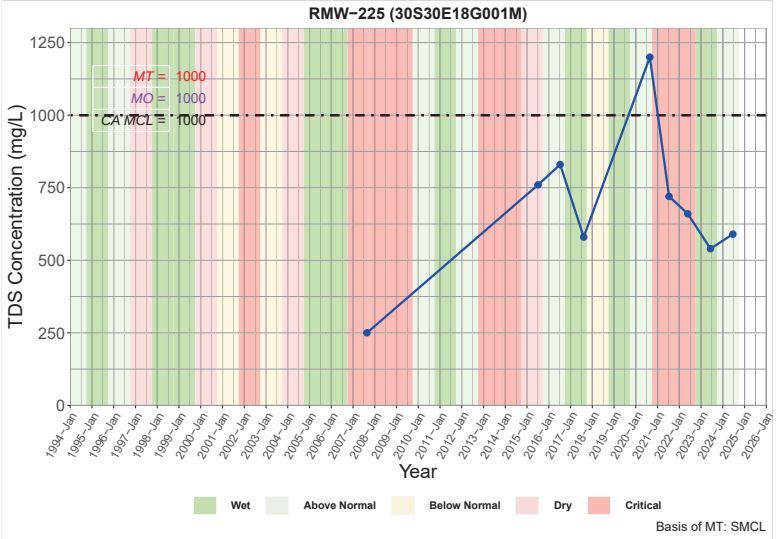

RMW−185 (EWMA #21)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL

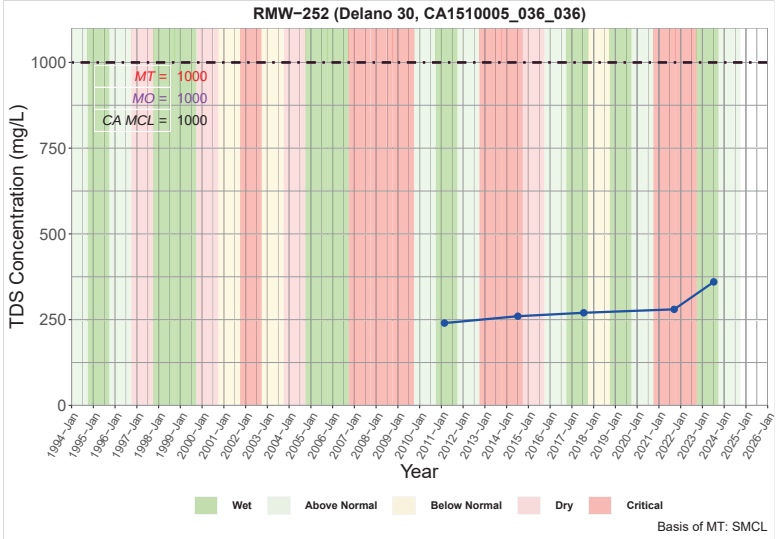

RMW−189 (EWMA #41)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL

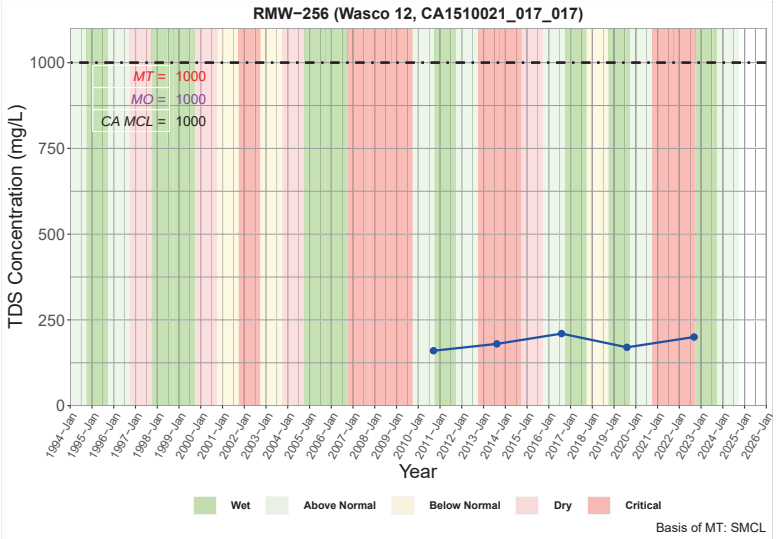

RMW−210R (CWS 140, CA1510003_105_105)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL

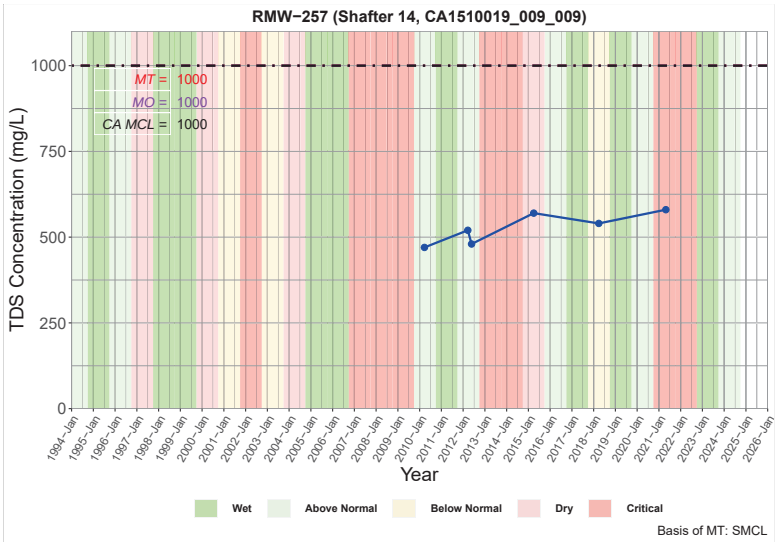

RMW−211R (CWS 62, CA1510003_038_038)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL

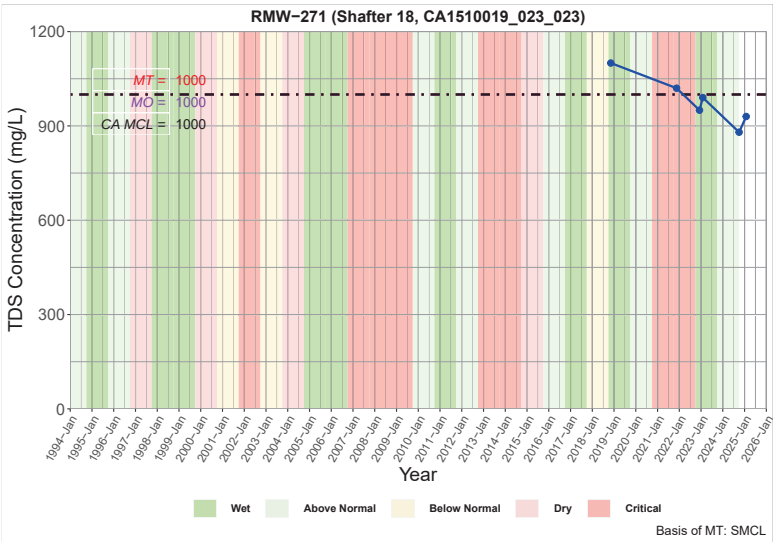

RMW−224 (31S29E10K001M)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Son Shine Properties, CA1500588_001_001
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL
**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.

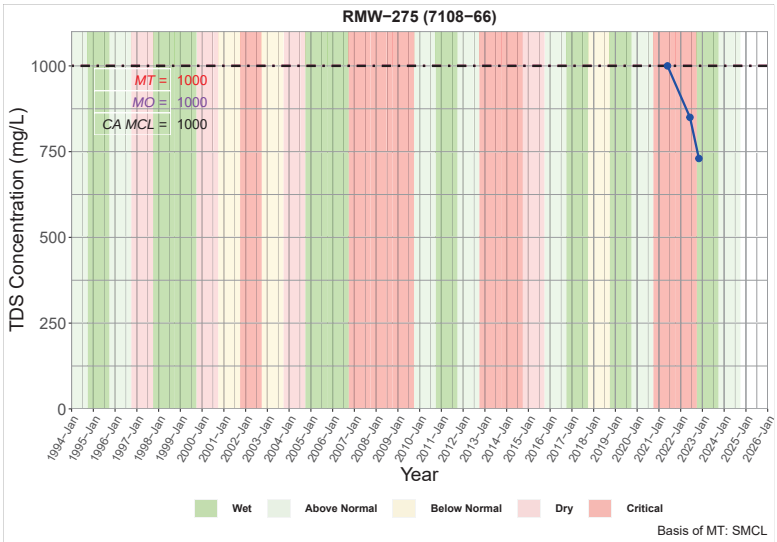

RMW−225 (30S30E18G001M)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL

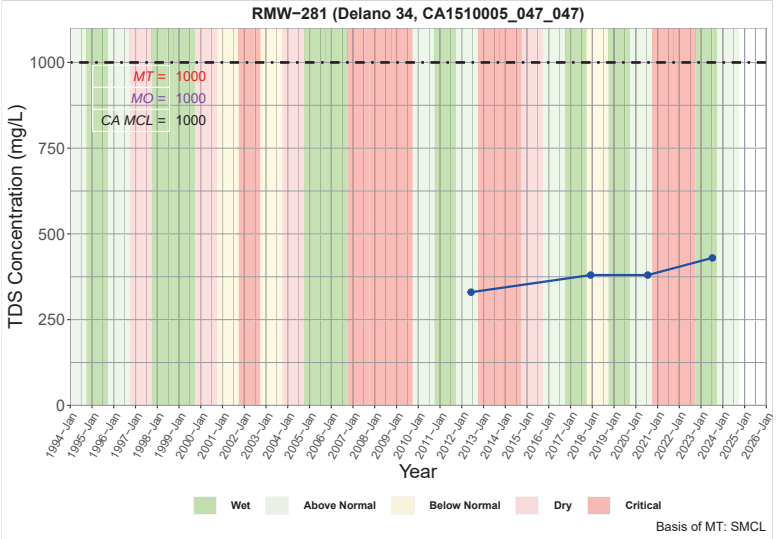

RMW−252 (Delano 30, CA1510005_036_036)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL

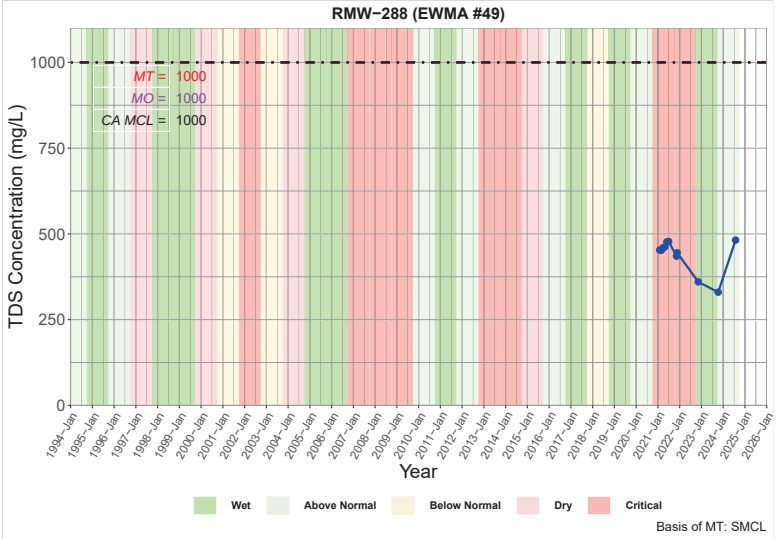

RMW−256 (Wasco 12, CA1510021_017_017)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL

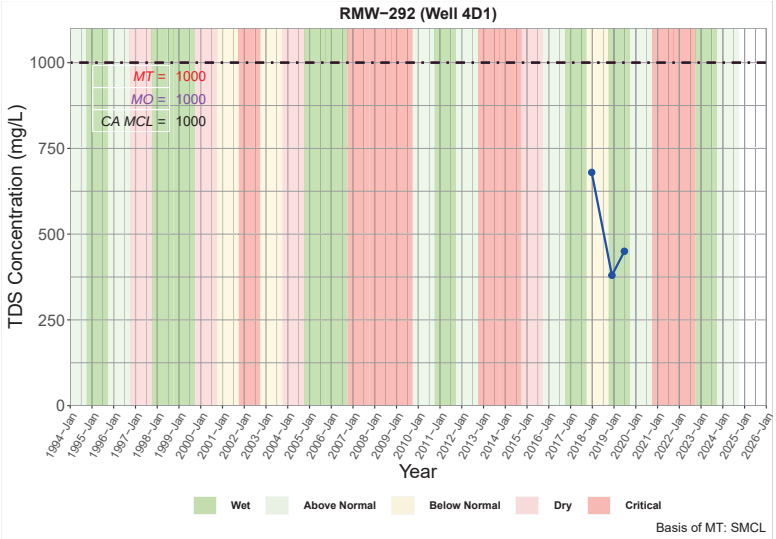

RMW−257 (Shafter 14, CA1510019_009_009)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL

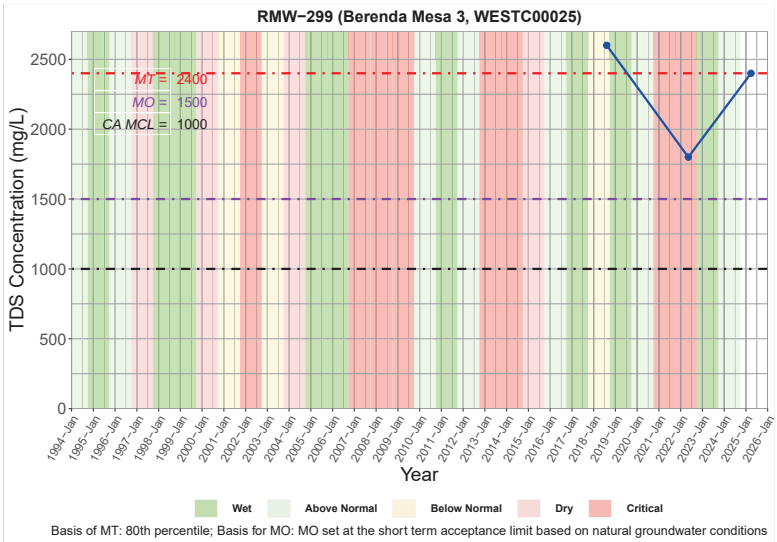

RMW−271 (Shafter 18, CA1510019_023_023)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL

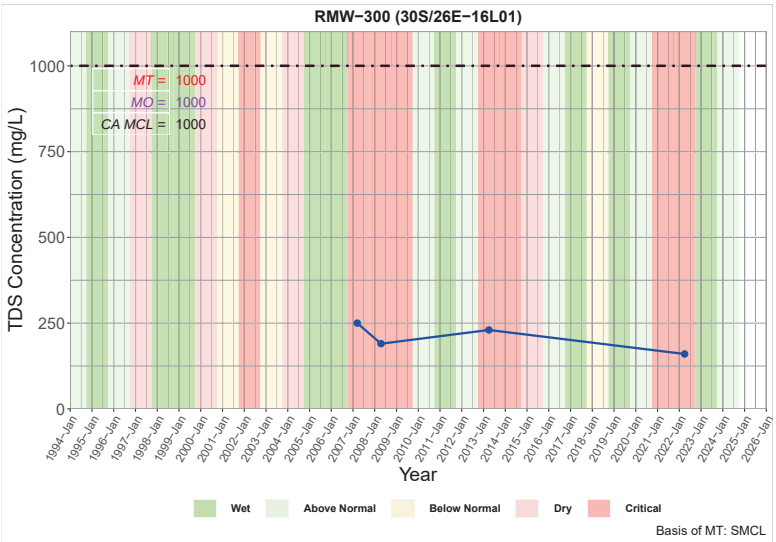

RMW−275 (7108−66)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL

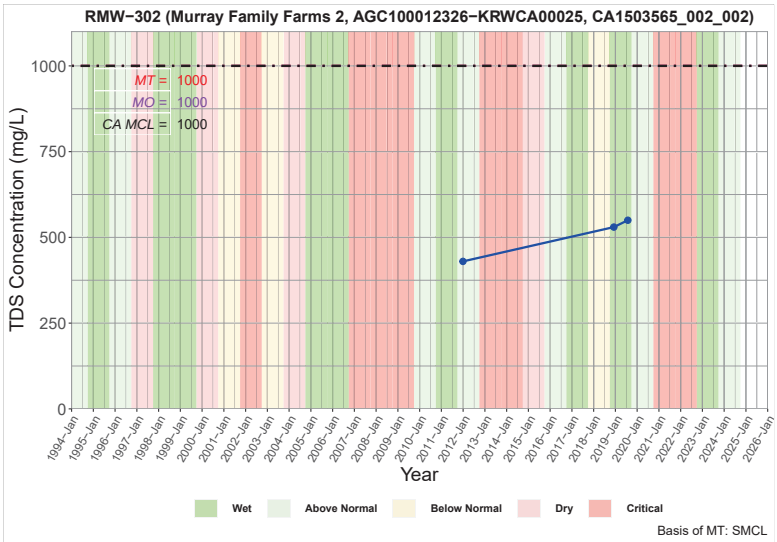

RMW−281 (Delano 34, CA1510005_047_047)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL

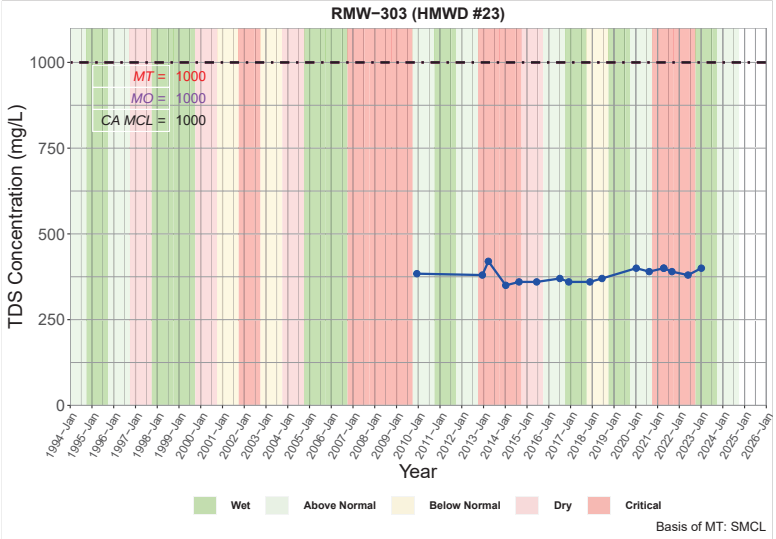

RMW−288 (EWMA #49)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL

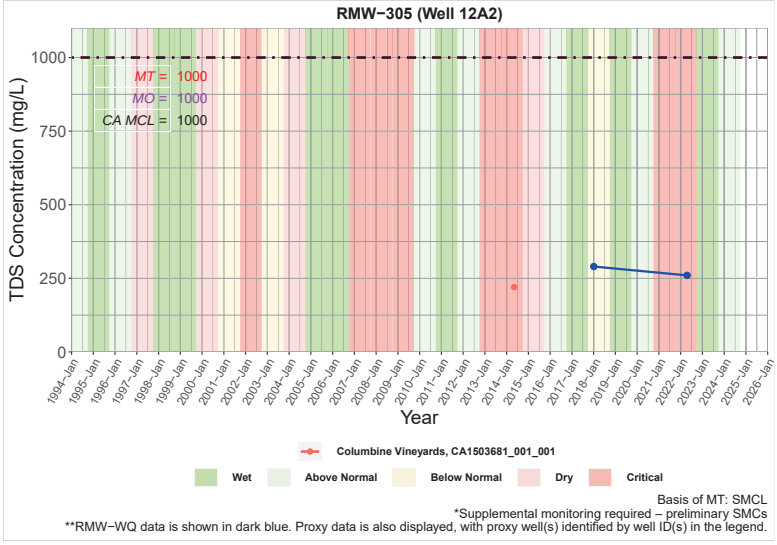

RMW−292 (Well 4D1)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL

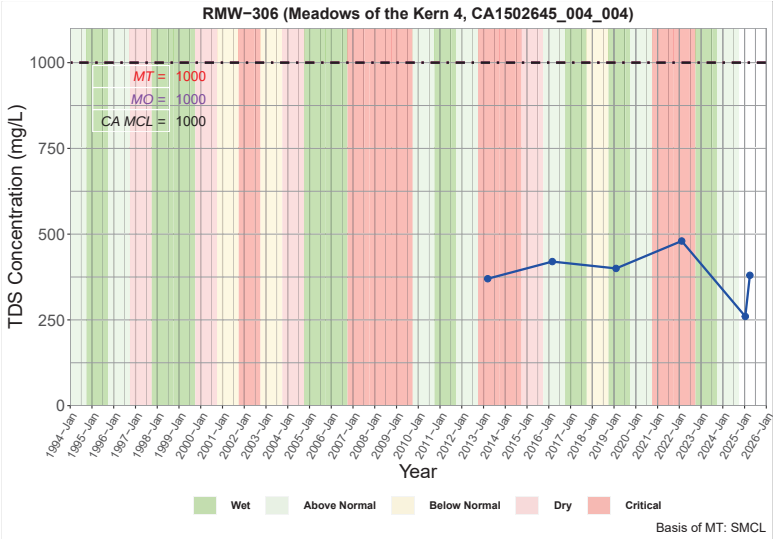

RMW−299 (Berenda Mesa 3, WESTC00025)
MT = 2400
MO = 1500
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: 80th percentile; Basis for MO: MO set at the short term acceptance limit based on natural groundwater conditions

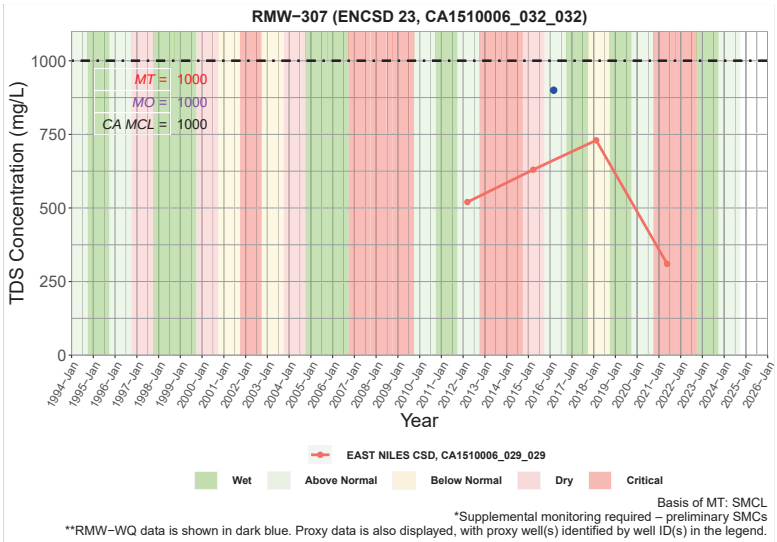

RMW−300 (30S/26E−16L01)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL

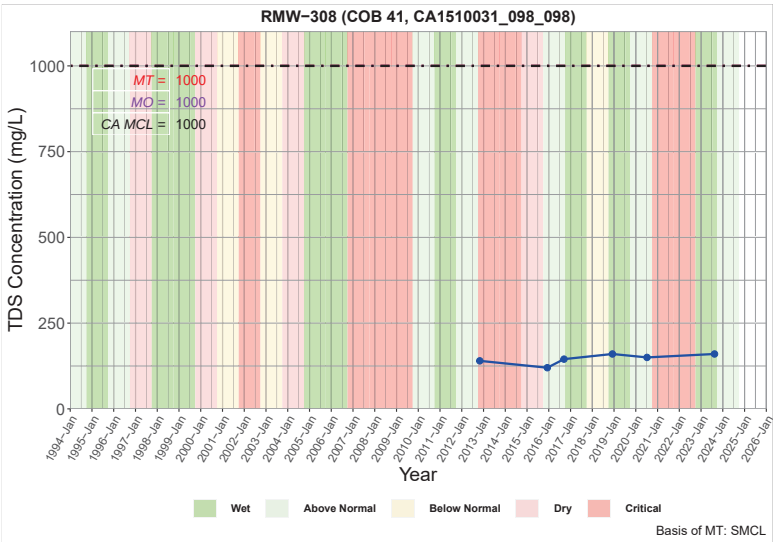

RMW−302 (Murray Family Farms 2, AGC100012326−KRWCA00025, CA1503565_002_002)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL

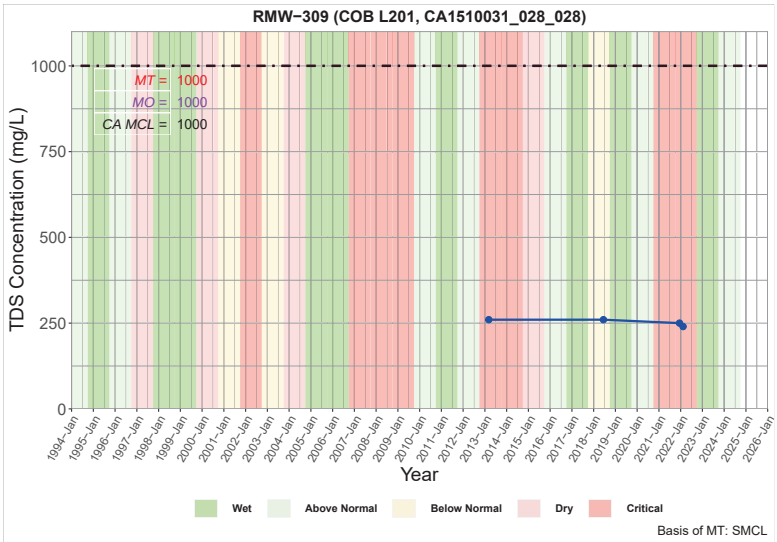

RMW−303 (HMWD #23)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL

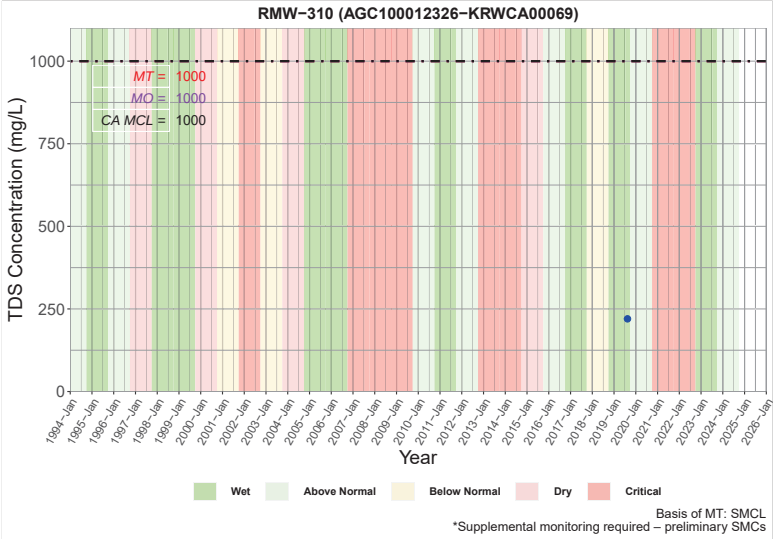

RMW−305 (Well 12A2)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Columbine Vineyards, CA1503681_001_001
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL
*Supplemental monitoring required – preliminary SMCs
**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.

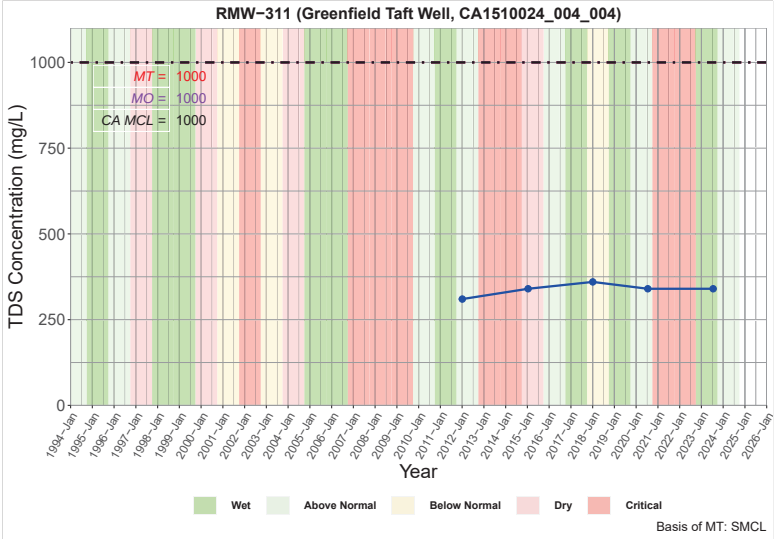

RMW−306 (Meadows of the Kern 4, CA1502645_004_004)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL

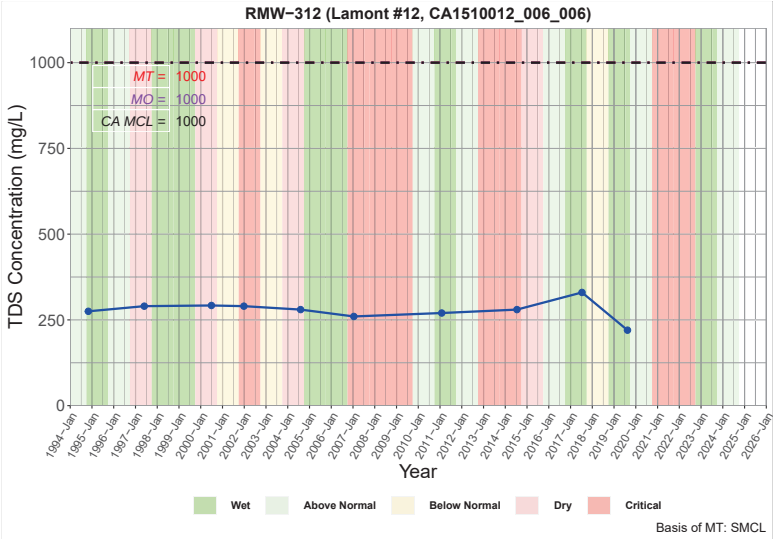

RMW−307 (ENCSD 23, CA1510006_032_032)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
EAST NILES CSD, CA1510006_029_029
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL
*Supplemental monitoring required – preliminary SMCs
**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.

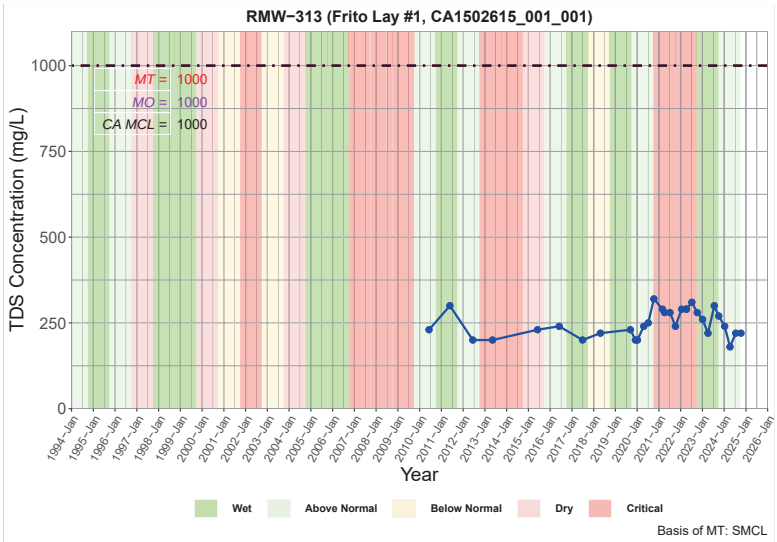

RMW−308 (COB 41, CA1510031_098_098)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL

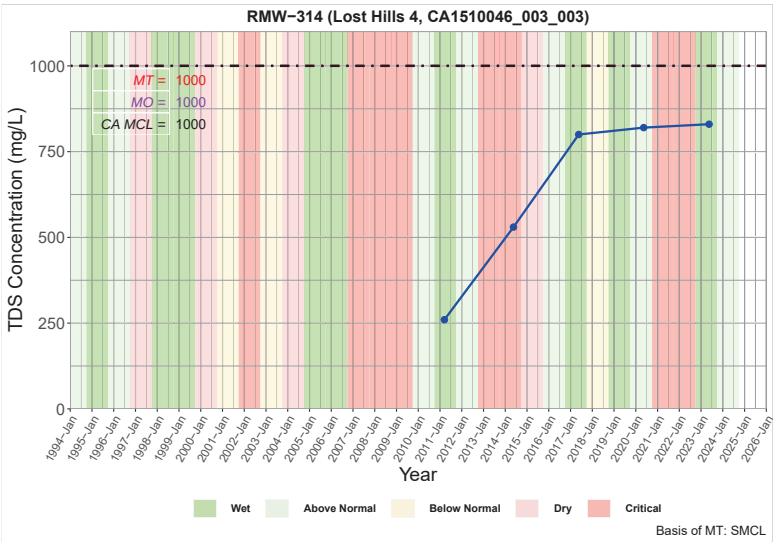

RMW−309 (COB L201, CA1510031_028_028)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL

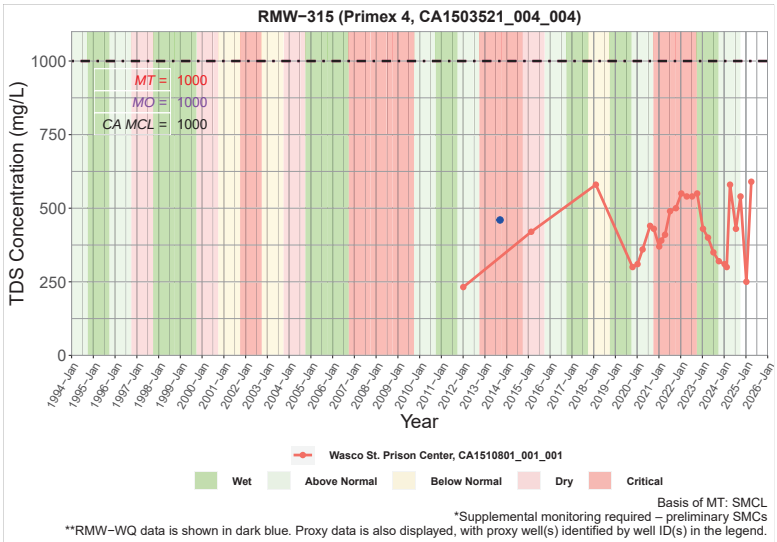

RMW−310 (AGC100012326−KRWCA00069)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL
*Supplemental monitoring required – preliminary SMCs

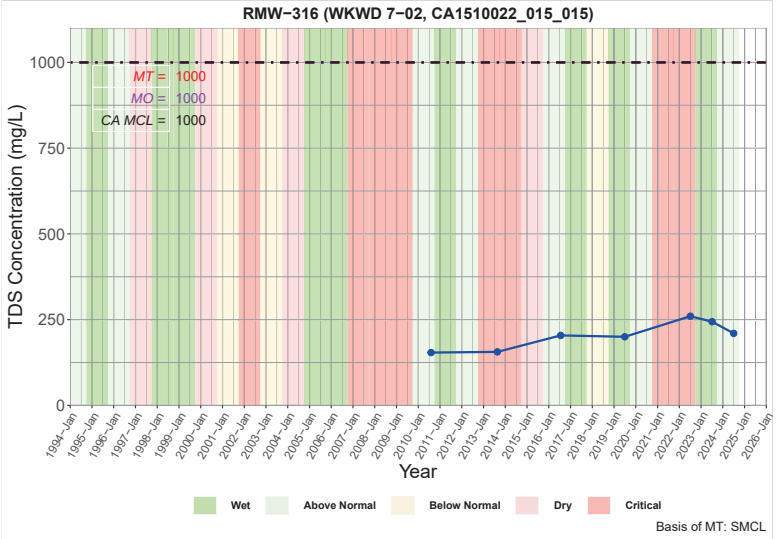

RMW−311 (Greenfield Taft Well, CA1510024_004_004)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL

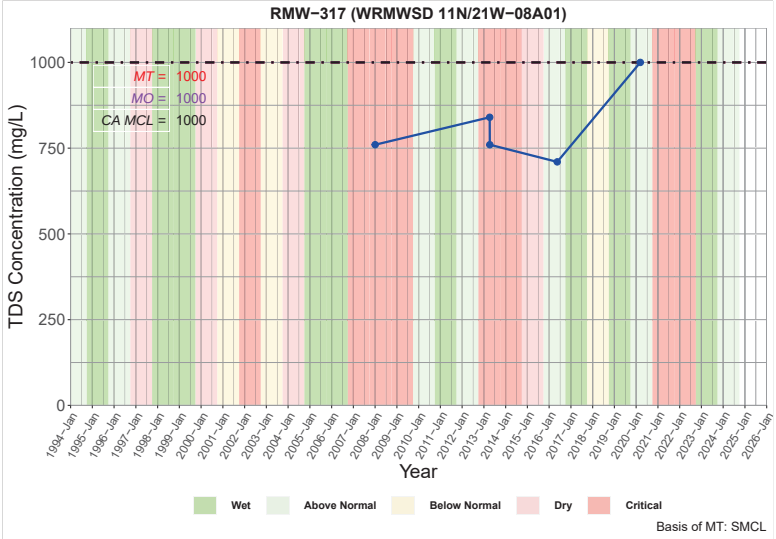

RMW−312 (Lamont #12, CA1510012_006_006)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL

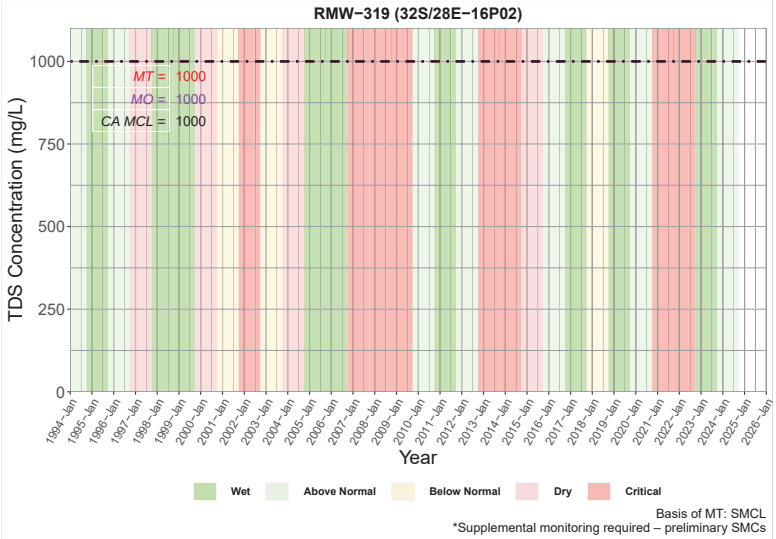

RMW−313 (Frito Lay #1, CA1502615_001_001)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL

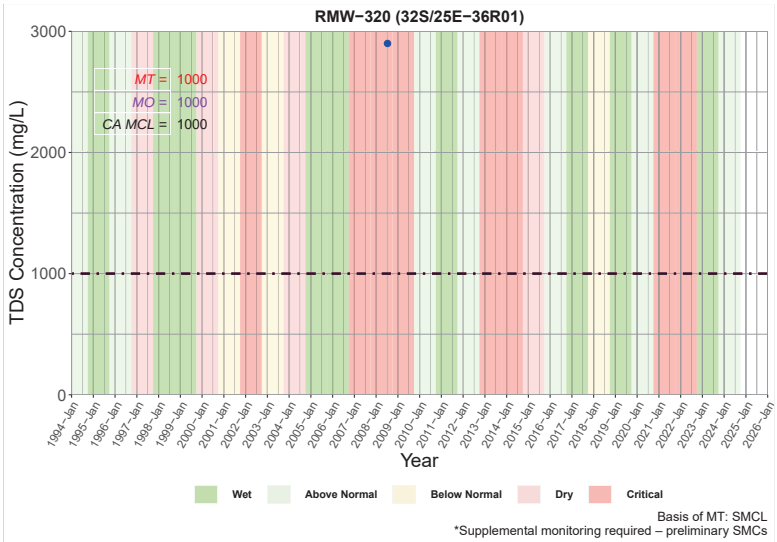

RMW−314 (Lost Hills 4, CA1510046_003_003)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL

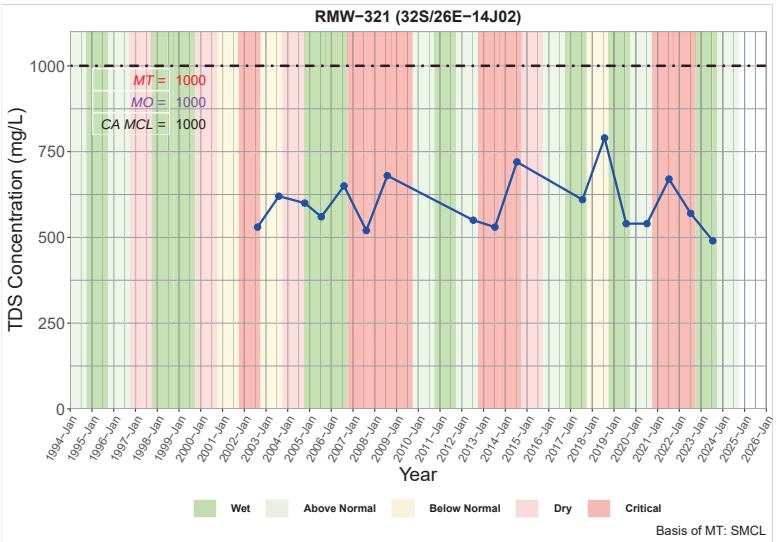

RMW−315 (Primex 4, CA1503521_004_004)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wasco St. Prison Center, CA1510801_001_001
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL
*Supplemental monitoring required – preliminary SMCs
**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.

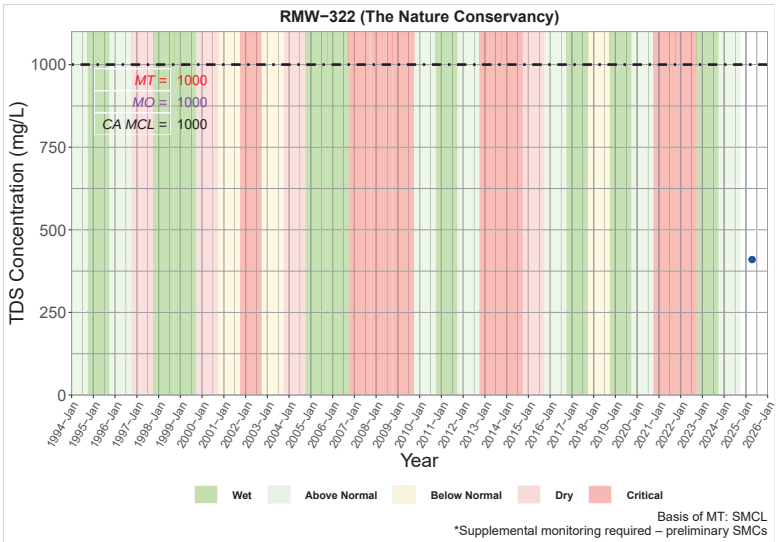

RMW−316 (WKWD 7−02, CA1510022_015_015)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL

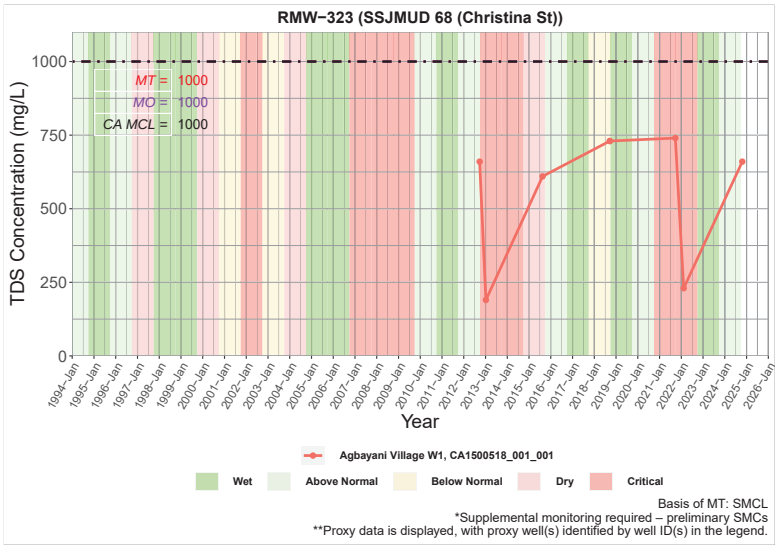

RMW−317 (WRMWSD 11N/21W−08A01)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL


RMW−319 (32S/28E−16P02)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL
*Supplemental monitoring required – preliminary SMCs


RMW−320 (32S/25E−36R01)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL
*Supplemental monitoring required – preliminary SMCs


RMW−321 (32S/26E−14J02)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL


RMW−322 (The Nature Conservancy)
MT = 1000
MO = 1000
CA MCL = 1000
TDS Concentration (mg/L)
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: SMCL
*Supplemental monitoring required – preliminary SMCs

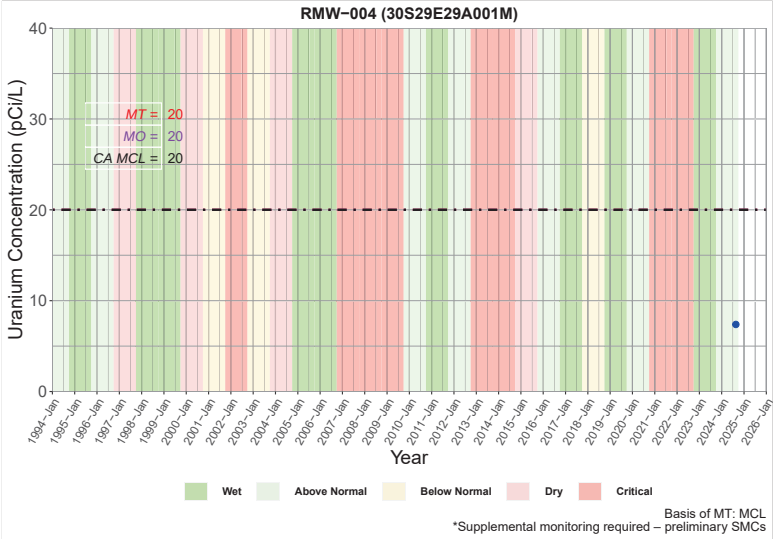


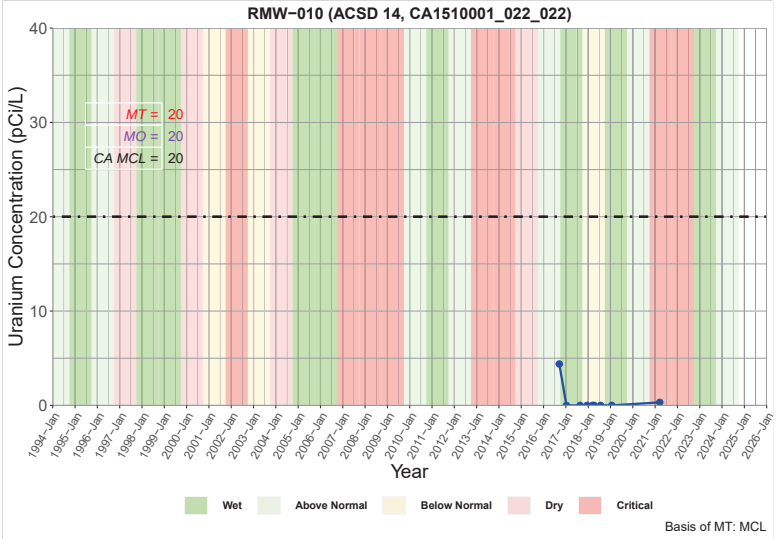
Basis of MT: SMCL
*Supplemental monitoring required – preliminary SMCs
**Proxy data is displayed, with proxy well(s) identified by well ID(s) in the legend.

