ZONE 2 PUMPING REDUCTION PLAN

APPROVED | March 2025

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1 INTRODUCTION:

In September 2014, the Governor signed legislation creating the Sustainable Groundwater Management Act (SGMA) "to provide local groundwater sustainability agencies with the authority and technical and financial assistance necessary to sustainably manage groundwater" (Wat. Code, § 10720, (d)). SGMA requires sustainable management through the development of groundwater sustainability plans (GSPs), which can be a single plan developed by one (1) or more groundwater sustainability agencies (GSAs) or multiple coordinated plans within a basin or subbasin (Wat. Code, § 10727). SGMA requires a GSP to be developed and implemented in all basins designated by the California Department of Water Resources (DWR) as medium or high priority.

The Delta Mendota Subbasin (Basin) is one (1) of the twenty-one (21) basins and subbasins identified by (DWR) as in a "critically overdraft" condition. This designation triggered an accelerated timetable for SGMA compliance, including GSP development by 2020 and achievement of sustainability by 2040. In compliance with this timeline, the twenty-three (23) Basin GSAs submitted six (6) GSPs, a common chapter, and a coordination agreement to DWR in January 2020 (2020 GSPs). DWR designated the 2020 GSPs as "incomplete" in January 2022 and identified four (4) main deficiencies. In June 2022, the GSAs amended and resubmitted the six (6) GSPs to DWR to address the identified deficiencies (2022 GSPs) and in March 2023, DWR made a finding of "inadequate" after reviewing the 2022 GSPs. As a result, the Basin is subject to the state intervention process defined in SGMA regulations and under California Water Code (CWC) §10735 et seq. The first formal step of the state intervention process will be a public hearing convened by the State Water Resources Control Board (SWRCB) to consider designating the Basin as probationary based on any specific deficiencies in its GSP that remain unresolved at the time of hearing.

In response to DWR's "inadequate" determination, the twenty-three (23) Basin GSAs collectively agreed to develop a single GSP (2024 GSP) for the Basin that synthesizes, updates, and replaces content from the 2022 GSPs and common chapter to address the corrective actions outlined by DWR. The 2024 GSP, adopted by the twenty-three (23) Basin GSAs provides the path to achieve sustainable groundwater management in the Basin, avoid Undesirable Results, avoid probation with the SWRCB, and maintain local control of the Basin.

1.1 Purpose:

The purpose of the Zone 2 Pumping Reduction Plan (PRP) is to facilitate the implementation of the 2024 GSP and provide the maximum degree of local control while achieving sustainable conditions based on the calculated historical overdraft set forth in the 2024 GSP. The Zone 2 PRP was developed by the Grassland GSA and San Joaquin River Exchange Contractor GSA Groups in accordance with Section 16.1 of the 2024 GSP and specifically addresses the following six (6) requirements:

- Monitoring and Data Collection Plan
- Overdraft Mitigation Plan
- Groundwater Level Minimum Threshold (GWL-MT) Avoidance Plan
- Water Quality Minimum Threshold (WQ-MT) Exceedance Plan
- Subsidence Avoidance Plan
- Groundwater Allocation Backstop

For applicable PRP components, specific triggers and procedures are defined. These include an entry trigger to activate the PRP, a zone of impact (ZOI) to determine where the PRP will be applied, a cutback approach to provide quantitative estimates of pumping reductions, an exit trigger to conclude the cutback once objectives are met, and enforcement measures to ensure successful implementation. Additional monitoring and reporting requirements are outlined in each component, aligning with the Monitoring and Data Collection Plan.

1.2 Authority and Applicability:

1.2.1 Authority. The eleven (11) Basin GSAs encompassing the Grassland GSA and San Joaquin River Exchange Contractor GSA Groups, depicted in Attachment 1, (referred to herein as the “Zone 2 GSAs”), have the authority to draft, adopt, amend, and implement a GSP (Wat. Code , § 10725 et seq.; 10728.4). The Zone 2 GSAs reserve the right to modify this PRP at any time. Further, the Zone 2 GSAs have the authority to charge fees to implement the GSP, and to implement and enforce the PRP pursuant to the authority granted by Chapters 8 and 9 of Part 2.74 of the California Water Code, along with Proposition 26, Proposition 218, and the California Constitution.

1.2.2 Effective Date and Changes. This PRP shall become effective for each of the Zone 2 GSAs upon the date of adoption by each GSA’s governing body. Any subsequent additions, amendments, and/or repeals by less than all GSAs in Zone 2 shall become effective only for the adopting GSAs as specified by each GSA governing body, and shall not affect PRP implementation by other GSAs. Furthermore, the San Joaquin River Exchange Contractors (SJREC) have a decades long historic partnership managing water resources with the adjacent communities. Through the development of SGMA compliance in the Delta-Mendota Subbasin, each of the six (6) adjacent community GSAs has signed a Memorandum of Understanding (MOU) with the SJREC GSA. Each MOU outlines the roles and responsibilities of each GSA, including obligations to mitigate groundwater overdraft, overall compliance with sustainable management criteria, and financial commitments for ensuring compliance under SMGA[1]. Failure for these community GSAs to adhere to the commitments set forth in the MOU with SJREC will result in the GSA defaulting to obligations set forth in Basin GSAs’ Memorandum of Agreement (MOA).

1.2.3 Applicability. This PRP is only applicable within the boundaries of the eleven (11) Basin GSAs encompassing the Grassland GSA and San Joaquin River Exchange Contractor GSA Groups and collectively representing Zone 2, as depicted in Attachment 1.

[1] Community GSAs with MOUs with the SJREC GSA include: City of Dos Palos GSA, City of Firebaugh GSA, City of Gustine GSA, City of Los Banos GSA, City of Mendota GSA, and City of Newman GSA.

2 MONITORING AND DATA COLLECTION PLAN

Developed in accordance with Section 16.1 of the 2024 GSP, the Monitoring and Data Collection Plan, detailed in Table 1, represents Zone 2's commitments and strategies for achieving the monitoring and data requirements set forth in the 2024 GSP. To meet the requirements, the Zone 2 GSAs will implement new programs and policies, such as the County of Merced GSA – Delta-Mendota's Groundwater Monitoring and Reporting Program Guidelines (Attachment 2), or will continue to implement existing programs and policies, such as the SJREC GSA Group's monitoring and reporting program.

