Draft Final

Groundwater Management Plan for the Borrego Springs Groundwater Subbasin January 2020

A Draft Final Groundwater Sustainability Plan (GSP) was prepared for the Borrego Springs Groundwater Subbasin (Basin) of the Borrego Valley Groundwater Basin by the Borrego Water District (BWD) and the County of San Diego (County) acting as the Borrego Valley Groundwater Sustainability Agency (GSA) for the Basin. This Groundwater Management Plan (GMP) includes modifications to the GSP to conform its terms to the Stipulated Judgment proposed in the pending comprehensive adjudication of groundwater rights in the Basin. The "Physical Solution" proposed for the Basin consists of the GMP and the Stipulated Judgment, as overseen by the Court; provided, however, that the provisions of the Stipulated Judgment control over and supersede any contrary provisions contained in the GMP. The stipulating parties propose to substitute the proposed Watermaster in place of the GSA, and to seek the Department of Water Resources' approval of the Physical Solution to serve as an alternative to the GSP, as authorized by Water Code sections 10733.6 and 10737.4. Accordingly, all references to the GSA and GSP should be substituted with "Watermaster" and "GMP", respectively.

Draft Final

Groundwater Sustainability Plan for the Borrego Springs Groundwater Subbasin

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August 2019

BACK COVER PHOTOGRAPHS

Bottom left: **Borrego Springs Subbasin nursery plants**, courtesy of Hugh McManus

Bottom middle: **Coyote Canyon spring 2019 flower bloom**, courtesy of Sicco Rood, Steele/ Burnand Anza-Borrego Desert Research Center

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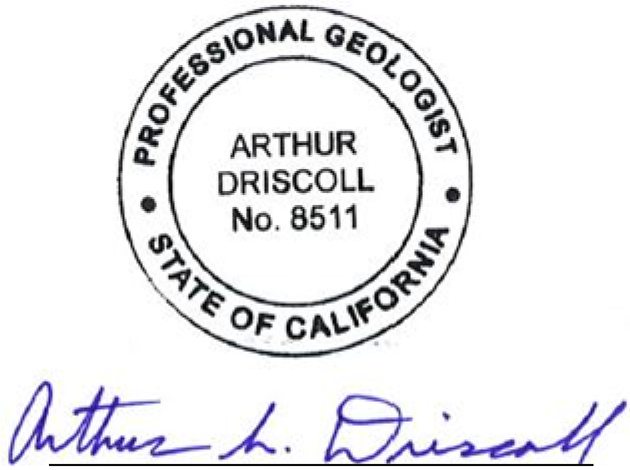
SIGNATURE PAGE

This draft Final Groundwater Sustainability Plan for the Borrego Springs Groundwater Subbasin has been prepared under the direction of a professional geologist licensed in the State of California as required per California Code of Regulations, Title 23 Section 354.12 consistent with professional standards of practice.



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The Table of Contents is NOT current.
It will be updated upon finalization of the GMP.

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
AB	Assembly Bill
ABDSP	Anza-Borrego Desert State Park
AC	Advisory Committee
AF	acre-feet
AFY	acre-feet per year
AGR	agriculture supply
BCM	Basin Characterization Model
BMP	best management practice
BPA	baseline pumping allocation
BSUSD	Borrego Springs Unified School District
BVGB	Borrego Valley Groundwater Basin
BVHM	Borrego Valley Hydrologic Model
BWD	Borrego Water District
CASGEM	California Statewide Groundwater Elevation Monitoring
CCR	California Code of Regulations
CDP	Census Designated Place
CEQA	California Environmental Quality Act
CIMIS	California Irrigation Management Information System
CMA	Central Management Area
COC	constituent of concern
CWC	California Water Code
DEH	Department of Environmental Health
DMS	data management system
DWR	Department of Water Resources
EDA	Economically Distressed Area
EIR	Environmental Impact Report
FMP	Farm Process
FTE	fulltime equivalent
FY	fiscal year
GDE	groundwater dependent ecosystem
GIC	Groundwater Information Center
GIS	geographic information system
GMP	Groundwater Management Plan
GSA	groundwater sustainability agency
GSP	Groundwater Sustainability Plan
GWE	groundwater elevation
HCM	hydrogeologic conceptual model
ID	Improvement District
ID4	improvement district 4
ILRP	Irrigated Lands Regulatory Program
IND	industrial service supply
IRWM	Integrated Regional Water Management

