

***SANTA MARGARITA RIVER WATERSHED***

***ANNUAL WATERMASTER REPORT***

***WATER YEAR 2016-17***

***UNITED STATES OF AMERICA***

***V.***

***FALLBROOK PUBLIC UTILITY DISTRICT, ET AL.***

***CIVIL NO. 51-CV-1247-GPC-RBB***

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## **SECTION 1 – SUMMARY**

Section 1 - A summary of the Santa Margarita River Watershed Annual Watermaster Report for the 2016-17 Water Year.

Section 2 - This Annual Watermaster Report is prepared pursuant to the U. S. District Court Order dated March 13, 1989. The Court retains jurisdiction over all surface flows of the Santa Margarita River Watershed and all underground waters determined by the Court to be subsurface flow of streams or creeks or which are determined by the Court to add to, support, or contribute to the Santa Margarita River stream system. The Watershed is adjudicated, as to all underground waters, basins, surface flow, streams and subsurface flows that add to, support, or contribute to the Santa Margarita River stream system. Local vagrant groundwaters that do not support the Santa Margarita River stream system are outside Court jurisdiction.

Section 3 - Surface water flows varied in Water Year 2016-17. Flows for long-term stations on Murrieta Creek at Temecula, Santa Margarita River near Temecula, and Santa Margarita River at Ysidora were 166%, 170% and 188% of their long-term averages, respectively. Flows at Temecula Creek near Aguanga were 86% of the long-term average. Direct surface diversions to use totaled 636 acre feet, which reflects an increase of 14 acre feet from the prior year. The total quantity of surface water in storage in the Watershed on September 30, 2017, was 740,649 acre feet, of which 12,553 acre feet were Santa Margarita River water and 728,096 acre feet were imported water.

Section 4 - Groundwater extractions were 31,464 acre feet during 2016-17 as shown on Table 4.1, compared to 36,456 acre feet in 2015-16. Water purveyors pumped 26,180 acre feet, and 5,284 acre feet were pumped by other substantial users. Total local production, including groundwater extractions and surface diversions in 2016-17 was 32,100 acre feet. This compares with 37,078 acre feet in 2015-16, and represents a decline of about 13.4%. Total annual local production for use for the period 2008 through 2017 is shown on Figure 1.1.

Section 5 - During 2016-17, 68,444 acre feet of net imports were distributed for use within the Watershed, as shown on Table 5.2. This compares with 64,242 acre feet in 2015-16, and represents an increase of about 6.5%. Annual imports for the period 2008 through 2017 are shown on Figure 1.2 and Table 5.4. Exports of wastewater and native water for use outside the Watershed in 2016-17 were 18,109 acre feet. This compares with 16,460 acre feet in 2015-16, and represents an increase of approximately 10.0%.

Section 6 - Water rights consist primarily of riparian and overlying rights. Other rights include appropriative rights and federal reserved rights. Water purveyors in the Santa Margarita River Watershed also exercise groundwater appropriative rights. Except for surface water appropriative rights, water rights generally have not been quantified in the Watershed. Appropriative surface water rights on file with the State Water Resources Control Board amount to 990,989 gallons per day. This corresponds to 1.53 cubic feet

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per second (cfs) or 3.04 acre feet per day of direct diversion rights and 54,313.5 acre feet of active storage rights.

Figure 1.1

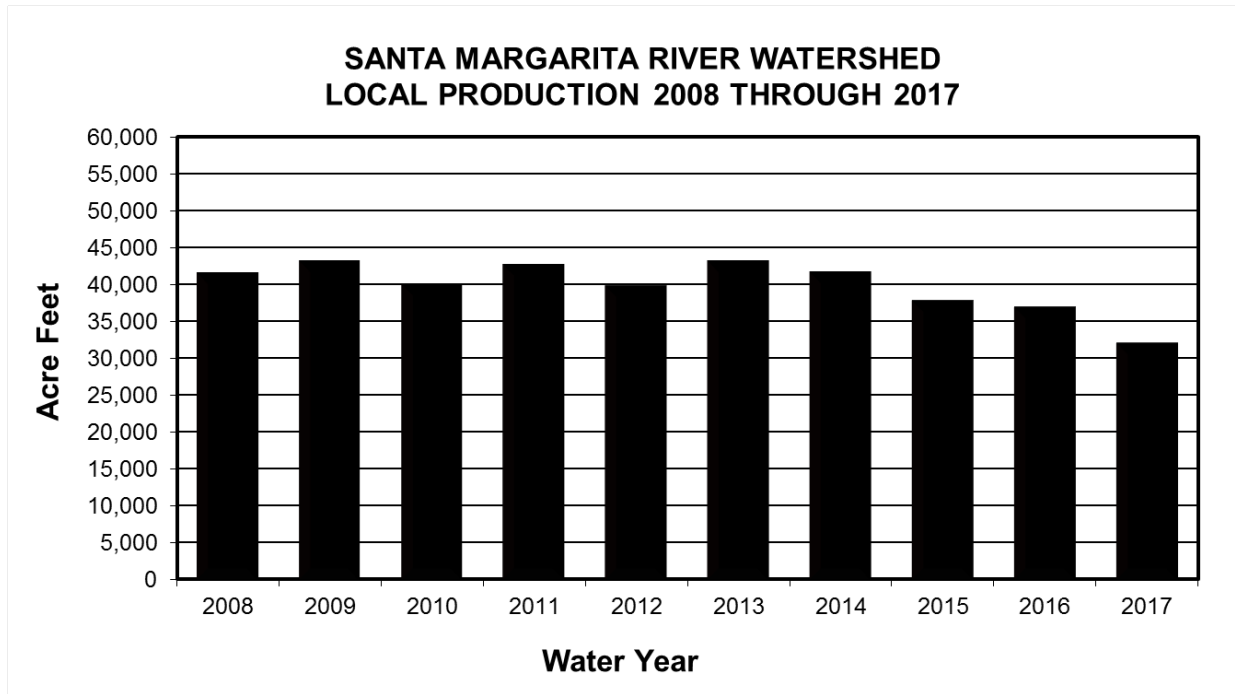
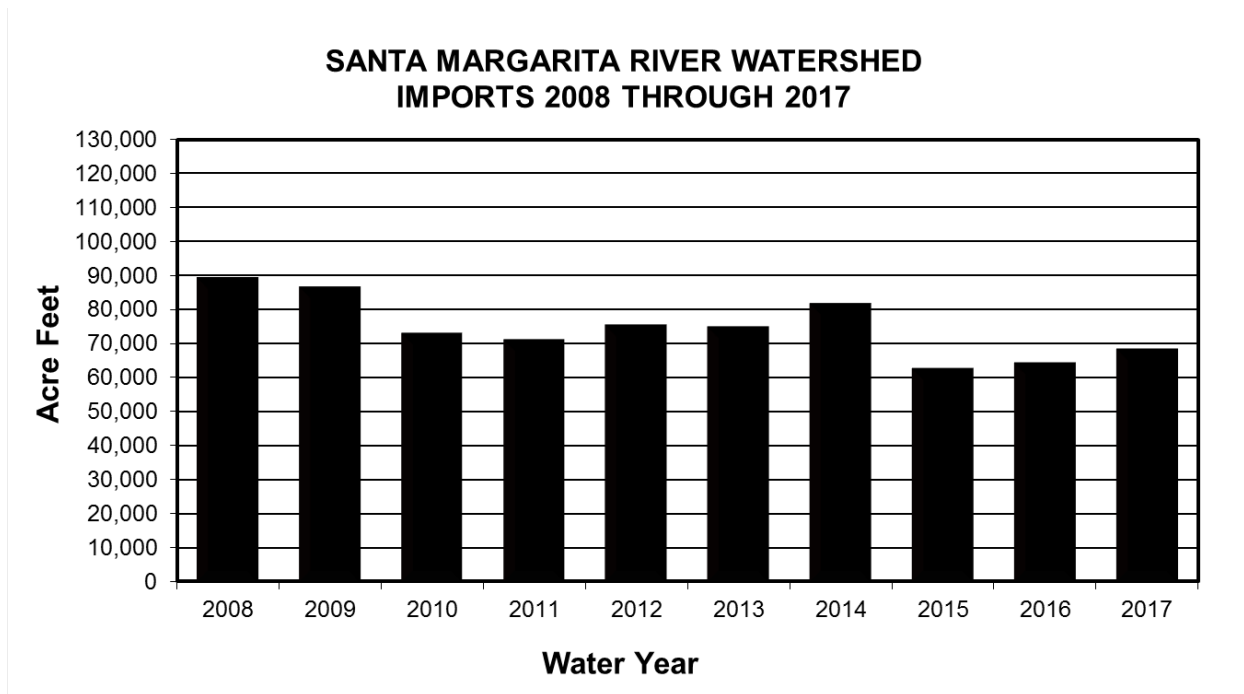


Figure 1.2

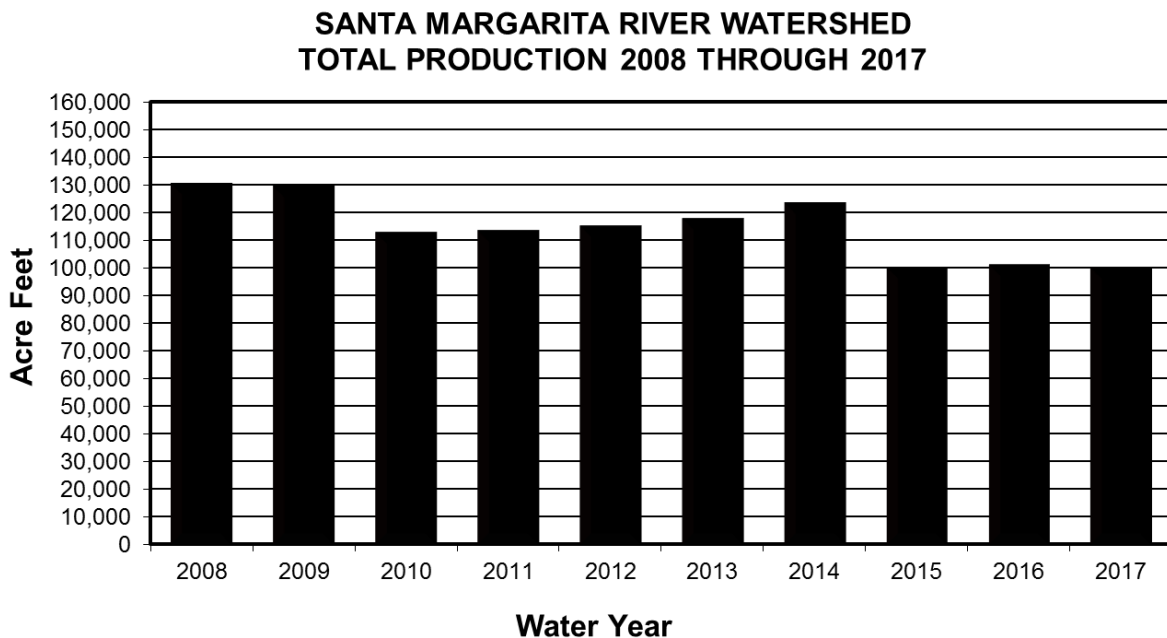


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Section 7 – Total imported supplies plus local production during Water Year 2016-17 totaled 100,543 acre feet compared to 101,320 acre feet reported in 2015-16. Of that quantity, 28,076 acre feet were used for agriculture; 15,278 acre feet were used for commercial purposes; 42,294 acre feet were used for domestic purposes; 52 acre feet were discharged to Temecula Creek; 1 acre feet were discharged to Murrieta Creek; 77 acre feet were discharged to Santa Gertrudis Creek; and 4,523 acre feet were discharged by Rancho California WD from Metropolitan Water District of Southern California (MWD) Outlet WR-34 and 1 acre feet were discharged from the potable connection to the Santa Margarita River during 2016-17, pursuant to the Cooperative Water Resource Management Agreement (CWRMA). It is noted, commercial use includes 353 acre feet of recycled water and thus the commercial use of production is 14,925 acre feet. The overall system loss was 4,536 acre feet. System gain or loss is the result of many factors including errors in measurement, differences between periods of use and periods of production, leakage and unmeasured uses. These data are shown on Table 7.1.

Total annual production for the period 2008 through 2017 is shown on Figure 1.3.

Figure 1.3



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Section 8 - Use of water from small storage ponds may be unauthorized. Camp Pendleton has taken the position that exportation of treated wastewater, the source of which is the native waters of the Santa Margarita River system, without legal authority for such exportation, is an unauthorized use of water.

Section 9 - Threats to water supply include high nitrate levels in Rainbow Creek and Anza Valley in past years, potential overdraft conditions in the Murrieta-Temecula and Anza groundwater basins, and salt balance issues in the upper Watershed. Additional threats have been recently identified, including high concentrations of nitrates in both Anza Valley and Murrieta-Temecula areas, arsenic, fluoride and manganese in the Murrieta-Temecula area, as well as the discovery of the Quagga mussel in imported supplies.

Section 10 - The U. S. Geological Survey (USGS) monitored surface water quality at the Temecula gaging station on the Santa Margarita River.

Groundwater samples from wells were analyzed for water quality by Camp Pendleton, Western MWD - Murrieta Division, Rancho California WD, Pechanga Band, and Anza Valley groundwater basin area during 2016-17. The two primary constituents of interest are nitrates and total dissolved solids (TDS). The Basin Plan Objective for TDS of 750 mg/l was exceeded in ten out of the eleven wells sampled at Camp Pendleton. Three wells sampled by Rancho California WD showed TDS concentrations exceeding 750 mg/l.

Section 11 - The Cooperative Water Resource Management Agreement between Camp Pendleton and Rancho California Water District was approved by the District Court on August 20, 2002. During the 2017 calendar year, Rancho California WD discharged 5,069 acre feet into the Santa Margarita River to meet flow requirements under the Agreement.

Section 12 - Projected Watermaster expenditures for the next five years are listed.

Section 13 – The actual Watermaster costs for Water Year 2016-17 were \$678,692 (total operating expenses less depreciation) compared to the Court approved budget of \$772,100, resulting in a favorable variance of \$93,408. A total Watermaster budget for Water Year 2018-19 is proposed to be \$791,733. This budget includes \$522,758 for the Watermaster Office and \$268,975 for operation of gaging stations and groundwater monitoring by USGS.

## **SECTION 2 - INTRODUCTION**

### **2.1 Background**

On January 25, 1951, the United States of America filed Complaint No. 1247 in the United States District Court for the Southern District of California to seek an adjudication of all respective water rights within the Santa Margarita River Watershed. The Final Judgment and Decree was entered on May 8, 1963, and appealed to the U.S. Court of Appeals. A Modified Final Judgment and Decree was entered on April 6, 1966. Among other things, the Decree provides that the Court:

. . . retains continuing jurisdiction of this cause as to the use of all surface waters within the watershed of the Santa Margarita River and all underground or sub-surface waters within the watershed of the Santa Margarita River, which are determined in any of the constituent parts of this Modified Final Judgment to be a part of the sub-surface flow of any specific river or creek, or which are determined in any of the constituent parts of this Modified Final Judgment to add to, contribute to, or support the Santa Margarita River stream system.

In March 1989, the Court issued an Order appointing the Watermaster to administer and enforce the provisions of the Modified Final Judgment and Decree and subsequent orders of the Court. The appointing Order described the Watermaster's powers and duties as well as procedures for funding and operating the Watermaster's office. Also in 1989, the Court appointed a Steering Committee that at the conclusion of 2016-17 was comprised of representatives from the United States, Eastern Municipal Water District, Fallbrook Public Utility District, Metropolitan Water District of Southern California, Pechanga Band of Luiseño Mission Indians, Western Municipal Water District, and Rancho California Water District. The purposes of the Steering Committee are to assist the Court, to facilitate litigation, and to assist the Watermaster.

### **2.2 Authority**

Section II of the appointing Order requires that the Watermaster submit a written report containing findings and conclusions to the Court promptly after the end of each water year.

### **2.3 Scope**

The subjects addressed in this report are responsive to Section II of the appointing Order. Information and data contained in this report are based on information reported to the Watermaster by the various water users within the Watershed and others. Therefore, the Watermaster does not guarantee the completeness and accuracy of the information presented in this report, although most of the data presented are based on measurements. Estimates by the Watermaster are so noted.

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### **SECTION 3 - SURFACE WATER AVAILABILITY AND USE**

#### **3.1 Surface Flow**

Over the years, flows in the Santa Margarita River Watershed have been measured at the stations listed on Table 3.1. A number of these stations have been discontinued. During Water Year 2016-17, the USGS operated 13 stations under an agreement with the Watermaster. These include three stations where Riverside County Flood Control and Water Conservation District share the local costs with the Watermaster. In addition to stream flows, the USGS also measures water surface elevation and precipitation at Vail Lake.

The USGS also operates several stations in the Watershed under contract with Camp Pendleton. These include stream gaging stations on Fallbrook Creek and on the outlet channel and spillway for Lake O'Neill. The USGS operated a tidal water level recorder at the mouth of the Santa Margarita River from October 1989 until October 20, 2010, when it was removed.

Monthly flows for stations in Water Year 2016-17 are shown on Table 3.2. Those flows consist of final USGS discharge determinations approved for publication by the USGS. Official USGS discharges for Water Year 2016-17 are published by the USGS at the following website: <http://waterdata.usgs.gov/ca/nwis/sw>.

In considering the historical record of flow at these stations, it should be recognized that the long-term averages include variations in Watershed conditions such as level of development, groundwater production, return flows, impoundments and vegetative use as well as hydrologic conditions, changes in gaging station locations and other factors. Descriptions of the various historical locations of gaging stations may be found in the publication, Water Resources Data - California, which was published annually by the USGS in hard copy form through Water Year 2003-04. For subsequent years, the gaging station descriptions can be found at the website provided above.

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TABLE 3.1

*SANTA MARGARITA RIVER WATERSHED*  
**STREAM GAGING STATIONS THROUGH WATER YEAR 2016-17**

<b>Station Name</b>	<b>Station No.</b>	<b>Area Sq. Miles</b>	<b>Entity</b>	<b>Period Of Record</b>
Temecula Creek Near Aguanga	11042400	131	USGS	August 1957 to Present
Wilson Creek Above Vail Lake Near Radac	11042490	122	USGS	October 1989 to September 1994
Temecula Creek At Vail Dam	11042520	320	USGS	February 1923 to October 1977
Vail Lake Near Temecula (Reservoir Storage)	11042510	320	USGS	October 1948 to Present
Pechanga Creek Near Temecula	11042631	13.1	USGS	October 1987 to Present
Warm Springs Creek Near Murrieta	11042800	55.4	USGS	October 1987 to Present
Murrieta Creek Near Murrieta	11042700	30.0	USGS	October 1997 to Present
Santa Gertrudis Creek Near Temecula	11042900	90.2	USGS	October 1987 to Present
Murrieta Creek At Temecula	11043000	222	USGS	October 1924 to Present
Santa Margarita River Near Temecula	11044000	588	USGS	February 1923 to Present
Rainbow Creek Near Fallbrook	11044250	10.3	USGS	November 1989 to Present
Santa Margarita River At FPUD Sump 1/	11044300	620	USGS	October 1989 to Present
Sandia Creek Near Fallbrook	11044350	21.1	USGS	October 1989 to Present
Santa Margarita River Tributary Near Fallbrook	11044600	0.52	USGS	October 1961 to September 1965
DeLuz Creek Near DeLuz	11044800	33.0	USGS	October 1992 to Present
DeLuz Creek Near Fallbrook 2/	11044900	47.5	USGS/ USMC	October 1951 to September 1967 October 1989 to September 1990 April 2002 to February 2003
Santa Margarita River Near DeLuz Station	11045000	705	USGS	October 1924 to September 1926
Fallbrook Creek Near Fallbrook 3/	11045300	6.97	USGS/ USMC	October 1993 to Present
Santa Margarita River At Ysidora 4/	11046000	723	USGS	February 1923 to Present

1/ Record includes measurements for Santa Margarita near Fallbrook (#11044500) for October 1924 to September 1980.

2/ Recorded by USMC, Camp Pendleton October 1967 to 1977.

3/ Recorded by USMC, Camp Pendleton for October 1964 to September 1977 and October 1989 to September 1993.

4/ Station temporarily operated as SMR at USMC Diversion Dam near Ysidora (#11045050) from February 26, 1999 to September 27, 2001.

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TABLE 3.2  
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MEASURED SURFACE WATER FLOW  
2016-17  
Quantities in Acre Feet

GAGING STATION	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	WATER YEAR TOTAL	ANNUAL AVERAGE THROUGH 2017	YEARS OF RECORD THROUGH 2017
Temecula Creek Near Aguanga (11042400)	0	0	77	2,067	1,234	927	166	66	3	0	2	0	4,542	5,290 6/	60
Pechanga Creek Near Temecula 1/ (11042631)	0	0	2	301	159	1	0	0	0	0	0	0	463	399 6/	30
Warm Springs Creek Near Murrieta (11042800)	4	14	606	3,033	775	50	0	0	0	0	0	0	4,482	2,880 6/	30
Murrieta Creek Near Murrieta 2/, 3/ (11042700)	0	0	293	2,409	665	109	0	0	0	0	0	0	3,476	2,353	10
Santa Gertrudis Creek Near Temecula (11042900)	5	48	564	1,401	431	4	29	0	0	0	0	0	2,482	2,460 6/	30
Murrieta Creek At Temecula (11043000)	2	34	2,736	10,930	2,700	218	9	25	34	9	22	5	16,724	10,046	93
Santa Margarita River Near Temecula (11044000)	240	299	3,207	13,850	4,199	683	529	712	565	480	476	441	25,681	15,112 20,390	69 (1949-2017) 26 (1923-48)
Rainbow Creek Near Fallbrook (11044250)	0	17	198	1,031	524	380	54	46	3	1	0	0	2,254	2,310 6/	28
Santa Margarita River At FPUD Sump (11044300)	186	298	3,865	25,040	8,821	1,874	820	927	548	457	526	481	43,843	27,900 6/	28
Sandia Creek Near Fallbrook (11044350)	48	78	529	3,660	1,497	1,440	640	444	272	199	148	126	9,081	6,220 6/	28
DeLuz Creek Near DeLuz (11044800)	0	0	174	7,594	1,698	606	82	0	0	0	0	0	10,154	7,220 6/	24
Fallbrook Creek Near Fallbrook (11045300)	0	0	164	830	301	71	23	64	12	1	0	0	1,466	1,054 1,462 5/	29 (1989-2017) 12 (1965-76)
Santa Margarita River At Ysidora (11046000)	1	3	3,643	35,800	10,350	5,669	1,283	1,434	710	271	170	116	59,450	31,699 4/ 31,390	69 (1949-2017) 26 (1923-48)

1/ In summer 2006, gaging location was moved upstream 0.4 miles from prior location to current location 100 feet upstream of Metropolitan Water District pipe crossing, 0.4 miles upstream of the Rainbow Canyon Road/Old Highway 395 Bridge.

2/ Previously published as Murrieta Creek at Tenaja Road.

3/ Continuous record stopped on February 22, 2005, due to bridge construction. Only discharge measurements were taken from February 2005 until September 2007.

4/ Includes record of two years at Santa Margarita River at USMC Diversion Dam near Ysidora station.

5/ Includes wastewater flows.

6/ Annual Average as reported by USGS

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Total flows at four long-term stations, for Water Years 2015-16 and 2016-17, are compared with their averages in the tabulation below. Average flows for the Santa Margarita River stations near Temecula and near Ysidora are shown for two periods: before and after Vail Dam was constructed (1923 to 1948, and 1949 to 2017).

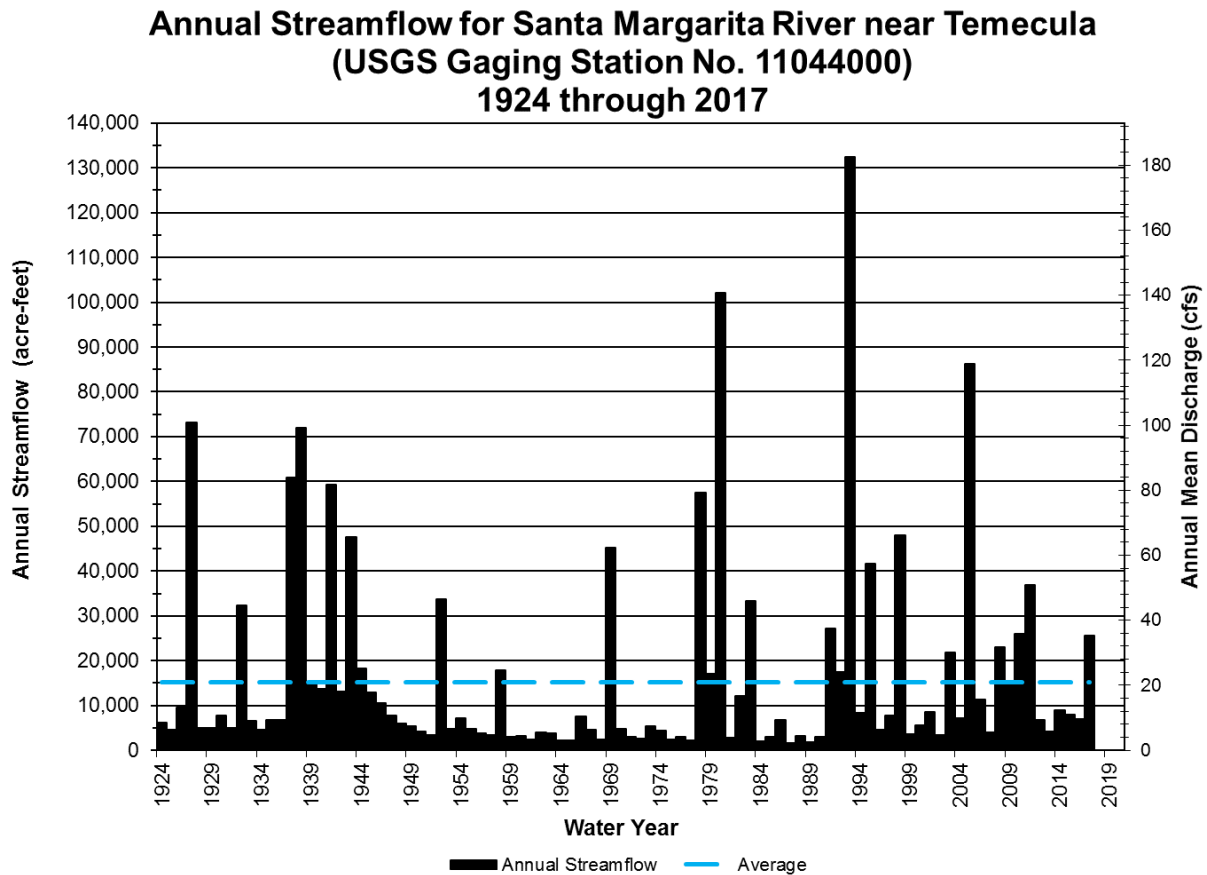
	<u>TOTAL FLOW</u>		<u>AVERAGE FLOW</u>
	<u>2015-16 Acre Feet</u>	<u>2016-17 Acre Feet</u>	<u>Through 2017 Acre Feet</u>
Temecula Creek Near Aguanga	498	4,542	5,290 (1957-2017)
Murrieta Creek At Temecula	2,293	16,724	10,046 (1925-2017)
Santa Margarita River Near Temecula	6,983	25,681	15,112 (1949-2017) 20,390 (1923-1948)
Santa Margarita River At Ysidora*	3,900	59,450	31,699 (1949-2017) 31,390 (1923-1948)

\* At various locations

The foregoing tabulation indicates the flows for Water Year 2016-17 were near or above normal for all four stations. Flows for long-term stations on Temecula Creek near Aguanga, Murrieta Creek at Temecula, Santa Margarita River near Temecula and Santa Margarita River at Ysidora were 86%, 166%, 170% and 188% of their long-term averages, respectively.

The Santa Margarita River near Temecula station is of particular interest relative to discharge requirements specified in the CWRMA between Camp Pendleton and Rancho California WD, as described in Section 11. The long-term time series for annual streamflow for Santa Margarita River near Temecula is provided on Figure 3.1, showing the 2016-17 flows were 368% of the flows for the prior year.

Figure 3.1

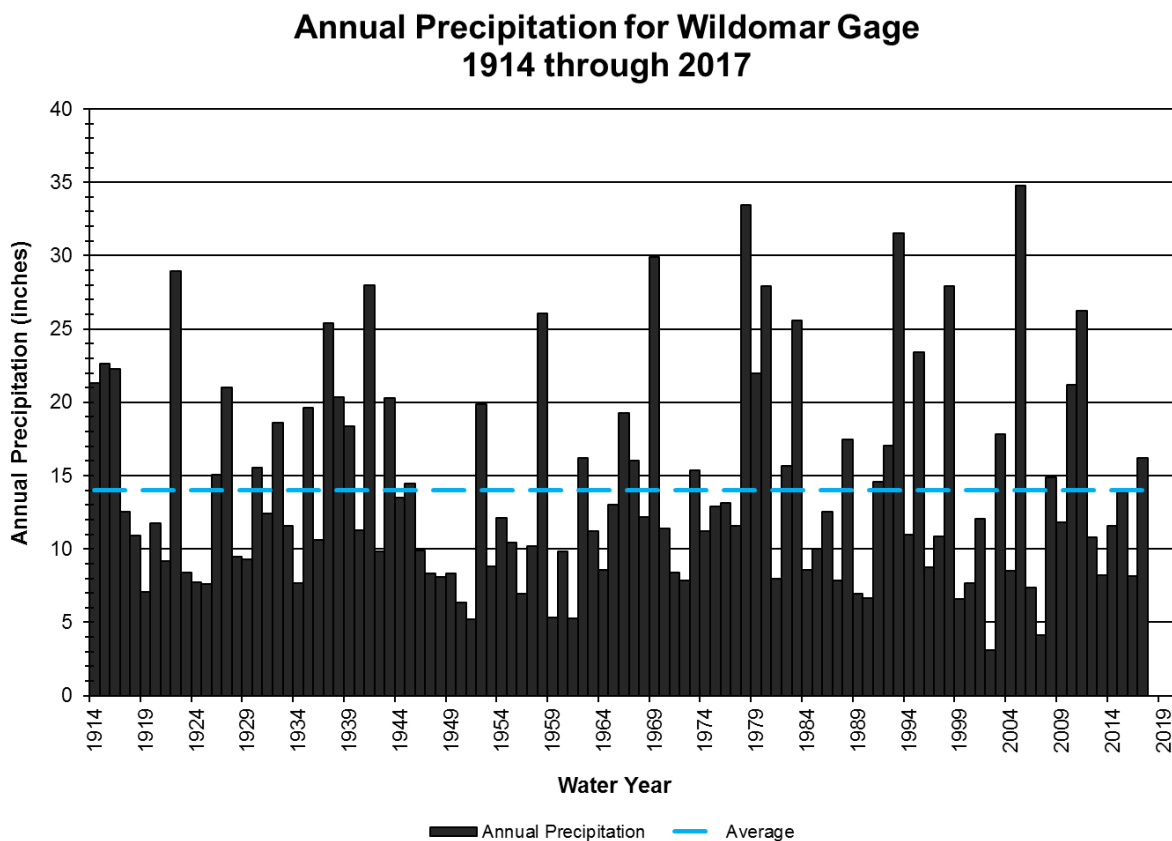


It is also interesting to review long-term precipitation records relative to long-term streamflow. Figure 3.2 shows the long-term time series for annual precipitation for the Wildomar gage maintained by the Riverside County Flood Control and Water Conservation District. The Wildomar gage is specified in the CWRMA for determining hydrologic year types in establishing Rancho California WD discharge requirements to meet flows for the Santa Margarita River near Temecula. The long-term average precipitation for the Wildomar gage for the period 1914 through 2017 is 13.99 inches. The reported precipitation for Water Year 2016-17 is 16.19 inches, which is in the third quartile for the period of record.

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 SANTA MARGARITA RIVER WATERSHED

Monthly flows shown on Table 3.2 consist primarily of naturally occurring surface runoff, including return flows, except for Rancho California WD discharges into the Santa Margarita River and some of its tributaries. Most of the Rancho California WD discharges are pursuant to the CWRMA. During Water Year 2016-17, the total discharges from MWD Meter WR-34 into the Santa Margarita River equaled 4,523 acre feet. The outlet from WR-34 is located just upstream from the Santa Margarita River near Temecula gaging station. In 2009, Rancho California WD extended a pipeline from its distribution system to discharge at the same location as the outlet WR-34. During Water Year 2016-17, there was one (1) acre feet of discharges from the potable connection to the Santa Margarita River and there were no discharges to Murrieta Creek from the System River Meter.