Table 1. Scheduled compliance with the requirements of the monitoring and data collection plan

		Grassland GSA Group Commitment	SJREC GSA Group Commitment
1	Regular monitoring network(s) assessment	To be conducted on a regular basis, at least once annually	To be conducted on a regular basis, at least once annually
2	Quarterly groundwater level monitoring	To be implemented starting Fall 2024	To be implemented starting Fall 2024
3	Semiannual water quality monitoring	To be implemented starting Fall 2024	To be implemented starting Fall 2024
4	Well registration policy	The two GSAs within the Grassland GSA Group will adopt policies prior to February 2025	All wells within the SJREC GSA Group are registered in the SJREC Database
5	Well metering policy	The two GSAs within the Grassland GSA Group will adopt policies prior to Fall 2025	All wells within the SJREC GSA Group have flow measurement required during installation
6	Well extraction reporting policy (including estimation of pumping from composite wells)	The two GSA groups will implement well metering policies by January 2026 or via an equivalently sufficient method such as remote sensing and report at least annually	All wells within the SJREC GSA Group are read at least annually for volume
7	Provide well construction information for all monitoring wells	The two GSAs within the Grassland GSA Group are already in compliance	The SJREC GSA Group is already in compliance
8	Replacing composite/ production wells in the monitoring network with dedicated monitoring wells by 2030	Zone 2 GSA Groups (with the exception of the SJRECWA GSA group) will replace composite/ production wells in the monitoring network by 2030.	

3 OVERDRAFT AND MITIGATION PLAN

3.1 Objective and Requirement

Developed in accordance with Section 16.1 of the 2024 GSP, the Overdraft and Mitigation Plan, detailed in Table 2, represents the Zone 2 GSAs' commitments and strategies for achieving the pumping reduction requirements set forth in the 2024 GSP. Per the 2024 GSP, the Zone 2 GSAs are required to reduce their average pumping by approximately 7,758 acre-feet per year (AFY) by 2030, based on the overdraft evaluation period of Water Year (WY) 2003 to WY 2023. The 2024 GSP mandates achieving this reduction through an annual minimum of 20% of the total apportioned pumping cut, beginning in WY 2026 and continuing each year for the following five (5) years. The Zone 2 GSAs have collectively developed and will collectively implement this Overdraft and Mitigation Plan to ensure that the pumping reduction requirements set forth in the 2024 GSP are achieved as prescribed.

3.2 Implementation Approach

Table 2. Required pumping reduction for Projects and Management Actions Zones, estimated based on 2030 Central Tendency Climate Change scenario.

P/MA Zones Representing GSA Groups	Required Pumping Reduction From Upper Aquifer (Acre-foot per Year)	Required Pumping Reduction From Lower Aquifer (Acre-foot per Year)	Total Required Pumping Reduction (Acre-foot per Year)
Zone 1 (Aliso Water District, Fresno County, Farmers Water District, Central Delta Mendota Region GSA Groups)	2,798	2,886	5,683
Zone 2 (San Joaquin River Exchange Contractors and Grassland GSA Groups)	**4,619**	**3,139**	**7,758**
Zone 3 (Northern Delta Mendota Region)	803	9,023	9,826
Zone 4 (Central Delta Mendota Region)	1,303	17,440	18,743
Basin	**9,523**	**32,487**	**42,010**

The Zone 2 GSAs will implement two (2) initial strategies for meeting the annual minimum required pumping reduction of 20%. The strategies will ensure that pumping reductions occur in target areas where groundwater level trends have declined during the overdraft evaluation period referenced in the 2024 GSP.[2]

Grassland GSA Group Pumping Reduction Strategy:

The Grassland Water District delivers federal Central Valley Project water to state, federal, and private wildlife refuges on the behalf of the United States Bureau of Reclamation (USBR) in Merced County. USBR

[2] Attachment 3 depicts the target areas where the two (2) initial pumping reduction strategies will generally occur.

acquires refuge water supply from willing sellers including some groundwater. It should be noted that the Grassland GSA has a balanced water budget and does not contribute to any overdraft in the subbasin.

A number of groundwater wells in the Merced County Delta Mendota GSA (MCDMGSA) have historically pumped for the Refuge Water Supply Program (RWSP) in certain years. One (1) area in the MCDMGSA is experiencing a declining water level trend in the Upper Aquifer where some RWSP pumping occurs and is estimated to be in overdraft by 1,800 AFY on average. Average annual off-farm pumping in this area for the RWSP is 1,800 AFY from the Upper Aquifer. The Grassland GSA Group is committing to reduce the RWSP related pumping by 20% (360 AF average annual) beginning in 2026 until resolving the localized overdraft by the end of 2030.

The Grassland Water District and GSA are also partnering with the City of Los Banos and DWR to construct 140 acres of retention basins in the area experiencing declining water levels in the Upper Aquifer. The project is located on 160-acres of irrigated alfalfa using approximately 800 AF per year of groundwater (160 acres * 5 AF/acre). Therefore, the subbasin anticipates to receive an additional benefit of 800 AF per year due to demand reduction through the implementation of this project. This project is being funded by the DWR through the Round 1 SGMA implementation funding, the City of Los Banos, and the Grassland Water District. The project is anticipated to begin construction in 2025 and operational in 2026.

San Joaquin River Exchange Contractor Pumping Reduction Strategy:

The Exchange Contractors have been monitoring groundwater levels for over 50 years and have used historic data to analyze the long-term overdraft throughout its service area.

Starting in the 1990’s, the Exchange Contractors established representative monitoring wells for their service area. Review of the long-term hydrographs indicates three (3) areas where a pumping reduction plan should be established. It should be noted that the SJREC GSA has a balanced water budget and does not contribute to any overdraft in the subbasin.

Stanislaus County

The representative monitoring wells in the northwestern (Stanislaus County) area of Zone 2 are showing a long-term decline in water levels. It should be noted that Stanislaus County has many composite wells due to the shallow depth of the Corcoran Clay in the region. The average pumping breakdown from composite wells in this area indicates about 45% from the Upper Aquifer and 55% from the Lower Aquifer. Around 2010, the Exchange Contractors established a trigger water level in the target area to reduce extractions in the region for Exchange Contractors growers. The 1,200 AF/year of overdraft is primarily caused by pumping in white areas located within Stanislaus County and outside of the SJREC GSA. Zone 3 has adopted its own PRP, reducing overdraft by 8,000 AF over five (5) years. It is anticipated that the PRP and adaptive management approach in Zone 3 will resolve this overdraft. Adaptive management actions in Zone 2 will be taken as appropriate and in coordination with Zone 3.