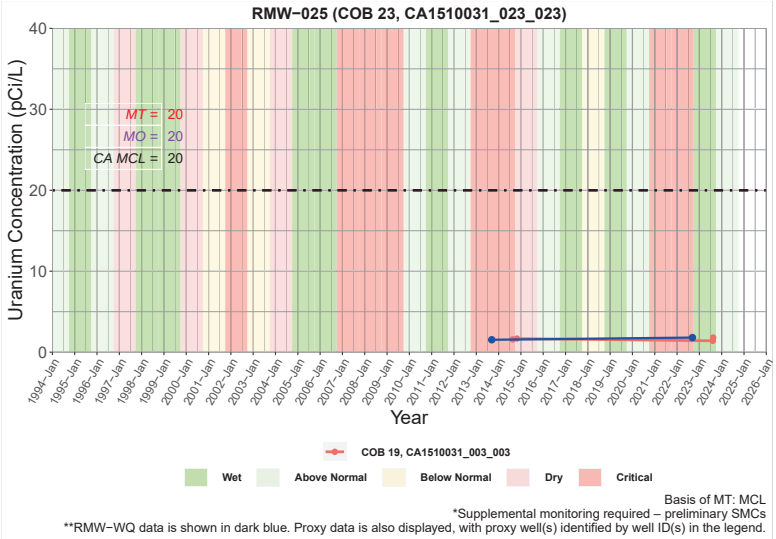
2025 Plan Appendix I-4:

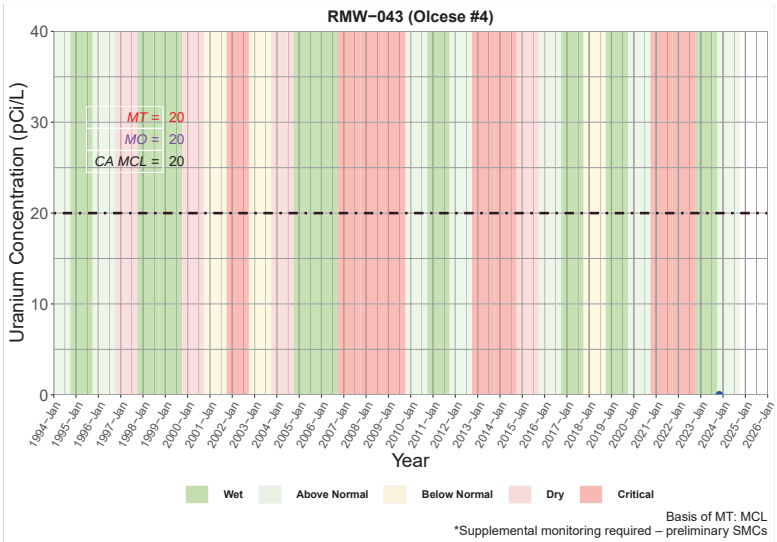
Water Quality Representative Monitoring Well Chemographs

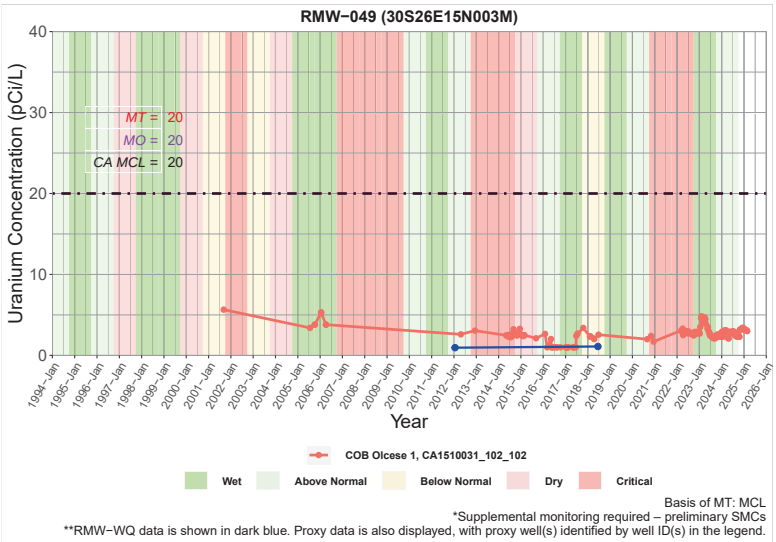
URANIUM

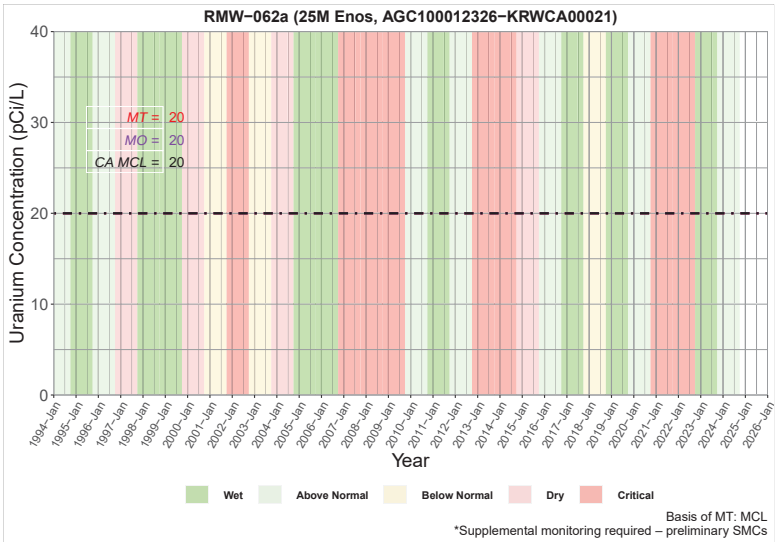

RMW−004 (30S29E29A001M)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

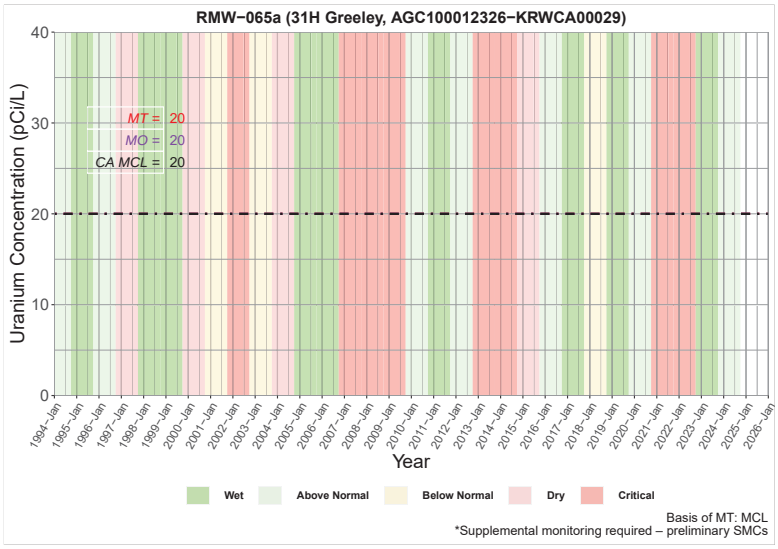

RMW−010 (ACSD 14, CA1510001_022_022)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

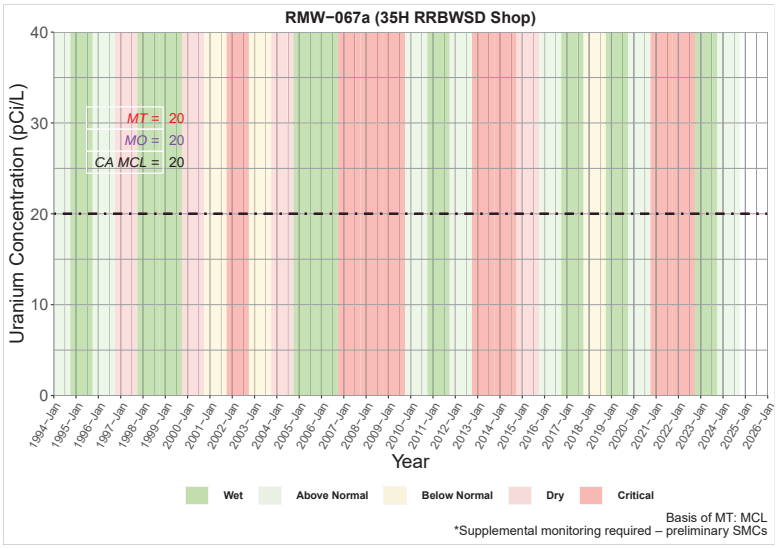

RMW−025 (COB 23, CA1510031_023_023)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
COB 19, CA1510031_003_003
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs
**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.

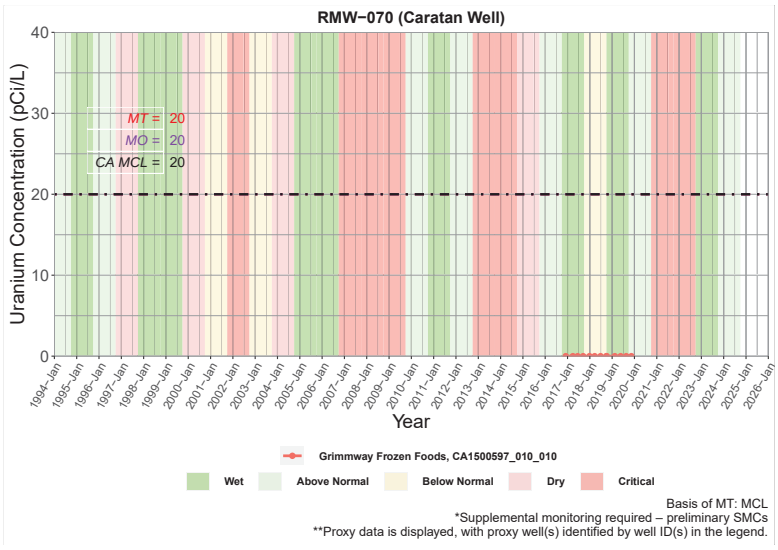

RMW−043 (Olcese #4)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

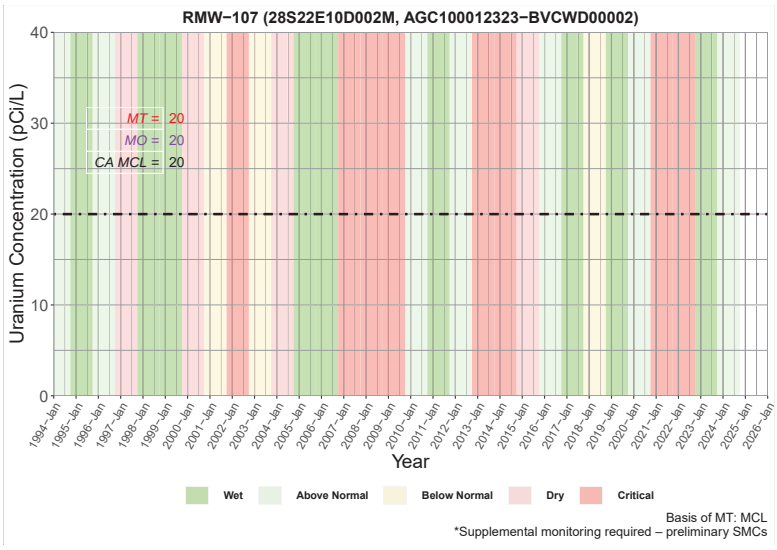

RMW−049 (30S26E15N003M)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
COB Olcese 1, CA1510031_102_102
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs
**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.

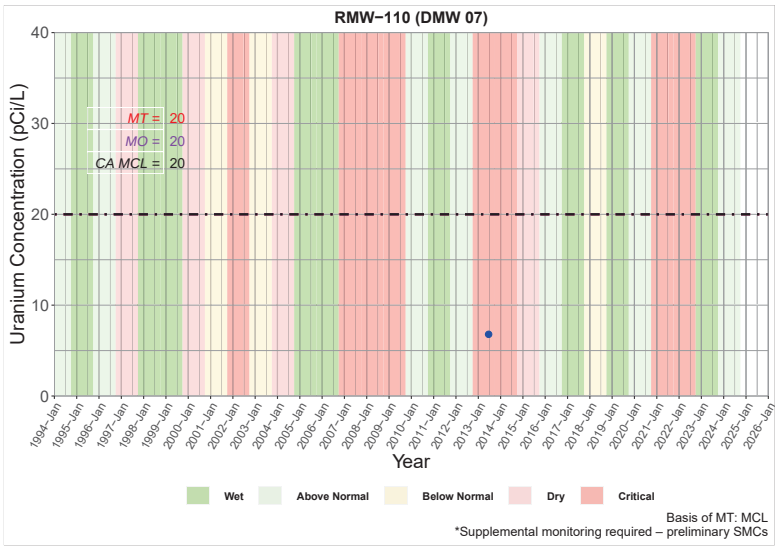

RMW−062a (25M Enos, AGC100012326−KRWCA00021)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

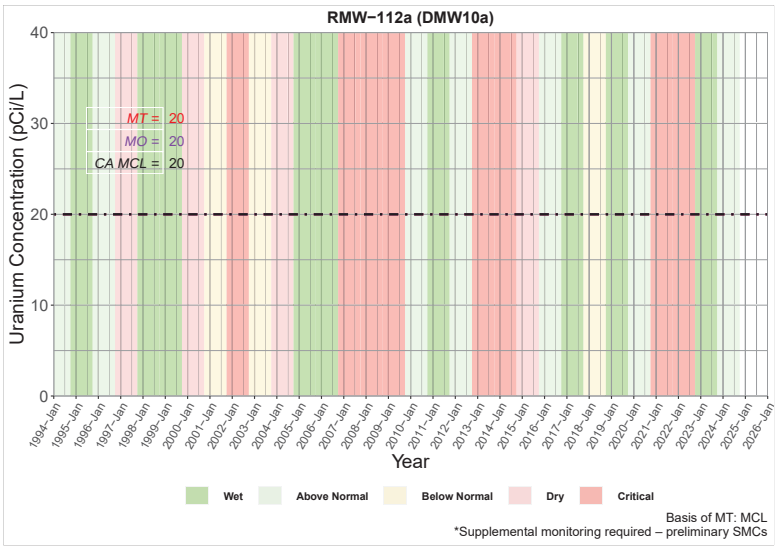

RMW−065a (31H Greeley, AGC100012326−KRWCA00029)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

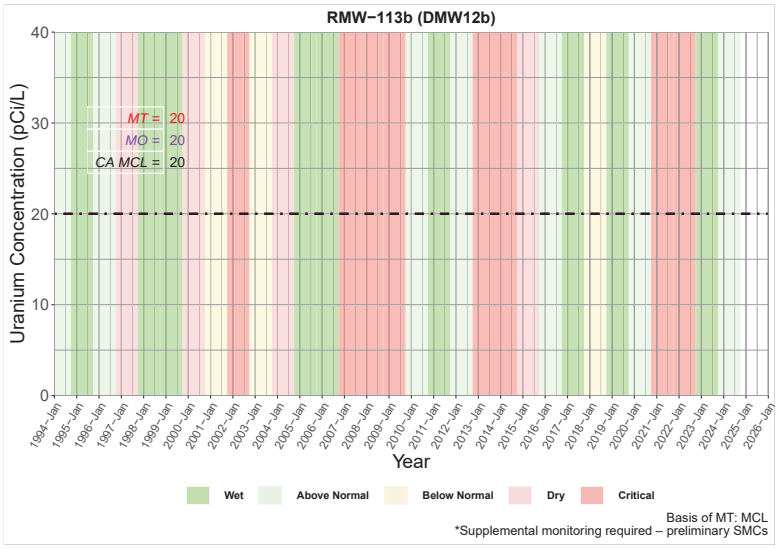

RMW−067a (35H RRBWSD Shop)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

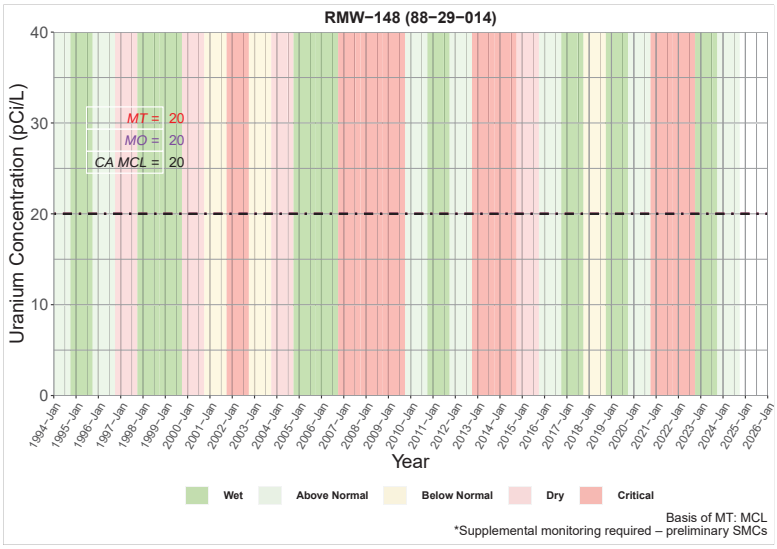

RMW−070 (Caratan Well)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
Grimmway Frozen Foods, CA1500597_010_010
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs
**Proxy data is displayed, with proxy well(s) identified by well ID(s) in the legend.

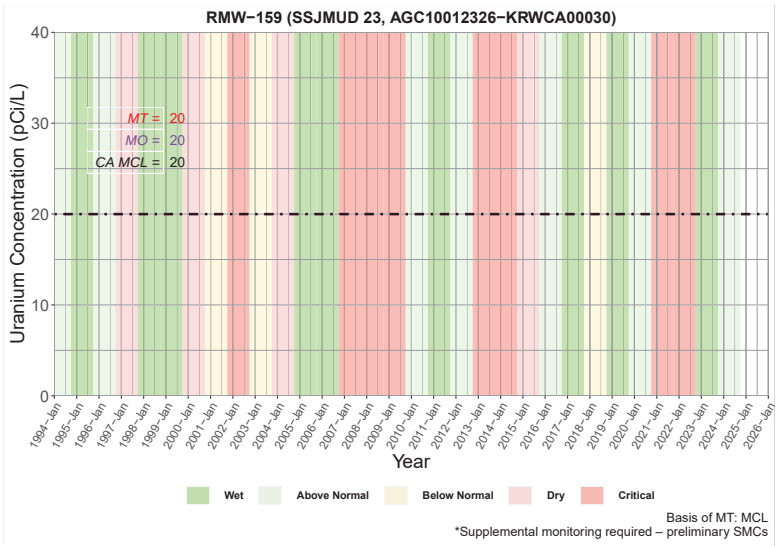

RMW−107 (28S22E10D002M, AGC100012323−BVCWD00002)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

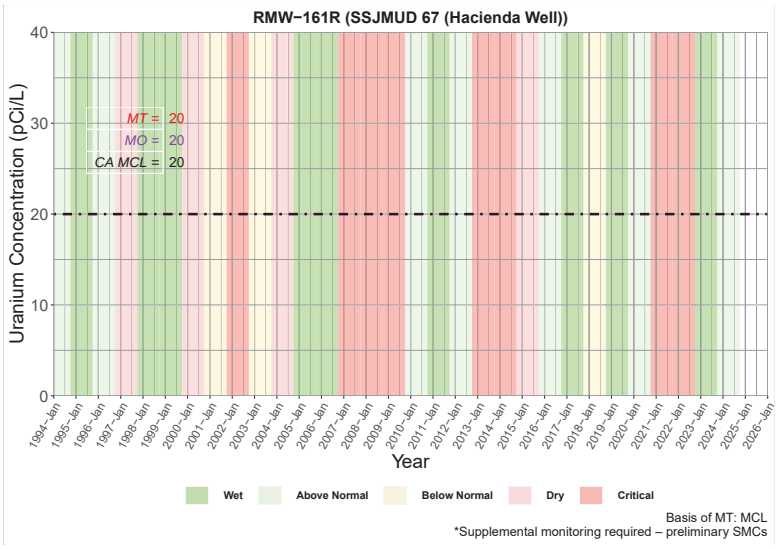

RMW−110 (DMW 07)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

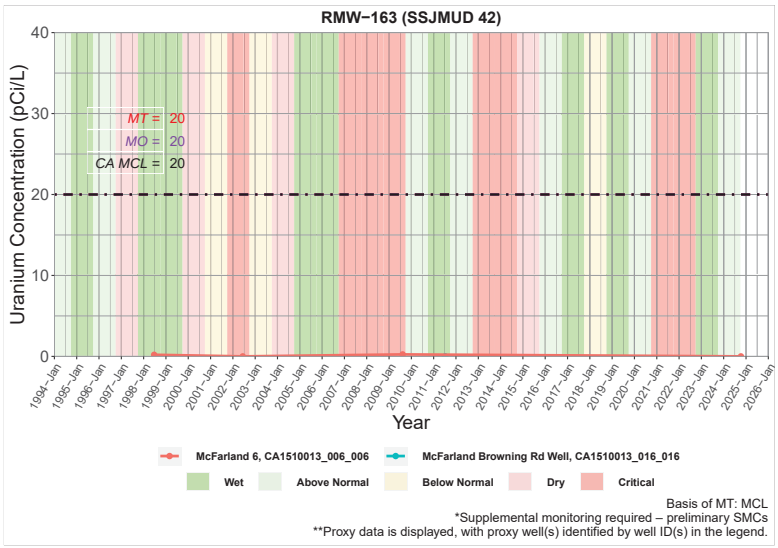

RMW−112a (DMW10a)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

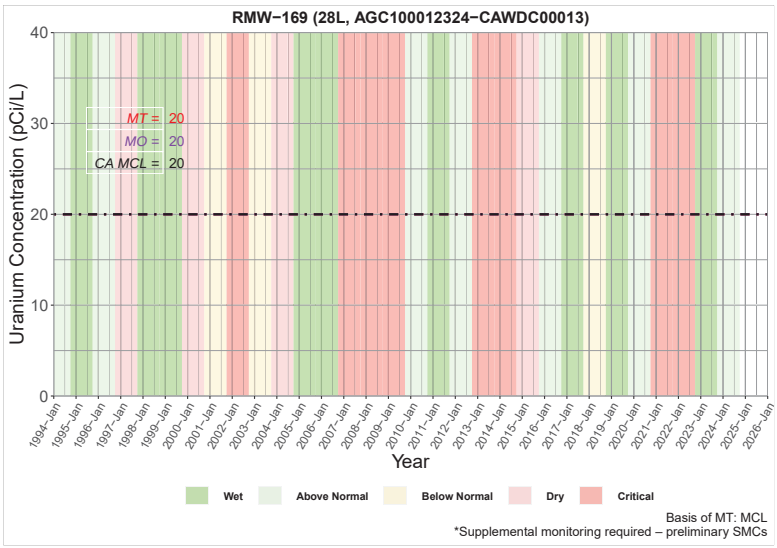

RMW−113b (DMW12b)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

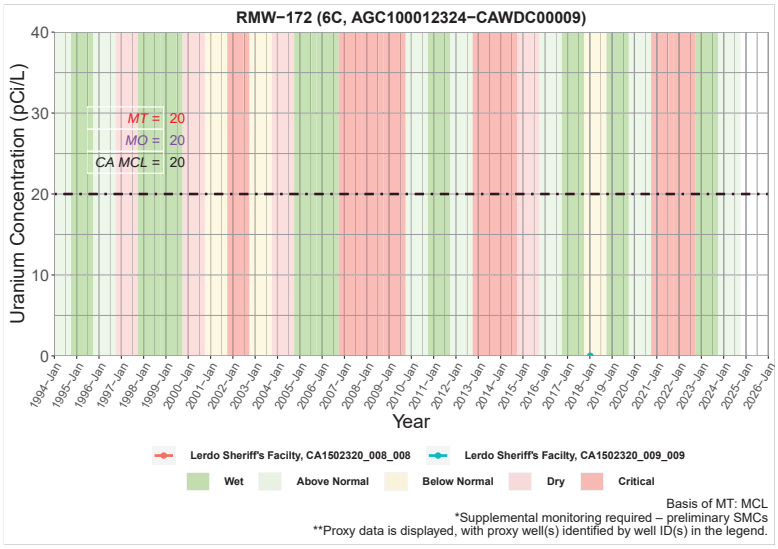

RMW−148 (88−29−014)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs


RMW−159 (SSJMUD 23, AGC10012326−KRWCA00030)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

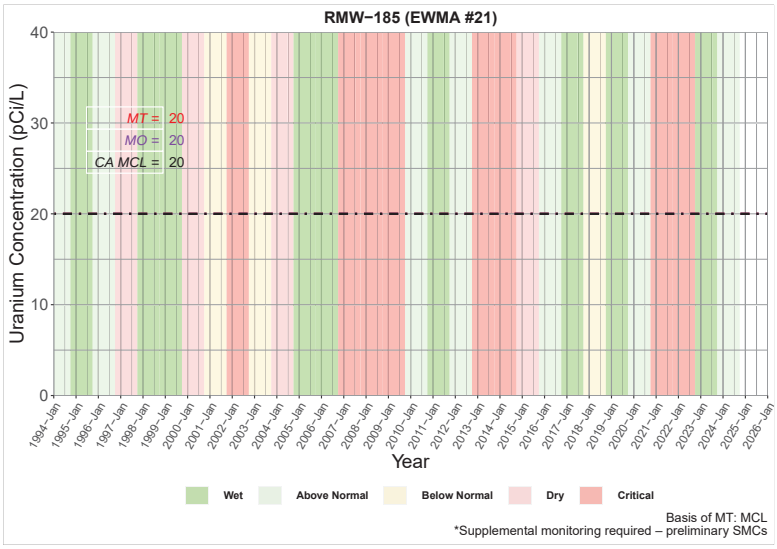

RMW−161R (SSJMUD 67 (Hacienda Well))
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs


RMW−163 (SSJMUD 42)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
McFarland 6, CA1510013_006_006
McFarland Browning Rd Well, CA1510013_016_016
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs
**Proxy data is displayed, with proxy well(s) identified by well ID(s) in the legend.

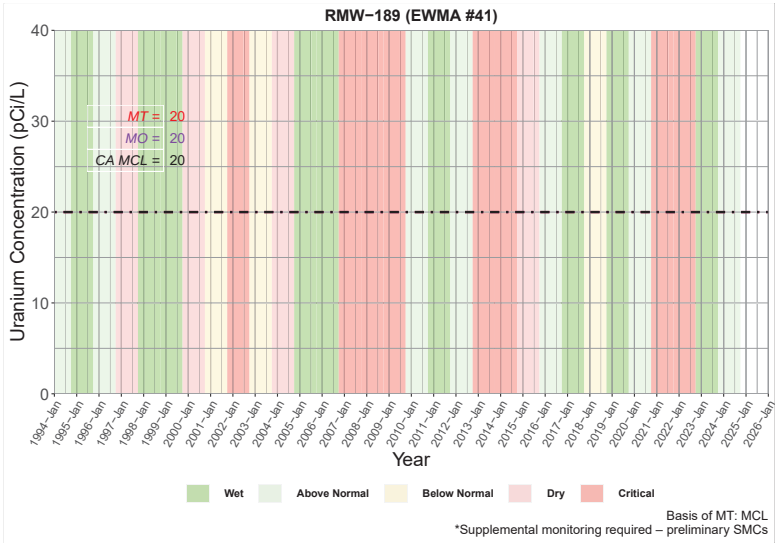

RMW−169 (28L, AGC100012324−CAWDC00013)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs



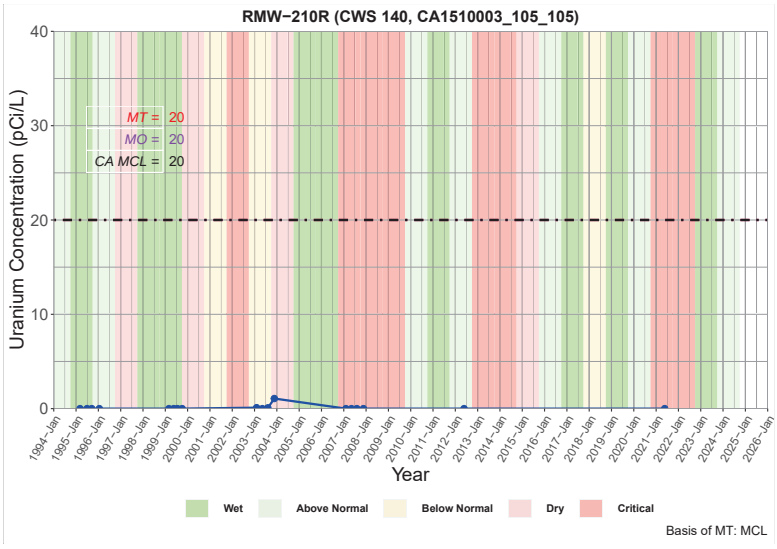
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs
**Proxy data is displayed, with proxy well(s) identified by well ID(s) in the legend.



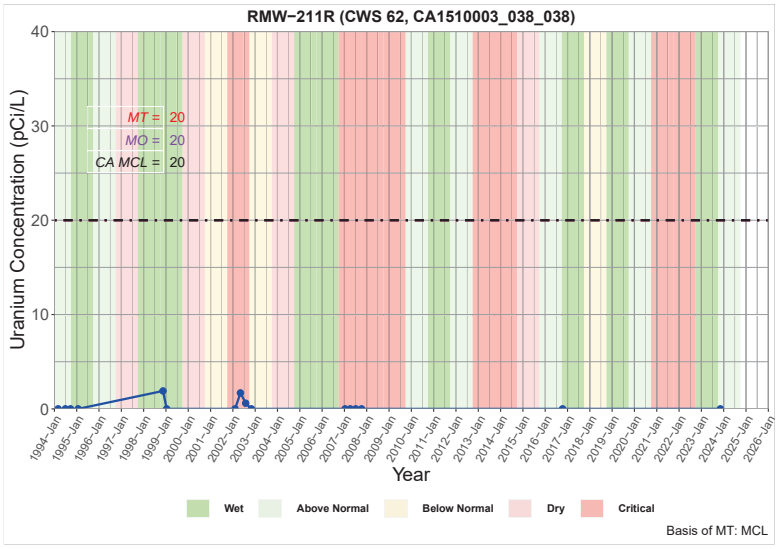
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs



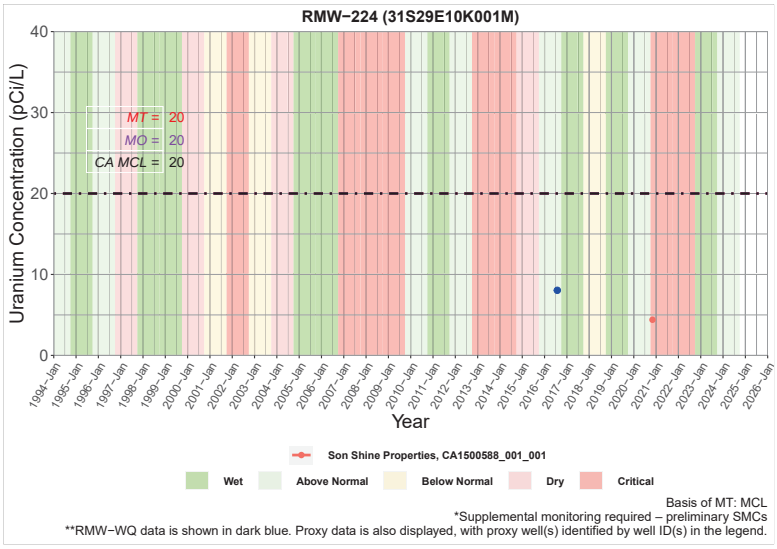
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs



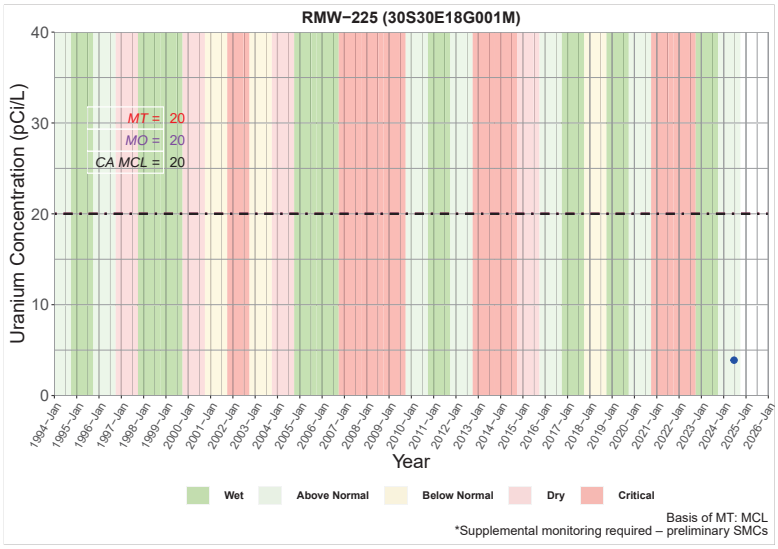
Basis of MT: MCL

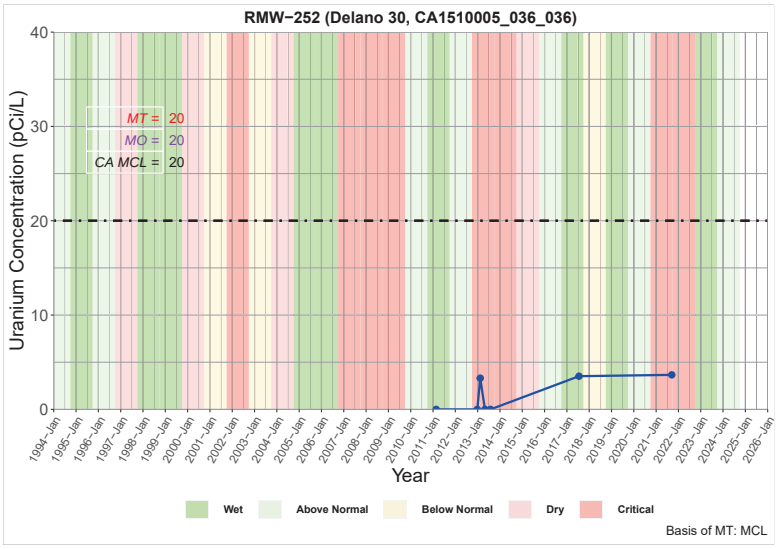


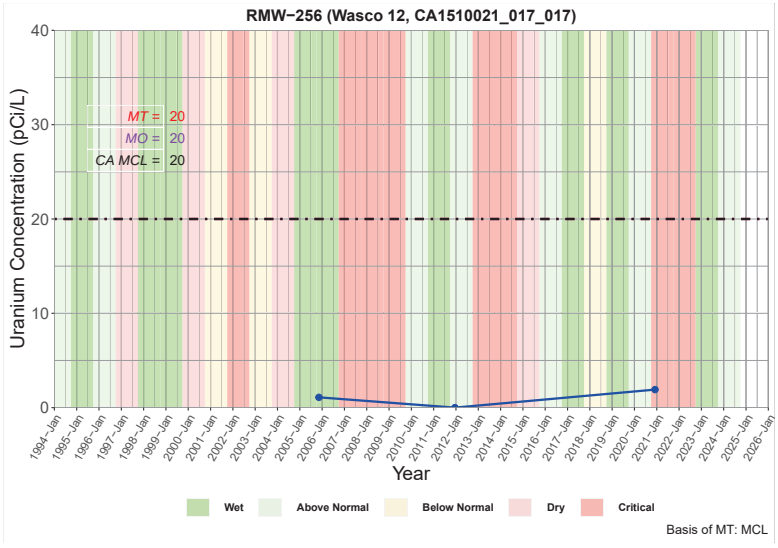
Basis of MT: MCL

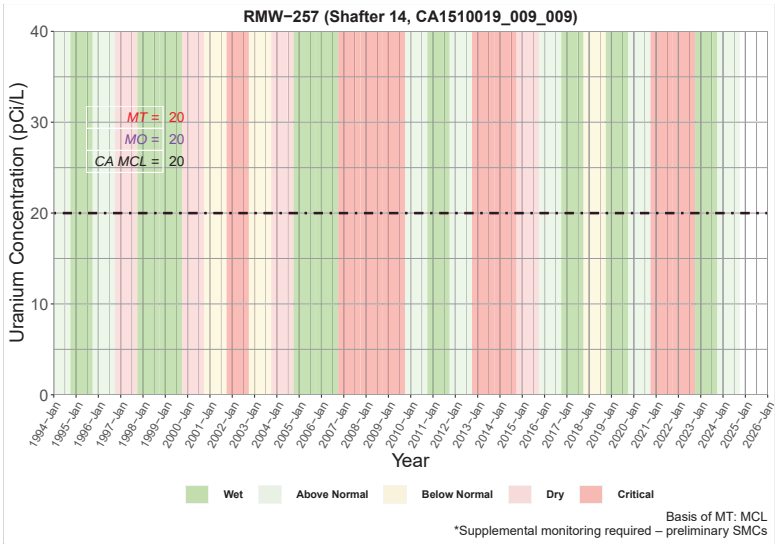


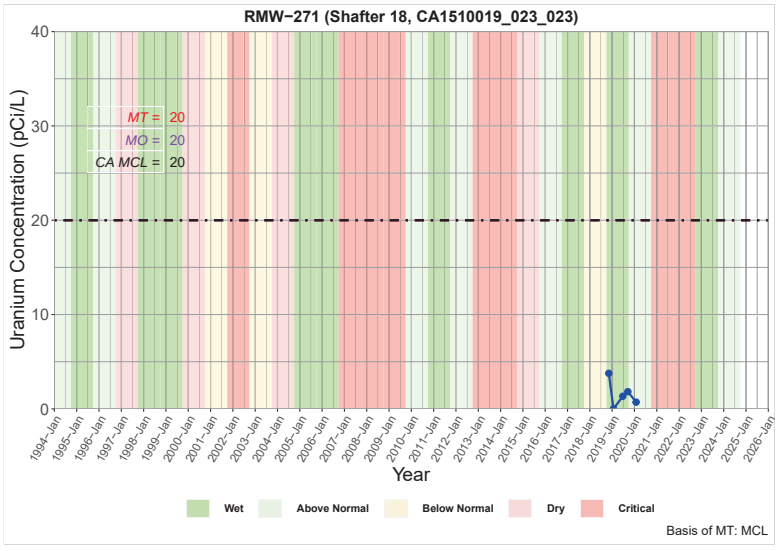
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs
**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.

