CALIFORNIA DEPARTMENT OF WATER RESOURCES
SUSTAINABLE GROUNDWATER MANAGEMENT OFFICE
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January 18, 2024

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

RE: San Joaquin Valley – Pleasant Valley Subbasin - 2022 Groundwater Sustainability Plan

Dear Brad Gleason,

The Department of Water Resources (Department) has evaluated the groundwater sustainability plan (GSP or Plan) submitted for the San Joaquin Valley – Pleasant Valley Subbasin. The Department has determined that the Plan is "incomplete" pursuant to Section 355.2(e)(2) of the GSP Regulations.

The Department based its incomplete determination on recommendations from the Staff Report, included as an enclosure to the attached Statement of Findings, which describes that the Subbasin's Plan does not satisfy the objectives of the Sustainable Groundwater Management Act (SGMA) nor substantially comply with the GSP Regulations. The Staff Report also provides corrective actions which the Department recommends the Subbasin's groundwater sustainability agency (GSA) review while determining how to address the deficiencies.

The Subbasin's GSA has 180 days, the maximum allowed by the GSP Regulations, to address the identified deficiencies. Where addressing the deficiencies requires modification of the Plan, the GSA must adopt those modifications into the GSP and all applicable coordination agreement materials, or otherwise demonstrate that those modifications are part of the Plan before resubmitting it to the Department for evaluation no later than July 16, 2024. The Department understands that much work has occurred to advance sustainable groundwater management since the GSA submitted the GSP in April 2022. To the extent to which those efforts are related or responsive to the Department's identified deficiencies, we encourage you to document that as part of your Plan resubmittal. The Department prepared a Frequently Asked Questions document to provide general information and guidance on the process of addressing deficiencies in an "incomplete" determination.

Department staff will work expeditiously to review the revised components of your Plan resubmittal. If the revisions sufficiently address the identified deficiencies, the Department will determine that the Plan is "approved". In that scenario, Department staff

will identify additional recommended corrective actions that the GSA should address early in implementing the GSP (i.e., no later than the first required periodic evaluation). Among other items, those corrective actions will recommend the GSA provide more detail on their plans and schedules to address data gaps. Those recommendations will call for significantly expanded documentation of the plans and schedules to implement specific projects and management actions. Regardless of those recommended corrective actions, the Department expects the first periodic evaluations, required no later than April 2027 – one-quarter of the way through the 20-year implementation period – to document significant progress toward achieving sustainable groundwater management.

If the Subbasin's GSA cannot address the deficiencies identified in this letter by July 16, 2024, then the Department, after consultation with the State Water Resources Control Board, will determine the GSP to be "inadequate". In that scenario, the State Water Resources Control Board may identify additional deficiencies that the GSA would need to address in the state intervention processes outlined in SGMA.

Please contact Sustainable Groundwater Management staff by emailing sgmps@water.ca.gov if you have any questions related to the Department's assessment or implementation of your GSP.

Thank You,

Paul Gosselin

Paul Gosselin
Deputy Director
Sustainable Groundwater Management

Attachment:

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

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

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

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 Sustainable Groundwater Management Act (SGMA or Act), is likely to achieve the sustainability goal for the Subbasin, and whether the GSP adversely affects the ability of an adjacent basin or subbasin to implement its GSP or impedes achievement of sustainability goals in an adjacent basin or subbasin. (Water Code § 10733.) The Department is directed to issue an assessment of the GSP within two years of its submission. (Water Code § 10733.4.) This Statement of Findings explains the Department's decision regarding the submitted Plan by the Pleasant Valley Groundwater Sustainability Agency, the City of Coalinga Groundwater Sustainability Agency, and the County of Fresno Pleasant Valley Groundwater Sustainability Agency (GSAs or Agencies) for the San Joaquin Valley – Pleasant Valley Subbasin (5-022.10).

Department management has reviewed the enclosed Staff Report, which recommends that the identified deficiencies should preclude approval of the GSP. Based on its review of the Staff Report, Department management is satisfied that staff have conducted a thorough evaluation and assessment of the Plan and concurs with, and hereby adopts, staff's recommendation and all the corrective actions provided. The Department thus determines the Plan Incomplete based on the staff assessments and recommendations. In particular, the Department finds:

A. The GSAs should revise the GSP to establish sustainable management criteria that is substantially compliant with the GSP Regulations. Specifically, the Plan must be amended as follows:

    1. Clearly define significant and unreasonable effects related to chronic lowering of groundwater levels. The significant and unreasonable effects must be considered and incorporated in establishing the minimum thresholds.

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

3. 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 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*.[1]

4. 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.

B. The GSAs must include a reasonable assessment of overdraft conditions and reasonable means to mitigate overdraft. Specifically, the Plan must be amended as follows:

1. Reevaluate the assessment of overdraft conditions in the Subbasin. 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. The Plan should factor in the fast-growing acreage of pistachios and abundant new crops that will take time to mature. In addition, the Plan should also consider the impact of climate change on the overdraft quantification.

2. Provide a reasonable means to mitigate the overdraft in the Subbasin. Specifically, the Plan should include projects and management actions that can sufficiently augment the water supply to mitigate the overdraft. The Plan should demonstrate that the GSAs are committed financially to implementing the projects and management actions, including mandatory demand reduction in case the water supply augmentation projects fall short.

C. The GSAs should revise the GSP to establish sustainable management criteria substantially compliant with the GSP Regulations. Specifically, the Plan must be amended as follows:

[1] https://water.ca.gov/Programs/Groundwater-Management/Drinking-Water-Well.

1. Establish sustainable management criteria for all identified constituents of concern to protect the beneficial uses and users in the Subbasin (including agricultural and domestic uses) and to avoid exacerbating the existing conditions with elevated concentrations.

2. Revise the definition of undesirable results for degraded groundwater quality so that exceedances of minimum thresholds caused by groundwater extraction, whether the GSAs have implemented projects or not, are considered in the assessment of undesirable results in the Subbasin. Provide additional information to support the selection of minimum thresholds. For instance, explain the rationale for setting the minimum threshold for TDS at 5,000 micromhos/cm of electrical conductivity.

Based on the above, the GSP submitted by the Agencies for the San Joaquin Valley – Pleasant Valley Subbasin is determined to be incomplete because the GSP does not satisfy the requirements of SGMA, nor does it substantially comply with the GSP Regulations. The corrective actions provided in the Staff Report are intended to address the deficiencies that, at this time, preclude approval. The Agencies have up to 180 days to address the deficiencies outlined above and detailed in the Staff Report. Once the Agencies resubmit their Plan, the Department will review the revised GSP to evaluate whether the deficiencies were adequately addressed. Should the Agencies fail to take sufficient actions to correct the deficiencies identified by the Department in this assessment, the Department shall disapprove the Plan if, after consultation with the State Water Resources Control Board, the Department determines the Plan inadequate pursuant to 23 CCR § 355.2(e)(3)(C).

