BORREGO VALLEY GROUNDWATER SUSTAINABILITY AGENCY
ANNUAL
GROUNDWATER EXTRACATION STATEMENT

Contact: **Telephone:**

Well Operator: **Email:**

Address: **Usage/Acreage:** _____

City, State, Zip: ☒ Please check box if your well(s) is/are used for domestic purposes (human or animal consumption) and delineate which well(s) by highlighting, circling, or "*" - noting which well (if more than 1)

Please carefully fill out the fields (1 - 10) in this form. You have well(s) within the Borrego Springs Subbasin. The Borrego Valley GSA requires that this form be completed, signed and submitted by each well owner and/or operator within 45 days of the due date. If this completed form and required payment is not received by the due date, Ordinance requires that the Borrego Valley GSA charge you interest at X% per month, as well as a late penalty assessed at X% per month.

State Well Number	Flow Meter Readings					
___N___W_____	Current	- Previous	= Difference	x Mult	= Extraction (Units)	
	_____	_____	_____	_____	_____	

Gallons _____

Acre-feet _____

**** PLEASE CALCULATE ACRE-FEET (AF) TO THE 3rd DECIMAL PLACE ****
If you get 50.0019 AF, correct entry = 50.002 AF

Annual Pumping Allocation

Baseline Pumping Allocation _____ AF

_____

Pumping Allocation _____ % Reduction

_____

Available Pumping Allocation _____ **AF**

_____

Actual Groundwater Extraction _____ **AF**

_____

Extraction Charge

_____ **AF** x $X.00/AF = $

Interest 1.5% x Months: + $

Late Penalty: + $

Overpumping Surcharge: + $

(see rate breakdown below)

TOTAL AMOUNT ENCLOSED = $ _____

Overpumping Surcharge Rates
_____AF @ $X = $ _____

Payment must be received within 45 days of the date the Annual Statement is issued by Borrego Valley GSA to avoid late penalties and interest.

I DECLARE under penalties of perjury that this groundwater extraction statement has been examined by me, and to the best of my knowledge and belief is a true, correct and complete statement.

Print Name: _____ Date: _____

Signature: _____

THIS STATEMENT IS NOT COMPLETE UNLESS ALL QUESTIONS ARE ANSWERED AND SIGNATURE PROVIDED.

APPENDIX F

Baseline Pumping Allocation

APPENDIX F
Baseline Pumping Allocation Methodology

The Groundwater Sustainability Plan (GSP) includes a baseline pumping allocation for each identified non-de minimis groundwater user in the Borrego Springs Subbasin (Subbasin). The "baseline pumping allocation" is defined as the amount of groundwater each pumper in the Subbasin is allocated prior to SGMA-mandated reductions. It is further defined as the verified maximum annual production, in acre-feet per year (AFY), for each well owner over the baseline pumping period. The baseline pumping period is the 5-year period from January 1, 2010 through December 31, 2014. This was to consider water use that was being used prior to SGMA taking effect on January 1, 2015 (California Water Code 10720.5(a)).

The County of San Diego (County) sent letters via U.S. Mail to each non-de minimis pumper in January 2018, July 2018, and January 2019 with a request to provide the Groundwater Sustainability Agency (GSA) any historical groundwater production data or other information to help the GSA develop the baseline pumping allocation. Any data provided by pumpers was agreed to be kept confidential by the GSA to the maximum extent allowed by law including but not limited to Government Code 6254. Identified non-de minimis pumpers included one municipal pumper (Borrego Water District), 30 agricultural pumpers, 6 golf courses, and 4 other pumpers (Anza-Borrego Desert State Park, Borrego Air Ranch Water Company, Borrego Springs Elementary School, and La Casa Del Zoro Resort and Spa [Figure F-1]. In cases where the GSA could validate submitted historical groundwater data, the GSA used the data to develop the baseline pumping allocation.

After the GSA reviewed data submitted from pumpers, baseline pumping allocations utilizing validated historical production data were determined for Borrego Water District, Anza-Borrego Desert State Park (Palm Canyon), and one agricultural pumper. The GSA further determined for the Borrego Air Ranch Water Company (provides water to individual residences) that the baseline pumping allocation would be estimated based on a demand of 0.5 acre-feet per year for each residential unit. For all other pumpers, the GSA developed a water-use estimate approach (Evapotranspiration Method) discussed below. The County sent letters via U.S. Mail to each non-de minimis pumper in March 2019 to provide individual baseline pumping allocations. The baseline pumping allocations are summarized by beneficial use categories in GSP Chapter 2, Table 2.1-7.

EVAPOTRANSPIRATION METHOD

This approach includes the use of available aerial imagery to determine irrigated areas on each parcel, which is multiplied by a water use factor for each crop type. The following outlines the methodology for measuring total irrigated area and calculating the water use factor.

Area Irrigated: The area of irrigation was determined using ArcGIS (GIS), a computer based mapping and data analysis software. A 1:2,000 scale was used to create polygons of irrigated area over available aerial imagery from the National Agriculture Imagery Program (NAIP). Available

years of aerial imagery included 2010, 2012, and 2014. The total area of each polygon was calculated using coordinate system NAD 1983, State Plane California VI, feet. One exception to this approach was for Rams Hill Golf Course. It was not in full production during the baseline period of 2010 through 2014 due to closure of the golf course that occurred in 2010. It was in full production prior to 2010 and again after 2014. Aerial imagery from 2017 was selected to capture full golf course irrigation.

Water Use Factor: The water use factor estimates the total applied groundwater lost through the evaporation from soil and transpiration from plants (evapotranspiration). These factors are specific to each vegetation type. Turf, ponds, palms, citrus, nursery, and potatoes were identified and considered for all sectors. Table F-1 provides the water use factors for each irrigation use type.

Table F-1
Water Use Factors

Use Type	Water Use Factor (Feet per Year)
Citrus	6.29
Date Palms[a]	7.74
Landscape (Decorative)	3.63
Landscape (Native)	2.76
Nursery	4.84
Palms (Ornamental)	4.03
Ponds[b]	5.75
Potatoes[c]	2.50
Turf	6.45

Source: Water Use Classification Landscape Species IV (WUCOLS IV), DWR 2018, Borrego Water District and County of San Diego 2013
Notes:
a. Includes additional water required for a 30% cover crop (turf) that is irrigated in the understory of the date palms.
b Applied to golf courses only. Surface water evaporation based on pan evaporation data from the Imperial Valley (Salton Sea Salinity Control Research Project U.S. Department of Interior 2004).
c. Approximately 2.5 acre-feet per acre are applied to potato fields per information obtained from the potato farmer in the Subbasin.

The water use factor is calculated using local station specific evapotranspiration (ETo), documented plant factors, and irrigation efficiency by irrigation type (Equation A). The water use factor for citrus and date palms also includes a factor for leaching (Equation B).

The equations below present the calculations used to determine the water use factor.

Equation A

$$Annual\ Water\ Use\ Factor = \frac{ETo * PF * 1\ Acre}{IE}$$

Equation B

$$Annual\ Water\ Use\ Factor = \left(\frac{ETo * PF * 1\ Acre}{IE} * CLF\right) + \left(\frac{ETo * PF * 1\ Acre}{IE}\right)$$

Where:

ETo = Reference Evapotranspiration (feet/year)
PF = Plant Factor
IE = Irrigation Efficiency
CLF = Citrus and Date Palms Leaching Factor

The following section describes the factors, which contribute to calculating the water use factors.

Reference Evapotranspiration: Reference evapotranspiration (ETo) is based on potential evapotranspiration (ET) from turf grass/alfalfa crop, which assumes a continuous source of moisture and does not consider summer plant dormancy. Therefore, ETo is an overestimation of actual ET, which varies with the vegetation type since some plants consume significantly more water than others. The ETo was determined from the California Irrigation Management Information System (CIMIS) station #207 located in Borrego Springs (DWR 2018). ETo was selected as 6.45 feet from 2010, which was the highest year during the 2010-2014 baseline period.

Table F-2
2010-2014 Reference Evapotranspiration (ETo) for Borrego Springs

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Total (Inches)	Annual Total (Feet)
2010	2.41	3.21	8.81	9.84	8.58	9.22	9.51	9.11	7.44	4.36	2.88	1.98	77.35	6.45
2011	2.68	3.35	5.55	7.12	8.77	8.23	7.98	8.47	6.43	4.92	2 72	2.11	68.33	5.69
2012	2.85	3.56	5.33	6 77	7.66	9.47	8.77	8.04	7.09	5.04	3.2	2.23	70.01	5.83
2013	2.54	3.57	5.75	7 56	8 64	9.02	8.01	7.57	6.46	5.05	3	2 27	69 44	5.79
2014	2.67	3.66	5.94	7.23	8.66	9.13	8.83	8	6.97	4.55	3.14	1.58	70.36	5.86

Source: Borrego Springs CIMIS Station #207 (DWR 2018).

Plant Factor: The plant factor is the percentage of evapotranspiration needed to maintain acceptable health, appearance, and growth of a specific plant type. Plant factors were obtained from the Water Use Classification of Landscape Species (WUCOLS) database. Additionally, the County has relied on documented plant factors used for assigning water credits, which are outlined in the Memorandum of Agreement between the Borrego Water District and the County of San Diego Regarding Water Credits (MOA). The plant factor used in this report either was based on an average

of recent WUCOLS data or documented County plant factors, whichever was higher. For Date Palms, the highest plant factor range was selected.

Table F-3
Plant Factors

Type	Plant Factor (MOA)	Plant Factor Range (WUCOLS VI)	Proposed Plant Factor Used
Citrus	0.65[a]	0.4 - 0.6	0.65
Date Palms	N/A	0.4 – 0.6	0.6
Landscape (Decorative)	N/A	0.30 – 0.6	0.45
Landscape (Native)	N/A	>0.1 – 0.6	0.3
Nursery	0.6	0.4 - 0.6	0.6
Palms (Ornamental)	0.5	0.4 – 0.6	0.5
Potatoes	N/A	N/A[b]	N/A
Turf	0.63[c]	0.6 – 0.8	0.7

Source: BWD and County 2013, WUCOLS 2014, UCCE CDWR 2000
N/A = not available

[a] Source: UC Cooperative Extension and Department of Water Resources, A Guide to Estimating Irrigation Water Needs of Landscape Plantings in California, 2000

[b] There is no plant factor for potatoes in WUCOLS VI. Approximately 2.5 acre-feet per acre are applied to potato fields per information obtained from the potato farmer in the Subbasin.

[c] An average of warm and cool season

Irrigation Efficiency: Irrigation efficiency is the amount of water supplied to a plant type compared to the amount consumed. Two common irrigation methods in the Subbasin are rotor and drip. The irrigation efficiency was determined from the Turf and Landscape Irrigation Best Management Practices prepared by the Water Management Committee of the Irrigation Association (Water Management Committee of the Irrigation Association 2004). Table 4 presents the irrigation efficiencies used by irrigation method.

Table F-4
Irrigation Efficiency

Irrigation Method	Irrigation Efficiency
Rotor[a]	0.7
Drip[b]	0.8

Source: BWD and County 2013, Water Management Committee of the Irrigation Association 2004.

[a] Rotor used for turf and decorative landscaping

[b] Drip used for citrus, nursery, palms, and native landscaping

Salt Leaching: Leaching for salts is the overwatering of an area to flush excessive salts below the root zone. Leaching typically occurs in arid environments with high evapotranspiration rates. Because leaching is necessary for the health of citrus and date palms in the Subbasin, a leaching requirement of 20% of the water use factor is assumed based on optimal crop yield and source

water with total dissolved solids (TDS) concentration of less than 1,000 mg/L.[1] The leaching requirement is provided in Equation C (Rhoades 1974; and Rhoades and Merrill 1976):

Equation C

$$LR = ECw/\ 5(ECe) - ECw$$

where:

LR = the minimum leaching requirement needed to control salts within the tolerance (ECe) of the crop with ordinary surface methods of irrigation
ECw = salinity of the applied irrigation water in deciSiemens per meter[2] (dS/m)
ECe = average soil salinity tolerated by the crop as measured on a soil saturation extract.

[1] A 20% leaching requirement for citrus and date palms is assumed taking into account typical Subbasin water quality (i.e. <1,000 mg/L TDS and average soil salinity tolerated by grapefruit of 1.8 dS/m for optimal yield (Ayers and Westcot 1985)

[2] Soil and water salinity is often measured by electrical conductivity (EC). A commonly used EC unit is deciSiemens per metre (dS/m). The ratio of total dissolved solids (TDS) to EC of various salt solutions ranges from 550 to 700 ppm per dS/m, depending on the compositions of the solutes in the water. Simple relationships are used to convert EC to TDS, or vice Versa:
TDS (mg/L or ppm) = EC (dS/m) x 640 (EC from 0.1 to 5 dS/m)
TDS (mg/L or ppm) = EC (dS/m) x 800 (EC > 5 dS/m)
Source University of California Salinity management: http://ucanr.edu/sites/Salinity/Salinity_Management/Salinity_Basics/Salinity_measurement_and_unit_conversions/

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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

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 Thenault
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 Moceri
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 it 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 science[1]. 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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Comment Letter S1

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Inland Deserts Region
3602 Inland Empire Boulevard, Suite C-220
Ontario, CA 91764
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

May 20, 2019

Via Electronic Mail and Online Submission

James Bennett
Plan Manager
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PDS.LUEGGroundWater@sdcounty.ca.gov

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)

S1-1

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(al), §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.

S1-1 Cont.

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.

S1-2

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

S1-3

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.

S1-3 Cont.

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).

S1-4

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

project future water budget information and future aquifer response to proposed groundwater management practices. S1-4 Cont.

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). S1-5

   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. S1-6

   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 S1-7

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).

S1-7 Cont.

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.

S1-8

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). S1-9

    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.

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) S1-10

    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.

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 S1-11

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).

S1-11 Cont.

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).

S1-12

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.

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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

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)

S1-15 Cont.

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,

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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 despites 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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Comment Letter S2

State of California • Natural Resources Agency
DEPARTMENT OF PARKS AND RECREATION
COLORADO DESERT DISTRICT
200 PALM CANYON DRIVE
BORREGO SPRINGS, CA 92004
760-767-4037

Gavin Newsom, *Governor*
Lisa Ann L. Mangat, *Director*

May 21, 2019

County of San Diego Planning & Development Services
C/O· Jim Bennett
5510 Overland Avenue, Suite 310
San Diego, CA 92123

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)

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%

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)

S2-3

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))

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

S2-5 Cont.

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 Nylen, 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)

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

S2-6

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

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) Dunng 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

S2-6 Cont.

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

S2-7

[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/sdc/pds/SGMA/borrego-valley html (Last visited May 20, 2019))

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

S2-7 Cont.

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

S2-8

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

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.

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.

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

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

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

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.

S2-12

Any consideration of the fallowing 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 agricuttural 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.

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.

S2-14

Sincerely,

Gina Moran

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.

RTC.3 ORGANIZATIONS

Comment Letter O1

Jackson Tidus
A LAW CORPORATION

April 26, 2019

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VIA EMAIL

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RE: AAWARE REQUEST FOR GROUNDWATER SUSTAINABILITY AGENCY APPROVAL OF METER SYSTEM

Dear Messrs. Bennett and Poole:

We represent the Agricultural Alliance for Water and Resource Education ("AAWARE"). AAWARE's members comprise the majority of the agricultural property owners in Borrego Valley. By this letter, we ask that the Borrego Valley Groundwater Sustainability Agency approve acceptable propeller meter systems so that the AAWARE members can make plans to install groundwater production meters, and not have to wait until Groundwater Sustainability Plan approval to do so.

Enclosed is information on the SWIIM well meter system that Mike Seley of AAWARE has discussed with Geoff Poole Benefits of the SWIIM meter system include significant cost savings by:

- Eliminating the need for manual, monthly readings of groundwater production (the meter system provides real time data by cellular transmission, or if cellular is interrupted, by radio transmission), and
- Eliminating the need for semi-annual calibration verification and annual meter accuracy checks. Under the service agreement, each flow meter is regularly checked for accuracy. The maintenance schedule also includes technician visits to each site at least every four to six weeks. In addition to maintaining the telemetry and solar charging systems during these visits, technicians perform visual inspections of flow meters to ensure there are no erratic or unreasonable flow readings, blank LCDs, or damaged registers.

O1-1

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We are additionally awaiting information on the similar McCrometer meter system and service agreement. Enclosed is information from the McCrometer web site about their meters and reporting technology

Please let us know as soon as possible whether the SWIIM or McCrometer meters, along with their data collection and reporting systems, and their calibration systems, are approved as acceptable metering systems. Please also let us know whether there are any other meter systems acceptable to the GSA.

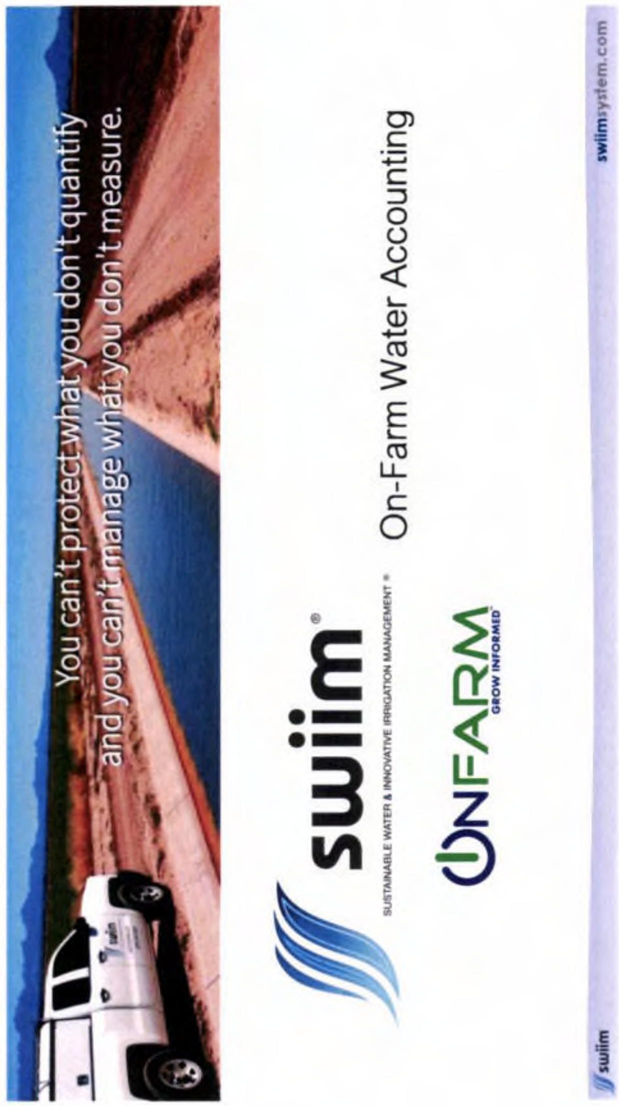
O1-1 Cont.

Sincerely,

Michele A Staples

Enclosures. SWIIM and McCrometer systems information

cc: Jim Seley, AAWARE*
Mike Seley, AAWARE*
Jack McGrory, AAWARE*
Boyd L. Hill, Esq , for AAWARE*
*by email only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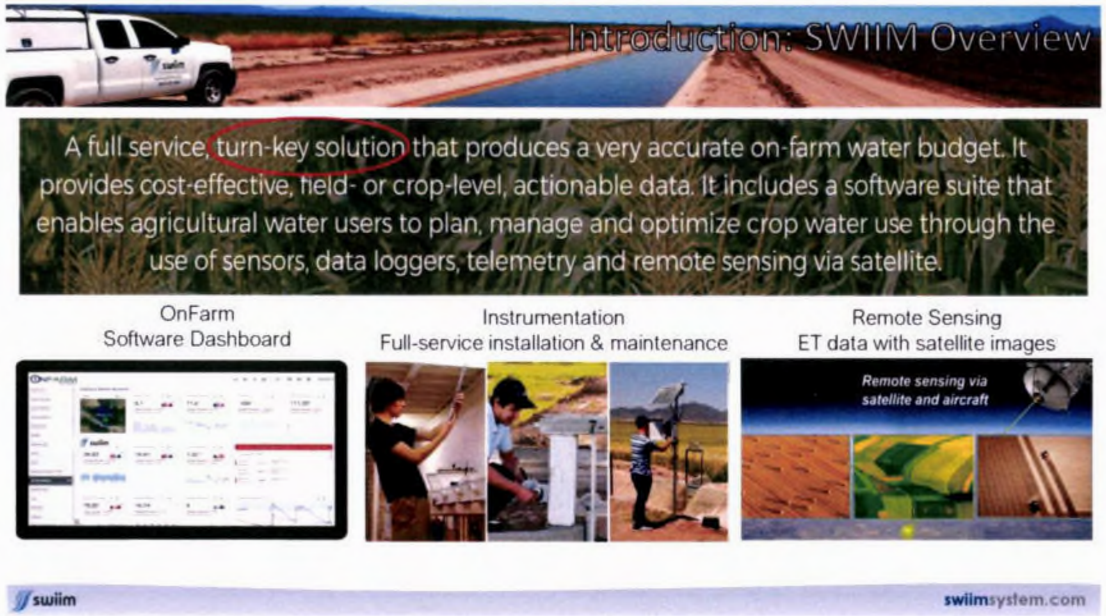
1. Introduction
2. Case Studies
3. How SWIIM Works
4. Delivery & Water Balance Reports
5. Remote Sensing & Software
6. Questions & Discussion


Introduction: SWIIM Overview
A full service, turn-key solution that produces a very accurate on-farm water budget. It provides cost-effective, field- or crop-level, actionable data. It includes a software suite that enables agricultural water users to plan, manage and optimize crop water use through the use of sensors, data loggers, telemetry and remote sensing via satellite.
OnFarm
Software Dashboard
Instrumentation
Full-service installation & maintenance
Remote Sensing
ET data with satellite images
Remote sensing via satellite and aircraft
swiim
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How SWIIM Works

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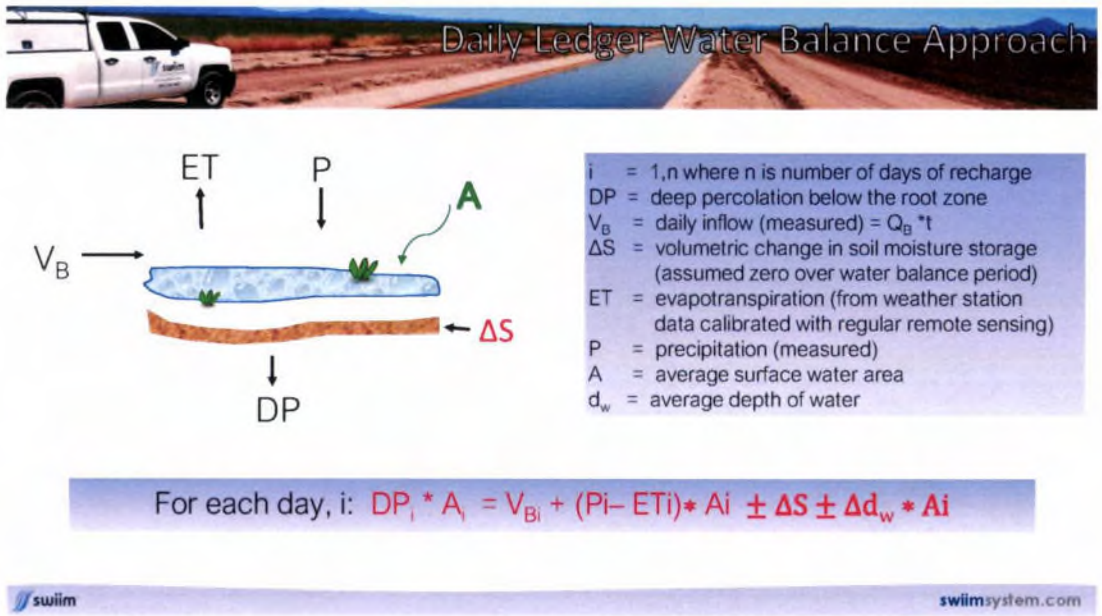
Daily Ledger Water Balance Approach
ET
P
A
V_B
ΔS
DP
i = 1,n where n is number of days of recharge
DP = deep percolation below the root zone
V_B = daily inflow (measured) = Q_B *t
ΔS = volumetric change in soil moisture storage (assumed zero over water balance period)
ET = evapotranspiration (from weather station data calibrated with regular remote sensing)
P = precipitation (measured)
A = average surface water area
d_w = average depth of water
For each day, i: DP_i * A_i = V_Bi + (Pi– ETi)∗ Ai ± ΔS ± Δd_w ∗ Ai
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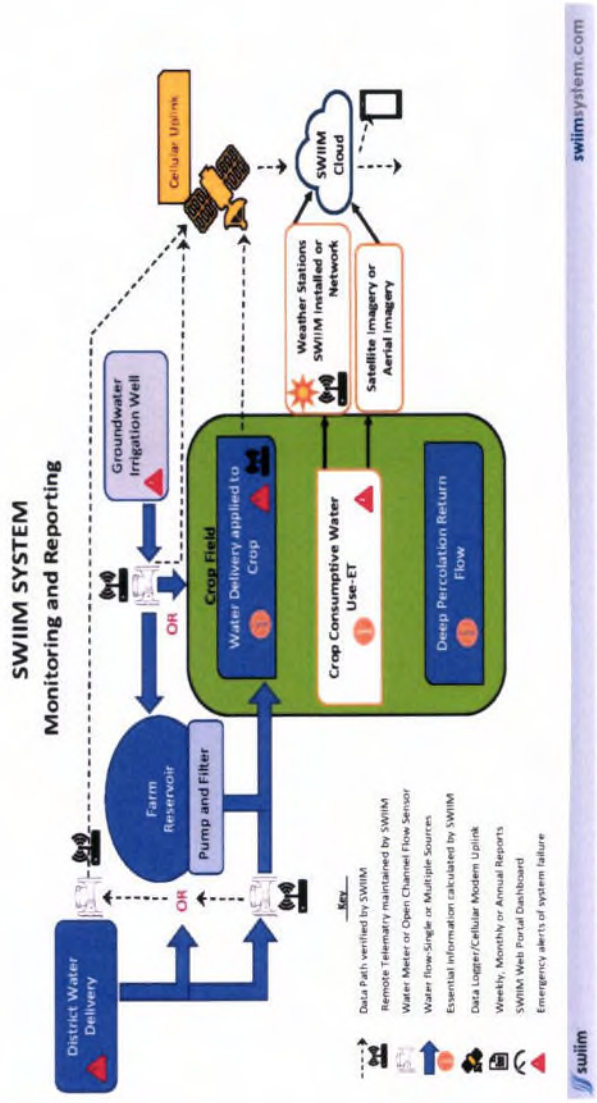
SWIIM SYSTEM
Monitoring and Reporting
Cellular Uplink
SWIIM Cloud
Weather Stations SWIIM installed or Network
Satellite Imagery or Aerial Imagery
Groundwater Irrigation Well
OR
Crop Field
Water Delivery applied to Crop
Crop Consumptive Water Use-ET
Deep Percolation Return Flow
Farm Reservoir
Pump and Filter
OR
District Water Delivery
Key
Data Path verified by SWIIM
Remote Telemetry maintained by SWIIM
Water Meter or Open Channel Flow Sensor
Water flow-Single or Multiple Sources
Essential information calculated by SWIIM
Data Logger/Cellular Modem Uplink
Weekly, Monthly or Annual Reports
SWIIM Web Portal Dashboard
Emergency alerts of system failure
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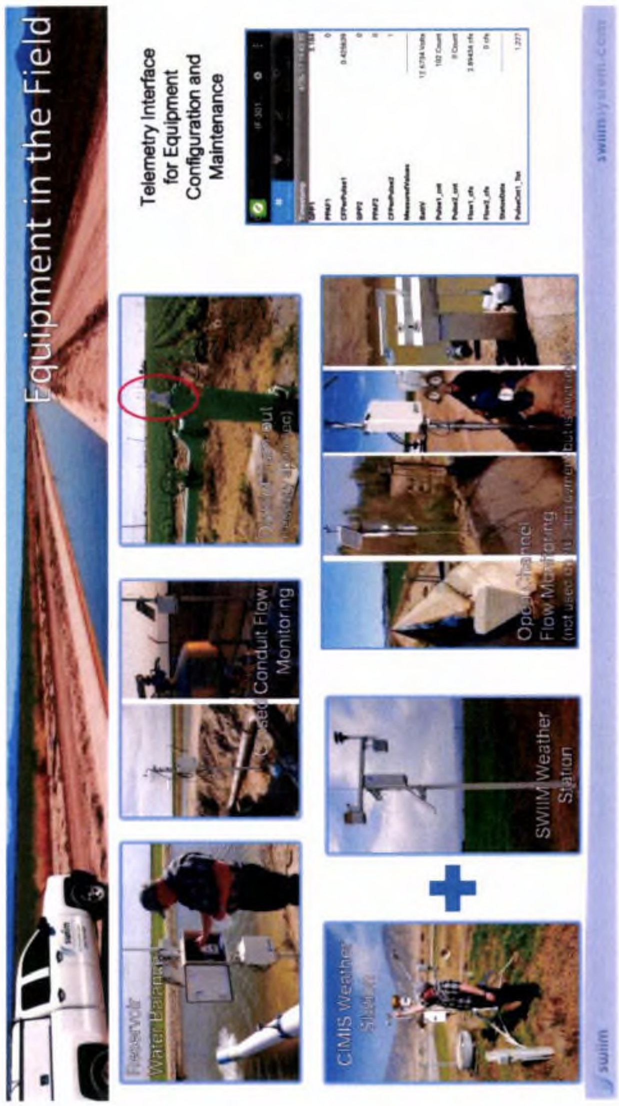
Equipment in the Field
Telemetry Interface for Equipment Configuration and Maintenance
Conduit Flow Monitoring
SWIIM Weather Station
CIMIS Weather Station
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Reports & Technical Data

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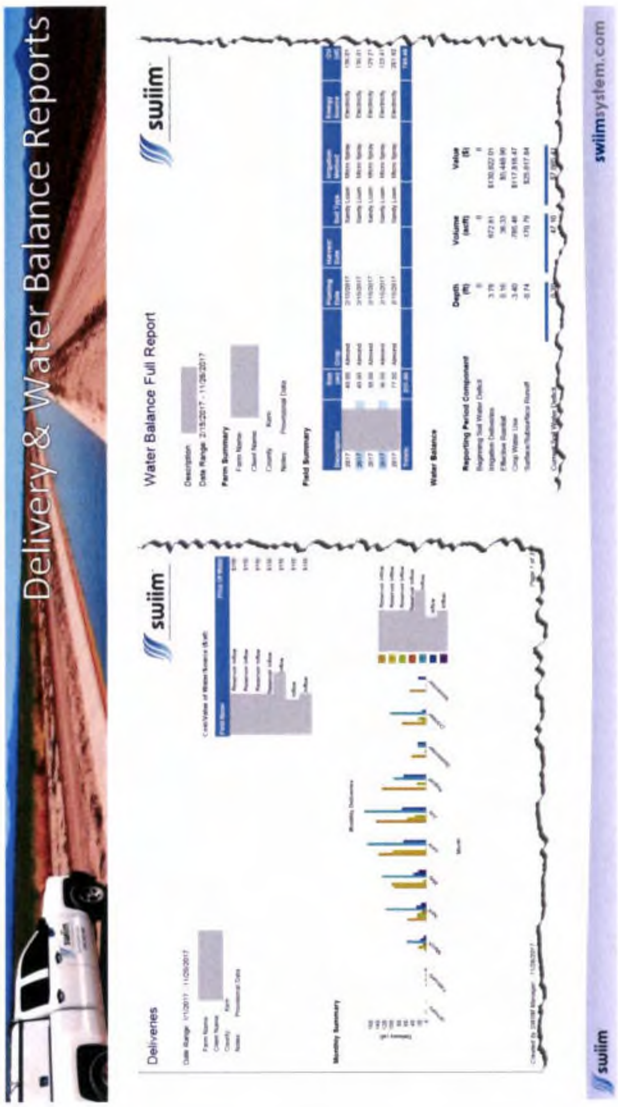
Delivery & Water Balance Reports
Deliveries
Water Balance Full Report
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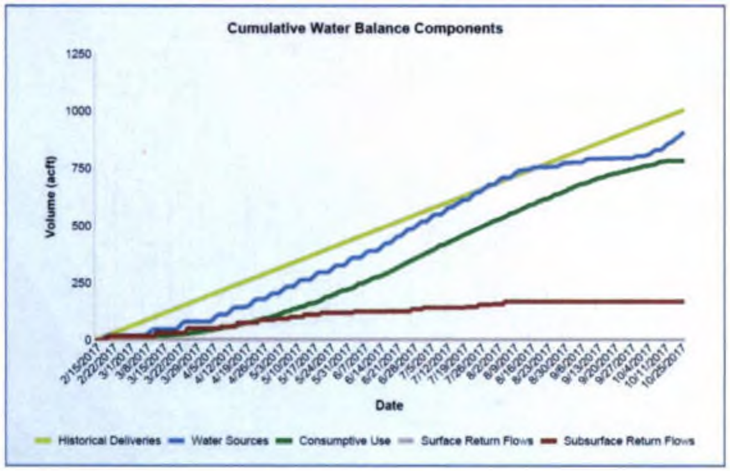

SWIIM's daily water balance tracks system inflows (irrigation and effective rainfall) and outflows (actual ET and, where applicable, surface runoff) throughout the season. It solves for the residual subsurface drainage on a daily time-step.

Comparing trends among these components and historical data helps irrigation managers and water stewards plan and account for reasonable and beneficial water use while optimizing critical flow paths such as subsurface return flows.

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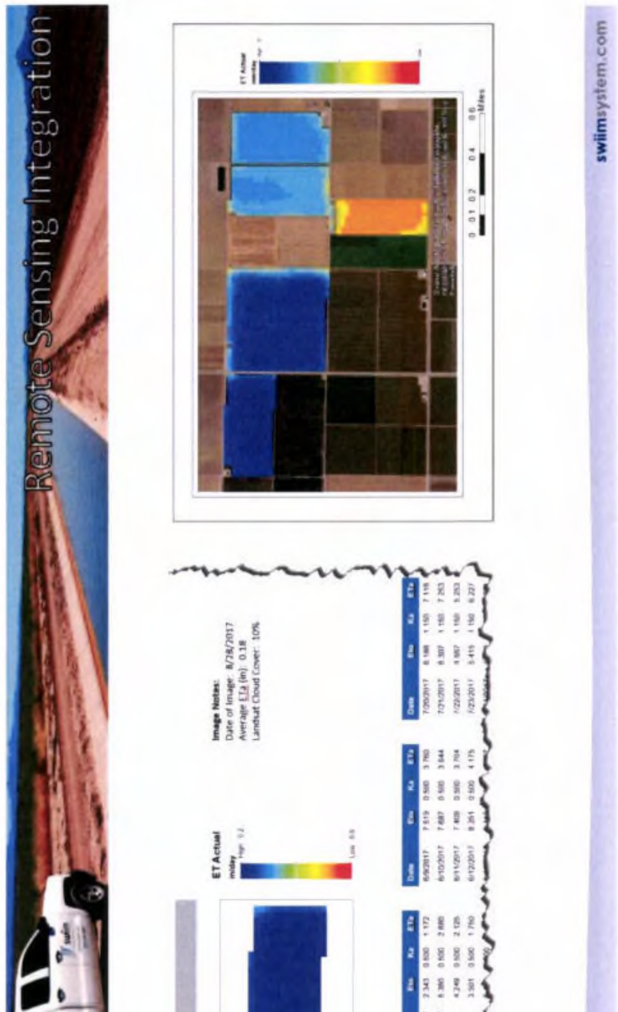
Remote Sensing Integration
ET Actual
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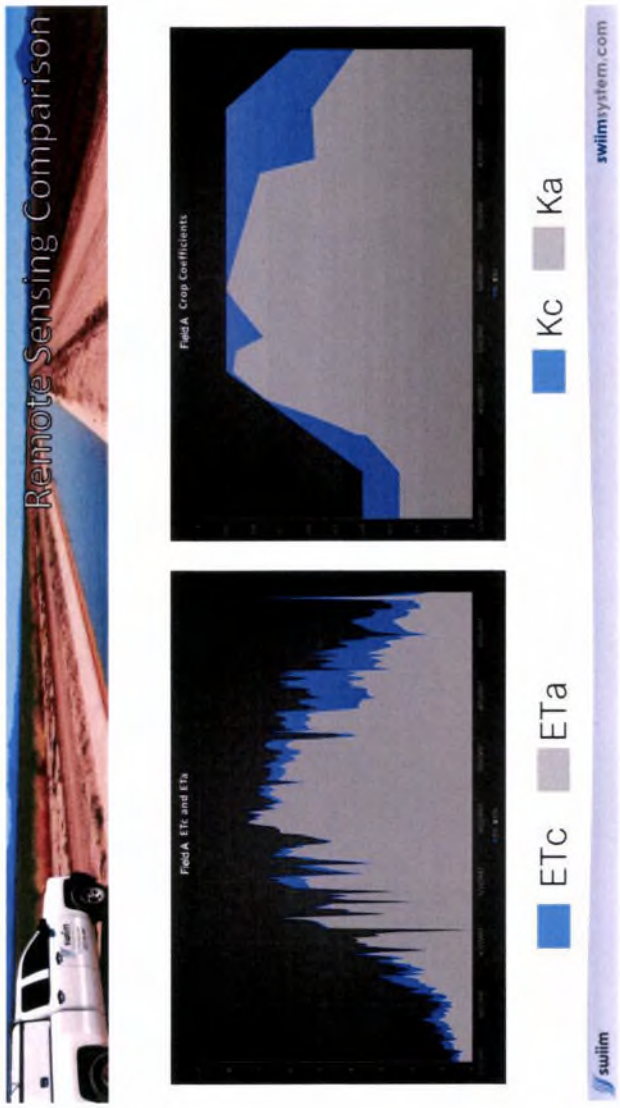
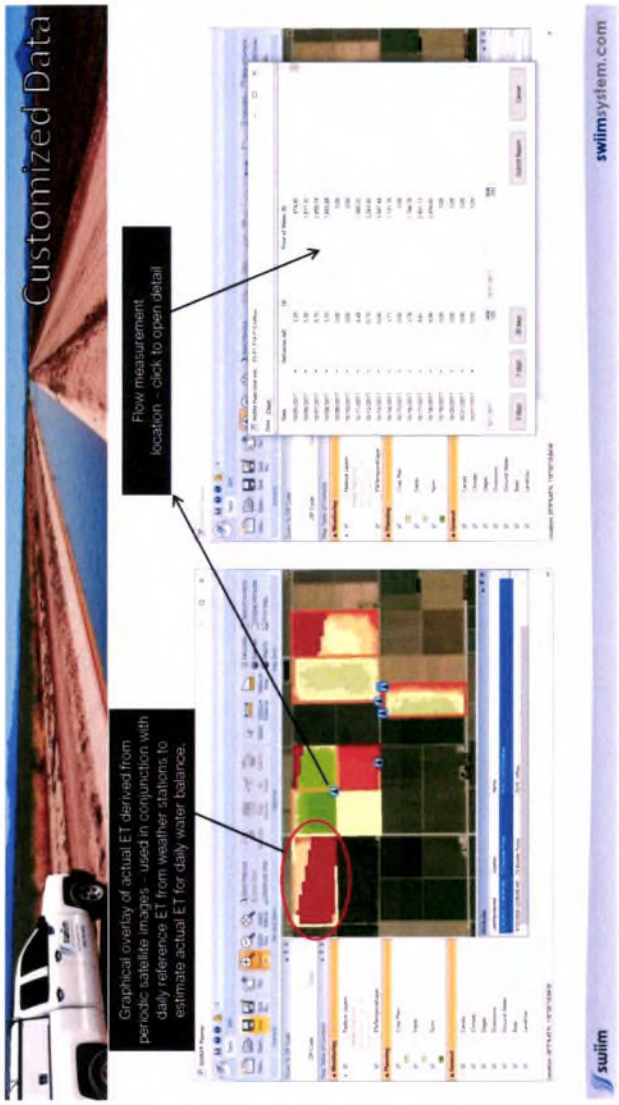

Remote Sensing Comparison
Field A Crop Coefficients
Field A ETc and ETa
ETc
ETa
Kc
Ka
swimsystem.com
suim


Customized Data
Graphical overlay of actual ET derived from periodic satellite images - used in conjunction with daily reference ET from weather stations to estimate actual ET for daily water balance.
Flow measurement location - click to open detail
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OnFarm automatically aggregates data from any source to provide a real-time, unified farm decision dashboard.

