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**DESERT WATER AGENCY
INITIAL STUDY AND
DRAFT MITIGATED NEGATIVE DECLARATION
FOR
MISSION CREEK GROUNDWATER REPLENISHMENT FACILITY**

OCTOBER 2026

Prepared by



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PART 1
PROJECT INFORMATION

PART 1 - PROJECT INFORMATION

A. DESERT WATER AGENCY

Desert Water Agency (DWA) was formed in 1961 for the purposes of securing water supplies for, and providing water service to, residents of its service area. DWA's service area is generally bounded on the north (from west to east) by the intersection of Interstate 10 and Highway 111 to Chino Canyon and the Whitewater River, on the east by the Whitewater River and the Coachella Valley Water District, on the south by the rugged Santa Rosa Mountains, and on the west by the rugged San Jacinto Mountains.

DWA currently provides municipal water service to a total population of approximately 75,000 residents within its service area, which includes the City of Palm Springs, the southwest portion of the City of Cathedral City, and some unincorporated areas within Riverside County. Pursuant to the California Environmental Quality Act (CEQA), DWA is Lead Agency for the Project.

B. BACKGROUND INFORMATION

The State Water Project (SWP) is a major component of California's water supply system, delivering water from Northern California to communities across the state via canals, pipelines, and tunnels. DWA is one of 29 SWP contractors and holds a long-term contract with the California Department of Water Resources (DWR) for a portion of this supply. The amount of water available each year varies based on hydrologic conditions, including precipitation and snowpack in Northern California. DWA has a maximum annual entitlement of 55,750 acre-feet (AF) of SWP water, with actual deliveries dependent on the annual allocation.

Due to the surrounding mountains, the Coachella Valley does not have a direct connection to SWP facilities. Instead, DWA accesses this supply through an exchange agreement with The Metropolitan Water District of Southern California (Metropolitan). Through this arrangement, DWA receives an equal amount of Colorado River water from Metropolitan in place of its SWP allocation. This imported Colorado River water is delivered via the Colorado River Aqueduct (CRA) to the Whitewater and Mission Creek areas. This imported water is essential to DWA's overall water management strategy by supplementing local groundwater supplies to meet local demands, and by providing flexibility during dry periods.

C. PROJECT DESCRIPTION

1. Background

The Mission Creek Groundwater Replenishment Facility (MCGRF) has been in continuous operation since 2002 to replenish groundwater in the Mission Creek Subbasin (MCSB). The MCGRF includes twelve replenishment basins, one debris basin, transmission pipeline connecting to the Colorado River Aqueduct (CRA), and piping between the replenishment basins, totaling approximately 110 acres. Together, Coachella Valley Water District (CVWD) and Desert Water Agency (DWA) hold 194,100 AF per year of State Water Project (SWP) Table A allocations, subject to availability, which they exchange with The Metropolitan Water District of Southern California (Metropolitan) (altogether, the Parties) for CRA water for delivery to the Whitewater River Groundwater Replenishment Facility and the MCGRF for groundwater replenishment in the Coachella Valley Groundwater Basin in accordance with the existing exchange agreement. The Parties propose to amend the existing agreement to extend the term through December 31, 2085, increase Metropolitan's Annual Table A transfer to DWA and CVWD from an effective delivery of 100,000 AF (Baseline Scenario) to 150,000 AF (Increased Delivery Scenario), and add provisions allowing Metropolitan to buy back transferred Annual Table A allocations in five of every ten years, not to exceed 50,000 AF per occurrence. The additional 50,000 AF of Metropolitan Table A transfer water under the proposed amended agreement would increase the combined CVWD and DWA Table A allocations to 244,100 AF per year.

2. Proposed Project

The proposed Project consists of DWA's approval of the amended agreement as it relates to the continued operation and maintenance of the MCGRF and the potential increase in quantities of water delivered to the MCGRF for the purpose of maintaining groundwater sustainability in the MCSB. DWA and CVWD will share the additional 50,000 acre-feet of Metropolitan's Annual Table A transfer water as specified in the amended agreement between the Parties. The increased transfer amount will potentially result in an increase in CRA water deliveries to the MCGRF of up to a theoretical maximum of 5,000 acre-feet per year over a long-term average. The actual quantity of water delivered to the MCGRF in any given year would vary depending on available SWP and CRA water supplies and

the applicable terms of the exchange agreement and be proportional to groundwater pumping in the Mission Creek Subbasin per the DWA and CVWD water management agreement.

The proposed Project will facilitate ongoing management of the MCSB as a sustainable source of water supply for the Coachella Valley region. All Project activities would occur within the existing operational framework and physical footprint of the MCGRF and its existing facilities. The Project will not include any construction or installation of new facilities.

3. Purpose

The purpose of the Project is to continue to replenish water to the MCSB to ensure that DWA can continue to provide residents and the public within its service area with an adequate supply of potable water and to sustainably manage the MCSB. For the MCGRF to continue to percolate water into the aquifer, the basins and current infrastructure must be serviced and maintained. Since before the construction of the initial Project in 2002, the MCSB was in constant overdraft. Since the construction and operation of the MCGRF, CRA water has been imported to offset the historic overdraft. Since 2002, approximately 188,000 AF of water has been added to the MCSB, significantly improving the dependability of the water source for the community. Without continued operation and maintenance of the MCGRF, the MCSB would become overdrafted, because demand for groundwater exceeds the natural recharge of the MCSB. Conditions of overdraft would result in decreased water levels in the MCSB, adversely impacting water users in the region and resulting in economic and social disruptions to the local community.

D. ENVIRONMENTAL SETTING

1. Location

The Project is located adjacent to Mission Creek at Worsley Road (near Metropolitan's Colorado River Aqueduct, or CRA); in Section 21, Township 2 South, Range 4 East, San Bernardino in the City of Desert Hot Springs, County of Riverside, State of California, as

depicted in **Figures 1 through 3** herein. The Project facilities are surrounded by undeveloped desert landscape, approximately 0.5 mile east of State Route 62.

2. Climate

Climate in the Project area is characterized by low humidity, high summer temperatures, and mild dry winters. The area normally receives an average annual precipitation of approximately 6 inches, most of which occurs during December through February (except for summer thundershowers).

Prevailing winds in the area are usually gentle, but they occasionally increase to velocities as high as 50 to 60 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.

3. Land Use

The MCGRF site occupies approximately 180 acres of land, with approximately 110 acres used specifically for the facility itself. There are currently 12 recharge basins that have an area of 91.3 acres with a capacity of 303.2 AF, a 7.4-acre debris basin with a capacity of 41.7 AF, and a 36"-42" transmission pipeline that connects the facility to the Colorado River Aqueduct, and piping connecting all basins for the purpose of moving water.

E. COMPLIANCE WITH CEQA

This document has been prepared in compliance with the provisions of the California Environmental Quality Act, codified in California Public Resources Code, Division 13, Section 21000 *et seq* (CEQA), the State CEQA Guidelines (California Code of Regulations, Title 14, Section 15000 *et seq*), and the *2026 Local Guidelines for Implementing the California Environmental Quality Act for Desert Water Agency*. Pursuant to CEQA and the State CEQA Guidelines, this Initial Study has been prepared to determine whether the Project may have a significant effect on the environment. This Initial Study for the Mission Creek Groundwater Replenishment Facility Project has been prepared by Krieger & Stewart, Incorporated under contract with DWA to comply with the provisions of CEQA.

Based on the findings of the Initial Study, the appropriate environmental document will be prepared. If the analysis identifies substantial evidence that the Project may result in significant environmental impacts, an Environmental Impact Report (EIR) will be required (Cal. Code Regs. Tit. 14, § 15063). If no significant impacts are identified, a Negative Declaration will be prepared (Cal. Code Regs. Tit. 14, §15070). If potentially significant impacts are identified but can be reduced to a less-than-significant level through mitigation measures incorporated into the Project, a Mitigated Negative Declaration will be prepared (Cal. Code. Regs. Tit. 14, §15070).

F. LEAD AGENCY

"Lead Agency" means the public agency which has the principal responsibility for carrying out or approving a project. The Lead Agency will decide whether an EIR or Negative Declaration will be required for the project and will cause the document to be prepared (State CEQA Guidelines §15367). DWA is Lead Agency for the Project, as it is the public agency with the primary responsibility for preparing CEQA documents and for carrying out and approving the Project. Since DWA is responsible for the Project, it must comply with the requirements of CEQA.

DWA routinely constructs new facilities, maintains them, and replaces them as necessary to maintain adequate, reliable, and safe domestic water service to its customers. The Project is a continuation of the authority that DWA has exercised in the past.

G. RESPONSIBLE AGENCIES

"Responsible Agency" means a public agency which proposes to carry out or approve a project for which a Lead Agency is preparing or has prepared an EIR or Negative Declaration. For the purposes of CEQA, the term "Responsible Agency" includes all public agencies, other than the Lead Agency, which have discretionary approval power over the project (State CEQA Guidelines §15381). Metropolitan is a Responsible Agency for the Project, as approval by Metropolitan is required.

H. PUBLIC INFORMATION DOCUMENT

This is a public information document prepared in accordance with CEQA, the State CEQA Guidelines, and the *2026 Local Guidelines for Implementing the California Environmental Quality Act for Desert Water Agency*. The purposes of this Initial Study are to provide DWA with information to use as a basis for identifying the potential environmental impacts of the Project, for determining the appropriate CEQA document to prepare for the Project, to facilitate environmental assessment of the Project, and to provide documentation of the factual basis for the finding in the Project's CEQA document. Additionally, this document identifies mitigation intended to avoid or reduce any adverse environmental impacts of the Project to levels that are less than significant.

PART 2
ENVIRONMENTAL EFFECTS AND CHECKLIST

PART 2 - ENVIRONMENTAL EFFECTS AND CHECKLIST

A. PROJECT INFORMATION

1. Project Title:

Mission Creek Groundwater Replenishment Facility

2. Lead Agency and Contact Person:

Desert Water Agency
David Tate, Assistant General Manager – Chief Engineer
1200 S. Gene Autry Trail
Palm Springs, CA 92264
(760) 323-4971 ext. 144
dtate@dwa.org

3. Project Location:

Refer to **Part 1.D.1** on **Page 3** herein. Refer also to **Figures 1, 2, and 3** herein.

4. Project Sponsor's Name and Address:

Desert Water Agency
1200 S. Gene Autry Trail
Palm Springs, CA 92264

5. General Plan Designation:

Public/Institutional

7. Zoning:

Rancho Royale Specific Plan

8. Description of Project:

Refer to **Part 1.C.1**, beginning on **Page 2** herein.

9. Surrounding Land Uses and Setting:

Refer to **Part 1.D**, beginning on **Page 3** herein.

10. Other public agencies whose approval may be required (e.g., permits, financing approval, or participation agreement):

- The Metropolitan Water District of Southern California (Exchange Agreement)

- 11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code Section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?**

DWA sent a formal notification letter describing the Project to the Agua Caliente Band of Cahuilla Indians (Agua Caliente). In response to DWA's notification letter, Agua Caliente requested government-to-government consultation with DWA, as well as additional information pertaining to the Project. Consultation has commenced, and an initial consultation meeting was held via telephone on September 17, 2026. Consultation between DWA and Agua Caliente is currently ongoing. The potential for Project impacts on tribal cultural resources is discussed in **Issue XVIII** of the Initial Study checklist included in **Part 2.E.** herein.

B. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

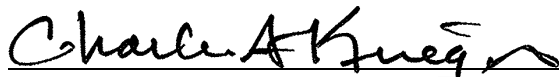
The environmental factors checked below would be potentially affected by this Project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

- | | |
|---|---|
| ☐ Aesthetics | ☐ Agriculture/Forestry Resources |
| ☐ Air Quality | ☐ Biological Resources |
| ☐ Cultural Resources | ☐ Energy |
| ☐ Geology/Soils | ☐ Greenhouse Gas Emissions |
| ☐ Hazards & Hazardous Materials | ☐ Hydrology/Water Quality |
| ☐ Land Use/Planning | ☐ Mineral Resources |
| ☐ Noise | ☐ Population/Housing |
| ☐ Public Services | ☐ Recreation |
| ☐ Transportation | ☐ Tribal Cultural Resources |
| ☐ Utilities/Service Systems | ☐ Wildfire |
| ☐ Mandatory Findings of Significance | ☒ None |

C. DETERMINATION (To be completed by the Lead Agency):

On the basis of this initial evaluation:

- ☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- ☐ I find that the proposed project MAY have a "potentially significant" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- ☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

A handwritten signature in black ink, reading "Charles A. Krieger", is written over a horizontal line.

Charles A. Krieger
KRIEGER & STEWART, INCORPORATED
Agency Consulting Engineer
DESERT WATER AGENCY

October 7, 2026

Date

D. EVALUATION OF ENVIRONMENTAL IMPACTS

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g. the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g. the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect is significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an Environmental Impact Report (EIR) is required.
4. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses", as described in (5) below, may be cross-referenced).
5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration

pursuant to Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

- a. Earlier Analyses Used. Identify and state where they are available for review.
 - b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
 - c. Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g. general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
 7. Supporting Information Sources. A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
 8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
 9. The explanation of each issue should identify:
 - a. The significance criteria or threshold, if any, used to evaluate each question; and
 - b. The mitigation measure identified, if any, to reduce the impact to less than significant.

E. ENVIRONMENTAL CHECKLIST

Issue I. Aesthetics

Except as provided in Public Resources Code Section 21099, would the Project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒

The Project consists of the continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. The Project does not include any construction or installation of new facilities. Therefore, the Project will not have a substantial adverse effect on a scenic vista, and therefore there will be no impacts.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒

*The closest "Officially Designated State Scenic Highway" to the Project site is State Route 62, which was officially designated on June 19, 1968. State Route 62 heads northerly towards the Morongo Valley and southerly towards the I-10 Freeway and the San Jacinto Mountains. The Project is located approximately 0.5 mile easterly of State Route 62, approximately 5 miles northerly of Interstate 10. The Project consists of the continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. The Project does not include any construction or installation of new facilities. For these reasons, the Project would not damage scenic resources within a state scenic highway, and therefore there will be no impacts. Refer also to **Issue I(a)** above.*

Issue I. Aesthetics (continued)

c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	☐	☐	☐	☒

The Project site is surrounded by undeveloped open space. Since there is no new construction associated with the Project, there is no potential for the Project to substantially degrade the existing visual character or quality of public views of the site and its surroundings, and therefore there will be no impacts.

d) Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	☐	☐	☐	☒

The Project does not include any new lighting or the construction or installation of new facilities. The Project will not create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area, and therefore there will be no impacts.

Issue II. Agriculture and Forest Resources

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in forest protocols adopted by the California Air Resources Board.

a) Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	☐	☐	☐	☒

Based on maps available from the State of California Department of Conservation, Division of Land Resources Protection, Farmland Mapping and Monitoring Program, online at <https://maps.conservation.ca.gov/DLRP/CIFF>, the Project site is located within an area of land categorized as "Urban and Built-Up Land", which is defined below.

Urban and Built-Up Land is occupied by structures with a building density of at least 1 unit to 1.5 acres, or approximately 6 structures to a 10-acre parcel. Common examples include residential, industrial, commercial, institutional facilities, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, and water control structures.

There is no land categorized as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (collectively, Farmland) located on or adjacent to the Project site. The Project does not include any construction or installation of new facilities. For these reasons, the Project will not convert Farmland to non-agricultural use, and therefore there will be no impacts.

Issue II. Agriculture and Forest Resources (continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒

The Project site is not zoned for agricultural use, and there are no Williamson Act contracts in effect on the Project site. Further, the Project does not include any construction or installation of new facilities. For these reasons, the Project will not conflict with existing zoning for agricultural use or with a Williamson Act contract, and therefore there will be no impacts.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☒

There are no lands zoned for forest land or timberland located on or adjacent to the Project site, and the Project does not include any construction or installation of new facilities. For these reasons, the Project will not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production, and therefore there will be no impacts.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Would the project result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒

*The Project site does not contain or adjoin any forest land, and the Project does not include any construction or installation of new facilities. The Project will not result in the loss of forest land or conversion of forest land to non-forest use, therefore there will be no impacts. Refer also to **Issue II(c)**, above.*

Issue II. Agriculture and Forest Resources (continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

*The Project does not include any construction or installation of new facilities, and the Project does not involve changes in the existing environment that could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use, therefore there will be no impacts. Refer also to **Issues II(a) through II(d)**, above.*

Issue III. Air Quality

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒

The Project is located within the Salton Sea Air Basin (SSAB), which encompasses all of Imperial County and the central part of Riverside County, extending from the San Jacinto Mountains on the west to the Little San Bernardino Mountains on the east. The Riverside County portion of the SSAB is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD).

A project is considered to conflict with or obstruct implementation of the applicable air quality plan if it would result in population or employment growth that would exceed the estimates for such growth that are set forth in the applicable air quality plan.

The Project consists of continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. The Project does not include construction or installation of any new facilities. The objective of the Project is to provide sustainability for the MCSB, and the Project does not have the potential to directly result in an increase in population or employment growth in the area. For these reasons, the Project would not conflict with or obstruct any applicable air quality plan, and therefore there will be no impacts.

Potential impacts related to greenhouse gases are described in **Issue VIII** herein.

Issue III. Air Quality (continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality threshold?	☐	☐	☒	☐

As described in **Issue III(a)** above, the Project is located within the Salton Sea Air Basin (SSAB). Air quality conditions in the SSAB are under the jurisdiction of the South Coast Air Quality Management District (SCAQMD).

State and federal designations based on the California Ambient Air Quality Standards (CAAQS) and the National Ambient Air Quality Standards (NAAQS) for the Project area are listed below. "Attainment" is the category given to an area that has had no CAAQS or NAAQS violations in the past 3 years. "Non-Attainment" is the category given to an area that has had one or more such violations in the past 3 years. An area is considered "Unclassified" when there is insufficient data.

Under the CAAQS, the Project area is classified as Non-Attainment for ozone (O_3) and for particulate matter measuring greater than 2.5 microns and up to 10 microns in diameter (PM_{10}). The Project area is classified as Attainment for particulate matter measuring 2.5 microns or less in diameter ($PM_{2.5}$), for carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), sulfates (SO_4), and lead. Additional information about each of these pollutants and the CAAQS is available at the California Air Resources Board website at www.arb.ca.gov/resources/california-ambient-air-quality-standards.

Under the NAAQS, the Project area is classified as Non-Attainment for O_3 , PM_{10} , and $PM_{2.5}$, and as Unclassified/Attainment for CO, NO_2 , SO_2 , and lead. Additional information about these pollutants and the NAAQS is available on the United States Environmental Protection Agency's website at www.epa.gov/criteria-air-pollutants.

The Project consists of the continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. While the Project does not include any construction or installation of new facilities, ongoing maintenance activities at the MCGRF include intermittent ground disturbance resulting from weed abatement, scarification of the basins as needed, and any necessary repairs. Weed abatement is

typically performed monthly using handheld electric-powered and gas-powered equipment. Additional weed abatement of the wetted areas is performed annually, if needed, and includes gas-powered handheld equipment and a chipper. Scarification of the wetted surface of the basins is performed approximately once every five years, if replenishment took place, and is implemented using a bulldozer with a ripping tooth attachment. Due to the limited frequency of these activities and their limited duration, maintenance activities are not expected to increase in frequency or intensity as a result of the Project.

Any air pollutant emissions, including dust, resulting from performing routine maintenance activities, would be infrequent and less than significant. For these reasons, the Project would not result in a cumulatively considerable net increase in O_3 , PM_{10} , or $PM_{2.5}$, for which the Project region is Non-Attainment under a federal and/or state threshold. Impacts would therefore be less than significant.

Issue III. Air Quality (continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Would the project expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☒

*The Project site is surrounded by undeveloped desert terrain, with the nearest sensitive receptors being the residential community surrounding the Mission Lakes Country Club, which is located approximately one mile easterly of the Project site. The Project does not include construction or installation of any new facilities. Ongoing maintenance includes the existing, occasional activities described in **Issue III(b)** above, and does not generate substantial pollutant concentrations due to their limited frequency and duration. For these reasons, the Project will not expose sensitive receptors to substantial pollutant concentrations, and therefore there will be no impacts. Refer also to **Issue III(b)** above.*

Issue III. Air Quality (continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☐	☒

*The Project does not include construction or installation of any new facilities, and the ongoing operation and maintenance of the MCGRF would not result in any emissions other than those described in **Issue III(b)** above; therefore, the Project would not result in other emissions that would adversely affect a substantial number of people, and there will be no impacts.*

Issue IV. Biological Resources

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☒	☐

The Project consists of continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. While the Project does not include any construction or installation of new facilities, ongoing maintenance activities at the MCGRF include intermittent ground disturbance resulting from weed abatement, scarification of the basins as needed, and any necessary repairs. Weed abatement is typically performed monthly using handheld electric-powered and gas-powered equipment. Additional weed abatement of the wetted areas is performed annually, if needed, and includes gas-powered handheld equipment and a chipper. Scarification of the wetted surface of the basins is performed approximately once every five years, if replenishment took place, and is implemented using a bulldozer with a ripping tooth attachment. These activities are confined to the MCGRF, and regular maintenance that has been implemented since commencing operation in 2002 prevents the establishment of habitat for any candidate, sensitive, or special status species within the Project site. Therefore, the Project will not result in a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service, and impacts will be less than significant.

Issue IV. Biological Resources (continued)

b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	☐	☐	☐	☒

The Project consists of continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. The Project does not include any construction or installation of new facilities. The Project will not have an adverse effect on a riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Wildlife or the U.S. Fish and Wildlife Service, as there are no such habitats or communities located at the MCGRF, and the Project does not have the potential to impact any such habitats or communities located offsite. Therefore, there will be no impacts.

c) Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	☐	☐	☐	☒

The Project consists of continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. The Project does not include any construction or installation of new facilities. Further, there are no state or federally protected wetlands present at the MCGRF. Therefore, the Project would not have a substantial adverse effect on state or federally protected wetlands, and there will be no impacts.

Issue IV. Biological Resources (continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒

The Project consists of continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. The Project does not include any construction or installation of new facilities and does not have the potential to adversely affect any native resident or migratory fish or wildlife species, native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. Therefore, there will be no impacts.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒

The Project consists of the continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. The Project does not include any construction or installation of new facilities, and the Project does not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. Therefore, there will be no impacts.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

The Project consists of continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. The Project does not include any construction or installation of new facilities. The MCGRF is located within the Plan Area of the Coachella Valley Multiple-Species Habitat Conservation Plan (CVMSHCP); however, it is not located within a Conservation Area of the CVMSHCP. Further, ongoing operation and maintenance activities will remain within the existing facilities and will not disturb additional areas.

The Project will not conflict with the provisions of the CVMSHCP or other adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Therefore, there will be no impacts.

Issue V. Cultural Resources

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☒	☐	☐

CEQA Guidelines §15064.5(a)(3) states, in part, that "Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the California Register of Historical Resources (Pub. Res. Code §5024.1, Title 14 CCR, §4852), including the following:

"(A) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

(B) Is associated with the lives of persons important in our past;

(C) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

(D) Has yielded, or may be likely to yield, information important in prehistory or history."

Further, California Public Resources Code §5020.1(j) states that "a 'Historical resource' includes, but is not limited to, any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California."

The Project consists of the continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. While the Project does not include any construction or installation of new facilities, ongoing maintenance activities at the MCGRF include intermittent ground disturbance resulting from weed abatement, scarification of the basins as needed, and any necessary repairs. Weed abatement is typically performed monthly using handheld electric-powered and gas-powered equipment. Additional weed abatement of the wetted areas is performed annually, if needed, and includes gas-powered handheld equipment and a chipper. Scarification of the wetted surface of the basins is performed

*approximately once every five years, if replenishment took place, and is implemented using a bulldozer with a ripping tooth attachment. While no known historical, archaeological, or tribal cultural resources are known to be present at the MCGRF, mitigation is incorporated into the Project in order to avoid or reduce potential adverse impacts resulting from ongoing maintenance activities upon any previously-undiscovered resources that may be present in subsurface soils. Mitigation Measures CUL-1 and CUL-2 are summarized below and are set forth the Mitigation Monitoring and Reporting Program attached to the Mitigated Negative Declaration for the Project, included in **Appendix A** herein. With incorporation of said mitigation measures, the Project would not cause a substantial adverse change in the significance of a historical resource, archaeological resource, or tribal cultural resource. Additional discussion pertaining to tribal cultural resources is included in **Issue XVIII** herein. Impacts will be less than significant with mitigation incorporated.*

Mitigation Measure CUL-1: Cultural Resources

If any historical, archaeological, or tribal cultural resource is discovered during Project operation and maintenance activities, all activity in the immediate vicinity of the find (within a 60-foot radius buffer area) shall cease, and an archaeologist meeting the Secretary of the Interior's professional qualification standards in archaeology (Qualified Archaeologist) will be contracted to assess the find. Operation and maintenance activities may proceed outside of the buffer area during assessment of the find. If the find is determined to be potentially significant, the Qualified Archaeologist will develop a Monitoring and Treatment Plan. If the find is a prehistoric or Native American resource, the Qualified Archaeologist will seek input from the appropriate Native American tribe(s) in development of the Monitoring and Treatment Plan. If the Qualified Archaeologist determines that data recovery is necessary, a Phase III Archaeological Data Recovery Plan will be developed and implemented.

Mitigation Measure CUL-2: Vegetation Removal

At least three weeks prior to planting or vegetation removal beyond regular monthly maintenance, including any major plant removal, DWA will contact the Agua Caliente Band of Cahuilla Indians Tribal Historic Preservation Office (ACBCI-THPO) with a description of the work that will be performed, providing ACBCI-THPO an opportunity to assess the proposed work and potentially observe the associated ground disturbance.

Issue V. Cultural Resources (Continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐

*The Project consists of the continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. While the Project does not include any construction or installation of new facilities, ongoing maintenance activities at the MCGRF include intermittent ground disturbance resulting from weed abatement, scarification of the basins as needed, and any necessary repairs. Weed abatement is performed monthly using handheld electric-powered and gas-powered equipment. Additional weed abatement of the wetted areas is performed annually, if needed, and includes gas-powered handheld equipment and a chipper. Scarification of the wetted surface of the basins is performed approximately once every five years, if replenishment took place, and is implemented using a bulldozer with a ripping tooth attachment. While no known historical, archaeological, or tribal cultural resources are known to be present at the MCGRF, mitigation is incorporated into the Project in order to avoid or reduce potential adverse impacts resulting from ongoing maintenance activities upon any previously-undiscovered resources that may be present in subsurface soils. Mitigation Measures CUL-1 and CUL-2 are summarized in **Issue V(a)** above and are set forth the Mitigation Monitoring and Reporting Program attached to the Mitigated Negative Declaration for the Project, included in **Appendix A** herein. With incorporation of said mitigation measures, the Project would not cause a substantial adverse change in the significance of a historical resource, archaeological resource, or tribal cultural resource. Additional discussion pertaining to tribal cultural resources is included in **Issue XVIII** herein. Impacts will be less than significant with mitigation incorporated.*

Issue V. Cultural Resources (Continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Would the project disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

*The Project consists of the continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. The Project does not include any construction or installation of new facilities, and there are no known cemeteries or burial grounds located on or adjacent to the Project site. Although it is unlikely that any human remains are present on the Project site, Mitigation Measure CUL-3 has been incorporated into the Project to avoid or reduce any potential disturbance to human remains. Mitigation Measure CUL-3 is summarized below and is set forth in the Mitigation Monitoring and Reporting Program attached to the Mitigated Negative Declaration in **Appendix A** herein. Therefore, Project impacts will be less than significant with mitigation incorporated.'*

Mitigation Measure CUL-3: Human Remains

If any human remains, or what appear to be human remains, are uncovered or encountered at the MCGRF during facility operation or maintenance, DWA will immediately halt ground disturbance and will notify the Riverside County Coroner's Office via telephone at (760) 863-8311. If the remains are determined to be of Native American origin, DWA will contact the Native American Heritage Commission (NAHC) and will work with the NAHC and the Most Likely Descendent to determine the appropriate disposition of the remains. The Project will comply with California Health and Safety Code §7050.5 and California Public Resources Code §5097.98, as applicable, throughout operation and maintenance of the MCGRF.

Issue VI. Energy

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐

The Project consists of the continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. The Project does not include any construction or installation of new facilities.

Water delivered to the facility flows by gravity through a transmission pipeline from the Colorado River Aqueduct; therefore, no pumps are used and routine operation of the facility consumes no energy.

Facility maintenance includes weed abatement, scarification of the basins as needed, and any necessary repairs. Weed abatement is performed monthly using handheld electric-powered and gas-powered equipment. Additional weed abatement of the wetted areas is performed annually, if needed, and includes gas-powered handheld equipment and a chipper. Scarification of the wetted surface of the basins is performed approximately once every five years, if replenishment took place, and is implemented using a bulldozer with a ripping tooth attachment. All vegetation removed is hauled to a landfill. Quantities of gasoline and electricity used during facility maintenance are necessary and appropriate to power the equipment and vehicles used in the maintenance tasks described above. For these reasons, the Project would not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources. Therefore, impacts will be less than significant.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

The Project consists of the continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. The Project does not include any construction or installation of new facilities.

*Water is delivered to the facility via gravity flow, and no energy resources are required. Fuel used to operate equipment required for facility maintenance, including weed abatement, scarification, and repairs to the basins as needed, will be used as appropriate and necessary. For these reasons, the Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Impacts would be less than significant. Refer also to **Issue VI(a)**, above.*

Issue VII. Geology and Soils

a) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☐	☒
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
iv) Landslides?	☐	☐	☐	☒

- i) *Based on the mapping system for earthquake zones of required investigation, available online from the California Department of Conservation, California Geological Survey at <https://maps.conservation.ca.gov/cgs/informationwarehouse/eqzapp/>, the MCGRF is not located within a fault zone, and the nearest fault is the San Andreas Fault (South Branch, Banning Strand), located approximately 0.8 mile northerly of the MCGRF. The Project consists of the continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. The Project does not include any construction or installation of new facilities. For these reasons, the Project would not cause a potential substantial adverse effect, including the risk of loss, injury, or death involving rupture of a known earthquake fault. Therefore, there will be no impacts.*
- ii) *Being located in a seismically-active region, the Project site is subject to strong seismic ground shaking. The Project consists of the continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. The Project does not include any construction or*

installation of new facilities, nor does it include any structures intended for human occupancy. For these reasons, the Project is not expected to directly or indirectly cause potential adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking, and no mitigation is required. Therefore, there will be no impacts.

- iii) Based on maps provided by the California Geological Survey, available online at <https://data.ca.gov/dataset/cgs-seismic-hazards-program-liquefaction-zones>, the MCGRF is not located in an area that is mapped as being on or adjacent to a liquefaction zone. Further, the Project does not include any construction or installation of new facilities. For these reasons, the Project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction. Therefore, there will be no impacts.
- iv) The Project site is located in a relatively flat area that is not known to be susceptible to landslides. Based on information available in the online map available at <https://www.conservation.ca.gov/cgs/landslides>, provided by the California Geological Survey, no landslides have been mapped on or in the vicinity of the Project site. The nearest mapped landslide occurred in 2023 approximately one mile north of the MCGRF, near the base of the Little San Bernadino Mountains. Further, the MCGRF does not include structures intended for human occupancy, and the Project does not include construction or installation of new facilities. For these reasons, the Project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides. Therefore, there will be no impacts.

Issue VII. Geology and Soils (Continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project result in substantial soil erosion or the loss of topsoil?	☐	☐	☐	☒

The Project consists of the continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. The Project does not include any construction or installation of new facilities and would not result in substantial soil erosion or loss of topsoil. Therefore, there will be no impacts.

Issue VII. Geology and Soils (Continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	☒

The Project consists of the continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. The Project does not include any construction or installation of new facilities, and would not cause soils to become unstable, resulting in landslides, lateral spreading, subsidence, liquefaction, or collapse. Therefore, there will be no impacts.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☐	☒

Soils in the Project area consist primarily of sands and gravels, which are not considered expansive. The Project consists of the continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. The Project does not include any construction or installation of new facilities. The Project is not located on expansive soil, creating substantial direct or indirect risks to life or property. Therefore, there will be no impacts.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

The Project does not include septic tanks or alternative wastewater disposal systems. Therefore, there will be no impacts.

Issue VII. Geology and Soils (Continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒

Federal, state, and local regulations and policies provide protection for paleontological resources. These include, but are not limited to, the federal Paleontological Resources Preservation Act of 2009 (Public Law 111-011, Title VI, Subtitle D) and California Public Resources Code §30244.

There are no known paleontological resources at the MCGRF. Because soils in the Project area consist primarily of sands and gravels, there is a low probability that paleontological resources are present at the MCGRF. Further, the Project does not include any construction or installation of new facilities, and ongoing maintenance activities remain within surface soils. For these reasons, the Project would not directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. Therefore, there will be no impacts.

Issue VIII. Greenhouse Gas Emissions

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐

The Project consists of the continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. The Project does not include any construction or installation of new facilities.

Ongoing maintenance of the MCGRF includes monthly weed abatement using handheld power tools (both gas and electric), annual weed abatement of the wetted area using handheld power tools and a chipper, as well as scarifying the surface of the wetted area approximately once every five years using a bulldozer with a ripping tooth attachment. These activities are existing, result in insignificant quantities of greenhouse gas (GHG) emissions from vehicle and equipment use, and are not expected to increase in frequency or extent with implementation of the Project. Therefore, the Project would not

generate greenhouse gas emissions, either directly or indirectly, that would have a significant impact on the environment. Therefore, impacts would be less than significant.

Issue VIII. Greenhouse Gas Emissions (Continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emission of greenhouse gases?	☐	☐	☒	☐

*As described in **Issue VIII(a)** above, the Project consists of the continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. The Project does not include any construction or installation of new facilities. Ongoing maintenance operations at the MCGRF generate minimal GHGs, and said activities are not expected to increase in frequency or extent as a result of the Project. For these reasons, the Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emission of GHGs. Therefore, impacts would be less than significant.*

Issue IX. Hazards and Hazardous Materials

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☒

The Project consists of the continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. The Project does not include any construction or installation of new facilities. There will be no routine transport, use, or disposal of hazardous materials. For these reasons, the Project will not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Therefore, there will be no impacts.

Issue IX. Hazards and Hazardous Materials (Continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☒

The Project consists of the continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. The Project does not include any construction or installation of new facilities, and Project operation does not include the use or transport of hazardous materials. For these reasons, the Project will not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Therefore, there will be no impacts.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒

There are no schools located within a quarter of a mile of the MCGRF. The closest school (Desert Hot Springs Elementary School) is approximately 3.5 miles to the southeast of the MCGRF. Further, the Project consists of the continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. The Project does not include any construction or installation of new facilities, and Project operation does not include the use or transport of hazardous materials. For these reasons, the Project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. Therefore, there will be no impacts.

Issue IX. Hazards and Hazardous Materials (Continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒

The Project site is not located on a site included on the list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. According to maps and data available to the public on the California Department of Toxic Substances Control (DTSC) EnviroStor database located online at <http://www.envirostor.dtsc.ca.gov/public>, the hazardous materials site located closest to the Project site is the former Palm Springs Landfill, located at the intersection of Gene Autry Trail and Ramon Road, approximately 13 miles southeasterly of the MCGRF. The former landfill site is currently developed as a shopping center known as "The Springs".

The Project consists of the continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. The Project does not include any construction or installation of new facilities, and does not have the potential to impact, or be impacted by, the former landfill site. For these reasons, the Project will not create a significant hazard to the public or the environment related to a hazardous materials site. Therefore, there will be no impacts.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒

The airport closest to the Project site is the Palm Springs International Airport, located approximately 10 miles southeasterly of the MCGRF. Based on the Riverside County Airport Land Use Compatibility Plan Policy Document (adopted March 2005 by the Riverside County Airport Land Use Commission) the MCGRF lies outside of the airport's influential boundary and noise compatibility contours. Further, the Project does not include habitable structures or construction or installation of new facilities. For these reasons, the Project would not result in a safety hazard or excessive noise related to the Project's proximity to an airport. Therefore, there will be no impacts.

Issue IX. Hazards and Hazardous Materials (Continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒

The Project consists of the continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. The Project does not include any construction or installation of new facilities. For these reasons, the Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Therefore, there will be no impacts.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
g) Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	☐	☐	☐	☒

Based on the mapping system "Find your Fire Hazard Severity Zone", provided online by the Office of the State Fire Marshal at www.osfm.fire.ca.gov, the MCGRF is located in an area mapped as within a "Moderate" fire hazard severity zone. There are no areas in the vicinity mapped as within a "High" or "Very High" fire hazard severity zone adjoining the Project site. The nearest area mapped as within a "High" fire hazard severity zone is located approximately 2.20 miles easterly of the MCGRF. The facilities at the MCGRF are not intended for human habitation and consist primarily of groundwater replenishment basins and pipelines. The Project does not include construction or installation of new facilities. For these reasons, the Project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires. Therefore, there will be no impacts.

Issue X. Hydrology and Water Quality

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	☐	☒	☐	☐

*The MCGRF has been in operation since 2002, and since that time, it has received for replenishment approximately 188,000 AF (with an average annual quantity of 7,800 AF) of CRA water in accordance with an exchange agreement with Metropolitan (see Project Description in **Part I.C.** for additional details).*

The water quality constituent of concern for continued replenishment in the MSCB is total dissolved solids (TDS). TDS is a measure of the total dissolved salt content (also referred to as salinity) of water and is the sum of the mass of all molecular and ionized organic and inorganic substances dissolved in the water.

The CRA water generally has a TDS concentration of about 620 milligrams per liter (mg/L), which is generally greater than that of the native groundwater in the MCSB, which is estimated to range between 190 mg/L and 660 mg/L, depending on location within the basin, based on TDS data reported to the State Water Resources Control Board, as described in the Mission Creek Subbasin Alternative Plan Update, dated November 2021 (2022 Alternative Plan). Consequently, the higher-salinity CRA water delivered for replenishment contributes to gradual increases in salinity in the MCSB.

*West Yost evaluated the potential water quality effects associated with the Project, and the technical basis, methods, results, and conclusions of the evaluation are set forth in the Technical Memorandum: Evaluation of Potential Water-Quality Effects Associated with Increased Recharge of Colorado River Aqueduct Water for the Coachella Valley Water District, dated September 24, 2026 (West Yost Tech Memo), a copy of which is included in **Appendix B** herein.*

West Yost's evaluation characterizes TDS loading in the MCSB based on two potential operational scenarios at the MCGRF, namely, the "Baseline Delivery Scenario" and the "Increased Delivery Scenario", with each scenario evaluated for an implementation period of 2028 through 2085. These two scenarios are described in additional detail below. TDS loading is a measure of TDS in tons per year, based on projected CRA water delivery volumes and projected TDS concentrations of CRA water for each year.

As shown in Figure 1 of the West Yost Tech Memo cited above, other sources of water replenishing the MCSB, such as irrigation and septic system return flows, percolation of treated wastewater effluent, and natural recharge (including streambed recharge and subsurface inflows) also contribute to increases in the salinity of the MCSB. It is anticipated that salinity in the MCSB will continue to increase gradually over time, with or without implementation of the Project; although, the Project is expected to accelerate these increases.

The “null scenario,” wherein imported water is no longer used to replenish the MCSB, would result in groundwater overdraft conditions in the MCSB, which would eventually lead to severe economic and social disruptions to the local community. Based on information included in the Mission Creek Subbasin Alternative Plan Update, (2022 Alternative Plan), prior to commencing operation of the MCGRF in 2002, the MCSB was in a constant condition of overdraft, with lowering water levels observed within wells that pumped groundwater from the MCSB. After operating the MCGRF since 2002, groundwater levels have increased and have remained stable since 2009. Consequently, it is not included herein as a feasible scenario. In addition, CRA water is currently the only feasible source of imported water that can be used to replenish the MCSB without construction of major transmission facilities from the East Branch Extension of the State Water Project aqueduct to the MCSB. Therefore, the Baseline Delivery Scenario and the Increased Delivery Scenario are the only scenarios considered in the analysis.

The Baseline Delivery Scenario consists generally of the operation and maintenance of the MCGRF for the years 2028 through 2085 and is defined as “100k SWP transfer, no buyback”, which assumes that a combined total quantity of 100,000 AF of CRA water would be transferred to DWA and CVWD each year, and approximately 8 to 10% of that water would be delivered to the MCGRF for replenishment, as described in the 2022 Alternative Plan. This scenario also assumes that Metropolitan would not exercise the buyback provision, which is a provision in the exchange agreement that allows Metropolitan to buy back transferred water in five of every ten years, not to exceed 50,000 AF per occurrence.

The Increased Delivery Scenario consists generally of the operation and maintenance of the MCGRF for the years 2028 through 2085 and is defined as “150k SWP transfer, buyback applied, rollover to next year buyback”, which assumes that a combined total of 150,000 AF of CRA water would be transferred to DWA and CVWD each year, that Metropolitan would exercise the buyback provision at 50,000 AF every other year, and that any unexercised buyback would be rolled over to the following year. Under this scenario, approximately 8 to 10% of the net CRA water would be delivered to the MCGRF for replenishment, as described in the 2022 Alternative Plan.

Both the Baseline Delivery Scenario and the Increased Delivery Scenario are expected to contribute to the gradual salinity increases in the MCSB, with the Increased Delivery Scenario increasing the salinity at only a slightly greater rate. Based on its evaluation, West Yost concluded that, over the period of 2028 through 2085, the Increased Delivery Scenario would result in an average of 0.95 percent greater TDS loading than under the Baseline Delivery Scenario. While the Increased Delivery Scenario represents a conservative estimation of replenishment quantities at the MCGRF, actual deliveries are based on several factors, including quantities available and quantities pumped from the MCSB by local groundwater producers. Based on this, the Increased Delivery Scenario is considered the “worst-case” scenario with regard to TDS loading during the evaluation period of 2028 through 2085. West Yost concluded that “the long-term incremental TDS loading associated with the Increased Delivery Scenario represents a relatively small source of additional TDS loading in [the subbasin], and thus, is not expected to materially increase groundwater TDS concentrations.”

*Increases in salinity in the basin, over time, with or without the Project, are unavoidable; and, without mitigation, could adversely impact the beneficial uses of the groundwater in the MCSB. To avoid or reduce impacts associated with increasing salinity in the MCSB, Mitigation Measure WQ-1 is incorporated into the Project. Mitigation Measure WQ-1 is summarized below and is set forth in the Mitigation Monitoring and Reporting Program attached to the Mitigated Negative Declaration in **Appendix A** herein. With incorporation of Mitigation Measure WQ-1, the Project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality, and impacts would be less than significant with the mitigation.*

Mitigation Measure WQ-1: Implementation of Salt and Nutrient Management and Groundwater Monitoring Requirements

DWA is a participating agency in the Coachella Valley Groundwater Basin Salt and Nutrient Management Plan, dated June 2015 (2015 SNMP), which addresses salt and nutrient loading in the Coachella Valley Groundwater Basin, including the MCSB. DWA, together with the other participating Coachella Valley SNMP Agencies, is developing an updated SNMP. The SNMP is intended to prevent significant groundwater-quality impacts from salt and nutrient loading, including loading attributable to the Project, by establishing protective water-quality targets, monitoring requirements, and enforceable management measures that maintain compliance with applicable water-quality objectives and antidegradation requirements and protect designated beneficial uses of the MCSB. DWA shall continue its participation in that process, provide the data and funding required of DWA under the agencies’ agreements, and

adopt and implement the portions of the updated SNMP applicable to DWA and the Project, subject to the requirements below.

A. Implementation of Existing Workplans. *DWA shall implement the actions assigned to it under the Workplan to Develop the Coachella Valley Salt and Nutrient Management Plan, dated September 2, 2021 (SNMP Workplan), and the Groundwater Monitoring Program Workplan, Coachella Valley Salt and Nutrient Management Plan, dated December 23, 2020 (Monitoring Workplan), included in Appendices C and D of the Project Initial Study and incorporated herein by reference.*

DWA shall complete its assigned monitoring-network improvements and implement its portion of the fully functioning monitoring program by March 31, 2027. These obligations shall include filling assigned monitoring gaps, sampling the designated wells, analyzing the constituents required by the Monitoring Workplan, and reporting the results of TDS levels.

B. Groundwater Monitoring and Reporting. *DWA shall monitor groundwater in accordance with the locations, constituent suite, sampling frequencies, and procedures specified in the Monitoring Workplan. Monitoring shall include TDS, nitrate as nitrogen, major cations and anions, and total alkalinity. DWA shall sample its designated network wells at least once every three years, or more frequently where required by the Monitoring Workplan, an applicable regulatory requirement, or the Project-specific monitoring requirements established under the SNMP.*

DWA shall submit, individually or through the CV-SNMP Agencies, the annual implementation progress report to the Colorado River Basin Regional Water Quality Control Board (RWQCB). DWA shall make its annual compliance documentation publicly available.

C. Corrective Action and Continuing Compliance. *DWA shall implement the management measures, operating limits, monitoring requirements, and early-action responses established under the applicable SNMP throughout the period in which Project-related loading may affect groundwater quality. Corrective actions may include reductions in the volume or constituent loading of the Project activity responsible for the predicted or observed impact, including suspension where necessary to maintain compliance with the SNMP.*

Upon detecting a potential violation, DWA shall implement the corresponding response outlined in the applicable SNMP. If monitoring or updated forecasting demonstrates that

existing controls are insufficient to prevent a violation, DWA shall immediately reduce or suspend the contributing Project activity to the extent necessary to prevent further noncompliance, and implement additional controls necessary to bring the Project activity into compliance. DWA shall not resume or increase that activity until it is demonstrated that the revised controls will maintain compliance and any necessary regulatory approvals have been obtained.

Issue X. Hydrology and Water Quality (Continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	☒

The Project is intended to preserve the sustainability of the MCSB as a source of water supply for the Coachella Valley region. The Project consists of the continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. The Project does not include any construction or installation of new facilities, and replenishment quantities will generally be commensurate with the quantities pumped by water producers in the region. If the Project is not implemented, then it is expected that groundwater supplies in the MCSB will substantially decrease, and this would have a significant adverse impact on sustainable groundwater management of the MCSB. Based on information included in the Mission Creek Subbasin Alternative Plan Update, (2022 Alternative Plan), prior to commencing operation of the MCGRF in 2002, the MCSB was in a constant condition of overdraft, with lowering water levels observed within wells that pumped groundwater from the MCSB. After operating the MCGRF since 2002, groundwater levels have increased and have remained stable since 2009. Through implementation of the Project, groundwater supplies in the MCSB will be maintained, and sustainable groundwater management of the MCSB will continue, consistent with the 2022 Alternative Plan. Therefore, there will be no impacts.

Issue X. Hydrology and Water Quality (Continued)

c) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces, in a manner which would:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
i) Result in substantial erosion or siltation on- or off-site?	☐	☐	☐	☒
ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?	☐	☐	☐	☒
iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☒
iv) Impede or redirect flood flows?	☐	☐	☐	☒

- i) *The Project does not include any construction or installation of new facilities; therefore, the Project will not substantially alter the existing drainage pattern of the site or area. In the event that severe storms or flooding damage the MCGRF, necessary repairs will be implemented to maintain the integrity and functionality of the facilities. For these reasons, the Project would not result in substantial erosion or siltation on- or off-site. Therefore, there will be no impacts.*
- ii) *The Project consists of the continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. The Project does not include any construction or installation of new facilities, and no impervious surfaces will be added to the site. For these reasons, the Project will not substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site. Therefore, there will be no impacts. Refer also to **Issue X(c)(i)** above.*
- iii) *The Project does not include any construction or installation of new facilities and would not create or contribute runoff water which would result in flooding on- or offsite. Therefore, there will be no impacts. Refer also to **Issues X(c)(i)** and **X(c)(ii)** above.*
- iv) *Project facilities do not have the potential to impede or redirect flood flows, and the Project does not include construction or installation of new facilities. Therefore, there will be no impacts. Refer also to **Issues X(c)(i)** through **X(c)(iii)** above.*

Issue X. Hydrology and Water Quality (Continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?	☐	☐	☐	☒

Based on the National Flood Hazard Layer map available from the Federal Emergency Management Agency (FEMA), available online at www.msc.fema.gov/portal/home, the majority of the MCGRF is located within Zone AO, which is defined as “Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.” For the portion of the MCGRF within Zone AO, the average depth and velocity have been determined to be 2 feet and 7 feet per second, respectively. The southwestern portion of the MCGRF is located in Zone X, defined as “0.2% Annual Chance Flood Hazard”. In the event that the MCGRF is inundated due to flood, the Project does not have the potential to release pollutants because there are no polluting items or substances used or stored on the Project site, and the Project does not include any construction or installation of new facilities.

The MCGRF is not located within a tsunami zone. Based on the California Tsunami Maps provided online at www.conservation.ca.gov/cgs/tsunami/maps by the California Department of Conservation, there are no tsunami zones mapped within Riverside County, as only coastal counties are affected. Further, the Project is not located in proximity to a body of water that could subject the site to seiches.

The MCGRF is designed to percolate water into the underlying aquifer for replenishment of the MCSB and does not contain any features that could potentially release pollutants into the environment in the event of inundation. For the reasons described above, the Project would not risk release of pollutants due to inundation. Therefore, there will be no impacts.

Issue X. Hydrology and Water Quality (Continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

*The water quality control plan applicable to the Project area is the Water Quality Control Plan for the Colorado River Basin Region, amended through August 20, 2024 (Basin Plan). The Basin Plan acknowledges that groundwater replenishment taking place within the Coachella Valley groundwater basin (which includes the MCSB) “...lessens the Valley's overdraft problem, although the total dissolved solids (TDS) concentration of Colorado River water is significantly higher than that of the native ground water in the greater portion of Coachella Valley.” (Basin Plan, p. 3-11). While groundwater replenishment pursuant to the Project is anticipated to contribute to the ongoing gradual increases in TDS concentrations within the MCSB (refer to **Issue X(a)** above), the Project will not conflict with or obstruct implementation of the Basin Plan.*

The Sustainable Groundwater Management Act (SGMA) document applicable to the Project area is the Mission Creek Subbasin Alternative Plan Update, (2022 Alternative Plan), which was submitted to the California Department of Water Resources (DWR) on December 29, 2021, and was approved by DWR in 2023. Continued importation of water for replenishment of the MCSB is included in the list of Project and Management Actions, Project No. WS-I, in the 2022 Alternative Plan. The Project does not conflict with or obstruct implementation of the provisions set forth in the 2022 Alternative Plan.

*For the reasons described above, the Project will not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Therefore, there will be no impacts. Refer also to the water quality analysis described in **Issue X(a)** herein.*

Issue XI. Land Use and Planning

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project physically divide an established community?	☐	☐	☐	☒

The Project consists of the continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. The Project does not include any construction or installation of new facilities. For these reasons, the Project does not have the potential to physically divide an established community. Therefore, there will be no impacts.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

The Project consists of the continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. The Project does not include any construction or installation of new facilities. The Project site lies within the Rancho Royale Specific Plan. Since the Project contains no new construction or changes in existing land use, it would not cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Therefore, there will be no impacts.

Issue XII. Mineral Resources

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒

The Project consists of the continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. The Project does not include any construction or installation of new facilities, nor does

the site include any known mineral resources. For these reasons, the Project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state. Therefore, there will be no impacts.

Issue XII. Mineral Resources (Continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

*Based on the “Figure OS-4: Mineral Resources” in the City of Desert Hot Springs General Plan (2020), the MCGRF is mapped within mineral resource zone designation MRZ-3, defined as “Areas containing known or inferred mineral occurrences of undetermined mineral resource significance.” There are no mineral resource recovery sites located on the MCGRF or on adjoining lands. The Project will not result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. Therefore, there will be no impacts. Refer also to **Issue XII(a)** above.*

Issue XIII. Noise

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☐	☒

The Project consists of the continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. The Project does not include any construction or installation of new facilities. Existing, ongoing maintenance activities are intermittent and will continue with implementation of the Project.

Ongoing maintenance activities at the MCGRF include weed abatement, scarification of the basins as needed, and any necessary repairs. Weed abatement is typically performed monthly using handheld electric-powered and gas-powered equipment. Additional weed abatement of the wetted areas is performed annually, if needed, and includes gas-powered handheld equipment and a chipper. Scarification of the wetted surface of the basins is performed approximately once every five years, if

replenishment took place, and is implemented using a bulldozer with a ripping tooth attachment. Maintenance activities are not expected to increase in frequency or intensity as a result of the Project. Noise generated by the equipment used during maintenance activities is not anticipated to be perceptible at the nearest residences, which are located approximately one mile easterly of the MCGRF.

For the reasons described above, the Project would not result in generation of a substantial temporary or permanent increase in ambient noise levels in the area. Therefore, there will be no impacts.

Issue XIII. Noise (continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project result in generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☒

The Project consists of the continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. The Project does not include any construction or installation of new facilities. Existing, ongoing maintenance activities are intermittent and will continue with implementation of the Project; however, said activities will not generate excessive groundborne vibration or groundborne noise. Therefore, there will be no impacts. Refer also to **Issue XIII(a)** above.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

The Project is not located within the vicinity of a private airstrip or within an airport land use plan. The airport nearest the Project site is the Palm Springs International Airport, located approximately 10 miles southeasterly of the Project site. Based on maps included in the Riverside County Airport Land Use Compatibility Plan Policy Document (adopted March 2005 by the Riverside County Airport Land Use Commission), the Project site does not lie within a noise compatibility contour of the Palm Springs International Airport. Further, Project maintenance will generate noise only intermittently, as described in **Issue XIII(a)** above, and any such noise would be imperceptible at the nearest residences, which are located approximately one mile to the east. For these reasons, the Project will not expose

people residing or working in the Project area to excessive noise levels related to airports. Therefore, there will be no impacts.

Issue XIV. Population and Housing

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of road or other infrastructure)?	☐	☐	☐	☒

The Project consists of the continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. The Project does not require increases in employment and does not provide infrastructure that would induce development of new homes and businesses. The Project does not include any construction or installation of new facilities. The Project does not have the potential to induce substantial unplanned population growth, either directly or indirectly. Therefore, there will be no impacts.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

The Project consists of the continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. The Project does not include any construction or installation of new facilities; therefore, the Project does not have the potential to displace substantial numbers of existing people or housing, nor would it necessitate the construction of replacement housing. Therefore, there will be no impacts.

Issue XV. Public Services

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
i) Fire protection?	☐	☐	☐	☒
ii) Police protection?	☐	☐	☐	☒
iii) Schools?	☐	☐	☐	☒
iv) Parks?	☐	☐	☐	☒
v) Other public facilities?	☐	☐	☐	☒

- i) *The Project does not include any construction or installation of new facilities, nor does it include any features or facilities that would require additional or unusual fire protection resources. Therefore, the Project will not adversely affect fire protection resources so there will be no impacts.*
- ii) *The Project does not include any construction or installation of new facilities, nor does it include any features or facilities that would require enhanced levels of police protection. Therefore, the Project will not adversely affect police protection resources so there will be no impacts.*
- iii) *The Project does not have the potential to increase or decrease the area's population and would therefore not result in a greater or lesser demand for schools. The Project will not adversely impact any school so there will be no impacts.*
- iv) *The Project does not have the potential to increase or decrease the area's population, and therefore will not result in a greater or lesser demand for parks. The Project will not adversely impact any park so there will be no impacts.*
- v) *The Project does not include any construction or installation of new facilities, and it will not adversely affect other public facilities so there will be no impacts.*

Issue XVI. Recreation

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒

The Project consists of the continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. The Project does not include any construction or installation of new facilities, and the nearest residential community is located approximately one mile easterly of the MCGRF. For these reasons, the Project would not increase the use of existing neighborhood and regional parks or other recreational facilities. Therefore, there will be no impacts.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

*The Project will not contain any recreational facilities, create new recreational facilities, or expand any existing recreational facilities. Therefore, there will be no impacts. Refer also to **Issue XVI(b)** above.*

Issue XVII. Transportation

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	☐	☐	☐	☒

The Project consists of the continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. The Project does not include any construction or installation of new facilities, nor will it impact any transportation facilities. For these reasons, the Project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. Therefore, there will be no impacts.

Issue XVII. Transportation (Continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☐	☒

The Project consists of the continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. The Project does not include any construction or installation of new facilities. Ongoing operation and maintenance activities will require continued vehicle trips to the MCGRF, and no increases in the frequency of said vehicle trips are anticipated as a result of the Project. Ongoing maintenance activities at the MCGRF include weed abatement, scarification of the basins as needed, and any necessary repairs. Weed abatement is typically performed monthly using handheld electric-powered and gas-powered equipment. Additional weed abatement of the wetted areas is performed annually, if needed, and includes gas-powered handheld equipment and a chipper. Scarification of the wetted surface of the basins is performed approximately once every five years, if replenishment took place, and is implemented using a bulldozer with a ripping tooth attachment. Based on this maintenance schedule, a conservative estimate of two vehicle trips being made per month from DWA's offices to the MCGRF has been used to determine the total vehicle miles traveled (VMT). Assuming a route that is 21 miles each way, two round-trips would total 84 miles. This number of VMT per month is not significant, particularly considering typical traffic levels in the vicinity. Vehicle trips to the site are minimal, and maintenance activities are not expected to increase in frequency or intensity as a result of the Project. For these reasons, the Project will not conflict or be inconsistent with CEQA Guidelines §15064.3, subdivision (b). Therefore, there will be no impacts.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒

The Project consists of the continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. The Project does not include any construction or installation of new facilities, and no modifications to roads or other infrastructure are proposed. For these reasons, the Project would not

substantially increase hazards due to a geometric design feature or incompatible uses. Therefore, there will be no impacts.

Issue XVII. Transportation (Continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Would the project result in inadequate emergency access?	☐	☐	☐	☒

The Project consists of the continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. The Project does not include any construction or installation of new facilities. Further, the Project is surrounded primarily by undeveloped open space and does not have the potential to impede emergency access for occupants of residents or businesses. For these reasons, the Project would not result in inadequate emergency access. Therefore, there will be no impacts.

Issue XVIII. Tribal Cultural Resources

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☒	☐	☐
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resources Code section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

i) *The MCGRF is an existing, operating facility, and there are no known tribal cultural resources on the Project site that are listed or eligible for listing in the California Register of Historical*

Resources or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k).

*The Project consists of the continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. While the Project does not include any construction or installation of new facilities, ongoing maintenance activities at the MCGRF include intermittent ground disturbance resulting from weed abatement, scarification of the basins as needed, and any necessary repairs. Weed abatement is typically performed monthly using handheld electric-powered and gas-powered equipment. Additional weed abatement of the wetted areas is performed annually, if needed, and includes gas-powered handheld equipment and a chipper. Scarification of the wetted surface of the basins is performed approximately once every five years, if replenishment took place, and is implemented using a bulldozer with a ripping tooth attachment. While no known tribal cultural resources are known to be present at the MCGRF, mitigation is incorporated into the Project in order to avoid or reduce potential adverse impacts resulting from ongoing maintenance activities upon any previously-undiscovered resources that may be present in subsurface soils. Mitigation Measures CUL-1 and CUL-2 are summarized in **Issue V(a)** herein, are repeated below, and are set forth in the Mitigation Monitoring and Reporting Program attached to the Mitigated Negative Declaration for the Project, included in **Appendix A** herein. With incorporation of Mitigation Measures CUL-1 and CUL-2, the Project would not cause a substantial adverse change in the significance of a tribal cultural resource that is listed or eligible for listing in the California Register of Historical Resources or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), and no mitigation is required. Refer also to **Issue V(a)** herein. Impacts would be less than significant with mitigation incorporated.*

Mitigation Measure CUL-1: Cultural Resources

If any historical, archaeological, or tribal cultural resource is discovered during Project operation and maintenance activities, all activity in the immediate vicinity of the find (within a 60-foot radius buffer area) shall cease, and an archaeologist meeting the Secretary of the Interior's professional qualification standards in archaeology (Qualified Archaeologist) will be contracted to assess the find. Operation and maintenance activities may proceed outside of the buffer area during assessment of the find. If the find is determined to be potentially significant, the Qualified Archaeologist will develop a

Monitoring and Treatment Plan. If the find is a prehistoric or Native American resource, the Qualified Archaeologist will seek input from the appropriate Native American tribe(s) in development of the Monitoring and Treatment Plan. If the Qualified Archaeologist determines that data recovery is necessary, a Phase III Archaeological Data Recovery Plan will be developed and implemented.

Mitigation Measure CUL-2: Vegetation Removal

At least three weeks prior to planting or vegetation removal beyond regular monthly maintenance, including any major plant removal, DWA will contact the Agua Caliente Band of Cahuilla Indians Tribal Historic Preservation Office (ACBCI-THPO) with a description of the work that will be performed, providing ACBCI-THPO an opportunity to assess the proposed work and potentially observe the associated ground disturbance.

- ii) *DWA sent a formal notification letter to the Agua Caliente Band of Cahuilla Indians (Agua Caliente) to inform the tribe of the Project. In response to DWA's notification letter, Agua Caliente requested government-to-government consultation with DWA, as well as additional information pertaining to the Project. Consultation has commenced, and a consultation meeting between DWA and Agua Caliente was held via telephone on September 17, 2026. Consistent with consultation between DWA and the Agua Caliente, DWA has incorporated mitigation measures into the Project in order to avoid or reduce any impacts to previously-undiscovered tribal cultural resources that may be present in subsurface soils. Mitigation Measures CUL-1 and CUL-2 are summarized in **Issue XVIII(a)(i)** above and are set forth in the Mitigation Monitoring and Reporting Program attached to the Mitigated Negative Declaration for the Project, included in **Appendix A** herein. With incorporation of Mitigation Measures CUL-1 and CUL-2, the Project would not cause a substantial adverse change in the significance of a tribal cultural resource that is significant pursuant to criteria set forth in Public Resources Code §5024.1(c). Impacts would be less than significant with mitigation incorporated.*

Issue XIX. Utilities and Service Systems

a) Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the relocation or construction of which could cause significant environmental effects?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	☐	☐	☐	☒

The Project consists of the continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. The Project does not include any construction or installation of new facilities, nor would it require or result in the relocation or construction of new or expanded facilities, the relocation or construction of which could cause significant environmental effects. Therefore, there will be no impacts.

b) Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	☐	☐	☐	☒

The Project consists of the continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. The Project does not include any construction or installation of new facilities. While the MCGRF is designed to percolate water to the MCSB for replenishment, the quantities of water delivered to the MCGRF are dependent upon quantities available and are generally commensurate with quantities pumped from the MCSB by groundwater producers. The Project itself does not have a water demand, and water replenished at the MCGRF will vary based on normal, dry, and multiple-dry year conditions. For these reasons, the Project would not result in water supplies that are insufficient to serve the Project and reasonably foreseeable future development during normal, dry, and multiple-dry years. Therefore, there will be no impacts.

c) Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	☐	☐	☐	☒

The Project will not generate sanitary wastewater. Therefore, there will be no impacts.

Issue XIX. Utilities and Service Systems (Continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Would the project generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☐	☒

The only solid waste generated by the Project includes vegetation removed as part of maintenance activities at the MCGRF, and said vegetation is sent to a local landfill. Therefore, the Project would not generate solid waste in excess of state or local standards or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals. Therefore, there will be no impacts.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☒

*The Project will comply with all federal, state, and local statutes and regulations related to solid waste. Therefore, there will be no impacts. Refer also to **Issue XIX(d)** above.*

Issue XX. Wildfire

If the Project is located in or near state responsibility areas or lands classified as very high fire hazard severity zones:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒

Based on maps available on the California Board of Forestry and Fire Protection State Responsibility Area Viewer, the Project Site is not located within a state responsibility area (SRA) or a very high fire hazard severity zone. The Project is located within a Local Responsibility Area and is within in a Moderate fire hazard severity zone. The Project does not contain any construction or installation of new facilities, and the MCGRF does not include any structures intended for human occupancy. For

these reasons, the Project would not substantially impair an adopted emergency response plan or emergency evacuation plan. Therefore, there will be no impacts.

Issue XX. Wildfire (Continued)

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Due to slope, prevailing winds, or other factors, would the project exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☒

*The Project does not include habitable structures, and there would be no project occupants. Further, construction and operation of the Project will not exacerbate wildfire risks. Therefore, there will be no impacts. Refer also to **Issue XX(a)** above.*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒

*The Project does not require the installation or maintenance of associated infrastructure that will exacerbate fire risk or result in temporary or ongoing impacts to the environment related to fire risk. Therefore, there will be no impacts. Refer also to **Issue XX(a)** above.*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslide, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

The Project consists of the continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. The Project does not include any construction or installation of new facilities, and the nearest occupied residences are located approximately one mile easterly of the MCGRF. The Project would not expose people or structures to significant risks, including downslope flooding, landslides, post fire slope instability, or drainage changes. Therefore, there will be no impacts.

Issue XXI. Mandatory Findings of Significance

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐

➤ Biological Resources

*As described in **Issue IV** herein, the Project consists of continued operation and maintenance of the existing MCGRF, with the potential for increased quantities of water being delivered to the MCGRF for groundwater replenishment. While the Project does not include any construction or installation of new facilities, intermittent ground disturbance will occur as a result of ongoing maintenance activities, which include weed abatement, scarification of the basins as needed, and any necessary repairs. These activities are confined to the MCGRF, and regular maintenance that has been implemented since commencing operation of the MCGRF in 2002 prevents the establishment of habitat for any candidate, sensitive, or special status species within the Project site. For these reasons, the Project would not substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or substantially reduce the number or restrict the range of a rare or endangered plant or animal. Therefore, impacts will be less than significant.*

➤ Archaeological and Historical Resources

*As described in **Issue V** herein, there are no known historical, archaeological, or tribal cultural resources present at the MCGRF; however, because ongoing maintenance activities at the MCGRF include intermittent ground disturbance, mitigation is incorporated into the Project in order to avoid or reduce potential adverse impacts resulting from ongoing maintenance activities upon any previously-undiscovered historical, archaeological, or tribal cultural resources that may be present in subsurface soils. Said mitigation is summarized in **Issues V and XVIII** herein and is set forth in the Project's Mitigation Monitoring and Reporting Program attached to the Mitigated Negative Declaration included in **Appendix A** herein. With incorporation of the mitigation, continued operation and maintenance of the MCGRF would not eliminate important examples of major*

periods of California history or prehistory. Therefore, impacts will be less than significant with mitigation incorporated.

➤ **Paleontological Resources**

*As described in **Issue VII(f)** herein, there are no known paleontological resources at the MCGRF. Because soils in the Project area consist primarily of sands and gravels, there is a low probability that paleontological resources are present at the MCGRF. Further, the Project does not include any construction or installation of new facilities, and ongoing maintenance activities remain within surface soils. For these reasons, the Project would not directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. Therefore, there will be no impacts.*

Issue XXI. Mandatory Findings of Significance (Continued)

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	☐	☒	☐	☐

*Project impacts on salinity in the MCSB are cumulatively considerable when considering the other sources that also contribute TDS loading to said subbasin, which are described in **Issue X(a)** herein. As stated in **Issue X(a)**, increases in salinity in the MCSB, over time, with or without the Project, are unavoidable; and, without mitigation, could adversely impact the beneficial uses of the groundwater in the MCSB. To avoid or reduce impacts associated with increasing salinity in the MCSB, Mitigation Measure WQ-1 is incorporated into the Project. Mitigation Measure WQ-1 is summarized in **Issue X(a)** herein and is set forth in the Mitigation Monitoring and Reporting Program attached to the Mitigated Negative Declaration in **Appendix A** herein. With incorporation of Mitigation Measure WQ-1, the cumulatively considerable water quality impacts will be less than significant with mitigation.*

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	☐	☐	☐	☒

As described herein, none of the environmental effects of the Project will cause substantial adverse effects on human beings, either directly or indirectly. Therefore, there will be no impacts.

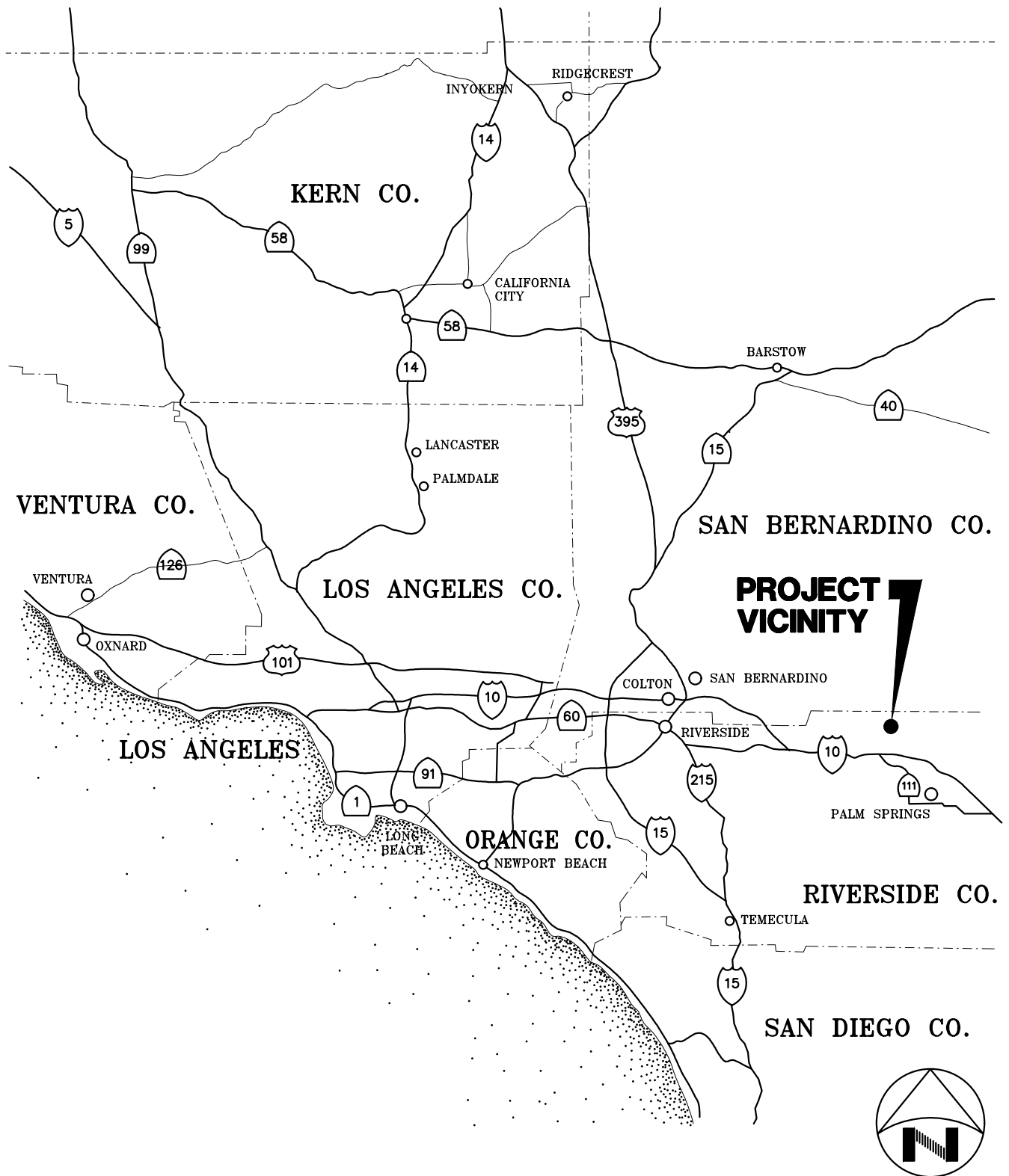
PART 3
REFERENCES AND SOURCES

PART 3 - REFERENCES AND SOURCES

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FIGURES



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DESERT WATER AGENCY
MISSION CREEK GROUNDWATER
REPLENISHMENT FACILITY
PROJECT VICINITY

FIGURE

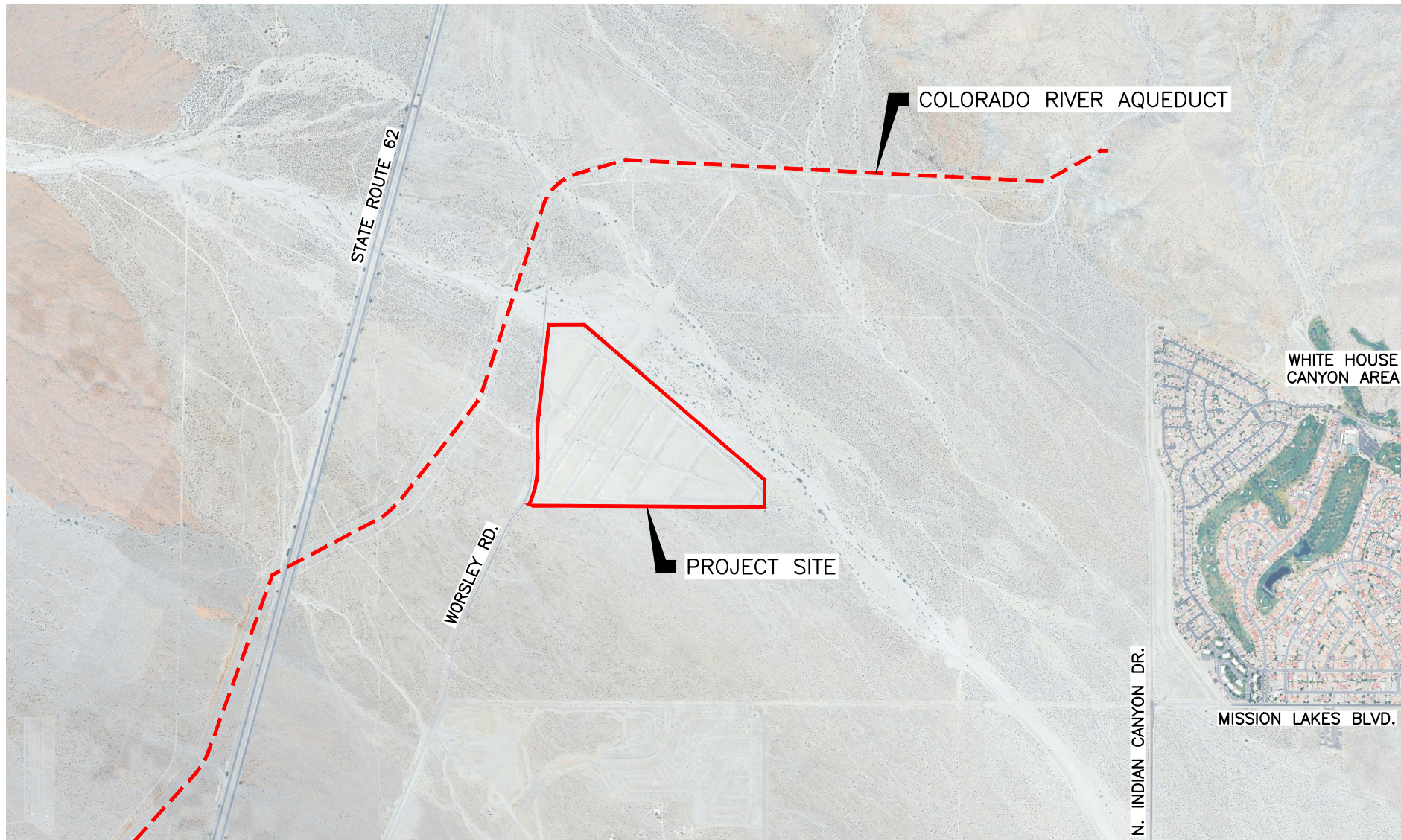
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DESERT WATER AGENCY

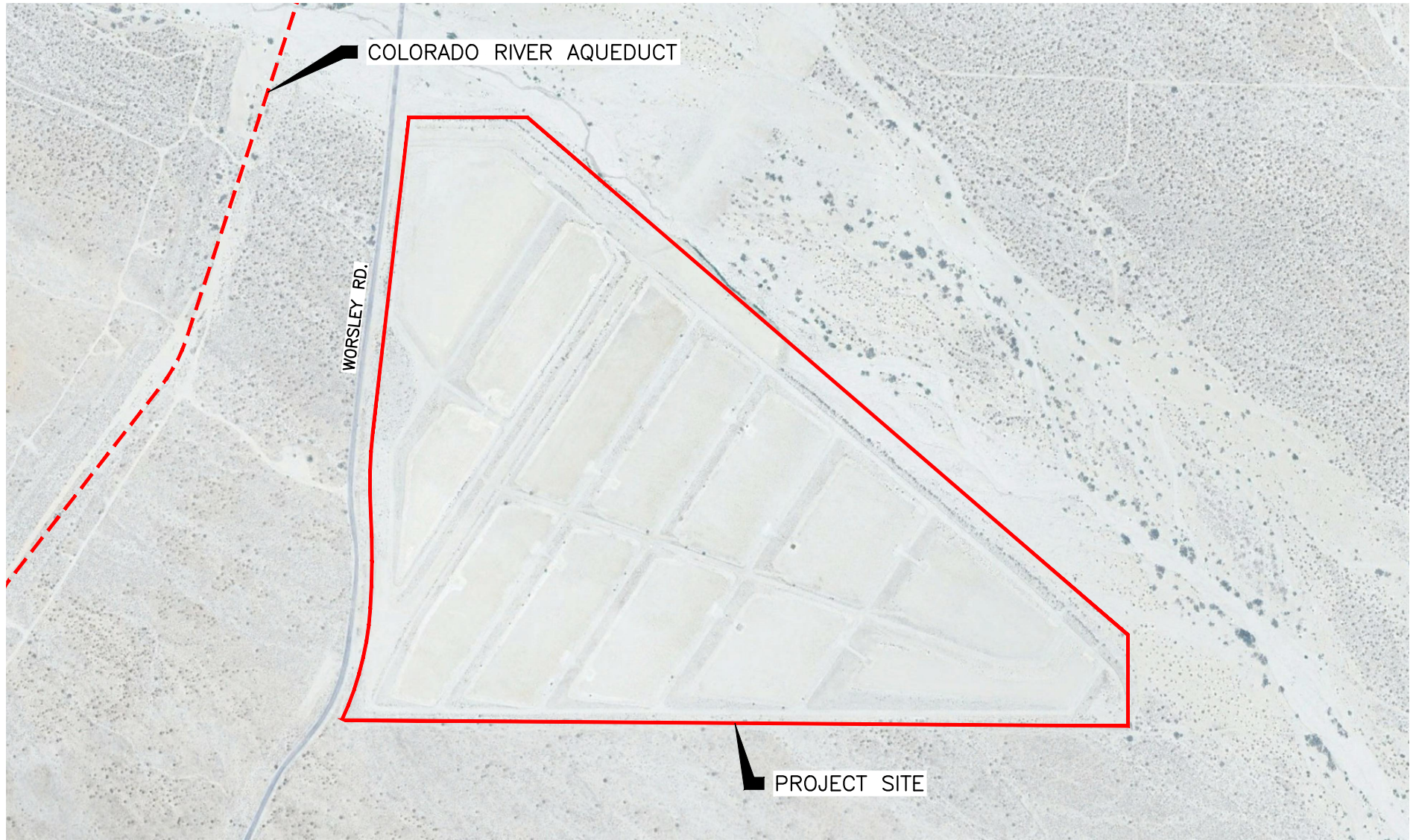
**MISSION CREEK GROUNDWATER
REPLENISHMENT FACILITY
PROJECT AREA**

FIGURE

2

OF 3

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DESERT WATER AGENCY

**MISSION CREEK GROUNDWATER
REPLENISHMENT FACILITY
PROJECT SITE**

FIGURE

3

OF 3

APPENDIX A

**DRAFT MITIGATED NEGATIVE DECLARATION
AND
MITIGATION MONITORING AND REPORTING PROGRAM**

DRAFT MITIGATED NEGATIVE DECLARATION

1. Name or description of project:	The proposed Project consists of Desert Water Agency's (DWA's) approval of an amended exchange agreement to facilitate the continued operation and maintenance of the Mission Creek Groundwater Replenishment Facility (MCGRF), including a potential increase in quantities of water delivered to the MCGRF for replenishment of groundwater in the Mission Creek Subbasin (MCSB). The amended exchange agreement would increase the annual State Water Project (SWP) Table A allocation, shared between DWA and Coachella Valley Water District (CVWD), from a total of 194,100 AF to a proposed 244,100 AF per year. The SWP Table A water is exchanged for a like amount of water from the Colorado River Aqueduct (CRA). The increased allocation will potentially result in an increase in CRA water deliveries to the MCGRF of up to a theoretical maximum of 5,000 AF per year over a long-term average. The actual quantity of water delivered to the MCGRF in any given year will continue to vary depending on available SWP water and CRA water supplies and the applicable terms of the amended exchange agreement and be proportional to groundwater pumping in the MCSB per the DWA and CVWD water management agreement. The proposed Project will provide for ongoing management of the MCSB as a sustainable source of water supply for the Coachella Valley region. All Project activities would occur within the existing operational framework and physical footprint of the MCGRF and its existing facilities. The Project does not include any construction or installation of new facilities. A more detailed description of the Project is included in the Initial Study prepared for the Project, which is available for review at the location cited below.
2. Project Location – Identify street address and cross streets or attach a map showing project site (preferably a USGS 15' or 7 1/2' topographical map identified by quadrangle name):	The Project is located adjacent to Mission Creek at Worsley Road (near the Colorado River Aqueduct, or CRA); in Section 21, Township 2 South, Range 4 East, San Bernardino Meridian, in the City of Desert Hot Springs, Riverside County, California, as depicted on Figures 1 through 3 included in the Project Initial Study. The Project facilities are surrounded by undeveloped desert landscape, approximately 0.5 mile east of State Route 62.
3. Entity or Person undertaking project:	
A. Entity	
(1) Name:	Desert Water Agency
(2) Address:	1200 S. Gene Autry Trail Palm Springs, CA 92264
B. Other (Private)	
(1) Name:	
(2) Address:	
The Lead Agency, having reviewed the Initial Study of this proposed project, having reviewed the written comments received prior to the public meeting of the Lead Agency, and having reviewed the recommendation of the Lead Agency's Staff, does hereby find and declare that the proposed project will not have a significant effect on the environment. A brief statement of the reasons supporting the Lead Agency's findings are as follows: The Project will not result in significant adverse impacts upon any threatened or endangered species of plants or animals, nor will it result in damage to or destruction of any significant examples of California history or prehistory. Potential impacts upon archaeological and historical resources, tribal cultural resources, and water quality will be avoided or reduced by adhering to the terms of a Mitigation Monitoring and Reporting Program (see Exhibit A, attached, which is incorporated herein by reference) throughout ongoing operation and maintenance of the Project.	

The Lead Agency hereby finds that the Mitigated Negative Declaration reflects its independent judgment. A copy of the Initial Study may be viewed at the offices of Desert Water Agency at the address listed below.

The location and custodian of the documents and any other material which constitute the record of proceedings upon which the Lead Agency based its decision to adopt this Mitigated Negative Declaration are as follows:

Desert Water Agency
1200 South Gene Autry Trail
Palm Springs, CA 92264
(760) 323-4971

Date

Esther M. Saenz
General Manager
DESERT WATER AGENCY

**MISSION CREEK GROUNDWATER REPLENISHMENT FACILITY
MITIGATION MONITORING AND REPORTING PROGRAM**

EXHIBIT A TO THE MITIGATED NEGATIVE DECLARATION

Section I – Introduction

Section 21081.6 of the California Environmental Quality Act (CEQA) requires that a mitigation monitoring program be prepared prior to the approval of any project which incorporates mitigation measures as a condition of approval. Mitigation measures are generally adopted to reduce the potentially significant adverse environmental impacts of a project to a level that is less than significant. The mitigation monitoring program must ensure compliance with mitigation measures throughout all applicable phases of the project.

Since the project considered by the Initial Study for Desert Water Agency's Mission Creek Groundwater Replenishment Facility (Project) incorporates mitigation measures as a condition of approval, this Mitigation Monitoring and Reporting Program has been prepared and incorporated into the Mitigated Negative Declaration for the Project.

Section II – Historical, Archaeological, and Tribal Cultural Resources Mitigation Measures and Mitigation Monitoring and Reporting Program

As described in Issues V and XVIII of the Project Initial Study, the Project would not result in an adverse impact upon any known historical, archaeological, or tribal cultural resources (collectively, cultural resources); however, ground disturbance during ongoing maintenance activities could uncover previously-undiscovered cultural resources. This Mitigation Monitoring and Reporting Program is intended to avoid or reduce the potential impacts by the Project upon previously-undiscovered cultural resources that may be present in subsurface soils by specifying methods and procedures for avoiding or reducing such impacts.

The following mitigation measures (**CUL-1 through CUL-3**) will be implemented in order to ensure that the continued maintenance of the Mission Creek Groundwater Replenishment Facility (MCGRF) does not result in a significant adverse impact upon any previously-undiscovered cultural resources that may be uncovered during Project maintenance activities. Each measure is attended by a notation of the party responsible for its implementation and of the period for which it will be in effect.

CUL-1: Cultural Resources

If any historical, archaeological, or tribal cultural resource is discovered during Project operation and maintenance activities, all activity in the immediate vicinity of the find (within a 60-foot radius buffer area) shall cease, and an archaeologist meeting the Secretary of the Interior's professional qualification standards in archaeology (Qualified Archaeologist) will be contracted to assess the find. Operation and maintenance activities may proceed outside of the buffer area during assessment of the find. If the find is determined to be potentially significant, the Qualified Archaeologist will develop a Monitoring and Treatment Plan. If the find is a prehistoric or Native American resource, the Qualified Archaeologist will seek input from the appropriate Native American tribe(s) in development of the Monitoring and Treatment Plan. If the Qualified Archaeologist determines that data recovery is necessary, a Phase III Archaeological Data Recovery Plan will be developed and implemented.

Responsible Party: Desert Water Agency (DWA) General Manager

Implementation Period: During Maintenance Activities at the MCGRF

CUL-2: Vegetation Removal

At least three weeks prior to planting or vegetation removal beyond regular monthly maintenance, including any major plant removal, DWA will contact the Agua Caliente Band of Cahuilla Indians Tribal Historic Preservation Office (ACBCI-THPO) with a description of the work that will be performed, providing ACBCI-THPO an opportunity to assess the proposed work and potentially observe the associated ground disturbance.

Responsible Party: DWA General Manager

Implementation Period: Prior to and During Certain Maintenance Activities at the MCGRF

CUL-3: Human Remains

If any human remains, or what appear to be human remains, are uncovered or encountered at the MCGRF during facility operation or maintenance, DWA will immediately halt ground disturbance and will notify the Riverside County Coroner's Office via telephone at (760) 863-8311. If the remains are determined to be of Native American origin, DWA will contact the Native American Heritage Commission (NAHC) and will work with the NAHC and the Most Likely Descendent to determine the appropriate disposition of the remains. The Project will comply with California Health and Safety

Code §7050.5 and California Public Resources Code §5097.98, as applicable, throughout operation and maintenance of the MCGRF.

Responsible Party: DWA General Manager

Implementation Period: During Maintenance Activities at the MCGRF

Section III – Water Quality Mitigation Measures and Mitigation Monitoring and Report Program

As described in Issue X of the Project Initial Study, the Project consists of the continued operation and maintenance of the MCGRF, which is expected to contribute to gradual increases in salinity over time within the MCSB. This Mitigation Monitoring and Reporting Program is intended to avoid or reduce the potential impacts by the Project on salinity in the MCSB by specifying methods and procedures for avoiding or reducing such impacts.

