DESERT WATER

(760) 323-4971

POST OFFICE BOX 1710
PALM SPRINGS, CALIFORNIA 92263

1200 GENE AUTRY TRAIL SOUTH
PALM SPRINGS, CALIFORNIA 92264

ENGINEER'S REPORT

GROUNDWATER REPLENISHMENT AND ASSESSMENT PROGRAM FOR THE WEST WHITEWATER RIVER SUBBASIN, AND MISSION CREEK SUBBASIN AREAS OF BENEFIT

DESERT WATER AGENCY 2024/2025

JUNE 2024

Prepared by

KRIEGER & STEWART
Engineering Consultants
(951) 684-6900

Office: 3602 University Ave, Riverside, CA 92501
Mail: 3890 Orange St #1509, Riverside, CA 92502

David F. Scriven
R.C.E. No. 42922

Travis R. Romeyn
R.C.E. No. 84918

101-33.48
(DFS/TRR/blt)
(REPORTS/101-33P48RPT)

TABLE OF CONTENTS

TABLE OF CONTENTS

Page

FIGURES

TABLES

EXHIBITS

APPENDICES

ABBREVIATIONS

acre feet per year ..... AF/Yr
Agua Caliente Band of Cahuilla Indians ..... ACBCI
Area of Benefit ..... AOB
California Department of Water Resources ..... CDWR
California State Water Resources Control Board, Division of Drinking Water ..... DDW
Coachella Valley Water District ..... CVWD
degrees Fahrenheit ..... °F
Delta Conveyance Project ..... DCP
Desert Water Agency ..... DWA
Garnet Hill Subarea ..... GH
Kern County Water Agency ..... KCWA
Metropolitan Water District of Southern California ..... MWD
Mission Creek/Garnet Hill Water Management Plan ..... MC/GH WMP
Mission Creek Subbasin ..... MC
Mission Springs Water District ..... MSWD
Montgomery Watson Harza ..... MWH
Multi-Year Water Pool ..... MYWP
Off-Aqueduct Power Component of the State Water Project Transportation Charge ..... Off-Aqueduct Power Charge or OAPC
State Water Resources Control Board ..... SWRCB
State Water Project ..... SWP
Snow Creek Village Surface Water Treatment Plant ..... SWTP
Sustainable Groundwater Management Act ..... SGMA
Tulare Lake Basin Water Storage District ..... TLBWSD
United States Geological Survey ..... USGS
Variable OMP&R Component of the State Water Project Transportation Charge ..... Variable Transportation Charge
Water Management Plan ..... WMP
West Whitewater River Subbasin ..... WWR

DEFINITIONS

Term	Definition
Natural Inflow	Water flowing into a groundwater unit from natural sources such as surface water runoff or subsurface underflow from other groundwater units.
Natural Outflow	Water flowing out of a groundwater unit by drainage or subsurface underflow into other groundwater units.
Net Natural Inflow	Natural Inflow minus Natural Outflow.

Term	Definition
Production	Either extraction of groundwater from a Management Area or Area of Benefit (including its upstream tributaries), or diversion of surface water that would otherwise naturally replenish the groundwater within the Management Area or Area of Benefit (including its upstream tributaries).
Consumptive Use	Use of groundwater that does not return the water to the groundwater unit from which it was extracted, e.g. evaporation, evapotranspiration, export.
Non-Consumptive Return	Pumped groundwater that is returned to the groundwater unit after pumping, e.g. irrigation return, wastewater percolation, septic tank percolation.
Net Production	Production minus Non-Consumptive Return.
Assessable Production	Production within an Area of Benefit that does not include groundwater extracted by minimal pumpers and minimal diverters.
Minimal Pumper	A groundwater pumper that extracts 10 AF of water or less in any one year.
Minimal Diverter	A surface water diverter that diverts 10 AF of water or less in any one year.
Gross (Groundwater) Overdraft	Total Net Production in excess of Net Natural Inflow.
Net (Groundwater) Overdraft	Gross (Groundwater) Overdraft offset by artificial replenishment.
Cumulative Gross Overdraft	Total Gross Overdraft that has accumulated since the specific year that marks estimated commencement of gross overdraft conditions.
Cumulative Net Overdraft	Cumulative Gross Overdraft offset by Artificial Replenishment since the specific year that marks estimated commencement of artificial replenishment.
Whitewater River (Indio) Subbasin	The entire Indio Subbasin, as defined by the California Department of Water Resources, *Bulletin No. 108: Coachella Valley Investigation* (1964).
Mission Creek Subbasin or MC	The entire Mission Creek Groundwater Subbasin as defined by the California Department of Water Resources, *Bulletin No. 108: Coachella Valley Investigation (1964) and by* the United States Geological Survey in *Geological Survey Water-Supply Paper 2027* (1974).

Term	Definition
Garnet Hill Subarea or GH	The entire Garnet Hill Subarea of the Indio Subbasin, as defined by the California Department of Water Resources, *Bulletin No. 108: Coachella Valley Investigation (1964).* Also known as the Garnet Hill Groundwater Subbasin as defined by the United States Geological Survey in *Geological Survey Water-Supply Paper 2027* (1974).
Palm Springs Subarea	The entire Palm Springs Subarea of the Indio Subbasin, as defined by the California Department of Water Resources, *Bulletin No. 108: Coachella Valley Investigation (1964).* Also known as the Whitewater River Groundwater Subbasin as defined by the United States Geological Survey in *Geological Survey Water-Supply Paper 2027* (1974).
West Whitewater River Subbasin Management Area or WWR Management Area	The westerly portion of the Whitewater River (Indio) Subbasin, including the Palm Springs and Garnet Hill Subareas, and a portion of the San Gorgonio Pass Subbasin tributary to the Whitewater River (Indio) Subbasin, as specifically defined in Chapter II.
West Whitewater River Subbasin Area of Benefit or WWR AOB	The portion of the WWR Management Area that is within DWA's service area and is managed by DWA.
CVWD's West Whitewater River Subbasin Area of Benefit or CVWD's WWR AOB	The portion of the WWR Management Area that is within CVWD's service area and is managed by CVWD.
Mission Creek Subbasin Management Area or MC Management Area	The portion of the Mission Creek Subbasin that lies within the service areas of DWA and CVWD, as specifically defined in Chapter II.
Mission Creek Subbasin Area of Benefit or MC AOB	The portion of the MC Management Area that is within DWA's service area and is managed by DWA.
CVWD's Mission Creek Subbasin Area of Benefit or CVWD's MC AOB	The portion of the MC Management Area that is within CVWD's service area and is managed by CVWD.

CHAPTER I
EXECUTIVE SUMMARY

CHAPTER I
EXECUTIVE SUMMARY

Since 1973, Coachella Valley Water District (CVWD) and Desert Water Agency (DWA) have been using Colorado River water exchanged for State Water Project (SWP) water to replenish groundwater in the West Whitewater River Subbasin (WWR) and Mission Creek Subbasin (MC) Management Areas of the Coachella Valley Groundwater Basin.

A. RECENT DEVELOPMENTS

Since the 2022/2023 report, current estimates of natural inflow, natural outflow, non-consumptive return flows; and future projections of groundwater production and artificial replenishment are based on the assumptions and modeling efforts used for the *2022 Indio Subbasin Water Management Plan Update: SGMA Alternative Plan* (Indio SGMA Alternative Plan) and the *Mission Creek Subbasin SGMA Alternative Plan Update (2021)* (Mission Creek SGMA Alternative Plan). Future projections of the quantities of natural inflow, natural outflow, non-consumptive return flows, groundwater production, and artificial replenishment are not included in this report. For future projections, please refer to the Indio SGMA Alternative Plan and the Mission Creek SGMA Alternative Plan.

As stated in the 2023/2024 report, the California State Water Resources Control Board, Division of Drinking Water (DDW) notified DWA that the Snow Creek/Falls Creek (SC/FC) diversions no longer met the criteria for Surface Water Filtration Avoidance, thus mandating filtration treatment if DWA intended to continue using the SC/FC diversions for potable water. In response, DWA discontinued delivery of surface water to Palm Oasis and Palm Springs North, and constructed the 140 gpm Snow Creek Village Surface Water Treatment Plant (SWTP) to provide approximately 32 AF/Yr of filtered and disinfected water from the SC/FC diversions to Snow Creek Village. Rather than construct additional surface water filtration facilities to treat additional water from the SC/FC diversion, DWA now uses the remainder of the diverted SC/FC flow for generation of electricity and for groundwater replenishment by discharging it into the West Whitewater River Subbasin Groundwater Replenishment Facility. The SC/FC diversions reported herein are the quantities diverted for direct potable use, not for groundwater replenishment. DWA has also budgeted the installation of a 50 gpm capacity package surface water filtration facility at the Chino Creek West diversion.

Also, beginning with this 2024/2025 engineer's report, the Delta Water Rate is subject to new billing provisions effective January 2024 based on a new contract extension amendment executed in 2023. The overall Delta Water Rate is now the summation of three individual rates: one based on charges before the amended billing transition, and the other two based on charges after the amended billing transition.

B. ARTIFICIAL REPLENISHMENT

Groundwater production continues to exceed natural groundwater replenishment, and is expected to do so for the foreseeable future. If groundwater replenishment with imported water (artificial replenishment) is excluded, gross overdraft (defined herein as groundwater extractions or water production in excess of natural groundwater replenishment and/or recharge) within the WWR and MC Management Areas of the Coachella Valley Groundwater Basin (see **Figure 1**) would continue to increase at a steady rate. The five-year average gross overdraft (total net production minus net natural inflow) in the WWR Management Area is currently estimated to be about 79,000 acre-feet per year (AF/Yr), while gross overdraft in the MC Management Area is currently estimated at about 8,000 AF/Yr. Supplementing natural groundwater recharge resulting from rainfall runoff with artificial replenishment using imported water supplies is, therefore, necessary to offset annual and cumulative gross overdraft.

Current levels of groundwater production, without artificial replenishment, would result in adverse effects, including chronic lowering of groundwater levels, reduction of groundwater in storage, decreased well yields, and increased groundwater extraction costs. Additionally, the region could experience water quality degradation, land subsidence, and environmental impacts. Artificial replenishment offsets the deficit between groundwater production and natural groundwater replenishment, and helps avoid adverse effects associated with overdraft.

Because groundwater production continues to exceed natural groundwater replenishment within each subbasin, continued artificial replenishment in the WWR and MC Management Areas is necessary to either eliminate or reduce the adverse effects of cumulative gross overdraft, and to protect the groundwater supply.

C. GROUNDWATER REPLENISHMENT ASSESSMENT

The Areas of Benefit (AOBs) for DWA's portion of the groundwater replenishment program are those portions of the WWR and MC Management Areas, including tributary subbasins (e.g. the San Gorgonio Pass Subbasin), rivers, or streams--which lie within the boundaries of DWA (**Figure 2**). The costs involved in carrying out DWA's groundwater replenishment program are essentially recovered through groundwater replenishment assessments applied to all groundwater and surface water production within each AOB, aside from specifically exempted production.

Section 15.4(a)(3) of Desert Water Agency Law defines *production* as "the extraction of groundwater by pumping or any other method within the boundaries of the agency, or the diversion within the agency of surface supplies which naturally replenish the groundwater supplies within the agency and are used therein." The following producers are specifically exempted from assessment: producers extracting groundwater from both subbasins and upstream tributaries at rates of 10 AF/Yr or less; and producers diverting surface water without diminishing stream flow and groundwater recharge of the subbasins and upstream tributaries by 10 AF/Yr or less. Therefore, *production*, as used herein, is understood as either extraction of groundwater from a Management Area or AOB (including its upstream tributaries), or diversion of surface water that would otherwise naturally replenish the groundwater within the Management Area or AOB (including its upstream tributaries). *Assessable production*, as used herein, is understood as production that does not include water produced by minimal pumpers and minimal diverters at rates of 10 AF/Yr or less.

Pursuant to Section 15.4(f) of the current Desert Water Agency Law, the replenishment assessment rate cannot exceed the sum of the following costs and charges:

1. Certain specified charges under the contract between DWA and the state related to the purchase of State Water Project water
2. Costs of importing and recharging water from sources other than the State Water Project (such as the Colorado River Aqueduct)
3. Costs of treating and distributing reclaimed water

The replenishment assessment rate has been calculated to recover the cost of importing and recharging water from the Colorado River Aqueduct shown in **Table 7**.

Costs associated with importing and recharging the water include, but are not limited to, capital expenditures and operation and maintenance expenses related to the purchase of additional water rights, the water recharge facility, monitoring imported water supplies, and a share of general administrative costs.

The specified charges under the contract between DWA and the state related to the purchase of State Water Project water that DWA may include in the replenishment assessment are:

1. The Variable Operation, Maintenance, Power, and Replacement Component of the Transportation Charge (herein the "Variable Transportation Charge")
2. The Off-Aqueduct Power Facilities Component of the Transportation Charge (herein the "Off-Aqueduct Power Charge")
3. The Delta Water Charge
4. Any Surplus Water or Unscheduled Water Charge

DWA has historically not included costs of surplus or unscheduled water deliveries in the replenishment assessment rate; however, as of 2022/23, surplus and unscheduled water charges, were added to the Assessment Rate calculation as shown in **Table 7**.

D. GROUNDWATER REPLENISHMENT AND REPLENISHMENT ASSESSMENT IN 2023

DWA has requested its maximum 2024 Table A SWP water allocation of 55,750 AF pursuant to its SWP Contract, for the purpose of groundwater replenishment. CVWD plans to do the same with its maximum 2024 Table A water allocation.

According to the most recent update from CDWR (CDWR Notification 24-04 to State Water Project Contractors for 2024, dated April 23, 2024), CDWR will deliver a partial 40% of Table A water allocation requests, resulting in deliveries of 77,640 AF of Table A water to MWD on behalf of the Coachella Valley agencies (22,300 AF on behalf of DWA). According to DWR, all of this water is currently scheduled for delivery to MWD during 2024 and none is currently scheduled to be carried over to 2025. Article 56 water from 2023 is scheduled for delivery to MWD in 2024, and over 18,000 AF of Article 56 water has already been delivered to DWA and CVWD. For 2024,

no SWP surplus water under Pool A or Pool B of the Turn-Back Water Pool Program has been offered. Article 21 water is not available in 2024. DWA and CVWD may be able to jointly obtain 1,477 AF of water under the Yuba River Accord in 2024. MWD could be obligated under the terms of the Second Amendment to the Quantitative Settlement Agreement (QSA) to deliver up to 50,000 AF of non-SWP water (35 TAF and 15 TAF QSA Programs) to CVWD in 2024. Normally, MWD would also deliver up to 19,000 AF to CVWD during a given year under the Glorious Land/Rosedale-Rio Bravo Agreement, but no water is scheduled for delivery under this agreement during 2024. Deliveries may occur as Colorado River water to the Whitewater River Groundwater Replenishment Facility, or as transfers from the Advance Delivery account, or a combination of both.

Based on the information set forth above, the *maximum permissible* replenishment assessment rate for recovery of Table A charges that can be established for fiscal year 2024/2025 (not including charges for surplus or unscheduled water, which are unknown at this time) is approximately $252/AF, based on DWA's estimated Applicable Charges (Delta Water Charge, Variable Transportation Charge, and Off-Aqueduct Power Charge) of $10,393,897 (average of estimated 2024 and 2025 Applicable Charges) and estimated 2024/2025 combined assessable production of 41,170 AF within the WWR and MC AOBs (see **Table 2**).

The *effective* replenishment assessment rate for Table A water is based on DWA's estimated Allocated SWP Charges for the current year (based on CDWR's projections for the assessment period) divided by the estimated assessable production for the assessment period, as set forth in **Table 6**. For this report, as with most previous reports, the assessable production for 2024/2025 is estimated as the assessable production for the previous year (2023).

Pursuant to the terms of the Water Management Agreement between DWA and CVWD, and based on DWA's estimated 2024/2025 Allocated Charges of $9,567,420 and projected 2024 calendar year assessable production (shown in **Table 6** as estimated 2024/2025 assessable production) of 41,170 AF within the WWR and MC, the effective replenishment assessment rate component for Table A water for the 2024/2025 fiscal year is $232/AF. **Table 6** includes DWA's historical estimated, actual effective, and estimated projected replenishment assessment rates, including amounts to recover costs for surplus and unscheduled water, administrative and general costs for importing and recharging water from the Colorado River Aqueduct, and recovery of costs deferred from previous years.

In winter 2016, DWA elected to adopt anticipated rate ranges for fiscal years 2017/2018 through 2021/2022 based on estimated projections of expenses and revenues at the time of adoption.

In accordance with direction from the DWA Board of Directors at their public meeting on May 4, 2021, the rate will be increased by an increment of $20 annually subsequent to fiscal year 2022/2023. The recommended replenishment assessment rates (based on said $20 annual increase) for fiscal years 2023/2024 through 2027/2028 are set forth in **Section V** herein, with the recommended rate for 2024/2025 being $215.00/AF.

At the $215.00 rate, DWA's replenishment assessment for the entire Replenishment Program will be about $8,851,550, based on estimated assessable production of 41,170 AF (32,420 AF for the WWR AOB, and 8,750 AF for the MC AOB). Accordingly, DWA will bill approximately $6,970,300 for the WWR AOB, and approximately $1,881,250 for the MC AOB.

Due to significant increases in the Delta Water Charge beginning in 2015 that could result in large future increases in the replenishment assessment rate, DWA elected in 2016 to transfer the existing cumulative deficit in the Replenishment Assessment Account to reserve account(s), rather than continue to attempt to recover past deficits by future increases in the replenishment assessment rate. Deficits that result from the current and future assessments will be recovered by adding surcharges, as shown in the "Discretionary Deferral and Recovery" column for each AOB in **Table 7**.

The 2019 Exchange Agreement with MWD contains a provision that obligates DWA and CVWD to pay a portion of MWD's average long-term costs to store water in the Indio Subbasin in years when the SWP Allocation is greater than 55%. The method of calculating the payment amount for DWA and CVWD is set forth in Exhibit C of the 2019 Exchange Agreement. For an SWP Allocation of 40%, DWA's payment amount would be $0.

E. SUMMARY

Groundwater production exceeds natural replenishment in the westerly portion of the Coachella Valley Groundwater Basin even though groundwater levels have generally stabilized. Cumulative net overdraft (cumulative gross overdraft offset by artificial replenishment since commencement of artificial replenishment activities) is currently estimated to be about 135,000 AF in the WWR

Management Area (since 1973) and about 46,800 AF in the MC Management Area (since 2002). Groundwater replenishment is necessary to maintain stable groundwater levels for sustainability. Even though DWA has requested of CDWR its full SWP Table A allocation of 55,750 AF, CDWR has approved delivery of 40% of this allocation during the coming year, and DWA has elected to adopt a groundwater replenishment assessment rate for 2024/2025 of $215.00/AF.

CHAPTER II
INTRODUCTION

CHAPTER II
INTRODUCTION

A. THE COACHELLA VALLEY AND ITS GROUNDWATER

1. The Coachella Valley

The Coachella Valley is a desert valley in Riverside County, California. It extends approximately 45 miles southeast from the San Bernardino Mountains to the northern shore of the Salton Sea. Cities of the Coachella Valley include Cathedral City, Coachella, Desert Hot Springs, Indian Wells, Indio, La Quinta, Palm Desert, Palm Springs, and Rancho Mirage, and the unincorporated communities of Thousand Palms, Thermal, Bermuda Dunes, Oasis, and Mecca. The Coachella Valley is bordered on the north by Mount San Gorgonio of the San Bernardino Mountains, on the west by the San Jacinto and Santa Rosa Mountains, on the east by the Little San Bernardino Mountains, and on the south by the Salton Sea.

The Coachella Valley lies within the northwesterly portion of California's Colorado Desert, an extension of the Sonoran Desert. The San Bernardino, San Jacinto, and Santa Rosa Mountains provide an effective barrier against coastal storms, and greatly reduce the contribution of direct precipitation to replenish the Coachella Valley's groundwater basin, resulting in an arid climate. The bulk of natural groundwater replenishment comes from runoff from the adjacent mountains.

Climate in the Coachella Valley is characterized by low humidity, high summer temperatures, and mild dry winters. Average annual precipitation in the Coachella Valley varies from 4 inches on the Valley floor to more than 30 inches in the surrounding mountains. Most of the precipitation occurs during December through February (except for summer thundershowers). The low rainfall is inadequate to supply sufficient water supply for the valley, thus the need for the importation of Colorado River water. Precipitation data recorded at nine rain gauge stations in the Upper Coachella Valley by Riverside County Flood Control and Water Conservation District is included in **Appendix A**.

Prevailing winds in the area are usually gentle, but occasionally increase to velocities of 30 miles per hour or more. Midsummer temperatures commonly exceed 100 degrees Fahrenheit (°F), frequently reach 110°F, and periodically reach 120°F. The average winter temperature is approximately 60°F.

2. The Coachella Valley Groundwater Basin

The Coachella Valley Groundwater Basin (Basin No. 7-21), as described in CDWR Bulletins 108 and 118, is bounded on the north and east by non-water-bearing crystalline rocks of the San Bernardino and Little San Bernardino Mountains and on the south and west by the crystalline rocks of the Santa Rosa and San Jacinto Mountains. At the west end of the San Gorgonio Pass, between Beaumont and Banning, the basin boundary is defined by a surface drainage divide separating the Coachella Valley Groundwater Basin from the Beaumont Groundwater Basin of the Upper Santa Ana Drainage Area.

The southern boundary is formed primarily by the watershed of the Mecca Hills and by the northwest shoreline of the Salton Sea running between the Santa Rosa Mountains and Mortmar. Between the Salton Sea and Travertine Rock, at the base of the Santa Rosa Mountains, the lower boundary coincides with the Riverside/Imperial County Line.

Southerly of the southern boundary, at Mortmar and at Travertine Rock, the subsurface materials are predominantly fine grained and low in permeability; although groundwater is present, it is not readily extractable. A zone of transition exists at these boundaries; to the north the subsurface materials are coarser and more readily yield groundwater.

Although there is interflow of groundwater throughout the groundwater basin, fault barriers, constrictions in the basin profile, and areas of low permeability limit and control movement of groundwater. Based on these factors, the groundwater basin has been divided into subbasins and subareas as described by CDWR in 1964 and the United States Geological Survey (USGS) in 1971.

3. Subbasins and Subareas

The San Andreas Fault drives a complex pattern of branching fault lines within the Coachella Valley which define the boundaries of the subbasins that make up the Coachella Valley Groundwater Basin (CDWR 2003). According to CDWR, there are four subbasins within the Coachella Valley Groundwater Basin: the Indio Subbasin (referred to herein as the Whitewater Subbasin), Mission Creek Subbasin, San Gorgonio Pass Subbasin, and Desert Hot Springs Subbasin. USGS includes a fifth subbasin, the Garnet Hill Subbasin, which CDWR considers to be a subarea of the Indio Subbasin.

The subbasins, with their groundwater storage reservoirs, are defined without regard to water quantity or quality. They delineate areas underlain by formations which readily yield the stored water through water wells and offer natural reservoirs for the regulation of water supplies.

The boundaries between subbasins within the groundwater basin are generally defined by faults that serve as effective barriers to the lateral movement of groundwater. Minor subareas have also been delineated, based on one or more of the following geologic or hydrologic characteristics: type of water bearing formations, water quality, areas of confined groundwater, forebay areas, groundwater divides and surface drainage divides.

The following is a list of the subbasins and associated subareas, based on the CDWR and USGS designations:

- Mission Creek Subbasin (Subbasin 7-21.02 per CDWR Bulletin 118, Update 2003)
- Desert Hot Springs Subbasin (Subbasin 7-21.03 per CDWR Bulletin 118, Update 2003)
    - Miracle Hill Subarea
    - Sky Valley Subarea
    - Fargo Canyon Subarea
- San Gorgonio Pass Subbasin (Subbasin 7-21.04 per CDWR Bulletin 118, Update 2003)

- Whitewater River (Indio) Subbasin (Subbasin 7-21.01 per CDWR Bulletin 118, Update 2003, referred to therein as the Indio Subbasin)
    - Palm Springs Subarea
    - Garnet Hill (considered a separate subbasin by USGS)
    - Thermal Subarea
    - Thousand Palms Subarea
    - Oasis Subarea

DWA's groundwater replenishment program encompasses portions of three of the four subbasins (Whitewater River (Indio), Mission Creek, and San Gorgonio Pass). DWA's replenishment program does not include the Desert Hot Springs Subbasin. **Figure 2** illustrates the subbasin boundaries per the MC/GH WMP, CDWR Bulletin 118, Update 2003, and DWA's AOBs of the groundwater replenishment program.

The boundaries (based on faults, barriers, constrictions in basin profile, and changes in permeability of water-bearing units), geology, hydrogeology, water supply, and groundwater storage of these subbasins are further described in the following sections.

a. Mission Creek Subbasin (MC)

Water-bearing materials underlying the Mission Creek upland comprise the MC. This subbasin is designated Number 7-21.02 in CDWR's Bulletin 118, Update 2003. The subbasin is bounded on the south by the Banning Fault and on the north and east by the Mission Creek Fault, both of which are branches of the San Andreas Fault. The subbasin is bordered on the west by relatively impermeable rocks of the San Bernardino Mountains. The Indio Hills are located in the easterly portion of the subbasin, and consist of the semi-water-bearing Palm Springs Formation. The area within this boundary northwesterly of the Indio Hills reflects the estimated geographic limit of effective storage within the subbasin (CDWR 1964).

Both the Mission Creek Fault and the Banning Fault are partially effective barriers to lateral groundwater movement, as evidenced by offset water levels, fault

springs, and changes in vegetation. Water level differences across the Banning Fault, between the MC and the Garnet Hill Subarea of the WWR, are on the order of 200 feet to 250 feet. Similar water level differences exist across the Mission Creek Fault between the MC and Desert Hot Springs Subbasin (MWH 2013).

This subbasin relies on the same imported SWP/Colorado River Exchange Water source for replenishment, as does the westerly portion of the Whitewater River (Indio) Subbasin. CVWD, DWA, and MSWD make up the Management Committee under the terms of the 2004 Mission Creek Settlement Agreement. This agreement and the 2014 Mission Creek Water Management Agreement between CVWD and DWA specify that the available SWP water will be allocated between the MC and WWR Management Areas in proportion to the amount of water produced or diverted from each subbasin during the preceding year.

b. Desert Hot Springs Subbasin

The Desert Hot Springs Subbasin is designated Number 7-21.03 in CDWR's Bulletin 118 (2003). It is bounded on the north by the Little San Bernardino Mountains and on the southeast by the Mission Creek and San Andreas Faults. The Mission Creek Fault separates the Desert Hot Springs Subbasin from the MC, and the San Andreas Fault separates the Desert Hot Springs Subbasin from the Whitewater River Subbasin. Both faults serve as effective barriers to lateral groundwater flow. The subbasin has been divided into three subareas: Miracle Hill, Sky Valley, and Fargo Canyon (CDWR 1964).

The Desert Hot Springs Subbasin is not extensively developed, except in the Desert Hot Springs area. Relatively poor groundwater quality has limited the use of this subbasin for groundwater supply. The Miracle Hill Subarea underlies portions of the City of Desert Hot Springs and is characterized by hot mineralized groundwater, which supplies a number of spas in that area. The Fargo Canyon Subarea underlies a portion of the planning area along Dillon Road north of Interstate 10. This area is characterized by coarse alluvial fans and stream channels flowing out of Joshua Tree National Park. Based on limited groundwater data for this area, flow is generally to the southeast. Water quality is relatively poor with

salinities in the range of 700 milligrams per liter (mg/L) to over 1,000 mg/L (CDWR 1964).

c. San Gorgonio Pass Subbasin

The San Gorgonio Pass Subbasin lies entirely within the San Gorgonio Pass area, bounded by the San Bernardino Mountains on the north and the San Jacinto Mountains on the south (CDWR 2003). This subbasin is designated Number 7 21.04 in CDWR's Bulletin 118 (2003).

The San Gorgonio Pass Subbasin is hydrologically connected to the Whitewater River Subbasin on the east. Groundwater within the San Gorgonio Pass Subbasin moves from west to east and moves into the Whitewater River Subbasin by passing over the suballuvial bedrock constriction at the east end of the pass (CDWR 1964).

DWA's service area includes three square miles of the San Gorgonio Pass Subbasin.

d. Whitewater River (Indio) Subbasin

The Whitewater River Subbasin, as defined herein, is the same as the Indio Subbasin (Number 7 21.01) as described in CDWR Bulletin No. 118 (2003). It underlies the major portion of the Coachella Valley floor and encompasses approximately 400 square miles. Beginning approximately one mile west of the junction of State Highway 111 and Interstate 10, the Whitewater River Subbasin extends southeast approximately 70 miles to the Salton Sea.

The Subbasin is bordered on the southwest by the Santa Rosa and San Jacinto Mountains and is separated from the Mission Creek and Desert Hot Springs Subbasins to the north and east by the Banning Fault (CDWR 1964). The Garnet Hill Fault, which extends southeasterly from the north side of San Gorgonio Pass to the Indio Hills, is a partially effective barrier to lateral groundwater movement from the Garnet Hill Subarea into the Palm Springs Subarea of the Whitewater River Subbasin, with some portions in the shallower zones more permeable. The

San Andreas Fault, extending southeasterly from the junction of the Mission Creek and Banning Faults in the Indio Hills and continuing out of the basin on the east flank of the Salton Sea, is also an effective barrier to lateral groundwater movement from the northeast (CDWR 1964).