- Simplified view of SWIIM data and reports.
- Integration of weather, soil moisture, agronomic, and other 3rd party data in the same view.
- Optimizes irrigation to reduce water, energy, and fertilizer.
- Enter and track manually recorded field data.
- Monitor and alerts for risks like frost.
- Plans and schedules activities more accurately to avoid field conflicts.

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You can't protect what you don't quantify
and you can't manage what you don't measure.
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Thank you!
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The Benefits of McCrometer Flow Meters for Irrigation and Agriculture

Agricultural and turf irrigators operate in difficult environments with extreme climates where water flow measurement can be the difference between profit or loss. Choosing the right irrigation flow meter doesn't need to be complicated. With 60+ years of experience in agricultural irrigation, McCrometer provides reliable and low maintenance flow meter solutions to meet this industry's tough requirements.

McCrometer flow meters offer **unbeatable value** in cost of installation and ownership, and set the standard for ease-of-use, reliability and economy. Our leading edge meters offer versatile water flow measurement that have been trusted by irrigators since 1955.

Watch the video below to learn more about McCrometer's Mc Mag^{3000}, battery operated mag meter with a 5 year Guaranteed Battery Life.

Request a quote or more information on products designed for Agriculture & Irrigation

How to Select the Right Irrigation Flow Meter

In any irrigation network, water meters are a critical tool for irrigators. With many different choices, choosing the ideal flow meter for your application is vital. Whether you're looking for greater control, easy installation, accuracy, billing solutions, consistent irrigation schedules or improved water quality, there are a number of solutions from which to choose.

To help eliminate the guesswork and get you operating quickly and efficiently, below is a list of mechanical or electromagnetic meters to help you learn more about which choice might be right for you.

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A Few of our Agriculture Irrigation Flow Meters .... Find out More ...

- **Mc Propeller:** Affordable, easy to install and operate, easy to service in the field, long-life components. The best-selling propeller meter in the U.S. Trusted by irrigators since 1955.
- **FlowConnect:** Built in remote meter reading for collecting and transmitting flow data from McCrometer's Mc® Propeller and Water Specialties propeller meters.
- **Dura Mag:** Battery powered flanged mag meter with a 5 year battery life eliminates the need for AC power and arrives pre-calibrated with an internal datalogger with 5 years of data storage, and telemetry-ready output options.
- **FS100 Flow Straightener:** Uses breakthrough flow straightening technology for highly accurate, reliable flow measurement with minimal upstream/downstream pipe runs requirements.

	Propeller Meter	Mag Meter	Telemetry Ready	Accuracy	Line Sizes	Easy to Install & Service	Custom Lengths / Flanges
DuraMag		✓	✓	±1%	4" - 12"		✓
FlowConnect			✓	N/A	N/A		
Flow Straightener	✓			±2%	6" - 12"	✓	
Mc Mag3000™		✓	✓	±2%	4" - 12"	✓	
Mc® Propeller	✓		✓	±2%	2" - 96"	✓	✓
Ultra Mag®		✓	✓	±0.5%	2" - 48"		✓
Water Specialties Propeller Meter™	✓		✓	±2%	2" - 72"	✓	✓

What Our Customers are Saying:

"My decision to specify McCrometer is based upon these four basic facts: they are ruggedly built, simple to install, easy to read, and above all have had consistent high quality for more than 20 years."

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David R. Bower, Ewing Irrigation Products

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Instruments: Connected Solutions

Connected Solutions

Today's water managers face several challenges when it comes to reading the data on their flow meters. Collecting the data can be time consuming, with delivery either inconsistent or irregular due to weather restrictions or meter inaccessibility. Manual reading can be inaccurately reported, and the infrequency of the data collection is often insufficient for planning. Add to that the expensive cost of labor, vehicles and fuel, it's no wonder they're demanding more. How many times have we heard "There must be a better way!"

Fortunately, there is. McCrometer's FlowConnect™ is a built-in solution for collecting and transmitting flow data from the Mc Propeller and Water Specialties meters. Its unique one-piece design eliminates the need for cables, pole mounting and other hardware typically required with traditional telemetry systems. FlowConnect's features include ExactRead™ Technology, a proprietary technology for exact match from meter to website, affordable and reliable remote meter reading with a streamlined design, timely and accessible data for water management decisions, pre-assembled on new meters for simplified installation and retrofits on existing meters in less than 30 minutes. With multiple register input and output options, modem options and power options, McCrometer, your trusted partner for flow meters, offers innovative built-in remote meter reading. Finally, this is a much better way of automatic meter reading.

McCrometer also offers Smart Output for use with their line of electromagnetic insertion and full bore flow meters. Smart Output™ is compatible with Sensus and Itron systems, which makes these mag meters plug and play into larger AMI and AMR systems. McCrometer has an electromagnetic flow solution for nearly every application – line sizes 4"-138": hot tappable insertion meters, full bore type, battery/solar or AC/DC powered. And now, their entire line of mag meters are AMI compatible, with Smart Output.

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FlowConnect

McCrometer CONNECT

Smart Output

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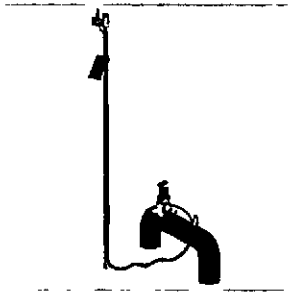

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I confirm that I have reviewed and agree with McCrometer's privacy policy.

I also understand my privacy choices as they pertain to my personal data as provided in the McCrometer privacy policy under "Your Privacy Choices"

More Systems • More Sensors • More Solutions

Wireless Technology for Today's Growers

McCrometer CONNECT™ offers the most comprehensive choice in wireless remote monitoring for irrigation and crop management from the convenience of your computer, smart phone or tablet.

Complete turnkey solutions for growers and irrigators
Highest quality local service and support
Selection and Flexibility

With McCrometer CONNECT, you have the real-time, industrial-strength crop data and tools you need

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right at your fingertips. Make timely and effective irrigation and crop management decisions from wherever you are: In the field, on the road or In your office.

- 24/7 Connectivity
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Smart Output

Series: SMART OUTPUT

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I also understand my privacy choices as they pertain to my personal data as provided in the McCrometer privacy policy under "Your Privacy Choices"

Water engineers and technicians will find McCrometer has a versatile Smart Output mag meter solution that is Sensus or Itron system compatible for nearly every type of AMR and AMI application. These accurate, reliable and cost-effective mag meters are available for line sizes from 4 to 138 inches in hot tap insertion or full bore styles, which can be AC or DC powered, battery powered or solar. Smart Output gives water utility managers the flexibility they need to network the flow meters across their distribution systems with the AMI solution of their choice. Smart Output reduces costs, calls, travel, and labor, while it increases efficiency, ensuring your data is accurate.

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Smart Output mag meters from McCrometer are designed with a highly intelligent module in their transmitters that is similar to a communication protocol. This capability allows McCrometer mag meters to transmit data on a schedule or on demand, as well as receive diagnostic queries to ensure or update meter operation. There's no need for technicians to gather flow data manually or check meter status with McCrometer's Smart Output mag meters.

With advanced plug-and-play, real-time Smart Output communications, McCrometer's FPI Mag Flow Meter, SPI Mag Flow Meter and Ultra Mag Flow Meter provide highly effective solutions for automatic meter reading (AMR) and advanced meter infrastructure (AMI) in support of utility smart grids that help conserve valuable water resources, reduce expensive non-revenue water costs, and simplify daily operations and routine maintenance.

McCrometer's Smart Output technology is backed by the company's 60-plus years of solving flow measurement problems.

Letter O1

Commenter: Michele Staples, Jackson Tidus – A Law Corporation, on behalf of the Agricultural Alliance for Water and Resource Education (AAWARE)
Date: April 26, 2019

O1-1 The Groundwater Sustainability Agency (GSA) acknowledges the Agricultural Alliance for Water and Resource Education ("AAWARE") request to consider use of the SWIIM meter system to monitor groundwater production in the Subbasin, or McCrometer meters. SWIIM includes a comprehensive administration/management tool that verifies water use and related conservation against a specified baseline, along with the resulting newly projected crop production output. SWIIM is "hardware agnostic" and compatible with many commercially available equipment, including flow meters, gate meters, tail water sensors, climatic sensors, groundwater instrumentation and supporting infrastructure such as weirs, flumes, stilling wells, and similar technologies. This equipment is connected near real-time via telemetry to SWIIM to provide near-real-time water usage and consumption reports, along with "alarms" if a specific field is going outside the projected/approved water usage, alongside other pre-determined irregularities" (SWIIM 2019). SWIIM is a comprehensive metering and on-farm water accounting platform that requires detailed evaluation to verify compatibility with planned groundwater production reporting requirements.

The GSA will consider use of metering and monitoring systems/platforms in coordination with the non-de minimis pumpers in the Subbasin. The cost, technology, hardware integration, management platforms, and opportunities and constraints of multiple systems should be considered including but not limited to SWIIM meter system. Of particular interest is the reporting and data management capabilities of each system to document groundwater production for purposes of Groundwater Sustainability Plan (GSP) implementation. As the SWIIM meter system appears compatible with existing well meters, pressure transducers and weather stations in the Subbasin, the GSA could consider after the GSP is adopted a trial project potentially be conducted to confirm suitability of use, cellular access and document actual costs for system installation, ongoing use and compatibility with proposed GSA groundwater production metering requirements.

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Comment Letter O2

Jackson Tidus
A LAW CORPORATION

Letter to Borrego Valley Groundwater Sustainability Agency

Re: AAWARE Comments on March 2019 Draft Groundwater Sustainability Plan for the Borrego Valley Groundwater Basin and Baseline Pumping Allocations

May 20, 2019

Delivered via E-Mail and Overnight Delivery to:
County of San Diego Planning & Development Services
Attention: Mr. Jim Bennett

Submitted by:
Michele A. Staples, Esq.
Boyd L. Hill, Esq.

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Jackson Tidus
A LAW CORPORATION

May 20, 2019

Direct Dial 949 851 7409
Email mstaples@jacksontidus.law
Reply to Irvine Office
File No 7588-122439

VIA E-MAIL (PDS.LUEGGroundWater@sdcounty.ca.gov) & Overnight Delivery

County of San Diego Planning & Development Services
c/o Jim Bennett
5510 Overland Avenue, Suite 310
San Diego, CA 92123

RE: AAWARE COMMENTS ON MARCH 2019 DRAFT GROUNDWATER SUSTAINABILITY PLAN FOR THE BORREGO VALLEY GROUNDWATER BASIN AND BASELINE PUMPING ALLOCATIONS

Dear Mr. Bennett:

I. INTRODUCTION AND SUMMARY.

The Agricultural Alliance for Water and Resource Education ("AAWARE") provides this comment letter to the Borrego Valley Groundwater Sustainability Agency ("GSA") to address AAWARE's concerns regarding the March 2019 draft Groundwater Sustainability Plan ("GSP") for the Borrego Valley Groundwater Basin ("Basin"). AAWARE's members comprise the majority of the agricultural property owners and groundwater users overlying the Basin. AAWARE's members are dependent on the Basin for agricultural and domestic water uses on their properties.

For many years, AAWARE's members have been working toward a solution to bring the Basin into balance, both individually and, more recently, as members of the Borrego Water Coalition ("Coalition") and the Advisory Committee to the GSA ("Advisory Committee"). AAWARE members have voluntarily reduced water consumption, willingly shared their production data with the Core Team in confidence, researched and proposed metering systems for approval by the GSA, and devoted countless hours to engage in various forums at which groundwater management alternatives have been discussed.

AAWARE seeks constructive dialog with the GSA in the hopes of reaching a workable solution to the GSP and its intended implementing programs that will facilitate beneficial use of the Basin, including agricultural use, together with sound management under the Sustainable Groundwater Management Act ("SGMA", Wat. Code, § 10720 et seq.). Unfortunately, the 60-day public review period for the GSP was not further extended as necessary to allow the ongoing dialog to reach a satisfactory conclusion. Compounding the problem, the GSA withheld from public disclosure critical information upon which the GSP is based, hindering AAWARE's ability to provide relevant information during the Advisory Committee proceedings and during the public comment period on the GSP. For example, Dudek's "Update to the USGS Borrego Valley Hydrologic Model" and summary report dated December 2018 (GSP Appendix D1 ("Dudek Model Update")) were withheld from public disclosure until the draft GSP was

published in March 2019 (See, Exhibit 1,[1] November 2, 2018 joint T2 Borrego/AAWARE letter, p. 1) The GSA is still withholding the Planning, Permitting and Ordinance Review Technical Report (referenced at GSP p. 4-38) and Working Draft Financing Plan (referenced at GSP pp. 5-9, 5-10).

Therefore, AAWARE and its individual members (who join in these comments) must now preserve their rights regarding the substantive and procedural deficiencies of the draft GSP and the process of its development that improperly marginalize, subordinate and prevent consideration of the AAWARE members' interests in the Basin, and violate their Constitutionally-protected substantive and procedural due process rights, water rights, and private property rights.

As a result of the Core Team's failure to adhere to SGMA's statutory and regulatory requirements and guidance provided by the Department of Water Resources ("DWR") (such as the use of best available science and compliance with fundamental principles of substantial evidence and due process), the draft GSP proposes excessive regulatory obligations and crushing financial burdens that would plainly eliminate private agricultural water use from the Basin. In enacting SGMA, the Legislature was clear that it did not seek to create a subordinate class of beneficial users regulated out of existence by SGMA. Instead, the Legislature mandated that beneficial users are to be full participants in the planning process, with the express intent to preserve beneficial uses through "sustainable", rather than draconian, management.

As discussed in greater depth below, the draft GSP:

1. Is being developed by a process that withholds relevant information relied upon in the GSP and prevents active involvement by affected agricultural water users, thereby preventing the GSA's consideration of the agricultural users' interests as required by SGMA. (Wat. Code, §§ 10723.2(a)(1), 10727.8(a).)
2. Fails to rely upon the best available science provided in the USGS report prepared in cooperation with the District entitled, "Hydrogeology, Hydrologic Effects of Development, and Simulation of Groundwater Flow in the Borrego Valley" ("2015 USGS Model Report"-- https://pubs.usgs.gov/sir/2015/5150/sir20155150.pdf, excerpts cited to herein are attached hereto as Exhibit 2.)
3. Establishes arbitrary management zones without model testing the zones.
4. Adopts sustainability measures that are not supported by the evidence.
5. Calls for excessive and costly implementing programs that are economically infeasible and needlessly harm beneficial agricultural uses in the Basin.
6. Includes administrative and program development costs that far exceed what is contemplated by SGMA for a small basin with few pumpers, rendering GSP implementation economically infeasible.

[1] The Exhibits referenced in this letter have been uploaded to a share site and may be accessed at the following link: https://sharefile.rachsontidus.law/wl/?id=H2IcpnHVEl2x6XJrcHnLpAySefoXafDx

County of San Diego Planning & Development Services
c/o Jim Bennett
May 20, 2019

In order to correct the draft GSP's procedural and substantive deficiencies, AAWARE asks the GSA to:

- Establish a collaborative technical process to be convened before GSP adoption to allow a meaningful opportunity for public review and dialog on matters that were not adequately developed through the Advisory Committee process;
- Convene technical meetings before GSP adoption among the water producers who will be subject to the GSP and their respective technical consultants in order to finalize their Baseline Pumping Allocations;
- Provide information explaining why the GSA decided to effectively reject the USGS's Scenario 6 sustainable pumping target of 7,824 AFY (Exhibit 2, 2015 USGS Model Report, p. 122 (Table 20)), including any data indicating a potential undesirable result at that pumping target;
- Produce at least one model run evaluating a pumping target of 7,100 AFY, which is the total average natural safe yield amount substantiated in both the 2015 USGS Model Report and Dudek Model Update;
- Provide for a permanent Technical Advisory Committee as part of the GSP governance process to be comprised of California licensed engineers, hydrogeologists and other licensed technical representatives from all stakeholders desiring to participate (see Exhibit 1, November 2, 2018, joint letter on behalf of T2 Borrego and AAWARE regarding Borrego Springs Groundwater Model and Proposal for Collaborative Technical Approach), and
- Amend and recirculate an updated draft GSP, and extend the comment period to allow for further review and comment by affected beneficial users.

II. **AAWARE COMMENTS ON THE DRAFT GROUNDWATER SUSTAINABILITY PLAN.**

A. **THE GSP FAILS TO RELY UPON THE BEST AVAILABLE SCIENCE AND INSTEAD JUSTIFIES THE GSA's PRE-DETERMINED SUSTAINABLE YIELD FOR THE BASIN AT 5,700 AFY.**

1. **The GSP Mischaracterizes and Wrongly Adopts the USGS Natural Surface Recharge Estimate as the Basin's Sustainable Yield.**

The 2015 USGS Model Report indicates that the available yield of the Basin in the pre-development condition is 7,074 afy. The 2015 USGS Model Report's "Scenario 6" evaluates a target pumping rate of 7,824 AFY (for 30 years commencing in 2030) and concludes that at 2060, recharge approximates discharge. (See, Exhibit 2, 2015 USGS Model Report pp. 4, 118 (Table 19), 122 (Table 20), Exhibit 3, May 16, 2019, Wagner & Bonsignore Letter Report, p. 2.)

O2-1

Rather than adopt the sustainable yield of 7,824 AFY as set forth in the 2015 USGS Report Scenario 6, or even the available pre-development yield of 7,100 AFY set forth in the USGS Model Report, the GSP mischaracterizes the USGS Model Report and incorrectly adopts

County of San Diego Planning & Development Services
c/o Jim Bennett
May 20, 2019

the USGS Model Report's natural *surface* recharge of 5,700 AFY as the Basin's "sustainable yield":

> At present, the total baseline pumping allocation (BPA) of 21,963 acre-feet per year (AFY) greatly exceeds the **Subbasin's estimated long-term sustainable yield of 5,700 AFY determined by the U.S. Geological Survey and confirmed in this GSP.** (GSP, p. ES-3 [emphasis added])

As set forth above, **the USGS did not determine or estimate the long-term sustainable yield at 5,700 AFY** Rather, the USGS estimated the long-term sustainable pumping rate at 7,824 AFY and only estimated the natural recharge to the Basin from **surface** water at 5,700 AFY. (Exhibit 2, 2015 USGS Model Report, pp 2, 122 (Table 20), 129.) USGS estimated the total average natural recharge to the Basin to be approximately 7,100 AFY, comprised of 5,700 AFY surface recharge and 1,400 AFY underflow into the Basin. (See, Exhibit 2, 2015 USGS Model Report pp. 2, 129, See also, Dudek Model Update, p 10; Exhibit 3, Wagner & Bonsignore Letter Report, p. 2, Exhibit 6, Thomas Harder Letter Report p 7.)

The GSP's mischaracterization and adoption of USGS estimated natural surface recharge of 5,700 AFY as the "sustainable yield" **violates the statutory definition of sustainable yield as the maximum quantity of water** that can be sustainably used. (Wat. Code, § 10721(w).)

The evidence contained in the 2015 USGS Model Report shows that 5,700 AFY is **not the maximum quantity** of water that can be sustainably used. The USGS model runs for SGMA sustainability that take into natural subsurface recharge, irrigation return flows and other components of the Basin's developed state estimate the long-term sustainable yield at 7,824 AFY.

The evidence contained in the GSP also shows that 5,700 AFY is not the maximum quantity of water that can be sustainably operated within the Basin. The GSP Basin setting discussion for safe yield estimate concedes that the water budget numbers set forth in the 2015 USGS Model Report are the correct numbers for what the GSP calls the "combined natural recharge" to the Basin·

> The average annual natural recharge of water reaching the saturated zone, which includes stream leakage and infiltrating water through the unsaturated zone, was 5,700 AFY for the full model simulation period from 1929 to 2010 (USGS 2015). In addition to natural recharge from stream leakage and infiltrating water (mostly from irrigation return flows), the Subbasin received underflow originating from the adjacent watersheds at an average annual rate of 1,400 AFY. **Therefore, the combined average annual natural recharge to the BVGB is approximately 7,100 AFY** (GSP, pp. 2-80 – 2-81 [emphasis added])

O2-1
Cont

County of San Diego Planning & Development Services
c/o Jim Bennett
May 20, 2019

The GSP Basin setting discussion for water budget purposes provides a slightly lower number of 6,770 AFY for combined total inflow based on the Dudek Model Update that admittedly either overestimates pumping or underestimates recharge. (GSP, pp. 2-72, 2-73 (Table 2.2-9A), 2-79.) However, even at that lower water budget inflow number of 6,770 AFY, the GSP concedes that the "sustainable yield" of 5,700 AFY is not the maximum quantity of water that can be sustainably operated within the Basin. By arbitrarily picking the average annual natural surface recharge number as the sustainable yield, the GSP violates the SGMA regulations requiring the GSA to use water budget projections and safe yield estimates as the foundation for determination of sustainable yield (23 Cal. Code Regs., § 354.18(b)(7), (c)(3).)

The County's GSP contract with Dudek specifically tasked Dudek to "consider both surface and groundwater data and run predictive simulations to determine effects of recharge and extraction on levels and quality along with implementation measures to be detailed in the GSP." (See, Exhibit 4, excerpts of County Contract No. 555655, Agreement with Dudek, pp 21-22) The County/Dudek contract explains that the purpose of this task, among other things, is "to determine sustainable yield for the basin in its entirety that is acceptable to DWR".

Instead, Dudek ran only model scenarios evaluating the 5,700 AFY natural surface water recharge as the Basin-wide sustainable yield. (See, GSP, pp. 3-20, 3-21 ["All of the simulations are based on the target pumping rate of 5,700 AFY being achieved in year 20 of GSP implementation."], Exhibit 6, 2019 Thomas Harder Letter Report, p. 7, Exhibit 5, April 26, 2019, Transcript, p. 54:1-11 [Dudek ran one model scenario stepping down current pumping to 5,700 afy over 20 years].) The GSA model run for the "sustainable yield" of 5,700 AFY shows that operation of the Basin in that amount is well below the maximum quantity of water that can be operated without undesirable result (GSP, p. 3-20, Figure 3-3-2.) Establishing the GSP "sustainable yield" at 5,700 AFY would add between 35,000 and 70,000 acre-feet over a 35-year period (about 1,000 to 2,000 AFY) to storage instead of being sustainably used without undesirable result (GSP, Figure 3-3-2; See, Exhibit 6, 2019 Thomas Harder Letter Report, p. 4 [quantifying the amount of storage gain]; Exhibit 3, 2019 Wagner & Bonsignore Letter Report, p 2.)

AAWARE questions the GSA's approach in formulating a desired sustainable yield result and then rationalizing that conclusion after-the-fact However, that is what happened in this case. The Dudek Model Update selectively accepts only the information supporting the GSA's decision to limit pumping to the 5,700 AFY natural surface water recharge, and rejects or ignores the data, laws and guidance contradicting that decision. No mention is made of the USGS Scenario 6 target production level of 7,824 AFY or any undesirable result that would occur at that level. The predictable result is that the County Board of Supervisors and District Board of Directors (as the GSA decision maker in this case) and DWR (as the oversight agency) will receive a one-sided analysis of the Basin's sustainable yield. The GSP's self-serving analysis of sustainable yield is arbitrary and capricious, particularly where the GSA has at its disposal the 2015 USGS Borrego Valley Hydrologic Model that was developed in cooperation with the District over a 6-year period at significant expense for the express purpose of testing alternative management scenarios. (See, Exhibit 2, 2015 USGS Model Report, p. 1.)

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Contrary to the requirements of SGMA and the scope of work outlined in the County/Dudek GSP contract, the GSA failed to conduct model runs at any number between 5,700 AFY natural surface water recharge and the 2015 USGS Model Report's sustainable yield Scenario 6 model result of 7,824 AFY that the GSP ignores and effectively rejects. (See, 2015 USGS Model Report, p. 122 (Table 20, Scenario 6).) The GSA should provide at least a model run evaluating production at the combined average annual natural recharge amount of 7,100 AFY. (23 Cal. Code Regs., § 354.26(c) [requirement to consider multiple minimum thresholds to determine point at which undesirable result occurs], Exhibit 2, 2015 USGS Model Report, p. 129; Exhibit 3, Wagner & Bonsignore Letter Report, p. 2; Exhibit 6, Thomas Harder Letter Report, p. 7) O2-1 Cont.

2. **The GSP's Incorrect Adoption of Natural Surface Recharge as the "Sustainable Yield" Violates SGMA's Intent to Preserve Common Law Water Rights.**

The GSA's adoption of the Basin's natural surface recharge of 5,700 AFY as the "sustainable yield" violates common law water rights as protected by the California Constitution (Art X, Sec. 2) to maximum reasonable and beneficial use of the Basin sustainable or safe yield, and thus violates both the California Constitution and SGMA (Wat. Code, §§ 10720.1(b), 10720.5(a), (b); Cal. Const., Art. X, Sec. 2, *California American Water v. City of Seaside* (2010) 183 Cal App 4th 471, 480-481 ["The solution must not, of course, unreasonably or adversely affect the existing legal rights and respective priorities of the parties."].) Most of the groundwater rights adjudications in California (if not all) use a definition of the basin yield that includes 3 components:

1. Natural yield, which is the amount of the total recharge including underflow that would exist under pre-development conditions In the Basin, this amount is about 7,100 AFY;
2. Developed yield, which is the amount of water that is developed from pumping the groundwater basin and includes changes in storage and reductions in basin outflow and evapotranspiration; and
3. Return flow from pumping.

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(See, Exhibit 3, Wagner & Bonsignore Letter Report, p. 2) The GSA's arbitrary rejection of USGS Scenario 6 effectively takes usable water out of production by regulation, adversely affecting the AAWARE members' water rights and land use. By requiring water users to operate so significantly under the Basin's total average natural recharge (which is less than sustainable or safe yield under the Basin's developed condition), the GSP constitutes a major change in overlying parties' water rights, in violation of SGMA. (Wat. Code, §§ 10720.1(b), 10720.5(a), (b); *Peabody v. City of Vallejo* (1935) 2 Cal.2d 351, 376 [requiring water to be unused and flow to the bay in order to make insubstantial contribution to underground supply of land held to be a great waste for small benefit].)

3. **The GSP's Incorrect Adoption of Natural Surface Recharge as the "Sustainable Yield" Violates SGMA's Requirement to Consider All Beneficial Uses and Users.**

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SGMA requires that the GSP "consider the interests of all beneficial uses and users of groundwater," including holders of overlying rights. The requirement was amended last year to expressly require the GSA to consider the interests of farmers holding overlying groundwater water rights (Water Code section 10723 2(a)(1), as amended by Assembly Bill 321, effective January 1, 2018) The GSP **fails to consider or even mention the interests of private overlying farmers or other private groundwater users** in its explanation of why it sets the "sustainable yield" significantly below the Basin's combined average annual natural recharge of approximately 7,100 AFY:

> Recharge in the basin is bimodal, with the majority of recharge occurring on decadal basis in a few very wet years. Most years have significantly less natural recharge than the average. Given that this bimodal pattern introduces a level of uncertainty regarding the actual amount of recharge that could occur over the next 20 years, the GSA has determined that a target pumping rate of 5,700 AFY by 2040 would be consistent with the GSP sustainability goal (discussed in Chapter 3). (GSP, p 2-81)

The "bimodal recharge" pattern is a function of desert environments. Multiple successive wet years will provide more than average recharge, and multiple successive dry years will provide less than average recharge. With no supplemental source of water, water users in the Basin (including overlying agriculture) will necessarily rely upon infrequent large recharge events to provide a steady source of banked supply during the more frequent dry seasons Over a long period of time, wet and dry cycles will produce an average recharge The USGS's full model simulation considered a 60-year period, 1929 to 2010. (See, Exhibit 2, 2015 USGS Model Report, p. 79.) The average annual natural recharge estimates from Appendix A of the Dudek Model Update are based on an 80-year period of record (7,040 AFY) and 65-year period of record (6,881 AFY), which are more than sufficient to account for hydrologic cycle variability. (See, Exhibit 6, 2019 Thomas Harder Letter Report, p. 4)

The GSP's statement about bimodal recharge fails to explain the undesirable result, if any, that would result from a pumping target based upon the 7,100 AFY combined average annual natural recharge or the 7,824 AFY USGS Scenario 6 pumping target. **By omitting a very significant amount of natural underflow into the Basin (1,400 AFY, which is 20% of the Basin's total 7,100 AFY average natural recharge), the GSP fails to rely on the best available information and science about the Basin's natural recharge in both the USGS model and the Dudek Model Update** (23 Cal. Code Regs., § 354.18(e)) The USGS's evaluation of sustainable yield (Scenario 6, which evaluates total production of 7,824 AFY), appropriately relies on the best available science, taking into account not only the natural surface recharge and underflow, but also return flows from irrigation. **The GSA ignores and effectively rejects USGS Scenario 6 without substantial evidence or explanation, arbitrarily reducing the sustainable yield and taking usable water out of production by regulation.**

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B. THE GSA FAILED TO ALLOW FULL PARTICIPATION BY PRIVATE WATER USERS INCLUDING AGRICULTURAL USERS AND FAILED TO CONSIDER THEIR INTERESTS IN PREPARING THE GSP.

1. The GSA Did Not Involve Beneficial Users in the Development of the GSP's Sustainability Measures.

SGMA requires that the GSA provide a written statement that commits to the manner in which interested parties may participate in the development and implementation of the GSP (Wat. Code, § 10727.8(a).) The GSA must follow the commitment set forth in that statement for involvement of beneficial users. (23 Cal. Code Regs., § 354.10.) Given the mandate that the GSA consider the interests of all beneficial users and uses of groundwater (including farmers) (Wat. Code, § 10723.2(a)(1)) and the legislative intent to preserve water rights in the development and implementation of the GSP (Wat. Code, §§ 10720.1(b), 10720.5(a), (b), this commitment is crucial.

Beneficial user input into the development of GSP sustainability measures is critical to the GSP process and to the protection of overlying water rights. (Wat. Code, §§ 10720.5, 10723.2, 10727.8(a); 23 Cal. Code Regs., §§ 354.10, 354.26(b)(3), 354.28(b)(4).) Contrary to the requirements of SGMA and the Advisory Committee Bylaws (GSP, Appendix BA, p. 1), development of the GSP was reduced to a top-down process where GSP proposals were developed by the Core Team and selectively reported to the Advisory Committee members and affected private water users. In some cases, relevant information was withheld from the Advisory Committee and the affected water users (including AAWARE members), depriving them of a meaningful opportunity to evaluate potential impacts to their interests and provide input into the GSA's decisions such as the GSP management proposals. (23 Cal. Code Regs., § 354.10.) Specifically, the GSA failed to comply with the process required to develop the GSP by:

- Withholding the Dudek Model Update until after publication of the draft GSP and failing to timely provide related information required for the Advisory Committee, the affected water users and their technical consultants' meaningful comment on the technical foundation of the GSP,
- Withholding key documents cited in GSP even after publication of the GSP under the "deliberative process privilege" exemption, including the Planning, Permitting and Ordinance Review Technical Report (referenced at GSP p. 4-38) and Working Draft Financing Plan (referenced at GSP pp. 5-9, 5-10);
- Relying on 2018 ENSI Report that miscalculates the Basin's combined annual natural recharge, and misrepresenting to the Advisory Committee and affected water users that the total yield is 5,700 AFY,
- Failing to post agenda materials, including but not limited to information about the proposed contents of the GSP, in advance of Advisory Committee meetings;
- Failing to respond to comment letters submitted by private water users during the Advisory Committee process;

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- Proposing management programs that target agricultural land and water use without input by the affected agricultural water users, and
- Proposing financing mechanisms that are not feasible and will have the effect of eliminating beneficial agricultural use.

In the months preceding publication of the draft GSP, the technical consultants advising the GSA repeatedly misinformed the Advisory Committee members, the public and the private water users' technical consultants that the average annual natural recharge of the Basin totals 5,700 AFY. The District's consultant, Environmental Navigation Services, Inc. ("ENSI"), incorrectly represented the total 65-year average natural recharge to the Basin to be 5,700 AFY per the 2015 USGS Report, comprised of 1,400 AFY groundwater inflow and 4,300 AFY surface water recharge. (See, Exhibit 17, September 2018 report entitled "Methodology to Examine Future Groundwater Overdraft in Terms of the Overall Hydrologic Water Balance Considering Recharge Variability and Parameter Uncertainty" ("2018 ENSI Report"), p 7.) To the contrary, the 2015 USGS Model Report estimated the total average natural recharge to the Basin at approximately 7,100 AFY, comprised of 1,400 AFY underflow into the Basin **plus** 5,700 AFY surface recharge (See, Exhibit 2, 2015 USGS Report p 2; GSP pp. 2-80 – 2-81; See also, Exhibit 3, Wagner & Bonsignore Letter Report, p. 2; Exhibit 6, Thomas Harder Letter Report p. 7.) **ENSI mistakenly *subtracted* the 1,400 AFY underflow from the 5,700 AFY surface recharge instead of *adding* the two together.** (Exhibit 17, 2018 ENSI Report, p. 7.) **As a result, the ENSI Report misrepresents the Basin's total average natural recharge to be 20% lower than the 2015 USGS Model Report.**

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Cont

The misleading information on the Basin's average natural recharge was particularly impactful given that the purpose of ENSI's examination was to address concerns about potential impacts on the District's ability to produce drinking water and related increase in water production costs should the target pumping rate fail to achieve the SGMA-mandated sustainability goals. (Exhibit 17, 2018, ENSI Report, p. 1.) The 2018 ENSI Report further explains that "subsequent analyses are in process that will build from this Report to examine the effect of overdraft on BWD supply well production rates and water quality". (Exhibit 17, Cover letter to the District's General Manager.) The GSP relies on the incorrect 2018 ENSI Report for the Plan Area and Basin Setting and Sustainability Management Criteria (see GSP pp. 2-87, 3-48), and includes a subsequent ENSI study dated December 7, 2018, entitled "Water Quality Review and Assessment· BWD Water Supply Wells" that may have been one of the "subsequent analyses" that built upon the incorrect 2018 ENSI Report (see, GSP Appendix D2). **The Advisory Committee members and the public were incorrectly informed that the pumping levels in the 2015 USGS model's Scenario 6 would so far exceed the Basin's natural recharge that it would not meet SGMA's sustainability requirements. (See, for example, Exhibit 11, August 2018 Advisory Committee Minutes, p. 3; Exhibit 17, 2018, ENSI Report, p. 18.)**

The GSA relied in part on the incorrect ENSI analysis in picking the 5,700 AFY target pumping rate as the Basin's sustainable yield and effectively rejecting the USGS Scenario 6. (See, GSP pp. 2-87, 3-48, 3-49.) At the August 31, 2018, technical meeting among the technical consultants advising the GSA, AAWARE and T2 Borrego, the GSA incorrectly said that the Dudek Model Update was using the 2015 USGS model and assumptions and was only updating

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the model to the period beyond 2010 However, the draft GSP published months later disclosed that, in setting the sustainable yield at 5,700 AFY, the Dudek Model Update excluded the 1,400 AFY average natural underflow recharge that had been included in the 2015 USGS Model inputs (See, Exhibit 2, 2015 USGS Model Report p. 118; GSP pp. 2-80 – 2-81; see also, Exhibit 3, Wagner & Bonsignore Letter Report, p. 2, Exhibit 6, Thomas Harder Letter Report p 7.) **The erroneous information was unable to be discovered by the affected water users and unable to be corrected during the Advisory Committee process because the GSA purposely withheld the Dudek Model Update from public review until the draft GSP was published.**

The August 2018 technical meeting was held at the request of AAWARE and T2 Borrego so that the GSA's engineering consultants could provide them with information needed for AAWARE and T2 Borrego to provide meaningful information for the Dudek Model Update, its inputs and the sustainability criteria At a subsequent Advisory Committee meeting, the GSA announced that what it provided at the technical meeting was merely information that could be found on the GSA website, and not the technical information that had been requested. (See, Exhibit 11, October 4, 2018, Advisory Committee Minutes, p. 2.)

