CALIFORNIA DEPARTMENT OF WATER RESOURCES

SUSTAINABLE GROUNDWATER MANAGEMENT OFFICE

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April 27, 2023

Blaine Reely, Groundwater Sustainability Director
County of San Luis Obispo
County Government Center
1055 Monterey Street
San Luis Obispo, CA 93408
breely@co.slo.ca.us

RE: Approved Determination of the 2022 Groundwater Sustainability Plan Submitted for the San Luis Obispo Valley Basin

Dear Blaine Reely,

The Department of Water Resources (Department) has evaluated the groundwater sustainability plan (GSP) submitted for the San Luis Obispo Valley Basin and has determined the GSP is approved. The approval is based on recommendations from the Staff Report, included as an exhibit to the attached Statement of Findings, which describes that the San Luis Obispo Valley Basin GSP satisfies the objectives of the Sustainable Groundwater Management Act (SGMA) and substantially complies with the GSP Regulations. The Staff Report also proposes recommended corrective actions that the Department believes will enhance the GSP and facilitate future evaluation by the Department. The Department strongly encourages the recommended corrective actions be given due consideration and suggests incorporating all resulting changes to the GSP in future updates.

Recognizing SGMA sets a long-term horizon for groundwater sustainability agencies (GSAs) to achieve their basin sustainability goals, monitoring progress is fundamental for successful implementation. GSAs are required to evaluate their GSPs at least every five years and whenever the Plan is amended, and to provide a written assessment to the Department. Accordingly, the Department will evaluate approved GSPs and issue an assessment at least every five years. The Department will initiate the first five-year review of the San Luis Obispo Valley Basin GSP no later than January 26, 2027.

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 Approval of the San Luis Obispo Valley Basin Groundwater Sustainability Plan

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

STATEMENT OF FINDINGS REGARDING THE APPROVAL OF THE SAN LUIS OBISPO VALLEY BASIN 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 basin covered by the Plan, and whether the Plan adversely affects the ability of an adjacent basin to implement its GSP or impedes achievement of sustainability goals in an adjacent basin. (Water Code § 10733.) The Department is directed to issue an assessment of the Plan within two years of its submission. (Water Code § 10733.4.) This Statement of Findings explains the Department's decision regarding the Plan submitted by the County of San Luis Obispo GSA and the City of San Luis Obispo GSA (GSA(s) or Agencies) for the San Luis Obispo Valley Basin (No. 3-009).

Department management has discussed the Plan with staff and has reviewed the Department Staff Report, entitled Sustainable Groundwater Management Program Groundwater Sustainability Plan Assessment Staff Report, attached as Exhibit A, recommending approval of the GSP. Department management is satisfied that staff have conducted a thorough evaluation and assessment of the Plan and concurs with staff's recommendation and all the recommended corrective actions. The Department therefore **APPROVES** the Plan and makes the following findings:

A. The Plan satisfies the required conditions as outlined in § 355.4(a) of the GSP Regulations (23 CCR § 350 et seq.):

    1. The Plan was submitted within the statutory deadline of January 31, 2022. (Water Code § 10720.7(a); 23 CCR § 355.4(a)(1).)

    2. The Plan was complete, meaning it generally appeared to include the information required by the Act and the GSP Regulations sufficient to warrant a thorough evaluation and issuance of an assessment by the Department. (23 CCR § 355.4(a)(2).)

    3. The Plan, either on its own or in coordination with other Plans, covers the entire San Luis Obispo Valley Basin. (23 CCR § 355.4(a)(3).)

B. The general standards the Department applied in its evaluation and assessment of the Plan are: (1) "conformance" with the specified statutory requirements, (2) "substantial compliance" with the GSP Regulations, (3) whether the Plan is likely to achieve the sustainability goal for the San Luis

Obispo Valley Basin within 20 years of the implementation of the Plan, and (4) whether the Plan adversely affects the ability of an adjacent basin to implement its GSP or impedes achievement of sustainability goals in an adjacent basin. (Water Code § 10733.) Application of these standards requires exercise of the Department's expertise, judgment, and discretion when making its determination of whether a Plan should be deemed "approved," "incomplete," or "inadequate."

The statutes and GSP Regulations require Plans to include and address a multitude and wide range of informational and technical components. The Department has observed a diverse array of approaches to addressing these technical and informational components being used by GSAs in different basins throughout the state. The Department does not apply a set formula or criterion that would require a particular outcome based on how a Plan addresses any one of SGMA's numerous informational and technical components. The Department finds that affording flexibility and discretion to local GSAs is consistent with the standards identified above; the state policy that sustainable groundwater management is best achieved locally through the development, implementation, and updating of local plans and programs (Water Code § 113); and the Legislature's express intent under SGMA that groundwater basins be managed through the actions of local governmental agencies to the greatest extent feasible, while minimizing state intervention to only when necessary to ensure that local agencies manage groundwater in a sustainable manner. (Water Code § 10720.1(h)) The Department's final determination of a Plan's status is made based on the entirety of the Plan's contents on a case-by-case basis, considering and weighing factors relevant to the particular Plan and San Luis Obispo Valley Basin under review.

C. In making these findings and Plan determination, the Department also recognized that: (1) it maintains continuing oversight and jurisdiction to ensure the Plan is adequately implemented; (2) the Legislature intended SGMA to be implemented over many years; (3) SGMA provides Plans 20 years of implementation to achieve the sustainability goal in a San Luis Obispo Valley Basin (with the possibility that the Department may grant GSAs an additional five years upon request if the GSA has made satisfactory progress toward sustainability); and, (4) local agencies acting as GSAs are authorized, but not required, to address undesirable results that occurred prior to enactment of SGMA. (Water Code §§ 10721(r); 10727.2(b); 10733(a); 10733.8.)

D. The Plan conforms with Water Code §§ 10727.2 and 10727.4, substantially complies with 23 CCR § 355.4, and appears likely to achieve the sustainability goal for the San Luis Obispo Valley Basin. It does not appear

at this time that the Plan will adversely affect the ability of adjacent basins to implement their GSPs or impede achievement of sustainability goals.

1. The sustainable management criteria and goal to maintain groundwater levels at historical low conditions minus a small margin of operational flexibility designed to account for future drought conditions are reasonable. While Department staff have identified a recommended corrective action, the overall groundwater level and storage conditions in the Basin are generally stable based on the information included in the GSP, so this fault does not preclude plan approval. The Plan relies on credible information and science to quantify the groundwater conditions that the Plan seeks to avoid and provides an objective way to determine whether the Basin is being managed sustainably in accordance with SGMA. (23 CCR § 355.4(b)(1).)

2. The Plan demonstrates a reasonable understanding of where data gaps exist and demonstrates a commitment to eliminate those data gaps. For example, expanding the monitoring network to improve basin characterization, updating the integrated hydrologic model with new collected data, and increasing understanding of surface water and groundwater interaction, with respect to interconnected surface water depletion, groundwater dependent ecosystems, and the water budget. Filling these known data gaps, and others described in the Plan, should lead to refinement of the GSA's monitoring networks and sustainable management criteria and help inform and guide future adaptive management strategies. (23 CCR § 355.4(b)(2).)

3. The projects and management actions proposed are designed to help achieve the sustainable management goals in the Basin and avoid undesirable results. Projects and management actions are largely focused on expanding the monitoring network, addressing the overdraft in the Edna Valley portion of the Basin. The projects and management actions are reasonable and commensurate with the level of understanding of the San Luis Obispo Valley Basin setting. The projects and management actions described in the Plan provide a feasible approach to achieving the San Luis Obispo Valley Basin s sustainability goal and should provide the GSA(s) with greater versatility to adapt and respond to changing conditions and future challenges during GSP implementation. (23 CCR § 355.4(b)(3).)

4. The Plan provides a detailed explanation of how the varied interests of groundwater uses and users in the San Luis Obispo Valley Basin were considered in developing the sustainable management criteria

and how those interests, including domestic wells, would be impacted by the chosen minimum thresholds. (23 CCR § 355.4(b)(4).)

5. The Plan's projects and management actions appear feasible at this time and appear likely to prevent undesirable results and ensure that the San Luis Obispo Valley Basin is operated within its sustainable yield within 20 years. The Department will continue to monitor Plan implementation and reserves the right to change its determination if projects and management actions are not implemented or appear unlikely to prevent undesirable results or achieve sustainability within SGMA timeframes. (23 CCR § 355.4(b)(5).)

6. The Plan includes a reasonable assessment of overdraft conditions and includes reasonable means to mitigate overdraft, if present. (23 CCR § 355.4(b)(6).)

7. At this time, it does not appear that the Plan will adversely affect the ability of an adjacent basin to implement its GSP or impede achievement of sustainability goals in an adjacent basin. The Plan states that the GSAs have developed a cooperative working relationship with the neighboring basin. The Plan includes an analysis of potential impacts to the adjacent basin related to the established minimum thresholds for each sustainability indicator. The Plan does not anticipate any impacts to the adjacent basin resulting from the minimum thresholds defined in the Plan. (23 CCR § 355.4(b)(7).)

8. If required, a satisfactory coordination agreement has been adopted by all relevant parties. (23 CCR § 355.4(b)(8).)

9. The GSAs' four member agencies, Golden State Water Company, Edna Valley Growers Mutual Water Company, Edna Ranch Mutual Water Company, and Varian Ranch Mutual Water Company have historically implemented numerous projects and management actions to address problematic groundwater conditions in the Basin. The GSAs' member agencies and their history of groundwater management provide a reasonable level of confidence that the GSA has the legal authority and financial resources necessary to implement the Plan. (23 CCR § 355.4(b)(9).)

10. Through review of the Plan and consideration of public comments, the Department determines that the GSA(s) adequately responded to comments that raised credible technical or policy issues with the Plan, sufficient to warrant approval of the Plan at this time. The Department also notes that the recommended corrective actions included in the Staff Report are important to addressing certain technical or policy

issues that may have been raised and, if not addressed before future, subsequent plan evaluations, may preclude approval of the Plan in those future evaluations. (23 CCR § 355.4(b)(10).)

E. In addition to the grounds listed above, DWR also finds that:

1. The Plan sets forth minimum thresholds for chronic lowering of groundwater levels that take into consideration the shallow water supply wells (i.e., domestic wells) that may be negatively impacted at different water levels. (San Luis Obispo Valley Basin GSP pp. 266-268.) The Plan sets minimum thresholds at or near historical low conditions minus a small margin of operational flexibility designed to account for future drought conditions. The GSAs state minimum thresholds have been designed to "protect as many domestic wells as possible" (San Luis Obispo p. 266-268). The Plan's compliance with the requirements of SGMA and substantial compliance with the GSP Regulations supports the state policy regarding the human right to water (Water Code § 106.3). The Department developed its GSP Regulations consistent with, and intending to further, the policy through implementation of SGMA and the Regulations, primarily by achieving sustainable groundwater management in a basin. By ensuring substantial compliance with the GSP Regulations, the Department has considered the state policy regarding the human right to water in its evaluation of the Plan. (23 CCR § 350.4(g).)

2. The Plan acknowledges and identifies interconnected surface waters within the Basin. The GSAs proposes initial sustainable management criteria to manage this sustainability indicator and measures to improve understanding and management of depletions of interconnected surface water. The GSAs acknowledges, and the Department agrees, that many data gaps related to interconnected surface water exist. The GSAs should continue filling data gaps, collecting additional monitoring data, and coordinating with resources agencies and interested parties to understand beneficial uses and users that may be impacted by depletions of interconnected surface water caused by groundwater pumping. Future updates to the Plan should aim to improve the initial sustainable management criteria as more information and improved methodologies become available.

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

Accordingly, the GSP submitted by the Agencies for the San Luis Obispo Valley Basin is hereby **APPROVED.** The recommended corrective actions identified in the Staff Report will assist the Department's future review of the Plan's implementation for consistency with SGMA and the Department therefore recommends the Agencies address them by the time of the Department's five-year review, which is set to begin on January 26, 2027, as required by Water Code § 10733.8. Failure to address the Department's Recommended Corrective Actions before future, subsequent plan evaluations, may lead to a Plan being determined incomplete or inadequate.

Signed:

Karla Nemeth

Karla Nemeth, Director
Date: April 27, 2023

Exhibit A: Groundwater Sustainability Plan Assessment Staff Report – San Luis Obispo Valley Basin

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

Groundwater Basin Name:	San Luis Obispo Valley Groundwater Basin (No. 3-009)
Submitting Agency:	County of San Luis Obispo Groundwater Sustainability Agency City of San Luis Obispo Groundwater Sustainability Agency
Submittal Type:	Initial GSP Submission
Submittal Date:	January 26, 2022
Recommendation:	Approved
Date:	April 27, 2023

The San Luis Obispo Valley Groundwater Basin Groundwater Sustainable Agencies (GSAs or Agencies) submitted the San Luis Obispo Basin Groundwater Sustainable Plan (GSP or Plan) for the San Luis Obispo Basin to the Department of Water Resources (Department) for evaluation and assessment as required by the Sustainable Groundwater Management Act (SGMA)[1] and GSP Regulations.[2] The GSP covers the entire Basin for the implementation of SGMA.

After evaluation and assessment, Department staff conclude that the Plan includes the required components of a GSP, demonstrates a thorough understanding of the Basin based on what appears to be the best available science and information, sets well explained, supported, and reasonable sustainable management criteria to prevent undesirable results as defined in the Plan, and proposes a set of projects and management actions that will likely achieve the sustainability goal defined for the Basin.[3] Department staff will continue to monitor and evaluate the Basin's progress toward achieving the sustainability goal through annual reporting and future periodic evaluations of the GSP and its implementation.

