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

Tuesday, May 19, 2026, 12:00 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 Special Meeting of the Delta-Mendota Subbasin GSAs Joint Powers Authority and Coordination Committee has been called for **Tuesday, May 19, 2026, 12:00 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	2220 Tulare St. 6th Floor, Fresno, CA 93721

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. Opportunity for Public Comment (Hurley)

Consent Calendar

4. Consider Approval of the Consent Calendar (Hurley)
    a. Minutes of the April 13, 2026 Meeting
    b. Budget to Actual Report

Action Items

5. Consider Approving the Proposed Subbasin Model Calibration Phased Approach (Blakslee/Dutton)
6. Consider Authorizing the Proposed Subbasin Model Calibration Cost Share (Blakslee/Dutton)
    a. Consider Authorizing EKI to Develop and Submit a USBR WaterSMART Applied Science Grant Application to Partially Fund the Model Calibration (Blakslee/Dutton)
7. Consider Approving of the Groundwater Monitoring Guidance Document (Liddy)

Report Items

8. Update on the Domestic Well Mitigation Policy Briefing Workshop (Blakslee/Beutler)
9. Update on Houston Engineering Improvements to the Data Management System (Liddy)
10. Program Management Report and Update on Action Items (Blakslee)
11. Update on PRP Implementation and Exceedance Reporting (Mani)
    a. Update on Q1 and Q2 Data Submittal to the DMS (Mani)
    b. Report from GSAs with Exceedances (Blakslee/Mani) – *Nothing to report*
12. Update on Facilitation Support Services Outreach Activities (Beutler)

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13. Next Steps (Blakslee)
14. Member Reports (Hurley)
15. Reports Pursuant to Government Code Section 54954.2(a)(3) (Layne)
16. Next Meeting(s): (Hurley)
    a. Joint JPA Board / Coordination Committee Meeting – Monday, June 8, 2026, Grassland Water District Boardroom
17. Adjournment (Hurley)

DELTA-MENDOTA SGMA

TO: Board of Directors
Agenda Item No. 4

FROM: Taylor Blakslee, Hallmark Group

DATE: May 19, 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 April 13, 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**)
This report was presented to the Board on April 13, 2026, but is included again to facilitate comparison to the updated report below.

c. Updated Budget to Actual Report from SLDMWA through February 2026 (**Attachment 3**)

d. Financial Statements from Hallmark Group through March 2026 (**Attachment 4).**

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

Monday, April 13, 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
Jarrett Martin, San Joaquin River Exchange Contractors
Ken Swanson, Grassland Water District – *Call in from noticed location*
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, Merced County

Present Via Zoom/Phone

Adam Scheuber, Del Puerto Water District
Alma Antua, Westlands Water District
Amir Mani, EKI
Amisha Thapar, Baker Manock & Jensen
Anona Dutton, EKI
Anthea Hansen, Del Puerto Water District
Bobby Pierce, West Stanislaus Irrigation District
Brittany Harker, Stanislaus County
Ellen Wehr, Grassland Water District
Ethan Andrews, Provost & Pritchard
Hailey Rowbatham, EKI

Jason Dean, Anatidae Consulting
Joel Andrews, City of Patterson
Kait Palys, INTERA
Lea Emmons, City of Tracy
Leslie Dumas, Woodard & Curran
Lisa Beutler, Stantec
Maria Razo, Stanislaus County
Matt Garcia, Del Puerto WD
Patrick McGowan, Panoche Water District
Ryo Takanashi, Water One
Sarah Boogay, Department of Water Resources
Susan Xie, EKI
Thomas Spankowski, City of Newman
Will Halligan, LSCE

1. Call to Order/Roll Call

Committee Chair Hurley called the meeting to order at 1:02 p.m. Board members Swanson and Lucchesi confirmed that there was no one else over 18 years old in the rooms with them.

2. Pledge of Allegiance

Committee Chair Hurley 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. Opportunity for Public Comment

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

5. Report on the April 7th SWRCB Board Meeting

Director Hurley provided an update on the SWRCB meeting and the approval by the SWRCB of returning the Delta-Mendota Subbasin to the jurisdiction of DWR.

Consent Calendar

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

- **a.** Minutes of the March 9, 2026 Meeting
- **b.** Budget to Actual Report

Mr. Blakslee highlighted that with the timing of the Board meetings, the budget to actual reports from Hallmark Group moving forward will be two months in arears.

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. Conference with Legal Counsel - Anticipated Litigation

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)
The DM Subbasin JPA Board did not enter closed session.

Open Session

8. Report from Closed Session

The DM Subbasin JPA Board did not enter closed session.

Action Items

9. Rescind the Special Project Agreement Between the Central DM GSA and the Delta-Mendota Subbasin GSAs Joint Powers Authority

Legal counsel Lauren Layne introduced this item and stated that in setting up bank accounts, it became evident that providing administrative and financial support services would be much more efficient if the Central DM GSA contracted directly with consultants rather than through a special project agreement (SPA) with the DM JPA. As such, the request is that both the Central DM GSA and the DM JPA rescind their action to enter into a SPA.

MOTION

Director Hopkins made a motion to rescind the special project agreement. The motion was seconded by Director Stilwell and passed unanimously via roll call vote.

10. Consider Authorizing EKI to Perform the Model Calibration in Fiscal Year 2027

Mr. Blakslee introduced this item and stated that based on conversations with interested parties, staff requested that EKI present a phased approach to the model calibration. Anona Dutton (EKI) presented the phased approach to the Board. She stated that it may cost more money to execute the phased approach but cited benefits as well.

Director Ramirez asked if the Board would like a recommendation from the technical ad hoc committee regarding the phased approach and Chair Hurley stated that the cost allocation piece needs to be discussed.

Blakslee and Layne iterated that the current cost share is at 1/7th but that the prior SPA for the single GSP contemplated budget allocation via diverse methods including

proportional pumping. Director Hurley and Director Lucchesi stated that they received feedback from Central and Northern to proceed under the 1/7th split.

Director Stilwell expressed concern regarding the 1/7th split for technical support services moving forward. Director Ramirez agreed and stated he would like to see prioritization of a proportional cost share allocation. Director Stilwell iterated that the cost share allocation for technical efforts in the Subbasin should be applied to all future technical efforts, so that conversations regarding cost share are not needed each time a technical item is presented to the Board for approval.

Director Ramirez suggested staff work with the budget ad hoc committee on a new cost-share approach for future technical efforts. Director Stilwell stated he has authority to vote on a phased approach under the condition that a new cost-share approach for future technical efforts is developed and approved.

Director Wiersma asked Stilwell what other types of technical efforts would be split in a different approach. Layne stated that technical and administrative items like the annual report would be difficult to categorize or define as strictly technical. Director Ramirez suggested that each GSA Group be represented by one attendee of the technical ad hoc and budget ad hoc meetings.

The Board directed staff to convene the technical ad hoc to review EKI's phased approach to the model calibration and review the Groundwater Monitoring Guidance Document. Further, the Board directed staff to convene a budget ad hoc meeting to develop cost share options for future technical efforts in the DM Subbasin, including the model calibration, with one representative from each GSA group present at both meetings. Last, the Board directed staff to bring both items back to the Board at its May meeting.

Report Items

11. Review and provide feedback on the Groundwater Monitoring Guidance Document

Mr. Blakslee introduced this item and stated that Kait Palys (INTERA) drafted the document with input from EKI, and that it is intended to be used by field staff and GSA staff responsible for collecting and inputting data. Ms. Palys stated that the technical ad hoc should review and provide feedback by April 30, 2026. Chair Hurley directed staff to add this as an agenda item for the technical meeting and that it be brought back to the Board thereafter.

12. Review and Provide Feedback on the Domestic Well Mitigation Policy Briefing

Mr. Blakslee introduced this item and stated that the briefing will take place on May 13, 2026, and will be recorded and posted online for public access. He gave an overview of the policy requirements, which were outlined in the Board packet.

Director Hopkins and the Board directed staff to receive all applications and to coordinate with the appropriate GSA. Director Stilwell asked if the reserve account for domestic well mitigation is on the financial statement or in a separate account? Blakslee and Layne stated that the reserve is in a separate, interest-baring account.

13. Program Management Report and Update on Action Items

There were no questions or comments from the Board. Liddy stated that she has received signatures or commitments to sign the revised MOA from all but one GSA.

14. Update on PRP Implementation and Exceedance Reporting

Susan Xie introduced Hailey Rowbatham (EKI) as she will be assisting the DM Subbasin efforts with EKI. She stated that they recommend data collection January, April, July, October for quarterly measurements to allow for seasonal high and low. July and January 1 biannual upload to DWR required. She added that EKI plans to set the start time for investigation on the first day of those quarterly deadlines. She walked through an example of the exceedance investigation timeline from April 1, stating that the deadline for a GSA to complete their investigation would be June 1.

Director Martin asked about April being representative of the seasonal high, as the pumping season may influence those values and Ms. Xie stated that the timelines stated will allow DMS upload and GSA time to investigate.

Anthea Hansen (Del Puerto Water District) agreed that April would not be the best representation for seasonal high and that February would better represent seasonal high conditions. Ms. Dutton stated that the timeline proposed is to provide a common timeline for GSAs to conduct PRP investigations. The Board directed staff to stick to the February timeframe for seasonal high measurements.

Ms. Xie reminded GSA representatives that the well registration and well metering deadline was January 2026 and requested that if GSAs have additional wells to register and meter, to submit that information to the PRP Dashboard. Ms. Xie then provided a review of GWL and GWQ monitoring watchlist wells from Fall 2025.

15. Update on SGMA Round 1 Implementation Grant

Leslie Dumas (Woodard & Curran) introduced this item and stated that Amendment 6 is currently being processed by DWR. She provided a breakdown of the remaining funds and anticipated uses for funds for invoice 15, as outlined in the packet. Invoicing package 16 for components 8 and 11 needs to be complete by end of June 2026 for timely submission to DWR. Aliso GSA will need to finalize a component completion report for component 11.

Mr. Blakslee stated that at the March 9 meeting, 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. Ms. Xie provided context for the analysis and recommendation for the 6 additional benchmark sites along critical infrastructure.

Will Halligan (LSCE) asked if staff could provide a tabulated version of the recommended locations to better coordinate with the consultants in the GSAs where they are recommended. Ms. Dumas stated that she provided time out to March 2027, but timing for invoicing package is firmly June. The Board directed staff to move forward with the additional suggested sites and to coordinate with appropriate GSAs.

16. Update on Facilitation Support Services Outreach Activities

a. Update on the Merced Joint Meeting Regarding Comment Letters on Periodic Evaluations

Lisa Beutler (Stantec) introduced this item and stated that data adequacy, technical coordination opportunities on interconnected surface water and leveraging grant opportunities were key items discussed during the Merced Subbasin meeting.

17. Next Steps

Blakslee listed the following next steps:

- Distribute budget to actual report template to the Board.
- Convene technical and budget ad hoc to discuss phased approach and cost share allocations, respectively. Ensure one representative from each GSA group is present at both meetings.
- Coordinate with remaining GSA signatories on the revised MOA.
- Work with GSA representatives on the status of compliance with registration and metering requirements.
- Work with appropriate GSAs and consultants to determine feasibility of establishing the recommended subsidence benchmark sites.
- Staff work with the communications ad hoc committee to finalize the well mitigation policy workshop materials. Host workshop on May 13, 2026.

18. Member Reports

Director Martin stated that he would be attending the State Water Resources Control Board ribbon cutting ceremony on April 14, 2026.

19. Reports Pursuant to Government Code Section 54954.2(a)(3)

Nothing to report.

20. Next Meeting(s):

a. May 18, 2026, 1 p.m. PST, Grassland Water District Board Room

21. Adjournment

Chair Hurley adjourned the meeting at 3:12 p.m.

