

APPENDIX G

GSP Comments and Responses

Comments received by BWD regarding the Stipulated Judgment and BWD's responses have been added at the end of this Appendix.

APPENDIX G RESPONSES TO COMMENTS

Under the Sustainable Groundwater Management Act (SGMA), the County of San Diego (County) and Borrego Water District (BWD), as the Groundwater Sustainability Agency (GSA) for the Borrego Springs Groundwater Subbasin (Subbasin), has solicited and responded to comments from the public and from other agencies concerned with the Draft Groundwater Sustainability Plan (GSP). The Draft GSP was made available by the GSA for public review on March 22, 2019. The public comment period for the Draft GSP ended on May 21, 2019. Agencies, organizations, and individuals submitting comments on the plan are listed below, organized by category.

Letter Number	Organization/Commenter
C1	Borrego Springs Community Sponsor Group
I1	Janet Johnson
I2	Bill Carpenter
I3	Lee Grismer
I4	John Geyer
I5	Eric Nessa
I6	Larry Grismer
I7	Linda Goodrich
I8	Pat Hall
I9	Mike Himmerich
I10	Jeff Grismer
I11	Bill Bancroft
I12	Steve and Debbie Riehle
I13	Terry and Pam Rhodes
I14	Rebecca Falk
I15	Rebecca Falk
I16	Rebecca Falk
I17	Rebecca Falk
I18	Diane Johnson
I19	Bill Berkley
I20	Jack and Linda Laughlin
I21	Richard and Artemisa Walker
I22	Eric Nessa
I23	Marsha Boring
I24	John Peterson
I25	Robert Kleist
I26	Garold Edwards
I27	Mark Jorgenson
I28	Don Rideout
I29	Judy Davis
I30	Cary Lowe
I31	Bill Haneline

RESPONSES TO COMMENTS

Letter Number	Organization/Commenter
I32	Hugh Dietz
I33	Cristin McVey
I34	Henry Liu
I35	Susan Boutwell
I36	Thomas Hall
I37	Rudy Monica
I38	Lance Lundberg
I39	Barry Berndes
I40	David Leibert
I41	Elena and John Thompson
I42	Joseph Tatusko
I43	Paul Ocheltree
I44	Ray Shindler
I45	Ray Shindler
I46	Saul Miller
I47	Gary Haldeman
I48	Gary Haldeman
I49	Diane Martin
I50	I Donald
I51	Herbert Stone
I52	Karen and Fred Wise
I53	Jack Sims
I54	Joanne Sims
I55	James Roller
I56	Jeff Meagher
I57	Heather Davidson
I58	Linda Roller
I59	John and Mary Delaney
I60	Ellen Fitzpatrick
I61	Michael Wells
I62	Harold and Joanne Cohen
I63	Jennifer Edwards
I64	Wayne Boring
I65	Barbara Coates
I66	Timothy Kight
I67	Mary Leahy
I68	Betsy Knaak
I69	Ginger Dunlap-Dietz
I70	Charlene Aron
I71	Sandy Jorgenson-Funk
I72	Sally Theriault
I73	Bob Theriault

Letter Number	Organization/Commenter
I74	Merrij Smith
I75	Linda Mocere
I76	D.E. and R.A. Owen
I77	Gary Funk
I78	Linda McBride
I79	Jeanne Gemmell
I80	Cyril Weaver
I81	Marjorie and Paul Schuessler
I82	Alfred DeVico
I83	Liesel Paris
I84	Sal Mocerì
I85	Heidi Noyes
I86	Robin Montgomery
I87	William Bonnell
I88	James Rickard
I89	Grace Rickard
I90	Jim Wilson
O1	Agricultural Alliance for Water and Resource Education (AAWARE), Michelle Staples, Jackson Tidus, A Law Corporation
O2	AAWARE, Michelle Staples, Esq. and Boyd Hill, Esq., Jackson Tidus, A Law Corporation
O3	T2 Borrego (Owner of Rams Hill Golf Course), Russell McGlothlin, O'Melveny
O4	Tubb Canyon Desert Conservancy, J. David Garmon, President
O5	The Nature Conservancy, Sandi Matsumoto, Associate Director, California Water Program
O6	San Diego Audubon Society, James A. Peugh, Conservation Chair
O7	Anza Borrego Foundation, Bri Fordem, Executive Director
O8	Clean Water Action, Jennifer Clary, Water Program Manager
O9	Borrego Village Association, J. David Garmon, Acting President
O10	Borrego Springs Unified School District, James L. Markman
O11	Borrego Springs Unified School District, Martha Deichler, School Community Liaison
O12	Borrego Stewardship Council, Diane Johnson
O13	Borrego Stewardship Council, Diane Johnson
O14	Borrego Water District, Kathy Dice, President, Board of Directors
O15	Borrego Valley Endowment Fund, Bob Kelly, President
S1	California Department of Fish and Wildlife, Leslie MacNair, Regional Manager, Inland Desert Region
S2	California State Parks, Gina Moran, District Superintendent

Notes: L = local agency; C= community; O = organization; I = individual; S = state agency.

All comments received on the Draft GSP have been coded to facilitate identification and tracking. Each of the written comment letters and public hearing comments received during the public comment period were assigned an identification letter and number, provided in the list above. These letters and public hearing comments were reviewed and divided into individual comments, with each comment containing a single theme, issue, or concern. Individual comments and the responses to them were assigned corresponding numbers. Each letter is the submittal of a single

individual, agency, or organization. The comment letters' identification consists of two parts. The first part is the letter and number of the document and the second is the number of the comment. As an example, Comment S2-1 refers to the first comment made and addressed in Comment Letter S2. Copies of the bracketed comment letters may be requested by contacting the Plan Manager, or visiting the GSA's website at <https://www.sandiegocounty.gov/content/sdc/pds/SGMA/borrego-valley/GSP.html>.

To finalize the GSP, the GSA has prepared the following responses to comments that were received during the public review period.

RTC.1 MASTER RESPONSES

Baseline Pumping Allocation and Pumping Reduction Program

Issue Summary: Numerous comments have been received from the community stating that the GSP places a unreasonable burden on municipal uses, small water systems (e.g., Air Ranch), and the Anza-Borrego Desert State Park (ABDSP), in reducing water demands through the GSP implementation period, without acknowledging the significant water conservation that has already been achieved to date by municipal, domestic and recreational water users. Several commenters questioned how the period between 2010 and 2015 was selected as the period in which to determine the baseline pumping allocation (BPA) as this was a period in which conservation efforts were already underway. Commenters argue that this leaves little room for further conservation efforts, and are concerned that the Pumping Reduction Program (Project and Management Action [PMA] No. 3) will require cutbacks that cannot be achieved without jeopardizing health and safety, would unreasonably raise water rates, and could result in depreciation of property values. The primary request from commenters is that the municipal sector and small water systems, such as Air Ranch and ABDSP, not be subject to the same percentage reduction as is being applied to the recreation and agricultural sectors. The overarching sentiment is that it is unfair to require an “across the board” reductions of 75% for all sectors, when agricultural pumping has been the primary contributor to groundwater overdraft in the Subbasin.

Response: The Pumping Reduction Program (PMA No. 3) will determine how, where and by whom physical reductions in pumping are to be achieved. Although the Draft GSP establishes baseline pumping allocations for each sector, and sets a Subbasin-wide pumping reduction target of 75% by 2040, it neither mandates that the level of pumping reduction be equal across all sectors nor prescribes or predicts how actual pumping reductions will be distributed across sectors at the end of the implementation period. The Pumping Reduction Program is designed to work in conjunction with other PMAs, including the Water Trading Program (PMA No. 1), the Water Conservation Program (PMA No. 2), and the Voluntary Fallowing of Agricultural Land (PMA No.4) to optimize beneficial uses of groundwater while recognizing the need to bring the Subbasin into balance. The Draft GSP states that the Water Trading Program would allow groundwater users (including the BWD) to purchase needed baseline pumping allocation from others to maintain economic activities in the Subbasin. As implementation of the GSP proceeds, it is anticipated that annual pumping allowances published by the GSA will be adjusted to reflect transfer of baseline pumping allocation between pumpers.

In response to establishing 2010 through 2014 as the baseline pumping period, the GSA sought public input prior to determining the time period for the baseline pumping allocation. Please see meeting minutes from September 28, 2017, November 17, 2017, and January 25, 2018. They can

be found on the County's SGMA website at: <https://www.sandiegocounty.gov/content/sdc/pds/SGMA/borrego-valley.html>.

Commenters are reminded that the Draft GSP does not set specific groundwater use reductions through its sustainable management criteria (i.e., GSP Chapter 3). As indicated in the GSP, the GSA will prepare the California Environmental Quality Act (CEQA) documentation (after GSP adoption) in advance of considering formal adoption and implementation of groundwater use reductions and a specific ramp down schedule. The Draft GSP also indicates an agreement among the pumpers is a possible scenario where groundwater use reductions and a specific ramp down schedule may be developed and agreed to by pumpers in the basin. On July 9, 2019, the BWD held a public meeting at which proposed stipulated agreement terms were made public.