Los Banos Area

The representative wells in the Los Banos area show water level declines. This area has a distinct Upper Aquifer and Lower Aquifer. Around 2010, the Exchange Contractors established a trigger water level in the target area to reduce groundwater extractions from the region for Exchange Contractor growers. This action has significantly mitigated the long-term overdraft in the region and will continue to mitigate overdraft in this target area.

Madera County

The representative wells in the Madera County area are showing a long-term decline in water levels. The water elevation maps indicate that there is a large cone of depression occurring in Madera County outside of the subbasin located to the north and east of Zone 2 for both the Upper and Lower Aquifers. All of Zone 2 in this area is within the SJREC GSA. The average annual water level decline in the Upper Aquifer is about 0.5’/year with an estimated annual overdraft of 1,250 AF/year. Provided the drawdown in this area is caused by pumping outside the subbasin and jurisdiction of Zone 2 GSAs, and therefore pumping reductions within the subbasin will not address the overdraft, Zone 2 GSAs are committed to coordination with neighboring subbasins to address the overdraft.

Summary

The implementation of the above strategies will achieve the early pumping reduction targets for Zone 2. The remaining pumping reductions will be achieved through the expansion of the aforementioned strategies and via the implementation of additional to-be-developed strategies focused on Zones of Impact (ZOIs) as identified through ongoing monitoring. In addition to achieving the required pumping reduction, the implementation of these two (2) initial strategies will provide the Zone 2 GSAs with the opportunity to engage stakeholders and the public on the development and implementation of additional strategies for achieving the remaining balance of the required pumping reduction.

In 2018 CA State Legislature passed SB 606 and AB 1668 (Water Conservation and Drought Planning) which included provisions for urban water use efficiency standards and performance measures. This legislation “establishes a method to estimate the aggregate amount of water that would have been delivered the previous year by an urban retail water supplier if all that water had been used efficiently. This estimated aggregate water use is the urban retail water supplier’s urban water use objective (UWUO).”[3]

Beginning in 2024, Urban Water Suppliers are required to calculate their own UWUO and compare it to the supplier’s actual water use. Until 2025, indoor residential water use standard is 55 gallons per capita daily (gpcd), but this standard is tightened to 47 gpcd from 2025-2030, and is further reduced to 42 gpcd beyond 2030. The UWUO also includes additional efficiency requirements for commercial, industrial, and institutional (CII) landscapes. Zone 2 contains six (6) urban water suppliers: the Cities of Newman, Gustine, Los Banos, Dos Palos, Firebaugh and Mendota, which are required to comply with the UWUO requirements. While the final estimated pumping reductions are still being confirmed, it can be assumed that the six (6) cities will implement demand management measures for their new and existing customers in order to comply with UWUO requirements. These efforts will be factored into ongoing pumping reduction strategies. The GSAs in Zone 2 are committed to achieving reduction of the identified overdraft by WY 2030. If there is an indication that Zone 2 is not sufficiently meeting the requirements of GSP 2024 then the Groundwater Allocation Backstop will be enforced, as per Section 7.

3.3 Additional Monitoring and Reporting Requirements

Planned pumping reductions will be verified and adjusted through pumping estimation using a combination of ET products and metered pumping, conducted according to the Monitoring and Data Collection Plan.

[3] California Water Code § 10609-10609.38

3.4 Enforcement

The Groundwater Allocation Backstop will be enforced in cases of implementation lapses, with further actions governed by the dispute resolution mechanisms in the Basin GSAs' (MOA).

4 GROUNDWATER LEVEL MINIMUM THRESHOLD AVOIDANCE PLAN

4.1 Objective and Requirements

The Zone 2 GSAs are required to identify GWL-MT hotspots based on defined triggers by the end of February each year and implement targeted pumping cutbacks, on an acre-foot per acre basis, for identified groundwater level representative monitoring wells (RMW-WL) within each principal aquifer.

4.2 Cutback Entry Trigger

The occurrence of any of the following conditions at an RMW-WL triggers a GWL-MT cutback and requires pumping reductions:

- Exceedance of the GWL-MT, determined by comparing the most recent seasonal low measurement (Fall) to the defined MTs.
- Projected exceedance of the GWL-MT, based on the linear trend of the previous four (4) Fall groundwater level measurements (using the seasonal average if multiple measurements are taken).

4.3 Zones of Impact and Cutback Approach

The ZOIs around hotspot RMW-WLs will be delineated based on, but not limited to, existing well conditions, hydrogeology, subsurface lateral flow, and groundwater production density. The ZOIs represent areas where groundwater pumping directly influences water levels at the RMW-WL and may extend or cross GSA boundaries. The objective of identifying the ZOIs is to minimize the total volume of pumping reduction while achieving the necessary groundwater level increase. The estimations of the ZOI and the associated cutbacks, established as a uniform acre-foot per acre pumping limit across the ZOI, will serve as starting points and be adaptive. Cutback adaptation will follow a 3-month rolling linear trend of groundwater levels at the associated RMW(s), proportionally increasing or decreasing cutbacks based on the difference between the slopes of the rolling 3-month trend and the trendline, ending in Fall.

Following the ZOI determination in February of each year, a uniform acre-foot per acre pumping limit will be implemented by the respective GSA(s) throughout the ZOI, through communications with the applicable landowners. Pumping within the ZOI and the need for any cutback adaptation will be assessed by the respective GSA(s) on a quarterly basis to ensure compliance.

Special consideration will be given to GSA's importing surface water supplies and/or implementing groundwater recharge projects.

4.4 Cutback Exit Trigger

The pumping cutback may be exited upon occurrence of the following condition:

- Exceedance of GWL MT is projected to be avoided in the following year based on the linear trend calculated from the previous four (4) Fall GWLs with the inclusion of the effects of the cutbacks from the current year.

Following the determination that the exit trigger condition(s) have been met, the uniform acre-foot per acre pumping limit will be removed by the respective GSA(s) throughout the ZOI, through communications with the applicable landowners.

4.5 Additional Monitoring and Reporting Requirements

The GWLs and pumping within a ZOI will be measured monthly during the implementation of the pumping cutback pursuant to the Monitoring and Data Collection Plan.

4.6 Enforcement

A Groundwater Allocation Backstop will be enforced in cases of implementation lapses, or if a GSA fails to implement this GWL-MT Avoidance Plan within two (2) quarters. Further actions will be governed by the dispute resolution mechanisms in the Basin GSAs' MOA.

