



CALIFORNIA DEPARTMENT OF WATER RESOURCES

SUSTAINABLE GROUNDWATER MANAGEMENT OFFICE

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October 26, 2023

Lisa Hunter
County of Glenn Groundwater Sustainability Agency – Corning
225 North Tehama Street
Willows, CA 95988
lhunter@countyofglenn.net

RE: Sacramento Valley – Corning Subbasin - 2022 Groundwater Sustainability Plan

Dear Lisa Hunter,

The Department of Water Resources (Department) has evaluated the groundwater sustainability plan (GSP or Plan) submitted for the Sacramento Valley – Corning 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 agencies (GSAs) review while determining how to address the deficiencies.

The Subbasin’s GSAs have 180 days, the maximum allowed by the GSP Regulations, to address the identified deficiencies. Where addressing the deficiencies requires modification of the Plan, the GSAs must adopt those modifications into their respective GSPs 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 April 23, 2024. The Department understands that much work has occurred to advance sustainable groundwater management since the GSAs submitted their GSPs in January 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 GSAs should address

early in implementing their GSPs (i.e., no later than the first required periodic evaluation). Among other items, those corrective actions will recommend the GSAs 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 January 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 GSAs cannot address the deficiencies identified in this letter by April 23, 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 GSAs 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 Sacramento Valley – Corning Subbasin Groundwater Sustainability Plan

**STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES**

**STATEMENT OF FINDINGS REGARDING THE
DETERMINATION OF INCOMPLETE STATUS OF THE
SACRAMENTO VALLEY – CORNING 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 Corning Subbasin Groundwater Sustainability Agency and the Tehama County Flood Control and Water Conservation District Groundwater Sustainability Agency (GSAs or Agencies) for the Sacramento Valley – Corning Subbasin (Subbasin) (Basin No. 5-021.51).

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 deems the Plan incomplete based on the Staff Report and the findings contained herein. . In particular, the Department finds:


- A. The GSAs should revise the GSP to provide a reasonable assessment of overdraft conditions and include a 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 GSAs should examine the assumptions that were used to develop the absence of historical and current overdraft and the projected overdraft estimates in the projected water budget considering the results vary greatly from the values reported in the recent annual report data. The assessment should include the latest information for the Subbasin to ensure the GSP includes the required projects and management actions to mitigate overdraft in the Subbasin.

2. Provide a reasonable means to mitigate the overdraft that is continuing to occur in the Subbasin. Specifically, the GSAs should describe feasible proposed management actions that are commensurate with the level of understanding of groundwater conditions of the Subbasin and with sufficient details and consideration for Department staff to be able to clearly understand how the Plan's projects and management actions will mitigate overdraft in the Subbasin under different climate scenarios.
- B. The GSAs must provide more detailed explanation and justification regarding the selection of the sustainable management criteria for groundwater levels, particularly minimum thresholds and measurable objectives, and quantitatively describe the effects of those criteria on the interests of beneficial uses and users of groundwater. Department staff recommend the GSAs consider and address the following:
1. Refine the description of undesirable results to clearly describe the significant and unreasonable conditions the GSAs are managing the Subbasin to avoid. This must include a quantitative description of the negative effects to beneficial uses and users that would be experienced at undesirable result conditions. The GSAs should fully disclose and describe and explain its rationale for determining the number of wells that may be dewatered and the level of impacts to groundwater dependent ecosystems that may occur without rising to significant and unreasonable levels constituting undesirable results. Lastly, the GSAs should explain how potential alternate supplies of water or well mitigation will be considered by the GSAs during its management of the Subbasin in a project or management action as part of the GSP. Department staff also encourage the GSAs to review the Department's April 2023 guidance document titled *Considerations for Identifying and Addressing Drinking Water Well Impacts*.
 2. The GSAs should remove the water year type requirement from the GSP's undesirable result definition.
 3. The GSAs should revise minimum thresholds to be set at the level where the depletion of supply across the Subbasin may lead to undesirable results and provide the criteria used to establish and justify minimum thresholds. Fully document the analysis and justifications performed to establish the criteria used to establish minimum thresholds. Clearly show each step of the analysis and provide supporting information used in the analysis.