Groundwater Dependent Ecosystems

Summary: Comments from public agencies and organizations—namely the California Department of Fish and Wildlife (CDFW), Anza Borrego Desert State Park (ABDSP), the Nature Conservancy (TNC), the San Diego Audubon Society, and Tubb Canyon Desert Conservancy—have raised concern that the Draft GSP has not adequately identified, evaluated and/or considered undesirable effects associated with interconnected surface water (and groundwater dependent ecosystems in particular), and has not included environmental uses of water as a beneficial use of groundwater within the Plan Area. In essence, commenters disagree with the GSA's Draft GSP's determination that undesirable results on interconnected surface water occurred from declining groundwater levels caused by groundwater pumping decades ago, and that there is no longer a significant nexus between the Subbasin's groundwater aquifer and the potential groundwater dependent ecosystems identified by TNC. Commenters believe that the GSA's conclusion is not adequately supported by the data presented in the GSP, and that at least, a data gap should be identified and further study is warranted.

Response: The Draft GSP, based on the best available data, describes a situation where there very likely are no undesirable effects associated with interconnected surface water and groundwater dependent ecosystems. Appendix D4 has been amended to provide additional resources newly made available by TNC after the public draft of the GSP was published that further demonstrates the disconnection of potential GDEs from the groundwater table underlying the Plan Area. This includes a rooting depth database, and a collection of Landsat data from NASA over a 30 year period that was processed to provide metrics for vegetation greenness and moisture for all of the Natural Communities Commonly Associated with Groundwater (NCCAG) areas mapped by TNC. In addition, Appendix D4 was amended to provide a comparison of aerial photography to further evaluate trends in vegetation communities in the Subbasin. The additional data provided in Appendix D4 indicates the following:

- Comparison of aerial photography shows potential GDEs mapped around the western margins of the Subbasin (i.e., GDE Units 1 and 2, Henderson Canyon, Hellhole Canyon, Culp Canyon, Tubb Canyon, and other minor or unnamed stream segments entering the Subbasin) have remained in place since the early 1950s, despite a long term and persistent trend of declining groundwater levels in the Subbasin. This suggests that these communities are being supported by surface water entering the Subbasin from perennial and ephemeral waters originating outside its boundaries, rather than the regional water table within the Subbasin.
- Evaluation of plant health indices derived from Landsat data have shown that there have been minimal changes in vegetation moisture and/or greenness since 1985 within any of the potential GDEs mapped within the Subbasin. Changes observed by year between 1985 and 2015 have been minor, and have tracked consistently with changes in annual precipitation occurring over the same time frame, rather than the steady decline in groundwater levels. If potential GDEs were relying primarily on the regional groundwater table, one would expect to see a steady decline in community health over the 20-year period.
- Evaluation of the plant root database released by TNC indicate that worldwide, Honey Mesquite have been observed to have maximum plant roots of at least 65 feet deep. This maximum depth was reported from a study in Israel. The database included one study completed closer to Plan Area, at base of the Fish Creek Mountains, about 9.3 miles west of the southern tip of the Salton Sea (Harper's Well site). In this location, the Honey Mesquite community was found to have roots extending to a maximum of 19.6 feet. The groundwater depth recorded at Well MW-5 in the Borrego Sink is 56 feet below the ground surface. There are inherent limitations to the root depth database in terms of both sample size (small) and study design (maximum depths reported may actually just correspond to maximum depth investigated).

The persistence of potential GDEs around the margins of the Subbasin, despite the occurrence of long term groundwater overdraft and declining groundwater levels in the Subbasin, provides inferential evidence that these plant communities are supported primarily by surface water, or groundwater originating from the fractured rock (i.e., springs) likely outside the Subbasin. There is also reasonable evidence that the roots of the potential GDEs may not extend hundreds of feet along the margins of the Subbasin to the regional groundwater table.

The groundwater table has most likely dropped below the likely rooting depth of the Honey Mesquite community identified in GDE Unit 3. Satellite-derived plant indices do not show any changes in aerial extent of the Honey Mesquite community from 1985 through 2018, a period with a documented steady decline in groundwater level. In GDE Unit 3, Honey Mesquite have a dimorphic root system that allows them to utilize soil moisture originating from surface water or the groundwater table, and thus adapt to the sources of water available. Thus, the GSA maintains its position that the Honey Mesquite

community as it exists today is likely no longer being supported by the groundwater. This is also the reason no BPA for beneficial use of groundwater for environmental uses (which would result in GDEs becoming another beneficial user of groundwater) is identified in the Draft GSP.

The GSA would like to remind commenters that a groundwater dependent ecosystem is defined by the Department of Water Resources' (DWR's) implementing regulations as "ecological communities or species that depend on groundwater emerging from aquifers or on groundwater occurring near the ground surface" (Title 23 CCR Section 351[m]). Although "near the ground surface" is not defined, a groundwater table that is in excess of 50 feet bgs, for example, cannot be reasonably considered as being near the ground surface. Interconnected surface water refers to surface water that is hydraulically connected at any point by a continuous saturated zone to the underlying aquifer and the overlying surface water is not completely depleted (Title 23 CCR Section 351[o]). The Subbasin as a whole is a system whose surface waters are disconnected from the underlying groundwater system (i.e., losing streams). The occurrence of a hydraulic connection to the fractured rock system outside the Subbasin boundaries that sustain flow within portions of Coyote Creek, Palm Canyon Creek, and other creeks around the margins of the Subbasin is not necessarily evidence that conditions within the Subbasin has caused undesirable results with respect to interconnected surface waters.

Initial Estimate of Sustainable Yield

Summary: Numerous comments were received that raised concerns over how the sustainable yield estimate was determined, specifically regarding the accuracy and/or absence of specific water budget components, a perception that climate change was not adequately considered, and/or general sentiments that the budget is too restrictive.

Response: The GSA has reviewed comments related to the sustainable yield for the Subbasin and determined that the initial estimate proposed in the Draft GSP remains appropriate and based on the best available data and well-regarded modeling science¹. However, GSP Section 2.2.3, and Section 2.2.3.6 in particular, has been revised to clarify how the sustainable yield estimate was developed.

The initial sustainable yield estimate used in the Draft GSP of 5,700 acre-feet per year (AFY) was based on the USGS' *pre-development scenario* that estimated natural inflows to the boundaries of the Borrego Valley Hydrologic Model (BVHM) for the period 1945 through 2010. The USGS referenced approximately 1,400 AFY that enters the basin as underflow from adjacent basins, but the USGS Model Update Report in the Draft GSP did not clarify the outflow components used in the *pre-development scenario*. Since calculations of sustainable yield must include both inflow and outflow

¹ "Best available science" refers to the use of sufficient and credible information and data, specific to the decision being made and the time frame available for making that decision, that is consistent with scientific and engineering professional standards of practice (Title 23 CCR Section 351[h]).

components, the GSP has been updated to include the water budget from the modeling update to confirm the validity and appropriateness of using 5,700 AFY as the initial sustainable yield.

Use of 5,700 AFY as the initial estimate of sustainable yield for the Borrego Springs GSP is a reasonable approach recognizing the iterative and adaptive nature of SGMA to identify data gaps, acquire new data and update the estimate of sustainable yield at each 5-year check-in during GSP implementation.

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GAVIN NEWSOM, Governor
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May 20, 2019

Via Electronic Mail and Online Submission

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Subject: Comments on the Draft Borrego Valley Groundwater Basin Groundwater Sustainability Plan

Dear Mr. Bennett:

The California Department of Fish and Wildlife (Department) is providing comments on the Draft Borrego Valley Groundwater Basin Groundwater Sustainability Plan (GSP). As trustee agency for the State's fish and wildlife resources, the Department has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and the habitat necessary for biologically sustainable populations of such species [Fish & Game Code §§ 711.7 and 1802]. The Department has an interest in the sustainable management of groundwater, as many sensitive ecosystems and public trust resources depend on groundwater and interconnected surface waters, including ecosystems on Department lands that fall within an alluvial groundwater basin adjacent to the Borrego Springs Groundwater Subbasin (7-024.02).

COMMENT OVERVIEW

The Department is writing to support ecosystem preservation and enhancement under Sustainable Groundwater Management Act (SGMA) implementation in the context of the following SGMA statutory mandates and with the benefit of Department expertise.

SGMA affords ecosystems specific statutory and regulatory consideration:

- Groundwater Sustainability Plans (GSPs) must consider **impacts to groundwater dependent ecosystems** [Water Code §10727.4(l)].
- GSPs must identify potential **effects on all beneficial uses and users of groundwater**, including fish and wildlife preservation and enhancement [Title 23

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California Code of Regulations §666], that may occur from undesirable results [Title 23 California Code of Regulations (CCR) §354.26(b)(3)].

- GSPs must **account for groundwater extraction for all Water Use Sectors** including managed wetlands, managed recharge, and native vegetation [Title 23 CCR §351(a), §356.2(b)(4)].

In consideration of these and other SGMA statute and GSP regulations, the Borrego Valley Groundwater Basin GSP does not: adequately describe the basin setting, rely on the best available science to develop the water budget, adequately estimate sustainable yield, address data gaps associated with potential groundwater flux at the Coyote Creek fault, include undesirable results to groundwater dependent ecosystems (GDEs) in adjacent groundwater basins, and address data gaps in the proposed monitoring network. The Department recommends addressing these concerns before submitting the GSP to the Department of Water Resources for evaluation and assessment.