The following mitigation measure (**WQ-1: Implementation of Salt and Nutrient Management and Groundwater Monitoring Requirements**) will be implemented to ensure that gradual increases in salinity in the MCSB will not adversely affect the beneficial uses of the groundwater. The measure is attended by a notation of the party responsible for its implementation and of the period for which it will be in effect.

Mitigation Measure WQ-1: Implementation of Salt and Nutrient Management and Groundwater Monitoring Requirements

Desert Water Agency (DWA) is a participating agency in the Coachella Valley Groundwater Basin Salt and Nutrient Management Plan, dated June 2015 (2015 SNMP), which addresses salt and nutrient loading in the Coachella Valley Groundwater Basin, including the Mission Creek Subbasin (MCSB). DWA, together with the other participating Coachella Valley SNMP Agencies, is developing an updated SNMP. The SNMP is intended to prevent significant groundwater-quality impacts from salt and nutrient loading, including loading attributable to the Project, by establishing protective water-quality targets, monitoring requirements, and enforceable management measures that maintain compliance with applicable water-quality objectives and antidegradation requirements and protect designated beneficial uses of the MCSB. DWA shall continue its participation in that process, provide the data and funding required of DWA under the agencies' agreements, and adopt

and implement the portions of the updated SNMP applicable to DWA and the Project, subject to the requirements below.

A. Implementation of Existing Workplans. DWA shall implement the actions assigned to it under the *Workplan to Develop the Coachella Valley Salt and Nutrient Management Plan*, dated September 2, 2021 (SNMP Workplan), and the *Groundwater Monitoring Program Workplan, Coachella Valley Salt and Nutrient Management Plan*, dated December 23, 2020 (Monitoring Workplan), included in Appendices C and D of the Project Initial Study and incorporated herein by reference.

DWA shall complete its assigned monitoring-network improvements and implement its portion of the fully functioning monitoring program by March 31, 2027. These obligations shall include filling assigned monitoring gaps, sampling the designated wells, analyzing the constituents required by the Monitoring Workplan, and reporting the results of TDS levels.

B. Groundwater Monitoring and Reporting. DWA shall monitor groundwater in accordance with the locations, constituent suite, sampling frequencies, and procedures specified in the Monitoring Workplan. Monitoring shall include TDS, nitrate as nitrogen, major cations and anions, and total alkalinity. DWA shall sample its designated network wells at least once every three years, or more frequently where required by the Monitoring Workplan, an applicable regulatory requirement, or the Project-specific monitoring requirements established under the SNMP.

DWA shall submit, individually or through the CV-SNMP Agencies, the annual implementation progress report to the Colorado River Basin Regional Water Quality Control Board (RWQCB). DWA shall make its annual compliance documentation publicly available.

C. Corrective Action and Continuing Compliance. DWA shall implement the management measures, operating limits, monitoring requirements, and early-action responses established under the applicable SNMP throughout the period in which Project-related loading may affect groundwater quality. Corrective actions may include reductions in the volume or constituent

loading of the Project activity responsible for the predicted or observed impact, including suspension where necessary to maintain compliance with the SNMP.

Upon detecting a potential violation, DWA shall implement the corresponding response outlined in the applicable SNMP. If monitoring or updated forecasting demonstrates that existing controls are insufficient to prevent a violation, DWA shall immediately reduce or suspend the contributing Project activity to the extent necessary to prevent further noncompliance, and implement additional controls necessary to bring the Project activity into compliance. DWA shall not resume or increase that activity until it is demonstrated that the revised controls will maintain compliance and any necessary regulatory approvals have been obtained.

Responsible Party: DWA General Manager

Implementation Period: Throughout Project Operation

APPENDIX B

TECHNICAL MEMORANDUM:

***EVALUATION OF POTENTIAL WATER-QUALITY EFFECTS ASSOCIATED WITH
INCREASED RECHARGE OF COLORADO RIVER AQUEDUCT WATER FOR THE
COACHELLA VALLEY WATER DISTRICT AND DESERT WATER AGENCY
BY WEST YOST, SEPTEMBER 23, 2026***

TECHNICAL MEMORANDUM

DATE: September 23, 2026 Project No.: 1212-80-26-01
SENT VIA: EMAIL

TO: Steve Abbott, Redwine and Sherrill, LLP

FROM: Eric Chiang, Principal Scientist
Carolina Sanchez, RCE#C85598

REVIEWED BY: Andy Malone, RPG#8700

SUBJECT: Evaluation of Potential Water-Quality Effects Associated with Increased Recharge of Colorado River Aqueduct Water for the Coachella Valley Water District and Desert Water Agency

Coachella Valley Water District (CVWD) and Desert Water Agency (DWA) requested that West Yost evaluate the potential effects associated with planned increases in State Water Project (SWP) exchange deliveries from the Colorado River Aqueduct (CRA), hereafter referred to as CRA deliveries, for recharge at the Whitewater River Groundwater Replenishment Facility (WWR-GRF) and Mission Creek Groundwater Replenishment Facility (MC-GRF) on the groundwater quality within the Coachella Valley Groundwater Basin (Basin). The evaluation compares projected CRA delivery volumes and associated total dissolved solids (TDS) loading under two scenarios for the period of 2028¹ through 2085.

This technical memorandum (TM) describes the technical basis, methods, results, and conclusions of the evaluation.

METHODOLOGY

The methods used to evaluate the impacts of planned increases in CRA deliveries for recharge at the WWR-GRF and MC-GRF are:

- Characterize the total TDS loading to the Indio and Mission Creek Subbasins, where the WWR-GRF and MC-GRF are located, respectively, based on information developed for the Coachella Valley Salt and Nutrient Management Plan (CV-SNMP). The CV-SNMP estimated TDS loading for the period of 2020–2069. In this analysis the TDS loading estimates were extended to 2085. This estimate of TDS loading serves as a reference for characterizing the impacts of increased TDS loading associated with increased CRA deliveries for recharge.
- Develop projections of CRA deliveries for recharge at the WWR-GRF and MC-GRF for 2028–2085. The CRA delivery projections were developed for two scenarios: the Baseline Delivery Scenario and the Increased Delivery Scenario. The assumptions related to the two scenarios are further described below.

¹2028 is the anticipated effective date of the SWP Contract amendments.

- Quantify the difference in TDS loading between the Baseline Delivery Scenario and the Increased Delivery Scenario.
- Characterize the differences in TDS loading between the Baseline Delivery Scenario and the Increased Delivery Scenario relative to the total TDS loading to the Indio and Mission Creek Subbasins estimated for the CV-SNMP.

TDS LOADING TO THE COACHELLA VALLEY GROUNDWATER BASIN

This TDS loading analysis uses integrated groundwater-flow and solute-transport models the Mission Creek and Indio Subbasins developed as part of the CV-SNMP. The CV-SNMP models simulate the fate and transport of TDS in groundwater over a historical simulation period of 2010-2019 and a future simulation period of 2020–2069. The methodology and development of the integrated groundwater-flow and solute-transport models are documented in two published technical memoranda prepared as part of the CV-SNMP:

- Task 4 – Develop Technical Approach for Forecasting TDS/N Concentrations in Groundwater²
- Task 5 – Construct TDS/N Forecasting Tools and Evaluate the Baseline Scenario³

The CV-SNMP Baseline Scenario for the solute-transport models builds on groundwater-flow models developed by others in support of the 2022 Alternative Plan Updates for the Coachella Valley groundwater subbasins.⁴ The CV-SNMP Baseline Scenario incorporates the “Future Projects with Climate Change” assumption, which accounts for anticipated future water-management projects and the effects of climate change.

Figures 1 and 2 show the TDS loading projected by the CV-SNMP Baseline Scenario for the Mission Creek and Indio Subbasins, respectively. The stacked bars represent average annual TDS loading by loading source for each 10-year period. The height of each bar represents the total TDS loading to the subbasin. The various loading sources include:

- AG = Return flows from irrigation of crops
- GOLF = Return flows from irrigation of turf
- GRF = Artificial recharge of imported Colorado River water at GRFs
- WWTP = Percolation of treated wastewater effluent at ponds
- STREAM + MFR = Streambed recharge and subsurface inflows

² West Yost, 2026. Final technical memorandum *Task 4 – Develop Technical Approach for Forecasting TDS/N Concentrations in Groundwater*.

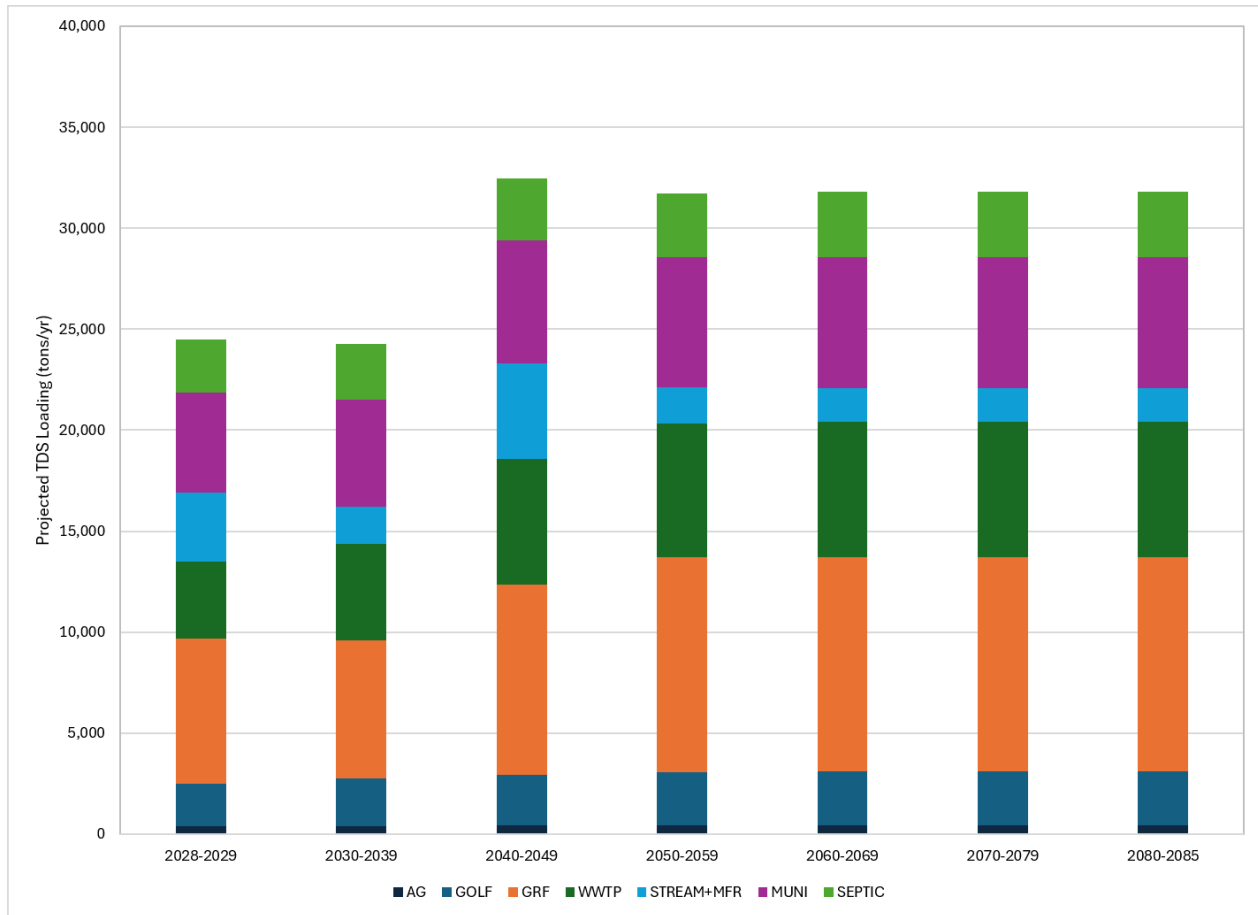
³ West Yost, 2026. Draft technical memorandum *Task 5 – Construct TDS/N Forecasting Tools and Evaluate the Baseline Scenario*.

⁴ Coachella Valley Water District and Mission Springs Water District. 2021. Mission Creek Subbasin Water Management Plan Update. Retrieved from www.missioncreeksubbasinsgma.org; Coachella Valley Water District, Desert Water Agency, Coachella Water Authority, and Indio Water Authority. 2021. Indio Subbasin Water Management Plan Update. Retrieved from www.indiosubbasinsgma.org

- MUNI = Return flows from irrigation of urban landscapes
- SEPTIC = Return flows from septic system discharges

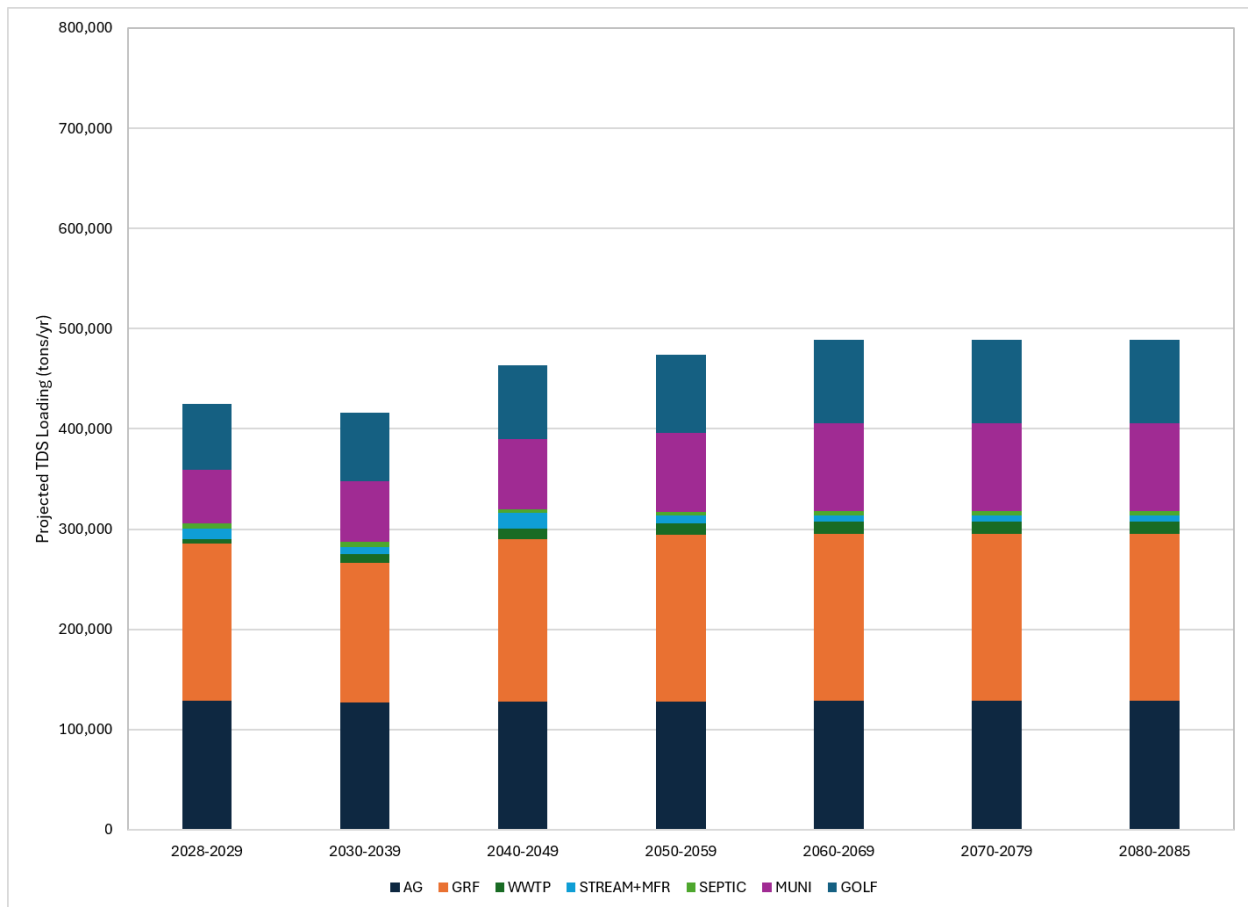
Projected TDS loading shown on Figures 1 and 2 was used to establish the reference condition for this evaluation. To extend the reference condition beyond the model simulation period, the projected 2060-2069 TDS loading rates were assumed to remain unchanged from 2070 through 2085. This reference condition provides the basis for evaluating the potential impact of increased TDS loading associated with the Increased Delivery Scenario.

Figure 1. Projected TDS Loading in the Mission Creek Subbasin



Note: Projected TDS loading for 2020–2069 reflects the Baseline Scenario using the “Future Projects with Climate Change” assumption. For 2070–2085, the projected 2069 TDS loading rates were assumed to remain unchanged.

Figure 2. Projected TDS Loading in the Indio Subbasin



Note: Projected TDS loading for 2020–2069 reflects the Baseline Scenario using the “Future Projects with Climate Change” assumption. For 2070–2085, the projected 2069 TDS loading rates were assumed to remain unchanged. GRF loading is inclusive of all GRF facilities in the Indio Subbasin.

PROJECTED COLORADO RIVER DELIVERIES AND ASSOCIATED TDS LOADING

Projected annual CRA deliveries for recharge at the MC-GRF and WWR-GRF are based on the Coachella Valley Water Supply Model, used in the Indio Subbasin and Mission Creek Subbasin Alternative Plans under the Sustainable Groundwater Management Act.⁵ The model evaluates all local surface water, imported water supplies, and non-potable water resources available within the Valley. It allocates these supplies among individual users and demand categories and quantifies the recharge volumes attributed to each groundwater replenishment facility. For this effort, the model evaluated the effects of alternative SWP transfer volume and buyback scenarios on recharge to the MC-GRF and WWR-GRF. The analysis assumed a long-term average SWP reliability of 45 percent with a climate change adjustment factor and hydrologic variability based on the U.S. Geologic Survey’s Basin Characterization Model.⁶ Future supply

⁵ Coachella Valley Water District and Mission Springs Water District. 2021. Mission Creek Subbasin Water Management Plan Update. Retrieved from www.missioncreeksubbasinsgma.org; Coachella Valley Water District, Desert Water Agency, Coachella Water Authority, and Indio Water Authority. 2021. Indio Subbasin Water Management Plan Update. Retrieved from www.indiosubbasinsgma.org

⁶ USGS BCM: [Basin Characterization Model \(BCM\) | U.S. Geological Survey](https://www.usgs.gov/basin-characterization-model)

assumptions included Sites Reservoir (assumed online in 2035) and extension of the Yuba Accord (through 2050). Two scenarios were prepared for detailed evaluation:

- Baseline Delivery Scenario, defined as a 100,000 afy SWP transfer with no buyback provision
- Increased Delivery Scenario, defined a 150,000 afy SWP transfer with 50,000 af buyback available every other year, with unexercised buyback rolled over to the next year

MWD's Advance Delivery Account (ADA) operations were modeled as a single pooled account using prescribed annual put/take assumptions based on modeled water year type. Physical ADA deliveries were distributed between the WWR-GRF and MC-GRF based on annual recharge proportions. Buyback and ADA-related reductions were constrained by physically available SWP deliveries and assumed the MC-GRF share of deliveries to flow through. The model also incorporated a 5-year MC-GRF/WWR-GRF rebalancing methodology to correct cumulative MC-GRF over-deliveries at 5-year checkpoints, which included a minimum MC-GRF recharge floor. The model results represent a reasonably foreseeable future groundwater recharge operation under without and with project conditions.

DIFFERENCE IN TDS LOADING BETWEEN THE TWO SCENARIOS

This section describes the differences in delivery volume and TDS loading between the Baseline Delivery Scenario and the Increased Delivery Scenario.

Annual Delivery and TDS Loading Differences

Tables 1 and 2 summarize the delivery volumes and TDS loading calculations during the period of 2028 and 2085 for the MC-GRF and WWR-GRF, respectively. The annual delivery volumes under both the baseline and increased delivery scenarios remain below the maximum annual recharge capacities of the WWR-GRF (511,000 AFY) and MC-GRF (36,198 AFY). For each year, the difference in delivery volume was calculated as the delivery under the Increased Delivery Scenario minus the delivery under the Baseline Delivery Scenario.

TDS concentrations for 2028 through 2040 were based on projections reported by the Colorado River Basin Salinity Control Forum.⁷ Because the evaluation period extends through 2085, TDS concentrations for 2041 through 2085 were assumed to equal the average forecast concentration reported by the Forum for 2028 through 2040 for consistency with the peer-reviewed assumptions of the CV-SNMP.⁶

The TDS loading was calculated by multiplying the CRA delivery volumes by the estimated TDS concentration of CRA water and applying the appropriate unit conversions to obtain tons per year. For each year, the difference in TDS loading was calculated as the TDS loading under the Increased Delivery Scenario minus the TDS loading under the Baseline Delivery Scenario. Positive values represent increases in TDS loading relative to the Baseline Delivery Scenario, whereas negative values represent decreases.

⁷ The Colorado River Basin Salinity Control Forum projected TDS concentrations under the four Implementation Scenarios (i.e., salt control or removal scenarios) through 2040 using the Colorado River Simulation System (CRSS) model. Details of the CRSS model are provided in Appendix E of the [2023 Review: Water Quality Standards for Salinity, Colorado River System](#). In the 2023 Review the Forum recommended Scenario 3 for implementation, and the TDS concentrations of Colorado River water through 2040 will be based on the Forum's average TDS concentration projections at Parker Dam and Hoover Dam under Scenario 3. We assumed that any impacts from evaporation in the All American Canals are within the uncertainty of the projections, and thus, used the numbers directly reported in the 2023 Review. Additional documentation on these assumptions can be found in the technical memorandum [Task 4 – Develop Technical Approach for Forecasting TDS/N Concentrations in Groundwater](#) prepared by West Yost in January 2025.

**Table 1. Annual TDS Loading Change at the MC-GRF
between the Baseline and Increased Delivery Scenarios**

Year	TDS Concentration in Colorado River Aqueduct Water, mg/L	Delivery, afy			TDS Loading, tons/year		
		Baseline Delivery	Increased Delivery	Delivery Change	Baseline Delivery	Increased Delivery	TDS Loading Change
2028	618	6,292	7,897	1,605	5,285	6,632	1,348
2029	617	1,234	1,535	302	1,035	1,288	253
2030	612	8,263	3,108	-5,155	6,873	2,585	-4,288
2031	605	4,894	6,138	1,244	4,027	5,051	1,024
2032	606	13,558	15,898	2,340	11,169	13,096	1,927
2033	609	11,634	13,470	1,836	9,638	11,158	1,521
2034	631	11,463	13,246	1,783	9,827	11,356	1,529
2035	623	10,162	2,337	-7,826	8,611	1,980	-6,631
2036	620	19,548	23,791	4,243	16,467	20,041	3,574
2037	614	19,690	23,963	4,273	16,437	20,004	3,567
2038	614	16,391	19,858	3,467	13,677	16,570	2,893
2039	623	18,061	21,249	3,188	15,306	18,008	2,702
2040	613	2,032	1,000	-1,032	1,694	833	-860
2041	620	2,824	1,000	-1,824	2,380	843	-1,537
2042	620	440	530	90	371	447	76
2043	620	14,291	13,038	-1,253	12,048	10,991	-1,056
2044	620	6,187	7,675	1,487	5,216	6,470	1,254
2045	620	11,259	1,686	-9,574	9,492	1,421	-8,071
2046	620	19,501	22,985	3,484	16,440	19,377	2,937
2047	620	20,786	25,294	4,508	17,522	21,323	3,801
2048	620	19,320	22,790	3,470	16,287	19,212	2,925
2049	620	11,418	14,178	2,759	9,626	11,952	2,326
2050	620	11,201	3,988	-7,213	9,442	3,361	-6,081
2051	620	8,276	10,288	2,013	6,976	8,673	1,697
2052	620	5,624	6,992	1,368	4,741	5,894	1,153
2053	620	1,892	2,352	460	1,595	1,983	388
2054	620	6,821	8,480	1,659	5,750	7,148	1,398
2055	620	1,000	1,000	0	843	843	0
2056	620	16,815	9,193	-7,622	14,175	7,749	-6,426
2057	620	7,130	8,863	1,734	6,010	7,472	1,462
2058	620	4,372	5,435	1,063	3,685	4,582	896
2059	620	19,217	22,649	3,432	16,200	19,093	2,893
2060	620	10,320	7,341	-2,979	8,700	6,189	-2,512
2061	620	16,278	18,995	2,717	13,722	16,013	2,291
2062	620	3,620	4,500	880	3,052	3,794	742

**Table 1. Annual TDS Loading Change at the MC-GRF
between the Baseline and Increased Delivery Scenarios**

Year	TDS Concentration in Colorado River Aqueduct Water, mg/L	Delivery, afy			TDS Loading, tons/year		
		Baseline Delivery	Increased Delivery	Delivery Change	Baseline Delivery	Increased Delivery	TDS Loading Change
2063	620	6,502	8,083	1,581	5,481	6,814	1,333
2064	620	5,811	7,224	1,413	4,898	6,090	1,191
2065	620	1,000	1,000	0	843	843	0
2066	620	3,994	1,000	-2,994	3,367	843	-2,524
2067	620	3,331	1,000	-2,331	2,808	843	-1,965
2068	620	2,651	1,895	-756	2,235	1,597	-637
2069	620	5,867	7,294	1,427	4,946	6,149	1,203
2070	620	4,678	1,761	-2,918	3,944	1,484	-2,460
2071	620	13,409	15,488	2,079	11,304	13,056	1,753
2072	620	3,201	3,980	779	2,699	3,355	656
2073	620	17,767	20,846	3,079	14,977	17,573	2,596
2074	620	6,756	8,399	1,643	5,695	7,081	1,385
2075	620	1,000	1,000	0	843	843	0
2076	620	2,402	1,000	-1,402	2,025	843	-1,182
2077	620	16,816	12,114	-4,701	14,176	10,213	-3,963
2078	620	17,597	21,876	4,279	14,834	18,442	3,608
2079	620	15,660	19,469	3,808	13,202	16,412	3,211
2080	620	1,000	1,000	0	843	843	0
2081	620	1,000	1,000	0	843	843	0
2082	620	7,982	5,198	-2,784	6,729	4,382	-2,347
2083	620	11,062	13,752	2,690	9,325	11,593	2,268
2084	620	18,473	22,965	4,492	15,573	19,360	3,787
2085	620	1,000	1,000	0	843	843	0
Total	-	530,772	551,086	20,314	446,749	463,777	17,028
Average	616	9,151	9,501	350	7,703	7,996	294

Note: Calculations were performed using unrounded values; therefore, derived values may differ slightly from calculations based on the displayed values.

**Table 2. Annual TDS Loading Change at the WWR-GRF
between the Baseline and Increased Delivery Scenarios**

Year	TDS Concentration in Colorado River Aqueduct Water, mg/L	Delivery, afy			TDS Loading, tons/year		
		Baseline Delivery	Increased Delivery	Delivery Change	Baseline Delivery	Increased Delivery	TDS Loading Change
2028	618	8,175	24,953	16,777	6,866	20,958	14,092
2029	617	9,049	0	-9,049	7,590	0	-7,590
2030	612	173,484	185,465	11,981	144,295	154,260	9,965
2031	605	0	0	0	0	0	0
2032	606	147,822	171,469	23,647	121,772	141,252	19,480
2033	609	127,432	95,838	-31,594	105,560	79,389	-26,172
2034	631	124,792	142,528	17,736	106,986	122,192	15,205
2035	623	160,445	144,819	-15,626	135,953	122,712	-13,241
2036	620	191,236	232,745	41,509	161,094	196,061	34,967
2037	614	190,980	182,432	-8,549	159,428	152,291	-7,136
2038	614	157,636	190,983	33,346	131,536	159,361	27,825
2039	623	172,242	152,646	-19,596	145,966	129,360	-16,607
2040	613	19,216	28,780	9,564	16,016	23,988	7,972
2041	620	11,931	2,494	-9,437	10,058	2,102	-7,955
2042	620	0	0	0	0	0	0
2043	620	131,879	106,592	-25,287	111,174	89,858	-21,317
2044	620	0	1,813	1,813	0	1,529	1,529
2045	620	176,608	169,182	-7,427	148,881	142,621	-6,261
2046	620	177,084	208,720	31,636	149,282	175,952	26,669
2047	620	188,748	179,688	-9,060	159,115	151,477	-7,638
2048	620	175,436	206,944	31,508	147,893	174,454	26,561
2049	620	103,684	78,742	-24,942	87,406	66,380	-21,026
2050	620	101,711	136,209	34,498	85,743	114,825	29,082
2051	620	75,149	43,425	-31,724	63,351	36,607	-26,744
2052	620	0	0	0	0	0	0
2053	620	2,626	0	-2,626	2,213	0	-2,213
2054	620	0	0	0	0	0	0
2055	620	127,030	96,253	-30,777	107,086	81,141	-25,945
2056	620	162,304	208,153	45,848	136,823	175,473	38,650
2057	620	0	0	0	0	0	0
2058	620	0	0	0	0	0	0
2059	620	174,503	155,669	-18,834	147,107	131,229	-15,877
2060	620	198,155	246,500	48,345	167,045	207,800	40,755
2061	620	147,815	122,490	-25,325	124,608	103,259	-21,349
2062	620	18,317	26,311	7,994	15,441	22,180	6,739

**Table 2. Annual TDS Loading Change at the WWR-GRF
between the Baseline and Increased Delivery Scenarios**

Year	TDS Concentration in Colorado River Aqueduct Water, mg/L	Delivery, afy			TDS Loading, tons/year		
		Baseline Delivery	Increased Delivery	Delivery Change	Baseline Delivery	Increased Delivery	TDS Loading Change
2063	620	0	0	0	0	0	0
2064	620	0	0	0	0	0	0
2065	620	123,842	92,290	-31,552	104,399	77,800	-26,599
2066	620	1,151	5,396	4,246	970	4,549	3,579
2067	620	15,694	3,141	-12,552	13,230	2,648	-10,582
2068	620	9,516	4,374	-5,142	8,022	3,688	-4,334
2069	620	0	0	0	0	0	0
2070	620	171,591	204,863	33,271	144,652	172,700	28,048
2071	620	121,760	90,640	-31,120	102,644	76,410	-26,234
2072	620	14,517	21,587	7,070	12,238	18,198	5,960
2073	620	161,332	139,295	-22,038	136,003	117,426	-18,578
2074	620	0	7,833	7,833	0	6,603	6,603
2075	620	33,141	8,905	-24,236	27,938	7,507	-20,431
2076	620	27,479	41,145	13,666	23,165	34,685	11,520
2077	620	106,522	102,447	-4,075	89,798	86,363	-3,435
2078	620	113,615	152,474	38,859	95,777	128,536	32,759
2079	620	96,030	80,613	-15,417	80,954	67,957	-12,996
2080	620	87,901	120,750	32,849	74,100	101,792	27,692
2081	620	40,906	12,327	-28,579	34,484	10,392	-24,092
2082	620	44,105	70,785	26,681	37,180	59,672	22,492
2083	620	54,275	28,704	-25,571	45,754	24,198	-21,557
2084	620	121,571	162,365	40,794	102,485	136,874	34,390
2085	620	70,534	49,160	-21,374	59,460	41,442	-18,018
Total	-	4,870,971	4,940,934	69,964	4,099,542	4,158,147	58,605
Average	619	83,982	85,189	1,206	70,682	71,692	1,010

Note: Calculations were performed using unrounded values; therefore, derived values may differ slightly from calculations based on the displayed values.

TDS LOADING DIFFERENCES BY 10-YEAR PERIOD

Groundwater movement and solute transport occur over substantially longer timescales than the annual variations in TDS loading evaluated in this analysis. Consequently, an isolated annual increase or decrease in TDS loading would not be expected to result in a corresponding short-term change in groundwater TDS concentrations. Longer-term average loading is therefore a more representative basis for evaluating potential groundwater-quality effects. Accordingly, this evaluation emphasizes loading over 10-year reporting periods and over the full 2028–2085 evaluation period, while also presenting the annual loading results for completeness (see Tables 1 and 2). Based on this, the annual delivery and TDS loading results were grouped into 10-year periods and expressed as average annual values. Because the delivery projections extend from 2028 through 2085, the first and last reporting periods represent partial decades (2028-2029 and 2080-2085), while the intervening periods represent full decades. Tables 3 and 4 summarize the average deliveries and associated differences in TDS loading for the MC-GRF and WWR-GRF, respectively.

At the MC-GRF, the Increased Delivery Scenario results in higher TDS loading during most periods, with projected increases ranging from approximately 178 to 800 tons per year. Projected decreases of approximately 262 and 88 tons per year occur during 2050-2059 and 2060-2069, respectively.

At the WWR-GRF, the projected differences are more variable, ranging from a decrease of approximately 1,179 tons per year during 2060-2069 to an increase of approximately 4,429 tons per year during 2030-2039. Decreases are projected during the 2040-2069 periods, followed by increases during the 2070s and 2080-2085. These variations reflect differences in the timing and magnitude of projected CRA deliveries under the two scenarios.

Table 3. Average TDS Loading Difference by Reporting Period in the MC-GRF between the Baseline and Increased Delivery Scenarios						
Year	Delivery, afy			TDS Loading, tons/year		
	Baseline Delivery	Increased Delivery	Delivery Change	Baseline Delivery	Increased Delivery	TDS Loading Change
2028-2029	3,763	4,716	953	3,160	3,960	800
2030-2039	13,366	14,306	939	11,203	11,985	782
2040-2049	10,806	11,018	212	9,107	9,287	179
2050-2059	8,235	7,924	-311	6,942	6,680	-262
2060-2069	5,937	5,833	-104	5,005	4,917	-88
2070-2079	9,929	10,593	665	8,370	8,930	560
2080-2085	6,753	7,486	733	5,693	6,311	618
<i>Note: Average TDS loading differences for each reporting period were calculated from the annual TDS loading differences presented in Table 1. Calculations were performed using unrounded values; therefore, derived values may differ slightly from calculations based on the displayed values.</i>						

Table 4. Average TDS Loading Difference by Reporting Period at the WWR-GRF between the Baseline and Increased Delivery Scenarios						
Year	Delivery, afy			TDS Loading, tons/year		
	Baseline Delivery	Increased Delivery	Delivery Change	Baseline Delivery	Increased Delivery	TDS Loading Change
2028-2029	8,612	12,476	3,864	7,228	10,479	3,251
2030-2039	144,607	149,892	5,285	121,259	125,688	4,429
2040-2049	98,459	98,296	-163	82,983	82,836	-147
2050-2059	64,332	63,971	-362	54,232	53,927	-305
2060-2069	51,449	50,050	-1,399	43,372	42,192	-1,179
2070-2079	84,599	84,980	381	71,317	71,638	322
2080-2085	69,882	74,015	4,133	58,911	62,395	3,484
<i>Note: Average TDS loading differences for each reporting period were calculated from the annual TDS loading differences presented in Table 2. Calculations were performed using unrounded values; therefore, derived values may differ slightly from calculations based on the displayed values.</i>						

INCREASED TDS LOADING RELATIVE TO TOTAL TDS LOADING

To provide context for the increases in TDS loading associated with the Increased Delivery Scenario, the TDS loading differences were compared with the projected total TDS loading under the reference condition for each subbasin. Tables 5 and 6 present this comparison for the Mission Creek and Indio Subbasins, respectively.

For the Mission Creek Subbasin, the differences in TDS loading between the Baseline and Increased Delivery Scenarios range from a decrease of approximately 0.82 percent to an increase of approximately 3.27 percent relative to the projected total TDS loading. The largest relative increase occurs during 2028-2029, when the additional loading of approximately 800 tons per year represents about 3.27 percent of the projected total loading. An increase of approximately 3.22 percent is projected during 2030-2039, while differences during the remaining reporting periods range from a decrease of approximately 0.83 percent to an increase of approximately 1.94 percent. Over the 2028-2085 evaluation period, the average TDS loading increase associated with the Increased Delivery Scenario is approximately 287 tons per year, compared with an average total TDS loading of approximately 30,329 tons per year, representing an overall increase of approximately 0.95 percent.

For the Indio Subbasin, the differences in TDS loading between the Baseline and Increased Delivery Scenarios represents a comparatively small portion of the projected total TDS loading. As shown in Table 6, the relative differences range from a decrease of approximately 0.24 percent during 2060-2069 to an increase of approximately 1.06 percent during 2030-2039. Differences during the remaining reporting periods range from a decrease of approximately 0.06 percent to an increase of approximately 0.76 percent. Over the 2028-2085 evaluation period, the average TDS loading increase associated with the Increased Delivery Scenario is approximately 967 tons per year, compared with an average total TDS loading of approximately 466,918 tons per year, representing an overall increase of approximately 0.21 percent.

Table 5. Comparison of Average Total TDS Loading and Differences in TDS Loading between the Baseline and Increased Delivery Scenarios in the Mission Creek Subbasin

Period	Average Total TDS Loading under the Reference Condition, tons/year	TDS Loading Difference Associated with the Increased Delivery Scenario, tons/year	Percentage Difference, percent
2028–2029	24,497	800	3.27
2030–2039	24,283	782	3.22
2040–2049	32,469	179	0.55
2050–2059	31,732	-262	-0.83
2060–2069	31,797	-88	-0.28
2070–2079	31,797	560	1.76
2080–2085	31,797	618	1.94
2028–2085	30,329	287	0.95

Note: "Average Total TDS Loading under the Reference Condition" includes all loading to the subbasin, including: agricultural, municipal and golf course irrigation return flows, percolation of treated wastewater, septic return flows, and streambed recharge and subsurface inflows.

Table 6. Comparison of Average Total TDS Loading and Differences in TDS Loading between the Baseline and Increased Delivery Scenarios in the Indio Subbasin

Period	Average Total TDS Loading under the Reference Condition, tons/year	TDS Loading Difference Associated with the Increased Delivery Scenario, tons/year	Percentage Difference, percent
2028–2029	425,084	3,251	0.76
2030–2039	416,325	4,429	1.06
2040–2049	463,069	-147	-0.03
2050–2059	473,866	-305	-0.06
2060–2069	489,262	-1,179	-0.24
2070–2079	489,262	322	0.07
2080–2085	489,262	3,484	0.71
2028–2085	466,918	967	0.21

Note: "Average Total TDS Loading under the Reference Condition" includes all loading to the subbasin, including: agricultural, municipal and golf course irrigation return flows, percolation of treated wastewater, septic return flows, and streambed recharge and subsurface inflows.

SUMMARY AND CONCLUSIONS

Overall, the Increased Delivery Scenario results in relatively small increases in TDS loading compared with the total projected TDS loading under the reference condition. The relative effect is greater in the Mission Creek Subbasin, particularly during the earlier reporting periods. However, over the 2028-2085 evaluation period, the average increase is approximately 287 tons per year, or 0.95 percent of the projected average total TDS loading of approximately 30,329 tons per year. For the Indio Subbasin, the average increase over the same period is approximately 967 tons per year, or 0.21 percent of the projected average total TDS loading of approximately 466,918 tons per year. Thus, despite variability among individual 10-year periods, the long-term incremental TDS loading associated with the Increased Delivery Scenario represents a relatively small source of additional TDS loading in both subbasins, and thus, is not expected to materially increase groundwater TDS concentrations.

This evaluation provides a comparative assessment of TDS loading under the Increased Delivery Scenario and Baseline Delivery Scenario. It does not directly characterize the resulting groundwater TDS concentrations, or the spatial distribution of TDS concentration within the groundwater system, caused by the Increased Delivery Scenario. Evaluating those impacts would require groundwater-flow and solute-transport model simulations of the respective delivery scenarios. Within the scope of this evaluation, the results indicate that the incremental TDS loading associated with increased CRA deliveries is relatively small compared to the total projected TDS loading in both the Mission Creek and Indio Subbasins. Based on these findings, additional solute-transport modeling is considered unnecessary to evaluate the potential groundwater-quality effect of the Increased Delivery Scenario.

Additionally, past and current the water and wastewater agencies of the Coachella Valley, including CVWD and DWA, are developing a Salt and Nutrient Management Plan for the Coachella Valley Groundwater Basin (CV-SNMP), where the objective of the CV-SNMP is to sustainably manage salt and nutrient loading in the Coachella Valley Groundwater Basin in a manner that protects its beneficial uses. The CV-SNMP will specifically use water-quality models to test the effectiveness of various implementation measures to control nitrogen and salinity loadings and to protect beneficial uses on a sustainable basis. A recommended set of strategies will then be selected for approval by the Colorado River Basin Regional Water Quality Board. Finally, the CV-SNMP will include the development of an antidegradation analysis. The objective of that effort will be to illustrate how the preferred CV-SNMP Scenario and recommended nitrogen and salinity objectives collectively satisfy the requirements of State Water Resources Control Board Resolution 68-16.⁸

⁸ Updates and work products related to the CV-SNMP effort can be found at cvsnmp.com.

In addition to the CV-SNMP management strategies, the existing EIR measure to *Monitor Groundwater Drinking Wells and Ensure Health-Based Water Quality Standards are Met if exceeded due to Facility Recharge Activities* (MM-HWQ-1) will continue into the future.^{9,10} If monitoring demonstrates that groundwater pumped from these wells exceeds any health- based drinking water standards¹¹ due to Facility recharge activities, CVWD shall remove impacted wells from service and work with well owners to bring the drinking water supply into compliance by either providing domestic water from the domestic water system or providing appropriate well-head treatment within their respective service areas.

⁹ Coachella Valley Water District Whitewater River Groundwater Replenishment Facility Project Final Environmental Impact Report. <https://cvwd.org/ArchiveCenter/ViewFile/Item/896>

¹⁰ As described in the Final EIR, the Project could have significant impacts associated with hydrology and water quality. Specifically, the Project could result in increased TDS concentrations in the groundwater near the WW-GRF.

¹¹ For TDS, there is no fixed consumer acceptance contaminant level that has been established. The State of California uses a non-health-based consumer acceptance contaminant level range of 500 to 1,500 mg/L for TDS in drinking water to avoid aesthetic concerns. TDS concentrations lower than the recommended contaminant level (500 mg/L) are desirable for a higher degree of consumer acceptance. TDS concentrations ranging to the upper contaminant level (1,000 mg/L) are acceptable if it is neither reasonable nor feasible to provide more suitable waters.

APPENDIX C

FINAL REPORT:

WORKPLAN TO DEVELOP

THE COACHELLA VALLEY SALT AND NUTRIENT MANAGEMENT PLAN

PREPARED FOR THE COACHELLA VALLEY SNMP AGENCIES

BY WEST YOST, SEPTEMBER 21, 2021

Workplan to Develop the Coachella Valley Salt and Nutrient Management Plan

PREPARED FOR

The Coachella Valley SNMP Agencies



PREPARED BY

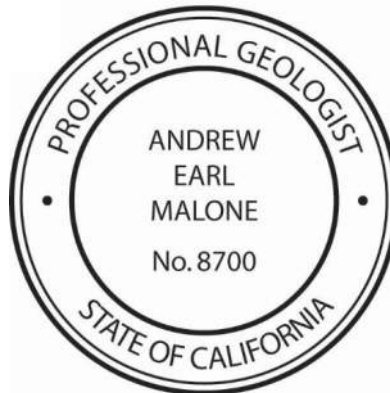


Workplan to Develop the Coachella Valley Salt and Nutrient Management Plan

Prepared for

The Coachella Valley SNMP Agencies

Project No. 943-80-20-01



A handwritten signature in black ink, appearing to read "Andy Malone".

Project Manager: Andy Malone, PG

Sept 2, 2021

Date

A handwritten signature in black ink, appearing to read "Samantha Adams".

QA/QC Review: Samantha Adams

Sept 2, 2021

Date

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Appendix B. Example Maps and Data Graphics to Characterize Groundwater Quality

Appendix C. Responses to Comments on the Draft CV-SNMP Development Workplan

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LIST OF ACRONYMS AND ABBREVIATIONS

AWQ	Ambient Water Quality
CPS	City of Palm Springs
CV-SNMP	Salt and Nutrient Management Plan for the Coachella Valley Groundwater Basin
CVSC	Coachella Valley Stormwater Channel
CVWD	Coachella Valley Water District
CWA/CSD	Coachella Water Authority and Coachella Sanitary District
CWC	California Water Code
DWA	Desert Water Agency
DWR	California Department of Water Resources
ft-bgs	Feet below ground surface
IWA	Indio Water Authority
GAMA	Groundwater Ambient Monitoring & Assessment
GIS	Geographic Information System
MC-GRF	Mission Creek Groundwater Replenishment System
MDMWC	Myoma Dunes Mutual Water Company
MOU	Memorandum of Understanding
MSWD	Mission Springs Water District
NGO	Non-Governmental Organization
N/TDS	Nitrate and TDS
O&M	Operations and Maintenance
PD-GRF	Palm Desert Groundwater Replenishment Facility
POTW	Publicly Owned Treatment Works
RFP	Request for Proposals
RFQ	Request for Qualifications
SGMA	Sustainable Groundwater Management Act of 2014
TAC	Technical Advisory Committee
TDS	Total Dissolved Solids
TEL-GRF	Thomas E. Levy Groundwater Replenishment Facility
USGS	United States Geological Survey
VSD	Valley Sanitary District
WRP	Water Reclamation Plant
WW-GRF	White Water Groundwater Replenishment Facility

CV-SNMP Development Workplan

1.0 BACKGROUND AND OBJECTIVES OF THE CV-SNMP

The Regional Water Quality Control Board for the Colorado River Basin (Regional Board) is requiring the development of a Salt and Nutrient Management Plan for the Coachella Valley Groundwater Basin (CV-SNMP). The objective of the CV-SNMP is to sustainably manage salt and nutrient loading in the Coachella Valley Groundwater Basin (Basin) in a manner that protects its beneficial uses.

In 2015, a CV-SNMP was submitted to the Regional Board (2015 SNMP); however, the Regional Board found the 2015 SNMP insufficient (see Section 1.2 below). This document is a workplan to update the 2015 SNMP (CV-SNMP Development Workplan). It was prepared on behalf the City of Coachella Sanitary District (CSD), City of Palm Springs (Palm Springs), Coachella Valley Water District (CVWD), Coachella Water Authority (CWA), Desert Water Agency (DWA), Indio Water Authority (IWA), Mission Springs Water District (MSWD), Myoma Dunes Mutual Water Company (MDMWC), and Valley Sanitary District (VSD), collectively the CV-SNMP Agencies.

This CV-SNMP Development Workplan defines the scope of work that the CV-SNMP Agencies will follow to update the 2015 SNMP and implement a supporting monitoring and reporting program. The intent is to develop the CV-SNMP in a collaborative approach with the Regional Board, including stakeholder and public outreach and involvement.

Figure 1-1 is a map that defines spatial extent of the Basin that is subject to the CV-SNMP. The Basin is located within the northwest portion of the Salton Sea Watershed (USGS Hydrologic Unit 18100200) and is the Coachella Valley Groundwater Basin as delineated by the California Department of Water Resources (DWR Groundwater Basin No. 7-021), but excludes the San Geronio Pass Subbasin (DWR Subbasin 7-021.04). Hence, the Basin, as defined for the CV-SNMP, is comprised of three of the four DWR Subbasins: the Indio Subbasin (DWR Subbasin 7-021.01), the Mission Creek Subbasin (7-021.02), and the Desert Hot Springs Subbasin (7-021.03).

The remainder of this section includes a description of the regulatory framework behind the requirements for the CV-SNMP, the results of past efforts to develop the CV-SNMP, an overview of the process to prepare this CV-SNMP Development Workplan, and the organization of this report.

1.1 Regulatory Framework

1.1.1 2009 Recycled Water Policy

The statewide requirement to develop SNMPs for groundwater basins in California was first promulgated in 2009 when the State Water Resources Control Board (State Board) adopted the Recycled Water Policy¹ (2009 Policy). The purpose of the 2009 Policy was to encourage increased use of recycled water in a manner that implements state and federal water quality laws. To accomplish this, the 2009 Policy included, among other provisions, a requirement to prepare SNMPs such that "salts and nutrients from all sources be managed on a basin-wide or watershed-wide basis in a manner that ensures attainment of water quality objectives and protection of beneficial uses." The 2009 Policy recognized that all groundwater basins are different in size, hydrogeologic complexity, and loading factors, which

¹ State Water Resources Control Board Resolution No. 2009-0011. [Adoption of a Policy for Water Quality Control for Recycled Water](#). February 3, 2009.

CV-SNMP Development Workplan

necessitates locally-driven stakeholder efforts to define an appropriate SNMP that addresses the region-specific conditions.

The 2009 Policy defined general guidelines for preparing SNMPs, including the following required components:

- A basin/sub-basin-wide monitoring plan that includes an appropriate network of wells for assessing water quality and determining whether the concentrations of salts and nutrients are consistent with applicable water quality objectives.
- Description of water recycling goals and objectives.
- Identification of salt and nutrient sources, and estimation of salt and nutrient loading, basin assimilative capacity, and the fate and transport of salt and nutrients.
- Description of implementation measures to manage salt and nutrient loading in the basin on a sustainable basis.
- An antidegradation analysis to demonstrate that the implementation measures included within the plan will collectively satisfy the requirements of State Board Resolution 68-16 (the Antidegradation Policy).

The 2009 Policy acknowledged that not all Regional Board Water Quality Control Plans (Basin Plans) included adequate implementation measures for achieving or ensuring compliance with the water quality objectives for salts or nutrients. In addition, the 2009 Policy did not specify the methods or approaches for performing the above listed SNMP analyses. In this way, it implicitly left it to the SNMP stakeholders to define, and the Regional Boards to approve, the SNMP methods and approaches that are appropriate for the local area and the Basin Plan.

The initial deadline for completing SNMPs pursuant to the 2009 Policy was April 2014, with the option to apply for an extension through April 2016.

1.1.2 2018 Recycled Water Policy

In December 2016, the State Board adopted Resolution No. 2016-0061², which directed staff to propose amendments to the 2009 Policy, in part, to improve the SNMP guidelines based on lessons learned over the first seven years of implementation. Among the requested amendments was the inclusion of revised goals and mandates for statewide use of recycled water, clarification of recycled water monitoring and reporting requirements, recommendations for the development of representative, basin-wide groundwater monitoring networks, and an evaluation of the frequency of priority pollutant monitoring in recycled water (2018 Policy).

The State Board Staff Report supporting the 2018 Policy amendments identified the administrative and technical challenges in the development of SNMPs since 2009.³ Some of the administrative challenges identified included:

² State Water Resources Control Board Resolution No. 2016-0061. [To Reaffirm Support for the Development of Salt and Nutrient Management Plans and Direct Staff to Initiate a Stakeholder Process to Update the Recycled Water Policy](#). December 6, 2016.

³ State Water Resources Control Board. 2018. [Final Staff Report with Substitute Environmental Documentation, Amendment to the Recycled Water Policy](#). December 11, 2018.

CV-SNMP Development Workplan

- The incentives for participation in the SNMPs were tied to recycled water projects, which resulted in:
 - Lack of involvement from key stakeholders representing major contributions to salt and nutrient loading.
 - SNMPs not being developed in areas with limited or no recycled water reuse.
- Management plans with implementation measures for which the stakeholders lack the regulatory authority to enforce or implement the measures.

Technical challenges included:

- A lack of readily available, representative groundwater monitoring data to assess water quality conditions. For example, monitoring programs that relied solely on deep municipal production wells for data would exclude shallow portions of the aquifer system.
- Most SNMPs relied upon overly simplistic mass-balance approaches to assess current and future assimilative capacity in the basin. These simplistic approaches assumed complete mixing of salt and nutrient loads in the basin, which is not typically representative of what occurs. Such approaches can under-estimate the assimilative capacity within deep aquifers and over-estimate the assimilative capacity within shallow aquifers.

Despite the identification of these challenges, the 2018 amendments to the SNMP guidelines within the Policy primarily focused on clarifying the roles of the Regional Boards in accepting SNMPs, performing periodic SNMP reviews, and defining new compliance schedules for completing SNMPs in areas where they had either not been prepared or approved by the Regional Boards. The 2018 Policy identified the same basic components to be included in the SNMPs as were defined in the 2009 Policy and still does not prescribe methods or approaches for SNMP analyses. As before, the SNMP methods and approaches that are appropriate for the local area and Basin Plan must be defined by the stakeholders and approved by the Regional Boards.

The State Board adopted the 2018 Policy in December 2018⁴ and it went into effect in April 2019 following adoption by the Office of Administrative Law. For groundwater basins without approved SNMPs, the 2018 Policy does not define a deadline for SNMPs to be completed and approved by the Regional Board; it only requires that the Regional Boards identify which groundwater basins require an SNMP by Executive Order or Resolution by April 2021.

In addition, with approval of the Indio Subbasin Alternative and the Mission Creek Subbasin Alternative for the Sustainable Groundwater Management Act (SGMA) Groundwater Sustainability Plan requirement, DWR staff recommended that an approved SNMP be incorporated into future iterations of the Alternatives.

⁴ State Water Resources Control Board. 2018. [2018 Water Quality Control Policy for Recycled Water](#). December 18, 2018.

1.2 2015 Coachella Valley Salt and Nutrient Management Plan

1.2.1 Overview of the 2015 SNMP

In a letter dated February 14, 2011, the Regional Board asked the Coachella Valley stakeholders “take the necessary steps to initiate a collaborative process to prepare a salt and nutrient management plan” pursuant to the 2009 Policy.⁵ In June 2015, the CVWD, DWA, and IWA submitted the final *Coachella Valley Groundwater Basin Salt and Nutrient Management Plan*⁶ (2015 SNMP) to the Regional Board.

The 2015 SNMP included the following:

- Definition of the planning area, regulatory setting, stakeholder participation process, and the salt and nutrient constituents of concern: nitrate and total dissolved solids (N/TDS).
- A hydrogeologic characterization of the Coachella Valley groundwater subbasins, including definition of seven groundwater management zones for the 2015 SNMP.
- Characterization of current N/TDS concentrations for each management zone, including calculation of the volume-weighted estimates of ambient N/TDS concentrations within each management zone that had sufficient data available over the 15-year period of 1999-2013.
- For the management zones with estimates of ambient water quality, the 2015 SNMP included:
 - Assessments of assimilative capacity for N/TDS. Given the absence of numeric groundwater-quality objectives for TDS in the Basin Plan, the “upper level” for the secondary maximum contaminant level (MCL), which is 1,000 milligrams per liter (mg/l), was used to compute assimilative capacity and concluded that there is assimilative capacity for loading of TDS. The 2015 SNMP also concluded that there is assimilative capacity for loading of nitrate.
 - Projections of N/TDS loading by source and the change in the volume-weighted ambient N/TDS concentrations by management zone over a 30-year planning period through 2045. Based on the projections, the 2015 SNMP concluded that there will continue to be assimilative capacity for N/TDS loading over the planning period.
 - An antidegradation analysis to support recycled water use, which only occurs in two of the management zones. The 2015 SNMP concluded that the recycled water projects will use much less than 10 percent of the available assimilative capacity and therefore these projects can continue to be permitted in accordance with the Policy.
- A listing of salt and nutrient management strategies that could help to minimize impacts of salt and nutrient loading and protect beneficial uses. No management plan was defined to implement these projects based on the findings that there will continue to be assimilative capacity for N/TDS loading over the planning period.
- A monitoring plan to guide the reasonable and adequate collection of data and information to estimate ambient water quality for the management zones. The monitoring plan

⁵ Perdue, R. 2011. Letter to Coachella Valley stakeholders (February 14, 2011).

⁶ MWH. 2015. *Coachella Valley Groundwater Basin Salt and Nutrient Management Plan*. June, 2015.

CV-SNMP Development Workplan

identified existing and new monitoring locations and included recommendations regarding the additional data to be collected and the frequency of monitoring.

1.2.2 Regional Board Response to the 2015 SNMP

Since the submittal of the final 2015 SNMP, Regional Board staff have issued three letters to the 2015 SNMP participants detailing their comments and finding that the 2015 SNMP does not satisfy the requirements of the Policy.⁷ In the most recent letter issued in February 2020, the Regional Board staff reiterated the specific findings regarding which components of the 2015 SNMP were insufficient and provided specific recommendations to develop an acceptable SNMP that is consistent with the 2018 Policy.

The Regional Board concerns are related to the following five technical and/or policy issues:

- The insufficiency of the monitoring program to fill data gaps and adequately characterize the spatial and vertical distribution of water quality conditions.
- The use of simple mass-balance approaches to compute current and future ambient N/TDS concentrations for the management zones.
- The use of the secondary upper MCL of 1,000 mg/l for TDS to assess assimilative capacity.
- The lack of an antidegradation analysis to support salt and nutrient loading from sources other than recycled water, including the use and recharge of Colorado River water.
- The absence of an implementation plan for measures to manage salt and nutrient loading from all sources on a sustainable basis.

The Regional Board comments and associated recommendations to resolve the technical and policy issues are describe in more detail below.

SNMP Monitoring Program. The Policy requires a groundwater monitoring program that can determine whether the concentrations of salts, nutrients, and other constituents of concern in groundwater are consistent with groundwater quality objectives and are thereby protective of beneficial uses. The Regional Board perceived insufficiencies in the proposed monitoring plan in the 2015 SNMP. In particular, that the monitoring plan did not address:

- The identified data gaps in the management zones with no ambient water quality findings.
- The need to improve the characterization of the vertical distribution of groundwater quality.
- The identification of critical areas for monitoring near water supply wells, large water recycling projects, Colorado River water recharge projects, or other significant sources of salt and nutrients identified in the 2015 SNMP.

The Regional Board required that the CV-SNMP Agencies prepare a new monitoring program workplan to address these concerns by December 2020.

⁷ Stormo, J. 2015. Letter to Patti Reyes (August 7, 2015).

Sanford, C. 2016. Letter to Joan Stormo and Abdi Haile (March 22, 2016).

Rasmussen, P. 2020. Letter to Steve Bigley, Marc Krause, and Trish Rhay (February 19, 2020).

Ambient Water Quality and the Capacity to Assimilate Salt and Nutrient Loading. The Regional Board believes that the findings of assimilative capacity for salt and nutrient loading to the groundwater management zones are potentially inaccurate and thereby may not be protective of beneficial uses. The Regional Board concerns are related to:

- The lack of ambient groundwater quality estimates for four of the seven proposed management zones and the ability of the monitoring program to supply sufficient data to estimate ambient groundwater quality.
- The use of a 15-year period to define ambient groundwater quality conditions.
- The use of a simple mass-balance approach that:
 - assumes complete and instantaneous mixing of salt and nutrient loads through the full depth of the aquifer,
 - simplifies the current and projected ambient groundwater quality into a single volume-weighted concentration that represents an entire management zone, and
 - does not account for the spatial and vertical distribution of constituents in groundwater.
- The use of the secondary upper MCL of 1,000 mg/l for TDS to assess assimilative capacity.

To address these concerns, the Regional Board recommended: preparing the above noted monitoring program workplan; identifying where shallow groundwater or isolated areas within the groundwater basin may be influenced by salt and nutrient loading activities and thereby warrant additional monitoring or management techniques; a more conservative use of the mass-balance models that is capable of estimating depth-specific and site-specific ambient groundwater quality; and comparing the existing groundwater quality to all the established TDS ranges referenced in Title 22, including the "recommended" level of 500 mg/l, citing that this approach will ensure that the most protective water quality standards are implemented.

Antidegradation Analysis. The 2018 Policy recognizes that while some recycled water projects have measurable salt and nutrient loading contributions to groundwater, it is other entities or activities such as agriculture, industry, wastewater treatment plant operations, and the use of imported waters that can result in significant salt and nutrient loading to groundwater. Section 6.2.4 of the 2018 Policy requires that SNMPs contain an antidegradation analysis demonstrating that the existing projects, reasonably foreseeable future projects, and other sources of loading to the basin described within SNMP will cumulatively satisfy the antidegradation requirements of State Board Order 68-16 (the Antidegradation Policy).

In the Coachella Valley, the Regional Board is specifically concerned with the TDS loading associated with the recharge of Colorado River water, and that future updates to the CV-SNMP must include an antidegradation analysis for the recharge of Colorado River water.

Implementation Measures to Manage Salt and Nutrient Loading. The 2015 SNMP discussed potential implementation measures to manage or reduce the salt and nutrient loading to groundwater, but did not include a plan to implement the measures, citing that corrective measures are not needed based on the results of the assimilative capacity and antidegradation analyses. As noted above, the Regional Board is concerned with the loading from the use and recharge of Colorado River water, which was identified as the greatest single source of salt entering the groundwater basin. The Regional Board believes that there is insufficient analytical data presented to evaluate the suspected impacts to the aquifer in the vicinity of

CV-SNMP Development Workplan

any of the four active groundwater recharge facilities to conclude that mitigation measures are not needed. The Regional Board stated that the potential impacts to groundwater from the use and recharge of Colorado River water must be evaluated, and mitigation measures be proposed as warranted by the evaluations.

1.3 Update of the CV-SNMP

Following the February 19, 2020 letter, the CV-SNMP Agencies entered discussions with the Regional Board to address their comments and concerns and develop a plan and schedule to update the 2015 CV-SNMP for approval by the Regional Board. Per these discussions, and as documented in its April 27, 2020 letter,⁸ the Regional Board required the CV-SNMP Agencies to address its concerns by developing the CV-SNMP Development Workplan by December 2020 (subsequently postponed to April 2021) that defines the scope and schedule to prepare an updated CV-SNMP. The CV-SNMP Development Workplan is required to include a monitoring program workplan.

The CV-SNMP Development Workplan will be the guide for updating the CV-SNMP to comply with the 2018 Policy and resolve the challenges identified by the Regional Board as discussed in Section 1.2.2 above.

1.3.1 Process to Prepare the CV-SNMP Development Workplan

The CV-SNMP Agencies prepared a Request for Proposals to solicit a technical consultant to assist in preparing the CV-SNMP Development Workplan. The CV-SNMP Agencies selected and contracted with Wildermuth Environmental, Inc. (now West Yost Associates) as the technical consultant in July 2020.

In September 2020, the CV-SNMP Agencies provided a progress report to Regional Board staff on preparing the CV-SNMP Development Workplan and requested a revision to the scope and schedule defined in the April 27, 2020 letter. The requested revision was for a two-step process, whereby:

- The CV-SNMP Groundwater Monitoring Program Workplan was due by December 18, 2020.

The CV-SNMP Agencies completed the CV-SNMP Groundwater Monitoring Program Workplan (final report dated December 23, 2020), and the Regional Board approved the CV-SNMP Groundwater Monitoring Program Workplan in a letter dated February 21, 2021.⁹ The approved CV-SNMP Groundwater Monitoring Program Workplan is included as Appendix A and is summarized in Sections 2 and 3 of this workplan.

- The remainder of the CV-SNMP Development Workplan is due to the Regional Board by April 30, 2021.¹⁰

Through discussions and advice from West Yost Associates, the CV-SNMP Agencies concluded that *numeric* objectives for TDS and nitrate in groundwater are necessary to resolve the concerns of the Regional Board (Section 1.2.2 above). Numeric objectives in the CV-SNMP will be necessary to:

- Demonstrate that beneficial uses are protected.

⁸ Rasmussen, P. 2020. Letter to Steve Bigley (April 27, 2020).

⁹ Rasmussen, P. 2021. Letter to Steve Bigley (February 21, 2021).

¹⁰ Rasmussen, P. 2021. Letter to Steve Bigley (March 23, 2021).

CV-SNMP Development Workplan

- Quantify the magnitude of available assimilative capacity for salt and nutrient loading.
- Provide a technical basis for the Regional Board to allocate the use of assimilative capacity.
- Set triggers for implementation measures at appropriate locations and times.

Currently, the Basin Plan includes a nitrate-nitrogen objective of 10 mg/l for groundwater in the Coachella Valley based on the primary drinking water MCL but lacks scientifically-derived numeric TDS objectives that are consistent with the provisions of Title 22. The process to recommend numeric TDS objectives needs to include technically-defensible methods and tools to answer the following questions:

- What are logical management areas within the Basin (management zones) and the beneficial uses of groundwater within the management zones?
- What is current groundwater quality? And, is current groundwater quality protective of beneficial uses?
- How is groundwater quality expected to change across the basin and within the depth-specific aquifer systems?
- Will these changes in groundwater quality impact beneficial uses? If so, where and when?
- What are economically and technically feasible salt management strategies, that when implemented, will achieve the objectives of both the CV-SNMP stakeholders and the Regional Board? Economic feasibility will need to be defined and should consider the sources of revenue and the factors that could restrict the sources of revenue.

In addition, the California Water Code section 13241 describes the factors to consider when establishing the TDS objectives:

- Past, present, and probable future beneficial uses of water.*
- Environmental characteristics of the hydrographic unit under consideration, including the quality of water available thereto.*
- Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area.*
- Economic considerations.*
- The need for developing housing within the region.*
- The need to develop and use recycled water.*

The CV-SNMP Development Workplan must include a process to address these factors when recommending numeric TDS objectives for groundwater management zones.

This final CV-SNMP Development Workplan was prepared in a collaborative process between the CV-SNMP Agencies and Regional Board staff. A draft CV-SNMP Development Workplan dated April 30, 2021 was submitted to the Regional Board staff for review. The CVWD (representing the CV-SNMP Agencies) received a letter from the Regional Board dated June 30, 2021 with comments and suggested revisions to the draft CV-SNMP Development Workplan. The CV-SNMP Agencies prepared responses to the Regional Board comments and revised the CV-SNMP Development Workplan to address the comments. The

CV-SNMP Development Workplan

Regional Board's comments and the CV-SNMP Agencies' responses-to-comments are included in Appendix C.

1.3.2 Workplan Organization

This CV-SNMP Development Workplan describes the detailed scope of work to update the CV-SNMP by using technically-defensible methods and tools to recommend numeric TDS objectives for groundwater, answer the questions listed above, comply with State law and Policy, and resolve the concerns of the Regional Board.

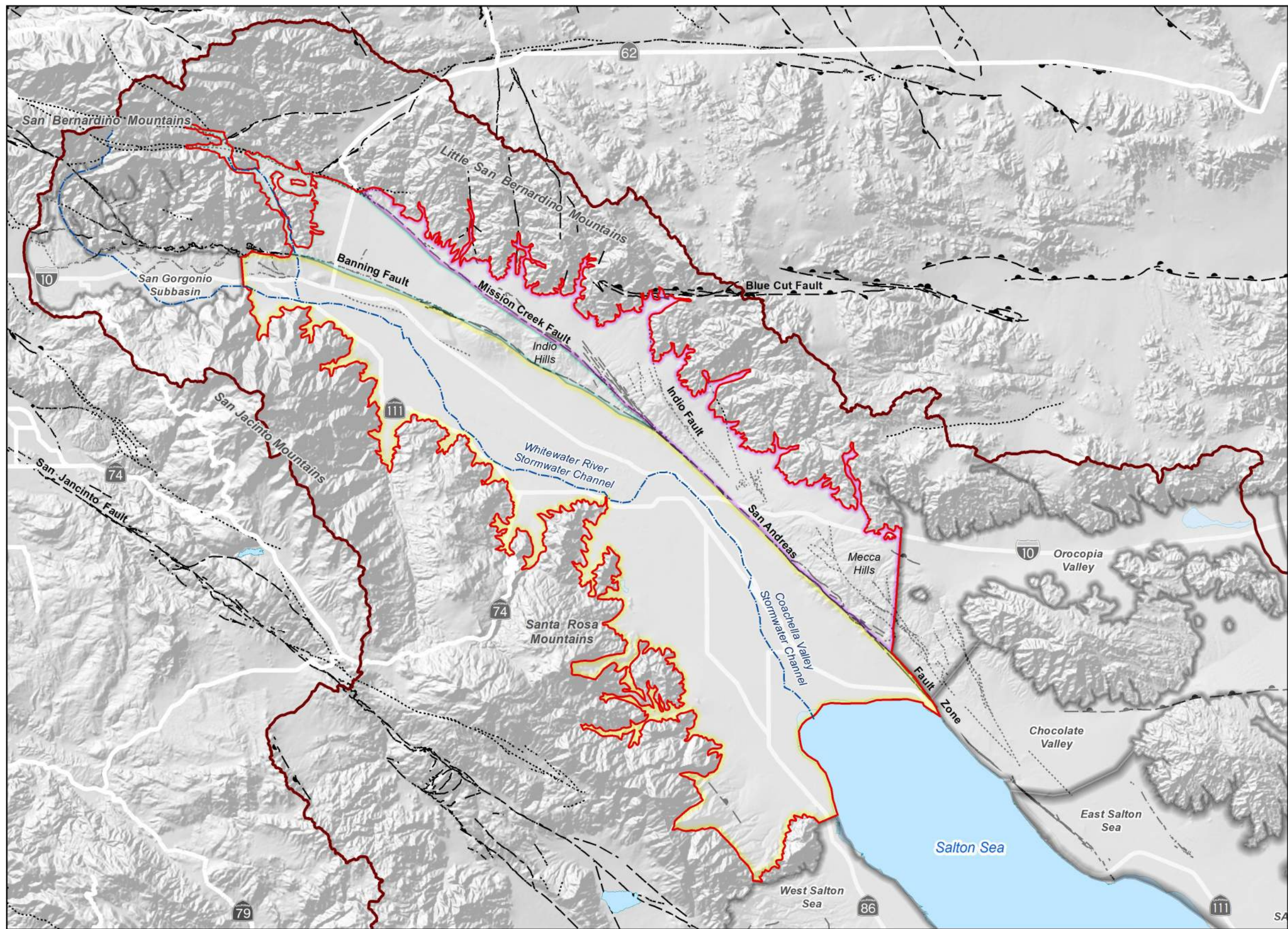
The remainder of the CV-SNMP Development Workplan is organized as follows:

Section 2 – Study Area Setting. This section describes the study area that will be covered by the CV-SNMP and is included herein to provide context to the components and methods of the CV-SNMP Development Workplan.

Section 3 – CV-SNMP Monitoring Program Workplan. This section describes the detailed scope of work, schedule and budget required to implement a revised monitoring and data collection program that will support the development and implementation of the CV-SNMP. The Regional Board informed the CV-SNMP Agencies of approval of the CV-SNMP Groundwater Monitoring Program (described herein) in a letter dated February 21, 2021.

Section 4 – CV-SNMP Development Workplan. This section describes the detailed scope of work to prepare an updated CV-SNMP that complies with the State law and Policy and resolves the concerns of the Regional Board with the 2015 CV-SNMP. The scope of work includes the technical methods and approaches for applying State and Regional Board policies that will be relied upon in the development of the CV-SNMP.

Section 5 – CV-SNMP Development Workplan Implementation. This section describes the schedule and budget-level cost estimates to implement the CV-SNMP Development Workplan.



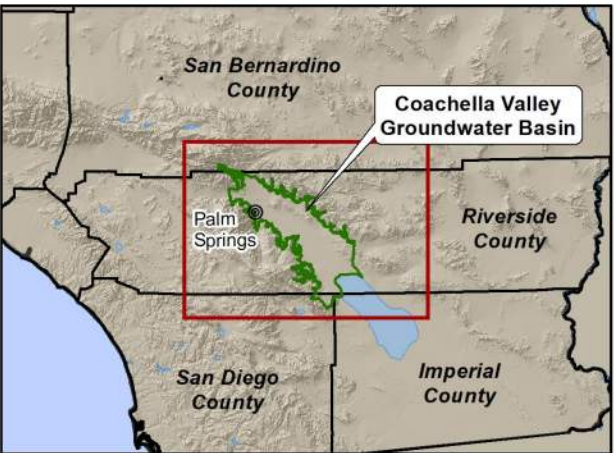
- Salton Sea Watershed
(USGS Hydrologic Unit 18100200)
- Coachella Valley Groundwater Basin
(DWR Basin Number 7-021 excluding the San Geronimo Pass Subbasin)

Subbasins of the Coachella Valley Groundwater Basin

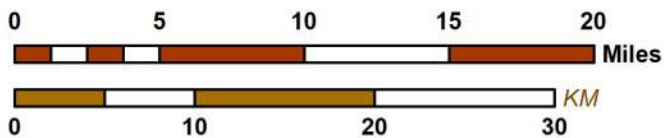
- Indio Subbasin
- Mission Creek Subbasin
- Desert Hot Springs Subbasin

**Quaternary Fault Traces
(symbolized by most recent fault activity)**

- <150 Yrs
- <15,000 Yrs
- <130,000 Yrs
- <750,000 Yrs
- <1,600,000 Yrs



Author: CS
Date: 4/12/2021
File: Figure 1-1_BasinLocation.mxd



**Coachella Valley
Salt and Nutrient Management Plan
Work Plan**

**Area Subject to the Coachella Valley
Salt and Nutrient Management Plan**

Figure 1-1

2.0 STUDY AREA SETTING

This section summarizes the physical characteristics and dynamics of the Basin regarding surface water, groundwater, and the origin and fate and transport of salts and nutrients. Understanding the physical characteristics and dynamics of the Basin provides the foundation for defining SNMP methods and approaches that are appropriate for the local area and Basin Plan and selecting a monitoring network that will meet the objectives of the 2018 Policy.

This section was prepared from a review of past technical studies and reports; no original work or analyses were performed for this section of the workplan.

2.1 Basin Setting

Figure 2-1 is a geologic map that shows the Basin as delineated by the California Department of Water Resources (DWR Groundwater Basin No. 7-021, excluding the San Geronio Pass Subbasin), which represents the area subject to the CV-SNMP. The Basin is located within the northwest portion of the Salton Sea Watershed (USGS Hydrologic Unit 18100200).

Figure 2-1 shows the surface geology as generalized into natural divisions with regard to groundwater:

Unconsolidated water-bearing sediments. These are the pervious formations that comprise the Basin.

Bedrock formations. These are the semi-consolidated sediments and the consolidated bedrock formations that come to the surface in the hills and mountains that surround and bound the Basin. Groundwater can exist in pore spaces and fractures within the bedrock formations; however, the permeability of the bedrock formations typically is much less than the water-bearing sediments.

The upper 2,000 ft of the unconsolidated water-bearing sediments constitute the freshwater aquifer system that is the main source of groundwater supply in the region. The sediments tend to be finer-grained in the southeastern portions of the Basin due to the greater distance from the mountainous source areas and the lower-energy depositional environments, such as historical Lake Cahuilla.

The Whitewater River is the major drainage course in the Basin. The Whitewater River is an unlined channel, so surface water flows have the potential to infiltrate and recharge the Basin. In areas with shallow groundwater, the groundwater has the potential to discharge to interconnected surface water.

2.2 Hydrogeology

2.2.1 Subbasins and Subareas

Figure 2-2 is a map of the general hydrogeology of the area. The Basin is cross-cut by several geologic faults, which have created low-permeability zones within the water-bearing sediments that act as barriers to groundwater flow. These barriers impede, but do not eliminate, groundwater flow between subbasins. Groundwater flow can still occur across the barriers from areas of higher groundwater levels to areas of lower groundwater levels. The map identifies the locations of faults, subbasins, and subareas that comprise the Basin, and describes the general occurrence and movement of groundwater through the Basin.

The DWR has defined three main subbasins within the study area that are separated by geologic faults or changes in formation permeability that limit and control the movement of groundwater: the Indio Subbasin (DWR Subbasin 7-021.01), the Mission Creek Subbasin (7-021.02), and the Desert Hot Springs Subbasin (7-021.03).¹¹ These subbasins have been further subdivided into subareas based on one or more of the following geologic or hydrogeologic characteristics: type(s) of water-bearing formations, water quality, areas of confined groundwater, forebay areas, and groundwater or surface drainage divides.

Figure 2-2 shows groundwater-elevation contours for water-year 2019 (October 1, 2018 through September 30, 2019). Lateral groundwater flow is generally perpendicular to the contours from higher to lower elevation, as indicated by the arrows on the map. Generally, groundwater flows from areas of natural recharge along the surrounding mountain-fronts toward the valley floor and then southeast toward the distal portions of the Basin near the Salton Sea. Locally, the structural and compositional features within the Basin result in groundwater conditions and flow directions that vary significantly between subbasins. Anthropogenic activities such as artificial recharge and groundwater pumping also influence groundwater-flow directions.

2.2.2 Occurrence and Movement of Groundwater

Described below is the general occurrence of groundwater, and how groundwater flows through and discharges from each subbasin:

Desert Hot Springs Subbasin. In the Desert Hot Springs Subbasin, groundwater typically flows from the Little San Bernardino Mountains to the south but is locally variable due to faulting. The aquifer system is poorly understood due to relatively poor water quality, which has limited the development of groundwater resources in the area. Faulting in the northern portion of the subbasin has resulted in thermal mineral waters in the aquifer with temperatures up to 250 degrees Fahrenheit. These thermal waters are used by several spas in the area. Groundwater discharge primarily occurs by pumping at wells or subsurface outflow. Generally, groundwater elevations in the Desert Hot Springs Subbasin are higher than in the Mission Creek and Indio Subbasins, and hence, the subsurface outflow from the Desert Hot Springs Subbasin occurs across the Mission Creek Fault into these downgradient subbasins. These subsurface flows are thought to be relatively minor based on the differences in groundwater quality on either side of the fault barriers that separate the subbasins. However, any subsurface outflow from the Desert Hot Springs Subbasin could be a source of poor-quality inflow to the Mission Creek and Indio Subbasins.

Mission Creek Subbasin. In the Mission Creek Subbasin, groundwater typically flows from northwest to southeast. The aquifer system is up to 2,000 feet thick and is predominantly unconfined. Portions of the aquifer along the Banning Fault northwest of the Seven Palms Ridge area are semi-confined as evidenced by historically flowing-artesian wells in the area. Depth to groundwater in the Mission Creek Subbasin in 2019 ranged from an estimated 600 feet-bgs (ft-bgs) upgradient of the Mission Creek Groundwater Replenishment Facility (MC-GRF) to less than 5 feet-bgs in the southeast (west of the Indio Hills). Groundwater discharge primarily occurs by pumping at wells or subsurface flow across the Banning Fault into the Indio Subbasin.

Indio Subbasin. The Indio Subbasin is bordered on the west by the San Geronio Pass Subbasin and the crystalline bedrock of the Santa Rosa and San Jacinto Mountains. It is separated from the Mission Creek

¹¹ The DWR defines the San Geronio Pass Subbasin (7-021.04) as part the Basin, but it is not subject to the CV-SNMP.

Subbasin by the Banning Fault, and from the Desert Hot Springs Subbasin by the San Andreas Fault. Both faults are barriers to groundwater flow as evidenced by differences in groundwater levels across the faults. For example, groundwater-level differences across the Banning Fault, between the Mission Creek Subbasin and the Indio Subbasin, can be up to 250 feet. Subsurface flow between subbasins primarily occurs from the Desert Hot Springs and Mission Creek Subbasins into the Indio Subbasin.

In the Indio Subbasin, the aquifer system is generally unconfined in the forebay areas and across the northwestern portion of the subbasin. Generally, groundwater flows from the northwest toward the southeastern portions of the subbasin near the Salton Sea. In the southeast portion of the Indio Subbasin, the predominance of fine-grained sediments at depth has created three distinct aquifer systems, which are shown graphically in **Figure 2-3** and are described below:

Perched. A semi-perched aquifer up to 100 feet thick that is persistent across much of the area southeast of the City of Indio. The fine-grain units that cause the perched conditions are likely a barrier to deep percolation of surface water. The extent of the semi-perched aquifer is shown on **Figure 2-2**. Shallow groundwater within the semi-perched aquifer is conveyed away from the root zone by a network of privately-owned subsurface tile drainage systems that are distributed across the agricultural land uses in the southeastern portion of the Basin. CVWD maintains a regional network of surface and subsurface drains, shown on **Figure 2-4**, that accumulate and convey the drainage waters from the agricultural lands to the Salton Sea.

Shallow. An upper aquifer up to 300 feet thick that is present across most of the area. The upper aquifer is unconfined except in the areas of the semi-perched aquifer where it is semi-confined.

Deep. A lower aquifer that is 500-2,000 feet thick and is the most productive portion of the Basin. In the southeast portion of the Basin, the lower aquifer is confined and is separated from the upper aquifer by a fine-grained aquitard unit that is 100-200 feet thick. **Figure 2-2** displays the extent of the aquitard unit.

Groundwater discharge primarily occurs by pumping at wells, shallow groundwater discharge to subsurface tile drainage systems on agricultural lands that ultimately discharge to the Salton Sea, and subsurface outflow to groundwater underlying the Salton Sea.

2.3 Origin and Fate and Transport of N/TDS

Figure 2-4 is a map that depicts the general areas and processes of salt and nutrient loading, transport, and discharge throughout the Basin.

2.3.1 Loading of N/TDS

Salts, and in some cases nutrients, are loaded to the Basin via the following mechanisms:

- Subsurface inflow from: saturated sediments and bedrock fractures in the surrounding mountains and hills; the upgradient the San Geronio Pass Subbasin; and deep thermal water sources.
- Recharge of precipitation runoff in unlined stream channels that cross the Basin.

CV-SNMP Development Workplan

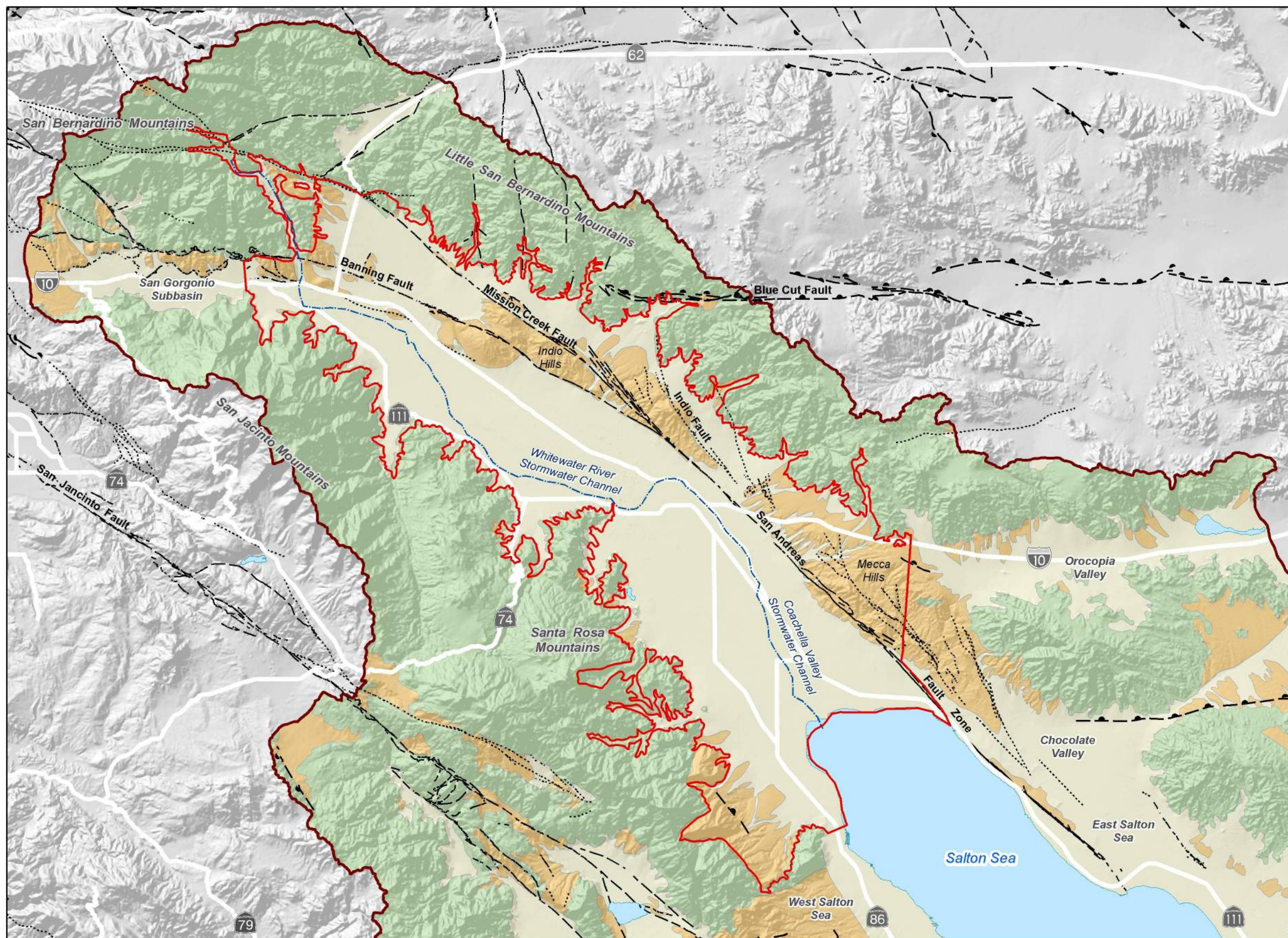
- Artificial recharge of imported Colorado River Water at the Groundwater Replenishment Facilities (GRF).
- Percolation of treated wastewater discharge to unlined ponds.
- Seepage from septic systems.
- Deep infiltration of precipitation on the land surface.
- Return flows from irrigation waters applied to the overlying land uses, such as agriculture, golf courses, and urban landscapes. Loading from return flows is a complex process that involves the following mechanisms that ultimately influence the volume and associated N/TDS concentrations of waters that migrate past the root zone to the saturated zone:
 - The interaction of precipitation and irrigation waters.
 - Evapotranspiration processes that concentrate salts in the root zone.
 - Geochemical and microbial processes that occur during the downward migration through the unsaturated (vadose) zone, such as absorption and chemical transformations.
 - Past N/TDS loading to the vadose zone by historical overlying land uses.

Figure 2-4 shows the spatial distribution and location of these sources of salt and nutrient loading across the Basin.

2.3.2 Transport and Discharge of N/TDS in the Saturated Zone

Once within the saturated zone, the dissolved salts and nutrients are transported through the aquifer system via the groundwater-flow systems shown on **Figure 2-2** and **Figure 2-4**. Ultimately, salts and nutrients are discharged from the Basin via the following mechanisms:

- Groundwater pumping.
- Discharge to agricultural drains. As described above, throughout the lower Basin, CVWD maintains a network of surface and subsurface drains to convey shallow groundwater away from the crop root zones. These drains convey water to the Coachella Valley Stormwater Channel (CVSC) and 27 smaller open channel drains that discharge directly to the Salton Sea.
- Subsurface outflow to downgradient subbasins. In the Indio Subbasin, subsurface outflow occurs to groundwater beneath the Salton Sea.
- Phreatophyte consumptive use.