4. Provide an evaluation of how minimum thresholds may affect the interests of beneficial uses and users of groundwater or land uses and property interests. Identify the number and location of wells that may be negatively affected when minimum thresholds are reached. Compare well infrastructure for all well types in the Subbasin with minimum thresholds at nearby, suitably representative monitoring sites. Document all assumptions and steps clearly so that it will be understood by readers of the GSP. Include maps of potentially affected well locations, identify the number of potentially affected wells by well type, and provide a supporting discussion of the effects.

Based on the above, the GSP submitted by the Agencies for the Sacramento Valley – Corning 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, Director
Date: October 26, 2023

Enclosure: Groundwater Sustainability Plan Assessment Staff Report – Sacramento Valley – Corning Subbasin

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

Groundwater Basin Name: Sacramento Valley – Corning Subbasin (No. 5-021.51)
Submitting Agency: Corning Subbasin Groundwater Sustainability Agency
and Tehama County Flood Control and Water
Conservation District Groundwater Sustainability Agency
Submittal Type: Initial GSP Submission
Submittal Date: January 28, 2022
Recommendation: Incomplete
Date: October 26, 2023

The Corning Subbasin Groundwater Sustainability Agency and Tehama County Flood Control and Water Conservation District Groundwater Sustainability Agency (collectively, the GSAs) jointly submitted the Corning Subbasin GSP (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 Sacramento Valley – Corning Subbasin (Subbasin) for the implementation of SGMA. As presented in this staff report, a single GSP covering the entire basin was adopted and submitted to the Department for review by the GSAs.³

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.⁴ In addition, consistent with the GSP Regulations, Department staff have provided corrective actions⁵ that the GSAs should review while determining how and whether to address the deficiencies. The deficiencies and corrective actions are explained in greater detail in Section 3 of this staff report and are generally related to the need to

¹ Water Code § 10720 *et seq.*

² 23 CCR § 350 *et seq.*

³ Water Code §§ 10727(b)(1), 10733.4; 23 CCR § 355.2.

⁴ 23 CCR §355.2(e)(2).

⁵ 23 CCR §355.2(e)(2)(B).

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.

1 EVALUATION CRITERIA

The Department evaluates whether a Plan conforms to the statutory requirements of SGMA⁶ and is likely to achieve the basin’s sustainability goal.⁷ 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.⁸ 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.⁹ 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.¹⁰

For a Plan to be evaluated by the Department, it must first be determined that it was submitted by the statutory deadline¹¹ and that it is complete and covers the entire basin.¹² 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.¹³ As stated in the GSP Regulations, “[s]ubstantial 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.”¹⁴

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.¹⁵ 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

⁶ Water Code §§ 10727.2, 10727.4, 10727.6.

⁷ Water Code § 10733(a).

⁸ Water Code § 10721(v).

⁹ 23 CCR § 354.26.

¹⁰ Water Code § 10733(c).

¹¹ 23 CCR § 355.4(a)(1).

¹² 23 CCR §§ 355.4(a)(2), 355.4(a)(3).

¹³ 23 CCR § 350 *et seq.*

¹⁴ 23 CCR § 355.4(b).

¹⁵ 23 CCR § 351(h).

are feasible and likely to prevent undesirable results.¹⁶ The Department also considers whether the GSAs have the legal authority and financial resources necessary to implement the Plan.¹⁷

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.¹⁸ The Department also considers whether the Plan provides reasonable measures and schedules to eliminate identified data gaps.¹⁹ 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.²⁰

The Department is required to evaluate the Plan within two years of its submittal date and issue a written assessment.²¹ The assessment is required to include a determination of the Plan's status.²² The GSP Regulations provide three options for determining the status of a Plan: approved,²³ incomplete,²⁴ or inadequate.²⁵