The GSA also withheld the Dudek Model Update from public review until the draft GSP was published for public comment, claiming the "deliberative process" exemption from the Public Records Act Upon publication of the draft GSP, AAWARE and T2 Borrego scheduled two technical meetings for the technical consultants to discuss the model, data and model runs with the GSA during the public comment period. (See, Exhibit 12, March 22, 2019, email exchange to schedule technical meetings during GSP public comment period.) The information learned from the subsequent technical meetings and from the GSP is that the GSA had a predetermined result to use the USGS natural surface recharge number of 5,700 AFY as the "sustainable yield," and that the GSA only performed model runs at that 5,700 AFY number. No other forward projection runs were performed at higher pumping rates. (See, GSP pp. 3-20, 3-21 ["All of the simulations are based on the target pumping rate of 5,700 AFY being achieved in year 20 of GSP implementation."], 3-61 (Figure 3.3-2); Exhibit 3, 2019 Wagner & Bonsignore Letter Report, pp. 1-2; Exhibit 6, 2019 Thomas Harder Letter Report, p. 7) Because the GSA only studied its pre-determined result of a 5,700 AFY "sustainable yield", the Advisory Committee and the affected water users cannot evaluate the maximum pumping that can occur in the Basin without undesirable results, and neither can the County Board of Supervisors or District Board of Directors (in their role as the GSA decision maker) or Department of Water Resources (in its role as the oversight agency). The GSP process was not conducted in a manner to obtain any meaningful input from beneficial users as to sustainable yield components, in violation of SGMA requirements for beneficial user participation in the development of those sustainable yield components. (Wat Code, §§ 10723 2, 10727.8; 23 Cal. Code Regs. §§ 354.10, 354.26(b)(3), 354.28(b)(4).)

Dudek told AAWARE's technical consultants that it was prevented from modeling other target pumping rates for the Basin due to budget and scoping constraints. (See, Exhibit 3, Wagner & Bonsignore Letter Report, pp 1-2.) However, as discussed above, the County/Dudek GSP contract tasked Dudek with running predictive simulations to determine sustainable yield for the Basin. **In order to comply with SGMA requirements to use the best available science and**

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information (23 Cal. Code Regs., § 354.18(e)), the GSP should provide at least one additional model run at the 7,100 AFY combined average annual natural yield.

Additionally, the Advisory Committee process was reduced to a top-down process with the Core Team developing GSP components and reporting only some of them to the Advisory Committee. A review of the agendas for the GSA reveal only two items that came up for Advisory Committee input, neither of which were GSA sustainability measures: (1) metering of agricultural wells, and (2) allocation of base production rights. (See, Exhibit 7, November 27, 2017 Advisory Committee Agenda Excerpts.) As shown by the GSA website, the GSP sustainability measures were rolled out to the Advisory Committee for review only at the very end of the Advisory Committee Process in October 2018, after the GSA's consultant had completed their model testing and developed the sustainability measures. (See, Exhibit 8, website screenshot page 4, Exhibit 9, Advisory Committee Agenda Reports for GSP Rollout Oct. 2018, Nov. 2018 and Jan. 2019.) As discussed above, at that time, the Advisory Committee members were misinformed as to the Basin's natural recharge.

Additionally, the Advisory Committee agendas published in advance of the meetings did not contain attachments. The substance of the GSP text was not provided to the Advisory Committee members prior to the meetings, but instead Advisory Committee members were simply presented with a power point presentation on the spot at the meetings, with no opportunity to meaningfully review, consider and provide input into the GSP's contents. The power point presentations were not posted on the GSA's website until several days following the meeting, generally only in time for the subsequent meeting, thereby preventing timely and meaningful input by the affected water users into the GSP's development. (See, Exhibit 11, August 29 and October 3, 2019 letters to Jim Bennett and Geoff Poole.)

After publication of the Draft GSP, information necessary for AAWARE's technical consultants to understand and comment on the Dudek Model Update during the 60-day public comment period was requested at the April 26, 2019 technical meeting. (See, Exhibit 5, April 26, 2019, Transcript, pp. 13:18-25, 25:23 – 26.3.) The GSA committed to provide the requested information at the May 10, 2019 technical meeting. (See, Exhibit 5, Transcript, p. 69:24 – 70:5.) However, the information was not provided at the May 10 meeting. The requested information was provided at the close of business on May 16, 2019, just two business days before the close of the comment period on the draft GSP. (See, Exhibit 16, May 16, 2019, Calibration Wells Correspondence and Documents.)

Additionally, the GSA continues to withhold information cited in the GSP upon which the proposed management programs are based, including the Planning, Permitting and Ordinance Review Technical Report (referenced at draft GSP p. 4-38) and the Working Draft Financing Plan (referenced at GSP pp. 5-9, 5-10) (See, Exhibit 10, March 29, 2019, email denying AAWARE's request for these documents.) Additionally, the GSP references Le Sar Development Consultants' work on matters including economic impacts (GSP p. 2-30), but there is no report included in the GSP.

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The GSA did not provide the Advisory Committee or beneficial users "balanced objective information" in a timely manner as necessary to assist in their understanding the Dudek Model "Update" to the USGS model, water budget or development of sustainability measures, did not involve or collaborate with the Advisory Committee in determining which sustainability measures to include in the GSP, and did not consult with the Advisory Committee or agricultural users targeted by the sustainability measures. In fact, the GSA provided incorrect information about the Dudek Model Update and withheld Dudek's model report dated December 2018 from public disclosure until the GSP was published months later.

The requested information should be provided to the public, and the public comment period should be reopened to allow a meaningful opportunity to review the information as necessary to comment on the Dudek Model Update.

Additionally, to avoid future dissemination of misinformation and ensure that the affected private water users receive relevant information about GSA matters potentially affecting their interests in a timely manner, AAWARE urges the GSA to establish a permanent Technical Advisory Committee process as part of the GSA's governance structure with authority to analyze and make recommendations on matters including specific yield, mountain front underflow and flux into the Basin across the Coyote Creek fault, and agricultural and recreational irrigation return flows; evaluating the feasibility of importing groundwater; advising on development of any Water Quality Optimization, Intra-Basin Water Transfers and General Plan Update proposed in the draft GSP; sustainable yield; scope of work and budget for technical work; rampdown; and any other matters to be approved by the GSA.

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2. The Manner in Which the GSP Was Developed Violates the AAWARE Members' Constitutionally-Protected Substantive and Procedural Due Process Rights.

The GSA's failure to objectively evaluate sustainable yield scenarios violates the AAWARE members' Constitutionally-protected substantive and procedural due process rights by withholding from the Advisory Committee, County Board of Supervisors, District Board of Directors and DWR relevant information that is contrary to the GSA's arbitrary decision that the sustainable yield should be equal to the natural surface water recharge.

Further, the GSA's withholding relevant information cited to and relied upon in the GSP denies the AAWARE members a meaningful opportunity to evaluate the potential impacts to their interests from the GSP's incorrect determination of sustainable yield included in the draft GSP during the public comment period. These errors and omissions preclude the GSA from considering the agricultural water users' interests in violation of SGMA (Wat. Code, § 10723.2.)

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C. THE BASIN SETTING CONTAINS IMPROPER ANALYSES CONTRARY TO BEST AVAILABLE DATA AND SCIENCE.

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1. **The Analysis of How Groundwater Sustainability Will Affect General Plans Is Flawed and Improperly Favors Expanding Municipal Use Over Existing Agricultural Use.**

SGMA requires that the GSP provide a description of the consideration given to general plans and an assessment of how the GSP may affect those plans. (Wat. Code, § 10727.2(g).) The GSP describes how the current General Plan allows for as many as 11,689 total housing units, which would equate to 5,844.5 AFY for just residential use (GSP, p. 2-19) Thus, without any subdivision permitting, the residential water use alone would exceed the GSP's "sustainable yield" of 5,700 AFY. The GSP concludes that the existing General Plan land use designations and policies allow for growth and promote agricultural conservation in a manner that may be inconsistent with the sustainability criteria, pumping reduction program and agricultural land fallowing program described in Chapters 3 and 4 (GSP, p 2-20.) Of course, the GSA needs to consider all beneficial users, and not favor any particular class of beneficial use (Wat. Code, 10723.2.)

One of AAWARE's concerns is the statement in the GSP that "Supporting continued agricultural operations in Borrego Valley may be inconsistent with the goal of reducing groundwater demand". (GSP, p 2-22, Table 2.1-6; See also p. 2-23.) The data presented in the GSP indicates that a significant reduction in agricultural water use is needed, and AAWARE's members are already undertaking measures to reduce their water production. However, there is no evidentiary support in the GSP for the conclusion that agricultural operations must be eliminated in order to achieve groundwater sustainability. In fact, the 2015 USGS study concluded that sustainability can be achieved with a 60% reduction in then-current agricultural pumping (13,162 AFY). (See, Exhibit 2, 2015 USGS Model Report, pp. 4, 122, Table 20 (Scenario 6).) (Using the USGS methodology, the required reduction would be slightly higher under the GSP totals of 15,729 AFY total agricultural Baseline Pumping Allocation, and 14,767 AFY total current agricultural production. (See, GSP p. 2-26, Table 2.1-7).)

Because the GSP cites to a "Planning, Permitting and Ordinance Review Technical Report" (referenced at draft GSP p. 4-38), AAWARE requested a copy of that document as necessary to evaluate and comment on the GSP's analysis of how the General Plan's agricultural policies and land use designations would be affected. However, the GSA denied AAWARE's request for a copy of the report. (See, Exhibit 10, March 29, 2019 [email denying AAWARE's request for the report].) **By withholding relevant information relied upon in the GSP about how it would affect the General Plan's agricultural policies and land use designations, the GSA has deprived AAWARE members of a meaningful opportunity to provide input on whether and how the purported General Plan inconsistencies and potential amendments could affect their interests. Additionally, the GSP's General Plan discussion evidences the GSA's intentions to disfavor agricultural uses in implementing the GSP. As a result, the County Board of Supervisors and District Board of Directors (in their role as the GSA) are unable to carry out their obligation to consider the interests of agricultural water users in violation of SGMA. (Wat. Code, § 10723.2.)**

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2. **The Basin's Groundwater Quality Does Not Violate Sustainability Indicators, and the GSP's Extensive Groundwater Quality Monitoring Does Not Appear to be Warranted.**

SGMA authorizes GSAs to adopt programs to avoid undesirable results, not to "optimize" water quality. SGMA only requires water quality monitoring as a component of a GSP "as applicable to the basin." (Wat. Code, § 10727.2(d).) SGMA indicates that water quality monitoring may only be necessary where groundwater quality degradation is created by extraction of groundwater or will affect the supply and beneficial uses of groundwater. (Wat. Code, § 10727.2(d)(2); 23 Cal. Code Regs., § 354.16(d).)

The GSP discussion on groundwater quality concludes: "In general, water quality has historically been good within BWD's wells with TDS at concentrations of less than 500 mg/L." (GSP, p. 2-62.) Wells with nitrate issues are located down gradient from Rams Hill and percolation ponds at the BWD water treatment plant. (GSP, p. 2-63.) There are no discernable trends of water quality degradation of any constituent. (GSP, p. 2-62 to 2-63.) The primary concern is that decreased groundwater levels could induce flow of poor quality water. (GSP, p. 2-63.) That concern can be addressed more appropriately by minimum thresholds for groundwater levels already in place to address chronic lowering of groundwater levels. (23 Cal. Code Regs., § 354.28(d).)

Additionally, the GSP includes incorrect information about exceedances of nitrates. The GSP incorrectly says that "historical exceedances of nitrate concentration have occurred in five wells in the vicinity of Henderson Canyon Road in the northern part of the valley, adjacent to areas of agricultural use"; that one District well in the northern area shows an increasing nitrate trend; and that four wells in the northern area had to be taken out of potable service due to elevated nitrate. (GSP, pp. 2-57, 2-62, 3-12.) In response to AAWARE's question for additional information, the GSA responded that only one of the District's wells (ID4-4) is located in the northern management area and was drilled deeper to avoid nitrate. (See, Exhibit 10, March 29, 2019, email and Attachment A.) Additionally, the December 7, 2018 ENSI report entitled "Water Quality Review and Assessment: BWD Water Supply Wells" (GSP Appendix D2, p. 66) says that nitrate occurs in all of the active BWD wells at varying concentrations **well below the maximum contaminant level ("MCL") for nitrate**. The GSP should be corrected accordingly.

The data simply does not indicate a potential undesirable result supporting the expansive "Water Quality Optimization Program" as part of the GSP. The GSA's $124,000 cost to develop the program elements (not including the implementation costs) should be reviewed through the Technical Advisory Committee process. Without a publicly-available itemization of the GSA's costs, program elements such as the new District well and pipeline referenced in the Water Quality Optimization Program (GSP p. 4-32) give the appearance of being District transmission system upgrades inappropriately subsidized by private well owners who are not connected to the District's system.

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The GSP's Water Quality Optimization Program, its potential impacts on the interests of agricultural water users and its costs should be evaluated through the Advisory Committee and Technical Advisory Committee before the GSP is approved.

Also, in addition to noting agricultural amendments and septic systems as potential sources of nitrates in the Basin (GSP pp. 2-56, 2-57, 3-12), the GSP should discuss the District's sewage spreading ponds. (Wat. Code, § 10727.4.) Sewage collected by the District is treated at the Ram's Hill Waste Water Treatment Plant ("WWTP") and then spread to evaporation/percolation ponds. Sludge from the WWTP is discharged to on-site drying beds for stabilization and removed every four to five years for off-site disposal. (See, Exhibit 18 [excerpts from the District's website, October 2007 San Diego County Local Agency Formation Commission Borrego Valley Municipal Service Review & Sphere of Influence Update, and August 2017 Colorado River Basin Regional Board Water Quality Control Plan].) **The GSP's steps to fill data gaps (GSP p. 3-47) should objectively evaluate all potential sources of nitrates in the Basin, not focus on agricultural fertilizer application alone.**

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3. **The Dudek Model Update and Water Budget Calculations Are Not Based on Best Available Science and Ignore Information That Contradicts the Pre-Determined Result.**

The foundation of the basin setting is a description of groundwater conditions in the basin and a water budget that is based on the best available information and best available science. (23 Cal. Code Regs., § 354.16.) The Dudek Model Update begins with a description of water demand for the last ten years that outflows are 20,000 AFY and inflows are 5,000 AFY. That description is contradicted by the best available science and information set forth in the GSP, as follows:

- Groundwater inflow across the Coyote Creek fault was estimated to be as high as 3,200 AFY based on a scientific electrical resistivity study, but was dismissed because it was based on "limited data" and "inconsistent with the BVHM model assumption" of a no flow boundary. (GSP, p. 2-42.) The GSP's stated reasoning for dismissing the scientifically demonstrated inflow and not accounting for any of it is not based in science: "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." (GSP, p. 2-42.)
- Despite actual testing of return flows from irrigation at 22% and golf course at 14% (GSP, p. 2-46), assumptions are made regarding efficiency and a dry saturated zone (despite years of continual watering) to reduce those amounts in the incorrect 2018 ENSI Report discussed above. (GSP, p. 2-75, and Exhibit 17.)
- A mere six year period was used to "validate" the Dudek Model Update. (GSP, p. 2-72.)
- The Dudek Model Update, using only six years of data, finds only 3,905 AFY of surface recharge to the Basin (GSP, p. 2-73), yet the water budget agrees with the 2015 USGS Report's surface recharge amount of 5,700 AFY rather than the Dudek Model Update amount. (GSP, p. 2-80.) The 2015 USGS Report, based on 70 years of data, is the best available scientific data to use.

O2-8

- The Dudek Model Update confirms natural underflow recharge to the Basin averages 1,400 AFY in addition to the 5,700 AFY surface recharge. (GSP, p. 2-76.) Yet, the GSP throughout claims that only 5,700 AFY is available for natural recharge and incorrectly calculates overdraft and loss in storage based solely on the 5,700 AFY amount. (GSP, pp ES-3, 2-34, 2-80, Tables 2.2-9A, 2.2-9B; See also, Exhibit 1Z, p. 7.) The GSP effectively ignores the underflow as part of the "sustainable yield" despite the science substantiating this information. (GSP, p. 2-61.)
- The Dudek Model Update results "underestimate hydraulic heads," which "may be the result of the model simulating too much pumping compared to actual usage, or underestimating storage values like specific yield for the upper aquifer, or underestimating the amount of recharge to the BVGB, or a combination of all three." (GSP, p 2-79.)

To summarize, the GSP fails to take into account demonstrated Coyote Creek inflow, demonstrated recharge from underflow and demonstrated irrigation return flows. The GSP uses a much different sustainable yield number than from the accepted scientific methods of the USGS Report, with the effect of overestimating overdraft, underestimating sustainable yield and underestimating groundwater in storage. This violates the SGMA requirements for water budgets. (23 Cal. Code Regs., §§ 354.18(b) [estimates based on direct measurements or data], (c)(3) [projected hydrology to utilize 50 years of historical information for estimating future hydrology].)

O2-8 Cont

The Basin Setting also should include information about the significant amount of groundwater in storage in the Basin. The District previously relied upon that storage as a basis for tempering drought water restrictions and cutbacks. (See, GSP Appendix D2, p 10; see also, District's report to State Water Resources Control Board at https://www.waterboards.ca.gov/water_issues/programs/conservation_portal/conservation_reporting.html#smallsupplier under January 5, 2016 State Water Resources Control Board Small Supplier Report Dataset, Row 131, Column Q [Basin contains at least a 50 year supply of groundwater in the uppermost of three aquifers])

D. **THE SUSTAINABILITY MEASURES ARE NOT SUPPORTED BY DATA FROM THE BASIN SETTING AND DO NOT CONSIDER BENEFICIAL USES.**

1. **The Minimum Thresholds are Not Justified by Supporting Information in the Basin Setting and are Without Input and Consideration of Beneficial Interests and Property Owners.**

O2-9

Minimum thresholds must be based on supporting information in the basin setting and data and models and must consider the effect on beneficial users and property interests. (23 Cal. Code Regs., § 354.28(b)(1) & (4).)

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For the chronic lowering of groundwater sustainability indicator, the minimum threshold must be a groundwater level based on the historical rate of groundwater decline for projected water use and type. (23 Cal. Code Regs., § 354.28(c)(1).)

For the reduction of groundwater in storage sustainability indicator, the minimum threshold should be the total volume of water that can be withdrawn from the Basin without undesirable results, as supported by the sustainable yield of the Basin, but groundwater levels may be a proxy. (23 Cal. Code Regs., § 354.28(c)(2), (d))

For water quality sustainability indicator, the minimum threshold should be the degradation of water quality, but groundwater levels may be a proxy. (23 Cal. Code Regs., § 354.28(c)(4), (d).)

The GSP selects as the minimum thresholds for all three sustainability indicators "maintaining groundwater levels above saturated screen intervals for pre-existing municipal wells during an anticipated multi-year drought circumstance". (GSP, p. 3-17; GSP, p. 3-23 ["use of GWEs at the cross section of wells outlined in Table 3-4 and Table 3-5, are also appropriate minimum thresholds for the following sustainability indicators: groundwater storage, groundwater quality degradation, and depletion of interconnected surface waters"].) There is no explanation of how those well levels are based on the historical rate of groundwater decline for projected water use and type. (23 Cal. Code Regs., § 354.28(c)(1).)

O2-9 Cont.

Those groundwater levels appear not to be based upon the point at which groundwater decline would halt, but instead are based upon the Dudek Model Update model run of the pre-determined "sustainable yield" of 5,700 AFY which, as previously explained, is not the maximum quantity in which the Basin can be operated given current inflows and operation of the Basin. (GSP, pp. 3-20, 3-21 ["All of the simulations are based on the target pumping rate of 5,700 AFY being achieved in year 20 of GSP implementation"].)

At least one additional model run should be provided to evaluate target pumping at the total natural recharge of 7,100 AFY to determine whether sustainable yield can be reached at or above that level, as indicated by the data in the 2015 USGS Report and Dudek Model Update. (23 Cal. Code Regs., § 354.26(c).) The groundwater levels chosen according to pre-determined "sustainable yield" were made without consideration of whether the overlying agricultural use can sustain the impact of reducing production well below the Basin's natural recharge. (Wat. Code, § 10723.2; 23 Cal. Code Regs., § 354.28(b)(4).)

2. **The GSP Reversed the SGMA Process of Determining Undesirable Results Based Upon Exceedances of Minimum Thresholds and Instead Pre-Determined the Undesirable Results to Back Into Minimum Thresholds Through Modeling of the Incorrect "Sustainable Yield".**

O2-10

As minimum thresholds are developed for particular uses and locations, the exceedance of those minimum thresholds in a quantitative manner that causes significant and unreasonable effects in

the Basin (taking into account potential effects on beneficial users and property owners) is what should be determined as the unreasonable result. (23 Cal. Code Regs., § 354.26(b)(2)-(3).)

The GSP carries out this process in reverse. It works backwards to establish what is the "sustainable yield" and then conducts model runs accordingly. (GSP, pp. 3-10 to 3-12.) There is no discussion in the GSP about how the undesirable results were obtained by a quantitative analysis of "minimum threshold exceedances (i.e., groundwater levels) that cause significant and unreasonable effects in the basin." (23 Cal. Code Regs., § 354.26(b)(2).)

O2-10 Cont.

3. **The GSP Mischaracterizes and Confuses the Sustainability Goal by Treating the Goal as Sustainable Yield; The GSP Mischaracterizes and Treats Natural Recharge of Surface Water as the "Sustainable Yield".**

The sustainability goal refers to the implementation measures targeted to ensure that the Basin is operated within its sustainable yield. (Wat. Code, § 10721(u).) "**SGMA does not incorporate sustainable yield estimates directly into sustainable management criteria. Basinwide pumping within the sustainable yield estimate is neither a measure of, nor proof of, sustainability.** Sustainability under SGMA is only demonstrated by avoiding undesirable results for the six sustainability indicators." (DWR, Draft Sustainable Management Criteria, p. 32 [emphasis added].) "The key to demonstrating a basin is meeting its sustainability goal is by avoiding undesirable results." (DWR, Draft Sustainable Management Criteria, p. 33 [emphasis added].)

O2-11

In direct contradiction of the DWR guidance and SGMA definition for sustainability goal, the GSP adopts as one of its sustainability goals groundwater use within the sustainable yield. (GSP, p. 3-4.) As explained previously, the GSP errs in treating only natural surface water recharge (5,700 AFY) as the "sustainable yield" without any supporting evidence and despite conceding that the combined natural recharge (including underflow) is 7,100 AFY. **The GSP incorrectly establishes a sustainability goal at far less than the sustainable yield based on an incomplete natural recharge rate that neglects to include 1,400 AFY of underflow into the Basin.**

As discussed above, the GSP's sustainability goal with respect to groundwater quality exceeds the GSA's authority under SGMA by seeking to maintain or improve groundwater quality for transition to future municipal use (GSP, p. 3-4), rather than protect against groundwater quality degradation that impairs water supplies (Wat. Code, § 10721(x)(4)).

4. **The GSP Measurable Objectives Violate SGMA by Using Different Metrics From Those Used to Define the Minimum Thresholds and by Failing to Provide a Reasonable Margin of Operational Flexibility.**

O2-12

SGMA requires that measurable objectives be based on quantitative value using the **same metrics and monitoring sites** as are used to define the minimum thresholds. (23 Cal. Code Regs., § 354.30(b).) The measurable objectives must provide a reasonable margin of operational

flexibility under adverse conditions which take into account historical water budgets, seasonal and long-term trends and periods of drought commensurate with levels of uncertainty. (23 Cal. Code Regs., § 354.30(c).)

The GSP violates SGMA by creating a new measurable objective of production reductions that was not the metric used to define the minimum thresholds and does not use the monitoring sites that are used to measure the minimum thresholds. (GSP, pp. 3-31 to 3-34.) The GSP attempts to justify the different measurable objective by claiming that the linear reduction of production was the input for the Dudek Model Update, as if that linear input somehow defines sustainable yield or somehow displaces the metric of groundwater levels. (GSP, pp. 3-31 to 3-32.)

O2-12 Cont.

Far from providing a reasonable margin of operational flexibility, by ratcheting down production to a level significantly below the Basin's natural recharge, the proposed production reductions of 74% of current production will needlessly impair the interests of water users. Production reductions should be triggered by failure to meet groundwater elevation measurable objectives, and unless the GSA demonstrates undesirable results would occur, should have the operational flexibility of the sustainable yield, which the 2015 USGS Report estimated at 7,824 AFY.

E. THE GSP's PROJECTS AND MANAGEMENT ACTIONS EXCEED SGMA AUTHORITY TO ACHIEVE THE SUSTAINABILITY GOAL FOR THE BASIN.

Project and management actions must achieve the sustainability goals for the Basin. (23 Cal. Code Regs., § 354.44(a).) The GSP must quantify the measurable objectives under the sustainability components that the projects and management actions are expected to meet. (23 Cal. Code Regs., § 354.44(b)(1).)

The GSP must describe the circumstances under which the projects and management actions must be implemented (i.e., the criteria that triggers implementation and termination of the projects and management actions). (23 Cal. Code Regs., § 354.44(b)(1)(A).)

If overdraft conditions exist, the GSP must describe management actions (and quantify the demand reduction they will achieve) to mitigate overdraft. (23 Cal. Code Regs., § 354.44(b)(2).)

O2-13

Because the sustainability goal statement inappropriately uses "sustainable yield" as a sustainability goal, it creates additional confusion when evaluating whether projects and programs will achieve the sustainability measures. The sustainability goal must match the sustainability measures, which for all of the sustainability indicators are groundwater levels. Thus, in order to qualify as GSP projects or management actions, they must achieve quantifiable sustainability objectives. (23 Cal. Code Regs., § 354.44(b)(1).)

Management Action No. 1—Water Trading Program. The high cost of developing the Water Trading Program ($122,000 for "planning level development") is unreasonable in light of the fact that there are only a few dozen non-de minimis well owners in the Basin. To minimize costs, the Technical Advisory Committee process should be used to solicit bids from

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qualified engineering firms to act as a clearinghouse for willing buyers and sellers before GSP approval.

Management Action No. 2—Water Conservation Program. The GSP's Water Conservation Program would consist of separate components for the agricultural, municipal and recreation sectors. The primary element of the agricultural conservation program will be water audits to be performed by the GSA or third party contractors which may have the following components:

- Pre-audit analysis of historical water use, topography, climate data and land use;
- Analysis of distribution uniformity (amount of water supplied by irrigation system to each plant), crop density and crop types,
- Analysis of irrigation efficiency (amount of water used beneficially by crop compared to total water applied);
- Analysis of soil gram size and texture, agronomic soil suitability including salinity, drainage and water retention properties;
- Analysis of irrigation system water use efficiency, pressure and maintenance;
- Pesticide and fertilizer application and use;
- A report containing recommendations for improving efficiency and crop yield; and
- Follow up analysis of measures implemented actions/practices and savings obtained.

(GSP pp 4-11 – 4-12) The estimated agricultural water savings totals 365 AFY. (GSP p. 4-15) The estimated cost to develop the program is approximately $130,000. (GSP p 4-19) **The Agricultural Water Conservation Program should be evaluated through the Technical Advisory Committee process after water meters are installed and the level of agricultural water savings to date is evaluated. The program as described would be highly intrusive and must be voluntary.**

O2-13 Cont.

Management Action No. 3—Pumping Reduction Program. The Pumping Reduction Program (GSP pp 4-20 – 4-24) would require each well owner to incrementally reduce Baseline Pumping Allocations to reach the estimated sustainable yield (currently, 5,700 AFY) by 2040. The GSA will consider the adoption of fees and penalties for violations of pumping allowance and/or reporting during the GSA implementation period. Meters would be installed within 90 days of GSP adoption. The area of irrigated land and crop types should also be directly tracked to monitor program effectiveness It would cost the GSA $82,000 to develop the Pumping Reduction Program. The Pumping Reduction Program would be implemented once CEQA review of the GSP is completed.

Again, the program amounts to over-regulation SGMA calls for water users to file an annual statement with the GSA setting forth the total extraction in acre-feet of groundwater during the previous water year (Wat. Code, § 10725.8(c).) Additionally, AAWARE members who do not already have meters proposed to install their own meters and to have the usage data remotely reported to the GSA. The agricultural well owners are awaiting the GSA's approval of alternative meter technologies and would like to install meters as soon as possible, in advance of GSP approval. (See, Exhibit 15)

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Also, as discussed above, because the Pumping Reduction Program relies upon an incorrect "sustainable yield" that is only the amount of the surface water recharge to the Basin, the program exceeds the GSA's authority under SGMA and interferes with overlying water rights to the sustainable yield. (Wat. Code, §§ 10720.1(b), 10720.5(a)-(b))

Furthermore, the proposed Pumping Reduction Program describes no criteria that trigger its implementation and termination. (23 Cal. Code Regs., § 354.44(b)(1)(A).) The program must be tied to groundwater level targets, and pumping levels should be set without further reductions once groundwater levels are stabilized. The Pumping Reduction Program should be developed through the Technical Advisory Committee process before the GSP is approved.

Finally, while the GSA recognizes that the pumping reduction program is subject to review and approval under the California Environmental Quality Act ("CEQA," GSP, p. 4-20), the GSA prematurely commits to part of the program in advance of CEQA review, in violation of CEQA. (14 Cal. Code Regs., §§ 15004(b)(2)(B), 15352, *Save Tara v. City of West Hollywood* (2008) 45 Cal.4th 116, 130-131.)

Management Action No. 4—Voluntary Fallowing of Agricultural Land. The Voluntary Fallowing of Agricultural Land Program would facilitate the conversion of high water use irrigated agriculture to low water use open space, public land or other development on a voluntary basis. Factors that will be considered for the fallowing program include the current extent of agriculture land and water use, the intended land and water use after fallowing, and the potential environmental impacts associated with fallowing (airborne emissions through wind-blown dust, introduction or spread of invasive plant species, and changes to the landscape that could adversely affect visual quality)

It will cost the GSA $103,000 to develop the fallowing program. Site stabilization is estimated at $1,000-5,000 per acre; passive restoration to habitat is estimated at $10,000-25,000 per acre, active restoration to habitat in a relatively short period of time is estimated at $25,000-50,000 per acre. (GSP pp. 4-24 – 4-29.)

The proposed voluntary fallowing program does not directly achieve groundwater level reduction, and its description does not quantify any measurable groundwater level objective under the sustainability components, therefore it does not qualify as a GSP project or management action. Voluntary fallowing in the statute means voluntary and not coerced to make privately owned land suitable for future uses (GSP, p. 4-26 [contemplated conversion of fallowed land to stormwater runoff infiltration project]). (Wat. Code, §§ 10726.2(c), 10720.1(b), 10720.5(a)(b).) A voluntary fallowing program under SGMA would require funding by the GSA as consideration for fallowing the land and covenanting to have it remain fallow, not a penalty in the form of costs to bring the land up to standards for future benefit of others.

Site stabilization for the purposes of avoiding blight associated with dead agricultural vegetation and to reduce potential air quality impacts from wind-blown dust is a County land use concern, not a function of the GSP. Site stabilization on private land should simply consist of destroying the crop on the fallowed portion (e.g., chipped or burned) and

O2-13
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stabilizing the soil (e.g. mulched with the resulting tree crop clippings or ash). The GSA should not obligate private property owners to carry out habitat restoration without just compensation. Any further consideration of the Voluntary Fallowing of Agricultural Land should be conducted through the Technical Advisory Committee process.

Management Action No. 5—Water Quality Optimization Program. As discussed above, the Water Quality Optimization Program has nothing to do with sustainability measures, but instead seeks to benefit future land uses by "optimizing" water quality, for example, by upgrading the District's transmission system with a new well and pipelines in the Northern Management Area (GSP, p. 4-32) to the detriment of overlying agricultural water user interests. (Wat. Code, §§ 10720.1(b), 10720.5(a)(b), 10723.2.) The GSP's Water Quality Optimization Program and its costs should be vetted through the Technical Advisory Committee, and its potential impacts on the interests of agricultural water users should be evaluated before the GSP is approved.

Management Action No. 6—Intra-Subbasin Water Transfers Program. The GSP's Intra-Subbasin Water Transfers Program would convey sub-potable water pumped in one management area to another for sub-potable use. For example, groundwater pumped in the North Management Area, with potentially elevated nitrate levels from irrigation return flow, might be beneficially used to irrigate golf course turf in the Central or South Management Area. If a sizeable area of land were fallowed in the North Management Area, there is the potential to use existing wells to supply water to the Central or South Management Area. It will cost the GSA $90,000 to develop this program. (GSP pp. 4-34 – 4-38.)

O2-13 Cont.

The proposed Intra-Subbasin Water Transfers Program is another example of private water users subsidizing programs that benefit others. The cost of any such transfers should instead be borne by those benefitting from the transfer. As discussed above, there is no data evidencing elevated nitrate levels close to MCL: (See, December 7, 2018, ENSI report entitled "Water Quality Review and Assessment: BWD Water Supply Wells" [nitrate levels in all of the active District are well below the MCL for nitrate.) The GSP's proposed Intra-Subbasin Water Transfers Program could impair the interests of agricultural water users and should be evaluated through the Technical Advisory Committee process before GSP approval.

F. THE ADMINISTRATIVE AND PROGRAM COSTS FAR EXCEED WHAT IS CONTEMPLATED BY SGMA FOR A SMALL BASIN WITH FEW PUMPERS AND INCLUDE COSTS THAT THE DISTRICT IS RESPONSIBLE FOR.

The GSP estimates 20-year implementation costs of $19.2 million, *not including* $652,000 estimated costs required to *develop* (not carry out) the management programs, plus unspecified amounts to pay the District for "internal management and administration" and to reimburse the District "for some of its GSA creation and GSP development related expenses". (GSP, p. 5-8.) The letter from District Director Brecht indicates that the District will seek reimbursement of as much as $6 million. (See, Exhibit 13, April 4, 2019 letter, p. 1, footnote 1.) The GSP

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Implementation and estimated costs far exceed the ability of the few dozen Borrego Valley well owners to pay.

Of course, it was never the intent of SGMA that the responsibility to pay for public water service provider tasks would be reallocated to private pumpers who are not connected to the water system. It is precisely for those reasons that SGMA expressly places the onus on the public agencies comprising the GSA to meet the costs, and where there are new GSP costs, to fund those costs through pumping assessments. (23 Cal. Code Regs., § 354.6(e).) Many of the District's SGMA-related costs that it seeks to have reimbursed (described in Director Brecht's letter, Exhibit 13) are not properly recoverable under SGMA. (Wat. Code, §§ 10730, 10730.2.) A 2015 memorandum from the District's legal counsel allocates many of those same costs to the District and the County. (See, Exhibit 14, Borrego Water District Board Package October 20, 2015, pp. 5-8.)

The GSP management and administration costs are similarly duplicative of existing District management costs. There is no explanation as to why the District would need to hire two additional full-time engineers when it already has engineering staff. The scope of work required for additional technical staff required to administer the GSP should be developed through the Technical Advisory Committee process to provide input into cost-saving measures. For example, SGMA calls for private well owners to self-report their production to the GSA, so there is no need for the GSA to incur the cost of reading private meters or inspecting private property to confirm acreages and crop types planted. GSA monitoring of groundwater production can be done remotely (see, Exhibit 15, April 26, 2019, Letter to Borrego Valley GSA regarding SWIIM meter systems), and water quality testing and reporting is already undertaken by the District.

SGMA authorizes the GSA to enter into private agreements with private water users to implement the GSP. The Projects and Management Actions shown in Table 5-4 can be met through private agreements with water users.

The infeasibility of the GSP costs is evident when compared with the decision by the GSA members to reject as economically infeasible a $3.4 million water importation project that would bring substantial amounts of supplemental water to the Basin, compared with the $20+ million cost of GSA implementation that would be spread among a few dozen well owners.

The infeasibility of the cost is compounded by the GSP's proposed funding structure (GSP p. 5-10) that would impose:

- Monthly fixed charge based on well meter size (i.e., specific "meter fee" based on meter pipe diameter: 0-2 inches, 2-4 inches, 4-6 inches, 6-8 inches, and more than 8 inches), regardless of water usage, and
- Variable pumping fees based on the volume of groundwater extracted (expected to be up to $50/AF on the initial Baseline Production Allocation) to cover just administrative costs during the first 10 years, not including additional potential fees required for specific projects and management actions to implement the GSP. Because of the steep reduction

O2-14
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in groundwater pumping required to achieve sustainability, the per acre-foot fee will necessarily increase just as sharply to pay the $20+ million cost.

There is a serious risk that, unless the GSA's costs are checked, the GSP's fixed well meter charges and variable pumping fees will result in the elimination of agricultural land and water use due to inability to pay the needlessly inflated costs.

The method of allocating the GSP costs also was not vetted through the Advisory Committee process and is patently unreasonable for such a small number of water users. In an effort to evaluate the proposal and its potential impacts on beneficial users, AAWARE asked the GSA for a copy of the draft Financing Plan. The GSA rejected AAWARE's request based on the "deliberative process" exemption of the Public Records Act. (See, Exhibit 10, March 29, 2019 email rejecting AAWARE's request.) The GSA's withholding of relevant information prevents a meaningful opportunity for affected private well owners to comment on the GSP's financing plan proposal and evidences the GSA's failure to include AAWARE members and other private water users as part of the deliberative process in violation of SGMA.

Before approving the GSP, it is incumbent upon the GSA to disclose: (1) costs for tasks already covered by the District as the water service provider, and (2) costs beyond the authority of the District and GSA to have reimbursed under SGMA; to deduct those costs from the total; and to coordinate with water users to identify cost-saving measures for the remaining implementing actions. As the 2018 ENSI Report explains, the District is primarily concerned with its ability to produce drinking water and related increase in its water production costs. (Exhibit 17, 2018 ENSI Report, p. 1.) Therefore, the County's active and objective oversight of the administration and program costs is required.

AAWARE asks the GSA to convene the Technical Advisory Committee to provide information on how the funding program affects their interests and recommendations for cost-saving measures to reduce the exorbitant GSP implementation costs.

