



## **4 GROUNDWATER MANAGEMENT ZONE ACTIVITIES**

### **4.1 The Groundwater Management Zones and the Basin Plan Update**

According to the *West San Jacinto Groundwater Basin Groundwater Management Plan* (EMWD, 1995 [Management Plan]), the West San Jacinto Groundwater Management Area (Management Area) is located in western Riverside County within the San Jacinto River Watershed portion of the greater Santa Ana River Watershed as shown in Chapter 7, Figure 7-1. The 256-square mile Management Area (more than 164,200 acres) includes the cities of Moreno Valley, Menifee, and Perris, as well as the unincorporated areas of Lakeview, Nuevo, and Winchester. The Management Area is divided into six (6) groundwater management zones comprised of water bearing materials (aquifers), as well as essentially non-water bearing areas such as the Lakeview Mountains, the Bernasconi Hills and Mount Russell Range around Lake Perris, the Double Butte area near Winchester, and areas in the extreme northern and western portions of the District.

The Santa Ana Regional Water Quality Control Board is responsible for adopting and implementing a water quality control plan and waste discharge requirements for the Santa Ana River Watershed. The State Water Resources Control Board adopted and approved the first Water Quality Control Plan for the Santa Ana River Basin (Basin Plan) in 1975. The most recent Basin Plan amendment was approved in early 2004. This amendment included changes in groundwater Basin Plan objectives, boundaries, and subbasin nomenclature. The nomenclature of the amendment was also revised and groundwater subbasins are now identified as groundwater management zones. Chapter 7, Figure 7-2 shows the boundaries of the groundwater management zone and the current Basin Plan water quality objectives for each groundwater management zone. Water purveyors in the Management Area are shown in Chapter 7, Figure 7-3.

### **4.2 Groundwater Monitoring Programs**

EMWD oversees the Groundwater Monitoring Programs which have been developed for the Management Area. Well owner participation in these Groundwater Monitoring Programs is voluntary. Groundwater quality samples are taken annually, groundwater levels are measured semi-annually, and groundwater extraction is read monthly. Chapter 7, Figure 7-4 shows the locations of the wells participating in the 2020 Groundwater Monitoring Programs, including the March Air Reserve Base (MARB) wells that were reported to EMWD.

Annual Well Owner's Reports for calendar year 2019 were provided to well owners participating in the Groundwater Monitoring Programs in June 2020. These reports contained the results of semi-annual groundwater level measurements, annual groundwater quality

sampling, and annual groundwater extractions for calendar year 2019. Annual Well Owner’s Reports for calendar year 2020 were provided to well owners participating in the Groundwater Monitoring Programs in February 2021.

4.2.a Groundwater Quality Monitoring Program

Groundwater quality samples are taken annually and EMWD assumes the cost of the analyses. Generally by June of each year, participants receive copies of their groundwater quality analyses from the previous calendar year.

Groundwater quality samples are collected using either a dedicated pump or mobile pump. In accordance with EMWD’s standard operating procedures, depth to groundwater readings are taken, then a minimum of three (3) well volumes of water are purged from the well prior to collecting a groundwater quality sample. Samples are collected in bottles following standardized sampling protocols and transported to the laboratory for analysis. Constituents tested in a typical groundwater quality sample are listed in Table 4-1 below.

**Table 4-1: Constituents Tested in a Typical Groundwater Quality Sample**

Type	Constituent:	Type	Constituent:
<b>Cations</b>	Calcium (Ca)	<b>Metals</b>	Boron (B)
	Magnesium (Mg)		Copper (Cu)
	Potassium (K)		Iron (Fe)
	Silica (SiO <sub>3</sub> )		Manganese (Mn)
	Sodium (Na)		Zinc (Zn)
	Hardness (Calculated from Ca/Mg)		<b>Alkalinity</b>
<b>Anions</b>	Chloride (Cl)	Carbonate (CO <sub>3</sub> )	
	Fluoride (F)	Hydroxide (OH)	
	Nitrate as Nitrogen (NO <sub>3</sub> -N)	Total Alkalinity as Ca CO <sub>3</sub>	
	Sulfate (SO <sub>4</sub> )	<b>Misc.</b>	Electrical Conductance (EC)
<b>Nitrogen</b>	Ammonia as Nitrogen (NH <sub>3</sub> -N)		Temperature at Collection
	Nitrite as Nitrogen (NO <sub>2</sub> -N)		pH
			Total Dissolved Solids (TDS)

Tables 4-2 and 4-3 show the number of wells sampled, the number of wells within each range of values for Total Dissolved Solids (TDS) and Nitrate as Nitrogen (NO<sub>3</sub>-N) in milligrams per liter (mg/L), and the minimum and maximum detection of TDS and NO<sub>3</sub>-N for each groundwater management zone for 2020. TDS has a secondary Maximum Contaminant Level (MCL) concentration of 500 mg/L and NO<sub>3</sub>-N has a primary MCL concentration of 10 mg/L.

During the 2020 groundwater quality monitoring effort, groundwater quality samples were collected from a total of 96 wells located in the Management Area. Ninety-five (95) samples were analyzed for TDS. Ten (10) of the ninety-five (95) samples analyzed for TDS reported values below the secondary MCL of 500 mg/L. Eighty-five (85) of the 95 samples analyzed for TDS reported values above the secondary MCL of 500 mg/L. The highest TDS concentration in the Management Area was 16,900 mg/L reported for well EMWD-Skiland 02, located in the Perris South groundwater management zone. EMWD-Skiland 02 reported a TDS concentration of 23,000 mg/L in 2019 and 9,600 mg/L in 2018. The lowest TDS value reported was 239 mg/L reported for well Fish & Game West, located in the Lakeview groundwater management zone. Fish & Game West reported TDS concentrations of 270 mg/L and 268 mg/L in 2017 and 2018, respectively. A summary of the TDS groundwater quality is presented in Table 4-2 below.

