State of California
Department of Water Resources
Sustainable Groundwater Management Program
Alternative Assessment – Staff Report

Groundwater Basin Name:	Borrego Valley – Borrego Springs Subbasin (Basin No. 7-024.01
Submitting Agency:	Borrego Springs Watermaster
Recommendation:	Approve
Date:	February 25, 2025

This Alternative Assessment – Staff Report includes seven sections:

1 SUMMARY

The Borrego Springs Watermaster (Watermaster)[1] on June 25, 2021, submitted to the Department of Water Resources (Department or DWR) a court-entered judgment (Stipulated Judgment) in the comprehensive adjudication (pursuant to Code of Civil Procedure Section 850) of the Borrego Springs Subbasin of the Borrego Valley Groundwater Basin for evaluation and assessment as a Sustainable Groundwater Management Act (SGMA) alternative under Water Code Section 10737.4.[2] The Department posted this submission on the Alternatives webpage of its SGMA Portal,[3] opened a public comment period, and began evaluating the alternative submittal.

[1] In this document, the Department of Water Resources (Department or DWR) will use the acronyms or short identifiers that are used in the Stipulated Judgment.
[2] Water Code § 10720 *et seq*.
[3] https://sgma.water.ca.gov/portal/alternative/print/39

Based on its review, Department staff have determined that the alternative submittal (hereafter referred to as the Borrego Alternative) for the Borrego Springs Subbasin (hereafter referred to as Subbasin or Basin) demonstrates, at this time, a reasonable overall understanding of groundwater conditions in the Subbasin, reasonably quantifies and mitigates overdraft, and proposes a commensurate level of management actions, primarily through permanently reducing and limiting groundwater extractions, to satisfy the objectives of SGMA as identified in applicable statutes and the Department's Groundwater Sustainability Plan Regulations (GSP Regulations).[4]

Department staff note that the Borrego Alternative, largely owing to the fact that it is a final judgment in a comprehensive adjudication, does not follow the precise organization or include the identical elements as a groundwater sustainability plan (GSP). However, differences between the elements of the Borrego Alternative and the generally required elements of a GSP, as prescribed in the GSP Regulations, do not preclude the Department from determining that the existing water management regime established by the Stipulated Judgment satisfies the objectives of SGMA. In fact, the Borrego Alternative includes a groundwater management plan (GMP) as an attached exhibit (Exhibit 1) to the Stipulated Judgment, which is intended to play a role in Subbasin management.[5] However, unlike a GSP, which defines the scope of groundwater management for a basin, in the Stipulated Judgement the Court retains discretion to direct the Watermaster to manage the basin in ways not described in the Plan. Although the Department does not expect this to result in management actions that significantly depart from those described in the Plan, the views expressed in this report are limited to technical information and the projects and management actions included and as described in the Plan. As discussed below, if the Court orders changes to that Plan's description of basin management efforts and processes, those changes should be identified and discussed in annual reports or periodic updates, as appropriate.

Department staff have reviewed the GMP and have recommendations specific to the GMP to more closely align basin management with the requirements of SGMA and the GSP Regulations. A critical component of managing this Subbasin under the Borrego Alternative is reducing pumping to eliminate overdraft, but sustainable groundwater management under SGMA requires consideration of more than the elimination of overdraft over a set period of time. Accordingly, staff's recommended corrective actions are geared towards broadening the focus of management under the Borrego Alternative to encompass quantified definitions of sustainability that will allow for better management and monitoring of progress towards achieving sustainability as defined by SGMA.

Department staff do not believe that the deficiencies described in this Report should preclude approval of the Borrego Alternative at this time. As documented throughout this

[4] 23 CCR § 350 *et seq*.
[5] *Draft Final Groundwater Management Plan for the Borrego Springs Groundwater Subbasin* (January 2020). The GMP is attached as Exhibit 1 in the Stipulated Judgment, pp. 54-1652.

assessment, the Borrego Alternative represents a substantial, locally driven, technical, legal, and policy effort. The enforceable and locally funded management framework it establishes has already accomplished significant milestones, changes, and improvements in Subbasin management and conditions. Management under the Borrego Alternative has initiated and implemented management actions with documented beneficial outcomes in this Subbasin faster than some other basins where a GSP has been adopted. Accordingly, Department staff believe approval, while requiring and allowing time for further refinements and improvements in basin management (as recommended in this staff report), is warranted at this time to support continued implementation of the Borrego Alternative. Department staff will have further opportunities to evaluate management under this alternative, including when it is resubmitted to comply with SGMA's five-year resubmission requirement for alternatives.[6]

In sum, staff recommend that the Department **APPROVE** the Borrego Alternative and require implementation of the recommended corrective actions by June 25, 2026.

2 ALTERNATIVE MATERIALS SUBMITTED

The Borrego Alternative was submitted to the Department by the Watermaster, the local management entity established in the comprehensive adjudication of the Borrego Springs Subbasin of the Borrego Valley Groundwater Basin.[7] The Watermaster uploaded multiple documents to the Department's SGMA Portal as part of its submission, including a "Judgment Findings and Order" signed and filed by the Orange County Superior Court (Hon. Peter J. Wilson) on April 8, 2021,[8] and a Stipulated Judgment (also file stamped April 8, 2021) with the following nine exhibits, which can be accessed on the SGMA Portal and are collectively referred to in this staff report as the "Alternative" or "Judgment" or "Borrego Alternative":

- Exhibit 1: Groundwater Management Plan (referred to herein as the "GMP")
- Exhibit 2: Stipulation for Judgment (dated April 8, 2021)
- Exhibit 3: Minimum Fallowing Standards
- Exhibit 4: Baseline Pumping Allocations
- Exhibit 5: Rules and Regulations
- Exhibit 6: Declaration of Covenants, Conditions & Restrictions
- Exhibit 7: Process for Selecting Watermaster Representatives

[6] Water Code §§ 10733.6(c), 10733.8; 23 CCR § 358.2(b).
[7] County of Orange Superior Court Case No. 37-2020-00005776-CU-TT-CTL.
[8] County of Orange Superior Court Case No. 37-2020-00005776-CU-TT-CTL.

- Exhibit 8: Entry Permit
- Exhibit 9: Facility Standards for Mutual Water Companies Formed After Entry of Judgment

In addition to the materials identified above, the Watermaster also submitted an "Alternative Elements Guide," a document intended to be used as a reference by the Department to facilitate its evaluation by providing descriptions and references explaining how or which parts of the Borrego Alternative satisfy the specific requirements for elements of a GSP established by the Department's GSP Regulations.[9] For this evaluation and assessment, Department staff reviewed and utilized all these submitted materials, other readily available information including annual reports for the Subbasin, and relevant public comments submitted to the Department.

3 REQUIRED CONDITIONS FOR EVALUATION

Before conducting an in-depth evaluation of an alternative, Department staff initially need to determine whether the submittal meets certain minimum conditions. As explained here, the Judgment satisfies these minimum conditions, warranting a thorough evaluation.

3.1 SUBMISSION DEADLINE

Water Code Section 10733.6(c) mandates that an alternative shall be submitted no later than January 1, 2017, and every five years thereafter.[10] The Judgment was submitted after this deadline, but it was submitted pursuant to Water Code Section 10737.4, which states that a judgment, like the alternative here, may be submitted for evaluation after January 1, 2017. Thus, the alternative was timely submitted.

3.2 COMPLIANCE WITH CALIFORNIA STATEWIDE GROUNDWATER ELEVATION MONITORING (CASGEM) PROGRAM

Water Code Section 10733.6(d) requires the Department's alternative assessments to "include an assessment of whether the alternative is within a basin that is in compliance with [CASGEM]." CASGEM is found in Part 2.11 of Division 6 of the Water Code and requires that groundwater elevations in all groundwater basins be regularly and systematically monitored and that groundwater elevation reports be submitted to the Department.[11] If the basin is not in compliance with CASGEM requirements, "the department shall find the alternative does not satisfy the objectives of this part [i.e., SGMA]."[12] Department staff have confirmed that the Subbasin was in compliance with

[9] 23 CCR § 358.2(d).
[10] Pursuant to Water Code § 10722.4(d), a different deadline applies to a basin that has been elevated from low- or very low-priority to high- or medium-priority after January 31, 2015.
[11] Water Code § 10920 et seq.
[12] Water Code § 10733.6(d).

the CASGEM requirements prior to submitting the alternative and have confirmed the Subbasin remains in compliance with CASGEM (through the last reporting deadline).

3.3 COMPLETENESS

The Department fully evaluates an alternative if it generally appears complete (i.e., appears to include the information required by SGMA and the GSP Regulations).[13] The Subbasin's Watermaster submitted an "Alternative Elements Guide" that explains how the elements of the Judgment and management thereunder are functionally equivalent to a GSP. Initial review by Department staff indicated the alternative generally contained the required information, as applicable, sufficient to warrant a full evaluation.

3.4 BASIN COVERAGE

An alternative must cover the entire basin.[14] An alternative that is intended to cover the entire basin may be presumed to do so if the basin is fully contained within the jurisdictional boundaries of the submitting agency.

Here, the Superior Court's April 8, 2021, Judgment Finding and Order (at paragraph 1) expressly includes a finding of fact and law that the comprehensive adjudication covers all claims to groundwater rights in the Borrego Valley Groundwater Subbasin (No. 7.024-01):

> "The proposed stipulated judgment ("Judgment") … shall be the judgment of the Court in this Comprehensive Adjudication and shall be binding on the parties to the comprehensive adjudication and all of their successors in interest, including, but not limited to, their heirs, executors, administrators, assigns, lessees, licensees, agents and employees, all other successors in interest, and all landowners or other persons claiming rights to extract groundwater from the Basin."

Department staff, therefore, conclude that the alternative covers the entire Subbasin.

4 EVALUATION OVERVIEW AND PRINCIPLES

Department staff's evaluation of the Borrego Alternative for adequacy as a SGMA alternative involves application of Water Code Section 10737.4(a), which provides, in part, that:

> "Chapter 11 (commencing with Section 10735) shall not apply to a judgment approved by the court pursuant to Section 850 of the Code of Civil Procedure if both of the following apply:

[13] 23 CCR § 358.4(a)(3)
[14] 23 CCR § 358.4(a)(4)

1. A local agency or a party directed by the court to file the submission submits the judgment to the department for evaluation and assessment pursuant to paragraph (2) of subdivision (b) of Section 10733.6. [and]

2. The department determines that the judgment satisfies the objectives of this part for the basin."

SGMA provides that a local agency "may submit the alternative to the department for evaluation and assessment of whether the alternative satisfies the objectives of this part for the basin."[15] The Legislature identified its objectives in enacting SGMA, the first of which is "[t]o provide for the sustainable management of groundwater basins."[16] The Legislature defined sustainable groundwater management as "the management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results." [17]

The Department's GSP Regulations, specifically Article 9, include additional provisions regarding evaluation of alternatives under SGMA.[18] The GSP Regulations require the Department to evaluate an alternative "in accordance with Sections 355.2, 355.4(b), and Section 355.6, *as applicable*, to determine whether the alternative complies with the objectives of the Act."[19] In evaluating the Borrego Alternative and preparing this assessment, Department staff considered and applied, where applicable, the standards identified in these statutes and regulations with the ultimate purpose being to determine whether the Borrego Alternative satisfies the objectives of SGMA.[20]

An agency or other entity submitting an alternative must explain how the elements of the alternative are "functionally equivalent" to the elements of a GSP required by Articles 5 and 7 of the GSP Regulations and are sufficient to demonstrate the ability of the alternative to achieve the objectives of SGMA. The explanation of how elements of an alternative are functionally equivalent to elements of a GSP furthers the purpose of demonstrating that an alternative satisfies the objectives of SGMA. Alternatives, although required to satisfy the objectives of SGMA, are not necessarily expected to conform to the precise format and content of a GSP. This assessment is thus focused on the ability of the Borrego Alternative to satisfy the objectives of SGMA as demonstrated by information provided by Borrego Springs Watermaster; it is not a determination of the degree to which the Borrego Alternative matches the specific requirements of the GSP Regulations.