O2-14 Cont

III. AAWARE COMMENTS ON BASELINE PUMPING ALLOCATIONS.

Certain individual AAWARE members have confidentially submitted groundwater production information pertaining to their individual properties under separate cover letters. Further adjustments and corrections to their respective Baseline Pumping Allocations should be made in accordance with the information submitted by individual AAWARE members. Additionally, all confidential information reported by private water producers must be kept confidential and not disclosed without the well owner's written consent. (Gov Code, § 6254; Wat. Code, § 10730.8(b) [personal information submitted under SGMA has the same protection from public disclosure as utility customers, including name, address, telephone number and usage data].)

The GSA's Baseline Pumping Allocations are not based on the best available data. According to GSP Appendix F, the GSA calculated agricultural Baseline Pumping Allocations using an Annual Water Use Factor equation. (Appendix F, p F-3) AAWARE questions the components of the equation. For example, the equation includes a plant factor determined by the Water Use

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Classification of Landscape Species IV methodology which, as its name discloses, is geared toward ***landscape*** trees rather than commercial agricultural crop-producing trees. (GSP Appendix F, p. F-2, Table F-1.)

Certain AAWARE members with meters have submitted their metered groundwater production data to the GSA in confidence. The metered data provides local water duty information for mixed citrus and for lemon crops. The GSA is using similar maximum annual metered groundwater production data to calculate Baseline Production Allocations for municipal and recreational producers. Direct measurement of groundwater production with flow meters is highly accurate and the preferred method under SGMA. (Wat Code, § 10725.8(a); DWR Water Budget BMP, p. 35.) Furthermore, the California Constitution (Article X, § 2), California legislative water policy (Wat. Code, § 100 5), and SGMA (Wat. Code, §§ 10720.1(b), 10720.5(a)) all require that local uses and production practices, among other factors, be taken into account in considering the water use by the AAWARE members and other water users.

Certain other AAWARE members without meters have separately submitted additional groundwater production information for their individual operations to the GSA in confidence. **A more accurate measure of maximum annual water production by AAWARE members can be obtained by using water meter readings for AAWARE members who have meters, and by using local crop irrigation information discussed in data provided to the GSA for AAWARE members who do not have meters.**

In some cases, the maximum irrigated agricultural acreage estimated by the GSA as part of the Baseline Production Allocation does not correspond with the actual irrigated crop acreage reported to the GSA by AAWARE members. The GSA's error may be the result of its use of aerial imagery only from the years 2010, 2012 and 2014, excluding two years of the GSA's five-year baseline pumping period of 2010-2015.

Also, the GSA's Baseline Production Allocation calculations do not account for beneficial uses of water by AAWARE members besides irrigation use, such as domestic use, frost protection or supplemental irrigation required due to low soil moisture retention.

Unless a particular Baseline Pumping Allocation is agreed to in writing, each AAWARE member reserves the right to contest its respective Baseline Pumping Allocation. AAWARE respectfully asks the GSA to convene technical meetings among the water producers who will be subject to the GSP and their respective technical consultants to finalize the calculation of the water producers' Baseline Pumping Allocations. This is an important first step toward cooperative basin management, particularly where the GSA's information and proposals differ so significantly from the 2015 USGS model report (The GSP calls for a mandatory 74% reduction in groundwater pumping based on an incorrectly calculated sustainable yield of 5,700 AFY, while the 2015 USGS report concluded that sustainability can be achieved with a 60% reduction in then-current agricultural pumping (13,162 AFY), and 50% reduction in municipal (1,006 AFY) and recreational (4,113 AFY) pumping to achieve sustainability at total production of 7,824 AFY) (See, GSP p 4-20, Section 4 4 1, 2015 USGS Report pp. 4 and 122, Table 20 (Scenario 6).) AAWARE also supports the proposal made

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Cont.

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previously by T2 Borrego LLC, for facilitated efforts to mediate the Baseline Pumping Allocation question using a qualified facilitator.

O2-15 Cont.

AAWARE urges the GSA to reopen the comment period on the GSP as necessary to continue constructive dialog to resolve the concerns addressed in this letter and reach a workable solution to the GSP.

Sincerely,

Michele A. Staples

Michele A. Staples

MAS/BLH dt
Enclosures (see attached Exhibit List)

cc Jim Seley, AAWARE*
Geoff Poole, Borrego Water District*
Matthew Zimmerman, Department of Water Resources*
Boyd L. Hill, Esq., for AAWARE*

*via email only

EXHIBIT LIST

"Hard copies" of Exhibits delivered with original letter. Electronic copies of Exhibits posted at: https://sharefile.jacksontidus.law/wl/?id=H2IcpnHVFl2x6XJrcHnLpAySefoKnfDt

1. 11/02/18 Joint T2 Borrego/AAWARE Letter to Jim Bennett re Borrego Springs Groundwater Model and Proposal
2. Hydrogeology, Hydrologic Effects of Development, and Simulation of Groundwater Flow in the Borrego Valley, San Diego, California
3. 5/16/19 Wagner & Bonsignore Letter Report
4. Dudek GSP Scope of Work excerpts
5. 4/26/19 Transcript of Technical Meeting
6. 5/17/19 Thomas Harder & Co. Letter Report
7. 11/27/17 Advisory Committee Agenda Excerpts
8. GSA website screen shot
9. Advisory Committee Agenda Reports for GSP Rollout Oct 2018, Nov 2018 and Jan 2019
10. 3/29/19 Email providing some requested technical documents and withholding disclosure of others
11. August and October 2018 Advisory Committee Minutes re technical meeting process
12. 3/22/19 Email exchange to schedule technical meetings during GSP public comment period
13. 4/4/19 BWD Director Brecht Letter re GSP Costs
14. 9/24/15 Downey Brand Memorandum to Borrego Water District Board of Directors re Procedure for Imposition of Regulatory Fees Under SGMA
15. 4/26/19 Letter to Borrego Valley GSA
16. 5/16/19 Calibration Wells Correspondence and Documents
17. 9/12/18 ENSI Report
18. Excerpts re septic systems and District sewage ponds

Letter O2

Commenter: Michele Staples, Jackson Tidus – A Law Corporation, on behalf of the Agricultural Alliance for Water and Resource Education (AAWARE)
Date: May 20, 2019

The Groundwater Sustainability Agency (GSA) recognizes the Agricultural Alliance for Water and Resource Education (AAWARE) sustained participation towards sound groundwater management of the Subbasin and looks forward to constructively working with AAWARE's members to achieve a path toward long-term sustainability of the Subbasin.

O2-1 The U.S. Geological Survey (USGS) specifically states that in Scenario 6, which evaluates target pumping rate of 7,824 acre-feet per year (AFY) cited in the comment, "agricultural, recreational, and municipal pumping continue at rates greater than recharge, drawdown and storage losses continue in the areas where this pumping occurs" and that "in the long run, groundwater levels would continue to decline" (USGS 2015 at page 124).[4] This means that the target pumping rate of 7,824 AFY presented in Scenario 6 is greater than the sustainable yield of the basin, and does not meet the sustainability requirements set forth under the Sustainable Groundwater Management Act (SGMA).

The initial sustainable yield estimate used in the Draft Groundwater Sustainability Plan (GSP) of 5,700 AFY was based on the U.S. Geological Survey (USGS) *pre-development scenario* that estimated natural inflows to the boundary of the Borrego Valley Hydrologic Model (BVHM) for the period 1945 through 2010. The *pre-development scenario* was used as the initial sustainable yield estimate 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. A discussion of historical water budget and sustainable yield is provided below.

[4] It is noted that both the USGS and the model update prepared for the GSP repeat the historical climate for evaluation of future climate scenarios. This assumption presents a "what if" scenario that may not represent actual future conditions in the Subbasin.

The USGS' Groundwater Model is based on an overall long-term water budget consisting of all inflows and outflows that contribute to developing the sustainable yield. Overall, the average annual water budget can be expressed in terms of three inflow values and three outflow values summarized in Table O2-1. It should be noted that several non-substantive edits were made in the Draft GSP and the USGS Model Report to ensure consistent terminology and definitions for each water budget component.

Table O2-1
Summarized Historical Water Budget

Water Budget Components (Units in Acre-Feet per Year)	Original USGS Model (1945-2010)	Model Update (1945-2016)	Most Recent 20 Years (1997-2016)	Most Recent 10 Years (2007-2016)
Inflows				
Stream Recharge	4,028	3,905	2,749	1,865
Unsaturated Zone Recharge [a]	1,486	1,497	1,635	1,505
Underflow (Inflow from Adjacent Basins)	1,367	1,367	1,367	1,367
Total Average Annual Inflows	**6,881**	**6,770**	**5,751**	**4,737**
Outflows				
Pumping	10,128	10,597	16,466	16,856
Evapotranspiration [b]	3,032	2,815	759	498
Underflow (Flow out of Southern End)	522	522	520	523
Total Average Annual Outflow	**13,682**	**13,934**	**17,745**	**17,877**
Average Annual Deficit				
Change in Storage	**-6,801**	**-7,164**	**-11,994**	**-13,140**

Source: USGS 2015, GSP Appendix D1
Notes: USGS = U.S. Geological Survey.
[a] Consists of flow from the unsaturated zone into groundwater. Includes direct precipitation recharge (negligible), leakage from some streams within the model domain, and irrigation return flows (Distributed Recharge).
[b] Consumptive use of water calculated by the Farm Process Package for all land use type; primarily represents evapotranspiration

The inflow and outflow terms listed in Table O2-1 are defined as follows:

- *Stream Recharge* is the primary source of groundwater recharge. It comes from surface water that flows into the valley from adjacent watersheds and infiltrates within stream channels.

- *Unsaturated Zone Recharge* is water that infiltrates through soils within the valley and is primarily associated with irrigation return flows. Rainfall within the valley does little to contribute to groundwater recharge.
- *Underflow* is groundwater that enters or leaves the valley aquifer system as subsurface flow at the edges of the groundwater model.
- *Evapotranspiration* refers to water losses from non-irrigated plants. Evapotranspiration has decreased over time because groundwater levels declined many decades ago to a level no longer supporting a viable Honey Mesquite bosque habitat. For instance, evapotranspiration decreased from an average of 3,032 AFY for the period 1945 to 2010 to 498 AFY for the most recent 10-year period (Table O2-1). The 498 AFY includes evapotranspiration from both native and non-native vegetation in the Subbasin, most of which is currently comprised of non-native tamarisk that were traditionally used as wind breaks throughout the Subbasin. Based on GSA mapping, there is estimated to be 211 acres on non-native Tamarisk in the Subbasin, which is thought to use between 359 and 1,361 AFY. Appendix D4 of the GSP has been revised to include this information.

The USGS water budget developed using the BVHM for the years 1945 through 2010 and updated by Dudek for the years 2011 through 2016 indicated that the average total inflow, which includes groundwater subsurface inflow (specified flows), stream leakage, and unsaturated zone recharge (UZF recharge), is 6,900 AFY (rounded) for the period 1945 to 2010 and 6,800 AFY (rounded) for the period 1945 to 2016 (Table O2-1).

The twenty-year and ten-year averages for the most recent periods are 5,800 AF (rounded) and 4,700 AFY (rounded), 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. Future recharge from the unsaturated zone is likely to be less than historical estimates because of diminishing irrigation return flows due to pumping rampdown over the GSP implementation period and/or the potential effects of climate change on recharge within the basin.

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 wide 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 AF (rounded; Table O2-2).

Table O2-2
Estimated Surplus of Inflows Over Outflows

Water Budget Components (Units in Acre-feet per Year)	Acre-feet/Year
Inflows (Model Update 1945-2016)	
Stream Recharge	3,905
Unsaturated Zone Recharge	1,497
Underflow (Inflow from Adjacent Basins)	1,367
Total Inflows	**6,770**
Outflows Besides Pumping (Most Recent 10 Years, 2007-2016)	
Evapotranspiration	498
Underflow (Flow out of Southern End)	523
Total Outflows	**1,021**
Surplus of Inflows over Outflows	**5,749**

Source: USGS 2015, Dudek 2018, Dudek 2019

The text on page 2-81 of the Draft GSP is incorrect as the total inflow components of the BVHM is not additive to the total. As such, the GSP has been corrected to fix this error and clarify the difference between the estimate of natural inflow under the *pre-development scenario* and the estimate of inflows under the *developed scenario*. It should be emphasized that the historical estimates of recharge do not take into account diminishing irrigation return flows that will occur as result of pumping rampdown over the GSP implementation period or potential effects of climate change.

O2-2 The GSA notes your assertion that the proposed adoption of the Subbasin's planning level estimate of sustainable yield violates common law water rights. Your comment calls for a legal conclusion to which the GSA is not required to respond.

O2-3 The GSA notes your assertion that the GSP fails to consider or even mention private overlying farmers or other private groundwater users in evaluating the sustainable yield of the Subbasin. Your comment calls for a legal conclusion to which the GSA is not required to respond. For responses to comments regarding sustainable yield, please refer to response to Comment O2-1.

O2-4 The GSA notes your dissatisfaction with the GSP preparation process and assertion that the GSA failed to allow full participation to consider all interests in preparing the GSP. For responses to comments regarding sustainable yield, please refer to response to Comment O2-1.

The remainder of the comment apart from the sustainable yield does not address the adequacy of the Draft GSP, and therefore, no further response is required or necessary.

O2-5 The GSA notes your assertion that the manner in which GSP was developed violates your members' constitutionally protected substantive and procedural due rights process and that the Basin Setting contains improper analyses contrary to best available science. Your comment calls for a legal conclusion to which the GSA is not required to respond.

O2-6 The GSA understands your concern that the analysis of how groundwater sustainability will affect the General Plan is flawed and improperly favors expanding municipal use over existing agricultural use. The GSP merely points out that the current General Plan allows for potentially more development at current water use factors than what may be available given supply constraints under sustainability. Historical and current market conditions suggest that new development is unlikely to achieve the growth rate required to substantially expand municipal use in the near-term. Additionally, the GSP points out that the *current* agricultural water use in the Subbasin may not be compatible with the goal of reducing groundwater demand. This statement is not meant to suggest a bias toward favoring expanding development over *current* agricultural water use. GSP Table 2.1-6 has been clarified to indicate that "Supporting continued agricultural operations *at current groundwater extraction rates* may be inconsistent with the goal of reducing groundwater demand." For the comments pertaining to sustainable yield, please see response to Comment O2-1.

O2-7 The GSA notes your assertion that the GSPs extensive water quality monitoring does not appear to be warranted. The GSP states, "historical exceedances of nitrate concentration have occurred in five wells in the vicinity of Henderson Canyon Road in the northern part of the valley, adjacent to areas of agricultural use (USGS 2015)." Table O2-3 lists the five wells and results for which historical nitrate concentrations are reported to exceed the drinking water standard of 10 mg/L as nitrogen (as N); (45 mg/L as NO_3).

Table O2-3
Historical Nitrate Exceedances in the Vicinity of Henderson Canyon Road

No Wells	State Well ID	Sample Date	Latitude[a]	Longitude[a]	Analyte	Result (mg/L)[b]
1	010S006E15D004S	01/04/2012	33°18'34.88"	116°20'59.25"	Dissolved nitrate	37.3 as N
2	010S006E21A001S	08/03/1955	33°18'01.30"	116°21'03.65"	Dissolved nitrate	155
3	010S006E21B001S	04/08/1952	33°18'00"[c]	116°21'10.1"[c]	Dissolved nitrate	29
	010S006E21B001S	01/01/1953	33°18'00"[c]	116°21'10.1"[c]	Dissolved nitrate	90
	010S006E21B001S	4/12/1955	33°18'00"[c]	116°21'10.1"[c]	Dissolved nitrate	66
	010S006E21B001S	05/26/1963	33°18'00"[c]	116°21'10.1"[c]	Dissolved nitrate	87
4	10S0006E21B002S	9/29/1954	33°17'52"[c]	116°21'16.1"[c]	Dissolved nitrate	10
	10S0006E21B002S	10/3/1956	33°17'52"[c]	116°21'16.1"[c]	Dissolved nitrate	44
	10S0006E21B002S	12/31/1975	33°17'52"[c]	116°21'16.1"[c]	Dissolved nitrate	240
	10S0006E21B002S	Date redacted	33°17'52"[c]	116°21'16.1"[c]	Dissolved nitrate	99.2
5	010S006E17J001S	04/28/1952	33°18'16"[c]	116°22'00"[c]	Dissolved nitrate	26[c]

Notes:
[a] Latitude and Longitude NAD83 unless noted otherwise.
[b] Result reported as nitrate as NO_3 unless otherwise noted.
[b] Latitude and Longitude NAD 27
[c] This result appears to be reported as nitrate as NO_3, which would be below the drinking water standard of 45 mg/L as NO_3 (10 mg/L as N). Additional historical water quality data has not been located for this well to verify the exceedance repotted in the USGS study (USGS 2015).
Source. USGS 2015 (Figure 26 on page 66)

The District wells that show statistically increasing nitrate concentrations are wells ID4-11 near the boundary of the Central Management Area (CMA) and North Management Area (NMA), ID4-18 in the NMA, and ID1-8 in the South Management Area (SMA).[5] It is noted that the current concentration in all of these wells is below one-half the drinking water standard for nitrate; however, these wells should be monitored regularly to track nitrate concentrations and trend. The wells that have been taken out of service due to elevated nitrates include Improvement District (ID) Four (4) wells 1 and 4 (original well ID4-4 later re-drilled and screened deeper), Borrego Springs Water Company Well No. 1 (located at the BWD office),

[5] Includes historical water quality data though Fall 2018 and statistical analysis performed using the Mann-Kendall test at significance level of 0.05 or confidence level of 95%.

the Roadrunner Mobile Home Park and Santiago Estates wells. Section 2.2.2.4 of the Draft GSP has been revised to clarify the location of wells taken out of service and the current concentration of wells (at less than one-half the MCL) exhibiting increasing nitrate concentrations.

The GSA notes your concern that the water quality data do not indicate a potential undesirable result supporting the expansive Water Quality Optimization Program as part of the GSP. The GSA also notes your concern that it should objectively evaluate all potential sources of nitrate in the Basin, not just on agricultural fertilizer application alone. The GSA informs you that the District is currently conducting a study of the treated effluent from the Rams Hill Waste Water Treatment Facility to evaluate its impact on groundwater. The goal of the study is to determine the fate and transport of nitrogen and total dissolved solids originating from the discharge of the water treatment facility to the evaporation/percolation ponds, as per the recent amendment of the Waste Discharge Requirements of the California Regional Water Quality Control Board Colorado River Basin Region Plan (R7-2019-0015). The new District well, under construction as of June 2019, is funded by the District and grant funding obtained under Proposition 1. This new well is not being subsidized by private well owners. The GSA notes your position that the Water Quality Optimization Program, its potential impacts on the interests of agricultural water users and its costs should be evaluated through the Advisory Committee and Technical Advisory Committee before the GSP is approved. The GSA emphasizes that cost to develop the Water Quality Optimization Program is a planning level estimate and that program design and development would occur through a stakeholder process, if required.

O2-8 The GSA notes your assertion that "The Dudek model update and water budget calculations are not based on best available science and ignore information that contradicts the pre-determined result." The model update was never intended to be a reworking and recalibration of the USGS numerical model. As such, it was infeasible to try to add additional inflows to the model, as any additional inflows would cause the model to be uncalibrated and a costly and time-consuming recalibration of the model would have to take place with little to no data available to calibrate added inflows (i.e., limited duration of additional years of observed groundwater level data, limited additional production data and no additional physical data to constrain subsurface inflows/outflows at the model boundary).

The six year period for the model update was based on available data at the time of the model update. The original USGS model was run through the year 2010, and the model update was completed in Summer 2017, meaning that the only data

available to update the model was for years 2011 through 2016. The USGS chose not to use a validation period during their initial model run, so the six year validation period was the only period available at the time the update was completed. It should be noted that the model update includes all of the calibrated USGS model, it just appends data from the years 2011 through 2016 to the calibrated USGS model.

The number 3,905 AFY as presented on page 2-73 of the GSP represents only stream leakage in the model, and is not the equivalent of the 5,700 AFY presented in the USGS report. Stream leakage in the initial USGS model run was 3,995 AFY, which is consistent with the average from the model update. As the model update concludes with the drought period of 2011 through 2016, the average stream leakage for the period 1945 through 2016 is slightly lower than the original stream leakage for the period from 1945 through 2010. Again, as noted above, the original period of the USGS model (1945 through 2010) was included in all calculations of average flows for the model update (which includes the years 1945 through 2016).

As another 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. Therefore, in all calculations made by the USGS in their original report and by Dudek in the model update, data from 1929 through 1944 is excluded.

The 1,400 AFY of underflow from adjacent basins is a number that the USGS calculated as part of model calibration. There are no physical measurements in the area of this inflow to confirm or verify this number. The model update did not attempt to change this number, as this would have changed model conditions such that the model would have become uncalibrated. The model update was not an attempt to recalibrate the USGS model, but rather to update the model with data that had become available since the model was published to extent the period of the model run.

The Basin Setting Section indicates that, "The aquifer holds a large amount of groundwater in storage, estimated to be approximately 1.6-million acre-feet of usable groundwater. However, this amount of remaining storage says nothing about its cost of extraction or potability or available use for irrigation purposes. Section 2.2.2.2 Estimate of Groundwater in storage provides additional information regarding the significant groundwater in storage.

O2-9 The GSA notes your assertion that the minimum thresholds are not justified by supporting information in the Basin Setting and are without input and consideration of beneficial interests and property owners. The GSA points out that the minimum thresholds for chronic lowering of groundwater levels shall be *supported by* historical trends, water year type, projected water use in the basin, and potential effects on other sustainability indicators.

The development of the minimum thresholds for chronic lowering of groundwater levels included review of the hydrogeologic conceptual model, climate, current and historical groundwater conditions including groundwater level trends and groundwater quality, land subsidence data, groundwater-surface water connections and the water budget. The chronic lowering of groundwater levels minimum threshold explicitly takes into account historical loss of groundwater in storage and corresponding decline in groundwater levels.

Development of the minimum threshold includes projected water use in the Subbasin based on annual rampdown in pumping each year from the current estimated pumping to achieve the sustainable pumping target by 2040. The BVHM simulated groundwater levels uses the assumptions that historical climate repeats and projected water use under annual rampdown were implemented to assist with the development of the interim milestones, measurable objective and compared to the chronic lowering of groundwater levels minimum threshold to provide for operational flexibility.

The chronic lowering of groundwater levels minimum threshold takes into account the potential for highly variable future recharge based on the historical record. Rather than simply apply DWR climate change factors to projected groundwater levels based on the above scenario, the GSA developed a minimum threshold based on the potential for a dry climatic period during GSP implementation. As such, the minimum threshold is developed based on the 20th percentile Monte Carlo uncertainty analysis performed to evaluate the effect of time-varying recharge. Under this scenario based on the historical variability in recharge, 80% of the time conditions will be wetter, and 20% of the time conditions will be drier. Development of the chronic lowering of groundwater levels minimum threshold using the Monte Carlo uncertainty analysis provides greater operational flexibility to the Subbasin.

O2-10 The GSA notes your comment that the Draft GSP reversed the SGMA process of determining undesirable results based upon exceedances of minimum thresholds and instead pre-determined the undesirable results to back into minimum thresholds

through modeling of the sustainable yield. The GSA emphasizes that as a critically overdrafted basin, the sustainability goal for groundwater in storage is to "halt the overdraft condition in the Subbasin by bringing the groundwater demand in line with sustainable yield by 2040." Similarly, the sustainability goal for chronic lowering of groundwater levels is, "for groundwater levels to stabilize or improve and to ensure groundwater is maintained at adequate levels for key municipal wells" (Draft GSP page ES-4). That is, it is *significant and unreasonable* for continued chronic lowering of groundwater levels and corresponding reduction of groundwater in storage beyond 2040. Thus, absent undesirable results to the other relevant sustainability indicators, such as water quality, or direct impacts to beneficial users of groundwater absent mitigation, the planning level estimate of sustainable yield may be used to guide development of sustainable management criteria.

O2-11 The GSA notes your assertion that the Draft GSP mischaracterizes and confuses the sustainability goal by treating the goal as sustainable yield; the Draft GSP mischaracterizes and treats natural recharge of surface water as the "sustainable yield. SGMA and the DWR, Draft Sustainable Management Criteria indicate that a GSA may decide what significant and unreasonable conditions are and translate them into quantitative undesirable results.

The sustainability goal for groundwater in storage is to "halt the overdraft condition in the Subbasin by bringing the groundwater demand in line with sustainable yield by 2040." Similarly, the sustainability goal for chronic lowering of groundwater levels is, "for groundwater levels to stabilize or improve and to ensure groundwater is maintained at adequate levels for key municipal wells" (Draft GSP page ES-4). The GSA completed extensive analysis of sustainability indicators and determined that based on best available data, continued extraction of groundwater does not directly affect three of the sustainability indicators: seawater intrusion, land subsidence, and depletions of interconnected surface water.

Additionally, limited data suggests some deterioration of water quality as a result of extraction of groundwater (e.g., increasing arsenic concentration noted in one well in the South Management Area [SMA]); however, available data suggest that existing regulatory standards are sufficiently protective of municipal, domestic, and agricultural (including golf course irrigation) beneficial uses. As such, the primary sustainability indicators that apply to the Subbasin are chronic lowering of groundwater levels and reduction of groundwater in storage. Significant and unreasonable undesirable results for these sustainability indicators could include dry wells, loss in well production yield, and depletion of supply to meet beneficial uses. All of these undesirable results have historically occurred in the Subbasin,

which has necessitated fallowing, drilling deeper wells and shifting the location of groundwater extraction to meet water demands. Groundwater level declines indicating a significant and unreasonable depletion of supply, if continued over the SGMA planning and implementation horizon, can occur in several ways in the Subbasin. Depletions leading to a complete dewatering of the Subbasin's upper aquifer in the Central Management Area (CMA) would be considered significant and unreasonable because beneficial users rely on this aquifer for water supply.

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), and that alternative means of obtaining sufficient groundwater resources are not technically or financially feasible. To the extent lowering groundwater levels impact de-minimis pumpers, significant and unreasonable impacts to those pumpers could be avoided. For example, alternative means of obtaining water for de-minimis and domestic pumpers who can no longer pump may include connection to the municipal water system (i.e., BWD), groundwater well maintenance or rehabilitation (e.g., well pump lowering), or for some beneficial users, well redevelopment or deepening. However, use of these alternative means of supply, by themselves, do not necessarily offset undesirable results for lowering groundwater levels in the context of the Subbasin as a whole (as opposed to individual uses or users), because the ultimate source of supply remains groundwater pumped from the Subbasin, even if from another location.

Undertaking an evaluation for one particular use or user depends on the overlying beneficial use(s), the location within the basin, and the characteristics of the well(s) currently in use. Should a groundwater level decline cause the production rate of pre-existing groundwater wells to be insufficient for the applicable beneficial use, an undesirable result may be avoided for that particular user through the alternative means. Certain beneficial users have greater flexibility and financial capacity to address lowering groundwater levels than others. For example, the BWD, as the municipal water system, has the ability to manage production from multiple extraction wells across its service area, normally distributes the cost for well maintenance and development to its pool of customers, and can obtain grants for such work, if available. In contrast, domestic and de-minimis users can have geographic and financial constraints that may make well redevelopment and/or new well construction infeasible.

Given the considerations previously outlined, domestic well users who are not in close proximity to existing BWD water service lines have the greatest sensitivity to

and are consequently the most likely to experience the adverse effects of continued declining groundwater levels. Because many of the domestic groundwater users not connected to BWD 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 is practicable, in areas with de minimis and other domestic wells not currently served by municipal supply.

Overall, there are 77 domestic wells in DWR's well completion report database. The difference between the average well depth and the average groundwater level is less than 50 feet in seven township and range sections, representing 20 domestic wells, which indicates a high likelihood that some may lack access to adequate water in existing wells. With groundwater levels expected to continue to decline early in the GSP implementation period, domestic users are currently experiencing undesirable results, which will be alleviated by 2040. The majority of the wells in this situation are close to the BWD water distribution system. The undesirable results of chronic lowering of groundwater levels is expected to continue to occur absent management action to counteract the current trend, until the Subbasin water budget is brought into balance.

BWD has had to abandon and re-drill wells in the past and expects to continue to do so within the GSP's implementation timeframe to continue to provide adequate groundwater access. For example, BWD Well ID1-10 is being replaced and relocated in 2019 due to declining groundwater levels and production rate loss. The exact number of agricultural and domestic wells that have been abandoned and re-drilled deeper and/or relocated due to production rate loss from declining groundwater levels is not known. However, anecdotal information and field observations have confirmed that inactive wells exist throughout the Plan Area. In addition to thresholds for BWD key indicator wells, the GSA has set thresholds for key indicator wells throughout the Subbasin which are intended to be protective of beneficial uses and users of groundwater.

O2-12 The GSA notes your assertion that the Draft GSP measurable objectives violate SGMA by using different metrics from those used to define the minimum thresholds and by failing to provide a reasonable margin of operational flexibility. The USGS specifically states that in Scenario 6, which evaluates target pumping rate of 7,824 AFY cited in the comment, "agricultural, recreational, and municipal pumping continue at rates greater than recharge, drawdown and storage losses continue in the areas where this pumping occurs" and that "in the long run, groundwater levels would continue to decline" (USGS 2015 at page 124). Additionally the comment fails to recognize the GSPs adaptive management

strategies including 5-year outlook for proposed pumping reductions and annual review of the pumping allowance in terms of achieving sustainability goals.

O2-13 The GSA notes your comment that the Draft GSP's Projects and Management Actions exceed SGMA authority to achieve the sustainability goal for the basin and your assertion that the sustainability goal statement inappropriately uses "sustainable yield" as a sustainability goal. The primary sustainability indicators that apply to the Subbasin are chronic lowering of groundwater levels and reduction of groundwater in storage that are inextricably linked to balancing the inflows and outflows into the Subbasin over the long-term or the "sustainable yield." The cost of developing a Water Trading Program is an estimate and actual costs could be less considering multiple available water trading accounting options. The GSA further acknowledges your concern regarding the cost, potential overregulation, and/or implementation of the water trading program, water conservation program, pumping reduction program, voluntary fallowing of agricultural land, water quality optimization program, and intra-subbasin water transfers program. The GSA will take these comments into consideration when projects and management actions are developed after GSP adoption in coordination with the Subbasin stakeholders.

O2-14 The GSA notes your comment that the administrative and program costs far exceed what is contemplated by SGMA for a small basin with few pumpers and include costs that the District is responsible for. The GSA will take this comment into consideration when considering imposing fees to fund GSP implementation.

This comment does not address the adequacy of the Draft GSP, and therefore, no further response is required or necessary.

O2-15 The GSA notes your comments on the Baseline Pumping Allocation and acknowledges receipt of additional comments by pumpers in the Subbasin. The GSA developed Baseline Pumping Allocations based on the best available science and data and has provided each pumper letters with final baseline pumping allocations. For responses to comments regarding sustainable yield, please refer to response to Comment O2-1.

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Comment Letter O3

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Re: T2 Borrego, LLC's Comments Regarding the Draft Groundwater Sustainability Plan for the Borrego Springs Subbasin

Dear Jim:

This letter presents comments on the draft groundwater sustainability plan for the Borrego Springs Subbasin ("Subbasin") on behalf of T2 Borrego LLC and T2 Holding LLC (collectively, "T2 Borrego"). T2 Borrego owns the Rams Hill Golf Club and the surrounding residential development ("Rams Hill"), which wholly overlies the Subbasin. Rams Hill is comprised of approximately 3,200 acres including an award-winning golf course designed by legendary architect Tom Fazio.[1] The golf club employs approximately 38 full time employees and an additional 40 or more seasonal employees annually. The club is open to the public and includes a clubhouse and restaurants. There are 326 existing homes within the development, which are owned by others, and the development has land use entitlements for 1,244 additional residential dwelling units, various resort amenities, and an additional golf course. Entitlements also provided for the public dedication of sites for a water recycling plant, health clinic, and fire station. At its reopening in 2014, Rams Hill acquired and fallowed sufficient agricultural uses to offset water pumped for the golf course, upgraded the irrigation system, landscaped with native plants, and has since added a 1MW solar array to provide a renewable energy source to support its operation.

Representatives of T2 Borrego have attended numerous meetings and conference calls over the course of several years in support of efforts to achieve compliance with the Sustainable Groundwater Management Act ("SGMA") and to resolve groundwater challenges within the Subbasin. T2 Borrego remains optimistic that a compromise can be reached to implement

[1] Bradley S. Klein, *Golfweek* Senior Writer, opined that "Our course-ratings panel has taken a shine to Rams Hill. It already sits at No. 34 on *Golfweek's* Best Resort Courses list in the U.S., and trails only Pebble Beach Golf Links and Spyglass Hill among resort courses in California."

sustainable management of the Subbasin in a consensus-based fashion. To that effect, there are several aspects of the GSP that will need to be addressed by the groundwater sustainability agency ("GSA"), as discussed herein.

Overarching Comments

1. Sustainable-Yield and Rampdown

As you are aware, the hydrologeologic experts representing T2 Borrego (Aquilogic, Inc.) and AAWARE (Wagner & Bonsignore, CCE) have reviewed the technical work performed by the GSA's consultant, Dudek, in support of the Sustainability Criteria set forth in Chapter 3. They are concerned that Dudek's estimate of the Subbasin's sustainable yield (5,700 acre-feet per year) is inaccurate and too conservative because Dudek failed to consider substantial data gaps or revise the earlier USGS model despite USGS's explicit acknowledgment of such data gaps and recommendations for refinements, and because the 5,700 AFY estimate does not include significant contributions to the replenishment of the Subbasin.[2] (See comment letter from Aquilogic, Inc. attached hereto as Exhibit A). We are concerned that the sustainable yield estimate is inaccurately low, and thus the projected requisite long-term rampdown in BPA is too great.

However, T2 Borrego would support adopting the 5,700 AFY safe-yield estimate as a starting point for the GSP if the GSP also established a collaborative process to assess and resolve the technical uncertainties over time. As we have discussed, we recommend the formation of a technical advisory committee ("TAC") to foster such adaptive management. The TAC should include diverse technical representation from interested stakeholders, which should be charged with addressing the proposed task list set forth in the attached letter from Aquilogic, Inc. With such a process, the stakeholders could put aside their disagreements over the adequacy of the present technical findings, commence with rampdown to set the valley on a path to groundwater sustainability, improve technical understandings of the Subbasin over time in a collaborative manner, and recalibrate safe-yield estimates and rampdown projections, if appropriate, as better technical information is obtained.

O3-1

To avoid a contest at this stage concerning the safe-yield estimate and attendant rampdown, the GSP should be modified to expressly provide for the creation of the TAC and to set forth the recommended initial work plan for technical undertakings during the first five years of the GSP's operation.

2. BPA

Unless a comprise is reached concerning the Baseline Pumping Allocation ("BPA") established for each pumper within the Subbasin and the other material provisions for Subbasin

O3-2

[2] "The 5,700 AFY safe-yield estimate failed to include an annual average of 1,400 AFY of underflow from adjacent watersheds, which the GSP acknowledges is replenishing the Subbasin, but not included within the 5,700 AFY safe-yield estimate." (GSP p. 2-81)

management, T2 Borrego objects to: (i) the quantity of BPA proposed to be granted to Rams Hill, specifically; and (ii) the method applied to calculate BPA throughout the Subbasin, generally. These objections are based on legal, factual, and equitable grounds.

By letters to the County of San Diego, care of Jim Bennett, dated August 13, 2018, October 18, 2018, and February 8, 2019, we explained that the BPA proposed to be allocated to Rams Hill was inappropriately understated because of the GSA's failure to consider numerous factors including significant weather differences between Rams Hill and the weather station data used by the GSA to calculate evapotranspiration (ETo at Rams Hill is approximately 31% higher than at CIMIS Station 207), salt leaching requirements, historical demand, assumption of HOA irrigated acreage, voluntary conservation, and disparate and unjustified differences in the crop factors used to calculate evapotranspiration between agricultural crops and turf. Please refer to these letters for additional details concerning T2 Borrego's objections concerning the BPA calculation for Rams Hill, which are attached hereto as Exhibit B.

T2 Borrego further objects to the method applied throughout the Subbasin to determine BPA in that the methodology is inconsistent with common law water right priorities for several reasons. First, the GSP allocates BPA to the BWD based on its highest historical use of groundwater during the five-year base period from January 1, 2010 through January 1, 2015. There are multiple infirmities with the BWD allocation. These include: (i) BWD is an appropriator, which under the common law, is junior in priority to overlying landowners unless prescriptive rights have been proven, which have not been proven in the Subbasin;[3] (ii) if prescriptive rights were proven, the amount of prescriptive right that may be established by the BWD would be limited by the overlying rights retained by landowners as a result of "self-help" pumping;[4] (iii) the maximum prescriptive right that could be established by the BWD would be the maximum continuous quantity of extraction during the prescriptive base period (i.e., the lowest annual pumping during any of the five years during the prescriptive period, not the highest);[5] (iv) the GSP does not include a recordation of the BWD's pumping in each of the years within the five-year prescriptive period (it should), and (v) during the prescriptive period, the BWD was delivering a large quantity of groundwater to Rams Hill for golf course irrigation, which demand is now the responsibility of Rams Hill and must now be satisfied exclusively from T2 Borrego's Rams Hill BPA (the BWD should not receive BPA as a result of these deliveries).

O3-2 Cont.

Second, the BPA allocated among landowners also does not follow the common law. Allocations among overlyers are not exclusively determined based upon historical use, highest or otherwise, but rather are based upon various considerations oriented toward reasonableness and equity.[6] The GSP's approach of simply calculating each landowner's five-year, maximum

[3] *City of Barstow v. Mojave Water Agency* (2000) 23 Cal. 4th 1224, 1241.
[4] *See City of Santa Maria v. Adam* (2012) 211 Cal.App.4th 266, 279.
[5] *Id* at 291; *California Water Service Co. v. Edward Sidebotham & Son* (1964) 224 Cal.App.2d 715, 726 (prescriptive rights must be established in relation to the highest *continuous annual production* of water from the basin during a period of five successive years)
[6] *See Tehachapi-Cummings County Water District v. Armstrong* (1975) 49 Cal.App.3d 99249 Cal.App 3d at 1001-1002; see also *Prather v. Hoberg* (1944) 24 Cal.2d 549, 560 (discussing

historical use, while refusing to consider reasonable and equitable factors, like those raised in the aforementioned letters submitted to you from T2 Borrego, fundamentally conflicts with these common law principles.

