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

October 26, 2023

Lance Eckhart
San Gorgonio Pass Water Agency
1210 Beaumont Avenue
Beaumont, CA 92223
leckhart@sgpwa.com

RE: Coachella Valley – San Gorgonio Pass Subbasin - 2022 Groundwater Sustainability Plan

Dear Lance Eckhart,

The Department of Water Resources (Department) has evaluated the groundwater sustainability plan (GSP or Plan) submitted for the Coachella Valley – San Gorgonio Pass Subbasin 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 Gorgonio Pass Subbasin 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 periodic review of the San Gorgonio Pass Subbasin GSP no later than January 25, 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 Coachella Valley – San Gorgonio Pass Subbasin Groundwater Sustainability Plan

# STATE OF CALIFORNIA
# DEPARTMENT OF WATER RESOURCES

## STATEMENT OF FINDINGS REGARDING THE APPROVAL OF THE COACHELLA VALLEY – SAN GORGONIO PASS SUBBASIN GROUNDWATER SUSTAINABILITY PLAN

The Department of Water Resources (Department) is required to evaluate whether a submitted groundwater sustainability plan (GSP or Plan) conforms to specific requirements of the Sustainable Groundwater Management Act (SGMA or Act), is likely to achieve the sustainability goal for the 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 Desert Water Agency Groundwater Sustainability Agency - Statutory Area, San Gorgonio Pass Groundwater Sustainability Agency, and Verbenia Groundwater Sustainability Agency (GSAs or Agencies) for the Coachella Valley – San Gorgonio Pass Subbasin (Basin No. 7-021.04).

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 the 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, is intended to cover the entire San Gorgonio Pass Subbasin. (23 CCR § 355.4(a)(3).) Approximately 7% of the Subbasin is not included as part of the Plan area because it is part of the Beaumont Basin Adjudication, which is exempted from SGMA. (Water Code § 10720.8(a)(1).)

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 Gorgonio Pass Subbasin 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 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 Gorgonio Pass Subbasin under review.

C. In making these findings and Plan determination, the Department also recognized that: (1) the Department 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 the San Gorgonio Pass Subbasin (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 Gorgonio Pass Subbasin. 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. Sustainable management criteria have been established to prevent undesirable results for chronic lowering of groundwater levels, water quality, and groundwater storage, all are sufficiently justified and explained. The Plan relies on credible information and science such as long-term groundwater levels and water quality, subsidence, and groundwater dependent ecosystems data to quantify the groundwater conditions that the Plan seeks to avoid and provides an objective way to determine whether the San Gorgonio Pass Subbasin is being managed sustainably in accordance with SGMA. (23 CCR § 355.4(b)(1).)

2. The Plan identifies data gaps in the hydrologic conceptual model, water budget, and monitoring. While in the early stages of planning, there are plans to address the gaps in monitoring with new representative monitoring stations in areas with the data gaps and the areas along the boundary of the tribal lands. The additional monitoring will improve hydrologic conceptual model, water budget, and sustainable management criteria for groundwater levels and storage. (23 CCR § 355.4(b)(2).)

3. The projects and management actions proposed are designed to reduce demand through conservation efforts, fees, and allocations. Other projects are targeting the supply side with stormwater capture and acquiring new surface water for recharge projects. When implemented there is the expectation of improved groundwater levels and storage. The projects and management actions are reasonable and commensurate with the level of understanding of the San Gorgonio Pass Subbasin setting. The projects and management actions described in the Plan provide a feasible approach to achieving the San Gorgonio Pass Subbasin's sustainability goal and should provide the GSAs 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 Gorgonio Pass Subbasin were considered in developing the sustainable management criteria and how those interests, including urban suppliers, domestic users, groundwater dependent ecosystems, and the neighboring subbasins, 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 capable of preventing undesirable results and ensuring that the San Gorgonio Pass Subbasin is managed 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 GSAs will be maintaining groundwater surface gradient and minimum thresholds to maintain the necessary transit of recharged groundwater into the Subbasin from the west and sufficient outflows to the subbasin (Indio) in the east. A model was developed to manage and predict the gradients. (23 CCR § 355.4(b)(7).)

8. Because a single plan was submitted for the Subbasin, a coordination agreement was not required. (23 CCR § 355.4(b)(8).)

9. The Desert Water Agency, San Gorgonio Pass, and Verbenia GSAs have historically managed the water since the 1960's. San Gorgonio Pass Water Agency is State Water Contractor. State Water Project water has been acquired to recharge groundwater in the Subbasin. The member agencies also have developed an Urban Water Management Plan (2020) that includes water conservation projects to reduce demand. The GSAs' member agencies and their history of groundwater management provide a reasonable level of confidence that the GSAs have 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 GSAs 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 were 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 Department developed its GSP Regulations consistent with and intending to further the State's human right to water 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. (Water Code § 106.3; 23 CCR § 350.4(g).)

2. The Plan acknowledges and identifies interconnected surface waters within the San Gorgonio Pass Subbasin. The GSAs propose initial sustainable management criteria to manage this sustainability indicator and measures to improve understanding and management of interconnected surface water. The GSAs acknowledge, and the Department agrees, many data gaps related to interconnected surface water. 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 periodic evaluations of the Plan and amendments to the Plan should aim to improve the initial sustainable management criteria as more information and improved methodology becomes available.

3. Projections of future Subbasin extractions appear likely to stay within current and historic ranges, at least until the next periodic evaluation by the GSA and the Department. Subbasin groundwater levels and other SGMA sustainability indicators appear unlikely to substantially deteriorate while the GSA implements the Department's recommended corrective actions.

4. 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 Coachella Valley – San Gorgonio Pass Subbasin 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 periodic review, which is set to begin on January 25, 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: October 26,2023

Exhibit A: Groundwater Sustainability Plan Assessment Staff Report – Coachella Valley – San Gorgonio Pass Subbasin

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

| | |
|---|---|
| Groundwater Basin Name: | Coachella Valley – San Gorgonio Pass Subbasin (No. 7-021-04) |
| Submitting Agency: | Desert Water Agency Groundwater Sustainability Agency, San Gorgonio Pass Groundwater Sustainability Agency, and Verbenia Groundwater Sustainability Agency |
| Submittal Type: | Initial GSP Submission |
| Submittal Date: | January 25, 2022 |
| Recommendation: | Approved |
| Date: | October 26, 2023 |

The Desert Water Agency Groundwater Sustainability Agency, San Gorgonio Pass Groundwater Sustainability Agency, and Verbenia Groundwater Sustainability Agency (GSAs or Agencies) submitted the San Gorgonio Pass Subbasin Groundwater Sustainability Plan (GSP or Plan) for the Coachella Valley – San Gorgonio Pass Subbasin 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 Subbasin 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 Subbasin 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 Subbasin. [3] Department staff will continue to monitor and evaluate the Subbasin'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:** Provides an 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 Gorgonio Pass Subbasin GSP. The GSAs have identified areas for improvement of their Plan (e.g., Management Areas, Sustainable Management Criteria for Groundwater Levels, Storage, Subsidence, and Depletions of Interconnected Streams, and continue to address data gaps for Banning Bench Storage Unit). 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) Clarify how the defined storage units are not management areas,
(2) Groundwater Level undesirable results that combine two distinct hydrological units,
(3) Improve discussion of undesirable results for changes in groundwater storage,
(4) Groundwater Quality undesirable results that combine two distinct hydrological units,
(5) Establish sustainable management criteria and monitoring to manage any land subsidence.
(6) Fill data gaps, collecting additional monitoring data, 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, and potentially refine sustainable management criteria,
(7) Establish stream flow monitoring for the San Gorgonio River, and
(8) Address the uncertainty in relying on water from sources outside the jurisdiction of the GSAs.

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 Gorgonio Pass Subbasin.[5] To achieve the sustainability goal for the Subbasin, 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 Subbasin, 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 GSA, 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 GSA has 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 GSA 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 periodic 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 GSA 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 their Plan on January 25, 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 Subbasin. 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 February 7, 2022.[32]

### 3.3 Basin Coverage

A GSP that intends to cover the entire basin may be presumed to do so if the basin is fully contained within the jurisdictional boundaries of the submitting GSAs. As an initial matter, for purposes of undertaking a technical evaluation of the Plan under 23 CCR § 355.4(b), the Department views a GSP as covering the entire basin if the Plan states that intent, even if a GSA's jurisdictional boundaries do not fully contain the basin. Whether a GSA can effectively implement its GSP and manage the entire basin to achieve its sustainability goal notwithstanding the presence of areas outside the jurisdiction of the GSA becomes a question to address during Plan evaluation and assessment.[33]

The GSP for this Basin states that it intends to manage the entire Basin except for the Beaumont Basin adjudicated area. Because the Beaumont Basin area is statutorily exempt from SGMA (Wat. Code § 10720.8(a)(1)), the Department views the GSP as covering all areas of the basin subject to management under SGMA, warranting a thorough evaluation by the Department.

## 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 Subbasin 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;[34] a description

[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/121.
[33] Areas within a basin that are not within the management area of a GSA may be subject to groundwater extraction reporting requirements under Water Code section 5200 et seq.
[34] 23 CCR § 354.6 *et seq*.

of the Plan area and identification of beneficial uses and users in the Plan area;[35] and a description of the ability of the submitting Agency to develop and implement a Plan for that area.[36]

The San Gorgonio Pass Subbasin, No. 7-21.04 (Subbasin) is in Riverside County and is designated as a medium-priority basin.[37] The subbasin shares borders with San Timoteo (8-002.08) and Indio Subbasins (7-021.01).[38] There is an adjudicated area within the Subbasin on the eastern edge known as the Beaumont Basin Adjudication.[39] Jurisdictions include federal, tribal, public water districts, a mutual water company, and a city.[40] Land use is dominated by urban, undeveloped open space and very little agriculture.[41]

The Plan includes necessary contact information for the GSAs of the Subbasin, including San Gorgonio Pass GSA (SGPGSA), Desert Water Agency GSA (DWAGSA), and Verbenia GSA (VGSA).[42] While the Plan lists the name and contact information for the GSA Representatives, the organization and management structure is not included in the Plan, it could be beneficial to readers for more of this information to be included.[43] However, the GSAs entered into a cooperative Memorandum of Agreement for development of the GSP and grant funding.[44]The Plan includes the name, and contact information for the GSAs of the Subbasin, including Desert Water Agency GSA (DWAGSA), San Gorgonio Pass GSA (SGPGSA), and Verbenia GSA (VGSA).

The Plan includes a written description of the plan area, noting the Subbasin is “located in Southern California between the San Bernardino Mountains to the north and San Jacinto Mountains to the south, Coachella Valley to the east and San Bernardino Valley to the west.”[45]

The Plan states the San Gorgonio Pass GSA, Desert Water Agency GSA, Verbenia GSA contain 93%, 5%, and 2% of subbasin by area, respectively and the “majority of the Plan Area is undeveloped open space.”[46] It is noted the Morongo Band of Mission Indians jurisdiction makes up approximately 37% of the total Subbasin acreage.[47] The Beaumont Basin adjudication accounts for approximately 7% of the Subbasin. The tribal land is included within in the San Gorgonio Pass GSA area and the adjudicated area is excluded

[35] 23 CCR § 354.8 *et seq*.
[36] 23 CCR § 354.6(e).
[37] San Gorgonio Pass GSP, Section 1.2, p. 22, and Section 1.5.1, p. 24.
[38] San Gorgonio Pass GSP, Figure 2-1, p. 39.
[39] San Gorgonio Pass GSP, Figure 2-2, p. 40.
[40] San Gorgonio Pass GSP, Executive Summary, p. 15.
[41] San Gorgonio Pass GSP, Figure 2-5, p. 45, Figure 2-6, p. 46, Figure 2-7, p.47.
[42] San Gorgonio Pass GSP, Section 1.5.1, p. 24.
[43] San Gorgonio Pass GSP, Section 1.5.1, pp. 24-25.
[44] San Gorgonio Pass GSP, Section 1.3, p. 23.
[45] San Gorgonio Pass GSP, Section 2.1, p. 37.
[46] San Gorgonio Pass GSP, Section 2.1.1.1, p. 43, and Table 2-1, p. 38.
[47] San Gorgonio Pass GSP, Table 2-1, p. 38.

from GSA management. The beneficial users in the subbasin are municipal, residential, and tribal commercial, industrial, and groundwater dependent ecosystems.[48] Refer to Figure 1 for the Subbasin's location, GSA boundaries, tribal areas, and adjacent subbasins.

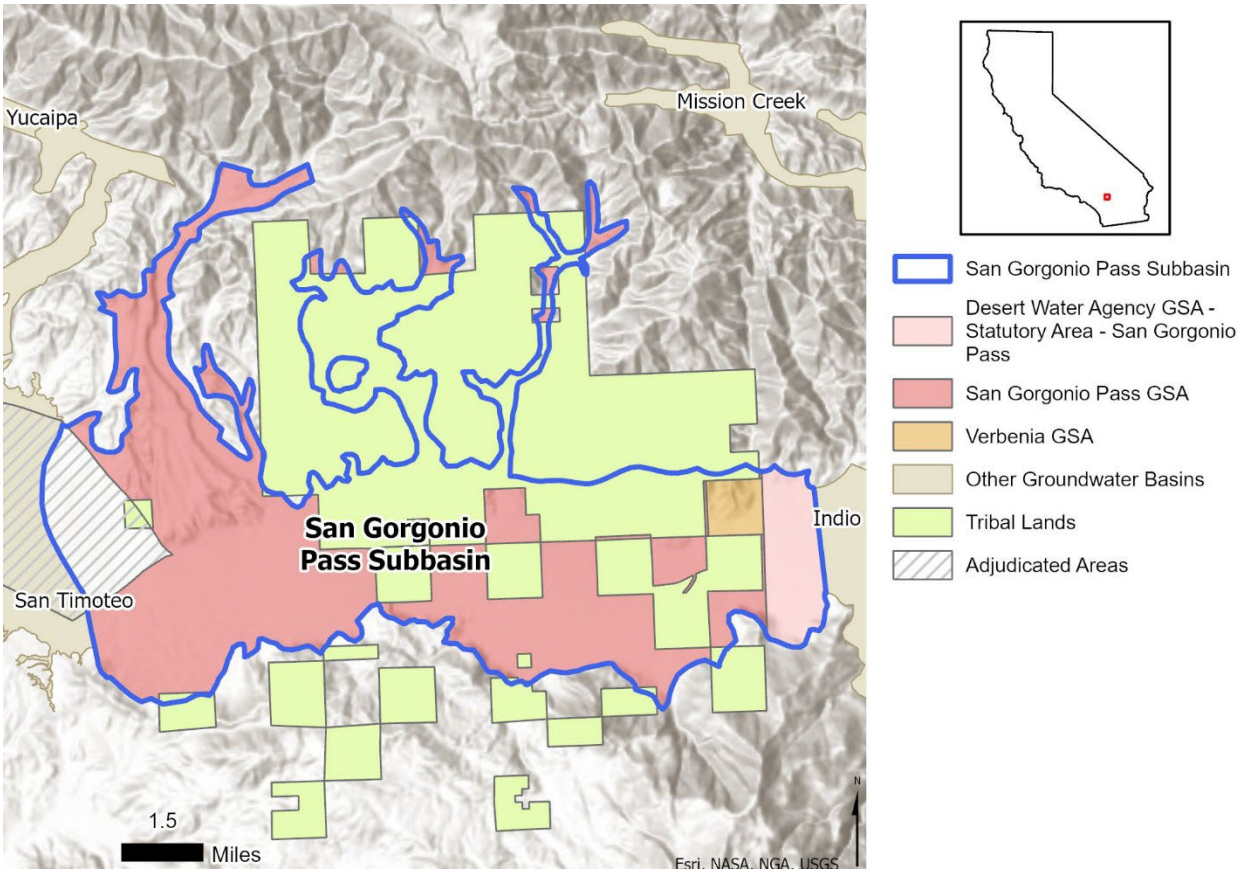


Figure 1: San Gorgonio Pass Subbasin Location Map.