Figure 3.2



During 2016-17, Rancho California WD also released one (1) acre feet from wells into Murrieta Creek, 77 acre feet from wells into Santa Gertrudis Creek, and 52 acre feet from wells into Temecula Creek.

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3.2 Surface Water Diversions

Surface diversions to surface water storage and groundwater storage are shown on Table 3.3 for Vail Lake and Table 3.4 for Lake O'Neill. In general, diversions to surface storage at Vail Lake and Lake O'Neill are computed as being equal to inflow less spill, however, diversion to surface storage at Vail Lake excludes inflow during the period from May 1 through October 31 when Permit 7032 does not allow such diversions. Inflow to Vail Lake is calculated as the sum of evaporation, spill, releases and change of storage. Inflow into Vail Lake during the period when diversions are not permitted is released and not credited to groundwater storage.

Direct surface diversions for Water Year 2016-17 are shown on Table 3.5. The use is primarily irrigation. Estimated consumptive uses, losses and returns are also shown.

3.3 Water Storage

Major water storage facilities in the Santa Margarita River Watershed are listed on Table 3.6, together with the water in storage on September 30, 2016 and September 30, 2017. Total Santa Margarita River stream system water in storage at the end of Water Year 2016-17 totaled 12,553 acre feet, compared to 8,698 acre feet at the end of the previous year. Imported water in storage in Lake Skinner and Diamond Valley Lake, both operated by MWD, is also shown on Table 3.6.

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TABLE 3.3

SANTA MARGARITA RIVER WATERSHED  
SURFACE WATER DIVERSIONS TO STORAGE FOR VAIL LAKE  
2016-17

Quantities in Acre Feet

	<b>Surface Water Storage</b>		
	<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>
Storage End of Prior Year	17,470	14,440	8,280
Inflow - Total	1,091	1,428	6,261
Inflow to be Bypassed <sup>1/</sup>	626	698	345
Spill	0	0	0
Diversions to Surface Storage <sup>2/</sup>	465	730	5,916
Annual Evaporation	3,348	2,472	2,510
Releases - Total	773	5,116	611
Release to GW Storage <sup>3/ 4/</sup>	147	4,418	266
Change of Storage	(3,030)	(6,160)	3,140
Storage End of Year	14,440	8,280	11,420
	<b>Groundwater Storage</b>		
Recharge Release from Vail Lake	147	4,418	266
Recovered Vail Lake Recharge Water from GW Storage <sup>5/</sup>	147	4,418	266

Data reported by Rancho California WD except end of year storage reported by USGS.

1/ Inflow to be bypassed Oct 1 through Oct 31 and May 1 through Sept 30.

2/ Inflow less Spill less Inflow to be Bypassed.

3/ Total Release less Inflow to be Bypassed.

4/ Vail Lake operations shown in Table 3.3 reflect water year operations to be consistent with reporting in the Annual Watermaster Report. However, Permit 7032 specifies calendar year reporting and a continuous operating season of May through October for bypasses overlapping two water years. The value of 266 acre feet for Release to GW Storage is correct but misleading because the bypass season continues into October 2017. Inspection of Rancho California WD records for May through October 2017 shows total Inflow to be bypassed in the amount of 360 acre feet with Total Releases of 470 acre feet, resulting in 110 acre feet of excess releases during the Permit bypass season of May through October 2017.

5/ See Table 7.4.



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TABLE 3.4

SANTA MARGARITA RIVER WATERSHED  
**SURFACE WATER DIVERSIONS TO STORAGE FOR LAKE O'NEILL**  
**2016-17**

Quantities in Acre Feet

	<b>Surface Water Storage</b>		
	<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>
Storage End of Prior Year	414	424	418
Inflow - Total	1,822 1/	1,710 2/	2,821 3/
Spill	0	0	1,022 7/
Diversions to Surface Storage	1,822 4/	1,710 4/	1,799 4/
Annual Evaporation	376	383	372
Releases - Total	1,204	881	267
Release to GW Storage	1,204	881	267
Apparent Seepage to GW	232 5/	445 5/	444 5/
Change of Storage	10	(6)	715
Storage End of Year	424	418	1,133
	<b>Groundwater Storage</b>		
Recharge Release from Lake O'Neill	1,436 6/	1,326 6/	711 6/
Deliveries to Recharge Ponds	932	573	636
Indirect Recharge from Ditch System	894	719	612
<b>TOTAL</b>	<b>3,262</b>	<b>2,618</b>	<b>1,959</b>

1/ 1,476 AF diverted from the Santa Margarita River, 203 AF estimated inflow from Fallbrook Creek, 37 AF from local runoff, and 106 AF from rainfall on lake surface.

2/ 1,392 AF diverted from the Santa Margarita River, 195 AF estimated inflow from Fallbrook Creek, 38 AF from local runoff, and 85 AF from rainfall on lake surface.

3/ 660 AF diverted from the Santa Margarita River, 1,448 AF estimated inflow from Fallbrook Creek, 473 AF from local runoff, and 240 AF from rainfall on lake surface.

4/ Inflow less Spill.

5/ Includes seepage losses, leakage through flashboards and gates, and unaccounted for water.

6/ Includes Release to GW Storage and Apparent Seepage to GW from Lake O'Neill.

7/ Estimated

TABLE 3.5

*SANTA MARGARITA RIVER WATERSHED*  
**SURFACE WATER DIVERSIONS TO USE**  
**2016-17**

Quantities in Acre Feet

<b>DIVERTER</b>	<b>Surface Diversions</b>	<b>Consumptive Use 1/</b>	<b>Loss 2/</b>	<b>Return 3/</b>
Blue Bird Ranch	31.5	23.2	3.2	5.1
James Carter	52.0	38.4	5.2	8.4
Chambers Family, LLC	8.0	5.9	0.8	1.3
Sage Ranch Nursery	100.0	73.8	10.0	16.2
Val Verde Partners	10.0	7.4	1.0	1.6
Wilson Creek Development, LLC 4/	375.0	276.8	37.5	60.8
Cahuilla Indian Reservation	18.0	13.3	1.8	2.9
San Diego State University	41.3	30.5	4.1	6.7
<b>TOTAL</b>	<b>635.8</b>	<b>469.2</b>	<b>63.6</b>	<b>103.0</b>

1/ Consumptive Use equals 82% of Diversions less Losses.

2/ Losses equal 10% of Diversions.

3/ Returns equal 18% of Diversions less Losses.

4/ Water Use Report for WY 2017 not received. Values taken from WY 2016.

TABLE 3.6

*SANTA MARGARITA RIVER WATERSHED*  
**SURFACE WATER IN STORAGE**

2016-17

Quantities in Acre Feet

<b>Santa Margarita River Storage</b>	<b>Total Capacity 1/</b>	<b>Water in Storage</b>	
		<b>9/30/2016</b>	<b>9/30/2017</b>
Dunn Ranch Dam	90	0	0
Upper Chihuahua Creek Reservoir	47	0	0
Vail Lake	49,370	8,280	11,420
Lake O'Neill	<u>1,670</u>	<u>418</u>	<u>1,133</u>
<b>SUBTOTAL</b>	<b>51,177</b>	<b>8,698</b>	<b>12,553</b>
<b>Imported Water Storage</b>			
Lake Skinner	44,000	38,138	37,581
Diamond Valley Lake	<u>810,000</u>	<u>545,050</u>	<u>690,515</u>
<b>SUBTOTAL</b>	<b>854,000</b>	<b>583,188</b>	<b>728,096</b>
<b>TOTAL STORAGE</b>	<b>905,177</b>	<b>591,886</b>	<b>740,649</b>

1/ Capacity shown is current capacity reported by owner. Original capacity or decreed capacity may not be reflected in this table.

R - Revised from CDEC

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SANTA MARGARITA RIVER WATERSHED

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## **SECTION 4 - SUBSURFACE WATER AVAILABILITY**

### **4.1 General**

Much of the water from the Santa Margarita River stream system is obtained by pumping subsurface water. The Court has identified two basic types of subsurface water in the interlocutory judgments incorporated into the 1966 Modified Final Judgment and Decree. One type is vagrant, local, percolating waters that do not add to, support or contribute to the Santa Margarita River or its tributaries. Such waters have been determined to be outside the continuing jurisdiction of the Court. These waters are typically found in the basement complex and/or residuum deposits in the Watershed.

Other subsurface waters were found by the Court to add to, support and contribute to the Santa Margarita River and/or its tributaries. Aquifers containing such waters have been designated by the Court as younger alluvium and older alluvium. Younger alluvial deposits are commonly exposed along streams and in valleys. Older alluvium may be found underneath younger alluvium and is not limited to areas along stream channels. Older alluvium may or may not be exposed at ground surface. The use of subsurface water found in younger and older alluvium is generally under the continuing jurisdiction of the Court and is reported upon in this report.

### **4.2 Extractions**

Total production of Santa Margarita River water by substantial water users in the Watershed from all sources is listed on Table 4.1 by hydrologic area, along with estimated consumptive use and return flows. Recovery of imported water that has been directly recharged is not included on Table 4.1. Substantial water users include water purveyors as well as private irrigators who irrigate eight acres or more or use an equivalent quantity of water.

In 2016-17, production by water purveyors totaled 26,180 acre feet, compared to 32,339 acre feet in 2015-16. Monthly quantities are shown in Appendix A and annual production for the period 1966 through 2017 is shown in Appendix B.

The quantities of subsurface extractions by private irrigators are based on the irrigated acreage and the crop type. These quantities are reported in Appendix C to total 5,284 acre feet in 2016-17. Of the subsurface extractions, 82% is estimated to have been consumptively used and 18% to have been return flow. Return flow is that portion of the total deliveries that is not consumed. Although return flows average about 18%, such flows are affected with the type of use (domestic, commercial and irrigation), the type of irrigation application (drip, micro-sprinkler, furrow), and exports from watersheds.

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TABLE 4.1

*SANTA MARGARITA RIVER WATERSHED*  
**SANTA MARGARITA RIVER WATER PRODUCTION BY SUBSTANTIAL USERS**  
2016-17

HYDROLOGIC AREA	WATER PURVEYOR PRODUCTION ACRE FEET	OTHER IRRIGATED ACRES *	OTHER IRRIGATION PRODUCTION ACRE FEET *	TOTAL GROUNDWATER PRODUCTION ACRE FEET	SURFACE WATER DIVERSIONS ACRE FEET *	TOTAL PRODUCTION ACRE FEET	ESTIMATED CONSUMPTIVE USE ACRE FEET 1/, 2/	ESTIMATED RETURN FLOW ACRE FEET 2/
<b>Wilson Creek</b> <b>Above Aguanga GWA</b> Includes Anza Valley	537	370 <sup>3/</sup>	1,758	2,295	18	2,313	1,895	418
	<i>(Lake Riverside, Anza MWC, Cahuilla, Ramona, Hamilton Schools)</i>							
<b>Temecula Creek</b> <b>Above Aguanga GWA</b>	18	235	940	958	0	958	786	172
	<i>(Quiet Oaks MHP)</i>							
<b>Aguanga GWA</b>	589	388	1,204	1,793	385	2,178	1,754	424
	<i>(Outdoor Resorts, Jojoba Hills Cottonwood Elementary)</i>							
<b>Upper Murrieta Creek</b> (Warm Springs Creek above 7S/3W-14)	0	0	0	0	0	0	0	0
<b>Lower Murrieta Creek</b> (Santa Gertrudis/Tucalota Creek above 7S/2W-18 -- Includes FPUD Diversion from Lake Skinner)	0	310	44	44	100	144	110	34
<b>Murrieta-Temecula GWA</b>	20,162	684	714	20,876	52	20,928	17,157	3,771
	<i>(RCWD**, WMWD (Murrieta Division), EMWD, Pechanga and Hawthorn)</i>							
<b>Santa Margarita River Below the Gorge</b>								
DeLuz Creek	0	319	507	507	39	546	445	102
Sandia Creek	0	71	113	113	0	113	93	20
Rainbow Creek	0	0	0	0	0	0	0	0
Santa Margarita River <i>(USMC)</i>	4,874	20	4	4,878	41	4,920	1,854	411
<b>TOTAL</b>	<b>26,180</b>	<b>2,397</b>	<b>5,284</b>	<b>31,464</b>	<b>636</b> <sup>4/</sup>	<b>32,100</b>	<b>24,093</b>	<b>5,352</b>

1/ Estimated consumptive use is equal to 82% of Total Groundwater Production plus 82% of Surface Diversions less 10% (CU = .82{GW + .90 \* SW}).

2/ Camp Pendleton consumptive use and return flow calculated for portion of production used within Santa Margarita River Watershed. Portion of production used within Watershed for 2016-17 equals 2,219 AF.

3/ Includes lands overlying deep aquifer in Anza Valley.

4/ Includes surface water diversion for irrigation, commercial and domestic use.

\* Data taken from Appendix C.

\*\* RCWD pumped an additional 163 AF that was exported to the San Mateo Watershed and an additional 54 AF pumped directly into recycled water system.

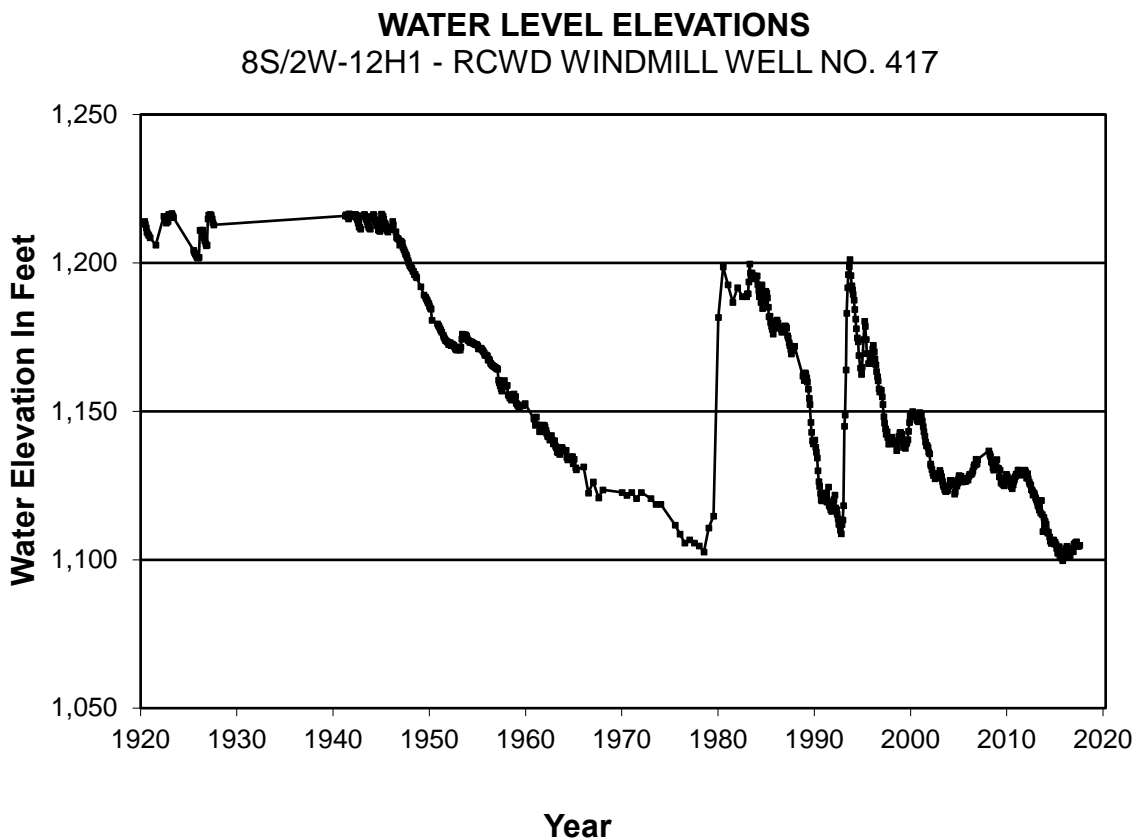
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4.3 Water Levels

Water levels in selected wells in the Watershed are measured periodically by various entities. Historical water levels in wells at various locations in the Watershed are shown in this report on Figures 4.1, 4.2, 4.3, 4.4, 4.5, 4.6 and 4.7.

Figure 4.1 shows water levels in Well No. 8S/2W-12H1 (Windmill Well) located in the Rancho California WD service area downstream from Vail Lake. Note the extended drawdown from 1945 to 1978, the major recoveries during the wet years in 1980 and 1993, and the effect of relatively dry years after 1980 and after 1993. Water levels increased by 3.4 feet between September 30, 2016 and September 30, 2017. It should be noted that the Windmill Well is located in Pauba Valley about 1.5 miles downslope from the Valle de los Caballos (VDC) recharge area, where releases from Vail Lake as well as imported water are recharged. In Water Year 2016-17, 13,620 acre feet of imported water were recharged in the VDC of which 74.4% was recovered in the same year. As shown on Appendix Table A-7, a total of 3,493 acre feet of recharged import water was unrecovered from groundwater storage in Water Year 2016-17.

Figure 4.1



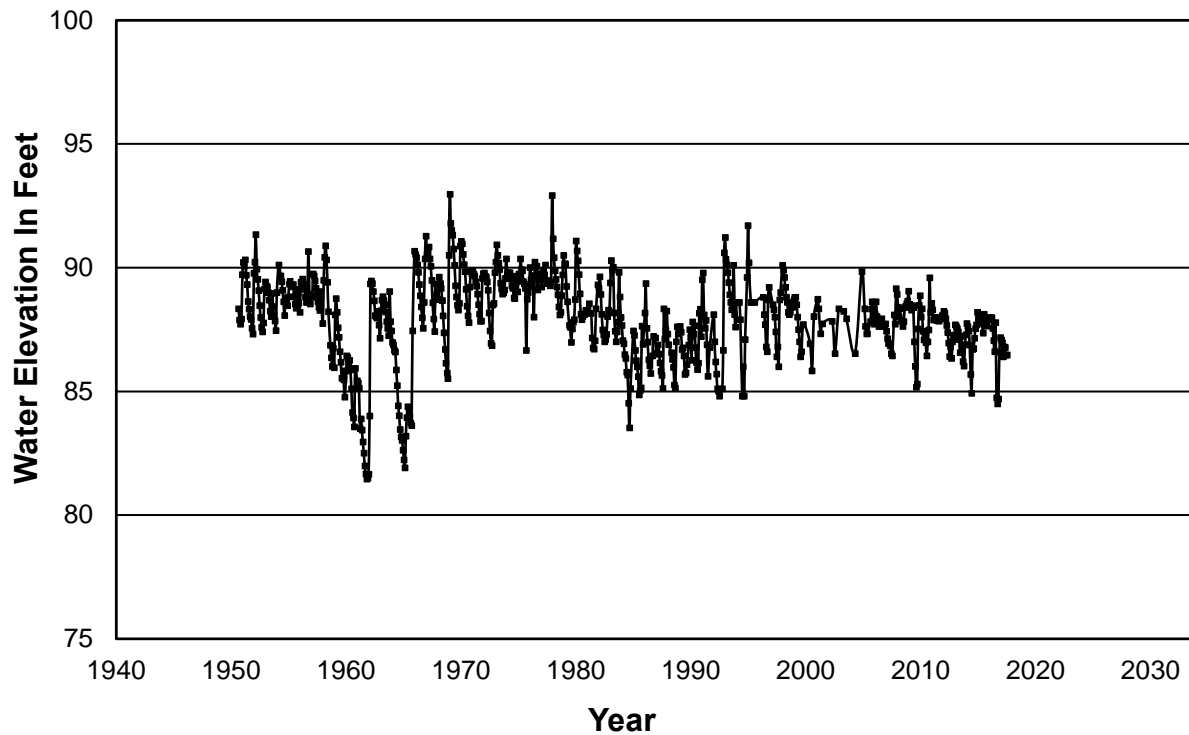
Collar El. 1,216.7 Feet; Depth 515 Feet; Drilled in Alluvium  
Ref: RCWD reports (1920-2017)

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Figure 4.2 shows water levels at Camp Pendleton in Well No. 10S/4W-7J1, a monitoring well located in the Upper Sub-basin. Fluctuations in recent years illustrate recharge during the winter months and drawdown each summer, with the water levels ranging from approximately 79 to 91 feet in elevation. Water levels in Well 7J1 decreased 1.3 feet in the period between September 2016 and September 2017.

Figure 4.2

**WATER LEVEL ELEVATIONS**  
10S/4W-7J1 - CAMP PENDLETON \*



Ground El. 91.4 Feet; Depth 141 Feet; Perf. Unknown; Drilled in Alluvium  
Camp Pendleton Records

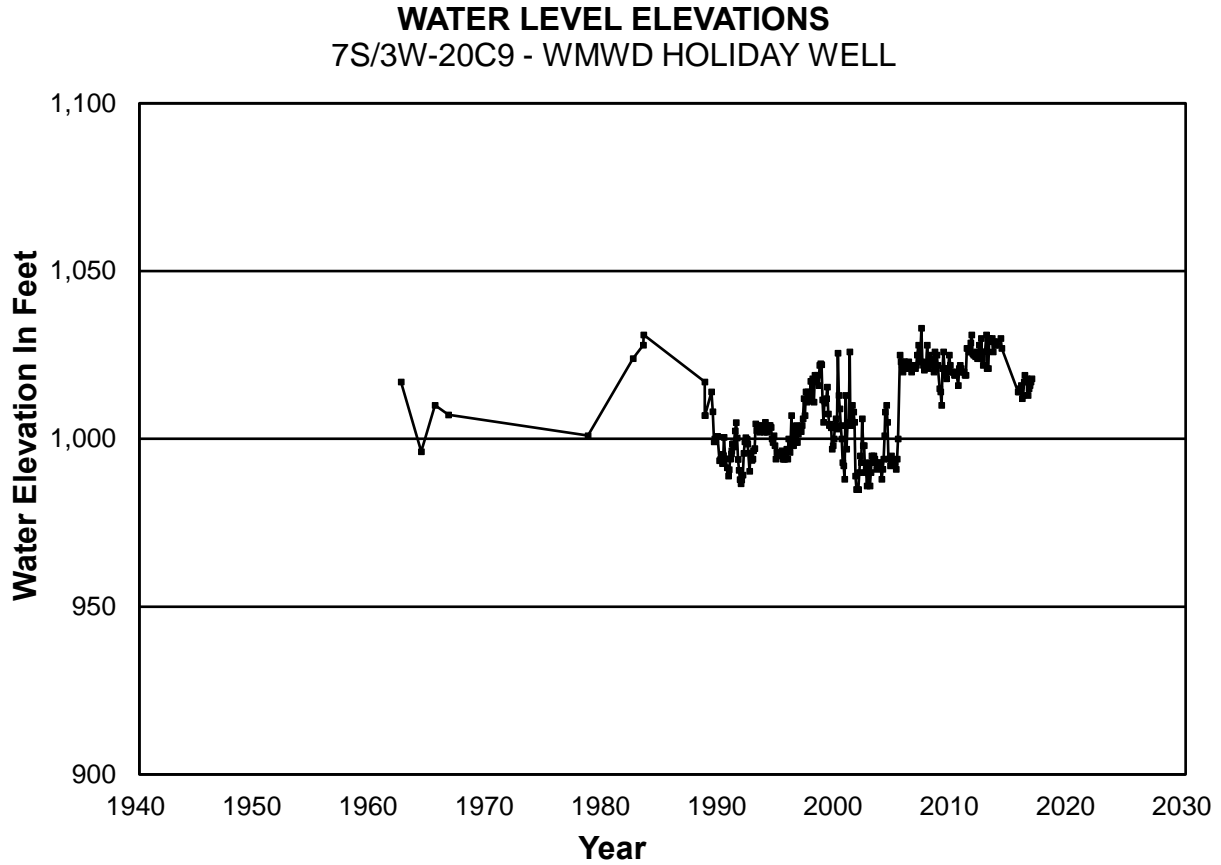
\* Data shown for Well No. 10S/4W-7J1 except for period October 1999 through  
September 2007 data shown for Well No. 10S/4W-7J4.



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Figure 4.3 shows water levels from Holiday Well No. 7S/3W-20C9 in the Murrieta Division service area of Western MWD. The Holiday Well was used as a production well until February 2006, but now is used only as a monitoring well. Water levels in this well increased by 3.0 feet between September 2016 and September 2017.

Figure 4.3

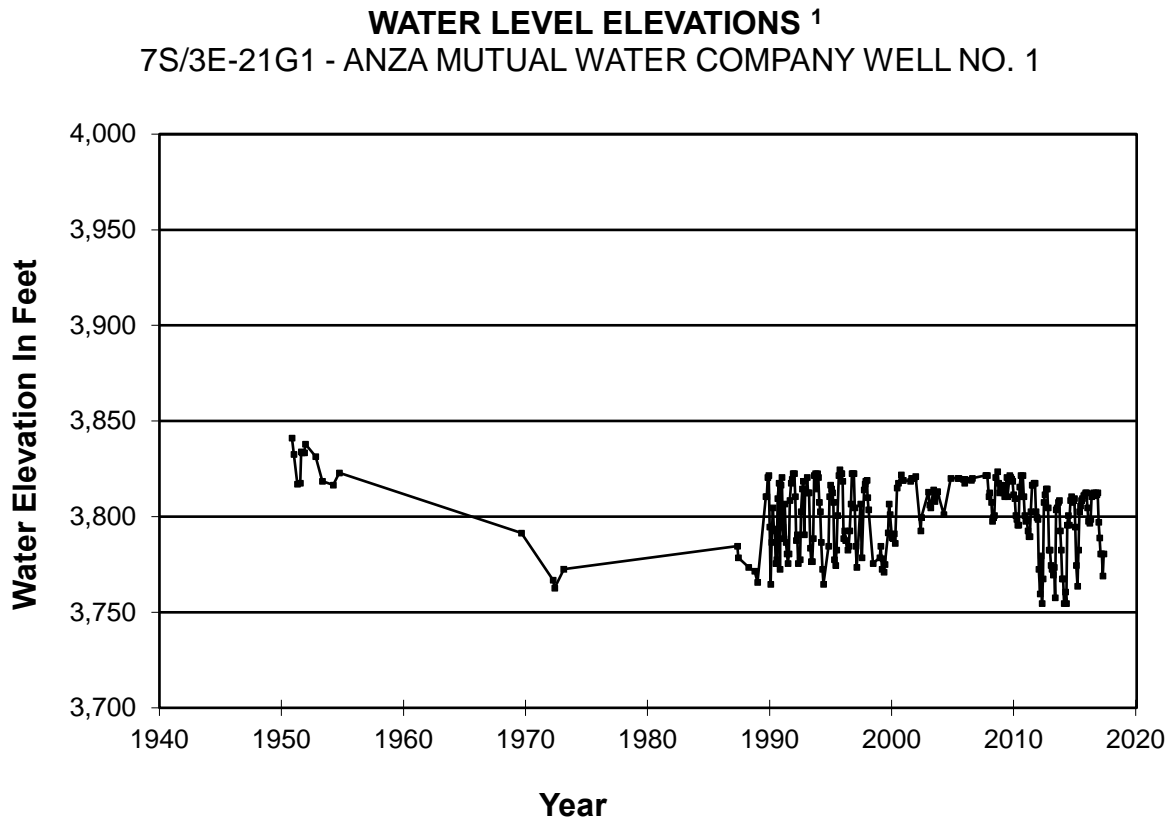


Ground El. 1,090 Feet; Depth 307 Feet; Perf. 60 - 307 Feet  
Western Municipal Water District

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Figure 4.4 shows water levels for Well No. 7S/3E-21G1, Anza Mutual Water Company Well No. 1, a production well located in the Anza Valley. Water levels in this well decreased by 30 feet between September 30, 2016 and September 30, 2017. As may be noted from Figure 4.4, recent measurements show annual 50 foot fluctuations in groundwater levels at this well, partly in response to the operation of nearby irrigation wells.

Figure 4.4



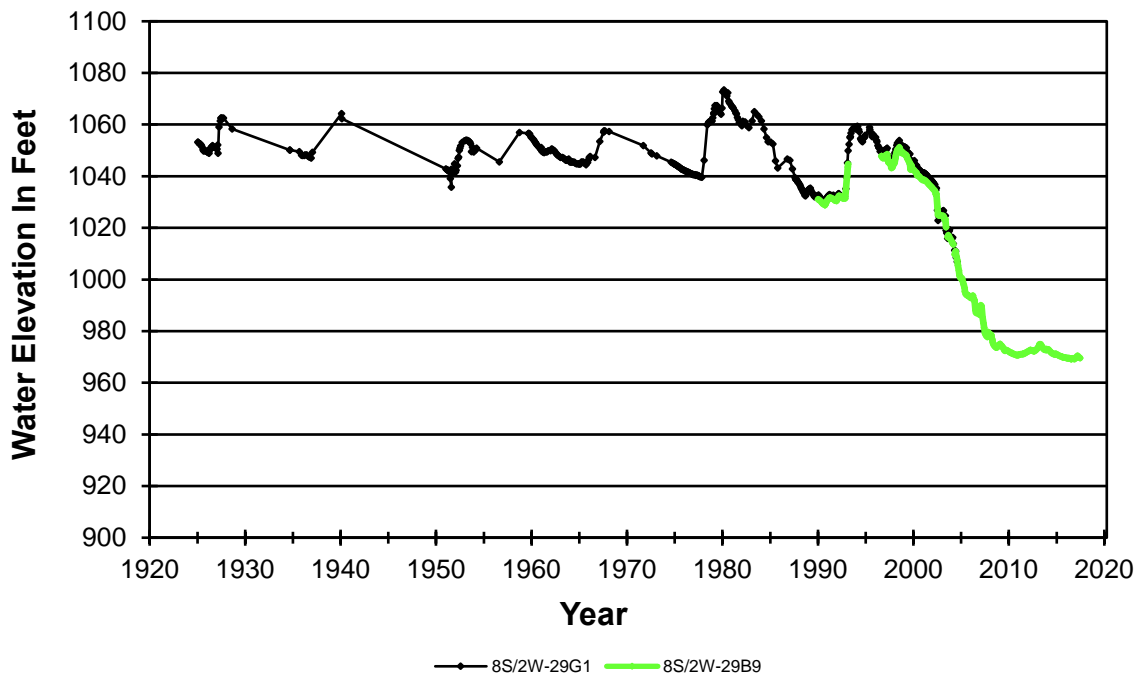
<sup>1</sup> Static water levels plotted after April 1999  
Ground El. 3,862.6 Feet; Depth 260 Feet; Perf. 20 - 260 Feet; Drilled in Alluvium  
Anza Mutual Water Co. Well No. 1 (1987-2017); DWR Bulletin 91-22 (1950-73)

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Figure 4.5 shows water levels at Well No. 8S/2W-29G1, located in Wolf Valley on the Kelsey Tract of the Pechanga Indian Reservation. The well is not used for water production. Water levels collected since 1925 reflect unconfined groundwater levels. As shown on Figure 4.5, the groundwater levels have fluctuated within an approximate 40 foot range above and below elevation 1,050 feet in response to wet years and dry periods until recently. In November 2004, this well went dry due to the preceding relatively dry hydrological conditions and pumping of the nearby New Kelsey Well on the Pechanga Reservation. In order to continue to monitor water levels on the Pechanga Indian Reservation, water levels for Well No. 8S/2W-29B9 are also shown on Figure 4.5. Well No. 8S/2W-29B9 is completed in the younger alluvium. As shown on Figure 4.5, water levels for Well No. 8S/2W-29B9 coincide with water levels for the common period of record for Well No. 8S/2W-29G1. Water levels in Well 8S/2W-29B9 increased by 0.4 feet 2016-17.

