Joint Meeting of the Delta-Mendota Subbasin GSAs Joint Powers Authority and Coordination Committee

Monday, April 13, 2026, 1:00 PM

Grassland Water District Board Room
200 W Willmott Ave, Los Banos, CA 93635

The Public May Join the Meeting at the Zoom Link Below:
https://zoom.us/j/93491446604
Webinar ID: 934 9144 6604
Call-In: +16694449171,,93491446604# US

NOTICE IS HEREBY GIVEN that a Joint Meeting of the Delta-Mendota Subbasin GSAs Joint Powers Authority and Coordination Committee has been called for **Monday, April 13, 2026, 1:00 PM**, on items listed on the attached agenda, which is incorporated by reference and made a part hereof.

Teleconference Locations:

200 W Willmott Ave, Los Banos, CA 93635	24187 West Gun Club Rd, Gustine, CA 95322	948 Orange Ave, Patterson, CA 95363

Persons with a disability may request disability-related modification or accommodation by contacting Karlee Liddy at the Hallmark Group Office, 500 Capital Mall Suite 2350, Sacramento CA 95814, via telephone at (916) 767-4287, or via email at kliddy@hgcpm.com. Requests should be made as far in advance as possible before the meeting date, preferably 3 days in advance of regular meetings or 1 day in advance of special meetings/workshops.

AGENDA

1. Call to Order/Roll Call (Hurley)
2. Pledge of Allegiance (Hurley)
3. Committee to Consider Corrections or Additions to the Agenda of Items, as Authorized by Government Code Section 54950 et seq. (Hurley)
4. Opportunity for Public Comment (Hurley)
5. Report on the April 7th SWRCB Board Meeting (Hurley/Martin)

Consent Calendar

6. Review and Take Action on the Consent Calendar (Hurley)
    a. Minutes of the March 9, 2026 Meeting
    b. Budget to Actual Report

Closed Session

7. Conference with Legal Counsel – Anticipated Litigation (Layne)
   The Committee will meet in closed session to confer with legal counsel on significant exposure to anticipated litigation pursuant to paragraph (2) of subdivision (d) of Government Code Section 54956.9: (1 case)

Open Session

8. Report from Closed Session (Layne)

Action Items

9. Rescind the Special Project Agreement Between the Central DM GSA and the Delta-Mendota Subbasin GSAs Joint Powers Authority (Layne)
10. Consider Authorizing EKI to Perform the Model Calibration in Fiscal Year 2027 (Blakslee/Dutton)

Report Items

11. Review and Provide Feedback on the Groundwater Monitoring Guidance Document (Blakslee)
12. Review and Provide feedback on the Domestic Well Mitigation Policy Briefing Workshop (Blakslee/Beutler)
13. Program Management Report and Update on Action Items (Blakslee)
14. Update on PRP Implementation and Exceedance Reporting (Mani)
    a. Update on Q1 Data Submittal to the DMS
    b. Report from GSAs with Exceedance
15. Update on SGMA Round 1 Implementation Grant (Dumas)
16. Update on Facilitation Support Services Outreach Activities (Beutler)
    a. Update on the Merced Joint Meeting Regarding Comment Letters on Periodic Evaluations
17. Next Steps (Blakslee)
18. Member Reports (Hurley)
19. Reports Pursuant to Government Code Section 54954.2(a)(3) (Layne)
20. Next Meeting(s): (Hurley)
    a. Joint JPA Board / Coordination Committee Meeting – May 18th, 2026, Grassland Water District Boardroom
21. Adjournment (Hurley)

DELTA-MENDOTA SGMA

FOR IMMEDIATE RELEASE
April 9, 2026
CONTACT: Taylor Blakeslee
(661) 477-3385

Delta-Mendota Subbasin exits State Water Board intervention, returns to DWR oversight

The State Water Resources Control Board (Water Board) unanimously adopted a resolution on April 7, 2026, to return the Delta-Mendota Subbasin to the jurisdiction of the California Department of Water Resources (DWR). By avoiding a "probationary" designation, the subbasin's growers will no longer be required to pay the state a $300 fee to register their wells and then pay $20 per acre foot pumped.

The Board's decision follows the release of a March 2026 Water Board Staff Assessment which concluded that the subbasin's Groundwater Sustainability Agencies (GSAs) had made significant progress in addressing previously identified deficiencies through its revised, 2024 single Groundwater Sustainability Plan (GSP).

Prior to the vote, Water Board member Sean Maguire noted, "The metrics I think about, and that I've mentioned at a number of other probationary discussions, is: progress, not perfection is what we're looking for. I think what we've seen here from the basin is a willingness to coordinate amongst 23 different groundwater sustainability agencies."

Board Chair E. Joaquin Esquivel observed, "Delta-Mendota is the fourth subbasin to exit state intervention after groundwater agencies came together and coalesced around the common goal of achieving sustainability. I congratulate the agencies on their cooperation and partnership, which will be key to managing the subbasin's groundwater in the future."

The Water Board became involved in oversight for the Delta-Mendota Subbasin in March 2023, after DWR determined that the subbasin's multiple GSPs did not meet the Sustainable Groundwater Management Act's (SGMA's) regulatory requirements. DWR referred the subbasin to the Water Board for further review under SGMA's intervention provisions and a potential probationary status.

The State Water Board staff's recommendation is based on several critical updates made to the subbasin's revised GSP calling out unified management, drinking water protection, pumping reductions, and water quality monitoring improvements.

"The Water Board decision reflects the hard work of Delta-Mendota GSAs to find common ground and their commitment to using the best available science in reaching decisions," said Chase Hurley, Chair of the Delta-Mendota Subbasin GSAs Joint Powers Authority. He continued, "We also appreciate the efforts of the Water Board staff to work with us to achieve this outcome."

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DELTA-MENDOTA SGMA

TO: Board of Directors
Agenda Item No. 6

FROM: Taylor Blakslee, Hallmark Group

DATE: April 13, 2026

SUBJECT: Review and Take Action on the Consent Calendar

Recommendation
Approve the Consent Calendar.

Discussion
The documents below are included in the consent calendar for consideration of approval:

a. Minutes of the March 9, 2026 Joint Meeting of the Delta-Mendota Subbasin GSAs Joint Powers Authority and the Coordination Committee (**Attachment 1**)
b. Budget to Actual Report from SLDMWA through February 2026 (**Attachment 2**)
c. Invoicing and payment status from the DM Subbasin JPA and Northern DM are provided as **Attachment 3.**

Joint Meeting of the Delta-Mendota Subbasin GSAs Joint Powers Authority Board of Directors and Coordination Committee

Monday, March 9, 2026, 1:00 PM

Grassland Water District Board Room
200 W Willmott Ave, Los Banos, CA 93635

Draft Meeting Minutes

PARTICIPANTS:

Board Directors

Chase Hurley, Central DM GSA
Jim Stilwell, Farmers GSA
Joe Hopkins, Aliso Water District
Augustine Ramirez, Fresno County A&B
John Wiersma, San Joaquin River Exchange Contractors
Ric Ortega, Grassland Water District
Vince Lucchesi, Northern DM Region – *Call in from noticed location*

Others Present

Lauren Layne, Legal Counsel, Baker Manock & Jensen
Taylor Blakslee, Hallmark Group
Palmer McCoy, Mercy Springs Water District
Lacey McBride, Central DM Region

Present Via Zoom/Phone

Adam Scheuber, Del Puerto Water District
Alma Antua, Westlands Water District
Amir Mani, EKI
Anona Dutton, EKI
Susan Xie, EKI
Andrew Francis, LSCE
Ethan Andrews, Provost & Pritchard
Gilbert Torres, Fresno County
Holly Stanitsas, Stantec
Jason Dean, Anatidae Consulting
Juan Cadena, Mercy Springs WD
Jules Barab, TriHydro

Kait Palys, INTERA
Leslie Dumas, Woodard & Curran
Maria Razo, Stanislaus County
Matt Garcia, Del Puerto WD
Manny Amorelli, James ID
Patrick McGowan, Panoche Water District
Rick Iger, Provost & Pritchard
Ryo Takanashi, Water One
Scott Petersen, San Luis &Delta Mendota Water Authority
Will Halligan, LSCE

1. Call to Order/Roll Call

Committee Chair Hopkins called the meeting to order at 1:01 pm.

2. Pledge of Allegiance

Committee Chair Hopkins led the pledge of allegiance.

3. Committee to Consider Corrections or Additions to the Agenda of Items, as Authorized by Government Code Section 54950 et seq.

There were no corrections or additions to the agenda items.

4. Election of Officers

Lauren Layne introduced this topic, and stated that pursuant the MOA, the Board needs to elect officers every March and rotate by alphabetical order of the GSA name. As such, current Chair is Joe Hopkins with Aliso GSA, and Chase Hurley (with Central DM GSA) is Vice Chair.

MOTION

Director Ortega made a motion to approve Chase Hurley as Chair and Jim Stilwell (Farmers GSA) as Vice Chair. Director Ramirez seconded the motion, and it passed by a unanimous roll call vote. Chairman Hurley took over the meeting at this point.

5. Opportunity for Public Comment

Chair Hurley opened the floor for public comments, and no public comments were provided.

Consent Calendar

6. Committee to Review and Take Action on the Consent Calendar

- **a.** Minutes of the Special Joint DM Authority and Coordination Committee Meeting February 4, 2026
- **b.** Minutes of the Joint DM Authority and Coordination Committee Meeting February 9, 2026
- **c.** Budget to Actual Report

MOTION

Director Wiersma made a motion to approve the consent calendar, including the meeting minutes and budget to actual report. Director Hopkins seconded the motion, and it passed by unanimous roll call vote.

Closed Session

7. Legal Counsel - **Anticipated Litigation - None**

The Committee will meet in closed session to confer with legal counsel on significant exposure to anticipated litigation pursuant to paragraph (2) of subdivision (d) of Government Code Section 54956.9: (1 cases)

Open Session

8. Report from Closed Session

The Board did go into closed session.

Action Items

9. Adopt a Resolution of Commendation for the SLDMWA for their Services to the Delta-Mendota Subbasin

Director Martin had suggested the DM JPA Board draft and present a signed, framed resolution of commendation to the San Luis Delta Mendota Water Authority Board for their services to the Subbasin GSAs. The Board directed staff to facilitate the printing, signing, and framing of the resolution for the SLDMWA Board meeting on April 9, 2026.

MOTION

Director Ortega made a motion to approve the resolution of commendation to be presented to the SLDMWA Board. The motion was seconded by Director Hopkins and passed via unanimous roll call vote.

10. Approval of the Northern DM Committee Consultant Contracts for Program Management Support and Technical Support Services

Taylor Blakslee (Hallmark Group) provided an overview of the Northern DM Committee consultant contracts, noting that the DM JPA Board approved the Northern DM Committee FY27 Budget at the February 9, 2026 DM JPA meeting. Consultant contracts were presented to the Board and were approved for execution by the Board Chair.

MOTION

Director Ramirez made a motion to approve the Northern DM consultant contracts with Hallmark Group and EKI for Program Management Support and Technical Support Services, respectively. The motion was seconded by Director Ortega and passed via unanimous roll call vote, with Director Lucchesi abstaining.

11. Approval and Ratification of the Special Project Agreement with the Central DM GSA

Ms. Layne provided a summary of the Central DM Special Project Agreement and Director Hopkins asked why a special project agreement is needed if the Central DM GSA is their own separate joint powers authority. Ms. Layne stated that they would still have to contract as 12 smaller entities and therefore it is easier to contract through the JPA rather than their smaller JPA.

MOTION

Director Ortega made a motion to ratify entering into the Special Project Agreement with the Central DM GSA. The motion was seconded by Director Lucchesi and passed via unanimous roll call vote, with Director Hurley abstaining.

12. Report on Technical Ad hoc and Consider Authorizing EKI to Perform Model Calibration *****Unanimous vote required.*

Mr. Blakslee introduced this item and stated that since this item was deferred during the FY27 budget approval process, unanimous Board approval is required for the motion to pass.

Amir Mani (EKI) provided background on the purpose and goal of the model calibration and provided a readout from the technical ad hoc committee meeting on February 26, 2026. Anona Dutton (EKI) provided a summary of the benefits and potential risks avoided by calibrating the model in the current fiscal year.

The Board participated in a healthy discussion regarding the pros and cons of performing the model calibration in this fiscal year, with those opposing the action stating that the calibration should take place next year, with improved data input from the well registration and metering requirements (required as of January 2026). Some Board members expressed concern for the cost distribution of the model calibration and wanted to review the cost sharing for the single GSP preparation as a potential example. Several Board members asked about GSAs reporting surface water deliveries and how that impacts pumping estimates from the model. They also inquired about EKI potentially performing the calibration is phases, rather than all at once in this fiscal year.

The Board directed staff to convene the technical ad hoc committee to discuss this topic and to defer this item to the April 13, 2026, meeting.

13. Approval of Administrative Policies

Ms. Layne introduced this item and stated that any invoices will come to the Board for approval before payments are made and ensured the Board that separation of costs amongst the Central and Northern groups would be maintained.

MOTION

Director Wiersma made a motion to approve the administrative policies, including the fiscal controls policy. The motion was seconded by Director Lucchesi and passed via unanimous roll call vote.

14. Direction on DWR Grant Extension and Authorize a Contract with Woodard & Curran for Grant Administration

Mr. Blakslee introduced this item and outlined the associated costs to submit one additional invoicing package to the Department of Water Resources. The Board directed staff to facilitate the execution of the contract with W&C to submit one additional invoicing package to DWR. The Board also directed staff to work with Aliso, Del Puerto Water District, and EKI to map existing or planned subsidence benchmark sites and to recommend up to six additional benchmark sites to fill data gaps.

MOTION

Director Ortega made a motion to approve the administrative costs of not to exceed $50,600 for W&C to extend the grant through April 2027. The motion was seconded by Director Ramirez and passed via unanimous roll call vote.

15. Approval of the Guidance Document for Groundwater Monitoring

Kait Palys (INTERA) introduced this item and stated that she would like feedback from the technical ad hoc by March 20, 2026. Director Wiersma asked if the GSP requires that an RMS be replaced if it cannot be used for sampling and Ms. Palys responded that the GSP does not explicitly require this but noted that new data gaps may occur if the inaccessibility to the RMS for sampling is not addressed.

Director Stilwell asked if EKI has a recommendation for identifying a proxy well or replacing an RMS and Ms. Palys stated that those are policy considerations to be presented to the Board at a subsequent meeting, as different GSAs have different levels of resources to address those challenges.

The Board directed staff to convene the technical ad hoc to provide feedback and a recommendation to the Board at the April 13, 2026, meeting.

Report Items

16. Update on the Status of the DM Subbasin GSAs MOA

Ms. Layne introduced this item and stated that GSAs should notify staff of the Board meeting date by which they will have the MOA approved. Staff will continue to track MOA signatures and will distribute an executed copy once all 21 signatures have been received.

17. Update on the SWRCB Staff Recommendation to return the DM Subbasin to the Department of Water Resources

Director Martin asked if anyone will be attending an SWRCB ribbon cutting ceremony on April 7, 2026, and Director Hurley stated that he will be able to attend. They will work with EKI and Lauren to develop messaging to thank the SWRCB staff. Director Martin also stated that the strike team needs to meet as soon as possible and that the Plan Manager should work with DWR to review the GSP. Susan Xie (EKI) gave an overview of the SWRCB staff's suggested actions for GSP implementation improvement, which were included in the Board packet.

18. Update on the Letter of Termination of the Cost Sharing Agreement with SLDMWA

Ms. Layne provided a summary of the letter requested by the SLDMWA Board and stated that the Water Authority will pay bills through April 13, 2026, for all invoices through the end of February. Staff will distribute the resolution from the SLDMWA Board approving the letters.

19. Program Management Report and Update on Action Items

Mr. Blakslee introduced this item and stated that action items will be presented in a clearer format at subsequent meetings. Director Hopkins stated that all policies should be made available on the website, including links to form 700.