- ***Based on the current evaluation of the Plan, Department staff recommend the GSP be approved with the recommended corrective actions described herein.***

[1] Water Code § 10720 *et seq*.
[2] 23 CCR § 350 *et seq*.
[3] 23 CCR § 350 *et seq*.

This assessment includes five sections:

- **Section 1 – Summary:** Overview of Department staff's assessment and recommendations.
- **Section 2 – Evaluation Criteria:** Describes the legislative requirements and the Department's evaluation criteria.
- **Section 3 – Required Conditions:** Describes the submission requirements, Plan completeness, and basin coverage required for a GSP to be evaluated by the Department.
- **Section 4 – Plan Evaluation:** Provides an assessment of the contents included in the GSP organized by each Subarticle outlined in the GSP Regulations.
- **Section 5 – Staff Recommendation:** Includes the staff recommendation for the Plan and any recommended or required corrective actions, as applicable.

1 SUMMARY

Department staff recommend approval of the San Luis Obispo Basin GSP. The GSAs have identified areas for improvement of its Plan (e.g., investigate the location and presence of Groundwater Dependent Ecosystems, provide more detail related to the monitoring networks to fill data gaps, and addressing data gaps related to interconnected surface water, including estimations of the quantity and timing of surface water depletions). Department staff concur that those items are important and recommend the GSAs address them as soon as possible. Department staff have also identified additional recommended corrective actions within this assessment that the GSAs should consider addressing by the first periodic evaluation of the Plan. The recommended corrective actions generally focus on the following:

(1) Investigate the location and presence of Groundwater Dependent Ecosystems.
(2) Provide additional details and discussion related to specific components the GSAs used to establish sustainable management criteria for chronic lowering of groundwater levels.
(3) Provide additional details and discussion related to specific components the GSAs used to establish sustainable management criteria for degraded water quality.
(4) Continue to fill data gaps, collect additional monitoring data, coordinate with resources agencies, and interested parties to understand beneficial uses and users that may be impacted by depletions of interconnected surface water caused by groundwater pumping, and potentially refine sustainable management criteria.
(5) Provide additional details related to the monitoring networks.

Addressing the recommended corrective actions identified in Section 5 of this assessment will be important to demonstrate, on an ongoing basis, that implementation of the Plan is likely to achieve the sustainability goal.

2 EVALUATION CRITERIA

The GSAs submitted a single GSP to the Department to evaluate whether the Plan conforms to specified SGMA requirements[4] and is likely to achieve the sustainability goal for the San Luis Obispo Valley Basin.[5] To achieve the sustainability goal for the Basin, the GSP must demonstrate that implementation of the Plan 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.[6] Undesirable results must be defined quantitatively by the GSAs.[7] The Department is also required to evaluate whether the GSP will adversely affect the ability of an adjacent basin to implement its GSP or achieve its sustainability goal.[8]

For the GSP to be evaluated by the Department, it must first be determined that the Plan was submitted by the statutory deadline,[9] and that it is complete and covers the entire basin.[10] If these conditions are satisfied, the Department evaluates the Plan to determine whether it complies with specific SGMA requirements and substantially complies with the GSP Regulations.[11] 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.[12]

When evaluating whether the Plan is likely to achieve the sustainability goal for the Basin, Department staff reviewed the information provided and relied upon in the GSP for sufficiency, credibility, and consistency with scientific and engineering professional standards of practice.[13] The Department's review considers whether there is a reasonable relationship between the information provided and the assumptions and conclusions made by the GSAs, 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 are feasible and likely to prevent undesirable results.[14]

[4] Water Code §§ 10727.2, 10727.4.
[5] Water Code § 10733(a).
[6] Water Code § 10721(v).
[7] 23 CCR § 354.26 *et seq.*
[8] Water Code § 10733(c).
[9] 23 CCR § 355.4(a)(1).
[10] 23 CCR §§ 355.4(a)(2), 355.4(a)(3).
[11] 23 CCR § 350 *et seq.*
[12] 23 CCR § 355.4(b).
[13] 23 CCR § 351(h).
[14] 23 CCR §§ 355.4(b)(1), (3), (4), and (5).

The Department also considers whether the GSAs have the legal authority and financial resources necessary to implement the Plan.[15]

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 the overdraft.[16] The Department also considers whether the Plan provides reasonable measures and schedules to eliminate identified data gaps.[17] Lastly, the Department's review considers the comments submitted on the Plan and evaluates whether the GSAs adequately responded to the comments that raise credible technical or policy issues with the Plan.[18]

The Department is required to evaluate the Plan within two years of its submittal date and issue a written assessment of the Plan.[19] The assessment is required to include a determination of the Plan's status.[20] The GSP Regulations define the three options for determining the status of a Plan: Approved,[21] Incomplete,[22] or Inadequate.[23]

Even when review indicates that the GSP satisfies the requirements of SGMA and is in substantial compliance with the GSP Regulations, the Department may recommend corrective actions.[24] 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 the Plan adversely affects adjacent basins. While the issues addressed by the recommended corrective actions do not, at this time, preclude approval of the Plan, 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 sustainability goal within the basin.[25] Unless otherwise noted, the Department proposes that recommended corrective actions be addressed by the submission date for the first five-year assessment.[26]

The staff assessment of the GSP involves the review of information presented by the GSA, including models and assumptions, and an evaluation of that information based on scientific reasonableness, including standard or accepted professional and scientific methods and practices. The assessment does not require Department staff to recalculate or reevaluate technical information provided in the Plan or to perform its own geologic or

[15] 23 CCR § 355.4(b)(9).
[16] 23 CCR § 355.4(b)(6).
[17] 23 CCR § 355.4(b)(2).
[18] 23 CCR § 355.4(b)(10).
[19] Water Code § 10733.4(d); 23 CCR § 355.2(e).
[20] Water Code § 10733.4(d); 23 CCR § 355.2(e).
[21] 23 CCR § 355.2(e)(1).
[22] 23 CCR § 355.2(e)(2).
[23] 23 CCR § 355.2(e)(3).
[24] Water Code § 10733.4(d).
[25] Water Code § 10733.8.
[26] 23 CCR § 356.4 *et seq*.

engineering analysis of that information. The staff recommendation to approve a Plan does not signify that Department staff, were they to exercise the professional judgment required to develop a GSP 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 approval of the 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.[27] Also, GSAs have an ongoing duty to provide reports to the Department, periodically reassess their plans, and, when necessary, update or amend their plans.[28] 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 progress toward achieving the sustainability goal for the basin and whether Plan implementation adversely affects the ability of adjacent basins to achieve their sustainability goals.

3 REQUIRED CONDITIONS

A GSP, to be evaluated by the Department, must be submitted within the applicable statutory deadline. The GSP must also be complete and must, either on its own or in coordination with other GSPs, cover the entire basin.

3.1 SUBMISSION DEADLINE

SGMA required basins categorized as high- or medium-priority and not subject to critical conditions of overdraft to submit a GSP no later than January 31, 2022.[29]

The GSAs submitted its Plan on Jan. 26, 2022.

3.2 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.[30]

The GSAs submitted an adopted GSP for the entire Basin. After an initial, preliminary review, Department staff found the GSP to be complete and appearing to include the

[27] Water Code § 10733.8; 23 CCR § 355.6.
[28] Water Code §§ 10728 *et seq.*, 10728.2.
[29] Water Code § 10720.7(a)(2).
[30] 23 CCR § 355.4(a)(2).

required information, sufficient to warrant a thorough evaluation by the Department.[31] The Department posted the GSP to its website on Feb. 7, 2022.[32]

3.3 Basin Coverage

A GSP, either on its own or in coordination with other GSPs, must cover the entire basin.[33] A GSP that is intended 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 San Luis Obispo Valley Basin. The jurisdictional boundary of the submitting GSAs fully contains the Basin.[34]

4 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 the implementation of clearly defined and technically feasible projects and management actions, is likely to achieve a tenable sustainability goal for the basin. The Department staff's evaluation of the likelihood of the Plan to attain the sustainability goal for the Basin is provided below.

4.1 Administrative Information

The GSP Regulations require each Plan to include administrative information identifying the submitting Agency, its decision-making process, and its legal authority;[35] a description of the Plan area and identification of beneficial uses and users in the Plan area;[36] and a description of the ability of the submitting Agency to develop and implement a Plan for that area.[37]

The GSP was submitted by the County of San Luis Obispo (County) GSA and the City of San Luis Obispo (City) GSA. The two GSAs entered into a Memorandum of Agreement (MOA) for the purposes of coordinating preparation of a single GSP for the Basin. The

[31] The Department undertakes a preliminary completeness review of a submitted Plan under section 355.4(a) of the GSP Regulations to determine whether the elements of a Plan required by SGMA and the Regulations have been provided, which is different from a determination, upon review, that a Plan is "incomplete" for purposes of section 355.2(e)(2) of the Regulations.
[32] https://sgma.water.ca.gov/portal/gsp/preview/118.
[33] Water Code § 10727(b); 23 CCR § 355.4(a)(3).
[34] San Luis Obispo Valley Basin GSP, Section 2.3.3, p. 48.
[35] 23 CCR § 354.6 *et seq*.
[36] 23 CCR § 354.8 *et seq*.
[37] 23 CCR § 354.6(e).

MOA also established the Groundwater Sustainability Commission (GSC), which serves as an advisory body to the GSAs, consisting of representatives from the County and City GSAs, as well as representatives from the other signatories to the MOA (i.e., Golden State Water Company (GSWC), Edna Valley Growers Mutual Water Company (EVGMWC), Edna Ranch Mutual Water Company (ERMWC), and Varian Ranch Mutual Water Company (VRMWC).

The Basin is within the southwestern portion of County of San Luis Obispo, is oriented in a northwest-southeast direction, and is approximately 14 miles long and 1.5 miles wide, covering a surface area of about 12,700 acres or 19.9 square miles. The Basin is bounded on the northeast by the Santa Lucia Range and on the southwest by the San Luis Range and the Edna fault system. (See Figure 1)

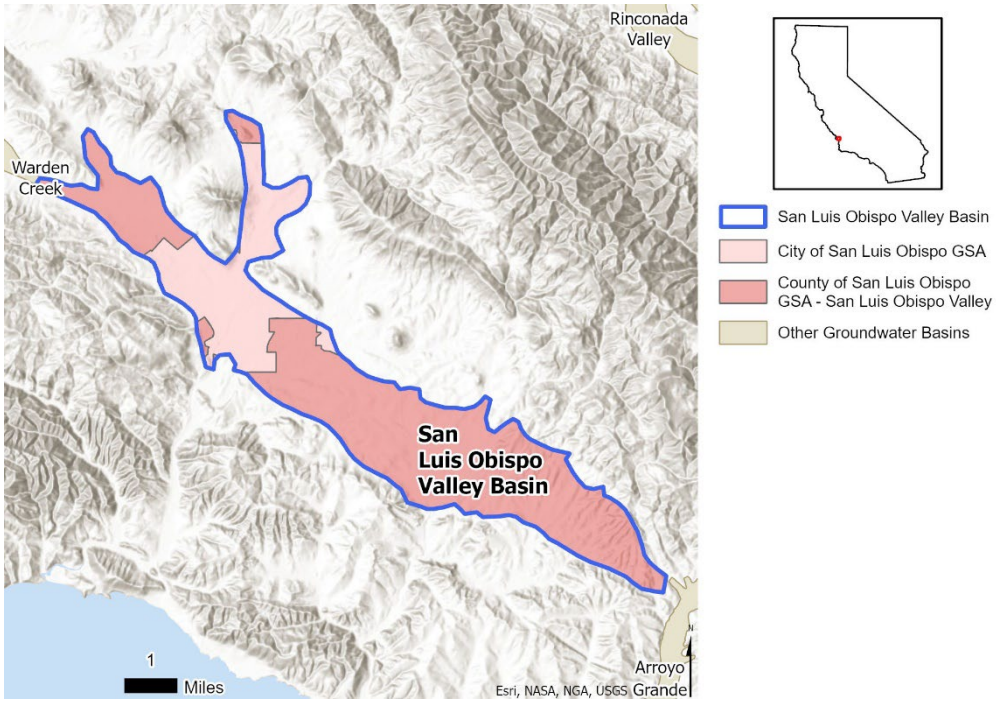

Figure 1: San Luis Obispo Basin Location Map.

The Plan provides information regarding the beneficial uses and users of groundwater as required by SGMA, and contains sufficient detail regarding the water use types, existing water monitoring and resource programs, and types and distribution of land use and land use plans for the Basin. The GSAs provide a list of public meetings, materials, and notifications on its website, and lists of meetings and public comments and how they were addressed by the GSAs are included in the appendices of the GSP.

The GSP describes the legal authority of the GSAs, provides a cost estimate for implementing the GSP for the initial five years, and explains how the Agencies plan to meet those costs. Regarding the legal authority, the GSP states: “[t]he GSAs developing

this coordinated GSP were formed in accordance with the requirements of California Water Code Section 10723 et seq."[38] The GSP mentions that per California Water Code (CWC) Section 10721(n), the County and the City of San Luis Obispo qualify as Local Agencies, and each has the jurisdiction to become GSA.[39] Per CWC Section 10725 and after becoming a GSA, they assume all rights and authority granted to GSAs for their respective areas.[40] See the appendix[41] for their resolutions for forming a GSA. The GSP estimates the costs of implementing the GSP for the initial five years at $965,000 per year.[42] A table itemizes the GSP implementation activity and provides its description, an anticipated timeframe, and a cost estimate - this cost estimate does not include the Supplemental Water Feasibility Study nor the planning, design, and construction of Supplemental Water Projects.[43] The GSP declares: "[e]stimates of future annual implementation costs (Years 6 through 20) will be developed during future updates of the GSP."[44] A state grant from DWR (Proposition 1) and "in-kind contributions from the GSAs and GSC members" provided funding for the development of the GSP.[45] A Fee Study will assess fee structures and funding mechanisms for GSP implementation, and in addition to fees, the GSAs may consider grants and low-interest financing.[46]

The GSAs subdivides the Basin into two distinct valleys, with the San Luis Valley in the northwest and the Edna Valley in the southeast. Land use in the San Luis Valley portion of the Basin is primarily municipal, residential, and industrial, while primary land use in the Edna Valley portion of the basin is agricultural.