Figure 4.5

**WATER LEVEL ELEVATIONS**  
**PECHANGA INDIAN RESERVATION WELLS**

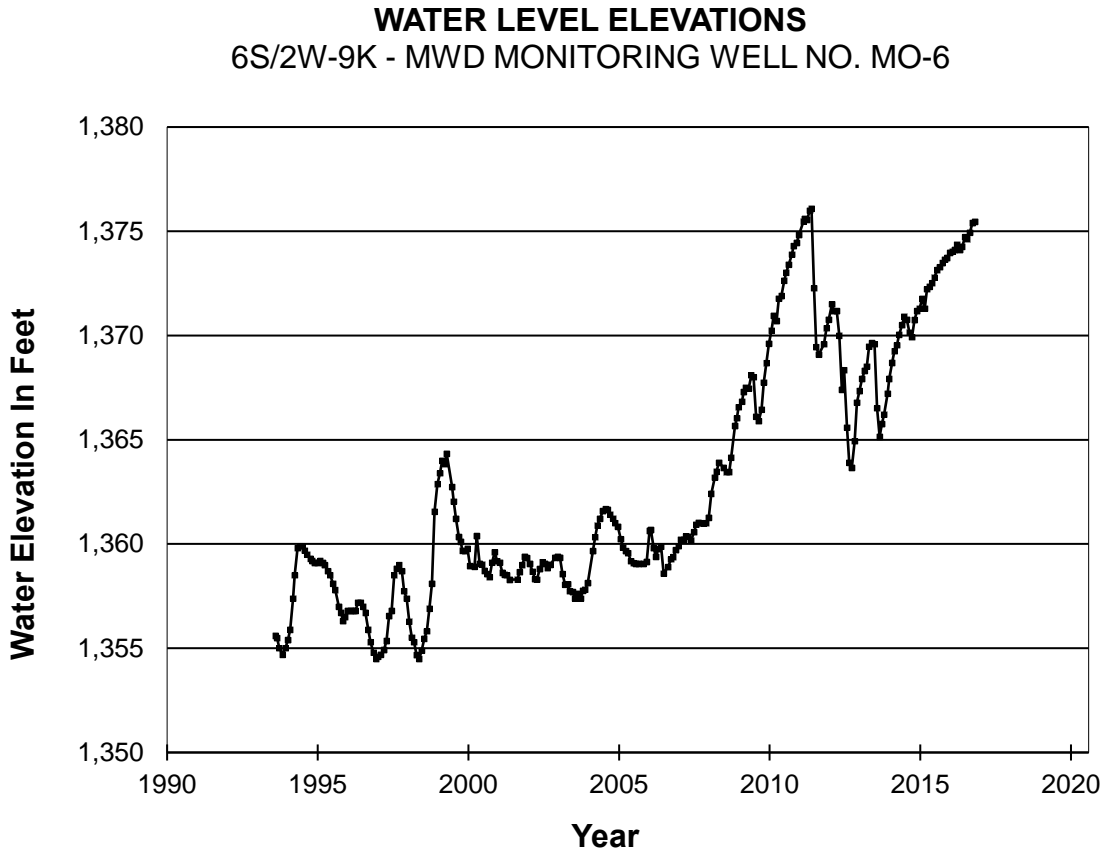


8S/2W-29G1: Ground El. 1,091.1 Feet; Depth 159.1 Feet  
8S/2W-29B9: Ground El. 1,075.93 Feet; Depth 113.0 Feet  
U.S. Geological Survey Records

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Figure 4.6 shows water levels for Well No. 6S/2W-9K, Metropolitan Water District Monitoring Well No. MO-6, located in the Domenigoni Valley. Water levels in this well rose by 1.8 feet between September 30, 2016 and September 30, 2017.

Figure 4.6

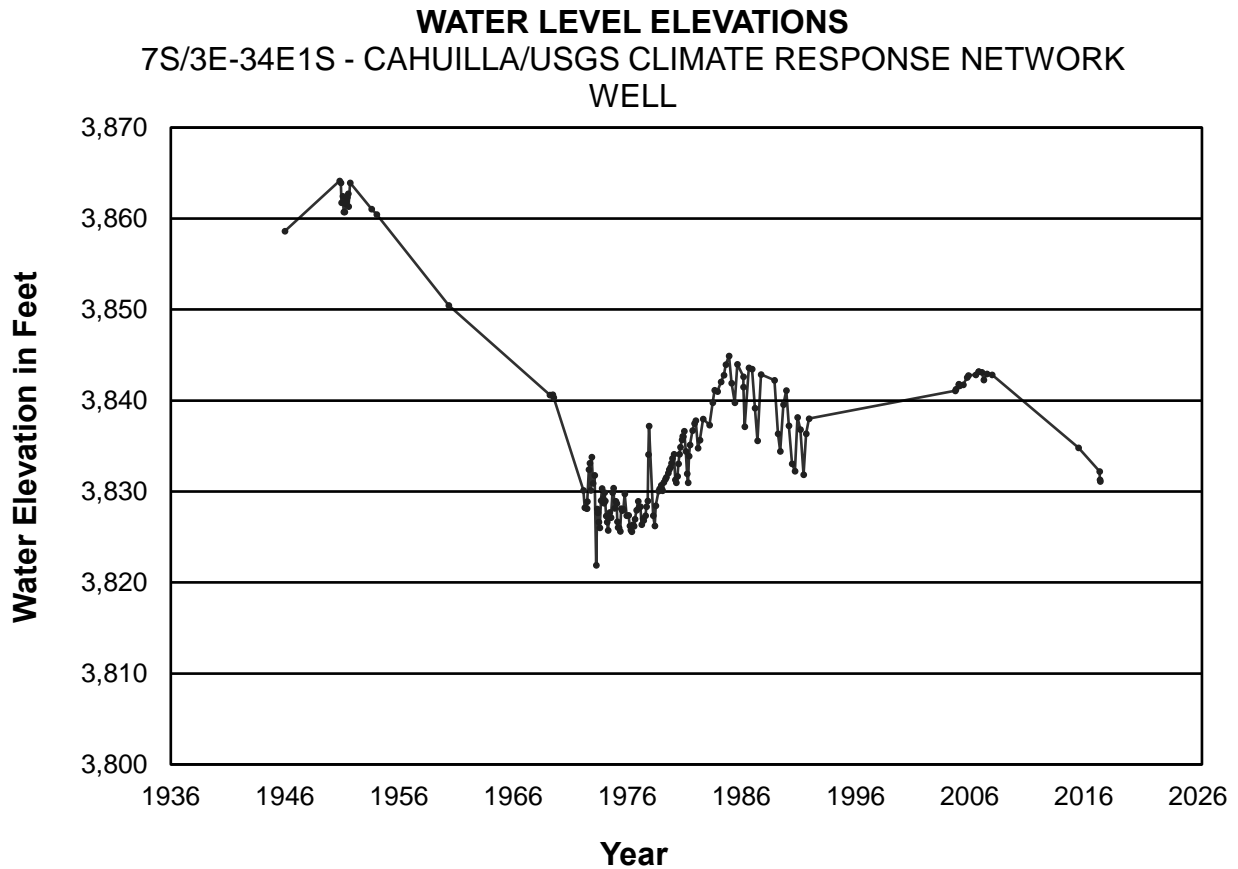


Ground El. 1,445.8 Feet; Depth 115 Feet; Perf. 30.5 - 110 Feet; Drilled in Alluvium  
Metropolitan Water District of Southern California

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Figure 4.7 displays the historical record for the USGS/Cahuilla Climate Response Network Well No. 7S/3E-34E1S, dating back to 1946. The USGS established the existing well as a Climate Response Network well and automated water level measurements commenced at a 15-minute interval on August 31, 2017. As shown on Figure 4.7, water levels for the well decreased by 3.7 feet between October 29, 2015 and September 20, 2017.

Figure 4.7



7S/3E-34E1S: Ground El. 3,898.65 Feet above NAVD88; Depth 182 Feet  
U.S. Geological Survey Records

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Changes in water levels in the above noted wells between the end of the previous water year and the end of the 2016-17 Water Year are shown below:

<u>Well</u>	<u>Water Elevation 2016 Feet</u>	<u>Water Elevation 2017 Feet</u>	<u>Change in Water Level Feet</u>
RCWD 8S/2W-12H1	1,101.5	1,104.9	Up 3.4
USMC 10S/4W-7J1	87.8	86.5	Down 1.3
WMWD 7S/3W-20C9	*1,015.0	1,018.0	Up 3.0
Anza MWC 7S/3E-21G1	3,810.6	3,780.6	Down 30.0
Pechanga IR 8S/2W-29B9	969.2	969.6	Up 0.4
MWD 6S/2W-9K	1,373.7	1,375.5	Up 1.8
Cahuilla/USGS 7S/3E-34E1S	**3,834.8	3,831.1	Down 3.7

\* Water level measurements only taken in July, August, and September 2016.

\*\* Measurement taken October 29, 2015

#### 4.4 Groundwater Storage

Bulletin 118 Update 2003 prepared by the State of California Department of Water Resources describes three groundwater basins that are located entirely within the Santa Margarita River Watershed: Santa Margarita Valley, Temecula Valley, and Coahuila (Cahuilla) Valley. These basins are also known as the Santa Margarita Groundwater Basin, the Murrieta-Temecula Groundwater Basin, and the Anza Groundwater Basin. A fourth groundwater basin identified in Bulletin 118, the San Jacinto Groundwater Basin, is partially located within the Watershed. The portion of the San Jacinto Groundwater Basin located within the Watershed is known as the Domenigoni Sub-basin.

Groundwater storage in each of the Santa Margarita, Murrieta-Temecula, and Anza basins is described in this section. Information related to groundwater storage for the Domenigoni Sub-basin is currently under review.

##### 4.4.1 Santa Margarita Groundwater Basin

The Santa Margarita Groundwater Basin is located along the Santa Margarita River at Camp Pendleton and includes three sub-basins: Upper, Chappo, and Ysidora. Useable groundwater storage in place is summarized on Table 4.2 and change in useable groundwater storage is summarized on Table 4.3. Table 4.2 shows that the total combined storage for all the sub-basins between the depths of 5 and 100 feet is 48,100 acre feet. However, much of that storage is below sea level. Thus, the useable capacity is considered to be 28,700 acre feet as shown on Table 4.2. It may be noted that classification of storage as useable is made without allowances for maintenance of riparian habitat.

Beginning in 2017, annual change in groundwater storage is computed using two methods: Watermaster Office method, and Groundwater Level Polygon method. Both methods use the average September groundwater levels (end of water year) to calculate

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the change in storage as well as specific yield for the sub-basins published by Worts and Boss (1954).

The Watermaster Office method uses average groundwater levels from one well located in each of the three sub-basins (Upper, Chappo, and Ysidora), along with the specific yield and sub-basin acreage, to determine the change in usable groundwater storage. In 2016-17, useable groundwater storage in place was computed for all three sub-basins to be 26,831 acre feet. The useable storage in place for the three sub-basins amounted to 25,744 acre feet in 2015-16. Thus, using the Watermaster Office method, there was an increase in groundwater storage in place of approximately 1,087 acre feet for the water year. Results are displayed in Table 4.2.

The Groundwater Level Polygon method uses average groundwater levels from fifteen key wells located throughout the sub-basins, along with specific yield and sub-basin acreage to determine the change in usable groundwater storage. It should be noted, the sub-basin acreage used in the Groundwater Level Polygon method differ when compared to the acreage used for the Watermaster Office method. In 2016-17, change in useable groundwater storage in place was computed for all three sub-basins and indicated an increase of approximately 1,147 acre feet. Results for Water Years 2013 through 2017 are displayed in Table 4.3.

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TABLE 4.2

SANTA MARGARITA RIVER WATERSHED  
**GROUNDWATER STORAGE - SANTA MARGARITA GROUNDWATER BASIN**  
2016-17  
Quantities in Acre Feet

	Sub-basin			Total
	Upper	Chappo	Ysidora	
I. Available Storage				
A. Total Storage <sup>1/</sup>	12,500	27,000	8,600	48,100
B. Useable Storage	12,500	15,000 <sup>2/</sup>	1,200 <sup>3/</sup>	28,700
II. Unused Storage				
A. Wells used for Depth	10S/4W-7J1	10S/4W-18L1 <sup>4/</sup>	11S/5W-11D4	
B. Land Surface Elevation - Feet <sup>5/</sup>	91.4 R	75.9	18.8	----
C. End of Water Year Water Level - Feet	86.5	66.5	9.0	----
D. Depth to Water - Feet <sup>6/</sup>	4.9	9.4	9.8	----
E. Depth below 5 Feet	(0.1)	4.4	4.8	----
F. Average Area - Acres <sup>7/</sup>	840	2,500	1,060	----
G. Specific Yield <sup>8/</sup>	0.216	0.130	0.090	----
H. Unused Storage below 5 Feet	(19)	1,430	458	1,869
III. Useable Storage in Place <sup>9/</sup>	12,519	13,570	742	26,831
IV. Useable Storage in Place 2015-16	12,319	12,683	742	25,744
V. Change in Storage 2016-17	200	887	0	1,087

1/ Computed by USGS (Worts, F. C., Jr. and Boss, R. F., *Geology and Ground-Water Resources of Camp Pendleton, CA, July 1954*) as the storage between depths of 5 and 100 feet.

2/ Storage between 5 foot depth and sea level.

3/ Storage between 5 foot depth and 10 feet above sea level.

4/ Well 10S/4W-18L1 was destroyed during 2012, depth to water extrapolated from measurements for Well 10S/5W-13G1.

5/ Reported by Camp Pendleton based on NAVD88 datum.

6/ Reported by Camp Pendleton as average values for month of September unless noted otherwise.

7/ Average area estimated over depth interval for unused storage.

8/ From Worts and Boss for depth interval of 5 to 50 feet.

9/ Useable storage includes stored water reserved for riparian habitat; however specific amount stored for such purposes not delineated.

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TABLE 4.3

**SANTA MARGARITA RIVER WATERSHED**  
**CHANGES IN USABLE GROUNDWATER STORAGE**  
**SANTA MARGARITA RIVER GROUNDWATER BASIN**  
 Groundwater Level Polygon Method

Sub-area	Key Aquifer	Specific Yield/ Storativity	Key Well	LSD ft.	Aquifer Area Acres	Water Depth at End of Water Year Feet					Change in Depth Feet					Change in Storage in Water Year Acre Feet				
						2013	2014	2015	2016	2017	2013	2014	2015	2016	2017	2013	2014	2015	2016	2017
1	Upper	0.216	5E3	120.5	186	20.0	17.4	17.9	18.9	17.2	(2.09)	2.57	(0.43)	(1.09)	1.73	(84)	103	(17)	(44)	69
2	Upper	0.216	8D3	109.0	81	17.1	14.4	14.7	15.6	12.1	(0.47)	2.74	(0.38)	(0.84)	3.46	(8)	48	(7)	(15)	61
3	Upper	0.216	8D4	104.3	92	16.1	14.8	14.5	15.2	11.9	(0.77)	1.24	0.32	(0.70)	3.30	(15)	25	6	(14)	65
4	Upper	0.216	7H3	101.0	63	13.1	11.3	12.9	12.2	9.9	0.25	1.85	(1.62)	0.66	2.36	3	25	(22)	9	32
5	Upper	0.216	8E4	97.6	77	10.1	8.6	8.8	8.6	8.2	0.25	1.45	(0.15)	0.15	0.40	4	24	(3)	2.51	7
6	Upper	0.216	7J1	93.8	125	6.6	7.1	5.7	6.0	4.9	0.81	(0.52)	1.41	(0.33)	1.12	22	(14)	38	(9)	30
7	Upper	0.216	18B2	4/, 5/ 90.7	162	8.8	9.9	8.1	8.2	7.3	0.53	(1.08)	1.76	(0.10)	0.90	19	(38)	61	(3)	31
8	Chappo	0.130	18L1	1/ 75.9	655	14.8	13.8	10.5	12.1	9.4	(3.17)	1.05	3.27	(1.60)	2.66	(270)	89	279	(136)	227
	Chappo	0.130	13G1	2/ 123.3	572	61.7	60.6	57.4	59.0	56.3	(3.17)	1.05	3.27	(1.60)	2.66	(236)	78	243	(119)	198
9	Chappo	0.130	6W-06C	5/ 57.4	927	12.7	16.7	11.5	11.1	10.2	(2.55)	(4.02)	5.19	0.48	0.83	(307)	(484)	625	58	100
10	Chappo	0.130	2201	5/ 45.0	420	9.4	11.6	8.6	8.0	6.2	(3.25)	(2.21)	2.95	0.61	1.86	(177)	(120)	161	33	102
11	Ysidora	0.090	35J2	3/ 27.0	555	9.9	11.2	12.2	10.5	7.4	(1.56)	(1.37)	(0.95)	1.72	3.07	(78)	(68)	(47)	86	153
12	Ysidora	0.090	35R4	26.3	114	11.2	12.1	11.9	11.9	8.7	(1.89)	(0.87)	0.20	(0.06)	3.27	(19)	(9)	2	(1)	34
13	Ysidora	0.090	2B2	25.3	287	9.1	9.9	9.5	9.3	8.2	(1.16)	(0.82)	0.43	0.17	1.06	(30)	(21)	11	4	27
14	Ysidora	0.090	2E1	17.2	179	1.7	2.6	1.9	2.0	1.3	(0.93)	(0.82)	0.66	(0.11)	0.71	(15)	(13)	11	(2)	11
						Upper					Upper					Upper				
						Chappo					Chappo					Chappo				
						Ysidora					Ysidora					Ysidora				
						<b>Total</b>					<b>Total</b>					<b>Total</b>				
						<b>(1,192)</b>					<b>(376)</b>					<b>(150)</b>				
						<b>1,342</b>					<b>1,342</b>					<b>1,147</b>				

Specific Yield from Worts and Boss (1954). Values are for the 5-50 foot zones, except for 35R1, which is from the 50-100 foot zone.

Average September groundwater levels are based on hourly data collected from levelloggers installed in each well.

1/ Well 18L1 was destroyed. GWL adjusted 0.6 feet from Well 13G1 measured groundwater level.

2/ Well 13G1 is located in older alluvium on the bluff to the north side of the Chappo Subbasin. There is approximately 20 feet of saturated aquifer (Worts and Boss, 1954 cross sections).

3/ Well 35J2 datalogger unavailable for 2016 water depth, field measured water level from 10/26/2016 was used.

4/ Well 18B2 was missing September 2017 data, September 2017 data for MW 26019 was used in its place.

5/ Missing historical September data filled as follows: Well 26C1 (Nov 2015); Well 6W-06C (Nov 2014); Well 18B2 (Nov 2013)

#### 4.4.2 Murrieta-Temecula Groundwater Basin

The Murrieta-Temecula Groundwater Basin is located along Murrieta and Temecula creeks in the Upper Santa Margarita River Watershed. Total groundwater storage at the end of Water Year 2001 was computed for each of 22 hydrologic sub-areas that make up the Groundwater Basin. These computations were based on the areal extent of each sub-area, the thickness of each of three aquifers, (younger alluvium, Pauba aquifer and Temecula aquifer), a specific yield for each aquifer, and the depth to water in each aquifer at the end of the water year. Specific yields were based on unconfined conditions for all aquifers. The total groundwater storage in the uppermost 500 feet as of September 30, 2001, was estimated at 1,340,556 acre feet.

Since 2001, annual changes in groundwater storage have been computed using two different methodologies for comparison; a water budget method and a groundwater level method.

The Water Budget method determines the change in storage as the difference between the major elements of inflow and outflow for the groundwater area. Table 4.4 shows the changes for Water Years 2013 through 2017. The change in groundwater storage for Water Year 2016-17, using the Water Budget method, is calculated as a decrease of 4,178 acre feet. It is noted, the return flow from Rancho California WD groundwater production was revised in Water Year 2014-15 to subtract the groundwater pumped directly to the recycled water system from the calculation as reflected in Footnote 6. The revision was applied to previous water years and is reflected on Table 4.4. Also, the return flow percentages were revised in Water Year 2016-17 and are incorporated into the calculations for this year.

The Groundwater Level method is based on the changes in water levels in key wells in hydrologic sub-areas. Changes in storage under the Groundwater Level method for Water Years 2013 through 2017 are shown on Table 4.5. The change in groundwater storage for Water Year 2016-17, using the Groundwater Level method, is calculated as an increase of 13,138 acre feet.

The foregoing two methods are based on independent measurements and estimates. The estimates from the two methods are generally comparable for the period 2001 through 2017. However, the estimates from the two methods for certain years indicate differences in the results. It will take testing over a number of years under varying hydrologic conditions to refine these approaches. Such testing may include comparing the estimates obtained from these two methods with values computed with the groundwater model that is used for implementation of the CWRMA between Camp Pendleton and Rancho California WD.

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**TABLE 4.4**

**SANTA MARGARITA RIVER WATERSHED  
CHANGES IN GROUNDWATER STORAGE  
MURRIETA-TEMECULA GROUNDWATER BASIN  
Water Budget Method  
Quantities in Acre Feet**

<u>Elements of Inflow</u>	<u>Water Year Ending</u>				
	2013	2014	2015	2016	2017
Releases from Vail <sup>1/</sup>	3,259	811	773	5,116	611
Releases from Lake Skinner <sup>2/</sup>	51	61	100	70	30
Freshwater Releases to Stream <sup>3/</sup>	2,530	4,126	3,432	4,098	4,654
Reclaimed Water Released to Stream <sup>4/</sup>	0	0	0	0	0
Recharged Imported Water <sup>5/</sup>	11,395	12,069	12,248	10,228	13,620
Return Flow from RCWD Groundwater Production <sup>6/</sup>	8,785 R	8,551 R	8,579	7,577	3,818
Return Flow from Import Direct Use <sup>7/</sup>	3,457	3,920	2,268	2,669	1,634
Return Flow from Applied Wastewater <sup>8/</sup>	1,349	1,399	1,314	1,433	705
Underflow and Tributary Inflow <sup>9/</sup>	2,149	6,777	5,959	3,829	27,924
<b>Subtotal</b>	<b>32,975 R</b>	<b>37,714 R</b>	<b>34,673</b>	<b>35,020</b>	<b>52,996</b>
<u>Elements of Outflow</u>					
Riparian Evapotranspiration and Underflow <sup>10/</sup>	508	508	508	508	508
Total RCWD Groundwater Production <sup>11/</sup>	38,763	39,413	37,531	33,144	29,444
Net Pumping by Others <sup>12/</sup>	2,277	2,226	2,044	1,703	1,541
Surface Outflow <sup>13/</sup>	4,220	8,959	7,990	6,983	25,681
<b>Subtotal</b>	<b>45,768</b>	<b>51,106</b>	<b>48,073</b>	<b>42,338</b>	<b>57,174</b>
<u>Change in Groundwater Storage</u>	<b>(12,793) R</b>	<b>(13,392) R</b>	<b>(13,400)</b>	<b>(7,318)</b>	<b>(4,178)</b>

1/ Table 3.3, Total Releases.

2/ Section 5.4.

3/ Table A-7, SMR Release.

4/ Table A-7, Reclaimed Wastewater, Murrieta Creek Discharge (ceased October 18, 2002).

5/ Table A-7, Footnote 3.

6/ Table 7.8, Total Production minus releases to streams, minus pumped directly to recycled water system, multiplied by 0.13.

7/ Rancho Division Direct Use Imports, Table A-7 Footnote 3, multiplied by 0.13.

8/ The sum of: (Reclaimed Wastewater Table A-7, Reuse in SMRW) plus (Table A-1, Reuse in SMRW), multiplied by 0.13.

9/ Murrieta Creek at Temecula Flow times 1.6697 which is based on a correlation between Murrieta Creek at Temecula flow and Tributary Inflow, Areal Recharge and Subsurface Inflow for the period 1977-1998 as shown in Table II-10, Vol. II, Geology and Hydrology, Surface and Ground Water Model of the Murrieta-Temecula Ground Water Basin, California, dated January 31, 2003.

10/ Table II-10, Vol. II, Geology and Hydrology, Surface and Ground Water Model of the Murrieta-Temecula Ground Water Basin, California, dated January 31, 2003.

11/ Table 7.8 Total Production.

12/ The sum of Groundwater Production from: [Table A-1 (EMWD), A-5 (Pechanga IR), A-10 (WMWD Murieta Division, previously A-5), Appendix C, Murrieta-Temecula Groundwater Area], multiplied by 0.87.

13/ Table 3.2 Santa Margarita River near Temecula.

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TABLE 4.5

SANTA MARGARITA RIVER WATERSHED  
**CHANGES IN GROUNDWATER STORAGE**  
 MURRIETA-TEMECULA GROUNDWATER BASIN  
 Groundwater Level Method

Sub-area	Key Aquifer	Specific Yield/Storativity	Key Well	Aquifer Area Acres	Water Depth at End of Water Year							Change in Depth							Change in Storage in Water Year						
					2013	2014	2015	2016	2017	2013	2014	2015	2016	2017	2013	2014	2015	2016	2017	2013	2014	2015	2016	2017	
1	Temecula	0.0036	510	1371	225.00	233.50	235.20	240.70	245.90	(9.60)	(8.50)	(1.70)	(5.50)	(5.20)	(47)	(42)	(8)	(27)	(26)						
2	Pauba	0.0398	439	479	37.40	42.40	40.99	43.40	30.66	(6.65)	(5.00)	1.41	(2.41)	12.74	(127)	(95)	27	(46)	243						
3	Pauba	0.0309	146	802	33.52	39.44	37.12	48.80	28.49	(3.91)	(5.92)	2.32	(11.68)	20.31	(97)	(147)	57	(289)	503						
4	Pauba	0.0350	101	694	175.32	155.87	172.06	63.54	48.89	(0.17)	19.45	(16.19)	108.52	14.65	(4)	472	(393)	2,636	356						
5	Pauba	0.0319	102	1322	79.20	128.18	103.20	107.20	51.03	(17.15)	(48.98)	24.98	(4.00)	56.17	(723)	(2,066)	1,053	(169)	2,369						
6	Pauba	0.0698	495	1562	70.80	64.80	63.54	63.00	59.02	7.96	6.00	1.26	0.54	3.98	868	654	137	59	434						
7	Pauba	0.0012	211	719	101.00	118.00	121.00	115.27	115.80	7.66	(17.00)	(3.00)	5.73	(0.53)	7	(15)	(3)	5	0						
8	Oyal	0.20	492	339	28.03	28.85	28.44	29.30	29.02	(0.24)	(0.82)	0.41	(0.86)	0.28	(16)	(56)	28	(58)	19						
	Pauba	0.0891	492	496	28.03	28.85	28.44	29.30	29.02	(0.24)	(0.82)	0.41	(0.86)	0.28	(11)	(36)	18	(38)	12						
9	Temecula	0.0036	410	2066	321.08	336.80	331.40	330.70	311.40	(3.08)	(15.72)	5.40	0.70	19.30	(23)	(117)	40	5	144						
10	Oyal	0.20	426	1438	39.60	38.70	39.31	38.60	40.98	0.45	0.90	(0.61)	0.71	(2.38)	129	259	(175)	204	(684)						
	Pauba	0.0746	426	1165	39.60	38.70	39.31	38.60	40.98	0.45	0.90	(0.61)	0.71	(2.38)	39	78	(53)	62	(207)						
11	Oyal	0.20	422	1405	67.20	71.19	73.32	77.20	78.60	(2.20)	(3.99)	(2.13)	(3.88)	(1.40)	(618)	(1,121)	(599)	(1,090)	(393)						
	Pauba	0.0634	422	1413	67.20	71.19	73.32	77.20	78.60	(2.20)	(3.99)	(2.13)	(3.88)	(1.40)	(197)	(357)	(191)	(348)	(125)						
12	Oyal	0.20	417	1769	96.74	111.15	115.33	115.20	111.80	(3.74)	(14.41)	(4.18)	0.13	3.40	(1,323)	(5,098)	(1,479)	46	1,203						
	Pauba	0.0422	417	752	96.74	111.15	115.33	115.20	111.80	(3.74)	(14.41)	(4.18)	0.13	3.40	(119)	(457)	(133)	4	108						
13	Oyal	0.20	484	898	77.16	74.12	78.73	77.40	48.80	(21.91)	3.04	(4.61)	1.33	28.60	(3,935)	546	(828)	239	5,137						
	Pauba	0.0198	484	398	77.16	74.12	78.73	77.40	48.80	(21.91)	3.04	(4.61)	1.33	28.60	(173)	24	(36)	10	225						
14	Temecula	0.0036	462	2084	421.20	364.57	543.30	450.41	437.13	(11.40)	56.63	(178.73)	92.89	13.28	(86)	425	(1,341)	697	100						
15	Temecula	0.0036	464	1347	330.20	332.40	332.20	330.50	340.70	(0.60)	(2.20)	0.20	1.70	(10.20)	(3)	(11)	1	8	(49)						
16	Temecula	0.0036	509	1967	532.20	543.70	548.90	550.60	557.20	(4.90)	(11.50)	(5.20)	(1.70)	(6.60)	(35)	(81)	(37)	(12)	(47)						
17	Temecula	0.0036	139	2008	547.74	570.91	568.90	576.10	579.47	(10.84)	(23.17)	2.01	(7.20)	(3.37)	(78)	(167)	15	(52)	(24)						
18	Pauba	0.0967	129	1546	234.11	240.48	245.51	260.00	249.10	(3.86)	(6.37)	(5.03)	(14.49)	10.90	(677)	(952)	(752)	(2,166)	1,630						
19	Temecula	0.0036	466	1562	325.26	340.81	352.93	343.70	339.56	10.96	(15.55)	(12.12)	9.23	4.14	62	(87)	(68)	52	23						
20	Pauba	0.0738	493	3231	279.49	286.12	281.33	290.30	282.50	0.15	(6.63)	4.79	(8.97)	7.80	36	(1,581)	1,142	(2,139)	1,860						
21	Pauba	0.1392	463	2303	56.00	57.40	60.00	60.10	59.08	(1.60)	(1.40)	(2.60)	(0.10)	1.02	(513)	(449)	(834)	(32)	327						
*	Pauba	0.0325	Lynch	1008	**	**	30.00	30.00	31.00	---	---	---	0.00	(1.00)	---	(7,564)	(10,477)	(4,412)	(2,439)						
<b>TOTAL</b>																									

1/ Well not measured for year with dashes; Sub-area excluded for change in storage calculation for years with no measurement.  
 2/ Key Well 101 designated for Sub-area 4 in Year 2011; previously Well 401 designated as the Key Well.  
 3/ Key Well 102 designated for Sub-area 5 in Year 2011; previously Well 402 designated as the Key Well.  
 4/ Key Well 484 designated for Sub-area 13 in Year 2011; previously Well 414 designated as the Key Well.  
 5/ Key Well 510 for Sub-area 1 renamed in Year 2012; previously the well was named as Well 301.  
 6/ Key Well 509 for Sub-area 16 renamed in Year 2012; previously the well was named as Well 209.  
 \* Sub-area is located within Murrieta Division of Western MWD; Sub-areas 1 through 21 are located in Rancho California WD.  
 \*\* No water level data for the Lynch Well was provided by Western Municipal Water District for Water Years 2012-13 and 2013-14, due to incorrect groundwater level readings.

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4.4.3 Anza Groundwater Basin

The Anza Groundwater Basin is located along Cahuilla Creek in the upper portion of the Santa Margarita River Watershed.

The most recent study that determined storage volumes was conducted by Riverside County in 1990. That study concluded that the groundwater storage of about 182,200 acre feet in 1950 had decreased to about 165,000 acre feet in 1986. The study also concluded that “. . . basin hydrogeologic features, production facilities’ conditions, and locations/depths of storage . . .” limited the useable portion to 40% of the groundwater storage or about 56,200 acre feet in 1986.

During Water Years 2005 through 2009, groundwater level measurements were made by the USGS in Anza Valley under contract with the Bureau of Indian Affairs. In 2013, the USGS resumed groundwater level measurements as part of a study on behalf of the High Country Conservancy as the Local Project Sponsor under a California Department of Water Resources Integrated Regional Water Management (IRWM) Planning Grant. Rancho California WD is the managing agency for the Upper Santa Margarita Watershed IRWM Planning Region and contracted with the USGS to conduct the groundwater level measurements. The results of the recent USGS study are published in the report *Aquifer Geometry, Lithology, and Water Levels in the Anza-Terwilliger Area – 2013, Riverside and San Diego Counties, California*, USGS Scientific Investigation Report 2015-5131. The data from these measurements are available at the USGS website: <http://nwis.waterdata.usgs.gov/ca/nwis/gwlevels>.