**Table 4-2: 2020 TDS Groundwater Quality Monitoring in the Management Area**

TDS Concentration (mg/L)	Hemet South (Partial)	Lakeview	Menifee	Perris North	Perris South	San Jacinto Lower Pressure	Total
0-500	0	4	0	4	1	1	10
500-750	2	12	0	2	3	1	20
750-1,000	0	0	1	2	8	0	11
1,000-1,500	0	3	1	1	12	0	17
1,500-3,000	0	7	2	1	16	1	27
> 3,000	0	0	1	0	9	0	10
<b>Total</b>	<b>2</b>	<b>26</b>	<b>5</b>	<b>10</b>	<b>49</b>	<b>3</b>	<b>95</b>
<b>Minimum*</b>	<b>652</b>	<b>239</b>	<b>860</b>	<b>394</b>	<b>390</b>	<b>376</b>	<b>239</b>
<b>Maximum*</b>	<b>702</b>	<b>3,000</b>	<b>3,180</b>	<b>1,650</b>	<b>16,900</b>	<b>1,810</b>	<b>16,900</b>

\*Well with minimum and maximum values in 2020 vary from the wells with minimum and maximum values in 2019.

Ninety-six (96) samples were analyzed for nitrate as nitrogen (NO<sub>3</sub>-N). Eighty (80) of the ninety-six (96) samples analyzed for nitrate as nitrogen (NO<sub>3</sub>-N) reported values below the primary MCL of 10 mg/L for NO<sub>3</sub>-N. Sixteen (16) of the 96 samples analyzed for NO<sub>3</sub>-N reported values above the primary MCL of 10 mg/L. The highest NO<sub>3</sub>-N concentration measured in the Management Area was 25.1 mg/L reported for well, EMWD 46 Edgemont 02, located in the Perris North groundwater management zone. EMWD 46 Edgemont 02 reported NO<sub>3</sub>-N concentrations of 23.8 mg/L and 26 mg/L in 2018 and 2019, respectively. The lowest sample concentrations were “non-detects” for wells located in the Lakeview portion of the Lakeview/Hemet North, Perris North, Perris South, and San Jacinto Lower Pressure groundwater management zones.

**Table 4-3: 2020 NO<sub>3</sub>-N Groundwater Quality Monitoring in the Management Area**

NO <sub>3</sub> -N Concentration (mg/L)	Hemet South (Partial)	Lakeview	Menifee	Perris North	Perris South	San Jacinto Lower Pressure	Total
0-2.5	0	16	0	5	18	2	41
2.5-5	0	3	2	1	9	0	15
5-7.5	0	1	2	1	6	0	10
7.5-10	0	2	1	1	10	0	14
10-20	2	4	0	1	6	1	14
> 20	0	0	0	1	1	0	2
<b>Total</b>	<b>2</b>	<b>26</b>	<b>5</b>	<b>10</b>	<b>50</b>	<b>3</b>	<b>96</b>
<b>Minimum*</b>	<b>13</b>	<b>ND</b>	<b>2.9</b>	<b>ND</b>	<b>ND</b>	<b>ND</b>	<b>ND</b>
<b>Maximum*</b>	<b>14.2</b>	<b>19.6</b>	<b>8.8</b>	<b>25.1</b>	<b>20.6</b>	<b>10.2</b>	<b>25.1</b>

\*Well with minimum and maximum values in 2020 vary from the wells with minimum and maximum values in 2019

A map showing TDS and diagrams of graphic representations (i.e., stiff diagrams) for 2020 water quality characteristics at individual wells is shown in Chapter 7, Figure 7-5. NO<sub>3</sub>-N concentrations for wells in the Management Area are presented in Chapter 7, Figure 7-6.

The highest and lowest concentrations of TDS and NO<sub>3</sub>-N in mg/L for each management zone for 2016 through 2020 are summarized in Chapter 6, Table 6-1. It should be noted that the same wells were not necessarily sampled each year due to access and usage issues, which may cause artificial fluctuations in some of the high and low values. It should also be noted that groundwater quality and the character of groundwater are affected by a number of factors including: type and mineral content of sediments, recharge and drainage patterns, historic land use practices, well screen intervals, and total well depth.

#### 4.2.b Groundwater Level Monitoring Program

The purpose of this program is to characterize basin hydrology and evaluate groundwater flow conditions. Water level measurements are taken twice annually, in the spring and fall. Copies of the results are provided to the participating well owners each subsequent year. The set of available wells varies from year to year due to reasons ranging from changes in access agreements to physical well access and usage of the well.

Common practice requires that a well is turned off at least 24 hours prior to measuring a static water level. In some cases, a well may be in use during either of the two semi-annual sampling events, making the measuring of static water levels impractical at that location.