When evaluating whether an alternative satisfies the objectives of SGMA and thus is likely to achieve the sustainability goal for the basin, Department staff review the information

[15] Water Code § 10733.6(a).
[16] Water Code § 10720.1.
[17] Water Code Section 10721(v).
[18] 23 CCR § 358 *et seq*.
[19] 23 CCR § 358.4(b) (emphasis added).
[20] 23 CCR § 358.2(d); Water Code § 10733.6(a).

provided by and relied upon by the submitting entity or agency for sufficiency, credibility, and consistency with scientific and engineering professional standards of practice.[21] The Department's review considers whether there is a reasonable relationship between the information provided and the assumptions and conclusions made by the submitting entity or agency, whether sustainable management criteria and projects and management actions described in an alternative 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.[22] Department staff will recommend that an alternative be approved if staff determine, in light of these factors, that the alternative has achieved or is likely to achieve the sustainability goal for the basin.[23]

Staff assessment of an alternative involves the review of information presented by the submitting agency or entity in its submittal, including models and assumptions, and an evaluation of that information based on scientific reasonableness. The assessment does not require Department staff to recalculate or reevaluate technical information provided in an alternative or to perform their own geologic or engineering analysis of that information. The staff recommendation to approve an alternative does not signify that Department staff, were they to exercise the professional judgment required to develop a plan for the basin, would make the same assumptions and interpretations as those contained in an alternative, but simply that Department staff have determined that the assumptions and interpretations relied upon by the submitting agency are supported by adequate, credible evidence, and are scientifically reasonable.

Finally, the Borrego Alternative, which is based on management pursuant to an adjudication action submitted under Water Code Section 10737.4, is the first SGMA alternative of its kind reviewed by Department staff. Alternatives previously submitted to the Department were either groundwater management plans developed pursuant to Part 2.75 of Division 6 of the Water Code (commencing with Section 10750) or other law authorizing groundwater management, or analyses of basin conditions attempting to demonstrate that a basin was operated within its sustainable yield over a period of at least 10 years.[24] In almost every previous case, the local agency that submitted an alternative also formed a groundwater sustainability agency (GSA), but in no case was an alternative submitted by one entity while a different entity had become an exclusive GSA authorized to implement the provisions of SGMA, which had adopted and submitted a GSP for the same basin, thus no conflict existed that would have prevented Department evaluation of those alternatives.[25] For similar reasons here, because the Borrego Alternative does not substantially impair or otherwise interfere with an existing GSP (none was ever locally

[21] 23 CCR § 351(h).
[22] 23 CCR § 355.4(b)(1), (3), and (5).
[23] 23 CCR § 355.4(b).
[24] Water Code §§ 10733.6(b)(1) and (b)(3).
[25] The Borrego Water District initially submitted a notice of intent to become a GSA for the basin and prepare a GSP, but Borrego Water District later withdrew its notice of intent.

adopted or subsequently submitted to and approved by the Department), evaluation of the Borrego Alternative by the Department is appropriate.[26]

In sum, this staff report evaluates the adequacy of the Judgment to satisfy the objectives of SGMA by serving as an alternative to a GSP for the Subbasin (Water Code 10733.6.). Department staff have also included information, and recommended corrective actions, in this staff report to further assist the Watermaster, Court, and interested parties with the timely achievement of sustainable groundwater management in the Subbasin as required under SGMA.

5 TECHNICAL EVALUATION OF THE GMP

Under the assumption that the *Groundwater Management Plan for the Borrego Springs Subbasin, January 2020* (GMP), included as Exhibit 1 in the Stipulated Judgment, is intended to and will significantly guide the Watermaster's (and Court's) groundwater management decisions during implementation of the Borrego Alternative, this section of the staff report focuses on whether the following elements of the Stipulated Judgment, relying upon the GMP, substantially comply with, and are functionally equivalent to, the requirements for GSPs set forth in the GSP Regulations:[27]

- **Basin Setting**. The description of the Subbasin, including a hydrogeologic conceptual model and water budget in context with the understanding of the current groundwater conditions in the Subbasin.
- **Sustainable Management Criteria**. The criteria proposed to measure and define sustainability in the Subbasin.

[26] Department staff note that for a basin with an approved GSP that becomes subject to a comprehensive adjudication, SGMA states that the court shall not approve entry of judgment in the adjudication action unless the court finds that the judgment will not substantially impair the ability of a GSA, the State Water Resources Control Board, or the Department to comply with SGMA and to achieve sustainable groundwater management. (Water Code § 10737.8) SGMA mandates that "all" basins designated as medium- or high-priority "shall be managed under a groundwater sustainability plan" by certain deadlines now past (Water Code § 10720.7.) Accordingly, a judgment that affects a GSA's ability to implement and manage under its GSP runs the risk of violating section 10737.8, because it may substantially impair the GSA's ability to comply with the mandate of section 10720.7. While any such conflict would require a case-specific analysis, an adjudication judgment that precludes or interferes with achieving the sustainable management criteria established in a GSP by, for instance, attempting to establish higher groundwater extraction amounts, less protective management criteria or thresholds for undesirable results, or empowering an entity other than the GSA to act as watermaster to regulate or authorize groundwater pumping in a basin runs a significant risk of substantially impairing the ability of the GSA to comply with SGMA and therefore violating section 10737.8.. Amendments to the streamlined adjudication statutes that became effective in 2024 contain the same prohibition on adjudication judgments and, importantly, allow a court and parties in an adjudication to seek assistance from, and preparation of a joint report by, the State Water Resources Control Board and the Department assessing this particular issue. (Code of Civil Procedure § 850(b)-(c).)

[27] 23 CCR §§ 355.4(b), 358.2(d).

- **Monitoring Networks**. The proposed means of collecting short-term, seasonal, and long-term data of sufficient quality, frequency, and distribution to characterize and evaluate conditions in the basin to evaluate implementation of the management program.
- **Projects and Management Actions**. The proposed efforts that may be necessary to bring the Subbasin under sustainable groundwater management.

5.1 Basin Setting

The basin setting should contain detailed information about the physical setting and characteristics of a basin to serve, among other things, as the basis for local agencies to develop and assess the need for, and reasonableness of, sustainable management criteria and projects and management actions.[28] This information also provides a foundation to facilitate the Department's review of the management regime presented in a GSP or an alternative.

The Subbasin's GMP, included as Exhibit 1 in the Stipulated Judgment, contains much of the information about the Subbasin required by the GSP Regulations. This includes information about groundwater conditions and hydrogeology, types of land uses, a hydrogeologic conceptual model, past and current water demands, and descriptions of beneficial uses and users of groundwater within the Subbasin. The following four major elements comprising the basin setting are discussed below: the hydrogeologic conceptual model, groundwater and basin conditions, water budget, and management areas.

5.1.1 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. The hydrogeologic conceptual model represents a local agency's understanding of the geology and hydrology of the basin that forms the basis of geologic assumptions used in developing numerical groundwater flow models, such as those that allow for quantification of the water budget.[29]

The GMP includes a hydrogeologic conceptual model that is largely based on technical studies conducted by the U.S. Geological Survey dating from the 1980s to 2015.[30] The Subbasin is described in the GMP as being comprised of continental and lacustrine sediments and divides the water-bearing strata into three units simply termed the upper, middle, and lower aquifers, although they are not confined by regionally extensive aquitards. The hydraulic properties, such as hydraulic conductivity and specific yield of

[28] 23 CCR § 354.12.
[29] 2016 Best Management Practices for the Sustainable Management of Groundwater—Hydrogeologic Conceptual Model (DRAFT); 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.
[30] GMP, Section 2.2.1, pp. 131-144.

the sediments, decrease from the upper to the lower aquifer. The upper aquifer is mainly coarser alluvium with a moderate ability to store and produce groundwater. The middle aquifer consists of finer grained sediments that are moderately consolidated and cemented with the ability to produce moderate quantities of water in wells. The lower aquifer consists of partly consolidated continental and lacustrine sediments with a higher portion of fine-grained sediments and yields smaller quantities of water than the upper and middle aquifers.[31]

Department staff consider the hydrogeologic conceptual model presented in the GMP to be reasonable and to have relied on the best available data in depicting the current understanding of the characteristics, distribution, and groundwater conditions of the system of aquifers within the Subbasin. The hydrogeologic conceptual model relies on numerous independent studies and reports, including investigations carried out by the U.S. Geological Survey, and utilizes reasonable methods and assumptions, including reviewing and comparing historical groundwater budget studies in the Subbasin and quantifying historical groundwater overdraft for several time periods.

5.1.2 Groundwater and Basin Conditions

The GMP describes the current and historical groundwater conditions based on groundwater data collected from the established monitoring network and data collected from the 1940s and 1950s. The GMP provides groundwater elevation contour maps for historical conditions and for spring and autumn of 2018, which are used to represent "current" conditions.[32] The historical groundwater elevation contour maps show declining groundwater levels from 1945 to 2010, with pumping depressions evident in data from the western portion of the Subbasin. The GMP acknowledges that human influence on groundwater levels is most pronounced in the northern part of the Subbasin, where the 2018 contour map shows a pumping depression in the general vicinity of the pumping depression in the 2010 map, although the groundwater elevation of the depression in the 2018 contour map is lower.[33]

The GMP estimates that groundwater elevations in the Northern Management Area declined by as much as 133 feet, with an average rate of 2.05 feet per year, between 1953 and 2018. Over the same period, the estimated decline in the Central Management Area was 88 feet, averaging 1.35 feet per year. The Southern Management Area has been pumped to a lesser extent; thus, groundwater elevations have remained relatively stable.[34]

The groundwater in storage in the Subbasin prior to initiation of widespread groundwater extraction was estimated to have been 5.5 million acre-feet. A subsequent investigation estimated the amount of readily available groundwater to be approximately 2.1 million

[31] GMP, Section 2.2.1.3, pp. 140-142.
[32] GMP, Figures 2.2-13A to 2.2-13D, pp. 231-237.
[33] GMP, Section 2.2.2.1, pp. 148-150; Figures 2.2-13A to 2.2-13D, pp. 231-237.
[34] GMP, Section 2.2.2.1, p. 150; Figure 2.2-13E, p. 239.

acre-feet in 1945 and 1.9 million acre-feet in 1980. The Borrego Valley Hydrologic Model (BVHM) estimates the reduction in groundwater in storage from 1980 to 2016 to be 334,293 acre-feet, leaving approximately 1.6 million acre-feet remaining in the aquifers.[35]

The groundwater quality constituents of concern in the Subbasin include total dissolved solids, nitrate, arsenic, sulfate, and fluoride.[36] The GMP describes anthropogenic and natural sources of the constituents of concern. Anthropogenic activities affecting total dissolved solids include agricultural use of irrigation, fertilizers, pesticides, and return flow from septic systems and wastewater treatment. Natural sources of total dissolved solids include interactions of groundwater with minerals that comprise the aquifer material, including evaporative enrichment near dry lake beds such as the Borrego Sink. The historical concentrations of total dissolved solids ranged from 500 to 2,330 mg/L, with 2018 concentrations below the secondary maximum contaminant level upper limit for drinking water in all but two wells. The wells with highest concentrations of total dissolved solids tend to be in the shallow aquifer in the Northern Management Area and near the Borrego Sink.[37]

Sources of nitrate are primarily associated with fertilizer application and septic tank return flows. Historical exceedances of nitrate, ranging from 10-155 mg/L, have occurred in five wells adjacent to areas of agricultural use in the northern part of the valley. Available nitrate data in the current monitoring network show neutral or declining trends of nitrate concentrations or are insufficient to establish a trend. The GMP describes historical wells that were taken out of potable service due to elevated nitrate. Mitigation of the impacted wells included drilling and screening the well in a deeper zone or connecting to municipal well supplies.[38]

Arsenic is naturally occurring and associated with mineral chemistry and pH. Arsenic has been detected in wells in all management areas of the Subbasin, but only some wells in the Southern Management Area are above the maximum contaminant level of 10 µg/L, with a maximum detected concentration of 22 µg/L.[39] Although Figure 2.2-14D appears to show that exceedances of the maximum contaminant level are in wells associated with the Rams Hill Golf Course, the GMP does not explain whether these wells produce potable or non-potable water or the extent of the impacts to beneficial uses and users, if any.