The wells included in the program can be located by selecting the latitude-longitude box selection criteria and specifying the following bounds:

North Latitude - 33° 37' 00"  
South Latitude - 33° 30' 00"  
West Longitude - 116° 48' 00"  
East Longitude - 116° 38' 00"

Efforts are currently under way for an Anza Baseline Groundwater Management study. Planning proposals have been submitted to the California Department of Water Resources, Integrated Regional Water Management Plan. Objectives include maximization of groundwater potential, protect and improve local surface water quality and promote economic, social, land use and environmental sustainability.

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## SECTION 5 - IMPORTS/EXPORTS

### 5.1 General

Court Orders require the Watermaster to determine the quantities of imported water used in the Watershed. Most of the water imported into the Santa Margarita River Watershed is delivered by Metropolitan Water District of Southern California (MWD) to local districts. MWD obtains its water from the State Water Project (SWP) and the Colorado River. Both the SWP and the Colorado River system have major storage reservoirs to provide long-term carryover storage. The quantities of water in storage at the end of the water year in the major reservoirs in each system are indicated on Table 5.1. Total storage in the SWP for the last ten years is shown graphically on Figure 5.1. Similarly, total storage for the Colorado River Reservoirs for the last ten years is shown on Figure 5.2. It may be seen from Table 5.1 that during Water Year 2016-17, water in storage in the SWP increased from 2.58 million acre feet on September 30, 2016, to 2.96 million acre feet on September 30, 2017. Storage on September 30, 2017 corresponds to about 56% of the total SWP storage capacity.

Water in storage in the Colorado River system increased from 29.8 million acre feet on September 30, 2016 to 32.5 million acre feet on September 30, 2017. On September 30, 2017, those reservoirs contained 50% of their total combined capacity.

The California Department of Water Resources prepares projections of water availability in the SWP for the coming year (2018) on a monthly basis from February through May. The report DWR Bulletin 120-4-18 dated May 1, 2018, indicated that statewide precipitation for October 1 through April 30, 2018 was 75% of average compared to 170% last year. As of May 1, 2018, the SWP allocation for 2018 will meet 35% of contractors' requests.

The following entities imported water directly or indirectly from MWD into the Santa Margarita River Watershed:

- Eastern Municipal Water District
- Elsinore Valley Municipal Water District
- Fallbrook Public Utility District
- Rainbow Municipal Water District
- Rancho California Water District
- U. S. Naval Weapons Station – Fallbrook Annex
- Western Municipal Water District

WATERMASTER  
SANTA MARGARITA RIVER WATERSHED

TABLE 5.1

*SANTA MARGARITA RIVER WATERSHED*  
**STORAGE IN STATE WATER PROJECT  
AND COLORADO RIVER RESERVOIRS**

Thousands of Acre Feet 1/

**STATE WATER PROJECT RESERVOIRS**

<b>Reservoir</b>	<b>Total Capacity</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>
Oroville	3,540	1,097	1,337	1,755	3,045	1,977	1,633	1,076	1,057	1,619	1,332
San Luis (State Share)	1,060	200	224	415	874	389	283	214	324	439	1,050
Pyramid	171	163	166	164	164	169	167	168	168	167	167
Castaic	324	268	200	260	284	264	285	108	114	232	283
Silverwood	73	71	70	70	71	71	72	71	68	73	69
Perris	132	69	62	61	66	72	73	55	47	48	59
<b>Total</b>	<b>5,300</b>	<b>1,868</b>	<b>2,059</b>	<b>2,725</b>	<b>4,504</b>	<b>2,942</b>	<b>2,513</b>	<b>1,692</b>	<b>1,778</b>	<b>2,578</b>	<b>2,959</b>
<b>Percent of Capacity</b>		<b>35%</b>	<b>39%</b>	<b>51%</b>	<b>85%</b>	<b>56%</b>	<b>47%</b>	<b>32%</b>	<b>34%</b>	<b>49%</b>	<b>56%</b>

**MAJOR COLORADO RIVER RESERVOIRS**

<b>Reservoir</b>	<b>Total Capacity</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>
Flaming Gorge	3,789	3,024	3,394	3,154	3,467	3,030	2,818	3,284	3,450	3,207	3,491
Blue Mesa	941	650	651	609	699	340	348	599	726	665	732
Navajo	1,709	1,319	1,314	1,412	1,327	1,035	933	1,081	1,392	1,310	1,289
Powell	27,000	14,509	15,463	15,267	17,593	13,929	10,934	12,286	12,333	12,824	14,664
Mead	28,537	12,013	10,933	10,092	12,977	13,135	12,362	10,121	9,854	9,620	10,182
Mohave	1,818	1,586	1,501	1,575	1,610	1,606	1,624	1,645	1,606	1,627	1,603
Havasu	648	584	564	560	585	561	560	583	581	579	564
<b>Total</b>	<b>64,442</b>	<b>33,685</b>	<b>33,820</b>	<b>32,669</b>	<b>38,258</b>	<b>33,636</b>	<b>29,579</b>	<b>29,599</b>	<b>29,942</b>	<b>29,832</b>	<b>32,526</b>
<b>Percent of Capacity</b>		<b>52%</b>	<b>52%</b>	<b>51%</b>	<b>59%</b>	<b>52%</b>	<b>46%</b>	<b>46%</b>	<b>46%</b>	<b>46%</b>	<b>50%</b>

1/ Storage reported for end of water year on September 30.



Figure 5.1

**STORAGE IN STATE WATER PROJECT**  
**Water Years 2008 through 2017**  
**Total Capacity is 5.3 Million Acre Feet**

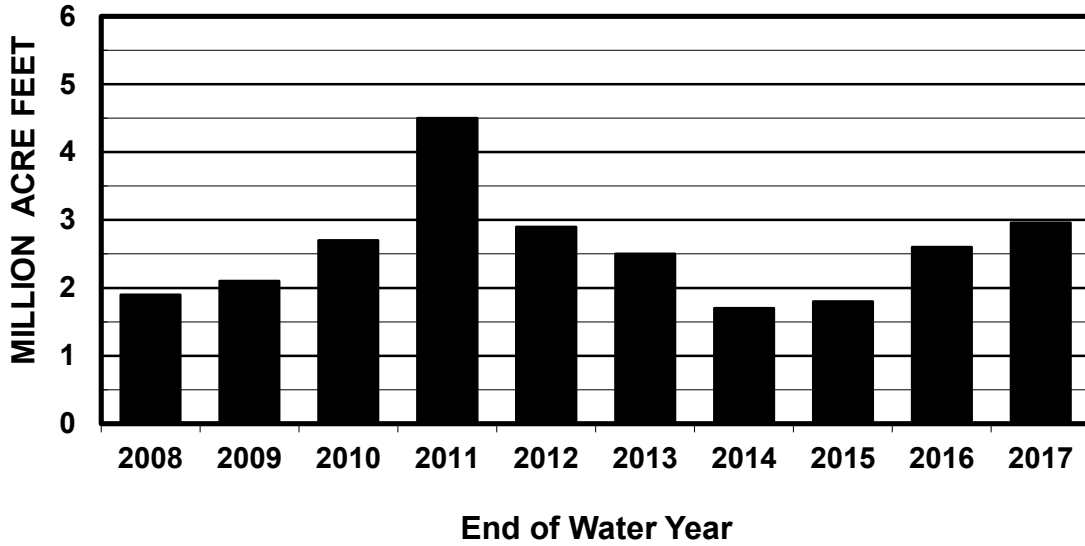
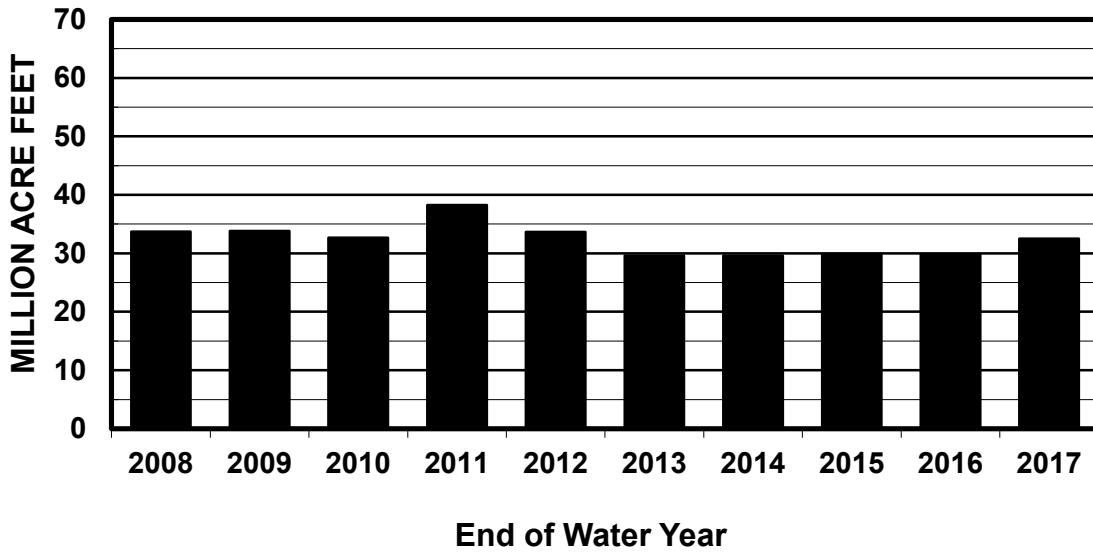


Figure 5.2

**STORAGE IN COLORADO RIVER RESERVOIRS**  
**Water Years 2008 through 2017**  
**Total Capacity is 64.4 Million Acre Feet**



WATERMASTER  
SANTA MARGARITA RIVER WATERSHED

In addition to net deliveries through member agencies, MWD, pursuant to a Court Order, imported 1,128 acre feet of water into the Santa Margarita River Watershed for irrigation of lands in Domenigoni Valley during 2016-17.

Water is also imported into the Santa Margarita River Watershed from adjacent watersheds. Such importation occurs from the Santa Ana Watershed where Elsinore Valley MWD delivers water to a portion of its service area that is inside the Santa Margarita River Watershed. Elsinore Valley MWD obtains its supply from imports or from wells outside the Santa Margarita River Watershed.

At Camp Pendleton there is a pipeline connection to wells located in the Las Flores Creek Watershed to the north of the Santa Margarita River Watershed. Water can be either imported or exported through that line, depending on relative water demands and pumping capacities.

Exportations from the Santa Margarita River Watershed include water pumped at Camp Pendleton that is used in the San Luis Rey River Watershed to the south or in the Las Flores Creek Watershed to the north. The wastewater that is derived from the exported potable water is returned to the Watershed for treatment at the Southern Region Tertiary Treatment Plant. Recycled water is used for irrigation both within and outside the Watershed. Treated wastewater in excess of recycled use is exported for discharge at the Oceanside Outfall. Wastewater from the Fallbrook area and the Naval Weapons Station is exported by the Fallbrook Public Utility District and wastewater in the Elsinore Valley MWD is exported by Elsinore Valley MWD. Rancho California WD exports water into the San Mateo Creek Watershed.

Eastern MWD uses a 24-inch pipeline along Winchester Road to transport wastewater from the Temecula Valley Regional Water Reclamation Facility to areas within the Watershed for reuse as well as for export of up to 10 MGD from the Watershed. Eastern MWD uses a second, 48-inch pipeline along Palomar Valley for delivery of recycled water for reuse and export from the Watershed. Rancho California WD also delivers wastewater to the Palomar Pipeline under an agreement with Eastern MWD to provide coordinated operation of their respective wastewater systems and thus such wastewater originating from Rancho California WD can also be reused or exported through the operation of the Palomar Pipeline by Eastern MWD. The exported wastewater can be reused outside the Watershed, delivered to storage facilities or discharged to Temescal Creek. In 2016-17, Eastern MWD exported 1,909 acre feet of wastewater for discharge to Temescal Creek. During 2016-17, Rancho California WD had no deliveries of wastewater to the Palomar Pipeline and thus no export of wastewater for discharge to Temescal Creek can be attributed to wastewater originating from Rancho California WD.

The following paragraphs of this report describe imports and exports during Water Year 2016-17 and during the period 1966 through 2017. A discussion of MWD's Lake Skinner and Diamond Valley Lake operations is also provided.

WATERMASTER  
SANTA MARGARITA RIVER WATERSHED

5.2 Water Year 2016-17

During Water Year 2016-17, a total of 68,444 acre feet of net imported supplies were distributed for use in the Watershed. This compares with 64,242 acre feet in 2015-16 and represents an increase of approximately 6.5%. The term net imports is used because several entities report gross imports into the Santa Margarita River Watershed but due to system configurations and operations, a portion of the gross imports may be transported to serve areas outside of the Watershed. Thus, the net imports reflect the quantities of imported supplies used within the Santa Margarita River Watershed. Net imports into the Watershed are listed on Table 5.2 for Water Year 2016-17.

The water exported from the Watershed for 2016-17 primarily includes wastewater except for Camp Pendleton and Rancho California WD. As described in Section 7, Camp Pendleton exports native water for use outside the Watershed. Also, Rancho California WD exports groundwater as part of a blended water supply to serve customers in the San Mateo Watershed. Exports from the Watershed for 2016-17 were 18,109 acre feet as shown on Table 5.2. This compares to 16,460 acre feet in 2015-16 and represents an increase of about 10.0%.

The quality of the water supplies imported through the MWD system in 2016-17 is indicated by the average monthly total dissolved solids at the Skinner Treatment Plant effluent line as shown on Table 5.3. The table also shows the percent of imported water obtained from the SWP.

5.3 Water Years 1966 through 2017

Water quantities imported by districts into the Santa Margarita River Watershed during Water Years 1966 through 2017 are shown on Table 5.4. Total imports to these districts are measured; however some districts serve lands outside the Watershed. For these districts, which include Eastern MWD, Elsinore Valley MWD, Fallbrook PUD and Rainbow MWD, the portion delivered in the Santa Margarita River Watershed must be estimated.

Review of the historical trend of total imports shown on Table 5.4 indicates significant year-to-year variations with relatively low imports in wet years and higher imports in dry years, combined with an underlying growth rate to serve increasing municipal water demands in the Murrieta-Temecula area.

Exports over the period 1966 through 2017 are also shown on Table 5.4. These include estimated water exports on Camp Pendleton less estimated wastewater returns, as well as an estimate of exports by Fallbrook PUD and the Naval Weapons Station after 1983, and Elsinore Valley MWD after 1986. Exports by Eastern MWD were initiated in 1992-1993, and Rancho California WD began quantifying export of water in 2002-03. Exports do not include water that naturally flows from the Santa Margarita River into the Pacific Ocean.

TABLE 5.2

SANTA MARGARITA RIVER WATERSHED  
IMPORTS/EXPORTS

2016-17

Quantities in Acre Feet

NET IMPORTS

EXPORTS  
3/

YEAR MONTH	***** CAMP PENDLETON *****										TOTAL NET IMPORTS	U.S. NAVAL WS	NET EXPORT	EASTERN MWD 6/	ELSIKORE VALLEY MWD	FALLBROOK PUD	RANCHO CALWD 7/	TOTAL EXPORTS	
	EASTERN MWD	ELSIKORE VALLEY MWD	FALLBROOK PUD	MURRIETA DIVISION WESTERN MWD	RAINBOW MWD	RANCHO CALWD	U.S. NAVAL WS	WESTERN MWD	U.S. NAVAL WS	WASTEWATER RETURNS 5/									EXPORTS 4/
2016																			
OCT	1,271	573	548	92	170	149	3,284	3	2	6,092	400	106	294	0	923	119	69	23	1,428
NOV	1,116	485	481	57	149	107	2,468	7	2	4,873	362	91	271	0	991	118	69	17	1,466
DEC	905	361	279	29	77	91	1,524	12	2	3,280	334	73	261	0	990	119	76	10	1,456
2017																			
JAN	651	240	153	0	39	46	1,033	1	2	2,165	365	78	287	1	1,241	119	77	5	1,730
FEB	525	166	118	13	46	24	1,073	1	1	1,968	317	67	250	0	1,098	105	56	5	1,513
MAR	622	338	131	61	85	27	2,355	2	2	3,623	385	89	296	0	1,244	115	75	8	1,737
APR	1,045	454	352	106	147	78	3,848	3	2	6,035	411	110	301	0	995	119	58	11	1,484
MAY	1,145	555	408	158	163	107	3,888	4	3	6,430	424	117	307	0	995	129	67	17	1,515
JUNE	1,463	631	472	193	213	104	4,753	3	3	7,836	465	115	350	0	910	130	60	17	1,467
JULY	1,632	727	535	172	253	152	5,995	6	4	9,476	466	123	343	0	878	133	59	17	1,429
AUG	1,420	775	510	120	197	156	5,979	15	4	9,175	517	128	389	0	870	134	66	13	1,472
SEPT	1,646	665	589	127	172	145	4,134	9	4	7,492	471	116	355	0	847	128	61	20	1,411
TOTAL	13,441	5,970	4,576	1,128	1,711	1,186	40,334	67	30	68,444	4,917	1,213	3,704	1	11,982	1,468	791	163	18,109

1/ Metropolitan Water District direct deliveries in Domenigoni Valley as shown on Table A-4.

2/ Improvement District A - Rainbow Canyon Only (WR-13).

3/ All exports are wastewater except as noted for Camp Pendleton and Rancho California WD.

4/ Agricultural and Camp Supply use outside the SMRW, recycled use outside the SMRW, plus export to Oceanside Outfall as shown on Table A-8.

5/ Estimated as recycled percentage of Camp Supply use outside the SMRW as shown on Table A-8.

6/ Includes Other Reuse shown on Table A-1, which includes changes of storage in Winchester and Sun City storage ponds, evaporation and percolation losses, and discharges to Temescal Creek in the Santa Ana Watershed.

7/ Includes groundwater used in San Mateo Watershed and wastewater exported via Palomar Valley Pipeline. Wastewater exported via Palomar Valley Pipeline in 2016-17 was zero.

TABLE 5.3

*SANTA MARGARITA RIVER WATERSHED*  
**TOTAL DISSOLVED SOLIDS**  
**CONCENTRATION OF IMPORTED WATER**

YEAR MONTH	TOTAL DISSOLVED SOLIDS MG/L 1/		PERCENT STATE PROJECT WATER 2/	
	<u>2015-16</u>	<u>2016-17</u>	<u>2015-16</u>	<u>2016-17</u>
OCT	652	615	0	7
NOV	660	633	0	0
DEC	668	644	0	0
JAN	663	634	0	1
FEB	659	498	2	52
MAR	584	394	22	72
APR	632	259	3	82
MAY	655	NR	0	NR
JUNE	637	311	2	61
JULY	580	308	19	62
AUG	585	320	16	62
SEPT	584	315	15	66

1/ As measured in the Skinner Treatment Effluent line.

2/ Skinner Plant treated a blend of California State Project Water and Colorado River water.

NR – Not Reported; sampling error

TABLE 5.4

SANTA MARGARITA RIVER WATERSHED  
IMPORTS/EXPORTS

Quantities in Acre Feet

EXPORTS  
5/

NET IMPORTS

WATER YEAR	NET IMPORTS										EXPORTS									
	EASTERN MWD	ELSI NORE VALLEY MWD	FALLBROOK PUD 1/	MURRIETA DIVISION WESTERN MWD 2/	RANCHO CAL WD 3/	U.S. NAVAL WS	WESTERN MWD 4/	TOTAL IMPORTS	EXPORTS	CAMP PENDLETON WASTEWATER RETURNS	NET EXPORT	U.S. NAVAL WS	EASTERN MWD	ELSI NORE VALLEY MWD	FALLBROOK PUD	RANCHO CAL WD 7/	TOTAL EXPORTS			
1966	1,604	N/R	3,351	0	1,308	0	24	6,287	3,251	974	2,277	0	0	0	0	N/R	2,277			
1967	1,630	N/R	2,852	0	1,095	0	20	5,597	3,180	1,243	1,937	0	0	0	0	N/R	1,937			
1968	1,464	N/R	3,423	0	1,377	0	27	6,291	3,368	1,214	2,154	0	0	0	0	N/R	2,154			
1969	1,741	N/R	2,837	0	1,253	0	25	5,856	3,276	1,170	2,106	0	0	0	0	N/R	2,106			
1970	1,417	N/R	3,538	0	1,689	0	31	6,675	3,809	1,113	2,696	0	0	0	0	N/R	2,696			
1971	1,383	N/R	3,405	0	1,650	0	34	6,548	3,527	1,090	2,437	0	0	0	0	N/R	2,437			
1972	1,470	N/R	3,916	0	2,037	0	34	7,572	3,543	1,168	2,375	0	0	0	0	N/R	2,375			
1973	1,533	N/R	3,210	0	1,616	0	30	6,504	3,544	1,187	2,357	0	0	0	0	N/R	2,357			
1974	1,601	N/R	3,967	0	2,049	0	36	7,768	3,532	1,140	2,392	0	0	0	0	N/R	2,392			
1975	1,969	N/R	3,597	0	1,247	0	34	6,962	3,098	1,530	1,568	0	0	0	0	N/R	1,568			
1976	2,493	N/R	4,627	0	2,239	0	35	9,628	3,619	1,497	2,122	0	0	0	0	N/R	2,122			
1977	2,947	N/R	5,212	0	2,343	0	24	12,486	3,194	1,416	1,778	0	0	0	0	N/R	1,778			
1978	2,551	569	5,202	0	2,188	0	26	16,425	3,071	1,283	1,788	0	0	0	0	N/R	1,788			
1979	1,894	712	5,723	0	2,348	0	24	17,824	4,756	1,427	3,329	0	0	0	0	N/R	3,329			
1980	1,192	696	6,404	0	2,489	0	25	21,047	3,651	1,405	2,246	0	0	0	0	N/R	2,246			
1981	716	798	8,543	0	3,153	0	34	28,642	3,892	1,249	2,643	0	0	0	0	N/R	2,643			
1982	1,112	678	7,079	0	2,460	0	34	24,856	3,761	1,273	2,488	0	0	0	0	N/R	2,488			
1983	1,211	658	6,720	0	2,190	0	26	16,672	3,000	1,242	1,758	0	0	1,003	N/R	2,787				
1984	699	816	8,506	0	3,068	0	26	19,946	3,243	1,120	2,123	0	0	1,032	N/R	3,181				
1985	679	808	7,831	0	3,410	0	27	20,015	3,377	1,200	2,177	0	0	1,060	N/R	3,263				
1986	760	882	8,585	0	2,945	0	34	24,474	3,326	981	2,345	0	0	1,096	N/R	3,457				
1987	1,155	938	8,656	0	3,390	0	36	21,855	3,444	1,799	1,645	0	0	1,129	N/R	2,805				
1988	2,047	1,032	8,033	0	2,985	0	36	32,108	3,457	1,872	1,585	0	0	1,154	N/R	2,820				
1989	3,746	1,341	9,066	0	3,003	0	23	40,202	3,418	1,446	1,972	0	0	1,181	N/R	3,250				
1990	5,601	2,255	10,103	0	3,818	0	22	43,974	2,971	1,451	1,520	0	0	1,271	N/R	2,932				
1991	9,479	2,421	7,962	0	2,904	0	21	44,134	2,168	1,219	949	0	0	960	N/R	2,056				
1992	8,593	2,190	7,893	0	2,277	0	25	38,008	2,426	1,548	878	0	0	1,083	N/R	2,108				
1993	5,393	2,964	6,925	0	1,965	0	31	28,806	2,329	1,926	403	0	0	1,255	N/R	2,529				
1994	7,150	3,232	7,250	0	1,651	0	37	35,779	2,702	1,501	1,201	0	0	1,068	N/R	5,603				
1995	4,625	3,127	6,538	547	1,661	0	29	31,760	2,781	1,611	1,170	0	0	1,153	N/R	6,428				
1996	4,960	4,197	7,993	1,005	1,815	0	35	43,705	3,577	1,493	2,084	0	0	1,035	N/R	6,330				
1997	3,284	4,296	7,894	3,521	1,429	0	30	47,555	3,643	1,932	1,711	0	0	1,021	N/R	6,165				
1998	5,117	5,100	6,382	5,023	1,601	0	31	42,935	3,742	2,073	1,669	0	0	1,482	N/R	7,919				
1999	4,327	6,133	7,430	3,781	1,727	0	41	58,040	3,558	2,130	1,428	0	0	1,377	N/R	7,197				
2000	7,256	7,174	9,365	712	2,217	0	42	82,279	4,072	2,115	1,957	0	0	1,419	N/R	7,311				
2001	5,948	6,215	8,398	689	1,804	0	59	65,009	3,653	2,075	1,578	0	0	1,392	N/R	7,745				
2002	8,117	7,596	9,580	595	1,676	0	64	81,873	3,701	1,950	1,751	0	0	1,225	N/R	8,722				
2003	9,062	7,091	9,130	495	1,510	0	50	78,264	3,767	1,688	2,079	0	0	1,359	64	11,631				
2004	9,138	8,438	11,749	766	1,888	0	73	94,840	4,951	0	4,951	0	0	1,329	312	16,315				
2005	10,858	8,215	8,108	556	1,610	0	62	77,138	4,625	0	4,625	0	0	1,417	1,574	20,235				
2006	14,161	9,819	10,573	506	1,851	0	64	97,967	4,912	0	4,912	0	0	1,395	1,379	19,538				
2007	15,398	10,811	12,292	660	2,262	0	45	106,079	5,152	0	5,152	0	0	891	364	17,809				
2008	14,952	9,951	8,920	493	1,790	0	54	89,105	4,774	0	4,774	0	0	799	361	19,635				
2009	14,472	9,075	8,557	607	1,654	0	51	86,612	5,362	1,119	4,243	0	0	829	367	18,547				
2010	13,552	7,926	7,183	385	1,462	0	62	72,986	5,143	1,075	4,068	0	0	926	318	18,268				
2011	14,392	7,425	6,234	336	1,492	0	52	71,029	5,516	1,441	4,075	0	0	901	302	18,797				
2012	15,063	7,398	7,254	466	1,371	0	48	75,440	5,595	1,672	3,923	0	0	928	284	18,898				
2013	15,751	7,158	7,357	892	1,713	0	35	74,889	5,367	1,254	4,113	0	0	900	288	18,325				
2014	15,884	7,413	7,578	1,074	1,732	0	35	81,785	5,375	1,099	4,276	0	0	896	289	18,518				

TABLE 5.4  
SANTA MARGARITA RIVER WATERSHED

**IMPORTS/EXPORTS**  
Quantities in Acre Feet

**NET IMPORTS**

WATER YEAR	NET IMPORTS										EXPORTS						
	EASTERN MWD	ELSINORE VALLEY MWD	FALLBROOK PUD	MURRIETA DIVISION WESTERN MWD	RAINBOW MWD	RANCHO CAL WD	U.S. NAVAL WS	WESTERN MWD	TOTAL IMPORTS	CAMP PENDELTON WASTEWATER RETURNS	NET EXPORT	U.S. NAVAL WS	EASTERN MWD	ELSINORE VALLEY MWD	FALLBROOK PUD	RANCHO CAL WD	TOTAL EXPORTS
2015	13,877	5,992	5,919	1,090	1,333	33,573	44	29	62,677	4,837 &	3,710	3	11,698	1,328	1,086	251	18,076
2016	13,602	5,889	5,395	1,186	1,298	35,478	62	42	64,242	4,502 &	3,324	1	10,778	1,431	724	202	16,460
2017	13,441	5,970	4,576	1,128	1,186	40,334	67	30	68,444	4,917 &	3,704	1	11,982	1,468	791	163	18,109

5/

1/ Includes Deluz Heights MWD prior to 1991.

2/ Metropolitan Water District direct deliveries in Domenigoni Valley plus miscellaneous maintenance releases beginning 2009.

3/ For period 2003 to present, values shown are net imports excluding imported water delivered to San Mateo Watershed.

4/ Improvement District A - Rainbow Canyon Only (WR-13).

5/ All exports are wastewater except as noted for Camp Pendleton and Rancho Cal WD.

6/ Includes export of native water plus wastewater from in-basin use.

7/ Includes groundwater used in San Mateo Watershed and wastewater exported to Santa Ana Watershed.

8/ Includes export of native water plus recycled water.

N/R - Not Reported

P - Partial year data

E - Estimate

R - Revised

WATERMASTER  
SANTA MARGARITA RIVER WATERSHED

5.4 Lake Skinner

Lake Skinner is a 44,000 acre foot reservoir constructed by MWD on Tocalota Creek, within the Santa Margarita River Watershed. The purpose of Lake Skinner is to provide regulatory and emergency storage capacity for water imported to southern California. MWD does not have a water right to store or divert local water in Lake Skinner. Accordingly, a Memorandum of Understanding and Agreement on Operation of Lake Skinner (MOU), dated November 12, 1974, approved by the Court on January 16, 1975, contains provisions to protect Santa Margarita River Watershed water users from potential effects of Lake Skinner on either subsurface or surface flows.

Protection against a decrease in subsurface flows caused by the dam is afforded by a provision in the MOU that requires MWD release water from Lake Skinner into Tocalota Creek if groundwater levels in Well AV-28B fall below an elevation of 1,356.64 feet. During Water Year 2016-17, MWD released 30.0 acre feet for the specific purpose of groundwater replenishment to ensure the groundwater elevation in Well AV-28B was maintained above the indicated threshold elevation of 1,356.64 feet. For comparison purposes, the groundwater elevation was 1,357.15 feet on September 29, 2017, an increase of 0.30 feet compared to 1,356.85 feet on September 30, 2016.

In addition, operations at Lake Skinner periodically require miscellaneous maintenance releases from Lake Skinner into various creeks and their tributaries, including Tocalota Creek, Rainbow Creek, Warm Springs Creek, and Murrieta Creek that also replenish groundwater levels. In 2016-17, MWD did not release maintenance releases from Lake Skinner. Also MWD periodically makes maintenance releases from various points throughout the MWD distribution system. In 2016-17, MWD did not discharge maintenance releases from the distribution system.

The MOU also provides that all local surface inflow that enters Lake Skinner will be released into Tocalota Creek. In its 1980 modification, the MOU provides that local surface inflow is to be determined by using the hydrologic equation for Lake Skinner that is specified in the MOU. That equation is used to determine inflow and the related release for large flood events. However, in many years the local inflow is small compared to the large quantities of imported water inflow and outflow at Lake Skinner. The error of measurement for these large inflows and outflows is larger than the local inflow in many instances. Accordingly, MWD also monitors the flow in Tocalota Creek, Rawson Creek and Middle Creek during storms and uses those observations to supplement the hydrologic equation.

On February 16, 2005, the Court approved an Order Amending the MOU to provide for diversion from Lake Skinner on Fallbrook PUD's behalf after specified releases are made, according to State Water Resource Control Board Permit 11356 and the amended Lake Skinner MOU. In 2016-17, MWD records show no local inflow to Lake Skinner and subsequently there were no required releases in accordance with the MOU. In 2016-17, no water was accumulated in Lake Skinner for diversion to Fallbrook PUD.



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5.5 Diamond Valley Lake

Diamond Valley Lake is located in Diamond and Domenigoni Valleys within the Santa Margarita River Watershed. The lake was created by three dams, one each at the east and west ends of Domenigoni/Diamond Valley and a saddle dam at the low point on the north rim. The West Dam intercepts flows in the headwaters of Warm Springs Creek, a tributary of the Santa Margarita River through Murrieta Creek. The drainage area for the headwaters of Warm Springs Creek above the West Dam is 17.2 square miles.

MWD does not have a water right to store local waters in the reservoir, now known as Diamond Valley Lake, so a Memorandum of Understanding and Agreement on Operation of Domenigoni Valley Reservoir (MOU) was developed and approved by the Court on January 19, 1995. Among other things, the MOU provides:

The quantity and quality of surface runoff that would flow past the West Dam in the absence of the Reservoir will be determined and a like quantity of water of similar quality will be released from the Reservoir or San Diego Canal (SDC) into Warm Springs Creek.

The MOU specifies that the required releases into Warm Springs Creek will be determined by measuring the surface water inflows into Goodhart Canyon Detention Basin. The detention basin receives surface water inflows from Goodhart Creek, which is located in an adjoining watershed that is tributary to the Santa Ana River. The drainage area of Goodhart Creek upstream of the detention basin is 4.2 square miles. The rainfall-runoff characteristics of the Goodhart Creek drainage area were determined to be the same as the rainfall-runoff characteristics of the Warm Springs Creek headwaters above the West Dam. Thus the required releases into Warm Springs Creek are equal to 4.1 times the measured inflow into Goodhart Canyon Detention Basin, as determined as the ratio of the drainage areas for the respective watersheds.

