CALIFORNIA DEPARTMENT OF WATER RESOURCES
SUSTAINABLE GROUNDWATER MANAGEMENT OFFICE
715 P Street, 8th Floor | Sacramento, CA 95814 | P.O. Box 942836 | Sacramento, CA 94236-0001

February 27, 2025

Brad Gleason
Pleasant Valley GSA
P.O. Box 468
Coalinga, CA 93210
bgleason@westhillsfinancial.com

RE: Inadequate Determination of the 2024 Groundwater Sustainability Plan Submitted for the San Joaquin Valley – Pleasant Valley Subbasin

Dear Brad Gleason,

The Department of Water Resources (Department) has evaluated the 2024 groundwater sustainability plan (GSP or Plan) for the San Joaquin Valley – Pleasant Valley Subbasin in response to the Department's Incomplete Determination on January 18, 2024, and has determined that the actions taken to correct deficiencies identified by the Department were not sufficient (23 CCR § 355.2(e)(3)(C)).

The Department based its Inadequate Determination on recommendations from the Staff Report, included as an enclosure to the attached Statement of Findings, which explains why the Department believes that the Subbasin's Plan did not take sufficient actions to correct the deficiencies previously identified by the Department and, therefore, does not substantially comply with the GSP Regulations nor satisfy the objectives of the Sustainable Groundwater Management Act (SGMA).

Once the Department determines that a GSP is inadequate, primary jurisdiction shifts from the Department to the State Water Resources Control Board (State Board), which may designate the basin probationary (Water Code § 10735.2(a)). However, Department involvement does not end at that point; the Department may, at the request of the State Board, further assess a plan, including any updates, and may provide technical recommendations to remedy deficiencies to that plan. In addition, the responsibilities of the GSA do not end with an inadequate determination. Regardless of the status of a plan, a GSA remains obligated to continue collecting and submitting monitoring network data (Water Code Part 2.11; Water Code § 10727.2; 23 CCR § 353.40; 23 CCR § 354.40), submitting an annual report to the Department (Water Code § 10728; 23 CCR § 356.2), conducting periodic updates to the plan at least every five years (Water Code § 10728.2; 23 CCR § 356.4), and submitting this information to DWR's SGMA Portal (23 CCR § 354.40). The Department also encourages GSAs to continue implementation efforts on project and management actions that will support the Subbasin's progress towards achieving sustainability.

Prior to this determination, the Department consulted with the State Board as required by SGMA (Water Code § 10735.2(a)(3)). Moving forward, for questions related to state intervention, please send a request to sgma@Waterboards.ca.gov. For any questions related to assessments, the State Board will coordinate with the Department.

For any other questions, please contact Sustainable Groundwater Management staff by emailing sgmps@water.ca.gov.

Thank You,

Paul Gosselin

Paul Gosselin
Deputy Director
Sustainable Groundwater Management

Attachment:

1. Statement of Findings Regarding the Inadequate Determination of the San Joaquin Valley – Pleasant Valley Subbasin 2024 Groundwater Sustainability Plan

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

STATEMENT OF FINDINGS REGARDING THE DETERMINATION OF INADEQUATE STATUS OF THE SAN JOAQUIN VALLEY – PLEASANT VALLEY SUBBASIN 2024 GROUNDWATER SUSTAINABILITY PLAN

Under the Sustainable Groundwater Management Act (SGMA or Act), the Department of Water Resources (Department) is required to evaluate whether a submitted groundwater sustainability plan (GSP or Plan) conforms to specific requirements of the SGMA, is likely to achieve the sustainability goal for the basin covered by the Plan, and whether the Plan adversely affects the ability of an adjacent basin to implement its GSP or impedes achievement of sustainability goals in an adjacent basin.[1] The Department is directed to issue an assessment of the Plan within two years of its submission. (Water Code § 10733.4.) If a Plan is determined to be Incomplete, the Department identifies deficiencies that preclude approval of the Plan and identifies corrective actions required to make the Plan compliant with SGMA and the GSP Regulations. The GSA has up to 180 days from the date the Department issues its assessment to make the necessary corrections and submit a revised Plan. (23 CCR § 355.2(e)(2).) The Department shall find a Plan previously determined to be incomplete to be inadequate if, after consultation with the State Water Resources Control Board, the Agency has not taken sufficient actions to correct the deficiencies previously identified by the Department. (23 CCR § 355.2(e)(3)(C).) This Statement of Findings explains the Department's decision regarding the revised Plan by the Pleasant Valley, City of Coalinga, and County of Fresno Groundwater Sustainability Agencies (collectively, the GSAs or Agencies) for the San Joaquin Valley Basin – Pleasant Valley Subbasin (Subbasin) (Basin No. 5-022.10).

Department management has discussed the Plan with staff and has reviewed the Department Staff Report, entitled Sustainable Groundwater Management Program Groundwater Sustainability Plan Assessment Staff Report, attached as Exhibit A, recommending an inadequate determination of the GSP. Department management is satisfied that staff have conducted a thorough evaluation and assessment of the revised Plan and concurs with staff's recommendations. The Department therefore finds the revised Plan **INADEQUATE** and makes the following findings:

A. The initial 2022 Plan for the Subbasin submitted by the GSAs for the Department's evaluation satisfied the required conditions as outlined in § 355.4(a) of the GSP Regulations (23 CCR § 350 et seq.), and Department Staff therefore evaluated the initial 2022 Plan.

[1] Water Code § 10733.

B. On January 18, 2024, the Department issued a Staff Report and Findings determining the initial 2022 GSP submitted by the Agencies for the Subbasin to be incomplete because the GSP did not satisfy the requirements of SGMA, nor did it substantially comply with the GSP Regulations. At that time, the Department provided corrective actions in the Staff Report that were intended to address the deficiencies that precluded approval. Consistent with the GSP Regulations, the Department provided the Agencies with up to 180 days to address the deficiencies detailed in the Staff Report. On July 16, 2024, within the 180 days provided to remedy the deficiencies identified in the Staff Report related to the Department's initial incomplete determination, the Agencies submitted a revised 2024 GSP to the Department for evaluation. After consultation with the State Water Resources Control Board, the Department has determined that the Agency has not taken sufficient action to correct the deficiencies previously identified by the Department. (23 CCR § 355.2(e)(3)(C).)

C. The Department's Staff Report for the initial 2022 Plan identified the deficiencies that precluded approval of the 2022 Plan. After staff's thorough evaluation of the revised 2024 Plan, the Department makes the following findings regarding the sufficiency of the actions taken by the Agency to correct those deficiencies:

1. Deficiency 1: The corrective action advised the Agencies to address several aspects of the Plan's disclosure, discussion, and analyses of groundwater level sustainable management criteria, potential impacts to groundwater users and uses, as relationship with other sustainability indicators. Although the revised 2024 GSP included revisions intended to respond to the corrective action components, the 2024 GSP did not provide sufficient information to support the Agencies' sustainable management criteria for chronic lowering of groundwater levels. For instance, it did not consider all groundwater uses and users; the definition of undesirable results is difficult to understand; and it did not sufficiently explain how the groundwater level management will not affect other sustainability indicators such as land subsidence. The Staff Report indicates the Agencies did not take sufficient action to correct this deficiency, which materially affects the ability of the Agencies to achieve sustainability and the ability of the Department to evaluate the likelihood of the Plan to achieve sustainability.

2. Deficiency 2: The corrective action advised the Agencies to address several aspects of the Plan's disclosure, discussion, and analyses of the Subbasin's overdraft estimate and mitigation measures that precluded approval. Although the revised 2024 GSP included revisions intended to respond to the corrective action, the 2024 GSP has not provided sufficient

information to demonstrate a reasonable assessment of the Subbasin's overdraft condition and a reasonable means to mitigate the overdraft. The Staff Report indicates that the Agencies did not take sufficient action to correct this deficiency, which materially affects the ability of the Agencies to achieve sustainability and the ability of the Department to evaluate the likelihood of the Plan to achieve sustainability.