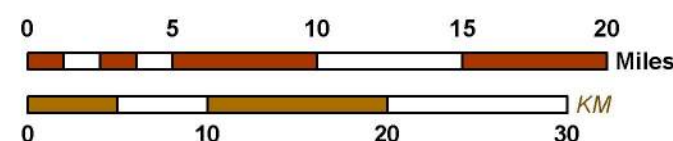
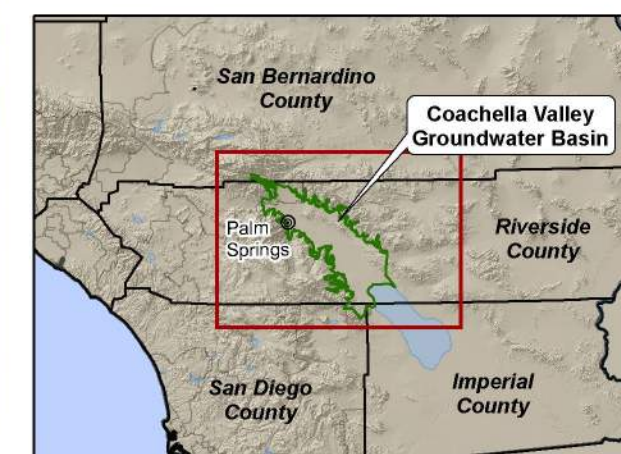
- Salton Sea Watershed
- Coachella Valley Groundwater Basin
DWR Basin Number 7-021
(excludes the San Gorgonio Subbasin)

Generalized Surface Geology

- Un-consolidated Sediments
(water-bearing)
- Semi-consolidated Sediments
(lower-permeability)
- Consolidated Bedrock

Quaternary Fault Traces (symbolized by most recent fault activity)

- <150 Yrs
- <15,000 Yrs
- <130,000 Yrs
- <750,000 Yrs
- <1,600,000 Yrs



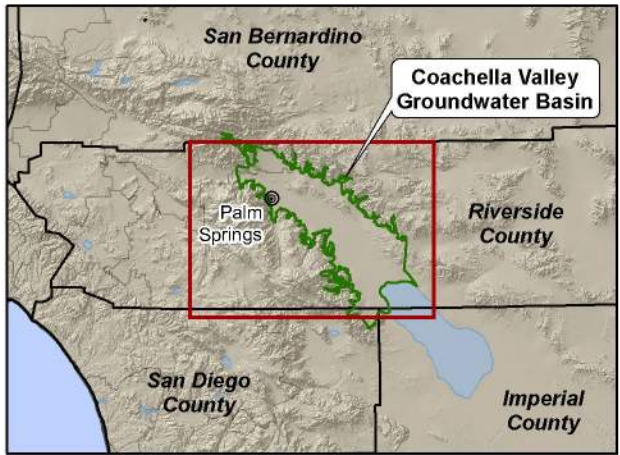
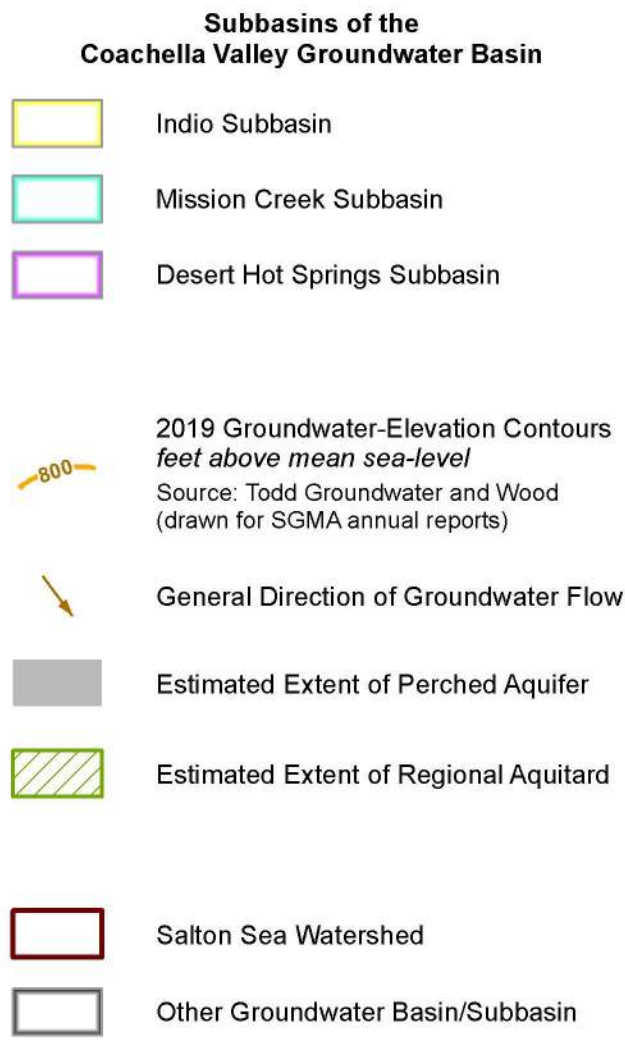
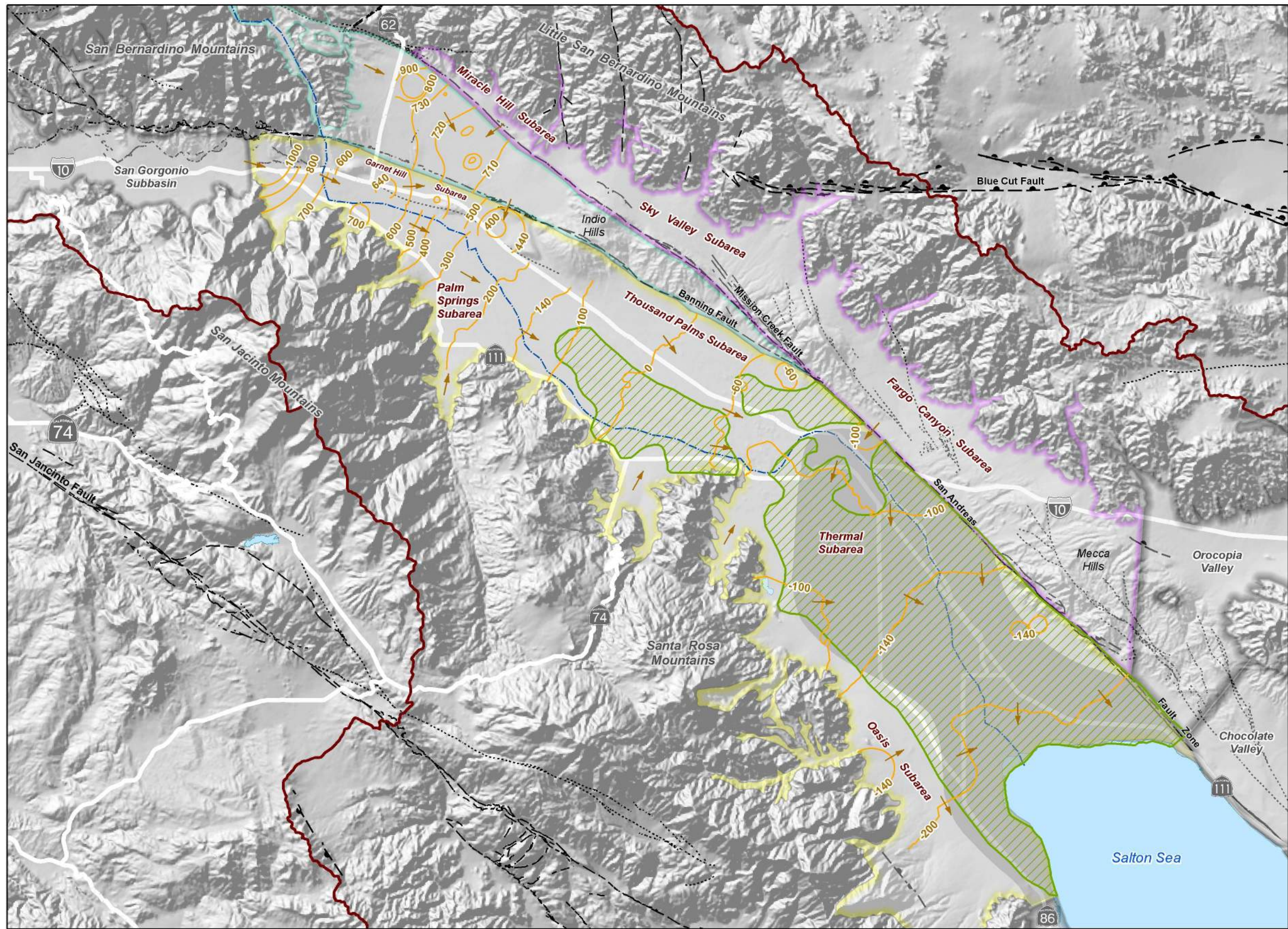
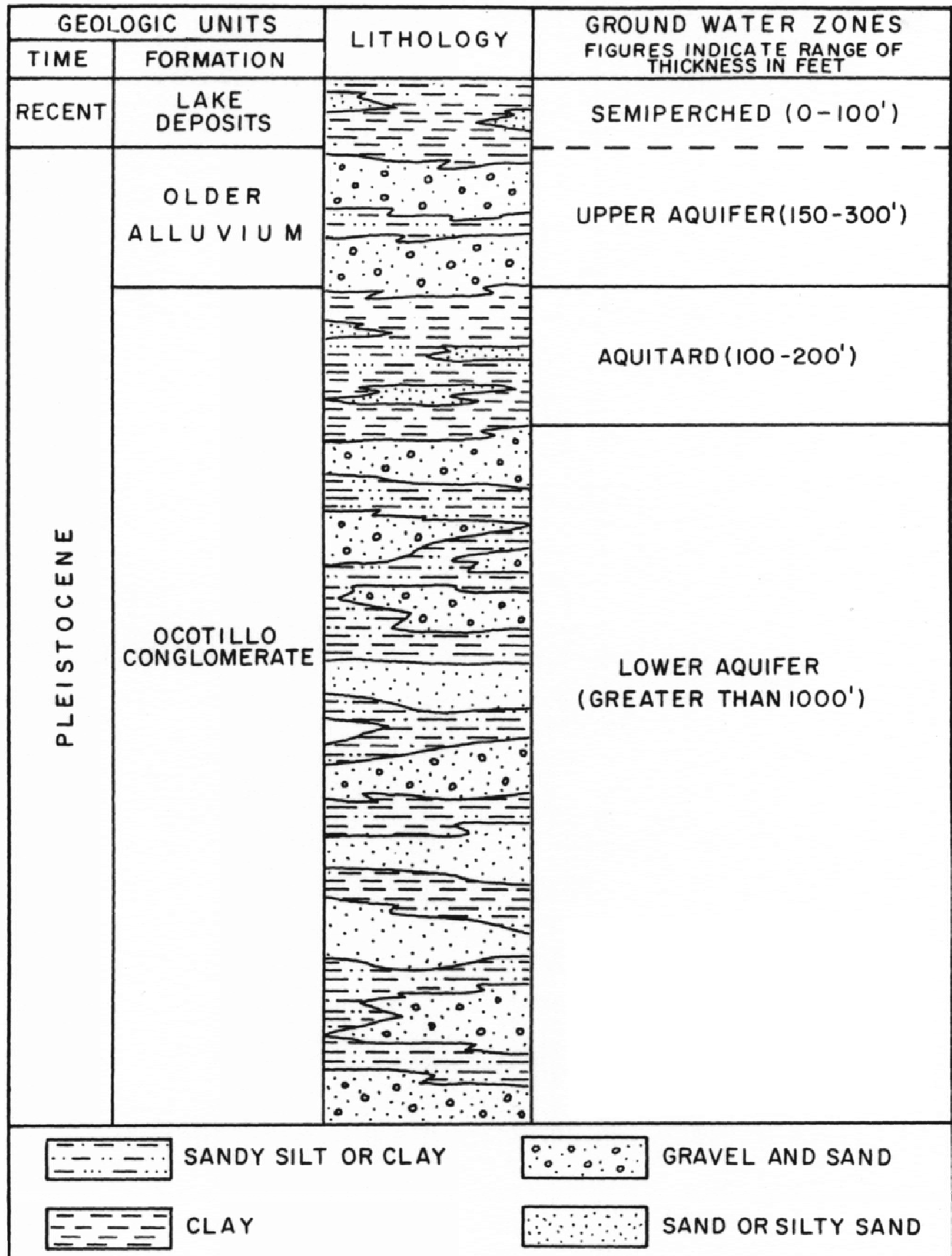
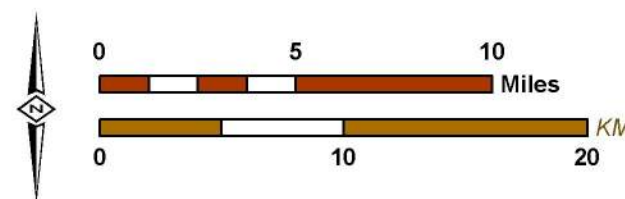
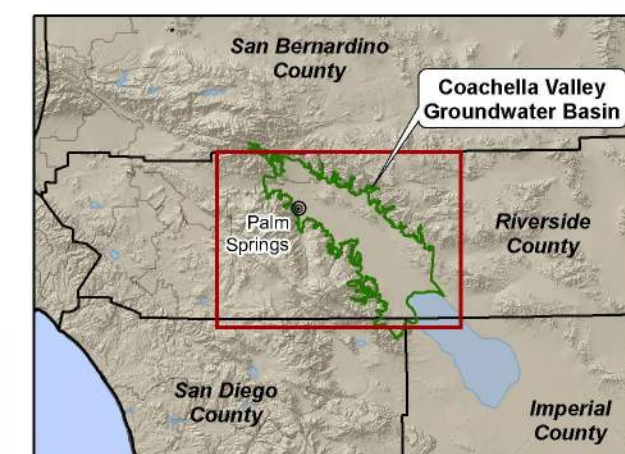
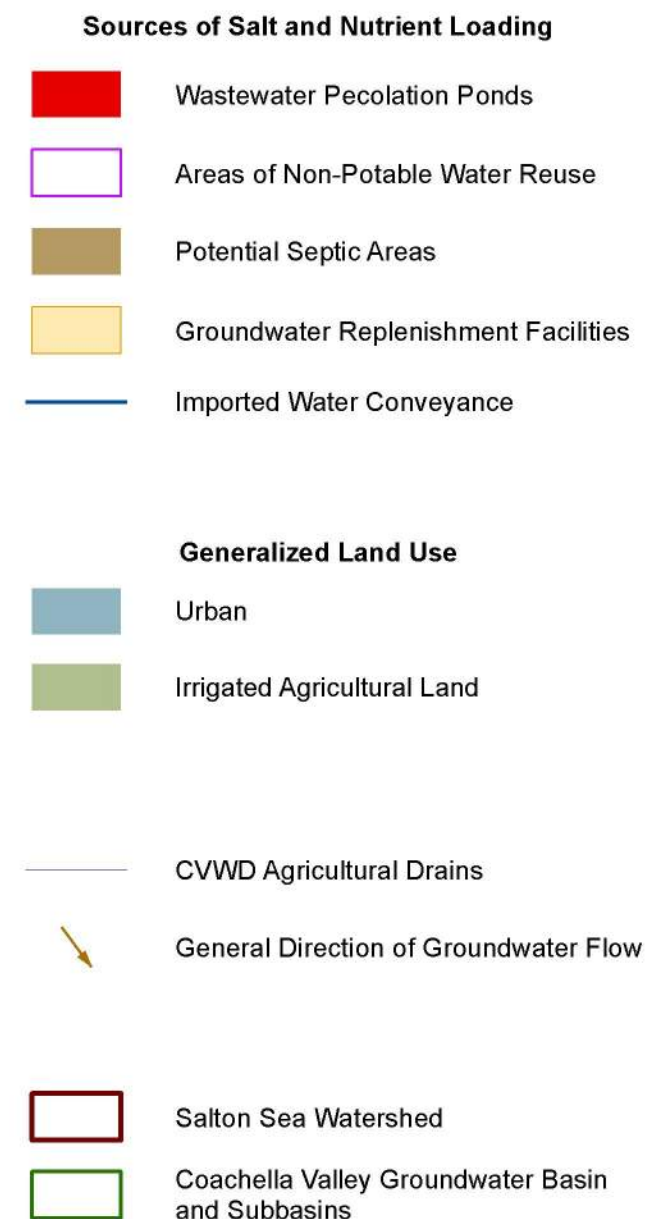
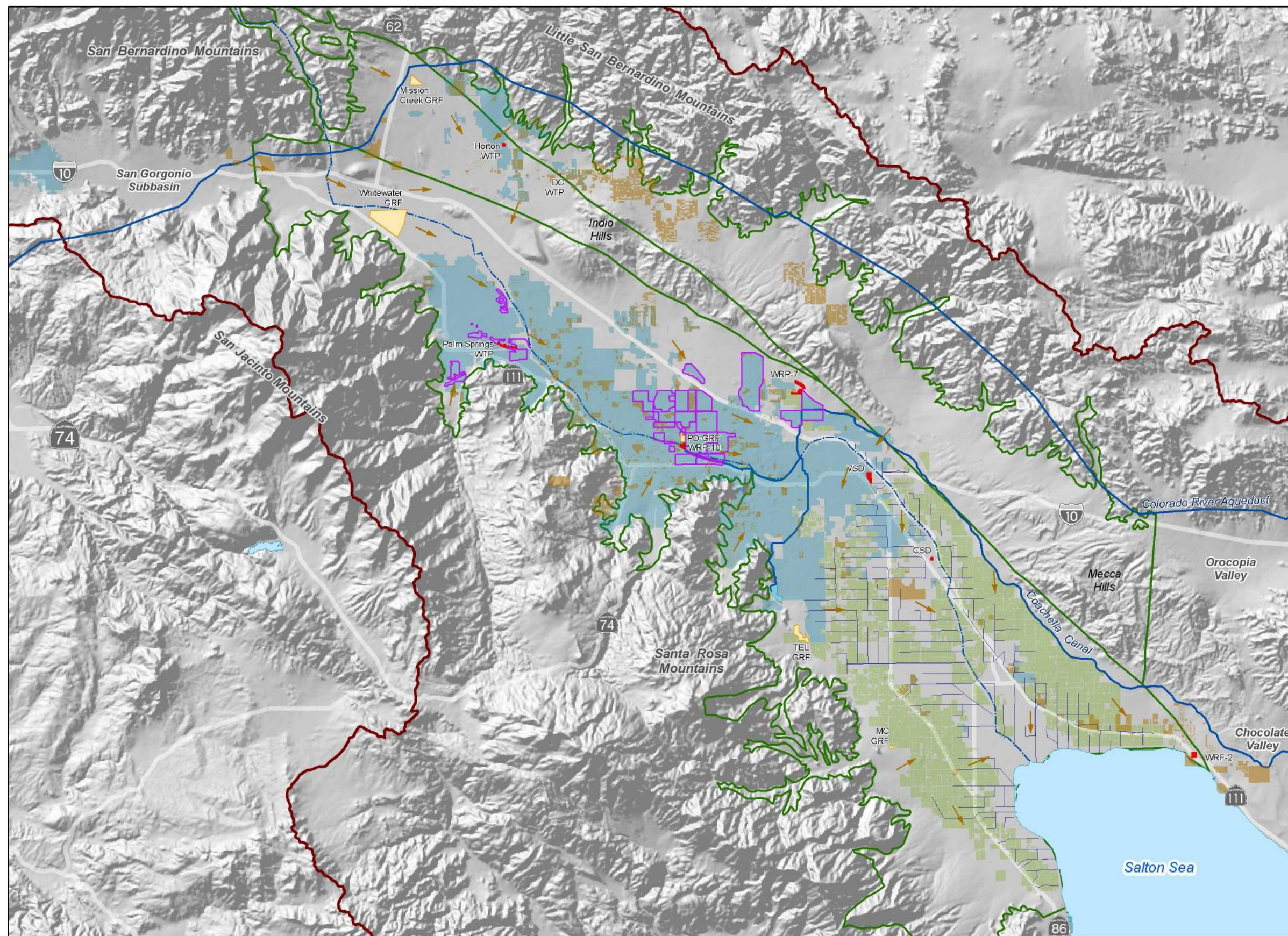


Figure 2-3
Generalized Stratigraphic Column in Eastern Coachella Valley





3.0 CV-SNMP GROUNDWATER MONITORING PROGRAM WORKPLAN

The Groundwater Monitoring Program for the CV-SNMP consists of the following components, each further described below:

- Groundwater monitoring network
- Chemical analytes and sampling frequency
- Monitoring and reporting

3.1 Groundwater Monitoring Network

Section 6.2.4.1 of the Policy requires the implementation of a monitoring program that can determine whether the concentrations of salts and nutrients in groundwater are consistent with water quality objectives and are thereby protective of beneficial uses. The Policy also recognizes the monitoring program will be dependent upon basin-specific conditions and input from the Regional Board.

For the CV-SNMP Groundwater Monitoring Program, the Regional Board is requiring that the monitoring program:

- *Cover all subbasins and subareas within the Basin.* The updated CV-SNMP will require periodic mapping of groundwater quality to estimate ambient water quality and assimilative capacity. A monitoring network that is spatially distributed across all subbasins and subareas of the Basin will provide the necessary data for technically defensible mapping of groundwater quality.
- *Include sampling from all three major aquifer systems: Deep, Shallow, and Perched.* Section 2 of this Workplan described the hydrogeologic stratification of the aquifer system in the Basin. Groundwater quality, and the physical processes that can alter groundwater quality over time, can be significantly different between aquifer systems. This is because: (i) anthropogenic loading of salts and nutrients occur primarily at the ground surface, and hence, can influence the quality of shallower groundwaters first before influencing the quality of deeper groundwaters; (ii) thick aquitards in the southeastern portion of the Basin restrict the vertical movement of groundwater between aquifer systems; and (iii) upward hydraulic gradients, as evidenced by flowing artesian conditions in the southeastern portion of the Basin, limit the downward migration of salts and nutrients to the Deep aquifer system in this region. For these reasons, monitoring of perched, shallow and deep groundwaters is proposed herein across most of the Basin.
- *Focus on critical areas near: (i) large water recycling projects, (ii) near large recharge projects, particularly where Colorado River water is used to replenish the Basin for water-supply and groundwater management purposes, and (iii) near other potential sources of salt and nutrients.* It is important that monitoring occurs hydraulically upgradient and downgradient from these sources of salt and nutrient loading to characterize their influence on groundwater quality.
- *Focus on critical areas near water supply wells.* The water-supply wells are the main points of extraction for the ultimate beneficial uses of the Basin.

- *Identify critical gaps in the monitoring network and develop a plan and timeline to fill the gaps.* The current gaps in the monitoring network are described in this section. The plan and timeline to fill the gaps are included in Section 4.
- *Identify the stakeholders responsible for conducting, compiling, and reporting the monitoring data.*

3.1.1 Methods for Selection of the Groundwater Monitoring Network

The criteria used to select the groundwater monitoring network included the following:

1. **Spatial Distribution.** The monitoring network was designed to cover all subbasins and subareas within the Basin.
2. **Hydrogeology.** The monitoring network was designed to monitor all three major aquifer systems: Deep, Shallow, and Perched. Water-supply wells in the Basin typically pump groundwater from the Deep aquifer system and were therefore more available for inclusion in the monitoring network. Wells with screens across the Shallow and Perched aquifer systems were less abundant. Hence, most “gaps” in the proposed monitoring network are within the Shallow and Perched aquifer systems.
3. **Areas of Salt or Nutrient Loading.** The network was designed to monitor the influence of known sources of salt or nutrient loading on groundwater quality within the Basin. These sources included: the GRFs; wastewater percolation ponds; areas with septic systems; overlying land uses with irrigation returns (e.g., golf, landscapes, agriculture); and areas served non-potable waters for irrigation (e.g., recycled and/or imported waters). Monitoring of non-point-source loading, such as returns from non-potable irrigation waters and septic systems, is intended to be representative of the influence of non-point-sources of loading on groundwater quality. It is not intended to be site-specific monitoring of every area of non-point-source loading across the Basin, which would be infeasible.
4. **Groundwater Flow.** The network was designed to monitor all major groundwater-flow systems, from areas of recharge to areas of discharge, and within and between the groundwater subbasins. This is necessary in order to track the subsurface migration of salts and nutrients through the Basin.
5. **Use of Existing Wells.** Wherever possible, active municipal production or monitoring wells were preferentially selected if they currently participate in a similar monitoring program (e.g., California Division of Drinking Water [DDW] or Regional Board orders). In some areas, such wells were not available for selection. In those areas, inactive municipal production wells or private wells were selected for inclusion in the monitoring network. The use of inactive or private wells in this monitoring program will require significant coordination with the private well owners and/or physical wellhead improvements to collect groundwater samples. Lastly, if no wells were identified in an area/depth that should be monitored, a “gap” was designated in the monitoring network.

3.1.2 Monitoring Network and Gaps – Shallow Aquifer System

Figure 3-1 is a map of the groundwater monitoring network for the Shallow aquifer system. Each well is labeled by a Map_ID. Because most production wells in the Basin have well screens across the Deep aquifer system, there were several identified “gaps” in the monitoring network, particularly in the Thermal Subarea of the Indio Subbasin. **Table 3-1** is a list of wells shown on **Figure 3-1** sorted by Map_ID. The table

CV-SNMP Development Workplan

includes a summary justification for why each well was included in the monitoring program. **Table 3-4** is a list of the “gaps” in the monitoring network with a summary explanation of why each gap should be filled.

3.1.3 Monitoring Network and Gaps – Deep Aquifer System

Figure 3-2 is a map of the groundwater monitoring network for the Deep aquifer system. Each well is labeled by a Map_ID. Most production wells in the Basin have well screens across the Deep aquifer system; hence, there were no identified “gaps” in the Deep monitoring network. **Table 3-2** is a list of wells shown on **Figure 3-2** sorted by Map_ID. The table includes a summary justification for why the well was included in the monitoring program.

3.1.4 Monitoring Network and Gaps – Perched Aquifer System

Figure 3-3 is a map of the groundwater monitoring network for the Perched aquifer system. Each well is labeled by a Map_ID. The map shows the extent of the Perched aquifer system which is confined to the Thermal Subarea of the Indio Subbasin. The network of CVWD’s agricultural drains that convey perched groundwater to the CVSC and the Salton Sea is also shown. The only existing wells with well screens across the Perched aquifer system are five monitoring wells owned by the CVWD; hence, there were several identified “gaps” in the Perched monitoring network. **Table 3-3** is a list of wells shown on **Figure 3-3** sorted by Map_ID. The table includes a summary justification for why each well was included in the monitoring program. **Table 3-4** is a list of the “gaps” in the monitoring network with a summary explanation of why each gap should be filled.

3.2 Chemical Analytes and Sampling Frequency

Table 3-5 lists the chemicals that will be analyzed for dissolved concentration in each groundwater sample for the monitoring program. The table describes the justification for each chemical analyte. Testing will be performed at a laboratory accredited by the State of California for the testing of inorganic chemistry of drinking water.

The minimum sampling frequency is once every three years. Many wells chosen for this monitoring program are sampled more frequently under other required or voluntary monitoring programs.

During each groundwater sampling event, the agency responsible for sampling will attempt to obtain a static (non-pumping) depth-to-water measurement. In instances when a static depth-to-water measurement cannot be obtained, it will be noted with a description for the reason.

3.3 Monitoring and Reporting

The CV-SNMP Agencies have the following responsibilities for sampling of the wells in the monitoring network (described in Section 3.1), the laboratory analysis of chemical analytes (described in Section 3.2), and the reporting of the laboratory results pursuant to the Policy

3.3.1 Groundwater Sampling and Laboratory Analysis

For groundwater sampling and analysis:

- Municipal well owners are responsible for the groundwater sampling and laboratory analyses for their own wells.

- For private wells within their service area, the overlying CV-SNMP Agency is responsible for coordinating with the private well owners to conduct groundwater sampling and the laboratory analyses. In areas of overlapping jurisdictions of CV-SNMP Agencies, the agencies must jointly coordinate to assign responsibility for sampling and analysis of private wells that fall within the overlapping jurisdictions. Agency responsibilities may include developing administrative agreements with the well owners (e.g., right-of-entry agreement) and making physical modifications to the wellhead to enable collection of a sample (e.g., installation of a sampling port on the well discharge pipe).

Table 3-6 lists all wells proposed for the monitoring program. For each well, the table includes a designation for the overlying CV-SNMP Agency(ies).

3.3.2 Reporting of Laboratory Results

Section 6.2.4.1.3 of the Policy requires that all data collected for the monitoring program “shall be electronically reported annually in a format that is compatible with a Groundwater Ambient Monitoring & Assessment (GAMA) information system and must be integrated into the GAMA information system or its successor.” This will centralize data generated from SNMPs at the State level and create consistency across regional water boards to allow for further analysis of monitoring data.

By March 31 of each year, the CV-SNMP Agencies will report the laboratory water-quality results from the prior calendar year to the GAMA information system.

3.4 Filling of Gaps in the Monitoring Network

Table 3-4 lists the gaps in the monitoring network that were identified during the selection of the monitoring network.

Gaps in the monitoring network will be filled in one of two ways:

1. Field identification of an existing well that: (i) is located near the identified gap; (ii) can be sampled, and (iii) has well screens across the appropriate depth interval (e.g., across the Shallow aquifer system). This may require the following activities: field canvassing to identify a candidate well; research and/or exploratory well surveys to confirm well screen depth intervals; and constructing any well/wellhead modifications that are necessary to collect groundwater samples.
2. Construction of a new monitoring well with well screens across the appropriate depth interval. This may require the following activities: a well-siting study; well-site acquisition or easement; development of technical specifications for a monitoring well; conducting a bid process to select a well drilling/construction subcontractor; obtaining the necessary permits and CEQA clearance; performing well construction with oversight; performing well development and testing; preparing a well completion report; equipping the well for sampling, and wellhead completion including any needed site improvements.

In the first year, the CV-SNMP Agencies will perform the necessary field work and research and develop a plan for how each gap in the monitoring program will be filled.

CV-SNMP Development Workplan

Filling the gaps in the monitoring network is likely the most expensive, complicated element of the monitoring program. Therefore, the filling of gaps will be executed over a six-year period, subject to funding availability. The CV-SNMP Agencies will pursue grant funding to support the filling of gaps under State-run programs such as Integrated Regional Water Management and the Sustainable Groundwater Management Act.

By March 31 of each year, the CV-SNMP Agencies will report to the Regional Board on progress made toward filling the gaps in the monitoring network over the preceding calendar year (see Section 5.2 below).

Table 3-1. SNMP Groundwater Monitoring Network -- Shallow Aquifer System

Map_ID	SWN	Well Owner	Well Name	Well Status ^(a)	Well Use ^(b)	Screen Interval ft-bgs	Depth Code ^(c)	Justification for Inclusion in SNMP Monitoring Program
1	03S04E20F01S	USGS	335348116352701	Active	Monitoring	600-640	S	Northwest area at WW-GRF
2	03S04E20J01S	USGS	335339116345301	Active	Monitoring	550-590	S	Northeast area at WW-GRF
3	06S07E33G02S	Coachella Valley Water District	TEL-GRF MW-21S	Active	Monitoring	230-250	S	Adjacent to and downgradient of TEL-GRF
4	06S07E33J02S	Coachella Valley Water District	TEL-GRF MW-22S	Active	Monitoring	230-250	S	Adjacent to and downgradient of TEL-GRF
5	06S07E34N03S	Coachella Valley Water District	TEL-GRF MW-23S	Active	Monitoring	230-250	S	Adjacent to and downgradient of TEL-GRF
7	02S04E26C01S	Mission Springs Water District	Well 28	Inactive	MUN	590-898	S	Downgradient from Mission Creek GRF; near golf course and septic areas
8	02S04E28A01S	Mission Springs Water District	Well 34	Active	MUN	550-980	S	Downgradient from Mission Creek GRF
9	02S05E31L01S	Mission Springs Water District	Well 11	Inactive	Unknown	220-285	S	Downgradient of Desert Hot Springs (DHS) subbasin
10	03S04E04Q02S	CPV Sentinel	03S04E04Q02S	Active	Unknown		S	Upgradient portion of Mission Creek subbasin
11	03S04E11L01S	Mission Springs Water District	Well 27	Active	MUN	180-380	S	Upgradient of Garnet Hill subarea; near potential septic areas in N. Palm Springs
12	03S05E05Q01S	Hidden Springs Golf Course	P27	Active	Unknown	220-600	S	Downgradient of DHS subbasin; near golf course and septic areas
13		City of Palm Springs	Airport MW-2	Active	Monitoring	240-250	S	Center of Indio subbasin; near airport and areas served non-potable water (NPW)
14		City of Palm Springs	MW-1	Active	Monitoring	170-210	S	Downgradient of Palm Springs WTP percolation ponds
15		City of Palm Springs	MW-3	Active	Monitoring	140-215	S	Upgradient of Palm Springs WTP percolation ponds
16		City of Palm Springs	MW-4	Active	Monitoring	170-210	S	Downgradient of Palm Springs WTP percolation ponds
17		City of Palm Springs	MW-5	Active	Monitoring	170-210	S	Downgradient of Palm Springs WTP percolation ponds
18		City of Palm Springs	MW-6	Active	Monitoring	170-210	S	Downgradient of Palm Springs WTP percolation ponds
19	03S03E08M01S	Mission Springs Water District	Well 26	Active	MUN	225-553	S	Monitoring of subsurface inflow from San Geronio Pass subbasin
20	03S03E10P02S	Agua Caliente	DWA P05	Active	Unknown	306-906	S	Upgradient of Whitewater GRF
21	03S04E12B02S	Coachella Valley Water District	CVWD Well 3408-1	Active	MUN	270-500	S	Central portion of Mission Creek subbasin; near potential septic areas
22	03S04E29F01S	USGS	335304116353001	Active	Monitoring	550-570	S	Monitoring at southwestern area of Whitewater GRF
23	03S04E29R01S	USGS	335231116345401	Active	Monitoring	431-551	S	Monitoring at southeastern area of Whitewater GRF
24	04S04E11Q01S	Desert Water Agency	DWA Well 5	Standby	MUN	302-402	S	Western portion of Indio subbasin; downgradient of septic areas
25	04S04E35A01S	Agua Caliente	Indian Canyons Well	Active	Unknown	360-680	S	Near golf courses, septic, and areas served NPW
26	04S05E09F03S	Coachella Valley Water District	CVWD Well 4564-1	Active	MUN	410-670	S	Center of Indio subbasin; near golf courses and septic areas
27	04S05E29A02S	Desert Water Agency	DWA Well 25	Active	MUN	166-300	S	Downgradient of Palm Springs WTP percolation ponds; near golf courses and NPW areas
29	04S07E33L02S	Coachella Valley Water District	WRP7 MW-2S	Active	Monitoring	60-190	S	Near WRP-7 percolation ponds
30	05S06E09M03S	Coachella Valley Water District	WRP10 MW-7	Active	Monitoring	260-340	S	Upgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
31	05S06E09P02S	Coachella Valley Water District	PD-GRF MW 2	Active	Monitoring	260-340	S	Upgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
32	05S06E10J01S	Coachella Valley Water District	PD-GRF MW 1	Active	Monitoring	260-340	S	Downgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
33	05S06E13G03S	Coachella Valley Water District	WRP10 MW-8	Active	Monitoring	260-340	S	Downgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
34	05S06E14G03S	Coachella Valley Water District	WRP10 MW-5	Active	Monitoring	240-320	S	Downgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
35	05S06E14P03S	Coachella Valley Water District	WRP10 MW-6	Active	Monitoring	190-270	S	Downgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
36	05S06E15F01S	Coachella Valley Water District	WRP10 MW-2	Active	Monitoring	160-290	S	Downgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
37	05S06E15M01S	Coachella Valley Water District	WRP10 MW-1	Active	Monitoring	145-295	S	Upgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
38	05S06E15P01S	Coachella Valley Water District	WRP10 MW-3	Active	Monitoring	130-290	S	Downgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
39	05S06E16A03S	Coachella Valley Water District	WRP10 MW-4	Active	Monitoring	190-270	S	Upgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
40	05S06E21Q04S	Coachella Valley Water District	PD-GRF MW 3	Active	Monitoring	260-340	S	Cross-gradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
41	05S06E23M02S	Coachella Valley Water District	PD-GRF MW 4	Active	Monitoring	270-360	S	Cross-gradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
42	05S07E03D02S	Coachella Valley Water District	WRP7 MW-4S	Active	Monitoring	60-190	S	Near WRP-7 percolation ponds
43	05S07E04A04S	Coachella Valley Water District	WRP7 MW-3S	Active	Monitoring	50-180	S	Near WRP-7 percolation ponds
44	05S07E16K02S	Coachella Valley Water District	CVWD Well 5737-1	Inactive	Monitoring	200-415	S	Center of Indio subbasin; downgradient from areas served NPW
45	05S07E19D04S	Coachella Valley Water District	WRP10 MW-9	Active	Monitoring	260-340	S	West in Indio subbasin; near golf courses and areas served NPW
46	05S07E24M02S	Indio Water Authority	Well 1B	Active	MUN	190-410	S	Center of Indio subbasin; upgradient of VSD plant
47	06S06E12G01S	Coachella Valley Water District	CVWD Well 6650-1	Inactive	Monitoring	<370	S	Within center of The Cove
48	06S07E34A02S	Coachella Valley Water District	TEL-GRF MW-25	Active	Monitoring	115-135	S	Downgradient from TEL-GRF and golf courses
49	06S07E34D02S	Coachella Valley Water District	TEL-GRF MW-24	Active	Monitoring	180-200	S	Directly north and downgradient of TEL-GRF
50	07S08E29P03S	Coachella Valley Water District	MC-3	Active	Monitoring	380-440	S	At Martinez Canyon GRF
51	08S09E31R03S	Coachella Valley Water District	CVWD Well 8995-1	Active	MUN	260-390	S	Southern corner of the Indio basin; near agriculture; near Salton Sea
52	03S04E17K01S	Valley View MWC	03S04E17K01S	Undetermined	Unknown	340-375	S	Cross-gradient from Whitewater GRF in Garnet Hill subarea
53	03S04E22A01S	Erin Miner	03S04E22A01S	Active	Unknown	180-230	S	Downgradient of Whitewater GRF in Garnet Hill subarea; upgradient of West Valley WWTP
54	03S05E08P02S	Bluebeyond Fisheries	03S05E08P02S	Active	Fish Farm	200-400	S	Central Mission Creek subbasin; near golf course and septic areas

Table 3-1. SNMP Groundwater Monitoring Network -- Shallow Aquifer System

Map_ID	SWN	Well Owner	Well Name	Well Status ^(a)	Well Use ^(b)	Screen Interval ft-bgs	Depth Code ^(c)	Justification for Inclusion in SNMP Monitoring Program
55	03S05E15N01S	Too Many Palms LLC	03S05E15N01S	Active	Irrigation	158-320	S	Distal area in Mission Creek subbasin; downgradient of DHS subbasin
56	03S05E18J01S	Desert Dunes Golf Club	03S05E18J01S	Active	Irrigation	76-340	S	Upgradient of Garnet Hill subarea; near golf course and septic areas
57	03S06E21G01S	Sky Valley Mobile Home Park	03S06E21G01S	Undetermined	Unknown	188-248	S	Western portion of Sky Valley subarea; near septic areas
58	04S05E04F01S	So Pacific Trans Co #32601	04S05E04F01S	Active	Irrigation	276-576	S	Eastern edge of Indio subbasin; downgradient from Garnet Hill subarea; near septic areas
59	04S05E23F01S	Westin Mission Hills Resort	04S05E23F01S	Active	Irrigation	275-1165	S	Center of Indio subbasin; near golf courses and septic areas
60	04S05E34C01S	Manufacture Home Community Inc.	04S05E34C01S	Active	Irrigation	240-500	S	Western edge of Indio subbasin; near septic and areas served NPW
61	04S05E35Q01S	Tamarisk Country Club	04S05E35Q01S	Active	Irrigation	171-518	S	Western edge of Indio subbasin; near septic and areas served NPW
62	04S05E36L02S	Annenberg Estate	04S05E36L02S	Active	Irrigation	252-650	S	Center of Indio subbasin; near golf, septic, and areas served NPW
63	04S06E20C01S	Shenandoah Ventures LP	04S06E20C01S	Inactive	Irrigation	250-790	S	Upgradient in Thousand Palms area; upgradient of septic areas
66	05S05E12D01S	Thunderbird Country Club	05S05E12D01S	Active	Irrigation	125-360	S	Western edge of Indio subbasin; near septic and areas served NPW
67	05S06E12M01S	Palm Desert Resort Country Club	05S06E12M01S	Active	Irrigation	140-650	S	Center of Indio subbasin; near areas served NPW
68	05S07E08Q01S	Bermuda Dunes Airport	05S07E08Q01S	Active	Domestic	203-654	S	Center of Indio subbasin; near areas served NPW
69	05S07E28H02S	Tricon/COB Riverdale LP	05S07E28H02S	Active	Domestic	162-636	S	Center of Indio subbasin
70	05S08E28M02S	JS Cooper	05S08E28M02S	Undetermined	Unknown	208-268	S	Eastern edge of Indio subbasin; downgradient of VSD discharge point
71	05S08E30N03S	Carver Tract Mutual Water Co	05S08E30N03S	Active	Domestic	270-330	S	Eastern portion of Indio subbasin; downgradient from VSD plant
72	06S07E07B01S	Traditions Golf Club	06S07E07B01S	Active	Irrigation	200-480	S	Downgradient from The Cove; near golf courses and septic areas
73	06S08E02L01S	Prime Time International	06S08E02L01S	Undetermined	Irrigation	216-407	S	Eastern edge of Indio subbasin; near agriculture; upgradient from CWA/CSD WWTP
74	06S08E05K01S	Peter Rabbit Farms	06S08E05K01S	Active	Irrigation	126-375	S	Eastern portion of Indio subbasin in Coachella
75	06S08E32L01S	Guillermo Torres	06S08E32L01S	Undetermined	Unknown	127-227	S	Downgradient from TEL-GRF; agricultural area
76	07S08E27A01S	Gimmway Enterprises Inc	07S08E27A01S	Active	Domestic	147-215	S	Downgradient from Martinez Canyon GRF; near septic areas
77	07S09E14C01S	Tudor Ranch Inc.	07S09E14C01S	Active	Domestic	93-290	S	Southeastern corner of Indio subbasin; near agriculture and septic areas; near Salton Sea
78	08S08E15G02S	Thermiculture Management LLC	08S08E15G02S	Active	Irrigation	260-500	S	Southern corner of Indio subbasin; near agriculture; near Salton Sea
79		Mission Springs Water District	Well 25	Active	MUN	330-455	S	Monitoring of subsurface inflow from San Geronio Pass subbasin
80		Mission Springs Water District	Well 1	Inactive	Monitoring		S	Northern Miracle Hill subarea; upgradient of Mission Creek subbasin
81		Mission Springs Water District	Horton WWTP MW-1	Active	Monitoring	186-236	S	Monitoring wells upgradient and downgradient of the Horton WWTP
82		Mission Springs Water District	Horton WWTP MW-2	Active	Monitoring	220-270	S	Monitoring wells upgradient and downgradient of the Horton WWTP
83		Mission Springs Water District	Horton WWTP MW-3	Active	Monitoring	200-250	S	Monitoring wells upgradient and downgradient of the Horton WWTP

(a) Well Status: Well Status: "Active" means well is known to exist and currently used for original purpose; "Standby" means active backup well; "Inactive" means well exists but is no longer used as a water-supply.

(b) Well Use: MUN = municipal and domestic supply

(c) Depth Code: This monitoring program assigns wells to aquifer layers by depth. P = Perched aquifer system, mainly in the Thermal subarea. S = Shallow aquifer system. D = Deep aquifer system

Table 3-2. SNMP Groundwater Monitoring Network -- Deep Aquifer System

Map_ID	SWN	Well Owner	Well Name	Well Status ^(a)	Well Use ^(b)	Screen Interval ft-bgs	Depth Code ^(c)	Justification for Inclusion in SNMP Monitoring Program
84	03S04E20F02S	USGS	335348116352702	Active	Monitoring	850-890	D	Northwest area at WW-GRF
85	03S04E20J03S	USGS	335339116345303	Active	Monitoring	850-890	D	Northeast area at WW-GRF
86	06S07E33G01S	Coachella Valley Water District	TEL-GRF MW-21D	Active	Monitoring	390-410	D	Adjacent to and downgradient of TEL-GRF
87	06S07E33J01S	Coachella Valley Water District	TEL-GRF MW-22D	Active	Monitoring	520-540	D	Adjacent to and downgradient of TEL-GRF
88	06S07E34N02S	Coachella Valley Water District	TEL-GRF MW-23D	Active	Monitoring	525-545	D	Adjacent to and downgradient of TEL-GRF
89	07S09E30R03S	Coachella Valley Water District	Peggy	Active	Monitoring	730-770	D	Downgradient of WRP-4; near agriculture; area of subsurface outflow toward Salton Sea
90	08S09E07N02S	Coachella Valley Water District	Rosie	Active	Monitoring	720-780	D	Near agriculture; area of subsurface outflow toward Salton Sea
91	05S07E24L03S	Indio Water Authority	Well 1E	Active	MUN	552-815	D	Center of Indio subbasin; upgradient of VSD plant
92	02S04E28J01S	Mission Springs Water District	Well 35	Active	MUN	725-1020	D	Downgradient from Mission Creek GRF
93	02S04E36P01S	Mission Springs Water District	Well 37	Active	MUN	450-1080	D	Downgradient of DHS subbasin; possibly downgradient of Horton WWTP
94	02S05E31H01S	Mission Springs Water District	Well 5	Inactive	Monitoring	274-784	D	Northern Miracle Hill subarea; upgradient of Mission Creek subbasin
95	03S03E07D01S	Mission Springs Water District	Well 25A	Active	MUN	500-740	D	Monitoring of subsurface inflow from San Geronio Pass subbasin
96	03S04E04P01S	CPV Sentinel	03S04E04P01S	Active	Unknown		D	Upgradient portion of Mission Creek subbasin
97	03S04E11A02S	Mission Springs Water District	Well 32	Active	MUN	320-980	D	Center of Mission Creek subbasin; near potential septic areas
98	03S03E08A01S	Mission Springs Water District	Well 26A	Active	MUN	320-600	D	Monitoring of subsurface inflow from San Geronio Pass subbasin
99	03S03E10P01S	Agua Caliente	DWA P04	Active	Unknown	476-776	D	Upgradient of Whitewater GRF
100	03S04E14J01S	Mission Springs Water District	Well 33	Active	MUN	360-650	D	Along boundary of Mission Creek subbasin/Garnet Hill subarea
101	03S04E19L01S	Desert Water Agency	DWA Well 43	Active	MUN	500-900	D	Upgradient of Whitewater GRF
102	03S04E34H02S	Desert Water Agency	DWA Well 35	Active	MUN	600-1000	D	Upgradient of urban land uses in Palm Springs; downgradient of WW-GRF
103	03S04E36Q01S	Desert Water Agency	DWA Well 38	Active	MUN	620-1000	D	Upgradient of urban land uses in Palm Springs; downgradient of WW-GRF
104	04S04E02B01S	Desert Water Agency	DWA Well 22	Active	MUN	570-1003	D	Upgradient of urban land uses in Palm Springs; downgradient of WW-GRF
105	04S04E11Q02S	Desert Water Agency	DWA Well 18	Standby	MUN	535-948	D	Western portion of Indio subbasin; downgradient of septic areas
106	04S04E13C01S	Desert Water Agency	DWA Well 23	Active	MUN	512-912	D	Center of Indio subbasin; near airport
107	04S04E24E01S	Desert Water Agency	DWA Well 32	Active	MUN	600-1000	D	Western portion of Palm Springs subarea; near areas served non-potable water (NPW)
108	04S04E24H01S	Desert Water Agency	DWA Well 29	Active	MUN	600-1000	D	Upgradient of Palm Springs WTP percolation ponds
109	04S04E25C01S	Desert Water Agency	DWA Well 39	Active	MUN	580-750	D	Downgradient of Indian Canyon; near golf, septic, and areas served NPW
110	04S05E05A01S	Coachella Valley Water District	CVWD Well 4568-1	Active	MUN	800-955	D	Eastern edge of Indio subbasin; downgradient from Garnet Hill; upgradient of septic areas
111	04S05E08N01S	Desert Water Agency	DWA Well 41	Active	MUN	610-1000	D	Center of Indio subbasin; near airport, near golf courses and areas served NPW
112	04S05E09R01S	Coachella Valley Water District	CVWD Well 4567-1	Active	MUN	855-1150	D	Center of Indio subbasin; near golf courses and septic areas
113	04S05E15G01S	Coachella Valley Water District	CVWD Well 4521-1	Active	MUN	500-800	D	Center of Indio subbasin; near golf courses and septic areas
114	04S05E17Q02S	Desert Water Agency	DWA Well 31	Active	MUN	600-1000	D	Center of Indio subbasin; near airport, golf courses, and areas served NPW
115	04S05E25D02S	Coachella Valley Water District	CVWD Well 4507-2	Active	MUN	860-1320	D	Center of Indio subbasin; near golf courses and septic areas
116	04S05E27K01S	Coachella Valley Water District	CVWD Well 4527-1	Active	MUN	850-1155	D	Western edge of Indio subbasin; near NPR and septic areas
117	04S05E29H01S	Desert Water Agency	DWA Well 26	Active	MUN	590-990	D	Downgradient of Palm Springs WTP percolation ponds; near golf and areas served NPW
118	04S05E35G04S	Coachella Valley Water District	CVWD Well 4504-1	Active	MUN	600-1000	D	Western edge of Indio subbasin; near septic and areas served NPW
119	04S06E18Q04S	Coachella Valley Water District	CVWD Well 4630-1	Active	MUN	480-990	D	Upgradient in Thousand Palms area; upgradient of septic areas
120	04S06E28K04S	Coachella Valley Water District	CVWD Well 4629-1	Active	Monitoring	496-796	D	Thousand Palms area; near septic and areas served NPW
121	04S07E31H01S	Coachella Valley Water District	CVWD Well 4722-1	Active	MUN	570-1160	D	Thousand Palms area; near septic and areas served NPW
122	04S07E33L01S	Coachella Valley Water District	WRP7 MW-2D	Active	MUN	245-395	D	Near WRP-7 percolation ponds
123	05S06E02C01S	Coachella Valley Water District	CVWD Well 5664-1	Active	MUN	500-930	D	Thousand Palms area; near septic and areas served NPW
124	05S06E06B03S	Coachella Valley Water District	CVWD Well 5630-1	Active	Monitoring	455-890	D	Center of Indio subbasin; near golf, septic, and areas served NPW
125	05S06E09A01S	Coachella Valley Water District	CVWD Well 5682-1	Active	Monitoring	850-1300	D	Upgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
126	05S06E09F01S	Coachella Valley Water District	CVWD Well 5637-1	Inactive	MUN	450-830	D	Upgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
127	05S06E14B02S	Coachella Valley Water District	CVWD Well 5665-1	Inactive	MUN	400-600	D	Downgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
128	05S06E14P02S	Coachella Valley Water District	CVWD Well 5603-2	Active	MUN	720-975	D	Downgradient of WRP-10/PD-GRF; near golf courses and areas served NPW
129	05S06E16A04S	Coachella Valley Water District	CVWD Well 5620-2	Active	MUN	1040-1360	D	Upgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
130	05S06E16K03S	Coachella Valley Water District	CVWD Well 5681-1	Active	Monitoring	900-1200	D	Upgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
131	05S06E17L01S	Coachella Valley Water District	CVWD Well 5667-1	Active	Monitoring	470-800	D	Western edge of Indio subbasin; near golf, septic, and areas served NPW
132	05S06E20A02S	Coachella Valley Water District	CVWD Well 5674-1	Inactive	Monitoring	750-1050	D	South/cross-gradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
133	05S07E03D01S	Coachella Valley Water District	WRP7 MW-4D	Active	MUN	245-395	D	Near WRP-7 percolation ponds
134	05S07E04A01S	Coachella Valley Water District	WRP7 MW-1 Dave Price	Active	Monitoring	147-367	D	Near WRP-7 percolation ponds
135	05S07E15N01S	Indio Water Authority	Well AA	Active	MUN	550-1230	D	Center of Indio subbasin; downgradient from areas served NPW
136	05S07E19A01S	Coachella Valley Water District	CVWD Well 5708-1	Inactive	MUN	450-970	D	Western portion of Indio subbasin; near golf courses and areas served NPW
137	05S07E20J01S	Indio Water Authority	Well T	Active	MUN	580-1305	D	Western portion of Indio subbasin; near golf courses and areas served NPW
138	05S07E26E02S	Indio Water Authority	Well 3B	Active	MUN	500-1200	D	Center of Indio subbasin

Table 3-2. SNMP Groundwater Monitoring Network -- Deep Aquifer System

Map_ID	SWN	Well Owner	Well Name	Well Status ^(a)	Well Use ^(b)	Screen Interval ft-bgs	Depth Code ^(c)	Justification for Inclusion in SNMP Monitoring Program
139	05S07E27P01S	Indio Water Authority	Well Z	Active	MUN	580-1290	D	Center of Indio subbasin
140	05S07E33E01S	Indio Water Authority	Well S	Active	MUN	460-1260	D	Western portion of Indio subbasin; near golf courses and septic areas
141	05S07E34P04S	Indio Water Authority	Well V	Active	MUN	460-1270	D	Western portion of subbasin; near golf courses and septic areas
142	05S07E35R02S	Indio Water Authority	Well U	Active	MUN	480-1190	D	Center of Indio subbasin
143	05S07E36D03S	Coachella Water Authority	Well 19	Active	MUN	650-1250	D	Center of Indio subbasin
144	05S08E31C03S	Coachella Water Authority	Well 11	Active	MUN	513-818	D	Eastern portion of Indio subbasin; downgradient from VSD plant
145	06S07E06B01S	Coachella Valley Water District	CVWD Well 6701-1	Active	MUN	580-800	D	Downgradient from The Cove; near golf courses and septic areas
146	06S07E22B02S	Coachella Valley Water District	CVWD Well 6726-1	Active	MUN	640-1160	D	North/downgradient of TEL-GRF; near golf courses, septic, and agricultural areas
147	06S07E34A01S	Coachella Valley Water District	CVWD Well 6728-1	Active	MUN	500-750	D	Downgradient from TEL-GRF; near golf courses
148	06S07E34D01S	Coachella Valley Water District	CVWD Well 6729-1	Active	MUN	500-780	D	Directly north/downgradient of TEL-GRF
149	06S08E06K02S	Coachella Water Authority	Well 12	Active	MUN	500-1010	D	Eastern portion of Indio subbasin
150	06S08E09N02S	Coachella Water Authority	Well 16	Active	Monitoring	480-730	D	Eastern portion of Indio subbasin; upgradient from CWA/CSD WWTP
151	06S08E19D05S	Coachella Valley Water District	CVWD Well 6808-1	Active	MUN	675-1200	D	Center of Indio subbasin; near septic and agricultural areas
152	06S08E22D02S	Coachella Valley Water District	CVWD Well 6803-1	Inactive	MUN	500-1100	D	Downgradient from CWA/CSD WWTP; near septic and agricultural areas
153	06S08E25P04S	Coachella Valley Water District	CVWD Well 6807-1	Active	MUN	665-1300	D	Upgradient of WRP-4; downgradient of CWA WWTP; near agriculture and septic areas
154	06S08E28N06S	Coachella Water Authority	Well 18	Active	Monitoring	900-1190	D	Eastern edge of Indio subbasin; downgradient of VSD discharge point
155	07S08E17A04S	Coachella Valley Water District	CVWD Well 7803-1	Active	MUN	250-710	D	Downgradient from TEL-GRF; in agricultural and septic areas
156	07S09E23N01S	Coachella Valley Water District	CVWD Well 7990-1	Inactive	Unknown	530-560	D	Southeastern corner of the basin; near agricultural and septic areas; near Salton Sea
157		Indio Water Authority	Well 13A	Active	Irrigation	550-1171	D	East in subbasin; downgradient from WRP-7 ponds and NPR areas
158	03S05E08B01S	R.C Roberts	03S05E08B01S	Undetermined	Irrigation	356-516	D	Downgradient of DHS subbasin; near golf course and septic areas
159	03S05E17M01S	Desert Dunes Golf Club	03S05E17M01S	Active	Unknown	305-412	D	Upgradient of Garnet Hill subarea; near golf course and septic areas
160	03S05E20H02S	Donald Franklin	03S05E20H02S	Active	Irrigation	240-360	D	Distal area in Mission Creek subbasin; upgradient of Garnet Hill subarea; near septic
161	03S06E21R01S	Joel Rosenfeld	03S06E21R01S	Undetermined	Irrigation	355-495	D	Western portion of Sky Valley subarea; near septic
162	05S05E12B03S	Tandika Corp	05S05E12B03S	Active	Irrigation	410-800	D	Western edge of Indio subbasin; near NPR and septic areas
163	05S06E13F01S	PD Golf Operations LLC	05S06E13F01S	Active	Irrigation	400-700	D	Downgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
164	05S06E15H01S	Toscana Country Club	05S06E15H01S	Active	Irrigation	430-950	D	Downgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
165	05S06E22C02S	Desert Horizons Country Club	05S06E22C02S	Active	Irrigation	550-990	D	Downgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
166	05S06E27A01S	El Dorado Country Club	05S06E27A01S	Active	MUN	458-596	D	South/cross-gradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
167	05S06E29P04S	Bighorn Golf Club	05S06E29P04S	Active	MUN	530-720	D	Upgradient of Palm Desert; near golf courses and septic areas
168	05S07E07F04S	Myoma Dunes Mutual Water Company	Well 4	Active	MUN	430-730	D	Center of Indio subbasin; near areas served NPW
169	05S07E08L01S	Myoma Dunes Mutual Water Company	Well 11	Active	Unknown	500-1060	D	Center of Indio subbasin; near areas served NPW
170	05S07E17K01S	Myoma Dunes Mutual Water Company	Well 12	Active	Irrigation	450-950	D	Center of Indio subbasin; near areas served NPW
171	05S08E09N03S	Jamie Brack	05S08E09N03S	Undetermined	Unknown	480-580	D	Downgradient of septic areas in Fargo subarea; upgradient of Indio subbasin
172	06S07E27B01S	Andalusia Golf Club	06S07E27B01S	Active	Irrigation	300-780	D	Downgradient of TEL-GRF; near golf course and agricultural areas
173	06S07E35L02S	Castro Bros	Castro Bros	Active	Unknown	300-400	D	Downgradient from TEL-GRF; near golf courses and agricultural areas
174	06S08E11A01S	Cocopah Nurseries Inc	06S08E11A01S	Active	Unknown	400-842	D	Eastern edge of Indio subbasin; near agriculture; upgradient from CWA/CSD WWTP
175	06S08E31P01S	Deer Creek	Deer Creek	Active	Irrigation	400-550	D	Downgradient from TEL-GRF; in agricultural area
176	06S08E35E02S	Otto L. Zahler	06S08E35E02S	Undetermined	Unknown	521-596	D	Center of Indio subbasin; directly upgradient of WRP-4; in agricultural area
177	07S07E02G02S	Warren Webber	Warren Webber	Active	Irrigation	380-700	D	Downgradient from TEL-GRF; in agricultural area
178	07S08E01L02S	Bill Wordon	07S08E01L02S	Undetermined	Domestic	500-880	D	Center of Indio subbasin; downgradient of WRP-4, in agricultural area
179	07S08E27A02S	Gimmway Enterprises Inc	07S08E27A02S	Active	MUN	491-811	D	Downgradient from Martinez Canyon GRF; in agricultural area
180	07S09E10F01S	Prime Time International	07S09E10F01S	Active	Unknown	360-500	D	Southeast Indio subbasin; in agricultural area; near Salton Sea
181		Mission Springs Water District	Well 31	Active	MUN	270-670	D	Upgradient of Garnet Hill subarea; near potential septic areas in N. Palm Springs

(a) Well Status: Well Status: "Active" means well is known to exist and currently used for original purpose; "Standby" means active backup well; "Inactive" means well exists but is no longer used as a water-supply.

(b) Well Use: MUN = municipal and domestic supply

(c) Depth Code: This monitoring program assigns wells to aquifer layers by depth. P = Perched aquifer system, mainly in the Thermal subarea. S = Shallow aquifer system. D = Deep aquifer system

Table 3-3. SNMP Groundwater Monitoring Network -- Perched Aquifer System

Map_ID	SWN	Well Owner	Well Name	Well Status ^(a)	Well Use ^(b)	Screen Interval ft-bgs	Depth Code ^(c)	Justification for Inclusion in SNMP Monitoring Program
182		Coachella Valley Water District	WRP2 MW3	Active	Monitoring	<90	P	At WRP-2; represents subsurface discharge to Salton Sea
183	06S07E27J03S	Coachella Valley Water District	TEL-GRF MW-8	Active	Monitoring	25-45	P	North/downgradient of TEL-GRF; near golf course and agriculture
184	06S07E34A03S	Coachella Valley Water District	TEL-GRF MW-9	Active	Monitoring	25-45	P	Downgradient from TEL-GRF and golf course
185	06S08E31R01S	Coachella Valley Water District	TEL-GRF MW-10	Active	Monitoring	25-45	P	Downgradient from TEL-GRF; agricultural area
186	07S08E06P01S	Coachella Valley Water District	TEL-GRF MW-11	Active	Monitoring	25-45	P	Downgradient from TEL-GRF; agricultural area
187		Coachella Valley Water District	PEW-1	Active	Monitoring	10-55	P	At WRP-4; agricultural area

(a) Well Status: "Active" means well is known to exist and currently used for original purpose; "Standby" means active backup well; "Inactive" means well exists but is no longer used as a water-supply.

(b) Well Use: MUN = municipal and domestic supply

(c) Depth Code: This monitoring program assigns wells to aquifer layers by depth. P = Perched aquifer system, mainly in the Thermal subarea. S = Shallow aquifer system. D = Deep aquifer system

Table 3-4. Gaps in SNMP Groundwater Monitoring Network

Map_ID	Depth Code ^(a)	Justification for Inclusion in SNMP Monitoring Program	Approx. Depth of Well Screens	Overlying SNMP Agency ^(b)
G1	S	Monitoring of subsurface inflows from areas upgradient of Mission Creek GRF	700-1000 ft-bgs	DWA, MSWD
G2	S	Monitoring directly downgradient of the planned MSWD West Valley WWTP	200-300 ft-bgs	MSWD, DWA
G3	S	Monitoring of southern Miracle Hill subarea; near septic; upgradient of Desert Crest WWTP	100-300 ft-bgs	CVWD
G4	S	Monitoring of the Fargo subarea of DHS subbasin; near septic	100-300 ft-bgs	CVWD
G5	S	Monitoring upgradient of urban land uses in Palm Springs; downgradient of WW-GRF	300-500 ft-bgs	DWA
G6	S	Monitoring center of Indio subbasin; near airport, golf courses, and areas served non-potable water (NPW)	250-350 ft-bgs	DWA
G7	S	Monitoring a spatial gap in western portion of Indio subbasin; near golf courses, septic and areas served NPW	200-300 ft-bgs	CVWD
G8	S	Monitoring of subsurface inflows from areas upgradient of urban land uses in Palm Desert Canyon	250-400 ft-bgs	CVWD
G9	S	Monitoring a spatial gap in western portion of Indio subbasin; near golf courses and septic	100-250 ft-bgs	CVWD, IWA
G10	S	Monitoring downgradient from CWA/CSD WWTP; near septic areas and agriculture	100-250 ft-bgs	CVWD
G11	S	Monitoring a spatial gap downgradient of TEL-GRF; near golf courses, septic, and agricultural areas	85-160 ft-bgs	CVWD
G12	S	Monitoring a spatial gap in center of Indio subbasin; near septic areas and agriculture	100-235 ft-bgs	CVWD
G13	S	Monitoring a spatial gap downgradient from TEL-GRF; in agricultural areas	50-150 ft-bgs	CVWD
G14	S	Monitoring a spatial gap downgradient of WRP-4; in agricultural area; near Salton Sea	100-250 ft-bgs	CVWD
G15	S	Monitoring a spatial gap directly upgradient of WRP-4; in agricultural area	100-275 ft-bgs	CVWD
G16	S	Monitoring a spatial gap upgradient of WRP-4; downgradient of CWA/CSD WWTP; near agriculture, septic	100-250 ft-bgs	CVWD
G17	P	Monitoring a spatial gap in northern portion of Perched area; downgradient from Fargo subarea	<100 ft-bgs	CVWD, IWA, VSD
G18	P	Monitoring a spatial gap on eastern side of Perched area; in agricultural area	<70 ft-bgs	CVWD, CWA/CSD
G19	P	Monitoring a spatial gap in center of Perched area; near agricultural and septic areas	<90 ft-bgs	CVWD, CWA/CSD
G20	P	Monitoring a spatial gap in southern basin; may represent subsurface discharge to Salton Sea	<70 ft-bgs	CVWD
G21	P	Monitoring a spatial gap in southern basin; may represent subsurface discharge to Salton Sea	<70 ft-bgs	CVWD
G22	P	Monitoring a spatial gap in southern basin; may represent subsurface discharge to Salton Sea	<90 ft-bgs	CVWD
G23	S	Monitoring a spatial gap in Thousand Palms area; near septic and areas served NPW	150-300 ft-bgs	CVWD

(a) Depth Code: This monitoring program assigns wells to aquifer layers by depth. P = Perched aquifer system, mainly in the Thermal subarea. S = Shallow aquifer system.

(b) CVWD = Coachella Valley Water District; CWA/CSD = Coachella Water Authority and Sanitary District; DWA = Desert Water Agency; IWA = Indio Water Authority; VSD = Valley Sanitary District; MSWD = Mission Springs Water District

Table 3-5. Analyte List for the SNMP Groundwater Monitoring Program

Analytes	Justification	Method	Cost/Sample
Total Dissolved Solids	Measure of total dissolved salt content in water	E160.1/SM2540C	\$14
Nitrate as Nitrogen	Primary nutrient in groundwater	EPA 300.0	\$12
Major cations: K, Na, Ca, Mg	Useful in source water characterization	EPA 200.7	\$20
Major anions: Cl, SO ₄	Useful in source water characterization	EPA 300.0	\$18
Total Alkalinity (HCO ₃ , CO ₃ , OH)	Useful in source water characterization	SM 2320B/2330B	\$13

Table 3-6. Responsibilities for Groundwater Sampling and Laboratory Analyses

Map_ID	SWN	Well Owner	Well Name	Well Status ^(a)	Well Use ^(b)	Screen Interval ft-bgs	Depth Code ^(c)	Overlying SNMP Agency ^(d)
1	03S04E20F01S	USGS	335348116352701	Active	Monitoring	600-640	S	CVWD
2	03S04E20J01S	USGS	335339116345301	Active	Monitoring	550-590	S	CVWD
3	06S07E33G02S	Coachella Valley Water District	TEL-GRF MW-21S	Active	Monitoring	230-250	S	CVWD
4	06S07E33J02S	Coachella Valley Water District	TEL-GRF MW-22S	Active	Monitoring	230-250	S	CVWD
5	06S07E34N03S	Coachella Valley Water District	TEL-GRF MW-23S	Active	Monitoring	230-250	S	CVWD
7	02S04E26C01S	Mission Springs Water District	Well 28	Inactive	MUN	590-898	S	MSWD
8	02S04E28A01S	Mission Springs Water District	Well 34	Active	MUN	550-980	S	MSWD
9	02S05E31L01S	Mission Springs Water District	Well 11	Inactive	Unknown	220-285	S	MSWD
10	03S04E04Q02S	CPV Sentinel	03S04E04Q02S	Active	Unknown		S	DWA, MSWD
11	03S04E11L01S	Mission Springs Water District	Well 27	Active	MUN	180-380	S	MSWD
12	03S05E05Q01S	Hidden Springs Golf Course	P27	Active	Unknown	220-600	S	DWA, MSWD
13		City of Palm Springs	Airport MW-2	Active	Monitoring	240-250	S	CPS
14		City of Palm Springs	MW-1	Active	Monitoring	170-210	S	CPS
15		City of Palm Springs	MW-3	Active	Monitoring	140-215	S	CPS
16		City of Palm Springs	MW-4	Active	Monitoring	170-210	S	CPS
17		City of Palm Springs	MW-5	Active	Monitoring	170-210	S	CPS
18		City of Palm Springs	MW-6	Active	Monitoring	170-210	S	CPS
19	03S03E08M01S	Mission Springs Water District	Well 26	Active	MUN	225-553	S	MSWD
20	03S03E10P02S	Agua Caliente	DWA P05	Active	Unknown	306-906	S	DWA
21	03S04E12B02S	Coachella Valley Water District	CVWD Well 3408-1	Active	MUN	270-500	S	CVWD
22	03S04E29F01S	USGS	335304116353001	Active	Monitoring	550-570	S	CVWD
23	03S04E29R01S	USGS	335231116345401	Active	Monitoring	431-551	S	CVWD
24	04S04E11Q01S	Desert Water Agency	DWA Well 5	Standby	MUN	302-402	S	DWA
25	04S04E35A01S	Agua Caliente	Indian Canyons Well	Active	Unknown	360-680	S	DWA
26	04S05E09F03S	Coachella Valley Water District	CVWD Well 4564-1	Active	MUN	410-670	S	CVWD
27	04S05E29A02S	Desert Water Agency	DWA Well 25	Active	MUN	166-300	S	DWA
29	04S07E33L02S	Coachella Valley Water District	WRP7 MW-2S	Active	Monitoring	60-190	S	CVWD
30	05S06E09M03S	Coachella Valley Water District	WRP10 MW-7	Active	Monitoring	260-340	S	CVWD
31	05S06E09P02S	Coachella Valley Water District	PD-GRF MW 2	Active	Monitoring	260-340	S	CVWD
32	05S06E10J01S	Coachella Valley Water District	PD-GRF MW 1	Active	Monitoring	260-340	S	CVWD
33	05S06E13G03S	Coachella Valley Water District	WRP10 MW-8	Active	Monitoring	260-340	S	CVWD
34	05S06E14G03S	Coachella Valley Water District	WRP10 MW-5	Active	Monitoring	240-320	S	CVWD
35	05S06E14P03S	Coachella Valley Water District	WRP10 MW-6	Active	Monitoring	190-270	S	CVWD
36	05S06E15F01S	Coachella Valley Water District	WRP10 MW-2	Active	Monitoring	160-290	S	CVWD
37	05S06E15M01S	Coachella Valley Water District	WRP10 MW-1	Active	Monitoring	145-295	S	CVWD
38	05S06E15P01S	Coachella Valley Water District	WRP10 MW-3	Active	Monitoring	130-290	S	CVWD
39	05S06E16A03S	Coachella Valley Water District	WRP10 MW-4	Active	Monitoring	190-270	S	CVWD
40	05S06E21Q04S	Coachella Valley Water District	PD-GRF MW 3	Active	Monitoring	260-340	S	CVWD
41	05S06E23M02S	Coachella Valley Water District	PD-GRF MW 4	Active	Monitoring	270-360	S	CVWD
42	05S07E03D02S	Coachella Valley Water District	WRP7 MW-4S	Active	Monitoring	60-190	S	CVWD
43	05S07E04A04S	Coachella Valley Water District	WRP7 MW-3S	Active	Monitoring	50-180	S	CVWD
44	05S07E16K02S	Coachella Valley Water District	CVWD Well 5737-1	Inactive	MUN	200-415	S	CVWD, IWA, VSD
45	05S07E19D04S	Coachella Valley Water District	WRP10 MW-9	Active	Monitoring	260-340	S	CVWD
46	05S07E24M02S	Indio Water Authority	Well 1B	Active	Monitoring	190-410	S	IWA
47	06S06E12G01S	Coachella Valley Water District	CVWD Well 6650-1	Inactive	Monitoring	<370	S	CVWD
48	06S07E34A02S	Coachella Valley Water District	TEL-GRF MW-25	Active	Monitoring	115-135	S	CVWD
49	06S07E34D02S	Coachella Valley Water District	TEL-GRF MW-24	Active	MUN	180-200	S	CVWD
50	07S08E29P03S	Coachella Valley Water District	MC-3	Active	Unknown	380-440	S	CVWD
51	08S09E31R03S	Coachella Valley Water District	CVWD Well 8995-1	Active	Unknown	260-390	S	CVWD
52	03S04E17K01S	Valley View MWC	03S04E17K01S	Undetermined	Fish Farm	340-375	S	DWA, MSWD
53	03S04E22A01S	Erin Miner	03S04E22A01S	Active	Irrigation	180-230	S	DWA
54	03S05E08P02S	Bluebeyond Fisheries	03S05E08P02S	Active	Irrigation	200-400	S	CVWD
55	03S05E15N01S	Too Many Palms LLC	03S05E15N01S	Active	Unknown	158-320	S	CVWD
56	03S05E18J01S	Desert Dunes Golf Club	03S05E18J01S	Active	Irrigation	76-340	S	CVWD
57	03S06E21G01S	Sky Valley Mobile Home Park	03S06E21G01S	Undetermined	Irrigation	188-248	S	CVWD
58	04S05E04F01S	So Pacific Trans Co #32601	04S05E04F01S	Active	Irrigation	276-576	S	CVWD
59	04S05E23F01S	Westin Mission Hills Resort	04S05E23F01S	Active	Irrigation	275-1165	S	CVWD
60	04S05E34C01S	Manufacture Home Community Inc	04S05E34C01S	Active	Irrigation	240-500	S	CVWD
61	04S05E35Q01S	Tamarisk Country Club	04S05E35Q01S	Active	Irrigation	171-518	S	CVWD
62	04S05E36L02S	Annenberg Estate	04S05E36L02S	Active	Unknown	252-650	S	CVWD
63	04S06E20C01S	Shenandoah Ventures LP	04S06E20C01S	Inactive	Irrigation	250-790	S	CVWD
66	05S05E12D01S	Thunderbird Country Club	05S05E12D01S	Active	Domestic	125-360	S	CVWD
67	05S06E12M01S	Palm Desert Resort Country Club	05S06E12M01S	Active	Domestic	140-650	S	CVWD
68	05S07E08Q01S	Bermuda Dunes Airport	05S07E08Q01S	Active	Unknown	203-654	S	CVWD, MDMWC

Table 3-6. Responsibilities for Groundwater Sampling and Laboratory Analyses

Map_ID	SWN	Well Owner	Well Name	Well Status ^(a)	Well Use ^(b)	Screen Interval ft-bgs	Depth Code ^(c)	Overlying SNMP Agency ^(d)
69	05S07E28H02S	Tricon/COB Riverdale LP	05S07E28H02S	Active	Domestic	162-636	S	CVWD, IWA, VSD
70	05S08E28M02S	JS Cooper	05S08E28M02S	Undetermined	Irrigation	208-268	S	CVWD, CWA/CSD
71	05S08E30N03S	Carver Tract Mutual Water Co	05S08E30N03S	Active	Irrigation	270-330	S	CVWD, VSD
72	06S07E07B01S	Traditions Golf Club	06S07E07B01S	Active	Irrigation	200-480	S	CVWD
73	06S08E02L01S	Prime Time International	06S08E02L01S	Undetermined	Unknown	216-407	S	CVWD, CWA/CSD
74	06S08E05K01S	Peter Rabbit Farms	06S08E05K01S	Active	Domestic	126-375	S	CVWD, CWA/CSD
75	06S08E32L01S	Guillermo Torres	06S08E32L01S	Undetermined	Domestic	127-227	S	CVWD
76	07S08E27A01S	Gimmway Enterprises Inc	07S08E27A01S	Active	Irrigation	147-215	S	CVWD
77	07S09E14C01S	Tudor Ranch Inc.	07S09E14C01S	Active	MUN	93-290	S	CVWD
78	08S08E15G02S	Thermiculture Management LLC	08S08E15G02S	Active	Monitoring	260-500	S	CVWD
79		Mission Springs Water District	Well 25	Active	Monitoring	330-455	S	MSWD
80		Mission Springs Water District	Well 1	Inactive	Monitoring		S	MSWD
81		Mission Springs Water District	Horton WWTP MW-1	Active	Monitoring	186-236	S	MSWD
82		Mission Springs Water District	Horton WWTP MW-2	Active	Monitoring	220-270	S	MSWD
83		Mission Springs Water District	Horton WWTP MW-3	Active	Monitoring	200-250	S	MSWD
84	03S04E20F02S	USGS	335348116352702	Active	Monitoring	850-890	D	CVWD
85	03S04E20J03S	USGS	335339116345303	Active	Monitoring	850-890	D	CVWD
86	06S07E33G01S	Coachella Valley Water District	TEL-GRF MW-21D	Active	Monitoring	390-410	D	CVWD
87	06S07E33J01S	Coachella Valley Water District	TEL-GRF MW-22D	Active	Monitoring	520-540	D	CVWD
88	06S07E34N02S	Coachella Valley Water District	TEL-GRF MW-23D	Active	Monitoring	525-545	D	CVWD
89	07S09E30R03S	Coachella Valley Water District	Peggy	Active	MUN	730-770	D	CVWD
90	08S09E07N02S	Coachella Valley Water District	Rosie	Active	MUN	720-780	D	CVWD
91	05S07E24L03S	Indio Water Authority	Well 1E	Active	MUN	552-815	D	IWA
92	02S04E28J01S	Mission Springs Water District	Well 35	Active	Monitoring	725-1020	D	MSWD
93	02S04E36P01S	Mission Springs Water District	Well 37	Active	MUN	450-1080	D	MSWD
94	02S05E31H01S	Mission Springs Water District	Well 5	Inactive	Unknown	274-784	D	MSWD
95	03S03E07D01S	Mission Springs Water District	Well 25A	Active	MUN	500-740	D	MSWD
96	03S04E04P01S	CPV Sentinel	03S04E04P01S	Active	MUN		D	DWA, MSWD
97	03S04E11A02S	Mission Springs Water District	Well 32	Active	Unknown	320-980	D	MSWD
98	03S03E08A01S	Mission Springs Water District	Well 26A	Active	MUN	320-600	D	MSWD
99	03S03E10P01S	Agua Caliente	DWA P04	Active	MUN	476-776	D	DWA
100	03S04E14J01S	Mission Springs Water District	Well 33	Active	MUN	360-650	D	MSWD
101	03S04E19L01S	Desert Water Agency	DWA Well 43	Active	MUN	500-900	D	DWA
102	03S04E34H02S	Desert Water Agency	DWA Well 35	Active	MUN	600-1000	D	DWA
103	03S04E36Q01S	Desert Water Agency	DWA Well 38	Active	MUN	620-1000	D	DWA
104	04S04E02B01S	Desert Water Agency	DWA Well 22	Active	MUN	570-1003	D	DWA
105	04S04E11Q02S	Desert Water Agency	DWA Well 18	Standby	MUN	535-948	D	DWA
106	04S04E13C01S	Desert Water Agency	DWA Well 23	Active	MUN	512-912	D	DWA
107	04S04E24E01S	Desert Water Agency	DWA Well 32	Active	MUN	600-1000	D	DWA
108	04S04E24H01S	Desert Water Agency	DWA Well 29	Active	MUN	600-1000	D	DWA
109	04S04E25C01S	Desert Water Agency	DWA Well 39	Active	MUN	580-750	D	DWA
110	04S05E05A01S	Coachella Valley Water District	CVWD Well 4568-1	Active	MUN	800-955	D	CVWD
111	04S05E08N01S	Desert Water Agency	DWA Well 41	Active	MUN	610-1000	D	DWA
112	04S05E09R01S	Coachella Valley Water District	CVWD Well 4567-1	Active	MUN	855-1150	D	CVWD
113	04S05E15G01S	Coachella Valley Water District	CVWD Well 4521-1	Active	MUN	500-800	D	CVWD
114	04S05E17Q02S	Desert Water Agency	DWA Well 31	Active	MUN	600-1000	D	DWA
115	04S05E25D02S	Coachella Valley Water District	CVWD Well 4507-2	Active	MUN	860-1320	D	CVWD
116	04S05E27K01S	Coachella Valley Water District	CVWD Well 4527-1	Active	MUN	850-1155	D	CVWD
117	04S05E29H01S	Desert Water Agency	DWA Well 26	Active	MUN	590-990	D	DWA
118	04S05E35G04S	Coachella Valley Water District	CVWD Well 4504-1	Active	MUN	600-1000	D	CVWD
119	04S06E18Q04S	Coachella Valley Water District	CVWD Well 4630-1	Active	MUN	480-990	D	CVWD
120	04S06E28K04S	Coachella Valley Water District	CVWD Well 4629-1	Active	Monitoring	496-796	D	CVWD
121	04S07E31H01S	Coachella Valley Water District	CVWD Well 4722-1	Active	MUN	570-1160	D	CVWD
122	04S07E33L01S	Coachella Valley Water District	WRP7 MW-2D	Active	MUN	245-395	D	CVWD
123	05S06E02C01S	Coachella Valley Water District	CVWD Well 5664-1	Active	MUN	500-930	D	CVWD
124	05S06E06B03S	Coachella Valley Water District	CVWD Well 5630-1	Active	Monitoring	455-890	D	CVWD
125	05S06E09A01S	Coachella Valley Water District	CVWD Well 5682-1	Active	Monitoring	850-1300	D	CVWD
126	05S06E09F01S	Coachella Valley Water District	CVWD Well 5637-1	Inactive	MUN	450-830	D	CVWD
127	05S06E14B02S	Coachella Valley Water District	CVWD Well 5665-1	Inactive	MUN	400-600	D	CVWD
128	05S06E14P02S	Coachella Valley Water District	CVWD Well 5603-2	Active	MUN	720-975	D	CVWD
129	05S06E16A04S	Coachella Valley Water District	CVWD Well 5620-2	Active	MUN	1040-1360	D	CVWD
130	05S06E16K03S	Coachella Valley Water District	CVWD Well 5681-1	Active	Monitoring	900-1200	D	CVWD
131	05S06E17L01S	Coachella Valley Water District	CVWD Well 5667-1	Active	Monitoring	470-800	D	CVWD
132	05S06E20A02S	Coachella Valley Water District	CVWD Well 5674-1	Inactive	Monitoring	750-1050	D	CVWD

Table 3-6. Responsibilities for Groundwater Sampling and Laboratory Analyses

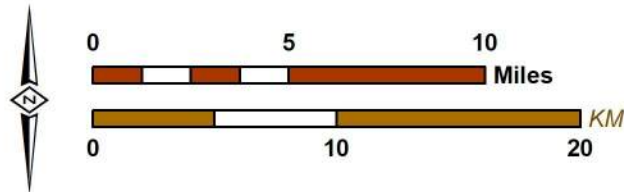
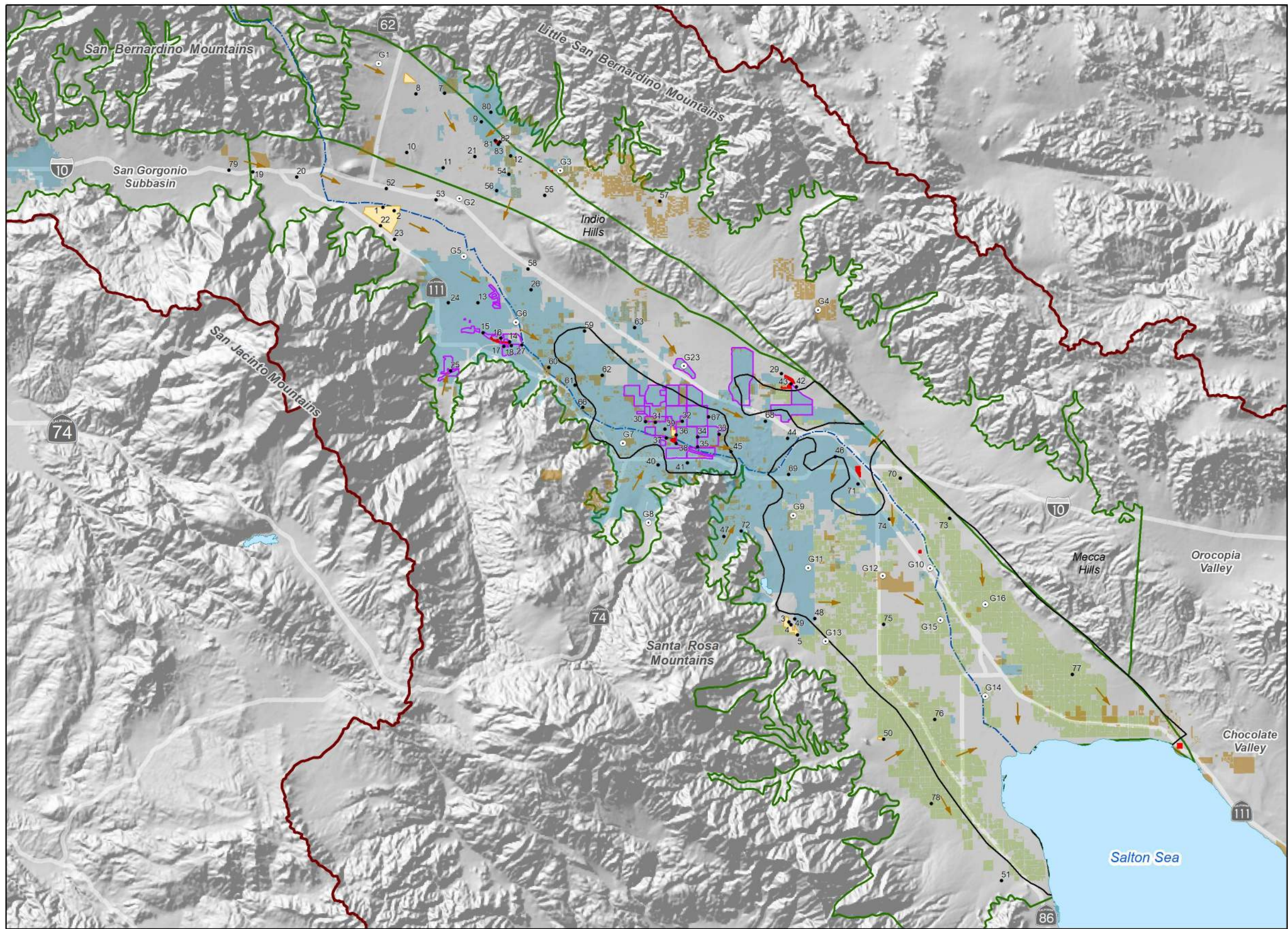
Map_ID	SWN	Well Owner	Well Name	Well Status ^(a)	Well Use ^(b)	Screen Interval ft-bgs	Depth Code ^(c)	Overlying SNMP Agency ^(d)
133	05S07E03D01S	Coachella Valley Water District	WRP7 MW-4D	Active	MUN	245-395	D	CVWD
134	05S07E04A01S	Coachella Valley Water District	WRP7 MW-1	Active	Monitoring	147-367	D	CVWD
135	05S07E15N01S	Indio Water Authority	Well AA	Active	MUN	550-1230	D	IWA
136	05S07E19A01S	Coachella Valley Water District	CVWD Well 5708-1	Inactive	MUN	450-970	D	CVWD
137	05S07E20J01S	Indio Water Authority	Well T	Active	MUN	580-1305	D	IWA
138	05S07E26E02S	Indio Water Authority	Well 3B	Active	MUN	500-1200	D	IWA
139	05S07E27P01S	Indio Water Authority	Well Z	Active	MUN	580-1290	D	IWA
140	05S07E33E01S	Indio Water Authority	Well S	Active	MUN	460-1260	D	IWA
141	05S07E34P04S	Indio Water Authority	Well V	Active	MUN	460-1270	D	IWA
142	05S07E35R02S	Indio Water Authority	Well U	Active	MUN	480-1190	D	IWA
143	05S07E36D03S	Coachella Water Authority	Well 19	Active	MUN	650-1250	D	CWA/CSD
144	05S08E31C03S	Coachella Water Authority	Well 11	Active	MUN	513-818	D	CWA/CSD
145	06S07E06B01S	Coachella Valley Water District	CVWD Well 6701-1	Active	MUN	580-800	D	CVWD
146	06S07E22B02S	Coachella Valley Water District	CVWD Well 6726-1	Active	MUN	640-1160	D	CVWD
147	06S07E34A01S	Coachella Valley Water District	CVWD Well 6728-1	Active	MUN	500-750	D	CVWD
148	06S07E34D01S	Coachella Valley Water District	CVWD Well 6729-1	Active	MUN	500-780	D	CVWD
149	06S08E06K02S	Coachella Water Authority	Well 12	Active	MUN	500-1010	D	CWA/CSD
150	06S08E09N02S	Coachella Water Authority	Well 16	Active	Monitoring	480-730	D	CWA/CSD
151	06S08E19D05S	Coachella Valley Water District	CVWD Well 6808-1	Active	MUN	675-1200	D	CVWD
152	06S08E22D02S	Coachella Valley Water District	CVWD Well 6803-1	Inactive	MUN	500-1100	D	CVWD
153	06S08E25P04S	Coachella Valley Water District	CVWD Well 6807-1	Active	MUN	665-1300	D	CVWD
154	06S08E28N06S	Coachella Water Authority	Well 18	Active	Monitoring	900-1190	D	CWA/CSD
155	07S08E17A04S	Coachella Valley Water District	CVWD Well 7803-1	Active	MUN	250-710	D	CVWD
156	07S09E23N01S	Coachella Valley Water District	CVWD Well 7990-1	Inactive	Unknown	530-560	D	CVWD
157		Indio Water Authority	Well 13A	Active	Irrigation	550-1171	D	IWA
158	03S05E08B01S	R.C Roberts	03S05E08B01S	Undetermined	Irrigation	356-516	D	DWA
159	03S05E17M01S	Desert Dunes Golf Club	03S05E17M01S	Active	Unknown	305-412	D	CVWD
160	03S05E20H02S	Donald Franklin	03S05E20H02S	Active	Irrigation	240-360	D	CVWD
161	03S06E21R01S	Joel Rosenfeld	03S06E21R01S	Undetermined	Irrigation	355-495	D	CVWD
162	05S05E12B03S	Tandika Corp	05S05E12B03S	Active	Irrigation	410-800	D	CVWD
163	05S06E13F01S	PD Golf Operations LLC	05S06E13F01S	Active	Irrigation	400-700	D	CVWD
164	05S06E15H01S	Toscana Country Club	05S06E15H01S	Active	Irrigation	430-950	D	CVWD
165	05S06E22C02S	Desert Horizons Country Club	05S06E22C02S	Active	Irrigation	550-990	D	CVWD
166	05S06E27A01S	El Dorado Country Club	05S06E27A01S	Active	MUN	458-596	D	CVWD
167	05S06E29P04S	Bighorn Golf Club	05S06E29P04S	Active	MUN	530-720	D	CVWD
168	05S07E07F04S	Myoma Dunes Mutual Water Company	Well 4	Active	MUN	430-730	D	MDMWC
169	05S07E08L01S	Myoma Dunes Mutual Water Company	Well 11	Active	Unknown	500-1060	D	MDMWC
170	05S07E17K01S	Myoma Dunes Mutual Water Company	Well 12	Active	Irrigation	450-950	D	MDMWC
171	05S08E09N03S	Jamie Brack	05S08E09N03S	Undetermined	Unknown	480-580	D	CVWD, IWA
172	06S07E27B01S	Andalusia Golf Club	06S07E27B01S	Active	Irrigation	300-780	D	CVWD
173	06S07E35L02S	Castro Bros	Castro Bros	Active	Unknown	300-400	D	CVWD
174	06S08E11A01S	Cocopah Nurseries Inc	06S08E11A01S	Active	Unknown	400-842	D	CVWD, CWA/CSD
175	06S08E31P01S	Deer Creek	Deer Creek	Active	Irrigation	400-550	D	CVWD
176	06S08E35E02S	Otto L. Zahler	06S08E35E02S	Undetermined	Unknown	521-596	D	CVWD
177	07S07E02G02S	Warren Webber	Warren Webber	Active	Irrigation	380-700	D	CVWD
178	07S08E01L02S	Bill Wordon	07S08E01L02S	Undetermined	Domestic	500-880	D	CVWD
179	07S08E27A02S	Gimmway Enterprises Inc	07S08E27A02S	Active	MUN	491-811	D	CVWD
180	07S09E10F01S	Prime Time International	07S09E10F01S	Active	Monitoring	360-500	D	CVWD
181		Mission Springs Water District	Well 31	Active	Monitoring	270-670	D	MSWD
182		Coachella Valley Water District	WRP2 MW3	Active	Monitoring	<90	P	CVWD
183	06S07E27J03S	Coachella Valley Water District	TEL-GRF MW-8	Active	Monitoring	25-45	P	CVWD
184	06S07E34A03S	Coachella Valley Water District	TEL-GRF MW-9	Active	Monitoring	25-45	P	CVWD
185	06S08E31R01S	Coachella Valley Water District	TEL-GRF MW-10	Active	Monitoring	25-45	P	CVWD
186	07S08E06P01S	Coachella Valley Water District	TEL-GRF MW-11	Active	Monitoring	25-45	P	CVWD
187		Coachella Valley Water District	PEW-1	Active	Monitoring	10-55	P	CVWD

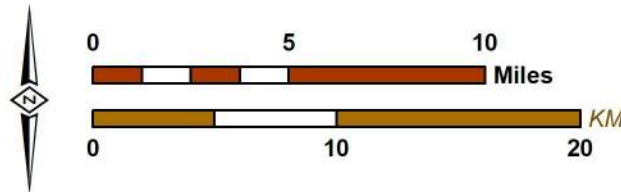
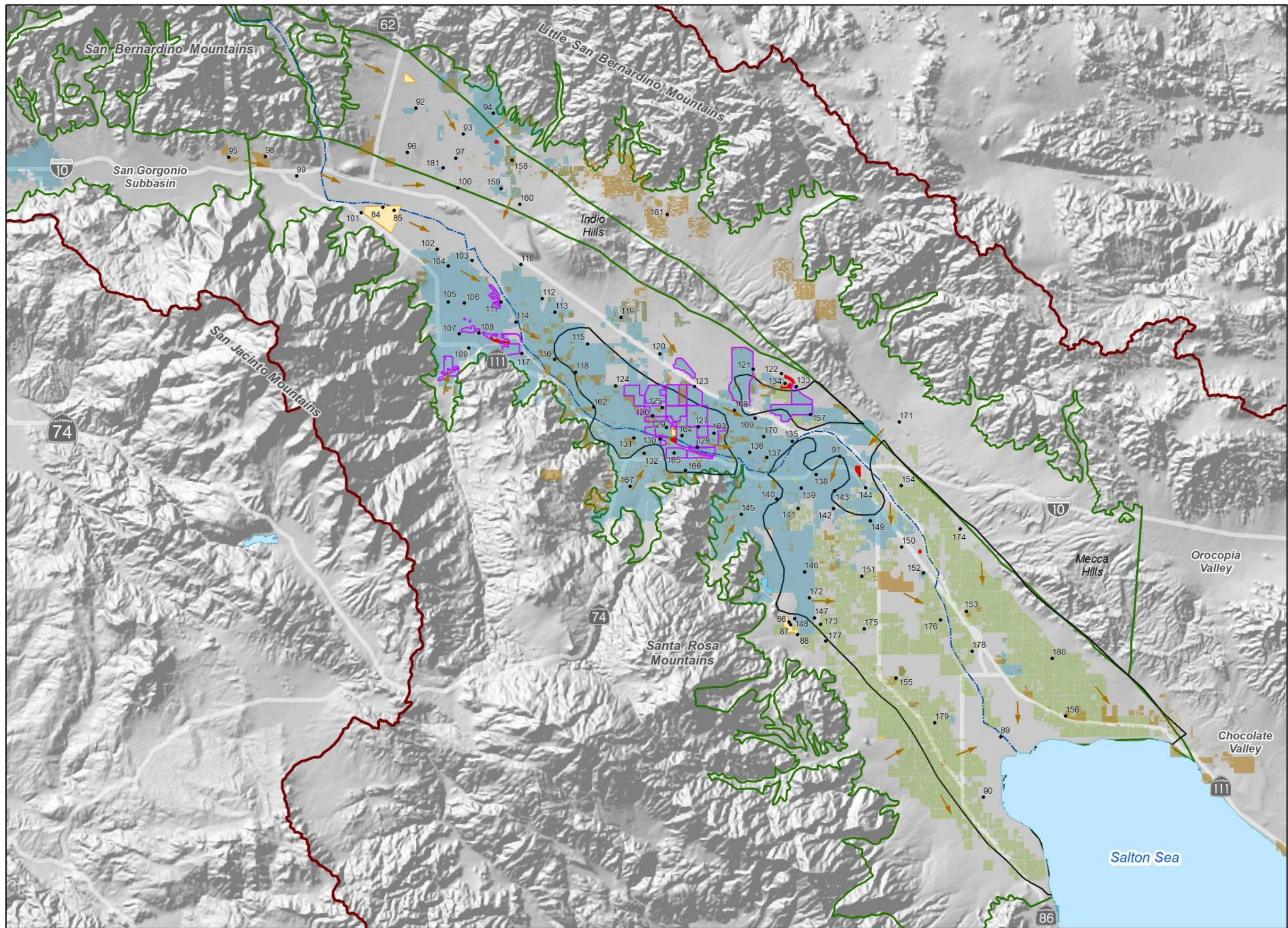
(a) Well Status: "Active" means well is known to exist and currently used for original purpose; "Standby" means active backup well; "Inactive" means well exists but is no longer used as a water-supply.