The Plan establishes a multi-year budget for the Subbasin's via the awarded grant to cover costs for GSA administration, Plan preparation, and initial implementation of the Plan for the GSAs. During the implementation phase, the GSAs indicate they will consider options for funding projects in addition to potential grant funding, including loans and bonds. Other sources of funding will be considered and may be implemented in the future to meet the annual estimated costs of implementing the Plan.[49] The Plan does not discuss what "other sources of funding" would be considered.

The Plan states that it is informed by and consistent with land use change assumptions identified in the general plans, namely as it relates to forecasting the anticipated water budget and anticipating converting undeveloped land to developed land with increased

[48] San Gorgonio Pass GSP, Table 2-12, p. 69.
[49] San Gorgonio Pass GSP, Section 1.5.3, p. 26.

water demands.[50] The Plan includes a general description of how implementation of the Plan may affect the water supply assumptions or relevant land use plans over the planning and implementation horizon and adds that future "General Plan updates will need to consider impacts of SGMA and this Plan along with future annual reports and Plan updates."[51]

The GSAs added additional Plan elements for wellhead protection and migration of contaminated groundwater and explained a new well abandonment/destruction program that they are going to implement to encourage landowners and developers to convert unusable wells to monitoring wells, rather than destroy them. The Plan also includes additional Plan elements for replenishment of groundwater extractions, well construction policies, groundwater projects, efficient water management practices, a section on relationships with state and federal agencies, and impacts on groundwater dependent ecosystems (GDEs).

Based on review of the materials referenced in the Plan, Department staff concludes the Plan's discussion and presentation of administrative material covers the specific items listed in the regulations[52] in an understandable format using appropriate information. Staff are aware of no significant inconsistencies or contrary information to that presented in the Plan and therefore have no significant concerns regarding the quality and discussion of the administrative section the Plan.

## 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 accounting for total annual volume of groundwater and surface water entering and leaving the basin, including historical, current, and projected water budget conditions.[53]

### 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.[54] The GSP Regulations require a descriptive hydrogeologic conceptual model that includes a written description of geologic

[50] San Gorgonio Pass GSP, Section 2.3.2, p. 61.
[51] San Gorgonio Pass GSP, Section 2.3.3, p. 62.
[52] 23 CCR §§ 354.6, 354.8, 354.10.
[53] 23 CCR § 354.12.
[54] 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.

conditions, supported by cross sections and maps,[55] and includes a description of basin boundaries and the bottom of the basin,[56] principal aquifers and aquitards,[57] and data gaps.[58]

The Subbasin is western most subbasin within the Coachella Valley Groundwater Basin, with Indio (immediately adjacent to the east), Mission Creek, and Desert Hot Springs subbasins. The Subbasin is bounded to the north by semi-permeable rocks of the San Bernardino Mountains and to the south by the San Jacinto Mountains.[59] The Plan states that bedrock constriction at the eastern boundary that creates a groundwater cascade into the Indio Subbasin.[60] The Coachella Valley Groundwater Basin is also located in the Colorado River Hydrologic Region.

The Plan states that the San Andreas Fault Zone in this region disaggregates into a family of irregular and separate fault lines such as the Banning, Garnet Hill, and San Gorgonio Pass faults.[61] The San Gorgonio Pass Fault Zone has created several tectonic landforms such as the uplifted Banning Bench.[62] The Plan also describes two other faults: Gandy Ranch which runs through the Millard Canyon area (northern area of the Subbasin), and the Lawrence located along the southern edge of the Subbasin.[63] The GSAs state that groundwater flow in the area is complicated and difficult to understand and map due to the significant differences in groundwater levels and flows caused by the fault system.[64]

Five hydraulically distinct groundwater storage units have been recognized within the Subbasin. These storage units have been created by geologic faults discussed above that form barriers to lateral movement of groundwater leading to groundwater levels that vary significantly across adjacent storage units. These named units include Beaumont Storage Unit (adjudicated and not under the purview of SGMA), Banning Canyon Storage Unit, Banning Bench Storage Unit, Banning Storage Unit, and the Cabazon Storage Unit.[65] Refer to Figure 2 for the locations of each of the storage units and refer to the Section 4.2.4 (Management Areas) in this Staff Report for additional details.

[55] 23 CCR §§ 354.14 (a), 354.14 (c).
[56] 23 CCR §§ 354.14 (b)(2-3).
[57] 23 CCR § 354.14 (b)(4) *et seq.*
[58] 23 CCR § 354.14 (b)(5).
[59] San Gorgonio Pass GSP, Section 3.1.2, p. 74.
[60] San Gorgonio Pass GSP, Section 3.1.2, p. 74.
[61] San Gorgonio Pass GSP, Section 3.1.3.1, p. 75.
[62] San Gorgonio Pass GSP, Section 3.1.3.1, p. 75.
[63] San Gorgonio Pass GSP, Section 3.1.3.1, p. 76, Figure 3-1, p. 77, and Figure 3-4, p. 83.
[64] San Gorgonio Pass GSP, Section 3.1.3.1, p. 75; Figure 3-1, p. 77.
[65] San Gorgonio Pass GSP, Section 3.1.8, p. 90.

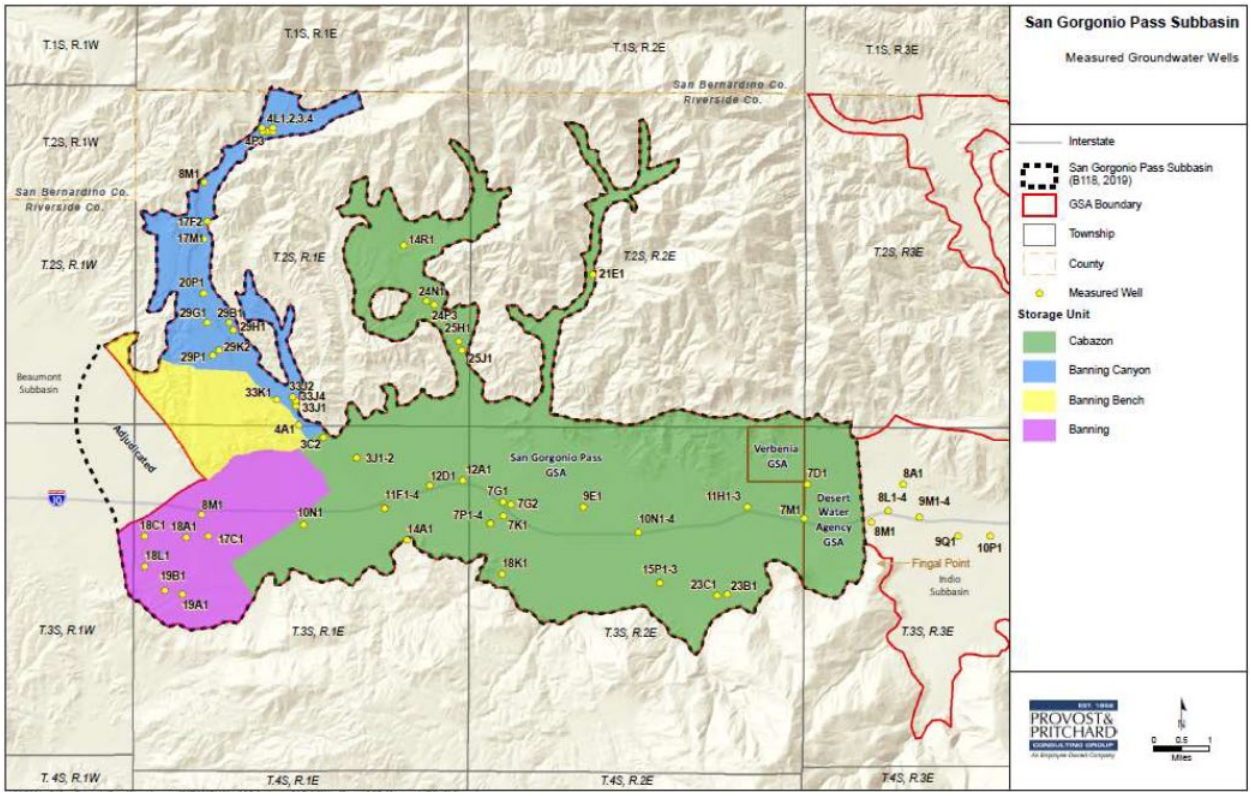


Figure 2: Location of Storage Units and Groundwater Monitoring Wells

The Plan discusses five geologic formations that outcrop in the Subbasin: 1) Painted Hill Formation, 2) San Timoteo Formation, 3) Mount Eden Formation, 4) Imperial Formation, and 5) Hathaway Formation.[66] The Plan identifies San Timoteo Formation as one of the main water-bearing deposits in the Subbasin, which extends to greater than 2,000 feet below ground surface and consists of poorly sorted to sorted, partly consolidated, fine to coarse sandstone with layers of gravel and thin interbedded clays.[67]

The Plan states that the results from an isostatic gravity study indicated the depth to the top of the basement complex in the Subbasin ranges from 0 feet along the margins of the Subbasin to about 4,000 feet in the Banning and Banning Bench Storage Units area, and greater than approximately 7,000 feet in the Beaumont Storage Unit.[68]

The GSAs provided three scaled geologic cross-sections in the Plan that shows the major geologic formations, geologic structures, and groundwater levels.[69] The Plan also includes a schematic depiction of the lithostratigraphic units in the Subbasin, with corresponding ages and formation names.[70]

[66] San Gorgonio Pass GSP, Section 3.1.8, p. 98.
[67] San Gorgonio Pass GSP, Section 3.1.8, pp. 90-98.
[68] San Gorgonio Pass GSP, Section 3.1.3.2, p. 76.
[69] San Gorgonio Pass GSP, Figures 3-8 to 3-10, pp. 87-89.
[70] San Gorgonio Pass GSP, Figure 3-14, p. 97.

The GSAs divide the Quaternary water-bearing deposits into three aquifers: 1) perched aquifer 2) upper aquifer, and 3) lower aquifer.[71] However, the GSAs considers the three deposits as a single primary aquifer because there is no significant confining layer that has been identified.[72] Based on the information provided in the Plan, Department staff conclude the term “primary aquifer” has the same meaning as “principal aquifer.”

The Plan provides aquifer thickness, transmissivity, and hydraulic conductivity for the Banning Storage Unit, and states that transmissivity and hydraulic conductivity data in the Banning Canyon Storage Unit is unavailable.[73] Department staff note that the Plan does not provide the aquifer properties of the other storage units and suggest the GSAs continue to fill the necessary data gaps in order to characterize the all the storage units.

The GSAs report that groundwater quality in the Subbasin is generally good, and there are no known contaminant plumes.[74] The GSAs indicate the water producers in the Subbasin regularly conduct water quality analysis and reporting as required by state and federal agencies.[75] The GSAs describe the groundwater in the Subbasin as predominantly calcium-sodium bicarbonate type with TDS that is within water quality standard for drinking water.[76]

The GSAs indicate the primary uses of groundwater in the Subbasin have historically been agriculture, industrial, municipal, and residential.[77] However, there is currently no significant commercial agriculture activity in the Subbasin; therefore, agriculture is no longer identified as a primary use.[78] Although the Morongo Band of Mission Indians pumps groundwater for a small amount of agriculture, the volume of groundwater used is unknown to the GSAs. The GSAs estimated pumping volumes per storage unit and major use sector but omit agriculture use.[79]

Analyses of soil types was performed using United States Department of Agriculture (USDA) Natural Resources Conservation Soil (NRCS) survey using the Saturated Hydraulic Conductivity (Ksat). Soils within the Subbasin generally have relatively high Ksat rates across the entire basin. Northwest trending strings of soils with very high Ksat rates are located within areas of intermittent stream channels and within Banning Canyon. Pockets of moderately high to very low Ksat rates are located within the Banning Bench

[71] San Gorgonio Pass GSP, Section 3.1.8, p. 90.
[72] San Gorgonio Pass GSP, Section 3.2.4, p. 123.
[73] San Gorgonio Pass GSP, Section 3.1.8.1, p. 96.
[74] San Gorgonio Pass GSP, Section 3.1.9, p. 99.
[75] San Gorgonio Pass GSP, Section 3.1.9, p. 99.
[76] San Gorgonio Pass GSP, Section 3.1.9, p. 99.
[77] San Gorgonio Pass GSP, Section 3.1.8.2, p. 96; Table 2-3, p. 50.
[78] San Gorgonio Pass GSP, Section 3.2.4, p. 123; Section 3.3.4.1, p. 165.
[79] San Gorgonio Pass GSP, Section 3.3.4.1, p. 165.

area and against the mountainous areas in the northeast and southwest portions of the Subbasin.[80] The relative Ksat rates for the NRCS soil types have been mapped.[81]

The surface water drainage features of the Subbasin are part of the Salton Sea watershed. The main surface drainage feature of the Subbasin is the San Gorgonio River, which flows intermittently over the Subbasin from significant precipitation events or snow melts. Smaller intermittent tributaries within the Subbasin originating from the San Bernardino Mountains to the north or from the San Jacinto Mountains to the south include Smith Creek, Montgomery Creek, Hathaway Creek, Potrero Creek, Twin Pines Creek, Jensen Creek, and One Horse Creek. The subbasin drainage features tend to have a northwest-southeast orientation. The drainage features coalesce along the southern part of the Subbasin and drain eastward to the Indio Subbasin.[82]

The San Gorgonio Pass Water Agency (SGPWA) contracted with the California Department of Water Resources in 1961 to receive 17,300 acre-ft/year of water to supplement natural recharge. A pipeline delivers State Water Project (SWP) water into the San Gorgonio Pass area which the SGPWA uses to artificially recharge the ground-water system using ponds located along Little San Gorgonio Creek in the Cherry Valley area, just west of the GSA area in the adjudicated portion of the Subbasin.[83]

The City of Banning purchases the recharged imported water stored in the adjudicated Beaumont Basin subsurface from the SGPWA. The City of Banning accesses this supply through five wells and three additional wells co-owned with Beaumont-Cherry Valley Water District. The Region does not directly purchase any imported water supply and instead treats imported water as groundwater.[84]

The GSAs discuss some data unavailability, but the GSP does not include a section specifically describing data gaps related to the hydrogeologic conceptual model as required by the GSP regulations. Staff suggest that GSAs provide a discussion on the data gaps in the next periodic evaluation.[85]

Department staff have determined the GSAs' discussion of information regarding hydrologic conceptual model substantially covers the specific items listed in the associated GSP regulations in an understandable format using appropriate data.