Acronym/Abbreviation	Definition
MCL	Maximum Contaminant Limit
MCS	Monte Carlo Simulation
MOU	Memorandum of Understanding
MUN	municipal and domestic supply
MWELO	Model Water Efficient Landscape Ordinance
NCCAG	Natural Communities Commonly Associated with Groundwater
NMA	North Management Area
NO_3	nitrate
NPDES	National Pollutant Discharge Elimination System
OWTS	on-site wastewater treatment system
PET	potential evapotranspiration
PMA	project and management action
RWQCB	Regional Water Quality Control Board
SAP/QAPP	Sampling and Analysis Plan and Quality Assurance Project Plan
SB	Senate Bill
SDAC	Severely Disadvantaged Community
SGMA	Sustainable Groundwater Management Act
SMA	South Management Area
SWID	State Well Identification
SWRCB	State Water Resources Control Board
TDS	Total dissolved solids
TNC	The Nature Conservancy
USGS	U.S. Geological Survey
UZP	Unsaturated Zone Package
WCP	Water Credits Policy
WDR	Waste Discharge Requirement
WWTF	Wastewater Treatment Facility

EXECUTIVE SUMMARY

The Borrego Valley Groundwater Sustainability Agency (GSA, Agency), which comprises the Borrego Water District (BWD) and the County of San Diego (County), developed a Groundwater Sustainability Plan (GSP, Plan) to provide a structure to enable local government, groundwater users and the local community to work together to achieve sustainable use of groundwater resources in the Borrego Springs Groundwater Subbasin (Subbasin) (California Department of Water Resources (DWR) Basin No. 7.024.01) of the Borrego Valley Groundwater Basin. The GSP was subsequently repurposed as a Groundwater Management Plan (GMP), an integral part of a Physical Solution in a groundwater rights adjudication consistent with the requirements of the Sustainable Groundwater Management Act (SGMA). The purpose of this GMP is to refine and expedite implementation of the Physical Solution and to avoid litigation over the GSP and its associated Project and Management Actions (PMAs).

The GSP and this resulting GMP was developed through a process of stakeholder negotiation among major water users, landowners and government agencies. Specifically, this GMP is adopted as part of the Physical Solution by means of a Judgment Pursuant to Stipulation in [INSERT CASE NAME] (Judgment). The Judgment was agreed to by Stipulating Parties accounting for more than 75% of groundwater production and more than 50% of non-minimal producer well owners as an alternative to the GSA/GSP process for the Borrego Springs Subbasin under SGMA (California Water Code Sections 10733.6 and 10737.4). This GMP includes and is to be interpreted and implemented consistent with and subject to the provisions of the Judgment. The provisions of the Judgment control over and supersede any contrary provisions contained in this GMP.

ES 1.0 INTRODUCTION

The multi-agency Borrego Valley GSA consists of BWD, which has water supply and water management responsibilities within its Borrego Springs service area; and the County, which has land use responsibilities and implements the County's Groundwater Ordinance throughout the Subbasin. The Watermaster Board appointed under the Judgment takes the place of the GSA.

Current groundwater use in the Subbasin, which is located in northeastern unincorporated San Diego County, greatly exceeds groundwater recharge (i.e., the basin is being overdrafted). The Subbasin has been designated as being in critical overdraft by the DWR. According to the Sustainable Groundwater Management Act (SGMA), "A basin is subject to critical overdraft when continuation of present water management practices would probably result in significant adverse overdraft-related environmental, social, or economic impacts." The intent of this GMP is to achieve long-term groundwater sustainability by restoring balance to (i.e., reaching "sustainability" in) the Subbasin no later than 2040, as required by SGMA.

The overarching aim of SGMA is to establish and achieve the "sustainability goal" for the Subbasin through the development and implementation of a GSP or approved alternative. In enacting SGMA, the Legislature also set forward more specific purposes underlying the legislation, which include providing for sustainable management of groundwater, avoiding six designated "undesirable results" to groundwater resources that could occur without proper management, enhancing the ability of local agencies to take action to protect groundwater resources, and preserving the security of water rights to the greatest extent possible consistent with sustainable management of groundwater.

The intent of the Physical Solution is to meet the requirements of SGMA. To this end, this Plan includes the scientific and other background information about the Subbasin required by SGMA and its implementing regulations. The Plan is also intended to provide a roadmap for how sustainability is to be reached in the Subbasin, including through projects and management actions (PMAs) to be taken, as well as the financial and other implications of implementing the Plan. At the same time, the GMP also recognizes that while some management actions can be taken early on in the Physical Solution implementation process, other actions are to be implemented over time.

SGMA also mandates that steps be taken to ensure the broadest possible public participation in the GSP development process. From its inception, the GSA was focused on soliciting and receiving input from a wide variety of stakeholders regarding Subbasin issues. As part of the GSA's effort to consider the interests of all beneficial uses and users of groundwater (as defined by California Water Code Section 10723.2), the GSA formed the Borrego Basin GSP Advisory Committee made up of key stakeholders from the Borrego Springs community. Beginning in March 2017, the Advisory Committee provided regular input to aid the GSA in the development of the planning and policy recommendations contained in the GSP.

