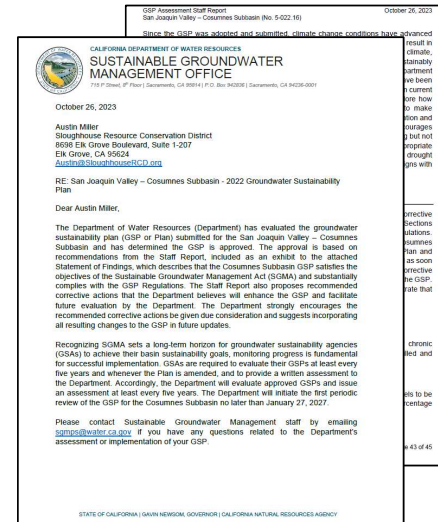


DRAFT PLAN TO ADDRESS DWR'S CORRECTIVE ACTIONS

- CGA received DWR's GSP determination on 26 October 2023.
- Approval letter included six Recommended Corrective Actions (RCAs).
- WY 2024 Annual Report Table AR-10 will need to summarize progress made towards addressing the RCAs.
- RCAs must be addressed during the GSP Periodic Evaluation (2027).



DWR's October 2023 GSP Implementation: A Guide to Annual Reports, Periodic Evaluations, & Plan Amendments

REMINDER - Recommended Corrective Actions:

GSAs 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.

SELECTED QUOTES FROM THE DETERMINATION LETTER

- “The Plan demonstrates a reasonable understanding of where data gaps exist and demonstrates a commitment to eliminate those data gaps.” (DWR Determination: Page 3 of 6)
- “The Department will continue to monitor Plan implementation and reserves the right to change its determination if projects and management actions are not implemented or appear unlikely to prevent undesirable results or achieve sustainability within SGMA timeframes.” (DWR Determination: Page 4 of 6)
- “The GSAs have identified areas for improvement of their Plan (e.g., addressing data gaps related to the hydrogeological conceptual model, well construction information, and interconnected surface water, expanding monitoring networks, and refining projects and management actions). Department staff concur that those items are important and recommend the GSAs address them as soon as possible. Department staff have also identified additional recommended corrective actions within this assessment that the GSAs should consider addressing by the first periodic evaluation of the Plan.” (DWR Staff Report: Page 2 of 45)

PROPOSED RCA SCHEDULE

	2024							2025							2026															
	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N
RCA 1					Data gap filling								Technical analysis							Incorporate data & results into Periodic Review										
RCA 2													Technical analysis							Incorporate data & results into Periodic Review										
RCA 3					Data gap filling								Technical analysis							Incorporate data & results into Periodic Review										
RCA 4					Data gap filling								Technical analysis							Incorporate data & results into Periodic Review										
RCA 5		Data gap filling											Technical analysis							Incorporate data & results into Periodic Review										
RCA 6					Data gap filling								Technical analysis							Incorporate data & results into Periodic Review										

RECOMMENDED CORRECTIVE ACTION 1 (1 OF 2)

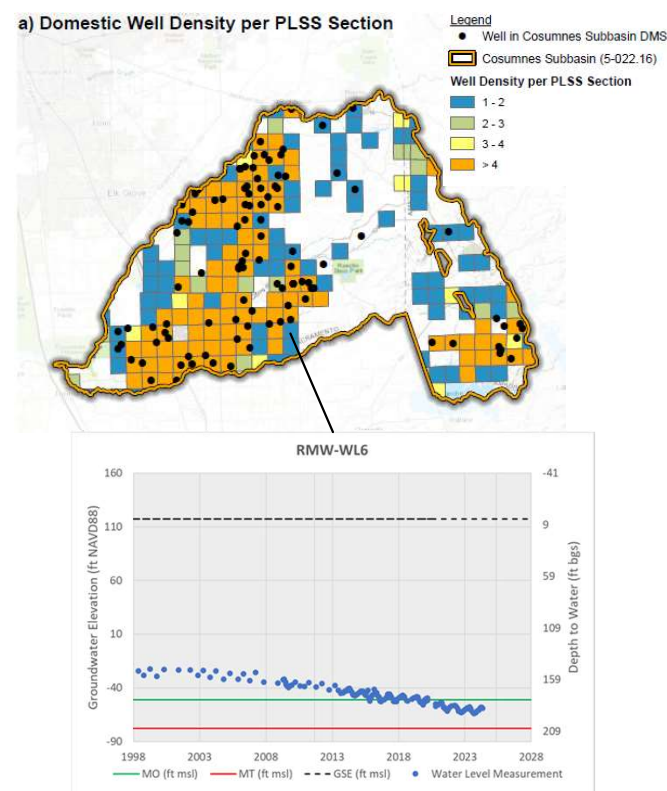
- **Corrective Action 1:** “Further assess potential impacts of the established minimum thresholds for chronic lowering of groundwater levels on **domestic wells** as related data gaps are filled and provide supporting documentation of the assessment.”

