



South of Kern River Executive Committee Regular Meeting

Thursday, April 11, 2024

9:00 a.m. to 11:00 a.m.

Meeting Information Posted:

www.sokrgsp.com

<http://www.aewsd.org> * <http://www.wrmwsd.com>

<http://www.tejoncastacwd.com> * <https://www.arvincsd.com>

In Person: Arvin-Edison Water Storage District Headquarters
20401 E. Bear Mountain Blvd. Arvin, CA 93203

Via Remote (**Microsoft Teams**): <https://www.microsoft.com/microsoft-teams/join-a-meeting>

Click here to join the meeting

Meeting Number: **289 619 843 830**

Meeting Password: **ko5K35**

Phone: **1.213.437.9052**

Phone Meeting Number (access code): **276 512 496#**

NOTICE: Members of the public interested in participating by teleconference may do so using the call-in information above or by following [this link](#). Please note that this teleconference option is provided as a courtesy and at the participant's own risk. The Committee cannot guarantee that there will be no loss of connectivity or other technological obstacle to full participation through teleconferencing. By participating in this way, participants confirm that they understand this risk and that the Committee is not obliged to delay any portion of the meeting due to such technological obstacles and thus that teleconference participants may be unable to participate.

1. CALL TO ORDER
2. ROLL CALL
3. PLEDGE OF ALLEGIANCE
4. APPROVAL OF THE AGENDA
5. APPROVAL OF FEBRUARY 20, 2024 MEETING MINUTES
6. PUBLIC COMMENT
7. REPORT ITEMS
 - a. GSP Manager Report (*Muhar*)
 - i. Basin Coordination
 - b. Technical Consultant Report (*EKI*)
 - i. Basin coordinated GSP and response to California Department of Water Resources (DWR) deficiencies
 - ii. Report on March 6, 2024 and April 3, 2024 technical meetings with State Water Resources Control Board (SWRCB) Staff

iii. SGMA Monitoring Network performance and sustainable management criteria (SMC) compliance

c. Finance Report (*Nicholas*)

d. California Aqueduct Subsidence Program (CASP) update (*Nicholas*)

e. Management Area updates (*Muhar, Nicholas, Martin, Barraza*)

8. CLOSED SESSION

a. Potential Litigation (Government Code §54956.9(d)(2), (e)(1); 2 items).

9. ACTION ITEM(S)

a. Discussion and potential action to recommend INTERA's Proposal for Additional Data Collection and Modeling to Support Subsidence Mitigation Cost Analysis for the Friant-Kern Canal for approval by SOKR GSA boards (*Muhar*)

b. Discussion and potential action to recommend SOKR GSA boards' participation in the proposed Third Amended and Restated Joint Exercise of Powers Agreement for the Kern Non-districted Lands Authority (*Muhar*)

10. CORRESPONDENCE

a. Letter from Basin Point of Contact to SWRCB Vice Chair D'Adamo.

b. Letter from Tina Cannon Leahy, Attorney Supervisor, SWRCB Office of Chief Counsel to Basin Point of Contact.

11. ADJOURNMENT

**MINUTES OF THE MEETING OF THE
SOUTH OF KERN RIVER EXECUTIVE COMMITTEE
February 20, 2024**

CALL TO ORDER

Director Yurosek called the meeting to order at 10:01 a.m., and determined a quorum was present with attendance by:

Executive Committee Directors

Derek Yurosek – Arvin-Edison Water Storage District (AEWSD; Arvin GSA) (present)
Mark Valpredo – Tejon-Castac Water District (TCWD; Tejon-Castac Water District GSA) (present)
Michael Blaine – Wheeler Ridge-Maricopa Water Storage District (WRMWSO; Wheeler Ridge-Maricopa GSA) (present)
Rafael Gallardo – Arvin Community Services District (ACSD) (present)

District Staff

Jeevan Muhar – AEWSD (present)
Sheridan Nicholas – WRMWSO (present)
Angelica Martin – TCWD (remote)
Raul Barazza – ACWD (present)

PLEDGE OF ALLEGIANCE

APPROVAL OF THE AGENDA

Director Valpredo moved to approve the agenda as amended. Director Gallardo seconded. The motion passed 4-0-0.

APPROVAL OF JANUARY 16, 2024 MEETING MINUTES

Director Gallardo moved to approve the January 16, 2024 SOKR Executive Committee meeting minutes. Director Blaine seconded. The motion passed 4-0-0.

PUBLIC COMMENT

There were no public comments.

REPORT ITEMS

GSP Manager Report

Basin Coordination

Mr. Muhar reported on the Subbasin GSAs' efforts to coordinate on tasks related to revising the Groundwater Sustainability Plan(s) (GSPs) to respond to the deficiencies identified in the Department of Water Resources (DWR) Inadequate Determination by spring 2024. Mr. Muhar identified ongoing work efforts include water budget updates, well

inventory and mitigation, identifying infrastructure for ongoing subsidence monitoring, Friant Kern Canal mitigation considerations, ongoing coordination for future white lands coverage, and ongoing grant-funded work efforts.

Mr. Muhar also reported on communications received from State Water Resources Control Board (SWRCB) staff explaining that staff may recommend a scheduled probationary hearing be deferred if a basin submits revised GSP(s) in advance of hearing (> 3 months for 1 GSP + 1 month for each additional GSP) and staff find the revised GSP(s) make sufficient progress in addressing the DWR-identified deficiencies.

Technical Consultant Report

Technical Working Group (TWG) Update

EKI reported on the subbasin-wide technical work undertaken during the prior month to address DWR-identified GSP deficiencies. These efforts included development of a risk-based matrix approach for Land Subsidence Sustainable Management Criteria (SMCs), presentation of the proposed approach for Degraded Water Quality SMCs to SWRCB staff on January 24, 2024, finalization of the subbasin well inventory, and ongoing work related to the water budget and proposed Projects and Management Actions (P/MAs).

Report on January 24, 2024 Technical Meeting with State Water Resources Control Board (SWRCB) Staff

EKI reported on the January 24, 2024 technical meeting with SWRCB staff where the Water Quality subcommittee presented the proposed approach to Degraded Water Quality SMCs. SWRCB staff identified the need for expanded monitoring and SMCs set for all SWRCB-identified constituents of concern. The Water Quality subcommittee developed a revised approach to address SWRCB concerns.

GSP Revision Schedule

EKI reported on the GSP revision schedule, which has been delayed by approximately two weeks.

SGMA Monitoring Network performance and SMCs compliance

EKI reported on January groundwater conditions within the SOKR Plan Area compared to the existing Minimum Thresholds (MTs).

Finance Report

Mr. Nicholas reported on finances to date. WRMWSD received reimbursement from Buena Vista Water Storage District for the SOKR GSAs' share of costs for Subbasin-wide GSP development.

California Aqueduct Subsidence Program (CASP) update

Mr. Nicolas reported that there were no updates from CASP.

Management Area Updates

Mr. Muhar reported that AEWS D is in escrow for a 160-acre property to expand its existing spreading facilities. If successful, this project would convert irrigated agricultural land into groundwater recharge basins. Additionally, AEWS D has filed a lawsuit against the Eastern Tule GSA related to subsidence along the Friant-Kern Canal.

Mr. Nicholas reported no updates.

Ms. Martin reported no updates.

Mr. Barazza reported that ACS D has been in discussions with AEWS D regarding involvement in the expansion of AEWS D's spreading facilities.

ACTION ITEMS

Letter of Intent to Engage Self-Help Enterprises to Assist with Subbasin Well Mitigation Program. Mr. Muhar presented the Subbasin's Letter of Intent to enter into an agreement with Self-Help Enterprises (SHE) for assistance in implementing the Subbasin's Well Mitigation Program, including outreach, delivery of emergency water supplies, and coordination of long-term solutions. The SOKR GSP committed to developing a domestic well mitigation policy, and DWR sought additional details on program eligibility and implementation in their inadequate determination letter. The proposed framework for the Well Mitigation Program contains elements from the existing Kern Water Bank, Pioneer, and Rosedale Rio-Bravo well mitigation programs and would be funded internally by the Subbasin GSAs.

Following discussion, Director Gallardo made a motion, seconded by Director Blaine, to recommend that the SOKR GSA boards join the Subbasin's Letter of Intent to negotiate an agreement with SHE for assistance in implementing the Subbasin Well Mitigation Program, subject to staff and counsel review of the final letter prior to execution. The Motion passed 4-0-0.

CLOSED SESSION

Conference with Legal Counsel pursuant to Government Code §54956.9(d)(2), (e)(1) (potential litigation; 1 item). There was no action to report out of closed session.