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COMMENTS AND RECOMMENDATIONS

The Department comments are as follows:

1. **Section 2.2 (Basin Setting).** The Basin Setting is not adequately described. In section 2.2.1.2, it is stated that the hydraulic connectivity across the Coyote Creek fault between the Borrego Springs Subbasin and the adjacent Ocotillo-Clark Valley basin is not precisely known and the range of flux across this fault is estimated to be anywhere between 32 acre-feet per year (AFY) and 3,200 AFY. This is noted as a data gap in section 2.2.2.1 (Groundwater Elevation Data), "Data Gaps" subsection as well.
 - a. Issue: The basin cannot be accurately characterized with such a wide range of potential influx. This influx range is inadequate to define and assess reasonable sustainable management criteria as required by Title 23 CCR section 354.12. This issue has been identified as a data gap on p. 2-54.
 - b. Recommendation: Address existing data gap through monitoring efforts (see Comment #8) prior to development of a water budget.
2. **Section 2.2.2.1 (Groundwater Elevation Data), Data Gaps Subsection.** Groundwater movement along (parallel to) the San Felipe fault should be included as a data gap. It is noted that on Figure 2.2-8 (Geologic Map) that the San Felipe fault may potentially be directing subsurface flow along the fault towards a low spot in groundwater elevation associated with the Borrego Sink (see Figures 2.2-13A). The Department recommends that monitoring wells be installed along the San Felipe fault to evaluate subsurface inflow and outflow

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along the San Felipe fault in order to "...develop a monitoring network capable of collecting sufficient data to demonstrate short-term, seasonal, and long-term trends in groundwater and related surface conditions, and yield representative information about groundwater conditions as necessary to evaluate Plan implementation" as required by Title 23 CCR section 354.34(a).

- a. Issue: Unknown groundwater movement along the San Felipe fault potentially affects subsurface flow to San Felipe Creek GDE. Groundwater declines at San Felipe Creek GDE are currently impacting the state- and federally-endangered desert pupfish (*Cyprinodon macularius*) habitat and Designated Critical Habitat (DCH) through dewatering spring-fed surface waters.
- b. Recommendation: Plan and install monitoring wells along the San Felipe Fault.

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3. **Section 2.2.3 (Water Budget).** Assumptions are used for the Borrego Valley Hydrologic Model (BVHM) that don't represent the best available science. The BVHM is used to develop the water budget and is appropriate to model groundwater in an agricultural setting with an arid/semi-arid environment. However, the output of the BVHM is dependent on the validity of the data set used by the model. If the data input is biased, it can yield a biased result. In section 2.2.3.3 it is noted that the Subbasin lost 7,300 AFY from storage during the 1945-2016 time-period, but the average loss for the last 10 years was 13,700 AFY. This information indicates that more recent years are characterized by higher extraction rates potentially associated with climatic shifts. Within Section 2.6.8 of *Update to United States Geological Survey Borrego Valley Hydrologic Model for Borrego Valley Sustainability Agency* (included as Appendix D1 of the Plan), the average annual natural recharge of water reaching the saturated zone was calculated to be 5,700 AFY based on a simulation period of 1929 to 2010. Inclusion of older data to develop the model output can introduce a bias into model output. The Plan does not adequately quantify the current inflows and outflows for the basin using the most recent hydrology, water supply, and water demand information as required by Title 23 CCR section 354.18(c)(1) or provide a quantitative assessment of the historic water budget as required in Title 23 CCR section 354.18(c)(2)(B).

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- a. Issue: Using a long historical record of groundwater use can bias BVHM outputs and water budget calculations towards inflow/outflow numbers that are not reflective of current climate and groundwater use patterns.
- b. Recommendation: The GSP should use datasets from the most recent 50-year period for precipitation, evapotranspiration, and streamflow information; and the GSP should use only the most recent 10-year period of a quantitative assessment of the historical water budget to estimate and

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project future water budget information and future aquifer response to proposed groundwater management practices.

4. **Section 2.2.3.6 (Sustainable Yield Estimate).** In section 2.2.3.6 on p. 2-80, the average annual natural recharge of water reaching the saturated zone is estimated to be 5,700 AFY. However, this includes an average annual agricultural return flow of 1,473 AFY. As the pumping reduction and following Project and Management Actions are implemented, the agricultural return flow can reasonably be expected to be reduced. This would result in an underestimate of the natural recharge in the water budget and would not provide an accurate estimate of the "Inflow to the groundwater water..." specified by Title 23 CCR section 354.18(b)(2).

a. Issue: The water budget does not account for reduction in agricultural return flow associated with GSP implementation.

b. Recommendation: Redesign water budget calculations to account for reduction in agricultural return flow.

5. **Section 3.3 (Minimum Thresholds).** Section 3.3 identifies on p. 3-16 that Title 23 CCR section 354.28(e) states, "the description of minimum thresholds shall include the following: ...How minimum thresholds have been selected to avoid undesirable results in adjacent basins or affecting the basins ability to achieve sustainability goals". Because of the unknown flux across the Coyote Creek fault and the known overdraft of the Borrego Valley Subbasin, groundwater extraction in the Borrego Valley Subbasin may be impacting recharge in the adjacent Ocotillo-Clark Valley Groundwater Basin. San Felipe Creek is a GDE within the Ocotillo-Clark Valley Basin that has been experiencing groundwater declines that is causing severe impacts to State- and federally-endangered desert pupfish (*Cyprinodon macularius*) and DCH for this species.

a. Issue: Minimum thresholds do not include consideration of undesirable results in adjacent basins.

b. Recommendation: Include a consideration of GDEs in adjacent Ocotillo-Clark Valley groundwater basin within section 3.3.6 (Depletions of Interconnected Surface Waters-Minimum Thresholds) and section 3.4.6 (Depletions of Interconnected Surface Water-Measurable Outcomes).

6. **Section 3.3.1.3 (Minimum Threshold Impacts to Adjacent Basins).** Section 3.3.1.3 states that "...adjacent Ocotillo-Clark Valley Groundwater Basin and Ocotillo Wells Subbasin are both "very low" priority basins not required to prepare GSPs. As such, they are not expected to develop descriptive undesirable results or quantitative minimum thresholds and measurable objectives." Title 23 CCR section 354.28(e) states, "the description of minimum thresholds shall include the

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following...How minimum thresholds have been selected to avoid undesirable results in adjacent basins or affecting the basins ability to achieve sustainability goals". Desert pupfish are protected under the California Endangered Species Act (CESA) and the federal Endangered Species Act (ESA). Potential impacts to desert pupfish and desert pupfish DCH at San Felipe Creek should be considered an undesirable result.

- a. Issue: Minimum thresholds do not include consideration of undesirable results in adjacent basins.
- b. Recommendation: Include a consideration of GDEs in adjacent Ocotillo-Clark Valley Groundwater Basin within section 3.3.6 (Depletions of Interconnected Surface Waters-Minimum Thresholds) and section 3.4.6 (Depletions of Interconnected Surface Water-Measurable Outcomes).

7. Section 3.5.4.2 (Identification of Data Gaps) Groundwater Elevation subsection. Section 3.5.4.2 states on p. 3-45 that "Multicompletion wells or well clusters screened at discrete intervals in the upper, middle and lower aquifers would be required to determine potentiometric surface by aquifer unit. However, the average potentiometric surface measured at wells that are screened over one or more aquifer units appears to sufficiently represent groundwater conditions..." The Department does not agree that wells screened at more than one aquifer sufficiently represent groundwater conditions. The Department agrees with the recommendation included within section 6 on p.16 of the *Update to Borrego Valley Hydrologic Model* where it is recommended to "Conduct aquifer tests at wells screened only in the upper aquifer and only in the middle aquifer to obtain site-specific estimates of hydraulic conductivity and specific yield for each aquifer unit. This information may be used to enhance the calibration of the model to these hydraulic properties and our understanding of storage in the BVGB." This information is also identified in the "Borrego Valley Hydrologic Model" subsection of section 3.5.4.2 as a means to address the aforementioned data gap. The use of wells screened only for the upper and middle aquifers will "...develop a monitoring network capable of collecting sufficient data to demonstrate short-term, seasonal, and long-term trends in groundwater and related surface conditions, and yield representative information about groundwater conditions as necessary to evaluate Plan implementation" as required by Title 23 CCR section 354.34(a).

- a. Issue: Proposed use of wells screened at more than one aquifer could be inadequate to monitor groundwater conditions within each aquifer.
- b. Recommendation: Plan and install multicompletion wells or well clusters screened only in the upper aquifer and only in the middle aquifer to specifically monitor aquifer conditions within these aquifers.