Signed:

Karla Nemeth

Karla Nemeth, Director
Date: January 18, 2024

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

State of California
Department of Water Resources
Sustainable Groundwater Management Program
Groundwater Sustainability Plan Assessment
Staff Report

Groundwater Basin Name:	San Joaquin Valley – Pleasant Valley Subbasin (No. 5-022.10)
Submitting Agency:	Pleasant Valley Groundwater Sustainability Agency, City of Coalinga Groundwater Sustainability Agency, County of Fresno Pleasant Valley Groundwater Sustainability Agency
Submittal Type:	Initial GSP Submission
Submittal Date:	April 4, 2022
Recommendation:	Incomplete
Date:	January 18, 2024

The Pleasant Valley Groundwater Sustainability Agency, in coordination with the City of Coalinga Groundwater Sustainability Agency and the County of Fresno Pleasant Valley Groundwater Sustainability Agency (collectively, the GSAs) submitted the Pleasant Valley Groundwater Sustainability Plan (GSP or Plan) to the Department of Water Resources (Department) for evaluation and assessment as required by the Sustainable Groundwater Management Act (SGMA)[1] and the GSP Regulations.[2] The GSP covers the entire San Joaquin Valley – Pleasant Valley Subbasin (Subbasin) for the implementation of SGMA.[3] As presented in this staff report, a single GSP covering the entire Subbasin was adopted and submitted by the GSAs to the Department for review.[4]

Evaluation and assessment by the Department is based on whether an adopted and submitted GSP, either individually or in coordination with other adopted and submitted GSPs, complies with SGMA and substantially complies with the GSP Regulations. Department staff base their assessment on information submitted as part of an adopted GSP, public comments submitted to the Department, and other materials, data, and reports that are relevant to conducting a thorough assessment. Department staff have evaluated the GSP and have identified deficiencies that staff recommend should preclude its approval and therefore staff recommend that the GSP be determined **Incomplete**.[5] In addition, consistent with the GSP Regulations, Department staff have provided required

[1] Water Code § 10720 *et seq*.
[2] 23 CCR § 350 *et seq*.
[3] Pleasant Valley Subbasin GSP, Figure 2-2, p. 37.
[4] Water Code §§ 10727(b)(1), 10733.4; 23 CCR § 355.2.
[5] 23 CCR §355.2(e)(2).

corrective actions[6] that the GSAs should review while determining how and whether to address the deficiencies. The deficiencies and required corrective actions are explained in greater detail in Section 3 of this staff report and are generally related to the need to define sustainable management criteria in the manner required by SGMA and the GSP Regulations.

This assessment includes four sections:

- **Section 1 – Evaluation Criteria:** Describes the legislative requirements and the Department's evaluation criteria.
- **Section 2 – Required Conditions:** Describes the submission requirements, GSP completeness, and basin coverage required for a GSP to be evaluated by the Department.
- **Section 3 – Plan Evaluation:** Provides a detailed assessment of identified deficiencies in the GSP. Consistent with the GSP Regulations, Department staff have provided corrective actions for the GSAs to address the deficiencies.
- **Section 4 – Staff Recommendation**: Provides staff's recommendation regarding the Department's determination.

[6] 23 CCR §355.2(e)(2)(B).

1 EVALUATION CRITERIA

The Department evaluates whether a Plan conforms to the statutory requirements of SGMA [7] and is likely to achieve the basin's sustainability goal. [8] To achieve the sustainability goal, 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.[9] Undesirable results are required to be defined quantitatively by the GSAs overlying a basin and occur when significant and unreasonable effects for any of the applicable sustainability indicators are caused by groundwater conditions occurring throughout the basin.[10] The Department is also required to evaluate whether the Plan will adversely affect the ability of an adjacent basin to implement its groundwater sustainability program or achieve its sustainability goal.[11]

For a Plan to be evaluated by the Department, it must first be determined that it was submitted by the statutory deadline[12] and that it is complete and covers the entire basin.[13] If these required conditions are satisfied, the Department evaluates the Plan to determine whether it complies with SGMA and substantially complies with the GSP Regulations.[14] 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."[15]

When evaluating whether the Plan is likely to achieve the sustainability goal for the basin, Department staff review the information provided for sufficiency, credibility, and consistency with scientific and engineering professional standards of practice.[16] The Department's review considers whether there is a reasonable relationship between the information provided by the GSAs and the assumptions and conclusions presented in the Plan, including; whether the interests of the beneficial uses and users of groundwater in the basin have been considered; whether sustainable management criteria and projects and management actions described in the Plan are commensurate with the level of understanding of the basin setting; and whether those projects and management actions

[7] Water Code §§ 10727.2, 10727.4, 10727.6.
[8] Water Code § 10733(a).
[9] Water Code § 10721(v).
[10] 23 CCR § 354.26.
[11] Water Code § 10733(c).
[12] 23 CCR § 355.4(a)(1).
[13] 23 CCR §§ 355.4(a)(2), 355.4(a)(3).
[14] 23 CCR § 350 *et seq*.
[15] 23 CCR § 355.4(b).
[16] 23 CCR § 351(h).

are feasible and likely to prevent undesirable results.[17] The Department also considers whether the GSAs have the legal authority and financial resources necessary to implement the Plan.[18]

To the extent overdraft is present in a basin, the Department evaluates whether the Plan provides a reasonable assessment of the overdraft and includes reasonable means to mitigate it.[19] The Department also considers whether the Plan provides reasonable measures and schedules to eliminate identified data gaps.[20] Lastly, the Department's review considers the comments submitted on the Plan and evaluates whether the GSAs have adequately responded to the comments that raise credible technical or policy issues with the Plan.[21]

The Department is required to evaluate the Plan within two years of its submittal date and issue a written assessment.[22] The assessment is required to include a determination of the Plan's status.[23] The GSP Regulations provide three options for determining the status of a Plan: approved,[24] incomplete,[25] or inadequate.[26]

After review of the Plan, Department staff may identify deficiencies in the Plan and conclude that the information provided is not sufficiently detailed, or the analyses not sufficiently thorough and reasonable, and the basin is not likely to achieve the sustainability goals. Although the deficiencies preclude approval at this time, the GSAs may be able to correct them in a timely manner.[27] In such case, the Department may determine the status of the Plan to be incomplete. An incomplete Plan may be revised and resubmitted to the Department for review within 180 days after the Department's initial incomplete determination. If the revised Plan has sufficiently addressed the identified deficiencies, the Department may approve the Plan. However, the Department may determine the Plan to be inadequate, if the Department concludes that, after consultation with the State Water Resources Control Board, the GSAs have not taken sufficient actions to correct the identified deficiencies.[28]