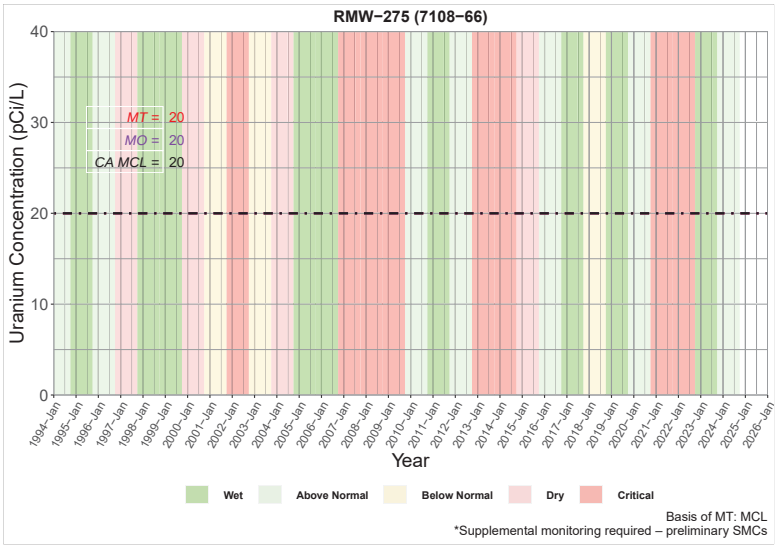

RMW-225 (30S30E18G001M)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

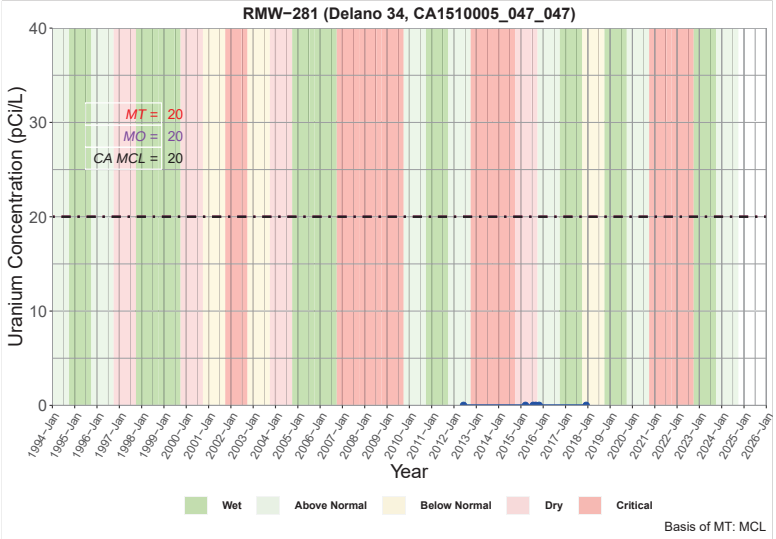

RMW-252 (Delano 30, CA1510005_036_036)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

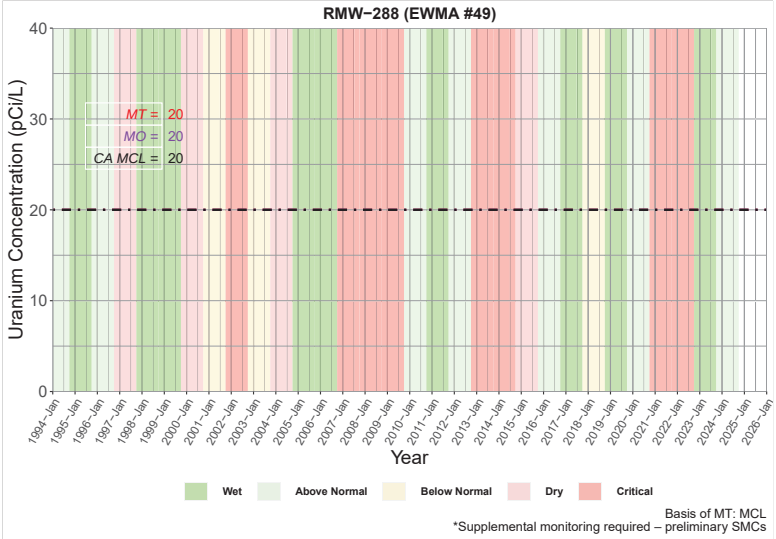

RMW-256 (Wasco 12, CA1510021_017_017)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

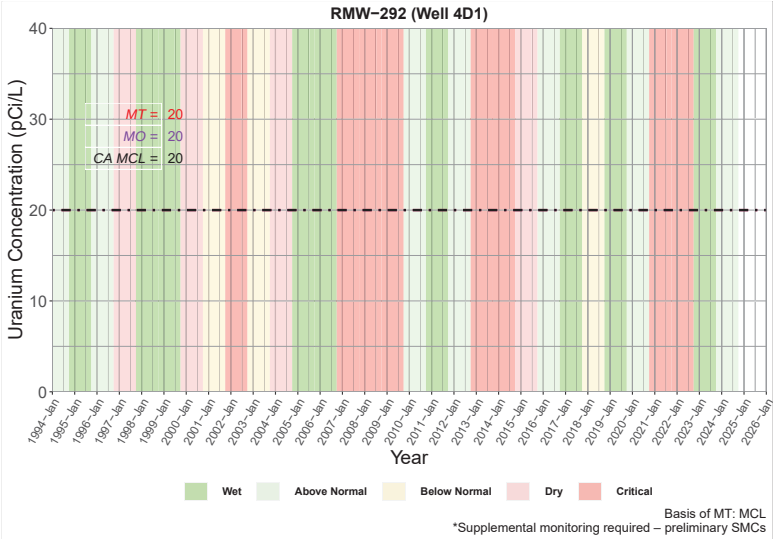

RMW-257 (Shafter 14, CA1510019_009_009)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

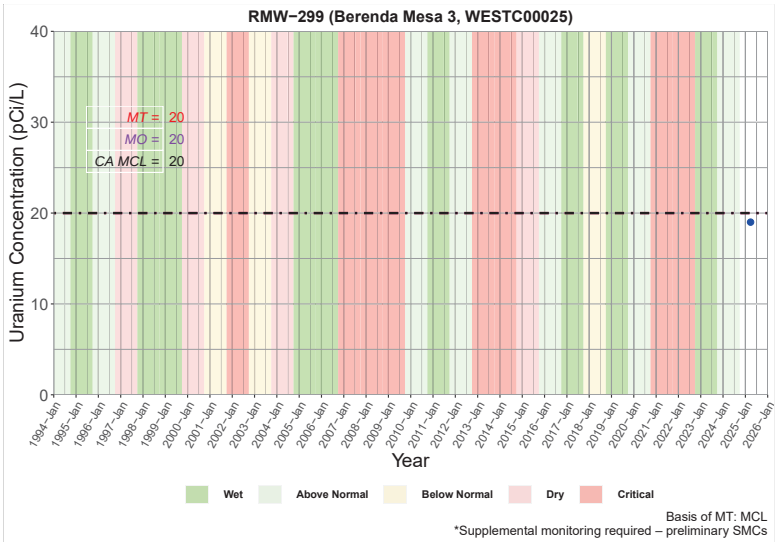

RMW-271 (Shafter 18, CA1510019_023_023)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

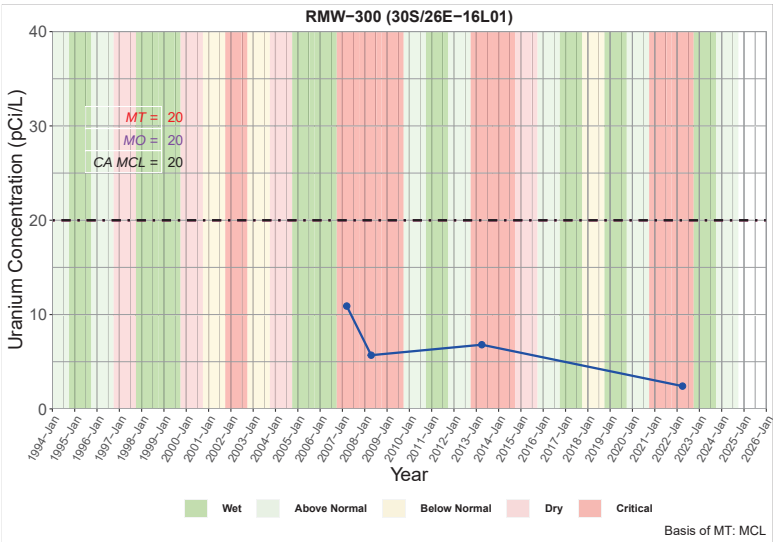

RMW-275 (7108-66)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

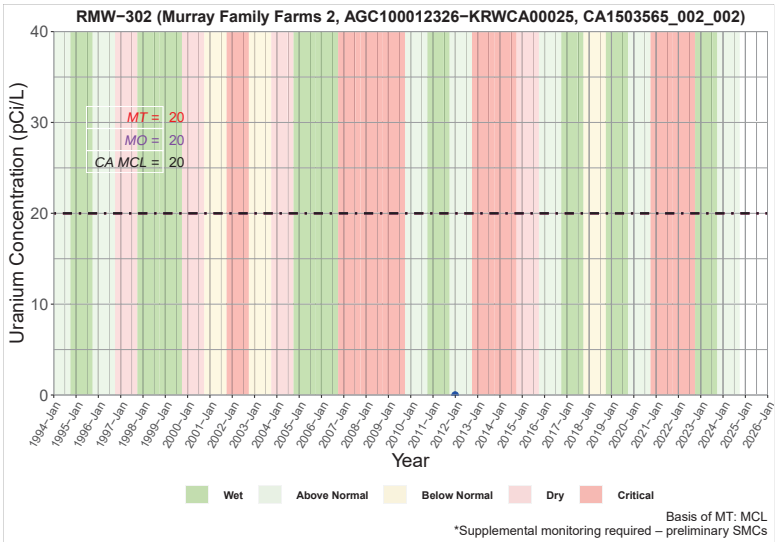

RMW-281 (Delano 34, CA1510005_047_047)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

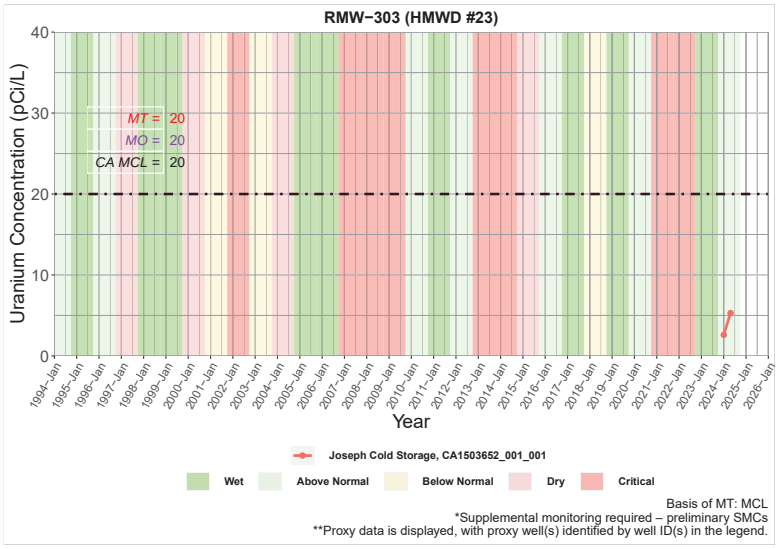

RMW-288 (EWMA #49)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs


RMW-292 (Well 4D1)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

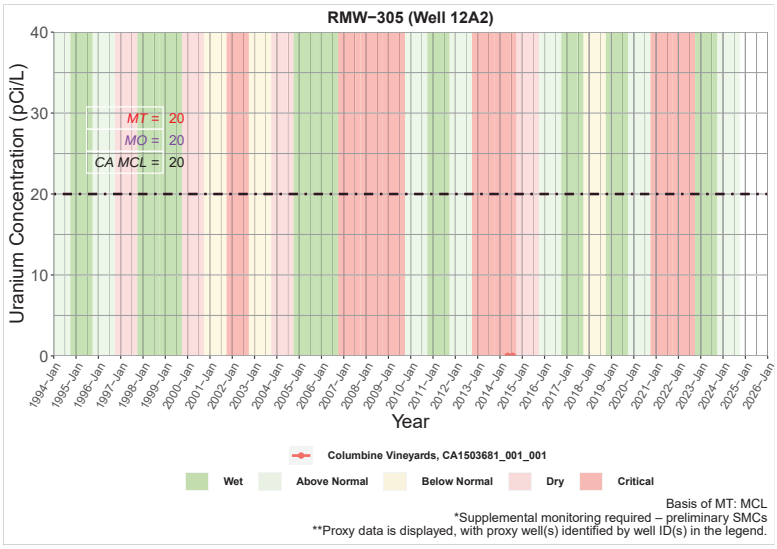

RMW-299 (Berenda Mesa 3, WESTC00025)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs


RMW-300 (30S/26E-16L01)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

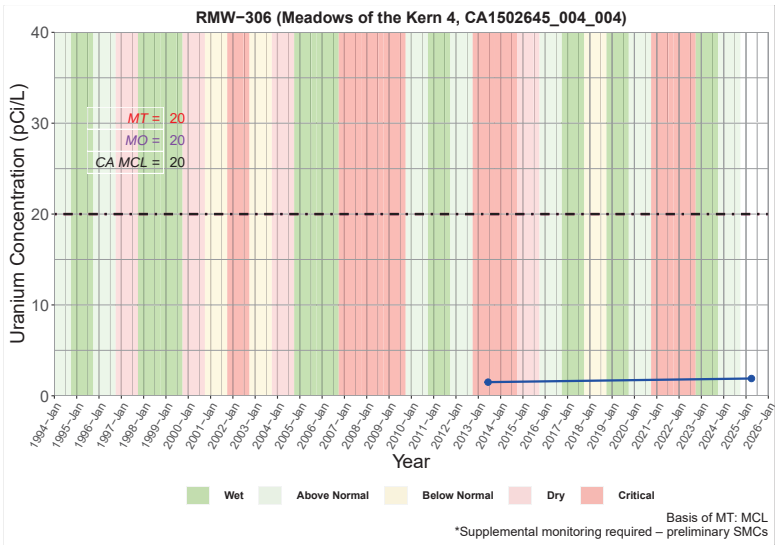

RMW-302 (Murray Family Farms 2, AGC100012326-KRWCA00025, CA1503565_002_002)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs



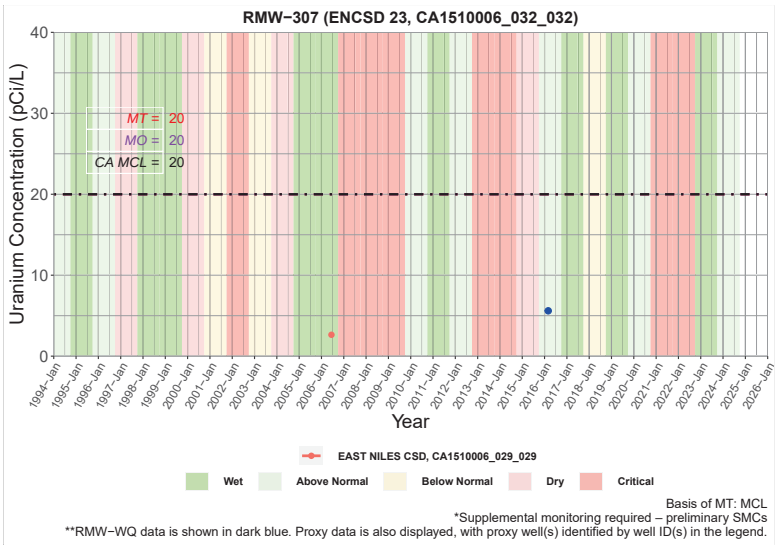
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs
**Proxy data is displayed, with proxy well(s) identified by well ID(s) in the legend.



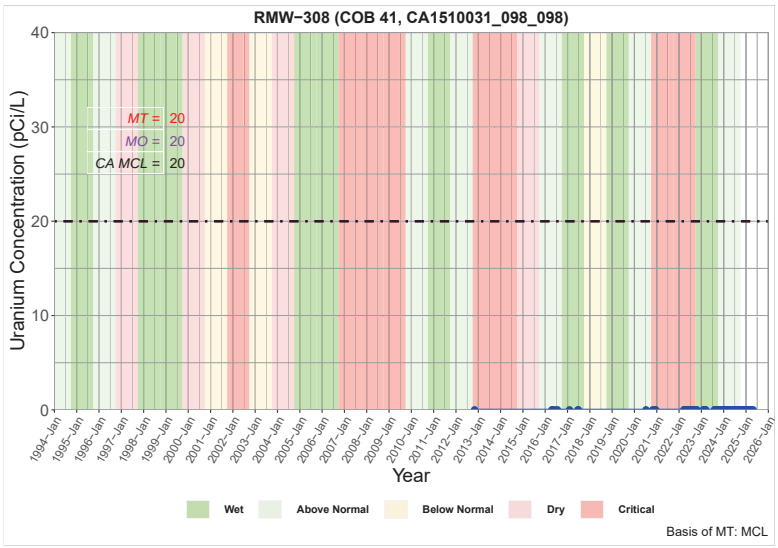
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs
**Proxy data is displayed, with proxy well(s) identified by well ID(s) in the legend.



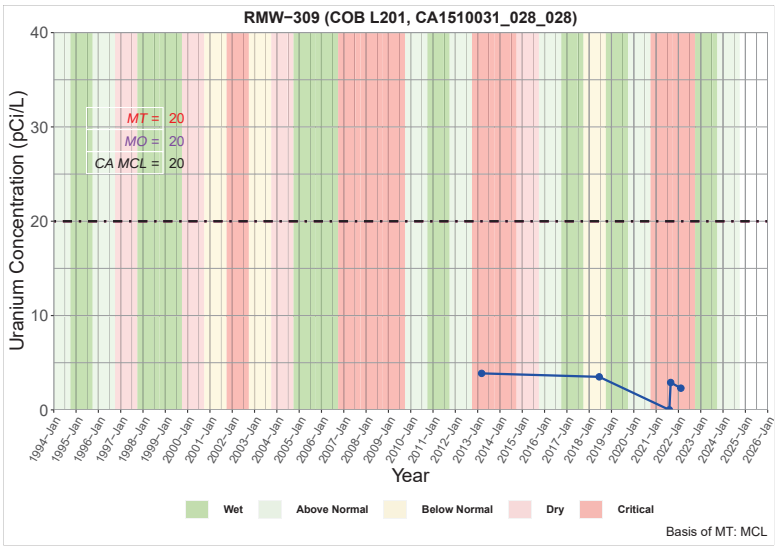
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs



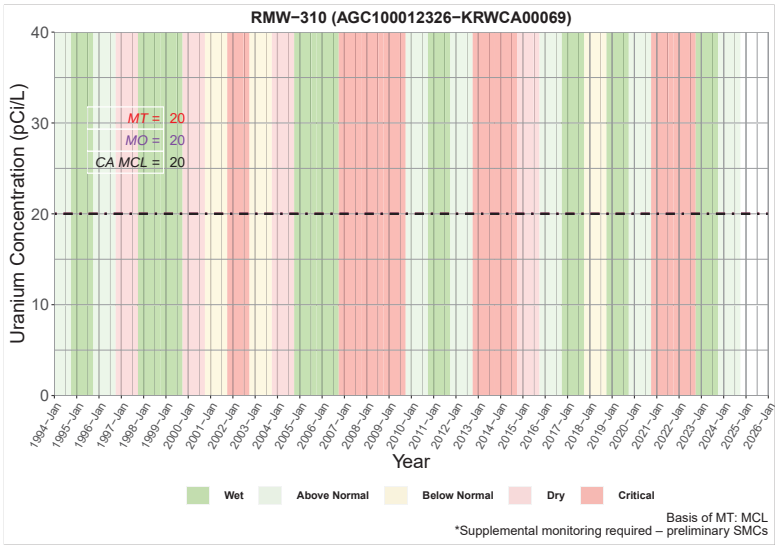
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs
**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.

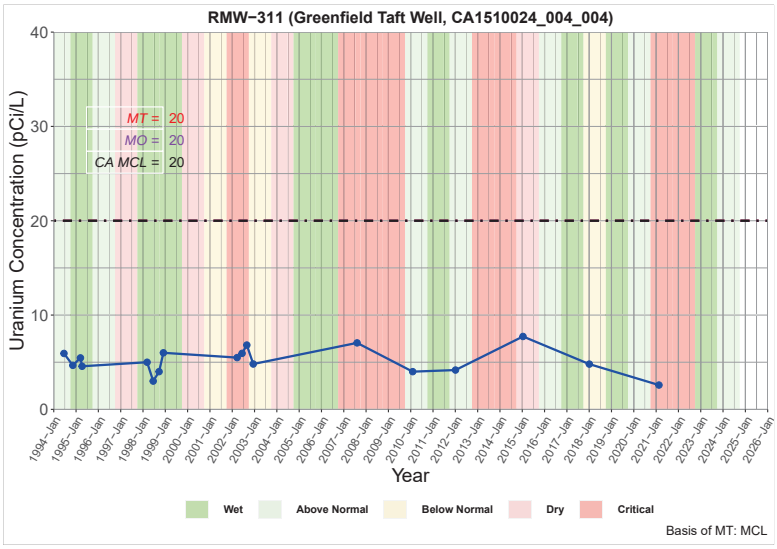


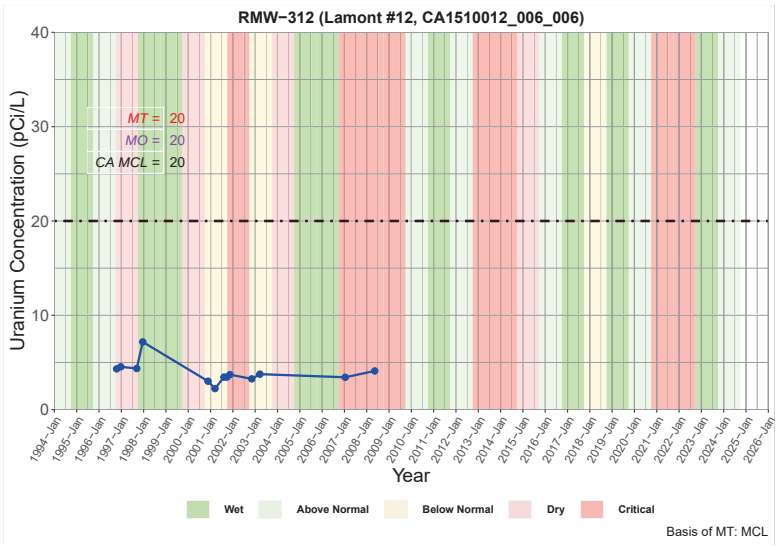
Basis of MT: MCL

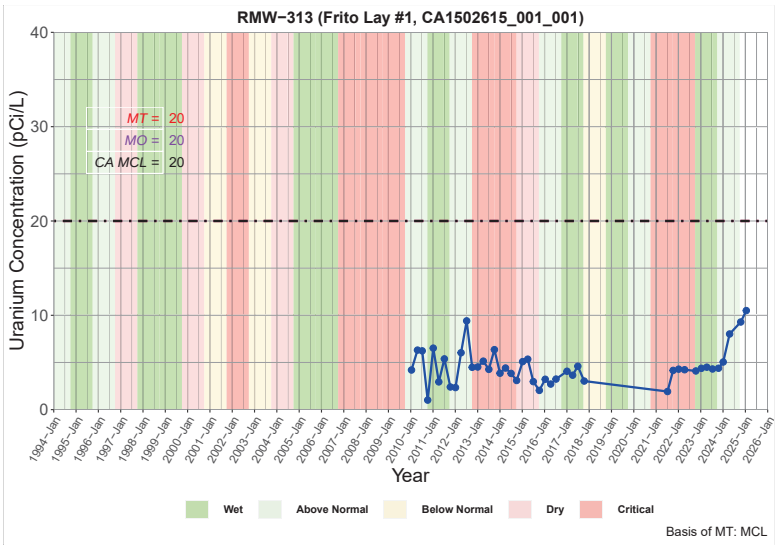


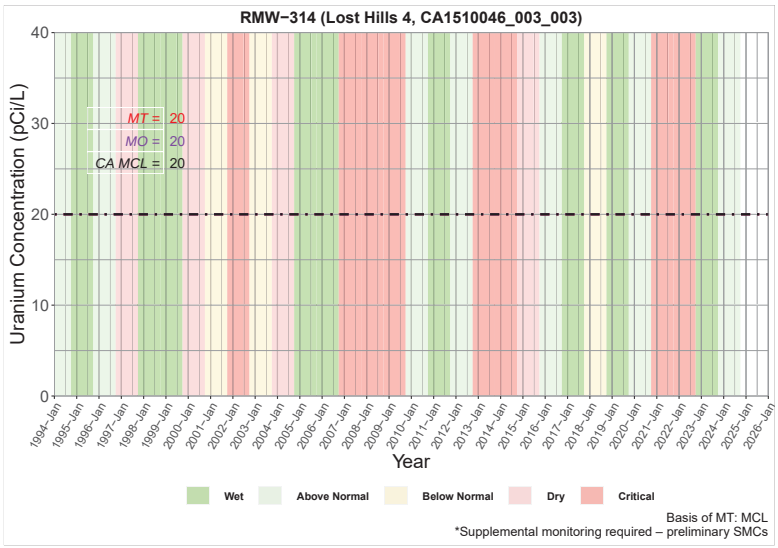
Basis of MT: MCL

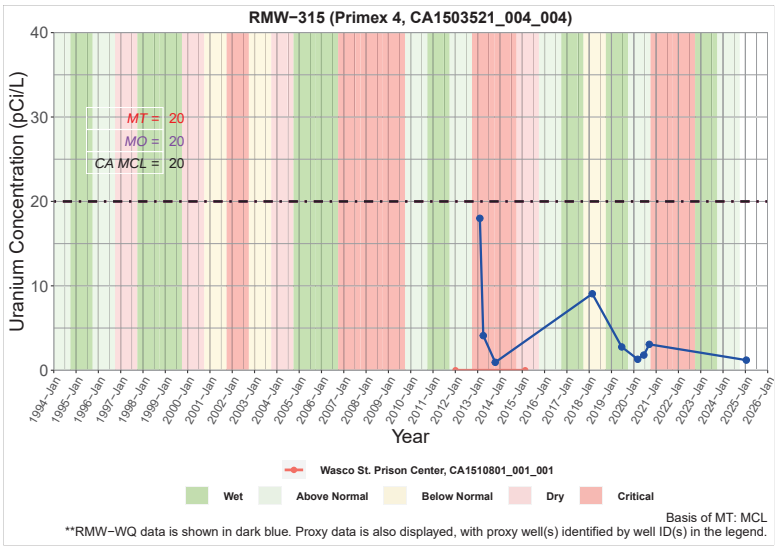

RMW−310 (AGC100012326−KRWCA00069)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

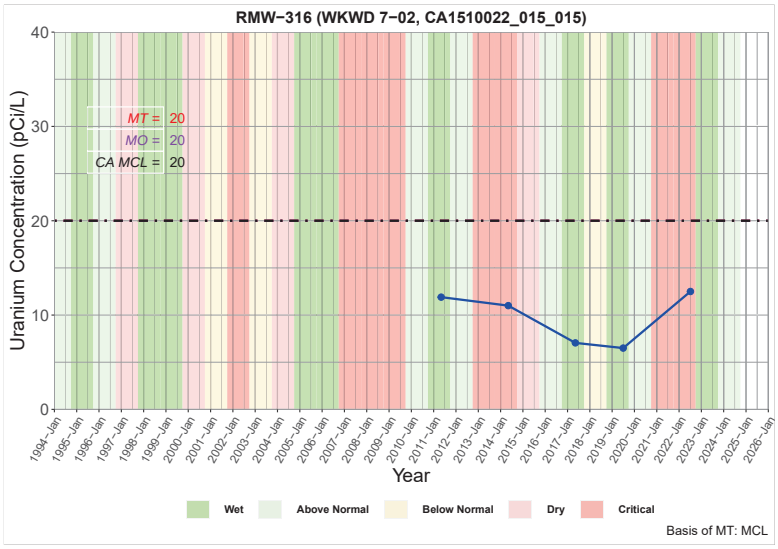

RMW−311 (Greenfield Taft Well, CA1510024_004_004)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

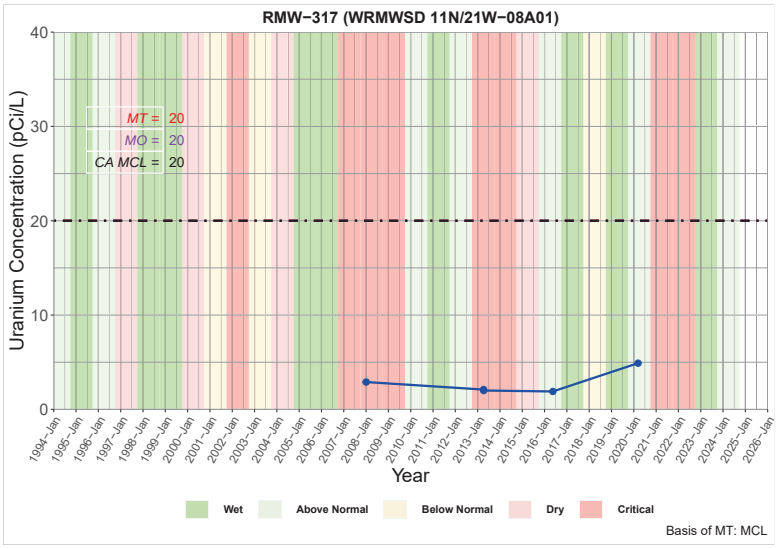

RMW−312 (Lamont #12, CA1510012_006_006)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

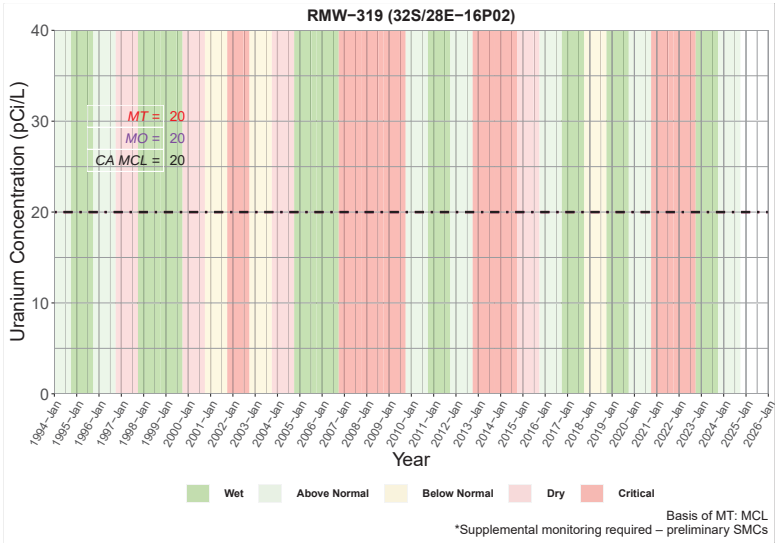

RMW−313 (Frito Lay #1, CA1502615_001_001)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

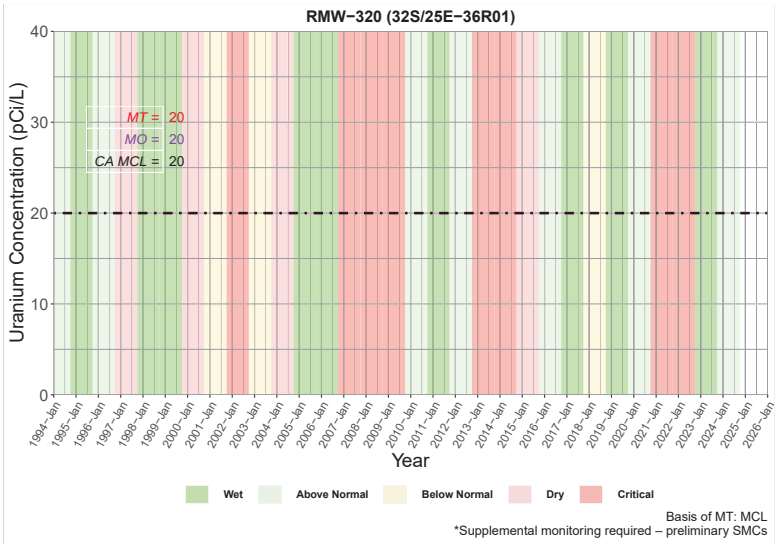

RMW−314 (Lost Hills 4, CA1510046_003_003)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs

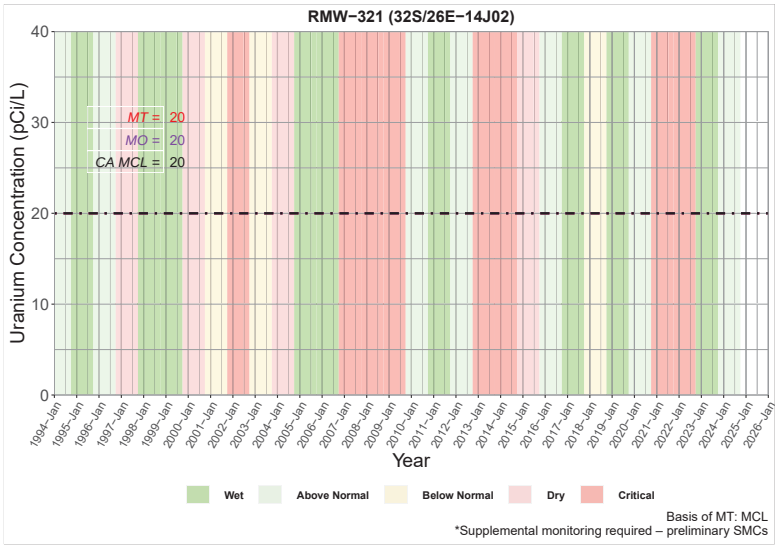

RMW−315 (Primex 4, CA1503521_004_004)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
Wasco St. Prison Center, CA1510801_001_001
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
**RMW−WQ data is shown in dark blue. Proxy data is also displayed, with proxy well(s) identified by well ID(s) in the legend.

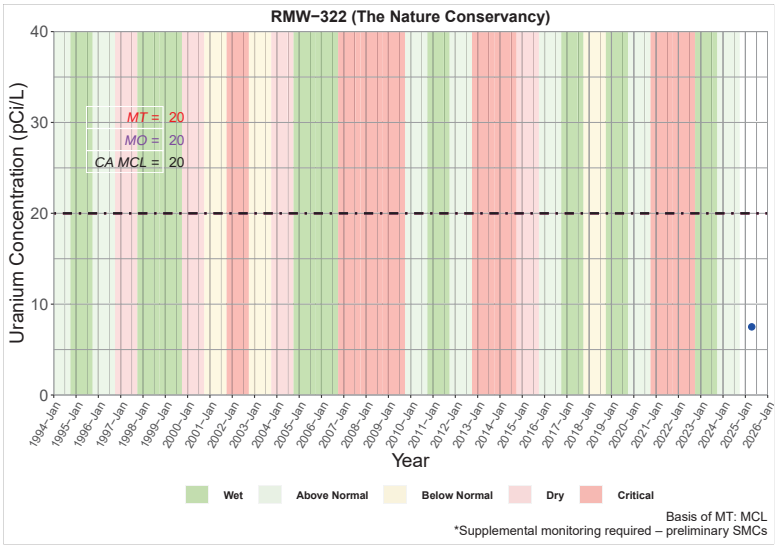

RMW-316 (WKWD 7-02, CA1510022_015_015)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL

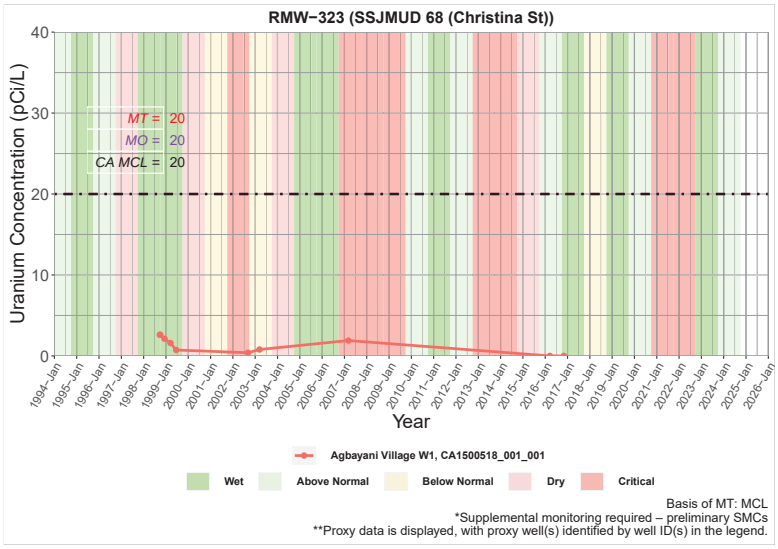

RMW-317 (WRMWSD 11N/21W-08A01)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL


RMW-319 (32S/28E-16P02)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs


RMW-320 (32S/25E-36R01)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs


RMW-321 (32S/26E-14J02)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs


RMW-322 (The Nature Conservancy)
Uranium Concentration (pCi/L)
MT = 20
MO = 20
CA MCL = 20
Year
Wet
Above Normal
Below Normal
Dry
Critical
Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs



Basis of MT: MCL
*Supplemental monitoring required – preliminary SMCs
**Proxy data is displayed, with proxy well(s) identified by well ID(s) in the legend.

Appendix E

WY2025 Annual Report

Subsidence Detailed SMC Assessment

Regional Critical Infrastructure – California Aqueduct

Regional Critical Infrastructure – Friant-Kern Canal

GSA Area Critical Infrastructure

HCM Area Other Infrastructure

Regional Critical Infrastructure

California Aqueduct

Table E-1 California Aqueduct Representative Monitoring Network for Land Subsidence - Sustainable Management Criteria Quarterly Checks

Pool	Milepost	Latitude	Longitude	MT		IM	Total Displacement Since 2024 (ft)				MT Extent Check	IM Extent Check	Displacement Rate (ft/yr)					MT Rate Check	
				Extent (2024-2040) (ft)	Rate (ft/yr)	Extent (2024-2030) (ft)	Q4 2024	Q1 2025	Q2 2025	Q3 2025	Status	Status	Q4 2024	Q1 2025	Q2 2025	Q3 2025	WY 2025	Quarterly Status	WY 2025 Status
23	189.33	35.7900	-119.8696	0.33	0.02	0.33	-0.02	-0.01	-0.01	-0.01	OK	OK	-0.10	0.04	0.02	0.01	-0.01	OK	OK
	190.09	35.7831	-119.8595	0.32	0.02	0.32	-0.02	-0.01	-0.01	-0.01	OK	OK	-0.09	0.04	0.00	0.01	-0.01	OK	OK
	190.82	35.7770	-119.8488	0.38	0.02	0.38	-0.01	0.00	0.00	0.00	OK	OK	-0.08	0.04	0.02	0.01	0.00	OK	OK
	192.41	35.7596	-119.8312	0.57	0.04	0.57	-0.03	-0.02	-0.02	-0.01	OK	OK	-0.10	0.03	0.01	0.02	-0.01	OK	OK
	193.26	35.7494	-119.8231	0.54	0.03	0.54	-0.03	-0.03	-0.02	-0.02	OK	OK	-0.11	0.03	0.01	0.02	-0.01	OK	OK
	193.85	35.7431	-119.8158	0.28	0.02	0.28	-0.06	-0.06	-0.05	-0.05	OK	OK	-0.14	0.01	0.01	0.01	-0.03	OK	Watch List
	194.93	35.7315	-119.8033	0.00	0.00	0.00	-0.07	-0.07	-0.08	-0.09	Targeted P/MAs	Targeted P/MAs	-0.14	-0.01	-0.04	-0.03	-0.05	Watch List	Watch List
	195.76	35.7224	-119.7937	0.26	0.02	0.26	-0.08	-0.09	-0.10	-0.11	OK	OK	-0.15	-0.02	-0.05	-0.03	-0.06	Watch List	Watch List
	197.05	35.7080	-119.7837	0.31	0.02	0.31	-0.09	-0.09	-0.09	-0.11	OK	OK	-0.14	-0.03	0.01	-0.06	-0.05	Watch List	Watch List
24	197.84	35.6985	-119.7758	0.00	0.00	0.00	-0.10	-0.11	-0.11	-0.12	Targeted P/MAs	Targeted P/MAs	-0.12	-0.05	0.00	-0.05	-0.06	Watch List	Watch List
	198.75	35.6899	-119.7640	0.00	0.00	0.00	-0.08	-0.09	-0.10	-0.12	Targeted P/MAs	Targeted P/MAs	-0.16	-0.05	-0.03	-0.07	-0.08	Watch List	Investigation
	200.34	35.6719	-119.7476	0.00	0.00	0.00	-0.11	-0.13	-0.13	-0.16	Targeted P/MAs	Targeted P/MAs	-0.24	-0.04	-0.02	-0.10	-0.10	Watch List	Investigation
	201.14	35.6652	-119.7362	0.00	0.00	0.00	-0.11	-0.12	-0.12	-0.14	Targeted P/MAs	Targeted P/MAs	-0.18	-0.05	-0.01	-0.08	-0.08	Watch List	Investigation
	202.22	35.6528	-119.7247	0.00	0.00	0.00	-0.08	-0.09	-0.09	-0.10	Targeted P/MAs	Targeted P/MAs	-0.16	-0.02	-0.01	-0.05	-0.06	Watch List	Watch List
	203	35.6449	-119.7151	0.00	0.00	0.00	-0.10	-0.11	-0.11	-0.12	Targeted P/MAs	Targeted P/MAs	-0.21	-0.02	0.00	-0.04	-0.07	Watch List	Investigation
	203.92	35.6330	-119.7078	0.00	0.00	0.00	-0.09	-0.09	-0.08	-0.09	Targeted P/MAs	Targeted P/MAs	-0.16	0.01	0.04	-0.03	-0.04	Watch List	Watch List
	204.7	35.6228	-119.7019	0.00	0.00	0.00	-0.06	-0.06	-0.06	-0.07	Watch List	Watch List	-0.15	0.01	0.02	-0.03	-0.04	Watch List	Watch List
	206.06	35.6063	-119.6900	0.00	0.00	0.00	-0.06	-0.06	-0.06	-0.06	Watch List	Watch List	-0.15	0.00	0.02	-0.03	-0.04	Watch List	Watch List
	207.18	35.5915	-119.6818	0.00	0.00	0.00	-0.08	-0.09	-0.08	-0.10	Targeted P/MAs	Targeted P/MAs	-0.16	-0.04	0.02	-0.06	-0.06	Watch List	Watch List
	207.94	35.5819	-119.6780	0.00	0.00	0.00	-0.07	-0.08	-0.08	-0.09	Targeted P/MAs	Targeted P/MAs	-0.15	-0.03	0.02	-0.05	-0.05	Watch List	Watch List
25	208.73	35.5710	-119.6742	0.00	0.00	0.00	-0.07	-0.08	-0.07	-0.09	Targeted P/MAs	Targeted P/MAs	-0.16	-0.03	0.02	-0.05	-0.05	Watch List	Watch List
	210.61	35.5456	-119.6649	0.00	0.00	0.00	-0.06	-0.07	-0.06	-0.07	Watch List	Watch List	-0.15	-0.03	0.03	-0.04	-0.05	Watch List	Watch List
	211.34	35.5351	-119.6624	0.00	0.00	0.00	-0.05	-0.05	-0.05	-0.06	Watch List	Watch List	-0.14	0.00	0.01	-0.04	-0.04	Watch List	Watch List
	212.1	35.5248	-119.6580	0.00	0.00	0.00	-0.04	-0.04	-0.04	-0.05	Watch List	Watch List	-0.13	0.01	0.01	-0.04	-0.04	Watch List	Watch List
	212.75	35.5161	-119.6538	0.00	0.00	0.00	-0.04	-0.04	-0.04	-0.04	Watch List	Watch List	-0.12	0.02	0.00	-0.03	-0.03	Watch List	Watch List
	213.96	35.4994	-119.6473	0.00	0.00	0.00	-0.04	-0.03	-0.03	-0.04	Watch List	Watch List	-0.13	0.03	-0.01	-0.02	-0.03	Watch List	Watch List
	214.97	35.4859	-119.6400	0.30	0.02	0.30	-0.03	-0.02	-0.03	-0.03	OK	OK	-0.12	0.03	-0.01	-0.01	-0.03	OK	Watch List
	215.64	35.4765	-119.6381	0.28	0.02	0.28	-0.03	-0.02	-0.02	-0.02	OK	OK	-0.12	0.03	0.00	0.00	-0.02	OK	OK
	217.16	35.4560	-119.6309	0.72	0.05	0.72	-0.03	-0.03	-0.03	-0.02	OK	OK	-0.12	0.03	0.00	0.01	-0.02	OK	OK
	217.78	35.4489	-119.6254	0.72	0.05	0.72	-0.03	-0.02	-0.02	-0.02	OK	OK	-0.12	0.03	0.01	0.01	-0.02	OK	OK
26	219.38	35.4285	-119.6105	0.76	0.05	0.76	-0.03	-0.02	-0.02	-0.01	OK	OK	-0.11	0.04	0.01	0.01	-0.01	OK	OK
	220.27	35.4179	-119.6000	0.00	0.00	0.00	-0.03	-0.02	-0.01	-0.01	Watch List	Watch List	-0.12	0.03	0.02	0.02	-0.01	OK	Watch List
	221.06	35.4109	-119.5905	0.75	0.05	0.75	-0.02	-0.02	-0.01	-0.01	OK	OK	-0.12	0.03	0.02	0.03	-0.01	OK	OK
	221.81	35.4060	-119.5788	0.81	0.05	0.81	-0.03	-0.02	-0.02	-0.01	OK	OK	-0.13	0.04	0.01	0.03	-0.01	OK	OK
	222.89	35.3987	-119.5618	0.02	0.00	0.02	-0.03	-0.02	-0.02	-0.01	OK	OK	-0.12	0.03	-0.01	0.03	-0.02	Watch List	Watch List
	224.05	35.3912	-119.5451	0.59	0.04	0.59	-0.03	-0.03	-0.03	-0.02	OK	OK	-0.12	0.02	-0.02	0.04	-0.02	OK	OK
27	225.05	35.3801	-119.5342	1.04	0.07	1.04	-0.04	-0.04	-0.04	-0.03	OK	OK	-0.12	0.01	-0.02	0.04	-0.02	OK	OK
	225.89	35.3710	-119.5248	0.89	0.06	0.89	-0.03	-0.03	-0.03	-0.02	OK	OK	-0.12	0.02	-0.03	0.05	-0.02	OK	OK
	226.79	35.3652	-119.5112	0.86	0.05	0.86	-0.02	-0.01	-0.02	0.00	OK	OK	-0.11	0.04	-0.04	0.07	-0.01	OK	OK
	228.06	35.3622	-119.4910	0.72	0.04	0.72	-0.02	-0.01	-0.02	0.01	OK	OK	-0.11	0.05	-0.04	0.09	0.00	OK	OK
	229.06	35.3550	-119.4755	0.94	0.06	0.94	-0.03	-0.02	-0.03	-0.01	OK	OK	-0.10	0.04	-0.05	0.08	-0.01	OK	OK
	229.71	35.3475	-119.4694	0.92	0.06	0.92	-0.02	-0.01	-0.02	0.00	OK	OK	-0.11	0.04	-0.04	0.09	0.00	OK	OK
	231.06	35.3397	-119.4494	0.71	0.04	0.71	-0.01	0.00	-0.02	0.01	OK	OK	-0.10	0.04	-0.07	0.13	0.00	Watch List	OK
28	232.24	35.3345	-119.4298	0.70	0.04	0.70	-0.01	0.00	-0.02	0.02	OK	OK	-0.10	0.04	-0.08	0.15	0.00	Watch List	OK
	232.96	35.3286	-119.4194	0.64	0.04	0.64	-0.01	0.00	-0.02	0.02	OK	OK	-0.10	0.05	-0.08	0.16	0.00	Watch List	OK
	234.19	35.3229	-119.4019	0.69	0.04	0.69	0.00	0.01	0.00	0.03	OK	OK	-0.10	0.04	-0.04	0.14	0.01	OK	OK
	235.06	35.3174	-119.3889	0.79	0.05	0.79	0.00	0.00	0.00	0.03	OK	OK	-0.10	0.03	-0.02	0.15	0.01	OK	OK
	236.27	35.3070	-119.3725	0.76	0.05	0.76	0.01	0.02	0.01	0.05	OK	OK	-0.10	0.02	-0.04	0.15	0.01	OK	OK
	237	35.3030	-119.3609	0.00	0.00	0.00	0.01	0.02	0.00	0.04	OK	OK	-0.10	0.03	-0.07	0.15	0.01	Watch List	OK
	238	35.2970	-119.3454	0.00	0.00	0.00	0.01	0.02	0.00	0.03	OK	OK	-0.09	0.05	-0.09	0.14	0.00	Watch List	OK
29	239	35.2887	-119.3321	0.03	0.00	0.03	0.00	0.01	-0.02	0.02	OK	OK	-0.10	0.04	-0.09	0.14	0.00	Watch List	OK
	240.07	35.2769	-119.3205	0.17	0.01	0.17	0.00	0.01	-0.02	0.02	OK	OK	-0.09	0.04	-0.09	0.13	0.00	Watch List	OK
	241.06	35.2666	-119.3094	0.00	0.00	0.00	0.00	0.02	-0.01	0.02	OK	OK	-0.09	0.06	-0.10	0.11	0.00	Watch List	OK
	242	35.2541	-119.3028	0.00	0.00	0.00	0.01	0.03	0.01	0.03	OK	OK	-0.08	0.07	-0.10	0.12	0.00	Watch List	OK
	243	35.2412	-119.3058	0.13	0.01	0.13	-0.01	0.00	-0.01	0.01	OK	OK	-0.10	0.06	-0.04	0.08	0.00	Watch List	OK
	244	35.2356	-119.3221	0.43	0.03	0.43	-0.01	0.00	-0.01	0.01	OK	OK	-0.10	0.05	-0.04	0.10	0.00	Watch List	OK
30	245.09	35.2306	-119.3393	0.35	0.02	0.35	-0.01	0.00	-0.01	0.01	OK	OK	-0.09	0.05	-0.04	0.09	0.00	Watch List	OK
	246	35.2253	-119.3536	0.36	0.02	0.36	-0.01	0.00	-0.01	0.02	OK	OK	-0.10	0.04	-0.04	0.10	0.00	Watch List	OK
	247	35.2115	-119.3563	0.11	0.01	0.11	-0.03	-0.03	-0.04	-0.01	OK	OK	-0.11	0.02	-0.05	0.10	-0.01	Watch List	OK
	248	35.1971	-119.3575	0.60	0.04	0.60	-0.01	0.00	-0.01	0.01	OK	OK	-0.11	0.04	-0.03	0.09	0.00	OK	OK
	249.5	35.1797	-119.3487	0.28	0.02	0.28	0.00	0.01	0.01	0.03	OK	OK	-0.12	0.04	-0.01	0.08	0.00	OK	OK
	250	35.1744	-119.3433	0.29	0.02	0.29	-0.01	0.00	0.00	0.02	OK	OK	-0.11	0.04	-0.02	0.07	0.00	OK	OK
	250.99	35.1608	-119.3466	0.46	0.03	0.46	-0.01	0.00	-0.01	0.01	OK	OK	-0.10	0.04	-0.02	0.07	0.00	OK	OK
	252.01	35.1461	-119.3467	0.00	0.00	0.00	-0.02	-0.01	-0.01	0.00	Watch List	Watch List	-0.11	0.04	-0.02	0.07	0.00	Watch List	OK
	253	35.1345	-119.3558	0.00	0.00	0.00	-0.02	-0.01	-0.01	0.01	Watch List	Watch List	-0.10	0.04	-0.02	0.07	0.00	Watch List	OK

Table E-1 California Aqueduct Representative Monitoring Network for Land Subsidence - Sustainable Management Criteria Quarterly Checks