Even when the Department determines a Plan is approved, indicating that it satisfies the requirements of SGMA and is in substantial compliance with the GSP Regulations, the Department may still recommend corrective actions.²⁶ Recommended corrective actions are intended to facilitate progress in achieving the sustainability goal within the basin and the Department's future evaluations, and to allow the Department to better evaluate whether implementation of the Plan adversely affects adjacent basins. While the issues addressed by the recommended corrective actions in an approved Plan do not, at the time the determination was made, preclude its approval, the Department recommends that the issues be addressed to ensure the Plan's implementation continues to be consistent with SGMA and the Department is able to assess progress in achieving the basin's sustainability goal.²⁷ Unless otherwise noted, the Department proposes that recommended corrective actions be addressed by the submission date for the first periodic assessment.²⁸

After review of the Plan, Department staff may conclude that the information provided is not sufficiently detailed, or the analyses not sufficiently thorough and reasonable, to evaluate whether it is likely to achieve the sustainability goal for the basin. If the

¹⁶ 23 CCR §§ 355.4(b)(1), (3), (4) and (5).

¹⁷ 23 CCR § 355.4(b)(9).

¹⁸ 23 CCR § 355.4(b)(6).

¹⁹ 23 CCR § 355.4(b)(2).

²⁰ 23 CCR § 355.4(b)(10).

²¹ Water Code § 10733.4(d); 23 CCR § 355.2(e).

²² Water Code § 10733.4(d); 23 CCR § 355.2(e).

²³ 23 CCR § 355.2(e)(1).

²⁴ 23 CCR § 355.2(e)(2).

²⁵ 23 CCR § 355.2(e)(3).

²⁶ Water Code § 10733.4(d).

²⁷ Water Code § 10733.8.

²⁸ 23 CCR § 356.4.

Department determines the deficiencies precluding approval may be capable of being corrected by the GSAs in a timely manner,²⁹ the Department will determine the status of the Plan to be incomplete. A Plan deemed incomplete may be revised and resubmitted to the Department for reevaluation of whether all deficiencies have been addressed and incorporated into the Plan within 180 days after the Department makes its incomplete determination. The Department will review the revised Plan to evaluate whether the identified deficiencies were sufficiently addressed. Depending on the outcome of that evaluation, the Department may determine the resubmitted Plan is approved. Alternatively, the Department may find a formerly deemed incomplete GSP is inadequate if, after consultation with the State Water Resources Control Board, it determines that the GSAs have not taken sufficient actions to correct any identified deficiencies.³⁰

The staff assessment of the Plan involves the review of information presented by the GSAs, including models and assumptions, and an evaluation of that information based on scientific reasonableness. In conducting its assessment, the Department does not recalculate or reevaluate technical information provided in the Plan or perform its own geologic or engineering analysis of that 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, but simply 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 an approved 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.³¹ Also, GSAs have an ongoing duty to reassess their GSPs, provide annual reports to the Department, and, when necessary, update or amend their GSPs.³² 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 emphasis of the Department's periodic reviews will be to assess the GSA's progress toward achieving the basin's sustainability goal and whether implementation of the Plan adversely affects 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.³³ 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

²⁹ 23 CCR § 355.2(e)(2)(B)(i).

³⁰ 23 CCR § 355.2(e)(3)(C).

³¹ Water Code § 10733.8; 23 CCR § 355.6.

³² Water Code §§ 10728, 10728.2.

³³ Water Code § 10720.7.

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

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, 2022.³⁴

The GSAs submitted the Corning Subbasin GSP to the Department on January 28, 2022, in compliance with the statutory deadline.

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.³⁵

The GSAs submitted an adopted GSP for the entire Subbasin. Department staff found the Corning Subbasin GSP to be complete and include the required information, sufficient to warrant an evaluation by the Department. Therefore, the Department posted the GSP to its website on February 7, 2022.

2.3 BASIN COVERAGE

A GSP, either on its own or in coordination with other GSPs, must cover the entire basin.³⁶ 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 Corning 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 and whether its conclusions are scientifically reasonable, and whether the GSP, through

³⁴ Water Code § 10720.7(a)(2).

³⁵ 23 CCR § 355.4(a)(2).

