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14 June 2024

John Brodie
San Luis Delta Mendota Water Authority
842 6th Street, PO Box 2157
Los Banos, CA 93635

Subject: Proposal to Provide Technical Support for the Development of the Northern Delta-Mendota Groundwater Sustainability Agency (NDM GSA) Group's Pumping Reduction Plan (PRP)
(EKI C00041.13)

Dear Mr. Brodie:

EKI Environment & Water, Inc. (EKI) is pleased to submit this proposal to support the NDM GSA Group in developing a GSA-Group specific PRP pursuant to the PRP Framework outlined in the Delta-Mendota Groundwater Sustainability Plan (GSP) and the Memorandum of Agreement (MOA) signed by the Groundwater Sustainability Agencies (GSAs). This proposal is submitted in response to San Luis & Delta-Mendota Water Authority's (SLDMWA's) request on 6 June 2024.

BACKGROUND

Information presented by EKI at the Delta-Mendota Subbasin (Basin) Coordination Committee (CC) meeting on 11 March 2024 indicates that the Basin will need to achieve a pumping reduction volume of approximately 42,000 acre-feet per year (AFY), primarily from the Lower Aquifer, based on the Projected 2030 Central Tendency Climate Change Scenario and assuming successful implementation of all of the other Projects and Management Actions (PMAs). The modeling conducted by EKI also indicates that several Representative Monitoring Wells (RMWs) are projected to exceed their Minimum Thresholds (MTs) for Chronic Lowering of Groundwater Levels and Land Subsidence by 2040.

Based on direction from the CC, the GSA Groups presented proposed PRPs at the CC meeting on 11 March 2024 to address their respective overdraft and avoid MT exceedances. EKI supported the NDM GSA Group in developing its recommendation for a PRP in a memorandum dated 8 March 2024 (NDM Proposed Plan).

Following the discussion at the CC meeting, EKI synthesized the various GSA's PRPs into a Basin-wide PRP Framework, which the CC recommended for inclusion in the GSP. The PRP Framework is comprised of the following six components that when collectively implemented, are designed to support compliance with the GSP's Sustainable Management Criteria (SMCs) and pumping within the Sustainable Yield: (1) Monitoring and Data Collection Plan; (2) Overdraft Mitigation Plan; (3) Groundwater Level Minimum Threshold (GWL-MT) Avoidance Plan; (4) Water Quality Minimum Threshold (WQ-MT) Exceedance Plan; (5) Subsidence Mitigation Plan; (6) Groundwater Allocation Backstop.

The implementation plan for the PRP Framework requires that the Basin GSAs develop and adopt a GSA/GSA Group-specific PRP by October 2024. The Basin GSAs are also required to implement and

develop the needed monitoring, administrative, and technical tools, and to conduct the necessary education and outreach so full PRP implementation can occur starting January 2025.

EKI understands that the GSAs in the NDM GSA Group wish to develop a single PRP, which will be adopted and implemented by all GSAs in the NDM GSA Group. This PRP will build upon the NDM Proposed Plan and comply with the requirements of the PRP Framework and MOA. The following Overall Approach and Scope of Work are proposed to support the NDM GSA Group's efforts to develop and implement a PRP.

OVERALL APPROACH

As outlined above, the PRP consists of six components for which the GSAs must develop specific technical approaches and triggers.

Component 1 aims to ensure sufficient monitoring and measurement for assessing and identifying problems, planning and implementing solutions, measuring impacts, and facilitating adaptiveness and enforcement. Given the varying levels of progress and methodologies among the GSAs, and per direction provided by SLDMWA, this component is assumed to be planned and implemented largely by GSAs. As an optional task, EKI proposes to provide technical support to ensure consistency and adequacy in these efforts, contributing to the successful and equitable achievement of the PRP's goals.

For components 2 through 6, EKI proposes to follow the overall approach below while modifying it for each component to achieve the level of detail required:

- Develop the technical approach in accordance with the GSAs' monitoring networks and available tools and models (i.e., make sure that approaches align with the GSA's ability to conduct timely identification of triggers, continuous assessment of conditions, successful design and implementation of the investigation/pumping reduction approach, and adequate monitoring to measure impacts, adapt and adjust, and conduct enforcement).
- Develop the technical approach for setting and identifying specific triggers for Representative Monitoring Sites (RMS) to initiate GSA action.
- Establish monitoring and measurement protocols and methodologies for evaluating groundwater conditions relative to the established triggers.
- Develop a technical method by which the GSAs will determine the rate and extent of pumping reduction or other actions necessary to address identified triggers.
- Establish measurement protocols and criteria to determine whether there is a need for additional corrective action (enforcement of allocations) or an opportunity for relief.