20. GSP Implementation Updates

a. Update on Pumping Reduction Plan and GSP Implementation Tracking and Exceedance Reporting

EKI staff provided an update on the PRP implementation and tracking.

b. Report from GSAs with Exceedances

Mr. Blakslee provided an overview of any exceedances, noting that staff will reach out to those GSAs will exceedances to provide an initial report during the next meeting.

Director Wiersma left the meeting at 3:26 p.m.

c. Update on the Draft Water Year 2024-2025 Annual Report

Mr. Blakslee provided an overview the annual report status, stating that feedback is due to W&C by March 13, 2026, to give time to incorporate edits. The Board directed staff to schedule a special meeting to approve the annual report during the week of March 23, 2026.

21. SGMA Round 1 Implementation Grant

a. Update on Status of Subsidence Monitoring Project

Jarrett Martin provided a brief update and there were no questions.

22. Update on Facilitation Support Services Outreach Activities

a. Update on Status of Meetings with Adjoining Subbasins Regarding Comment Letters on Periodic Evaluations

b. Update on the Domestic Well Mitigation Policy Workshop
Holly Stanitsas (Stantec) stated that the draft agenda for the Merced meeting was provided in the meeting packet and that the draft newsletter is currently being reviewed by the communications subcommittee.

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23. Next Steps

- Staff to facilitate the printing, signing and framing of the resolution of commendation for the SLDMWA Board meeting on April 9, 2026.
- Staff to facilitate the execution of the Northern DM consultant contracts.
- Staff to facilitate the execution of the Central DM GSA SPA.
- Staff convene the technical ad hoc, consider cost share options for the model calibration and provide an update to inform Board decision on April 13, 2026.
- Staff to maintain the policies for JPA records and post to website if directed by legal counsel.
- Staff to facilitate the execution of the contract with W&C to submit one additional invoicing package to DWR.
- Staff work with Aliso, DPWD, and EKI to map subsidence benchmark sites and recommend ~6 additional sites to fill data gaps.
- Staff to convene the technical ad hoc and provide 2 policy recommendations regarding timing for proxy well identification and replacing an RMS.
- GSAs provide staff with Board date by which they will approve the MOA. Staff to track signatures and distribute executed copy.
- Staff to schedule a Special Meeting during the week of March 23, 2026.

24. Reports Pursuant to Government Code Section 54954.2(a)(3)
Nothing to report.

25. Member Reports
Nothing to report.

26. Next Meeting(s):

a. April 13, 2026, 1 p.m. PST, Grassland Water District Board Room

27. Adjournment
Chair Hurley adjourned the meeting at 4:01 p.m.

DELTA-MENDOTA SGMA

2026 DELTA-MENDOTA SUBBASIN GSAs JPA BOARD MEETING DATES *(2nd Monday, unless otherwise listed)* - Grassland Water District Board Room

April 13, 2026
May 18, 2026
June 8, 2026
July 13, 2026
August 10, 2026
September 21, 2026
October 12, 2026
November 16, 2026
December 14, 2026

LIST OF ACRONYMS

CEQA	California Environmental Quality Act
DMS	Data Management System
DWR	California Department of Water Resources
FSS	Facilitation Support Services
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
ISW	Interconnected Surface Water
JPA	Joint Powers Authority
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MT	Minimum Threshold
PRP	Pumping Reduction Plan
RMW	Representative Monitoring Wells
SLDMWA	San Luis & Delta-Mendota Water Authority (Authority)
SMC	Sustainable Management Criteria
SWRCB	State Water Resources Control Board

SAN LUIS & DELTA-MENDOTA WATER AUTHORITY
SGMA ACTIVITIES - COORDINATED COST-SHARE AGREEMENT
MARCH 1, 2025 - FEBRUARY 28, 2026
COORDINATED (FUND 63)
ACTIVITY AGREEMENTS BUDGET TO ACTUAL

Report Period 3/1/25 - 2/28/26

EXPENDITURES	Annual Budget	Paid/ Expense	Amount Remaining	% of Amt Remaining	Expenses Through
Legal:					
Baker Manock & Jensen	$ 70,000	$ 87,938	$ (17,938)	-26%	2/28/26
Other Professional Services:					
GSP Implementation Contracts					
Coordinated Annual Report Activites					
(Common Chapter, Water Level Contouring)	$ 149,675	$ 161,040	$ (11,365)	-8%	1/31/26
DMS Hosting, Augmentation and Support	$ 12,000	$ 4,490	$ 7,510	63%	9/29/25
Staff Augmentation Support	$ 200,000	$ 192,496	$ 7,504	4%	12/31/25
DAC Outreach and Coordination	$ 20,000	$ -	$ 20,000	100%	
SGMA Implementation Grant Round 1 SPA (A9)	$ 175,015	$ 104,574	$ 70,441	40%	12/31/25
Inadequate Determination Response (EKI)	$ 55,000	$ 50,868	$ 4,132	8%	9/30/25
Interconnected Surface Water	$ 504,455	$ 106,895	$ 397,560	79%	12/31/25
Domestic Well Mitigation Funds	$ 100,000	$ -	$ 100,000	100%	
Other:					
Executive Director	$ 750	$ -	$ 750	100%	
General Counsel	$ 1,000	$ 78	$ 922	92%	4/4/25
Water Policy Director	$ 20,000	$ 19,418	$ 582	3%	2/28/26
In-House Staff	$ 3,000	$ 3,533	$ (533)	-18%	2/28/26
Conferences & Training	$ 1,000	$ -	$ 1,000	100%	
Travel/Mileage	$ 1,500	$ 70	$ 1,430	95%	4/30/25
Group Meetings	$ 5,000	$ 52	$ 4,948	99%	6/30/25
Telephone	$ 500	$ -	$ 500	100%	
Equipment and Tools	$ 2,000	$ -	$ 2,000	100%	
Total Expenditures	$ 1,320,895	$ 731,453	$ 589,442	45%	

Delta-Mendota Subbasin GSAs Joint Powers Authority
Member Agency Contribution Invoicing
As of April 8, 2026

Agency	Invoice Amount
Delta-Mendota Subbasin GSAs Joint Powers Authority (DMSGJPA)	
Aliso Water District GSA	$ 76,621.43
Central Delta-Mendota GSA	76,621.43
Farmers Water District GSA	76,621.43
Fresno County Management Area GSA	76,621.43
Grassland GSA	76,621.43
San Joaquin River Exchange CWA GSA	76,621.43
Northern D-M Regional Mgmt Comm	
City of Patterson GSA	7,662.14
Del Puerto Water District	21,147.51
Merced County	1,149.32
Oak Flat Water District	1,838.91
Patterson Irrigation District GSA	10,727.00
Stanislaus County	21,837.11
West Stanislaus Irrigation District GSA	12,259.43
Subtotal DMSGJPA	**$ 536,350.00**
Northern Delta-Mendota Regional Management Committee (Northern DM)	
City of Patterson GSA	$ 20,374.10
Del Puerto Water District	56,232.52
Merced County	3,056.12
Oak Flat Water District	4,889.78
Patterson Irrigation District GSA	28,523.74
Stanislaus County	58,066.19
West Stanislaus Irrigation District GSA	32,598.56
Subtotal Northern DM	**$ 203,741.01**
Total Contributions Invoiced	**$ 740,091.01**

Payment received as of April 8, 2026

DELTA-MENDOTA SGMA

TO: Board of Directors
Agenda Item No. 10

FROM: Taylor Blakslee, Hallmark Group

DATE: April 13, 2026

SUBJECT: Consider Authorizing EKI to Perform the Model Calibration in Fiscal Year 2027

Recommendation
Consider authorizing EKI to perform the model calibration in this fiscal year.

Discussion
On February 4, 2026, the DM JPA Board ratified the Fiscal Year 2027 Budget and authorized an initial cash call to the GSA Groups for 6-months of costs totaling $536,350. During this meeting, the Board authorized the execution of a contract with EKI for technical support services with the condition that the "Model Calibration" task (section 3.2) be discussed with the technical ad hoc prior to further Board review.

On February 9, 2026, EKI confirmed that the Board needed to decide by the end of March 2026 if the model calibration should be performed in Fiscal Year 2027 to allow for adequate time to perform the work. On February 26, 2026, the technical ad hoc committee met to discuss the model calibration, and during the March 9, 2026 DM Subbasin JPA Board meeting, after lengthy discussion on the topic, the Board directed the decision on model calibration this fiscal year to be decided at the April 13, 2026 meeting.

Since that meeting, and based on key stakeholder comments, staff requested EKI to present a phased approach to the model update that focuses on improving the model framework and incorporating data prior to model calibration and description of the model calibration decisions, including the phased approach is provided as **Attachment 1**.

Budget/Cash Flow Impact:
If the Board decides to perform the model calibration in Fiscal Year 2027, staff will need to perform a cash analysis to determine when the second cash call will be needed. The initial cash call collected half of the $1.6M Fiscal Year 2027 budget less the model calibration costs of $525,000. If the model calibration work is authorized the second cash call would be calculated as follows:

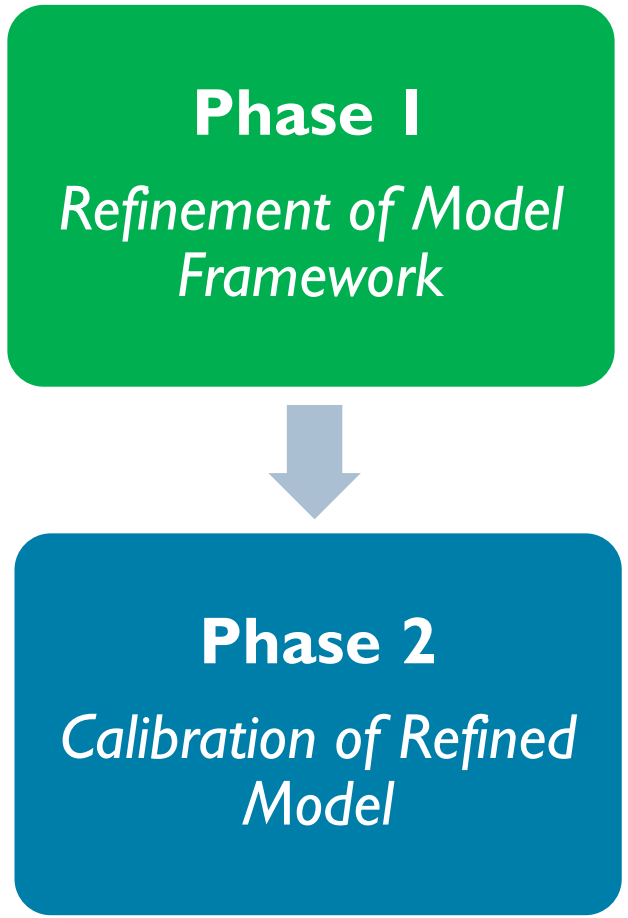
1	2nd half of FY 2027 Budget (less model costs)	$536,350
2	Model Calibration Costs	$525,000
3	Total 2nd Cash Call Costs	$1,061,350
4	Per Entity Split (1/7th)	**$151,621**

MODEL CALIBRATION OPTIONS FOR BOARD CONSIDERATION

	Option	Direct Cost	Implementation Concern Level	Technical Benefit
1	**Delay/Wait for Data**	$0 now	High: DWR review of GSP compliance	Low: Uncertainty persists
2	**Immediate Full Calibration**	$500,000 upfront	Low: Demonstrates substantial compliance	High: Accurate predictive tool
3	**Phased Work**	~$200,000-$300,000 / year	Moderate: Shows progress to DWR	High: Improves over time with new data

PHASED APPROACH

- Recommending revised phased approach to model calibration
  - 2-year process
  - ~$200-$300k per phase
  - Phased approach will ultimately allow for closer alignment between parties on modeling effort
- Proposing to conduct Phase 1 this year, which includes a reduced scope aimed at refining the model framework



PHASED APPROACH BREAKDOWN

Phase 1

Refinement of Model Framework

- Aimed at refining existing model structure and inputs and developing a local model from regional CVHM2
- Involves refinement of land uses, surface water use, lithology, boundary conditions, land surface water budget, grid, and total groundwater use
- Contingent on receiving clarity on land surface water budget

Phase 2

Calibration of Refined Model

- Includes calibrating the refined model from Phase 1
  - Refining aquifer and subsidence parameters
  - Matching water level and subsidence data
- Contingent on receiving metered data and refined well inventory with locations and screening depths

Deliverable for Phase 2: *Calibrated Model*

DELTA-MENDOTA SGMA

TO: Board of Directors
Agenda Item No. 11

FROM: Taylor Blakslee, Hallmark Group

DATE: April 13, 2026

SUBJECT: Review and Provide Feedback on the Groundwater Monitoring Guidance Document

Recommendation
Provide feedback on the guidance document for groundwater monitoring.

Discussion
On December 12, 2026, the DM Coordination Committee approved the development of a guidance document for groundwater monitoring to maintain accountability and ensure consistent QA/QC of data before it is entered into the DMS. Kait Palys (INTERA) drafted the guidance document and gained input from EKI. A draft of the guidance document was shared with the DM Subbasin JPA technical ad hoc committee for consideration on February 26, 2026. Staff received some feedback from the ad hoc on March 20, 2026, and will incorporate those comments into the document this week.

Staff requests that the ad hoc committee and DM Subbasin JPA Board members review the document and **provide feedback by April 30, 2026.** Staff will then incorporate final comments and present to the DM Subbasin JPA Board for **consideration of approval during the May 18, 2026 meeting**.

Staff is seeking Board direction on two policy considerations, which are also outlined in Attachment 1:

1. Should the JPA Board establish a deadline for implementing a Replacement RMS when an existing RMS can no longer be monitored?
    a. If yes, is a two-year deadline appropriate?
    b. If no, what alternative accountability measure should be used to ensure adequate data coverage and reliability?

2. Should the JPA Board establish a deadline for identifying a Proxy Site when an RMS is temporarily unavailable?
    a. If yes, is two months appropriate (to support groundwater level monitoring before the next quarterly event)?
    b. If no, what alternative accountability measure should be used to maintain sufficient data density and reliability?

Note for Reviewer

Two items remain highlighted for JPA Board direction.

1. Should the JPA Board establish a deadline for implementing a Replacement RMS when an existing RMS can no longer be monitored?

- If yes, is a **two-year deadline** appropriate?
- If no, what alternative accountability measure should be used to ensure adequate data coverage and reliability?

Note: The allowable duration for use of a Proxy Site is tied to the timeline for implementing a Replacement RMS. In many cases, a Proxy Site may ultimately become the Replacement RMS.

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2. Should the JPA Board establish a deadline for identifying a Proxy Site when an RMS is temporarily unavailable?

- If yes, is **two months** appropriate (to support groundwater level monitoring before the next quarterly event)?
- If no, what alternative accountability measure should be used to maintain sufficient data density and reliability?

Note: Different timelines could be considered for groundwater quality or land subsidence due to less frequent monitoring.

Definitions

- **RMS** – Permanent representative monitoring site identified in the Groundwater Sustainability Plan
- **Proxy Site** – Temporary monitoring site used in place of an RMS
- **Replacement RMS** – Permanent site that replaces an RMS that can no longer be monitored

Delta-Mendota Subbasin

FEBRUARY 2026

MONITORING IMPLEMENTATION GUIDELINES

DELTA-MENDOTA SGMA

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Attachments

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Acronyms

DMS	Data Management System
DWR	Department of Water Resources
GSA	Groundwater Sustainability Agency
ID	Identification Code
InSAR	Interferometric Synthetic Aperture Radar
NASA	National Aeronautics and Space Administration
PRP	Pumping Reduction Plan
USBR	United States Bureau of Reclamation
RMS	Representative Monitoring Network
QA/QC	Quality Assurance/Quality Control

Important Terms

Proxy Site	Temporary monitoring site to surrogate for RMS
Replacement RMS	Monitoring site to permanently replace existing RMS that can no longer be monitored
RMS	Permanent representative monitoring site identified in the Groundwater Sustainability Plan

Introduction

The Delta-Mendota Subbasin's Monitoring Implementation Guidelines establish Subbasin-wide standardized protocols for implementing monitoring commitments, promote a shared understanding of data quality expectations, and serve as a centralized reference to support Groundwater Sustainability Agency (GSA) staff in monitoring results reporting, data quality control, and monitoring network revisions.

