

TULE SUBBASIN PROBATIONARY HEARING FINAL STAFF REPORT

Appendix A – Summary Table of Proposed Deficiencies and Potential Actions to Address Deficiencies

AUGUST 2024

Deficiency	What SGMA Requires	Deficiency Summary	Potential Actions to Correct the Deficiency
<p>Deficiency Groundwater Levels (GL)-1 – The 2022 GSPs plain-language undesirable results do not clearly describe the impacts from groundwater level decline that would constitute a “lack of access to water supplies.”</p>	<p>The GSP Regulations require a GSA to describe the “Potential impacts on the beneficial uses and users of groundwater, on land uses and property interests, and other potential effects that may occur or are occurring from undesirable results” (Cal. Code Regs., tit. 23, § 354.26, subd. (b)(3)).</p>	<p>DWR Inadequate Determination summary:</p> <p>The revised qualitative undesirable result was defined as the “continued chronic lowering of groundwater levels below those needed to accommodate continued pumping during the transitional period of temporary overdraft...” or “...lack of access to water supplies for all beneficial uses and users due to lowered groundwater levels...” (2022 Coordination Agreement, Section 4.3.1). The quantitative undesirable result was defined as the “lowering of the groundwater elevation below the MT at an RMS in any given GSA for the area and beneficial uses and users associated with the RMS.” As DWR notes in their 2022 Inadequate Determination, the GSPs indicate that 776 wells would be impacted if groundwater levels declined to MTs, so it is not clear how the GSP quantifies “lack of access to water supplies.”</p> <p>Board additional issues:</p> <p>None.</p> <p>Tentative Evaluation:</p> <p>This deficiency appears to have been mostly addressed.</p>	<p>Potential Action GL-1 –</p> <p>Clearly describe the impacts from groundwater level decline that would constitute a “lack of access to water supplies” in the definition of undesirable results.</p>
<p>Deficiency GL-2 – The Tri-County Water Authority GSP quantitative undesirable result definition is unclear and inconsistent with the Coordination Agreement.</p>	<p>The GSP Regulations require the criteria for undesirable results be “based on a quantitative description of the combination of MT exceedances that cause significant and unreasonable effects in the basin” (Cal. Code Regs., tit. 23, § 354.26, subd. (b)(2)). Moreover, GSAs choosing to develop multiple GSPs “shall enter into a coordination agreement to ensure that the Plans are developed and implemented utilizing the same data and methodologies and that elements of the Plans necessary to achieve the sustainability goal for the basin are based upon consistent interpretations of the basin setting” (Cal. Code Regs., tit. 23, § 357.4, subd. (a)).</p>	<p>DWR Inadequate Determination summary:</p> <p>The 2022 TCWA GSP Addendum does not include a quantitative undesirable result definition. It is not clear that the 2022 TCWA Addendum adopts the Coordination Agreement quantitative undesirable result definition, because the qualitative undesirable result defined in the Addendum differs from the qualitative undesirable result in the Coordination Agreement.</p> <p>Board additional issues:</p> <p>None.</p> <p>Tentative Evaluation:</p> <p>This deficiency appears to have partially been addressed. The format for the Tri-County Water Authority GSP’s quantitative undesirable result for groundwater levels corresponds with that of the Coordination Agreement. However, the values do not agree. The Coordination Agreement defines the quantitative undesirable result for groundwater levels as either 3 MT exceedances or 38 dry wells in a year. In contrast, the Tri-County Water Authority’s GSP describes the undesirable result as 5 MT exceedances or 54 dry wells in a year.</p>	<p>Potential Action GL-2 – The Tri-County Water Authority GSP should include a quantitative undesirable result. Tule portion of GSA should be managed by GSP consistent with Tule subbasin.</p>

Deficiency	What SGMA Requires	Deficiency Summary	Potential Actions to Correct the Deficiency
<p>Deficiency GL-3 – The GSPs use modeled rather than observed 2015 groundwater levels to identify wells that were already impacted before SGMA.</p>	<p>The GSP Regulations require that description of undesirable results include discussion of the “potential effects on the beneficial uses and users of groundwater” (Cal. Code Regs., tit. 23, § 354.26, subd. (b)(1)), “based on information described in the basin setting, and other data or models as appropriate” (Cal. Code Regs., tit. 23, § 354.26, subd. (b)(1)).</p>	<p>DWR Inadequate Determination summary:</p> <p>The GSPs use modeled, rather than observed, 2015 groundwater elevations to estimate the number of wells that would have already been impacted before SGMA. The GSPs identify these wells as part of their analysis of the impacts of undesirable results on beneficial uses and users of groundwater.</p> <p>Board additional issues:</p> <p>None.</p> <p>Tentative Evaluation:</p> <p>This deficiency appears to have been addressed.</p>	<p>Potential Action GL-3 – Use observed 2015 groundwater levels to identify wells may have been impacted before SGMA.</p>

