COLORADO RIVER BASIN REGIONAL GROUNDWATER BASIN EVALUATION

Staff Report

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ACRONYMS

%	percent
bgs	below ground surface
BLM	Bureau of Land Management
CASGEM	California Statewide Groundwater Elevation Monitoring
CWS	community water system
DOD	Department of Defense
DWR	Department of Water Resources
GAMA	Groundwater Ambient Monitoring and Assessment
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
GWMP	Groundwater Management Plan
HVA	Hydrologically Vulnerable Area
IRWMP	Integrated Regional Water Management Planning
LAMP	Local Agency Management Program
MCL	Primary Maximum Contaminant Level
mg/L	milligrams per liter
OWTS	On-Site Wastewater Treatment System
Regional Water Board	Colorado River Basin Regional Water Quality Control Board
Recycled Water Policy	Water Quality Control Policy for Recycled Water
SGMA	Sustainable Groundwater Management Act
SMCL	Secondary Maximum Contaminant Level
SNMP	Salt and Nutrient Management Plan
State Water Board	State Water Resources Control Board
SWP	State Water Project
TDS	Total Dissolved Solids
US	United States
UST	Underground Storage Tank
USGS	United States Geological Survey
WDRs	Waste Discharge Requirements

I. INTRODUCTION

The 2018 amendment to the State Water Resources Control Board's (State Water Board) *Water Quality Control Policy for Recycled Water* (Recycled Water Policy), adopted under Resolution 2018-0057, requires every groundwater basin/subbasin in California where salts and/or nutrients have been identified as a threat to water quality to develop Salt and Nutrient Management Plans (SNMPs). To support the development of SNMPs in basins where plans are needed and to clarify where SNMPs are not needed, by April 8, 2021, the Colorado River Basin Regional Water Quality Control Board (Regional Water Board) must identify through a resolution or executive officer determination the groundwater basins where salts and/or nutrients are a threat to water quality and will need to develop a SNMP to manage salts and nutrients in the long term. The Recycled Water Policy requires the Regional Water Board to review and update this evaluation every five years.

Regional Water Board staff conducted a regional groundwater basin evaluation in accordance with the 2018 Recycled Water Policy. This report provides the information obtained during the basin evaluations and includes a summary of regional groundwater characteristics, previous statewide groundwater basin prioritizations, an overview of existing groundwater protection plans within the region, the technical process developed in support of the current basin evaluation, and findings and recommendations. Tabulated results of the regional basin evaluation are provided as Appendix A.

II. REGIONAL SETTING

GEOGRAPHIC SETTING

The Colorado River Basin Region, shown in Figure 1, covers about 19,900 square miles and includes Imperial County and portions of San Bernardino, Riverside, and San Diego Counties. Geology and climate shape the topography of the Colorado River Basin Region. Numerous faults exist, including the San Andreas fault; they are responsible for the mountainous terrain in the north and the large valleys and plains in the south. The northern third of the region is part of the Mojave Desert and features small to moderate mountain ranges, dormant volcano cinder cones, hills, and narrow and U-shaped valleys. The San Bernardino and San Jacinto mountains in the north have peaks at or above 10,000 feet above sea level. The remainder of the region, which is part of the Sonoran Desert, is less mountainous and is dominated by the Salton Sea at approximately 230 feet below sea level, and includes the Imperial, Coachella, Palo Verde, and Bard Valleys.

The Colorado River Basin Region has the driest climate in California, with an average annual precipitation of 5.5 inches and average annual runoff of 200,000 acre-feet. Rainfall is sporadic and amounts vary widely with location, with substantially more rainfall occurring in the mountains than on the valley floors.

The Colorado River Basin Region consists predominately of open desert. A large amount of open land is maintained by the Bureau of Land Management (BLM), the National Park Service, and the Department of Defense (DOD). A smaller portion of the open area is managed by the United States (US) Forest Service, US Fish and Wildlife, the State of

California, and local First Nation tribes. The Colorado River Basin Region has two of the state's largest public parks, the 600,000-acre Anza Borrego Desert State Park west of the Salton Sea in the Santa Rosa, Borrego, and Vallecitos Mountains and the 800,000-acre Joshua Tree National Park located in the Little San Bernardino Mountains.

Most of the land overlying the groundwater basins/subbasins in the Colorado River Basin Region has little or no inhabitants. Information from the 2010 US Census indicates an overall regional population of approximately 750,000, with slightly more than half of the people living in the area overlying the Indio Subbasin of the Coachella Valley Groundwater Basin, and about one-quarter living in the area overlying the Imperial Valley Groundwater Basin.

HYDROLOGIC SETTING

Surface water is limited throughout the Colorado River Basin Region, which contains primarily intermittent or ephemeral rivers and streams, with perennial rivers or creeks found mostly in the mountainous upper reaches of the rivers. The New and Alamo Rivers, flowing north from Mexico over the Imperial Valley Groundwater Basin, are a few of the perennial rivers that exist in the region. The Colorado River runs along the eastern border of the region.

The largest body of water in the region, the Salton Sea, is located between the Coachella Valley and Imperial Valley Groundwater Basins. The Salton Sea was formed on the site of a prehistoric lake between 1905 and 1907 by overflow of the Colorado River. Several smaller, constructed recreational lakes are located in Imperial Valley, and Lake Cahuilla is used to store imported Colorado River water for irrigation in Coachella Valley. Other surface waters include constructed agricultural drains and water conveyance canals in the Coachella and Imperial Valleys.

The Department of Water Resources (DWR) identifies 65 groundwater basins/subbasins in the Colorado River Basin Region, underlying approximately 13,100 square miles, or 66 percent (%) of the region, shown on Figure 2. A groundwater basin is defined as an area underlain by permeable materials capable of furnishing a significant supply of groundwater to wells or storing a significant amount of water, and subbasins are a hydrologically distinct area within a larger groundwater basin.

Groundwater primarily occurs within the Colorado River Basin Region's valleys, which over thousands of years have filled with alluvial sediments, forming small internal drainage basins where runoff of rain and surface water is stored in the unconfined alluvial sediments that fill these valleys. In some of the larger groundwater basins, particularly near dry lakes, aquifers may be separated by aquitards that create confined groundwater conditions. Runoff from the higher elevations is the main source of recharge for the region's groundwater basins. Depths of groundwater basins range from tens or hundreds of feet in smaller basins and along arms of ephemeral rivers to thousands of feet in larger basins. The thickness of aquifers varies from tens to hundreds of feet. Well yields vary greatly depending on aquifer characteristics and well location, size, and use. Some

aquifers are capable of yielding thousands of gallons per minute to municipal wells. Most of the groundwater basins in the Colorado River Basin Region are designated as municipal and domestic supply beneficial use waters.

GROUNDWATER CHARACTERISTICS

Water is an excellent solvent, dissolving and transporting minerals, salts, and metals (collectively, referred to as total dissolved solids [TDS]) as it moves through and resides in soil and rocks. TDS represents the total concentration of dissolved substances in water and is made up of inorganic salts, as well as a small amount of organic matter. Common inorganic salts that can be found in water include calcium, magnesium, potassium, and sodium, which are called cations; and carbonates, nitrates, bicarbonates, chlorides, and sulfates, which are called anions.

The chemical character of groundwater in the Colorado River Basin Region is variable. Cation concentration is dominated by sodium and calcium with magnesium appearing less often. Bicarbonate is usually the dominant anion, although sulfate and chloride waters are also common. In basins with closed drainages, water character often changes from calcium-sodium bicarbonate near the margins to sodium chloride or chloride-sulfate beneath a dry lake. It is not uncommon for concentrations of dissolved constituents to rise dramatically toward a dry lake where saturation of mineral salts is reached.

Even though some of the Colorado River Basin Region's aquifers have been studied by local agencies and the US Geological Survey (USGS), many of the basins do not have comprehensive groundwater information. Regionwide depth-to-groundwater information and annual estimates of change in groundwater in storage are not well understood for many of the groundwater basins in the region.

REGIONAL WATER DEMAND

According to DWR's 2013 California Groundwater Update, the average annual total water demand for the Colorado River Basin Region from 2005 to 2010, was estimated at 4.3 million-acre feet per year. Approximately 91% of the total water supply is met by imported Colorado River and State Water Project (SWP) water, local supplies, and recycled water and 9% is met by groundwater. Even though groundwater accounts for only a small amount of the total water supply in the Region, in almost half of the basins, groundwater comprises 80 to 100% of the water supply. Evaluation of the Region's groundwater supply, by type of use, indicates that groundwater contributed 1% of the average annual agricultural water use and 53% of the total urban water use.

