



# Madera Subbasin

*Joint GSP Plan Amendment –  
Public Webinar Workshop*

December 5, 2024



# Agenda

- Background
- Technical Approach to Corrective Actions
- Next Steps and Timeline
- Q&A

# Background

- **January 2020** – Madera Groundwater Sustainability Plans (GSPs) submitted to Department of Water Resources (DWR).
- **September 2022** – DWR finds the Madera GSPs incomplete.
- **March 2023** – Revised GSPs are submitted to DWR.
- **December 2023** – DWR approves Madera GSPs.
  - Included in the approval letter are a series of recommended corrective actions to further ensure that the GSP's achieve the Subbasin's sustainability goal.
  - 1<sup>st</sup> Periodic Evaluation and Plan Amendment (as required) due by January 31, 2025.
- **Coordination** – Facilitation, Technical Leads, Groundwater Sustainability Agency (GSA) Staff

# Background (Cont.....)

- **Plan Amendment vs. Periodic Evaluation**

**Periodic Evaluation:** an evaluation and written assessment of an approved GSP to occur at least every five years and when a Plan is amended (due no later than five years after initial GSP submittal) - this is an implementation evaluation tool.

**Plan Amendment:** a revised GSP that necessitates going through the Plan adoption process and submission to the Department for review (an agency may amend their GSP at any time; a Periodic Evaluation is required with every Plan Amendment) - this is an adaptive management tool.

**REMINDER - Recommended Corrective Actions:**

GSA's are expected to provide a detailed discussion of how the recommended corrective actions are being addressed or were addressed for each of the Plan elements and sections below, as applicable. When the recommended corrective actions warrant a Plan Amendment the Periodic Evaluation should describe the amended components of the Plan.

Changes made to the overall management of the basin, including sustainable management criteria, sustainability goal, addition or removal of management areas, or wholesale modifications to the representative monitoring sites network.

# Technical Approach to Corrective Action 1

- Corrective Action 1 – All GSAs need to adopt the GSP
- Technical Approach:
  - A response has been drafted and includes a timeline and summary of MID's action to approve the Joint GSP consistent with Resolution NO. 2024-GSA01.

# Technical Approach to Corrective Action 2

- **Corrective Action 2 – The GSAs must continue to coordinate**
  - The GSAs must continue coordination and eliminate areas of disagreement.
  - The GSAs should come to a consensus regarding the data and methods utilized to develop refined future water budgets for the entire Subbasin, and an agreement regarding the availability and use of more detailed data as it becomes available from each GSP area.
- **Technical Approach:**
  - A response has been drafted that highlights:
    - The adoption and use of the MCSim GW model by all GSAs within the Subbasin
    - Facilitation support services (Madera ID/Root Creek)
      - Coordination Agreement and Stakeholder Engagement
    - DWR Grant for SB 552 Compliance (Madera County)
      - Domestic Well Mitigation Program Refinement (Madera Subbasin)
    - Recurring technical meetings
    - Recurring Joint GSP GSA meeting

# Technical Approach to Corrective Action 3

- **Corrective Action 3 – Clarify the relationship between GWL SMC and other SMC**
  - Revise the GSPs to include a discussion of the relationship between the SMC for chronic lowering of groundwater levels and other sustainability indicators, including an explanation of how the SMC, including IMs, were established to avoid undesirable results for each of the other sustainability indicators.
- **Technical Approach:**
  - Added discussion on GWL-Subsidence connection and evaluation through modeling.
    - Subsidence package was included in the MCSim update
    - Additional 1D Subsidence modeling was completed
    - Clear and consistent nexus between GWLs and subsidence was defined
  - Subsidence-related critical infrastructure interviews were held.
  - Clarified that GWL/Subsidence are separate sustainability indicators (with different metrics), and the most restrictive SMC govern.

# Technical Approach to Corrective Action 4

- **Corrective Action 4 – Land subsidence-related updates**

- Clearly describe the significant and unreasonable conditions the GSAs are managing the Subbasin to avoid.
- Reevaluate the quantitative metrics that define an UR.
- Identify the cumulative amount of subsidence that, if exceeded, would substantially interfere with groundwater and land surface beneficial uses and users in the Subbasin.
- Revise the GSPs to include a discussion of the relationship between the SMC for land subsidence and the other sustainability indicators, including an explanation of how the SMC, including IMs, were established to avoid undesirable results for each of the other sustainability indicators.
- Reevaluate or eliminate the application of the level of uncertainty as it relates to subsidence measurements (i.e., clarify SMC so that subsidence can't continue into perpetuity).
- Describe PMAs that will be implemented to minimize or eliminate subsidence (with details/schedule).



# Technical Approach to Corrective Action 4 (Cont...)

## • Technical Approach

- Clearly described the significant and unreasonable conditions the GSAs are managing the Subbasin to avoid.
- Reevaluated the quantitative metrics that define an UR.
- Identified the cumulative amount of subsidence that, if exceeded, would substantially interfere with groundwater and land surface beneficial uses and users in the Subbasin.
- Revised the GSPs to include a discussion of the relationship between the SMC for land subsidence and the other sustainability indicators, including an explanation of how the SMC, including IMs, were established to avoid undesirable results for each of the other sustainability indicators.
- Clarified the level of vertical measurement uncertainty as it relates to subsidence measurements (i.e., clarify SMC so that subsidence can't continue into perpetuity).
- Described PMAs that will be implemented to minimize or eliminate subsidence (with details/schedules).