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8. **Section 3.5.4.2 (Identification of Data Gaps) Groundwater Elevation subsection.** The "Borrego Valley Hydrologic Model" subsection of section 3.5.4.2 also identifies the previously mentioned data gap associated with potential flux across the Coyote Creek fault. The Department recommends that monitoring wells be installed on both sides of the Coyote Creek fault to evaluate subsurface inflow and outflow along and across the Coyote Creek fault in order to "...develop a monitoring network capable of collecting sufficient data to demonstrate short-term, seasonal, and long-term trends in groundwater and related surface conditions, and yield representative information about groundwater conditions as necessary to evaluate Plan implementation" as required by Title CCR section 354.34(a).

- a. Issue: There is an unknown amount of groundwater flux across and/or along the Coyote Creek Fault.
- b. Recommendation: Plan and install monitoring wells on both sides of the Coyote Creek Fault.

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9. **Section 3.5.4.2 (Identification of Data Gaps) Groundwater Elevation subsection.** The "Borrego Valley Hydrologic Model" subsection of section 3.5.4.2 does not mention a data gap associated with the San Felipe Fault. However, it is noted that on Figure 2.2-8 (Geologic Map) that the San Felipe fault potentially may be directing subsurface flow along the fault towards a low spot in groundwater elevation associated with the Borrego Sink (see Figures 2.2-13A). The Department recommends that monitoring wells be installed along the San Felipe fault to evaluate subsurface inflow and outflow along the San Felipe fault in order to "...develop a monitoring network capable of collecting sufficient data to demonstrate short-term, seasonal, and long-term trends in groundwater and related surface conditions, and yield representative information about groundwater conditions as necessary to evaluate Plan implementation" as required by Title 23 CCR section 354.34(a).

- a. Issue: There is an unknown amount of groundwater movement along the San Felipe Fault.
- b. Recommendation: Plan and install monitoring wells along the San Felipe Fault.

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10. **Section 3.5.4.2 (Identification of Data Gaps).** The "Borrego Valley Hydrologic Model" subsection of section 3.5.4.2 does not mention a data gap associated with spring systems. However, Figure 2.2-17 identifies multiple spring systems that may be associated with the Borrego Springs Groundwater Basin. Springs constitute a GDE. The Department recommends identifying what springs, if any, should be considered GDEs potentially impacted by the Plan through a phased approach. Springs that would potentially be impacted by groundwater decline in

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the Borrego Springs Groundwater Basin would most likely be associated with a regional fault system that provides a hydrologic connection between the springs and the alluvial basin. Springs associated with regional faults would likely exhibit elevated temperatures in comparison to springs that are not associated with the fault system. A simple procedure of measuring temperatures of the neighboring springs can identify those associated with the basin. A second method, such as measurement of dissolved Helium isotope ratio of those springs with elevated temperatures can positively identify those systems associated with fault system. Waters with contact with regional fault systems tend to exhibit an atypical Helium isotope ratio (in comparison to surface waters) that is indicative of exposure to mantle derived Helium. If springs are associated with regional fault systems they should be considered potential GDEs and included within the Plan in order to "...develop a monitoring network capable of collecting sufficient data to demonstrate short-term, seasonal, and long-term trends in groundwater and related surface conditions, and yield representative information about groundwater conditions as necessary to evaluate Plan implementation" as required by Title 23 CCR section 354.34(a).

- a. Issue: It is unknown if springs have hydrologic connection to basin.
- b. Recommendation: Measure water temperatures among springs to identify those with potential hydrologic connection to regional fault systems and basin. Perform second test for Helium isotope ratio to verify potential GDEs.

11. **Appendix D1 (Update to Borrego Valley Hydrologic Model).** The Department recommends that recharge from streamflow be monitored and the estimated annual average recharge during the term of the Plan be revised as climatic changes occur. In addition, recharge estimates from agricultural return flow will be altered by implementation of the Plan itself. This will alter the estimated recharge used by the BVHM. Accounting for changes in recharge components over time will provide a description of current groundwater conditions as required by Title 23 CCR section 354.16 and will quantify the inflow to the groundwater system required by Title 23 CCR section 354.18 (b)(2).

- a. Issue: Recharge associated with changing climate and changes in agricultural return flow are likely to be substantially altered during the term of the Plan.
- b. Recommendation: Revise the BVHM to be adaptive and incorporate systematic adjustments to input (e.g. agricultural return flow) used to calculate recharge.

↑
S1-11
Cont.

↑
S1-12

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12. **Appendix D1 (Update to Borrego Valley Hydrologic Model), Section 6.** As described in section 6 of the *Update to Borrego Valley Hydrologic Model*, considerable uncertainty exists about agricultural pumping and stream flow leakage. The Department supports the recommendations contained in section 6 to install stream gauges and well pumping meters to address these uncertainties. Implementing these recommendations provide information about flow directions, lateral and vertical gradients, and regional pumping patterns as required by Title 23 CCR section 354.16(a) and quantify the inflow to the groundwater system required by Title 23 CCR section 354.18 (b)(2).

S1-13

- a. Issue: Considerable uncertainty exists regarding agricultural pumping and stream flow leakage.
- b. Recommendation: Install stream gauges and well pumping meters as recommended in section 6 of Appendix D1.

13. **Appendix D1 (Update to Borrego Valley Hydrologic Model), Figures 11 and 12.** Both residual plots (Update to the Borrego Valley Hydrologic Model – Figure 11) and the linear model plots (Figure 12) suggest potential changes and increased bias in the model between the first and second runs (1945-2010 and 2011-2016). Performing a statistical comparison would provide information about flow directions, lateral and vertical gradients, and regional pumping patterns as required by Title 23 CCR section 354.16(a).

S1-14

- a. Issue: There are potential changes and increased bias in the model between the first and second runs (1945-2010 and 2011-2016).
- b. Recommendation: Use an appropriate statistical comparison (e.g. ANCOVA) to determine changes in the relationship between predicted and estimated head.

CONCLUSION

In conclusion, the Borrego Valley Groundwater Basin Groundwater Sustainability Plan does not comply with all aspects of SGMA statute and regulations, and the Department deems the plan insufficient to consider impacts fish and wildlife beneficial users of groundwater. The Department recommends that the Borrego Valley Groundwater Sustainability Agency address the above comments to avoid a potential 'incomplete,' or 'inadequate' plan determination, as assessed by the Department of Water Resources, for the following reasons derived from regulatory criteria for plan evaluation:

S1-15

- 1. The assumptions, criteria, findings, and objectives, including the sustainability goal, undesirable results, minimum thresholds, measurable objectives, and interim milestones are not reasonable and/or not supported by the best available

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information and best available science. [CCR 355.4(b)(1)] (See Comments #1 and 3)

2. The Plan does not identify reasonable measures and schedules to eliminate data gaps. [CCR §355.4(b)(2)] (See Comments #2, 7, 8, 9, and 10)
3. The sustainable management criteria and projects and management actions are not commensurate with the level of understanding of the basin setting, based on the level of uncertainty, as reflected in the Plan. [CCR §355.4(b)(3)] (See Comments #2, 4, 11, 12, and 13).
4. The projects and management actions are not feasible and/or not likely to prevent undesirable results and ensure that the basin is operated within its sustainable yield. [CCR §355.4(b)(5)] (See Comments #4, 11, 12, and 13)
5. The Plan does not include a reasonable assessment of overdraft conditions or include reasonable means to mitigate overdraft, if present. [CCR §355.4(b)(6)] (See Comments #4, 11, 12, and 13)
6. The Plan will adversely affect the ability of an adjacent basin to implement its Plan or impede achievement of its sustainability goal. [CCR §355.4(b)(7)] (See Comments #5, 6, and 8)

The Department appreciates the opportunity to provide comments. Please contact Nick Buckmaster at Nick.Buckmaster@wildlife.ca.gov or Charley Land at Charles.Land@wildlife.ca.gov with any questions.

Sincerely,



Leslie MacNair
Regional Manager,
Inland Desert Region

S1-15
Cont.

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RTC.2 STATE AGENCIES

Letter S1

**Commenter: Leslie MacNair, Regional Director, Inland Desert Region, California
Department of Fish and Wildlife (CDFW)**

Date: May 20, 2015

S1-1 This comment provides introductory information about CDFW’s role as a trustee agency and summarizes the comments in the letter. Specific responses to issues raised are provided below (Responses S1-2 through S2-14). The Groundwater Sustainability Plan (GSP) adequately considers impacts to groundwater dependent ecosystems (GDEs) (GSP Section 2.2.2.7, Section 3.2.6, and Appendix D4), effects of beneficial uses and users of groundwater (GSP Section 2.1.4 and Chapter 3), and accounts for groundwater extraction for all sectors, including native vegetation (GSP Section 2.2.3). The Draft GSP, Appendix D4 in particular, has been revised to provide clarification and additional supporting information. However, the Groundwater Sustainability Agency (GSA) maintains there are likely no interconnected surface waters within the Plan Area, and that the potential GDEs mapped within the Subbasin are dependent on surface water, percolating or perched water within the unsaturated zone, and/or groundwater originating from springs outside the Subbasin. Because potential GDEs are disconnected from the Subbasin’s groundwater aquifer, there are no undesirable effects occurring with respect to depletions of interconnected surface waters. Naturally, this conclusion extends to fish and wildlife species that may depend on habitats located within the Plan Area.

