

KERN COUNTY SUBBASIN PROBATIONARY HEARING FINAL STAFF REPORT EXECUTIVE SUMMARY

January 2025

The State Water Resources Control Board (State Water Board or Board) staff developed the Probationary Hearing Final Staff Report (Final Staff Report) for the Kern County Subbasin (subbasin) to help inform the Board's decision pursuant to the [Sustainable Groundwater Management Act](#) (SGMA or Act) as to whether to designate the Kern County Subbasin a probationary basin, as defined in the Act. This Executive Summary briefly summarizes key sections of the Final Staff Report, however a full discussion of each section referenced in the Executive Summary is provided in the Final Staff Report. Where appropriate, the section titles in this Executive Summary refer to the corresponding section in the Final Staff Report. For example, the "SGMA and State Intervention (Section 2)" section of this Executive Summary covers Section 2 of the Final Staff Report.

Introduction

The mission of the State Water Board and the nine Regional Water Quality Control Boards (Regional Water Boards and, together with the State Water Board, Water Boards) is to preserve, enhance, and restore the quality of California's water resources and drinking water for the protection of the environment, public health, and all beneficial uses, and to ensure proper water resource allocation and efficient use, for the benefit of present and future generations. Consistent with this goal, the State Water Board is committed to racial equity and working towards a California where race no longer predicts a person's access to, or quality of, water resources.

In 2014, the state Legislature passed SGMA, an historic action that established a new framework for how groundwater would be managed locally at the basin scale to achieve long-term sustainability. Under SGMA, local agencies are primarily responsible for the sustainable management of their groundwater basins; however, the Department of Water Resources (DWR or Department) and the State Water Board are also responsible for ensuring local groundwater management achieves SGMA's sustainability goals. SGMA provides DWR and the State Water Board with review and oversight of groundwater resources to protect them for current and future use by the communities, farms, and environmental resources that depend upon them.

The Kern County Subbasin is critically overdrafted: on average, water is pumped out of the basin faster than it is recharged by rain and other sources. Overdraft can cause the land surface to sink, potentially damaging infrastructure and reducing aquifer storage. In addition, overdraft threatens groundwater levels and drinking water quality and could have disparate impacts on communities that rely on shallow wells. Due to historic and political factors, many of these are economically disadvantaged and communities of color.

The State Water Board recognizes that local public agencies in the Kern County Subbasin made significant efforts since the passage of SGMA to form groundwater sustainability agencies (GSAs) and then develop detailed technical and other information supporting the adoption and implementation of five groundwater sustainability plans (GSPs) for the subbasin. Despite those efforts, in January of 2022, DWR reviewed the GSPs to determine if they met SGMA's requirements and found them to be incomplete. Following revisions made by the GSAs in the subbasin, DWR reevaluated the GSPs (plus one additional GSP that was submitted) in March of 2023, determined the GSPs to be inadequate, and referred the subbasin to the State Water Board, as required by SGMA. Consistent with SGMA, the State Water Board may now consider whether to designate the Kern County Subbasin as a "probationary basin," a term that is used in SGMA to describe a basin in the first stage of state intervention.

The goals of this executive summary are to:

- Describe SGMA and the State Water Board's state intervention process to provide context for the State Water Board's upcoming Kern County Subbasin Probationary Hearing (Probationary Hearing).
- Briefly describe the demographics, geology, and hydrology of the Kern County Subbasin.
- Summarize the actions State Water Board staff recommends the Board could take at the Kern County Subbasin Probationary Hearing. These recommended actions are to:
 - Designate the entire subbasin probationary. In the short-term, this would mean most groundwater pumpers in the basin would need to start: (1)

measuring their groundwater extractions, (2) reporting extractions to the State Water Board, and (3) paying groundwater extraction fees. Board staff recommends that most domestic household users (people who use two acre-feet or less per year for domestic purposes only) be exempt from reporting extractions and paying fees.

- Identify certain deficiencies (issues with the subbasin's current GSPs) and potential actions that the GSAs could take to address them.
- Require people who extract more than 500 acre-feet per year of groundwater from the subbasin to install and use meters to measure their groundwater extractions.
- Require people extracting groundwater from wells located in the Friant-Kern Canal and California Aqueduct Subsidence Management Areas to install and use meters to measure their groundwater extractions.

SGMA and State Intervention (Section 2)

SGMA established a framework for groundwater management in California. SGMA requires local public agencies in alluvial groundwater basins designated as high-priority and medium-priority by DWR, and subject to the Act, to form GSAs that must develop and implement GSPs. GSAs are responsible for achieving long-term sustainable management of their groundwater basins that avoids certain undesirable results and achieves sustainable groundwater management within 20 years.

When DWR, in consultation with the State Water Board, deems the GSP or GSPs in a high-priority or medium-priority basin inadequate, DWR refers the basin to the State Water Board for a determination as to whether to begin the state intervention process.¹ State intervention is additional to local management and intended to be temporary. It is a two-step process:

- The first step of state intervention under SGMA is for the State Water Board to determine, through a noticed public hearing, whether to place the basin on probation.
- In the second step, through an additional public process, the State Water Board may implement an interim plan for the basin. This can only happen if deficiencies are not fixed after at least one year of the basin being on probation.

