TECHNICAL ADVISORY COMMITTEE MEETING
September 18, 2025
MEETING MINUTES

At approximately 1:30 p.m. on September 18, 2025, at the office of the Kaweah Delta Water Conservation District("District"), Dennis Mills, Chair of the Technical Advisory Committee, called to order a meeting of the Committee Members.

Members Present:	Dennis Mills - *Chair*	Larry Dotson
	Scott Wagner	Dennis Keller
	David De Groot	

Absent: Bock, Aaron

Staff and Agency consultants presented an agenda packet that followed the agenda. Attached hereto and incorporated by reference is the packet.

No public comments were received.

PUBLIC COMMENTS & ANNOUNCEMENTS:

Staff announced plans to hold a modeling and water budget educational workshop later this fall. The workshop will be coordinated with agency consultants to provide a better understanding of groundwater modeling methods and how water budget components are derived. The session will be open to Board, Committee, and stakeholder participation.

MINUTES:

Review of the July 17, 2025, TAC Meeting Minutes was postponed to the next meeting to allow additional review and clarification of language within the Exceedance Protocol section. Committee members noted that additional context should be included in future minutes to reflect TAC discussion alongside staff presentations.

GREATER 2026 GROUNDWATER ALLOCATIONS:

Staff and consultants reviewed updates to the Water Year 2026 allocation framework, including recommendations from the Combined Committee regarding consistency across the Kaweah Subbasin GSAs.

Key discussion points included:

- Alignment with Mid-Kaweah and East Kaweah GSA methodologies using a 25-year rolling average for precipitation.

- Proposal to adjust Greater Kaweah's native sustainable yield to 0.83 AF/acre to match the other GSAs, incorporating deep percolation of precipitation into native sustainable yield while reducing the precipitation component accordingly.
- The adjustment provides added flexibility for landowners by allowing the deep percolation portion to be transferable under the native yield category.
- Revisions to the Rules and Regulations would be required to reflect this change.
- 4Creeks presented updated tables and maps illustrating revised allocation zones and calculations.

Member Keller noted that the Native Sustainable Yield (Table 3.2) actually added up to 101% and the math/formulas needed review. He also brought to consultant's attention that Kaweah River Streambed Perc was confusing and gave the impression that the number was a specific year total and not a long-term average total.

Chair Mills noted that landowners will likely be confused about the new zones and the reduced amount of precipitation calculated per zone.

GREATER KAWEAH RULES AND REGULATIONS:

The Committee reviewed potential policy revisions for groundwater transfers intended to improve flexibility while maintaining protection against localized impacts.
Discussion highlights:

- Proposal to allow native sustainable yield transfers anywhere within the Greater Kaweah GSA without distance restrictions or loss factors, replacing the current three-zone limitation.
- Members discussed the need for localized monitoring requirements for properties receiving transferred water to detect potential impacts on domestic wells or subsidence areas.
- Several members suggested incorporating management or protection zones where transfer activity may be limited due to known vulnerabilities.
- The Committee recognized this as an interim policy concept subject to future refinement as the subbasin transitions to two-aquifer management.

Member Dotson questioned the change, localized change that could occur with the ability to transfer slightly more sustainable yield in the proposed percentage of precipitation shift. The water could more easily shift to another area and cause an impact.

The Committee supported moving forward with staff and consultant recommendations to present the proposed allocation structure to the Board in October.

Coordination and Cross-Boundary Transfers

Chair Mills asked Staff to provide an overview of inter-GSA transfer coordination within the Kaweah Subbasin:

- East Kaweah GSA has restricted transfers due to observed groundwater level impacts.
- Mid-Kaweah GSA has recently initiated discussions regarding potential cross-boundary transfers.
- Greater Kaweah currently allows outgoing transfers upon mutual GSA approval but has not yet permitted incoming transfers.

Member Dotson inquired if there had been any analysis performed to assess any impacts with the proposed new transfer policy? There was no analysis.

Chair Mills noted he suggested to the Board that individuals making transfers under this proposed new policy might be required to perform additional monitoring to track the impact. He additionally acknowledged that in the future, when the Subbasin appropriately addressed the two aquifers, this would all be different and evolve into something else. He stressed that flexibility might be appropriate for today, tomorrow it might change and all might be significantly different.

Chair Mills repeated that the Greater should require that the party receiving the transfer should be required to perform specific monitoring for a period of time to track the impacts of the transfer, and that clearly this policy would not survive after the Greater addresses the two aquifers. The committee further discussed the establishment of monitoring and how the data could be used to address areas of concern and might limit areas that cannot sustain transfers to. Eventually establishing management or protection zones in critical areas.