Finally, the GSP does not disclose the BPA proposed to be allocated to individual users. Instead, it just lists the gross BPA allocated among six categories of users (agriculture, municipal, water credits, domestic users, and de minimis users) at Table 2.1-7. The lack of disclosure of individual BPA renders it impossible for any individual user to determine whether the BPA granted to others is fair or accurate (even assuming arguendo that the five-year maximum pumping approach was appropriate). This concern is further amplified by the fact that half of the GSA is constituted by the BWD, which is a competitive water user and recipient of BPA. Thus, as a matter of equity and transparency, a chart of each user's BPA, including the type of use and magnitude of use (e.g., quantity of irrigated acres) should be included in the GSP.

In addition to the legal infirmities respecting the methods used to calculate BPA, the GSA has not afforded adequate stakeholder input concerning the BPA calculation method. While there was some discussion at the Advisory Committee concerning the base period to be used and whether to apply an average or highest annual use during the base period, the GSA refused to consider other methodologies, such as conformance to common law water right priorities. Instead, the method for calculating BPA was chosen by the GSA, largely without informed stakeholder input or pumper consensus. This decision therefore failed to conform to SGMA's requirement that the GSA consider the interests of all beneficial users of groundwater, including holders of overlying groundwater rights.[7]

O3-2 Cont.

Notwithstanding T2 Borrego's concerns regarding the calculation of BPA, T2 Borrego may be willing to accept the proposed BPA calculation methodology and the individual grants of BPA if a comprehensive agreement can be reached concerning a complete management plan for the Subbasin. We anticipate that such agreement would take the form of a stipulated judgment, of which a modified version of the GSP would be attached or otherwise incorporated therein. However, in the event a comprehensive agreement among the stakeholders cannot be reached, T2 Borrego raises these concerns to avoid any premise that T2 Borrego has waived these objections.

3. Conversion of Water Credits to BPA

In addition to the BPA calculation concerns noted in the preceding section, T2 Borrego joins other holders of water credits in urging the GSA to modify the GSP to explicitly provide for (a) the conversion of water credits to BPA using the same consumptive use factors applied to

O3-3

division of supply among riparian rights (analogous to overlying rights), citing Wiel on Water Rights (3d ed.) p. 820, § 751").

[7] Water Code § 10723.2; see also Senate Bill 1168, § 1(b)(4) (declaring the legislature's intent in adopting SGMA "[t]o respect overlying and other proprietary rights to groundwater").

calculate BPA for agricultural acreage during the baseline period, and (b) the issuance of BPA to water credit holders at the same time that BPAs are issued for all pumpers in the Basin.

Although the Sustainable Groundwater Management Act provides that it is not intended to alter groundwater rights, nor is an allocation issued pursuant to a GSP to be deemed a determination of water rights,[8] the proposed management actions concerning BPA (i.e., Pumping Reduction Program) (PMA No. 3 in the GSP) and the Water Trading Program (PMA No. 1 in the GSP) will effectively determine and control all opportunities afforded by a water right. This includes the amount of groundwater that may be pumped, the cost of pumping, how and when groundwater rights may be transferred, etc. Thus, to remain equitable, lawful, and immune from successful legal challenge, BPA *must* be granted to water credit holders on the same terms (consumptive use factors) established to set BPA for existing irrigators and issued at the same time as all BPAs. Doing so will treat all similar pumpers equally and will avoid disadvantaging land owners who voluntarily reduced water usage early in an effort to help the Basin.

Conversion of water credits to BPA will also streamline management of the Basin by applying a single "currency" of water rights. For example, the BWD could develop a policy that requires a dedication to the BWD of BPA in exchange for extension of service for new developments (or an equivalent payment in lieu of BPA dedication). This would thereby avoid applying two BWD programs--one for water credit holders and one for BPA holders--that may result in disparate and unfair treatment of those pumpers that voluntarily worked with the BWD to advance water management in comparison to those that have not.[9] Without such conversion, other pumpers who are granted BPA would be afforded greater water use opportunities and advantages, including opportunities to accrue carryover, lease of allocation, and transfer and use of allocation to support groundwater production on different parcels, as compared to similarly-situated pumpers that were granted water credits. Such disparate treatment would render the BPAs and Pumping Reduction Program ripe for legal challenge pursuant to a groundwater basin adjudication[10] or other litigation.

This concern can be readily remedied by modifying the GSP to provide for the conversion of water credits to BPA for all water credit holders pursuant to the same consumptive use factors set forth in Appendix F, the elimination of the existing water credits program, and the issuance of such BPA when all BPAs are issued. The GSP could explain that the BWD would soon develop a new dedication program for extension of new water service based exclusively on BPA.

O3-3
Cont.

[8] See Water Code sections 10720.5(b)), 10726.4(a)(2), and 10726.8(b).

[9] The BPA calculation methodology set forth in Appendix F would result in a grant of more BPA per acre than has been granted in water credits for the same crop grown with the same method of irrigation and during the same time period. Thus, to deny a conversion of water credits to BPA at the same consumptive use factors would result in disparate treatment unless the BWD were to maintain two dedication programs with different dedication ratios respective of BPA and water credits, which would be unnecessarily complex.

[10] See Code of Civil Procedure sections 830 et seq.

Water credits are not presently included in the total calculation of BPA. (Table 2.1.7, f n. f) Thus, when water credits are converted to BPA applying the same consumptive use factors applied to calculate BPA for agricultural acreage during the baseline period, the total BPA will increase by roughly 2,124 AFY (based on a conversion quantification presented by the County) to a total BPA of approximately 24,087 AFY. This would therefore increase the projected rampdown, based on a safe yield estimate of 5,700 AFY, from the present estimate of 74 percent (see GSP, page ES-4) to about 76.4 percent. If BPA remains as calculated in Table 2.1-7 (e g., pursuant to a comprehensive agreement - see discussion above), the total BPA and the projected rampdown will need to be updated where stated throughout the GSP.

Pursuant to such changes to the GSP and a new BWD dedication program, we agree that the water credits-to-BPA conversion satisfies all obligations of the BWD pursuant to the water credits program such that the BWD would not bear any potential liability for breach of contract, or otherwise, relating to the water credits program.

O3-3 Cont.

Specific Comments

The specific comments set forth below are organized in relation to each section of the GSP. Unless otherwise noted, underlined text is requested to be added and strike-through text is to be deleted.

1. Title of GSP

The GSP is titled "Groundwater Sustainability Plan for the Borrego Valley Groundwater Basin." The GSP, however, is only a plan for the Borrego Springs Subbasin of the broader Borrego Valley Groundwater Basin. SGMA defines the basin, for which a GSP is to be prepared, as "a groundwater basin or subbasin identified in Bulletin 118..." The area for which the GSA has elected to undertake GSA responsibilities is only the Subbasin (DWR, Bulletin 118 Basin No. 7.024.01), and accordingly, the title of the GSP should be revised to the "Groundwater Sustainability Plan for the Borrego Springs Groundwater Basin."

O3-4

2. Executive Summary

A. The GSP provides at page ES-2 and ES-3 that "[i]n the Subbasin, the most critical aspect of water quality is ensuring that available supplies at municipal well sites are and remain in compliance with drinking water standards. Groundwater quality provided by BWD water supply wells is currently good and meets California drinking water maximum contaminant levels without treatment. Arsenic concentrations were increasing in multiple BWD water supply wells until 2014, but have since decreased."

The SGMA regulations do provide that in setting minimum thresholds for degraded water quality, the GSA shall consider local, state, and federal water quality standards. However, the GSP should also acknowledge that in balancing beneficial uses and interests in the Subbasin, some future impairment of water quality may occur and that treatment or other mediation may be required, particularly in relation to naturally occurring contaminants within the Subbasin.

O3-5

B. At page ES-3 edit the following paragraph as follows: "Total dissolved solids and sulfate are presently the only water quality constituents that show increasing concentrations with simultaneous declines in groundwater levels. Overall, the long standing overdraft has resulted in changes of water quality in the Subbasin over time. High salinity, poor quality connate water is thought to occur in deeper formational materials in select areas of the aquifer as well as shallow groundwater in the vicinity of the Borrego Sink in the southern portion of the Subbasin. The BWD does not operate wells in the vicinity of the Borrego Sink. The GSA monitors water quality from a groundwater quality network consisting of 30 wells." O3-6

C. At page ES-4 edit the following statement as follows: "The primary management tool to eliminate the overdraft is to require aggressive pumping cut-backs to a level that does not exceed the Subbasin's estimated sustainable yield of 5,700 AFY before 2040." This edit will render the statement consistent with the text on page ES-5, which states "That [baseline pumping] allocation [under PMA No. 3] will be reduced incrementally as necessary over the GSP implementation period such that the total extraction from the Subbasin will be *equal to* the estimated sustainable yield (5,700 AFY) by 2040." (emphasis added) O3-7

3. Chapter 2

A. At page 2-4, the text states that there are 2,624 acres of irrigated agriculture and 600 acres of fallowed acreage. The text also suggests that the SANGIS 2017 calculation incorporates these 600 fallowed acres within the total agriculture figure of 2,624 acres. However, Table 2 1.3 states that there was 3,474 acres of agricultural land as of 2015. It appears that either the text or table is incorrect, or if not, this apparent discrepancy should be clarified O3-8

B. At page 2-15, the text states that "[t]he County is also currently conducting compliance and enforcement evaluations related to the credits issued by the BWD program. At a later date, existing water credits associated with the WCP may be converted to a Baseline Pumping Allocation using the groundwater consumptive use factors developed by the GSA, as further discussed in Section 4 4, Pumping Reduction Program."

We are unsure what is meant by the County is "conducting compliance and enforcement evaluations related to the credits issued by the BWD program," and request that this statement be clarified. Also, as discussed above, the WCP should be converted to BPA based on the same BPA calculation formula as other agriculture at the time the GSP is adopted and the BPA granted in lieu of water credits at the same time as other BPA is granted. The GSP should clarify that this will occur. Table 2.1.7 and its footnotes on pages 2-26 through 2-17 should likewise be amended consistent with the conversion of water credits to BPA. O3-9

C At page 2-8, edit the following text as follows: "[O]ther than agriculture, recreation, and tourism, there is no major industry or source of high-quality employment O3-10

within the Plan Area likely due to its remote location." While the drafters may be lumping recreation into tourism, that is unclear from the language here and the context provided otherwise in this report. The recreation sector employs more people than the agriculture sector and is a significant employer in Borrego Springs. Rams Hill alone employs approximately 80 full-time equivalent employees on a year-round or seasonal basis. O3-10 Cont.

D. Table 2.2 – 1 lists CIMIS Station 207 as active only until 2015. Our understanding is that CIMIS station 207 is still in use. Please clarify. O3-11

E. At Table 2.2 – 4 and elsewhere in the GSP, change references to ID1-1 and ID1-2 to RH-1 and RH-2, respectively, to avoid confusion because these wells were sold to Rams Hill in 2014 and are no longer owned or operated by the BWD. Also, on page 2-58 there is an inappropriate concern raised by the statement: "Wells exhibiting an increasing trend [in TDS] include BWD ID1-1 and ID1-8 in the SMA." BWD does not own or operate ID1-1 and it is not a municipal supply well for which higher TDS would compromise municipal water supplies. A similar clarification is needed for the statement on page 2-59, which states: "The only well exhibiting an increasing trend [in arsenic] is BWD Well ID1-2 in the SMA." BWD does not own or operate ID1-2 and it is not a municipal supply well for which higher arsenic would compromise municipal water supplies. O3-12

F. At page 2-63, the reference to the Rams Hill/BWD Long-Term Cooperation Agreement should be deleted because it has since been amended, and it is outside the scope of the GSP to discuss private agreements between the BWD and developers. Further, the GSP will require groundwater quality monitoring throughout the basin so this information is not helpful or insightful to readers. O3-13

4. Chapter 3

T2 Borrego's comments respective of Chapter 3 are set forth in the technical comment letter from Aquilogic, Inc. attached hereto as Exhibit A. O3-14

5. Chapter 4

A. At page 4-4, the GSP states: "The water trade review process by the GSA is intended to be structured to prevent unintended consequences, such as hoarding, collusion, or speculation. For example, to prevent hoarding, the GSA could cap the number of 'water shares' held by an individual at a maximum percentage of total shares." T2 Borrego is highly concerned with such restrictions on water transfers and the review process, and it particularly objects to the notion of limiting transfers on the basis of hoarding or speculation. A cap on the amount of allocation that may be transferred does not further any principle of sustainable groundwater management set forth in SGMA and could prevent legitimate water planning for significant and economically beneficial projects, like Rams Hill. Such limitations could also chill the benefits that may be achieved from the transfer program including the reallocation of limited water supplies from lower to higher valued uses and incentives for water users to conserve water in O3-15

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support of transfers. Our concerns are further amplified by the fact that half of the GSA is constituted by the BWD, which is a competitive water user, and thus there is potential for restrictions to be placed on the transfer program under a veiled intent to benefit the BWD at the expense of other water users in the Subbasin. Indeed, the only appropriate restrictions on the transfer program are those necessary to avoid adverse impacts to hydrogeologic conditions in the Subbasin that would cause or exacerbate undesirable results. The text on page 4-4 should be revised accordingly and should also explicitly provide for engagement by private pumpers in the development of the program and an opportunity for robust public review and comment on the proposed program before adoption by the GSA.

O3-15 Cont

B. At page 4-6, the GSP states that "an area of origin pumping requirement (i.e., North Management Area) may be required for trades. PMA No. 6 – Intra-Subbasin Transfers is being evaluated to address and optimize the distribution of pumping in the Subbasin as a result of implementation of the PMAs." Consistent with the comment immediately above, this text should be revised to explain that any restrictions on transfers will be designed for the sole purpose of avoiding adverse impacts to hydrogeologic conditions that would cause or exacerbate undesirable results.

O3-16

C. With respect to the Water Conservation Program (PMA No. 2), T2 Borrego notes that if a robust water trading program is implemented (PMA No. 1), private holders of BPA will be incentivized to conserve and to make investments in conservation to either preserve their economic enterprise supported by the BPA (which will become increasingly more difficult as rampdown occurs), avoid the costs of purchasing BPA from others, or render BPA available for transfer as either permanent sale or lease in exchange for payment. In other words, the market economics inherent in the transfer program will cause private users to make conservation efforts that are economically justified. The text describing PMA No. 2 should recognize this natural economic principle The elaborate scope and costs of the management action are also not justified for the same reason (the market will appropriately incentivize conservation) and because conservation measures internal to BWD customers should be funded by BWD (with grant funding if available), not other groundwater users.

O3-17

D. With respect to the Pumping Reduction Program (PMA No. 3), T2 Borrego urges the GSA to modify the underlying accounting principles and terminology used. Rather than providing that each pumper will possess a "share" of the estimated sustainable yield (page 4-19), the program should be founded in BPA and an annual authorized "Pumping Percentage," that being the percent of each party's BPA that is authorized to be extracted in any particular year. Through this approach, the "currency" that controls pumping and that is transferable is BPA, which in any particular year authorizes a given quantity of production. That quantity will be driven by the Pumping Percentage then in effect, and the Pumping Percentage may be adjusted up or down as necessary consistent with improved understandings of the Subbasin, progress in meeting sustainability goals, and other aspects of adaptive management. By contrast, the establishment of a "share" of the estimated sustainable yield in addition to BPA would be

O3-18

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an unnecessary and confusing additional denomination of pumping right which will result in increased costs for basin management in the future.

O3-18 Cont.

E. With respect to the Voluntary Fallowing of Agricultural Land (PMA No. 4), T2 Borrego notes that the fallowing program does not further any principle of sustainable groundwater management set forth in SGMA. T2 Borrego also requests specific clarification of the fallowing requirement and scope of authority that it intended to be vested in the GSA. The text on page 4-25 suggests that the GSA may require different degrees (and expense) of fallowing based on intended post-fallowing land use For example, the text states that "there could be differing levels of site stabilization or restoration needed or required *based on the land use intended post- fallowing*. . . A passive restoration approach *may be applied* if the goal is for the property to eventually return to native habitat, and active restoration *may be applied* for relatively near-term restoration to native habitat with *the goal of providing open space, parks, or public trails*." (emphasis added)

All similarly-situated land owners must be treated the same, and different levels of fallowing or site stabilization for properties with the same historical use are inappropriate, as this would favor certain properties or property-owners above others, which is inequitable. Fallowing standards must be consistent and equally applied to all properties There is no circumstance where it would be appropriate to *require* some fallowing participants to engage in significant and expensive active restoration to establish open space, parks, or public trails where others are not required to achieve such result. Stated differently, the fallowing program should not be used by the GSA to achieve desired end land uses at the expense of, and without the consensual agreement of and compensation to, the landowner. Rather, the fallowing program should be designed to avoid significant adverse environmental impacts (e.g , significant and unreasonable fugitive dust and visual blight) in a manner that is as inexpensive and unobtrusive as possible. Additionally, the GSA should recognize that some of its desired goals are already regulated, for example by the County's well destruction policy. Anything further may be unlawful (particularly if there is disparate treatment of similarly situated landowners); counter to the policy of using a water transfer market to achieve groundwater sustainability in the valley in a manner that is least economically disruptive; and would increase costs to all pumpers in the Subbasin through costs incurred defending legal challenges . The text at pages 4-25, 4-28, and elsewhere should be modified accordingly.

O3-19

F. Clarification is also needed concerning the scope of costs, and responsibility for payment of costs, related to the fallowing program. At page 4-28, the text states that "[p]otential sources of funding for the Voluntary Fallowing of Agriculture Program components include state grants, pumping fees, water rates, parcel taxes, and other mechanisms as described in Section 5.1.7, Funding Sources." The following paragraph states that the ongoing program costs "are related to the conformance inspections, economic value of fallowed land, the cost for site stabilization, and restoration. Additionally, wells that will no longer be used will have costs to be properly destroyed."

O3-20

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The only program costs that are appropriate to be borne by the GSA (i.e., funded by groundwater users at large) are the cost of developing the standards and ensuring compliance with the standards. There is no legitimate purpose for the GSA to fund economic valuations of fallowed land, or the costs of site stabilization, restoration, or well destruction. These costs should be borne exclusively by the owner of the land and seller of BPA made available on the basis of agricultural fallowing. The text at page 4-28 should be modified accordingly. O3-20 Cont

G. At page 4-29, concerning Water Quality Optimization, the opening paragraph of this section should be revised as follows: "For irrigation wells, water quality should generally be suitable for agriculture and recreation uses." O3-21

H. At page 4-30 please clarify that the BWD is not currently required to treat water from any of its wells as follows: "In general, the groundwater quality in the Subbasin is good and meets California drinking water maximum contaminant levels without the need for treatment and the BWD is not currently required to treat water from any of its wells." O3-22

I. At page 4-31, the text should be clarified to explain that mitigation actions may not be the responsibility of the GSA (i.e., pumpers at large) to fund. If treatment (direct or indirect) is required, the costs of such treatment should be borne by the impacted party unless the degraded water quality is a direct result of Subbasin management decisions made with the intention to mitigate a water quality effect from such management decision. As the GSP acknowledges, much of the potential water quality concerns in the Subbasin are naturally occurring. Like in other areas of the state, the cost of making use of water with such naturally occurring contaminants must be borne by the individual user. O3-23

J. At p. 4-35, the GSP explains that the wells in different management areas have different end uses. Given that recreation is a significant pumper in the CMA (for example, Borrego Springs Resort is located in the CMA), the language should be modified to state, "...whereas wells in the Central Management Area (CMA) primarily serve recreational and municipal uses..." O3-24

6. Chapter 5

A. T2 Borrego is alarmed by the high costs of implementing the GSP that are projected in Chapter 5. There is insufficient information disclosed in support of these high projections. Although the scope of the tasks listed in Table 5-1 as Operating and Monitoring Costs are generally described in Section 5.1.1.1, there is no information presented regarding how the figures in Table 5-1 were generated (e.g., hours required, percentage of full time employee, consultant budget estimates etc.) The GSP should set forth such detailed information and estimates. Similarly, Section 5.1.2. 2 does not provide any detail regarding (i) the scope of work that would be required for two full time employees, (ii) why $120,000 per full time employee per year is an accurate estimate, (iii) how the line items in Table 5-2 for Management, Administration, and Other Costs O3-25

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were generated, and (iv) if any of these estimated costs would also include later work once the PMAs are developed and in place. The GSP should set forth such detailed information and estimates.

O3-25 Cont.

B. The same is true for Table 5-3 (GSP 5-Year Update Costs) and Table 5-4 (Projects and Management Actions Development Costs). Each line item is just a figure set forth without any further discussion or support. The GSP should set forth such detailed information and estimates.

O3-26

C. It is also not clear why there is additional, but uncalculated, costs for "internal management and administration" by BWD projected (page 5-9) when the GSA is intending to hire two full time employees. The roles and responsibilities between the GSA's full time employees and the BWD's internal management and administration should be calculated and the expense estimated.

O3-27

D. Beyond the costs of GSP implementation ($19.2 million for the 20-year period and the $652,000 of Projects and Management Actions Development Costs), the GSP states at page 5-9 that the BWD intends to request reimbursement for GSA creation and GSP development related expenses. Water Code section 10730 authorizes the imposition of regulatory fees for GSP development and Water Code Section 10730.2 authorizes the adoption of an extraction fee for plan implementation. However, it is not clear that a plan implementation extraction fee, adopted pursuant to section 10730.2, may be used to retroactively reimburse a single member of a GSA for previously-incurred expenses. Further, before any reimbursement is made, there would need to be a detailed accounting and review by all stakeholders to determine the legitimacy and fairness of the requested reimbursement (e.g., to determine that the BWD is not seeking reimbursement for expenses that they would have been incurred regardless of GSP development or expenses that are oriented toward the protection of the BWD's interests and favor rather than basin-wide benefit). Additionally, the GSP acknowledges that grants from DWR have funded the majority of the GSP costs to date. Thus, an accounting and review process is also necessary to ensure that the BWD does not request reimbursement for a cost already funded/reimbursed through grant funding. Presently, there is absolutely no detail concerning the expenses for which the BWD intends to request reimbursement. The GSP should provide that a detailed accounting and review process will be afforded before any reimbursement is made.

O3-28

E. The GSP provides at pages 5-9 through 5-10 that the GSA intends to apply extraction charges, including monthly fixed charges and variable pumping fees, as well as assessment/parcel taxes and grants, to fund GSP implementation. As the GSP recognizes, Propositions 218 and 26 apply to these fees and assessments. Proposition 218 (Article XIII D) provides at section 6, subdivision (b) that the amount of a property-related fee charged to any individual parcel cannot exceed the proportional cost of providing service to that parcel. The GSP should expressly provide that the amount of extraction charge borne by any particular pumper shall be proportional to the cost of providing the GSP benefits respective of the individual pumper. This is particularly important in light of the GSA's intent to apply monthly fixed charges by well meter size,

O3-29

which may run afoul of Proposition 218's proportionality requirement. Additionally, since well meters were sized by private pumpers before the potentiality of GSP extraction fees, a monthly fixed meter charge is an inappropriate and arbitrary way to charge GSP fees as there is not a clear nexus between fees and benefits. The suggestion of a monthly fee has also not been vetted publicly before release of the draft GSP. T2 Borrego requests that the GSP be modified to either remove reference to fixed meter charges, or modified to include an explanation of the relationship and nexus between fees and benefits, along with a process that involves the pumpers in development of necessary fees.

O3-29 Cont.

F. With respect to the costs of groundwater level monitoring discussed at page 5-4, the costs for field monitoring of groundwater levels may be reduced by automated reporting of water levels from transducers through telemetrically delivered readings The GSP should provide that the potential for such cost savings will be evaluated

O3-30

Thank you for the opportunity to comment on the draft GSP.

Sincerely,

Russell McGlothlin

Enclosures:
Exhibit A: Comment Letter from Aquilogic, Inc.
Exhibit B: Letters to County of San Diego re Rams Hill BPA

EXHIBIT A

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May 21, 2019

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sent via email to:
PDS LUEGGroundWater@sdcounty.ca.gov

Subject. Draft Groundwater Sustainability Plan for the Borrego Valley Groundwater Basin, Dated March 2019

Dear Mr Bennett

This letter provides technical comments pertaining to the above referenced Draft Groundwater Sustainability Plan (GSP), which is prepared on behalf of T2 Borrego LLC and T2 Holding LLC (collectively, T2 Borrego), owners of the Rams Hill Golf Club, by aquilogic, inc. (aquilogic) To facilitate the County of San Diego's (County) review and response, we have divided these comments into two categories: General Comments and Specific Comments Comments provided herein apply to the Draft GSP at large (i.e., text, figures, tables, and appendices) Without these requested changes we believe the GSP is deficient and inaccurate

General Comments

1 Technical Advisory Committee: Over the past year, we have appreciated the opportunity to work with your consultant, Dudek, and other technical consultants to stakeholders in the Borrego Springs Groundwater Subbasin (Subbasin) to support the development of a GSP consistent with the requirements of by the Sustainable Groundwater Management Act (SGMA). In particular, the technical meetings requested by T2 Borrego and other stakeholders have facilitated a better understanding of groundwater conditions in the Subbasin, and how groundwater sustainability could be achieved in the future. To that end, we recommend that a Technical Advisory Committee (TAC) be established in the GSP and convened to move forward as a Project Management Action (PMA) The GSP would establish that the TAC would meet regularly to assist and advise the Groundwater Sustainability Agency (GSA), County, or other future responsible agency, on technical issues related to the sustainable management of groundwater resources of Subbasin. The TAC would address technical issues in all three currently identified individual management areas (North [NMA], Central [CMA], and South [SMA]) The responsibilities of the TAC would include, but not be limited to, the following:

- Use best available science and engineering, considering all relevant data, in its technical deliberations and recommendations,

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- Assess and update the water budget and sustainable yield for the Subbasin at least every five (5) years during the first 20-year GSP implementation period,
- Evaluate the potential for Undesirable Results, as defined SGMA, and whether they are significant and unreasonable,
- Analyze whether the minimum thresholds and measurable objectives can be met and are sufficient to prevent Undesirable Results,
- Assess and recommend any additional actions to avoid Undesirable Results,
- Evaluate the effectiveness of management actions and projects defined in the final GSP and, where necessary, make recommendations to revise or supplement the actions and/or projects.

We request that you make this update to the GSP in order to ensure participation and review by technical experts to the stakeholders Please also note that this letter includes additional items for review by the TAC in later comments

O3-14a Cont.

2 Low Sustainable Yield As you are aware, the hydrogeologic experts representing T2 Borrego (aquilogic) and AAWARE (Wagner & Bonsignore and Tom Harder Company et al] have previously provided technical concerns to the GSA's consultant (Dudek) related to the accuracy of the key hydrogeologic components utilized in the GSP as it pertains to the USGS numerical groundwater model. Chief among these is the preliminary estimate of 5,700 AFY for the sustainable yield (SY) for the Subbasin Estimates of baseline SY prepared independently by ourselves and separately by Wagner & Bonsignore, are on the order of 7,100 AFY, or approximately 20% higher than the current conservative figure of 5,700 AFY being used for planning by the GSA during the initial 5-year reassessment period This artificial and arbitrarily low value for SY appears to be the result of Dudek and the GSA inexplicably omitting 1,400 AFY of subsurface inflow from adjacent mountain fronts and watersheds Indeed, Dudek states in the GSP that, "*The average annual natural recharge of water reaching the saturated zone, which includes stream leakage and infiltrating water through the unsaturated zone, was 5,700 AFY for the full model simulation period from 1929 to 2010 (USGS, 2015). In addition to natural recharge from stream leakage and infiltrating water (mostly from irrigation return flows), the Subbasin received underflow originating from adjacent watersheds at an average annual rate of 1,400 AFY Therefore, the combined average annual natural recharge to the BVGB is approximately 7,100AFY .*" (Chapter 2, section 2 2.3 6, page 2 80) Based on these facts, we are concerned that the current estimate of SY is inaccurately low, and thus the projected requisite long term demand reduction (pumping) rampdown is also unnecessarily conservative (i e. too high) We therefore request that the preliminary SY be corrected to 7,100 AFY and that the proposed rampdown percentages and schedule be revised accordingly, along with all other related information and data presented in the GSP

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3. USGS Model Inaccuracies The USGS recognized the inherent inaccuracy and uncertainty in their numerical groundwater model which was used by the GSA as the hydrogeologic foundation for the Subbasin and by Dudek to prepare the Borrego Valley Hydrogeologic Model (BVHM) At the September 2018 technical meeting with aquilogic and Wagner & Bonsignore, Dudek characterized current USGS model uncertainty at approximately 20% On page 115 of the attached United States Geological Survey (USGS) Scientific Investigation Report 2015 5150 (USGS 2015 [Exhibit A]), the USGS experts state, *"In summary, some potential components that could improve the accuracy and reduce uncertainty of the simulation could include, but are not limited to the following*
   - Improved temporal estimates of land use,
   - Improved estimation and application of crop and irrigation properties,
   - Improved mapping of density, temporal distribution, and areal extent of natural vegetation, particularly phreatophytes,
   - Improved estimates of ungauged steam inflows through linkage to a daily precipitation-runoff model that simulates routed stream flow,
   - Improved estimates of hydraulic properties through field tests,
   - Improved texture estimates at depth,
   - Improved simulation of multi aquifer wells to account for well pumping capacities,
   - Improved simulation of wet year winter runoff within the FMP, and
   - Inclusion of antecedent soil moisture in the FMP".

   The nine items listed above by the USGS for improved model accuracy track closely with the data gaps we have recommended for closure during the first 5 year reassessment period and must be identified in the GSP and reevaluated immediately (These specific items are detailed in Specific Comments # 2 and 3, below) These important data gaps must be closed or the model will continue to perpetuate inaccurate simulations, which has significant management impacts for property owners and pumpers in the Borrego Springs Valley We are therefore requesting the GSP be revised to list and acknowledge the nine USGS items and that there is inherent inaccuracy and uncertainty in the current USGS model that will be redressed during the first 5-year reassessment period

O3-14c

4 USGS Model Preliminary Given the inherent inaccuracy and uncertainty in the current USGS numerical flow model that was utilized as the foundation for the hydrogeologic findings and recommendations in the GSP, it is especially important to clarify in the GSP text that the model is preliminary and that findings and conclusions derived by Dudek from use of the incomplete model, such as the value for SY, are also preliminary and subject to change. We therefore request that Chapter 2 and Chapter 3 be clarified by the addition of introductory text to each Chapter that expressly states that the numerical model, and by extension the information pertaining to the occurrence and condition of groundwater in the Subbasin, is preliminary and will be revised as new data becomes available For example, references to the BVHM in Chapter 2 and elsewhere in the GSP should be revised to expressly state the

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data is preliminary and subject to refinement, and that the BVHM and USGS model will be revisited and updated at a minimum every 5 years These same corrections for clarity in the GSP text should also be made as needed in Chapter 3, especially in all those sections (for example section 3 3.2 6) that discuss the proposed Minimum Thresholds (MTs) and Measurable Objectives (MOs) related to groundwater elevations in wells It is important to make these changes now so it is evident to all stakeholders that the data is preliminary and is subject to reexamination and change.

O3-14d Cont

5. Majority of Groundwater is for Non potable Use. State law requires that water delivered to customers for potable use must meet certain standards The text in Section 2 2 4 of the GSP currently compares raw ground water quality to treated (potable) water standards, without explicitly explaining that a majority of the groundwater in the Subbasin is used for recreational and agricultural irrigation (i e , non potable use) that does not have to meet potable standards Please further clarify that groundwater provided by the Borrego Water District (BWD) for municipal use must, and currently does, meet Title 22 Drinking Water Standards In order to be served to the public, as required by the State Water Resources Control Board's (SWRCB) Division of Drinking Water (DDW) In addition, please clarify that meeting established safe concentrations for the constituents of concern (COCs) in drinking water is the responsibility of the BWD, and that treatment of groundwater is a standard procedure for a majority of municipal drinking water systems in the State, and therefore it is not appropriate for funding by the GSA Hydrogeologic data from all the Subbasin management areas (NMA, CMA, and SMA) are needed to fully characterize groundwater conditions and potential implications, if any, for sustainable management of the Subbasin in the future Water from lower layers of the aquifer is not necessarily poorer quality water than that from higher layers of the aquifer, and the GSP needs to clearly state this and remove contradictory conclusions based on preliminary information Additionally, the text in this section (2 2.2 4) needs to be updated to match data provided in Table 2 2 6 on p 2 63, the majority of which shows no trend in constitutes of concern many of which are naturally occurring

O3-14e

6 Water Quality is Good Section 2 2 4 of the GSP shows that water quality is good, even without treatment, but the text in this section doesn't match the tables presented Out of the 15 entries in Table 2 2 6, 11 wells are identified as having no trend, and only five are identified as showing a "trend" Of these five, two are noted as having a decreasing trend Most notably one entry in the NMA for Nitrate that is currently listed as "Increasing" appears to be actually decreasing (or no trend) based on the data presented in the table In the SMA, sulfate and TDS are listed as increasing, but both constituents are below their respective MCLs Based on this data the paragraph below the table which discusses potential future water quality impacts seems highly speculative without additional data. Indeed in the next following paragraph titled "Data Gaps" the GSP states that, *"The lateral*

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distribution of the wells in the monitoring network that measure groundwater quality is limited and does not extend to the outer portions of each management area" The subject paragraph goes on to state there are deficiencies in monitoring data in the SMA and elsewhere in the Subbasin primarily caused by high variability in the data and concludes with this statement." *Based on the inconsistent analytical suites between wells and monitoring periods, this variability represents a significant data gap."* Given the uncertainty related to data availability and data quality we request that the GSP remove speculative statements about poor or decreasing water quality and increasing trends of constituents of concern until representative data has been collected and analyzed Additionally, we request that the subject table be corrected as noted

O3-14f Cont

7. Well Ownership There are places in the text, for example page 2 59, that erroneously credit ownership of T2 BORREGO-owned wells ID1 1 and ID1-2 to ownership by the BWD Please correct all such references. Further, any implication that water quality from these wells affects drinking water is also incorrect and requires revision

O3-14g

Specific Comments

1 Section 2 2, page 2 35, Table 2 2 1, CIMIS Station 207 is listed as "Active" in this table, but the "Period of Record" is presented as 2008-2015 Please check the status of the Period of Record in the subject table (I e , 2008-present?) and revise, as needed

O3-14h

2 Section 2 2 3 4, page 2-80 states, *"As future funding allows* (emphasis added), *the GSA intends to conduct aquifer tests at wells screened only in the upper aquifer and only in the middle aquifer* (emphasis added) *to obtain site specific estimates of hydraulic conductivity and specific yield for each aquifer unit. This information may be (emphasis added) used to enhance the calibration of the model to these hydraulic properties and our understanding of storage in the BVGB (Subbasin)"* This work, along with the items listed in #3 below and the nine items recommended by the USGS to further reduce the inaccuracies in the numerical model, should be done immediately and be prioritized for funding and collection during the first 5 year reassessment period The data should be incorporated in the existing numerical groundwater model The attached United States Geological Survey (USGS) Scientific Investigation Report 2015 5150 states, *"Specific yield typically is orders of magnitude larger than specific storage and is volumetrically the dominant storage parameter in the valley"* (USGS, 2015, p 86) As such, it is one of the most sensitive components of the current Subbasin numerical model and critical to a more representative water budget. We request that all qualifiers in the GSP pertaining to the timing, and collection of these data be removed. Data from all three aquifer layers and management areas (NMA, CMA, and SMA), not just the upper and middle, are needed to close these important data gaps and obtain a complete picture of the Subbasin's hydrology and a more useful and accurate numerical

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groundwater model We therefore request that the GSP's current text be revised accordingly and these additional tasks completed.

O3-14i Cont.

3. In addition to collection of representative specific yield estimates for use in the numerical groundwater model for the three aquifer layers identified in the Subbasin, we also recommend that the text in Section 2.2.3 4 be modified to identify and prioritize the subject hydrologic data for funding and collection during the first 5-year reassessment period as follows, which should be reviewed by the TAC.
   - Specific yield estimates for the three aquifer layers identified in the existing USGS model;
   - Collection of data and more detailed analysis of mountain front underflow in the Subbasin at large;
   - Collection of additional depth related water quality data, for improved Mann Kendall Trend analysis;
   - Water optimization measures for further study;
   - Agricultural and recreational return flows;
   - Completion of a detailed feasibility and cost/benefit analysis for intra-management area water transfers,
   - Based on the new data, an analysis of projected changes in groundwater storage over time when 2030 climate change predictions are included, and
   - Any other matters approved by the pumpers, including but not limited to, items required to comply with SGMA, meet the objectives of the County General Plan Update, and matters listed in Section 5 of the Rampdown Provisions

   These data and improvements are all necessary to reduce current inherent inaccuracies and data gaps in the USGS numerical model in order to help refine the hydrogeologic components used to estimate the Subbasin water budget and its various components. These components include, but are not limited to, the SY for the Subbasin, the GSP Minimum Thresholds (MTs) and Measurable Objectives (MOs) related to groundwater, and by extension, the proposed rampdown schedule over the long-term In the most recent technical meeting [on May 10, 2019], all experts, including Dudek, concurred with the importance of conducting this additional analysis and evaluation during the first five-year assessment period The GSP should be modified to include this language

O3-14j

4. Section 3.3 1 4, Table 3-6 on page 3 24 identifies the proposed rampdown schedule and percentages for demand reduction (I e , pumping reduction) in the Subbasin for each of the 5 year reassessment periods though 2040 Yet, in Section 4 4, PROJECTS AND MANAGEMENT ACTION NO 3 – PUMPING REDUCTION PROGRAM, there is no mention of the rampdown percentages provided in Table 3-6 We request that the text in Section 4 4 be revised to incorporate this important information pertaining to the proposed rampdown schedule and percentages utilizing a SY of 7,100AFY Further, we request clarification to the

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GSP text that to the extent that in the future if the SY or other Subbasin hydrogeologic components are revised consistent with the TAC analysis, the rampdown percentages and schedule will be revised accordingly — O3-14k Cont.