ADJOURNMENT

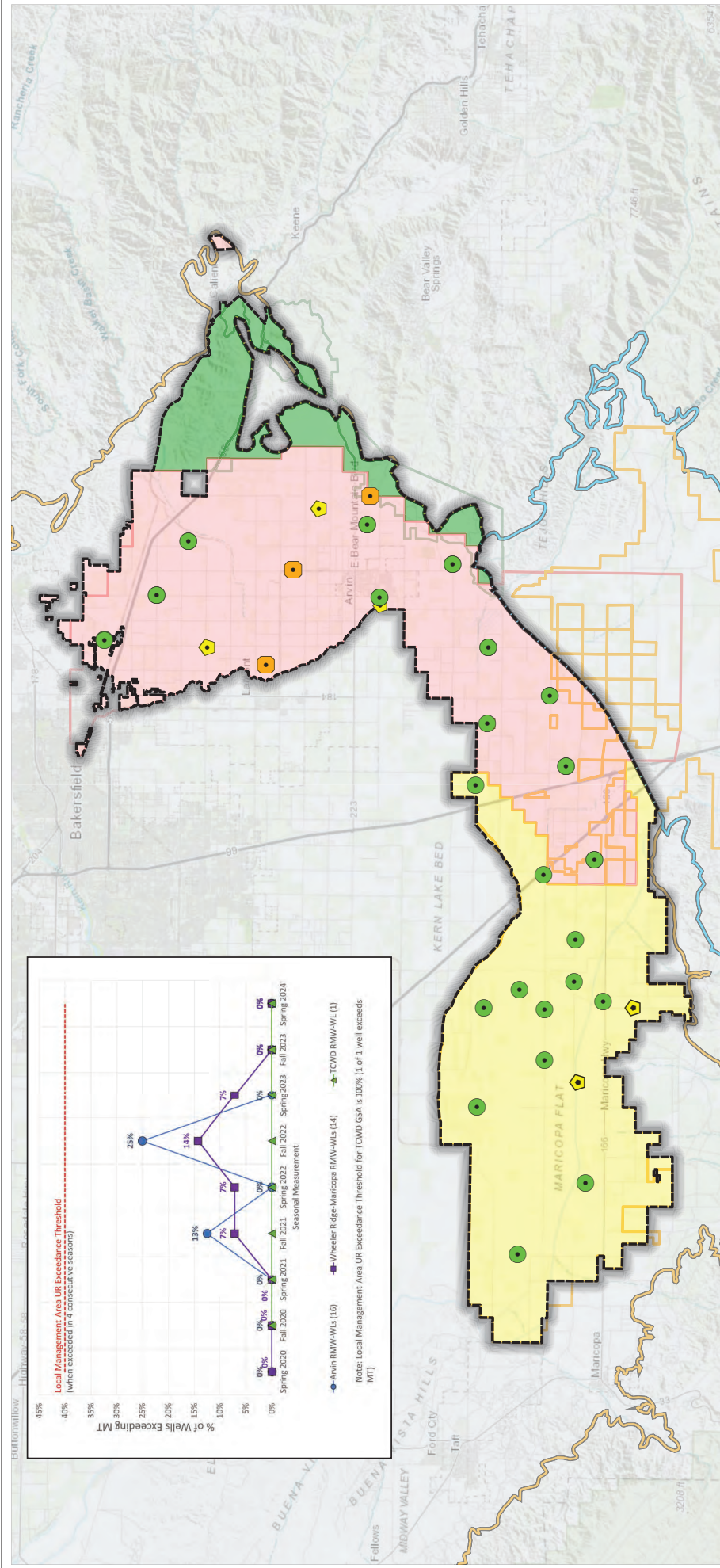
Director Yurosek adjourned the South of Kern River Executive Committee meeting at 11:07 p.m.

Mark Valpredo, South of Kern River
Executive Committee Secretary

**Kern Subbasin
GSP Chapters Review Schedule**

Chapters/Sections	Draft to TWG	END TWG Review	Draft to Subbasin	END Subbasin Review
¹ Chapters 1 - 4: Purpose, Sustainability Goal, Agency Information, GSP Organization	12/04/23	03/16/24	12/18/23	05/03/24
¹ Chapter 5: Plan Area, Introduce Organizing Themes, Land Use Elements, Communications	04/03/24	04/10/24	04/12/24	04/17/24
Chapters 6 and 7: Basin Setting and Hydrogeological Conceptual Model	02/02/24	03/01/24	03/04/24	03/18/24
Chapter 9: Water Budget	04/08/24	04/12/24	04/18/24	04/25/24
Chapter 8: Current & Historical Groundwater Conditions	03/27/24	04/02/24	04/10/24	04/19/24
Chapter 10: Management Areas	03/06/24	03/27/24	04/04/24	04/17/24
*Chapters 11 - 13: SMCs	03/13/24	03/27/24	04/04/24	04/17/24
*Chapter 14: PMAs	03/21/24	04/25/24	04/25/24	05/01/24
*Chapter 15: Monitoring Network	03/27/24	04/02/24	04/05/24	04/17/24
Chapter 16: Plan Implementation	04/03/24	04/08/24	04/11/24	04/17/24
Executive Summary, Revisit Chapters 1-3	04/22/24	04/25/24	04/29/24	05/03/24
Final Draft		05/03/24		05/10/24
Release Public Draft, Submit to State Board and DWR				
Wednesday, May 15, 2024				

¹Chapters 1-4 and 5 are mostly introductory and background information; ending the review period isn't being strictly applied since edits will be made up to March 16 as work develops. However, to have feedback incorporated into the final work products, the TWG will strictly adhere to the review timelines for Chapters 6-18.



Legend

- Water Level above MO (23 or 74%)
- Water Level between MO and MT but closer to MO (5 or 6%)
- Water Level between MO and MT but closer to MT (3 or 10%)
- South of Kern River Plan Area
- Arvin GSA
- Wheeler Ridge-Maricopa GSA
- Tolon-Castac Water District GSA
- WRMWSL Service Area
- AEWSD Service Area
- TCWD Service Area
- Groundwater Subbasin
- Kern County (DWR 5-022.14)
- White Wolf (DWR 5-022.18)

Representative Monitoring Wells and Status as of March 2024

Abbreviations

- AEWSD = Arvin-Edison Water Storage District
- DWR = California Department of Water Resources
- GSA = Groundwater Sustainability Agency
- MO = Measurable Objective
- MT = Minimum Threshold
- RMW = Representative Monitoring Well
- SGMA = Sustainable Groundwater Management Act
- SMC = Sustainable Management Criteria
- TCWD = Tolon-Castac Water District
- UR = Undesirable Result
- WRMWSL = Wheeler Ridge-Maricopa Water Storage District

Sources

1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 3 April 2024.
2. GSA boundaries obtained from SGMA GSA Map Viewer portal, accessed 6 May 2022.
3. DWR groundwater basins are based on the boundaries defined in California's Groundwater Bulletin 118 - 2019 Update.

March 2024 Water Levels Relative to SMCs

South of Kern River GSP
Kern County, CA
March 2024
C20055.00

Figure 1

eki environment & water

INTERIM FIGURE - FOR INFORMATIONAL PURPOSES ONLY

Legend

Representative Monitoring Wells and Status as of March 2024

- Water Level above MO (11 or 68%)
- Water Level between MO and MT but closer to MO (3 or 19%)
- Water Level between MO and MT but closer to MT (2 or 13%)

Sustainability Criteria Zones

- ACSD
- Edison
- North Canal
- South Canal
- Arvin GSA
- Arvin-Edison Water Storage District
- Groundwater Subbasin
- Kern County (DWR 5-022.14)
- White Wolf (DWR 5-022.18)

Abbreviations

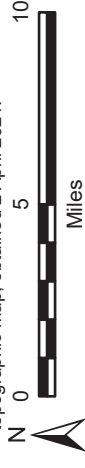
- ACSD = Arvin Community Services District
- DWR = California Department of Water Resources
- ft msl = feet above mean sea level
- GSA = Groundwater Sustainability Agency
- MO = Measurable Objective
- MT = Minimum Threshold
- RMW = Representative Monitoring Well
- SMC = Sustainable Management Criteria

Notes

1. All locations are approximate.
2. Groundwater elevations reported in units of ft msl.
3. All water levels collected during March 2024.
4. Arrow direction indicates water level change from previous month.

Sources

1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 2 April 2024.