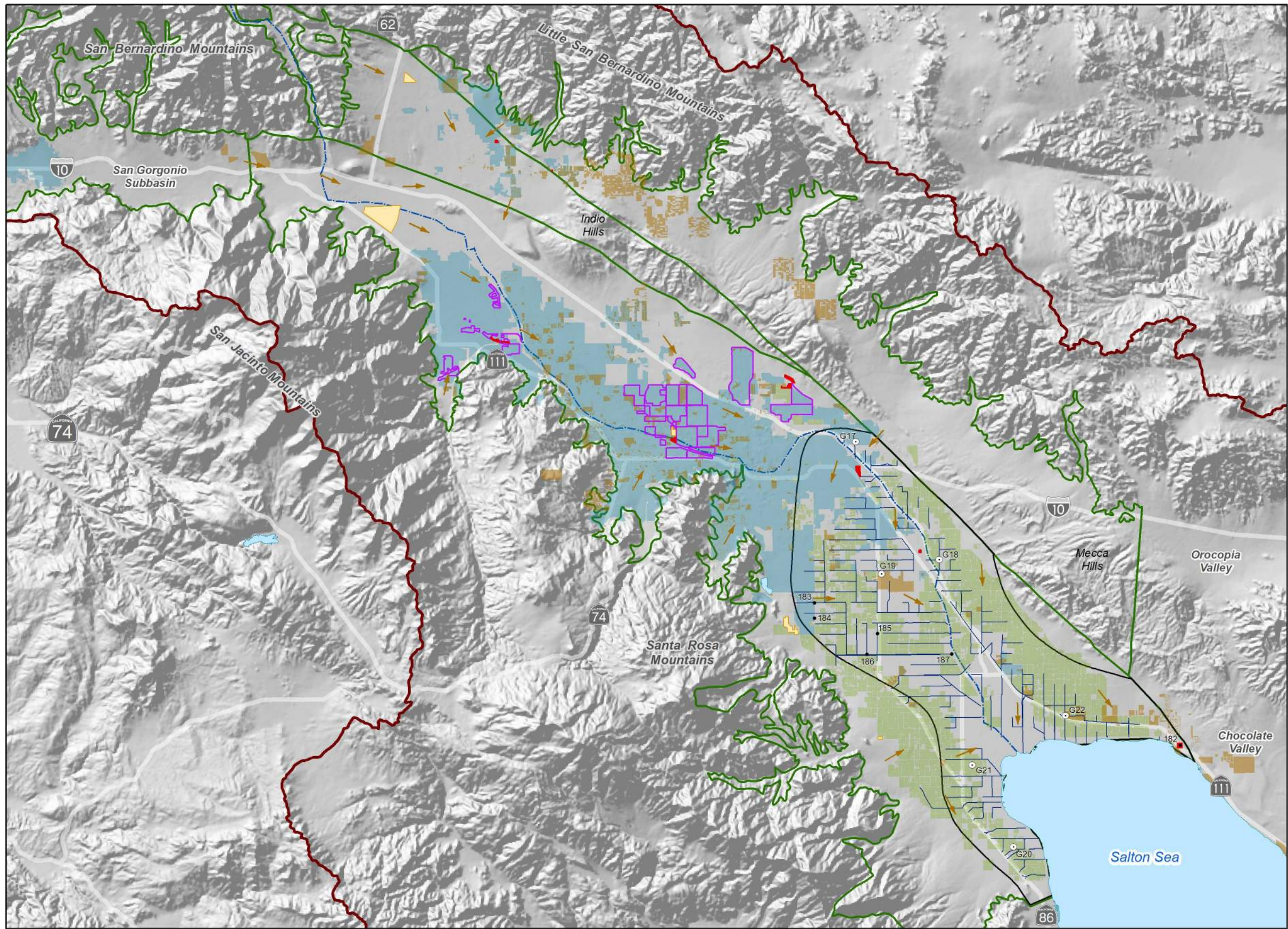
(b) Well Use: MUN = municipal and domestic supply

(c) Depth Code: This monitoring program assigns wells to aquifer layers by depth. P = Perched aquifer system. S = Shallow aquifer system. D = Deep aquifer system

(d) CVWD = Coachella Valley Water District; CWA/CSD = Coachella Water Authority and Sanitary District; DWA = Desert Water Agency; IWA = Indio Water Authority; MDMWC = Myoma Dunes Mutual Water Company; VSD = Valley Sanitary District; MSWD = Mission Springs Water District; CPS = City of Palm Springs







4.0 CV-SNMP DEVELOPMENT WORKPLAN

This section describes:

- The logic and reasoning behind this proposed CV-SNMP Development Workplan, and how it ensures the development of a CV-SNMP that will comply with State law and Policy.
- The detailed scope of work for the CV-SNMP Development Workplan.

Through discussions and advice from West Yost Associates, the CV-SNMP Agencies have concluded that numeric objectives for TDS and nitrate in groundwater are necessary for a CV-SNMP that complies with the 2018 Policy and resolves the concerns of the Regional Board with the 2015 CV-SNMP. Numeric objectives in the CV-SNMP will be necessary to:

- Demonstrate that beneficial uses are protected.
- Quantify the magnitude of available assimilative capacity for salt and nutrient loading.
- Provide a technical basis for the Regional Board to allocate the use of assimilative capacity.
- Set triggers for implementation measures at appropriate locations and times.

Currently, the Basin Plan includes a nitrate-nitrogen objective of 10 mg/l for groundwater in the Coachella Valley based on the primary drinking water MCL but lacks scientifically-derived numeric TDS objectives that are consistent with the provisions of Title 22. The process to recommend numeric TDS objectives needs to include technically-defensible methods and tools to answer the following questions:

- What are logical management areas within the Basin (management zones) and the beneficial uses of groundwater within the management zones?
- What is current groundwater quality? And, is current groundwater quality protective of beneficial uses?
- How is groundwater quality expected to change in the future, both across the basin and within the depth-specific aquifer systems?
- Will these changes in groundwater quality impact beneficial uses? If so, where and when?
- What are economically and technically feasible salt management strategies, that when implemented, will achieve the objectives of both the CV-SNMP stakeholders and the Regional Board? Economic feasibility needs to be defined and should consider the sources of revenue and the factors that could restrict the sources of revenue.

California Water Code section 13241 (CWC 13241) describes the factors to consider when establishing the TDS objectives:

- a) *Past, present, and probable future beneficial uses of water.*
- b) *Environmental characteristics of the hydrographic unit under consideration, including the quality of water available thereto.*
- c) *Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area.*

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- d) *Economic considerations.*
- e) *The need for developing housing within the region.*
- f) *The need to develop and use recycled water.*

The CV-SNMP Development Workplan must address each of these factors in CWC 13241, and answer the questions above, when recommending the TDS objectives for groundwater to ensure that the Basin is put to maximum beneficial use while also protecting water quality pursuant to State law and Policy.

The proposed scope-of-work for the CV-SNMP Development Workplan is described in the subsections below, and is organized as follows:

- Task 4.1 Select Consultants for CV-SNMP Facilitation and Technical Services
- Task 4.2 Establish CV-SNMP Stakeholder Group and Technical Advisory Committee
- Task 4.3 Characterize N/TDS Loading to the Groundwater Basin
- Task 4.4 Characterize Current Groundwater Quality
- Task 4.5 Delineate Draft Management Zones and Describe Metrics to Characterize Beneficial Use Protection
- Task 4.6 Develop Technical Approach for Forecasting N/TDS Concentrations in Groundwater
- Task 4.7 Construct N/TDS Forecasting Tools and Evaluate the Baseline Scenario
- Task 4.8 Forecast N/TDS Concentrations for CV-SNMP Scenarios
- Task 4.9 Characterize and Compare the Cost of Baseline and CV-SNMP Scenarios
- Task 4.10 Select the Preferred CV-SNMP Scenario, Finalize Management Zones and Beneficial Uses, and Recommend TDS Objectives
- Task 4.11 Prepare Final CV-SNMP

Table 4-1 describes how this CV-SNMP Development Workplan will result in a CV-SNMP that satisfies all recommended and required components for SNMPs pursuant to the 2018 Policy.

4.1 Select Consultants for CV-SNMP Facilitation and Technical Services

The objective of this task is to select a qualified consultant(s) to facilitate and execute the implementation of this workplan.

- A **Facilitation Consultant** will be responsible for leading and conducting stakeholder outreach and engagement efforts, leading and attending all stakeholder and technical meetings, and co-authoring all interim and final project deliverables with the Technical Consultant. Qualifications for the Facilitation Consultant include comprehensive knowledge of the legal, policy, and regulatory issues regarding SNMPs; successful experience in leading stakeholder groups; and local knowledge of the Coachella Valley and its CV-SNMP stakeholders, including the agricultural, golf, and tribal entities.
- A **Technical Consultant** will be responsible for executing the technical scope-of-work described in this workplan. Minimum qualifications for the Technical Consultant include: successful experience in characterizing water quality and the fate and transport of salt and nutrients; successful

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experience in water and groundwater management planning; successful experience in modeling of water quality; and local knowledge of the hydrology, hydrogeology, and water resources of the Coachella Valley. Preferred qualifications include a working knowledge and of the legal, policy, and regulatory issues regarding SNMPs and successful experience in leading technical committees.

In this task, the CV-SNMP Agencies will prepare a request for qualification (RFQ) or request for proposals (RFP) and select a qualified consultant(s) for stakeholder facilitation and technical services. Once the consultant(s) is selected, the CV-SNMP Agencies will negotiate and issue a contract(s).

4.2 Establish CV-SNMP Stakeholder Group and Technical Advisory Committee

The objective of this task is to convene a CV-SNMP Stakeholder Group and the CV-SNMP Technical Advisory Committee (TAC). The CV-SNMP Agencies and the selected consultants will organize and facilitate both groups during the implementation of the CV-SNMP Development Workplan.

4.2.1 Convene the CV-SNMP Stakeholder Group

The CV-SNMP Stakeholder Group will be comprised of the CV-SNMP Agencies, other salt and nutrient contributors to groundwater, and other interested groups. The objectives of convening the CV-SNMP Stakeholder Group are:

- Provide the CV-SNMP Agencies with a venue to engage interested parties in the CV-SNMP development process.
- Inform the CV-SNMP development process of the needs and wants of all interested parties.
- Provide a venue to keep the interested parties informed through key steps of the CV-SNMP development process.
- Understand the ability/authority of the stakeholders to implement best management practices and salt and nutrient management measures.
- Provide a mechanism to receive input on draft CV-SNMP deliverables.
- Garner participation from other salt and nutrient contributors to groundwater.
- Identify potential cost-sharing partners and in-kind services for CV-SNMP implementation.

The CV-SNMP Agencies and the Facilitation Consultant will conduct outreach to identify stakeholders and inform them of the intent to form the CV-SNMP Stakeholder Group. Outreach activities will include but are not limited to:

- Prepare and maintain a website that is available to the public with information on the CV-SNMP development and the public's role in the process.
- Distribute public notices on the development of the CV-SNMP and the establishment of the CV-SNMP Stakeholder Group. The public notices will include the website details and information on introductory public meetings.

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- Lead two (2) public meetings to request stakeholder engagement and explain the purpose of the CV-SNMP and the process to develop it.
- Prepare and maintain a directory of contact information of stakeholders and establish an email listserve.

Potential stakeholders include but are not limited to: the agricultural community and groups; golf course industry groups; tribes; the Coachella Valley Regional Water Management Group; the Groundwater Sustainability Agencies in the Coachella Valley; all major water and wastewater agencies; industrial dischargers; county and city land use planning agencies; Federal and State agencies; the Colorado River Basin Salinity Control Forum; Metropolitan Water District of Southern California; and non-governmental organizations (NGOs).

A critical first step will be to solicit input from the CV-SNMP Stakeholder Group as to their issues, needs and wants. This information will be collected up front so the CV-SNMP Agencies and consultants can proactively address stakeholder concerns, and potentially incorporate them in the CV-SNMP development process.

The CV-SNMP Stakeholder Group will be kept informed of CV-SNMP development progress through the website and email listserves. The group will be informed of draft deliverables and provided an opportunity to submit comments. All stakeholder comments will be noted in appendices of the final deliverables. Group meetings will typically occur to support the review of draft deliverables, and these meetings are included in the individual tasks of this workplan.

4.2.2 Convene the CV-SNMP Technical Advisory Committee

The TAC can be composed of representatives of the CV-SNMP Agencies, technical consultants that each CV-SNMP Agency chooses to represent them, and at least one neutral technical expert (e.g., U.S. Geological Survey [USGS] hydrologist). Regional Board staff will be encouraged to participate on the TAC in an advisory role.

The objectives of the TAC are:

- Advise the Technical Consultant on the execution of workplan tasks.
- Provide review and comment on administrative draft and draft CV-SNMP deliverables.

The Technical Consultant will coordinate with the CV-SNMP Agencies to prepare a directory of contact information of TAC members and will establish an email listserve. The TAC will be kept informed of CV-SNMP development progress through the website and the email listserve. The group will be informed of all draft deliverables and will be provided an opportunity to submit comments. All TAC comments will be addressed in the final deliverables, and the comments and responses will be included as appendices of the final deliverables.

An inaugural meeting of the TAC will be held to describe the roles and responsibilities of the TAC, describe the CV-SNMP Development Workplan and its milestones and schedule, and inform the TAC of next steps. Subsequent meetings of the TAC will typically occur for review of draft deliverables, and these meetings are included in the individual tasks of this workplan.

4.3 Characterize N/TDS Loading to the Groundwater Basin

The objective of this task is to quantify the individual components of N/TDS loading to groundwater.

The results of this task will:

- Satisfy the requirements of Section 6.2.4 of the Policy regarding the required components of SNMPs:
Section 6.2.4.3. Salt and nutrient source identification, basin or subbasin assimilative capacity and loading estimates, together with fate and transport of salts and nutrients.
- Provide the information to prepare input files for the modeling of future N/TDS concentrations in groundwater.
- Support subsequent tasks in this workplan to recommend TDS objectives pursuant to CWC 13241(b): *Environmental characteristics of the hydrographic unit under consideration, including the quality of water available thereto.*

The general sources of N/TDS loading in the basin are described in Section 2.3.1. The characterization of N/TDS loading will be performed for a recent historical period to the present to characterize seasonal variations and long-term trends in loading and generate estimates of N/TDS loads in the vadose zone. The length of the historical period will be defined as part of this task but should be long enough to characterize the N/TDS loads in the vadose zone.

4.3.1 Collect Data and Information

The following types of data and information will be collected for the historical period:

- Existing groundwater-flow model data/estimates of historical recharge volumes over the model calibration periods.
- Groundwater-quality data from wells in adjacent, upgradient basins to characterize the quality of subsurface inflow.
- Water quality of subsurface inflow from the surrounding mountains and hills and streambed recharge:
 - Water-quality data from bedrock springs, wells, and streamflow within the watersheds tributary to the Coachella Valley.
 - Literature on salt-intensification and nitrogen-loss rates during streambed recharge.
- Groundwater replenishment:
 - Historical volumes of Colorado River water artificially recharged at GRFs.
 - Water-quality data for each source of Colorado River water supply.
 - Historical volumes and water-quality data of local runoff diverted for recharge at GRFs.
- Wastewater and recycled water:
 - Historical volumes of treated wastewater discharged to percolation ponds and the associated water-quality data.

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- Historical volumes of recycled water used for irrigation and the associated water-quality data.
- Septic systems data:
 - Characterizations of current and future parcels using septic systems.
 - Literature on N/TDS concentrations of septic tank discharges.
 - Information on septic tank moratoriums and abatement efforts.
- Applied water:
 - Historical and current land use maps.
 - Historical and current agriculture crop types.
 - Current and future agricultural land fertilizer application practices.
 - Literature on crop nitrogen requirements and loading associated with the application of fertilizer.
 - Literature on crop evapotranspiration and water requirements.
 - Local reference evapotranspiration data.
 - Literature/data for historical and current agriculture and urban irrigation efficiency.
 - Historical and current agriculture water supply plans, including sources and associated water quality.
 - Boundaries of agriculture and urban water service areas.
 - Historical and future water supply plans of urban water purveyors, including detail on volume and associated water quality of each supply source.
 - Historical and future water supply plans of other overlying water users.

4.3.2 Characterize Historical and Current N/TDS Loading

The data collected will be reviewed and the Technical Consultant will prepare a draft recommendation to describe the types of tables, maps, and data graphics that can be prepared with the available data to characterize historical and current N/TDS loading to groundwater. A meeting will be held with the TAC to review the draft recommendation and receive TAC feedback.

Once the types of tables, maps, and data graphics are finalized, the time-history of the volumes and associated N/TDS concentrations will be estimated and described for each N/TDS loading term. The N/TDS concentrations will be based on historical data to the extent possible, and where needed, assumptions based on literature review.

4.3.3 Prepare Task Memorandum

A draft and final task memorandum will be prepared to document the data collected and the characterization of historical and current N/TDS loading, as described below:

- An administrative draft task memorandum will be prepared and distributed to the TAC for review and comment.

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- A meeting will be held to review the administrative draft memorandum and receive feedback from the TAC.
- A draft memorandum will be prepared based on the feedback from the TAC and distributed to the TAC for review and comment.
- The CV-SNMP Stakeholder Group will be notified of the availability of the draft memorandum for review and comment.
- A TAC meeting will be held to review the draft memorandum and receive feedback.
- A final memorandum will be prepared addressing the feedback.

4.4 Characterize Current Groundwater Quality

The objective of this task is to characterize N/TDS concentrations in groundwater as of 2020 (i.e. current conditions). The characterization will include an analysis of the time history of N/TDS concentrations in groundwater that led to current conditions. The results of this task will provide the necessary information to:

- Satisfy Section 6.2.4 of the Policy regarding the required components of SNMPs. In this case, estimating current groundwater quality is necessary to compute the existence and magnitude of assimilative capacity for a basin, subbasin, or management zone:

Section 6.2.4.3. Salt and nutrient source identification, basin or subbasin assimilative capacity and loading estimates, together with fate and transport of salts and nutrients.

- Understand the current trends in N/TDS concentrations in groundwater.
- Support subsequent tasks in this workplan to:
 - Delineate draft groundwater management zones.
 - Define the methods to compute the current “ambient” N/TDS concentrations in groundwater management zones (i.e. the AWQ metric).
 - Assess the current protection of beneficial uses within groundwater management zones.
 - Prepare input files of initial conditions of N/TDS concentrations in groundwater for the forecast modeling of N/TDS concentrations.
 - Recommend TDS objectives pursuant to CWC 13241(b): *Past, present, and probable future beneficial uses of water.*
 - Support assessment of assimilative capacity for additional loading of N/TDS.

The characterizations of current groundwater quality will primarily rely on data collected from wells in the CV-SNMP Groundwater Monitoring Network (see Section 3), since these wells are intended to be representative of groundwater quality in all subbasins, subareas, and depth-specific aquifer systems within the Basin. However, the Groundwater Monitoring Network is not yet complete, and historical data may be lacking for some wells. For this reason, other available groundwater-quality data will likely be necessary for this characterization.

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4.4.1 Collect Data and Information

The following data and information will be collected, compiled, checked, and uploaded to project databases and Geographic Information System (GIS):

- Well information
 - Well ID (State Well Number)
 - Well owner
 - Well name
 - Well use
 - Well status
 - XYZ coordinates
 - Well screen depth intervals
- Historical groundwater-elevation data at wells
- Historical water-quality data at wells for the following constituents:
 - TDS
 - Nitrate
 - Major cations: K, Na, Ca, Mg
 - Major anions: Cl, SO₄
 - Total alkalinity: HCO₃, CO₃, OH

Some of these data have already been collected and compiled for the CV-SNMP Groundwater Monitoring Program Workplan (see Section 3).

4.4.2 Prepare Tables, Maps, and Data Graphics

The data collected will be reviewed and the Technical Consultant will prepare a draft recommendation to describe the periods of record and the types of tables, maps, and data graphics that can be prepared with the available data to characterize current N/TDS concentrations in groundwater. A meeting will be held with the TAC to review the draft recommendation and receive TAC feedback.

Described below are recommended examples of the tables, maps, and data graphics that could be prepared to characterize historical and current groundwater quality across the Basin. Examples of these types of tables, maps, and data graphics are included in Appendix B.¹²

Summary statistics of N/TDS concentrations at wells. These statistics characterize the data set at each well in terms of duration, depth, sample size, mean concentrations, variability, precision, and trends. The statistics can be summarized in tables that include the following fields:

- State Well Number, well owner, well name, and well status.
- DWR subbasin.
- Aquifer layers penetrated by the well screens.
- Period of record of available data.

¹² These examples are illustrative, and do not represent the exact tables and figures that will be prepared for this task.

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- Number of years with sample results.
- Total number of sample results.
- Minimum, maximum, median, and average N/TDS concentration statistics.
- Average N/TDS concentrations for the defined historical and current periods (e.g. 2016-2020).
- Standard deviation and coefficient of variance for the sample set.
- Comparison to drinking water-quality standards or other beneficial use thresholds.
- Mann-Kendall trend test results for N/TDS concentrations.

Table B-1 is an example of a table prepared for similar purposes.

Point and raster maps of N/TDS concentrations in groundwater. The objectives of these maps are to:

- Characterize the spatial distribution of N/TDS concentrations in groundwater relative to the sources of recharge and discharge.
- Provide the initial conditions for N/TDS concentrations in groundwater for the forecast modeling of N/TDS concentrations.
- Support the mapping of change in N/TDS concentrations over time.

On these types of maps, wells are typically labeled with the average N/TDS concentrations for a defined period (e.g. five-year period). Maps can be prepared for a historical period (e.g. 1996-2000) and a current period (e.g. 2016-2020) to facilitate characterization of historical changes in water quality. An interpolation tool in ArcGIS can be used to generate raster surfaces of average N/TDS concentrations across the Basin. The raster can be symbolized by color-ramp to illustrate the spatial distribution of N/TDS concentrations. For areas with multiple aquifer layers and sufficient data, maps can be prepared to characterize each layer. **Figure B-1** is an example of such a map that was prepared for similar purposes.

If this mapping approach is adopted, the following areas and aquifer layers should be mapped:

- Northern portion of the Indio subbasin (including the Garnet Hill and Palm Springs subareas)
 - Shallow aquifer system (Layers 1-3)
 - Deep aquifer system (Layer 4)
- Central portion of the Indio subbasin (including the Thousand Palms subarea)
 - Shallow aquifer system (Layers 1-3)
 - Deep aquifer system (Layer 4)
- Southern portion of the Indio subbasin (including the Thermal and Oasis subareas)
 - Perched aquifer system (Layer 1)
 - Shallow aquifer system (Layers 2/3)
 - Deep aquifer system (Layer 4)
- Mission Creek subbasin
 - Shallow aquifer system (Layers 1-3)
 - Deep aquifer system (Layer 4)

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- Desert Hot Springs subbasin

Maps of changes and trends in N/TDS concentration in groundwater. The objectives of these maps are to:

- Identify areas (and depths) within the Basin where N/TDS concentrations are increasing, decreasing, or not changing, and potentially reveal why the changes are occurring.
- Support the understanding of the fate and transport of N/TDS.

On these types of maps, wells are typically labeled by changes in average N/TDS concentrations between two defined periods (a historical period [e.g. 1996-2000] minus a current period [e.g. 2016-2020]). Wells with enough data can be symbolized by the Mann-Kendall trend test results for N/TDS concentrations. An interpolation tool in ArcGIS can be used to generate raster surfaces of changes in N/TDS concentrations across the Basin. The raster can be symbolized by color-ramp to illustrate the spatial changes in N/TDS concentrations. For areas with multiple aquifer layers and sufficient data, maps can be prepared to characterize each layer. The maps can be prepared for the same areas and aquifer layers as listed above for the point and raster maps of N/TDS concentrations. **Figure B-2** is an example of such a map that was prepared for similar purposes.

Multi-variate exhibits of groundwater and surface water. The objectives of these types of exhibits is to improve understanding of the fate and transport of N/TDS in the Basin, and support interpretations of the potential causes of increasing or decreasing N/TDS concentrations in groundwater.

These exhibits can be prepared for each well in the CV-SNMP Groundwater Monitoring Network (or logical groupings of wells) over a historical to current period, and typically include:

- Time-series chart of groundwater levels at the well(s).
- Time-series chart of N/TDS concentrations at the well(s), including a statistical quantification of trends using the Mann-Kendall test results.
- Time-series chart of N/TDS concentrations for nearby sources of N/TDS loading.
- Piper Diagrams for the well(s) and the nearby sources of N/TDS loading. Piper Diagrams are a graphical representation of the chemistry of water samples that aid in understanding the sources of the dissolved constituents in the groundwater.

Figure B-3 is an example of such an exhibit that was prepared for similar purposes.

4.4.3 Prepare Task Memorandum

A task memorandum will be prepared to document the data collected and the characterization of current N/TDS concentrations in groundwater, as described below:

- An administrative draft task memorandum will be prepared and distributed to the TAC for review and comment.
- A TAC meeting will be held to review the administrative draft memorandum and receive feedback.
- A draft memorandum will be prepared based on the feedback from the TAC and distributed to the TAC for review and comment.

- The CV-SNMP Stakeholder Group will be notified of the availability of the draft memorandum for review and comment.
- A TAC meeting will be held to review the draft memorandum and receive feedback.
- A final memorandum will be prepared addressing TAC feedback.

4.5 Delineate Draft Management Zones and Describe Metrics to Characterize Beneficial Use Protection

The objectives of this task are to:

- Delineate draft groundwater management zones.
- Describe the existing and potential future beneficial uses of groundwater within each management zone.
- Define the *ambient water quality (AWQ) metric* in each management zone that will be used to estimate ambient water quality conditions and assess beneficial use protection. An *AWQ metric* is a method to estimate “ambient” N/TDS concentrations for groundwater in each management zone. The purpose of AWQ metrics is to enable the comparison of ambient N/TDS concentrations in groundwater versus the beneficial-use thresholds and water quality objectives, and thereby indicate the state of beneficial use protection. Examples of AWQ metrics include, but are not limited to:
 - Volume-weighted constituent concentration within the management zone.
 - 5-year moving average of constituent concentration at a key well or wells within a management zone.
 - Volume-weighted constituent concentration of groundwater discharge from a management zone.

The results of this task will provide the necessary information to:

- Assess the current and future protection of the beneficial uses of groundwater.
- Support subsequent tasks in this workplan to:
 - Post-process, display, and interpret the forecast modeling results.
 - Recommend TDS objectives pursuant to CWC 13241(a): *Past, present, and probable future beneficial uses of water*.
 - Support assessments of assimilative capacity for additional loading of N/TDS.

The management zone delineations and the AWQ metrics will be considered draft at this stage. It is possible that subsequently derived information, such as understanding potential future water-quality conditions and the ability for the stakeholders to control future water-quality conditions, will indicate that modifications to management zone delineations and AWQ metrics will better support salt and nutrient management.

4.5.1 Delineate Draft Groundwater Management Zones

The delineation of draft management zones will be based on:

- Hydrogeology of the basin.
- Locations and magnitudes of N/TDS loading.
- Location of hydrologically vulnerable areas as identified in the GAMA Groundwater Information System database.
- Current understanding of groundwater-flow directions and the fate and transport of N/TDS within the groundwater basin.
- Current N/TDS concentrations in groundwater.
- Existing and potential future beneficial uses of groundwater.

Management zones will be delineated both spatially and vertically throughout the basin.

4.5.2 Describe Beneficial Uses for Management Zones and Beneficial-Use Thresholds

For each management zone, the existing and potential beneficial uses and users of groundwater will be described along with the associated beneficial-use thresholds for N/TDS concentrations.

The beneficial uses will reference those uses listed in the Water Quality Control Plan and the known existing users and uses of groundwater in each proposed management zone.

The beneficial-use thresholds will be based on regulatory standards and guidance published by the State of California on the numeric water-quality thresholds that protect the beneficial uses.

4.5.3 Define AWQ Metrics and Determine Current Protection of Beneficial Uses

Draft AWQ metrics will be proposed for each management zone and used to estimate the current ambient N/TDS concentrations for groundwater in each management zone. The current ambient N/TDS concentrations will be compared to the beneficial-use thresholds to assess the current state of beneficial use protection. If the concentration of the AWQ metric is less than the beneficial-use threshold, then that specific beneficial use is protected. If the concentration of the AWQ metric is greater than the beneficial-use threshold, then that specific beneficial use is not protected.

The appropriate AWQ metric may be different in different management zones based on the size of the management zone, the beneficial users and uses within the management zone, the location and magnitude of N/TDS loading, and the fate and transport of N/TDS.

Figure 4-1 is a chart that conceptually illustrates:

- The use of a hypothetical AWQ metric that utilizes existing TDS data to estimate the “historical ambient” and “current ambient” TDS concentrations for a management zone. These features can characterize the recent trends in TDS concentration within the management zone.
- A comparison of a current ambient TDS concentration in the management zone to the beneficial use thresholds for TDS. This comparison can characterize the current protection of beneficial uses.

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These types of charts will be prepared for N/TDS in each management zone over a recent historical period.

4.5.4 Prepare Task Memorandum

A task memorandum will be prepared to document the draft management zones, the beneficial uses within each management zone, the beneficial-use thresholds for N/TDS concentrations in each management zone, the proposed AWQ metrics that represent ambient N/TDS concentrations in each management zone, and the assessment of beneficial use protection in each management zone over a recent historical period, as described below:

- An administrative draft task memorandum will be prepared and distributed to the TAC for review and comment.
- A TAC meeting will be held to review the administrative draft memorandum and receive feedback.
- A draft memorandum will be prepared based on the feedback from the TAC and distributed to the TAC and the CV-SNMP Stakeholder Group for review and comment.
- A public meeting will be held to review the draft memorandum and receive feedback.
- A final memorandum will be prepared addressing the feedback.

4.6 Develop Technical Approach for Forecasting N/TDS Concentrations in Groundwater

The objective of this task is to define the most appropriate and efficient technical approach to forecast N/TDS concentrations in groundwater.

Currently, two numerical groundwater-flow models are being updated and used to support SGMA compliance in the Mission Creek subbasin¹³ and the Indio subbasin. Both models are based on the USGS modular groundwater-flow model MODFLOW. Review of preliminary model documentation and discussions with the technical consultants who are preparing these model updates indicate that the appropriate strategy for making forecasts of N/TDS concentrations is to build two separate water-quality models that cascade from the Mission Creek subbasin to the Indio subbasin. In this strategy, the water-quality models will be capable of making forecasts of N/TDS concentrations in groundwater utilizing the results of MODFLOW simulations. The water-quality model results for N/TDS concentrations in groundwater will be at the same spatial and temporal resolution as the MODFLOW model results for groundwater flow. For the CV-SNMP Development Workplan, it is assumed that a water-quality model of the Mission Creek subbasin will be executed first, and its results will be used as boundary conditions that will be carried over (cascaded) to a water-quality model of the Indio subbasin.

This modeling approach for forecasting N/TDS concentrations must include the following capabilities:

- Ability to assign a volume and N/TDS concentrations to each individual source of recharge.
- Ability to simulate the vadose zone processes (e.g. transport and chemical transformations).

¹³ The Mission Creek Subbasin Model includes the Miracle Hill subarea of the Desert Hot Springs subbasin where there may be significant subsurface flows from the Desert Hot Springs subbasin into the Mission Creek subbasin.

- Ability to simulate the feedback cycles associated with groundwater pumping, the N/TDS concentrations of potable water supply, the N/TDS concentrations of recycled water, and the N/TDS concentrations of return flows.
- Ability to simulate the fate and transport of N/TDS with a cascading approach from the existing Mission Creek subbasin MODFLOW model domain to the Indio subbasin MODFLOW model domain. Because the domains of the two MODFLOW models overlap the Garnet Hill Subarea, consideration must be given to this boundary in the water-quality modeling approach.
- Ability to calculate the volume-weighted N/TDS concentrations for each management zone by layer.
- Ability to calculate N/TDS concentration at wells.
- The ability to reasonably simulate verifiable historical groundwater-quality conditions.
- Ability to efficiently simulate several CV-SNMP scenarios with modified input files that represent potential CV-SNMP management projects and programs.
- Ability to forecast N/TDS concentrations in subareas that are not covered by the model domains of the MODFLOW models, which includes the Fargo Canyon Subarea and a portion of the Sky Valley Subarea in the Desert Hot Springs Subbasin.

Formulating this modeling strategy will require a thorough understanding of the existing MODFLOW models, the model input files (particularly the recharge files that represent N/TDS loading terms), and the output files. It is likely that separate data-processing routines will need to be automated (i.e. coded) so the water-quality modeling of multiple scenarios can be performed efficiently and accurately. Such data-processing routines may include reconstructing the MODFLOW recharge input files to include the assignment of N/TDS concentrations to the individual recharge sources, automating the update of model input files to address feedback cycles to achieve appropriate convergence of model results, and the post-processing of the water-quality model results to support the cascading model approach.

The vadose zone processes (solute travel time and chemical transformations) and their effect on the N/TDS loading to groundwater will need to be analyzed and considered for inclusion in the modeling approach.

4.6.1 Evaluate Existing MODFLOW Models

Model reports and documentation are forthcoming for the updates to the Mission Creek Subbasin Model and the Indio Subbasin Model. These reports and documentation will be reviewed to gain insight into the hydrogeologic conceptual model, model assumptions, model settings, and model limitations.

The MODFLOW input files need to be understood, particularly to develop automated routines for assigning N/TDS concentrations to recharge terms. For example, the MODFLOW models include recharge input files for return flows that originate from several water sources. The SGMA modeling teams have indicated that significant pre-processing efforts are conducted to prepare the input files for recharge from the various recharge sources. To perform the water-quality modeling, the N/TDS concentrations for each water source must be estimated, and the volume-weighted concentration needs to be calculated and assigned to the water-quality models. These pre-processing efforts will likely need to be automated for the water-quality modeling, so a thorough understanding of the MODFLOW model input files, and their preparation, is necessary.

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The MODFLOW output files need to be assessed to determine whether they meet the requirements of the water-quality modeling and its cascading modeling approach.

In this subtask, it is likely that meetings and conference calls will be necessary with the SGMA modeling teams to ask questions and resolve challenges that are identified during the evaluation of the MODFLOW models.

4.6.2 Develop Procedures for Simulating Vadose Zone Processes

Vadose zone processes may be important to timing and magnitude of N/TDS loading to the saturated zone, particularly for return flows from the land surface through partially saturated sediments. Criteria to consider in developing procedures for simulating the vadose zone are: microbial processes in the hyporheic zone; vadose zone thickness, hydraulic and solute lag times, the initial N/TDS conditions within the vadose zone, and the appropriate methods and tools to simulate N/TDS loading through the vadose zone to the saturated zone.

In this subtask, the Technical Consultant will evaluate the existing information developed in prior tasks and the existing models to develop a recommendation for procedures to simulate vadose zone processes in N/TDS loading.

4.6.3 Define the Appropriate Planning Period

The appropriate length of the planning period for water-quality model forecasting is partly dependent on the solute travel times through the vadose zone. In this subtask, the Technical Consultant will evaluate the solute travel times through the vadose zone and develop a recommendation for the planning period. If the planning period is recommended for a period longer than 50 years, the modeling approach must describe how the planning period will be extended beyond the 2020-2070 period that the MODFLOW models are using in the development of the Alternatives to Groundwater Sustainability Plans to comply with the SGMA (SGMA Alternative Plans).

4.6.4 Develop Procedures for Simulating Feedback Processes

The future changes in N/TDS concentrations in groundwater will influence the N/TDS concentrations in water supplies that include groundwater, such as potable water and recycled water, which in turn, can migrate back to the groundwater system as irrigation return flows. Such feedback processes can have a significant effect on the future N/TDS concentrations in groundwater and must be simulated.

In this subtask, the Technical Consultant will evaluate the existing information developed in prior tasks and the existing models to develop a recommendation for procedures to simulate feedback processes in N/TDS loading.

4.6.5 Define Assumptions for Future N/TDS Concentration of Colorado River Water

Colorado River water is a major source of supplemental water that supports groundwater basin sustainability and the economy of the Coachella Valley. The future N/TDS concentrations of Colorado River water will affect the quality of groundwater.

In this subtask, the Technical Consultant will: analyze the historical N/TDS concentrations of Colorado River water; research the existing and any proposed changes to the water quality objectives for Colorado River water; review available information on the existing structures and efforts in place to help reduce

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salinity in Colorado River water; review available information on salinity projections for Colorado River water including any predicted impacts from climate change; and recommend assumptions for N/TDS concentrations of Colorado River water for water-quality modeling over the planning period.

4.6.6 Develop Procedures for Verifying the N/TDS Forecasting Tools

The water-quality models cannot be calibrated using traditional methods of model calibration primarily because of a lack of historical, depth-specific groundwater-quality data. However, the water-quality models should have the ability to reasonably simulate the available data and information on historical groundwater-quality conditions.

In this subtask, the Technical Consultant will describe the process to verify the ability of the water-quality models to reasonably simulate historical groundwater-quality conditions. Likely, the water-quality models will need to be run and evaluated, and adjustments to the input files or other model assumptions will need to be tested to produce “reasonable” results.

4.6.7 Develop Procedures for Post-Processing Model Results

The water-quality modeling will need efficient tools for post-processing and displaying the model results. This is because:

- In Task 4.7, the water-quality models will need to be run and evaluated repeatedly to demonstrate their ability to produce “reasonable” results.
- In Task 4.8, the water-quality models will be used to test the effectiveness of various implementation measures to control N/TDS loading and protect beneficial uses. Hence, the water-quality model results will need to be evaluated efficiently to save cost and time in the identification of a preferred CV-SNMP Scenario.

In this subtask, the Technical Consultant will describe the post-processing tools that will be prepared to efficiently display and characterize the water-quality model results.

4.6.8 Prepare Task Memorandum

A task memorandum will be prepared to describe and document the methods, assumptions, and tools that will be used to construct and run the water-quality models and interpret the results, as described below:

- An administrative draft task memorandum will be prepared and distributed to the TAC for review and comment.
- A TAC meeting will be held to review the administrative draft memorandum and receive feedback.
- A draft memorandum will be prepared based on the feedback from the TAC and distributed to the TAC for review and comment.
- The CV-SNMP Stakeholder Group will be notified of the availability of the draft memorandum for review and comment.
- A TAC meeting will be held to review the draft memorandum and receive additional feedback.
- A final memorandum will be prepared addressing the feedback.

4.7 Construct N/TDS Forecasting Tools and Evaluate the Baseline Scenario

The objectives of this task will be to:

- Construct the N/TDS forecasting tools defined in Task 4.6 and verify their ability to reasonably simulate historical groundwater-quality conditions.
- Define a “baseline” planning scenario that represents the current water-supply plans and water-management plans for the Coachella Valley (Baseline Scenario).
- Forecast N/TDS concentrations to determine whether beneficial uses of groundwater are protected under the Baseline Scenario.

These objectives will be accomplished by constructing the water-quality models (and associated pre-processing and post-processing tools) and using the models to forecast N/TDS concentrations in groundwater for a Baseline Scenario over the planning period.

The evaluation of the Baseline Scenario will be used in subsequent tasks of this workplan to:

- If necessary, support the development of CV-SNMP implementation measures (*i.e.* projects and/or programs) to manage N/TDS loading to protect beneficial uses of groundwater on a sustainable basis.
- Finalize the management zone delineations and the AWQ metrics that are used to estimate the ambient N/TDS concentrations for each management zone.
- Recommend TDS objectives pursuant to CWC 13241(b): *Environmental characteristics of the hydrographic unit under consideration, including the quality of water available thereto.*

4.7.1 Develop a Baseline Scenario based on the SGMA Alternative Plans

The Baseline Scenario will be based on:

- The SGMA Alternative Plans that are being developed for the Mission Creek and Indio Subbasins to comply with the SGMA.
- The N/TDS loading that is estimated to occur under the SGMA Alternative Plans (described in Task 4.3).

The Baseline Scenario will be described in enough detail to prepare model input files for the water-quality modeling efforts in Task 4.7.2 and to prepare cost estimates for the aggregate water supply in Task 4.9.

4.7.2 Construct N/TDS Forecasting Tools and Run the Baseline Scenario

In this task, the water-quality models and associated pre- and post- processing tools are constructed, verified, and used to run the Baseline Scenario pursuant to the methods described in the task memorandum for Task 4.6 – *Develop Technical Approach for Forecasting N/TDS Concentrations in Groundwater*.

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Verification of the water-quality models will be performed by running the models over a defined historical period to verify their ability to reasonably simulate historical water groundwater-quality conditions. The model verification results will be reviewed with the TAC before running of the Baseline Scenario.

The initial conditions for N/TDS concentrations in groundwater (by model layer) will be based on the results of Task 4.4 – *Characterize Current Groundwater Quality*. The initial condition for N/TDS loads within the vadose will be based on the strategies outlined in Task 4.6.

Several iterative model runs and sensitivity analyses will be needed to check for the reasonableness of the water-quality model results, and if necessary, adjust various assumptions in the initial conditions and the input datasets of the Baseline Scenario. The interim results will need to be reviewed with the TAC to define changes to any assumptions.

The interim simulation results will be summarized for each model run with: N/TDS concentration maps for selected points in the planning period, maps of change in N/TDS concentration, N/TDS concentration time-series charts for wells and return flows over the planning period, and time-series charts of the draft compliance metrics for each management zone as proposed in Task 4.5.3 – *Define AWQ metrics and determine current protection of beneficial uses*.

Any TAC-recommended adjustments will be implemented to the Baseline Scenario, the water-quality models and associated tools will be modified accordingly, and the next simulation run for Baseline Scenario will be conducted. It is anticipated that three iterative model runs will be necessary to finalize the Baseline Scenario.

The final simulation results of the Baseline Scenario will be evaluated to determine if CV-SNMP implementation measures are potentially necessary in the future to control N/TDS loading to protect the beneficial uses of groundwater in specific management zones.

Figure 4-2 is a chart that conceptually illustrates the evaluation of a hypothetical Baseline Scenario in a hypothetical management zone. These types of charts will be prepared for N/TDS in each management zone over the planning period. Each management zone will be evaluated for:

- The long-term protection of beneficial uses in the management zone.
- The potential need for, and timing of, CV-SNMP implementation measure(s) that may be necessary in the future to protect beneficial uses.

At this stage, the water-quality modeling and evaluation of the Baseline Scenario are considered final, and “buy-in” from Regional Board staff is needed to confirm that:

- The data, assumptions, tools, and methods that were used to develop and evaluate the Baseline Scenario are acceptable.
- The need for implementation measures to control N/TDS loading in specific management zones (if any) have been appropriately identified.

4.7.3 Prepare Task Memorandum

A task memorandum will be prepared to describe the methods, assumptions, results and evaluations of the Baseline Scenario and document the “buy-in” from the Regional Board, as outlined below:

- An administrative draft task memorandum will be prepared and distributed to the TAC for review and comment. Review and comment by Regional Board staff is mandatory.
- A TAC meeting will be held to review the administrative draft memorandum and receive feedback. Attendance by Regional Board staff is mandatory.
- A draft memorandum will be prepared based on the feedback from the TAC. An appendix of comments and responses-to-comments will be included in the draft memorandum. Additional review and comment on the draft memorandum by Regional Board staff is mandatory.
- The CV-SNMP Stakeholder Group will be notified of the availability of the draft memorandum for review and comment.
- A public meeting will be held to review the draft memorandum and receive feedback. Attendance by Regional Board staff is mandatory.
- A final memorandum will be prepared addressing the feedback. An appendix of comments and responses-to-comments will be included in the final memorandum.
- Regional Board staff approval of the final memorandum by letter from the Executive Officer is required before proceeding with Task 4.8.

4.8 Forecast N/TDS Concentrations for CV-SNMP Scenarios

Task 4.8 is necessary if Task 4.7 concludes that CV-SNMP implementation measures are potentially necessary in the future to protect the beneficial uses of groundwater in management zones. If not, then Tasks 4.8 and 4.9 in this workplan are not necessary to execute.

The objective of Task 4.8 is to develop CV-SNMP implementation measures that have the potential to control N/TDS loading and protect beneficial uses of groundwater in the Coachella Valley on a sustainable basis. The CV-SNMP implementation measures will be grouped into logical CV-SNMP Scenarios, evaluated with the water-quality models, and compared to the Baseline Scenario results. The CV-SNMP Scenarios will be evaluated in steps, with the model results of a scenario (or a set of scenarios) informing the preparation of subsequent scenarios. For cost estimating purposes, this workplan assumes an iterative, step-wise process to evaluate up to eight CV-SNMP Scenarios.

The water-quality modeling results for the CV-SNMP Scenarios will:

- Quantify the relative effectiveness of each CV-SNMP Scenario in managing the N/TDS concentrations in each groundwater management zone.
- Support subsequent tasks in this workplan to:
 - Propose final management zone delineations and AWQ metrics. As stated earlier in this workplan, it is possible that understanding potential future water-quality conditions, and the ability for the stakeholders to control future water-quality conditions, will indicate that modifications to management zone delineations and AWQ metrics will better support salt and nutrient management.
 - Recommend TDS objectives pursuant to CWC 13241(c): *Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area.* In other words, the results of this task will describe the water-

quality conditions that could be achieved via the implementation of various CV-SNMP implementation measures.

4.8.1 Evaluate Baseline Scenario Results and Recommend Implementation Measures

In this task, the Baseline Scenario results will be used to develop recommendations for CV-SNMP implementation measures to manage N/TDS loading in the Basin on a sustainable basis. These implementation measures will be formulated into CV-SNMP Scenarios (i.e. one or more projects or programs) with the objective to protect the long-term beneficial uses of groundwater in the management zones.

The Technical Consultant will prepare a task memorandum to describe the recommended CV-SNMP Scenarios, as described below:

- An administrative draft task memorandum will be prepared and distributed to the TAC for review and comment.
- A TAC meeting will be held to review the administrative draft memorandum and receive feedback.
- A draft memorandum will be prepared based on the feedback from the TAC.
- The CV-SNMP Stakeholder Group will be notified of the availability of the draft memorandum for review and comment.
- A public meeting will be held to review the draft memorandum and receive feedback.
- A final memorandum will be prepared addressing the feedback.

4.8.2 Evaluate CV-SNMP Scenarios

In this task, the recommended CV-SNMP Scenarios will be implemented in the models, the model simulations will be conducted, and the model results will be evaluated and compared against the Baseline Scenario for their effectiveness in controlling N/TDS loading and protecting beneficial uses.

The CV-SNMP Scenarios will be evaluated in steps, with the model results of one scenario (or a set of scenarios) informing the preparation of the subsequent scenarios. After each step, the results will be shared with the TAC to receive feedback on the preparation of the subsequent scenarios. This will be an iterative process to evaluate up to eight CV-SNMP Scenarios.

Figure 4-3 and **Figure 4-4** are charts that conceptually illustrate the evaluation of two hypothetical CV-SNMP Scenarios in a hypothetical management zone:

- Hypothetical SNMP Scenario #1 is assumed to include a relatively aggressive and expensive implementation measure to reduce TDS loading. The TDS concentration in the management zone is projected to stabilize at concentrations significantly below the maximum beneficial use threshold over the planning period, and hence, appears to be protective of beneficial uses.
- Hypothetical SNMP Scenario #2 is assumed to include a less aggressive and less expensive implementation measures to reduce TDS loading compared to Hypothetical SNMP Scenario #1. The TDS concentration in the management zone is still projected to stabilize at concentrations below the maximum beneficial use threshold over the planning period, and hence, appears to be

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protective of beneficial uses, but at a higher TDS concentration than projected for Hypothetical SNMP Scenario #1.

The types of charts in **Figure 4-3** and **Figure 4-4** will be prepared for N/TDS concentrations for each scenario in each management zone over the planning period. The CV-SNMP Scenarios will be evaluated for:

- The long-term protection of beneficial uses.
- The potential need for, and timing of, other CV-SNMP implementation measure(s) that may be necessary for the long-term protection of beneficial uses in the most cost-efficient manner.

The evaluation of economic considerations between scenarios is performed in Task 4.9.

4.8.3 Prepare Task Memorandum

A task memorandum will be prepared to describe and document the methods, assumptions, and results of the evaluations of the CV-SNMP Scenarios, as described below:

- An administrative draft memorandum will be prepared and distributed to the TAC for review and comment.
- A TAC meeting will be held to review the administrative draft memorandum and receive feedback.
- A draft memorandum will be prepared based on the feedback from the TAC and distributed for review and comment.
- The CV-SNMP Stakeholder Group will be notified of the availability of the draft memorandum for review and comment.
- A public meeting will be held to review the draft memorandum and receive feedback.
- A final memorandum will be prepared addressing the feedback.

4.9 Characterize and Compare the Cost of Baseline and CV-SNMP Scenarios

The objective of this task is to prepare an engineering cost analysis of the Coachella Valley water supply for the Baseline Scenario and the CV-SNMP Scenarios. The cost analysis will provide information required for recommending TDS objectives pursuant to CWC 13241(d): *Economic considerations*.

4.9.1 Develop Cost-Estimating Planning Criteria and a Cost Model

Standard planning criteria will be developed for assumptions related to capital improvement construction and operations and maintenance (O&M) of projects to ensure consistency in estimating costs.

An engineering cost model will be developed for the purposes of estimating the annual melded unit cost of the aggregate water supply¹⁴ in the Coachella Valley over the planning period for the Baseline and the

¹⁴ Aggregate water supply is the cumulative of all water supplies produced and used in the Basin.

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CV-SNMP Scenarios. The cost model will breakdown each water purveyor's water-supply plan into individual water-supply sources, and then assign costs for acquiring the water supply, production (energy costs associated with producing the water supply), O&M, treatment, and conveyance over the planning period. Agricultural water users and golf course water users will be analyzed in an aggregate fashion.

If applicable, the cost model will include the costs associated with the effects of potential future increases in groundwater salinity.

A description of the planning criteria and the cost model will be shared with the TAC to receive feedback from the TAC. The planning criteria and cost model will be finalized based on TAC feedback.

4.9.2 Develop Cost Estimates for the Baseline and CV-SNMP Scenarios

The engineering cost model will be applied to the Baseline and CV-SNMP Scenarios to estimate and compare the annual melded unit cost of the aggregate water supply in the Coachella Valley over the planning period. These costs will be summarized into an annual melded unit cost of the aggregate water supply over the planning period and a net-present value cost for each Scenario.

This task will also include a description of the funding mechanisms available to the agencies responsible for CV-SNMP implementation and the cost impacts to those agencies and their rate payers.

4.9.3 Prepare Task Memorandum

A task memorandum will be prepared to describe and document the planning criteria and the methods, assumptions, and results of the cost analyses and cost comparisons, as described below:

- An administrative draft memorandum will be prepared and distributed to the TAC for review and comment.
- A TAC meeting will be held to review the administrative draft memorandum and receive feedback.
- A draft memorandum will be prepared based on the feedback from the TAC and distributed for review and comment.
- The CV-SNMP Stakeholder Group will be notified of the availability of the draft memorandum for review and comment.
- A public meeting will be held to review the draft memorandum and receive feedback.
- A final memorandum will be prepared addressing the feedback.

4.10 Select the Preferred CV-SNMP Scenario, Finalize Management Zones and Beneficial Uses, and Recommend TDS Objectives

The objective of this task is to select a preferred CV-SNMP Scenario, which will form the basis for a CV-SNMP implementation plan and any recommended updates to the Basin Plan, which could include:

- Establishment of management zone delineations and descriptions.
- Groundwater beneficial use descriptions for each management zone.
- Addition of numeric TDS objectives for each management zone.

CV-SNMP Development Workplan

- Addition of CV-SNMP implementation measures and associated time schedules.

4.10.1 Evaluate All Forecasted Information and Select a Preferred CV-SNMP Scenario

In this task, the results of the Baseline and CV-SNMP Scenarios will be compared and ranked based on the following criteria:

1. The ability of the scenario to protect the beneficial uses over the planning period.
2. The feasibility of implementation.
3. The melded unit cost of the total water supply.
4. The funding mechanisms available to the agencies responsible for CV-SNMP implementation and the cost impacts to those agencies and their rate payers.

At this stage, it is possible that results of the scenarios indicate the need for refinements to the management zone delineations and/or the AWQ metrics that are meant to represent ambient N/TDS concentrations in the management zones. If so, the model results will be re-processed to compute the revised AWQ metrics.

Based on the evaluation and ranking of the Baseline and CV-SNMP Scenarios, the consultant(s) will recommend a preferred CV-SNMP Scenario, including the final management zones, beneficial use designations, and TDS objectives.¹⁵ The evaluation, ranking, and the recommended CV-SNMP Scenario will be shared with the TAC to receive feedback. The TAC will then select the preferred CV-SNMP Scenario.

4.10.2 Recommend TDS Objectives based on CWC 13241

California Water Code (CWC) section 13241 lists the factors to consider when establishing water quality objectives without unreasonably affecting beneficial uses. These factors include:

- a) Past, present, and probable future beneficial uses of water.
- b) Environmental characteristics of the hydrographic unit under consideration, including the quality of water available thereto.
- c) Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area.
- d) Economic considerations.
- e) The need for developing housing within the region.
- f) The need to develop and use recycled water.

A written demonstration will be prepared, referencing all work performed in prior tasks, to illustrate how the preferred CV-SNMP Scenario and the recommended TDS objectives collectively satisfy the requirements of CWC 13241.

¹⁵ A numeric nitrate-nitrogen objective for groundwater in the Basin is already established in the Basin Plan at 10 mg/l.

4.10.3 Document Antidegradation Demonstration Pursuant to State Board Policy 68-16

An antidegradation demonstration will be prepared as required by Section 6.2.4.5 of the 2018 Policy. The objective will be to illustrate how the preferred CV-SNMP Scenario and the recommended N/TDS objectives collectively satisfy the requirements of State Board Resolution 68-16 (the Antidegradation Policy). The key components of an antidegradation demonstration include:

- Identifying the water quality parameters and beneficial uses that will be impacted by the proposed action and the extent of the impact. In this case, the proposed action is the adoption of the CV-SNMP (including implementation of the preferred CV-SNMP Scenario) and the proposed changes to the Basin Plan (e.g. management zones, TDS objectives, and beneficial use designations).
- The scientific rationale for the determination that the proposed action will or will not lower water quality in the impacted receiving waters.
- A discussion of the alternative measures that were considered.
- A socio-economic evaluation.
- The rationale for determining that the proposed action is or is not justified by socio-economic considerations.
- Comparing the potential water-quality outcomes.
- Demonstrating that any water quality degradation allowed by the CV-SNMP provides maximum benefit to the people of California.

Figure 4-5 is a chart that conceptually illustrates the evaluation of a hypothetical preferred SNMP Scenario in a hypothetical management zone. In this example, the TDS concentration objective in the management zone is selected based upon an evaluation of all factors listed in CWC 13241 and a demonstration that the scenario and the recommended TDS objective collectively satisfy the requirements of Antidegradation Policy (see Section 4.10.3 below). These types of charts will be prepared for N/TDS concentrations for each scenario in each management zone over the planning period.

4.10.4 Prepare Task Memorandum

A task memorandum will be prepared to describe: the evaluation and ranking of the Baseline and CV-SNMP Scenarios; the preferred CV-SNMP Scenario; the final management zones, beneficial use designations, and recommended TDS objectives; and how the CV-SNMP and the recommended TDS objectives collectively satisfy the requirements of CWC 13241 and the Antidegradation Policy. “Buy-in” from the Regional Board is mandatory at this stage. The memorandum will be completed as described below:

- An administrative draft task memorandum will be prepared and distributed to the TAC for review and comment. Review and comment by Regional Board staff is mandatory.
- A TAC meeting will be held to review the administrative draft memorandum and receive feedback. Attendance by Regional Board staff is mandatory.
- A draft memorandum will be prepared based on the feedback from the TAC. An appendix of comments and responses-to-comments will be included in the draft memorandum. Additional review and comment on the draft memorandum by Regional Board staff is mandatory.

CV-SNMP Development Workplan

- The CV-SNMP Stakeholder Group will be notified of the availability of the draft memorandum for review and comment.
- A public meeting will be held to review the draft memorandum and receive feedback. Attendance by Regional Board staff is mandatory.
- A final memorandum will be prepared addressing the feedback. An appendix of comments and responses-to-comments will be included in the final memorandum.
- Regional Board staff approval of the final memorandum by letter from the Executive Officer is required before proceeding with Task 4.11.

4.11 Prepare Final CV-SNMP

The complete findings and recommendations from the work performed to implement this CV-SNMP Development Workplan will be documented in a final plan titled: *Final Coachella Valley Salt and Nutrient Management Plan* (CV-SNMP). The CV-SNMP will be a compilation of the final technical memorandums and interim work products prepared in Tasks 4.1 through 4.10. The CV-SNMP will define the management activities that the CV-SNMP Agencies will implement, including the ongoing monitoring programs, to comply with the N/TDS objectives of the defined groundwater management zones.

The CV-SNMP will include a plan and schedule to implement the preferred CV-SNMP Scenario and perform the monitoring, reporting, and update activities as required by Sections 6.2.4.1.3 and 6.2.6 of the 2018 Policy. The CV-SNMP will address:

- Milestones, triggers, and schedules for implementation of any programs or facilities included in the preferred CV-SNMP Scenario.
- Milestones and schedules for implementing and updating the CV-SNMP Groundwater Monitoring Program. The monitoring program may need to be updated to address new information and data gaps identified in the implementation of this CV-SNMP Development Workplan (or during ongoing monitoring efforts) and to ensure monitoring program is robust enough to assess the impacts of implementing the preferred CV-SNMP Scenario.
- A process for performing the five-year data assessment, which must include an evaluation of:
 - Observed trends in water quality data as compared with trends predicted in the CV-SNMP.
 - The ability of the monitoring network to adequately characterize groundwater quality in the Basin.
 - Potential new data gaps.
 - Groundwater quality impacts predicted in the CV-SNMP based on most recent trends and any relied-upon models, including an evaluation of the ability of the models to simulate groundwater quality.
 - Available assimilative capacity based on observed trends and most recent water quality data.
 - New projects that are reasonably foreseeable at the time of the data assessment but may not have been considered when the CV-SNMP was prepared or last updated.

CV-SNMP Development Workplan

The process to prepare the final CV-SNMP will include the following:

- An administrative draft CV-SNMP will be prepared and distributed to the TAC for review and comment. Review and comment by Regional Board staff is mandatory.
- A TAC meeting will be held to review the administrative draft CV-SNMP and receive feedback. Attendance by Regional Board staff is mandatory.
- A draft CV-SNMP will be prepared based on the feedback from the TAC for additional review and comment. An appendix of comments and responses-to-comments will be included in the draft memorandum. Review and comment on the draft memorandum by Regional Board staff is mandatory.
- The CV-SNMP Stakeholder Group will be notified of the availability of the draft memorandum for review and comment.
- A public meeting will be held to review the draft CV-SNMP and receive feedback. Attendance by Regional Board staff is mandatory.
- The CV-SNMP will be prepared addressing the feedback. An appendix of comments and responses-to-comments will be included in the final memorandum.
- The final CV-SNMP will be submitted to the Regional Board for approval.

Table 4-1. CV-SNMP Development Workplan Compliance with the 2018 Recycled Water Policy

Recommended and Required Components of SNMPs pursuant to 2018 Recycled Water Policy	Workplan Section that Complies with the 2018 Policy
Section 6.2 Development and adoption of salt and nutrient management plans	
6.2.1 The State Water Board encourages collaborative work among salt and nutrient management planning groups, the agricultural community, the regional water boards, Integrated Regional Water Management groups, and groundwater sustainability agencies formed under the Sustainable Groundwater Management Act to achieve the goals of groundwater sustainability, recycled water use, and water quality protection. For basins identified pursuant to 6.1.3, the State Water Board encourages local water suppliers, wastewater treatment agencies, and recycled water producers, together with local salt and nutrient contributing stakeholders, to continue locally driven and controlled, collaborative processes open to all stakeholders and the regional water board that will result in the development of salt and nutrient management plans for groundwater basins and the management of salts and nutrients on a basin-wide basis.	Section 4.2 - Establish CV-SNMP Stakeholder Group and Technical Advisory Committee
6.2.4.1. A basin- or subbasin-wide monitoring plan that includes an appropriate network of monitoring locations to provide a reasonable, cost effective means of determining whether the concentrations of salts, nutrients, and other constituents of concern as identified in the salt and nutrient management plans are consistent with applicable water quality objectives. The number, type, and density of monitoring locations to be sampled and other aspects of the monitoring program shall be dependent upon basin-specific conditions and input from the regional water board.	Section 3 - CV-SNMP Groundwater Monitoring Program Workplan
6.2.4.2. Water recycling use goals and objectives.	Section 4.7 - Construct N/TDS Forecasting Tools and Evaluate the Baseline Scenario
6.2.4.3. Salt and nutrient source identification, basin or subbasin assimilative capacity and loading estimates, together with fate and transport of salts and nutrients.	Section 4.3 - Characterize N/TDS Loading to the Groundwater Basin Section 4.4 - Characterize Current Groundwater Quality Section 4.5 - Delineate Draft Management Zones and Describe Metrics to Characterize Beneficial Use Protection Section 4.7 - Construct N/TDS Forecasting Tools and Evaluate Baseline Scenario
6.2.4.4. Implementation measures to manage or reduce the salt and nutrient loading in the basin on a sustainable basis and the intended outcome of each measure.	Section 4.8 - Forecast N/TDS for up to Eight CV-SNMP Scenarios
6.2.4.5. An antidegradation analysis demonstrating that the existing projects, reasonably foreseeable future projects, and other sources of loading to the basin included within the plan will, cumulatively, satisfy the requirements of State Water Board Resolution No. 68-16, Statement of Policy with Respect to Maintaining High Quality of Waters in California (Antidegradation Policy).	Section 4.10 - Select the Preferred CV-SNMP Scenario, Finalize Management Zones and Beneficial Uses, and Set TDS Objectives

Figure 4-1. Conceptual Chart to Characterize Beneficial Use Protection in a Management Zone

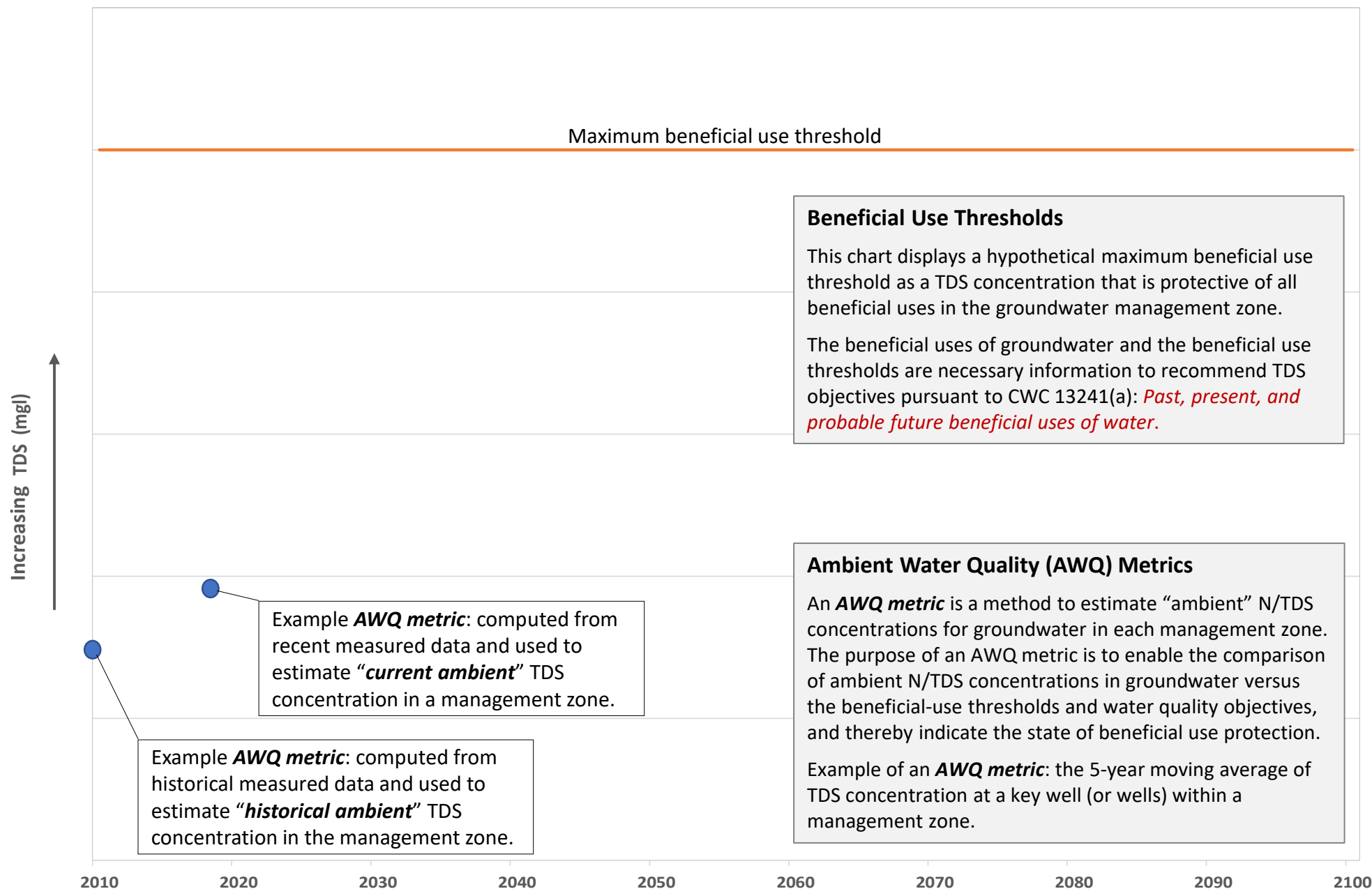


Figure 4-2. Conceptual Evaluation of a Hypothetical Baseline Scenario in a Management Zone

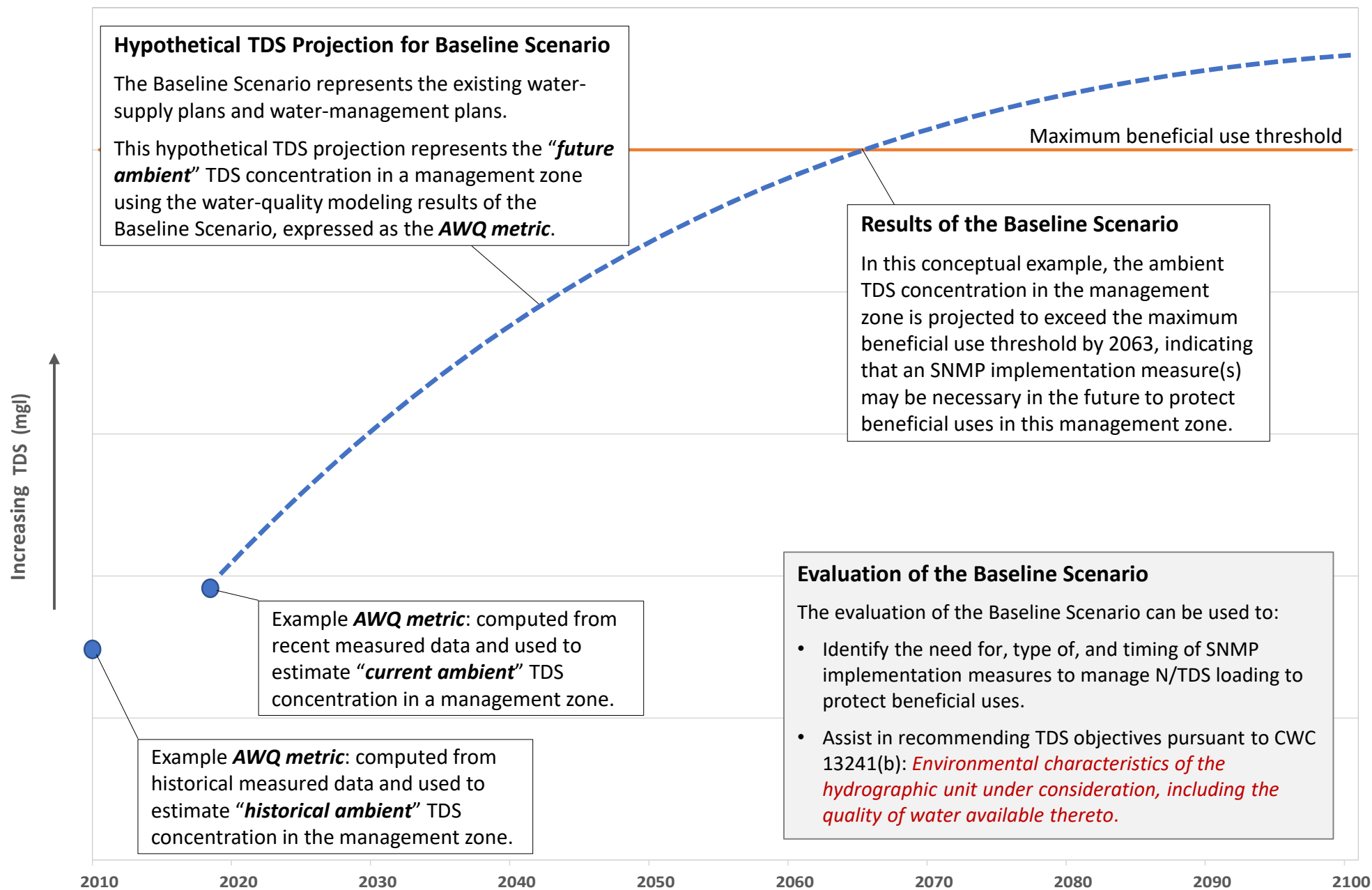


Figure 4-3. Conceptual Evaluation of Hypothetical SNMP Scenario #1 in a Management Zone

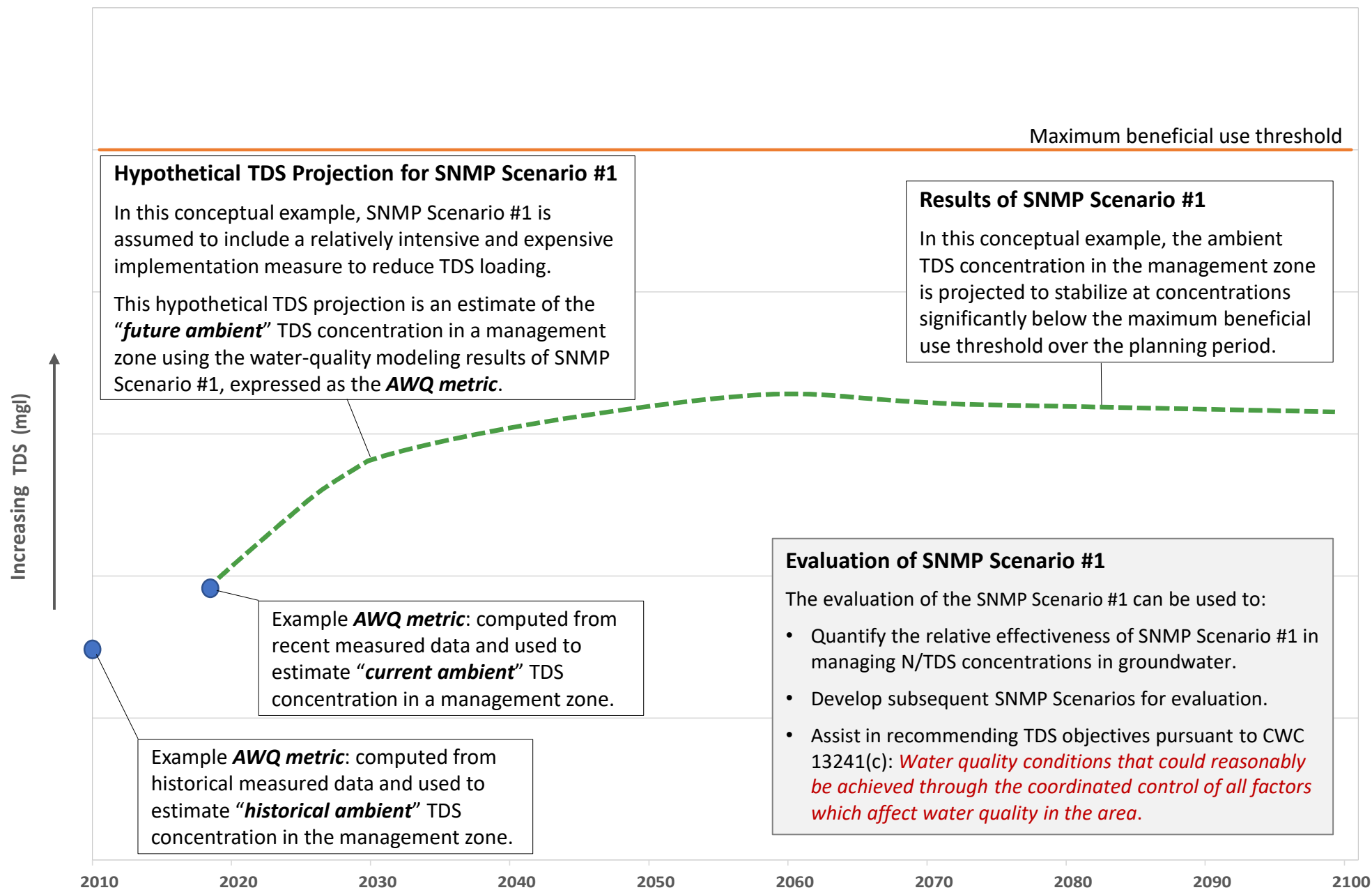


Figure 4-4. Conceptual Evaluation of Hypothetical SNMP Scenario #2 in a Management Zone

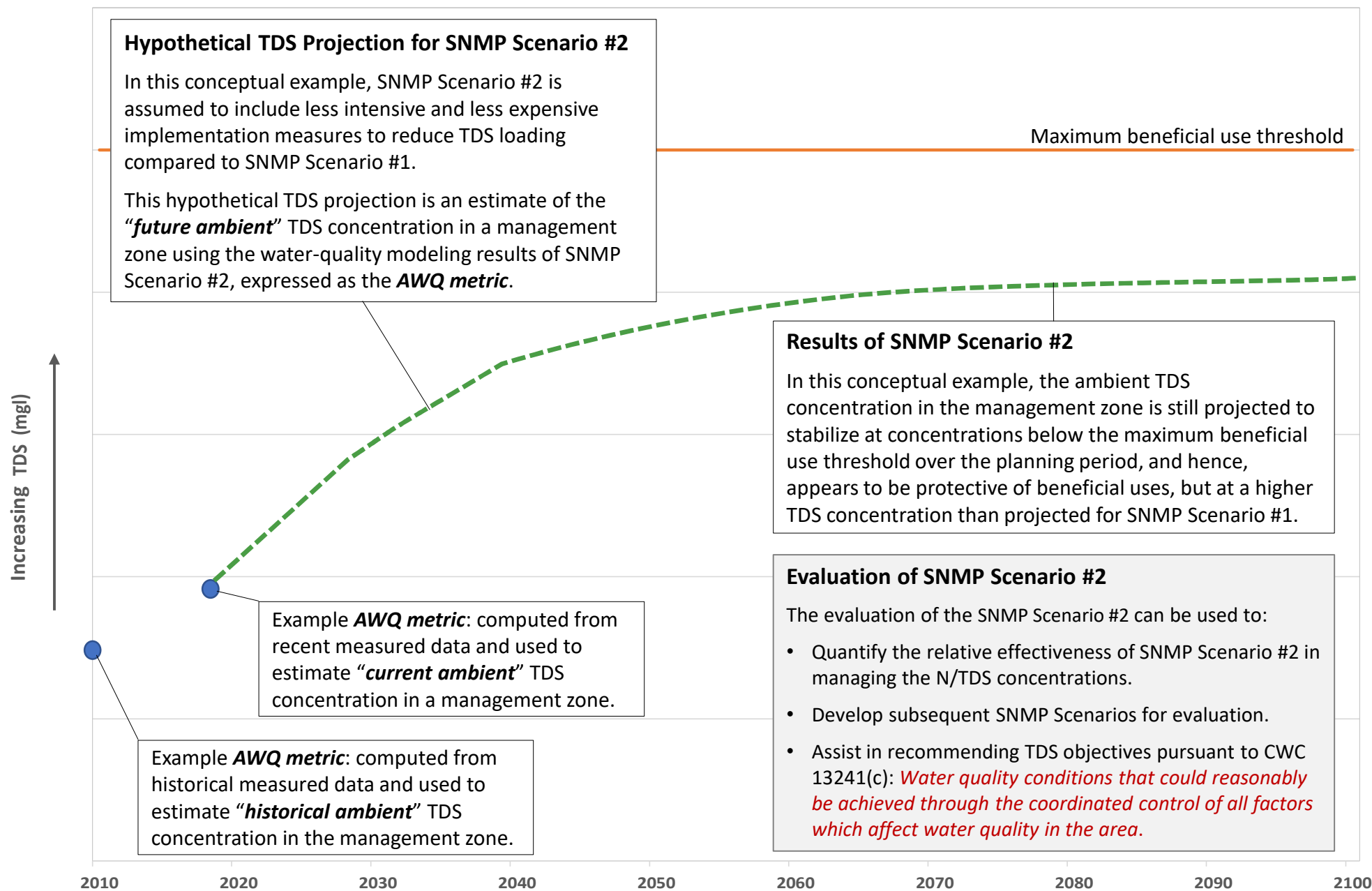
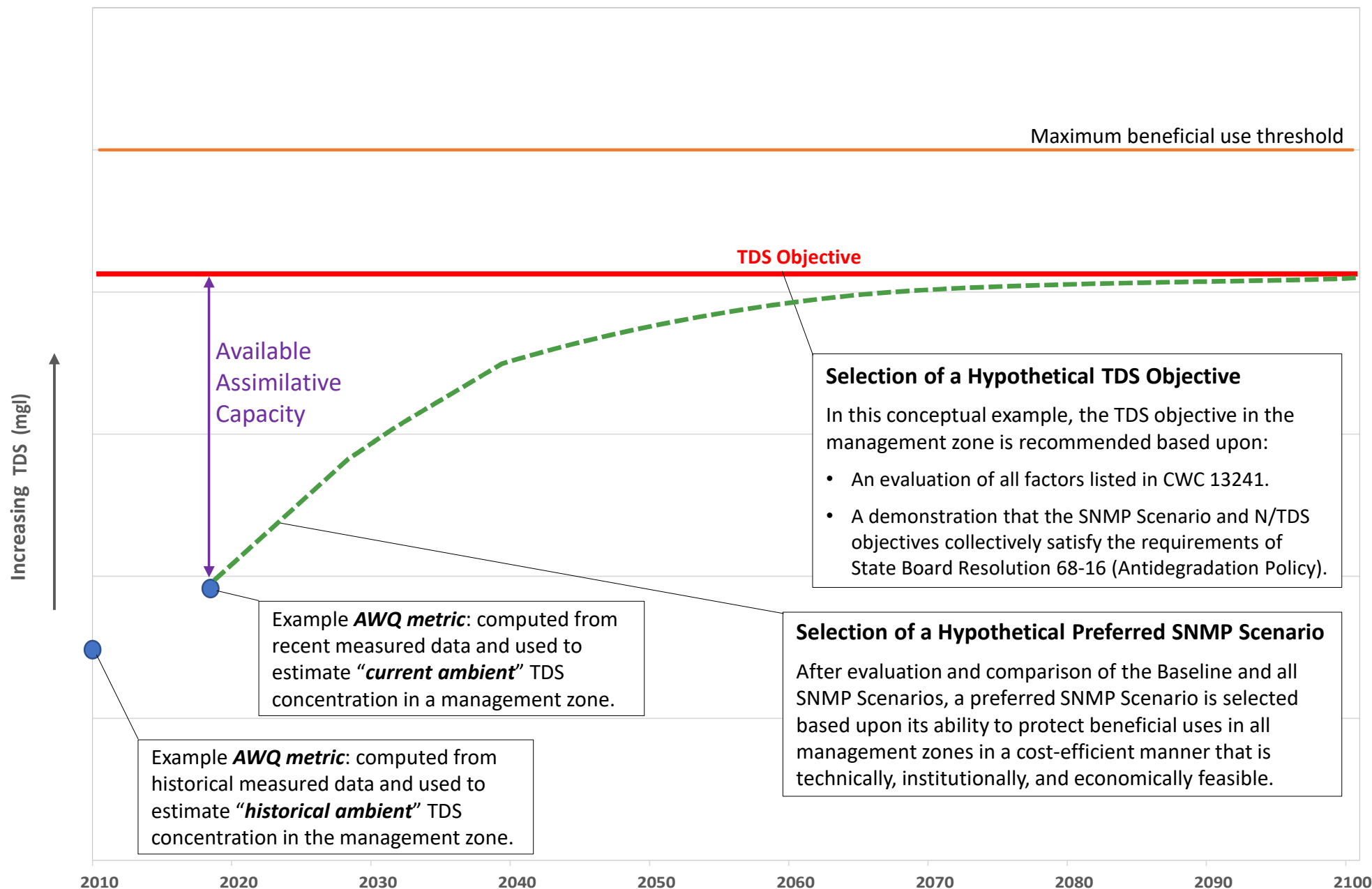


Figure 4-5. Selection of a Hypothetical SNMP Scenario and TDS Objective in a Management Zone



5.0 CV-SNMP DEVELOPMENT WORKPLAN IMPLEMENTATION

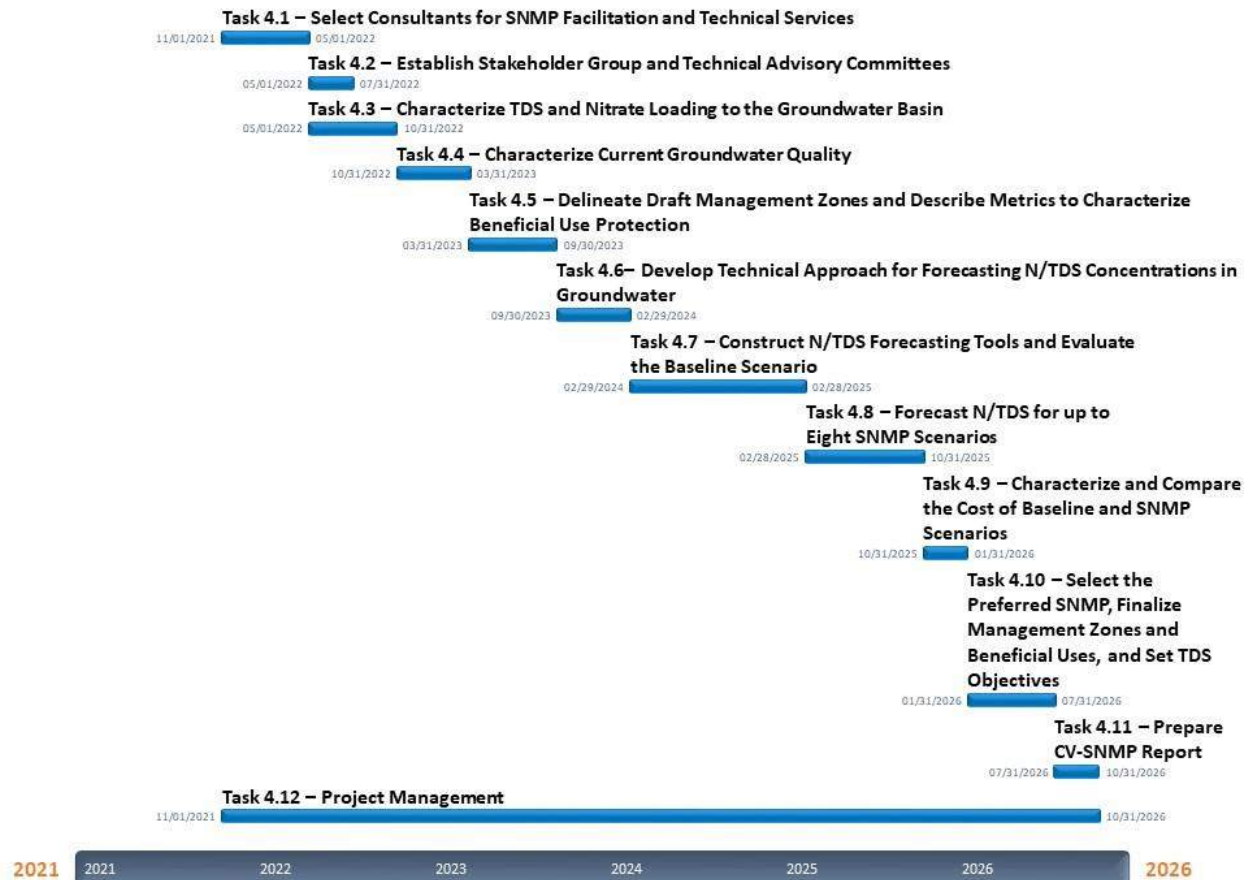
5.1 Schedule

The schedule of activities to implement the CV-SNMP Development Workplan is shown in **Table 5-1** and **Figure 5-1** below. The schedule assumes that Task 4.1 begins on November 1, 2021. The CV-SNMP Agencies are developing a Memorandum of Understanding (MOU) to implement this CV-SNMP Development Workplan.