SUBBASIN GROUNDWATER SUSTAINABILITY PLANS:

Staff reported that the State Water Resources Control Board continues to delay scheduling a meeting to consider the Kaweah Subbasin due to timing issues with other basins, including Kern, and the upcoming November election.

- Staff anticipate that a r meeting may be set for late November or December 2025.
- GKGSA received a letter of support from Community Water Center and Leadership Council for Justice and Accountability, commending Subbasin's approach to drinking water protections, well mitigation, and outreach efforts.

Groundwater Levels:

Awaiting updated model refinements to finalize the evaluation of monitoring sites and thresholds.

Water Quality:

The annual monitoring report has been finalized and posted on the GKGSA website. Self-Help Enterprises and other reviewers provided minor editorial comments. Fall sampling is underway with a goal of completing all 71 RMS sites across the Subbasin.

Interconnected Surface Water:

Harder Group has developed a five-phase monitoring plan including shallow wells and stream gauges. The first two transducer installations with telemetry are planned along Dry Creek and the Sequoia Preserve. Estimated cost: approximately $11,000 for setup and $6,500 in annual monitoring.

GROUNDWATER ACCOUNTING FRAMEWORK:

Larsen gave an update on recent work and meetings regarding the Groundwater Accounting Framework.

Chair Mills suggested that, again, the GAF was subject to change once the Subbasin appropriately addresses the split in the aquifers. Additionally, he stressed that DWR will be big on addressing subsidence in the Subbasin and it would be not be possible without defining two aquifers in the Kaweah.

WELL INVENTORY AND WELL REGISTRATION:

Staff are working with Provost & Pritchard and Sierra Rodriguez to complete an updated well inventory

using GIS and AI-assisted satellite imagery. The Well Registration Program is scheduled to launch on October 1, 2025, coinciding with the State of the Basin Event at the International Agri-Center.

- Staff will be available to assist landowners in registering wells online or by appointment.
- The Board emphasized that registration will become a required component of ongoing groundwater management compliance.

SUBSIDENCE MONITORING AND MANAGEMENT;

Harder Group is coordinating with landowners for installation of monitoring wells in priority areas, particularly in the southwest portion of the GSA. Tom Harder updated the committee on the work to install transducers in wells for real-time monitoring.

Chair Mills suggested it would be difficult to put and appropriately utilize a transducer in an active well. Staff and consultants clarified that the effort was to locate them in existing, inactive wells.

DWR BMPs:
Larsen notified the committee that DWR had released their draft BMP for Subsidence. He stated that the Subbasin has decided to respond to the draft with one set of comments.

Chair Mills suggested DWR sidestepped the issue in their description of critical head, because if you restore the aquifer to critical head you don't have a lot of residual subsidence. The target is above the level you have residual. Additionally, there was discussion about the relevance of the inclusion of a section regarding the high speed rail in the BMP.

Chair Mills reviewed the areas the BMP listed as necessary to cover to appropriately address and avoid subsidence. Mills again suggested the Subbasin do as much as possible anticipating DWR's focus in 2026 on subsidence and noted the Subbasin was behind on its own schedule. Mills noted DWR expects the identification and management of a water level that keeps critical head.

ADJOURNMENT:
There being no further business, the meeting was adjourned at approximately 2:45 p.m.

The next TAC meeting will be scheduled for October 2025.

Respectfully Submitted,

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Dennis Mills, Committee Chair

TECHNICAL ADVISORY COMMITTEE
MEETING
December 19, 2025
MEETING MINUTES

GREATER KAWEAH GROUNDWATER SUSTAINABILITY AGENCY
TECHNICAL ADVISORY COMMITTEE
MEETING MINUTES

At approximately 10:00 am on December 19, 2025, at the office of the Greater Kaweah Groundwater Sustainability Agency, Dennis Mills, Chair of the Technical Advisory Committee (TAC), called the meeting to order.

MEMBERS PRESENT
Dennis Mills – Chair
Scott Wagner
David DeGroot
Aaron Bock
Larry Dotson
Dennis Keller

MEMBERS ABSENT
N/A

STAFF AND CONSULTANTS PRESENT
Mark Larsen – Greater Kaweah GSA
Stephanie Ruiz
Tom Harder – Thomas Harder & Co
Jim VandeWater – Thomas Harder & Co

Staff and agency consultants presented an agenda packet that followed the noticed agenda. The agenda packet is attached hereto and incorporated by reference.

PUBLIC COMMENTS & ANNOUNCEMENTS
No public comments were received. No correspondence or announcements were made at the beginning of the meeting.