3. Deficiency 3: The corrective action advised the Agencies to address several aspects of the Plan's disclosure, discussion, and analyses of groundwater quality sustainable management criteria. Although the revised 2024 GSP included revisions intended to respond to the corrective action components, the 2024 GSP did not provide sufficient information to support the Agencies' sustainable management criteria for degradation of groundwater quality. For instance, the definition of undesirable results is overly narrow for considering pistachios only and omits many beneficial uses and users including other crops using groundwater for irrigation in the Subbasin; and it has many issues related to the selection of TDS minimum threshold. The Staff Report indicates the Agencies did not take sufficient action to correct this deficiency, which materially affects the ability of the Agencies to achieve sustainability and the ability of the Department to evaluate the likelihood of the Plan to achieve sustainability.

D. In addition to the grounds listed above, the Department also finds that:

1. The Department developed its GSP Regulations consistent with and intending to further the state policy regarding the human right to water (Water Code § 106.3) through implementation of SGMA and the Regulations, primarily by achieving sustainable groundwater management in a basin. By ensuring substantial compliance with the GSP Regulations the Department has considered the state policy regarding the human right to water in its evaluation of the Plan. (23 CCR § 350.4(g).)

2. The California Environmental Quality Act (Public Resources Code § 21000 *et seq*.) does not apply to the Department's evaluation and assessment of the Plan.

SGMA requires basins to achieve sustainability within 20 years of Plan implementation and requires local GSAs and the Department to continually evaluate a basin's progress towards achieving its sustainability goals. SGMA also requires GSAs to encourage the active involvement of diverse social, cultural, and economic elements of the population within each basin prior to and during development and implementation of Plans. Under SGMA, the GSP is the primary document disclosing and informing the Department, local GSA boards, other local and state agencies, and interested or affected parties of the intended management program for the basin and the potential physical or regulatory impacts or changes that may occur within the basin during decades of Plan implementation. It is therefore essential that each basin begins with a Plan that adequately analyzes, discloses, and informs and that each Plan conform with certain requirements of SGMA and substantially comply with the GSP Regulations. For the reasons stated here and further discussed in the Staff Report, the revised 2024 GSP for San Joaquin Valley – Pleasant Valley Subbasin is hereby determined to be **INADEQUATE**.

Signed:

Karla Nemeth

Karla Nemeth, Director
Date: February 27, 2025

Enclosure: Groundwater Sustainability Plan Assessment Staff Report – San Joaquin Valley – Pleasant Valley Subbasin

State of California
Department of Water Resources
Sustainable Groundwater Management Program
Reassessment of Incomplete
Groundwater Sustainability Plan
2025 Staff Report

Groundwater Basin Name:	San Joaquin Valley – Pleasant Valley Subbasin (No. 5-022.10)
Submitting Agencies:	Pleasant Valley Groundwater Sustainability Agency, City of Coalinga Groundwater Sustainability Agency, and County of Fresno Groundwater Sustainability Agency
Submittal Type:	Revised Plan in Response to Incomplete Determination
Submittal Date:	July 16, 2024
Recommendation:	Inadequate
Date:	February 27, 2025

On July 16, 2024, the Pleasant Valley Groundwater Sustainability Agency (GSA), City of Coalinga GSA, and County of Fresno GSA (collectively referred to as the GSAs or Agencies) jointly submitted a revised Groundwater Sustainability Plan (GSP or Plan) for the San Joaquin Valley Groundwater Basin – Pleasant Valley Subbasin (Subbasin) to the Department of Water Resources (Department or DWR) in response to the Department's Incomplete Determination on January 18, 2024[1] for evaluation and assessment as required by the Sustainable Groundwater Management Act (SGMA)[2] and GSP Regulations.[3] The revised/resubmitted Plan is referred to as the 2024 Plan and the incomplete Plan as the 2022 Plan.

After evaluation and assessment, Department staff conclude the 2024 Plan has not taken sufficient actions to address the deficiencies identified in the Department's Incomplete Determination.[4]

- ***Based on the evaluation of the 2024 Plan, Department staff recommend the Plan be inadequate.***

[1] Water Code § 10733.4(b); 23 CCR § 355.4(a)(4); Incomplete Determination of the 2022 Pleasant Valley Subbasin Groundwater Sustainability Plan. California Department of Water Resources, January 18, 2024, https://sgma.water.ca.gov/portal/gsp/assessments/145.
[2] Water Code § 10720 *et seq*.
[3] 23 CCR § 350 *et seq*.
[4] 23 CCR § 355.2(e)(3)(C).

This assessment includes five sections:

- **Section 1 – Summary:** Provides an overview of the Department staff's assessment.
- **Section 2 – Evaluation Criteria:** Describes the legislative requirements and the Department's evaluation criteria.
- **Section 3 – Required Conditions:** Describes the submission requirements of an incomplete resubmittal to be evaluated by the Department.
- **Section 4 – Deficiency Evaluation:** Provides an assessment of whether and how the contents included in the GSP resubmittal addressed the deficiencies identified by the Department in the initial incomplete determination.
- **Section 5 – Staff Recommendation:** Includes the staff recommendation for the Plan.

1 SUMMARY

Department staff recommend the 2024 Plan for the Pleasant Valley Subbasin be determined **INADEQUATE**.

In the evaluation of the 2024 Plan, Department staff conclude the GSAs did not take sufficient action to correct the following deficiencies identified in the incomplete determination:

> Deficiency 1 – The GSP does not provide sufficient information to support the selection of the sustainable management criteria for chronic lowering of groundwater levels.
>
> Deficiency 2 – The GSP does not include a reasonable assessment of overdraft conditions and reasonable means to mitigate overdraft.
>
> Deficiency 3 – The GSP does not provide sufficient information to support the selection of the sustainable management criteria for water quality.

While the GSAs have made progress in addressing the corrective actions identified for these deficiencies, Department staff conclude that the information provided in the 2024 Plan is not sufficiently detailed and the analysis not sufficiently thorough and reasonable, materially affecting the ability of the Department to evaluate the likelihood of the Subbasin to attain sustainability.

2 EVALUATION CRITERIA

The Department evaluates whether a Plan conforms to the statutory requirements of SGMA[5] and is likely to achieve the basin's sustainability goal,[6] whether evaluating a basin's first Plan,[7] a Plan previously determined incomplete,[8] an amended Plan,[9] or a GSA's periodic evaluation to an approved Plan.[10] To achieve the sustainability goal, each version of the Plan must demonstrate that implementation will lead to sustainable groundwater management, which means the management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results.[11] The Department is also required to evaluate, on an ongoing basis, whether the Plan will adversely affect the ability of an adjacent basin to implement its groundwater sustainability program or achieve its sustainability goal.[12]

The Plan evaluated in this Staff Report was previously determined to be incomplete. An incomplete Plan is one which had one or more deficiencies that precluded its initial approval, may not have had supporting information that was sufficiently detailed or analyses that were sufficiently thorough and reasonable, or Department staff determined it was unlikely the GSAs in the basin could achieve the sustainability goal. After a GSA has been afforded up to 180 days to address the deficiencies and based on the GSA's efforts, the Department can either approve[13] the Plan or determine the Plan inadequate.[14]

The Department's evaluation and assessment of a Plan previously determined to be incomplete, as presented in this Staff Report, continues to follow Article 6 of the GSP Regulations[15] to determine whether the Plan, with revisions or additions prepared by the GSA, complies with SGMA and substantially complies with the GSP Regulations.[16] As stated in the GSP Regulations, "substantial compliance means that the supporting information is sufficiently detailed and the analyses sufficiently thorough and reasonable, in the judgment of the Department, to evaluate the Plan, and the Department determines that any discrepancy would not materially affect the ability of the Agency to achieve the sustainability goal for the basin, or the ability of the Department to evaluate the likelihood of the Plan to attain that goal."[17]

[5] Water Code §§ 10727.2, 10727.4, 10727.6.
[6] Water Code § 10733; 23 CCR § 354.24.
[7] Water Code § 10720.7.
[8] 23 CCR § 355.2(e)(2).
[9] 23 CCR § 355.10.
[10] 23 CCR § 355.6.
[11] Water Code § 10721(v).
[12] Water Code § 10733(c).
[13] 23 CCR §§ 355.2(e)(1).
[14] 23 CCR §§ 355.2(e)(3).
[15] 23 CCR § 355 *et seq*.
[16] 23 CCR § 350 *et seq*.
[17] 23 CCR § 355.4(b).