### 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

[80] San Gorgonio Pass GSP, Section 3.1.6, p. 81.
[81] San Gorgonio Pass GSP, Figure 3-7, p. 86.
[82] San Gorgonio Pass GSP, Section 3.1.10, p. 99.
[83] San Gorgonio Pass GSP, Section 3.1.11, p. 101.
[84] San Gorgonio Pass GSP, Section 3.1.11, p. 101.
[85] 23 CCR § 354.14 (b)(5).

hydrographs,[86] a graph depicting change in groundwater storage,[87] maps and cross-sections of the seawater intrusion front,[88] maps of groundwater contamination sites and plumes,[89] maps depicting total subsidence,[90] identification of interconnected surface water systems and an estimate of the quantity and timing of depletions of those systems,[91] and identification of groundwater dependent ecosystems.[92]

Groundwater Elevation:

The Plan includes groundwater elevation contour maps which illustrate 1998 and 2019 conditions.[93] The GSAs indicate that 1998 and 2019 conditions correspond with the beginning and the end of the hydrologic period analyzed in the water budget.[94] Per the Plan, although groundwater elevations are lower, the groundwater flow patterns (west to east) observed in 1998 and 2019 contour maps are similar.[95]

Groundwater level data used to develop the contour maps has "been concentrated in the Banning Canyon Storage Unit, where groundwater production has historically been concentrated and multiple wells (primarily production wells) are available that provide generally consistent data. By contrast, water level measurements in the Banning Storage Unit are limited to a few wells (primarily municipal production wells) and water level measurements in the Cabazon Storage Unit have even sparser concentrations of measured wells."[96]

Banning Canyon Storage Unit: Groundwater flows from the upper Banning Canyon Storage Unit downstream to the mouth of Banning Canyon, with groundwater elevations ranging from 4,400 feet at the northern end of Banning Canyon to 2,700 feet near the mouth of Banning Canyon. Department staff review of hydrographs shows a mix of stable groundwater levels and some declines in others. The hydrographs in the upper portion of the canyon show declines of approximately 30 feet between 2001 and 2018. The balance of the hydrographs in middle and lower portions of the canyon shows relative stability. However, given the precipitation driven characteristics of the San Gorgonio River in the canyon and significant groundwater extractions, groundwater levels are reflecting when flow are present, dry periods, groundwater extractions, and the steep 2,200-foot downward gradient of the canyon.

[86] 23 CCR §§ 354.16 (a)(1-2).
[87] 23 CCR § 354.16 (b).
[88] 23 CCR § 354.16 (c).
[89] 23 CCR § 354.16 (d).
[90] 23 CCR § 354.16 (e).
[91] 23 CCR § 354.16 (f).
[92] 23 CCR § 354.16 (g).
[93] San Gorgonio Pass GSP, Figure 3-16, p. 105, Figure 3-17, p. 107.
[94] San Gorgonio Pass GSP, Section 3.2.1.1, p. 103.
[95] San Gorgonio Pass GSP, Section 3.2.1.1, p. 103.
[96] San Gorgonio Pass GSP, Section 3.2.1.1, p. 103.

Banning Bench Storage Unit: "Consists of partly consolidated sandstone that can extend to depths greater than 2,000 feet below ground surface. A portion of the Banning Bench Storage Unit is overlain by the San Gorgonio River, which has significantly eroded the Banning Bench Storage Unit, creating the local topographic feature known as Banning Heights. While the older consolidated materials in the Banning Bench Storage Unit itself have poor permeability and limited groundwater development, there is significant groundwater production from the shallow recent alluvium overlying the Banning Bench adjacent to the San Gorgonio River."[97] The GSAs state "The hydrographs of the three wells [shown in the hydrographs[98]] have similar variations to those in the Banning Canyon, with shorter term seasonal and annual variations and no long-term trend."[99] Department staff agrees with the GSAs assessment.

Banning Storage Unit: Most recent groundwater elevations provided in the Plan range from about 2,125 feet to 2,025 feet, with the GSAs indicating that there is a slight gradient from west to east.[100] It should be noted the contour map[101] provided in the Plan has more monitoring wells than those discussed in the Plan, including monitoring wells in the adjudicated area. Department staff are unable to confirm the flow gradient unless the GSAs provide all data that is used in their assessment and conclusions. Additionally, the wells "show generally consistent water level trends, with water levels gradually declining since about 1998 which corresponds with increased pumping and a prolonged drought period."[102] Upon review of the provided hydrographs, Department staff confirms that there is a steady decline in groundwater levels of approximately 150 feet since 1998, resulting in annual decline rate of approximately 7 feet per year. Other monitoring wells in the unit are steadily declining as well but appear to be at annual rates less than 7 feet per year.[103]

Cabazon Storage Unit: The GSAs state that "Groundwater in the Cabazon Storage Unit generally flows from west to east, with subsurface outflows at Fingal Point draining into the Indio Subbasin."[104] Department staff note that the groundwater elevations are significantly lower than those in the Banning Storage Unit directly to the west. Groundwater Levels in the Cabazon Storage Unit are considerably lower than in the Banning Canyon Storage Unit. The Cabazon Storage Unit groundwater levels show a gradient from the Banning Storage Unit to the west of the Cabazon Storage Unit to the outflow boundary into the Indio Subbasin at the eastern border of the Subbasin. Department staff reviewed the hydrographs (14A1) for the western portion of the unit and determined the annual decline is approximately 5.5 feet per year and the most significant declines in the unit. The GSAs believe the declines are more indicative of long-term dry

[97] San Gorgonio Pass GSP, Section 3.2.1.1, p. 112.
[98] San Gorgonio Pass GSP, Figures 3-23 and 3-24, p. 113.
[99] San Gorgonio Pass GSP, Section 3.2.1.1, p. 112.
[100] San Gorgonio Pass GSP, Figure 3-26, p. 114, Figure 3-17, p. 107.
[101] San Gorgonio Pass GSP, Figure 3-17, p. 107.
[102] San Gorgonio Pass GSP, Section 3.2.1.1, p. 114.
[103] San Gorgonio Pass GSP, Figures 3-25 and 3-26, p. 114.
[104] San Gorgonio Pass GSP, Section 3.2.1.1, p. 115.

resulting in below average precipitation and minimal groundwater extraction due to the significant depths to ground water (450 feet to 800 feet).[105] Groundwater elevations in the eastern portion of the unit are more stable and minimal declines over the past 20 plus years. Recently the western portion had groundwater elevations approximately at 1,620 feet[106] and in the east the elevations are approximately below 1,200 feet,[107] a difference in elevations of about 450-500 feet in elevation over nearly 10 miles.

Department staff note the groundwater level data was not provided prior to 1995 and are unable to assess how long before 1995 and the total amount of groundwater level declines that may have been occurring.

Change in Storage:

The Plan includes two separate graphs depicting estimates of change in groundwater in storage. One of the graphs provided shows the combined change in groundwater storage for Banning and Cabazon Storage Units; another graph shows the change in groundwater storage in Banning Canyon Storage Unit.[108] The GSAs state that change in groundwater storage has not been estimated for Banning Bench Storage Unit because this area has no or limited groundwater level data.[109]

The GSAs state that between 1998 and 2019, in the Cabazon and Banning Storage Units, the average annual change in groundwater storage was a decline of 9,200 acre-feet per year and the cumulative change in storage was a decline of 202,400 acre-feet. The change in groundwater storage in the Banning Canyon Storage Unit was a decline of 80 acre-feet per year and the cumulative change in storage was a decline of 1,700 acre-feet for the same period.[110]

The Plan also provides changes in ground storage data in the water budget section where the average annual storage change between 1998 and 2019 is reported as -10,000 acre-feet per year.[111] The GSAs state that, of the 10,000 acre-feet annual decline, 9,600 acre-feet per year was in the lower model representing the Banning and Cabazon Storage Units and an average decline of 400 acre-feet per year was in the upper model, which includes the Banning Canyon Storage Unit and the Hathaway, Potrero, and Millard Canyons.[112] The change in storage data provided for the Banning and Cabazon Storage Units in the basin setting section differs by 800 acre-feet per year from the data provided in the water budget section. Department staff encourages the GSAs to rectify the inconsistencies and work towards including the Banning Bench Storage Unit in the overall

[105] San Gorgonio Pass GSP, Section 3.2.1.1, p. 116.
[106] San Gorgonio Pass GSP, Figure 3-28 p. 117.
[107] San Gorgonio Pass GSP, Figure 3-32 p. 120.
[108] San Gorgonio Pass GSP, Figure 3-33 and 3-34, p. 121.
[109] San Gorgonio Pass GSP, Section 3.2.2, pp. 120-121
[110] San Gorgonio Pass GSP, Section 3.2.2, p. 120.
[111] San Gorgonio Pass GSP, Section 3.3.5, p. 168.
[112] San Gorgonio Pass GSP, Section 3.3.5, p. 168.

change in groundwater storage. Additionally, Department staff would like to see the graphs depict changes in storage between seasonal low rather than high conditions.

Seawater Intrusion:

The GSAs state the Subbasin is located far from coastal areas and seawater intrusion is not a relevant sustainability indicator for the Subbasin.[113] Given the geographic setting of the Subbasin, Department staff regard the reasoning of the Plan as sufficient to demonstrate that seawater intrusion is not present in the Subbasin and is not likely to occur in the future.

Groundwater Quality:

The Plan lists and maps arsenic, chromium-6, fluoride, lead, nitrate, iron, manganese, and total dissolved solids (TDS) as the constituents of concern in the Subbasin.[114] The GSAs state that water quality data, over a 22-year period, from 1997 to 2019, were examined to understand changes in water quality constituents of concerns.[115] The GSAs compare the concentration of constituents with water quality standards: primary maximum contaminant levels (MCLs) and secondary maximum contaminant levels (SMCLs).

- The GSAs state that no wells had data that consistently exceeded arsenic MCL and arsenic concentrations more than MCL occurred in the deep aquifer formation.[116] Department staff reviewed the State Water Board's Groundwater Ambient Monitoring & Assessment Program (GAMA)[117] and found one reported instance of arsenic MCL exceedances. The site in question was last measured in 2011. Since there have not been any measurements since the MCL exceedance, Department staff are unable to determine if this is a chronic issue at the location with Arsenic or an anomaly.

1. The GSAs state that few low detections of total chromium across the Subbasin have overall concentrations well below MCL.[118] Reviews of the State Water Board's GAMA site shows at least one monitoring site with eight of the eleven measurements since 2014 have exceeded the 20 µg/L threshold.[119]

- Fluoride exceedances have not occurred in the Subbasin within the 22-year period.[120]

[113] San Gorgonio Pass GSP, Section 3.2.3, p. 122.
[114] San Gorgonio Pass GSP, Section 3.2.4, Figures 3-35 through 3-49, pp. 125 - 140.
[115] San Gorgonio Pass GSP, Section 3.2.4, p. 124.
[116] San Gorgonio Pass GSP, Section 3.2.4, p. 125.
[117] California State Water Resources Control Board, GAMA Groundwater (ca.gov), accessed September 15, 2023.
[118] San Gorgonio Pass GSP, Section 3.2.4, p. 127.
[119] California State Water Resources Control Board, GAMA Groundwater (ca.gov), accessed September 15, 2023.
[120] San Gorgonio Pass GSP, Section 3.2.4, p. 129.

- The GSAs state that lead occurs in low levels within the Subbasin and only one lead risk was identified during the 22-year analysis period.[121] Review of the State Water Board's GAMA data actually shows two wells that experienced a spike in leads levels greater than 15 µg/L MCL but levels subsequently dropped to levels below 15 µg/L MCL.[122]
- The GSAs state that nitrate concentrations have been below the MCL over the 22-year analysis period exceeding the MCL.[123] Despite the low concentrations of nitrate in the Subbasin, the GSAs plan to continue monitoring nitrate because of its prevalence of exceedance in the nearby and similar groundwater basins.[124]
- The GSAs state that two wells that experienced exceedances of the SMCL for iron; however, those same wells had reported improved quality conditions in more recent years.[125] Department staff review of the State Water Board's GAMA indicates 17 monitoring sites that had SMCL exceedances above 300 µg/L in the past but could not find any sites that are currently exceeding the SMCL.
- The GSAs state that manganese concentrations have exceeded their SMCL at two wells but that the manganese concentrations have fluctuated and experienced positive quality conditions at those same sites within the 22-year period.[126]
- The GSAs state the median concentration of TDS has remained below the SMCL in the Subbasin within the period of 1997-2019.

The Plan discusses that the concentration of constituents of concern has mostly remained within the water quality standards. However, the Plan does not discuss the cause of occasional elevated concentrations of constituents. As discussed above Department staff noted consistently high levels of chromium-6 on one well and other constituents that, while consistently below MCL and SMCLs, have on occasion, peaked above, and returned to normal levels. Given the locations of the wells in question, fluoride, arsenic, lead, and chromium-6 elevated measurements are found in and around the cities of Banning and Cabazon which also happen to be in areas of urban groundwater extractions. Nitrate, iron, manganese, and TDS can be found throughout the Subbasin. Department staff suggests the GSAs reevaluate the sporadic exceedance conditions, including Chromium-6, to determine if they are related to monitoring protocols deficiencies or some other condition, such as their recently declining groundwater and droughts.

[121] San Gorgonio Pass GSP, Section 3.2.4, p. 131.
[122] California State Water Resources Control Board, GAMA Groundwater (ca.gov), accessed September 15, 2023.
[123] San Gorgonio Pass GSP, Section 3.2.4, p. 133.
[124] San Gorgonio Pass GSP, Section 3.2.4, p. 133.
[125] San Gorgonio Pass GSP, Section 3.2.4, p. 135.
[126] San Gorgonio Pass GSP, Section 3.2.4, p. 137.

Subsidence:

The GSAs state that the Subbasin is in a tectonically active area.[127] The Plan used the Department's Interferometric Synthetic Aperture Radar (InSAR) data to describe current subsidence in the Subbasin. The Plan provides a map based on InSAR data, which shows ground surface elevation changes of -0.25 to 0.25 feet between 2015 and 2019.[128] The InSAR data covers the entire Subbasin. The GSP states that this small change in elevation would include changes from tectonic activity, which is a potential cause for elevation changes in the Subbasin.[129] The GSP also states that the changes observed in the Subbasin are potentially within a margin of error and indicate no observable land subsidence.[130]

While Department staff concur that, between 2015 and 2019, significant subsidence did not occur in the Subbasin, the GSAs did not provide information pertaining to the historical subsidence and if it occurred the annual rate of subsidence. However, the GSAs state the possibility of land subsidence related to groundwater management is unlikely in the Subbasin due to an absence of confining clay aquitards and is based on a study by Diane Rewis in 2006. In the study, Rewis wrote that there is no evidence of [historical] subsidence, and the aquifer deposits are considered less susceptible to compaction than those experiencing compaction in the Coachella Valley. However, the same 2006 study did not rule out the potential for subsidence occurring in the future if groundwater levels decline below historical lows.[131]

Interconnected Surface Water:

The GSAs identify the only interconnected waterway within the Subbasin that falls within SGMA's jurisdiction is San Gorgonio River.[132] The GSAs further state the San Gorgonio River in the Banning Canyon is an interconnected surface water system only during precipitation events or snow melt within the water shed. The GSAs identify the river has the characteristics of an ephemeral surface water body.[133] The National Hydrography Dataset identifies the river as intermittent.[134]

The river can have a hydraulic connection with groundwater when San Gorgonio flows are adequate to saturate the vadose between the river and the groundwater table. The

[127] San Gorgonio Pass GSP, Section 3.2.5, p. 143.
[128] San Gorgonio Pass GSP, Section 3.2.5, p. 143.
[129] San Gorgonio Pass GSP, Section 3.2.5, p. 143.
[130] San Gorgonio Pass GSP, Section 3.2.5, p. 143.
[131] Rewis, D.L., Christensen, A.H., Matti, J.C., Hevesi, J.A., Nishikawa, Tracy, and Martin, Peter, 2006, Geology, ground-water hydrology, geochemistry, and ground-water simulation of the Beaumont and Banning storage units, San Gorgonio Pass area, Riverside County, California: U.S. Geological Survey Scientific Investigations Report, p. 138.
2006–5026,
[132] San Gorgonio Pass GSP (2022), Section 3.2.6, p.144.
[133] San Gorgonio Pass GSP (2022), Section 3.2.7, p.144.
[134] California Department of Water Resources, SGMA Data Viewer, SGMA Data Viewer (ca.gov), Accessed on September 18, 2023.