³⁶ Water Code § 10727(b); 23 CCR § 355.4(a)(3).

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

Department staff have identified deficiencies in the GSP, the most serious of which preclude staff from recommending approval of the GSP at this time. Department staff believe the GSAs may be able to correct the identified deficiencies within 180 days. Consistent with the GSP Regulations, Department staff are providing corrective actions related to the deficiencies, detailed below, including the general regulatory background, the specific deficiency identified in the GSP, and the specific actions to address the deficiency.

3.1 DEFICIENCY 1. THE GSP DOES NOT INCLUDE A REASONABLE ASSESSMENT OF OVERDRAFT CONDITIONS AND REASONABLE MEANS TO MITIGATE OVERDRAFT.

3.1.1 Background

For basins where overdraft conditions occur, the GSP Regulations require a Plan to quantify the overdraft over a period of years during which water year and water supply conditions approximate average conditions.³⁷ 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.³⁸

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.³⁹ To substantially comply with the GSP Regulations,⁴⁰ 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 materially affect the ability of the Agency to achieve the sustainability goal for the basin.

3.1.2 Deficiency

The GSP Regulations require the Department to evaluate whether the Plan includes a reasonable assessment of overdraft conditions and includes a reasonable means to mitigate overdraft.⁴¹ While the GSP does present information about overdraft, it is unclear whether this assessment is reasonable because the overdraft varies greatly from recent change in groundwater storage data. Furthermore, the projects and management actions as proposed in the GSP, which have been developed to address the projected overdraft conditions, do not appear to be a reasonable means to mitigate the actual overdraft conditions in the Subbasin. Department staff have identified this as a deficiency that

³⁷ 23 CCR § 354.18(b)(5).

³⁸ 23 CCR §§ 354.44 and 354.44(b)(2).

³⁹ 23 CCR § 355.4 (b)(6).

⁴⁰ 23 CCR § 355.4 (b).

⁴¹ 23 CCR § 355.4(b)(6).

precludes plan approval at this time. The following section describes specific details about the deficiency and outlines one or more corrective actions the GSAs must take to address to correct it.

The GSP presented unclear and contradictory information related to overdraft occurring in the Subbasin. The GSP states that there has not been a historical groundwater overdraft in the Subbasin,⁴² yet hydrographs included in the Plan show a declining trend in groundwater storage over the past two decades in the East and West Areas. The GSP states the Subbasin has experienced an overall positive annual change in groundwater storage of 6,900 acre-feet per year (AFY) and a cumulative change of groundwater storage of 290,300 AFY from 1974 to 2015.⁴³ Then, the GSP states that groundwater storage has declined since 2006 at a rate of about 7,600 acre-feet per year.⁴⁴ The current water budget (from 2015) indicates additional declines of 5,800 acre-feet per year driven by the decrease of surface water availability and increase in groundwater pumping.⁴⁵ The Plan states that the trend could be further exacerbated by projected climate change effects. However, the Plan's projected water budget (simulated with 2070 conditions) indicates an overdraft, or a negative annual change of groundwater storage, of just -400 AFY and a cumulative change in groundwater storage of -19,700 AFY over the 50-year implementation horizon.⁴⁶

Since the GSP submittal, annual report data submitted to the Department demonstrates that the actual decline in groundwater storage within the Subbasin has dramatically grown, deviating from the values determined for the historical, current, or projected water budgets. Specifically, the values of negative change in groundwater storage (i.e., overdraft) reported for water year (WY) 2021 (which represents change between October 1, 2020 and September 30, 2021) was -100,000 acre-feet and -90,000 acre-feet for WY 2022.⁴⁷ Combined, these values represent a loss of storage of 190,000 acre-feet in just a two-year period, which is approximately ten times greater than the anticipated cumulative loss in storage projected in the Subbasin over the 50-year planning horizon without the implementation of projects and management actions. Granted, WY 2021 and WY 2022 were critically dry years, however, the magnitude of the loss of storage observed during these two years is significantly greater than the values provided in the historical water budget of -38,350 AFY for similar water year types indicating that overdraft is increasing.⁴⁸ Based on a review of the information included in the GSP and annual reports, Department staff conclude the GSAs have not included a reasonable assessment of overdraft conditions for the Subbasin (see [Corrective Action 1a](#)).