The recommendation to approve a Plan previously determined to be incomplete does not signify that Department staff, were they to exercise the professional judgment required to develop a Plan for the basin, would make the same assumptions and interpretations as those contained in the revised Plan, but simply that Department staff have determined that the modified assumptions and interpretations relied upon by the submitting GSA(s) are supported by adequate, credible evidence, and are scientifically reasonable. The assessment of a Plan previously determined to be incomplete may involve the review of new information presented by the GSA(s), including models and assumptions, and an evaluation of that information based on scientific reasonableness. In conducting its assessment, Department staff does not recalculate or reevaluate technical information or perform its own geologic or engineering analysis of that information.

The recommendation to not approve a Plan previously determined to be incomplete and instead determine it to be inadequate signifies that the resubmitted Plan contains significant deficiencies based on one or more of the criteria identified in 23 CCR § 355.4(b), or the GSAs in the basin have not taken sufficient actions to correct the deficiencies previously identified by the Department when it found the Plan incomplete. The Department engages in consultation with the State Water Resources Control Board before finding a Plan inadequate. A Plan determined to be inadequate is subject to the state intervention provisions contained in Chapter 11 of SGMA.[18]

[18] Water Code § 10735 *et seq*.

3 REQUIRED CONDITIONS

For a Plan that the Department determined to be incomplete, the Department provided corrective actions that address minor or potentially significant deficiencies that the Department identified in the initially submitted Plan. The GSAs in a basin, whether developing a single GSP covering the basin or multiple GSPs, must attempt to sufficiently address those required corrective actions within the time provided, not to exceed 180 days, for the Plan to be reevaluated by the Department and potentially approved.

3.1 INCOMPLETE RESUBMITTAL

GSP Regulations specify that the Department shall evaluate a resubmitted GSP in which the GSAs have taken corrective actions within 180 days from the date the Department issued an incomplete determination to address deficiencies.[19]

The Department issued the Incomplete Determination for the initial Plan on January 18, 2024. The GSAs submitted the revised GSP to the Department on July 16, 2024, in compliance with the 180-day deadline.

The GSAs have provided a redline/strikeout version of the resubmitted GSP. The redline/strikeout version highlights the changes made from the initial 2022 submission to the 2024 submission.[20]

[19] 23 CCR § 355.4(a)(4).
[20] https://sgma.water.ca.gov/portal/service/gspdocument/download/10258

4 DEFICIENCY EVALUATION

As stated in Section 355.4 of the GSP Regulations, a basin "shall be sustainably managed within 20 years of the applicable statutory deadline consistent with the objectives of the Act." The Department's assessment is based on a number of related factors including whether the elements of a GSP were developed in the manner required by the GSP Regulations, whether the GSP was developed using appropriate data and methodologies and whether its conclusions are scientifically reasonable, and whether the GSP, through the implementation of clearly defined and technically feasible projects and management actions, is likely to achieve a tenable sustainability goal for the basin.

The Department identified deficiencies in the 2022 Plan which precluded the Plan's approval in its Incomplete Determination issued in January 2024.[21] The GSAs were given 180 days to take corrective actions to remedy the identified deficiencies. Consistent with the GSP Regulations, Department staff are providing an evaluation of the resubmitted Plan to determine if the GSAs have taken sufficient actions to correct the deficiencies identified in the 2022 Plan. For each deficiency, the corrective actions are repeated, the 2022 Plan content is summarized, the 2024 Plan is then described, followed by Department staff's evaluation.

4.1 DEFICIENCY 1: THE GSP DOES NOT ESTABLISH SUSTAINABLE MANAGEMENT CRITERIA FOR CHRONIC LOWERING OF GROUNDWATER LEVELS SUBSTANTIALLY COMPLIANT WITH THE GSP REGULATIONS.

The corrective action (Corrective Action 1) identified by the Department to address Deficiency 1 is described below. Details of Deficiency 1 are included in the Department's Incomplete Determination Staff Report and are not reiterated unless specifically noted.

4.1.1 Corrective Action 1

Corrective Action 1 consists of four components, corresponding to each specific area of Deficiency 1. Department staff recommended the Subbasin consider and address the following:

a. Clearly define and disclose significant and unreasonable effects related to chronic lowering of groundwater levels that could be experienced in the Subbasin. The significant and unreasonable effects must be considered and incorporated in establishing the minimum thresholds.

[21] Incomplete Determination of the 2022 Pleasant Valley Subbasin Groundwater Sustainability Plan. California Department of Water Resources, January 18, 2024, https://sgma.water.ca.gov/portal/gsp/assessments/145.

b. Quantitatively define undesirable results based on a combination of minimum threshold exceedances required by the GSP Regulations.[22] The GSAs should also describe and discuss the rationale for the undesirable results definition.

c. Select the minimum threshold at a level indicating a depletion of supply that may lead to undesirable results; sufficiently support the assumptions and methodology used for the development of minimum thresholds; discuss how the selected minimum thresholds could impact beneficial uses and users, including both agricultural and domestic wells. For domestic wells, the GSAs should consider referring to the Department's guidance document titled *Considerations for Identifying and Addressing Drinking Water Well Impacts*.[23]

d. Sufficiently discuss the relationship between the minimum threshold for groundwater levels and other applicable sustainability indicators such as reduction of groundwater storage, degradation of groundwater quality, and land subsidence. Explain how the basin conditions at the minimum thresholds of groundwater levels will avoid undesirable results for reduction of groundwater storage (i.e., overdraft), degradation of groundwater quality, and land subsidence.

4.1.2 Evaluation

4.1.2.1 Corrective Action 1a

Corrective Action 1a requested the GSP clearly define and disclose what constitutes significant and unreasonable effects related to chronic lowering of groundwater levels and explain how they are considered and incorporated in the development of minimum thresholds. In response, the 2024 Plan now includes a refined definition of what constitutes significant and unreasonable effects as opposed to varied conditions corresponding to a wide range of groundwater levels in the 2022 Plan. This refined definition of significant and unreasonable effects specifies what condition the GSAs are managing to avoid. The 2024 Plan claims that significant and unreasonable effects will not occur if groundwater levels drop to the minimum thresholds at representative monitoring wells.[24] However, the analysis and discussion provided in the 2024 Plan are not sufficient to support such claim.

The 2024 Plan now defines significant and unreasonable conditions as corresponding to a level that "have less than 70% submergence of the perforations [of a well]." At this level, 70% of a well screen depth is below the groundwater level, and the remaining 30% is above the groundwater level without access to groundwater. The 2024 Plan explains this metric was selected because this is a groundwater level which "may cause a reduction in flowrate production of the well, to where the crops cannot be irrigated in time without causing stress to the crop and increase cost to pump the water."[25] While this condition

[22] 23 CCR § 354.26 (b)(2).
[23] https://water.ca.gov/Programs/Groundwater-Management/Drinking-Water-Well
[24] 2024 Pleasant Valley GSP, Section 4.2.3.4, pp. 198-199.
[25] 2024 Pleasant Valley GSP, Section 4.2.2, p. 185.

will significantly reduce the well production capacity, it is at a level higher than the well bottom that will not cause the well gone dry. Therefore, it can be considered a more conservative approach to manage the Subbasin.

The second portion of Corrective Action 1a requested the GSAs describe how they have considered and incorporated avoiding significant and unreasonable conditions in establishing the minimum thresholds. With the refined definition of significant and unreasonable effects, the minimum threshold values [26] and methodology [27] remain unchanged in the 2024 Plan. Instead, the 2024 Plan provides an analysis trying to verify that significant and unreasonable effects will not occur if groundwater levels drop to the minimum thresholds at the representative monitoring wells. The analysis included approximately 40 (out of approximately 90)[28] irrigation wells and 8 domestic wells,[29] showing that the groundwater levels are higher than the 70% of submergence of well screen at the minimum thresholds.[30] However, the conditions for the remaining approximately 50 wells in the Subbasin are not understood, as further discussed below.