During Spring 2020, static depth-to-water measurements were collected in 138 wells within the Management Area. During the 2019-2020 calendar years, 130 wells were measured for static depth-to-water in the Spring. Twenty-two (22) of the 130 wells measured during both Spring 2019 and Spring 2020 showed a depth-to-water increase of more than five (5) feet (ft) from the previous year (Spring 2019). Two (2) of the 130 wells measured during both Spring 2019 and Spring 2020 showed a depth-to-water decrease of more than 5 ft from the previous year (Spring 2019). During that same time period water levels were collected for March Air Reserve Base and documented in the 2019-2020 Annual Monitoring Report, CG049 Basewide Groundwater Monitoring Program, Operable Unit 5. Table 4-4 shows the number of measurements collected in each groundwater management zone and the number of wells where depth-to-water measurements increased or decreased more than 5 feet from the previous year (2019). The minimum and maximum depths to groundwater collected in Spring 2020 for each groundwater management zone are also summarized in Table 4-4.

**Table 4-4: Spring 2020 Groundwater Level Monitoring in the Management Area**

Groundwater Management Zone	Wells Measured Spring 2020	Spring 2019-2020 Wells	Depth to Water Increase $\geq 5$ ft	Depth to Water Decrease $\geq 5$ ft	Minimum Depth to Water (ft)	Maximum Depth to Water (ft)
Lakeview	24	4	9	1	90.5	221.2
Perris North	25	24	3	0	10.3	85.3
Perris South	58	54	0	1	3.1	97
San Jacinto Lower Pressure	14	14	1	0	66.4	250.1
Menifee	13	12	9	0	68.7	102.1
Hemet South (partial)	4	22	0	0	45.1	49.9
<b>Totals</b>	<b>138</b>	<b>130</b>	<b>22</b>	<b>2</b>	<b>3.1</b>	<b>250.1</b>

During fall 2020, static depth-to-water measurements were collected in 135 wells in the Management Area. During the 2019-2020 calendar years, 118 sets of wells were measured for static depth-to-water in the Fall. Twenty-one (21) of the 118 sets of wells measured during Fall 2020, showed a depth-to-water increase of more than five (5) feet (ft) from the previous year (Fall 2019). Six (6) of the 118 sets of wells measured during Fall 2020 showed a depth-to-water decrease of more than 5 ft from the previous year (Fall 2019). Water levels were collected for March Air Reserve Base and documented in the 2019-2020 Annual Monitoring Report, CG049 Basewide Groundwater Monitoring Program, Operable Unit 5. Generally, directions of groundwater flow are similar to those of previous years. Table 4-5 shows the number of measurements collected in Fall 2020 for each groundwater management zone and the number of wells where depth-to-water measurements increased or decreased more than 5 feet from the previous year (2019). The minimum and maximum depths to groundwater collected in Fall 2020 for each groundwater management zone are also summarized in Table 4-5.

**Table 4-5: Fall 2020 Groundwater Level Monitoring in the Management Area**

Groundwater Management Zone	Wells Measured Fall 2020	Fall 2019-2020 Wells	Depth to Water Increase $\geq 5$ ft	Depth to Water Decrease $\geq 5$ ft	Minimum Depth to Water (ft)	Maximum Depth to Water (ft)
Lakeview	25	21	5	0	92.3	223.5
Perris North	22	21	8	3	15.8	84.7
Perris South	54	51	2	1	9.9	88
San Jacinto Lower Pressure	20	13	3	0	7.4	252.2
Menifee	12	10	3	2	70	96.2
Hemet South (partial)	2	2	0	0	53.1	54.4
<b>Totals</b>	<b>135</b>	<b>118</b>	<b>21</b>	<b>6</b>	<b>7.4</b>	<b>252.2</b>

A comprehensive accounting of wells measured from 2016 through 2020 is provided in Chapter 6, Table 6-2. A map showing the change in groundwater elevation from Spring 2019 to Spring 2020 is shown in Chapter 7, Figure 7-7. A map showing the change in groundwater elevation from Fall 2019 to Fall 2020 is shown in Chapter 7, Figure 7-8.

#### 4.2.c Groundwater Extraction Monitoring Program

This monitoring program collects groundwater extraction data in order to develop an understanding of aquifer yield and health in the Management Area. This program involves the metering of significant (> 25 acre feet per year) extraction wells. The cost of installing meters and monitoring of metered wells is borne by EMWD. Groundwater extraction data is developed from a variety of sources including:

- Meters installed and monitored by EMWD;
- Privately owned meters monitored by EMWD staff;
- Meters monitored by other agencies and reported to EMWD; and
- Estimates based on land use, acreage under cultivation, type of crop, and/or number of livestock.

The results are provided to the participating well owners to assist them in filing their Annual Recordation Notices of Groundwater Extraction. There were 59 wells monitored as part of the Groundwater Extraction Monitoring Program in 2020. Table 4-6 provides the 2020 groundwater extraction activities by groundwater management zone. Of the 59 wells, 47 (80%) were metered and 12 (20%) were estimated by EMWD. In terms of actual groundwater extractions in 2020, 15,387 AF (77%) were metered and 4,471 AF (23%) were estimated by EMWD, for a total extraction of 19,858 AF. In comparison, groundwater extraction for 2019 in the Management Area totaled 19,726 AF. Historical results from the Groundwater Extraction Monitoring Program effort for 2016 through 2020 are provided in Chapter 6,



Tables 6-3 and 6-4. Chapter 6, Table 6-10 summaries the 2020 monthly groundwater production in the Management Area.