In determining whether to put a basin on probation, the State Water Board analyzes whether deficiencies identified by DWR and Board staff were sufficiently addressed prior to the probationary hearing. As part of its analysis, and as reflected in State Water

¹ Wat. Code, § 10735

Board Resolution 2021-0050 Condemning Racism, Xenophobia, Bigotry, and Racial Injustice and Strengthening Commitment to Racial Equity, Diversity, Inclusion, Access and Anti-Racism, the State Water Board considers the impacts of basin non-compliance on vulnerable communities, including communities of color. This is a recognition that many of these communities are reliant on shallow wells, which can be the first to be affected by undesirable results as defined under the Act (e.g., chronic lowering of groundwater levels) and can be the least resourced to address such impacts.

Even if a basin is placed on probation, GSAs have time to resolve deficiencies identified in their GSPs before the state proceeds to active management in the basin. During the probationary period, the State Water Board collects data on groundwater extractions, collects fees from certain groundwater users, and may conduct additional investigations. Data collection helps the state to better evaluate conditions in the basin and SGMA mandates that the State Water Board collect fees in the probationary basin so that the costs of state intervention are not borne by basins that are in compliance or the public at large. Low-income residents, public schools, and public water systems or state small water systems that serve disadvantaged communities are eligible to request fee waivers, if they report extraction data by the reporting deadline. Importantly, the GSA retains its authorities and responsibilities during probation and there is no exemption in SGMA from the GSA continuing to implement its GSP.

Basin Description (Section 3)

Located in California's Central Valley in the southern portion of the San Joaquin Valley, the Kern County Subbasin (**Figure ES-1**) is bounded to the north by the Tulare Lake and Tule Subbasins, the west by the California Coastal Range, the south by the White Wolf Subbasin, and the east by the Sierra Nevada Mountains. The subbasin covers approximately 1,945,000 acres or about 3,040 square miles.²

The subbasin contains 65 localized urban areas listed in Section 3.4 and eight incorporated cities: Bakersfield, Delano, McFarland, Wasco, Shafter, Arvin, Taft, and Maricopa. According to the Census Block Group Data 2021, the Kern County Subbasin has an estimated population of 762,696 people. Most of the land within the subbasin and surrounding areas is used for growing crops and raising livestock. The primary land use designations for urban land are residential, commercial, and industrial. The Kern County Subbasin is currently, as of December 2024, managed by 20 GSAs, and the full list of member agencies can be found in Section 3.

Groundwater in the subbasin is used for drinking water, agriculture, wildlife habitat, industrial use, and oil and gas production. The subbasin contains several aquifers, which are bodies of rock and/or sand and soil that hold groundwater. These aquifers are

² DWR, 2016.

separated by layers of clay, which slow the movement of water between aquifers and can act as a barrier. Groundwater is the main source of water for agricultural and urban land uses, but surface water is also available as a resource. Surface water sources include Kern River, Poso Creek, and imported water.

For more information on the history, demographics, economy, governance context, groundwater levels, groundwater quality, and subsidence in the subbasin, please refer to Section 3 of this Final Staff Report.

Recommendations for State Water Board Action (Section 4)

SGMA states, “in those circumstances where a local groundwater management agency is not managing its groundwater sustainably, the State needs to protect the resource until it is determined that a local groundwater management agency can sustainably manage the groundwater basin or subbasin.” In March 2023, DWR determined the Kern County Subbasin 2022 GSPs to be inadequate. Board staff agreed with this determination.

Consideration of Groundwater Sustainability Plan Revisions

The Kern County Subbasin GSAs submitted seven new draft GSPs and a Coordination Agreement to the Board on May 28, 2024, collectively referred to here as the 2024 Draft Groundwater Sustainability Plans (2024 Draft GSPs). The plans were considered draft because they were undergoing public review and not adopted by the GSAs at the time of submission. Board staff conducted a full review of the 2024 Draft GSPs and determined that the GSPs did not sufficiently resolve all of the deficiencies that State Water Board staff identified in the Kern County Subbasin Probationary Hearing Draft Staff Report (Draft Staff Report).

The Kern County Subbasin GSAs also recently adopted seven new GSPs, and submitted these to the Board on December 16, 2024, which are referenced in the Final Staff Report as the 2024 Final GSPs (2024 Final GSPs). Board staff conducted a preliminary review to evaluate how well the GSAs addressed the deficiencies described in the Draft Staff Report. From the preliminary review, Board staff determined that the 2024 Final GSPs do not resolve all of the deficiencies. The Final Staff Report includes a 2024 Final GSP Evaluation section for each deficiency to summarize Board staff’s preliminary review. The Final Staff Report should be helpful to the GSAs when considering further GSP revisions.

While Board staff recognize that the GSAs made progress, especially in the topic areas of subsidence and interconnected surface water, staff still finds important deficiencies concerning the basin’s ability to reach sustainability. Specifically, staff notes that some important details regarding the monitoring networks for water levels and water quality

are missing and that sustainable management criteria could allow water levels to decline and water quality to degrade in such a way that significant and unreasonable impacts could occur.