Sulfate sources include natural deposits of gypsum and fertilizers. Sulfate analyses in a 2015 USGS study indicated no wells exceeded the secondary maximum contaminant level for sulfate; historical data show exceedances in some wells near the Borrego Sink,

[35] GMP, Section 2.2.2.2, p. 152.
[36] GMP, Section 2.2.2.4, p. 153; Groundwater Monitoring Plan for the Borrego Springs Subbasin, Section 3.1, p. 18.
[37] GMP, Section 2.2.2.4, pp. 154-156; Figure 2.2-14B, p. 245.
[38] GMP, Section 2.2.2.4, pp. 154-155; Figure 2.2-14A, p. 243.
[39] GMP, Section 2.2.2.4, pp. 157-158; Figure 2.2-14D, p. 249.

ranging from 650-2,300 mg/L. The GMP correlates elevated sulfate concentrations with elevated total dissolved solids concentrations near the Borrego Sink. Two wells, RH-1 and ID1-8, appear to show increasing trends.[40]

Fluoride is a naturally occurring element in groundwater and has historically been detected in three wells above the maximum contaminant level of 2 mg/L. The fluoride concentration exceedances ranged from 2.2-4.87 mg/L. However, typical fluoride concentrations in the Subbasin are below one-half of the maximum contaminant level. No figure was provided showing the wells analyzed for fluoride.[41]

The GMP discusses land subsidence evaluation using data between 1978 and 2009. The investigation included analyzing data measured by interferometric synthetic aperture radar (InSAR) and global positioning system stations that concluded changes of land surface elevation of fewer than 0.54 feet. The investigation identified a consistent and seasonal pattern southeast of agricultural fields between 2003 and 2007, where land subsidence in the summer was followed by a smaller increase in land elevation by the end of the year; the increase was about half the amount of subsidence in the summer, resulting in an average decline of 0.15 inch per year during this period. InSAR data from 2015 to 2018 showed a decrease in elevation by 0.023 feet, or fewer than 0.1 inch per year in the Borrego Springs Resort area, while a larger area of the Subbasin experienced an increase in elevation during the same period. The GMP concludes that, based on the groundwater level declining by more than 100 feet, the land subsidence that has occurred in the Subbasin is minimal and has not substantially interfered with surface land uses in the past and is not anticipated to substantially interfere with land uses in the foreseeable future.[42]

The GMP explains that streams in the Subbasin are predominantly disconnected from the groundwater table, which is typical of an arid desert environment, because stream flows of moderate magnitude and short duration do not percolate deep enough to reach the underlying aquifer.[43] The Water Year 2023 Annual Report for the Borrego Springs Subbasin describes an investigation of surface water flow in the perennial and ephemeral segments of Coyote Creek, the primary drainage feature recharging the Subbasin. The perennial extent of streamflow measured at five sites indicate streamflow decreasing from upstream to downstream and is completely infiltrated by the First Crossing (approximately two miles into the Subbasin from the northwestern boundary),[44] suggesting that the Coyote Creek drainage system loses water to the underlying aquifer system. By fall 2020, Watermaster staff observed all five sites on Coyote Creek to be dry; to be not accessible

[40] GMP, Section 2.2.2.4, pp. 156-157; Figure 2.2-14C, p. 247.
[41] GMP, Section 2.2.2.4, p. 158.
[42] GMP, Section 2.2.2.5, pp. 162-164; Figure 2.2-17, p. 257.
[43] GMP, Section 2.2.2.6, pp. 164-165; Figure 2.2-18, p. 259.
[44] Borrego Springs Subbasin 1st Annual Report: Covering Water Years 2016 through 2019, Figure 2, p. 35; Table 1-2, p. 13; Water Year 2023 Annual Report for the Borrego Springs Subbasin, Section 3.1.3, p. 47; Figure 3, p. 74.

due to excessive vegetation growth; or to shallow flows, resulting in the determination that continued streamflow measurements were impractical but would continue to conduct semiannual visual and qualitative observations of flow conditions. The GMP attributes perennial sections of creeks that are upgradient and outside of the Subbasin to be supported by groundwater flowing from bedrock aquifers into the channels, which then become ephemeral streams when entering the Subbasin.[45]

The GMP describes the historical conditions of surface water entering the Subbasin and states that since the beginning of large-scale pumping in the Subbasin decades ago, groundwater has not been observed discharging onto the valley floor in the form of seeps, springs, or gaining streams. Old Borrego Springs dried up before 1963 and Pup Fish Pond Spring, which extends a short distance into the Subbasin, is an artificial spring sustained by Anza-Borrego Desert State Park.[46]

Regarding groundwater dependent ecosystems (GDEs), groundwater monitoring closest to creek segments entering the northern and western margins of the Subbasin indicates a separation of hundreds of feet between the creek beds and the groundwater table. The GMP describes the evaluation of the Natural Communities Commonly Associated with Groundwater dataset, which divided the Subbasin into three geographic units.[47] The northernmost Coyote Creek Unit includes plant types along the riparian corridor of Coyote Creek. The investigation included analysis of stream gage data, aerial photographs, and remotely-sensed vegetation data and concluded that the reach of Coyote Creek with potential GDEs is a losing stream and not supported by groundwater from the Subbasin.[48]

The Palm Canyon Unit at the western margin of the Subbasin shows no significant change in the extent of the GDE since 1954 and no significant change in health of the GDE since 1985. The GMP explains that the depth to groundwater in the nearest well, measured in 2018, of 348 feet below ground surface and the fluctuations in vegetation metrics that moderately correlate to precipitation indicate that GDEs in the Palm Canyon Unit are supported by surface water flows originating outside the Subbasin and entering the Subbasin via Borrego Palm Creek instead of being supported by groundwater in the Subbasin.[49]

The Mesquite Bosque Unit near the Borrego Sink historically contained 450 acres of honey mesquite, which the GMP describes can be tolerant of droughts. The 44 feet of groundwater decline in the past 65 years have resulted in a mostly desiccated area of mesquite by or around January 2015, with groundwater levels ranging from about 55-134 feet below ground surface, deeper than the stated approximate 20 feet rooting depth of

[45] GMP, Section 2.2.2.7, p. 168; Water Year 2023 Annual Report for the Borrego Springs Subbasin, Section 3.1.3, p. 47.
[46] GMP, Section 2.2.2.6, pp. 164-166.
[47] GMP, Figure 2.2-20, p. 263.
[48] GMP, Section 2.2.2.7, pp. 166-169.
[49] GMP, Section 2.2.2.7, pp. 169-171; Figure 2.2-20, p. 263.

the mesquite in the area. The GMP correlates precipitation and intermittent surface water flows with vegetation metrics instead of groundwater.[50]

5.1.3 Water Budget

The GMP uses a numerical groundwater flow model to produce a groundwater budget suggesting that the average rate of groundwater removed from storage between 1945 and 2016 was 7,300 acre-feet per year, with an increased rate of removal during the last 10 years of approximately 13,140 acre-feet per year.[51] The GMP provides an initial estimate for "sustainable yield" of the Subbasin as 5,700 acre-feet per year,[52] compared with the Subbasin's "current" baseline pumping of 24,215 acre-feet per year.[53] Department staff note that the GMP's estimate of current baseline pumping does not reflect actual, current extractions in the Subbasin, but rather was determined based on maximum annual water use by individual (non-de minimis) pumpers over the period January 1, 2010 to January 1, 2015. Baseline pumping also includes municipal water use previously reduced through end-use efficiency and conservation efforts, and recreational use curtailed prior to GMP adoption. The GMP reports that baseline pumping allocations are distributed to water use sectors as follows: 70 percent agriculture, 18 percent recreation, 12 percent municipal; 1 percent other.

Department staff consider the water budget information presented in the GMP to be consistent with current understanding of the hydrology and hydrogeology of the Subbasin and to have utilized appropriate and reasonable methods and assumptions, including reviewing and comparing historical groundwater budget studies in the Subbasin, and quantifying historical groundwater overdraft for several time periods (1945-2010, 1945-2016, 1997-2016, and 2007-2016).[54] However, the sustainable yield is derived using estimated inflows and outflows from model simulations that utilized data from different time periods; the inflow component is based on model simulations of data from 1945 to 2016, whereas the outflow component is based on data from 2007 to 2016.[55] The GMP justifies using inflow and outflow components based on different date ranges as a reasonable approach to an "initial estimate" that will be updated at each five-year evaluation during Physical Solution implementation.[56] Department staff regard the use of historical calculations to be sufficient based upon the best available information to inform the model and estimate. Provided that estimates are within the range of error, the overall reliance on such estimates appears acceptable.

[50] GMP, Section 2.2.2.7, pp. 169-171; Figure 2.2-20, p. 263.
[51] GMP, Section 2.2.3.3, p. 179; Table 2.2-8, p. 173. The reported volume of groundwater removed from storage differs between text in Section 2.2.3.3 and Table 2.2-8.
[52] GMP, Section 2.2.3.6, p. 182.
[53] GMP, Section 3.3.1.4, p. 301.
[54] GMP, Table 2.2-8, p.173.
[55] GMP, Table 2.2-8, p. 173.
[56] GMP, Section 2.2.3.6, pp. 180-182.

Department staff consider this adaptive management approach of incorporating periodic evaluation of new data and management strategies to be appropriate for this Subbasin and consistent with SGMA's implementation horizon for achieving sustainable groundwater management; however, as explained further below, the current emphasis on updating inflow and outflow data suggests the primary management focus is on balancing extractions with natural recharge rather than on the sustainable yield of the Subbasin, which is the achievement of "sustainability" by avoiding "undesirable results" as defined by the GMP's sustainable management criteria (see discussion below, under Section 6.2, Sustainable Management Criteria).

5.1.4 Management Areas

The GSP Regulations allow management areas within a basin, for which an agency may identify different minimum thresholds, measurable objectives, monitoring, or projects and management actions based on differences in water use sector, water source type, geology, aquifer characteristics, or other factors, provided that undesirable results are defined consistently throughout the basin.[57]

The GMP divides the Subbasin into three management areas (North, Central, and South) based on differences in hydrogeology, water quality, and overlying land uses. The North Management Area overlies the more productive upper aquifer that supports widespread agricultural activities, resulting in the most groundwater extraction and the greatest historical decline in groundwater levels of the three management areas. The Central Management Area predominantly contains extractions of groundwater from the middle aquifer to supply municipal and recreational users. The groundwater level decline in the Central Management Area has been recorded for decades and is widespread, although the rate of decline is less than the rate of groundwater level decline observed in the North Management Area. The South Management Area is predominantly open space but includes a golf course and a small rural residential area supported by groundwater extractions from the lower aquifer. In the South Management Area, groundwater levels near the Ram's Hill golf course appear connected to activity of the facility; however, groundwater levels near the isolated residential area of Borrego Air Ranch do not appear to be affected by the golf course extractions and have been relatively stable through time.[58]

The GMP contains a general description of the three management areas and provides maps that show their boundaries. However, the GMP does not clearly explain the reason for establishing different sustainable management criteria based on these management areas or how those criteria are appropriate and will not interfere with efforts to achieve the sustainability goal for the Subbasin. Department staff are unable to fully evaluate the approach to sustainability for these three areas without a more complete and detailed

[57] 23 CCR § 354.20.
[58] GMP, Section 2.2.2.1, p. 97; Figure 2.2-13E, p. 186.

discussion of the conditions in each of the areas, and how and why the areas are proposed to be separately managed to address those conditions.

Accordingly, if the management areas identified in the GMP were developed for the purposes outlined in the GSP Regulations,[59] additional information describing and justifying the establishment and use of management areas is necessary.[60] However, if, the GMP and Stipulated Judgment developed management areas to address other issues such as practical aspects of implementation (e.g., jurisdictional or financial responsibilities), the GMP and/or Stipulated Judgment should clearly explain this distinction. Even so, the GMP must demonstrate that management areas created for administrative convenience will not impair the ability of any portion of the Subbasin to achieve sustainability (see Recommended Corrective Action 1).

5.2 Sustainable Management Criteria

SGMA defines sustainable groundwater management as the "management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results."[61] The avoidance of undesirable results is thus explicitly the central concept of sustainable groundwater management and critical to the adequacy of a GSP or alternative. Under SGMA, undesirable results are "one or more" of six specific "effects caused by groundwater conditions occurring throughout the basin."[62]

As used in SGMA, undesirable results refer to specific unwanted effects, as determined by the local agency, that could be caused by groundwater conditions occurring throughout the basin. Although lowering groundwater levels and depleting supply are among the effects that could lead to undesirable results, the other categories of undesirable results defined in SGMA must also be considered and defined for purposes of basin management when applicable.