Table 5-1. CV-SNMP Development Workplan Implementation Schedule		
Task	Task Duration	Task Completion Date
Task 4.1 – Select Consultants for CV-SNMP Facilitation and Technical Services	6 months	May 1, 2022
Task 4.2 – Establish CV-SNMP Stakeholder Group and Technical Advisory Committees	3 months	July 31, 2022
Task 4.3 – Characterize N/TDS Loading to the Groundwater Basin	6 months	October 31, 2022
Task 4.4 – Characterize Current Groundwater Quality	5 months	March 31, 2023
Task 4.5 – Delineate Draft Management Zones and Describe Metrics to Characterize Beneficial Use Protection	6 months	September 30, 2023
Task 4.6 – Develop Technical Approach for Forecasting N/TDS Concentrations in Groundwater	5 months	February 29, 2024
Task 4.7 – Construct N/TDS Forecasting Tools and Evaluate Baseline Scenario	12 months	February 28, 2025
Task 4.8 – Forecast N/TDS for CV-SNMP Scenarios	8 months	October 31, 2025
Task 4.9 – Characterize and Compare the Cost of Baseline and CV-SNMP Scenarios	3 months	January 31, 2026
Task 4.10 – Select the Preferred CV-SNMP Scenario, Finalize Management Zones and Beneficial Uses, and Recommend TDS Objectives	6 months	July 30, 2026
Task 4.11 – Prepare Final CV-SNMP	3 months	October 30, 2026
Task 4.12 – Project Management	Throughout	

CV-SNMP Development Workplan

Figure 5-1. Implementation of the CV-SNMP Development Workplan



5.2 Progress Reporting to the Regional Board

To keep the Regional Board informed of progress and future activities during implementation of the CV-SNMP Development Workplan, the CV-SNMP Agencies will add a section to the annual progress report that will be submitted to the Regional Board for the Groundwater Monitoring Program Workplan. The annual progress report will be retitled: *Annual Progress Report on Implementation of the CV-SNMP Groundwater Monitoring Program and CV-SNMP Development Workplan*. It will be submitted to the Regional Board by March 31 of each year of implementation. The first annual progress report will be due by March 31, 2022 to report progress achieved during calendar year 2021.

5.3 Cost Estimates

This section summarizes the total costs to implement the CV-SNMP Development Workplan as described in Section 4 and to implement the CV-SNMP Groundwater Monitoring Program Workplan as described in Section 3.

Total Costs to implement the CV-SNMP Development Workplan. Table 5-2 below summarizes the cost estimates by major task for the implementation of the CV-SNMP Development Workplan (excluding the costs to implement the CV-SNMP Groundwater Monitoring Program). The costs in Table 5-2 are first-order estimates for work performed by the consultant(s) and are based on the 2021 rates for West Yost

CV-SNMP Development Workplan

Associates. Total costs to prepare the final CV-SNMP are estimated to be about \$2,870,000, which does not include the costs associated with CV-SNMP Agency staff efforts.

Table 5-2. Cost Estimates to Implement the CV-SNMP Development Workplan	
Task	Cost
Task 4.1 – Select Consultants for CV-SNMP Facilitation and Technical Services	\$0
Task 4.2 – Establish CV-SNMP Stakeholder Group and Technical Advisory Committees	\$25,000
Task 4.3 – Characterize N/TDS Loading to the Groundwater Basin	\$150,000
Task 4.4 – Characterize Current Groundwater Quality	\$150,000
Task 4.5 – Delineate Draft Management Zones and Describe Metrics to Characterize Beneficial Use Protection	\$200,000
Task 4.6 – Develop Technical Approach for Forecasting N/TDS Concentrations in Groundwater	\$130,000
Task 4.7 – Construct N/TDS Forecasting Tools and Evaluate Baseline Scenario	\$850,000
Task 4.8 – Forecast N/TDS for up to Eight CV-SNMP Scenarios	\$500,000
Task 4.9 – Characterize and Compare the Cost of Baseline and CV-SNMP Scenarios	\$200,000
Task 4.10 – Select the Preferred CV-SNMP Scenario, Finalize Management Zones and Beneficial Uses, and Recommend TDS Objectives	\$200,000
Task 4.11 – Prepare Final CV-SNMP	\$75,000
Task 4.12 – Project Management	\$80,000
Task 5.2 – Progress Reporting to the Regional Board	\$50,000
Contingency (10%)	\$260,000
Total	\$2,870,000

Total Costs to implement the CV-SNMP Groundwater Monitoring Program Workplan. Table 5-3 summarizes the cost estimates by task and subtask for the first six-year period of monitoring program implementation. Total costs for the first six-year period of monitoring program implementation are estimated to be about \$4,100,000 (including a contingency of 25%). Total costs are likely to be higher because these estimates do not include land acquisition, site improvement costs for new monitoring well sites, or CV-SNMP Agency staff efforts.

Table 5-3. Cost Estimates to Implement the CV-SNMP Groundwater Monitoring Program		
Task	Cost by Sub-Task	Cost by Task
<i>Task 1 – Sampling and Analysis of Private Wells</i>		<i>\$260,175</i>
Perform field canvass of private wells; develop access agreements	\$21,001	
Development/execution of private well access agreements	\$79,924	
Devise and construct and wellhead improvements to enable sample collection	\$103,733	
Perform two sampling and laboratory analysis events over the five-year period	\$55,518	
<i>Task 2 – Filling of Gaps in the Monitoring Network</i>		<i>\$2,858,957</i>

CV-SNMP Development Workplan

Table 5-3. Cost Estimates to Implement the CV-SNMP Groundwater Monitoring Program		
Task	Cost by Sub-Task	Cost by Task
Perform field work and research; prepare plan to fill gaps in monitoring network	\$53,776	
Prepare well-siting study to identify 23 well sites	\$50,828	
Prepare technical specifications for of two monitoring well types	\$32,378	
Acquire well sites and/or execute lease agreements	\$14,996	
Conducting a bid process to select a well drilling/construction subcontractor	\$6,172	
Obtain permits and CEQA clearance	\$27,899	
Drill, construct, and develop six wells in the Perched aquifer system	\$231,144	
Drill, construct, and develop 16 wells in the Shallow aquifer system	\$1,999,104	
Drill, construct, and develop one deep monitoring well	\$216,294	
Prepare well completion reports for 23 new monitoring wells/file with DWR	\$226,366	
<i>Task 3 - Preparing Annual Progress Reports to the Regional Board</i>		<i>\$139,800</i>
<i>Subtotal</i>		<i>\$3,258,932</i>
<i>Contingency (25%)</i>		<i>\$814,733</i>
Total		\$4,073,665

Appendix A

Groundwater Monitoring Program Workplan *Coachella Valley Salt and Nutrient Management Plan Update*

(Approved by Regional Board on February 21, 2021)

Groundwater Monitoring Program Workplan
Coachella Valley Salt and Nutrient
Management Plan Update

PREPARED FOR

The Coachella Valley SNMP Agencies

PREPARED BY



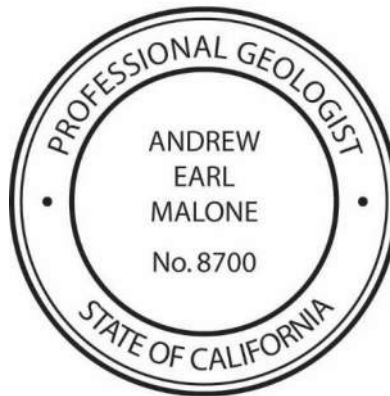
Groundwater Monitoring Program Workplan

Coachella Valley Salt and Nutrient Management Plan Update

Prepared for

The Coachella Valley SNMP Agencies

Project No. 943-80-20-01



A handwritten signature in black ink, appearing to read "Andrew E. Malone".

Project Manager: Andrew E. Malone, PG

12/23/2020

Date

A handwritten signature in black ink, appearing to read "Samantha Adams".

QA/QC Review: Samantha Adams

12/23/2020

Date

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LIST OF ACRONYMS AND ABBREVIATIONS

CPS	City of Palm Springs
CV-SNMP	Salt and Nutrient Management Plan for the Coachella Valley Groundwater Basin
CVSC	Coachella Valley Stormwater Channel
CVWD	Coachella Valley Water District
CWA/CSD	Coachella Water Authority and Coachella Sanitary District
DWA	Desert Water Agency
DWR	California Department of Water Resources
ft-bgs	Feet below ground surface
IWA	Indio Water Authority
GAMA	Groundwater Ambient Monitoring & Assessment
MC-GRF	Mission Creek Groundwater Replenishment System
MDMWC	Myoma Dunes Mutual Water Company
MOU	Memorandum of Understanding
MSWD	Mission Springs Water District
PD-GRF	Palm Desert Groundwater Replenishment Facility
POTW	Publicly Owned Treatment Works
TDS	Total Dissolved Solids
TEL-GRF	Thomas E. Levy Groundwater Replenishment Facility
USGS	United States Geological Survey
VSD	Valley Sanitary District
WRP	Water Reclamation Plant
WW-GRF	White Water Groundwater Replenishment Facility

1.0 BACKGROUND AND OBJECTIVES

The Salt and Nutrient Management Plan for the Coachella Valley Groundwater Basin (CV-SNMP) must include a monitoring and reporting program pursuant to Section 6.2.4.1 of the 2018 Recycled Water Policy (Policy):

6.2.4.1. A basin- or subbasin-wide monitoring plan that includes an appropriate network of monitoring locations to provide a reasonable, cost effective means of determining whether the concentrations of salts, nutrients, and other constituents of concern as identified in the salt and nutrient management plans are consistent with applicable water quality objectives. The number, type, and density of monitoring locations to be sampled and other aspects of the monitoring program shall be dependent upon basin-specific conditions and input from the regional water board. Salts, nutrients, and the constituents identified in 6.2.1.1 shall be monitored. The frequency of monitoring shall be proposed in the salt and nutrient management plan for review by the regional water board pursuant to 6.2.3.

6.2.4.1.1. The monitoring plan must be designed to effectively evaluate water quality in the basin. The monitoring plan must focus on water supply wells, areas proximate to large water recycling projects, particularly groundwater recharge projects, and other potential sources of salt and nutrients identified in the salt and nutrient management plan. Also, monitoring locations shall, where appropriate, target groundwater and surface waters where groundwater has connectivity with adjacent surface waters.

6.2.4.1.2. The monitoring plan may include water quality data from existing wells where the wells are located and screened appropriately to determine water quality throughout the most critical areas of the basin. The State Water Board supports monitoring approaches that leverage the use of groundwater monitoring wells from other regulatory programs, such as the Irrigated Lands Regulatory Program and the Sustainable Groundwater Management Act.

6.2.4.1.3. The monitoring plan shall identify those stakeholders responsible for conducting, compiling, and reporting the monitoring data. Where applicable, the regional water board will assist by encouraging other dischargers in the basin or subbasin to participate in the monitoring program. The data shall be electronically reported annually in a format that is compatible with a Groundwater Ambient Monitoring & Assessment (GAMA) information system and must be integrated into the GAMA information system or its successor.

In its evaluation of the 2015 CV-SNMP, the Colorado River Basin Regional Water Quality Control Board (Regional Board) perceived insufficiencies in the proposed monitoring program, including: (i) a lack of data necessary to characterize groundwater quality in all areas and sub-areas of the basin; (ii) a lack of data in critical areas of salt loading (e.g., water recycling and recharge projects); and (iii) it did not propose a plan/timeline to fill the data gaps (Regional Board letter, February 19, 2020). Hence, the Regional Board is requiring the CV-SNMP stakeholders (CV-SNMP Agencies) to prepare a revised Groundwater Monitoring Program Workplan (Workplan) for the Coachella Valley Groundwater Basin (Basin) by December 2020 (Regional Board letter, April 27, 2020).

Groundwater Monitoring Program Workplan

Coachella Valley Salt and Nutrient Management Plan Update

The CV-SNMP Agencies include: Coachella Valley Water District (CVWD); Coachella Water Authority and Coachella Sanitary District (CWA/CSD); Desert Water Agency (DWA); Indio Water Authority (IWA); Myoma Dunes Mutual Water Company (MDMWC); Valley Sanitary District (VSD); Mission Springs Water District (MSWD); and City of Palm Springs (CPS).

To achieve the requirements of the Policy and address the concerns of the Regional Board, this Workplan describes the following:

1. The physical setting of the Coachella Valley which includes the basic hydrology and hydrogeology of the Basin and its subbasins. The physical understanding of how the groundwater basin functions is necessary to select a monitoring network that is capable of characterizing groundwater quality in all areas and subareas of the Basin, both spatially and vertically.
2. An initial sampling network, including the locations planned for sampling, justifications for the sampling locations, well construction details, and the SNMP Agencies responsible for conducting monitoring at each site.
3. The existing spatial and vertical gaps in the monitoring network, why the gaps were identified, and how the gaps will be filled.
4. A proposed plan to implement the monitoring program.

2.0 HYDROGEOLOGIC CONCEPTUAL MODEL OF THE BASIN

This section summarizes the physical characteristics and dynamics of the Basin regarding surface water, groundwater, and the origin, fate and transport of salts and nutrients within the Basin. Understanding the physical characteristics and dynamics of the Basin provides the foundation for selecting a monitoring network that will meet the objectives of the Policy.

This section was prepared from a review of past technical studies and reports; no original work or analyses were performed for this section of the workplan.

2.1 Basin Setting

Figure 2-1 is a map that shows the Basin as delineated by the California Department of Water Resources (DWR Groundwater Basin No. 7-021, excluding the San Geronio Pass Subbasin), which represents the area subject to the CV-SNMP. The Basin is located within the northwest portion of the Salton Sea Watershed (USGS Hydrologic Unit 18100200).

Figure 2-1 shows the surface geology as generalized into natural divisions with regard to groundwater:

Unconsolidated water-bearing sediments. These are the pervious formations that comprise the Basin.

Bedrock formations. These are the semi-consolidated sediments and the consolidated bedrock formations that come to the surface in the hills and mountains that surround and bound the Basin. The permeability of the bedrock formations is much less than the water-bearing sediments.

The upper 2,000 ft of the unconsolidated water-bearing sediments constitute the freshwater aquifer system that is the main source of groundwater supply in the region. The sediments tend to be finer-grained in the southeastern portions of the Basin due to the greater distance from the mountainous source areas and the lower-energy depositional environments, such as historical Lake Cahuilla.

The Whitewater River is the major drainage course in the Basin. The Whitewater River is an unlined channel, so surface water flows have the potential to infiltrate and recharge the Basin. In areas with shallow groundwater, the groundwater has the potential to discharge to interconnected surface water.

2.2 Hydrogeology

2.2.1 Subbasins and Subareas

Figure 2-2 is a map of the general hydrogeology of the area. The Basin is cross-cut by several geologic faults, which have created low-permeability zones within the water-bearing sediments that act as barriers to groundwater flow. These barriers impede, but do not eliminate, groundwater flow between subbasins. Groundwater flow can still occur across the barriers from areas of higher groundwater levels to areas of lower groundwater levels. The map identifies the locations of faults, subbasins, and subareas that comprise the Basin, and describes the general occurrence and movement of groundwater through the Basin.

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The DWR has defined three main subbasins within the study area that are separated by geologic faults or changes in formation permeability that limit and control the movement of groundwater: the Indio Subbasin (DWR Subbasin 7-021.01), the Mission Creek Subbasin (7-021.02), and the Desert Hot Springs Subbasin (7-021.03).¹ These subbasins have been further subdivided into subareas based on one or more of the following geologic or hydrogeologic characteristics: type(s) of water-bearing formations, water quality, areas of confined groundwater, forebay areas, and groundwater or surface drainage divides.

Figure 2-2 shows groundwater-elevation contours for water-year 2019 (October 1, 2018 through September 30, 2019). Lateral groundwater flow is generally perpendicular to the contours from higher to lower elevation, as indicated by the arrows on the map. Generally, groundwater flows from areas of natural recharge along the surrounding mountain-fronts toward the valley floor and then southeast toward the distal portions of the Basin near the Salton Sea. Locally, the structural and compositional features within the Basin result in groundwater conditions and flow directions that vary significantly between subbasins. Anthropogenic activities such as artificial recharge and groundwater pumping also influence groundwater-flow directions.

2.2.2 Occurrence and Movement of Groundwater

Described below is the general occurrence of groundwater, and how groundwater flows through and discharges from each subbasin:

Desert Hot Springs Subbasin. In the Desert Hot Springs Subbasin, groundwater typically flows from the Little San Bernardino Mountains to the southeast, but is locally variable due to faulting. The aquifer system is poorly understood due to relatively poor water quality, which has limited the development of groundwater resources in the area. Faulting in the northern portion of the subbasin has resulted in thermal mineral waters in the aquifer with temperatures up to 250 degrees Fahrenheit. These thermal waters are used by several spas in the area. Groundwater discharge primarily occurs by pumping at wells or subsurface outflow. Generally, groundwater elevations in the Desert Hot Springs Subbasin are higher than in the Mission Creek and Indio Subbasins, and hence, the subsurface outflow from the Desert Hot Springs Subbasin occurs across the Mission Creek Fault into these downgradient subbasins. These subsurface flows are thought to be relatively minor based on the differences in groundwater quality on either side of the fault barriers that separate the subbasins.

Mission Creek Subbasin. In the Mission Creek Subbasin, groundwater typically flows from northwest to southeast. The aquifer system is up to 2,000 feet thick and is predominantly unconfined. Portions of the aquifer along the Banning Fault northwest of the Seven Palms Ridge area are semi-confined as evidenced by historically flowing-artesian wells in the area. Depth to groundwater in the Mission Creek Subbasin in 2019 ranged from an estimated 600 feet-bgs (ft-bgs) upgradient of the Mission Creek Groundwater Replenishment Facility (MC-GRF) to less than 5 feet-bgs in the southeast (west of the Indio Hills). Groundwater discharge primarily occurs by pumping at wells or subsurface flow across the Banning Fault into the Indio Subbasin.

Indio Subbasin. The Indio Subbasin is bordered on the southwest by the crystalline bedrock of the Santa Rosa and San Jacinto Mountains. It is separated from the Mission Creek Subbasin by the Banning Fault, and from the Desert Hot Springs Subbasin by the San Andreas Fault. Both faults are barriers to

¹ The DWR defines the San Geronio Pass Subbasin (7-021.04) as part the Basin, but it is not included in the CV-SNMP.

groundwater flow as evidenced by differences in groundwater levels across the faults. For example, groundwater-level differences across the Banning Fault, between the Mission Creek Subbasin and the Indio Subbasin, can be up to 250 feet. Subsurface flow between subbasins primarily occurs from the Desert Hot Springs and Mission Creek subbasins into the Indio subbasin.

In the Indio Subbasin, the aquifer system is generally unconfined in the forebay areas and across the northwestern portion of the subbasin. Generally, groundwater flows from the northwest toward the southeastern distal portions of the subbasin near the Salton Sea. In the southeast portion of the Indio Subbasin, the predominance of fine-grained sediments at depth has created three distinct aquifer systems, which are shown graphically in **Figure 2-3** and are described below:

Perched. A semi-perched aquifer up to 100 feet thick that is persistent across much of the area southeast of the City of Indio. The fine-grain units that cause the perched conditions are likely a barrier to deep percolation of surface water. The extent of the semi-perched aquifer is shown on **Figure 2-2**. Shallow groundwater within the semi-perched aquifer is conveyed away from the root zone by a network of privately-owned subsurface tile drainage systems that are distributed across the agricultural land uses in the southeastern portion of the Basin. CVWD maintains a regional network of surface and subsurface drains, shown on **Figure 2-4**, that accumulate and convey the drainage waters from the agricultural lands to the Salton Sea.

Shallow. An upper aquifer up to 300 feet thick that is present across most of the area. The upper aquifer is unconfined except in the areas of the semi-perched aquifer where it is semi-confined.

Deep. A lower aquifer that is 500-2,000 feet thick and is the most productive portion of the Basin. In the southeast portion of the Basin, the lower aquifer is confined and is separated from the upper aquifer by a fine-grained aquitard unit that is 100-200 feet thick. **Figure 2-2** displays the extent of the aquitard unit.

Groundwater discharge primarily occurs by pumping at wells, shallow groundwater discharge to subsurface tile drainage systems on agricultural lands that ultimately discharge to the Salton Sea, and subsurface outflow to groundwater underlying the Salton Sea.

2.3 Origin, Fate and Transport of Salts and Nutrients

Figure 2-4 is a map that depicts the general areas and processes of salt and nutrient loading, transport, and discharge throughout the Basin.

2.3.1 Salt and Nutrient Loading

Salts, and in some cases nutrients, are loaded to the Basin via the following mechanisms:

- Subsurface inflow from saturated sediments and bedrock fractures in the surrounding mountains and hills and from upgradient groundwater subbasins.
- Recharge of precipitation runoff in unlined stream channels that cross the Basin.
- Artificial recharge of imported Colorado River Water at the Groundwater Replenishment Facilities (GRF).
- Percolation of treated wastewater discharge to unlined ponds.

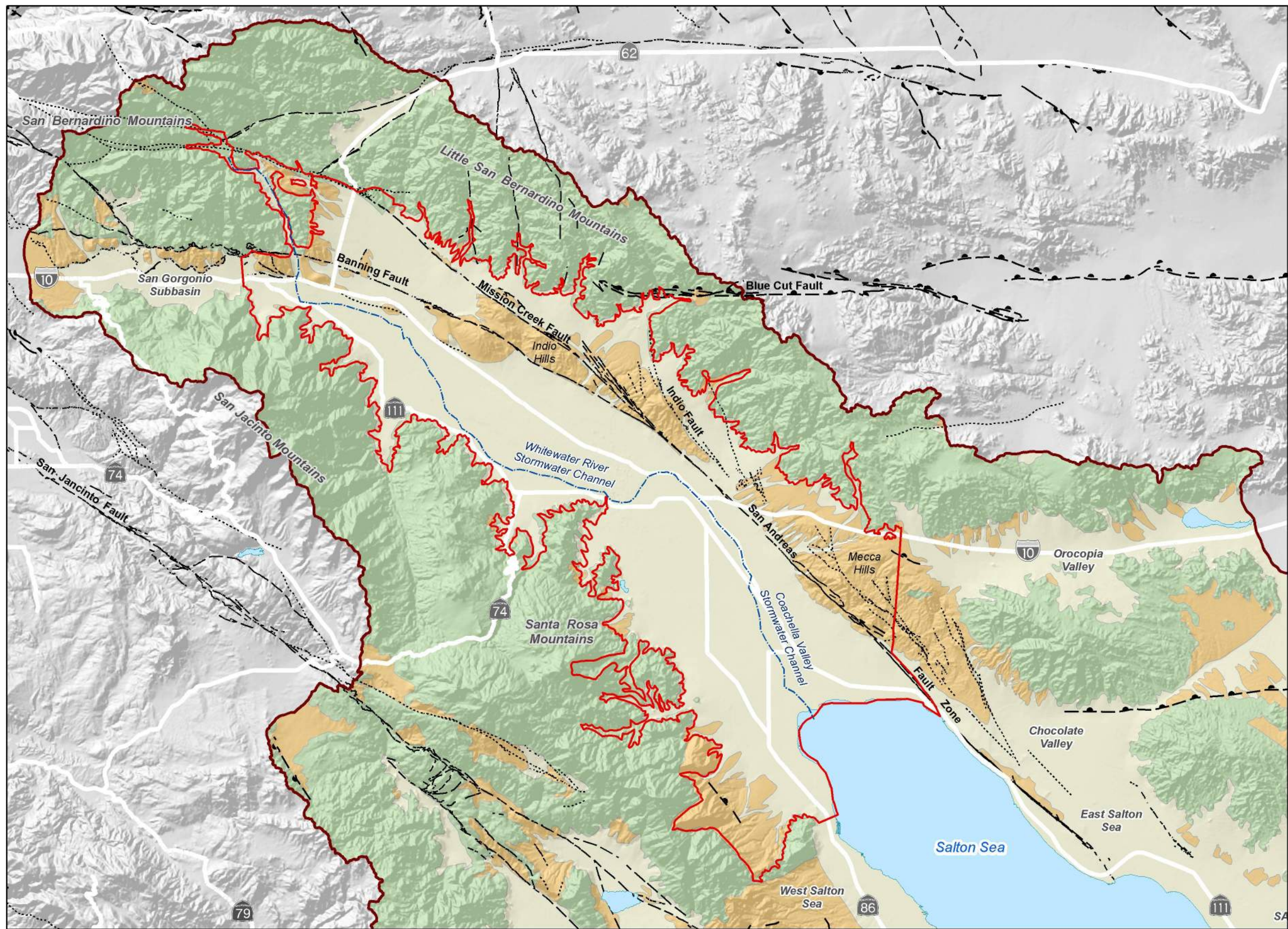
- Seepage from septic systems.
- Return flows from precipitation and irrigation waters applied to the overlying land uses (e.g., agriculture, golf courses, etc.). Loading from return flows is a complex process that is influenced by:
 - The combination of precipitation and irrigation waters that ultimately result in the return flows (and their associated TDS and nitrate concentrations) that migrate past the root zone.
 - During the downward migration of return flows through the unsaturated (vadose) zone, the TDS and nitrate concentrations of the return flows can be influenced by past TDS and nitrate loading to the vadose zone by historical overlying land uses.

Figure 2-4 shows the spatial distribution and location of these sources of salt and nutrient loading across the Basin.

2.3.2 Transport and Discharge of Salts and Nutrients

Once within the saturated zone, the dissolved salts and nutrients are transported through the aquifer system via the groundwater-flow systems shown on **Figure 2-2** and **Figure 2-4**. Ultimately, salts and nutrients are discharged from the Basin via the following mechanisms:

- Groundwater pumping.
- Discharge to agricultural drains. As described above, throughout the lower Basin, CVWD maintains a network of surface and subsurface drains to convey shallow groundwater away from the crop root zones. These drains convey water to the Coachella Valley Stormwater Channel (CVSC) and 26 smaller open channel drains that discharge directly to the Salton Sea.
- Subsurface outflow to downgradient subbasins. In the Indio Subbasin, subsurface outflow occurs to groundwater beneath the Salton Sea.
- Phreatophyte consumptive use.



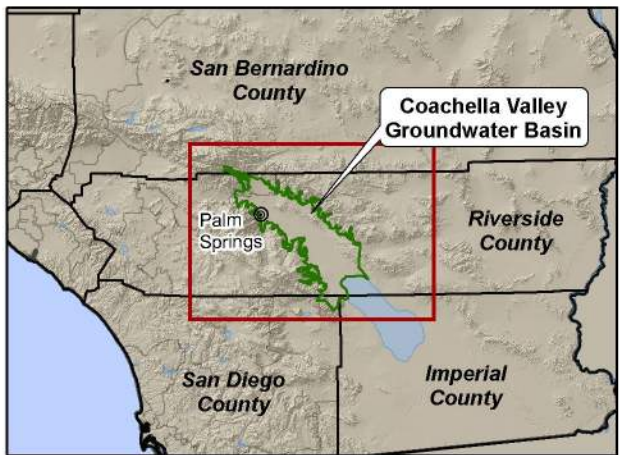
- Salton Sea Watershed
- Coachella Valley Groundwater Basin
DWR Basin Number 7-021
(excludes the San Gorgonio Subbasin)

Generalized Surface Geology

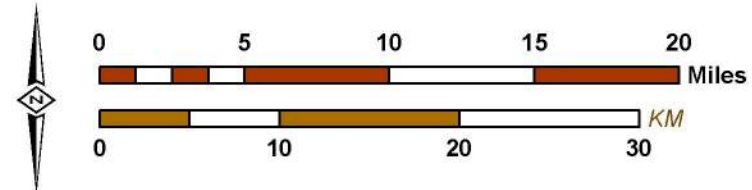
- Un-consolidated Sediments
(water-bearing)
- Semi-consolidated Sediments
(lower-permeability)
- Consolidated Bedrock

**Quaternary Fault Traces
(symbolized by most recent fault activity)**

- <150 Yrs
- <15,000 Yrs
- <130,000 Yrs
- <750,000 Yrs
- <1,600,000 Yrs



Author: EM/AM
Date: 12/22/2020
File: Figure 2-1.mxd



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Basin Setting

Figure 2-1

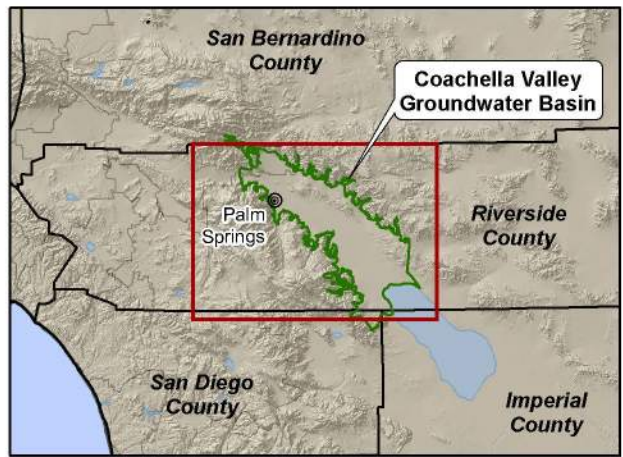
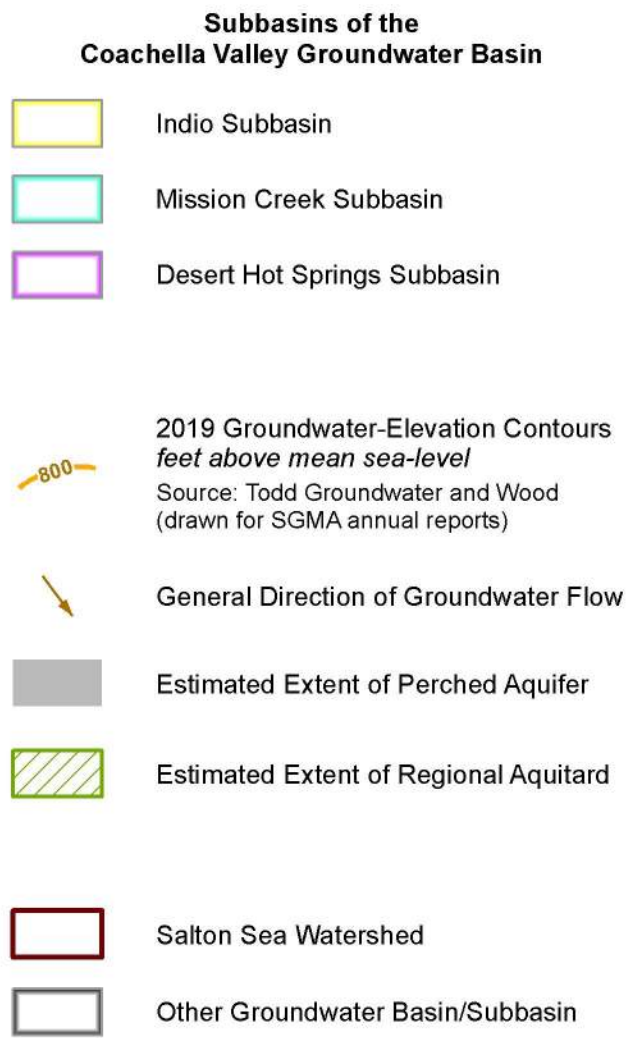
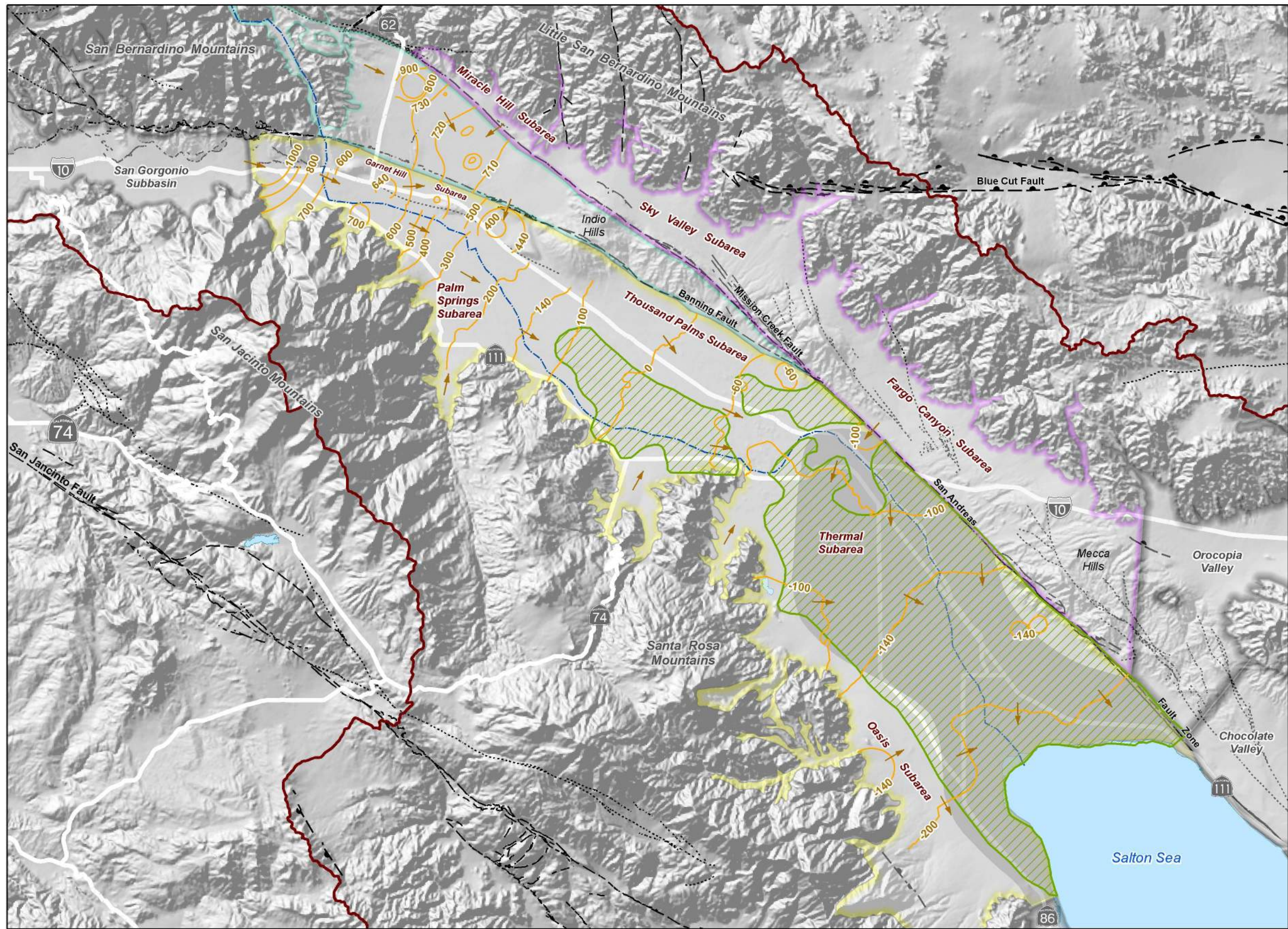
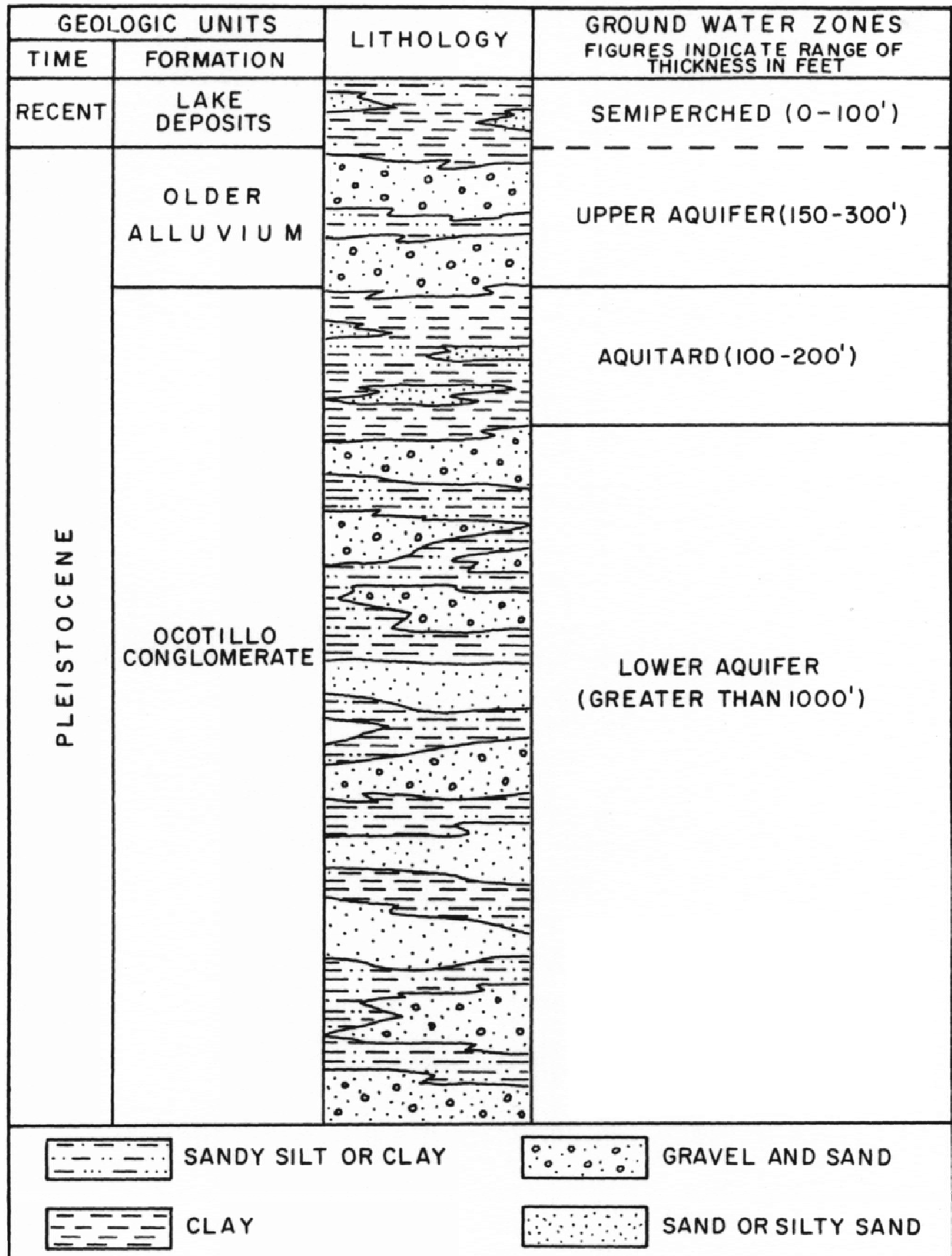
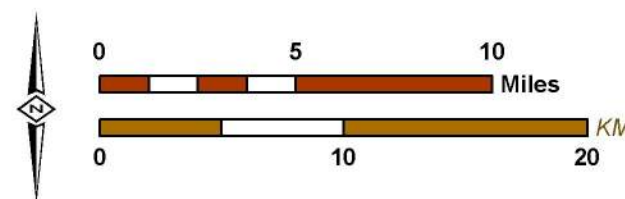
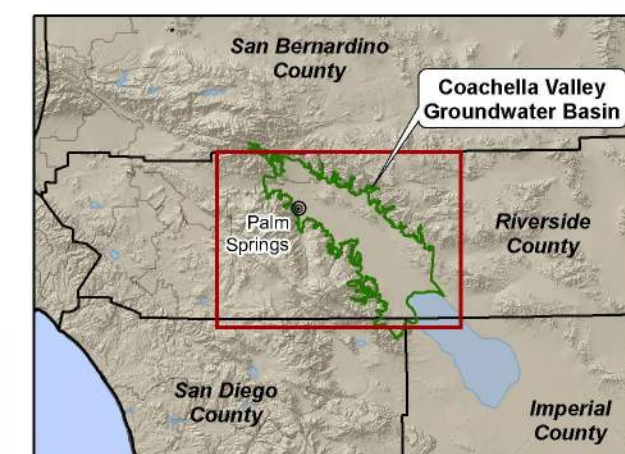
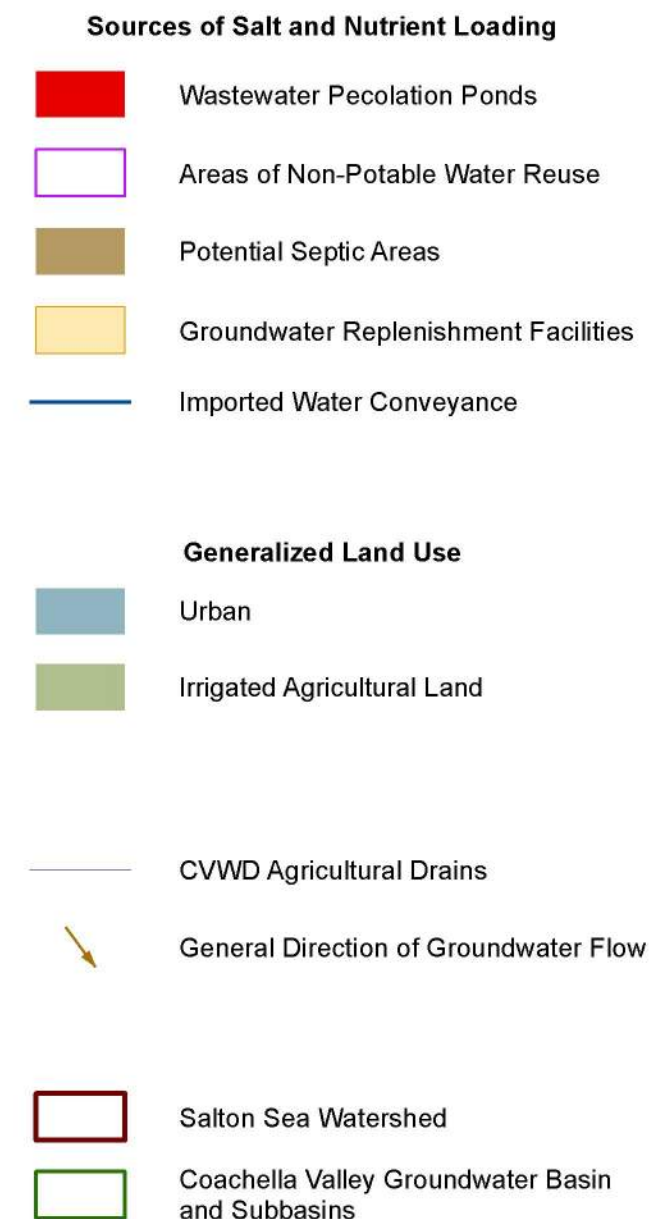
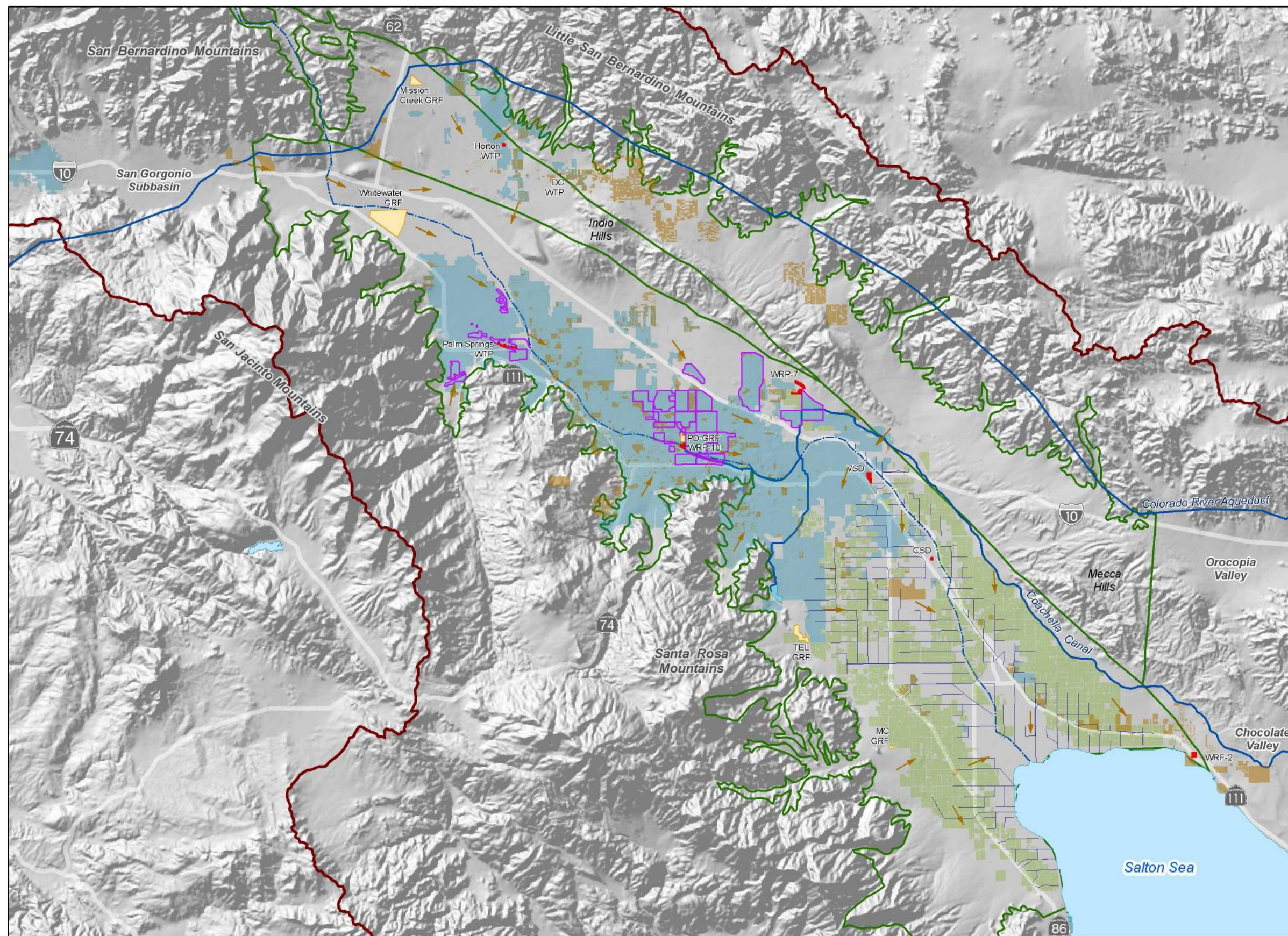


Figure 2-3
Generalized Stratigraphic Column in Lower Coachella Valley



From DWR (1964)



3.0 GROUNDWATER MONITORING PROGRAM

The Groundwater Monitoring Program for the CV-SNMP consists of the following components, each further described below:

- Groundwater Monitoring Network
- Chemical Analytes and Sampling Frequency
- Monitoring and Reporting

3.1 Groundwater Monitoring Network

Section 6.2.4.1 of the Policy requires the implementation of a monitoring program that can determine whether the concentrations of salts and nutrients in groundwater are consistent with water quality objectives and are thereby protective of beneficial uses. The Policy also recognizes the monitoring program will be dependent upon basin-specific conditions and input from the Regional Board.

For the CV-SNMP Groundwater Monitoring Program, the Regional Board is requiring that the monitoring program:

- *Cover all subbasins and subareas within the Basin.* The updated SNMP will require periodic mapping of groundwater quality to estimate ambient water quality and assimilative capacity. A monitoring network that is spatially distributed across all subbasins and subareas of the Basin will provide the necessary data for technically defensible mapping of groundwater quality.
- *Include sampling from all three major aquifer systems: Deep, Shallow, and Perched.* Section 2 of this Workplan described the hydrogeologic stratification of the aquifer system in the Basin. Groundwater quality, and the physical processes that can alter groundwater quality over time, can be significantly different between aquifer systems. This is because: (i) anthropogenic loading of salts and nutrients occur primarily at the ground surface, and hence, can influence the quality of shallower groundwaters first before influencing the quality of deeper groundwaters; (ii) thick aquitards in the southeastern portion of the Basin restrict the vertical movement of groundwater between aquifer systems; and (iii) upward hydraulic gradients, as evidenced by flowing artesian conditions in the southeastern portion of the Basin, limit the downward migration of salts and nutrients to the Deep aquifer system in this region. For these reasons, monitoring of perched, shallow and deep groundwaters is proposed herein across most of the Basin.
- *Focus on critical areas near: (i) large water recycling projects, (ii) near large recharge projects, particularly where Colorado River water is used to replenish the Basin for water-supply and groundwater management purposes, and (iii) near other potential sources of salt and nutrients.* It is important that monitoring occurs hydraulically upgradient and downgradient from these sources of salt and nutrient loading to characterize their influence on groundwater quality.
- *Focus on critical areas near water supply wells.* The water-supply wells are the main points of extraction for the ultimate beneficial uses of the Basin.

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- *Identify critical gaps in the monitoring network and develop a plan and timeline to fill the gaps.* The current gaps in the monitoring network are described in this section. The plan and timeline to fill the gaps are included in Section 4.
- *Identify the stakeholders responsible for conducting, compiling, and reporting the monitoring data.*

3.1.1 Methods for Selection of the Groundwater Monitoring Network

The criteria used to select the groundwater monitoring network included the following:

1. **Spatial Distribution.** The monitoring network was designed to cover all subbasins and subareas within the Basin.
2. **Hydrogeology.** The monitoring network was designed to monitor all three major aquifer systems: Deep, Shallow, and Perched. Water-supply wells in the Basin typically pump groundwater from the Deep aquifer system and were therefore more available for inclusion in the monitoring network. Wells with screens across the Shallow and Perched aquifer systems were less abundant. Hence, most “gaps” in the proposed monitoring network are within the Shallow and Perched aquifer systems.
3. **Areas of Salt or Nutrient Loading.** The network was designed to monitor the influence of known sources of salt or nutrient loading on groundwater quality within the Basin. These sources included: the GRFs; wastewater percolation ponds; areas with septic systems; overlying land uses with irrigation returns (e.g., golf, landscapes, agriculture); and areas served non-potable waters for irrigation (e.g., recycled and/or imported waters). Monitoring of non-point-source loading, such as returns from non-potable irrigation waters and septic systems, is intended to be representative of the influence of non-point-sources of loading on groundwater quality. It is not intended to be site-specific monitoring of every area of non-point-source loading across the Basin, which would be infeasible.
4. **Groundwater Flow.** The network was designed to monitor all major groundwater-flow systems, from areas of recharge to areas of discharge, and within and between the groundwater subbasins. This is necessary in order to track the subsurface migration of salts and nutrients through the Basin.
5. **Use of Existing Wells.** Wherever possible, active municipal production or monitoring wells were preferentially selected if they currently participate in a similar monitoring program (e.g., California Division of Drinking Water [DDW] or Regional Board orders). In some areas, such wells were not available for selection. In those areas, inactive municipal production wells or private wells were selected for inclusion in the monitoring network. The use of inactive or private wells in this monitoring program will require significant coordination with the private well owners and/or physical wellhead improvements to collect groundwater samples. Lastly, if no wells were identified in an area/depth that should be monitored, a “gap” was designated in the monitoring network.

3.1.2 Monitoring Network and Gaps – Shallow Aquifer System

Figure 3-1 is a map of the groundwater monitoring network for the Shallow aquifer system. Each well is labeled by a Map_ID. Because most production wells in the Basin have well screens across the Deep aquifer system, there were several identified “gaps” in the monitoring network, particularly in the Thermal Subarea of the Indio Subbasin. **Table 3-1** is a list of wells shown on **Figure 3-1** sorted by Map_ID. The table includes a summary justification for why each well was included in the monitoring program. **Table 3-4** is

a list of the “gaps” in the monitoring network with a summary explanation of why each gap should be filled.

3.1.3 Monitoring Network and Gaps – Deep Aquifer System

Figure 3-2 is a map of the groundwater monitoring network for the Deep aquifer system. Each well is labeled by a Map_ID. Most production wells in the Basin have well screens across the Deep aquifer system; hence, there were no identified “gaps” in the Deep monitoring network. **Table 3-2** is a list of wells shown on **Figure 3-2** sorted by Map_ID. The table includes a summary justification for why the well was included in the monitoring program.

3.1.4 Monitoring Network and Gaps – Perched Aquifer System

Figure 3-3 is a map of the groundwater monitoring network for the Perched aquifer system. Each well is labeled by a Map_ID. The map shows the extent of the Perched aquifer system which is confined to the Thermal Subarea of the Indio Subbasin. The network of CVWD’s agricultural drains that convey perched groundwater to the CVSC and the Salton Sea is also shown. The only existing wells with well screens across the Perched aquifer system are five monitoring wells owned by the CVWD; hence, there were several identified “gaps” in the Perched monitoring network. **Table 3-3** is a list of wells shown on **Figure 3-3** sorted by Map_ID. The table includes a summary justification for why each well was included in the monitoring program. **Table 3-4** is a list of the “gaps” in the monitoring network with a summary explanation of why each gap should be filled.

3.2 Chemical Analytes and Sampling Frequency

Table 3-5 lists the chemicals that will be analyzed for dissolved concentration in each groundwater sample for the monitoring program. The table describes the justification for each chemical analyte. Testing will be performed at a laboratory accredited by the State of California for the testing of inorganic chemistry of drinking water.

The minimum sampling frequency is once every three years. Many wells chosen for this monitoring program are sampled more frequently under other required or voluntary monitoring programs.

During each groundwater sampling event, the agency responsible for sampling will attempt to obtain a static (non-pumping) depth-to-water measurement. In instances when a static depth-to-water measurement cannot be obtained, it will be noted with a description for the reason.

3.3 Monitoring and Reporting

3.3.1 Groundwater Sampling and Laboratory Analysis

The SNMP Agencies have the following responsibilities for sampling of the wells in the monitoring network (described in Section 3.1) and the laboratory analysis of chemical analytes (described in Section 3.2):

- Municipal well owners are responsible for the groundwater sampling and laboratory analyses for their own wells.
- For private wells within their service area, the overlying SNMP Agency is responsible for coordinating with the private well owners to conduct groundwater sampling and the laboratory analyses. In areas of overlapping jurisdictions of SNMP Agencies, the agencies

must jointly coordinate to assign responsibility for sampling and analysis of private wells that fall within the overlapping jurisdictions. Agency responsibilities may include developing administrative agreements with the well owners (e.g., right-of-entry agreement) and making physical modifications to the wellhead to enable collection of a sample (e.g., installation of a sampling port on the well discharge pipe).

Table 3-6 lists all wells proposed for the monitoring program. For each well, the table includes a designation for the overlying SNMP Agency(ies).

3.3.2 Reporting of Laboratory Results

Section 6.2.4.1.3 of the Policy requires that all data collected for the monitoring program “shall be electronically reported annually in a format that is compatible with a Groundwater Ambient Monitoring & Assessment (GAMA) information system and must be integrated into the GAMA information system or its successor.” This will centralize data generated from SNMPs at the State level and create consistency across regional water boards to allow for further analysis of monitoring data.

By March 31 of each year, the SNMP Agencies will report the laboratory water-quality results from the prior calendar year to the GAMA information system.

3.4 Filling of Gaps in the Monitoring Network

Table 3-4 lists the gaps in the monitoring network that were identified during the selection of the monitoring network.

Gaps in the monitoring network will be filled in one of two ways:

1. Field identification of an existing well that: (i) is located near the identified gap; (ii) can be sampled, and (iii) has well screens across the appropriate depth interval (e.g., across the Shallow aquifer system). This may require the following activities: field canvassing to identify a candidate well; research and/or exploratory well surveys to confirm well screen depth intervals; and constructing any well/wellhead modifications that are necessary to collect groundwater samples.
2. Construction of a new monitoring well with well screens across the appropriate depth interval. This may require the following activities: a well-siting study; well-site acquisition or easement; development of technical specifications for a monitoring well; conducting a bid process to select a well drilling/construction subcontractor; obtaining the necessary permits and CEQA clearance; performing well construction with oversight; performing well development and testing; preparing a well completion report; equipping the well for sampling, and wellhead completion including any needed site improvements.

In the first year, the SNMP Agencies will perform the necessary field work and research and develop a plan for how each gap in the monitoring program will be filled.

Filling the gaps in the monitoring network is likely the most expensive, complicated element of the monitoring program. Therefore, the filling of gaps will be executed over a six-year period, subject to funding availability. The SNMP Agencies will pursue grant funding to support the filling of gaps under State-run programs such as Integrated Regional Water Management and the Sustainable Groundwater Management Act. The SNMP Agencies also are developing a Memorandum of Understanding (MOU) to

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implement the CV-SNMP Monitoring Program Workplan. The MOU will assign responsibilities and cost-sharing agreements between the SNMP Agencies for the filling of the gaps in the monitoring network.

By March 31 of each year, the SNMP Agencies will report to the Regional Board on progress made toward the filling the gaps in the monitoring network over the preceding calendar year (see Section 4.2 below).

Table 3-1. SNMP Groundwater Monitoring Network -- Shallow Aquifer System

Map_ID	SWN	Well Owner	Well Name	Well Status ^(a)	Well Use ^(b)	Screen Interval ft-bgs	Depth Code ^(c)	Justification for Inclusion in SNMP Monitoring Program
1	03S04E20F01S	USGS	335348116352701	Active	Monitoring	600-640	S	Northwest area at WW-GRF
2	03S04E20J01S	USGS	335339116345301	Active	Monitoring	550-590	S	Northeast area at WW-GRF
3	06S07E33G02S	Coachella Valley Water District	TEL-GRF MW-21S	Active	Monitoring	230-250	S	Adjacent to and downgradient of TEL-GRF
4	06S07E33J02S	Coachella Valley Water District	TEL-GRF MW-22S	Active	Monitoring	230-250	S	Adjacent to and downgradient of TEL-GRF
5	06S07E34N03S	Coachella Valley Water District	TEL-GRF MW-23S	Active	Monitoring	230-250	S	Adjacent to and downgradient of TEL-GRF
7	02S04E26C01S	Mission Springs Water District	Well 28	Inactive	MUN	590-898	S	Downgradient from Mission Creek GRF; near golf course and septic areas
8	02S04E28A01S	Mission Springs Water District	Well 34	Active	MUN	550-980	S	Downgradient from Mission Creek GRF
9	02S05E31L01S	Mission Springs Water District	Well 11	Inactive	Unknown	220-285	S	Downgradient of Desert Hot Springs (DHS) subbasin
10	03S04E04Q02S	CPV Sentinel	03S04E04Q02S	Active	Unknown		S	Upgradient portion of Mission Creek subbasin
11	03S04E11L01S	Mission Springs Water District	Well 27	Active	MUN	180-380	S	Upgradient of Garnet Hill subarea; near potential septic areas in N. Palm Springs
12	03S05E05Q01S	Hidden Springs Golf Course	P27	Active	Unknown	220-600	S	Downgradient of DHS subbasin; near golf course and septic areas
13		City of Palm Springs	Airport MW-2	Active	Monitoring	240-250	S	Center of Indio subbasin; near airport and areas served non-potable water (NPW)
14		City of Palm Springs	MW-1	Active	Monitoring	170-210	S	Downgradient of Palm Springs WTP percolation ponds
15		City of Palm Springs	MW-3	Active	Monitoring	140-215	S	Upgradient of Palm Springs WTP percolation ponds
16		City of Palm Springs	MW-4	Active	Monitoring	170-210	S	Downgradient of Palm Springs WTP percolation ponds
17		City of Palm Springs	MW-5	Active	Monitoring	170-210	S	Downgradient of Palm Springs WTP percolation ponds
18		City of Palm Springs	MW-6	Active	Monitoring	170-210	S	Downgradient of Palm Springs WTP percolation ponds
19	03S03E08M01S	Mission Springs Water District	Well 26	Active	MUN	225-553	S	Monitoring of subsurface inflow from San Geronio Pass subbasin
20	03S03E10P02S	Unknown	DWA P05	Active	Unknown	306-906	S	Upgradient of Whitewater GRF
21	03S04E12B02S	Coachella Valley Water District	CVWD Well 3408-1	Active	MUN	270-500	S	Central portion of Mission Creek subbasin; near potential septic areas
22	03S04E29F01S	USGS	335304116353001	Active	Monitoring	550-570	S	Monitoring at southwestern area of Whitewater GRF
23	03S04E29R01S	USGS	335231116345401	Active	Monitoring	431-551	S	Monitoring at southeastern area of Whitewater GRF
24	04S04E11Q01S	Desert Water Agency	DWA Well 5	Standby	MUN	302-402	S	Western portion of Indio subbasin; downgradient of septic areas
25	04S04E35A01S	Indian Canyons Golf Resort	04S04E35A01S	Active	Unknown	360-680	S	Near golf courses, septic, and areas served NPW
26	04S05E09F03S	Coachella Valley Water District	CVWD Well 4564-1	Active	MUN	410-670	S	Center of Indio subbasin; near golf courses and septic areas
27	04S05E29A02S	Desert Water Agency	DWA Well 25	Active	MUN	166-300	S	Downgradient of Palm Springs WTP percolation ponds; near golf courses and NPW areas
29	04S07E33L02S	Coachella Valley Water District	WRP7 MW-2S	Active	Monitoring	60-190	S	Near WRP-7 percolation ponds
30	05S06E09M03S	Coachella Valley Water District	WRP10 MW-7	Active	Monitoring	260-340	S	Upgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
31	05S06E09P02S	Coachella Valley Water District	PD-GRF MW 2	Active	Monitoring	260-340	S	Upgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
32	05S06E10J01S	Coachella Valley Water District	PD-GRF MW 1	Active	Monitoring	260-340	S	Downgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
33	05S06E13G03S	Coachella Valley Water District	WRP10 MW-8	Active	Monitoring	260-340	S	Downgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
34	05S06E14G03S	Coachella Valley Water District	WRP10 MW-5	Active	Monitoring	240-320	S	Downgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
35	05S06E14P03S	Coachella Valley Water District	WRP10 MW-6	Active	Monitoring	190-270	S	Downgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
36	05S06E15F01S	Coachella Valley Water District	WRP10 MW-2	Active	Monitoring	160-290	S	Downgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
37	05S06E15M01S	Coachella Valley Water District	WRP10 MW-1	Active	Monitoring	145-295	S	Upgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
38	05S06E15P01S	Coachella Valley Water District	WRP10 MW-3	Active	Monitoring	130-290	S	Downgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
39	05S06E16A03S	Coachella Valley Water District	WRP10 MW-4	Active	Monitoring	190-270	S	Upgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
40	05S06E21Q04S	Coachella Valley Water District	PD-GRF MW 3	Active	Monitoring	260-340	S	Cross-gradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
41	05S06E23M02S	Coachella Valley Water District	PD-GRF MW 4	Active	Monitoring	270-360	S	Cross-gradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
42	05S07E03D02S	Coachella Valley Water District	WRP7 MW-4S	Active	Monitoring	60-190	S	Near WRP-7 percolation ponds
43	05S07E04A04S	Coachella Valley Water District	WRP7 MW-3S	Active	Monitoring	50-180	S	Near WRP-7 percolation ponds
44	05S07E16K02S	Coachella Valley Water District	CVWD Well 5737-1	Inactive	Monitoring	200-415	S	Center of Indio subbasin; downgradient from areas served NPW
45	05S07E19D04S	Coachella Valley Water District	WRP10 MW-9	Active	Monitoring	260-340	S	West in Indio subbasin; near golf courses and areas served NPW
46	05S07E24M02S	Indio Water Authority	Well 1B	Active	MUN	190-410	S	Center of Indio subbasin; upgradient of VSD plant
47	06S06E12G01S	Coachella Valley Water District	CVWD Well 6650-1	Inactive	Monitoring	<370	S	Within center of The Cove
48	06S07E34A02S	Coachella Valley Water District	TEL-GRF MW-25	Active	Monitoring	115-135	S	Downgradient from TEL-GRF and golf courses
49	06S07E34D02S	Coachella Valley Water District	TEL-GRF MW-24	Active	Monitoring	180-200	S	Directly north and downgradient of TEL-GRF
50	07S08E29P03S	Coachella Valley Water District	MC-3	Active	Monitoring	380-440	S	At Martinez Canyon GRF
51	08S09E31R03S	Coachella Valley Water District	CVWD Well 8995-1	Active	MUN	260-390	S	Southern corner of the Indio basin; near agriculture; near Salton Sea

Table 3-1. SNMP Groundwater Monitoring Network -- Shallow Aquifer System

Map_ID	SWN	Well Owner	Well Name	Well Status ^(a)	Well Use ^(b)	Screen Interval ft-bgs	Depth Code ^(c)	Justification for Inclusion in SNMP Monitoring Program
52	03S04E17K01S	Valley View MWC	03S04E17K01S	Undetermined	Unknown	340-375	S	Cross-gradient from Whitewater GRF in Garnet Hill subarea
53	03S04E22A01S	Erin Miner	03S04E22A01S	Active	Unknown	180-230	S	Downgradient of Whitewater GRF in Garnet Hill subarea; upgradient of West Valley WWTP
54	03S05E08P02S	Bluebeyond Fisheries	03S05E08P02S	Active	Fish Farm	200-400	S	Central Mission Creek subbasin; near golf course and septic areas
55	03S05E15N01S	Too Many Palms LLC	03S05E15N01S	Active	Irrigation	158-320	S	Distal area in Mission Creek subbasin; downgradient of DHS subbasin
56	03S05E18J01S	Desert Dunes Golf Club	03S05E18J01S	Active	Irrigation	76-340	S	Upgradient of Garnet Hill subarea; near golf course and septic areas
57	03S06E21G01S	Sky Valley Mobile Home Park	03S06E21G01S	Undetermined	Unknown	188-248	S	Western portion of Sky Valley subarea; near septic areas
58	04S05E04F01S	So Pacific Trans Co #32601	04S05E04F01S	Active	Irrigation	276-576	S	Eastern edge of Indio subbasin; downgradient from Garnet Hill subarea; near septic areas
59	04S05E23F01S	Westin Mission Hills Resort	04S05E23F01S	Active	Irrigation	275-1165	S	Center of Indio subbasin; near golf courses and septic areas
60	04S05E34C01S	Manufacture Home Community Inc	04S05E34C01S	Active	Irrigation	240-500	S	Western edge of Indio subbasin; near septic and areas served NPW
61	04S05E35Q01S	Tamarisk Country Club	04S05E35Q01S	Active	Irrigation	171-518	S	Western edge of Indio subbasin; near septic and areas served NPW
62	04S05E36L02S	Annenberg Estate	04S05E36L02S	Active	Irrigation	252-650	S	Center of Indio subbasin; near golf, septic, and areas served NPW
63	04S06E20C01S	Shenandoah Ventures LP	04S06E20C01S	Inactive	Irrigation	250-790	S	Upgradient in Thousand Palms area; upgradient of septic areas
66	05S05E12D01S	Thunderbird Country Club	05S05E12D01S	Active	Irrigation	125-360	S	Western edge of Indio subbasin; near septic and areas served NPW
67	05S06E12M01S	Palm Desert Resort Country Club	05S06E12M01S	Active	Irrigation	140-650	S	Center of Indio subbasin; near areas served NPW
68	05S07E08Q01S	Bermuda Dunes Airport	05S07E08Q01S	Active	Domestic	203-654	S	Center of Indio subbasin; near areas served NPW
69	05S07E28H02S	Tricon/COB Riverdale LP	05S07E28H02S	Active	Domestic	162-636	S	Center of Indio subbasin
70	05S08E28M02S	JS Cooper	05S08E28M02S	Undetermined	Unknown	208-268	S	Eastern edge of Indio subbasin; downgradient of VSD discharge point
71	05S08E30N03S	Carver Tract Mutual Water Co	05S08E30N03S	Active	Domestic	270-330	S	Eastern portion of Indio subbasin; downgradient from VSD plant
72	06S07E07B01S	Traditions Golf Club	06S07E07B01S	Active	Irrigation	200-480	S	Downgradient from The Cove; near golf courses and septic areas
73	06S08E02L01S	Prime Time International	06S08E02L01S	Undetermined	Irrigation	216-407	S	Eastern edge of Indio subbasin; near agriculture; upgradient from CWA/CSD WWTP
74	06S08E05K01S	Peter Rabbit Farms	06S08E05K01S	Active	Irrigation	126-375	S	Eastern portion of Indio subbasin in Coachella
75	06S08E32L01S	Guillermo Torres	06S08E32L01S	Undetermined	Unknown	127-227	S	Downgradient from TEL-GRF; agricultural area
76	07S08E27A01S	Gimmway Enterprises Inc	07S08E27A01S	Active	Domestic	147-215	S	Downgradient from Martinez Canyon GRF; near septic areas
77	07S09E14C01S	Tudor Ranch Inc.	07S09E14C01S	Active	Domestic	93-290	S	Southeastern corner of Indio subbasin; near agriculture and septic areas; near Salton Sea
78	08S08E15G02S	Thermiculture Management LLC	08S08E15G02S	Active	Irrigation	260-500	S	Southern corner of Indio subbasin; near agriculture; near Salton Sea
79		Mission Springs Water District	Well 25	Active	MUN	330-455	S	Monitoring of subsurface inflow from San Geronio Pass subbasin
80		Mission Springs Water District	Well 1	Inactive	Monitoring		S	Northern Miracle Hill subarea; upgradient of Mission Creek subbasin
81		Mission Springs Water District	Horton WWTP MW-1	Active	Monitoring	186-236	S	Monitoring wells upgradient and downgradient of the Horton WWTP
82		Mission Springs Water District	Horton WWTP MW-2	Active	Monitoring	220-270	S	Monitoring wells upgradient and downgradient of the Horton WWTP
83		Mission Springs Water District	Horton WWTP MW-3	Active	Monitoring	200-250	S	Monitoring wells upgradient and downgradient of the Horton WWTP

(a) Well Status: Well Status: "Active" means well is known to exist and currently used for original purpose; "Standby" means active backup well; "Inactive" means well exists but is no longer used as a water-supply.

(b) Well Use: MUN = municipal and domestic supply

(c) Depth Code: This monitoring program assigns wells to aquifer layers by depth. P = Perched aquifer system, mainly in the Thermal subarea. S = Shallow aquifer system. D = Deep aquifer system

Table 3-2. SNMP Groundwater Monitoring Network -- Deep Aquifer System

Map_ID	SWN	Well Owner	Well Name	Well Status ^(a)	Well Use ^(b)	Screen Interval ft-bgs	Depth Code ^(c)	Justification for Inclusion in SNMP Monitoring Program
84	03S04E20F02S	USGS	335348116352702	Active	Monitoring	850-890	D	Northwest area at WW-GRF
85	03S04E20J03S	USGS	335339116345303	Active	Monitoring	850-890	D	Northeast area at WW-GRF
86	06S07E33G01S	Coachella Valley Water District	TEL-GRF MW-21D	Active	Monitoring	390-410	D	Adjacent to and downgradient of TEL-GRF
87	06S07E33J01S	Coachella Valley Water District	TEL-GRF MW-22D	Active	Monitoring	520-540	D	Adjacent to and downgradient of TEL-GRF
88	06S07E34N02S	Coachella Valley Water District	TEL-GRF MW-23D	Active	Monitoring	525-545	D	Adjacent to and downgradient of TEL-GRF
89	07S09E30R03S	Coachella Valley Water District	Peggy	Active	Monitoring	730-770	D	Downgradient of WRP-4; near agriculture; area of subsurface outflow toward Salton Sea
90	08S09E07N02S	Coachella Valley Water District	Rosie	Active	Monitoring	720-780	D	Near agriculture; area of subsurface outflow toward Salton Sea
91	05S07E24L03S	Indio Water Authority	Well 1E	Active	MUN	552-815	D	Center of Indio subbasin; upgradient of VSD plant
92	02S04E28J01S	Mission Springs Water District	Well 35	Active	MUN	725-1020	D	Downgradient from Mission Creek GRF
93	02S04E36P01S	Mission Springs Water District	Well 37	Active	MUN	450-1080	D	Downgradient of DHS subbasin; possibly downgradient of Horton WWTP
94	02S05E31H01S	Mission Springs Water District	Well 5	Inactive	Monitoring	274-784	D	Northern Miracle Hill subarea; upgradient of Mission Creek subbasin
95	03S03E07D01S	Mission Springs Water District	Well 25A	Active	MUN	500-740	D	Monitoring of subsurface inflow from San Geronio Pass subbasin
96	03S04E04P01S	CPV Sentinel	03S04E04P01S	Active	Unknown		D	Upgradient portion of Mission Creek subbasin
97	03S04E11A02S	Mission Springs Water District	Well 32	Active	MUN	320-980	D	Center of Mission Creek subbasin; near potential septic areas
98	03S03E08A01S	Mission Springs Water District	Well 26A	Active	MUN	320-600	D	Monitoring of subsurface inflow from San Geronio Pass subbasin
99	03S03E10P01S	Unknown	DWA P04	Active	Unknown	476-776	D	Upgradient of Whitewater GRF
100	03S04E14J01S	Mission Springs Water District	Well 33	Active	MUN	360-650	D	Along boundary of Mission Creek subbasin/Garnet Hill subarea
101	03S04E19L01S	Desert Water Agency	DWA Well 43	Active	MUN	500-900	D	Upgradient of Whitewater GRF
102	03S04E34H02S	Desert Water Agency	DWA Well 35	Active	MUN	600-1000	D	Upgradient of urban land uses in Palm Springs; downgradient of WW-GRF
103	03S04E36Q01S	Desert Water Agency	DWA Well 38	Active	MUN	620-1000	D	Upgradient of urban land uses in Palm Springs; downgradient of WW-GRF
104	04S04E02B01S	Desert Water Agency	DWA Well 22	Active	MUN	570-1003	D	Upgradient of urban land uses in Palm Springs; downgradient of WW-GRF
105	04S04E11Q02S	Desert Water Agency	DWA Well 18	Standby	MUN	535-948	D	Western portion of Indio subbasin; downgradient of septic areas
106	04S04E13C01S	Desert Water Agency	DWA Well 23	Active	MUN	512-912	D	Center of Indio subbasin; near airport
107	04S04E24E01S	Desert Water Agency	DWA Well 32	Active	MUN	600-1000	D	Western portion of Palm Springs subarea; near areas served non-potable water (NPW)
108	04S04E24H01S	Desert Water Agency	DWA Well 29	Active	MUN	600-1000	D	Upgradient of Palm Springs WTP percolation ponds
109	04S04E25C01S	Desert Water Agency	DWA Well 39	Active	MUN	580-750	D	Downgradient of Indian Canyon; near golf, septic, and areas served NPW
110	04S05E05A01S	Coachella Valley Water District	CVWD Well 4568-1	Active	MUN	800-955	D	Eastern edge of Indio subbasin; downgradient from Garnet Hill; upgradient of septic areas
111	04S05E08N01S	Desert Water Agency	DWA Well 41	Active	MUN	610-1000	D	Center of Indio subbasin; near airport, near golf courses and areas served NPW
112	04S05E09R01S	Coachella Valley Water District	CVWD Well 4567-1	Active	MUN	855-1150	D	Center of Indio subbasin; near golf courses and septic areas
113	04S05E15G01S	Coachella Valley Water District	CVWD Well 4521-1	Active	MUN	500-800	D	Center of Indio subbasin; near golf courses and septic areas
114	04S05E17Q02S	Desert Water Agency	DWA Well 31	Active	MUN	600-1000	D	Center of Indio subbasin; near airport, golf courses, and areas served NPW
115	04S05E25D02S	Coachella Valley Water District	CVWD Well 4507-2	Active	MUN	860-1320	D	Center of Indio subbasin; near golf courses and septic areas
116	04S05E27K01S	Coachella Valley Water District	CVWD Well 4527-1	Active	MUN	850-1155	D	Western edge of Indio subbasin; near NPR and septic areas
117	04S05E29H01S	Desert Water Agency	DWA Well 26	Active	MUN	590-990	D	Downgradient of Palm Springs WTP percolation ponds; near golf and areas served NPW
118	04S05E35G04S	Coachella Valley Water District	CVWD Well 4504-1	Active	MUN	600-1000	D	Western edge of Indio subbasin; near septic and areas served NPW
119	04S06E18Q04S	Coachella Valley Water District	CVWD Well 4630-1	Active	MUN	480-990	D	Upgradient in Thousand Palms area; upgradient of septic areas
120	04S06E28K04S	Coachella Valley Water District	CVWD Well 4629-1	Active	Monitoring	496-796	D	Thousand Palms area; near septic and areas served NPW
121	04S07E31H01S	Coachella Valley Water District	CVWD Well 4722-1	Active	MUN	570-1160	D	Thousand Palms area; near septic and areas served NPW
122	04S07E33L01S	Coachella Valley Water District	WRP7 MW-2D	Active	MUN	245-395	D	Near WRP-7 percolation ponds
123	05S06E02C01S	Coachella Valley Water District	CVWD Well 5664-1	Active	MUN	500-930	D	Thousand Palms area; near septic and areas served NPW
124	05S06E06B03S	Coachella Valley Water District	CVWD Well 5630-1	Active	Monitoring	455-890	D	Center of Indio subbasin; near golf, septic, and areas served NPW
125	05S06E09A01S	Coachella Valley Water District	CVWD Well 5682-1	Active	Monitoring	850-1300	D	Upgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
126	05S06E09F01S	Coachella Valley Water District	CVWD Well 5637-1	Inactive	MUN	450-830	D	Upgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
127	05S06E14B02S	Coachella Valley Water District	CVWD Well 5665-1	Inactive	MUN	400-600	D	Downgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
128	05S06E14P02S	Coachella Valley Water District	CVWD Well 5603-2	Active	MUN	720-975	D	Downgradient of WRP-10/PD-GRF; near golf courses and areas served NPW
129	05S06E16A04S	Coachella Valley Water District	CVWD Well 5620-2	Active	MUN	1040-1360	D	Upgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
130	05S06E16K03S	Coachella Valley Water District	CVWD Well 5681-1	Active	Monitoring	900-1200	D	Upgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
131	05S06E17L01S	Coachella Valley Water District	CVWD Well 5667-1	Active	Monitoring	470-800	D	Western edge of Indio subbasin; near golf, septic, and areas served NPW
132	05S06E20A02S	Coachella Valley Water District	CVWD Well 5674-1	Inactive	Monitoring	750-1050	D	South/cross-gradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
133	05S07E03D01S	Coachella Valley Water District	WRP7 MW-4D	Active	MUN	245-395	D	Near WRP-7 percolation ponds
134	05S07E04A01S	Coachella Valley Water District	WRP7 MW-1 Dave Price	Active	Monitoring	147-367	D	Near WRP-7 percolation ponds

Table 3-2. SNMP Groundwater Monitoring Network -- Deep Aquifer System

Map_ID	SWN	Well Owner	Well Name	Well Status ^(a)	Well Use ^(b)	Screen Interval ft-bgs	Depth Code ^(c)	Justification for Inclusion in SNMP Monitoring Program
135	05S07E15N01S	Indio Water Authority	Well AA	Active	MUN	550-1230	D	Center of Indio subbasin; downgradient from areas served NPW
136	05S07E19A01S	Coachella Valley Water District	CVWD Well 5708-1	Inactive	MUN	450-970	D	Western portion of Indio subbasin; near golf courses and areas served NPW
137	05S07E20J01S	Indio Water Authority	Well T	Active	MUN	580-1305	D	Western portion of Indio subbasin; near golf courses and areas served NPW
138	05S07E26E02S	Indio Water Authority	Well 3B	Active	MUN	500-1200	D	Center of Indio subbasin
139	05S07E27P01S	Indio Water Authority	Well Z	Active	MUN	580-1290	D	Center of Indio subbasin
140	05S07E33E01S	Indio Water Authority	Well S	Active	MUN	460-1260	D	Western portion of Indio subbasin; near golf courses and septic areas
141	05S07E34P04S	Indio Water Authority	Well V	Active	MUN	460-1270	D	Western portion of subbasin; near golf courses and septic areas
142	05S07E35R02S	Indio Water Authority	Well U	Active	MUN	480-1190	D	Center of Indio subbasin
143	05S07E36D03S	Coachella Water Authority	Well 19	Active	MUN	650-1250	D	Center of Indio subbasin
144	05S08E31C03S	Coachella Water Authority	Well 11	Active	MUN	513-818	D	Eastern portion of Indio subbasin; downgradient from VSD plant
145	06S07E06B01S	Coachella Valley Water District	CVWD Well 6701-1	Active	MUN	580-800	D	Downgradient from The Cove; near golf courses and septic areas
146	06S07E22B02S	Coachella Valley Water District	CVWD Well 6726-1	Active	MUN	640-1160	D	North/downgradient of TEL-GRF; near golf courses, septic, and agricultural areas
147	06S07E34A01S	Coachella Valley Water District	CVWD Well 6728-1	Active	MUN	500-750	D	Downgradient from TEL-GRF; near golf courses
148	06S07E34D01S	Coachella Valley Water District	CVWD Well 6729-1	Active	MUN	500-780	D	Directly north/downgradient of TEL-GRF
149	06S08E06K02S	Coachella Water Authority	Well 12	Active	MUN	500-1010	D	Eastern portion of Indio subbasin
150	06S08E09N02S	Coachella Water Authority	Well 16	Active	Monitoring	480-730	D	Eastern portion of Indio subbasin; upgradient from CWA/CSD WWTP
151	06S08E19D05S	Coachella Valley Water District	CVWD Well 6808-1	Active	MUN	675-1200	D	Center of Indio subbasin; near septic and agricultural areas
152	06S08E22D02S	Coachella Valley Water District	CVWD Well 6803-1	Inactive	MUN	500-1100	D	Downgradient from CWA/CSD WWTP; near septic and agricultural areas
153	06S08E25P04S	Coachella Valley Water District	CVWD Well 6807-1	Active	MUN	665-1300	D	Upgradient of WRP-4; downgradient of CWA WWTP; near agriculture and septic areas
154	06S08E28N06S	Coachella Water Authority	Well 18	Active	Monitoring	900-1190	D	Eastern edge of Indio subbasin; downgradient of VSD discharge point
155	07S08E17A04S	Coachella Valley Water District	CVWD Well 7803-1	Active	MUN	250-710	D	Downgradient from TEL-GRF; in agricultural and septic areas
156	07S09E23N01S	Coachella Valley Water District	CVWD Well 7990-1	Inactive	Unknown	530-560	D	Southeastern corner of the basin; near agricultural and septic areas; near Salton Sea
157		Indio Water Authority	Well 13A	Active	Irrigation	550-1171	D	East in subbasin; downgradient from WRP-7 ponds and NPR areas
158	03S05E08B01S	R.C Roberts	03S05E08B01S	Undetermined	Irrigation	356-516	D	Downgradient of DHS subbasin; near golf course and septic areas
159	03S05E17M01S	Desert Dunes Golf Club	03S05E17M01S	Active	Unknown	305-412	D	Upgradient of Garnet Hill subarea; near golf course and septic areas
160	03S05E20H02S	Donald Franklin	03S05E20H02S	Active	Irrigation	240-360	D	Distal area in Mission Creek subbasin; upgradient of Garnet Hill subarea; near septic
161	03S06E21R01S	Joel Rosenfeld	03S06E21R01S	Undetermined	Irrigation	355-495	D	Western portion of Sky Valley subarea; near septic
162	05S05E12B03S	Tandika Corp	05S05E12B03S	Active	Irrigation	410-800	D	Western edge of Indio subbasin; near NPR and septic areas
163	05S06E13F01S	PD Golf Operations LLC	05S06E13F01S	Active	Irrigation	400-700	D	Downgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
164	05S06E15H01S	Toscana Country Club	05S06E15H01S	Active	Irrigation	430-950	D	Downgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
165	05S06E22C02S	Desert Horizons Country Club	05S06E22C02S	Active	Irrigation	550-990	D	Downgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
166	05S06E27A01S	El Dorado Country Club	05S06E27A01S	Active	MUN	458-596	D	South/cross-gradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
167	05S06E29P04S	Bighorn Golf Club	05S06E29P04S	Active	MUN	530-720	D	Upgradient of Palm Desert; near golf courses and septic areas
168	05S07E07F04S	Myoma Dunes Mutual Water Company	Well 4	Active	MUN	430-730	D	Center of Indio subbasin; near areas served NPW
169	05S07E08L01S	Myoma Dunes Mutual Water Company	Well 11	Active	Unknown	500-1060	D	Center of Indio subbasin; near areas served NPW
170	05S07E17K01S	Myoma Dunes Mutual Water Company	Well 12	Active	Irrigation	450-950	D	Center of Indio subbasin; near areas served NPW
171	05S08E09N03S	Jamie Brack	05S08E09N03S	Undetermined	Unknown	480-580	D	Downgradient of septic areas in Fargo subarea; upgradient of Indio subbasin
172	06S07E27B01S	Andalusia Golf Club	06S07E27B01S	Active	Irrigation	300-780	D	Downgradient of TEL-GRF; near golf course and agricultural areas
173	06S07E35L02S	Castro Bros	Castro Bros	Active	Unknown	300-400	D	Downgradient from TEL-GRF; near golf courses and agricultural areas
174	06S08E11A01S	Cocopah Nurseries Inc	06S08E11A01S	Active	Unknown	400-842	D	Eastern edge of Indio subbasin; near agriculture; upgradient from CWA/CSD WWTP
175	06S08E31P01S	Deer Creek	Deer Creek	Active	Irrigation	400-550	D	Downgradient from TEL-GRF, in agricultural area
176	06S08E35E02S	Otto L. Zahler	06S08E35E02S	Undetermined	Unknown	521-596	D	Center of Indio subbasin; directly upgradient of WRP-4; in agricultural area
177	07S07E02G02S	Warren Webber	Warren Webber	Active	Irrigation	380-700	D	Downgradient from TEL-GRF; in agricultural area
178	07S08E01L02S	Bill Wordon	07S08E01L02S	Undetermined	Domestic	500-880	D	Center of Indio subbasin; downgradient of WRP-4, in agricultural area
179	07S08E27A02S	Gimmway Enterprises Inc	07S08E27A02S	Active	MUN	491-811	D	Downgradient from Martinez Canyon GRF; in agricultural area
180	07S09E10F01S	Prime Time International	07S09E10F01S	Active	Unknown	360-500	D	Southeast Indio subbasin; in agricultural area; near Salton Sea
181		Mission Springs Water District	Well 31	Active	MUN	270-670	D	Upgradient of Garnet Hill subarea; near potential septic areas in N. Palm Springs

(a) Well Status: Well Status: "Active" means well is known to exist and currently used for original purpose; "Standby" means active backup well; "Inactive" means well exists but is no longer used as a water-supply.