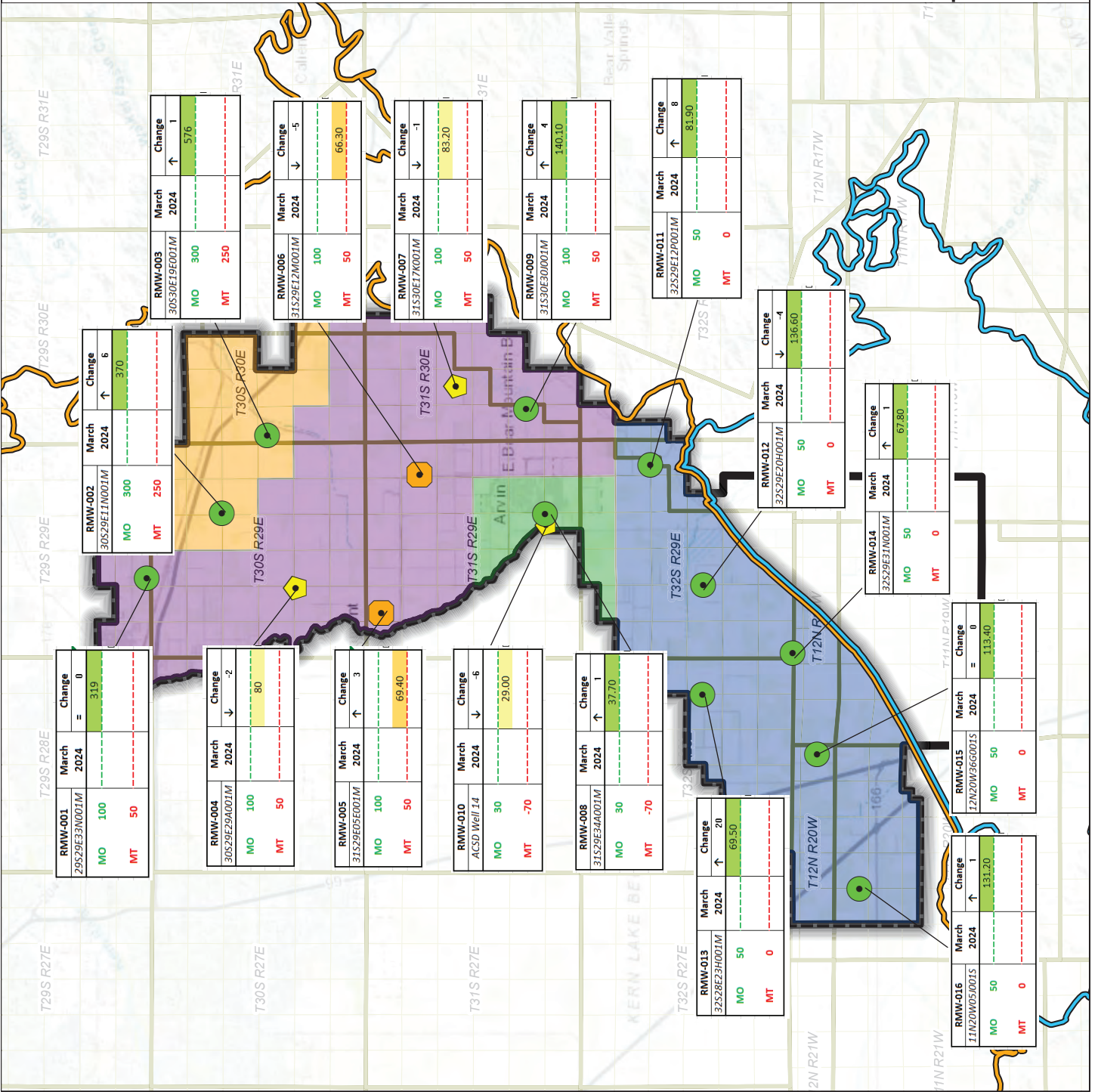
Groundwater Levels Relative to SMCs
March 2024

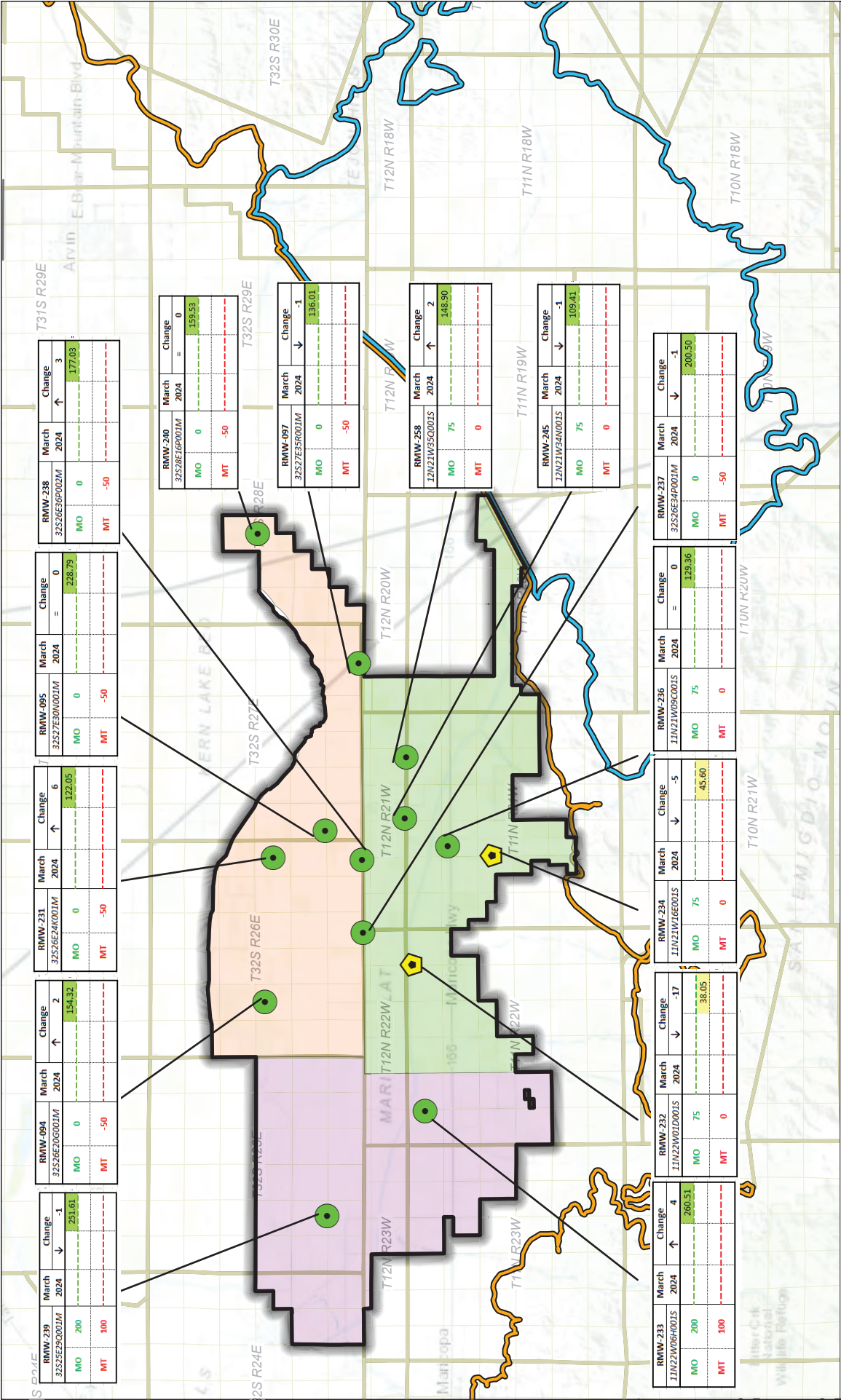
Arvin GSA
Arvin-Edison Water Storage District
Kern County, California
March 2024
B60064.10



Figure 2

INTERIM FIGURE - FOR INFORMATIONAL PURPOSES ONLY





Legend

Representative Monitoring Wells and Status as of March 2024

- Water Level Above MO (12 or 86%)
- Water Level Between MO and MT but closer to MO (2 or 14%)
- Groundwater Subbasin
 - Kern County (DWR 5-022.14)
 - White Wolf (DWR 5-022.18)

Sustainability Criteria Zones

- Northeast
- Southwest
- West

Wheeler Ridge-Maricopa GSA

- Wheeler Ridge-Maricopa GSA

Notes

- All locations are approximate.
- Groundwater elevations reported in units of ft msl.
- All water levels collected during March 2024.
- Arrow direction indicates water level change from previous month, except change in WLS at RMW-094 and RMW-231 are relative to measurements collected in Jan 2024

SOURCES

- Basemap is ESRI's ArcGIS Online world topographic map, obtained 2 April 2024.

Abbreviations

- DWR = California Department of Water Resources
- ft msl = feet above mean sea level
- GSA = Groundwater Sustainability Agency
- MO = Measurable Objective
- MT = Minimum Threshold
- SMC = Sustainable Management Criteria

Scale

0 4 8
(Scale in Miles)

Groundwater Levels Relative to SMCs
March 2024

Wheeler Ridge-Maricopa GSA
South of Kern River
Kern County, California
March 2024
C20055.00

eki environment & water

Figure 3

Legend

Representative Monitoring Well and Status as of March 2024

- Water Level above MO (11 or 68%)
- Water Level between MO and MT but closer to MO (3 or 19%)
- Water Level between MO and MT but closer to MT (2 or 13%)

District Recovery Well

- District Recovery Well

AEWSD Spreading Basin

- AEWSD Spreading Basin

Arvin GSA

- Arvin GSA

Arvin-Edison Water Storage District

- Arvin-Edison Water Storage District

Groundwater Subbasin

- Kern County (DWR 5-022.14)
- White Wolf (DWR 5-022.18)