GSP Regulations require the development of several elements under the heading of "Sustainable Management Criteria," including sustainability goal, undesirable results, minimum thresholds, and measurable objectives. Except for the sustainability goal, the components of sustainable management criteria must be quantified so that progress towards sustainability can be monitored and evaluated consistently, quantitatively, and objectively to ensure that significant and unreasonable conditions and adverse impacts

[59] 23 CCR § 354.20.
[60] Where management areas are created, as appears to be the intent in the GMP, the GSP Regulations require the plan to establish minimum thresholds and measurable objectives for each management area and to provide the rationale for selecting those values. If, however, the Subbasin is to be managed at large, it would be helpful for the GMP to clearly state which minimum thresholds and measurable objectives apply to specific management areas and which apply to the entire Subbasin (see Recommended Corrective Action 1).
[61] Water Code § 10721(v).
[62] Water Code § 10721(x).

to beneficial uses and users (the SGMA definition of undesirable results[63]) are not occurring. A local agency should rely on and explain, among other factors, local experience, public outreach, involvement, and input, and information about the basin setting (e.g., hydrogeologic conceptual model, current and historical groundwater conditions, and water budget, etc.) that it used to develop criteria for defining undesirable results and setting minimum thresholds and measurable objectives.[64]

As mentioned in Section 5.1.3 above, the GMP employs the term "sustainable yield" in a sense more consistent with eliminating overdraft (i.e., balancing extractions with natural recharge) or achieving the traditional concept of "safe yield" rather than as defined in SGMA as achieving sustainability by avoiding "undesirable results" for all applicable sustainability indicators.[65] Department staff note that managing a basin to eliminate overdraft within 20 years does not necessarily mean that the basin has achieved sustainable groundwater management as required under SGMA. For example, gradually or incrementally reducing rates of subsidence to achieve no further subsidence after 20 years of management could allow and result in unreasonable and significant cumulative amounts of subsidence during the implementation period, resulting in ongoing, permanent, or long-term undesirable results such as damaged infrastructure, increased flood risk, or altered flood flow patterns that a more aggressive implementation regime would avoid. To achieve sustainable groundwater management under SGMA, the basin must achieve the sustainability goal (i.e., experience no undesirable results associated with six sustainability indicators) by the end of the 20-year plan implementation period and be able to demonstrate an ability to maintain those defined sustainable conditions over the 50-year planning and implementation horizon.

SGMA provides general definitions of the undesirable results that are to be avoided. However, it is up to each local agency or GSA implementing SGMA to develop and

[63] Water Code § 10721(x).
[64] 2017 Best Management Practices for the Sustainable Management of Groundwater—Sustainable Management Criteria (DRAFT); https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files/BMP-6-Sustainable-Management-Criteria-DRAFT_ay_19.pdf, accessed August 17, 2022.
[65] Pre-SGMA cases applied the term "safe yield" in the context of overdraft. The California Supreme Court explained: "'Safe yield' is defined as 'the maximum quantity of water which can be withdrawn annually from a ground water supply under a given set of conditions without causing an undesirable result.' The phrase 'undesirable result' is understood to refer to a gradual lowering of the ground water levels resulting eventually in depletion of the supply." (*City of Los Angeles v. City of San Fernando*, 537 P.2d 1250, 1308, 123 Cal.Rptr. 1, 59, 14 Cal.3d 199, 278 (Cal. 1975), quoting *City of Pasadena v. City of Alhambra*, 207 P.2d 17, 30, 33 Cal.2d 908, 929 (Cal., 1949)) As noted above, SGMA uses the related but different term "sustainable yield" and defines it as "the maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus, that can be withdrawn annually from a groundwater supply without causing an undesirable result." (Wat. Code § 10721(w)). SGMA further defines undesirable results as significant and unreasonable effects caused by groundwater conditions occurring throughout the basin (Wat. Code § 10721(x)). Although chronic lowering of groundwater levels is one of those effects, SGMA includes five other effects that are not part of the traditional definition of "safe yield."

describe in a GSP or, as here, in an alternative, the specific effects that would constitute undesirable results in its basin and to define the groundwater conditions that would produce those results in the basin.[66] Management under an alternative should establish and be guided and judged using the same metrics. The local definition and description of undesirable results needs to be quantitative and must describe the effects of undesirable results on the beneficial uses and users of groundwater in the basin. Using these definitions, quantitative minimum thresholds can be defined that, when exceeded individually or in combination with minimum thresholds at other monitoring sites, may indicate the basin is experiencing undesirable results.[67] If undesirable results and the associated minimum thresholds are not quantitatively defined by basin managers, they, the Department, interested parties, and the general public will not be fully informed regarding the intended groundwater management program in the basin and will have no objective way to determine whether the basin is being managed sustainably as required by SGMA.

Generally, SGMA leaves the task of establishing definitions and setting minimum thresholds for undesirable results largely at the discretion of the local agency, subject to review by the Department. Absent a clear explanation of the conditions and adverse impacts the local agency is trying to avoid, and the agency's stated rationale for setting objective and quantitative sustainable groundwater management criteria that the local agency believes will successfully prevent those conditions from occurring, the Department cannot assess whether a proposed groundwater management program will achieve sustainability because there is no unambiguous way to know what basin conditions the GSP seeks to avoid and the monitoring needed to assess whether the agency is succeeding in that effort when implementing its groundwater management program.

Although the GMP appears to reasonably quantify the water budget and identify the extent and rate of overdraft in the Subbasin, and while the GMP proposes reductions in groundwater extractions that appear likely to eliminate overdraft in the Subbasin within approximately 20 years, the GMP does not provide quantified sustainable management criteria for all applicable sustainability indicators and does not explain how these criteria would avoid significant and unreasonable impacts to beneficial uses and users in the Subbasin as required by SGMA. The GMP's treatment of each of SGMA's defined undesirable results is discussed individually below.

[66] 23 CCR § 354.26.
[67] 23 CCR § 354.28. See also DWR Best Management Practices for the Sustainable Management of Groundwater: Sustainable Management Criteria (DRAFT), November 2017.

5.2.1 Chronic Lowering of Groundwater Levels

The GMP discusses historical and current groundwater level conditions[68] and presents its most extensive discussion of sustainable management criteria for the category of "chronic lowering of groundwater levels." The GMP states:

- "Failure to address and reverse the current rate of groundwater level decline could put the agricultural, recreational, and water supply availability for other beneficial uses at risk."[69]
- "Depletions leading to a complete dewatering of the Basin's upper aquifer in the [Central Management Area] would be considered significant and unreasonable…"[70]
- "Groundwater level declines would be significant and unreasonable if they are sufficient in magnitude to lower the rate of production of pre-existing extraction wells below that needed to meet the minimum required to support the overlying beneficial use(s) and that alternative means of obtaining sufficient groundwater resources are not technically or financially feasible."[71]

5.2.1.1 Mitigation of Impacts to De Minimis Users from Declining Groundwater Levels

The GMP recognizes that domestic and de minimis users have the greatest sensitivity to adverse effects of continued, declining groundwater levels.[72] Consequently, the GMP establishes a goal of protecting de minimis wells (extractions of less than two acre-feet per year) as much as possible.[73] Because the pumping rampdown described in the Physical Solution is expected to incrementally progress until the annual pumped volume matches natural recharge, projected to be around 2040, groundwater levels are expected to continue to decline because of annual overdrafting of the basin until that time.[74]

The GMP states that impacts to these beneficial users from groundwater level declines during program implementation could be mitigated because, in most cases, connecting impacted domestic and de minimis users to the Borrego Water District's municipal water system is technically and financially feasible.[75] However, the GMP does not provide specific information describing the mitigation measures that would be offered, events that would trigger access to mitigation assistance, or provide a detailed estimate of the cost and source of funding for such mitigation. Furthermore, the GMP states there are domestic and de minimis well users that are not in close proximity to existing Borrego

[68] GMP, Section 2.2.2.1, pp. 148-150.
[69] GMP, Section 3.2.1, p. 284.
[70] GMP, Section 3.2.1, p. 284.
[71] GMP, Section 3.2.1, p. 284.
[72] GMP, Section, 3.2.1, pp. 284-285.
[73] GMP, Section 3.2.1, pp. 284-286.
[74] The basin may eliminate overdraft before 2040, but for purposes of this evaluation, staff must evaluate the projected pumping that would be allowed to occur under the implementation and rampdown schedule presented in the Judgment.
[75] GMP, Section 3.3.2.1, p. 303.

Water District service lines, but the GMP does not discuss whether or how well location would affect the ability of the District to offer mitigation services to those wells.[76]

In sum, the GMP does not provide a firm commitment or critical details of how this suggested mitigation would be implemented to avoid circumstances that the GMP defines as undesirable results. Department staff recommend the GMP clearly describe the suggested mitigation program and who and how it will be implemented to prevent impacts to de minimis users and/or other beneficial users as a result of groundwater use under control of the Watermaster and subject to the terms of the Stipulated Judgment. Among other improvements, the GMP, or the stipulated judgement, as appropriate, should clarify the monitoring or other processes to objectively determine when these locally-defined undesirable results have occurred (or are likely to occur) and specifically describe and explain what is considered technically or financially feasible and who will bear the responsibility (e.g., cost and implementation) to mitigate or avoid these undesirable results by, for instance, connecting users to the municipal water system as suggested in the GMP (see Recommended Corrective Action 2).

5.2.1.2 Groundwater Level Minimum Thresholds

The GMP establishes the minimum thresholds for groundwater levels based on a management policy of allowing groundwater levels to drop below 2015 levels, until groundwater levels are stabilized by 2040. However, the minimum thresholds would maintain groundwater levels above the saturated screen intervals for pre-existing municipal wells during a multi-year drought scenario, which would be protective of municipal (non de minimis) beneficial users and uses in the Subbasin and, in most cases, would be protective of non-potable irrigation beneficial uses. The GMP also states that the groundwater level minimum thresholds would protect against significant and unreasonable impacts to groundwater storage volumes and water quality.[77]

The minimum thresholds for key municipal wells are based on the groundwater elevation at the top of the respective well screen.[78] The GMP conducted a uncertainty analysis based on climate change scenarios using a Monte Carlo Simulation mode over the 20-year implementation period varying hydrologic conditions to evaluate impact on groundwater storage and correlative water levels for key indicator wells and resolved that values below the 20th percentile hydrology/recharge occurred 20% of the time where possible exceedances of the minimum thresholds may occur based on 53 model simulations. The GMP continues to describe that the Water master would evaluate the minimum thresholds, interim milestones, and measurable objectives at least every 5 years, which would include the preceding climatic conditions and realized pumping reductions, and consider adjusting the rate of pumping reduction, revisit minimum

[76] GMP, Section 3.2.1, p. 285.
[77] GMP, Section 3.3.1.1, pp 293-294.
[78] GMP, Section 3.3.1.1, p. 294; Table 3-4, p. 295.

thresholds, and/or evaluate additional PMAs if minimum thresholds are exceeded.[79] The GMP explains that the minimum thresholds "are based principally on the documented screen intervals of key municipal water wells and domestic/de minimis wells" in the Subbasin.[80] However, the GMP does not provide a clear rationale and justification for how the tops of well screens of key indicator wells correlate with the range of domestic well screens and the GMP's definition of an undesirable result for this sustainability indicator, which (as described above) is dewatering of aquifers or lowering the rate of groundwater production below the minimum rate required for the use(s) of the well, particularly for de minimis users. In general, domestic wells are shallower than municipal wells, so without knowing the screened interval depths of domestic/de minimis wells to compare to the minimum thresholds for the key well shown in Table 3-4 of the GMP, Department staff cannot assess and the GMP does not disclose the extent of potential adverse impacts to beneficial uses and users, primarily domestic well users, based on the basin being managed using the established minimum thresholds. For example, the GMP does not address to what extent domestic well users or other beneficial users may be impacted based upon the projected groundwater level declines described in model results from the planned ramp down schedule in the respective management areas,[81] which would reach the minimum thresholds at the key municipal wells and likely affect de minimis or other wells in the management area, adjacent management areas, and the beneficial uses and users that rely on those wells. Thus, the extent of the impacts to beneficial uses and users that would occur at the minimum thresholds, in respective management areas and the entire Subbasin, have not been clearly described and incorporated into an explanation of how it was determined that the established minimum thresholds are appropriate or sufficient to avoid significant and unreasonable impacts, which is required in SGMA.[82] (see Recommended Corrective Action 3).