The total required releases into Warm Springs Creek during 2016-17 were 11.80 acre feet.

Although all surface waters within the Santa Margarita River Watershed in Domenigoni Valley and Diamond Valley are subject to the continuing jurisdiction of the Court, groundwater contained within the alluvium, north of the south line of Section 9, Township 6 South, Range 2 West, SBM is not considered by the Court to be a part of the Santa Margarita River system as long as groundwater levels are below an elevation of 1,400 feet. During 2016-17, groundwater elevations in Well MO-6, which is located along the south line of Section 9, rose 1.76 feet from 1,373.70 feet at the beginning of the water year to 1,375.46 feet on October 4, 2017.

During 2016-17, there were no injections into the Domenigoni Valley groundwater basin pursuant to Agreements for Mitigation of Groundwater. However, pursuant to a Court Order, MWD imported 1,128 acre feet of water into the Santa Margarita River Watershed for irrigation of lands in Domenigoni Valley. As previously noted, the groundwater in the Domenigoni Valley groundwater basin is outside this Court's jurisdiction when groundwater levels are below an elevation of 1,400 feet.

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## SECTION 6 - WATER RIGHTS

### 6.1 General

The Santa Margarita River Watershed is adjudicated in accordance with the Modified Final Judgment and Decree filed on April 6, 1966, in the U.S. District Court, Southern District of California in *U.S.A. v. Fallbrook Public Utility District, et al.* Water is used in the Watershed under a variety of water rights, as more specifically described in the Interlocutory Judgments incorporated into the Modified Final Judgment and Decree, as primarily riparian rights and overlying rights. Riparian rights belong to owners of land parcels located adjacent to streams in the Watershed or overlying younger alluvium deposits generally along the stream channels. Overlying rights were divided by the Court into two categories based on the location where the water is obtained and used. Water extracted from lands where subsurface waters add to, contribute to and support the Santa Margarita River stream system was found to be subject to the continuing jurisdiction of the Court. Lands in this category were identified by the Court and listed in Interlocutory Judgments. In general, these parcels of land overlie younger or older alluvium deposits. The Court has stated that the issue of apportionment of water rights has not been presented to the Court, but the Court would litigate the apportionment if and when in the future it becomes necessary to do so.

The other category of overlying use applies to parcels of land where subsurface flows do not add to, contribute to or support the Santa Margarita River stream system. These parcels were also identified by the Court and found to be outside the continuing jurisdiction of the Court. In general, these lands overlie basement complex or residuum deposits.

The Court also described a number of other rights in the Watershed. These included surface water appropriative water rights that have been administered by the State of California since 1914. These rights are discussed in the following subsection of this report.

In Interlocutory Judgment No. 41, the Court found that the United States reserved rights to the use of the waters of the Santa Margarita River stream system which under natural conditions would be physically available on the Cahuilla, Pechanga and Ramona Indian Reservations, including rights to the use of groundwater, sufficient for the present and future needs of the Indians residing thereon. In Interlocutory Judgment No. 44, the Court recognized and reserved water rights for lands within the Cleveland and San Bernardino National Forests and for lands being administered pursuant to the Taylor Grazing Act.

Since the early 1960's, there have been substantial changes in water use in the Watershed, especially in the Murrieta-Temecula Groundwater Area. During the 1950's and early 1960's most of the water use in the Murrieta-Temecula area consisted of individual property owners pumping water for use on their own properties. In 1965, the Rancho California WD was formed. The District developed Agency Agreements with most of the landowners within the District. In these Agency Agreements, the landowners "...without transferring any water rights and privileges pertaining to said land..." designated the District as their exclusive agent for the development and management of their water supply. Thus, many landowners within the Rancho California WD are not exercising their overlying rights.

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Instead, Rancho California WD pumps groundwater and uses it throughout the District area as agent on behalf of the landowners.

The resulting change is that Rancho California WD presently produces groundwater in the Murrieta-Temecula Groundwater Area under a variety of rights: (1) recovery of water appropriated at Vail Lake, (2) recovery of import return flows and recharged imported water, (3) groundwater appropriative rights, and (4) as agent on behalf of the overlying landowners. Classification of Rancho California WD supplies into these various water right categories is discussed in Section 7 of this Report. Related to the change associated with Rancho California WD production is the increased production by Western MWD within its Murrieta Division. As discussed in Section 7 of this Report, all groundwater production in the Murrieta Division by Western MWD is classified as production from the older alluvium under a groundwater appropriative right.

Another change from the early 1960's is the large scale importation of water into the Santa Margarita River Watershed by Rancho California WD. A portion of such importation finds its way into the groundwater aquifers. The legal status of return flows from imported supplies as well as direct recharge of imported water was clarified by the final judgment in *City of Los Angeles v. City of San Fernando, et al.*, 1975 14 Cal.3rd 199. This decision in the Supreme Court of the State of California made two major findings with respect to imported water.

The first was that agencies have the right to recharge and store imported water in a groundwater basin and to extract the imported water for use, subject to applicable state and federal laws. In addition, agencies that import and deliver water to lands overlying a groundwater basin have a continuing right to extract the return flow from such water. The return flow is that portion of the imported supply that percolates into the groundwater basin. In the San Fernando case this portion was found to range from 20% to 35.7% imported supplies.

The Rancho Division of the Rancho California WD overlies the Murrieta-Temecula Groundwater Area. Thus a portion of the import supply delivered to the Rancho Division of Rancho California WD percolates into the underlying aquifers. Imported water is also supplied to the Santa Rosa Division within Rancho California WD, however only a relatively small part of this division overlies the Murrieta-Temecula Groundwater Area. Thus there is less imported water return flow from the Santa Rosa Division.

Camp Pendleton representatives contend that the Court has jurisdiction over imported water to the full extent that imported water, as well as its use, its returns and its products, affects in any significant manner the water rights within the Watershed over which the Court has traditionally asserted its jurisdiction. Other parties dispute the Court's jurisdiction over imported water.

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6.2 Appropriative Surface Water Rights

Another broad category of water rights used in the Watershed is surface water appropriative rights. Since 1914, these rights have been administered by the State Water Resources Control Board (SWRCB).

A list of current permits, licenses and other active rights obtained from the SWRCB is shown on Table 6.1. A permit by the SWRCB authorizes water diversion, sets terms for the water project's completion and development of water use, and may impose other conditions. After the permittee demonstrates that construction is complete, water is being put to use and the permit conditions have been met, the SWRCB can issue a license. The license remains in effect as long as the license conditions are met and the water is put to beneficial use.

Active direct diversion rights and storage rights from creeks in the Watershed are summarized below:

	<u>Direct Diversions Gallons Per Day</u>	<u>Direct Diversions Acre Feet/Year</u>	<u>Storage Acre Feet</u>
Cahuilla Creek/Valley	720	0.8	5
Cottonwood Creek	485,000	158	60
Cutca Creek/Spring	5,825	6.5	---
DeLuz Creek	4,700	5.3	100
Fern Creek	213,000	238.9	100
Kohler Canyon	158,000	177	40
Long Canyon Spring	89	0.34	---
Rainbow Creek	---	---	0.5
Rattlesnake Canyon	12,000	7.9	---
Temecula Creek	13,050	8.1	40,000
Tucalota Creek	---	---	10,000
Sandia Canyon	---	---	8
Sourdough Spring	55	0.1	---
Santa Margarita River	97,000	73.64	4,000
Nelson Creek	<u>1,550</u>	<u>1.7</u>	<u>---</u>
 TOTAL	 990,989	 678.3	 54,313.5

These direct diversion rights of 990,989 gallons per day correspond to 1.53 cfs or 3.04 acre feet per day. The value of 678.3 acre feet per year reflects the annual maximum allowed under the restrictions of such right. For example, rights associated with Rattlesnake Canyon (Application ID-A011161) show direct diversion of 12,000 gallons per day, with the restriction of diverting only from April 1 through October 31, which correlates to the listed 7.9 acre feet per year.

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**TABLE 6.1**

**SANTA MARGARITA RIVER WATERSHED  
APPROPRIATIVE WATER RIGHTS**

**PERMITS AND LICENSES**

<b>APPLICATION I.D.</b>	<b>PERMIT I.D.</b>	<b>OWNER</b>	<b>FILING DATE</b>	<b>SOURCE OF WATER</b>	<b>POINT OF DIVERSION</b>	<b>AMOUNT</b>	<b>USE</b>	<b>STATUS</b>
A006629	003584	William H. & Sandra J. Cyrus	4/9/1930	Cahuilla Valley	Sec. 4, 7S, 3E	DD-0.8 AF/yr	D	License
A007035	003883	Nyla Lawler Trust	8/10/1931	Cutca Creek	Sec. 29, 9S, 1E	DD-6.4 AF/yr	D/I	License
A009137	005090	Hill Springs Farms, LLC	10/7/1937	Temecula Creek	Sec. 12, 9S, 1E	DD-0.5 AF/yr	D	License
A009291	005201	Richard W. Long	5/13/1938	Nelson Creek	Sec. 23, 8S, 5W	DD-1.7 AF/yr	D	License
A010806	006279	James R., Phyllis & Bruce Grammer	4/22/1944	Temecula Creek	Sec. 34, 9S, 2E	DD-3.2 AF/yr	D	License
A011161	006499	Roy C. Pursche & Barbara Booth	9/26/1945	Rattlesnake Canyon	Sec. 28, 9S, 2E	DD-7.9 AF/yr	D/I	License
A011518	007032	Rancho California Water District	8/16/1946	Temecula Creek	Sec. 10, 8S, 1W	ST-40,000 AF/yr	D/I/IN/M/R	Permit
A011587 1/	008511	U.S. Department of the Navy, Marine Corps Base Camp Pendleton & Fallbrook Public Utility District	10/11/1946	Santa Margarita River	Sec. 12, 9S, 4W	ST-10,000 AF/yr	D/I/M	Permit
A012178	011356	Fallbrook Public Utility District	11/28/1947	Tucalota Creek	Sec. 3, 7S, 2W	ST-10,000 AF/yr	D/I/M	Permit
A012179 1/	011357	U.S. Department of the Navy, Marine Corps Base Camp Pendleton & Fallbrook Public Utility District	11/28/1947	Santa Margarita River	Sec. 12, 9S, 4W	ST-10,000 AF/yr	D/I/M	Permit
A013505	008166	Robert R. Baum	12/12/1949	Cottonwood Creek	Sec. 30, 8S, 4W	DD-158 AF/yr & ST-42 AF/yr	R/S	License
A017239	012312	Nancy A. Wiley	8/15/1956	Temecula Creek	Sec. 20, 9S, 2E	DD-0.1 AF/yr	D/E	License
A020507	014715	Robert R. Baum	11/24/1961	Cottonwood Creek	Sec. 19, 8S, 4W Sec. 30, 8S, 4W	ST-18 AF/yr	I/R	License
A020608	014716	Pete and Dorothy Prestininzi	2/13/1962	DeLuz Creek	Sec. 20, 8S, 4W	ST-100 AF/yr	D/I/R	License
A020742	013913	U. S. Cleveland National Forest	4/24/1962	Sourdough Spring	Sec. 25, 9S, 1E	DD-0.1 AF/yr	E	License
A021074	014087	U. S. Cleveland National Forest	12/7/1962	Cutca Spring	Sec. 17, 9S, 1E	DD-0.1 AF/yr	S/W	License
A021471A	015000	U.S. Department of the Navy, Marine Corps Base Camp Pendleton & Fallbrook Public Utility District	9/23/1963	Santa Margarita River	Sec. 5, 10S, 4W Sec. 2, 11S, 5W	ST-4,000 AF/yr	D/I/M/Z	License
A021471B 1/	015000	U.S. Department of the Navy, Marine Corps Base Camp Pendleton	9/23/1963	Santa Margarita River	Sec. 32, 9S, 4W	ST-165,000 AF/yr	D/I/M/Z	Permit
A027756	019038	James R. Grammer	5/23/1983	Temecula Creek	Sec. 3, 10S, 2E	DD-4.3 AF/yr	I/W	License
A028133	019522	B&E Inv., Inc.	5/14/1984	Cahuilla Creek	Sec. 15, 8S, 2E	ST-5 AF/yr	E/H/I/R/S	Permit

**OTHER RIGHTS**

F005751S*	N/A	U. S. Cleveland National Forest	7/1/1984	Long Canyon Spring	Sec. 16, 9S, 1E	DD-0.34 AF/yr	E/R/S/W	Claimed
S000024**	N/A	Judge Dial Perkins	11/4/1966	Santa Margarita River	Sec. 12, 9S, 4W	DD-0.34 AF/yr	D	Inactive
S000751**	N/A	Lawrence Butler	5/27/1967	Fern Creek	Sec. 31, 8S, 4W	DD-238.9 AF/yr	I	Inactive
S011411**	N/A	Agri Empire, Inc.	7/3/2008	Kohler Canyon	Sec. 33, 9S, 2E	DD-177 AF/yr ST-100 AF/yr ST-40 AF/yr	I/S	Claimed
S012235**	N/A	Lenny F. Kuszmaul	8/27/1985	DeLuz Creek	Sec. 4, 9S, 4W	DD-5.3 AF/yr	D/I	Inactive
S014009**	N/A	San Diego State University	7/11/2004	Santa Margarita River	Sec. 27, 8S, 3W	DD-73.3 AF/yr	D/I/Z	Claimed
001583***	N/A	George F. Yackey	12/27/1977	Sandia Canyon	Sec. 25, 8S, 4W	ST-8.0 AF/yr	S	Unknown
002380***	N/A	Chris R. & Jeanette L. Duarte	12/16/1977	Rainbow Creek	Sec. 12, 9S, 3W	ST-0.5 AF/YR	S	Certified

**KEY TO USE:** DD - Direct Diversion D - Domestic R - Recreation E - Fire Protection H - Fish Culture  
ST - Diversion to Storage I - Irrigation M - Municipal S - Stockwatering Z - Other  
IN - Industrial W - Fish & Wildlife Protection and/or Enhancement

**NOTES:** \* Federal Filing \*\* Statement of Diversion and Use \*\*\* Stock Filing N/A Not Applicable

1/ These three water rights (A011587, A012179, and A021471B) were assigned to the U.S. Department of the Navy, Marine Corps Base Camp Pendleton and Fallbrook Public Utility District as co-owners of the Permits by U.S. Bureau of Reclamation in 2017 for purposes of developing the Santa Margarita River Project for the benefit of Fallbrook Public Utility District and the Marine Corps Base Camp Pendleton.

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Storage rights shown in Table 6.1 include 185,000 acre feet of storage rights on the Santa Margarita River held by the U.S. Department of the Navy, Marine Corps Base Camp Pendleton that have not been exercised. These three water rights (A011587, A012179, and A021471B) were assigned to the U.S. Bureau of Reclamation by Fallbrook Public Utility District and the Department of the Navy in 1974 for purposes of developing the Santa Margarita River Project for the benefit of Fallbrook Public Utility District and Department of the Navy Marine Corps Base, Camp Pendleton. In 2017, these water rights were assigned to the U.S. Department of the Navy, Marine Corps Base Camp Pendleton (Primary Owner) and Fallbrook Public Utility District (Co-Owner) by the U.S. Bureau of Reclamation, for the purpose of developing the Santa Margarita Conjunctive Use Project being developed jointly by the U. S. Bureau of Reclamation, Department of the Navy Marine Corps Base, Camp Pendleton, and Fallbrook Public Utility District. The deadline for exercising these rights was set at December 31, 2008. On November 14, 2008, the U. S. Bureau of Reclamation filed petitions for time extensions for completion of beneficial use under the three permits. On September 14, 2009, change petitions were filed to amend the permits to conform to the Santa Margarita Conjunctive Use Project. Those extension and change petitions have been accepted and in accordance with SWRCB Order 2009-0063-EXEC they are under consideration in tandem.

Table 6.1 also lists other rights recognized by the SWRCB. These rights generally are based on Statements of Water Diversion and Use that have been filed with the SWRCB. Such statements include one by the United States on behalf of the Cleveland National Forest, which states that the diversion and use of water from Long Canyon Spring is made pursuant to a withdrawal and reservation of the land and resources for National Forest System purposes as of February 14, 1907.

Besides the federal filing, there are also Statements of Water Diversion and Use filed by other entities. Four of these statements represent riparian or pre-1914 appropriative diversions from DeLuz Creek, Fern Creek and Santa Margarita River that have been reported to the SWRCB. The other statement represents a pre-1914 appropriative right to divert water from a spring in Kohler Canyon into a 40 acre foot reservoir.

The last two rights noted on Table 6.1 represent filings made in 1977 pursuant to Subchapter 2.5 to Chapter 3 of Title 23 of the California Code of Regulations. That subchapter deals with Water Rights for Stockponds.

In addition to appropriative rights under SWRCB jurisdiction, there are a number of non-statutory appropriative rights that were established prior to 1914. These rights continue to be used to support diversions of water from the Santa Margarita River stream system. Such rights, which are listed in the various Interlocutory Orders developed in this litigation, are shown on Table 6.2.

On November 19, 1998, the SWRCB adopted Order No. 98-08 entitled "Order Revising Declaration of Fully Appropriated Stream Systems" to revise its prior Order Nos. 89-25 and 91-07. These Orders list the Santa Margarita River stream system as fully appropriated "from the mouth of the Santa Margarita River at the Pacific Ocean upstream including all tributaries where hydraulic continuity exists."

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TABLE 6.2

*SANTA MARGARITA RIVER WATERSHED*  
**PRE - 1914 APPROPRIATIVE WATER RIGHTS**  
**Listed in Interlocutory Judgments**

INTERLOCUTORY JUDGMENT	LISTED OWNER	CURRENT OWNER	DATE OF APPROPRIATION	SOURCE OF WATER	POINT OF DIVERSION	AMOUNT	USE
NO. 32	Anderson, Nina B.	Poladian, Jacqueline	April 11, 1892	Fern Creek	NW 1/4 of SE 1/4 Sec 31, T8S, R4W	32 gpm	Irrigation
NO. 32	Butler, Lawrence W. and Mary C.	Vanginkel, Norman Tr and Vanginkel, Deborah Tr San Diego Gas & Electric	Sept. 23, 1896	Fern Creek	NW 1/4 of SE 1/4 Sec 31, T8S, R4W	Capacity of 8 inch pipe	Irrigation
NO. 32	Wilson, Samuel M. and Hazel A.	Shirley, Bobbie	Aug. 3, 1911	DeLuz Creek	NW 1/4 of SW 1/4 Sec 32, T8S, R4W	50 miner's inches 65 AF/yr	Irrigation
NO. 24	United States	United States	1883	Santa Margarita River	Sec 5, T10S, R4W	20 cfs 1200 AF/yr	Domestic Irrigation Stock Water



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The consequences of this Order are as follows:

1. The Board is precluded from accepting any application to appropriate water from the Santa Margarita River System except where the proposed appropriation is consistent with conditions contained in the Declaration.
2. Initiation of a water right, pursuant to the Water Rights Permitting Reform Act of 1988 (Water Code Section 1228 *et seq.*), by registering small use domestic appropriations is precluded, except where the proposed appropriation is consistent with conditions contained in the Declaration. Small use domestic appropriations refer to uses that do not exceed direct diversions of 4,500 gallons per day or diversion by storage of 10 acre feet per year for incidental aesthetic, recreational, or fish and wildlife purposes.
3. Pursuant to Water Code Section 1206(a) the Board is authorized, but not required, to cancel pending applications where inconsistent with conditions contained in the Declaration; previous Orders implement a procedure for disposition of such applications pending on the effective date of the Declaration.

The Order provides for reconsideration of the Order either upon petition of an interested party or upon the Board's own motion.

6.3 Fallbrook PUD Changes of Point of Diversion and Place of Use for Permit No. 11356

On November 20, 2001, the Chief of the Division of Water Rights of the State Water Resources Control Board authorized an Order Approving Changes in Source Point of Diversion, Place of Use and Amending the Permit (No. 11356). The permit allows Fallbrook PUD to divert and store up to 10,000 acre feet per year at Lake Skinner. The Court approved an Order Amending the Memorandum of Understanding and Agreement on Operation of Lake Skinner on February 16, 2005. The Amendment provides for such diversions from Lake Skinner after specified releases are made.

On December 18, 2009, Fallbrook PUD filed a petition for a time extension for completion of beneficial use under Permit No. 11356. The petition was accepted and noticed by the SWRCB on February 23, 2009, and no protests were filed.

On May 25, 2012, the SWRCB issued Order WR 2012-0007-EXEC with an amended Permit No. 11356 extending the time to apply the water to full beneficial use by December 31, 2048.

#### 6.4 Federal Reserved Water Rights for the Cahuilla and Ramona Indian Reservations

The Cahuilla and Ramona Indian Reservations are both located in the Anza area. The Court found in Interlocutory Judgment No. 41 that the United States reserved water rights for the reservations as specified below.

Order No. 3 in Interlocutory Judgment No. 41 specifies for the Cahuilla Indian Reservation the following:

IT IS FURTHER ORDERED, ADJUDGED AND DECREED that the United States of America intended to reserve, and did reserve, rights to the use of the waters of the Santa Margarita River which under natural conditions would be physically available on the Cahuilla Indian Reservation, including rights to the use of ground waters, sufficient for the present and future needs of the Indians residing thereon with priority dates of December 27, 1875, for lands transferred by the Executive Order of that date; March 14, 1887, for lands transferred by the Executive Order of that date; December 29, 1891, for lands transferred by the Executive Order of that date.

Order No. 1 in Interlocutory Judgment No. 41 specifies for the Ramona Indian Reservation the following:

IT IS ORDERED, ADJUDGED AND DECREED that the United States of America when it established the Ramona Indian Reservation intended to reserve and did reserve rights to the use of waters of the Santa Margarita River stream system which under natural conditions would be physically available on the Ramona Reservation, including rights to the use of ground waters, sufficient for the present and future needs of the Indians residing thereon with a priority date of December 29, 1891.

On October 6, 2006, the Cahuilla Band of Indians filed a Motion to Intervene as Plaintiff-Intervenor in *United States of America v. Fallbrook Public Utility District, et al.* The Cahuilla Band also filed a Complaint asking the Court to quantify its federal reserved water rights by confirming elements of the water rights as declared and decreed by the Court in Interlocutory Judgment No. 41. On October 16, 2006, the Ramona Band of Cahuilla filed a similar motion and Complaint. On January 22, 2007, the Court issued an Order granting the Motions to Intervene and filing the Complaints in Intervention. On February 25, 2009, the Court ordered the Cahuilla Band and Ramona Band as plaintiffs to serve by April 30, 2009, all water right holders subject to the Court's jurisdiction within the entire Watershed. Service was completed and the parties commenced settlement negotiations. On April 1, 2009, the Cahuilla and Ramona Bands filed motions to dismiss claims against certain downstream defendants and to file second amended complaints to limit the claims to the Anza-Cahuilla Groundwater Area. On April 29, 2009, the Court issued an Order granting the motions. The parties are progressing with settlement negotiations and Court proceedings for quantification of each Band's federal reserved water rights based on the Second Amended Complaints.

#### 6.5 Federal Reserved Water Rights for the Pechanga Indian Reservation

The Court found in Interlocutory Judgment No. 41 that the United States reserved water rights for the Pechanga Indian Reservation in accordance with Order No. 7:

IT IS FURTHER ORDERED, ADJUDGED AND DECREED that the United States of America intended to reserve, and did reserve, rights to the use of the waters of the Santa Margarita River stream system which under natural conditions would be physically available on the Pechanga Indian Reservation, including rights to the use of ground waters sufficient for the present and future needs of the Indians residing thereon with priority dates of June 27, 1882, for those lands transferred by the Executive Order of that date; January 9, 1907, for those lands transferred by the Executive Order of that date; August 29, 1893, for those lands added to the Reservation by Patent on that date; and May 25, 1931, for those lands added to the Reservation by Patent of that date.

In 1974, the Pechanga Band of Luiseño Mission Indians filed a Motion to Intervene as a Plaintiff-Intervenor in *United States of America v. Fallbrook Public Utility District, et al.*, and in 1975 the Court granted the Motion. Rather than filing a complaint asking the Court to quantify its federal reserved water rights, the Pechanga Band partook in the process of resolving its claims to water rights in the Santa Margarita River Watershed through a comprehensive settlement agreement with the United States and principal water districts, including Rancho California WD, Eastern MWD, and Metropolitan Water District. On December 17, 2009, Pechanga and Rancho California WD announced an agreement on a framework, developed with the assistance of Metropolitan Water District and the United States Federal Negotiating Team, to resolve Pechanga's water rights claims. On April 27, 2009, Pechanga and Rancho California WD agreed to a Settlement Conceptual Agreement and on June 11, 2009, the Rancho California WD Board approved the Settlement Conceptual Agreement. On November 16, 2009, the parties announced the Pechanga Water Rights Settlement Agreement was finalized. On December 11, 2009 and January 26, 2010, the Pechanga Indian Water Rights Settlement Act was introduced in the United States House of Representatives and Senate, respectively. The proposed legislation was reintroduced in the Senate on June 25, 2013, and in the House of Representatives on June 26, 2013. In 2015 and 2016, the parties continued negotiations for the settlement agreement and draft legislation in accordance with the February 26, 2015 guidance from the House Committee on National Resources and the Federal Criteria and Procedures. On February 3, 2016, Senate bill (S. 1983) was reported out of the Senate Committee on Indian Affairs. On June 23, 2016, a hearing on the proposed settlement was held before the House Natural Resources Subcommittee on Water, Power and Oceans. On November 29, 2017 the Pechanga Water Settlement Agreement was signed by the RCWD President, Pechanga Tribal Chairman, and the U.S. Secretary of the Interior. The parties are now proceeding with obtaining approval by the Court.

## 6.6 California Statewide Groundwater Elevation Monitoring Program

On November 6, 2009, the Governor for the State of California approved Senate Bill SBx7-6 Groundwater Elevation Monitoring (SBx7-6). SBx7-6 provides for a statewide program of reporting groundwater elevation data for groundwater basins and is implemented by the California Department of Water Resources (DWR). The program is referred to as the California Statewide Groundwater Elevation Monitoring (CASGEM) Program. The Bill defines “basins” or “sub-basins” to mean a groundwater basin or sub-basin identified and defined in DWR Bulletin No. 118. Three such basins (plus a portion of a fourth basin) are identified in DWR Bulletin No. 118 for the Santa Margarita River Watershed:

1. Basin No. 9-4—Santa Margarita Valley Groundwater Basin (located in San Diego County on federal lands within Camp Pendleton).
2. Basin No. 9-5—Temecula Valley Groundwater Basin (located in Riverside County in the area including the cities of Murrieta and Temecula and the Pechanga Indian Reservation).
3. Basin No. 9-6—Cahuilla Valley Groundwater Basin (also known as the Anza-Cahuilla Groundwater Basin; located in Riverside County in the upper-most portion of the Watershed in the area within the town of Anza and the Cahuilla and Ramona Indian Reservations).
4. Basin No. 8-5—San Jacinto Groundwater Basin, Domenigoni Sub-basin (located in Riverside County in Domenigoni Valley which is southwest of Diamond Valley Lake).

SBx7-6 establishes a procedure for a Monitoring Entity to coordinate the monitoring activities for a basin and on September 24, 2012, Rancho California WD was approved by DWR to become the Monitoring Entity for Basin No. 9-5 in the Temecula area. The monitoring plan was reviewed by the Watermaster and includes monitoring wells maintained by Rancho California WD, Western Municipal Water District, and the U.S. Geological Survey with funding through the Watermaster budget.

On September 17, 2015, Marines Corp Base Camp Pendleton submitted a request to DWR to be the CASGEM Monitoring Entity for Basin No. 9-4, which is located on Camp Pendleton. On October 8, 2015, Camp Pendleton was designated as the Monitoring Entity for Basin No. 9-4. Camp Pendleton developed the CASGEM monitoring plan for Basin No. 9-4 in cooperation with San Diego County.

Presently, there is no CASGEM monitoring plan for Basin No. 9-6 but efforts are ongoing to establish the CASGEM Monitoring Entity and develop a CASGEM monitoring plan. Eastern MWD is the approved Monitoring Entity for Basin No. 8-5.

Additional information regarding the CASGEM program, the approved monitoring plans, and groundwater monitoring data posted for Basin Nos. 8-5, 9-4, and 9-5 can be found at the following website: <http://www.water.ca.gov/groundwater/casgem/>.

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6.7 Sustainable Groundwater Management Act

On September 16, 2014, Governor Brown signed the California Sustainable Groundwater Management Act (Act or SGMA) that was established as part of a comprehensive three-bill package that includes AB 1739 (Dickinson), SB 1168 (Pavley), and SB 1319 (Pavley) to provide the framework for statewide groundwater management by local authorities. The state agencies charged with administration of the Act are both the DWR and the SWRCB.

The Act pertains to all groundwater basins identified and defined in DWR Bulletin 118. However, the Act includes an exemption for adjudicated basins as provided in §10720.8(a) that specifically lists the Santa Margarita River Watershed as an exempted adjudicated area. Thus, the four DWR Bulletin No. 118 basins located within the Watershed are not subject to the general requirements of the Act. However, as specified in §10720.8(f), the Watermaster must comply with certain requirements under the Act, including reporting to DWR commencing on or before April 1, 2016.

On March 23, 2016, in accordance with §10720.8, the Watermaster completed the required profile and initial submittal on the DWR SGMA Reporting for Adjudicated Areas Website for the Santa Margarita River Watershed adjudication. Additionally, as part of the required initial submittal, the Watermaster submitted to DWR a letter and DVD containing PDF files of the principal governing final judgments, orders, and decrees for the Santa Margarita River Watershed adjudication in *United States of America v. Fallbrook Public Utility District, et al.*, Case No. 51-cv-1247-GPC-RBB. The submittal also contained copies of each of the annual reports prepared by the Watermaster under court order for submittal to the Court. These reports include the Annual Watermaster Report for 1989 through 2014 and the Annual CWRMA Report for 2011 through 2014. The SGMA Reporting for Adjudicated Areas Website can be found at the following website: <http://www.water.ca.gov/groundwater/sgm/adjudicated.cfm>.

As part of the annual reporting requirements, the Watermaster will submit to DWR copies of the Annual Watermaster Report and the Annual CWRMA Report to provide information for the DWR Bulletin No. 118 basins within the Watershed. Reporting for Water Year 2015-16 was completed on March 14, 2018. In addition, the groundwater monitoring data for the basins under the CASGEM Program fulfills a portion of the reporting requirements specified in §10720.8(f)(3)(A).

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## **SECTION 7 - WATER PRODUCTION AND USE**

### **7.1 General**

Water production and use data were obtained from several types of substantial users including water purveyors, Indian Reservations, mobile home parks and private landowners. Private landowners who qualify as substantial water users are those who irrigate eight or more acres or who produce or use an equivalent quantity of water.

Major water purveyors, who reported production and use data in the 2016-17 Water Year, are listed as follows:

- Anza Mutual Water Company
- Eastern Municipal Water District
- Elsinore Valley Municipal Water District
- Fallbrook Public Utility District
- Lake Riverside Estates
- Metropolitan Water District of Southern California
- Rainbow Municipal Water District
- Rancho California Water District
- U. S. Marine Corps, Camp Pendleton
- U.S. Naval Weapons Station, Fallbrook Annex
- Western Municipal Water District

Lake Riverside Estates is listed with major water purveyors although it does not deliver water to customers. However it does produce make-up water for losses from Lake Riverside.

In addition to the major purveyors, there are a number of smaller water systems in the Watershed. Of these, Quiet Oaks Mobile Home Park, Jobjoba Hills SKP Resort, Rancho California Outdoor Resorts, Hawthorn Water System, Cottonwood Elementary, and Hamilton Schools are substantial users.

Three Indian Reservations, the Cahuilla, Pechanga and Ramona, are noted in Interlocutory Judgment No. 41, the Judgment that pertains to Water Rights on Indian Reservations in the Watershed. Estimates and/or measurements of water production and use are reported for the Cahuilla, Pechanga and Ramona Indian Reservations.

A portion of a fourth Reservation, the Pauma Mission Reserve Tract of the Pauma Yuima Band of Luiseño Mission Indians, is also located within the Watershed. However, this Reservation was not included in Interlocutory Judgment No. 41.

The final category of water users is private landowners who use water primarily for irrigation.