**Table 4-6: 2020 Groundwater Extraction Monitoring in the Management Area**

Management Zone	No. of Wells Metered	No. of Wells Estimated	Total Number of Wells	Groundwater Extraction Metered (AF)	Groundwater Extraction Estimated (AF)	Total Groundwater Extraction (AF)
Lakeview	18	1	19	3,620	0	3,620
Perris North	7	1	8	3,098	260	3,358
Perris South	12	2	14	8,131	90	8,221
San Jacinto Lower Pressure	3	3	6	129	50	179
Menifee	4	5	9	386	4,071	4,457
Hemet South (partial)	3	0	3	23	0	23
<b>Total</b>	<b>47</b>	<b>12</b>	<b>59</b>	<b>15,387</b>	<b>4,471</b>	<b>19,858</b>

Available data on groundwater extractions can also be obtained from the California Water Resources Control Board, Division of Water Rights (State). The State has microfiche records of filings from 1947 through 1985. From 1985 forward, records are kept as hard copy and a database has also been generated by the State. Actual groundwater extraction in most areas may be higher than the State recordation because not all groundwater producers file annual notices with the State. However, in a few instances the amount reported by individual well owners to the State exceeds the amounts measured in the Groundwater Extraction Monitoring Program.

Since many of the discrepancies occurred on metered wells, it can be assumed that either the State figures are inaccurate or the reporting well owner made an error. After checking the compilation process and an analysis of acreage and crop use, it was confirmed that the Groundwater Extraction Monitoring Program values compiled by EMWD were the most accurate figures available. Chapter 6, Table 6-5 shows extraction amounts for the years 2015 through 2019 as reported to and recorded by the State. A listing of zero indicates that the State had no recordation figures for that groundwater management zone for that year. It may or may not represent zero groundwater extraction.

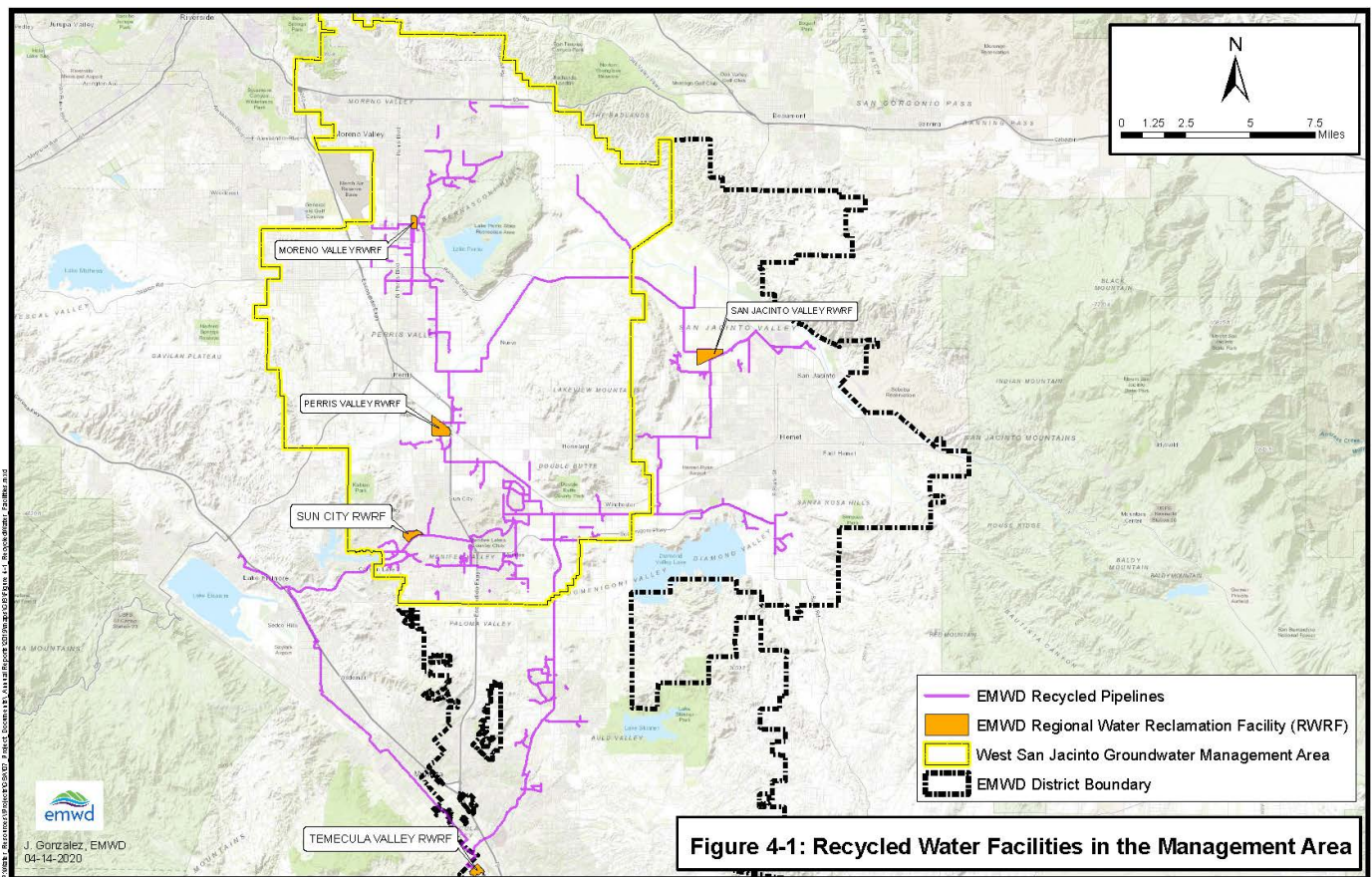
In accordance with the statutes in the Water Code that were enacted by the State with the adoption of Assembly Bill 2733 in September 2004, the procedures for the filing of the notices of extraction have changed. As a result, EMWD assumed responsibility for administration of the San Jacinto Watershed Groundwater Recordation Program within

its service area in the San Jacinto Watershed. EMWD set the notices of extraction for calendar year 2020 to all well owners in February 2021, which were due by March 31, 2021.