ES 2.0 SUMMARY OF BASIN SETTING AND CONDITIONS

DWR has designated the 98-square-mile Subbasin as high priority and critically overdrafted. The majority of recharge that replenishes the Subbasin comes from streamflow exiting the mountains onto the desert alluvial fans that abut the mountain front. Land uses consist primarily of private land under County jurisdiction, and both the private land and the Subbasin itself are surrounded on nearly all sides by the Anza-Borrego Desert State Park. The developed land uses in the Subbasin include residential, agricultural, recreational, and commercial.

As represented in the "Hydrogeologic Conceptual Model" developed for the GSP, which is based in large part on work conducted by the U.S. Geological Survey, the unconsolidated sediments that fill the Subbasin are divided into three principal aquifers referred to as the upper, middle and lower aquifers, with the highest yielding wells located in the upper aquifer.

Prior to development in the Subbasin, the natural direction of groundwater flow was predominantly from the northwest near Coyote Creek to the southeast toward the Borrego Sink. The shallowest groundwater-level elevations occurred east of the Borrego Sink, an area of natural drainage in the middle of the valley that is dry most of the time. Groundwater levels and water quality in the Subbasin have been tracked by county, state, and federal agencies for over 50 years. The Watermaster will monitor groundwater levels from a network consisting of approximately 46 wells.

Over the past 65 years, groundwater levels have declined as much as 126 feet (average of nearly 2 feet per year) in the northern part of the Subbasin and about 87 feet (average of 1.3 feet per year) in the west–central part. In the southeastern part of the Subbasin where less groundwater has been pumped, groundwater levels have remained relatively stable along the perimeter of the Subbasin during the same time period. Recent pumping in the South Management Area has resulted in a localized groundwater level depression south of the Borrego Sink. Given the physical characteristics of the groundwater within the Subbasin, water quality, and other factors, this GMP establishes three management areas for the Subbasin: the North Management Area, the Central Management Area, and the South Management Area. These management areas will be utilized to monitor the status of groundwater quality and other SGMA parameters, and measure the progress towards achieving sustainability goals.

Defining the Subbasin setting also requires an examination of groundwater quality issues. In 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 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. Historically, there have been nitrate-related water quality problems encountered in BWD wells that led to well reconstruction, abandonment, and replacement.

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 to 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. BWD does not operate wells in the immediate vicinity of the Borrego Sink. The Watermaster will monitor water quality from a groundwater quality network consisting of 30 wells.

The water budget for the Subbasin provides an accounting and assessment of the average annual volume of groundwater and surface water entering (i.e., inflow) and leaving (i.e., outflow) the basin and enables an accounting of the cumulative change in groundwater in storage over time.

From 1945 to 2016, about 520,000 acre-feet of water was estimated to have been removed from storage. At present, the total baseline pumping allocation (BPA)[1] of 24,215 acre-feet per year (AFY) greatly exceeds the Subbasin's estimated long-term sustainable yield of 5,700 AFY. The BPA is defined as the amount of groundwater each pumper in the Subbasin is allocated prior to SGMA-mandated reductions, and serves as a cap from which annual pumping reductions to reach the sustainable yield by no later than 2040 will proceed.

ES 3.0 OVERVIEW OF SUSTAINABILITY INDICATORS, MINIMUM THRESHOLDS, AND MEASURABLE OBJECTIVES

To maintain a viable water supply for current and future beneficial uses and users of groundwater in the Subbasin, the Physical Solution's sustainability goal is to ensure that by 2040, and thereafter within the planning and implementation horizon of this GMP (50 years), the Subbasin is operated within its sustainable yield and does not exhibit undesirable results as defined by California Water Code Section 10721(x). The GMP has established minimum thresholds and measurable objectives for the following sustainability indicators determined to be a current and/or potential future undesirable result.

Groundwater in Storage

The sustainability goal is to halt the overdraft condition in the Subbasin by bringing the groundwater demand in line with sustainable yield by 2040. This will be monitored by estimating the change of groundwater volume in storage every year, based on the observed changes in groundwater levels.

Chronic Lowering of Groundwater Levels

The sustainability goal is for groundwater levels to stabilize or improve and to ensure groundwater is maintained at adequate levels for key municipal wells. Observed groundwater levels will be compared to the Borrego Valley Hydrologic Model (BVHM) projected levels for the Physical Solution implementation period.

Water Quality

The sustainability goal is for California Title 22 drinking water standards to continue to be met for potable water sources, and that water quality in irrigation wells be suitable for agricultural

[1] This total is determined by adding up the maximum amount of water produced by each pumper of groundwater in the Subbasin over the 5-year baseline period from January 1, 2010, to January 1, 2015. Because various users' pumping maximum could have occurred at any time during this period, the total BPA is higher than the total pumping in any one year.

and recreational irrigation use. Water quality monitoring will occur throughout Physical Solution implementation.