Even when the Department approves a revised Plan, the Department may still provide recommended corrective actions,[29] which are intended to facilitate progress in achieving the sustainability goal within the basin and assist the Department's future evaluations. While the issues identified in the recommended corrective actions do not preclude the

[17] 23 CCR §§ 355.4(b)(1), (3), (4) and (5).
[18] 23 CCR § 355.4(b)(9).
[19] 23 CCR § 355.4(b)(6).
[20] 23 CCR § 355.4(b)(2).
[21] 23 CCR § 355.4(b)(10).
[22] Water Code § 10733.4(d); 23 CCR § 355.2(e).
[23] Water Code § 10733.4(d); 23 CCR § 355.2(e).
[24] 23 CCR § 355.2(e)(1).
[25] 23 CCR § 355.2(e)(2).
[26] 23 CCR § 355.2(e)(3).
[27] 23 CCR § 355.2(e)(2)(B)(i).
[28] 23 CCR § 355.2(e)(3)(C).
[29] Water Code § 10733.4(d).

Plan approval, the Department recommends the issues be addressed to ensure the Plan's implementation consistent with SGMA, and to assist the Department's assessment of the basin's progress in achieving its sustainability goal.[30] Unless otherwise noted, the Department expects the recommended corrective actions to be addressed within the first periodic evaluation of the Plan.[31]

The Department's review and assessment of a Plan involves reviewing the information provided by the GSAs (including models and assumptions) and evaluating its scientific reasonableness, as opposed to performing its own geologic or engineering analyses and calculations based on the same information. The recommendation to approve a Plan 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 Plan. Instead, it simply means that Department staff have determined that the assumptions and interpretations relied upon by the submitting GSAs are supported by adequate, credible evidence, and are scientifically reasonable.

Lastly, the Department's review and assessment of a Plan is a continual process. Both SGMA and the GSP Regulations provide the Department with the ongoing authority and duty to review the implementation of the Plan.[32] Also, GSAs have an ongoing duty to reassess their GSPs, provide annual reports to the Department, and amend their GSPs when necessary.[33] The passage of time or new information may make what is reasonable and feasible at the time of this review to not be so in the future. The Department's periodic reviews will primarily focus on assessing whether the implementation of the Plan progresses toward achieving the basin's sustainability goals and will not adversely affect the ability of GSAs in adjacent basins to achieve their sustainability goals.

2 REQUIRED CONDITIONS

A GSP, to be evaluated by the Department, must be submitted within the applicable statutory deadline.[34] The GSP must also be complete and must, either on its own or in coordination with other GSPs, cover the entire basin. If a GSP is determined to be incomplete, the GSAs must sufficiently address the corrective actions identified by the Department within the time provided, not to exceed 180 days, for the GSP to be resubmitted to the Department for evaluation.

[30] Water Code § 10733.8.
[31] 23 CCR § 356.4.
[32] Water Code § 10733.8; 23 CCR § 355.6.
[33] Water Code §§ 10728, 10728.2.
[34] Water Code § 10720.7.

2.1 Submission Deadline

SGMA required basins categorized as high- or medium-priority as of January 1, 2017, and to submit a GSP no later than January 31, 2022.[35] However, If the Department changes priorities pursuant to Water Code Section 10933 to elevate a basin from a low- or very low priority to a medium- or high-priority basin after January 31, 2017, a groundwater sustainability agency shall have five years from the date of reprioritization to submit a GSP.[36] The Department reprioritized the Subbasin from a low- to medium-priority designation on January 4, 2019.[37]

The GSAs timely submitted the Pleasant Valley GSP to the Department on April 4, 2022.

2.2 Completeness

GSP Regulations specify that the Department shall evaluate a GSP if that GSP is complete and includes the information required by SGMA and the GSP Regulations.[38]

The GSAs submitted an adopted GSP for the entire Subbasin. Department staff found the Pleasant Valley GSP to be complete and include the required information sufficient to warrant a thorough evaluation by the Department. Therefore, the Department posted the GSP to its website on April 8, 2022.[39]

2.3 Basin Coverage

A GSP, either on its own or in coordination with other GSPs, must cover the entire basin.[40] A GSP that intends to cover the entire basin may be presumed to do so if the basin is fully contained within the jurisdictional boundaries of the submitting GSAs.

The GSP intends to manage the entire Pleasant Valley Subbasin and the jurisdictional boundaries of the submitting GSAs appear to cover the entire Subbasin.

3 Plan 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, whether its conclusions are scientifically reasonable, and whether the GSP, through the

[35] Water Code § 10720.7(a)(2).
[36] Water Code § 10722.4(d)(2).
[37] California's Groundwater Update 2020 (Bulletin 118), Table 4-7, p. 236.
[38] 23 CCR § 355.4(a)(2).
[39] https://sgma.water.ca.gov/portal/gsp/preview/145.
[40] Water Code § 10727(b); 23 CCR § 355.4(a)(3).

implementation of clearly defined and technically feasible projects and management actions, is likely to achieve a tenable sustainability goal for the basin.

Based on the information presented in the GSP, Department staff have identified three deficiencies in the GSP, concluding the GSP does not satisfy the requirements of SGMA and the GSP Regulations and that under the Plan submitted the Subbasin is not likely to achieve its sustainability goals within the implementation period. These identified deficiencies include:

- Deficiency 1. The GSP does not establish sustainable management criteria for chronic lowering of groundwater levels substantially compliant with the GSP Regulations.
- 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 develop sustainable management criteria for degradation of groundwater quality substantially compliant with the GSP regulations.

Department staff have determined that these deficiencies preclude staff from recommending approval of the GSP at this time. Additionally, Department staff have also identified corrective actions for the GSAs to address these deficiencies and then submit a revised GSP for the Department's review within 180 days.

This report describes the background, deficiency details, and corrective actions for each of these deficiencies below.

3.1 Deficiency 1. The GSP does not establish sustainable management criteria for chronic lowering of groundwater levels substantially compliant with the GSP Regulations.