III. EXISTING CALIFORNIA GROUNDWATER BASIN PRIORITIZATIONS

The State Water Board and the DWR have both spent substantial resources and made significant effort to prioritize the management of California's 515 DWR groundwater basins and subbasins. Prioritization of California's groundwater basins began as far back as 2001, with the implementation of the Groundwater Ambient Monitoring and Assessment (GAMA) Priority Basin Project. In 2014, California groundwater basins were

prioritized in accordance with the California Statewide Groundwater Elevation Monitoring (CASGEM) Program, updated in 2015, and again in 2019.

GROUNDWATER AMBIENT MONITORING ASSESSMENT BASIN PRIORITIZATION

The Groundwater Quality Monitoring Act of 2001 (Water Code, §§ 10780-10782.3) was established to improve comprehensive groundwater monitoring and increase the availability of information about groundwater quality to the public. The State Water Board, in coordination with an Interagency Task Force and Public Advisory Committee, integrated existing groundwater monitoring programs and designed new program elements, including groundwater basin prioritization, comprehensive groundwater monitoring, special groundwater studies, and an online groundwater information system.

The GAMA Priority Basin Project, led by State Water Board in collaboration with USGS and Lawrence Livermore National Laboratory, evaluated groundwater basins, identifying where most (greater than 90%) of the public supply wells, municipal groundwater pumping, agricultural groundwater withdrawals, leaking underground storage tank (UST) sites, and pesticide applications were occurring throughout the state. Groundwater basins where few or none of these activities are occurring were considered “Very Low Priority” DWR identified 116 basins/subbasins statewide to prioritize for assessment and further prioritized the 116 basins/subbasins by assigning rankings of 1 (High) to 6 (Low).

The GAMA Priority Basin Project identified 12 basins/subbasins in the Colorado River Basin Region as priority basins, listed below in Table 1. Subsequent to the Borrego Valley Groundwater Basin’s prioritization, DWR modified the basin boundaries, separating the basin into two subbasins; both subbasins are identified in Table 1.

Table 1
Colorado River Basin Region DWR Groundwater Basins Designated as High or Medium GAMA Priority

Basin Number	DWR Groundwater Basin	GAMA Priority Rank
7-12	Warren Valley	Medium (4)
7-20	Morongo Valley	Medium (4)
7-21.01	Coachella Valley-Indio Subbasin	High (1)
7-21.02	Coachella Valley-Mission Creek Subbasin	High (1)
7-21.03	Coachella Valley-Desert Hot Springs Subbasin	High (1)
7-21.04	Coachella Valley-San Gorgonio Pass Subbasin	High (1)
*7-24.01	Borrego Valley-Borrego Springs Subbasin	Medium (4)
*7-24.02	Borrego Valley-Ocotillo Wells Subbasin	Medium (4)
7-36	Yuma Valley	Medium (3)
7-38	Palo Verde Valley	Medium (3)
7-39	Palo Verde Mesa	Medium (3)
7-44	Needles Valley	Medium (3)
7-62	Joshua Tree	Medium (4)

‘* Basin prioritized prior to splitting into two subbasins

The GAMA Program began assessing public supply wells (deep groundwater resources) of the priority basins in 2002 and shifted focus to shallow aquifer assessments in 2012. The project monitors ambient groundwater quality, provides hydrogeologic technical support to statewide programs, and conducts localized special studies. Since 2002, USGS has performed baseline and trend assessments and sampled over 2,900 public and domestic water supply wells, representing 95% of the groundwater resources in California. Areas evaluated within the Colorado River Basin Region include Borrego Valley, Central Desert, and low-use basins of the Mojave and Sonoran Deserts, Coachella Valley, and the basins located along the Colorado River.

CALIFORNIA STATEWIDE GROUNDWATER ELEVATION MONITORING PROGRAM

In 2014, DWR implemented the CASGEM Program in response to legislation enacted in California's 2009 comprehensive water package (Water Code, § 10933). The CASGEM Groundwater Basin Prioritization Project is a statewide ranking of groundwater basin importance that incorporates groundwater reliance and focuses on basins producing greater than 90% of California's annual groundwater. The basin prioritization process requires DWR to consider, to the extent available, the population overlying the basin; the rate of current and projected growth of the population overlying the basin; the number of public supply wells that draw from the basin; the total number of wells that draw from the basin; the irrigated acreage overlying the basin; the degree to which persons overlying the basin rely on groundwater as their primary source of water; any documented impacts on the groundwater in the basin, including overdraft, subsidence, saline intrusion, and other water quality degradation; and other relevant information. Using groundwater reliance as the leading indicator of basin priority, DWR evaluated California’s groundwater basins and categorized them into four prioritization groups: High, Medium, Low, and Very Low.

In 2015, in accordance with the Sustainable Groundwater Management Act (SGMA), DWR revised the basin prioritization, providing considerations for several criteria including impacts to water quality as the CASGEM Program would be the initial prioritization used when SGMA went into effect. SGMA requires that High and Medium Priority CASGEM groundwater basins form Groundwater Sustainability Agencies (GSAs) and be managed in accordance with locally developed Groundwater Sustainability Plans (GSPs) or Alternative GSPs.

The CASGEM Basin Prioritization was updated again in December 2019, identifying the Borrego Springs Subbasin of the Borrego Valley Groundwater Basin as High Priority and the Indio, Mission Creek, and San Gorgonio Pass Subbasins of the Coachella Valley Groundwater Basin as Medium Priority, listed in Table 2 below. The remaining 61 DWR basins/subbasins within the Colorado River Basin Region were designated as Very Low Priority.

Table 2
Colorado River Basin Region DWR Groundwater Basins Designated as High or Medium CASGEM Priority

Basin Number	DWR Groundwater Basin	CASGEM Priority Rank
7-21.01	Coachella Valley-Indio Subbasin	Medium
7-21.02	Coachella Valley-Mission Creek Subbasin	Medium
7-21.04	Coachella Valley-San Gorgonio Pass Subbasin	Medium
7-24.01	Borrego Valley-Borrego Springs Subbasin	High

IV. EXISTING GROUNDWATER MANAGEMENT PLANS

Groundwater management, as defined in DWR's Bulletin-118, is "the planned and coordinated monitoring, operation, and administration of a groundwater basin, or portion of a basin, with the goal of long-term groundwater resource sustainability." Groundwater management needs are generally identified and addressed at the local level by entities with jurisdiction over groundwater or local governments by enacting ordinances, through the courts, or through the Legislature by passage of laws, regulations, and policies.

In accordance with the Recycled Water Policy, groundwater basins/subbasins where salts and/or nutrients have been identified by the Regional Water Board as a threat to water quality are required to develop SNMPs. The State Water Board encourages collaborative work among local water and wastewater entities, SNMP groups, the agricultural community, the regional water boards, Integrated Regional Water Management Planning (IRWMP) groups, GSAs, and other stakeholders to achieve groundwater sustainability, promote recycled water use, and ensure water quality protection. Additionally, the Regional Water Board may consider existing groundwater management plans as functionally equivalent to a SNMP if the existing plans sufficiently address the required SNMP components listed in Section 6.2.4 of the Recycled Water Policy.

A summary of existing groundwater management plans in the Colorado River Basin Region is provided below.

LOCAL CITY, COUNTY AND WATER AGENCY MANAGEMENT PLANS

There are an estimated 129 community water systems (CWSs) in the Colorado River Basin Region. Some CWS agencies collect appropriate groundwater data, conduct necessary analyses, and sustainably manage their basins. However, locally collected and analyzed data, which could be used by the Regional Water Board and state agencies to better characterize the groundwater basins in the Colorado River Basin Region, is generally not readily available.

A number of groundwater ordinances have been adopted by counties in the Colorado River Basin Region, the most common of which are associated with groundwater wells. These ordinances regulate well construction, abandonment, and destruction. The proper installation, maintenance and destruction of groundwater wells protects groundwater

quality by minimizing the potential for the well to act as a conduit, passing surface contamination to the groundwater; however, none of the ordinances provide for comprehensive groundwater management.