Abbreviations

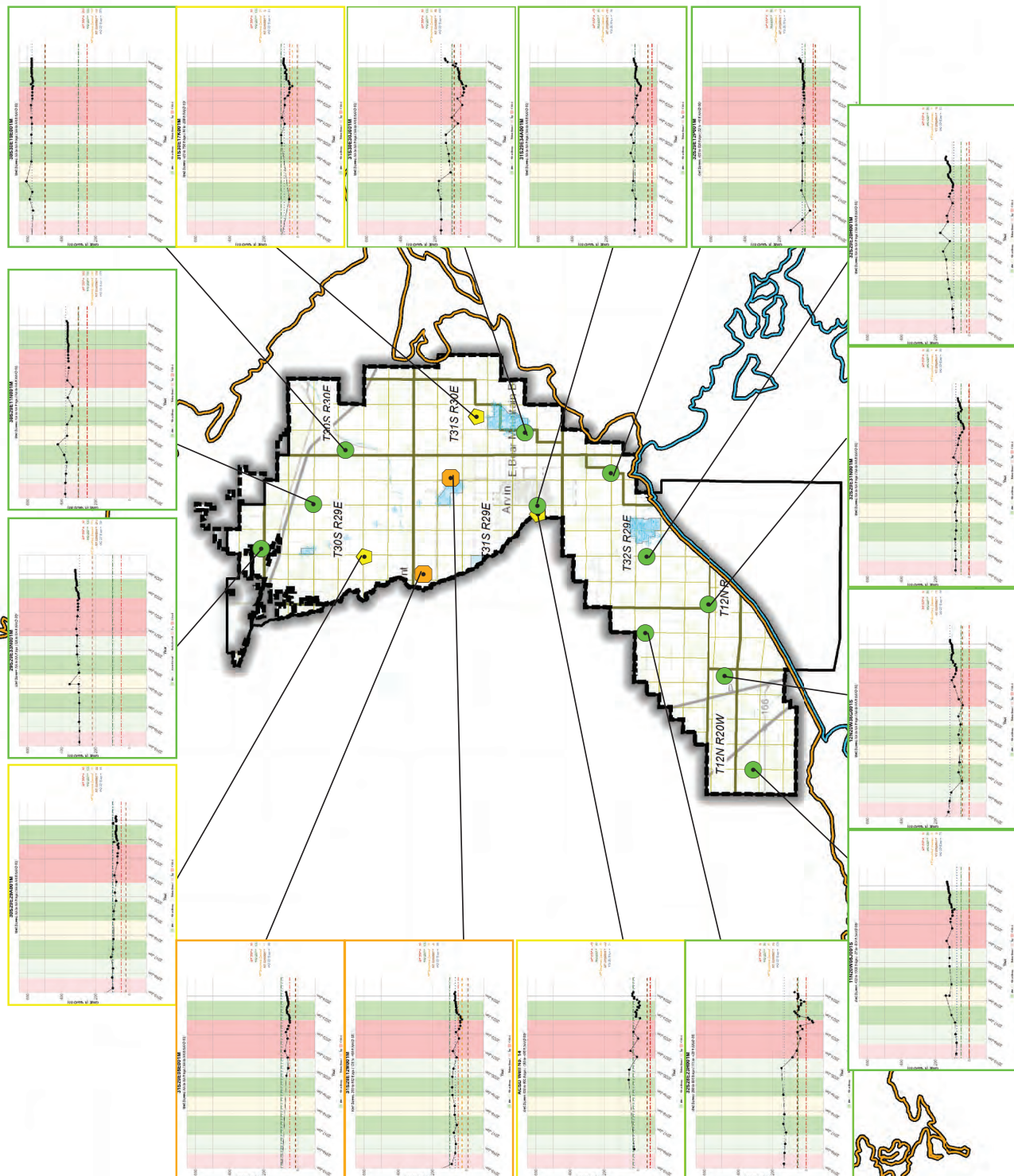
- AEWSD = Arvin-Edison Water Storage District
- DWR = California Department of Water Resources
- ft msl = feet above mean sea level
- GWE = groundwater elevation
- MO = measurable objective
- MT = minimum threshold
- RMW = Representative Monitoring Well

Notes

1. All locations are approximate.
2. Groundwater elevations are in feet mean sea level.
3. Undesirable Results are deemed to occur if groundwater levels in 40% or more (7 or more) RMWs are below their respective MT for 4 consecutive bi-annual measurements (Spring and Fall).
4. All RMW status based on March 2024 measurements.

SOURCES

1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 5 April 2024.
2. Water level information obtained from AEWSD.



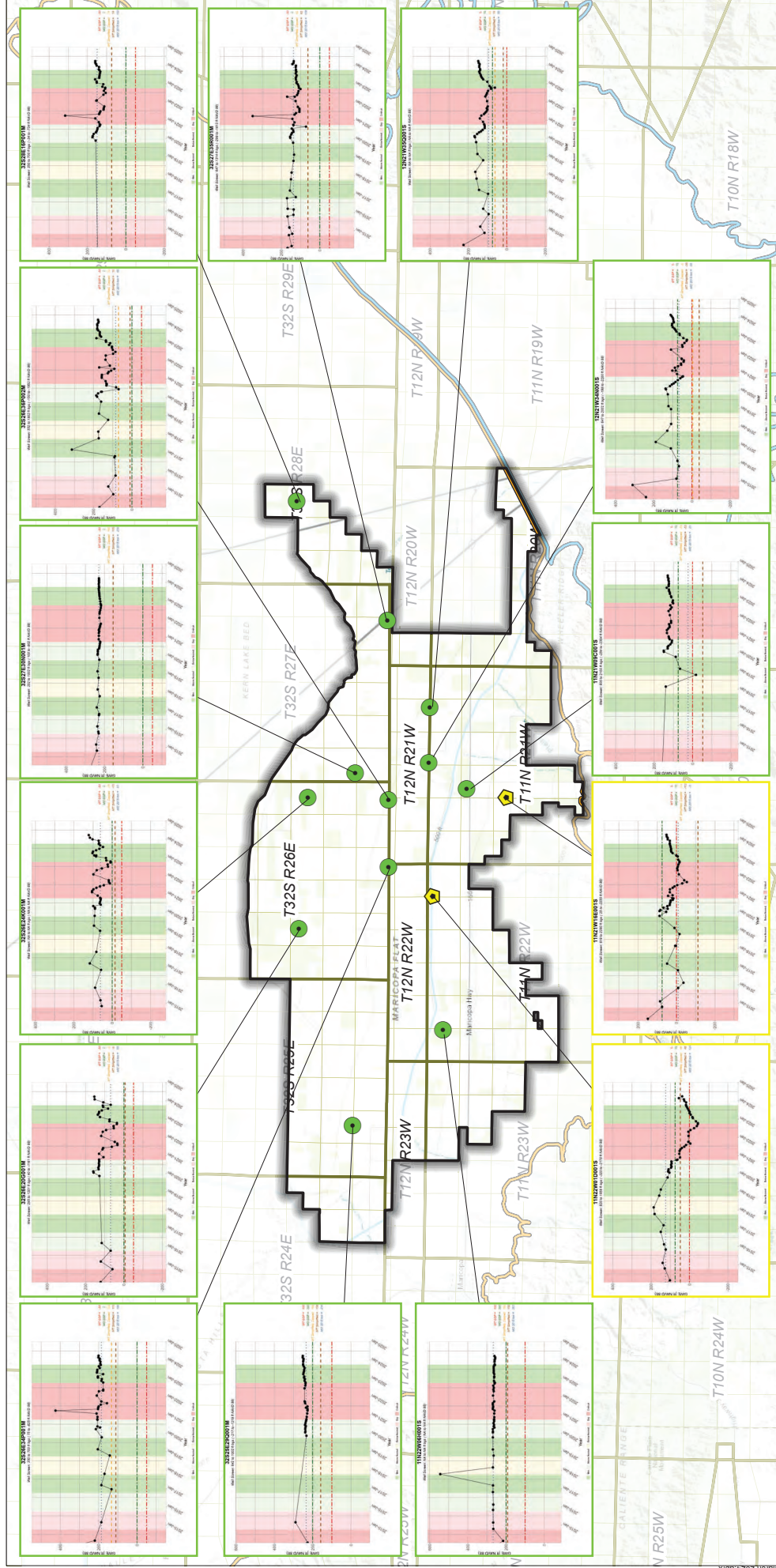
Hydrographs in Representative Monitoring Wells
(Jan 2015 - March 2024)

Arvin-Edison Water Storage District
Kern County, CA
March 2024
C20055.01

Figure 4

DRAFT

FOR INFORMATIONAL PURPOSES ONLY



Legend
Representative Monitoring Wells and Status as of March 2024

- Water Level Above MO (12 or 86%)
- Water Level Between MO and MT but closer to MO (2 or 14%)
- Wheeler Ridge-Maricopa GSA
- Groundwater Subbasin
- Kern County (DWR 5-022.14)
- White Wolf (DWR 5-022.18)

Notes

1. All locations are approximate.
2. Groundwater elevations are in feet mean sea level.
3. Undesirable Results are deemed to occur if groundwater levels in 40% or more (6 or more) RMWs are below their respective MT for 4 consecutive bi-annual measurements (Spring and Fall).
4. All RMW status based on March 2024 measurements.