The subbasin underlies the cities of Palm Springs, Cathedral City, Rancho Mirage, Palm Desert, Indian Wells, La Quinta, Indio, and Coachella, and the unincorporated communities of Thousand Palms, Thermal, Bermuda Dunes, Oasis, and Mecca. From about Indio southeasterly to the Salton Sea, the subbasin contains increasingly thick layers of silt and clay, especially in the shallower portions of the subbasin. These silt and clay layers, which are remnants of ancient lake bed deposits, impede the percolation of water applied for irrigation and limit groundwater replenishment opportunities to the westerly fringe of the subbasin (CDWR 1964).

In 1964, CDWR estimated that the four subbasins that make up the Coachella Valley Groundwater Basin contained a total of approximately 39.2 million AF of water in the first 1,000 feet below the ground surface; much of this water originated as runoff from the adjacent mountains. Of this amount, approximately 28.8 million AF of water was stored in the overall Whitewater River Subbasin (CDWR 1964). However, the amount of water in the Whitewater River Subbasin has decreased over the years because it has developed to the point where significant groundwater production occurs (CVWD 2012). The natural supply of water to the northwestern part of the Coachella Valley is not keeping pace with the basin outflow, due mainly to large consumptive uses created by the resort-recreation economy and permanent resident population in the northwestern Whitewater River Subbasin, and large agricultural economy in the southeastern Whitewater River Subbasin. Imported SWP water allocations are exchanged for Colorado River water and utilized for replenishment in the westerly portion of the Whitewater River (Indio) Subbasin to replace consumptive uses created by the resort recreation economy and permanent resident population.

The Whitewater River (Indio) Subbasin is not currently adjudicated. From a management perspective, CVWD divides the portion of the subbasin within its

service area into two AOBs designated the West Whitewater River Subbasin AOB and the East Whitewater River Subbasin AOB. The dividing line between these two areas is an irregular line trending northeast to southwest between the Indio Hills north of the City of Indio and Point Happy in La Quinta (see paragraph e.5 below for the history of this division). The WWR Management Area is jointly managed by CVWD and DWA under the terms of the 2014 Whitewater Water Management Agreement. The East Whitewater River Subbasin AOB is managed by CVWD (CVWD 2012).

Hydrogeologically, the Whitewater River (Indio) Subbasin is divided into five subareas: Palm Springs, Garnet Hill, Thermal, Thousand Palms, and Oasis Subareas. The Palm Springs Subarea is the forebay or main area of replenishment to the subbasin. The Thermal Subarea is the pressure or confined area within the basin. The other three subareas are peripheral areas having unconfined groundwater conditions.

1) Palm Springs Subarea

The triangular area between the Garnet Hill Fault and the east slope of the San Jacinto Mountains southeast to Cathedral City is designated the Palm Springs Subarea. Groundwater is unconfined in this area. The Coachella Valley fill materials within the Palm Springs Subarea are essentially heterogeneous alluvial fan deposits with little sorting and little fine grained material content. The thickness of these water-bearing materials is not known; however, it exceeds 1,000 feet. Although no lithologic distinction is apparent from well drillers' logs, the probable thickness of recent deposits suggests that Ocotillo conglomerate underlies recent fanglomerate in the subarea at depths ranging from 300 feet to 400 feet.

Natural replenishment to the aquifer in the Whitewater River Subbasin occurs primarily in the Palm Springs Subarea. The major natural sources include infiltration of stream runoff from the San Jacinto Mountains and the Whitewater River, and subsurface inflow from the San Gorgonio Pass Subbasin. Deep percolation of direct precipitation on the Palm Springs

Subarea is considered negligible as it is consumed by evapotranspiration (CDWR 1964).

2) Garnet Hill Subarea (GH)

The area between the Garnet Hill Fault and the Banning Fault, named the Garnet Hill Subarea (GH) of the Whitewater River (Indio) Subbasin by CDWR (1964), was considered a distinct subbasin by the USGS because of the partially effective Banning and Garnet Hill Faults as barriers to lateral groundwater movement. This is demonstrated by a difference of 170 feet in groundwater level elevation in a horizontal distance of 3,200 feet across the Garnet Hill Fault, as measured in the spring of 1961. However, the Garnet Hill Fault does not reach the surface, and is probably only effective as a barrier to lateral groundwater movement below a depth of about 100 feet below ground surface (MWH 2013).

The 2013 MC/GH WMP states groundwater production is low in the Garnet Hill Subarea and is not expected to increase significantly in the future due to relatively low well yields compared to those in the MC. Water levels in the western and central portions of the subbasin show a positive response to large replenishment quantities from the Whitewater River Groundwater Replenishment Facility, while levels are relatively flat in the easterly portion of the subbasin. The small number of wells in the subarea limits the hydrogeologic understanding of how this subbasin operates relative to the MC and the neighboring Palm Springs Subarea of the Whitewater River Subbasin.

Although some natural replenishment to this subarea may come from Mission Creek and other streams that pass through during periods of high flood flows, the chemical character of the groundwater (and its direction of movement) indicate that the main source of natural replenishment to the subbasin comes from the Whitewater River through the permeable deposits which underlie Whitewater Hill (MWH 2013).

This subarea is considered a separate subbasin by USGS; however, it is considered part of the Whitewater River (Indio) Subbasin in CDWR's Bulletin 118 (2003) and, therefore, was not designated with a separate subbasin number therein. CVWD and DWA, both consider the Garnet Hill Subarea to be a part of the WWR Management Area. There are no assessable groundwater pumpers within CVWD's portion of the Garnet Hill Subarea, and two assessable groundwater pumpers within DWA's portion of the Garnet Hill Subarea, which together produced a total of approximately 286 AF of groundwater from the subarea in 2023.

3) Thermal Subarea

Groundwater of the Palm Springs Subarea moves southeastward into the interbedded sands, silts, and clays underlying the central portion of the Coachella Valley. The division between the Palm Springs Subarea and the Thermal Subarea is near Cathedral City. The permeabilities parallel to the bedding of the deposits in the Thermal Subarea are several times the permeabilities perpendicular to the bedding and, therefore, movement of groundwater parallel to the bedding predominates. Confined or semi-confined groundwater conditions are present in the major portion of the Thermal Subarea. Movement of groundwater under these conditions is present in the major portion of the Thermal Subarea and is caused by differences in piezometric (pressure) level, or head. Unconfined or free water conditions are present in the alluvial fans at the base of the Santa Rosa Mountains, such as the fans at the mouth of Deep Canyon and in the La Quinta area.

Sand and gravel lenses underlying this subarea are discontinuous, and clay beds are not extensive. However, two aquifer zones separated by a zone of finer-grained materials were identified from well logs. The fine-grained materials within the intervening horizontal plane are not tight enough or persistent enough to completely restrict the vertical interflow of water, or to warrant the use of the term "aquiclude". Therefore, the term "aquitard"

is used for this zone of less permeable material that separates the upper and lower aquifer zones in the southeastern part of the Valley.

The lower aquifer zone, composed of part of the Ocotillo conglomerate, consists of silty sands and gravels with interbeds of silt and clay. It contains the greatest quantity of stored groundwater in the Coachella Valley Groundwater Basin, but serves only that portion of the Valley easterly of Washington Street. The top of the lower aquifer zone is present at a depth ranging from 300 feet to 600 feet below the surface. The thickness of the zone is undetermined, as the deepest wells present in the Coachella Valley have not penetrated it in its entirety. The available data indicate that the zone is at least 500 feet thick and may be in excess of 1,000 feet thick.

The aquitard overlying the lower aquifer zone is generally 100 feet to 200 feet thick, although in small areas on the periphery of the Salton Sea it is more than 500 feet thick. North and west of Indio, in a curved zone approximately one mile wide, the aquitard is apparently lacking and no distinction is made between the upper and lower aquifer zones.

Capping the upper aquifer zone in the Thermal Subarea is a shallow fine-grained zone in which semi-perched groundwater is present. This zone consists of recent silts, clays, and fine sands and is relatively persistent southeast of Indio. It ranges from zero to 100 feet thick and is generally an effective barrier to deep percolation. However, north and west of Indio, the zone is composed mainly of clayey sands and silts, and its effect in retarding deep percolation is limited. The low permeability of the materials southeast of Indio has contributed to irrigation drainage problems in the area. Semi-perched groundwater has been maintained by irrigation water applied to agricultural lands south of Point Happy, necessitating the construction of an extensive subsurface tile drain system (CDWR 1964).

The Thermal Subarea contains the division between CVWD's west and east AOBs of the Whitewater River (Indio) Subbasin, which is more fully described in paragraph e.5 below.

The imported Colorado River supply through the Coachella Canal is used mainly for irrigation in the easterly portion of the Whitewater River Subbasin. Annual deliveries of Colorado River water through the Coachella Canal of approximately 300,000 AF are a significant component of southeastern Coachella Valley hydrology. A smaller portion of the Coachella Canal water supply, along with recycled water, is used to offset groundwater pumping by golf courses in the westerly portion of the Whitewater River (Indio) Subbasin via the Mid-Valley Pipeline (MVP).

Using state-of-the-art technology, CVWD developed and calibrated a peer-reviewed, three-dimensional groundwater model of the entire Coachella Valley Groundwater Basin (Fogg 2000). The model was based on data from over 2,500 wells, and includes an extensive database of well chemistry reports, well completion reports, electric logs, and specific capacity tests. This model improved on previous groundwater models, and incorporated the latest hydrological evaluations from previous studies conducted by CDWR and USGS to gain a better understanding of the hydrogeology in this subbasin and the benefits of water management practices identified in the Coachella Valley Water Management Plan. The model formed the theoretical basis of the 2010 Update to the Coachella Valley Water Management Plan. It was updated in 2021 as part of the development of the Indio SGMA Alternative Plan and the Mission Creek SGMA Alternative Plan.

4) Thousand Palms Subarea

The small area along the southwest flank of the Indio Hills is named the Thousand Palms Subarea. The southwest boundary of the subarea was determined by tracing the limits of distinctive groundwater chemical

characteristics. The major aquifers of the Whitewater River Subbasin are characterized by calcium bicarbonate; but water in the Thousand Palms Subarea is characterized by sodium sulfate (CDWR 1964).

The differences in water quality suggest that replenishment to the Thousand Palms Subarea comes primarily from the Indio Hills and is limited in supply. The relatively sharp boundary between chemical characteristics of water derived from the Indio Hills and groundwater in the Thermal Subarea suggests there is little intermixing of the two waters.

The configuration of the water table north of the community of Thousand Palms is such that the generally uniform, southeasterly gradient in the Palm Springs Subarea diverges and steepens to the east along the base of Edom Hill. This steepened gradient suggests a barrier to the movement of groundwater: possibly a reduction in permeability of the water-bearing materials, or possibly a southeast extension of the Garnet Hill Fault. However, such an extension of the Garnet Hill Fault is unlikely. There is no surface expression of such a fault, and the gravity measurements taken during the 1964 CDWR investigation do not suggest a subsurface fault. The residual gravity profile across this area supports these observations. The sharp increase in gradient is therefore attributed to lower permeability of the materials to the east.

Most of the Thousand Palms Subarea is located within the westerly portion of the Whitewater River (Indio) Subbasin. Groundwater levels in this area show similar patterns to those of the adjacent Thermal Subarea, suggesting a hydraulic connectivity (CDWR 1964).

5) Oasis Subarea

Another peripheral zone of unconfined groundwater that is different in chemical characteristics from water in the major aquifers of the Whitewater River Subbasin is found underlying the Oasis Piedmont slope. This zone, named the Oasis Subarea, extends along the base of the Santa

Rosa Mountains. Water-bearing materials underlying the subarea consist of highly permeable fan deposits. Although groundwater data suggest that the boundary between the Oasis and Thermal Subareas may be a buried fault extending from Travertine Rock to the community of Oasis, the remainder of the boundary is a lithologic change from the coarse fan deposits of the Oasis Subarea to the interbedded sands, gravel, and silts of the Thermal Subarea. Little information is available as to the thickness of the water-bearing materials, but it is estimated to be in excess of 1,000 feet. Groundwater levels in the Oasis Subarea have exhibited similar declines as elsewhere in the subbasin due to increased groundwater pumping to meet agricultural demands on the Oasis slope (CDWR 1964).

6) East/West AOB Division

The Thermal Subarea (see paragraph e.2 above) contains the division between the westerly and easterly portions of the Whitewater River Subbasin (CVWD's WWR AOB and East Whitewater River Subbasin AOB). This division constitutes the southern boundary of the management area governed by the Management Agreement between CVWD and DWA.

The boundary between these two Management Areas extends from Point Happy (a promontory of the Santa Rosa Mountains between Indian Wells and La Quinta) northeasterly, generally along Washington Street, to a point on the San Andreas Fault intersecting the northerly prolongation of Jefferson Street in Indio.

The boundary was originally defined primarily on the basis of differing groundwater levels resulting from differences in groundwater use and management northerly and southerly of the boundary. Primarily due to the application of imported water from the Coachella Canal, and an attendant reduction in groundwater extraction, the water levels in the area southeasterly from Point Happy (the East Whitewater River Subbasin Management Area) rose until the early 1970s, while groundwater levels northwesterly from Point Happy (the WWR Management Area) were

dropping due to continued development and pumping. This was stated by Tyley (USGS 1974) as follows:

"The south boundary is an imaginary line extending from Point Happy northeast to the Little San Bernardino Mountains and was chosen for the following reasons: (1) North of the boundary, water levels have been declining while south of the boundary, water levels have been rising since 1949 and (2) north of the boundary, ground water is the major source of irrigation water while south of the boundary, imported water from the Colorado River is the major source of irrigation water."

In addition, according to CDWR (1964) and as discussed above, the easterly portion of the Thermal Subarea is distinguished from area north and west of Indio within the Thermal Subarea by the presence of several relatively impervious clay layers (aquitards) lying between the ground surface and the main groundwater aquifer, creating confined and semi-confined aquifer conditions (see Figure 2). These conditions were characterized by Tyley as "artesian conditions" southerly of the south boundary.

Groundwater levels northerly of the boundary have been stable or increasing since the 1970s (per recorded measurements of USGS, DWA, and CVWD wells), except in the greater Palm Desert area, largely due to the commencement of replenishment activities at the Whitewater River Groundwater Replenishment Facility in 1973. Groundwater levels in the greater Palm Desert area continue to decline, but at a reduced rate as a result of the groundwater replenishment program. The construction of CVWD's Palm Desert Groundwater Replenishment Facility (PD-GRF), which commenced operations in early 2019, is expected to further curtail said decline in groundwater levels. Differences between the East Whitewater River Subbasin Management Area and WWR Management Area also persist in terms of management of the groundwater replenishment program and by groundwater usage (there is significantly

more agricultural use in CVWD's East Whitewater River Subbasin AOB than in the WWR Management Area).

7) Summary

The Whitewater River (Indio) Subbasin consists of five subareas: Palm Springs, Garnet Hill, Thermal, Thousand Palms, and Oasis Subareas. The Palm Springs Subarea is the forebay or main area of replenishment to the subbasin. The Garnet Hill Subarea lies to the North and adjacent to the Palm Springs Subarea. The Thermal Subarea includes the pressure or confined area within the basin. The Thousand Palms and Oasis Subareas are peripheral areas having unconfined groundwater conditions. From a management perspective, the Whitewater River Subbasin is divided into a westerly and easterly portion, with the dividing line extending from Point Happy in La Quinta to the northeast, terminating at the San Andreas Fault and the Indio Hills at Jefferson Street.

Potable groundwater is not readily available within the following areas in the Coachella Valley: Indio Hills, Mecca Hills, Barton Canyon, Bombay Beach, and Salton City. Water service to these areas is derived from groundwater pumped from adjacent areas.

B. THE GROUNDWATER REPLENISHMENT AND ASSESSMENT PROGRAM

DWA's Groundwater Replenishment and Assessment Program was established to augment groundwater supplies and arrest or retard declining water table conditions within the Coachella Valley Groundwater Basin, specifically within the WWR and MC AOBs (see **Figure 1**).

1. Water Management Areas

Pursuant to the Water Management Agreements between CVWD and DWA, the Water Management Areas encompass the Westerly Portion of the Whitewater River (Indio) Subbasin, a portion of the San Gorgonio Pass Subbasin, and the entire MC (except three

square miles in the Painted Hills area and a small portion that lies within San Bernardino County) within the Coachella Valley Groundwater Basin (see **Figure 1**).

- The West Whitewater River Subbasin (WWR) Management Area

  CVWD and DWA have recognized the need to manage the westerly portion of the Whitewater River (Indio) Subbasin as a complete unit rather than as individual segments underlying the individual agencies' boundaries. This management area consists of the Palm Springs, Garnet Hill, and Thousand Palms Subareas, a portion of the San Gorgonio Pass Subbasin (tributary to the Whitewater River (Indio) Subbasin), and the westerly portion of the Thermal Subarea. The management area was established to encompass the area of groundwater overdraft as evidenced by declining water level conditions, and includes areas within both CVWD and DWA boundaries. The easterly boundary of the WWR Management Area extends from Point Happy (a promontory of the Santa Rosa Mountains between Indian Wells and La Quinta) northeasterly, generally along Washington Street, to a point on the San Andreas Fault intersecting the northerly prolongation of Jefferson Street in Indio.

  CVWD has long considered the portion of the Garnet Hill Subarea within its boundaries to be a part of its WWR AOB. Prior to 2020, DWA considered the portion of the Garnet Hill Subarea within its service area to be a separate management area and AOB, but now considers it to be a part of its WWR AOB.

  DWA's WWR AOB is located entirely within the WWR Management Area.

- The Mission Creek Subbasin (MC) Management Area

  CVWD and DWA have recognized the need to manage the MC as a complete unit rather than as individual segments underlying the individual agency's boundaries. This management area consists of the entire MC. DWA's MC AOB is located entirely within the MC Management Area.

2. Areas of Benefit

The Areas of Benefit (AOBs) for DWA's replenishment program consist of the westerly portion of the Coachella Valley Groundwater Basin, including portions of the Whitewater River (Indio) Subbasin (including the Garnet Hill Subarea), MC, and tributaries thereto (such as the San Gorgonio Pass Subbasin), situated within DWA's service area boundary (see **Figure 2**). DWA has two AOBs within its replenishment program: the WWR AOB and the MC AOB.

DWA's **WWR AOB** consists of that portion of the WWR Management Area situated within DWA's service area boundary (including portions of the Garnet Hill Subarea and the San Gorgonio Pass Subbasin).

DWA's **MC AOB** consists of that portion of the MC Management Area situated within DWA's service area boundary.

The AOBs for CVWD's replenishment program consist of the portions of the Whitewater River Subbasin and Mission Creek Subbasin within CVWD's boundary. CVWD has a total of three AOBs within its groundwater replenishment program: the CVWD MC AOB; the CVWD WWR AOB; and the East Whitewater River Subbasin AOB (see **Figure 1**).

Within DWA's WWR AOB, there are seven stream diversions on the Whitewater River and its tributaries, five by DWA (two on Chino Creek, one on Snow Creek, one on Falls Creek, and one (consisting of two shallow wells) by the former Whitewater Mutual Water Company, which was acquired by DWA in 2009), one by the Wildlands Conservancy (formerly the Whitewater Trout Farm) which is used for conservation and educational purposes, and one by CVWD at the Whitewater River Groundwater Replenishment Facility; the latter three being on the Whitewater River itself. There are no stream diversions within the MC AOB. DWA's WWR AOB also includes subsurface tributary flows from the San Gorgonio Pass Subbasin located to the west.

While the replenishment assessments outlined on the following pages are based on and limited to water production within DWA's AOBs, available water supply, estimated water requirements, and groundwater replenishment are referenced herein to the entire WWR

Management Area and MC Management Area. The WWR and MC Management Areas are replenished jointly by CVWD and DWA for water supply purposes, and the two agencies jointly manage the imported water supplies within said Management Areas.

3. Water Management Agreements

The replenishment program was implemented pursuant to a joint Water Management Agreement for the WWR Management Area ("Whitewater River Subbasin Water Management Agreement", executed July 1, 1976 and amended December 15, 1992 and July 15, 2014) between CVWD and DWA. Later, a similar program was implemented within the MC Management Area pursuant to a similar joint Water Management Agreement ("Mission Creek Subbasin Water Management Agreement", executed April 8, 2003 and amended July 15, 2014).

CVWD and DWA entered into a Settlement Agreement with MSWD in December 2004, which affirmed the water allocation procedure that had been established earlier by CVWD and DWA, and which established a Management Committee, consisting of the General Managers of CVWD, DWA, and MSWD, to review production and recharge activities. The Addendum to the Settlement Agreement states that the water available for recharge each year shall be divided between the WWR Management Area and the MC Management Area proportionate to the previous year's production from within each management area (see **Appendix B)**. The agreement allows for flexibility in the timing of the deliveries based on delivery capability and operational constraints.

Conditions of the Settlement Agreement and Addendum between DWA, CVWD, and MSWD state that DWA and CVWD have the authority to levy replenishment assessments on water produced from subbasins of the Upper (Western) Coachella Valley Groundwater Basin within DWA and CVWD's AOBs, if found that recharge activities benefit those subbasins.

The Water Management Agreements call for maximum importation of SWP Contract Table A water allocations by CVWD and DWA for replenishment of groundwater basins or subbasins within defined Water Management Areas. The Agreement also requires

collection of data necessary for sound management of water resources within these same Water Management Areas.

4. SGMA

In 2014, faced with declining groundwater levels (most notably in California's Central Valley), the California Legislature enacted the Sustainable Groundwater Management Act (SGMA) which was intended to provide a framework for the sustainable management of groundwater resources throughout California, primarily by local authorities. SGMA consisted of three bills, AB 1739 (Dickinson), SB 1168 (Pavley), and SB 1319 (Pavley), and was signed into law by Governor Brown on September 16, 2014, initially becoming effective on January 1, 2015.

SGMA required local authorities to form local Groundwater Sustainability Agencies (GSAs), which are required to evaluate conditions in their local water basins and adopt locally-based Groundwater Sustainability Plans (GSPs) tailored to their regional economic and environmental needs. SGMA allows a 20-year time frame for GSAs to implement their GSPs and achieve long-term groundwater sustainability. It protects existing water rights and does not affect current drought response measures.

SGMA provides local GSAs with tools and authority to:

- Monitor and manage groundwater levels and quality
- Monitor and manage land subsidence and changes in surface water flow and quality affecting groundwater levels or quality or caused by groundwater extraction
- Require registration of groundwater wells
- Require reporting of annual extractions
- Require reporting of surface water diversions to underground storage
- Impose limits on extractions from individual wells
- Assess fees to implement local GSPs
- Request revisions of basin boundaries, including establishing new subbasins

In response to 2010 legislation, CDWR developed the California Statewide Groundwater Elevation Monitoring (CASGEM) program to track seasonal and long-term trends in groundwater elevations in California's groundwater basins. Through its CASGEM program, CDWR ranked the priority of each groundwater basin in California as either very low, low, medium, or high.

In addition, CDWR, as required by SGMA, identified the basins and subbasins that are in conditions of critical overdraft. Twenty-one basins and subbasins in California were identified as critically overdrafted basins.

CDWR has not identified the Indio and Mission Creek Subbasins as critically overdrafted, but has identified them as subbasins of medium priority.

In February of 2015, Desert Water Agency formed the Desert Water Agency Groundwater Sustainability Authority (DWAGSA), covering portions of the Indio, Mission Creek, and San Gorgonio River Subbasins. In October-November of 2015, CVWD formed the Coachella Valley Water District Groundwater Sustainability Agency (CVWDGSA), covering portions of the Indio and Mission Creek Subbasins. The Indio Water Authority and Coachella Water Authority also formed GSAs.

The four GSAs operating within the Indio Subbasin collaboratively submitted the 2010 Coachella Valley Groundwater Management Plan Update and supporting materials as an Alternative Plan to a GSP for the Indio Subbasin in December 2016. In July 2019, that Alternative Plan was approved by DWR, along with some recommendations for new information and requirement that an Alternative Plan Update be prepared by January 1, 2022, and every five years thereafter. The Indio SGMA Alternative Plan was adopted and submitted to DWR in December 2021.

DWAGSA, CVWDGSA. and MSWD submitted the 2013 MC/GH WMP and supporting materials as an Alternative Plan to a GSP for the Mission Creek Subbasin in December 2016. In July 2019, that Alternative Plan was approved by DWR, along with some recommendations for new information and requirement that an Alternative Plan Update be prepared by January 1, 2022, and every five years thereafter. The *Mission Creek SGMA Alternative Plan* was adopted and submitted to DWR in December 2021.

By eliminating overdraft conditions, the goal of SGMA is to create statewide groundwater conditions that are "sustainable". SGMA defines the term "sustainable yield" as follows:

"The maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus that can be withdrawn annually from a groundwater supply without causing an undesirable result."

"Undesirable results" are defined in SGMA as:

1. "Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon. Overdraft during a period of drought is not sufficient to establish a chronic lowering of groundwater levels if extractions and recharge are managed as necessary to ensure that reductions in groundwater levels or storage during a period of drought are offset by increases in groundwater levels or storage during other periods."

2. "Significant and unreasonable reduction of groundwater storage."

3. "Significant and unreasonable seawater (salt water) intrusion."

4. "Significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies."

5. "Significant and unreasonable land subsidence that substantially interferes with surface land uses."

6. "Depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses"

Sustainability must be achieved within 20 years after adoption of the GSP or GSP Alternative. The San Gorgonio Pass Subbasin must achieve sustainability in 2042, and the Mission Creek and Indio Subbasins must achieve sustainability by 2036.

5. Groundwater Overdraft

According to DWR Bulletin 118-80 (Groundwater Basins in California):

> *"Overdraft is the condition of a groundwater basin in which the amount of water withdrawn by pumping over the long-term exceeds the amount of water that recharges the basin. Overdraft is characterized by groundwater levels that decline over a period of years and never fully recover, even in wet years. Overdraft can lead to increased extraction costs, land subsidence, water quality degradation, and environmental impacts."*

DWR Bulletin 118-80 states that overdraft conditions in a basin become "critical" when:

> *"…continuation of present water management practices would probably result in significant adverse overdraft-related environmental, social, or economic impacts."*

DWR Bulletin 160-93 (California Water Plan) expands on Bulletin 118-80's "period of years" as follows:

> *"Such a period of time must be long enough to produce a record that, when averaged, approximates the long-term average hydrologic conditions for the basin."*

DWR Bulletin 160-09 (2009 California Water Plan Update) synthesizes the definitions provided in Bulletins 118-80 and 160-93 as follows:

> *"Overdraft is defined as the condition of a groundwater basin in which the amount of water withdrawn by pumping exceeds the amount of water that recharges the basin over a period of years, during which the water supply conditions approximate average conditions."*

The above is the general definition of groundwater overdraft used herein. However, as noted in both CDWR Bulletin 118-80 and SGMA, consideration of groundwater overdraft is qualified by adverse effects of overdraft, such as chronic lowering of groundwater levels, reduction of groundwater in storage, decreased well yields, increased groundwater extraction costs, water quality degradation, sea-water intrusion, land subsidence, depletions of interconnected surface water with adverse impacts on beneficial uses of the surface water, and environmental impacts.

The historical occurrence of overdraft in the Basin was caused by the rapid development of agriculture in the area during the early 1900s, followed by increasing urban and recreational development in the later 1900s. This growth led to increased water demands that were met by groundwater pumping, which exceeded the natural recharge to the Basin and caused overdraft conditions.

For purposes of this report, groundwater overdraft is considered in terms of "gross overdraft" and "net overdraft". The term "gross overdraft" refers to groundwater extractions or water production in excess of natural groundwater replenishment or recharge, as an annual rate in AF/Yr, and "cumulative gross overdraft" refers to the gross overdraft in AF accumulated over the recorded history of an aquifer (since 1956 for WWR and since 1978 for MC). The term "net overdraft" refers herein to gross overdraft offset by artificial replenishment.

The initial Water Management Agreement was developed following numerous investigations regarding the groundwater supply within the Coachella Valley; said investigations are addressed in DWA's previous reports (*Engineer's Report on Groundwater Replenishment and Assessment Program for the Whitewater River Subbasin* for the years 1978/1979 through 1983/1984). These investigations all concluded that gross overdraft (groundwater extractions or water production in excess of natural groundwater replenishment and/or recharge) existed within the Coachella Valley Groundwater Basin and its subbasins.

6. Groundwater Replenishment

a. Summary

Since 1973, CVWD and DWA have been using Colorado River water exchanged for SWP water (Table A water allocations and supplemental water as available) to replenish groundwater in the Coachella Valley Groundwater Basin within the WWR Management Area (including a portion of the San Gorgonio Pass Subbasin and the Garnet Hill Subarea, and, since 2002, within the MC Management Area. The two agencies are permitted by law to replenish the groundwater basins and to levy and collect groundwater replenishment assessments from any groundwater extractor or surface water diverter (aside from exempt producers) within their jurisdictions who benefits, such as those within the Garnet Hill Subarea and San Gorgonio Pass Subbasin, from replenishment of groundwater.

b. History

DWA and CVWD completed construction of the Whitewater River Groundwater Replenishment Facility in 1973 and the Mission Creek Groundwater Replenishment Facility in 2002, and recharge activities commenced within each respective subbasin upon completion of the facilities. Annual recharge quantities are set forth in **Exhibit 6**.