5 WATER QUALITY MINIMUM THRESHOLD EXCEEDANCE PLAN:

5.1 Objective and Requirements

The Zone 2 GSAs are responsible for identifying exceedances or projected exceedances of WQ-MT. If such exceedances are linked to Basin management, GSAs must investigate the cause and, if necessary, design and implement appropriate mitigation measures, including pumping cutbacks or other strategies, to prevent future WQ-MT exceedances caused by Basin management.

This WQ-MT Exceedance Plan triggers pumping cutbacks only when a direct relationship or convincing linkage is established between changes in water quality concentrations exceeding or projected to exceed their MTs and management actions of the GSAs in the Basin, or changes in groundwater levels. In the absence of such correlations or due to data gaps, continued monitoring and data collection are prioritized. When necessary, pumping cutbacks are implemented using the same approach outlined in the GWL-MT Avoidance Plan.

5.2 Investigation trigger

The occurrence of any of the following conditions at an identified groundwater quality representative monitoring well (RMW-WQ) triggers an investigation to assess the cause of the degradation and its correlation with groundwater level changes:

- Exceedance of the WQ-MT.
- Projected exceedance of the WQ-MT, based on a statistically significant linear trend of the previous three (3) Fall groundwater level measurements (using the seasonal average if multiple measurements are taken).

5.3 Investigation Approach

Respective GSAs are required to conclude an investigation within 60 days of reporting an investigation trigger and recommend the next steps to be taken. A Kendall Tau test will be used to assess potential correlations between water quality (WQ) and GWLs when an exceedance of a WQ-MT at a RMW-WQ site occurs. At least six (6) WQ/GWL sample pairs from the same or nearby wells are required, with pairs consisting of samples collected within the same year and season (e.g., Fall of a specific year) or within a sufficiently close timeframe.[4] If there are not enough samples, monitoring will continue until sufficient data is available. For groundwater management projects (e.g., recharge facilities) with known operational changes, additional case-specific investigations will be performed.

A significant correlation is identified when at least six (6) WQ/GWL measurements, taken within the last decade—including at least one (1) from the current year—yield an absolute Kendall Tau coefficient ($|\tau|$) of 0.6 or greater and a p-value of 0.05 or less.[5] If a statistically significant correlation is not found or if the

[4] In the absence of sufficient data or at the beginning of implementation, more flexible thresholds may be necessary, and samples from different years could be considered as pairs for the Kendall Tau test.

[5] The p-value of less than 0.05 is a typical threshold for hypothesis testing and statistical significance. These correlations can be loosened by the GSAs on an as-needed basis and based on professional judgment. It is recommended that depending on sample size and data available, a larger p-value is considered to be sufficient when a clear correlation can be observed from hydrographs.

sample size is insufficient, more frequent sampling is implemented until a re-evaluation is possible. Otherwise, mitigation is triggered for the RMW-WQ and it is assigned as a WQ Hotspot. A correlation between declining GWL and WQ prompts a reduction in pumping, while any correlation between GWL and WQ for recharge projects will require actions related to project implementation.

5.4 Mitigation Approach

Following the requirements of the GSP Section 16.1, upon triggering mitigation, respective GSAs will have 90 days to propose a Mitigation Action Plan to address increased concentrations of constituents of concern (COCs) and prevent future exceedances of WQ-MTs. The responsible GSA is required to notify groundwater pumpers within a three (3) mile radius of the RMW-WQ exceeding trigger regarding the projected degradation and potential mitigation. The mitigation approach will depend on whether the trigger is caused by GWL declines due to pumping or by the implementation of projects and management actions (P/MAs), primarily recharge projects.

5.4.1 Mitigation for Degradation Due to Groundwater Level Decline

When WQ degradation is linked to GWL declines, a temporary GWL-MT Hotspot is established at the RMW-WQ, or a nearby well with similar construction, to monitor and control conditions. A temporary GWL trigger is set to the previous year's seasonal high (average Spring water level). Pumping cutbacks are implemented following the GWL-MT process, based on the temporary GWL trigger set at the well acting as the target level, using the most current seasonal high measurement. Upon achieving the GWL target, the conditions will be reevaluated. If a cutback exit trigger is not met (WQ is not stabilized), the WQ/GWL correlation will be re-investigated. If a significant correlation persists, further cutbacks should be implemented.

5.4.2 Mitigation for Degradation Due to Recharge Projects

If it appears that the WQ-MT has been triggered by a recharge project, the investigation will determine if the degradation results from factors such as poor-quality recharge water, flushing of soil constituents, geochemical reactions, altered groundwater gradients, etc.

The respective GSA will submit a detailed mitigation plan to the Committee within the 90-day time frame. The recharge project must be paused during this period and until the exit trigger is met unless the GSA can justify successful mitigation through modified or continued operation. The plan should address the source of water quality degradation, identified in the investigation, and propose modifications to operations to mitigate incurred impacts. Throughout this period, WQ monitoring continues to ensure that any future triggers are addressed promptly. These actions aim to ensure a stable balance between groundwater recharge efforts and the protection of groundwater quality in the Basin, adapting as needed based on new data and observations.

5.5 Exit Trigger

Mitigation action (pumping cutback or mitigation plan) can be exited if any of the following occur:

- GWL target is met, and WQ at the hotspot RMW-WQ does not show a statistically significant increasing trend using the last three (3) measurements; OR
- GWL target is met, and a significant correlation between WQ and GWL can no longer be established; OR
- Projected WQ at the RMW-WQ will not exceed the respective WQ-MT.

5.6 Additional Monitoring and Reporting Requirements

Monitoring will be generally conducted as outlined under Monitoring and Data Collection Plan.

5.7 Enforcement

Enforcement of this plan is governed by the dispute resolution mechanisms in the Basin GSAs' MOA. When pumping cutbacks are implemented, enforcement mirrors the procedures used for GWL-MT violations. In such cases, failure to comply with implementation or a delay of more than two (2) quarters will trigger the Groundwater Allocation Backstop.

6 SUBSIDENCE AVOIDANCE PLAN

6.1 Objective and Requirements

The Zone 2 GSAs are required to proactively address progressing land subsidence that does not or is not projected to comply with the requirements of the 2024 GSP as soon as feasible and implement pumping cutbacks that will bring back the identified regions into sustainability path of the Basin. The Subsidence Avoidance Plan has two (2) components that lead to different requirements. Critical Infrastructure Component only applies to critical infrastructure and the hotspot mitigation component applies to the entire Basin.