5. Please clarify if the groundwater well level MTs described in Tables 3 4 and 3 5, pages 3-19 and 3 22 are based on data derived from the BVHM, and are therefore preliminary and subject to change Please also add text to state that the identified "key wells" could be added or replaced for the purpose of MT compliance monitoring by the TAC as new data becomes available The GSP appears to be using the top of the well screen interval as the MT for groundwater levels Several BWD wells on the subject table have an "N/A" entered in the column titled "Minimum Threshold/Top of Well Screen (feet bgs)", yet in the adjacent column the well screen intervals are actually listed Please clarify and revise the MT column and the column titled "Existing Minimum Threshold Exceedance "as needed. These changes are necessary based on previously expressed concerns about the inaccuracy of the Subbasin SY (which is the basis of MTs and MOs for rampdown and sustainability over the GSP implementation period), all of which has significant impacts on pumpers and must be based on the best available science. — O3-14l

6 In Chapter 3, Table 3-4, page 3-19, please add a column titled "Surface Elevation" and provide the relevant topographic surface data for each well on the table — O3-14m

7 In Chapter 3, Table 3 5, page 3-22, please remake this table to resemble Table 3-4 (i e all the same columns and data), including surface elevation. Without this information it is difficult to understand the proposed preliminary MTs for the individual management areas Further supporting data is needed to verify the appropriateness of the proposed MTs for the various individual management areas and the SMA in particular — O3-14n

8 Chapter 5, PLAN IMPLEMENTATION, Revise as needed, Tables 5 1 through 5-5 to reflect the inclusion and funding (costs) for conducting the collection and analysis of the data described in this comment letter during the first 5 year reassessment period Please clearly identify which tasks are related to the initial and later 5 year reassessment periods, and which tasks are ongoing annually (e.g , is model updated annually or on a 5 year reassessment schedule) We request that the groundwater numerical model be updated a minimum of every 5 years — O3-14o

9 Chapter 5, page 5-4, with respect to the costs of groundwater elevation monitoring, the costs for field monitoring of groundwater levels may be reduced by automated reporting of levels from transducers through telemetrically delivered readings The GSP should provide that the potential for such savings will be evaluated — O3-14p

aquilogic

re. Comments to Draft GSP for the Borrego Valley Groundwater Subbasin, dated March 2019

The T2 Borrego team appreciates the opportunity to provide these comments to the Draft GSP. We also look forward to working cooperatively with all the key stakeholders and agencies to adaptively manage groundwater in the Subbasin to achieve sustainability of this vital resource. We respectfully request that the above-listed corrections and text revisions be made before the GSP is finalized and that the identified data gaps are addressed either immediately or by the TAC during the first 5-year reassessment period. Please do not hesitate to contact the undersigned should you have any questions regarding the comments provided herein.

Regards
aquilogic, inc.

T L Watson

Thomas Watson, PG
Principal Geologist
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Enclosure: USGS Scientific Investigation Report 2015-5150

cc: Cathy Milkey, Rams Hill Golf Course
Shannon Smith, Rams Hill Golf Course
Russ McGlothlin, O'Melveny & Meyers
Anthony Brown, aquilogic, Inc.

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Letter O3

Commenter: Russel McGlothlin, O'Melveny & Myers LLC, on behalf of T2 Borrego LLC and T2 Holding LLC (T2 Borrego, or Rams Hill)
Date: May 21, 2019

O3-1 The Groundwater Sustainability Agency (GSA) welcomes the T2 Borrego LLC's comments on the Draft Groundwater Sustainability Plan (GSP) and sustained participation in development of the GSP. The GSA notes your concern that the sustainable yield estimate is "inaccurate and too conservative" and " thus the projected requisite long-term rampdown in BPA [Baseline Pumping Allocation] is too great." The GSA also notes that T2 could support adopting the 5,700 AFY planning level sustainable yield estimate if a technical advisory committee is formed to foster adaptive management to assess and resolve technical uncertainties. The GSA will take this comment into consideration as it develops governance for implementation of the GSP.

O3-2 The GSA acknowledges your objection to the quantity of BPA proposed to be granted to Rams Hill and method used to determine BPA throughout the Subbasin. The commenter is referred to the Master Response on the BPA. The GSA also acknowledges your willingness to accept the BPA through an agreement in the form of a stipulated judgment.

O3-3 The GSA acknowledges your request to include conversion of water credits to BPA using the same methodology used to calculate BPA for agricultural acreage during the baseline period and issuance of BPA to water credit holders at the same time as BPAs are issued for all pumpers in the Basin. The GSA also acknowledges that the total BPA and the projected rampdown would need to be updated should water credits be converted to BPA.

O3-4 The GSA will change the title of the GSP to the "Groundwater Sustainability Plan for the Borrego Springs Groundwater Subbasin."

O3-5 The 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). 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).

O3-6 The GSA has made an edit to page ES-3 of the Draft GSP to state, "[t]he BWD does not operate wells in the vicinity of the Borrego Sink."

O3-7 The GSA has made an edit to page ES-4 of the Draft GSP.

O3-8 The GSA has verified the estimate of irrigated acreage and fallowed land stated at page 2-4 and Table 2.1.3 as being correct. The acreage provided in Table 2.1-3 is for 2015 and from San Diego Association of Governments' (SANDAG's) database, whereas the acreage determined by the GSA's own mapping is for 2018, as stated in the Draft GSP. The 2018 estimate of 2,624 acres should be considered the most accurate estimate for current conditions.

O3-9 The GSA has made the requested edit to page 2-15 of the Draft GSP. Again, the GSA, recognizes your request to convert water credits to BPA.

O3-10 The GSA has made the requested edit to page 2-8 of the Draft GSP. The GSA also acknowledges that the recreation sector provides employment in the community.

O3-11 The CIMIS Station remains active. The GSP has been revised to indicate as such.

O3-12 References in the GSP to ID1-1 and ID1-2 have been changed to reference new well names. While these wells are non-potable wells and not subject to drinking water standards, increasing trends for water quality constituents are important to track Subbasin-wide. The GSA will consider adding a clarifying statement that the wells are non-potable and the current concentrations do not limit beneficial use for irrigation.

O3-13 The GSA has edited the GSP to remove reference to the Rams Hill/BWD Long-Term Cooperation Agreement.

O3-14a The GSA notes your recommendation that a Technical Advisory Committee be established in the GSP and convened to move forward as a Project Management Action and meet regularly to assist and advise the GSA on technical issues related to the sustainable management of groundwater resources of Subbasin.

O3-14b The GSA acknowledges your comment pertaining to the preliminary estimate of sustainable yield. The commenter is referred to the Master Response on sustainable yield and to response on Comment O2-1.

O3-14c The GSA notes your comment pertaining to model uncertainty. The GSA clarifies that Dudek represented informally the uncertainty with the sustainable yield estimate may be around +/-20% 5,700 AFY but did not formally document uncertainty of the USGS model by this comment. The GSA acknowledges the USGS's summary of ways to reduce uncertainty in the model. In fact, the GSA presented model uncertainty to the public at the October 26, 2017, Advisory Committee Meeting and discusses model uncertainty in Draft GSP Section 2.2.3.4, Discussion of Model Validation, Uncertainties, and Recommendations for Improvement. The GSA acknowledges the nine items you list from the USGS report and will consider prioritization of the items that could improve the accuracy and reduce uncertainty of the model.

O3-14d The GSA acknowledges your comment that the Draft GSP should be clarified to indicate that the model is preliminary and that findings and conclusions derived from the model, such as the value for specific yield, are also preliminary and subject to change. The GSA also notes your request that Chapter 2 and Chapter 3 be clarified by the addition of introductory text to each Chapter that expressly states that the numerical model, and by extension the information pertaining to the occurrence and condition of groundwater in the Subbasin, is preliminary and will be revised as new data becomes available. You request to expressly state the data is preliminary and subject to refinement, and that the BVHM will be revisited and updated at a minimum every 5 years. You ask for these same corrections for clarity in the GSP text should also be made as needed in Chapter 3, especially in all those sections (for example Section 3.3.2.6) that discuss the proposed Minimum Thresholds (MTs) and Measurable Objectives (MOs) related to groundwater elevations in wells. The GSA has reviewed your request and incorporated changes to the text where appropriate.

O3-14e The GSA acknowledges your comment that the Draft GSP does not explicitly explain that a majority of the groundwater in the Subbasin is used for recreational and agricultural irrigation (i.e., non-potable use) that does not have to meet potable

standards in the text of Section [2.2.4] of the Draft GSP. The GSA points out this specific comment is addressed in the minimum threshold for degraded water quality. The GSA notes that

> Degraded water quality in the Subbasin, as discussed in Section 3.2.4, Degraded Water Quality – Undesirable Results, is significant and unreasonable if it is sufficient in magnitude to affect use of preexisting 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. For municipal and domestic wells, this means water quality that meets potable drinking water standards specified in Title 22 of the CCR. For irrigation wells, water quality should generally be suitable for agriculture [and recreational] use. As indicated in the Basin Plan, irrigation return flows and septic recharge returns to the aquifer with an increase in mineral concentrations such as TDS and nitrate. (Draft GSP page 3-29)

The GSA has added a sentence to further clarify that most groundwater pumped in the Subbasin is used for non-potable purposes.

We also note your comment requesting clarification that, ". . . meeting established safe concentrations for the constituents of concern (COCs) in drinking water is the responsibility of the BWD, and that treatment of groundwater is a standard procedure for a majority of municipal drinking water systems in the State, and therefore it is not appropriate for funding by the GSA." The GSA notes your comment that "Water from lower layers of the aquifer is not necessarily poorer quality water than that from higher layers of the aquifer, and the GSP needs to clearly state this and remove contradictory conclusions based on preliminary information." You also indicate that the text in Section 2.2.2.4 Groundwater Quality needs to be updated to match Table 2.2-6, Management Area Background Water Quality. The GSA reviewed the text and clarified as necessary the analysis used to provide the narrative in the text.

O3-14f The GSA notes your requested revisions to clarify trends of constituents of concern and revisions to Table 2.2-6. The GSA also notes your request to remove speculative statements about poor or decreasing water quality and increasing trends of constituents of concern until representative data has been collected and analyzed.

O3-14g The GSA notes your comment regarding well ownership of Rams Hill wells and implications toward water quality. The GSA has corrected references to ownership of Well ID1-1 (RH-1) and ID1-2 (RH-2). While the GSA acknowledges that these wells are currently used for irrigation and that they are not required to meet potable water quality standards, increasing trends in wells do have potential implications to beneficial use for surrounding users such as for District wells or domestic wells.

O3-14h The CIMIS Station remains active. The period of record in Table 2.2-1 has been revised to indicate as such.

O3-14i The GSA notes your comment pertaining to prioritizing filling data gaps to incorporate in to the BVHM. Specifically you request aquifer testing of the upper, middle and lower aquifers, and the nine items recommended by the USGS to further reduce the potential inaccuracies in the numerical model, should be done immediately and be prioritized for funding and collection during the first 5-year reassessment period.

O3-14j The GSA notes your request that that the text in Section 2.2.3.4 be modified to identify and prioritize the subject hydrologic data for funding and collection during the first 5-year reassessment period, including: (1) specific yield estimates for the three aquifer layers identified in the existing USGS model; (2) collection of data and more detailed analysis of mountain front underflow in the Subbasin at large; (3) collection of additional depth-related water quality data, for improved Mann-Kendall Trend analysis; (4) water optimization measures for further study; (5) agricultural and recreational return flows; (6) completion of a detailed feasibility and cost/benefit analysis for intra-management area water transfers; (7) based on the new data, an analysis of projected changes in groundwater storage over time when 2030 climate change predictions are included; and (8) Any other matters approved by the pumpers, including but not limited to; items required to comply with SGMA, meet the objectives of the County General Plan Update, and matters listed in Section 5 of the Rampdown Provisions.

The GSA notes that you consider these data and improvements are all necessary to reduce current inherent inaccuracies and data gaps in the USGS numerical model in order to help refine the hydrogeologic components used to estimate the Subbasin water budget and its various components. These components include, but are not limited to, the specific yield for the Subbasin, the GSP MTs and MOs related to groundwater, and by extension, the proposed rampdown schedule over the long-term. The GSA also notes that you request the GSP to be modified to include

language to emphasize that this additional analysis should be conducted during the first 5-year period.

O3-14k The GSA acknowledges that you request that the text in Section 4.4 be revised to incorporate this important information pertaining to the proposed rampdown schedule and percentages utilizing a revised specific yield. In addition, the GSA notes your requested revision to the GSP text that to the extent that in the future if the specific yield or other Subbasin hydrogeologic components are revised, that the rampdown percentages and schedule will be revised accordingly.

O3-14l The GSA notes your comment to clarify if the groundwater well level minimum thresholds described in Tables 3-4 and 3-5 are based on data derived from the BVHM, and are therefore preliminary and subject to change. In addition, we note your suggestion to add text to state that the identified "key wells" could be added or replaced for the purpose of minimum threshold compliance monitoring as new data becomes available.

O3-14m The GSA notes your suggestion to add a column titled "Surface Elevation" to Table 3-4.

O3-14n The GSA notes your request to remake Table 3-5 to resemble Table 3-4 (i.e., all the same columns and data), including surface elevation. In addition, you indicate that further supporting data is needed to verify the appropriateness of the proposed minimum thresholds for the various individual management areas and the South Management Area (SMA) in particular but do not provide any information to what further supporting data is required.

O3-14o The GSA acknowledges your request to revise Tables 5-1 through 5-5 to reflect the inclusion and funding (costs) for conducting the collection and analysis of the data described in your comment letter during the first 5-year reassessment period. In addition, you request to clearly identify which tasks are related to the initial and later 5-year reassessment periods, and which tasks are ongoing annually. Finally, you request that the groundwater numerical model be updated a minimum of every 5 years.

O3-14p The GSA notes your recommendation to reduce costs by use of water levels from pressure transducers and telemetry systems. The GSA plans to evaluate use and cost of such equipment and technology.

O3-15 The GSA acknowledges your concern regarding structure of the water trading program and specifically a theoretical cap of the number of shares that an individual

could own. The GSA will take this comment into consideration as the water trading program is developed in coordination with the Subbasin stakeholders.

O3-16 The GSA acknowledges your comment regarding potential transfer of BPA and generally concurs that restrictions on transfer would likely be based on the premise of avoiding adverse impacts to hydrogeologic conditions that would cause or exacerbate undesirable results. Page 4-6 of the GSP has been edited to add this clarification.

O3-17 The GSA acknowledges your comment regarding market economics and its potential effect of incentivizing conservation. The Draft GSP clearly indicates that the scope of the Water Conservation Program is (PMA No. 2) is dependent upon the availability of funding provided by potential sources including state grant programs (Draft GSP page 4-19). The Water Conservation Program would be developed in concert with input from each of the water sectors (Agriculture, Municipal, and Recreation) and evaluate the costs and benefits of potential conservation measures. The GSA also notes your position that conservation measures internal to the BWD customers should be funded by the BWD. Conservation grant funding will be sought, and would be of benefit to all beneficial users of groundwater in the Subbasin.

O3-18 The GSP has been revised to clarify that the Pumping Reduction Program is planned to be based on BPA and use this consistent terminology.

O3-19 The Voluntary Fallowing of Agriculture Land (PMA No. 4) would require additional evaluation under the California Environmental Quality Act (CEQA) to determine actual fallowing standards. Previous fallowing under the water credits program included minimum fallowing requirements to address visual blight and fugitive dust. The GSA has revised the text on pages 4-25 and 4-28 to clarify that a uniform minimum fallowing standard would be established for all properties. Enhanced restoration would be for potential added value projects such as for direct mitigation projects (one project currently in the planning phase in the Subbasin), and mitigation banks.

O3-20 The GSA notes your request for clarification regarding the funding of the Voluntary Fallowing of Agriculture Land (PMA No. 4). The Draft GSP outlines an approach to developing the program including potential funding sources. The program would be developed in coordination with the Subbasin stakeholders. The GSA notes your position that the only costs that are appropriate to be borne by the GSA (i.e., funded by groundwater users at large) are the cost of developing the standards and ensuring compliance with the standards.

O3-21 The GSP has been revised to note that for irrigation wells water quality should be suitable for agriculture and recreation use.

O3-22 The GSA has revised the GSP page 4-30 with the suggested edit to further clarify that the BWD is not currently required to treat water from any of its wells.

O3-23 The GSA acknowledges your comment that mitigation actions may not be the responsibility of the GSA to fund unless the degraded water quality is a direct result of Subbasin management decisions.

O3-24 The GSP has been revised to indicate that the Central Management Area (CMA) primarily serves municipal and recreational uses.

O3-25 The GSA acknowledges that you are alarmed by the high costs of implementing the GSP, and that GSP should set forth detailed information and estimates regarding how costs were developed. The GSA will take this comment into consideration when considering imposing fees to fund GSP implementation.

O3-26 The GSA acknowledges your comment that Table 5-3, GSP 5-Year Update Costs and Table 5-4 Projects and Management Actions Development Costs should include detailed information and estimates.

O3-27 The GSA acknowledges your comment that the roles and responsibilities between the GSA's full time employees and the BWD's internal management and administration should be calculated and the expense estimated.

O3-28 The GSA acknowledges your comment regarding BWD reimbursement of GSA creation and GSP development related expenses and request for detailed accounting. The GSA concurs that prior to any charges being considered for reimbursement to the BWD, a detailed accounting process for verification purposes would be required.

O3-29 The GSA acknowledges your comment that the GSP should expressly provide the amount of extraction charge borne by any particular pumper shall be proportional to the cost of providing GSP benefits respective of the individual pumper. The GSA notes that the application of fees has yet to be determined.

O3-30 The GSA notes your recommendation to reduce costs by use of water levels from pressure transducers and telemetry systems. The GSA plans to evaluate use and cost of such equipment and technology.

Comment Letter O4

Tubb Canyon Desert Conservancy

May 21, 2019

County of San Diego
Planning & Development Services
C/O Jim Bennett
5510 Overland Avenue, Suite 310
San Diego, CA 92123

Re. Groundwater Sustainability Plan
Borrego Valley Groundwater Basin
Borrego Springs Sub-basin

Dear Mr. Bennett,

I am writing to suggest that Groundwater Dependent Ecosystems (GDE's) be designated Beneficial Users of Water with a specified allocation in the Groundwater Sustainability Plan (GSP) that is being developed by the Groundwater Sustainability Agency.

In the draft GSP, GDE's have been excluded from consideration as a Beneficial User of water by a logic that defies credulity: GDE's existed in the Borrego Springs Sub-basin prior to 2015 but were all destroyed prior to 2015 and therefore are not required to be considered in the GSP And those plant assemblages that were once GDE's and that survived the 2015 "SGMA cut-off" are not really groundwater dependent, but rather *now* derive their water from surface water. The fact of the matter is that natural processes are never as cut and dry as this argument suggests

O4-1

Even if the above argument were the case for some of the GDE's in the basin, it is certainly not the case for all of them. In particular, it is not the case for the GDE that exists in Tubb Canyon. While it is true that the water table no longer comes to the surface as it did until 20 years ago, the palms and ironwood trees (Olneya tesota) derive their water from the only source that has ever been available to them—the aquifer. The grouping of the ironwood trees from Tubb Canyon toward Borrego Sink (which is clearly visible from Montezuma Grade) attests to the fact that these trees are sustained by the underground recharge river that is a critical part of the Borrego Valley Groundwater Basin.

I urge the GSA to revise the GSP to include GDE's a Beneficial Users of Water with a specific allocation of water, just like all other identified Beneficial Users

Sincerely yours,

J. David Garmon, MD
President, TCDC

Tubb Canyon Desert Conservancy
8899 University Center Lane #170, San Diego, CA 92122 • 858 535.9121 • contact.tcdc@tubbcanyondesertconservancy.org
www.TubbCanyonDesertConservancy.Org

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Comment Letter O4

Tubb Canyon Desert Conservancy

May 21, 2019

County of San Diego
Planning & Development Services
C/O Jim Bennett
5510 Overland Avenue, Suite 310
San Diego, CA 92123

Re: Groundwater Sustainability Plan
Borrego Valley Groundwater Basin
Borrego Springs Sub-basin

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Even if the above argument were the case for some of the GDE's in the basin, it is certainly not the case for all of them. In particular, it is not the case for the GDE that exists in Tubb Canyon. While it is true that the water table no longer comes to the surface as it did until 20 years ago, the palms and ironwood trees (Olneya tesota) derive their water from the only source that has ever been available to them—the aquifer. The grouping of the ironwood trees from Tubb Canyon toward Borrego Sink (which is clearly visible from Montezuma Grade) attests to the fact that these trees are sustained by the underground recharge river that is a critical part of the Borrego Valley Groundwater Basin

I urge the GSA to revise the GSP to include GDE's a Beneficial Users of Water with a specific allocation of water, just like all other identified Beneficial Users.

O4-1

Sincerely yours,

J David Garmon, MD
President, TCDC

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Letter O4

Commenter: J. David Garmon, MD, President, Tubb Canyon Desert Conservancy
Date: May 21, 2019

O4-1 The GSA notes your comment suggesting that groundwater dependent ecosystems (GDEs) be designated beneficial users of water with specified allocation in the GSP. The GSA notes that you disagree with the conclusion that GDEs have become disconnected from the underlying aquifer. As evidence you point to the GDEs that exist in Tubb Canyon such as the palms and ironwood trees that derive their water from the only source that has ever been available to them—the aquifer. You point to the grouping of ironwood trees from Tubb Canyon toward the Borrego Sink as attesting to the fact that these trees are sustained by the underground recharge that is a critical part of groundwater basin.

The GSA directs you to Appendix D4 of the GSP that provides evaluation of potential GDEs. In particular, Section 1.2.7 of Appendix D4 discusses the Tubb Canyon watershed.

> Tubb Canyon is comprised of four subwatersheds referred to as Tubb Canyon, and Tubb Canyon Road North, Middle and South subwatersheds. The total Tubb Canyon watershed area is 3,095 acres. The maximum elevation of the watershed is 4,520 feet amsl [above mean sea level] and the minimum elevation (i.e., outlet) is about 920 feet amsl. Tubb Canyon watershed discharges through a narrow canyon to the Subbasin where it broadens into an alluvial fan (Figure 9). Three springs are mapped in the watershed and include Big Spring, Middle Spring and Tubb Canyon Spring (ABDSP 2017).

In the vicinity of Big Spring, seepwillow, catclaw, and mesquite have been identified (San Diego Reader 2010). The satellite color-infrared photography indicates green, healthy vegetation as the color red (high reflection of near-infrared wavelengths). In a desert environment, the green healthy vegetation could represent a potential GDE. A narrow band of habitat appears in the Tubb Canyon Creek channel primarily associated with the mapped springs. A band of vegetation is mapped by the NCCAG dataset where Tubb Canyon opens into the Subbasin near Dry and Culp Canyons." Where Tubb Canyon enters the valley it joins with several canyons, including Culp Canyon to form an alluvial fan. The NCCAG dataset maps vegetation on the alluvial fan that you indicate is composed of palms and ironwood trees. These potential GDEs are edge cases mapped in areas confined to the outer

fringes of the Subbasin boundary; their geographic confinement to the mountain front indicates that the vegetation communities are supported by surface water flows originating outside the Subbasin and not sustained by the regional groundwater table. Figure 21, Contributing Watersheds Hydrogeologic Conceptual Model, in Appendix D4 of the GSP displays how streams flow from outside the Subbasin transitions to disconnected streams that are not connected to the regional groundwater table by a fully saturated aquifer. These ephemeral streams lose water through a thick unsaturated zone. As such, pumping from wells screened in the regional groundwater table do not effect water available to these potential fringe GDEs. As such, a specified allocation was not assigned to these GDEs.

The commenter is referred to the GSA's master response on GDEs for further information.

Comment Letter O5

The Nature Conservancy
Protecting nature. Preserving life.
CALIFORNIA WATER | GROUNDWATER

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[916] 449-2850
nature.org
GroundwaterResourceHub.org

21 May 2019

Jim Bennett
County of San Diego Planning & Development Services
5510 Overland Avenue, Suite 310
San Diego, CA 92123

Submitted via email. PDS LUEGGroundwater@sdcounty.ca.gov

Re: Concerns Regarding Draft Groundwater Sustainability Plan for the Borrego Valley

Dear Mr. Jim Bennett,

The Nature Conservancy (TNC) appreciates the opportunity to comment on the Draft Groundwater Sustainability Plan (GSP) for the Borrego Valley Basin being prepared under the Sustainable Groundwater Management Act (SGMA). We have significant concerns regarding the treatment of environmental beneficial users in the Draft GSP and submit this letter as a guidance to address the deficiencies prior to submission to the State

TNC as a Stakeholder Representative for the Environment

TNC is a global, nonprofit organization dedicated to conserving the lands and waters on which all life depends We seek to achieve our mission through science-based planning and implementation of conservation strategies. For decades, we have dedicated resources to establishing diverse partnerships and developing foundational science products for achieving positive outcomes for people and nature in California. TNC was part of a stakeholder group formed by the Water Foundation in early 2014 to develop recommendations for groundwater reform and actively worked to shape and pass SGMA.

Our reason for engaging is simple: California's freshwater biodiversity is highly imperiled. We have lost more than 90 percent of our native wetland and river habitats, leading to precipitous declines in native plants and the populations of animals that call these places home. These natural resources are intricately connected to California's economy providing direct benefits through industries such as fisheries, timber and hunting, as well as indirect benefits such as clean water supplies. SGMA must be successful for us to achieve a sustainable future, in which people and nature can thrive within Borrego Valley Basin and California.

We believe that the success of SGMA depends on bringing the best available science to the table, engaging all stakeholders in robust dialog, providing strong incentives for beneficial outcomes and rigorous enforcement by the State of California.

Given our mission, we are particularly concerned about the inclusion of nature, as required, in GSPs. The Nature Conservancy has developed a suite of tools based on best available science to help GSAs, consultants, and stakeholders efficiently incorporate nature into GSPs.

O5-1

These tools and resources are available online at GroundwaterResourceHub.org. The Nature Conservancy's tools and resources are intended to reduce costs, shorten timelines, and increase benefits for both people and nature.

Addressing Nature's Water Needs in GSPs

SGMA requires that all beneficial uses and users, including environmental users of groundwater, be considered in the development and implementation of GSPs (Water Code § 10723.2).

The GSP Regulations include specific requirements to identify and consider groundwater dependent ecosystems [23 CCR §354.16(g)] when determining whether groundwater conditions are having potential effects on beneficial uses and users. GSAs must also assess whether sustainable management criteria may cause adverse impacts to beneficial uses, which include environmental uses, such as plants and animals. The Nature Conservancy has identified each part of the GSP where consideration of beneficial uses and users are required. That list is available here: https://groundwaterresourcehub.org/importance-of-gdes/provisions-related-to-groundwater-dependent-ecosystems-in-the-groundwater-s. Please ensure that environmental beneficial users are addressed accordingly throughout the GSP. Adaptive management is embedded within SGMA and provides a process to work toward sustainability over time by beginning with the best available information to make initial decisions, monitoring the results of those decision, and using data collected through monitoring to revise decisions in the future. Over time, GSPs should improve as data gaps are reduced and uncertainties addressed.

To help ensure that GSPs adequately address nature as required under SGMA, The Nature Conservancy has prepared a checklist (**Attachment A**) for GSAs and their consultants to use. The Nature Conservancy believes the following elements are foundational for 2020 GSP submittals. For detailed guidance on how to address the checklist items, please also see our publication, *GDEs under SGMA. Guidance for Preparing GSPs*[1].

O5-1
Cont.

1. Environmental Representation

SGMA requires that groundwater sustainability agencies (GSAs) consider the interests of all beneficial uses and users of groundwater. To meet this requirement, we recommend actively engaging environmental stakeholders by including environmental representation on the GSA board, technical advisory group, and/or working groups. This could include local staff from state and federal resource agencies, nonprofit organizations and other environmental interests. By engaging these stakeholders, GSAs will benefit from access to additional data and resources, as well as a more robust and inclusive GSP.

2. Basin GDE and ISW Maps

SGMA requires that groundwater dependent ecosystems (GDEs) and interconnected surface waters (ISWs) be identified in the GSP. We recommend using the Natural Communities Commonly Associated with Groundwater Dataset (NC Dataset) provided online[2] by the Department of Water Resources (DWR) as a starting point for the GDE map. The NC Dataset was developed through a collaboration between DWR, the Department of Fish and Wildlife and TNC.

[1] GDEs under SGMA Guidance for Preparing GSPs is available at: https://groundwaterresourcehub.org/public/uploads/pdfs/GWR_Hub_GDE_Guidance_Doc_2-1_18.pdf

[2] The Department of Water Resources' Natural Communities Commonly Associated with Groundwater dataset is available at https://gis.water.ca.gov/app/NCDatasetViewer/

3. Potential Effects on Environmental Beneficial Users
SGMA requires that potential effects on GDEs and environmental surface water users be described when defining undesirable results. In addition to identifying GDEs in the basin, The Nature Conservancy recommends identifying beneficial users of surface water, which include environmental users. This is a critical step, as it is impossible to define "significant and unreasonable adverse impacts" without knowing *what* is being impacted. For your convenience, we've provided a list of freshwater species within the boundary of the Borrego Valley groundwater basin in **Attachment C.** Our hope is that this information will help your GSA better evaluate the impacts of groundwater management on environmental beneficial users of surface water. We recommend that after identifying which freshwater species exist in your basin, especially federal and state listed species, that you contact staff at the Department of Fish and Wildlife (DFW), United States Fish and Wildlife Service (USFWS) and/or National Marine Fisheries Services (NMFS) to obtain their input on the groundwater and surface water needs of the organisms on the GSA's freshwater species list. Because effects to plants and animals are difficult and sometimes impossible to reverse, we recommend erring on the side of caution to preserve sufficient groundwater conditions to sustain GDEs and ISWs.

4. Biological and Hydrological Monitoring
If sufficient hydrological and biological data in and around GDEs is not available in time for the 2020/2022 plan, data gaps should be identified along with actions to reconcile the gaps in the monitoring network.

The Nature Conservancy has thoroughly reviewed the Borrego Valley Groundwater Basin Draft GSP, and considers it to be inadequate under SGMA for the following main reasons:

1. Environmental beneficial uses and users are not adequately identified and considered
2. The Draft GSP permits groundwater conditions to worsen in this Critically Overdrafted Basin (beyond the 2015 SGMA benchmark date) over the 20-year SGMA timeline.

O5-1 Cont.

Our specific comments related to the Borrego Valley Groundwater Basin Draft GSP are provided in detail in **Attachment B** and are in reference to the numbered items in **Attachment A. Attachment C** provides a list of the freshwater species located in the Borrego Valley Basin. **Attachment D** describes six best practices that GSAs and their consultants can apply when using local groundwater data to confirm a connection to groundwater for DWR's Natural Communities Commonly Associated with Groundwater Dataset[2]. **Attachment E** provides an overview of a new, free online tool that allows GSAs to assess changes in groundwater dependent ecosystem (GDE) health using satellite, rainfall, and groundwater data.

Thank you for fully considering our comments as you finalize your GSP.

Best Regards,

Sandi Matsumoto
Associate Director, California Water Program
The Nature Conservancy

The Nature Conservancy

Attachment A

Considering Nature under SGMA: A Checklist

The Nature Conservancy is neither dispensing legal advice nor warranting any outcome that could result from the use of this checklist. Following this checklist does not guarantee approval of a GSP or compliance with SGMA, both of which will be determined by DWR and the State Water Resources Control Board.

GSP Plan Element[4]		GDE Inclusion in GSPs: Identification and Consideration Elements		Check Box
Admin Info	2.1.5 Notice & Communication *23 CCR §354.10*	**Description of the types of environmental beneficial uses of groundwater that exist within GDEs and a description of how environmental stakeholders were engaged throughout the development of the GSP.**		1
Basin Setting	2.2.1 Hydrogeologic Conceptual Model *23 CCR §354.14*	**Basin Bottom Boundary:** Is the bottom of the basin defined as at least as deep as the deepest groundwater extractions?		2
		Principal aquifers and aquitards: Are shallow aquifers adequately described, so that interconnections with surface water and vertical groundwater gradients with other aquifers can be characterized?		3
	2.2.2 Current & Historical Groundwater Conditions *23 CCR §354.16*	**Interconnected surface waters:**		4
		Interconnected surface water maps for the basin with gaining and losing reaches defined (included as a figure in GSP & submitted as a shapefile on SGMA portal)		5
		Estimates of current and historical surface water depletions for interconnected surface waters quantified and described by reach, season, and water year type		6
		Basin GDE map included (as figure in text & submitted as a shapefile on SGMA Portal).		7
		If NC Dataset *was* used	Basin GDE map denotes which polygons were kept, removed, and added from NC Dataset (Worksheet 1, can be attached in GSP section 6.0)	8
			The basin's GDE shapefile, which is submitted via the SGMA Portal, includes two new fields in its attribute table denoting: 1) which polygons were kept/removed/added, and 2) the change reason (e.g., why polygons were removed).	9
			GDEs polygons are consolidated into larger units and named for easier identification throughout GSP	10
		If NC Dataset *was not* used	Description of why NC dataset was not used, and how an alternative dataset and/or mapping approach used is best available information	11
		Description of GDEs included:		12
		Historical and current groundwater conditions described in each GDE unit.		13
		Ecological condition described in each GDE unit.		14

O5-2

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			Each GDE unit has been characterized as having high, moderate, or low ecological value.	15
			Inventory of species, habitats, and protected lands for each GDE unit with ecological importance (Worksheet 2, can be attached in GSP section 6.0).	16
	2.2.3 Water Budget *23 CCR §354.18*		Groundwater inputs and outputs (e.g., evapotranspiration) of native vegetation and managed wetlands are included in the basin's historical and current water budget	17
			Potential impacts to groundwater conditions due to land use changes, climate change, and population growth to GDEs and aquatic ecosystems are considered in the projected water budget.	18
Sustainable Management Criteria	**3.1 Sustainability Goal** *23 CCR §354.24*		**Environmental stakeholders/representatives were consulted.**	19
			Sustainability goal mentions GDEs or species and habitats that are of particular concern or interest.	20
			Sustainability goal mentions whether the intention is to address pre-SGMA impacts, maintain or improve conditions within GDEs or species and habitats that are of particular concern or interest	21
	3.2 Measurable Objectives *23 CCR §354.30*		**Description of how GDEs were considered and whether the measurable objectives and interim milestones will help achieve the sustainability goal as it pertains to the environment.**	22
	3.3 Minimum Thresholds *23 CCR §354.28*		**Description of how GDEs and environmental uses of surface water were considered when setting minimum thresholds for relevant sustainability indicators:**	23
			Will adverse impacts to GDEs and/or aquatic ecosystems dependent on interconnected surface waters (beneficial user of surface water) be avoided with the selected minimum thresholds?	24
			Are there any differences between the selected minimum threshold and state, federal, or local standards relevant to the species or habitats residing in GDEs or aquatic ecosystems dependent on interconnected surface waters?	25
	3.4 Undesirable Results *23 CCR §354.26*		**For GDEs, hydrological data are compiled and synthesized for each GDE unit:**	26
		If hydrological data *are available* within/nearby the GDE	Hydrological datasets are plotted and provided for each GDE unit (Worksheet 3, can be attached in GSP Section 6.0)	27
			Baseline period in the hydrologic data is defined	28
			GDE unit is classified as having high, moderate, or low susceptibility to changes in groundwater	29
			Cause-and-effect relationships between groundwater changes and GDEs are explored	30
		If hydrological data *are not available* within/nearby the GDE	Data gaps/insufficiencies are described.	31
			Plans to reconcile data gaps in the monitoring network are stated	32
			For GDEs, biological data are compiled and synthesized for each GDE unit:	33
			Biological datasets are plotted and provided for each GDE unit.	34
			Data gaps/insufficiencies are described.	35

TNC Comments
Borrego Valley Basin Draft GSP

Page 5 of 27

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Cont.

The Nature Conservancy

		Plans to reconcile data gaps in the monitoring network are stated	36
		Description of potential effects on GDEs, land uses and property interests:	37
		Cause-and-effect relationships between GDE and groundwater conditions are described	38
		Impacts to GDEs that are considered to be "significant and unreasonable" are described	39
		Known hydrological thresholds or triggers (e.g , instream flow criteria, groundwater depths, water quality parameters) for relevant species or ecological communities are reported.	40
		Land uses include and consider recreational uses (e g , fishing/hunting, hiking, boating)	41
		Property interests include and consider privately and publicly protected conservation lands and opens spaces, including wildlife refuges, parks, and natural preserves	42
Sustainable Management Criteria	**3.5 Monitoring Network** *23 CCR §354 34*	Description of whether hydrological data are spatially and temporally sufficient to monitor groundwater conditions for each GDE unit.	43
		Description of how hydrological data gaps and insufficiencies will be reconciled in the monitoring network.	44
		Description of how impacts to GDEs and environmental surface water users, as detected by biological responses, will be monitored and which monitoring methods will be used in conjunction with hydrologic data to evaluate cause-and-effect relationships with groundwater conditions	45
Projects & Mgmt Actions	**4 0 Projects & Mgmt Actions to Achieve Sustainability Goal** *23 CCR §354 44*	Description of how GDEs will benefit from relevant project or management actions.	46
		Description of how projects and management actions will be evaluated to assess whether adverse impacts to the GDE will be mitigated or prevented	47

* In reference to DWR's GSP annotated outline guidance document, available at:
https://water.ca.gov/LegacyFiles/groundwater/sgm/pdfs/GD_GSP_Outline_Final_2016_12_23.pdf

O5-2
Cont.

Attachment B

TNC Evaluation of the
Borrego Valley Groundwater Basin Draft Groundwater Sustainability Plan

The Nature Conservancy has thoroughly reviewed the Borrego Valley Groundwater Basin Draft GSP, and considers it to be inadequate under SGMA. The deficiencies of the GSP are described in here, along with recommendations on how to reconcile them.