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<p>Deficiency GL-4 – GSPs do not provide a reasonable path to achieve sustainability goal by 2040.</p>	<p>The GSP Regulations requires for “an explanation of how the sustainability goal is likely to be achieved within 20 years of Plan implementation and is likely to be maintained through the planning and implementation horizon” (Cal. Code Regs., tit. 23, § 354.24). The sustainability goal is “the existence and implementation of one or more groundwater sustainability plans that achieve sustainable groundwater management by identifying and causing the implementation of measures targeted to ensure that the applicable basin is operated within its sustainable yield.” (Wat. Code § 107.21 subd. (u)).</p>	<p>DWR Inadequate Determination summary:</p> <p>DWR finds that the 2022 Coordination Agreement describes expected groundwater pumping to exceed 400,000 acre-feet per year after the 20-year implementation period for SGMA (2020-2040). This exceeds the subbasin’s 130,000 acre-feet per year sustainable yield, which means that the current GSPs do not provide a reasonable path to achieve sustainability by 2040.</p> <p>Board issues:</p> <ul style="list-style-type: none"> • While Board staff acknowledge and appreciate the substantial efforts of the Tule subbasin GSAs to establish groundwater allocations, Board staff also note concerns with the subbasin’s allocation plans: It does not appear to Board staff that allocation plans rely on adaptive management. Allocations appear to be scheduled over time based on modeled transitional pumping. • Eastern Tule GSA’s Groundwater Accounting Action includes a Precipitation Credit based on a running long-term average of precipitation in the ETGSA area, which may overestimate precipitation as climate change increases the frequency, duration, and intensity of drought. • The Groundwater Accounting Action applies to the Greater Tule Management Area, and the ETGSA 2022 GSP states that a groundwater accounting management action is “to be determined” for the Kern Tulare Water District Management Area. • Staff note that the only pumping reductions planned for the DEID GSA area apply to the Western Management Area, which consists of 7,554 acres of “white lands”. The DEID 2022 GSP does not propose transitional pumping or demand reduction actions in the DEID Management Area. <p>Tentative Evaluation:</p> <p>This deficiency appears to have been partially addressed. The goals appear to achieve sustainability. Board staff is still evaluating whether the plans provide a reasonable path to reach sustainability. At this time, Board staff believes that GSPs must provide at least additional information about groundwater allocations.</p>	<p>Potential Action GL-4a – Further investigate the water budget and update the GSPs accordingly.</p> <p>Potential Action GL-4b – Update GSPs with details necessary to evaluate the feasibility of proposed supply augmentation projects.</p> <p>Potential Action GL-4c – GSPs should identify groundwater levels at key indicator wells in each aquifer that will trigger specific demand management actions, ensuring sufficient spatial coverage to represent beneficial uses and users in each aquifer.</p> <p>Potential Action GL-4d – Track how allocation and trading may be affecting achievement of the sustainability goal or beneficial uses or users.</p>

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<p>Deficiency GL-5 – The 2022 GSPs Minimum Thresholds do not clearly represent undesirable results.</p>	<p>The GSP Regulations require that MTs “for chronic lowering of groundwater levels shall be the groundwater elevation indicating a depletion of supply at a given location that may lead to undesirable results” (Cal. Code Regs., tit. 23, § 354.28, subd. (c)(1)).</p>	<p>DWR Inadequate Determination summary:</p> <p>The 2022 defined minimum thresholds do not clearly represent undesirable results, as the 2022 GSPs do not clearly define undesirable results. Instead, MTs often represent projected, future groundwater elevations.</p> <p>In 2020 Incomplete Determination, DWR noted that MTs were based on groundwater modeling results rather than elevations that indicated “depletion of supply... that may lead to undesirable results”. DWR’s Inadequate Determination noted that GSPs still often established MTs based on groundwater projections.</p> <p>Board additional issues:</p> <p>Board Staff concur and further clarify that model results or other projections can be used to establish MTs that represent realistic water surfaces provided that the MTs clearly represent the depletion of supply that may cause undesirable results.</p> <p>Tentative Evaluation:</p> <p>This deficiency appears to have been addressed. Board staff still needs to replicate the GSA’s analysis to confirm impacts.</p>	<p>Potential Action GL-5 – Set Minimum Thresholds that represent undesirable results rather than projected groundwater elevations.</p>