The 2024 Plan states that the GSAs obtained the well perforation information from the DWR's well database.[31] Department staff note that the DWR's well database includes only 64 irrigation wells in the Subbasin: 55 of 64 wells were constructed after 2010 with well depth ranging from 900 feet to over 2,000 feet, and 9 out of 64 wells were constructed before 2010 with well depth ranging from less than 100 to 900 feet.[32] If only 40 wells were sampled for the analysis, it appears that the majority of the wells included in the analysis likely were those deep wells constructed after 2010, which are not representative of all production wells. Therefore, the analysis seems to be skewed or insufficient, and it is premature to conclude that all production wells will not experience significant and unreasonable effects because what will happen to the wells excluded from the analysis is unknown.

Based on the discussion above, Department staff conclude that although the 2024 Plan has made progress in defining significant and unreasonable effects related to lowering groundwater levels, it has not sufficiently addressed the second part of Corrective Action 1a. The GSAs have not considered all groundwater uses and users in the well submergence analysis to support that the selection of minimum thresholds in relation to the Plan's definition of significant and unreasonable results.

4.1.2.2 Corrective Action 1b

Corrective Action 1b requested that the GSP quantitatively define undesirable results based on a combination of minimum threshold exceedances and describe and discuss

[26] 2024 Pleasant Valley GSP, Table 4-2, p. 197.
[27] 2024 Pleasant Valley GSP, Section 4.2.2. p. 184.
[28] 2024 Pleasant Valley GSP, Section 2.1.2, p. 53.
[29] 2024 Pleasant Valley GSP, Section 4.2.2.3, p. 188.
[30] 2024 Pleasant Valley GSP, Figure 4-3, p. 186.
[31] 2024 Pleasant Valley GSP, Section 4.2.2, p. 184.
[32] https://sgma.water.ca.gov/CalGWLive/#wells, query "Irrigation Wells" and "Pleasant Valley Subbasin".

the rationale for the selected definition of undesirable results.[33] In response, the 2024 Plan provided a definition of undesirable results as occurring "when groundwater levels decline below the MTs [minimum thresholds] in three (3) wells within the area of an RMS [representative monitoring site]."[34] The 2024 Plan does not significantly expand upon its discussion from the 2022 Plan regarding the rationale for the selected definition of undesirable results, although the Plan now states that: "The cause of groundwater conditions occur due to the amount of groundwater that is pumped, the time it takes for recharge to reach the water table, and lack of surface water imports."[35] Department staff understand the "groundwater conditions" mentioned here to refer to conditions that could lead to undesirable results, and that such discussion appears to be generic. In addition, there is some ambiguity related to the definition of undesirable results, as further discussed below. For these reasons, Department staff conclude that the 2024 Plan has not adequately addressed Correction Action 1b.

The 2024 Plan relies on an ambiguous definition of undesirable results as occurring when groundwater levels decline below the minimum thresholds in three wells "within the area" of a representative monitoring site. The 2024 Plan identifies representative monitoring sites, but instead of relying on these sites to determine whether basin conditions are operating above minimum thresholds, the 2024 Plan proposes to use unidentified wells in the vicinity of the representative monitoring sites. The problem is not the use of wells other than representative monitoring sites, per se, as representative monitoring sites themselves are allowed in the GSP Regulations as a way for a GSA to track groundwater conditions without monitoring every well.[36] A GSA that defined minimum thresholds and undesirable results based on conditions at representative monitoring sites could expand that definition by including triggering events at non-representative sites. However, minimum thresholds and undesirable results should at least be clearly defined by conditions at the representative monitoring site. The 2024 Plan defines undesirable results based on conditions not at the representative monitoring site, but at wells nearby. However, the 2024 Plan does not identify those wells or indicate who or how they will be monitored.

The 2024 Plan creates additional ambiguity by setting different standards for domestic and irrigation wells. The apparent objective is to establish a standard for domestic wells that is more rigorous than for irrigation wells by defining undesirable results as occurring when any single well exceeds minimum thresholds. But the way the standards have been defined engenders the same latent ambiguity regarding which wells define the onset of undesirable results. As with the standard for irrigation wells, such a broad-spectrum approach is not necessarily problematic, but the 2024 Plan does not specify, for example,

[33] 23 CCR § 354.26 (b)(2).
[34] 2024 Pleasant Valley GSP, Section 4.2.2.1, p. 187.
[35] 2024 Pleasant Valley GSP, Section 4.2.2.2, p. 188.
[36] 23 CCR § 354.28.

that undesirable results will be triggered by exceedances of minimum thresholds at representative monitoring sites or at any other domestic well in the basin.

Based on the discussion above, Department staff conclude that the 2024 Plan has not taken sufficient action to address Corrective Action 1b.

4.1.2.3 Corrective Action 1c

Corrective Action 1c requested the GSAs select the minimum thresholds at a level indicating a depletion of supply that may lead to undesirable results. In response, the 2024 Plan defines significant and unreasonable effects being water level below the 70% of well perforation, which will cause reduction in well production capacity not able to irrigate crops in time instead of causing wells gone dry. The 2024 Plan shows that the selected minimum thresholds are above the levels corresponding to the 70% well perforations based on a well submergence analysis. Thus, the 2024 Plan has kept the methodology and the minimum thresholds values that are documented in the 2022 Plan.[37] In short, the GSAs project that the groundwater levels will continue to decline in the Subbasin, although the decline rates will lessen gradually until the water levels stabilize at the end of the Plan implementation period. Then, the GSAs set the minimum threshold at 50 feet below that level for operational flexibility. While it appears that the GSAs' minimum thresholds are more conservative as they are set at 70% of the well perforation (or screen) instead of at the bottom of the well screen, there are some data gaps with the well submergence analysis. As previously discussed, the analysis appears to be skewed or incomplete, likely consisting of mostly deep wells constructed after 2010 that are not proved to be representative of all production wells. The 2024 Plan concludes that the selected minimum thresholds will not cause significant and unreasonable effects to beneficial uses and users including agricultural and domestic wells.[38] As discussed previously, this conclusion is premature because it only applies to a portion of wells consisting of mostly deep wells. It lacks sufficient information and discussion to extend the conclusion to the 50 wells excluded from the well perforation analysis in the 2024 Plan.

Therefore, Department staff conclude that the 2024 Plan has not adequately addressed Corrective Action 1c.

4.1.2.4 Corrective Action 1d

Corrective Action 1d requested the Plan sufficiently discuss the relationship between the minimum threshold for groundwater levels and other applicable sustainability indicators and explain how the basin conditions at the minimum thresholds of groundwater levels will avoid undesirable results for reduction of groundwater storage (i.e., overdraft), degradation of groundwater quality, and land subsidence.[39] Particularly, the Department's Incomplete Determination notes that "the risk of land subsidence exceeding

[37] 2024 Pleasant Valley GSP, Figure 4-2, p. 184, Table 4-2, p. 197.
[38] 2024 Pleasant Valley GSP, Section 4.2.3.4, pp. 198-199.
[39] 23 CCR § 354.28 (b)(2).

the minimum thresholds could be high" based on the minimum threshold set at one foot of cumulative subsidence over 20 years in the 2022 Plan.[40]

In response, the discussion of the relationship of minimum thresholds between sustainability indicators was revised in the 2024 Plan to state that "[t]he governing indicator will be the lowering of groundwater levels."[41] The 2024 Plan contains insufficient information regarding what conditions would occur for other sustainability indicators at the minimum thresholds for groundwater levels or explain how operating to those thresholds would not interfere with the minimum thresholds for other sustainability indicators or cause undesirable results. The Department staff's evaluation for each applicable sustainability indicator is provided below.

1. Relationship with Reduction of Groundwater Storage

There seems to be a discrepancy between the sustainable management criteria for reduction of groundwater storage using groundwater levels as a proxy and the overdraft estimate using a different approach based on water budget. This discrepancy existed in the 2022 Plan as described in the Department's Incomplete Determination, and the 2024 Plan has not resolved such discrepancy.