From 1973 through 2023, CVWD and DWA have replenished the WWR and MC Management Areas with approximately 4,367,440 AF (4,144,902 AF to the Whitewater River Groundwater Replenishment Facility, 50,218 AF to the Palm Desert Groundwater Replenishment Facility, and 172,320 AF to the Mission Creek Groundwater Replenishment Facility). Of this total, 3,689,795 AF consisted of exchange deliveries (Colorado River water exchanged for SWP water, including advance deliveries), 50,218 AF consisted of deliveries to the PD-GRF, and 627,427 AF consisted of deliveries from accounts other than the SWP Exchange account. Of the above totals, excluding non-SWP and MWD's advance deliveries, DWA is responsible for approximately 749,857 AF of the artificial replenishment

to WWR and approximately 120,339 AF of the artificial replenishment to MC; a total of approximately 870,197 AF.

Between October 1984 and December 1986, MWD initially provided about 466,000 AF of advance delivered water for future exchange with CVWD and DWA that was used to replenish the WWR Management Area. This initial quantity of advanced delivered water has been augmented several times since then (with a portion on the augmented supply delivered to the Mission Creek Groundwater Replenishment Facility), and the total quantity of advance delivered water in both subbasins is currently 1,329,629 AF. During drought conditions, MWD has periodically met exchange delivery obligations with water from its advance delivery account. By December 2023, MWD had converted approximately 1,027,134 AF of advance delivered water to exchange water deliveries, leaving a balance of approximately 302,495 AF in MWD's advance delivery account (see **Exhibit 7**, included at the end of this report, for an accounting of exchange and advance deliveries).

c. Table A Water Allocations and Deliveries

SWP Table A water allocations are based primarily on hydrologic conditions and legal constraints, and vary considerably from year to year. In 2023, the final allocation was 100% of maximum Table A allocations, with 27,875 AF of Article 56 carry-over to 2024. As of the writing of this report, Table A water deliveries in 2024 are projected by DWR to be 40% of maximum Table A allocations. Long-term average Table A allocations are currently predicted to be approximately 45% of maximum Table A allocations. Since DWR delivery projections can vary significantly throughout the year, and occasionally after publication of this report, the long-term average of 45% is used herein for estimating delivery.

A portion of Table A allocations for a given year are occasionally carried over into the following year under Article 56 of the SWP Contract. A total of 27,875 AF of Article 56 water has been scheduled to be carried over from 2023, and no Article 56 water is scheduled to be carried over from 2024 to 2025.

Even though CVWD and DWA have requested and will continue to request their maximum annual Table A allocations, the "Probable Table A Water Deliveries" have been adjusted herein for long-term reliability for estimating purposes. "Probable Table A Water Deliveries" are herein assumed to be 45% of the aforementioned Probable Table A Water Allocations, based on currently estimated SWP delivery capability, as shown in **Table 0**.

From 1973 through 2003, CVWD and DWA had SWP maximum annual Table A allocations of 23,100 AF and 38,100 AF, respectively. To meet projected water demands and to alleviate cumulative gross overdraft conditions, CVWD and DWA have secured additional SWP Table A water allocations, increasing their combined maximum Table A water allocations from 61,200 AF/Yr in 2003 to 194,100 AF/Yr beginning in 2010, as shown in **Table 0**. CVWD and DWA's current Table A allocations are described in additional detail in the following paragraphs.

1) Tulare Lake Purchase

CVWD obtained an additional 9,900 AF/Yr of Table A water allocation from Tulare Lake Basin Water Storage District, another State Water Contractor, thus increasing its annual Table A water allocation to 33,000 AF/Yr, effective January 1, 2004.

2) 2003 and 2019 Exchange Agreements

In 2003, CVWD and DWA obtained a further 100,000 AF/Yr (88,100 AF/Yr for CVWD and 11,900 AF/Yr for DWA) of Table A water allocation through a new exchange agreement (the 2003 Exchange Agreement) among CVWD, DWA, and MWD (all State Water Contractors). The 2003 Exchange Agreement, which became effective January 1, 2005, permitted MWD to call-back or recall the assigned annual Table A water allocation of 100,000 AF/Yr in 50,000 AF/Yr increments during periods of constrained, limited, or low water supply conditions; however, it gave CVWD and DWA the opportunity to secure increased quantities of surplus water in addition to increased quantities of Table A

water during normal or high water supply conditions. MWD was required to notify CVWD and DWA of its intentions regarding call-back or recall of the 100,000 AF or 50,000 AF increment thereof.

The 2003 Exchange Agreement was substantially amended, restated, and consolidated in 2019 as the 2019 Exchange Agreement. The 2019 Exchange Agreement provides more certainty of water supplies for DWA and CVWD, and more operational flexibility to MWD. Key elements of the 2019 Exchange Agreement include:

a) Ending MWD's right to call back 100,000 AF of the Table A Quantity,

b) Preserving MWD's ability to advance deliver water to the Whitewater River and Mission Creek Groundwater Replenishment Facilities when conditions allow,

c) Enabling MWD to conditionally defer Colorado River water deliveries during drier periods,

d) Increasing reliability of supplemental State Water Project and non-State Water Project water deliveries,

e) Allowing DWA and CVWD access to Article 21 supplies when available (in proportion to Table A Quantities), and

f) Allowing DWA and CVWD access to MWD's water storage accounts, and defining the cost-sharing structure.

3) Kern County/Tulare Lake Purchase

In 2010, CVWD and DWA negotiated transfer of an additional 16,000 AF/Yr (12,000 AF/Yr for CVWD and 4,000 AF/Yr for DWA) of Table A water allocation from Kern County Water Agency (KCWA) and an additional 7,000 AF/Yr (5,250 AF/Yr for CVWD and 1,750 AF/Yr for

DWA) from Tulare Lake Basin Water Storage District (TLBWSD), both State Water Contractors.

d. Supplemental Water

Any surplus water secured by CVWD and DWA is exchanged for a like quantity of Colorado River Water. Charges for surplus water are allocated between CVWD and DWA in accordance with the terms of the Water Management Agreements. DWA secures funds for its allocated charges for surplus water payments from its Reserve for Additional Water Reserve Account.

1) Turn-Back Water Pool Water

From 1996 through 2017, CVWD and DWA jointly obtained 297,841 AF of water under CDWR's Turn-Back Water Pool Program, which was exchanged for a like quantity of Colorado River Water and delivered to the Whitewater River and Mission Creek Replenishment Facilities.

Turn-Back Water Pool water was originally Table A water scheduled for delivery to other State Water Contractors, but those Contractors subsequently determined that the water was surplus to their needs. Surplus water in the Turn-Back Water Pool Program is allocated between two pools based on time: Pool A water must be secured by March 1 of each year and Pool B water must be secured between March 1 and April 1 of each year. The charge for Pool A water is higher than the charge for Pool B water.

Since fiscal year 1999/2000, requests for Turn-Back Water Pool water have exceeded water available. Quantities of Pool A and Pool B water purchased by CVWD and DWA are shown in **Exhibit 7**.

In 2023, DWA and CVWD were not allocated any SWP surplus water under the Turn-Back Water Pool Program. Based on current projections,

CVWD and DWA will not receive any Turn-Back Water Pool water in 2024.

2) Flood Water

In 1997 and 1998, CVWD and DWA jointly obtained 47,286 AF of Kaweah River, Tule River, and Kings River flood flow water, which was also exchanged for a like quantity of Colorado River water delivered to the Whitewater River Groundwater Replenishment Facility. Currently, the availability of flood water in 2024 is uncertain.

3) Article 21 Surplus Water

From 2000 through 2011, CVWD and DWA obtained 42,272 AF of Article 21 surplus water and, similarly, that water was also exchanged for a like quantity of Colorado River water which was delivered to the Whitewater River Groundwater Replenishment Facility. No Article 21 water was delivered to the Coachella Valley between 2011 and 2022. However, the storms of winter, 2022/2023 filled the San Luis Reservoir and made Article 21 water available. In 2023, DWA and CVWD received 13,599 AF of Article 21 water (3,906 AF to DWA). Currently, the availability of Article 21 water in 2024 is uncertain.

4) Yuba River Accord and Other Water

In 2008, CVWD and DWA obtained 1,836 AF of water under the terms of the Yuba River Accord (then newly-ratified). Quantities of water obtained under the Yuba River Accord and other conservation/transfer agreements by DWA and CVWD since 2009 are shown in **Exhibit 7**. Up to 1,477 AF of water under the Yuba River Accord may be available for purchase by DWA and CVWD in 2024. DWA and CVWD have applied for the maximum quantity of Yuba water available, but that exact quantity is yet to be determined by CDWR.

e. Past Year Water Deliveries

Total artificial replenishment (to both the Whitewater River and Mission Creek Replenishment Facilities) for 2023 was 320,962 AF. 304,507 AF was delivered to the Whitewater River Groundwater Replenishment Facility, 11,179 AF was delivered to the Palm Desert Groundwater Replenishment Facility, and 5,276 AF was delivered to the Mission Creek Groundwater Replenishment Facility (see **Exhibit 7**). 134,983 AF of the water delivered to the Whitewater River Groundwater Replenishment Facility during 2023 was delivered under CVWD's Second Supplemental Agreement to their Delivery and Exchange Agreement for the Delivery of 35,000 AF and 15,000 AF per year. Water delivered by MWD to CVWD under this agreement is only delivered to the Whitewater River Replenishment Facility, not to the Mission Creek Replenishment Facility.

f. Water Available in Current Year

The estimated quantity of water available to MWD on behalf of DWA and CVWD for exchange deliveries of Colorado River Aqueduct water for artificial replenishment in the Upper Coachella Valley during 2024, is as follows:

- Table A water: 77,640 AF (based on delivery of 40% of the maximum Table A allocation; 22,300 AF on behalf of DWA)
- Article 56 Carry-over water from 2022: 97,050 AF (27,875 AF on behalf of DWA)
- Estimated supplemental water:
  - 0 AF of Turn-Back Pool water
  - 0 AF of Article 21 water
  - Potentially up to 1,477 AF of Yuba water (424 AF available for DWA purchase)
  - 50,000 AF of Quantitative Settlement Agreement water (CVWD 35 TAF Program and 15 TAF Program)

The grand total is approximately 226,167 AF. MWD will deliver a portion of the above quantities to DWA and CVWD by exchange of Colorado River water, and

a portion via credit from the Advance Delivery account. During the first three months of 2024, a total of 16,545 AF of Colorado River water has already been delivered to the Whitewater River Groundwater Replenishment Facility, and no Colorado River water has been delivered to the Mission Creek Groundwater Replenishment Facility.

g. Historic Effects of Artificial Replenishment on Aquifer

Prior to recharge activities in the Whitewater River Subbasin and MC, water levels were declining steadily in those subbasins. As shown in **Exhibits 1, 2, and 3**, after recharge activities commenced in 1973, and specifically after the three large recharge periods listed below, groundwater levels in both subbasins have risen substantially.

- 1985 - 1987: 655,000 AF Recharged (192,000 AF by DWA)
- 1995 - 2000: 609,000 AF Recharged (157,000 AF by DWA)
- 2009 - 2012: 775,000 AF Recharged (176,000 AF by DWA)

Exhibit 1 includes hydrographs for a collection of groundwater wells within the Palm Springs Subarea of the WWR Management Area (see **Figure 2** for the locations of the wells) in comparison with the total annual quantities of water delivered to the Whitewater River Groundwater Replenishment Facility. This comparison clearly indicates that the recharge program has benefitted wells within the subarea.

Water levels in the wells closest to the Whitewater River Groundwater Replenishment Facility rose approximately 400 feet in the late 1980s and nearly 200 feet following each significant recharge period to the Whitewater River Groundwater Replenishment Facility. As expected with groundwater replenishment, the most significant response to recharge in the WWR Management Area is observed in the wells located closest to the Replenishment Facility. The degree of benefit observed from recharge decreases the farther the well is from the Replenishment Facility, as shown by the diminishing intensity of the colors of the hydrographs. Well locations are shown on **Figure 2**.

Exhibit 2 includes hydrographs for MSWD's Wells 25 and 26, which are located upstream of the Whitewater River Groundwater Replenishment Facility within the San Gorgonio Pass Subbasin (a tributary to the Palm Springs Subarea of the WWR Management Area). Similar to other wells in the management area, water levels in these wells were also declining prior to groundwater recharge, and water levels in these wells rose by about 80 feet each after recharge commenced in the 1980s. Water levels in these wells also rose following the other significant recharge periods, such as 1995-97 and 2010-12, thus demonstrating that these wells were benefitted by groundwater replenishment activities at the Whitewater River Groundwater Replenishment Facility.

Exhibit 3 includes hydrographs from a collection of groundwater wells within the Garnet Hill Subarea of the WWR Management Area (see **Figure 2** for the locations of the wells) including one well owned by MSWD in comparison with both the replenishment quantities replenished by the Whitewater River and Mission Creek Replenishment Facilities. Groundwater levels in the Garnet Hill Subarea responded rapidly when replenishment activities commenced at the Whitewater River Groundwater Replenishment Facility in the 1970s. The magnitude of the response to the groundwater recharge is inversely proportional to the distance the wells are located from the Replenishment Facility, as shown by the diminishing intensity of the colors of the hydrographs.

Exhibit 4 includes hydrographs for a selection of groundwater wells owned and operated by MSWD and the Mission Creek Monitoring Well located at the Mission Creek Groundwater Replenishment Facility (see **Figure 2** for the locations of the wells), in comparison with the total annual quantities of water delivered to the Mission Creek Groundwater Replenishment Facility. The comparison clearly indicates that the recharge program has benefitted the wells within the subbasin, especially the wells near the groundwater replenishment facility. The magnitude of the response to the groundwater recharge is inversely proportional to the distance the wells are located from the Replenishment Facility, as shown by the diminishing intensity of the colors of the hydrographs.

Although artificial replenishment with imported water, augmenting natural replenishment, has met increasing average annual groundwater demands during the past 30 years, it has not, for all practical purposes, reduced or diminished cumulative gross overdraft within the Coachella Valley Groundwater Basin, which existed prior to artificial replenishment of the groundwater basin. In effect, the groundwater overdraft condition that existed prior to imported water becoming available for groundwater replenishment has not been significantly altered, but the trend has been arrested. Although current groundwater levels have generally stabilized in the subbasins within the management areas, current cumulative gross overdraft (not yet offset by cumulative artificial replenishment) is estimated at roughly 4,337,000 AF in the WWR Management Area (since 1956) and 334,000 AF in the MC Management Area (since 1978). Cumulative net overdraft, (cumulative gross overdraft offset by replenishment since commencement of artificial replenishment activities) is currently estimated at about 135,000 AF in the WWR Management Area (since 1973) and about 47,000 AF in the MC Management Area (since 2002).

h. Adequacy of Current Supplies, Water Conservation, and Future Prospects

1) State Water Project Improvements

As discussed in previous reports, the State of California is proposing a program of improvements to the SWP. The program was originally called *California WaterFix*, and is now called the *Delta Conveyance Project.*

The California WaterFix program originally involved the construction and operation of new water diversion facilities near Courtland to convey water from the Sacramento River through two tunnels to the existing state and federal pumping facilities near Tracy. In addition to other federal, state, and local approvals, California WaterFix required changes to the water rights permits for the SWP and the federal Central Valley Project to authorize the proposed new points of water diversion and rediversion.

The capital cost of the full California WaterFix Project was estimated at about $17 billion for two tunnels. However, in his first State of the State address on February 12, 2019, Governor Gavin Newsom announced that he supports only the single-tunnel alternative, known as the "Delta Conveyance Project", or DCP, and the California WaterFix project was officially halted in May, 2019.

The planning and environmental review process for the DCP commenced on January 15, 2020 with the release of the Notice of Preparation (NOP) for the development of an Environmental Impact Report (EIR), which would evaluate several project alternatives. Scoping for the EIR has been completed. The Final EIR was certified by CDWR in December 2023, with the remaining key permits anticipated to be obtained by the end of 2026. A new cost estimate and a benefit-cost analysis for the selected project alignment was released in mid-May 2024, and stated the DCP is expected to cost around $20.1 billion, with operation anticipated to begin in 2045.

Eventually, SWP water supply reliability, quality, and delivered quantities and the overall health of the Delta may improve upon implementation of the DCP; however, it is unlikely that the costs for Delta improvements will be allocated to the State Water Contractors before 2030.

The Indio SGMA Alternative Plan and the Mission Creek SGMA Alternative Plan assume that water supplies from the DCP will not become available until around 2040.

2) Sites Reservoir Project

DWA is one of 28 California water agencies to have committed funds to design and build the $4 billion Sites Reservoir Project, which is also supported by state and federal funding. This 1.5-million-acre-foot reservoir will be built near the Sacramento River in Colusa County. The project is designed to increase water supply resilience for participating

agencies by capturing and storing water from the Sacramento River in wet years and releasing it in dry years via the State Water Project. Based on current estimates, the reservoir could provide DWA and CVWD with access to 16,500 AF/Yr of supply and 102,960 AF/Yr of storage volume.

As of 2024, construction of the Sites Reservoir is expected to begin in 2026, with completion targeted for 2030. The Indio SGMA Alternative Plan and the Mission Creek SGMA Alternative Plan assume that water supplies from the Sites Reservoir Project will become available around 2035.

3) California Drought

California has been experiencing intermittent, but severe, drought conditions since 2011. The four-year period between fall 2011 and fall 2015 was, at the time, the State's driest since recordkeeping began in 1895. A statewide drought emergency was declared to have ended in early 2017 due to a series of winter storms producing record-level rainfall.

During the course of the drought, the state implemented a number of mandatory water conservation measures, which are discussed in detail in previous reports, along with the efforts of DWA and CVWD to comply with said measures.

At the end of the process, DWA elected to retain a 10% to 13% conservation target for its customers for the purposes of long-term sustainability.

The winter storms of 2018-2019 nearly completely ended the drought conditions in California. However, significant drought conditions returned to California from 2020 through 2022, which was one of the driest periods in California history—worse than the drought of 2011-2015.

During this period, Governor Newsom issued several executive orders implementing various measures intended to encourage water conservation and reduce water waste. In addition, DWR reduced the State Water Project allocation to only 5% of requested supplies for 2021 and 2022.

In August 2022, the Federal Bureau of Reclamation announced what it called "urgent action" regarding the use of water from the Colorado River, as water levels in Lake Powell and Lake Mead continued to drop.

The situation began to change in December 2022, however, as California began to experience the effects of a series of "atmospheric rivers" which brought record quantities of snow and rainfall to the state. As of March 21, 2024, according to the California Drought Monitor website, 95% of the state is experiencing normal conditions, 5% of the state is experiencing abnormally dry conditions, no part of the state is experiencing moderate drought conditions, and no part of the state is experiencing severe or worse drought conditions.

However, due to the hydrologic deficit experienced over the last 25 years (especially with respect to groundwater), the California drought cannot be considered "over" without several additional wet years.

Substantial snowfall in the Colorado River watershed's mountains likely saved Lake Powell and Lake Mead from imminent danger of falling to "dead pool" levels (the point where a dam can no longer produce hydroelectric power nor deliver water downstream). However, the long-term state of the Colorado River remains precarious.

As a result of the Bureau of Reclamation's "urgent action" in August 2022, the seven states that depend on the Colorado River began negotiations for a new agreement that would implement conservation measures to prevent reservoirs from falling to critically low levels. The new agreement was announced on May 22, 2023, and will result in the conservation of about 3 million acre-feet of water from the river by 2026 -- a 14% reduction

across the Southwest. The majority of the cuts, about 1.6 million acre-feet, come from California.

4) State Water Project Long-Term Reliability Estimates

CDWR has been releasing various estimates of the long-term reliability and delivery capability ("deliverability") of the SWP since 2014. The 2013 *SWP Final Reliability Report*, dated December 2014, estimated the long-term reliability of SWP supplies at 58% of maximum Table A quantities, projected through the year 2033.

CDWR issued Delivery Capability reports in 2015, 2017, 2019, and 2021. The first three of which used an 82-year hydrologic record (1922 through 2003) for computer model simulations of potential hydrologic conditions (runoff and precipitation patterns) for long-term average delivery, and deliveries during typical wet years and typical dry years. The 2021 Report used a 93-year hydrologic record (1922-2015). Each successive report updated conditions of land use, upstream flow regulations, and sea levels characteristics to the current year. Based on these reports, the long-term SWP reliability figure of 58% continued to be used in these Engineer's Reports through 2017/2018; a 62% long-term average deliverability figure was used in the 2018/2019 and 2019/2020 Engineer's Reports; and a 58% long-term average deliverability figure was used in the 2020/2021 Engineer's Report.

The Indio SGMA Alternative Plan and the Mission Creek SGMA Alternative Plan recognize the results of the final 2019 Delivery Capability Report, but also take into account the significant reduction in reliability associated with climate change and Delta export litigation; and, rather than using the 58% long-term average deliverability figure set forth therein, instead assumes 45% State Water Project reliability through the planning horizon. Said 45% long-term average reliability figure is used in this Engineer's Report.

5) Conclusion

In conclusion, the natural groundwater replenishment to the Coachella Valley Groundwater Basin is not sufficient to support current groundwater pumping levels, so artificial replenishment is necessary. Overdraft in future years is virtually unpredictable, due to the difficulty of projecting long-term growth and reliability of SWP supplies. However, DWA and CVWD have been able to effectively manage the Indio and Mission Creek Subbasins despite the unreliability of SWP supplies; largely avoiding adverse effects. Both agencies continue to investigate and invest in additional sources of imported water, such as the DCP and Sites Reservoir Project, and continue to actively implement water conservation programs. With such continued efforts, both agencies anticipate sustainable groundwater management.

7. Replenishment Assessment

For the WWR Management Area, DWA began its groundwater assessment program in fiscal year 1978/1979 and CVWD began its groundwater assessment program in fiscal year 1980/1981. For the MC Management Area, the two agencies initiated their groundwater assessment programs simultaneously in fiscal year 2003/2004. The two agencies are not required to implement the assessment procedure jointly or identically; however, they have each continuously levied an annual assessment on water produced within their respective jurisdictions since inception of their groundwater assessment programs.

Since the 2013 MC/GH WMP demonstrates that the Garnet Hill Subarea benefits from the groundwater replenishment activities in the two adjacent subbasins, pursuant to the 2004 Settlement Agreement between CVWD, DWA, and MSWD; DWA and CVWD have the authority establish a groundwater assessment program for the Garnet Hill Subarea. DWA's replenishment assessment program was initiated in this subarea in fiscal year 2015/2016. Currently, there is no assessable production in the Garnet Hill Subarea within CVWD's WWR AOB.

Section 15.4(b) of the Desert Water Agency Law requires the filing of an engineer's report regarding the Replenishment Program before DWA can levy and collect groundwater replenishment assessments. The report must address the condition of groundwater supplies, the need for groundwater replenishment, the AOBs, water production within said AOBs, and replenishment assessments to be levied upon said water production. It must also contain recommendations regarding the replenishment program. This report has been prepared in accordance with these requirements.

CHAPTER III
WEST WHITEWATER RIVER SUBBASIN MANAGEMENT AREA
PRODUCTION AND REPLENISHMENT

CHAPTER III
WEST WHITEWATER RIVER SUBBASIN MANAGEMENT AREA PRODUCTION AND REPLENISHMENT

A. MANAGEMENT AREA

The WWR Management Area consists of two hydrologic subareas, the Palm Springs Subarea and the Garnet Hill Subarea. The Garnet Hill Subarea is separated from the Palm Springs Subarea by the Garnet Hill Fault, which is a reasonably effective barrier to horizontal groundwater movement, but not within the first 100 feet below ground surface.

The Mission Creek/Garnet Hill Management Committee engaged MWH to prepare the MC/GH WMP, which was completed in January 2013. According to the MC/GH WMP, while the Garnet Hill Subarea receives no direct artificial replenishment, it benefits from the artificial replenishment activities in both the MC and Whitewater River Subbasin. It benefits from the replenishment activities in the MC via some subsurface flows across the Banning Fault, and from the replenishment activities in the westerly portion of the Whitewater River (Indio) Subbasin via: (a) infiltration from the Whitewater River channel, which carries imported water from the Colorado River Aqueduct to the replenishment facilities within the Whitewater River Subbasin, and (b) from subsurface flow across the Garnet Hill Fault at the northwesterly end of the Garnet Hill Subarea during major recharge events that significantly raise the groundwater level in the vicinity of the Whitewater River Groundwater Replenishment Facility. Exact quantities of replenishment benefit from the MC and Whitewater River Subbasin to the Garnet Hill Subarea cannot be ascertained at this time with currently available hydrologic data.

From 2005 through 2018, the Garnet Hill Subarea within DWA's service area was treated as a separate Management Area and AOB. In 2019, the Garnet Hill Subbasin Management Area was consolidated into the WWR Management Area to conform to the subbasin delineations adopted by the CDWR. The information presented in this report reflects this change.

B. GROUNDWATER PRODUCTION

Annual water production (groundwater extractions plus surface water diversions) within the WWR Management Area is shown in **Figure 3**, as "Water Requirements". It increased from 1965 through about 1990, then decreased by approximately 13,000 AF in 1991, coincident with the initiation of

significant deliveries of recycled water by CVWD and DWA to irrigation users within the Management Area (which had the effect of temporarily reversing the trend toward steadily increasing production of groundwater therein).

Due to development, production increased from 1997 to 1999, then averaged about 211,000 AF during the three-year period 2000 through 2002, and remained relatively stable through 2007; probably as a result of water conservation and increased use of recycled water, and (within CVWD's AOB) conversion of agricultural land to residential development, which leveled off in 2000. Production has decreased following 2007 due to water conservation programs implemented by both agencies and also partly to poor economic conditions reducing demands in the late 2000s/early 2010s.

During the past five calendar years (2019 through 2023), average annual water production within the WWR Management Area has been about 153,000 AF/Yr, approximately three-fourths of which took place within CVWD's AOB and approximately one-fourth within DWA's AOB.

Current (2023 calendar year) and historic groundwater production and surface water diversion data for the WWR Management Area is set forth in **Table 1**.

Until 2020, surface water diversions were reported in **Table 1** as total water diverted, including water returned to the natural stream. Beginning with 2020, due to operational changes, surface water diversions are reported in **Table 1** as water diverted and directed into the domestic water system. Additional surface water diversion quantities, formerly returned to the natural stream, are now diverted and directed into groundwater replenishment facilities,

C. NATURAL RECHARGE

Natural recharge (natural inflow) includes precipitation, surface water runoff, subsurface inflow, and surface water runoff that has been diverted into groundwater replenishment facilities. Based on 2023 estimates, natural inflow into the WWR Management Area is approximately 10,984 AF/Yr, while natural outflow is estimated at approximately 1,828 AF/Yr (Todd, et al.). Thus, approximately 9,156 AF (2023 natural inflow less 2023 natural outflow) of natural, or native, groundwater is currently available for water supply.

D. NON-CONSUMPTIVE RETURN

Consumptive use of water represents the use of water that is not returned to the aquifer (for example: water that is subjected to evapotranspiration by vegetation, thus releasing it into the atmosphere; water that is incorporated into biomass or manufactured products; and water that is exported). Non-consumptive return water is water that is ultimately returned to the aquifer after diversion (for example, diverted surface water returned to the stream channel), or after use (for example, irrigation water percolating beyond the root zone or treated wastewater discharged to percolation ponds or leach fields) or water used for public parks or golf course irrigation (wastewater recycled for irrigation use). Although non-consumptive return in the WWR Management Area has been estimated at approximately 40% (USGS 1974) and 35% (USGS 1992), CVWD's 2010 Update to the Coachella Valley Water Management Plan (and 2014 Status Report to that plan) incorporated groundwater modeling by MWH (now Stantec) which projected that non-consumptive return may decrease from 35% to approximately 30% through 2035 based on the effects of implementing water conservation measures, such as turf removal and more efficient irrigation practices. In the *2022 Indio Subbasin Water Management Plan Update: SGMA Alternative Plan* (Todd, et al. 2021) and the *Mission Creek Subbasin SGMA Alternative Plan Update* (Wood, et al. 2021), Todd, Wood et al have set forth revised estimates for non-consumptive return in each subbasin based on Stantec's and Krieger & Stewart's recent efforts to more accurately characterize non-consumptive return by quantifying water use categories; with estimates made for water percolated via agricultural and landscaping irrigation return, wastewater treatment plant and septic tank discharge, and water recycling activities within each Management Area of the Coachella Valley, and considering such factors as transfers of produced water between subbasins. This effort has resulted in estimates for non-consumptive use within the WWR Management Area that are currently approximately 33% of total estimated groundwater production or about 50,000 AF/Yr (average for the past five years), which are the figures used herein.

E. ARTIFICIAL REPLENISHMENT

Total artificial replenishment (to both the WWR and MC Management Areas) for 2023 was 320,962 AF. Of this quantity, 304,507 AF were delivered to the Whitewater River Groundwater Replenishment Facility (consisting partially of CVWD's QSA water), 11,179 AF were delivered to the Palm Desert Groundwater Replenishment Facility, and 5,276 AF were delivered to the Mission Creek Groundwater Replenishment Facility (see **Exhibit 7**).

F. GROUNDWATER IN STORAGE

Average total annual production within the WWR Management Area of 153,000 AF for the past five years (including reported production and estimated annual production by minimal pumpers based on geographic region) has been met with an average of approximately 9,156 AF of net natural recharge, an average of approximately 52,000 AF of non-consumptive return, and an average of 146,500 AF of net artificial replenishment, resulting in a net increase in groundwater in storage of about 68,000 AF/Yr over the past five years.