GSAs state the head differential between channel elevation and the underlying lower groundwater elevations induces seepage losses from the stream (losing stream). During wet periods when the San Gorgonio River has sufficient flow, the river may reach downstream to the mouth of the canyon where the connection tapers off as the canyon spreads into an alluvial fan, and any remaining surface waters making it to the fan will ultimately recharge aquifer(s) of the downstream Banning Bench and Cabazon storage units.[135]

In reviewing the hydrographs for the upper, middle, and lower portions on the Banning Canyon shows that 0 feet below ground surface (bgs) during periods when there is probably significant flow in the river to 165 feet bgs during dry periods including multi-year drought periods.

- In the upper portion of the canyon groundwater levels have what appears to be fast recoveries in and depending on the severity of the dry periods however, it may take more than a single year to recover to full condition. It also shows many more increases when compared to other portions of the canyon, possibly indicating there are more instances of surface water in the upper reach of channel than in lower reaches.
- The middle portion of the canyon follows the same pattern, but with more extreme swings resulting in deeper groundwater levels of down to 165 bgs and fast increases of up to 100-foot in groundwater levels. This could be an indication of a thicker and porous alluvium that drains and fills faster than other areas of the canyon. Additionally, there appears to be about six times since 1995 that the groundwater levels were close enough (less than 20 feet bgs) to have a brief connection to the surface water.
- In the lower portion of the canyon there is evidence of more subtle changes but unlike the upper portion the ranges between wetter and drier years are approximately 80 feet with the deepest being 100-feet bgs.

The GSAs state that additional ephemeral tributaries are present in the Potrero, Hathaway and Millard Canyons and both are within the Morongo Band of Mission Indians lands. These waterways and the downstream uses are confined to the tribe's jurisdiction, which is not subject to SGMA due to the tribe's federally recognized status.[136]

Groundwater Dependent Ecosystems:

The GSAs used hydrogeologic cross-sections, historical aerial imagery in conjunction with the long-term groundwater level data, and Nature Conservancy's (TNC) GDE Pulse interactive mapping tool to analyze the potential for GDE presence.

[135] San Gorgonio Pass GSP (2022), Section 3.2.6, p.144.
[136] San Gorgonio Pass GSP, Section 3.2.6, p.144.

The GSAs state that GDEs are present in the Banning Canyon Storage Unit because groundwater is present at shallower depths. Between 1985 and 2018, the GDEs in the Subbasin have experienced little or no change. Furthermore, the GSAs state that between 2009 and 2018, which includes drought years, the majority of the GDEs experienced little to no change except for some isolated and small areas. The GDEs in those small and isolated areas have experienced a decrease. The GSAs state that the interconnected surface water monitoring network can identify when impacts to beneficial uses of groundwater including GDEs may occur.[137]

The GSAs also acknowledges there may be GDEs within Potrero, Hathaway, and Millard Canyons; however, these areas are in tribal land.[138] Per the Plan, data from tribal land are not available to confirm the identification of those GDEs; therefore, the GSAs identify these as potential GDEs as data gaps.[139] The GSAs state that the GDEs are not present in the remaining portion of the Subbasin because of significant depth to groundwater (hundreds of feet) which cannot sustain GDEs for any part of any water year.[140]

Except for the improvements identified above, Department staff concludes that the Plan substantially covers the specific items listed in the Subbasin GSP regulations for the Subbasin's conditions in an understandable format using appropriate data.

### 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,[141] and the sustainable yield.[142]

The GSAs provide water budgets for historical (1998-2019), current (1949-1998), and projected conditions based on numerical models. The GSAs believe 1998-2019 does not represent what they consider average or normal precipitation conditions in the Subbasin therefore refer to it as historical.[143] The GSAs used 1949 – 2019 as the current water budget as it is most aligned with the average or normal long-term precipitation. Department staff are concerned that using the period of normal precipitation may cause difficult challenges for the GSAs meeting sustainability if the more recent trends (dryer) persist or become the more the norm. This can include greater pumping to meet demands and additional decreases in groundwater storage.

The GSAs developed the water budget using numerical models referred to as the San Gorgonio Pass Watershed Model (SGPWM). The SGPWM consists of three parts: 1)

[137] San Gorgonio Pass GSP, Section 3.2.8, p. 146.
[138] San Gorgonio Pass GSP, Section 3.2.8, p. 146.
[139] San Gorgonio Pass GSP, Section 3.2.8, p. 146.
[140] San Gorgonio Pass GSP, Section 3.2.8, p. 146-147.
[141] 23 CCR §§ 354.18 (a), 354.18 (c) *et seq*.
[142] 23 CCR § 354.18 (b)(7).
[143] San Gorgonio Pass GSP, Section 3.3.1, p. 156.

watershed model (INFIL) developed by USGS and two groundwater models that represent 2) upper GW system and a 3) lower GW system.[144] The model technical memorandum also lists model uncertainties and limitations that include data gaps in data collection, hydrologic conceptual model, and historical estimates of groundwater pumping.[145]

The Plan states that current groundwater pumping in the Subbasin is approximately 8,400 acre-feet per year which is the average groundwater pumped during the period 1949-1998. It is not clear from the data provided that the groundwater pumped by Morongo Band of Mission Indians is included in the total. However, the average groundwater pumping increases to nearly 9,500 acre-feet per year in the years 1998-2019 and does not include Morongo Band of Mission Indians groundwater pumping of 1,680 acre-feet per year.[146] Department staff reviewed the data and question why Morongo Band of Mission Indians estimated pumping is included in Table 3-5 yet excluded from the totals for the Subbasin on the same table. If included, the average annual groundwater extractions would be more than 11,000 acre-feet. Department staff recommends the GSAs include all groundwater extractions in its current and historical water budgets. Department staff encourage coordination and cooperation among all groundwater extractors and beneficial users in the basin to develop the most accurate and realistic historic, current, and future water budgets. Absent information provided by a tribal or federal entity regarding water use, it remains the responsibility of the GSA to exercise the various authorities and discretion SGMA provides in addition to other authorities to develop a means to monitor and best estimate the water balance and overdraft and implement a management approach that can achieve subbasin sustainability notwithstanding any lack of participation, coordination, or sharing of data by tribal or federal entities, or lack of jurisdiction or regulatory control in or over federally reserved lands.

Surface water deliveries from the SWP into the Subbasin area are used to artificially recharge the groundwater system in ponds located along Little San Gorgonio Creek in the Cherry Valley area that is in the adjudicated portion of the Subbasin.[147] The City of Banning along with Beaumont-Cherry Valley Water District acquires this surface water supply through wells that are in the Subbasin. This SWP surface water is not directly accounted for in the water budgets but is believed by Department staff to be included as a portion of the groundwater pumped. The GSAs did not provide a breakdown of the annual amount of the recharged surface water that is pumped. Department staff suggests that GSAs identify the amounts of recharged water extracted in the Subbasin in future periodic evaluations reconciled with the deliveries.

[144] San Gorgonio Pass GSP, Appendix D (Model Technical Memorandum), p.369.
[145] San Gorgonio Pass GSP, Appendix D (Model Technical Memorandum), pp.395-397.
[146] San Gorgonio Pass GSP, Table 3-5, p.166.
[147] San Gorgonio Pass GSP, Section 3.1.11, p. 101.

The annual change in groundwater storage in the historical (1998 to 2019) was determined to be an estimated decrease of approximately 10,000 acre-feet per year for the years. The Plan shows the annual groundwater storage changes and a cumulative groundwater storage decline of more than 200,000 acre-feet since 1998.[148] The GSAs response to the significant loss in groundwater storage was "Because of the very dry conditions during the historical period, the groundwater storage decline in this period is not representative of average water supply conditions and … does not by itself indicate that overdraft conditions are occurring."[149] For the current period (1949-1998) an estimated positive storage change of approximately 1,800 acre-feet per year. Which is due to the more normal precipitation. Department staff notes that while the "current" period (1949-1998) may reflect a positive annual increase in storage, the "historical" period (1998-2019) shows significant annual declines in storage. Additionally, the Water Year 2022 Annual report shows a continuation of storage declines of approximately 26,000 acre-feet since 2020.[150]

The GSAs provide an early future (2030 level) and a late future (2070 level) groundwater water budgets based on the calibrated Subbasin groundwater models.[151] No future projects and management actions are considered in the projected groundwater water budgets.[152] DWR climate change factors and methodology are used to scale this baseline hydrology to future climate change impacted conditions for the 2030s and 2070s scenarios. Future Noble Creek baseline recharge in the neighboring San Timoteo Subbasin estimates is based on projections of future SWP deliveries. However, the surface water deliveries are not included in the data provided by the GSAs. Pumping for the baseline and project management actions were based on projections in the Urban Water Management Plans (UWMP).[153] The GSAs state the early future water budget (2030 level) is the focus of the water budget analysis as it represents near term future conditions and requires less speculative estimates of projected future climate change impacts.[154]

The GSP indicates that no projected groundwater pumping amounts were made available by the Morongo Band of Mission Indians, and the 2030s projections therefore assume continued pumping at estimated most recent historical levels. As discussed above, it is up to a GSA to exercise the various authorities and discretion SGMA provides to best estimate the projected water balances. Projected SWP and other imported water supply deliveries are updated to the early future (2030 level).

[148] San Gorgonio Pass GSP, Figure 3-62, p.168.
[149] San Gorgonio Pass GSP, Section 3.3.5, p. 168.
[150] California Department of Water Resources, SGMA Portal – Annual Reports, https://sgma.water.ca.gov/portal/gspar/preview/223.
[151] San Gorgonio Pass GSP, Section 3.3.9, pp. 175-181.
[152] San Gorgonio Pass GSP, Section 3.3.9, pp. 177-179.
[153] San Gorgonio Pass GSP, Appendix D (Model Technical Memorandum), pp.388-389.
[154] San Gorgonio Pass GSP, Section 3.3.9, p.175.

The projected early future groundwater storage change is an approximate decrease approximately 500 acre-feet per year average for the projected 50-year water budget period.[155] The late future results show an average decrease of 1,840 acre-feet per year in groundwater storage. The late future decrease in groundwater storage is a result of additional groundwater use and projected additional reduction in streamflow recharge due to climate change.[156] The GSP states that future climate change, combined with projected additional development, would result in continued overdraft for the early future (2030 level) and late future (2070 level) that could be addressed through possible implementation of projects or management actions.[157] However, the Plan does not identify which projects or management actions would be implement and when.

During the current period (1949-2019), precipitation is close to long-term average conditions. The current water budget table shows a positive groundwater storage of approximately 1,800 acre-feet per year, and the groundwater pumping during the period was about 8,400 acre-feet per year. Based on these values, the GSAs estimates the sustainable yield to be approximately 10,200 acre-feet per year (8,400 + 1,800 = 10,200). The GSAs indicate the sustainable yield will be evaluated in the future based on monitoring data that indicate the present or absence of undesirable results.[158]

The GSAs state that during the current period (1949-1998), there was no overdraft and in fact there was a slight average annual increase in groundwater storage of nearly 1,800 acre-feet. However, during the more recent historical period of 1998-2019 the Subbasin experienced an extended period of declining groundwater levels and is explained that it is the result of lower-than-average precipitation. The GSAs point out that in both forecasts there is a still a small decrease in in groundwater storage that the GSAs believe can be mitigated with the implementation of projects and management actions.[159] Department staff recommend the GSAs continue to evaluate their forecasted scenarios and adjust as necessary in the event the drier conditions persist.

With the exception of the suggested improvements discussed above, Department staff believe the rationale and information used to develop the water budgets are sufficiently thorough and substantially comply with the requirements in the GSP Regulations and demonstrates that each of the four budgets incorporates the best available information and science. The water budgets also appear sufficient to understand the conditions in the Subbasin and establish reasonable sustainable management criteria. The Plan also adequately describes assumptions associated with each budget and explains that the water budgets will change following model updates as understanding of the Subbasin changes during implementation.

[155] San Gorgonio Pass GSP, Section 3.3.9, p.177.
[156] San Gorgonio Pass GSP, Section 3.3.9, p.179.
[157] San Gorgonio Pass GSP, Section 3.3.9, p.179.
[158] San Gorgonio Pass GSP (2022), Section 3.3.12, p.182.
[159] San Gorgonio Pass GSP, Section 3.3.10, p.181.

### 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 GSA has 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.[160]

The GSAs established three management areas that are based on jurisdictional boundaries of the GSAs and the adjudicated portion of the Subbasin.

> Management Area 1 was defined to cover the portion of the adjudicated Beaumont Basin lying within the San Gorgonio Pass Subbasin. As part of an adjudicated basin, the Beaumont Basin is not required to prepare a GSP and provides separate annual monitoring to DWR.[161]
>
> Management Area 2, which includes the San Gorgonio Pass Water Agency, City of Banning, Cabazon Water District, Banning Heights Mutual Water Company, Mission Springs Water District, and the MBMI lands, is established as a single Management Area.[162]
>
> Management Area 3, which includes the Desert Water Agency GSA portion of the San Gorgonio Pass Subbasin is a Management Area in consideration of its unique geologic characteristics and minimal groundwater use.[163]

Management areas 1 and 2 do not play any role in the establishment of sustainable management criteria for the Subbasin. Sustainable management criteria and monitoring are established for the storage units utilizing the same methodology. Department staff believe the management areas were created to only facilitate routine management roles and responsibilities such as the physical act of collecting monitoring data from the various stations within the assigned management areas.

The storage units that were created by the GSAs appear to be more like the management areas that the GSP Regulations describes. As detailed in the Basin Setting section of this Staff Report, each of the storage units has unique hydrogeology. They also have differing sustainable management criteria and specific monitoring parameters as described later in the Staff Report.

The GSP Regulations require the GSAs to describe the reason for creation and for each area establish sustainable management criteria, describe the monitoring, and discuss how they can be managed separately without causing undesirable results outside the management area.[164] Department staff concludes that the GSAs did not use

[160] 23 CCR § 354.20.
[161] San Gorgonio Pass GSP, Section 2.1, p. 38 and Figure 2-4, p. 42.
[162] San Gorgonio Pass GSP, Section 2.1, p. 38 and Figure 2-4, p. 42.
[163] San Gorgonio Pass GSP, Section 2.1, p. 38 and Figure 2-4, p. 42.
[164] 23 CCR § 354.20.

management areas as intended by the GSP Regulations and as result of establishing the storage unit schema created uncertainty regarding their purpose and intended use in the management program the GSP establishes. Department staff recommend the GSAs clarify why the defined storage units should not be considered, established, and treated as official management areas as defined in the GSP Regulations[165] , or, alternatively, establish management areas corresponding to each defined storage unit (see Recommended Corrective Action 1).