The GMP states that the Subbasin has been experiencing chronic groundwater level decline and remains in overdraft, and the GMP acknowledges the Subbasin is experiencing undesirable results caused by the lowering of groundwater levels and reduction of groundwater in storage.[83] Department staff note that inherent in the management regime presented in the GMP is the fact that, until groundwater pumping matches the natural recharge of the Subbasin, the Subbasin will continue to be in overdraft, groundwater levels will continue to decline, and existing and additional undesirable results will likely be experienced in the Subbasin. The GMP expects implementation of the pumping reduction program, described in the Stipulated Judgment and in the GMP,[84] to gradually reduce groundwater production to a level that matches

[79] GMP, Section 3.3.1.1, p. 298; Table 3-5, p. 299.
[80] GMP, Section 3.3.1.1, p. 294.
[81] GMP, Table 3-4, p. 295.
[82] 23 CCR §§ 354.26(b)(3), 354.26(b)(4).
[83] GMP, Table 3-1, p. 282; Section 3.1.4, p. 281.
[84] GMP, Executive Summary, Section ES 4.0, p. 76; Section 4.4, pp. 364-370.

natural recharge by the end of the implementation period (year 2040).[85] But the GMP does not appear to fully consider and describe potential undesirable results that will occur before 2040 during implementation of the gradual rampdown that could nevertheless have lasting effects in the Subbasin, even once overdraft is eliminated in 2040. For instance, if groundwater level declines result in the inability of beneficial users to obtain groundwater using their existing wells (if not mitigated as discussed above), those beneficial users and their properties will have been permanently affected or changed even if overdraft is eliminated years later. Similarly, if lower groundwater levels in the next two decades cause degradation of water quality or subsidence that constitutes undesirable results, those undesirable results will remain in the Subbasin even after the current overdraft is eliminated.

The GMP also does not clearly articulate the process to evaluate progress towards achieving interim milestones. The GMP states that "the Watermaster will use the BVHM, including the model improvements as new data become available, to evaluate progress toward meeting interim milestones based on average conditions by management area."[86] Department staff interpret this statement to imply that the numerical model's estimates of groundwater elevations will be used, instead of actual measured water levels, to compare to the interim milestone elevations to determine progress towards achieving the sustainability goal. Department staff believe that using actual measured groundwater levels will be more accurate and reliable than using model simulations to estimate measured progress towards sustainability. Department staff recommend the GMP clearly articulate the rationale and method used to establish measurable objectives and interim milestones and clarify how measured groundwater levels will be used to support model refinements and analysis of progress toward sustainability. (see Recommended Corrective Action 3).

5.2.2 Reduction of Groundwater Storage

The GMP defines undesirable results for reduction of groundwater storage as the same as those established for chronic lowering of groundwater levels. The GMP states that "reduction in groundwater storage is significant and unreasonable if it is sufficient in magnitude to lower the rate of production of pre-existing groundwater wells below that needed to meet the minimum required to support the overlying beneficial use(s), and where means of obtaining sufficient groundwater or imported resources are not technically or financially feasible for the well owner to absorb, either independently or with assistance from the Watermaster, or other available assistance/grant program(s)."[87]

The GMP used the BVHM to identify the minimum threshold for reduction in groundwater storage as the 20th percentile of 53 model runs calculating change in storage in the

[85] GMP, Section 3.1.4, p. 281.
[86] GMP, Section 3.4.1, p. 310.
[87] GMP, Section 3.3.2.1, p. 303.

Subbasin.[88] The GMP presents a graph that shows the cumulative loss of groundwater in storage from 1945 to 2010 for seven of the model runs, including the 20th percentile model run, though the specific value for the cumulative change in storage associated with that model run is not provided.[89] The GMP reports that the cumulative overdraft from 1945 to 2016 totaled an estimated 520,000 acre-feet[90] and that the net deficit in storage of 72,000 AF over the implementation period at the prescribed pumping reduction plan, equivalent to the 55th percentile of the Monte Carlo Simulation analysis, the GMP does not provide a quantitative value representing the minimum threshold, 20th percentile modeled value for reduction of groundwater in storage that, if exceeded, would constitute an undesirable result. The GSP Regulations require a quantitative minimum threshold[91] and an annual report that quantifies the annual change in storage and cumulative change in storage[92] to eliminate ambiguity or confusion regarding whether the Subbasin is being sustainably managed. A threshold solely depicted as a line on a graph without quantification[93] introduces ambiguity when tracking progress towards this sustainability indicator (see Recommended Corrective Action 4).

5.2.3 Seawater Intrusion

The GMP explains that the Subbasin is at least 15 miles from a saline surface water body and is separated from a seawater source by mountain ranges and faults that act as a barrier to groundwater flow.[94] Consequently, the GMP asserts that seawater intrusion has not and is not likely to occur in the basin and therefore is not an applicable sustainability indicator.[95] Department staff agree that the GMP's determination is reasonable and adequately supported.

5.2.4 Degraded Water Quality

The GMP defines the undesirable result for degraded water quality (i.e., significant and unreasonable impacts) in the Subbasin to be when groundwater quality degradation "is sufficient in magnitude to affect use of pre-existing groundwater wells such that the water quality precludes the use of groundwater to support the overlying beneficial use(s), and that alternative means of obtaining sufficient groundwater resources are not technically or financially feasible."[96]

The GSP Regulations explain that, for degraded water quality, "The minimum threshold shall be based on the number of supply wells, a volume of water, or a location of an

[88] GMP, Section 3.3.2.1, pp. 303-304.
[89] GMP, Figure 3.3-3, p. 342.
[90] GMP, Section 3.3.2.1, p. 303.
[91] 23 CCR § 354.28(c)(2).
[92] 23 CCR § 356.2(b)(5).
[93] GMP, Figure 3.3-3, p. 342.
[94] GMP, Section 2.2.2.3, pp. 152-153.
[95] GMP, Section 3.3.3, p. 306.
[96] GMP, Section 3.3.4, p. 306.

isocontour that exceeds concentrations of constituents determined by the agency to be of concern for the basin."[97]

The GMP states that the minimum threshold for municipal and domestic wells will be Title 22 drinking water standards. However, for irrigation wells, the GMP is not clear, stating that the Colorado River Region Basin Plan does not set specific water quality objectives for groundwater and that groundwater quality should generally be suitable for agricultural use, which is industry and crop-specific, and can be "gaged through conformance with generally accepted threshold limits for irrigation used by State Water Resources Control Board and/or through continued engagement with growers within the Subbasin."[98]

Regarding measurable objectives, the GMP states that, "Since the aforementioned standards are minimum thresholds, the GMP's measurable objective is for groundwater quality for the identified [constituents of concern] within municipal and domestic wells to exhibit a stable or improving trend, as measured at each 5-year evaluation. For irrigation wells, the measurable objective is the same as the minimum threshold (i.e., that water quality be of suitable quality for agricultural use)."[99]

Department staff conclude that the GMP does not clearly set quantitative minimum thresholds and a measurable objective for all components of the degraded water quality sustainability indicator.[100] Although the GMP discusses Title 22 drinking water standards for potable supply wells and the management areas where these exist, the GMP does not set quantitative minimum thresholds for water quality in irrigation wells or specify what standards would apply to those wells or management areas.[101] As a result, the GMP does not clearly describe what specific, quantified water quality conditions or concentrations would result in agriculture (or production of certain crops) being at risk of no longer being viable in the Subbasin (see Recommended Corrective Actions 3 and 5). Also, the GMP does not provide a clear explanation regarding whether water quality minimum thresholds for domestic and municipal supply wells apply to specific management areas or to the entire Subbasin (see Recommended Corrective Action 1).

Finally, if different parts of the Subbasin will have different water quality measurable objectives based on whether the area is currently being used, predominantly or exclusively, for agriculture, the GMP does not indicate a consideration of, or discuss the implications of, potential impairments to the underlying aquifer(s) by setting water quality objectives or thresholds based on the current beneficial use(s) of groundwater in the respective management areas. For example, if the GMP intends that water quality objectives for current agricultural wells be set such that the groundwater quality in those areas may become degraded to the extent that the groundwater would not be suitable for

[97] 23 CCR § 354.28(c)(4).
[98] GMP, Section 3.4.4, p. 313.
[99] GMP, Section 3.4.4, p. 313.
[100] 23 CCR §§ 354.28(a), 354.28(c)(4), 354.30.
[101] GMP, Section 3.4.4, p. 313.

domestic uses or cultivating certain crops, then the GMP should fully consider that issue, including how that may impact or conflict with local land use planning or zoning, and explain the rationale for finding that this would not be an undesirable result of water quality degradation.[102] In doing so, the GMP should evaluate and discuss whether there are other types of beneficial users (e.g., domestic or municipal) in those areas whose property values, land use options, or water use would be affected, which includes disclosing and discussing the potential of degrading groundwater quality such that future use of the groundwater for potable or domestic use would be precluded in parts of the Subbasin (see Recommended Corrective Action 5).

5.2.5 Land Subsidence

The GMP concludes that "…the degree of land subsidence occurring in the Plan Area is minimal, has not substantially interfered with surface land uses in the past, and is not anticipated to substantially interfere with surface land uses in the foreseeable future…"[103] Based on this, the GMP does not propose minimum thresholds or measurable objectives for land subsidence.[104] The GMP also does not intend to monitor for land subsidence.[105]

Department staff conclude the decision to not develop sustainable management criteria or monitor land subsidence is not supported by adequate evidence. Unlike seawater intrusion, which the GMP adequately explains is not present and not likely to occur in the basin, the GMP does not provide similarly sufficient evidence with regard to land subsidence, and acknowledges that some subsidence has occurred in the past,[106] referencing studies that document as much as 0.59 inches per year between 2003 and 2007 and less than 0.1 inch per year from 2015 to 2018.[107] If subsidence over the next 20 years occurred at the rate observed between 2003 and 2007, the basin could experience an additional foot of subsidence.

Although an additional foot of subsidence may not give rise to basin conditions that are considered significant and unreasonable or substantially interfere with surface land uses, the issue has not been fully evaluated or supported in the GMP. Furthermore, the GMP explains that past subsidence was minimal, at least in part because of historical dewatering of predominantly coarse-grained aquifer materials that are less prone to

[102] GSP Regulation 354.28(b)(4) requires a discussion of how minimum thresholds may affect the interests of beneficial uses and users of groundwater *or land uses and property interests*. SGMA requires that plans consider applicable county and city general plans and take into account the most recent planning assumptions stated in local general plans of jurisdictions overlying the basin. (Wat. Code 10726.9, 10727.2(g).)
[103] GMP, Section 2.2.2.5, pp. 162-164; Section 3.2.5, p. 291.
[104] GMP, Section 3.2.5, p. 291.
[105] The GMP proposes to use groundwater levels as a proxy for actual measurements of subsidence. (GMP Section 3.5.1.5, p. 319) As an initial matter, the GMP does not provide any data or analysis that would support the use of groundwater elevation as a proxy for subsidence, but regardless of the measurement method, the GMP does not explain the purpose of this monitoring in the absence of quantitative minimum thresholds or measurable objectives regarding subsidence.
[106] GMP, Section 2.2.2.5, pp. 162-164.
[107] GMP, Section 2.2.2.5, p. 163.

inelastic compaction. However, the lithology of the aquifers in the Subbasin generally becomes finer with depth,[108] meaning that further groundwater level declines to new historic lows, which will occur during implementation of the GMP, will probably dewater increasingly finer-grained aquifer materials. This increases the probability of, and potential for, subsidence in the Subbasin at rates different from (and possibly greater than) what has been previously experienced during the period when coarser-grained materials were dewatered.

Given the past occurrence of land subsidence in the Subbasin and the expectation that dewatering of increasingly finer-grained aquifer materials is likely to occur in varying degrees for at least the next 20 years or until the pumping reduction program has been fully implemented to eliminate overdraft,[109] Department staff recommend that additional information be developed and included in the GMP to at least annually monitor for subsidence using InSAR data or other reliable methods and reconsider whether and where any subsidence could adversely impact surface land uses in the Subbasin so that managers are prepared to quickly act if further overdraft during plan implementation causes unexpected increases in subsidence rate or extent. The Department also recommends that the Watermaster set an objective, quantitative standard for subsidence monitoring (for each management area) that, if triggered, would require further assessment of whether any undesirable results related to subsidence might be occurring and whether projects or management actions are necessary to mitigate or avoid such impacts (see Recommended Corrective Action 6).