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

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

Delta-Mendota Subbasin GSAs Joint Powers Authority
Financial Statements
March 2026

Delta-Mendota Subbasin GSAs Joint Powers Authority
Combined Financial Statements
Fiscal Year-to-Date Through March 31, 2026

Combined Statement of Net Position

Current Assets		
Cash - JPA Checking - JP Morgan Chase *(non-interest bearing)*	$	-
Cash - Northern Checking - J.P. Morgan Chase *(non-interest bearing)*		-
Accounts Receivable - JPA		636,350
Accounts Receivable - Northern		203,741
Total Assets	**$**	**840,091**
Current Liabilities		
Accounts Payable - JPA	$	44,217
Accounts Payable - Northern		5,659
Total Liabilities	**$**	**49,876**
Net Position		
Unrestricted	$	690,215
Restricted		100,000
Total Net Position	**$**	**790,215**

Combined Statement of Change in Net Position With Budget Variance

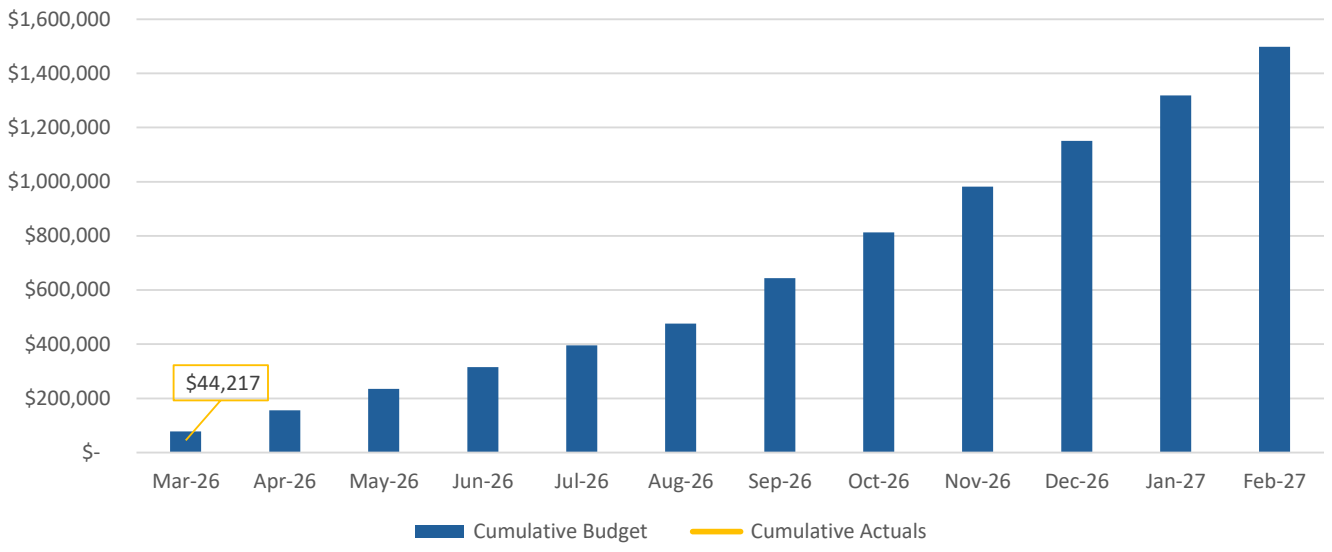
	Actual	Budget	Variance
Revenue			
Member Agency Funding	$ 740,091	$ 740,091	$ -
Total Revenue	**$ 740,091**	**$ 740,091**	**$ -**
Operating Expenses			
Legal Counsel	$ 8,919	$ 12,500	$ (3,581)
SGMA Implementation Grant Administration	-	2,500	(2,500)
Program Manager/Executive Director	27,804	31,874	(4,069)
Technical Consultants - Northern	-	6,667	(6,667)
Annual Report	3,515	16,667	(13,152)
Data Management System Support	-	2,292	(2,292)
Outreach Support	-	2,917	(2,917)
Model Extension	-	4,167	(4,167)
GSP Implementation Support	9,638	20,833	(11,195)
Startup Costs	-	1,250	(1,250)
Contingency	-	2,083	(2,083)
Total Operating Expenses	**$ 49,876**	**$ 103,749**	**$ (53,872)**
Change in Net Position	**$ 690,215**	**$ 636,343**	**$ 53,872**

Delta-Mendota Subbasin GSAs Joint Powers Authority (JPA)
Financial Statements
Fiscal Year-to-Date Through March 31, 2026

Statement of Change in Net Position With Budget Variance

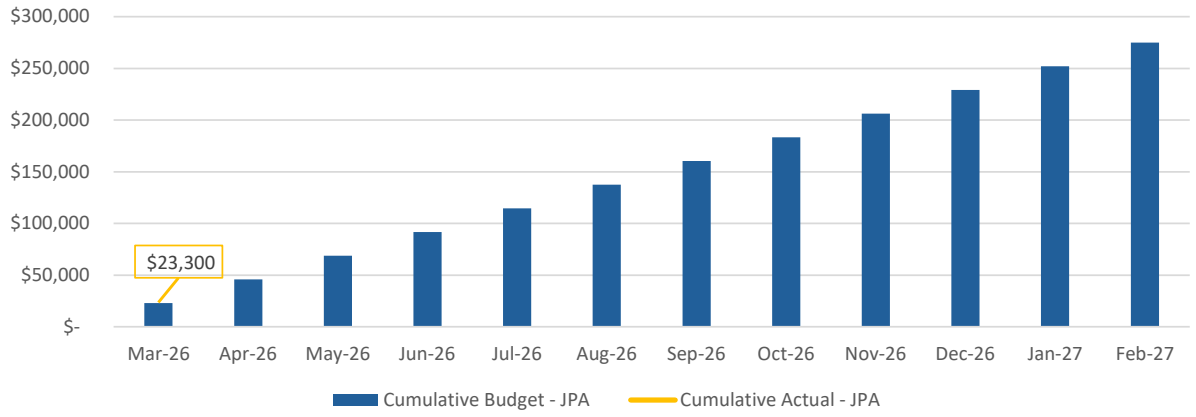
	Actual	Budget	Variance
Revenue			
Member Agency Funding	$ 536,350	$ 536,350	$ -
Total Revenue	**$ 536,350**	**$ 536,350**	**$ -**
Operating Expenses			
Legal Counsel	$ 7,764	$ 10,833	$ (3,069)
SGMA Implementation Grant Administration	-	2,500	(2,500)
Program Manager/Executive Director	23,300	22,917	384
Annual Report	3,515	10,417	(6,902)
Data Management System Support	-	2,292	(2,292)
Outreach Support	-	2,917	(2,917)
Model Extension	-	4,167	(4,167)
GSP Implementation Support	9,638	20,833	(11,195)
Startup Costs	-	1,250	(1,250)
Total Operating Expenses	**$ 44,217**	**$ 78,125**	**$ (33,908)**
Change in Net Position	**$ 492,133**	**$ 458,225**	**$ 33,908**

Delta-Mendota Subbasin GSAs Joint Powers Authority (JPA)
FYTD Budget-to-Actual

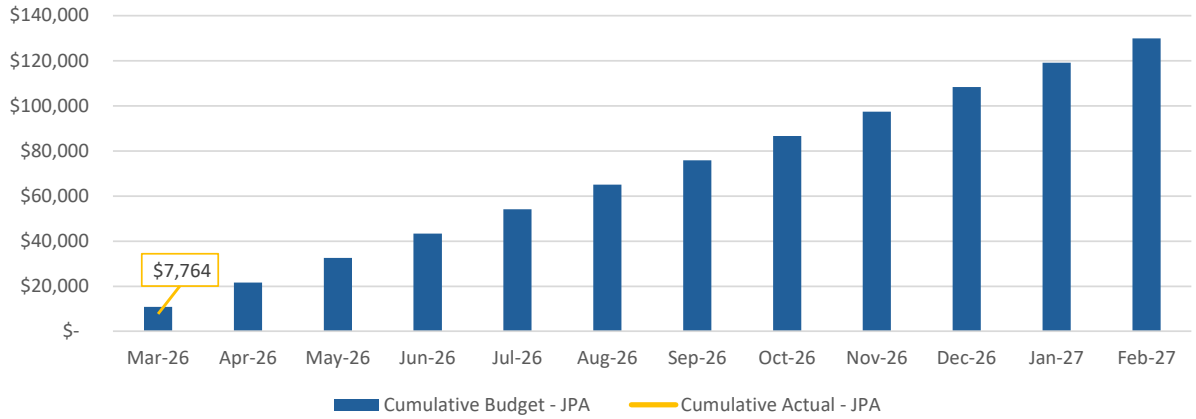


Delta-Mendota Subbasin GSAs Joint Powers Authority (JPA)
Primary Contracts

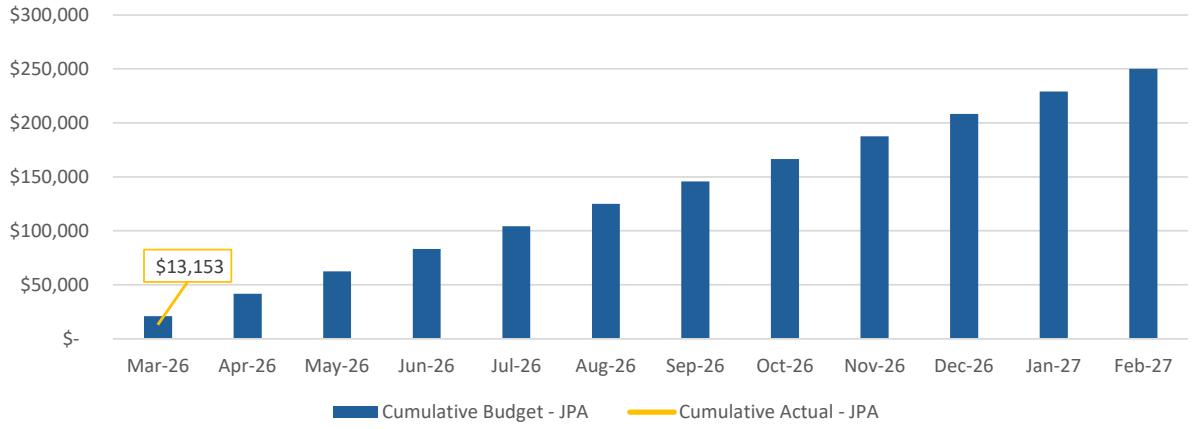
Hallmark Group
FYTD Budget-to-Actual



Baker Manock & Jensen
FYTD Budget-to-Actual



EKI Environment & Water
FYTD Budget-to-Actual

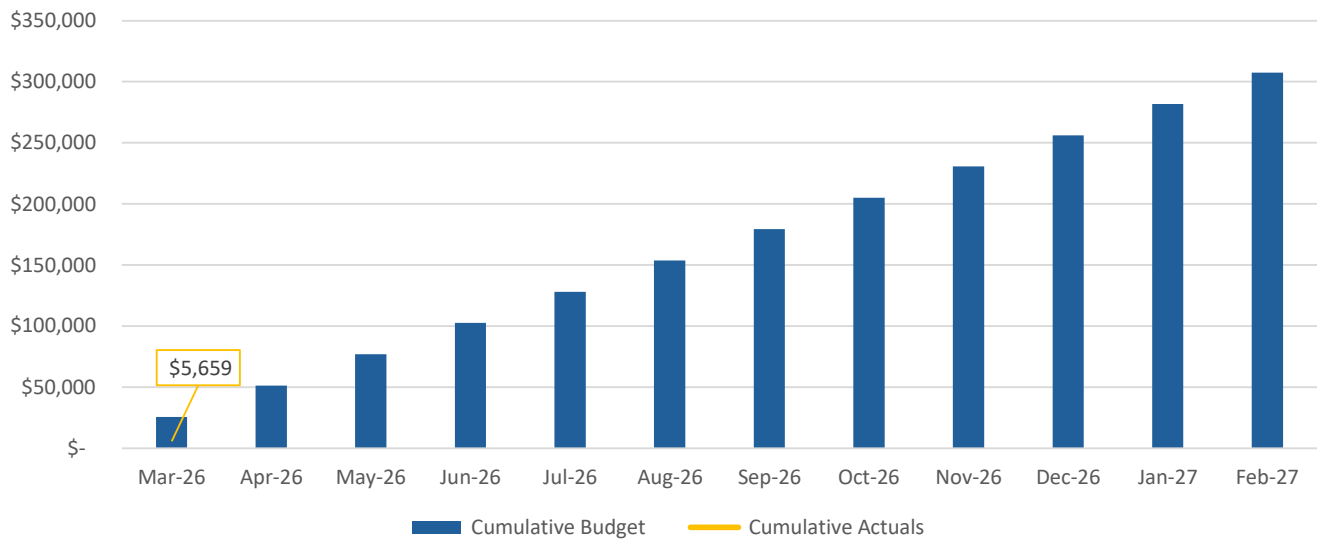


Northern Delta-Mendota Regional Management Committee
Financial Statements
Fiscal Year-to-Date Through March 31, 2026