⁴² Corning Subbasin GSP, Section 4.5, p. 362.

⁴³ Corning Subbasin GSP, Section 4.1.4 and Table 4-2, pp. 289 and 295.

⁴⁴ Corning Subbasin GSP, Section 3.2.3, p. 223.

⁴⁵ Corning Subbasin GSP, Section 4.3.1, p. 327.

⁴⁶ Corning Subbasin GSP, Section 4.5 and Table 4-15, pp. 342 and 362.

⁴⁷ Department of Water Resources, SGMA Portal, Annual Report Module, WY 2021 and WY 2022 Data, Reported Overdraft, Corning Subbasin.

⁴⁸ Corning Subbasin GSP, Table 4.2, p. 295.

GSP Regulations also require the Department to evaluate whether the Plan includes a reasonable means to mitigate overdraft.⁴⁹ While the GSP documents a projected groundwater overdraft in the Subbasin of 400 AFY, Department staff conclude the actual overdraft the GSAs will be required to mitigate is likely much more based on information included in the GSP and annual reports. The GSP states that management actions will be prioritized over projects during the early part of the implementation period and that the projects will require additional information gathering and thorough feasibility studies to determine if they can be implemented.⁵⁰ The GSP provides details for priority and alternative projects; however, no specific timelines for the implementation of the priority projects (i.e., expected initiation and completion dates) are provided. The GSAs acknowledge projects and management actions included in the GSP “outline a potential framework for achieving sustainability. However, several details remain to be negotiated before many of the projects and management actions can be implemented.”⁵¹

Based on information presented in the GSP, the expected benefits of all projects and management actions would provide up to approximately 35,000 AFY to the Subbasin. Given the recent reduction of groundwater storage of 190,000 acre-feet in just the last two years, it would take nearly five years of these projects being fully implemented combined with the Subbasin instantly operating within its sustainable yield to mitigate this loss of storage. While the SGMA states that overdraft during a period of drought is not sufficient to establish an undesirable result for the chronic lowering of groundwater levels, this is contingent on the GSA managing extractions and recharge as necessary to ensure that reductions in groundwater levels or storage are offset by increases in groundwater levels or storage during other periods.⁵² Based on the information contained in the GSP, it does not appear the GSAs have proposed a suite of projects and management actions that will be sufficient to offset the recent overdraft observed in the Subbasin. Further, the lack of detail presented in the GSP makes it appear as if the GSAs have no urgency or commitment to implement the necessary projects and management actions to mitigate ongoing and future overdraft. Department staff are concerned that continued overdraft will exacerbate the current problems the Subbasin is experiencing, including dry wells, and that the currently presented projects and management actions will not be effective in mitigating the magnitude of overdraft experienced in recent years if it continues. Accordingly, for the above reasons, Department staff conclude that the GSP has not presented a reasonable means to mitigate overdraft (see [Corrective Action 1b](#)).

3.1.3 Corrective Action 1

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

⁴⁹ 23 CCR § 355.4(b)(6).

⁵⁰ Corning Subbasin GSP, Section 7.4.4, p. 484.

⁵¹ Corning Subbasin GSP, Section 7.1, p. 479.

⁵² Water Code § 10721(x)(1).

- a. Reevaluate the assessment of overdraft conditions in the Subbasin. Specifically, the GSAs should examine the assumptions that were used to develop the absence of historical and current overdraft and the projected overdraft estimates in the projected water budget considering the results vary greatly from the values reported in the recent annual report data. The assessment should include the latest information for the Subbasin to ensure the GSP includes the required projects and management actions to mitigate overdraft in the Subbasin.
- b. Provide a reasonable means to mitigate the overdraft that is continuing to occur in the Subbasin. Specifically, the GSAs should describe feasible proposed management actions that are commensurate with the level of understanding of groundwater conditions of the Subbasin and with sufficient details and consideration for Department staff to be able to clearly understand how the Plan's projects and management actions will mitigate overdraft in the Subbasin under different climate scenarios.