### 4.3 Recycled Water Monitoring

EMWD owns five regional water reclamation facilities. Three (3) are located in Moreno Valley, Perris Valley, and Sun City, respectively, and are located in the Management Area; and two (2) in San Jacinto Valley and Temecula Valley, respectively, are not located within the Management Area. The Sun City facility has not been in operation since 1996 and is not currently planned to return to operation. Figure 4-1 shows the recycled water facilities in the Management Area.

**Figure 4-1: Recycled Water Facilities in the Management Area**



**Figure 4-1: Recycled Water Facilities in the Management Area**

Recycled water use in the Management Area totaled 16,441 AF in 2020 as shown in Table 4-7. Fifty-four percent (54%) of the recycled water sold in the Management Area was used for agricultural irrigation, twenty-six percent (26%) was utilized for municipal and industrial usage, and the remaining twenty-one percent (21%) was used for irrigated landscaping, golf courses, construction, and habitat creation. Chapter 6, Table 6-6 presents recycled water use by groundwater management zone for 2016 through 2020.



**Table 4-7: 2020 Recycled Water Use in the Management Area**

Management Zone	Recycled Water Use (AF)
Lakeview	4,696
Perris North	1,028
Perris South	3,723
San Jacinto Lower Pressure	5,953
Menifee	779
Hemet South (partial)	262
<b>Total</b>	<b>16,441</b>

During 2020, the Moreno Valley Regional Water Reclamation Facility treated a total of 11,118 AF of wastewater. Expansion of the treatment plant facility to total plant capacity of 21 MGD is completed.

The Perris Valley Regional Water Reclamation Facility treated a total of 15,419 AF of wastewater during 2020. Expansion of the treatment plant facility to a total plant capacity of 22 MGD was completed in 2014. Further expansion of plant capacity to 30 MGD is in preliminary design phase and is scheduled for completion in 2033.

#### **4.4 Precipitation Monitoring Program**

The Riverside County Flood Control and Water Conservation District maintains rainfall data in the Management Area for five representative stations. Precipitation reported in 2020 was 9.41 inches from the Lake Perris Rain Station, which was slightly lower than 31-year average (1989-2020) of 9.43 inches per year for the area as shown in Table 4-8.

**Table 4-8: 2020 Precipitation (inches) in the Management Area**

Period	Precipitation Station				
	Lakeview*	Lake Perris	Moreno Valley East*	Sun City	Winchester
30 Year Average	1910-2012	1989-2020	2001-2020	1989-2020	1989-2020
	11.65	9.43	11.45	10.33	10.28
2020	-	9.41	9.74	9.57	10.58

\* Data does not represent a 30-year average period.

The available precipitation data for 2014 through 2020 are provided in Chapter 6, Table 6-7. Some stations have closed, changed location over time, or have been added. For example,

the Moreno Valley station closed in 2001, while another station, the Moreno Valley East station, has been online since 2001.

#### **4.5 Inactive Well Capping/Sealing Program**

Inactive, unused wells present a potential source of groundwater contamination as they can act as a direct conduit from the surface to the regional groundwater aquifer. Wells with open casings are especially vulnerable to contamination from surface flows or vandalism such as the dumping of oil or other waste products. Open casings larger than 16 inches in diameter also present a fall hazard to small children and animals. As a public service and to protect groundwater supplies, EMWD will cap an inactive well by welding a bolted or locking cap to the well casing at no charge to the well owner. Capping wells instead of destroying them allow the wells to be used for water level and/or water quality monitoring. Priority is given to those wells that are potentially dangerous open holes (casings larger than 16 inches), wells located in potential flood areas, and wells located in areas with minimal existing monitoring.

In the Management Area, EMWD has capped and sealed twenty-three (23) municipal, seven (7) state, and forty-five (45) private wells thus far. EMWD has also capped wells in the Hemet/San Jacinto Valley area, adjacent to the Management Area. In some instances, recently capped wells were quite old and only recently discovered by the property owner, who was not the original well owner. Table 4-9 lists the number of wells capped and sealed by EMWD in each management zone in 2020, and since program implementation in year 2000, in the Management Area. In 2020, eight wells (EMWD 39 Robinson LaMirada, EMWD 52 Follico, EMWD B8 Perris RWRP Open Casing, EMWD Trumble MW-1, EMWD Trumble MW-3, Perris Properties Ellis, Perris Properties San Jacinto, and Smith C Mapes OC) were capped in the Management Area as part of the Inactive Well Capping/Sealing Program. Chapter 7, Figure 7-9 shows the capped/sealed well locations. A listing of wells capped/sealed from 2016 through 2020, and since program implementation in year 2000, is presented in Chapter 6, Table 6-8.

Well owners who have, or know of, an old, unused well are encouraged to call the EMWD Water Resources and Facilities Planning Department for well capping consideration.