Statement of Change in Net Position With Budget Variance

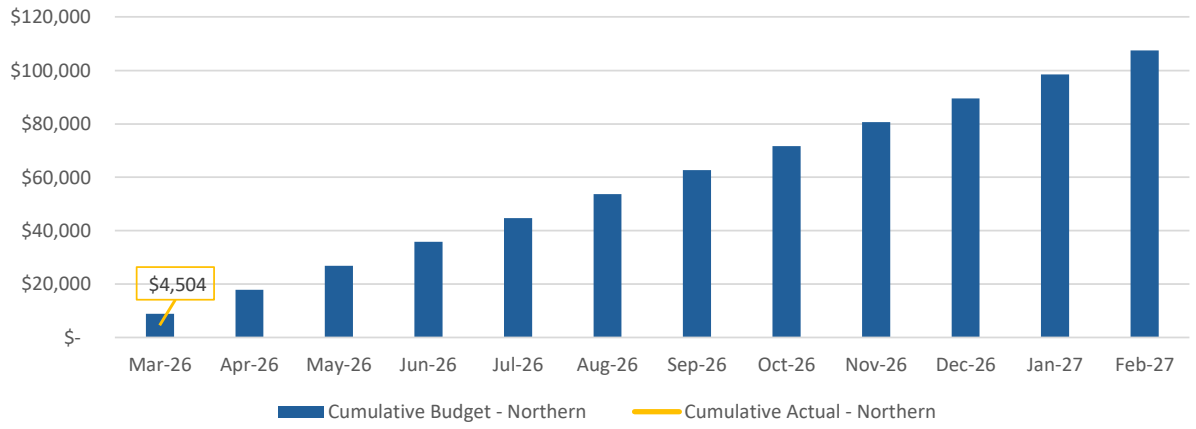
	Actual	Budget	Variance
Revenue			
Member Agency Funding	$ 203,741	$ 203,741	$ -
Total Revenue	**$ 203,741**	**$ 203,741**	**$ -**
Operating Expenses			
Legal Counsel	$ 1,155	$ 1,667	$ (512)
Program Manager/Executive Director	4,504	8,957	(4,453)
Technical Consultants	-	6,667	(6,667)
Annual Report	-	6,250	(6,250)
Contingency	-	2,083	(2,083)
Total Operating Expenses	**$ 5,659**	**$ 25,624**	**$ (19,964)**
Change in Net Position	**$ 198,082**	**$ 178,118**	**$ 19,964**

Northern Delta-Mendota Regional Management Committee
FYTD Budget-to-Actual

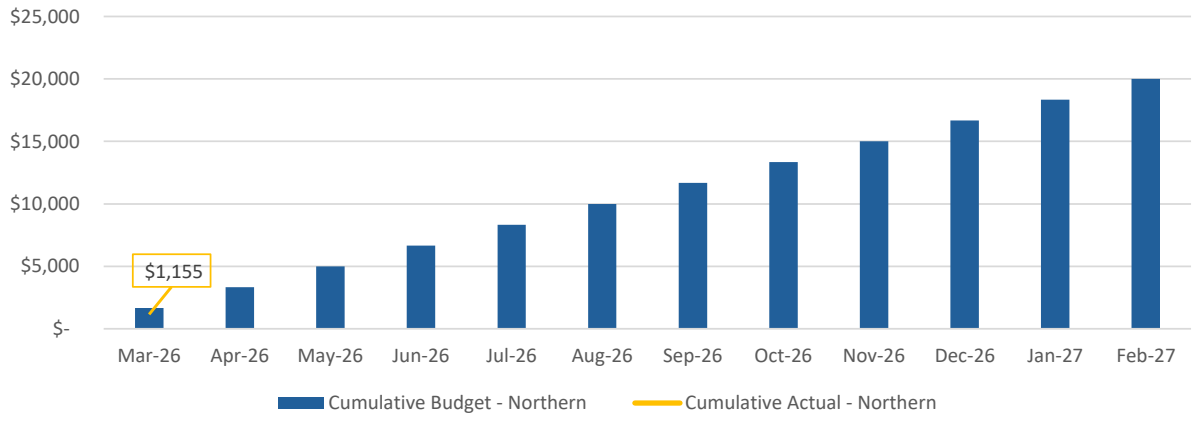


Northern Delta-Mendota Regional Management Committee
Primary Contracts

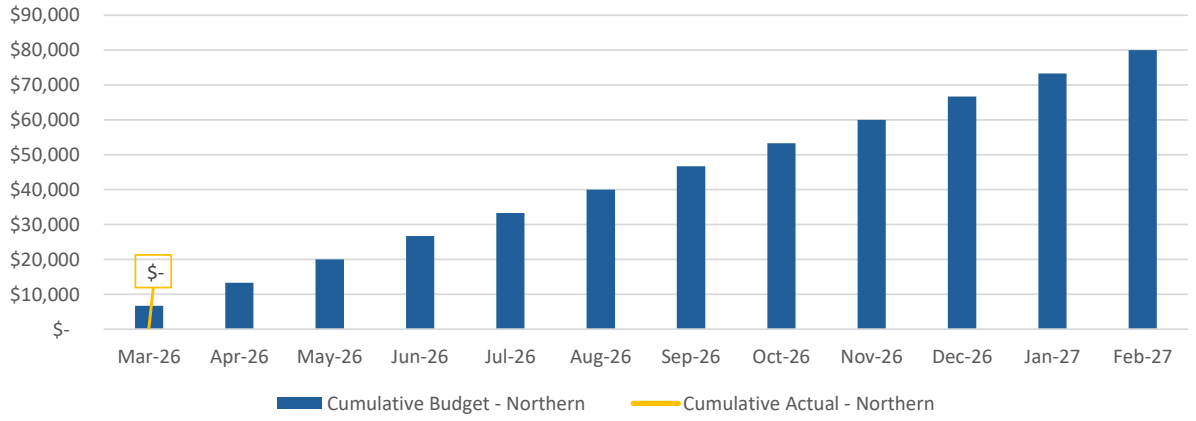
Hallmark Group
FYTD Budget-to-Actual



Baker Manock & Jensen
FYTD Budget-to-Actual



EKI Environment & Water
FYTD Budget-to-Actual



Delta-Mendota Subbasin GSAs Joint Powers Authority (JPA)
Accounts Receivable
As of March 31, 2026

Name	Current	1 - 30	31 - 60	61 - 90	91 And Over	Total
Aliso Water District GSA	$ 76,621	$ -	$ -	$ -	$ -	$ 76,621
Central Delta-Mendota GSA	76,621	-	-	-	-	76,621
Farmers Water District GSA	76,621	-	-	-	-	76,621
Fresno County Management Area GSA	76,621	-	-	-	-	76,621
Grassland GSA	76,621	-	-	-	-	76,621
San Joaquin River Exchange CWA GSA	76,621	-	-	-	-	76,621
San Luis & Delta-Mendota Water	-	100,000	-	-	-	100,000
Northern D-M Regional Mgmt Comm						
City of Patterson GSA	7,662	-	-	-	-	7,662
Del Puerto Water District	21,148	-	-	-	-	21,148
Merced County	1,149	-	-	-	-	1,149
Oak Flat Water District	1,839	-	-	-	-	1,839
Patterson Irrigation District GSA	10,727	-	-	-	-	10,727
Stanislaus County	21,837	-	-	-	-	21,837
West Stanislaus Irrigation District GSA	12,259	-	-	-	-	12,259
Total	**$ 536,350**	**$ 100,000**	**$ -**	**$ -**	**$ -**	**$ 636,350**

[1] *Domestic Well Mitigation Funds - pending transfer from SLDMWA.*

Northern Delta-Mendota Regional Management Committee
Accounts Receivable
As of March 31, 2026

Name	Current	1 - 30	31 - 60	61 - 90	91 And Over	Total
City of Patterson GSA	$ 20,374	$ -	$ -	$ -	$ -	$ 20,374
Del Puerto Water District	56,232	-	-	-	-	56,232
Merced County	3,056	-	-	-	-	3,056
Oak Flat Water District	4,890	-	-	-	-	4,890
Patterson Irrigation District GSA	28,524	-	-	-	-	28,524
Stanislaus County	58,066	-	-	-	-	58,066
West Stanislaus Irrigation District GSA	32,599	-	-	-	-	32,599
Total	**$ 203,741**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 203,741**

Delta-Mendota Subbasin GSAs Joint Powers Authority (JPA)
Accounts Payable
As of March 31, 2026

Name	Current	1 - 30	31 - 60	61 - 90	91 And Over	Total
Baker Manock & Jensen	$ 7,764	$ -	$ -	$ -	$ -	$ 7,764
Hallmark Group	23,300	-	-	-	-	23,300
EKI Environment & Water	13,153	-	-	-	-	13,153
Total	**$ 44,217**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 44,217**

Northern Delta-Mendota Regional Management Committee
Accounts Payable
As of March 31, 2026

Name	Current	1 - 30	31 - 60	61 - 90	91 And Over	Total
Baker Manock & Jensen	$ 1,155	$ -	$ -	$ -	$ -	$ 1,155
Hallmark Group	4,504	-	-	-	-	4,504
Total	**$ 5,659**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 5,659**

Delta-Mendota Subbasin GSAs Joint Powers Authority
FY27 Annual Budgets

EXPENDITURES	Combined FY27 Budget	JPA	Northern
Legal Counsel	$ 150,000	$ 130,000	$ 20,000
SGMA Implementation Grant Administration	30,000	30,000	-
Domestic Well Mitigation Funds (Year 2 of 3)	100,000	100,000	-
Program Manager/Executive Director	382,482	275,000	107,482
Technical Consultants	80,000	-	80,000
Annual Report	200,000	125,000	75,000
Data Management System Support	27,500	27,500	-
Outreach Support	35,000	35,000	-
Model Extension	50,000	50,000	-
GSP Implementation Support	250,000	250,000	-
Reserve Fund for GSP Update	100,000	-	100,000
Model Calibration	525,000	525,000	-
Insurance	20,000	20,000	-
Audit	10,000	10,000	-
Startup Costs	15,000	15,000	-
In-House Staff	5,200	5,200	-
Contingency	25,000	-	25,000
Total FY27 Expenditures	**$ 2,005,182**	**$ 1,597,700**	**$ 407,482**
Reserve Funds (Restricted Cash Deposits):			
Domestic Well Mitigation Funds (Year 2 of 3)	100,000	100,000	-
GSP Update - Northern	100,000	-	100,000
Net FY27 Budget	**$ 1,805,182**	**$ 1,497,700**	**$ 307,482**

DELTA-MENDOTA SGMA

TO: Board of Directors
Agenda Item No. 5

FROM: Taylor Blakslee, Hallmark Group

DATE: May 19, 2026

SUBJECT: Consider Approving the Proposed Subbasin Model Calibration Phased Approach

Recommendation

Approve the proposed model calibration phased approach contingent on resolution of the funding issue.

Discussion

During the April 13, 2026 DM JPA Board meeting, EKI presented a phased approach to the model update. The Board generally supported a phased approach but requested that the technical ad hoc further review and provide feedback to EKI on the proposed phased approach. The Board directed the ad hoc meeting to include representatives from the seven GSA Groups and a list of participants is included below.

The technical ad hoc met on April 22, 2026 to review and discuss the phased approach. The ad hoc confirmed unanimous support for the phased approach as presented by EKI, which is provided as **Attachment 1 for Board consideration of approval.**

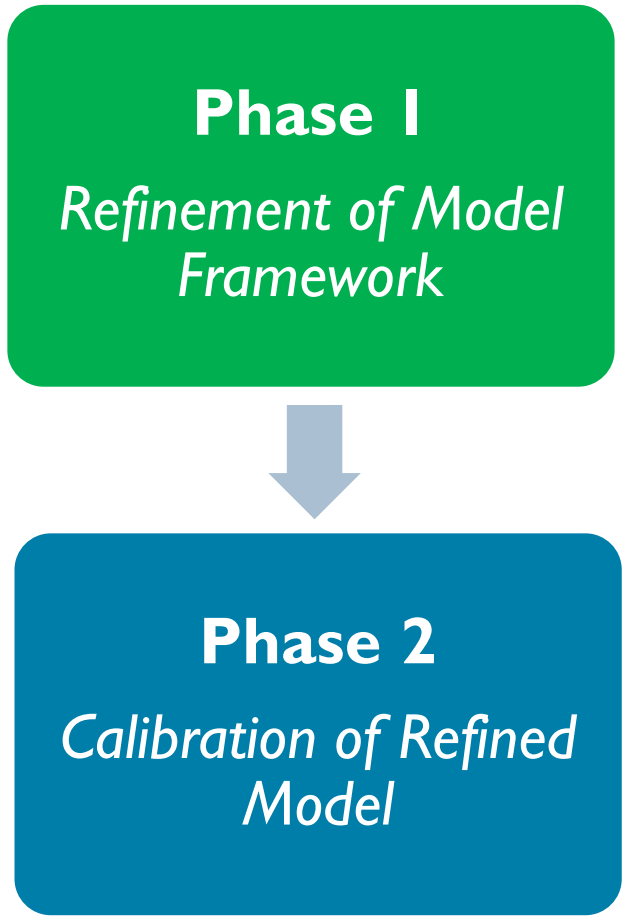
On April 23, 2026, the Central DM GSA Board reviewed and approved the phased approach to the model calibration. On May 4, 2026, the Northern DM Region Management Committee reviewed and approved the phased approach to the model calibration.