3.2 DEFICIENCY 2. THE GSP DOES NOT ESTABLISH SUSTAINABLE MANAGEMENT CRITERIA FOR CHRONIC LOWERING OF GROUNDWATER LEVELS IN A MANNER SUBSTANTIALLY COMPLIANT WITH THE GSP REGULATIONS.

3.2.1 Background

It is up to the GSA to define undesirable results and GSAs must describe the effect of undesirable results on the beneficial uses and users of groundwater.⁵³ From this definition, the GSA establishes 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.⁵⁴ Put another way, the minimum thresholds represent conditions that, if not exceeded, should prevent the basin from experiencing the undesirable results identified by the GSA. Minimum thresholds for chronic lowering of groundwater levels are the groundwater elevation indicating a depletion of supply at a given location that may lead to undesirable results.⁵⁵ Quantitative values for minimum thresholds should be supported by information and criteria relied upon to establish and justify the minimum threshold,⁵⁶ and a quantitative description of how conditions at minimum thresholds may affect the interests of beneficial uses and users of groundwater.⁵⁷

⁵³ 23 CCR § 354.26 (b)(3), § 354.28 (b)(4).

⁵⁴ 23 CCR § 354.28, DWR Best Management Practices for the Sustainable Management of Groundwater: Sustainable Management Criteria (DRAFT), November 2017.

⁵⁵ 23 CCR § 354.28 (c)(1).

⁵⁶ 23 CCR § 354.28 (b)(1).

⁵⁷ 23 CCR § 354.28 (b)(4).

3.2.2 Deficiency Details

Based on its review, Department staff conclude the Plan has not defined sustainable management criteria for chronic lowering of groundwater levels in a manner required by SGMA and the GSP Regulations. Generally, the GSP's descriptions of undesirable results are unclear and justification for the establishment of minimum thresholds are not provided with evidence of the consideration of the interests of beneficial uses and users and sufficient supporting information are not provided in the GSP. The lack of this information does not allow Department staff to evaluate whether the criteria are reasonable or whether the GSA plans to operate the Basin to avoid undesirable results.⁵⁸

GSP Regulations require that GSAs define undesirable results caused by the chronic lowering of groundwater levels by identifying a significant and unreasonable depletion of supply that is present when an undesirable result occurs.⁵⁹ The GSP describes an undesirable result as: "Chronic lowering of groundwater levels is considered to be locally significant and unreasonable if it results in insufficient water supply to meet the needs of beneficial users in the Subbasin."⁶⁰ Next, the GSP proposes to quantify its definition by describing undesirable results as occurring "when more than 20% of groundwater elevations measured at [representative monitoring point] wells, drop below the associated minimum threshold during two consecutive years. In addition, if the water year type (defined as the Sacramento Valley Water Year Index developed by DWR, per the calculation as used in 2021) is dry or critically dry then levels below the minimum threshold are not undesirable if groundwater management allows for recovery in average or wetter years."⁶¹

Department staff have identified multiple problems with how the GSAs have defined undesirable results. First, the Plan's definition of undesirable results uses undefined qualifying language that renders the meaning indeterminate. Without a quantitative definition or clear description of when "insufficient water supply to meet the needs of beneficial users" occurs on Subbasin-wide scale, it is unclear how the GSAs will identify whether observed impacts would be considered significant and unreasonable. While the GSP includes in its portfolio of projects and management actions a well mitigation program set to be implemented in year 3 of the overarching Well Management Program,⁶² the GSP does not include a number of wells the program may serve or identify a funding source. Without more information, Department staff are unable to evaluate when and how the well replacement program may be implemented or evaluate its potential feasibility and effectiveness at this time.

Additionally, the Plan defines undesirable results as a function of minimum conditions necessary to support overlying beneficial uses and users of groundwater but does not

⁵⁸ 23 CCR §§ 354.28(b)(1), 354.28(b)(2), 354.28(b)(3), 354.28(b)(4), 354.28(c)(1).