MINUTES
Approval of October 16, 2025 TAC Meeting Minutes
The Committee reviewed the draft minutes from the October 16, 2025 TAC meeting. Dennis Mills noted that minor revisions had been made to clarify several items, including corrections to spelling and wording. David DeGroot confirmed a correction related to name spelling. A motion was made and seconded to approve the October 16, 2025 meeting minutes with the noted revisions. The motion passed unanimously, with all members voting in favor and no opposition.

AGENDA REORDERING

The Committee agreed to move ahead in the agenda to focus on discussion related to land subsidence and recent Department of Water Resources (DWR) guidance, recognizing the importance and timeliness of the topic.

LAND SUBSIDENCE, CRITICAL HEAD, AND DWR GUIDANCE

Dennis Mills introduced the item by describing his review of DWR Bulletin 118, including the newly added Appendix I, which presents updated land subsidence analyses and critical head estimates for locations throughout the San Joaquin Valley. Mills noted similarities between the Bulletin 118 material and DWR's draft Best Management Practices (BMPs) for subsidence, as well as notable differences, including the number of sites evaluated and the critical head elevations presented.

Mills expressed concern that, at several Kaweah Subbasin locations, critical head values identified in Bulletin 118 appear to be tens of feet above current groundwater levels. He further noted that some DWR projections suggest groundwater recovery to levels significantly above critical head may be necessary to arrest subsidence, raising questions about feasibility, water availability, and consistency with the GSA's current allocation framework, which allows limited overdraft during the implementation period. Mills emphasized the importance of beginning substantive discussion on this issue in light of ongoing GSP revisions and state agency review.

Presentation by Tom Harder – Overview of BMPs and Bulletin 118 – Thomas Harder & Co.
Tom Harder provided a detailed technical presentation addressing land subsidence, critical head concepts, and recent DWR guidance. Harder explained that similar discussions are occurring in other basins, including Tule, and that the methodology used by DWR and its consultants has generated substantial technical debate.

Harder outlined the objectives of his presentation:

- Overview of Selected Sections of the California Department of Water Resources Draft Land Subsidence Best Management Practices
- Overview of Selected Graphs in Appendix I of the Department of Water Resources Public Draft of the 2025 Bulletin 118
- Observations of Bulletin 118 1D Subsidence
- Critical Head and Minimum Thresholds

Harder explained that the BMPs emphasize recovery of groundwater levels above critical head in fine-grained sediments to minimize or halt subsidence. He clarified that production and monitoring wells in the Kaweah Subbasin are generally perforated in aquifers, not the fine-grained units themselves, creating uncertainty in estimating true pore pressure within compressible clays. Harder reviewed monitoring expectations outlined in the BMPs, including benchmarks, GPS stations, InSAR, and extensometers. He noted that the Kaweah Subbasin currently employs all methods except extensometers and continues to work toward filling data gaps.

Monitoring Network and Data Gaps

Harder described ongoing efforts to expand groundwater level monitoring, including installation of transducers in existing wells and identification of additional monitoring locations throughout the subbasin.

He noted that three wells in southern Greater Kaweah are now equipped with transducers, including wells in both upper and lower aquifers, and that further work is underway on the west, north, and eastern portions of the basin.

Discussion highlighted the importance of well construction information, aquifer-specific monitoring, and frequency of data collection, consistent with BMP recommendations.

Groundwater Pumping and Metering

Harder reviewed BMP guidance encouraging pumping measurement, particularly in subsidence-prone areas near infrastructure. He expressed his professional opinion that metered pumping data provides a clearer basis for analyzing subsidence relationships than evapotranspiration-based estimates. Mark Larsen confirmed that landowners may opt to use meters instead of Land IQ ET estimates by petitioning the GSA Board.

Committee members discussed the potential value of expanding metering requirements in areas experiencing subsidence, while recognizing the policy and implementation considerations involved.

Critical Head Estimation and 1D Modeling.

Harder explained the concept of critical head and reviewed several hydrographs illustrating relationships between groundwater levels and subsidence. He described how critical head is estimated using one-dimensional (1D) compaction models, including C-SUB and similar methodologies.

Harder emphasized that critical head is not a static value; as clays compact over time, the pre-consolidation head can decline, making recovery increasingly difficult. He noted that many DWR projections assume fixed groundwater levels in the future, which may overestimate subsidence by failing to account for seasonal variability and elastic rebound.