Technical Ad Hoc Participants

	GSA Group	Technical Ad hoc
1	Aliso	Joe Hopkins (Director) Ethan Andrews Rick Iger
2	Central	Patrick McGowan
3	Farmers	Jim Stilwell (Director) Will Halligan Andrew Francis
4	Fresno	Will Halligan
5	Grassland	Rick Iger
6	Northern	Adam Scheuber
7	SJREC	John Wiersma (Director) Jarrett Martin (Alternate)

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

Deliverable for Phase 1: *Updated framework for model*

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*

PHASE 1 APPROACH – TECH AD-HOC RECOMMENDATION

- Discussed phased approach and detailed Phase 1 scope with Technical Ad-hoc Committee at April ad-hoc meeting
  - No substantive comments or concerns were raised regarding the proposed scope.
  - Tech Ad-Hoc recommendation: JPA approval of the development of a scope of work for Phase 1.
- Seeking approval of the Phase 1 approach to support preparation of a task order for consideration at the June meeting, contingent upon agreement on the cost share.

OBJECTIVE AND PHASE 1 SCOPE

- Define Model calibration objectives and intended Model use to inform scope decisions and Task structure.

Task 1 – Coordination With a Technical Ad-hoc Group (TAG)

- Anticipated Key decision points – Bi-monthly meetings on average:
  - Coordination with neighboring basins and data gathering
  - Define Model platform and temporal and spatial extent, resolution, and layering
  - Review of surface water budgets and well inventory to be implemented in the model
  - Review and approve assumptions related to data gap filling
  - Review and approve calibration plan

Task 2 – Data Review, and Defining Model Platform, Extent, Domain, and Resolution

- Review available datasets, including information developed for the GSP, subsidence data, and newly available data through WY 2025
- Review data from neighboring basins and formalize the model's active domain
- Define Model platform best suited to provide the simulation and representation desired based on availability of data and objectives
- Evaluate and refine model resolution (grid size and layering) to ensure sufficient representation of GSA operations and lithology

PHASE 1 SCOPE (CONT.)

Task 3 – Development of Hydrostratigraphic Framework and Model Structure (Refine Model Grid and Layering)

- Improve Basin Leapfrog Model resolution based on additional data, use publicly available data and CVHM2 to extent to entire model domain
- Implement refined model extent and layering based on Task 2 and enhanced Leapfrog Model
- Improve layer alignment, resolve inconsistencies in aquifer representation, and enhance the differentiation of fine- and coarse-grained materials to support improved simulation of groundwater flow and subsidence
- Address known structural issues such as misrepresentation of hydrogeologic conditions in portions of the Basin

Task 4 – Refinement of Land Surface Inputs and Simulation

- Refine land surface inputs and associated model packages (e.g., FARM, SFR, MNW2) to improve representation of land use, irrigation demand, surface water deliveries, and groundwater pumping.
- Cross check aquifer specific and total estimated pumping from land surface budgets and the current CVHM2 model against available metered data from the GSAs, identify data gaps, and define an approach to improve those estimates as part of this modeling phase.
- Updates will incorporate available data through WY 2025 and will focus on improving the temporal (annual and sub-annual) and spatial representation of recharge, pumping, and return flows within the Basin

PHASE 1 SCOPE (CONT.)

Task 5 – Historical Model Adjustment and Verification

- Construct the historical model to reflect improvements based on Tasks 1-4
- Compare simulated groundwater levels, streamflows, and subsidence to observed data to assess the reasonableness of model inputs and structure prior to calibration
- Model performance will be evaluated using statistical metrics (e.g., RMSE, bias, correlation) and supporting graphical analyses (e.g., hydrographs, scatterplots, and spatial residual maps) to identify areas requiring further refinement

Task 6 – Project Management and Client Coordination

- Provide overall project management, including coordination with the Client and TAG, tracking progress and schedule, and preparing invoices and progress updates

DELTA-MENDOTA SGMA

TO: Board of Directors
Agenda Item No. 6

FROM: Taylor Blakslee, Hallmark Group

DATE: May 19, 2026

SUBJECT: Consider Authorizing the Proposed Subbasin Model Calibration Cost Share

Recommendation
Consider authorizing the model calibration cost share.

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. 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 adequate time to perform the work. On February 26, 2026, the technical ad hoc 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 deferred the decision on model calibration to the April 13, 2026 meeting.

During the April 13, 2026 DM JPA Board meeting, EKI presented a phased approach to the model calibration and while the Board generally supported a phased approach, the issue of cost sharing for the model calibration effort was raised. The Board directed staff to convene the budget ad hoc to address the cost share issue for the proposed model calibration and future technical basin-wide work. The Board directed the ad hoc meeting to include representatives from the seven GSA Groups and a list of participants is included below:

	GSA Group	Budget Ad hoc
1	Aliso	Joe Hopkins (Director)
2	Central	Chase Hurley (Director)
3	Farmers	Will Halligan
4	Fresno	Auggie Ramirez (Director)
5	Grassland	Ellen Wehr
6	Northern	Bobby Peirce
7	SJREC	*None*

The budget ad hoc met on April 21, 2026, and developed several cost share options for Board consideration which are **provided as Attachment 1**. The Budget ad hoc agreed that the existing 1/7th cost share and the acreage-based cost share options (A and B) were not likely to receive consensus from the DM JPA Board and the additional four options presented intend to span the range between a pure per entity and per acreage approach. The ad hoc also discussed a minimum floor and maximum ceiling percentage for each participating member. The ad hoc discussed the potential impact on future technical costs but noted there was a lack of clear understanding of what constitutes a technical cost. While the direction was to consider cost share for the current, proposed model calibration and future technical basin-wide work, some urged the focus to remain on the current model calibration.

Staff is seeking Board direction on the cost share for the proposed model calibration.

Model Calibration Cost Share Options

Model Calibration cost (est.) **$ 500,000**

Reference Data:

		WY 25 Pumping	Acres	AF/ac	AF/ac %
1	SJREC	114,366	291,069	0.39	6%
2	Central	18,441	163,787	0.11	2%
3	Northern	37,708	152,140	0.25	4%
4	Grassland	18,119	104,137	0.17	3%
5	Aliso	73,900	26,636	2.77	40%
6	Fresno	12,273	22,519	0.55	8%
7	Farmers	5,800	2,214	2.62	38%
		280,607	762,502	6.87	

		A		B		C			
	GSA Group	**A: 1/7th Cost Share**		**B: Acreage-Based**		**C: Hybrid: Entity + Acreage**			
						50%	50%		
		Cost	Percent	Cost	Percent	Per Entity	Per Acre	Cost	Percent
1	**SJREC**	$ 71,429	14.3%	$ 190,864	38.2%	$ 35,714	$ 95,432	$ 131,146	26.2%
2	**Central**	$ 71,429	14.3%	$ 107,401	21.5%	$ 35,714	$ 53,701	$ 89,415	17.9%
3	**Northern**	$ 71,429	14.3%	$ 99,764	20.0%	$ 35,714	$ 49,882	$ 85,596	17.1%
4	**Grassland**	$ 71,429	14.3%	$ 68,286	13.7%	$ 35,714	$ 34,143	$ 69,857	14.0%
5	**Aliso**	$ 71,429	14.3%	$ 17,466	3.5%	$ 35,714	$ 8,733	$ 44,447	8.9%
6	**Fresno**	$ 71,429	14.3%	$ 14,767	3.0%	$ 35,714	$ 7,383	$ 43,098	8.6%
7	**Farmers**	$ 71,429	14.3%	$ 1,452	0.3%	$ 35,714	$ 726	$ 36,440	7.3%
	Total	$ 500,000	100%	$ 500,000	100%	$ 250,000	$ 250,000	$ 500,000	100%

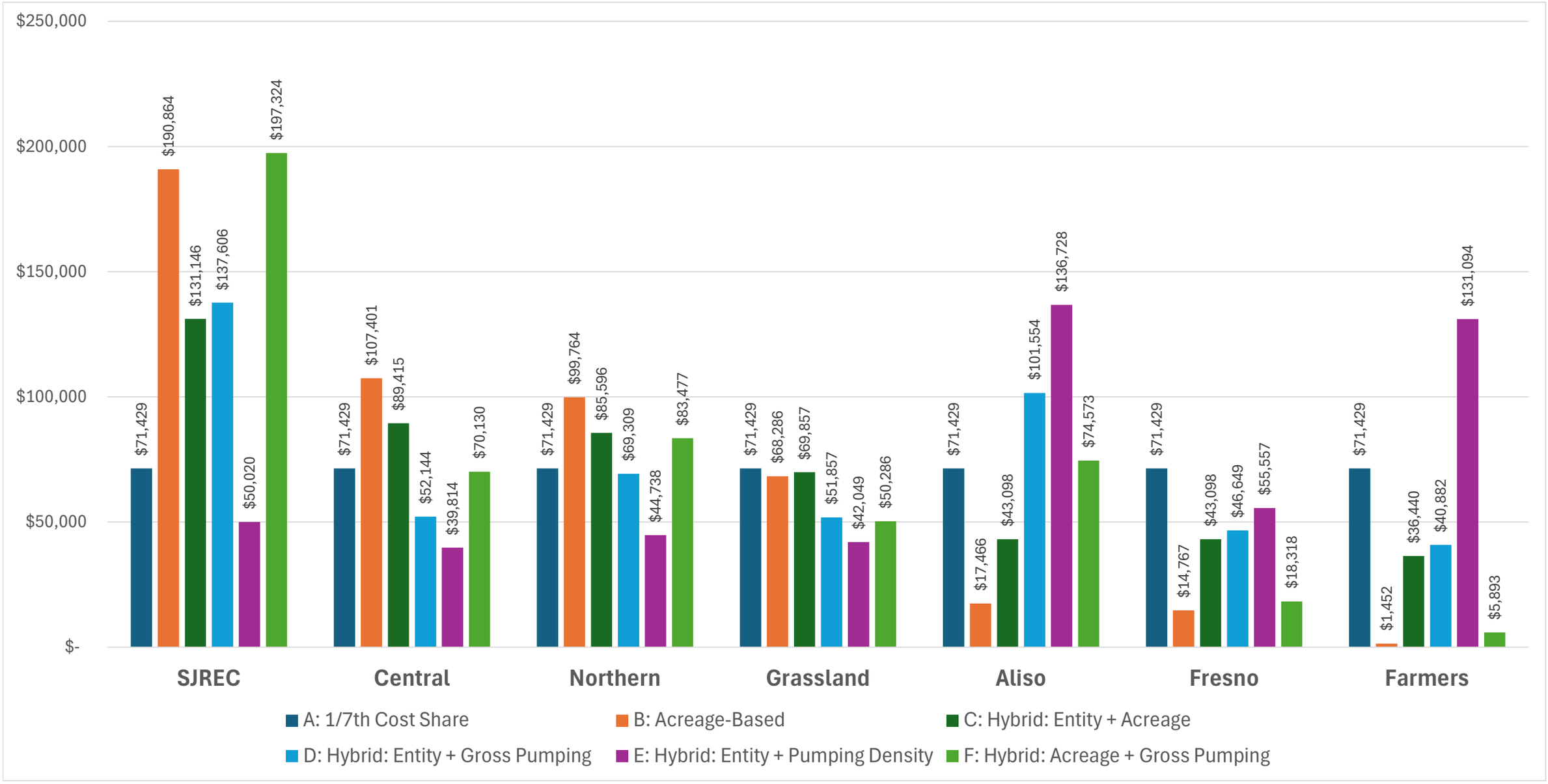
		D			E			F			
	GSA Group	**D: Hybrid: Entity + Gross Pumping**			**E: Hybrid: Entity + Pumping Density**			**F: Hybrid: Acreage + Gross Pumping**			
		50%	50%		50%	50%		50%	50%		
		Per Entity	Gross Pumping	Cost	Per Entity	Pumping Density	Cost	Per Acre	Gross Pumping	Cost	Percent
1	**SJREC**	$ 35,714	$ 101,892	$ 137,606	$ 35,714	$ 14,306	$ 50,020	$ 95,432	$ 101,892	$ 197,324	39.5%
2	**Central**	$ 35,714	$ 16,430	$ 52,144	$ 35,714	$ 4,099	$ 39,814	$ 53,701	$ 16,430	$ 70,130	14.0%
3	**Northern**	$ 35,714	$ 33,595	$ 69,309	$ 35,714	$ 9,024	$ 44,738	$ 49,882	$ 33,595	$ 83,477	16.7%
4	**Grassland**	$ 35,714	$ 16,143	$ 51,857	$ 35,714	$ 6,335	$ 42,049	$ 34,143	$ 16,143	$ 50,286	10.1%
5	**Aliso**	$ 35,714	$ 65,839	$ 101,554	$ 35,714	$ 101,014	$ 136,728	$ 8,733	$ 65,839	$ 74,573	14.9%
6	**Fresno**	$ 35,714	$ 10,934	$ 46,649	$ 35,714	$ 19,843	$ 55,557	$ 7,383	$ 10,934	$ 18,318	3.7%
7	**Farmers**	$ 35,714	$ 5,167	$ 40,882	$ 35,714	$ 95,380	$ 131,094	$ 726	$ 5,167	$ 5,893	1.2%
	Total	$ 250,000	$ 250,000	$ 500,000	$ 250,000	$ 250,000	$ 500,000	$ 250,000	$ 250,000	$ 500,000	100%