2.1.4 Beneficial Uses and Users of Groundwater (p. 2-26)

[Checklist item #1]: Please identify environmental users of groundwater, such as groundwater dependent ecosystems and other species that depend on interconnected surface water that exist in Borrego Valley Basin, and describe how representatives of these beneficial uses were included in the planning process. If Borrego Valley is asserting that no environmental beneficial users exist, please provide scientific rationale and data to support this claim. Based on science The Nature Conservancy has assembled on the basin, there is a strong case to be made that environmental beneficial users are very likely to exist and the GSP must therefore provide sufficient evidence to rebut this science, which includes starting with the following resources:

- Natural Communities Commonly Associated with Groundwater dataset (NC Dataset) - https://gis.water.ca.gov/app/NCDatasetViewer/
- The list of freshwater species located in the Borrego Valley Groundwater Basin in **Attachment C** of this letter. Please take particular note of the species with protected status

Please also identify lands that are protected as open space preserves, habitat reserves, wildlife refuges, etc. or other lands protected in perpetuity and supported by groundwater or interconnected surface waters should be identified and acknowledged

O5-3

2.2.2.6 Groundwater-Surface Water Connections (pp. 2-65 thru 2-68)
[Checklist items #4-6]:

- Please rename the Groundwater-Surface Water Connections section as the "Identification of Interconnected surface water systems" to be consistent with DWR's GSP annotated Outline Guidance Document[3].
- On Figure 2.2-17, please add depth-to-groundwater data (derived from contoured groundwater elevation data and ground surface elevation from digital elevation model data; See Best Practice #5 in **Appendix D** of this letter for more specifications) near surface water systems in the Basin

O5-4

- The regulations [23 CCR §351(o)] define interconnected surface waters (ISW) as "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". "At any point" has both a spatial and temporal component. Even short durations of interconnections of groundwater and surface water can be

O5-5

[3] DWR's Annotated Outline Guidance Document
https://water.ca.gov/LegacyFiles/groundwater/sgm/pdfs/GD_GSP_Outline_Final_2016_12_23.pdf

crucial for surface water flow and supporting environmental users of groundwater and surface water. Thus, only considering perennial portions of streams as ISWs does not meet the SGMA definition. **Please identify interconnected surface waters in the Basin by relying on groundwater elevation and stream gauge data, specifying any data gaps that exist so that they can be resolved in the monitoring network.**

O5-5 Cont

2.2.2.6 Groundwater-Surface Water Connections - Groundwater Dependent Ecosystems (pp. 2-68 thru 2-72)
[Checklist Items #7-16]:

- Groundwater Dependent Ecosystems (GDEs) are not only relevant under the Groundwater-Surface Water Connections section, especially in arid environments like the Borrego Valley Basin where GDEs can exist in the absence of ISW. Please create a new subsection (e g , 2.2.2.7) for the identification of groundwater dependent ecosystems to be consistent with DWR's GSP annotated Outline Guidance Document[3]
- While historical groundwater level declines in the Borrego Valley have inevitably led to pre-SGMA adverse impacts to groundwater dependent ecosystems, please separate the identification of GDEs from the consideration of GDEs We recommend identifying GDEs (mapping) and describing groundwater conditions in the basin setting section of the GSP (e.g., 2 2 2.7) and evaluating potential adverse impacts due to groundwater levels in the Sustainable Management Criteria section where undesirable results are described (e.g., significant and adverse impacts to beneficial users of groundwater) **Please identify (map) GDEs in the basin that are supported by groundwater, even groundwater from a perched aquifer. Management actions and decisions regarding the prevention of post-2015 adverse impacts are a separate issue and should be addressed when defining undesirable results in the basin.**
- SGMA defines GDEs as "ecological communities and species that depend on *groundwater emerging from aquifers or on groundwater occurring near the ground surface*". **We recommend that depth to groundwater contour maps are used to verify whether a connection to groundwater exists for polygons in the NC Dataset, instead of relying on watershed boundaries (especially for the polygons located on the fringe of the basin). Please refer to Appendix D of this letter for best practices for using groundwater data to verify a connection to groundwater.**
- Please add a map that clearly indicates which NCCAG polygons were kept or removed, as well as specify the rationale for removing each polygon (e.g., groundwater levels too deep). It was hard to follow Appendix D4 of the draft GSP and know which polygons are being identified as GDEs in the Borrego Valley Basin.

O5-6

GDE Unit 1 – Coyote Creek

- **Please provide information on the depth to groundwater, particularly in the NCCAG mapped areas that do not coincide with perennial surface flows.**

O5-7

GDE Unit 3 – Mesquite Bosque

- Scientific literature does not support the removal of Mesquite Bosque in Borrego Sink. It appears that Mequite Bosque was not considered a GDE because it was assumed

O5-8

that the ecosystem has become disconnected from groundwater and is in decline. This finding was based on: 1) Estimated evapotranspiration for this area modeled by the USGS in a MODFLOW modeling study that was assumed to be zero; 2) surviving mesquite derive their water from soil moisture and perched groundwater; and 3) the rooting depth for *Prosopis glandulosa* was assumed to be 15.33 feet (Table 13 of the USGS (2015) modelling study, which does not have any references associated with it) and considerably lower than current groundwater levels (~55 feet). However, none of these assumptions were substantiated through field observations. According to TNC's global rooting depth database[4], the max rooting depth for *Prosopis glandulosa* can be as high as 66 feet. And, depending on the subsurface soils and thickness of the capillary fringe, groundwater at depths >66 feet could still be supporting the remaining Mesquite. Similarly, it is known that *P. glandulosa* can have taproots, in the absence of available subsurface water, up to 190 feet according to the United States Forest Service[5] These reported rooting depth observations for Honey Mesquite are beyond the 55 feet bgs groundwater levels observed in MW-5B, meaning that groundwater is likely still supporting this vegetation at greater depths than originally presented in this GSP. **Unless there is field evidence that demonstrates otherwise, it should be assumed that the remaining mesquite is groundwater-dependent and mapped as GDEs until further data and information can confirm otherwise. In addition, the sustainability criteria should be set to avoid adverse impacts to this species through further (post-SGMA) degradation. At a minimum this should be considered a data gap and the ecosystem needs to be further evaluated.**

O5-8 Cont

3.1.1 Standard for Establishing the Sustainability Goal (p.3-1)
[Checklist Items #19-21]:

- According to 23 CCR §354.22, the sustainability goal must "culminate in the absence of undesirable results within 20 years of the applicable statutory deadline." As the GSP is written now, the sustainable management criteria fail to address adverse impacts to beneficial uses in the basin, and permit groundwater conditions in the basin to worsen over the 20 years of GSP implementation **Please redefine your sustainability goal so that it complies with the intent of SGMA.**

O5-9

3.2.1. Chronic Lowering of Groundwater Levels – Undesirable Results (p. 3-7)
[Checklist Items #26-42]:
While impacts to GDEs have been broadly described in Appendix D4 of the Draft GSP, **please provide more specifics on what biological responses (e.g., extent of habitat, growth, recruitment rates) would best characterize a significant and unreasonable impact to GDEs.** The definition of 'significant and unreasonable' is a qualitative statement that is used to describe when undesirable results would occur in the basin, such that a minimum threshold can be quantified. Potential effects on all beneficial users of groundwater in the basin need to be taken into consideration According to the California Constitution Article X, §2, water resources in California must be "put to beneficial use to the fullest extent of which they are capable". **Please identify appropriate biological indicators that can be used to monitor potential impacts to environmental beneficial users due to groundwater**

O5-10

[4] TNC's Global Rooting Depth Database is available at https://groundwaterresourcehub.org/gde-tools/gde-rooting-depths-database-for-gdes/
[5] U S Forest Service https://www.fs.fed.us/database/feis/plants/tree/progla/all.html

conditions. Refer to Appendix E of this letter for an overview of a free, new online tool for monitoring the health of GDEs over time.

O5-10 Cont.

3.2.6 Depletions of Interconnected Surface Water – Undesirable Results (p.3-14)
[Checklist items #26-42]:

- **Please provide scientific evidence that supports the following statement on p 3-15: "The honey mesquite [in the Borrego Sink] experienced prolonged adverse impacts including desiccation, inability to regenerate and habitat loss well prior to 2015".** While adverse impacts (e g., extent of honey mesquite habitat) has been declining for years prior to SGMA, it is unclear of what the current ecological status of the remaining portions.

O5-11

- There is insufficient evidence to conclude that current groundwater levels are no longer supporting the honey mesquite. The Mesquite polygons in the NC dataset were mapped from 1996, however, 35 years of Landsat imagery[6] (Figure 1) show a slight upward trend in vegetation growth (indicated by Normalized Vegetation Difference Index (NDVI)) and leaf moisture (indicated by Normalized Vegetation Moisture Index (NDMI)), with fluctuations over wet and dry years during this time period. Scientific studies[7,8,9] have found that gradual increases in depth to groundwater within a GDE with historically shallow groundwater levels tends to result in an altered species composition due to the migration of more opportunistic invasive species that have deeper rooting systems and are better adapted to deeper groundwater conditions. **Please conduct field verification to determine whether the polygons in this area are still Mesquite or if the invasive Tamarix (e.g., *Tamarix ramosissima*) is prevalent.** If either are present, it is still very likely that groundwater is currently supporting these phreatophytes. However, the presence of Tamarix and the lack of Mesquite would likely suggest that pre-SGMA adverse impacts are underway, confirming previous observations. If this is the case, conservation efforts (removal of *Tamarix spp.*) could provide water supply benefits for the Borrego springs area and the Mesquite vegetation. Visit TNC's Groundwater Resource Hub for a case study on how the invasive *Arundo donax* is being removed in Ventura County to improve groundwater supply and enhance habitat[10].

O5-12

[6] TNC's GDE Pulse is described in Attachment E of this letter and the web viewer is available at https://gde.codefornature.org/1z/map
[7] Keddy, P.A., and A.A. Reznicek. 1986 Great Lakes vegetation dynamics. The role of fluctuating water levels and buried seeds. *Journal of Great Lakes Research* 12 25 – 36. DOI 10 1016/S0380-1330(86)71697-3
[8] Moore, D R.J , and P.A. Keddy 1988 Effects of a water-depth gradient on the germination of lakeshore plants. *Canadian Journal of Botany* 66. 548–552. DOI 10 1139/b88-078.
[9] Sommer, B , and R. Froend 2014 Phreatophytic vegetation responses to groundwater depth in a drying mediterranean-type landscape *Journal of Vegetation Science* 25 1045–1055 DOI 10 1111/jvs 12178.
[10] Case Study available at: https://groundwaterresourcehub.org/outdoc/uploads/pdfs/GWR_Hub_Ventura_Co_arundo_case_study.pdf

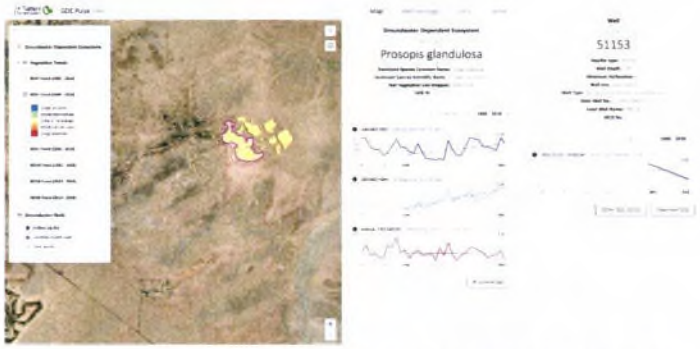

Figure 1. Landsat satellite data from GDE Pulse[5] of the Mesquite (*Prosopis glandulosa*) vegetation mapped within GDE Unit 3, and groundwater levels from nearby MW-5B.

- While the restoration of the honey mesquite GDE map may require groundwater levels to shallow by 30-40 feet to achieve its historic extent, **it is still possible to maintain groundwater levels such that no further adverse impacts occur post-SGMA so that remaining habitat is preserved.** SGMA also gives GSA's the authority to address pre-SGMA impacts by restoring some of the original historic extent of the honey mesquite, if the GSA's choses to do so.
- **Please describe whether there are any legally protected species that rely on the honey mesquite GDE habitat.**

O5-13

O5-14

3.3.1 Chronic Lowering of Groundwater Levels - Minimum Thresholds (p.3-17 thru 3-25) [Checklist items #22-25]:

- While maintaining groundwater levels above saturated screen intervals for pre-existing municipal wells during an anticipated multi-year drought circumstance is a suitable approach to establish minimum thresholds that protect some beneficial users of groundwater (i.e., municipal and domestic (*de-minimus*) users), it fails to prevent adverse impacts to GDEs and environmental beneficial users of surface water in interconnected surface waters. **Environmental beneficial users of groundwater are required to be considered when establishing measurable thresholds, measurable objectives, and interim milestones. Please include environmental beneficial users in section 3.3.1.4 of the GSP when describing how the minimum threshold impacts beneficial uses. Refer to Step 2 of *GDEs under SGMA: Guidance for Preparing GSPs*[1] for how this can be accomplished.**
- On page 3-20, the GSP describes that the measurable objectives, interim milestones, and minimum thresholds assume that the historical climate from 1960 through 2010 repeats itself for the 2020 through 2070 period. This has resulted in a linear reduction in pumping (outlined in Table 3-6) from current levels to a target of 5,700 AFY between

O5-15

O5-16

2020 and 2070. The sustainable yield target of 5,700 AFY is inadequate for the following reasons:

- The target sustainable yield of 5,700 AFY does not take climate change into consideration, and establishing a target sustainable yield based on historical climate conditions fails to sustainably manage groundwater resources for current and future social, economic, and environmental benefits, thus deviating from the legal intent of SGMA. SGMA was passed at the height of California's historic drought, a period of time that was characterized by adverse impacts to domestic well owners (e.g., dry wells), GDEs (e.g., water stress impacts on growth, reproduction, and even mortality due to lack of groundwater), and surface water users (e g , lower streamflows). Critically overdrafted basins, such as the Borrego Valley Basin, are more likely to have disproportionately experienced these adverse impacts due to historical groundwater overdraft in the basin.
- As currently written in the GSP, a sustainable yield target of 5,700 AFT results in pumping restrictions that permit groundwater conditions to worsen by ~100,000 AF beyond 2015 conditions (see Figure 2 in this letter). This has resulted in the groundwater level measurable objectives and interim milestones in Table 3-7 to be deeper than they are in 2018. This is highly problematic, given that Borrego Valley has been characterized as a critical status basin nor does it adequately prevent adverse impacts to beneficial users in the basin.

O5-16
Cont.

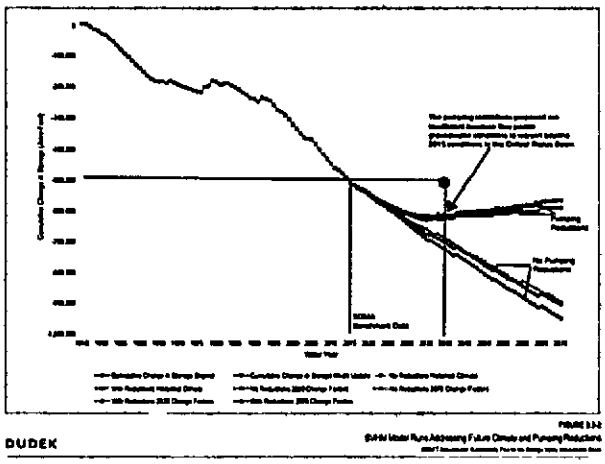

Figure 2. Figure 3.3-2 is annotated to demonstrate how the proposed pumping restrictions permit groundwater conditions to worsen post-2015 in the basin.

- The minimum thresholds outlined in Table 3-5 (p.3-22) are inadequate for the following reasons.
  - The SGMA benchmark date is Jan 1, 2015 not 2018. Any adverse impacts that have been accrued in the current period (2015-2019) need to be corrected.
  - The scientific rationale behind the maximum allowable decline in groundwater levels through 2040 are not explained well. Also, the maximum allowable decline needs to be compared to the SGMA benchmark date, not the beginning of GSP implementation. **Please provide an explanation of how the maximum allowable decline in groundwater levels through 2040 will prevent adverse impacts to beneficial users of groundwater in the basin.**
  - As noted on p.3-21: "The GSA will adjust the rate of pumping reduction, revisit minimum thresholds, and/or evaluate additional PMAs if the minimum thresholds in Table 3-4 or Table 3-5 are exceeded or if the interim milestones in Table 3-7 are not being achieved." While adaptive management is certainly a foundational principle of SGMA, this statement fails to comply with SGMA by operating the basin with enough operational flexibility so that groundwater conditions are away from minimum thresholds **Please revise the minimum thresholds so that they prevent post-2015 adverse impacts to beneficial users of groundwater in the basin.**

O5-17

- Please describe whether there are any legally protected species that exist in GDE or ISW areas in the basin and rely on groundwater **Please describe any differences between the selected minimum threshold and state, federal, or local standards relevant to the species or habitats residing in GDEs, as required [23 CCR §354.28 (b)(5)].**

O5-18

3.4.1 Chronic Lowering of Groundwater Levels – Measurable Objectives (p. 3-32)
[Checklist item #22]:

- The GSA should be managing the basin towards a measurable objective that is in a better state than Jan 1, 2015. As the measurable objectives are written now (in Table 3-7, page 3-33), the groundwater level goals for 2040 are actually deeper than 2018 observed levels. January 1, 2015 was at the height of California's historic drought, a period of time that was characterized by adverse impacts to domestic well owners (e.g., dry wells), GDEs (e.g., water stress impacts on growth, reproduction, and even mortality due to lack of groundwater), and surface water users (e g , lower streamflows). **The onus is on the GSAs to determine whether groundwater conditions (due to groundwater pumping) exacerbated impacts to these beneficial users. And if so, to recognize these impacts and establish thresholds and measurable objectives that can avoid adverse impacts to beneficial users caused by groundwater in all water year types.**

O5-19

3.4.6 Depletions of Interconnected Surface Water – Measurable Objectives (p.3-36)
[Checklist item #22]:

The honey mesquite bosque located in the vicinity of the Borrego Sink appear to be supported by current groundwater level (~55 feet), given the max rooting depths known for honey mesquite (see description above in section 2.2 2 6). In order to prevent adverse impacts post-SGMA, minimum thresholds around the SGMA benchmark date need to be established, at the very least. According to MW-5B, depth to groundwater ranged between ~50-56 feet over the past 10 years (2008-2018) (see Figure 1 in this letter). The average depth to groundwater measured at this well over this period (~53 feet), and would be a reasonable minimum threshold to consider for this honey mesquite GDE. SGMA empowers GSAs to address pre-SGMA impacts, and as demonstrated by TNC's Ventura County Case Study[10], conservation projects that remove invasive tamarisk could benefit groundwater conditions for the honey mesquite and the Borrego sink vicinity. **Please consider these suggestions when establishing sustainable management criteria.**

O5-20

Chapter 3.5 Monitoring Network (pp. 2-68 through 2-72 and Appendix D)
[Checklist items 43-45]:

- The potential GDE Unit 3 - Borrego Sink (Mesquite Bosque) is one of the areas targeted for future monitoring. The well MW-5B is located about 1.2 miles northeast of the Borrego sink and is 480 feet deep. The well is a multi-completion well that includes MW-5B, screened from 45 to 155 feet, and MW-5A, screened from 200 to 340 feet. Similar groundwater levels were found and suggest potentially unconfined conditions in the Borrego Valley Subbasin. The following remark is made at page 2-71 in the GSP: "However, it is uncertain whether a good well seal was obtained during installation of the multi-completion monitoring well." Therefore, monitoring is suggested at a new well located near well MW5B that is screened from a depth of 45 ft bgs to 100 ft bgs focused on the shallower part of the aquifer. Monitoring in this new well would provide data for the groundwater levels screened in a region of interest to the GDE.

O5-21

- Coyote Creek is one of the potential GDEs, Unit 1. This GDE is described as a losing stream reach based on limited visual observations in the creek. Additional streamflow measurements are needed to improve the understanding of streamflow contribution and stream leakage. Installation of recording streamflow gauges at the former USGS measuring locations is suggested instead of manual/visual measurements. This method would be more likely to monitor conditions that represent when the creek is losing or gaining as well as the infrequent and flashy flows from the watershed.

O5-22

4.0 Projects and Management Actions
[Checklist items: 46 & 47]:

- For more case studies on how to incorporate environmental benefits into groundwater projects, please visit our website: https://groundwaterresourcehub.org/case-studies/recharge-case-studies/

O5-23

Attachment C

Freshwater Species Located in the Borrego Valley Basin

To assist in identifying the beneficial users of surface water necessary to assess the undesirable result "depletion of interconnected surface waters", Attachment C provides a list of freshwater species located in the Borrego Valley Basin To produce the freshwater species list, we used ArcGIS to select features within the California Freshwater Species Database version 2 0 9 within the GSA's boundary. This database contains information on ~4,000 vertebrates, macroinvertebrates and vascular plants that depend on fresh water for at least one stage of their life cycle The methods used to compile the California Freshwater Species Database can be found in Howard et al 2015[11]. The spatial database contains locality observations and/or distribution information from ~400 data sources. The database is housed in the California Department of Fish and Wildlife's BIOS[12] as well as on The Nature Conservancy's science website[13].

Scientific Name	Common Name	Legal Protected Status		
		Federal	State	Other
BIRDS				
Actitis macularius	Spotted Sandpiper			
Aechmophorus occidentalis	Western Grebe			
Agelaius tricolor	Tricolored Blackbird	Bird of Conservation Concern	Special Concern	BSSC - First priority
Aix sponsa	Wood Duck			
Anas acuta	Northern Pintail			
Anas americana	American Wigeon			
Anas clypeata	Northern Shoveler			
Anas crecca	Green-winged Teal			
Anas cyanoptera	Cinnamon Teal			
Anas discors	Blue-winged Teal			
Anas platyrhynchos	Mallard			
Anas strepera	Gadwall			
Anser albifrons	Greater White-fronted Goose			
Ardea alba	Great Egret			
Ardea herodias	Great Blue Heron			
Aythya affinis	Lesser Scaup			
Aythya americana	Redhead		Special Concern	BSSC - Third priority
Aythya collaris	Ring-necked Duck			
Aythya valisineria	Canvasback		Special	

O5-24

[11] Howard, J K. et al 2015 Patterns of Freshwater Species Richness, Endemism, and Vulnerability in California PloSONE, 11(7) Available at: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0130710
[12] California Department of Fish and Wildlife BIOS https://www.wildlife.ca.gov/data/BIOS
[13] Science for Conservation https://www.scienceforconservation.org/products/california freshwater species-database

Botaurus lentiginosus	American Bittern			
Bucephala albeola	Bufflehead			
Butorides virescens	Green Heron			
Calidris mauri	Western Sandpiper			
Calidris minutilla	Least Sandpiper			
Chen caerulescens	Snow Goose			
Chen rossii	Ross's Goose			
Chroicocephalus philadelphia	Bonaparte's Gull			
Cistothorus palustris pakustris	Marsh Wren			
Egretta thula	Snowy Egret			
Empidonax traillii	Willow Flycatcher	Bird of Conservation Concern	Endangered	
Empidonax traillii brewsteri	Willow Flycatcher	Bird of Conservation Concern	Endangered	
Fulica americana	American Coot			
Gallinago delicata	Wilson's Snipe			
Himantopus mexicanus	Black necked Stilt			
Icteria virens	Yellow breasted Chat		Special Concern	BSSC - Third priority
Limnodromus scolopaceus	Long billed Dowitcher			
Lophodytes cucullatus	Hooded Merganser			
Megaceryle alcyon	Belted Kingfisher			
Mergus serrator	Red breasted Merganser			
Nycticorax nycticorax	Black-crowned Night Heron			
Oreothlypis luciae	Lucy's Warbler		Special Concern	BSSC - Third priority
Oxyura jamaicensis	Ruddy Duck			
Pelecanus erythrorhynchos	American White Pelican		Special Concern	BSSC - First priority
Phalacrocorax auritus	Double-crested Cormorant			
Piranga rubra	Summer Tanager		Special Concern	BSSC - First priority
Plegadis chihi	White-faced Ibis		Watch list	
Podiceps nigricollis	Eared Grebe			
Podilymbus podiceps	Pied-billed Grebe			
Porzana carolina	Sora			
Rallus limicola	Virginia Rail			
Setophaga petechia	Yellow Warbler			BSSC Second priority

O5-24 Cont.

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Tachycineta bicolor	Tree Swallow			
Tringa melanoleuca	Greater Yellowlegs			
Tringa semipalmata	Willet			
Tringa solitaria	Solitary Sandpiper			
Vireo bellii	Bell's Vireo			
Vireo bellii arizonae	Arizona Bell's Vireo	Bird of Conservation Concern	Endangered	
Vireo bellii pusillus	Least Bell's Vireo	Endangered	Endangered	
Xanthocephalus xanthocephalus	Yellow-headed Blackbird		Special Concern	BSSC - Third priority
Xanthocephalus xanthocephalus	Yellow-headed Blackbird		Special Concern	BSSC - Third priority
FISH				
Cyprinodon macularius	Desert pupfish	Endangered	Endangered	Endangered - Moyle 2013
Cyprinodon macularius	Desert pupfish	Endangered	Endangered	Endangered - Moyle 2013
Cyprinodon macularius	Desert pupfish	Endangered	Endangered	Endangered - Moyle 2013
HERPS				
Actinemys marmorata marmorata	Western Pond Turtle		Special Concern	ARSSC
Anaxyrus boreas boreas	Boreal Toad			
Anaxyrus boreas halophilus	California Toad			ARSSC
Anaxyrus californicus	Arroyo Toad	Endangered	Special Concern	ARSSC
Anaxyrus punctatus	Red spotted Toad			
Pseudacris cadaverina	California Treefrog			ARSSC
Pseudacris regilla	Northern Pacific Chorus Frog			
Thamnophis hammondii hammondii	Two striped Gartersnake		Special Concern	ARSSC
Anaxyrus punctatus	Red spotted Toad			
Pseudacris cadaverina	California Treefrog			ARSSC
Thamnophis hammondii hammondii	Two-striped Gartersnake		Special Concern	ARSSC
INSECTS & OTHER INVERTS				
Abedus spp.	Abedus spp			
Anax junius	Common Green Darner			
Argia nahuana	Aztec Dancer			
Argia spp	Argia spp.			

O5-24 Cont.

Argia vivida	Vivid Dancer			
Baetis adonis	A Mayfly			
Baetis spp	Baetis spp			
Belostomatidae fam	Belostomatidae fam			
Callibaetis spp	Callibaetis spp			
Chaetarthria pallida				Not on any status lists
Chironomidae fam	Chironomidae fam			
Coenagrionidae fam	Coenagrionidae fam			
Cricotopus spp	Cricotopus spp			
Cryptochironomus spp	Cryptochironomus spp			
Enallagma civile	Familiar Bluet			
Erpetogomphus compositus	White belted Ringtail			
Erpetogomphus spp	Erpetogomphus spp.			
Erythemis collocata	Western Pondhawk			
Eucorethra underwoodi				Not on any status lists
Euldefferiella spp	Euldefferiella spp			
Falliceon quilleri	A Mayfly			
Falliceon spp	Falliceon spp			
Gomphidae fam.	Gomphidae fam			
Helichus spp	Helichus spp			
Helicopsyche spp	Helicopsyche spp			
Hetaerina americana	American Rubyspot			
Heterelmis obesa				Not on any status lists
Heterotrissocladius spp	Heterotrissocladius spp			
Hydropsyche spp	Hydropsyche spp			
Hydropsychidae fam	Hydropsychidae fam			
Hydroptila spp.	Hydroptila spp			
Hydroptilidae fam.	Hydroptilidae fam.			
Laccobius spp	Laccobius spp			
Larsia spp	Larsia spp			
Lauterborniella spp	Lauterborniella spp.			
Lethocerus americanus				Not on any status lists
Libellula croceipennis	Neon Skimmer			
Libellula saturata	Flame Skimmer			
Libellulidae fam.	Libellulidae fam			

O5-24
Cont.

Macrodiplax balteata	Marl Pennant			
Neropelopia spp	Neropelopia spp.			
Nilotanypus spp.	Nilotanypus spp.			
Ochrotrichia spp	Ochrotrichia spp			
Ophiogomphus spp	Ophiogomphus spp			
Orthemis ferruginea	Roseate Skimmer			
Pachydiplax longipennis	Blue Dasher			
Paltothemis lineatipes	Red Rock Skimmer			
Pantala flavescens	Wandering Glider			
Paracladopelma spp	Paracladopelma spp			
Parametriocnemus spp	Parametriocnemus spp			
Paratendipes spp	Paratendipes spp			
Paltodytes spp	Paltodytes spp			
Pentaneura spp	Pentaneura spp			
Perithemis intensa	Mexican Amberwing			
Phaenopsectra spp.	Phaenopsectra spp.			
Polypedilum spp.	Polypedilum spp.			
Postelichus spp.	Postelichus spp			
Pseudochironomus spp	Pseudochironomus spp			
Radotanypus spp	Radotanypus spp.			
Rhagovelia spp	Rhagovelia spp			
Rheotanytarsus spp	Rheotanytarsus spp			
Rhionaeschna multicolor	Blue-eyed Darner			
Sanfilippodytes spp.	Sanfilippodytes spp			
Simulium spp	Simulium spp.			
Sperchon spp	Sperchon spp			
Stictotarsus striatellus				Not on any status lists
Sympetrum corruptum	Variegated Meadowhawk			
Sympetrum spp	Sympetrum spp			
Tanytarsus spp	Tanytarsus spp.			
Tinodes spp	Tinodes spp.			
MAMMALS				
Castor canadensis	American Beaver			Not on any status lists
MOLLUSKS				
Physa spp	Physa spp			
PLANTS				

O5-24
Cont.

Baccharis salicina				Not on any status lists
Castilleja minor minor	Alkali Indian-paintbrush			
Castilleja minor spiralis	Large-flower Annual Indian-paintbrush			
Datisca glomerata	Durango Root			
Juncus dubius	Mariposa Rush			
Juncus rugulosus	Wrinkled Rush			
Juncus xiphioides	Iris-leaf Rush			
Lythrum californicum	California Loosestrife			
Mimulus guttatus	Common Large Monkeyflower			
Phacelia distans	NA			
Platanus racemosa	California Sycamore			
Pluchea sericea	Arrow-weed			
Salix exigua exigua	Narrowleaf Willow			
Salix goodingii	Goodding's Willow			
Salix laevigata	Polished Willow			
Schoenoplectus americanus	Three square Bulrush			
Typha domingensis	Southern Cattail			
Veronica anagallis-aquatica	NA			
Phacelia distans	NA			

O5-24 Cont

Attachment D

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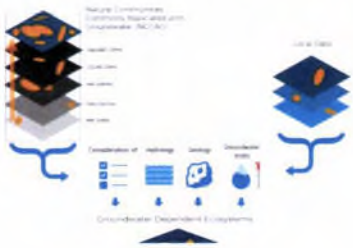
IDENTIFYING GDEs UNDER SGMA

Best Practices for using the NC Dataset

The Sustainable Groundwater Management Act (SGMA) requires that groundwater dependent ecosystems (GDEs) be identified in Groundwater Sustainability Plans (GSPs). As a starting point, the Department of Water Resources (DWR) is providing the Natural Communities Commonly Associated with Groundwater Dataset (NC Dataset) online[14] to help Groundwater Sustainability Agencies (GSAs), consultants, and stakeholders identify GDEs within individual groundwater basins. To apply information from the NC Dataset to local areas, GSAs should combine it with the best available science on local hydrology, geology, and groundwater levels to verify whether polygons in the NC dataset are likely supported by groundwater in an aquifer (Figure 1)[15]. This document highlights six best practices for using local groundwater data to confirm whether a potential GDE identified in the NC dataset is supported to groundwater.

The NC Dataset identifies vegetation and wetland features that are good indicators of a GDE. The dataset is comprised of 48 publicly available state and federal datasets that map vegetation, wetlands, springs, and seeps commonly associated with groundwater in California[16]. It was developed through a collaboration between DWR, the Department of Fish and Wildlife, and The Nature Conservancy (TNC). TNC has also provided detailed guidance on identifying GDEs from the NC dataset[17] on the Groundwater Resource Hub, a website dedicated to GDEs[18].



[14] NC Dataset Online Viewer is available at: https://gis.water.ca.gov/app/NCDatasetViewer/
[15] California Department of Water Resources (DWR). 2018. Summary of the "Natural Communities Commonly Associated with Groundwater" Dataset and Online Web Viewer. Available at: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Data-and-Tools/Files/Statewide-Reports/Natural-Communities-Dataset-Summary-Document.pdf
[16] For more details on the mapping methods, refer to: Klausmeyer, K., J. Howard, T. Keeler-Wolf, K. Davis-Fadtke, R. Hull, A. Lyons. 2018. Mapping Indicators of Groundwater Dependent Ecosystems in California: Methods Report. San Francisco, California. Available at: https://groundwaterresourcehub.org/public/uploads/pdfs/GDE_data_paper_20180423.pdf
[17] "Groundwater Dependent Ecosystems under the Sustainable Groundwater Management Act: Guidance for Preparing Groundwater Sustainability Plans" is available at https://groundwaterresourcehub.org/gde-tools/gap-guidance-document/
[18] The Groundwater Resource Hub is available at: www.GroundwaterResourceHub.org

O5-25

BEST PRACTICE #1. Establishing a Connection to Groundwater

Groundwater basins can be comprised of one continuous aquifer (Figure 2A) or multiple aquifers stacked on top of each other (Figure 2B). In unconfined aquifers (Figure 2A), using the depth to groundwater and the rooting depth of the vegetation is a reasonable method to determine groundwater dependence for GDEs. If groundwater is well below the rooting (and capillary) zone of the plants and any wetland features, the ecosystem is considered disconnected and groundwater management is not likely to affect the ecosystem (Figure 2D). However, it is important to consider local conditions (soil type, groundwater flow gradients, and aquifer parameters) and to review groundwater depth data from multiple seasons and water year types (wet and dry) because intermittent periods of high groundwater levels can replenish perched clay lenses that serve as the water source for GDEs (Figure 2C). Maintaining these natural groundwater fluctuations are important to sustaining GDE health.

Basins with a stacked series of aquifers (Figure 2B) may have varying levels of pumping across aquifers in the basin, depending on the production capacity or water quality associated with each aquifer. If pumping is concentrated in deeper aquifers, SGMA still requires GSAs to sustainably manage groundwater resources in shallow aquifers, such as perched aquifers, that support springs, surface water, domestic wells, and groundwater dependent ecosystems (Figure 2). This is because vertical groundwater gradients across aquifers may result in pumping from deeper aquifers to cause adverse impacts onto beneficial users reliant on shallow aquifers or interconnected surface water. The goal of SGMA is to sustainably manage groundwater resources for current and future social, economic, and environmental benefits. While groundwater pumping may not be currently occurring in a shallower aquifer, use of this water may become more appealing and economically viable in future years as pumping restrictions are placed on the deeper production aquifers in the basin to meet the sustainable yield and criteria. Thus, identifying GDEs in the basin should done irrespective to the amount of current pumping occurring in a particular aquifer, so that future impacts on GDEs due to new production can be avoided. A good rule of thumb to follow is: *if groundwater can be pumped from a well - it's an aquifer.*

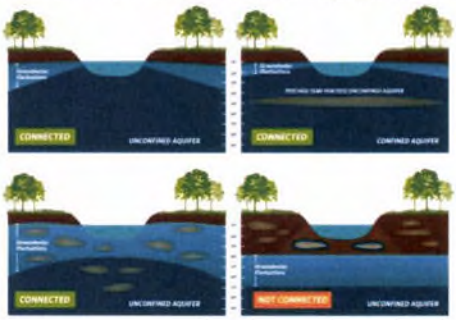


Figure 2. Confirming whether an ecosystem is connected to groundwater in a principal aquifer. Top: (Left) Depth to Groundwater in the aquifer under the ecosystem is an unconfined aquifer with depth to groundwater fluctuating seasonally and interannually within 30 feet from land surface. **(Right)** Depth to Groundwater in the shallow aquifer is connected to overlying ecosystem. Pumping predominately occurs in the confined aquifer, but pumping is possible in the shallow aquifer. **Bottom: (Left)** Depth to groundwater fluctuations are seasonally and interannually large, however, clay layers in the near surface prolong the ecosystem's connection to groundwater. **(Right)** Groundwater is disconnected from surface water, and any water in the vadose (unsaturated) zone is due to direct recharge from precipitation and indirect recharge under surface water feature. These areas typically support species that do not require access to groundwater to survive.

O5-25
Cont.

BEST PRACTICE #2. Characterize Seasonal and Interannual Groundwater Conditions

SGMA requires GSAs to describe current and historical groundwater conditions when identifying GDEs [23 CCR §354.16(g)] Relying solely on the SGMA benchmark date (January 1, 2015) or any other single point in time to characterize groundwater conditions (e.g , depth-to-groundwater) is inadequate because managing groundwater conditions with data from one time point fails to capture the seasonal and interannual variability typical of California's climate. DWR's Best Management Practices document on water budgets[19] recommends using 10 years of water supply and water budget information to describe how historical conditions have impacted the operation of the basin within sustainable yield, implying that a baseline[20] could be determined based on data between 2005 and 2015. Using this or a similar time period, depending on data availability, is recommended for determining the depth-to-groundwater.

GDEs depend on groundwater levels being close enough to the land surface to interconnect with surface water systems or plant rooting networks. The most practical approach[21] for a GSA to assess whether polygons in the NC dataset are connected to groundwater is to rely on groundwater elevation data. As detailed in TNC's GDE guidance document[4], one of the key factors to consider when mapping GDEs is to contour depth-to-groundwater in the aquifer that is supporting the ecosystem (See Best Practice #5).

Groundwater levels fluctuate over time and space due to California's Mediterranean climate (dry summers and wet winters), climate change (flood and drought years), and subsurface heterogeneity in the subsurface (Figure 3) Many of California's GDEs have adapted to dealing with intermittent periods of water stress, however, if these groundwater conditions are prolonged adverse impacts to GDEs can result. While depth-to-groundwater levels within 30 feet[4] are generally accepted as being a proxy for confirming that polygons in the NC dataset are supported by groundwater, it is highly advised that fluctuations in the groundwater regime be characterized to understand the seasonal and interannual groundwater variability in GDEs. Utilizing groundwater data from one point in time can misrepresent groundwater levels required by GDEs, and inadvertently result in adverse impacts to the GDEs. Time series data on groundwater elevations and depths are available on the SGMA Data Viewer[22]. However, if insufficient data are available to describe groundwater conditions within or near polygons from the NC dataset, include those polygons in the GSP <u>until</u> data gaps are reconciled in the monitoring network (See Best Practice #6).