3.1.1 Background

It is up to the GSAs to define undesirable results and GSAs must describe the effect of undesirable results on the beneficial uses and users of groundwater.[41] From this definition, the GSAs establish the minimum thresholds, which are quantitative values that represent groundwater conditions at representative monitoring sites that, when exceeded individually or in combination with minimum thresholds at other monitoring sites, may cause the basin to experience undesirable results.[42] In other words, the minimum thresholds represent conditions that, if not exceeded, should prevent the basin from experiencing the undesirable results identified by the GSAs. Minimum thresholds for chronic lowering of groundwater levels are the groundwater elevations indicating a

[41] 23 CCR § 354.26 (b)(3), § 354.28 (b)(4).
[42] 23 CCR § 354.28; DWR Best Management Practices for the Sustainable Management of Groundwater: Sustainable Management Criteria (DRAFT), November 2017.

depletion of supply at a given location that may lead to undesirable results.[43] Quantitative values for minimum thresholds should be supported by information and criteria relied upon to establish and justify the minimum thresholds,[44] and a quantitative description of how conditions at minimum thresholds may affect the interests of beneficial uses and users of groundwater.[45]

3.1.2 Deficiency Details

Based on its review, Department staff conclude the Plan has not developed sustainable management criteria for chronic lowering of groundwater levels in a manner required by SGMA and the GSP Regulations. Specifically, the Plan does not clearly define undesirable results including significant and unreasonable effects; the methodology for establishing the minimum thresholds is not sufficiently supported; the GSP contains insufficient discussion and consideration of how the selected minimum thresholds are protective of beneficial uses and users of groundwater; and, the Plan does not explain how the basin conditions at the minimum thresholds of groundwater levels will avoid undesirable results for reduction of groundwater storage, degradation of groundwater quality, and land subsidence. The lack of this information in the GSP prevents Department staff from evaluating whether the GSAs plan to operate the Subbasin to avoid undesirable results.[46] The deficiency details are described below.

a. The Plan does not clearly define significant and unreasonable effects related to chronic lowering of groundwater levels.

GSP Regulations require that GSAs provide descriptions of undesirable results including defining what are significant and unreasonable potential effects to beneficial uses and users.[47] The Plan states that the process for determining undesirable results began with discussions with stakeholders and landowners. Although no details regarding this process are provided, the Plan acknowledges that the GSAs within the Subbasin "have struggled to define the Undesirable Result for groundwater levels."[48] Instead, the Plan provides a list of conditions that could potentially be considered significant and unreasonable effects:

- Gas experienced in wells, as is now being experienced in some wells corresponding to declining water levels.
- Cascading water and reduced pumping rates due to excessive water-level declines.
- Reduction in the life of an otherwise useful well due to declining water levels.

[43] 23 CCR § 354.28 (c)(1).
[44] 23 CCR § 354.28 (b)(1).
[45] 23 CCR § 354.28 (b)(4).
[46] 23 CCR §§ 354.28(b)(1), 354.28(b)(2), 354.28(b)(3), 354.28(b)(4), 354.28(c)(1).
[47] 23 CCR §§ 354.26 (a), 354.26 (b)(c).
[48] Pleasant Valley Subbasin GSP, Section 4.2.2, p. 171.

- New production wells cannot be constructed as a result of declining water levels to excessive depths.[49]

Department staff note that the conditions described above could correspond and be applicable to a wide range of groundwater levels varying from the "current" levels to the bottom of a production well, and even to indeterminate depths in between if it affected the drilling of new wells. Staff also understand that potential measures may be taken to mitigate these conditions, but the associated costs could also vary significantly. The GSAs must choose and describe with specificity what constitutes the significant and unreasonable effects that management under the Plan will seek to avoid after considering all beneficial users and uses of groundwater. Without clearly defining these significant and unreasonable effects, the Plan does not provide a consistent basis to establish sustainable management criteria including undesirable results and minimum thresholds and the Plan does not provide a way for the Department or interested parties to determine or understand whether the GSA is managing the basin to achieve sustainability consistent with SGMA timeframes. (see Corrective Action 1a).

b. The Plan does not quantitatively define undesirable results related to chronic lowering of groundwater levels.

GSP Regulations also require GSPs provide the criteria used to define when and where the effects of the groundwater conditions are expected to cause undesirable results for each applicable sustainability indicator. The criteria shall be based on a quantitative description of the combination of minimum threshold exceedances that would be expected to cause significant and unreasonable effects in the basin.[50]

The GSP describes undesirable results as "a signal of diminished groundwater supplies for agricultural, municipal, industrial, and domestic need."[51] This vague definition of undesirable results does not satisfy the requirements of GSP Regulations, which shall be based on a quantitative description of minimum threshold exceedances that cause significant and unreasonable effects. Without a definitive, quantitative definition, it is unclear how the GSAs, the Department, or interested persons will identify whether observed impacts would be considered undesirable results. Department staff conclude the GSAs must reevaluate and clearly define and provide their rationale for when undesirable results occur in the Subbasin, based on a thorough consideration of the interests of beneficial uses and users as required by the GSP Regulations (see Corrective Action 1b).

[49] Pleasant Valley Subbasin GSP, Section 4.2.2, p. 171.
[50] 23 CCR § 354.26 (b)(2).
[51] Pleasant Valley Subbasin GSP, Section 4.2.2.1, p. 173.

c. The Plan does not develop minimum thresholds for groundwater levels consistent with the requirements of the GSP Regulations.

The GSP Regulations require GSAs to set their minimum thresholds for chronic lowering of groundwater levels at "the groundwater elevation indicating a depletion of supply at a given location that may lead to undesirable results."[52] The GSP Regulations require GSAs to consider how conditions at minimum thresholds may affect the interests of beneficial uses and users of groundwater.[53] In reviewing the information presented in the Plan, Department staff conclude that the development of minimum thresholds does not meet the requirements of the GSP Regulations.

First, the Plan does not select the minimum threshold at a level indicating a significant depletion of supply that may lead to undesirable results. It does not appear that the selected minimum thresholds have any connection with any significant and unreasonable effects related to chronic lowering of groundwater levels. Additionally, the Plan set the minimum thresholds at 50 feet below the GSAs' projected groundwater levels at the end of the implementation period, resulting in the minimum threshold being more than 250 feet below the 2015 level.[54] Staff has not encountered any other Plan that has proposed to manage a basin to allow an up to 250-foot decline in groundwater levels from 2015 levels, and although this does not necessarily or by itself preclude such an approach, it is the GSA's responsibility to fully describe and support this approach in the GSP and it is this aspect of the GSP that staff has found lacking.