Cost Contribution By Entity

		SJREC	Central	Northern	Grassland	Aliso	Fresno	Farmers
A	A: 1/7th Cost Share	$ 71,429	$ 71,429	$ 71,429	$ 71,429	$ 71,429	$ 71,429	$ 71,429
B	B: Acreage-Based	$ 190,864	$ 107,401	$ 99,764	$ 68,286	$ 17,466	$ 14,767	$ 1,452
C	C: Hybrid: Entity + Acreage	$ 131,146	$ 89,415	$ 85,596	$ 69,857	$ 43,098	$ 43,098	$ 36,440
D	D: Hybrid: Entity + Gross Pumping	$ 137,606	$ 52,144	$ 69,309	$ 51,857	$ 101,554	$ 46,649	$ 40,882
E	E: Hybrid: Entity + Pumping Density	$ 50,020	$ 39,814	$ 44,738	$ 42,049	$ 136,728	$ 55,557	$ 131,094
F	F: Hybrid: Acreage + Gross Pumping	$ 197,324	$ 70,130	$ 83,477	$ 50,286	$ 74,573	$ 18,318	$ 5,893

Percent Contribution By Enttiy

		SJREC	Central	Northern	Grassland	Aliso	Fresno	Farmers
A	A: 1/7th Cost Share	14.3%	14.3%	14.3%	14.3%	14.3%	14.3%	14.3%
B	B: Acreage-Based	38.2%	21.5%	20.0%	13.7%	3.5%	3.0%	0.3%
C	C: Hybrid: Entity + Acreage	26.2%	17.9%	17.1%	14.0%	8.9%	8.6%	7.3%
D	D: Hybrid: Entity + Gross Pumping	27.5%	10.4%	13.9%	10.4%	20.3%	9.3%	8.2%
E	E: Hybrid: Entity + Pumping Density	10.0%	8.0%	8.9%	8.4%	27.3%	11.1%	26.2%
F	F: Hybrid: Acreage + Gross Pumping	39.5%	14.0%	16.7%	10.1%	14.9%	3.7%	1.2%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SJREC
Central
Northern
Grassland
Aliso
Fresno
Farmers
A: 1/7th Cost Share
B: Acreage-Based
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DELTA-MENDOTA SGMA

TO: Special Board of Directors
Agenda Item No. 6a

FROM: Taylor Blakslee, Hallmark Group

DATE: May 19, 2026

SUBJECT: Consider Authorizing EKI to Develop and Submit a USBR WaterSMART Applied Science Grant Application to Partially Fund the Model Calibration

Recommendation

Consider authorizing EKI to develop and submit a grant application for the USBR WaterSMART Applied Science Grant Application to partially fund the model calibration costs for an amount not to exceed of $30,000.

Discussion

On March 5, 2026, the U.S. Bureau of Reclamation (USBR) announced the WaterSMART Applied Science Grants opportunity which supports modeling, forecasting, and data accessibility projects that help improve water delivery, enhance water supply forecast skill, and improve drought management throughout the state.

EKI identified this grant opportunity which may provide up to 50% of the total proposed costs, up to $400,000, for the model calibration. A proposed scope of work for EKI to develop and submit a grant application is provided as **Attachment 1** and totals $30,000. While this cost is not directly listed in the current Fiscal Year 2027 budget, this cost could be absorbed in the in budgeted model calibration budget line item of $525,000 since under the phased approach ~$300,000 is anticipated to be spent in Fiscal Year 2027.

Key Grant Application Considerations:

- The grant application is due July 8, 2026.
- Awards not likely announced until late 2026, early 2027.
- Need to identify local water district as a grant applicant (previous WaterSMART award preferred and active SAM account).
- 50% non-federal cost share is required.
- A successfully awarded grant will fund projects now.

A summary of the grant opportunity is provided as **Attachment 2.**

eki environment & water

Corporate Office
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Daly City, CA 94014
(650) 292-9100
ekiconsult.com

11 May 2026

Taylor Blakslee
Delta-Mendota Subbasin Joint Powers Authority/Hallmark Group Capital Project Management
4900 California Avenue,
Tower B, 2nd Floor
Bakersfield, CA 93309

Subject: Proposal to support grant application development for the Delta-Mendota Subbasin Joint Powers Authority Groundwater Flow Model
(EKI C50346.04)

Dear Mr. Blakslee:

EKI Environment & Water, Inc. (EKI) is pleased to submit this proposal to provide grant application development support services to the Delta-Mendota Subbasin (Basin) Joint Powers Authority (JPA, Client) for the Bureau of Reclamation's WaterSMART Applied Science Grants Program.

PROJECT UNDERSTANDING

The JPA intends to pursue funding through the Bureau of Reclamation's WaterSMART Applied Science Grants Program for refinement and calibration of the Basin's existing Groundwater Sustainability Plan (GSP) groundwater flow model (Model) to support its compliance with the Sustainable Groundwater Management Act (SGMA).

The proposed project will result in a calibrated model to simulate groundwater levels and subsidence within the Basin. While the project is anticipated to be completed in two phases over a two-year period, the grant application will present the effort as a single integrated project that aligns with program requirements, including clearly describing the water management challenges, technical approach, and expected outcomes. The application may also include additional potential tasks proposed by EKI and approved by the JPA, such as visualization and decision support tools, including integration with the Basin's dashboard, to increase overall project value and strengthen the competitiveness of the application for award consideration.

SCOPE OF WORK

Task 1 – WaterSMART Applied Sciences Grant Application Development

EKI will assist the JPA with preparation and submittal of a grant application under Reclamation's WaterSMART Applied Science Grants Program (Funding Opportunity No. R25AS00280) to support development of a "groundwater modeling and decision-support tool". The application will be developed for the 8 July 2026 application deadline and will be based on the proposed updates to the GSP Model.

As part of this task, EKI will review the Notice of Funding Opportunity (NOFO) and application requirements and work with the JPA to confirm the proposed project scope, funding request, cost-share approach, and overall grant application strategy.

Technical Proposal. EKI will prepare the technical proposal, including the project description, project location, water management challenge, proposed approach, expected benefits, and responses to the applicable evaluation criteria. The technical proposal will describe how the project will support groundwater management, forecasting and scenario evaluation, GSP implementation, Projects and Management Action (PMA) evaluation, and improved access to model results for management and policy decisions.

Project Work Plan and Schedule. EKI will develop a grant-level work plan and schedule describing the proposed project tasks, anticipated milestones, and implementation period. The schedule will reflect the anticipated timing of the phased GSP Model refinement and calibration, as well as the expected timing of the grant award.

Budget Narrative. EKI will prepare a budget narrative describing the total project cost, requested federal funding, non-federal cost share, and requested pre-award costs.

Federal Forms and Application Materials. EKI will support the preparation of the required federal forms and application materials, based on information provided by the JPA. EKI understands that the JPA may determine a member agency to submit the application on behalf of the JPA. The designated entity will be responsible for completing required registrations, maintaining access to SAM.gov and Grants.gov, executing required forms, and providing any official certifications or authorizations. EKI assumes similar responsibilities and assumptions would apply to the designated member agency and that this arrangement would not require an additional level of effort from EKI.

Supporting Materials. EKI will compile or prepare limited supporting materials needed for the application, such as summary figures, project descriptions, cost-share summaries, and other available materials that support the technical proposal. EKI will also support draft language for letters of support or partner coordination materials, if needed.

EKI will prepare a draft grant application package for the JPA review. EKI assumes one consolidated review by the JPA and one revision cycle prior to finalization. After the JPA approval, EKI will finalize the application package and support electronic submittal through Grants.gov.

EKI will also provide project management and coordination throughout the application development process, including check-in calls or emails, tracking of application components, and coordination with the JPA regarding information needed to complete the application.

Assumptions:

- The designated entity (e.g. the JPA or a member agency within the Basin) will provide access to EKI as a participant for grant submittal if such support is requested.
- The JPA will coordinate and transmit letters of support to appropriate entities for their signature.

- If selected, prior to award, The JPA will provide: (1) an official resolution, and (2) third-party cost share letters of commitment if cost-share funding is anticipated to be provided by a source other than the JPA.
- EKI assumes that one (1) coordination call with the JPA's Technical Ad Hoc Committee will be required as part of Task 1 to discuss the Proposed Work Plan component of the application.
- EKI assumes that one (1) coordination call with the JPA will be required following completion of the Final application materials and forms to obtain approval prior to submission.
- Calls will be no more than one (1) hour in duration and held virtually in accordance with a mutually agreeable schedule.
- The designated entity (e.g. the JPA or a member agency within the Basin) will complete and maintain all required SAM.gov and Grants.gov registrations.
- EKI assumes one consolidated review cycle by the JPA.

Deliverables:

- Application tracking checklist;
- Draft and Final application materials and forms;
- Final Application package; and
- Confirmation of application electronic submittal via Grants.gov, if submitted by EKI.

COMPENSATION

Compensation for consulting services by EKI will be on a fixed fee basis. Based on the proposed SOW described above, we propose a budget of $30,000 for the performance of Tasks 1 above, which will not be exceeded without additional authorization from the Client.

PROJECT SCHEDULE

We are prepared to begin work immediately upon receipt of authorization to proceed and complete the submittal by grant application deadline on 8 July 2026. Due to the complexity of grant application, EKI requires authorization at least six weeks prior to the deadline. Registration on SAM.gov and Grants.gov should be pursued separately, as soon as possible, and by the JPA or another designated member agency within the Basin.

TERMS AND CONDITIONS

All work performed by EKI under this proposal will be pursuant to the Terms and Conditions of our existing Agreement with the JPA, executed on 24 February 2026. A separate agreement will be needed if a member agency is designated by the JPA to pursue the grant.

If you approve of this Agreement, please sign where noted below and return a fully executed copy to confirm authorization to proceed. We look forward to working with you on this project. Please do not hesitate to contact us with any questions.

Very truly yours,

EKI Environment & Water, Inc.