The main goal of the Guidelines is to enhance the quality and reliability of monitoring data. These results inform groundwater modeling, hydrogeologic analyses, annual threshold assessments, action plans for exceedances, and regular reporting. Performing quality assurance and quality control (QA/QC) of data quality and representativeness prior to upload to the Data Management System (DMS) (which automatically populates the Subbasin's Pumping Reduction Plan (PRP) dashboard) significantly reduces the risk of unnecessary management actions or inaccurate reporting of undesirable results.

These Guidelines focus on the steps taken after receipt of monitoring results and on preparation for subsequent rounds of groundwater level, groundwater quality, and land subsidence monitoring. Guidance and protocols for data collection and monitoring during field activities and laboratory analyses are available in Section 14.3 of the July 2024 Groundwater Sustainability Plan.

The Monitoring Implementation Guidelines consist of three primary components designed to support consistent, accurate, and defensible monitoring implementation across the Subbasin:

1. **Monitoring Results Quality Assurance, and Quality Control (QA/QC)**
   This section describes the procedures that GSA staff shall follow after receiving monitoring results and prior to reporting data to the DMS or PRP Dashboard. The guidance includes methods for evaluating data quality and representativeness, as well as identifying and documenting appropriate actions when monitoring results are determined to be unrepresentative, uncertain, or anomalous.
2. **Internal Reporting Protocols for "No Measurement" and Anomalous Monitoring Results**
   This section outlines standardized protocols for internal reporting of monitoring results within the Subbasin's DMS and PRP Dashboard. It includes procedures for reporting and documenting anomalous data and addressing situations in which a representative monitoring site could not be monitored during a given monitoring period.

3. **Proxy and Replacement Monitoring Sites**
   This section defines the criteria and process for determining when use of a Proxy Site is appropriate and when identification and implementation of a replacement monitoring site are required. It also identifies the unique circumstances in which it is appropriate to take no measurement. Guidance is provided to ensure continuity of monitoring and consistency with Subbasin-wide monitoring objectives. **FIGURE 2** provides a decision flowchart to guide GSAs in evaluating when a Proxy Well should be used and when a Replacement Well is warranted.

To support GSA staff with abbreviated guidance, checklists are available in the following appendices:

- **ATTACHMENT B**– Groundwater Level Monitoring Result QA/QC for GSAs (
- **ATTACHMENT C**– Groundwater Quality Monitoring Result QA/QC for GSAs
- **ATTACHMENT D**– Land Subsidence Monitoring Result QA/QC for GSAs

Guidelines for Monitoring Results Quality Assurance & Quality Control

This section provides guidance on the review and decision-making steps required between receipt of monitoring results and formal reporting in the DMS and PRP Dashboard. It addresses evaluation of data quality and representativeness and identifies required documentation and follow-up actions when results differ from established expectations. **FIGURE 1** clarifies the steps explained in this section of the Guidelines (in green).

Figure 1 Monitoring Implementation Steps

Groundwater Levels Monitoring Results QA/QC

To ensure data integrity, GSA staff must evaluate the representativeness and accuracy of groundwater level monitoring results *before* uploading them to the DMS or PRP Dashboard. This validation QA/QC is essential to prevent non-representative or anomalous data from skewing exceedance reporting, subsequent analyses, and the identification of need for exceedance action plans.

Step 1. Assessment of Representativeness of Groundwater Level Monitoring Results

This guide assists GSA staff in assessing the representativeness of groundwater level data. GSA staff should pay special attention to recognizing the influence of pumping and to identifying potential issues with aquifer characterization, such as when a well screened in a lower confined aquifer displays groundwater level patterns typical of an upper unconfined aquifer potentially due to cross-screening of aquifers (composite well).

Indicators of a Representative Result

For a monitoring site (Representative Monitoring Site [RMS] or Proxy Site) to produce data considered representative, it must have a sufficient historical record and frequency of data to evaluate trend and seasonal pattern as required by SGMA (§ 356.4(b)(1)). Specifically, to evaluate statistical significance, the site must have at least four prior measurements (ideally at least two from the seasonal low period and two from the seasonal high period).

- Sites meeting this requirement: Data demonstrating the consistent patterns below can be considered representative of aquifer conditions.
- Sites *not* meeting this requirement: Results are considered to have uncertain representativeness until a sufficient multi-year record has been established (Sites that have a minimum of 4 measurements will be considered to have sufficient data to evaluate trend; however above criteria will be required to evaluate the seasonality of the data).

For wells that meet the sufficient historic data requirement, these patterns suggest the well is accurately measuring the natural or regional aquifer conditions.

Gradual, Seasonal Trends: The hydrograph shows smooth, logical changes that align with the season (e.g., gradual decline during dry summer/fall months, recovery during wet winter/spring months).

Spatial Consistency: The groundwater level and trend are logically consistent with nearby wells screened in the same aquifer, showing a coherent regional gradient.

Expected Pumping Signal (if applicable): For wells in areas of known seasonal pumping, the hydrograph shows a consistent, predictable seasonal drawdown that recovers predictably during non-pumping periods. This pattern is repeatable year-over-year. (Special care should be given to consider whether a water level represents "true" static conditions as recent pumping or nearby pumping may be indicative of recovering water levels or well interference).

Appropriate Aquifer Response: The well's response matches its designated aquifer type. A confined aquifer well shows minimal, dampened response to local precipitation and exhibits higher, stable pressures. An unconfined aquifer well shows a more pronounced and direct response to recharge events. (Recharge events may occur rapidly in some shallow settings; especially near primary recharge sources; water level may only recover over timeslips of days to weeks and only be effectively captured by continuous monitoring using pressure transducers).

Indicators of an Unrepresentative Result

The following indicators may serve as potential QA/QC red flags suggesting the data point is anomalous or invalid and should not be uploaded to the DMS or PRP Dashboard without investigation.

Instrument/Measurement Error:

A. **Static Reading:** The exact same value reported for multiple consecutive measurements. (This may be indicative of an obstruction in the well or sounding tube).
B. **Physically Impossible Change:** A dramatic rise or fall (e.g., tens of feet) between two consecutive measurements that cannot be explained by hydrology (This may be due to plugging of the screen where the well in no longer in direct communication with the aquifer; wells that are not frequently pumped and/or wells with poor water quality or bacterial issues are susceptible to this outcome).
C. **Dry Well:** The measurement indicates the groundwater level is below the well's screened interval.

Direct Pumping Interference:

A. **Sharp, Uncorrelated Drawdown:** A sudden, steep decline in groundwater level that is inconsistent with the gradual regional trend or known seasonal pumping cycles.
B. **No Recovery:** The groundwater level drops and remains low without any sign of recovery, suggesting potential dewatering or sustained local pumping stress unrepresentative of the broader aquifer.

Clear Aquifer Mischaracterization:

A. **Confined Aquifer Acting as Unconfined:** A well logged as completed in a deep, confined aquifer shows a groundwater level pattern identical to a shallow well, including rapid, large-magnitude responses to single rain events. This strongly suggests the well may be incorrectly screened, is leaking, is collapsed, or is actually drawing from the shallow aquifer.

Indicators of Uncertain Representativeness

These patterns require professional judgment and likely warrant notation, continued monitoring, and possibly consultation or follow-up investigation such as a down-well camera inspection before the data are finalized.

Incomplete Historical Record

A. **Insufficient Historical Record to Evaluate Trend and Seasonality of Data:** The RMS or Proxy Site has fewer than four prior measurements (preferably taken from both the in the seasonal groundwater level low (fall) and seasonal high (spring) periods) to reflect the groundwater levels under two water year cycles or less than four samples are available to evaluate trend.

Ambiguous Pumping Influence:

B. **Irregular Fluctuations:** The hydrograph shows frequent, small spikes or dips that disrupt an otherwise smooth seasonal trend. This may indicate intermittent pumping from the well itself or a nearby well, making it difficult to isolate the natural groundwater level.
C. **Delayed or Attenuated Recovery:** After a pumping season, the groundwater level recovers but not to the previous seasonal high, or the recovery is slower than in prior years. This may indicate a change in recharge or increasing stress. (Continuous monitoring with multiple years of data covering at least one water cycle may be required to evaluate this potential pattern).

Potential Aquifer Communication:

A. **Dampened but Present Signal:** A confined aquifer well shows a subtle but clear seasonal trend that is synchronized with, but smaller than, the trend in overlying unconfined aquifer wells. This may indicate mild vertical leakage or a semi-confined condition, and the result may still be representative of the deeper aquifer pressure with this understood influence.
B. **Gradual Trend Divergence:** Over multiple years, the groundwater level trend in a confined aquifer well slowly begins to diverge from the regional trend of other wells in the same aquifer, starting to follow the pattern of the upper aquifer more closely. This

could indicate downward flow in a well screened in multiple aquifers, a developing well integrity issue or changing subsurface conditions.

C. **Shallow (Interconnected Surface Water) Well Lacking Stream Influence:** A shallow well near a stream or river shows extreme fluctuations or a declining trend while stream stages remain stable or high. This indicates the well may not be in effective hydraulic connection with the surface water body as assumed, potentially due to being screened too deep, located behind an impermeable barrier, or influenced by an isolated local groundwater pump. This result may indicate the stream is not interconnected with the groundwater, and the data at this site may still be useful. The Subbasin Technical consultants are tasked with interpreting results in these instances considering multiple line of inquiry such as water quality data of the surface water and groundwater systems, if available.
D. **Contextual Discrepancy:** The measurement itself seems valid, but it is an outlier compared with all neighboring wells in the same aquifer. There is no immediately obvious reason (like a known barrier or pumping center), requiring further spatial analysis.

Step 2. GSA Action Needed

Representative Result

When a result is considered representative, continue monitoring and reporting as usual. No additional action is needed.

Unrepresentative Result

The following are actions for GSAs to consider after a groundwater level measurement appears unrepresentative.

A. **Required:** Notify the Subbasin's Technical Consultant (see **Guidelines for Internal Reporting of "No Measurement" and Anomalous Monitoring Results**).
B. **Recommended:** Arrange a confirmation measurement as soon as possible to measure the groundwater levels at the site. To maintain representativeness, it is important to obtain the confirmation measurement within two weeks of the uncertain result being identified. In the event this is impossible, or if groundwater management conditions have changed significantly within that two-week window, resume monitoring at the next scheduled monitoring event. The age, condition and current use of the well should also be evaluated to determine if well integrity may be an issue for continued use as a RMS.

Uncertain Representativeness of Result

The following are actions for GSAs to consider upon receipt of an uncertain groundwater level measurement.

C. **Required:** Evaluate nearby wells' groundwater level data to assess if the result is actually unrepresentative rather than uncertain.
D. **Recommended:** Arrange a confirmation measurement as soon as possible to measure the groundwater levels at the site. To maintain representativeness, it is important to obtain the confirmation measurement within two weeks of the uncertain result being identified. In the event this is impossible, or if groundwater management conditions have changed significantly within that two-week window, resume monitoring at the next scheduled monitoring event. The consideration of more frequent monitoring (monthly) or continuous monitoring with a logger should be considered taking into account the data worth including availability of surrounding data.

Step 3. Preparation for Next Regular Monitoring Event

Representative Result

Proceed to monitoring as usual.

Unrepresentative Result

If a confirmation measurement validates an anomalous result, the GSA shall assess the need for further action to obtain representative data at the RMS. Appropriate actions may include well redevelopment, purchasing specialized sampling equipment, initiating a Replacement RMS and Proxy Site monitoring program, or reviewing compliance with the field protocols in the Subbasin's monitoring protocols (Section 14 of the 2024 Groundwater Sustainability Plan).

Uncertain Representativeness of Result

Continue monitoring at the RMS or Proxy Site to collect sufficient data volume to meaningfully assess representativeness.

Groundwater Quality Monitoring Results QA/QC

To ensure data integrity, GSA staff must evaluate the representativeness and accuracy of groundwater quality results before uploading them to the DMS or PRP Dashboard. This QA/QC is essential to prevent non-representative or contaminated samples, analytical errors, or anomalous readings from compromising the dataset used for exceedance reporting, trend analysis, and notification planning.

Step 1. Assessment of Representativeness of Groundwater Quality Monitoring Results

This step checks if a representative result reflects the chemical conditions of the aquifer for the key constituents (arsenic, 1,2,3-TCP, nitrate as N, nitrite as N, gross alpha radioactivity, total dissolved solids [TDS], chromium-6). GSA staff should review historical groundwater quality data from the monitoring site (RMS or Proxy Site) and nearby wells screened around the same depth within 3-miles and are not separated by a known confining unit or hydraulic barrier, if available. Note, Subbasin Technical Consultants can support this exercise as part of the exceedance evaluation commitments.

For a monitoring site (RMS or Proxy Site) to produce data considered representative, it must have a sufficient historical record to establish a reliable concentration baseline. Specifically, the site should have historical results from at least four sampling events to define expected ranges and variability for each constituent.

- Sites meeting this requirement: Data demonstrating the consistent patterns below can be considered representative of aquifer conditions.
- Sites not meeting this requirement: Results are considered to have uncertain representativeness until a multi-event record has been established to contextualize new measurements and evaluate trend.

Indicators of Representative Result

When the above data requirement is met, the following patterns indicate a representative, high-quality groundwater quality result:

Historical & Spatial Consistency: Constituent concentrations are within the established historical range for that specific well and are logically consistent with concentrations in nearby wells screened in the same aquifer, considering known geochemical gradients.

Plausible Geochemistry: Results reflect a plausible hydrogeochemical setting (e.g., arsenic and chromium-6 concentrations align with expected redox conditions; nitrate/nitrite patterns are consistent with potential sources and attenuation).

Internal Consistency: Relationships between related parameters are logical (e.g., a significant increase in TDS often correlates with changes in specific constituent concentrations like specific conductance, chloride or sulfate; gross alpha is evaluated in context with other inorganic results).

Stability for Stable Constituents: For constituents typically stable over short periods in groundwater (e.g., arsenic, TDS, chromium-6 under constant redox), consecutive measurements show minimal, explainable variation.

Indicators of Unrepresentative Result

The following indicators may serve as potential QA/QC red flags suggesting the sample may be compromised, contaminated, or analytically erroneous.

Sample Contamination or Error:

A. **Implausible Spike**: An extreme, isolated concentration spike for any constituent (e.g., nitrate > 100 mg/L) that is inconsistent with all historical data and regional geology, suggesting potential sampling contamination or field error.
B. **Non-Detect to Extreme High:** A constituent previously non-detect is reported at a high concentration without a plausible new contamination source.
C. **Violation of Conservation Principles:** Results that are chemically impossible (e.g., nitrite as N concentration exceeding nitrate as N in an oxygenated aquifer; gross alpha activity without supporting radionuclide indicators).

Evidence of Poor Sample Integrity:

A. **Turbidity/Sediment Impact:** A sample collected with high turbidity or sediment can falsely elevate metals (arsenic, chromium-6) and gross alpha results.
B. **Improper Preservation/Holding Time:** Known breaches in sample preservation or holding times for sensitive constituents (e.g., nitrite, pH).

Indicators of Uncertain Representativeness of Result

These patterns require professional judgment, notation, and may warrant re-sampling or consultation.

Borderline Exceedances: A result that is slightly above a historical trend or regulatory threshold without other clear indicators of contamination.

Inconsistent Pattern with Related Constituents: An increase in one constituent (e.g., TDS) without other expected co-contaminant detections or geochemical changes, making the source unclear.

Change Without Obvious Cause: A clear, moderate shift in concentration for a typically stable parameter (e.g., TDS, arsenic) that may indicate a real change in aquifer conditions or an unconfirmed sampling artifact.

Single Event Anomaly: An anomalous result for a single constituent from one sampling event where all other parameters remain stable, and no confirmation sample was collected.

Potential Well Integrity Issue: Suspected leakage from a different aquifer zone, which may be indicated by a groundwater quality signature (e.g., nitrate detection in a deep, anoxic aquifer well) that differs from the screened interval's expected chemistry.

Step 2. GSA Action Needed

Representative Result

Proceed with standard monitoring and reporting. No further action is required.