Pool	Milepost	Latitude	Longitude	MT		IM	Total Displacement Since 2024 (ft)				MT Extent Check	IM Extent Check	Displacement Rate (ft/yr)					MT Rate Check	
				Extent (2024-2040) (ft)	Rate (ft/yr)	Extent (2024-2030) (ft)	Q4 2024	Q1 2025	Q2 2025	Q3 2025	Status	Status	Q4 2024	Q1 2025	Q2 2025	Q3 2025	WY 2025	Quarterly Status	WY 2025 Status
31	254.11	35.1271	-119.3721	0.00	0.00	0.00	-0.01	0.00	-0.01	0.01	Watch List	Watch List	-0.10	0.04	-0.02	0.07	0.00	Watch List	OK
	255	35.1154	-119.3771	0.75	0.05	0.75	-0.01	0.00	-0.01	0.01	OK	OK	-0.09	0.04	-0.02	0.06	0.00	OK	OK
	256.11	35.1014	-119.3686	0.61	0.04	0.61	-0.01	0.00	0.00	0.01	OK	OK	-0.07	0.04	-0.02	0.05	0.00	OK	OK
32	257	35.0907	-119.3598	0.49	0.03	0.49	-0.01	0.00	0.00	0.01	OK	OK	-0.08	0.05	-0.03	0.05	0.00	OK	OK
	258	35.0885	-119.3430	0.76	0.05	0.76	-0.02	-0.01	-0.01	0.00	OK	OK	-0.09	0.04	-0.03	0.06	-0.01	OK	OK
	259	35.0886	-119.3254	0.67	0.04	0.67	-0.02	-0.01	-0.02	0.00	OK	OK	-0.09	0.04	-0.04	0.06	-0.01	OK	OK
	260.01	35.0873	-119.3077	0.73	0.05	0.73	0.00	0.01	0.00	0.01	OK	OK	-0.08	0.03	-0.03	0.06	0.00	OK	OK
	261	35.0846	-119.2905	0.76	0.05	0.76	-0.01	0.00	-0.01	0.01	OK	OK	-0.09	0.03	-0.06	0.08	-0.01	Watch List	OK
33	262	35.0805	-119.2735	0.56	0.03	0.56	-0.01	0.00	-0.01	0.01	OK	OK	-0.08	0.04	-0.05	0.08	0.00	Watch List	OK
	263	35.0747	-119.2574	0.48	0.03	0.48	0.00	0.01	0.00	0.02	OK	OK	-0.07	0.06	-0.04	0.08	0.01	Watch List	OK
	264	35.0742	-119.2403	0.76	0.05	0.76	-0.01	0.01	0.00	0.02	OK	OK	-0.10	0.05	-0.03	0.08	0.00	OK	OK
	265	35.0756	-119.2228	0.85	0.05	0.85	0.01	0.03	0.02	0.04	OK	OK	-0.09	0.06	-0.04	0.10	0.01	OK	OK
	266	35.0756	-119.2051	0.95	0.06	0.95	0.01	0.03	0.02	0.05	OK	OK	-0.09	0.07	-0.04	0.10	0.01	OK	OK
	266.91	35.0756	-119.1892	1.05	0.07	1.05	0.01	0.03	0.02	0.04	OK	OK	-0.06	0.08	-0.05	0.09	0.01	OK	OK
34	268	35.0754	-119.1699	1.17	0.07	1.17	0.00	0.03	0.01	0.04	OK	OK	-0.05	0.09	-0.06	0.11	0.02	OK	OK
	268.94	35.0720	-119.1540	1.31	0.08	1.31	-0.02	0.01	0.00	0.03	OK	OK	0.01	0.09	-0.04	0.13	0.05	OK	OK
	270	35.0676	-119.1359	1.92	0.12	1.92	-0.03	-0.01	-0.02	0.02	OK	OK	0.04	0.09	-0.07	0.19	0.06	OK	OK
	271	35.0659	-119.1185	2.23	0.14	2.23	-0.04	-0.01	-0.03	0.01	OK	OK	0.03	0.10	-0.08	0.18	0.06	OK	OK
35	272	35.0620	-119.1016	1.58	0.10	1.58	-0.01	0.01	0.01	0.04	OK	OK	-0.04	0.06	0.00	0.11	0.03	OK	OK
	273	35.0565	-119.0852	1.39	0.09	1.39	-0.01	-0.01	0.00	0.02	OK	OK	-0.06	0.02	0.02	0.09	0.02	OK	OK
	274.04	35.0471	-119.0715	1.53	0.10	1.53	-0.02	-0.02	-0.01	0.00	OK	OK	-0.08	0.00	0.03	0.07	0.01	OK	OK
	275	35.0407	-119.0564	1.80	0.11	1.80	-0.05	-0.05	-0.05	-0.04	OK	OK	-0.14	-0.01	0.02	0.04	-0.02	OK	OK
	276	35.0341	-119.0407	1.01	0.06	1.01	-0.04	-0.04	-0.04	-0.03	OK	OK	-0.10	0.00	0.01	0.05	-0.01	OK	OK
	277.13	35.0374	-119.0232	1.07	0.07	1.07	-0.05	-0.05	-0.05	-0.04	OK	OK	-0.12	-0.01	0.01	0.04	-0.02	OK	OK
	278	35.0335	-119.0088	0.74	0.05	0.74	-0.04	-0.04	-0.04	-0.03	OK	OK	-0.10	-0.01	0.01	0.04	-0.01	OK	OK
	278.8	35.0267	-118.9989	0.63	0.04	0.63	-0.04	-0.04	-0.04	-0.03	OK	OK	-0.10	-0.01	0.01	0.04	-0.01	OK	OK
									Watch List Count:		11	11					Watch List Count:	41	20
									Investigation Count:		0	0					Investigation Count:	0	4
									Targeted P/MAs Count:		11	11							

Abbreviations:

ft = feet

ft/yr = feet per year

IM = Interim Milestone

InSAR = Interferometric Synthetic Aperture Radar

MT = Minimum Threshold

P/MAs = Projects and/or Management Actions

WY = Water Year

Notes:

1. Displacement is extracted from the InSAR raster from a pixel at the milepost location. InSAR data for 1 January 2024 through current is provisional and subject to change.
2. Total Displacement Since 2024 is calculated as the land displacement since 1 January 2024. Negative value indicates land subsidence.
3. Displacement Rate is calculated as the land displacement over the indicated period, translated into an annual rate. Negative value indicates land subsidence.
4. Yellow color indicates the current displacement exceeds the MT / IM at a value less than the reported accuracy of measurement and is a potential exceedance based on provisional data uncertainty, thereby being put on a watch list but not triggering action under the Exceedance Policy.
   - InSAR accuracy is specified at 20 mm based on Towill, Inc. 2025. InSAR Data Accuracy for California Groundwater Basins CGPS Data Comparative Analysis January 2015 to October 2024.
5. Red color indicates the current displacement has exceeded the MT / IM in excess of the reported accuracy, thereby triggering action under the Exceedance Policy.
6. Status is based on 4th Qtr 2024 through 3rd Qtr 2025 land subsidence, as follows:
   - OK is defined as mileposts that have less than two quarters with MT / IM exceedances, or WY displacement less than the MT / IM.
   - Watch List is defined as mileposts that have two or more quarters with MT / IM exceedances (but not consecutive exceedances). Watch List also includes mileposts that have two or more consequtive quarters or WY MT / IM exceedances less than the reported accuracy.
   - Investigation is defined as mileposts that have two or more consecutive quarters or WY MT / IM exceedances in excess of the reported accuracy.
   - Targeted P/MAs is defined as mileposts that have four or more consecutive quarters with MT / IM extent exceedances in excess of the reported accuracy. Exceedance investigation report findings will be used to inform development of appropriate targeted P/MAs.
7. Exceedance checks are calculated from values that have been rounded to the nearest 100th of a foot (0.01 feet).
8. Westside District Water Authority Groundwater Sustainability Agency (WDWA) GSA has implemented several proactive targeted P/MAs adjacent to the Aqueduct to ameliorate subsidence between mileposts 195 and 215 including a pumping moratorium.

Table E-2 California Aqueduct Representative Monitoring Network for Land Subsidence SMC Checks

Pool	Milepost	Latitude	Longitude	Minimum Thresholds		IM	CASP Survey Data					InSAR Data					Status
				Extent (2024-2040) (ft)	Rate (ft/yr)	Extent (2024-2025) (ft)	Total Displacement Since 2024 (ft)	2024 Displacement Rate (ft/yr)	MT Extent Check	MT Rate Check	IM Extent Check	Total Displacement Since 2024 (ft)	2024 Displacement Rate (ft/yr)	MT Extent Check	MT Rate Check	IM Extent Check	
23	189.33	35.7900	-119.8696	0.33	0.02	0.02	0.04	0.04	0.37	0.06	0.06	0.00	0.00	0.33	0.02	0.02	OK
	190.09	35.7831	-119.8595	0.32	0.02	0.02	0.00	0.00	0.32	0.02	0.02	0.01	0.01	0.33	0.03	0.03	OK
	190.82	35.7770	-119.8488	0.38	0.02	0.02	0.09	0.09	0.47	0.11	0.11	0.01	0.01	0.39	0.03	0.03	OK
	192.41	35.7596	-119.8312	0.57	0.04	0.04	0.01	0.01	0.58	0.05	0.05	0.00	0.00	0.57	0.04	0.04	OK
	193.26	35.7494	-119.8231	0.54	0.03	0.03	0.03	0.03	0.57	0.06	0.06	-0.01	-0.01	0.53	0.02	0.02	OK
	193.85	35.7431	-119.8158	0.28	0.02	0.02	0.02	0.02	0.30	0.04	0.04	-0.03	-0.03	0.25	-0.01	-0.01	Watch List*
	194.93	35.7315	-119.8033	0.00	0.00	0.00	-0.04	-0.04	-0.04	-0.04	-0.04	-0.05	-0.05	-0.05	-0.05	-0.05	Watch List
	195.76	35.7224	-119.7937	0.26	0.02	0.02	-0.03	-0.03	0.23	-0.01	-0.01	-0.06	-0.06	0.20	-0.04	-0.04	Watch List
	197.05	35.7080	-119.7837	0.31	0.02	0.02	-0.03	-0.03	0.28	-0.01	-0.01	-0.06	-0.06	0.25	-0.04	-0.04	Watch List
24	197.84	35.6985	-119.7758	0.00	0.00	0.00	-0.03	-0.03	-0.03	-0.03	-0.03	-0.09	-0.08	-0.09	-0.08	-0.09	Investigation*
	198.75	35.6899	-119.7640	0.00	0.00	0.00	-0.02	-0.02	-0.02	-0.02	-0.02	-0.07	-0.07	-0.07	-0.07	-0.07	Investigation*
	200.34	35.6719	-119.7476	0.00	0.00	0.00	-0.04	-0.04	-0.04	-0.04	-0.04	-0.09	-0.09	-0.09	-0.09	-0.09	Investigation*
	201.14	35.6652	-119.7362	0.00	0.00	0.00	-0.06	-0.06	-0.06	-0.06	-0.06	-0.09	-0.09	-0.09	-0.09	-0.09	Investigation
	202.22	35.6528	-119.7247	0.00	0.00	0.00	-0.04	-0.04	-0.04	-0.04	-0.04	-0.06	-0.06	-0.06	-0.06	-0.06	Watch List
	203	35.6449	-119.7151	0.00	0.00	0.00	-0.05	-0.05	-0.05	-0.05	-0.05	-0.08	-0.08	-0.08	-0.08	-0.08	Investigation
	203.92	35.6330	-119.7078	0.00	0.00	0.00	-0.05	-0.05	-0.05	-0.05	-0.05	-0.07	-0.07	-0.07	-0.07	-0.07	Investigation
	204.7	35.6228	-119.7019	0.00	0.00	0.00	-0.03	-0.03	-0.03	-0.03	-0.03	-0.04	-0.04	-0.04	-0.04	-0.04	Watch List
	206.06	35.6063	-119.6900	0.00	0.00	0.00	-0.02	-0.02	-0.02	-0.02	-0.02	-0.04	-0.04	-0.04	-0.04	-0.04	Watch List
	207.18	35.5915	-119.6818	0.00	0.00	0.00	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	Watch List*
	207.94	35.5819	-119.6780	0.00	0.00	0.00	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	Watch List*
25	208.73	35.5710	-119.6742	0.00	0.00	0.00	-0.06	-0.06	-0.06	-0.06	-0.06	-0.05	-0.05	-0.05	-0.05	-0.05	Watch List*
	210.61	35.5456	-119.6649	0.00	0.00	0.00	-0.03	-0.03	-0.03	-0.03	-0.03	-0.04	-0.04	-0.04	-0.04	-0.04	Watch List
	211.34	35.5351	-119.6624	0.00	0.00	0.00	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	Watch List
	212.1	35.5248	-119.6580	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	-0.02	-0.02	-0.02	-0.02	-0.02	Watch List*
	212.75	35.5161	-119.6538	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	-0.02	-0.02	-0.02	-0.02	-0.02	Watch List*
	213.96	35.4994	-119.6473	0.00	0.00	0.00	-0.04	-0.04	-0.04	-0.04	-0.04	-0.01	-0.01	-0.01	-0.01	-0.01	Watch List
	214.97	35.4859	-119.6400	0.30	0.02	0.02	-0.02	-0.02	0.28	0.00	0.00	0.00	0.00	0.30	0.02	0.02	OK
	215.64	35.4765	-119.6381	0.28	0.02	0.02	0.06	0.06	0.34	0.08	0.08	0.00	0.00	0.28	0.02	0.02	OK
	217.16	35.4560	-119.6309	0.72	0.05	0.05	0.01	0.01	0.73	0.06	0.06	-0.01	-0.01	0.71	0.04	0.04	OK
	217.78	35.4489	-119.6254	0.72	0.05	0.05	0.02	0.02	0.74	0.07	0.07	-0.01	-0.01	0.71	0.04	0.04	OK
26	219.38	35.4285	-119.6105	0.76	0.05	0.05	0.02	0.02	0.78	0.07	0.07	-0.01	-0.01	0.75	0.04	0.04	OK
	220.27	35.4179	-119.6000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	OK
	221.06	35.4109	-119.5905	0.75	0.05	0.05	0.06	0.06	0.81	0.11	0.11	0.00	0.00	0.75	0.05	0.05	OK
	221.81	35.4060	-119.5788	0.81	0.05	0.05	0.13	0.13	0.94	0.18	0.18	-0.01	-0.01	0.80	0.04	0.04	OK
	222.89	35.3987	-119.5618	0.02	0.00	0.00	0.05	0.05	0.07	0.05	0.05	-0.01	-0.01	0.01	-0.01	-0.01	Watch List*
	224.05	35.3912	-119.5451	0.59	0.04	0.04	0.00	0.00	0.59	0.04	0.04	-0.02	-0.02	0.57	0.02	0.02	OK
27	225.05	35.3801	-119.5342	1.04	0.07	0.07	-0.04	-0.04	1.00	0.03	0.03	-0.02	-0.02	1.02	0.05	0.05	OK
	225.89	35.3710	-119.5248	0.89	0.06	0.06	-0.02	-0.02	0.87	0.04	0.04	-0.01	-0.01	0.88	0.05	0.05	OK
	226.79	35.3652	-119.5112	0.86	0.05	0.05	0.01	0.01	0.87	0.06	0.06	0.00	0.00	0.86	0.05	0.05	OK
	228.06	35.3622	-119.4910	0.72	0.04	0.04	-0.03	-0.03	0.69	0.01	0.01	0.01	0.01	0.73	0.05	0.05	OK
	229.06	35.3550	-119.4755	0.94	0.06	0.06	-0.02	-0.02	0.92	0.04	0.04	0.00	0.00	0.94	0.06	0.06	OK
	229.71	35.3475	-119.4694	0.92	0.06	0.06	-0.03	-0.03	0.89	0.03	0.03	0.00	0.00	0.92	0.06	0.06	OK
	231.06	35.3397	-119.4494	0.71	0.04	0.04	-0.02	-0.02	0.69	0.02	0.02	0.01	0.01	0.72	0.05	0.05	OK
28	232.24	35.3345	-119.4298	0.70	0.04	0.04	-0.05	-0.05	0.65	-0.01	-0.01	0.01	0.01	0.71	0.05	0.05	OK*
	232.96	35.3286	-119.4194	0.64	0.04	0.04	-0.02	-0.02	0.62	0.02	0.02	0.01	0.01	0.65	0.05	0.05	OK
	234.19	35.3229	-119.4019	0.69	0.04	0.04	-0.03	-0.03	0.66	0.01	0.01	0.02	0.02	0.71	0.06	0.06	OK
	235.06	35.3174	-119.3889	0.79	0.05	0.05	-0.04	-0.04	0.75	0.01	0.01	0.02	0.02	0.81	0.07	0.07	OK
	236.27	35.3070	-119.3725	0.76	0.05	0.05	-0.05	-0.05	0.71	0.00	0.00	0.03	0.03	0.79	0.08	0.08	OK
	237	35.3030	-119.3609	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03	OK
	238	35.2970	-119.3454	0.00	0.00	0.00	-0.03	-0.03	-0.03	-0.03	-0.03	0.02	0.02	0.02	0.02	0.02	OK*
29	239	35.2887	-119.3321	0.03	0.00	0.00	-0.02	-0.02	0.01	-0.02	-0.02	0.01	0.01	0.04	0.01	0.01	OK*
	240.07	35.2769	-119.3205	0.17	0.01	0.01	-0.02	-0.02	0.15	-0.01	-0.01	0.01	0.01	0.18	0.02	0.02	OK*
	241.06	35.2666	-119.3094	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	OK
	242	35.2541	-119.3028	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	OK
	243	35.2412	-119.3058	0.13	0.01	0.01	-0.02	-0.02	0.11	-0.01	-0.01	0.01	0.01	0.14	0.02	0.02	OK*
	244	35.2356	-119.3221	0.43	0.03	0.03	-0.01	-0.01	0.42	0.02	0.02	0.01	0.01	0.44	0.04	0.04	OK
30	245.09	35.2306	-119.3393	0.35	0.02	0.02	0.04	0.04	0.39	0.06	0.06	0.01	0.01	0.36	0.03	0.03	OK
	246	35.2253	-119.3536	0.36	0.02	0.02	0.00	0.00	0.36	0.02	0.02	0.01	0.01	0.37	0.03	0.03	OK
	247	35.2115	-119.3563	0.11	0.01	0.01	-0.04	-0.04	0.07	-0.03	-0.03	-0.01	-0.01	0.10	0.00	0.00	OK*
	248	35.1971	-119.3575	0.60	0.04	0.04	-0.05	-0.05	0.55	-0.01	-0.01	0.01	0.01	0.61	0.05	0.05	OK*
	249.5	35.1797	-119.3487	0.28	0.02	0.02	-0.01	-0.01	0.27	0.01	0.01	0.01	0.01	0.29	0.03	0.03	OK
	250	35.1744	-119.3433	0.29	0.02	0.02	-0.03	-0.03	0.26	-0.01	-0.01	0.01	0.01	0.30	0.03	0.03	OK*
	250.99	35.1608	-119.3466	0.46	0.03	0.03	-0.05	-0.05	0.41	-0.02	-0.02	0.00	0.00	0.46	0.03	0.03	OK*
	252.01	35.1461	-119.3467	0.00	0.00	0.00	-0.02	-0.02	-0.02	-0.02	-0.02	0.00	0.00	0.00	0.00	0.00	OK*

Table E-2 California Aqueduct Representative Monitoring Network for Land Subsidence SMC Checks

Pool	Milepost	Latitude	Longitude	Minimum Thresholds		IM	CASP Survey Data					InSAR Data					Status
				Extent (2024-2040) (ft)	Rate (ft/yr)	Extent (2024-2025) (ft)	Total Displacement Since 2024 (ft)	2024 Displacement Rate (ft/yr)	MT Extent Check	MT Rate Check	IM Extent Check	Total Displacement Since 2024 (ft)	2024 Displacement Rate (ft/yr)	MT Extent Check	MT Rate Check	IM Extent Check	
31	253	35.1345	-119.3558	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	0.00	0.00	0.00	0.00	0.00	OK
	254.11	35.1271	-119.3721	0.00	0.00	0.00	-0.06	-0.06	-0.06	-0.06	-0.06	0.01	0.01	0.01	0.01	0.01	OK*
	255	35.1154	-119.3771	0.75	0.05	0.05	0.01	0.01	0.76	0.06	0.06	0.01	0.01	0.76	0.06	0.06	OK
	256.11	35.1014	-119.3686	0.61	0.04	0.04	0.03	0.03	0.64	0.07	0.07	0.01	0.01	0.62	0.05	0.05	OK
32	257	35.0907	-119.3598	0.49	0.03	0.03	0.00	0.00	0.49	0.03	0.03	0.01	0.01	0.50	0.04	0.04	OK
	258	35.0885	-119.3430	0.76	0.05	0.05	-0.04	-0.04	0.72	0.01	0.01	0.00	0.00	0.76	0.05	0.05	OK
	259	35.0886	-119.3254	0.67	0.04	0.04	-0.04	-0.04	0.63	0.00	0.00	0.00	0.00	0.67	0.04	0.04	OK
	260.01	35.0873	-119.3077	0.73	0.05	0.05	-0.02	-0.02	0.71	0.03	0.03	0.01	0.01	0.74	0.06	0.06	OK
	261	35.0846	-119.2905	0.76	0.05	0.05	-0.01	-0.01	0.75	0.04	0.04	0.01	0.01	0.77	0.06	0.06	OK
33	262	35.0805	-119.2735	0.56	0.03	0.03	-0.05	-0.05	0.51	-0.02	-0.02	0.00	0.00	0.56	0.03	0.03	OK*
	263	35.0747	-119.2574	0.48	0.03	0.03	-0.10	-0.10	0.38	-0.07	-0.07	0.02	0.02	0.50	0.05	0.05	OK*
	264	35.0742	-119.2403	0.76	0.05	0.05	-0.03	-0.03	0.73	0.02	0.02	0.01	0.01	0.77	0.06	0.06	OK
	265	35.0756	-119.2228	0.85	0.05	0.05	0.00	0.00	0.85	0.05	0.05	0.02	0.02	0.87	0.07	0.07	OK
	266	35.0756	-119.2051	0.95	0.06	0.06	0.04	0.04	0.99	0.10	0.10	0.02	0.02	0.97	0.08	0.08	OK
	266.91	35.0756	-119.1892	1.05	0.07	0.07	0.07	0.07	1.12	0.14	0.14	0.03	0.03	1.08	0.10	0.10	OK
34	268	35.0754	-119.1699	1.17	0.07	0.07	0.04	0.04	1.21	0.11	0.11	0.04	0.04	1.21	0.11	0.11	OK
	268.94	35.0720	-119.1540	1.31	0.08	0.08	0.03	0.03	1.34	0.11	0.11	0.03	0.03	1.34	0.11	0.11	OK
	270	35.0676	-119.1359	1.92	0.12	0.12	0.05	0.05	1.97	0.17	0.17	0.01	0.01	1.93	0.13	0.13	OK
	271	35.0659	-119.1185	2.23	0.14	0.14	0.05	0.05	2.28	0.19	0.19	0.00	0.00	2.23	0.14	0.14	OK
35	272	35.0620	-119.1016	1.58	0.10	0.10	0.02	0.02	1.60	0.12	0.12	0.02	0.02	1.60	0.12	0.12	OK
	273	35.0565	-119.0852	1.39	0.09	0.09	0.04	0.04	1.43	0.13	0.13	0.00	0.00	1.39	0.09	0.09	OK
	274.04	35.0471	-119.0715	1.53	0.10	0.10	-0.03	-0.03	1.50	0.07	0.07	-0.01	-0.01	1.52	0.09	0.09	OK
	275	35.0407	-119.0564	1.80	0.11	0.11	-0.08	-0.08	1.72	0.03	0.03	-0.03	-0.03	1.77	0.08	0.08	OK
	276	35.0341	-119.0407	1.01	0.06	0.06	-0.08	-0.08	0.93	-0.02	-0.02	-0.02	-0.02	0.99	0.04	0.04	OK*
	277.13	35.0374	-119.0232	1.07	0.07	0.07	-0.04	-0.04	1.03	0.03	0.03	-0.04	-0.04	1.03	0.03	0.03	OK
	278	35.0335	-119.0088	0.74	0.05	0.05	-0.03	-0.03	0.71	0.02	0.02	-0.03	-0.03	0.71	0.02	0.02	OK
	278.8	35.0267	-118.9989	0.63	0.04	0.04	-0.02	-0.02	0.61	0.02	0.02	-0.03	-0.03	0.60	0.01	0.01	OK
																Watch List Count:	16
																Investigation Count:	6

Abbreviations:

CASP = California Aqueduct Subsidence Program

ft = feet

ft/yr = feet per year

IM = Interim Milestone

InSAR = Interferometric Synthetic Aperture Radar

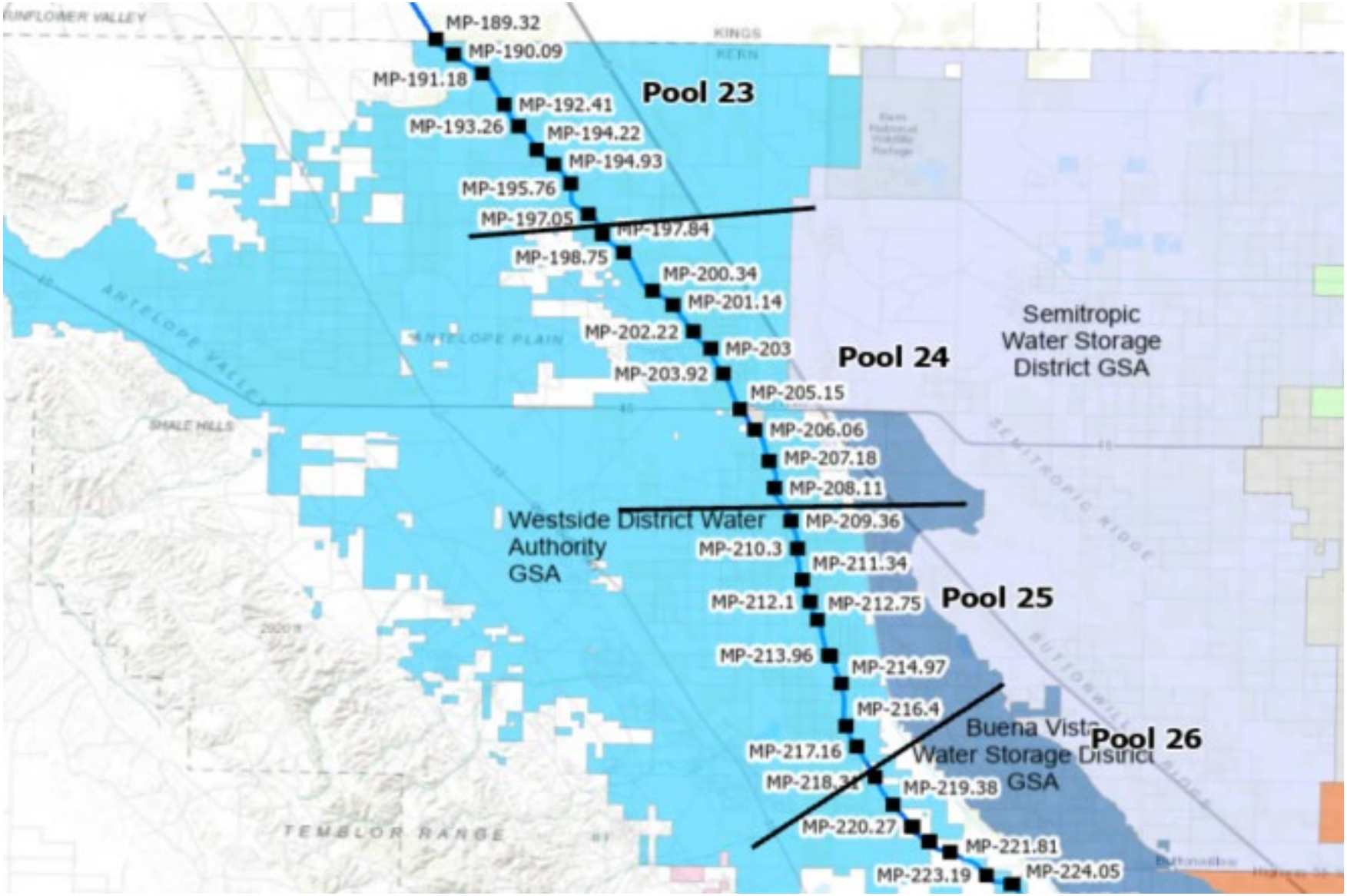
MT = Minimum Threshold

SMC = Sustainable Management Criteria

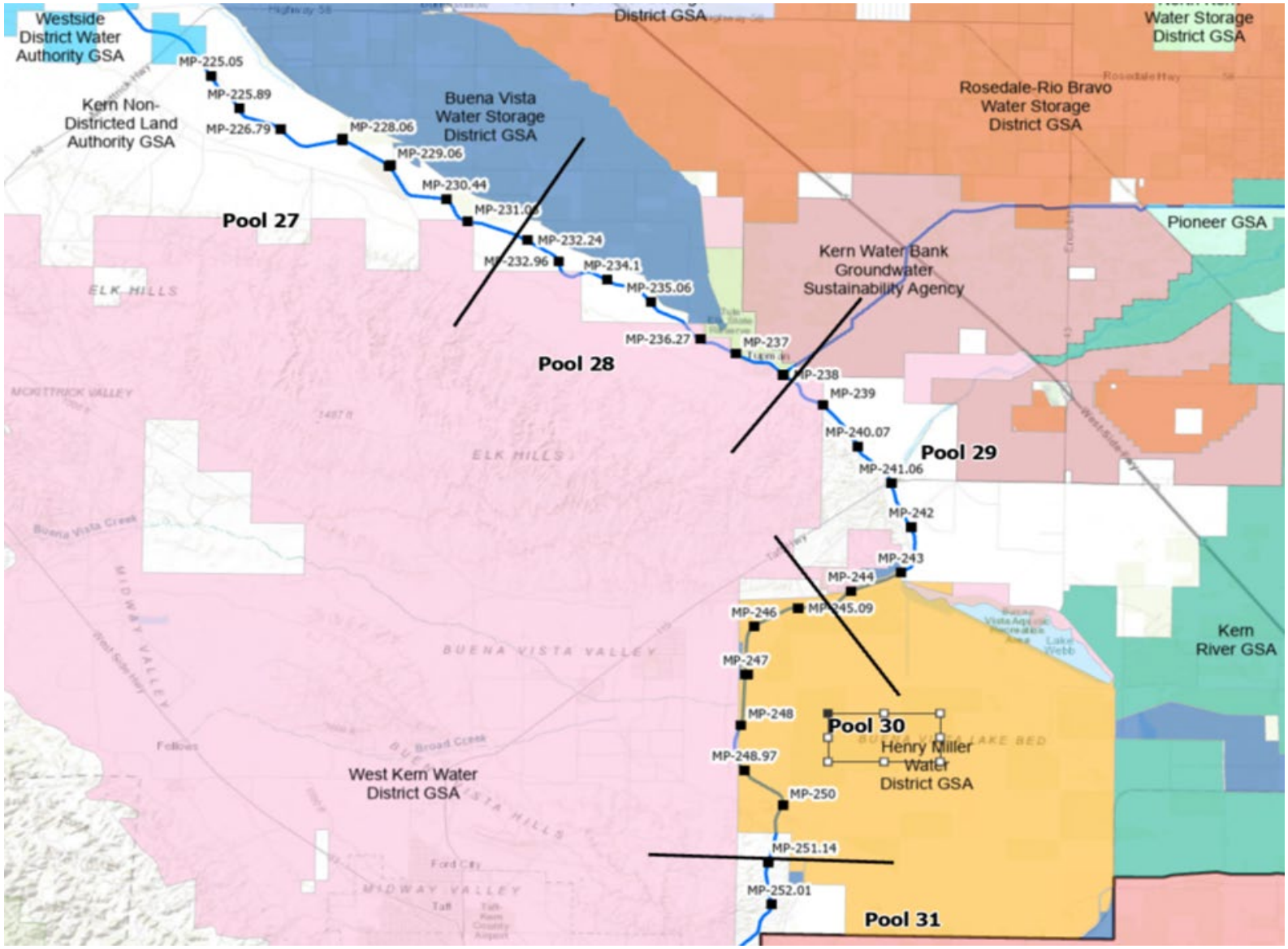
Notes:

1. CASP survey at identified milepost locations at lining mark, for the survey years 2024 & 2025 converted from meters to feet using a conversion factor of 3.2808.
2. InSAR displacement is extracted from the InSAR raster from a pixel at the milepost location. InSAR data for 1 January 2024 through current is provisional and subject to change.
3. Total Displacement Since 2024 is calculated as the land displacement since 2 February 2024 to align with the approximate CASP Survey date. Negative value indicates land subsidence.
4. 2024 Displacement Rate is calculated as the land displacement over the period 1 February 2024 to 1 February 2025. Negative value indicates land subsidence.
4. MT and IM extent and rate checks are calculated as displacement amount above MT / IM. A negative value indicates the current displacement is below the MT / IM.
5. Yellow color indicates the current displacement amount below (exceeding) the MT / IM is less than the reported accuracy of measurement and is a potential exceedance based on provisional data uncertainty, thereby being put on a watch list but not triggering action under the Exceedance Policy.
   - CASP survey accuracy is specified at 15 mm, based on personal communication with Jesse Dillion (DWR) on November 1, 2024 that “According to all of the research, the practical limit of GPS for vertical accuracy in this case is 10-20 mm”. Survey accuracy will be confirmed by CASP, and may be revised in the future.
   - InSAR accuracy is specified at 20 mm based on Towill, Inc. 2025. InSAR Data Accuracy for California Groundwater Basins CGPS Data Comparative Analysis January 2015 to October 2024.
6. Red color indicates the current displacement has exceeded the MT / IM in excess of the reported accuracy, thereby triggering action under the Exceedance Policy.
7. The values presented in this table have been rounded to the nearest 100th of a foot (0.01 feet), however, these were calculated using full floating-point precision. The raw data and corresponding calculations are available upon request.
8. Status is based on the MT Rate Check. * indicates status disagreement between CASP survey data and InSAR data and InSAR MT Rate Check is used.
   - OK is defined as mileposts that have an annual displacement rate less than the MT rate.
   - Watch List is defined as mileposts that have an MT rate exceedance less than the reported accuracy.
   - Investigation is defined as mileposts that have an MT rate exceedance in excess of the reported accuracy.

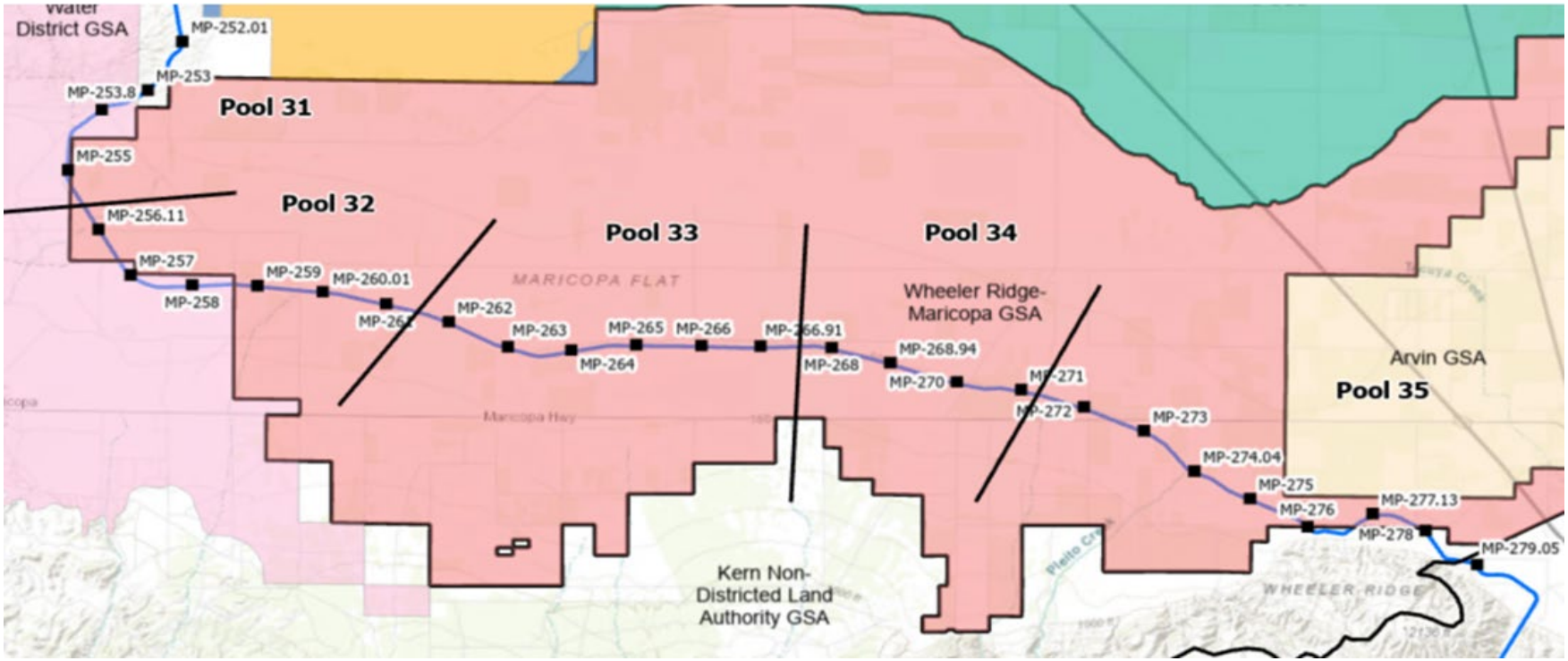
California Aqueduct Location Map Pools 23 to 26



California Aqueduct Location Map Pools 27 to 31



California Aqueduct Location Map Pools 31 to 35



Regional Critical Infrastructure

Friant-Kern Canal

Table E-3 Friant-Kern Canal Representative Monitoring Network for Land Subsidence - Sustainable Management Criteria Quarterly Checks

Pool	Milepost	Latitude	Longitude	MT		IM	Total Displacement Since 2024 (ft)				T Extent Chec	Extent Chec	Rate Check					Displacement Rate (ft/yr)					MT Rate Check	
				Extent (2024-2040) (ft)	Rate (ft/yr)	Extent (2024-2030) (ft)	Q4 2024	Q1 2025	Q2 2025	Q3 2025	Status	Status	Q4 2024	Q1 2025	Q2 2025	Q3 2025	WY 2025	Q4 2024	Q1 2025	Q2 2025	Q3 2025	WY 2025	Quarterly Status	WY 2025 Status
	121.5	35.7256	-119.1823	0.49	0.03	0.14	-0.05	-0.04	-0.04	-0.02	OK	OK	-0.10	0.07	0.05	0.08	0.02	-0.13	0.04	0.02	0.05	-0.01	OK	OK
Poso Creek													0.00	0.00	0.00	0.00	0.00							
	122.05	35.7179	-119.1823	0.54	0.03	0.15	-0.04	-0.04	-0.03	-0.01	OK	OK	-0.12	0.07	0.07	0.09	0.03	-0.15	0.04	0.04	0.06	0.00	OK	OK
	122.85	35.7084	-119.1889	0.88	0.06	0.25	-0.04	-0.04	-0.05	-0.04	OK	OK	-0.05	0.06	0.03	0.10	0.04	-0.11	0.00	-0.03	0.04	-0.02	OK	OK
	124.27	35.6891	-119.1956	0.93	0.06	0.26	-0.06	-0.06	-0.07	-0.06	OK	OK	-0.08	0.07	0.03	0.10	0.03	-0.14	0.01	-0.03	0.04	-0.03	OK	OK
	125.28	35.6746	-119.1956	0.67	0.04	0.19	-0.03	-0.03	-0.03	-0.02	OK	OK	-0.06	0.03	0.03	0.10	0.03	-0.10	-0.01	-0.01	0.06	-0.01	OK	OK
	125.86	35.6673	-119.2004	0.49	0.03	0.14	-0.03	-0.03	-0.03	-0.01	OK	OK	-0.08	0.03	0.05	0.08	0.02	-0.11	0.00	0.02	0.05	-0.01	OK	OK
	126.87	35.6528	-119.2023	0.48	0.03	0.14	-0.04	-0.04	-0.04	-0.03	OK	OK	-0.06	0.03	0.03	0.06	0.01	-0.09	0.00	0.00	0.03	-0.02	OK	OK
	127.47	35.6448	-119.2045	0.43	0.03	0.12	-0.04	-0.04	-0.04	-0.03	OK	OK	-0.06	0.03	0.02	0.06	0.01	-0.09	0.00	-0.01	0.03	-0.02	OK	OK
	128.77	35.6308	-119.2164	0.39	0.02	0.11	-0.04	-0.05	-0.05	-0.05	OK	OK	-0.10	0.00	0.01	0.04	-0.01	-0.12	-0.02	-0.01	0.02	-0.03	OK	Watch List
Shafter Wasco	130.17	35.6193	-119.2350	0.95	0.06	0.27	-0.07	-0.08	-0.08	-0.09	OK	OK	-0.09	0.02	0.03	0.02	0.00	-0.15	-0.04	-0.03	-0.04	-0.06	OK	OK
	130.81	35.6093	-119.2370	1.04	0.07	0.29	-0.08	-0.09	-0.11	-0.11	OK	OK	-0.06	0.01	0.00	0.05	0.00	-0.13	-0.06	-0.07	-0.02	-0.07	OK	OK
	132.43	35.5874	-119.2457	1.43	0.09	0.40	-0.08	-0.10	-0.12	-0.13	OK	OK	-0.06	0.01	0.00	0.05	0.00	-0.15	-0.08	-0.09	-0.04	-0.09	OK	OK
	133.43	35.5728	-119.2459	1.53	0.10	0.43	-0.11	-0.13	-0.16	-0.18	OK	OK	-0.11	0.00	-0.01	0.01	-0.02	-0.21	-0.10	-0.11	-0.09	-0.12	Watch List	Watch List
	134.44	35.5584	-119.2460	1.51	0.09	0.42	-0.10	-0.12	-0.15	-0.17	OK	OK	-0.12	0.00	-0.01	-0.01	-0.03	-0.21	-0.09	-0.10	-0.10	-0.12	Watch List	Watch List
	135.45	35.5438	-119.2455	1.65	0.10	0.46	-0.10	-0.12	-0.14	-0.16	OK	OK	-0.09	0.00	0.03	0.02	-0.01	-0.19	-0.10	-0.07	-0.08	-0.11	OK	Watch List
	136.67	35.5294	-119.2330	1.49	0.09	0.42	-0.10	-0.13	-0.15	-0.17	OK	OK	-0.10	-0.01	0.01	0.01	-0.02	-0.19	-0.10	-0.08	-0.08	-0.11	Watch List	Watch List
	137.2	35.5233	-119.2271	1.28	0.08	0.36	-0.09	-0.12	-0.13	-0.15	OK	OK	-0.12	-0.01	0.02	0.01	-0.03	-0.20	-0.09	-0.06	-0.07	-0.11	Watch List	Watch List
													0.00	0.00	0.00	0.00	0.00							
Kern River	138.14	35.5125	-119.2172	0.98	0.06	0.28	-0.09	-0.10	-0.11	-0.12	OK	OK	-0.13	0.02	0.03	0.02	-0.02	-0.19	-0.04	-0.03	-0.04	-0.08	OK	Watch List
	139.2	35.4998	-119.2073	0.95	0.06	0.27	-0.08	-0.09	-0.10	-0.11	OK	OK	-0.11	0.00	0.02	0.02	-0.02	-0.17	-0.06	-0.04	-0.04	-0.08	OK	Watch List
	140.63	35.4871	-119.1882	0.66	0.04	0.19	-0.03	-0.04	-0.06	-0.06	OK	OK	-0.07	0.02	-0.05	0.04	-0.02	-0.11	-0.02	-0.09	0.00	-0.06	Watch List	Watch List
	142.29	35.4777	-119.1623	0.56	0.03	0.16	-0.04	-0.05	-0.06	-0.06	OK	OK	-0.10	0.01	0.00	0.03	-0.02	-0.13	-0.02	-0.03	0.00	-0.05	OK	Watch List
	142.86	35.4741	-119.1533	0.68	0.04	0.19	-0.04	-0.04	-0.05	-0.05	OK	OK	-0.08	0.02	0.00	0.05	0.00	-0.12	-0.02	-0.04	0.01	-0.04	OK	OK
	144.31	35.4634	-119.1323	0.46	0.03	0.13	-0.06	-0.06	-0.07	-0.07	OK	OK	-0.11	0.00	0.01	0.03	-0.02	-0.14	-0.03	-0.02	0.00	-0.05	OK	Watch List
	145.49	35.4488	-119.1224	0.55	0.03	0.16	-0.06	-0.06	-0.07	-0.07	OK	OK	-0.12	0.00	0.01	0.04	-0.02	-0.15	-0.03	-0.02	0.01	-0.05	OK	Watch List
	145.99	35.4415	-119.1227	0.46	0.03	0.13	-0.05	-0.06	-0.07	-0.07	OK	OK	-0.13	0.01	0.01	0.03	-0.02	-0.16	-0.02	-0.02	0.00	-0.05	OK	Watch List
	147.01	35.4270	-119.1215	0.26	0.02	0.07	-0.05	-0.05	-0.05	-0.04	OK	OK	-0.10	0.01	0.02	0.04	-0.01	-0.12	-0.01	0.00	0.02	-0.03	OK	Watch List
	148.34	35.4125	-119.1096	0.35	0.02	0.10	-0.04	-0.03	-0.03	-0.02	OK	OK	-0.08	0.04	0.03	0.06	0.01	-0.10	0.02	0.01	0.04	-0.01	OK	OK
	148.88	35.4054	-119.1041	0.19	0.01	0.05	-0.04	-0.04	-0.04	-0.03	OK	OK	-0.07	0.03	0.00	0.05	0.00	-0.08	0.02	-0.01	0.04	-0.01	OK	OK
	149.95	35.3923	-119.0965	0.24	0.01	0.07	-0.04	-0.03	-0.03	-0.01	OK	OK	-0.09	0.05	0.03	0.06	0.01	-0.10	0.04	0.02	0.05	0.00	OK	OK
	151.02	35.3785	-119.0892	0.22	0.01	0.06	-0.04	-0.03	-0.02	-0.01	OK	OK	-0.09	0.05	0.05	0.06	0.02	-0.10	0.04	0.04	0.05	0.01	OK	OK
	151.82	35.3673	-119.0874	0.42	0.03	0.12	-0.02	-0.01	0.00	0.02	OK	OK	-0.03	0.08	0.10	0.10	0.06	-0.06	0.05	0.07	0.07	0.03	OK	OK
										Watch List Count:	0	0									Watch List Count:	5	14
										Investigation Count:	0	0									Investigation Count:	0	0
										Targeted P/MAs Count:	0	0											

Abbreviations:

ft = feet

ft/yr = feet per year

IM = Interim Milestone

InSAR = Interferometric Synthetic Aperture Radar

MT = Minimum Threshold

P/MAs = Projects and/or Management Actions

Notes:

1. Displacement is extracted from the InSAR raster from a pixel at the milepost location. InSAR data for 1 January 2024 through current is provisional and subject to change.
2. Total Displacement Since 2024 is calculated as the land displacement since 1 January 2024. Negative value indicates land subsidence.
3. Displacement Rate is calculated as the land displacement over the indicated period, translated into an annual rate. Negative value indicates land subsidence.
4. Yellow color indicates the current displacement exceeds the MT at a value less than the reported accuracy of measurement and is a potential exceedance based on provisional data uncertainty, thereby being put on a watch list but not triggering action under the Exceedance Policy.
   - InSAR accuracy is specified at 20 mm based on Towill, Inc. 2025. InSAR Data Accuracy for California Groundwater Basins CGPS Data Comparative Analysis January 2015 to October 2024.
5. Red color indicates the current displacement has exceeded the MT in excess of the reported accuracy, thereby triggering action under the Exceedance Policy.
6. Status is based on 4th Qtr 2024 through 3rd Qtr 2025 land subsidence, as follows:
   - OK is defined as mileposts that have less than two quarters with MT / IM exceedances, or WY displacement less than the MT.
   - Watch List is defined as mileposts that have two or more quarters with MT / IM exceedances (but not consecutive exceedances). Watch List also includes mileposts that have two or more consequtive quarters or WY MT exceedances less than the reported accuracy.
   - Investigation is defined as mileposts that have two or more consecutive quarters or WY MT / IM exceedances in excess of the reported accuracy.
   - Targeted P/MAs is defined as mileposts that have four or more consecutive quarters with MT / IM extent exceedances in excess of the reported accuracy. Exceedance investigation report findings will be used to inform development of appropriate targeted P/MAs.
7. Exceedance checks are calculated from values that have been rounded to the nearest 100th of a foot (0.01 feet).