- **Background from GSP:**

A domestic well impact analysis was conducted in the GSP (Section 15.1.2. Domestic Well Impact Analysis). The analysis relied on well construction information from DWR’s Online System of Well Completion Reports (OWSCR) database and excluded wells older than 40 years old.

- OWSCR database does not have all wells and does not include reliable locations.
- OWSCR database had 2,349 Domestic wells within the Basin.
- GSP concluded 18 Domestic wells could be partially dewatered, and 12 domestic wells could be fully de-watered if groundwater levels fell beneath the MTs at all representative monitoring wells (*conservative because it is an unlikely scenario*).

Cosumnes GSP: Figure PA-2 Well Density from DWR Well Completion Reports



RECOMMENDED CORRECTIVE ACTION 1 (2 OF 2)

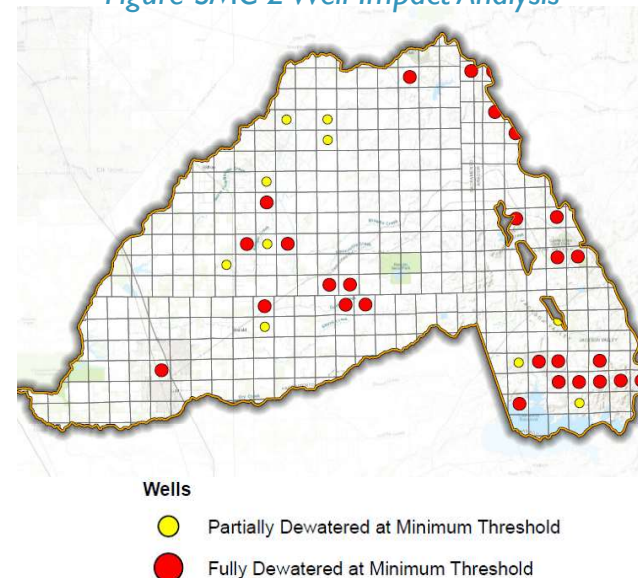
■ **DWR’s Staff Report:**

Department staff believes many users will utilize wells more than 40 years old throughout the GSP implementation period and note this equates to nearly 600 domestic wells potentially impacted by GSP implementation that were excluded from the well impact analysis.

■ **Response Plan:**

- **GSA:** Conduct well census and inventory projects to verify well use, status, construction, and density within the Basin (Data gap identified in Section 19.1.2. Data Gap Filling Efforts)
- **CGA/GSP Consultant:** Update and document domestic well impact analysis after well census is completed.

Cosumnes GSP
Figure SMC-2 Well Impact Analysis



Green = start in 2024
Orange = start in 2025
All tasks completed before Jan 2026

RECOMMENDED CORRECTIVE ACTION 2 (1 OF 2)

- **Corrective Action 2:** *“Revise the undesirable results definition for chronic lowering of groundwater levels to be based on impacts due to lowering of groundwater levels (i.e., the number or percentage of wells that the GSAs deem acceptable to impact due to lowering of groundwater levels) and update the minimum thresholds for chronic lowering of groundwater levels, as necessary, to be tied to the undesirable result definition.”*

- **Background from GSP:**

Significant and Unreasonable effects associated with Undesirable Results occur when the number of completely dewatered domestic wells exceeds the assumed natural well replacement rate projected to occur over the 20-year implementation horizon.