Both the 2022 Plan [42] and the 2024 Plan uses groundwater level minimum thresholds as a proxy and calculate the minimum threshold for reduction of storage,[43] as the Plan states that "groundwater storage change is directly proportional to groundwater levels,"[44] and that "if the Subbasin manages to keep water levels above the MTs [minimum thresholds] for groundwater levels, an undesirable result due to storage change should not occur."[45] Using this approach, theoretically there should be no overdraft if the groundwater levels stay above the minimum thresholds. However, the 2022 Plan used a different approach in estimating the Subbasin's overdraft that was based on water budget, which was significantly lower than the overdraft estimates based on groundwater levels.[46] The problem was not in using the water budget method itself, but it was that the GSAs did not take into account of several factors (such as a period of hydrologic conditions, growing crop acreages, and climate change etc.). The end result is that the Subbasin's overdraft condition was underestimated. The Department's Incomplete Determination details these issues in Corrective Action 2. As discussed later in this report, the 2024 Plan has not sufficiently responded to Corrective Action 2, the Subbasin's overdraft conditions likely will not be mitigated within the Plan's implementation period. Therefore, the Plan has not sufficiently addressed the discrepancy between the sustainable management criteria

[40] Incomplete Determination of the 2022 Pleasant Valley Subbasin Groundwater Sustainability Plan. California Department of Water Resources, January 18, 2024, https://sgma.water.ca.gov/portal/gsp/assessments/145. p. 18.
[41] 2024 Pleasant Valley GSP, Section 4.2.3.2, pp. 197-198.
[42] 2022 Pleasant Valley GSP, Section 4.3., p. 188.
[43] 2024 Pleasant Valley GSP, Section 4.3, p. 203.
[44] 2024 Pleasant Valley GSP, Section 4.3.2.2, p. 205.
[45] 2024 Pleasant Valley GSP, Section 4.3.2.2, p. 205.
[46] 2022 Pleasant Valley GSP, Section 3.3.11, p. 162.

using groundwater levels as a proxy and overdraft estimate and mitigation using water budget.

2. Relationship with Degradation of Water Quality

The 2024 states that groundwater quality was not affected by historical groundwater level decline based on graphs of historical concentrations of total dissolved solids (TDS), electric conductivity (EC), and sulfate.[47] In review of these graphs, Department staff note that only the concentrations of TDS, EC, and nitrate were relatively stable historically. However, the concentrations of sulfate have increased significantly during the same time period.[48] The 2024 Plan does not provide any discussion to explain why sulfate concentrations apparently were affected by declining groundwater level. Therefore, it appears the GSAs' conclusion is not fully supported that the Subbasin's groundwater level decline and water quality degradation are not strongly correlated.[49]

3. Relationship with Land Subsidence

The 2024 Plan has not sufficiently proved how the basin's conditions at minimum thresholds for groundwater level will avoid undesirable results for land subsidence. Although the Department's Incomplete Determination cautioned that "the risk of land subsidence exceeding the minimum thresholds could be high,"[50] the 2024 Plan has kept the minimum thresholds at one foot over 20 years for land subsidence.[51] The Plan does provide additional information to describe the GSAs' methodology. However, Department staff note that the GSAs have not used the best available data and science in the development of minimum thresholds for land subsidence, thus the resulting minimum thresholds will be exceeded long before groundwater levels reach their minimum thresholds. The detailed discussion is provided below.

The 2024 Plan describes two methods the GSAs used to develop minimum thresholds for land subsidence:

- Method 1 - based on recorded historical subsidence rate at a monitoring site. The projected cumulative land subsidence would be 0.34 feet by 2042 using this method.[52]
- Method 2 – based on a 1975 study (Bull and Poland, 1975) on ratios of subsidence to groundwater level decline assuming 0.01 feet land subsidence for every foot of

[47] 2024 Pleasant Valley GSP, Section 4.5.1.3, p. 212, Appendix K, pp. 550-554.
[48] 2024 Pleasant Valley GSP, Appendix K, pp. 550-554.
[49] 2024 Pleasant Valley GSP, Section 4.5.1.3, p. 212.
[50] Incomplete Determination of the 2022 Pleasant Valley Subbasin Groundwater Sustainability Plan. California Department of Water Resources, January 18, 2024, https://sgma.water.ca.gov/portal/gsp/assessments/145. p. 18.
[51] 2024 Pleasant Valley GSP, Table 4-5, p. 217.
[52] 2024 Pleasant Valley GSP, Section 4.6.2, p. 221, Appendix P, p. 642.

groundwater decline. The projected cumulative land subsidence would be 0.5 feet by 2042 using this method.[53]

First, Department staff conclude that the GSAs have not used the best available data and science to develop minimum thresholds for land subsidence. First, the 2024 Plan does not specify the location where the historical land subsidence was measured in Method 1. Land subsidence is often a localized issue based on geology and groundwater conditions where portions of a basin experience it, while other portions of the basin may not. The GSAs providing data from this one location in the Subbasin that has not experienced land subsidence and applying it to the entire Subbasin is inappropriate and may not represent basin conditions. In addition, Department staff note other portions of the Subbasin appear to be experiencing land subsidence based on the Department's InSAR data. The InSAR data show that the historical land subsidence rate has been 0.2-0.4 feet per year and portions of the Subbasin have experienced nearly two feet of land subsidence since 2015.[54]

Second, the 1975 study referenced in Method 2 does not represent the best available data and science either. Not only does the Plan state that the study did not cover the Subbasin, but also the land uses, water resources settings, and groundwater pumping have significantly changed in the San Joaquin Valley, including Pleasant Valley. In addition, the understanding of land subsidence has greatly increased since 1975 including measuring techniques and modeling approaches. Furthermore, the 2024 Plan's projected cumulative subsidence was based on only 50 feet of groundwater level decline,[55] significantly less than the projected 84-185 feet decline in the development of groundwater level minimum thresholds.[56]

Third, the 2024 Plan's projected land subsidence estimates described above are significantly lower than the projection if using the Department's InSAR data, which represent the best and most recent data available. The InSAR data show recent land subsidence rates of 0.2 - 0.4 feet per year in portions of the Subbasin, and nearly two feet of cumulative land subsidence since 2015.[57] Also, the area that experienced significant land subsidence coincides with the area where groundwater pumping occurred. As groundwater levels continue to drop in the Subbasin, land subsidence will continue, and the projected cumulative land subsidence could greatly exceed the minimum threshold of one foot and lead to undesirable results.

Based on the discussion above, the 2024 Plan does not provide adequate information to support that the proposed groundwater level minimum thresholds will avoid causing undesirable results for land subsidence. In combination with the discussions with respect

[53] 2024 Pleasant Valley GSP, Section 4.6.2.
[54] California's Groundwater Live: Land Subsidence. https://storymaps.arcgis.com/stories/41574a6d980b4e5d8d4ed7b90f9698d2
[55] 2024 Pleasant Valley GSP, Section 4.6.2.
[56] 2024 Pleasant Valley GSP, Table 4-2, p. 197.
[57] California's Groundwater Live: Land Subsidence. https://storymaps.arcgis.com/stories/41574a6d980b4e5d8d4ed7b90f9698d2

to the relationship with reduction of groundwater storage and degradation of groundwater quality, Department staff conclude Corrective Action 1d has not been sufficiently addressed.

4.1.3 Conclusion

Overall, Department staff conclude that the 2024 Plan has not taken sufficient action to address Deficiency 1. Multiple issues still exist related to the development of sustainable management criteria for groundwater levels within the 2024 Plan, precluding approval of the Plan. First, the development of minimum threshold did not consider all groundwater uses and users. Second, it is unclear when an undesirable result will occur. The lack of a timing component in the general description, coupled with the inclusion of a metric regarding conditions at every irrigation and domestic well, making it extremely difficult to understand how the GSAs will track or assess undesirable results. Third, the 2024 Plan lacks sufficient consideration of how groundwater level management will affect other sustainability indicators. The 2024 Plan presents unconvincing evidence that land subsidence undesirable results will not occur based on two analyses that do not appear to use the best available science and data.

4.2 Deficiency 2: The GSP does not include a reasonable assessment of overdraft conditions and reasonable means to mitigate overdraft.