S1-2 The basin setting provided in Chapter 2 of the Draft GSP provides an adequate description of the Borrego Springs Subbasin. The U.S. Geological Survey (USGS) has a reasonable basis for considering the Coyote Creek Fault in its report as a no-flow barrier, including differences in groundwater levels across the fault and the orientation of groundwater contours. The description of the Subbasin in the Draft GSP is exhaustive and thorough, and includes the description of additional work done by graduate students under Dr. David Huntley that suggests the fault acts as a partial barrier to groundwater flow rather than a no-flow barrier (with an estimated inflow between 32 and 3,200 acre-feet per year [AFY]). This additional information satisfies the requirements under SGMA to identify data gaps and levels of uncertainty.

Although the potential inflow at the Coyote Creek fault could have additional inflow not accounted for in the Subbasin’s water budget in GSP Section 2.2.3, it

does not mean that the Subbasin has been inaccurately characterized. The Borrego Valley Hydrologic Model (BVHM) is a calibrated model based on observed groundwater levels, which means that if inflow across Coyote Creek Fault were added to the model, inflows and outflows for other model components would need to be redistributed to explain the same observed groundwater levels (finite difference model), such as an increase in the subsurface outflow to the Ocotillo Wells Subbasin, a decrease in stream recharge, or a decrease in subsurface inflow already estimated in the BVHM.

As stated in GSP Section 2.2.2.1,

the GSA does not consider this a critical data gap because historical groundwater levels and trends suggest the flux would be into the Subbasin rather than out of the Subbasin (i.e., a potential missing input to the water budget), and because the Coyote Creek Fault is distant from the active pumping centers within the Subbasin. This data gap does not affect the GSP's establishment of sustainable management criteria in Chapter 3, or the effectiveness of projects and management actions described in Chapter 4.

In other words, if the flow across the Coyote Creek Fault into the Subbasin is substantial, it would have a positive rather than a negative effect on meeting the GSA's sustainability criteria. Data gaps and uncertainties do not make a water budget "inadequate" especially when they are clearly identified; instead, uncertainty is an expected part of the development of a water budget. As described in the GSP Section 3.5.4, the GSA will continue to assess and improve the monitoring network, and will re-evaluate the BVHM to improve the accuracy of key water budget components and model forecasts.

S1-3

The rationale for the southern and southeastern boundary of the Subbasin, marked by San Felipe Creek, is provided in Draft GSP Section 2.2.1.2, including a description of how the geologic structure associated with the San Felipe Fault (San Felipe Anticline) affects the geometry of the Subbasin. It is unclear why the commenter asserts that the San Felipe Fault may be directing subsurface flow to the Borrego Sink, as this is not indicated in the geologic map (GSP Figure 2.2-8), the groundwater level contours (GSP Figure 2.2-13A), or the HCM for the Subbasin (GSP Section 2.2.1). In addition, there are no potential GDEs along San Felipe Creek within the Subbasin, as described in GSP Section 2.2.2.7 and Appendix D4. Furthermore, the location of the Desert pupfish habitat is in the lower-most Imperial County reach of San Felipe Creek, near the Salton Sea, downstream of the

confluence of Fish Creek with San Felipe Creek. This habitat is not within the Plan Area, but is more than 18 miles southeast of the closest part of the Borrego Springs Subbasin boundary.² The Desert pupfish habitat is located in the southern part of the Ocotillo-Clark Valley Groundwater Basin. There is no native Desert pupfish habitat located within the Plan Area. Several captive populations of Desert pupfish occur within the plan area, namely at Anza-Borrego State Park, Borrego Springs High School, and the UCR Palm Desert campus.³ These artificial habitats are unaffected by groundwater conditions in the Plan Area.

Neither the existing conditions of the Plan Area, the sustainability criteria, nor the projects and management actions contemplated in this GSP would have the ability to impact (either positively or negatively) the desert pup fish habitat referenced by CDFW as “San Felipe Creek GDE.” As there are no GDEs within the Plan Area along San Felipe Creek, and the designated critical habitat for the Desert pupfish is more than 18 miles away and not affected by the GSP, no data gap is identified for the San Felipe Fault.

S1-4

It is unclear why CDFW claims that inclusion of a longer period of record into datasets used in the BVHM results in biased outputs. The BVHM prepared by the USGS and updated by the GSA is based on basin conditions (like pumping) that change over time, so model outputs averaged over any particular period, such as the last 10 years, will naturally differ from the outputs from prior periods. The increased pumping in the recent past is incorporated into the BVHM and water budget (GSP Section 2.2.3), as is climate change considerations (GSP Section 3.3.1.1). Historical data on precipitation and evapotranspiration is used to the extent it is available. The U.S. Geological Survey uses the Basin Characterization Model (BCM), as described in GSP Section 2.2.3.1.

The projected water budget is based on the baseline pumping allocation and the planned pumping reduction program described in GSP Section 4.4, and the effects of the project pumping reductions on applicable sustainability indicators is described in GSP Chapter 3 (see Section 3.3.1.1). The level of pumping will be controlled by incrementally decreasing allocations to the target rate, not by climate change. In addition, the GSP recognizes that the long-term average for natural recharge may not be reproduced in the future, especially over shorter time intervals, as evaluated through a Monte Carlo Simulation (MCS) uncertainty analysis, described in GSP Section 3.3.1.1. This analysis found that the uncertainty

² <https://databasin.org/datasets/1aaf058b573a412bb0a43b47ecb107bd>

³ <https://www.wildlife.ca.gov/Regions/6/Desert-Fishes/Desert-Pupfish>

associated with precipitation and recharge variability is much greater than that associated with climate change.

As a point of clarification, both the original USGS model and the model update start in the year 1929. However, the period from 1929 through 1944 is considered to be a “spin-up” period for the model, and the data for these years is considered less reliable. In all calculations made by the USGS in their original report and by the GSA in the model update, data from 1929 through 1944 is excluded.

S1-5

The sustainable yield of 5,700 AFY presented in the Draft GSP is based the USGS’ pre-development scenario that estimated natural inflows to the boundaries of the Borrego Valley Hydrologic Model (BVHM) for the period 1945 through 2010 (USGS 2015), recognizing the adaptive management approach of SGMA and iterative process of updating the sustainable yield estimate at each 5-year check-in period during GSP implementation. Additionally, the USGS referenced approximately 1,400 AFY that enters the basin as underflow from adjacent basins but did not clarify the outflow components used in the pre-development scenario. Since calculations of sustainable yield must include both inflow and outflow components, a water budget from the GSP modeling update is presented to confirm the validity of using 5,700 AFY as the initial sustainable yield.

The USGS water budget using the BVHM for the developed condition for the years 1945 through 2010 and updated by Dudek for the years 2011 through 2016 indicate that average total inflows that includes groundwater subsurface inflow (specified flows), stream leakage, unsaturated zone recharge (UZF recharge) is 6,900 AFY for the period 1945 to 2010 and 6,800 AFY for the period 1945 to 2016. The 20-year and 10-year averages for the most recent periods are 5,800 AF and 4,700 AFY, respectively. These recent periods were comprised mostly of a drier climatic period compared to the longer scenarios beginning in 1945 that included both wet and dry periods. Historical inflows from 1945 to 2016 were compared to recent (past 10 years) groundwater outflows from the BHVM model update to estimate the initial sustainable yield of the basin. Average inflows from the entire run of the model update provide a reasonable estimate of potential basin inflows because they capture a variety of climatic conditions. Outflows from the most recent 10 years were considered to be more representative of potential basin outflows than the entire historical model period because the loss of native phreatophytes has decreased outflow from evapotranspiration in the basin. Using these assumptions, the surplus of inflows over outflows in the basin is estimated to be approximately 5,750 AFY.

S1-6 See response to Comment S1-3 regarding the commenter’s reference to the potential GDEs along San Felipe Creek and the federally endangered desert pupfish. Regardless of the presence and/or magnitude of (1) the flux into the Borrego Springs Subbasin from the Ocotillo-Clark Valley Groundwater Basin across the Coyote Creek Fault or (2) the flux out of the Subbasin across its southern boundary (formed by San Felipe Creek), there would be no appreciable effects on DWR’s priority status for adjacent basins due to conditions occurring in the Borrego Valley Subbasin. Furthermore, the minimum thresholds—as well as projects and management actions to avoid those thresholds—to be implemented under the GSP means that indirect effects on the adjacent basins, if any, would be positive in nature when compared to continuation of the status quo. In GSP Section 3.3, the GSA addresses impacts to adjacent basins as a subsection under the description of the minimum thresholds for each sustainability indicator.

S1-7 The response to this comment has been addressed under responses to Comment S1-3 and Comment S1-6.

S1-8 The sentence cited by the commenter (GSP Section 3.5.4.2, p. 3-45) accurately states that the average potentiometric surface (i.e., the theoretical groundwater level for each aquifer, if it was screened in isolation) across all three aquifers sufficiently represents groundwater conditions. The definition of aquifers in the BVHM is based on a textural model, which evaluates differences in grain size composition from a complete dataset of well completion reports (i.e., boring logs) within the Subbasin. The recommendation provided in the Draft GSP (e.g., GSP Section 3.5.4.2 and Appendix D1) to develop specific aquifer parameters for each of the three layers would help improve the academic understanding of the aquifer, but is not required to develop “representative information about groundwater conditions” (Title 23 CCR Section 354.34[a]).