5.2.6 Depletions of Interconnected Surface Water

The GMP discusses the historical context of interconnected surface water systems[110] and groundwater dependent ecosystems in the Subbasin.[111] The GMP reports that the historical Old Borrego Spring ceased to flow prior to the early 1960s and that surface water systems in the Subbasin are disconnected from groundwater, except for short perennial stretches of streams at the edges of the Subbasin. The GMP reports that the springs and seeps that partially supply perennial flow in the streams are outside of the Subbasin and are not connected to groundwater in the Subbasin. Furthermore, the GMP states that groundwater pumping in the Subbasin does not affect the springs located outside of the Subbasin. Consequently, the GMP states that there are no undesirable results associated with depletion of interconnected surface waters and they are not expected to occur within the Subbasin and therefore does not establish sustainable management criteria for depletion of interconnected surface waters.[112] Department staff consider the discussion in the GMP to be supported and consistent with other information

[108] GMP, Section 2.2.1.3; pp. 141-142.
[109] GMP, Table 3.6, p. 302; Table 3-8, p. 312.
[110] GMP, Section 2.2.2.6, pp. 164-166.
[111] GMP, Section 2.2.2.7, pp. 166-172.
[112] GMP, Section 3.2.6, p. 291.

presented regarding the Subbasin setting and have no recommendations related to this portion of the GSP Regulations at this time.

5.3 MONITORING NETWORKS

GSP Regulations require that each basin establish a monitoring network that includes monitoring objectives, monitoring protocols, and data reporting requirements that promote the collection of data of sufficient quality, frequency, and distribution to characterize groundwater and related surface water conditions in the basin and evaluate changing conditions.[113]

Section VI.B of the Stipulated Judgment requires the Watermaster to develop a Water Quality Monitoring Plan within 24 months of entry of the Judgment.[114] In April 2023, the Watermaster adopted a Groundwater Monitoring Plan for the Borrego Springs Subbasin, which includes groundwater quality and satisfies the Judgment's requirement. Although Department staff reviewed the GMP's monitoring network information, this assessment relies primarily on the 2023 Groundwater Monitoring Plan adopted by the Watermaster and the Water Year 2023 Annual Report, which contain more recent information.

The primary objectives of the Subbasin's groundwater monitoring programs are to demonstrate progress toward meeting the sustainability goal without causing undesirable results, to inform adaptive management of the Subbasin to achieve the sustainability goal, and to improve the BVHM.[115] The Groundwater Monitoring Plan discusses monitoring protocols, quality assurance and control, and database management for groundwater level and groundwater quality monitoring.[116] The groundwater level monitoring network consists of 52 wells, with 19 of them equipped with pressure transducers. Of the 52 wells, 16 are representative wells with minimum thresholds for groundwater levels. Measurement frequency ranges from semiannual to every 15 minutes. The groundwater quality monitoring network includes 34 of these wells.[117] In addition to the constituents of concern discussed above in Section 5.1.2, the analytes include major cations and anions and total alkalinity.[118] Groundwater quality analysis occurs semiannually in the spring and fall.

[113] 23 CCR §354.32.
[114] Stipulated Judgment, Section VI.B, p. 45.
[115] Groundwater Monitoring Plan for the Borrego Springs Subbasin, Section 1.0, p. 6.
[116] Groundwater Monitoring Plan for the Borrego Springs Subbasin, Section 2.2.2, pp. 10-12; Section 3.2.2, pp. 20-23.
[117] Water Year 2023 Annual Report for the Borrego Springs Subbasin, Section 3.1.2.2, pp. 42-45; Figure 2, p. 43; Table 8, p. 44.
[118] Groundwater Monitoring Plan for the Borrego Springs Subbasin, Section 3.2.2, p. 20.

The Water Year 2023 Annual Report discussed the monitoring network data gaps associated with areas that would benefit from more monitoring and the efforts made to improve those data gaps. The efforts to improve the monitoring network include:[119]

- Adding four additional wells in the Northern Management Area, two of which were newly constructed via the Department's Technical Support Services program.
- Installing seven new transducers and a new Barologger for calculating groundwater levels with consideration for local barometric pressure.
- Engaging with the public to solicit interest in participating in the monitoring program and identifying 35 potential wells to add to the monitoring program. Of the 35 wells, 14 would improve the groundwater level monitoring network and 24 wells would improve the groundwater quality monitoring network.

Regarding groundwater in storage, the Stipulated Judgment and the Water Year 2023 Annual Report discuss the mandatory well metering program for all non-de minimis pumpers to measure, record, and report monthly groundwater pumping volumes to the Watermaster. Of the 42 Parties with pumping rights, 27 Parties (64 percent) are active pumpers that operate a cumulative total of 68 pumping wells—all of which are metered. Twelve Parties (29 percent) are not active pumpers, while three parties have an unknown status but are assumed to be active pumpers. The Watermaster estimates the pumped volumes for these wells and will continue attempting to contact these Parties.[120]

The Watermaster has conducted semiannual surface water monitoring in Coyote Creek from spring 2018 to fall 2023. The measurements were quantitative from 2018 to 2019, then determined to be impractical due to low flow or dry conditions and transitioned to visual and qualitative observations in 2020.[121]

Department staff believe the monitoring network appears to be sufficient to evaluate groundwater conditions in the basin consistent with the objectives of the GMP and the Stipulated Judgement.

5.4 Projects and Management Actions

A GSP is required to include a description of the projects and management actions the local agency has determined are necessary to achieve the sustainability goal for the basin, including projects and management actions to respond to changing conditions in the basin.[122] The GMP proposes six projects and management actions (PMAs) that are

[119] Water Year 2023 Annual Report for the Borrego Springs Subbasin, Section 3.1.2.2, pp. 42-45; 3.1.2.3, p. 46.
[120] Water Year 2023 Annual Report for the Borrego Springs Subbasin, Section 3.1, pp. 38-39.
[121] GMP, Section 3.1.3, p. 47.
[122] 23 CCR §354.44.

intended to achieve the sustainability goal and to sustainably manage the Subbasin during the planning and implementation horizon.[123] These PMAs include programs for:

- Water Trading
- Water Conservation
- Pumping Reduction
- Voluntary Fallowing of Agricultural Land
- Water Quality Optimization
- Intra-Subbasin Water Transfers

The GMP identifies groundwater as the sole source of water and explains that importing water to this remote area is infeasible.

The Stipulated Judgment acknowledges the substantial historic and ongoing overdraft present in the basin, and has developed an incremental, 20-year process to reduce groundwater extractions to the currently estimated sustainable yield of 5,700 acre-feet per year. This is consistent with the timeline established by SGMA, which provides up to 20 years of plan implementation for a basin to reach its sustainability goal. The GMP states that "the Pumping Reduction Program is the central tool to implement the Physical Solution and achieve the sustainability goal for the Subbasin."[124] The GMP proposes to implement this pumping reduction program by taking the initial Baseline Pumping Allocation (BPA – the allocation for each non-de minimis pumper) and reducing the BPA of each pumper incrementally each year to reach the estimated "sustainable yield" of 5,700 acre-feet per year. No future groundwater extractions from new wells, including from new de minimis domestic wells, are authorized without application to the Watermaster. The GMP reports that this pumping reduction program will be reviewed at least every five years and adjusted so that the sustainability goals are reached by the end of the implementation period.[125] Department staff examined annual reports submitted in 2022, 2023, and 2024, which cover water years (WY) 2021, 2022, and 2023. The annual reports indicate that the pumping reduction program is off to a very good start, decreasing by 37 percent since the start of GMP implementation (WY 2020) and by 20 percent relative to WY 2022. Almost all extractions are metered and reported to the Watermaster and actual reported groundwater extraction rates in the Subbasin are well below the anticipated scheduled BPA rampdown, with total pumping in WY 2023 being 10,430 acre-feet, which was approximately 50% less that the annual allocation of 20,694 acre-feet. Furthermore, it appears that other projects or actions to provide operating flexibility, such

[123] GMP, Section 4, pp. 294-332.
[124] GMP, Section 4.4, p. 364.
[125] GMP, Section 4.4.1, pp. 366-368.

as fallowing and allocation trading, have also occurred in addition to administrative and technical advances.

Finally, when evaluating GSPs or alternatives, Department staff assess whether the local agency or GSA has the legal authority and financial resources necessary to implement the respective plan. Here, the primary implementing entity of the Borrego Alternative will be the Watermaster, as identified in the Judgment. The Stipulated Judgment provides the Watermaster with all the powers of a GSA.[126] Also, the Judgment is binding on all parties and property in the Subbasin, and the Court has retained continuing jurisdiction to ensure implementation and enforce all requirements.[127] The annual reports describe many actions and milestones that have occurred so far, further confirming the authority and ability of the Watermaster to implement the alternative. Therefore, the legal authority and financial resources of the Watermaster to implement the management proposed under the alternative are considered adequate. At this time, Department staff conclude that management under the alternative is progressing very well and at a rate at least comparable to, if not faster than, other basins where only GSPs are in place, which may be a result of the compromises and terms in the Stipulated Judgment and regularly scheduled local implementation (Watermaster, Technical Advisory Committee, and Environmental Working Group) and Court meetings.

5.5 Impacts to Adjacent Basins

When evaluating GSPs or alternatives under SGMA, Department staff assess whether the respective plan will adversely affect the ability of an adjacent basin to implement its plan or impede achievement of its sustainability goal. The Subbasin is currently not adjacent to any basins subject to SGMA and Department staff has, therefore, not further evaluated this issue.

6 Evaluation of the Relationship Between the GMP and The Stipulated Judgment

6.1 Overview

Water Code Section 10733.6(b)(2) provides that management pursuant to an adjudication action that satisfies the objectives of SGMA may be submitted to the Department as an alternative to a GSP, and that is what Department staff have been tasked to evaluate here. Among the materials submitted in support of this alternative are the Stipulated Judgment and a GMP.[128] The Stipulated Judgment is a formal, legal document approved by the Court; it often uses legal words and phrases and reads very much like a contract.

[126] Stipulated Judgment Section IV.E.1, p. 37:7-12.
[127] Stipulated Judgment Sections VII.A, VII.B, and IX.
[128] *Draft Final Groundwater Management Plan for the Borrego Springs Groundwater Subbasin* (January 2020). The GMP is attached as Exhibit 1 in the Stipulated Judgment, pp. 54-1652.

In contrast, the GMP is a technical document that derives its authority for basin management by virtue of being incorporated into the terms of the Stipulated Judgment.

The dual submission of the Stipulated Judgment and GMP, with affiliated and overlapping provisions and commitments, required a detailed staff evaluation.[129] Department staff reviewed both documents to understand not only the technical aspects of the GMP, but whether its terms or those of the Stipulated Judgment defined the plan for basin management. As explained below, where the GMP and Stipulated Judgment apply different criterion to the same aspects of basin management, the ability of Department staff to determine whether the Borrego Alternative is consistent with SGMA is complicated or impaired. Although Department staff do not regard the issues discussed below to preclude approval of the Borrego Alternative at this time, staff believe this is an important issue that should be addressed.

6.2 Uncertainty Regarding Role of GMP in Subbasin Management

The Borrego Alternative includes an intent for the GMP to provide the technical foundation for sustainable groundwater management in the Subbasin, as stated, for example, in the following provisions:

- "Technical Approach to Basin Management. The Physical Solution, including this Judgment and the GMP attached as Exhibit "1," will serve as the technical approach for Basin management, subject to modification as appropriate for Adaptive Management by order of this Court pursuant to this Court's continuing jurisdiction under Section VII, including periodic updates of Sustainable Yield through the processes described herein." (Stipulated Judgment, p. 19:4-8.)

- "The purpose of this GMP is to refine and expedite implementation of the Physical Solution.... Specifically, this GMP is adopted as part of the Physical Solution by means of a Judgment Pursuant to Stipulation.... The intent of the Physical Solution is to meet the requirements of SGMA. To this end, this Plan includes the scientific and other background information about the Subbasin required by SGMA and its implementing regulations. The Plan is also intended to provide a roadmap for how sustainability is to be reached in the Subbasin...." (Stipulated Judgment, GMP Executive Summary pp. 72-73.)