Second, the assumed groundwater level decline rates appear to be "arbitrary" and lacking sufficient connection to the proposed projects and management actions that the Plan appears to imply will mitigate and ultimately arrest these declines during Plan implementation. The Plan describes that high salinity in the Subbasin's groundwater limited the types of crops historically grown in the Subbasin. The major crop grown in the Subbasin was cotton before pistachios became the predominant crop since the early 2000s.[55] The Plan estimates the irrigated crop acreage was 17,600 acres in 2020, which was a significant increase from 11,500 acres in 2017.[56] The existing groundwater level decline rate is estimated to be ten feet per year. The Plan assumes the decline of groundwater levels will continue throughout the implementation period, and the assumed groundwater level decline rates are: seven feet per year by 2025, five feet per year by 2030, and eventually stabilized by 2042.[57] However, the Plan does not discuss or explain how the assumed reduction in rates of groundwater level declines were determined and whether they are supported or achievable with the quantified benefits of the proposed projects and management actions.

[52] 23 CCR § 354.28(c)(1).
[53] 23 CCR 354.28 (b)(4)
[54] Pleasant Valley Subbasin GSP, Section 4.2.3.1, p. 183.
[55] Pleasant Valley Subbasin GSP, Section 3.2.2, p. 104.
[56] Pleasant Valley Subbasin GSP, Section 3.3.1, p. 134.
[57] Pleasant Valley Subbasin GSP, Section 4.2.2, p. 172.

Third, the Plan does not describe how the conditions at minimum thresholds may affect beneficial uses and users of groundwater. The Plan considers agricultural use to be the primary beneficial use of groundwater in the Subbasin, consisting of 80 to 90 active irrigation wells.[58] The Plan also identifies eight domestic wells in the Subbasin, six of which provide drinking water to a small rural residential community called the Lost Hills Community.[59] It is unclear how the selected minimum thresholds set significantly below (e.g., up to 250 feet) the 2015 level would impact these agricultural and domestic wells. As discussed earlier, the Plan provides some general description of impacts on agricultural wells by declining groundwater levels,[60] however the Plan does not provide a clear description of the circumstances under which such impacts would become significant and unreasonable. Also, the Plan does not discuss the potential impacts on the domestic wells, e.g., whether and how many domestic wells would be dewatered and how to mitigate the impacts to domestic wells. The Plan also does not appear to consider or discuss whether or how the proposed allowable groundwater level declines under the Plan could impede or prevent future beneficial users or uses of water in the basin from obtaining or using groundwater.

Based on the discussions above, Department staff conclude that the Plan's development of minimum thresholds for chronic lowering of groundwater levels does not meet the requirements of GSP Regulations. The Plan should select the minimum threshold at a level indicating a depletion of supply that may lead to undesirable results; sufficiently describe the rationale, assumptions, and methodology used for the development of minimum thresholds; and fully disclose and discuss how the selected minimum thresholds impact beneficial uses and users, including both agricultural and domestic wells (see Corrective Action 1c).

d. The Plan does not describe the relationship between the minimum thresholds for groundwater levels and other sustainability indicators consistent with the requirements of the GSP Regulations.

The GPS Regulations require the GSAs describe the relationship between the minimum thresholds for each sustainability indicator, including an explanation of how the Agency has determined that basin conditions at each minimum threshold will avoid undesirable results for each of the other sustainability indicators.[61] The Plan does not include the description of the relationship between the minimum thresholds for groundwater levels and other sustainability indicators, such as reduction of groundwater storage, degradation of groundwater quality, and land subsidence.

Department staff note that the Plan uses groundwater levels as a proxy for groundwater storage, and that the minimum thresholds are identical for both sustainability indicators. However, the Plan does not sufficiently address the overdraft in the Subbasin, indicating

[58] Pleasant Valley Subbasin GSP, Section 2.1.2, p. 40.
[59] Pleasant Valley Subbasin GSP, Section 2.1.4, p. 214.
[60] Pleasant Valley Subbasin GSP, Section 4.2.2, p. 171.
[61] 23 CCR 354.28 (b)(2).

that the selected minimum thresholds for groundwater levels will not avoid undesirable results for groundwater storage, see more details in Deficiency 2.

Also, the Plan does not discuss how the selected minimum thresholds of groundwater levels that are significantly below 2015 conditions will avoid undesirable results related to water quality degradation for a Subbasin with documented historical water quality issues and poor groundwater quality in at least parts of the Subbasin.[62] See more details in Deficiency 3.

Lastly, the Plan does not discuss how the selection of minimum thresholds for groundwater levels will not interfere with the minimum thresholds for subsidence. Department staff note that the minimum thresholds for land subsidence are based on an annual subsidence rate and a maximum cumulative subsidence.[63] The Plan identifies an annual subsidence rate of two inches per year over an area of 36 square miles and a maximum cumulative subsidence of one foot over 20 years as the minimum threshold. Staff note that the minimum thresholds for land subsidence are set at the average historical subsidence rate,[64] while the minimum thresholds for groundwater levels are set significantly below the 2015 levels. Thus, staff are concerned that the risk of land subsidence exceeding the minimum thresholds could be high given the general correlation between groundwater levels and land subsidence. However, the Plan does not discuss or explain if such discrepancy is acceptable and that the basin conditions at the minimum thresholds for groundwater levels will avoid undesirable results for land subsidence.

For the reasons discussed above, Department staff conclude that the Plan's development of minimum thresholds for chronic lowering of groundwater levels does not meet the requirements of the GSP Regulations. The GSP should 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. The GSP should explain how the basin conditions at the minimum thresholds for groundwater levels will avoid undesirable results for reduction of groundwater storage, degradation of groundwater quality, and land subsidence (see Corrective Action 1d).

3.1.3 Corrective Action 1

The GSAs should address the deficiencies related to the development of sustainable management criteria for chronic lowering of groundwater levels. The corrective actions include:

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

[62] Pleasant Valley Subbasin GSP, Section 3.2.5, pp. 114-122.
[63] Pleasant Valley Subbasin GSP, Table 4-5, p. 200.
[64] Pleasant Valley Subbasin GSP, Figure 4-11, p. 201.

significant and unreasonable effects must be considered and incorporated in establishing the minimum thresholds.

b. Quantitatively define undesirable results based on a combination of minimum threshold exceedances required by the GSP Regulations.[65] 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*.[66]

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.

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

3.2.1 Background

For basins where overdraft conditions occur, the GSP Regulations require a Plan to quantify the overdraft over a period of years over which water year and water supply conditions approximate average conditions.[67] Furthermore, the Plan must describe projects or management actions, including quantification of demand reduction or other methods, for the mitigation of overdraft and achieving the sustainability goal for the basin.[68]

As part of the Department's evaluation, staff assess whether the Plan provides a reasonable assessment of overdraft conditions and includes reasonable means to mitigate overdraft, if present.[69] To substantially comply with the GSP Regulations,[70] the assessment provided in the Plan must be supported with sufficiently detailed information and the analyses must be sufficiently thorough and reasonable. Staff rely on the Plan to be detailed and thorough to evaluate if any discrepancy in the information provided may

[65] 23 CCR § 354.26 (b)(2).
[66] https://water.ca.gov/Programs/Groundwater-Management/Drinking-Water-Well
[67] 23 CCR § 354.18(b)(5).
[68] 23 CCR §§ 354.44 and 354.44(b)(2).
[69] 23 CCR § 355.4 (b)(6).
[70] 23 CCR § 355.4 (b).