Many residences and urban areas in the region rely on septic systems for treatment of their wastewater. Septic systems can impact local drinking water wells or surface water bodies. The extent of this impact depends on how well the septic system is maintained and if it is used properly. In 2012, the State Water Board adopted the *Water Quality Control Policy for Siting, Design, Operation and Maintenance of Onsite Wastewater Treatment Systems* (OWTS Policy) establishing statewide standards for septic systems. Local agencies may submit Local Agency Management Programs (LAMPs) to the Regional Water Board, and upon approval, manage the installation of new and replacement OWTS under that program. A LAMP requires that the local agency implement a Water Quality Assessment Program to evaluate the impact of OWTS discharges and assess the extent to which groundwater and local surface water quality may be adversely impacted. The Regional Water Board has approved LAMPs submitted for all four counties in the Colorado River Basin Region: Imperial, Riverside, San Diego, and San Bernardino Counties, as well as for the City of Needles.

BASIN ADJUDICATION

When groundwater resources do not meet water demands in an area, landowners may turn to the courts to determine how much groundwater can be rightfully extracted by each overlying landowner or appropriator. These determinations are called adjudications. The court typically appoints a watermaster to ensure that groundwater extraction follow the terms of the adjudication and to periodically report to the court.

The Borrego Valley, Warren Valley, Lucerne Valley, and Coachella Valley Groundwater Basins are among the basins in the Colorado River Basin Region with the greatest groundwater extraction. Because of heavy groundwater use and declining groundwater levels, the Warren Valley and Lucerne Valley Groundwater Basins were adjudicated in 1977 and 1996, respectively. The San Gorgonio Pass Groundwater Subbasin of the Coachella Valley Groundwater Basin is included in the Beaumont Groundwater Basin adjudication judgment, finalized in 2004. The Borrego Springs Subbasin of the Borrego Valley Groundwater Basin recently filed for adjudication.

GROUNDWATER MANAGEMENT PLANS

Groundwater Management Plans (GWMPs) provide planned and coordinated monitoring, operation, and administration of groundwater basins with the goal of long-term groundwater resource sustainability. According to DWR's 2003 Bulletin-118 Update, four GWMPs have been generated for the Colorado River Basin Region. The four GWMPs manage operations overlying 24 of the region's alluvial groundwater basins/subbasins, as identified in Table 3 below. Seven of the 24 groundwater basins/subbasins are identified as High or Medium Priority under the GAMA Basin Prioritization Project, and three subbasins are designated as High or Medium Priority under the CASGEM Program.

Table 3
Colorado River Basin Region DWR Groundwater Basins With
Groundwater Management Plans

Basin Number	DWR Groundwater Basin	Agency	GWMP Date
7-11	Copper Mountain Valley	Mojave Water Agency	2004
7-12	Warren Valley	Mojave Water Agency	2004
7-13.01	Deadman Valley- Deadman Lake Subbasin	Mojave Water Agency	2004
7-13.02	Deadman Valley- Surprise Spring Subbasin	Mojave Water Agency	2004
7-15	Bessemer Valley	Mojave Water Agency	2004
7-16	Ames Valley	Mojave Water Agency	2004
7-18.01	Johnson Valley- Soggy Lake Subbasin	Mojave Water Agency	2004
7-18.02	Johnson Valley- Upper Johnson Valley Subbasin	Mojave Water Agency	2004
7-19	Lucerne Valley	Mojave Water Agency	2004
7-20	Morongo Valley	Mojave Water Agency	2004
7-50	Iron Ridge Area	Mojave Water Agency	2004
7-51	Lost Horse Valley	Mojave Water Agency	2004
*7-24.01	Borrego Valley- Borrego Springs Subbasin	Borrego Springs Water District	2006
*7-24.02	Borrego Valley- Ocotillo Wells Subbasin	Borrego Springs Water District	2006
7-09	Dale Valley	Twentynine Palms Water District	2008
7-10	Twentynine Palms	Twentynine Palms Water District	2008
7-62	Joshua Tree	Twentynine Palms Water District	2008
7-21.01	Coachella Valley-Indio Subbasin	Coachella Valley Water District	2010
7-21.02	Coachella Valley- Mission Creek Subbasin	Coachella Valley Water District	2010
7-21.03	Coachella Valley- Desert Hot Springs Subbasin	Coachella Valley Water District	2010
7-22	West Salton Sea	Coachella Valley Water District	2010
7-31	Orocopia Valley	Coachella Valley Water District	2010
7-32	Chocolate Valley	Coachella Valley Water District	2010
7-33	East Salton Sea	Coachella Valley Water District	2010

‘* GAMA Priority determined prior to dividing basin into two subbasins.

INTEGRATED REGIONAL GROUNDWATER MANAGEMENT

IRWMP groups facilitate and support water management and sustainability, economic stability, environmental stewardship, and public safety by developing water management strategies that relate to water supply and water quality; water-use efficiency; operational flexibility; and stewardship of land, natural resources, and groundwater resources. Multiple agencies, stakeholders, individuals and groups are involved in the development

of these regional plans, which generally address groundwater management in the form of goals, objectives, and strategies, but defer implementation of groundwater management and planning to local agencies through GWMPs.

There are four IRWMP areas within the Colorado River Basin Region, covering the more populated areas in the western and most of the southern portion of the region. Three of the areas—Mojave Water Agency, the Coachella Valley, and the Imperial Valley—have adopted IRWMPs and the Borrego Springs area is developing an IRWMP.

GROUNDWATER SUSTAINABILITY PLANS

SGMA was enacted in September 2014 and requires that High and Medium CASGEM Program Priority groundwater basins in California form GSAs to manage the basins in accordance with locally-developed GSPs or Alternative GSPs. There is one High Priority and three Medium Priority CASGEM subbasins in the Colorado River Basin Region. The Borrego Springs Subbasin of the Borrego Valley Groundwater Basin is designated as a High Priority under SGMA, requiring development of a GSP. During DWR's review of the Borrego Springs Subbasin GSP, basin adjudication was initiated by some of the stakeholders, and the GSP was resubmitted as an Alternative GSP. GSAs have been formed and Alternative GSPs have been submitted to DWR for the Medium Priority Indio and Mission Creek Subbasins of the Coachella Valley Groundwater Basin. An Alternative GSP for the Medium Priority San Gorgonio Pass Subbasin of the Coachella Valley Groundwater Basin is currently under development.

Table 4
Colorado River Basin Region DWR Groundwater Basins with Existing and Developing Groundwater Sustainability Plans

Basin Number	DWR Groundwater Basin	Alternative GSP Date	GAMA Priority Rank	CASGEM Priority Rank
7-21.01	Coachella Valley-Indio Subbasin	12- 2016	High [1]	Medium
7-21.02	Coachella Valley-Mission Creek Subbasin	12- 2016	High [1]	Medium
7-21.04	Coachella Valley-San Gorgonio Pass Subbasin	Under Development	High [1]	Medium
7-24.01	Borrego Valley-Borrego Springs Subbasin	01-2020	Medium [4]	High

SALT AND NUTRIENT MANAGEMENT PLANS

Three SNMPs have been submitted to the Regional Water Board that collectively cover salt and nutrient management for 13 of the Colorado River Basin Region's groundwater basins/subbasins, including five ranked as High or Medium Priority under GAMA and two identified as Medium Priority CASGEM basins. First, the approved Mojave area SNMP manages salts and nutrients in six regional groundwater basins/subbasins. Second, the groundwater monitoring program for the Twentynine Palms area has been approved; the

SNMP is still under development and will manage three groundwater basins. Third, the Coachella Valley SNMP was submitted in 2015 to manage salts and nutrients in three of the four subbasins within the Coachella Valley Groundwater Basin. The Coachella Valley SNMP was neither complete nor acceptable to Regional Water Board staff, and the stakeholders have recently restarted efforts to revise the SNMP. Groundwater basins with existing or developing SNMPs are shown on Figure 3 and listed in Table 5 below.