Harder compared DWR's 1D modeling approach with prior modeling conducted for the Kaweah Subbasin during the 2024 GSP update. He explained that the earlier modeling focused on identifying groundwater levels that would limit future subsidence within the GSA's adopted minimum thresholds, rather than eliminating subsidence entirely.

Bulletin 118 Appendix I Review

Harder walked through several Bulletin 118 Appendix I figures for locations in the Kaweah Subbasin. He identified several concerns and observations of the Critical Head Analysis, including:

- The Sources of the Hydrographs Are Not Cited
    - There are No Lower Aquifer Wells in the Kaweah Subbasin Database in the Visalia Area
    - The Kaweah Database Does Not have Groundwater Level Records As Far Back As Shown in Bulletin 118
    - The Groundwater Levels in the Visalia Area for the "Lower Aquifer" are Similar to that Observed for Upper Aquifer Wells in the Database
    - Some of the "Lower Aquifer" Wells Have Elevations Higher than the "Upper Aquifer" Wells at Times – this is Contrary to the Known Vertical Head Distribution in the Area
- The 1D Analyses Fix the Groundwater Level after the Historical Period and Do Not Account for Seasonal Fluctuations

Chair Mills, referencing a graph demonstrating a 30 foot decline in groundwater level and subsequent subsidence, questioned how realistic it was to manage the recovery by 2040. Additionally, Mills noted it was not clear what recovery DWR was expecting in this example. Member Keller noted he was under the impression DWR was focusing on groundwater recharge as the objective. There followed discussion regarding a fair amount of unknowns in the data and example DWR used for this demonstration. Harder added:

- Lack of cited sources for historical groundwater level data extending back to the 1940s
- Unclear well construction and aquifer assignments
- Apparent inconsistencies between upper and lower aquifer heads
- Use of composite or municipal wells that may not represent discrete aquifers

Dennis Mills and Jim VandeWater – Thomas Harder & Co. raised questions about the feasibility of achieving the groundwater recoveries implied by some Bulletin 118 figures, particularly within the remaining implementation period through 2040.

Mills also recommended that as we established the new dedicated monitoring wells, where we know depth and perforations and such details, we use those wells as the location for modeling, the most recent information.

Member Keller noted that we needed to recognize that the recharge position today is significantly greater than it was 50 years ago, therefore the rebound potential was significantly greater, and Member Dotson noted that even ditch companies were recharging at rate greater than pre-SGMA.

Chair Mills cautioned that he thought the ramp-down process did not seem to match up with the critical head ramp-up that DWR promulgated.

Committee Discussion

Jim VandeWater emphasized the need to clarify whether GSAs are responsible for returning groundwater levels to pre-2015 conditions or achieving zero subsidence immediately, noting that SGMA allows for a glide path to sustainability by 2040.

Committee members discussed the distinction between subsidence as a physical process and "undesirable results" as defined under SGMA, noting that impacts to critical infrastructure, rather than subsidence alone, are the statutory concern.

Members also discussed recharge dynamics, land retirement, changes in surface water management, and increased recharge capacity compared to historic conditions.

Additional discussion addressed the sensitivity of 1D models to soil properties, uncertainties in clay permeability and storage coefficients, and the difficulty of recovering pore space once inelastic compaction has occurred.

Potential Policy and Planning Implications

The Committee discussed how emerging critical head concepts could affect:

- Minimum thresholds and measurable objectives
- Sustainable yield estimates
- Allocation frameworks and overdraft allowances
- Long-term water supply planning for municipalities

Members noted growing interest from urban water suppliers regarding post-2040 groundwater availability and the need for clearer communication regarding GSA assumptions.

Comment Letter to DWR

The Committee agreed that the technical concerns raised warrant formal communication to DWR. Harder indicated that, working with GSA staff, a draft technical comment letter could be prepared outlining data gaps, methodological questions, and interpretation concerns related to Bulletin 118 and the BMPs.
Members discussed the importance of notifying DWR staff of the GSA's concerns, even if formal comment periods have closed, to ensure local data and context are considered before guidance is finalized.

FOLLOW-UP ITEMS

- Prepare a draft technical comment letter to DWR addressing Bulletin 118 Appendix I and critical head methodology (Consultants and Staff)
- Continue expanding groundwater and subsidence monitoring networks (Staff)
- Coordinate with DWR during upcoming meetings regarding subsidence and GSP implementation (Staff and Consultants)
- Evaluate implications of critical head guidance for sustainable yield and allocation policies (Staff and TAC)

ADJOURNMENT

There being no further business, the meeting was adjourned at approximately 3:00 p.m.

Respectfully Submitted,

Dennis Mills, Committee Chair
October 16, 2025