6.2 Cutback Entry Trigger

Pumping cutback under subsidence avoidance plan is triggered under the following conditions for each component:

- **Critical Infrastructure Component**: The three-year average subsidence rate exceeds 0.2 feet per year (ft/year) within 0.5 miles of critical infrastructure
- **Hotspot Mitigation Component:** The five-year linear trend established based on InSAR data indicates a projected subsidence of more than 2 feet by 2040 (MT), or more than 0.5 feet by 2030 (IM) or exceedance of any subsequent IM.

Triggers under both components should be based on subsidence caused dues to Basin management, or under conditions that such causality cannot be justifiably established.

6.3 Zone of Impact and Cutback Approach

6.3.1 Critical Infrastructure Component

Critical infrastructure is defined as non-pressurized water conveyance facilities. A ZOI is identified as an area where the three-year average subsidence rate exceeds 0.1 ft/year and is located within 0.5 miles of critical infrastructure. For wells screened in the Lower Aquifer, pumping cutbacks would start at 0.35 AFY/acre (approximately the estimated sustainable yield for the Lower Aquifer in the Region) within the ZOI, and be adjusted as warranted.

6.3.2 Hotspot Mitigation Component

A ZOI is defined as a radius of 0.5 miles around any point that meets the cutback entry trigger. For wells screened in the Lower Aquifer, pumping cutbacks would start at 0.35 AFY/acre (approximately the estimated sustainable yield for the Lower Aquifer in the Region) within the ZOI, and be adjusted as warranted.

6.4 Cutback Exit Trigger

Pumping cutback under subsidence avoidance plan may be relieved if and when the conditions defined under each respective component below is met:

- **Critical Infrastructure Component**:
  - The four-year average subsidence rate within the ZOI is 0 feet per year; OR
  - The GSAs can sufficiently justify that subsidence is not caused due to pumping within the ZOI.

- **Hotspot Mitigation Component:**
    - Subsidence due to Lower Aquifer Pumping attributable to the Basin is eliminated; OR
    - The GSAs can sufficiently justify that subsidence is not caused due to pumping within the ZOI.

6.5 Additional Monitoring and Reporting Requirements

Monthly pumping measurements and subsidence rates (if available) should be reported to the Committee within two (2) weeks of collection. All data reported should also be imported into the Basin DMS by the respective GSA(s). If subsidence data is unavailable, quarterly reporting is sufficient. GWL measurements in the Lower Aquifer should be measured monthly within the ZOI and reported within two (2) weeks of collection. The number of new Lower Aquifer or Composite wells within the ZOI should be reported monthly. For the purposes of the Subsidence Avoidance Plan, composite wells are conservatively considered Lower Aquifer wells for calculating pumping cutbacks and complying with other requirements, unless detailed data and information are provided to support a more precise apportionment and decision-making process. All data reported should also be imported into the Basin DMS by the respective GSA(s).

6.6 Enforcement

Enforcement of the subsidence avoidance plan is governed by the dispute resolution mechanisms in the Basin GSAs' MOA.

7 GROUNDWATER ALLOCATION BACKSTOP

7.1 Objective and Requirements

In accordance with Exhibit C of the MOA, GSAs are required to implement the groundwater allocation backstop plan if they cannot sufficiently meet the requirements of the GSP 2024.

7.2 Cutback Entry Trigger

Occurrence of any of the following conditions will result in groundwater allocation backstop:

- GWL-MT exceedances for two (2) consecutive years.
- Failure to comply with the GWL-MT or GWQ-MT requirements within two (2) quarters.
- Failure to comply with the Subsidence Avoidance Plan requirements within one (1) year.

Special consideration will be given to GSA's importing surface water supplies and/or implementing groundwater recharge projects. This means when pumping reductions are needed, the GSA's that are not sustainable will need to reduce pumping.

7.3 Zone of Impact and Cutback Approach

This plan applies to the entire service area of the GSA subject to it. Pumping within the subjected GSAs will be limited to the estimated sustainable yield, as determined within the GSP, and implemented through AFY/acre allocations.

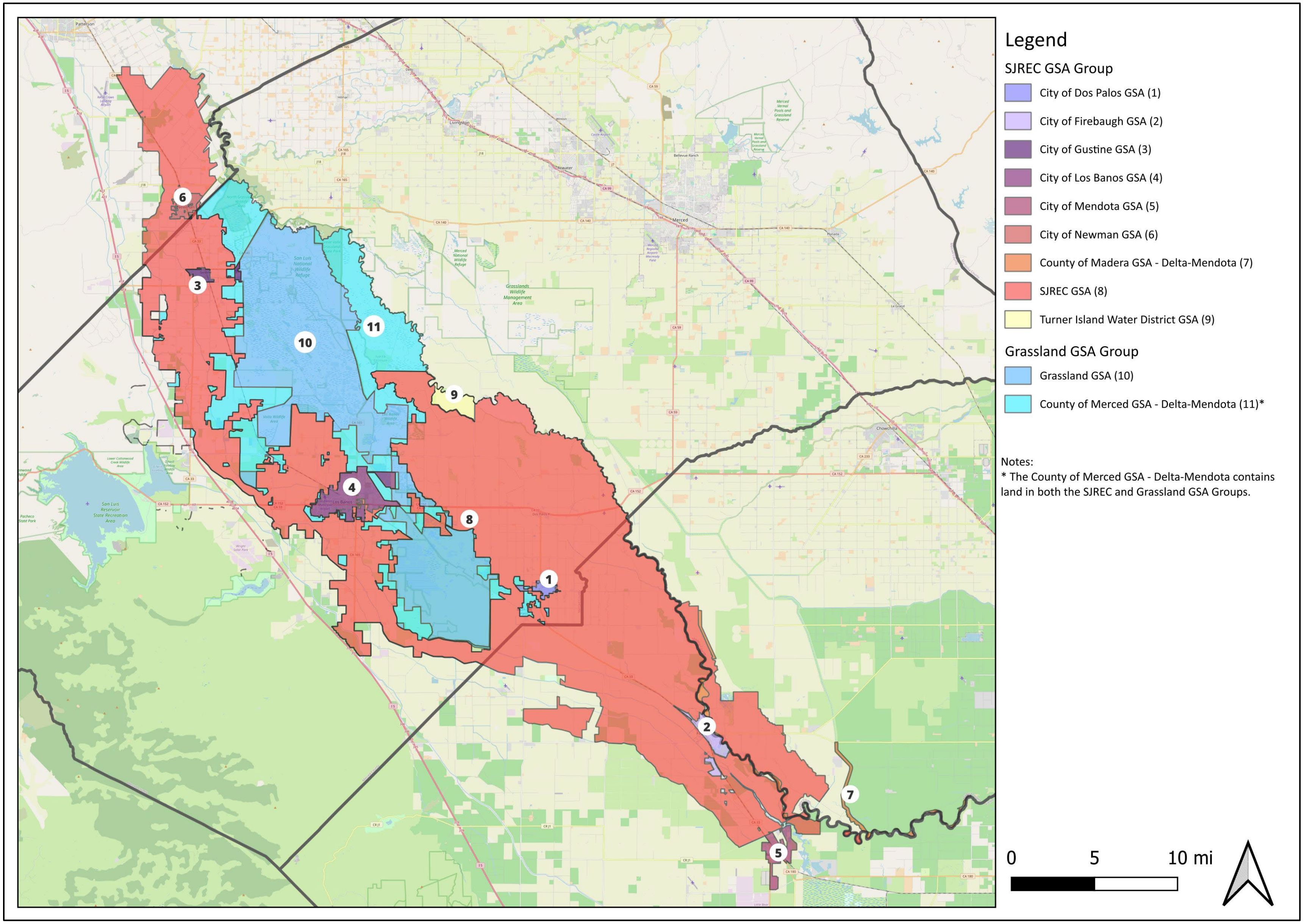
7.4 Additional Monitoring and Reporting Requirements