G. OVERDRAFT STATUS

Based on information contained in USGS Water Resources Investigations 77-29 and 91-4142, average annual gross overdraft within the WWR Management Area of the Coachella Valley Groundwater Basin began in the 1950s and was estimated to be 30,000 AF/Yr during the late 1960s and early 1970s. Due to increased development and demands, pumping now further outpaces natural inflows. This highlights the importance of artificial replenishment efforts. Gross overdraft within the WWR Management Area (excluding artificial replenishment) is now estimated to have averaged approximately 79,000 AF/Yr over the last five years. Since 1956, cumulative gross overdraft (net extraction minus net natural recharge) is currently estimated at about 4,340,000 AF. Since commencement of artificial replenishment activities in 1973, cumulative net overdraft (cumulative gross overdraft offset by artificial replenishment) is currently estimated to be about 135,000 AF. If considered since 2009, the year of historic low groundwater in storage, there is currently no cumulative net overdraft; instead, there is a surplus of about 821,500 AF.

As noted in CDWR Bulletin 118-80 and SGMA, consideration of groundwater overdraft is qualified by adverse effects of overdraft, such as chronic lowering of groundwater levels, reduction of groundwater in storage, decreased well yields, increased groundwater extraction costs, water quality degradation, sea-water intrusion, land subsidence, and environmental impacts. With continued implementation of the groundwater replenishment program, both agencies anticipate ongoing avoidance of adverse effects of overdraft.

CHAPTER IV
MISSION CREEK SUBBASIN MANAGEMENT AREA
PRODUCTION AND REPLENISHMENT

CHAPTER IV
MISSION CREEK SUBBASIN MANAGEMENT AREA
PRODUCTION AND REPLENISHMENT

A. GROUNDWATER PRODUCTION

Annual water production (groundwater extractions) within the MC Management Area is show in **Figure 4**, as "Water Requirements". It increased from an average of approximately 500 AF/Yr in the late 1950s and 1960s to approximately 2,300 AF/Yr in 1978. Production increased relatively steadily since then to approximately 17,400 AF/Yr in 2006, then began dropping slightly as a result of declining economic conditions to about 16,400 AF/Yr in 2007, 15,800 AF/Yr in 2008, 15,100 AF/Yr in 2009, 14,300 in 2010, 14,200 in 2011, and 13,000 in 2015. Annual groundwater production within the MC Management Area has resulted in cumulative long-term groundwater overdraft, as evidenced by the steady decline of groundwater levels within the MC prior to commencement of recharge activities.

During the past five calendar years (2019 through 2023), average annual reportable water production within the MC Management Area has been about 14,000 AF/Yr; approximately two-thirds of which took place within DWA's AOB and approximately one-third within CVWD's AOB. Current (2023 calendar year) and historic groundwater production and surface water diversion data for the MC Management Area is set forth in **Table 1**.

B. NATURAL RECHARGE

Natural recharge includes precipitation, surface water runoff, and subsurface inflow. As discussed in past reports, it is currently estimated that natural inflow and surface recharge of the MC has averaged approximately 3,500 to 10,800 AF/Yr over the long term. Most estimates of natural outflow from the MC equal or exceed the corresponding estimates of natural inflow.

The most recent estimate for natural inflow into the MC was prepared by Wood et al for the Mission Creek SGMA Alternative Plan (2021). Wood presents variable estimates for natural inflow from precipitation and mountain-front runoff based on historical precipitation records and projected wet and dry years along with approximately 1,200 AF/Yr from flows across the Mission Creek Fault from the Desert Hot Springs Subbasin.

Wood estimated natural outflow of 2,300 AF/Yr of subsurface flow from the Banning Fault to the Garnet Hill Subarea and through semi-water bearing rocks, known as the Indio Hills at the southeastern end of the MC, and 950 AF/Yr of evapotranspiration.

The 5-year average net natural inflow to the Mission Creek Subbasin is approximately 3,500 AF/Yr (Wood, et al. estimate).

C. NON-CONSUMPTIVE RETURN

Consumptive use and non-consumptive return are discussed in **Chapter III, Section C**. Within the MC Management Area, non-consumptive return is currently estimated at approximately 37% of total estimated production, or about 4,700 AF/Yr (average for the past five years).

D. ARTIFICIAL REPLENISHMENT

Total artificial replenishment (to both the WWR and MC Management Areas) for 2023 was 320,962 AF, all delivered to the WWR. There was 5,276 AF of artificial replenishment water delivered to the Mission Creek Groundwater Replenishment Facility in 2023 (see **Exhibit 7**). The MC Management Area remains overdelivered per the 2004 Settlement Agreement.

Based on the production relationship between the Whitewater River Subbasin and the MC, in accordance with the 2014 Mission Creek Water Management Agreement, about 92.0% of imported water deliveries in 2024 will be directed to the WWR Management Area and 8.0% to the MC Management Area, based on 2023 production (see **Exhibit 6**).

E. GROUNDWATER IN STORAGE

Average total annual production within the entire MC Management Area of 14,000 AF for the past five years (including reported production and an estimated 500 AF of annual production by minimal pumpers) has been met with approximately 3,070 AF of net natural recharge, approximately 4,700 AF of non-consumptive return, and 2,103 AF of net artificial replenishment (less evaporative losses), resulting in a net decrease in groundwater in storage of about 4,200 AF/Yr over the past five years.

The change in groundwater storage within DWA's MC AOB has also been estimated using changes in measured static water levels in wells within the AOB. Using the average static water levels in the wells in DWA's AOB, the average annual reduction in stored groundwater was 3,900 AF/Yr from 1955 through 2023, and 3,400 AF/Yr from 1998 through 2023 (see **Exhibit 5**).

F. OVERDRAFT STATUS

Gross overdraft within the MC (excluding artificial replenishment) is now estimated at approximately 8,000 AF/Yr during the last five years. Cumulative gross overdraft (net extraction minus net natural recharge) since 1978 is currently estimated at approximately 334,000 AF. Since commencement of artificial replenishment activities began in 2002, cumulative net overdraft (cumulative gross overdraft offset by artificial replenishment) is currently estimated to be about 46,800 AF. If considered from 2009, the year of historic low groundwater in storage, the cumulative net overdraft is currently estimated to be about 28,000 AF.

As noted in CDWR Bulletin 118-80 and SGMA, consideration of groundwater overdraft is qualified by adverse effects of overdraft, such as chronic lowering of groundwater levels, reduction of groundwater in storage, decreased well yields, increased groundwater extraction costs, water quality degradation, sea-water intrusion, land subsidence, and environmental impacts. With continued implementation of the groundwater replenishment program, both agencies anticipate ongoing avoidance of adverse effects of overdraft.

CHAPTER V
REPLENISHMENT ASSESSMENT

CHAPTER V
REPLENISHMENT ASSESSMENT

Desert Water Agency Law, in addition to empowering DWA to replenish groundwater basins and to levy and collect groundwater replenishment assessments within its areas of jurisdiction, defines production and producers for groundwater replenishment purposes as follows:

> Production: The extraction of groundwater by pumping or any other method within the Agency, or the diversion within the Agency of surface supplies which naturally replenish the groundwater supplies within the Agency and are used therein [DWA Law, Section 15.4(a)(3)].
>
> Producer: Any individual, partnership, association, group, lessee, firm, private corporation, public corporation, or public agency including, but not limited to, the DWA, that extracts or diverts water as defined above [DWA Law, Section 15.4(a)(4)].

Producers that extract or divert 10 AF of water or less in any one year are considered minimal pumpers or minimal diverters, and their production is exempt from assessment.

Desert Water Agency Law also states that assessments may be levied upon all water production within an AOB, provided assessment rates are uniform throughout [DWA Law, Section 15.4(e)]. Pursuant to Section 15.4(f) of Desert Water Agency Law, the amount of any replenishment assessment cannot exceed the sum of:

1. Certain SWP charges, specifically, the Delta Water Charge, the Variable OMP&R Component of the SWP Transportation Charge (Variable Transportation Charge), the Off-Aqueduct Power Component of the SWP Transportation Charge (Off-Aqueduct Power Charge and any surplus water or unscheduled water charges), pursuant to the Contract between DWA and the State of California. The aforesaid charges are set forth in each year's CDWR *Bulletin on the State Water Project* (CDWR Series 132, Appendix B).

   The **Delta Water Charge (DWC)**, as used herein, is based on the Delta Water Charge per Appendix B Table B-20 (A & B) and projections from the State Water Contractors.

The **Variable Transportation Charge (VTC)**, as used herein, is based on the Unit Variable OMP&R Component of the Transportation Charge per Appendix B Table B-17 as applied to the Probable Table A Water Delivery. The VTC varies with the quantity of water delivered.

The **Off-Aqueduct Power Charge (OAPC)**, as used herein, is based on the energy necessary to meet the Probable Table A Water Delivery; specifically, the entire Minimum OMP&R Component of the Transportation Charge for Each Contractor for Off-Aqueduct Power Facilities, per Appendix B Table B-16B, allocated among the requested Appendix B Table A deliveries per Appendix B Table B-5B, adjusted to eliminate Bond Cover per Appendix B Table 6 (Note: Bond Cover was reduced to zero in 2017).

The OAPC is highly variable, since the charges, which are essentially fixed, are allocated among the actual deliveries (if requested deliveries are significantly reduced by one contractor, all other contractors must make up the difference--in effect, the charges are distributed over a smaller pool).

The OAPC sunsets after 2025.

2. Costs of importing and recharging water from sources other than the State Water Project (such as the Colorado River Aqueduct).

3. Costs of treating and distributing reclaimed water.

DWA has historically not included costs of importing and recharging water from sources other than the State Water Project, costs of treating and distributing reclaimed water, or costs of surplus or unscheduled water deliveries in the replenishment assessment rate. However, as of 2022/2023, surplus and unscheduled water charges, along with administrative and general costs of importing and recharging water from the Colorado River Aqueduct, are added to the Assessment Rate calculation as shown in **Table 7**.

Prior to 2002, groundwater replenishment with Colorado River Water (exchanged for SWP water) had been limited to recharge of the WWR Management Area. In 2002, DWA and CVWD commenced recharge activities in the MC Management Area, in addition to continuing their ongoing activities in the WWR Management Area. The AOBs for Groundwater Replenishment and Assessment herein consist of those portions of the WWR Management Area (including a portion of the San Gorgonio Pass Subbasin and

tributaries thereto) and the MC Management Area, situated within DWA's service area boundary (**Figure 2**).

The groundwater replenishment assessment and replenishment assessment rate for 2024/2025 is based on the following:

1. All groundwater production within DWA and MSWD, with certain exceptions, is metered, and all assessable surface water diversions within DWA are metered or measured. There are no surface water diversions within the MC AOB.

2. The Delta Water Charge, the Variable Transportation Charge, and the Off-Aqueduct Power Charge, as set forth in Appendix B of the most recent CDWR Bulletin Series 132 and hereafter referred to as Applicable SWP Charges.

3. The proportionate share of the Applicable SWP Charges allocable to CVWD and DWA in accordance with the Water Management Agreements between CVWD and DWA (Water Management Agreement for the Whitewater River Subbasin executed July 1, 1976 and amended December 15, 1992, and the Water Management Agreement for the Mission Creek Subbasin executed April 8, 2003; both amended July 15, 2014), hereafter referred to as Allocated SWP Charges. (The applicable charges are essentially apportioned between CVWD and DWA in accordance with relative water production within those portions of each entity lying within the applicable Water Management Areas, either the Whitewater River Subbasin (including the Garnet Hill Subarea and a portion of the San Gorgonio Pass Subbasin) or the MC.

4. Costs for surplus and unscheduled water charges, and administrative and general costs of importing and recharging water from the Colorado River Aqueduct.

5. Reimbursement of charges and costs pursuant to items 1, 2, 3, and 4 above which were accrued in the past but deferred for later recovery.

6. Any of the above-listed charges and costs may be deferred from time to time by discretionary reductions for later recovery.

The replenishment assessment rate, when applied to estimated assessable production (all production, excluding that which is exempt, within the AOB), results in a replenishment assessment which must not exceed the maximum permitted by Section 15.4(f) of Desert Water Agency Law. Due to the interdependent nature of the imported water supply for the WWR Management Area (including the Garnet Hill Subarea and a portion of the San Gorgonio Pass Subbasin), and the MC Management Area, the Allocated SWP Charges component of the replenishment assessment rate is uniform throughout the WWR AOB and MC AOB; however, due to the independent and separate nature of various other aspects of the groundwater replenishment program within the WWR AOB (including the Garnet Hill Subarea and a portion of the San Gorgonio Pass Subbasins), and MC AOB, the other charges and costs component need not be uniform; they are specific to each AOB.

A. ACTUAL 2023 WATER PRODUCTION AND ESTIMATED 2024/2025 ASSESSABLE WATER PRODUCTION

Estimated assessable production within DWA's WWR AOB (including a portion of the Garnet Hill Subarea and the San Gorgonio Pass Subbasin), and MC AOB consist of groundwater extractions from the groundwater subbasins and diversions from streams (Snow, Falls, and Chino Creeks) in the tributary watersheds. Estimated assessable groundwater production is based on metered water production. DWA staff read and record metered water production quantities with the exception of the wells owned by MSWD and the Indigo Power Plant, which are reported to DWA.

The effective replenishment assessment rate for Table A water is based on DWA's estimated Allocated SWP Charges for the current year (based on CDWR's projections for the assessment period) divided by the estimated assessable production for the assessment period, as set forth in **Table 6**. DWA has utilized two bases for estimating assessable production, either assessable production for the previous year, or, when statewide conservation mandates are in effect, a specified year's assessable production minus a water conservation factor. Since the 2019/2020 report, the estimated assessable production for both AOBs has been based on the assessable production for the previous year (for this report, 2023), since the statewide conservation mandate was satisfied in 2017.

Estimated assessable water production is set forth in **Table 2**.

In 2023, actual reported production (including reported production from minimal pumpers, as shown in **Table 1**) within CVWD's AOB within the WWR Management Area was about 3.4 times that within DWA's AOB, 113,603 AF versus 33,774 AF, whereas actual reported production within DWA's AOB within the MC Management Area was about 2.1 times that within CVWD's AOB, 8,742 AF versus 4,030 AF. DWA's 2023 actual reported production accounts for approximately 26.6% of the 160,149 AF combined total of water produced within the Management Areas that year.

B. GROUNDWATER REPLENISHMENT ASSESSMENT RATES

The groundwater replenishment assessment rates consist of two components, one being attributable to SWP annual Table A water allocations, and the other being attributable to other charges or costs necessary for groundwater replenishment. Each component is discussed below.

1. Component Attributable to SWP Table A Water Allocation Charges

In accordance with the current 2014 Water Management Agreement, CVWD and DWA combine their SWP Table A water allocations, exchange them for Colorado River water, and replenish the WWR and MC Management Areas with exchanged Colorado River water. CVWD and DWA each assume the full burden for portions of their respective Fixed State Water Project Charges (Capital Cost Component and Minimum Operating Component of Transportation Charge); however, the two agencies share their Applicable SWP Charges (Delta Water, Variable Transportation, and Off-Aqueduct Power Charges) on the basis of relative production.

Although DWA could base its replenishment assessment rate on its Applicable SWP Charges, it only needs to recover its share (based on relative production) of the combined Applicable SWP Charges for both CVWD and DWA (i.e. its Allocated SWP Charges). CVWD makes up the difference in accordance with the Water Management Agreement.

The Applicable SWP Charges for CVWD and DWA for Table A water are set forth in **Tables 3 and 4**, respectively. Unit Charges for Delta Water, Variable Transportation, and Off-Aqueduct Power Charges are based on estimates presented in Appendix B of CDWR Bulletin 132-23.

Since CDWR has been unable to deliver maximum Table A allocations for 22 of the past 24 years, the amounts of the Applicable SWP Charges for 2024/2025 and future years are computed based on a long-term SWP reliability factor applied to the maximum SWP allocations. A factor of 58% was applied in 2021 and 2022. A factor of 45% is being applied in 2022, 2023, and 2024.

The derivations of the Applicable SWP Charges are set forth in **Tables 3 and 4**. The "Maximum Table A Water Allocation" shown in **Tables 3 and 4** is the currently existing Table A Water Allocation per CDWR Bulletin 132-23, Appendix B, Table B-4 (contractual quantities based on requests for same by CVWD and DWA) with no reliability factors being applied. The "Probable Table A Water Allocation" is the currently existing Table A Water Allocation. The MWD reliability factor was formerly applied to the Probable Table A Allocation column to reflect the long-term average with probable recalls by MWD, pursuant to the remaining years of the 2003 Exchange Agreement and its implementation. The "Probable Table A Water Delivery" is based on 45% long-term reliability of the Table A Water allocation.

Applicable SWP Charges proportioned in accordance with the Water Management Agreement, more particularly in accordance with relative production within CVWD and DWA, yield Allocated SWP Charges. Over the past five years, 2019 through 2023, DWA has been responsible for approximately 22.68% of the water produced within the WWR Management Area, and 68.21% of water produced from the MC Management Area.

In the past, Allocated SWP Charges have been apportioned to CVWD and DWA based on production from the WWR Management Area. Since 2003/2004, Allocated SWP Charges have been apportioned to CVWD and DWA based on production from the combined WWR and MC Management Areas. In 2023, DWA was responsible for approximately 26.6% of the combined water production within the Management Areas. On the assumption that DWA's relative production for 2024 and thereafter will be about the same as for 2023, DWA's share of the combined Applicable SWP Charges (i.e. Allocated Charges) for the next 12 years will be as set forth in **Table 5**.

Table 5 shows that DWA's estimated Allocated Charges (its share of combined Applicable Charges for Table A water) are anticipated to increase by about 1% between 2024 and 2025, increase by about 7% between 2025 and 2026, and increase by about 3% between 2026 and 2027. DWA's estimated Allocated Charges will change as estimates presented in future annual editions of CDWR Bulletin 132 change.

Table 5 also shows that DWA's estimated 2024 Allocated Charges are about 92% of DWA's estimated Applicable Charges. Since groundwater replenishment assessments are used for groundwater replenishment purposes only, implementation of the maximum permissible replenishment assessment rate based on DWA's Applicable Charges would result in the collection of excess funds that would have to be applied to replenishment charges during subsequent years.

Rather than collect excess funds one year and apply the excess funds to replenishment charges in subsequent years, DWA attempts to establish from year to year the replenishment assessment rate that will result in collection of the funds essential to meeting its annual groundwater replenishment costs. DWA therefore bases the Table A portion of its replenishment assessment on estimated Allocated Charges, rather than estimated Applicable Charges.

Pursuant to Section 15.4(f) of current Desert Water Agency Law, the maximum permissible replenishment assessment rate that can be established for fiscal year 2024/2025 based on Applicable State Water Project Charges is approximately $252/AF, based on DWA's estimated Applicable Charges (Delta Water Charge, Variable Transportation Charge, and Off-Aqueduct Power Charge) of $10,393,897 (average of estimated 2024 and 2025 Applicable Charges) and estimated 2024/2025 combined assessable production of 41,170 AF within the WWR and MC AOBs.

The effective replenishment rate is based on DWA's estimated Allocated SWP Charges for the current year, as computed using CDWR's projected Applicable SWP Charges, divided by the estimated assessable production for the assessment period (based on the assessable production for the previous calendar year), as set for in **Table 6**.

Pursuant to the terms of the Water Management Agreement between DWA and CVWD, and based on DWA's estimated 2024/2025 Allocated Charges of $9,567,420 and estimated 2024 calendar year assessable production (shown in **Table 6** as estimated 2024/2025 assessable production) of 41,170 AF within the WWR and MC, the effective replenishment assessment rate component for Table A water for the 2024/2025 fiscal year is $232/AF. **Table 7** includes DWA's historical estimated, actual effective, and estimated projected replenishment assessment rates.

Tables 3 through 6 include future projections through 2035, and **Table 7** includes future projections through 2037. These projections are based on a number of assumptions regarding factors that can be highly variable and difficult to predict, such as development, conservation, and, as mentioned, SWP reliability and cost factors. Actual values in the future may be substantially different than as shown in these tables.

2. Component Attributable to Other Charges and Costs Necessary for Groundwater Replenishment

Charges and costs necessary for groundwater replenishment could include the costs for reimbursement for past SWP Table A water allocations and surplus water allocations for which insufficient assessments had been levied, acquisition or purchases of water from sources other than the SWP, the cost of importing and recharging water from sources other than the SWP (such as the Colorado River Aqueduct), and the cost of treatment and distribution of reclaimed water.

In recent years, with a few exceptions, other charges and costs have been limited to past SWP water payments for which assessments have not been levied. In 2016/2017, due to increases in SWP costs, DWA elected to transfer the deficit resulting from past payments for which assessments have not been levied to reserve account(s). In addition, as of 2022/2023, administrative and general costs of importing and recharging water from the Colorado River Aqueduct are added to the Assessment Rate calculation as shown in **Table 7**.

Since 1996, CVWD and DWA have obtained surplus SWP water, when available, to supplement deliveries of Table A water (see **Chapter II, Section B.5.d**). In recent years,

DWA has paid charges for surplus water with funds from its Unscheduled State Water Project Deliveries Reserve Account, rather than from funds raised directly through replenishment assessment levies. However, as of 2022/2023, surplus and unscheduled water charges were added to the Assessment Rate calculation as shown in **Table 7**.

3. Incremental Replenishment Assessment Rate Increases Authorized by DWA Board of Directors

In the winter of 2016, DWA adopted proposed replenishment assessment rate ranges for five years, ending with a range of $130.00 to $175.00 for 2021/2022.

At their public meeting on May 4, 2021, DWA Board of Directors authorized rate increases by an increment of $20 annually subsequent to 2022/2023. The following table sets forth recommended replenishment assessment rates for five fiscal years beginning with 2023/2024, based on the $20 annual increment.

Fiscal Year	Anticipated Adoption Date	Recommended Rate ($/AF)
2023/2024	July 1, 2023	$195.00
2024/2025	July 1, 2024	$215.00
2025/2026	July 1, 2025	$235.00
2026/2027	July 1, 2026	$255.00
2027/2028	July 1, 2027	$275.00

Beyond 2027/2028, projected replenishment assessment rates are shown in **Table 7** as continuing to increase by $20 per AF per year until the replenishment assessment rate is sufficient to recuperate allowable charges included in calculating the replenishment assessment rate (2029/2030), at which time they are shown as increasing at reduced rates as necessary to continue recuperating the allowable charges.

4. Proposed 2024/2025 Replenishment Assessment Rates

As shown in **Table 6**, the estimated effective Table A Assessment Rate is $232/AF. However, this rate exceeds the maximum rate of $215/AF based on the $20 annual

increment authorized previously by the Board of Directors. Therefore, as shown in **Table 7**, the recommended replenishment assessment rates proposed for 2024/2025 are:

- **$215.00/AF** for the WWR AOB
- **$215.00/AF** for the MC AOB

Historic replenishment assessment rates for both DWA and CVWD within the Whitewater River Subbasin are included in **Exhibit 8**.

C. ESTIMATED GROUNDWATER REPLENISHMENT ASSESSMENTS FOR 2024/2025

The maximum replenishment assessment that can be levied by DWA for combined estimated production of 41,170 AF (see **Table 2**) within the WWR and MC AOBs based on a replenishment assessment rate of $215.00/AF is approximately $8,851,550 ($6,970,300 in the WWR AOB and $1,881,250 in the MC AOB).

DWA will continue to be the major producer within the WWR AOB, with assessable production of approximately 31,170 AF; nine other significant producers will be responsible for the remaining 1,250 AF AF of estimated assessable production. DWA will also be the major assessee with an estimated replenishment assessment of $6,701,550. The nine other significant producers will be responsible for the remaining $268,750 (water production by the Agua Caliente Band of Cahuilla Indians (ACBCI), including the Indian Canyons Golf Resort, with an estimated production of approximately 1,356 AF, is currently not being assessed for groundwater replenishment pending resolution of a lawsuit challenging DWA's authority to impose the replenishment assessment charge on ACBCI). DWA will therefore be responsible for approximately 96% of the estimated replenishment assessment for the WWR AOB; the other nine assessable producers will be responsible for the remaining 4%.

MSWD will be the major producer within the MC AOB, with assessable production of approximately 7,060 AF; four other producers will be responsible for the remaining 1,690 AF of estimated assessable production. MSWD will also be the major assessee with an estimated replenishment assessment of $1,517,900. The four other producers will be responsible for the remaining $363,350. MSWD will be responsible for approximately 81% of both the estimated

assessable water production and the estimated replenishment assessment in the MC AOB; the other four producers will be responsible for the remaining 19%.

CHAPTER VI
BIBLIOGRAPHY

CHAPTER VI
BIBLIOGRAPHY

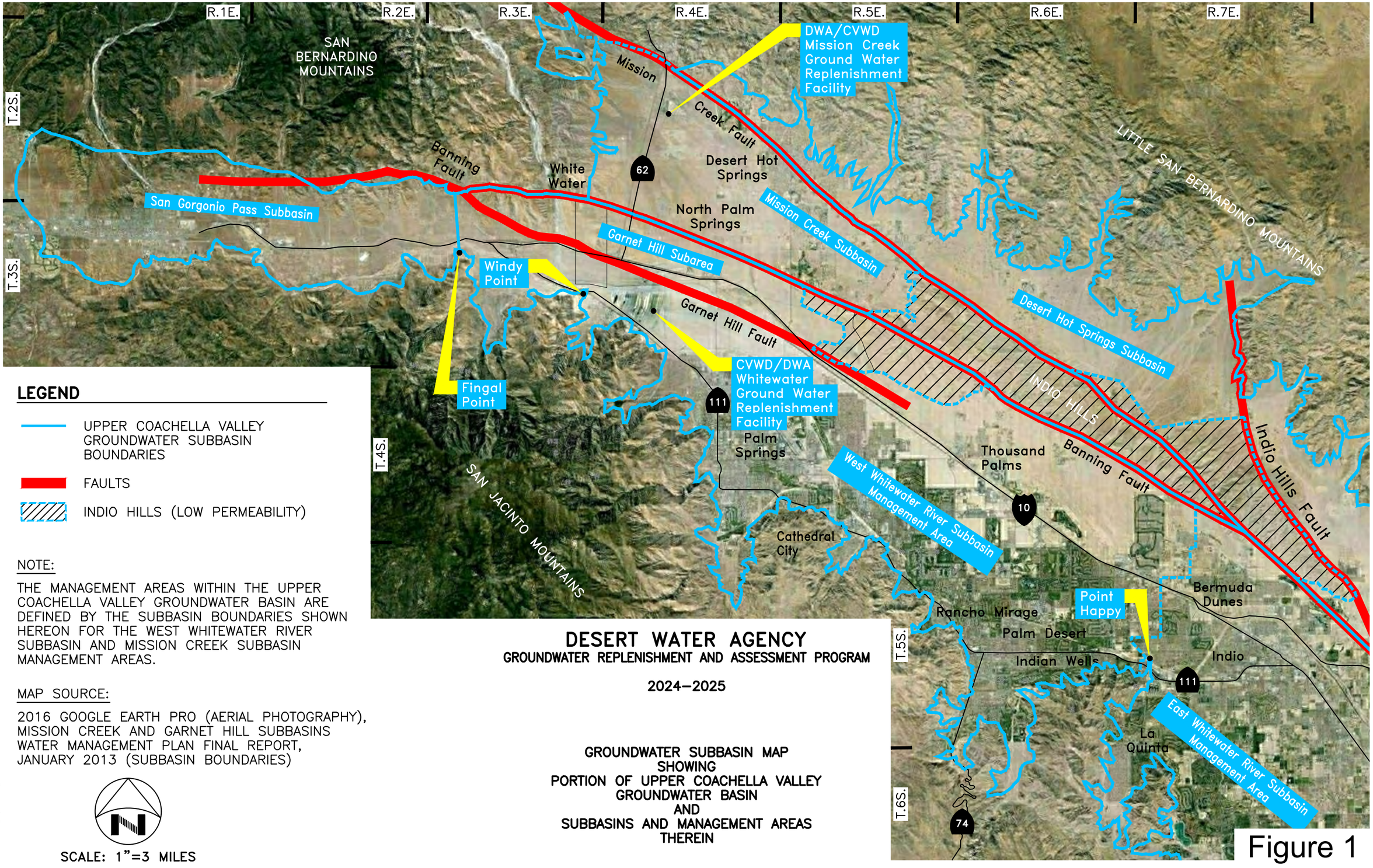
- Coachella Valley Regional Water Management Group (City of Coachella, Coachella Valley Water District, Desert Water Agency, Indio Water Authority, and Mission Springs Water District), *Final Coachella Valley Integrated Regional Water Management Plan*, prepared by Coachella Valley Regional Water Management Group in collaboration with the Planning Partners, with support from RMC Water and Environment and Integrated Planning and Management Inc., December 2010
- Coachella Valley Water District, *Coachella Valley Water Management Plan,* November 2002
- Coachella Valley Water District, *Final Program Environmental Impact Report for the Coachella Valley Water Management Plan and State Water Project Entitlement Transfer*, prepared by MWH, 2002
- Coachella Valley Water District, *Coachella Valley Water Management Plan Update*, prepared by MWH, 2010
- Coachella Valley Water District, *2014 Status Report for the 2010 Coachella Valley Water Management Plan Update*, prepared by MWH, 2014
- Coachella Valley Water District, Coachella Water Authority, Desert Water Agency, and Indio Water Authority, *2022 Indio Subbasin Water Management Plan Update: SGMA Alternative Plan*, prepared by Indio Subbasin Consulting Team (Todd Groundwater and Woodard & Curran, assisted by Graham Fogg and Associates and David J. Ringel, Consulting Engineer), December, 2021
- Coachella Valley Water District, Coachella Water Authority, Desert Water Agency, and Indio Water Authority, *Indio Subbasin Annual Report for Water Year 2021-2022*, prepared by Todd Groundwater, March, 2023
- Coachella Valley Water District, Desert Water Agency, and Mission Springs Water District, *Mission Creek Subbasin SGMA Alternative Plan Update*, prepared by Mission Creek Subbasin Consulting Team (Wood and Kennedy/Jenks Consultants, Inc.), November, 2021
- Coachella Valley Water District, Desert Water Agency, and Mission Springs Water District, *Mission Creek Subbasin Annual Report for Water Year 2019-2020*, prepared by Wood Environment and Infrastructure Solutions, Inc., February, 2021
- Desert Water Agency, *Domestic Water System General Plan, 2008*, prepared by Krieger & Stewart, May, 2009
- Desert Water Agency, *Draft Domestic Water System General Plan, 2020*, prepared by Krieger & Stewart, December 2020
- Desert Water Agency, *Engineer's Report on Basin Water Supply and Water Replenishment Program*, prepared by Krieger & Stewart, May 1978, Revised June 1978