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<p>Deficiency GL-6 – The number of impacted wells differs between the Coordination Agreement and the Delano-Earlimart Irrigation District GSP.</p>	<p>The GSP Regulations require multiple agencies producing GSPs for a subbasin to enter into a coordination agreement “to ensure that the plans are developed and implemented utilizing the same data and methodologies, and that elements of the Plans necessary to achieve the sustainability goal for the basin are based upon consistent interpretations of the basin setting” (Cal. Code Regs., tit. 23, § 357.4, subd. (a)). The GSP Regulations also require that MTs “for chronic lowering of groundwater levels shall be the groundwater elevation indicating a depletion of supply at a given location that may lead to undesirable results” (Cal. Code Regs., tit. 23, § 354.28, subd. (c)(1)) and that description of undesirable results include “potential effects on the beneficial uses and users of groundwater” (Cal. Code Regs., tit. 23, § 354.26, subd. (b)(1)).</p>	<p>DWR Inadequate Determination summary:</p> <p>GSPs and the Coordination Agreement should consistently present estimates of wells that may be dewatered at groundwater levels corresponding to sustainable management criteria. The revised 2022 DEID GSP indicates that MTs would impact 28 wells, the revised Coordination Agreement indicates the MTs would impact only 8 wells. Furthermore, while the DEID GSP distinguishes between upper and lower aquifer wells, there is no such distinction in the Coordination Agreement, exacerbating the discrepancy.</p> <p>Board additional issues:</p> <p>None.</p> <p>Tentative Evaluation:</p> <p>This deficiency appears to have not been addressed. DEID consider 238 wells in their analysis and found ten wells likely to be impacted at MT. The Tule subbasin-wide analysis considered 246 wells in their analysis and found eight DEID wells likely to be impacted at MT.</p>	<p>Potential Action GL-6 – Resolve the discrepancy between the Coordination Agreement and the Delano-Earlimart Irrigation District GSP.</p>
<p>Deficiency GL-7 – The Tri-County Water Authority GSP does not explain how it chose the 90th percentile threshold for well completion elevations as the Minimum Threshold for upper aquifer wells.</p>	<p>The GSP Regulations require that the description of MTs includes “the information and criteria relied upon to establish and justify the minimum thresholds for each sustainability indicator” (Cal. Code Regs., tit. 23, § 354.28, subd. (b)(1)). Furthermore, there should be description for “how the Agency has determined that basin conditions at each minimum threshold will avoid undesirable results for each of the sustainability indicators” (Cal. Code Regs., tit. 23, § 354.28, subd. (b)(2)).</p>	<p>DWR Inadequate Determination summary:</p> <p>The DWR Inadequate Determination noted that the Tri-County Water Authority GSA does not explain why it uses a 90th percentile threshold to establish MTs. The 90th percentile threshold means that MTs would protect at least 90 percent of wells completed in the upper aquifer). Because the GSP does not clarify the qualitative undesirable result, it’s not clear why a 90th percentile threshold is used.</p> <p>Board additional issues:</p> <p>None.</p> <p>Tentative Evaluation:</p> <p>This deficiency appears to have been addressed. Board staff still needs to replicate the GSA’s analysis to confirm impacts.</p>	<p>Potential Action GL-7a – Clearly describe the impacts from groundwater level decline that would constitute a “lack of access to water supplies” in the definition of undesirable results.</p> <p>Potential Action GL-7b – Set MTs that represent undesirable results rather than projected groundwater elevations.</p>

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<p>Deficiency GL-8 – The well mitigation framework provided in the GSPs lacks necessary detail.</p>	<p>Although SGMA and the GSP Regulations do not require development of a well impact mitigation plan, many GSAs have proposed to couple such plans with MTs to allow for greater groundwater level declines while avoiding undesirable results. The 2022 Coordination Agreement states that “during the transition period between 2020 and 2040, each GSA will adopt a Mitigation Program or Programs” (2022 Coordination Agreement, p. 49).</p>	<p>DWR Inadequate Determination summary:</p> <p>The mitigation framework included in the 2022 GSPs and Coordination Agreement does not provide enough detail about how and when impacted wells would be mitigated. DWR also expresses concern that the mitigation framework may rely on modeled rather than observed pre-SGMA groundwater elevations to potentially exclude wells.</p> <p>Board additional issues:</p> <p>Board staff notes that some wells are excluded from mitigation. Wells should not be excluded from mitigation unless they have been continuously impacted since before SGMA. Board staff clarify, however, that it may be reasonable for GSAs to use imperfect estimations of wells impacted before SGMA to inform cost or impact analyses, so long as these estimations are not used as a basis to deny mitigation.</p> <p>Tentative Evaluation:</p> <p>This deficiency appears to have been partially addressed. Board staff is concerned that there does not appear to be a plan to restore water to communities that rely on public or community wells.</p>	<p>Potential Action GL-8 – Establish accessible, comprehensive, and appropriately funded well impact mitigation programs that mitigate impacts to wells affected by lowering of groundwater levels and and/or degradation of water quality. Develop well mitigation programs with clear triggers, eligibility requirements, metrics, and funding sources.</p>

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<p>Deficiency GL-9 – There are inconsistencies in the description of the proposed groundwater level monitoring network between the text, tables, and maps of the 2022 Coordination Agreement. Questions we have:</p> <ul style="list-style-type: none"> ○ Which wells? ○ Which aquifers? ○ Adequate? ○ Composite? ○ Rationale? 	<p>The GSP Regulations require that all GSPs include description of the “location and type of each monitoring site within the basin displayed on a map, and reported in tabular format, including information regarding the monitoring site type, frequency of measurement, and the purposes for which the monitoring site is being used” (Cal. Code Regs., tit. 23, § 354.34, subd. (h)).</p>	<p>DWR Inadequate Determination summary: None.</p> <p>Board additional issues: Board staff notes that there are discrepancies between the text, tables, and maps in the description of the groundwater level monitoring network in the 2022 Coordination Agreement. Board staff notes that GSAs are using composite wells as RMSs. Composite wells that contain screen perforation intervals across multiple aquifers are not ideal groundwater level RMSs and may degrade groundwater quality by providing conduits for constituents to travel between aquifers.</p> <p>Tentative Evaluation: This deficiency appears to have been mostly addressed. Board staff does identify some wells that appear in the monitoring network map (Figure A1-2) that do not appear to correspond with wells in the tables (Tables A1-1 and A1-2). Examples are provided in the text of Section 4.1.1.</p>	<p>Potential Action GL-9 – Resolve monitoring network discrepancies in the Coordination Agreement text, figures, and tables.</p>