Abbreviations

- DWR = California Department of Water Resources
- ft msl = feet above mean sea level
- GSA = Groundwater Sustainability Agency
- MO = Measurable Objective
- MT = Minimum Threshold
- RMW = Representative Monitoring Well
- WRMWS = Wheeler Ridge-Maricopa Water Storage District

Hydrographs in Representative Monitoring Wells (January 2015 - March 2024)

Wheeler Ridge-Maricopa Water Storage District
 Kern County, CA
 March 2024
 B70103.01
Figure 5

INTERIM FIGURE - FOR INFORMATIONAL PURPOSES ONLY



Proposal for Additional Data Collection and Modeling to Support Subsidence Mitigation Cost Analysis for the Friant Kern Canal

Additional data-collection, analysis, and modeling is necessary to evaluate future impacts on water levels and subsidence along the Friant Kern Canal (FKC) from groundwater pumping in different GSAs within the Kern Subbasin. This data collection and analysis was not included in the original scope and budget to support GSP revisions, as the previous sustainable management criteria for the FKC had not accounted for conveyance loss from future subsidence. Any unmitigated conveyance loss due to subsidence along the FKC has been deemed an “undesirable result” under SGMA by the Friant Water Authority (FWA). Hence, mitigation alternatives to raise the liner (and associated infrastructure) along the sagging sections of the canal are being evaluated currently. A cost-sharing framework is being developed to fund these future mitigation efforts. The cost-sharing framework will entail attributing costs based on future impacts on water levels and subsidence along sagging sections of the FKC from groundwater pumping in different GSAs. This proposal outlines the approach and cost involved with the data-collection, analysis, and modeling for this effort.

Task 1. Recover and survey elevations at selected benchmarks

Perform GPS RTK survey methods at eight benchmark sites near the FKC to obtain ellipsoid and orthometric elevations processed through NOAA's Online Positioning User Service (OPUS). For benchmarks located in areas where direct GPS observations are not possible, a nearby reference mark will be established, and conventional leveling will be used to determine the elevation of the benchmark.

Estimated Cost: \$12,000

Task 2. Analyze and prepare long-term groundwater level and subsidence time series data and figures

Evaluate water-level data from the current period and historical water-level data near the FKC to provide a time series of data for the 1D model (Task 3) and to determine the pre-consolidation head and current critical head at eight selected locations of geodetic control (benchmarks). A time series of leveling data from benchmarks monumented by the National Geodetic Survey, U.S. Geological Survey, U.S. Bureau of Reclamation, and California Department of Transportation will be constructed from blue-booked leveled elevations and recoveries. Data compiled from the CASGEM, DWR water data library, and USGS will be used near the benchmark sites to construct a time series of water level data at various depth intervals. Approximately 75% of this data has already been collected as part of the development of the subsidence sustainable management criteria (SMCs). The cost below is for *additional* data collection and analysis to support the 1D modeling under Task 3.

Estimated Cost: \$10,000

Task 3. Subsidence analysis using the Stanford 1D model

Use the Stanford 1D model to forecast subsidence through 2040 or other desired planning timeframe to connect water levels and subsidence along the Friant Kern Canal (FKC). The model will be calibrated to the long-term subsidence and groundwater level data from Task 2. Well-log data will be compiled for each of the 8 sites to estimate the number and thickness of clay interbeds.

Estimated Cost: \$35,000

Task 4. Updated model analysis of water level changes by GSA

Use updated IWFM-Kern model (currently being updated by Todd Groundwater to support the GSP revisions) to evaluate change in groundwater levels through 2040 or other desired planning timeframes to simulate future change in water levels under a range of different scenarios with GSAs within the Kern subbasin pumping at different rates to assess impacts on future water levels along the Friant Kern Canal. INTERA will work with Todd Groundwater to perform the water level scenarios. Water level results from the scenarios will be linked to the 1D subsidence model (Task 3) to translate water level impacts to subsidence impacts along the FKC. The 1D subsidence model is necessary since the IWFM-Kern model has not been calibrated to subsidence. This task assumes multiple iterations to support the determination of potential attribution of water level and subsidence impacts along the FKC. Relative contribution to future water level declines and subsidence along the most vulnerable reaches of the FKC would be the basis for the cost-sharing framework between the GSAs determined to be contributing to water level declines and subsidence along the FKC.

Estimated Cost: \$60,000

Task 5. Meetings and Presentations

Results from the evaluation will be presented to the Kern Subbasin subsidence sub-committee, GSA managers, and coordination committee. The analysis will also be presented to the Friant Water Authority to get their buy-in on the approach and results. The analysis will be documented in a technical memorandum that may be used as an attachment to the Kern Subbasin revised GSP to document the FKC mitigation alternative.

Estimated Cost: \$3,000

Total Cost and Schedule

The total cost for the scope above is estimated to be **\$120,000**. Tasks 1-3 can be completed within 3 months of notice to proceed. Task 4 and 5 will require 3 additional months (including the time for presentation at various committee meetings) from receiving revised IWFM-Kern model files from Todd Groundwater. It is anticipated that the IWFM-Kern model will be ready for the modeling analysis by the late summer (August, 2024) timeframe.

March 29, 2024

Dorene D'Adamo, Vice Chair
State Water Resources Control Board
P.O. Box 100
Sacramento, California 95812-0100
Via email: dorene.dadamo@statewaterboard.ca.gov

Subject: Kern County Subbasin Progress Update

Vice Chair D'Adamo:

The Kern County Subbasin (Subbasin) Groundwater Sustainability Agencies and Management Areas¹ (GSAs/MAs) write to inform the State Water Resources Control Board (SWRCB or Board) Members about the Subbasin's work to revise the 2022 Groundwater Sustainability Plans (GSPs) in response to the Department of Water Resources (DWR) March 2023 Inadequate Determination Letter² (DWR Letter). The Subbasin GSAs, in consultation with SWRCB staff and Subbasin stakeholders, have made significant progress during the past year to address the plan deficiencies identified by DWR for the 2022 GSPs and have incorporated feedback received from consultation meetings with SWRCB staff. **The Subbasin GSAs/MAs intend to submit revised GSP(s) in May 2024³** for the Board Members' consideration prior to preparation of the SWRCB staff report and the Subbasin's tentative January 2025 probationary hearing date.

Revised GSP(s) Development

Since receipt of the DWR Letter on March 2, 2023, which deemed the Kern County Subbasin GSPs inadequate, the Subbasin GSAs/MAs have invested significant time and resources in addressing the plan deficiencies through development of more consistent and coordinated revised GSP(s), with a project cost of \$1.3 million. Throughout this process, the Subbasin held seven (7) technical meetings with SWRCB staff (Figure 1).⁴



18 Managers **60** TWG **28** Subbasin **7** SWRCB

Figure 1. Kern County Subbasin Revised GSPs Development Meetings

The Subbasin has held over 117 meetings between landowner representative policy members, GSA/MA managers, and a technical working group (TWG) consisting of the GSA/MA consultants.⁵ These meetings are in addition to regularly held GSA meetings.

The meetings to date have addressed the Subbasin's revised GSP(s) with a Subbasin-wide coordinated approach for:

- Sustainable Management Criteria
 - Groundwater Levels
 - Subsidence
 - Water Quality
 - Water Budgets
- Well Inventory and Well Mitigation Program
- Monitoring Network
- Projects and Management Actions

¹ December 2023, Kern County Subbasin Map (Attachment 1)

² March 2, 2023, Department of Water Resources, *Inadequate Determination Letter* (Attachment 2)

³ Kern County Subbasin Revised GSP(s) Schedule (Attachment 3)

⁴ 2023-2024, SWRCB and Kern County Technical Meetings (Attachment 4)

⁵ March 2024, Kern County Subbasin Contacts List (Attachment 5)

Addressing DWR Identified Deficiencies

The Subbasin’s aim over the last year has been to develop “a well-explained Plan that will be implemented in a coordinated manner.” In addition to developing and applying uniform Sustainable Management Criteria (SMCs) methodologies based on the best available science to all GSPs within the Subbasin, the Subbasin has also developed a common organizational structure and a consistent narrative explanation for how the Subbasin will achieve sustainability by 2040. The revised GSP(s) also rely on common data and methodologies to SMCs and Undesirable Results (URs), as described in more detail below.

Deficiency 1: The GSPs do not establish undesirable results that are consistent for the entire Subbasin^{6,7}

The revised GSP(s) utilize consistent data and methodologies, adopt clear and consistent terminology and standard templates to clearly define Subbasin-wide definitions for URs, Minimum Thresholds (MTs), and Measurable Objectives (MOs) for each applicable Sustainability Indicator. For example, to define UR’s for lowering of groundwater levels, the Subbasin conducted a robust Subbasin-wide well impacts analysis using the revised MTs and updated Subbasin well inventory to quantify potential impacts to beneficial users. The progress made on revised MTs and URs for lowering of groundwater levels was presented to SWRCB staff on October 4, 2023. On November 1, 2023, the Subbasin presented additional analyses to SWRCB staff to address feedback received from the October 4, 2023, meeting.

Revised UR Definition: Based on the technical analysis, the Subbasin developed a two-part definition that considers direct impacts on domestic and drinking water supply wells (no more than 15 dewatered per year) and a Subbasin-wide percentage of 25% MT exceedances at representative monitoring wells (184 total) across the Subbasin. Through model results, the most likely scenario results in at most 51 total drinking water wells being impacted by 2040 at the projected MTs (out of 1,476 or 3%). To address potential impacts to drinking water wells, the following Subbasin-wide approaches were developed and presented to SWRCB staff on March 6, 2024:

- 1. MT Exceedance Policy:** Requires GSA action in the event of a single MT exceedance for Chronic Lowering of Groundwater Levels, Degraded Water Quality, and Land Subsidence.
- 2. Well Mitigation Program:** Addresses proactive mitigation of Chronic Lowering of Groundwater Levels and Degraded Water Quality impacts on domestic and drinking water wells.