- GSP concluded that, relative to 2015 conditions, 18 domestic wells could be partially dewatered and 12 domestic wells could be fully de-watered if groundwater levels fell beneath the MTs at all representative monitoring wells (*a conservative estimate but unlikely scenario*).
- The above number of impacted wells is far below the number of wells that will require replacement based on age alone (approximately 610 wells).

RECOMMENDED CORRECTIVE ACTION 2 (2 OF 2)

■ **DWR’s Staff Report:**

Department staff note that the GSP has not defined undesirable results for chronic lowering of groundwater levels based on impacts due to lowering of groundwater levels or depletion of supply. By setting the undesirable result based on an average percentage of wells that may need to be replaced or rehabilitated over the 20-year GSP implementation period, the GSAs have not considered what the exact impacts on wells going dry are.

■ **Recommended Response Plan:**

- CGA/GSP Consultant: Revise definition of significant and unreasonable to a verified number or percentage of impacted wells over the 20-year implementation period with justification for selected values.
- GSAs develop program to inspect problem wells, validate impacts, and mitigate as appropriate.*

**SWRCB staff expect well mitigation programs to address impacted drinking water wells. Under a typical mitigation program, the well owner is compensated for pump lowering, well deepening, well replacement, or obtaining an alternative supply.*

Green = start in 2024
Orange = start in 2025
All tasks completed before Jan 2026

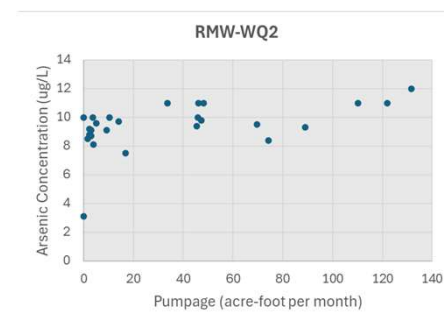
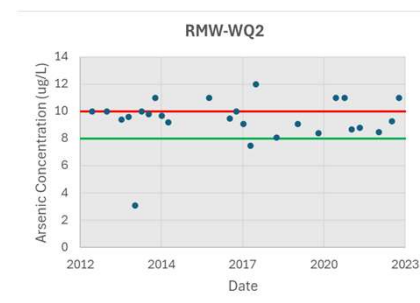
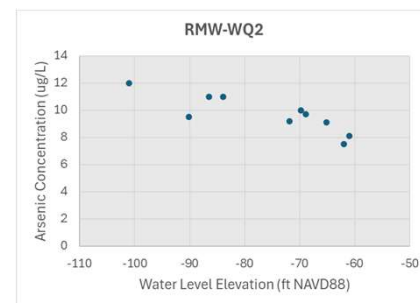
RECOMMENDED CORRECTIVE ACTION 3 (1 OF 2)

- **Corrective Action 3:** “Conduct the necessary investigations or studies to better understand the relationship between groundwater levels and degraded water quality. Based on the results of the investigations/studies, describe in the GSP, the relationship between the minimum thresholds established for chronic lowering of groundwater levels and degraded water quality.”
- **Background from GSP:** Well-water sample results and concurrent water level data were limited in the Basin and the GSP states that the relationship between groundwater elevations and degraded water quality is not well understood. As reported in the GSP, only 19 wells in the entire Subbasin had four or more historical water quality and water level data points, and only 2 are extraction wells.

The SGMA monitoring program specifies annual sampling from 14 RMW-WQs.

Currently, of these wells:

- One (1) has no new data.
- 13 have been sampled annually but were not analyzed for the complete list of constituents.
- 6 have concurrent pumping data.
- 11 have concurrent water level data.



RECOMMENDED CORRECTIVE ACTION 3 (2 OF 2)

- **DWR’s Staff Report:**

Department recommend the GSAs conduct the necessary investigations or studies to better understand the relationship between groundwater levels and degraded water quality, given that, for the most part, the selected minimum thresholds for groundwater levels are lower than levels historically experienced in the Subbasin.