Unrepresentative Result

The following actions should be taken after a groundwater quality measurement is identified as unrepresentative or analytically suspect (e.g., indicative of contamination or error).

A. **Required Action:** Immediately notify the Subbasin's Technical Consultant in accordance with the **Guidelines for Internal Reporting of "No Measurement" and Anomalous Monitoring Results**.

B. **Recommended Action:** Initiate an investigation and resample for confirmation.
    - **Protocol:** Follow chain-of-custody and use strict sampling protocols including precise documentation of sampling flow rate (e.g. low flow sampling) and depth of sample intake to rule out field error. It is recommended to analyze for a full suite of constituents to identify potential cross-contamination or source changes or potentially sample under different pumping rates to obtain a representative sample of the aquifer.
    - **Timing:** Schedule resampling at the next earliest opportunity. Due to laboratory turnaround times, obtaining confirmation data within the next regular monitoring quarter is typically the target.
    - **If Not Feasible:** Document the reasons and plan for resampling at the next scheduled monitoring event.

Uncertain Representativeness of Result

The following actions should be taken upon receiving a measurement of uncertain representativeness (e.g., a borderline exceedance or an unexplained shift outside historical trends).

Required Action:

- Flag the result for follow-up verification.

- Increase scrutiny during the next scheduled sampling event at this well.
- Consider resampling before the next full cycle if resources allow, focusing on the specific constituent(s) of concern.

Recommended Action: Evaluate historical data from the same well and data from nearby wells screened in the same aquifer to contextualize the result and assess if it is likely unrepresentative.

Step 3. Preparation for Next Regular Monitoring Event

Representative Result

Proceed with standard monitoring and reporting. No further action is required.

Unrepresentative Result

If a confirmation sample validates an anomalous or contaminated result, the GSA shall assess and implement corrective actions. These may include:

A. **Well Integrity Investigation:** Inspect the well for damage, leakage, or improper sealing that could allow contamination from other zones. Evaluate potential need for well redevelopment.
B. **Protocol Review & Training:** Review and reinforce sampling, preservation, and handling Standard Operating Procedures with field staff to prevent future errors.
C. **Equipment Evaluation:** Assess and potentially replace or dedicate sampling equipment to avoid cross-contamination. Evaluate depth of sampling intake versus depth of screen, flow rate and well borehole purge volumes.
D. **Site Replacement:** If the well is deemed compromised, initiate the process to designate a Replacement RMS or a suitable Proxy Site for ongoing groundwater quality monitoring.

Uncertain Representativeness of Result

Continue monitoring at the RMS or Proxy Site to collect sufficient data volume to meaningfully assess representativeness.

Land Subsidence Monitoring Results QA/QC

To ensure data integrity, GSA staff must validate the precision and reliability of land subsidence measurements before uploading them to the DMS or PRP Dashboard. This verification is critical to prevent inaccurate or unstable benchmark data from entering the official record, which is fundamental to subsidence analysis, exceedance reporting, and assessment of risk to critical infrastructure.

Step 1. Assessment of Representativeness of Monitoring Results

The assessment of representativeness of monitoring results should include comparison of survey benchmark data with Interferometric Synthetic Aperture Radar (InSAR) and extensometer data reported by National Aeronautics and Space Administration (NASA), United States Bureau of Reclamation (USBR). InSAR data available from the Sustainable Groundwater Management Act (SGMA) Data Viewer should be inspected to determine whether the time series data include locations where surface displacement resets to zero, caused by InSAR processing artifacts designed to improve spatial coverage. If this is the case, the data may need to be resampled and cumulatively summed to reconstruct the displacement time series in some locations. Care should be taken when comparing benchmark data to InSAR weekly point data provided by California Department of Water Resources (DWR) (California Natural Resources Agency, 2025). This data has a spatial resolution of 100 meter (m) pixels (~330 ft by 330 ft) with a reported accuracy of 0.066 ft[1]. Benchmark data will have its own accuracy depending on the methods and control used to collect the data. Benchmark and InSAR data evaluation should consider the accuracy of each method when comparing data.

Indicators of Representative Result

A representative result accurately reflects actual ground surface displacement.

A. **Survey Consistency:** Measurement is obtained using the approved, consistent survey methodology (e.g., GPS, leveling) from a stable, undamaged benchmark within the documented range of accuracy for the method used.
B. **Geospatial Plausibility:** The magnitude and direction of displacement are spatially consistent with InSAR data and measurements from nearby benchmarks, showing a logical subsidence pattern.
C. **Temporal Plausibility:** The measured rate of subsidence is consistent with historical trends at that location and broader basin dynamics takin into account the potential for elastic and inelastic surface displacement.

[1] Towill (2024) assessed the TRE Altamira vertical InSAR measurement data against vertical displacements from an independent set of 186 continuous GPS stations. Data was aligned temporally and spatially (<100 m difference) in order to develop a Root Mean Square Error (RMSE) for each station. RMSE values for individual stations ranged from 30.49 to 1.61 mm (with a consolidated state-wide RMSE value of 9.62 mm) leading to "strong evidence that the InSAR data accurately models change in ground elevation to an accuracy tested to be 20 mm (0.66 ft) at 95% confidence." Assumptions/Notes: CGPS stations adequately represent the entire study area and InSAR dataset and that CGPS is an independent source of higher accuracy. Reported accuracy was last conducted for data spanning Jan 1 2015 to Oct 1 2023.

Indicators of Unrepresentative Result

These are strong indications the measurement is invalid and should not be used.

A. **Benchmark/Pixel Instability:** Evidence of physical damage, tilt, or instability in the benchmark monument itself. Decorrelation of the InSAR time series or significant land disturbance in the pixel that would affect the InSAR data.
B. **Survey Error:** A measurement indicating physically impossible change (e.g., extreme uplift in a known subsiding area, massive spike inconsistent with all adjacent data).
C. **Measurement Failure:** Inability to obtain a measurement due to access issues or obstruction.

Indicators of Uncertain Representativeness of Result

These patterns require professional judgment and contextual analysis.

A. **Data Gap:** Insufficient historical measurements at the benchmark or InSAR pixel to establish a clear trend (e.g., new benchmark).
B. **Minor Discrepancy:** A measurement that shows a slight deviation from the expected trend indicated by InSAR or nearby benchmarks without a clear cause.
C. **Ambiguous Stability:** Questionable benchmark integrity or land surface disturbances (e.g. grading, plowing) that cannot be immediately verified without a site visit.

Step 2. GSA Action Needed

Representative Result

Report the result to the DMS and PRP Dashboard as the official measurement. No additional action is needed.

Unrepresentative Result

Report as "No Measurement": Update the DMS and PRP Dashboard, reporting a status of “No Measurement.” Include a note citing the reason (e.g., benchmark damaged; survey error).

Utilize InSAR Surrogate: For analytical and reporting purposes, use the concurrent InSAR data as the surrogate measurement for that location and period.

Notify Consultant: Inform the Subbasin’s Technical Consultant per the standard anomaly reporting guidelines.

Uncertain Representativeness of Result

Contextual Analysis: Review InSAR data and neighboring benchmark data to make the best professional judgment on whether to accept or flag the result.

Report with Notation: If used, report the measurement but add a note in the DMS or PRP Dashboard stating the uncertainty (e.g., "Result varies slightly from InSAR trend; confirm at next survey").

Utilize InSAR if Necessary: If the uncertainty is unresolvable, default to reporting "No Measurement" and use InSAR data as the surrogate for that period provided the InSAR data appears to correctly reflect surface displacement conditions.

Step 3. Preparation for Next Regular Monitoring Event

Representative Result

Schedule and proceed with the next regular survey of the benchmark.

Unrepresentative Result

If the issue was benchmark damage or instability, initiate plans for benchmark repair or replacement.

If the issue was survey-related, review field protocols with the survey team.

Continue using InSAR data as the interim surrogate until obtainment of a valid direct measurement at the next successful survey event provided the InSAR data appears to correctly reflect surface displacement conditions.

Uncertain Representativeness of Result

Prioritize this benchmark during the next survey cycle to obtain a new data point. The goal is to resolve the uncertainty by establishing a clearer trend or confirming a need to replace the benchmark.

Interconnected Surface Water Monitoring Results QA/QC

To ensure data integrity, at this time, the Subbasin's Technical Consultants perform the review of the representativeness and accuracy of stream gauge flow data before uploading it to the DMS or PRP Dashboard. This review is vital to prevent unrepresentative flow measurements or instrument errors from distorting the dataset, which supports water availability reporting, hydrological analyses, and compliance assessments.

Note: Representative monitoring wells intended to assess shallow groundwater conditions nearest potentially interconnected surface waters shall be evaluated for representativeness under the same criteria as outlined under the Groundwater Levels section above, which involves more action from GSA staff.

Guidelines for Internal Reporting of “No Measurement” and Anomalous Monitoring Results

Reporting “No Measurement”

When an RMS (or Proxy Site) cannot be monitored and must be reported as “No Measurement” in the DMS and PRP Dashboard, the following steps shall be taken:

Step 1: Initial Notification

The GSA shall notify the Subbasin’s Technical Consultant via email. This notification must include:

A. The RMS or Proxy Site ID where the "No Measurement" occurred
B. The reason the site could not be measured (e.g., access issue, equipment failure, well not in condition to be monitored).
C. The planned next steps (e.g., using a Proxy Site for interim future measurements, initiating RMS Replacement RMS, or resuming sampling at the next monitoring event).

Step 2: Internal Systems Reporting

The GSA shall update the DMS and the PRP Dashboard, reporting the status as “No Measurement.” A note must be included explaining:

A. Why the site could not be measured
B. The next steps being taken by the GSA

Reporting Anomalous Monitoring Results

The following two steps shall be taken when there are instances in which a monitoring result appears to be anomalous.

Step 1. Initial Notification

The GSA shall immediately notify the Subbasin’s Technical Consultant via email. This notification must include:

A. The RMS ID (or Proxy Site ID) of the location with the anomalous result.
B. The reason the reading is considered anomalous.
C. The planned next steps (e.g., confirmation resampling, ordering new equipment, or considering a future Replacement RMS).

Step 2. Initial Internal Systems Reporting

The GSA shall update the DMS and the PRP Dashboard, reporting the result as "Anomalous." A note must be included explaining the anomaly and stating whether the GSA will pursue a confirmation measurement.

Step 3. Reporting Post-Confirmation Measurement
If a confirmation measurement is taken:

A. **If the confirmation corrects the anomaly:** The GSA shall update the DMS and PRP Dashboard with the validated result. A note must explain the initial anomaly and confirm that the new data are from a confirmation measurement.
B. **If the confirmation confirms the anomaly:** The GSA shall update the DMS and PRP Dashboard with another "Anomalous" entry. A note must explain that this is a confirmation measurement and reiterate the reasons the result is considered anomalous.

Seeking Professional Judgment
If GSA staff are uncertain whether a result is representative or anomalous, they should consult their respective technical consultant or the Subbasin Technical Consultant for a professional opinion.

Additional Recommended Actions
Beyond internal notification and reporting, specific follow-up actions—such as resampling for groundwater levels or quality—are recommended when an anomaly is confirmed. Detailed procedures by sustainability indicator are provided in the **Guidelines for Data Validation Quality Assurance & Quality Control** section of this document.

Guidelines for Proxy and Replacement Monitoring Sites

This section establishes the criteria and procedures for determining when use of a proxy monitoring site is appropriate and when identification and implementation of a replacement monitoring site are required. It also describes the limited circumstances under which a monitoring site may appropriately record a "no measurement." The guidance is intended to maintain continuity of monitoring data and ensure consistency with Subbasin-wide monitoring objectives. **Figure 2** is a flowchart to support GSA staff in identifying the correct action to take.

Proxy Monitoring Sites

When a representative monitoring site is temporarily unavailable for monitoring for a period not to exceed two years, it may be appropriate to use a nearby monitoring site as a proxy. Any proxy monitoring site must meet defined criteria to ensure it is sufficiently representative of the

groundwater conditions monitored at the original site. This section describes the circumstances under which use of a proxy monitoring site is appropriate, the criteria for proxy site selection, and the documentation protocols required to identify the site clearly as a temporary proxy and to prevent misunderstandings or inaccuracies within the Subbasin's monitoring dataset.

When to Use a Proxy Site in Place of a Representative Monitoring Site

FIGURE 2 supports GSA decision making on when to use a Proxy Site.

Use of Proxy Sites is intended as temporary, interim measures to obtain data until the original RMS is back online. In cases in which a Replacement RMS is needed, a Proxy Site may transition into a permanent Replacement RMS.

Criteria for Proxy Site Selection

A selected Proxy Site must first meet all criteria for a Representative Monitoring Site (RMS), as detailed in Section 14.*2* of the 2024 Groundwater Sustainability Plan[2] (**ATTACHMENT A**).

Additionally, the following proxy-specific criteria shall be applied to ensure the selected site is a representative temporary surrogate for the original RMS. These considerations are organized by sustainability indicator.

Groundwater Levels & Groundwater Quality

For both indicators, a Proxy Site must meet the following criteria:

A. Proximity: Located within 3 miles of the original RMS.

B. Hydrogeology: Drilled and perforated within the same aquifer zones as the original RMS.

Land Subsidence

For land subsidence monitoring, the use of a Proxy Site is generally not recommended.

A. **Primary Protocol:** When a survey benchmark is unavailable, report a "No Measurement."

B. **Analytical Surrogate:** In such cases, InSAR data available within approximately 1,000 feet (~3 pixels) may be used as a surrogate for analysis.

C. **Reporting Protocol:** The RMS site itself shall be recorded as "No Measurement" in all official reports.

Interconnected Surface Water

[2] Delta-Mendota Subbasin Groundwater Sustainability Plan (2024). Section 14 -Monitoring Network. https://deltamendota.org/wp-content/uploads/2024/0729GSPDocs/14_Monitoring%20Network.pdf (Section 14.2 Description of Monitoring Network starts on Page 270)

For interconnected surface water, the Proxy Site must be representative of the original monitoring location:

A. **For a Well:** The Proxy well must be located generally nearby the original RMS well. The distance to the original RMS is less important than the distance of the proposed Proxy Site to potentially interconnected surface water feature(s) and potential GDEs. The well must also be perforated shallow enough to assess the potential relationship between surface water and groundwater interactions.
B. **For a Stream Gauge:** The Proxy gauge must be situated to effectively monitor the same stream reach segment as the original RMS gauge (upstream or downstream).

Protocol for Internal Notification and Implementation of Proxy Site Use

This section establishes the procedures for identifying, implementing, and reporting monitoring at a Proxy Site when a RMS is temporarily unavailable. These procedures ensure continuity of monitoring, proper documentation, and consistency in Subbasin-wide reporting.

1. Notification of Proxy Site Need

When a GSA identifies the need to monitor a Proxy Site instead of the original RMS, the GSA shall notify the Subbasin's Technical Consultant and Plan Manager via email. The notification shall include:

A. The identification code (ID) of the RMS for which the Proxy Site will temporarily serve as a surrogate.
B. A description of the reason a Proxy Site is required.
C. Clarification on the anticipated timeframe for resuming monitoring at the original RMS.
D. A commitment to include notes in the DMS and PRP Dashboard regarding the use of the Proxy Site and the timeline for returning to the original RMS.
E. The anticipated timeline for Proxy Site selection (not to exceed two months).
F. Any known constraints or challenges associated with identifying an appropriate Proxy Site.

2. Identification and Implementation of Proxy Site

The GSA shall identify an appropriate Proxy Site within approximately three months of determining the need. Selection shall follow the criteria outlined in the **Criteria for Proxy Site Selection** section above. Once a Proxy Site is selected, the GSA shall notify the Subbasin's Technical Consultant via email and provide:

A. The location of the Proxy Site.

B. If the Proxy Site is a well, relevant construction details, including perforated intervals and completion depth.
C. Confirmation that the Proxy Site is accessible.
D. The RMS ID for which the Proxy Site will temporarily serve as a surrogate.

Note: If a suitable Proxy Site cannot be identified, the GSA shall implement a Replacement RMS within two years. Until the Replacement RMS is operational, monitoring events for the affected RMS shall be reported as an allowable "No Measurement."