**Table 4-9: 2020 Inactive Wells Capped/Sealed in the Management Area**

Management Zone	2020	Overall Total
Lakeview	0	11
Perris North	1	10
Perris South	6	32
San Jacinto Lower Pressure	1	11
Menifee	0	11
Hemet South (partial)	0	0
<b>Total</b>	<b>8</b>	<b>75</b>

## 4.6 Imported Water

### 4.6.a North San Jacinto Water Supply Initiative

At the request of property owners in the Lakeview/Hemet North, San Jacinto Lower Pressure, and San Jacinto Upper Pressure Management Zones, EMWD undertook the North San Jacinto Water Supply Initiative. Issues of concern were: rising groundwater levels in management zones with poor quality groundwater; falling groundwater levels in management zones with good water quality; and the threatened loss of local groundwater supplies.

As a part of this effort, local dairy farmers along the Ramona Expressway worked cooperatively with EMWD to reduce groundwater production and construct a pipeline along Ramona Expressway to serve raw water to the area. In 2008, all facilities were completed, agreements were executed with the dairymen, and the pipeline became operational and began serving raw water to the dairymen. EMWD has a raw water connection to Metropolitan Water District (MWD) (EM-1), which provides untreated Colorado River Water (CRW) to four dairy property owners in the Management Area. Figure 4-2 shows the imported water facilities in the Management Area.

During 2020, a total of 446 AF of raw imported water was served to the dairymen, with 191 AF of that amount used in the Management Area.

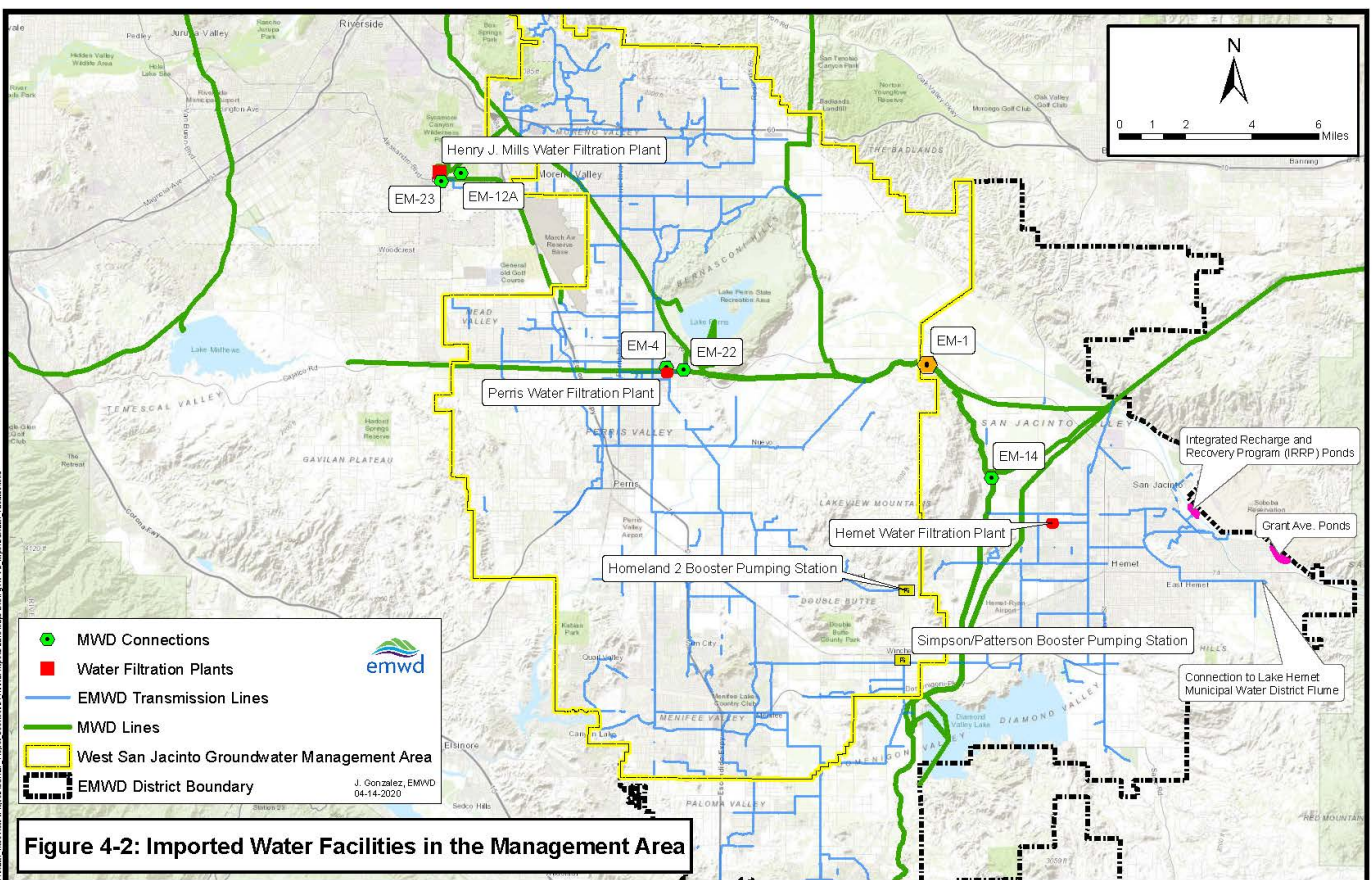
### 4.6.b Perris Water Filtration Plant

Construction on the Perris Water Filtration Plant began in 2001 to treat up to 11,000 AFY of imported untreated Colorado River Water (CRW) to potable water quality standards. It is located approximately one mile west of Lake Perris. During 2008, upgrades to the micro-filtration plant were completed including expansion of total plant capacity to up to 22,000 AFY, and construction of a pipeline to bring untreated State Water Project (SWP) water to the facility to improve water quality. Further plant expansion is planned for completion in April 2026, which increases the plant's capacity