[129] The Stipulated Judgment states that it is intended "to provide a physical solution for the perpetual management of the Basin, which long-term management will achieve Sustainable Groundwater Management for the Basin consistent with the substantive objectives of [SGMA]" and that "this [Stipulated] Judgment considered together with the [GMP] constitutes the Physical Solution... ." (Stipulated Judgment p.5:2-12.) "Physical Solution" is accordingly defined as "[t]he terms of this [Stipulated] Judgment, including the GMP attached hereto as Exhibit '1', which are intended to achieve Sustainable Groundwater Management for the Basin consistent with the substantive objectives of SGMA and Article X, Section 2 of the California Constitution, and which may be modified over time in compliance with the procedures described herein." (Stipulated Judgment pp. 11-12.)

However, although these provisions state the GMP will "serve as the technical approach for Basin management" and "is also intended to provide a roadmap for how sustainability is to be reached," the Stipulated Judgment and GMP also include other provisions, such as the following, that create uncertainty as to the actual role of the GMP in making future management decisions in the Subbasin:

- "This judgment considered together with the Groundwater Management Plan ('GMP') attached hereto as Exhibit '1' constitutes the Physical Solution; provided, however, that *the provisions of this Judgment control over and supersede any contrary provisions contained in the GMP*." (Stipulated Judgment p. 5:9-12 [italics added].)
- "The 'Physical Solution' proposed for the Basin consists of the GMP and the Stipulated Judgment, as overseen by the Court; provided, however, *that the provisions of the Stipulated Judgment control over and supersede any contrary provisions contained in the GMP*." (GMP Cover Page p. 54 [italics added].)
- "This GMP includes and is to be interpreted and implemented consistent with and subject to the provisions of the Judgment. *The provisions of the Judgment control over and supersede any contrary provisions contained in this GMP*." (GMP Executive Summary p. 72 [italics added].)

Although the court retains jurisdiction over an adjudicated basin and may be called upon to resolve disputes regarding groundwater management, language in the Stipulated Judgment creates some uncertainty about the ability of Department staff to rely on the GMP as defining the technical parameters of that management. Because SGMA defines this kind of alternative as "management under an adjudication action,"[130] Department staff believe that the explanation of that management would benefit from a clarification of the role of the GMP in the Physical Solution.

6.2.1 The Role of the GMP in the Watermaster's Process for Calculating Sustainable Yield Every Five Years is Uncertain

The core of SGMA is its mandate to achieve "sustainability." While alternative submittals need not exactly match the contents of a GSP, the requirements for locally establishing and quantitatively describing basin-specific sustainable management criteria are essential to any evaluation of proposed sustainable groundwater management under SGMA. Basin-specific criteria are needed to define and describe sustainability for a basin, which will guide local groundwater managers in their decision making and enable the Department to monitor and evaluate the basin's progress towards achieving sustainability under SGMA.

[130] Water Code Section 10733.6(b)(2).

The Stipulated Judgment incorporates SGMA's general statutory definitions for sustainable yield and undesirable results,[131] but it does not include locally established quantitative descriptions of conditions for this Subbasin that would constitute or indicate the potential for undesirable results to occur, or conditions or indicators to maintain in the Subbasin to avoid undesirable results (i.e., sustainable management criteria). In contrast, as discussed earlier in this assessment, the GMP generally follows the GSP Regulations by establishing and describing local conditions and metrics for use as sustainable management criteria for the Subbasin (except for the inapplicable seawater intrusion and depletions of interconnected surface water sustainability indicators).[132] For instance, the GMP describes adverse impacts to well performance as one of the conditions in the Subbasin that would constitute an undesirable result for chronic lowering of groundwater levels:

- "Undesirable results associated with chronic (i.e., persistent and long-term) lowering of groundwater levels are most directly indicated by loss of access to adequate water resources for support of current and/or potential future beneficial uses and users." (Stipulated Judgment, GMP p. 284 [Sec.3.2.1].)
- "Groundwater level declines would be significant and unreasonable if they are sufficient in magnitude to lower the rate of production of pre-existing groundwater extraction wells below that needed to meet the minimum required to support the overlying beneficial use(s)...." (Stipulated Judgment, GMP p. 284 [Sec. 3.2.1].)
- "Because many of the domestic groundwater users not connected to [Borrego Water District] rely on continued access to the upper aquifer or upper portions of the middle aquifer, an important objective in this GSP is that access to the upper aquifer or upper middle aquifer be maintained, as much as is practicable, in areas with *de minimis* and other domestic wells not currently served by municipal supply." (Stipulated Judgment, GMP p. 286 [Sec. 3.2.1].)

To avoid such undesirable results, the GMP establishes minimum thresholds "intended to protect against significant and unreasonable impacts to groundwater storage volumes and water quality" and the groundwater level thresholds "are based principally on the documented screen intervals of key municipal water wells and domestic/*de minimis* wells" located in the Subbasin.[133] The GMP includes a list of nine municipal wells and their corresponding minimum thresholds, as well as 12 key indicator wells for each of the Subbasin's management areas, which are intended to be protective of the beneficial uses

[131] Stipulated Judgment Section I.A Definitions, paragraphs 56 ["Sustainable Groundwater Management], 57 ["Sustainable Yield"], and 60 ["Undesirable Results"].
[132] GMP, Section 3.2, p. 283. (Application of Standards in the Borrego Subbasin – Each of the sustainability indicators for the Subbasin is discussed as follows, in the context of undesirable results.)
[133] GMP, Section 3.3.1.1, p. 294.

and users of groundwater in the Subbasin."[134] The GMP describes the management process to avoid the aforementioned undesirable results (e.g., well dewatering) as one involving the Watermaster making adjustments to the rate of pumping in the Subbasin to avoid exceedances of the minimum thresholds and to achieve interim milestones:

> "The Watermaster will evaluate the minimum thresholds, interim milestones, and measurable objectives at least every 5 years ... to determine the likelihood that the Plan will attain sustainability goals. The Watermaster will adjust the rate of pumping reduction, revisit minimum thresholds, and/or evaluate additional [Projects and Management Actions] if the minimum thresholds in Table 3-4 or Table 3-5, as updated are exceeded or if the interim milestones in Table 3-7, as updated are not being achieved."[135]

In contrast, the Stipulated Judgment does not require the Watermaster to implement the management process described in the GMP. Instead, the Stipulated Judgment requires the Watermaster to consider several factors other than the GMP and does not specifically mention the GMP. This leaves the role of the GMP's sustainable management criteria in determining the Subbasin's sustainable yield and making any related pumping adjustments uncertain. Specifically, Stipulated Judgment Section III.F, titled "Process for Determining Sustainable Yield and Implementation of Subsequent Rampdown," states that beginning January 2025 and every five years until 2040:

> "[T]he Watermaster will, following receipt of input and recommendations from the Technical Advisory Committee, revise the determination of Sustainable Yield.... The revised determination of Sustainable Yield will consider all sources of replenishment, including return flows and underflows, and all outflows from the Basin, and will consider among other data, information derived from updated runs of the [Borrego Valley Hydrologic Model]. Any disagreement with [the] Watermaster's determination may be appealed to this Court for review, subject to the provisions of Section VII. The revised estimate of Sustainable Yield will determine the Rampdown Rate...." (Stipulated Judgment pp. 20-22 [Sec. III.F par. 3, 7, 10].)

[134] Table 3-4 (pp. 295-296) in the GMP shows Borrego Water District wells that are key indicator wells with established minimum thresholds based on the top of the well screen. Table 3-5 (p. 299) shows minimum thresholds for key indicator wells in each management area. Department staff note that none of the key wells are screened in the upper aquifer.

[135] GMP, Section 3.3.1.1, p. 299. Department staff note that other sections of this assessment focus solely on the contents of the GMP and discuss technical uncertainties or deficiencies regarding the GMP's establishment and discussion of the sustainable management criteria themselves under the assumption that the GMP is intended to and will be used in Subbasin management decisions and by the Department in future evaluations to determine whether the Subbasin is on track to reach sustainability as required by SGMA.

Thus, the approaches to calculating and managing for sustainable yield in the Stipulated Judgment and the GMP, respectively, are not described similarly and appear inconsistent. For example, the Stipulated Judgment expressly requires the Watermaster to consider only 1) "all sources of replenishment," 2) "all outflows from the Basin," and 3) "information derived from updated model runs of the BVHM." In contrast, the GMP's process expressly requires evaluation of the Subbasin's conditions against the minimum thresholds, interim milestones, and measurable objectives described and established in the GMP. The Stipulated Judgment's process for calculating sustainable yield does not appear to reference or incorporate the GMP's minimum thresholds for groundwater elevations, or the previously discussed commitment in the GMP to adjust the Subbasin's management regime based on an evaluation of actual groundwater level conditions in the Subbasin. While the Stipulated Judgment suggests the Watermaster "will consider … other data," perhaps leaving open the possibility that the GMP would be among the other data considered by the Watermaster, such consideration, by no means, seems to be required. Furthermore, the term "consider" does not indicate that the Watermaster would, or must, follow the GMP's sustainable management criteria, even if they were among the other data considered.

6.2.2 The Role of the GMP in the Watermaster's Process for Adjusting Pumping in Between the Five-Year Periods is Uncertain

The Stipulated Judgment includes the following provision providing for management adjustments at any time:

> "Notwithstanding the Rampdown schedule described herein, this Court, pursuant to motion of any Party or sua sponte, may adjust the rate of Rampdown up or down for any 5-year period or subdivision thereof, upon a finding that an adjustment to the Rampdown Rate is appropriate, and taking into account the limitations on Pumping necessary to avoid an Undesirable Result." (Stipulated Judgment, Section F.12, p. 22:23-27.)

Department staff appreciate the need for flexibility to effectively address issues that may arise during implementation of any groundwater management plan, but caution that some aspects of the Stipulated Judgment could be at odds with SGMA's expectations of an alternative. First, the process described above appears potentially inconsistent with the process established in the Stipulated Judgment for the Borrego Alternative's periodic evaluation, which is required by SGMA and the GSP Regulations to occur at least every five years.[136] The rationale for having two different processes associated with establishing pumping allocations is unclear, and no technical explanation seems to be provided; both processes relate to determinations of the rampdown schedule necessary to achieve sustainability and they, therefore, should ideally be the same.

[136] Water Code § 10733.8; 23 CCR § 358.2(b).

Second, like the five-year increment process, the interim adjustment process to define pumping allocations also does not appear to depend on the sustainable management criteria established in the GMP when calculating sustainable yield or the necessary pumping rampdown to achieve sustainability and thus lacks quantitative standards required by the GSP Regulations.[137]

Third, it does not appear that the Watermaster is authorized to invoke provision F.12, as referenced above, to adjust the "Rampdown" rate at times between the five-year increments, but that this process must be initiated either by the Court or by a motion of any Party, a term that is defined in the Stipulated Judgment but does not include the Watermaster.[138] Department staff believe this situation could create the potential that interim management adjustments that may be necessary to avoid undesirable results or achieve interim milestones may not be implemented, even if the Watermaster believes such actions are necessary.

6.2.3 The Role of the GMP in Judicial Review of Watermaster Decisions Is Uncertain

Department staff note that the Stipulated Judgment does not appear to afford the GMP any weight or control if the Watermaster's management decisions are contested by a groundwater pumper or other party. Specifically, the Stipulated Judgment provides:

> "Contested Watermaster decisions or other matters of disagreement will be reviewed by this Court upon noticed motion of any Party, any Watermaster Board member or the Watermaster. The Court review shall be de novo, without evidentiary weight to the Watermaster action or decision." (Stipulated Judgment p. 46:11-14.)

Thus, even if the Stipulated Judgment required the Watermaster to follow the GMP when making decisions involving sustainable management criteria, if a party challenged a Watermaster decision where the Watermaster had expressly followed provisions of the GMP (to avoid exceedance of minimum thresholds for groundwater levels or water quality for instance), the Stipulated Judgment expressly states that the Watermaster's reliance on the GMP would receive no deference from the Court. If the GMP is intended to provide the "technical approach" or "roadmap" for Subbasin management, as is indicated in one provision of the Stipulated Judgment and as stated in the GMP, it seems that management decisions consistent with or required by the GMP should generally be upheld by the Court or at least afforded some evidentiary weight.[139]

[137] 23 CCR § 354 et seq.
[138] Stipulated Judgment, Section I.40, p. 11:13-15.
[139] Stipulated Judgment, Section III.C., p. 19; GMP, Executive Summary, p. 73.