## 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 GSA characterizes undesirable results and establishes minimum thresholds and measurable objectives for each applicable sustainability indicator.[166]

### 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.[167]

The sustainability goal for the Subbasin is "to ensure that by 2042, the Subbasin is being operated to maintain a reliable water supply for current and future beneficial uses without experiencing undesirable results." The GSAs indicate they intend to meet this goal "by balancing water demand with available water supply to stabilize groundwater levels without significantly and unreasonably impacting water quality or interconnected surface water."[168] The Plan identifies several projects, if implemented, will aid them in achieving their sustainability goal. The GSAs also discuss management actions that include pumping fees, allocations, and a possible adjudication within the Subbasin.[169]

Department staff have determined the GSAs discussion of information regarding sustainability goal substantially covers the specific items listed in the associated GSP 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

[165] 23 CCR § 354.20.
[166] 23 CCR § 354.22 *et seq*.
[167] 23 CCR § 354.24.
[168] San Gorgonio Pass Subbasin GSP, Section 4.1, p. 185.
[169] San Gorgonio Pass Subbasin GSP, Sections 6.3.5 – 6.3.6, pp. 268 – 270.

undesirable results.[170] 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[171] – 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.[172] 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.[173]

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.[174] GSAs are required to describe how conditions at minimum thresholds may affect beneficial uses and users,[175] and the relationship between the minimum thresholds for each sustainability indicator, including an explanation for how the GSA has determined conditions at each minimum threshold will avoid causing undesirable results for other sustainability indicators.[176]

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.[177] 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.[178]

[170] 23 CCR § 351(ah).
[171] Water Code § 10721(x).
[172] 23 CCR §§ 354.26 (a), 354.26 (b)(c).
[173] 23 CCR § 354.26 (b)(2).
[174] 23 CCR § 354.28 (b)(1).
[175] 23 CCR § 354.28 (b)(4).
[176] 23 CCR § 354.28 (b)(2).
[177] 23 CCR § 354.30 (a).
[178] 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 Subbasin, 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.[179]

*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.[180]

Significant and unreasonable results for the Banning Canyon Storage Unit

Undesirable Results for the Banning Canyon Storage Unit is qualitatively defined as when "groundwater levels in the Banning Canyon develop a declining multi-year trend uncharacteristic of the usual annual fluctuations that include rebound of water levels during the annual wet season." The GSAs provide a quantitative definition as when "two of the three representative water level monitoring sites in the Banning Canyon [Storage Unit] exceed their minimum threshold for 5 consecutive years."[181]

Regarding impacts to beneficial uses and users, the GSAs state "With the Banning Canyon Storage Unit's sustainable management criteria correlated with maintaining historic conditions, the projected groundwater levels can support the immediate and long-term needs of beneficial users of groundwater."[182] The GSAs explain that Banning Canyon has been pumped for beneficial uses since 1914 with a pattern of groundwater level decline in the summer and groundwater recovery in winter and spring.

For impacts to GDEs, the GSAs state that "historical canyon groundwater elevation and extraction data were compared to historic GDE footprints documented by TNC's GDE Pulse, which confirmed there were no undesirable results because of groundwater management during the most significant drought periods."[183] Due to the cyclic nature of the ephemeral stream, groundwater levels are typically lower than 200 feet below ground surface (bgs) for most of the year.[184] This would create an issue for any vegetation that is needs to rely on groundwater for survival. Given the depths to groundwater in the

[179] 23 CCR § 354.26 (d).
[180] 23 CCR § 354.28(c)(1) *et seq*.
[181] San Gorgonio Pass GSP, Table 4-2, p. 188.
[182] San Gorgonio Pass GSP, Table 4-5, p.202.
[183] San Gorgonio Pass GSP, Section 4.3.2.3, p. 201.
[184] San Gorgonio Pass GSP, Section 4.2.2.3, p. 193.

canyon during the summer and fall can be 200 feet bgs for much of the year and periodically has water in the channel, Department staff assumes the environment that exists for any vegetation in the canyon may be classified as a xeric shrublands environment and vegetation could be considered xerophytes, plants that have adapted to scarce surface water.

The GSAs use of vague terms “multi-year”, “uncharacteristic”, and “fluctuations” in the qualitative definition of Undesirable Results for the Banning Canyon Storage Unit without providing any definitions of the terms creates uncertainty as to what an undesirable result would be. Department staff encourage the GSAs to describe who, other than vegetation, could be impacted and demonstrate how other beneficial uses and users were considered when determining undesirable results.

Significant and unreasonable results for the Banning and Cabazon Storage Units

Undesirable Results for the Banning and Cabazon Storage Units is qualitatively defined as when “the groundwater level has declined to a depth such that multiple wells need to be deepened (where feasible) to provide the minimum necessary groundwater supplies for beneficial uses.” The quantitative definition is when “two of the six representative water level monitoring wells in the Banning and Cabazon Storage Units exceed their minimum threshold for two consecutive years at each of the respective sites in a 5-year rolling period.”[185]

The GSAs state that if the groundwater levels decline enough, then multiple wells will need to be deepened but only when feasible. Department Staff advise that the GSAs should provide specificity and detail when defining undesirable results rather than vague terms like “feasible” or “multiple wells”. Department staff encourage the GSAs to define when and where the effects of the groundwater conditions would cause undesirable results, and who could be impacted as per the GSP Regulations[186].

The GSAs rationale for requiring two wells across the two distinct storage units to exceed their minimum thresholds is that it will ensure that “isolated anomalies related to well monitoring or construction failures in one well are not misconstrued to represent the entire Subbasin”.[187] Department staff encourages the use of monitoring protocols and quality assurance standards that can be used to avoid potential incorrect or anomalous groundwater measurements. At the same time, however, Department staff question how requiring two of the six total representative monitoring wells from two hydrologically and geologically distinct storage units (Banning and Cabazon Storage Units) to exceed their minimum thresholds is sufficient to indicate when or whether undesirable results may be occurring in only one of the two storage units. The GSAs already established the fact that the storage units are geologically and hydrologically unique from each other by stating

[185] San Gorgonio Pass GSP, Table 4-2, p. 188.
[186] 23 CCR § 354.26.
[187] San Gorgonio Pass GSP, Table 4-2, p. 188.

they "are primarily defined by geologic faults that form barriers to lateral movement of groundwater leading to groundwater levels that vary significantly across adjacent storage units."[188] Given this explanation of subsurface barriers, the GSP does not explain why groundwater levels or declines in levels in one storage unit would correlate with the other or how levels in one unit would serve to detect the potential occurrence of undesirable results in another unit. Department staff recommend each storage unit have its own sustainable management criteria.

The GSAs also explain the rolling five-year period as "an appropriate period to assess exceedances because it allows enough time for groundwater levels to rebound or be adaptively managed following a single or few years critical period and because it can be assessed with the fixed 5-year GSP Update periods". It is unclear to Department Staff how the "rolling five-year period" is defined, measured, and applied when determining undesirable results (see Recommended Corrective Action 2).

The GSAs did not describe or provide examples of significant and unreasonable results for the Banning Bench Storage Unit area of the Subbasin stating "There are no representative monitoring wells within the Banning Bench, therefore the area is recognized as a data gap."[189] There are few groundwater extraction activities within the Banning Bench Storage Unit and existing extractions are thought to be de minimis extractors by the GSAs. The GSAs state they intend to seek funding to install monitoring wells in the Banning Bench Storage Unit area.[190] Department staff encourages the establishment of monitoring in the Banning Bench Storage Unit.

Sustainable Management Criteria for the Banning Canyon Storage Unit

In the Banning Canyon Storage Unit the GSAs state "groundwater levels are projected to remain within the general range of historic groundwater conditions; therefore, historic groundwater levels were more relevant for the Banning Canyon Storage Unit analysis than model-projected groundwater levels" used in the Banning and Cabazon Storage Units [191] The GSAs also state "Minimum thresholds in the Banning Canyon Storage Unit are set to generally maintain the annual historical fluctuations observed in that storage unit and to maintain historical operations which have not resulted in undesirable results in the past".[192] Therefore, minimum thresholds are specifically set "at the point in which groundwater extractions from the Banning Canyon typically halt, and the City of Banning converts to pumping in the Banning Storage Unit to supply the needs of the city." This pattern of pumping continues each year until the yield drops in the production wells,

[188] San Gorgonio Pass GSP, Section 3.1.8, p. 90.
[189] San Gorgonio Pass GSP, Section 4.4.1.1, p. 208.
[190] San Gorgonio Pass GSP, Table 4-5, p. 202 and Section 4.4.1.1, p. 208.
[191] San Gorgonio Pass GSP, Section 4.3.2.1, p. 199.
[192] San Gorgonia Pass GSP, Section 4.3.2.1, p. 200.

followed by a partial or full recovery due to the canyon's unique hydrology and geology, which is described by the GSAs as the "status quo".[193]

It is reasonable to see large recharge events from precipitation in the winter and spring and from year to year and equally large decreases depending on extractions, magnitude of the precipitation events, and persistence of dry or wet water years. This cycle is evident when reviewing historical groundwater levels at monitoring sites. The following are the established sustainable management criteria details and current groundwater level conditions compared back to 2015 for each of the representative stations (RMS or monitoring wells) in the storage unit.

- RMS CoB (City of Banning) 11 is used for monitoring groundwater levels, groundwater storage, and interconnected surface waters in the upper portion of the canyon. The well measurement recorded during the fall of 2014 was 82.5 feet bgs and 62 feet bgs during the fall of 2022. An increase since 2015 of 20.5 feet. The current groundwater levels are above both minimum threshold (105.3 feet bgs) and measurable objective (80.3 feet bgs).[194]
- RMS CoB 8 is used for monitoring groundwater levels, groundwater storage, and interconnected surface waters in the central portion of the canyon. The well measurement recorded during the fall of 2014 was 90.5 feet bgs and 73 feet bgs during the fall of 2022. An increase of 17.5 feet. The current groundwater levels are above both minimum threshold (121.8 feet bgs) and measurable objective (96.8 feet bgs).[195]
- RMS CoB 2 is used for monitoring groundwater levels, groundwater storage, and interconnected surface waters in the lower portion of the canyon. The well measurement recorded during the fall of 2014 was 67.5 feet bgs and 59 feet bgs during the fall of 2022. An increase of 8.5 feet. The current groundwater levels are above minimum threshold (76.9 feet bgs) however tracking below the measurable objective (51.9 feet bgs).[196]

The measurable objective is set to 25-feet above the minimum threshold, which is to reflect the groundwater levels during the wet period in winter and spring."[197] The average minimum threshold is 101 feet bgs and the average depth to groundwater in 2015 is 80 feet bgs.

[193] San Gorgonio Pass GSP, Section 4.3.2.1, p. 200.
[194] California Department of Water Resources, 2023, SGMA Portal, Monitoring Sites, sgma.water.ca.gov/SgmaWell/well/wellelevationchart/26038, Accessed 8/22/26.
[195] California Department of Water Resources, 2023, SGMA Portal, Monitoring Sites, sgma.water.ca.gov/SgmaWell/well/wellelevationchart/26036, Accessed 8/22/26.
[196] California Department of Water Resources, 2023, SGMA Portal, Monitoring Sites, sgma.water.ca.gov/SgmaWell/well/wellelevationchart/37988, Accessed 8/22/26.
[197] San Gorgonio Pass GSP, Table 4-5, p. 202.

Sustainable Management Criteria for the Banning and Cabazon Storage Units

In the GSP, groundwater elevations were projected for the next 50 years, incorporating future impacts from both climate change and projected groundwater pumping within and adjacent to the GSAs and generally represent the minimum projected water level through the Implementation Period.[198] In the Banning Storage Unit, the minimum threshold is defined as the projected groundwater level low, which can support the needs of City of Banning and the measurable objective is defined as 25-feet above the minimum threshold, which would allow a minimum of 10-year reaction period before reaching the minimum threshold if the groundwater levels continue at the same rate. The rational for the minimum threshold was to "avoid requiring the local beneficial users of groundwater to require deepening wells or installing new wells because of declined water levels. The beneficial users of groundwater include the residential, commercial, industrial, and municipal uses supplied by City of Banning."[199]

In the Cabazon Storage Unit, the GSAs identified two areas associated with western and eastern areas. The minimum threshold is defined as the lowest projected groundwater level that can support the demands of City of Banning (western) and Cabazon Water District (central). The measurable objective is defined as 50-feet or 25-feet above minimum thresholds depending on if groundwater levels in the monitoring wells are currently above the minimum threshold. These were defined to reflect conditions which would allow a minimum of 10-year reaction period before reaching the minimum threshold at those respective sites. "The minimum threshold was defined to avoid requiring the local beneficial users of groundwater to require deepening wells or installing new wells because of declined water levels."[200] The following are the established sustainable management criteria details and current groundwater level conditions compared back to 2015 for each of the representative wells in the western and central areas of storage unit.

- RMS COB #M11 is used for monitoring groundwater levels, groundwater storage, and water quality in the western portion Cabazon Storage Unit. The monitoring well's measurement recorded during the fall of 2014 was 349.8 feet bgs and 356.8 feet bgs during the fall of 2020. An approximate decline of 7 feet since 2015. The current groundwater levels are above both minimum threshold (520 feet bgs) and measurable objective (470 feet bgs) that is 50-feet above the minimum threshold.[201] There is a potential for additional decline of 163.2 feet from 2020 levels before reaching the minimum threshold.
- RMS 06-029 (11F4) is used for monitoring groundwater levels and groundwater storage in the central portion Cabazon Storage Unit. The well measurement

[198] San Gorgonio Pass GSP, Section 4.3.2.1, pp. 199-200.
[199] San Gorgonio Pass GSP, Table 4-5, p. 202.
[200] San Gorgonio Pass GSP, Table 4-5, p. 202.
[201] California Department of Water Resources, 2023, SGMA Portal, Monitoring Sites, sgma.water.ca.gov/SgmaWell/well/wellelevationchart/28857, Accessed 8/22/26.

recorded during the fall of 2014 was 546.8 feet bgs and 592.5 feet bgs during the fall of 2021. A decline of 45.7 feet. The current groundwater levels are above both minimum threshold (674 feet bgs) and measurable objective (624 feet bgs) that is 50-feet above the minimum threshold.[202] Department staff noticed the last six measurements were 591 feet to 593 feet bgs between the fall of 2020 and Spring 2023. The bottom of lowest screen and well depth is 600 feet. It is suspected that the groundwater levels have reached levels that could be considered a dry well. The issue is further complicated in that the minimum threshold (674 feet bgs) and management objective (624 feet bgs) are set below the bottom of the well (600 feet bgs). Department staff requests that the GSAs re-evaluate the use of this representative monitoring well for groundwater levels by correcting the construction information on DWR's Monitoring Network Module if determined to be incorrect or finding a replacement.

- RMS 06-007 (7P4) is used for monitoring groundwater levels and groundwater storage in the central portion Cabazon Storage Unit. The well measurement recorded during the fall of 2014 was 449.2 feet bgs and 486.5 feet bgs during the fall of 2022. A decline of 37.3 feet. The current groundwater levels are above both minimum threshold (564.5 feet bgs) and measurable objective (514.5 feet bgs) that is 50-feet above the minimum threshold.[203] There is a potential for additional decline of 78 feet from 2022 levels before reaching the minimum threshold.
- RMS 23B1 is used for monitoring groundwater levels and groundwater storage in the central portion Cabazon Storage Unit. The well measurement recorded during the fall of 2014 was 287.2 feet bgs and 313.2 feet bgs during the fall of 2021. A decline of 26 feet. The current groundwater levels are above both minimum threshold (375 feet bgs) and measurable objective (350 feet bgs) that is 25-feet above the minimum threshold.[204] There is a potential for additional decline of 61.8 feet from 2021 levels before reaching the minimum threshold.

In the eastern area the minimum thresholds are assigned at the water level in which Mission Springs Water District (MSWD) can continue to meet the current and projected demands. The measurable objective is defined as 25-feet above the minimum threshold. The GSA considered this reasonable considering the variability in groundwater levels is less than conditions in the western and central areas of the Cabazon Storage Unit. The measurable objective is defined to allow a minimum of 10-year reaction period before hitting the minimum threshold. While this method is the same across much of the Subbasin, the measurable objective and minimum threshold are separated by 25-feet. In

[202] California Department of Water Resources, 2023, SGMA Portal, Monitoring Sites, sgma.water.ca.gov/SgmaWell/well/wellelevationchart/48418, Accessed 8/22/26.
[203] California Department of Water Resources, 2023, SGMA Portal, Monitoring Sites, sgma.water.ca.gov/SgmaWell/well/wellelevationchart/26108, Accessed 8/22/26.
[204] California Department of Water Resources, 2023, SGMA Portal, Monitoring Sites, sgma.water.ca.gov/SgmaWell/well/wellelevationchart/51406, Accessed 8/22/26.

addition, the minimum threshold is within 10-feet of the lowest historic groundwater level. No undesirable results were experienced historically, further validating the sustainable management criteria as conservatively assigned.[205] The following are the established sustainable management criteria details and current groundwater level conditions compared back to 2015 for each of the representative wells in the eastern areas of storage unit.