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The water use data collected for Water Year 2016-17 is summarized on Table 7.1. Total imported supplies plus local production totaled 100,543 acre feet compared to 101,320 acre feet reported in 2015-16. Of that quantity, 28,076 acre feet were used for agriculture; 15,278 acre feet were used for commercial purposes; 42,294 acre feet were used for domestic purposes; 52 acre feet were discharged to Temecula Creek; 1 acre feet were discharged to Murrieta Creek; 77 acre feet were discharged to Santa Gertrudis Creek; and 4,523 acre feet were discharged by Rancho California WD during 2016-17, pursuant to the CWRMA and 1 acre feet were released from the potable connection into the Santa Margarita River. It is noted, the commercial use for Pechanga includes 353 acre feet of recycled water and thus this amount is double counted on Table 7.1 relative to production from the Santa Margarita River Watershed. Actual commercial use of production from the Watershed is 14,925 acre feet, reflecting the reduction of 353 acre feet of recycled water used by Pechanga. In order for the totals to balance on Table 7.1, the 353 acre feet of recycled water is subtracted from the indicated loss for Pechanga as reflected in Footnote 13 for Table 7.1.

The overall system loss was 4,536 acre feet, or 4.5% of total production. System gain or loss is the result of many factors including errors in measurement, differences between periods of use and periods of production, leakage and unmeasured uses.

Monthly production and use data for major water purveyors are attached to this report as Appendix A. Uses are listed under agricultural, commercial and domestic categories. The definition of agricultural, commercial and domestic uses varies for the different purveyors in the Watershed. The definitions for agricultural, commercial and domestic uses have varied over the years for the different purveyors in the Watershed. Water use definitions for all major water purveyors were updated and reconciled for Water Year 2013-14. The reconciliation resulted in near uniformity in water use definitions among the major water purveyors. Accordingly, definitions of these uses for major water purveyors are shown on Table 7.2. Similar data for Water Years 1966 through 2017 are summarized in tables presented in Appendix B. As noted above, water use definitions were updated in Water Year 2013-14 and thus water use reported for certain purveyors for prior years on the Appendix B tables can vary significantly as compared to the use categories for 2016-17. The reader is referred to Table 7.2, published in each annual report, to determine the particular use definitions for any particular year in question. Appendix C presents information on substantial users outside purveyor service areas.

## 7.2 Water Purveyors

### 7.2.1 Anza Mutual Water Company

Anza Mutual Water Company's service area is in the eastern part of the Watershed in the Anza Valley. Production is from two wells: Well No. 1 drilled in 1951, and perforated from 20 feet to 260 feet; and Well No. 2 drilled later to a depth of 287 feet and perforated in the bottom 130 feet. Production for Water Year 2016-17 was approximately 21.58 acre feet from Well No. 1. Production for Water Year 2016-17 was approximately 0.79 acre feet from Well No. 2. For Water Year 2016-17 total production from both wells was approximately 22 acre feet as shown in Appendix Table A-11. Water levels in Well No. 1 and Well No. 2 declined by 30.0 and 30.5 feet respectively during Water Year 2016-17.



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TABLE 7.1

**SANTA MARGARITA RIVER WATERSHED  
WATER PRODUCTION AND USE  
2016-17  
Quantities in Acre Feet**

	PRODUCTION				USE 1/				WATER RIGHT
	WELL/ SURFACE	IMPORT	TOTAL	AG	COMM	DOM	LOSS	TOTAL	
<b>WATER PURVEYORS</b>									
Anza Mutual Water Company	22	0	22	0	0	20	2 <sup>2/</sup>	22	Appropriative
Eastern MWD	0	13,441	13,441	311	2,780	9,678	672	13,441	Appropriative
Elsinore Valley MWD	0	5,970	5,970	12	1,291	4,488	179	5,970	-----
Fallbrook PUD	0	4,576	4,576	2,272	209	1,784	311	4,576	Appropriative
Lake Riverside Estates	410	0	410	0	410 <sup>3/</sup>	0	0	410	Appropriative
Metropolitan Water District	0	1,128 <sup>15/</sup>	1,128	1,128	0 <sup>4/</sup>	0	0	1,128	-----
Murrieta Division of Western MWD	362	1,711	2,073	0	800	1,182	91	2,073	Appropriative
Rainbow MWD	0	1,186	1,186	966	20	154	46	1,186	-----
Rancho California WD	19,097 <sup>5/</sup>	40,334 <sup>6/</sup>	59,431	17,529	8,333	22,624	10,945 <sup>7/</sup>	59,431	Various
U.S.M.C. - Camp Pendleton	4,874	0	4,874	0	----- <sup>9/</sup>	1,997	2,877 <sup>2/10/</sup>	4,874	Appropriative/ Riparian/Pre-1914
U.S. Naval Weapons Station	0	67	67	0	----- <sup>9/</sup>	61	6 <sup>2/</sup>	67	-----
Western MWD Improvement Dist. A Through Rancho California WD	0	30	30	0	27	0	3 <sup>2/</sup>	30	-----
<b>INDIAN RESERVATIONS</b>									
Cahuilla	107	0	107	18 <sup>16/</sup>	26 <sup>17/</sup>	63	0	107	Overlying/Reserved
Pechanga	697	0	697	0	897	115	(315) <sup>13/</sup>	697	Overlying/Reserved
Ramona	1	0	1	0	0	1	0	1	Overlying/Reserved
<b>SMALL WATER SYSTEMS</b>									
Quiet Oaks Mobile Home Park	18	0	18	0	3	13	2 <sup>2/</sup>	18	Riparian/Overlying
Outdoor Resorts	517	0	517	0	459	53	5 <sup>2/</sup>	517	Overlying
Jobba Hills SKP Resort	61	0	61	0	0	55	6 <sup>2/</sup>	61	Overlying
Hawthorn Water System	6	0	6	0	0	5	1 <sup>2/</sup>	6	Appropriative
Cottonwood Elementary	11	0	11	0	10	0	1 <sup>2/</sup>	11	Overlying
Hamilton Schools	14	0	14	0	13	0	1 <sup>2/</sup>	14	Overlying
<b>OTHER SUBSTANTIAL USERS</b>	5,902 <sup>11/</sup>	0	5,902	5,840	0	0	62 <sup>12/</sup>	5,902	
<b>TOTAL</b>	<b>32,100</b>	<b>68,444</b>	<b>100,543</b>	<b>28,076</b>	<b>15,278</b>	<b>42,294</b>	<b>14,895<sup>14/</sup></b>	<b>100,543</b>	

1/ Water use definitions for all major water purveyors were updated and reconciled for Water Year 2014. The updated definitions are provided in Table 7.2.

2/ Assumes 10% system loss.

3/ Recreational Use.

4/ Construction use at Diamond Valley Lake.

5/ Includes 19,050 AF production from Older Alluvium plus 266 AF of Vail Recovery minus 163 AF exported to the San Mateo Watershed minus 54 AF pumped into recycled water system minus 2 AF delivered to Pechanga Band.

6/ Includes 22,561 AF direct use; 13,620 AF direct recharge; 4,523 AF from MWD WR-34; and minus 370 AF export.

7/ Includes 52 AF discharged into Temecula Creek, 1 AF into Murrieta Creek, 77 AF into Santa Gertrudis Creek; 4,523 AF discharged into Santa Margarita River from MWD WR-34; 0 AF from System River Meter; 1 AF from potable connection to WR-34 outlet pipe; 3,492.5 AF of import remaining in storage; and a system loss of 2,798.8 AF.

8/ Listed with Agricultural use.

9/ Listed with Domestic use.

10/ Includes exports of 2,502 AF, brine production of 153 AF and a system loss of 222 AF.

11/ Includes 636 AF for surface diversion plus 5,373 AF from groundwater as shown in Appendix C, minus 107 AF on the Cahuilla Reservation.

12/ Loss is equal to 10% of surface diversions.

13/ Includes a system loss of 38 AF, minus 353 AF of reclaimed wastewater from EMWD, accounted for on Table A-1. See Table A-5 for Pechanga production and use.

14/ Includes an overall system loss of 4,536 AF. Overall system loss is calculated by estimating the traditional system loss of comparing total production versus total use for each water purveyor.

15/ No additional waters were released by MWD from Lake Skinner into Tualota Creek for maintenance purposes and groundwater replenishment.

16/ Stock Watering

17/ Includes 3 AF for dust control, 8 AF for watering of turf grass, and 15 AF for casino purposes.

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TABLE 7.2

SANTA MARGARITA RIVER WATERSHED  
**DEFINITIONS OF WATER USE  
BY MUNICIPAL WATER PURVEYORS**  
2016-17

DISTRICT	AGRICULTURAL	DOMESTIC	COMMERCIAL
<b>EASTERN MUNICIPAL WATER DISTRICT</b>	Row crops, orchards, vineyards, sod farms, other commercially grown crops, dairies, horse ranches and other agricultural users, including agricultural allocation for agricultural/domestic meters	Single family and multi-family residential connections, including domestic allocation for agricultural/domestic meters	All other usage including commercial, industrial, institutional, golf courses, parks, recreation, landscaping, temporary and construction
<b>ELSINORE VALLEY MUNICIPAL WATER DISTRICT</b>	Same as EMWD	Same as EMWD	Same as EMWD
<b>FALLBROOK PUBLIC UTILITY DISTRICT</b>	Same as EMWD	Single family and multi-family residential connections, including first 20,000 gallons for agricultural/domestic meters	Same as EMWD
<b>PECHANGA INDIAN RESERVATION</b>	Same as EMWD	Same as EMWD	All other usage including resort, on-Reservation businesses, tribal facilities, commercial, industrial, institutional, golf courses, parks, recreation, landscaping, temporary and construction
<b>RAINBOW MUNICIPAL WATER DISTRICT</b>	Same as EMWD	Single family and multi-family residential connections, including first 19,448 gallons for agricultural/domestic meters	Same as EMWD
<b>RANCHO CALIFORNIA WATER DISTRICT</b>	Same as EMWD	Single family and multi-family residential connections, including first 1,600 cubic feet for agricultural/domestic meters	Same as EMWD
<b>MURRIETA DIVISION OF WESTERN MUNICIPAL WATER DISTRICT</b>	Same as EMWD	Same as EMWD	Same as EMWD
<b>USMC, CAMP PENDLETON</b>	Same as EMWD	Camp Supply - All usage except agricultural	Reported under Camp Supply

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Interlocutory Judgment No. 33 divides aquifers in Anza Valley into two categories: the shallow aquifer and the deep aquifer. Based on information available to the Court, the shallow aquifer was determined to include the younger and older alluvial deposits in the Anza Groundwater Basin, and extend to a maximum but variable depth of approximately 100 feet. The deep aquifer underlies the shallow aquifer in an area about one-half mile in width and two miles in length, within portions of Sections 16, 17, 21, 22, 27 and 28 of Township 7 South, Range 3 East, SBM. Anza Mutual Water Company's wells are within the area of the deep aquifer. From the perforated intervals in the wells, it may be concluded that most of the production from Well No. 1 and all of the production from Well No. 2 are from the deep aquifer. Interlocutory Judgment No. 33 concluded that waters contained in the deep aquifer did not add to, support or contribute to the Santa Margarita River stream system and were, therefore, declared to be outside the Court's jurisdiction.

Accordingly, most of the water produced by the Anza Mutual Water Company is outside the Court's jurisdiction. The relatively small portion pumped from the shallow aquifer in Well No. 1 is pumped under a groundwater appropriative right. Data for Water Years 1989 through 2017 are shown on Appendix Table B-12.

#### 7.2.2 Eastern Municipal Water District

Eastern Municipal Water District is a member agency of Metropolitan Water District and its service area includes a portion of the Rancho California Water District and the Murrieta Division of Western Municipal Water District. Within the Watershed, Eastern MWD wholesales water to those districts and also retails water directly to consumers. Water sold to Rancho California WD and the Murrieta Division of Western MWD is not listed in this report as imported water to Eastern MWD.

Eastern MWD's service area outside Rancho California WD and the Murrieta Division of Western MWD is located in the northern part of the Watershed. Water for Eastern MWD's retail service area is all imported with no groundwater production during Water Year 2016-17.

Imports, not including water wholesaled to Rancho California WD or the Murrieta Division of Western MWD, or delivered to Elsinore Valley MWD, totaled 14,252 acre feet. A portion of that import, amounting to 811 acre feet, was exported from the Santa Margarita River Watershed for delivery to Eastern MWD's retail customers located outside the Watershed, resulting in net import to the Watershed of 13,441 acre feet. These data are shown on Appendix Table A-1.

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In addition to importing fresh water, Eastern MWD also reclaims wastewater at its Temecula Valley Regional Water Reclamation Facility. Disposition of wastewater from the Temecula Valley Regional Water Reclamation Facility (TVRWRF) service area for Water Years 2015-16 and 2016-17 is shown below:

<u>Use</u>	<u>2015-16</u>		<u>2016-17</u>	
	<u>Quantity</u>	<u>Percent</u>	<u>Quantity</u>	<u>Percent</u>
	AF	%	AF	%
Reuse in Santa Margarita	3,278	23	2,631	18
Reuse outside Santa Margarita	<u>6,952</u>	<u>50</u>	<u>7,139</u>	<u>49</u>
Subtotal	10,230	73	9,770	67
Discharge to Dissipater at Temescal Creek	0	0	1,909	13
Other	<u>3,826</u>	<u>27</u>	<u>2,934</u>	<u>20</u>
TOTAL	14,056	100	14,613	100

It can be noted that the quantities of recycled water used within the Santa Margarita River Watershed decreased from 3,278 acre feet in Water Year 2015-16 to 2,631 acre feet in Water Year 2016-17. During the same period, reuse outside the Santa Margarita River Watershed increased from 6,952 acre feet to 7,139 acre feet. In 2016-17, it may be concluded that 18% of the recycled water was used in the Watershed and 49% was used outside the Watershed. 1,909 acre feet of wastewater was discharged to the dissipater at Temescal Creek during Water Year 2016-17. The Other use decreased from 3,826 acre feet to 2,934 acre feet. This Other use includes changes of storage in Winchester and Sun City storage ponds, as well as evaporation and percolation losses.

Due to concerns about the potential export of native Santa Margarita water, the sources of water supply to the TVRWRF service area were determined and are shown on Table 7.3. In 2016-17, about 22.8% of the supply to the service area was groundwater. Thus, the percent of groundwater supply was greater than the percentage of wastewater reused within the Santa Margarita River Watershed, and on a proportional basis there was some export of native waters.

On August 4, 2009, a Judgment was entered in *United States of America and Fallbrook Public Utility District v. Eastern Municipal Water District and Rancho California Water District* (CV 04-8182 CBM (RNBx), United States District Court, Central District of California) pertaining to the contractual obligations of the 1990 Four Party Agreement and the export of treated wastewater from the Santa Margarita River Watershed. On May 17, 2011, the United States Court of Appeals for the Ninth Circuit issued an Order granting the parties' joint motion to dismiss the appeals in this matter and thus the August 4, 2009 Judgment stands. For purposes of this annual report the export of treated wastewater will be reported consistent with prior annual reports with no changes pursuant to the Judgment.

Estimates of water production and use for Eastern MWD for the period 1966 through 2017 are shown on Appendix Table B-1.

TABLE 7.3

**SANTA MARGARITA RIVER WATERSHED  
WATER DELIVERIES TO TEMECULA VALLEY  
REGIONAL WATER RECLAMATION FACILITY SERVICE AREA**

	2013		2014		2015		2016		2017	
	AF	%	AF	%	AF	%	AF	%	AF	%
<b>Eastern MWD</b>										
TVRWF Service Area										
1. Groundwater	0		0		0		0		0	
2. Import	15,751		15,884		13,877		13,602		13,441	
3. Total	<u>15,751</u>		<u>15,884</u>		<u>13,877</u>		<u>13,602</u>		<u>13,441</u>	
<b>Rancho California WD</b>										
TVRWF Service Area										
1. Groundwater 1/	8,802		7,789		8,201		9,029		6,916	
2. Import 2/	10,563		11,577		9,232		7,071		9,930	
3. Total 3/	<u>19,365</u>		<u>19,366</u>		<u>17,433</u>		<u>16,100</u>		<u>16,847</u>	
<b>Total Deliveries to TVRWF Service Area</b>										
1. Groundwater	8,802	25.1%	7,789	22.1%	8,201	26.2%	9,029	30.4%	6,916	22.8%
2. Import	26,314	74.9%	27,461	77.9%	23,109	73.8%	20,673	69.6%	23,371	77.2%
3. Total	<u>35,116</u>	<u>100.0%</u>	<u>35,250</u>	<u>100.0%</u>	<u>31,310</u>	<u>100.0%</u>	<u>29,702</u>	<u>100.0%</u>	<u>30,288</u>	<u>100.0%</u>

1/ Based on the ratio of groundwater to total production in Rancho Division of RCWD.

2/ Based on the ratio of import to total production in Rancho Division of RCWD.

3/ Total RCWD deliveries in TVRWF Service Area.

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7.2.3 Elsinore Valley Municipal Water District

Elsinore Valley Municipal Water District provides water to its service area around Lake Elsinore, a portion of which is within the Santa Margarita River Watershed. Elsinore Valley MWD obtains its supply from ten wells, all located outside the Watershed, and also imports Metropolitan Water District water through Eastern MWD and Western MWD.

As shown on Appendix Table A-2, Elsinore Valley MWD reports for 2016-17 that 5,970 acre feet were imported into the portion of its service area that is inside the Watershed, and 1,468 acre feet of wastewater were exported from that same area. In 2013-14, Elsinore Valley MWD began using recycled water treated at the Rancho California WD Santa Rosa Water Reclamation Facility via the Eastern MWD Palomar Pipeline through a wheeling agreement. In 2016-17, a total of 256 acre feet of recycled water were received via Eastern MWD and 99 acre feet were used within the Watershed.

Production and use for Elsinore Valley MWD for the period 1966 through 2017 are shown on Appendix Table B-2.

7.2.4 Fallbrook Public Utility District

The Fallbrook Public Utility District service area is located in both the San Luis Rey River and Santa Margarita River watersheds. In Water Year 2016-17, Fallbrook PUD imported a total of 8,959 acre feet, as shown on Appendix Table A-3. Fallbrook PUD has three wells within the Santa Margarita River Watershed; however, in 2016-17, there was no production from these wells. Additionally, in 2016-17, Fallbrook PUD reported no diversions from Lake Skinner, under Permit No. 11356, resulting in a total district-wide production of 8,959 acre feet. The total production for the portion of Fallbrook PUD service area that is within the Watershed, as shown on Appendix Table A-3, is 4,576 acre feet, or about 51% of the total district wide production.

In 2016-17, Fallbrook PUD treated 807 acre feet of wastewater from areas served within the Watershed, of which 15 acre feet were reused in the Watershed. The wastewater production and distribution for 2016-17 is shown on Appendix Table A-3.

Production during the period 1966 through 2017 included direct diversions from the Santa Margarita River prior to 1972, as well as imported water and well production, as shown in Appendix B. During Water Year 2010-11, Fallbrook PUD revised its reporting methods for both water production and wastewater operations. The historical water production and use for the period 1966 through 2010 are provided on Appendix Table B-3.1 reflecting prior reporting methods, particularly for previous estimates associated with the DeLuz portion of the service area. Appendix Table B-3.2 is provided to show the current water production and use reflecting the revised reporting methods. The revised reporting methods include metered deliveries for the reported uses within the Watershed and application of a district-wide loss factor.

The Fallbrook PUD wastewater production and distribution for the period 1966 through 2017 are shown on Appendix Table B-4.

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7.2.5 Lake Riverside Estates

Lake Riverside Estates pumps water from Well No. 7S/2E-32C1, into Lake Riverside to replace evaporation losses. Production for 2016-17 was approximately 410 acre feet as shown on Appendix Table A-11. The production well was drilled in 1962 and is located in an area of younger alluvium in the Cahuilla Groundwater Basin. The well was drilled to a depth of 338 feet.

Interlocutory Judgment No. 33 indicates that the owners of lands in the Cahuilla Groundwater Basin have correlative overlying rights to the use of the groundwater that is the basis for this production. Data for Lake Riverside Estates for the period 1989 through 2017 are shown on Appendix Table B-12.

7.2.6 Metropolitan Water District of Southern California

Pursuant to a Court Order, Metropolitan Water District (MWD) imported 1,128 acre feet of water into the Santa Margarita River Watershed for irrigation of lands in Domenigoni Valley in Water Year 2016-17. MWD did not import any water for groundwater recharge and there was no water used for construction purposes. As previously noted, the groundwater in the Domenigoni Valley groundwater basin is outside this Court's jurisdiction when groundwater levels are below elevation 1,400 feet. This production is shown on Appendix Table A-4, and production for the period 1966 through 2017 is shown on Appendix Table B-5.

7.2.7 Rainbow Municipal Water District

Rainbow Municipal Water District is located in San Diego County in the south-central part of the Watershed. In 2016-17, the District imported a total of 16,460 acre feet of water as shown on Appendix Table A-6. However, most of the District is in the San Luis Rey River Watershed and only about 7% of the District's imported supply was delivered to the portion of the service area inside the Santa Margarita River Watershed. As shown on Appendix Table A-6, total deliveries of imported water in the Santa Margarita River Watershed in 2016-17 amounted to 1,186 acre feet.

Rainbow Municipal Water District import production for the period 1966 through 2017 is shown on Appendix Table B-7.

7.2.8 Rancho California Water District

Rancho California Water District serves water to a 99,600 acre service area in the central portion of the Watershed. The District produced water from 46 wells in 2016-17, and also imported water as shown on Appendix Table A-7. Use is shown under the categories of agriculture, commercial and domestic. In Water Year 2016-17, well production of native water included 19,260 acre feet from the Murrieta-Temecula Groundwater Area. A portion of the groundwater amounting to 163 acre feet was exported for use in the San Mateo Watershed, resulting in a net well production of 19,097 acre feet.

Import supplies totaled 40,704 acre feet of which 22,561 acre feet were used for direct use; 13,620 acre feet were recharged; and 4,523 acre feet were discharged by the

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District to the Santa Margarita River from MWD Outlet WR-34 during 2016-17, pursuant to the CWRMA. A portion of that import amounting to 370 acre feet was exported from the Santa Margarita River Watershed to the San Mateo Watershed, resulting in net import to the Watershed of 40,334 acre feet.

During 2016-17, Rancho California WD use totaled 59,431 acre feet including 17,529 acre feet for agriculture; 8,333 acre feet for commercial; 22,624 acre feet for domestic; 4,654 acre feet were released into Temecula Creek, Murrieta Creek, Santa Gertrudis Creek, and the Santa Margarita River; and 2,799 acre feet were system loss. In 2016-17, a net amount of 3,492.5 acre feet of import water were recharged to storage.

In 2016-17, Rancho California WD did not export reclaimed wastewater from the Watershed via EMWD's Palomar Valley Pipeline.

Rancho California WD produces groundwater under a variety of rights as follows:

1. Recovery of water appropriated at Vail Lake
2. Recovery of import return flows and directly recharged imported water
3. Groundwater appropriative rights
4. As agent on behalf of overlying landowners

Vail Appropriation

Rancho California WD's Vail Dam appropriative rights are described in Application No. 11518 as amended on June 17, 1947, and in Permit 7032 originally issued on February 18, 1948. Permit 7032 was subsequently amended on July 28, 1971, and April 22, 2009. The water right provides that the District may store up to 40,000 acre feet in Vail Lake each year between November 1 and April 30, subject to applicable limitations. The water so stored may be used for recreational uses at Vail Lake and municipal, domestic, industrial, and irrigation uses within the entire service area of Rancho California WD. Such uses may be by direct diversion from Vail Lake or by recovery of water released from Vail Lake and spread downstream in Pauba Valley. Points of re-diversion for recovery from underground storage are permitted for 12 production wells: Rancho California WD Wells 109, 110, 123, 132, 152, 153, 157, 158, 210, 232, 233, and 234. It should be noted, Wells 110 and 210 have been replaced by Wells 164 (February 2015) and 236 (August 2017), respectively.

As shown on Table 3.3, there were 266 acre feet of releases from Vail Lake during 2016-17 for groundwater recharge. Releases from Vail Lake for groundwater recharge for the period 1980 through 2017 are shown on Appendix Table B-8.

Permit 7032 operations for 2016-17 are summarized on Table 7.4. The recovery from groundwater recharge for 2016-17 was 266 acre feet corresponding to the amount released from Vail Lake for recharge.

It is noted, with the issuance of the amended Permit 7032 in 2009, the place of use, purposes of use, and permitted points of re-diversion were changed. Accordingly,



TABLE 7.4

*SANTA MARGARITA RIVER WATERSHED*  
**RANCHO CALIFORNIA WATER DISTRICT**  
**PERMIT 7032 OPERATIONS**  
 2016-17  
 Quantities in Acre Feet

Diversion to Storage in Vail Lake <sup>1/</sup>		5,916
Release to Groundwater Storage <sup>1/</sup>		266
Recovery from Groundwater Storage <sup>2/ 3/</sup>		
Younger Alluvium	266	
Older Alluvium	<u>0</u>	
Total		266
Vail Recharge Account Balance from 2015-16		54,292
Release minus Recovery		0
Vail Recharge Account Balance for 2016-17		54,292

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1/ See Table 3.3.

2/ Permitted Points of Re-Diversion RCWD Wells 109, 110, 123  
 132, 152, 153, 157, 158, 210, 232, 233 and 234.

3/ Total pumping from Vail recovery wells is greater than amount  
 shown as recovered under Permit 7032. Total pumping from the 12  
 recovery wells is shown on Table 7.8.

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the reporting of Permit 7032 operations needs to be modified to reflect the changed conditions. Table 7.4 was modified in 2009 to reflect the changes subject to further refinement as part of the update of the CWRMA groundwater model. The reporting on Table 7.4 reflects the assumption that all water released from Vail Lake for recharge is recovered from the younger alluvium by pumping from the permitted recovery wells. The remainder of the pumping from the younger alluvium is apportioned to direct import recharge.

Imported Water Return Flows

Return flows for 2016-17, based on imported water use in the Rancho Division and Santa Rosa Division are shown on Tables 7.5 and Table 7.6, respectively.

In the following tables, imported water is allocated to agricultural, commercial and domestic uses in each of eight hydrogeologic areas in the Rancho Division service area and three hydrogeologic areas in the Santa Rosa Division service area. This allocation is the proportion of the total deliveries to each use that is made up of imported water. For 2016-17, 58.97% of the supply to the Rancho Division was imported and 67.46% of the supply to the Santa Rosa Division was imported.

In general the Santa Rosa Division does not overlie the groundwater area. However, there are several areas classified as being in the Santa Rosa Division that do overlie the groundwater area and generate return flows from imported supplies. Data from most of these lands have been reported since December 1991.

The percentage of imported water that becomes return flow varies according to the use as follows:

Agricultural Use	18%
Commercial Use	13%
Domestic Use	12%

Based on the foregoing factors, the total return flow credit for 2016-17 is computed to be 2,295.87 acre feet for the Rancho Division and 178.93 acre feet for the Santa Rosa Division, as shown on Tables 7.5 and 7.6, respectively.

Some of the hydrogeologic areas overlie older alluvium and some overlie younger alluvium. Comparison of exposures of younger alluvium with maps of the District's hydrogeologic areas indicate that the Santa Gertrudis, Pauba, a portion of North Murrieta and half of the Murrieta-Wolf areas overlie younger alluvium. The areas of the Santa Rosa Division that overlie the groundwater area in the younger and older alluvium varies and are identified on Table 7.6. Import return flows in these areas can be credited against pumping from the younger alluvium. The credits for 2016-17 are 510.33 acre feet for the Rancho Division and 44.80 acre feet for the Santa Rosa Division, as shown on Tables 7.5 and 7.6, respectively. The total return flow credit for 2016-17 to offset younger alluvium production in future years is 555.13 acre feet.

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TABLE 7.5

SANTA MARGARITA RIVER WATERSHED  
RANCHO CALIFORNIA WATER DISTRICT  
RETURN FLOW CREDIT  
2016-17  
RANCHO DIVISION  
Quantities in Acre Feet

HYDROGEOLOGIC AREAS

	0 NO HYDRO- GEO CODE	1 MURRIETA WOLF 1/2 QYAL 1/2 QTOAL	2 SANTA GERTRUDIS QYAL	3 LOWER MESA QTOAL	4 PAUBA QYAL	5 SOUTH MESA QTOAL	6 UPPER MESA QTOAL	7 PALOMAR QTOAL	TOTAL
<b>AGRICULTURAL</b>									
Total Use	1,193.57	11.99	0.00	21.47	529.04	98.72	1,163.64	1,052.99	4,071.42
% Import	58.97	58.97	58.97	58.97	58.97	58.97	58.97	58.97	58.97
Import Use	703.84	7.07	0.00	12.66	311.98	58.21	686.20	620.95	2,400.91
% Credit	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00
Credit	126.69	1.27	0.00	2.28	56.16	10.48	123.52	111.77	432.16
<b>COMMERCIAL</b>									
Total Use	236.14	1,705.76	1,242.05	2,433.70	429.75	585.64	148.96	45.98	6,827.97
% Import	58.97	58.97	58.97	58.97	58.97	58.97	58.97	58.97	58.97
Import Use	139.25	1,005.88	732.43	1,435.15	253.42	345.35	87.84	27.11	4,026.44
% Credit	13.00	13.00	13.00	13.00	13.00	13.00	13.00	13.00	13.00
Credit	18.10	130.76	95.22	186.57	32.95	44.90	11.42	3.52	523.44
<b>DOMESTIC</b>									
Total Use	996.73	2,132.38	2,020.27	8,467.06	587.64	3,089.04	1,271.80	375.15	18,940.07
% Import	58.97	58.97	58.97	58.97	58.97	58.97	58.97	58.97	58.97
Import Use	587.77	1,257.46	1,191.35	4,993.01	346.53	1,821.60	749.98	221.22	11,168.93
% Credit	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
Credit	70.53	150.90	142.96	599.16	41.58	218.59	90.00	26.55	1,340.27
<b>TOTAL USE</b>	<b>2,426.43</b>	<b>3,850.14</b>	<b>3,262.32</b>	<b>10,922.23</b>	<b>1,546.44</b>	<b>3,773.40</b>	<b>2,584.39</b>	<b>1,474.12</b>	<b>29,839.46</b>
<b>TOTAL</b>									
Total Import Use	1,430.86	2,270.42	1,923.78	6,440.82	911.93	2,225.17	1,524.01	869.29	17,596.29
Total Credit	215.33 *	282.93	238.18	788.01	130.68	273.97	224.93	141.84	2,295.87
Total Credit Qyal		141.47	238.18		130.68				510.33
Total Credit Qtoal		141.47		788.01		273.97	224.93	141.84	1,570.22

\* This credit not applied to either Qyal or Qtoal

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TABLE 7.6

SANTA MARGARITA RIVER WATERSHED  
RANCHO CALIFORNIA WATER DISTRICT  
RETURN FLOW CREDIT  
2016-17  
SANTA ROSA DIVISION  
Quantities in Acre Feet

HYDROGEOLOGIC AREAS				
	1 MURRIETA WOLF 1/2 QYAL 1/2 QTOAL	2 SANTA GERTRUDIS 2/3 QYAL 1/3 QTOAL	8 NORTH MURRIETA 1/4 QYAL 3/4 QTOAL	TOTAL
<b>AGRICULTURAL</b>				
Total Use	0.00	0.00	30.61	30.61
% Import	67.46	67.46	67.46	
Import Use	0.00	0.00	20.65	20.65
% Credit	18.00	18.00	18.00	
Credit	0.00	0.00	3.72	3.72
<b>COMMERCIAL</b>				
Total Use	2.91	0.00	978.14	981.05
% Import	67.46	67.46	67.46	
Import Use	1.96	0.00	659.90	661.86
% Credit	13.00	13.00	13.00	
Credit	0.25	0.00	85.79	86.04
<b>DOMESTIC</b>				
Total Use	0.00	0.00	1,101.51	1,101.51
% Import	67.46	67.46	67.46	
Import Use	0.00	0.00	743.13	743.13
% Credit	12.00	12.00	12.00	
Credit	0.00	0.00	89.18	89.18
<b>TOTAL USE</b>	<b>2.91</b>	<b>0.00</b>	<b>2,110.26</b>	<b>2,113.17</b>
<b>TOTAL</b>				
Total Import Use	1.96	0.00	1,423.68	1,425.64
Total Credit	0.25	0.00	178.68	178.93
Total Credit Qyal	0.13	0.00	44.67	44.80
Total Credit Qtoal	0.13	0.00	134.01	134.14

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Rancho California WD imported an additional 13,620 acre feet of water for direct groundwater recharge in 2016-17. The total amount of imported recharge water that was recovered in 2016-17 was 10,128 acre feet. Thus, 3,492.5 acre feet of water for direct groundwater recharge remains in groundwater storage.