Monthly pumping measurements should be reported to the Committee within two (2) weeks of collection.

7.5 Enforcement

Enforcement of the groundwater allocation backstop is governed by the dispute resolution mechanisms in the Basin GSAs' MOA.

Attachment 1 – Zone 2 GSA's



Attachment 2 – County of Merced GSA – Delta-Mendota Groundwater Monitoring and Reporting Program Guidelines:

Note: The County of Merced GSA – Delta Mendota Groundwater Monitoring and Reporting Program Guidelines and associated attachments, presented hereafter and attached to the Zone 2 PRP, are only applicable within the unincorporated, undistracted lands within Merced County in the County of Merced GSA – Delta-Mendota. The remaining Zone 2 GSAs have existing programs and policies in place to accomplish the Monitoring and Data Collection Plan requirements detailed in Table 1.

The purpose of the County of Merced GSA – Delta-Mendota's Groundwater Monitoring and Reporting Program Guidelines (Guidelines) is to provide guidance for compliance with state GSP regulations and to outline the minimum requirements necessary for accurate monitoring and measurement of groundwater extractions. In addition to the implementation of the planned supply augmentation projects within the Basin, the County of Merced GSA – Delta-Mendota will need implement the Zone 2 Pumping Reduction Plan (PRP) to provide the maximum degree of local control and achieve sustainable conditions based on the calculated historical overdraft set forth in the 2024 GSP.

Metering, monitoring and reporting requirements are crucial for sustainable groundwater management because they provide the necessary data needed to manage groundwater resources accurately and effectively while ensuring compliance with GSP objectives. The data obtained will be used to foster transparency and collaboration between the Zone 2 GSAs, Groundwater users, the public and other GSAs. Furthermore, it enables the Zone 2 GSAs to detect issues early and allow for the implementation of proactive management strategies to best respond to changing conditions to secure equitable and long-term groundwater resource reliability for all beneficial uses.

1.1 DEFINTIONS:

1.1.1 **"Agricultural Well"** shall have the same meaning as Non-de Minimis Well. The use of the term "Agricultural Well" means a Water Well used exclusively to supply water for irrigation, livestock watering or other agricultural purposes, not for domestic use or to provide potable water, consistent with *Merced County Ordinance 9.28.020.*

1.1.2 **"Animal Feeding Operations"** or **"AFOs"** are defined as, operations where animals have been, are, or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12-month period and where vegetation is not sustained in the confinement area during the normal growing season. *40 CFR § 122.23(b)(1)*.

1.1.3 **"Assessor's Parcel Number"** or **"APN"** is a series of twelve numbers/digits used by the Merced County assessor's office as a file number to inventory or identify a property.

1.1.4 **"Board of Directors"** or **"Board"** means the Merced County Board of Supervisors acting as the County of Merced GSA – Delta-Mendota Board.

1.1.5 **"Consumptive Use"** refers to water within a system that cannot be recovered or reused and includes water that is consumed by plants or humans, animals, evaporated, or contaminated. For purposes of these Guidelines, this also is a subset of Evapotranspiration and can be referred to as Evapotranspiration of Applied Water ("ETAW").

1.1.6 **"Corcoran Clay Layer"** A low-permeability, regionally extensive, lacustrine deposit as much as 200-ft thick that divides the groundwater-flow system of the western San Joaquin Valley into an upper semi-confined zone and a lower confined zone. A map displaying the extent and depth of the Corcoran Clay Layer within the County is available here.

1.1.7 **"County"** means the County of Merced.

1.1.8 **"Delta-Mendota Subbasin," "Subbasin"** or **"Basin"** means the San Joaquin Valley – Delta-Mendota Groundwater Basin identified by the California Department of Water Resources as Basin Number 5-22.07.

1.1.9 **"De Minimis Extractor"** means a Person or Public Agency who extracts no more than 2 acre feet per parcel of groundwater for domestic purposes.

1.1.10 **"Evapotranspiration"** or **"ET"** is the process by which water is transferred from the land to the atmosphere. It includes both evaporation from soil and transpiration from plant leaves and is a determined quantity of water used as part of agricultural operations.

1.1.11 **"Evapotranspiration of Applied Water"** or **"ETAW"** is the subset of Evapotranspiration that is met through the purposeful application of water regardless of source.

1.1.12 **"Flow Meter"** means a water measuring device approved by the County of Merced GSA – Delta-Mendota that measures the instantaneous flow and totalizes the volume of groundwater extracted by a well or the volume of surface water diverted onto a parcel.

1.1.13 **"Groundwater"** means water beneath the surface of the earth within the zone below the water table in which the soil is completely saturated with water but does not include water that flows in known and definite channels. *Water Code Section 10721(g).*

1.1.14 **"Groundwater Sustainability Plan"** or **"GSP"** means the current Delta-Mendota Subbasin Groundwater Sustainability Plan.

1.1.15 **"Landowner"** means any person owning a fee interest in real property within the County of Merced GSA – Delta-Mendota as reflected in Assessor's Office records or documents provided to the GSA.

1.1.16 **"Monitoring Well"** means an artificial excavation by any method for the purpose of monitoring the fluctuations in groundwater levels, groundwater quality, the presence or concentration of contaminants in subsurface soil and water, and for the purpose of vapor monitoring. Monitoring wells include remediation wells and may include a well also being used to pump groundwater.