Anona L. Dutton, PG, CHg
Chief Executive Officer

AUTHORIZATION
Delta-Mendota Subbasin Joint Powers Authority

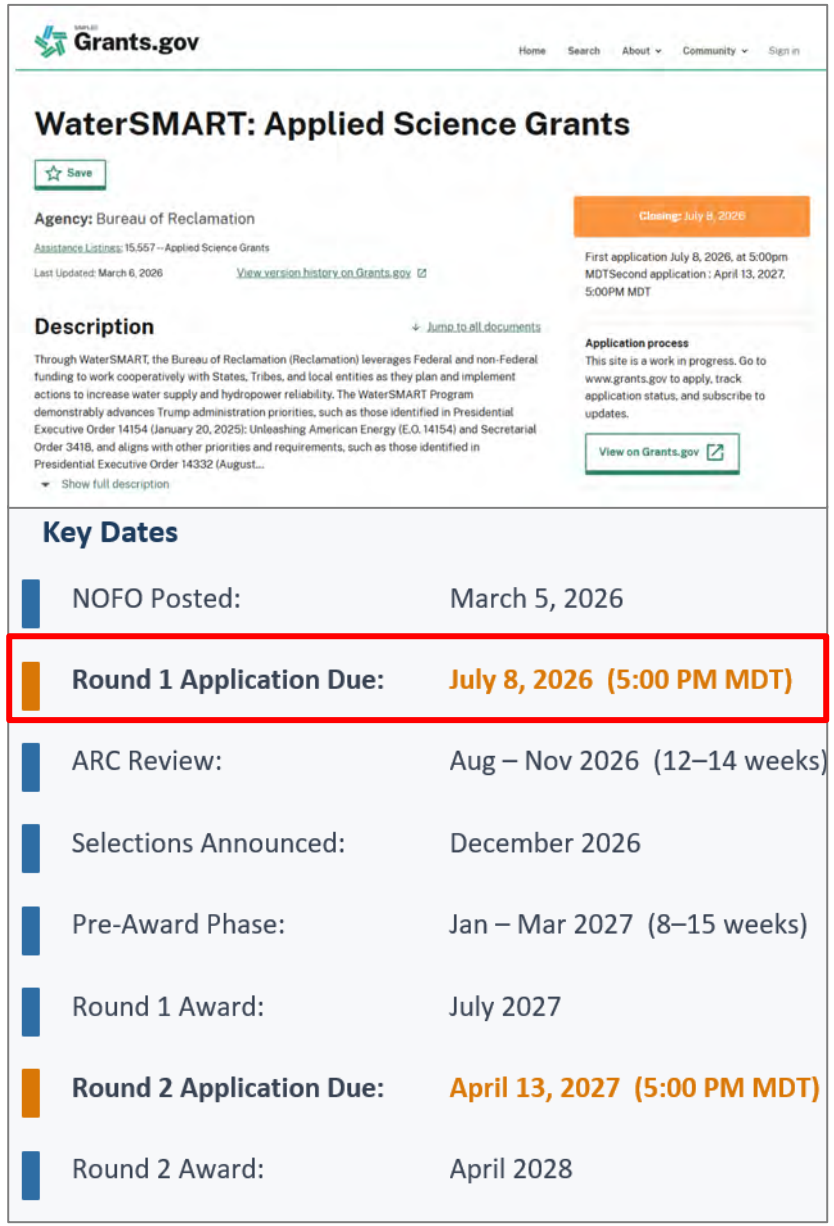
By_____

Title_____

Date_____

USBR GRANT OPPORTUNITY

- USBR WaterSMART: Applied Science Grant
  - Total program funding: $6 million
  - Max award per project: $400,000
  - Non-Federal cost share: 50% minimum
  - Project duration: 2 years
  - Expected awards: ~20 total (~7-15 per round)
  - Project types: **Modeling** · Forecasting · Snow Data · Data/Tools
  - Eligible Applicants
    - Category A: Water districts, states, tribes (Western US)
    - Category B: Universities/nonprofits + Category A partner letter
- Applications must be submitted through Grants.gov, and applicant must have an active SAM.gov account
  - Registration can take several months > *Contingent on a registered entity stepping up to act as the grant applicant*
- EKI has prepared a Scope of Work for grant application support (included in board packet)



DELTA-MENDOTA SGMA

TO: Board of Directors
Agenda Item No. 7

FROM: Karlee Liddy, Hallmark Group

DATE: May 19, 2026

SUBJECT: Consider Approving the Groundwater Monitoring Guidance Document

Recommendation
Approve 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 feedback from the ad hoc on March 20, 2026, and solicited further comment and feedback from the full DM Subbasin JPA Board on April 13, 2026.

Staff incorporated all comments and edits into the final draft of the Groundwater Monitoring Guidance Document, which is provided as **Attachment 1** for consideration of approval.

Delta-Mendota Subbasin

May 2026

MONITORING IMPLEMENTATION GUIDELINES

DELTA-MENDOTA SGMA

Table of Contents

Attachments

Attachment A	Section 14.2 Description of Monitoring Network (Delta-Mendota Subbasin's 2024 Groundwater Sustainability Plan)
Attachment B	Groundwater Level Monitoring Result QA/QC Checklist for GSAs
Attachment C	Groundwater Quality Monitoring Result QA/QC Checklist for GSAs
Attachment D	Land Subsidence Monitoring Result QA/QC Checklist for GSAs

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 (the "Guidelines") establish Subbasin-wide standardized protocols for implementing monitoring commitments, promoting a shared understanding of data quality expectations, and serving as a centralized reference to support Groundwater Sustainability Agency (GSA) staff in monitoring results reporting, data quality control, and network revisions.

The main goal of the Guidelines is to enhance the quality and reliability of monitoring data. This data informs groundwater modeling, hydrogeologic analyses, annual threshold assessments, action plans for exceedances, and regular reporting. Performing quality assurance and quality control (QA/QC) to ensure data quality and representativeness prior to uploading data 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.

The Guidelines focus on the steps taken after receipt of monitoring results and in 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 (3) 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 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 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. **When to Proceed with No Monitoring, Use of a Proxy Sites, or Initiating Replacement Monitoring Sites**
   This section defines the criteria and process for determining when it is appropriate to not monitor a dedicated RMS, why use of Proxy Sites is not preferred, and when a Replacement Monitoring Site is needed. Further 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 the appropriate action forward of these three scenarios.

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 (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, impacting subsequent analyses, and determining whether or not there is a 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 the influence of pumping and 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[1]) to produce data considered representative, it must have a sufficient historical record and frequency of data to evaluate trends and seasonal patterns 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 may 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, the below criteria will be required to evaluate the seasonality of the data).

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

[1] **Note:** Use of Proxy Sites for RMS assessments is discouraged. However, in rare cases, a Proxy Site may be appropriate if the monitored sustainability indicator is demonstrably representative of the original RMS.

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 trends 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 as to 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 is no longer in direct communication with the aquifer; wells that are not frequently pumped; and/or wells with poor water quality or bacterial issues.)
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 levels 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, 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 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[2] has fewer than four prior measurements (preferably taken during both the seasonal groundwater low (fall) and high (spring) periods) to reflect the groundwater levels for two water year cycles, or there are less than four samples 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 increased 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

[2] **Note:** Use of Proxy Sites for RMS assessments is discouraged. However, in rare cases, a Proxy Site may be appropriate if the monitored sustainability indicator is demonstrably representative of the original RMS.

aquifer wells. This may indicate mild vertical leakage or a semi-confined condition. The result may still be representative of the deeper aquifer pressure.

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 (if the well is 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 lines 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 an 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. Consideration should be made as to the need for more frequent monitoring (monthly) or continuous monitoring with a logger. This consideration should consider the value of the data, including the 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, 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 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[3]) and nearby wells that are 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 their exceedance evaluation commitments as identified in the GSA's Pumping Reduction Plan.

For a monitoring site (RMS or Proxy Site[4]) 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 trends.

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).

[3] Ibid.
[4] Ibid.

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 reported as 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 .
- 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 the potential need for well redevelopment.
B. **Protocol Review & Training:** Review and reinforce sampling, preservation, and 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 for a prolonged period of time, initiate the process to designate a Replacement RMS for ongoing groundwater quality monitoring.

Uncertain Representativeness of Result

Continue monitoring at the RMS 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 analyses, exceedance reporting, and assessments of risk to critical infrastructure.

Step 1. Assessment of Representativeness of Monitoring Results

The assessment of representativeness of monitoring results should include a comparison of survey benchmark data with Interferometric Synthetic Aperture Radar (InSAR) and extensometer data reported by National Aeronautics and Space Administration (NASA) and the 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 includes 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 from InSAR to 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[5]. Benchmark data will have its own accuracy depending on the methods and control used to collect the data. When evaluating Benchmark and InSAR data consideration should be made of the accuracy of each method.

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, taking into account the potential for elastic and inelastic surface displacement.

[5] 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 a physically impossible change (e.g., extreme uplift in a known subsiding area, massive spikes inconsistent with all adjacent data, etc.).
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 "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 a valid direct measurement is obtained 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[6]) 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[7] 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., initiating 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[8]) of the location with the anomalous result.
B. The reason the reading is considered anomalous.

[6] **Note:** Use of Proxy Sites for RMS assessments is discouraged. However, in rare cases, a Proxy Site may be appropriate if the monitored sustainability indicator is demonstrably representative of the original RMS.
[7] Ibid.
[8] Ibid.

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 Site is appropriate and when identification and implementation of a replacement monitoring site is 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

Use of Proxy Sites in place of a Representative Monitoring Site (RMS) is generally discouraged. Because Proxy Site data may be evaluated against sustainable management criteria established for an RMS, their use can lead to misleading comparisons if site conditions differ.

In limited cases, a Proxy Site may be appropriate where it can be clearly demonstrated to be representative of the same groundwater conditions and sustainability indicator as the original RMS. Any Proxy Site must meet defined criteria to ensure comparability. This section outlines when a Proxy Site may be appropriate, the criteria for selection, and the documentation protocols required to clearly identify the site as a temporary proxy and avoid confusion or misrepresentation within the Subbasin's monitoring dataset.

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

Use of Proxy Sites is intended only as a temporary, interim measure until the original RMS is back online. Proxy Sites are discouraged unless they meet the criteria outlined below and the original RMS is expected to return to monitoring within a reasonable timeframe. If an RMS will be unavailable for an extended period, initiating a Replacement RMS is recommended rather than relying on a Proxy Site..

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[9] (**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 a sustainability indicator.

Groundwater Levels

A Proxy Site for groundwater levels should meet the following criteria:

A. **Proximity:** Located less than 1-mile of the original RMS.
B. **Hydrogeology:** Drilled and perforated within the same aquifer zones as the original RMS. Ideally, the Proxy Site well's is perforated within 5-feet of the original RMS for shallow wells (<50-feet below ground surface) and within 10-feet of the of the original RMS for all other wells.

[9] 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)

Groundwater Quality

For both indicators, a Proxy Site should 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

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 an RMS is temporarily unavailable. These procedures ensure continuity of monitoring, proper documentation, and consistency in Subbasin-wide reporting.

1. Notification of Proxy Site Use

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 appropriate instead of reporting "no measurement"
C. A description of the identified Proxy Site's compliance with the Criteria for Proxy Site Selection in the Guidelines.
D. Confirmation that the Proxy Site is accessible for monitoring.
E. Clarification on the anticipated timeframe for resuming monitoring at the original RMS.
F. 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.

2. Identification and Implementation of Proxy Site

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. The GSA must clarify in the notes the Proxy Well's depth, perforation information, latitude/longitude and which RMS it is serving as a proxy for.

Replacement Monitoring Sites

When to Replace a Representative Monitoring Site

Figure 2 aids GSA staff when deciding whether a Replacement RMS is needed.

A Replacement RMS is needed when it is known that the original RMS cannot be monitored for an extended period of time or when the results obtained regularly produce unrepresentative or anomalous results.

At this time, there is no formal deadline for GSAs to replace an RMS upon identification of need. However, GSAs are expected to provide progress updates on RMS replacement during quarterly monitoring program agenda items at JPA meetings.

Criteria for Replacement Representative Monitoring Site Selection

A selected Replacement RMS must first meet all criteria for any other RMS, as detailed in Section 14.*2* of the 2024 Groundwater Sustainability Plan[10].

[10] 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)

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

Groundwater Levels & Groundwater Quality

For both indicators, a Replacement RMS 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, 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:

A. **For a Well:** The replacement well must be located near the surface water feature or groundwater dependent ecosystem(s) near the original RMS well.
B. **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;
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[11]; and
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 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 is temporarily unavailable for monitoring and is expected to be available again in a future monitoring event. The Delta-Mendota Subbasin Guidelines do not currently define a specific timeframe for replacing an RMS versus reporting "no measurement." However, a general approach is that if a well is unavailable for more than four monitoring cycles, consideration should be given to replacing the RMS.

[11] **Note:** Use of Proxy Sites for RMS assessments is discouraged. However, in rare cases, a Proxy Site may be appropriate if the monitored sustainability indicator is demonstrably representative of the original RMS.

B. The RMS is in the process of being replaced.

When to Report a "No Measurement"

An 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 is not in condition to be monitored;
C. Replacement RMS is in the process of being identified and unavailable for monitoring during the reporting period

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

Why is the use of a Proxy Site not preferred?

While additional data are valuable, uploading Proxy Site data to the DMS (and PRP Dashboard) can create misleading comparisons. Proxy Site monitoring data may be evaluated against sustainable management criteria established for a designated RMS, even though site conditions may differ.
For example, a Proxy Site well located one mile from an RMS may exhibit different groundwater levels due to localized variability, resulting in an unrepresentative assessment of compliance with minimum thresholds.

Note: GSAs are encouraged to collect supplemental data (groundwater levels, water quality, subsidence, and streamflow) to support technical analyses (e.g., contour mapping, implementation tracking, modeling). However, these data should remain separate from the Representative Monitoring Network to avoid confusion and misrepresentation of GSP compliance.