There are no regionally significant confining layers (i.e., aquitards) present within the Subbasin. The lack of any confining layers means the potentiometric across the three aquifers are not sufficiently different to meaningfully affect the groundwater levels observed regardless of the screened interval of a well. Monitoring Well MW-5A/B is a multicompletion well near the Borrego Sink which has two well casings, one screened in the upper aquifer and one screened in the lower aquifer. The difference in the groundwater levels between the two was 0.03 feet as of Fall 2018 (GSP Figure 2.2-13B). Although it is the only dual-completion monitoring well in the Subbasin, groundwater monitoring data elsewhere validates this because monitoring wells, even where within short distances of each other, report similar groundwater levels despite having different screened intervals.

- S1-9** This comment has been addressed in response to Comment S1-2.
- S1-10** This comment has been addressed in response to Comment S1-3.
- S1-11** The only springs identified within the Subbasin, as shown in GSP Figure 2.2-17, are Borrego Spring and Pup Fish Pond Spring. Borrego Spring dried up sometime before 1963, as stated on Draft GSP p. 2-86, and the artificial Pup Fish Pond (in addition to the pupfish pond near the Palm Canyon Trailhead in Borrego Palm Canyon Campground) is sustained by ABDSP's public water system, and not a spring. As discussed in Draft GSP Section 2.2.2.6, the water source for springs outside the Subbasin as well as perennial waters that may flow for a short length into the margins of the basin is runoff from the watershed, and/or springs or seeps originating from the fractured rock aquifer that make up the mountain front. These surface water sources are topographically higher than the groundwater elevation of the underlying basin, in many cases hundreds of feet higher. For reference, the GSP's elevation contours and labels have been added to the GSP's groundwater contour maps to further illustrate this. Neither the hydrogeological conceptual model (HCM) developed for the basin (GSP Section 2.2.1) nor the HCM developed to evaluate GDEs (GSP Appendix D4) support the idea that there would be a hydrologic connection between springs originating from bedrock outside the Subbasin, and the Quaternary age sediments that make up the Borrego Springs Subbasin.
- S1-12** As described in GSP Section 2.2.3.1 and Appendix D1 (BVHM Update), flows from streams into the model domain are estimated using the modeled streamflow from the U.S. Geological Survey Basin Characterization Model (BCM), which is calibrated using the USGS streamgages for the periods when data are available from the streamgages within the Subbasin or its contributing watersheds. There are two historical streamgages along Coyote Creek, and one active streamgage on Borrego Palm Creek. Therefore, all available data from streamgages are incorporated into the BVHM. The GSA will continue to use the BCM in future model updates, and incorporate new streamflow records that may become available within the watershed, in accordance with adaptive management needs and as necessary to meet the GSP's sustainability goal.
- Agricultural return flow is not an input to the BVHM and cannot be adjusted directly, but rather is calculated based on the estimated consumptive use in the model that is calculated using land use/crop type, farm efficiency factors, and climate data. Land use in the model future projections was left the same as land use in 2016 as determined during the BVHM update. The justification for this is presented in Draft GSP Section 2.1.3, which explains why the GSA expects little

to no growth to occur in the Plan Area. Farm efficiency factors were estimated by the USGS based on the best available information, and will be adjusted in the future if and when data becomes available to support changes. Climate data was adjusted for future projections based on the DWR guidance. It should be noted that since applied water and return flows are calculated by the model using these consumptive use calculations, irrigation return flows decrease through time in the future model scenarios as applied water decreases.

- S1-13** The level of study presented in the Draft GSP is appropriately at the Subbasin-wide scale, and thus with regard to stream gages, use of the BCM, as described in response to Comment S1-12, is appropriate and represents the best available data. With regard to agricultural pumping, the commenter is referred to Draft GSP Section 4.4, which describes the pumping reduction program. To implement this program, the GSA will require metering of production wells to allow direct measurements of pumping volumes by agricultural users. The quantification of agricultural pumping will be significantly improved upon implementation of the Metering Plan, included as Appendix E3 of the Draft GSP. With regard to past and current agricultural pumping, the indirect method of estimating irrigation needs used by the U.S Geological Survey and the GSA (i.e., the Farm Process Package) is the most appropriate method available. The GSA will incorporate the recommendations in Appendix D1 during the GSP's planning and implementation horizon, in accordance with adaptive management needs and as necessary to meet the GSP's sustainability goal.
- S1-14** The commenter is referred to Sections 4 and 5 of Draft GSP Appendix D1 for a comparison of the USGS's BVHM from 1945 to 2010 and the GSA's BVHM Update to include the period from January 2011 to September 2016.
- S1-15** The commenter provides conclusory remarks, and summarizes the comments provided in the letter. These issues have been responded to above under responses to Comment S1-2 through Comment S1-14.

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May 21, 2019

County of San Diego Planning & Development Services
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RE: Draft Groundwater Sustainability Plan for the Borrego Valley Groundwater Basin

E-mail: PDS.LUEGGroundWater@sdcounty.ca.gov

Thank you for the opportunity to comment on the Draft Groundwater Sustainability Plan for the Borrego Valley Groundwater Basin ("GSP"). Anza-Borrego Desert State Park® ("ABDSP") is approximately 1,000 square miles and surrounds the approximate 98 square mile Borrego Springs Subbasin ("Subbasin"). Since March 2017, a representative from the California Department of Parks and Recreation ("State Parks") has voluntarily been a member of the Borrego Springs Subbasin Advisory Committee. State Parks takes the opportunity to participate in the committee seriously because ABDSP surrounds the community of Borrego Springs (GSP Figure 2.1-3) and supplies the majority of the natural groundwater recharge to the Subbasin (GSP Figure 2.2-1). Additionally, ABDSP is a Borrego Water District ratepayer, and ABDSP operates a public water system permitted since 2004 by the State Water Resources Control Board, Division of Drinking Water.

S2-1

State Parks believes that the reduction requirements should be adjusted under the Pumping Reduction Program (GSP 4.4.1) using considerations other than a 74% reduction for each non-*de minimis* pumper.¹ This approach does not take advantage of the flexibility the Sustainable Groundwater Management Act ("SGMA") provides the local agencies. (Water Code § 10725 (b).) The draft GSP gives a great history and description of the Plan Area (GSP, Chapter 2), but does not apply that history to its Pumping Reduction Program.

S2-2

This letter recommends the Groundwater Sustainability Agency ("GSA") adjust the current shares of the estimated sustainable yield by considering proportion of land ownership, historic beneficial use, and feasibility of further reduction of water use. State Parks is not suggesting that the GSA use any one of these considerations as the sole

¹ The term "*de minimis*" is used in this letter in reference to the GSP's use of the term. (See, e.g., GSP 4.2.1 and 4.4.1.)

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consideration, but that it apply a more nuanced approach using these considerations collectively. In this way, the GSA should be able to take advantage of the flexibility SGMA intended to provide the local agency.

↑ S2-2
 Cont.

Proportion of Land Ownership

The draft GSP does not take into account the proportion of land each non-*de minimis* pumper services in the Subbasin. Instead, it focuses only on prior use over a five year period. (GSP 3.3.2.1.) According to the draft GSP, ABDSP covers 27% of the land subject to the GSP. (GSP Table 2.1-2.) The draft GSP also identifies that Anza-Borrego Foundation owns an additional 5% that will be transferred to ABDSP. (GSP Table 2.1-2.) In other words, State Parks has, or will have, the responsibility of stewardship over 32% of the land that is subject to this GSP, but its water use consists of less than .07% of the total baseline pumping allocation.² Yet under the draft GSP, it is still responsible for reducing its water use by 74%.

↑ S2-3

Whereas State Parks is responsible for a large portion of the land and minimal water use, the agriculture sector's responsibility and use is the opposite. According to the draft GSP, the agriculture sector comprises 4.2% of the Subbasin's surface area of 62,776 acres and uses 70% of the pumped water. (GSP Table 2.1-1; GSP 2.1.1; and GSP 3.1.4.) Because recent usage data is the only method the GSA used to determine shares of the estimated sustainable yield, the agriculture sector is also being allocated around 71.7% of the total baseline pumping allocation. (GSP Table 2.1-7; and GSP Table 3-6.)

The draft GSP states that two pumping-related depressions have been found to exist in the Subbasin: one in agricultural areas, and one north of Ram's Hill Country Club. (GSP 2.2.2.1.) The draft GSP also states that since the late 1970's when citrus cultivation gained presence in the valley, the groundwater levels have been dropping "at a relatively constant rate." (GSP 2.2.2.1.) By considering only past recent use for determining allocations and reduction responsibilities, the Pumping Reduction Plan does not address the existing spatial patterns of groundwater extraction. (See Green Nylen, Nell, Michael Kiparsky, Kelly Archer, Kurt Schnier, and Holly Doremus. 2017. *Trading Sustainably: Critical Considerations for local Groundwater Markets Under the Sustainable Groundwater Management Act* ("Trading Sustainably"), p. 28. Center for Law, Energy & the Environment, UC Berkeley School of Law, Berkeley, C. 90 pp. law.berkeley.edu/trading-sustainably.)