GSA Area Critical Infrastructure

Table E-4 GSA Area Infrastructure Land Subsidence SMC Checks

GSA Area Infrastructure	Segment	GSA	HCM Area	MT		IM	InSAR Data - Average along linear infrastructure with 0.25 mile buffer							
				Extent (2024-2040) (ft)	Rate (ft/yr)	Extent (2030) (ft)	Total Displacement Since 2024 (ft)	WY 2025 Displacement Rate (ft/yr)	MT Extent Check	MT Rate Check	IM Extent Check	MT Extent Check	MT Rate Check	IM Extent Check
Calloway Canal	1	KRGSA	Kern River Fan	0.31	0.02	0.10	-0.01	0.00	0.30	0.02	0.09	OK	OK	OK
	2	KRGSA	North Basin	1.92	0.12	0.54	-0.04	-0.02	1.88	0.10	0.50	OK	OK	OK
	3	NKWSD	North Basin	1.92	0.12	0.54	-0.07	-0.06	1.85	0.06	0.47	OK	OK	OK
	4	SWID	North Basin	1.92	0.12	0.54	-0.15	-0.10	1.77	0.02	0.39	OK	OK	OK
Lerdo Canal	1	CWD	North Basin	1.92	0.12	0.54	-0.10	-0.07	1.82	0.05	0.44	OK	OK	OK
	2	NKWSD	North Basin	1.92	0.12	0.54	-0.13	-0.08	1.79	0.04	0.41	OK	OK	OK
	X	KRGSA	North Basin	1.92	0.12	0.54	see note 1							
Beardsley Canal	1	KRGSA	Kern River Fan	0.31	0.02	0.10	-0.05	-0.01	0.26	0.01	0.05	OK	OK	OK
	2	KRGSA	North Basin	1.06	0.07	0.33	-0.02	0.00	1.04	0.07	0.31	OK	OK	OK
	3	CWD	North Basin	1.06	0.07	0.33	-0.05	-0.03	1.01	0.04	0.28	OK	OK	OK
Cross Valley Canal	1	KRGSA	Kern River Fan	0.31	0.02	0.10	0.02	0.02	0.33	0.04	0.12	OK	OK	OK
	2	Pioneer	Kern River Fan	0.31	0.02	0.10	0.10	-0.01	0.41	0.01	0.20	OK	OK	OK
	3	KWB	Kern River Fan	0.31	0.02	0.10	0.09	0.00	0.40	0.02	0.19	OK	OK	OK
	X	RRBWSD	Kern River Fan	0.31	0.02	0.10	see note 2							
Kern River Canal	1	KRGSA	Kern River Fan	0.64	0.04	0.18	0.03	0.02	0.67	0.06	0.21	OK	OK	OK
	2	Pioneer	Kern River Fan	0.64	0.04	0.18	0.13	0.00	0.77	0.04	0.31	OK	OK	OK
	3	KWB	Kern River Fan	0.64	0.04	0.18	0.10	-0.01	0.74	0.03	0.28	OK	OK	OK
AEWSD Canal	3	AEWSD	South Basin	1.92	0.12	0.54	-0.04	-0.02	1.88	0.10	0.50	OK	OK	OK
Olcese Canal	1	OWD	East Margin	0.15	0.01	0.05	-0.04	-0.01	0.11	0.00	0.01	OK	OK	OK
I-5	1	WDWA	North Basin	1.06	0.07	0.33	-0.03	-0.02	1.03	0.05	0.30	OK	OK	OK
	2	BVWSD	North Basin	1.06	0.07	0.33	-0.03	-0.03	1.03	0.04	0.30	OK	OK	OK
	3	SWSD	North Basin	1.06	0.07	0.33	0.00	-0.02	1.06	0.05	0.33	OK	OK	OK
	4	RRBWSD	Kern River Fan	0.31	0.02	0.10	0.05	-0.01	0.36	0.01	0.15	OK	OK	OK
	5	KWB	Kern River Fan	0.31	0.02	0.10	0.08	0.00	0.39	0.02	0.18	OK	OK	OK
	6	KRGSA	South Basin	1.92	0.12	0.54	-0.13	-0.04	1.79	0.08	0.41	OK	OK	OK
	7	WRMWSD	South Basin	1.92	0.12	0.54	0.00	-0.01	1.92	0.11	0.54	OK	OK	OK
	8	AEWSD	South Basin	1.92	0.12	0.54	-0.03	-0.02	1.89	0.10	0.51	OK	OK	OK
Hwy 99	1	SSJMUD	North Basin	1.92	0.12	0.54	-0.07	-0.04	1.85	0.08	0.47	OK	OK	OK
	2	NKWSD	North Basin	1.92	0.12	0.54	-0.10	-0.06	1.82	0.06	0.44	OK	OK	OK
	3	CWD	North Basin	1.92	0.12	0.54	-0.06	-0.04	1.86	0.08	0.48	OK	OK	OK
	4	KRGSA	Kern River Fan	1.92	0.12	0.54	-0.02	0.00	1.90	0.12	0.52	OK	OK	OK
	5	KRGSA	South Basin	1.92	0.12	0.54	-0.14	-0.05	1.78	0.07	0.40	OK	OK	OK
	6	AEWSD	South Basin	1.92	0.12	0.54	-0.06	-0.03	1.86	0.09	0.48	OK	OK	OK

Notes					
1	Lerdo Canal does not cross KRGSA	HCM Area MT Rate and Extent	Watch List Count:	0	0	0
2	RRBWSD is grouped into Pioneer and KWB segments	Specified on Table 13-11 in 2025 Plan	Exceedance Count:	0	0	0
		Not Included				

Abbreviations:
ft = feet
ft/yr = feet per year
IM = Interim Milestone
InSAR = Interferometric Synthetic Aperture Radar
MT = Minimum Threshold

HCM Area MT Rate and Extent
Specified on Table 13-11 in 2025 Plan
Not Included

Notes:
1. IM Extent for 2025 represents the total cumulative subsidence occurring by 2025 and IM Rate for 2024 equals the MT Rate.

2. SMC Reference Displacement and Current Displacement from InSAR are extracted from a pixel at the milepost location, for the identified reported period. InSAR displacement represents total change in land surface since July 2015.

3. MT and IM extent and rate checks are calculated as displacement amount above MT / IM. A negative value indicates the current displacement is below the MT / IM.
4. The values presented in this table have been rounded to the nearest 100th of a foot (0.01 feet), however, these were calculated using full floating-point precision. The raw data and corresponding calculations are available upon request.

HCM Area Other Infrastructure

Table E-5 HCM Area Land Subsidence SMC Checks for entire HCM Area

HCM Area	MT		IM	InSAR Data - Average across HCM Area□							
	Extent (2024-2040) (ft)	Annual Rate (ft/yr)	Extent (2030) (ft)	Total Displacement Since 2024 (ft)	WY 2025 Displacement Rate (ft/yr)	MT Extent Check	MT Rate Check	IM Extent Check	MT Extent Check	MT Rate Check	IM Extent Check
North Basin	1.06	0.07	0.33	-0.07	-0.06	0.99	0.01	0.26	OK	OK	OK
Kern Fan	0.31	0.02	0.10	0.03	0.00	0.34	0.02	0.13	OK	OK	OK
South Basin	0.52	0.03	0.14	-0.05	-0.03	0.47	0.00	0.09	OK	OK	OK
Western Fold Belt	0.06	0.00	0.02	-0.01	-0.01	0.05	-0.01	0.01	OK	Watch List	OK
East Margin	0.15	0.01	0.05	-0.04	-0.01	0.11	0.00	0.01	OK	OK	OK
								Watch List Count:	0	1	0
								Exceedance Count:	0	0	0

Table E-6 HCM Area Land Subsidence SMC Checks excluding the Oil Field Administrative Areas

HCM Area	MT		IM	InSAR Data - Average across HCM Area□							
	Extent (2024-2040) (ft)	Annual Rate (ft/yr)	Extent (2030) (ft)	Total Displacement Since 2024 (ft)	WY 2025 Displacement Rate (ft/yr)	MT Extent Check	MT Rate Check	IM Extent Check	MT Extent Check	MT Rate Check	IM Extent Check
North Basin	1.06	0.07	0.33	-0.07	-0.06	0.99	0.01	0.26	OK	OK	OK
Kern Fan	0.31	0.02	0.10	0.04	0.00	0.35	0.02	0.14	OK	OK	OK
South Basin	0.52	0.03	0.14	-0.05	-0.03	0.47	0.00	0.09	OK	OK	OK
Western Fold Belt	0.06	0.00	0.02	0.01	0.00	0.07	0.00	0.03	OK	OK	OK
East Margin	0.15	0.01	0.05	-0.03	-0.01	0.12	0.00	0.02	OK	OK	OK
								Watch List Count:	0	0	0
								Exceedance Count:	0	0	0

Appendix F

GSA Implementation Progress Summaries for WY2025 Annual Report

Arvin GSA

The following narrative serves to summarize progress made by the Arvin GSA towards achieving its Sustainability Goal throughout Water Year (WY) 2025. The Sustainable Management Criteria discussed below is per the 2025 Kern County Subbasin Groundwater Sustainability Plan.

1) Compliance with Groundwater Levels Sustainable Management Criteria (SMC)

The following subsections describe Arvin GSA's compliance with SMCs defined for Chronic Lowering of Groundwater Levels and Reduction of Groundwater Storage.

a) Compliance with SMC

Groundwater elevations were measured below (exceeded) their minimum thresholds at none of the 16 RMW-WLs within the Arvin GSA during the Fall 2024 monitoring event. 11 RMW-WLs were between the minimum threshold and measurable objective, and the remaining 5 RMW-WLs were measured above their measurable objectives.

Groundwater elevations were measured below (exceeded) their minimum thresholds at none of the 16 RMW-WLs within the Arvin GSA during the Spring 2025 monitoring event. 8 RMW-WLs were measured between the minimum threshold and measurable objective, and the remaining 8 RMW-WLs were measured above their measurable objectives.

b) SMC Monitoring Activities

Consistent with the Subbasin's Groundwater Level Sampling SOP, water level measurements were collected from 16 of the GSA's designated 16 RMW-WLs in Fall 2024 and from 16 of the GSA's designated 16 RMW-WLs in Spring 2025.

c) Assessment of Potential Impacts to Beneficial Users

There was one well mitigation application submitted for a single dry well within the Arvin GSA during WY 2025.

2) Compliance with Additional Sustainable Management Criteria

The relationship between groundwater levels, quality, and subsidence are monitored across the Subbasin, as described in Section 7 Current Conditions of Sustainability Indicators. During WY 2025, no MT Exceedances occurred within the Arvin GSA.

a) Water Quality

The 2025 GSP established SMCs for six constituents of concern. Consistent with the Subbasin's Water Quality Sampling SOP, samples were collected from the GSA's designated 5 RMW-WQ in July and August. WY 2025 sample results from this sampling event will be used to establish baseline concentrations in RMW-WQs that had insufficient historical data to assess trends during SMC development. Results indicate elevated concentrations of arsenic, nitrate, TDS, and 1,2,3-TCP in some RMW-WQs; no elevated concentrations were observed in the public water system RMW-WQs.

b) Subsidence

WY 2025 Subbasin-wide conditions and progress for subsidence is provided in Section 7, Current Conditions for Sustainability Indicators and Section 9, Progress on Subbasin-Wide Coordination. GSA activities beyond the coordinated Subbasin-wide activities included the following:

The AEWSD Canal is GSA-area critical infrastructure that passes through portions of the GSA. The GSA monitored local benchmarks and reviewed InSAR data. Benchmark survey monitoring conducted in June 2025 indicates that observed subsidence rates at the Arvin GSA's representative monitoring sites (RMS) in WY 2025 (based on the

period from May 2024 through June 2025) were in all cases less than the interim milestone rate and minimum threshold rate, i.e., all subsidence RMS were in compliance with established SMCs. Over this time period, three RMS locations showed a negative elevation change (subsidence) and two RMS locations showed a positive change (uplift). Compliance with interim milestone and minimum threshold subsidence rates was confirmed with InSAR data. Additionally, no GSA-area infrastructure was reported impacted by subsidence in WY 2025.

c) Interconnected Surface Water

Subbasin-wide analysis determined that the vast majority of surface water features in the Kern Subbasin are not connected to groundwater. Subsequently, the Arvin GSA is not independently taking any actions specific to the sustainability indicator.

3) Implementation of Projects and Management Actions (PMAs)

AEWSD has made progress during this reporting period towards implementing several of its PMAs, more specifically progress was made on the following:

AE-2 On-Farm Recharge. AEWSD has expanded its initial 2019 Landowner Recharge program through continued outreach and investigation. During WY 2025 no on-farm recharge occurred.

Future deliveries for on-farm recharge will remain largely dependent on the availability of imported surface water supplies.

AE-4 Forrest Frick Pipeline/KDWD Eastside Canal Intertie. Project construction is complete and deliveries began in February 2023. During WY 2025, 19 AF was delivered through this facility, however discussions between both districts continue with regards to expanding delivery options outside of wet periods.

AE-6 Private and Caltrans Basin Connections. Several Cal Trans basins were connected to AEWSD and received surface water for recharge. During WY 2025, 4 AF was recharged.

AE-7 AEWSD Sunset Groundwater Recharge Facility. Project is complete and deliveries began in February 2023. During WY 2025, 19 AF was recharged.

AE-8 DiGiorgio Unit Program. AEWSD completed project design and construction of Phase 2a consisting of a half mile 48" pipeline and a road crossing to serve future phases. In addition, AEWSD was awarded $300,000 in grant funding from USBR for the final design of the remaining phases, which work is underway.

AE-9 Frick Unit Program. AEWSD was awarded $2 million from IRWM Round 2 Grant Program (state funds via DWR) and $3.25 million in Community Project Funding through Congressmen Valadao's office (federal funds via EPA) to partially fund project design and implementation. The remaining funding ($6 to 7 million) will be from AEWSD. Design for the entire project is complete, Phase 1 construction of the project (canal turnout) is complete, Phase 2 (mainlines) and Phase 3 (laterals) will be completed in WY 2026 and 2027.

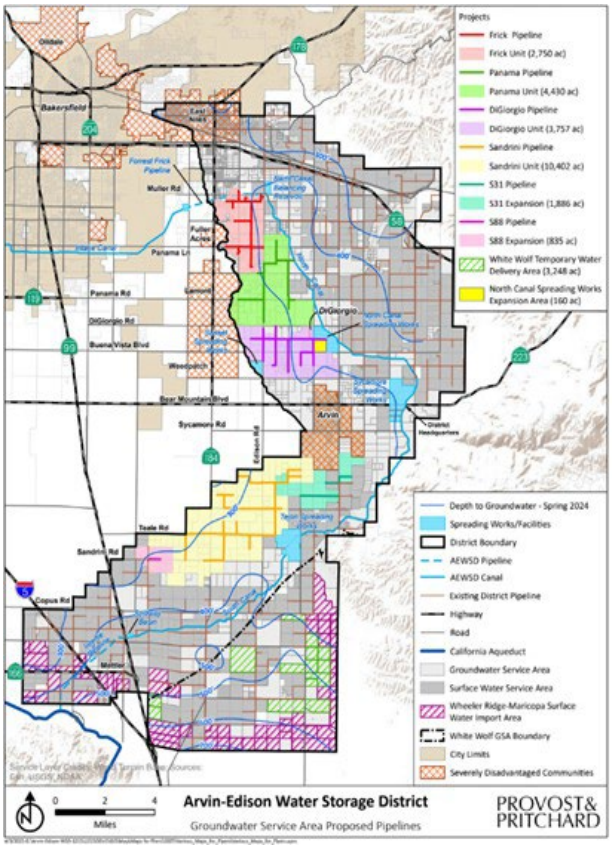
AE-10 Expansion of North Canal Spreading Works. AEWSD has been awarded $1 million in funding from California's Flood Diversion and Recharge Enhancement Initiative (state funds via DWR). The property has been purchased, project design is complete, and construction of the first three vertical feet of the levees begun (completed in October 2025).

AE-14 General Temporary Water Program. Final design of the Frick Unit and Phase 1 construction is complete; Phase 2 construction will be completed in WY 2026. Temporary Water Service Contracts with landowners in the Frick Unit have been executed. Also, AEWSD continues to design the "Sandrini Unit" and "Panama Unit".

AE-26 Incentives for Land Conversion. AEWSD continues to investigate financial incentives for landowners to reduce groundwater demands through its Land Repurposing Study.

AE-24 Groundwater Extraction Quantification Method. AEWSD entered into a three-year agreement with LandIQ for monthly evapotranspiration data for the entire district.

AE-25 Education of Groundwater Use per Acre. AEWSD continues to publish informational fliers describing District groundwater use trends, ongoing GSA management activities, and other items. See example below.



Other benefits of taking surface water

Reduces per acre assessments and surface water rates

Arvin-Edison WSD's two main revenue sources are 1) acreage assessment and 2) surface water sales. Too much reliance on groundwater raises the District's land-based acreage assessment for all because reduced surface water deliveries (and sales) must be balanced by increasing land-based assessments in order for the District to cover its expenses.

Too much reliance on groundwater also raises surface water rates to District water users. As groundwater levels decline, pumping costs increase. Because the rate-setting process aims to set surface water rates equivalent to the average cost of pumping groundwater District-wide, this results in higher rates for surface water supplies.

Reduces landowner pumping costs

Surface water deliveries and/or less reliance on groundwater helps stabilize groundwater levels. **Lowering of groundwater levels is associated with higher pumping costs.** Therefore, if we can reduce the groundwater level decline, it will be less costly for landowners to pump.

4) Coordination with Stakeholders

In addition to Subbasin-wide outreach and engagement activities, Arvin GSA routinely communicates GSA-specific information to its landowners, stakeholders, and other interested parties via:

- Monthly District board meetings
- Monthly South of Kern River GSAs meetings
- Landowner workshops
- Distribution of informational fliers

5) Summary of Other GSP-related Special Studies or Activities

Arvin GSA conducts its own groundwater modeling/forecasting and is actively participating in the Subbasin-wide activities in Section 9, Progress on Subbasin-wide coordination on GSP Implementation.

Buena Vista GSA

The Buena Vista GSA remained fully compliant with all SMCs during Water Year 2025, with no minimum threshold exceedances for groundwater levels, water quality, or subsidence. Groundwater monitoring showed all representative monitoring wells remained above established thresholds, and no dry well mitigation requests were received. The GSA continued implementation of key projects and management actions that collectively support groundwater sustainability, including ongoing recharge operations, land retirement, metering, and major infrastructure improvements. Subbasin-wide coordination efforts continued, and BVGSA actively participated in broader Subbasin-wide GSP implementation activities.

1) Compliance with Groundwater Levels Sustainable Management Criteria (SMC)

BVGSA is fully in compliance with SMCs established in the 2025 GSP. Details of monitoring and compliance activities are provided in the following sections.

a) Compliance with SMC

None of the 9 RMW-WLs within the BVGSA were measured below (exceeded) their minimum thresholds during the Fall 2024 or Spring 2025 monitoring events. In Fall 2024, two RMW-WLs were between the minimum threshold and measurable objective, and the remaining 7 RMW-WLs were measured above their measurable objectives.

In Spring 2025, 3 RMW-WLs were measured between the minimum threshold and measurable objective, and the remaining 6 RMW-WLs were measured above their measurable objectives.

b) SMC Monitoring Activities

Consistent with the Subbasin's Groundwater Level Sampling SOP, water level measurements were collected from all of the GSA's designated 9 RMW-WLs in Fall 2024 and from all of the GSA's designated 8 RMW-WLs in Spring 2025.

c) Assessment of Potential Impacts to Beneficial Users

There was no mitigation applications submitted for dry wells within the BVGSA during WY 2025.

2) Compliance with Additional Sustainable Management Criteria

The relationship between groundwater levels, quality, and subsidence are monitored across the Subbasin, as described in Section 7 Current Conditions of Sustainability Indicators. During WY 2025, no MT Exceedances occurred within the BVGSA.

a) Water Quality

The 2025 GSP established SMCs for six constituents of concern. Consistent with the Subbasin's Water Quality Sampling SOP, the GSA's four wells designated as RMW-WQ sites were sampled in the Fall 2025 monitoring event. Historical data and Fall 2025 monitoring results are available to the public via the Kern DMS. Water quality data will be used to evaluate the relationship between groundwater levels and water quality, represented by the six constituents of concern designated in the GSP.

b) Subsidence

WY 2025 Subbasin-wide conditions and progress for subsidence is provided in Section 7, Current Conditions for Sustainability Indicators and Section 9, Progress on Subbasin-Wide Coordination. No specific GSA activities other than coordination with Subbasin-wide activities occurred in WY 2025.

The CA Aqueduct is regional critical infrastructure that is within 2-1/2 miles for most of the Buttonwillow Service Area of the BVGSA. The GSA compared the CASP survey results to InSAR data and did not find any interim

milestone rate and minimum threshold rate exceedances based on InSAR data. Past data and analyses indicate none of the subsidence along the California Aqueduct has been attributable to BVGSA-related causes. In response to the exceedances, the GSA initiated o management actions other than continuing monitoring.

c) Interconnected Surface Water

Subbasin-wide analysis determined that the vast majority of surface water features in the Kern Subbasin are not connected to groundwater. Subsequently, the BVGSA is not independently taking any actions specific to the sustainability indicator.

3) Implementation of Projects and Management Actions (PMAs)

BVGSA was not assigned a deficit reduction target in the 2025 GSP. However, P/MAs were identified to maintain the GSAs surplus condition. Through the implementation period, land retirement is projected to result in up to 12,090 AFY of demand reduction, and supplemental water recharge is projected to result in up to 27,520 AFY of supply augmentation. The status of planned projects through WY 2025 is summarized by the following:

- **BV-1. Magnetic Flow Meter Installation:** meters have been installed on all BV production wells (approximately 200 wells) and are required on all new and replacement wells.
- **BV-2. Palms Recharge Project:** About 165 acres were developed and used in 2017 and were used at the available capacity through WY2023. This facility met its overall targets. In 2024 maintenance was performed, primarily removing the thin layer of silt that settled in the recharge basin during the 2023 operations.
- **BV-3. Corn Camp Recharge Project:** Construction on the Corn Camp Recharge Facility was completed in 2021. Staff are working with consultants to get this facility listed as a Federal Water Bank through the NEPA process. Project facilities were used for the first time in 2023. In 2024 maintenance was performed, primarily removing the thin layer of silt that settled in the recharge basin during the 2023 operations.
- **BV-4. Annexation Demand Reduction Project:** BVWSD/BVGSA purchased 900 acres of non-districted land and has taken it out of production. These lands are adjacent to BVWSD and are in the process of being annexed.
- **BV-5. Daley Ranch Recharge Project:** The BVWSD/BVGSA was able to use its Daley Ranch Recharge Facility for the first time in 2023. In 2024 maintenance was performed, primarily removing the thin layer of silt that settled in the recharge basin during the 2023 operations.
- **BV-6. Completed Pipelines:** Constructed 83 miles of 36" and 54" pipelines to improve distribution of irrigation water by providing an alternative to unlined canals and installing new connections to the CA Aqueduct.
- **BV-7. Completed Pump Stations:** Three pump stations (two 1,200 hp and one 600-hp) have been completed to augment flow in the district's distribution system during peak months.
- **BV-8. Future Pump Station:** Design and environmental documentation of the 600-hp Brite Rd Pump Station is in progress.
- **BV-9. Future Pipelines:** Construction of an additional 17 miles of pipelines to improve distribution of irrigation water by replacing open ditch laterals. Projects include the Belridge, Corn Camp Loop, Wasco Way, Elk Grove, and Brite Road pipelines that are important for delivering surface water to reduce reliance on marginal groundwater quality.

- **BV-10. McAlister Ranch Recharge Project:** The BVWSD/BVGSA continue to work through regulatory hurdles in the development of a 2,072-acre water bank. BVWSD increased its ownership interests from 85 percent to 100%. This project is not in the GSA or District, rather it's in the City of Bakersfield and the Kern River GSA. The FEIR was accepted by the City of Bakersfield in November of 2024. This project has been known as the James Water Bank at McAllister Ranch. Going forward it will be known as the McAllister Water Bank.

4) Coordination with Stakeholders

In addition to Subbasin-wide outreach and engagement activities, Buena Vista GSA routinely communicates GSA-specific information with its landowners, stakeholders, and other interested parties via:

- Monthly district board meetings.
- GSA meetings with Buttonwillow Community Services District.

5) Summary of Other GSP-related Special Studies or Activities

None

Cawelo GSA

Progress towards compliance with Sustainable Management Criteria (SMC) in the Cawelo Water District Groundwater Sustainability Agency (CGSA) during the WY 2025 is summarized below.

1) Compliance with Groundwater Levels Sustainable Management Criteria (SMC)

CGSA has established SMC for the Chronic Lowering of Groundwater Levels and Reduction in Groundwater Storage sustainability indicators.

a) Compliance with SMC

Groundwater elevations were measured below (exceeded) their minimum thresholds at 1 of the 7 RMW-WLs within the CGSA during the Fall 2024 monitoring event. 5 RMW-WLs were between the minimum threshold and measurable objective, and the remaining 1 RMW-WL was measured above their measurable objective. As per PMA KSB-3 Exceedance Policy, CGSA is in the process of preparing the required exceedance investigation related to the minimum threshold exceedance.

Groundwater elevations were measured below (exceeded) their minimum thresholds at 0 of the 7 RMW-WLs within the CGSA during the Spring 2025 monitoring event. 5 RMW-WLs were measured between the minimum threshold and measurable objective, and the remaining 2 RMW-WLs were measured above their measurable objectives.

b) SMC Monitoring Activities

Consistent with the Subbasin's Groundwater Level Sampling SOP, water level measurements were collected from 7 of the GSA's designated 7 RMW-WLs in Fall 2024 and from 7 of the GSA's designated 7 RMW-WLs in Spring 2025.

c) Assessment of Potential Impacts to Beneficial Users

There were no mitigation applications submitted for dry wells within the CGSA during WY 2025.

2) Compliance with Additional Sustainable Management Criteria

The relationship between groundwater levels, quality, and subsidence are monitored across the Subbasin, as described in Section 7 Current Conditions of Sustainability Indicators. During WY 2025, no MT Exceedances for other sustainable management criteria were observed, as discussed below.

a) Water Quality

The 2025 GSP established SMCs for six constituents of concern. Consistent with the Subbasin's Water Quality Sampling SOP, samples were not collected from the GSA's designated 2 RMW-WQs. The designated representative wells were not operating during the seasonal monitoring period(s) in WY 2025 due to surface water supplies available to the CGSA.

b) Subsidence

WY 2025 Subbasin-wide conditions and progress for subsidence is provided in Section 7, Current Conditions for Sustainability Indicators and Section 9, Progress on Subbasin-Wide Coordination. No specific GSA activities other than coordination with Subbasin-wide activities occurred in WY 2025.

Additionally, no CGSA-area infrastructure was reported impacted by subsidence in WY 2025.

c) Interconnected Surface Water

Subbasin-wide analysis determined that the vast majority of surface water features in the Kern Subbasin are not connected to groundwater. Subsequently, the CGSA is not independently taking any actions specific to the sustainability indicator.

3) Implementation of Projects and Management Actions (PMAs)

Progress towards implementing planned PMAs in the CGSA includes the following:

- **CWD-1 - New Water Supply Purchases:**
  - Negotiations continue with potential new program partners to purchase water supplies from outside the Kern County Subbasin. An additional 5,400 acre-feet of water supplies were acquired during WY 2025.

- **CWD-2 - Friant Pipeline Project**
  - Construction on Phase 1 (pipeline) was completed in WY 2022.
  - Construction on Phase 2 (turn-in/out structure) was completed in WY 2023.
  - Construction of Phase 3 (pump station) commenced in WY 2025 and is anticipated to be complete in WY 2026. The project is anticipated to yield 2,160 AFY of additional water supplies

- **CWD-3 - Increase Recharge and Banking Capacity**
  - The CWD Board of Directors approved the Landowner Groundwater Recharge and Banking Project that allows landowners to develop private groundwater recharge facilities increasing recharge and banking capacity within CWD. This provides an opportunity for landowners to bank privately acquired surface water and provides CWD with access to additional recharge and banking facilities (second priority right).
    - Currently one (1) Landowner Groundwater Recharge and Banking project is approved and operational.
    - CWD is currently working with additional interested landowners to develop private recharge and banking projects.
  - CWD is actively developing additional recharge facilities. CWD was awarded an USBR grant in the amount of approximately $1,342,000 for the construction of the recharge facility estimated to total
  - $2,684,000. The project is estimated to yield approximately 2,160 AFY of additional water supply by recharging contracted and supplemental water supplies

- **CWD-4 - New Cawelo GSA Banking Partners:**
  - Negotiations continue with potential new groundwater banking partners.
  - The CWD Board of Directors approved the Landowner Groundwater Recharge and Banking Project that allows landowners to develop private groundwater recharge facilities increasing recharge and banking capacity within CWD. This provides an opportunity for landowners to bank privately acquired surface water and provides CWD with access to additional recharge and banking facilities
    - Currently one (1) Landowner Groundwater Recharge and Banking project is approved and operational.
    - CWD is currently working with additional interested landowners to develop private recharge and banking projects.

- **CWD-5 - Poso Creek Flood Water Capture:**
  - This project remains in the conceptual planning phase.

- **CWD-6 - Water Treatment Facilities:**
  - CWD continues to review and discuss potential water treatment facilities/operations to process treated recycled produced water to a level that is suitable for crop irrigation.
  - CWD commenced construction on one (1) recycled produced water project in WY 2025 that is anticipated to be complete and operational in WY 2026. The project is estimated to yield approximately 2,000 AFY of new water supplies.

- **CWD-7 - Surface Water Storage:**
  - This project remains in the conceptual planning phase.

- **CWD-8 - Out of Cawelo GSA Banking:**
  - CWD continues to discuss and review potential outside water banking opportunities.

- **CWD-9 - Voluntary Land Conversion:**
  - Approximately 15 acres of historically irrigated agricultural land has been converted to CWD landowner groundwater recharge and banking facilities.
  - CWD is currently working with additional interested landowners to develop private recharge and banking projects.

- **CWD-10 - Secure Access to Additional Monitoring Location:**
  - Progress for this PMA was completed through Subbasin-wide PMA KSB-10.

- **CWD-11 - Crop Conversion and Irrigation Efficiency:**
  - Several landowners within CGSA worked with the North Kern Resource Conservation District to examine their irrigation systems and identify areas for irrigation efficiency improvement. This activity is expected to occur again in WY 2026.

- **CWD-12 - Agriculture to Urban Land Use Conversion:**
  - Approximately 545 acres of historically irrigated agricultural land has been converted to urban/commercial use due to urban expansion.

- **CWD-13 - Short-Term Land Fallowing:**
  - The CWD Board of Directors approved the Short-Term Land Fallowing Program Policy in WY 2025.
  - CWD is currently continuing to develop the Short-Term Land Fallowing Program. The Short-Term Land Fallowing Program is anticipated to be implemented in WY 2027.
  - CWD conducted a Proposition 218 Rate Study and conducted an election for a new SGMA Special Assessment that was approved by CWD landowners in WY 2025. Within the SGMA Special Assessment is funding to implement the Short-Term Land Fallowing Program.

- **CWD-14 - Long-Term Land Fallowing:**
  - The CWD Board of Directors approved the Long-Term Land Fallowing Program Policy in WY 2025.
  - CWD is currently continuing to develop the Long-Term Land Fallowing Program.
  - CWD conducted a Proposition 218 Rate Study and conducted an election for a new SGMA Special Assessment that was approved by CWD landowners in WY 2025. Within the SGMA Special Assessment is funding a reserve to implement the Long-Term Land Fallowing Program

4) Coordination with Stakeholders

In addition to Subbasin-wide outreach and engagement activities, CGSA routinely communicates GSA-specific information its landowners, stakeholders, and other interested parties via:

- Monthly CGSA board meetings.
- Monthly Cawelo Water District board meetings.

5) Summary of Other GSP-related Special Studies or Activities

No special studies are being conducted exclusively in the GSA. The CGSA has contracted with LandIQ to provide CGSA landowners with crop evapotranspiration (ET) results within 24 - 48 hours to provide more detailed and timely crop ET information to better inform field level irrigation practices. The CGSA is actively participating in the Subbasin-wide activities in Section 9, Progress on Subbasin-wide coordination on GSP Implementation.

Eastside Water Management Area

1) Compliance with Groundwater Levels Sustainable Management Criteria (SMC)

Progress towards compliance with sustainable management criteria in the Eastside Water Management Area (EWMA) during WY 2025 is summarized as follows:

a) Compliance with SMC

There were no wells within the EWMA with groundwater elevations measured below (exceeded) their minimum thresholds during the Spring and Fall 2025 monitoring events. Four (4) RMW-WLs were between the minimum threshold and measurable objective, and the remaining five (5) RMW-WLs were measured above their measurable objectives during the Fall 2025 monitoring event.

Four (4) RMW-WLs were measured between the minimum threshold and measurable objective, and the remaining five (5) RMW-WLs were measured above their measurable objectives during the Spring 2025monitoring event.

b) SMC Monitoring Activities

Consistent with the Subbasin's Groundwater Level Sampling SOP, water level measurements were collected from nine (9) of the GSA's designated nine (9) RMW-WLs in Fall 2024 and Spring 2025.

c) Assessment of Potential Impacts to Beneficial Users

There were no mitigation applications submitted for dry wells within the EWMA during WY 2025.

2) Compliance with Additional Sustainable Management Criteria

The relationship between groundwater levels, quality, and subsidence are monitored across the Subbasin, as described in Section 7 Current Conditions of Sustainability Indicators. During WY 2025, no MT Exceedances occurred within the EWMA.

a) Water Quality

The 2024 GSP established SMCs for six constituents of concern. During Water Year 2025, no EWMA RMWs exceeded the secondary MCL of 500 mg/L for total dissolved solids (TDS).

b) Subsidence

WY 2025 Subbasin-wide conditions and progress for subsidence is provided in Section 7, Current Conditions for Sustainability Indicators and Section 9, Progress on Subbasin-Wide Coordination. No specific activities other than coordination with Subbasin-wide activities occurred in WY 2025.

c) Interconnected Surface Water

Subbasin-wide analysis determined that the vast majority of surface water features in the Kern Subbasin are not connected to groundwater. Subsequently, the EWMA is not independently taking any actions specific to the sustainability indicator.

3) Implementation of Projects and Management Actions (PMAs)

EWMA progress on implementing projects and management actions during Water Year WY 2025 is included in the following:

Projects

Development of oilfield produced water supplies: Minimal programmatic progress was made on this project during WY 2025. However, individual landowners continue to implement produced water projects and over 1,200 acre-feet of produced water was used in-lieu of groundwater in WY 2025.

Investigation of groundwater quality: Annual monitoring of TDS and nitrates continues to occur.

Native Yield Estimation: Todd Groundwater has been contracted to complete the basin-wide hydrogeologic study and during WY 2025, Todd Groundwater continued to perform data collection efforts and updating model components required to complete the project. The EWMA previously performed hydrogeologic studies which are being used to calibrate model results. The study is expected to be completed in 2026 and a key outcome is quantification of the basin native yield.

Monitor Well Construction: The EWMA submitted an application to the California Department of Water Resources (DWR) Technical Support Services (TSS) program and was approved for the construction of two (2) dedicated monitoring wells in the EWMA near Hwy 65. The application was submitted jointly with Cawelo Water District and Kern Tulare Water District and the construction of aquifer-specific monitoring wells in data gap areas which will provide information to better understand regional hydraulic heads and gradients. The TSS program was delayed due to operational issues and COVID impacts but the wells are scheduled to be constructed in summer 2025.

Installation of pressure transducers: As part of the DWR SGM Round 1 grant, the EWMA was approved for the installation of five (5) pressure transducers to measure groundwater levels. During WY 2025, Provost & Pritchard performed down borehole surveys to determine well suitability and determined only two (2) sites were suitable for transducers.

Surface runoff capture: Minimal progress was made on the surface runoff capture and enhanced infiltration in impoundments project. A high-level legal water rights analysis is expected to occur during 2025 in conjunction with the completion of the basin-wide hydrogeologic study.

Management Actions

Reduction in Agricultural Water Use: Reduction of irrigated acreage, or modification of irrigation techniques or crop types to reduce water usage is still being planned. Prior to implementing demand reduction, the sustainable yield needs to be established which is expected to be completed by the end 2025 following the completion of the basin hydrologic study. One important data gap missing in the Kern C2VSim model are the deeper aquifers that many EWMA members rely on for their water supply. These aquifers include the locally productive Santa Margarita, Olcese, and Vedder/Pyramid Hills units. Staff has communicated this model deficiency with Todd Groundwater and were informed that the model would be updated during the basin hydrologic study expected to be completed in 2026.

Groundwater Fees: No progress was made on a determination to assess fees for groundwater use to encourage reduced pumping or curtailment until the sustainable yield is established following the completion of the basin-wide hydrologic study.

Water Transfer Credit System: Efforts continue to establish a system of transferrable water credits in the EWMA. The EWMA previously developed an internal sustainable yield policy and, during WY 2023, started formalizing a system via draft Rules and Regulations. The EWMA expects to implement a water transfer credit system at the conclusion of the basin hydrogeologic study in 2026.

4) Coordination with Stakeholders

The EWMA maintains direct communication with its members via email, monthly board meetings, and an annual public workshop meetings to keep its members informed and receive feedback on GSP implementation.

5) Summary of Other GSP-related Special Studies or Activities

The EWMA Board and members directed staff to initiate formation of a water district for SGMA purposes, and in WY 2023 a surveyor was hired to prepare the mapping and legal descriptions required for the notice of petition. District formation efforts are ongoing and expected to conclude in 2026. Additionally, EWMA is actively participating in the Subbasin-wide activities in Section 9, Progress on Subbasin-wide coordination on GSP Implementation.

Henry Miller Water District GSA

The Henry Miller Water District (HMWD) GSA continues to be a leader in the Kern County Subbasin in demonstrating sustainable groundwater management. With slightly below normal to near-normal Kern River and Statewide hydrology in the 2025 Water Year, conjunctive use of surface and groundwater supplies enabled the District to maintain sustainable groundwater operations.

From the continued implementation of projects and management actions such as demand reduction through land fallowing and groundwater recharge operations from banking projects, the GSA's latest water budget from the 2025 adopted GSP shows that the GSA has been a net recharger of groundwater from 2015-2024, demonstrating that the GSA has achieved sustainability.

1) Compliance with Groundwater Levels Sustainable Management Criteria (SMC)

Progress towards compliance with sustainable management criteria for groundwater levels in the HMWD GSA during Water Year (WY) 2025 is summarized as follows:

a) Compliance with SMC

Groundwater elevations were measured below (exceeded) their minimum thresholds (MT) at 0 of the 5 RMW-WLs within the HMWD GSA during the Fall 2024 monitoring event. 0 RMW-WLs were between the measurable objective (MO) and MT, and the remaining 5 RMW-WLs were measured above their MO. All 5 RMW-WLs were measured above their interim milestones (IM).

Groundwater elevations were measured below (exceeded) their MT at 0 of the 5 RMW-WLs within the HMWD GSA during the Spring 2025 monitoring event. 0 RMW-WLs were between the MO and MT, and the remaining 5 RMW-WLs were measured above their MO. All 5 RMW-WLs were measured above their interim milestones (IM).

b) SMC Monitoring Activities

Consistent with the Subbasin's Groundwater Level Sampling SOP, water level measurements were collected from 5 of the GSA's designated 5 RMW-WLs in Fall 2024 and from 5 of the GSA's designated 5 RMW-WLs in Spring 2025.

c) Assessment of Potential Impacts to Beneficial Users

There were no mitigation applications submitted for dry wells within the HMWD GSA during WY 2025.

2) Compliance with Additional Sustainable Management Criteria

The relationship between groundwater levels, quality, and subsidence are monitored across the Subbasin, as described in Section 7 Current Conditions of Sustainability Indicators. During WY 2025, no MT Exceedances occurred within the HMWD GSA.

a) Water Quality

The 2025 GSP established SMCs for six constituents of concern. Consistent with the Subbasin's Water Quality Sampling SOP, since the GSA's 1 well designated as an RMW-WQ site was not operational during both the Spring and Fall monitoring events, samples were not collected from the site. As future operational conditions allow during both the Spring and Fall monitoring events, the GSA will continue to collect water quality samples from the RMW to evaluate the relationship between groundwater levels and water quality, represented by the six constituents of concern designated in the GSP.

b) Subsidence

WY 2025 Subbasin-wide conditions and progress for subsidence is provided in Section 7, Current Conditions for Sustainability Indicators and Section 9, Progress on Subbasin-Wide Coordination. There were no specific GSA activities other than coordination with Subbasin-wide activities occurred in WY 2025.

The CA Aqueduct is regional critical infrastructure that passes through portions of the HMWD GSA. The portion of the CA Aqueduct near the HMWD GSA consists of the lower reaches of Pool 29 on the east side, all of Pool 30 on east side and portions of west side on south end of Pool 30, and a small portion of the north part of Pool 31. The relevant mileposts (MPs) span from MP 243 through

253 (11 MPs). Based on the California Aqueduct Subsidence Program (CASP) annual survey conducted in early 2025 compared to the 2024 CASP survey, of the (11) MPs in the vicinity of the GSA, (6) MPs (MP 243, 247, 248, 250, 250.99, 252.01) had subsidence rates that exceeded the I M extent and MT rate and extent, however the exceedances were less than the reported accuracy of the measurement.

Over the same period, only two mileposts in the vicinity of the GSA (MP 247 and 252.01) exceeded the IM extent and MT rate and extent based on the InSAR data, however these exceedances were also less than the reported accuracy of the measurement. No MPs in the vicinity of the GSA had two or more consecutive IM or MT exceedances more than the reported accuracy based on InSAR data.

On a cumulative basis, there were no MT extent exceedances for any of the MPs near HMWD GSA for both the CASP and InSAR datasets.

Consistent with the subbasin-wide methodology, no IM or MT exceedances in the vicinity of the GSA were more than the reported accuracy so no investigation was triggered. The GSA will continue to monitor land subsidence at the MPs as more data is collected. No further actions were taken by the GSA.

c) Interconnected Surface Water

Subbasin-wide analysis determined that the vast majority of surface water features in the Kern Subbasin are not connected to groundwater. Subsequently, the HMWD GSA is not independently taking any actions specific to the sustainability indicator.

3) Implementation of Projects and Management Actions (PMAs)

Implementation of Projects

HMWD-1 Demand Reduction due to Land Fallowing: to conserve groundwater supplies and ensure sustainable groundwater operations, approximately 67% of developed lands were fallowed within the GSA during WY 2025.

HMWD-2 Maximize Water Banking during Wet Years: since WY 2025 was not a wet year, surplus surface water supplies were not available to bank. Therefore, there were no implementation actions taken in 2025.

HMWD-3 Recovery of Banked Supplies from the Pioneer Project: Ample surface supplies were available to meet demands within the GSA during WY 2025. Therefore, there were no implementation actions taken in 2025.

HMWD-9 Agricultural Well Mitigation: as per usual, the District made repairs to groundwater wells throughout the year as necessary to ensure a reliable supply for the landowners.

HMWD-10 Domestic Well Mitigation: there were no reported impacts to domestic well beneficial users within the GSA during the 2025 Water Year, thus, no mitigation actions were performed. Also, there were no reported impacts to domestic well beneficial users near the GSA that were attributed to groundwater operations within the GSA during the 2025 Water Year, thus, no mitigation actions were performed.

Implementation of Management Actions

HMWD-4 Utilizing Surface Water In-Lieu of Groundwater During Wet Years: with normal to near-normal Kern River and Statewide hydrology in the 2025 Water Year, conjunctive use of surface and groundwater supplies enabled the District to maintain sustainable groundwater operations. Delivered groundwater supplies in the 2025 Water Year accounted for approximately less than 1% of all water supplies delivered (surface and groundwater supplies). The proportion of surface water use for the District compared to groundwater use in WY 2025 was more than what was observed in the pre-SGMA period (1995-2014), demonstrating implementation of P/MA HMWD-4.