Board staff recommends the State Water Board designate the subbasin as probationary, and finds the following:

The 2024 Draft GSPs would have allowed substantial impacts to people who rely on domestic wells for drinking, bathing, food preparation, and cleaning, as well as impacts to critical infrastructure such as canals (e.g., Friant-Kern Canal or California Aqueduct), levees, and the aquifer system itself within the subbasin. Preliminary review of the 2024 Final GSPs indicates that concerns remain. The impacts are likely to occur to an extent that the subbasin will be unable to prevent undesirable results, as required by SGMA. Therefore, the 2024 Draft GSPs even as revised in the 2024 Final GSPs appear unlikely to allow the subbasin to achieve sustainability by 2040. Designating the subbasin probationary is critical for getting the subbasin on track to avoid undesirable results and achieve sustainability by 2040.

Section 4 of the Final Staff Report explains Board staff recommendations for a potential probationary designation of the subbasin. These recommendations are summarized below.

GSP Deficiencies and Potential Actions to Address Deficiencies (Section 4.1)

This Staff Report incorporates deficiencies identified by DWR's 2022 GSP Inadequate Determination based on DWR's review of 2022 GSPs. Board staff also identified specific deficiencies in the Kern County Subbasin 2024 Draft GSPs and outlined potential corrective actions to address those deficiencies. Deficiencies that Board staff identified within the GSPs relate to:

- Coordination across the subbasin and GSAs.
- Chronic lowering of groundwater levels with insufficient management criteria.
- Continued land subsidence (sinking).
- Further degradation of groundwater quality.
- Depletion of interconnected surface water.

Board staff agreed with DWR that the coordination deficiencies from the 2022 GSPs effectively required that the subbasin redevelop undesirable results and sustainable management criteria (criteria GSAs will use to evaluate success and avoidance of undesirable results) for multiple sustainability indicators so that they are consistent across the GSAs and Management Areas.

Board staff reviewed the 2022 DWR Inadequate Determination, Kern County Subbasin 2024 Draft GSPs, and preliminarily reviewed the 2024 Final GSPs and the Coordination Agreement carefully to evaluate the progress in resolving the coordination deficiency,

which is broadly described in this section and described in detail for each sustainability indicator that it applies to in subsequent sections. Board staff recognizes that coordination among GSAs has substantially improved in the 2024 Draft GSPs and preliminary review of the 2024 Final GSPs. However, Board staff notes issues remain with the new, coordinated approaches for groundwater levels, and groundwater quality. Board staff will continue to evaluate the sufficiency of the 2024 Final GSPs' approach to subsidence and interconnected surface waters.

To end State Water Board intervention in a groundwater basin, GSAs in that basin must demonstrate to the State Water Board their ability and willingness to manage groundwater sustainably and address the issues that caused state intervention to occur. Ultimately, as noted above, the State Water Board will continue to evaluate any updated and adopted GSPs as a whole and will determine whether the GSAs have addressed the deficiencies, whether the GSPs are consistent with SGMA, and whether the GSAs are implementing the GSPs in a manner that the State Water Board finds will likely achieve sustainability in the subbasin.

Defining and Avoiding Undesirable Results Related to Coordination in the Subbasin (Deficiency CRD – Section 4.1.1)

Under SGMA, achieving sustainability requires a basin's GSAs to be coordinated and on track to meet the same sustainability goal. Since SGMA allows multiple entities to participate with and form GSAs to develop one or more GSPs, it is important for the GSAs to demonstrate that they are well-coordinated and using the same data and methodologies for setting sustainable management criteria and defining undesirable results.

Upon review of the 2024 Draft GSPs, Coordination Agreement, and preliminary review of the 2024 Final GSPs, Board staff finds that the GSAs have taken significant action in addressing DWR's coordination deficiencies by using consistent plain language and quantitative definitions for undesirable results, using coordinated methodologies and data for setting sustainable management criteria, and implementing a subbasin-wide minimum threshold exceedance policy. However, by addressing the fundamental coordination deficiencies (CRD-1a and CRD-1b), the subbasin has created other deficiencies that Board staff explains in greater detail in sections 4.1.2 through 4.1.4.

Board staff also finds that two of the deficiencies identified in the 2022 GSPs are not sufficiently addressed in the 2024 Draft GSPs or the 2024 Final GSPs after preliminary review, and may continue to hinder the subbasins progress towards sustainability. These coordination deficiencies include: (1) the GSAs do not explain how the multiple plans will satisfy SGMA requirements, particularly for Management Areas (CRD-2b) and (2) the GSAs in the subbasin have not demonstrated basin-wide management (CRD-3). As noted above, Section 4.1.1 includes a tentative evaluation (subject to change based

on continued staff review) of whether the 2024 Final GSPs address the remaining deficiencies.