# Technical Approach to Corrective Action 4 (Cont...)

- **Technical Approach (Cont.)**

- MO/MT for zero subsidence remains the same.
- IM were modified to 5-Year Cumulative totals.

<u>5-Year Interval Ending at Year</u>	<u>Maximum Average Annual Rate of Subsidence (feet)</u>	<u>Maximum 5-Year Cumulative Subsidence (feet)</u>
<u>2025</u>		<u>1.57<sup>3</sup></u>
<u>2030</u>	<u>0.2</u>	<u>1.0</u>
<u>2035</u>	<u>0.1</u>	<u>0.5</u>
<u>2040</u>	<u>0.05</u>	<u>0.25</u>

- Revised IM generally consistent with recent agency interviews (e.g., SJRRP planning for 2.5 to 5 ft of additional subsidence), proposed IM in Chowchilla Subbasin, and proposed IM in Delta-Mendota Subbasin.

# Technical Approach to Corrective Action 4 (Cont...)

- **Technical Approach (Cont.)**

- Exceedance of IM would trigger formation of a working group to evaluate and implement additional potential measures (e.g., pumping reductions) in localized areas.
- UR definition revised to be an exceedance of 25% of RMS MT.
- Two additional SJRRP benchmark stations with data since 2017 for a total of nine RMS; Subsidence Workplan would provide for expanded RMS network.
- MCSim regional subsidence modeling predicts 0.1 to 1 foot of active subsidence across the subbasin related to predicted declining water levels from 2023 to 2030.
- 1D subsidence modeling at two specific locations: MSB-05 in NW portion of Subbasin; and MSB-09 near La Vina to provide estimates of potential residual subsidence.

# Technical Approach to Corrective Action 5

- **Corrective Action 5 – Hydrogeologic Conceptual Model**

- Discuss the uncertainty concerning the hydrogeologic conceptual model and a description of hydrogeologic conceptual model data gaps.

- **Technical Approach:**

- Added additional description of principal aquifers, aquifer confinement, etc.
- Reviewed each data gap previously identified and described how that has been or is being addressed.
- Discussed/refined workplans (subsidence, ISW).
- Described other specific details, as relevant (e.g., Nested monitoring wells and their benefits to geologic understanding and monitoring).

# Technical Approach to Corrective Action 6

- **Corrective Action 6 – SMC for water quality**

- Revise the definition of URs so that exceedances of minimum thresholds caused by groundwater extraction are considered in the assessment of undesirable results in the Subbasin.
- Clearly define what the Plan considers an UR for degraded water quality by describing conditions that it would consider to be significant or unreasonable.
- Identify which minimum threshold values (either the MCL or existing concentration plus 20 percent) will be used at which representative monitoring sites.
- Justify how establishing minimum thresholds at the higher of either MCLs or existing concentrations plus 20 percent does not constitute significant and unreasonable effects as defined by the GSP.

# Technical Approach to Corrective Action 6

- **Technical Approach**

- Added text to better describe specific water quality degradation GSP is trying to avoid (e.g., causing domestic/municipal supply wells to exceed MCLs).
- Modified text to incorporate overall basin groundwater extraction (along with PMA) as potential causes of GW quality degradation GSAs are responsible for.
- All GSP technical experts agreed to adopt Joint-GSP key constituents (TDS, Nitrate, and Arsenic) and MT approach (i.e., MCL or baseline + 20%).
- Added technical justification for 20% increase allowance.
- Updated GSP will include all GW quality data collected for RMS to date; will further develop baselines for RMS in Periodic Evaluation.

# Next Steps and Timeline

- **Plan Amendment**

- Public Review – 11/5/24 → 12/20/24
- Public Workshop Webinar – 12/5/24
- Respond to Comments and Revised Plan Amendment As Necessary – 12/20/24 → 12/30/24
- Governing Body Consideration – 12/30/24 → 1/28/25
- Submission to DWR – 1/31/25

- **Periodic Evaluation**

- DRAFT nearly ready for GSA review.

- **Coordination Agreement**

- Existing Facilitation Support Services Grant (Root Creek) being used to facilitate any necessary changes to the Coordination Agreement.

- **Domestic Well Mitigation Program (DWMP)**

- Domestic Well Mitigation MOU signed (by 5 of 7 GSAs) as part of Revised GSP.
- Existing Madera County DWR grant being used to facilitate any necessary changes to the MOU, adoption by all GSAs, and development of an implementable DWMP in 2025.

# How to Comment

- Plan Amendment is available here:  
<https://www.maderacountywater.com/madera-subbasin/>
- Comments can be submitted to the Stephanie Anagnoson, Plan Manager at [stephanie.anagnoson@maderacounty.com](mailto:stephanie.anagnoson@maderacounty.com)





# List of Acronyms

- GSP – Groundwater Sustainability Plan
- GSA – Groundwater Sustainability Agency
- DWR – Department of Water Resources
- SMC – Sustainable Management Criteria
- IM – Interim Milestone
- UR – Undesirable Result
- MO – Measurable Objective
- MT – Minimum Threshold
- GWL – Groundwater Level
- PMA – Projects and Management Actions
- SJRRP – San Joaquin River Restoration Program
- RMS – Representative Monitoring Site
- MCL – Maximum Contaminant Level
- TDS – Total Dissolved Solids
- DWMP – Domestic Well Mitigation Plan
- MOU – Memorandum of Understanding

# Questions?