Table 5
Colorado River Basin Region DWR Groundwater Basins with Existing or Developing Salt and Nutrient Management Plans

DWR Groundwater Basin	GAMA Priority	CASGEM Priority	SNMP Agency	SNMP Status
7-11 Copper Mountain	Low [6]	Very Low	Mojave	Approved
7-12 Warren Valley	Medium [4]	Very Low	Mojave	Approved
7-16 Ames Valley	Low [6]	Very Low	Mojave	Approved
7-17 Means Valley	Low [6]	Very Low	Mojave	Approved
7-18.01 Johnson Valley Soggy Lake Subbasin	Low [6]	Very Low	Mojave	Approved
7-18.02 Johnson Valley Upper Johnson Valley Subbasin	Low [6]	Very Low	Mojave	Approved
7-19 Lucerne Valley	Low [6]	Very Low	Mojave	Approved
7-09 Dale Valley	Low [6]	Very Low	Twentynine Palms	Monitoring Plan Approved
7-10 Twentynine Palms Valley	Low [6]	Very Low	Twentynine Palms	Monitoring Plan Approved
7-62 Joshua Tree	Medium [4]	Very Low	Twentynine Palms	Monitoring Plan Approved
7-21.01 Coachella Valley Indio Subbasin	High [1]	Medium	Coachella Valley	Under Revision
7-21.02 Coachella Valley Mission Creek Subbasin	High [1]	Medium	Coachella Valley	Under Revision
7-21.03 Coachella Valley Desert Hot Springs Subbasin	High [1]	Very Low	Coachella Valley	Under Revision

V. REGIONAL GROUNDWATER BASIN EVALUATION

GROUNDWATER BASIN EVALUATION CRITERIA

Regional Water Board staff evaluated the Colorado River Basin Region's groundwater basins/subbasins in accordance with the factors noted in Section 6.1.3 of the Recycled Water Policy and listed below:

- Magnitude and trends of salts and nutrient concentrations in groundwater
- Contribution of imported and/or recycled water to the basin water supply

- Reliance on groundwater to supply the basin or subbasin
- Population
- Number and density of on-site wastewater treatment systems
- Other sources of salts and nutrients
- Hydrologic factors
- Basin-specific factors

REGIONAL GROUNDWATER BASIN EVALUATION PROCESS

DWR recognizes 65 groundwater basins/subbasins in the Colorado River Basin Region (Figure 2). Three SNMPs have been submitted to the Regional Water Board that collectively cover salt and nutrient management for 13 of the region's groundwater basins/subbasins, and those basins, shown on Figure 3 and identified in Table 5 are not included in this evaluation. In accordance with the Recycled Water Policy, Regional Water Board staff evaluated the remaining 52 DWR groundwater basins/subbasins.

To clarify where salt and nutrient management planning is needed, groundwater basins/subbasins in the Colorado River Basin Region were evaluated in accordance with the factors identified in Section 6.1.3 of the Recycled Water Policy and listed above. Numerous online resources were reviewed to complete this evaluation. Findings specific to each factor were considered for the region's groundwater basins/subbasins evaluated to determine if the quality of groundwater may be negatively (-1), positively (+1), or neutrally (0) affected, and the determinations were recorded on the table included as Appendix A. Basins with more of these factors negatively affecting groundwater quality were further evaluated to determine if a SNMP will be required to facilitate management of salts and nutrients in the long term.

A discussion of how each factor was used to evaluate the basins risk to groundwater quality is provided below:

Magnitude and trends of salts and nutrient concentrations in groundwater:

Surface and groundwater contain naturally occurring TDS (salts) and nitrates (nutrients). Human impacts from agricultural, municipal, and industrial activities also contribute TDS and nitrates to groundwater and surface waters, increasing the naturally occurring TDS and nitrate concentrations, and decreasing water quality. Drinking water high in TDS is less thirst quenching; may interfere with the taste of foods and beverages; can affect the aesthetic value by imparting bitter, salty, or metallic taste or unpleasant odors to the water; and is less desirable to consumers. Nitrate pollution in groundwater can pose serious health risks to pregnant women and infants if consumed at concentrations above the Primary Maximum Contaminant Level (MCL) of 10 milligrams per liter (mg/L).

To evaluate groundwater quality of each basin, concentrations of TDS and nitrates in groundwater were compared to the Secondary MCLs (SMCLs) of 500 mg/L (Recommended), 1,000 mg/L (Upper Limit), and 1,500 mg/L (Short-Term Limit) established for TDS and the Primary MCL of 10 mg/L established for nitrates. SMCLs and MCLs are protective of the beneficial use of municipal and domestic supply. Exceedance of MCLs (both Primary and Secondary) may result in the water being unsuitable for

drinking, causing a loss of the designated beneficial use of the water body for municipal and domestic supply. Concentrations of TDS less than the SMCL of 500 mg/L is recommended for consumer use and is considered good quality groundwater, concentrations between 500 and 1,000 mg/L signify groundwater is of fair quality, and TDS concentrations greater than 1,000 mg/L indicate the groundwater is of a less than desirable quality to consumers, which may affect beneficial use. Nitrate concentrations less than 5 mg/L are considered good quality water. Nitrate concentrations between 5 mg/L and 10 mg/L indicate fair water quality, and concentrations exceeding the MCL of 10 mg/L nitrates is a health risk and considered poor quality water.

The GeoTracker GAMA USGS Trends Analysis Tool was employed to identify basins with TDS and nitrate concentrations in groundwater with increasing concentration trends, stable concentrations, or a decreasing trend. The USGS Trends Analysis Tool utilizes TDS and nitrate concentration trend data obtained from the GAMA Priority Basin Project and the State Water Board, Division of Drinking Water's public supply water well data. To further evaluate salt and nutrient concentrations trends, staff also reviewed groundwater analytical data from 2011 to 2020 available in the GeoTracker GAMA database. GAMA groundwater data comes from a variety of sources, including the California Department of Pesticide Regulation, DWR, GAMA Programs, public water systems, the National Water Information System, and a variety of monitoring wells.

Increasing TDS or nitrate concentrations potentially indicate there is a threat to the groundwater quality of the basin/subbasin, and in basins/subbasins where this was observed, a negative value was recorded for this factor. Predominately stable TDS and/or nitrate concentrations trends in groundwater were identified as a neutral threat to the basin's water quality and decreasing trends were viewed as no or low threat and were noted as a positive for this factor.

Contribution of imported and/or recycled water to the basin water supply:

Use of imported water and/or recycled water within a basin can contribute to increased salt and nutrient loading to shallow groundwater. Discharges from domestic and industrial wastewater facilities, and the use of recycled water from these facilities increases TDS and nitrates in surface and groundwater. Application of imported or recycled water for irrigation or groundwater recharge affects groundwater quality as the water percolates downward, picking up additional TDS and nitrates present in soil and carrying dissolved solids to the groundwater.

Data characterizing imported water sources was obtained from DWR's Bulletin-118 2013 Update and from local GWMPs. The quantity of the imported water was not considered, but the quality of the imported water source was. To evaluate the potential impact of recycled water used in each basin, information regarding the presence of wastewater treatment facilities, which generate recycled water, was obtained from GeoTracker through review of waste discharge requirement (WDR) permits issued for wastewater collection and treatment facilities. Additionally, a list of recycled water users enrolled

under State Water Board Order No. WQ 2016-0068-DDW was reviewed to identify basins where recycled water use is occurring.

Two sources of imported water are utilized in the Colorado River Basin Region, SWP and Colorado River water. SWP water is low in TDS and nitrates, is considered high quality water, and use of this source would more likely result in a positive or neutral effect on groundwater quality of the basins where this water source is used. Imported Colorado River water contains high TDS concentrations and use of this imported water source can potentially result in a negative impact to groundwater quality in the basin where this source is used. Groundwater basins where the collection and processing of wastewater or the receipt or generation of recycled water occurs have more potential to negatively affect groundwater quality and this was noted as a negative factor for the basin. In groundwater basins where no recycled water is generated or used, the basins received a positive value for this factor.

Reliance on groundwater to supply the basin or subbasin:

Although reliance on groundwater does not negatively impact water quality, it is extremely important to protect the quality and quantity of the water supply source. The degree to which water users in a basin rely on groundwater increases the potential for degraded water quality to affect beneficial uses.

Data regarding the reliance on groundwater for each basin was obtained from the 2001 GAMA Priority Basins Project, which gathered data regarding the degree to which persons overlying the basin or subbasin rely on groundwater as their primary source of water and prioritized groundwater basins for assessment based on groundwater use across the state.

Reliance on groundwater as the sole (100%) or main (greater than 75%) source of water supply was recorded as a negative factor. Basins with no or little (less than 25%) reliance on groundwater were credited with a positive value for this factor.

Population:

Population density and the way the land is used by inhabitants overlying an aquifer directly relates to the potential for salts and nutrients to impact groundwater. Basins with larger populations or more densely populated areas potentially generate salts and nutrients in greater volumes than can be naturally assimilated, thus posing a potential threat to groundwater quality.