The GSP's discussion and presentation of administrative information covers the specific items listed in the GSP Regulations in an understandable format using appropriate data. Department staff are aware of no significant inconsistencies or contrary information presented in the GSP and therefore have no significant concerns regarding the quality, data, and discussion of this subject in the GSP. The administrative information included in the Plan substantially complies with the requirements outlined in the GSP Regulations.

4.2 BASIN SETTING

GSP Regulations require information about the physical setting and characteristics of the basin and current conditions of the basin, including a hydrogeologic conceptual model; a description of historical and current groundwater conditions; and a water budget

[38] San Luis Obispo Valley Basin GSP, Section 2.3, p. 47.
[39] San Luis Obispo Valley Basin GSP, Sections 2.3.1.1-2.3.1.2, p. 47.
[40] San Luis Obispo Valley Basin GSP, Sections 2.3.1.1-2.3.1.2, p. 47.
[41] San Luis Obispo Valley Basin GSP, Appendices B-C, pp. 368-376.
[42] San Luis Obispo Valley Basin GSP, Section 10.1.3, p. 336.
[43] San Luis Obispo Valley Basin GSP, Section 10.1.3, p. 336, Table 10-1, p. 342.
[44] San Luis Obispo Valley Basin GSP, Section 10.1.3, p. 336.
[45] San Luis Obispo Valley Basin GSP, Section 10.2.1, p. 339.
[46] San Luis Obispo Valley Basin GSP, Sections 10.2-10.2.3, p. 339.

accounting for total annual volume of groundwater and surface water entering and leaving the basin, including historical, current, and projected water budget conditions.[47]

4.2.1 Hydrogeologic Conceptual Model

The hydrogeologic conceptual model is a non-numerical model of the physical setting, characteristics, and processes that govern groundwater occurrence within a basin, and represents a local agency's understanding of the geology and hydrology of the basin that support the geologic assumptions used in developing mathematical models, such as those that allow for quantification of the water budget.[48] The GSP Regulations require a descriptive hydrogeologic conceptual model that includes a written description of geologic conditions, supported by cross sections and maps,[49] and includes a description of basin boundaries and the bottom of the basin,[50] principal aquifers and aquitards,[51] and data gaps.[52]

The GSP states the aquifers in the Basin are composed of unconsolidated or loosely consolidated sediments and is underlain and surrounded by bedrock. The unconsolidated to loosely consolidated sediments consist of Recent Alluvium, the Paso Robles Formation, and the Pismo Formation. The Recent Alluvium consisting of gravel, sand, silt, and clay that were deposited by fluvial processes along the Basin's creeks and tributaries. The thickness of the Recent Alluvium ranges from a few feet to more than 50 feet. [53] In most of the Basin, the Recent Alluvium is underlain by the Paso Robles Formation, which consists of poorly sorted, unconsolidated to mildly consolidated sandstone, siltstone, claystone, and thin beds of volcanic tuff that was deposited in a terrestrial setting. The Plan notes that the Paso Robles Formation was sometimes hard to distinguish from the Alluvium in the geophysical logs and well completion reports.[54] In some areas of the Edna Valley, the Paso Robles Formation is underlain by the Pismo Formation, a sequence of marine deposited sediments consisting of claystone, siltstone, sandstone, and conglomerate. Where present, the Pismo Formation has a thickness of up to 400 feet. [55]

The maximum sediment thickness in the Edna Valley it about 400 feet whereas the maximum sediment thickness in the San Luis Valley is about 140 feet.[56] The San Luis Valley area of the Basin is drained by the San Luis Obispo Creek and its tributaries with

[47] 23 CCR § 354.12.
[48] DWR Best Management Practices for the Sustainable Management of Groundwater: Hydrogeologic Conceptual Model, December 2016: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files/BMP-3-Hydrogeologic-Conceptual-Model_ay_19.pdf.
[49] 23 CCR §§ 354.14 (a), 354.14 (c).
[50] 23 CCR §§ 354.14 (b)(2-3).
[51] 23 CCR § 354.14 (b)(4) *et seq.*
[52] 23 CCR § 354.14 (b)(5).
[53] San Luis Obispo Valley Basin GSP, Section 4.5.2.1, p. 96.
[54] San Luis Obispo Valley Basin GSP, Section 4.5.2.2, p. 96.
[55] San Luis Obispo Valley Basin GSP, Section 4.5.2.3, pp. 96-97.
[56] San Luis Obispo Valley Basin GSP, Section 4.2, pp. 84-85 and Figure 4-5, p. 90.

surface drainage out of the Basin flowing to the south along the course of Highway 101 towards Avila Beach. The Edna Valley area of the Basin is drained by Pismo Creek and its tributaries with surface drainage out of the Basin flowing to the south into Price Canyon.

The GSP states that the bottom of the Basin is defined by the contact of unconsolidated or loosely consolidated permeable sediments with the impermeable bedrock Miocene-aged and Franciscan Assemblage rocks.[57] The Plan describes the bottom of the Basin aquifers at the occurrence of bedrock, with the bedrock formations having lower permeability and/or porosity and generally considered to be non-water-bearing. The Plan notes that the bedrock formations occasionally yield groundwater flow adequate for local or domestic needs with wells drilled into bedrock often going dry or producing less groundwater than 10 gallons per minute but are not considered part of the Basin.[58] Department staff note cross-sections provided in the Plan depict that many wells are fully or partially screened in the bedrock formation(s).[59]

The Plan does not explicitly identify a single principal aquifer, it describes three aquifers where there "are no significant aquitards that vertically separate the three aquifers in the Basin over large areas." [60] The three groundwater producing aquifer deposits are the Alluvial Aquifer, the Paso Robles Formation Aquifer, and the Pismo Formation Aquifer. Department staff infer that the GSAs regards these groundwater-producing aquifer deposits as comprising a single, undifferentiated "principal aquifer" for the Basin.

The Alluvial Aquifer is described as relatively continuous, comprised of alluvial sediments that underlie the San Luis Obispo Creek, and East/West Corral de Piedras Creeks and their tributary streams, with a thickness that ranges from just a few feet to more than 50 feet. [61] The Paso Robles Formation Aquifer is described as interbedded sand and gravel lenses that were terrestrially derived. The Paso Robles Formation underlies the Alluvium throughout most of the Basin, the Plan does not state its thickness. [62] The Pismo Formation Aquifer is described as interbedded marine sand and gravel lenses. The Pismo Formation is most extensive below the Paso Robles Formation in the Edna Valley, with a thickness of up to 400 feet. [63] The lateral extent of the Basin is defined as the boundary of the sedimentary formations and bedrock [64] and the Plan notes that there is no significant aquitard that vertically separates the three aquifers.[65] The Plan further details that because there is no available groundwater elevation data specific to the three individual aquifers, and because these formations appear to function as combined

[57] San Luis Obispo Valley Basin GSP, Section 4.2, pp. 84-85.
[58] San Luis Obispo Valley Basin GSP, Section 4.5.3, p. 97.
[59] San Luis Obispo Valley Basin GSP, Figures 4-10 – 4-21, pp. 103-114.
[60] San Luis Obispo Valley Basin GSP, Section 4.6, p. 98.
[61] San Luis Obispo Valley Basin GSP, Section 4.5.2.1, p. 96.
[62] San Luis Obispo Valley Basin GSP, Section 4.5.2.2, p. 96.
[63] San Luis Obispo Valley Basin GSP, Section 4.5.2.3, p. 96.
[64] San Luis Obispo Valley Basin GSP, Section 4.5.2, p. 93.
[65] San Luis Obispo Valley Basin GSP, Section 4.6, p. 98.

hydrogeologic units, groundwater elevation data are combined and presented as a single groundwater elevation map as wells are often screened across multiple aquifers.[66]

Department staff note the GSP Regulations define a principal aquifer as "aquifers or aquifer systems that store, transmit, and yield significant or economic quantities of groundwater to wells, springs, or surface water systems."[67] While the definition does not preclude fractured bedrock aquifers from being identified as principal aquifers, it also does not require them to be identified as such. Department staff therefore recommend the GSAs provide additional information to support the determination that the bedrock formation(s) should not be considered part of the principal aquifer the GSAs will manage under the GSP including the numbers of wells that are screened within the bedrock formation(s) and the amount of water that is pumped from these wells.[68]

Aquifer properties were compiled from previous reports or calculated from available constant rate pumping tests and were provided as hydraulic conductivity and transmissivity. [69] The aquifer parameter specific storage, which can be used to calculate storativity, was provided in the Plan as an output of groundwater modeling.[70]

The groundwater modeling noted that the model is sensitive to storativity, which "can have a significant impact on seasonal fluctuations of water levels in an aquifer." [71] The Plan further states that storativity dates in the Basin is sparce and that "[t]his parameter should be evaluated further in future model revisions." [72] The Plan does not identify this as a data gap. Because the Plan acknowledges that storativity data in the Basin is sparse and that the groundwater model is sensitive to storativity, Department staff recommend the Plan should recognize that storativity is a data gap in the hydrogeologic conceptual model and associated groundwater modeling. [73] Additionally, the GSAs should include a description of reasonable measures and schedule to address the data gap in its next GSP update or subsequent annual report.

The information provided in the GSP that comprises the hydrogeologic conceptual model substantially complies with the requirements outlined in the GSP Regulations. In general, the Plan's descriptions of the regional geologic setting, the Basin's physical characteristics, the principal aquifer, and hydrogeologic conceptual model appear to utilize the best available science. Department staff are aware of no significant inconsistencies or contrary technical information presented in the Plan.

[66] San Luis Obispo Valley Basin GSP, Section 5.1, p. 124.
[67] 23 CCR § 351.4 (aa).
[68] 23 CCR § 354.14 (b)(4)
[69] San Luis Obispo Valley Basin GSP, Section 4.6.2. pp. 115-116 and Tables 4.1-4.2, pp. 118-119.
[70] San Luis Obispo Valley Basin GSP, Appendix G, p. 600 and Appendix G, Figures 4-6 – 4-8, pp 604-606.
[71] San Luis Obispo Valley Basin GSP, Appendix G, p. 607.
[72] San Luis Obispo Valley Basin GSP, Appendix G, p. 607.
[73] 23 CCR § 355.4(b)(2).

4.2.2 Groundwater Conditions

The GSP Regulations require a written description of historical and current groundwater conditions for each of the applicable sustainability indicators and groundwater dependent ecosystems that includes the following: groundwater elevation contour maps and hydrographs,[74] a graph depicting change in groundwater storage,[75] maps and cross-sections of the seawater intrusion front,[76] maps of groundwater contamination sites and plumes,[77] maps depicting total subsidence,[78] identification of interconnected surface water systems and an estimate of the quantity and timing of depletions of those systems,[79] and identification of groundwater dependent ecosystems.[80]

The GSP provides a thorough description of current and historical groundwater conditions in the Basin. Groundwater elevation contour maps are provided for the Fall 1954, Spring 1990, Spring 1997, Spring 2011, Spring 2015, and Fall and Spring 2019.[81] The GSP states that to represent seasonal low and seasonal high groundwater conditions, semi-annual groundwater levels have been, and will continue to be, measured in April and October of each year.[82]

The GSP states that the primary direction of groundwater flow in the Basin is from the area of highest groundwater elevations in the Edna Valley northwestward toward San Luis Obispo Creek, where the flow leaves the Basin along the stream. The GSP further states that groundwater in the northwestern areas of the Basin flow southeastward toward the San Luis Obispo Creek and that there are local areas of flow discharging from the southeastern portion of the Basin along Pismo Creek tributaries of East and West Corral de Piedras Creek, and alluvium of other smaller tributaries further to the south. [83]

The Plan includes a figure that displays ten groundwater elevation hydrographs of wells from across the Basin that have the longest period of record.[84] The Plan describes that hydrographs show stable groundwater conditions in the San Luis Valley. The Plan also includes hydrographs from wells in the northern portion of the Edna Valley that display much greater variability in groundwater elevations including in response to seasonal and drought cycle fluctuations, and that this pattern is likely associated with local recharge from the West Corral de Piedras Creek. The GSP describes these hydrographs show a

[74] 23 CCR § 354.16 (a)(1-2).
[75] 23 CCR § 354.16 (b).
[76] 23 CCR § 354.16 (c).
[77] 23 CCR § 354.16 (d).
[78] 23 CCR § 354.16 (e).
[79] 23 CCR § 354.16 (f).
[80] 23 CCR § 354.16 (g).
[81] San Luis Obispo Valley Basin GSP, Section 5.1, pp. 124-134 and Figures 5-1-5-7, pp. 126-134.
[82] San Luis Obispo Valley Basin GSP, Section 7.4.1, p. 246.
[83] San Luis Obispo Valley Basin GSP, Section 5.1, p. 124.
[84] San Luis Obispo Valley Basin GSP, Figure 5-11, p. 141.

steady decline in groundwater elevations in the southern portion of the Edna Valley with declines of about 60 to 100 feet since the year 2000.[85]

The Plan presents several figures to show the change in groundwater elevations over various time periods.[86] Annual change in storage for various water year types is provided by the GSP in several tables.[87] Although figures depict changes in groundwater elevations and the tables provide information regarding annual change in groundwater in storage, the information provided by the Plan does not include a graph required by the GSP Regulations to display annual and cumulative change in the volume of groundwater in storage between seasonal high groundwater conditions, including the annual groundwater use and water year type. Department staff recommend the GSAs submit a graph depicting annual and cumulative change in groundwater in storage, clearly describing that the data is between seasonal high groundwater conditions, in its next GSP update or subsequent annual report.