The Subbasin has also initiated a Letter of Intent to begin negotiations with Self-Help Enterprises (SHE) to administer a locally funded Subbasin-wide Well Mitigation Program (Program). In response to SWRCB staff feedback, the Subbasin has accelerated the initial, proposed implementation timeline for the Program. The Subbasin intends for the Program to begin January 2025, and include Program components shown in Figure 2.



Figure 2. Kern Subbasin Coordinated Well Mitigation Program Components

⁶ Page 13, March 2, 2023, Department of Water Resources, *Inadequate Determination Letter*

⁷ Pages 9-13, March 2, 2023, Department of Water Resources, *Inadequate Determination Letter*

The Subbasin is committed to funding effective implementation of the Program to ensure domestic well mitigation services are provided to any domestic or drinking water user submitting a verified claim. Existing well mitigation programs in the Subbasin will continue to assure adequate coverage continues as the 2024 SHE contracts are finalized.

Deficiency 2: The Subbasin’s chronic lowering of groundwater levels sustainable management criteria do not satisfy the requirements of SGMA and the GSP Regulations^{8,9}

The revised GSP(s) utilize a Subbasin-wide methodology for setting MTs and MOs for Chronic Lowering of Groundwater Levels. This methodology was established using an iterative process that considered more than eleven (11) potential MT methodologies that were vetted against the Subbasin UR definition, and potential well impacts, which resulted in development of Subbasin-wide analyses (Figure 3).

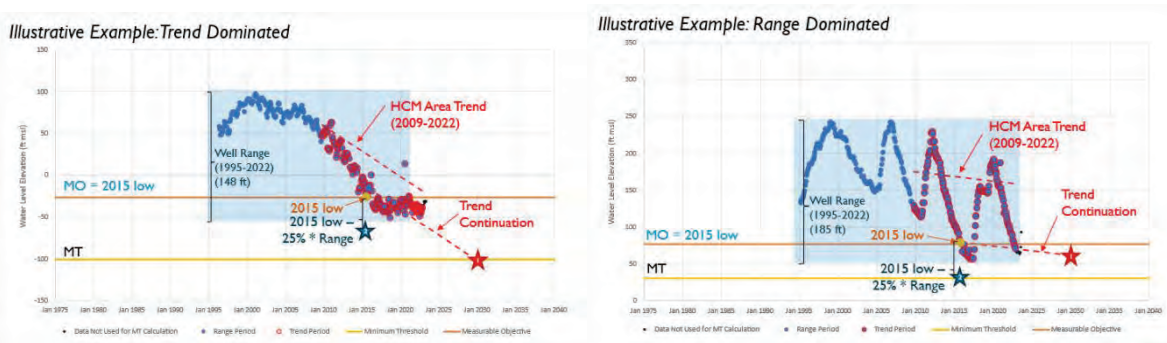


Figure 3. Kern Subbasin Coordinated Minimum Threshold Analyses

1. **Well Impacts Analysis:** Conducted using the updated Subbasin well inventory, MTs and the quantitative criteria for URs to better quantify potential impacts to beneficial users. To address SWRCB staff feedback, the Subbasin has set MOs at 2015 groundwater levels. The above graphic illustrates the MT variance to consider Subbasin complexity to address local concerns, while maintaining a unified approach throughout the Subbasin.
2. **Depletion of Supply Analysis:** Conducted to quantify the percentage of domestic and drinking water supply wells that may be impacted at MTs and the UR definition. Under the modeled most likely scenario, only 1.5% of the total estimated domestic and drinking water supply may be impacted by 2040 at the projected MTs (which will be subject to mitigation). The Subbasin has estimated a 4% reduction of groundwater storage that would occur at groundwater level MTs. As previously mentioned, the Subbasin will address impacts to domestic and drinking water supply wells via the Subbasin-wide well mitigation program developed in partnership with SHE.
3. **Representative Monitoring Well (Level and Quality) Density:** The Subbasin has a common and consistent groundwater level density grid (111 sites) with additional 73 monitoring sites for a total of 184 wells (Figure 4). In addition, groundwater level proxy for water quality



Figure 4. Kern Subbasin Coordinated Representative Monitoring Well Density

⁸ Page 32, March 2, 2023, Department of Water Resources, *Inadequate Determination Letter*

⁹ Pages 31-32, March 2, 2023, Department of Water Resources, *Inadequate Determination Letter*

results was replaced with a representative water quality network to protect areas with the potential for water quality to be impacted by groundwater management actions. In sensitive areas of drinking water concerns, groundwater level MTs were adjusted to be protective of water quality concerns. In response to SWRCB staff feedback received on February 5, 2024, water quality monitoring was expanded to include the addition of Uranium and 123TCP to the constituents of concern list (also monitoring Arsenic, Nitrate and Total Dissolved Solids [TDS]).

Deficiency 3: The Subbasin’s land subsidence sustainable management criteria do not satisfy the requirements of SGMA and the GSP regulations^{10,11}

The revised GSP(s) assess Subbasin-wide causes, extent, and magnitude of land subsidence and impacts to critical infrastructure through development of a coordinated approach in addressing land subsidence (Figure 5). As presented to SWRCB staff on December 13, 2023, analyses resulted in two main objectives which guided the Subbasin-wide approach for the assessment of impacts to land subsidence and critical infrastructure to develop SMCs:

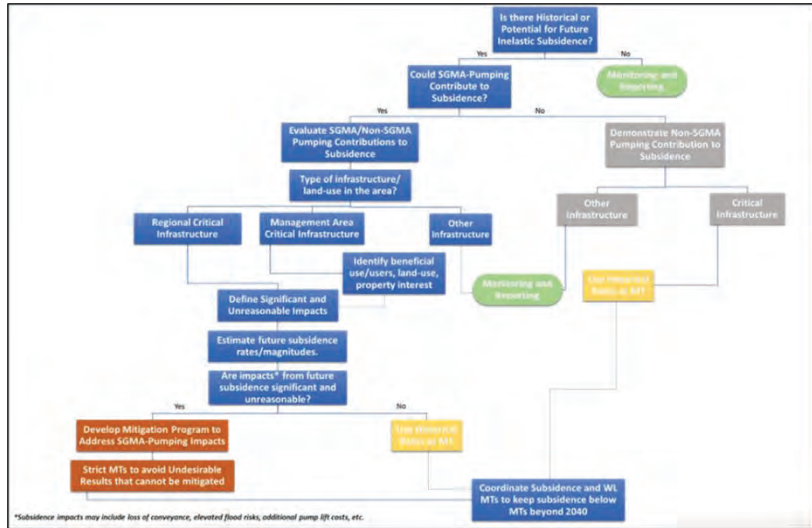


Figure 5. Kern Subbasin Coordinated Subsidence Approach

1. Identify Subsidence Factors:

In comparison to other Southern San Joaquin Valley subbasins, the Subbasin has not historically experienced significant amounts of subsidence with widespread impacts to land surface infrastructure. However, in response to DWR’s identified deficiencies, the Subbasin further investigated and scientifically demonstrated differences between subsidence caused by groundwater extraction activities (within GSA authorities) versus other causes for example oil production, geotechnical/expansive soils, and infrastructure lifespan (outside of GSA authorities) using the most recently available data (including DWR InSAR).

2. Protect Regional and Management Area Infrastructure: Developed consistent SMCs to address subsidence within GSA authorities that accommodate Subbasin complexity and meet SGMA objectives to assess and monitor land subsidence and develop projects and management actions to prevent future impacts. A Subbasin-wide monitoring network has been established.

- 3. Considered Best Available Data and Studies:** During this process, the Subbasin:
- Funded a series of new land subsidence studies that filled key data gaps noted by DWR in their deficiency letter. These studies have been shared with DWR’s California Aqueduct Subsidence Project (CASP) and the Subbasin continues to engage with CASP as an interested stakeholder.
 - Coordinated with the Friant Water Authority (FWA), including construction of a new extensometer on the Friant-Kern Canal, and the Subbasin continues to engage with FWA as an interested stakeholder.

¹⁰ Page 45, March 2, 2023, Department of Water Resources, *Inadequate Determination Letter*

¹¹ Pages 42-45, March 2, 2023, Department of Water Resources, *Inadequate Determination Letter*

- Continues to incorporate updated DWR InSAR data as it is released into technical analysis (Figure 6).
- Updated basin setting definitions consistent with DWR Best Management Practice guidance to consider physical (e.g., to of bedrock), geophysical (e.g., US EPA Underground Source of Drinking Water) and geologic boundaries of aquifer exemptions.