To evaluate the potential impact to groundwater from population factors, staff considered the number of persons residing in the basin in relation to the land area overlying the basin. Population size was based on the 2010 US Census and the square mileage of each basin was obtained from DWR's Bulletin-118 basin boundary descriptions.

Basins/subbasins with larger populations per square mile and/or urban centers were considered a negative influence on groundwater quality and received a negative value for

this factor. Basins with sparse or fewer inhabitants per square mile were assigned a positive value for this factor.

Number and density of on-site wastewater treatment systems:

The threat to groundwater quality associated with the use of OWTS, or septic systems, is dependent on the amount and density of the OWTS in use within each basin.

To evaluate the potential impact from OWTS, staff considered the number of persons residing in the basin in relation to the land area overlying the basin. Population size was based on the 2010 US Census and the area of each basin was obtained from DWR's Bulletin-118 basin boundary descriptions. For basins with larger populations, staff identified the location and relative density of single-family homes, mobile homes, apartment complexes, and other occupied spaces in each basin or areas of the basins and determined if the urban centers were serviced by a centralized sewer system or serviced by OWTS. Information regarding water and/or wastewater service for each community was obtained by reviewing the GeoTracker database for WDRs associated with processing of wastewater.

Utilizing OWTS in basins with small populations per acre was considered a low threat to groundwater quality and was listed as a positive factor. The use of OWTS in urban areas or basins with larger populations was considered a greater threat to groundwater quality from higher volume of OWTS and evaluated as a negative factor.

Other sources of salts and nutrients:

The potential for overlying land use activities such as industry, mining, landfills, agriculture, confined animals, recreational activities, irrigated lands from parks or golf courses, solar farms, correctional facilities, and DOD facilities to impact groundwater quality was considered a greater risk to water quality.

Information regarding the presence of land use activities that can potentially impact the groundwater for each basin was obtained from GeoTracker. Consideration was given to the volume of USTs and site clean-up projects and the number of permitted activities occurring within the basin, including WDRs for land disposal, confined animal facilities, and irrigated lands. Additionally, visual evaluations were conducted using the satellite feature to estimate the percent of land used for the various activities identified.

Basins identified as using more than 25% of total land use for activities that can potentially impact groundwater were assigned a negative value for this factor. Basins with limited salt and nutrient producing land use activities (less than 10%) or activities managed through existing WDRs or other programs were considered less likely to be at risk for groundwater degradation and were given a positive value for this factor.

Hydrologic factors:

Considering the hydrological characteristics specific to each basin/subbasin can help identify where salt and nutrient impacts to groundwater are more likely to occur and threaten groundwater quality, or potentially less likely to occur.

Areas where groundwater is reported within 200 feet of the ground surface (considered in this evaluation to be shallow), or coarser grained soil and/or fractured rock conditions, known as hydrologically vulnerable areas (HVAs), may be more vulnerable (or susceptible) to groundwater contamination. Basins reporting multiple aquifers, the presence of aquitards which inhibit water flow to deeper waters, and deeper groundwater conditions helping to protect groundwater from salt and nutrient impacts generated at the surface are less susceptible to groundwater contamination.

Information regarding the geology, depth to groundwater, and the presence of HVAs was obtained from GeoTracker GAMA groundwater information system for each basin evaluated. Regional USGS reports were also reviewed.

Basins with shallow groundwater conditions and/or HVAs were considered more at risk to groundwater degradation and therefore were assigned a negative value for this factor. Basins with deeper groundwater, aquitards, or multiple aquifers, which help protect groundwater from salt and nutrient impacts to water quality, were given a positive value for this factor.

Basin-specific factors:

Basin specific factors including geographic location, existing groundwater management plans, population characteristics, and economics can greatly affect whether basins can or should institute groundwater protection strategies.

Information regarding population, land use, geologic and hydrologic data, and groundwater management was obtained from GeoTracker GAMA database and from DWR Bulletin-118.

The Colorado River Basin Region primarily consists of sparsely populated open desert land, with minimal rainfall, and a readily available and abundant source of surface water from the Colorado River. Many of the region's groundwater basins have no or minimal sources of salts and nutrients to manage and few or no inhabitants. Many of the rural and small urban areas are occupied by disadvantaged or severely disadvantaged communities. Additionally, developing a SNMP would be a low priority for groundwater basins along the eastern boundary of the region that primarily use the readily available Colorado River as a source of water supply.

VI. REGIONAL GROUNDWATER BASIN EVALUATION FINDINGS

Following consideration of each factor identified in the Recycled Water Policy and described above for the 52 groundwater basins/subbasins evaluated in the Colorado River Basin Region, 43 groundwater basins/subbasins were characterized as having no or very low risk for water quality threats, seven (7) were identified with minor potential risks, and two (2) groundwater subbasins were considered to have potentially substantial risks to groundwater quality.

Results of the region's groundwater basin/subbasin evaluation are summarized in Appendix A and are discussed below:

GROUNDWATER BASINS WITH LITTLE/NO THREATS TO WATER QUALITY

The Colorado River Basin Region consists predominately of publicly-owned, open desert land. Almost half of the region's groundwater basins/subbasins have less than 50 people living within their boundaries, with some of these basins reporting no inhabitants. Groundwater basins with few or no inhabitants generally have few or no salt and nutrient producing activities occurring and have few or no stakeholders to develop and implement SNMPs. Primarily due to these regional conditions, 43 groundwater basins/subbasins were determined to have no or very low potential risks to groundwater quality.

Groundwater quality data is limited but was available for most, but not all of the forty-three low risk basins. Groundwater basins with available data report good to fair quality groundwater with concentration trends varying from stable to slightly increasing. Due to the rural conditions and sparse populations, most of these basins are 100% reliant on groundwater as their municipal and domestic supply source and also rely on OWTS. Due to the low population density, the OWTS density is considered a low risk to groundwater quality in most of these forty-three basins. Groundwater depths vary from shallow to deep and only a few of these basins contain HVAs. Additionally, 42 of these groundwater basins/subbasins are designated as Low to Very Low Priorities in accordance with both GAMA and CASGEM, with only one subbasin (7-24.02 Ocotillo Wells) identified as a Medium Priority GAMA basin; however, this designation applied to the Borrego Valley Groundwater Basin, before it was divided into two subbasins, Borrego Springs and Ocotillo Wells.

Regional Water Board staff recommend no SNMPs be required for these 43 basins/subbasins.

GROUNDWATER BASINS WITH POTENTIAL THREATS TO WATER QUALITY

Regional Water Board staff characterized seven (7) groundwater basins, listed below, as having sufficient threats to groundwater quality to potentially warrant development of a SNMP. The specific basin characteristics are discussed below:

7-05 Chuckwalla Valley Groundwater Basin:

Indications that salt and nutrient impacts are a potential threat to groundwater quality in the Chuckwalla Valley Groundwater Basin include TDS concentrations greater than the SMCL of 500 mg/L in 86% of the wells and nitrate concentrations exceeding the MCL of 10 mg/L in 10% of the wells with available data reported over the last ten years. Recycled water and imported Colorado River water are used in the basin and the inhabitants are dependent on groundwater for 80% of the municipal supply. Hydrologically, the basin contains springs, dry lakes and shallow groundwater conditions.

Groundwater data primarily reports stable and decreasing concentrations of TDS and stable concentrations of nitrates in groundwater over the last ten years. The population overlying the basin is classified as disadvantaged or severely disadvantaged communities. The 7,853 people living within the basin primarily reside in mobile home parks near Chiriaco Summit and Desert Center, or near one of the two correctional

facilities, where wastewater treatment is employed. Only a few other salt and nutrient producing land uses were identified including a racetrack, maintenance stations, pumping plants, solar plant and landfills, all of which are regulated through existing WDRs, as are the wastewater treatment plants located at Chiriaco Summit, Desert Center, and the correctional facilities.

Regional Water Board staff recommend continuing salt and nutrient management in the Chuckwalla Valley Groundwater Basin through existing regulatory programs. The requirement to develop a Chuckwalla Valley Groundwater Basin SNMP should be reevaluated in five (5) years.

7-20 Morongo Valley Groundwater Basin:

Indications that salt and nutrient impacts are a potential threat to groundwater quality in the Morongo Valley Groundwater Basin include dependence on groundwater for 100% of the municipal and domestic supply and densely populated urban centers lacking centralized sewer systems. The Morongo Valley Groundwater Basin is designated as a Medium Priority under GAMA.