1.1.17 **"Non-de Minimis Extractor"** means landowners with parcels greater than two (2) acres in gross acreage on which water is used for irrigation, livestock watering, animal feeding operations, wetland habitat management, or other agricultural purposes such as agricultural processing, not for domestic use or to provide potable water.

1.1.18 **“Non-de Minimis Well”** means a Water Well used exclusively to supply water for irrigation, livestock watering or other agricultural purposes, not for domestic use or to provide potable water.

1.1.19 **“OpenET”** is an online platform for mapping Evapotranspiration at the scale of individual fields, available at: www.ETdata.org.

1.1.20 “**Parcel**” shall have the same meaning as Assessor’s Parcel Number or APN. The use of the term “parcel” in these rules refers only to a parcel, or any portion thereof, within the boundaries of the County of Merced GSA – Delta-Mendota.

1.1.21 **“Party”** or **“Parties”** may be used interchangeably in these Guidelines with which otherwise would refer to either as “owner”.

1.1.22 **“Undesirable Result”** means one or more of the following effects caused by groundwater conditions occurring throughout the Basin: *Water Code Section 10721(x)*

1.1.22.1 Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon. Overdraft during a period of drought is not sufficient to establish a chronic lowering of groundwater levels if extractions and groundwater recharge are managed as necessary to ensure that reductions in groundwater levels or storage during a period of drought are offset by increases in groundwater levels or storage during other periods.

1.1.22.2 Significant and unreasonable reduction of groundwater storage.

1.1.22.3 Significant and unreasonable seawater intrusion.

1.1.22.4 Significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water suppliers.

1.1.22.5 Significant and unreasonable land subsidence that substantially interferes with surface land uses.

1.1.22.6 Depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water.

1.1.23 **“Well”** or **“Water Well”** as defined in *Section 13710 of the Water Code*, means any artificial excavation constructed by any method for the purpose of extracting water from, or injecting water into, the underground. This definition shall not include: (a) oil and gas wells, or geothermal wells constructed under the jurisdiction of the Department of Conservation, except those wells converted to use as water wells; or (b) wells used for the purpose of: (1) dewatering excavation during construction, (2) stabilizing hillsides or earth embankments, or (3) monitoring wells.

1.1.24 **“Year”** means the period from January 1 through December 31, inclusive.

1.2 MONITORING AND REPORTING REQUIREMENTS:

1.2.1 Eligibility. All Parties whom consumptively use groundwater for non-de minimis purposes in the County of Merced GSA – Delta-Mendota shall complete and submit the “Land Registration Form” (Attachment A) to the GSA by June 30, 2025. Submission of Attachment A by the aforementioned deadline will exempt non-de minimis extractors, except those defined in Section 1.2.4, from needing to install, maintain, and report extraction data from flow meters on water wells used to supply their parcels with groundwater.

1.2.2 Process. Upon adoption of these Guidelines, the County of Merced GSA – Delta-Mendota will conduct outreach to and coordinate with eligible landowners to ensure that all applicable lands are registered as required by the GSP by January 1, 2026. The GSA will utilize DWR geospatial crop data, satellite imagery, and Merced County land use information to determine eligible landowners.

1.2.3 Monitoring. Beginning on January 1, 2026, County of Merced GSA – Delta-Mendota will utilize OpenET to monitor the consumptive use of groundwater for all eligible lands within its jurisdiction. The GSA will conduct quarterly monitoring and upload the consumptive use data associated with groundwater by eligible parcel to an online GIS mapper to be hosted at:

https://www.countyofmerced.com/2937/Delta-Mendota-Subbasin

1.2.4 Alternative Monitoring. The consumptive use of certain non-de minimis uses are unable to be effectively monitored via OpenET given that their uses do not emit an ET signature that can that can be measured by satellites or produce an inconclusive ET signature and will therefore be required to submit flow meter data pursuant to Section 1.3.2. These non-de minimis uses include:

1.2.4.1 Animal Feeding Operations

1.2.4.2 Managed Wetland Habitats

1.2.4.3 Commercial or Industrial Processing Facilities

1.3 FLOW METER REQUIREMENTS:

1.3.1 Use of Flow Meters on Eligible Lands. Parties with eligible lands pursuant to Section 1.2.1 can elect to submit monthly extraction data from flow meters on all wells used to supply their parcels with groundwater in addition to the quarterly consumptive use data generated by the, County of Merced GSA – Delta-Mendota. The flow meters and associated data must adhere to the requirements set forth in Section 1.3.5.

1.3.2 Use of Flow Meters for Alternative Monitoring. Parties with eligible lands pursuant to Section 1.2.4 shall provide quarterly extraction data from flow meters on all wells used to supply their parcels with groundwater. The flow meters and associated data must adhere to the requirements set forth in Section 1.3.5.

1.3.3 New Wells. Upon adoption of these Guidelines, the County of Merced GSA – Delta-Mendota will require that all new or replacement non-de minimis wells drilled within its jurisdiction be equipped with a flow meter and provide monthly extraction data pursuant to Section 1.3.5.

1.3.4 Existing Wells. Prior to being amended on February 8, 2022, the Groundwater Mining and Export Ordinance required all new and replacement non-de minimis wells drilled within Merced County to be equipped with a flow meter. As part of its outreach and monitoring efforts, the County of Merced GSA – Delta-Mendota will coordinate with eligible landowners to determine if their existing wells were equipped with flow meters pursuant to the Ordinance.

1.3.4.1 Parties with existing non-de minimis wells previously equipped with flow meters pursuant to the Groundwater Mining and Export Ordinance will be required to provide monthly extraction data and comply with Section 1.3.5.

1.3.4.2 Parties with existing non-de minimis wells previously equipped with flow meters but drilled prior to the March 17, 2015 adoption date of the original Groundwater Mining and Export Ordinance are encouraged to provide monthly extraction data and comply with Section 1.3.5, but not required.

1.3.5 Flow Meter Requirements. Parties electing or required to provide the County of Merced GSA – Delta-Mendota with groundwater extraction data from flow meters shall adhere to the following requirements:

1.3.5.1 The Party shall submit the "Flow Meter Attestation Form" (Attachment B) to the County of Merced GSA – Delta-Mendota annually, no later than January 31st of each year.

1.3.5.2 The Party shall submit all groundwater extraction data to the County of Merced GSA – Delta-Mendota using the "Groundwater Extraction and Monitoring Report" (Attachment C). Parties subject to Sections 1.3.1, 1.3.3, and 1.3.5.1 shall submit Attachment C by the 15th of the following month, while parties subject to Section 1.3.2 shall submit Attachment C by the end of each quarter.