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<p>Deficiency Land Subsidence (LS)-1 - The 2022 GSPs do not clearly describe subsidence conditions that would reasonably be expected to cause undesirable results.</p>	<p>The GSP Regulations require a GSA to “describe...the processes and criteria relied upon to define undesirable results applicable to the basin.” This description must include the cause of past or potential undesirable results, “the criteria used to define when and where the effects of the groundwater conditions cause undesirable results,” and the potential effects of undesirable results on groundwater uses and users, land uses, and property interests (Cal. Code Regs., tit. 23, § 354.26).</p>	<p>DWR Inadequate Determination summary: The 2022 Coordination Agreement indicates that ongoing subsidence at current rates would not cause undesirable results for “low priority land uses” and therefore fails to establish reasonable subsidence SMC. The GSAs “determined that the forecasted land subsidence during the transition period, which was of a similar magnitude to what had been historically measured, was not anticipated to result in undesirable results to land uses or critical infrastructure because no undesirable results had previously been reported as a result of historical land subsidence in those areas.” This is problematic, because the 2022 GSP used this determination to establish quantitative undesirable result definitions and associated MTs that allowed continued subsidence at near-current rates. In addition to not quantifying the undesirable results for areas of the Subbasin not adjacent to the Friant-Kern Canal, “the GSAs have also not defined the criteria for when undesirable results occur in the Subbasin”.</p> <p>Board additional issues: None.</p> <p>Tentative Evaluation: This deficiency appears to have been addressed.</p>	<p>Potential Action LS-1 – Clearly define the subsidence conditions that would result in an undesirable result for the basin and provide enough detail that associated MTs can be determined (Cal. Code Regs., tit. 23 § 354.28).</p>

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<p>Deficiency LS-2 - The GSAs did not set Minimum Thresholds in accordance with DWR Regulations.</p> <ul style="list-style-type: none"> • Deficiency LS-2a – Minimum Thresholds were not established based on avoiding undesirable results. • Deficiency LS-2b – Some MTs appear to exceed subsidence limits set in other pre-existing agreements and there are MT discrepancies between documents. 	<p>The GSP Regulations state that MTs for land subsidence should identify the rate and extent of subsidence that substantially interferes with surface land uses and may lead to undesirable results. These quantitative values should be supported by:</p> <p>The identification of land use or property interests potentially affected by land subsidence</p> <p>An explanation of how impacts to those land use or property interests were considered when establishing minimum thresholds</p> <p>Maps or graphs showing the rates and extents of land subsidence defined by the minimum thresholds (Cal. Code Regs., tit. 23, § 354.28, subd. (c)(5)).</p> <p>MOs for land subsidence must be based on the same metrics and monitoring sites used for MTs. MOs must “provide a reasonable margin of operational flexibility under adverse conditions” (Cal. Code Regs., tit. 23, § 354.30, subd. (c) & (d)).</p>	<p>DWR Inadequate Determination summary:</p> <p>The DWR Inadequate Determination found that “the Plan does not quantify the amount of land subsidence that would result in undesirable results for areas not adjacent to the [Friant-Kern] Canal”.</p> <ul style="list-style-type: none"> • LS-2a - The DWR Inadequate Determination found that “the GSAs have not identified a cumulative amount of tolerable subsidence that, if exceeded, would substantially interfere with groundwater and land surface beneficial uses and users in the Subbasin” Instead, the 2022 GSP established MTs for areas not adjacent to the Friant-Kern Canal based on the unsupported claim that the current rate of subsidence could continue through 2040 without causing undesirable results. Moreover, the GSPs MTs for “low priority land uses,” which they define as “highways and bridges, railroads, other pipelines, wastewater collection, utilities, and buildings,” are based on the unsupported claim that “low priority land uses” would not be impacted by ongoing subsidence at current rates. These “low priority land use” MTs are therefore based on projections of anticipated subsidence through 2040 at near-current rates rather than on avoiding significant and unreasonable impacts. • LS-2b - The DWR Inadequate Determination notes that MTs for multiple RMS appear to exceed the maximum subsidence allowed along the Friant-Kern Canal (3 ft), according to the agreement between Friant Water Authority and Eastern Tule and Pixley GSAs. <p>Board additional issues:</p> <ul style="list-style-type: none"> • LS-2a – None. • LS-2b – The Eastern Tule GSA GSP lists different subsidence MTs than those listed in the WY 2022 Annual Report, making it difficult for Board staff to evaluate MT values and subsidence conditions. <p>Tentative Evaluation:</p> <p>This deficiency appears to have been addressed.</p>	<p>Potential Action LS-2a – Define and clearly list Minimum Thresholds based on the level of subsidence at each RMS that would cause the undesirable results conditions that the GSAs are trying to avoid.</p> <p>Potential Action LS-2b – Ensure Minimum Thresholds conform with current agreements with other agencies and match between documents.</p>