Board staff describes the following coordination deficiencies that were not adequately addressed in the 2024 Draft GSPs, proposes potential actions to resolve the deficiencies, and describes the tentative evaluation of whether the 2024 Final GSPs resolve the deficiencies:

- **Deficiency (2024 Draft GSPs):** The Coordination Agreement, GSPs, and Management Area Plans lack key details necessary for coordinated implementation.

Potential Action: Revise methodologies that result in incompatible sustainable management criteria across various boundaries within the subbasin.

- **Tentative Evaluation (2024 Final GSPs):** This deficiency appears to be partially addressed. Methods used to develop groundwater level minimum thresholds and define undesirable results could lead to inconsistent outcomes across the subbasin, with beneficial users in some areas being disproportionately impacted.

- **Deficiency (2024 Draft GSPs):** GSAs in the subbasin have not demonstrated basin-wide GSA coverage.

Potential Action: Provide key details demonstrating adequate GSA coverage.

- **Tentative Evaluation (2024 Final GSPs):** This deficiency appears to be partially addressed. Board staff is further evaluating GSA coverage, including whether there is authority for asserted GSAs in some areas of the subbasin.

Defining and Avoiding Undesirable Results Related to Chronic Lowering of Groundwater Levels (Deficiency GL – Section 4.1.2)

Under SGMA, achieving the basin’s sustainability goal requires avoiding “chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon.”³ Declining groundwater levels can cause shallow wells to go dry or reduce their productivity, increase the energy costs of pumping, bring polluted water closer to well screens (the area where groundwater enters a well), reduce water available for deep-rooted plants, cause subsidence, and impact the structural integrity of wells. Declining groundwater levels also make it more difficult to avoid other related undesirable results caused by

³ Wat. Code, § 10721, subd. (x).

groundwater conditions, especially land subsidence, degradation of groundwater quality, reduction in storage, and depletions of interconnected surface water.

DWR concluded that the 2022 GSPs relied on inconsistent data and methodologies to define significant and unreasonable conditions in the subbasin and did not adequately establish what groundwater level conditions throughout the basin would result in significant and unreasonable impacts. DWR also concluded that the 2022 GSPs did not adequately or consistently establish the sustainable management criteria for the lowering groundwater levels consistent with the GSP regulations. In addition, DWR noted that the sustainable management criteria would likely result in significant and unreasonable impacts to wells and people who rely on them.

Board staff primarily identifies issues regarding: (1) the GSAs' proposed approach to addressing wells they allow to go dry (well impacts and mitigation plans) and (2) the feasibility of avoiding chronic lowering of groundwater levels with the projects and management actions proposed in the GSPs. Upon review of the 2024 Draft GSPs, Board staff found that in resolving the coordination issues described above (CRD-1a and CRD-1b), the GSAs created new issues with respect to groundwater level sustainable management criteria. Board staff also finds that the two other unresolved deficiencies identified from the 2022 GSPs by Board staff, in addition to a newly identified deficiency in the 2024 Draft GSPs, may continue to hinder the subbasin's progress towards sustainability. The chronic lowering of groundwater level deficiencies and sub-deficiencies specify issues related to: (1) sustainable management criteria, (2) monitoring, (3) mitigation plans, (4) water budgets and demand management, and (5) groundwater storage. Section 4.1.2 includes a tentative evaluation (subject to change based on continued staff review) of whether the 2024 Final GSPs address the remaining deficiencies.

Board staff describes the following deficiencies that were not adequately addressed in the 2024 Draft GSPs, proposes the following potential actions to address declining groundwater levels, and describes the tentative evaluation of whether the 2024 Final GSPs resolve the deficiencies:

- **Deficiency (2024 Draft GSPs):** GSPs do not establish undesirable results and sustainable management criteria for groundwater levels consistent with the requirements of SGMA.

Potential Action: The GSAs should revise sustainable management criteria to be consistent with the requirements of SGMA and protective of beneficial uses and users.

- **Tentative Evaluation (2024 Final GSPs):** This deficiency does not appear to be addressed. The GSAs did not take sufficient action to revise the undesirable result definition and sustainable management criteria consistent with the requirements of SGMA. This deficiency may impact the

GSAs' ability to achieve sustainability and avoid undesirable results in the subbasin.

- **Deficiency (2024 Draft GSPs):** The GSPs' groundwater level monitoring network and mitigation plans are incomplete.

Potential Action: Revise monitoring network and include construction details of monitoring wells. Re-evaluate the well impact analysis. Establish accessible, comprehensive, and appropriately funded well impact mitigation programs.

- **Tentative Evaluation (2024 Final GSPs):** This deficiency appears to be partially addressed. The GSPs identified some data gaps for shallow monitoring wells with a plan to address them within a year, but additional work to identify and address data gaps may be warranted. Monitoring well construction information (depths and screen intervals) is still missing. The GSPs include a mitigation plan that could repair or replace domestic wells impacted by declining water levels, but the feasibility of the mitigation plan is unclear because of technical issues with the well impact analysis and limited funding based on that analysis.
- **Deficiency (2024 Draft GSPs):** The GSPs do not describe a feasible path for halting chronic lowering of groundwater levels.

Potential Action: Re-evaluate water budgets and add detail to demand management plans.