ES 4.0 OVERVIEW OF PROJECTS AND MANAGEMENT ACTIONS

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. Reaching this goal requires an approximately 76% reduction in pumping compared to the BPA. The purpose of the GMP's PMAs are primarily to (1) reduce water demand within the Subbasin by reducing the amount of water allocated to non-*de minimis* users and (2) maintain water quality suitable for current and future beneficial uses. The selected PMAs are described, as follows:

PMA No. 1 – Water Trading Program

The Water Trading Program is intended to enable groundwater users to purchase needed groundwater resources to maintain economic activities in the Subbasin, encourage and incentivize water conservation, and facilitate adjustment of pumping allocations as water demands and Subbasin conditions fluctuate during the Physical Solution implementation. The Water Trading Program will be implemented as set forth in the Judgment.

PMA No. 2 – Water Conservation Program

The Water Conservation Program would consist of separate components for the three primary water use sectors: agricultural, municipal, and recreation. A water conservation program will be highly dependent upon securing funding such as through existing and future grants and low interest loan programs.

PMA No. 3 – Pumping Reduction Program

Each non-*de minimis* groundwater user within the Subbasin will be assigned an allocation based on its historical groundwater use. That allocation will be reduced incrementally as necessary over the Physical Solution implementation period such that the total extraction from the Subbasin will be equal to the estimated sustainable yield target (the initial sustainable yield target is 5,700 AFY) by 2040. Mandatory water metering for all non-*de minimis* groundwater users will take place following adoption of this GMP. The Pumping Reduction Program will be implemented as set forth in the Judgment.

PMA No. 4 – Voluntary Fallowing of Agricultural Land

The voluntary Fallowing Program will create a process to convert high water use irrigated agriculture land to low water use open space or public land, on a voluntary basis. Once implemented, the Fallowing Program would provide property owners with transferable BPAs in exchange for land fallowing. This PMA is implemented by the Water Trading Program, PMA No. 1 above.

PMA No. 5 – Water Quality Optimization

The Water Quality Optimization program is intended to identify as-needed direct and indirect treatment options for BWD and other pumpers to optimize groundwater quality and its use and minimize the need for expensive water treatment to meet drinking water standards.

PMA No. 6 – Intra-Subbasin Water Transfers

The purpose of intra-subbasin transfer program is to mitigate existing and future reductions in groundwater storage and groundwater quality impairment by establishing an intrabasin conveyance capability for transferring groundwater production from higher to lower production alternative areas in the subbasin. This PMA would only be implemented after the Watermaster evaluates the feasibility and effectiveness of utilizing new or existing well sites in the subbasin where groundwater conditions are more favorable for continued groundwater extraction.

Watermaster Responsibilities

The Watermaster is responsible for implementing the Physical Solution over SGMA's planning and implementation horizon and thereafter, with Subbasin sustainability required to be achieved by January 31, 2040. The Watermaster will submit annual and more detailed 5-year reports to DWR by April 1 of each year. The annual reports will document new data being collected to track groundwater conditions within the Subbasin, monitor progress on implementation of PMAs, and present an evaluation of measured data in comparison to interim milestones for each sustainability indicator. The 5-year reports provide the Watermaster an opportunity to evaluate the success and/or challenges in Physical Solution implementation, including reporting on the effectiveness of PMAs. If knowledge of Subbasin conditions have changed based on updated data, if management criteria (e.g., sustainable yield, minimum thresholds, or interim milestones) need to be modified, or if PMAs need to be modified or added, revisions to the Physical Solution may be proposed and the necessary steps taken by the Watermaster.

The GSA has performed substantial work toward estimating the cost of GSP implementation. Chapter 5, Plan Implementation, contains a breakdown of tasks and associated cost estimates. The total estimated GSP implementation cost for the anticipated 20-year implementation period is $20,352,000. This estimate includes (1) operations and monitoring costs; (2) management, administration, and other costs; (3) 5-year annual reviews; (4) 10% contingency; (5) PMAs development; and (6) California Environmental Quality Act review but does not include the implementation of all PMAs or final costs incurred by BWD for internal management and administration. Additional budget will be required to implement PMAs once they have been developed. In general, the GSA planned to fund GSP implementation using a combination of administrative pumping fees, assessments/parcel taxes, and/or grants. The Watermaster's costs for Physical Solution implementation are likely less than those GSP implementation costs estimated by the GSA due to anticipated efficiencies entailed by the negotiated terms of the Physical Solution that have been agreed to by participating pumpers.