3. Reporting Proxy Site Results

Upon receipt of Proxy Site information, the Subbasin's Technical Consultant shall configure the DMS and PRP Dashboard to accept monitoring results from the Proxy Site. Proxy Site results shall be recorded discretely from the original RMS to ensure accurate documentation and reporting.

Replacement Monitoring Sites

When to Replace a Representative Monitoring Site

Figure 2 supports GSA decision making on when a Replacement RMS is needed.

A Replacement RMS is needed when it is known that the original RMS cannot be monitored for more than two years or when the results obtained regularly produce unrepresentative or anomalous results.

Criteria for Replacement Representative Monitoring Site Selection

A selected Proxy Site must first meet all criteria for an RMS, as detailed in Section 14.*2* of the 2024 Groundwater Sustainability Plan[3].

Additionally, the following proxy-specific criteria shall be applied to ensure the selected site is a representative temporary surrogate for the original RMS. These considerations are organized by sustainability indicator.

Groundwater Levels & Groundwater Quality

For both indicators, a Replacement RMS must meet the following criteria:

C. Proximity: Located within 3 miles of the original RMS.
D. Hydrogeology: Drilled and perforated within the same aquifer zones as the original RMS.

[3] Delta-Mendota Subbasin Groundwater Sustainability Plan (2024). Section 14 -Monitoring Network. https://deltamendota.org/wp-content/uploads/2024/0729GSPDocs/14_Monitoring%20Network.pdf (Section 14.2 Description of Monitoring Network starts on Page 270)

Land Subsidence

For land subsidence, the Replacement RMS must meet the following criteria:

A. **Proximity:** Located within 3 miles of the original survey benchmark.
B. **Critical Infrastructure:** Situated effectively to monitor the land subsidence occurring near the same critical infrastructure as the original RMS.

Interconnected Surface Water

For interconnected surface water, the Replacement RMS must be representative of the original monitoring location:

C. **For a Well:** The replacement well must be located within near the surface water feature or groundwater dependent ecosystem(s) near the original RMS well.
D. **For a Stream Gauge:** The replacement gauge must be situated effectively to monitor the same stream reach segment as the original RMS gauge or if an appropriate location cannot be located, at the upstream or downstream reach.

Protocol for Internal Notification and Implementation of a Replacement Representative Monitoring Site

The following protocol establishes the steps required to ensure appropriate communication, documentation, and reporting when replacement of an RMS is necessary.

Step 1. Notification of Replacement Need

Upon identification of the need to replace an RMS, the GSA shall notify the Subbasin's Technical Consultant and Plan Manager via email. The notification shall include the following information:

A. Identification number (ID) of the RMS being replaced
B. Description of the reason a replacement RMS is required
C. Description of the steps the GSA will take to identify and implement a replacement RMS
D. Anticipated timeline for implementation of the replacement RMS (not to exceed two years)
E. Identification of any known constraints or challenges associated with replacement implementation
F. If a proxy monitoring site is available for interim monitoring, a description of the proxy site, including location, confirmation of site access, and construction details if the site is a well
G. If no proxy monitoring site is available, confirmation that monitoring at the RMS will be reported as an allowable "No Measurement" until a replacement RMS is available for monitoring

Step 2. Identification and Implementation of Replacement RMS
The GSA shall secure a replacement RMS and initiate monitoring at the Replacement RMS in accordance with the Subbasin's established monitoring frequency and requirements for the applicable sustainability indicators.

Step 3. Notification of Monitoring Readiness
Once the replacement RMS is ready for monitoring, the GSA shall notify the Subbasin's Technical Consultant and Plan Manager.

Step 4. Data System Updates
The Subbasin's Technical Consultant shall update the DMS, PRP Dashboard, and Department of Water Resources (DWR) Portal to reflect the replacement of the original RMS and document the change for Annual Report purposes.

Step 5. Confirmation of Updates
The Subbasin's Technical Consultant shall notify the GSA and Plan Manager once the DMS, PRP Dashboard, and DWR Portal have been updated to remove the original RMS and designate the replacement RMS for future reporting.

Approved Exceptions to Monitoring

There are instances in which an RMS or Proxy Site cannot be measured, and it is appropriate to report this as such. In all cases in which a "No Measurement" is reported, one of the following must also be true for it to be considered appropriate.

A. The RMS or Proxy Site will be measured in the next sampling event
B. The RMS is in the process of having a Proxy Site identified and is temporarily not monitored until a Proxy Site has been selected (Not to exceed 2-months following the identification of the need for a Proxy Site)
C. The RMS is in the process of removing the current RMS from the network and initiating a replacement RMS

When to Report a "No Measurement"

A RMS can be reported in the DMS and PRP Dashboard as "No Measurement" under the following circumstances. It is important that both the DMS and PRP Dashboard are updated with a clear note explaining why the monitoring event is being marked as "No Measurement."

A. Site access is restricted
B. RMS or Proxy Site is not in condition to be monitored

C. Replacement RMS or Proxy Site is in process of being identified and unavailable for monitoring during the reporting period

See **Reporting "No Measurement"** under **Guidelines for Internal Reporting**.

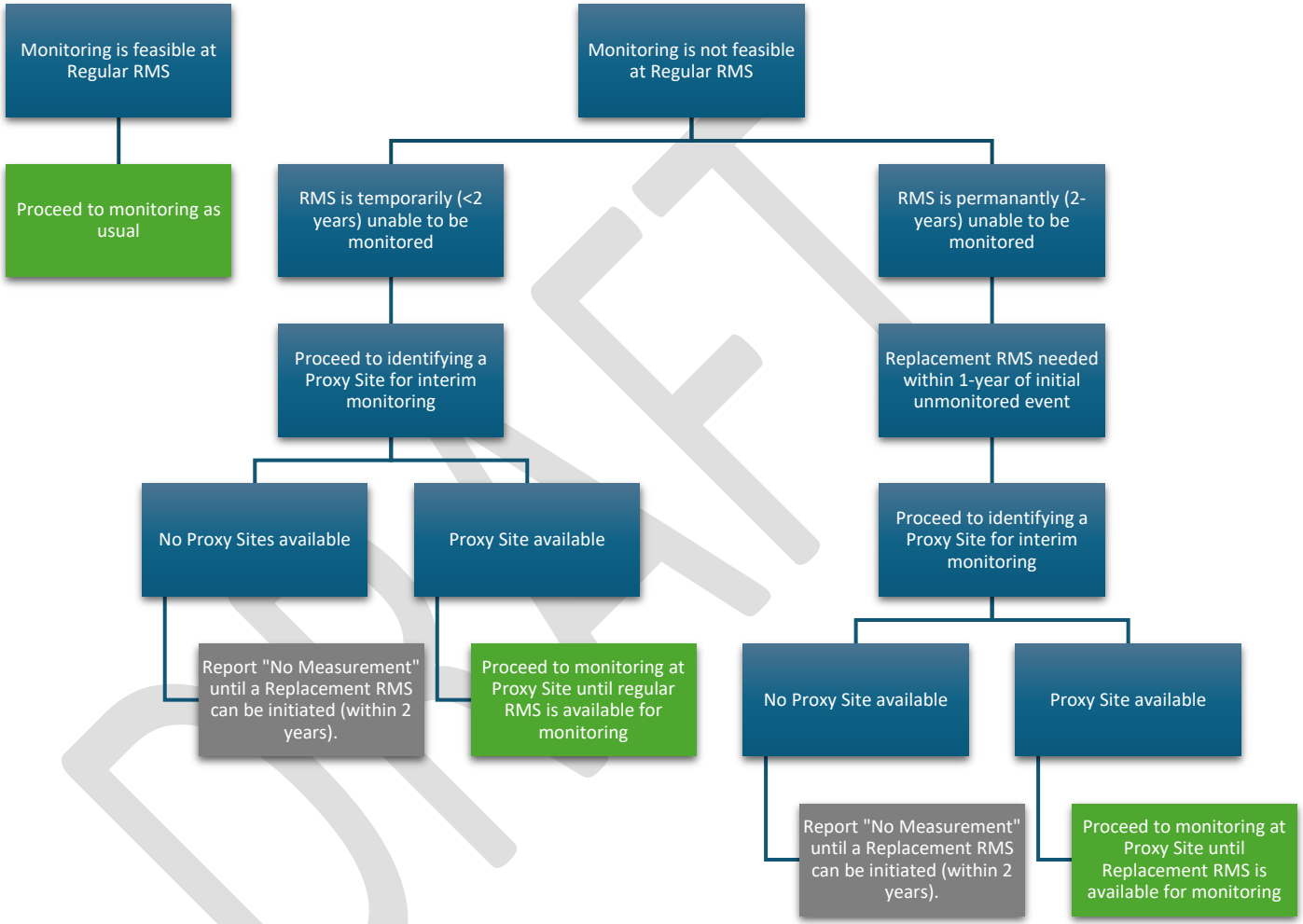

Figure 2 When to use a Proxy Site or Replacement RMS and Approved Exceptions to Monitoring

[1]RMS: Representative Monitoring Site *a dedicated monitoring location included in the Delta-Mendota Subbasin's Representative Monitoring Network for groundwater levels, groundwater quality, interconnected surface water, or land subsidence*

Adaptive Use and Future Revisions of the Guidelines

This document represents the first iteration of the Delta-Mendota Subbasin's Monitoring Implementation Guidelines. As lessons are learned through implementation, the monitoring program evolves, or new data and information become available, the Guidelines may be updated and refined accordingly. The Guidelines are intended to function as an external supporting document to the 2024 Groundwater Sustainability Plan; therefore, amendments to the Guidelines require no formal Groundwater Sustainability Plan amendment to be adopted.

While the Guidelines are intended to address nuanced circumstances that may arise during monitoring program implementation, it is recognized that situations may occur that are not fully addressed by the protocols outlined herein. In such cases, the relevant GSA is encouraged to notify the Subbasin's technical consultant, Coordination Committee Chair, and Plan Manager. These parties may jointly determine an appropriate interim approach to address the situation without requiring immediate adoption of a formal amendment to the Guidelines by the Coordination Committee.

Attachment A

Section 14.2 Description of Monitoring Network

Delta-Mendota Subbasin's 2024 Groundwater Sustainability Plan

- Monitoring short-term, seasonal, and long-term trends in groundwater and related surface water conditions;
- Demonstrating progress toward achieving the Measurable Objectives (MOs) described in the GSP;
- Monitoring impacts to the beneficial uses and users of groundwater;
- Monitoring changes in groundwater conditions relative to the MOs and Minimum Thresholds (MTs);
- Quantifying annual changes in water budget components; and,
- Monitoring impacts of Projects and Management Actions (P/MAs) within the Basin and in adjacent basins, such as the Red Top Subsidence Mitigation Project.

14.2 Description of Monitoring Network

§ 354.34. Monitoring Network

(d) The monitoring network shall be designed to ensure adequate coverage of sustainability indicators. If management areas are established, the quantity and density of monitoring sites in those areas shall be sufficient to evaluate conditions of the basin setting and sustainable management criteria specific to that area.

(e) A Plan may utilize site information and monitoring data from existing sources as part of the monitoring network.

(f) The Agency shall determine the density of monitoring sites and frequency of measurements required to demonstrate short-term, seasonal, and long-term trends based upon the following factors:

(1) Amount of current and projected groundwater use.

(2) Aquifer characteristics, including confined or unconfined aquifer conditions, or other physical characteristics that affect groundwater flow.

(3) Impacts to beneficial uses and users of groundwater and land uses and property interests affected by groundwater production, and adjacent basins that could affect the ability of that basin to meet the sustainability goal.

(4) Whether the Agency has adequate long-term existing monitoring results or other technical information to demonstrate an understanding of aquifer response.

(g) Each Plan shall describe the following information about the monitoring network:

(1) Scientific rationale for the monitoring site selection process.

(2) Consistency with data and reporting standards described in Section 352.4. If a site is not consistent with those standards, the Plan shall explain the necessity of the site to the monitoring network, and how any variation from the standards will not affect the usefulness of the results obtained.

(3) For each sustainability indicator, the quantitative values for the minimum threshold, measurable objective, and interim milestones that will be measured at each monitoring site or representative monitoring sites established pursuant to Section 354.36.

(h) The location and type of each monitoring site within the basin displayed on a map, and reported in tabular format, including information regarding the monitoring site type, frequency of measurement, and the purposes for which the monitoring site is being used.

As shown in **Figure MN-1** through **Figure MN-6** and in **Figure MN-9** and **Figure MN-10**, the Basin's SGMA Monitoring Network is composed of Representative Monitoring Sites (RMS) where Sustainability Management Criteria (SMCs) have been established or will be established once baseline data have been collected. The SGMA Monitoring Network will include:

- Chronic Lowering of Groundwater Levels: 108 water level Representative Monitoring Wells (RMW-WL) (**Figure MN-1**);
- Reduction of Groundwater Storage: using Chronic Lowering of Groundwater Levels monitoring network as a proxy;
- Degraded Water Quality: 90 water quality Representative Monitoring Wells (RMW-WQ) (**Figure MN-5**);
- Land Subsidence: 35 survey points, four extensometers, and three Global Positioning System (GPS) subsidence monitoring stations, which will be evaluated alongside Basin-wide Interferometric Synthetic Aperture Radar (InSAR) data (**Figure MN-9**); and
- Depletions of Interconnected Surface Water: 25 Representative Monitoring Wells for Depletions of Interconnected Surface Water (RMW-ISW) and nine stream gauges (**Figure MN-10**).

The SGMA Monitoring Network consists of a series of monitoring sites that meet the following criteria:

(1) Some sites are included in the monitoring programs already implemented by the Groundwater Sustainability Agencies (GSAs) and/or other existing monitoring programs that are active within the Basin;

(2) The sites have been demonstrated to be representative of groundwater or other relevant conditions within the Basin;

(3) The sites are spatially distributed and located in proximity to beneficial uses and users of groundwater (e.g., public supply wells, production wells, and groundwater dependent ecosystems [GDEs]);

(4) The sites that are located in proximity to critical infrastructure (e.g., the Delta-Mendota Canal [DMC], the California Aqueduct, Chowchilla Bypass, Fresno Slough, Mendota Pool, and San Joaquin River);

(5) Under the Memorandum of Agreement (MOA; **Appendix D**) guiding development of this GSP, each GSA must maintain at least one RMW-WL and one RMW-WQ in each aquifer from which pumping occurs, either within its GSA boundaries or within the area of influence of the pumping that is occurring; and

(6) The RMS are where SMCs (e.g., MOs, MTs and Interim Milestones [IMs]) will be defined for at least one of the relevant Sustainability Indicators for the Basin[48]:

- Chronic Lowering of Groundwater Levels;
- Reduction of Groundwater Storage;
- Degraded Water Quality;
- Land Subsidence; and

[48] As discussed below in **Section 14.2.3**, the Basin is at little to no risk for Seawater Intrusion; therefore, the Sustainability Indicator is not applicable.

- Depletions of Interconnected Surface Water.

Per 23 CCR § 354.34(g), other factors considered in the development of the SGMA Monitoring Network and the selection of each monitoring site and RMS include:

- Availability of existing technical information (e.g., well location, construction information, condition, status, etc.);
- Quality and reliability of historical data at the site;
- "Representativeness" to local groundwater conditions and nearby well populations (per 23 CCR § 354.36); and
- Projected availability of long-term access to the site.

Pursuant to 23 CCR § 354.34(f), the spatial distribution, spatial density, and temporal frequency of measurements collected from each site is determined for each applicable Sustainability Indicator based on the following considerations:

- Amount of current and projected groundwater use;
- Aquifer characteristics, including any vertical and/or lateral barriers to groundwater flow;
- Potential impacts to beneficial uses and users of groundwater, land uses, and property interests affected by groundwater production and the adjacent basins; and
- Availability of historical data to evaluate long-term trends in groundwater conditions associated with the above factors.