- **Tentative Evaluation (2024 Final GSPs):** This deficiency appears to be partially addressed. The GSPs include additional water budget information but appear to lack key components and details. It remains unclear whether projects and management actions are enough to reach sustainable groundwater management.
- **Deficiency (2024 Draft GSPs):** The GSPs do not define groundwater storage sustainable management criteria consistent with SGMA requirements.

Potential Action: Revise groundwater storage sustainable management criteria.

- **Tentative Evaluation (2024 Final GSPs):** This deficiency does not appear to be addressed. The GSAs have not revised their methodology used to calculate groundwater storage.

Defining and Avoiding Undesirable Results Related to Land Subsidence (Deficiency LS – Section 4.1.3)

Another consideration under SGMA is avoiding “significant and unreasonable land subsidence that substantially interferes with surface land uses.”⁴ In the Central Valley, most subsidence, which is the sinking of land, is caused by over-pumping of groundwater. SGMA recognizes that land subsidence from excessive groundwater extraction can cause irreversible damage to infrastructure (bridges, roads, pipelines, canals, levees, and buildings) and aqueduct operations. Land subsidence can also diminish the storage capacity of an aquifer, which reduces the amount of groundwater storage available for the future.

In the Kern County Subbasin, subsidence is primarily caused by the removal of water from clay layers by groundwater extraction from the confined aquifer, which causes irreversible compaction and sinking of the land surface.

DWR determined that the 2022 GSPs did not adequately define sustainable management criteria for subsidence. DWR also noted that the 2022 GSPs continued to lack consistent data and methodologies when setting sustainable management criteria and describing the conditions throughout the subbasin that would cause undesirable results. Board staff also noted that the 2022 GSPs lacked a detailed and consistent analysis of the effects of subsidence in the subbasin on all beneficial uses, users, and infrastructure. Additionally, Board staff noted that GSPs did not provide key details on how plan implementation would prevent damage to infrastructure.

Upon review of the 2024 Draft GSPs, Board staff recognizes that the GSAs took action to identify critical infrastructure within the subbasin and refined the approach to establish undesirable results and sustainable management criteria. Data and methods for measuring subsidence were adopted consistently across the subbasin. A method for qualitatively (but not quantitatively) identifying subsidence attributable to GSA and non-GSA activities was developed using Interferometric Synthetic Aperture Radar (InSAR) time-series data. GSAs also developed a risk-based approach to establish sustainable management criteria. However, despite the progress that was made to address land subsidence in the subbasin, there are deficiencies with the plain-language and quantitative definitions for undesirable results and the minimum threshold exceedance policy which include:

- Inconsistencies in the sustainable management criteria that may stem from the methods used to establish them.
- GSAs have not demonstrated an ability to quantify their relative contribution to subsidence impacts to infrastructure.

⁴ Wat. Code, § 10721, subd. (x).

- A lack of detailed plans to reduce risk and mitigate the impacts of subsidence to infrastructure.

Section 4.1.3 includes a tentative evaluation (subject to change based on continued staff review) of whether the 2024 Final GSPs address the remaining deficiencies.

Board staff describes the following deficiencies that were not adequately addressed by the 2024 Draft GSPs, proposes potential actions to address subsidence, and describes the tentative evaluation of whether the 2024 Final GSPs resolve the deficiencies:

- **Deficiency (2024 Draft GSPs):** GSPs do not establish undesirable results and sustainable management criteria consistent with the requirements of SGMA.

Potential Action: Redevelop undesirable results and sustainable management criteria using consistent data, methods, and adequate detail for implementation throughout the subbasin, such that they are protective of all beneficial uses and users.

- **Tentative Evaluation (2024 Final GSPs):** This deficiency appears to be partially addressed. The updated plain-language undesirable result definition is improved. Minimum thresholds appear to protect critical canals. Sustainable management criteria for subsidence trend to zero as they approach 2040. However, 2040 interim milestones exceed measurable objectives in some areas near canals and other critical infrastructure, which is not technically feasible and requires adjustments.

- **Deficiency (2024 Draft GSPs):** GSPs do not provide adequate implementation details.

Potential Action: Develop and implement plans to limit groundwater extractions near critical infrastructure. Do not allow new non-de minimis wells near critical infrastructure. Develop plans to mitigate damage caused by subsidence.

- **Tentative Evaluation (2024 Final GSPs):** This deficiency does not appear to be addressed. The GSAs developed a subsidence action plan to investigate subsidence threshold exceedances, but actions triggered by this plan do not include repairs or retrofitting for infrastructure. The GSAs' subsidence mitigation plan is specifically for addressing impacts on drinking water wells. The GSPs do not address how groundwater extracted for oil and gas operations will be managed to ensure subsidence does not worsen.

Defining and Avoiding Undesirable Results Related to Degraded Groundwater Quality (Deficiency GWQ – Section 4.1.4)

Another consideration under SGMA is avoiding “significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water

supplies.”⁵ Degradation of water quality can limit local water supplies and beneficial uses, and SGMA requires GSAs to consider the interests of all beneficial uses and users of groundwater, especially drinking water users.⁶ Water quality degradation that significantly and unreasonably affects the supply or suitability of groundwater for use in drinking water systems is an undesirable result.