The corrective action (Corrective Action 2) identified by the Department to address Deficiency 2 is described below. Details of Deficiency 2 are included in the Department's Incomplete Determination Staff Report and are not reiterated unless specifically noted.

4.2.1 Corrective Action 2

Corrective Action 2 consists of two components, corresponding to each specific area of Deficiency 2. Department staff recommended the Subbasin consider and address the following:

a. Reevaluate the assessment of overdraft conditions in the Subbasin to develop and report the most accurate estimate of current and projected future overdraft under current and future conditions. Specifically, the Plan should include a quantification of overdraft over a period of years during which water year and water supply conditions approximate average conditions and are representative of average expected overdraft during the Plan implementation and planning horizon. Among other relevant factors, the Plan should factor in the likely increased water demand (and groundwater pumping) to support the expanding acreage of pistachios and full water demands as those crops fully mature. In addition, the Plan should also consider potential impacts of climate change on the overdraft quantification.

b. Provide a reasonable means to mitigate the overdraft in the Subbasin. Specifically, the Plan should include and describe feasible, effective projects and management actions that can sufficiently augment the water supply to mitigate the Subbasin's current and projected overdraft. Among other relevant factors to include in the Plan

(see GSP Regulations section 354.44), the Plan should demonstrate that the GSAs have fully considered the tasks and actions required to implement the projects and management actions, the length of time these tasks and actions will take, are committed to and financially capable of implementing the projects and management actions (even without grant funding), and develop and include a mandatory demand reduction management action in case the water supply augmentation projects are not timely implemented or do not provide the expected benefits.

4.2.2 Evaluation

4.2.2.1 Corrective Action 2a

In response to Corrective Action 2a that requested a reasonable assessment of the Subbasin's overdraft considering hydrologic conditions, increasing pistachio acreage and maturing, and climate change impact, the 2024 Plan has removed the higher overdraft estimates based on groundwater levels,[58] and it has kept the estimate that is significantly lower based on historical water budget because reliable stream flow measurements and metered pumping are available.[59] While the method itself is not problematic, the problem is the 2024 Plan has not addressed the issues described above in Corrective Action 2a given the overdraft estimate "will be used for the planning and the implementation of projects to become sustainable." [60] The detailed evaluation of the GSAs' response to Corrective Action 2a is provided below.

First, the 2024 Plan's overdraft estimate lacks significant supporting information and analysis. The overdraft estimate in the 2024 Plan is -19,000 acre-feet per year based on the 2017 water budget.[61] However, the 2024 Plan does not provide any detailed information for the 2017 water budget, for instance, what specific numbers were used for inflows and outflows to the groundwater system to come up with the overdraft estimate. Department staff note that the 2024 Plan's value of overdraft estimate is unchanged from the 2022 Plan, which was based on the 2019 water budget.[62]

Second, the 2024 Plan's overdraft estimate is still based on the water budget for one single year (2017) instead of a period of years during which water year and water supply conditions approximate average condition as required by the GSP Regulations.[63] The 2024 Plan states that the historical water budget for the period of Water Years 2006-2017 represents the most recent average hydrological period.[64] However, there is no information provided in the 2024 Plan on how the hydrologic conditions for 2006-2017 were applied in obtaining the overdraft estimate value except that 2017 is the last year of

[58] 2022 Pleasant Valley GSP, Section 3.3.11, p. 162.
[59] 2024 Pleasant Valley GSP, Section 3.3.11, p. 176.
[60] 2024 Pleasant Valley GSP, Section 3.3.11, p. 176.
[61] 2024 Pleasant Valley GSP, Section 3.3.11, p. 176.
[62] 2022 Pleasant Valley GSP, Section 3.3.9, p. 154, Section 3.3.11, p. 162.
[63] 23 CCR § 354.18 (b)(5).
[64] 2024 Pleasant Valley GSP, Section 3.3.11, p. 176.

this period. On top of that, 2017 is a wet year according to Sustainable Groundwater Management Action Water Year Type Dataset,[65] further deviated from the average hydrologic condition.

Third, the 2024 Plan's overdraft estimate does not consider increasing crop acreage and maturing and climate change impact. The 2024 Plan reports a rapid expansion of crop acreage in recent years, increasing approximately 53% from 11,500 acres in 2017 to 17,600 acres in 2020.[66] Although the 2024 Plan proposes a policy to restrict further permanent crop planting, the policy is still in development.[67] Without considering these factors, the 2024 Plan's overdraft estimate is likely significantly underestimated. This assessment seems to be supported by the Subbasin's accelerated groundwater level decline rate in recent years. For instance, the water level declines averaging about 17 feet per year during 2017-2021 in the central portion of the Subbasin, significantly greater than 5.6 feet per year between 2007-2017.[68]

Lastly, the groundwater system budgets provided in the 2024 Plan appear to contain an accounting error. Specifically, although the imported surface water is a part of the surface water system budget, the Plan incorrectly includes it in the groundwater system budget.[69] This is not consistent with the water budget schematic included in the Plan and the description that itemizes the inputs and outputs of both surface water and groundwater system budgets.[70] As a result, the inclusion of import surface water in the groundwater system artificially reduces the overdraft amount. For instance, the import surface water was 10,600 acre-feet in 2019 groundwater water budget,[71] which is the overdraft amount not accounted for by the GSAs. The Plan should provide a water budget for both groundwater system and surface water system consistent with the requirements of the GSP Regulations.[72]

Based on the discussion above, Department staff are unable to conclude that the 2024 Plan includes a reasonable assessment of overdraft conditions for the Subbasin. Without taking into account multiple factors described in Corrective Action 2a, the 2024 Plan significantly underestimates the overdraft estimate that the GSAs should mitigate within the Plan's implementation period. The projects and management actions proposed in the Plan according to this overdraft estimate directly impact the ability of the GSAs to achieve sustainability in the Subbasin.

4.2.2.2 Corrective Action 2b

In response to Corrective Action 2b that requested a reasonable means to mitigate the overdraft in the Subbasin, the 2024 Plan was updated to include a list of projects and

[65] https://data.cnra.ca.gov/dataset/sgma-water-year-type-dataset.
[66] 2022 Pleasant Valley GSP, Section 3.3.1, p. 134.
[67] 2024 Pleasant Valley GSP, Section 6.3, p. 294.
[68] 2024 Pleasant Valley GSP, Section 3.2.2, p. 117, Figure 3-24, p. 119.
[69] 2024 Pleasant Valley GSP, Table 3-7, p. 167, Table 3-8, p. 168, and Table 3-9, p. 175.
[70] 2024 Pleasant Valley GSP, Figure 3-37, p. 147, Sections 3.3.4-3.3.6, pp. 155-161.
[71] 2024 Pleasant Valley GSP, Table 3-8, p. 168.
[72] 23 CCR § 354.18 (b)(1).

management actions the GSAs have begun implementing or propose to implement. However, the information provided is not sufficient to demonstrate that the projects and management actions are feasible, likely to prevent undesirable results, and likely to reasonably mitigate the Subbasin's overdraft.[73] Department staff have specifically identified four problems with the 2024 Plan which directly impact the ability of the GSAs to mitigate the ongoing overdraft occurring in the Subbasin: 1) the expected benefit of the proposed projects is insufficient to mitigate the Subbasin's overdraft condition; 2) the 2024 Plan has not sufficiently addressed the availability and reliability of obtaining imported surface water; 3) funding uncertainties still exist for the construction of the import surface water pipeline project and the purchase of import surface water; and 4) the pumping curtailment policy lacks significant details to serve as a contingency plan if the import surface water pipeline project is not implemented as planned. Details are described below.

First, Department staff identified in the Department's Incomplete Determination that the total estimated benefit of the proposed projects could be significantly less than the estimated overdraft for the Subbasin.[74] The 2024 Plan has been revised to include a list of projects and management actions that the GSAs have begun to implement, but it has not updated the portfolio of projects and management actions and the total expected benefits. Without an updated estimate of expected benefits and the overdraft estimate remains the same, Department staff's conclusion in the Incomplete Determination remains unchanged that the overdraft condition in the Subbasin will likely not be mitigated within the Plan's implementation period.