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<p>Deficiency LS-3 – The GSPs do not provide adequate implementation details and are not on track to avoid serious impacts to the Friant-Kern Canal.</p>	<p>Each GSP is required to include a description of the projects and management actions the GSA has determined will achieve groundwater sustainability in the basin. The description must include project management actions, summary of data used to support proposed actions, and a review of the uncertainty associated with the basin setting when developing projects or management actions (Cal. Code Regs., tit. 23, § 354.44).</p> <p>In reviewing GSPs, DWR must consider, among other questions, “whether sustainable management criteria and projects and management actions are commensurate with the level of understanding of the basin setting, based on the level of uncertainty, as reflected in the plan” and “whether the projects and management actions are feasible and likely to prevent undesirable results and ensure that the basin is operated within its sustainable yield” (Cal. Code Regs., tit. 23, § 355.4, subd. (b)(3), (5)).</p>	<p>DWR Inadequate Determination summary:</p> <p>The 2022 DWR Inadequate Determination notes that the 2022 Coordination Agreement provides little detail about projects and management actions to slow subsidence. DWR also notes that subsidence along the Friant-Kern Canal has already exceeded 1.5 feet since 2020.</p> <p>DWR further notes that the lack of adequate project and management detail indicates that the GSPs do not appear to have plans to prevent monitoring sites from exceeding their MT of three feet of subsidence. DWR staff notes that the 2022 GSP “has not indicated the rate at which land subsidence will be abated” and is concerned that the plan is “not on track to meet its goals”</p> <p>Board additional issues:</p> <p>Board staff note that the 1.5 feet of subsidence identified by DWR may indicate that the Eastern Tule GSA Land Subsidence Management Plan is not adequately slowing subsidence rates. Recent InSAR data spanning June 2015 to October 2023 indicate land subsidence ranging from zero to a maximum of 3.4 ft (near Terra Bella) in one mile buffer areas adjacent to the Friant-Kern Canal. The rates of subsidence along the Friant-Kern Canal are especially concerning given that the 2022 GSPs MTs may not avoid undesirable results and appear to violate existing agreements to protect the canal in some areas.</p> <p>Tentative Evaluation:</p> <p>This deficiency does not appear to have been adequately addressed. Many GSPs were substantially updated to address ongoing subsidence through adaptive management; however, it does not appear that plans were revised to slow subsidence along the Friant-Kern Canal, where recent subsidence indicates that previous plans were inadequate.</p>	<p>Potential Action LS-3a – Develop and implement a plan to trigger sufficient management actions when subsidence exceeds defined thresholds, especially near critical infrastructure/facilities.</p> <p>Potential Action LS-3b – Reduce pumping and do not allow new wells in areas where subsidence threatens critical infrastructure.</p> <p>Potential Action LS-3c – Develop infrastructure mitigation programs with clear triggers, eligibility requirements, metrics, and funding sources.</p>

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<p>Deficiency LS-4 – The Tri-County Water Authority GSP does not define Undesirable Results and Sustainable Management Criteria consistent with the Subbasin Coordination Agreement.</p>	<p>Agencies choosing to develop multiple GSPs “shall enter into a coordination agreement to ensure that the Plans are developed and implemented utilizing the same data and methodologies and that elements of the Plans necessary to achieve the sustainability goal for the basin are based upon consistent interpretations of the basin setting” (Cal. Code Regs., tit. 23, § 357.4a).</p>	<p>DWR Inadequate Determination summary:</p> <p>The Tri-County Water Authority GSP’s definition of an undesirable result and SMC differs from the Subbasin Coordination Agreement and other GSPs within the subbasin.</p> <p>Board additional issues:</p> <p>The Tri-County Water Authority is located in both the Tule and Tulare Lake basins, and it appears that the Tri-County Water Authority GSP for the Tule basin defined its undesirable result and SMC consistent with the 2022 Tulare Lake GSP. It is therefore unclear whether the subbasin is coordinated.</p> <p>Tentative Evaluation:</p> <p>Board staff is still evaluating this deficiency.</p>	<p>Potential Action LS-4 – Define undesirable results consistently throughout the subbasin.</p>
<p>Deficiency LS-5 – The GSPs do not address undesirable results caused by land subsidence after 2040, and instead allow for residual subsidence to continue after 2040.</p>	<p>SGMA requires that basins achieve their sustainability goal within 20 years of plan implementation (Wat. Code § 10727.2 subd. (b)(1)), which requires operating the basin within its sustainable yield (Wat. Code § 10721 subd. (u)) while avoiding undesirable results (Wat. Code § 10721 subd. (v)). SGMA does not differentiate between total and residual subsidence, so GSPs must also consider residual subsidence when avoiding undesirable results.</p>	<p>DWR Inadequate Determination summary:</p> <p>The 2022 Coordination Agreement states “residual land subsidence resulting from historical groundwater conditions may occur after 2040”, yet the GSAs do not ensure this continued subsidence will not cause undesirable results. DWR’s 2022 Determination Letter notes that “SGMA and the GSP Regulations does not differentiate residual subsidence; therefore, GSAs should assess total subsidence impacts causes by groundwater pumping” and that “SGMA requires GSAs to avoid or minimize subsidence and the GSAs have not demonstrated the Plan’s intent to accomplish this”.</p> <p>Board additional issues:</p> <p>None.</p> <p>Tentative Evaluation:</p> <p>This deficiency appears to have been addressed.</p>	<p>Potential Action LS-5 – Do not allow land subsidence to occur past 2040.</p>