Collective support and endorsement from all GSAs are needed for the successful execution of each step of this approach. Therefore, EKI proposes a combination of GSA interviews and ad-hoc committee meetings to discuss each step, gather feedback, evaluate the feasibility of the proposed approach based on each GSA's local policies and capabilities, and determine if revisions are warranted.

EKI will present the findings of each task at appropriate NDM GSA Group meetings and will summarize policy recommendations under all tasks in a single Technical Memorandum (PRP TM). Respective subsections of the PRP TM may be delivered at the conclusion of each task for review. EKI assumes that

the technical aspects of the PRP developed by EKI will be converted by the GSA's legal counsel into a resolution for adoption by the GSAs in October 2024.

SCOPE OF WORK

Task 1 *(Optional)* – Support Implementation of the NDM Monitoring and Data Collection Plan

Per the PRP Framework, the Basin GSAs must execute a minimum level of monitoring and data collection to facilitate the decision-making, investigations, policy implementation, and enforcement under the PRP. Under Task 1, EKI will provide as-needed technical services to support the implementation of the NDM GSA Group's Monitoring and Data Collection Plan, as follows:

1) Conduct an assessment of the monitoring network and pumping well locations for each GSA within the NDM GSA Group and provide recommendations for density and frequency of monitoring considering the PRP requirements and pumping distributions within each GSA.
2) Review existing well metering policies and implementation status of the GSAs and provide a comparison summary along with recommendations for consideration of NDM GSA Group;
3) Review existing well registration policies and implementation status of the GSAs and provide a comparison summary along with recommendations for consideration of NDM GSA Group;
4) Recommend a scientifically sound approach for the designation of pumping between aquifers at composite wells; and,
5) Review NDM GSA Group's proposed RMWs and provide a summary of data gaps and implementation steps and timing to achieve the PRP's requirements.

EKI will publish a request for information (RFI) at the onset of the project to request corresponding policies and data. EKI will meet with each GSA (1-hr virtual meeting) to discuss the RFI and receive feedback. Findings and recommendations will be presented at an appropriate NDM GSA Group meeting and summarized in the PRP TM.

Deliverables: Presentation to the NDM GSA Group, respective sections of the PRP TM.

Key Assumptions: Meetings will be held remotely. EKI assumes that the GSAs will respond to the RFI in a timely manner. EKI will not take part in any sampling or measurement fieldwork. EKI will not adjust/modify/update Basin's data management system (DMS). In the case that the NDM GSA Group elects to opt out of this task, EKI assumes timely development of the required information by the GSAs for provision to EKI to support our efforts on Tasks 2 through 6.

Task 2 – Development of the NDM Overdraft Mitigation Plan

Per the PRP Framework, the NDM GSA Group must develop a plan to collectively reduce pumping by approximately 9,000 AFY, primarily from the Lower Aquifer. Starting in January 2025 and for each year over the subsequent five years, the NDM GSA Group will accomplish at least 20% of its apportioned pumping reduction to accomplish the total required reduction by 2030.

Under Task 2, EKI will develop a draft Overdraft Mitigation Policy (OMP) that details the technical approach, criteria, and tools that will be used to meet the minimum pumping reduction requirements.

The OMP will detail the required level of measurement, monitoring and reporting by GSAs, and recommend a technical methodology to determine the rate and extent of pumping reduction to satisfy the PRP Framework criteria, including the application of the methodology to track overdraft mitigation and make necessary adjustments and adaptations.

The technical methodology will include an assessment of groundwater pumping within each GSA using the Basin's Integrated Hydrological Model (Model) or an equivalent tool and the corresponding rate and extent of pumping reductions. This modeling work needs to be done prior to the October 2024 adoption.

If agreed by GSAs, EKI will attempt to coordinate the proposed pumping reductions with those that are most likely to be required to meet the Groundwater Level MT Avoidance, Water Quality MT Avoidance, and Subsidence Mitigation Plans (Tasks 3 through 5). The coordinated approach and its modeling and analytical work may be conducted in conjunction with Tasks 3 through 5 and can be elected to be accomplished before implementation in January 2025.

EKI will meet with the ad-hoc committee up to one times (1-hr virtual meetings) to discuss the proposed methodology and receive feedback. EKI will summarize the OMP developed under this task as part of the PRP TM.