The GSP states that the Basin is not adjacent to the Pacific Ocean, a bay, or inlet, and that seawater intrusion is not a relevant sustainability indicator for the Basin.[88] Given the geographic setting of the Basin, Department staff regard the reasoning of the GSP as sufficient to demonstrate that sea water intrusion is not present in the basin and is not likely to occur in the future.

The Plan includes figures of groundwater quality constituents of concern (COCs) noted in the Basin including total dissolved solids (TDS), nitrate, and arsenic. The figures show trends in COC concentrations from as far back as 1990 up to 2019.[89] The Plan notes that data reviewed between 1953 and 2019 showed that groundwater in the Basin is generally of good quality for drinking, but that the maximum contaminant levels (MCLs) were exceeded for nitrates and arsenic in 10 percent and 4 percent of samples that were collected during that time period, respectively.[90] TDS concentrations in the basin ranged from 180 mg/L to 3,100 mg/L with an average of 727 mg/L[91] and exceed the secondary MCL for TDS in 15 percent[92] of the samples reviewed. The Plan notes that the secondary MCL for TDS includes a recommendation of 500 mg/L, an upper of 1,000 mg/L, and a short-term limit of 1,500 mg/L[93]. The Plan notes that, in public supply water systems, the MCL exceedances are mitigated with seasonal well use, treatment, or blending.[94]

The Plan states that land subsidence was documented in the San Luis Valley portion of the Basin, along Los Osos Valley Road and in the vicinity of Laguna Lake, that was

[85] San Luis Obispo Valley Basin GSP, Section 5.2, p. 140.
[86] San Luis Obispo Valley Basin GSP, Section 5.1.9, pp. 135-138.
[87] San Luis Obispo Valley Basin GSP, Table 6-1 - 6-3, pp. 172-174.
[88] San Luis Obispo Valley Basin GSP, Section 5.5, p. 147.
[89] San Luis Obispo Valley Basin GSP, Figure 5-19 – 5-21, p. 161, p. 163 and p.165.
[90] San Luis Obispo Valley Basin GSP, Section 5.9.1, p.157.
[91] San Luis Obispo Valley Basin GSP, Section 5.9.3.1, p.160.
[92] San Luis Obispo Valley Basin GSP, Section 5.9.1, p.157.
[93] San Luis Obispo Valley Basin GSP, Section 5.9.3.1, p.160.
[94] San Luis Obispo Valley Basin GSP, Section 5.9.1, p.157.

caused by groundwater pumping. The Plan describes subsidence occurring in the 1990s in young organic soils along Los Osos Valley Road in response to groundwater extractions. That subsidence resulted in more than 1 foot of change and caused damage to local business and homes.[95] The Plan references a 1997 subsidence study that did not report any measurable subsidence in the area.[96] The Plan notes that DWR has defined the Basin as "low subsidence potential," but the Plan recognizes that there is subsidence potential in the Basin where the compressible young soils exist and has divided the Basin into three categories based on likelihood of future subsidence, with the highest likelihood of future subsidence in areas around Los Oso Valley Road, Laguna Lake, and low-lying wetland areas near Tank Farm Road.[97]

The GSP states San Luis Creek, and its tributaries, have surface water bodies that are interconnected to groundwater within the San Luis Valley portion of the Basin. Interconnected surface water was evaluated utilizing direct measurements and was also modeled as a result of groundwater pumping over the past 20 years. For the Edna Valley portion of the Basin, the GSP states that there is a disconnection of surface water to groundwater in the Edna Valley[98]. The GSAs acknowledges that limited data was available to conduct the analysis and that the model's output dataset is limited in its conclusions. The GSP states that the characterization of interconnection between surface water and groundwater will continue to be evaluated and refined as additional data and information are acquired during GSP implementation.[99]

The Plan used data from the Natural Communities Commonly Associated with Groundwater (NCCAG) dataset and the results of a technical memorandum included in Appendix F of the GSP to identify and map potential groundwater dependent ecosystems (GDEs).[100] Further, the Plan identifies special status species and sensitive natural communities associated with potential GDEs. The data sources for this analysis are datasets from the U.S. Fish and Wildlife Service, the California Fish and Wildlife Service, and The Nature Conservancy. A list of Federal and State listed threatened and endangered species used as GDE indicators in the Plan are summarized in Appendix F, Table 1.[101]

The Plan states that potential GDEs were identified by first assessing vegetation in the Natural Agricultural Imagery Program 2018 color aerial imagery and comparing vegetation and wetlands to underlying depth to water measurements from 2019 at less than 30 feet. In areas with no depth to groundwater data, potential GDEs were identified based on assumptions made from available limited data in the surrounding area. In the

[95] San Luis Obispo Valley Basin GSP, Section 4.8 pp. 120-121.
[96] San Luis Obispo Valley Basin GSP, Section 5.6 p. 147
[97] San Luis Obispo Valley Basin GSP, Section 4.8 pp. 120-121 and Figure 4-23, p. 122.
[98] San Luis Obispo Valley Basin GSP, Section 5.7.1, p. 150.
[99] San Luis Obispo Valley Basin GSP, p. 288.
[100] San Luis Obispo Valley Basin GSP, Appendix F, pp. 450-492.
[101] San Luis Obispo Valley Basin GSP, Appendix F, Table 1, pp. 458-461.

San Luis Valley, depth to water in the vicinity of the San Luis Obispo Creek was assumed to be less than 30 feet, resulting in the entire San Luis Creek being identified as a potential GDE. In the Edna Valley, depth to water in the Vicinity of Pismo Creek was assumed to be more than 30 feet and depth to water in the vicinity of East Corral de Piedra were assumed to be less than 30 feet.[102] However, in both the San Luis Valley and Edna Valley, the Plan acknowledges there is limited groundwater data available, and the identification is based on only one year of groundwater data. Department staff encourage the GSAs to investigate where GDEs exist in the Basin and update the Plan accordingly.

Despite the identification of a recommended corrective action, the Plan sufficiently describes the historical and current groundwater conditions throughout the Basin, and the information included in the Plan substantially complies with the requirements outlined in the GSP Regulations.

4.2.3 Water Budget

GSP Regulations require a water budget for the basin that provides an accounting and assessment of the total annual volume of groundwater and surface water entering and leaving the basin, including historical; current; and projected water budget conditions,[103] and the sustainable yield.[104]

The GSP provides a historical water budget for 1987-2016 (30 years). The historical budget analysis was performed using an analytical approach consisting of groundwater flow estimates based on Darcy's Law and change in storage calculations based on the specific yield method. Various sources and types of data have been used for the water budget, for example, (1) Hydrogeologic and geologic studies and maps, (2) Groundwater monitoring reports, (3) County stream flow gages, (4) County and NOAA precipitation stations, (5) PRISM 30-year normal dataset (1981-2010), (6) CIMIS weather station data, etc. The water budgets were prepared for the two subareas that cover the Basin. The San Luis Valley portion of the Basin is dominantly urban areas, and the Edna Valley portion of the Basin is dominated by Ag fields especially vineyards (Figure 6-3[105]). Table 6-1[106], Table 6-2[107], and Table 6-3[108] present the historical surface water and groundwater budgets for the San Luis Valley portion of the Basin, the Edna Valley portion of the Basin, and the Basin total, respectively. Bar graphs are also included in Figure 6-4[109] to Figure 6-9[110]. Figures 6-4 to 6-6 illustrate the surface water budget, while Figures 6-7 to 6-9 illustrate the groundwater budget.

[102] San Luis Obispo Valley Basin GSP, Section 5.8.2 p. 154 and Figure 5-17 p. 155.
[103] 23 CCR §§ 354.18 (a), 354.18 (c) *et seq*.
[104] 23 CCR § 354.18 (b)(7).
[105] San Luis Obispo Valley Basin GSP, Figure 6-3, p. 171.
[106] San Luis Obispo Valley Basin GSP, Table 6-1, p. 172.
[107] San Luis Obispo Valley Basin GSP, Table 6-2, p. 173.
[108] San Luis Obispo Valley Basin GSP, Table 6-3, p. 174.
[109] San Luis Obispo Valley Basin GSP, Figure 6-4, p. 175.
[110] San Luis Obispo Valley Basin GSP, Figure 6-9, p. 180.

The GSP reports the overdraft estimates in Table 6-17.[111] The average groundwater extraction in the San Luis Valley portion of the Basin, since 2010, is estimated to be 1,800 AFY, which is 700 AFY less than the average recharge of 2,500 AFY, indicating a surplus of groundwater for this portion of the Basin. The Edna Valley portion of the Basin, groundwater pumping has averaged 4,400 AFY since 2010, which is 1,100 AFY more than the sustainable yield of 3,300 AFY for the portion of the Basin. The GSP identified that the Edna Valley's portion of the Basin overdraft is estimated to be 1,100 AFY. [112]

The GSP provides a current water budget analysis for 2016-2019. The tables and figures cited for the historical water budget include the current water budget.

Future water budgets were developed using the GSFLOW numerical model developed for this GSP (Appendix G). Each simulation was run continuously through the historical calibration period (1987-2019) through the end of the predictive simulation period (2020-2044). According to the GSP regulations, the future water budget should be based on 50 years of historical climate data, the GSP considered 33 years of historical data for the projected water budget analysis. The GSP discusses that this period is a representative historical period spanning a variety of hydrologic year types.[113] The Plan assumed that there will be no increase in irrigated acreage, agricultural pumping, or municipal pumping over the SGMA planning horizon. For the baseline predictive scenario, the historical input data for years 1995-2019 was repeated for the predictive model period of 2020-2044. The 1995-2019 historical period includes several different water year types, including representation of the recent drought. For the climate change scenario, datasets of monthly 2070 change factors for this Basin were applied to precipitation and evapotranspiration data from the historical base period to develop monthly time series of precipitation and evapotranspiration, which were then used to simulate future hydrology conditions. The approach followed in the GSP is consistent with methodologies recommended by the Department.[114] The average of various water budget components projected for the period 2020-2042 is listed in Table 6-21[115] for the surface water budget and Table 6-22[116] for the groundwater budget. No time series of the components is provided. The GSP claims that climate change is not a significant factor that needs to be considered in the Basin over the SGMA planning horizon. Department staff note that since the GSP was adopted and submitted, climate change conditions have advanced faster and more dramatically. It is anticipated that the hotter, drier conditions will result in a loss of 10% of California's water supply. As California adapts to a hotter, drier climate, GSAs

[111] San Luis Obispo Valley Basin GSP, Table 6-17, p. 217.
[112] San Luis Obispo Valley Basin GSP, Table 6-17, p. 217.
[113] San Luis Obispo Valley Basin GSP, Section 6.2.1, pp. 181-183.
[114] DWR Guidance for Climate Change Data Use During Groundwater Sustainability Plan Development: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files/Climate-Change-Guidance_Final_ay_19.pdf.
[115] San Luis Obispo Valley Basin GSP, Table 6-21, p. 230
[116] San Luis Obispo Valley Basin GSP, Table 6-22, p. 231

should be preparing for these changing conditions as they work to sustainably manage groundwater within their jurisdictional areas. The GSAs should consider the potential impacts climate change may have on groundwater management activities during plan implementation. The sustainable yield is the maximum quantity of water, calculated over a base period representative of long-term conditions in the Basin and including any temporary surplus, that can be withdrawn annually from a groundwater supply without causing an undesirable result as defined by SGMA. The preliminary sustainable yield of the Basin was estimated separately for each of the subareas. The Edna Valley portion of the Basin has experienced cumulative storage declines since 1998, while the San Luis Valley portion of the Basin experiences minimal storage declines during drought but recovers and is typically close to full storage capacity. For the Edna Valley portion of the Basin, the long-term average recharge (3,400 AFY) minus subsurface outflow (100 AFY) gives a sustainable yield estimate of 3,300 AFY. The preliminary sustainable yield of the San Luis Valley portion of the Basin is estimated at 2,500 AFY, based on the long-term average recharge of 3,700 AFY minus 1,200 AFY used by wetlands. These values are summarized in Table 6-16[117].

The water budget described in the GSP substantially complies with the GSP Regulations and is developed using the best available science. Department staff note that the GSA utilized an analytical approach was used for the historical (and current) water budget analysis and a numerical modeling approach (GSFLOW) was used for the projected water budget. The GSP discusses the differences in approaches and indicates that the numerical model will be used for historical/current water budgets in future.

4.2.4 Management Areas

The GSP Regulations provide the option for one or more management areas to be defined within a basin if the GSAs have determined that the creation of the management areas will facilitate implementation of the Plan. Management areas may define different minimum thresholds and be operated to different measurable objectives, provided that undesirable results are defined consistently throughout the basin.[118]

There are no management areas proposed within the Plan area.