The basin has good quality groundwater reporting TDS concentrations less than the SMCL of 1,000 mg/L in 100% of the wells reporting data over the last ten years, with 60% of these wells reporting less than 600 mg/L and 20% reporting TDS concentrations less than the recommended SMCL of 500 mg/L. Nitrate concentrations less than 5 mg/L were reported in 100% of the wells with available data, and all wells reported stable TDS and nitrate concentrations over the last ten years. Recycled or imported water is not used within the basin. Hydrologic data reports groundwater at depths greater than 200 feet below ground surface (bgs) and no HVAs within the basin. The population overlying the basin is classified as disadvantaged or severely disadvantaged communities and only minimal salt and nutrient producing land use activities other than OWTS were identified. WDRs regulate the OWTS at the elementary school and at a mobile home park, and there are also WDRs for a local landfill.

Regional Water Board staff recommend continuing salt and nutrient management in the Morongo Valley Groundwater Basin through existing regulatory programs. The requirement to develop a Morongo Valley Groundwater Basin SNMP should be reevaluated in five (5) years, or if conditions change.

7-22 West Salton Sea Groundwater Basin:

Indications that salt and nutrient impacts are a potential threat to groundwater quality in the West Salton Sea Groundwater Basin include TDS concentrations exceeding the upper limit of 1,500 mg/L SMCLs in 100% of wells reporting groundwater data over the last ten years, the processing of wastewater in the basin, and dependence on groundwater for 100% of the municipal and domestic supply. Basin hydrologic data reports groundwater at depths less than 50 feet bgs and the presence of HVAs within the basin.

The basin is adjacent to the Salton Sea, which is potentially providing a source of salt to the groundwater in the basin. Nitrate concentrations were reported at less than 5 mg/L in all of the wells with data, and groundwater data reports stable concentrations of TDS and nitrate concentrations in groundwater over the last ten years. The 5,352 people living within the basin primarily reside within the city limits of Salton Sea Beach or Salton City, both of which utilize centralized sewer systems, and the population overlying the basin is classified as disadvantaged or severely disadvantaged communities. Only a few salt and nutrient producing land uses were identified, including a geothermal processing plant and a landfill, both of which are regulated through existing WDR Permits, as are the wastewater treatment plants located at Salton City.

Regional Water Board staff recommend continuing salt and nutrient management in the West Salton Sea Groundwater Basin through existing regulatory programs. The requirement to develop a West Salton Sea Groundwater Basin SNMP should be reevaluated in five (5) years.

7-36 Yuma Valley Groundwater Basin:

Indications that salt and nutrient impacts are a potential threat to groundwater quality in the Yuma Valley Groundwater Basin include TDS concentrations in groundwater that exceed the SMCLs of 500 mg/L in 50% of wells and exceed 1,000 mg/L in the other 50% of wells reporting groundwater data over the last ten years; the use of imported Colorado River water; and urban centers lacking centralized sewer systems. Numerous salt and nutrient producing land uses were identified including agriculture, DOD facilities, landfills, and recreational activities. Basin hydrologic data reports groundwater at depths between 5 and 250 feet bgs and the presence of HVAs within the basin. The Yuma Valley Groundwater Basin is designated as a Medium Priority under GAMA.

The basin is adjacent to the Colorado River which is potentially contributing salts to the groundwater basin. Groundwater data reports half the wells have increasing TDS concentrations and the other half have stable TDS concentrations; and the data also reports low and stable nitrate concentrations in groundwater over the last ten years. The 3,146 people living within the basin do not rely on groundwater for municipal or domestic supply, primarily reside in rural areas with broadly-spaced OWTS use, and the communities are classified as disadvantaged or severely disadvantaged. Many of the identified land use activities that could threaten water quality of the basin are regulated through existing WDRs. WDRs regulate the OWTS utilized at the school district, bus yard, and at a few of the more densely populated areas. WDRs have also been issued for landfill and agricultural activities.

Regional Water Board staff recommend continuing salt and nutrient management in the Yuma Valley Groundwater Basin through existing regulatory programs. The requirement to develop a Yuma Valley Groundwater Basin SNMP should be reevaluated in five (5) years or if conditions change.

7-38 Palo Verde Valley Groundwater Basin:

Indications that salt and nutrient impacts are a potential threat to groundwater quality in the Palo Verde Valley Groundwater Basin include TDS concentrations in groundwater that exceed the SMCL of 500 mg/L in 100% of the wells and greater than the SMCL of 1,000 mg/L in 75% of the wells reporting data for the last ten years, the use of recycled water, populated urban centers, and significant agricultural land use. Basin hydrologic data reports variable groundwater depths from 100 feet bgs to between 300 and 400 feet bgs, and the presence of HVAs within the basin. The Palo Verde Valley Groundwater Basin is designated as a Medium Priority under GAMA.

TDS concentrations in groundwater exceed the SMCLs; however, the basin is adjacent to the Colorado River, which is potentially contributing salt to the overall TDS concentrations of the groundwater basin. TDS concentrations have been predominantly stable over the last ten years. Nitrate was not detected in approximately 60% of the wells with available data and the other 40% of the wells reported nitrate concentrations less than half the MCL of 10 mg/L. Nitrate concentrations in groundwater have been stable over the last ten years. Communities overlying the basin are disadvantaged or severely disadvantaged. The basin's inhabitants utilize groundwater for approximately 20% of the total demand, and urban centers are serviced by centralized sewer systems. Many of the identified land use activities that could threaten water quality of the basin are regulated through existing WDRs. WDRs regulate the OWTS utilized at numerous mobile home parks or equivalent use sites within the basin, and WDRs have also been issued to regulate landfill, wastewater treatment plants, and agricultural activities.

Regional Water Board staff recommend continuing to conduct salt and nutrient management through existing regulatory programs. The requirement to develop a Palo Verde Valley Groundwater Basin SNMP should be reevaluated in five (5) years.

7-39 Palo Verde Mesa Groundwater Basin:

Indications that salt and nutrient impacts are a potential threat to groundwater quality in the Palo Verde Mesa Groundwater Basin include TDS concentrations in groundwater that exceed the SMCL of 500 mg/L in 94% of the wells and greater than the SMCL of 1,000 mg/L in 61% of the wells reporting data for the last ten years, the use of both recycled water and imported Colorado River water within the basin, populated urban centers, and significant agricultural land use. Basin hydrologic data reports groundwater depths from 150 to 230 feet bgs and the presence of HVAs over approximately a third of the basin. The Palo Verde Mesa Groundwater Basin is designated as a Medium Priority under GAMA.

TDS concentrations in groundwater have been predominately stable, with increasing and decreasing fluctuations noted in about half the wells with data. Nitrate concentrations were not detected in approximately 33% of the wells with available data, 61% of the wells reported nitrate concentrations less than 5 mg/L, and only 6% reported concentrations greater than the MCL of 10 mg/L. Nitrate concentrations in groundwater have been stable over the last ten years. Communities overlying the basin are disadvantaged or severely

disadvantaged. The basin's inhabitants utilize groundwater for approximately 20% of the total demand, and urban centers are serviced by centralized sewer systems. Many of the identified land use activities that could threaten water quality of the basin are regulated through existing WDRs.

Regional Water Board staff recommend continuing salt and nutrient management through existing regulatory programs. The requirement to develop a Palo Verde Mesa Groundwater Basin SNMP should be reevaluated in five (5) years.

7-44 Needles Valley Groundwater Basin:

Indications that salt and nutrient impacts are a potential threat to groundwater quality in the Needles Valley Groundwater Basin include the use of both recycled water and imported Colorado River water within the basin, populated urban centers, recreational land use, and agricultural activities. Basin hydrologic data reports groundwater depths less than 20 feet bgs and the presence of HVAs along the eastern border of the basin. The Needles Valley Groundwater Basin is designated as a Medium Priority under GAMA.

TDS concentrations in groundwater were reported below the SMCL of 500 mg/L in 70% of the wells with available data. Nitrate concentrations were not detected in about a third of the wells sampled, and all the other wells with available data reported nitrate concentrations less than 5 mg/L (half the MCL of 10 mg/L). Additionally, TDS and nitrate concentrations have been stable for the last ten years. Communities overlying the basin are disadvantaged or severely disadvantaged. The basin's inhabitants utilize groundwater for approximately 20% of the total demand, and urban centers are serviced by centralized sewer systems. Many of the identified land use activities that could threaten water quality of the basin are regulated through existing WDRs. WDRs regulate the OWTS utilized at mobile home parks or equivalent use sites within the basin, and WDRs have also been issued to regulate wastewater treatment plants, land disposal sites, site cleanups, and for industrial activities. The City of Needles has a LAMP, approved by the Regional Water Board, to manage impacts from OWTS.