- Desert Water Agency, *Ground Water Recharge Potential within Mission Creek Subbasin,* prepared by Krieger & Stewart, November 1980
- Desert Water Agency, *Engineer's Report: Groundwater Replenishment and Assessment Program for the Whitewater River, Mission Creek, and Garnet Hill Subbasins*, reports prepared by Krieger & Stewart for Fiscal Years 2016/2017 and 2017/2018
- Desert Water Agency, *Engineer's Report: Groundwater Replenishment and Assessment Program for the West Whitewater River Subbasin, Mission Creek Subbasin, and Garnet Hill Subbasin Areas of Benefit* reports prepared by Krieger & Stewart for Fiscal Years 2018/2019 and 2019/2020
- Desert Water Agency, *Engineer's Report: Groundwater Replenishment and Assessment Program for the West Whitewater River Subbasin and Mission Creek Subbasin Areas of Benefit* reports prepared annually by Krieger & Stewart for Fiscal Years 2020/2021 through 2023/2024
- Desert Water Agency, *Engineer's Report: Groundwater Replenishment and Assessment Program for the Mission Creek Subbasin*, reports prepared annually by Krieger & Stewart for Fiscal Years 2003/2004 through and including 2015/2016
- Desert Water Agency, *Engineer's Report: Groundwater Replenishment and Assessment Program for the Whitewater River Subbasin*, reports prepared annually by Krieger & Stewart for Fiscal Years 1978/1979 through and including 2015/2016
- Fogg, Graham E., Gerald T. O'Neill, Eric M. LaBolle, David J. Ringel, *Groundwater Flow Model of Coachella Valley, California: An Overview*, November 2002
- Desert Water Agency, Inc., *Hydrogeologic Investigation of Groundwater Basin Serving Palm Springs*, prepared by Geotechnical Consultants, October 1978
- Geotechnical Consultants, Inc., *Hydrogeologic Investigation: Mission Creek Subbasin Within the Desert Hot Springs County Water District,* prepared for Desert Water Agency, November 1979
- Huberty, M.R. and A.F. Pillsbury, *Hydrologic Studies in Coachella Valley, California*, University of California, Berkeley 1948
- Krieger & Stewart, *Coachella Valley Groundwater Management Plan for the Coachella Valley Planning Area of the West Colorado River Basin*, 1979
- Mission Springs Water District, *Mathematical Modeling of Proposed Artificial Recharge for the Mission Creek Subbasin,* prepared by Mayer, Alex S. and Wesley L. May, Michigan Technological University Department of Geological Engineering and Sciences, March, 1998
- Mission Springs Water District, *Hydrogeologic Conditions near Mission Springs Water District Well Nos. 25 and 26, Cabazon Area, Riverside County,* prepared by Richard C. Slade and Associates, LLC, September, 2001

- MWH, Groundwater Model Simulations for *Coachella Valley Water Management Plan Update*, for Draft Subsequent Program Environmental Impact Report, July, 2011
- MWH, *Mission Creek and Garnet Hill Subbasins Water Management Plan, Final Report*, January, 2013
- Psomas, *Groundwater Flow Model of the Mission Creek and Garnet Hill Subbasins and Palm Springs Subarea, Riverside, California*, January, 2013
- Richard C. Slade and Associates, LLC, *Final Hydrogeologic Evaluation, Well Siting, And Recharge Potential Feasibility Study Mission Creek Groundwater Subbasin, Riverside County, California,* May 2000
- San Gorgonio Pass Water Agency, *Water Resources Investigation – Groundwater Dependable Yield*, prepared by Boyle Engineering Corporation, 1998
- State of California, The Resources Agency, Department of Conservation, Division of Mines and Geology, *Geologic Map of California, Santa Ana Sheet,* 1966
- State of California, The Resources Agency of California, Department of Water Resources, *Bulletin No. 108, Coachella Valley Investigation,* July, 1964
- State of California, The Resources Agency, Department of Water Resources, *Coachella Valley Area Well Standards Investigation*, 1979
- State of California, The Resources Agency, Department of Water Resources, *Management of the California State Water Project, Bulletin 132-17*, August, 2017
- State of California, The Resources Agency, Department of Water Resources, *California's Groundwater, Bulletin 118*, October, 2003
- State of California, The Resources Agency, Department of Water Resources; *State Water Project Final Reliability Report 2013*, December, 2014
- State of California, The Resources Agency, Department of Water Resources; *2015 State Water Project Deliverability Capability Repor*t, July, 2015
- State of California, The Resources Agency, Department of Water Resources; *2017 State Water Project Deliverability Capability Repor*t, March, 2018
- United States Department of the Interior, Geological Survey; Artificial Recharge in the Whitewater River Area, Palm Springs, California, 1973
- United States Department of the Interior, Geological Survey Water-Supply Paper 2027; *Analog Model Study of the Ground-Water Basin of the Upper Coachella Valley, California,* 1974

- United States Department of the Interior, Geological Survey; *Water Resources Investigation 77-29: Predicted Water-Level and Water-Quality Effects of Artificial Recharge in the Upper Coachella Valley, California, Using a Finite-Element Digital Model*, April, 1978
- United States Department of the Interior, Geological Survey; *Water Resources Investigation 91-4142: Evaluation of a Ground-Water Flow and Transport Model of the Upper Coachella Valley, California*, 1992

FIGURES



LEGEND

- UPPER COACHELLA VALLEY GROUNDWATER SUBBASIN BOUNDARIES
- FAULTS
- INDIO HILLS (LOW PERMEABILITY)

NOTE:

THE MANAGEMENT AREAS WITHIN THE UPPER COACHELLA VALLEY GROUNDWATER BASIN ARE DEFINED BY THE SUBBASIN BOUNDARIES SHOWN HEREON FOR THE WEST WHITEWATER RIVER SUBBASIN AND MISSION CREEK SUBBASIN MANAGEMENT AREAS.

MAP SOURCE:

2016 GOOGLE EARTH PRO (AERIAL PHOTOGRAPHY), MISSION CREEK AND GARNET HILL SUBBASINS WATER MANAGEMENT PLAN FINAL REPORT, JANUARY 2013 (SUBBASIN BOUNDARIES)

SCALE: 1"=3 MILES

DESERT WATER AGENCY

GROUNDWATER REPLENISHMENT AND ASSESSMENT PROGRAM

2024–2025

GROUNDWATER SUBBASIN MAP
SHOWING
PORTION OF UPPER COACHELLA VALLEY
GROUNDWATER BASIN
AND
SUBBASINS AND MANAGEMENT AREAS
THEREIN

Figure 1

DESERT WATER AGENCY

GROUNDWATER REPLENISHMENT AND ASSESSMENT PROGRAM

2024–2025

GROUNDWATER SUBBASIN MAP SHOWING GROUNDWATER RECHARGE AREAS OF BENEFIT (EITHER DIRECT OR INDIRECT) AND SELECTED GROUNDWATER WELLS

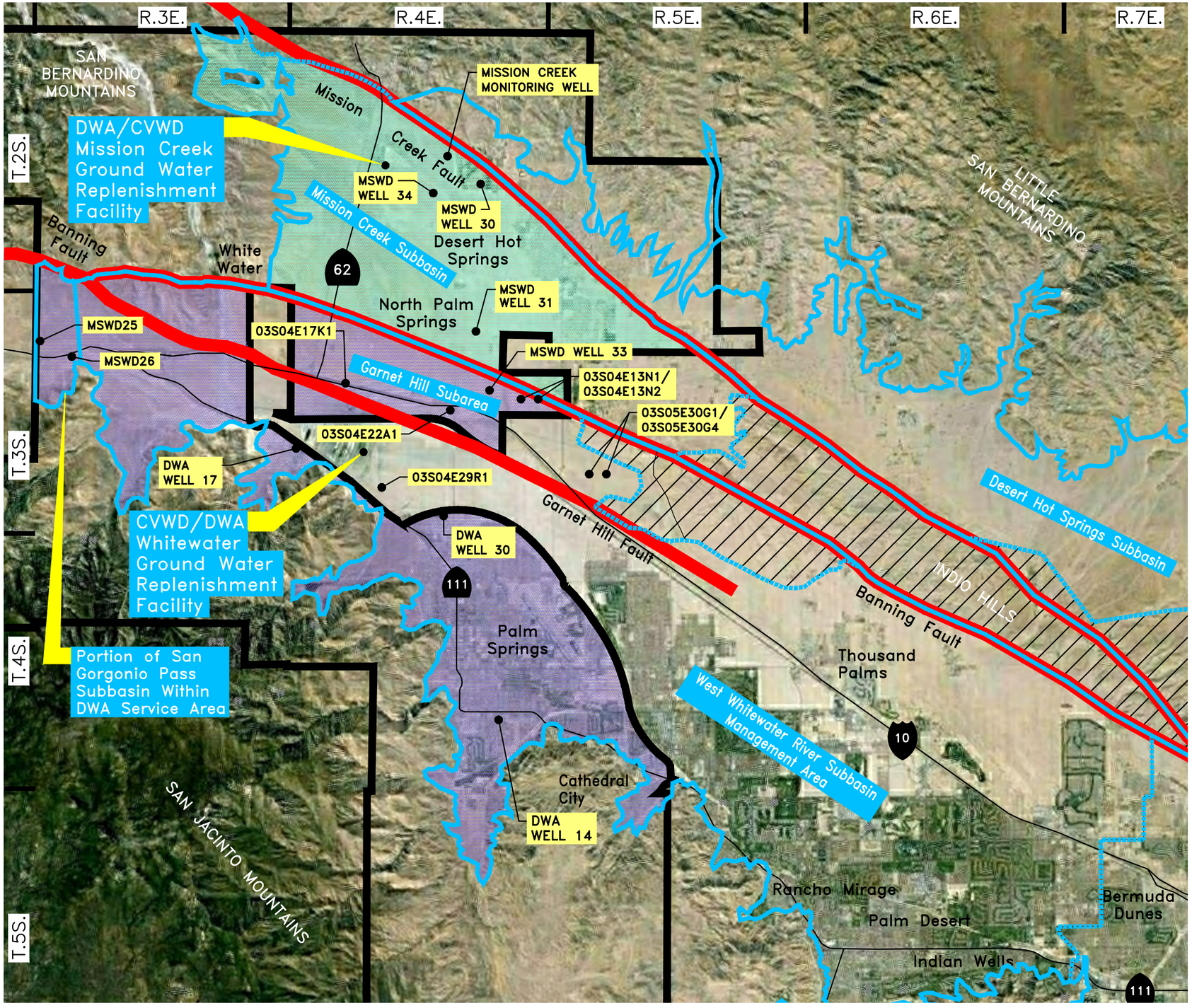


IMAGE: Copyright Google Earth Pro 2016

LEGEND

- DWA BOUNDARY
- UPPER COACHELLA VALLEY GROUNDWATER SUBBASIN BOUNDARIES
- FAULTS

UPPER COACHELLA VALLEY GROUNDWATER SUBBASIN AREAS OF BENEFIT WITHIN DWA

- DWA WHITEWATER RIVER SUBBASIN AREA OF BENEFIT
- DWA MISSION CREEK SUBBASIN AREA OF BENEFIT
- INDIO HILLS (LOW PERMEABILITY)
- GROUNDWATER WELL

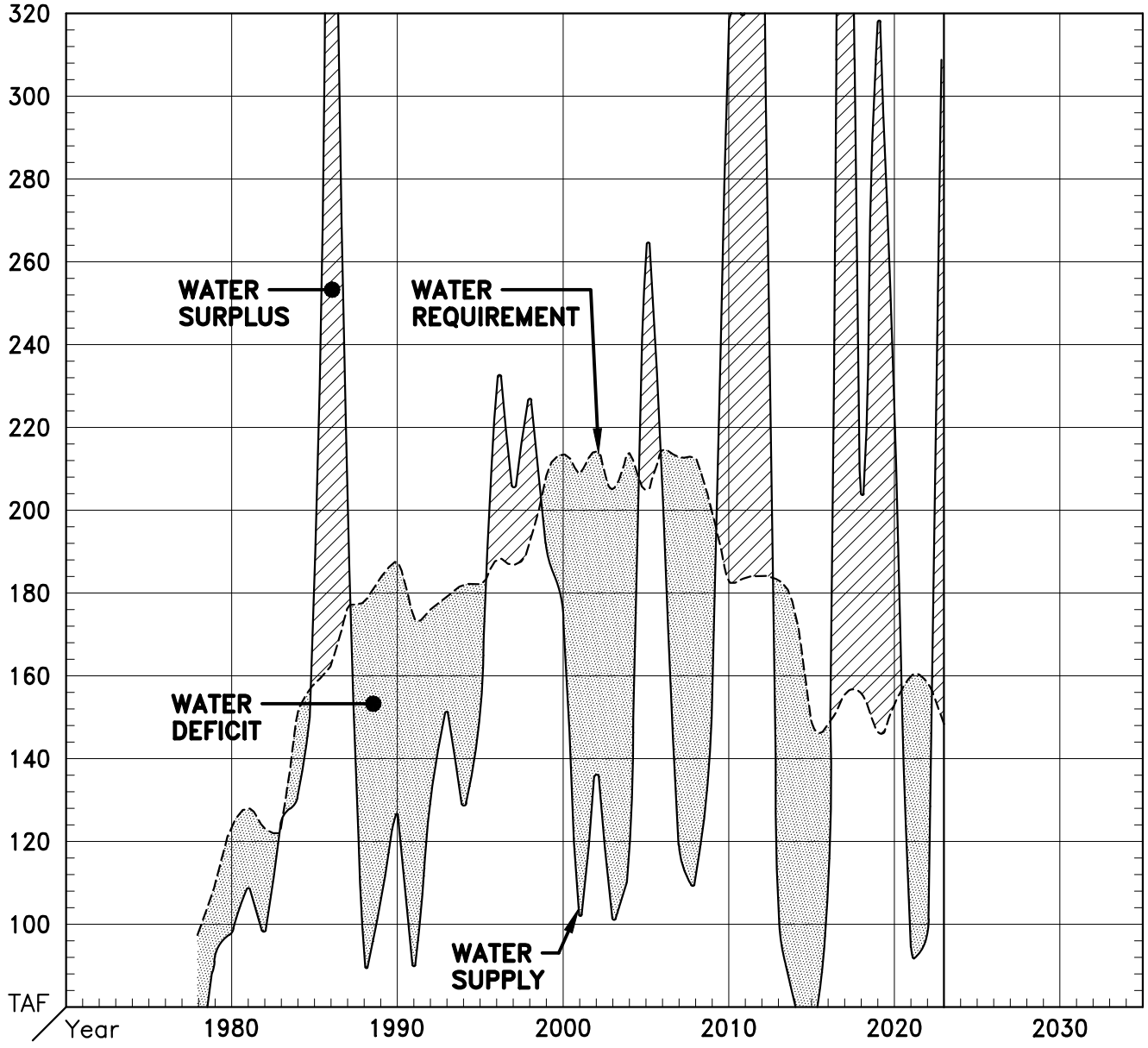
MAP SOURCE:

2016 GOOGLE EARTH PRO (AERIAL PHOTOGRAPHY), MISSION CREEK AND GARNET HILL SUBBASINS WATER MANAGEMENT PLAN FINAL REPORT, JANUARY 2013 (SUBBASIN/SUBAREA BOUNDARIES)

SCALE: 1"=2.5 MILES

Figure 2

\101\33p48\Drawings\Figures\101-33p48_f2.dwg



YEARS	1980	1990	2000	2010	2023
NET INFLOW (ACRE FEET)	98,000	125,800	174,500	317,100	370,556
NONCONSUMPTIVE RETURN	43,200	65,700	74,500	64,300	52,000
NET ARTIFICIAL RECHARGE	25,800	31,100	71,000	223,800	309,400
NET NATURAL INFLOW	29,000	29,000	29,000	29,000	9,156

KRIEGER & STEWART
Engineering Consultants
3602 University Avenue • Riverside, CA 92501
www.kriegerandstewart.com • 951 • 684 • 6900

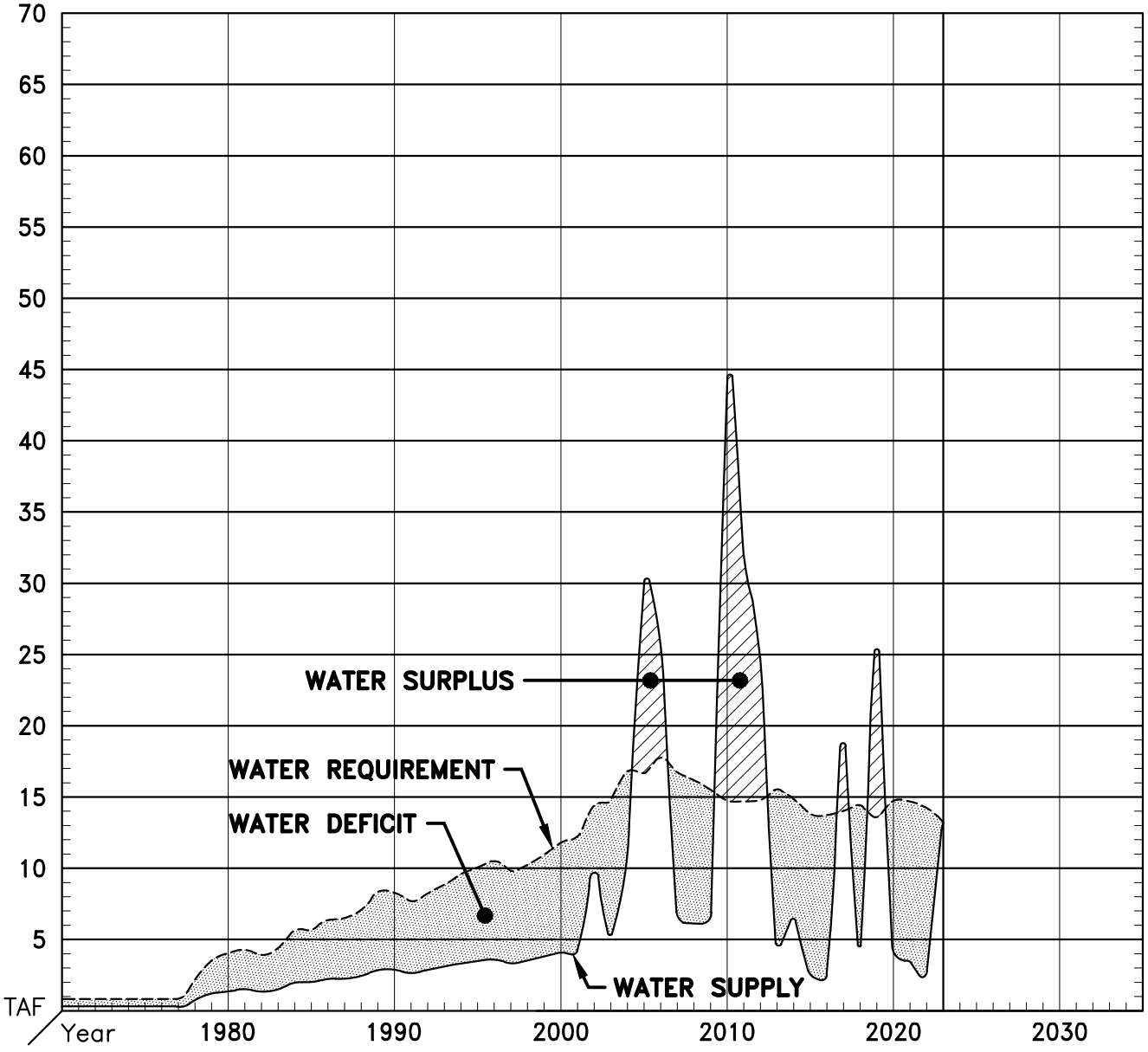
DESERT WATER AGENCY

HISTORIC
WATER REQUIREMENTS AND WATER SUPPLIES FOR
THE WEST WHITEWATER RIVER SUBBASIN MANAGEMENT AREA

FIGURE
3

SCALE: N/A DATE: 06/06/24 DRAWN BY: SPK CHECKED BY: TRR W.O.: 101-33.48

101-33p48_f3.dwg



YEARS	1980	1990	2000	2010	2023
NET INFLOW (ACRE FEET)	1,400	2,900	4,100	36,100	13,200
NONCONSUMPTIVE RETURN	1,400	2,900	4,100	3,600	4,900
NET ARTIFICIAL RECHARGE	0	0	0	32,500	5,200
NET NATURAL INFLOW	–	–	–	–	3,100

KRIEGER & STEWART
Engineering Consultants
3602 University Avenue • Riverside, CA 92501
www.kriegerandstewart.com • 951 • 684 • 6900

DESERT WATER AGENCY

HISTORIC
WATER REQUIREMENTS AND WATER SUPPLIES FOR
THE MISSION CREEK SUBBASIN MANAGEMENT AREA

FIGURE
4

SCALE: N/A DATE: 06/06/24 DRAWN BY: SPK CHECKED BY: TRR W.O.: 101-33.48

101-33p48_f4.dwg

TABLES

TABLE 0

DESERT WATER AGENCY

MAXIMUM SWP ALLOCATIONS AND PROBABLE SWP DELIVERIES TO MWD

2024/2025

Contracts and Transfers

Origin	Effective Date	Maximum Allocation (1)			Probable Delivery (2)		
		CVWD	DWA	Total	CVWD	DWA	Total
Original	1990	23,100	38,100	61,200	10,395	17,145	27,540
TLBWSD	2005	9,900	0	9,900	4,455	0	4,455
MWD	2005	88,100	11,900	100,000	39,645	5,355	45,000
KCWA	2010	12,000	4,000	16,000	5,400	1,800	7,200
TLBWSD	2010	5,250	1,750	7,000	2,363	788	3,151
Total		138,350	55,750	194,100	62,258	25,088	87,346
Percent		71.3%	28.7%		71.3%	28.7%	

Notes:

(1) The Maximum Allocation is the currently existing Table A Water Allocation per Appendix B, Table B-4 with no reliability factors applied.

(2) The Probable Delivery is based on estimated long-term reliability of 45% of the Maximum Table A Water Allocation.

TABLE 1
DESERT WATER AGENCY
HISTORIC REPORTED WATER PRODUCTION FOR REPLENISHMENT ASSESSMENT FOR
DESERT WATER AGENCY AND COACHELLA VALLEY WATER DISTRICT
WEST WHITEWATER RIVER SUBBASIN (WWR) AND MISSION CREEK SUBBASIN (MC) MANAGEMENT AREAS

	CVWD Production		DWA Production					Combined CVWD & DWA Production					WWR Production Percentages		Combined WWR, MC Production Percentages		MC Production Percentages	
	GWE		GWE		SWD	Total	Total	WWR			MC							
Year	WWR AF	MC AF	WWR AF	MC AF	WWR AF	WWR AF	Comb AF	GWE AF	SWD AF	Total AF	Total AF	Comb AF	CVWD	DWA	CVWD	DWA	CVWD	DWA
1973										84,008 *	542 *							
1974										84,008 *	542 *							
1975										84,008 *	542 *							
1976	69,700		25,100		7,400	32,500	32,500	94,800	7,400	102,200	542 *	102,742	68.20%	31.80%				
1977	67,696		25,660		7,562	33,222	33,222	93,356	7,562	100,918	542 *	101,460	67.08%	32.92%				
1978	61,172		28,100		8,530	36,630	36,630	89,272	8,530	97,802	2,253 *	100,055	62.55%	37.45%				
1979	72,733		29,393		7,801	37,194	37,194	102,126	7,801	109,927	3,565 *	113,492	66.16%	33.84%				
1980	84,142		32,092		7,303	39,395	39,395	116,234	7,303	123,537	4,021 *	127,558	68.11%	31.89%				
1981	86,973		33,660		7,822	41,482	41,482	120,633	7,822	128,455	4,299 *	132,754	67.71%	32.29%				
1982	83,050		33,382		6,512	39,894	39,894	116,432	6,512	122,944	3,932 *	126,876	67.55%	32.45%				
1983	84,770		33,279		6,467	39,746	39,746	118,049	6,467	124,516	4,421 *	128,937	68.08%	31.92%				
1984	104,477		38,121		7,603	45,724	45,724	142,598	7,603	150,201	5,655 *	155,856	69.56%	30.44%				
1985	111,635		39,732		7,143	46,875	46,875	151,367	7,143	158,510	5,707 *	164,217	70.43%	29.57%				
1986	115,185		40,965		6,704	47,669	47,669	156,150	6,704	162,854	6,437 *	169,291	70.73%	29.27%				
1987	125,229		44,800		5,644	50,444	50,444	170,029	5,644	175,673	6,717 *	182,390	71.29%	28.71%				
1988	125,122		47,593		5,246	52,839	52,839	172,715	5,246	177,961	7,136 *	185,097	70.31%	29.69%				
1989	129,957		47,125		5,936	53,061	53,061	177,082	5,936	183,018	8,296 *	191,314	71.01%	28.99%				
1990	136,869		45,396		5,213	50,609	50,609	182,265	5,213	187,478	8,302 *	195,780	73.01%	26.99%				
1991	126,360		42,729		4,917	47,646	47,646	169,089	4,917	174,006	7,778 *	181,784	72.62%	27.38%				
1992	128,390		42,493		4,712	47,205	47,205	170,883	4,712	175,595	8,375 *	183,970	73.12%	26.88%				
1993	131,314		41,188		6,363	47,551	47,551	172,502	6,363	178,865	8,861 *	187,726	73.42%	26.58%				
1994	134,223		42,115		5,831	47,946	47,946	176,338	5,831	182,169	9,676 *	191,845	73.68%	26.32%				
1995	134,580		41,728		5,809	47,537	47,537	176,308	5,809	182,117	10,102 *	192,219	73.90%	26.10%				
1996	137,410		45,342		5,865	51,207	51,207	182,752	5,865	188,617	10,562 *	199,179	72.85%	27.15%				
1997	137,406		43,658		5,626	49,284	49,284	181,064	5,626	186,690	9,899 *	196,589	73.60%	26.40%				
1998	142,620		41,385		7,545	48,930	48,930	184,005	7,545	191,550	10,291 *	201,841	74.46%	25.54%				
1999	157,148		44,350		6,941	51,291	51,291	201,498	6,941	208,439	10,974 *	219,413	75.39%	24.61%				
2000	161,834		44,458		6,297	50,755	50,755	206,292	6,297	212,589	11,838 *	224,427	76.13%	23.87%				
2001	159,767		44,112		4,928	49,040	49,040	203,879	4,928	208,807	12,350 *	221,157	76.51%	23.49%				
2002	163,185	4,371	46,004	9,597	4,221	50,225	59,822	209,189	4,221	213,410	13,968	227,378	76.47%	23.53%	73.69%	26.31%	31.29%	68.71%
2003	156,185	4,425	43,463	10,073	4,627	48,090	58,163	199,648	4,627	204,275	14,498	218,773	76.46%	23.54%	73.41%	26.59%	30.52%	69.48%
2004	159,849	4,628	48,093	11,920	4,758	52,851	64,771	207,942	4,758	212,700	16,548	229,248	75.15%	24.85%	71.75%	28.25%	27.97%	72.03%
2005	153,462	4,247	46,080	12,080	4,799	50,879	62,959	199,542	4,799	204,341	16,327	220,668	75.10%	24.90%	71.47%	28.53%	26.01%	73.99%
2006	160,239	4,757	48,967	12,608	4,644	53,611	66,219	209,206	4,644	213,850	17,365	231,215	74.93%	25.07%	71.36%	28.64%	27.39%	72.61%
2007	157,487	4,547	50,553	11,862	3,490	54,043	65,905	208,040	3,490	211,530	16,409	227,939	74.45%	25.55%	71.09%	28.91%	27.71%	72.29%
2008	161,695	4,543	45,735	11,232	3,593	49,328	60,560	207,430	3,593	211,023	15,775	226,798	76.62%	23.38%	73.30%	26.70%	28.80%	71.20%
2009	155,793	4,813	42,270	10,295	1,443	43,713	54,008	198,063	1,443	199,506	15,108	214,614	78.09%	21.91%	74.83%	25.17%	31.86%	68.14%
2010	141,481	4,484	39,640	9,820	1,582	41,222	51,042	181,121	1,582	182,703	14,304	197,007	77.44%	22.56%	74.09%	25.91%	31.35%	68.65%
2011	141,028	4,653	40,568	9,607	1,724	42,292	51,899	181,596	1,724	183,320	14,260	197,580	76.93%	23.07%	73.73%	26.27%	32.63%	67.37%
2012	141,379	4,582	39,684	9,634	2,222	41,906	51,540	181,063	2,222	183,285	14,216	197,501	77.14%	22.86%	73.90%	26.10%	32.23%	67.77%
2013	143,108	4,415	37,932	10,341	1,802	39,734	50,075	181,040	1,802	182,842	14,756	197,598	78.27%	21.73%	74.66%	25.34%	29.92%	67.34%
2014	136,027	4,154	36,611	9,937	1,787	38,398	48,335	172,638	1,787	174,425	14,091	188,516	77.99%	22.01%	74.36%	25.64%	29.48%	70.52%
2015	115,558	4,090	30,666	8,927	1,539	32,205	41,132	146,224	1,539	147,763	13,017	160,780	78.20%	21.80%	74.42%	25.58%	31.42%	68.58%
2016	115,659	4,175	30,705	9,044	2,031	32,736	41,780	146,364	2,031	148,395	13,219	161,614	77.94%	22.06%	74.15%	25.85%	31.58%	68.42%
2017	120,383	4,281	33,164	9,250	1,996	35,160	44,410	153,547	1,996	155,543	13,531	169,074	77.40%	22.60%	73.73%	26.27%	31.64%	68.36%
2018	119,250	4,175	34,038	9,695	1,260 **	35,298	44,993	153,288	1,260	154,548	13,870	168,418	77.16%	22.84%	73.28%	26.72%	30.10%	69.90%
2019	113,907	3,993	29,779	9,142	1,916	31,695	40,837	143,686	1,916	145,602	13,135	158,737	78.23%	21.77%	74.27%	25.73%	30.40%	69.60%
2020	117,825	4,655	33,786	9,589	1,454	35,240	44,829	151,611	1,454	153,065	14,244	167,309	76.98%	23.02%	73.21%	26.79%	32.68%	67.32%
2021	122,473	4,602	36,150	9,625	682	36,832	46,457	158,623	682	159,305	14,227	173,532	76.88%	23.12%	73.23%	26.77%	32.35%	67.65%
2022	122,108	4,402	34,977	9,361	599	35,576	44,937	157,085	599	157,684	13,763	171,447	77.44%	22.56%	73.79%	26.21%	31.98%	68.02%
2023	113,603	4,030	33,208	8,742	566	33,774	42,516	146,812	566	147,377	12,772	160,149	77.08%	22.92%	73.45%	26.55%	31.56%	68.44%