4.3 Sustainable Management Criteria

GSP Regulations require each Plan to include a sustainability goal for the basin and to characterize and establish undesirable results, minimum thresholds, and measurable objectives for each applicable sustainability indicator, as appropriate. The GSP Regulations require each Plan to define conditions that constitute sustainable groundwater management for the basin including the process by which the GSAs

[117] San Luis Obispo Valley Basin GSP, Table 6-16, p. 216.
[118] 23 CCR § 354.20.

characterizes undesirable results and establishes minimum thresholds and measurable objectives for each applicable sustainability indicator.[119]

4.3.1 Sustainability Goal

GSP Regulations require that GSAs establish a sustainability goal for the basin. The sustainability goal should be based on information provided in the GSP's basin setting and should include an explanation of how the sustainability goal is likely to be achieved within 20 years of Plan implementation.[120]

The GSP describes the sustainability goal as "to manage the [San Luis Obispo Valley] Basin to ensure beneficial uses and basin users have access to a safe and reliable groundwater supply that meets current and future demand without causing undesirable results."[121] The GSAs states that the sustainable management criteria described in Section 8 of the GSP are "based on currently available data and application of the best available science."[122]

The GSP approach to achieve the sustainability goal is through the implementation of their proposed projects and management actions. The projects will be focused on supplemental water sources that could be brought into the Basin, to mitigate overdraft, while the management actions will work towards improving groundwater monitoring metering and groundwater demand management.[123] The GSAs states that they intend to implement the GSP "using an adaptive management strategy. Adaptive management allows the GSAs to react to the success or lack of success of actions and projects implemented in the Basin and to make management decisions to redirect efforts in the Basin to more effectively achieve sustainability goals."[124]

The Plan describes the process for establishing the minimum thresholds and measurable objectives for the Basin as a result of evaluating historical data of groundwater elevations from wells and the water budget, modeling groundwater scenarios which incorporate the proposed projects and management actions and informing the public thought soliciting comments and hosting meetings.[125]

Based on review of the GSP, Department staff conclude that the GSP's discussion and presentation of information related to the Basin's sustainability goal covers the specific items listed in the regulations in an understandable format using appropriate data.

4.3.2 Sustainability Indicators

Sustainability indicators are defined as any of the effects caused by groundwater conditions occurring throughout the basin that, when significant and unreasonable, cause

[119] 23 CCR § 354.22 *et seq*.
[120] 23 CCR § 354.24.
[121] San Luis Obispo Valley Basin GSP, Section 8.3.1, p 257.
[122] San Luis Obispo Valley Basin GSP, Section 8.1, p 254.
[123] San Luis Obispo Valley Basin GSP, Section 8.3.2, p 257.
[124] San Luis Obispo Valley Basin GSP, Section 8.3.2, p 257.
[125] San Luis Obispo Valley Basin GSP, Section 8.4, pp 257-258.

undesirable results.[126] Sustainability indicators thus correspond with the six undesirable results – chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon, significant and unreasonable reduction of groundwater storage, significant and unreasonable seawater intrusion, significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies, land subsidence that substantially interferes with surface land uses, and depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water[127] – but refer to groundwater conditions that are not, in and of themselves, significant and unreasonable. Rather, sustainability indicators refer to the effects caused by changing groundwater conditions that are monitored, and for which criteria in the form of minimum thresholds are established by the agency to define when the effect becomes significant and unreasonable, producing an undesirable result.

GSP Regulations require that GSAs provide descriptions of undesirable results including defining what are significant and unreasonable potential effects to beneficial uses and users for each sustainability indicator.[128] GSP Regulations also require GSPs provide the criteria used to define when and where the effects of the groundwater conditions 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 cause significant and unreasonable effects in the basin.[129]

GSP Regulations require that the description of minimum thresholds include the information and criteria relied upon to establish and justify the minimum threshold for each sustainability indicator.[130] GSAs are required to describe how conditions at minimum thresholds may affect beneficial uses and users,[131] and the relationship between the minimum thresholds for each sustainability indicator, including an explanation for how the GSAs haves determined conditions at each minimum threshold will avoid causing undesirable results for other sustainability indicators.[132]

GSP Regulations require that GSPs include a description of the criteria used to select measurable objectives, including interim milestones, to achieve the sustainability goal within 20 years.[133] GSP Regulations also require that the measurable objectives be established based on the same metrics and monitoring sites as those used to define minimum thresholds.[134]

[126] 23 CCR § 351(ah).
[127] Water Code § 10721(x).
[128] 23 CCR §§ 354.26 (a), 354.26 (b)(c).
[129] 23 CCR § 354.26 (b)(2).
[130] 23 CCR § 354.28 (b)(1).
[131] 23 CCR § 354.28 (b)(4).
[132] 23 CCR § 354.28 (b)(2).
[133] 23 CCR § 354.30 (a).
[134] 23 CCR § 354.30 (b).

The following subsections thus consolidate three facets of sustainable management criteria: undesirable results, minimum thresholds, and measurable objectives. Information, as presented in the Plan, pertaining to the processes and criteria relied upon to define undesirable results applicable to the Basin, as quantified through the establishment of minimum thresholds, are addressed for each applicable sustainability indicator. A submitting Agency is not required to establish criteria for undesirable results that the agency can demonstrate are not present and are not likely to occur in a basin.[135]

4.3.2.1 Chronic Lowering of Groundwater Levels

In addition to components identified in 23 CCR §§ 354.28 (a-b), for the chronic lowering of groundwater, the GSP Regulations require the minimum threshold for chronic lowering of groundwater levels to be the groundwater elevation indicating a depletion of supply at a given location that may lead to undesirable results that is supported by information about groundwater elevation conditions and potential effects on other sustainability indicators.[136]

The Plan states that "[s]ignificant and unreasonable Chronic Lowering of Groundwater Levels in the Basin are those that: reduce the ability of existing domestic wells of average depth to produce adequate water for domestic purposes (drought resilience); cause significant financial burden to those who rely on the groundwater basin.; interfere with other SGMA Sustainability Indicators."[137] The Plan provides a quantitative description to define an undesirable result for the chronic lowering of groundwater levels occurring when "two or more [representative monitoring sites] RMSs for water levels within a defined area of the Basin (i.e., San Luis Valley or Edna Valley) display exceedances of the minimum threshold groundwater elevation values for two consecutive fall measurements. Geographically isolated exceedances (i.e., conditions in a single well) will require investigation to determine if local or basin wide actions are required in response."[138] The Plan further describes the geographical component of this definition, stating that "[a]llowing two exceedances in a network of 10 RMS wells is reasonable if the exceedances are distributed throughout the Basin. If the exceedances are clustered in a limited area, it indicates that significant unreasonable effects are being experienced by a localized group of landowners. Any single exceedance will require investigation to determine the significance and causes of the observed conditions."[139]

The GSP identified two subareas within the Basin, San Luis Valley portion of the Basin and the Edna Valley portion of the Basin, and states that the rational for the geographical approach is based the significantly different historical trends in groundwater levels in the San Luis Valley and the Edna Valley portions of the Basin.[140] The GSAs set minimum

[135] 23 CCR § 354.26 (d).
[136] 23 CCR § 354.28(c)(1) *et seq*.
[137] San Luis Obispo Valley Basin GSP, Section 8.5.1.1, p 264.
[138] San Luis Obispo Valley Basin GSP, Section 8.5.1, p 264.
[139] San Luis Obispo Valley Basin GSP, Section 8.5.1.3, p 265.
[140] San Luis Obispo Valley Basin GSP, Section 8.5.2.1, pp 265-266.

thresholds for the chronic lowering of groundwater using a network of 10 RMS, four located in San Luis Valley and six located in Edna Valley.[141]

In the San Luis Valley portion of the Basin, the Plan states that long-term water level declines have not been observed in either of the monitoring wells or RMS.[142] The Plan further states that "[w]hile seasonal fluctuations continue as would be expected, year-to-year water levels have been essentially stable."[143] The minimum thresholds in the San Luis Valley portion of the Basin for chronic lowering of groundwater levels are set 10 to 20 feet lower than previously observed lowest water levels. The GSA's rationale for the minimum threshold is based on the GSA's assessment "that the San Luis Valley portion of the Basin is in surplus"[144] and the GSA's desire to retain the flexibility to expand the use of groundwater in the future.

Department staff note the GSP does not describe how setting groundwater levels thresholds 10 to 20 feet lower than the previously observed low water levels will avoid significant and unreasonable conditions in the Basin. Department staff conclude that including this information in the GSP will provide additional technical details supporting the description of how the GSA established the sustainable management criteria for chronic lowering of groundwater levels (see Recommended Corrective Action 1a).

Department staff also note that while the GSP states the minimum thresholds have been designed to "protect as many domestic wells as possible"[145]; the GSP does not include an analysis of potential impacts to beneficial uses and users such as domestics well users at the proposed minimum thresholds in the San Luis Valley Area. Department staff recommend the GSAs consider potential impacts to supply wells at the selected minimum threshold for chronic lowering of groundwater levels. The GSA should consider the degree/extent of potential impacts including the percentage, number, and location of potentially impacted wells at the proposed minimum thresholds for chronic lowering of groundwater levels (see Recommended Corrective Action 1b).

In the Edna Valley portion of the Basin minimum thresholds were set using a different methodology because four of the RMS "wells show water level declines over the past 20-30 years (EV-04, EV-09, EV-13, and EV-16)."[146] For this portion of the Basin, the Plan identified a network of six RMS wells where minimum thresholds for the chronic lowering of groundwater are set. The GSP notes that not all the hydrographs for the RMS in the Edna Valley display the same trends. Each hydrograph has unique characteristics depending on the local hydrogeologic setting in the immediate vicinity of the well, and this leads to the consideration of different definitions of minimum thresholds for different

[141] San Luis Obispo Valley Basin GSP, Table 8-1, p 264.
[142] San Luis Obispo Valley Basin GSP, Section 8.5.2.1, p 266.
[143] San Luis Obispo Valley Basin GSP, Section 8.5.2.1, pp 265-266.
[144] San Luis Obispo Valley Basin GSP, Section 8.5.2.1, p 266.
[145] San Luis Obispo Valley Basin GSP, Section 8.5.2.4, p. 270.
[146] San Luis Obispo Valley Basin GSP, Section 8.5.2.1, p 266.

wells."[147] Department staff note the GSP is unclear whether EV-13 or EV-12 is identified as an RMS. Based on the discussion EV-13 is identifies as the RMS, but Figure 8-5 identifies the hydrograph, minimum threshold, measurable objective, and interim milestones are for RMS EV-12. Department staff encourage the GSAs to rectify this issue to provide clarification to the Plan.

The Plan states "RMS EV-13, EV-04, and EV-09 display declining water levels over the past 20-25 years, with historical low elevations occurring around Fall 2015 at the end of the recent drought, followed by some degree of recovery since then."[148] As previously stated, the GSA's process for establishing the minimum thresholds and measurable objectives for the Basin included conducting public meetings to present recommendations using the public comments to inform the established thresholds.

The Plan states that "[a]gricultural stakeholders in the Edna Valley communicated concern that setting the minimum threshold at the 2015 water levels in these wells would not provide them adequate operational flexibility to protect their long investments in the production of agriculture in the area. While de minimis users communicated concern about lowered water levels affecting their ability to pump water for their domestic use."[149] To assess the concerns of private domestic well owners (i.e., de minimis users) of setting the threshold lower than the recent drought levels, the GSAs performed an analysis using these three RMS to evaluate potential water level of minimum thresholds compared to the depths of private domestic wells. The Plan states "the analysis of 2015 water levels, the data indicated 15 wells as "dry", out of 155 wells in the database... for water levels 10 feet lower than 2015 water levels, no additional domestic wells in the County database were indicated as "dry", beyond those identified as dry using 2015 water levels." Based on the analysis and public comments, for EV-13, EV-04, and EV-09 (three of the Edna Valley RMS wells), "the minimum thresholds were defined to be 10 feet lower than the historical low groundwater elevation observed in 2015."[150] Department staff note the GSA's decision to set minimum thresholds at 10 feet below 2015 levels for these wells is reasonable given the provided analysis that shows no additional dry wells are anticipated.

The Plan identifies two additional RMS wells, EV-01 and EV-11, which are intended to monitor surface water/groundwater conditions, have minimum thresholds set at historic lows based on 10 to 60 years of observed data. [151]

The hydrograph for EV-16, located near the southeastern extent of the Basin, displays a relatively steady decline in water levels of 3.25 feet per year since 2000, and the 2011-2015 drought is not apparent in the hydrograph. For this well, the GSAs set the minimum threshold "at an elevation of 150 feet, which is lower than current groundwater elevations

[147] San Luis Obispo Valley Basin GSP, Section 8.5.2.1, p 266.
[148] San Luis Obispo Valley Basin GSP, Section 8.5.2.1, p 266.
[149] San Luis Obispo Valley Basin GSP, Section 8.5.2.1, pp 266-267.
[150] San Luis Obispo Valley Basin GSP, Section 8.5.2.1, pp 267-268; Table 8-2, p 268.
[151] San Luis Obispo Valley Basin GSP. Figure 8-9 and Figure 8-10 p. 263.

of about 180 feet, to allow for the various stakeholders (both agricultural interests and mutual water companies) in the area to implement projects to slow and stabilize the observed water level declines (Figure 8-10)."[152] Department staff note the GSP does not describe how setting the groundwater level threshold at an elevation of 150 feet, approximately 30 feet lower than current groundwater elevation, will avoid significant and unreasonable conditions in the Basin. Department staff conclude that including this information in the GSP will provide additional technical details supporting the description of how the GSA established the sustainable management criteria for chronic lowering of groundwater levels (see Recommended Corrective Action 1c).