DWR did not define the degradation of groundwater quality as a deficiency for the 2022 GSPs. However, DWR staff did note that GSPs should include descriptions explaining the relationship between groundwater levels and other sustainability indicators, specifically groundwater quality. As mentioned above, DWR staff noted that the fragmented approach used to set sustainable management criteria for all sustainability indicators used inconsistent data and methodologies. Board staff reviewed the 2024 Draft GSPs and have additional concerns about: (1) the monitoring network of wells that will be used to evaluate water quality and whether it is sufficient to protect all beneficial users and (2) implementation and mitigation details (how GSAs will address water quality issues if minimum threshold exceedances occur). Board staff also recommends a mitigation plan for the entire subbasin to address water quality issues that arise and ensure continued access to clean and affordable drinking water.

Board staff recognizes that the 2024 Draft GSPs include actions to address concerns raised by DWR and Board staff related to the degradation of groundwater quality. However, Board staff has identified three deficiencies in the 2024 Draft GSPs related to: (1) sustainable management criteria, (2) monitoring, and (3) management actions and mitigation plans. Section 4.1.4 includes a tentative evaluation (subject to change based on continued staff review) of whether the 2024 Final GSPs address the remaining deficiencies.

Board staff describes the following deficiencies that were not adequately addressed in the 2024 Draft GSPs, proposes potential actions to address degradation of groundwater quality, and describes the tentative evaluation of whether the 2024 Final GSPs resolve the deficiencies:

- **Deficiency (2024 Draft GSPs):** GSPs do not establish undesirable results and sustainable management criteria for degradation of groundwater quality consistent with the requirements of SGMA.

Potential Action: Revise the undesirable result and sustainable management criteria to be consistent with the requirements of SGMA and protective of beneficial uses and users.

- **Tentative Evaluation (2024 Final GSPs):** This deficiency does not appear to be addressed. The GSPs still allow significant and

⁵ Wat. Code, § 10721, subd. (x).

⁶ Wat. Code, § 10723.2.

unreasonable degradation of water quality before an undesirable result is triggered. The GSPs propose to determine whether impacts to water quality are for the GSAs to address based on methods that do not adequately characterize the driving mechanisms of water quality degradation.

- **Deficiency (2024 Draft GSPs):** The GSPs' groundwater quality monitoring network is insufficient and does not consider all beneficial uses and users in the subbasin.

Potential Action: Clearly describe how groundwater quality will be monitored for all types of beneficial uses and users and update the monitoring network where monitoring gaps may be present.

- **Tentative Evaluation (2024 Final GSPs):** This deficiency does not appear to be addressed. Monitoring well construction information (depths and screen intervals) is still missing, so staff cannot evaluate the effectiveness of the monitoring network. It is unclear how potential water quality impacts from projects and management actions will be evaluated.
- **Deficiency (2024 Draft GSPs):** The GSPs do not include adequate actions to respond to groundwater quality minimum threshold exceedances.

Potential Action: Develop methods to determine the impact of a minimum threshold exceedance to beneficial uses and users, including additional sampling necessary to understand the extent of the impact. Describe how the public will be notified should a minimum threshold exceedance occur. Develop clear plans to restore access to clean drinking water when water quality degrades below drinking water standards.

- **Tentative Evaluation (2024 Final GSPs):** This deficiency appears to be partially addressed. The new mitigation plan includes mitigation for domestic wells impacted by water quality degradation. However, the GSPs' exceedance policy for water quality lacks clear timelines.

Defining and Avoiding Undesirable Results Related to Interconnected Surface Water (Deficiency ISW – Section 4.1.5)

Another consideration under SGMA is avoiding “[d]epletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial use of the surface water.”¹⁰ Interconnected surface water is surface water that is hydraulically connected at any point by a continuous saturation zone to the underlying aquifer. Groundwater and surface water are often connected. As a result, groundwater pumping can reduce the amount of water that flows in rivers and streams. Depletions of interconnected surface water within the basin may have negative impacts on surface

water uses, such as degradation or loss of groundwater dependent ecosystems and reduced downstream surface water flow to users.

The GSP regulations state “[a]n Agency that is able to demonstrate that undesirable results related to one or more sustainability indicators are not present and are not likely to occur in a basin shall not be required to establish criteria for undesirable results related to those sustainability indicators.” The 2022 GSPs claimed that there is no interconnected surface water in the basin and therefore did not establish sustainable management criteria, and DWR did not identify a deficiency associated with interconnected surface water. Upon review of the 2024 Draft GSPs and Coordination Agreement, Board staff recognized that the GSAs used coordinated and consistent methodologies to identify interconnected surface water. However, Board staff concluded that the GSPs did not use best available data to analyze interconnected surface water and therefore did not adequately justify an approach for identifying and defining interconnected surface water in accordance with best management practices and SGMA. From the review of the 2024 Draft GSPs, it was unclear if interconnected surface waters, ephemeral or perennial (seasonal or continuous), were present and whether sustainable management criteria and monitoring networks should be developed to meet the requirements of SGMA. Section 4.1.5 includes a tentative evaluation (subject to change based on continued staff review) of whether the 2024 Final GSPs address the remaining deficiencies.