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<p>Deficiency Groundwater Quality (GWQ)-1 – The 2022 GSPs do not clearly define the conditions that would be considered an undesirable result.</p>	<p>The GSP Regulations require a GSA to “describe...the processes and criteria relied upon to define undesirable results applicable to the basin.” This description must include the cause of past or potential undesirable results, “the criteria used to define when and where the effects of the groundwater conditions cause undesirable results,” and the potential effects of undesirable results on groundwater uses and users and land uses and property interests (Cal. Code Regs., tit. 23, § 354.26).</p>	<p>DWR Inadequate Determination summary: None.</p> <p>Board issues: The 2022 GSPs and coordination agreement defines an undesirable result as “the significant and unreasonable degradation of groundwater quality due to groundwater pumping and recharge projects such that the quality of groundwater is no longer generally suitable for agricultural and/or domestic use” (2022 Coordination Agreement, p. 53). GSPs do not clearly describe how the subbasin would determine if SMC exceedances are “due to the result of groundwater pumping and recharge projects” as opposed to other factors.</p> <p>Tentative Evaluation: This deficiency appears to have been addressed.</p>	<p>Potential Action GWQ-1 – Add information about the impacts of basin management on groundwater quality.</p> <p>Explain how they would determine the water quality impacts of:</p> <ul style="list-style-type: none"> • Projects and management actions • Subsidence • Continued pumping
<p>Deficiency GWQ-2 – Minimum thresholds set by the 2022 GSP are not consistent with GSP Regulations.</p> <ul style="list-style-type: none"> • Deficiency GWQ-2a – The 2022 GSPs do not define minimum thresholds consistent with prevention of further degradation of groundwater quality where pre-2015 undesirable results occurred. • Deficiency GWQ-2b – The GSPs do not consider all constituents with known exceedances. • Deficiency GWQ-2c – Minimum Thresholds based on agricultural standards are applied to domestic wells. 	<p>The 2022 GSPs use historical data to establish MTs when pre-2015 conditions exceeded MCLs or SMCLs. Board staff understand that GSAs do not have to address undesirable results that occurred before 2015, and Board staff understand that this is why GSAs are establishing MTs from historical data. But Board staff note multiple deficiencies concerning how these historical data are used and the resulting MTs. These deficiencies are summarized below as GWQ-2a, GWQ-2b, GWQ-2c.</p> <p>The plan may, but is not required to, address undesirable results that occurred before, and have not been corrected by, January 1, 2015.</p>	<p>DWR Inadequate Determination summary: None.</p> <p>Board issues:</p> <ul style="list-style-type: none"> • GWQ-2a – The 2022 Coordination Agreement for setting MTs states that “for RMS wells that already have historical exceedances of the MCLs or WQOs... [MTs will be set at] pre-2015 implementation concentration.” The 2022 GSPs therefore establish MTs that exceed primary MCLs or upper SMCLs yet does not demonstrate that exceeding health- or quality-protective standards is not an undesirable result. • GWQ-2b – The GSPs do not consider all the constituents with exceedances (This is based on the SGMA Groundwater Quality Visualization Tool). • GWQ-2c – MTs for RMS in agricultural areas are based on Water Quality Objectives rather than MCLs. This means that water quality in domestic wells could degrade below drinking water standards without being considered an undesirable result. <p>Tentative Evaluation: This deficiency appears to have been addressed.</p>	<p>Potential Action GWQ-2 – Update minimum thresholds to be consistent with GSP Regulations.</p> <ul style="list-style-type: none"> • Potential Action GWQ-2a – Establish RMS within areas of known regulatory threshold exceedances and set SMC consistent with the GSP Regulations. • Potential Action GWQ-2b – Use the best available data when defining constituents and set SMC for all constituents in the basin that may impact beneficial uses and users. • Potential Action GWQ-2c – Revise criteria to categorize RMS and describe potential impacts to all beneficial uses and users.

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<p>Deficiency GWQ-3 – The Tri-County Water Authority GSP does not define Undesirable Results and Sustainable Management Criteria consistent with the Subbasin Coordination Agreement.</p> <ul style="list-style-type: none"> • Deficiency GWQ-3a – The Tri-County Water Authority GSP defined undesirable result is inconsistent with the subbasin wide definition of an undesirable result. • Deficiency GWQ-3b – The Tri-County Water Authority method of setting SMC is not consistent with the goals of SGMA or the Tule Subbasin Coordination Agreement. 	<p>Agencies intending to develop and implement multiple Plans pursuant to Water Code Section 10727(b)(3) shall enter into a coordination agreement to ensure that the Plans are developed and implemented utilizing the same data and methodologies and that elements of the Plans necessary to achieve the sustainability goal for the basin are based upon consistent interpretations of the basin setting (Cal. Code Regs., tit. 23, § 357.4a).</p>	<p>DWR Inadequate Determination summary:</p> <p>None.</p> <p>Board issues:</p> <p>The TCWA GSA is located in both the Tule and Tulare Lake subbasins. The Tule TCWA GSP is consistent with the Tulare Lake TCWA GSP rather than the 2022 Tule Coordination Basin.</p> <p>Tentative Evaluation:</p> <p>Board staff is still evaluating this deficiency.</p>	<p>Potential Action GWQ-3 – Update SMCs to be consistent with the Subbasin Coordination Agreement.</p> <ul style="list-style-type: none"> • Potential Action GWQ-3a – Define undesirable results consistent with the goals of SGMA and the Tule Subbasin Coordination Agreement. • Potential Action GWQ-3b – Define SMC methodology consistent with the goals of SGMA and the Tule Subbasin Coordination Agreement.