HMWD-5 Surface Water Transfer from El Rico GSA (Tulare-Lake Subbasin) to HMWD GSA: there were no surplus surface water carryover supplies from the 2024 Water Year made available from the El Rico GSA. Therefore, there were no implementation actions taken in 2025.

HMWD-6 Reduce Groundwater Pumping within 5.0 MI CA Aqueduct Corridor to Reduce Subsidence Potential: with virtually no groundwater pumping by the GSA within 2.5 miles of the CA Aqueduct in WY 2025, the total groundwater extraction within the 5.0 MI Aqueduct corridor was reduced by more than 99% compared to the average annual pumping prior to SGMA (before 2015), which limited potential subsidence induced by groundwater pumping within the GSA.

HMWD-7 No Increase of Groundwater Production Capacity within 5.0 MI CA Aqueduct Corridor to Reduce Subsidence Potential: no new groundwater extraction facilities were installed during the 2025 Water Year.

HMWD-8 Groundwater Well Registration for All Active Wells within the GSA: this action was completed during the 2024 Water Year. Since no new wells were added within the GSA during the 2025 Water Year, no further action was taken in the 2025 Water Year.

4) Coordination with Stakeholders

In addition to Subbasin-wide outreach and engagement activities, HMWD GSA routinely communicates GSA-specific information to its landowners, stakeholders, and other interested parties via monthly public district board meetings. During the board meetings, stakeholders evaluated District operations and management to assess and pursue actions that would bring long-term sustainability to the District to comply with SGMA.

5) Summary of Other GSP-related Special Studies or Activities

No special studies are being conducted exclusively in the GSA. However, HMWD GSA is actively participating in the Subbasin-wide activities in Section 9, Progress on Subbasin-wide coordination on GSP Implementation.

The GSA spent a significant amount of time in the 2025 Water Year participating in numerous meetings and discussions with the other Subbasin GSAs and the State Water Resources Control Board SGMA staff in support of the development of the new GSPs that were adopted in August of 2025. Additionally, District staff engaged with other local entities to discuss both ongoing and new Kern County Subbasin groundwater and surface water issues that arose throughout the year.

Kern Non-Districted Lands Authority GSA

KNDLA provides local policy makers, stakeholders, and the public a forum to monitor, report and/or discuss groundwater activities and identify and address any local groundwater issues. KNDLA was formed for the purpose of 1) coordinating groundwater management programs and activities; 2) identifying and addressing issues pertaining to sustainable groundwater management; and 3) establishing a framework for local groundwater management.

- Jurisdictional Members include: Kern County Water Agency.
- Associate Members include: Eastside Water Management Area.

Member Agencies include: Kern County Water Agency-Pioneer GSA, Kern County Water Agency-Improvement District No. 4, Kern-Tulare Water District, Kern Water Bank Authority, Semitropic Water Storage District, West Kern Water District, Westside District Water Authority GSA, Shafter-Wasco 7th Standard Annex Area, Cawelo Water District, North Kern Water Storage District, Rosedale-Rio Bravo Water Storage District, Shafter-Wasco Irrigation District, and San Joaquin Municipal Utility District.

1) Compliance with Groundwater Levels Sustainable Management Criteria (SMC)

KNDLA currently has two monitoring wells with SMC established for one such well. The collection of more data points is necessary to be more representative of the nearby wells.

Through analysis of data points and well information, it was known that KNDLA has two groundwater level data gaps. Aside from the two known data gaps, KNDLA relies on other districts with majority stakeholder representation in those areas to fill the data gaps. In hexagon 18 of our Kern subbasin, KNDLA has highlighted two potential wells for fulfilling data gaps for water levels. The potential wells could cover the GWL gap in Hexagon 19 as well.

Progress towards compliance with groundwater levels SMC in the KNDLA GSA area during WY 2025 is summarized as follows.

a) Compliance with SMC

Groundwater levels for both Fall 2023 and Spring 2024 were above the established Minimum Threshold (MT) and below the established Measurable Objective (MO) for the one monitoring well.

b) SMC Monitoring Activities

Collection of groundwater level data in Fall 2023 (10/30/2023) and in Spring 2024 (2/20/2024) in the one groundwater level Representative Monitoring Well. The second well we are scheduled to bring on the monitoring network needs five seasonable data points to be established.

c) Assessment of Potential Impacts to Beneficial Users

Based on data received to date, there were no known adverse impacts attributable to changes in groundwater conditions. No known impacts and no inclination of mitigation measures are available from noncontiguous sources of land data.

A technical assistance application is in the process of being reviewed by the qualified review committee in which water levels have declined due to neighboring agricultural operations.

2) Compliance with Additional Sustainable Management Criteria

The relationship between groundwater levels, quality, and subsidence are monitored across the Subbasin, as described in Section 7 Current Conditions of Sustainability Indicators. During WY 2025, no MT Exceedances occurred within the KNDLA GSA.

a) Water Quality

The 2024 GSP established SMCs for six constituents of concern. Consistent with the Subbasin's Water Quality Sampling SOP, samples were collected from the GSA's designated two RMW-WQ. WY 2025 sample results indicate groundwater quality is not degrading the KNDLA GSA.

Through analysis of data points and well information, it was known that KNDLA has two groundwater quality data gaps. In hexagon 18, the well being targeted to address Groundwater level data gaps can address groundwater quality data gaps. In hexagon 85 of the Kern subbasin, KNDLA is evaluating a solution.

b) Subsidence

WY 2025 Subbasin-wide conditions and progress for subsidence is provided in Section 7, Current Conditions for Sustainability Indicators and Section 9, Progress on Subbasin-Wide Coordination. No specific GSA activities other than coordination with Subbasin-wide activities occurred in WY 2025.

c) Interconnected Surface Water

Subbasin-wide analysis determined that the vast majority of surface water features in the Kern Subbasin are not connected to groundwater. Subsequently, the KNDLA GSA is not independently taking any actions specific to the sustainability indicator.

3) Implementation of Projects and Management Actions (PMAs)

The Subbasin is developing a governance structure, KNDLA, and demand reduction action for Subbasin white lands (lands not within a district). As part of the implementation there would be another round of public outreach to include remaining white land landowners. Previous stakeholder outreach efforts accomplished GSA management of over 150,000 acres of white lands that were absorbed via agreement with various GSAs and managed for sustainability. Approximately 7,200 acres of non-districted land (less than 1% of the Subbasin) remain currently using groundwater (irrigated agriculture and urban) to have management actions assigned. The Basin Study will provide added technical data to support setting water budgets necessary to implement a linear white lands demand reduction schedule of 10 percent per year, estimated at a total of 23,920 AFY over the planning period of 2030-2040.

4) Coordination with Stakeholders

In addition to Subbasin-wide outreach and engagement activities, KNDLA actively participates in GSA-specific information its landowners, stakeholders, and other interested parties via:

- Monthly district board meetings.
- Outreach meetings for stakeholder identification and KNDLA information

A landowner Ad Hoc committee was established in which landowners were actively involved in outreach, potential stakeholder review and development of KNDLA maps and analysis.

Representatives of KNDLA have also attended subbasin meetings with members of the other GSAs in the Kern County Subbasin for purposes of SGMA implementation and coordination.

5) Summary of Other GSP-related Special Studies or Activities

No special studies are being conducted exclusively in the GSA. However, KNDLA is actively participating in the Subbasin-wide activities in Section 9, Progress on Subbasin-wide coordination on GSP Implementation.

Kern River GSA

The Kern River Groundwater Sustainability Agency (KRGSA) is an exclusive Groundwater Sustainability Agency (GSA) composed of member agencies including the City of Bakersfield, Kern Delta Water District (KDWD), Kern County Water Agency (KCWA) Improvement District No. 4 (ID4), North of the River Municipal Water District/Oildale Mutual Water Company (NORMWD/OMWC), and East Niles Community Services District (ENCSD).

KRGSA is one of 20 GSAs in the 1.78-million-acre Kern Subbasin. The Kern County Subbasin (Basin No. 5-022.14) is the largest subbasin in the State, has been designated as critically overdrafted, and is governed by multiple water districts, water storage districts, irrigation districts, and municipalities. These agencies manage a complex water supply system. This system includes a large portfolio of local and imported water sources, access to flood waters throughout the State, local managed aquifer recharge projects, and numerous large groundwater banking projects, collectively providing both local and State-wide water supply and water quality benefits.

The recent water year (WY 2025) has been below normal. Since the submittal of the original 2020 GSP, the KRGSA has faced a multi-year drought as well as extremely wet years. The range in water year types has provided an opportunity for the KRGSA to test sustainable management criteria and to learn how best to adjust groundwater management to control local water level declines and increases across the KRGSA Plan Area. Monitoring activities, compliance with sustainable management criteria, and implementation of GSP projects and management actions during this critically dry reporting period are discussed in the following sections.

The KRGSA continues to make progress on GSP implementation and has already realized benefits from several GSP projects. Progress is also being made on additional projects and management actions as summarized in the information below.

1) Compliance with Groundwater Levels Sustainable Management Criteria (SMC)

The KRGSA GSP monitoring network consists of 36 representative monitoring wells (RMWs) distributed across the GSA. During the reporting period, all of the RMWs were monitored for groundwater elevations and compared to the MTs for sustainable management criteria. Four monitoring wells in the current network are either planned to be abandoned or have been destroyed. The RMW network was assessed to ensure removing these wells does not create additional data gaps for the Subbasin.

During the reporting period, the RMWs were monitored for groundwater elevations and compared to the MTs for the applicable sustainability indicators.

a) Compliance with SMC

During WY 2025, one RMW was below their designated MT value. This is the first year where KRGSA has set MTs consistent with the basin-wide methodology detailed in the 2025 Plan. Previous Annual Reports documented MT exceedances based on the KRGSA GSP that has been superseded by the basin wide management. KRGSA is currently assessing their monitoring network and may adjust the wells in the network to minimize pumping inference in water level measurements. Table 1 shows the well with the exceedance.

However, the challenges have also provided an opportunity for the KRGSA to test sustainable management criteria and to learn how best to adjust groundwater management to control local water level declines across the KRGSA Plan Area. Monitoring activities, compliance with sustainable management criteria, and implementation of GSP projects and management actions during this below normal reporting period are discussed in the following sections.

Table 1. MT Exceedances for KRGSA in WY 2025

RMW ID	2025 GSP MT	Lowest Water Level WY 2025	
	ft msl	Date	ft msl
RMW-218	-220	10/23/2024	-279

b) SMC Monitoring Activities

Consistent with the Subbasin's Groundwater Level Sampling SOP, water level measurements were collected from 36 wells of the GSA's designated # RMW-WLs in Fall 2024 and Spring 2025.

c) Assessment of Potential Impacts to Beneficial Users

There were no mitigation applications submitted for dry wells within the KRGSA GSA during WY 2025.

The Kern Subbasin Well Inventory has been developed as part of the 2025 Final GSP. KRGSA continues to verify wells in the well inventory and reach out to domestic users. Well Completion Reports were evaluated, and field surveys were conducted to confirm the presence and/or absence of domestic wells. Kern Delta provided resources to domestic well owners when needed or requested. No dry wells were reported to KRGSA in WY 2025.

KRGSA is home to several disadvantaged communities. DACs cover 64 percent of KRGSA by area and include domestic water users, small water systems, small farms, and dairies. KRGSA is dedicated to supporting DACs in securing technical, managerial, and financial assistance through partnerships with local organizations such as the California Rural Water Association, as needed. These local organizations have included several projects and management actions in the 2025 Final GSP focused on groundwater management in DAC areas such as water system consolidation, support for abandonment of poor-quality wells and/or installation of replacement wells to improve drinking water supply. In WY 2025, KDWD reached out to DACs through Lamont PUD as well as Greenfield CWD, in keeping them apprised of SGMA-related activities.

2) Compliance with Additional Sustainable Management Criteria

The relationship between groundwater levels, quality, and subsidence are monitored across the Subbasin, as described in Section 7 Current Conditions of Sustainability Indicators. During WY 2025, one RMW had MT Exceedances within the KRGSA, RMW-218 located in the southern portion of the KRGSA.KRGSA is currently evaluating the monitoring well and may replace this well with a more representative well and more protective of nearby beneficial users.

a) Water Quality

The 2025 GSP established SMCs for six constituents of concern. KRGSA has 14 RMW wells designated as water quality wells.

The KRGSA did not begin monitoring for water quality in water year 2025, consistent with the basin-wide implementation, but has begun monitoring and reporting for water year 2026. All current and future monitoring will be consistent with the Subbasin's Water Quality Sampling SOP. Sample results will be entered into the Kern Subbasin DMS.

b) Subsidence

WY 2025 Subbasin-wide conditions and progress for subsidence is provided in Section 7, Current Conditions for Sustainability Indicators and Section 9, Progress on Subbasin-Wide Coordination.

The FKC is regional critical infrastructure that passes through portions of the GSA. The KRGSA also participates in planning and reporting activities. Additionally, the GSA monitored local benchmarks and compared the results to InSAR data. Available monitoring indicates that no GSA-infrastructure was impacted by subsidence in WY 2025.

c) Interconnected Surface Water

Subbasin-wide analysis determined that the vast majority of surface water features in the Kern Subbasin are not connected to groundwater. Subsequently, the KRGSA is not independently taking any actions specific to the sustainability indicator.

3) Implementation of Projects and Management Actions (PMAs)

The KRGSA continues to make progress on GSP implementation and has already realized benefits from several GSP projects. Progress is also being made on additional projects and management actions as summarized in the information below. The section numbers in the Amended KRGSA GSP that describe the projects and management actions are provided in parentheses by the project/action name for reference.

Water Allocation Plan (WAP) - Kern Delta Water District (see 2025 Final GSP Appendix J - KRGSA):

The WAP was estimated to have an average annual benefit of 20,797 AFY. In WY 2025, a below normal year, KDWD was able to utilize 16, 691 acre feet of water, which prior to 2018, would otherwise have been unavailable to KDWD. This water was utilized to support surface water deliveries throughout the District as well as for groundwater recharge efforts.

Kern Delta's Eastside Canal was able to benefit from a prolonged water delivery season, running from March 10, 2025, through August 28, 2025; this extended period provided an extra 18 days of water in the canal supporting surface water deliveries and operational recharge. The fully operational AEWSD intertie brought an additional 40 acre feet of water to Kern Delta's eastside service area. The Sunset Groundwater Recharge Project is a 140 acre joint recharge facility between Kern Delta Water District and Arvin Edison Water Storage District. While no water was delivered to the Sunset project in 2025, both districts plan to use the project to capacity when supplies are made available.

Kern Delta was able to utilize its water supplies to accomplish in-district groundwater recharge of 9,212 acre feet. This additional surface supply allowed Kern Delta to continue to serve demand for a longer period of time, thereby reducing demand on groundwater levels while simultaneously recharging groundwater.

Kern River Optimized Conjunctive Use - City of Bakersfield (see 2025 Final GSP Appendix J - KRGSA):

During WY 2025, KRGSA continued to implement this conjunctive use project through the member agencies' ongoing water operations and maintenance within the City-owned reaches of the Kern River and canals (see discussion in WY 2020 Annual Report). The total amount of water recharged within the City-owned properties from canals, Kern River, City facilities, and 2,800 Acre Groundwater Recharge Facility amounted to 28,939 AF. This amount represents less recharge than occurred in WY 2023 and WY2024; this additional recharge provides protection for City and Cal Water wells and adds drinking water supplies for City residents.

Expand Recycle Water Use in the KRGSA - City of Bakersfield (see 2025 Final GSP Appendix J - KRGSA):

The City of Bakersfield continues to reuse recycled water through its ongoing operations of Wastewater Treatment Plants 2 and 3, reporting 29,245 AF used in WY 2025. Treated effluent from Wastewater Treatment Plant 3 is recycled for multiple purposes, including the application of tertiary treated water for sports park irrigation and the recharge of denitrified water into the groundwater basin via onsite ponds. The City is still in the process of conducting a master study for expanding treatment plant capacity to provide increased recycled water for irrigation of nearby City-owned parks.

Land Use Conversion - Urbanization of Agricultural Lands (see 2025 Final GSP Appendix J - KRGSA):

Although this GSP project was originally envisioned for urbanization of agricultural lands, the primary benefit of the land use conversion project is to reduce water demand through changes in land use. To that end, KDWD continues to look for opportunities to acquire properties within KDWD for groundwater recharge projects and to reduce demand by simultaneously taking these properties out of production. In Water Year 2025, 2.63 acres were converted from ag to commercial (A to C2) in the City of Bakersfield (APN 514-060-27.

ENCSD Water System Consolidation and Other Small Water System Consolidation Projects (see 2025 Final GSP Appendix J - KRGSA):

This project involves consolidation of up to six small water systems into the East Niles Community Service District (ENCSD) to provide a more reliable and high-quality water supply to local disadvantaged communities. At the time of this Annual Report, ENCSD has completed environmental review and is still awaiting State comments on the submitted agreements for the project. As soon as the State responds, ENCSD is ready to execute the agreements and begin project construction.

Additional small water system consolidation projects are also being planned in the KRGSA as summarized below. City Consolidation of two small water systems:

The City of Bakersfield is coordinating with the Division of Drinking Water (DDW), University of Sacramento, and Carollo Engineers regarding consolidation of two small water systems located in underrepresented communities. Specifically, plans are moving forward for consolidation of the South Kern Mutual Water Company and Old River Mutual Water Company into the City's domestic water system for improvements to drinking water quality. As reported in last year's Annual Report, a consolidation engineering report has been completed and additional coordination efforts are ongoing with the DDW.

Lamont PUD Water System Consolidation:

In addition, Lamont Public Utilities District (Lamont PUD) reached a significant milestone with its ongoing consolidation of El Adobe Property Owners Association (El Adobe POA) into the District's water system. The SWRCB announced an award of grant funding through the SAFER program to support key infrastructure including three replacement municipal wells. This grant supports the consolidation of the 80-home community of El Adobe POA, where residents have been waiting nearly a decade for grant support of the consolidation. This grant is the single largest SAFER grant that has been awarded in the program's four-year existence. This project will provide safe and reliable drinking water supply in the POA. Current drinking water quality has been impacted by elevated arsenic concentrations that exceeded MCLs for years prior to GSA management of the area.

Implement Action Plan if Water Levels Fall below MTs (see 2025 Final GSP Appendix J - KRGSA):

As documented in item 1) d) above, KRGSA managers are tracking and investigating MT exceedance as it occur in the KRGSA Plan area. Specifically, KRGSA managers have taken steps toward mitigation of potential local water level declines and avoidance of inaccurate static water level measurements in pumping RMWs. Actions include focused operational recharge in nearby canals to manage groundwater levels, coordination of monitoring with well owner pumping schedules, increasing frequency of field visits for tracking RMW pumping, considerations for redistribution of pumping in municipal wellfields, review of permits for new wells, application for grant funding to install dedicated monitoring wells in disadvantaged communities, and other actions.

Implement Groundwater Extraction Reporting Program (see 2025 Final GSP Appendix J - KRGSA):

To allow KDWD to better understand local water use and crop demands, the District has invested in an evapotranspiration (ET) analysis program, developed by Land IQ specifically for field conditions in the District.

The Land IQ ET system involves a data-driven model for detailed water use estimation. The analysis includes a ground- truthing component, which greatly improves its accuracy. This program, which has been operating since January of 2022, has benefited the District by providing better identification and quantification of water use and demand. In addition, this allows for indirect estimates of groundwater extraction as the District continues to develop policies and programs to improve groundwater extraction estimation and reporting. KDWD is considering the expansion of remote sensing through customer access to online daily ET tools for water conservation.

Support California Delta Conveyance Project to Preserve Imported Water Supplies (see 2025 Final GSP Appendix J - KRGSA):

ID4 continued funding a share of the Delta Conveyance Project environmental review, planning and design costs at a 100 percent level for 82,946 AF.

Incorporate Climate Change Adaption Strategies (see 2025 Final GSP Appendix J - KRGSA):

ID4 developed a 2020 UWMP update that included climate change impacts on the availability of future imported water supplies as provided in DWR's 2019 Delivery Capability Report. The Cross Valley Canal Extension Lining Project - Pool No. 8, was identified in ID4's 2020 UWMP update as an implementation project to increase the reliability of water supplies during dry year conditions and was awarded funding through DWR's Urban and Multi-benefit Drought Relief Grant Program for construction. The project was constructed in WY 2023. The lining will reduce seepage, increase water delivery reliability, reduce maintenance efforts and reduce the potential for canal breaches. The estimated reduction in seepage is 1,695 acre-feet per year.

Improve Groundwater Monitoring Network (see 2025 Final GSP Appendix J - KRGSA):

As mentioned previously throughout this progress report, the KRGSA managers are making improvements to the current monitoring network. In particular, protocols are being considered to better manage monitoring in actively pumping RMWs. Not only are these wells difficult to access when pumping, but it has also been difficult to determine if water levels have recovered sufficiently after pumps are turned off such that representative static water levels are being measured. Several of the past MT exceedances are in active pumping wells where hydrographs suggest that measurements are being influenced by recent pumping water levels. The objective of the monitoring program is to provide a reasonable representation of water levels in the aquifer rather than to record pumping- influenced water levels in an inefficient production well.

Accordingly, KRGSA managers are taking steps to mitigate these problems, including the following:

- working directly with well owners to coordinate on their operational schedules to access the well during non-pumping periods (e.g., RMW-026),
- increasing measurement frequency to improve measurements of a representative static water level,
- researching data for inactive replacement wells in key areas, and
- applying for grant funds to install dedicated monitoring wells in critical areas.

4) Coordination with Stakeholders

The KRGSA managers have incorporated various methods for interaction with GSP stakeholders. Some of these ongoing efforts are summarized below.

Public Board Meetings: During the reporting period, the KRGSA has continued regular monthly Board meetings that are open to the public and attended by numerous stakeholders in the Subbasin. GSP implementation, including results of the GSP Annual Reports, are presented and discussed in these open meetings.

Public Access to Online Data Management System: The KRGSA managers have coordinated with all of the Subbasin GSAs for the development of an online Data Management System (DMS). The system serves as a convenient portal for uploading, storing, viewing, and analyzing GSP data. The portal is open to stakeholders and the public for data viewing and contains a mapping feature that allows the public to see GSA boundaries, locations of monitoring sites, and hydrographs of groundwater elevations throughout the Subbasin.

KRGSA managers continue to communicate with stakeholders by direct communication on a case-by-case basis, through requested informational meetings, and via grower outreach meetings.

5) Summary of Other GSP-related Special Studies or Activities

No special studies are being conducted exclusively in the GSA. However, KRGSA is actively participating in the Subbasin-wide activities in Section 9, Progress on Subbasin-wide coordination on GSP Implementation.

Kern Water Bank GSA

The Kern Water Bank GSA (KWB GSA) operates a storage program within the Kern County Subbasin, which is critical to assisting member agencies in achieving sustainable management of the Kern County Subbasin, as referenced throughout this WY 2025 Annual Report. SGMA recognizes the uniqueness of storage programs and their role within a GSA in Water Code Section 10726.2.(b) which states: "…the agency shall not alter another person's or agency's existing groundwater conjunctive use or storage program except upon a finding that the conjunctive use or storage program interferes with implementation of the agency's groundwater sustainability plan." KWB members within the Kern County Subbasin include Improvement District 4 (ID4) of the Kern County Water Agency, Semitropic Water Storage District (SWSD), Tejon-Castac Water District (TCWD), portions of the Westside District Water Authority (WDWA), and Wheeler Ridge-Maricopa Water Storage District (WRMWSD).

With respect to potential impacts from operations, DWR developed extensive mitigation measures in an Environmental Impact Report for the continued operation of the KWB that reduce potential groundwater impacts to less-than-significant (DWR, 2016). One of the mitigation measures is a long-term operations plan that mitigates potential impacts to shallow domestic wells in adjoining GSAs. Importantly, the KWB only recovers water previously stored and cannot contribute to basin overdraft. As indicated above, the KWB program is a critical component of the members' ability to reach sustainability as it provides critical dry-year water that reduces their need to pump groundwater. For more information regarding the benefits the KWB and other Kern Fan Banking Programs provide toward basin sustainability, see Appendix D of the Kern Subbasin Groundwater Sustainability Plan.

1) Compliance with Groundwater Levels Sustainable Management Criteria (SMC)

Annual reporting information for the KWB GSP is listed below. The KWB GSA has established a Measurable Objective (MO) and Minimum Threshold (MT) for groundwater levels and groundwater quality in Representative Monitoring Well 300 (RMW-300).

a) Compliance with SMC

No exceedances. The MO and MT are -13 msl and -75 feet, respectively. Water Levels in RMW-300 ranged from 231.9 feet to 248.0 feet above the MO and ranged from 293.9 feet to 310.0 feet above the MT during WY 2025.

b) SMC Monitoring Activities

Consistent with the Subbasin's Groundwater Level Sampling SOP, water level measurements were collected from the KWB GSA's designated RMW (RMW-300) monthly during WY 2025.

c) Assessment of Potential Impacts to Beneficial Users

No applications for mitigation for dry wells nor impacts to beneficial users occurred within the KWB GSA in WY 2025.

2) Compliance with Additional Sustainable Management Criteria

During WY 2025, no MT Exceedances occurred within the KWB GSA for other SMCs.

a) Water Quality

No exceedances. The Constituents of Concern (COCs) for the Kern Subbasin are arsenic, nitrate as N, nitrate + nitrite as N, total dissolved solids, 1,2,3,-trichloropropane, and uranium. The MO and MT for these COCs for RMW-300 are the respective Maximum Contaminant Levels (MCLs) for each COC. The concentrations of each of the COCs in both Spring and Fall samples are all below respective MCLs.

b) Subsidence

No exceedances for GSA area critical infrastructure. KWB GSA area critical infrastructure includes the Cross Valley Canal, the Kern River Canal, and Interstate 5. No incidents of subsidence have been reported by the Kern County Water Agency or the City of Bakersfield for the Cross Valley Canal or Kern River Canal, respectively. KCWA conducted a survey of the Cross Valley Canal which indicated minor uplift and subsidence occurred between 2015 and late 2024 (approximately +/- 0.1 feet). The extensometer at RMW-300 showed both 0.01 feet of uplift and 0.01 feet of subsidence for WY 2025. These results are consistent with historical data that indicates inelastic subsidence has not occurred within the KWB GSA (see chart below). Regional analysis using InSAR data for the Kern HCM area is located elsewhere in the report.

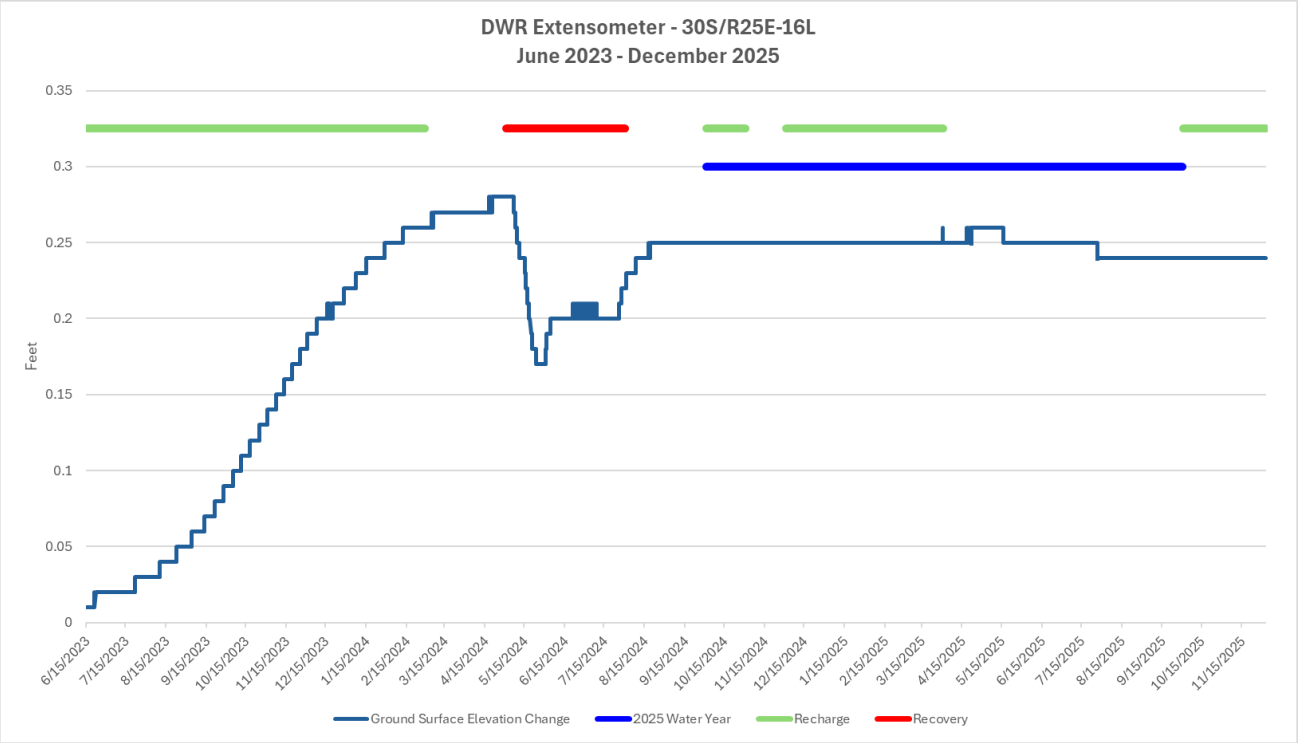


Chart 1. Positive values are uplift. Recharge volumes after February 2024 were significantly less than 2023 volumes. Recharge operations were also more distal to the KWB extensometer than 2023 recharge operations.

c) Interconnected Surface Water

There are no interconnected surface water bodies in the KWB GSA.

3) Implementation of Projects and Management Actions (PMAs)

The Joint Operations Plan was in place for WY 2025. No claims were received during that time. All other KWB GSA specific PMAs were implemented in previous Water Years. The status for subbasin wide PMAs are included elsewhere in this annual report.

The KWB GSA stored approximately 15,256 AF of surface water in WY 2025. The estimated balance of stored surface water in the KWB GSA exceeds 1.4 MAF. Note that the KWB GSA only pumps previously stored surface water and cannot cause a reduction in groundwater storage.

4) Coordination with Stakeholders

In addition to Subbasin-wide outreach and engagement activities included elsewhere in the report, the KWB GSA routinely communicates GSA-specific information to its members and stakeholders in adjoining GSAs via monthly GSA board meetings and quarterly Kern Fan Monitoring Committee meetings.

5) Summary of Other GSP-related Special Studies or Activities

No special studies are being conducted exclusively in the KWB GSA. However, the KWB GSA is actively participating in the Subbasin-wide activities in Section 9, Progress on Subbasin-wide coordination on GSP Implementation.

Kern-Tulare Water District GSA

1) Compliance with Groundwater Levels Sustainable Management Criteria (SMC)

Progress towards compliance with sustainable management criteria in the Kern-Tulare Water District (KTWD) Management Area during WY 2025 is summarized as follows:

a) Compliance with SMC

Groundwater elevations were measured below their minimum thresholds at 0 of the 6 RMW-WLs within the KTWD GSA located in this Subbasin during the Fall 2024 monitoring event. 0 RMW-WLs were measured between the minimum threshold and measurable objective, and the remaining 6 RMW-WLs were measured above their measurable objectives.

Groundwater elevations were measured below their minimum thresholds at 0 of the 6 RMW-WLs within the KTWD GSA located in this Subbasin during the Spring 2025 monitoring event. 0 RMW-WLs were measured between the minimum threshold and measurable objective, and the remaining 6 RMW-WLs were measured above their measurable objectives.

b) SMC Monitoring Activities

Consistent with the Subbasin's Groundwater Level Sampling SOP, water level measurements were collected from all applicable RMW-WLs during the Fall 2024 and Spring 2025 monitoring events. The KTWD GSA collects groundwater levels on a semi-monthly basis, with select wells monitored on a semi-annual schedule (one measurement in spring and one in fall), all of which fall within the designated monitoring periods.

In total, the KTWD GSA monitors nine (9) RMW-WLs, six (6) of which are located within this Subbasin. All monitored groundwater elevations across the KTWD GSA, including RMW-WLs located outside of this Subbasin, were measured above minimum thresholds and measurable objectives during the applicable monitoring periods.

No RMW-WL measurements were missed during the monitoring periods.

c) Assessment of Potential Impacts to Beneficial Users

There was no mitigation applications submitted for dry wells within the KTWD GSA during WY 2025.

2) Compliance with Additional Sustainable Management Criteria

The relationship between groundwater levels, quality, and subsidence are monitored across the Subbasin, as described in Section 7 Current Conditions of Sustainability Indicators. During WY 2025, no MT Exceedances occurred within the KTWD GSA.

a) Water Quality

The 2024 GSP established SMCs for six constituents of concern. Consistent with the Subbasin's Water Quality Sampling SOP, samples were not collected from the GSA's designated five (5) RMW-WQ wells, three (3) of which are located within this Subbasin. The designated representative wells were not operating during the seasonal monitoring period(s) in WY 2025 due to reduced groundwater demand resulting from reliance on surface water supplies. The GSA made multiple attempts to collect samples throughout the monitoring period; however, no samples could be obtained because the wells were not running at the time of scheduled sampling events. Sample results were therefore not available for entry into the Kern Subbasin DMS for WY 2025.

b) Subsidence

WY 2025 Subbasin-wide conditions and progress for subsidence is provided in Section 7, Current Conditions for Sustainability Indicators and Section 9, Progress on Subbasin-Wide Coordination. No specific GSA activities other than coordination with Subbasin-wide activities occurred in WY 2025.

c) Interconnected Surface Water

Subbasin-wide analysis determined that the vast majority of surface water features in the Kern Subbasin are not connected to groundwater. Subsequently, the KTWD GSA is not independently taking any actions specific to the sustainability indicator.

3) Implementation of Projects and Management Actions (PMAs)

Modify District Pricing Structure (KTWD-8):

In 2021, the District focused on evaluating the best approach to implement a groundwater charge. The District proposed a Groundwater Extraction Metering Plan and hosted a landowner workshop to receive input on the procedures of groundwater metering. The District elected to measure groundwater pumping by requiring meters on all active groundwater wells within the District. The District amended its Rules and Regulations for the Sale and Distribution of Water to include the new metering requirements and metering standards. The District retained a contractor to inspect all wells within the District for a compliant meter and to assist landowners with installing or modifying meters to meet the District's standards.

Every month since January 2022, District staff reads the meters and mails out monthly groundwater extraction information to all landowners with their regular billing statement. The statement reports the metered groundwater pumping for each well and the calculated groundwater pumping based upon ET for each ranch.

In 2022, the District passed a Proposition 218 Election that provided the Board of Directors with the authority to implement a groundwater pumping charge of up to $175 per acre-foot of groundwater pumped within the District. The groundwater charge passed with only 396 acres out of 19,790 acres (2%) in protest.

In March 2024, the GSA groundwater charge began. The GSA continues to assist landowners with groundwater metering compliance and, to date, approximately 98% of active irrigation wells within the GSA have a meter installed. To date, 94% of the meters meet the required standards and are installed per manufacturer's specifications to ensure accurate meter readings. Each month, GSA staff reads surface water and groundwater meters and mails out monthly billing statements to all landowners. The GSA also maintains a customer portal where landowners can access property-specific water use information online.

Since implementation of the groundwater charge, GSA meter data indicate a significant reduction in groundwater pumping from 2023 to 2024, accompanied by increased surface water deliveries. In 2025, groundwater pumping continued to decline relative to 2024, reflecting continued reliance on surface water supplies, pricing signals, and infrastructure improvements.

Domestic Well Program (KTWD-9)

In addition to the Kern and Tule subbasin-wide Mitigation Programs, KTWD GSA has proactively implemented a Domestic Well Program within the GSA. KTWD GSA executed a Domestic Well Mitigation Agreement with Self-Help Enterprises (SHE) in September 2024 for the GSA's portions of both the Kern and Tule subbasins.

In 2023, KTWD GSA conducted a domestic well survey to identify drinking water well users within the GSA and revised the 2024 monitoring network and SMCs based on the results. The GSA has eight domestic wells within its jurisdiction (four in the Kern Subbasin and four in the Tule Subbasin) and developed proactive management actions to prevent or mitigate potential impacts.

As a result, the KTWD-9 Domestic Well Program was developed to ensure the GSA has the best available information and is addressing domestic well needs. KTWD GSA partnered with SHE to develop and implement a comprehensive Domestic Well Program for both subbasin portions of the GSA, including domestic well assessments, groundwater level and water quality monitoring, and mitigation services where needed.

KTWD GSA executed an agreement with SHE in July 2024 to conduct a Domestic Well Assessment, which was completed in July and August 2024. A summary report was submitted to the State Water Resources Control Board on September 16, 2024. Seven of the eight domestic wells were sounded, with one well not sounded due to an obstruction. Water quality exceedances were identified in some wells for arsenic, nitrate, 1,2,3-TCP, or bacterial contamination. Mitigation actions are being implemented in coordination with SHE, the Kern Subbasin, and the Tule Management Zone. KTWD GSA has also earmarked $90,000 to mitigate potential impacts to one domestic well identified through subbasin-wide assessments.

Produced Water Project

KTWD has continued to pursue additional produced water supplies of about 3,000 AFY. The District completed construction of a 684 AF storage reservoir in October of 2020 to receive additional produced water. The District has also been working to improve in-district surface water storage by lining an existing reservoir to increase storage capacity and reduce seepage losses, allowing more surface water to be stored.

Distribution System Improvements

The District has been evaluating its distribution system to identify improvements and funding mechanisms to provide full surface water deliveries to all lands within its service area. KTWD-8 provides financial incentives for landowners to take deliveries of surface water rather than pump groundwater; however, the District desires to increase the capacity of the distribution systems in order to deliver more surface water and reduce groundwater pumping. Distribution System Improvements were not originally included as an Action item in the 2020 GSP but have been added to the 2024 GSP. In 2023, the District performed an engineering evaluation of its distribution system to identify improvements and funding mechanisms to increase surface water delivery capability to all lands within its service area. As a result of this evaluation, the District has designed and finished construction of four distribution system projects that. These four projects able to reduce groundwater pumping by over 2,000 AF per year. In addition, the District has identified another four distribution system projects that can potentially be completed within the next 5-10 years. These four projects are estimated to further reduce groundwater pumping by over 9,000 AF per year. These distribution system improvements will have a significant impact upon the District's ability to maintain groundwater sustainability in the future.

In 2025 the construction of the Quinn Pipeline and Pumping plant finished which increased surface water deliveries to the south portion of the District which resulted in less groundwater pumping activities in these lands.

In addition, upgrades to the Twin Pipes Pumping Plant began in 2025, which are expected to increase surface water deliveries to the middle portion of the District and further reduce groundwater pumping activities in these lands.

4) Coordination with Stakeholders

In addition to Subbasin-wide outreach and engagement activities, KTWD routinely communicates GSA-specific information to its landowners, stakeholders, and other interested parties via:

- Monthly District Board meetings, which are publicly noticed and provide regular updates on SGMA implementation and GSA activities.
- GSA meetings with landowners, stakeholders, and partner agencies as needed to discuss groundwater management activities and regulatory requirements.
- Direct mail outreach, including flyers and letters distributed to landowners to communicate SGMA-related updates, program implementation, and important notices.

- District website, which provides access to GSA documents, SGMA updates, and relevant groundwater management information.
- Customer portal, allowing landowners to securely view property-specific water use data, billing information, and groundwater and surface water usage records.
- Annual SGMA informational flyer, prepared by the District and mailed to all landowners and posted on the District's website to provide updates on SGMA activities, management actions, and progress toward sustainability.

5) Summary of Other GSP-related Special Studies or Activities

In addition to participation in the Subbasin representative monitoring networks for groundwater levels (RMW-WL) and groundwater quality (RMW-WQ), KTWD GSA maintains a supplemental groundwater monitoring network for both groundwater levels and groundwater quality that spans its portions of the Kern and Tule subbasins. The District's total monitoring network consists of 28 wells, including the RMWs. Some wells are monitored exclusively for groundwater levels, some exclusively for groundwater quality, and others for both parameters.

KTWD monitors groundwater conditions in three aquifers beneath the District: the Continental Deposits, the Santa Margarita Formation, and the Olcese Sands. The primary source of groundwater within KTWD is the Santa Margarita Formation, a confined aquifer that is hydraulically separate from the remainder of the basin.

The District monitors groundwater levels in 20 wells across the three aquifers, including 11 wells measured semi-monthly and 9 wells measured semi-annually. Six wells monitoring groundwater levels in the Santa Margarita Formation were selected as the District's representative monitoring wells. In WY 2025, the District collected 18 groundwater level measurements from the representative monitoring wells, which are presented on hydrographs included with this Annual Report. In addition, the District collected 189 groundwater level measurements from the remaining 14 supplemental wells, which monitor conditions in the Continental Deposits and Olcese Sands.

Groundwater quality monitoring is conducted in 15 wells across the three aquifers within and surrounding the District to support evaluation of water quality conditions and long-term sustainability.

North Kern Water Storage District GSA

On December 8, 2025, the State Water Resources Control Board (SWRCB) returned the Kern County Subbasin to the jurisdiction of the Department of Water Resources (DWR). That marked a milestone for a period of development and revisions of Kern Subbasin GSPs in an effort to resolve DWR prior noted deficiencies and SWRCB Staff's additional comments while under SWRCB's regulatory oversight initiated in March of 2023. The initial hearing for probationary designation was set for February 20, 2025, and GSPs were revised and submitted on May 28, 2024 (2024 Draft GSPs) in an effort to addressed noted deficiencies and concerns. With additional revisions, Kern Subbasin GSPs were adopted December 2024. At this time, the North Kern Water Storage District (NKWSD) GSA began implementing the adopted December 2024 GSP. The SWRCB continued the hearing to September 17, 2025, to provide the GSAs and SWRCB Staff an opportunity to collaboratively work through remaining issues and revise the GSPs accordingly. Updated GSPs were adopted August 2025 and serve as the latest version of the Kern Subbasin GSPs that are adopted and currently being implemented.

Semiannual water level measurements were collected and reported to the Kern Subbasin Data Management System (DMS) and water quality samples were collected within 2-weeks of water level measurements. At start of the water year, the groundwater levels in the NKWSD GSA area decreased by an average of about 25 ft in November and then recovered by about 30 feet heading into January 2025. Due to below average hydrological conditions, groundwater pumping was required within the NKWSD GSA area to access previously stored surface water. Groundwater levels decreased on average by about 40 feet from January and began to recover heading towards the end of the 2025 water year.

Additionally, aside from continuing projects during the 2025 water year, 162 acres of active agriculture was acquired by Rosedale Ranch Improvement District (RRID) and the Calloway Canal Linnig Project completed an additional 1 mile of concrete lining of earthen canal with 1,000 cfs capacity. The removal of 162 acres of active agriculture reduces the demand by an estimated 465 AF per year and the concrete lining has directly reduced seepage losses by an estimated 1,523 AF from canal operations that occurred during the August and September months.

1) Compliance with Groundwater Levels Sustainable Management Criteria (SMC)

Monitoring from the Representative Monitoring Wells (RMW) throughout North Kern Water Storage District GSA indicates that groundwater levels continuing fluctuate with the hydrology variability and groundwater pumping response of the region and within the NKWSD GSA. At start of the water year, the groundwater levels in the NKWSD GSA area decreased by an average of about 25 ft in November and then recovered by about 30 feet heading into January 2025. Due to below average hydrological conditions, groundwater pumping was required within the NKWSD GSA area to access previously stored surface water. Groundwater levels decreased on average by about 40 feet from January and began to recover heading towards the end of the 2025 water year. Groundwater levels responded as expected according to regional groundwater demands and hydrologic conditions. Across the NKWSD GSA, RMWs groundwater levels remained above the respective Measurable Thresholds.

a) Compliance with SMC

There are a total of ten (10) RMW-WLs within the NKWSD GSA. No RMW-WLs had groundwater elevations measured below (exceeded) their minimum thresholds during the Fall 2024 monitoring event. Seven (7) RMW-WLs were between the minimum threshold and measurable objective, and the remaining three (3) RMW-WLs were measured above their measurable objectives.

No RMW-WLs had groundwater elevations measured below (exceeded) their minimum thresholds during the Spring 2025 monitoring event. Six (6) RMW-WLs were between the minimum threshold and measurable objective, and the remaining three (4) RMW-WLs were measured above their measurable objectives.

b) SMC Monitoring Activities

Consistent with the Subbasin's Groundwater Level Sampling SOP, water level measurements were collected from all ten (10) of the GSA's designated ten (10) RMW-WLs in Fall 2024 and from ten (10) of the GSA's designated ten (10) RMW-WLs in Spring 2025.

c) Assessment of Potential Impacts to Beneficial Users

There were no well mitigation applications submitted for dry wells within the NKWSD GSA during WY 2025.

2) Compliance with Additional Sustainable Management Criteria

The relationship between groundwater levels, quality, and subsidence are monitored across the Subbasin, as described in Section 7 Current Conditions of Sustainability Indicators. During WY 2025, no MT Exceedances occurred within the NKWSD GSA for Water Quality SMCs or Subsidence SMCs. There are no Interconnected Surface Water SMCs defined for the NKWSD GSA area.

a) Water Quality

Water quality samples were collected within 2 weeks of water level measurements to determine if a correlation exists between changing water level and degraded water quality; no correlation has been observed to date.

b) Subsidence

WY 2025 Subbasin-wide conditions and progress for subsidence is provided in Section 7, Current Conditions for Sustainability Indicators and Section 9, Progress on Subbasin-Wide Coordination. No specific GSA activities other than coordination with Subbasin-wide activities occurred in WY 2025 which includes coordination and communication with the Friant Water Authority.

The Friant Kern Canal (FKC) is regional critical infrastructure that passes through the NKWSD GSA. The NKWSD GSA placed 26,817 AF of imported water in basins along the to the FKC. The NKWDS GSA also participates in planning and reporting activities, consistent with FWA as part of the Pump-in program.

Additionally, the NKWSD GSA monitored local benchmarks and compared the results to InSAR data. Available monitoring indicates that no GSA-infrastructure was impacted by subsidence in WY 2025.

c) Interconnected Surface Water

Subbasin-wide analysis determined that the vast majority of surface water features in the Kern Subbasin are not connected to groundwater. Subsequently, the NKWSD GSA is not independently taking any actions specific to the sustainability indicator.