6.2.4 The Role of the GMP in Managing to Avoid Degraded Water Quality is Similarly Uncertain

The previous sections of this staff report, as they pertain to chronic lowering of groundwater levels, have provided several examples identifying the lack of technical clarity in the Stipulated Judgment and inconsistencies when compared to the GMP's implementation structure. Without delving into as much detail, it is important to note that similar issues and concerns arise with respect to degradation of water quality, another one of SGMA's six undesirable results and sustainability indicators. Specifically, as demonstrated by the following provision, the Stipulated Judgment appears to establish an open-ended, subjective process for the Watermaster to determine whether a certain amount of water quality degradation constitutes an undesirable result:

> "The Watermaster will determine if changes in water quality are significant and unreasonable following consideration of the cause of the impact, the affected beneficial use, potential remedies, input from the Technical Advisory Committee, and subject to approval by this Court exercising independent judgment." (Stipulated Judgment p. 45:13-16.)

This provision in the Stipulated Judgment does not reference or incorporate the parts of the GMP that discuss and establish sustainable management criteria for degraded water quality, or the projects and management actions intended to prevent undesirable results in the Subbasin from occurring.[140] As such, this provision is not clear as to how the prescribed thresholds and actions of the GMP relate to the Watermaster's decisions and management under the adjudication action when addressing water quality degradation.

6.3 Conclusion

Department staff conclude that although there appears to be an intent to use the GMP as the technical "roadmap" for management of the Subbasin, there are uncertainties and inconsistencies in the express provisions of the Stipulated Judgment and the GMP that cast confusion or doubt as to whether this is actually how the Borrego Alternative (i.e., "management under an adjudication action") will be implemented in the Subbasin. While flexibility under the rubric of adaptive management is desirable in a groundwater management program, at this time Department staff cannot assume or predict with sufficient certainty how the GMP will influence management decisions under the Borrego Alternative. This issue should be addressed to ensure that Department staff will be able to quantitatively track whether implementation of the Borrego Alternative is meeting the Subbasin's sustainability goal and the objectives of SGMA (see Recommended Corrective Action 7).

[140] GMP, Section 3.2.4 (Degraded Water Quality-Undesirable Results), pp. 289-290; Section 3.3.4 (Degraded Water Quality-Minimum Thresholds), pp. 306-308; Section 3.4.4 (Degraded Water Quality-Measurable Objectives), pp. 312-313; and Section 4.6 (Projects and Management Actions for Water Quality Optimization), pp. 373-378.

7 DETERMINATION STATUS AND RECOMMENDATIONS

Department staff recommend **APPROVAL** of the Stipulated Judgment as a SGMA alternative with several recommended corrective actions that should be implemented before the deadline for the next periodic submission and evaluation of the Borrego Alternative, which is June 25, 2026.

As explained in detail above, Department staff conclude that the GMP reflects a reasonable understanding of the geology and hydrology of the Subbasin based on decades of technical studies performed by objective third parties. That understanding is combined with a forthright discussion of the historical and current difficulties and challenges in eliminating overdraft and achieving sustainable groundwater management in the Subbasin. The Stipulated Judgment and GMP, while requiring refinement for clarity and consistency, establish a quantitative value for the initial sustainable yield as a goal to manage the groundwater extractions of the Subbasin and establish an enforceable program and general process for reducing extractions to reach the currently estimated sustainable yield in approximately 20 years. The program includes, among other attributes, the following:

- Robust local involvement through a regularly updated website and regular and public meetings of the Watermaster, Technical Advisory Committee, and Environmental Working Group;
- Quantitative measurement of groundwater extractions by metering virtually all non de minimis wells;
- Tracking and enforcing (with fees or Court orders) required reductions in tiered and allotted extractions;
- Allowing the voluntary transfer of pumping allocations within the Subbasin; and
- Monitoring groundwater levels throughout the implementation period.

Department staff believe these activities are reasonably designed to help the Watermaster manage the Subbasin towards the stated sustainability goals. Furthermore, efforts in the first several years of implementation of the Stipulated Judgment are proceeding rapidly and very well, putting this Subbasin ahead of efforts in many other overdrafted basins in the state that have only GSAs and GSPs.[141] For example, groundwater extractions have decreased 37 percent since water year 2020 when the GMP was first implemented, including metered reductions in pumping from 2022 to 2023 of 20 percent. Many of these reductions have come from the agricultural sector, which,

[141] Department staff note, for instance, that few, if any, other critically-overdrafted basins subject to SGMA have achieved equivalent levels of implementing the following measures: (1) metering and reporting of over 95 percent of groundwater extractions; (2) well-defined and enforceable pumping allocations and extraction fees; and (3) actual, substantial reductions in extractions.

historically, consumptively used over 70 percent of the Subbasin's groundwater. For critically overdrafted basins like the Borrego Springs Subbasin here, Department staff consider the option to utilize demand reduction to be appropriate, reasonable, and the most straightforward way to eliminate overdraft in the Subbasin. However, as explained above, SGMA is not focused on elimination of overdraft alone. SGMA requires that quantified sustainable management criteria be determined for each of the applicable sustainability indicators so that objective metrics can be used to define and determine whether a basin is being sustainably managed. The eventual elimination of overdraft over two decades does not automatically equate to the absence or avoidance of undesirable results under SGMA.

7.1 Recommended Corrective Actions

Based on evaluation of the Borrego Alternative, and as discussed above, Department staff recommend the following corrective actions for some sections of the Stipulated Judgment and/or GMP, and related components, in order to improve implementation of the Borrego Alternative and basin management thereunder, and ensure that the requirements of SGMA, especially sustainable groundwater management, are likely to be achieved within 20 years in the Subbasin.[142]

Recommended Corrective Action 1

- Provide more figures, maps, and supporting information to clarify the rationale for creating management areas and establishing different minimum thresholds and measurable objectives based on the management areas.[143]
- Discuss how the established sustainable management criteria are appropriate for each management area, why the minimum thresholds are appropriate to avoid significant and unreasonable impacts to beneficial uses and users, including any mitigation actions, and will facilitate implementation of the Stipulated Judgment.[144]
- Clarify which sustainability indicators have minimum thresholds that apply to a specific management area and which minimum thresholds apply to the entire Subbasin.

Recommended Corrective Action 2

Describe how the mitigation measures,[145] projects and management actions, and sustainable management criteria would avoid significant and unreasonable impacts to

[142] Department staff express no opinion and leave it to the Watermaster, local agencies and parties, and other local interests to determine what changes to make to which documents (e.g., Stipulated Judgment, GMP, etc.) to best carry out all of the recommended corrective actions.
[143] 23 CCR §354.12.
[144] 23 CCR §354.20.
[145] GMP, Table 3-1, p. 282.

beneficial uses and users, specifically domestic well owners. Describe in detail how the GMP's mitigation process to address undesirable results of impacts to domestic and de minimis users as groundwater levels continue to decline will be funded and implemented, including what is considered technically or financially feasible; the process in which feasibility will be determined; specific mitigation measures that will be considered or applied; and who will bear the responsibility and costs to mitigate the undesirable result.[146]

RECOMMENDED CORRECTIVE ACTION 3

Discuss the impacts to beneficial uses and users, including de minimis users, at the established minimum thresholds, interim milestones, and measurable objectives for each sustainability indicator in each management area, as applicable. Clarify the expected impacts to beneficial uses and users if all representative monitoring points in the Subbasin are at their respective minimum thresholds and interim milestones. Clarify the monitoring that will be performed in each management area that can be used objectively to track progress towards sustainability.[147]

RECOMMENDED CORRECTIVE ACTION 4

Provide more information regarding the minimum threshold and measurable objective for groundwater in storage, including quantified values for this sustainability indicator as they relate to the BVHM projected conditions.[148]

RECOMMENDED CORRECTIVE ACTION 5

Quantify the "generally accepted threshold limits for [crop] irrigation used by State Water Resources Control Board," and discuss how those limits will be used to track progress in the Subbasin to avoid undesirable results associated with degradation of groundwater quality. Describe the groundwater conditions and the associated impacts to beneficial uses and users of the Subbasin at those limits.[149]

RECOMMENDED CORRECTIVE ACTION 6

Until pumping reductions have been fully implemented to the point where overdraft is eliminated and groundwater pumping equals the sustainable yield, monitor for land subsidence and evaluate, at least every five years, whether land subsidence is interfering with property interests and surface uses or otherwise impacting beneficial uses and users (e.g., flood depths, flows, or risks, well casings or other infrastructure, etc.). Describe the

[146] GMP, Section 3.3.2.1, p. 303.
[147] 23 CCR § 354.34(d).
[148] 23 CCR § 354.28(c)(2).
[149] GMP, Section 3.4.4, p. 313.

amount of land subsidence or impacts that would be significant and unreasonable and therefore cause or constitute undesirable results in the basin.

RECOMMENDED CORRECTIVE ACTION 7

Eliminate inconsistencies or ambiguities between the Stipulated Judgment and GMP, and resolve or clarify the intended role of the GMP in Subbasin management and make appropriate amendments to the GMP and/or Stipulated Judgment (as needed) to clearly and expressly reflect (and enforce) that intent, especially, but not limited to the following issues detailed in Section 6 of this assessment:

a. Application and use of the GMP's sustainable management criteria to calculate the sustainable yield and making management decisions to avoid undesirable results within the Subbasin.

- Reconcile or explain the inconsistencies between the process and factors considered for making the periodic five-year calculations of sustainable yield and those for adjustments to sustainable yield in between the five-year periods.
- Reconsider and clarify the role of the GMP in guiding Watermaster and Court decisions in implementing the Borrego Alternative and managing groundwater in the Subbasin.
- Include in all annual reports and periodic evaluations submitted to the Department a description of Watermaster or court decisions (e.g., sustainable yield calculations, amended or new judgments[150], other orders of consequence, etc.) that impact basin management.

7.2 CONCLUSION

Although Department staff have included several recommended corrective actions, staff do not believe this precludes approval of the Borrego Alternative, at this time, because the Subbasin is currently being managed under the adjudication action and recent information demonstrates that significant progress towards sustainability has been, and continues to be, made. In particular, the following factors militate strongly in favor of an approval, at this time, while allowing additional time to complete the corrective actions during continued implementation of the alternative:

- This is a high-priority basin designated by the Department as in a condition of critical overdraft; therefore, addressing overdraft is of paramount importance. The

[150] In issuing new or amended judgments, the Court, Watermaster, and other parties may consider availing themselves of the provisions of section 850, subdivision (c), of the Code of Civil Procedure, which authorizes the Court to refer and request a joint report from the State Water Resources Control Board and the Department on how any such judgment could affect the ability of the State Water Resources Control Board or the Department to comply with the Sustainable Groundwater Management Act and to achieve sustainable groundwater management in the Subbasin.

Borrego Alternative does that through the Stipulated Judgment, which establishes a robust and enforceable procedure to reduce overdraft (by restricting extractions) every year for the next 20 years, if needed, to achieve sustainability. That procedure has been in place for the past two years and actual pumping in the Subbasin during that time has decreased faster than required by the pumping rampdown schedule in the Stipulated Judgment. Therefore, one of the major challenges facing this critically overdrafted basin has been addressed and is off to a very good start in relation to the 20-year timeline SGMA envisions for a GSP or alternative to achieve sustainability.

- Almost all extractions (about 95 percent) in the Subbasin are currently metered and reported to the Watermaster.
- The Watermaster has a functioning and enforceable fee structure in place to raise funds necessary to implement the Subbasin's management program.
- There have been no major controversies regarding implementation of the management program since the Judgment was entered and the fact that it is a court-ordered and enforceable judgment minimizes the risk of future controversies or lawsuits that could delay implementation (e.g., disputes over fees or water rights allocations).
- The deadline for resubmission of the Borrego Alternative is June 25, 2026, at which time the Department will be able to reassess management in the Subbasin with sufficient time to trigger state intervention, if necessary, to allow for full SGMA compliance within statutory timeframes.