* Estimated
** Corrected

NOTES:
- Includes assessable production and reported production from minimal producers
- Cumulative CVWD and DWA West Whitewater River Subbasin Management Area production 2019 through 2023: 763,033 AF
- Cumulative CVWD and DWA Mission Creek Subbasin Management Area production 2019 through 2023: 68,141 AF
- Average annual CVWD and DWA West Whitewater River Subbasin Management Area production 2019 through 2023 (rounded): 152,610 AF
- Average annual CVWD and DWA Mission Creek Subbasin Management Area production 2019 through 2023 (rounded): 13,630 AF
- Average annual DWA West Whitewater River Subbasin Area of Benefit production 2019 through 2023 (rounded): 34,880 AF
- Average annual DWA Mission Creek Subbasin Area of Benefit production 2019 through 2023(rounded): 9,290 AF
- Average DWA West Whitewater River Subbasin Area of Benefit production percentage 2019 through 2023: 22.68%
- Average DWA Mission Creek Subbasin Area of Benefit production percentage 2019 through 2023: 68.21%

ABBREVIATIONS:
- GWE = Groundwater Extractions
- SWD = Surface Water Diversions
- COMB = Combined
- WWR = West Whitewater River Subbasin Management Area
- MC = Mission Creek Subbasin Management Area

TABLE 2
DESERT WATER AGENCY
GROUNDWATER REPLENISHMENT AND ASSESSMENT PROGRAM
ESTIMATED WEST WHITEWATER RIVER SUBBASIN AND MISSION CREEK SUBBASIN AREAS OF BENEFIT
WATER PRODUCTION AND ESTIMATED GROUNDWATER REPLENISHMENT ASSESSMENTS
2024/2025

ESTIMATED COMBINED AREA OF BENEFIT
ASSESSABLE WATER PRODUCTION AND GROUNDWATER REPLENISHMENT ASSESSMENTS

Area of Benefit	Estimated Assessable Water Production AF	Groundwater Replenishment Assessment Rate $/AF	Groundwater Replenishment Assessment $	Groundwater Replenishment Assessment Percent
West Whitewater River Subbasin AOB	32,420	$215.00	$6,970,300	79%
Mission Creek Subbasin AOB	8,750	$215.00	$1,881,250	21%
Combined AOBs	41,170		$8,851,550	100%

ESTIMATED WEST WHITEWATER RIVER SUBBASIN AND MISSION CREEK SUBBASIN AREAS OF BENEFIT
WATER PRODUCTION AND GROUNDWATER REPLENISHMENT ASSESSMENTS

Producer	2023 Water Production (1) Groundwater Extraction AF	Surface Water Diversion AF	Combined Water Production AF	Estimated 2024/2025 Assessable Water Production AF[2]	Estimated Groundwater Replenishment Assessment @ $215/AF $	Percent
West Whitewater River Subbasin AOB						
Desert Water Agency (Incl. Chino, Falls, Snow Creeks)	30,600.46	565.88	31,166.35	31,170	$6,701,550	96.14%
Agua Caliente Band of Mission Indians [3]	0.19	0.00	0.19	0	$0	0.00%
Caltrans Rest Stop	9.41	0.00	9.41	10	$2,150	0.03%
Indian Canyons Golf Resort [4]	1,356.00	0.00	1,356.00	0	$0	0.00%
Desert Oasis Golf Management - Welk Resort	281.47	0.00	281.47	280	$60,200	0.86%
Los Compadres	51.44	0.00	51.44	50	$10,750	0.15%
Mission Springs Water District (Wells 25 & 25A and 26 & 26A in San Gorgonio River Subbasin)	213.56	0.00	213.56	210	$45,150	0.65%
Seven Lakes Country Club	176.85	0.00	176.85	180	$38,700	0.56%
Escena	58.57	0.00	58.57	60	$12,900	0.19%
Miralon	174.28	0.00	174.28	170	$36,550	0.52%
Palm Springs West	0.00	0.00	0.00	0	$0	0.00%
Mission Springs Water District (Well 33)	275.35	0.00	275.35	280	$60,200	0.86%
Indigo Power Plant	10.88	0.00	10.88	10	$2,150	0.03%
Subtotal	33,208.45	565.88	33,774.34	32,420	$6,970,300	100.00%
Mission Creek Subbasin AOB						
Mission Springs Water District	7,064.53	0.00	7,064.53	7,060	$1,517,900	80.69%
Hidden Springs Country Club	278.24	0.00	278.24	280	$60,200	3.20%
Mission Lakes Country Club	797.46	0.00	797.46	800	$172,000	9.14%
Sands RV Resort	306.28	0.00	306.28	310	$66,650	3.54%
CPV-Sentinel	295.12	0.00	295.12	300	$64,500	3.43%
Subtotal	8,741.62	0.00	8,741.62	8,750	$1,881,250	100.00%
Total	41,950.07	565.88	42,515.95	41,170	$8,851,550	----

(1) 2023 Metered water production, except for Exempt Production and Estimated Production.
(2) Based on 2023 production, all rounded to nearest 10 AF.
(3) Estimated pumpage based on 2021 pumpage. This facility is currently not being assessed for groundwater replenishment, pending resolution of a lawsuit challenging DWA's authority to impose the replenishment assessment charge on the Agua Caliente Band of Cahuilla Indians.
(4) Estimated pumpage based on 2019 recycled water usage. This facility is currently not being assessed for groundwater replenishment, pending resolution of a lawsuit challenging DWA's authority to impose the replenishment assessment charge on the Agua Caliente Band of Cahuilla Indians.

TABLE 3
COACHELLA VALLEY WATER DISTRICT
APPLICABLE STATE WATER PROJECT CHARGES[1]

Year	Maximum Table A Water Allocation AF	Probable Table A Water Delivery[2] AF	Delta Water Charge Amount[3] $	Delta Water Charge Unit $/AF	Variable Transportation Charge Amount[4] $	Variable Transportation Charge Unit $/AF	Off-Aqueduct Power Charge Amount[5] $	Off-Aqueduct Power Charge Unit $/AF	CVWD Applicable Table A Charges Amount $	CVWD Applicable Table A Charges Unit[6] $/AF
2018	138,350	62,258	9,472,825	68.47	10,911,337	175.26	37,977	0.61	20,422,139	328.02
2019	138,350	62,258	9,694,185	70.07	9,854,819	158.29	132,610	2.13	19,681,613	316.13
2020	138,350	62,258	11,289,360	81.60	10,865,266	174.52	41,090	0.66	22,195,716	356.51
2021	138,350	62,258	11,835,843	85.55	18,132,020	291.24	158,758	2.55	30,126,620	483.90
2022	138,350	62,258	14,042,525	101.50	15,910,654	255.56	1,039,709	16.70	30,992,888	497.81
2023	138,350	62,258	12,801,526	92.53	14,474,985	232.50	183,661	2.95	27,460,172	441.07
2024	138,350	62,258	12,653,491	91.46	13,338,154	214.24	84,048	1.35	26,075,693	418.83
2025	138,350	62,258	13,004,900	94.00	12,059,375	193.70	143,193	2.30	25,207,468	404.89
2026	138,350	62,258	13,696,650	99.00	13,251,615	212.85	115,800	1.86	27,064,065	434.71
2027	138,350	62,258	14,526,750	105.00	13,380,489	214.92	24,903	0.40	27,932,143	448.65
2028	138,350	62,258	15,218,500	110.00	13,514,344	217.07	22,413	0.36	28,755,257	461.87
2029	138,350	62,258	16,186,950	117.00	13,650,067	219.25	21,790	0.35	29,858,807	479.60
2030	138,350	62,258	16,740,350	121.00	13,785,166	221.42	12,452	0.20	30,537,968	490.51
2031	138,350	62,258	17,985,500	130.00	13,922,757	223.63	0	0.00	31,908,257	512.52
2032	138,350	62,258	18,953,950	137.00	14,062,214	225.87	0	0.00	33,016,164	530.31
2033	138,350	62,258	20,060,750	145.00	14,202,295	228.12	0	0.00	34,263,045	550.34
2034	138,350	62,258	21,167,550	153.00	14,344,866	230.41	0	0.00	35,512,416	570.41
2035	138,350	62,258	22,274,350	161.00	14,488,059	232.71	0	0.00	36,762,409	590.48

Notes:

(1) As set forth in CDWR Bulletin 132-23, Appendix B (Appendix B).

(2) Probable Table A water delivery is based on 0.45 reliability of CVWD original allocation augmented by TLBWSD, KCWA, and MWD transfers

(3) Amount is based on maximum Table A water allocation and Delta Water Charge per Table B-20 (A & B) of Appendix B. From 2018 through 2035, amount is based on State Water Contractors estimates.

(4) Amount is based on probable Table A water delivery and applicable Variable Transportation Unit Charge per Table B-17 of Appendix B.

(5) Amount is based on probable Table A water delivery and Off-Aqueduct Power Unit Charge derived by dividing data in Table B-16B by data in Table B-5B of Appendix B.

(6) Amount of applicable Table A charges divided by probable Table A water delivery.

TABLE 4
DESERT WATER AGENCY
APPLICABLE STATE WATER PROJECT CHARGES[1]

Year	Maximum Table A Water Allocation AF	Probable Table A Water Delivery[2] AF	Delta Water Charge Amount[3] $	Delta Water Charge Unit $/AF	Variable Transportation Charge Amount[4] $	Variable Transportation Charge Unit $/AF	Off-Aqueduct Power Charge Amount[5] $	Off-Aqueduct Power Charge Unit $/AF	DWA Applicable Table A Charges Amount $	DWA Applicable Table A Charges Unit[6] $/AF
2018	55,750	25,088	3,817,203	68.47	4,396,923	175.26	36,879	1.47	8,251,005	328.88
2019	55,750	25,088	3,906,403	70.07	3,971,180	158.29	115,154	4.59	7,992,736	318.59
2020	55,750	25,088	4,549,200	81.60	4,378,358	174.52	43,653	1.74	8,971,211	357.59
2021	55,750	25,088	4,769,413	85.55	7,306,629	291.24	276,219	11.01	12,352,261	492.36
2022	55,750	25,088	5,658,625	101.50	6,411,489	255.56	921,482	36.73	12,991,597	517.84
2023	55,750	25,088	5,158,548	92.53	5,832,960	232.50	205,722	8.20	11,197,229	446.32
2024	55,750	25,088	5,098,895	91.46	5,374,853	214.24	78,776	3.14	10,552,524	420.62
2025	55,750	25,088	5,240,500	94.00	4,859,546	193.70	135,224	5.39	10,235,270	407.97
2026	55,750	25,088	5,519,250	99.00	5,339,981	212.85	113,649	4.53	10,972,879	437.38
2027	55,750	25,088	5,853,750	105.00	5,391,913	214.92	24,335	0.97	11,269,998	449.22
2028	55,750	25,088	6,132,500	110.00	5,445,852	217.07	21,576	0.86	11,599,928	462.37
2029	55,750	25,088	6,522,750	117.00	5,500,544	219.25	21,074	0.84	12,044,368	480.08
2030	55,750	25,088	6,745,750	121.00	5,554,985	221.42	12,042	0.48	12,312,777	490.78
2031	55,750	25,088	7,247,500	130.00	5,610,429	223.63	0	0.00	12,857,929	512.51
2032	55,750	25,088	7,637,750	137.00	5,666,627	225.87	0	0.00	13,304,377	530.31
2033	55,750	25,088	8,083,750	145.00	5,723,075	228.12	0	0.00	13,806,825	550.34
2034	55,750	25,088	8,529,750	153.00	5,780,526	230.41	0	0.00	14,310,276	570.40
2035	55,750	25,088	8,975,750	161.00	5,838,228	232.71	0	0.00	14,813,978	590.48

Notes:

(1) As set forth in CDWR Bulletin 132-23, Appendix B (Appendix B).

(2) Probable Table A water delivery is based on 0.45 reliability of DWA original allocation augmented by TLBWSD, KCWA, and MWD transfers

(3) Amount is based on maximum Table A water allocation and Delta Water Charge per Table B-20 (A & B) of Appendix B. From 2018 through 2035, amount is based on State Water Contractors estimates.

(4) Amount is based on probable Table A water delivery and applicable Variable Transportation Unit Charge per Table B-17 of Appendix B.

(5) Amount is based on probable Table A water delivery and Off-Aqueduct Power Unit Charge derived by dividing data in Table B-16B by data in Table B-5B of Appendix B.

(6) Amount of applicable Table A charges divided by probable Table A water delivery.

TABLE 5
DESERT WATER AGENCY
ESTIMATED ALLOCATED STATE WATER PROJECT CHARGES FOR TABLE A WATER
(PROPORTIONED APPLICABLE CHARGES)[1]

Year	CVWD Applicable Table A Charges[2] $	DWA Applicable Table A Charges[3] $	Combined Applicable Table A Charges $	CVWD Allocated Table A Charges $	DWA Allocated Table A Charges $	DWA Incremental Increase/(Decrease) $	DWA Incremental Increase/(Decrease) %
2018	20,422,139	8,251,005	28,673,144	21,060,424	7,612,720		
						(265,180)	(3)
2019	19,681,613	7,992,736	27,674,349	20,326,809	7,347,540		
						927,279	13
2020	22,195,716	8,971,211	31,166,927	22,892,108	8,274,819		
						3,003,324	36
2021	30,126,620	12,352,261	42,478,881	31,200,738	11,278,143		
						399,738	4
2022	30,992,888	12,991,597	43,984,485	32,306,604	11,677,881		
						(1,414,341)	(12)
2023	27,460,172	11,197,229	38,657,401	28,393,861	10,263,540		
						(538,748)	(5)
2024	26,075,693	10,552,524	36,628,218	26,903,426	9,724,792		
						(314,745)	(3)
2025	25,207,468	10,235,270	35,442,738	26,032,691	9,410,047		
						688,762	7
2026	27,064,065	10,972,879	38,036,945	27,938,136	10,098,809		
						309,359	3
2027	27,932,143	11,269,998	39,202,141	28,793,972	10,408,168		
						306,134	3
2028	28,755,257	11,599,928	40,355,185	29,640,883	10,714,302		
						410,991	4
2029	29,858,807	12,044,368	41,903,175	30,777,882	11,125,293		
						251,580	2
2030	30,537,968	12,312,777	42,850,745	31,473,872	11,376,873		
						508,549	4
2031	31,908,257	12,857,929	44,766,186	32,880,764	11,885,422		
						412,682	3
2032	33,016,164	13,304,377	46,320,541	34,022,437	12,298,104		
						464,446	4
2033	34,263,045	13,806,825	48,069,870	35,307,319	12,762,550		
						465,375	4
2034	35,512,416	14,310,276	49,822,692	36,594,767	13,227,925		
						465,606	4
2035	36,762,409	14,813,978	51,576,388	37,882,857	13,693,531		

Notes:
(1) Proportioned in accordance with 2023 Water Management Area production percentages; CVWD is responsible for 73.45% and DWA is responsible for 26.55% of total combined production for the Whitewater River and Mission Creek Subbasins (see **Table 1**).
(2) From Table 3.
(3) From Table 4.

TABLE 6
DESERT WATER AGENCY
PROJECTED EFFECTIVE REPLENISHMENT ASSESSMENT RATES
PURSUANT TO WATER MANAGEMENT AGREEMENTS BETWEEN
COACHELLA VALLEY WATER DISTRICT AND DESERT WATER AGENCY

Year	DWA Allocated Table A Charges [1] $	Estimated Assessable Production[2] AF	Estimated Effective Table A Assessment Rate[3] Fiscal Year $/AF	Table A Assessment Rate $/AF
2019/2020	7,811,180	45,360	172.20	172.00
2020/2021	9,776,481	40,830	239.44	239.00
2021/2022	11,478,012	44,830	256.03	256.00
2022/2023	10,970,711	45,090	243.31	243.00
2023/2024	9,994,166	43,560	229.43	229.00
2024/2025 [4]	9,567,420	41,170	232.39	232.00
2025/2026 [4]	9,909,108	46,374	213.68	214.00
2026/2027 [4]	10,253,489	46,475	220.62	221.00
2027/2028 [4]	10,561,235	46,579	226.74	227.00
2028/2029 [4]	10,919,798	46,696	233.85	234.00
2029/2030 [4]	11,251,083	46,928	239.75	240.00
2030/2031 [4]	11,631,148	47,021	247.36	247.00
2031/2032 [4]	12,091,763	46,561	259.70	260.00
2032/2033 [4]	12,530,327	46,103	271.79	272.00
2033/2034 [4]	12,995,238	45,657	284.63	285.00
2034/2035 [4]	13,460,728	45,327	296.97	297.00

Notes:

(1) From **Table 5**.

(2) Projections based on model runs for Coachella Valley 2010 Water Management Plan, 2014 Water Management Plan Status Update, and 2022 SGMA GSP Updates.

(3) Necessary to pay DWA's estimated (projected) Allocated Table A Charges.

(4) Projected

TABLE 7
DESERT WATER AGENCY
WEST WHITEWATER RIVER SUBBASIN, MISSION CREEK SUBBASIN, AND GARNET HILL SUBBASIN AREAS OF BENEFIT
HISTORIC AND PROPOSED REPLENISHMENT ASSESSMENT RATES

						Assessment Rate					
						WWR		MC		GH [14]	
Fiscal Year	SWP Table A Allocation[1] $/AF	Net Surplus Water Costs $/AF	Admin and Operational Costs [20] $	Admin and Operational Costs [20] $/AF	Total RAC Costs $/AF	Discretionary Deferral and Recovery[3] $/AF	Total[4] $/AF	Discretionary Deferral and Recovery[3] $/AF	Total[4] $/AF	Discretionary Deferral and Recovery[3] $/AF	Total[4] $/AF
78/79	6.81			--	--	0.00	6.81				
79/80	9.00			0.00	9.00	0.00	9.00				
80/81	9.50			0.00	9.50	0.00	9.50				
81/82	10.50			0.00	10.50	0.00	10.50				
82/83	21.00			0.00	21.00	0.00	21.00				
83/84	36.50			0.00	36.50	0.00	36.50				
84/85	37.50			0.00	37.50	0.00	37.50				
85/86	31.00			0.00	31.00	0.00	31.00				
86/87	21.00			0.00	21.00	0.00	21.00				
87/88	22.50			0.00	22.50	0.00	22.50				
88/89	20.00			0.00	20.00	0.00	20.00				
89/90	23.50			0.00	23.50	0.00	23.50				
90/91	26.00			0.00	26.00	0.00	26.00				
91/92	31.75			0.00	31.75	0.00	31.75				
92/93	31.75			0.00	31.75	0.00	31.75				
93/94	31.75			0.00	31.75	0.00	31.75				
94/95	31.75			0.00	31.75	0.00	31.75				
95/96	31.75			0.00	31.75	0.00	31.75				
96/97	31.75			0.00	31.75	0.00	31.75				
97/98	31.75			0.00	31.75	0.00	31.75				
98/99	31.75			0.00	31.75	0.00	31.75				
99/00	31.75			0.00	31.75	0.00	31.75				
00/01	33.00			0.00	33.00	0.00	33.00				
01/02	33.00			0.00	33.00	0.00	33.00				
02/03	35.00			0.00	35.00	0.00	35.00				
03/04	35.00			0.00	35.00	0.00	35.00	0.00	35.00		
04/05	34.00			0.00	34.00	11.00	34.00	12.00	34.00		
05/06	38.00			0.00	38.00	12.00	38.00	12.00	38.00		
06/07	51.00			0.00	51.00	12.00	51.00	12.00	51.00		
07/08	83.00			0.00	83.00	(34.00)	63.00	(34.00)	49.00		
08/09	65.00			0.00	65.00	(6.00)	72.00	(6.00)	59.00		
09/10	72.00			0.00	72.00	0.00	72.00	0.00	72.00		
10/11	99.00			0.00	99.00	(17.00)	82.00	(17.00)	82.00		
11/12	115.00			0.00	115.00	(33.00)	82.00	(33.00)	82.00		
12/13	117.00			0.00	117.00	(25.00)	92.00	(25.00)	92.00		
13/14	111.00			0.00	111.00	(19.00)	92.00	(19.00)	92.00		
14/15	106.00			0.00	106.00	(4.00)	102.00	(4.00)	102.00		
15/16	112.00			0.00	112.00	(10.00)	102.00	(10.00)	102.00	(10.00)	102.00
16/17	144.00			0.00	144.00	(42.00)	102.00	(42.00)	102.00	(42.00)	102.00
17/18	158.00			0.00	158.00	(38.00)	120.00	(38.00)	120.00	(38.00)	120.00
18/19	196.00			0.00	196.00	(56.00)	140.00	(56.00)	140.00	(56.00)	140.00
19/20	188.00			0.00	188.00	(33.00)	155.00	(33.00)	155.00	(33.00)	155.00
20/21	243.00			0.00	243.00	(78.00)	165.00	(78.00)	165.00	---	--- [14]
21/22	248.00			0.00	248.00	(73.00)	175.00	(73.00)	175.00	---	---
22/23	209.00	5.40	$2,506,436.09	55.59	269.99	(94.99)	175.00	(94.99)	175.00	---	---
23/24	230.00	[18]	$2,584,358.95	59.33	289.33	(94.33)	195.00 [17]	(94.33)	195.00 [17]	---	---
24/25	232.00	[18]	$2,708,408.17	65.79	297.79	(82.79)	215.00 [17]	(82.79)	215.00 [17]	---	---
25/26	232.00	[18]	$2,838,411.77	63.32	295.32	(60.32)	235.00 [17]	(60.32)	235.00 [17]	---	---
26/27	232.00	[18]	$2,974,655.53	66.19	298.19	(43.19)	255.00 [17]	(43.19)	255.00 [17]	---	---
27/28	232.00	[18]	$3,117,439.00	68.97	300.97	(25.97)	275.00 [17]	(25.97)	275.00 [17]	---	---
28/29	234.00	[18]	$3,267,076.07	72.37	306.37	(11.37)	295.00 [17]	(11.37)	295.00 [17]	---	---
29/30	240.00	[18]	$3,423,895.72	75.40	315.40	(0.40)	315.00 [17]	(0.40)	315.00 [17]	---	---
30/31	247.00	[18]	$3,588,242.71	79.07	326.07	3.93	330.00 [17]	3.93	330.00 [17]	---	---
31/32	260.00	[18]	$3,760,478.37	81.97	341.97	3.03	345.00 [17]	3.03	345.00 [17]	---	---
32/33	272.00	[18]	$3,940,981.33	86.48	358.48	1.52	360.00 [17]	1.52	360.00 [17]	---	---
33/34	285.00	[18]	$4,130,148.43	91.88	376.88	3.12	380.00 [17]	3.12	380.00 [17]	---	---
34/35	297.00	[18]	$4,328,395.56	96.94	393.94	1.06	395.00 [17]	1.06	395.00 [17]	---	---
35/36	297.00	[18]	$4,536,158.54	102.96	399.96	0.04	400.00 [17]	0.04	400.00 [17]	---	---
36/37	306.00	[18]	$4,753,894.15	108.07	414.07	0.93	415.00 [17]	0.93	415.00 [17]	---	---

(1) Effective rate necessary to pay DWA's estimated (projected) Allocated Table A Charges. See Table 6.
(2) Administrative and operational costs of importing and recharging water from the Colorado River Aqueduct. Administrative and operational charges for importing water from the State Water Project are not included.
(3) Includes discretionary reductions and charges for recovery of past shortfalls.
(4) Recommended assessment rate based on two components: 1) State Water Project Table A water Allocation, and 2) Other Charges or Costs.
(5) Assessments Estimated are based on applicable assessment rate and estimated assessable production from annual report for that year.
(6) Assessments Levied are based on applicable assessment rate and actual assessable production, except for the previous year, current year, and subsequent years where amounts remain estimated.
(7) Assessments Collected are based on payments made for Assessments Levied, except for the previous year, current year, and subsequent years where amounts remain estimated.
(8) Assessments Delinquent are based on Assessments Levied less payments made.
(9) Cumulative assessment balance to be used for future Delta improvements. Estimates of future assessment rates may need to be adjusted in the future to accommodate unknown charges for expanded State Water Project Facilities.
(10) For 2017/2018 and beyond, Assessments Estimated are based on Proposed Assessment Rate and Estimated Assessable Production.
(11) Assessments Collected are estimated based on first and second quarters of assessment period.
(12) Delinquent assessment is estimated based on first and second quarters of assessment period.
(13) For 2023/2024 and beyond, Payments Made are estimated based on estimated allocated Table A charges.
(14) Starting with 2020/2021, Garnet Hill Subarea is included in West White Water River Subbasin.
(15) Including prior year DWR refunds/adjustments
(16) Existing cumulative deficit in the Replenishment Assessment Account transferred to reserve account(s),
(17) Incremented by $20/Year through 2029/2030, then incremented as necessary to cover Total RAC Costs.
(18) These costs are unpredictable. Projected costs determined using the 2-year historical average with a 4.8% long term CAGR.
(19) Total Payments includes payments for Net Surplus Water Costs (where known) and Operational Costs
(20) Projected costs determined using the 2-year historical average with a 4.8% long term CAGR.