up to 33,000 AFY. CRW can enter the EMWD distribution system from the Perris Water Filtration Plant (EM-4). EMWD receives a blend of SWP water and CRW supplies from the MWD Skinner Water Filtration Plant via the Auld Road Booster Pumping Station (EM-17). Untreated SWP water can enter the Perris Water Filtration Plant from EM-22 turnout.

In 2020, the Perris Water Filtration Plant treated 13,661 AF of which 17 AF was exported outside of the Management Area. Imported treated water (3,976 AF) was brought into the Management Area via the Simpson/Patterson Booster Pump Station. Figure 4-2 shows the imported water facilities in the Management Area.

**Figure 4-2: Imported Water Facilities in the Management Area**



## 4.7 Groundwater Salinity Management Program

### 4.7.a Perris Basin Desalination Program

The Perris and Menifee Desalters are located at the Sun City Regional Water Reclamation Facility site and have a combined production capacity of 7,840 AF/Y. In 2020, the Menifee Desalter produced 3,138 AF, and the Perris Desalter produced 3,895 AF, of potable water for a total of 7,032 AF for the Management Area.

In 2020, the 9,050 AF of brackish groundwater produced for the desalters were provided by wells; 76 McLaughlin, 81 Antelope/Watson, 82 Mapes/Sherman, 83 Ellis/Sherman, 84 Ellis/Bradley, 86 Murrieta/San Jacinto, 87 Nuevo/Olivas, 88 Pico/San Jacinto, 93 Nuevo, 95 13<sup>th</sup> Street, and 96 Santa Rosa. During 2020, desalter wells 75 Salt Creek, 85 Murrieta/Salt Creek, 89 Ethanac II, and 94 12<sup>th</sup> Street were offline. Figure 4-3 shows the salinity management facilities in the Management Area.

#### 4.7.b Perris II Desalter

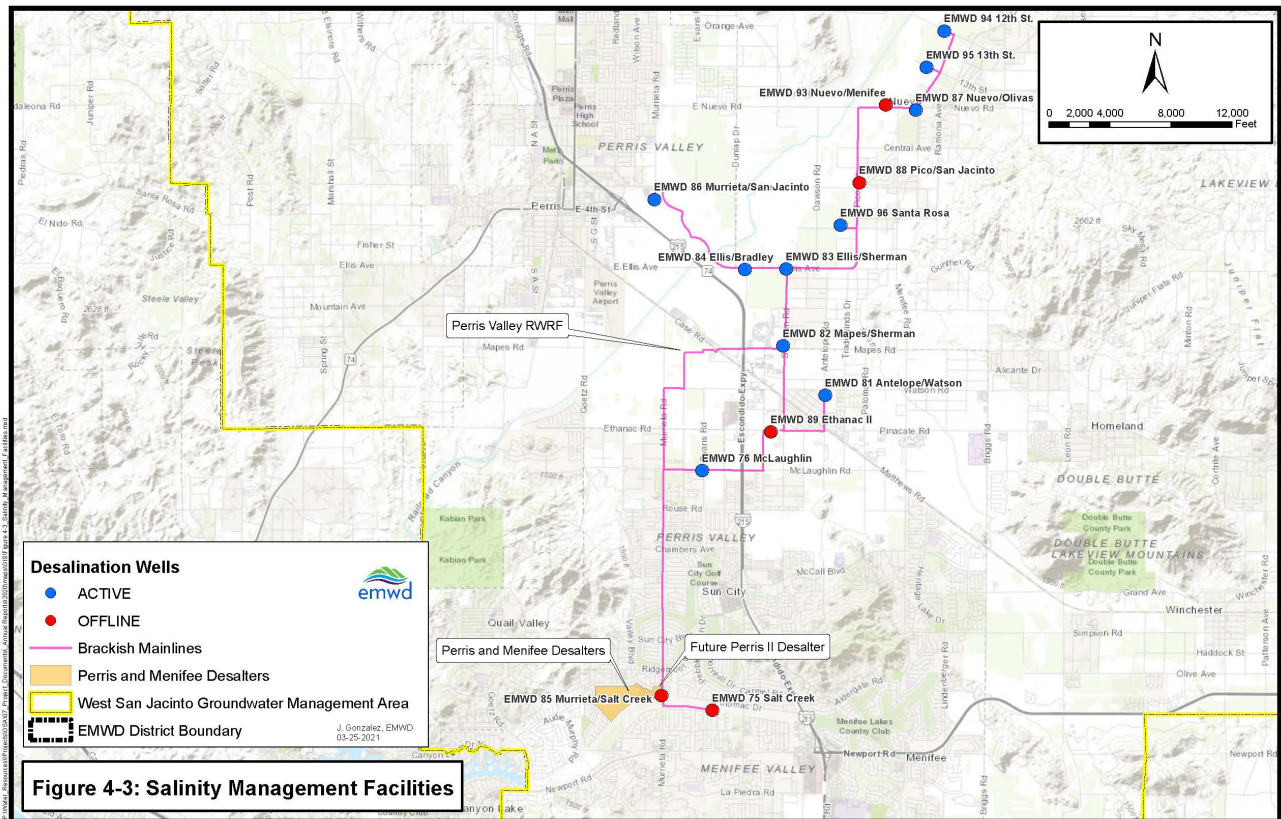
The proposed facility is a 5.4 MGD Reverse Osmosis (RO) Treatment Facility (TF) and brine pumping facilities. EMWD pursued Proposition I Grant Funding to construct the Perris II ROTF. EMWD received an award of \$22.5M from the State Water Resources Control Board Department of Financial Assistance. Construction of the Perris II ROTF facilities are ongoing and the anticipated completion is August 2021.