The measurable objectives in the San Luis Valley portion of the Basin are established higher than the minimum thresholds groundwater levels. The Plan's definition of measurable objectives "is within the historically observed range of groundwater elevations, but about 20 feet lower than fall 2020 water levels."[153] The GSAs states that the rationale was "to preserve the City's desired flexibility to resume reasonable and managed groundwater use to augment its potable water supply portfolio to serve its customer base.[154] The GPS set interim milestones to equivalent of the measurable objects.[155]

The measurable objectives in the Edna Valley portion of the Basin for EV-04, EV-09, EV-13 were set at the high-water levels observed immediately prior to the 2011-2015 drought (Figure 8-5 through Figure 8-7).[156] The Plan states that the "rationale for this selection was that if the antecedent conditions before the recent drought are replicated, and no significant new groundwater pumping is occurring in the Basin, then the water level declines observed from 2012-2015 in the Basin will not be significantly exceeded in a similar drought. To the extent that groundwater elevations can recover to levels higher than the 2011 levels, the Basin will be more resilient to drought."[157]

For EV-01 and EV-11, the measurable objectives "were set at approximately the average of seasonal high-water levels over the period of record (Figure 8-9, Figure 8-10). For EV-16 the measurable objective "was set slightly below current water levels and near a historic low (Figure 8-8). This approach is to try to prevent further significant reductions in water levels at this location, since it does not appear to have experienced any recovery of water levels since 2015 and needs to maintain sufficient saturated thickness to sustain production for the service area."[158]

[152] San Luis Obispo Valley Basin GSP, Section 8.5.2.1, p 268.
[153] San Luis Obispo Valley Basin GSP, Section 8.5.3.1, p 271.
[154] San Luis Obispo Valley Basin GSP, Section 8.5.2.1, p 266.
[155] San Luis Obispo Valley Basin GSP, Section 8.5.3.2, p 272.
[156] San Luis Obispo Valley Basin GSP, Section 8.5.3.1, p 272.
[157] San Luis Obispo Valley Basin GSP, Section 8.5.3.1, p 272.
[158] San Luis Obispo Valley Basin GSP, Section 8.5.3.1, p 272.

The GSAs plans to assess the minimum thresholds and measurable objectives established "through direct measurement of water levels from existing RMS" and during the 5-year review will determine if additional RMS need to be established.[159]

Although one or more recommended corrective actions were identified, Department staff conclude that the GSP's discussion and presentation of information generally covers the specific items listed in the GSP Regulations. While the supporting information surrounding some of the proposed minimum thresholds is lacking, the GSA's discussion of the stakeholder engagement process within portions of the Edna Valley Area suggests the GSAs likely were considering impacts to beneficial uses and users although this information may not be specifically stated in the Plan. Staff are aware of no significant inconsistencies or contrary information to that presented in the GSP that would preclude approval at this time.

4.3.2.2 Reduction of Groundwater Storage

In addition to components identified in 23 CCR §§ 354.28 (a-b), for the reduction of groundwater storage, the GSP Regulations require the minimum threshold for the reduction of groundwater storage to be a total volume of groundwater that can be withdrawn from the basin without causing conditions that may lead to undesirable results. Minimum thresholds for reduction of groundwater storage shall be supported by the sustainable yield of the basin, calculated based on historical trends, water year type, and projected water use in the basin.[160]

The Plan states it is a "well-established hydrogeologic principles that the Reduction of Groundwater Storage Sustainability Indicator is directly correlated to the lowering of water level Sustainability Indicator."[161] Assessment of groundwater storage will initially be evaluated with the same RMS as the chronic lowering of groundwater levels sustainability and those associated water level minimum thresholds and measurable objectives.[162] The Plan further states that "for the current 5-year implementation period, water levels at the RMS will be used as a proxy for the groundwater in storage Sustainability Indicator."[163]

The GSP explains that the effects of the reduction of storage minimum thresholds on beneficial uses and users are equivalent to the potential effects caused by the chronic lowering of groundwater levels.

The measurable objective for the change in storage sustainability indicator was defined using groundwater levels as a proxy. [164] Thus, the change in storage measurable objective is equivalent to the chronic lowering of groundwater levels measurable objective. While groundwater levels are used as a proxy instead of using the total volume

[159] San Luis Obispo Valley Basin GSP, Section 8.5.2.6, p 271.
[160] 23 CCR § 354.28(c)(2).
[161] San Luis Obispo Valley Basin GSP, Section 8.6, p 273.
[162] San Luis Obispo Valley Basin GSP, Section 8.6, p 273.
[163] San Luis Obispo Valley Basin GSP, Section 8.6.2, p 274.
[164] San Luis Obispo Valley Basin GSP, Section 8.6, p 273.

of groundwater extracted, the measurable objective will require that groundwater levels either increase or are maintained at their current levels.

Based on review of the materials referenced in the GSP, staff conclude that the GSP's discussion and presentation of information related to significant and unreasonable reduction of groundwater storage, including the rational that maintaining stable groundwater levels indicates groundwater storage is not being reduced, covers the specific items listed in the GSP Regulations in an understandable format using appropriate data.

4.3.2.3 Seawater Intrusion

In addition to components identified in 23 CCR §§ 354.28 (a-b), for seawater intrusion, the GSP Regulations require the minimum threshold for seawater intrusion to be defined by a chloride concentration isocontour for each principal aquifer where seawater intrusion may lead to undesirable results.[165]

The GSP identifies seawater intrusion as a sustainability indicator which is not present and has not established undesirable results, minimum thresholds, and measurable objectives. As the Basin is located inland, away from the ocean, Department staff concur that sustainable management criteria for seawater intrusion is not applicable for the Basin.

Based on review of the GSP, Department staff are aware of no significant inconsistencies or contrary information to what was presented in the GSP and therefore have no significant concerns regarding the quality, data, and discussion of seawater intrusion.

4.3.2.4 Degraded Water Quality

In addition to components identified in 23 CCR §§ 354.28 (a-b), for degraded water quality, the GSP Regulations require the minimum threshold for degraded water quality to be the degradation of water quality, including the migration of contaminant plumes that impair water supplies or other indicator of water quality as determined by the Agency that may lead to undesirable results. 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 determined by the Agency to be of concern for the basin. In setting minimum thresholds for degraded water quality, the Agency shall consider local, state, and federal water quality standards applicable to the basin.[166]

The GSP provides a description of the potential causes of degraded water quality undesirable results and the possible effects on beneficial uses and users in the Basin. The GSP defines an undesirable result for degraded water quality "if, for any 5-year GSP Update period, an increase in groundwater quality minimum threshold exceedances is observed at 20 percent or more of the RMSs in the Basin, as a result of groundwater

[165] 23 CCR § 354.28(c)(3).
[166] 23 CCR § 354.28(c)(4).

management implemented as part of the GSP."[167] The GSP describes the rationale as being "based on the goal of fewer than 20% of the RMSs for water quality exceedances that can occur as a result of GSP groundwater management activities over the next 5-year management period. Based on the current number of wells in the existing water quality monitoring network … the percentage defined equates to a maximum of two wells that can exceed the minimum thresholds."[168]

The GSP defines minimum thresholds for degraded water quality as the EPA-published water quality standards for total dissolved solid (TDS), nitrate, arsenic, trichloroethylene (TCE) and perchloroethylene (PCE) at 9 RMS.

The Plan identified the information used for establishing the degraded groundwater quality minimum thresholds as including historical groundwater quality data from production wells, reviewing federal and state drinking water quality standards, reviewing the RWQCB basin objectives for groundwater quality for TDS, and feedback for stakeholders. The GSP establishes sustainable management criteria thresholds for constituents of concern in the Basin which include TDS, nitrate, arsenic, and the volatile organic compounds of PCE and TCE. The minimum thresholds for the constituents of concern are presented in Table 8-3.[169]

The Plan states that "[e]xceedances of minimum thresholds will be monitored by reviewing water quality reports submitted to the California Division of Drinking Water by municipalities and small water systems for the wells that are included in the Water Quality Monitoring Network."[170] The "measurable objectives are defined as zero exceedances as a result of groundwater management, in samples from the Water Quality Monitoring Network."[171] "The interim milestones for degraded groundwater quality are defined as zero exceedances of the minimum threshold for each constituent of concern for 5, 10 and 15 years after GSP adoption."[172]

Department staff recognize that GSAs are not responsible for improving existing degraded water quality conditions. GSAs are required; however, to manage future groundwater extraction to ensure that groundwater use subject to its jurisdiction does not significantly and unreasonably exacerbate existing degraded water quality conditions. Where natural and other human factors are contributing to water quality degradation, the GSAs may have to confront complex technical and scientific issues regarding the causal role of groundwater extraction and other groundwater management activities, as opposed to other factors, in any continued degradation; but the analysis should be on whether groundwater extraction is causing the degradation in contrast to only looking at whether a specific project or management activity results in water quality degradation (see

[167] San Luis Obispo Valley Basin GSP, Section 8.8, p 278.
[168] San Luis Obispo Valley Basin GSP, Section 8.8, p 278.
[169] San Luis Obispo Valley Basin GSP, Table 8-3, p 278.
[170] San Luis Obispo Valley Basin GSP, Section 8.8.2.6, p 282.
[171] San Luis Obispo Valley Basin GSP, Section 8.8.3, p 282.
[172] San Luis Obispo Valley Basin GSP, Section 8.8.3.2, p 282.

Recommended Corrective Action 2a). Department staff recommend that the GSAs coordinate with the appropriate water quality regulatory programs and agencies in the Basin to understand and develop a process for determining when groundwater management and extraction is resulting in degraded water quality in the Basin (see Recommended Corrective Action 2b).

Based on review of the GSP, Department staff are aware of no significant inconsistencies or contrary information to what was presented in the GSP. However, Department staff note that the approach to focus only on water quality impacts associated with GSP implementation, i.e., GSP-related projects, is inappropriately narrow. SGMA includes in its definition of undesirable results the "significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies."[173] SGMA specifies that the significant and unreasonable effects are those "caused by groundwater conditions occurring throughout the basin," but does not limit them to impacts caused by basin management under the GSP. While the approach to manage degraded water quality in the Basin needs to be revised, this flaw does not prohibit plan approval because water quality in the Basin is generally good;[174] therefore, requiring the GSAs to address this concern by the next periodic update is appropriate.

4.3.2.5 Land Subsidence

In addition to components identified in 23 CCR §§ 354.28 (a-b), the GSP Regulations require the minimum threshold for land subsidence to be the rate and extent of subsidence that substantially interferes with surface land uses and may lead to undesirable results.[175] Minimum thresholds for land subsidence shall be supported by identification of land uses and property interests that have been affected or are likely to be affected by land subsidence in the basin, including an explanation of how the Agency has determined and considered those uses and interests, and the Agency's rationale for establishing minimum thresholds in light of those effects and maps and graphs showing the extent and rate of land subsidence in the basin that defines the minimum thresholds and measurable objectives.[176]

According to the GSP, significant and unreasonable land subsidence occurs when "[t]he effects of these undesirable results on the beneficial users and uses (§354.26 (b)(3)) include the damage of critical infrastructure, and the damage of private or commercial structures that would adversely affect their uses. Staying above the minimum threshold will avoid the subsidence undesirable conditions." [177]

The GSP defines an undesirable result for land subsidence "if measured subsidence using Interferometric Synthetic Aperture Radar (InSAR) data, between June of one year

[173] Water Code § 10721(x).
[174] San Luis Obispo Valley Basin GSP, Section 8.8.2.1, p 280.
[175] 23 CCR § 354.28(c)(5).
[176] 23 CCR §§ 354.28(c)(5)(A-B).
[177] San Luis Obispo Valley Basin GSP, Section 8.9.1.3, p 283.

and June of the subsequent year is greater than 0.1 foot in any 1-year, or a cumulative 0.5 foot in any 5-year period, as a result of groundwater management under the GSP, or any long-term permanent subsidence is attributable to groundwater management."[178] The Plan further states that if subsidence is observed, "the GSAs will first assess whether the subsidence may be due to elastic processes. If the subsidence is not elastic, the GSAs will undertake a program to correlate the observed subsidence with measured groundwater levels, and ultimately implement changes to local groundwater management if the subsidence is judged to be the cause of the subsidence."[179]

The Plan states that subsidence minimum threshold is, "[t]he InSAR measured subsidence between June of one year and June of the subsequent year shall be no more than 0.1 foot in any single year and a cumulative 0.5 foot in any five-year period, resulting in no long-term permanent subsidence."[180] The in the discussion of the GSA's method for establishing the minimum threshold numeric value, it is stated that " [t]he general minimum threshold is the absence of long-term land subsidence due to pumping in the Basin" but the GSAs notes that InSAR data are subject to measurement error which is quantified to be an error of 0.1 foot. [181,182]

In addition to InSAR data the GSAs identified RMS SLV-09, located along Los Osos Valley Road is in the area that experienced subsidence in the early 1990s, to monitor for water levels as a proxy for potential subsidence.[183] The rationale for including this well is that "regular data collection from this well could alert the GSAs to conditions that may lead to subsidence before InSAR data are available."[184] The minimum threshold for RMS SLV-09 is set at 102 feet, 15 feet higher than the observed low water level in the early 1990s.[185]

The Plan states that "the measurable objective for subsidence is maintenance of current ground surface elevations."[186] The "interim milestones are identical to the minimum thresholds and measurable objectives."[187]

Department staff conclude that the GSP adequately describes the sustainable management criteria and approach to managing land subsidence. Department staff also believe the Agency used the best information and science available at the time of Plan development.

[178] San Luis Obispo Valley Basin GSP, Section 8.9.1, p 283.
[179] San Luis Obispo Valley Basin GSP, Section 8.9.1, p 283.
[180] San Luis Obispo Valley Basin GSP, Section 8.9.2, pp 283-284.
[181] San Luis Obispo Valley Basin GSP, Section 8.9.2.1, p 284.
[182] San Luis Obispo Valley Basin GSP, Section 8.9.2.1, p 284.
[183] San Luis Obispo Valley Basin GSP, Section 8.9.2, pp 283-284.
[184] San Luis Obispo Valley Basin GSP, Section 8.9.2, pp 283-284.
[185] San Luis Obispo Valley Basin GSP, Section 8.9.2, pp 283-284.
[186] San Luis Obispo Valley Basin GSP, Section 8.9.3, p 285.
[187] San Luis Obispo Valley Basin GSP, Section 8.9.3, p 285.