(b) Well Use: MUN = municipal and domestic supply

(c) Depth Code: This monitoring program assigns wells to aquifer layers by depth. P = Perched aquifer system, mainly in the Thermal subarea. S = Shallow aquifer system. D = Deep aquifer system

Table 3-3. SNMP Groundwater Monitoring Network -- Perched Aquifer System

Map_ID	SWN	Well Owner	Well Name	Well Status ^(a)	Well Use ^(b)	Screen Interval ft-bgs	Depth Code ^(c)	Justification for Inclusion in SNMP Monitoring Program
182		Coachella Valley Water District	WRP2 MW3	Active	Monitoring	<90	P	At WRP-2; represents subsurface discharge to Salton Sea
183	06S07E27J03S	Coachella Valley Water District	TEL-GRF MW-8	Active	Monitoring	25-45	P	North/downgradient of TEL-GRF; near golf course and agriculture
184	06S07E34A03S	Coachella Valley Water District	TEL-GRF MW-9	Active	Monitoring	25-45	P	Downgradient from TEL-GRF and golf course
185	06S08E31R01S	Coachella Valley Water District	TEL-GRF MW-10	Active	Monitoring	25-45	P	Downgradient from TEL-GRF; agricultural area
186	07S08E06P01S	Coachella Valley Water District	TEL-GRF MW-11	Active	Monitoring	25-45	P	Downgradient from TEL-GRF; agricultural area
187		Coachella Valley Water District	PEW-1	Active	Monitoring	10-55	P	At WRP-4; agricultural area

(a) Well Status: "Active" means well is known to exist and currently used for original purpose; "Standby" means active backup well; "Inactive" means well exists but is no longer used as a water-supply.

(b) Well Use: MUN = municipal and domestic supply

(c) Depth Code: This monitoring program assigns wells to aquifer layers by depth. P = Perched aquifer system, mainly in the Thermal subarea. S = Shallow aquifer system. D = Deep aquifer system

Table 3-4. Gaps in SNMP Groundwater Monitoring Network

Map_ID	Depth Code ^(a)	Justification for Inclusion in SNMP Monitoring Program	Approx. Depth of Well Screens	Overlying SNMP Agency ^(b)
G1	S	Monitoring of subsurface inflows from areas upgradient of Mission Creek GRF	700-1000 ft-bgs	DWA, MSWD
G2	S	Monitoring directly downgradient of the planned MSWD West Valley WWTP	200-300 ft-bgs	MSWD, DWA
G3	S	Monitoring of southern Miracle Hill subarea; near septic; upgradient of Desert Crest WWTP	100-300 ft-bgs	CVWD
G4	S	Monitoring of the Fargo subarea of DHS subbasin; near septic	100-300 ft-bgs	CVWD
G5	S	Monitoring upgradient of urban land uses in Palm Springs; downgradient of WW-GRF	300-500 ft-bgs	DWA
G6	S	Monitoring center of Indio subbasin; near airport, golf courses, and areas served non-potable water (NPW)	250-350 ft-bgs	DWA
G7	S	Monitoring a spatial gap in western portion of Indio subbasin; near golf courses, septic and areas served NPW	200-300 ft-bgs	CVWD
G8	S	Monitoring of subsurface inflows from areas upgradient of urban land uses in Palm Desert Canyon	250-400 ft-bgs	CVWD
G9	S	Monitoring a spatial gap in western portion of Indio subbasin; near golf courses and septic	100-250 ft-bgs	CVWD, IWA
G10	S	Monitoring downgradient from CWA/CSD WWTP; near septic areas and agriculture	100-250 ft-bgs	CVWD
G11	S	Monitoring a spatial gap downgradient of TEL-GRF; near golf courses, septic, and agricultural areas	85-160 ft-bgs	CVWD
G12	S	Monitoring a spatial gap in center of Indio subbasin; near septic areas and agriculture	100-235 ft-bgs	CVWD
G13	S	Monitoring a spatial gap downgradient from TEL-GRF; in agricultural areas	50-150 ft-bgs	CVWD
G14	S	Monitoring a spatial gap downgradient of WRP-4; in agricultural area; near Salton Sea	100-250 ft-bgs	CVWD
G15	S	Monitoring a spatial gap directly upgradient of WRP-4; in agricultural area	100-275 ft-bgs	CVWD
G16	S	Monitoring a spatial gap upgradient of WRP-4; downgradient of CWA/CSD WWTP; near agriculture, septic	100-250 ft-bgs	CVWD
G17	P	Monitoring a spatial gap in northern portion of Perched area; downgradient from Fargo subarea	<100 ft-bgs	CVWD, IWA, VSD
G18	P	Monitoring a spatial gap on eastern side of Perched area; in agricultural area	<70 ft-bgs	CVWD, CWA/CSD
G19	P	Monitoring a spatial gap in center of Perched area; near agricultural and septic areas	<90 ft-bgs	CVWD, CWA/CSD
G20	P	Monitoring a spatial gap in southern basin; may represent subsurface discharge to Salton Sea	<70 ft-bgs	CVWD
G21	P	Monitoring a spatial gap in southern basin; may represent subsurface discharge to Salton Sea	<70 ft-bgs	CVWD
G22	P	Monitoring a spatial gap in southern basin; may represent subsurface discharge to Salton Sea	<90 ft-bgs	CVWD
G23	S	Monitoring a spatial gap in Thousand Palms area; near septic and areas served NPW	150-300 ft-bgs	CVWD

(a) Depth Code: This monitoring program assigns wells to aquifer layers by depth. P = Perched aquifer system, mainly in the Thermal subarea. S = Shallow aquifer system.

(b) CVWD = Coachella Valley Water District; CWA/CSD = Coachella Water Authority and Sanitary District; DWA = Desert Water Agency; IWA = Indio Water Authority; VSD = Valley Sanitary District; MSWD = Mission Springs Water District

Table 3-5. Analyte List for the SNMP Groundwater Monitoring Program

Analytes	Justification	Method	Cost/Sample
Total Dissolved Solids	Measure of total dissolved salt content in water	E160.1/SM2540C	\$14
Nitrate as Nitrogen	Primary nutrient in groundwater	EPA 300.0	\$12
Major cations: K, Na, Ca, Mg	Useful in source water characterization	EPA 200.7	\$20
Major anions: Cl, SO ₄	Useful in source water characterization	EPA 300.0	\$18
Total Alkalinity (HCO ₃ , CO ₃ , OH)	Useful in source water characterization	SM 2320B/2330B	\$13

Table 3-6. Responsibilities for Groundwater Sampling and Laboratory Analyses

Map_ID	SWN	Well Owner	Well Name	Well Status ^(a)	Well Use ^(b)	Screen Interval ft-bgs	Depth Code ^(c)	Overlying SNMP Agency ^(d)
1	03S04E20F01S	USGS	335348116352701	Active	Monitoring	600-640	S	CVWD
2	03S04E20J01S	USGS	335339116345301	Active	Monitoring	550-590	S	CVWD
3	06S07E33G02S	Coachella Valley Water District	TEL-GRF MW-21S	Active	Monitoring	230-250	S	CVWD
4	06S07E33J02S	Coachella Valley Water District	TEL-GRF MW-22S	Active	Monitoring	230-250	S	CVWD
5	06S07E34N03S	Coachella Valley Water District	TEL-GRF MW-23S	Active	Monitoring	230-250	S	CVWD
7	02S04E26C01S	Mission Springs Water District	Well 28	Inactive	MUN	590-898	S	MSWD
8	02S04E28A01S	Mission Springs Water District	Well 34	Active	MUN	550-980	S	MSWD
9	02S05E31L01S	Mission Springs Water District	Well 11	Inactive	Unknown	220-285	S	MSWD
10	03S04E04Q02S	CPV Sentinel	03S04E04Q02S	Active	Unknown		S	DWA, MSWD
11	03S04E11L01S	Mission Springs Water District	Well 27	Active	MUN	180-380	S	MSWD
12	03S05E05Q01S	Hidden Springs Golf Course	P27	Active	Unknown	220-600	S	DWA, MSWD
13		City of Palm Springs	Airport MW-2	Active	Monitoring	240-250	S	CPS
14		City of Palm Springs	MW-1	Active	Monitoring	170-210	S	CPS
15		City of Palm Springs	MW-3	Active	Monitoring	140-215	S	CPS
16		City of Palm Springs	MW-4	Active	Monitoring	170-210	S	CPS
17		City of Palm Springs	MW-5	Active	Monitoring	170-210	S	CPS
18		City of Palm Springs	MW-6	Active	Monitoring	170-210	S	CPS
19	03S03E08M01S	Mission Springs Water District	Well 26	Active	MUN	225-553	S	MSWD
20	03S03E10P02S	Unknown	DWA P05	Active	Unknown	306-906	S	DWA
21	03S04E12B02S	Coachella Valley Water District	CVWD Well 3408-1	Active	MUN	270-500	S	CVWD
22	03S04E29F01S	USGS	335304116353001	Active	Monitoring	550-570	S	CVWD
23	03S04E29R01S	USGS	335231116345401	Active	Monitoring	431-551	S	CVWD
24	04S04E11Q01S	Desert Water Agency	DWA Well 5	Standby	MUN	302-402	S	DWA
25	04S04E35A01S	Indian Canyons Golf Resort	04S04E35A01S	Active	Unknown	360-680	S	DWA
26	04S05E09F03S	Coachella Valley Water District	CVWD Well 4564-1	Active	MUN	410-670	S	CVWD
27	04S05E29A02S	Desert Water Agency	DWA Well 25	Active	MUN	166-300	S	DWA
29	04S07E33L02S	Coachella Valley Water District	WRP7 MW-2S	Active	Monitoring	60-190	S	CVWD
30	05S06E09M03S	Coachella Valley Water District	WRP10 MW-7	Active	Monitoring	260-340	S	CVWD
31	05S06E09P02S	Coachella Valley Water District	PD-GRF MW 2	Active	Monitoring	260-340	S	CVWD
32	05S06E10J01S	Coachella Valley Water District	PD-GRF MW 1	Active	Monitoring	260-340	S	CVWD
33	05S06E13G03S	Coachella Valley Water District	WRP10 MW-8	Active	Monitoring	260-340	S	CVWD
34	05S06E14G03S	Coachella Valley Water District	WRP10 MW-5	Active	Monitoring	240-320	S	CVWD
35	05S06E14P03S	Coachella Valley Water District	WRP10 MW-6	Active	Monitoring	190-270	S	CVWD
36	05S06E15F01S	Coachella Valley Water District	WRP10 MW-2	Active	Monitoring	160-290	S	CVWD
37	05S06E15M01S	Coachella Valley Water District	WRP10 MW-1	Active	Monitoring	145-295	S	CVWD
38	05S06E15P01S	Coachella Valley Water District	WRP10 MW-3	Active	Monitoring	130-290	S	CVWD
39	05S06E16A03S	Coachella Valley Water District	WRP10 MW-4	Active	Monitoring	190-270	S	CVWD
40	05S06E21Q04S	Coachella Valley Water District	PD-GRF MW 3	Active	Monitoring	260-340	S	CVWD
41	05S06E23M02S	Coachella Valley Water District	PD-GRF MW 4	Active	Monitoring	270-360	S	CVWD
42	05S07E03D02S	Coachella Valley Water District	WRP7 MW-4S	Active	Monitoring	60-190	S	CVWD
43	05S07E04A04S	Coachella Valley Water District	WRP7 MW-3S	Active	Monitoring	50-180	S	CVWD
44	05S07E16K02S	Coachella Valley Water District	CVWD Well 5737-1	Inactive	MUN	200-415	S	CVWD, IWA, VSD
45	05S07E19D04S	Coachella Valley Water District	WRP10 MW-9	Active	Monitoring	260-340	S	CVWD
46	05S07E24M02S	Indio Water Authority	Well 1B	Active	Monitoring	190-410	S	IWA
47	06S06E12G01S	Coachella Valley Water District	CVWD Well 6650-1	Inactive	Monitoring	<370	S	CVWD
48	06S07E34A02S	Coachella Valley Water District	TEL-GRF MW-25	Active	Monitoring	115-135	S	CVWD
49	06S07E34D02S	Coachella Valley Water District	TEL-GRF MW-24	Active	MUN	180-200	S	CVWD
50	07S08E29P03S	Coachella Valley Water District	MC-3	Active	Unknown	380-440	S	CVWD
51	08S09E31R03S	Coachella Valley Water District	CVWD Well 8995-1	Active	Unknown	260-390	S	CVWD
52	03S04E17K01S	Valley View MWC	03S04E17K01S	Undetermined	Fish Farm	340-375	S	DWA, MSWD
53	03S04E22A01S	Erin Miner	03S04E22A01S	Active	Irrigation	180-230	S	DWA
54	03S05E08P02S	Bluebeyond Fisheries	03S05E08P02S	Active	Irrigation	200-400	S	CVWD
55	03S05E15N01S	Too Many Palms LLC	03S05E15N01S	Active	Unknown	158-320	S	CVWD
56	03S05E18J01S	Desert Dunes Golf Club	03S05E18J01S	Active	Irrigation	76-340	S	CVWD
57	03S06E21G01S	Sky Valley Mobile Home Park	03S06E21G01S	Undetermined	Irrigation	188-248	S	CVWD
58	04S05E04F01S	So Pacific Trans Co #32601	04S05E04F01S	Active	Irrigation	276-576	S	CVWD
59	04S05E23F01S	Westin Mission Hills Resort	04S05E23F01S	Active	Irrigation	275-1165	S	CVWD
60	04S05E34C01S	Manufacture Home Community Inc	04S05E34C01S	Active	Irrigation	240-500	S	CVWD

Table 3-6. Responsibilities for Groundwater Sampling and Laboratory Analyses

Map_ID	SWN	Well Owner	Well Name	Well Status ^(a)	Well Use ^(b)	Screen Interval ft-bgs	Depth Code ^(c)	Overlying SNMP Agency ^(d)
61	04S05E35Q01S	Tamarisk Country Club	04S05E35Q01S	Active	Irrigation	171-518	S	CVWD
62	04S05E36L02S	Annenberg Estate	04S05E36L02S	Active	Unknown	252-650	S	CVWD
63	04S06E20C01S	Shenandoah Ventures LP	04S06E20C01S	Inactive	Irrigation	250-790	S	CVWD
66	05S05E12D01S	Thunderbird Country Club	05S05E12D01S	Active	Domestic	125-360	S	CVWD
67	05S06E12M01S	Palm Desert Resort Country Club	05S06E12M01S	Active	Domestic	140-650	S	CVWD
68	05S07E08Q01S	Bermuda Dunes Airport	05S07E08Q01S	Active	Unknown	203-654	S	CVWD, MDMWC
69	05S07E28H02S	Tricon/COB Riverdale LP	05S07E28H02S	Active	Domestic	162-636	S	CVWD, IWA, VSD
70	05S08E28M02S	JS Cooper	05S08E28M02S	Undetermined	Irrigation	208-268	S	CVWD, CWA/CSD
71	05S08E30N03S	Carver Tract Mutual Water Co	05S08E30N03S	Active	Irrigation	270-330	S	CVWD, VSD
72	06S07E07B01S	Traditions Golf Club	06S07E07B01S	Active	Irrigation	200-480	S	CVWD
73	06S08E02L01S	Prime Time International	06S08E02L01S	Undetermined	Unknown	216-407	S	CVWD, CWA/CSD
74	06S08E05K01S	Peter Rabbit Farms	06S08E05K01S	Active	Domestic	126-375	S	CVWD, CWA/CSD
75	06S08E32L01S	Guillermo Torres	06S08E32L01S	Undetermined	Domestic	127-227	S	CVWD
76	07S08E27A01S	Gimmway Enterprises Inc	07S08E27A01S	Active	Irrigation	147-215	S	CVWD
77	07S09E14C01S	Tudor Ranch Inc.	07S09E14C01S	Active	MUN	93-290	S	CVWD
78	08S08E15G02S	Thermiculture Management LLC	08S08E15G02S	Active	Monitoring	260-500	S	CVWD
79		Mission Springs Water District	Well 25	Active	Monitoring	330-455	S	MSWD
80		Mission Springs Water District	Well 1	Inactive	Monitoring		S	MSWD
81		Mission Springs Water District	Horton WWTP MW-1	Active	Monitoring	186-236	S	MSWD
82		Mission Springs Water District	Horton WWTP MW-2	Active	Monitoring	220-270	S	MSWD
83		Mission Springs Water District	Horton WWTP MW-3	Active	Monitoring	200-250	S	MSWD
84	03S04E20F02S	USGS	335348116352702	Active	Monitoring	850-890	D	CVWD
85	03S04E20J03S	USGS	335339116345303	Active	Monitoring	850-890	D	CVWD
86	06S07E33G01S	Coachella Valley Water District	TEL-GRF MW-21D	Active	Monitoring	390-410	D	CVWD
87	06S07E33J01S	Coachella Valley Water District	TEL-GRF MW-22D	Active	Monitoring	520-540	D	CVWD
88	06S07E34N02S	Coachella Valley Water District	TEL-GRF MW-23D	Active	Monitoring	525-545	D	CVWD
89	07S09E30R03S	Coachella Valley Water District	Peggy	Active	MUN	730-770	D	CVWD
90	08S09E07N02S	Coachella Valley Water District	Rosie	Active	MUN	720-780	D	CVWD
91	05S07E24L03S	Indio Water Authority	Well 1E	Active	MUN	552-815	D	IWA
92	02S04E28J01S	Mission Springs Water District	Well 35	Active	Monitoring	725-1020	D	MSWD
93	02S04E36P01S	Mission Springs Water District	Well 37	Active	MUN	450-1080	D	MSWD
94	02S05E31H01S	Mission Springs Water District	Well 5	Inactive	Unknown	274-784	D	MSWD
95	03S03E07D01S	Mission Springs Water District	Well 25A	Active	MUN	500-740	D	MSWD
96	03S04E04P01S	CPV Sentinel	03S04E04P01S	Active	MUN		D	DWA, MSWD
97	03S04E11A02S	Mission Springs Water District	Well 32	Active	Unknown	320-980	D	MSWD
98	03S03E08A01S	Mission Springs Water District	Well 26A	Active	MUN	320-600	D	MSWD
99	03S03E10P01S	Unknown	DWA P04	Active	MUN	476-776	D	DWA
100	03S04E14J01S	Mission Springs Water District	Well 33	Active	MUN	360-650	D	MSWD
101	03S04E19L01S	Desert Water Agency	DWA Well 43	Active	MUN	500-900	D	DWA
102	03S04E34H02S	Desert Water Agency	DWA Well 35	Active	MUN	600-1000	D	DWA
103	03S04E36Q01S	Desert Water Agency	DWA Well 38	Active	MUN	620-1000	D	DWA
104	04S04E02B01S	Desert Water Agency	DWA Well 22	Active	MUN	570-1003	D	DWA
105	04S04E11Q02S	Desert Water Agency	DWA Well 18	Standby	MUN	535-948	D	DWA
106	04S04E13C01S	Desert Water Agency	DWA Well 23	Active	MUN	512-912	D	DWA
107	04S04E24E01S	Desert Water Agency	DWA Well 32	Active	MUN	600-1000	D	DWA
108	04S04E24H01S	Desert Water Agency	DWA Well 29	Active	MUN	600-1000	D	DWA
109	04S04E25C01S	Desert Water Agency	DWA Well 39	Active	MUN	580-750	D	DWA
110	04S05E05A01S	Coachella Valley Water District	CVWD Well 4568-1	Active	MUN	800-955	D	CVWD
111	04S05E08N01S	Desert Water Agency	DWA Well 41	Active	MUN	610-1000	D	DWA
112	04S05E09R01S	Coachella Valley Water District	CVWD Well 4567-1	Active	MUN	855-1150	D	CVWD
113	04S05E15G01S	Coachella Valley Water District	CVWD Well 4521-1	Active	MUN	500-800	D	CVWD
114	04S05E17Q02S	Desert Water Agency	DWA Well 31	Active	MUN	600-1000	D	DWA
115	04S05E25D02S	Coachella Valley Water District	CVWD Well 4507-2	Active	MUN	860-1320	D	CVWD
116	04S05E27K01S	Coachella Valley Water District	CVWD Well 4527-1	Active	MUN	850-1155	D	CVWD
117	04S05E29H01S	Desert Water Agency	DWA Well 26	Active	MUN	590-990	D	DWA
118	04S05E35G04S	Coachella Valley Water District	CVWD Well 4504-1	Active	MUN	600-1000	D	CVWD
119	04S06E18Q04S	Coachella Valley Water District	CVWD Well 4630-1	Active	MUN	480-990	D	CVWD
120	04S06E28K04S	Coachella Valley Water District	CVWD Well 4629-1	Active	Monitoring	496-796	D	CVWD

Table 3-6. Responsibilities for Groundwater Sampling and Laboratory Analyses

Map_ID	SWN	Well Owner	Well Name	Well Status ^(a)	Well Use ^(b)	Screen Interval ft-bgs	Depth Code ^(c)	Overlying SNMP Agency ^(d)
121	04S07E31H01S	Coachella Valley Water District	CVWD Well 4722-1	Active	MUN	570-1160	D	CVWD
122	04S07E33L01S	Coachella Valley Water District	WRP7 MW-2D	Active	MUN	245-395	D	CVWD
123	05S06E02C01S	Coachella Valley Water District	CVWD Well 5664-1	Active	MUN	500-930	D	CVWD
124	05S06E06B03S	Coachella Valley Water District	CVWD Well 5630-1	Active	Monitoring	455-890	D	CVWD
125	05S06E09A01S	Coachella Valley Water District	CVWD Well 5682-1	Active	Monitoring	850-1300	D	CVWD
126	05S06E09F01S	Coachella Valley Water District	CVWD Well 5637-1	Inactive	MUN	450-830	D	CVWD
127	05S06E14B02S	Coachella Valley Water District	CVWD Well 5665-1	Inactive	MUN	400-600	D	CVWD
128	05S06E14P02S	Coachella Valley Water District	CVWD Well 5603-2	Active	MUN	720-975	D	CVWD
129	05S06E16A04S	Coachella Valley Water District	CVWD Well 5620-2	Active	MUN	1040-1360	D	CVWD
130	05S06E16K03S	Coachella Valley Water District	CVWD Well 5681-1	Active	Monitoring	900-1200	D	CVWD
131	05S06E17L01S	Coachella Valley Water District	CVWD Well 5667-1	Active	Monitoring	470-800	D	CVWD
132	05S06E20A02S	Coachella Valley Water District	CVWD Well 5674-1	Inactive	Monitoring	750-1050	D	CVWD
133	05S07E03D01S	Coachella Valley Water District	WRP7 MW-4D	Active	MUN	245-395	D	CVWD
134	05S07E04A01S	Coachella Valley Water District	WRP7 MW-1	Active	Monitoring	147-367	D	CVWD
135	05S07E15N01S	Indio Water Authority	Well AA	Active	MUN	550-1230	D	IWA
136	05S07E19A01S	Coachella Valley Water District	CVWD Well 5708-1	Inactive	MUN	450-970	D	CVWD
137	05S07E20J01S	Indio Water Authority	Well T	Active	MUN	580-1305	D	IWA
138	05S07E26E02S	Indio Water Authority	Well 3B	Active	MUN	500-1200	D	IWA
139	05S07E27P01S	Indio Water Authority	Well Z	Active	MUN	580-1290	D	IWA
140	05S07E33E01S	Indio Water Authority	Well S	Active	MUN	460-1260	D	IWA
141	05S07E34P04S	Indio Water Authority	Well V	Active	MUN	460-1270	D	IWA
142	05S07E35R02S	Indio Water Authority	Well U	Active	MUN	480-1190	D	IWA
143	05S07E36D03S	Coachella Water Authority	Well 19	Active	MUN	650-1250	D	CWA/CSD
144	05S08E31C03S	Coachella Water Authority	Well 11	Active	MUN	513-818	D	CWA/CSD
145	06S07E06B01S	Coachella Valley Water District	CVWD Well 6701-1	Active	MUN	580-800	D	CVWD
146	06S07E22B02S	Coachella Valley Water District	CVWD Well 6726-1	Active	MUN	640-1160	D	CVWD
147	06S07E34A01S	Coachella Valley Water District	CVWD Well 6728-1	Active	MUN	500-750	D	CVWD
148	06S07E34D01S	Coachella Valley Water District	CVWD Well 6729-1	Active	MUN	500-780	D	CVWD
149	06S08E06K02S	Coachella Water Authority	Well 12	Active	MUN	500-1010	D	CWA/CSD
150	06S08E09N02S	Coachella Water Authority	Well 16	Active	Monitoring	480-730	D	CWA/CSD
151	06S08E19D05S	Coachella Valley Water District	CVWD Well 6808-1	Active	MUN	675-1200	D	CVWD
152	06S08E22D02S	Coachella Valley Water District	CVWD Well 6803-1	Inactive	MUN	500-1100	D	CVWD
153	06S08E25P04S	Coachella Valley Water District	CVWD Well 6807-1	Active	MUN	665-1300	D	CVWD
154	06S08E28N06S	Coachella Water Authority	Well 18	Active	Monitoring	900-1190	D	CWA/CSD
155	07S08E17A04S	Coachella Valley Water District	CVWD Well 7803-1	Active	MUN	250-710	D	CVWD
156	07S09E23N01S	Coachella Valley Water District	CVWD Well 7990-1	Inactive	Unknown	530-560	D	CVWD
157		Indio Water Authority	Well 13A	Active	Irrigation	550-1171	D	IWA
158	03S05E08B01S	R.C Roberts	03S05E08B01S	Undetermined	Irrigation	356-516	D	DWA
159	03S05E17M01S	Desert Dunes Golf Club	03S05E17M01S	Active	Unknown	305-412	D	CVWD
160	03S05E20H02S	Donald Franklin	03S05E20H02S	Active	Irrigation	240-360	D	CVWD
161	03S06E21R01S	Joel Rosenfeld	03S06E21R01S	Undetermined	Irrigation	355-495	D	CVWD
162	05S05E12B03S	Tandika Corp	05S05E12B03S	Active	Irrigation	410-800	D	CVWD
163	05S06E13F01S	PD Golf Operations LLC	05S06E13F01S	Active	Irrigation	400-700	D	CVWD
164	05S06E15H01S	Toscana Country Club	05S06E15H01S	Active	Irrigation	430-950	D	CVWD
165	05S06E22C02S	Desert Horizons Country Club	05S06E22C02S	Active	Irrigation	550-990	D	CVWD
166	05S06E27A01S	El Dorado Country Club	05S06E27A01S	Active	MUN	458-596	D	CVWD
167	05S06E29P04S	Bighorn Golf Club	05S06E29P04S	Active	MUN	530-720	D	CVWD
168	05S07E07F04S	Myoma Dunes Mutual Water Company	Well 4	Active	MUN	430-730	D	MDMWC
169	05S07E08L01S	Myoma Dunes Mutual Water Company	Well 11	Active	Unknown	500-1060	D	MDMWC
170	05S07E17K01S	Myoma Dunes Mutual Water Company	Well 12	Active	Irrigation	450-950	D	MDMWC
171	05S08E09N03S	Jamie Brack	05S08E09N03S	Undetermined	Unknown	480-580	D	CVWD, IWA
172	06S07E27B01S	Andalusia Golf Club	06S07E27B01S	Active	Irrigation	300-780	D	CVWD
173	06S07E35L02S	Castro Bros	Castro Bros	Active	Unknown	300-400	D	CVWD
174	06S08E11A01S	Cocopah Nurseries Inc	06S08E11A01S	Active	Unknown	400-842	D	CVWD, CWA/CSD
175	06S08E31P01S	Deer Creek	Deer Creek	Active	Irrigation	400-550	D	CVWD
176	06S08E35E02S	Otto L. Zahler	06S08E35E02S	Undetermined	Unknown	521-596	D	CVWD
177	07S07E02G02S	Warren Webber	Warren Webber	Active	Irrigation	380-700	D	CVWD
178	07S08E01L02S	Bill Wordon	07S08E01L02S	Undetermined	Domestic	500-880	D	CVWD

Table 3-6. Responsibilities for Groundwater Sampling and Laboratory Analyses

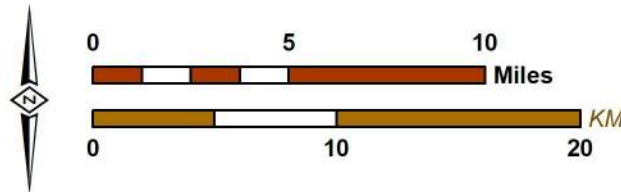
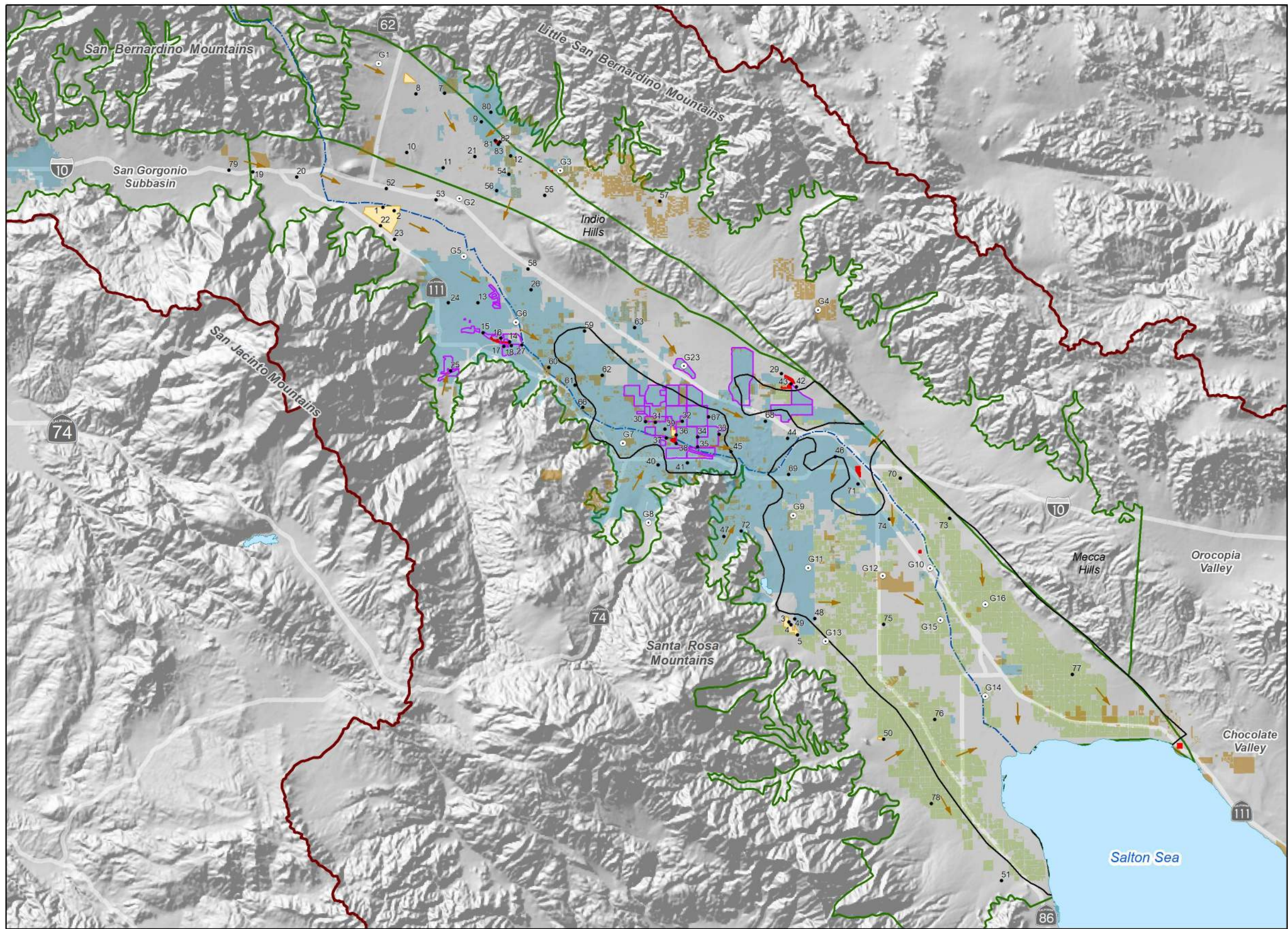
Map_ID	SWN	Well Owner	Well Name	Well Status ^(a)	Well Use ^(b)	Screen Interval ft-bgs	Depth Code ^(c)	Overlying SNMP Agency ^(d)
179	07S08E27A02S	Gimmway Enterprises Inc	07S08E27A02S	Active	MUN	491-811	D	CVWD
180	07S09E10F01S	Prime Time International	07S09E10F01S	Active	Monitoring	360-500	D	CVWD
181		Mission Springs Water District	Well 31	Active	Monitoring	270-670	D	MSWD
182		Coachella Valley Water District	WRP2 MW3	Active	Monitoring	<90	P	CVWD
183	06S07E27J03S	Coachella Valley Water District	TEL-GRF MW-8	Active	Monitoring	25-45	P	CVWD
184	06S07E34A03S	Coachella Valley Water District	TEL-GRF MW-9	Active	Monitoring	25-45	P	CVWD
185	06S08E31R01S	Coachella Valley Water District	TEL-GRF MW-10	Active	Monitoring	25-45	P	CVWD
186	07S08E06P01S	Coachella Valley Water District	TEL-GRF MW-11	Active	Monitoring	25-45	P	CVWD
187		Coachella Valley Water District	PEW-1	Active	Monitoring	10-55	P	CVWD

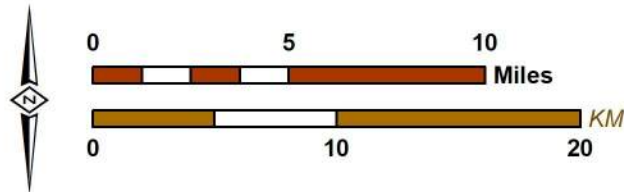
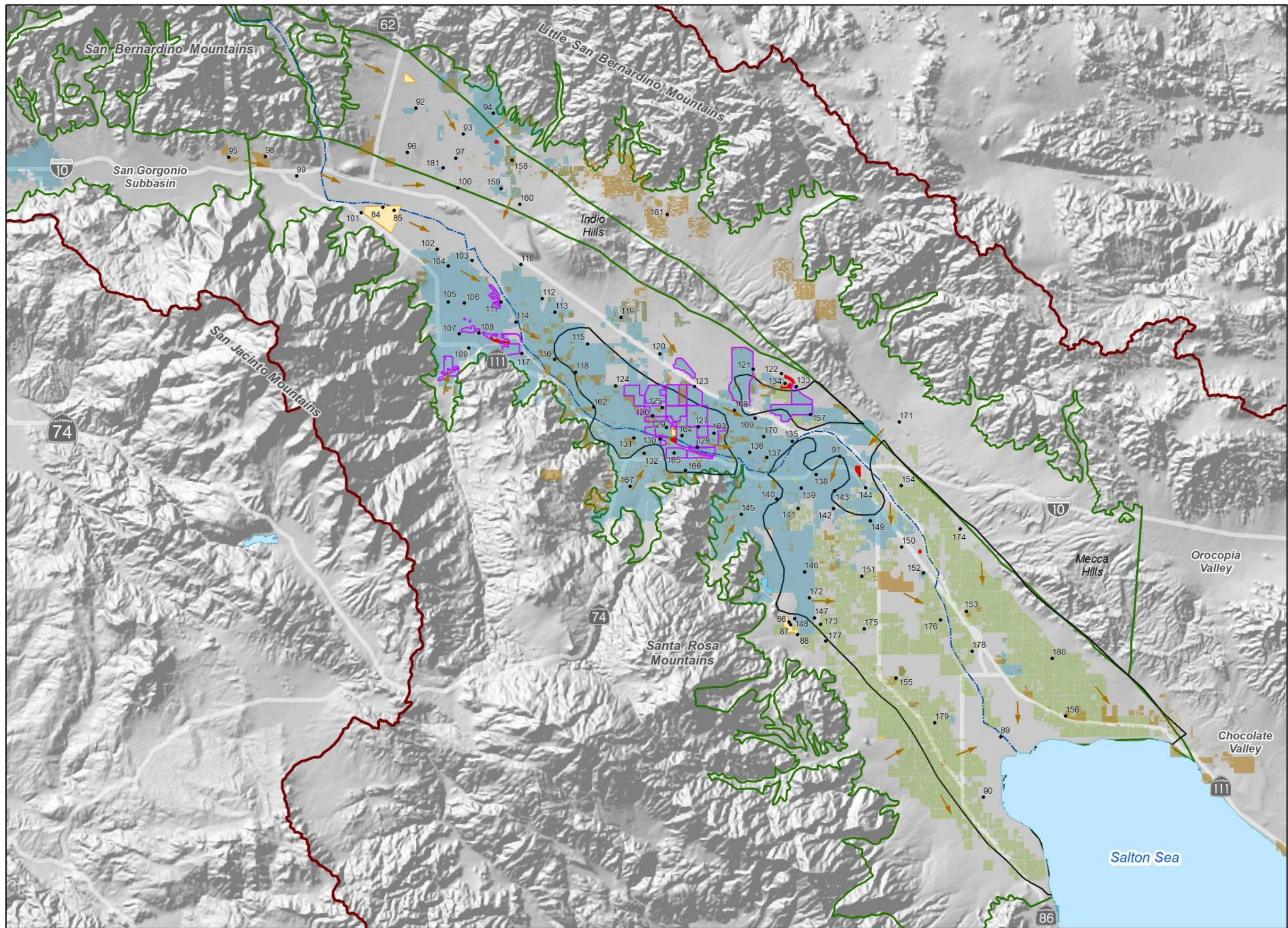
(a) Well Status: "Active" means well is known to exist and currently used for original purpose; "Standby" means active backup well; "Inactive" means well exists but is no longer used as a water-supply.

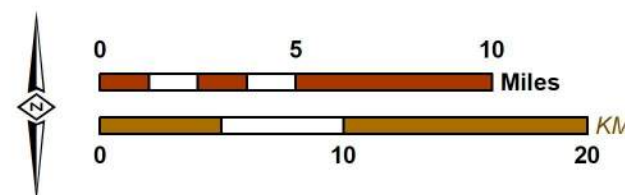
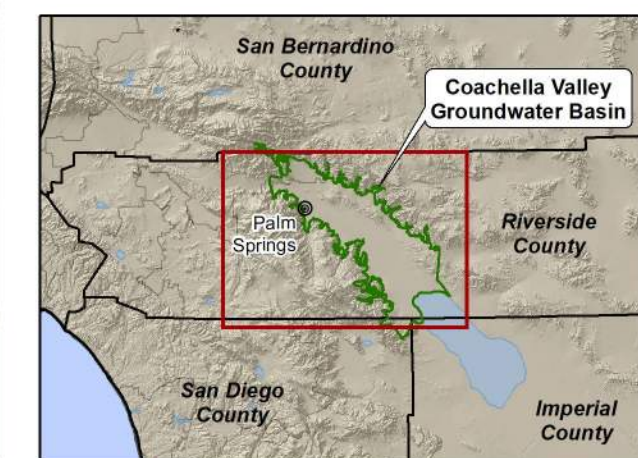
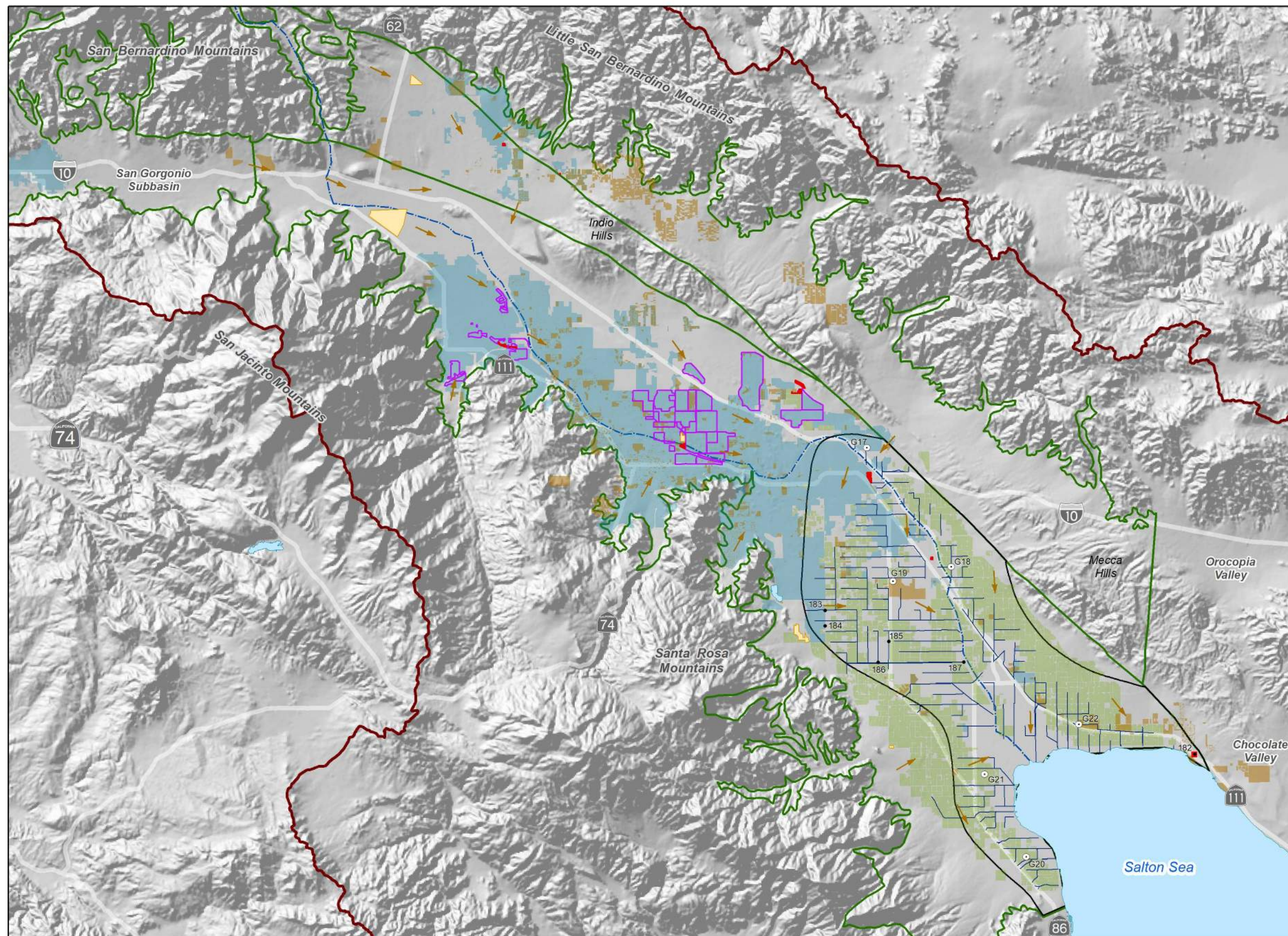
(b) Well Use: MUN = municipal and domestic supply

(c) Depth Code: This monitoring program assigns wells to aquifer layers by depth. P = Perched aquifer system. S = Shallow aquifer system. D = Deep aquifer system

(d) CVWD = Coachella Valley Water District; CWA/CSD = Coachella Water Authority and Sanitary District; DWA = Desert Water Agency; IWA = Indio Water Authority; MDMWC = Myoma Dunes Mutual Water Company; VSD = Valley Sanitary District; MSWD = Mission Springs Water District; CPS = City of Palm Springs







4.0 IMPLEMENTATION PLAN

4.1 Schedule of Activities

The objective of the SNMP Agencies is to have a fully functioning groundwater monitoring program by March 31, 2027, including: (i) implementing the monitoring program at existing wells in the monitoring network; (ii) filling all gaps in the monitoring network identified in this Workplan; (iii) analysis of at least one groundwater sample for the constituents listed in **Table 3-5** from all monitoring wells in the network; and (iv) reporting of all laboratory results to the GAMA information system or its successor.

The schedule of activities to implement the groundwater monitoring program is described below:

- **Active and standby municipal production wells.**
 - All active and standby municipal production wells, identified in this SNMP groundwater monitoring program under a DDW monitoring order, will be sampled pursuant to their existing DDW Groundwater Monitoring Schedules. Most municipal production wells are sampled at least once every three years, or more frequently for some analytes like nitrate.
 - By March 31 of each year beginning in 2022, the SNMP Agencies will report to the GAMA information system the laboratory results from all groundwater samples collected during the prior calendar year for the analytes listed in **Table 3-5**.
- **Active monitoring wells.**
 - All monitoring wells identified in this SNMP groundwater monitoring program that are participating in regulatory or voluntary monitoring programs will be sampled pursuant to their existing monitoring schedules. Typically, such monitoring wells are sampled at least once every three years, and most are sampled more frequently. At least one sample must be analyzed for the constituents listed in **Table 3-5** every three years.
 - By March 31 of each year beginning in 2022, the SNMP Agencies will report to the GAMA information system the laboratory results from all groundwater samples collected during the prior calendar year for the analytes listed in **Table 3-5**.
- **Private wells and inactive wells.**
 - Starting 2021, SNMP Agencies responsible for sampling at private wells or inactive wells will initiate steps to collect the first groundwater sample from these wells. This may include executing access agreements and devising and/or implementing a method to collect a groundwater sample.
 - By the end of 2023, the responsible SNMP Agencies will collect and analyze one groundwater sample for every private and inactive well in the monitoring network, where feasible. By March 31 of each year beginning in 2022, the SNMP Agencies will report to the GAMA information system the laboratory results from all groundwater samples collected during the prior calendar year for the analytes listed in **Table 3-5**.
 - Thereafter, each private and inactive well will be sampled at least once every three years. It is the objective of this program to collect and analyze at least two groundwater samples for all private and inactive wells during the initial six-year implementation period.

- **Filling of Gaps in the Monitoring Network.**
 - In 2021, the SNMP Agencies that are responsible for filling gaps in the monitoring network will perform the necessary research and field work and develop plans to fill each gap. These plans will be summarized in the first annual progress report to the Regional Board by March 31, 2022.
 - Starting in 2022, the SNMP Agencies will initiate steps to fill the gaps. The objective is to fill all gaps in the monitoring network and collect and analyze at least one groundwater sample by December 31, 2026.
 - By March 31 of each year beginning in 2023, the SNMP Agencies will report to the GAMA information system the laboratory results from all groundwater samples collected during the prior calendar year for the analytes listed in **Table 3-5**.
 - It should be expected that new gaps in the monitoring network may be identified during implementation of the monitoring program. This may occur if a well in the monitoring network can no longer be sampled because it was destroyed, becomes inoperable, or otherwise is no longer available for monitoring. In such cases, the SNMP Agencies will attempt to identify a suitable replacement well (similar location and well construction) or develop a plan to fill this new gap in the monitoring network. These challenges and plans to address new data gaps will be summarized in the annual progress reports to the Regional Board (see Section 4.2 below).

4.2 Progress Reporting to the Regional Board

To keep the Regional Board informed of progress and future activities during implementation of the monitoring program, the SNMP Agencies will submit an *Annual Progress Report on Implementation of the CV-SNMP Groundwater Monitoring Program* to the Regional Board. The first progress report will be due by March 31, 2022 to report progress achieved during calendar year 2021. The contents of the progress report will include:

Section 1. Summary of Groundwater Monitoring Program and Implementation Schedule

Section 2. Activities Accomplished or In-Progress during the Prior Calendar Year

- Sampling and analysis of existing municipal production wells and monitoring wells.
- Progress made towards sampling and analysis of inactive and private wells.
- Progress made towards filling gaps in the monitoring network.
- Wells that can no longer be sampled and other challenges in sampling.

Section 3. Activities Planned for the Next Calendar Year

- Plans for sampling at wells, including addressing sampling challenges.
- Activities to replace wells that can no longer be sampled and fill gaps in the monitoring network.

Figures.

- Updated map of Groundwater Monitoring Network – *Shallow Aquifer System*.
- Updated map of Groundwater Monitoring Network – *Deep Aquifer System*.
- Updated map of Groundwater Monitoring Network – *Perched Aquifer System*.

Tables.

- Updated list of wells in Groundwater Monitoring Network.
- Updated list of gaps in Groundwater Monitoring Network.

Appendix A. 2020 CV-SNMP Groundwater Monitoring Program Workplan

4.3 Cost Estimates

Cost estimates were derived for the first six-year period of monitoring program implementation. Costs were estimated for only those additional activities that the monitoring program would cause the SNMP Agencies to perform (that they otherwise would not perform). These activities include: (i) sampling and analysis of private wells; (ii) filling of gaps in the monitoring program; and (iii) preparing the annual progress reports to the Regional Board.

Table 4-1 summarizes the cost estimates by task and subtask. The costs described herein are first-order estimates. Actual costs may vary because monitoring program implementation may unfold differently than assumed herein. For example, a gap in the monitoring network may be filled by identifying an existing suitable well, as opposed to constructing a new well. In addition, these costs do not include land acquisition costs for new monitoring well sites or any needed site improvements, including grading, block walls, or fencing.

Sampling of private wells. **Table 3-6** indicates there are 58 private wells that are proposed to participate in the monitoring program. Each well is assumed to be sampled twice over the first six years (116 samples).

The main activities associated with the sampling of private wells include:

1. Performing a field canvass of each well to: initiate coordination with the well owners; document the condition of the well; and determine the current ability to collect a water-quality sample.
2. Developing and executing an access agreement with the private well owner.
3. If necessary, hiring a subcontractor to construct wellhead improvements to enable sample collection. It is assumed that about half of the private wells will require such improvements at \$3,000 per well.
4. Perform two sampling events and laboratory analyses over the six-year period. Laboratory costs are about \$77 per sample.

Total costs for sampling of private wells over the first six-year implementation period are estimated at about \$260,000.

Filling gaps in the monitoring network. **Table 3-4** indicates that there are 23 gaps in the monitoring network that need to be filled over the first six-year period. For cost estimating purposes, it is assumed that each gap will be filled with the construction of a new monitoring well.

Six of the proposed monitoring wells are targeted for the Perched aquifer system with well depths of less than about 100 ft-bgs—these well boreholes are assumed to be drilled via a sonic method. Sixteen of the proposed wells are targeted for the Shallow aquifer system with well depths of less than about 500 ft-bgs—these well boreholes are assumed to be drilled via a mud-rotary method. One of the proposed

Groundwater Monitoring Program Workplan

Coachella Valley Salt and Nutrient Management Plan Update

wells is estimated to have a total depth of about 1,000 ft-bgs—this well borehole is assumed to be drilled via a mud-rotary method.

The main activities associated with the drilling and construction of new monitoring wells are listed below.

1. Perform a well-siting study to select 23 available and appropriate well sites.
2. Prepare two sets of standard technical specifications for the drilling, construction, and development of two types of monitoring wells: (i) a monitoring well in the Perched aquifer system and (ii) a monitoring well in the Shallow or Deep aquifer systems.
3. Acquire well-site property and/or execute easements. The cost associated with land purchase or long-term land leases are unknown at this time and were therefore not estimated; however, such costs are likely to be significant.
4. Prepare bid package and conduct the bid process to select a well drilling/construction subcontractor. It is assumed that one contractor will construct all 23 wells.
5. Obtain all permits and CEQA clearance.
6. Drill, construct, and develop 23 monitoring wells. The wells are assumed to be comprised of 4" PVC Schedule 80 pipe with 40 feet of well screens. Well head completions are assumed to be an above ground 10-inch diameter stovepipe casing with a locking cap. Any needed well-site improvements are unknown at this time and were therefore not estimated; however, such costs are likely to be significant.
7. Prepare well completion reports for 23 new monitoring wells and file Well Completion Reports with the California Department of Water Resources. New monitoring wells will be added to the SNMP database.

Total costs to fill all gaps in the monitoring network over the first six-year implementation period are estimated to be about \$2,900,000. These estimates do not include land acquisition costs for new monitoring well sites or any needed site improvements.

Task 3 – Preparing the Annual Progress Report to the Regional Board. As described above in Section 4.2, the SNMP Agencies will prepare an *Annual Progress Report on Implementation of the CV-SNMP Groundwater Monitoring Program* to the Regional Board each year to keep it abreast of progress and future activities.

Total costs to prepare five annual progress reports over the first six-year implementation period are estimated to be about \$140,000.

Total Costs. Total costs for the first six-year period of monitoring program implementation are estimated to be about \$4,100,000 (including a contingency of 25%). Total costs are likely to be higher because these estimates do not include land acquisition or site improvement costs for new monitoring well sites.

Table 4-1. Cost Estimates -- Initial Six-Year Implementation Period of CV-SNMP Groundwater Monitoring Program

Task and Subtask Descriptions	Notes	Labor Cost		Other Direct Costs							Total Project Costs		
		Sub-Task	Task	Travel	Well Construction Services (Sub)	E-Logging Services (Sub)	Permits and CEQA	Field Equip	Lab	Total Reimbursable Expenses		Sub-Task	Task
										Sub-Task	Task		
Task 1 - Sampling and Analysis of Private Wells			\$152,146								\$108,030		\$260,175
1.1 Perform field canvass of private wells; develop access agreements		\$19,529		\$1,472						\$1,472		\$21,001	
1.2 Development/execution of private well access agreements		\$79,924								\$0		\$79,924	
1.3 Devise and construct and wellhead improvements to enable sample collection		\$16,733			\$87,000					\$87,000		\$103,733	
1.4 Perform two sampling and laboratory analysis events over the five-year period		\$35,960						\$10,626	\$8,932	\$19,558		\$55,518	
Task 2 - Filling of Gaps in the Monitoring Network			\$1,089,443								\$1,769,514		\$2,858,957
2.1 Perform field work and research; prepare plan to fill gaps in monitoring network		\$53,776								\$0		\$53,776	
2.2 Prepare well-siting study to identify 23 well sites		\$50,828								\$0		\$50,828	
2.3 Prepare technical specifications for of two monitoring well types		\$32,378								\$0		\$32,378	
2.4 Acquire well sites and/or execute lease agreements		\$14,996								\$0		\$14,996	
2.5 Conducting a bid process to select a well drilling/construction subcontractor		\$5,988		\$184						\$184		\$6,172	
2.6 Obtain permits and CEQA clearance		\$3,299					\$24,600			\$24,600		\$27,899	
2.7 Drill, construct, and develop six wells in the Perched aquifer system	a	\$94,608		\$1,536	\$89,820	\$42,000			\$3,180	\$136,536		\$231,144	
2.8 Drill, construct, and develop 16 wells in the Shallow aquifer system	a	\$555,712		\$8,192	\$1,314,720	\$112,000			\$8,480	\$1,443,392		\$1,999,104	
2.9 Drill, construct, and develop one deep monitoring well	a	\$51,492		\$512	\$158,260	\$5,500			\$530	\$164,802		\$216,294	
2.10 Prepare well completion reports for 23 new monitoring wells/file with DWR		\$226,366										\$226,366	
Task 3 - Preparing Annual Progress Reports to the Regional Board			\$139,800								\$0		\$139,800
Project Subtotals			\$1,381,389	\$11,896	\$1,649,800	\$159,500	\$24,600	\$10,626	\$21,122		\$1,877,544		\$3,258,932
Contingency (25%)													\$814,733
Project Total													\$4,073,665
Notes:													
a = These estimates do not include land acquisition costs for new monitoring well sites or any needed site improvements, including grading, block walls, or fencing.													

Appendix B

Example Maps and Data Graphics to Characterize Groundwater Quality

Table B-1: Example of Summary Statistics for N/TDS Concentrations at Wells

Well_ID	Well Name	Well Owner	Well Status	Management Zone	Aquifer Layer(s)	Number of TDS Sample Results	Mean of Annual Average Concentration Values	Standard Error	Standard Deviation
1025698	MW1	Alcoa	Monitoring	Chino-3/Chino-North	1	49	789.49	60.13	255.12
1025699	MW2	Alcoa	Monitoring	Chino-3/Chino-North	1	46	1519.88	76.30	275.12
1025700	Offsite MW1	Alcoa	Monitoring	Chino-3/Chino-North	2	32	444.13	12.06	41.77
1025701	Offsite MW2	Alcoa	Monitoring	Chino-3/Chino-North	1	23	500.72	10.40	32.88
1025702	Offsite MW3	Alcoa	Monitoring	Chino-3/Chino-North	1	33	518.14	31.35	113.03
1025703	Offsite MW4	Alcoa	Monitoring	Chino-3/Chino-North	1	30	678.56	57.31	198.53
1025704	MW2A	Alcoa	Monitoring	Chino-3/Chino-North	1	6	2700.00	237.54	411.43
1025705	NA_1006182	Almo, M.C.	Monitoring	Beaumont	unknown	5	339.04	10.57	23.63
1025706	Arco Well 14	Arco Facility 5172	Monitoring	Yucaipa	12	2	275.00		
1025707	Arco Well 18	Arco Facility 5172	Monitoring	Yucaipa	12	2	310.00		
1025708	Arco Well 19	Arco Facility 5172	Monitoring	Yucaipa	12	1	320.00		
1025709	Arco Well 20	Arco Facility 5172	Monitoring	Yucaipa	12	2	295.00		
1025710	Arco Well 21	Arco Facility 5172	Monitoring	Yucaipa	1	2	290.00		
1025711	Arco Well 22	Arco Facility 5172	Monitoring	Yucaipa	12	2	320.00		
1025712	Arco Well 23	Arco Facility 5172	Monitoring	Yucaipa	12	2	280.00		
1025713	Arco Well 24	Arco Facility 5172	Monitoring	Yucaipa	12	2	300.00		
1025714	Arco Well 25	Arco Facility 5172	Monitoring	Yucaipa	12	2	300.00		
1025715	3	Baseline Gardens Mutual Water Company	Active	Bunker Hill A	23	1	331.40		
1025716	PS & B 2	Baseline Gardens Mutual Water Company	Active	Bunker Hill B	1	1	579.00		
1025717	BV 5th Ave. 1	Bear Valley Mutual Water Company	Active	Yucaipa	3	2	340.00		
1025718	Cemetery Well 1	Beaumont Cemetery	Active	Beaumont	1	3	346.67	21.70	37.58
1025719	Cemetery Well 2	Beaumont Cemetery	Active	Beaumont	12	3	388.80	35.82	62.04
1025720	BCVWD 13	Beaumont Cherry Valley Water District	Active	Beaumont	123	2	230.00		
1025721	BCVWD 12	Beaumont Cherry Valley Water District	Active	Beaumont	123	8	240.86	9.75	25.80

Figure B-1: Example of Point and Raster Map of N/TDS Concentrations in Groundwater

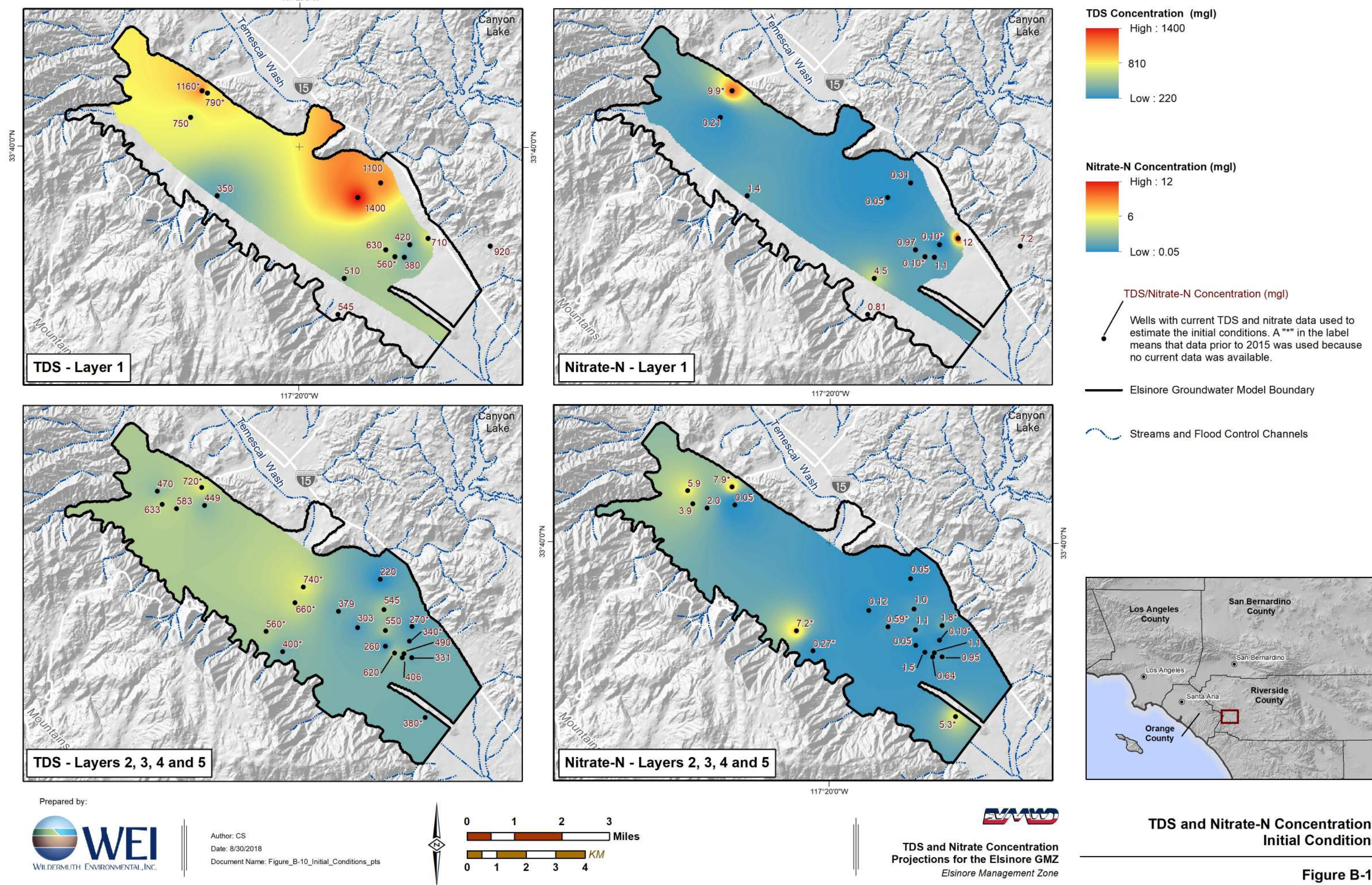


Figure B-2: Example of Water Quality Change Exhibit

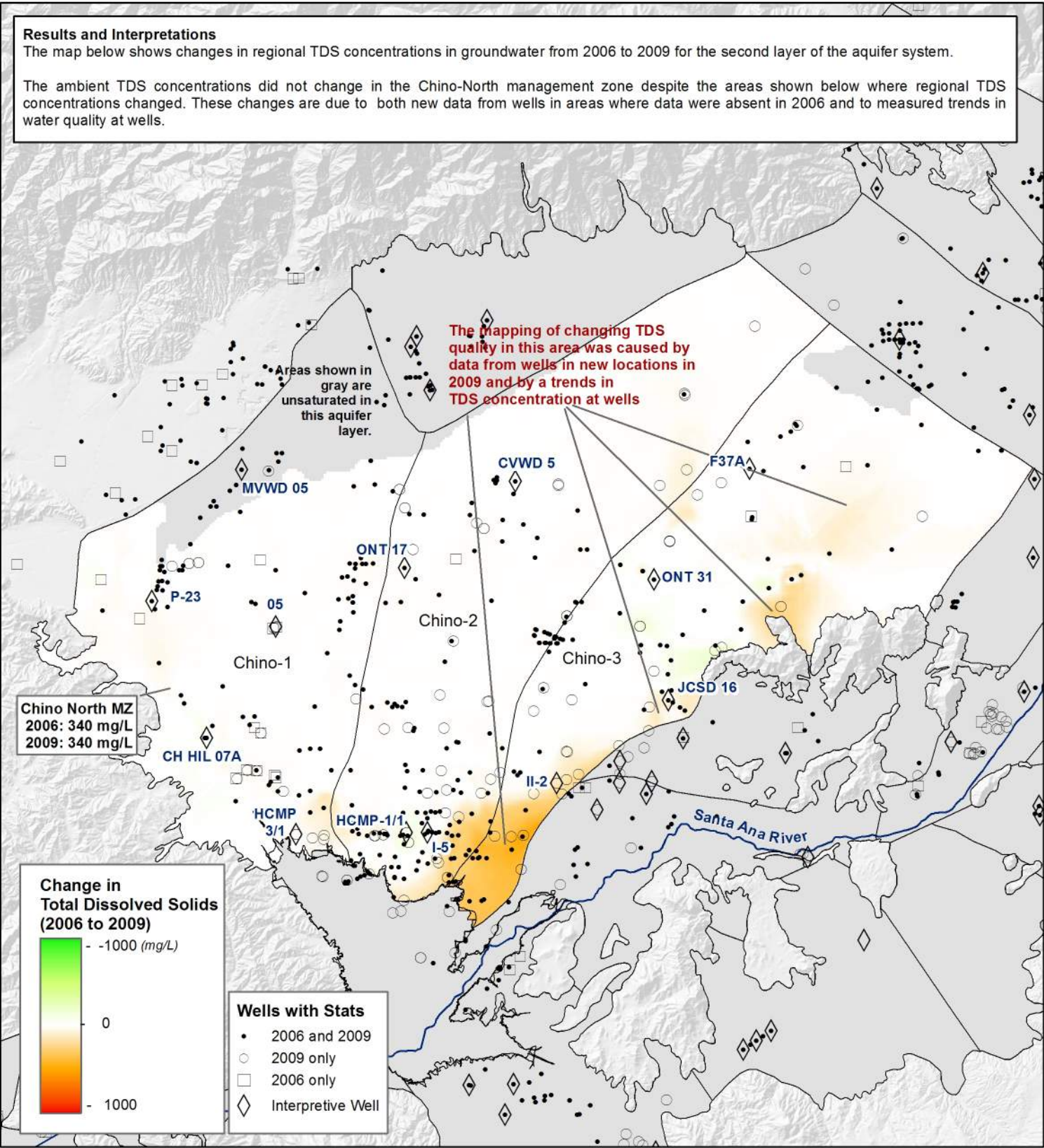
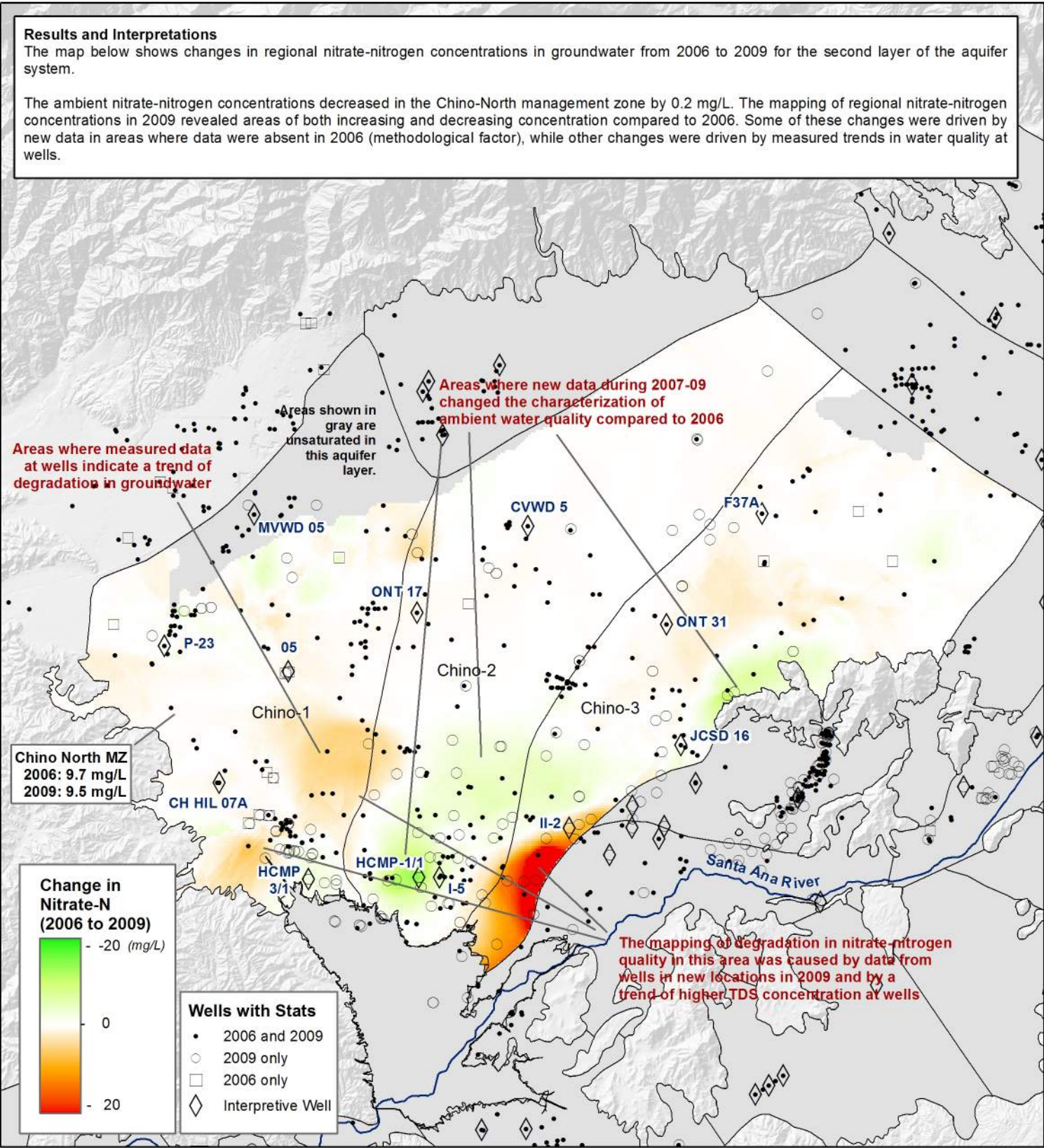


Figure B-3: Example of a Multi-variate Exhibit of Groundwater and Surface Water

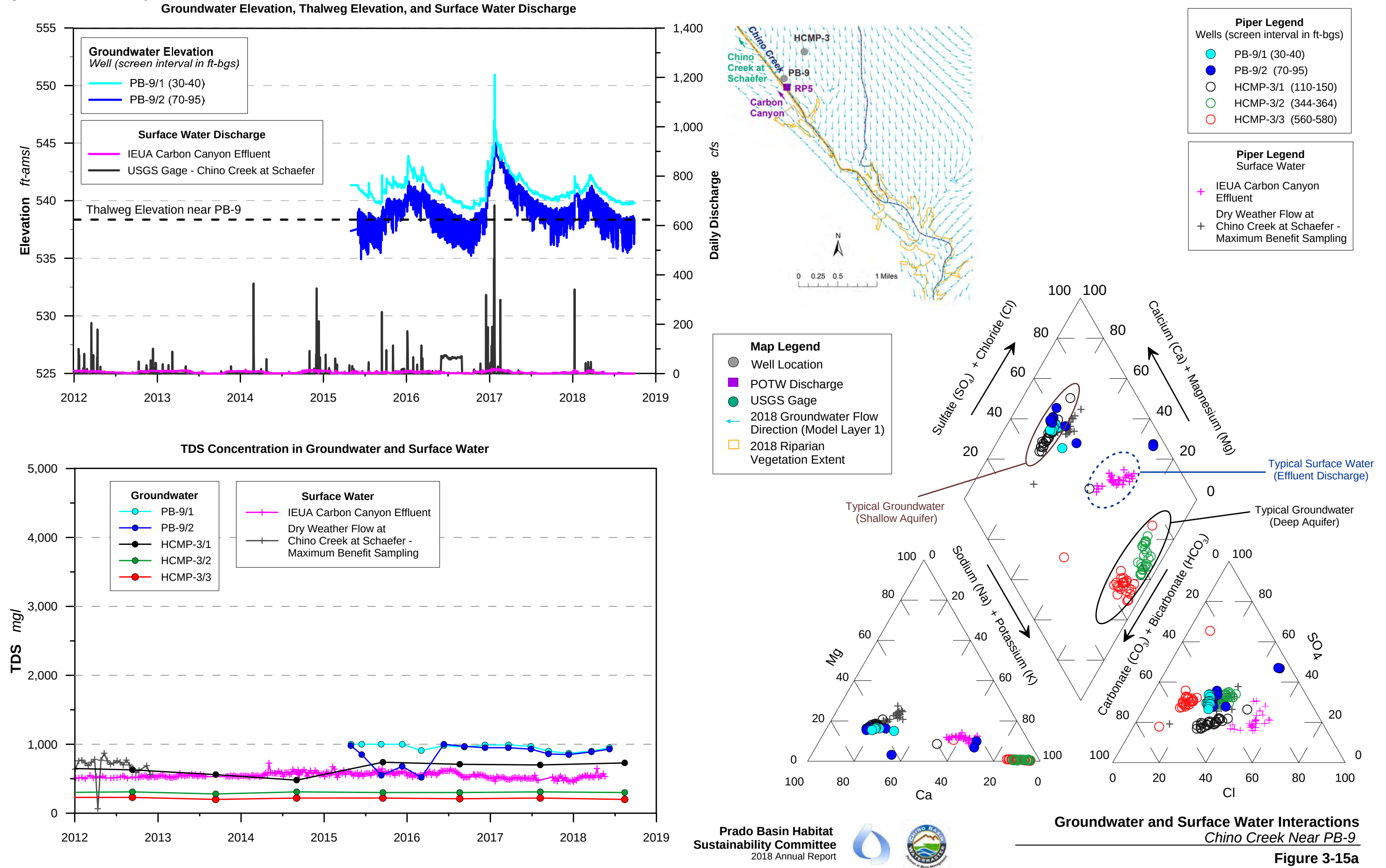


Figure 3-15a

Appendix C

Responses to Comments on the Draft CV-SNMP Development Workplan

Appendix C: Responses to Comments on the Draft CV-SNMP Development Workplan

Staff at the Regional Water Quality Control Board, Colorado River Basin (Regional Board) received and reviewed the draft CV-SNMP Development Workplan dated April 30, 2021. The Coachella Valley Water District (representing the CV-SNMP Agencies) received a letter from the Regional Board dated June 30, 2021 with comments and suggested revisions to the draft CV-SNMP Development Workplan. The Regional Board comment letter is attached to this Appendix C.

The CV-SNMP Agencies prepared responses to the Regional Board comments and revised the CV-SNMP Development Workplan to address the comments. The Regional Board's comments and the CV-SNMP Agencies' responses are described below.

Item	Location	Regional Board Comment	Response from CV-SNMP Agencies
1	Section 1.0	Page 1 of the Workplan states: <i>The objective of the CV-SNMP is to sustainably manage salt and nutrient loading in the Coachella Valley Groundwater Basin in a manner that protects its beneficial uses.</i> Sustainability focuses on meeting the needs of the present without compromising the ability of future generations to meet their needs. The Sustainable Groundwater Management Act (SGMA) considers sustainable groundwater management to be occurring within a basin that is operated in such a way so as not to cause "undesirable results," such as chronic depletion of groundwater, groundwater degradation, or land subsidence. The Regional Water Board recommends the TAC develop a plan to manage identified salt and nutrient loading sources and provide a definition of what beneficial use protection will consist of, integrating the antidegradation analysis into the stakeholder's definition of protected.	The CV-SNMP Agencies, which include Groundwater Sustainability Agencies in the Indio and Mission Creek Subbasins, understand the SGMA definitions and requirements for sustainable groundwater management. SGMA compliance work for the two medium-priority basins in the Coachella Valley is being conducted under separate efforts and will leverage the development and implementation of the CV-SNMP for the sustainable management of salts and nutrients. The CV-SNMP Agencies believe the CV-SNMP Development Workplan addresses the Regional Board's recommendation to develop an SNMP that will manage identified salt and nutrient loading (see Section 4.3 of the Workplan) to protect defined beneficial uses (Section 4.5), and will include an anti-degradation analysis that satisfies the requirements of State Board Resolution 68-16 (Section 4.10).

Appendix C: Responses to Comments on the Draft CV-SNMP Development Workplan

Item	Location	Regional Board Comment	Response from CV-SNMP Agencies
2	Section 1.3	Page 7 of the Workplan states: <i>CV-SNMP Agencies have concluded that numeric objectives for [total dissolved solids] TDS and nitrate in groundwater are necessary to resolve the concerns of the Regional Board.</i> Identifying a water quality objective is necessary to determine the assimilative capacity of the aquifer. To assess the assimilative capacity of salts, the 2015 CV SNMP cited the “upper limit” Secondary Maximum Contaminant Level (SMCL) of 1,000 milligrams per liter (mg/l) as the water quality objective for total dissolved solids (TDS) excluding the more protective and “recommended limit” SMCL of 500 mg/l. The water quality data indicated that many areas within the basin had TDS concentrations that were less than 500 mg/l (the lower “recommended limit” of the SMCL range). Resolution No. 68-16, Statement of Policy with Respect to Maintaining High Quality Waters in California (Antidegradation Policy) states “Whereas the quality of some waters of the State is higher than that established by the adopted policies and it is the intent and purpose of this Board that such higher quality shall be maintained to the maximum extent possible consistent with the declaration of the Legislature; ...” The Regional Water Board recommends that the SNMP provide the scientific basis including an antidegradation analysis for any proposed water quality objectives.	The CV-SNMP Agencies believe that the approach presented in the CV-SNMP Development Workplan addresses the Regional Board’s recommendation to provide the scientific basis for setting water quality objectives pursuant to CWC Section 13241 and will include an anti-degradation analysis that satisfies the requirements of State Board Resolution 68-16 (see Section 4.10 of the Workplan).

Appendix C: Responses to Comments on the Draft CV-SNMP Development Workplan

Item	Location	Regional Board Comment	Response from CV-SNMP Agencies
3	Section 1.3.1	Page 8 of the Workplan states: <i>The CV-SNMP Development Workplan must address each of these factors in setting the TDS objectives for groundwater management zones.</i> California Water Code § 13241 [Water quality objectives] states that “Each regional board shall establish water quality objectives in water quality control plans as in its judgment will ensure the reasonable protection of beneficial uses and the prevention of nuisance;...” The CV SNMP stakeholders may present recommendations regarding TDS water quality objectives, which the Regional Water Board will review and make a final determination regarding adoption into the Water Quality Control Plan for the Colorado River Basin Region (Basin Plan). The Regional Water Board recommends deleting the word ‘setting’ and using the word ‘recommending’ TDS objectives for groundwater.	The CV SNMP Development Workplan has been revised to replace the word “setting” with the word “recommending.”
4	Section 2.2.2	Page 12 of the Workplan describes the general occurrence of groundwater, and how groundwater flows through and discharges from each subbasin. Publicly available data on the San Jacinto Tunnel installed through fractured bedrock in the 1930’s and operated by Metropolitan Water District (MWD) reports that the fractured crystalline bedrock units contain and convey a substantial amount of water in the subsurface. The concept of a “mega-watershed groundwater system” from mountain block recharge is provided in the works of Robert Bisson and Jay Lehr.¹ In that mountain front recharge is identified later in the CV SNMP, Regional Water Board suggests the inclusion of a discussion on the water bearing nature of the surrounding fractured bedrock units.	Section 2.1 has been updated to recognize that the bedrock formations in the hills and mountains that surround the groundwater basin can contain groundwater within pore spaces and fractures. Subsurface inflow from the bedrock formations will be included in the technical analysis of salt and nutrient loading (Sections 4.3, 4.7, and 4.8 of the Workplan).

¹ <https://www.oregondigital.org/downloads/oregondigital:df710j60x>

Appendix C: Responses to Comments on the Draft CV-SNMP Development Workplan

Item	Location	Regional Board Comment	Response from CV-SNMP Agencies
5	Section 2.3.2	Page 14 identifies the mechanisms by which salts and nutrients are discharged from each subbasin. Dr. John Wilson's (New Mexico Tech) work provides strong research in regard to the removal of salts and nutrients through microbial activity. Specifically, see Dr. Wilson's study of salt and nutrient uptake and removal where there is mixing of shallow groundwater and surface water (hyporheic zone).² The Regional Water Board recommends evaluating microbial uptake as a salt and nutrient management mechanism.	Section 2.3.1 has been revised to include "microbial processes" in the description of the complexities of the N/TDS loading process.
6	Section 4.2	Page 39 of the Workplan states: <i>The objective of this task is to convene a CV-SNMP Stakeholder Group and the CV-SNMP Technical Advisory Committee (TAC). The CV-SNMP Agencies and the selected consultants will organize and run both groups during the implementation of the CV-SNMP Development Workplan.</i> A locally driven and controlled, collaborative process open to all stakeholders and the regional water board will contribute to the development of a CV SNMP that will manage salts and nutrients on a basin-wide basis and achieve the goals of groundwater sustainability, recycled water use, and water quality protection. The Regional Water Board recommends deleting the word "run" and adding a different word or words such as "will facilitate."	Section 4.2 has been revised to replace the word "run" with "facilitate."

² <https://www.sciencedirect.com/topics/earth-and-planetary-sciences/hyporheic-zone>

Appendix C: Responses to Comments on the Draft CV-SNMP Development Workplan

Item	Location	Regional Board Comment	Response from CV-SNMP Agencies
7	Section 4.2.1	Page 40 of the Workplan states: <i>Potential stakeholders include but are not limited to: the agricultural community and groups; golf course industry groups; tribes; the Coachella Valley Regional Water Management Group; the Groundwater Sustainability Agencies in the Coachella Valley; all major water and wastewater agencies; industrial dischargers; county and city land use planning agencies; Federal and State agencies; and nongovernmental organizations (NGOs).</i> <i>A critical first step will be to solicit input from the CV-SNMP Stakeholder Group as to their issues, needs and wants. This information will be collected up front so the CV-SNMP Agencies and consultants can proactively address stakeholder concerns, and potentially incorporate them in the CV-SNMP development process.</i> Achieving the goals of groundwater sustainability, recycled water use, and water quality protection is best achieved through the management of salts and nutrients on a basinwide basis through collaborative processes open to all stakeholders. Documenting and addressing the input from an all-inclusive stakeholder group will help identify the water use needs of a diverse population and address historical and state-wide SNMP development challenges identified during the 2018 Policy revision such as managing salt and nutrient loading to the basin from sources other than recycled water and the ability/authority of the stakeholders to implement best management practices and salt and nutrient management measures. The Regional Water Board encourages the CV SNMP Agencies to keep all-inclusiveness as a priority and involve all major stakeholders within the basin. The CV SNMP Agencies should also consider the inclusion of significant stakeholders from outside the basin such as The Colorado River Basin Salinity Control Program and the MWD.	Section 4.2.1 has been revised to: - Add the Colorado River Basin Salinity Control Forum and the Metropolitan Water District of Southern California to the list of potential CV-SNMP stakeholders. - Include the following bullet to describe the objectives of convening the CV-SNMP Stakeholder Group: • Understand the ability/authority of the stakeholders to implement best management practices and salt and nutrient management measures.