#### 4.7.c Iron and Manganese Removal Facilities

High iron and manganese concentrations have irreversibly impacted select desalter membranes, and have resulted in several brackish groundwater extraction wells remaining off-line. In 2004, an effort was initiated to evaluate alternative technologies for removal of iron and manganese prior to desalination. A removal process was selected and final design was completed in 2009. EMWD was awarded grant funding from the California Department of Public Health in the amount of \$10M for construction of the facility. Construction was completed in 2013 and operation began in 2014, which has allowed EMWD to place Wells 75, 85, 88 and 89 back into active service. In 2020, wells 75, 85, and 89 were out of service and well rehabilitation is anticipated in the future. Wells 88 and 93 were also offline intermittently in 2020.



**Figure 4-3: Salinity Management Facilities in the Management Area**



#### 4.8 Riverside County Well Information

Riverside County Ordinance No. 682.3 regulates the construction, reconstruction, abandonment, and destruction of wells. The Riverside County Department of Environmental Health is responsible for issuing well drilling permits. A valid permit along with the payment of all applicable fees is required before anyone digs, drills, bores, drives, or reconstructs a well that is, or was, a water well, a cathodic protection well, or a monitoring well. Standards for the construction or reconstruction of wells are the standards recommended in the California Department of Water Resources Bulletin No. 74-81, Chapter II, and Bulletin No. 74-90, as amended by the State.

Permits issued in 2020 are itemized in Table 4-10. It should be noted that the figures indicate the number of permits issued and does not necessarily reflect the actual number of wells drilled or abandoned, as permits may be issued but not used. EMWD initiated contact with the owners of these newly drilled agricultural wells in an effort to include them in the monitoring programs. EMWD also verifies destroyed wells and removes these wells from the monitoring programs. Well permits issued in the Management Plan area, by management zone and type of permit, for 2016 through 2020 are listed in Chapter 6, Table 6-9.

**Table 4-10: 2020 Well Permits Issued in the Management Area**

Management Zone	Domestic - Individual & Community Wells	Agricultural Wells	Monitoring Wells	Cathodic Protection Wells	Abandoned Wells	Well Evaluation or Other	Total Permits Issued
Lakeview	-	-	-	-	1	-	1
Perris North	5	2	-	4	1		12
Perris South	-	-	-	-	1	1	2
San Jacinto Lower Pressure	1	-	4	-	4	-	9
Menifee	-	-	-	-	-	-	0
Hemet South (partial)	-	-	-	-	-	-	0
<b>Totals</b>	<b>6</b>	<b>2</b>	<b>4</b>	<b>4</b>	<b>7</b>	<b>1</b>	<b>24</b>

#### 4.9 Planned Development

EMWD maintains a database of proposed development projects within its service area. To assist in forecasting demand, projects can be separated into two categories (based on status): active construction and projected construction. Projects are in active construction once they have survey staking through completion. Proposed construction includes projects in planning and design, starting with agency review through active construction. One medium density single family residential unit is considered equivalent to one (1) Equivalent Dwelling Unit, which represents 0.49 acre feet per year of demand. The water demand shown is based on the number of residential units in each project and the acres of non-residential use. These demand projections are for planning purposes only and may change as information becomes available and projects are finalized.

Because of recent economic developments, completing a project in the Construction category could take up to nine years. Timing for completion of a project still in planning could be up to 25 years in the future. Time frames are approximate with multiple factors affecting development including economic patterns and/or environmental constraints.

A map of proposed projects categorized by status is shown in Chapter 7, Figure 7-10.

#### 4.10 Water Rights

Issuance of water right permit 21403 (Application A031791) of EMWD to appropriate water from an unnamed subterranean stream tributary to the San Jacinto Groundwater Basin was granted on October 18, 2018. The water appropriated under this right shall be limited to the quantity which can be beneficially used and shall not exceed 2.9 cubic feet per second by direct diversion to be diverted from January 1 to December 31 of each year. The maximum amount diverted under this right shall not exceed 1,187 acre-feet per year.

Issuance of water right permit 21404 (Application A031799) of the City of Perris to appropriate water from an unnamed subterranean stream tributary to the San Jacinto Groundwater Basin was granted on October 18, 2018. The water appropriated under this right shall be limited to the quantity which can be beneficially used and shall not exceed 5.51 cubic feet per second by direct diversion to be diverted from January 1 to December 31 of each year. The maximum amount diverted under this right shall not exceed 462 acre-feet per year.

#### **4.11 Status of Production Wells**

Wellhead treatment of Perfluorinated compounds (PFAS) detected at Well 59 was completed in 2020 and Well 59 is online. EMWD has formally notified the USAF of the PFAS concern at Well 56. Well 56 is currently inactive (shut off).