1.4 ENFORCEMENT:

1.4.1 Rights of Access. County of Merced GSA – Delta-Mendota staff and/or other authorized agents shall have access onto any parcels subject to these Guidelines for the sole and exclusive purpose of conducting County of Merced GSA – Delta-Mendota monitoring and enforcement. The GSA representative will provide a 24-hour advance notice as a courtesy to the Party prior to entry.

1.4.2 Non Compliance. Insufficient landowner participation in this program may warrant the initiation of more restrictive groundwater management programs, such as a groundwater allocation backstop, and/ or result in the implementation of a groundwater monitoring and reporting program solely reliant on flow meter data. Additionally, insufficient landowner participation in this program may result in state intervention to ensure that Basin achieves sustainability in accordance with SGMA.

1.4.3 Responsibility. Landowners shall be responsible for compliance with these Guidelines by any lessee or well operator on their property.

1.5 ATTACHMENTS:

Attachment A: County of Merced GSA – Delta-Mendota Land Registration Form
Attachment B: County of Merced GSA – Delta-Mendota Flow Meter Attestation Form
Attachment C: County of Merced GSA – Delta-Mendota Groundwater Extraction and Monitoring Report

Mail or email this form to:
2222 M St. Merced CA 95340
Attn: Lacey McBride
Lacey.McBride@CountyofMerced.com

Attachment A – County of Merced GSA – Delta-Mendota Land Registration Form

Pursuant to the County of Merced GSA – Delta-Mendota's Groundwater Monitoring and Reporting Program Guidelines, non-de minimis groundwater extractors shall complete and submit this form to the GSA by June 30, 2025. Submission of this form by June 30, 2025, will exempt non-de minimis groundwater extractors from needing to install, maintain, and report extraction data from flow meters on wells used to supply a landowners parcels. Parties electing or required to submit groundwater extraction data for non-de minimis uses from flow meters pursuant to Sections 1.3. of the Guidelines shall also submit Attachments B and C to the GSA by dates specified on each attachment and or the Guidelines.

Property Owner Name: ________________________________Owner Phone: ________________________________

Mailing Address: ____ Email: __________________________________

Parcel(s) Owned and Farmed within the County of Merced GSA – Delta-Mendota

Parcel Number	Crop Type	Acres	Water Source [6]

[6] Include all of the following water sources used to supply the parcel with water: Groundwater from well(s) on parcel, Groundwater from well(s) off parcel, Surface water, Public/district water.

Well Information:

Well ID [7]	Parcel Number [8]	Latitude and Longitude of Well	Total Depth of Well	Screened Interval

I hereby affirm that the information submitted with this form is accurate, true and representative of site conditions.

_______________________________ _______________________________ _______________________________

Owner Printed Name Owner Signature Date

[7] Provide the Well Completion Report Number or unique well identifier specified by the owner.
[8] Provide the Parcel Number of the property where the well is located.

Attachment B – County of Merced GSA – Delta-Mendota Flow Meter Attestation Form

Parties required to provide the County of Merced GSA – Delta-Mendota with groundwater extraction data from flow meters or required to install and maintain flow meters on applicable wells as pursuant to Section 1.3 of the GSA's Groundwater Monitoring and Reporting Program Guidelines shall submit this form to the GSA annually, no later than January 31st of each year.

I/we attest that the information provided on Attachments A, B, and C, for use of flow meters pursuant to the requirements set forth in the County of Merced GSA – Delta-Mendota's Groundwater Monitoring and Reporting Program Guidelines fully and accurately represents the current conditions of the well(s) and flow meter(s) used within the County of Merced GSA – Delta-Mendota.

I/we further attest that:

1. The wells(s) listed in Attachment C only serve the parcel(s) listed in Attachment A;

2. All extracted groundwater for non-de minimis uses is being monitored with flow meter(s) that have been calibrated by a third-party vendor within the past 5-years;

3. The County of Merced GSA – Delta-Mendota must be notified of any new well(s) and any existing well(s) located outside of parcel(s) listed in Attachment A used to supply the parcel(s) listed in Attachment A;

4. The County of Merced GSA – Delta-Mendota must be notified of any additional parcel(s) operated by the party not currently listed in Attachment A;

5. All new well(s) will be metered as required by the Guidelines;

6. All groundwater extraction reporting shall be done in accordance with the County of Merced GSA – Delta-Mendota's Groundwater Monitoring and Reporting Program Guidelines;

7. Any well and/or flow meter malfunctions that would compromise flow meter readings will be reported to the County of Merced GSA – Delta-Mendota immediately; and

8. The County of Merced GSA – Delta-Mendota staff and/or other authorized agents shall have access onto any parcel(s) subject to the Groundwater Monitoring and Reporting Program Guidelines for the sole and exclusive purpose of conducting monitoring and enforcement. The GSA representative will provide a 24-hour advance notice as a courtesy to the party prior to entry.

I hereby affirm that the information submitted with this form is accurate, true and representative of site conditions.

______________________	______________________	______________________
Owner Printed Name	Owner Signature	Date

Attachment C – County of Merced GSA – Delta-Mendota Groundwater Extraction and Monitoring Report

Pursuant to the County of Merced GSA – Delta-Mendota's Groundwater Monitoring and Reporting Program Guidelines, non-de minimis groundwater extractors electing or required to submit groundwater extraction data for non-de minimis uses from flow meters pursuant to Sections 1.3 shall submit this form to the GSA as specified below and also submit Attachments A and B to the GSA by dates specified on each attachment and or the Guidelines.

Property Owner Name: ________________________________ Owner Phone: ________________________________

Mailing Address: ____ Email: __________________________________

Select one of the following:

☐ This monthly non-de minimis extraction data is being provided pursuant to Sections 1.3.1, 1.3.3, and 1.3.4.1 of the Guidelines and was used to supply groundwater to the parcels listed on Attachment A.

☐ The quarterly non-de minimis extraction data is being provided pursuant to Section 1.3.2 of the Guidelines and was used to supply groundwater to the parcels listed on Attachment A.

Groundwater Extraction Information:

Well ID	Year	Jan [9]	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec

I hereby affirm that the information submitted with this form is accurate, true and representative of site conditions.

_________________________________ _________________________________ __________________________

Owner Printed Name Owner Signature Date

[9] Provide all flow meter extraction data in either acre-feet (AF), cubic feet per second (cfs), or gallons per minute (gpm).

Attachment 3 – Zone 2 Target Areas