3) Implementation of Projects and Management Actions (PMAs)

NKWSD GSA does not have a historical deficit, subsequently, P/MA demand reduction and supply augmentation is implemented to provide resilience in the event of drier conditions or other unforeseen changes to the GSA's water balance. To date, five projects have been implemented with recognized benefits in WY 2025.

- Beneficial Reuse of Oilfield Produced Water (NKWSD-1) provided 3,131 AF of supplemental water
- Allocation of Available Supplies provided 6,500 AF of supplemental water to Rosedale Ranch Improvement District (RRID) (NKWSD-2)
- Landowner Subsurface/Surface Recharge Program (NKWSD-3) did not see conversion of irrigated ag to recharge lands, but NKWSD did applied 1,279 AF of surface water to Program facilities to recharge the aquifer.
- SCADA Automation and ET Measurement Improvements (NKWSD-4) conserved 230 AF

- NKWSD completed the Calloway Canal Linnig Project between Snow Road and 7th Standard Road (NKWSD-5). One mile of earthen canal with 1,000 cfs capacity was concrete lined. This has directly reduced seepage losses by an estimated 1,523 AF from canal operations that occurred during the August and September months.
- RRID acquired 162 acres of active agriculture to develop groundwater recharge basins. This removal reduces the demand by an estimated 465 AF per year.
- There was no additional land conversion from Ag to Urban Land during the 2025 WY but the demand reduction of 226 AF from the previous conversion continues for 2025 WY.
- NKWSD is also actively participating in several Subbasin-wide P/MAs, which are focused on improving data quality to improve SGMA implementation processes. In the past year, NKWSD:
    - provided all requested data to support the Basin Study (KSB-4)
    - implemented a reserve fund for the Domestic Well Mitigation Program (KSB-5)
    - participated in the formation of Kern Non-Districted Lands Authority to support a White Land Demand Management program (KSB-6)
    - completed its well inventory and continuing to participate in Subbasin-wide development of a Well Registry (KSB-7)
    - continues to participate in Subbasin-wide Consumptive Use Study to gather and report annual LandIQ data to monitor water uses (KSB-8)
    - actively participating in the Subsidence Action Plan, which is triggered when a subsidence MT is exceeded (KSB-9)
    - evaluating its monitoring network to identify potential data gaps and working to add monitoring sites where necessary (KSB-10)
    - continued collaborating with Friant Water Authority on Friant-Kern Canal Capacity Mitigation (KSB-1)

4) Coordination with Stakeholders

In addition to Subbasin-wide outreach and engagement activities, NKWSD GSA routinely communicates GSA-specific information its landowners, stakeholders, and other interested parties via:

- Monthly district board meetings.
- GSA meetings with stakeholders

5) Summary of Other GSP-related Special Studies or Activities

No special studies are being conducted exclusively in the GSA. However, NKWSD GSA is actively participating in the Subbasin-wide activities in Section 9, Progress on Subbasin-wide coordination on GSP Implementation.

Olcese GSA

1) Compliance with Groundwater Levels Sustainable Management Criteria (SMC)

Compliance with sustainable management criteria (SMC) for the Chronic Lowering of Groundwater Levels sustainability indicator in the Olcese GSA area during WY 2025 is summarized as follows:

a) Compliance with SMC

No groundwater elevations were measured below (exceeded) their minimum thresholds at 2 RMW-WLs within the Olcese GSA during the Fall 2024 or Spring 2025 monitoring event.

b) SMC Monitoring Activities

Consistent w with the Subbasin's Groundwater Level Sampling SOP, water level measurements were collected from all applicable RMW-WLs during the Fall 2024 and Spring 2025 monitoring events.

c) Assessment of Potential Impacts to Beneficial Users

There were no mitigation applications submitted for dry wells within the XXX GSA during WY 2025.

2) Compliance with Additional Sustainable Management Criteria

The relationship between groundwater levels, quality, and subsidence are monitored across the Subbasin, as described in Section 7 Current Conditions of Sustainability Indicators. During WY 2025, no MT Exceedances occurred within the Olcese GSA.

a) Water Quality

The 202 GSP established SMCs for six constituents of concern. Consistent with the Subbasin's Water Quality Sampling SOP, samples were / were not collected from the GSA's designated 1 of RMW-WQ.

b) Subsidence

WY 2025 Subbasin-wide conditions and progress for subsidence is provided in Section 7, Current Conditions for Sustainability Indicators and Section 9, Progress on Subbasin-Wide Coordination. No specific GSA activities other than coordination with Subbasin-wide activities occurred in WY 2025.

c) Interconnected Surface Water

Subbasin-wide an analysis determined that the vast majority of surface water features in the Kern Subbasin are not connected to groundwater. Subsequently, the Olcese GSA is not independently taking any actions specific to the sustainability indicator.

3) Implementation of Projects and Management Actions (PMAs)

Olcese GSA has made progress in WY 2025 towards implementing one of the Projects included in the Olcese GSP:

Non-contingent Project #1: Installation of a shallow monitoring well in the vicinity of Olcese Water District Well #2 for purposes of evaluating potential hydraulic connection between the Olcese Sand Aquifer Unit and the Shallow Alluvium. Olcese GSA installed this well in Summer 2019 and has collected groundwater level monitoring data since Fall 2019, including manual measurements in Fall 2023 and Spring 2024. Monitoring data collection using a data-logging pressure transducer began November 2020.

Non-contingent Management Action #2: Conduct a study of the potential hydraulic connection between the Olcese Sand Aquifer Unit and the Shallow Alluvium. The Olcese GSA has begun implementation of its study to assess the degree of hydraulic connection between the shallow alluvium and the Olcese Sand Aquifer Unit (i.e., the principal aquifer underlying the Olcese GSA Area identified in the GSP). The study is based primarily on groundwater level data collected from two wells - one in the shallow alluvium and one in the Olcese Sand

Aquifer Unit - using high-frequency data logging transducers. Collection of the transducer-based water level data began in Fall 2020 and is ongoing (a break in data collection occurred between August 2023 and February 2024 due to equipment issues).

Non-contingent Project #3 (from original 2020 Olcese GSP): Develop a network of subsidence monitoring locations. As discussed above, the Olcese GSA has established a network of subsidence monitoring locations consisting of two benchmark survey locations along the Olcese Water District Canal as part of the Amended Olcese GSP submitted in July 2022. Thus, Olcese GSA has completed implementation of this Project, originally included in the 2020 Olcese GSP, to develop a network of subsidence monitoring locations.

The Olcese GSA does not have any supply augmentation or demand reduction Projects and Management Actions with quantitative benefits, as its water supplies and consumptive demands are balanced and groundwater conditions within the Olcese GSA area are currently sustainable. If in the future an imbalance between supplies and demands is determined to occur, the Olcese GSA will develop and implement appropriate supply augmentation and/or demand reduction Projects and Management Actions.

4) Coordination with Stakeholders

In addition to Subbasin-wide outreach and engagement activities, XXX routinely communicates GSA-specific information its landowners, stakeholders, and other interested parties via:

- Monthly district board meetings.
- GSA meetings with stakeholders.

5) Summary of Other GSP-related Special Studies or Activities

No special studies are being conducted exclusively in the GSA. However, XXX is actively participating in the Subbasin-wide activities in Section 9, Progress on Subbasin-wide coordination on GSP Implementation.

Pioneer GSA

1) Compliance with Groundwater Levels Sustainable Management Criteria (SMC)

Progress towards compliance with sustainable management criteria in the Kern County Water Agency - Pioneer GSA Management Area during WY 2025 is summarized as follows:

a) Compliance with SMC

Groundwater elevations were measured below their minimum thresholds at zero of the five RMW-WLs within the Pioneer GSA during the Fall 2024 monitoring event. Zero RMW-WLs were between the minimum threshold and measurable objective, and the remaining five RMW-WLs were measured above their measurable objectives.

Groundwater elevations were measured below their minimum thresholds at zero of the five RMW-WLs within the Pioneer GSA during the Spring 2024 monitoring event. zero RMW-WLs were measured between the minimum threshold and measurable objective, and the remaining five RMW-WLs were measured above their measurable objectives.

b) SMC Monitoring Activities

Consistent with the Subbasin's Groundwater Level Sampling SOP, water level measurements were collected from five of the GSA's designated five RMW-WLs in Fall 2024 and from five of the GSA's designated five RMW-WLs in Spring 2025.

c) Assessment of Potential Impacts to Beneficial Users

There were no mitigation applications submitted for dry wells within the Pioneer GSA during WY 2025.

2) Compliance with Additional Sustainable Management Criteria

The relationship between groundwater levels, quality, and subsidence are monitored across the Subbasin, as described in Section 7 Current Conditions of Sustainability Indicators. During WY 2025, no MT Exceedances occurred within the Pioneer GSA.

a) Water Quality

The 2025 GSP established SMCs for six constituents of concern. Consistent with the Subbasin's Water Quality Sampling SOP, samples were collected from the GSA's designated one RMW-WQ. WY 2025 sample results indicate groundwater quality is not degrading the Pioneer GSA. However, arsenic was measured at 16 ppb while the MT is 10 ppb. While this is an exceedance, this does match the trend of historical results for this well and does not indicate a shift in worsening arsenic concentrations.

b) Subsidence

WY 2025 Subbasin-wide conditions and progress for subsidence is provided in Section 7, Current Conditions for Sustainability Indicators and Section 9, Progress on Subbasin-Wide Coordination. No specific GSA activities other than coordination with Subbasin-wide activities occurred in WY 2025.

The Cross Valley Canal is GSA-area critical infrastructure that passes next to portions of the GSA. The GSA monitored local benchmarks and reviewed InSAR data. Monitoring indicates that subsidence is below the interim milestone rate and minimum threshold rate. Additionally, no GSA-area infrastructure was reported impacted by subsidence in WY 2025.

c) Interconnected Surface Water

Subbasin-wide analysis determined that the vast majority of surface water features in the Kern Subbasin are not connected to groundwater. Subsequently, the Pioneer GSA is not independently taking any actions specific to the sustainability indicator.

3) Implementation of Projects and Management Actions (PMAs)

The Kern County Water Agency - Pioneer GSA Management Area made progress towards implementing several of its planned GSP Projects and Management Actions in Water Year 2025 as summarized by the following:

Pio-2: The Pioneer GSA has and will continue to participate in Basin-Wide Coordination efforts with all other GSAs within the Kern Subbasin to address regulatory requirements and determination. This has been accomplished via weekly calls with other GSAs, active participation in implementation, and involvement in GSP finalization and working through the approval process with SWRCB.

Pio-3: Continued balanced pumping and recharge is the standard operating procedure for the Pioneer GSA. Under this management action, pumping has continued to be balanced by recharge activities in the Pioneer GSA Area. Pioneer GSA has continued to closely monitor water that is pumped from the Subbasin and water that recharges the Subbasin with the goal of a balanced groundwater budget over the long term. The Pioneer Project uses a mix of SWP, Kern River and other imported water supplies for groundwater recharge. In the Pioneer GSA Area, the Pioneer Project has a recharge capacity of 302,000 AFY, and a recovery capacity of 68,415 AFY. Recovery capacity is limited by recovery well capacity. KCWA continues to be responsible for management of the Pioneer Project and is the only agency operating groundwater banking and pumping within the Pioneer GSA Area on behalf of the Participants.

To ensure the balance between pumping and recharge, all recharge and recovery in the Pioneer GSA Area is accounted for and metered, including recovery from the Pioneer Project that occurs outside the Pioneer GSA Area boundary. This management action has continued to maintain the balance between recharge and pumping through WY 2025 within normal operational expectations and strategies.

Pioneer has also continued to support and implement Kern Subbasin Projects and Management Actions (those that are labeled with "KSB") that multiple GSAs implement and support collectively. These include:

- KSB-1: Friant-Kern Canal Capacity Mitigation
- KSB-2: Coordination with Groundwater Regulatory Programs
- KSB-3: Exceedance Policy
- KSB-4: Coordination with Basin Study
- KSB-5: Well Mitigation Program
- KSB-6: White Land Demand Management
- KSB-7: Well Registry
- KSB-8: Consumptive-Use Study
- KSB-9: California Aqueduct Subsidence Action Plan
- KSB-10: RMW Data Gaps

4) Coordination with Stakeholders

In addition to Subbasin-wide outreach and engagement activities, the Pioneer GSA routinely communicates GSA-specific information its landowners, stakeholders, and other interested parties via:

- Monthly board meetings. The Kern County Water Agency Board meetings are held on the fourth Thursday of each month.

5) Summary of Other GSP-related Special Studies or Activities

No special studies are being conducted exclusively in the GSA. However, the Pioneer GSA is actively participating in the Subbasin-wide activities in Section 9, Progress on Subbasin-wide coordination on GSP Implementation.

Rosedale-Rio Bravo Water Storage District GSA

As a Kern County Subbasin member, Rosedale-Rio Bravo Water Storage District GSA (RRBWSD) adopted a new Groundwater Sustainability Plan (GSP) in August of 2025. During 2023 Rosedale-Rio Bravo Water Storage District formed a RRBWSD GSA and expended much effort in preparing an updated Subbasin-wide GSP with all the other GSAs in collaboration with the SWRCB. A draft GSP was distributed to the public and SWRCB for comment in June 2025. The GSP described Rosedale's planned projects and management actions focused on reducing its projected deficit of 9,850 AFY through demand reduction and water supply augmentation.

1) Compliance with Groundwater Levels Sustainable Management Criteria (SMC)

The RRBWSD GSA maintains a comprehensive network of 19 representative monitor wells. The wells are a combination of agricultural, domestic, and dedicated monitor wells of known well construction and offer reliable long-term data.

a) Compliance with SMC

Groundwater elevations were measured below (exceeded) their minimum thresholds at 0 of the 19 RMW-WLs within the RRBWSD GSA during the Fall 2024 monitoring event. 9 RMW-WLs were between the minimum threshold and measurable objective, and the remaining 10 RMW-WLs were measured above their measurable objectives.

Groundwater elevations were measured below (exceeded) their minimum thresholds at 0 of the 19 RMW-WLs within the RRBWSD GSA during the Spring 2025 monitoring event. 8 RMW-WLs were measured between the minimum threshold and measurable objective, and the remaining 11 RMW-WLs were measured above their measurable objectives.

b) SMC Monitoring Activities

Consistent with the Subbasin's Groundwater Level Sampling SOP, water level measurements were collected from 19 of the GSA's designated 19 RMW-WLs in Fall 2024 and from 19 of the GSA's designated 19 RMW-WLs in Spring 2025.

c) Assessment of Potential Impacts to Beneficial Users

There were no mitigation applications submitted for dry wells within the RRBWSD GSA during WY 2025.

2) Compliance with Additional Sustainable Management Criteria

The relationship between groundwater levels, quality, and subsidence are monitored across the Subbasin, as described in Section 7 Current Conditions of Sustainability Indicators. During WY 2025, no MT Exceedances occurred within the RRBWSD GSA

a) Water Quality

The GSP established Sustainable Management Criteria (SMCs) for six water-quality constituents of concern. In accordance with the Subbasin's Water Quality Sampling SOP, samples were collected from three of the RRBWSD GSA's four designated RMW-WQ sites. WY 2025 results indicate that groundwater quality within the RRBWSD GSA is not degrading. One representative well, however, showed exceedances of the MCL for 1,2,3-TCP. Because the well's depth and perforation interval do not align with State Board Staff domestic well data gaps analysis, the RRBWSD GSA plans to replace it with a nearby alternate well for future monitoring and to fill a Subbasin-defined water-quality data gap.

A second representative private well was not directly sampled by the RRBWSD GSA this year, but water-quality data were obtained through GAMA, the State Water Resources Control Board's Groundwater Ambient Monitoring and Assessment Program, which provides publicly accessible groundwater quality data. Since GAMA

data does not appear on a schedule aligned with the Kern Subbasin's sampling cycle, the RRBWSD GSA has confirmed with the well owner that results for all six constituents of concern will be provided directly to the RRBWSD GSA beginning in spring and fall 2026. All remaining RMW-WQ sites within the RRBWSD GSA were sampled by the Kern Fan Monitoring Committee, and results were entered into the Kern Subbasin Data Management System (DMS).

b) Subsidence

WY 2025 Subbasin-wide conditions and progress for subsidence is provided in Section 7, Current Conditions for Sustainability Indicators and Section 9, Progress on Subbasin-Wide Coordination. No specific RRBWSD GSA activities other than coordination with Subbasin-wide activities occurred in WY 2025.

c) Interconnected Surface Water

Subbasin-wide analysis determined that the vast majority of surface water features in the Kern Subbasin are not connected to groundwater. Subsequently, the RRBWSD GSA is not independently taking any actions specific to the sustainability indicator.

3) Implementation of Projects and Management Actions (PMAs)

The RRBWSD GSA in the adopted 2025 GSP revised several projects and management programs identified in previous GSP's to more accurately address current conditions and has made significant progress towards implementation as summarized by the following:

RRB-1 Stockdale East Storage and Recovery Project: This project was fully completed in 2019 in anticipation of SGMA implantation goals. The 200-acre project west of Bakersfield fallowed active farming and was converted into a conjunctive-use project. The land retirement of the project has yielded 520 AFY in demand reduction and since 2020 the District recharged 12,855 AF to offset GSA demands.

RRB-2 McCaslin Recharge Improvements Project: This project was added in 2019 as an adaptive management action and includes a 195-acre project west of Bakersfield to recharge, store, and recover water. RRBWSD completed relevant environmental analysis and applied for grant funding. Subsequent addenda to a previous conjunctive-use EIR were adopted. WaterSmart grants were awarded in 2020 and 2021 towards development and construction. Almond trees were removed from the property in 2021, construction of recharge ponds and intake was completed in 2022, and approximately 17,700 AF was spread in 2023 that otherwise would not have been stored. The construction of two Conjunctive-Use banking wells and recovery pipelines were under construction in 2024.

RRB-3 McCaslin/Dillard Recharge Improvements Project: During 2024 two nearby properties currently used for agricultural purposes came up for sale totally approximately 155 acres. RRBWSD acquired both properties and removed the crops and is developing the necessary environmental documents to convert them into groundwater recharge areas.

RRB-4 Kern Fan Groundwater Storage Project Phase 1: This project would develop a regional water bank in the Kern Fan area to store State Water Project (SWP) Article 21 water when surface water is abundant. The Kern Fan Project's feasibility analysis was completed in March 2020 and a FEIR was certified in December 2020. RRBWSD has commenced permitting and design efforts, now having acquired 350 acres of property for new recharge and recovery. Recharge ponds and control structures were constructed on all 350 acres in 2024-2025.

RRB-5 Onyx Ranch Project: This project is connected to RRBWSD-owned lands and water rights in the Kern River Valley. The project involves a change in the point of diversion that would bring water supplies to the Kern Subbasin. A Draft EIR was circulated, and the FEIR was certified in January 2021. During 2023 approximately 6,114 AF was delivered for groundwater storage in the Kern Subbasin. Unfortunately, in 2024 due to legal action

the project was paused and irrigation resumed in the Kern River Valley. In 2025 the project cleared legal challenges and resumed operation and brought 631 AF to the Subbasin.

The RRBWSD GSA made progress toward implementing several of its planned GSP Management Actions as summarized by the following:

RRB-13 White Land Water Budget/Demand Imbalance Reduction: This action has been implemented for demand reduction on a linear basis over the planning period of 2020-2040. It is expected that Rosedale-Rio Bravo White Lands would seek to acquire water supplies for in lieu and direct groundwater recharge via banking agreements with RRBWSD, or others to offset demands. A web-based water budget platform was completed in 2020 to allow users to begin tracking water usage for initial 2020-2024 reduction requirements. Landowners are being regularly updated as to their demands and remaining balances requiring balance by the end of 2024.

Eleven out of the thirteen landowners are within their allocated supply. The GSA is discussing an imbalance penalty charge to better enforce lapses in milestone achievement.

RRB-14 District Land Water Budget/Water Charge Demand Reduction: This action imposes a water charge on District landowners for the use of water over native yield, precipitation, and project water supplies. A web-based 5 WY 2023 Annual Report KERN COUNTY SUBBASIN water budget platform was completed in 2020 and real-time evapotranspiration (ET) data incorporation commenced in 2021 allowing users the ability to track their water usage for background information. RRBWSD Board approved water charge implementation in late 2023 starting in the 2024 calendar year and assessed $95/AF to incentivize water conservation and project financing. The initial 2024 water charges were collected in 2nd quarter 2025 and the Board set a rate at $145/AF for 2026.

RRB-15 Conversion of Ag Land to Urban: The City of Bakersfield continues to develop in a westerly direction creating the reality of converting land from agricultural uses to urban. With it the net demand per acre is expected to decrease by 1.5 AF/Acre/yr. From 2020 to 2025 approximately 166 acres was converted resulting in a net savings of 249 AFY.

4) Coordination with Stakeholders

In addition to Subbasin-wide outreach and engagement activities, RRBWSD GSA routinely communicates GSA-specific information to its landowners, stakeholders, and other interested parties via:

- Monthly District board meetings (second Tuesday of each month).
- RRBWSD GSA bi-monthly stakeholder meetings, both in person and via Zoom (fourth Tuesday every other month).
- Rosedale Recap bi-monthly newsletters (via email, board/stakeholder packets, and LinkedIn).

5) Summary of Other GSP-related Special Studies or Activities

RRBWSD GSA is actively participating in the Subbasin-wide efforts described in Section 9, Progress on Subbasin-wide Coordination on GSP Implementation. The GSA is currently working to fill two Subbasin-defined water-quality data gaps and to verify wells included in the Subbasin's well inventory. In addition, RRBWSD GSA staff are collecting and field-verifying domestic well locations within the GSA boundary using an online GIS-based survey tool (survey link here)

Semitropic Water Storage District GSA

In 2025, the Semitropic Water Storage District (SWSD) Groundwater Sustainability Agency (GSA) actively engaged with all Kern Subbasin GSAs in State Water Resources Control Board (SWRCB) Probationary process. During this probationary process the Kern Subbasins worked with SWRCB staff to address both California Department of Water Resources (DWR) and SWRCB concerns resulting in a revised 2025 Kern Subbasin GSP, which covered the entire Kern County Subbasin. The SWSD GSA also revised its SWSD GSA GSP, which included the entirety of the Kern Subbasin GSP without changes, and contained supplemental "blue page" information regarding SWSD's banking operations and projects and management action.

The SWSD GSA continues to implement projects and management actions from its original 2020 GSP, which were also included in the 2025 GSP to satisfy the Sustainable Management Criteria (SMCs), as demonstrated in this Annual Report. The following summarizes activities for the SWSD GSA during 2025 toward continued compliance with SGMA.

1) Compliance with Groundwater Levels Sustainable Management Criteria (SMC)

To comply with SGMA the SWSD GSA has implemented a demand management program developed and adopted in its 2020 GSP submittal and subsequently included in the 2025 GSP. The demand management programs were developed with extensive input from local stakeholders and landowners with the objective of managing local groundwater conditions at or above established Measurable Objectives. The SWSD GSA's demand management program manages all lands within the GSA to specific Landowner Water Budgets (Management Action SWSD-16) that include the following water supply categories:

- Contract Water: State Water Project (SWP) supplies (yield from SWP Table A entitlement).
- Supplemental SWSD Supplies: includes leave behind from third party banking, Article 21 from the SWP, Section 215 from the Central Valley Project, dry year transfers and other water purchases.
- Native Supply: includes Native Groundwater Yield of the Kern Subbasin (estimated at 0.15 acre-feet per acre) and precipitation.
- Temporary Consumptive Use Allowance (TCA): The TCA is an allocation of permissible overdraft that will be driven to 0 by 2040 and was set so all irrigated lands would have an adequate supply in 2020; however, the overdraft that is represented by TCA would be reduced annually such that over time the demand would be driven down to the sustainable supply

Irrigated acreage and associated consumptive demand have steadily decreased since 2017 as shown in **Figure SWSD -1** and **Figure SWSD-2**, respectively. The decrease in irrigated acres and associated demands are driven by demand management actions implemented by SWSD since 2016. These demand management actions have reduced SWSD GSA's demand from 405,320 acre-feet (AF) at the end of calendar year 2017 to 348,890 AF at the end of water year 2025, a reduction of approximately 56,430 AF of demand. In 2017 there were 134,750 irrigated acres in SWSD and as of the end of water year 2025 there were 115,760 irrigate acres, a total reduction of approximately 18,990 acres.

As of 2025, the total service area of SWSD is approximately 222,580 acres with approximately 115,760 acres of irrigated lands (including 6,510 acres of managed wetlands). The remaining 106,820 acres are undeveloped lands that include 8,960 acres associated with the Kern National Wildlife Refuge.

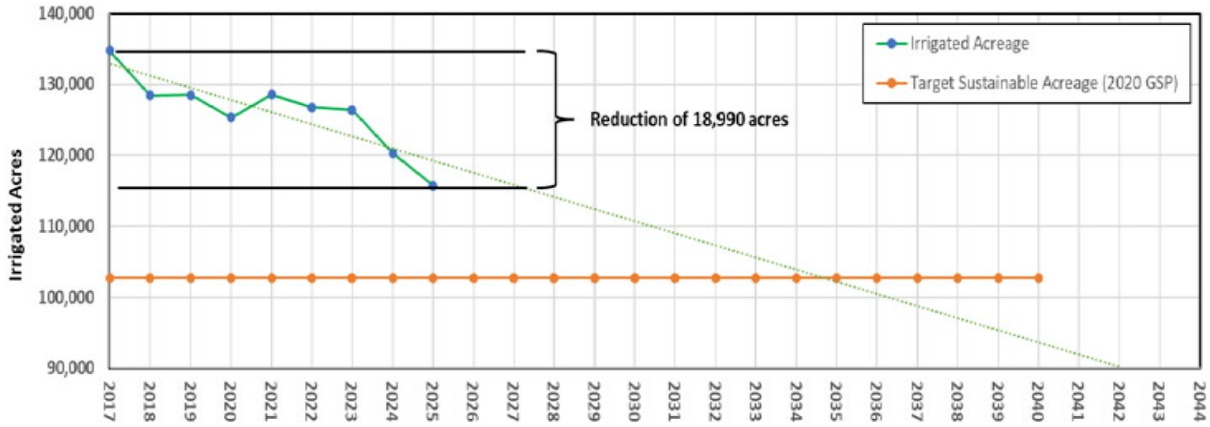


Figure SWSD-1. Reduction in irrigated acres from 2017 to 2025 within SWSD GSA.

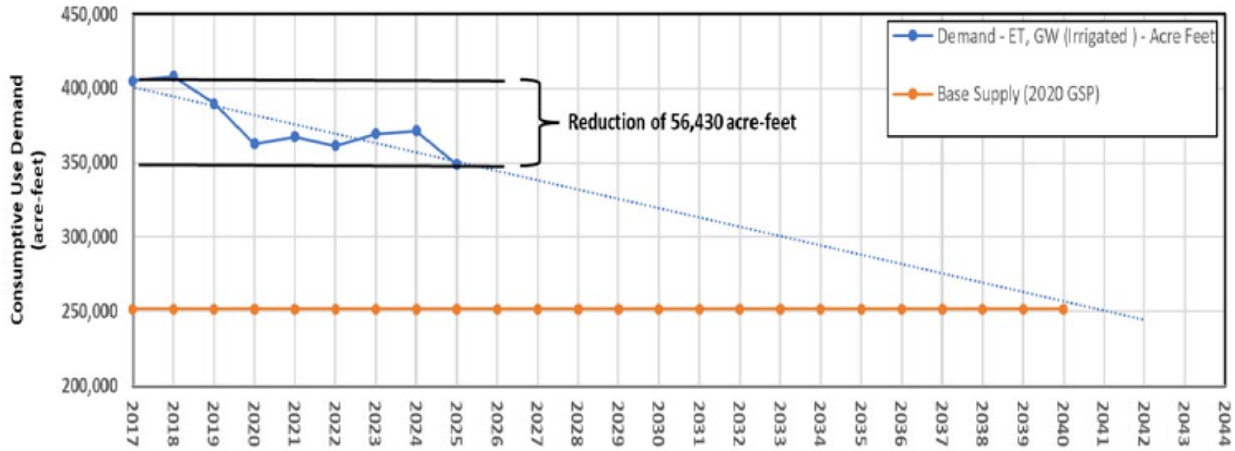


Figure SWSD-2. Reduction in consumptive use from 2017 to 2025 within SWSD GSA.

The SWSD GSA has been implementing demand management actions as early as 2016, these early action include:

- Assembly Bill 453 (2016): This special legislation provided SWSD the authority to collect groundwater extraction information, required the reporting of groundwater information, and authorized SWSD to impose fees on the extraction of groundwater from the subbasin.
- New Lands Surcharge Program: Any new land developed after July 1, 2017, is charged $500/AF of consumptive use greater than the allocated native groundwater yield. This interim program was replaced with the Landowner Water Budgets in 2022.
- SGMA Basin Sustainability Charges/Credits: A program whereby SWSD utilizes remote sensing data to determine the consumptive use (as evapotranspiration (ET)) for each parcel and the aggregate by Landowner of Record in the SWSD. The consumptive use for an irrigated parcel is compared to the average consumptive use of all irrigated fields. If the consumptive use for a single parcel is in excess of

the average, then the parcel is levied a charge (the basin sustainability charge). If the consumptive use of a parcel is less than the average,

- then the parcel is due a credit (the basin sustainability credit). This interim program was replaced with the Landowner Water Budgets in 2022.
- Landowner Water Budgets (Management Action SWSD-16): Beginning in 2022, SWSD allocated the total water supply of SWSD to each landowner based on the landowner class. The water budgets developed for each landowner define the required reduction in consumptive water demand and associated groundwater extractions necessary to balance the SWSD's total water budget and eliminate local overdraft within the boundaries of the SWSD GSA. Landowner Water Budgets were delivered to all landowners (farmers) in 2021 and became effective in calendar year 2022.
- Tiered Pricing for Groundwater Pumping (Management Action SWSD-17): The SWSD GSA is developing the tier pricing structure that will enforce the adherence to Landowner Water Budgets (Management Action SWSD-16) and provide funding for other projects and management actions, including the Domestic Well Mitigation Program (Management Action KSB-5). The tiered pricing structure, subject to a successful proposition 218 process, is expected to be implemented beyond 2025 if needed.

Additionally, the SWSD GSA has implemented a number of projects and management actions aimed at reducing the overall demand on local groundwater resources. Recent projects include:

- Land fallowing.
- Increase emphasis on acquisition of supplemental water supplies for the benefit of the SWSD.
- Acquisition and banking water on behalf of the SWSD.
- Cap on third party banking obligations.
- Expansion of SWSD recharge capacities to enhance conjunctive use capabilities which are not associated with third party banking obligations.
- Through a cooperative Kern Subbasin effort, the average annual groundwater deficit under 2030 climate change conditions has been projected at 372,120 AF. The SWSD GSA allocation of that deficit is 162,940 AF. Within the SWSD GSA, this represents the potential fallowing of between 42,800 to 58,200 acres of irrigated lands by 2040 assuming no additional water supplies can be developed to augment the SWSD GSA's existing surface water supplies to offset this deficit. The deficit reduction and acreage fallowing began in 2016 and will be continued primarily through the implementation of Management Action SWSD-16 Landowner Water Budgets.

Many of the remaining projects and management actions are designed to increase the GSA's supplemental water supplies to support the economic viability of agriculture and sustainability of water supplies for non-agricultural beneficial users, primarily domestic users. To the extent that the SWSD GSA successfully augments its supplemental water supply, the Landowner Water Budgets (Management Action SWSD-16) will be adjusted accordingly.

a) Compliance with SMC

Compliance with the Chronic Lowering of Groundwater Levels and Reduction in Groundwater Storage sustainability indicators for the WY2025 are provided below. Groundwater levels are used as a proxy for the Reduction in Groundwater Storage sustainability indicator is the CGSA.

- Fall 2024 and Spring 2025 groundwater elevations were obtained at all 15 representative monitoring wells (RMWs) in SWSD.

- Groundwater elevations were greater than (i.e., did not exceed) their respective minimum threshold (MT) elevations in all 15 RMWs in both the Fall 2024 and Spring 2025 measurements.
- Groundwater elevations were greater than or near the respective measurable objective (MO) at 14 RMWs in Fall 2024 and 10 RMWs in Spring 2025.

b) SMC Monitoring Activities

Consistent with the Subbasin's Groundwater Level Sampling SOP, water level measurements were collected at all RMWs in Fall 2024 and Spring 2025.

c) Assessment of Potential Impacts to Beneficial Users

There were no mitigation applications submitted for dry wells within the SWSD GSA during WY 2025.

2) Compliance with Additional Sustainable Management Criteria

The relationship between groundwater levels, quality, and subsidence are monitored across the Subbasin, as described in Section 7 Current Conditions of Sustainability Indicators of this Annual Report. During WY 2025, no MT Exceedances occurred within the SWSD GSA.

a) Water Quality

WY 2025 Subbasin-wide conditions and progress for subsidence is provided in Section 7, Current Conditions for Sustainability Indicators and Section 9, Progress on Subbasin-Wide Coordination of this Annual Report. No specific GSA activities other than coordination with Subbasin-wide activities occurred in WY 2025.

b) Subsidence

WY 2025 Subbasin-wide conditions and progress for subsidence is provided in Section 7, Current Conditions for Sustainability Indicators and Section 9, Progress on Subbasin-Wide Coordination of this Annual Report. SWSD GSA's demand management actions, which have reduced demands by 56,430 AF since 2017, provides a positive benefit to the reduction of potential subsidence within and adjacent to the SWSD GSA. The GSA coordinated on Subbasin-wide activities undertaken in WY 2025.

c) Interconnected Surface Water

Subbasin-wide analysis determined that the vast majority of surface water features in the Kern Subbasin are not connected to groundwater. Subsequently, the SWSD GSA is not independently taking any actions specific to the sustainability indicator.

3) Implementation of Projects and Management Actions (PMAs)

As described above, the SWSD GSA continues to implement projects and management actions to manage groundwater levels above the adopted MOs and MTs. Within the GSA demand management is the primary management action for achieving sustainability and maintaining groundwater levels at or above adopted MOs and for avoiding exceedances of MTs.

Implementation of projects and management actions in 2024 are described below.

Landowner Water Budgets (SWSD-16): Beginning in 2022 the SWSD GSA began allocating the total water supply of SWSD to each landowner based on the landowner class. The water budgets developed for each landowner define the required reduction in consumptive water demand and associated groundwater extractions necessary to balance the SWSD's total water budget and eliminate local overdraft from with the boundaries of the SWSD GSA. Landowner Water budgets were delivered to all landowners in 2021 and became effective in calendar year 2022.

The SWSD GSA continues implementation of projects and management actions, as included in and modified in the 2025 SWSD GSP, aimed at reducing the overall demand on local groundwater resources. The projects and management actions include:

Exceedance Policy (KSB 3). The SWSD GSA continues to support the implementation of the Kern Subbasin Well Exceedance Policy.

Domestic Well Mitigation Program (KSB-5). While the SWSD GSA adopted a domestic well mitigation program in its 2022 Amended GSP, in 2025 it was replaced with a basinwide Domestic Well Mitigation Program.

Land Fallowing and Landowner Recharge (SWSD-12, SWSD-18). The SWSD rolled out its Fallow Land Recharge Program starting in 2017 as a pilot project and continued this Program in 2019, and 2023. Most recently in 2023, as part of the Program, SWSD processed over 50 grower applications, covering more than 5,800 acres from interested growers wishing to participate in the Program. A total of 44,700 AF was reported for landowner recharge projects. As of 2024, SWSD growers have developed approximately 500 acres of dedicated subsurface recharge projects, to support SWSD-12, enhanced groundwater recharge.

Tulare Lake Project (SWSD 11). The SWSD continues to support development of the Tulare Lake Project as it navigates through the State Water Resources Board water rights hearing process.

Increase Acquisition of Supplemental Water Supplies (SWSD-5). In 2025 SWSD anticipated that it will complete the purchase of approximately 11,110 AF of supplemental water.

Expansion of SWSD recharge capabilities (SWSD-6, 15 and 18). The SWSD continues to support development of additional recharge sites and conveyance improvement projects within the district and in 2025 evaluated additional sites to serve as spreading sites for recharge for the benefit of all District landowners. District recharge consists of the following sites to date:

- Pond Poso Spreading Grounds (PPSG) - 550 acres
- SWSD/Shuster Pit - 20 acres
- District Property (Peterson & Bell Road) - 313 acres
- District Property (Pond & Wildwood Road) - 145 acres
- Elo Fabbri (North of Schuster) - 100 acres

Landowners in the District have developed an additional 514 acres of subsurface recharge facilities at seven different properties through 2025. These recharge facilities allow the landowner and in some instances the district, to engage in recharge activities without interfering with surface activities.

Leonard Avenue System (SWSD-2). The SWSD completed the construction of the Leonard Avenue System Intertie. The project included an interconnection with neighboring district, SWID, to provide east to west surface water conveyance to a groundwater dependent area. The project provides surface water delivery capability to a service area consisting of 2800 acres.

4) Coordination with Stakeholders

In addition to Subbasin-wide outreach and engagement activities, SWSD routinely communicates GSA-specific information to its landowners, stakeholders, and other interested parties via:

- Monthly SWSD Board meetings.
- Monthly SWSD GSA Board meetings
- Posted information and updates to the District's webpage

- Participation in various Subbasin outreach activities

5) Summary of Other GSP-related Special Studies or Activities

No special studies are being conducted exclusively in the GSA. However, SWSD GSA is actively participating in the Subbasin-wide activities in Section 9, Progress on Subbasin-wide coordination on GSP Implementation.

Shafter-Wasco Irrigation District 7th Standard Annexation

The 7th Standard Annex management area, also referred to as Shafter-Wasco Irrigation District (SWID) MA-2, consisted of former "white lands" in the Kern County Subbasin that have been annexed into SWID.

1) Compliance with Groundwater Levels Sustainable Management Criteria (SMC)

There were no exceedances in 2025.

a) Compliance with SMC

Groundwater elevations were measured below (exceeded) their minimum thresholds at 0 of the 3 RMW-WLs within the 7th Standard Annex portion of the SWID GSA during the Fall 2024 and Spring 2025 monitoring events. 2 RMW-WLs were between the minimum threshold and measurable objective, and the remaining 1 RMW-WL was measured above its measurable objective.

b) SMC Monitoring Activities

Consistent with the Subbasin's Groundwater Level Sampling SOP, water level measurements were collected from 3 of the GSA's designated 6 RMW-WLs in Fall 2024 and from 3 of the GSA's designated 6 RMW-WLs in Spring 2025.

c) Assessment of Potential Impacts to Beneficial Users

There were no mitigation applications submitted for dry wells within the 7th Standard Annex portion of the SWID GSA during WY 2025.

2) Compliance with Additional Sustainable Management Criteria

The relationship between groundwater levels, quality, and subsidence are monitored across the Subbasin, as described in Section 7 Current Conditions of Sustainability Indicators. During WY 2025, no MT Exceedances occurred within the 7th Standard Annex portion of the SWID GSA.

a) Water Quality

The 2024 GSP established SMCs for six constituents of concern. Consistent with the Subbasin's Water Quality Sampling SOP, samples were collected from the GSA's designated RMW-WQ. WY 2025 sample results indicate groundwater quality is not degrading the 7th Standard Annex portion of the SWID GSA

b) Subsidence

WY 2025 Subbasin-wide conditions and progress for subsidence is provided in Section 7, Current Conditions for Sustainability Indicators and Section 9, Progress on Subbasin-Wide Coordination. No specific GSA activities other than coordination with Subbasin-wide activities occurred in WY 2025

c) Interconnected Surface Water

Subbasin-wide analysis determined that the vast majority of surface water features in the Kern Subbasin are not connected to groundwater. Subsequently, the 7th Standard Annex portion of the SWID GSA is not independently taking any actions specific to the sustainability indicator.

3) Implementation of Projects and Management Actions (PMAs)

In 2023, the Water Budget ET limitation announcement was sent to the growers of the Seventh Standard Annex. 2024 was the first year we implemented monitoring using LandIQ, and a database was produced to allow growers to log in and see their usage. Calendar Year 2025 is the first time that an ET limitation is in place, at a limit of 3 AF/Acre. This means that anyone with usage higher than 3 AF/Acre (within 15%) will be charged

$500/AF in early 2026. This has caused several growers to engage with the District and begin to consider how to ramp down their farming activities, decreasing demand, reaching sustainability in the District.

The WY 2025 ET is about 21 TAF, which is almost a 4 TAF reduction from 2020, shortly after the lands were annexed into the District. Now that the ET limit is in place, it should lead to decreases in demand annually in the years to come.

Furthermore, 7th Standard Annex partnered with SWID to purchase Jack Recharge. The Demand Reduction credit goes to the SWID portion of SWID GSA, but 7th Standard Annex will get a portion of the water supplies recharged on Jack Recharge in the years to come. This water supply benefit will materialize as the years progress.

4) Coordination with Stakeholders

In addition to Subbasin-wide outreach and engagement activities, SWID portion of the SWID routinely communicates GSA-specific information its landowners, stakeholders, and other interested parties via:

- Monthly district board meetings.
- Updates to our website regarding water levels and water budgets as applicable
- One-on-one meetings with growers to discuss ET Water Budget Limitations

5) Summary of Other GSP-related Special Studies or Activities

No special studies are being conducted exclusively in the GSA. However, SWID portion of the SWID is actively participating in the Subbasin-wide activities in Section 9, Progress on Subbasin-wide coordination on GSP Implementation.

Shafter-Wasco Irrigation District GSA

This is for the SWID portion of the SWID GSA, which is the area of the District that existed prior to the annexation of 7th Standard Annex.

1) Compliance with Groundwater Levels Sustainable Management Criteria (SMC) There were no exceedances in 2025. **a) Compliance with SMC**

Groundwater elevations were measured below (exceeded) their minimum thresholds at 0 of the 6

RMW-WLs within the SWID portion of the SWID GSA during the Fall 2024 and Spring 2025 monitoring events. 4 RMW-WLs were between the minimum threshold and measurable objective, and the remaining 2 RMW-WLs were measured above their measurable objectives.

b) SMC Monitoring Activities

Consistent with the Subbasin's Groundwater Level Sampling SOP, water level measurements were collected from 6 of the GSA's designated 6 RMW-WLs in Fall 2024 and from 6 of the GSA's designated 6 RMW-WLs in Spring 2025.

c) Assessment of Potential Impacts to Beneficial Users

There were no mitigation applications submitted for dry wells within the SWID portion of the SWID GSA during WY 2025.

2) Compliance with Additional Sustainable Management Criteria

The relationship between groundwater levels, quality, and subsidence are monitored across the Subbasin, as described in Section 7 Current Conditions of Sustainability Indicators. During WY 2025, no MT Exceedances occurred within the SWID portion of the SWID GSA.

a) Water Quality

The 2024 GSP established SMCs for six constituents of concern. Consistent with the Subbasin's Water Quality Sampling SOP, samples were collected from the GSA's designated 2 of RMW-WQ. WY 2025 sample results indicate groundwater quality is not degrading the SWID portion of the SWID GSA

b) Subsidence

WY 2025 Subbasin-wide conditions and progress for subsidence is provided in Section 7, Current Conditions for Sustainability Indicators and Section 9, Progress on Subbasin-Wide Coordination. No specific GSA activities other than coordination with Subbasin-wide activities occurred in WY 2025

c) Interconnected Surface Water

Subbasin-wide analysis determined that the vast majority of surface water features in the Kern Subbasin are not connected to groundwater. Subsequently, the SWID portion of the SWID GSA is not independently taking any actions specific to the sustainability indicator.

3) Implementation of Projects and Management Actions (PMAs)

The Kimberlina Spreading Ponds, Bell Recharge, and Farmers Coop Recharge were all used a small amount this year, to help managing some water supplies early in the water year. Jack Recharge was purchased this year, removing 60 acres from production, providing a demand reduction of about 210 AFY through land retirement. This brings the total land retirement in the SWID portion of the SWID GSA to 628 acres, or 2,986 AFY on average. This is on track with the glide path developed.

The Southeast Recharge pipeline is being constructed as of the writing of this report, and the project will be fully completed in the spring of 2026. This just leaves the construction of Dresser Recharge, Poplar Recharge, and Jack Recharge ahead of us. Dresser Recharge is wrapping up NEPA now and should have noticed to proceed in January of 2026 and will likely be fully constructed before the end of 2026. Jack Recharge will begin NEPA in 2026 and will likely be constructed in 2027. Poplar Recharge is currently awaiting funding to move forward with the project.

During the water year, 363 AF was provided to SWID as Water Quality Mitigation consistent with Friant Water Authority's Water Quality Guidelines. This is consistent with the average annual amounts contemplated in the GSP.

SWID-12 and SWID-13 both deal with 2:1 exchange programs. This year, 7,620 AF came into SWID as a result of these programs. In a future year, when the exchange is complete, SWID will be responsible for delivering 3,810 AF to its exchange partners by foregoing delivery of surface water. 1,861 AF will come out of the Friant Allocation in a drier year type, and 1949 AF will be delivered from SWID's supplies in San Luis Reservoir.

4) Coordination with Stakeholders

In addition to Subbasin-wide outreach and engagement activities, SWID portion of the SWID routinely communicates GSA-specific information its landowners, stakeholders, and other interested parties via:

- Monthly district board meetings.
- Updates to our website regarding water availability, water levels, surface water quality and water budgets as applicable

5) Summary of Other GSP-related Special Studies or Activities

No special studies are being conducted exclusively in the GSA. However, SWID portion of the SWID is actively participating in the Subbasin-wide activities in Section 9, Progress on Subbasin-wide coordination on GSP Implementation.

Southern San Joaquin Municipal Utility District GSA

During WY2025, SSJMUD GSA continued to implement its P/MAs focused on achieving sustainable groundwater management in the Kern Subbasin. When compared against the 2025 GSP, SSJMUD GSA has demonstrated full compliance with all applicable SMCs. Monitoring results, project progress, and coordination efforts indicate that the GSA remains on track to meet long-term sustainability goals.