Appendix C: Responses to Comments on the Draft CV-SNMP Development Workplan

Item	Location	Regional Board Comment	Response from CV-SNMP Agencies
8	Section 4.2.2	Page 40 of the Workplan states: <i>Regional Board staff will be encouraged to participate on the TAC in an advisory role.</i> Regional Water Board understands that critical details and decisions to develop an adequate CV SNMP will be established through the TAC and are committed to working with this committee.	Comment noted and appreciated.
9	Section 4.3	Page 40 of the Workplan states: <i>The objective of this task is to quantify the individual components of N/TDS (nitrate and TDS) loading to groundwater.</i> Mountain front recharge has been identified as a potential source of aquifer recharge originating from within the basin's watershed. The Regional Water Board recommends quantifying the salt and nutrient loading from the mountain front recharge component through evaluation of representative bedrock springs as indicators of the hydrologic conditions of the fractured bedrock units.	Section 4.3.1 has been revised to include the collection of historical "Water-quality data from bedrock springs, wells, and streamflow within the watersheds tributary to the Coachella Valley" to characterize the water quality of subsurface inflow from the surrounding mountains and hills.
10	Section 4.3	Page 41 of the Workplan states: <i>The characterization of N/TDS loading will be performed for a recent historical period to the present to characterize seasonal variations and long-term trends in loading and generate estimates of N/TDS loads in the vadose zone. The length of the historical period will be defined as part of this task but should be long enough to characterize the N/TDS loads in the vadose zone.</i> The required antidegradation analysis component of the CV SNMP, discussed in Section 4.10.3 of the Workplan, will need to incorporate a discussion on the impacts of elevated salinity to the public and the public infrastructure since 1968. The Regional Water Board recommends evaluation of past nitrate and salt (TDS) loading estimates for each management zone extending at least to 1968.	Comment noted. The SNMP Agencies will conduct the required antidegradation analysis in accordance with the requirements of the Antidegradation Policy. The exact length of the "historical period" will be defined as part of this task. Considerations will include the requirements of the Antidegradation Policy, as well as the availability of data and information and solute travel times through the vadose zone.

Appendix C: Responses to Comments on the Draft CV-SNMP Development Workplan

Item	Location	Regional Board Comment	Response from CV-SNMP Agencies
11	Section 4.3.2	Page 42 of the Workplan states: <i>Once the methods are finalized, the time-history of the volumes and associated N/TDS concentrations will be estimated and described for each N/TDS loading term.</i> The CV SNMP must identify what ‘methods’ the Workplan is referring to.	Refer to the preceding paragraph. The “methods” are the “the types of tables, maps, and data graphics that can be prepared with the available data to characterize historical and current N/TDS loading to groundwater.” The text in 4.3.2 has been revised to replace the word “methods” with “types of tables, maps, and data graphics.”
12	Section 4.4	The introduction to Section 4.4 states: <i>The objective of this task is to characterize nitrate and TDS concentrations in groundwater as of 2020 (i.e. current conditions). The characterization will include an analysis of the time history of nitrate and TDS concentrations in groundwater that led to current conditions.</i> The Regional Water Board concurs that establishing existing water quality is necessary to compute the potential existence and magnitude of assimilative capacity for a basin, subbasin, or management zone and supports other proposed Workplan tasks; and also agree that the proposed evaluation of past water quality will assist with an understanding of nitrate and TDS historical trends in groundwater. The Regional Water Board expects the fully developed groundwater monitoring plan to provide groundwater quality data that is representative of the management zones and encourages the TAC to develop a technically defensible method to evaluate the ambient water quality of each area.	The CV-SNMP Agencies completed the CV-SNMP Groundwater Monitoring Program Workplan (final report dated December 23, 2020), and the Regional Board approved the CV-SNMP Groundwater Monitoring Program Workplan in a letter dated February 21, 2021. The intent of the monitoring program is to provide groundwater data that is representative of all subbasins, subareas, and depth-specific aquifer systems within the Basin. The approved CV-SNMP Groundwater Monitoring Program Workplan is included as Appendix A and is summarized in Sections 2 and 3 of this workplan. Section 4.5 describes the process to define the <i>ambient water quality (AWQ) metric</i> in each management zone that will be used to estimate ambient water quality conditions and assess beneficial use protection. An AWQ metric is a technical method to estimate “ambient” N/TDS concentrations in each groundwater management zone. The purpose of AWQ metrics is to enable the comparison of ambient N/TDS concentrations in groundwater versus the beneficial-use thresholds and water quality objectives, and thereby indicate the state of beneficial use protection.

Appendix C: Responses to Comments on the Draft CV-SNMP Development Workplan

Item	Location	Regional Board Comment	Response from CV-SNMP Agencies
13	Section 4.5	Page 47 of the Workplan states: The results of this task will provide the necessary information to: - Support subsequent tasks in this workplan to: • Set TDS objectives pursuant to CWC 13241(a): Past, present, and probable future beneficial uses of water As previously stated, per California Water Code § 13241 water quality objectives are established by the regional boards. It is appropriate for the CV SNMP stakeholders to recommend TDS water quality objectives, which the Regional Water Board will review and make a final determination regarding adoption into the Basin Plan. The Regional Water Board recommends deleting the word 'Set' TDS objectives and using the word 'Recommend' TDS objectives.	The CV SNMP Development Workplan has been revised to replace the word "Set" with the word "Recommend."
14	Section 4.5.1	Hydrologically vulnerable areas, as identified in the Groundwater Ambient Monitoring Assessment (GAMA) Groundwater Information System database, exist where soil or rock conditions are more vulnerable (or susceptible) to groundwater contamination, and where aggressive salt and nutrient management practices may be warranted. The Regional Water Board recommends including hydrologically vulnerable areas as one of the criteria to assist with delineation of management zones.	The CV SNMP Development Workplan has been revised to add "Location of hydrologically vulnerable areas as identified in the GAMA Groundwater Information System database" as one of the criteria to assist with delineation of management zones.

Appendix C: Responses to Comments on the Draft CV-SNMP Development Workplan

Item	Location	Regional Board Comment	Response from CV-SNMP Agencies
15	Section 4.5.3	Page 48 of the Workplan states: <i>The current ambient nitrate and TDS concentrations will be compared to the beneficial-use thresholds to assess the current state of beneficial use protection.</i> Assimilative capacity is not synonymous with the amount of allowable degradation. The Regional Water Board recommends that the CV SNMP not only provide the technical basis for determining the degree of water quality degradation allowable, but to also identify the potential impacts/injury to the members of the public. The SNMP should identify costs associated with using water with elevated nitrates and TDS levels and if there are potential impacts to human health, safety, or the environment with the proposed changes to water quality [and assimilative capacity] over time.	Section 4.10 of the CV SNMP Development Workplan addresses the Regional Board recommendation in this comment. The numeric TDS objectives proposed in the CV-SNMP will be derived through a documented technical analysis described in the Workplan. The TDS objectives can be used by the Regional Board to determine the degree of water quality degradation allowable (if any). Section 4.10.2 describes that a written demonstration will be prepared, referencing all technical work performed in prior tasks, to illustrate how the CV-SNMP and its recommended TDS objectives collectively satisfy the requirements of CWC 13241, including the protection of beneficial uses. Section 4.10.3 describes that an antidegradation demonstration will be prepared to illustrate how the CV-SNMP and its recommended TDS objectives collectively satisfy the requirements of State Board Resolution 68-16 (the Antidegradation Policy), again including the protection of beneficial uses. The antidegradation demonstration also will include a socio-economic evaluation of, but not limited to: - The melded unit cost of the total water supply under the CV-SNMP. - The funding mechanisms available to the agencies responsible for CV-SNMP implementation and the cost impacts to those agencies and their rate payers. - The potential costs associated with using groundwater if the CV-SNMP projects higher N/TDS concentrations in the future. The antidegradation demonstration also will include the rationale for determining that the CV-SNMP is or is not justified by the socio-economic considerations.

Appendix C: Responses to Comments on the Draft CV-SNMP Development Workplan

Item	Location	Regional Board Comment	Response from CV-SNMP Agencies
16	Section 4.5.3	Page 50 of the Workplan states: <i>The MODFLOW output files need to be assessed to determine whether they meet the requirements of the water-quality modeling and its cascading modeling approach.</i> The Regional Water Board recommends calibrating the model to demonstrate the model's ability to return reasonable results for historical measured conditions.	The two MODFLOW models are calibrated and are currently being updated and used to support SGMA compliance in the Mission Creek subbasin and the Indio subbasin.
17	Section 4.6.2	Page 50 of the Workplan states: <i>Vadose zone processes may be important to timing and magnitude of N/TDS loading to the saturated zone, particularly for return flows from the land surface through partially saturated sediments.</i> The Regional Water Board recommends the consideration of previously mentioned hyporheic zone research, which has demonstrated that the potential for salt and nutrient removal via vadose zone processes is measurable.	Section 4.6.2 has been revised to include "microbial processes in the hyporheic zone" as criteria to consider in developing modeling procedures for simulating the vadose zone.
18	Section 4.6.5	Page 51 of the Workplan states: <i>Colorado River water is a major source of supplemental water that supports groundwater basin sustainability and the economy of the Coachella Valley. The future N/TDS concentrations of Colorado River water will affect the quality of groundwater.</i> The Regional Water Board recommends that the CV SNMP include an evaluation of climate change on the availability and quality of the Colorado River water source. If the evaluation indicates that the Colorado River water quality will be negatively impacted, potentially degrading the quality of the Coachella Valley groundwater, mitigation measures must be identified and evaluated for potential implementation.	Climate change could potentially impact the quality of Colorado River Water. The following phrase has been added to Section 4.6.5 to describe what the Technical Consultant should review before recommending assumptions for N/TDS concentrations of Colorado River water for water-quality modeling over the planning period: "review available information on salinity projections for Colorado River water including any predicted impacts from climate change."

Appendix C: Responses to Comments on the Draft CV-SNMP Development Workplan

Item	Location	Regional Board Comment	Response from CV-SNMP Agencies
19	Section 4.6.6	Page 51 of the Workplan states: <i>The water-quality models will not be calibrated using traditional methods of model calibration to historical data targets.</i> The Regional Water Board recommends the SNMP include proxy tests for the calibration of the model to historically verifiable datasets.	The CV-SNMP Agencies agree that the water-quality models should be capable of simulating historically verifiable datasets. The introduction of Section 4.6 has been modified to state that the water-quality models should have “the ability to reasonably simulate groundwater-quality conditions over a historical period” and a new subsection has been added to the Workplan: <i>Section 4.6.6 Develop Procedures for Verifying the N/TDS Forecasting Tools.</i>
20	Section 4.7.1	The objective of this section is to develop a ‘baseline’ planning scenario that represents the current water supply plans and water management plans for the Coachella Valley. The baseline scenario must provide a discussion of the water quality of both imported (allochthonous) water and sources of groundwater replenishment originating in the basin (autochthonous). Also include a reasonable economic forecast of the direct effects associated with the projected nutrient and salt loading in the baseline scenario. A similar economic evaluation was conducted in the Central Valley Region.³	The CV-SNMP Development Workplan lays out a strategy to perform a holistic evaluation of <i>all</i> sources of salt and nutrient loading for the Baseline Scenario (as well as all CV-SNMP Scenarios). The economic analysis for the Baseline Scenario (and the CV-SNMP Scenarios) is described in Section 4.9. The text in Section 4.9.1 has been revised to include the potential need to analyze the costs associated with the effects of potential future increases in groundwater salinity.

³ https://www.waterboards.ca.gov/rwqcb5/water_issues/salinity/library_reports_programs/econ_rpt_final.pdf

Appendix C: Responses to Comments on the Draft CV-SNMP Development Workplan

Item	Location	Regional Board Comment	Response from CV-SNMP Agencies
21	Section 4.7.2	Page 53 of the Workplan states: <i>The final simulation results of the Baseline Scenario will be evaluated to determine if CV-SNMP implementation measures are potentially necessary in the future to control N/TDS loading to protect the beneficial uses of groundwater in specific management zones.</i> Section 6.2.4.4 of the Policy states that a required component of the SNMP is “Implementation measures to manage or reduce the salt and nutrient loading in the basin on a sustainable basis and the intended outcome of each measure.” Additionally, the Department of Water Resources (DWR) notified many of the CV SNMP Agencies through their affiliation as a Coachella Valley Groundwater Sustainability Agency (GSA) that their Groundwater Sustainability Plan (GSP) developed pursuant to the SGMA should continue investigations into ways to reduce water quality impacts associated with importing Colorado River water. The DWR recommended that the GSAs take aggressive steps to further quantify the nature and scope of water quality issues associated with importing water (allochthonous supply) into the Subbasin, establish reasonable and achievable standards, and begin to adopt and implement projects and management actions that will achieve sustainability with regard to groundwater quality, and to do so on an accelerated basis. The CV SNMP must identify and evaluate implementation measures that have the potential to control salt and nutrient loading and protect groundwater in the Coachella Valley on a sustainable basis.	The CV-SNMP Agencies believe that the CV-SNMP Development Workplan fully addresses the Regional Board’s comment. The workplan lays out a strategy to perform a holistic evaluation of <i>all</i> sources of salt and nutrient loading, the expected future changes in groundwater quality, and any predicted impairment of beneficial uses of groundwater. Equipped with this information, the CV-SNMP Agencies will then explore and evaluate the effectiveness and costs of CV-SNMP implementation measures (i.e. projects and/or programs) to manage N/TDS loading, and then recommend a preferred CV-SNMP approach to the Regional Board that will protect beneficial uses of groundwater on a sustainable basis. This work will be performed in an open, transparent process through the TAC and CV-SNMP Stakeholder groups with Regional Board participation and input throughout.
22	Section 4.8	Pages 54 and 55 of the Workplan states: <i>Task 4.8 is necessary if Task 4.7 concludes that CV-SNMP implementation measures are potentially necessary in the future to protect the beneficial uses of groundwater in management zones. If not, then Tasks 4.8 and 4.9 in this workplan are not necessary to execute.</i> <i>The objective of Task 4.8 is to develop CV-SNMP implementation measures that have</i>	

Appendix C: Responses to Comments on the Draft CV-SNMP Development Workplan

Item	Location	Regional Board Comment	Response from CV-SNMP Agencies
		<i>the potential to control N/TDS loading and protect beneficial uses of groundwater in the Coachella Valley on a sustainable basis.</i> Section 4.8 of the Workplan is an essential component of the CV SNMP, and without it the impact of the SNMP is reduced to a groundwater monitoring plan. Including implementation measures in the CV SNMP is important as the SNMP has been identified as part of the groundwater management strategy for the Coachella Valley and is referenced in water management plans generated by the Coachella Valley Integrated Regional Water Management Planning (IRWMP) Group, the Urban Water Management Planning (UWMP) Group, and the GSAs. As previously stated, DWR's approval of the Coachella Valley GSP recommended implementing salt and nutrient management projects and actions that will achieve sustainability with regard to groundwater quality, and to do so on an accelerated basis. A major source of salt (TDS) entering the Coachella Valley groundwater resources is from groundwater augmentation using water imported into the basin from another location (allochthonous), i.e. the Colorado River. The CV SNMP must identify and evaluate management strategies that improve and enhance the allochthonous sources of groundwater augmentation and include how impacts to groundwater quality from imported supplies can be offset (mitigated) by replenishing the groundwater resource with higher quality water from sources originating in the basin (autochthonous), as demonstrated in other regions of the state,⁴ as well as other strategies. The Regional Water Board recommends the CV SNMP propose management scenarios for consideration including descriptions of how implementation/mitigation measures will be specifically developed to manage or reduce	See response for Item 20 above. The CV-SNMP Agencies contend that it is premature to develop specific implementation measures at the "workplan stage" in the development of the CV-SNMP update. The CV-SNMP Development Workplan proposes to develop and evaluate implementation measures at the appropriate time: after the evaluation of historical and current groundwater quality; after the evaluation of all sources of N/TDS loading; after the delineation of management zones and the description of their beneficial uses; and after the evaluation of future N/TDS concentrations in management zones under the Baseline Scenario. Only then are the CV-SNMP Agencies, the Regional Board, and other CV-SNMP stakeholders in a knowledgeable position to recommend the appropriate location, type, and timing of implementation measures that will effectively and efficiently manage N/TDS concentration in groundwater to protect beneficial uses on a sustainable basis.

⁴ <https://www.usbr.gov/lc/socal/reports/LASGwtraugmentation/AppC.pdf>

Appendix C: Responses to Comments on the Draft CV-SNMP Development Workplan

Item	Location	Regional Board Comment	Response from CV-SNMP Agencies
		the salt and nutrient loading in the basin on a sustainable basis and the intended outcome of each measure.	
23	Section 4.8.2	Page 56 of the Workplan states: <i>In this task, the recommended CV-SNMP Scenarios will be implemented in the models, the model simulations will be conducted, and the model results will be evaluated and compared against the Baseline Scenario for their effectiveness in controlling N/TDS loading and protecting beneficial uses.</i> If the groundwater model is not calibrated to historically verifiable accuracy, the use as a comparative tool may be subjective. The Regional Water Board recommends the SNMP include proxy tests for the calibration of the model to historically verifiable datasets.	A new subtask has been added to Task 4.6: <i>4.6.6 Develop Procedures for Verifying the N/TDS Forecasting Tools.</i> Task 4.7 has been revised to state that these procedures will be implemented during the construction of the water-quality models to demonstrate their ability to reasonably simulate historical groundwater-quality conditions.
24	Section 4.10	Page 58 of the Workplan states: <i>The objective of this task is to select a preferred CV-SNMP Scenario, which will form the basis for a CV-SNMP implementation plan and any required updates to the Basin Plan.</i> The Regional Water Board recommends deleting the word “required” and using the word “recommended” in reference to updates to the Basin Plan.	The CV SNMP Development Workplan has been revised to replace the word “required” with the word “recommended.”

Appendix C: Responses to Comments on the Draft CV-SNMP Development Workplan

Item	Location	Regional Board Comment	Response from CV-SNMP Agencies
25	Section 4.10.2	Page 59 of the Workplan states: <i>California Water Code (CWC) section 13241 lists the factors to consider when establishing water quality objectives without unreasonably affecting beneficial uses.</i> The Regional Water Board recommends that the economic evaluation include impacts related to elevated salinity in groundwater and consider the correlated impacts to the assigned beneficial use. The SNMP should also identify human health, safety, and environmental impacts associated with the potential adoption of TDS water quality objectives. It is the responsibility of the involved stakeholders developing the CV SNMP to solicit public input and approval.	The SNMP-Agencies agree that the CV-SNMP must include evidence and analysis to support findings required by California Water Code section 13241 and State Water Board Resolution No. 68-16, Statement of Policy with Respect to Maintaining High Quality of Waters in California (Antidegradation Policy). In accordance with California Water Code section 13241, to establish water quality objectives in a water quality control plan, the Regional Board must consider certain factors related to the proposed water quality objectives, including “economic conditions” and the “need for developing housing within the region.” Because the CV-SNMP may be used by the Regional Board to establish water quality objectives, the CV-SNMP will include sufficient evidence and analysis of all aspects of the “economic conditions,” the “need for developing housing within the region” and the other factors in Section 13241 as they relate to the issues addressed in the CV-SNMP. In addition, in accordance with the Antidegradation Policy and Section 6.2.4.5 of the 2018 Water Quality Control Policy for Recycled Water, the CV-SNMP will include evidence and analysis demonstrating consistency with the Antidegradation Policy, including, but not limited to, evidence and analysis related to the “maximum benefit” to the people of the state related to the issues addressed in the CV-SNMP. The economic analysis for the Baseline Scenario (and the CV-SNMP Scenarios) is described in Section 4.9. The text in Section 4.9.1 has been revised to include the potential need to analyze the costs associated with the effects of potential future increases in groundwater salinity.

Appendix C: Responses to Comments on the Draft CV-SNMP Development Workplan

Item	Location	Regional Board Comment	Response from CV-SNMP Agencies
26	Section 4.10.3	Page 59 of the Workplan states: <i>An antidegradation demonstration will be prepared as required by Section 6.2.4.5 of the 2018 Policy. The objective will be to illustrate how the preferred CV-SNMP Scenario and N/TDS objectives collectively satisfy the requirements of State Board Resolution 68-16 (the Antidegradation Policy).</i> Section 6.2.4.5 of the Policy states that one of the required components of the SNMP includes an antidegradation analysis. The antidegradation analysis must consider all past (since 1968), current, and future salt and nutrient loading that is anticipated to occur under the preferred CV SNMP Scenario, and how this has and will continue to affect groundwater quality. The analysis should consider the changes in population and land use practices and their impacts to groundwater quality. The results of the antidegradation analysis will potentially identify hydrologically sensitive areas and direct the CV SNMP Agencies to evaluate the need for and the degree of management or mitigation and regulatory oversight that will be required to protect water quality.	The CV-SNMP Development Workplan includes an anti-degradation analysis that will satisfy the requirements of State Board Resolution 68-16 (Section 4.10) and will address the Regional Board recommendations in this comment.

Colorado River Basin Regional Water Quality Control Board

June 30, 2021

Jim Barrett
General Manager
Coachella Valley Water District
75515 Hovley Lane East
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SUBJECT: COMMENTS TO DRAFT WORKPLAN TO DEVELOP THE COACHELLA VALLEY SALT AND NUTRIENT MANAGEMENT PLAN

Dear Mr. Barrett,

On May 3, 2021, the California Regional Water Quality Control Board, Colorado River Basin Region (Regional Water Board) received the *Draft Workplan to Develop the Coachella Valley Salt and Nutrient Management Plan* (Workplan), submitted by West Yost Associates on behalf of the Coachella Valley Salt and Nutrient Management Plan (CV SNMP) Agencies. The Workplan discusses the CV SNMP background and objectives, the basin setting, the groundwater monitoring program, the development and implementation of the CV SNMP Workplan. The Regional Water Board has reviewed the Workplan and provides the comments contained within this letter.

The Workplan addresses the required SNMP components listed in Section 6.2.4 of the State of California Water Quality Control Board's (State Water Board) Resolution No. 2018-0057 *Amendment to the Policy for Water Quality Control for Recycled Water* (Policy). The Regional Water Board understands the details of the SNMP components will be developed over time through the efforts of the Technical Advisory Committee (TAC) and is providing preliminary comments to promote development of a CV SNMP that will sustainably manage impacts from salts and nutrients now and in the long term, thereby protecting the groundwater resource for future generations.

The following are the Regional Water Board's comments on specific sections of the Workplan.

NANCY WRIGHT, CHAIR | PAULA RASMUSSEN, EXECUTIVE OFFICER

Section 1.0 Background and Objectives of the CV SNMP

Page 1 of the Workplan states:

The objective of the CV-SNMP is to sustainably manage salt and nutrient loading in the Coachella Valley Groundwater Basin in a manner that protects its beneficial uses.

Regional Water Board Comment

Sustainability focuses on meeting the needs of the present without compromising the ability of future generations to meet their needs. The Sustainable Groundwater Management Act (SGMA) considers sustainable groundwater management to be occurring within a basin that is operated in such a way so as not to cause “undesirable results,” such as chronic depletion of groundwater, groundwater degradation, or land subsidence.

The Regional Water Board recommends the TAC develop a plan to manage identified salt and nutrient loading sources and provide a definition of what beneficial use protection will consist of, integrating the antidegradation analysis into the stakeholder’s definition of protected.

Section 1.3 Update of the CV SNMP

Page 7 of the Workplan states:

CV-SNMP Agencies have concluded that numeric objectives for [total dissolved solids] TDS and nitrate in groundwater are necessary to resolve the concerns of the Regional Board.

Regional Water Board Comment

Identifying a water quality objective is necessary to determine the assimilative capacity of the aquifer. To assess the assimilative capacity of salts, the 2015 CV SNMP cited the “upper limit” Secondary Maximum Contaminant Level (SMCL) of 1,000 milligrams per liter (mg/l) as the water quality objective for total dissolved solids (TDS) excluding the more protective and “recommended limit” SMCL of 500 mg/l. The water quality data indicated that many areas within the basin had TDS concentrations that were less than 500 mg/l (the lower “recommended limit” of the SMCL range). Resolution No. 68-16, Statement of Policy with Respect to Maintaining High Quality Waters in California (Antidegradation Policy) states “Whereas the quality of some waters of the State is higher than that established by the adopted policies and it is the intent and purpose of this Board that such higher quality shall be maintained to the maximum extent possible consistent with the declaration of the Legislature; ...”

The Regional Water Board recommends that the SNMP provide the scientific basis including an antidegradation analysis for any proposed water quality objectives.

Section 1.3.1 Process to Prepare the CV SNMP Development Workplan

Page 8 of the Workplan states:

*The CV-SNMP Development Workplan must address each of these factors in **setting** the TDS objectives for groundwater management zones.*

Regional Water Board Comment

California Water Code § 13241 [Water quality objectives] states that “Each regional board shall establish water quality objectives in water quality control plans as in its judgment will ensure the reasonable protection of beneficial uses and the prevention of nuisance; ...” The CV SNMP stakeholders may present recommendations regarding TDS water quality objectives, which the Regional Water Board will review and make a final determination regarding adoption into the Water Quality Control Plan for the Colorado River Basin Region (Basin Plan).

The Regional Water Board recommends deleting the word ‘setting’ and using the word ‘recommending’ TDS objectives for groundwater.

Section 2.0 Study Area Setting

Section 2.2.2 Occurrence and Movement of Groundwater

Page 12 of the Workplan describes the general occurrence of groundwater, and how groundwater flows through and discharges from each subbasin.

Regional Water Board Comment

Publicly available data on the San Jacinto Tunnel installed through fractured bedrock in the 1930’s and operated by Metropolitan Water District (MWD) reports that the fractured crystalline bedrock units contain and convey a substantial amount of water in the subsurface. The concept of a “mega-watershed groundwater system” from mountain block recharge is provided in the works of Robert Bisson and Jay Lehr¹.

In that mountain front recharge is identified later in the CV SNMP, Regional Water Board suggests the inclusion of a discussion on the water bearing nature of the surrounding fractured bedrock units.

Section 2.3.2 Transport and Discharge of N/TDS in the Saturated Zone

Page 14 identifies the mechanisms by which salts and nutrients are discharged from each subbasin.

Regional Water Board Comment

Dr. John Wilson’s (New Mexico Tech) work provides strong research in regard to the removal of salts and nutrients through microbial activity². Specifically, see Dr. Wilson’s

¹ <https://www.oregondigital.org/downloads/oregondigital:df710j60x>

² [John Wilson: New Mexico Tech \(nmt.edu\)](http://John.Wilson:NewMexicoTech(nmt.edu))

study of salt and nutrient uptake and removal where there is mixing of shallow groundwater and surface water (hyporheic zone)³.

The Regional Water Board recommends evaluating microbial uptake as a salt and nutrient management mechanism.

Section 4.0 Coachella Valley SNMP Development Workplan

Section 4.2 Establish CV-SNMP Stakeholder Group and Technical Advisory Committee

Page 39 of the Workplan states:

*The objective of this task is to convene a CV-SNMP Stakeholder Group and the CV-SNMP Technical Advisory Committee (TAC). The CV-SNMP Agencies and the selected consultants will organize and **run** both groups during the implementation of the CV-SNMP Development Workplan.*

Regional Water Board Comment

A locally driven and controlled, collaborative process open to all stakeholders and the regional water board will contribute to the development of a CV SNMP that will manage salts and nutrients on a basin-wide basis and achieve the goals of groundwater sustainability, recycled water use, and water quality protection.

The Regional Water Board recommends deleting the word “run” and adding a different word or words such as “will facilitate”.

Section 4.2.1 Convene the CV-SNMP Stakeholder Group

Page 40 of the Workplan states:

Potential stakeholders include but are not limited to: the agricultural community and groups; golf course industry groups; tribes; the Coachella Valley Regional Water Management Group; the Groundwater Sustainability Agencies in the Coachella Valley; all major water and wastewater agencies; industrial dischargers; county and city land use planning agencies; Federal and State agencies; and non-governmental organizations (NGOs).

A critical first step will be to solicit input from the CV-SNMP Stakeholder Group as to their issues, needs and wants. This information will be collected up front so the CV-SNMP Agencies and consultants can proactively address stakeholder concerns, and potentially incorporate them in the CV-SNMP development process.

Regional Water Board Comment

Achieving the goals of groundwater sustainability, recycled water use, and water quality protection is best achieved through the management of salts and nutrients on a basin-wide basis through collaborative processes open to all stakeholders. Documenting and addressing the input from an all-inclusive stakeholder group will help identify the water

³ <https://www.sciencedirect.com/topics/earth-and-planetary-sciences/hyporheic-zone>

use needs of a diverse population and address historical and state-wide SNMP development challenges identified during the 2018 Policy revision such as managing salt and nutrient loading to the basin from sources other than recycled water and the ability/authority of the stakeholders to implement best management practices and salt and nutrient management measures.

The Regional Water Board encourages the CV SNMP Agencies to keep all-inclusiveness as a priority and involve all major stakeholders⁴ within the basin. The CV SNMP Agencies should also consider the inclusion of significant stakeholders from outside the basin such as The Colorado River Basin Salinity Control Program⁵ and the MWD.

Section 4.2.2 Convene the Technical Advisory Committee

Page 40 of the Workplan states:

Regional Board staff will be encouraged to participate on the TAC in an advisory role.

Regional Water Board Comment

Regional Water Board understands that critical details and decisions to develop an adequate CV SNMP will be established through the TAC and are committed to working with this committee.

Section 4.3 Characterize N/TDS Loading to the Groundwater Basin

Page 40 of the Workplan states:

The objective of this task is to quantify the individual components of N/TDS (nitrate and TDS) loading to groundwater.

Page 41 of the Workplan states:

The characterization of N/TDS loading will be performed for a recent historical period to the present to characterize seasonal variations and long-term trends in loading and generate estimates of N/TDS loads in the vadose zone. The length of the historical period will be defined as part of this task but should be long enough to characterize the N/TDS loads in the vadose zone.

Regional Water Board Comments

The following comment pertains to statements made on Page 40 of the Workplan: Mountain front recharge has been identified as a potential source of aquifer recharge originating from within the basin's watershed.

⁴ [untitled \(nationalaglawcenter.org\)](https://nationalaglawcenter.org/)

⁵ [Colorado River Basin Salinity Control Program | Upper Colorado Basin | Bureau of Reclamation \(usbr.gov\)](https://www.usbr.gov/colorado/crbp/)

The Regional Water Board recommends quantifying the salt and nutrient loading from the mountain front recharge component through evaluation of representative bedrock springs as indicators of the hydrologic conditions of the fractured bedrock units.

The following comment pertains to statements made on Page 41 of the Workplan:
The required antidegradation analysis component of the CV SNMP, discussed in Section 4.10.3 of the Workplan, will need to incorporate a discussion on the impacts of elevated salinity to the public and the public infrastructure since 1968.

The Regional Water Board recommends evaluation of past nitrate and salt (TDS) loading estimates for each management zone extending at least to 1968.

Section 4.3.2 Characterize Historical and Current N/TDS Loading

Page 42 of the Workplan states:

Once the methods are finalized, the time-history of the volumes and associated N/TDS concentrations will be estimated and described for each N/TDS loading term.

Regional Water Board Comment

The CV SNMP must identify what 'methods' the Workplan is referring to.

Section 4.4 Characterize Current Groundwater Quality

The objective of this task is to characterize nitrate and TDS concentrations in groundwater as of 2020 (i.e. current conditions). The characterization will include an analysis of the time history of nitrate and TDS concentrations in groundwater that led to current conditions.

Regional Water Board Comment

The Regional Water Board concurs that establishing existing water quality is necessary to compute the potential existence and magnitude of assimilative capacity for a basin, subbasin, or management zone and supports other proposed Workplan tasks; and also agree that the proposed evaluation of past water quality will assist with an understanding of nitrate and TDS historical trends in groundwater.

The Regional Water Board expects the fully developed groundwater monitoring plan to provide groundwater quality data that is representative of the management zones and encourages the TAC to develop a technically defensible method to evaluate the ambient water quality of each area.

Section 4.5 Delineate Draft Management Zones and Describe Metrics to Characterize Beneficial Use Protection

Page 47 of the Workplan states:

The results of this task will provide the necessary information to:

- *Support subsequent tasks in this workplan to:*
 - ***Set TDS objectives pursuant to CWC 13241(a): Past, present, and probable future beneficial uses of water.***

Regional Water Board Comment

As previously stated, per California Water Code § 13241 water quality objectives are established by the regional boards. It is appropriate for the CV SNMP stakeholders to recommend TDS water quality objectives, which the Regional Water Board will review and make a final determination regarding adoption into the Basin Plan.

The Regional Water Board recommends deleting the word 'Set' TDS objectives and using the word 'Recommend' TDS objectives.

Section 4.5.1 Delineate Draft Groundwater Management Zones

The objective of this task is to identify criteria and delineate management zones.

Regional Water Board Comment

Hydrologically vulnerable areas, as identified in the Groundwater Ambient Monitoring Assessment (GAMA) Groundwater Information System database, exist where soil or rock conditions are more vulnerable (or susceptible) to groundwater contamination, and where aggressive salt and nutrient management practices may be warranted.

The Regional Water Board recommends including hydrologically vulnerable areas as one of the criteria to assist with delineation of management zones.

Section 4.5.3 Define Ambient Water Quality Metrics and Determine Current Protection of Beneficial Uses

Page 48 of the Workplan states:

The current ambient nitrate and TDS concentrations will be compared to the beneficial-use thresholds to assess the current state of beneficial use protection.

Regional Water Board Comment

Assimilative capacity is not synonymous with the amount of allowable degradation.

The Regional Water Board recommends that the CV SNMP not only provide the technical basis for determining the degree of water quality degradation allowable, but to also identify the potential impacts/injury to the members of the public. The SNMP should identify costs associated with using water with elevated nitrates and TDS levels and if there are potential impacts to human health, safety, or the environment with the proposed changes to water quality [and assimilative capacity] over time.

Section 4.6.1 Evaluate Existing MODFLOW Models

Page 50 of the Workplan states:

The MODFLOW output files need to be assessed to determine whether they meet the requirements of the water-quality modeling and its cascading modeling approach.

Regional Water Board Comment

The Regional Water Board recommends calibrating the model to demonstrate the model's ability to return reasonable results for historical measured conditions.

Section 4.6.2 Develop Procedures for Simulating Vadose Zone Processes

Page 50 of the Workplan states:

Vadose zone processes may be important to timing and magnitude of N/TDS loading to the saturated zone, particularly for return flows from the land surface through partially saturated sediments.

Regional Water Board Comment

The Regional Water Board recommends the consideration of previously mentioned hyporheic zone research, which has demonstrated that the potential for salt and nutrient removal via vadose zone processes is measurable.

Section 4.6.5 Define Assumptions for Future N/TDS Concentration of Colorado River Water

Page 51 of the Workplan states:

Colorado River water is a major source of supplemental water that supports groundwater basin sustainability and the economy of the Coachella Valley. The future N/TDS concentrations of Colorado River water will affect the quality of groundwater.

Regional Water Board Comment

The Regional Water Board recommends that the CV SNMP include an evaluation of climate change on the availability and quality of the Colorado River water source. If the evaluation indicates that the Colorado River water quality will be negatively impacted, potentially degrading the quality of the Coachella Valley groundwater, mitigation measures must be identified and evaluated for potential implementation.

Section 4.6.6 Develop Procedures for Post-Processing Model Results

Page 51 of the Workplan states:

The water-quality models will not be calibrated using traditional methods of model calibration to historical data targets.

Regional Water Board Comment

The Regional Water Board recommends the SNMP include proxy tests for the calibration of the model to historically verifiable datasets.

Section 4.7.1 Develop a Baseline Scenario based on the SGMA Alternative Plans

The objective of this section is to develop a 'baseline' planning scenario that represents the current water supply plans and water management plans for the Coachella Valley.

Regional Water Board Comment

The baseline scenario must provide a discussion of the water quality of both imported (allochthonous) water and sources of groundwater replenishment originating in the basin (autochthonous). Also include a reasonable economic forecast of the direct effects associated with the projected nutrient and salt loading in the baseline scenario. A similar economic evaluation was conducted in the Central Valley Region⁶.

Section 4.7.2 Construct N/TDS Forecasting Tools and Run the Baseline Scenario

Page 53 of the Workplan states:

The final simulation results of the Baseline Scenario will be evaluated to determine if CV-SNMP implementation measures are potentially necessary in the future to control N/TDS loading to protect the beneficial uses of groundwater in specific management zones.

Regional Water Board Comment

Section 6.2.4.4 of the Policy states that a required component of the SNMP is "Implementation measures to manage or reduce the salt and nutrient loading in the basin on a sustainable basis and the intended outcome of each measure." Additionally, the Department of Water Resources (DWR) notified many of the CV SNMP Agencies through their affiliation as a Coachella Valley Groundwater Sustainability Agency (GSA) that their Groundwater Sustainability Plan (GSP) developed pursuant to the SGMA should continue investigations into ways to reduce water quality impacts associated with importing Colorado River water. The DWR recommended that the GSAs take aggressive steps to further quantify the nature and scope of water quality issues associated with importing water (allochthonous supply) into the Subbasin, establish reasonable and achievable standards, and begin to adopt and implement projects and management actions that will achieve sustainability with regard to groundwater quality, and to do so on an accelerated basis.

6

https://www.waterboards.ca.gov/rwqcb5/water_issues/salinity/library_reports_programs/econ_report_final.pdf

The CV SNMP must identify and evaluate implementation measures that have the potential to control salt and nutrient loading and protect groundwater in the Coachella Valley on a sustainable basis.

Section 4.8 Forecast N/TDS Concentrations for CV-SNMP Scenarios

Pages 54 and 55 of the Workplan states:

Task 4.8 is necessary if Task 4.7 concludes that CV-SNMP implementation measures are potentially necessary in the future to protect the beneficial uses of groundwater in management zones. If not, then Tasks 4.8 and 4.9 in this workplan are not necessary to execute.

The objective of Task 4.8 is to develop CV-SNMP implementation measures that have the potential to control N/TDS loading and protect beneficial uses of groundwater in the Coachella Valley on a sustainable basis.

Regional Water Board Comment

Section 4.8 of the Workplan is an essential component of the CV SNMP, and without it the impact of the SNMP is reduced to a groundwater monitoring plan. Including implementation measures in the CV SNMP is important as the SNMP has been identified as part of the groundwater management strategy for the Coachella Valley and is referenced in water management plans generated by the Coachella Valley Integrated Regional Water Management Planning (IRWMP) Group, the Urban Water Management Planning (UWMP) Group, and the GSAs. As previously stated, DWR's approval of the Coachella Valley GSP recommended implementing salt and nutrient management projects and actions that will achieve sustainability with regard to groundwater quality, and to do so on an accelerated basis.

A major source of salt (TDS) entering the Coachella Valley groundwater resources is from groundwater augmentation using water imported into the basin from another location (allochthonous), i.e. the Colorado River. The CV SNMP must identify and evaluate management strategies that improve and enhance the allochthonous sources of groundwater augmentation and include how impacts to groundwater quality from imported supplies can be offset (mitigated) by replenishing the groundwater resource with higher quality water from sources originating in the basin (autochthonous), as demonstrated in other regions of the state⁷, as well as other strategies.

The Regional Water Board recommends the CV SNMP propose management scenarios for consideration including descriptions of how implementation/mitigation measures will be specifically developed to manage or reduce the salt and nutrient loading in the basin on a sustainable basis and the intended outcome of each measure.

⁷ <https://www.usbr.gov/lc/socal/reports/LASGwtraugmentation/AppC.pdf>

Section 4.8.2 Evaluate CV-SNMP Scenarios

Page 56 of the Workplan states:

In this task, the recommended CV-SNMP Scenarios will be implemented in the models, the model simulations will be conducted, and the model results will be evaluated and compared against the Baseline Scenario for their effectiveness in controlling N/TDS loading and protecting beneficial uses.

Regional Water Board Comment

If the groundwater model is not calibrated to historically verifiable accuracy, the use as a comparative tool may be subjective. The Regional Water Board recommends the SNMP include proxy tests for the calibration of the model to historically verifiable datasets.

Section 4.10 Select the Preferred CV-SNMP Scenario, Finalize Management Zones and Beneficial Uses, and Set TDS Objectives

Page 58 of the Workplan states:

*The objective of this task is to select a preferred CV-SNMP Scenario, which will form the basis for a CV-SNMP implementation plan and any **required** updates to the Basin Plan.*

Regional Water Board Comment

The Regional Water Board recommends deleting the word “required” and using the word “recommended” in reference to updates to the Basin Plan.

Section 4.10.2 Set TDS Objectives based on CWC 13241

Page 59 of the Workplan states:

California Water Code (CWC) section 13241 lists the factors to consider when establishing water quality objectives without unreasonably affecting beneficial uses.

Regional Water Board Comment

The Regional Water Board recommends that the economic evaluation include impacts related to elevated salinity in groundwater and consider the correlated impacts to the assigned beneficial use. The SNMP should also identify human health, safety, and environmental impacts associated with the potential adoption of TDS water quality objectives. It is the responsibility of the involved stakeholders developing the CV SNMP to solicit public input and approval.

Section 4.10.3 Document Antidegradation Demonstration Pursuant to State Board Policy 68-16

Page 59 of the Workplan states:

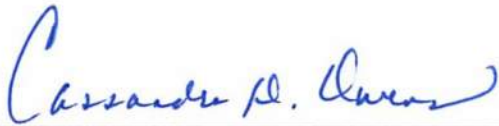
An antidegradation demonstration will be prepared as required by Section 6.2.4.5 of the 2018 Policy. The objective will be to illustrate how the preferred CV-SNMP Scenario and N/TDS objectives collectively satisfy the requirements of State Board Resolution 68-16 (the Antidegradation Policy).

Regional Water Board Comment

Section 6.2.4.5 of the Policy states that one of the required components of the SNMP includes an antidegradation analysis. The antidegradation analysis must consider all past (since 1968), current, and future salt and nutrient loading that is anticipated to occur under the preferred CV SNMP Scenario, and how this has and will continue to affect groundwater quality. The analysis should consider the changes in population and land use practices and their impacts to groundwater quality. The results of the antidegradation analysis will potentially identify hydrologically sensitive areas and direct the CV SNMP Agencies to evaluate the need for and the degree of management or mitigation and regulatory oversight that will be required to protect water quality.

The Regional Water Board welcomes this opportunity to provide comments, appreciates your organization's efforts in assisting in the development of this Workplan and encourages continued outreach efforts to other stakeholders in the Coachella Valley. Please contact Greg Middleton, PG, CHG at (760) 776-8982 or greg.middleton@waterboards.ca.gov or Cathy Sanford at (760) 776-8934 or cathy.sanford@waterboards.ca.gov with any questions.

Sincerely,



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APPENDIX D

FINAL REPORT:

***GROUNDWATER MONITORING PROGRAM WORKPLAN
COACHELLA VALLEY SALT AND NUTRIENT MANAGEMENT PLAN UPDATE
PREPARED FOR THE COACHELLA VALLEY SNMP AGENCIES
BY WEST YOST, DECEMBER 23, 2020***

Groundwater Monitoring Program Workplan
Coachella Valley Salt and Nutrient
Management Plan Update

PREPARED FOR

The Coachella Valley SNMP Agencies

PREPARED BY



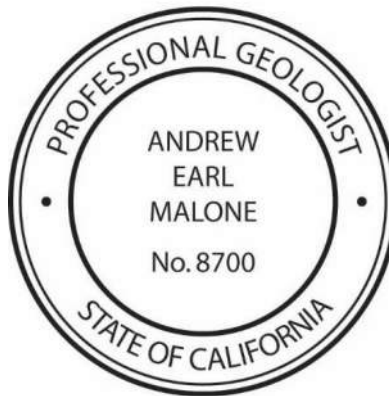
Groundwater Monitoring Program Workplan

Coachella Valley Salt and Nutrient Management Plan Update

Prepared for

The Coachella Valley SNMP Agencies

Project No. 943-80-20-01



A handwritten signature in black ink, appearing to read "Andrew E. Malone".

Project Manager: Andrew E. Malone, PG

12/23/2020

Date

A handwritten signature in black ink, appearing to read "Samantha Adams".

QA/QC Review: Samantha Adams

12/23/2020

Date

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LIST OF ACRONYMS AND ABBREVIATIONS

CPS	City of Palm Springs
CV-SNMP	Salt and Nutrient Management Plan for the Coachella Valley Groundwater Basin
CVSC	Coachella Valley Stormwater Channel
CVWD	Coachella Valley Water District
CWA/CSD	Coachella Water Authority and Coachella Sanitary District
DWA	Desert Water Agency
DWR	California Department of Water Resources
ft-bgs	Feet below ground surface
IWA	Indio Water Authority
GAMA	Groundwater Ambient Monitoring & Assessment
MC-GRF	Mission Creek Groundwater Replenishment System
MDMWC	Myoma Dunes Mutual Water Company
MOU	Memorandum of Understanding
MSWD	Mission Springs Water District
PD-GRF	Palm Desert Groundwater Replenishment Facility
POTW	Publicly Owned Treatment Works
TDS	Total Dissolved Solids
TEL-GRF	Thomas E. Levy Groundwater Replenishment Facility
USGS	United States Geological Survey
VSD	Valley Sanitary District
WRP	Water Reclamation Plant
WW-GRF	White Water Groundwater Replenishment Facility

Groundwater Monitoring Program Workplan

Coachella Valley Salt and Nutrient Management Plan Update

1.0 BACKGROUND AND OBJECTIVES

The Salt and Nutrient Management Plan for the Coachella Valley Groundwater Basin (CV-SNMP) must include a monitoring and reporting program pursuant to Section 6.2.4.1 of the 2018 Recycled Water Policy (Policy):

6.2.4.1. A basin- or subbasin-wide monitoring plan that includes an appropriate network of monitoring locations to provide a reasonable, cost effective means of determining whether the concentrations of salts, nutrients, and other constituents of concern as identified in the salt and nutrient management plans are consistent with applicable water quality objectives. The number, type, and density of monitoring locations to be sampled and other aspects of the monitoring program shall be dependent upon basin-specific conditions and input from the regional water board. Salts, nutrients, and the constituents identified in 6.2.1.1 shall be monitored. The frequency of monitoring shall be proposed in the salt and nutrient management plan for review by the regional water board pursuant to 6.2.3.

6.2.4.1.1. The monitoring plan must be designed to effectively evaluate water quality in the basin. The monitoring plan must focus on water supply wells, areas proximate to large water recycling projects, particularly groundwater recharge projects, and other potential sources of salt and nutrients identified in the salt and nutrient management plan. Also, monitoring locations shall, where appropriate, target groundwater and surface waters where groundwater has connectivity with adjacent surface waters.

6.2.4.1.2. The monitoring plan may include water quality data from existing wells where the wells are located and screened appropriately to determine water quality throughout the most critical areas of the basin. The State Water Board supports monitoring approaches that leverage the use of groundwater monitoring wells from other regulatory programs, such as the Irrigated Lands Regulatory Program and the Sustainable Groundwater Management Act.

6.2.4.1.3. The monitoring plan shall identify those stakeholders responsible for conducting, compiling, and reporting the monitoring data. Where applicable, the regional water board will assist by encouraging other dischargers in the basin or subbasin to participate in the monitoring program. The data shall be electronically reported annually in a format that is compatible with a Groundwater Ambient Monitoring & Assessment (GAMA) information system and must be integrated into the GAMA information system or its successor.

In its evaluation of the 2015 CV-SNMP, the Colorado River Basin Regional Water Quality Control Board (Regional Board) perceived insufficiencies in the proposed monitoring program, including: (i) a lack of data necessary to characterize groundwater quality in all areas and sub-areas of the basin; (ii) a lack of data in critical areas of salt loading (e.g., water recycling and recharge projects); and (iii) it did not propose a plan/timeline to fill the data gaps (Regional Board letter, February 19, 2020). Hence, the Regional Board is requiring the CV-SNMP stakeholders (CV-SNMP Agencies) to prepare a revised Groundwater Monitoring Program Workplan (Workplan) for the Coachella Valley Groundwater Basin (Basin) by December 2020 (Regional Board letter, April 27, 2020).

Groundwater Monitoring Program Workplan

Coachella Valley Salt and Nutrient Management Plan Update

The CV-SNMP Agencies include: Coachella Valley Water District (CVWD); Coachella Water Authority and Coachella Sanitary District (CWA/CSD); Desert Water Agency (DWA); Indio Water Authority (IWA); Myoma Dunes Mutual Water Company (MDMWC); Valley Sanitary District (VSD); Mission Springs Water District (MSWD); and City of Palm Springs (CPS).

To achieve the requirements of the Policy and address the concerns of the Regional Board, this Workplan describes the following:

1. The physical setting of the Coachella Valley which includes the basic hydrology and hydrogeology of the Basin and its subbasins. The physical understanding of how the groundwater basin functions is necessary to select a monitoring network that is capable of characterizing groundwater quality in all areas and subareas of the Basin, both spatially and vertically.
2. An initial sampling network, including the locations planned for sampling, justifications for the sampling locations, well construction details, and the SNMP Agencies responsible for conducting monitoring at each site.
3. The existing spatial and vertical gaps in the monitoring network, why the gaps were identified, and how the gaps will be filled.
4. A proposed plan to implement the monitoring program.

2.0 HYDROGEOLOGIC CONCEPTUAL MODEL OF THE BASIN

This section summarizes the physical characteristics and dynamics of the Basin regarding surface water, groundwater, and the origin, fate and transport of salts and nutrients within the Basin. Understanding the physical characteristics and dynamics of the Basin provides the foundation for selecting a monitoring network that will meet the objectives of the Policy.

This section was prepared from a review of past technical studies and reports; no original work or analyses were performed for this section of the workplan.

2.1 Basin Setting

Figure 2-1 is a map that shows the Basin as delineated by the California Department of Water Resources (DWR Groundwater Basin No. 7-021, excluding the San Geronio Pass Subbasin), which represents the area subject to the CV-SNMP. The Basin is located within the northwest portion of the Salton Sea Watershed (USGS Hydrologic Unit 18100200).

Figure 2-1 shows the surface geology as generalized into natural divisions with regard to groundwater:

Unconsolidated water-bearing sediments. These are the pervious formations that comprise the Basin.

Bedrock formations. These are the semi-consolidated sediments and the consolidated bedrock formations that come to the surface in the hills and mountains that surround and bound the Basin. The permeability of the bedrock formations is much less than the water-bearing sediments.

The upper 2,000 ft of the unconsolidated water-bearing sediments constitute the freshwater aquifer system that is the main source of groundwater supply in the region. The sediments tend to be finer-grained in the southeastern portions of the Basin due to the greater distance from the mountainous source areas and the lower-energy depositional environments, such as historical Lake Cahuilla.

The Whitewater River is the major drainage course in the Basin. The Whitewater River is an unlined channel, so surface water flows have the potential to infiltrate and recharge the Basin. In areas with shallow groundwater, the groundwater has the potential to discharge to interconnected surface water.

2.2 Hydrogeology

2.2.1 Subbasins and Subareas

Figure 2-2 is a map of the general hydrogeology of the area. The Basin is cross-cut by several geologic faults, which have created low-permeability zones within the water-bearing sediments that act as barriers to groundwater flow. These barriers impede, but do not eliminate, groundwater flow between subbasins. Groundwater flow can still occur across the barriers from areas of higher groundwater levels to areas of lower groundwater levels. The map identifies the locations of faults, subbasins, and subareas that comprise the Basin, and describes the general occurrence and movement of groundwater through the Basin.

Groundwater Monitoring Program Workplan

Coachella Valley Salt and Nutrient Management Plan Update

The DWR has defined three main subbasins within the study area that are separated by geologic faults or changes in formation permeability that limit and control the movement of groundwater: the Indio Subbasin (DWR Subbasin 7-021.01), the Mission Creek Subbasin (7-021.02), and the Desert Hot Springs Subbasin (7-021.03).¹ These subbasins have been further subdivided into subareas based on one or more of the following geologic or hydrogeologic characteristics: type(s) of water-bearing formations, water quality, areas of confined groundwater, forebay areas, and groundwater or surface drainage divides.

Figure 2-2 shows groundwater-elevation contours for water-year 2019 (October 1, 2018 through September 30, 2019). Lateral groundwater flow is generally perpendicular to the contours from higher to lower elevation, as indicated by the arrows on the map. Generally, groundwater flows from areas of natural recharge along the surrounding mountain-fronts toward the valley floor and then southeast toward the distal portions of the Basin near the Salton Sea. Locally, the structural and compositional features within the Basin result in groundwater conditions and flow directions that vary significantly between subbasins. Anthropogenic activities such as artificial recharge and groundwater pumping also influence groundwater-flow directions.

2.2.2 Occurrence and Movement of Groundwater

Described below is the general occurrence of groundwater, and how groundwater flows through and discharges from each subbasin:

Desert Hot Springs Subbasin. In the Desert Hot Springs Subbasin, groundwater typically flows from the Little San Bernardino Mountains to the southeast, but is locally variable due to faulting. The aquifer system is poorly understood due to relatively poor water quality, which has limited the development of groundwater resources in the area. Faulting in the northern portion of the subbasin has resulted in thermal mineral waters in the aquifer with temperatures up to 250 degrees Fahrenheit. These thermal waters are used by several spas in the area. Groundwater discharge primarily occurs by pumping at wells or subsurface outflow. Generally, groundwater elevations in the Desert Hot Springs Subbasin are higher than in the Mission Creek and Indio Subbasins, and hence, the subsurface outflow from the Desert Hot Springs Subbasin occurs across the Mission Creek Fault into these downgradient subbasins. These subsurface flows are thought to be relatively minor based on the differences in groundwater quality on either side of the fault barriers that separate the subbasins.

Mission Creek Subbasin. In the Mission Creek Subbasin, groundwater typically flows from northwest to southeast. The aquifer system is up to 2,000 feet thick and is predominantly unconfined. Portions of the aquifer along the Banning Fault northwest of the Seven Palms Ridge area are semi-confined as evidenced by historically flowing-artesian wells in the area. Depth to groundwater in the Mission Creek Subbasin in 2019 ranged from an estimated 600 feet-bgs (ft-bgs) upgradient of the Mission Creek Groundwater Replenishment Facility (MC-GRF) to less than 5 feet-bgs in the southeast (west of the Indio Hills). Groundwater discharge primarily occurs by pumping at wells or subsurface flow across the Banning Fault into the Indio Subbasin.

Indio Subbasin. The Indio Subbasin is bordered on the southwest by the crystalline bedrock of the Santa Rosa and San Jacinto Mountains. It is separated from the Mission Creek Subbasin by the Banning Fault, and from the Desert Hot Springs Subbasin by the San Andreas Fault. Both faults are barriers to

¹ The DWR defines the San Geronio Pass Subbasin (7-021.04) as part the Basin, but it is not included in the CV-SNMP.

groundwater flow as evidenced by differences in groundwater levels across the faults. For example, groundwater-level differences across the Banning Fault, between the Mission Creek Subbasin and the Indio Subbasin, can be up to 250 feet. Subsurface flow between subbasins primarily occurs from the Desert Hot Springs and Mission Creek subbasins into the Indio subbasin.

In the Indio Subbasin, the aquifer system is generally unconfined in the forebay areas and across the northwestern portion of the subbasin. Generally, groundwater flows from the northwest toward the southeastern distal portions of the subbasin near the Salton Sea. In the southeast portion of the Indio Subbasin, the predominance of fine-grained sediments at depth has created three distinct aquifer systems, which are shown graphically in **Figure 2-3** and are described below:

Perched. A semi-perched aquifer up to 100 feet thick that is persistent across much of the area southeast of the City of Indio. The fine-grain units that cause the perched conditions are likely a barrier to deep percolation of surface water. The extent of the semi-perched aquifer is shown on **Figure 2-2**. Shallow groundwater within the semi-perched aquifer is conveyed away from the root zone by a network of privately-owned subsurface tile drainage systems that are distributed across the agricultural land uses in the southeastern portion of the Basin. CVWD maintains a regional network of surface and subsurface drains, shown on **Figure 2-4**, that accumulate and convey the drainage waters from the agricultural lands to the Salton Sea.

Shallow. An upper aquifer up to 300 feet thick that is present across most of the area. The upper aquifer is unconfined except in the areas of the semi-perched aquifer where it is semi-confined.

Deep. A lower aquifer that is 500-2,000 feet thick and is the most productive portion of the Basin. In the southeast portion of the Basin, the lower aquifer is confined and is separated from the upper aquifer by a fine-grained aquitard unit that is 100-200 feet thick. **Figure 2-2** displays the extent of the aquitard unit.

Groundwater discharge primarily occurs by pumping at wells, shallow groundwater discharge to subsurface tile drainage systems on agricultural lands that ultimately discharge to the Salton Sea, and subsurface outflow to groundwater underlying the Salton Sea.

2.3 Origin, Fate and Transport of Salts and Nutrients

Figure 2-4 is a map that depicts the general areas and processes of salt and nutrient loading, transport, and discharge throughout the Basin.

2.3.1 Salt and Nutrient Loading

Salts, and in some cases nutrients, are loaded to the Basin via the following mechanisms:

- Subsurface inflow from saturated sediments and bedrock fractures in the surrounding mountains and hills and from upgradient groundwater subbasins.
- Recharge of precipitation runoff in unlined stream channels that cross the Basin.
- Artificial recharge of imported Colorado River Water at the Groundwater Replenishment Facilities (GRF).
- Percolation of treated wastewater discharge to unlined ponds.

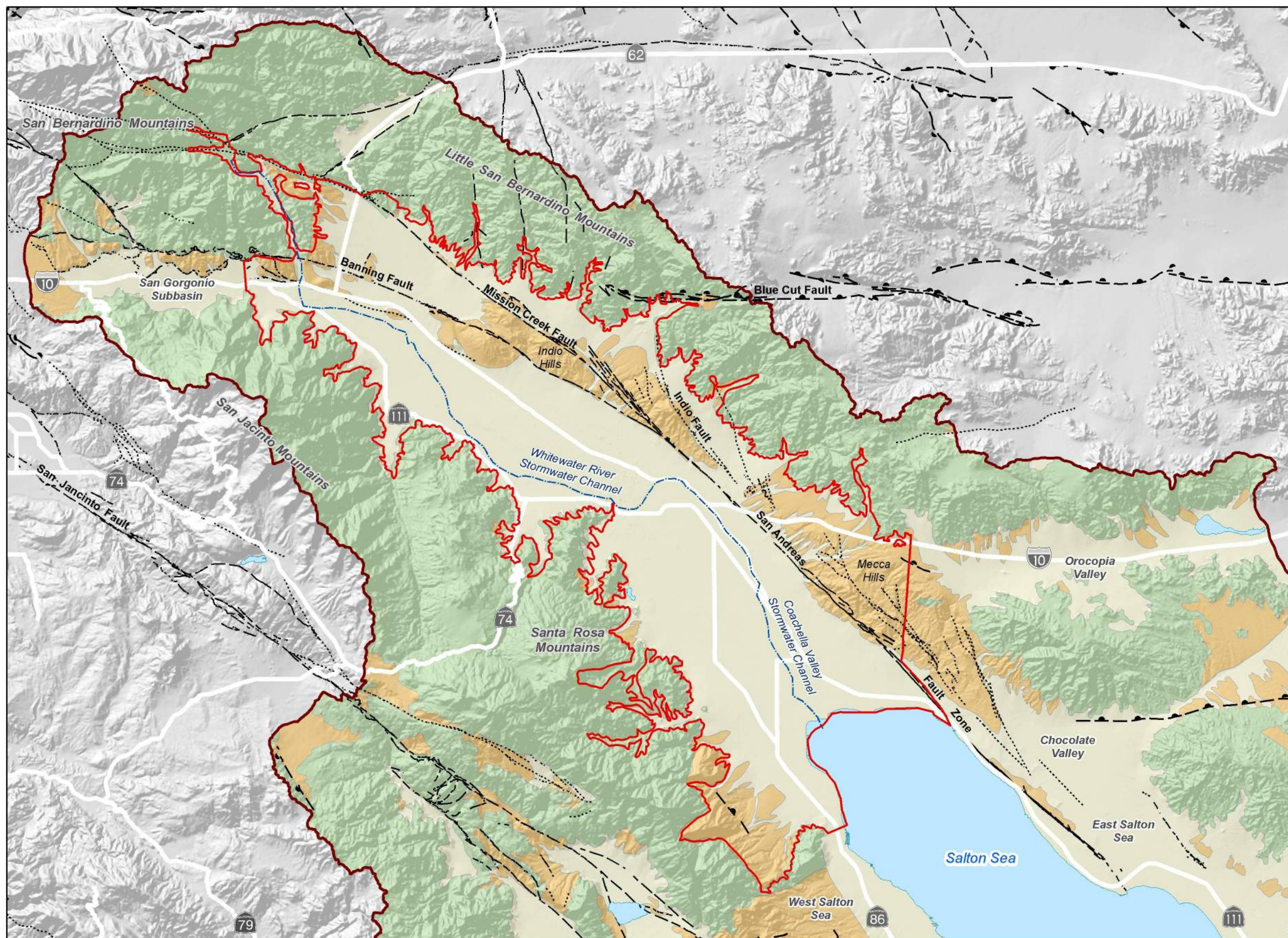
- Seepage from septic systems.
- Return flows from precipitation and irrigation waters applied to the overlying land uses (e.g., agriculture, golf courses, etc.). Loading from return flows is a complex process that is influenced by:
 - The combination of precipitation and irrigation waters that ultimately result in the return flows (and their associated TDS and nitrate concentrations) that migrate past the root zone.
 - During the downward migration of return flows through the unsaturated (vadose) zone, the TDS and nitrate concentrations of the return flows can be influenced by past TDS and nitrate loading to the vadose zone by historical overlying land uses.

Figure 2-4 shows the spatial distribution and location of these sources of salt and nutrient loading across the Basin.

2.3.2 Transport and Discharge of Salts and Nutrients

Once within the saturated zone, the dissolved salts and nutrients are transported through the aquifer system via the groundwater-flow systems shown on **Figure 2-2** and **Figure 2-4**. Ultimately, salts and nutrients are discharged from the Basin via the following mechanisms:

- Groundwater pumping.
- Discharge to agricultural drains. As described above, throughout the lower Basin, CVWD maintains a network of surface and subsurface drains to convey shallow groundwater away from the crop root zones. These drains convey water to the Coachella Valley Stormwater Channel (CVSC) and 26 smaller open channel drains that discharge directly to the Salton Sea.
- Subsurface outflow to downgradient subbasins. In the Indio Subbasin, subsurface outflow occurs to groundwater beneath the Salton Sea.
- Phreatophyte consumptive use.



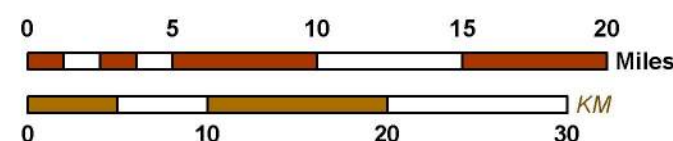
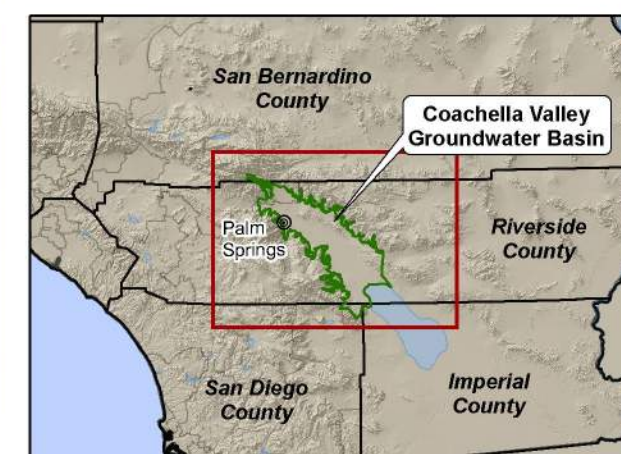
- Salton Sea Watershed
- Coachella Valley Groundwater Basin
DWR Basin Number 7-021
(excludes the San Gorgonio Subbasin)

Generalized Surface Geology

- Un-consolidated Sediments
(water-bearing)
- Semi-consolidated Sediments
(lower-permeability)
- Consolidated Bedrock

Quaternary Fault Traces
(symbolized by most recent fault activity)

- <150 Yrs
- <15,000 Yrs
- <130,000 Yrs
- <750,000 Yrs
- <1,600,000 Yrs



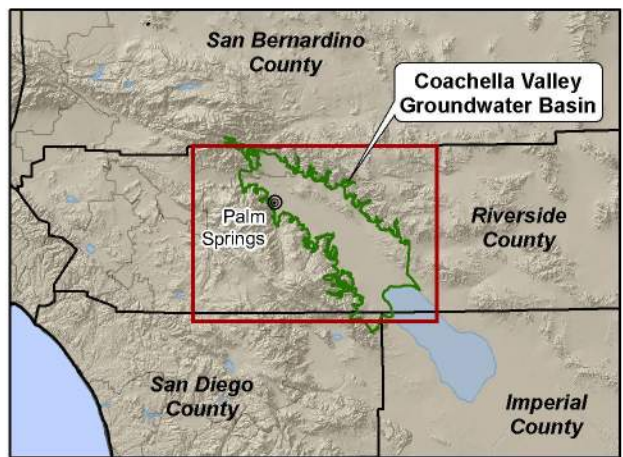
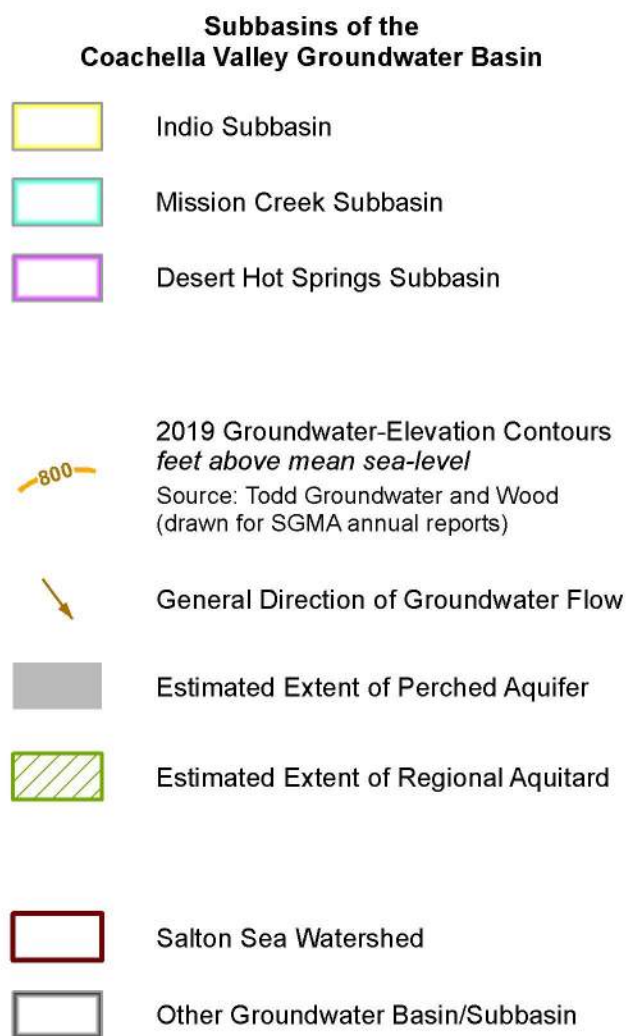
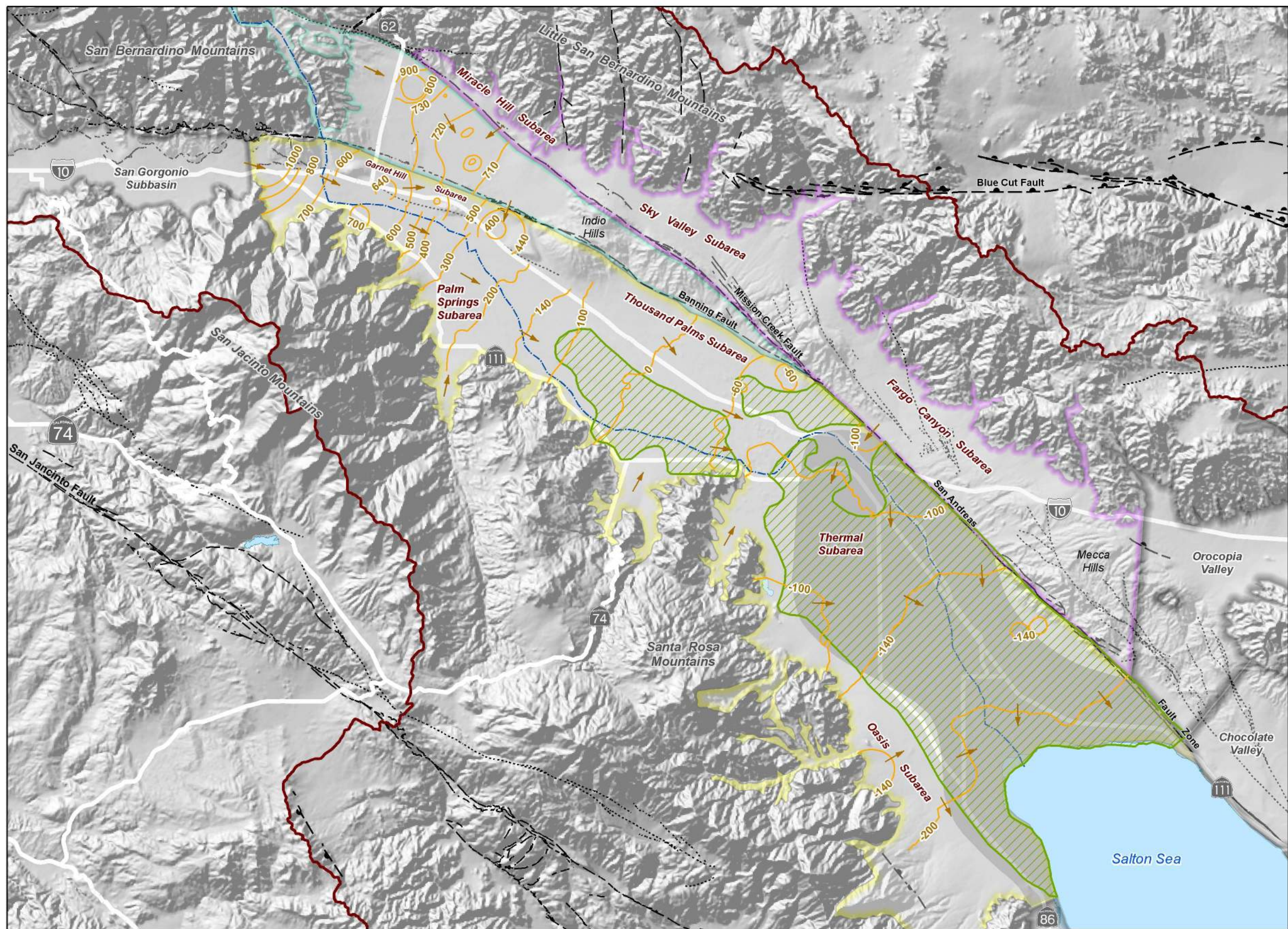
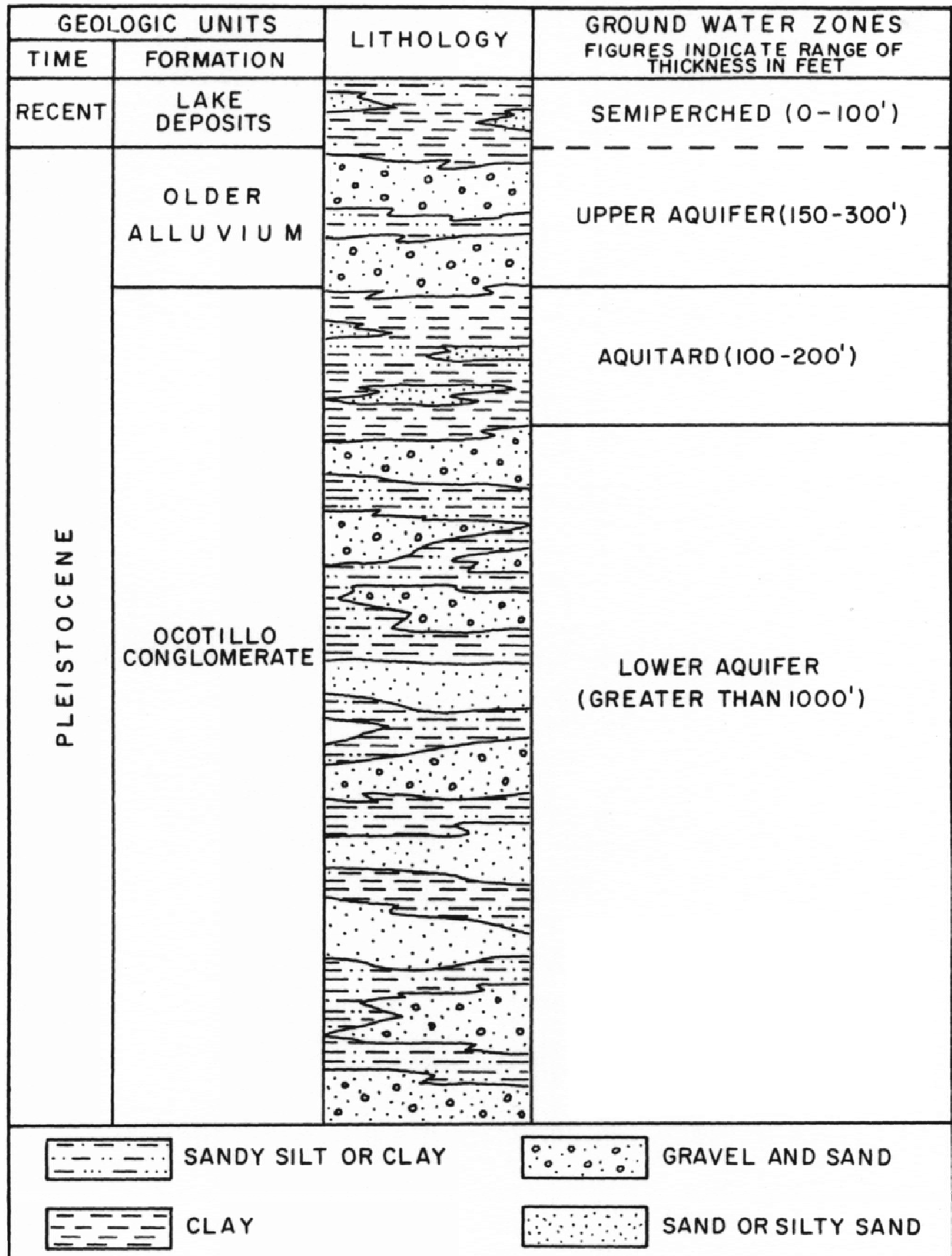
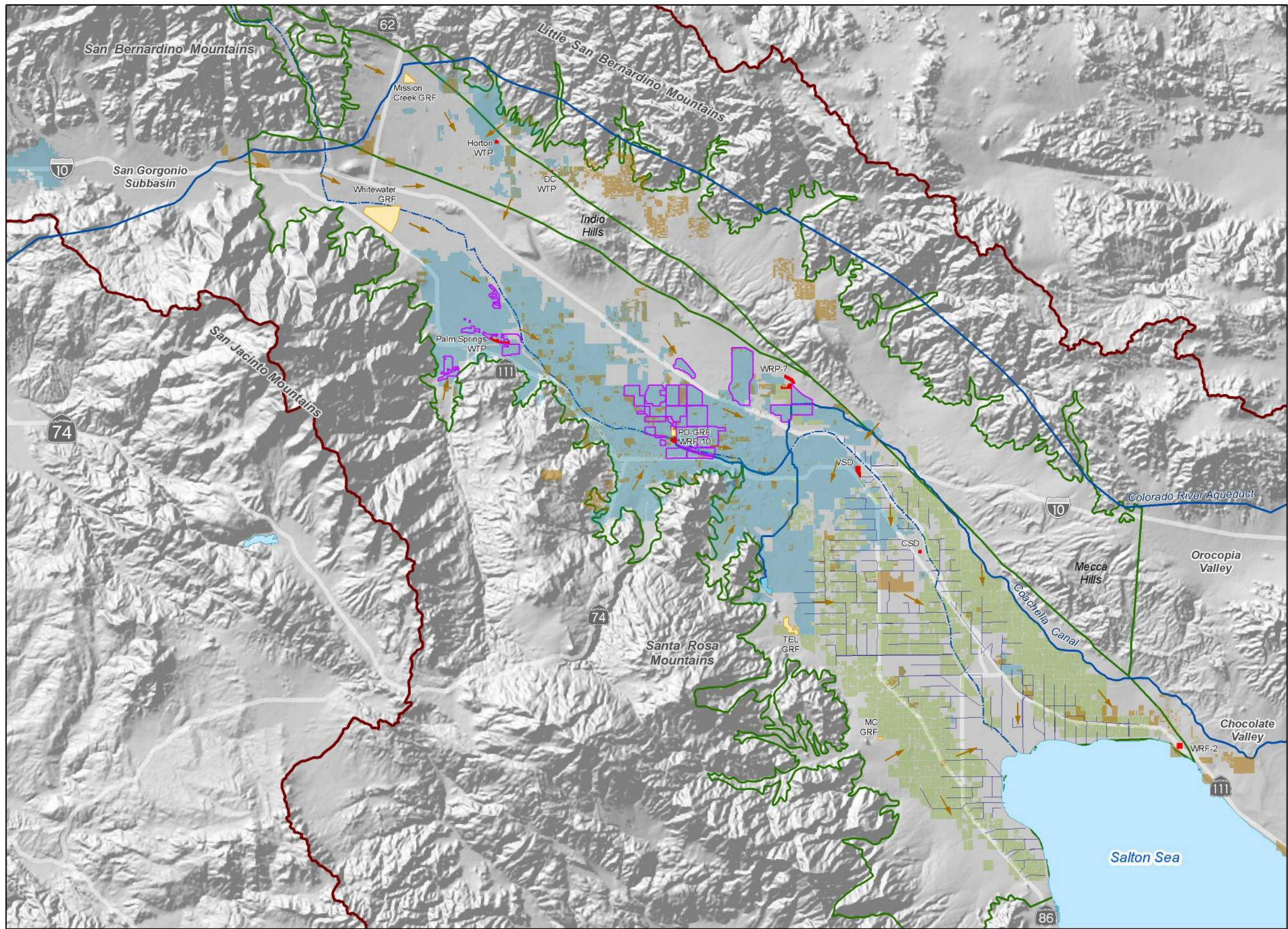


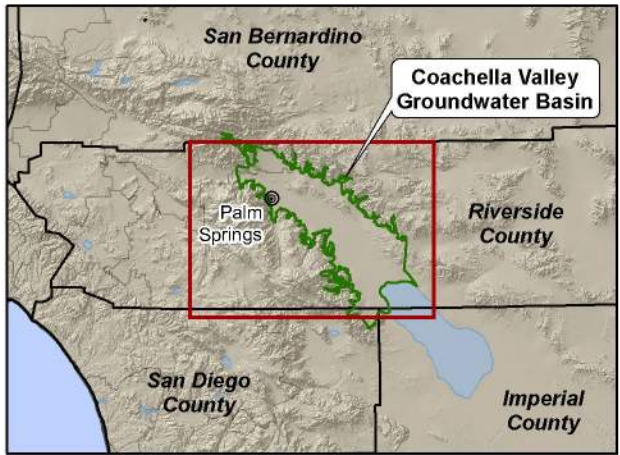
Figure 2-3
Generalized Stratigraphic Column in Lower Coachella Valley



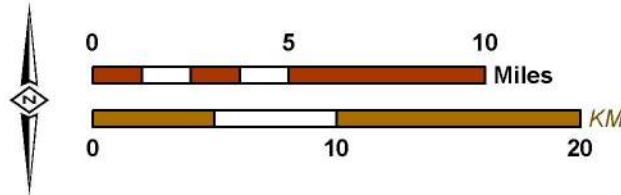
From DWR (1964)



- Sources of Salt and Nutrient Loading**
- Wastewater Pecolation Ponds
 - Areas of Non-Potable Water Reuse
 - Potential Septic Areas
 - Groundwater Replenishment Facilities
 - Imported Water Conveyance
- Generalized Land Use**
- Urban
 - Irrigated Agricultural Land
- CVWD Agricultural Drains
- General Direction of Groundwater Flow
- Salton Sea Watershed
- Coachella Valley Groundwater Basin and Subbasins



Author: EM/AM
Date: 12/22/2020
File: Figure 2-4.mxd



Coachella Valley
Salt and Nutrient Management Plan
Groundwater Monitoring Program Work Plan

**Salt and Nutrient Loading,
Transport, and Discharge**

Figure 2-4

3.0 GROUNDWATER MONITORING PROGRAM

The Groundwater Monitoring Program for the CV-SNMP consists of the following components, each further described below:

- Groundwater Monitoring Network
- Chemical Analytes and Sampling Frequency
- Monitoring and Reporting

3.1 Groundwater Monitoring Network

Section 6.2.4.1 of the Policy requires the implementation of a monitoring program that can determine whether the concentrations of salts and nutrients in groundwater are consistent with water quality objectives and are thereby protective of beneficial uses. The Policy also recognizes the monitoring program will be dependent upon basin-specific conditions and input from the Regional Board.

For the CV-SNMP Groundwater Monitoring Program, the Regional Board is requiring that the monitoring program:

- *Cover all subbasins and subareas within the Basin.* The updated SNMP will require periodic mapping of groundwater quality to estimate ambient water quality and assimilative capacity. A monitoring network that is spatially distributed across all subbasins and subareas of the Basin will provide the necessary data for technically defensible mapping of groundwater quality.
- *Include sampling from all three major aquifer systems: Deep, Shallow, and Perched.* Section 2 of this Workplan described the hydrogeologic stratification of the aquifer system in the Basin. Groundwater quality, and the physical processes that can alter groundwater quality over time, can be significantly different between aquifer systems. This is because: (i) anthropogenic loading of salts and nutrients occur primarily at the ground surface, and hence, can influence the quality of shallower groundwaters first before influencing the quality of deeper groundwaters; (ii) thick aquitards in the southeastern portion of the Basin restrict the vertical movement of groundwater between aquifer systems; and (iii) upward hydraulic gradients, as evidenced by flowing artesian conditions in the southeastern portion of the Basin, limit the downward migration of salts and nutrients to the Deep aquifer system in this region. For these reasons, monitoring of perched, shallow and deep groundwaters is proposed herein across most of the Basin.
- *Focus on critical areas near: (i) large water recycling projects, (ii) near large recharge projects, particularly where Colorado River water is used to replenish the Basin for water-supply and groundwater management purposes, and (iii) near other potential sources of salt and nutrients.* It is important that monitoring occurs hydraulically upgradient and downgradient from these sources of salt and nutrient loading to characterize their influence on groundwater quality.
- *Focus on critical areas near water supply wells.* The water-supply wells are the main points of extraction for the ultimate beneficial uses of the Basin.

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- *Identify critical gaps in the monitoring network and develop a plan and timeline to fill the gaps.* The current gaps in the monitoring network are described in this section. The plan and timeline to fill the gaps are included in Section 4.
- *Identify the stakeholders responsible for conducting, compiling, and reporting the monitoring data.*

3.1.1 Methods for Selection of the Groundwater Monitoring Network

The criteria used to select the groundwater monitoring network included the following:

1. **Spatial Distribution.** The monitoring network was designed to cover all subbasins and subareas within the Basin.
2. **Hydrogeology.** The monitoring network was designed to monitor all three major aquifer systems: Deep, Shallow, and Perched. Water-supply wells in the Basin typically pump groundwater from the Deep aquifer system and were therefore more available for inclusion in the monitoring network. Wells with screens across the Shallow and Perched aquifer systems were less abundant. Hence, most “gaps” in the proposed monitoring network are within the Shallow and Perched aquifer systems.
3. **Areas of Salt or Nutrient Loading.** The network was designed to monitor the influence of known sources of salt or nutrient loading on groundwater quality within the Basin. These sources included: the GRFs; wastewater percolation ponds; areas with septic systems; overlying land uses with irrigation returns (e.g., golf, landscapes, agriculture); and areas served non-potable waters for irrigation (e.g., recycled and/or imported waters). Monitoring of non-point-source loading, such as returns from non-potable irrigation waters and septic systems, is intended to be representative of the influence of non-point-sources of loading on groundwater quality. It is not intended to be site-specific monitoring of every area of non-point-source loading across the Basin, which would be infeasible.
4. **Groundwater Flow.** The network was designed to monitor all major groundwater-flow systems, from areas of recharge to areas of discharge, and within and between the groundwater subbasins. This is necessary in order to track the subsurface migration of salts and nutrients through the Basin.
5. **Use of Existing Wells.** Wherever possible, active municipal production or monitoring wells were preferentially selected if they currently participate in a similar monitoring program (e.g., California Division of Drinking Water [DDW] or Regional Board orders). In some areas, such wells were not available for selection. In those areas, inactive municipal production wells or private wells were selected for inclusion in the monitoring network. The use of inactive or private wells in this monitoring program will require significant coordination with the private well owners and/or physical wellhead improvements to collect groundwater samples. Lastly, if no wells were identified in an area/depth that should be monitored, a “gap” was designated in the monitoring network.

3.1.2 Monitoring Network and Gaps – Shallow Aquifer System

Figure 3-1 is a map of the groundwater monitoring network for the Shallow aquifer system. Each well is labeled by a Map_ID. Because most production wells in the Basin have well screens across the Deep aquifer system, there were several identified “gaps” in the monitoring network, particularly in the Thermal Subarea of the Indio Subbasin. **Table 3-1** is a list of wells shown on **Figure 3-1** sorted by Map_ID. The table includes a summary justification for why each well was included in the monitoring program. **Table 3-4** is

a list of the “gaps” in the monitoring network with a summary explanation of why each gap should be filled.

3.1.3 Monitoring Network and Gaps – Deep Aquifer System

Figure 3-2 is a map of the groundwater monitoring network for the Deep aquifer system. Each well is labeled by a Map_ID. Most production wells in the Basin have well screens across the Deep aquifer system; hence, there were no identified “gaps” in the Deep monitoring network. **Table 3-2** is a list of wells shown on **Figure 3-2** sorted by Map_ID. The table includes a summary justification for why the well was included in the monitoring program.

3.1.4 Monitoring Network and Gaps – Perched Aquifer System

Figure 3-3 is a map of the groundwater monitoring network for the Perched aquifer system. Each well is labeled by a Map_ID. The map shows the extent of the Perched aquifer system which is confined to the Thermal Subarea of the Indio Subbasin. The network of CVWD’s agricultural drains that convey perched groundwater to the CVSC and the Salton Sea is also shown. The only existing wells with well screens across the Perched aquifer system are five monitoring wells owned by the CVWD; hence, there were several identified “gaps” in the Perched monitoring network. **Table 3-3** is a list of wells shown on **Figure 3-3** sorted by Map_ID. The table includes a summary justification for why each well was included in the monitoring program. **Table 3-4** is a list of the “gaps” in the monitoring network with a summary explanation of why each gap should be filled.

3.2 Chemical Analytes and Sampling Frequency

Table 3-5 lists the chemicals that will be analyzed for dissolved concentration in each groundwater sample for the monitoring program. The table describes the justification for each chemical analyte. Testing will be performed at a laboratory accredited by the State of California for the testing of inorganic chemistry of drinking water.

The minimum sampling frequency is once every three years. Many wells chosen for this monitoring program are sampled more frequently under other required or voluntary monitoring programs.

During each groundwater sampling event, the agency responsible for sampling will attempt to obtain a static (non-pumping) depth-to-water measurement. In instances when a static depth-to-water measurement cannot be obtained, it will be noted with a description for the reason.