4.3.2.6 Depletions of Interconnected Surface Water

SGMA defines undesirable results for the depletion of interconnected surface water as those that have significant and unreasonable adverse impacts on beneficial uses of surface water and are caused by groundwater conditions occurring throughout the basin.[188] The GSP Regulations require that a Plan identify the presence of interconnected surface water systems in the basin and estimate the quantity and timing of depletions of those systems.[189] The GSP Regulations further require that minimum thresholds be set based on the rate or volume of surface water depletions caused by groundwater use, supported by information including the location, quantity, and timing of depletions, that adversely impact beneficial uses of the surface water and may lead to undesirable results.[190]

The Plan acknowledges the presence of interconnected surface waters in the Basin in the San Luis Valley Area within the San Luis Obispo Creek and its tributaries. For the Edna Valley portion of the Basin, the GSP states that there is a disconnection of surface water to groundwater in the Edna Valley.[191] The GSP states interconnected surface water was identified through an analysis involving groundwater levels and stream elevation. The Plan states the "analysis for the Basin consisted of comparing average springtime water level elevations in wells adjacent to the San Luis Obispo Creek with the elevation of the adjacent San Luis Obispo Creek channel. In cases where average springtime water levels were greater than the elevation of the adjacent San Luis Obispo Creek channel, the stream reach was considered as potentially 'gaining'. In cases where average springtime water levels were below the adjacent channel elevation, the stream reach was considered 'losing' and potentially 'disconnected'."[192]. Department staff are satisfied that the GSAs have adopted a reasonable approach to identify the location of interconnected surface waters in the Basin.

The GSAs used the GSFLOW model to estimate streamflow depletion due to groundwater pumping in the San Luis Valley watershed over the past 20 years. For the analysis, in the San Luis Valley portion of the Basin, GSFLOW numerical model was used to estimate streamflow depletion due to groundwater pumping (all streams tributary to San Luis Creek were included in the exercise) in the San Luis Valley watershed over the past 20 years. The model was used to estimate streamflow depletion due to groundwater pumping, with the sensitivity of streamflow to pumping being evaluated by comparing two different model simulations. In the first scenario, the "historical calibration run," Basin pumping estimates were applied to the historically calibrated model and in the second scenario, all pumping in the Basin was eliminated, and the same model output was

[188] Water Code § 10721(x)(6).
[189] 23 CCR § 354.16 (f).
[190] 23 CCR § 354.28 (c)(6).
[191] San Luis Obispo Valley Basin GSP, Section 5.7.1, p. 150.
[192] San Luis Obispo Valley Basin GSP, Section 5.7, p. 148.

extracted.[193] The results are presented Figure 8-11.[194] Average streamflow in the first scenario was estimated to be 2.7 cubic feet per second, with an average groundwater contribution to streamflow of 1.1 cubic feet per second. In the second scenario, all pumping in the Basin was eliminated, the average streamflow increased to 4.1 cubic feet per second, with an average groundwater contribution of 1.6 cubic feet per second. The GSP states that "these results indicate that streamflow depletion of 1.4 cubic feet per second, and a decrease of groundwater contribution to streamflow of 0.5 cubic feet per second, has occurred due to historical groundwater pumping in the Basin."[195] The GSAs acknowledges that this is a conceptual modeling exercise intended as a sensitivity analysis, and that streamflow in the Basin is not well documented or calibrated. As a result, there is a large amount of uncertainty in these results. Additional monitoring locations for the interconnected surface water, including stream gages and groundwater wells, are proposed in this GSP.[196] Department staff encourage addressing those data gaps to the extent that they can improve the GSAs overall understanding of the conditions leading to depletions in the Basin.

The GSP does not quantify the rate or volume of surface water depletions due to groundwater pumping as the sustainable management criteria as required by the GSP Regulations.[197] Instead, the GSAs proposes to use shallow groundwater levels as a proxy for the depletions of interconnected surface water. The GPS state that "[d]irect measurement of flux between an aquifer and an interconnected stream is not feasible using currently available data. A number of proposals to improve the collection of surface water and interconnected groundwater data are discussed in Chapter 7 (Monitoring Networks), and proposed details for these tasks are discussed in Chapter 10 (Implementation Plan)." [198] The plan further states that "[u]ntil such time as this data is available, this GSP uses water level measurements in representative wells located immediately adjacent to Basin creeks as the SMCs for the Depletion of Interconnected Surface Water Sustainability Indicator." [199] Department staff note the GSP does not demonstrate, with adequate evidence, that the use of groundwater elevations as a proxy for depletions of interconnected surface water is sufficient to quantify the location, quantity, and timing of depletions of interconnected surface water.

The GSP defines an undesirable result for depletion of interconnected surface water "if any of the representative wells monitoring interconnected surface water display exceedances of the minimum threshold values for two consecutive Fall measurements."[200] The GSAs states that "[t]he information used for establishing the

[193] San Luis Obispo Valley Basin GSP, Section 8.10, p 287.
[194] San Luis Obispo Valley Basin GSP, Figure 8-11, p. 288.
[195] San Luis Obispo Valley Basin GSP, Section 8.10, p 287.
[196] San Luis Obispo Valley Basin GSP, Section 7.4.6, p. 249.
[197] 23 CCR § 354.28 (c)(6).
[198] San Luis Obispo Valley Basin GSP, Section 8.10, p 287.
[199] San Luis Obispo Valley Basin GSP, Section 8.10, p 287.
[200] San Luis Obispo Valley Basin GSP, Section 8.10.1, p 289.

criteria for undesirable results for the Depletion of Interconnected Surface Water Sustainability Indicator is water levels data collected from three RMS wells (i.e., SLV-12 and EV-01, and EV-11) that are located immediately adjacent to San Luis Obispo and Corral de Piedras Creek systems."[201]

In the Plan's discussion of establishing the minimum thresholds for depletion of interconnected surface water, it states that "[c]urrent data are insufficient to determine the rate or volume of surface water deletions in the creeks. Therefore, groundwater elevations in the RMSs intended to monitor surface water/groundwater interaction (SLV-12, EV-01, EV-11) are used as a proxy" "…metric for the Depletion of Interconnected Surface Water Sustainability Indicator is adopted given the challenges and cost of direct monitoring of depletions of interconnected surface water."[202,203] The Plan states that because there are no historical groundwater level declines in the RMS wells, "the minimum thresholds are defined at these three RMSs as the lowest historically observed water level in the period of record."[204]

The Plan states that "[b]y defining minimum thresholds in terms of groundwater elevations in shallow groundwater wells near surface water, the GSAs will monitor and manage this gradient, and in turn, manage potential changes in depletions of interconnected surface."[205]

The GPS states that "[s]imilar to minimum thresholds, measurable objectives were defined using water level data based on the historical water level data observed in RMSs intended to monitor streamflow conditions." [206] The Plans states that the interim milestones are defined to be identical to the water levels associated with the measurable objectives.[207] Minimum thresholds and measurable objectives are presented in Table 8-1 and Figures 8-4, 8-9, and 8-10.[208]

One or more public comments were received expressing concern about the proposed management of depletions of interconnected surface water in the Plan. Department Staff conclude there appears to be uncertainty regarding what scientific studies, reports, information, and biological, physical, or ecological factors are best suited to use when developing sustainable management criteria in the basin for depletions of interconnected surface water under SGMA. Additionally, there appears to be other state and federal agencies that are or may act under other laws and authorities to address biological or ecological concerns regarding low instream flows in portions of the Basin, which appear to be caused by numerous factors of which depletions of interconnected surface waters

[201] San Luis Obispo Valley Basin GSP, Section 8.10.1, p 289.
[202] San Luis Obispo Valley Basin GSP, Section 8.10.2, p 290.
[203] San Luis Obispo Valley Basin GSP, Section 8.10.2.1, p 291.
[204] San Luis Obispo Valley Basin GSP, Section 8.10.2, p 290.
[205] San Luis Obispo Valley Basin GSP, Section 8.10.2.1, p 291.
[206] San Luis Obispo Valley Basin GSP, Section 8.10.3, p 293.
[207] San Luis Obispo Valley Basin GSP, Section 8.10.3.2, p 293.
[208] San Luis Obispo Valley Basin GSP, Table 8-1, p 264; Figure 8-4, p 260, Figure 8-9 and 8-10 p. 263.

from groundwater extractions in the Subbasin is only one. Department staff conclude that at this time, the GSA has considered this issue and explained and supported its choices adequately. It may be that alternative choices or methodology could also be supported by other studies or data, but it does not appear that there is a clear or convincing case that the GSA's choices or explanation are inappropriate.

Department staff understand that quantifying depletions of surface water from groundwater extractions is a complex task that likely requires developing new, specialized tools, models, and methods to understand local hydrogeologic conditions, interactions, and responses. During the initial review of GSPs, Department staff have observed that most GSAs have struggled with this new requirement of SGMA. However, staff believe that most GSAs will more fully comply with regulatory requirements after several years of Plan implementation that includes projects and management actions to address the data gaps and other issues necessary to understand, quantify, and manage depletions of interconnected surface waters. Accordingly, Department staff believes that affording GSAs adequate time to refine their Plans to address interconnected surface waters is appropriate and remains consistent with SGMA's timelines and local control preferences.

The Department will continue to support GSAs in this regard by providing, as appropriate, financial, and technical assistance to GSAs, including the development of guidance describing appropriate methods and approaches to evaluate the rate, timing, and volume of depletions of interconnected surface water caused by groundwater extractions. Once the Department's guidance related to depletions of interconnected surface water is publicly available, the GSA, where applicable, should consider incorporating appropriate guidance approaches into their future periodic updates to the GSP (See Recommended Corrective Action 3a). GSAs should consider availing themselves of the Department's financial or technical assistance, but in any event must continue to fill data gaps, collect additional monitoring data, and implement strategies to better understand and manage depletions of interconnected surface water caused by groundwater extractions and define segments of interconnectivity and timing within their jurisdictional area (See Recommended Corrective Action 3b). Furthermore, GSAs should coordinate with local, state, and federal resources agencies as well as interested parties to better understand the full suite of beneficial uses and users that may be impacted by pumping induced surface water depletion (See Recommended Corrective Action 3c).

4.4 Monitoring Network

The GSP Regulations describe the monitoring network that must be developed for each sustainability indicator including monitoring objectives, monitoring protocols, and data reporting requirements. Collecting monitoring data of a sufficient quality and quantity is necessary for the successful implementation of a groundwater sustainability plan. The GSP Regulations require a monitoring network of sufficient quality, frequency, and distribution to characterize groundwater and related surface water conditions in the basin

and evaluate changing conditions that occur through implementation of the Plan.[209] Specifically, a monitoring network must be able to monitor impacts to beneficial uses and users,[210] monitor changes in groundwater conditions relative to measurable objectives and minimum thresholds,[211] capture seasonal low and high conditions,[212] include required information such as location and well construction and include maps and tables clearly showing the monitoring site type, location, and frequency.[213] Department staff encourage GSAs to collect monitoring data as specified in the GSP, follow SGMA data and reporting standards,[214] fill data gaps identified in the GSP prior to the first periodic update,[215] update monitoring network information as needed, follow monitoring best management practices,[216] and submit all monitoring data to the Department's Monitoring Network Module immediately after collection including any additional groundwater monitoring data that is collected within the Plan area that is used for groundwater management decisions. Department staff note that if GSAs do not fill their identified data gaps, the GSA's basin understanding may not represent the best available science for use to monitor basin conditions.

The GSP has identified 40 monitoring wells to include in the SGMA Monitoring Network, 22 wells in the San Luis Valley and 18 wells in the Edna Valley, for the chronic lowering of groundwater levels sustainability indicator. Well construction information is available for only 31 out of the 40 wells in the GSP. The Plan notes that based on the available construction information, 16 wells are screened in the Alluvial aquifer and 24 wells are screened in the Paso Robles Aquifer, the Pismo Aquifer, or across multiple aquifers.[217] However, it is unclear how the well screened interval was determined for all 40 wells if construction information exists for only 31 wells. Of the 40 monitoring wells, 10 wells are defined as Representative Monitoring Sites (RMS) for which sustainability indicators are defined, four located in the San Luis Valley and six located in the Edna Valley. However, there are a total of 41 wells uploaded to DWR's SGMA Portal Monitoring Network Module (MNM). The MNM is consistent with the GSP regarding a total of 10 wells being identified as RMS. The proposed frequency for collecting groundwater level measurements is semi-annually, April to represent the spring seasonal high and October to represent the fall seasonal low.[218]

The GSP proposes to use groundwater level monitoring as a proxy for the groundwater storage monitoring network because changes in groundwater storage are directly

[209] 23 CCR § 354.32.
[210] 23 CCR § 354.34(b)(2).
[211] 23 CCR § 354.34(b)(3).
[212] 23 CCR § 354.34(c)(1)(B).
[213] 23 CCR §§ 354.34(g-h).
[214] 23 CCR § 352.4 *et seq*.
[215] 23 CCR § 354.38(d).
[216] Department of Water Resources, 2016, Best Management Practices and Guidance Documents.
[217] San Luis Obispo Valley GSP, Section 7.2.5, p. 236.
[218] San Luis Obispo Valley GSP, Section 7.5.4, p. 251.

dependent on changes in groundwater levels.[219] The Plan notes that change in groundwater storage will be monitored using the entire monitoring network and described in annual reports, while select RMS wells will track reduction of groundwater storage as the sustainability indicator.[220] Of the entire groundwater monitoring network (40 wells), six wells are defined as RMS for groundwater storage.[221] DWR staff reviewed the well construction details for the RMS wells for groundwater storage[222] and found two wells are in the San Luis Valley and four wells are located in the Edna Valley.