- RMS MSWD-25 is used for monitoring groundwater levels and groundwater storage. The well measurement recorded during the fall of 2014 was 298 feet bgs and 320.2 feet bgs during the fall of 2021. A decline of 22.2 feet. The current groundwater levels are above both minimum threshold (373 feet bgs) and measurable objective (348 feet bgs) that is 25-feet above the minimum threshold.[206]
- RMS MSWD-26 is used for monitoring groundwater levels and groundwater storage. The well measurement recorded during the fall of 2014 was 198.7 feet bgs and 220.6 feet bgs during the fall of 2021. A decline of 21.9 feet. The current groundwater levels are above both minimum threshold (269.7 feet bgs) and measurable objective (244.7 feet bgs) that is 25-feet above the minimum threshold.[207]

Sustainable Management Criteria for the Banning Bench Storage Units

As with defining significant and unreasonable results, the GSAs did not provide sustainable management criteria for the Banning Bench Storage Unit area of the Subbasin stating: “There are no representative monitoring wells within the Banning Bench, therefore the area is recognized as a data gap.”[208] The GSAs state they intend to seek funding to install monitoring wells in the Banning Bench Unit area.[209]

The GSAs report that “There are few groundwater extraction activities within the Banning Bench Storage Unit, and of the limited extractions, they are known to be de minimis.”[210] Department staff believes the GSAs are on the right track to resolve the data gap in the Banning Bench Storage Unit area which would ultimately lead to the establishment of sustainable management criteria as required by the GSP Regulations.

[205] San Gorgonio Pass GSP, Table 4-5, p. 202.
[206] California Department of Water Resources, 2023, SGMA Portal, Monitoring Sites, sgma.water.ca.gov/SgmaWell/well/wellelevationchart/25455, Accessed 8/22/26.
[207] California Department of Water Resources, 2023, SGMA Portal, Monitoring Sites, sgma.water.ca.gov/SgmaWell/well/wellelevationchart/47957, Accessed 8/22/26.
[208] San Gorgonio Pass GSP, Section 4.4.1.1, p. 208.
[209] San Gorgonio Pass GSP, Table 4-5, p. 202 and Section 4.4.1.1, p. 208.
[210] San Gorgonio Pass GSP, Section 4.4.1.1, p. 208.

Upon review of the San Gorgonio Pass Water Year 2022 Annual Report,[211] the GSAs explain that "In December 2022, [San Gorgonio Pass Water Agency] applied for funding to DWR for construction of four monitoring wells within the [San Gorgonio Pass Subbasin]. The four monitoring wells would address two of the data gaps identified in the [San Gorgonio Pass Subbasin] GSP in the Banning Bench and Banning Storage Units. Two of the monitoring wells would be installed at the boundary of the Banning Storage Unit and the adjudicated Beaumont Basin to provide data on the level of hydraulic connection at that boundary and information to support improving estimates of subsurface boundary flow. The other two monitoring wells would be installed at the interface between the Banning Bench and the Banning Canyon storage unit to identify subsurface flows between the two storage units and to support evaluation of groundwater management options in the Banning Bench storage units."[212] Department staff encourage the GSA to provide updates in annual reports and periodic evaluations as more information become available about the Banning Bench Storage Unit.

While a recommended corrective action was identified to address issues with the proposed sustainable management criteria for the chronic lowering of groundwater levels, the overall groundwater levels in the Subbasin demonstrate recent declines but are generally stable based on the information included in the Plan; therefore, Department staff do not believe these faults should preclude plan 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.[213]

The GSAs are using groundwater levels, discussed above, as a proxy for groundwater storage. The rationale provided in the Plan for using groundwater levels as a proxy is that both "sustainability indicators have a direct relationship with one another; declining groundwater levels indicate a reduction in groundwater storage and vice versa."[214] The GSAs also state the Subbasin "has not experienced significant and unreasonable undesirable results caused by groundwater level decline and associated groundwater storage reduction.

[211] California Department of Water Resources, 2023, SGMA Portal – Annual Reports, "San Gorgonio Pass Water Year 2022 Annual Report", https://sgma.water.ca.gov/portal/service/gspar/document/2111, Accessed August 8, 2023.
[212] San Gorgonio Pass Water Year 2022, Section 7, p. 28.
[213] 23 CCR § 354.28(c)(2).
[214] San Gorgonio Pass GSP, Section 4.2.2.1, p. 190.

According to both the early-future and late-future water budgets there is still an anticipated decline in groundwater storage of 483 and 1,840 acre-feet per year respectfully. This will add between approximately 10,000 and 37,000 acre-feet of additional store declines of the 20-year implementation period. Since this is based on the forecasted water budgets and not groundwater levels, there could be significantly more groundwater storage declines if groundwater levels are to reach minimum thresholds and the Banning Bench is added into the totals.

In conclusion, the GSAs do not provide any discussion on what the groundwater storage undesirable result would be, how the use of groundwater elevations correlates to groundwater storage, or any supporting evidence or correlation that groundwater levels will provide necessary detection and protection against undesirable results (see Recommended Corrective Action 3).

While the proposed sustainable management criteria for the change in storage contains flaws that have led to a recommended corrective action, the storage conditions are generally understood in the Subbasin based on the information included in the Plan so Department staff believe this deficiency should not preclude plan approval.

#### *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.[215]

The GSAs state “The influence of seawater intrusion on groundwater quality is not applicable to the San Gorgonio Pass Subbasin because its location is a significant distance from the coast and is geologically separated from coastal hydrologic influences.”[216] Department staff concur with the GSAs rationale for not setting sustainable management criteria for seawater intrusion for the Subbasin.[217]

#### *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.

[215] 23 CCR § 354.28(c)(3).
[216] San Gorgonio Pass GSP, Section 4.5.1, p. 213.
[217] 23 CCR §354.28 (e).

In setting minimum thresholds for degraded water quality, the Agency shall consider local, state, and federal water quality standards applicable to the basin.[218]

The GSAs describe the qualitative description of an undesirable results as "a result of groundwater management actions, the groundwater quality diminishes to the point that the water producer is responsible for expensive treatment adjustments."[219] The GSAs do not explain or define the point when groundwater water "diminishes to the point" is reached nor what is meant by "expensive treatment."

The GSAs describe the water quality sustainable management criteria quantitatively as "two representative water quality monitoring sites exceeding their groundwater quality minimum threshold of either nitrates or TDS in two consecutive monitoring periods, which is currently every three years, as a result of groundwater management actions."

The GSAs identified arsenic, chromium-6, fluoride, lead, nitrate, iron, manganese, and total dissolved solids (TDS) as constituents of concern in the Subbasin.[220] The GSAs state that water quality data, over a 22-year period, from 1997 to 2019, were examined to understand changes in water quality constituents of concerns.[221] Department Staff's review of the groundwater quality via California State Water Resources Control Board GAMA database did not yield any groundwater water quality conditions out of the ordinary.[222]

The GSAs state the "Groundwater quality in the Subbasin is generally suited for commercial, domestic, industrial, and municipal use, and in the Banning Canyon, it is also suited for GDE use[223] and "There currently are no water quality concerns in the [San Gorgonio Pass] Subbasin and none are expected during the implementation period. Therefore, TDS and Nitrates (as N) were selected as the constituents for representative monitoring, because of their correlation with general quality groundwater and their sensitivity to exceedances in similarly managed basins."[224]

The reasoning for only monitoring for TDS and Nitrates (as N) is described as the "prevalence in nearby and similarly managed basins, their ability to negatively impact the beneficial uses of groundwater in the subbasin, or the cost required to address them with treatment operations or replacement well construction. Additionally, The GSAs believe that TDS and nitrates would be a good indicator of the Subbasin's general water

[218] 23 CCR § 354.28(c)(4).
[219] San Gorgonio Pass GSP, Table 4.2, p. 188.
[220] San Gorgonio Pass GSP, Section 3.2.4, pp. 122 - 142.
[221] San Gorgonio Pass GSP, Section 3.2.4, p. 124.
[222] California State Water Resources Control Board, Groundwater Ambient Monitoring and Assessment (GAMA) Program, https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/, Accessed May 8, 2023.
[223] San Gorgonio Pass GSP, Section 4.3.1.2, p. 195.
[224] San Gorgonio Pass GSP, Section 4.3.2.2, p. 200.

quality.[225] The GSAs set the minimum thresholds for TDS at 1,000 mg/L and Nitrates at 10 mg/L.

Department staff have concerns that the GSAs established the undesirable result as requiring any two monitoring wells exceeding the MCL or SMCL for two consecutive measurements. The requirement for two monitoring wells is problematic since they are spread across three different storage units in the Subbasin. If the single well in the Banning Canyon Storage Unit exceeded the minimum threshold for either TDS or Nitrates, it would require an additional representative well in one of the other two storage units to likewise exceed before declaring and addressing the potential occurrence of undesirable results in the Subbasin. Additionally, using two consecutive exceedances of MTs at two wells as the undesirable result definition means groundwater quality could continue to deteriorate in a storage unit and an undesirable result there may never be identified nor appropriate responsive actions taken (see Recommended Corrective Action 4).

Also, Department staff are concerned with the time it could take to detect an undesirable result, which could be as long as six years using the methodology proposed in the GSP. This timing would entail two monitoring wells having two measurements that exceed the minimum threshold for two consecutive 3-year measurements. The delay could be longer than six years depending on the timing of the monitoring well's measurements and its active or inactive status, thus requiring that the measurements occur close in time as possible to be effective. The GSP is not clear on the timing of the measurements at the monitoring wells. Additionally, by monitoring only every 3 years, the GSAs proposed management could allow a water quality potential undesirable result condition to exist for up to 6 years after initial MT thresholds in areas of the Subbasin are exceeded. Significant degradation of water quality could therefore occur before any management action is taken. Department staff recommends the GSAs apply a more frequent and proactive monitoring schedule to more timely detect and address any significant water quality degradation.

The Interim Milestones and Measurable Objectives are established at 80 percent of the minimum thresholds.[226]

The GSAs state "Because groundwater from the SGP Subbasin is used as a potable water source, the minimum thresholds for groundwater quality are exceedances of Maximum Contaminant Level (MCL) for nitrates and the Secondary MCL (SMCL) for TDS. These constituents can be largely influenced by groundwater management actions in the SGP Subbasin. MCLs are defined with respect to human health, and SMCLs are defined mainly for aesthetics, taste, and odor. Department staff concurs with the GSAs approach.

[225] San Gorgonio Pass GSP, Section 4.2.2.2, p. 192.
[226] San Gorgonio Pass GSP, Table 4-4, p. 196.

While the proposed sustainable management criteria for the degraded water quality contains flaws that have led to recommended corrective actions, the overall groundwater level and storage conditions in the Subbasin are generally stable based on the information included in the Plan so Department staff believe this deficiency should not preclude plan approval.

#### *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.[227] 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.[228]

The GSAs did not establish sustainable management criteria for land subsidence and citied the following as the reason; "the possibility of land subsidence related to groundwater management is unlikely in the Subbasin due to an absence of confining clay aquitards."[229] The GSAs identified a report published by U.S. Geological Survey (USGS) in 2006 as supporting evidence for this conclusion.[230] Upon review of the review of this report, Department staff note that while the report does state "In this study [San Gorgonio Pass Area], compaction is not modeled because there is no evidence of subsidence, and the aquifer deposits are considered less susceptible to compaction than those experiencing compaction in the Coachella Valley," the report goes on to also state "Compaction of the aquifer system and land subsidence could occur in the future if water levels decline below critical thresholds that are not yet defined."

Department Staff reviewed the Department's InSAR data[231] and concurs with the GSAs' assertion that subsidence has not been detected since June 13, 2015. However, the GSAs did not adequately address the second part of the GSP Regulations (i.e., demonstrating that an undesirable result related to subsidence is not likely to occur in the

[227] 23 CCR § 354.28(c)(5).
[228] 23 CCR §§ 354.28(c)(5)(A-B).
[229] San Gorgonio Pass GSP, Section 4.1, p. 185 and Section 4.5.2, p. 214.
[230] Rewis, D.L., Christensen, A.H., Matti, J.C., Hevesi, J.A., Nishikawa, Tracy, and Peter Martin. (2006). Geology, ground-water hydrology, geochemistry, and ground-water simulation of the Beaumont and Banning storage units, San Gorgonio Pass area, Riverside County, California. U.S. Geological Survey Scientific Investigations Report 2006–5026. https://pubs.usgs.gov/sir/2006/5026/, p.138, Accessed on August 8, 2023.
[231] California Department of Water Resources, Data Viewer - Subsidence, 06/13/2015 – 01/01/2023, https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer#landsub, Accessed May 1, 2023.

future).[232] The USGS report used by the GSAs and discussed above, did not exclude the possibility of future land subsidence and, in fact, indicated that lower groundwater levels could cause land subsidence in the Subbasin.[233] Given that minimum thresholds for groundwater levels at some of the representative wells in the Banning and Cabazon Storage Units are set at projected levels or at levels necessary to meet demands, which appear to be lower than actual historical lows, land subsidence that could interfere with surface land uses should not be eliminated from management consideration. Department Staff conclude that the GSAs should establish sustainable management criteria to monitor for potential future land subsidence. GSAs may consider using the publicly available TRE Altamira InSAR Dataset[234], which is updated quarterly, to be the best available data for land subsidence currently in the Subbasin and use this resource for the monitoring of land subsidence (see Recommended Corrective Action 5).

*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.[235] 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.[236] 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.[237]

The Plan acknowledges the presence of interconnected surface waters in the Subbasin as the San Gorgonio River and identifies their location by groundwater levels. While the GSAs identified the San Gorgonio River as an interconnected stream, it is unclear to Department staff that there is a continuous saturated zone to the underlying aquifer when the river appears to be dry for most of the year. The GSAs did not provide any flow characteristics such timing and volume of the flows for the various water year types. Department staff recommend the GSA further investigate the connectivity of the San Gorgonio River with groundwater. The characterization should also include whether the river contribution is only to recharge the groundwater meaning any time there is flow in

[232] 23 CCR §354.26 (d).
[233] Rewis, D.L., Christensen, A.H., Matti, J.C., Hevesi, J.A., Nishikawa, Tracy, and Martin, Peter, 2006, Geology, ground-water hydrology, geochemistry, and ground-water simulation of the Beaumont and Banning storage units, San Gorgonio Pass area, Riverside County, California: U.S. Geological Survey Scientific Investigations Report 2005-5026, p. 138.
[234] https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer#landsub
[235] Water Code § 10721(x)(6).
[236] 23 CCR § 354.16 (f).
[237] 23 CCR § 354.28 (c)(6).

the channel the river is losing water to groundwater. (see Recommended Corrective Action 6a).

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.[238] Instead, the GSP proposes to use groundwater levels as a proxy. The GSAs have not provided a technical justification for the use of groundwater elevations as a proxy for quantifying the location, quantity, and timing of depletions of interconnected surface water due to groundwater extraction. As a result, the GSAs have not demonstrated by adequate evidence that groundwater elevation can serve as a sustainability indicator for the depletions of interconnected surface water.