Deliverables: Sections of the PRP TM outlining the OMP.

Key Assumptions: Meetings will be held remotely. Costs for meetings are included in the Task 7 budget. The Model will not be calibrated, and as such, the GSA-level water budgets will remain approximate.

Task 3 – Development of the NDM Groundwater Level MT (GWL-MT) Avoidance Plan

Under this Task, EKI will work with the NDM GSAs to develop a draft GWL-MT Avoidance Plan that outlines monitoring, investigation, and GSA action to respond to declining groundwater levels and avoid the occurrence of an MT exceedance for Chronic Lowering of Groundwater Levels. The NDM Proposed Plan outlines a potential technical approach that could be used for the GWL-MT Avoidance Plan, including the establishment of well-specific triggers using historical data or data from nearby RMWs, a technical approach for implementing pumping reductions using the Model, and additional monitoring and reporting requirements if a trigger is met.

The GWL-MT Avoidance Plan developed under this task may use a similar methodology to that described in the NDM Proposed Plan, but EKI will consider the best available tools and methods at the time of plan development to make a final recommendation. EKI will meet with the ad-hoc committee for up to two times (1-hr virtual meetings) to discuss its proposed approach and receive feedback. EKI will summarize the NDM GWL-MT Avoidance Plan developed under this task in the PRP TM.

The GWL-MT Avoidance Plan technical approach will include a methodology to define the rate and extent of pumping reductions, such as defining RMW-specific zone of influence and sensitivity rates. Development of the zones and sensitivities will need additional analytical and modeling work that can be optionally deferred until after adoption and conducted by January 2025; as such EKI has provided a separate estimate of this level of effort in its budget for the NDM GSA Group to consider.

Deliverables: Respective sections of the PRP TM outlining the GWL-MT Avoidance Plan.

Key Assumptions: Meetings will be held remotely. Costs for meetings are included in the Task 7 budget. The Model will not be calibrated, and as such, the GWL-MT Avoidance Plan rates and extents will remain approximate. If modeling is deferred until after October 2024, the GWL-MT Avoidance Plan will not be informed by RMW-specific zone of influence and sensitivity rates.

Task 4 – Development of the NDM Water Quality MT (WQ-MT) Exceedance Plan

Similar to GWL-MT Avoidance Plan (Task 3), the Basin-wide PRP Framework requires GSAs to outline monitoring, investigation, and GSA action to respond to the degradation of water quality and address the occurrence of an MT exceedance for Degraded Water Quality. Per the GSP, the triggers for WQ-MT Exceedance Plan for any constituent of concern (COC) include:

- The exceedance of a water quality MT at any RMW; or,
- Statistically significant increasing trend in water quality concentration in three consecutive years of data at any RMW such that an MT exceedance is projected to occur within the next year.

Under this task, EKI will develop a WQ-MT Exceedance Plan that describes the investigation GSAs must conduct upon exceedance of one of the above triggers to assess whether degradation of water quality is caused by groundwater management actions (pumping or recharge). The proposed investigation could include a modified monitoring and measurement program accompanied by statistical and/or spatial analyses between water levels and water quality to determine causation, depending on the availability of data (e.g., in an RMW-WQ that has at least five sampling points with water level data that temporally overlaps with water quality data, a granger causality test between water levels and water quality could be conducted).

EKI expects to hold up to one 1-hr virtual meeting with the ad-hoc committee to discuss the proposed plan and receive feedback. Findings of this task will be summarized in respective sections of the PRP TM.

Deliverables: Respective sections of the PRP TM outlining the GWL-MT Avoidance Plan.

Key Assumptions: Meetings will be held remotely. Costs for meetings are included in the Task 7 budget.

Task 5 – Development of the NDM Subsidence Mitigation Plan

Under this Task, EKI will provide a similar plan to the GWL-MT Avoidance Plan, to be developed under Task 3, focused on addressing the potential exceedance of subsidence MT (Subsidence Mitigation plan). The Subsidence Mitigation Plan will define monitoring and measurement required for successful implementation, applicable triggers for GSA action, a technical approach for defining the rate and extent of pumping reduction to address potential subsidence MTs, and a tracking approach to adapt and adjust the pumping reduction.

The technical approach developed under the Subsidence Mitigation Plan will likely use the same tools and methodology under GWL-MT Avoidance Plan, but focuses on the relationship between pumping and subsidence. Similar to the GWL-MT Avoidance Plan, the development of the zones and sensitivities will need additional analytical and modeling work that can be optionally deferred until after adoption and conducted by January 2025; as such, EKI has provided a separate estimate of this level of effort in its budget for the NDM GSA Group to consider.