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 sustainability.

3.2.2 Deficiency

The GSP Regulations require the Department to evaluate whether the Plan includes a reasonable assessment of overdraft conditions as well as a reasonable means to mitigate the overdraft.[71] If overdraft conditions have or are expected to occur during Plan implementation, the Plan should include a quantification of that overdraft over a period of years during which water year and water supply conditions approximate average conditions.[72] While the Plan presents information regarding overdraft, staff cannot conclude that this assessment is reasonable because the Plan selects a lower value of overdraft estimate based on one year (2019) hydrologic and demand conditions, thus it does not take into account various hydrologic conditions and growing water demand for agriculture in the Subbasin, which has increased significantly since the passage of SGMA due to an increase in the acres of newly planted and maturing pistachio trees. In addition, the Plan's proposed projects and management actions do not appear to be an effective or reasonable means to mitigate the actual and projected overdraft conditions in the Subbasin. Therefore, Department staff conclude that the Plan does not sufficiently address the overdraft conditions and have identified this as a deficiency that should preclude the Plan's approval at this time. The specific details for the deficiency and corrective actions are described below.

a. The Plan does not provide a reasonable assessment of the Subbasin's overdraft conditions.

The Plan states that overdraft in the Subbasin is documented by a historical decline in groundwater levels and confirmed by historical water budgets.[73] However, the Plan's quantification of overdraft in the Subbasin could be significantly underestimated.

The Plan presents several numerical values of overdraft varying from approximately 19,000 acre-feet per year to 30,000 acre-feet per year. For instance, the Plan estimates the overdraft was approximately 19,000 acre-feet per year based on the land use and hydrological conditions in year 2019.[74] Also, the Plan estimates that the overdraft was 24,000 to 28,000 acre-feet per year for the period of 1998-2010,[75] and 30,000 acre-feet per year for the period of 2017-2021.[76] Despite presenting a range and multiple estimates of overdraft conditions, the Plan selects the lower value of 19,000 acre-feet per year to apply to its estimates of overdraft over the entire implementation period.[77] In doing so, it

[71] 23 CCR § 355.4(b)(6).
[72] 23 CCR § 354.18(b)(5).
[73] Pleasant Valley Subbasin GSP, Section 3.3.11, p. 162.
[74] Pleasant Valley Subbasin GSP, Section 3.3.9, p. 154, Section 3.3.11, p. 162.
[75] Pleasant Valley Subbasin GSP, Section 3.3.11, p. 162.
[76] Pleasant Valley Subbasin GSP, Section 3.2.3, p. 114.
[77] Pleasant Valley Subbasin GSP, Section 3.3.13, p. 163.

appears likely that the Plan may have significantly underestimated the actual and expected overdraft conditions in the Subbasin for at least the following reasons:

- The overdraft estimate of 19,000 acre-feet per year was based on the demand and supply conditions in only one single year (2019). However, reasonable methodological practices and the GSP Regulations require the quantification of overdraft to be based on a period of years during which water year and water supply conditions approximate average conditions.[78]

- The water demand in 2019 could be significantly underestimated given the rapid expansion of pistachio acreage in the Subbasin after the passage of SGMA. For instance, the Plan reports irrigated crop acreage was 17,600 acres in 2020, which was 6,100 acres more than the 11,500 acres in 2017.79 Therefore, it is likely that current and future groundwater demand in the Subbasin already exceeds 2019 levels. The Plan estimates that the crop consumptive use increased approximately 2,500 acre-feet per year since 2002.80 In addition, due to the recent planting and the fact that pistachio and other tree crops take at least several years to reach maturity and peak production, it is likely that a significant portion of the tree crop has not yet fully matured and has therefore not yet reached its maximum annual water demand.

- For the period 1998 – 2010, which represents a period of reduced irrigated acreage and the early stages of pistachio cultivation in the Subbasin, the Plan estimated overdraft at 24,000 to 28,000 acre-feet per year. This is significantly more than the 19,000 acre-feet value selected by the Plan even though more acreage is being farmed now than during that historical period.

- The Plan's estimated overdraft of 30,000 acre-feet per year for the period 2017 – 2021 appears more realistic, because it represents the average annual reduction of groundwater storage under the most recent water demand and supply conditions over a period of years. Even so, staff note that this could be an underestimate, because this period included rapidly increasing irrigated acreage and those relatively new crops have not yet fully matured. Finally, climate change factors could create an additional water supply deficit in the future.

For these and other reasons, Department staff are unable to conclude the Plan has included a reasonable assessment of overdraft conditions for the Subbasin (see Corrective Action 2a).

b. *The Plan does not provide sufficient information to demonstrate that the Subbasin's overdraft will be mitigated through the proposed projects and management actions.*

[78] 23 CCR § 354.18(b)(5).
[79] Pleasant Valley Subbasin GSP, Section 3.3.1, p. 134.
[80] Pleasant Valley Subbasin GSP, Table 3-1 and Figure 3-23, p. 105.

The GSP Regulations require the Department evaluate whether the Plan includes a reasonable means to mitigate overdraft and whether projects and management actions are feasible and likely to prevent undesirable results and ensure the basin is operated within its sustainable yield.[81] In reviewing the Plan's proposed projects and management actions, Department staff conclude that the Plan does not provide sufficient information to demonstrate that the projects and management actions are feasible, likely to prevent undesirable results, and likely to reasonably mitigate the Subbasin's overdraft for the following reasons:

- Even assuming all projects are implemented as planned, the total estimated benefit of the proposed projects would still be significantly less than the estimated overdraft amount during the Plan's implementation period.
- Significant uncertainties exist regarding whether all the Plan's proposed projects are feasible and will be implemented.
- The Plan does not include a contingency plan (e.g., mandatory demand reduction) if the proposed projects and management actions are not implemented.

Further details regarding these conclusions are provided below.