Division of Local Water

During 2016-17, Rancho California WD pumped 29,444 acre feet of groundwater, comprised of 19,316 acre feet of local water (older alluvium and Vail recovery) and 10,128 acre feet of recovered imported water. The groundwater is pumped from both the younger alluvium and the older alluvium. The Court determined that water in both the younger alluvium and older alluvium adds to, contributes to and supports the Santa Margarita River stream system. The primary reason for differentiating between younger alluvium and older alluvium production is that, in California, production from the younger alluvium is generally considered to be governed by water rights that apply to the regulation of surface waters. Production from the older alluvium is generally considered to be governed by regulations that apply to groundwater. Of the 19,316 acre feet of local water, 2 acre feet were delivered to the Pechanga Indian Reservation under the terms of the Wolf Valley Groundwater Management Agreement. This production is shown on Appendix Table A-5.

During joint development of a groundwater model of the area it was necessary to develop estimates of the transmissivity for each aquifer. These estimates were based on pumping tests. The resulting transmissivity values were then used to estimate the relative groundwater production from each aquifer. For Rancho California WD wells, the percent production estimated to originate in the younger alluvium is shown on Table 7.7.

Production from the younger alluvium and older alluvium for 2016-17, using the percentages noted on Table 7.7 is presented on Table 7.8. In 2016-17, 10,394 acre feet were pumped from the younger alluvium and 19,050 acre feet were pumped from the older alluvium. The production of 10,394 acre feet from the younger alluvium, as shown on Table 7.8 is the recovery of 10,128 acre feet of direct import recharge and the recovery of 266 acre feet of Vail Lake recharge.

Imported water carryover to 2016-17 includes the following:

	<u>AF</u>
1. Carryover from 2015-16	67,902
2. Direct recharge of imported water in 2016-17	13,620
3. Imported recharge water recovered in 2016-17	(10,128)
4. Import return flow credit for 2016-17	<u>555</u>
5. Total carryover to 2016-17	71,949

Thus, the Imported Water Carryover Account balance of 71,949 acre feet remains available to offset younger alluvium production in future years.

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**TABLE 7.7**

**SANTA MARGARITA RIVER WATERSHED  
PERCENT PRODUCTION FROM YOUNGER ALLUVIUM IN  
RANCHO CALIFORNIA WATER DISTRICT WELLS**

<b>RCWD WELL NO.</b>	<b>LOCATION TOWNSHIP/ RANGE/ SECTION</b>	<b>PERFORATED INTERVAL FEET</b>	<b>YOUNGER ALLUVIUM FEET</b>	<b>PERCENT YOUNGER ALLUVIUM %</b>	<b>TYPE/ STATUS</b>	<b>REMARKS</b>
106	7S/3W-26R1	130-210; 250-310; 340-440; 700-740; 780-980	0	0.0%		No. 108 Winchester, clay 0'-40'
107	7S/3W-26J1	60-120; 190-260; 280-300; 390-590	58	0.0%		No. 105 - gravel & clay 58'-84'
108	7S/3W-25E1	60-110; 190-280; 350-410; 430-450; 470-490; 530-590	55	0.0%		Formerly No. 109 gravel/sandy clay 55'-70'
109	8S/2W-17J1	70-150; 170-210	145 1/	84.0%		Brown clay and gravel 75' to 105'
110	8S/1W-6K1	75-155	165	97.0%		Clay 165'-190'. Prior to 10/23/97 perf int. 70-150; 200-240; 320-380; 420-460
113	7S/2W-25H1	96-136; 275-462; 482-542	Shallow	0.0%		
116	8S/1W-6J	60-120; 140-200; 220-260; 270-330; 370-390	150	94.0%		Clay 150'-170'
119	8S/2W-19J	170-260; 300-470		0.0%		Perforated below 170'
123	8S/1W-7B	100-260; 300-380; 420-500	125 1/	65.0%		Brown Sand Clay 135'-210'
129	7S/2W-20L	180-290; 416-480; 520-600	Shallow	0.0%		Qyal very shallow along Santa Gertrudis Creek
132	8S/1W-7D	70-390; 430-500	135	82.0%		Brown Clay Streaks 135'-175'
135	7S/3W-27M10	70-170	50	0.0%		Silty clay 50'-69'
141	8S/2W-11P	120-190; 215-235; 270-380; 430-510	104 1/	0.0%		Silt & sand 104'-185'; Well 11L1 is 112'
144	7S/3W-27D	983-1123; 1143-1283; 1343-1483; 1503-1743	25	0.0%		Sand with silty clay 25'-45'
146	7S/3W-28	50-190	42	0.0%		
150	7S/3W-27P	250-490; 510-950; 990-1070	125	0.0%		
152	8S/1W-5K	70-470; 490-540	130	90.8%		Forebay
153	8S/1W-5K3	50-220	170	99.0%		Forebay
154	8S/1W-5L2	50-220	100 1/	99.0% 2/		Forebay
157	8S/1W-5L	50-210	128	96.8%		Forebay
158	8S/1W-5K	50-210	128 1/	96.5%		Forebay
161	8S/1W-5	50-190	N/A	85.2% 3/		
164	8S/1W	70-165		77.0% 3/		
205	7S/3W-35A	150-1000	10	0.0%		Sandy clay 10'-20'
210	8S/2W-12K	48-228	140	94.0%		Clay cobblestones 160'-167', 175'-227'
218	8S/2W-20B5	48-289	40	0.0%		Old 28; clay with sand layer 40'-60'; now monitoring wells 427, 428 and 429
220	7S/3W-26Q1	114-450	58	0.0%		Clay 58' - 73'
223	8S/2W-20C1	48-250	163 1/	94.0%		CAT Well; east of Wildomar Fault; nearby Exh 16 wells 17Q @62' & 17M @55' are also east of Wildomar Fault
224	8S/2W-15D	48-250	166 1/	68.0%		Old Well 50, clay 106'-138'
230	8S/2W-11J1	24-31; 32.5-34; 35-40; 61-65; 70-76; 80-85; 86.5-91; 92.5-98.5	>119	100.0%		Old Well 30, depth of well is 119'
231	8S/2W-20B6	80-120; 150-270	140 1/	0.0%		Old 104, P-34, Clay 20'-23'; 35'-41'; East of Wildomar Fault
232	8S/2W-11J3	95-135; 175-215; 235-295	115 1/	92.0%		Old 111, 105, P-31; coarse sand & clay 135' - 155'
233	8S/2W-12K2	95-135; 175-215; 235-295	145	88.0%		Old 112, P32; sand and clay at 145'-220'
234	8S/2W-11P1	80-100; 120-140; 200-240; 280-320; 340-400	162 1/	74.0%		Brown Clay at 125'; sand and clay at 125'-140'
235	8S/3W-1Q1	Unknown	Shallow	0.0%		
236	8S/2W-12	80-220; 231-281		67.9% 3/		
240	8S/2W-11L1	48-298	112	86.0%		Old Well No. 40; clay 112'-136'
301	7S/3W-18Q1	140-280; 280-520; 540-640	26	0.0%		Old JR1; blue clay 26'-32'
466	8S/3W-1P2	106-822	49	0.0%		Old 219, Cantarini, hard clay 49'-60'
467	8S/2W-12K1	50-100; 100-140	140	100.0%		Old 221, JK, Exh. 16, Monitoring well since 1983

1/ In 2015, Watermaster, Rancho California WD and Camp Pendleton agreed to the revised depths of younger alluvium for indicated wells. See discussion in Appendix F.

2/ Percent younger alluvium for Well No. 154 provided by Rancho California WD.

3/ Estimated by Watermaster Office for Reporting

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TABLE 7.8

SANTA MARGARITA RIVER WATERSHED  
RANCHO CALIFORNIA WATER DISTRICT  
WELL PRODUCTION FROM YOUNGER AND OLDER ALLUVIUM  
2016-17  
Quantities in Acre Feet

WELL NO.		QYAL	QTOAL	TOTAL
101	2/	0.00	0.00	0.00
102	2/, 3/	0.00	21.44	21.44
106	2/	0.00	37.29	37.29
108	2/	0.00	494.80	494.80
109	4/	344.81	65.68	410.49
113		0.00	454.07	454.07
118	2/	0.00	0.00	0.00
119	1/	0.00	408.72	408.72
120		0.00	1,541.45	1,541.45
121		0.00	1.00	1.00
122	1/	0.00	357.78	357.78
123	4/	0.00	0.00	0.00
124		0.00	329.40	329.40
125		0.00	0.00	0.00
126		0.00	378.75	378.75
128		0.00	0.00	0.00
129		0.00	0.00	0.00
130		0.00	875.72	875.72
131		0.00	655.37	655.37
132	4/	370.26	81.28	451.54
133		0.00	440.21	440.21
135	3/	0.00	25.98	25.98
138		0.00	1,977.91	1,977.91
139		0.00	697.15	697.15
140		0.00	990.74	990.74
141		0.00	461.48	461.48
143		0.00	235.00	235.00
144		0.00	421.42	421.42
145		0.00	58.34	58.34
146	3/	0.00	1.68	1.68
149		0.00	87.57	87.57
151		0.00	478.26	478.26
152	4/	2,458.24	249.07	2,707.31
153	4/	1,465.32	14.80	1,480.12
154		657.91	6.65	664.56
155	3/	0.00	4.67	4.67
156		0.00	842.32	842.32
157	4/	1,379.42	45.60	1,425.02
158	4/	647.35	23.48	670.83
161		969.29	168.38	1,137.67
164	5/	665.06	198.66	863.72
201		0.00	0.00	0.00
203		0.00	552.87	552.87
205		0.00	958.20	958.20
207		0.00	0.00	0.00
208		0.00	0.00	0.00
209		0.00	0.00	0.00
211	1/	0.00	397.19	397.19
215		0.00	0.00	0.00
216		0.00	0.00	0.00
217		0.00	719.05	719.05
231		0.00	52.00	52.00
232	4/	740.19	64.36	804.55
233	4/	523.06	71.33	594.39
234	4/	47.63	16.74	64.37
235		0.00	1,182.14	1,182.14
236	6/	125.42	59.29	184.71
301		0.00	0.00	0.00
302		0.00	0.00	0.00
309		0.00	1,844.66	1,844.66
		<b>10,393.98</b>	<b>19,049.93</b>	<b>29,443.91</b>

1/ A portion of 1,164 acre feet from Well Nos. 119, 122 and 211 was delivered to Pechanga Indian Reservation for their use.

2/ Includes 74 acre feet of releases to streams from Well Nos. 102, 106, 108 and 109.

3/ Includes 54 acre feet pumped directly to the recycled water system from Well Nos. 102, 121, 135, 146 and 155.

4/ Permitted point of re-diversion pursuant to Permit 7032.

5/ Replaced Well No. 110

6/ Replaced Well No. 210

### 7.2.9 Western Municipal Water District

Western Municipal Water District operations within the Santa Margarita River Watershed are comprised of three categories. First, Western MWD wholesales imported water to Rancho California WD. Deliveries to Rancho California WD are included under Rancho California WD. Second, Western MWD serves water to its Murrieta Division in the vicinity of the City of Murrieta. Third, Western MWD serves imported water to its Improvement District A near the southern boundary of Riverside County, along the I-15 freeway. Improvement District A is operated by Rancho California WD under an operations and maintenance contract on behalf of Western MWD.

#### Murrieta Division

In November 2005, Western MWD merged with the Murrieta County Water District assuming their operations in an area in the vicinity of the City of Murrieta. Prior Watermaster Reports present information under Murrieta County Water District.

All of the Murrieta Division of Western MWD wells are located in the Murrieta-Temecula Groundwater Area. Interlocutory Judgment No. 30 indicates the younger alluvium deposits in Murrieta Valley extend in various depths to a maximum of approximately 30 feet from the ground surface.

The Court noted that it was impossible, based on evidence available in 1962, to determine with exactness the depth of the younger alluvial deposits throughout the Valley. However, the Court did retain continuing jurisdiction so that subsequent findings could be made, if needed. Older alluvial deposits are found below the younger alluvium.

Six of the seven Murrieta Division wells are perforated at depths of 106 feet or more. The Holiday Well has perforations beginning at a depth of 60 feet, which is well below the maximum depth of younger alluvium found by the Court in 1962. In addition, there has been no production from the Holiday Well since March 2006. Accordingly, all of Murrieta Division well production is from the older alluvium under a groundwater appropriative right.

In Water Year 2016-17, the Murrieta Division of Western MWD produced 2 acre feet of water from the North Well and 360 acre feet from the New Clay Well for a total well production of approximately 362 acre feet. Western is rehabilitating its existing wells and will develop additional groundwater production wells within its Murrieta Division to restore groundwater production capacity to the quantity produced in Water Year 2006. Western MWD imported 1,711 acre feet in 2016-17 as shown on Appendix Table A-10.



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The following table itemizes the production from the Murrieta Division wells:

Well Designation <u>7S/3W</u>	Well Name <u>Name</u>	2016-17 Production <u>Acre Feet</u>	End of Water Year Depth to		Well Depth <u>Feet</u>	Perforated Interval <u>Feet</u>
			<u>Groundwater in Feet</u> <u>2016</u>	<u>2017</u>		
20	New Clay	360	267***	317***	940	300 – 350 370 – 470 680 – 790 830 – 900
20C9	Holiday	0	75	72	307	60 – 307
20G5	House	0	160**	*	252	120 – 252
17R2	Lynch	0	30	31	212	172 – 212
18J2	North	2	264***	236	650	240 – 460 500 – 640
20D	South	0	174	170	446	120 – 446
7M	Alson	0	*	*	416	106 – 416
TOTAL		362				

\* Not reported.

\*\* June 2016 measurement

\*\*\* Pumping level.

Western MWD's Murrieta Division production for the period 1966 through 2017 is shown on Appendix Table B-11.

Improvement District A

In Water Year 2016-17, imports to Improvement District A amounted to approximately 30 acre feet as shown on Appendix Table A-11. Deliveries to Improvement District A through turnout WR-13 for the period 1966 through 2017 are shown on Appendix Table B-12.

7.2.10 U. S. Marine Corps - Camp Pendleton

Camp Pendleton is located on the coastal side of the Santa Margarita River Watershed. Water was provided by nine wells that produced 4,874 acre feet in Water Year 2016-17. This production is from the younger alluvium and is based on riparian, appropriative, and Pre-1914 rights. In 2016-17, there was no agricultural use and 4,874 acre feet were used for Camp Supply. Camp Supply includes domestic and commercial uses as well as irrigation for landscaping and park areas. Camp Pendleton water use is located both inside and outside the Watershed, and is equal to total production less brine discharged to the Oceanside Outfall. A total of 2,219 acre feet were used inside the Watershed and 2,502 acre feet were exported to areas of the Base outside the Watershed. The production and use of water for Camp Pendleton are shown on Appendix Table A-8.

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Beginning in December 2008, all southern wastewater for Camp Pendleton is treated at the Southern Region Tertiary Treatment Plant replacing the regional treatment Plant Nos. 1, 2, 3, and 13 (wastewater for the northern portion of the Base passes through the Northern Regional Treatment Plant. Wastewater from the central portion (Las Flores) passes through Sewage Treatment Plant 9 and then is injected along the coast). On March 11, 2009, the Regional Water Quality Control Board issued Order No. R9-2009-0021 for a Master Reclamation Permit for the Camp Pendleton Southern Region Tertiary Treatment Plant. Wastewater effluent is discharged to either: (1) approved areas for use of recycled water for irrigation purposes; or (2) the Oceanside Outfall under NPDES Permit No. CA0109347, Order No. R9-2003-0155, and Order No. R9-2008-0096. The approved areas for use of recycled water are located both within and outside the Watershed. In Water Year 2016-17, the total amount of recycled water for Camp Pendleton was 2,291 acre feet as shown on Appendix Table A-8. Of the total amount of recycled water, 29 acre feet were used inside the Watershed; 347 acre feet were used outside the Watershed; and 1,915 acre feet were exported to the Oceanside Outfall. An additional 153 acre feet of brine byproduct from the Southern Advanced Water Treatment Plant were exported to the Oceanside Outfall. The total amount exported to the Oceanside Outfall in 2016-17 was 2,068 acre feet.

Production and estimated use inside and outside the Watershed, as well as wastewater reclamation and use, are shown in Appendix Table B-9 for the period 1966 through 2017. It is noted, the format and reporting shown on Appendix Table B-9 were changed for the Annual Watermaster Report for Water Year 2008-09. Prior reports show for the period 1966 through 2003, reclaimed use inside the Watershed reported as recharged wastewater from ponds and recharge areas. In addition, the prior reports distinguished the source of the recharged wastewater between wastewater treated within or outside the Watershed at the various regional treatment plants. The format and reporting for Water Year 2016-17, on Appendix Tables A-8 and B-9, reflect current and anticipated operations for the foreseeable future. Accordingly, the prior format is obsolete and the reader is directed to prior reports from 2008, and earlier, for additional information regarding historical wastewater operations.

#### 7.2.11 U. S. Naval Weapons Station, Fallbrook Annex

The U. S. Naval Weapons Station (NWS) occupies about 9,148 acres northeast of Camp Pendleton. Since 1969, the NWS has relied on imported water delivered via Fallbrook PUD for its supply. Wastewater is exported from the NWS, Fallbrook Public Utility District and the Watershed via an outfall line maintained by Fallbrook PUD with an easement across Camp Pendleton. In 2016-17, 67 acre feet were imported of which one (1) acre feet of wastewater were exported, as shown on Appendix Table A-9. Imports and use for the period 1966 through 2017 are shown on Appendix Table B-10.

#### 7.3 Indian Reservations

Water is used on the Indian Reservations in the Watershed in accordance with federal reserved rights described in Section 6. Water use information for the Cahuilla, Pechanga and Ramona Indian Reservations in the Watershed is described in the following sections:

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7.3.1 Cahuilla Indian Reservation

In general, domestic water use on the Cahuilla Indian Reservation is not measured; however reports for 2016-17 indicate that 357 people reside on the Reservation. These residents use water primarily for domestic purposes. Annual domestic water use, based on 157 gallons per capita per day, amounts to a total annual use of about 63 acre feet from wells listed in Appendix C. In addition, reports indicate Reservation non-irrigated lands are used for the grazing of 500 cattle. Based on a daily requirement of 32 gallons per head per day, the annual use is estimated to be about 18 acre feet. An additional 26 acre feet pumped from well 7S/2E-26B3 were put to commercial use for dust control, watering of turf grass, and at a casino.

7.3.2 Pechanga Indian Reservation

On December 21, 2006, the Pechanga Band of Luiseño Mission Indians and Rancho California WD entered into a Groundwater Management Agreement for the Wolf Valley Groundwater Basin. The Pechanga Band and Rancho California WD agreed to jointly manage groundwater pumping from the basin and to manage the basin to protect groundwater resources. Among other things, the agreement provides for Rancho California WD to deliver pumped groundwater from its wells to Pechanga.

During 2016-17, Pechanga received 2 acre feet of delivered groundwater from Rancho California WD. In addition, the Pechanga Water System produced 695 acre feet from wells, and received 353 acre feet of recycled water from Eastern MWD, resulting in a total production for Pechanga of 1,050 acre feet. The monthly production and uses for the Pechanga Indian Reservation are shown on Appendix Table A-5. Information about Pechanga Water System wells is shown below:

Well Designation	Well Name	End of Water Year		Well Depth Feet	Perforated Interval Feet
		Depth to Groundwater in Feet 2016	Depth to Groundwater in Feet 2017		
29A2	Kelsey	150	165	425	105 - 415
29B10	Eduardo	166	182	697	437 - 687
29B11	Eagle III	179	191	645	275 - 635
29J3	South Boundary	163	178	350	150 - 340
28M5	Cell Tower	N/A	81	518	372 - 432 468 - 508
28R1	Ballpark Well	91	86	1,000	126 - 996
19Q1	Zone V Rock 1	48	42	451	210 - 430

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The total groundwater pumping for the Pechanga Water System wells decreased from 755 acre feet in Water Year 2015-16, to 695 acre feet in Water Year 2016-17. The total pumping in Wolf Valley by Rancho California WD Wells 119, 122 and 211, for both the District's use and for delivery to Pechanga, increased from 1,139 acre feet in 2015-16 to 1,164 acre feet in 2016-17. Therefore, the total pumping in Wolf Valley for 2016-17 decreased by 35 acre feet.

The wells listed above are in areas of younger alluvium at ground surface. The depth of the younger alluvium in Wolf Valley was estimated by representatives of Rancho California WD and the United States, for Rancho California WD Well No. 495 (8S/2W-20E) and Well No. 119 (8S/2W-19J), to be in the range of 120 to 170 feet in depth. Thus, based on available well construction data, production is from both the younger alluvium and the older alluvium. Under state law, production from the wells that originate in the older alluvium can be considered to be under a groundwater appropriative right or an overlying right, depending on the circumstances at each well.

Production and uses for the Pechanga Indian Reservation for Water Years 1991 through 2017 are shown on Appendix Table B-6.

### 7.3.3 Ramona Indian Reservation

The Ramona Indian Reservation occupies 560 acres of land of which 321 acres are inside the Watershed. The water supply is provided for domestic use by two individual wells. Total production for 2016-17 is reported as 1.49 acre feet.

## 7.4 Small Water Systems

There are a number of small water systems in the Watershed. These range from relatively permanent structures, to those catering to recreational vehicles and campgrounds. Water production from wells is shown on Appendix Table A-11 for Quiet Oaks Mobile Home Park, Hawthorn Water System, Rancho California Outdoor Resorts, Jojoba Hills SKP Resort, Cottonwood Elementary, and Hamilton Schools. Data for previous Water Years are shown on Appendix Table B-12.

## 7.5 Irrigation Water Use

Estimated water production reported by substantial users for irrigation in the Santa Margarita River Watershed is shown on Table 7.1 to be 5,902 acre feet. This quantity includes 5,284 acre feet of well production and approximately 618 acre feet of surface diversion as shown in Appendix C.

## **SECTION 8 - UNAUTHORIZED WATER USE**

### **8.1 General**

From time to time, there are complaints of unauthorized water uses of various types in the Watershed. Such complaints are investigated in accordance with the powers and duties of the Watermaster. The status of the current list of unauthorized uses is described as follows:

### **8.2 Unauthorized Small Storage Ponds**

Many small dams and reservoirs have been constructed on streams in the Watershed. The legal basis for these ponds is described in the 1988-89 Watermaster Report. Basically, the Court has held that storage of water in ponds less than 10 acre feet in capacity and used for stock watering is a valid use of riparian water. The Court has also held that:

The temporary or non-seasonal impoundment by riparian owners for the purpose of providing a head for irrigation or for the purpose of temporarily accumulating sufficient water to make possible efficient irrigation is a proper riparian use of water.

Criteria for determining non-seasonal storage of irrigation water have yet to be developed.

### **8.3 Rancho California Water District Water Use**

A number of unauthorized water use issues raised by the United States are settled so long as the CWRMA between the United States on behalf of Camp Pendleton and Rancho California Water District is in effect. As further explained in Section 11, many of these issues are described in Appendix F.

### **8.4 Exportation of Treated Wastewater Derived from Native Waters**

Camp Pendleton continues to assert that the exportation of treated wastewater, the source of which is the native waters of the Santa Margarita River System, without a legal basis for such exportation is an unauthorized water use. On May 17, 2011, the United States Court of Appeals for the Ninth Circuit issued an Order granting the parties' joint motion to dismiss the appeals in *United States of America and Fallbrook Public Utility District v. Eastern Municipal Water District and Rancho California Water District* (CV 04-8182 CBM (RNBx), United States District Court, Central District of California) and thus the August 4, 2009 Judgment in this case stands.

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## **SECTION 9 - THREATS TO WATER SUPPLY**

### **9.1 General**

General threats to the long-term water supply in the Santa Margarita River Watershed, which have been described in previous Watermaster reports, are as follows:

1. High nitrate concentrations in Rainbow Creek, Anza Valley and the Murrieta-Temecula areas.
2. Potential overdraft conditions at various locations in the Watershed.
3. Potentially adverse salt balance conditions in the upper Santa Margarita River area.
4. High concentrations of arsenic, fluoride, and manganese in the Murrieta-Temecula area.
5. Quagga mussel infestation in imported supplies from the Colorado River system.

### **9.2 High Nitrate Concentrations**

In past years, high concentrations of nitrate have been measured in Anza Valley and in Rainbow Creek. Conditions in Anza Valley were generally described in the 1993-94 report. Additional water quality data for Anza Valley have been collected periodically by the Riverside County Department of Health Services and the USGS. 5 commercial wells located in the Anza Valley groundwater basin area exceeded the Maximum Contaminant Level (MCL) for Nitrate (45 mg/L as NO<sub>3</sub> and 10 mg/L as N) during 2016-17. Historic nitrate concentrations for these wells, in addition to other wells located in the Anza Valley groundwater basin area as reported by Riverside County Department of Environmental Health, are listed in Appendix D-13.

As described in prior Watermaster reports, in 1999 the Regional Water Quality Control Board, San Diego Region (Regional Board) began preparation of a plan for Total Maximum Daily Loads (TMDLs) for Total Nitrogen and Total Phosphorus on Rainbow Creek. On February 9, 2005, the Regional Board adopted Resolution No. R9-2005-0036, an amendment to the Basin Plan to include the Total Nitrogen and Total Phosphorus TMDLs and implementation plan. The State Water Resources Control Board, on November 16, 2005, and the Office of Administrative Law, on February 1, 2006, subsequently approved the Basin Plan amendment. The U.S. Environmental Protection Agency granted final approval of the TMDLs on March 22, 2006.

The full plan and implementation programs are presented on the Regional Board's website:

[http://www.waterboards.ca.gov/sandiego/water\\_issues/programs/tmdls/rainbowcreek.shtml](http://www.waterboards.ca.gov/sandiego/water_issues/programs/tmdls/rainbowcreek.shtml).

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Recent data show high concentrations of nitrate pose a risk to water supplies from the Murrieta-Temecula Groundwater Area. In January 2006, Western MWD ceased production from the Holiday Well because nitrate concentrations exceeded the MCL of 45 mg/l. The depth to the top of the perforated interval for the Holiday Well is only 60 feet and the high nitrate concentrations appear to be a result of nearby septic systems and agricultural practices. Concentrations of nitrate for some of the other Western MWD and Rancho California WD wells in the Murrieta-Temecula Groundwater Area have been detected in the range of 20 to 26 mg/l, which is below the MCL. The other Western MWD and Rancho California WD wells have deeper perforated intervals than the Holiday Well.

### 9.3 Potential Overdraft Conditions

Previous Watermaster reports have noted concerns about overdraft conditions in Anza Valley and in the Murrieta-Temecula Groundwater Area. Previous studies for Anza Valley include 1976 and 1988 reports by the U. S. Geological Survey and a 1990 report by a consultant to Riverside County. No further studies relative to groundwater use in Anza Valley are currently available. Historical measurements of groundwater levels for Anza Mutual Water Company's Well No. 1 (7S/3E-21G1) located in Anza Valley are plotted in this report on Figure 4.4. Water levels in Anza Mutual Water Company Well No. 1 declined by 30 feet between September 30, 2016 and September 30, 2017. Groundwater levels for the USGS/Cahuilla Climate Response Network Well No. 7S/3E-34E1S located on/near the Cahuilla Indian Reservation decreased by 3.7 feet between October 29, 2015 and September 20, 2017, as shown on Figure 4.7.

No recent published studies of safe yield are available for the Murrieta-Temecula Groundwater Area. Groundwater resources in the area are managed by Rancho California WD, Western MWD, and the Pechanga Band. Annual groundwater production programs are prepared with the goal of maximizing production within the apparent safe yield of the basin. Each year, groundwater levels and well production combined with other information including water quality, natural and artificial recharge, pump settings, and well construction factors, are used to develop the recommended production programs for several hydrogeologic sub-areas. Production rates are commonly lowered in sub-areas where water levels have declined over several years, and production rates are increased in sub-areas where decline has not occurred. As a final check, the recommended production rates are checked using the groundwater model for the Murrieta-Temecula Groundwater Area.

In addition, Rancho California WD in cooperation with Camp Pendleton is in the process of developing a multi-level groundwater monitoring network, pursuant to the CWRMA. The purpose of the network is to collect data for use in assessing safe yield operations. In September 2006, the USGS began drilling and constructing the Pala Park Groundwater Monitoring Well as part of this network. The monitoring well was completed with six piezometers and continuous water level recording devices. In 2009, the groundwater monitoring network was expanded to include the Wolf Valley Monitoring Well previously constructed by the USGS under a cooperative program with the Pechanga Band. In 2013, two additional groundwater monitoring wells were constructed by the USGS under contract with Rancho California WD. The two additional wells are the Temecula Creek Groundwater Monitoring Well and the VDC Recharge Basin Groundwater Monitoring Well.



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Groundwater levels and water quality data for the four monitoring wells are reported in the annual CWRMA report.

Groundwater level data for three additional wells in the Murrieta-Temecula Groundwater Area are included in this report as Figures 4.1, 4.3 and 4.5. Water levels in the Windmill Well (8S/2W-12H1) located at the eastern part of Pauba Valley increased by 3.4 feet in 2016-17. Water levels in Well 7S/3W-20C9 in the Murrieta Division of Western MWD area increased by 3 feet in 2016-17.

Well 8S/2W-29G1 on the Pechanga Indian Reservation in Wolf Valley became dry at the end of 2003-04. The declining water levels in Well 8S/2W-29G1 appear to be attributed to recent relatively dry hydrologic conditions and pumping of the nearby New Kelsey Well. To allow continued monitoring of water levels on the Reservation, Well No. 29G1 has been replaced with Well No. 8S/2W-29B9 which showed water levels increased by 0.42 feet in 2016-17.

#### 9.4 Salt Balance

A key issue in management of a groundwater basin is potential build-up of salts from imported water supplies and use of recycled water. Such a build-up could decrease the usability of waters in a basin. Consideration must be given to measures that allow desalination of water supplies and export of salts from a basin to offset the salt load in water entering the groundwater basin.

The Total Dissolved Solids (TDS) concentration for imported supplies into the Watershed is shown on Table 5.3. During 2016-17, the reported TDS concentrations ranged from 259 to 644 mg/L as compared to concentrations for 2015-16 ranging from 580 to 668 mg/L. The apparent decreased levels for TDS in 2016-17 could be attributed to the greater percentage of imported supplies derived from the State Water Project compared to supplies from the Colorado River.

The salt balance for the Murrieta-Temecula Groundwater Area is increasingly of interest due to increased imported supplies to meet existing and future demands, and also increased use of reclaimed wastewater for irrigation. The potential salt loading can be illustrated by estimating the total salts imported into the basin by the major purveyors overlying the groundwater area. The net imported supplies for the major purveyors are provided on Table 5.2 and the individual production and use tables are included in Appendix A. Assuming the groundwater area is subject to salt loading from net imports for Eastern MWD, Elsinore Valley MWD, Western MWD (Murrieta Division), and Rancho California WD (Rancho Division); the total net imports for Water Year 2016-17 were 47,267 acre feet. It is noted, imports for a portion of the Rancho California WD, Santa Rosa Division, potentially contribute to salt loading for the groundwater area but such contribution is ignored for this illustration. Applying monthly TDS concentrations from Table 5.3 to monthly net imports for these major purveyors results in an estimated total annual salt import for Water Year 2016-17 of 26,173 tons compared to the estimated salt import of 35,900 tons for 2015-16 and 34,900 tons for 2014-15.

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The salt balance for the Murrieta-Temecula Groundwater Area is affected by the export of wastewater from the Watershed. In 2016-17, Elsinore Valley MWD exported 1,468 acre feet of wastewater for treatment outside the Watershed. During 2016-17, Eastern MWD exported 7,139 acre feet of treated wastewater for reuse outside the Watershed. Additional treated wastewater may have been exported from the Watershed through recirculation in the system, but such additional amounts have not been determined. At an average TDS concentration of 650 mg/l, there are approximately 1,768 pounds of salt in every acre foot of wastewater. Thus in 2016-17, approximately 7,609 tons of salt were exported by Elsinore Valley MWD and Eastern MWD through the export of 8,607 acre feet of wastewater. For comparison in 2015-16, approximately 7,400 tons of salt were exported with the export of 8,383 acre feet of wastewater.