↑ S2-4

State Parks' responsibility of keeping ABDSP open to the public inextricably includes housing employees to provide safety and resource access, and providing water to the public for day use and overnight use so that the public can continue to enjoy this

↓ S2-5

² Calculated by the GSA's determination of State Parks' baseline pumping allocation of 15 acre feet per year, out of the total 21,938 acre feet. (See GSP Table 3-6; But see GSP 3.1.4 ("a total pumping allowance of 21,936 acre-feet per year . . ."; and GSP Table 2.1-7 ("Baseline Pumping Allocation" column does not add up to 21,938 or 21,936).)

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tremendous resource. The amount of water State Parks pumps from the groundwater basin is already incredibly minimal, especially given the amount of land that small amount of water supplies. By failing to give any consideration to the amount of land sustained by each pumper's use, the GSP assigns a significant burden to ABDSP that may be impossible without shutting down the park or portions thereof, with diminishing returns for the Subbasin's primary goal of sustainability. The 74% reduction is an ineffective method of obtaining sustainability, particularly where the current use is known to be concentrated in agricultural areas and the agriculture sector will be maintaining its 70% of the water use.

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SGMA does not prohibit the GSA from taking proportion of land ownership into account. Ownership is a concrete metric that State Parks believes could be used in conjunction with other considerations such as past use and purpose of use. (Green Nysten, et al. *Trading Sustainably*, p. 14.) State Parks recommends making some adjustment to the current shares of the estimated sustainable yield according to proportionate land ownership.

Historic Beneficial Use

1. *Public Water System and Human Right to Water*

The GSP also does not consider the type of use in establishing the current shares of the estimated sustainable yield. California law establishes the use of water for domestic purposes as the highest use of water. (Water Code § 106.) "Domestic purpose" includes uses such as "auto camps or resorts." (*Prather v. Hoberg* (1944) 24 Cal.2d 549.)

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 S2-6
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There are multiple historic and current purposes for State Parks' water use at ABDSP, including domestic use. The Anza Borrego State Park Palm Canyon public water system conveys water to the Borrego Palm Canyon area of ABDSP. Currently, the system supplies water for 10 employee residences, 6 employee trailer pads, the Borrego Palm Canyon Campground, and the ABDSP maintenance shop. Of the 117 campsites, there are 52 RV sites with both potable water and sanitary sewer hookups and 65 tent sites without hookups. There are also 9 group campsites. Both the tent and group sites have dispersed potable water, flush toilets, and showers.

In 2012, the State of California added section 106.3 to the California Water Code that is known as the human right to water: "It is hereby declared to be the established policy of the state that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes."

Because it supplies water to residents and visitors, the ABDSP Palm Canyon public water system is subject to the human right to water, which is not accounted for in the

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draft GSP. Applying the GSA's draft Policy for Human Right to Water ("Draft Policy"),³ State Parks should be allocated more than double the water it is currently being allocated. (<https://www.sandiegocounty.gov/content/dam/sdc/pds/SGMA/Human-Right-To-Water-Presentation.pdf>.) During the March 29, 2018 Advisory Committee meeting, a formula was provided to calculate the Human Right to Water for Borrego Water District by using the annual average sewage flows to the Ram's Hill Wastewater Treatment Facility. To show the difference between what the draft GSP allocated and what State Parks could be allocated if the GSA had applied the human right to water policy to domestic users that are not within the Borrego Water District, here is an example calculation:

Under the Draft Policy, the annual sewage generation is 126 gallons per day per equivalent dwelling unit ("EDU"). Using ABDSP's 52 RV sites, 10 employee residences, and 6 employee trailer pads, we have 68 EDU's in Borrego Palm Canyon Campground that are eligible for the human right to water. Multiplying 68 existing EDU by the annual sewage generation per EDU (126 gallons per day) results in a Borrego Palm Canyon right to water of 9.6 acre feet per year.

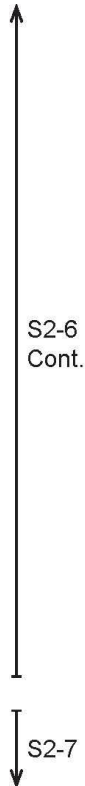
(See <https://www.sandiegocounty.gov/content/dam/sdc/pds/SGMA/Human-Right-To-Water-Presentation-Notes.pdf>.)

Per the GSP, the baseline pumping allocation for the Palm Canyon system is 15 acre feet per year. This allocation was determined from metered data. Page 4-21 of the GSP requires a 74% reduction in each non-*de minimis* pumper's baseline allocation over 20 years. This reduction results in an allocation of 4 acre feet for ABDSP Palm Canyon public water system. However, using the human right to water calculation for employee residences and RV sites, State Parks could require up to 9.6 acre feet per year for the RV's and employee residences alone. State Parks recommends adjusting the current shares of the estimated sustainable yield to provide for the statutory human right to water.

2. *Other Critical Beneficial Uses at Anza-Borrego Desert State Park*

Borrego Palm Canyon is a critical area that annually averages approximately 30,000 visitors for daily hikes and approximately 120,000 visitors for overnight camping. As

³ The draft GSP does not discuss whether the Draft Policy will be implemented. In the minutes for the August 30, 2018 Subbasin's Advisory Committee Public Meeting, the Core Team was still considering the Human Right to Water allocation to Borrego Water District. (<https://www.sandiegocounty.gov/content/dam/sdc/pds/SGMA/AC-MINUTES-Aug-18-vFinal.pdf>) However, it is unclear whether any further decision was documented regarding the Draft Policy, as the hyperlink for the January 31, 2019 meeting minutes directs website visitors to the August 30, 2018 meeting minutes. (<https://www.sandiegocounty.gov/content/dam/sdc/pds/SGMA/borrego-valley.html>) (Last visited May 20, 2019.)



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noted on page 2-6 of the GSP, the estimated revenue to the region generated by visitation to ABDSP is approximately \$40 million annually.

ABDSP also provides critical environmental habitat for endangered species. In addition to supplying water subject to the human right to water statute, ABDSP's public water system supplies water to a lined pond that is a refuge for the federally and state endangered Desert Pupfish and is also a water source for the federally and state endangered Peninsular Bighorn Sheep. The pond is a refuge listed under the September 1993 Desert Pupfish Recovery Plan. The Peninsular Bighorn Sheep have increasingly used the pond, which is adjacent to the Borrego Palm Canyon trailhead parking lot, as a water source. (Colby, Janene, and Randy Botta, California Department of Fish and Wildlife Peninsular Bighorn Sheep Annual Report 2017-18, p. 22.) State Parks is obligated to provide this habitat for both species.

State Parks recommends adjusting the current shares of the estimated sustainable yield according to respective beneficial uses.

Consideration of Prior Conservation Efforts

State Parks, in fulfilling its obligations as a state entity, already contributes to the reduction of water use in the Subbasin. As stated in State Parks' previous comment letter sent to the GSA on August 15, 2018, water use at ABDSP has already been subject to Executive Order (B-18-12) requiring a 20% reduction of water usage in state facilities by 2020. Therefore, State Parks has already implemented water conservation methods, the benefits of which are reflected in the metered data used for the ABDSP baseline pumping.

Throughout the last decade, ABDSP has equipped its campground with low flow pay showers thereby reducing the amount of water used by each ABDSP visitor. ABDSP has also removed most landscaping, antiquated irrigation systems, replaced corroded galvanized water distribution lines with PVC pipe, and replaced non-operating shut off valves. As funding allows, low flow bathroom fixtures have been installed.

The GSP indicates that the Borrego Water District, some golf courses, and agricultural users have implemented conservation methods. (GSP 3.1.4.) In establishing its baseline pumping allocations, the GSP states that it includes "allocations for water credits issued in conjunction with the County/[Borrego Water District] program for sites fallowed prior to adoption of the GSP, municipal water use previously reduced through end use efficiency and conservation efforts, and recreation use curtailed prior to GSP

S2-7
Cont.

S2-8

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adoption.” (GSP 3.3.1.4.)⁴ The GSP does not state that it included allocations for State Parks’ state-mandated conservation efforts.⁵

State Parks intends to make every effort to continue to implement any water conservation measures as appropriations allow. However, State Parks recommends making some adjustment to the current shares of the estimated sustainable yield according to conservation methods implemented due to state mandate, since those conservation methods were not considered in determining State Parks’ baseline pumping allocation. Because it already has considered other conservation measures, it should also consider State Parks’ conservation measures.

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 S2-8
 Cont.

Consequences of 74% Reduction at ABDSP

ABDSP strives to balance the visitor experience while conserving our precious natural resources and being stewards of the land. A potential reduction to 4 acre feet per year at Borrego Palm Canyon in conjunction with the water conservation measures already in place would require ABDSP to close campground operations and would not meet the statutory human right to water for the Palm Canyon public water system.