The Plan's total estimated benefit of all the proposed projects is significantly less than the Plan's estimated overdraft amount. The Plan identifies 17 projects[82] and four management actions.[83] The projects are grouped into two tiers: Priority 1 and Priority 2,[84] focusing largely on water supply augmentation through surface water imports and groundwater recharge. The management actions include providing groundwater extractors their approximate groundwater use on a per acre basis prior to any enforcement action, levying pumping fees for groundwater allocation exceedances, agricultural land fallowing subsidies, and requiring new developments to prove sustainable water supplies.[85] The Plan estimates that the subtotal benefit for Priority 1 projects would be 16,795 acre-feet per year,[86] primarily realized by the North Canal Pipeline project (12,000 acre-feet per year) and the South Canal Pipeline Expansion project (4,000 acre-feet per year). The subtotal benefit for Priority 2 projects is estimated to be 2,000 – 3,000 acre-feet per year, primarily realized by the City of Coalinga Surface Water project. The Plan does not provide quantified benefit estimates for the management actions. Added together, the total benefit for Priority 1 and Priority 2 projects is estimated to be 18,795 ~ 19,795 acre-feet per year, which is significantly less than recently reported annual overdraft of over 30,000 acre-feet per year that it appears is more realistic and could continue into the future, as described previously.

[81] 23 CCR § 355.4(b)(6).
[82] Pleasant Valley Subbasin GSP, Table 6-2, p. 261.
[83] Pleasant Valley Subbasin GSP, Table 6-3, p. 276.
[84] Pleasant Valley Subbasin GSP, Table 6-2, p. 261.
[85] Pleasant Valley Subbasin GSP, Table 6-3, p. 276.
[86] Pleasant Valley Subbasin GSP, Table 6-2, p. 261.

Significant uncertainties exist regarding implementation of the projects in the Plan, both technically and financially. First, the Plan relies predominantly on imported surface water supply projects to mitigate the overdraft. However, it does not provide any availability and reliability analysis for the imported surface water supply, which is required by the GSP Regulations. Without such analysis, staff cannot assess whether the projects are feasible or their expected benefits realistic. Second, the Plan states that the implementation of these critical projects is contingent upon the availability of grant funds. The Plan estimates the total capital cost for Priority 1 projects to be $20,200,000, with an additional annual cost to purchase imported water for $5,000,000 – 10,000,000 per year.[87] Because the Plan identifies implementation of these projects as necessary to achieve sustainability, making their implementation contingent upon the availability or receipt of grant funding adds significant uncertainty and doubt as to their implementation (or timing of their implementation) and staff are therefore unable to conclude that the Plan has complied with the GSP Regulations' requirements for demonstrating and describing reasonable means to mitigate overdraft and feasible and effective projects and management actions likely to ensure the basin is operated within its sustainable yield.

Given these uncertainties, Department staff note that the Plan should, but does not, include or discuss a contingency plan (e.g., mandatory demand reduction) if the proposed projects and management actions are not timely implemented because grant funding is unavailable or other factors delay project implementation or the projects' expected benefits fall short of expectations. Furthermore, because the proposed projects and management actions alone do not appear sufficient to mitigate the Subbasin's overdraft, the Plan should describe a mandatory demand reduction plan to work in conjunction with these projects (or alone if projects are not implemented) to curtail pumping in the Subbasin.

Based on the information presented in the Plan, Department staff conclude that the Plan does not include and describe feasible, effective proposed projects and management actions or a reasonable means to mitigate overdraft (see Corrective Action 2b).

3.2.3 Corrective Action 2

The GSAs should address the deficiencies identified above related to mitigating overdraft and providing feasible, effective projects and management actions to prevent undesirable results and ensure the Subbasin is operated within its sustainable yield. The corrective actions include:

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

[87] Pleasant Valley Subbasin GSP, Table 6-2, p. 261.

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.

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

3.3.1 Background

It is up to the GSAs to define, in its GSP, the specific significant and unreasonable effects that would constitute undesirable results and to define the groundwater conditions that would produce those results.[88] The GSAs' definition needs to include a description of the processes and criteria relied upon to define undesirable results and must describe the effect of undesirable results on the beneficial uses and users of groundwater.[89] From this definition, the GSAs establish the minimum thresholds, which are quantitative values that represent groundwater conditions at representative monitoring sites that, when exceeded individually or in combination with minimum thresholds at other monitoring sites, may cause the basin to experience undesirable results.[90] In other words, the minimum thresholds represent conditions that, if not exceeded, should prevent the basin from experiencing the undesirable results identified by the GSAs.

SGMA leaves the task of establishing undesirable results and setting minimum thresholds largely to the discretion of the GSAs, subject to review by the Department. In its review, the Department requires a thorough and reasonable analysis of the groundwater conditions the GSAs are trying to avoid, and the GSAs' stated rationale for setting

[88] 23 CCR § 354.26.
[89] 23 CCR § 354.26 (b)(3), § 354.28 (b)(4).
[90] 23 CCR § 354.28, DWR Best Management Practices for the Sustainable Management of Groundwater: Sustainable Management Criteria (DRAFT), November 2017.

objective and quantitative sustainable management criteria to prevent those conditions from occurring. Including this information in the GSP also helps demonstrate informed decision-making and furthers the important public disclosure and public participation functions of the GSP.

The minimum threshold for degraded water quality should be a level or point at which significant and unreasonable degradation of water quality, including the migration of contaminant plumes, would occur and would impair water supplies, as determined by the GSAs, that would constitute an undesirable result within the basin. The minimum threshold shall be based on the number of supply wells, a volume of water, or a location of an isocontour that exceeds concentrations of constituents of concern determined by the GSAs. In setting minimum thresholds for degraded water quality, the GSAs shall consider local, state, and federal water quality standards applicable to the basin.[91] Quantitative values for minimum thresholds for constituents of concern for degraded water quality should be supported by:

- A description of constituents of concern in the groundwater conditions section of the GSP.[92]
- A description of how the GSAs identified, selected, or excluded particular constituents of concern for management within the Subbasin, including monitoring and establishing sustainable management criteria for those constituents.[93]
- How state, federal, or local standards relate to the relevant sustainability indicators.[94]
- How water quality conditions at minimum thresholds may affect the interests of beneficial uses and users of groundwater.[95]

Department staff rely on sufficient detail being presented in the GSP, supported by the best available information and science, for evaluation. If a Plan does not meet these requirements, the Department is unable to evaluate the likelihood of the Plan achieving its sustainability goal. Failure to include sufficient details regarding the proposed management of water quality as required by SGMA does not necessarily mean that the Plan or its objectives are inherently unreasonable; however, without sufficient detail it is unclear which conditions the Plan seeks to avoid, making it difficult for the Department to monitor whether the GSAs will be successful in that effort when implementing its Plan. This information is also required for the GSPs to serve their additional functions of demonstrating and supporting informed local decision making and public disclosure.