3.3 Monitoring and Reporting

3.3.1 Groundwater Sampling and Laboratory Analysis

The SNMP Agencies have the following responsibilities for sampling of the wells in the monitoring network (described in Section 3.1) and the laboratory analysis of chemical analytes (described in Section 3.2):

- Municipal well owners are responsible for the groundwater sampling and laboratory analyses for their own wells.
- For private wells within their service area, the overlying SNMP Agency is responsible for coordinating with the private well owners to conduct groundwater sampling and the laboratory analyses. In areas of overlapping jurisdictions of SNMP Agencies, the agencies

must jointly coordinate to assign responsibility for sampling and analysis of private wells that fall within the overlapping jurisdictions. Agency responsibilities may include developing administrative agreements with the well owners (e.g., right-of-entry agreement) and making physical modifications to the wellhead to enable collection of a sample (e.g., installation of a sampling port on the well discharge pipe).

Table 3-6 lists all wells proposed for the monitoring program. For each well, the table includes a designation for the overlying SNMP Agency(ies).

3.3.2 Reporting of Laboratory Results

Section 6.2.4.1.3 of the Policy requires that all data collected for the monitoring program “shall be electronically reported annually in a format that is compatible with a Groundwater Ambient Monitoring & Assessment (GAMA) information system and must be integrated into the GAMA information system or its successor.” This will centralize data generated from SNMPs at the State level and create consistency across regional water boards to allow for further analysis of monitoring data.

By March 31 of each year, the SNMP Agencies will report the laboratory water-quality results from the prior calendar year to the GAMA information system.

3.4 Filling of Gaps in the Monitoring Network

Table 3-4 lists the gaps in the monitoring network that were identified during the selection of the monitoring network.

Gaps in the monitoring network will be filled in one of two ways:

1. Field identification of an existing well that: (i) is located near the identified gap; (ii) can be sampled, and (iii) has well screens across the appropriate depth interval (e.g., across the Shallow aquifer system). This may require the following activities: field canvassing to identify a candidate well; research and/or exploratory well surveys to confirm well screen depth intervals; and constructing any well/wellhead modifications that are necessary to collect groundwater samples.
2. Construction of a new monitoring well with well screens across the appropriate depth interval. This may require the following activities: a well-siting study; well-site acquisition or easement; development of technical specifications for a monitoring well; conducting a bid process to select a well drilling/construction subcontractor; obtaining the necessary permits and CEQA clearance; performing well construction with oversight; performing well development and testing; preparing a well completion report; equipping the well for sampling, and wellhead completion including any needed site improvements.

In the first year, the SNMP Agencies will perform the necessary field work and research and develop a plan for how each gap in the monitoring program will be filled.

Filling the gaps in the monitoring network is likely the most expensive, complicated element of the monitoring program. Therefore, the filling of gaps will be executed over a six-year period, subject to funding availability. The SNMP Agencies will pursue grant funding to support the filling of gaps under State-run programs such as Integrated Regional Water Management and the Sustainable Groundwater Management Act. The SNMP Agencies also are developing a Memorandum of Understanding (MOU) to

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implement the CV-SNMP Monitoring Program Workplan. The MOU will assign responsibilities and cost-sharing agreements between the SNMP Agencies for the filling of the gaps in the monitoring network.

By March 31 of each year, the SNMP Agencies will report to the Regional Board on progress made toward the filling the gaps in the monitoring network over the preceding calendar year (see Section 4.2 below).

Table 3-1. SNMP Groundwater Monitoring Network -- Shallow Aquifer System

Map_ID	SWN	Well Owner	Well Name	Well Status ^(a)	Well Use ^(b)	Screen Interval ft-bgs	Depth Code ^(c)	Justification for Inclusion in SNMP Monitoring Program
1	03S04E20F01S	USGS	335348116352701	Active	Monitoring	600-640	S	Northwest area at WW-GRF
2	03S04E20J01S	USGS	335339116345301	Active	Monitoring	550-590	S	Northeast area at WW-GRF
3	06S07E33G02S	Coachella Valley Water District	TEL-GRF MW-21S	Active	Monitoring	230-250	S	Adjacent to and downgradient of TEL-GRF
4	06S07E33J02S	Coachella Valley Water District	TEL-GRF MW-22S	Active	Monitoring	230-250	S	Adjacent to and downgradient of TEL-GRF
5	06S07E34N03S	Coachella Valley Water District	TEL-GRF MW-23S	Active	Monitoring	230-250	S	Adjacent to and downgradient of TEL-GRF
7	02S04E26C01S	Mission Springs Water District	Well 28	Inactive	MUN	590-898	S	Downgradient from Mission Creek GRF; near golf course and septic areas
8	02S04E28A01S	Mission Springs Water District	Well 34	Active	MUN	550-980	S	Downgradient from Mission Creek GRF
9	02S05E31L01S	Mission Springs Water District	Well 11	Inactive	Unknown	220-285	S	Downgradient of Desert Hot Springs (DHS) subbasin
10	03S04E04Q02S	CPV Sentinel	03S04E04Q02S	Active	Unknown		S	Upgradient portion of Mission Creek subbasin
11	03S04E11L01S	Mission Springs Water District	Well 27	Active	MUN	180-380	S	Upgradient of Garnet Hill subarea; near potential septic areas in N. Palm Springs
12	03S05E05Q01S	Hidden Springs Golf Course	P27	Active	Unknown	220-600	S	Downgradient of DHS subbasin; near golf course and septic areas
13		City of Palm Springs	Airport MW-2	Active	Monitoring	240-250	S	Center of Indio subbasin; near airport and areas served non-potable water (NPW)
14		City of Palm Springs	MW-1	Active	Monitoring	170-210	S	Downgradient of Palm Springs WTP percolation ponds
15		City of Palm Springs	MW-3	Active	Monitoring	140-215	S	Upgradient of Palm Springs WTP percolation ponds
16		City of Palm Springs	MW-4	Active	Monitoring	170-210	S	Downgradient of Palm Springs WTP percolation ponds
17		City of Palm Springs	MW-5	Active	Monitoring	170-210	S	Downgradient of Palm Springs WTP percolation ponds
18		City of Palm Springs	MW-6	Active	Monitoring	170-210	S	Downgradient of Palm Springs WTP percolation ponds
19	03S03E08M01S	Mission Springs Water District	Well 26	Active	MUN	225-553	S	Monitoring of subsurface inflow from San Geronio Pass subbasin
20	03S03E10P02S	Unknown	DWA P05	Active	Unknown	306-906	S	Upgradient of Whitewater GRF
21	03S04E12B02S	Coachella Valley Water District	CVWD Well 3408-1	Active	MUN	270-500	S	Central portion of Mission Creek subbasin; near potential septic areas
22	03S04E29F01S	USGS	335304116353001	Active	Monitoring	550-570	S	Monitoring at southwestern area of Whitewater GRF
23	03S04E29R01S	USGS	335231116345401	Active	Monitoring	431-551	S	Monitoring at southeastern area of Whitewater GRF
24	04S04E11Q01S	Desert Water Agency	DWA Well 5	Standby	MUN	302-402	S	Western portion of Indio subbasin; downgradient of septic areas
25	04S04E35A01S	Indian Canyons Golf Resort	04S04E35A01S	Active	Unknown	360-680	S	Near golf courses, septic, and areas served NPW
26	04S05E09F03S	Coachella Valley Water District	CVWD Well 4564-1	Active	MUN	410-670	S	Center of Indio subbasin; near golf courses and septic areas
27	04S05E29A02S	Desert Water Agency	DWA Well 25	Active	MUN	166-300	S	Downgradient of Palm Springs WTP percolation ponds; near golf courses and NPW areas
29	04S07E33L02S	Coachella Valley Water District	WRP7 MW-2S	Active	Monitoring	60-190	S	Near WRP-7 percolation ponds
30	05S06E09M03S	Coachella Valley Water District	WRP10 MW-7	Active	Monitoring	260-340	S	Upgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
31	05S06E09P02S	Coachella Valley Water District	PD-GRF MW 2	Active	Monitoring	260-340	S	Upgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
32	05S06E10J01S	Coachella Valley Water District	PD-GRF MW 1	Active	Monitoring	260-340	S	Downgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
33	05S06E13G03S	Coachella Valley Water District	WRP10 MW-8	Active	Monitoring	260-340	S	Downgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
34	05S06E14G03S	Coachella Valley Water District	WRP10 MW-5	Active	Monitoring	240-320	S	Downgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
35	05S06E14P03S	Coachella Valley Water District	WRP10 MW-6	Active	Monitoring	190-270	S	Downgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
36	05S06E15F01S	Coachella Valley Water District	WRP10 MW-2	Active	Monitoring	160-290	S	Downgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
37	05S06E15M01S	Coachella Valley Water District	WRP10 MW-1	Active	Monitoring	145-295	S	Upgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
38	05S06E15P01S	Coachella Valley Water District	WRP10 MW-3	Active	Monitoring	130-290	S	Downgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
39	05S06E16A03S	Coachella Valley Water District	WRP10 MW-4	Active	Monitoring	190-270	S	Upgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
40	05S06E21Q04S	Coachella Valley Water District	PD-GRF MW 3	Active	Monitoring	260-340	S	Cross-gradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
41	05S06E23M02S	Coachella Valley Water District	PD-GRF MW 4	Active	Monitoring	270-360	S	Cross-gradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
42	05S07E03D02S	Coachella Valley Water District	WRP7 MW-4S	Active	Monitoring	60-190	S	Near WRP-7 percolation ponds
43	05S07E04A04S	Coachella Valley Water District	WRP7 MW-3S	Active	Monitoring	50-180	S	Near WRP-7 percolation ponds
44	05S07E16K02S	Coachella Valley Water District	CVWD Well 5737-1	Inactive	Monitoring	200-415	S	Center of Indio subbasin; downgradient from areas served NPW
45	05S07E19D04S	Coachella Valley Water District	WRP10 MW-9	Active	Monitoring	260-340	S	West in Indio subbasin; near golf courses and areas served NPW
46	05S07E24M02S	Indio Water Authority	Well 1B	Active	MUN	190-410	S	Center of Indio subbasin; upgradient of VSD plant
47	06S06E12G01S	Coachella Valley Water District	CVWD Well 6650-1	Inactive	Monitoring	<370	S	Within center of The Cove
48	06S07E34A02S	Coachella Valley Water District	TEL-GRF MW-25	Active	Monitoring	115-135	S	Downgradient from TEL-GRF and golf courses
49	06S07E34D02S	Coachella Valley Water District	TEL-GRF MW-24	Active	Monitoring	180-200	S	Directly north and downgradient of TEL-GRF
50	07S08E29P03S	Coachella Valley Water District	MC-3	Active	Monitoring	380-440	S	At Martinez Canyon GRF
51	08S09E31R03S	Coachella Valley Water District	CVWD Well 8995-1	Active	MUN	260-390	S	Southern corner of the Indio basin; near agriculture; near Salton Sea

Table 3-1. SNMP Groundwater Monitoring Network -- Shallow Aquifer System

Map_ID	SWN	Well Owner	Well Name	Well Status ^(a)	Well Use ^(b)	Screen Interval ft-bgs	Depth Code ^(c)	Justification for Inclusion in SNMP Monitoring Program
52	03S04E17K01S	Valley View MWC	03S04E17K01S	Undetermined	Unknown	340-375	S	Cross-gradient from Whitewater GRF in Garnet Hill subarea
53	03S04E22A01S	Erin Miner	03S04E22A01S	Active	Unknown	180-230	S	Downgradient of Whitewater GRF in Garnet Hill subarea; upgradient of West Valley WWTP
54	03S05E08P02S	Bluebeyond Fisheries	03S05E08P02S	Active	Fish Farm	200-400	S	Central Mission Creek subbasin; near golf course and septic areas
55	03S05E15N01S	Too Many Palms LLC	03S05E15N01S	Active	Irrigation	158-320	S	Distal area in Mission Creek subbasin; downgradient of DHS subbasin
56	03S05E18J01S	Desert Dunes Golf Club	03S05E18J01S	Active	Irrigation	76-340	S	Upgradient of Garnet Hill subarea; near golf course and septic areas
57	03S06E21G01S	Sky Valley Mobile Home Park	03S06E21G01S	Undetermined	Unknown	188-248	S	Western portion of Sky Valley subarea; near septic areas
58	04S05E04F01S	So Pacific Trans Co #32601	04S05E04F01S	Active	Irrigation	276-576	S	Eastern edge of Indio subbasin; downgradient from Garnet Hill subarea; near septic areas
59	04S05E23F01S	Westin Mission Hills Resort	04S05E23F01S	Active	Irrigation	275-1165	S	Center of Indio subbasin; near golf courses and septic areas
60	04S05E34C01S	Manufacture Home Community Inc	04S05E34C01S	Active	Irrigation	240-500	S	Western edge of Indio subbasin; near septic and areas served NPW
61	04S05E35Q01S	Tamarisk Country Club	04S05E35Q01S	Active	Irrigation	171-518	S	Western edge of Indio subbasin; near septic and areas served NPW
62	04S05E36L02S	Annenberg Estate	04S05E36L02S	Active	Irrigation	252-650	S	Center of Indio subbasin; near golf, septic, and areas served NPW
63	04S06E20C01S	Shenandoah Ventures LP	04S06E20C01S	Inactive	Irrigation	250-790	S	Upgradient in Thousand Palms area; upgradient of septic areas
66	05S05E12D01S	Thunderbird Country Club	05S05E12D01S	Active	Irrigation	125-360	S	Western edge of Indio subbasin; near septic and areas served NPW
67	05S06E12M01S	Palm Desert Resort Country Club	05S06E12M01S	Active	Irrigation	140-650	S	Center of Indio subbasin; near areas served NPW
68	05S07E08Q01S	Bermuda Dunes Airport	05S07E08Q01S	Active	Domestic	203-654	S	Center of Indio subbasin; near areas served NPW
69	05S07E28H02S	Tricon/COB Riverdale LP	05S07E28H02S	Active	Domestic	162-636	S	Center of Indio subbasin
70	05S08E28M02S	JS Cooper	05S08E28M02S	Undetermined	Unknown	208-268	S	Eastern edge of Indio subbasin; downgradient of VSD discharge point
71	05S08E30N03S	Carver Tract Mutual Water Co	05S08E30N03S	Active	Domestic	270-330	S	Eastern portion of Indio subbasin; downgradient from VSD plant
72	06S07E07B01S	Traditions Golf Club	06S07E07B01S	Active	Irrigation	200-480	S	Downgradient from The Cove; near golf courses and septic areas
73	06S08E02L01S	Prime Time International	06S08E02L01S	Undetermined	Irrigation	216-407	S	Eastern edge of Indio subbasin; near agriculture; upgradient from CWA/CSD WWTP
74	06S08E05K01S	Peter Rabbit Farms	06S08E05K01S	Active	Irrigation	126-375	S	Eastern portion of Indio subbasin in Coachella
75	06S08E32L01S	Guillermo Torres	06S08E32L01S	Undetermined	Unknown	127-227	S	Downgradient from TEL-GRF; agricultural area
76	07S08E27A01S	Gimmway Enterprises Inc	07S08E27A01S	Active	Domestic	147-215	S	Downgradient from Martinez Canyon GRF; near septic areas
77	07S09E14C01S	Tudor Ranch Inc.	07S09E14C01S	Active	Domestic	93-290	S	Southeastern corner of Indio subbasin; near agriculture and septic areas; near Salton Sea
78	08S08E15G02S	Thermiculture Management LLC	08S08E15G02S	Active	Irrigation	260-500	S	Southern corner of Indio subbasin; near agriculture; near Salton Sea
79		Mission Springs Water District	Well 25	Active	MUN	330-455	S	Monitoring of subsurface inflow from San Geronio Pass subbasin
80		Mission Springs Water District	Well 1	Inactive	Monitoring		S	Northern Miracle Hill subarea; upgradient of Mission Creek subbasin
81		Mission Springs Water District	Horton WWTP MW-1	Active	Monitoring	186-236	S	Monitoring wells upgradient and downgradient of the Horton WWTP
82		Mission Springs Water District	Horton WWTP MW-2	Active	Monitoring	220-270	S	Monitoring wells upgradient and downgradient of the Horton WWTP
83		Mission Springs Water District	Horton WWTP MW-3	Active	Monitoring	200-250	S	Monitoring wells upgradient and downgradient of the Horton WWTP

(a) Well Status: Well Status: "Active" means well is known to exist and currently used for original purpose; "Standby" means active backup well; "Inactive" means well exists but is no longer used as a water-supply.

(b) Well Use: MUN = municipal and domestic supply

(c) Depth Code: This monitoring program assigns wells to aquifer layers by depth. P = Perched aquifer system, mainly in the Thermal subarea. S = Shallow aquifer system. D = Deep aquifer system

Table 3-2. SNMP Groundwater Monitoring Network -- Deep Aquifer System

Map_ID	SWN	Well Owner	Well Name	Well Status ^(a)	Well Use ^(b)	Screen Interval ft-bgs	Depth Code ^(c)	Justification for Inclusion in SNMP Monitoring Program
84	03S04E20F02S	USGS	335348116352702	Active	Monitoring	850-890	D	Northwest area at WW-GRF
85	03S04E20J03S	USGS	335339116345303	Active	Monitoring	850-890	D	Northeast area at WW-GRF
86	06S07E33G01S	Coachella Valley Water District	TEL-GRF MW-21D	Active	Monitoring	390-410	D	Adjacent to and downgradient of TEL-GRF
87	06S07E33J01S	Coachella Valley Water District	TEL-GRF MW-22D	Active	Monitoring	520-540	D	Adjacent to and downgradient of TEL-GRF
88	06S07E34N02S	Coachella Valley Water District	TEL-GRF MW-23D	Active	Monitoring	525-545	D	Adjacent to and downgradient of TEL-GRF
89	07S09E30R03S	Coachella Valley Water District	Peggy	Active	Monitoring	730-770	D	Downgradient of WRP-4; near agriculture; area of subsurface outflow toward Salton Sea
90	08S09E07N02S	Coachella Valley Water District	Rosie	Active	Monitoring	720-780	D	Near agriculture; area of subsurface outflow toward Salton Sea
91	05S07E24L03S	Indio Water Authority	Well 1E	Active	MUN	552-815	D	Center of Indio subbasin; upgradient of VSD plant
92	02S04E28J01S	Mission Springs Water District	Well 35	Active	MUN	725-1020	D	Downgradient from Mission Creek GRF
93	02S04E36P01S	Mission Springs Water District	Well 37	Active	MUN	450-1080	D	Downgradient of DHS subbasin; possibly downgradient of Horton WWTP
94	02S05E31H01S	Mission Springs Water District	Well 5	Inactive	Monitoring	274-784	D	Northern Miracle Hill subarea; upgradient of Mission Creek subbasin
95	03S03E07D01S	Mission Springs Water District	Well 25A	Active	MUN	500-740	D	Monitoring of subsurface inflow from San Geronio Pass subbasin
96	03S04E04P01S	CPV Sentinel	03S04E04P01S	Active	Unknown		D	Upgradient portion of Mission Creek subbasin
97	03S04E11A02S	Mission Springs Water District	Well 32	Active	MUN	320-980	D	Center of Mission Creek subbasin; near potential septic areas
98	03S03E08A01S	Mission Springs Water District	Well 26A	Active	MUN	320-600	D	Monitoring of subsurface inflow from San Geronio Pass subbasin
99	03S03E10P01S	Unknown	DWA P04	Active	Unknown	476-776	D	Upgradient of Whitewater GRF
100	03S04E14J01S	Mission Springs Water District	Well 33	Active	MUN	360-650	D	Along boundary of Mission Creek subbasin/Garnet Hill subarea
101	03S04E19L01S	Desert Water Agency	DWA Well 43	Active	MUN	500-900	D	Upgradient of Whitewater GRF
102	03S04E34H02S	Desert Water Agency	DWA Well 35	Active	MUN	600-1000	D	Upgradient of urban land uses in Palm Springs; downgradient of WW-GRF
103	03S04E36Q01S	Desert Water Agency	DWA Well 38	Active	MUN	620-1000	D	Upgradient of urban land uses in Palm Springs; downgradient of WW-GRF
104	04S04E02B01S	Desert Water Agency	DWA Well 22	Active	MUN	570-1003	D	Upgradient of urban land uses in Palm Springs; downgradient of WW-GRF
105	04S04E11Q02S	Desert Water Agency	DWA Well 18	Standby	MUN	535-948	D	Western portion of Indio subbasin; downgradient of septic areas
106	04S04E13C01S	Desert Water Agency	DWA Well 23	Active	MUN	512-912	D	Center of Indio subbasin; near airport
107	04S04E24E01S	Desert Water Agency	DWA Well 32	Active	MUN	600-1000	D	Western portion of Palm Springs subarea; near areas served non-potable water (NPW)
108	04S04E24H01S	Desert Water Agency	DWA Well 29	Active	MUN	600-1000	D	Upgradient of Palm Springs WTP percolation ponds
109	04S04E25C01S	Desert Water Agency	DWA Well 39	Active	MUN	580-750	D	Downgradient of Indian Canyon; near golf, septic, and areas served NPW
110	04S05E05A01S	Coachella Valley Water District	CVWD Well 4568-1	Active	MUN	800-955	D	Eastern edge of Indio subbasin; downgradient from Garnet Hill; upgradient of septic areas
111	04S05E08N01S	Desert Water Agency	DWA Well 41	Active	MUN	610-1000	D	Center of Indio subbasin; near airport, near golf courses and areas served NPW
112	04S05E09R01S	Coachella Valley Water District	CVWD Well 4567-1	Active	MUN	855-1150	D	Center of Indio subbasin; near golf courses and septic areas
113	04S05E15G01S	Coachella Valley Water District	CVWD Well 4521-1	Active	MUN	500-800	D	Center of Indio subbasin; near golf courses and septic areas
114	04S05E17Q02S	Desert Water Agency	DWA Well 31	Active	MUN	600-1000	D	Center of Indio subbasin; near airport, golf courses, and areas served NPW
115	04S05E25D02S	Coachella Valley Water District	CVWD Well 4507-2	Active	MUN	860-1320	D	Center of Indio subbasin; near golf courses and septic areas
116	04S05E27K01S	Coachella Valley Water District	CVWD Well 4527-1	Active	MUN	850-1155	D	Western edge of Indio subbasin; near NPR and septic areas
117	04S05E29H01S	Desert Water Agency	DWA Well 26	Active	MUN	590-990	D	Downgradient of Palm Springs WTP percolation ponds; near golf and areas served NPW
118	04S05E35G04S	Coachella Valley Water District	CVWD Well 4504-1	Active	MUN	600-1000	D	Western edge of Indio subbasin; near septic and areas served NPW
119	04S06E18Q04S	Coachella Valley Water District	CVWD Well 4630-1	Active	MUN	480-990	D	Upgradient in Thousand Palms area; upgradient of septic areas
120	04S06E28K04S	Coachella Valley Water District	CVWD Well 4629-1	Active	Monitoring	496-796	D	Thousand Palms area; near septic and areas served NPW
121	04S07E31H01S	Coachella Valley Water District	CVWD Well 4722-1	Active	MUN	570-1160	D	Thousand Palms area; near septic and areas served NPW
122	04S07E33L01S	Coachella Valley Water District	WRP7 MW-2D	Active	MUN	245-395	D	Near WRP-7 percolation ponds
123	05S06E02C01S	Coachella Valley Water District	CVWD Well 5664-1	Active	MUN	500-930	D	Thousand Palms area; near septic and areas served NPW
124	05S06E06B03S	Coachella Valley Water District	CVWD Well 5630-1	Active	Monitoring	455-890	D	Center of Indio subbasin; near golf, septic, and areas served NPW
125	05S06E09A01S	Coachella Valley Water District	CVWD Well 5682-1	Active	Monitoring	850-1300	D	Upgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
126	05S06E09F01S	Coachella Valley Water District	CVWD Well 5637-1	Inactive	MUN	450-830	D	Upgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
127	05S06E14B02S	Coachella Valley Water District	CVWD Well 5665-1	Inactive	MUN	400-600	D	Downgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
128	05S06E14P02S	Coachella Valley Water District	CVWD Well 5603-2	Active	MUN	720-975	D	Downgradient of WRP-10/PD-GRF; near golf courses and areas served NPW
129	05S06E16A04S	Coachella Valley Water District	CVWD Well 5620-2	Active	MUN	1040-1360	D	Upgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
130	05S06E16K03S	Coachella Valley Water District	CVWD Well 5681-1	Active	Monitoring	900-1200	D	Upgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
131	05S06E17L01S	Coachella Valley Water District	CVWD Well 5667-1	Active	Monitoring	470-800	D	Western edge of Indio subbasin; near golf, septic, and areas served NPW
132	05S06E20A02S	Coachella Valley Water District	CVWD Well 5674-1	Inactive	Monitoring	750-1050	D	South/cross-gradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
133	05S07E03D01S	Coachella Valley Water District	WRP7 MW-4D	Active	MUN	245-395	D	Near WRP-7 percolation ponds
134	05S07E04A01S	Coachella Valley Water District	WRP7 MW-1 Dave Price	Active	Monitoring	147-367	D	Near WRP-7 percolation ponds

Table 3-2. SNMP Groundwater Monitoring Network -- Deep Aquifer System

Map_ID	SWN	Well Owner	Well Name	Well Status ^(a)	Well Use ^(b)	Screen Interval ft-bgs	Depth Code ^(c)	Justification for Inclusion in SNMP Monitoring Program
135	05S07E15N01S	Indio Water Authority	Well AA	Active	MUN	550-1230	D	Center of Indio subbasin; downgradient from areas served NPW
136	05S07E19A01S	Coachella Valley Water District	CVWD Well 5708-1	Inactive	MUN	450-970	D	Western portion of Indio subbasin; near golf courses and areas served NPW
137	05S07E20J01S	Indio Water Authority	Well T	Active	MUN	580-1305	D	Western portion of Indio subbasin; near golf courses and areas served NPW
138	05S07E26E02S	Indio Water Authority	Well 3B	Active	MUN	500-1200	D	Center of Indio subbasin
139	05S07E27P01S	Indio Water Authority	Well Z	Active	MUN	580-1290	D	Center of Indio subbasin
140	05S07E33E01S	Indio Water Authority	Well S	Active	MUN	460-1260	D	Western portion of Indio subbasin; near golf courses and septic areas
141	05S07E34P04S	Indio Water Authority	Well V	Active	MUN	460-1270	D	Western portion of subbasin; near golf courses and septic areas
142	05S07E35R02S	Indio Water Authority	Well U	Active	MUN	480-1190	D	Center of Indio subbasin
143	05S07E36D03S	Coachella Water Authority	Well 19	Active	MUN	650-1250	D	Center of Indio subbasin
144	05S08E31C03S	Coachella Water Authority	Well 11	Active	MUN	513-818	D	Eastern portion of Indio subbasin; downgradient from VSD plant
145	06S07E06B01S	Coachella Valley Water District	CVWD Well 6701-1	Active	MUN	580-800	D	Downgradient from The Cove; near golf courses and septic areas
146	06S07E22B02S	Coachella Valley Water District	CVWD Well 6726-1	Active	MUN	640-1160	D	North/downgradient of TEL-GRF; near golf courses, septic, and agricultural areas
147	06S07E34A01S	Coachella Valley Water District	CVWD Well 6728-1	Active	MUN	500-750	D	Downgradient from TEL-GRF; near golf courses
148	06S07E34D01S	Coachella Valley Water District	CVWD Well 6729-1	Active	MUN	500-780	D	Directly north/downgradient of TEL-GRF
149	06S08E06K02S	Coachella Water Authority	Well 12	Active	MUN	500-1010	D	Eastern portion of Indio subbasin
150	06S08E09N02S	Coachella Water Authority	Well 16	Active	Monitoring	480-730	D	Eastern portion of Indio subbasin; upgradient from CWA/CSD WWTP
151	06S08E19D05S	Coachella Valley Water District	CVWD Well 6808-1	Active	MUN	675-1200	D	Center of Indio subbasin; near septic and agricultural areas
152	06S08E22D02S	Coachella Valley Water District	CVWD Well 6803-1	Inactive	MUN	500-1100	D	Downgradient from CWA/CSD WWTP; near septic and agricultural areas
153	06S08E25P04S	Coachella Valley Water District	CVWD Well 6807-1	Active	MUN	665-1300	D	Upgradient of WRP-4; downgradient of CWA WWTP; near agriculture and septic areas
154	06S08E28N06S	Coachella Water Authority	Well 18	Active	Monitoring	900-1190	D	Eastern edge of Indio subbasin; downgradient of VSD discharge point
155	07S08E17A04S	Coachella Valley Water District	CVWD Well 7803-1	Active	MUN	250-710	D	Downgradient from TEL-GRF; in agricultural and septic areas
156	07S09E23N01S	Coachella Valley Water District	CVWD Well 7990-1	Inactive	Unknown	530-560	D	Southeastern corner of the basin; near agricultural and septic areas; near Salton Sea
157		Indio Water Authority	Well 13A	Active	Irrigation	550-1171	D	East in subbasin; downgradient from WRP-7 ponds and NPR areas
158	03S05E08B01S	R.C Roberts	03S05E08B01S	Undetermined	Irrigation	356-516	D	Downgradient of DHS subbasin; near golf course and septic areas
159	03S05E17M01S	Desert Dunes Golf Club	03S05E17M01S	Active	Unknown	305-412	D	Upgradient of Garnet Hill subarea; near golf course and septic areas
160	03S05E20H02S	Donald Franklin	03S05E20H02S	Active	Irrigation	240-360	D	Distal area in Mission Creek subbasin; upgradient of Garnet Hill subarea; near septic
161	03S06E21R01S	Joel Rosenfeld	03S06E21R01S	Undetermined	Irrigation	355-495	D	Western portion of Sky Valley subarea; near septic
162	05S05E12B03S	Tandika Corp	05S05E12B03S	Active	Irrigation	410-800	D	Western edge of Indio subbasin; near NPR and septic areas
163	05S06E13F01S	PD Golf Operations LLC	05S06E13F01S	Active	Irrigation	400-700	D	Downgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
164	05S06E15H01S	Toscana Country Club	05S06E15H01S	Active	Irrigation	430-950	D	Downgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
165	05S06E22C02S	Desert Horizons Country Club	05S06E22C02S	Active	Irrigation	550-990	D	Downgradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
166	05S06E27A01S	El Dorado Country Club	05S06E27A01S	Active	MUN	458-596	D	South/cross-gradient of WRP-10/PD-GRF; near golf, septic, and areas served NPW
167	05S06E29P04S	Bighorn Golf Club	05S06E29P04S	Active	MUN	530-720	D	Upgradient of Palm Desert; near golf courses and septic areas
168	05S07E07F04S	Myoma Dunes Mutual Water Company	Well 4	Active	MUN	430-730	D	Center of Indio subbasin; near areas served NPW
169	05S07E08L01S	Myoma Dunes Mutual Water Company	Well 11	Active	Unknown	500-1060	D	Center of Indio subbasin; near areas served NPW
170	05S07E17K01S	Myoma Dunes Mutual Water Company	Well 12	Active	Irrigation	450-950	D	Center of Indio subbasin; near areas served NPW
171	05S08E09N03S	Jamie Brack	05S08E09N03S	Undetermined	Unknown	480-580	D	Downgradient of septic areas in Fargo subarea; upgradient of Indio subbasin
172	06S07E27B01S	Andalusia Golf Club	06S07E27B01S	Active	Irrigation	300-780	D	Downgradient of TEL-GRF; near golf course and agricultural areas
173	06S07E35L02S	Castro Bros	Castro Bros	Active	Unknown	300-400	D	Downgradient from TEL-GRF; near golf courses and agricultural areas
174	06S08E11A01S	Cocopah Nurseries Inc	06S08E11A01S	Active	Unknown	400-842	D	Eastern edge of Indio subbasin; near agriculture; upgradient from CWA/CSD WWTP
175	06S08E31P01S	Deer Creek	Deer Creek	Active	Irrigation	400-550	D	Downgradient from TEL-GRF, in agricultural area
176	06S08E35E02S	Otto L. Zahler	06S08E35E02S	Undetermined	Unknown	521-596	D	Center of Indio subbasin; directly upgradient of WRP-4; in agricultural area
177	07S07E02G02S	Warren Webber	Warren Webber	Active	Irrigation	380-700	D	Downgradient from TEL-GRF; in agricultural area
178	07S08E01L02S	Bill Wordon	07S08E01L02S	Undetermined	Domestic	500-880	D	Center of Indio subbasin; downgradient of WRP-4, in agricultural area
179	07S08E27A02S	Gimmway Enterprises Inc	07S08E27A02S	Active	MUN	491-811	D	Downgradient from Martinez Canyon GRF; in agricultural area
180	07S09E10F01S	Prime Time International	07S09E10F01S	Active	Unknown	360-500	D	Southeast Indio subbasin; in agricultural area; near Salton Sea
181		Mission Springs Water District	Well 31	Active	MUN	270-670	D	Upgradient of Garnet Hill subarea; near potential septic areas in N. Palm Springs

(a) Well Status: Well Status: "Active" means well is known to exist and currently used for original purpose; "Standby" means active backup well; "Inactive" means well exists but is no longer used as a water-supply.

(b) Well Use: MUN = municipal and domestic supply

(c) Depth Code: This monitoring program assigns wells to aquifer layers by depth. P = Perched aquifer system, mainly in the Thermal subarea. S = Shallow aquifer system. D = Deep aquifer system

Table 3-3. SNMP Groundwater Monitoring Network -- Perched Aquifer System

Map_ID	SWN	Well Owner	Well Name	Well Status ^(a)	Well Use ^(b)	Screen Interval ft-bgs	Depth Code ^(c)	Justification for Inclusion in SNMP Monitoring Program
182		Coachella Valley Water District	WRP2 MW3	Active	Monitoring	<90	P	At WRP-2; represents subsurface discharge to Salton Sea
183	06S07E27J03S	Coachella Valley Water District	TEL-GRF MW-8	Active	Monitoring	25-45	P	North/downgradient of TEL-GRF; near golf course and agriculture
184	06S07E34A03S	Coachella Valley Water District	TEL-GRF MW-9	Active	Monitoring	25-45	P	Downgradient from TEL-GRF and golf course
185	06S08E31R01S	Coachella Valley Water District	TEL-GRF MW-10	Active	Monitoring	25-45	P	Downgradient from TEL-GRF; agricultural area
186	07S08E06P01S	Coachella Valley Water District	TEL-GRF MW-11	Active	Monitoring	25-45	P	Downgradient from TEL-GRF; agricultural area
187		Coachella Valley Water District	PEW-1	Active	Monitoring	10-55	P	At WRP-4; agricultural area

(a) Well Status: "Active" means well is known to exist and currently used for original purpose; "Standby" means active backup well; "Inactive" means well exists but is no longer used as a water-supply.

(b) Well Use: MUN = municipal and domestic supply

(c) Depth Code: This monitoring program assigns wells to aquifer layers by depth. P = Perched aquifer system, mainly in the Thermal subarea. S = Shallow aquifer system. D = Deep aquifer system

Table 3-4. Gaps in SNMP Groundwater Monitoring Network

Map_ID	Depth Code ^(a)	Justification for Inclusion in SNMP Monitoring Program	Approx. Depth of Well Screens	Overlying SNMP Agency ^(b)
G1	S	Monitoring of subsurface inflows from areas upgradient of Mission Creek GRF	700-1000 ft-bgs	DWA, MSWD
G2	S	Monitoring directly downgradient of the planned MSWD West Valley WWTP	200-300 ft-bgs	MSWD, DWA
G3	S	Monitoring of southern Miracle Hill subarea; near septic; upgradient of Desert Crest WWTP	100-300 ft-bgs	CVWD
G4	S	Monitoring of the Fargo subarea of DHS subbasin; near septic	100-300 ft-bgs	CVWD
G5	S	Monitoring upgradient of urban land uses in Palm Springs; downgradient of WW-GRF	300-500 ft-bgs	DWA
G6	S	Monitoring center of Indio subbasin; near airport, golf courses, and areas served non-potable water (NPW)	250-350 ft-bgs	DWA
G7	S	Monitoring a spatial gap in western portion of Indio subbasin; near golf courses, septic and areas served NPW	200-300 ft-bgs	CVWD
G8	S	Monitoring of subsurface inflows from areas upgradient of urban land uses in Palm Desert Canyon	250-400 ft-bgs	CVWD
G9	S	Monitoring a spatial gap in western portion of Indio subbasin; near golf courses and septic	100-250 ft-bgs	CVWD, IWA
G10	S	Monitoring downgradient from CWA/CSD WWTP; near septic areas and agriculture	100-250 ft-bgs	CVWD
G11	S	Monitoring a spatial gap downgradient of TEL-GRF; near golf courses, septic, and agricultural areas	85-160 ft-bgs	CVWD
G12	S	Monitoring a spatial gap in center of Indio subbasin; near septic areas and agriculture	100-235 ft-bgs	CVWD
G13	S	Monitoring a spatial gap downgradient from TEL-GRF; in agricultural areas	50-150 ft-bgs	CVWD
G14	S	Monitoring a spatial gap downgradient of WRP-4; in agricultural area; near Salton Sea	100-250 ft-bgs	CVWD
G15	S	Monitoring a spatial gap directly upgradient of WRP-4; in agricultural area	100-275 ft-bgs	CVWD
G16	S	Monitoring a spatial gap upgradient of WRP-4; downgradient of CWA/CSD WWTP; near agriculture, septic	100-250 ft-bgs	CVWD
G17	P	Monitoring a spatial gap in northern portion of Perched area; downgradient from Fargo subarea	<100 ft-bgs	CVWD, IWA, VSD
G18	P	Monitoring a spatial gap on eastern side of Perched area; in agricultural area	<70 ft-bgs	CVWD, CWA/CSD
G19	P	Monitoring a spatial gap in center of Perched area; near agricultural and septic areas	<90 ft-bgs	CVWD, CWA/CSD
G20	P	Monitoring a spatial gap in southern basin; may represent subsurface discharge to Salton Sea	<70 ft-bgs	CVWD
G21	P	Monitoring a spatial gap in southern basin; may represent subsurface discharge to Salton Sea	<70 ft-bgs	CVWD
G22	P	Monitoring a spatial gap in southern basin; may represent subsurface discharge to Salton Sea	<90 ft-bgs	CVWD
G23	S	Monitoring a spatial gap in Thousand Palms area; near septic and areas served NPW	150-300 ft-bgs	CVWD

(a) Depth Code: This monitoring program assigns wells to aquifer layers by depth. P = Perched aquifer system, mainly in the Thermal subarea. S = Shallow aquifer system.

(b) CVWD = Coachella Valley Water District; CWA/CSD = Coachella Water Authority and Sanitary District; DWA = Desert Water Agency; IWA = Indio Water Authority; VSD = Valley Sanitary District; MSWD = Mission Springs Water District

Table 3-5. Analyte List for the SNMP Groundwater Monitoring Program

Analytes	Justification	Method	Cost/Sample
Total Dissolved Solids	Measure of total dissolved salt content in water	E160.1/SM2540C	\$14
Nitrate as Nitrogen	Primary nutrient in groundwater	EPA 300.0	\$12
Major cations: K, Na, Ca, Mg	Useful in source water characterization	EPA 200.7	\$20
Major anions: Cl, SO ₄	Useful in source water characterization	EPA 300.0	\$18
Total Alkalinity (HCO ₃ , CO ₃ , OH)	Useful in source water characterization	SM 2320B/2330B	\$13

Table 3-6. Responsibilities for Groundwater Sampling and Laboratory Analyses

Map_ID	SWN	Well Owner	Well Name	Well Status ^(a)	Well Use ^(b)	Screen Interval ft-bgs	Depth Code ^(c)	Overlying SNMP Agency ^(d)
1	03S04E20F01S	USGS	335348116352701	Active	Monitoring	600-640	S	CVWD
2	03S04E20J01S	USGS	335339116345301	Active	Monitoring	550-590	S	CVWD
3	06S07E33G02S	Coachella Valley Water District	TEL-GRF MW-21S	Active	Monitoring	230-250	S	CVWD
4	06S07E33J02S	Coachella Valley Water District	TEL-GRF MW-22S	Active	Monitoring	230-250	S	CVWD
5	06S07E34N03S	Coachella Valley Water District	TEL-GRF MW-23S	Active	Monitoring	230-250	S	CVWD
7	02S04E26C01S	Mission Springs Water District	Well 28	Inactive	MUN	590-898	S	MSWD
8	02S04E28A01S	Mission Springs Water District	Well 34	Active	MUN	550-980	S	MSWD
9	02S05E31L01S	Mission Springs Water District	Well 11	Inactive	Unknown	220-285	S	MSWD
10	03S04E04Q02S	CPV Sentinel	03S04E04Q02S	Active	Unknown		S	DWA, MSWD
11	03S04E11L01S	Mission Springs Water District	Well 27	Active	MUN	180-380	S	MSWD
12	03S05E05Q01S	Hidden Springs Golf Course	P27	Active	Unknown	220-600	S	DWA, MSWD
13		City of Palm Springs	Airport MW-2	Active	Monitoring	240-250	S	CPS
14		City of Palm Springs	MW-1	Active	Monitoring	170-210	S	CPS
15		City of Palm Springs	MW-3	Active	Monitoring	140-215	S	CPS
16		City of Palm Springs	MW-4	Active	Monitoring	170-210	S	CPS
17		City of Palm Springs	MW-5	Active	Monitoring	170-210	S	CPS
18		City of Palm Springs	MW-6	Active	Monitoring	170-210	S	CPS
19	03S03E08M01S	Mission Springs Water District	Well 26	Active	MUN	225-553	S	MSWD
20	03S03E10P02S	Unknown	DWA P05	Active	Unknown	306-906	S	DWA
21	03S04E12B02S	Coachella Valley Water District	CVWD Well 3408-1	Active	MUN	270-500	S	CVWD
22	03S04E29F01S	USGS	335304116353001	Active	Monitoring	550-570	S	CVWD
23	03S04E29R01S	USGS	335231116345401	Active	Monitoring	431-551	S	CVWD
24	04S04E11Q01S	Desert Water Agency	DWA Well 5	Standby	MUN	302-402	S	DWA
25	04S04E35A01S	Indian Canyons Golf Resort	04S04E35A01S	Active	Unknown	360-680	S	DWA
26	04S05E09F03S	Coachella Valley Water District	CVWD Well 4564-1	Active	MUN	410-670	S	CVWD
27	04S05E29A02S	Desert Water Agency	DWA Well 25	Active	MUN	166-300	S	DWA
29	04S07E33L02S	Coachella Valley Water District	WRP7 MW-2S	Active	Monitoring	60-190	S	CVWD
30	05S06E09M03S	Coachella Valley Water District	WRP10 MW-7	Active	Monitoring	260-340	S	CVWD
31	05S06E09P02S	Coachella Valley Water District	PD-GRF MW 2	Active	Monitoring	260-340	S	CVWD
32	05S06E10J01S	Coachella Valley Water District	PD-GRF MW 1	Active	Monitoring	260-340	S	CVWD
33	05S06E13G03S	Coachella Valley Water District	WRP10 MW-8	Active	Monitoring	260-340	S	CVWD
34	05S06E14G03S	Coachella Valley Water District	WRP10 MW-5	Active	Monitoring	240-320	S	CVWD
35	05S06E14P03S	Coachella Valley Water District	WRP10 MW-6	Active	Monitoring	190-270	S	CVWD
36	05S06E15F01S	Coachella Valley Water District	WRP10 MW-2	Active	Monitoring	160-290	S	CVWD
37	05S06E15M01S	Coachella Valley Water District	WRP10 MW-1	Active	Monitoring	145-295	S	CVWD
38	05S06E15P01S	Coachella Valley Water District	WRP10 MW-3	Active	Monitoring	130-290	S	CVWD
39	05S06E16A03S	Coachella Valley Water District	WRP10 MW-4	Active	Monitoring	190-270	S	CVWD
40	05S06E21Q04S	Coachella Valley Water District	PD-GRF MW 3	Active	Monitoring	260-340	S	CVWD
41	05S06E23M02S	Coachella Valley Water District	PD-GRF MW 4	Active	Monitoring	270-360	S	CVWD
42	05S07E03D02S	Coachella Valley Water District	WRP7 MW-4S	Active	Monitoring	60-190	S	CVWD
43	05S07E04A04S	Coachella Valley Water District	WRP7 MW-3S	Active	Monitoring	50-180	S	CVWD
44	05S07E16K02S	Coachella Valley Water District	CVWD Well 5737-1	Inactive	MUN	200-415	S	CVWD, IWA, VSD
45	05S07E19D04S	Coachella Valley Water District	WRP10 MW-9	Active	Monitoring	260-340	S	CVWD
46	05S07E24M02S	Indio Water Authority	Well 1B	Active	Monitoring	190-410	S	IWA
47	06S06E12G01S	Coachella Valley Water District	CVWD Well 6650-1	Inactive	Monitoring	<370	S	CVWD
48	06S07E34A02S	Coachella Valley Water District	TEL-GRF MW-25	Active	Monitoring	115-135	S	CVWD
49	06S07E34D02S	Coachella Valley Water District	TEL-GRF MW-24	Active	MUN	180-200	S	CVWD
50	07S08E29P03S	Coachella Valley Water District	MC-3	Active	Unknown	380-440	S	CVWD
51	08S09E31R03S	Coachella Valley Water District	CVWD Well 8995-1	Active	Unknown	260-390	S	CVWD
52	03S04E17K01S	Valley View MWC	03S04E17K01S	Undetermined	Fish Farm	340-375	S	DWA, MSWD
53	03S04E22A01S	Erin Miner	03S04E22A01S	Active	Irrigation	180-230	S	DWA
54	03S05E08P02S	Bluebeyond Fisheries	03S05E08P02S	Active	Irrigation	200-400	S	CVWD
55	03S05E15N01S	Too Many Palms LLC	03S05E15N01S	Active	Unknown	158-320	S	CVWD
56	03S05E18J01S	Desert Dunes Golf Club	03S05E18J01S	Active	Irrigation	76-340	S	CVWD
57	03S06E21G01S	Sky Valley Mobile Home Park	03S06E21G01S	Undetermined	Irrigation	188-248	S	CVWD
58	04S05E04F01S	So Pacific Trans Co #32601	04S05E04F01S	Active	Irrigation	276-576	S	CVWD
59	04S05E23F01S	Westin Mission Hills Resort	04S05E23F01S	Active	Irrigation	275-1165	S	CVWD
60	04S05E34C01S	Manufacture Home Community Inc	04S05E34C01S	Active	Irrigation	240-500	S	CVWD

Table 3-6. Responsibilities for Groundwater Sampling and Laboratory Analyses

Map_ID	SWN	Well Owner	Well Name	Well Status ^(a)	Well Use ^(b)	Screen Interval ft-bgs	Depth Code ^(c)	Overlying SNMP Agency ^(d)
61	04S05E35Q01S	Tamarisk Country Club	04S05E35Q01S	Active	Irrigation	171-518	S	CVWD
62	04S05E36L02S	Annenberg Estate	04S05E36L02S	Active	Unknown	252-650	S	CVWD
63	04S06E20C01S	Shenandoah Ventures LP	04S06E20C01S	Inactive	Irrigation	250-790	S	CVWD
66	05S05E12D01S	Thunderbird Country Club	05S05E12D01S	Active	Domestic	125-360	S	CVWD
67	05S06E12M01S	Palm Desert Resort Country Club	05S06E12M01S	Active	Domestic	140-650	S	CVWD
68	05S07E08Q01S	Bermuda Dunes Airport	05S07E08Q01S	Active	Unknown	203-654	S	CVWD, MDMWC
69	05S07E28H02S	Tricon/COB Riverdale LP	05S07E28H02S	Active	Domestic	162-636	S	CVWD, IWA, VSD
70	05S08E28M02S	JS Cooper	05S08E28M02S	Undetermined	Irrigation	208-268	S	CVWD, CWA/CSD
71	05S08E30N03S	Carver Tract Mutual Water Co	05S08E30N03S	Active	Irrigation	270-330	S	CVWD, VSD
72	06S07E07B01S	Traditions Golf Club	06S07E07B01S	Active	Irrigation	200-480	S	CVWD
73	06S08E02L01S	Prime Time International	06S08E02L01S	Undetermined	Unknown	216-407	S	CVWD, CWA/CSD
74	06S08E05K01S	Peter Rabbit Farms	06S08E05K01S	Active	Domestic	126-375	S	CVWD, CWA/CSD
75	06S08E32L01S	Guillermo Torres	06S08E32L01S	Undetermined	Domestic	127-227	S	CVWD
76	07S08E27A01S	Gimmway Enterprises Inc	07S08E27A01S	Active	Irrigation	147-215	S	CVWD
77	07S09E14C01S	Tudor Ranch Inc.	07S09E14C01S	Active	MUN	93-290	S	CVWD
78	08S08E15G02S	Thermiculture Management LLC	08S08E15G02S	Active	Monitoring	260-500	S	CVWD
79		Mission Springs Water District	Well 25	Active	Monitoring	330-455	S	MSWD
80		Mission Springs Water District	Well 1	Inactive	Monitoring		S	MSWD
81		Mission Springs Water District	Horton WWTP MW-1	Active	Monitoring	186-236	S	MSWD
82		Mission Springs Water District	Horton WWTP MW-2	Active	Monitoring	220-270	S	MSWD
83		Mission Springs Water District	Horton WWTP MW-3	Active	Monitoring	200-250	S	MSWD
84	03S04E20F02S	USGS	335348116352702	Active	Monitoring	850-890	D	CVWD
85	03S04E20J03S	USGS	335339116345303	Active	Monitoring	850-890	D	CVWD
86	06S07E33G01S	Coachella Valley Water District	TEL-GRF MW-21D	Active	Monitoring	390-410	D	CVWD
87	06S07E33J01S	Coachella Valley Water District	TEL-GRF MW-22D	Active	Monitoring	520-540	D	CVWD
88	06S07E34N02S	Coachella Valley Water District	TEL-GRF MW-23D	Active	Monitoring	525-545	D	CVWD
89	07S09E30R03S	Coachella Valley Water District	Peggy	Active	MUN	730-770	D	CVWD
90	08S09E07N02S	Coachella Valley Water District	Rosie	Active	MUN	720-780	D	CVWD
91	05S07E24L03S	Indio Water Authority	Well 1E	Active	MUN	552-815	D	IWA
92	02S04E28J01S	Mission Springs Water District	Well 35	Active	Monitoring	725-1020	D	MSWD
93	02S04E36P01S	Mission Springs Water District	Well 37	Active	MUN	450-1080	D	MSWD
94	02S05E31H01S	Mission Springs Water District	Well 5	Inactive	Unknown	274-784	D	MSWD
95	03S03E07D01S	Mission Springs Water District	Well 25A	Active	MUN	500-740	D	MSWD
96	03S04E04P01S	CPV Sentinel	03S04E04P01S	Active	MUN		D	DWA, MSWD
97	03S04E11A02S	Mission Springs Water District	Well 32	Active	Unknown	320-980	D	MSWD
98	03S03E08A01S	Mission Springs Water District	Well 26A	Active	MUN	320-600	D	MSWD
99	03S03E10P01S	Unknown	DWA P04	Active	MUN	476-776	D	DWA
100	03S04E14J01S	Mission Springs Water District	Well 33	Active	MUN	360-650	D	MSWD
101	03S04E19L01S	Desert Water Agency	DWA Well 43	Active	MUN	500-900	D	DWA
102	03S04E34H02S	Desert Water Agency	DWA Well 35	Active	MUN	600-1000	D	DWA
103	03S04E36Q01S	Desert Water Agency	DWA Well 38	Active	MUN	620-1000	D	DWA
104	04S04E02B01S	Desert Water Agency	DWA Well 22	Active	MUN	570-1003	D	DWA
105	04S04E11Q02S	Desert Water Agency	DWA Well 18	Standby	MUN	535-948	D	DWA
106	04S04E13C01S	Desert Water Agency	DWA Well 23	Active	MUN	512-912	D	DWA
107	04S04E24E01S	Desert Water Agency	DWA Well 32	Active	MUN	600-1000	D	DWA
108	04S04E24H01S	Desert Water Agency	DWA Well 29	Active	MUN	600-1000	D	DWA
109	04S04E25C01S	Desert Water Agency	DWA Well 39	Active	MUN	580-750	D	DWA
110	04S05E05A01S	Coachella Valley Water District	CVWD Well 4568-1	Active	MUN	800-955	D	CVWD
111	04S05E08N01S	Desert Water Agency	DWA Well 41	Active	MUN	610-1000	D	DWA
112	04S05E09R01S	Coachella Valley Water District	CVWD Well 4567-1	Active	MUN	855-1150	D	CVWD
113	04S05E15G01S	Coachella Valley Water District	CVWD Well 4521-1	Active	MUN	500-800	D	CVWD
114	04S05E17Q02S	Desert Water Agency	DWA Well 31	Active	MUN	600-1000	D	DWA
115	04S05E25D02S	Coachella Valley Water District	CVWD Well 4507-2	Active	MUN	860-1320	D	CVWD
116	04S05E27K01S	Coachella Valley Water District	CVWD Well 4527-1	Active	MUN	850-1155	D	CVWD
117	04S05E29H01S	Desert Water Agency	DWA Well 26	Active	MUN	590-990	D	DWA
118	04S05E35G04S	Coachella Valley Water District	CVWD Well 4504-1	Active	MUN	600-1000	D	CVWD
119	04S06E18Q04S	Coachella Valley Water District	CVWD Well 4630-1	Active	MUN	480-990	D	CVWD
120	04S06E28K04S	Coachella Valley Water District	CVWD Well 4629-1	Active	Monitoring	496-796	D	CVWD

Table 3-6. Responsibilities for Groundwater Sampling and Laboratory Analyses

Map_ID	SWN	Well Owner	Well Name	Well Status ^(a)	Well Use ^(b)	Screen Interval ft-bgs	Depth Code ^(c)	Overlying SNMP Agency ^(d)
121	04S07E31H01S	Coachella Valley Water District	CVWD Well 4722-1	Active	MUN	570-1160	D	CVWD
122	04S07E33L01S	Coachella Valley Water District	WRP7 MW-2D	Active	MUN	245-395	D	CVWD
123	05S06E02C01S	Coachella Valley Water District	CVWD Well 5664-1	Active	MUN	500-930	D	CVWD
124	05S06E06B03S	Coachella Valley Water District	CVWD Well 5630-1	Active	Monitoring	455-890	D	CVWD
125	05S06E09A01S	Coachella Valley Water District	CVWD Well 5682-1	Active	Monitoring	850-1300	D	CVWD
126	05S06E09F01S	Coachella Valley Water District	CVWD Well 5637-1	Inactive	MUN	450-830	D	CVWD
127	05S06E14B02S	Coachella Valley Water District	CVWD Well 5665-1	Inactive	MUN	400-600	D	CVWD
128	05S06E14P02S	Coachella Valley Water District	CVWD Well 5603-2	Active	MUN	720-975	D	CVWD
129	05S06E16A04S	Coachella Valley Water District	CVWD Well 5620-2	Active	MUN	1040-1360	D	CVWD
130	05S06E16K03S	Coachella Valley Water District	CVWD Well 5681-1	Active	Monitoring	900-1200	D	CVWD
131	05S06E17L01S	Coachella Valley Water District	CVWD Well 5667-1	Active	Monitoring	470-800	D	CVWD
132	05S06E20A02S	Coachella Valley Water District	CVWD Well 5674-1	Inactive	Monitoring	750-1050	D	CVWD
133	05S07E03D01S	Coachella Valley Water District	WRP7 MW-4D	Active	MUN	245-395	D	CVWD
134	05S07E04A01S	Coachella Valley Water District	WRP7 MW-1	Active	Monitoring	147-367	D	CVWD
135	05S07E15N01S	Indio Water Authority	Well AA	Active	MUN	550-1230	D	IWA
136	05S07E19A01S	Coachella Valley Water District	CVWD Well 5708-1	Inactive	MUN	450-970	D	CVWD
137	05S07E20J01S	Indio Water Authority	Well T	Active	MUN	580-1305	D	IWA
138	05S07E26E02S	Indio Water Authority	Well 3B	Active	MUN	500-1200	D	IWA
139	05S07E27P01S	Indio Water Authority	Well Z	Active	MUN	580-1290	D	IWA
140	05S07E33E01S	Indio Water Authority	Well S	Active	MUN	460-1260	D	IWA
141	05S07E34P04S	Indio Water Authority	Well V	Active	MUN	460-1270	D	IWA
142	05S07E35R02S	Indio Water Authority	Well U	Active	MUN	480-1190	D	IWA
143	05S07E36D03S	Coachella Water Authority	Well 19	Active	MUN	650-1250	D	CWA/CSD
144	05S08E31C03S	Coachella Water Authority	Well 11	Active	MUN	513-818	D	CWA/CSD
145	06S07E06B01S	Coachella Valley Water District	CVWD Well 6701-1	Active	MUN	580-800	D	CVWD
146	06S07E22B02S	Coachella Valley Water District	CVWD Well 6726-1	Active	MUN	640-1160	D	CVWD
147	06S07E34A01S	Coachella Valley Water District	CVWD Well 6728-1	Active	MUN	500-750	D	CVWD
148	06S07E34D01S	Coachella Valley Water District	CVWD Well 6729-1	Active	MUN	500-780	D	CVWD
149	06S08E06K02S	Coachella Water Authority	Well 12	Active	MUN	500-1010	D	CWA/CSD
150	06S08E09N02S	Coachella Water Authority	Well 16	Active	Monitoring	480-730	D	CWA/CSD
151	06S08E19D05S	Coachella Valley Water District	CVWD Well 6808-1	Active	MUN	675-1200	D	CVWD
152	06S08E22D02S	Coachella Valley Water District	CVWD Well 6803-1	Inactive	MUN	500-1100	D	CVWD
153	06S08E25P04S	Coachella Valley Water District	CVWD Well 6807-1	Active	MUN	665-1300	D	CVWD
154	06S08E28N06S	Coachella Water Authority	Well 18	Active	Monitoring	900-1190	D	CWA/CSD
155	07S08E17A04S	Coachella Valley Water District	CVWD Well 7803-1	Active	MUN	250-710	D	CVWD
156	07S09E23N01S	Coachella Valley Water District	CVWD Well 7990-1	Inactive	Unknown	530-560	D	CVWD
157		Indio Water Authority	Well 13A	Active	Irrigation	550-1171	D	IWA
158	03S05E08B01S	R.C Roberts	03S05E08B01S	Undetermined	Irrigation	356-516	D	DWA
159	03S05E17M01S	Desert Dunes Golf Club	03S05E17M01S	Active	Unknown	305-412	D	CVWD
160	03S05E20H02S	Donald Franklin	03S05E20H02S	Active	Irrigation	240-360	D	CVWD
161	03S06E21R01S	Joel Rosenfeld	03S06E21R01S	Undetermined	Irrigation	355-495	D	CVWD
162	05S05E12B03S	Tandika Corp	05S05E12B03S	Active	Irrigation	410-800	D	CVWD
163	05S06E13F01S	PD Golf Operations LLC	05S06E13F01S	Active	Irrigation	400-700	D	CVWD
164	05S06E15H01S	Toscana Country Club	05S06E15H01S	Active	Irrigation	430-950	D	CVWD
165	05S06E22C02S	Desert Horizons Country Club	05S06E22C02S	Active	Irrigation	550-990	D	CVWD
166	05S06E27A01S	El Dorado Country Club	05S06E27A01S	Active	MUN	458-596	D	CVWD
167	05S06E29P04S	Bighorn Golf Club	05S06E29P04S	Active	MUN	530-720	D	CVWD
168	05S07E07F04S	Myoma Dunes Mutual Water Company	Well 4	Active	MUN	430-730	D	MDMWC
169	05S07E08L01S	Myoma Dunes Mutual Water Company	Well 11	Active	Unknown	500-1060	D	MDMWC
170	05S07E17K01S	Myoma Dunes Mutual Water Company	Well 12	Active	Irrigation	450-950	D	MDMWC
171	05S08E09N03S	Jamie Brack	05S08E09N03S	Undetermined	Unknown	480-580	D	CVWD, IWA
172	06S07E27B01S	Andalusia Golf Club	06S07E27B01S	Active	Irrigation	300-780	D	CVWD
173	06S07E35L02S	Castro Bros	Castro Bros	Active	Unknown	300-400	D	CVWD
174	06S08E11A01S	Cocopah Nurseries Inc	06S08E11A01S	Active	Unknown	400-842	D	CVWD, CWA/CSD
175	06S08E31P01S	Deer Creek	Deer Creek	Active	Irrigation	400-550	D	CVWD
176	06S08E35E02S	Otto L. Zahler	06S08E35E02S	Undetermined	Unknown	521-596	D	CVWD
177	07S07E02G02S	Warren Webber	Warren Webber	Active	Irrigation	380-700	D	CVWD
178	07S08E01L02S	Bill Wordon	07S08E01L02S	Undetermined	Domestic	500-880	D	CVWD

Table 3-6. Responsibilities for Groundwater Sampling and Laboratory Analyses

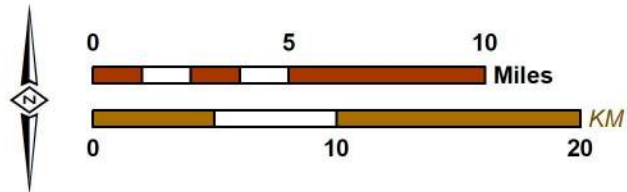
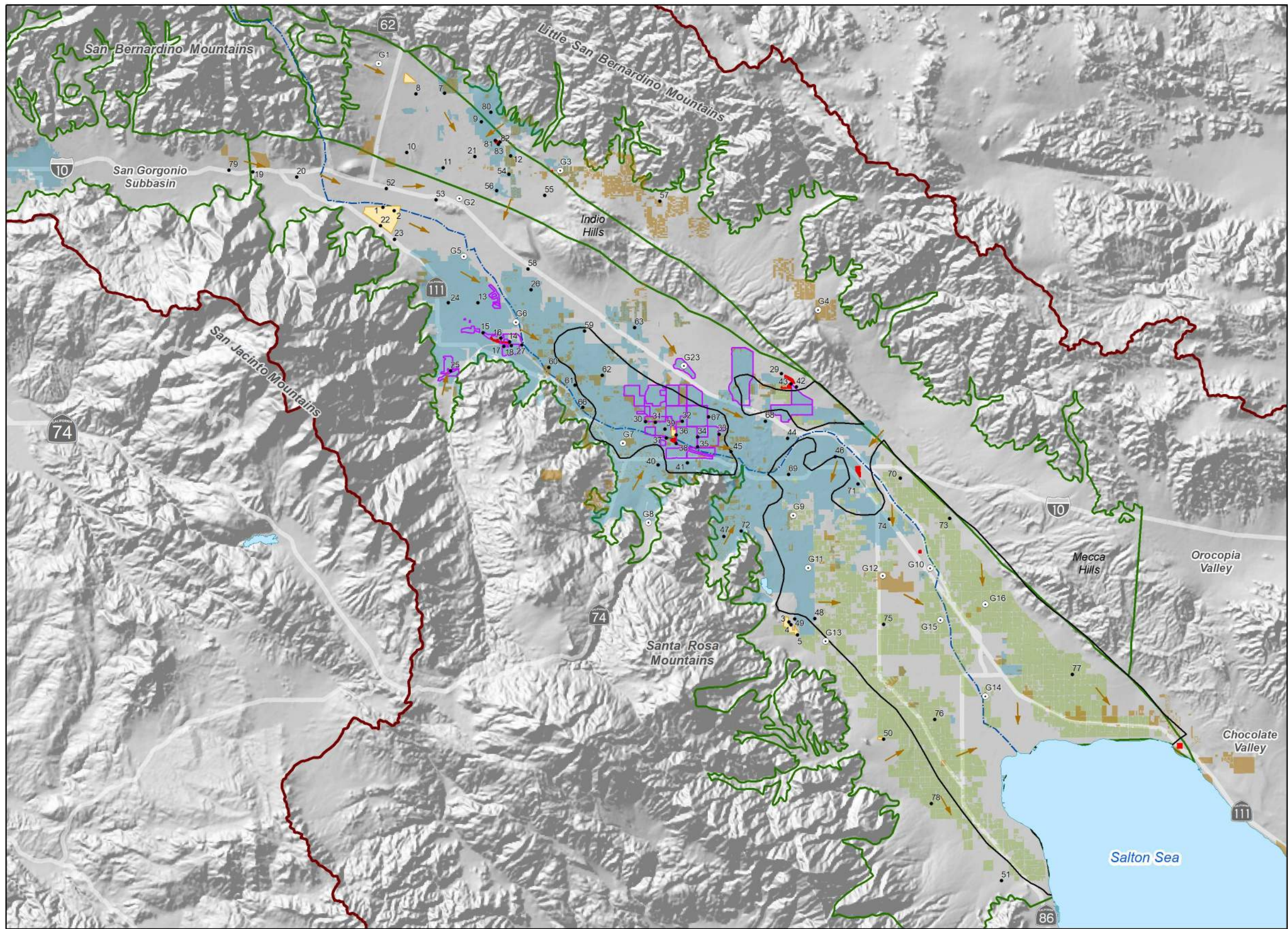
Map_ID	SWN	Well Owner	Well Name	Well Status ^(a)	Well Use ^(b)	Screen Interval ft-bgs	Depth Code ^(c)	Overlying SNMP Agency ^(d)
179	07S08E27A02S	Gimmway Enterprises Inc	07S08E27A02S	Active	MUN	491-811	D	CVWD
180	07S09E10F01S	Prime Time International	07S09E10F01S	Active	Monitoring	360-500	D	CVWD
181		Mission Springs Water District	Well 31	Active	Monitoring	270-670	D	MSWD
182		Coachella Valley Water District	WRP2 MW3	Active	Monitoring	<90	P	CVWD
183	06S07E27J03S	Coachella Valley Water District	TEL-GRF MW-8	Active	Monitoring	25-45	P	CVWD
184	06S07E34A03S	Coachella Valley Water District	TEL-GRF MW-9	Active	Monitoring	25-45	P	CVWD
185	06S08E31R01S	Coachella Valley Water District	TEL-GRF MW-10	Active	Monitoring	25-45	P	CVWD
186	07S08E06P01S	Coachella Valley Water District	TEL-GRF MW-11	Active	Monitoring	25-45	P	CVWD
187		Coachella Valley Water District	PEW-1	Active	Monitoring	10-55	P	CVWD

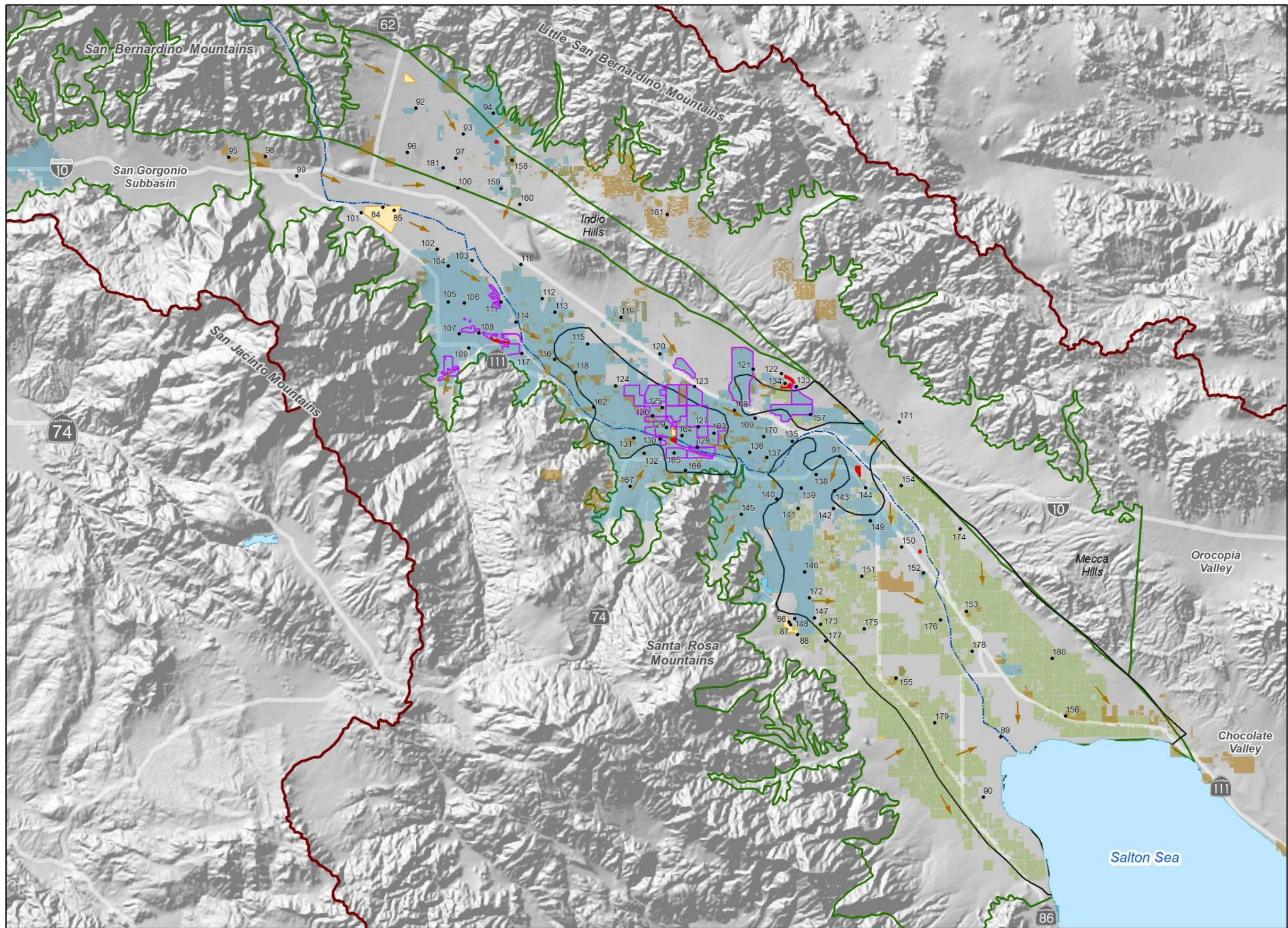
(a) Well Status: "Active" means well is known to exist and currently used for original purpose; "Standby" means active backup well; "Inactive" means well exists but is no longer used as a water-supply.

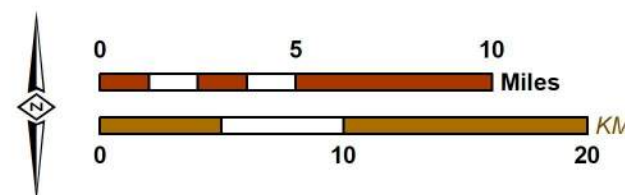
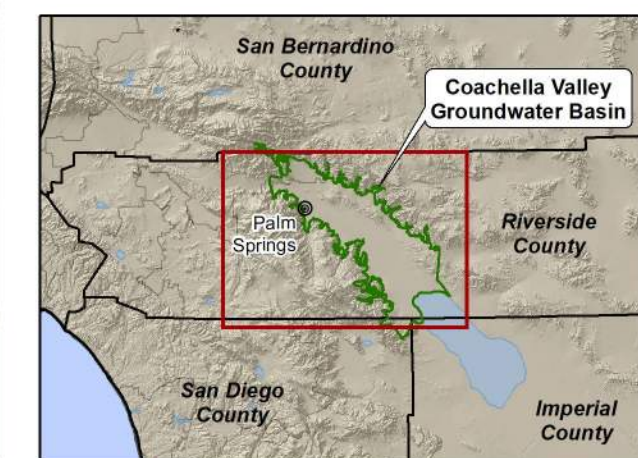
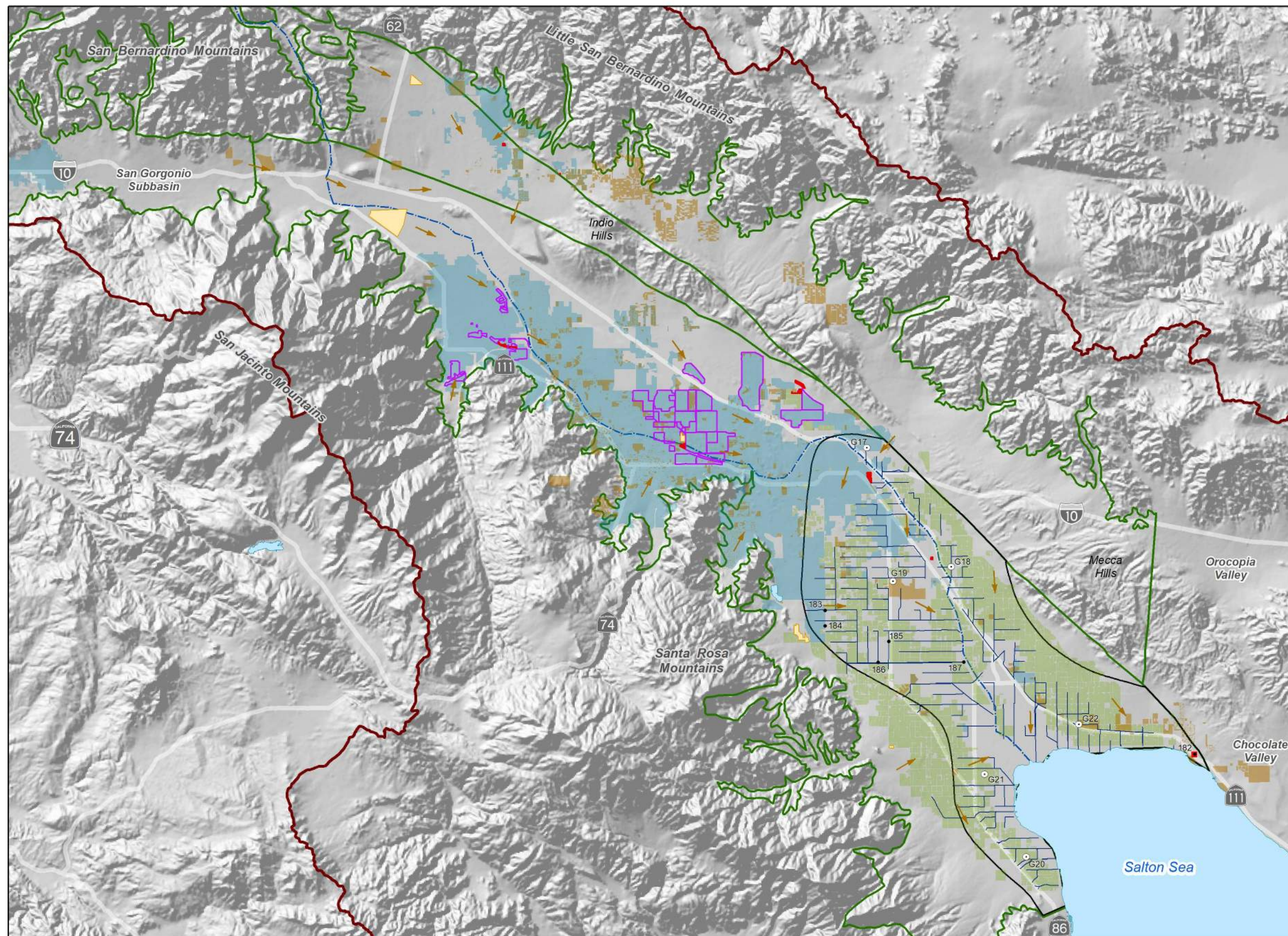
(b) Well Use: MUN = municipal and domestic supply

(c) Depth Code: This monitoring program assigns wells to aquifer layers by depth. P = Perched aquifer system. S = Shallow aquifer system. D = Deep aquifer system

(d) CVWD = Coachella Valley Water District; CWA/CSD = Coachella Water Authority and Sanitary District; DWA = Desert Water Agency; IWA = Indio Water Authority; MDMWC = Myoma Dunes Mutual Water Company; VSD = Valley Sanitary District; MSWD = Mission Springs Water District; CPS = City of Palm Springs







4.0 IMPLEMENTATION PLAN

4.1 Schedule of Activities

The objective of the SNMP Agencies is to have a fully functioning groundwater monitoring program by March 31, 2027, including: (i) implementing the monitoring program at existing wells in the monitoring network; (ii) filling all gaps in the monitoring network identified in this Workplan; (iii) analysis of at least one groundwater sample for the constituents listed in **Table 3-5** from all monitoring wells in the network; and (iv) reporting of all laboratory results to the GAMA information system or its successor.

The schedule of activities to implement the groundwater monitoring program is described below:

- **Active and standby municipal production wells.**
 - All active and standby municipal production wells, identified in this SNMP groundwater monitoring program under a DDW monitoring order, will be sampled pursuant to their existing DDW Groundwater Monitoring Schedules. Most municipal production wells are sampled at least once every three years, or more frequently for some analytes like nitrate.
 - By March 31 of each year beginning in 2022, the SNMP Agencies will report to the GAMA information system the laboratory results from all groundwater samples collected during the prior calendar year for the analytes listed in **Table 3-5**.
- **Active monitoring wells.**
 - All monitoring wells identified in this SNMP groundwater monitoring program that are participating in regulatory or voluntary monitoring programs will be sampled pursuant to their existing monitoring schedules. Typically, such monitoring wells are sampled at least once every three years, and most are sampled more frequently. At least one sample must be analyzed for the constituents listed in **Table 3-5** every three years.
 - By March 31 of each year beginning in 2022, the SNMP Agencies will report to the GAMA information system the laboratory results from all groundwater samples collected during the prior calendar year for the analytes listed in **Table 3-5**.
- **Private wells and inactive wells.**
 - Starting 2021, SNMP Agencies responsible for sampling at private wells or inactive wells will initiate steps to collect the first groundwater sample from these wells. This may include executing access agreements and devising and/or implementing a method to collect a groundwater sample.
 - By the end of 2023, the responsible SNMP Agencies will collect and analyze one groundwater sample for every private and inactive well in the monitoring network, where feasible. By March 31 of each year beginning in 2022, the SNMP Agencies will report to the GAMA information system the laboratory results from all groundwater samples collected during the prior calendar year for the analytes listed in **Table 3-5**.
 - Thereafter, each private and inactive well will be sampled at least once every three years. It is the objective of this program to collect and analyze at least two groundwater samples for all private and inactive wells during the initial six-year implementation period.

- **Filling of Gaps in the Monitoring Network.**
 - In 2021, the SNMP Agencies that are responsible for filling gaps in the monitoring network will perform the necessary research and field work and develop plans to fill each gap. These plans will be summarized in the first annual progress report to the Regional Board by March 31, 2022.
 - Starting in 2022, the SNMP Agencies will initiate steps to fill the gaps. The objective is to fill all gaps in the monitoring network and collect and analyze at least one groundwater sample by December 31, 2026.
 - By March 31 of each year beginning in 2023, the SNMP Agencies will report to the GAMA information system the laboratory results from all groundwater samples collected during the prior calendar year for the analytes listed in **Table 3-5**.
 - It should be expected that new gaps in the monitoring network may be identified during implementation of the monitoring program. This may occur if a well in the monitoring network can no longer be sampled because it was destroyed, becomes inoperable, or otherwise is no longer available for monitoring. In such cases, the SNMP Agencies will attempt to identify a suitable replacement well (similar location and well construction) or develop a plan to fill this new gap in the monitoring network. These challenges and plans to address new data gaps will be summarized in the annual progress reports to the Regional Board (see Section 4.2 below).

4.2 Progress Reporting to the Regional Board

To keep the Regional Board informed of progress and future activities during implementation of the monitoring program, the SNMP Agencies will submit an *Annual Progress Report on Implementation of the CV-SNMP Groundwater Monitoring Program* to the Regional Board. The first progress report will be due by March 31, 2022 to report progress achieved during calendar year 2021. The contents of the progress report will include:

Section 1. Summary of Groundwater Monitoring Program and Implementation Schedule

Section 2. Activities Accomplished or In-Progress during the Prior Calendar Year

- Sampling and analysis of existing municipal production wells and monitoring wells.
- Progress made towards sampling and analysis of inactive and private wells.
- Progress made towards filling gaps in the monitoring network.
- Wells that can no longer be sampled and other challenges in sampling.

Section 3. Activities Planned for the Next Calendar Year

- Plans for sampling at wells, including addressing sampling challenges.
- Activities to replace wells that can no longer be sampled and fill gaps in the monitoring network.

Figures.

- Updated map of Groundwater Monitoring Network – *Shallow Aquifer System*.
- Updated map of Groundwater Monitoring Network – *Deep Aquifer System*.
- Updated map of Groundwater Monitoring Network – *Perched Aquifer System*.

Tables.

- Updated list of wells in Groundwater Monitoring Network.
- Updated list of gaps in Groundwater Monitoring Network.

Appendix A. 2020 CV-SNMP Groundwater Monitoring Program Workplan

4.3 Cost Estimates

Cost estimates were derived for the first six-year period of monitoring program implementation. Costs were estimated for only those additional activities that the monitoring program would cause the SNMP Agencies to perform (that they otherwise would not perform). These activities include: (i) sampling and analysis of private wells; (ii) filling of gaps in the monitoring program; and (iii) preparing the annual progress reports to the Regional Board.

Table 4-1 summarizes the cost estimates by task and subtask. The costs described herein are first-order estimates. Actual costs may vary because monitoring program implementation may unfold differently than assumed herein. For example, a gap in the monitoring network may be filled by identifying an existing suitable well, as opposed to constructing a new well. In addition, these costs do not include land acquisition costs for new monitoring well sites or any needed site improvements, including grading, block walls, or fencing.

Sampling of private wells. **Table 3-6** indicates there are 58 private wells that are proposed to participate in the monitoring program. Each well is assumed to be sampled twice over the first six years (116 samples).

The main activities associated with the sampling of private wells include:

1. Performing a field canvass of each well to: initiate coordination with the well owners; document the condition of the well; and determine the current ability to collect a water-quality sample.
2. Developing and executing an access agreement with the private well owner.
3. If necessary, hiring a subcontractor to construct wellhead improvements to enable sample collection. It is assumed that about half of the private wells will require such improvements at \$3,000 per well.
4. Perform two sampling events and laboratory analyses over the six-year period. Laboratory costs are about \$77 per sample.

Total costs for sampling of private wells over the first six-year implementation period are estimated at about \$260,000.

Filling gaps in the monitoring network. **Table 3-4** indicates that there are 23 gaps in the monitoring network that need to be filled over the first six-year period. For cost estimating purposes, it is assumed that each gap will be filled with the construction of a new monitoring well.

Six of the proposed monitoring wells are targeted for the Perched aquifer system with well depths of less than about 100 ft-bgs—these well boreholes are assumed to be drilled via a sonic method. Sixteen of the proposed wells are targeted for the Shallow aquifer system with well depths of less than about 500 ft-bgs—these well boreholes are assumed to be drilled via a mud-rotary method. One of the proposed

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wells is estimated to have a total depth of about 1,000 ft-bgs—this well borehole is assumed to be drilled via a mud-rotary method.

The main activities associated with the drilling and construction of new monitoring wells are listed below.

1. Perform a well-siting study to select 23 available and appropriate well sites.
2. Prepare two sets of standard technical specifications for the drilling, construction, and development of two types of monitoring wells: (i) a monitoring well in the Perched aquifer system and (ii) a monitoring well in the Shallow or Deep aquifer systems.
3. Acquire well-site property and/or execute easements. The cost associated with land purchase or long-term land leases are unknown at this time and were therefore not estimated; however, such costs are likely to be significant.
4. Prepare bid package and conduct the bid process to select a well drilling/construction subcontractor. It is assumed that one contractor will construct all 23 wells.
5. Obtain all permits and CEQA clearance.
6. Drill, construct, and develop 23 monitoring wells. The wells are assumed to be comprised of 4" PVC Schedule 80 pipe with 40 feet of well screens. Well head completions are assumed to be an above ground 10-inch diameter stovepipe casing with a locking cap. Any needed well-site improvements are unknown at this time and were therefore not estimated; however, such costs are likely to be significant.
7. Prepare well completion reports for 23 new monitoring wells and file Well Completion Reports with the California Department of Water Resources. New monitoring wells will be added to the SNMP database.

Total costs to fill all gaps in the monitoring network over the first six-year implementation period are estimated to be about \$2,900,000. These estimates do not include land acquisition costs for new monitoring well sites or any needed site improvements.

Task 3 – Preparing the Annual Progress Report to the Regional Board. As described above in Section 4.2, the SNMP Agencies will prepare an *Annual Progress Report on Implementation of the CV-SNMP Groundwater Monitoring Program* to the Regional Board each year to keep it abreast of progress and future activities.

Total costs to prepare five annual progress reports over the first six-year implementation period are estimated to be about \$140,000.

Total Costs. Total costs for the first six-year period of monitoring program implementation are estimated to be about \$4,100,000 (including a contingency of 25%). Total costs are likely to be higher because these estimates do not include land acquisition or site improvement costs for new monitoring well sites.

Table 4-1. Cost Estimates -- Initial Six-Year Implementation Period of CV-SNMP Groundwater Monitoring Program

Task and Subtask Descriptions	Notes	Labor Cost		Other Direct Costs							Total Project Costs		
		Sub-Task	Task	Travel	Well Construction Services (Sub)	E-Logging Services (Sub)	Permits and CEQA	Field Equip	Lab	Total Reimbursable Expenses		Sub-Task	Task
										Sub-Task	Task		
Task 1 - Sampling and Analysis of Private Wells			\$152,146								\$108,030		\$260,175
1.1 Perform field canvass of private wells; develop access agreements		\$19,529		\$1,472						\$1,472		\$21,001	
1.2 Development/execution of private well access agreements		\$79,924								\$0		\$79,924	
1.3 Devise and construct and wellhead improvements to enable sample collection		\$16,733			\$87,000					\$87,000		\$103,733	
1.4 Perform two sampling and laboratory analysis events over the five-year period		\$35,960						\$10,626	\$8,932	\$19,558		\$55,518	
Task 2 - Filling of Gaps in the Monitoring Network			\$1,089,443								\$1,769,514		\$2,858,957
2.1 Perform field work and research; prepare plan to fill gaps in monitoring network		\$53,776								\$0		\$53,776	
2.2 Prepare well-siting study to identify 23 well sites		\$50,828								\$0		\$50,828	
2.3 Prepare technical specifications for of two monitoring well types		\$32,378								\$0		\$32,378	
2.4 Acquire well sites and/or execute lease agreements		\$14,996								\$0		\$14,996	
2.5 Conducting a bid process to select a well drilling/construction subcontractor		\$5,988		\$184						\$184		\$6,172	
2.6 Obtain permits and CEQA clearance		\$3,299					\$24,600			\$24,600		\$27,899	
2.7 Drill, construct, and develop six wells in the Perched aquifer system	a	\$94,608		\$1,536	\$89,820	\$42,000			\$3,180	\$136,536		\$231,144	
2.8 Drill, construct, and develop 16 wells in the Shallow aquifer system	a	\$555,712		\$8,192	\$1,314,720	\$112,000			\$8,480	\$1,443,392		\$1,999,104	
2.9 Drill, construct, and develop one deep monitoring well	a	\$51,492		\$512	\$158,260	\$5,500			\$530	\$164,802		\$216,294	
2.10 Prepare well completion reports for 23 new monitoring wells/file with DWR		\$226,366										\$226,366	
Task 3 - Preparing Annual Progress Reports to the Regional Board			\$139,800								\$0		\$139,800
Project Subtotals			\$1,381,389	\$11,896	\$1,649,800	\$159,500	\$24,600	\$10,626	\$21,122		\$1,877,544		\$3,258,932
Contingency (25%)													\$814,733
Project Total													\$4,073,665
Notes:													
a = These estimates do not include land acquisition costs for new monitoring well sites or any needed site improvements, including grading, block walls, or fencing.													