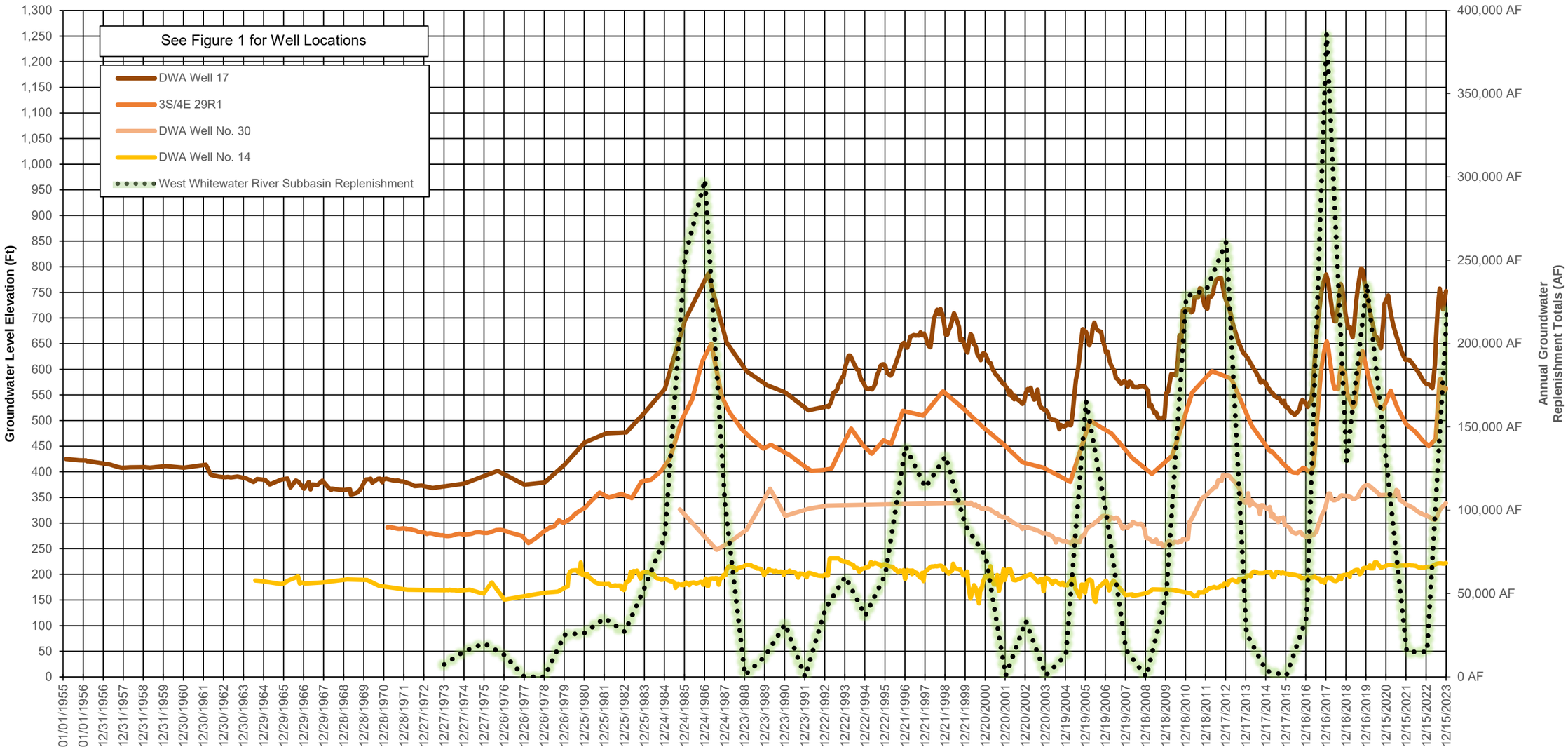
TABLE 7
DESERT WATER AGENCY
WEST WHITEWATER RIVER SUBBASIN, MISSION CREEK SUBBASIN, AND GARNET HILL SUBBASIN AREAS OF BENEFIT
HISTORIC AND PROPOSED REPLENISHMENT ASSESSMENT RATES

	Assessments													Payments Made		Surplus (Deficit)	
	Estimated[5] $			Levied[6] $			Billed[7] $				Delinquent[8] $			Revenue $	SWP Table A	Total[19]		
Fiscal Year	WWR	MC	GH	WWR	MC	GH	WWR	MC	GH	Total	WWR	MC	GH	Total	$	$	Annual $	Cumulative[9] $
78/79	226,245			199,004			199,004			199,004	0			199,004	267,193	267,193	(68,189)	(68,189)
79/80	282,405			309,225			309,225			309,225	0			309,225	267,125	267,125	42,100	(26,089)
80/81	317,482			355,925			355,925			355,925	0			355,925	347,491	347,491	8,434	(17,655)
81/82	378,838			406,160			406,160			406,160	0			406,160	414,086	414,086	(7,926)	(25,581)
82/83	800,499			770,871			770,871			770,871	0			770,871	891,544	891,544	(120,673)	(146,254)
83/84	1,331,374			1,452,317			1,452,317			1,452,317	0			1,452,317	492,329	492,329	959,988	813,734
84/85	1,375,762			1,577,125			1,577,125			1,577,125	0			1,577,125	381,713	381,713	1,195,412	2,009,146
85/86	1,309,750			1,363,239			1,363,239			1,363,239	0			1,363,239	637,841	637,841	725,398	2,734,544
86/87	911,673			912,583			912,583			912,583	0			912,583	876,544	876,544	36,039	2,770,583
87/88	994,749			1,099,130			1,099,130			1,099,130	0			1,099,130	934,920	934,920	164,210	2,934,793
88/89	970,000			965,811			965,811			965,811	0			965,811	748,195	748,195	217,616	3,152,409
89/90	1,175,002			1,105,446			1,105,446			1,105,446	0			1,105,446	888,979	888,979	216,467	3,368,876
90/91	1,313,000			1,207,593			1,207,593			1,207,593	0			1,207,593	784,369	784,369	423,224	3,792,100
91/92	1,524,000			1,408,108			1,408,108			1,408,108	0			1,408,108	439,549	439,549	968,559	4,760,659
92/93	1,412,875			1,389,641			1,389,641			1,389,641	0			1,389,641	902,273	902,273	487,368	5,248,027
93/94	1,397,000			1,411,406			1,411,406			1,411,406	0			1,411,406	1,508,408	1,508,408	(97,002)	5,151,025
94/95	1,412,875			1,384,996			1,384,996			1,384,996	0			1,384,996	2,291,661	2,291,661	(906,665)	4,244,360
95/96	1,425,575			1,434,798			1,434,798			1,434,798	0			1,434,798	2,282,379	2,282,379	(847,581)	3,396,779
96/97	1,409,700			1,517,690			1,517,690			1,517,690	0			1,517,690	1,153,620	1,153,620	364,070	3,760,849
97/98	1,527,175			1,368,789			1,368,789			1,368,789	0			1,368,789	1,560,592	1,560,592	(191,803)	3,569,046
98/99	1,463,675			1,510,078			1,510,078			1,510,078	0			1,510,078	2,663,096	2,663,096	(1,153,018)	2,416,028
99/00	1,436,370			1,530,344			1,530,344			1,530,344	0			1,530,344	2,137,145	2,137,145	(606,801)	1,809,227
00/01	1,576,080			1,506,011			1,506,011			1,506,011	0			1,506,011	1,993,058	1,993,058	(487,047)	1,322,180
01/02	1,563,870			1,534,500			1,559,325			1,559,325	0			1,559,325	273,679	273,679	1,285,646	2,607,826
02/03	1,627,500			1,679,300			1,636,783			1,636,783	0			1,636,783	1,226,335	1,226,335	410,448	3,018,274
03/04	1,679,300	336,000		1,609,300	352,555		1,609,300	397,708		2,007,008	0	0		2,007,008	4,199,358	4,199,358	(2,192,350)	825,924
04/05	2,069,100	464,140		1,718,700	405,280		1,718,700	529,108		2,247,808	0	0		2,247,808	3,813,947	3,813,947	(1,566,139)	(740,215)
05/06	2,527,500	596,000		1,844,520	459,040		1,844,520	635,562		2,480,082	0	0		2,480,082	5,791,887	5,791,887	(3,311,805)	(4,052,020)
06/07	3,058,020	761,040		2,614,770	643,008		2,614,770	789,471		3,404,241	0	0		3,404,241	6,087,627	6,087,627	(2,683,386)	(6,735,406)
07/08	3,230,010	794,430		3,222,450	581,238		3,222,450	720,025		3,942,475	0	0		3,942,475	9,131,044	9,131,044	(5,188,569)	(11,923,975)
08/09	3,682,800	876,240		3,371,040	662,688		3,337,053	778,029		4,115,082	33,987	0		4,081,095	6,936,896	6,936,896	(2,855,801)	(14,779,776)
09/10	3,605,140	802,800		3,097,440	741,240		3,023,070	718,452		3,741,522	74,370	0		3,667,152	6,236,894	6,236,894	(2,569,742)	(17,349,518)
10/11	3,527,640	828,200		3,302,140	805,240		3,223,003	616,632		3,839,635	79,137	0		3,760,499	4,174,012	4,174,012	(413,513)	(17,763,031)
11/12	3,302,140	805,240		3,374,300	783,100		3,302,079	820,179		4,122,258	72,221	0		4,050,037	7,005,049	7,005,049	(2,955,012)	(20,718,043)
12/13	3,788,326	878,600		3,779,360	874,000		3,772,499	888,405		4,660,904	6,861	0		4,654,043	8,169,744	8,169,744	(3,515,701)	(24,233,745)
13/14	3,779,360	785,587		3,578,800	927,360		3,572,722	785,587		4,358,309	6,078	0		4,352,230	6,078,542	6,078,542	(1,726,312)	(25,960,056)
14/15	3,684,919	756,041		3,826,020	987,360		3,684,919	561,213		4,246,132	66	0		4,246,066	3,798,705	3,798,705	447,361	(25,512,695)
15/16	3,846,970	989,318	24,480	3,150,780	875,160	34,680	3,150,780	875,160		4,025,940	656	0		4,025,284	7,304,465	7,304,465	(3,279,181)	(28,791,877)
16/17	3,443,112	892,273	31,235	3,211,980	873,120	30,600	3,577,041	748,643		4,325,684	19	0		4,545,289	7,436,703 [15]	7,440,556	(2,891,414)	(2,891,414) [16]
17/18	3,410,450 [10]	1,583,978	34,771	4,106,400	1,110,000	56,400	4,386,192	956,836	43,996	5,387,024	9	0	0	5,385,371	11,210,398 [15]	11,221,104	(5,825,027)	(8,716,441)
18/19	4,837,000	1,295,000	65,800	4,971,400	1,356,600	22,400	4,742,251	1,115,705	27,553	5,885,509	10	0	0	5,885,509	6,095,640 [15]	6,027,501	(210,131)	(8,926,572)
19/20	5,504,050	1,501,950	24,800	4,870,658	1,416,700	41,292	5,168,090	1,115,175	44,420	6,327,685	0	0	0	6,327,687	11,374,605 [15]	11,355,890	(5,046,918)	(13,973,490)
20/21	5,228,850	1,508,100	0	5,814,600	1,582,350	0	6,369,125	1,289,379	32,352	7,690,856	18,094	0	0	7,690,856	4,383,087 [15]	4,409,947	3,307,769	(10,665,721)
21/22	6,171,457	1,673,793	0	6,171,457	1,673,793	0	5,694,297	1,338,078	19,628	7,052,002	0	0	0	7,872,027	5,675,969 [15]	5,902,607	2,196,058	(8,469,663)
22/23	5,975,221	1,915,529	0	5,975,221	1,915,529	0	3,609,828	746,016	47,169	4,403,014	0	0	0	7,052,002	7,523,595 [15]	10,273,713	(3,221,712)	(11,691,374)
23/24	6,406,914	2,087,286	0	6,406,914	2,087,286	0	6,406,914 [11]	2,087,286 [11]	0	8,494,200	0 [11]	0	0	8,494,200	9,994,166 [13]	12,578,525	(4,084,325)	(15,775,699)
24/25	6,631,366	2,220,184	0	6,631,366	2,220,184	0	6,631,366	2,220,184	0	8,851,550	0	0	0	8,851,550	9,567,420	12,275,828	(3,424,278)	(19,199,977)
25/26	8,092,152	2,805,776	0	8,092,152	2,805,776	0	8,092,152	2,805,776	0	10,897,928	0	0	0	10,897,928	9,909,108	12,747,519	(1,849,591)	(21,049,568)
26/27	8,791,421	3,059,793	0	8,791,421	3,059,793	0	8,791,421	3,059,793	0	11,851,213	0	0	0	11,851,213	10,253,489	13,228,144	(1,376,931)	(22,426,498)
27/28	9,492,289	3,316,998	0	9,492,289	3,316,998	0	9,492,289	3,316,998	0	12,809,287	0	0	0	12,809,287	10,561,235	13,678,674	(869,387)	(23,295,885)
28/29	10,194,508	3,580,696	0	10,194,508	3,580,696	0	10,194,508	3,580,696	0	13,775,204	0	0	0	13,775,204	10,919,798	14,186,874	(411,670)	(23,707,555)
29/30	10,895,376	3,886,805	0	10,895,376	3,886,805	0	10,895,376	3,886,805	0	14,782,181	0	0	0	14,782,181	11,251,083	14,674,979	107,202	(23,600,353)
30/31	11,328,816	4,188,068	0	11,328,816	4,188,068	0	11,328,816	4,188,068	0	15,516,884	0	0	0	15,516,884	11,631,148	15,219,390	297,494	(23,302,859)
31/32	11,666,121	4,397,273	0	11,666,121	4,397,273	0	11,666,121	4,397,273	0	16,063,394	0	0	0	16,063,394	12,091,763	15,852,241	211,152	(23,091,706)
32/33	11,987,981	4,608,954	0	11,987,981	4,608,954	0	11,987,981	4,608,954	0	16,596,936	0	0	0	16,596,936	12,530,327	16,471,308	125,627	(22,966,079)
33/34	12,458,028	4,891,695	0	12,458,028	4,891,695	0	12,458,028	4,891,695	0	17,349,724	0	0	0	17,349,724	12,995,238	17,125,386	224,338	(22,741,741)
34/35	12,742,725	5,161,617	0	12,742,725	5,161,617	0	12,742,725	5,161,617	0	17,904,342	0	0	0	17,904,342	13,460,728	17,789,124	115,219	(22,626,522)
35/36	11,579,102	4,858,724	0	11,579,102	4,858,724	0	11,579,102	4,858,724	0	16,437,826	0	0	0	16,437,826	12,049,329	16,585,488	(147,662)	(22,774,184)
36/37	12,024,046	5,070,219	0	12,024,046	5,070,219	0	12,024,046	5,070,219	0	17,094,264	0	0	0	17,094,264	12,604,803	17,358,697	(264,433)	(23,038,617)

(1) Effective rate necessary to pay DWA's estimated (projected) Allocated Table A Charges. See Table 6.
(2) Administrative and operational costs of importing and recharging water from the Colorado River Aqueduct. Administrative and operational charges for importing water from the State Water Project are not included.
(3) Includes discretionary reductions and charges for recovery of past shortfalls.
(4) Recommended assessment rate based on two components: 1) State Water Project Table A water Allocation, and 2) Other Charges or Costs.
(5) Assessments Estimated are based on applicable assessment rate and estimated assessable production from annual report for that year.
(6) Assessments Levied are based on applicable assessment rate and actual assessable production, except for the previous year, current year, and subsequent years where amounts remain estimated.
(7) Assessments Collected are based on payments made for Assessments Levied, except for the previous year, current year, and subsequent years where amounts remain estimated.
(8) Assessments Delinquent are based on Assessments Levied less payments made.
(9) Cumulative assessment balance to be used for future Delta improvements. Estimates of future assessment rates may need to be adjusted in the future to accommodate unknown charges for expanded State Water Project Facilities.
(10) For 2017/2018 and beyond, Assessments Estimated are based on Proposed Assessment Rate and Estimated Assessable Production.
(11) Assessments Collected are estimated based on first and second quarters of assessment period.
(12) Delinquent assessment is estimated based on first and second quarters of assessment period.
(13) For 2023/2024 and beyond, Payments Made are estimated based on estimated allocated Table A charges.
(14) Starting with 2020/2021, Garnet Hill Subarea is included in West White Water River Subbasin.
(15) Including prior year DWR refunds/adjustments
(16) Existing cumulative deficit in the Replenishment Assessment Account transferred to reserve account(s),
(17) Incremented by $20/Year through 2032/2033
(18) These costs are unpredictable. Projected costs determined using the 2-year historical average with a 4.8% long term CAGR.
(19) Total Payments includes payments for Net Surplus Water Costs (where known) and Operational Costs
(20) Projected costs determined using the 2-year historical average with a 4.8% long term CAGR.

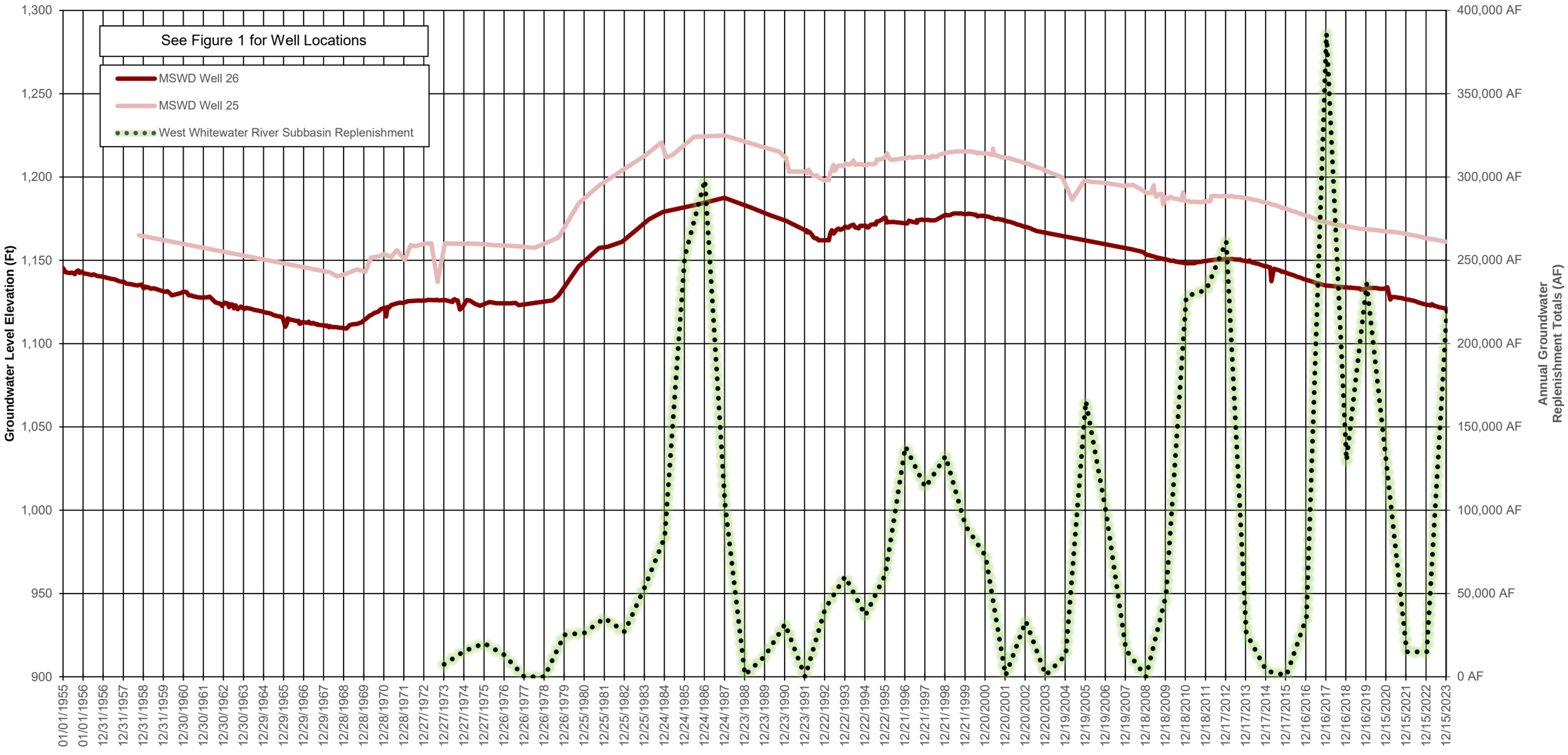
EXHIBITS

EXHIBIT 1
DESERT WATER AGENCY
GROUNDWATER WELL HYDROGRAPHS
PALM SPRINGS SUBAREA OF WEST WHITEWATER RIVER SUBBASIN MANAGEMENT AREA
GROUNDWATER REPLENISHMENT QUANTITIES AT WHITEWATER RIVER REPLENISHMENT FACILITY



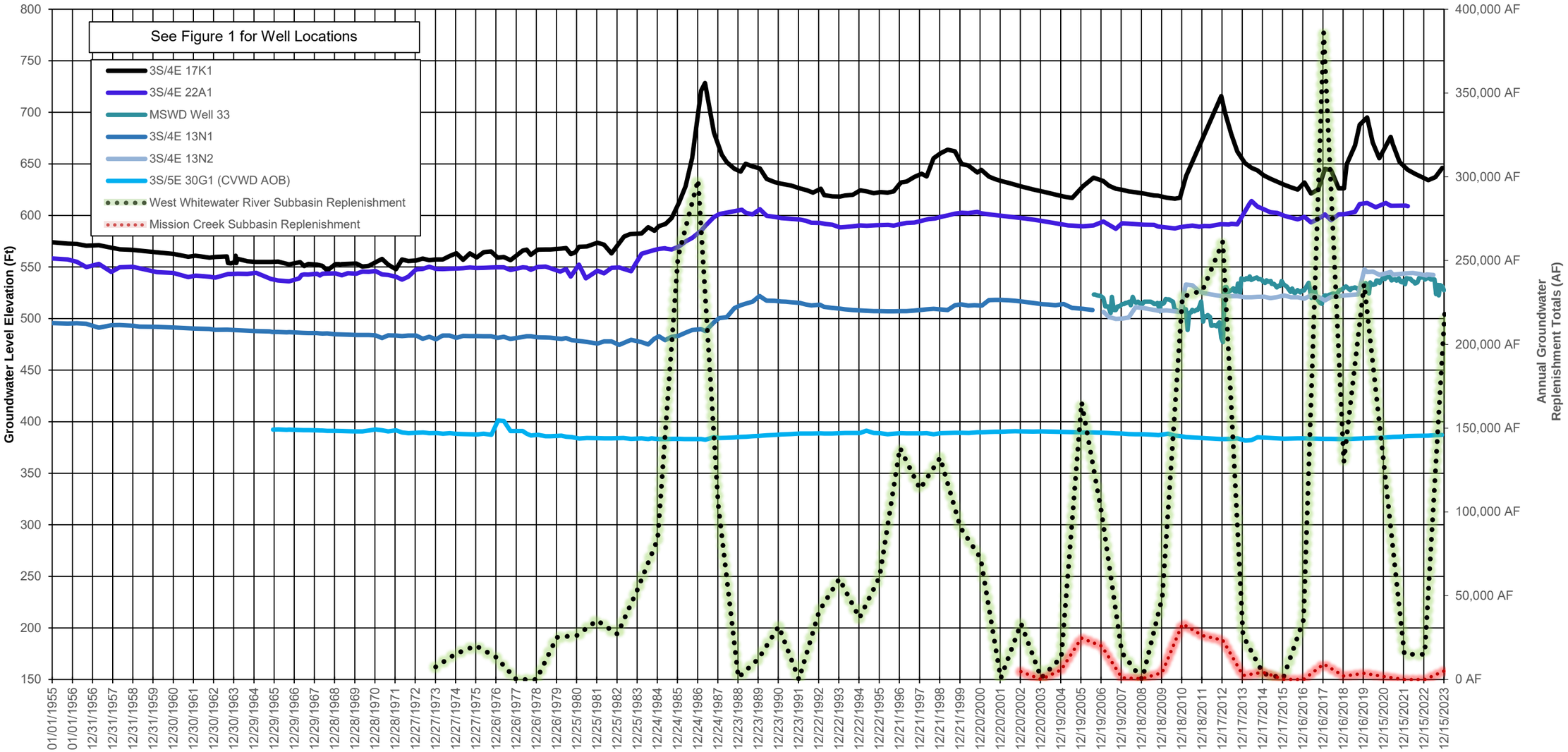
DFS/blt
101-33p48-Hydrographs.xlsx/Exhibit 1 WWR (5/9/2024)

EXHIBIT 2
DESERT WATER AGENCY
GROUNDWATER WELL HYDROGRAPHS
SAN GORGONIO PASS SUBBASIN PORTION OF WEST WHITEWATER RIVER SUBBASIN MANAGEMENT AREA
GROUNDWATER REPLENISHMENT QUANTITIES AT WHITEWATER RIVER REPLENISHMENT FACILITY



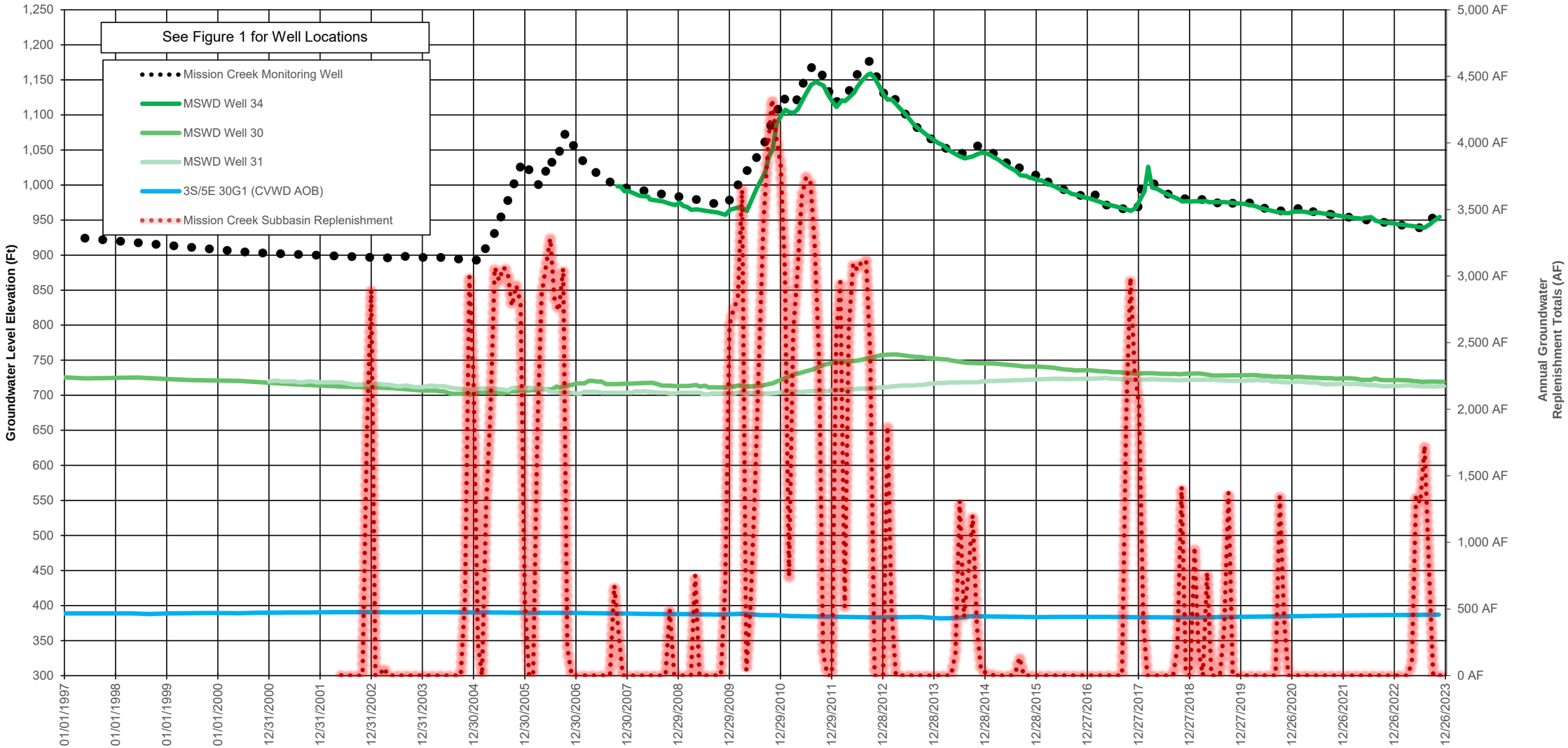
DFS/blt
101-33p48-Hydrographs.xlsx/Exhibit 2 SGR (5/9/2024)

EXHIBIT 3
DESERT WATER AGENCY
GROUNDWATER WELL HYDROGRAPHS
GARNET HILL SUBAREA OF WEST WHITEWATER RIVER SUBBASIN MANAGEMENT AREA
GROUNDWATER REPLENISHMENT QUANTITIES AT WHITEWATER RIVER AND MISSION CREEK REPLENISHMENT FACILITIES



DFS/blt
101-33p48-Hydrographs.xlsx/Exhibit 3 GH (5/9/2024)

EXHIBIT 4
DESERT WATER AGENCY
GROUNDWATER WELL HYDROGRAPHS
MISSION CREEK SUBBASIN MANAGEMENT AREA
GROUNDWATER REPLENISHMENT QUANTITIES AT MISSION CREEK REPLENISHMENT FACILITY



DFS/blt
101-33p48-Hydrographs.xlsx/Exhibit 4 MC (5/9/2024)

EXHIBIT 5
DESERT WATER AGENCY
MISSION CREEK SUBBASIN AREA OF BENEFIT[1]
HISTORIC VOLUME OF GROUNDWATER IN STORAGE[2]

Time Period	Pre-1955	1955 - 1978	1979 - 1997	1998 - 2023	**1955 - 2023**
Number of Years		24	19	25	**68**
Water Level Decline, Ft[3]		20	30	24	**74**
Period Reduction in Storage, AF		71,200	106,800	85,440	**263,440**
Annual Reduction in Storage, AF/Yr		3,000	5,600	3,400	**3,900**
Change in Storage		0.047	0.074	0.064	**0.174**
Remaining Storage, AF	1,511,800	1,440,600	1,333,800	1,248,360	**1,248,360**

(1) Northwest three-quarters of subbasin: GTC (1979) & Slade (2000)
(2) Storage loss of 3,560 AF/Ft of water level decline: GTC (1979) & Slade (2000)
(3) Mission Springs Water District data