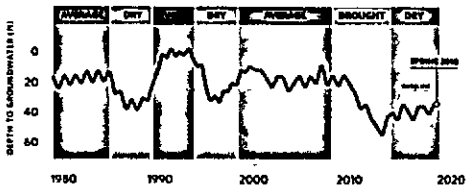


Figure 3. Example seasonality and interannual variability in depth to groundwater over time. Selecting one point in time, such as Spring 2018, to characterize groundwater conditions in GDEs fails to capture what groundwater conditions are necessary to maintain the ecosystem status into the future so adverse impacts are avoided

O5-25
Cont.

[19] DWR. 2016 Water Budget Best Management Practice. Available at:
https://water.ca.gov/LegacyFiles/groundwater/bmp/pdfs/BMP_Water_Budget_Final_2016_12_23.pdf
[20] *Baseline is defined under the GSP regulations as "historic information used to project future conditions for hydrology, water demand, and availability of surface water and to evaluate potential sustainable management practices of a basin " [23 CCR §351(e)]*
[21] Groundwater reliance can also be confirmed via stable isotope analysis and geophysical surveys For more information see The GDE Assessment Toolbox (Appendix IV, GDE Guidance Document for GSPs - link in footnote above)
[22] *SGMA Data Viewer- https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer*

BEST PRACTICE #3. Ecosystems Often Rely on Both Groundwater and Surface Water

GDEs are plants and animals that rely on groundwater for all or some of its water needs, and thus can be supported by multiple water sources. The presence of non-groundwater sources (e.g., surface water, soil moisture in the vadose zone, applied water, treated wastewater effluent, urban stormwater, irrigated return flow) within and around NC polygons does not preclude the possibility that a connection to groundwater exists. SGMA defines GDEs as "ecological communities and species that depend on groundwater emerging from aquifers or on groundwater occurring near the ground surface" [23 CCR §351(m)]. Hence, depth-to-groundwater data should be used to identify whether NC polygons are supported by groundwater and should be considered GDEs. In addition, SGMA requires that significant and undesirable adverse impacts to beneficial users of surface water be avoided. Beneficial users of surface water include environmental users such as plants or animals[23], which therefore must be considered when developing minimum thresholds for depletions of interconnected surface water.

GSAs are only responsible for impacts to GDEs resulting from groundwater conditions in the basin, so if adverse impacts to GDEs result from the diversion of applied water, treated wastewater, or irrigation return flow away from the GDE, then those impacts will be evaluated by other permitting requirements (e.g., CEQA) and may not be the responsibility of the GSA. However, if adverse impacts occur to the GDE due to changing groundwater conditions resulting from pumping or groundwater management activities, then the GSA would be responsible (Figure 4).

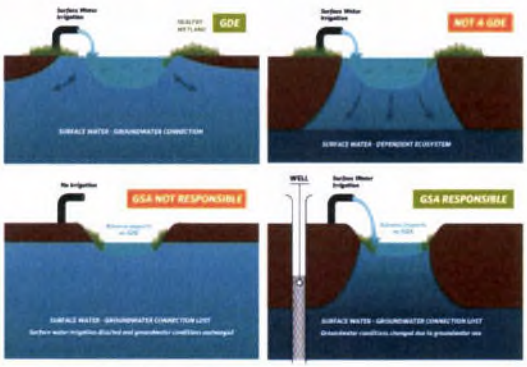


Figure 4. Ecosystems often depend on multiple sources of water. Top: (Left) Surface water and groundwater are interconnected, meaning that the GDE is supported by both groundwater and surface water. **(Right)** Ecosystems that are only reliant on non-groundwater sources are not groundwater-dependent. **Bottom: (Left)** An ecosystem that was once dependent on an interconnected surface water, but loses access to groundwater solely due to surface water diversions may not be the GSA's responsibility. **(Right)** Groundwater dependent ecosystems once dependent on an interconnected surface water system, but loses that access due to groundwater pumping is the GSA's responsibility.

O5-25 Cont.

[23] *For a list of environmental beneficial users of surface water by basin, visit: https://groundwaterresourcehub.org/gde-tools/environmental-surface-water-beneficiaries/*

BEST PRACTICE #4. Select Representative Groundwater Wells

Identifying GDEs in a basin requires that groundwater conditions are characterized to confirm whether polygons in the NC dataset are supported by the underlying aquifer. To do this, proximate groundwater wells should be identified to characterize groundwater conditions (Figure 5). When selecting representative wells, it is particularly important to consider the subsurface heterogeneity around NC polygons, especially near surface water features where groundwater and surface water interactions occur around heterogeneous stratigraphic units or aquitards formed by fluvial deposits. The following selection criteria can help ensure groundwater levels are representative of conditions within the GDE area:

- Choose wells that are within 5 kilometers (3.1 miles) of each NC Dataset polygons because they are more likely to reflect the local conditions relevant to the ecosystem. If there are no wells within 5km of the center of a NC dataset polygon, then there is insufficient information to remove the polygon based on groundwater depth. Instead, it should be retained as a potential GDE until there are sufficient data to determine whether or not the NC Dataset polygon is supported by groundwater.
- Choose wells that are screened within the surficial unconfined aquifer and capable of measuring the true water table.
- Avoid relying on wells that have insufficient information on the screened well depth interval for excluding GDEs because they could be providing data on the wrong aquifer. This type of well data should not be used to remove any NC polygons.

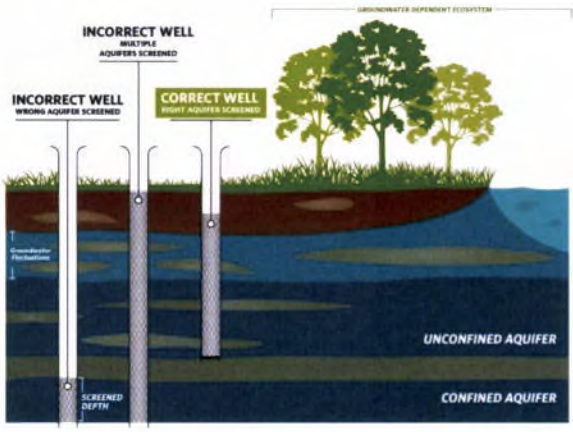


Figure 5. Selecting representative wells to characterize groundwater conditions near GDEs.

O5-25 Cont.

BEST PRACTICE #5. Contouring Groundwater Elevations

The common practice to contour depth-to-groundwater over a large area by interpolating measurements at monitoring wells is unsuitable for assessing whether an ecosystem is supported by groundwater. This practice causes errors when the land surface contains features like streams and wetlands depressions because it assumes the land surface is constant across the landscape and depth-to-groundwater is constant below these low-lying areas (Figure 6 - left panel). A more accurate approach is to interpolate **groundwater elevations** at monitoring wells to get an estimate of groundwater elevation across the landscape. This layer can then be subtracted from the land surface elevation from a Digital Elevation Model (DEM)[24] to estimate depth to groundwater contours across the landscape (Figure 6 – right panel; Figure 7). This will provide a much more accurate contours of depth-to-groundwater along streams and other land surface depressions where GDEs are commonly found.

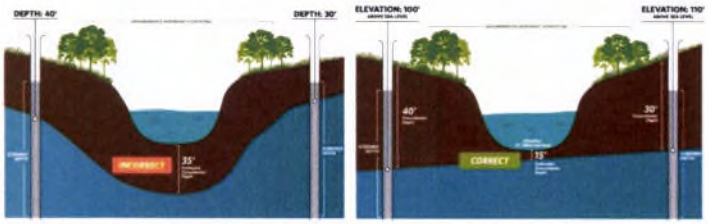


Figure 6. Contouring depth-to-groundwater around surface water features and GDEs. (Left) Groundwater level interpolation using depth-to-groundwater data from monitoring wells. **(Right)** Groundwater level interpolation using groundwater elevation data from monitoring wells and DEM data.

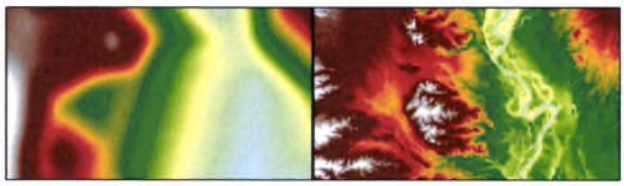


Figure 7. Depth to Groundwater Contours in Northern California. (Left) Contours were interpolated using depth to groundwater measurements determined at each well. **(Right)** Contours were determined by interpolating groundwater elevation measurements at each well and superimposing ground surface elevation from DEM spatial data to generate depth to groundwater contours. The image on the right shows a more accurate depth to groundwater estimate because it takes the local topography and elevation changes into account.

O5-25 Cont.

[24] USGS Digital Elevation Model data products are described at: https://www.usgs.gov/core-science-systems/ngp/3dep/about-3dep-products-services and can be downloaded at: https://viewer.nationalmap.gov/basic/

BEST PRACTICE #6. Best Available Science

Adaptive management is embedded within SGMA and provides a process to work toward sustainability over time by beginning with the best available information to make initial decisions, monitoring the results of those decisions, and using the data collected through monitoring to revise decisions in the future. In many situations, the hydrologic connection of NC dataset polygons will not initially be clearly understood if site-specific groundwater monitoring data are not available. If sufficient data are not available in time for the 2020/2022 plan, **The Nature Conservancy strongly advises that questionable polygons from the NC dataset be included in the GSP until data gaps are reconciled in the monitoring network.** Erring on the side of caution will help minimize inadvertent impacts to GDEs as a result of groundwater use and management actions during SGMA implementation.

KEY DEFINITIONS

Groundwater basin is an aquifer or stacked series of aquifers with reasonably well-defined boundaries in a lateral direction, based on features that significantly impede groundwater flow, and a definable bottom. *23 CCR §341(g)(1)*

Groundwater dependent ecosystem (GDE) are ecological communities or species that depend on groundwater emerging from aquifers or on groundwater occurring near the ground surface. *23 CCR §351(m)*

Interconnected surface water (ISW) 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. *23 CCR §351(o)*

Principal aquifers are aquifers or aquifer systems that store, transmit, and yield significant or economic quantities of groundwater to wells, springs, or surface water systems. *23 CCR §351(aa)*

ABOUT US

The Nature Conservancy is a science-based nonprofit organization whose mission is *to conserve the lands and waters on which all life depends*. To support successful SGMA implementation that meets the future needs of people, the economy, and the environment, TNC has developed tools and resources (www.groundwaterresourcehub.org) intended to reduce costs, shorten timelines, and increase benefits for both people and nature.

O5-25
Cont.

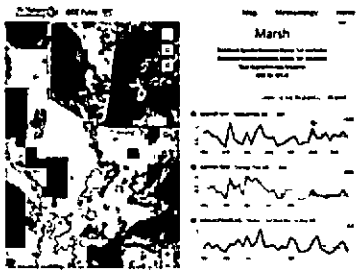
Attachment E

GDE Pulse

A new, free online tool that allows Groundwater Sustainability Agencies to assess changes in groundwater dependent ecosystem (GDE) health using satellite, rainfall, and groundwater data.

The Nature Conservancy
Protecting nature. Preserving life.

Visit
https://gde.codefornature.org/



Remote sensing data from satellites has been used to monitor the health of vegetation all over the planet. GDE pulse has compiled 35 years of satellite imagery from NASA's Landsat mission for every polygon in the Natural Communities Commonly Associated with Groundwater Dataset[25]. The following datasets are included:

O5-26

Normalized Difference Vegetation Index (NDVI) is a satellite-derived index that represents the greenness of vegetation. Healthy green vegetation tends to have a higher NDVI, while dead leaves have a lower NDVI. We calculated the average NDVI during the driest part of the year (July - Sept) to estimate vegetation health when the plants are most likely dependent on groundwater.

Normalized Difference Moisture Index (NDMI) is a satellite-derived index that represents water content in vegetation. NDMI is derived from the Near-Infrared (NIR) and Short-Wave Infrared (SWIR) channels. Vegetation with adequate access to water tends to have higher NDMI, while vegetation that is water stressed tends to have lower NDMI. We calculated the average NDVI during the driest part of the year (July-September) to estimate vegetation health when the plants are most likely dependent on groundwater.

Annual Precipitation is the total precipitation for the water year (October 1st – September 30th) from the PRISM dataset[26]. The amount of local precipitation can affect vegetation with more precipitation generally leading to higher NDVI and NDMI.

Depth to Groundwater measurements provide an indication of the groundwater levels and changes over time for the surrounding area. We used groundwater well measurements from nearby (<1km) wells to estimate the depth to groundwater below the GDE based on the average elevation of the GDE (using a digital elevation model) minus the measured groundwater surface elevation.

[25] *The Natural Communities Commonly Associated with Groundwater Dataset is hosted on the California Department of Water Resources' website https://gis.water.ca.gov/app/NCDatasetViewer/#*

[26] The PRISM dataset is hosted on Oregon State University's website http://www.prism.oregonstate.edu/

Letter O5

Commenter: Sandi Matsumoto, Associate Director, California Water Program, The Nature Conservancy
Date: May 21, 2019

O5-1 This comment provides introductory information about The Nature Conservancy's role in advocating for land and water conservation, clarifying its interest in the implementation of SGMA and summarizes the tools and resources it has developed to assist GSAs in identifying and evaluating interconnected surface waters and groundwater dependent ecosystems (GDEs). Specific responses to issues raised are provided below (responses to Comment O5-3 through Comment O5-27).

O5-2 The GSA appreciates TNC's provision of its detailed checklist for considering nature. The GSP has adequately considered interconnected surface waters and GDEs in accordance with SGMA. Specific responses to issues raised are provided below (responses Comment O5-3 through Comment O5-27).

O5-3 Please see Master Response regarding GDEs. The technical appendix identifying and evaluating GDEs (GSP Appendix D4) has been updated with additional information to provide further evidence that there are no groundwater dependent ecosystems and other species that depend on interconnected surface water within the Borrego Subbasin. In addition, as requested, the GSP has identified lands protected open space preserves, habitat reserves, wildlife refuges, etc. by both state (ABDSP) and non-profit (Anza-Borrego Foundation), described in GSP Section 2.1.1 (see also Figure 2.1-4 and Table 2.1-2).

O5-4 The GSP has been revised to incorporate suggested revisions. Information on the depth to groundwater for the nearest wells to each GDE Unit shown in Figure 2.2-17 has been added.

O5-5 Interconnected surface waters (ISWs) are identified in GSP Chapter 2, Section 2.2.2.6, and shown in Figure 2.2-17. These features were identified through the U.S. Geological Survey's watershed boundary dataset and local mapping of perennial waters provided by Anza Borrego Desert State Park. The GSA's assessment does not rely solely on stream segments mapped as perennial, but is supported by data provided by ABDSP; review of historical stream flow data; manual stream flow measurements and field observation of Coyote Creek; and more generally, the Subbasin's conceptual hydrogeological model. The HCM, supported by geologic cross sections and groundwater levels recorded in monitoring wells, indicates that as soon as the basin boundary is crossed, perennial waters, where present, rapidly

transition to disconnected streams. These areas are characterized by desert alluvial fan morphology, which consist of thick packages of coarse permeable sediment conducive to recharge. The commenter is referred to GSP Appendix D4, Section 2 and Section 5.1 for an in depth discussion.

Although groundwater monitoring and stream gauge sites are sparse around the margins of the Subbasin, the available data indicates the depth to water, even in locations close to the mountain front, is hundreds of feet below the ground surface, as discussed in GSP Section 2.2.2.7. The GSP has been revised to correct a typo which misidentified State Park Well No. 3 as the Horse Camp Well. This well has a depth to groundwater of 347.84 feet, as measured in Spring 2018. The Horse Camp Well (which has a groundwater depth of 287.69 feet) and State Park Well No. 3 are the best available data to indicate the depth to water beneath Coyote Creek and Borrego Palm Creek, respectively. Figure 2.2-17 has been amended to include these monitoring well locations, and elevation contours have been added to Figures 2.2-13A through 2.2-13C to show the difference between groundwater levels and the land surface.

The GSA recognizes that the hydraulic connection between surface water and groundwater does not need to be spatially coincident or permanent in nature for a surface water body to be defined as an ISW. As discussed in the GSP, the hydraulic connection to groundwater occurs from springs and the fractured rock aquifer that exists outside the Subbasin's boundaries. Surface water that originates from groundwater sources outside the Subbasin are rapidly lost to percolation, transpiration or evaporation. While they may be ISWs, their status as ISWs is not affected by pumping within the Subbasin or implementation of the GSP. The GSA has not identified a data gap associated with knowledge of ISWs because there is enough evidence to show that the Subbasin as a whole is a system whose surface waters are disconnected from the underlying groundwater system (i.e., losing streams) and is not hydraulically connected by a continuous saturated zone to the underlying aquifer.

O5-6 There are no NCCAG polygons that the GSA has evaluated as representing current GDEs. The Master Response on groundwater dependent ecosystems clarifies why the GSA has determined that there are no undesirable effects associated with GDEs. The GSP addresses GDEs in Section 2.2.2.7 and in Appendix D4. The GSP has been amended as follows in response to this question:

- Information on the depth to groundwater for the nearest wells to each GDE Unit shown in Figure 2.2-17 has been added.

- Elevation contours have been added to Figures 2.2-13A through 2.2-13C to show the difference between groundwater levels and the land surface.
- All edits described in the GDE Master Response.

O5-7 The GSP has provided all available data on groundwater elevation in monitoring wells through 2018. See prior responses on how the GSP has been amended to provide additional clarity on depth to groundwater.

O5-8 The commenter is referred to the master response on GDEs.

O5-9 The GSP does not identify NCCAG-mapped GDEs as an undesirable result under SGMA, and therefore does not include a sustainability goal specific to GDEs. The minimum thresholds, measurable objectives, and projects and management actions described in GSP Chapters 3 and 4 are designed to culminate in the absence of undesirable results by 2040.

O5-10 The commenter is referred to the master response on GDEs.

O5-11 See master response. Additional evidence is provided by using the TNC iGDE dataset, which shows changes in plant moisture over time are closely correlated with precipitation patterns, and not correlated with groundwater level trends. The GSA has amended Appendix D4 and Section 2.2.2.7 of the GSP to provide this additional evidence.

O5-12 The commenter is referred to the master response on GDEs. The GSA appreciates TNC's reference to Ventura County case studies.

O5-13 The commenter is referred to the master response on GDEs. The GSP concludes that impacts to groundwater dependent ecosystems are a pre-2015 impact and is not currently an undesirable result applicable to the Subbasin.

O5-14 The commenter is referred to the master response on GDEs. Because there is no significant nexus between the Honey Mesquite habitat and the regional groundwater table, an analysis of whether any legally protected species rely on the honey mesquite habitat is not required.

O5-15 The commenter is referred to the master responses on GDEs and the initial estimate of sustainable yield. The commenter is also referred to the GSAs response to Letter O2.

O5-16 The commenter is referred to the master responses on the initial estimate of sustainable yield. The sustainable yield is based on the USGS pre-development scenario in the

BVHM, and is confirmed through a water budget as presented in response to Letter O2. 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 associated with climate variability is much greater than that associated with climate change.

O5-17 The commenter is referred to GSP Section 3.2, which defines what the GSA considers to be undesirable results for each of SGMA's sustainability indicators. The measurable objectives, interim milestones, and minimum thresholds established in the GSP are fixed standards that are not influenced by how groundwater conditions have changed between 2015 and 2019. The commenter assumes that any decline in the groundwater level or amount of groundwater in storage amounts to an adverse impact to beneficial users of groundwater. This is not the case, because the GSA has defined what would constitute an undesirable result in Section 3.2, and has determined that impacts to interconnected surface waters and GDEs occurred prior to 2015 and thus has not established sustainable management criteria for GDEs. Beneficial users consist of municipal, agricultural, recreational, and other uses (i.e., small water systems and non-potable irrigators), and do not include environmental uses. Operational flexibility is provided in the difference between interim milestones and minimum thresholds in key indicator wells, as described in GSP Section 3.4 and shown in Figure 3.4-1.

O5-18 The commenter is referred to response to Comment O5-14.

O5-19 The commenter is referred to response to Comment O5-17.

O5-20 The commenter is referred to the master response on GDEs.

O5-21 The commenter's suggestion is noted. The GSA will continue to use the existing groundwater level monitoring network to assess Subbasin conditions, and further develop the groundwater level 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.

O5-22 The commenter's suggestion is noted. 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.

O5-23 The GSA appreciates the case studies linked by TNC. In response to this and other comments on the GSP, the GSA has modified some of its language to be more open ended with regard to multibenefit groundwater recharge projects. However, the GSA is not proposing specific groundwater recharge PMAs at this time because there are few existing barriers to recharge (i.e., hardened stream channels) within the Subbasin. The construction and maintenance costs and the regulatory constraints (i.e., FEMA floodplain considerations) that would be involved in building artificial/engineered recharge projects within the Subbasin are greatly disproportionate to the benefits of such a project. Though uncertain, the additional recharge provided by such projects would occur highly infrequently (i.e., high rainfall years when runoff is sufficient to reach the Borrego Sink), likely impossible to predict or forecast, and would add only incrementally to total recharge during major wet years. However, the GSA would encourage the construction of small scale recharge projects in conjunction with golf course renovation, or new development and/or redevelopment project, consistent with existing County stormwater regulations.

O5-24 The commenter is referred to the master response on GDEs. Because there is no significant nexus between interconnected surface waters and the regional groundwater table, the sustainable management criteria established to achieve the sustainability goal of the GSP will not impact the list of freshwaters species provided by TNC in its Attachment C.

O5-25 The GSA appreciates the guidance developed by TNC to identify and evaluate potential GDEs within groundwater basins. TNC is referred to GSP appendix D4 which implements many of the principles and practices discussed in the guidance. The commenter is referred to the master response on GDEs.

O5-26 The GSA appreciates the guidance developed by TNC to identify and evaluate potential GDEs within groundwater basins. TNC is referred to GSP Appendix D4 which implements many of the principles and practices discussed in the guidance. The commenter is referred to the master response on GDEs.

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Comment Letter O6

Fostering the protection and appreciation SAN DIEGO AUDUBON SOCIETY *of birds, other wildlife and their habitats.*

May 17, 2019

Jim Bennett
County of San Diego Planning & Development
5510 Overland, Avenue, Suite 310
San Diego, CA 92123
Re Draft Groundwater Sustainability Plan for the Borrego Valley Groundwater Basin
Dear Mr. Jim Bennett,

San Diego Audubon Society (SDAS) appreciates the opportunity to comment on the Draft Groundwater Sustainability Plan (GSP) for the Borrego Valley Basin (Plan) being prepared under the Sustainable Groundwater Management Act (SGMA), as an environmental stakeholder in the basin SDAS is a non-profit organization with a mission to foster the protection and appreciation of birds, other wildlife, and their habitats, through education and study, and advocate for a cleaner, healthier environment The San Diego Audubon Society advocates on behalf of birds, other wildlife and their habitats

O6-1

SDAS reviewed the Draft GSP for the Borrego Valley Basin to assess the treatment of groundwater dependent ecosystems and interconnected surface water systems as required by SGMA SDAS has an interest in sustainable groundwater management because many wildlife habitats and ecosystems rely on groundwater or interconnected surface water. This letter will outline concerns we have with three topics discussed in the GSP 1) Groundwater Dependent Ecosystems, 2) Beneficial Uses and Users of Groundwater, and 3) Depletions of Interconnected Surface Water Systems.

Groundwater Dependent Ecosystems

The SGMA requires that all beneficial users and uses of groundwater, including Groundwater Dependent Ecosystems (GDE), be considered in the GSP (CWC Section 10723 2) There are three GDE's described in the Plan Coyote Creek, Palm Canyon, and Mesquite Bosque Other GDE's mentioned are Hellhole Palms, Tubb Canyon, and Glonetta Canyon, though there is no analysis of their ecological condition, past or present and their hydrological relationship, to the Subbasin This appears to us to be a significant deficiency. Please revise the GSP to include this information for all of the relevant GDEs and include information on the likely impacts of the lack of ground water sustainability on key species in each of these GDEs

O6-2

Beneficial Users and Uses of Groundwater

The Plan designates beneficial users for surface waters including freshwater habitat, wildlife habitat and preservation of rare, threatened or endangered species Under SGMA, depletions of surface waters interconnected with water in the Subbasin that have significant and adverse impacts on beneficial users of surface waters constitute an undesirable result (CWC Section 10721(x)(6)) There are brief and inadequate descriptions of all three GDE's in the Plan. Coyote Canyon and Palm Canyon list none of the species and/or current dependence on surface water feeding these regions. The descriptions for Mesquite Bosque concentrate on the Honey Mesquite Bosque and other native plants, but doesn't identify specific species Section 2.1 4 Beneficial Uses and Users of Groundwater (p 2-26) fails to

O6-3

858-273-7800 • 4010 Morena Blvd., Suite 100, San Diego, CA 92117 • Fax 858-273-7801 • www.sandiegoaudubon.org

Identify environmental users of groundwater, including groundwater dependent ecosystems and species that depend on interconnected surface waters The Least Bell's Vireo is an endangered species with critical habitat on Coyote Creek, and there are numerous other species who should be identified as beneficial users of groundwater Please perform an accounting of species and add Environmental Users to Table 2 1-7 (p 2-26) O6-3 Cont.

A USGS (2015) study noted that phreatophytes roots in the Borrego Sink was 15 3 feet though they have been known to reach 150 feet The historic groundwater table was within 10 feet of the surface at Mesquite Bosque, which was the site of 450 acres of honey mesquite and other native phreatophytes The Draft GSP describes the honey mesquite bosque as completely disconnected from groundwater as a result of pre-2015 impacts to the groundwater from pumping But there is no thorough description of the existing ecological conditions of the Mesquite Bosque and the claim that remaining vegetation does not rely on groundwater is based on a rooting depth estimate from one modeling study Additional research with field studies should be conducted to determine if the Mesquite Bosque is connected to and dependent on groundwater, including between 2015 and 2019 O6-4

Depletions of Interconnected Surface Water Systems

Section 3 2 6 (p 3-14) does not identify depletions of interconnected surface waters as an undesirable result because it describes impacts to interconnected surface waters as having occurred prior to 2015 The Draft GSP again describes the Mesquite Bosque as being disconnected from groundwater because of pre-2015 groundwater depletion, but there is insufficient scientific evidence to support this conclusion The current ecological conditions are not thoroughly described and no field studies are utilized to characterize the relationship between groundwater and the habitat Without further evidence the Mesquite Bosque should be considered a GDE and interconnected surface water and the sustainability criteria should be defined to avoid significant and unreasonable results to this site In addition, please provide data on any Federal or State endangered species that rely on the Mesquite Bosque habitat and measures that can be taken for protection O6-5

Because the Draft GSP allows additional declines in groundwater levels while pumping restrictions are phased in, it is critical that GDEs and interconnected surface water systems are accurately identified so that post-2015 impacts can be avoided Minimum thresholds should be set to prevent further impacts to interconnected surface water systems O6-6

Thank you for your consideration of San Diego Audubon Society's comments on the Draft Groundwater Sustainability Plan for the Borrego Valley Basin SDAS looks forward to seeing further improvements in the GSP and supports the long-term efforts towards sustainable groundwater management Please contact us at conservation@sandiegoaudubon.org, or 858-723-7800 if there are further questions O6-7

Sincerely,

James A. Peugh

James A. Peugh
Conservation Chair
San Diego Audubon Society

Page 2

Letter O6

Commenter: James A. Peugh, Conservation Chair, San Diego Audubon Society
Date: May 17, 2019

O6-1 This comment provides introductory information about San Diego Audubon Society's role as an environmental stakeholder in advocating for the appreciation, conservation, and the education/study of birds and other wildlife. The San Diego Audubon Society's main concerns about the GSP involve groundwater dependent ecosystems (GDEs), the beneficial uses and users of groundwater, and interconnected surface waters. Specific responses to issues raised are provided below (responses to Comment O6-2 through Comment O6-7).

O6-2 The commenter is referred to GSP Appendix D4, which provides a complete identification and evaluation of the potential GDEs identified by The Nature Conservancy's NCCAG dataset. The commenter is also referred to the master response on Groundwater Dependent Ecosystems. The GSA has determined that potential GDEs mapped within the Subbasin are supported by surface water, perennial flow originating outside the boundaries of the Subbasin, and have no connection to the regional groundwater table within the Plan Area.

O6-3 The commenter is referred to GSP Section 2.2.2.6 and Appendix D4, which provides an adequate evaluation of interconnected surface waters. The GSP identifies the mapped streams within the Subbasin as *losing* streams, even where such streams are mapped as having perennial flow. If there is a groundwater connection to streams entering the Subbasin, such as Coyote Creek and Borrego Palm Creek, it is from the fractured rock aquifer (bedrock), which exists outside the Plan Area Boundaries, and which pumping within the Subbasin would have no appreciable influence. This concept is further supported by the fact that groundwater levels around the western and northern margins of the Subbasin are hundreds of feet lower than the ground surface. Since there is no hydrologic connection between the aquifer accessed by pumpers and surface water resources in the Plan Area, the GSP is not required to provide a detailed analysis of terrestrial and/or aquatic biological resources. The commenter is reminded that the GSA will prepare the California Environmental Quality Act (CEQA) documentation (after GSP adoption) in advance of considering formal adoption and implementation of any of the PMAs in the GSP.

O6-4 The commenter is referred to the master response on Groundwater Dependent Ecosystems.

O6-5 The commenter is referred to the response to Letter O5 (The Nature Conservancy letter) and the master response on Groundwater Dependent Ecosystems.

O6-6 The commenter is referred to the response to Letter O5 (The Nature Conservancy letter) and the master response on Groundwater Dependent Ecosystems.

O6-7 Comment noted.

Comment Letter O7

From: Bri Fordem <bfordem@theabf.org>
Sent: Tuesday, May 21, 2019 3:09 PM
To: LUEG, GroundWater, PDS
Subject: GSP Comment: Anza Borrego Foundation
Attachments: ABF GSPresponse.pdf

Please see attached comment letter.
Thank you for the opportunity to comment, we look forward to learning more in the future.

Bri

Bri Fordem
Executive Director
TheABF.org
760-767-0446 EXT 1001

ANZA BORREGO FOUNDATION

1

County of San Diego
Planning and Development Services
C/o Jim Bennett
5510 Overland Avenue, Suite 310
San Diego, CA 92123

Subject: Draft Groundwater Sustainability Plan for the Borrego Valley Groundwater Basin (GSP)

Dear Mr. Bennett:

Thank you for the opportunity to comment on the draft GSP. Our appreciation goes out to the County, the Borrego Water District, the Core Team and the SGMA Advisory Committee for their efforts over the past many months to produce such an impressive document.

Anza-Borrego Foundation (ABF) was founded in 1967 to purchase inholdings from willing sellers within the vast Anza-Borrego Desert State Park" (Park) Since our founding we have added over 55,000 acres to the Park and over the years have funded a wide variety of education, research and resource management projects in the Park. The Park is approximately 1,000 square miles, surrounds the approximate 98 square mile Borrego Springs Subbasin, and supplies the majority of the natural groundwater recharge to the Subbasin (GSP Figure 2.2-1)

O7-1

Our comments on the draft GSP are as follows.

1. The Park contributes over $40 million annually to the economy of Eastern San Diego County The community of Borrego Springs plays a critical role as the hospitality hub for the State Park. To protect this economic vitality, it is essential that the community and the more than 500,000 visitors which it attracts annually have access to an affordable supply of high-quality water for basic needs use in town and for recreation in the Park.

a Allocate a portion for municipal use to ensure an adequate and affordable water supply to support the community's growing role as the primary provider of goods and services to both residents and visitors.

b. Don't gamble with water quality. Avoid the threat of diminishing water quality and the necessity for expensive water treatment facilities by shortening the target year to reach sustainability by 2030.

O7-2

2. It is essential that the plan include ample water for critical at-risk biological resources in the basin. The draft GSP dismisses the relationship of continued pumping on both Groundwater Dependent Ecosystems (the Mesquite Bosque) and historic surface stream flow reductions on major tributaries entering the basin (Coyote Creek and others) There is no solid scientific consensus regarding the viability, survivability and recoverability of these important elements of the desert ecosystem. The people of California have promised to protect this precious desert ecosystem in perpetuity. Therefore, significant efforts to reduce the impact on the valued resources of the Park should be a priority of a plan towards recovery and sustainability of the area.

O7-3

3. ABF 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 reductions of use.

a The draft GSP does not consider the proportion of land each pumper services in the Subbasin. It focuses only on prior use over a five year period. (GSP 3.3.2.1.) According to the draft GSP, the Park covers 27% of the land subject to the GSP. (GSP Table 2.1-2.) The draft GSP also identifies that ABF owns an additional 5% that will be transferred to the Park. (GSP Table 2.1-2) The Park 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 Yet under the draft GSP, the Park is still responsible for reducing use by 74%.

O7-4

b. Whereas the Park is responsible for a large portion of the land and minimal water use, the agriculture sector's responsibility and use are the opposite. According to the draft GSP, the agriculture sector comprises 4 2% of the Subbasin's 62,776 acre surface area 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)

c. By failing to give any consideration to the amount of land sustained by each pumper's use, the GSP assigns a significant burden to the Park that may be impossible to bare, resulting in shutting down the Park. The blanketed 74% reduction is an ineffective approach to reaching 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

O7-4 Cont.

4. 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 specify mandatory water quality monitoring of any major wells in the Subbasin. As water quality 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. Pumped water is a public resource concern in Borrego Springs.

O7-5

5 Fallowing 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 the Park: 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 the Park.

O7-6

6. 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

O7-7

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

O7-8

We appreciate your considerations of these important needs as you revise the current draft GSP.

Brianna Fordem
Executive Director
Anza-Borrego Foundation

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Letter O7

Commenter: Brianna Fordem, Executive Director, Anza-Borrego Foundation
Date: May 21, 2019

O7-1 This comment provides introductory information about the Anza Borrego Foundation (ABF), and its role as an environmental stakeholder that seeks to add acreage to ABDSP; and further education, research and resource management projects in the Park. Specific responses to issues raised are provided below (responses Comments O7-2 through Comment O7-8).

O7-2 The Groundwater Sustainability Agency (GSA) appreciates the critical role played by ABDSP and ABF in the region's economic vitality, tourism, and hospitality. With regard to the commenter's concern over an adequate and affordable water supply, the commenter is referred to the master response for the baseline pumping allocation and pumping reduction program. The commenter's request to shorten the target year to 2030 is noted. While the Groundwater Sustainability Plan (GSP) does not set specific a specific schedule for reductions, the GSP includes Project and Management Action No. 3 – Pumping Reduction Program. 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 any groundwater use reductions and a specific ramp down schedule. The GSP also indicates an agreement among the pumpers is a possible scenario where groundwater use reductions could be developed.

O7-3 The commenter is referred to the master response for groundwater dependent ecosystems.

O7-4 The commenter is referred to the master response for the baseline pumping allocation and pumping reduction program. With regard to its concerns over whether the BPA and pumping reduction program leaves sufficient water to operated ABDSP, the commenter is referred to the GSA's response to Letter S2 (ABDSP letter).

O7-5 The 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). 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 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.

Furthermore, BWD monitors water quality regularly, and cannot legally deliver water quality that does not meet applicable standards, including potable drinking water standards specified in Title 22 of the CCR. The commenter makes the assumption that water quality will degrade and eventually require additional and/or expensive treatment. This is not necessarily the case. BWD drinking water wells are located away from areas in the GSP identified as having water quality issues such as the Borrego Sink, and would retain the flexibility to manage the location of its groundwater pumping so as to avoid having to plan and build additional and/or expensive treatment facilities or facility upgrades. The commenter is referred to sections of GSP Chapter 3 that describe undesirable results (Section 3.2.4), minimum thresholds (Section 3.3.4), and measurable objectives (Section 3.4.4) related to water quality.

O7-6 The GSA notes the commenter's request that future fallowing include removal of invasive weed species. The GSP includes Voluntary Fallowing of Agriculture Land (PMA No. 4). As indicated in the 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.

This comment does not address the adequacy of the Draft GSP, and therefore, no further response is required or necessary.

O7-7 Comment noted.

O7-8 Comment noted.

Comment Letter O8

CLEAN WATER ACTION

May 21, 2019

Jim Bennett, Water Resources Manager
Borrego Valley Groundwater Sustainability Agency
5510 Overland Avenue, Suite 310
San Diego, California 92123
Sent via electronic mail to PDS LUEGGroundwater@sdcounty ca.gov

Re: Comments on Draft Groundwater Sustainability Plan for Borrego Groundwater Basin

Dear Mr. Bennett,

On behalf of Clean Water Action, I am pleased to provide the following comments on the draft Borrego Groundwater Sustainability Plan. Our organization has been working on the implementation of the Sustainable Groundwater Management Act (SGMA) since its inception, and has an interest in its successful implementation throughout the state. We have been engaged in groundwater protection efforts since our program opened in California in 1990, and have specific expertise in drinking water and stakeholder engagement. As part of our interest in the successful implementation of SGMA, our organization has commented on SGMA activities at the state level and on several plans submitted in 2016 as alternatives to Groundwater Sustainability Plans. Our organization co-authored a report on stakeholder engagement in SGMA[1] and were able to participate remotely in 2 meetings of the Ad Hoc Stakeholder Outreach Committee for this Plan.

O8-1

Our review of this draft is admittedly cursory; we did not review models or the data used to run them, nor did we comprehensively review undesirable results and management actions. However, we're indebted to the Local Government Commission for its more thorough review of the plans and have attached their memo to supplement our questions.

We also understand that this is a draft document and welcome the opportunity to request additional information and clarification Our questions are limited to governance and management actions, stakeholder engagement and drinking water.

[1] *"Collaborating for Success: Stakeholder Engagement for Sustainable Groundwater Management Act Implementation"* Community Water Center, Clean Water Fund and Union of Concerned Scientists, 2015

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