EKI will hold up to one 1-hr virtual meetings with the ad-hoc committee to discuss its proposed plan and receive feedback. Findings of this task will be summarized in respective sections of the PRP TM.

Deliverables: Respective sections of the PRP TM outlining the GWL-MT Avoidance Plan.

Key Assumptions: Meetings will be held remotely. Costs for meetings are included in the Task 7 budget. The Model will not be calibrated, and as such, the Subsidence Mitigation Plan rates and extents will remain approximate. If modeling is deferred until after adoption, the Subsidence Mitigation Plan will not be informed by RMW-specific zone of influence and sensitivity rates.

Task 6 – Support Implementation of the Groundwater Allocation Backstop

Under this task, EKI will summarize the requirements of the PRP and outline the criteria under which GSAs will not be in compliance, triggering the groundwater allocation backstop plan and implementation of a pumping allocation equivalent to sustainable yield. The Groundwater Allocation Backstop Plan will define the measurement and monitoring required for successful compliance with the PRP, and the criteria under which a GSA can become compliant and exit the groundwater allocation backstop.

Similar to GWL-MT avoidance and Subsidence Mitigation plans, the Groundwater Allocation Backstop Plan will likely require assessments of GSA-specific sustainable yield, pertaining to further analytical or Model-based water budget developments. This modeling work can be optionally deferred until after adoption and conducted by January 2025; as such EKI has provided a separate estimate of this level of effort in its budget for the NDM GSA Group to consider.

EKI expects to hold up to one 1-hr virtual meeting with the ad-hoc committee to discuss the proposed plan and receive feedback. Findings of this task will be summarized in respective sections of the PRP TM, for adoption by October 2024.

Deliverables: Respective sections of the PRP TM outlining the GWL-MT Avoidance Plan.

Key Assumptions: Meetings will be held remotely. Costs for meetings are included in the Task 7 budget. The Model will not be calibrated, and as such, the Groundwater Allocation Backstop Plan allocations will remain approximate. If modeling is deferred until after adoption, the Groundwater Allocation Backstop Plan will not be informed by a local estimate of sustainable yield.

Task 7 – Project Management and Client Coordination

EKI will provide routine project management and communications tasks to SLDMWA on an as-needed and as-requested basis that will be charged on a time and materials basis. EKI will be available to attend up to three meetings with the NDM SGA Group to coordinate PRP development and facilitate its adoption. EKI will also hold up to two check-in calls with the NDM GSP Group Project Manager. The EKI Team will also provide progress summary reports and budget summaries as part of EKI's monthly invoices.

Deliverables: (1) Monthly budget and progress summary reports, and (2) as-needed check-in calls (up to two calls).

Key Assumptions: Meetings will be held remotely. Costs for the meetings scoped under Tasks 2 through 6 are included in the Task 7 budget.

COMPENSATION

Inasmuch as the exact level of effort required to complete the above Scope of Work cannot be known precisely, EKI proposes to perform the work on a time and materials expense reimbursement basis in accordance with our current Schedule of Charges (**Attachment A**). The estimated budget to accomplish tasks essential for the development and adoption of compliant PRP by October 2024 is estimated to be $131,000 (**Table 1**). The complete execution of this scope of work, including optional Task 1 and analytical and modeling work required for PRP implementation by January 2025, is estimated to be $194,000 (**Table 2**).

Table 1. Estimated Budget for Tasks Required by October 2024

Tasks	Cost Estimate
Task 1– Support Implementation of the NDM Monitoring and Data Collection Plan	$0
Task 2 – Development of the NDM Overdraft Mitigation Plan	$30,000
Task 3 – Development of the NDM GWL-MT Avoidance Plan	$29,000
Task 4 – Development of the NDM WQ-MT Avoidance Plan	$13,000
Task 5 – Development of the NDM Subsidence Mitigation Plan	$29,000
Task 6 – Support Implementation of the Groundwater Allocation Backstop	$15,000
Task 7 – Project Management and Client Coordination	$15,000
Total:	**$131,000**

Table 2. Estimated Budget for Tasks Required by January 2025, Including Optional and Modeling Tasks