Table MN-1 summarizes the SGMA RMWs for the Chronic Lowering of Groundwater Levels and Degraded Groundwater Quality Sustainability Indicators, and stream gauges for the Depletions of Interconnected Surface Water Sustainability Indicator, including the site types, monitoring entity (GSA), location information, well information (as applicable), and principal aquifer(s) monitored. As discussed in **Section 13.2**, the SMCs for Chronic Lowering of Groundwater Levels will be used as a proxy for Reduction of Groundwater Storage. As such, the SGMA Monitoring Network for water levels will also be used to address the Groundwater Storage Sustainability Indicator. **Table MN-2** summarizes the SMGA RMS for the Land Subsidence Sustainability Indicator, including the site type, monitoring entity, and location information. Further details about the SGMA Monitoring Network for each Sustainability Indicator can be found in **Sections 14.2.1** through **14.2.6**.

Pursuant to 23 CCR § 354.34(i), in all cases the SGMA Monitoring Network will adhere to the monitoring protocols specified for the Basin as described in **Section 14.3**.

14.2.1 Monitoring Network for Chronic Lowering of Groundwater Levels

§ 354.34. Monitoring Network

(c) Each monitoring network shall be designed to accomplish the following for each sustainability indicator:

(1) Chronic Lowering of Groundwater Levels. Demonstrate groundwater occurrence, flow directions, and hydraulic gradients between principal aquifers and surface water features by the following methods:

(A) A sufficient density of monitoring wells to collect representative measurements through depth-discrete perforated intervals to characterize the groundwater table or potentiometric surface for each principal aquifer.

(B) Static groundwater elevation measurements shall be collected at least two times per year, to represent seasonal low and seasonal high groundwater conditions.

☑ 23 CCR § 354.34(c)(1)

The SGMA Monitoring Network for Chronic Lowering of Groundwater Levels consists of 108 RMW-WLs distributed across the Basin. The majority (100) of the RMW-WLs are existing wells, with the remaining eight to be constructed during GSP implementation. Of the RMW-WLs, 60 are screened in the Upper Aquifer, and 48 are screened in the Lower Aquifer. Specific details regarding these wells are listed in, and the RMW-WL locations are shown on, **Figure MN-1**.

Per 23 CCR § 354.34, the selection of these RMW-WLs has been informed by the existing local monitoring programs, including the former California Statewide Groundwater Elevation Monitoring (CASGEM) monitoring program, and leverages historical data wherever possible to help assess and quantify Basin response to GSP implementation relative to historical and projected future groundwater conditions. The RMW-WLs were selected based on the following considerations:

- **GSA jurisdiction** – Under the MOA (**Appendix D**) guiding development of this GSP, each GSA must maintain a minimum of one RMW-WL in each aquifer from which it has groundwater pumping either within its GSA boundaries or within the area of influence of the pumping that is occurring.
- **Current and projected groundwater use** – The RMW-WLs are distributed across the Basin with focus on the areas with the highest densities of domestic wells, public wells, or other production wells.
- **Aquifer characteristics** – The RMW-WLs are screened within the Basin's two principal aquifers and are distributed for comprehensive coverage of each aquifer.
- **Potential impacts to beneficial uses and users of groundwater, land uses or property interests, and adjacent basins** – As mentioned above, RMW-WLs are most concentrated in the areas of highest well density (**Figure MN-2**). The RMW-WL locations have also been selected to provide monitoring near critical infrastructure, including the Delta-Mendota Canal, California Aqueduct, Chowchilla Bypass, Fresno Slough, Mendota Pool, and San Joaquin River, as shown in **Figure MN-3**, as well as other dams, levees, canals, pumping stations, and roads (further detailed in the bullet below). Several RMW-WLs are proximate to the Basin boundary and will be used to monitor cross-boundary flows between the Basin and adjacent basins. As discussed below in **Section 14.2.6**, water levels in the RMW-ISW will be monitored to assess hydraulic gradients between surface

water features, GDEs, and the Upper Aquifer. **Figure MN-4** shows the locations of RMW-WLs relative to wetlands, vegetation, and interconnected surface water features in the Basin.

- **Recommendations of the Conceptual Master Plan for Subsidence Monitoring and Management** – Several monitoring locations were prioritized for inclusion due to their potential to provide insight on subsidence, as recommended in the Subsidence Master Plan (GSI Environmental Inc., 2022). RMW-WL 08-002 was included in the Upper Aquifer network between DMC mile posts 100 and 101. RMW-WLs 14-025 and 23-003 were added to the Lower Aquifer network at Sack Dam. RMW-WLs 09-011 and 09-012 were added to the Lower Aquifer network near the southern end of the Chowchilla bypass. Lower Aquifer RMW-WL 10-010 was added near the Yearout extensometer for direct comparison of water level and subsidence data. Finally Lower Aquifer RMW-WLs 11-022 and 14-021, 14-023 and 14-024, and 13-004 were added near the cities of Los Banos, Firebaugh, and Mendota, respectively.
- **Availability, quality, and reliability of historical data** – Out of the existing RMW-WLs, 72 of them (72 percent) have a historical record spanning at least five years. About 33 percent of the RMW-WLs have associated water level records spanning at least 20 years and have at least one water level measurement recorded in the last ten years (i.e., since January 2013). Thirty-nine of the RMW-WLs are included in the Basin's CASGEM network. In preparing and populating the Basin Data Management System (DMS), Quality Assurance/Quality Control (QA/QC) checks were implemented to help ensure entry and maintenance of valid and accurate data.
- **Availability of site-specific technical information** – All of the RMW-WLs have known geographic coordinates, and most have known ground surface elevations and reference point elevations. Where exact elevations are not known, they are calculated from digital elevation models. Moreover, 90 percent of the existing RMW-WLs contain known well depths, well screen intervals, or both. For RMW-WLs where well construction information is incomplete or currently unavailable, the GSAs are developing plans to fill these data gaps in accordance with 23 CCR § 354.38 and as part of GSP implementation. All RMW-WLs have been confirmed to have access ports for water level measurement collection.
- **"Representativeness" to local groundwater conditions** – The wells chosen to serve as RMW-WLs must be representative of local groundwater conditions, which is determined by the following factors: well construction (i.e., the well depth and perforated interval) must be sufficient to represent the Principal Aquifers; well location must be representative of land and water use practices in the surrounding area; and the measured water level response to short- and longer-term conditions (i.e., seasonal and multi-year trends) is consistent with measurements in other nearby wells, where available.
- **Long-term access** – For each RMW-WL, the California Department of Water Resources (DWR) Best Management Practices #2 for Monitoring Network and Identification of Data Gaps (DWR, 2016b) recommends that GSAs secure long-term agreements with associated landowners/well owners allowing local GSA representatives year-round, long-term access to the site to conduct monitoring for SGMA compliance purposes. All wells have been confirmed to have landowner access for water level measurement collection.

☑ 23 CCR § 354.34(c)(3)
☑ 23 CCR § 354.34(j)

As described in **Section 13.3.1**, seawater intrusion is not present and not likely to occur within the Basin. Therefore, the Seawater Intrusion Sustainability Indicator is not applicable to the Basin and no SMCs for this Sustainability Indicator are defined. As such, per the stipulations defined under 23 CCR § 354.32(j), a monitoring network has not been defined for the Seawater Intrusion Sustainability Indicator.

14.2.4 Monitoring Network for Degraded Water Quality

§ 354.34. Monitoring Network

(c) Each monitoring network shall be designed to accomplish the following for each sustainability indicator:

(4) Degraded Water Quality. Collect sufficient spatial and temporal data from each applicable principal aquifer to determine groundwater quality trends for water quality indicators, as determined by the Agency, to address known water quality issues.

☑ 23 CCR § 354.34(c)(4)

Per California Water Code (CWC) Section 10725, the powers and authorities granted to GSAs to affect sustainable groundwater management under SGMA include, but are not limited to, conducting investigations, registering and metering of groundwater extraction facilities, acquiring surface water or groundwater, reclaiming waters for subsequent beneficial use, regulating groundwater extraction, and establishing accounting rules for groundwater extraction allocations. Regulatory oversight authority for drinking water quality rests with the State Water Resources Control Board (SWRCB) Division of Drinking Water (DDW) and not with the GSAs. As discussed in **Section 13.4.1**, Undesirable Results would only be experienced if the water quality conditions are caused by groundwater management (i.e., groundwater recharge or extraction) within the Basin. To monitor groundwater conditions requires adequate spatial well density, depth discrete well perforation intervals, and measurements that capture temporal water quality and level conditions in the principal aquifers.

Monitoring data can demonstrate the potential nexus between groundwater management and elevations in the Basin and constituent concentrations in the water produced by wells. Per 23 CCR § 354.32(e), the selection of the RMW-WQs has been informed by existing local monitoring programs and leverages historical data wherever possible to help assess and quantify Basin response to GSP implementation relative to historical and projected future groundwater conditions.

The SGMA Monitoring Network for Degraded Water Quality consists of 90 RMW-WQs distributed across the Basin. The majority (82) of the RMW-WQs are existing wells, with the remaining eight to be constructed during GSP implementation. Of the RMW-WQs, 48 are screened in the Upper Aquifer and 42 are screened in the Lower Aquifer. Specific details regarding these wells are shown in **Figure MN-5** and summarized in **Table MN-1**. The SGMA Monitoring Network for Degraded Water Quality was selected based on the following considerations:

- **GSA jurisdiction** – Under the MOA (**Appendix D**) guiding development of this GSP, each GSA must maintain a minimum of one RMW-WQ in each aquifer in which it has groundwater pumping either within its GSA boundaries or within the area of influence of the pumping that is occurring.

- **Current and projected groundwater use** – As required by the MOA, each GSA must monitor water quality in each principal aquifer from which water is extracted within its boundaries. Thus, sampling occurs wherever water is used. **Figure MN-6** shows the locations of RMW-WQs relative to production wells throughout the Basin. The RMW-WQs include eight Public Water System (PWS) wells. These wells are already sampled and analyzed relative to drinking water quality standards, which are the most stringent current and projected water quality standards in the Basin. Additional wells listed in **Table MN-1** include 30 agricultural production wells (i.e., irrigation wells), four domestic wells, one industrial well, and 32 dedicated monitoring wells.
- **Aquifer characteristics** – All RMW-WQs are screened in the alluvial materials that form the Basin's principal aquifers. Monitoring of water quality is conducted in both aquifers at various depths which provides sufficient sampling to characterize the production zones of the principal aquifers.
- **Potential impacts to beneficial uses and users of groundwater, land uses or property interests, and adjacent Basins (or GSAs)** – Drinking water is the most sensitive beneficial use of water in the Basin. The PWS wells are required to meet drinking water standards in the Basin (i.e., compliance with Title 22 CCR drinking water regulations for Maximum Contaminant Levels [MCLs]). Additionally, the requirement that each GSA maintains a minimum of one RMW-WQ in each aquifer from which groundwater is extracted ensures that water quality is monitored in areas with known domestic wells.
- **Availability, quality, and reliability of historical data** – Historical data for at least one Constituent of Concern are available in 62 of the 82 existing RMW-WQs and have been compiled into the Basin DMS. Data collection for the remaining wells will commence in calendar year 2024 and results will be included as part of the next Annual Report (Water Year [WY] 2024). Wells that are sampled as part of existing monitoring programs, such as Title 22, Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS), or the Irrigated Lands Regulatory Program (ILRP), are subject to validation during the reporting process. Additionally, in preparing and populating the Basin DMS, QA/QC checks were implemented to help ensure entry and maintenance of valid and accurate data.
- **Availability of site-specific technical information** – As shown in **Table MN-1**, the existing RMW-WQs have known coordinates, and 87 percent have known well construction information (including total depth, perforated intervals, or both). For the RMW-WQs where well construction information is incomplete or currently unavailable, the GSAs are developing plans to fill these data gaps in accordance with 23 CCR § 354.38 and as part of GSP implementation (**Section 14.5**).
- **"Representativeness" to local groundwater conditions** – As previously mentioned, the RMW-WQs are considered representative of local conditions given that the well depths and perforated intervals sample from a sufficient range of depths to represent conditions in both principal aquifers, and the wells are located throughout the Basin in GSAs that represent urban, domestic, and agricultural land uses. Furthermore, where historical data are available, average total dissolved solids (TDS) and nitrate concentrations in RMW-WQs over the 2005 – 2014 and 2015 – 2023 periods show good agreement with the concentration contours generated for those periods using all GSA-provided and publicly available data (as described in **Sections 8.5.2.2** and **8.5.2.5**), except where little data was available for raster development, indicating that water quality in the

RMW-WQs is representative of conditions in the respective principal aquifers. **Figure MN-7** and **Figure MN-8** show plots of RMW-WQ measured average concentration data versus concentration contours from these two time periods for TDS and nitrate as nitrogen, respectively.

- **Long-term access** – For each RMW-WQ that is not a PWS well or directly owned by a GSA, the GSAs have secured long-term agreements with associated land / well owners allowing local GSA representatives access to the site to conduct monitoring for SGMA compliance purposes. Data from the PWS wells will be accessed via the Safe Drinking Water Information System (SDWIS) Drinking Water Watch website.

Monitoring Well Density

The recommended monitoring well density is at least four wells per 100 square miles (see previous discussion for the water level monitoring network in **Section 14.2.1**). Accordingly, the recommended number of RMW-WQs in the Upper Aquifer is 48, and the recommended number of wells in the Lower Aquifer, which covers a lesser spatial extent, is 41. The 48 RMW-WQs in the Upper Aquifer and 42 RMW-WQs in the Lower Aquifer comprising the SGMA Monitoring Network comply with this recommendation. Additionally, within each GSA, there is at least one RMW-WQ in each principal aquifer from which local pumping occurs.

14.2.5 Monitoring Network for Land Subsidence

§ 354.34. Monitoring Network

(c) Each monitoring network shall be designed to accomplish the following for each sustainability indicator:

(5) Land Subsidence. Identify the rate and extent of land subsidence, which may be measured by extensometers, surveying, remote sensing technology, or other appropriate method.

☑ 23 CCR § 354.34(c)(5)

The SGMA Monitoring Network for Land Subsidence consists of 42 Representative Monitoring Sites for Land Subsidence (RMS-LS), including 35 survey points, four extensometers, and three continuous Global Positioning System (CGPS) points. Several of the sites are managed by federal agencies, including the United States Geological Survey (USGS), United States Bureau of Reclamation (USBR), and EarthScope Consortium (formerly University Navstar Consortium or UNAVCO). Additionally, the entire Basin will be monitored for compliance with subsidence SMCs using InSAR data published quarterly by DWR, which have historically shown good agreement with land-based measurements in the Basin (GSI Environmental Inc., 2022).

Specific details regarding each of the above sites are listed in **Table MN-2** and site locations are shown in **Figure MN-9**. These sites were selected based on the following considerations:

- **Potential impacts to beneficial uses and users of groundwater, land uses or property interests** – The sites are situated in proximity to critical infrastructure facilities within the Basin, including the Delta-Mendota Canal, California Aqueduct, Chowchilla Bypass, San Joaquin River, Fresno Slough, Mendota Pool, and other dams, levees, local canals, pumping stations, and roads.

- **Availability, quality, and reliability of historical data** – All of the RMS-LS have historic elevation or compaction data, including 16 with records starting prior to the year 2000. Data collected at sites monitored by the USGS or USBR undergo the respective agency's validation process prior to release. Additionally, in preparing and populating the Basin DMS, QA/QC checks were implemented to help ensure entry and maintenance of valid and accurate data.
- **Long-term access** – As previously noted, all RMS-LS have been confirmed to have sufficient access for data collection.

In addition to the existing RMS-LS described above, DWR has awarded funding to the Basin for the installation of at least one multilayer compaction monitoring well and two to six CGPS stations by Spring 2025. In selecting locations for the new monitoring infrastructure, consideration will be given to the criteria above and the recommendations from the Subsidence Master Plan (GSI Environmental Inc., 2022).

As a supplement to the above monitoring and the utilization of DWR's InSAR surveys, the GSAs will gather and consider data from other USBR checkpoints along the Delta-Mendota Canal and from the San Joaquin River Restoration Program (SJRRP) geodetic network as data become available.