Second, the 2024 Plan has not sufficiently addressed the uncertainties identified with the import surface water supply: the uncertainty associated with the availability and reliability of import surface water supply and the uncertainty associated with financing. The Department's Incomplete Determination Staff Report identified significant uncertainties existed regarding the import surface water supply, which the GSAs rely on heavily to mitigate the overdraft.[75] The 2024 Plan describes that private landowners within the Subbasin have imported surface water for irrigation, averaging 3,000 acre-feet per year for the period of 2006-2017, no data for the period of 2017-2022, and 7,400 acre-feet for year 2023.[76] The projected import surface water supply at 20,000 acre-feet per year will be significantly greater than the historical average.[77] However, the 2024 Plan does not address the availability and reliability of import surface water supply required by the GSP

[73] 23 CCR § 355.4(b)(6).
[74] Incomplete Determination of the 2022 Pleasant Valley Subbasin Groundwater Sustainability Plan. California Department of Water Resources, January 18, 2024, https://sgma.water.ca.gov/portal/gsp/assessments/145.
[75] Incomplete Determination of the 2022 Pleasant Valley Subbasin Groundwater Sustainability Plan. California Department of Water Resources, January 18, 2024, https://sgma.water.ca.gov/portal/gsp/assessments/145.
[76] 2024 Pleasant Valley GSP, Table 3-3, p. 150.
[77] 2024 Pleasant Valley GSP, Table 6-2, p. 279.

Regulations.[78] The 2024 Plan states, "each landowner will purchase import surface water on the open market and be delivered when available."[79] The purchases are on a short-term basis as shown in an import surface water purchase contract agreement for 2021.[80] However, the 2024 Plan states that the reductions in surface water supplies in the San Joaquin Valley total approximately 2,155,000 acre-feet per year due to the following factors including: the Central Valley Project Improvement Act (CVPIA) (circa 1992), Biological Opinion (circa 2007), the San Joaquin River Restoration Program (circa 2010), Climate Change, changing crop patterns, and increased urbanization.[81] Based on the discussion above, the 2024 Plan seems to indicate that the reductions in surface water supplies in the San Joaquin Valley could significantly impact the availability and reliability of import surface water for the Subbasin, increasing the uncertainty for the GSAs to obtain the projected amount of deliveries for the import surface water supply.

Another uncertainty is with the funding for the major facilities to import surface water, which was identified in the 2022 Plan relying on the availability of grant funds in the 2022 Plan. The 2024 Plan has removed the statement that the implementation of the projects is contingent upon the availability of grant funds. While still identifying grants as a potential funding source, the 2024 Plan states that the project costs will be borne solely by local landowners, and that the projects are not the responsibility of the Pleasant Valley GSA.[82] The 2024 Plan indicates that the import surface water project (North Pipeline Project) is at 90% completion of permitting and design and construction scheduled for the 3rd quarter of 2024.[83] The project costs includes $14M one-time capital cost and annual surface water purchase cost of $5-10M per year.[84] Although these local landowners have an interest in increasing their water supply by bringing in additional import surface water, they are private entities and are not required to disclose the funding details. Thus, Department staff do not have sufficient information to assess if the funding will be secured not only for the pipeline construction but also for recurring import surface water purchases. More importantly, since the GSAs have no control over the import surface water project, it is not clear what the GSAs' strategy is to ensure the project will be used to mitigate the overdraft and achieve the Subbasin's sustainability.

Lastly, the 2024 Plan still lacks a detailed contingency plan given the uncertainties with the import surface water projects. Department staff asked the GSAs to provide a contingency plan in the Department's Incomplete Determination.[85] In response, the 2024 Plan includes a draft pumping curtailment policy in the Executive Summary that tabulates

[78] 23 CCR §§ 354.18(c)(2), 354.18(c)(3).
[79] 2024 Pleasant Valley GSP, Section 6.2.1, p. 285.
[80] 2024 Pleasant Valley GSP, Appendix J, pp. 540-549.
[81] 2024 Pleasant Valley GSP, Section 4.1, pp. 181-182.
[82] 2024 Pleasant Valley GSP, Section 7.2, pp. 299-300.
[83] 2024 Pleasant Valley GSP, Section 6.2, p. 281.
[84] 2024 Pleasant Valley GSP, Section 6.2, p. 279.
[85] Incomplete Determination of the 2022 Pleasant Valley Subbasin Groundwater Sustainability Plan. California Department of Water Resources, January 18, 2024, https://sgma.water.ca.gov/portal/gsp/assessments/145.

the overdraft reduction targets for every five years over the Plan's implementation period.[86] However, it does not provide any details in the Projects and Management Action Section except stating the pumping curtailment policy is "in development".[87] Therefore, the Plan lacks significant details for Department staff to determine whether and how the Subbasin's overdraft conditions will be mitigated within the Pan's implementation period.

4.2.3 Conclusion

The GSAs have not made sufficient progress in the 2024 Plan related to the assessment of overdraft. While the GSAs revised the year utilized for the overdraft estimate from 2017 to 2019, the actual value remains at -19,000 acre-feet per year. Department staff flagged this value as likely underestimated in the 2022 Plan and it was not addressed in the 2024 Plan. The GSAs also included import surface water in the groundwater system budget that contributes to an underestimate of overdraft.

The GSAs also have not made sufficient progress with efforts to mitigate overdraft in the 2024 Plan. The identified uncertainties associated with the import surface water projects are not sufficiently addressed, and the Plan provides a draft pumping curtailment policy that lacks significant details. Department staff note that the Plan includes a list of projects and management actions that the GSAs have begun to implement, but there is no update to the total expected benefits provided. Overall, based on the discussion above, Department staff conclude that the 2024 Plan has not taken sufficient action to address Deficiency 2.

4.3 Deficiency 3: The GSP does not develop sustainable management criteria for degradation of groundwater quality substantially compliant with the GSP regulations.

The corrective action (Corrective Action 3) identified by the Department to address Deficiency 3 is described below. Details of Deficiency 3 are included in the Department's Incomplete Determination Staff Report and are not reiterated unless specifically noted.

4.3.1 Corrective Action 3

Corrective Action 3 consists of two components, corresponding to each specific area of Deficiency 3. Department staff recommended the Subbasin consider and address the following:

a. Establish sustainable management criteria for all identified constituents of concern to prevent significant degradation that would impair water supplies and impact the beneficial uses and users in the Subbasin (including agricultural and domestic uses) and to avoid exacerbating the existing conditions of already elevated concentrations of constituents of concern.

[86] 2024 Pleasant Valley, Executive Summary, p. 19.
[87] 2024 Pleasant Valley, Section 6.2, p. 281.

b. Revise the definition of undesirable results for degraded groundwater quality to expressly consider and include exceedances of minimum thresholds caused by groundwater extraction within the Subbasin, in addition to degradation caused by the GSAs implementation of projects. Provide additional information and a detailed rationale to support the selection of these minimum thresholds.

4.3.2 Evaluation

4.3.2.1 Corrective Action 3a

In response to Corrective Action 3a, the GSAs conducted outreach to domestic groundwater well owners and revised the sustainable management criteria for degraded water quality, but did not identify any new constituents of concern or set thresholds that avoid the degradation of water quality.

The GSAs performed outreach to folks in the Lost Hills Community, allegedly the only domestic well owners in the Subbasin, to identify how groundwater is being used. The GSAs performed outreach to residents in the Lost Hills Community, allegedly the only domestic well owners in the Subbasin, to identify how groundwater is being used. After performing interviews with users in this portion of the Subbasin, the GSAs concluded that the groundwater pumped from domestic wells is not used for drinking water but for toilets and for landscape irrigation.[88] In addition, the 2024 Plan proposes a new domestic water monitoring plan to monitor water quality and water levels and considers Self-Help Mitigation Measures Guidelines should the domestic well users choose to treat their well for drinking water.[89] Department staff believe the GSAs have now included information in the 2024 GSP to show groundwater is not being used for drinking water in the Subbasin.