Sustainable management criteria for interconnected surface water were established only for the Banning Canyon Storage Unit, where San Gorgonio River is identified by the GSAs as interconnected surface water and an area of potential GDEs. The GSP states that depths to groundwater in Banning and Cabazon Storage Units are "hundreds of feet deep, which is too deep to support GDEs".[239]

The GSAs did not provide any details on the location, quantity, and timing of depletions due to pumping activities of interconnected surface water when the San Gorgonio River is flowing. The GSAs state that "Minimum thresholds in the Banning Canyon Storage Unit are set to generally maintain the annual historical fluctuations observed in that Storage Unit and to maintain historical operations which have not resulted in undesirable results [to GDEs] in the past."[240]

The GSAs intend to use groundwater levels as a proxy for the depletion of surface water. The GSAs provide a qualitative undesirable result definition of "The groundwater levels in Banning Canyon [Storage Unit] have resulted in a significant decline in GDEs compared to historic conditions in prolonged drought periods." The GSP provides a quantitatively defined undesirable result as "two of the three Banning Canyon [Storage Unit] representative water level/interconnected surface water monitoring sites experiencing minimum threshold exceedances for five consecutive years."[241] The Plan includes justification or reasoning for the five years of exceedances as for groundwater levels in the canyon - "Five consecutive years of exceedances would indicate that the annual fluctuations are trending to a long-term, rather than short-term, decline from the historic groundwater level trends." The qualitative definition for undesirable results is a statement that significant decline in GDEs has occurred previously in Banning Canyon Storage Unit during prolonged drought periods. It does not define or identify impacts to GDEs that the GSA intends to avoid and considers to be an undesirable result. Because of this, Department Staff are unable to determine if the quantitative definition for

[238] 23 CCR § 354.28 (c)(6).
[239] San Gorgonio Pass GSP, Section 4.2.2.3, p. 192.
[240] San Gorgonio Pass GSP, Section 4.3.2.1, p. 200.
[241] San Gorgonio Pass GSP, Table 4-2, p. 189.

undesirable results is reasonable and representative of those impacts (see Recommended Corrective Action 6b).

Additionally, the GSAs did not provide justification for how groundwater level minimum thresholds are protective against undesirable results for interconnected surface water and thus GDEs. It is unclear what impacts would occur to the groundwater dependent vegetation from at least 5 years of groundwater levels below the minimum threshold, particularly when minimum thresholds are set below historical groundwater level lows, and as stated in their qualitative undesirable results definition, significant decline in GDEs have been previously experienced. Groundwater level minimum thresholds at the representative monitoring stations are 77[242] to 122[243] feet below the ground surface and unlikely to be hydrologically connected to the river or beneficial to GDE's at the minimum threshold groundwater levels.

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 6c). 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 6d). Furthermore, GSAs should coordinate with local, state, and federal resources agencies as well as interested parties to better understand

[242] California Department of Water Resources, 2023, SGMA Portal, Monitoring Sites, sgma.water.ca.gov/SgmaWell/well/wellelevationchart/37988, Accessed 8/22/26.
[243] California Department of Water Resources, 2023, SGMA Portal, Monitoring Sites, sgma.water.ca.gov/SgmaWell/well/wellelevationchart/26036, Accessed 8/22/26.

the full suite of beneficial uses and users that may be impacted by pumping induced surface water depletion (see Recommended Corrective Action 6e).

## 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.[244] Specifically, a monitoring network must be able to monitor impacts to beneficial uses and users,[245] monitor changes in groundwater conditions relative to measurable objectives and minimum thresholds,[246] capture seasonal low and high conditions,[247] include required information such as location and well construction and include maps and tables clearly showing the monitoring site type, location, and frequency.[248] Department staff encourage GSAs to collect monitoring data as specified in the GSP, follow SGMA data and reporting standards,[249] fill data gaps identified in the GSP prior to the first periodic evaluation,[250] update monitoring network information as needed, follow monitoring best management practices,[251] 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.

Groundwater Levels Monitoring Network

The GSAs indicates about 35 wells in the Subbasin have sufficient construction information and the necessary site access to be considered for inclusion in the monitoring network.[252] However, only nine wells are included in the representative monitoring network[253] and the wells not included in the monitoring network are part of the supplemental monitoring network. It should be noted that one of the representative monitoring wells is slightly outside the Subbasin boundary. While the well is located near

[244] 23 CCR § 354.32.
[245] 23 CCR § 354.34(b)(2).
[246] 23 CCR § 354.34(b)(3).
[247] 23 CCR § 354.34(c)(1)(B).
[248] 23 CCR §§ 354.34(g-h).
[249] 23 CCR § 352.4 *et seq*.
[250] 23 CCR § 354.38(d).
[251] Department of Water Resources, 2016, Best Management Practices and Guidance Documents.
[252] San Gorgonio Pass GSP, Section 5.2.1, p. 228.
[253] San Gorgonio Pass GSP, Section 5.2.1, p. 228, Figure 5-1, p. 223, Table 5-2, p. 229.

the geologic boundary between the Subbasin and the Indio Subbasin, the GSAs acknowledge the well is important to determine the boundary flow into Indio Subbasin and to potentially evaluate the groundwater level influences of recharge activities in the Indio Subbasin in the proximity of the boundary.[254]

Based on the review of well construction information uploaded by the GSAs to the Department's SGMA portal,[255] and the aquifer thickness data,[256] it appears to Department staff that all nine representative monitoring wells are screened in the principal aquifer. The representative monitoring network does not cover the entirety of the Subbasin because a significant portion of the Subbasin, tribal land (37%), and the adjudicated area (7%), are not participating in the GSP process or not subject to SGMA, respectively. It appears to Department staff that the representative monitoring network coverage in the portion of the Subbasin that is subject to SGMA is reasonable except for the Banning Bench Storage Unit that does not currently have any monitoring. Department staff note the GSAs has been awarded funds[257] to install new monitoring wells in the Banning Bench Storage Unit.

The GSAs indicate the groundwater elevation data will be collected semi-annually to understand the seasonal low and high groundwater conditions.[258] The spring measurement will be collected between April 1 and May 31 and fall measurements will be collected between October 1 to November 30.[259]

The GSAs do not provide the density of groundwater level monitoring wells in the principal aquifer. The Subbasin area is approximately 56 square miles,[260] and nine wells are selected as representative monitoring wells.[261] However, due to a significant portion of the Subbasin subject to SGMA (31.4 sq miles)[262] Department staff estimates one monitoring well per 3.5 square miles. The density of groundwater level monitoring wells exceeds the range recommended by the Department's Best Management Practices.[263]

Groundwater Storage Monitoring Network

[254] San Gorgonio Pass GSP, Section 5.2.1.1, p. 231.
[255] California Department of Water Resources, SGMA Portal, Sustainable Groundwater Management Act (SGMA) Portal - Department of Water Resources (ca.gov), Accessed 10/3/2023.
[256] San Gorgonio Pass GSP, Section 3.1.3.2, p. 76, Figure 3-2, p.78.
[257] California Department of Water resources, Sustainable Groundwater Management Grant Program , award-list_sgma_r2_final_list_sept2023_w_components.xlsx (ca.gov).
[258] San Gorgonio Pass GSP, Section 5.2.1.1, p. 231
[259] San Gorgonio Pass GSP, Section 5.2.1.1, p. 231.
[260] San Gorgonio Pass GSP, Section 5.4.2, p. 241
[261] San Gorgonio Pass GSP, Table 5-2, p. 229.
[262] San Gorgonio Pass GSP, Section 2.1, p. 37
[263] Department of Water Resources, 2016, Best Management Practices, Monitoring Networks and Identification of Data Gaps.

The GSAs proposes to use groundwater level and use the existing groundwater level monitoring network for the groundwater storage monitoring network because changes in groundwater storage are directly dependent on changes in groundwater levels.[264]

As mentioned above, the lack of groundwater level monitoring in the Banning Bench Storage Unit will be rectified soon with new monitoring wells. Department staff recommends the GSAs include data from these news wells for their changes in storage calculations as soon as possible to have a better understanding of groundwater conditions in Subbasin.

Seawater Intrusion Monitoring Network

The GSAs indicate this sustainability indicator is not applicable to this Subbasin; therefore, no monitoring network is proposed.[265]

As detailed in the Sustainable Management Criteria section of this report, Department staff agree that undesirable results for seawater intrusion are not present in this Subbasin and not likely to occur and therefore, the monitoring of seawater intrusion is not required.

Groundwater Quality Monitoring Network

The GSAs identify four wells for the representative groundwater quality monitoring network[266]; however, the table and the figure show five representative groundwater quality monitoring wells.[267] Upon the review of GSP Annual Report 2022, Department staff confirmed that there are five wells in the representative groundwater quality monitoring network.[268]

The GSP states that the Subbasin is approximately 56 square miles less approximately 25 miles for portions of the basin not subject to SGMA [269] and the density of the monitoring well is sufficient because Hopkins, a recommended resource in the Department's Best Management Practices, recommends four monitoring wells per basin where extraction is more than 10,000 acre-feet per 100 square miles.[270]

The GSAs are planning to monitor nitrates and TDS once every three years.[271] Department staff believe that the proposed monitoring frequency for these two constituents of concern is reasonable because, between 1997 and 2019, there were no MCL exceedances of nitrate, nor SMCL exceedances of TDS. However, the Plan identifies other constituents of concern that are not being monitored under SGMA. The other primary constituents identified in the Plan are arsenic, chromium-6, fluoride, lead,

[264] San Gorgonio Pass GSP, Section 5.2, pp. 227-235.
[265] San Gorgonio Pass GSP, Section 5.5, p. 243.
[266] San Gorgonio Pass GSP, Section 5.4.2, p. 241.
[267] San Gorgonio Pass GSP, Figure 5.4.2, p. 224, Table 5-4, p. 240.
[268] San Gorgonio Pass Subbasin Water Year 2022 Annual Report, Section 7, pp. 28-29, Table 7-1, p. 29.
[269] San Gorgonio Pass GSP, Section 5.4.2, p. 241
[270] San Gorgonio Pass GSP, Section 5.4.2, p. 241.
[271] San Gorgonio Pass GSP, Section 5.4.2, p. 241.

and other secondary constituents include manganese.[272]

Department staff review of the data on the State Waterboard's GAMA[273] for the identified other constituents show locations that have had at least one exceedance in a well over the past 30 years. It is unclear why these single exceedances occurred and may well be just an anomaly. However, Chromium-6 appears to be more problematic in one municipal well, M-12, with numerous Health-Based Screening Levels exceedances. While the Health-Based Screening Levels are not enforceable, Department staff recommends that the GSAs consider including setting SMCs and monitoring for chromium-6 to ensure that groundwater extractions and management activities do not increase levels or expand its presence in the Subbasin and ultimately impacting beneficial uses and users in the Subbasin. As for the other constituents of concern with single exceedances in the past, department staff encourages the GSAs to continue monitoring them across the Subbasin.

Subsidence Monitoring Network

The GSAs indicate the influence of groundwater management on land subsidence is not applicable in the Subbasin because of the lack of the confining clay layers that are susceptible to inelastic subsidence.[274] As a result the GSAs do not propose a dedicated monitoring network to monitor land subsidence; however, it states that changes in land surface elevation will continue to be examined via Interferometric Synthetic Aperture Radar (InSAR) data made available by the Department (see Recommendation 5).[275]

A report by U.S. Geological Survey (USGS) in 2006 that was cited by the GSAs and discussed in the Sustainable Management Criteria section of this report only supports the lack of subsidence so long as groundwater levels remain above historical lows.[276] The report states that "Compaction of the aquifer system and subsidence could occur in the future if water levels decline below critical thresholds that are not yet defined." However, the lack of confining clays may reduce the subsidence risk, it is still necessary to have a subsidence monitoring plan in place as the minimum thresholds at several locations outside the Banning Canyon Storage Unit are below historical lows. Regular reviewing and reporting of InSAR data can be sufficient in detecting any potential land subsidence in the Subbasin (see Recommended Corrective Action 5.)

Interconnected Surface Water Monitoring Network

[272] San Gorgonio Pass GSP, Section 3.2.4, p. 124.
[273] California State Water Resources Control Board, Groundwater Ambient Monitoring and Assessment (GAMA) Program, https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/, Accessed May 8, 2023.
[274] San Gorgonio Pass GSP, Section 5.5, p. 243.
[275] San Gorgonio Pass GSP, Section 5.5, p. 243.
[276] Rewis, D.L., Christensen, A.H., Matti, J.C., Hevesi, J.A., Nishikawa, Tracy, and Peter Martin. (2006). Geology, ground-water hydrology, geochemistry, and ground-water simulation of the Beaumont and Banning storage units, San Gorgonio Pass area, Riverside County, California. U.S. Geological Survey Scientific Investigations Report 2006–5026. https://pubs.usgs.gov/sir/2006/5026/, p.138, Accessed on August 8, 2023.

As discussed in the Groundwater Conditions section of this report, the GSAs state that the only surface water body is the San Gorgonio River that flows through the Banning Canyon Storage Unit, down through the Banning Bench (alluvial fan), the Cabazon Storage Unit and can finally exit the Subbasin into the Indio Subbasin.[277] How far through the Subbasin the river flows are highly dependent on the magnitude and frequency of the precipitation and snowpack in the watershed. The river is classified as intermittent[278] or ephemeral.[279] The Plan indicates that other canyon areas in the Subbasin may experience seasonal surface water interconnection with the underlying groundwater; however, these canyon areas cannot be monitored because they are in tribal land and are not subject to SGMA.[280]

The GSAs indicate that they intend to use groundwater levels to monitor interconnected surface water identify the same three representative monitoring wells being used for groundwater levels will also be used for depletions of interconnected surface water sustainability indicator. The three wells are spatially distributed in the north, center, and south of the Banning Canyon.

The GSP states that surface water flow conditions are not currently monitored in the Banning Canyon. Department staff believe that flow condition data such as surface water discharge, surface water head, and baseflow contribution are essential to fully understand interconnected surface water system. These flow condition data help to identify where and when an ephemeral stream ceases to flow and if stream discharge varies in response to groundwater extraction. Therefore, Department staff recommend GSAs work toward filling the data gap related to surface flow condition (see Recommended Corrective Action 7.

Despite the identification of recommended corrective actions, the description of the monitoring network included in the Plan substantially complies with the requirements outlined in the GSP Regulations. Overall, the Plan describes in sufficient detail a monitoring network that promotes the collection of data of sufficient quality, frequency, and distribution to characterize groundwater and related surface water conditions in the Subbasin and evaluate changing conditions that occur through Plan implementation. Department staff consider the information presented in the Plan to satisfy the general requirements of the GSP Regulations regarding monitoring networks.

## 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

[277] San Gorgonio Pass GSP, Section 3.2.6, p.144.
[278] California Department of Water Resources, SGMA Data Viewer, SGMA Data Viewer (ca.gov), Accessed on September 18, 2023.
[279] San Gorgonio Pass GSP, Section 3.2.6, p.144.
[280] San Gorgonio Pass GSP, Section 3.2.6, p.144.

basin.[281] 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.[282]

The GSAs describes six projects that the GSAs could potentially implement within the Subbasin.

1. Municipal Water Conservation (Phase 1)
2. Stormwater Capture (Phase 2)
3. Additional Imported Water Spreading at Noble Creek Spreading Basins (Phase 2)
4. New Pipeline with Additional Imported Water Spreading in the Cabazon Storage Unit (Phase 2)
5. New Pipeline with Additional Imported Water Spreading in the Banning Storage Unit (Phase 2)
6. New Imported Colorado River Aqueduct Spreading in the Cabazon Storage Unit (Phase 2)

The projects and management actions are categorized into "Phase 1" and "Phase 2" actions. Phase 1 actions are considered to be a priority and "could be implemented upon approval of the GSP, in the event their need is apparent".[283] The GSP considers Phase 2 actions to be "not currently needed" and "optional"; the GSP plans to only proceed with these activities based on future water supply conditions such as increased groundwater pumping or effects of climate change.[284]

Issues with water quality would be resolved by working with the Regional Board since most of the groundwater pumping is for urban supplies. No examples of actions were presented. However, Department staff have concerns with the GSAs response to groundwater levels fall below minimum thresholds or unexpected extractions. If the minimum threshold exceedance occurs and it is determined to be during a drought, they do not plan to do anything. It can take multiple years of exceedances before an undesirable condition presents itself. Department staff recommends that GSAs have a plan in place in the event undesirable results are occurring.