14.2.6 Monitoring Network for Depletions of Interconnected Surface Water

§ 354.34. Monitoring Network

(c) Each monitoring network shall be designed to accomplish the following for each sustainability indicator:

(6) Depletions of Interconnected Surface Water. Monitor surface water and groundwater, where interconnected surface water conditions exist, to characterize the spatial and temporal exchanges between surface water and groundwater, and to calibrate and apply the tools and methods necessary to calculate depletions of surface water caused by groundwater extractions. The monitoring network shall be able to characterize the following:

(A) Flow conditions including surface water discharge, surface water head, and baseflow contribution.

(B) Identifying the approximate date and location where ephemeral or intermittent flowing streams and rivers cease to flow, if applicable.

(C) Temporal change in conditions due to variations in stream discharge and regional groundwater extraction.

(D) Other factors that may be necessary to identify adverse impacts on beneficial uses of the surface water.

☑ 23 CCR § 354.34(c)(6)
☑ 23 CCR § 354.34(j)

The GSP Regulations 23 CCR § 354.28(c) state that the SMCs for Depletions of Interconnected Surface Water "shall be the rate or volume of surface water depletions caused by groundwater use that has adverse impacts on beneficial uses of the surface water and may lead to undesirable results." Monitoring the depletion of interconnected surface water must therefore characterize the spatial and temporal changes in the exchange between surface water and groundwater conditions by collecting data to characterize the following:

- Flow conditions including surface water discharge, surface water head ("stage"), and baseflow

contribution;

- The approximate date and location where ephemeral or intermittent flowing streams and rivers cease to flow, if applicable;
- Temporal change in conditions due to variations in stream discharge and regional groundwater extraction;
- Vertical groundwater gradients near surface water features; and
- Other factors that may be necessary to identify adverse impacts on beneficial uses of the surface water.

Water table and streamflow changes can be characterized with measured water levels in shallow wells located near stream gauging stations (stream gauges are locations where surface water level elevation [stage] and/or volumetric discharge [flow] are measured). The SGMA Monitoring Network for Depletions of Interconnected Surface Water that was developed for the Basin is comprised of 34 Representative Monitoring Sites for Depletions of Interconnected Surface Water (RMS-ISW), 25 of which are wells and nine of which are stream gages, as shown in **Figure MN-10** and summarized in **Table MN-1**. Six of the wells are part of nested sets. Of the 34 RMS-ISW, 18 wells and seven stream gages currently exist, and an additional seven wells and two stream gages will be constructed during GSP implementation. The sites were selected based on the following considerations:

- **Current and projected groundwater use** – To the extent possible, the RMW-ISWs are located near surface water features and GDEs, which are environmental users of groundwater.
- **Aquifer characteristics** – 17 of the 25 RMW-ISW wells are or will be screened within the top 50 feet of shallow alluvial materials. These relatively shallow well depths are considered representative of the shallow water-bearing zone conditions. The deeper wells in the ISW monitoring network will allow monitoring of potential relationships with production zone conditions and shallow water levels. As such, the SGMA Monitoring Network is sufficient to monitor potential shallow groundwater level changes due to GSA management actions in the Basin.
- **Potential impacts to beneficial uses and users of groundwater, land uses or property interests** – As described in **Sections 7.1.4**, **8.7**, and **8.8**, shallow groundwater is common, particularly in the eastern part of the Basin, with most GDEs located within the Grassland area. As such, the RMS-ISWs are located near surface water features and the GDEs to monitor any potential impacts of groundwater use and management to beneficial users (including environmental users).
- **Availability, quality, and reliability of historical data** – In addition to the groundwater monitoring record described in **Section 14.2.1**, the majority of the existing surface water RMS-ISWs have continuous records of at least 15 years, with three that extend back to the 1990s. In preparing and populating the Basin DMS, QA/QC checks were implemented to help ensure entry and maintenance of valid and accurate data.
- **Availability of site-specific technical information** – As shown in **Table MN-1**, all existing RMS-ISWs have location coordinates and all but one of the existing wells have known construction information that includes perforated intervals.

- **"Representativeness" to local groundwater conditions** – The sites "representativeness" to local groundwater conditions is determined by location relative to the surface water features and well construction. **Figure MN-10** indicates that the RMW-ISWs are located along streams and/or near GDEs and are representative of water table conditions in the Basin near these surface water features.
- **Long-term access** – The GSAs have secured long-term access for the RMS-ISWs to conduct monitoring for SGMA compliance purposes.

14.3 Monitoring Protocols for Data Collection and Monitoring

§ 352.2. Monitoring Protocols

Each Plan shall include monitoring protocols adopted by the Agency for data collection and management, as follows:

(a) Monitoring protocols shall be developed according to best management practices.

(b) The Agency may rely on monitoring protocols included as part of the best management practices developed by the Department, or may adopt similar monitoring protocols that will yield comparable data.

(c) Monitoring protocols shall be reviewed at least every five years as part of the periodic evaluation of the Plan, and modified as necessary.

§ 354.34. Monitoring Network

(i) The monitoring protocols developed by each Agency shall include a description of technical standards, data collection methods, and other procedures or protocols pursuant to Water Code Section 10727.2(f) for monitoring sites or other data collection facilities to ensure that the monitoring network utilizes comparable data and methodologies.

☑ 23 CCR § 352.2
☑ 23 CCR § 354.34(i)

Pursuant to 23 CCR § 354.32, in all cases the SGMA Monitoring Network will adhere to the monitoring protocols developed by the Basin GSAs. Monitoring is needed to track changes in Basin conditions, Sustainability Indicators, and the effectiveness of GSP implementation to achieve groundwater sustainability. Data collection protocols for groundwater levels, groundwater quality, land subsidence, and surface water are detailed below and are designed for compatibility with the 23 CCR and DWR's "BMP #1 for Groundwater Monitoring Protocols, Standards, and Sites" (DWR, 2016a).

The Basin's monitoring protocols are designed to ensure the following:

1. Data are collected from the correct location with proper site identification;
2. Data are accurate and reproducible;
3. Data represent conditions in the Basin;
4. All salient information is recorded to check and correct data; and
5. Data are handled in a way that ensures data integrity.

Attachment B

Groundwater Level Monitoring Result QA/QC Checklist for GSAs

Groundwater Level Monitoring Result QA/QC Checklist for GSAs

STEP 1 — QA/QC REVIEW (Before Upload to DMS)

A. Historical Sufficiency

☐ At least 4 prior measurements available?
☐ Includes seasonal high and seasonal low data?

*If **no** → Result likely **Uncertain Representativeness in Step 2.***

B. Trend & Pattern Evaluation

☐ Seasonal pattern logical (decline in dry months, recovery in wet)?
☐ Trend consistent with regional aquifer behavior?
☐ Similar pattern to nearby wells screened in same aquifer?
☐ Pumping influence predictable and explainable?
☐ Aquifer response matches screened interval (confined vs unconfined)?

*If inconsistent with seasonal patterns or nearby wells → Result likely **Unrepresentative in Step 2**.*
*If consistent with localized and regional trends and expected aquifer behavior → Result is likely **Representative in Step 2**.*

C. Red Flag Screening (Automatic Escalation Triggers)

☐ Exact same water level reported multiple times
☐ Dramatic jump (tens of feet) without hydrologic explanation
☐ Sharp isolated drawdown inconsistent with region
☐ No recovery after pumping season
☐ Confined well behaving like shallow recharge well
☐ Measurement indicates dry well (below screen)

*If any box checked → classify as **Unrepresentative in Step 2.***

STEP 2 — CLASSIFY RESULT

☐ Representative
☐ Uncertain Representativeness
☐ Unrepresentative (Anomalous)

STEP 3 — REQUIRED ACTIONS

If Representative

☐ Upload to DMS

If Uncertain Representativeness

☐ Compare with nearby wells
☐ Review pumping conditions
☐ Flag internally for follow-up
☐ Consider confirmation measurement (ideal ≤ 2 weeks)
☐ Consider increasing monitoring frequency or adding logger

If Unrepresentative

☐ Email Subbasin Technical Consultant immediately
☐ Mark result as “Anomalous” in DMS
☐ Schedule confirmation measurement (≤ 2 weeks ideal, optional)
☐ Evaluate well integrity (age, condition, cross-screening risk)

STEP 4 — AFTER CONFIRMATION

If anomaly corrected:

☐ Update DMS with confirmed result

☐ Document explanation

If anomaly confirmed:

☐ Re-mark as “Anomalous”

☐ Assess need for:

- ☐ Well redevelopment
- ☐ Specialized monitoring equipment
- ☐ Proxy Site
- ☐ Replacement RMS

STEP 5 — PROXY / REPLACEMENT TRIGGERS

Initiate Proxy if:

☐ RMS temporarily unavailable (< 2 years)

Initiate Replacement if:

☐ RMS unavailable > 2 years

OR

☐ Repeated unrepresentative results

Attachment C

Groundwater Quality Monitoring Result QA/QC Checklist for GSAs

Groundwater Quality Monitoring Result QA/QC Checklist for GSAs

STEP 1 — QA/QC REVIEW (Before Upload)

A. Historical Context

☐ ≥ 4 prior sampling events?
☐ Established concentration range defined?

*If no → classify as **Uncertain Representativeness in Step 2.***

B. Constituent Review

☐ Within historical range?
☐ Spatially consistent with nearby wells (within ~3 miles)?
☐ Geochemically plausible?
☐ Internal consistency between related parameters?
☐ Stable constituents remain stable?

*If inconsistent with seasonal patterns or nearby wells → Result likely **Unrepresentative in Step 2**.*
*If consistent with localized and regional trends and expected aquifer behavior → Result is likely **Representative in Step 2**.*

C. Red Flag Screening

☐ Extreme isolated spike
☐ Non-detect → high detection without new source
☐ Chemically impossible relationship
☐ Nitrite > nitrate in oxygenated aquifer
☐ High turbidity affecting metals
☐ Holding time / preservation issue
☐ Suspected cross-contamination
☐ Deep anoxic well showing shallow nitrate signature

*If any box is checked → classify as **Unrepresentative in Step 2.***

STEP 2 — CLASSIFY RESULT

☐ Representative ☐ Uncertain Representativeness ☐ Unrepresentative (Anomalous)

STEP 3 — REQUIRED ACTIONS

If Representative

☐ Upload to DMS

If Uncertain Representativeness

☐ Flag for follow-up
☐ Increase scrutiny at next sampling event
☐ Compare to nearby wells
☐ Consider targeted resample
☐ Note in DMS "Uncertain Representativeness"

☐ Notify Subbasin Technical Consultant immediately
☐ Mark as "Anomalous" in DMS
☐ Schedule resample ASAP (optional/recommended)
☐ Review sampling flow rate & intake depth
☐ Confirm proper chain-of-custody
☐ Evaluate equipment contamination risk

STEP 4 — AFTER CONFIRMATION

This step applies only if a confirmation resample has been completed for the constituent of interest. Confirmation resampling is optional but recommended.

If resample result corrects anomalous result(s):
☐ Update DMS with corrected result (from resample)
☐ Document original anomaly and correction in DMS notes

If resample result confirms anomaly:
☐ Assess well integrity
☐ Review field protocols
☐ Consider equipment dedication
☐ Evaluate need for Replacement RMS

STEP 5 — PROXY / REPLACEMENT TRIGGERS

Initiate Proxy if:
☐ RMS temporarily unavailable (< 2 years)

Initiate Replacement if:
☐ RMS unavailable > 2 years
OR
☐ Repeated unrepresentative results

Attachment D

Land Subsidence Monitoring Result QA/QC Checklist for GSAs

Land Subsidence Monitoring Result QA/QC Checklist for GSAs

STEP 1 — QA/QC REVIEW

A. Survey Integrity

☐ Approved survey methodology used (GPS/leveling)?
☐ Benchmark physically stable?
☐ No visible tilt/damage/disturbance?

B. Data Comparison

☐ Compare to InSAR data
☐ Compare to nearby benchmarks
☐ Trend consistent with historical behavior?
☐ Magnitude plausible for basin conditions?
☐ No physically impossible uplift?

C. InSAR Review

☐ Check for pixel reset-to-zero artifacts
☐ Confirm displacement time series logical
☐ Consider accuracy differences (benchmark vs InSAR)

D. Red Flag Screening

☐ Benchmark damaged
☐ Survey error suspected
☐ Massive unexplained spike
☐ Extreme uplift in known subsiding area
☐ InSAR decorrelation

*If any box is checked → classify as **Unrepresentative in Step 2.***

STEP 2 — CLASSIFY RESULT

☐ Representative ☐ Uncertain Representativeness ☐ Unrepresentative (Anomalous)

STEP 3 — REQUIRED ACTIONS

If Representative	If Uncertain	If Unrepresentative
☐ Upload to DMS	☐ Review InSAR carefully ☐ Compare adjacent benchmarks ☐ Report with notation if defensible OR ☐ Default to "No Measurement" if unresolved	☐ Report as "No Measurement" ☐ Include explanation in DMS ☐ Use InSAR as analytical surrogate ☐ Notify Subbasin Technical Consultant

STEP 4 — FOLLOW-UP ACTIONS

If benchmark damaged:
☐ Initiate repair or replacement

If survey issue:
☐ Review survey protocols

If long-term instability:
☐ Initiate Replacement RMS (within 2 years)

DELTA-MENDOTA SGMA

TO: Board of Directors
Agenda Item No. 12

FROM: Taylor Blakslee, Hallmark Group

DATE: April 13, 2026

SUBJECT: Review and Provide feedback on the Domestic Well Mitigation Policy Briefing Workshop

Recommendation

Provide feedback on the domestic well mitigation policy briefing workshop.

Discussion

On August 11, 2025, the Coordination Committee recommended the Delta-Mendota Subbasin Groundwater Sustainability Agencies (GSAs) adopt the domestic well mitigation policy, and GSAs adopted the policy through their respective Boards.

Outreach commitments outlined in the domestic well mitigation policy and options for additional outreach were presented to the Coordination Committee on October 13, 2025, and the Committee directed outreach consultant Lisa Beutler to implement the first four outreach items (press release, newsletter, posting informational flyers, and coordinating the translation of those fliers for online access). On December 12, 2025, the Coordination Committee directed staff to plan a domestic well mitigation policy workshop in Spring of 2026.

Staff worked with Ms. Beutler to schedule the domestic well mitigation policy workshop for May 13, 2026. A summary of the policy requirements, along with the process for domestic well users to apply for mitigation is outlined in **Attachment 1**. ***Staff is working to finalize the attachment and will be included in an amended Board packet.***

Staff seeks Board feedback on the potential issues to be addressed in the process for domestic well users to apply for mitigation.

DELTA-MENDOTA SGMA

TO: Board of Directors
Agenda Item No. 14

FROM: Taylor Blakslee, Hallmark Group

DATE: April 13, 2026

SUBJECT: Update on PRP Implementation and Exceedance Reporting

Recommendation
None; information only.

Discussion
An update on PRP and GSP Implementation Tracking and Exceedance Reporting is provided as **Attachment 1.**

a. Update on Q1 Data Submittal to the DMS
Groundwater levels and groundwater quality data for the Q1 (January to March, 2026) were due to the DMS on March 31, 2025. Staff will provide an update on the status of GWL and GWQ data received from each GSA to date. **Please submit your Q1 data to the DMS as soon as possible.**

The single GSP indicates groundwater levels will be monitored on a quarterly basis and groundwater quality will be monitored on a biannual basis. The target months for monitoring are below:

Groundwater Level Monitoring	Groundwater Quality Monitoring
February	February
May	August
August	--
November	*Constituents: arsenic; nitrate; 1,2,3-TCP; gross alpha radioactivity; TDS; and hexavalent chromium.

GSAs are required to collect at least one measurement/sample during each target month at each representative monitoring site.

b. Report from GSAs with Exceedances
A verbal update will be provided on the status of exceedances.

For discussion purposes only

PRP IMPLEMENTATION TIMEFRAME

- GSAs to conduct regular data collection per GSP (quarterly for WL and semi-annually for WQ, targeting the first month of the quarter [Jan, Apr, Jul, Oct]).

- GSAs/consultants to upload data upon QAQC per SOP by the end of the quarter [Mar, Jun, Sep, Dec].
- Submittal to DWR by 1 July and 1 January

- Dashboard will report triggers/exceedances of the quarter during the first month of the following quarter.