[91] 23 CCR § 354.28 (c)(4).
[92] 23 CCR § 354.16 (d).
[93] 23 CCR § 354.28 (c)(4).
[94] 23 CCR § 354.28 (b)(5).
[95] 23 CCR § 354.28 (b)(4).

3.3.2 Deficiency Details

Based on the information presented in the Plan, Department staff conclude the Plan has not defined sustainable management criteria for degraded water quality consistent with SGMA and the GSP Regulations. Generally, the GSP's basin setting section identifies and describes some constituents as being of concern in the Subbasin. However, despite recognition and disclosure of this condition, the GSP does not propose monitoring nor establish sustainable management criteria for these constituents, even though these constituents could impair water supplies and impact beneficial uses and users of groundwater. Additionally, the GSP did not evaluate effects of degraded water quality on beneficial uses and users and did not consider state, federal or local water quality standards when establishing sustainable management criteria.

The Plan identifies TDS, boron, chloride, and bicarbonate as the constituents of concern for agriculture, which could either affect crop yield or irrigation management.[96] The Plan also identifies nitrate, sulfate, and TDS as the constituents of concern for domestic wells.[97] The Plan includes maps showing that concentrations have significantly exceeded the maximum contaminant level (MCL) in some parts of the Subbasin for the following constituents: TDS,[98] boron,[99] chloride,[100] and sulfate.[101] The Plan concludes that groundwater in Pleasant Valley Subbasin is "unsuitable for public supply and marginal for irrigation of some crops", such as cotton, hay, and now pistachios due to higher tolerance to salinity and boron.[102] The Plan also indicates that groundwater quality exceeds the drinking water standards in some of the six domestic wells in the Lost Hills Community: nitrate (one out of six wells), sulfate (four out of six wells), and TDS (three out of six wells).[103]

The Plan defines undesirable results related to degraded groundwater quality in the Subbasin as that "the groundwater will no longer provide beneficial use to pistachios when salt concentration or TDS reach a level causing [electrical conductivity] EC to measure more than 5,000 micromhos/cm or higher,"[104] which is equivalent to 3,950 mg/l for TDS concentration. The Plan sets the minimum threshold for electrical conductivity at 5,000 micromhos/cm, or 3,950 mg/l for TDS.[105] The Plan describes that the minimum threshold for TDS is selected at a level as that "would not allow for the beneficial use of groundwater as it is currently used in the region."[106]

[96] Pleasant Valley Subbasin GSP, Section 3.2.5, pp. 114-118.
[97] Pleasant Valley Subbasin GSP, Section 3.2.5.2, p. 118.
[98] Pleasant Valley Subbasin GSP, Figure 2-27, p. 119.
[99] Pleasant Valley Subbasin GSP, Figure 2-28, p. 120.
[100] Pleasant Valley Subbasin GSP, Figure 2-29, p. 121.
[101] Pleasant Valley Subbasin GSP, Figure 2-30, p. 122.
[102] Pleasant Valley Subbasin GSP, Section 3.2.5, p. 115.
[103] Pleasant Valley Subbasin GSP, Section 3.2.5.2, p. 118.
[104] Pleasant Valley Subbasin GSP, Section 4.5.1, p. 195.
[105] Pleasant Valley Subbasin GSP, Section 4.5.2, p. 196.
[106] Pleasant Valley Subbasin GSP, Section 4.5.2, p. 196.

Department staff conclude that the Plan does not sufficiently address the requirements of the GSP Regulations for degradation of groundwater quality, including:

a. The Plan does not establish sustainable management criteria for all identified constituents of concern.

The GSP establishes sustainable management criteria for TDS only, but not for the other identified constituents of concern described above. Department staff question the GSP's rationale for establishing sustainable management criteria for only TDS while excluding boron, chloride, sulfate, and nitrate, which could cause undesirable results for beneficial uses and users, including domestic uses in the Lost Hills Community. Although GSAs are not responsible for remediating, elevated constituent concentrations that existed prior to SMGA's enactment, they are required to manage groundwater in the basin in a manner that does not exacerbate the groundwater quality to the point where undesirable results occur. For instance, if groundwater pumping and basin management activities could increase concentrations of or mobilize chemicals and other constituents of concern to migrate into new areas causing significant and unreasonable impacts on beneficial uses and users, then a GSA's monitoring and management must address these issues. Staff recommend the GSAs include all constituents of concern in the development of sustainable management criteria for groundwater quality (see Corrective Action 3a).

b. The sustainable management criteria developed for TDS are not consistent with the requirements of GSP Regulations.

The GSP Regulations require that the definition of undesirable results be based on a quantitative description of the combination of minimum threshold exceedances that cause significant and unreasonable effects in the basin.[107] First, Department staff note that the Plan does not specify how often and how many wells (or what percentage of the wells) have measurements of electrical conductivity exceeding 5,000 micromhos/cm (i.e., the minimum threshold), and does not include a quantitative description of the combination of minimum threshold exceedances that would be expected to cause significant and unreasonable effects in the basin.[108] Second, The Plan does not discuss the rationale for selecting 5,000 micromhos/cm of electrical conductivity as the minimum threshold for TDS and explain why this value represents the point at which significant and unreasonable effect for beneficial uses and users is expected to occur, making the value selected for the minimum threshold unsupported and seemingly random or arbitrary. Department staff also note that the Plan identifies existing data gaps in water quality and trends in water quality over time,[109] including analyses for irrigation suitability from well owners[110] and water quality data from individual wells serving the residences in the Lost Hills Community.[111] The Plan states that the GSAs plans to collect data over the first five-

[107] 23 CCR § 354.26 (b) (2).
[108] 23 CCR § 354.26 (b) (2).
[109] Pleasant Valley Subbasin GSP, Section 4.5, p. 194.
[110] Pleasant Valley Subbasin GSP, Section 4.5, p. 194.
[111] Pleasant Valley Subbasin GSP, Section 4.5.1, p. 195.

year implementation period.[112] Department staff recommend the GSAs revise the definition of undesirable results and provide additional information to support the minimum threshold selection (see Corrective Action 3b).

3.3.3 Corrective Action 3

The GSAs should address the deficiencies identified related to the development of sustainable management criteria for degraded water quality. The corrective actions include:

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.

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 STAFF RECOMMENDATION

Department staff conclude that the deficiencies identified in this assessment should preclude approval of the GSP for the San Joaquin Valley – Pleasant Valley Subbasin. Department staff recommend that the GSP be determined **Incomplete**.

[112] Pleasant Valley Subbasin GSP, Sections 4.5 and 4.5.1, pp. 194-195.