Regional Water Board staff recommend continuing salt and nutrient management through existing regulatory programs. The requirement to develop a Needles Valley Groundwater Basin SNMP should be reevaluated in five (5) years.

GROUNDWATER BASINS WITH IDENTIFIED THREATS TO WATER QUALITY

Regional Water Board staff characterized the two (2) groundwater basins/subbasins, shown on Figure 4 and listed below, as having potentially significant threats to water quality to warrant development of a SNMP. The specific basin characteristics are discussed below:

7-21.04 Coachella Valley Groundwater Basin – San Gorgonio Pass Subbasin:

Indications that salt and nutrient impacts are a potential threat to groundwater quality in the San Gorgonio Pass Subbasin include the use of imported SWP and recycled water to satisfy approximately 10% of the basins supply needs, dependence on groundwater for 90% of the total water supply, septic use in dense population centers and at the high

traffic outlet malls even though centralized sewer systems are available, and 100% of the area overlying the basin is designated as HVA. Additionally, the San Gorgonio Pass Subbasin of the Coachella Valley Groundwater Basin is designated as a Very High Priority under GAMA and a Medium Priority under CASGEM.

The potential threats to high quality groundwater recognized during this evaluation and the priority status of the basin under GAMA and CASGEM, indicate salt and nutrient management should be implemented. Regional Water Board staff recommends a SNMP, or functionally equivalent water quality management plan, be required for the San Gorgonio Pass Subbasin.

7-24.01 Borrego Valley Groundwater Basin – Borrego Springs Subbasin:

Indications that salt and nutrient impacts are a potential threat to groundwater quality in the Borrego Springs Subbasin include exceedance of the SMCL of 500 mg/L for TDS in 68% of the wells with data; dependence on groundwater for 100% of the domestic and municipal supply; populated urban centers lacking centralized sewer systems; numerous salt and nutrient producing land use activities including agriculture, landfills, and recreational activities that overlay more than 20% of the basin land surface area. Hydrologically, the basin has shallow groundwater and the presence of HVAs on most of the land surface area. Additionally, the Borrego Springs Subbasin of the Borrego Valley Groundwater Basin is designated as a Very High Priority under CASGEM and a Medium Priority under GAMA.

The potential threats to groundwater quality identified during this evaluation and the priority status of the basin under CASGEM and GAMA indicate salt and nutrient management should be implemented. Regional Water Board staff recommends a SNMP, or functionally equivalent water quality management plan, be required for the Borrego Springs Subbasin.

VII. CONCLUSIONS AND RECOMMENDATIONS

Every groundwater basin/subbasin in the Colorado River Basin Region without an existing SNMP was evaluated to determine if salts and/or nutrients are a threat to water quality, requiring development of a SNMP to manage salts and nutrients in the long term.

DWR recognizes 65 groundwater basins/subbasins in the Colorado River Basin Region. SNMPs have been submitted to the Regional Water Board for 13 of the region's groundwater basins/subbasins. Regional Water Board staff evaluated an additional 52 groundwater basins/subbasins for risks to groundwater quality in accordance with the factors identified in Section 6.1.3 of the Recycled Water Policy. Groundwater basin prioritization from GAMA and CASGEM Programs were considered in the determinations.

Of the 52 regional groundwater basins/subbasins identified and evaluated, 43 had little or no risks to water quality, seven (7) with minimal risks, and two (2) subbasins with sufficient threats to water quality to warrant the development of SNMPs.

Regional Water Board staff recommends no SNMPs be developed and no further evaluation be conducted for the 43 low risk groundwater basins/subbasins unless basin-specific conditions change.

Regional Water Board staff recommends no SNMPs currently be required for Chuckwalla Valley, Morongo Valley, West Salton Sea, Yuma Valley, Palo Verde Valley, Palo Verde Mesa, and Needles Valley Groundwater Basins, but also recommends these basins be evaluated again in five (5) years to consider any changes that would alter the findings from this determination.

Regional Water Board staff recommends SNMPs, or functionally equivalent water quality management plans, be required for the San Gorgonio Pass and the Borrego Springs Subbasins. Upon Regional Water Board approval of this recommendation, staff proposes to notify the stakeholders within the Borrego Springs and San Gorgonio Pass Subbasins to provide an evaluation of their Alternative GSPs and other GWMPs and identify whether these GSPs and GWMPS will sufficiently address the required SNMP components and adequately manage salts and nutrients in the basin.

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IX. Appendices

FIGURES

Appendix A

FIGURES

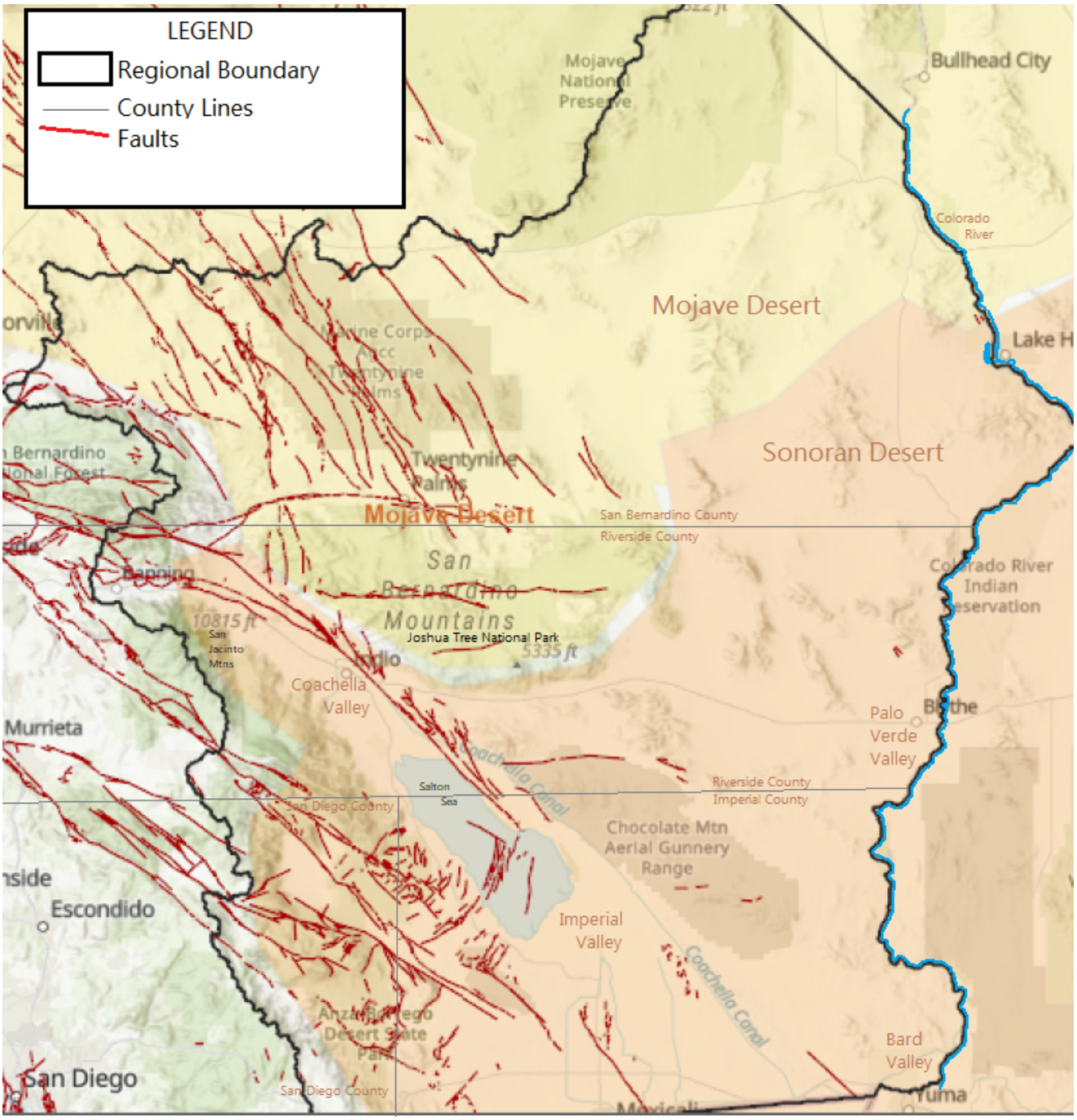

FIGURE I

Colorado River Basin Region Map

FIGURE 2

Alluvial Groundwater Basins/Subbasins Within the Colorado River Hydrologic Region