Board staff describes the following deficiencies that were not adequately addressed in the 2024 Draft GSPs, proposes potential actions to address depletion of interconnected surface water, and describes the tentative evaluation of whether the 2024 Final GSPs resolve the deficiencies:

- **Deficiency (2024 Draft GSPs):** GSAs do not adequately demonstrate that undesirable results related to the depletion of interconnected surface water are not present and are not likely to occur

Potential Action: Use best available data and DWR’s Best Management Practices for identification of interconnected surface water and groundwater dependent ecosystems to better understand possible influences from groundwater management practices in the subbasin.

- **Tentative Evaluation (2024 Final GSPs):** This deficiency appears to be addressed. The GSPs satisfactorily describe the methodology used to conclude the absence of interconnected surface water in the subbasin.
- **Conditional Deficiency (2024 Draft GSPs):** The GSPs exclude plans to avoid significant and unreasonable impacts related to interconnected surface water. If GSAs identify interconnected surface water, using the best available data and correct definition of interconnected surface water, then the lack of a plan to avoid significant and unreasonable impacts is a deficiency.

Conditional Potential Action: If GSAs identify interconnected surface water, then the GSPs should be revised to avoid significant and unreasonable impacts related to interconnected surface water.

- **Tentative Evaluation (2024 Final GSPs):** This conditional deficiency does not appear applicable if the 2024 Final GSPs adequately demonstrate that interconnected surface water does not exist in the subbasin.

Additional Staff Recommendations for State Water Board Action (Sections 4.2-4.4)

Exclusions from Probationary Status or Reporting Requirements

SGMA directs the State Water Board to exclude from probationary status any portion of the basin for which a GSA demonstrates compliance with the sustainability goal.⁷ Board staff does not recommend any GSAs for probationary exclusion at this time.

The Board may also exclude a class or category of extractions from the reporting requirement if those extractions are subject to a local plan or program that adequately manages groundwater or if those extractions are likely to have minimal impact on basin withdrawals.⁸ Based on preliminary review of the 2024 Final GSPs, staff does not recommend that any GSA or category or class of extractors, other than de minimis extractors, be excluded from the requirement to report groundwater extractions and pay fees. Staff will continue to review the 2024 Final GSPs and any new materials provided to determine whether exclusions may be appropriate.

Water Year and Reporting Dates

The “water year” is the period of October 1 to September 30. For basins designated probationary, SGMA requires groundwater extraction data for the preceding water year be submitted to the State Water Board by February 1 of each year (Wat. Code, § 5202, subd. (b)).

Board staff does not recommend modifying the water year for reporting of extractions and does not recommend modifying the extraction reporting deadline for groundwater extraction reports. If the State Water Board designates the subbasin probationary on February 20, 2025, pumpers would start recording extractions on May 21, 2025 and would file their first report of groundwater extraction on or before February 1, 2026.

⁷ Wat. Code, § 10735.2, subd. (e).

⁸ Wat. Code, § 10735.2, subd. (c).

Requirements for Installation and Use of Measuring Devices

As part of a probationary designation, the State Water Board may require groundwater extraction reporters to install and use measuring devices, such as flow meters, for measuring their groundwater extractions.

State Water Board staff recommends the State Water Board:

- Require groundwater extraction reporting and paying fees for: (1) any person extracting more than two acre-feet per year for any reason and (2) any person extracting two or fewer acre-feet of groundwater per year for any reason other than domestic purposes.
- Exclude any person who extracts two acre-feet or less per year for domestic uses only (de minimis users) from reporting requirements and paying fees. This exception includes most household users, including de minimis users located in the California Aqueduct and Friant-Kern Canal Subsidence Management Areas.
- Require any person extracting more than 500 acre-feet per year from the subbasin to install and use meters that meet the requirements of California Code of Regulations, title 23, section 1042 on all their production wells within the subbasin.
- Require non-de minimis users extracting groundwater from the wells located in the California Aqueduct and Friant-Kern Canal Subsidence Management Areas to install and use meters that meet the requirements of California Code of Regulations, title 23, section 1042.

Public Process, Tribal Consultation and Engagement, and Draft Staff Report Comments

The State Water Board has been performing public outreach and engagement during the state intervention process for the Kern County Subbasin. As part of this effort, Board staff contacted California Native American Tribes, drinking water systems, cities and counties, and approximately 1,800 parcel owners in the subbasin.

The State Water Board hosted an online public workshop on August 26, 2024, and an in-person public workshop in Bakersfield on August 29, 2024. During the workshops, Board staff shared information about the state intervention process and gathered public input. Spanish and Punjabi language interpretation was provided during the workshops.

Board staff released a Draft Staff Report on July 25, 2024, and accepted written public comments on the report for 60 days. Copies of public comments are available upon request. Changes have been made to the Staff Report based on some of the comments

received. The written responses to comments and detailed information regarding the public participation process are provided in Appendix C.