EXHIBIT 6

DESERT WATER AGENCY

COMPARISON OF WATER PRODUCTION AND GROUNDWATER REPLENISHMENT

WEST WHITEWATER RIVER SUBBASIN (WWR) AND MISSION CREEK SUBBASIN (MC) MANAGEMENT AREAS

Production[1]

	WWR (AF)		MC (AF)		Total (AF)		Ratio of Production	
Year	Annual	Cumulative	Annual	Cumulative	Annual	Cumulative	WWR/Total	MC/Total
2002	213,410	213,410	13,968	13,968	227,378	227,378	93.9%	6.1%
2003	204,275	417,685	14,498	28,466	218,773	446,151	93.4%	6.6%
2004	212,700	630,385	16,548	45,014	229,248	675,399	92.8%	7.2%
2005	204,341	834,726	16,327	61,341	220,668	896,067	92.6%	7.4%
2006	213,850	1,048,576	17,365	78,706	231,215	1,127,282	92.5%	7.5%
2007	211,530	1,260,106	16,409	95,115	227,939	1,355,221	92.8%	7.2%
2008	211,023	1,471,129	15,775	110,890	226,798	1,582,019	93.0%	7.0%
2009	199,506	1,670,635	15,108	125,998	214,614	1,796,633	93.0%	7.0%
2010	182,703	1,853,338	14,304	140,302	197,007	1,993,640	92.7%	7.3%
2011	183,320	2,036,658	14,260	154,562	197,580	2,191,220	92.8%	7.2%
2012	183,285	2,219,943	14,216	168,778	197,501	2,388,721	92.8%	7.2%
2013	182,842	2,402,785	14,756	183,534	197,598	2,586,319	92.5%	7.5%
2014	174,425	2,577,210	14,091	197,625	188,516	2,774,835	92.5%	7.5%
2015	147,763	2,724,973	13,017	210,642	160,780	2,935,615	91.9%	8.1%
2016	148,395	2,873,368	13,219	223,861	161,614	3,097,229	91.8%	8.2%
2017	155,543	3,028,911	13,531	237,392	169,074	3,266,303	92.0%	8.0%
2018	154,548	3,183,459	13,870	251,262	168,418	3,434,721	91.8%	8.2%
2019	145,602	3,329,061	13,135	264,397	158,737	3,593,458	91.7%	8.3%
2020	153,065	3,482,126	14,244	278,641	167,309	3,760,767	91.5%	8.5%
2021	159,305	3,641,431	14,227	292,868	173,532	3,934,299	91.8%	8.2%
2022	157,684	3,799,115	13,763	306,631	171,447	4,105,746	92.0%	8.0%
2023	147,377	3,946,492	12,772	319,403	160,149	4,265,895	92.0%	8.0%
Cumulative	---	---	---	---	---	---	92.5%	7.5%

Replenishment (Total)

	WWR (AF)		MC (AF)		Total (AF)		Ratio of Replenishment	
Year	Annual	Cumulative	Annual	Cumulative	Annual	Cumulative	WWR/Total	MC/Total
2002	33,435	33,435	4,733	4,733	38,168	38,168	87.6%	12.4%
2003	902	34,337	59	4,792	961	39,129	93.9%	6.1%
2004	13,224	47,561	5,564	10,356	18,788	57,917	70.4%	29.6%
2005	165,554	213,115	24,723	35,079	190,277	248,194	87.0%	13.0%
2006	98,959	312,074	19,901	54,980	118,860	367,054	83.3%	16.7%
2007	16,009	328,083	1,011	55,991	17,020	384,074	94.1%	5.9%
2008	8,008	336,091	503	56,494	8,511	392,585	94.1%	5.9%
2009	57,024	393,115	754	57,248	57,778	450,363	98.7%	1.3%
2010	228,330	621,445	31,083	88,331	259,413	709,776	88.0%	12.0%
2011	232,214	853,659	20,888	109,219	253,102	962,878	91.7%	8.3%
2012	257,267	1,110,926	23,160	132,379	280,427	1,243,305	91.7%	8.3%
2013	26,620	1,137,546	1,305	133,684	27,925	1,271,230	95.3%	4.7%
2014	3,549	1,141,095	4,325	138,009	7,874	1,279,104	45.1%	54.9%
2015	865	1,141,960	171	138,180	1,036	1,280,140	83.5%	16.5%
2016	35,699	1,177,659	0	138,180	35,699	1,315,839	100.0%	0.0%
2017	385,994	1,563,653	9,248	147,428	395,242	1,711,081	97.7%	2.3%
2018	129,725	1,693,378	2,027	149,455	131,752	1,842,833	98.5%	1.5%
2019	235,968	1,929,346	3,688	153,143	239,656	2,082,489	98.5%	1.5%
2020	126,487	2,055,833	1,768	154,911	128,255	2,210,744	98.6%	1.4%
2021	15,006	2,070,839	0	154,911	15,006	2,225,750	100.0%	0.0%
2022	15,011	2,085,850	0	154,911	15,011	2,240,761	100.0%	0.0%
2023	304,507	2,390,357	5,276	160,187	309,783	2,550,544	98.3%	1.7%
Cumulative	---	---	---	---	---	---	93.7%	6.3%

Replenishment (SWP Exchange Only) [2]

	WWR (AF)		MC (AF)		Total (AF)		Ratio of Replenishment	
Year	Annual	Cumulative	Annual	Cumulative	Annual	Cumulative	WWR/Total	MC/Total
2002	33,435	33,435	4,733	4,733	38,168	38,168	87.6%	12.4%
2003	902	34,337	59	4,792	961	39,129	93.9%	6.1%
2004	13,224	47,561	5,564	10,356	18,788	57,917	70.4%	29.6%
2005	165,554	213,115	24,723	35,079	190,277	248,194	87.0%	13.0%
2006	98,959	312,074	19,901	54,980	118,860	367,054	83.3%	16.7%
2007	9	312,083	1,011	55,991	1,020	368,074	0.9%	99.1%
2008	0	312,083	0	55,991	0	368,074	n/a	n/a
2009	46,032	358,115	0	55,991	46,032	414,106	100.0%	0.0%
2010	209,937	568,052	29,340	85,331	239,277	653,383	87.7%	12.3%
2011	127,214	695,266	20,888	106,219	148,102	801,485	85.9%	14.1%
2012	253,267	948,533	23,160	129,379	276,427	1,077,912	91.6%	8.4%
2013	24,112	972,645	1,305	130,684	25,417	1,103,329	94.9%	5.1%
2014	0	972,645	4,325	135,009	4,325	1,107,654	0.0%	100.0%
2015	0	972,645	171	135,180	171	1,107,825	0.0%	100.0%
2016	699	973,344	0	135,180	699	1,108,524	100.0%	0.0%
2017	350,994	1,324,338	9,248	144,428	360,242	1,468,766	97.4%	2.6%
2018	94,725	1,419,063	2,027	146,455	96,752	1,565,518	97.9%	2.1%
2019	200,968	1,620,031	3,688	150,143	204,656	1,770,174	98.2%	1.8%
2020	76,487	1,696,518	1,768	151,911	78,255	1,848,429	97.7%	2.3%
2021	0	1,696,518	0	151,911	0	1,848,429	n/a	n/a
2022	0	1,696,518	0	151,911	0	1,848,429	n/a	n/a
2023	84,762	1,781,280	5,276	157,187	90,038	1,938,467	94.1%	5.9%
Cumulative	---	---	---	---	---	---	91.9%	8.1%

Notes:

(1) Production in both DWA and CVWD service areas.

(2) This table excludes all non-SWP supplemental water deliveries such as those made for CPV Sentinel.

/DFS

101-33P48-TBLS.xlsx/Exhibit6 (6/7/2024)

EXHIBIT 7
DESERT WATER AGENCY
SUMMARY OF DELIVERIES TO METROPOLITAN WATER DISTRICT (MWD)
AND TO GROUNDWATER REPLENISHMENT FACILITIES (AF)[1]

BEFORE EXCHANGE AGREEMENT (JULY 1973 - JUNE 1984)

	Delivery to MWD																		Delivery to DWA/CVWD Recharge Facilities									
	SWP Contract Water														Non-SWP Contract Water							To WWRF and MCRF								
					SWP Surplus Water										CVWD							From SWP Exchange Account			From Other Accounts					
Year	Table A DWA/CVWD Combined Allocation	Table A Allocation Delivered to MWD	% Delivery to MWD	Carry-Over From Previous Year	Pool A	Pool B	Multi-Year Pool	Article 21	Flood	Yuba	CPV Sentinel (North Kern)	CPV Sentinel (Yuba)	Other	Total	SWP Total	DMB Pacific	Glorious Land Rosedale	Colorado River Credit	Needles	MWD QSA	Total	WRRF[2]	MCRF[3]	Total	WRRF[2]	MCRF[3]	Total	Total WRRF	Total MCRF	Total PD-GRF[15]	Grand Total
1973 (Jul-Dec)	14,800	14,800	100%												14,800						14,800	7,475		7,475				7,475			7,475
1974	16,400	16,400	100%												16,400						16,400	15,396		15,396				15,396			15,396
1975	18,000	18,000	100%												18,000						18,000	20,126		20,126				20,126			20,126
1976	19,600	19,600	100%												19,600						19,600	13,206		13,206				13,206			13,206
1977	21,421	0	0%												0						0	0		0				0			0
1978	23,242	25,384	109%												25,384						25,384	0		0				0			0
1979	25,063	25,063	100%												25,063						25,063	25,192		25,192				25,192			25,192
1980	27,884	27,884	100%												27,884						27,884	26,341		26,341				26,341			26,341
1981	31,105	31,105	100%												31,105						31,105	35,251		35,251				35,251			35,251
1982	34,326	34,326	100%												34,326						34,326	27,020		27,020				27,020			27,020
1983	37,547	37,547	100%												37,547						37,547	53,732		53,732				53,732			53,732
1984 (Jan-Jun)[4]	N/A	25,849	N/A												*25,849*						*25,849*	*50,912*		*50,912*				*50,912*			*50,912*
1984 Total	40,768	40,768	100%												40,768						40,768	83,708		83,708				83,708			83,708

	MWD Delivery Surplus/(Deficit) Prior to Exchange and Delivery Agreement	
Year	Annual	Cumulative
1973 (Jul-Dec)	(7,325)	(7,325)
1974	(1,004)	(8,329)
1975	2,126	(6,203)
1976	(6,394)	(12,597)
1977	0	(12,597)
1978	(25,384)	(37,981)
1979	129	(37,852)
1980	(1,543)	(39,395)
1981	4,146	(35,249)
1982	(7,306)	(42,555)
1983	16,185	(26,370)
1984 (Jan-Jun)[4]	25,063	(1,307)
1984 Total		

WITH EXCHANGE AGREEMENT (JULY 1984 - PRESENT)

	Delivery to MWD																			Delivery to DWA/CVWD Replenishment Facilities														MWD Exchange and Advance Deliveries				
	SWP Contract Water															Non-SWP Contract Water							To WWRF and MCRF																
					SWP Surplus Water											CVWD							From SWP Exchange Account				From Other Accounts												
																								MCRF[3]					MCRF[3] CPV Sentinel Agmt											
Year	Table A DWA/CVWD Combined Allocation	Table A Allocation Delivered to MWD	% Delivery to MWD	Carry-Over	Pool A	Pool B	Multi-Year Pool	Article 21	Flood	Yuba	CPV Sentinel (North Kern)	CPV Sentinel (Yuba)	Other	Total	SWP Total	DMB Pacific	Glorious Land Rosedale	Colorado River Credit	Needles	MWD QSA	Total	WRRF[2]	DWA	CPV	Total	WRRF[2]	DWA Portion	CPV Portion	Total	Total WRRF	Total MCRF	Total PD-GRF[15]	Grand Total	Exchange Deliveries	Advance Deliveries	Advance Deliveries Converted to Exchange Deliveries	Advance Delivery Account[5] Credit/(Debit) Annual	Advance Delivery Account[5] Credit/(Debit) Balance
1984 (Jul-Dec)[5]	N/A	14,919	N/A												*14,919*						*14,919*	*32,796*			*32,796*						32,796			32,796	32,796	16,570		16,570 [6]	16,570
1985	43,989	43,989	100%												43,989						43,989	251,994			251,994						251,994			251,994	251,994	208,005		208,005	224,575
1986	47,210	47,210	100%												47,210				10,000 [7]		57,210	288,201			288,201	10,000 [7]		10,000	298,201			298,201	288,201	240,991		240,991	465,566
1987	50,931	50,931	100%												50,931						50,931	104,334			104,334						104,334			104,334	104,334	53,403		53,403	518,969
1988	54,652	54,652	100%												54,652						54,652	1,096			1,096						1,096			1,096	1,096		53,556	(53,556)	465,413
1989	58,373	58,373	100%												58,373						58,373	12,478			12,478						12,478			12,478	12,478		45,895	(45,895)	419,518
1990	61,200	61,200	100%												61,200						61,200	31,721			31,721						31,721			31,721	31,721		29,479	(29,479)	390,039
1991	61,200	18,360	30%												18,360						18,360	14			14						14			14	14		18,346	(18,346)	371,693
1992	61,200	27,624	45%												27,624						27,624	40,870			40,870						40,870			40,870	40,870	13,246		13,246	384,939
1993	61,200	61,200	100%												61,200						61,200	60,153			60,153						60,153			60,153	60,153		1,047	(1,047)	383,892
1994	61,200	37,359	61%												37,359						37,359	36,763			36,763						36,763			36,763	36,763		596	(596)	383,296
1995	61,200	61,200	100%												61,200						61,200	61,318			61,318						61,318			61,318	61,318	118		118	383,414
1996	61,200	61,200	100%			103,641								103,641	164,841						164,841	138,266			138,266						138,266			138,266	138,266		26,575	(26,575)	356,839
1997	61,200	61,200	100%			50,000			27,130					77,130	138,330						138,330	113,677			113,677						113,677			113,677	113,677		24,653	(24,653)	332,186
1998	61,200	61,200	100%			75,000			20,156					95,156	156,356						156,356	132,455			132,455						132,455			132,455	132,455		23,901	(23,901)	308,285
1999	61,200	61,200	100%			47,380								47,380	108,580						108,580	90,601			90,601						90,601			90,601	90,601		17,979	(17,979)	290,306
2000	61,200	55,080	90%			9,837		35,640					1 [8]	45,478	100,558						100,558	72,450			72,450						72,450			72,450	72,450		28,108	(28,108)	262,198
2001	61,200	23,868	39%			242								242	24,110						24,110	707			707						707			707	707		23,403	(23,403)	238,795
2002	61,200	42,840	70%		436	819		300						1,555	44,395						44,395	33,435	4,733		38,168						33,435	4,733		38,168	38,168		6,227	(6,227)	232,568
2003	61,200	55,080	90%	(17,867)	457	58		532					2 [8]	1,049	38,262						38,262	902	59		961						902	59		961	961		37,301	(37,301)	195,267
2004	61,200	18,597	30%	17,867		191								191	36,655						36,655	13,224	5,564		18,788						13,224	5,564		18,788	18,788		17,867	(17,867)	177,400
2005	171,100	60,152	35%	27,618	585	3,253								3,838	91,608						91,608	165,554	24,723		190,277						165,554	24,723		190,277	190,277	98,669		98,669	276,069
2006	171,100	171,100	100%											0	171,100						171,100	98,959	19,901		118,860						98,959	19,901		118,860	118,860		52,240	(52,240)	223,829
2007	171,100	102,660	60%		802									802	103,462				16,000 [9]		119,453	9	1,011		1,020	16,000			16,000	16,009	1,011		17,020	1,020		102,442	(102,442)	121,387
2008	171,100	59,885	35%		151				1,833	8,350				10,334	70,219			3,000	8,008 [9]		81,218	0	0		0	8,008	503		8,511	8,008	503		8,511	0		64,869	(64,869)	56,518
2009	171,100	57,710	34%		35	58			2,111		871	500 [10]		3,575	61,285			3,000	7,992 [9]		72,268	46,032	0	3,336	49,368	10,992	754		11,746	57,024	4,090		61,114	49,368		11,917	(11,917)	44,601
2010	194,100	97,050	50%	10,730	66	536								602	108,382	8,393				10,000 *	126,775	209,937	29,340	2,127	241,404	18,393	1,743		20,136	228,330	33,210		261,540	241,404	133,022		133,022	177,623
2011	194,100	124,156	64%		836	1,666						5,800 [14]		8,302	132,458					105,000 *	237,458	127,214	20,888		148,102	105,000	5,350		110,350	232,214	26,238		258,452	148,102	25,644 [7]		25,644	203,267
2012	194,100	126,166	65%	31,124	431				689		278			1,398	158,688			4,000			162,688	253,267	23,160	246	276,673	4,000			4,000	257,267	23,406		280,673	276,673	117,985		117,985	321,252
2013	194,100	67,936	35%		230				1,452		1,212			2,894	70,830			16,500		2,508 *	89,838	24,112	1,305	1,074	26,491	2,508			2,508	26,620	2,379		28,999	26,491		60,839	(60,839)	260,413
2014	194,100	9,706	5%						1,213					1,213	10,919			5,000		3,549 ***	19,468	0	4,325		4,325	3,549			3,549	3,549	4,325		7,874	4,325		11,610	(11,610)	248,803
2015	194,100	38,820	20%				67		426					493	39,313			9,500		865 *	49,678	0	171		171	865			865	865	171		1,036	171		48,642	(48,642)	200,161
2016	194,100	74,249	38%				566							566	74,815			16,500		64,135 **	155,450	699	0		699	35,000			35,000	35,699	0		35,699	699		119,751	(119,751)	80,410
2017	194,100	66,805	34%	25,435	1,131							16,776 [11]		17,907	110,147			5,397		35,000	150,544	350,994	9,248		360,242	35,000			35,000	385,994	9,248		395,242	360,242	244,698		244,698	325,108
2018	194,100	67,936	35%	97,050					1,246					1,246	166,232			20,603		35,000	221,835	94,725	2,027		96,752	35,000			35,000	129,725 ##	2,027		131,752 ##	96,752		90,083	(90,083)	235,025
2019	194,100	48,526	25%											0	48,526					35,000	83,526	200,968 #	3,688		204,656	35,000			35,000	235,968 ##	3,688 #	7,757	247,413 ##	204,656	156,130		156,130	391,155
2020	194,100	38,820	20%	97,050					1,140					1,140	137,010			19,000		50,000	206,010	76,487	1,768		78,255	50,000			50,000	126,487	1,768	9,700	137,955	78,255		77,755	(77,755)	313,400
2021	194,100	9,706	5%	0					1,613					1,613	11,319			9,500		15,006	35,825	0	0		0	15,006			15,006	15,006	0	10,633	25,639	0		20,819	(20,819)	292,581
2022	194,100	9,706	5%	0					1,528					1,528	11,234			0		15,011	26,245	0	0		0	15,011			15,011	15,011	0	10,949	25,960	0		11,234	(11,234)	281,347
2023	194,100	45,291	23%	0				13,599	0					13,599	58,890			10,000		134,983	203,873	84,762	5,276		90,038	219,745			219,745	304,507	5,276	11,179	320,962	90,038	21,148		21,148	302,495
Totals[12]:	5,056,211	2,529,620	---	289,007	5,160	292,681	633	50,071	47,286	13,251	8,350	2,361	23,079	442,872	3,261,499	8,393	122,000	32,000	10,000	506,057	3,939,922	3,525,825	157,187	6,783	3,689,795	619,077	5,350	3,000	627,427	4,144,902	172,320	50,218	4,367,440	3,689,795	1,329,629	1,027,134	---	---

NOTES:

(1) As reported by Metropolitan Water District in its monthly "Exchange Water Delivery in Acre-Feet" reports.
(2) Whitewater River Replenishment Facility
(3) Mission Creek Replenishment Facility
(4) The Advance Delivery Agreement between MWD and CVWD/DWA became effective on 7/1/84; discrepancies in exchange deliveries between MWD and CVWD/DWA after 7/1/84 are adjusted per said agreement.
(5) The effective date of the Advance Delivery Agreement between MWD and CVWD/DWA was 7/1/84.
(6) The first advance delivery figure of 16,570 AF is equal to 32,796 AF of deliveries to CVWD/DWA from 7/84 - 12/84, minus 14,919 AF of deliveries to MWD from 7/84 - 12/84, minus cumulative MWD delivery deficiency of 1,307 AF as of 7/1/84.
(7) 10,000 AF of Needles Water delivered to CVWD in 1986 was credited to the Advance Delivery Account in 2011.
(8) Adjustment for rounding error to reconcile MWD Advance Delivery Account Balance
(9) CVWD's PVID credit
(10) Drought Water Bank
(11) Flexible Storage Payback at Lake Perris
(12) Since 1973
(13) Not used
(14) MWD Article 21 water exchanged for unused CVWD 20 TAF CRA water
(15) Deliveries to the Palm Desert Groundwater Replenishment Facility (PD-GRF) are made from CVWD's Colorado River supplies via the Mid-Valley Pipeline (MVP)
* Not deducted from the Advance Delivery Account
** Includes 29,135 AF withdrawn from AD Account to meet 2015 CVWD 30 TAF Obligation
*** 16 AF deducted from the Advance Delivery Account to make up for delivery shortage
\# Revised by MWD
\## Corrected: CVWD QSA deliveries for 2018 and 2019 were credited from AD Account, not physical deliveries
Not included in DWR Bulletin 132-17 Appendix B Table B-5B

3,689,795

EXHIBIT 8
DESERT WATER AGENCY AND COACHELLA VALLEY WATER DISTRICT
COMPARISON OF HISTORIC AND PROPOSED GROUNDWATER REPLENISHMENT
ASSESSMENT RATE FOR THE WEST WHITEWATER RIVER AND MISSION CREEK SUBBASIN AOBS

	DWA WWR & MC		CVWD WWR		CVWD MC	
Year	$/AF	% Increase	$/AF	% Increase	$/AF	% Increase
78/79	$6.81	---	No Assessment	---	No Assessment	---
79/80	$9.00	32%	No Assessment	---	No Assessment	---
80/81	$9.50	6%	$5.66	---	No Assessment	---
81/82	$10.50	11%	$7.43	31%	No Assessment	---
82/83	$21.00	100%	$19.82	167%	No Assessment	---
83/84	$36.50	74%	$33.23	68%	No Assessment	---
84/85	$37.50	3%	$34.24	3%	No Assessment	---
85/86	$31.00	-17%	$21.81	-36%	No Assessment	---
86/87	$21.00	-32%	$19.02	-13%	No Assessment	---
87/88	$22.50	7%	$19.55	3%	No Assessment	---
88/89	$20.00	-11%	$15.96	-18%	No Assessment	---
89/90	$23.50	18%	$19.66	23%	No Assessment	---
90/91	$26.00	11%	$23.64	20%	No Assessment	---
91/92	$31.75	22%	$25.66	9%	No Assessment	---
92/93	$31.75	0%	$28.23	10%	No Assessment	---
93/94	$31.75	0%	$31.05	10%	No Assessment	---
94/95	$31.75	0%	$34.16	10%	No Assessment	---
95/96	$31.75	0%	$37.58	10%	No Assessment	---
96/97	$31.75	0%	$37.58	0%	No Assessment	---
97/98	$31.75	0%	$42.09	12%	No Assessment	---
98/99	$31.75	0%	$47.14	12%	No Assessment	---
99/00	$31.75	0%	$52.80	12%	No Assessment	---
00/01	$33.00	4%	$59.14	12%	No Assessment	---
01/02	$33.00	0%	$66.24	12%	No Assessment	---
02/03	$35.00	6%	$72.86	10%	$59.80	---
03/04	$35.00	0%	$72.86	0%	$59.80	0%
04/05	$34.07	-3%	$78.86	8%	$59.80	0%
05/06	$38.28	12%	$78.86	0%	$59.80	0%
06/07	$177.93	365%	$83.34	6%	$65.78	10%
07/08	$63.00	-65%	$91.67	10%	$72.36	10%
08/09	$72.00	14%	$93.78	2%	$76.60	6%
09/10	$72.00	0%	$102.45	9%	$87.56	14%
10/11	$82.00	14%	$102.45	0%	$89.75	3%
11/12	$82.00	0%	$107.57	5%	$98.73	10%
12/13	$92.00	12%	$110.26	3%	$98.73	0%
13/14	$92.00	0%	$110.26	0%	$98.73	0%
14/15	$102.00	11%	$110.26	0%	$98.73	0%
15/16	$102.00	0%	$112.00	2%	$112.00	13%
16/17	$102.00	0%	$128.80	15%	$123.20	10%
17/18	$120.00	18%	$143.80	12%	$135.52	10%
18/19	$140.00	17%	$143.80	0%	$135.52	0%
19/20	$155.00	11%	$143.80	0%	$135.52	0%
20/21	$165.00	6%	$143.80	0%	$135.52	0%
21/22	$175.00	6%	$165.37	15%	$135.52	0%
22/23	$175.00	0%	$165.37	0%	$135.52	0%
23/24	$195.00	11%	$165.37	0%	$135.52	0%
24/25	$215.00 *	10%	$165.37	0%	$135.52	0%

* Proposed replenishment assessment rate

APPENDIX A

APPENDIX A
COACHELLA VALLEY
MONTHLY AND ANNUAL RECORDED PRECIPITATION DATA
(INCHES)
2023

STATION NAME	WHITEWATER NORTH	SNOW CREEK	TACHEVAH DAM	TRAM VALLEY	CATHEDRAL CITY	THOUSAND PALMS	PALM SPRINGS SUNRISE	DESERT HOT SPRINGS	EDOM HILL	OASIS	MECCA LANDFILL III	THERMAL AIRPORT
LOCATION	**WWR**	**WWR**	**WWR**	**WWR**	**WWR**	**WWR**	**WWR**	**MC**	**MC**	**EWR**	**EWR**	**EWR**
STATION NUMBER	**233**	**207**	**216**	**224**	**34**	**222**	**442**	**57**	**436**	**431**	**432**	**443**
LATITUDE	33°59'23.06"	33°53'32.64"	33°49'51.26"	33°50'11.56"	33°46'51.49"	33°49'1.66"	33°48'35.94"	33°58'2.85"	33°53'7.52"	33°26'21.64"	33°34'20.19"	33°37'53.90"
LONGITUDE	116°39'21.39"	116°41'41.06"	116°33'31.53"	116°36'49.72"	116°27'29.69"	116°23'46.30"	116°31'37.94"	116°29'39.93"	116°26'18.48"	116° 4'44.83"	116° 0'15.33"	116° 9'50.81"
ELEVATION (FT ABOVE MSL)	2220	1658	570	2675	283	230	397	1223	1038	-108	13	-122
JANUARY	8.78	6.61	2.86	5.88	0.87	0.68	1.51	1.57	0.80	0.39	0.20	0.26
FEBRUARY	4.13	3.13	0.47	2.12	0.21	0.08	0.33	0.64	0.32	0.26	0.19	0.06
MARCH	6.77	5.61	2.72	5.21	1.27	1.03	1.81	1.30	1.20	0.34	0.10	0.21
APRIL	0.01	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MAY	0.18	0.06	0.00	0.16	0.01	0.00	0.00	0.00	0.00	0.02	0.08	0.14
JUNE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
JULY	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.09	0.01	0.00
AUGUST	6.96	5.99	3.22	7.37	3.26	2.99	3.24	3.44	2.96	2.16	1.82	3.01
SEPTEMBER	0.39	0.10	0.00	0.91	0.79	0.87	0.00	0.42	0.05	0.61	2.43	1.35
OCTOBER	0.25	0.09	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NOVEMBER	0.62	0.51	0.48	0.76	0.55	0.52	0.33	0.33	0.48	0.18	0.05	0.15
DECEMBER	0.65	0.24	0.12	1.01	0.21	0.69	0.17	0.67	0.95	0.47	0.03	0.33
TOTAL	**28.74**	**22.34**	**9.87**	**23.45**	**7.17**	**6.86**	**7.40**	**8.38**	**6.76**	**4.52**	**4.91**	**5.51**
AVERAGE: WWR	**15.12**											
AVERAGE: MC								**7.57**				
AVERAGE: WWR+MC	**13.44**											
AVERAGE: EWR										**4.98**		
AVERAGE: ALL	**11.33**											

APPENDIX B

ADDENDUM TO SETTLEMENT AGREEMENT
MANAGEMENT AREA DELIVERIES

The Settlement Agreement between Coachella Valley Water District (CVWD), Desert Water Agency (DWA) and Mission Springs Water District (MSWD) dated December 7, 2004 shall be supplemented by the following Addendum, and thus shall be deemed a part thereof:

The Mission Creek Groundwater Replenishment Agreement provides for the delivery to the Mission Creek Subbasin, for groundwater replenishment, of a proportionate share of the imported water delivered to CVWD and DWA for replenishment of the Upper Coachella Valley Groundwater Basin. To ensure that the Mission Creek Subbasin receives its proportionate share of that water, as set forth in the Mission Creek Replenishment Agreement, and to provide for the monitoring thereof, the following procedures shall be applied:

Each year CVWD and DWA shall calculate the combined total quantity of water produced during the previous year from the Whitewater River Management Area and the Mission Creek Management Area, and from sources tributary to those Management Areas, and shall determine from that the percentages of the total production from those Management Areas and their sources.

Water supplies available to CVWD and DWA each year, through their respective State Water Project Contracts, for the replenishment of those Management Areas will be allocated and delivered to the Management Areas for groundwater replenishment in the same percentages, subject to delivery capability and operational constraints in any particular year.