⁵⁹ 23 CCR § 354.26 (a).

⁶⁰ Corning Subbasin GSP, Section 6.6.1, p. 417.

⁶¹ Corning Subbasin GSP, Section 6.6.4.1, pp. 443-444.

⁶² Corning Subbasin GSP, Section 7.3.2.1.5, p. 493.

describe or explain what those conditions would be or how they were determined. These problems are compounded by the fact that the Plan does not demonstrate how or whether the interests of those beneficial uses and users were considered. As a result, even if the Plan had provided a precise definition of undesirable results, it would not be possible to know whether it was appropriate to the needs of beneficial uses and users in the Subbasin, as determined by the GSAs. The attempt at quantifying undesirable results as more than 20% of representative monitoring point wells falling below the minimum threshold for two consecutive years is unsatisfactory because the values and timing of exceedances appear to be arbitrary based on the explanation provided in the Plan.⁶³

The lack of specificity in what the GSAs are managing the Subbasin to avoid (i.e., undesirable results) is especially problematic considering current and projected conditions. The Subbasin has experienced 182 dry wells since 2021 based on the Household Dry Well Reporting System.⁶⁴ Given that the Subbasin is currently experiencing reported dry wells,⁶⁵ and the GSP indicates minimum thresholds would allow 16 percent or approximately 350 additional wells to potentially be impacted under the GSAs' groundwater level management structure, the GSP fails to demonstrate how the GSAs considered the interests of these beneficial users when allowing this level of impact under its proposed management program. The GSAs have not explained how it apparently determined the current and projected well outages in the Subbasin are not considered an undesirable result, even though those conditions appear to meet the definition of an undesirable result provided in the GSP (i.e., "insufficient water supply to meet the needs of beneficial users in the Subbasin"). Department staff conclude that the GSAs must reevaluate and clearly define and provide its 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 2a](#)).

The definition of undesirable results also includes a caveat related to the water year type that prohibits an undesirable result from occurring during any water year defined as 'dry' or 'critically dry' that is not consistent with SGMA. The water year type requirement could potentially allow for unmanaged and continued lowering of groundwater levels under certain hydrologic or climatic conditions that have occurred historically, and GSAs could disregard potential impacts of groundwater level declines regardless of how severe they become. Since the GSP Regulations require that GSAs define undesirable results caused by the chronic lowering of groundwater levels by identifying a significant and unreasonable depletion of supply,⁶⁶ it is inappropriate for a GSA to disregard a depletion of supply based on certain hydrologic or climatic conditions. Department staff conclude the definition of undesirable results disregards minimum threshold exceedances in all

⁶³ Corning Subbasin GSP, Section 6.6.4.1, p. 444.

⁶⁴ Department of Water Resources, Dry Well Reporting System, Accessed September 2023, <https://mydrywatersupply.water.ca.gov/report/>.

⁶⁵ Department of Water Resources, Dry Well Reporting System, Accessed September 2023, <https://mydrywatersupply.water.ca.gov/report/>.

⁶⁶ 23 CCR § 354,28 (c)(1).

years except consecutive below normal, above normal, or wet years to be inconsistent with sustainable groundwater management under SGMA (see [Corrective Action 2b](#)).

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.”⁶⁷ The Plan explains that minimum thresholds are set at 20 feet (for stable wells) and 20% (for declining wells) from the historical minimum level since 2012⁶⁸ to account for future climate change and irrigation practices.⁶⁹ The GSAs acknowledge the thresholds were not developed to represent a depletion of supply that would lead to undesirable results, but instead developed the thresholds to account for climate change and irrigation practices. Department staff conclude that the minimum thresholds must be revised by the GSAs to be based upon the depletion of supply that would lead to undesirable results, as required by the regulations (see [Corrective Action 2c](#)).