Deficiency	What SGMA Requires	Deficiency Summary	Potential Actions to Correct the Deficiency
<p>Deficiency GWQ-4 – The water quality monitoring plan in the 2022 GSP is not consistent with GSP regulations.</p> <ul style="list-style-type: none"> • Deficiency GWQ-4a – The proposed monitoring network in the 2022 GSPs is inconsistent with the 2022 Coordination Agreement defined RMS wells. Questions we have: <ul style="list-style-type: none"> ○ Which wells? ○ Which aquifers? ○ Adequate? ○ Composite? ○ Rationale? • Deficiency GWQ-4b – The proposed monitoring frequency is insufficient to detect short-term and seasonal trends. 	<p>The GSP Regulations require GSPs to include a description of the monitoring network objectives for the basin, including how the GSA will “monitor impacts to the beneficial uses or users of groundwater” (Cal. Code Regs., tit. 23, § 354.34, subd. (b)(2)). The monitoring network must be “capable of collecting sufficient data to demonstrate short-term, seasonal, and long-term trends in groundwater and related surface conditions, and yield representative information about groundwater conditions as necessary to evaluate [GSP] implementation.” (Cal. Code Regs., tit. 23, § 354.34, subd. (a)). Data collected must be of “sufficient quality, frequency, and distribution” to characterize and evaluate groundwater conditions (Cal. Code Regs., tit. 23, § 354.32).</p> <p>GSA’s “may designate a subset of monitoring sites as representative of conditions in the basin or an area of the basin...”, known as RMSs (Cal. Code Regs., tit. 23, § 354.36). GSA’s identify MTs, MOs, and IMs at these sites. “The designation of [an RMS] shall be supported by adequate evidence demonstrating that the site reflects general conditions in the area” (Cal. Code Regs., tit. 23, § 354.36, subds. (a) & (c)).</p>	<p>DWR Inadequate Determination summary:</p> <p>None.</p> <p>Board issues:</p> <ul style="list-style-type: none"> • GWQ-4a – The monitoring network described in the 2022 Coordination Agreement differs substantially from the monitoring networks described in the GSPs. The Coordination Agreement indicates there are 76 RMS; GSPs indicate there are 26. It’s not clear: 1) which wells are being monitored; 2) if the GSA’s know which aquifers the wells monitor; 3) if the monitoring network adequately monitors key aquifers; 4) if the network relies on composite wells; and 5) whether the scientific rationale for selecting RMS is adequate. • GWQ-4b – The GSA’s propose to collect only annual summer groundwater samples from RMS wells <p>Tentative Evaluation:</p> <p>Board staff is still evaluating Deficiency GWQ-4a. Deficiency GWQ4b has not been adequately addressed; additional sampling to evaluate trends in groundwater quality is necessary. However, the GSA’s propose to consider ways to increase the monitoring frequency but cite logistical constraints that prevent them from doing that.</p>	<p>Potential Action GWQ-4 – Update the water quality monitoring plan in the 2022 GSP to be consistent with GSP regulations.</p> <ul style="list-style-type: none"> • Potential Action GWQ-4a – Ensure the monitoring networks described in GSPs are consistent with the monitoring network described in the 2022 coordination agreement. <ul style="list-style-type: none"> ○ List wells ○ List aquifers ○ List information ○ No composite wells ○ Describe rationale • Potential Action GWQ-4b – Increase the sampling frequency for the groundwater quality monitoring network.

Deficiency	What SGMA Requires	Deficiency Summary	Potential Actions to Correct the Deficiency
<p>Deficiency GWQ-5 – Management actions are not responsive to water quality degradation.</p> <ul style="list-style-type: none"> • Deficiency GWQ-5a – Additional sampling is not triggered when Minimum Thresholds are exceeded. • Deficiency GWQ-5b – Well mitigation plans don't address water quality degradation. 	<p>Each GSP is required to include a description of the projects and management actions the GSA has determined will achieve groundwater sustainability in the basin. The GSAs must include projects and management actions “that may be utilized to meet interim milestones, the exceedance of minimum thresholds, or where undesirable results have occurred or are imminent” (Cal. Code Regs., tit. 23, § 354.44, subd. (b)(1)).</p>	<p>DWR Inadequate Determination summary: None.</p> <p>Board issues: NA</p> <p>Tentative Evaluation: Deficiency GWQ-5a appears have been only partially addressed; additional sampling to evaluate trends in groundwater quality is necessary. The GSAs state that they will attempt to collect additional samples when there has been a MT exceedance, however, they do not commit to collecting additional samples if there are logistical constraints. Deficiency GWQ-5b appears to have been partially addressed.</p>	<p>Potential Action GWQ-5 – Update management actions to be responsive to water quality degradation.</p> <ul style="list-style-type: none"> • Potential Action GWQ-5a – Plan additional sampling when water quality is degraded. • Potential Action GL-8 – Develop well mitigation programs with clear triggers, eligibility requirements, metrics, and funding sources. (This action supports addressing both Deficiency GL-8 and Deficiency GWQ-5b.)