Conclusion

The Subbasin has made significant progress and expended substantial resources to create revised GSP(s) to address the deficiencies identified in DWR's inadequate determination, as well as incorporating SWRCB staff feedback. **The existing GSPs do not represent the Subbasin, and the Subbasin respectfully request that SWRCB staff forego further review of the existing GSPs and instead focus review on the revised GSP(s) to be submitted in May 2024 for consideration prior to preparation of the SWRCB staff report and the Subbasin's tentative January 2025 probationary hearing date. The revised GSP(s) will include a brief Executive Summary that will present key aspects of the document(s).**

The Subbasin is eager to share a comprehensive overview of how our revised GSP(s) address both DWR's deficiencies and SWRCB staff feedback at our May 31, 2024, meeting with SWRCB staff. The Subbasin welcomes and encourages any State Board members who are available to attend this meeting. In addition, the Subbasin landowner representative policy members would like to extend an invitation to all Board Members (while respecting any legal limitations) and invite the Board Members to a hosted tour, or tours, of the Kern County Subbasin.

The Subbasin appreciates your consideration and this opportunity to provide an update on progress. If you have any questions regarding this letter, please contact Kristin Pittack at 760-223-5062 or kpittack@rinconconsultants.com.

Sincerely,



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

CC:

E. Joaquin Esquivel, Chair
State Water Resources Control Board

Laurel Firestone, Board Member
State Water Resources Control Board

Sean Maguire, Board Member
State Water Resources Control Board

Nichole Morgan, Board Member
State Water Resources Control Board

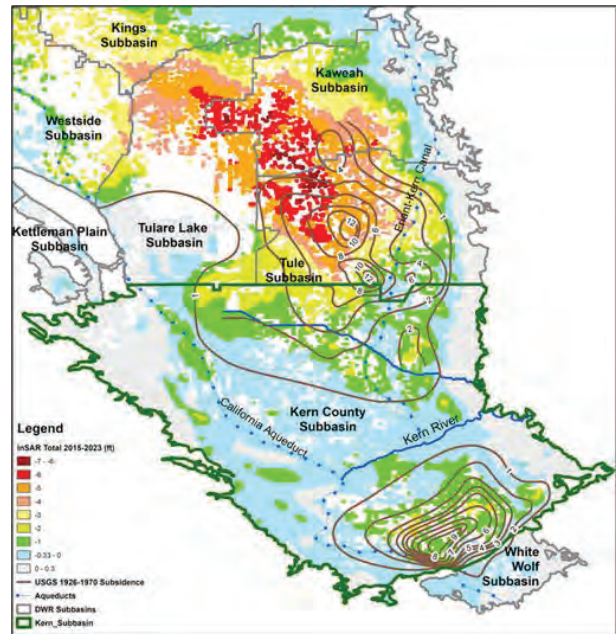
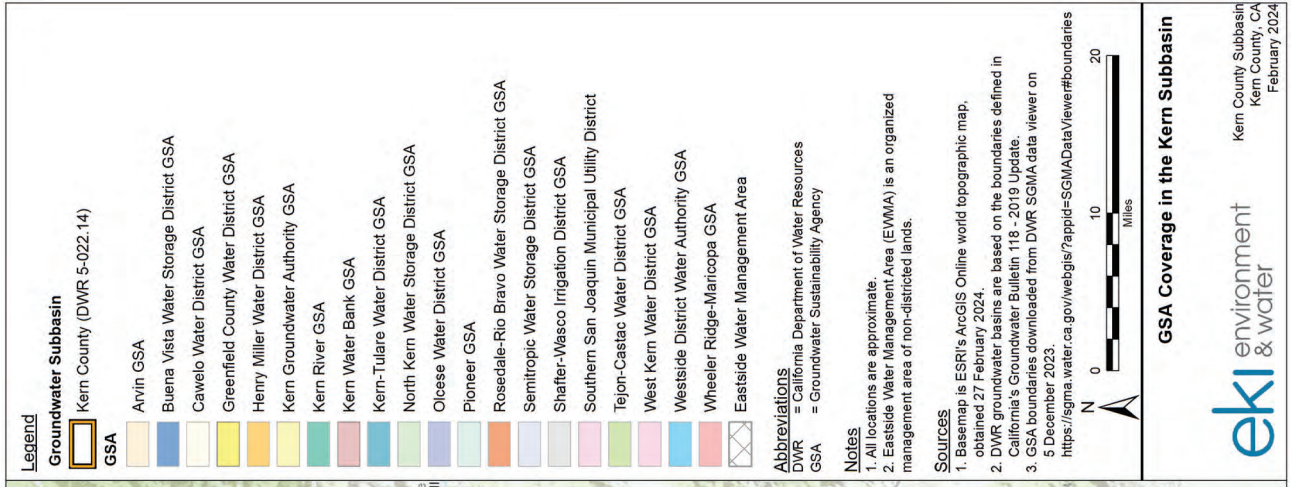


Figure 6. SGMA Data Viewer, Subsidence Vertical Displacement



Legend

Groundwater Subbasin
Kern County (DWR 5-022.14)

GSA

- Arvin GSA
- Buena Vista Water Storage District GSA
- Cawelo Water District GSA
- Greenfield County Water District GSA
- Henry Miller Water District GSA
- Kern Groundwater Authority GSA
- Kern River GSA
- Kern Water Bank GSA
- Kern-Tulare Water District GSA
- North Kern Water Storage District GSA
- Oleese 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
- Tejon-Castac Water District GSA
- West Kern Water District GSA
- Westside District Water Authority GSA
- Wheeler Ridge-Maricopa GSA
- Eastside Water Management Area

Abbreviations
DWR = California Department of Water Resources
GSA = Groundwater Sustainability Agency

Notes

1. All locations are approximate.
2. Eastside Water Management Area (EWMA) is an organized management area of non-districted lands.

Sources

1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 27 February 2024.
2. DWR groundwater basins are based on the boundaries defined in California's Groundwater Bulletin 118 - 2019 Update.
3. GSA boundaries downloaded from DWR SGMA data viewer on 5 December 2023.
<https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer#boundaries>



GSA Coverage in the Kern Subbasin



Kern County Subbasin
Kern County, CA
February 2024

SWRCB Staff and Kern County Subbasin Meetings (2023 - 2024)

Date	Topics
5/17/23	SWRCB Probation Process and Kern County Subbasin Introductions
6/23/23	Revised GSPs Approach: Sustainability Considerations, Addressing Deficiencies, Proposed Timeline
10/4/23	Minimum Thresholds, Measureable Objectives, and Undesirable Results Approach
11/1/23	10/04/23 Technical Follow Up: Groundwater Levels
12/13/23	Subsidence Approach
1/24/24	Water Quality Approach
3/6/24	Well Inventory & Well Mitigation Program Approach
4/3/24	Sustainable Management Criteria and Monitoring Network Approach
4/23/24	Water Budgets, Banking Programs, & PMAs Approach
5/29/24	Final GSP Presentation

Kern County Subbasin Contact List - March 2024

Party	AGENCY	MEMBER	DIRECTOR	MANAGER	CONSULTANT	CONSULTANT LEAD	GENERAL COUNSEL	ATTORNEY	SIGNATORY
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22	Buena Vista	Terry Chica tchicca@aol.com	Terry Chica tchicca@aol.com	Tim Ashlock tim@bvt2o.com	GEI	Dave Miller dmiller@geiconsultants.com	St. Lawrence	St. Lawrence	Terry Chica tchicca@aol.com

Plan Manager (Kristin Pittack - Rincon)
Listed Manager is Agencies SGMA rep and may not be the General Manager
Kern River GSA includes Greenfield and Lamont
SWID/NK/WSO includes Shafter and Wasco
Arvin GSA includes Arvin CSD

Technical Working Group Members

Name	GSA	Firm
Abhishek Singh	North Central Kern GSA - NK & SWID	Intera
Anona Dutton	South of Kern River & Olcese GSAs	EKI
Christina Lucero	South of Kern River GSA	EKI
Dan Bartel	Rosedale-Rio Bravo Water Storage District	Rosedale-Rio Bravo Water Storage District
David Miller	Buena Vista WSD GSA	GEI
Jonathan Parker	KGA – Kern Water Bank	Kern Water Bank
Larry Rodriguez	KGA – Semitropic GSA	GEI
Micah Eggleton	KGA – Pioneer GSA & West Kern WD	Woodward & Curran
Mike Maley	North Central Kern GSA - Cawelo	Todd Groundwater
Maureen Riley	Kern River GSA	Todd Groundwater
Stephanie Hearn	North Central Kern GSA - SSJMUD	GEI
Tom Watson	KGA – Westside Districts MA	Aquilogic
Vanessa Yap	KGA – Kern-Tulare WD	Kern-Tulare Water Storage District
Will Halligan	Henry Miller GSA	Luhdorff & Scalmanini Consulting Engineers

Technical Working Group Tasks

Task	Name
GSP Amendment & Schedule	All TWG Members
Subcommittees	
Alternative Methodologies for Groundwater Levels SMC – 7 Additional Committees: Domestic/Beneficial Users, Critical Infrastructure/Subsidence, Aquifers, Gradients, Banking, Trends, Refinements	Anona (Lead) , Christina, Larry, Abhi, Tom, Will, and David – <u>7 Additional Committees: All TWG Members</u>
Well Mitigation Program	Stephanie (Lead) , Dan, Jon, Abhi
Projects and Management Actions	Dan (Lead) , David, Mike, Larry
Subsidence	Tom (Lead) , Abhi, Mike, Anona, Stephanie, Vanessa
Water Quality	Stephanie (Lead) , Maureen, Anona
Monitoring Network	Will (Lead) , Vanessa, Mike

Kristin Pittack

From: Leahy, Tina@Waterboards <Tina.Leahy@Waterboards.ca.gov>
Sent: Wednesday, March 20, 2024 2:29 PM
To: Kristin Pittack
Cc: Jayakody, Jeevan@Waterboards; Stork, Natalie@Waterboards
Subject: FW: Kern County Subbasin – GSP Amendment Review Request

Follow Up Flag: Follow up
Flag Status: Completed

CAUTION: This email originated from outside of Rincon Consultants. Be cautious before clicking on any links, or opening any attachments, until you are confident that the content is safe .