Conclusion

Despite significant efforts made by the Kern County Subbasin GSAs, Board staff's evaluation of the 2024 Draft and 2024 Final GSPs identifies that deficiencies remain. Most were previously included in the Draft Staff Report and DWR's inadequate determination of the 2022 GSPs. Due to insufficiently implemented sustainable management criteria across sustainability indicators, Board staff's preliminary conclusion is that the 2024 Draft and 2024 Final GSPs will not achieve sustainability or prevent substantial impacts to communities who rely on domestic wells and to critical infrastructure. The Kern County Subbasin is therefore unlikely to achieve sustainability by 2040, as required by SGMA.

Addressing deficiencies related to chronic lowering of groundwater levels and groundwater quality degradation is also consistent with the State Water Board's goal to ensure every Californian has safe and affordable drinking water as reflected in its commitment to the Human Right to Water and administration of the Safe and Affordable Drinking Water Fund.

Board staff recommends probationary status as a next step for gathering necessary information, helping the subbasin achieve sustainability, and protecting groundwater resources for the communities, farms, and environmental resources that depend on them.

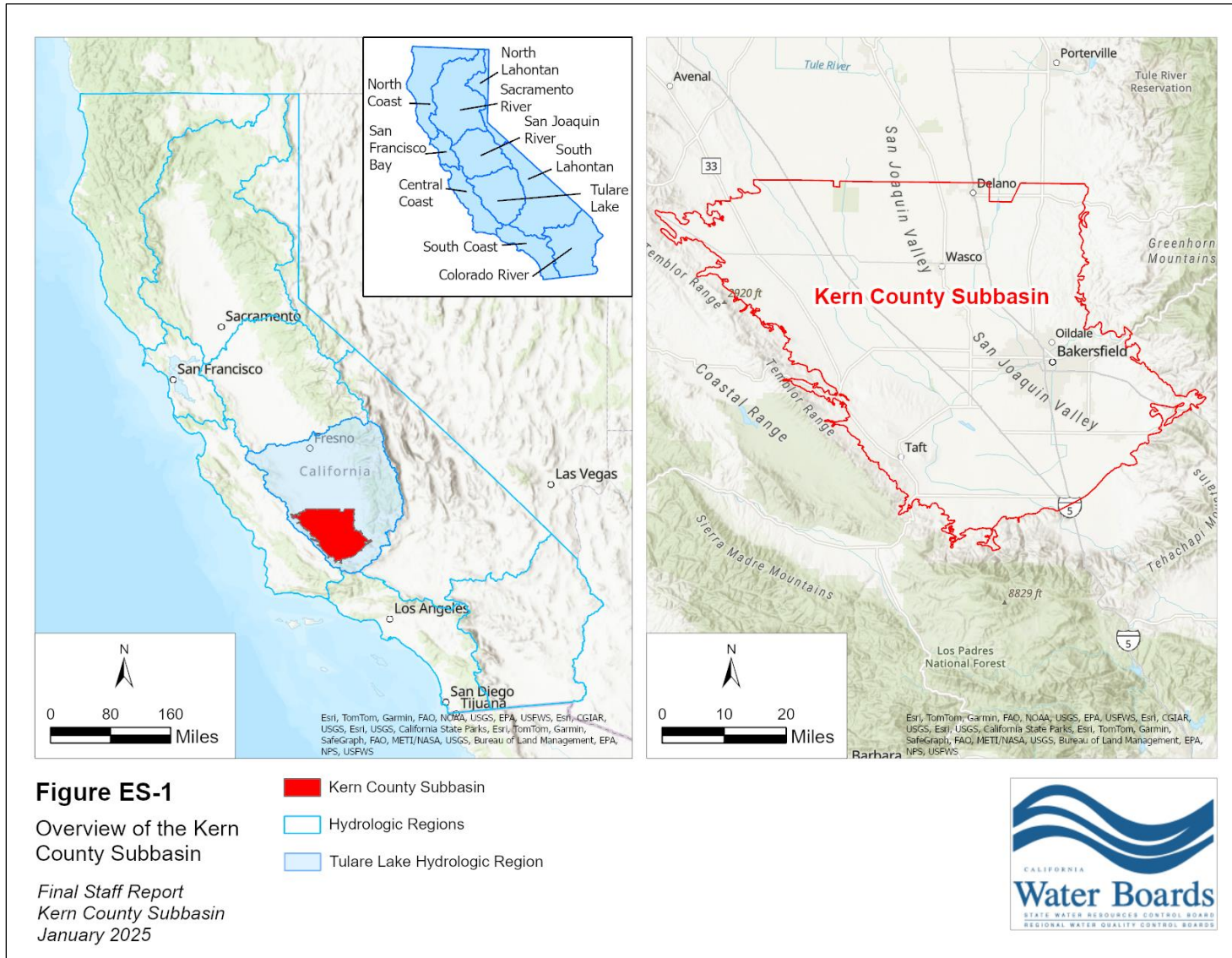


Figure ES-1: Location of the Kern County Subbasin