Tasks	Cost Estimate
Task 1– Support Implementation of the NDM Monitoring and Data Collection Plan	$17,000
Task 2 – Development of the NDM Overdraft Mitigation Plan	$39,000
Task 3 – Development of the NDM GWL-MT Avoidance Plan	$42,000
Task 4 – Development of the NDM WQ-MT Avoidance Plan	$13,000
Task 5 – Development of the NDM Subsidence Mitigation Plan	$42,000
Task 6 – Support Implementation of the Groundwater Allocation Backstop	$26,000
Task 7 – Project Management and Client Coordination	$15,000
Total:	**$194,000**

SCHEDULE

EKI is prepared to start work on the above Scope of Work immediately upon authorization to proceed. If elected by NDM GSA Group, the quantitative tasks will also be conducted as part of the Scope of Work and accomplished by October 2024. Otherwise, EKI will be available to support the implementation of the

PRP through the end of the calendar year 2024. EKI will inform SLDMWA of any issues that arise that may affect the schedule for completion or impact the anticipated level of effort.

TERMS AND CONDITIONS

All work performed by EKI under this scope will be performed pursuant to our existing Agreement with SLDMWA for Professional Services.

If this proposal meets with your approval, please sign where noted below. We are very excited about the opportunity to work with SLDMWA and the Subbasin GSAs on this project. Please call if you have any questions or wish to discuss this proposal in greater detail.

Very truly yours,

EKI ENVIRONMENT & WATER, INC.

Anona L. Dutton, PG, CHg
Vice President / Principal-In-Charge

AUTHORIZATION
SAN LUIS & DELTA-MENDOTA WATER AUTHORITY (CLIENT)

By_____

Title_____

Date_____

Attachment

Attachment A EKI 2024 Schedule of Charges

Attachment A

EKI 2024 Schedule of Charges

Proposal/Agreement Date: 6/14/2024 **EKI Proposal/Project # C00041.13**

SCHEDULE OF CHARGES FOR EKI ENVIRONMENT & WATER, INC. **1 January 2024**

Personnel Classification	Hourly Rate
Officer and Chief Engineer-Scientist	345
Principal Engineer-Scientist	333
Supervising I, Engineer-Scientist	323
Supervising II, Engineer-Scientist	310
Senior I, Engineer-Scientist	297
Senior II, Engineer-Scientist	286
Associate I, Engineer-Scientist	275
Associate II, Engineer-Scientist	259
Engineer-Scientist, Grade 1	241
Engineer-Scientist, Grade 2	227
Engineer-Scientist, Grade 3	209
Engineer-Scientist, Grade 4	187
Engineer-Scientist, Grade 5	165
Engineer-Scientist, Grade 6	144
Project Assistant	135
Technician	129
Senior GIS / Database Analyst	170
CADD Operator / GIS Analyst	148
Senior Administrative Assistant	162
Administrative Assistant	128
Secretary	108

Direct Expenses

Reimbursement for direct expenses, as listed below, incurred in connection with the work will be at cost plus fifteen percent (15%) for items such as:

a. Maps, photographs, reproductions, printing, equipment rental, and special supplies related to the work.

b. Consultants, soils engineers, surveyors, drillers, laboratories, and contractors.

c. Rented vehicles, local public transportation and taxis, travel, and subsistence.

d. Special fees, insurance, permits, and licenses applicable to the work.

e. Outside computer processing, computation, and proprietary programs purchased for the work.

A Communication charge for e-mail access, web conferencing, cellphone calls, messaging and data access, file sharing, local and long distance telephone calls and conferences, facsimile transmittals, standard delivery U.S. postage, and incidental in-house copying will be charged at a rate of 4% of labor charges. Large volume copying of project documents, e.g., bound reports for distribution or project-specific reference files, will be charged as a project expense as described above.

Reimbursement for company-owned automobiles, except trucks and four-wheel drive vehicles, used in connection with the work will be at the rate of sixty cents ($0.60) per mile. The rate for company-owned

trucks and four-wheel drive vehicles will be seventy-five cents ($0.75) per mile. There will be an additional charge of thirty dollars ($30.00) per day for vehicles used for field work. Reimbursement for use of personal vehicles will be at the federally allowed rate plus fifteen percent (15%).

CADD and other specialized software computer time will be charged at twenty dollars ($20.00) per hour. In-house material and equipment charges will be in accordance with the current rate schedule or special quotation. Excise taxes, if any, will be added as a direct expense.

Rate for professional staff for legal proceedings or as expert witnesses will be at a rate of one and one-half times the Hourly Rates specified above.

The foregoing Schedule of Charges is incorporated into the Agreement for the Services of EKI Environment & Water, Inc. and may be updated annually.