The GSP states that seawater intrusion is not applicable to the Basin; therefore, no monitoring network is proposed.[223]

The GSP proposes to establish a monitoring network for degraded water quality by reviewing water quality data from nine public water systems supply wells collected by the State Water Resource Control Board's Division of Drinking Water (DDW) and the San Luis Obispo County Environmental Health Services.[224] The GSP states that constituents that will be sampled include arsenic, nitrate, and total dissolved solids (TDS).[225] The GSP also states that Proposition 1 grant funding was received to develop wells to monitor for the anthropogenic contaminant, PCE. When available, representative wells from the new PCE monitoring network will be included in the GSP to monitor for PCE.[226]

Review of the location of groundwater quality monitoring wells within the Basin shows that the geographic density and distribution of wells appears adequate.[227] However, no information is provided on well construction, depth of screened interval, or the aquifer that is being sampled, so no analysis of the adequacy of the groundwater quality monitoring network within each aquifer can be made. The GSAs are dependent on the monitoring density and frequency established by the lead regulatory agencies.

The GSP states that in addition to using InSAR data, two groundwater level monitoring sites will be included in the subsidence monitoring network.[228] The two groundwater level monitoring sites are located within the area that the GSP defined as "expected subsidence with groundwater removal."[229] Of the two groundwater level monitoring sites in the subsidence monitoring network, one well is defined as RMS for which sustainable

[219] San Luis Obispo Valley GSP, Section 7.2.5, p. 236.
[220] San Luis Obispo Valley GSP, Section 7.4.2, pp. 246-247.
[221] San Luis Obispo Valley GSP, Table ES-1, p. 34.
[222] San Luis Obispo Valley GSP, Table 7-1, p. 238.
[223] San Luis Obispo Valley GSP, Section 7.4.3, p. 247.
[224] San Luis Obispo Valley GSP, Section 7.5.4, p. 251.
[225] San Luis Obispo Valley GSP, Section 7.3.2, p. 240.
[226] San Luis Obispo Valley GSP, Section 7.4.4.1, p. 247.
[227] San Luis Obispo Valley GSP, Figure 7-2, p. 242.
[228] San Luis Obispo Valley GSP, Section 7.4.5, p. 248.
[229] San Luis Obispo Valley GSP, Figure 4-23, p. 122 and Figure 7-1, p. 239.

management criteria are defined. [230] The RMS subsidence monitoring network well is located within the area of known subsidence.[231]

The GSP proposes to use a network of stream gages and groundwater level sites to monitor interconnected surface water depletions in the Basin. There are six stream gages that already exist in the San Luis Valley and an additional five stream gages are proposed, two in the San Luis Valley and three in the Edna Valley. [232]

The GSP defines a subset of the groundwater level monitoring network as a proxy for the depletions of interconnected surface water monitoring network. [233] There are eight proposed groundwater level monitoring sites that will be used as a proxy to monitor depletions of interconnected surface water, five in the San Luis Valley and three in the Edna Valley. An additional five monitoring well sites are proposed to be installed in the future, three in the San Luis Valley and two in the Edna Valley. [234] Three of the eight wells in the interconnected surface water monitoring network are defined as RMS for which sustainable management criteria are defined, two in the Edna Valley and one in the San Luis Valley. [235] The three RMS wells are equipped with transducers and will be measured daily. [236] Department staff note no justification was provided in the GSP for the selection of the three RMS to monitor for interconnected surface water depletion. Department staff encourage the GSAs to provide this justification in future updates to the Plan.

Within the San Luis Valley, the RMS well is located in the southern portion of the basin along San Luis Obispo Creek and is screened from 50-90 feet and 150-175 feet through the Alluvial, Paso Robles, and Pismo Aquifers. Within the Edna Valley, one RMS well is located toward the north of the Basin along the West Corral de Piedra Creek and one well is located toward the south of the basin along East Corral de Piedra Creek. The groundwater level monitoring well along the West Corral de Piedra Creek has a total depth of 72 feet with an unknown screen interval. The groundwater level monitoring well along the East Corral de Piedra Creek has an unknown total depth and unknown screened interval making it difficult for Department staff to determine if this well is appropriate to be part of the monitoring network for depletions of interconnected surface water.

The GSP Regulations require GSPs to provide specific information about each monitoring site per the data and reporting standards.[237] As an example, well construction information is required for monitoring sites, but is not provided for wells in the degraded water quality monitoring network. It is imperative the GSAs work to ensure the information defining the monitoring network is consistent within the GSP, consistent with the Department's

[230] San Luis Obispo Valley GSP, Figure 7-1, p. 239, Table 8-1, p. 264.
[231] San Luis Obispo Valley GSP, Figure 4-23, p. 122.
[232] San Luis Obispo Valley GSP, Figure 7-3, p. 245.
[233] San Luis Obispo Valley GSP, Sections 5.7 and 5.7.1, pp. 147-150.
[234] San Luis Obispo Valley GSP, Figure 7-3, p. 245.
[235] San Luis Obispo Valley GSP, Figure 7-1, p. 239, Table 8-1, p. 264.
[236] San Luis Obispo Valley GSP, Table 7-1, p. 238.
[237] 23 CCR §§ 352.4, 354.34(g)(2).

Monitoring Network Module, and follow the data and reporting standards. Department staff recommend there be a reconciliation between the details of the monitoring network provided in the GSP with the requirements of the data and reporting standards in the GSP Regulations (see Recommended Corrective Action 4).

4.5 Projects and Management Actions

The GSP Regulations require a description of the projects and management actions the submitting Agency has determined will achieve the sustainability goal for the basin, including projects and management actions to respond to changing conditions in the basin.[238] Each Plan's description of projects and management actions must include details such as: how projects and management actions in the GSP will achieve sustainability, the implementation process and expected benefits, and prioritization and criteria used to initiate projects and management actions. [239]

The GSP proposes seven projects and three management actions that "were centered around supplemental water sources that could be brought into the SLO Basin to mitigate the overdraft".[240] The Plan further states that "[t]he proposed projects and management actions are intended to maintain groundwater levels above minimum thresholds through in-lieu pumping reductions or increased recharge… [i]mproving the management of groundwater in the Basin will help to mitigate overdraft."[241]

The seven proposed projects are to address the overdraft in the Edna Valley portion of the Basin. The three management actions include the expansion of the monitoring network, development and implementation of a groundwater extraction metering and reporting plan, and the development of a demand management plan. Each project or management action includes a description, timetable for implementation, expected quantitative benefits, associated public noticing, overview of any permitting or regulatory process, estimated costs with a funding plan, and legal authority required for implementation.

The Plan adequately describes proposed projects and management actions in a manner that is generally consistent and substantially complies with the GSP Regulations. The projects and management actions are directly related to the sustainable management criteria and present a generally feasible approach to achieving the sustainability goal of the Basin.

4.6 Consideration of Adjacent Basins/Subbasins

SGMA requires the Department to "…evaluate whether a groundwater sustainability plan adversely affects the ability of an adjacent basin to implement their groundwater

[238] 23 CCR § 354.44 (a).
[239] 23 CCR § 354.44 (b) *et seq.*
[240] San Luis Obispo Valley GSP, p. 35.
[241] San Luis Obispo Valley GSP, Section 9.2.3, p. 303.

sustainability plan or impedes achievement of sustainability goals in an adjacent basin."[242] Furthermore, the GSP Regulations state that minimum thresholds defined in each GSP be designed to avoid causing undesirable results in adjacent basins or affecting the ability of adjacent basins to achieve sustainability goals.[243]

The San Luis Obispo Valley Basin has two adjacent basins: the Los Osos Valley Basin and the Santa Maria River Valley Basin. The Plan includes an analysis of potential impacts to adjacent basins with the defined minimum thresholds for each sustainability indicator. The Plan does not anticipate any impacts to adjacent basins resulting from the minimum thresholds defined in the Plan.

Department staff will continue to review periodic updates to the Plan to assess whether implementation of the San Luis Obispo GSP is potentially impacting adjacent basins.

4.7 Consideration of Climate Change and Future Conditions

The GSP Regulations require a GSAs to consider future conditions and project how future water use may change due to multiple factors including climate change.[244]

Since the GSP was adopted and submitted, climate change conditions have advanced faster and more dramatically. It is anticipated that the hotter, drier conditions will result in a loss of 10% of California's water supply. As California adapts to a hotter, drier climate, GSAs should be preparing for these changing conditions as they work to sustainably manage groundwater within their jurisdictional areas. Specifically, the Department encourages GSAs to:

1. Explore how their proposed groundwater level thresholds have been established in consideration of groundwater level conditions in the basin based on current and future drought conditions;
2. Explore how groundwater level data from the existing monitoring network will be used to make progress towards sustainable management of the basin given increasing aridification and effects of climate change, such as prolonged drought;
3. Take into consideration changes to surface water reliability and that impact on groundwater conditions;
4. Evaluate updated watershed studies that may modify assumed frequency and magnitude of recharge projects, if applicable, and
5. Continually coordinate with the appropriate groundwater users, including but not limited to domestic well owners and state small water systems, and the appropriate overlying county jurisdictions developing drought plans and establishing local

[242] Water Code § 10733(c).
[243] 23 CCR § 354.28(b)(3).
[244] 23 CCR § 354.18.

drought task forces[245] to evaluate how their Plan's groundwater management strategy aligns with drought planning, response, and mitigation efforts within the basin.

[245] Water Code § 10609.50.

5 STAFF RECOMMENDATION

Department staff recommend approval of the GSP with the recommended corrective actions listed below. The San Luis Obispo Valley Basin GSP conforms with Water Code Sections 10727.2 and 10727.4 of SGMA and substantially complies with the GSP Regulations. Implementation of the GSP will likely achieve the sustainability goal for the San Luis Obispo Valley Basin. The GSAs have identified several areas for improvement of its Plan and Department staff concur that those items are important and should be addressed as soon as possible. Department staff have also identified additional recommended corrective actions that should be considered by the GSAs for the first periodic assessment of its GSP. Addressing these recommended corrective actions will be important to demonstrate that implementation of the Plan is likely to achieve the sustainability goal.

The recommended corrective actions include:

RECOMMENDED CORRECTIVE ACTION 1

Update the sustainable management criteria for the chronic lowering of groundwater levels as follows:

a. Provide further discussion related to the process, information, and data considered when selecting the operational flexibility values of 10 to 20 feet below historical lows in the San Luis Valley Area. Additionally, the GSA should provide more information about how these values represent a level where significant and unreasonable conditions may occur.

b. Provide more information about how the proposed minimum thresholds for the chronic lowering groundwater levels may impact beneficial uses and users. The GSAs should consider the impact of the selected minimum threshold levels on supply wells. The consideration should identify the degree/extent of potential impact including the percentage, number, and location of potentially impacted wells at the proposed minimum thresholds for chronic lowering of groundwater levels.

c. Provide further discussion related to the process, information, and data considered when selecting the minimum threshold of 150 feet for RMS EV-16. Additionally, the GSA should provide more information about how these values represent a level where significant and unreasonable conditions may occur.

RECOMMENDED CORRECTIVE ACTION 2

Update the sustainable management criteria for degraded water quality as follows:

a. Revise the definition of undesirable results so that exceedances of minimum thresholds caused by groundwater extraction, whether the GSAs have

implemented pumping regulations or not, are considered in the assessment of undesirable results in the Basin, or explain why the GSAs excludes minimum threshold exceedances that may result from unregulated groundwater pumping in the Basin, in the definition of undesirable results.

b. Coordinate with the appropriate groundwater users, including drinking water, environmental, and irrigation users as identified in the Plan, and water quality regulatory agencies and programs in the Basin to understand and develop a process for determining if groundwater management and extraction is resulting in degraded water quality in the Basin.

RECOMMENDED CORRECTIVE ACTION 3

Department staff understand that estimating the location, quantity, and timing of stream depletion due to ongoing, Basin-wide pumping is a complex task and that developing suitable tools may take additional time; however, it is critical for the Department's ongoing and future evaluations of whether GSP implementation is on track to achieve sustainable groundwater management. The Department plans to provide guidance on methods and approaches to evaluate the rate, timing, and volume of depletions of interconnected surface water and support for establishing specific sustainable management criteria in the near future. This guidance is intended to assist GSAs to sustainably manage depletions of interconnected surface water.

In addition, the GSAs should work to address the following items by the first periodic update:

a. Consider utilizing the interconnected surface water guidance, as appropriate, when issued by the Department to establish quantifiable minimum thresholds, measurable objectives, and management actions.

b. Continue to fill data gaps, collect additional monitoring data, and implement the current strategy to manage depletions of interconnected surface water and define segments of interconnectivity and timing.

c. Prioritize collaborating and coordinating with local, state, and federal regulatory agencies as well as interested parties to better understand the full suite of beneficial uses and users that may be impacted by pumping induced surface water depletion within the GSA's jurisdictional area.

RECOMMENDED CORRECTIVE ACTION 4

Conduct a reconciliation between the details of the monitoring network provided in the GSP with the requirements of the data and reporting standards in the GSP Regulations. Where requirements of the data and reporting standards are not provided, the GSA should include this information in the periodic update of the GSP. As a reminder, updates

to the monitoring network must be reflected in the SGMA Portal's Monitoring Network Module.