While the GSAs made progress as it relates to identifying whether water quality impacts to domestic wells are occurring in the Subbasin, the 2024 GSP still includes serious issues that warrant further discussion.

First, the 2024 GSP still only considers water quality impacts related to pistachios. Same as the 2022 Plan, the 2024 Plan describes the significant and unreasonable effects related to groundwater quality as “the degradation of groundwater quality such that pistachios can no longer grow.”[90] While the GSA has shown there may be no well owners using groundwater for drinking, this does not mean the GSAs can degrade water quality while only considering pistachio’s tolerance. The Plan identifies pistachio as a dominant crop is the Subbasin, but there are other crops grown in the Subbasin that are groundwater users as well such as field crops and grain and hay crops etc.[91] The GSAs do not appear to have considered these groundwater users in developing the water quality sustainable management criteria.

[88] 2024 Pleasant Valley GSP, Section 4.5.1, p. 210.
[89] 2024 Pleasant Valley GSP, Section 4.5.1, p. 210, Appendix O, pp. 620-637.
[90] 2024 Pleasant Valley GSP, Section 4.5.1, p. 210.
[91] 2024 Pleasant Valley GSP, Table 2-3, p. 55.

Second, the 2024 Plan does not respond to Corrective Action 3a asking for sustainable management criteria development for other identified constituents of concern, such as boron, chloride, bicarbonate, nitrate, and sulfate.[92] The 2024 GSP does not provide any discussion or rationale for why sustainable management criteria are not established for these other constituents as requested in the corrective action. The 2024 Plan does not provide any discussion or rationale for why sustainable management criteria are not established for these other constituents as requested in the corrective action.

Overall, the GSAs have not sufficiently addressed Corrective Action 3a because they have not considered all beneficial uses and users, nor have they developed sustainable management criteria for all identified constituents of concern.

4.3.2.2 Corrective Action 3b

Corrective Action 3b asks for a quantitative definition of undesirable result for TDS based on the combination of minimum threshold exceedances that cause significant and unreasonable effects in the Subbasin.[93] In addition, Corrective Action 3b asks for additional information and a detailed rationale for the minimum threshold. In response, the GSAs revised the minimum threshold for TDS and provided some discussion on the rationale, but many issues still exist with the GSAs' response.

First, the 2024 Plan does not respond to Corrective Action 3b asking for a quantitative definition of undesirable results. The undesirable results definition related to groundwater quality in the 2024 Plan did not change from the 2022 Plan, still described as "the continual degradation of supplies that would not allow for the continued farming of pistachios and other salt tolerant crops."[94] This definition does not meet the requirements of GSP Regulations for undesirable results as it does not include a quantitative description of a combination of minimum threshold exceedances.[95]

Second, there are many inconsistencies with the value of the TDS minimum threshold in the Plan. It appears that the 2024 Plan has selected the TDS minimum threshold at 3,500 micromhos/cm of electrical conductivity (EC),[96] changed from 5,000 micromhos/cm of EC in the 2022 Plan.[97] However, there are a couple of other values of TDS minimum thresholds mentioned in the 2024 Plan. For instance, the Plan also describes the TDS minimum thresholds to be 3,000 mg/L[98] and 3,000 uS/dm.[99] The inconsistencies make it impossible for Department staff to understand what condition in terms of the concentration of TDS the GSAs try to avoid in managing the Subbasin.

[92] 2024 Pleasant Valley GSP, Section 3.2.5, pp. 127-137.
[93] 23 CCR § 354.26 (b) (2).
[94] 2024 Pleasant Valley GSP, Section 4.5.2.2, p. 213.
[95] 23 CCR § 354.26 (b)(2).
[96] 2024 Pleasant Valley GSP, Section 4.5.2, p. 213.
[97] 2022 Pleasant Valley GSP, Section 4.5.2, p. 196.
[98] 2024 Pleasant Valley GSP, Executive Summary, p. 26, Section 4.5.1, p. 210.
[99] 2024 Pleasant Valley GSP, Section 4.5.1, p. 210.

Third, the Plan has not provided sufficient discussion on the rationale of the TDS minimum threshold. The 2024 Plan supports the selection of minimum threshold value by simply referencing the conclusion of an academic study conducted by Ferguson, Sanden, & Grattan (2010), entitled "Understanding the effects of salinity on Pistachios." However, the conclusion of the study with regard to the pistachio's salt tolerance level appears to be inconsistent when referenced in the 2024 Plan. The Plan states, "the groundwater no longer provide beneficial use to pistachios when EC levels exceed to 3,500 micromhos/cm."[100] Also in the 2024 Plan, it states that pistachios are salt tolerant and can survive using water with TDS levels of up 5,000 mg/L.[101] No other details related to the study were provided in the Plan, although the GSAs provide a link to an online article as a reference in the SGMA portal. However, the link provided by the GSAs in the SGMA portal is a broken link. Therefore, Department staff conclude that the GSAs have not provided sufficient information and discussion to justify the selection of the TDS minimum threshold.

Lastly, the Plan's groundwater quality sustainable management criteria are problematic as the GSAs manage the Subbasin based solely on the salt tolerance level of pistachios. The GSAs have not considered the potential impacts on other crops that use groundwater, on land uses and property interests, nor other potential effects that may occur or are occurring from undesirable results.[102] The minimum thresholds for TDS, although multiple inconsistent values are discussed in the Plan, are substantially higher than the current values in the Subbasin, suggesting that the GSAs plan to allow for the degradation of water quality. The Plan does not provide any discussion on how it may affect other beneficial uses and users of groundwater and land use plans. The second concern with the selected minimum thresholds for TDS is the failure to consider the local, state, and federal water quality standards applicable to the Subbasin. For instance, the Plan describes that the Subbasin is required through the Irrigated Lands Regulatory Program to address key pollutants of concern including salinity, nitrate, and pesticide introduced through runoff or infiltration of irrigation water and stormwater.[103] However, the Plan does not discuss how the GSAs considered the Irrigated Lands Regulatory Program in the development of groundwater quality sustainable management criteria.

4.3.3 Conclusion

The GSAs have made progress in the 2024 Plan related to the sustainable management criteria for degraded water quality; however, many key issues still exist. The inclusion of outreach to local landowners to understand domestic well use in the Subbasin is encouraging. The 2024 Plan appears to indicate domestic wells within the Subbasin are not utilized for drinking water purposes which is important for the GSAs to know during

[100] 2024 Pleasant Valley GSP, Section 4.5.1.1, p. 211.
[101] 2024 Pleasant Valley GSP, Executive Summary, p. 21.
[102] 23 CCR § 354.26 (b)(3); Water Code §§ 10727.2(g), 10727.4(k).
[103] 2024 Pleasant Valley GSP, Section 2.3.1, p. 69.

management of the Subbasin. The key issues are related to the development of groundwater quality sustainable management criteria for the Subbasin.

The first issue with the 2024 Plan is that the definition of undesirable results is overly narrow and omits many beneficial uses and users in the Subbasin. While SGMA is aimed toward local control, the choice to simply manage the Subbasin to avoid "the degradation of groundwater quality such that pistachios can no longer grow"[104] does not appear to consider all beneficial uses and users including other crops using groundwater for irrigation, land uses, and property interests as required by the GSP Regulations.[105] Second, the minimum threshold values for TDS in the 2024 Plan (although multiple inconsistent values are discussed) appears to allow for the continued degradation of water quality but lacks discussion of how it would impact other beneficial uses and users other than pistachios. Lastly, the 2024 Plan fails to describe how the minimum thresholds considered local, state, and federal water quality standards applicable to the basin as required by the GSP Regulations.[106]

Overall, based on the discussions above, Department staff conclude that the 2024 Plan has not taken sufficient action to address Deficiency 3.

5 STAFF RECOMMENDATION

Department staff believe sufficient action has not been taken by the GSAs to correct one or more of the deficiencies identified by the Department. Department staff recommend the 2024 Plan be determined **INADEQUATE**.

[104] 2024 Pleasant Valley GSP, Section 4.5.1, p. 210.
[105] 23 CCR § 355.4 (b)(4).
[106] 23 CCR § 354.28 (c)(4).