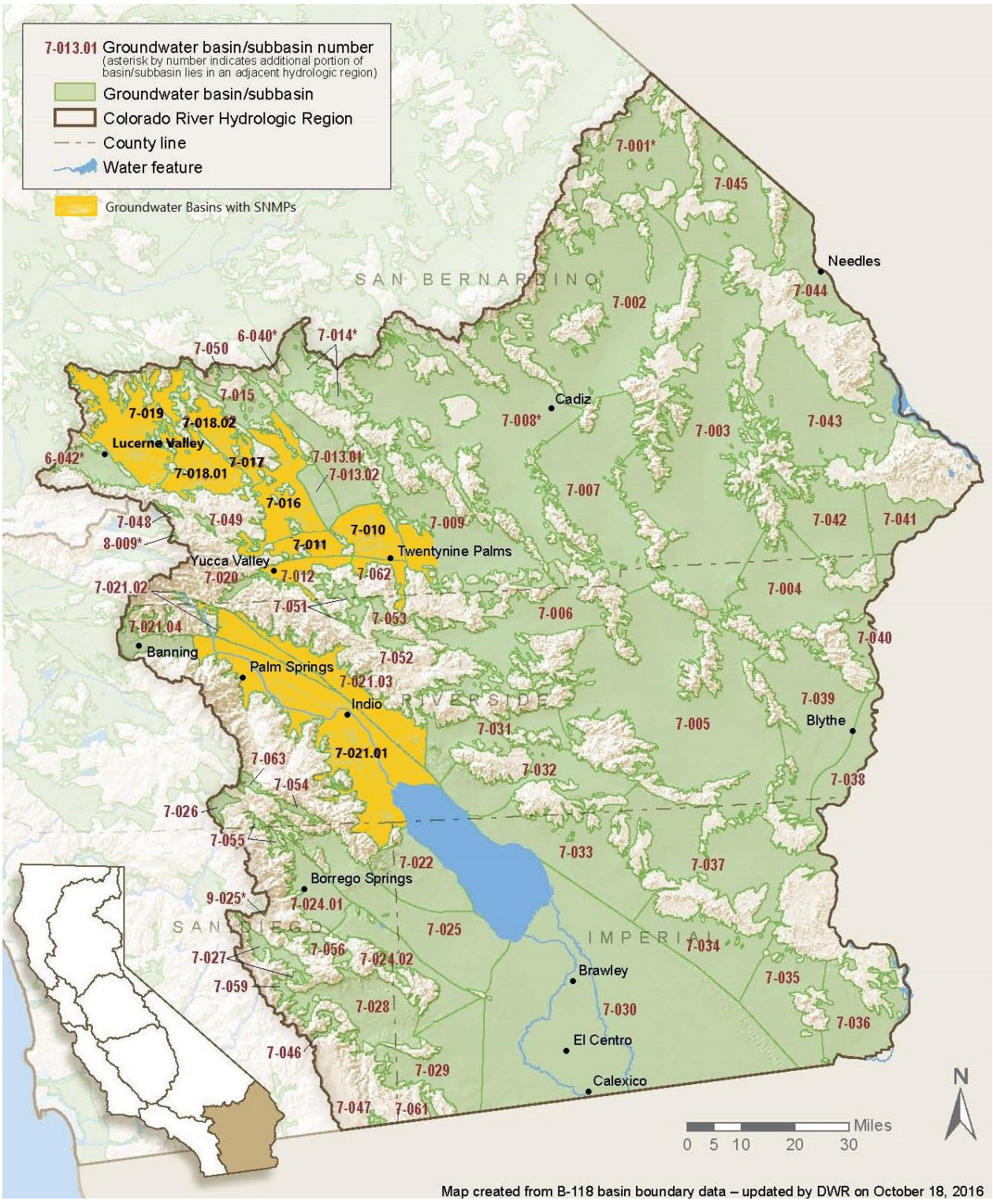

FIGURE 3

Groundwater Basins with Existing or Developing Salt and Nutrient Management Plans

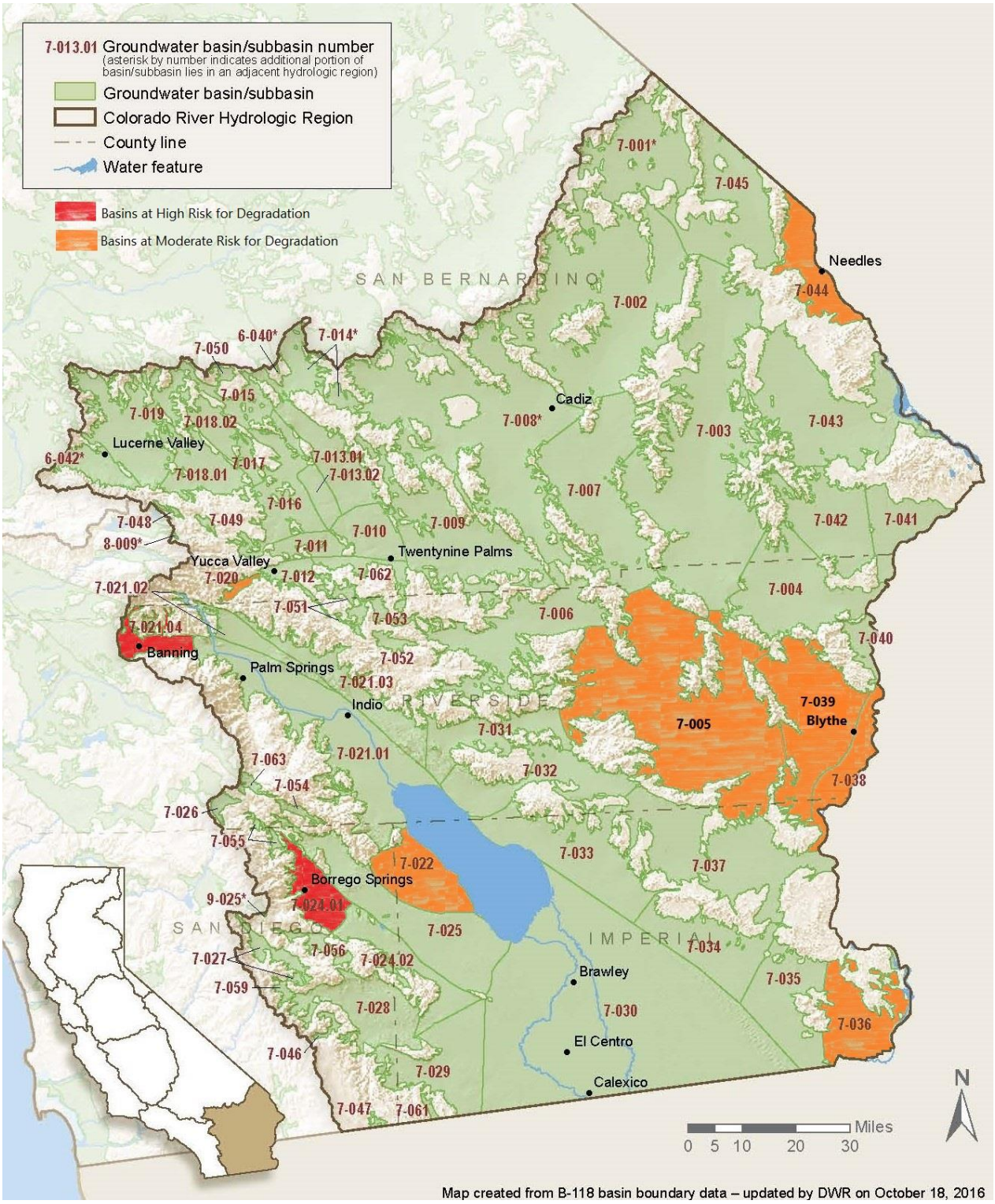

FIGURE 4

Groundwater Basins Prioritized to Develop Salt and Nutrient Management Plans