State Parks would be required to limit the occupation of employee residences and thus limit the operation of the ABDSP Visitor Center, limit an important educational experience for the school children of Borrego Springs, and limit the number of State Parks employees staffed to protect the park resources and visitors. ABDSP would not be able to provide the high quality recreational experience that it has provided over the last several decades. Therefore, State Parks recommends that the GSA apply a more nuanced approach than this 74% reduction plan by applying other considerations, such as those mentioned in this letter.

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 S2-9

General GSP Comments

State Parks supports the immediate implementation upon GSP approval of the mandatory metering program as detailed in Appendix E of the GSP.

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 S2-10

There are data gaps in the water quality monitoring particularly in the North Management Area. Wells now in the process of being secured for water quality monitoring will not yield usable initial data for years. The GSP should explicitly specify mandatory water quality monitoring of any major wells in the Subbasin. As water quality

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 S2-11

⁴ The GSP also states that water credits “are currently not included in the Baseline Pumping Allocation but may be converted to Baseline Pumping Allocation during GSP implementation.” (GSP 3.3.1.4, FN 8.)

⁵ In its January 18, 2019 letter to the ABDSP, the County of San Diego described how it calculated baseline pumping allocations and gave State Parks until February 8, 2019 to comment before the GSA finalized the baseline pumping allocations on March 1, 2019. State Parks’ allocation is based solely on metered use. However, the letter did not indicate that in establishing the users’ respective baseline pumping allocations it was considering previous municipal conservation efforts. Therefore, State Parks is commenting on this in response to the draft GSP, rather than in response to the January 18, 2019 letter.

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degrades and additional treatment is required, the cost for ratepayers, including ABDSP, will increase. The GSP should identify Ratepayers as stakeholders in the development of a Water Trading Program because pumped water in Borrego Springs is a matter of public concern about a public resource.

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S2-11

While the Water Trading Program is referred to as an economic incentive that will lead to more water conservation (GSP 4.1), the Water Trading Program is not necessarily the key to water reduction.

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S2-12

Any consideration of the following of agricultural land must include the removal of invasive weed species. There are two highly invasive weed species that threaten native habitats, wildflowers, and native species in ABDSP: Egyptian knapweed (*Volutaria tubuliflora*) and Sahara mustard (*Brassica tournefortii*). Currently, there are fallowed agricultural fields that host these species. State Parks devotes staff time and resources to remove and control these species in the Coyote Canyon area of ABDSP which borders the North Management Area.

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S2-13

State Parks recognizes the complexity of the GSA's task and appreciates the extensive work that the GSA has completed thus far. However, without further consideration of the historic and beneficial uses, proportion of land ownership, and pumpers' feasibility of reducing use (i.e. conservation methods accounted for in the historical data), the GSA is not taking advantage of the maximum degree of flexibility SGMA has provided it in order to achieve SGMA's goal of preserving water rights to the greatest extent possible while achieving sustainability. State Parks looks forward to continuing to work with you on this challenging and significant plan.

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S2-14

Sincerely,



Gina Moran
District Superintendent
Colorado Desert District

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Letter S2

**Commenter: Gina Moran, District Superintendent, Colorado Desert District,
California Department of Parks and Recreation (State Parks)**

Date: May 21, 2019

S2-1 This comment provides introductory information about Anza-Borrego Desert State Park (ABDSP), its role in the Borrego Springs Subbasin Advisory Committee, as the major steward of watershed lands contributing to Subbasin, and its interest in protecting its permitted public water system.

S2-2 The Groundwater Sustainability Agency (GSA) has carefully developed the baseline pumping allocation (BPA) in coordination with members of the Advisory Committee and in concert with numerous public workshop and outreach efforts. Please see Advisory Committee meeting minutes from September 28, 2017, November 17, 2017, and January 25, 2018. They can be found on the County's SGMA website at:

<https://www.sandiegocounty.gov/content/sdc/pds/SGMA/borrego-valley.html>

The GSA acknowledges the commenter's request for flexibility in determining reductions other than proportional reductions. While the Groundwater Sustainability Plan (GSP) does not set specific groundwater use reductions, the GSP includes Project and Management Action (PMA) No. 3 – Pumping Reduction Program. As indicated in the Draft GSP, the GSA will prepare the California Environmental Quality Act (CEQA) documentation (after GSP adoption) in advance of considering formal adoption and implementation of any groundwater use reductions and a specific ramp down schedule. The Draft GSP also indicates an agreement among the pumpers is a possible scenario where groundwater use reductions may be developed. On July 9, 2019, the Borrego Water District (BWD) held a public meeting in which proposed stipulated agreement terms were made public.

For additional information on this response, the commenter is referred to the master response on the Baseline Pumping Allocation and Pumping Reduction Program.

S2-3 See response to Comment S2-2 as well as the master response on the BPA.

S2-4 The commenter's assessment is accurate, but the goal of the Pumping Reduction Program is to meet the sustainable management criteria established in Chapter 3 of the Draft GSP. The GSP seeks to correct groundwater conditions on a Subbasin-wide scale, and does not establish a sustainability goal specific to the two pumping depressions cited in Chapter 2 (Section 2.2.2.1). However, the PMAs discussed in

Chapter 4, including the Pumping Reduction Program, the Voluntary Fallowing of Agricultural Land, and Intrabasin Water Transfers, are all actions that will be beneficial with regard to existing pumping depressions.

- S2-5** See response to Comment S2-2 as well as the master response on the BPA.
- S2-6** The BPA is based on metered data for ABDSP and this is an accurate accounting of the water use, and it spans the periods of high use and occupancy for the Borrego Palm Canyon Campground. Flexibility is built into the BPA because it uses the highest water recorded over a 5-year period. ABDSP's yearly water use has fluctuated between 4 and 15 AFY between 2010 and 2015. The commenter is also referred to the master response on the BPA.
- S2-7** The GSA understands the importance of maintaining water for the lined pond, which acts as an artificial habitat for the Desert Pupfish, and as a drinking water source for the Peninsular Bighorn Sheep. A rough estimate for the amount of water needed to keep these ponds filled can be made by multiplying the ponds' combined areas by the average evapotranspiration rate as measured at the Subbasin's CIMIS station (No. 207). According to measurements from satellite imagery, the combined size of the two pupfish ponds is 800 square feet (approximately 400 square feet each), and pond evaporation is estimated to about 5.75 feet per year based on pan evaporation data from Imperial Valley (U.S. Department of Interior 2004). Therefore, the water needed to keep the ponds full can be expected to be about 4,600 cubic feet/year, or 0.11 AFY. This constitutes less than 1% of ABDSP's current BPA, and does not account for precipitation. The commenter is referred to the master response on the BPA.
- S2-8** The commenter is referred to the master response on the Baseline Pumping Allocation. Water credits under the existing Demand Offset Mitigation Water Credits Policy, described in Draft GSP Section 2.1.2, were historically issued for physical removal of water using crops, namely agriculture, and in one case replacement of turf with native landscape. Water credits were only issued for entities who applied for and were issued credits under the program, and only for water reductions that were verifiable and permanent. It would not be appropriate for the GSA to assign water credits for temporary water curtailments (e.g., Executive Order [B-18-12] and unverifiable or temporary conservation efforts). The sentence quoted by the commenter in the Draft GSP has been modified accordingly.
- S2-9** The commenter is referred to the master response on the BPA. The Water Trading Program can provide the ABDSP with flexibility to continue serving the demands of

its employees, visitor uses, and operations. Furthermore, because the BPA is based on the highest metered use between 2010 and 2015, there is some flexibility built into the initial BPA. The metered use at ABDSP has gone as low as 4 AFY in the last 5 years.

S2-10 Comment noted.

S2-11 The Draft GSP states,

Degraded water quality is significant and unreasonable if the magnitude of degradation at pre-existing groundwater wells precludes the use of groundwater for existing beneficial use(s), including through migration of contaminant plumes that impair water supplies, where alternative means of treating or otherwise obtaining sufficient alternative groundwater resources are not technically or financially feasible. At a minimum, for municipal and domestic wells, water quality must meet potable drinking water standards specified in Title 22 of the CCR. For irrigation wells, water quality should generally be suitable for agriculture use. The Basin Plan has not established numerical objectives for groundwater quality in the Plan Area but recognizes that in most cases irrigation return flows return to the aquifer with an increase in mineral concentrations such as TDS and nitrate (Colorado River RWQCB 2017), as well as potentially toxic chemicals. The Basin Plan objective is to minimize quantities of contaminants reaching the aquifer by establishing stormwater and irrigation/fertilizer use best management practices. (Draft GSP Section 3.2.5; page 3-13)

The Draft GSP indicates that the GSA continues to work with private landowners to expand the monitoring network. The GSA will continue to use the existing water quality monitoring network to assess Subbasin conditions, and further develop the groundwater quality network over the GSP's planning and implementation horizon, in accordance with adaptive management needs and as necessary to meet the GSP's sustainability goal.

S2-12 Comment noted.

S2-13 The GSA acknowledges your comment regarding the environmental concerns over fallowing of agricultural land. The Draft GSP includes Project and Management Action No. 4 – Voluntary Fallowing of Agricultural Land. As indicated in the Draft GSP, the GSA will prepare policy development and CEQA documentation after

GSP adoption in advance of considering formal adoption and implementation of a voluntary fallowing program.

S2-14 Comment noted.