The GSP Regulations require GSAs to consider how conditions at minimum thresholds may affect the interests of beneficial uses and users of groundwater⁷⁰ and require the Department to evaluate whether the interests of beneficial uses and users were considered.⁷¹ While the GSP states at the minimum threshold, 16% of domestic wells installed after 1991 may be at risk of getting impacted,⁷² it is unclear what the actual effects to beneficial uses and users could be under the GSAs’ proposed management for wells installed prior to 1991. The GSAs do not describe how allowing this amount of wells to go dry has considered the interests of these particular beneficial uses and users. Considering that the GSAs are proposing to manage the Subbasin below historical lows, the Plan does not provide a clear description of the circumstances under which such impacts would become significant and unreasonable to particular beneficial uses and users. Department staff are unable to determine whether the interests of beneficial uses and users or groundwater, as well as the land uses and property interests potentially affected by the use of groundwater in the Subbasin, have been considered.⁷³ The GSAs must identify the number, location, and percentage of all wells that may be impacted at the proposed minimum thresholds that will not receive assistance through the well mitigation program and explain how the interests of beneficial uses and users were considered (see [Corrective Action 2d](#)).

3.2.3 Corrective Action 2

The GSAs must provide more detailed explanation and justification regarding the selection of the sustainable management criteria for groundwater levels, particularly minimum thresholds and measurable objectives, and quantitatively describe the effects

⁶⁷ 23 CCR § 354.28(c)(1).

⁶⁸ Corning Subbasin GSP, Section 6.6.2.1, p. 419.

⁶⁹ Corning Subbasin GSP, Section 6.6.2.1, p. 423.

⁷⁰ 23 CCR 354.28 (b)(4)

⁷¹ 23 CCR 355.4 (b)(4)

⁷² Corning Subbasin GSP, Section 6.6.2.2, p. 431.

⁷³ 23 CCR § 355.4 (b)(4).

of those criteria on the interests of beneficial uses and users of groundwater. Department staff recommend the GSAs consider and address the following:

- a) Refine the description of undesirable results to clearly describe the significant and unreasonable conditions the GSAs are managing the Subbasin to avoid. This must include a quantitative description of the negative effects to beneficial uses and users that would be experienced at undesirable result conditions.⁷⁴ The GSAs should fully disclose and describe and explain its rationale for determining the number of wells that may be dewatered and the level of impacts to groundwater dependent ecosystems that may occur without rising to significant and unreasonable levels constituting undesirable results. Lastly, the GSAs should explain how potential alternate supplies of water or well mitigation will be considered by the GSAs during its management of the Subbasin in a project or management action as part of the GSP. Department staff also encourage the GSAs to review the Department's April 2023 guidance document titled *Considerations for Identifying and Addressing Drinking Water Well Impacts*.⁷⁵
- b) The GSAs should remove the water year type requirement from the GSP's undesirable result definition.
- c) The GSA should revise minimum thresholds to be set at the level where the depletion of supply across the Subbasin may lead to undesirable results⁷⁶ and provide the criteria used to establish and justify minimum thresholds.⁷⁷ Fully document the analysis and justifications performed to establish the criteria used to establish minimum thresholds. Clearly show each step of the analysis and provide supporting information used in the analysis.⁷⁸
- d) Provide an evaluation of how minimum thresholds may affect the interests of beneficial uses and users of groundwater or land uses and property interests. Identify the number and location of wells that may be negatively affected when minimum thresholds are reached. Compare well infrastructure for all well types in the Subbasin with minimum thresholds at nearby, suitably representative monitoring sites. Document all assumptions and steps clearly so that it will be understood by readers of the GSP. Include maps of potentially affected well locations, identify the number of potentially affected wells by well type, and provide a supporting discussion of the effects.

⁷⁴ 23 CCR § 354.28 (b)(3).

⁷⁵ <https://water.ca.gov/Programs/Groundwater-Management/Drinking-Water-Well>

⁷⁶ 23 CCR 354.28 (c)(1).

⁷⁷ 23 CCR 354.28 (a).

⁷⁸ 23 CCR 354.28 (b)(1).

4 STAFF RECOMMENDATION

Department staff believe that the deficiencies identified in this assessment should preclude approval of the GSP for the Sacramento Valley – Corning Subbasin. Department staff recommend that the GSP be determined incomplete.