- For wells with triggers/exceedances, GSAs to conduct an investigation within 60 days per MOA and PRP, and upload investigation status to the Dashboard.
- Investigation start time will be set as the first day of the quarter (following the triggers) for consistency across the Basin.

- Following the investigation, if GSA activities result in the triggers/exceedances, GSAs shall present a plan of action to the CC within 30 days per MOA.
- GSAs to implement action plan per PRP and track PRP implementation through the Dashboard.

PRP REMINDER #1: SAMPLING & REPORTING

- Q1 2026 measurement data should be submitted to DMS ASAP (deadline was March 31)
- PRP status update (i.e., new triggers or exceedances) will be provided in the next JPA meeting when Q1 2026 measurement data entered
- Continue with any pending investigation or required actions (see following slides):
  - Conduct required higher frequency monitoring for WQ Exceedance Mitigation based on last fall samples, unless investigation resulted in finding of no GSA cause
- Submit your actions and investigations to the PRP Dashboard in a timely manner and upload relevant data to DMS (see following slides)

PRP REMINDER #2: KEY DEADLINES

- **Component #1: Monitoring & Reporting**
  - Well registration and Well Metering deadline was January 2026 → *Needs to be tracked and submitted to Dashboard*
  - Need to replace composite or production wells used as RMWs by 2030.
- **Component #2: Overdraft Reduction**
  - Zones are required to reduce pumping by the totals provided as part of the PRP → *GSAs need to track this efforts. GSA reported total pumping amount should be checked against high-level water budget*
  - Baseline for comparison used to calculate the overdraft reduction was the projected average annual pumping under CC-2030 scenario.

Projected Baseline Pumping with P/MAs

	Upper Aquifer (AFY)	Lower Aquifer (AFY)
Zone 1	-93,120	-18,947
Zone 2	-152,995	-20,609
Zone 3	-29,650	-59,242
Zone 4	-33,901	-114,501
Basin	**-309,666**	**-213,299**

Required Reduction for Overdraft Mitigation

	Upper Aquifer Reduction (AFY)	Lower Aquifer Reduction (AFY)
Zone 1	2,798	2,886
Zone 2	4,619	3,139
Zone 3	803	9,023
Zone 4	1,303	17,440
Basin	**9,523**	**32,487**

For discussion purposes only

PRP REMINDER #3: GWL MONITORING

- Q2 sampling event (Seasonal high) should be conducted in April and data entered into DMS ASAP to support 1 July upload to DWR
- Watchlist wells that triggered investigation last Fall should be monitored closely

DMS Site Name	Local Well Name	GSA	Aquifer	Trigger/Past Trigger	Investigation Status
09-001	2480-72	Aliso WD	Upper	Declining trend → Triggers Projected Fall 2026 MT Exceedance	Renewed investigation or confirmation of previous one is needed
07-189	Well 18	Central DM	Lower	PRP triggered last Fall, MT exceedance again this Fall → SMC to be updated	Investigation completed in 2024 and voluntary actions taken consistent with PRP
07-212	Well 31	Central DM	Lower	PRP triggered last Fall	Investigation ongoing, continued monitoring, well recovered
11-010	1PL-1	Grassland	Lower	MT Exceedance	Running well sample, not representative, continued monitoring
11-019	3PL-2	Grassland	Lower	MT Exceedance	Running well sample, not representative, continued monitoring
11-021	1PL-5	Grassland	Lower	MT Exceedance	RMW to be replaced. Video logging showed casing ruptures
14-025	SDMW West - Lower Aquifer	SJREC	Lower	Watchlist: Projected Fall Elevation to Fall Below 10% of Operational Flexibility	Not Required
18-002	Newman City #8	SJREC	Lower	Watchlist: Last Fall Sample below 20% of Operational Flexibility	Not Required

For discussion purposes only

PRP REMINDER #4: WQ MONITORING

- Q2 sampling event (Seasonal high) should be conducted in April and data entered into DMS ASAP
- Watchlist wells that triggered investigation last Fall should be monitored closely

GSA	DMS ID	COC	Inv. Deadline	Action
DM-II GSA	01-002	TDS	9/19/2025	Investigation Done and Not Enough Samples to Establish Correlation. Recommend more frequent Monitoring.
DM-II GSA	01-004	Nitrate	9/19/2025	Investigation Done and Not Enough Samples to Establish Correlation. Recommend more frequent Monitoring.
City of Patterson GSA	02-002	œBŁ	9/19/2025	Investigation Done and PRP Not Required: Statistical Correlation Cannot Be Established between GWL and GWQ.
County of Merced GSA	07-016	TDS	9/19/2025	MT Exceedance: Investigation is Triggered
Grassland GSA	11-018	TDS	12/20/2025	MT Exceedance: Investigation is Triggered
Widren Water District GSA	08-002	TDS	9/19/2025	Investigation Done and PRP Not Required: Statistical Correlation Cannot Be Established between GWL and GWQ.
Central DM GSA	07-028	TDS	9/19/2025	Investigation triggered, PRP not triggered due to insufficient samples
Central DM GSA	07-032	TDS	12/20/2025	Investigation triggered, PRP not triggered due to insufficient samples
Central DM GSA	07-031	TDS	12/20/2025	Investigation triggered, PRP not triggered due to insufficient samples
Central DM GSA	07-036	TDS	9/19/2025	Investigation triggered, PRP not triggered due to insufficient samples

DELTA-MENDOTA SGMA

TO: Board of Directors
Agenda Item No. 13

FROM: Taylor Blakslee, Hallmark Group

DATE: April 13, 2026

SUBJECT: Program Management Report and Update on Action Items

Recommendation

None; Informational only.

Discussion

An update on the status of action items is provided as **Attachment 1**, and a status update on the MOA Adoption by the DM Subbasin GSAs is provided below.

GSA	Participating GSA	DM Subbasin JPA MOA Signature Received /
1	FRESNO COUNTY MANAGEMENT AREA A GSA	5/12/2026
2	FRESNO COUNTY MANAGEMENT AREA B GSA	5/12/2026
3	CITY OF DOS PALOS GSA	3/25/2026
4	CITY OF FIREBAUGH GSA	3/6/2026
5	CITY OF GUSTINE GSA	3/17/2026
6	CITY OF LOS BANOS GSA	3/23/2026
7	CITY OF MENDOTA GSA	3/3/2026
8	CITY OF NEWMAN GSA	
9	COUNTY OF MADERA–3 GSA	3/17/2026
10	COUNTY OF MERCED DELTA-MENDOTA GSA	4/21/2026
11	TURNER ISLAND WATER DISTRICT–2 GSA	2/26/2026
12	SJREC	4/3/2026
13	FARMERS WATER DISTRICT GSA	3/11/2026
14	ALISO WATER DISTRICT GSA	3/27/2026
15	CITY OF PATTERSON GSA	4/7/2026
16	DM II GSA	
17	NORTHWESTERN DELTA-MENDOTA GSA	--
	Merced County	4/21/2026
	Stanislaus County	4/26/2026
18	PATTERSON IRRIGATION DISTRICT GSA	3/18/2026
19	WEST STANISLAUS IRRIGATION DISTRICT GSA 1	3/30/2026
20	GRASSLAND GSA	2/10/2026
21	CENTRAL DELTA-MENDOTA GSA	3/6/2026

Delta-Mendota Subbasin

HALLMARK GROUP Capital Program Management

Persistence | Proficiency | Performance

Meeting Date	Agenda Item	Action Item	Assigned	Due Date	Status	Status & Notes
11/10/2025	11d	Staff to coordinate with GSAs on initial exceedance reports and action plans.	K. Liddy	11/21/2025	*Ongoing*	Continue tracking reporting, notifying GSAs with time to write initial exceedance report
11/10/2025	12	Facilitate domestic well mitigation briefing	L. Beutler	Spring 2026	*In Progress*	Briefing scheduled for May 13, 2026.
2/4/2026	18	Research insurance costs for the DM Authority and Northern DM Committee.	Hallmark Group	3/9/2026	*In Progress*	HUB quote has been obtained, staff will present to Board at 5/18 meeting.
2/4/2026	19	Work with L. Beautler and communication ad hoc to implement website updates, maintain the website and email account.	Hallmark Group	3/9/2026	*In Progress*	Meeting scheduled for 4/10.
2/4/2026	20	Draft Financial Controls Policy for Board consideration.	Hallmark Group	3/9/2026	Done	
2/9/2026	9	Coordinate expansion of PRP data access beyond current zone restrictions. Include Tranquillity in Zone 1 and Zone 4 Maps.	EKI	3/9/2026	Done	
3/9/2026	9	Coordinate the printing, signing, and framing of the resolution for the SLDMWA Board meeting on April 9, 2026.	K. Liddy	4/9/2026	Done	
3/9/2026	10	Facilitate the execution of consultant contracts for the Northern DM Group.	K. Liddy	4/9/2026	Done	
3/9/2026	12	Convene the technical ad hoc, consider the model calibration and discuss annual report data	K. Liddy	3/23/2026	Done	
3/9/2026	14	Facilitate the execution of the contract with W&C to extend the grant through 2027.	K. Liddy	4/1/2027	*In Progress*	Contract executed, update on grant extension provided in 4/13 meeting packet.
3/9/2026	14	Work with Aliso, DPWD, and EKI to map subsidence benchmark sites and recommend ~6 additional sites to fill data gaps.	K. Liddy	4/9/2026	Done	Map of planned and existing benchmark sites, along with recommended sites provided in 4/13 packet.
3/9/2026	15	Fihnalize the Monitoring Guidance Document.	Tech Ad Hoc GSA Reps	4/30/2026	*In Progress*	Feedback due to K. Palys by April 30, 2026.
3/9/2026	16	Track MOA signatures and distribute executed copy once obtained.	K. Liddy	4/30/2026	*In Progress*	Update provided in 4/13 packet. 20 of 21 GSAs have committed a date for signing or have signed.
3/9/2026	17	Hurley and Martin to attend SWRCB meeting on April 7, 2026. Plan Manager to work with DWR to review GSP.	T. Blakslee	4/30/2026	*In Progress*	Plan Manager to schedule meeting with DWR.
3/9/2026	20	Schedule special meeting for AR approval for March 23, 2026. Submit AR to DWR.	K. Liddy / N. Cochran	3/31/2026	Done	

DELTA-MENDOTA SGMA

TO: Board of Directors
Agenda Item No. 15

FROM: Taylor Blakslee, Hallmark Group

DATE: April 13, 2026

SUBJECT: Update on SGMA Round 1 Implementation Grant

Recommendation
None; Informational only.

Discussion
Recently, DWR offered to extend the SGMA grant agreement deadline to April 2027.

On March 9, 2026 the DM Subbasin JPA Board was presented with the benefits and costs to extend the grant through April 27 and zapproved the extension of the grant and execution of a contract with W&C for an amount not to exceed $50,600. An update on the status of the grant is provided as **Attachment 1**.

Status of SGMA Grant Funding (as of 07Apr26)

Component	Local Project Sponsor	Spent thru Invoice 14	Anticipated for Invoice 15[1]	Grant amount under Amend5 remaining after Inv15	Amount Remaining After Amend6[2]	Notes
1	SLWD	$250,000.00		$0	$0	
2	GWD	$1,000,000.00		$0	$0	
3	AWD	$1,000,000.00		$0	$0	
4	WSID	$129,991.10		$1	$1	
5	DPWD	$213,245.50	$12,455	$46,570	-$1	
6	FWD	$442,574.79	$315,777	-$67,052	$9,987	Funding spent; Need additional invoicing
7	SLWD/SJREC	$899,693.26	$450,307	$0	$0	
8	Basin	$524,969.50	$221,110	$183,321	$129,873	To be used for benchmark construction
9	Basin	$621,672.51	$70,710	$28,590	$5,000	To be used to cover Annual Report costs
10	Basin	$113,026.06		$1	$1	
11	AWD	$37,249.66		$7,750	$7,750	Planning to use for transducers
12	CCID/DPWD	$1,000,000.00		$0	$46,570	Funding spent; Need additional invoicing
13	WSID	$98,038.00		$0	$0	
Total		**$6,330,460.38**	**$1,070,359**	**$199,181**	**$199,181**	

1. Anticipated invoices for Invoice Package 15 which is due to DWR by May 30, 2026
2. Amendment 6 currently being processed by DWR

DELTA-MENDOTA SGMA

TO: Board of Directors
Agenda Item No. 16

FROM: Lisa Beutler, Stantec

DATE: April 13, 2026

SUBJECT: Update on Facilitation Support Services Outreach Activities

Recommendation
None; information only.

Discussion

a. **Update on Merced Interbasin Coordination and Status of Meetings with Adjoining Subbasins Regarding Comment Letters on Periodic Evaluations**

b. **Other Outreach Updates**

A recap of the interbasin meeting with Merced Subbasin and additional meetings being scheduled and other outreach activities is provided as **Attachment 1.**

INTERBASIN COORDINATION

Completed				
Tracy Subbasin	Chowchilla	Westside	East San Joaquin	Madera
Merced				
Being Scheduled				
Kings	Kings requested the meeting be tied to the release of the Delta-Mendota from State Board Jurisdiction. Scheduling now. They plan to target the meeting with just James and MAGSA representatives as they share the boundary and that would be easier to coordinate.			
Remaining				
Modesto/Turlock	Meeting will be tied to the release of Interconnected Surface Water - DWR reports they expect it to be released this quarter.			

Merced Subbasin
Groundwater Sustainability Agency

DELTA-MENDOTA SGMA

Attendees:

Delta Mendota	Merced
Jarrett Martin	Matt Beaman
John Wiersma	Lacey McBride
Joe Hopkins	Bryan Kelly
Taylor Blakeslee	Nic Marchini
Chase Hurley ⟷	Chase Hurley
	Mike Gallo
	Gino Pedretti

Lisa Beutler, Facilitator

Technical Teams

Jim Blanke, Chris Hewes – Woodard & Curran (Merced GSP)
Amir Mani, EKI (Delta-Mendota GSP)

AGENDA

1. Welcome & Greetings, Introductions
2. Basin Updates
    1. Water Board
    2. Periodic Evaluation
3. Conditions Update
    1. Surface Supplies
    2. Subsidence
    3. MTs
    4. SMCs
    5. Pumping Reduction

General Information Exchange

- Clayton is subject to allocations.
- Madera/Chowchilla committed to providing demand mgmt. plan.
- Related to Turner:
  - Some wells used, but not in the monitoring network.
  - The San Joaquin River north of Turner should share a monitoring approach, but it is currently not a problem. South of Turner needs more monitoring.

Data Adequacy

- Lack of historic data to set baseline
- Loss of 4 USBR monitoring sites and discussions with DWR. DWR has been pushing more use of InSAR.
- Working to replicate DWR benchmarks, need for a multi-basin approach to encourage DWR to measure benchmarks and prevent duplication of efforts.
- Need to fully understand existing networks before expanding.

Technical Coordination Opportunities

- Coordinate on calibrating groundwater levels near the San Joaquin River Boundary
- Focus on infrastructure protection zone near the river, coordinate on additional monitoring and modeling to quantify cross boundary flow and Interconnected Surface Water (ISW).
- Development of a technical approach on quantification of ISW.
- Coordinate modeling to quantify cross-boundary flows.
- Use Bear Creek South to encourage landowners to participate in monitoring activities.
- Develop approach by July for monitoring lost USBR benchmarks (possible cost share participation.

Other Collaboration/Coordination Opportunities

- Updating of IRWM project list for use in leveraging grant opportunities
- Create letters of support for grant applications of adjacent subbasins
- Investigate additional grant opportunities and potential joint applications
- Identify additional cost share opportunities

OTHER OUTREACH ITEMS

- **Press Release** – Distributed April 9 to all GSAs and included in meeting Packet
- **Domestic Well Outreach Briefing** – Scheduled for May 21, Will be 30-45 minutes long, with materials available in English and Spanish. NGOs will be asked to advertise the briefing to their own audiences.
- **Newsletter** – Ready for final approval, draft being circulated.