Deficiency	What SGMA Requires	Deficiency Summary	Potential Actions to Correct the Deficiency
<p>Deficiency Interconnected Surface Water (ISW)-1 – The 2022 GSPs claim that there is no ISW in the Tule basin, but the analysis is limited and relies on incomplete data.</p>	<p>The GSP Regulations require GSAs to provide an “Identification of interconnected surface water systems within the basin and an estimate of the quantity and timing of depletions of those systems, utilizing data available from the Department, as specified in Section 353.2, or the best available information,” (Cal. Code Regs., tit. 23, § 354.16, (f)).</p>	<p>DWR Inadequate Determination summary:</p> <p>None.</p> <p>Board issues:</p> <p>The 2022 GSPs do not provide adequate technical justification to demonstrate ISW are not present in the subbasin. The 2022 Coordination Agreement Basin Setting uses a depth to groundwater raster to conclude that there are no continuously occurring ISWs within the basin, however, Board staff notes that it is unclear which datasets or wells were used to generate the depth to groundwater raster, making it difficult to assess the accuracy of the raster in areas near streams.</p> <p>Moreover, although using groundwater depth as a proxy to determine the presence of ISW may be a sufficient method, groundwater-surface water interconnection varies within and across years. A single month in a multi-year drought, even a winter month, not provide sufficient technical justification to demonstrate the absence of ISW.</p> <p>Finally, the GSAs do not describe how they considered available stream gage data in determining the potential presence of ISW in the subbasin.</p> <p>Tentative Evaluation:</p> <p>This deficiency appears to have been addressed.</p>	<p>Potential Action ISW-1a – Use the best available data for identifying interconnected surface waters in the subbasin.</p> <p>Potential Action ISW-1b – Explain which groundwater level monitoring network was used to justify the absence of ISWs with the basin.</p>

Deficiency	What SGMA Requires	Deficiency Summary	Potential Actions to Correct the Deficiency
<p>Deficiency ISW-2 – The 2022 GSPs do not correctly define Interconnected Surface Water.</p>	<p>The GSP Regulations state that ISWs refer to “surface water that is hydraulically connected at any point by a continuous saturated zone to the underlying aquifer and the overlying surface water is not completely depleted,” (Cal. Code Regs., tit. 23, § 351, (o)).</p>	<p>DWR Inadequate Determination summary: None.</p> <p>Board additional issues: Board staff notes that the GSAs’ understanding of ISW within the basin is inconsistent with SGMA’s definition of ISW. The 2022 Coordination Agreement Basin Setting uses a depth to groundwater raster to conclude that there are no continuously occurring ISWs within the basin. However, the Coordination Agreement contradicts this finding by stating that there are periods where groundwater is within the 25 ft below ground surface threshold from the ground surface, which would allow for ISW to occur. As a result, the GSAs failed to identify potential ISWs in accordance with SGMA regulations.</p> <p>Furthermore, Eastern Tule GSA conflates ISW with subterranean streams. SGMA statute clearly defines ISWs as groundwater and any occurrence of surface water that are hydraulically connected at any point (Cal. Code Regs, tit. 23, §351, subd. (o)). The definition of ISW does not refer to subterranean streams.</p> <p>Tentative Evaluation: This deficiency appears to have been addressed.</p>	<p>Potential Action ISW-2a – Reevaluate ISWs within the basin using the understanding that ISWs may be intermittent.</p> <p>Potential Action ISW-2b – Remove the reference to subterranean streams.</p>

Deficiency	What SGMA Requires	Deficiency Summary	Potential Actions to Correct the Deficiency
<p>Deficiency ISW-3 (Conditional) – If depletions of Interconnected Surface Water occur in the subbasin, the GSAs must set Sustainable Management Criteria for depletions of Interconnected Surface Water and establish a shallow water monitoring network.</p>	<p>“Sustainable management criteria and projects and management actions shall be commensurate with the level of understanding of the basin setting, based on the level of uncertainty and data gaps, as reflected in the Plan” ((Cal. Code Regs., tit. 23, § 350.4, (d)).</p>	<p>DWR Inadequate Determination summary: None.</p> <p>Board additional issues: Board staff recognize that the GSAs did not establish ISW SMC under the assumption that depletions of ISW are not occurring in the subbasin or are not likely to occur in the subbasin. However, if in address Deficiencies ISW-1 and ISW-2, the GSAs find evidence of the presence of depletions of ISW, then GSAs will need to develop SMC, create a monitoring network, and identify associated projects or management actions for the depletion of ISW.</p> <p>Tentative Evaluation: This deficiency does not appear to have been fully addressed. However, Board staff believes that GSAs have made adequate progress and tentatively agree that additional plans to avoid ISW undesirable results can be developed after GSAs collect additional data in areas with potential ISW.</p>	<p>Potential Action ISW-3a – Create an ISW monitoring network near established surface monitoring stations to fill data gaps.</p> <p>Potential Action ISW-3b – Use the ISW network to model if surface water is hydraulically connected to the underlying aquifer via a continuous saturated zone.</p> <p>Potential Action ISW-3c – Identify wells where excessive groundwater pumping could lower the hydraulic gradient, reduce the surface water supply, and impact nearby vegetation and ecosystems.</p> <p>Potential Action ISW-3d – Develop SMC for the depletion of interconnected surface water.</p>