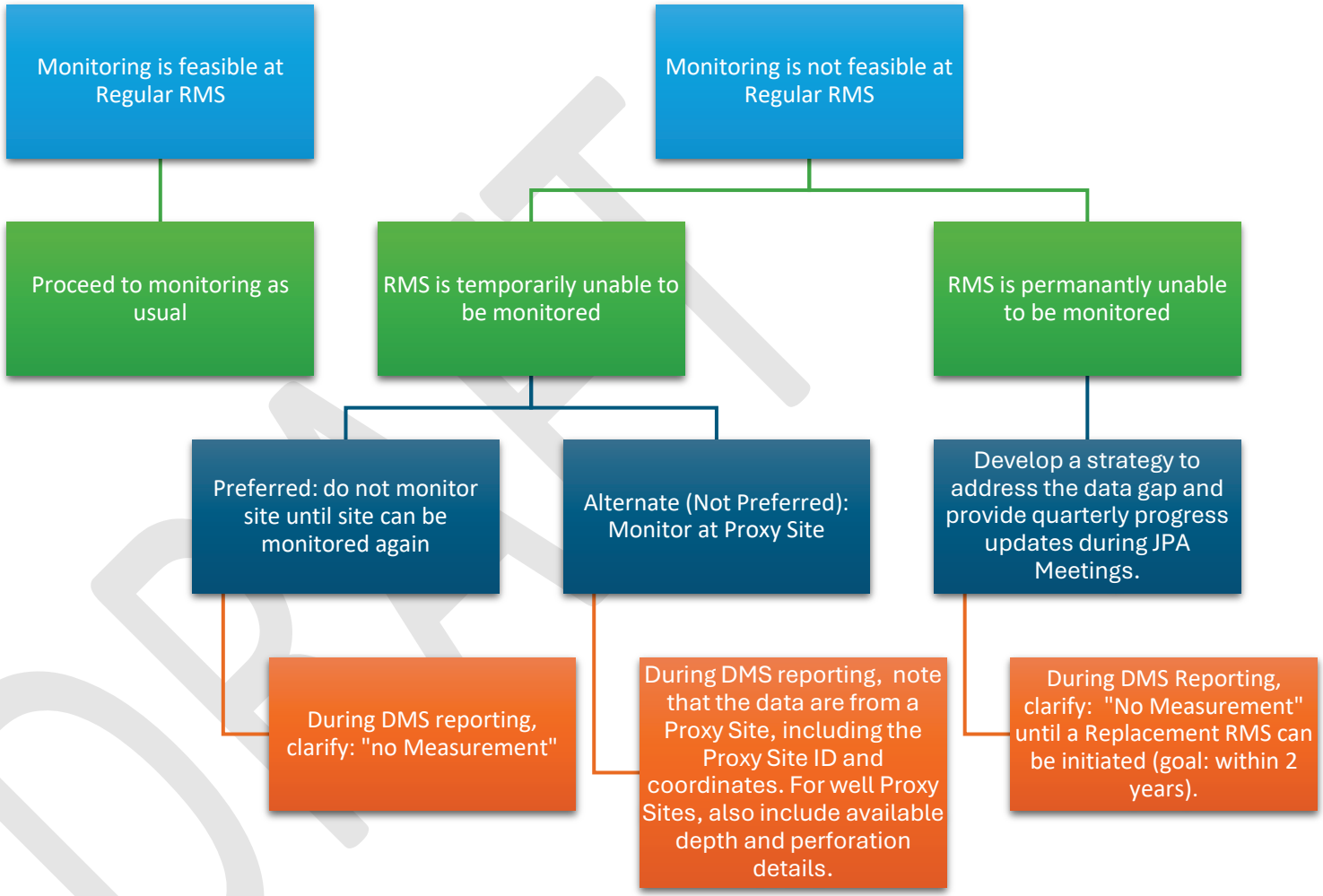


Figure 2 When to use a Proxy Site or Replacement RMS and Approved Exceptions to Monitoring

[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 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 — REPLACEMENT TRIGGERS

Report as “No Measurement” in DMS

☐ RMS temporarily unavailable

Initiate Replacement if:

☐ RMS unavailable for an extended period of time

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	If Uncertain Representativeness	☐ Notify Subbasin Technical Consultant immediately
☐ Upload to DMS	☐ Flag for follow-up ☐ Increase scrutiny at next sampling event ☐ Compare to nearby wells ☐ Consider targeted resample ☐ Note in DMS "Uncertain Representativeness"	☐ 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 —REPLACEMENT TRIGGERS

Report "No Measurement" in DMS
☐ RMS temporarily unavailable

Initiate Replacement if:
☐ RMS unavailable for an extended period of time
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

DELTA-MENDOTA SGMA

TO: Special Board of Directors
Agenda Item No. 8

FROM: Taylor Blakslee, Hallmark Group

DATE: May 19, 2026

SUBJECT: Update on the Domestic Well Mitigation Policy Briefing Workshop

Recommendation
None; Information only.

Discussion
On August 11, 2025, the Coordination Committee requested the Delta-Mendota Subbasin Groundwater Sustainability Agencies (GSAs) adopt the domestic well mitigation policy, which was done by each GSA.

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 29, 2026 and to develop materials to present during the workshop. The draft presentation and draft domestic well mitigation application will be provided to the communications ad hoc for review and feedback, and ***will be provided on Monday, May 18, 2026 as*** **Attachment 1** and **Attachment 2,** respectively.

DELTA-MENDOTA SGMA

TO: Board of Directors
Agenda Item No. 9

FROM: Karlee Liddy, Hallmark Group

DATE: May19, 2026

SUBJECT: Update on Houston Engineering Improvements to the Data Management System

Recommendation
None; Information only.

Discussion
In June 2025, and in preparation for the Fiscal Year 2027 budget development, Woodard & Curran worked with Houston Engineering to develop a list of potential data management system (DMS) enhancements and associated costs. The Fiscal Year 2027 budget was approved by the Delta-Mendota Subbasin which included approximately $12,000 for potential DMS enhancements.

During the March 19, 2026, technical ad hoc meeting, the ad hoc provided a recommendation on which DMS enhancements to implement (totaling ~$9,000) and is provided as **Attachment 1**.

The Central DM GSA Board and the Northern DM Region Management Committee reviewed and approved the DMS enhancements that were recommended by the technical ad hoc during their meetings on April 23 and May 4, 2026, respectively.

Attachment 1

Proposed Improvements to the Delta-Mendota Subbasin Data Management System - 2026

Item No.	Improvement Description (blue text = added detail/ refined scope from tech ad hoc)	Cost	Tech Ad Hoc Recommendation 3/19/2026
1	Identifier for proxy data collected with different symbology displayed on hydrograph or chemograph	$2,154	Implement
2	DMS accounts for each GSA representative/agency responsible for monitoring wells with permission to upload data (Separate out Northern and Central GSA groups, with respective participants)	$2,200	Implement
3	Email reminders to specific well contacts to upload data by designated date (i.e., grace period of 1 week following end of month for groundwater levels)	$909	Implement
4	Linear trend line on hydrographs calculated by 4-year rolling average of season low measurements for groundwater levels	$1,482	No
5	Linear trend line on chemographs calculated by 3-year rolling average concentration for each constituent of concern for groundwater quality, or other methodology as defined in each Pumping Reduction Plan	$1,077	No
6	Add a new input to the subsidence monitoring site data entry formed called: "Is this subsidence monitoring site within the SSMA (Southern Subsidence Management area) or within 1 mile of delta Mendota canal. This will be a Yes/No input.	$336	No
7	Monthly exports of measurements exceeding the MTs by GSA	$1,077	No
8	Data validation checks to identify questionable measurements not identified as such during monitoring activities (flag measurements as questionable that fall outside of the historical minimum and maximum for each well)	$1,077	Implement
9	Perform QA/QC of "Export Data" tool from DMS to ensure any calculations and data categories are correct	$741	
10	Modify groundwater level data import sheet to require associated depth to groundwater measurement	$336	No
11	Auto-import latest InSAR layer from DWR's SGMA Data Viewer to display on DMS Dashboard Map, stations, benchmarks, extensometers	$1,800	Implement
TOTAL		**$13,189**	
Total (Implement)		**$8,881**	

DELTA-MENDOTA SGMA

TO: Board of Directors
Agenda Item No. 11

FROM: Amir Mani, EKI

DATE: May 19, 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 and Q2 Data Submittal to the DMS

Groundwater levels and groundwater quality data for the Q1 (January to March, 2026) have been uploaded into the DMS. Based on preliminary analysis, there are no MT exceedances for groundwater levels. Staff will follow up with GSAs to provide an update on the status potential groundwater quality exceedances for Q1 in the coming week.

Groundwater level data for Q2 is due to the DMS by May 31, 2026. **Please submit your Q2 data to the DMS or to staff 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

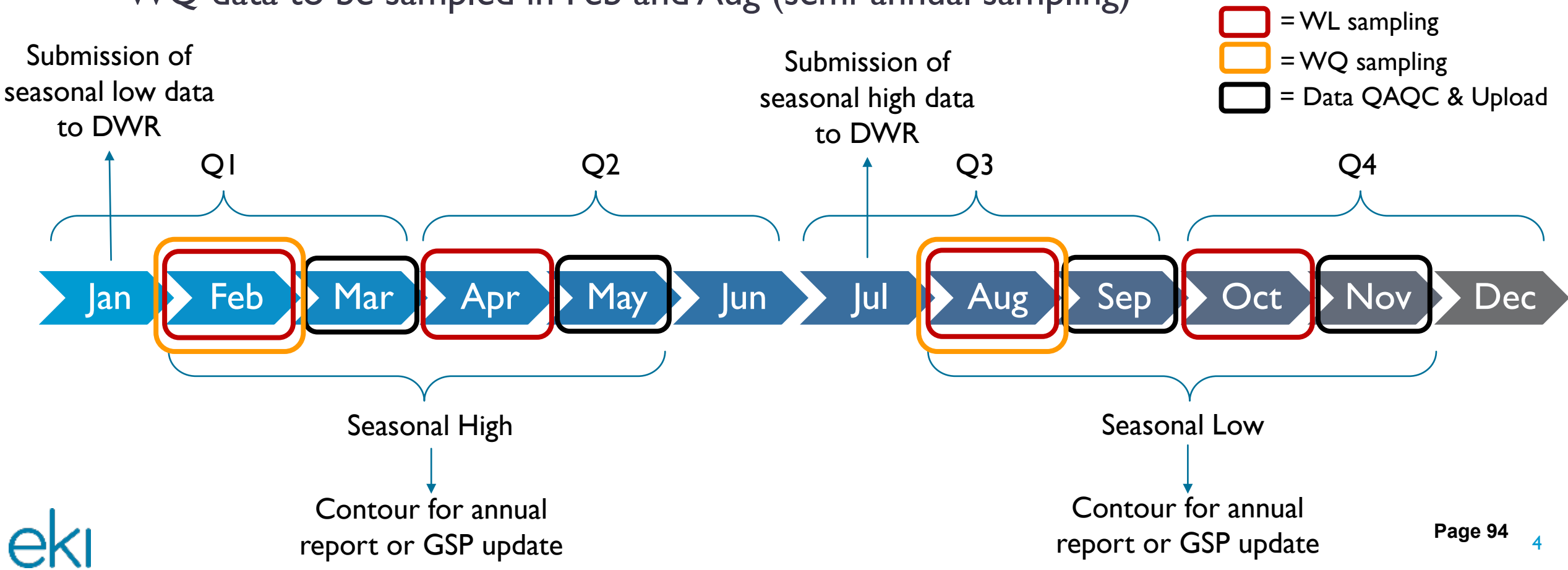
Nothing to report.