- **Recommended Response Plan:**

- CGA/GSP Consultant: Update analysis using new data from the Monitoring Program and other sources.
- GSAs: Establish protocols that ensure required water quality data is collected from all RMW-WQs.
- GSAs: Establish protocols that ensure water levels are measured in the RMW-WQ at the time of sampling.
- GSAs: Establish protocols that record water production (pumpage) from RMW-WQs.
- CGA/GSP Consultant: Update “Trigger Thresholds” in the GSP’s Periodic Evaluation and include GSA response plan if thresholds are reached. For example, increase the frequency of water quality sampling at the well when Trigger Threshold is reached.

Green = start in 2024
Orange = start in 2025
All tasks completed before Jan 2026

RECOMMENDED CORRECTIVE ACTION 4 (1 OF 2)

- **Corrective Action 4:** *“Establish sustainable management criteria for land subsidence based on direct measurements of land elevation changes to assess and confirm that no significant and unreasonable land subsidence is occurring.”*

- **Background from GSP:**
 - Measured vertical displacement in the Basin has been minor to date indicating that land subsidence and damage to critical infrastructure is not a significant concern in the Basin, based on the best available information.

 - The GSP utilizes groundwater levels as a proxy for monitoring potential land subsidence, and the MTs established for Chronic Lowering of Groundwater Levels were deemed to be protective against URs for Land Subsidence (*Table SMC-1. Summary of Undesirable Results and Minimum Thresholds Definitions, Criteria, and Justification.*)

RECOMMENDED CORRECTIVE ACTION 4 (2 OF 2)

- **DWR’s Staff Report:**

Because of the limited number of global positioning system monitoring stations within the Subbasin, and minimum thresholds for chronic lowering of groundwater levels being established at levels lower than historical lows for the majority of the Subbasin, Department staff conclude that use of groundwater level as a proxy for land subsidence is inappropriate.

- **Recommended Response Plan:**

- CGA/GSP Consultant: Investigate if other entities are already periodically monitoring land surface elevations at monuments as part of other programs (USBR, City of Galt, Cal Trans, etc.)
- CGA/GSP Consultant: Work with the GSAs to identify or establish monument survey network and define SMCs based on actual land surface elevation changes (rate and extent) based on potential impacts to land uses and infrastructure.

Green = start in 2024
Orange = start in 2025
All tasks completed before Jan 2026

RECOMMENDED CORRECTIVE ACTION 5 (1 OF 2)

- **Corrective Action 5:** *Department staff understand that estimating stream depletions due to ongoing Subbasin-wide pumping is a complex task. The Department plans to provide guidance on methods and approaches to evaluate the rate, timing, and volume of depletions of interconnected surface water and support for establishing specific sustainable management criteria in the near future.*

- **Background from GSP:**
 - There are portions of the Cosumnes River where interconnected conditions are assumed to occur, at least temporarily.
 - The correlation between model-calculated depletions and measured groundwater levels was limited due to model uncertainty, the limited number of RMW-ISWs, and a lack of river stage and diversion data.
 - The uncertainty in river depletions is recognized as a significant data gap in the GSP. (*Section 15.6 Minimum Thresholds for Depletions of Interconnected Surface Water*)

RECOMMENDED CORRECTIVE ACTION 5 (2 OF 2)

- **DWR’s Staff Report:**

Department staff note that at this time, the Plan does not demonstrate, with adequate evidence, that the use of groundwater elevations as a proxy for depletions of interconnected surface water is sufficient to quantify the location, quantity, and timing of depletions.