1) Compliance with Groundwater Levels Sustainable Management Criteria (SMC)

SSJMUD GSA is fully in compliance with SMCs established in the 2025 GSP. Details of monitoring and compliance activities are provided in the following sections.

a) Compliance with SMC

None of the 10 RMW-WLs within the SSJMUD GSA were measured below (exceeded) their minimum thresholds during the Fall 2024 or Spring 2025 monitoring events. In Fall 2024, one RMW-WL, at the southwest end of the City of Delano, was between the minimum threshold and measurable objective, and the remaining nine RMW-WLs had higher elevation than their measurable objectives. In Spring 2025, all RMW-WLs were measured near or at an elevation higher than the measurable objective.

b) SMC Monitoring Activities

Consistent with the Subbasin's Groundwater Level Sampling SOP, water level measurements were collected from each of the GSA's designated RMW-WLs. One representative well (RMW-323) was recently added and measured during Spring 2025. Since no historical water level measurements are available for this well, SMCs were not established. SSJMUD GSA will continue collecting water level measurements and will establish SMCs, consistent with the Subbasin methodology, when five representative water level measurements are obtained.

SSJMUD 59 (RMW-161) was removed as an RMW-WL between Fall 2024 and Spring 2025 because the monitoring port is no longer accessible due to pump replacement. SSJMUD 59 was replaced with a nearby well labeled SSJMUD 67 (RMW-161R).

c) Assessment of Potential Impacts to Beneficial Users

SSJMUD is not aware of any wells that were negatively impacted by groundwater management activities. There were no applications submitted for dry wells within the SSJMUD GSA during WY 2025.

2) Compliance with Additional Sustainable Management Criteria

The relationship between groundwater levels, quality, and subsidence are monitored across the Subbasin, as described in Section 7 Current Conditions of Sustainability Indicators. As previously described, most groundwater levels were observed at elevations higher than the measurable objective during WY 2025. Seasonal water quality and subsidence data are being collected to evaluate the relationship between sustainability indicators.

a) Water Quality

The 2025 GSP established SMCs for six constituents of concern. Consistent with the Subbasin's Water Quality Sampling SOP, the GSA's six wells designated as RMW-WQ sites were sampled in the Fall 2025 monitoring event. Historical data and Fall 2025 monitoring results are available to the public via the Kern DMS. Water quality data will be used to evaluate the relationship between groundwater levels and water quality, represented by the six constituents of concern designated in the GSP.

SSJMUD is working on adding one additional RMW-WQ to address a data gap identified by the monitoring network analysis in the 2025 GSP. A well previously used in a USGS domestic well monitoring program meets all criteria to fill the data gap. The GSA is working with the landowner to secure a long-term access agreement.

b) Subsidence

The revised 2025 GSP established SMCs for the Lower reach of the Friant Kern Canal at 31 mileposts. For the nine mileposts along the Poso Creek pool, the MT rate ranges from -0.02 feet per year to -0.06 feet per year, the MT extent for 2024-2040 ranges from 0.39 feet to 0.93 feet, and the IM extent for 2024-2030 ranges from 0.11 to 0.26 feet. Based on InSAR data from the DWR's California Groundwater Live Website, total subsidence from January 1, 2024, through Water Year 2025 at the Poso Creek mileposts were measured as less than 0.06 feet and therefore

vertical displacement was less than both the MT extent and IM extent. Vertical displacement rates were greatest in Fourth Quarter 2024 but reduced over First Quarter 2025 through Third Quarter 2025. Over Water Year 2025, milepost 128.77 had a displacement rate that exceeded the MT rate by 0.01 feet. This MT rate exceedance is within the reported accuracy of InSAR and milepost 128.77 is placed on a "Watch List"; all other mileposts had displacement rates less than the MT rates. There were no reported subsidence related infrastructure damages in Water Year 2025 and there are no undesirable results based on the criteria defined in the revised 2025 GSP.

c) Interconnected Surface Water

Subbasin-wide analysis determined that the vast majority of surface water features in the Kern Subbasin are not connected to groundwater. Subsequently, the SSJMUD GSA is not independently taking any actions specific to the sustainability indicator.

3) Implementation of Projects and Management Actions (PMAs)

SSJMUD GSA was assigned 26,070 AFY of the Subbasin's deficit reduction target in the 2025 GSP. The anticipated P/MA implementation schedule is forecasted to exceed the target deficit reduction as early as 2035. To date, 1,239 acres of irrigated land has been retired, reducing demand by 2,494 AFY. In WY 2025, SSJMUD added 1,890 AF to the groundwater basin through its spreading grounds. The status of planned projects through WY 2025 is summarized by the following:

SSJMUD-1. Exercise Existing Water Rights. As a Friant Water contractor, SSJMUD will maximize its existing water rights by fully utilizing its water right. P/MAs SSJMUD 3 through 14 are focused on building in-district facilities to accomplish this goal. Implemented in WY2020.

SSJMUD-2. Subbasin Banking Partnership. Partners with a neighboring, in-basin water district to bank up to 15,000 AFY in existing banking facilities when excess surface water supplies are available; return capacity is up to 5,000 AFY. Implemented in 2018.

SSJMUD-3. Pandol Spreading Grounds. Acquisition and retirement of 50 acres of irrigated lands and development of 50 acres of new recharge ponds. Implemented in WY2020.

SSJMUD-4. City of Delano Spreading Grounds. Acquisition and retirement of 40 acres of irrigated lands and development of 40 acres of new recharge ponds. Implemented in WY2020.

SSJMUD-5. Sebastian Lake North Spreading Grounds. Acquisition and retirement of 33 acres of irrigated lands and development of 27 acres of new recharge ponds. Implemented in 2024.

SSJMUD 6. Giumarra Spreading Grounds. Acquisition and retirement of 79 acres of irrigated lands and development of 79 acres of new recharge ponds. Implemented in WY2024.

SSJMUD 7. Regan Spreading Grounds. Acquisition and retirement of 75 acres of irrigated lands and development of 75 acres of new recharge ponds. Implemented in WY2023.

SSJMUD 8. Giumarra Additional Spreading Grounds. In discussion with the landowner to acquire and retire 80 acres of irrigated lands that will be developed into 80 acres of new recharge ponds will be part of a future design, environmental process and funding application. Land purchase is expected in 2027.

SSJMUD 9. Urban Land Conversions. Land use conversions from irrigated agricultural to urban is treated as a demand reduction project based on an average crop ET of 2.72 AF/ac, minus total urban demand of 1.0 AF/ac, resulting in 1.72 AF/ac reduced demand. Within SSJMUD GSA no land was converted from agricultural to urban use in WY 2025.

SSJMUD 10. Caratan Spreading Grounds. Acquisition and retirement of 160-acre site of irrigated land. Development of 160 acres of new recharge ponds is in final design, was awarded funding, and will complete construction in 2026.

SSJMUD 11a. Bowman Spreading Grounds Phase 1. Acquisition and retirement of 39 acres of irrigated land. The project is undergoing CEQA review and conceptual design. Construction is anticipated to start in late 2027.

SSJMUD 11b. Bowman Spreading Grounds Phase 2. Acquisition and retirement of 156 acres of irrigated land. The project is undergoing CEQA review and conceptual design. Project implementation is pending funding.

SSJMUD 11c. Woollomes Ave Spreading Grounds. Acquisition and retirement of 312 acres of irrigated land. Grant funding was awarded; this project is undergoing CEQA review and preliminary design. Construction is anticipated to start in 2027.

SSJMUD 11d. Wallace Road Spreading Grounds. Acquisition and retirement of 187-acres of irrigated lands. Property will remain fallowed and will be used for spreading when surplus water is available but will not be developed into recharge basins.

SSJMUD 12. White Land Demand Reduction. Non-districted lands (white lands) covered by SSJMUD GSA do not have access to surface water supplies. Consequently, their water imbalance must be corrected by setting water budgets consistent with native yield and a linear reduction that corrects overdraft by 2040.

SSJMUD 13. Land Acquisition and Retirement. If needed, SSJMUD will purchase land and permanently retire it to achieve its target demand reduction. Based on current results of Project SSJMUD-1 and SSJMUD-2, permanent land retirements are not anticipated to be necessary.

SSJMUD 14. Landowner Surface/Subsurface Recharge Program. A voluntary landowner program that encourages use of existing landowner agricultural lands that are cropped for a portion of the year and seasonally remain fallow provides opportunity for on-farm recharge projects.

SSJMUD 15. Sebastian Lake South Spreading Grounds. Acquisition and retirement of 52 acres of irrigated lands and development of 52 acres of new recharge ponds. Implemented in WY2024.

4) Coordination with Stakeholders

In addition to Subbasin-wide outreach and engagement activities, SSJMUD routinely communicates GSA-specific information its landowners, stakeholders, and other interested parties via:

- Monthly district board meetings.
- GSA meetings with cities of Delano and McFarland.

5) Summary of Other GSP-related Special Studies or Activities

No special studies are being conducted exclusively in the GSA. However, SSMUD is actively participating in the Subbasin-wide activities in Section 9, Progress on Subbasin-wide coordination on GSP Implementation.

Tejon-Castac Water District GSA

1) Compliance with Groundwater Levels Sustainable Management Criteria (SMC)

Progress towards compliance with groundwater levels SMC in the Tejon-Castaic Water District (TCWD) GSA area during WY 2025 is summarized as follows:

a) Compliance with SMC

Groundwater levels for both Fall 2024 and Spring 2025 were above the established Minimum Threshold (MT) and below the established Measurable Objective (MO).

b) SMC Monitoring Activities

Consistent with the Subbasin's Groundwater Level Sampling SOP, water level measurements were collected from the one designated RMW-WLs in Fall 2024 (11/15/2024) and in Spring 2025 (3/12/2025).

c) Assessment of Potential Impacts to Beneficial Users

There were no mitigation applications submitted for dry wells within the TCWD GSA during WY 2025.

2) Compliance with Additional Sustainable Management Criteria

The relationship between groundwater levels, quality, and subsidence are monitored across the Subbasin, as described in Section 7 Current Conditions of Sustainability Indicators. During WY 2025, no MT Exceedances occurred within the TCWD GSA Area.

a) Water Quality

The 2025 GSP established SMCs for six constituents of concern. Consistent with the Subbasin's Water Quality Sampling SOP, samples were not collected from the GSA's one designated RMW-WQ. The designated representative well was not operating during the seasonal monitoring

period(s) in WY 2025 due to operational issues, whereby the power panel was burned out. TCWD GSA is actively coordinating with the well owner, who expects the power panel to be replaced by late 2025.

b) Subsidence

WY 2025 Subbasin-wide conditions and progress for subsidence is provided in Section 7, Current Conditions for Sustainability Indicators and Section 9, Progress on Subbasin-Wide Coordination. No specific TCWD GSA activities other than coordination with Subbasin-wide activities occurred in WY 2025.

c) Interconnected Surface Water

Subbasin-wide analysis determined that the vast majority of surface water features in the Kern Subbasin are not connected to groundwater. Subsequently, the TCWD GSA is not independently taking any actions specific to the sustainability indicator.

3) Implementation of Projects and Management Actions (PMAs)

With respect to its planned Projects and Management Actions (P/MAs), TCWD GSA took the following steps in Water Year 2025:

Conversion of Granite Quarry to Sycamore Reservoir: In WY 2025, TCWD continued to participate in discussions with Arvin-Edison Water Storage District (AEWSD) and others about this P/MA regarding the permitting process and next steps for environmental work. The Granite Quarry facility has ceased operation, and is now in the reclamation process, after which implementation of this P/MA will begin.

Recharge of Carrot Wash Water: In Water Year 2025, the Arvin facility did not operate; therefore, no wastewater was discharged and this P/MA did not recharge any carrot wash water.

Tejon Ranch Conservation & Land Use Agreement and Ranch Wide Management Plan (RWMP): The TCWD GSA area is almost entirely covered by and managed under the Tejon Ranch Conservation & Land Use Agreement and associated RWMP, which includes land use policies and restrictions on groundwater extraction.

4) Coordination with Stakeholders

In addition to Subbasin-wide outreach and engagement activities, TCWD GSA has continued to coordinate with interested stakeholders by holding regular meetings of the TCWD Board of Directors which are open to the public. Such meetings were held seven times in WY 2025.

Additionally, TCWD GSA has conducted stakeholder engagement through its participation in the South of Kern River (SOKR) Executive Committee meetings. Executive Committee meetings are held monthly and are open to the public. Ten meetings were held in WY 2025 and focused primarily on updating the public on the Subbasin's ongoing coordinated response to the State Water Resources Control Board (SWRCB) probationary hearing process, and associated refinements to the Kern County Subbasin GSP.

Representatives of TCWD have also attended intra-basin meetings with members of the other GSAs in the Kern County Subbasin for purposes of SGMA implementation and coordination.

5) Summary of Other GSP-related Special Studies or Activities

No special studies are being conducted exclusively in the GSA. However, TCWD GSA is actively participating in the Subbasin-wide activities in Section 9, Progress on Subbasin-wide coordination on GSP Implementation.

West Kern Water District GSA

1) Compliance with Groundwater Levels Sustainable Management Criteria (SMC)

Progress towards compliance with sustainable management criteria in the West Kern Water District (WKWD) Management Area during WY 2025 is summarized as follows:

a) Compliance with SMC

Groundwater elevations were measured below (exceeded) their minimum thresholds at zero of the five RMW-WLs within the WKWD GSA during the Fall 2024 monitoring event. No RMW-WLs were between the minimum threshold and measurable objective, and all of the

remaining five RMW-WLs were measured above their measurable objectives.

Groundwater elevations were measured below (exceeded) their minimum thresholds at zero of the five RMW-WLs within the WKWD GSA during the Spring 2024 monitoring event. No RMW-WLs were measured between the minimum threshold and measurable objective, and all of the remaining five RMW-WLs were measured above their measurable objectives.

b) SMC Monitoring Activities

Consistent with the Subbasin's Groundwater Level Sampling SOP, water level measurements were collected from five of the GSA's designated five RMW-WLs in Fall 2024 and from five of the GSA's designated five RMW-WLs in Spring 2025.

c) Assessment of Potential Impacts to Beneficial Users

There were no mitigation applications submitted for dry wells within the WKWD GSA during WY 2025.

2) Compliance with Additional Sustainable Management Criteria

The relationship between groundwater levels, quality, and subsidence are monitored across the Subbasin, as described in Section 7 Current Conditions of Sustainability Indicators. During WY 2025, no MT Exceedances occurred within the WKWD GSA.

a) Water Quality

The 2024 GSP established SMCs for six constituents of concern. Consistent with the Subbasin's Water Quality Sampling SOP, samples were collected from the GSA's designated one RMW-WQ. WY 2025 sample results indicate groundwater quality is not degrading the WKWD GSA.

b) Subsidence

WY 2025 Subbasin-wide conditions and progress for subsidence is provided in Section 7, Current Conditions for Sustainability Indicators and Section 9, Progress on Subbasin-Wide

Coordination. No specific GSA activities other than coordination with Subbasin-wide activities occurred in WY 2025.

The CA Aqueduct is regional critical infrastructure that passes near or through portions of

the WKWD GSA as measured by milepost (MP) 220.27 to 259. Based on the California Aqueduct Subsidence Program (CASP) annual survey conducted in early 2025, none of the mileposts within or adjacent to the WKWD GSA MPs had interim milestone rate and minimum threshold rate exceedances. The GSA compared the CASP survey results to InSAR data and found that none of the MP had interim milestone rate and minimum threshold rate exceedances based on InSAR data.

c) Interconnected Surface Water

Subbasin-wide analysis determined that the vast majority of surface water features in the Kern Subbasin are not connected to groundwater. Subsequently, the WKWD GSA is not independently taking any actions specific to the sustainability indicator.

3) Implementation of Projects and Management Actions (PMAs)

Several projects and management actions were identified in the WKWD Chapter GSP that will help achieve sustainability goals for the portion of the Kern Subbasin that lies within the WKWD GSA's boundaries. The following subsection briefly describes projects and their implementation status as well as the status of management actions.

Automatic Meter Reading (AMR) Project: WKWD began installing AMR systems for all industrial and outlying customers in 2015. The annual AMR conversion rate is shown below:

Year	AMR Systems Installed
2015	233
2016	231
2017	161
2018	641
2019	839
2020	434
2021	274
2023	1,112 (project completed)

From 2015 through 2023, WKWD installed 7,326 AMR devises on residential and industrial service connections, which represents about 99 percent of WKWD's active meter connections.

The AMR System installation project was completed during 2023 with the installation of the remaining meters as part of this program. This project was initiated prior to the development of the Chapter GSP but directly supports the groundwater management goals of the WKWD GSA and was incorporated into the implementation plan.

Participation in Delta Conveyance Facility: The Delta Conveyance Facility (DCF) is intended to address the challenges of pumping water from the Delta by diverting water upstream of the current diversion points and conveying it to existing pump stations for the SWP and the Central Valley Project (CVP). Under current operation, the SWP and CVP are unable to consistently deliver State and federal water contractors their full contract supplies. The Delta Conveyance Facility is intended to address some of the conditions that limit the ability to export water from the Delta.

WKWD will participate in the DCF to increase water supply reliability for its customers. While the exact increase in water supply from the DCF remains uncertain until final design, approvals, and agreements are in place, WKWD anticipates that any water supply benefits from the projects would be allocated in proportion to its level of participation.

The timing and circumstance of implementation of this project is beyond the control of the GSA, because the DCF would be implemented by the State. The U.S. Army Corps of Engineers (USACE) issued a Notice of Intent in August 2020 for the development of an Environmental Impact Report (EIR) and a preliminary cost assessment has been prepared by the Delta Conveyance Design and Construction Authority. In October 2020, the WKWD Board agreed to fund its portion of the planning and environmental review cost for the DCF. The draft EIR for

the DFC was released for public review on July 27, 2022. The comment period ended December 16, 2022. The Final EIR for the project was certified by DWR in December 2023.

Buena Vista Aquatic Recreation Area (BVARA) Water Supply Management Coordination: The BVARA boundary is in and adjacent to the WKWD GSA area. The 1,585-acre BVARA is home to two manmade lakes, Lake Webb and Lake Evans, boating facilities, playgrounds and volleyball courts, camp sites, and picnic areas. The lakes lie outside of the GSA area but the park facilities such as picnic areas, restrooms, and parking areas are within the GSA area.

Kern County has a contractual obligation to replenish the lake losses and maintain a "minimum pool" elevation to support BVWSD deliveries to its Maples Service area. With only minor diversions for agricultural use, most water from the lakes evaporates with little percolating into the groundwater basin. Kern County pumps groundwater from wells located within the GSA area to supplement losses at the lakes. Supplemental water delivered to the lakes is included in Subbasin's water balance. In 2020, WKWD GSA began measuring depth to water in wells at BVARA.

Due to uncertainty regarding BVARA water demands and groundwater conditions near the extraction wells at BVARA, this project requires ongoing coordination between the GSA and Kern County to understand BVARA's water management needs and related impacts to the GSA area and Subbasin. WKWD GSA has begun coordination with local stakeholders adjacent to BVARA including Henry Miller WD, Buena Vista WD, KGA, Kern Water Bank Authority, and Kern County to develop an approach for improved management of this area of the Subbasin. Coordination efforts between the WKWD GSA, Kern County, and surrounding local stakeholders will continue into 2025.

Continued Balanced Pumping and Recharge Management Action: Continued balanced pumping and recharge of imported supplies has and will continue to be the operational standard for WKWD. Under this management action, recharge and recovery activity has and will continue to be monitored closely by WKWD to maintain balanced conditions.

Implement Water Shortage Response Plan (WSRP) Management Action: An updated WSRP is incorporated into the WKWD Urban Water Management Plan (UWMP) 2020 Update and Revised 2023 version. The WSRP establishes six levels of response actions to be implemented in times of shortage (Response Level 1 through Response Level 6), with increasing restrictions on water use in response to worsening drought conditions and decreasing available supplies. The policy establishes progressive response levels including regulations to be implemented during times of declared water shortages in order to attain escalating conservation goals. At this time, WKWD has implemented Response Level 1 in response to the Governor's Drought Emergency Order.

Continued Participation in Basin-Wide Coordination Management Action: The WKWD GSA is one of twenty GSAs in the Kern Subbasin. Coordination among these GSAs is necessary for sustainable management of the Subbasin as a whole and has been ongoing during development of the revised GSPs. Coordination during GSP development has included regular in-person meetings and calls to discuss sustainability thresholds, potential projects and management actions, plus specific issues and concerns. This management action involves attending GSA manager meetings and coordination meetings which are held monthly, and KGA stakeholder meetings which are held as needed. These meetings, and participation in them, will continue into 2026.

File for Basin Boundary Modification for LSMV Management Action: Basin boundaries define the geographic area included in each groundwater basin. Under SGMA, a process was provided for local agencies to request that DWR revise the boundaries of groundwater basins or subbasins to assist with local governance and control. Requests for modifications can be submitted for either scientific or jurisdictional reasons. Scientific modifications are based on geologic or hydrologic conditions while jurisdictional modifications change boundaries to promote sustainable groundwater management. WKWD GSA will coordinate with local LSMV stakeholders, KGA staff and DWR to determine whether pursuing a basin boundary modification request in 2026 is warranted.

Continued Monitoring and Sustainable Management of LSMV as Part of WKWD Chapter GSP Management Action: As discussed above, water elevation is currently being recorded bi-annually for 20 monitoring wells within the LSMV. This data is reported to the WKWD GSA and will be provided in annual reports for informational purposes.

4) Coordination with Stakeholders

In addition to Subbasin-wide outreach and engagement activities, the WKWD GSA routinely communicates GSA-specific information its landowners, stakeholders, and other interested parties via:

- Monthly district board meetings that occurred on:
- 10/22/2024
- 11/19/2024
- 12/12/2024
- 12/17/2025
- 1/28/2025
- 2/25/2025
- 3/25/2025
- 4/22/2025
- 5/27/2025
- 6/24/2025
- 7/22/2025
- 8/26/2025
- 9/23/2025

5) Summary of Other GSP-related Special Studies or Activities

No special studies are being conducted exclusively in the GSA. However, the WKWD GSA is actively participating in the Subbasin-wide activities in Section 9, Progress on Subbasin-wide coordination on GSP Implementation.

Westside District Water Authority GSA

WDWA GSA's compliance with sustainable management criteria, progress report on the implementation of projects and management actions, and coordination with stakeholders for WY 2025 is summarized below.

1) Compliance with Groundwater Levels Sustainable Management Criteria (SMC)

Progress towards compliance with groundwater level and groundwater storage sustainable management criteria in the Westside District Water Authority (WDWA) GSA during WY 2025 is summarized as follows:

a) Compliance with SMC

Groundwater elevations were measured below (exceeded) their minimum thresholds at zero of the four RMW-WLs within the WDWA GSA during the Fall 2024 monitoring event. One RMW-WL was between the minimum threshold and measurable objective, and the remaining three RMW-WLs were measured above their measurable objectives.

Groundwater elevations were measured below (exceeded) their minimum thresholds at zero of the four RMW-WLs within the WDWA GSA during the Spring 2025 monitoring event. One RMW-WL were measured between the minimum threshold and measurable objective, and the remaining three RMW-WLs were measured above their measurable objectives.

b) SMC Monitoring Activities

Consistent with the Subbasin's Groundwater Level Sampling SOP, water level measurements were collected from four of the GSA's designated four RMW-WLs in Fall 2024 and from four of the GSA's designated four RMW-WLs in Spring 2025.

c) Assessment of Potential Impacts to Beneficial Users

There were no mitigation applications submitted for dry wells within the WDWA GSA during WY 2025.

2) Compliance with Additional Sustainable Management Criteria

The relationship between groundwater levels, quality, and subsidence are monitored across the Subbasin, as described in Section 7 Current Conditions of Sustainability Indicators. During WY 2025, no MT Exceedances occurred within the WDWA GSA due to GSA-related activities.

a) Water Quality

The GSP established SMCs for six constituents of concern. Consistent with the Subbasin's Water Quality Sampling SOP, representative samples were not collected from the GSA's designated two RMW-WQs as the RMW-WQs were not operating during the seasonal monitoring period(s) in WY 2025 due to lack of demand for groundwater. In WY 2026, WDWA GSA will collect and report water quality results at identified RMW-WQs following the Subbasin's Water Quality Sampling SOP.

b) Subsidence

WY 2025 Subbasin-wide conditions and progress for subsidence are provided in Section 7, Current Conditions for Sustainability Indicators and Section 9, Progress on Subbasin-Wide Coordination. GSA activities beyond the coordinated Subbasin-wide activities included the following:

The CA Aqueduct is a regional critical infrastructure that passes through portions of the WDWA GSA as measured by milepost (MP) 189 to 218. Based on the California Aqueduct Subsidence Program (CASP) annual survey conducted in early 2025, MPs 195-211 and 213 within WDWA GSA had interim milestone rate and minimum threshold rate exceedances. Past data and analyses indicate not all of the subsidence along the

California Aqueduct has been attributable to GSA-related causes. In response to the exceedances, the GSA initiated an exceedance investigation. WDWA GSA will continue to implement the following protective P/MAs: a mandatory GSA-wide well registration, a net-zero well drilling moratorium within the CA Aqueduct 2.5 Monitoring Corridor, volumetric reporting via flowmeter within the CA Aqueduct 2.5-mile Monitoring Corridor, and a groundwater pumping moratorium between MPs 195-215 within the CA Aqueduct 2.5-mile Monitoring Corridor. See Section 3: Implementation of Projects and Management Actions below for additional implementation details.

c) Interconnected Surface Water

Subbasin-wide analysis determined that the vast majority of surface water features in the Kern Subbasin are not connected to groundwater. Subsequently, the WDWA GSA is not independently taking any actions specific to the sustainability indicator.

3) Implementation of Projects and Management Actions (PMAs)

In WY 2025, WDWA GSA has been actively engaged in assessing and moving forward with the nine Management Actions described in its GSP that fall under three categories: (1) water supply augmentation, (2) data-gap filling and mitigation efforts, and (3) demand reduction.

Water Supply Augmentation P/MAs

Management Action #1: Long-Term Supplemental Water Programs

Due to the brackish and naturally degraded quality of groundwater in the WDWA GSA, growers have historically relied almost exclusively on surface water from the State Water Project (SWP) for their irrigation needs. Even prior to the passage of SGMA, WDWA GSA landowners could not rely upon groundwater supplies to weather surface water supply shortages due to poor groundwater quality. Therefore, WDWA GSA JPA member districts have made, and continue to make, significant investments in supplemental surface water acquisition and banking programs to diversify their water supply portfolio. WDWA GSA, via its JPA member districts, has successfully purchased over 1.6 million acre-feet from State Water Contractors (SWCs), Central Valley Project Contractors, pre-1914 water rights holders, and the SWP Dry-Year program from WY 2015 to WY 2025. Several WDWA GSA landowners also have independent supplemental surface water acquisition programs. However, to be conservative in calculating available supplemental supplies, the volumes acquired from these independent landowner programs are not included in this P/MA. Several of these purchases are long-term agreements valid through 2030, with first right of refusal for renewal. In wet years, WDWA GSA JPA member districts have the ability to purchase bank surplus surface water supplies within the Pioneer Project and Berrenda Mesa Spreading Grounds for later recovery in dry years.

Management Action #2: Conjunctive Reuse of Naturally Degraded Brackish Groundwater

WDWA GSA is evaluating the feasibility of an innovative, phased project that will integrate the treatment and conjunctive use of brackish groundwater and oil field produced water for multiple beneficial uses including, among other things:

- A new water supply for adjacent and nearby disadvantaged communities (DACs) in order to improve water reliability and drought resiliency.
- A reliable supplemental source of water that, together with the Aqueduct supplies, can be used for irrigation and other uses.
- Provide for potential environmental flows to the adjacent Kern National Wildlife Refuge; and,
- Protect groundwater quality adjacent to the WDWA GSA and reduce potential changes to groundwater storage by reducing the volume of naturally degraded groundwater migrating north and east.

- To date, a Phase I engineering feasibility study has been completed. The next steps include negotiations with project partners, identifying funding options, and development of a Front-End Engineering Design (FEED) study. If all project phases are complete, the project would provide approximately 50,000 acre-feet/year of treated water derived from non-conventional resources.

Management Action #3: Delta Conveyance Project

Through WY 2025, WDWA GSA's member districts participated in the funding of the Delta Conveyance Project via payments made by member units of the Kern County Water Agency. While future benefits from this in-process project are anticipated, benefits are not currently included or relied upon to maintain groundwater sustainability within WDWA GSA.

Data-Gap Filling and Mitigation Efforts

Management Action #4: Net Zero Well Drilling Moratorium within Close Proximity to Critical Infrastructure

To further refine the current understanding of the causes of subsidence along the California Aqueduct MP 195 - MP 215, fill data gaps, and address previous comments made by CASP, WDWA GSA implemented a net-zero well drilling moratorium within the CASP 5-mile-wide California Aqueduct Monitoring Corridor from MP 195 - MP 215. The moratorium went into effect on February 20, 2024, and remains in effect through WY 2025. WDWA GSA staff routinely compare the WDWA GSA well inventory with new well permits submitted to the Kern County Health Environmental Services (KCHES) Department to ensure compliance with the moratorium. No well permits were submitted to KCHES in WY 2025 within the California Aqueduct Monitoring Corridor and no enforcement action was required in WY 2025.

Management Action #5: Mandatory Well Registration

To further supplement the Kern County Subbasin Well Registry management action, WDWA GSA has implemented a mandatory well registration program that requires all currently existing and future groundwater extraction wells drilled within WDWA GSA to register with the GSA. Furthermore, WDWA GSA requires all new wells to have a flowmeter installed, and to allow the GSA to use the well for monitoring if it is located in an identified data gap area. This action went into effect in February 2024, and all wells were required to be registered by September 24, 2024. Information required from well-owners included status (active, standby, abandoned, etc.), location (latitude, longitude, and APN), and type (domestic, irrigation, etc.). In addition, WDWA GSA requested, where available, well construction reports and water quality data. To date, WDWA GSA has had 99 wells registered with the GSA by landowners.

Management Action #6: Well Extraction Volume Reporting Within Close Proximity to Critical Infrastructure

To build concurrence and further refine the current understanding of the causes of subsidence along the California Aqueduct MP 195 - 215, fill data gaps, and address previous comments made by CASP, all well owners within the CASP Aqueduct Monitoring Corridor are required to report annual groundwater extraction volumes (as measured by flowmeter) to the GSA. This management action was developed utilizing stakeholder input gathered over five direct meetings with impacted stakeholders, including CASP, and two public WDWA GSA board meetings. This management action was adopted in February 2024, revised in April 2024, and further revised in March 2025. Its initial adoption occurred prior to the WDWA-9 Groundwater Extraction Moratorium within Close Proximity to Critical Infrastructure Management Action and will be used as an enforcement mechanism of WDWA-9. In WY 2025, baseline data from 2024 were collected from

landowners, with a total of 184 AF having been extracted from the monitoring corridor. In addition, all landowners with registered wells within the monitoring corridor submitted photos verifying the presence of flowmeters on the wells.

Management Action #7: CASP Collaboration and Data Sharing Agreement

In WY 2025, WDWA GSA continued to engage directly with CASP via e-mail, in-person meetings, and teleconference meetings to exchange information and receive feedback on GSP development efforts. In WY 2026, WDWA GSA will participate in the recurring quarterly Kern County Subbasin - CASP coordination calls and engage in data-sharing efforts regarding subsidence monitoring and groundwater levels.

Management Action #9: Groundwater Extraction Moratorium in the CASP Monitoring Corridor

WDWA GSA has implemented a groundwater extraction moratorium for all water supply wells in the CASP 5-mile-wide Monitoring Zone between Aqueduct MP 195 - MP 215. The purpose of this P/MA is to further ameliorate the potential for GSA-related activities to contribute to the Aqueduct subsidence identified adjacent to the Lost Hills Oilfield (LHOF) between MP 195 - 215. This management action was developed utilizing stakeholder input gathered over three direct meetings with impacted stakeholders, including CASP, and three public WDWA GSA board meetings. This management action was adopted on November 5, 2024, and the moratorium went into effect on December 9, 2024. On May 6, 2025, the WDWA GSA Board of Directors took action to renew the groundwater extraction moratorium for an additional six months. No enforcement actions needed to be taken in WY25 regarding this management action.

Demand Reduction P/MAs

WDWA GSA does not have a groundwater deficit and is not currently required to implement demand reduction P/MAs. However, in the unlikely event that conditions change, WDWA GSA has previously implemented and is prepared in the future, to implement a voluntary land fallowing demand reduction program.

Management Action #8: As-Needed Land Fallowing

WDWA GSA has no further demand reduction projected under the 2030 Climate Change Scenario; thus, no additional demand reduction is required to be implemented. However, WDWA GSA has identified land fallowing as an "as-needed" P/MA. Historically, WDWA GSA landowners have fallowed acreage if irrigation demand exceeds surface water supply. While WDWA GSA does not mandate land fallowing in dry years, economic viability of surface water costs and impacts to crop health due to poor groundwater quality act as natural enforcement mechanisms against groundwater overdraft. Landowners are empowered to make strategic fallowing decisions via WDWA GSA's member districts' use of Latis Software.

4) Coordination with Stakeholders

In addition to the significant number of Subbasin-wide outreach events, stakeholder engagement activities WDWA GSA completed during WY 2025 are summarized below: WDWA GSA met formally with CASP staff four times to discuss subsidence along the CA Aqueduct and maintained frequent informal contact via email and phone throughout the year. WDWA GSA met twice with the General Manager of Lost Hills Utility District to discuss general SGMA issues and maintained informal email and phone correspondence throughout WY 2025. WDWA GSA met with Clean Water Action to discuss environmental justice concerns in the community of Lost Hills. To improve the Subbasin's well inventory, WDWA GSA conducted one-on-one phone calls/field visits with landowners. WDWA GSA holds regularly scheduled Board meetings on the first Wednesday of each month at 9 AM that are open and accessible to stakeholders and other interested parties. Board meeting agendas are posted on WDWA GSA's public website (www.westsidedwa.org) and an interested stakeholders list is maintained. WDWA GSA provided informational updates at Westside Water Authority, Belridge Water Storage District, Berrenda Mesa Water District, and Lost Hills

Water District public board meetings, as requested by each district. The contact information for WDWA GSA's Regulatory Staff is available on WDWA GSA's public website for any interested stakeholder requesting additional information.

In addition to the significant number of Subbasin-wide outreach events, stakeholder engagement activities WDWA GSA completed during WY 2025 are summarized below:

- WDWA GSA met formally with CASP staff four times to discuss subsidence along the CA Aqueduct and maintained frequent informal contact via email and phone throughout the year.
- WDWA GSA met twice with the General Manager of Lost Hills Utility District to discuss general SGMA issues and maintained informal email and phone correspondence throughout WY 2025.
- WDWA GSA met with Clean Water Action to discuss environmental justice concerns in the community of Lost Hills.
- To improve the Subbasin's well inventory, WDWA GSA conducted one-on-one phone calls/field visits with landowners.
- WDWA GSA holds regularly scheduled Board meetings on the first Wednesday of each month at 9 AM that are open and accessible to stakeholders and other interested parties. Board meeting agendas are posted on WDWA GSA's public website (www.westsidedwa.org) and an interested stakeholders list is maintained.
- WDWA GSA provided informational updates at Westside Water Authority, Belridge Water Storage District, Berrenda Mesa Water District, and Lost Hills Water District public board meetings, as requested by each district.
- The contact information for WDWA GSA's Regulatory Staff is available on WDWA GSA's public website for any interested stakeholder requesting additional information.

5) Summary of Other GSP-related Special Studies or Activities

No special studies are being conducted exclusively in the GSA, other than the subsidence exceedance investigation previously discussed. However, WDWA GSA is actively participating in the Subbasin-wide activities in Section 9, Progress on Subbasin-wide coordination on GSP Implementation.

Wheeler Ridge-Maricopa GSA

The following narrative serves to summarize progress made by the Wheeler Ridge-Maricopa Water Storage District GSA (WRMGSA) toward compliance with sustainable management criteria during Water Year (WY) 2025.

1) Compliance with Groundwater Levels Sustainable Management Criteria (SMC)

The following narrative serves to summarize progress made by the Wheeler Ridge-Maricopa Water Storage District GSA (WRMGSA) toward compliance with sustainable management criteria during Water Year (WY) 2025.

a) Compliance with SMC

In the Fall 2024 monitoring event, the groundwater elevation in one well (RMW-232) (out of 14 designated RMW-WL wells) was observed to be below (or in other words, exceeding) its minimum threshold value. Further, groundwater levels dipped below measurable objectives in five out of 14 designated RMW-WLs while still remaining above minimum thresholds levels. The remaining eight RMW-WLs were all observed to be above their measurable objectives, consistent with past trends.

By the Spring 2025 monitoring event, however, none of the designated RMW-WLs within the WRMGSA was observed to be below (or in other words, exceeding) its minimum threshold level. And further, groundwater levels in only two out of the 14 designated RMW-WLs within the WRMGSA were found to be between their minimum threshold and measurable objective. The remaining 12 RMW-WLs were all observed to be above their measurable objectives.

b) SMC Monitoring Activities

Consistent with the Subbasin's Groundwater Level Sampling SOP, water level measurements were collected from all 14 of the GSA's 14 designated RMW-WLs in both Fall 2024 and Spring 2025.

c) Assessment of Potential Impacts to Beneficial Users

There were no mitigation applications submitted for dry wells within the WRMGSA during WY 2025.

2) Compliance with Additional Sustainable Management Criteria

The relationship between groundwater levels, water quality, and subsidence was monitored across the Subbasin, as described in Section 7, Current Conditions of Sustainability Indicators. As further described below, two different measurement methods were used to assess subsidence during WY 2025. CASP's benchmark surveys suggested that up to three exceedances of interim milestone and minimum threshold subsidence rates could have occurred in WY 2025, while the available InSAR surveys suggested that no exceedances occurred. The GSA will continue to report and investigate exceedances consistent with the Subbasin framework outlined in the Standard Operating Procedures.

a) Water Quality

The 2024 GSP established SMCs for six constituents of concern, proposing that sample results from the first five years would be used to establish baseline conditions. Consistent with the Subbasin's Water Quality Sampling SOP, during June and July 2025, water samples were collected from three of the four GSA's designated RMW-WQ wells. No sample could be collected from the remaining designated monitoring well, because the well was idle in WY 2025 and no bailer could be inserted past the pump equipment.

b) Subsidence

A discussion of WY 2025 Subbasin-wide subsidence conditions and progress toward sustainability is provided in Section 7, Current Conditions for Sustainability Indicators as well as Section 9, Progress on Subbasin-Wide

Coordination. During WY 2025, the Wheeler Ridge-Maricopa GSA worked in coordination with the Subbasin-wide effort to study and curb subsidence and did not attempt any independent activities related to subsidence.

The CA Aqueduct is regional critical infrastructure that passes through portions of the WRMGSA as measured by milepost (MP) 254.5 to 278.5. The California Aqueduct Subsidence Program's (CASP's) annual benchmark survey conducted in early 2025 suggested that MPs 262, 263 and 276 had both interim milestone rate and minimum threshold rate exceedances. As of this writing, however, it is understood that the apparent exceedances observed at MPs 262 and 276 (i.e., between 0.03ft - 0.07ft) were within the accuracy of the benchmark surveys, and therefore it may not be possible to know whether an MT exceedance actually occurred. The GSA compared the CASP survey results to the available InSAR dataset for the same period and found that based on the InSAR data, MPs 262, 263 and 276 had subsided at a rate that was less than the interim milestone and minimum threshold rates. Therefore, consistent with the Subbasin approach to rely on the InSAR data, the GSA will continue to monitor and report but will not initiate an investigation at these MPs.

Additionally, land subsidence rates based on InSAR data were checked quarterly over the Water Year (October 2024 through September 2025, or 4th Qtr. 2024 through 3rd Qtr. 2025). No MPs had two consecutive quarterly IM or MT rate exceedances that were more than the InSAR measurement accuracy (i.e., greater than 0.046 ft).

Many peer-reviewed studies have indicated that some of the subsidence along the California Aqueduct can be attributable to non-GSA-related causes.

c) Interconnected Surface Water

Subbasin-wide analysis determined that the vast majority of surface water features in the Kern Subbasin are not connected to groundwater. Subsequently, the WRMGSA is not independently taking any actions specific to the sustainability indicator. Interconnected Surface Water is not present within the WRMGSA and is not anticipated to be present in the future. Accordingly, there are no local SMCs for this Sustainability Indicator, and the notion of implementation progress does not apply.

3) Implementation of Projects and Management Actions (PMAs)

WRMWSD has made progress towards implementing several of its planned Projects and Management Actions. Examples include the following:

WRM-1, On-Farm Recharge. Following the record hydrology of 2023 in which the WRMGSA was able to bank over 5,000 AF in the WRMGSA footprint, WY 2025 provided more average conditions. While the final State Water Project allocation was 50% for WY2025, which would normally make acquiring market supplies conducive for recharge, the significant capital investment the District has made in out-of-district banking facilities along with the increased energy component of conveying supplies to the District make on-farm recharge economically unviable in all but the wettest years. There were no on-farm recharge operations in WY 2025.

WRM-2, In-District Banking Facilities. One of the major obstacles to creating new banking facilities within the WRMGSA is the occurrence of the Corcoran Clay and other similar impeding clays across large portions of the GSA footprint, and it is generally held that the locations of future recharge projects should be informed by a better understanding of stratigraphy and lithology in the local groundwater basin. To that end, in 2023 the WRMWSD retained a consultant to develop a 3D geologic model of the district's service area. This model was completed in WY 2024 and made public in WY 2025. Throughout the reporting period, WRMGSA staff engaged with several landowners interested in potential in-district banking projects. One promising site was identified, and staff are continuing to evaluate its feasibility, including system delivery capacity, topography, and other relevant factors.

WRM-3, Increase Out-of-District Banking Operations. After the significantly favorable hydrology experienced in WY 2023, which allowed the WRMGSA to bank over 189,000 acre-feet in various banking projects, hydrology

returned to more normal conditions in WY 2024 and WY 2025. WRMWSD banked approximately 8,900 acre-feet in its out of district banking projects in WY 2025. WRMWSD also participated in a surface water exchange program with the Arvin Edison Water Storage District (AEWSD), whereby WRMWSD sent approximately 10,000 acre-feet of excess surface water supplies to AEWSD for delivery to their growers; AEWSD will return an equal volume to WRMWSD in a future year.

WRM-5, Purchase Additional Supplies. During Water Year 2025, the WRMWSD purchased approximately 49,800 acre-feet of "opportunistic" surface water, comprised of Central Valley Project and State Water Project supplies, in addition to purchasing its full contract allocation of State Water Project Table A supplies. It is believed that about 66% of these additional supplies (32,868 acre-feet) were delivered within the Kern Subbasin, with the balance going to the White Wolf Subbasin.

WRM-6, Desalination Facilities. The District continued to explore ways to utilize desalination facilities to mitigate localized impacts of pumping in the WRMGSA. To that end, the District continued to hold discussions with proponents of certain potential desalination projects.

WRM-7, Delta Conveyance Project. The District continued to fund the planning phase of the Delta Conveyance Project (DCP) in 2025. Previously in 2020, The WRMWSD Board of Directors elected to participate in the planning phase of the Delta Conveyance Project at a level of 32% (63,100 acre-feet) of its State Water Project entitlement. Ultimately, participation in the DCP will allow the District to firm up its existing State Water Project entitlement and may also enable participants to gain access to additional non-firm supplies that can be conveyed through the Delta.

WRM-8, Acreage Assessment. Although neither an acreage assessment nor a GSA program, a Groundwater Service Charge (GWSC) is levied on each acre- foot of groundwater extracted within WRMWSD boundaries with the exception of de minimis and residential use. Funds derived from the GWSC are used to help offset the cost of State Water Project water and other supplemental supplies for water contract holders. As a secondary effect, the charge helps equalize the cost of local groundwater compared to more expensive surface water, no doubt reducing the overall demand for groundwater. The GWSC was approved by landowners in 2023 and first implemented beginning in 2024. Crop surveys subsequently revealed that about 7,800 acres of permanent crops were fallowed in the WRMGSA in WY's 2023 and 2024 and a further 3,777 acres of permanent crops were fallowed in WY 2025. The 3,777 acres of fallowing in WY 2025 results in a demand reduction of approximately 8,770 acre-feet, assuming 2.5 AF/Ac. These land use changes were no doubt based on economic factors and landowner decisions, but it is believed the GWSC contributed to these changes.

WRM-9, Groundwater Allocation. In early 2023, the WRMGSA formed a Projects & Management Actions (PMA) Committee to seek public input on SGMA implementation. The PMA Committee met several times during 2024, undertaking the development of demand reduction options, including a potential groundwater allocation, as its first task. By the end of the water year, committee members and members of the general public had discussed several alternatives for well metering, allocation transfers, recharge credits, and how to accommodate domestic water users. Discussion and development of a groundwater allocation policy remains ongoing with WRMGSA staff and the public.

WRM-12, Land Retirement. Although not an intentional management action, crop surveys showed a 3,777-acre reduction in permanent cropped acres during WY 2025 within the WRMGSA. At the same time, a recent trend toward converting farmland into large and small commercial solar projects continued, although at a slower pace than during WYs 2023 and 2024.

4) Coordination with Stakeholders

In addition to Subbasin-wide outreach and engagement activities, WRMGSA routinely communicates GSA-specific information its landowners, stakeholders, and other interested parties via its normal public Board

meetings, which are held regularly on the second Wednesday of every month. The WRMGSA's Board discussed many items relating to rules and procedures, funding, and budgets that related directly or indirectly to SGMA. These items are also discussed in detail at monthly SOKR Executive Committee meetings, of which WRMGSA is a part.

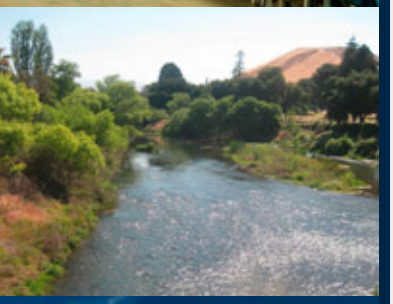
5) Summary of Other GSP-related Special Studies or Activities

No special studies are being conducted exclusively in the GSA. However, WRMGSA is actively participating in the Subbasin-wide activities in Section 9, Progress on Subbasin-wide coordination on GSP Implementation.

Sites Reservoir Project. Beginning in 2019, multiple District landowners entered into funding agreements for up to 3,200 acre-feet of storage capacity within Sites Reservoir, with participation at the landowner level continuing through Water Year 2025. While not a District project, Sites Reservoir will provide additional dry-year surface supplies and storage flexibility to participants.











Kern County Subbasin
Groundwater Sustainability Agencies