GSP/PRP IMPLEMENTATION CONTENT

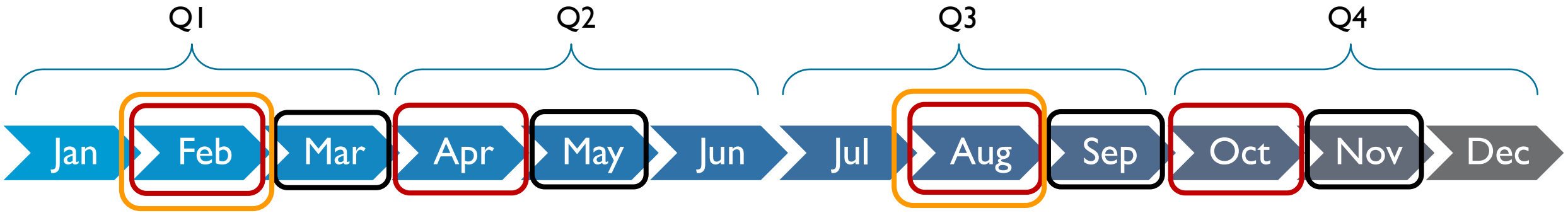
- Monitoring Schedule (*for reference only*)
  - SGMA Reporting requirements
  - Undesirable Results (UR) definition
  - Pumping Reduction Plan (PRP) requirements
- Pumping Reduction Plan Implementation
  - Reminders (*for reference only*)
  - Preliminary Exceedance updates

MONITORING SCHEDULE AND SGMA REPORTING REQUIREMENT

- WL data to be sampled in Feb, Apr, Aug, and Oct (quarterly sampling)
- WQ data to be sampled in Feb and Aug (semi-annual sampling)



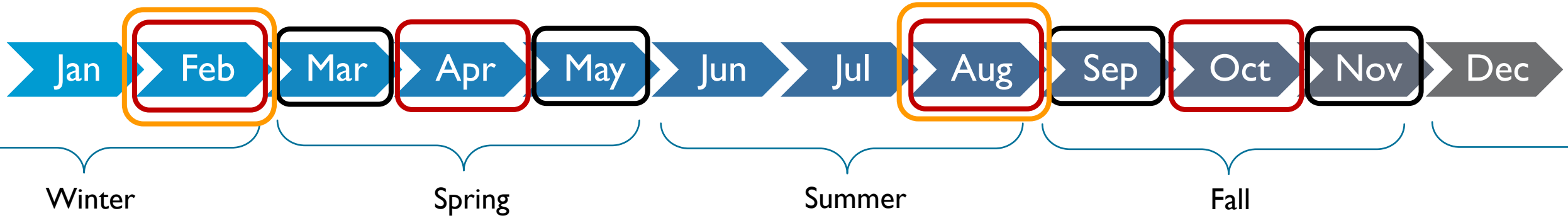
MONITORING SCHEDULE AND UR DEFINITION



- WL UR: "*Groundwater levels decline below the established MTs in 25 percent or more of the RMW-WLs for two consecutive years (i.e., eight consecutive quarterly measurements)*"
- WQ UR: "*if and when MTs for a groundwater quality COC are exceeded in 15 percent of the Representative Monitoring Wells for Degraded Water Quality (RMW-WQs) in three consecutive semiannual monitoring events and are caused by groundwater management within the Basin.*"
- MOA: data should be reviewed within 60 days after the data is due to be submitted by GSAs; Should GSA activities result in MT exceedances, GSAs shall present an action plan within 30 days.

= WQ sampling = WL sampling = Data QAQC and upload

MONITORING SCHEDULE AND PRP REQUIREMENT



- PRP: "RMW-WL-specific groundwater level triggers [are] based on the exceedance of an MT or projected exceedance of MT in a year following a four-year declining trend in *seasonal low (Fall)* groundwater levels"
- Upon exceedance of the trigger, GSAs will conduct an investigation within a 60-day period.

= WQ sampling = WL sampling = Data QAQC and upload

PRP IMPLEMENTATION TIMEFRAME

- GSAs to conduct regular data collection per GSP (quarterly for WL, targeting the Feb, Apr, Aug, Oct, and semi-annually for WQ, targeting Feb and Aug).

- GSAs/consultants to upload data to the DMS upon QAQC per SOP one month after sampling month [Mar, May, Sep, Nov].
- Submittal to DWR by 1 July and 1 January

- Dashboard will report triggers/exceedances of the quarter during the first month after data is uploaded.

- For wells with triggers/exceedances, GSAs to conduct an investigation within 60 days per MOA and PRP, and document investigation status in the Dashboard.
- Investigation start time will be set as the first month after all data is uploaded to the DMS (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 JPA within 30 days per MOA.
- GSAs to implement action plan per PRP and track PRP implementation in the Dashboard.

PRP REMINDER #1: MONITORING & REPORTING

- Q2 sampling event data should be submitted to DMS by the end of May (deadline to upload to DWR is July 1)
- PRP status update (i.e., new triggers or exceedances) on Q1 2026 data in following slides
- Continue with any pending investigation or required actions (see following slides)
- 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: WELL REGISTRATION AND OVERDRAFT REDUCTION

- **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

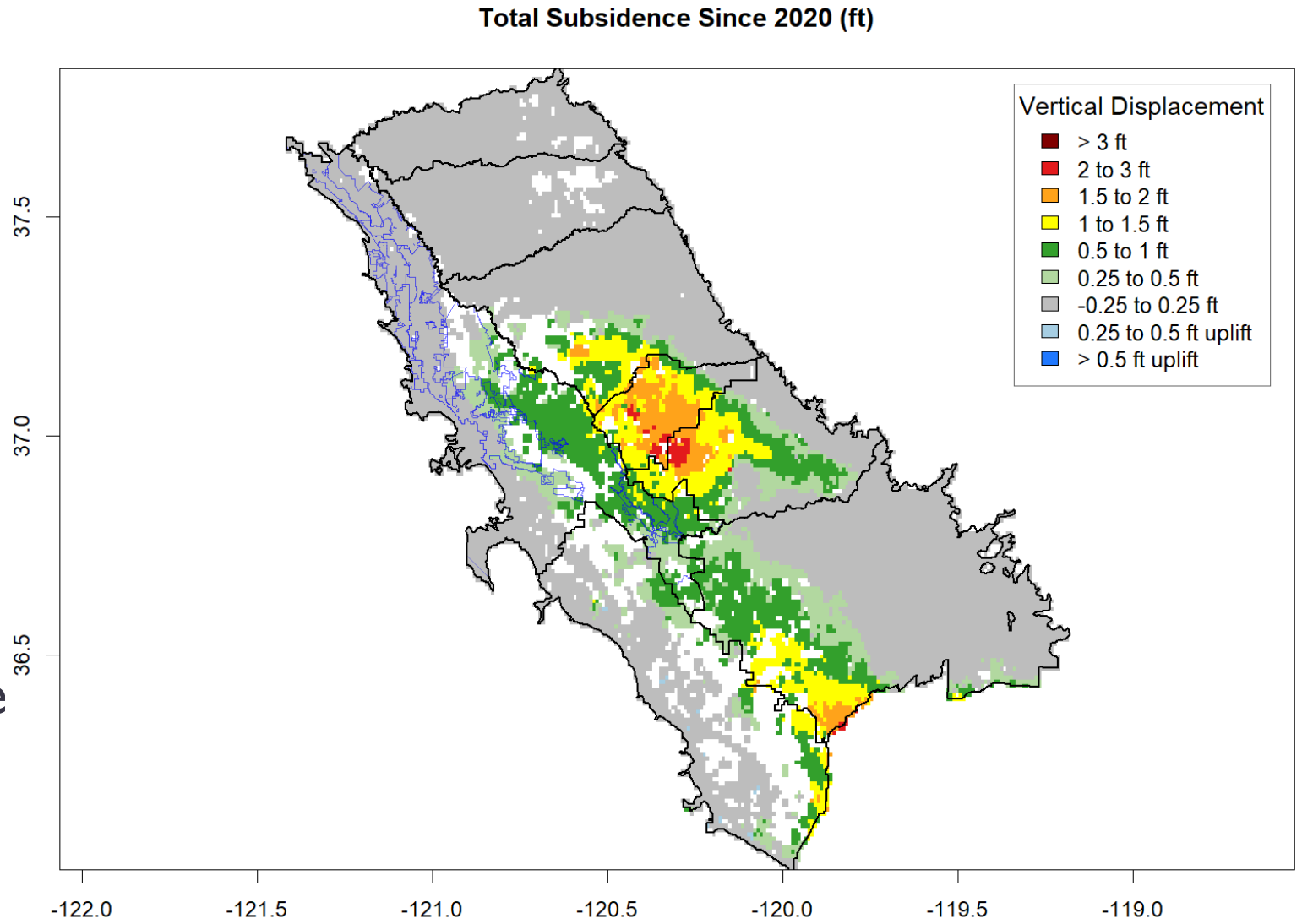
	Upper Aquifer (AFY)	Lower Aquifer (AFY)
Zone 1	-93,120	-18,947
Zone 2	-152,995	-20,609
Zone 3	-29,650	-59,242
Zone 4	-33,901	-114,501
Basin	**-309,666**	**-213,299**

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**

PRP REMINDER #3: SUBSIDENCE AVOIDANCE

- 2030 Subsidence IM = 1.5 ft since 2020
- 2040 Subsidence MT = 2 ft since 2020
- Maximum subsidence between Jan 2020-Jan 2026 within Delta-Mendota Subbasin = **1.41 ft**
- Remaining allowed subsidence from MT ~ 0.6 ft (30 months→ June 2028)



GWL EXCEEDANCES & TRIGGERS: 2026 Q1 (FEB)

- **No quarterly GWL exceedances occurred during Q12026, based on data uploaded to DMS as of May 14**
- Fall 2025 Watchlist wells (below) should be monitored closely during Q2 2026 sampling

DMS Site Name	Local Well Name	GSA	Aquifer	Trigger/Past Trigger	Investigation Status
09-001	2480-72	Aliso WD	Upper	Exits Fall 2024 MT Exceedance→ Triggers Projected Fall 2026 MT Exceedance	Renewed investigation or confirmation of previous one is needed
09-232	North Lower	Aliso WD	Lower	Exits Fall 2024 MT Exceedance	Investigation completed in 2024 and did not exceed MT in Fall 2025
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	MT Exceedance	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

GWQ EXCEEDANCES & TRIGGERS: 2026 Q1 (FEB)

- Q1 2026 sampling event showed ~6 exceedances of TDS and Nitrate.
- However, data in the DMS appears incomplete:
  - GSAs with suspect or missing data will be contacted
  - Results will be re-evaluated once QA/QC process complete
- Per MOA, investigation and reporting of verified exceedances is needed within 60 days.

INTERBASIN COORDINATION

Completed				
Tracy Subbasin	Chowchilla	Westside	East San Joaquin (Attended Tracy Mtg.)	Madera
Merced				
Scheduled				
Kings	June 19 – Online, Agenda Topics: • Measurable Objectives • Minimum Thresholds • Subsidence • Demand Management • Water Budgets Attending: Martin, Hopkins, Stilwell, Ramirez, Blakslee, Beutler			
Remaining				
Modesto/Turlock	Meeting will be tied to the release of Interconnected Surface Water			

- Domestic Well Outreach Briefing – May 29, Noon, available in English and Spanish. NGOs asked to advertise the briefing to their own audiences.
  - Recorded for use on website
- Newsletter
- Website
- Committee Membership

OTHER COMMUNICATIONS TOPICS

DELTA-MENDOTA SGMA

TO: Board of Directors
Agenda Item No. 10

FROM: Taylor Blakslee, Hallmark Group

DATE: May 19, 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**.

GSA Adoption of the Revised MOA:
All GSAs have adopted the revised MOA, and staff is awaiting a signature from one remaining GSA. Once all signatures are received, staff will distribute an executed copy of the MOA to all GSAs.

Attachment 1

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	Ongoing	*Ongoing*	Continue tracking and notifying GSAs of exceedances to prepare initial reports and action plans.
11/10/2025	12	Facilitate domestic well mitigation briefing	L. Beutler	Spring 2026	*In Progress*	Briefing scheduled for May 29, 2026.
2/4/2026	18	Research insurance costs for the DM Authority and Northern DM Committee.	Hallmark Group	ASAP	*In Progress*	HUB quote has been obtained, while 2 others are being obtained. Three quotes will be presented at the June meeting.
3/9/2026	14	Facilitate the execution of the contract with W&C to extend the grant through 2027.	K. Liddy	4/1/2027	Done	Contract executed. Final invoicing package due to DWR June 2026.
3/9/2026	15	Finnalize the Monitoring Guidance Document.	K. Palys	4/30/2026	Done	Provided in the Board packet for consideration of approval.
3/9/2026	16	Track MOA signatures and distribute executed copy once obtained.	K. Liddy	5/30/2026	*In Progress*	Awaiting one signature.
4/13/2026	10	Convene the technical ad hoc and budget ad hoc, with reps from each GSA Group present	K. Liddy	5/18/2026	Done	Convened on April 21 and 22, 2026.
4/13/2026	14	Work with GSA representatives to provide an update on the status of compliance with registration and metering policies.	Hallmark Group	6/8/2026	*In Progress*	To be agendized for subsequent meetings.
4/13/2026	15	Work with appropriate GSAs and consultants to determine feasibility of establishing the recommended subsidence benchmark sites.	Hallmark Group	ASAP	*In Progress*	Working with Aliso WD and Del Puerto WD reps, reaching out to GSA leads for next steps.
4/13/2026	16	Work with the communications ad hoc committee to finalize the well mitigation policy workshop materials.	Hallmark Group / L. Beutler	5/18/2026	*In Progress*	Materials for the workshop distributed to the ad hoc on May 18, 2026 for review and feedback.