The projects are defined as "actions that would improve water supply conditions in the [Subbasin], such as additional recharge projects"; management actions are defined as "those which Management actions include efforts that would facilitate efficient groundwater management in the Subbasin."[285] If the proposed projects are implemented,

[281] 23 CCR § 354.44 (a).
[282] 23 CCR § 354.44 (b) *et seq.*
[283] San Gorgonio Pass GSP, Section 6.1, p. 248, Section 7.1, p. 271.
[284] San Gorgonio Pass GSP, Section 6.1, p. 248, Section 7.1, p. 271.
[285] San Gorgonio Pass GSP, Section 6.1, p. 248, Executive Summary Chapter 6, p. 19.

they could provide benefits to the Subbasin through groundwater recharge, demand reduction, and stormwater capture.

Project 2 Stormwater Capture will be located on or about the alluvial fan at the terminus of the Banning Canyon. The GSAs model predicts that only 10 months in a 94-year period would yield sufficient water to capture for recharge. Much of the time the recharge basin would be dry.[286] However, if the GSAs can overcome the cost-benefit shortcomings then having this project can help in some years depending on the size of the recharge pond and amount of predicted capture and recharge which the plan does not provide.

As for the recharge projects 3, 4, 5, and 6, they all rely on securing additional water supplies, constructing pipelines and turnouts, and expanding or constructing new recharge facilities. The Plan includes select hydrographs that show how much benefit the recharged water would be on the groundwater levels.[287] The Plan demonstrates the projected improvements to groundwater levels in the Subbasin with the groundwater level impacts analyses provided in Projects 3, 4, and 5. These analyses show that groundwater elevations will benefit in certain areas of the Subbasin if these projects are implemented.

Accruing benefits from the projects is largely dependent on the ability of the GSAs to be able to obtain water from sources outside the jurisdiction of the GSAs over and above the capital construction costs. These projects are reliant on purchased water from the State Water Project water or non-state water project supplies such as sellers in northern California.[288] While the GSAs explain that the water required for their projects needs to be obtained from the State Water Project or other groundwater sellers, the Plan does not specifically identify sources or address the uncertainty of these sources or the willingness of current water users to sell or transfer their water rights either temporarily or permanently.

The GSP states that the San Gorgonio Pass Water Authority is a State Water Project Contractor which provides the ability to purchase available State Water Project water. The GSP Regulations require that "[i]f the projects or management actions rely on water from outside the jurisdiction of the Agency, an explanation of the source and reliability of that water shall be included." The Department staff recommends the GSAs update its project descriptions for Projects 3, 4, 5, and 6 to provide more details and address the uncertainty in relying on water from sources outside the jurisdiction of the GSAs and explain how it plans to maintain sustainability if the water from outside the jurisdiction of the GSAs is unavailable (see Recommended Corrective Action 8).

If the water-year shows normal or better and only if extraction is above sustainable yield, then the GSAs indicate they will undertake one or more of the projects while not indicating which project they will implement and when. Department staff are concerned that there

[286] San Gorgonio Pass GSP, Section 6.2.2, p. 251.
[287] San Gorgonio Pass GSP, Figure 6-2, p. 255, Figure 6-3, p. 258, Figure 6-4, p. 259, and Figure 6-5, p. 261.
[288] San Gorgonio GSP, Appendix E, p. 563, 565, 568, and 571.

could be impacts while waiting for planning to be complete, acquire funding, constructing, and acquiring additional surface water, and recommend not tying the projects to an undesirable condition.

The GSAs describes six Management Actions that the GSAs could potentially implement within the Subbasin.

1. Implement Action Plan if Groundwater Levels Fall Below Minimum Thresholds
2. Well Head Requirements
3. Investigate Issues Promptly Regarding Water Quality and Unexpected Water Pumping
4. Impose SGMA or Other Available Fees on Pumpers to Encourage Reduced Pumping and Conservation
5. Groundwater Pumping Allocation
6. Groundwater Basin Adjudication

Management Action 1 – GSAs believe that if hydrologic conditions have been below the long-term average, and extractions have averaged less than the sustainable yield then no action would be taken as this would be an indication of a drought period and the Subbasin is appropriately using its operational flexibility to facilitate long-term conjunctive use. Or if hydrologic conditions have been average or above average, and groundwater extractions have been higher than the sustainable yield would be an indication the Subbasin may be operating unsustainably.[289]

Department staff believes there is a third scenario involving exceeding minimum thresholds during a normal or better water year type that has the groundwater extractions below the sustainable yield. Given there are unknowns with respect to tribal extractions or other unexpected extractions, this third possibility is reasonable. The GSAs need to consider all possibilities and be more specific in the next periodic update, i.e., what are the details of the plan that would be implemented and when.

Management Action 2: The GSAs indicate that they may institute a policy that augments the County's well permitting process. This would include prior approval of wells by the GSAs, installation of flow meters, access for monitoring groundwater levels and water quality, and report extractions. This action would only apply to non-de minimis extractors. The GSAs indicates that this action will provide the ability to monitor groundwater extractions, water levels, and water quality in a thorough, accurate, and efficient manner.[290] Department staff also encourages the GSAs to consider applying some portions of this Management Action to existing non-de minimis extractors to the extent possible as doing so will aid in filling data gaps.

[289] San Gorgonio GSP, p. 264, Appendix E, p. 573.
[290] San Gorgonio Pass GSP, Section 6.3.2, p. 265.

Management Action 3: The GSAs plan to investigate issues promptly regarding significant water quality and significant unexpected water pumping to "understand causation and support mitigation planning that may involve implementation of projects and management actions."[291] Department staff notes that no additional details are provided for what is significant, what causations are possible, and which project and management actions would be implemented. Department staff encourages the GSAs to be specific with the triggers, investigation plans, and actions that will be performed for water quality and unexpected extractions per the GSP Regulations in the next periodic update.[292]

Management Action 4: The GSAs indicate that in the event of measurable objective exceedances they may impose fees on extractors to encourage conservation and encourage reduced extractions.[293] The details on the methodology to develop the fee and the fee amounts would be determined after at least one GSP periodic evaluations The GSAs indicate the fees would be used for "support ongoing GSP implementation activities, project development and implementation of actions to address data gaps."[294]

Management Action 5: GSAs may also consider groundwater allocations and would be implemented if groundwater pumping exceeds the sustainable yield of the Subbasin. This action is not triggered by threshold exceedances. The GSAs state "Regulating groundwater pumping is a potential GSP tool that could reduce pumping in the event that it exceeded the sustainable yield of a Subbasin. The regulation of pumping would likely take the form of allocation of a share of the sustainable yield to groundwater users in the Subbasin."[295] The Plan only provides general concepts of how this management action would be implemented such as how they intend to determine individual allocation amounts. The Plan also is not confident that this approach would be successful without tribal support or participation, stating: "…[W]ithout the voluntary participation of the MBMI [Morongo Band of Mission Indians], the groundwater pumping allocation approach based on GSA authorities described here could be difficult to implement and meet SGMA requirements for sustainable groundwater management."[296]

SGMA grants GSAs the authority to conduct investigations of water rights (e.g., Water Code 10725.4(b)), but SGMA is also clear that a GSA or GSP cannot make a final determination of water rights, which can be done in an adjudication action pursuant to Chapter 7 (commencing with Section 830) of Title 10 of Part 2 of the Code of Civil Procedure (see Water Code 10720.5). SGMA also provides for the voluntary participation of federally recognized Indian tribes and states that federally reserved water rights to groundwater shall be respected in full in the management of a groundwater basin by a GSA (Water Code 10720.3.)

[291] San Gorgonio GSP, Section 6.3.3, p. 267.
[292] 23 CCR § 354.42 and 23 CCR § 354.44.
[293] San Gorgonio GSP, Section 6.3.4, p. 268.
[294] San Gorgonio Pass GSP, Section 6.3.4, p. 268.
[295] San Gorgonio Pass GSP, Section 6.3.5, p. 268.
[296] San Gorgonio Pass GSP, Section 6.3.5, pp. 268 and 270.

The GSP alludes to potential federally reserved groundwater rights for the Morongo Band of Mission Indians but does not provide details other than to indicate that any such rights have apparently not yet been quantified in an adjudication action or otherwise. The GSP indicates that the presence of any federally reserved groundwater rights could impact Plan implementation or impair the effectiveness or feasibility of projects and management actions like allocation reductions. However, notwithstanding the presence of any federally reserved water rights, the GSAs still have the responsibility to ensure that the basin is operated within its sustainable yield and to demonstrate and explain how the Subbasin's sustainability goal is likely to be achieved within 20 years of Plan implementation. If the GSA is unable to achieve voluntary participation by the Morongo Band of Mission Indians to reduce extractions and that pumping is outside the regulatory jurisdiction of the GSAs or otherwise cannot be reduced because of higher priority than other groundwater rights in the basin, then the Plan still needs to explain what the GSAs intend to do to achieve sustainability in the Subbasin by developing and implementing projects and management actions that can be carried out consistent with the jurisdiction and regulatory authority of the GSA. Department staff recognize that conflicts over water rights may emerge and could delay or impede successful Plan implementation and therefore staff encourages all parties that benefit from the use of groundwater in the Subbasin to work cooperatively to ensure the successful implementation and management of groundwater in the Subbasin to achieve sustainability.

Management Action 6: The GSAs may find it difficult to achieve significant or necessary allocation reductions in urban water use because, among other factors, hardened and inelastic domestic use and the desires of urban areas to continue to develop and grow. As a result, groundwater pumpers or landowners in the Subbasin could initiate the process for groundwater adjudication in the Subbasin if sustainability does not appear to be occurring during the SGMA implementation period.[297]

As discussed above, Department staff have provided a recommended corrective action for the GSAs to provide more details and address the uncertainty of relying on water from sources outside the jurisdiction of the GSAs and explain how it plans to achieve or maintain sustainability if water from outside the jurisdiction of the GSAs is unavailable for import into the Subbasin. On the remaining projects and management action Department staff believe that the projects and management actions provided in the Plan substantially meets the GSP regulation and appear likely to be able to maintain sustainability in the Subbasin.

## 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 sustainability plan or impedes achievement of sustainability goals in an adjacent

[297] San Gorgonio Pass GSP, Section 6.3.6, p. 270.

basin."[298] 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.[299]

The Subbasin is bounded on two sides with two subbasins. The San Timoteo Subbasin to the west is adjudicated along with a small portion of the Subbasin adjacent to the boundary. The Plan adequately described the interaction between to two subbasins in the hydrologic conceptual model, water budget (inflows), potential projects, and San Timoteo Subbasin's importance for providing recharged groundwater to the Subbasin.

The Subbasin to the east is the Indio Subbasin (approved Alternative). Like with the San Timoteo Subbasin, the Plan describes the contact between the two subbasins in the hydrologic conceptual model, provided outflows in the water budget, although there appears to be some inconsistencies that the GSAs indicated they would work to improve, and monitoring to gather more data on the outflows and to determine any effects the groundwater recharging (located in Indio Subbasin near the boundary) might have on the outflows.

The GSAs do not anticipate any impacts to adjacent basins from the minimum thresholds. Based on information available at this time, Department staff have no information that would indicate that groundwater management in the Subbasin will adversely affect groundwater conditions in the adjacent Subbasins at this time. Department staff will continue to review periodic evaluations to the Plan to assess whether implementation of the GSP is potentially impacting adjacent basins.

## 4.7 Consideration of Climate Change and Future Conditions

The GSP Regulations require a GSA to consider future conditions and project how future water use may change due to multiple factors including climate change.[300]

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.

[298] Water Code § 10733(c).
[299] 23 CCR § 354.28(b)(3).
[300] 23 CCR § 354.18.

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 drought task forces[301] to evaluate how their Plan's groundwater management strategy aligns with drought planning, response, and mitigation efforts within the basin.

[301] Water Code § 10609.50.

# 5 STAFF RECOMMENDATION

Department staff recommend approval of the GSP with the recommended corrective actions listed below. The San Gorgonio Pass Subbasin 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 Gorgonio Pass Subbasin. The GSA(s) have identified several areas for improvement of their 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 GSA(s) for the first periodic assessment of the 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

Clarify how or why the defined storage units in the GSP are not management areas as defined in the GSP Regulations, or, alternatively, establish actual management areas consistent with the GSP Regulations.[302]

### RECOMMENDED CORRECTIVE ACTION 2

Department staff recommend the GSAs reevaluate the need to treat Banning and Cabazon storage units as one for groundwater level undesirable results since the two are distinct hydrologically and geologically. Provide further details on how the groundwater level rolling 5-years component to the Banning and Cabazon Storage Units undesirable result definition is applied in the undesirable result assessment. Provide justification for the selection of 5-years below minimum thresholds as the threshold for experiencing groundwater level undesirable result in the Banning Canyon Storage Unit.

### RECOMMENDED CORRECTIVE ACTION 3

Department staff recommends the GSAs provide a clear measurable description of the undesirable result for changes in groundwater storage that they are trying to avoid and what beneficial users would be impacted if undesirable results occur. If the GSAs continue using groundwater levels, then they should demonstrate a correlation between groundwater levels and changes in storage and how using groundwater levels will provide the necessary detection and protection against undesirable results.

[302] 23 CCR § 354.20.

## RECOMMENDED CORRECTIVE ACTION 4

Department staff recommend the GSAs reevaluate the GSP's current treatment of the Banning and Cabazon storage units as one for degraded groundwater quality undesirable results, because the two units are distinct hydrologically and geologically. Additionally, the GSAs should address the risk that by requiring two consecutive exceedances of MTs at two wells in the undesirable result definition, groundwater quality could continue to deteriorate in one storage unit and an undesirable result may never be identified or actions taken if monitoring in another unit does not exceed its minimum thresholds.

## RECOMMENDED CORRECTIVE ACTION 5

Department staff recommend the GSAs establish sustainable management criteria for land subsidence as required by the GSP Regulations.[303] The GSAs should consider using the publicly available TRE Altamira InSAR Dataset.[304] Additionally, the GSAs should establish regular monitoring and reporting for land subsidence which can be accomplished by using the publicly available TRE Altamira InSAR Dataset.

## RECOMMENDED CORRECTIVE ACTION 6

Department staff understand that estimating the location, quantity, and timing of stream depletion due to ongoing, Subbasin-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 GSA should work to address the following items by the first periodic evaluation:

a. Further investigate the connectivity of the San Gorgonio River with groundwater. The characterization should also include whether the river contribution is only to recharge the groundwater meaning any time there is flow in the channel the river is losing water to groundwater.

b. Department staff recommends the GSAs provide additional information on the undesirable results they intend to avoid in the establishment of minimum thresholds and how the impacts will be avoided over a period of 5 consecutive years of groundwater levels below the minimum thresholds.

[303] 23 CCR § 354.26, 23 CCR § 354.28, and 23 CCR § 354.30.
[304] https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer#landsub

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

d. 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.

e. 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 7

Department staff recommends the GSAs establish stream flow monitoring to aid in understanding and characterizing flow parameters in the Banning Canyon.

## RECOMMENDED CORRECTIVE ACTION 8

Department staff recommends the GSAs update its planning details for Projects 3, 4, and 5 to address the uncertainty in relying on water from sources outside the jurisdiction of the GSAs, explain how sustainability will be achieved if the needed water is unavailable, and how necessary funding and land for the recharge facilities would be obtained to complete the projects.