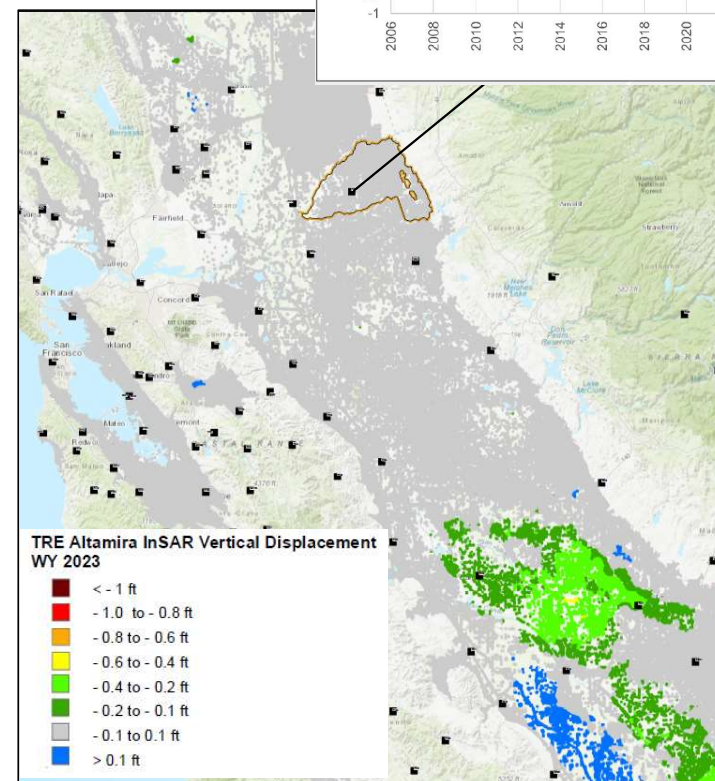
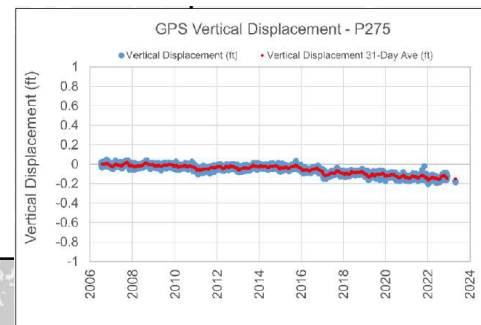
- **Recommended Response Plan:**

- **CGA/GSP Consultant:** Utilize interconnected surface water guidance, as appropriate, when issued by DWR, to establish/refine quantifiable MTs, MOs, and management actions (MAs).
- **GSA fill data gaps:** additional monitoring data, monitor and identify timing and extent of interconnectivity.
- **CGA/GSP Consultant:** Refine CoSANA-calculated surface water depletions consistent with DWR guidelines.
- **CGA:** Prioritize collaborating and coordinating with local, state, and federal regulatory agencies and other interested stakeholders to better understand the beneficial uses and users potentially impacted by pumping induced surface water depletions within the GSA’s jurisdictional area (for example, reactivate the Surface Water Advisory Group [SWAG]).

Green = start in 2024
Orange = start in 2025
All tasks completed before Jan 2026

RECOMMENDED CORRECTIVE ACTION 6

- **Corrective Action 6:** “Expand the land subsidence monitoring network to provide sufficient coverage of the Subbasin. The GSAs may consider the use of additional GPS stations, extensometers, or publicly available remote sensing data (e.g., InSAR) to expand the land subsidence monitoring network in the Subbasin.”
- **Background from GSP:**
 - Data utilized in the GSP was collected at a single point at the University Navstar Consortium (UNAVCO) Global Positioning System station within the Basin (Site P275).
 - InSAR data is freely available for the Basin and results are consistent with Site P275 and the GSP.



RECOMMENDED CORRECTIVE ACTION 6 (2 OF 2)

- **DWR’s Staff Report:**

Department staff do not consider use of groundwater levels as a proxy for land subsidence to be appropriate because of the GSAs’ plan to allow continued lowering of groundwater levels below historical lows in the Subbasin.

- **Recommended Response Plan:**

- CGA/GSP Consultant: Report InSAR data in the Annual Monitoring Reports.
- CGA/GSP Consultant: Investigate if other entities are already periodically monitoring land surface elevations as part of other programs (USBR, City of Galt, Cal Trans, etc.).
- CGA/GSP Consultant: Establish monument survey network and monitoring program (see Recommended Corrective Action 4).

Green = start in 2024
Orange = start in 2025
All tasks completed before Jan 2026

NEXT STEPS

- Meet with DWR to confirm RCA Plan.
- Prioritize PMAs and Data Gap Filling efforts to implement response.
 - Responsible Agency
 - Cost
 - Level of Effort