Kristin,

Thank you for your email. It references a meeting that between the Kern Subbasin GSAs and the Department of Water Resources and asks 3 questions, which are:

1. What format should revised GSPs be submitted to SWRCB staff for review, in draft or final draft form?
2. What public outreach and engagement requirements should subbasin's follow?
3. When should city and county NOIs be submitted and to where (i.e., DWR SGMA Portal, GSA/Management Area websites)?

1. Format and Complexity. As the email correctly states, the State Water Board does not have regulatory specifics "for submitting revised GSPs" for review. Each basin is unique, and each process may be different. The question asks whether the GSPs should be in "draft," or "final draft" form, however neither term is defined. State Water Board staff will, of course, do their best to evaluate any new information that is received and the extent to which they are able to perform a review will depend on how much time is provided in advance of proposed noticing and/or hearing, the complexity of the information provided, and how significant the changes are. In addition, in order to understand how different revisions interact, it seems necessary to view the proposed revisions as integrated plans. As previously recommended, it would aid staff's review if any new GSP submissions are accompanied by a cross-walk that clearly explains the GSP revisions and how they correspond, with specificity, to identified deficiencies.

The larger challenge for the Kern Subbasin GSPs, as identified in DWR's deficiency findings, may continue to be the number, complexity, and lack of clarity among the GSPs in the Kern Subbasin. Since DWR's finding of deficiencies, it appears that the number of local agencies managing groundwater in the Kern Subbasin has now increased from 19 to at least 20 (although a reference to "22" entities was made during a recent online meeting). Those entities area:

1. Arvin GSA
2. Buena Vista Water Storage District GSA
3. Cawelo Water District GSA
4. Greenfield County Water District GSA
5. Henry Miller Water District GSA
6. Kern Groundwater Authority GSA
7. Kern-Tulare Water District GSA
8. Kern River GSA
9. North Kern Water Storage District GSA

10. Olcese Water District GSA
11. Pioneer GSA
12. Rosedale-Rio Bravo Water Storage District GSA
13. Semitropic Water Storage District GSA
14. Southern San Joaquin Municipal Utility District
15. Shafter-Wasco Irrigation District GSA
16. Tejon-Castac Water District GSA
17. Wheeler Ridge-Maricopa GSA
18. West Kern Water District GSA
19. Westside District Water Authority GSA
20. Kern Water Bank GSA

Those 20 agencies previously submitted 6 GSPs, which may now be increasing with the addition of the Kern Water Bank GSA. Some these GSPs were further subdivided into “Management Areas” or “Management Area Plans” (MAPS), which may include additional sub-areas identified variously as “management areas,” “watch areas,” and “monitoring areas.” For example, the Amended Kern Groundwater Authority GSP (Amended KGA GSP) has approximately 21 management areas and 6 “watch areas.” As the Amended KGA GSP explains:

Management areas were created by the districts/member agencies under the KGA to support groundwater sustainability in the Subbasin. While there is no one approach, majority of the management areas in the region maintain respective district boundaries. Districts and member agencies under the KGA already maintain/manage water rights, contracts, and governing agreements in their regions. By creating their own management areas, Districts/members can maintain/manage maximum flexibility and control over SGMA compliance within its service area, allowing them to implement projects and management actions applicable to their respective areas.

(Amended Kern Groundwater Authority GSP, p. 196.) This complexity may continue to make the plans difficult to evaluate. For example, a previous comment by the Leadership Counsel for Justice and Accountability stated, “The Draft GSP is incomplete and must include additional information for the public to evaluate the GSP. The Draft GSP omits critical data regarding the consideration of drinking water impacts on disadvantaged communities and protected groups, sustainable management criteria that consider all beneficial users, and projects and management actions that address significant and unreasonable impacts to beneficial users.” In response the KGA GSP advised, “This comment is directed to the KGA GSP and will be addressed by KGA. We respectfully disagree with the statement, as the information that Leadership Council claims is missing from the GSP is actually included in the management area plans, as appropriate to each respective management area.” (Amended KGA GSP, PDF p. 517.)

The KGA GSP submitted 36 additional documents as “Supporting Information,” including 12 clean and redlined versions of MAPS, which appear to act in some ways as their own GSPs under an “umbrella,” but with differences that require review of those documents as well. As an example, just one of these, the Westside District Water Authority “Amended Chapter GSP,” is 374 pages. It would appear that the reader, such as the Leadership Counsel, is being directed to individual plans, which then, themselves reference back to the KGA GSP. For example, the Westside District Water Authority MAP advises that the “40/4 Method” is being used in the Subbasin, meaning:

“Within the Subbasin a Management Area Exceedance occurs when a management area exceeds minimum thresholds at 40% or more of representative monitoring wells (RMWs) within a management area over four consecutive bi-annual SGMA monitoring events, referred to as the Minimum Threshold Trigger. Once a management area triggers the Management Area Exceedance, the management area will be counted towards the calculation of an undesirable result for the entire Subbasin.”

(Westside District Water Authority MAP, p. 78.) The Shafter-Wasco Irrigation District Amended MAP is 388 pages, etc. That MAP states, “The methodology used to develop the MOs and MTs for water levels by the larger

neighboring management areas (i.e., SWID Management Area and north Kern Water Storage District) was applied for the Management Area, resulting in a consistent approach for the region.” (Shafter-Wasco MAP, p. 7.) It is unclear if this means for this MAP or all MAPs and, if so, why there isn’t one set of MOs and MTs that could be easily understood by potentially affected stakeholders. The Kern Water Bank Storage Project Within the [KGA GSP]” is 715 pages long. The Kern-Tulare Water District MAP is 197 pages long and refers to itself as its own GSP (“Kern-Tulare Water District (District or KTWD) has prepared this Groundwater Sustainability Plan (Plan) to assess the District’s groundwater conditions and to provide monitoring and management actions to achieve sustainability that comply with SGMA,” p. 1-1.), even though it does not appear it was submitted separately and also references itself as a “Management Chapter.” The connected/disconnected nature of the GSPs and MAPs makes them extremely difficult to evaluate on the whole and, in fact, is the primary reason from the delay in my response.

2. Public Outreach. The question is posed as what are the “engagement requirements.” SGMA requires that GSAs consider all beneficial uses and users (Wat. Code, sect. 10723.2) and maintain a list of interested persons who receive timely information (Wat. Code, sect. 10723.4). The intent of these sections is that water users that would be potentially impacted by basin management, including those in economically disadvantaged communities with shallow wells, are considered in basin management and kept informed. In keeping with that goal, DWR’s regulations require that each GSP include a communication section with “a summary of information relating to notification and communication by the Agency with other agencies and interested parties.” (Cal. Code Regs., tit. 23, sect. 354.10.) If there are concerns in the basin regarding sufficient outreach (such as the example posed above by Leadership Counsel) the Board members are likely to be interested in how the Kern GSAs have sought, received, and incorporated the concerns of those users, including the points I raise above. As part of the suggested cross-walk, it would be helpful to highlight how the communication section was updated to reflect increased outreach, if any.

3. City and County NOI. The question asks when NOIs should be submitted and where. However, the email further advises, “Paul additionally stated that subbasin’s submitting revised GSPs to SWRCB Staff for review should upload NOIs to the DWR SGMA Portal in timing of submittal of revised GSPs as required by SGMA regulations (90-days prior).” I assume the reference to NOI is the notice of intent to adopt or amend a GSP required by Water Code section 10728.4, which must be provided “to a city or county within the area of the proposed plan or amendment” 90 days before the public hearing to adopt or amend the GSP to allow for consultation or comment. When the GSAs previously amended the GSP in response to DWR’s initial finding of incomplete, notices were submitted to DWR’s portal. If I am understanding correctly, your email of March 14, 2024, concludes – following your viewing of a DWR webinar – that you do not have to upload notices of plan amendment to DWR’s website. After conferring with DWR, it was my understanding that uploading NOIs, as well as any amended plans, provides public transparency and may be required since the plans would be proposed amended plans and the public may want to comment. However, DWR will not begin reviewing those plans because the basin was referred to the State Water Board. To be specific, the posting of new NOIs or GSPs to DWR’s web site does not affect State Water Board jurisdiction pursuant to SGMA Chapter 11. I will check with DWR regarding the advice provided in the webinar.

Let me know if you have any questions,

Tina Cannon Leahy

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