The use of recycled water for irrigation is also a consideration in evaluating the salt balance for the Murrieta-Temecula Groundwater Area. The reuse within the groundwater area does not import additional salts into the Watershed; rather the source of water supply further concentrates the salts in contrast to relatively lower TDS levels for other sources of water supplies. The total use of recycled water by Eastern MWD, Elsinore Valley MWD, Rancho California WD, and the Pechanga Band within the Santa Margarita River Watershed for 2016-17 was 5,504 acre feet compared to 6,340 acre feet in 2015-16, and compared to 690 acre feet in 1986-87. Assuming an average TDS concentration of wastewater of 650 mg/l, the salt loading for 5,504 acre feet of recycled water is approximately 4,866 tons. It is expected that the use of recycled water within the Watershed will increase in the future.

The salt balances of the Murrieta-Temecula Groundwater Area, the Santa Margarita River, and the groundwater basins on Camp Pendleton are affected by operational and maintenance discharges by Rancho California WD from wells into Murrieta Creek, Temecula Creek and Santa Gertrudis Creek. In 2016-17, wells discharged approximately 130 acre feet, as shown below, together with the TDS for the most recent sample for each well. Additional water quality data for the wells are provided in Appendix D.

Well No.	Release Acre Feet	TDS mg/l	Most Recent Sample Date
102	1	700	6/20/95
106	4	430	4/03/17
108	73	400	8/09/17
109	52	710	7/05/17
Total	130		

The salt balances for the Santa Margarita River, and the groundwater basins on Camp Pendleton, are also influenced by discharges by Rancho California WD of imported supplies into Santa Margarita River as part of make-up flows under the CWRMA. During 2016-17, the discharge of imported supplies to the Santa Margarita River as make-up flows from outlet WR-34 was 4,523 acre feet. During Water Year 2016-17, one (1) acre feet were discharged from the potable connection to the Santa Margarita River. Discharges from the potable connection are comprised of a blend of groundwater and imported supplies.

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In March 2014, Rancho California WD completed the Temecula Valley Basin Salt and Nutrient Management Plan. The plan was prepared pursuant to the State Water Resources Control Board Recycled Water Policy adopted by Resolution No. 2009-0011 on February 3, 2009, as amended by Resolution No. 2013-0003 on January 22, 2013. In November 2012, Camp Pendleton completed the Salt and Nutrient Management Plan, Southern MCB Camp Pendleton, also prepared pursuant to the State Water Resources Control Board Recycled Water Policy cited above.

#### 9.5 High Arsenic Concentrations

The maximum contaminant level (MCL) for arsenic is 10 ug/l. High concentrations of arsenic have been detected in groundwater wells for both the Murrieta Division of Western MWD and Rancho California WD, posing a risk to water supplies in the Murrieta-Temecula Groundwater Area. In November 2007, Western MWD ceased pumping from the New Clay Well due to arsenic levels exceeding the MCL. Pumping from the New Clay Well resumed in September 2012, under an approved monitoring plan after Western MWD completed well renovation measures. Pumping from the New Clay Well was again ceased in April 2013 due to arsenic levels exceeding the MCL. In April 2014, pumping from the New Clay Well was again resumed.

The elevated arsenic levels have significantly impacted groundwater pumping and distribution system operations for Rancho California WD. Two wells have been taken out of production due to arsenic levels exceeding the MCL. In 2016-17, two other wells (Wells 126 and 151) showed levels exceeding the MCL with the wells still in operation. These two wells are operating under approved blending plans. Two additional wells (Wells 106 and 124) showed levels approaching the MCL and may be included in a blending plan in the future. It should be noted, Well No. 106 was operated for part of the year under a revised blending plan.

#### 9.6 High Fluoride Concentrations

The MCL for fluoride is 2 mg/l, and samples exhibiting high concentrations of arsenic often show high concentrations of fluoride in the Murrieta-Temecula Groundwater Area. High levels of fluoride are impacting operations for Rancho California WD. In 2016-17, two wells (Wells 126 and 151) showed fluoride levels exceeding the MCL with the wells in operation under approved blending plans.

#### 9.7 High Manganese Concentrations

The MCL for manganese is 50 ug/l, and high concentrations of manganese have been detected in wells for both the Murrieta Division of Western MWD and Rancho California WD. In 2016-17, the two Rancho California WD wells that were previously in operation under approved manganese sequestering plans (Wells 101 and 118) did not produce, and therefore, did not operate under sequestering plans. In 2016-17, nine out of ten active groundwater supply wells for Camp Pendleton showed manganese levels exceeding the MCL with groundwater treated under approved treatment plans.

## 9.8 Quagga Mussel

In early January 2007, the invasive, non-native Quagga mussel was discovered in Lake Mead. Subsequently, upon thorough inspection, MWD discovered the mussel throughout the Colorado River Aqueduct system including in August 2007, finding the mussels in Lake Skinner. To date, no mussels have been found in Diamond Valley Lake.

The Quagga mussel is indigenous to the Ukraine and was discovered in the United States in September 1989 with the first sighting in the Great Lakes. The Quagga mussel is a small freshwater mollusk ranging in size from microscopic in the embryonic state to about two inches in length at the adult stage. The mussels can be transported during the larval stage with currents or running water, and at the adult stage by attaching to hard surfaces, such as boats.

The Quagga mussel is a filter feeder removing food and nutrients from the water column, decreasing the food source for zooplankton and therefore, altering the food web. The filtration of the water also alters water clarity impacting aquatic plants and water chemistry. The economic impact is also significant because these species can rapidly colonize on hard surfaces, clogging water intake structures, pipes, and screens and reducing pumping and distribution capacities. Costs are also associated with maintenance of facilities and control of the species.

Since the discovery of Quagga mussels in the Colorado River Aqueduct and Lake Skinner, MWD has implemented various control activities. In July 2007, the aqueduct was shut down for ten days for inspection, chlorination, and removal of adult populations. Also in July 2007, MWD initiated continuous chlorination in the Colorado River Aqueduct to control the spread of Quagga mussels. Additionally, as part of ongoing maintenance activities for the Colorado River Aqueduct, MWD subsequently shut down the aqueduct in October 2007, January and March 2008, October 2009, and April and May 2010, for approximately three weeks each shutdown, resulting in desiccation of Quagga mussels present at those times. Subsequently, MWD routinely shuts down the aqueduct, once or twice annually, for ongoing maintenance activities and for Quagga mussel desiccation. Releases from Lake Skinner are chlorinated at the outlet tower prior to distribution through the raw water delivery system.

Effective October 10, 2007, Assembly Bill 1683 added Section 2301(a)(1) to the California Fish and Game Code prohibiting the release of Quagga mussels into the waters of the State. Assembly Bill 1683 also requires development of a Quagga mussel control plan. On December 8, 2007, MWD temporarily suspended required releases of water to Tualota Creek from Lake Skinner and Warm Springs Creek from the San Diego Canal near Diamond Valley Lake. These required releases would have been made in accordance with Memoranda of Agreement for releasing native inflows from the reservoirs. On March 6, 2008, MWD provided notice to the parties in *United States of America v. Fallbrook Public Utility District, et al.*, regarding the temporary suspension of required releases of native water inflows from Lake Skinner and Diamond Valley Lake.

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On June 23, 2008, MWD provided notice to the parties in *United States of America v. Fallbrook Public Utility District, et al.*, regarding the resumption of required releases of native water inflows from Lake Skinner and Diamond Valley Lake, according to MWD's Action Plan submitted to California Department of Fish and Wildlife on May 30, 2008. On April 5, 2010, the California Department of Fish and Wildlife approved the Quagga Mussel Control Plan for Lake Skinner and MWD is operating under the approved raw water discharge plan outlined in the Quagga Mussel Control Program for releases to Tualota Creek. To meet release requirements at Diamond Valley Lake, MWD is operating under the May 30, 2008 Action Plan and June 23, 2008 Notice describing provisions for releases to Warm Springs Creek from the State Water Project Eastside Pipeline.

Infestation by the Quagga mussel has also altered Rancho California WD operations in accordance with the CWRMA. Beginning on April 10, 2008, Rancho California WD periodically ceased making releases of raw water from Outlet WR-34 on the MWD Pipeline No. 5 to meet make-up flow requirements for the Santa Margarita River. Alternatively, Rancho California WD releases make-up flows from its treated water distribution system at the System River Meter located just upstream of the Murrieta Creek at Temecula gaging station, or from the potable connection to the WR-34 discharge location. The treated water is de-chlorinated prior to release into Murrieta Creek.

In response to the threat of infestation of Quagga mussel, Rancho California WD has developed three separate control plans that constitute an overall action plan. These plans were updated in 2012 and are comprised of the following: (1) Dreissena Mussel Response and Control Action Plan, (2) Vail Lake Rapid Response Plan, and (3) Vail Lake Conveyance System Dreissena Mussel Control Plan, collectively referred to as the Plans. On September 14, 2012, the California Department of Fish and Wildlife approved the amended Plans that include the following key components:

- Substrate monitoring utilizing coupon sampling equipment at Vail Lake and the Santa Margarita River at a sampling location approximately 100 feet downstream of the Outlet WR-34 for releases of make-up water in accordance with CWRMA.
- Raw MWD water is released into the Santa Margarita River only when chlorination is being performed at Lake Skinner.
- All watercraft vessels, trailers, and equipment are being inspected before launching in Vail Lake.
- Installation of chlorination, filtration, and turbulence devices within the Vail Lake Pipeline to result in 100% mortality of mussels passing through the system for delivery of imported supplies to Vail Lake.

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## **SECTION 10 - WATER QUALITY**

### **10.1 Surface Water Quality**

The USGS collected continuous water quality measurements for dissolved oxygen, pH, specific conductance, and temperature at the Santa Margarita River near Temecula gaging station during 2016-17. Data collected at the station are published by the USGS. The highest average daily high and the lowest average daily low for each parameter for each month are shown on Table 10.1 for Water Year 2016-17.

Surface water quality data collected by the USGS in 2004-05 for Cahuilla Creek are shown on Appendix Table D-12. No surface water quality data for Cahuilla Creek were collected in 2016-17.

Surface water quality data collected in prior years by Camp Pendleton, Eastern MWD, and Rancho California WD are listed in earlier Watermaster reports.

### **10.2 Groundwater Quality**

During 2016-17, water quality data was collected from wells at Western MWD – Murrieta Division, Rancho California WD, Pechanga Indian Reservation, Camp Pendleton, and the Anza Valley groundwater basin area.

Western MWD – Murrieta Division sampled one well in 2016-17 as shown in Appendix Table D-3. The New Clay Well was subjected to eight standard chemical analysis as well as five abbreviated analysis. Concentrations of nitrates were below the Maximum Contaminant Level (MCL) of 45 mg/l, or 10 mg/l as nitrogen (as N), with results reported to be below the laboratory detection limit.

Water quality data for Rancho California WD wells are shown on Appendix Table D-4. Samples were collected from 40 wells during 2016-17. Nitrate concentrations ranged up to 6.5 mg/l as nitrogen (as N), with the MCL being 10 mg/l (as N). Samples from three wells (Wells 109, 158, and 233) showed TDS concentrations exceeding 750 mg/l, the Basin Plan objective. Well 122, which showed TDS concentrations exceeding 750 mg/l in prior years, showed reduced TDS concentrations for 2016-17, ranging from 690 to 700 mg/l.

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TABLE 10.1

SANTA MARGARITA RIVER WATERSHED  
RANGES IN AVERAGE DAILY CONCENTRATION OF  
DISSOLVED OXYGEN, PH, SPECIFIC CONDUCTANCE AND TEMPERATURE  
AT SANTA MARGARITA RIVER NEAR TEMECULA

Water Year 2016-17

COLLECTION MONTH/YEAR	DISSOLVED OXYGEN mg/l		pH		SPECIFIC CONDUCTANCE microsiemens/cm		TEMPERATURE Degrees Celsius	
	High	Low	High	Low	High	Low	High	Low
2016								
October	8.2	7.5	8.3	7.7	1,050	957	24.5	21.6
November	9.2	7.7	8.3	7.0	1,290	441	22.1	10.6
December	10.5	6.6	8.0	7.2	1,550	166	16.5	8.0
2017								
January	11.3	8.3	8.7	7.3	1,520	137	14.2	7.4
February	11.1	8.3	8.2	7.0	1,860	152	17.4	10.4
March	12.6	9.2	8.0	7.2	1,740	569	19.6	10.3
April	10.0	8.6	8.0	7.7	775	432	19.3	15.4
May	10.0	8.1	8.2	7.4	1,280	350	21.6	13.7
June	9.2	7.8	8.2	7.5	812	411	23.5	17.9
July	8.5	7.5	8.0	7.6	644	434	25.3	20.5
August	8.7	6.1	7.9	7.4	1,240	515	26.6	22.1
September	8.5	7.3	7.9	7.6	637	522	25.3	21.8

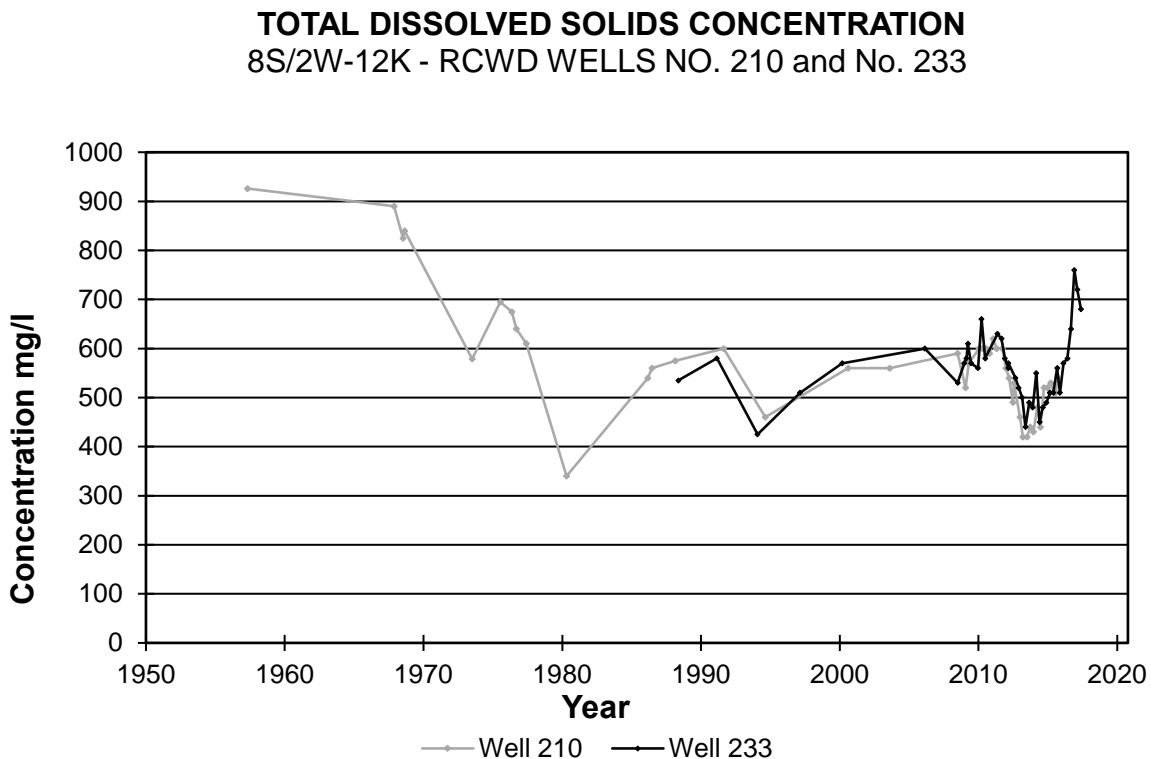
\*\* - Partial Record: Indicates months with interruptions in record at times due to malfunction of recording equipment. High and low values indicated for days with reported data. Daily data and number of days with no record can be viewed at the following website: [http://web10capp.er.usgs.gov/adr06\\_lookup/search.jsp](http://web10capp.er.usgs.gov/adr06_lookup/search.jsp) searching by site number 11044000.



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Total dissolved solids concentrations for Rancho California WD Well No. 210 are shown on Figure 10.1 for samples collected since 1957, when the well was constructed. Due to the fact that Well No. 210 is currently offline, data for Well No. 233, dating back to 1988, is included on the figure. Well No. 233 was chosen for this figure due to its proximity to Well No. 210. The figure shows a decline in TDS from approximately 900 mg/l for the samples collected during the 1960's to the 400-600 mg/l range in recent years (Well No. 210). Trend analyses for other wells throughout the Murrieta-Temecula area show a mix of increasing and decreasing trends in TDS levels depending upon location and aquifer.

Figure 10.1



Appendix Table D-5 shows water quality data collected by the USGS from wells on Indian Reservations. In 2016-17, samples were collected from five wells on the Pechanga Indian Reservation. For the Pechanga wells, TDS concentrations ranged from 262 to 324 mg/l.

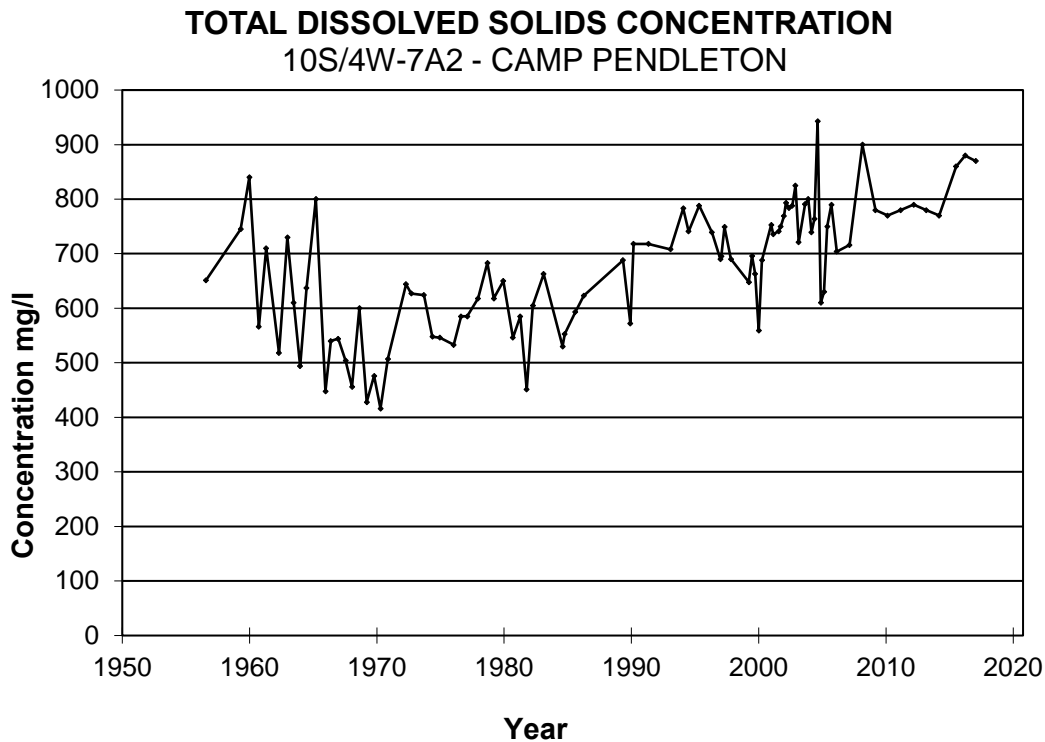
In 2016-17, no samples were collected from wells on the Cahuilla Indian Reservation.

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During 2016-17, groundwater samples were collected from eleven wells at Camp Pendleton as shown on Appendix Table D-6. All eleven wells were subjected to standard chemical analysis. During 2016-17, samples show ten of the eleven wells with TDS concentrations exceeding the Basin Plan Objective of 750 mg/l. Two wells indicated a TDS concentration that was the highest on record. While four wells indicated an increase in TDS concentration compared to the previous year, the other seven wells showed a decline of TDS concentrations.

Historical TDS concentrations for Camp Pendleton Well 7A2 are shown on Figure 10.2 for samples collected since mid-1950. The figure shows a decline between mid-1950 and 1970, then a period of increasing concentrations to levels in the 550-950 mg/l range. Analysis of the sample collected in 2016-17 indicated TDS concentrations of 870 mg/l, a decrease of 10 mg/l compared to the sample collected in 2015-16.

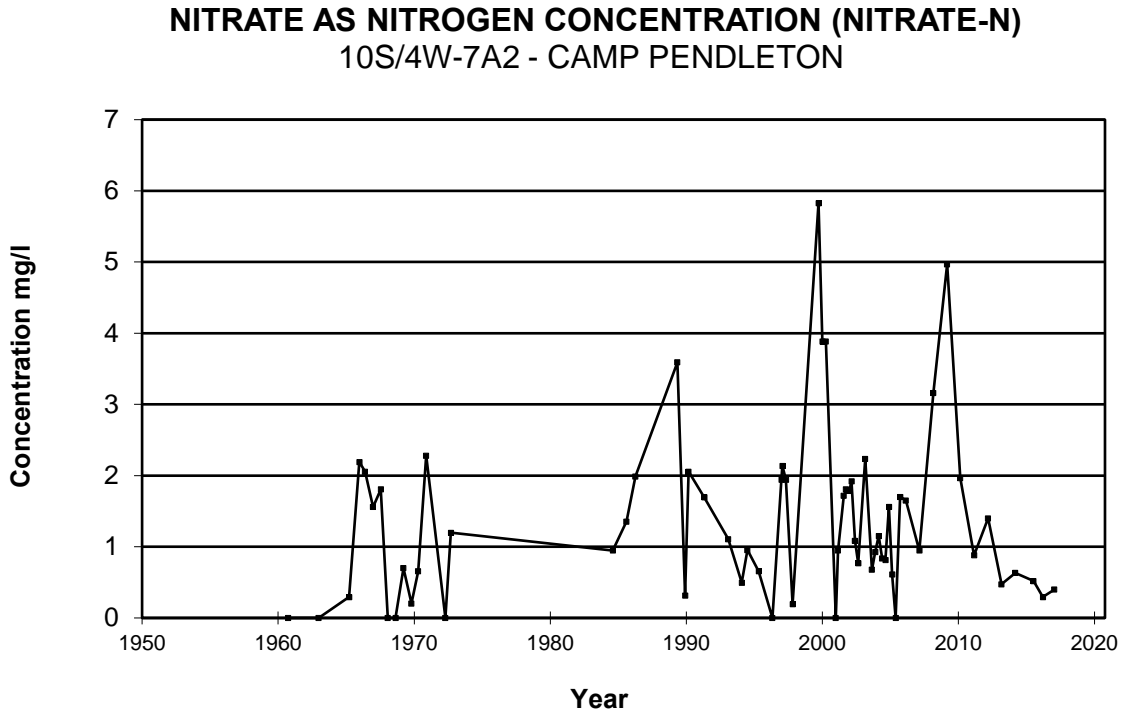
Figure 10.2



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Historical nitrate concentrations for the same well (7A2) are shown on Figure 10.3. The one sample collected in Water Year 2016-17 showed a nitrate concentration of less than 0.4 mg/l as N.

Figure 10.3



During 2016-17, groundwater samples were taken from 16 commercial wells located near the Anza Valley groundwater basin. 5 of these wells tested above the MCL for nitrate concentrations during 2016-17, as reported by the Riverside County Department of Environmental Health. Nitrate concentrations for the Anza Valley groundwater area are reported in the Appendix Table D-13.

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## **SECTION 11 – COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT**

### **11.1 General**

On August 20, 2002, the Cooperative Water Resource Management Agreement (CWRMA) between Camp Pendleton and Rancho California WD was approved by the Court. The CWRMA provisions specify required accounting will be reported on a calendar year basis and, accordingly, Section 11 and Appendix E present data reported on a calendar year basis. However, the remainder of the Annual Watermaster Report is prepared on a water year basis requiring the CWRMA calendar year reporting to be converted to a water year basis to be incorporated into other sections of the report. The water year period begins on October 1 and concludes on September 30 of the following year.

It is noted that prior Annual Watermaster Reports served as the annual report required under CWRMA. Beginning in calendar year 2011, a separate annual report has been prepared by the Watermaster and submitted to the Court to meet the requirements of CWRMA. Section 11 continues to be included in the Annual Watermaster Report focusing on the accounting and operations related to Make-Up Water releases and flow requirements for the Santa Margarita River at the Gorge. Section 11 also includes an overview of other topics included in the stand-alone Annual CWRMA Report.

The CWRMA provides that on May 1 of each year, the Technical Advisory Committee is to compute a hydrologic index for the year based on streamflow and precipitation between October and April. In May 2017, the hydrologic index was determined and the year classified as an “Above Normal” hydrologic year. The hydrologic year establishes the required flows at the Santa Margarita River near Temecula gaging station for the calendar year. Required flows for 2017, an “Above Normal” year, are listed in Section 5 of the CWRMA and are shown on Table 11.1.

As indicated above, CWRMA calendar year accounting must be converted to a water year basis for other sections of the annual report. The data for October through December 2016 for the various accounts are needed to convert the amounts shown on Table 11.1 to water year values. These data for October through December 2016 were reported in the prior year Annual Watermaster Report. To assist the reader in calculating water year amounts for various CWRMA operations, Table 11.2 in the current report is a repeat of Table 11.1 from the prior year’s report. Additional information concerning the operations underlying the values reported on Table 11.2 can be found in the prior year’s report.

Prior to implementation of the CWRMA, each year there were contentions raised by Camp Pendleton with respect to various aspects of the Annual Watermaster Report. These contentions are settled so long as that agreement is in effect. Accordingly, there is no need to raise those particular issues or publish them in the main text of the annual report or in related correspondence. Rather, the issues are provided in Appendix F.

TABLE 11.1

SANTA MARGARITA RIVER WATERSHED  
**MONTHLY SUMMARY OF REQUIRED FLOWS,  
DISCHARGES, CREDITS AND ACCOUNTS  
COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT**  
**2017 CALENDAR YEAR - ABOVE NORMAL YEAR**

Month	USGS Official Discharge AF	USGS Website Daily Discharge AF	Minimum Flow Maintenance Requirement cfs 1/	Section 5 Flows cfs 2/	No. of Days 10-day Running Average is Less than Required Flow	Discharge from WR-34 AF 3/	Climatic Credits Earned AF 4/	Camp Pendleton Groundwater Bank 5/	
								Input AF	Cumulative Balance AF
Jan	13,846.8	13,443.0	8.9	17.8	0.0	157.9	0.0	387.5	5,000.0
Feb	4,198.7	4,196.0	8.9	17.8	0.0	294.1	0.0	350.0	5,000.0
Mar	682.7	688.9	8.9	17.8	0.0	429.2	0.0	387.5	5,000.0
Apr	529.3	529.0	8.9	17.8	0.0	488.0	0.0	375.0	5,000.0
May	712.4	712.5	11.5	11.7	6.0	650.1	0.0	12.4	5,000.0
Jun	564.5	559.5	9.4	9.4	3.0	521.6	0.0	0.0	5,000.0
Jul	479.7	479.4	7.8	7.8	0.0	464.8	0.0	0.0	5,000.0
Aug	476.3	475.8	7.6	7.6	0.0	451.3	0.0	0.0	5,000.0
Sep	441.2	440.3	7.4	7.4	0.0	433.6	0.0	0.0	5,000.0
Oct	475.0	472.1	7.7	7.7	9.0	476.7	0.0	0.0	5,000.0
Nov	398.7	398.9	8.8	8.8	6.0	393.0	0.0	119.0	5,000.0
Dec	301.4	301.9	5.3	10.4	19.0	309.0	0.0	313.1	5,000.0
<b>CALENDAR YEAR TOTAL</b>	<b>23,106.7</b>	<b>22,697.3</b>			<b>43</b>	<b>5,069.3</b>	<b>0.0</b>	<b>1,944.5</b>	<b>FULL</b>

1 - Required flows for January through April are equal to 11.5 cfs less 2.6 cfs of credits (623 AF of Climatic Credit earned in 2016).  
2 - The Table in Section 5 of the CWRMA sets forth guaranteed monthly flows at the Gorge once the Hydrologic Condition for the calendar year is established.  
3 - CAP Credits equal the WR-34 discharge in excess of 4,000 AF. CAP Credits of 1,069 AF were earned in 2017.  
4 - Climatic Credits equal the WR-34 discharges less actual Flow Requirements, which is the flow indicated in Section 5 of the CWRMA less applicable credits but not less than 3.0 cfs. No Climatic Credits earned in 2017.  
5 - Camp Pendleton's rights to groundwater equal the flow indicated in Section 5 of the CWRMA less the Actual Flow Maintenance Requirement, which cannot be less than 3.0 cfs. Input to the Groundwater Bank shown but cumulative balance did not increase due to account balance maximum of 5,000 AF.

TABLE 11.2

SANTA MARGARITA RIVER WATERSHED  
**MONTHLY SUMMARY OF REQUIRED FLOWS,  
DISCHARGES, CREDITS AND ACCOUNTS  
COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT**  
**2016 CALENDAR YEAR - BELOW NORMAL YEAR**

Month	USGS Official	USGS Website	Minimum Flow	Section 5 Flows	No. of Days 10-day	Discharge from	Climatic Credits	Camp Pendleton Groundwater Bank	
	Discharge AF	Daily Discharge AF	Maintenance Requirement cfs 1/	cfs 2/	Running Average is Less than Required Flow	WR-34 AF 3/	Earned AF 4/	Input AF	Cumulative Balance AF
Jan	2,904.6	3,182.9	9.1	8.0	0	446.8	145.6	145.7	5,000.0
Feb	647.6	637.7	9.1	8.0	0	448.8	146.4	136.3	5,000.0
Mar	619.0	619.0	9.1	8.0	0	480.0	145.4	145.7	5,000.0
Apr	541.1	541.1	9.1	8.0	0	521.9	185.9	141.0	5,000.0
May	355.4	350.9	5.7	5.7	0	333.7	0.0	0.0	5,000.0
Jun	291.6	291.6	4.9	4.9	0	285.7	0.0	0.0	5,000.0
Jul	264.4	264.4	4.3	4.3	0	264.0	0.0	0.0	5,000.0
Aug	273.9	272.3	4.4	4.4	0	255.4	0.0	0.0	5,000.0
Sep	244.2	244.2	4.1	4.1	0	232.2	0.0	0.0	5,000.0
Oct	239.8	239.8	3.9	3.9	0	222.0	0.0	0.0	5,000.0
Nov	297.7	298.5	4.5	4.5	0	233.1	0.0	0.0	5,000.0
Dec	3,203.1	3,207.9	5.3	5.3	0	182.1	0.0	0.0	5,000.0
<b>CALENDAR</b>									
<b>YEAR</b>	<b>9,882.4</b>	<b>10,150.3</b>			<b>0</b>	<b>3,905.7</b>	<b>623.3</b>	<b>568.7</b>	<b>FULL</b>
<b>TOTAL</b>									

1 - Required flows for January through April are equal to 11.5 cfs less 2.4 cfs of credits (563 AF of Climatic Credit earned in 2015 and 4.5 AF of CAP Credit earned in 2014).  
2 - The Table in Section 5 of the CWRMA sets forth guaranteed monthly flows at the Gorge once the Hydrologic Condition for the calendar year is established.  
3 - CAP Credits equal the WR-34 discharge in excess of 4,000 AF. No CAP Credits were earned in 2016.  
4 - Climatic Credits equal the WR-34 discharges less actual Flow Requirements, which is the flow indicated in Section 5 of the CWRMA less applicable credits but not less than 3.0 cfs.  
5 - Camp Pendleton's rights to groundwater equal the flow indicated in Section 5 of the CWRMA less the Actual Flow Maintenance Requirement, which cannot be less than 3.0 cfs. Input to the Groundwater Bank shown but cumulative balance did not increase due to account balance maximum of 5,000 AF.

## 11.2 Required Flows

Under the CWRMA, Rancho California WD guarantees that the ten-day running average of the measured flows at the Santa Margarita River near Temecula gaging station shall meet the required flows for each month during the year. In order to meet the required flows, Rancho California WD discharges Make-Up Water from two primary sources, both discharging into the river at the same location immediately upstream from the USGS gaging station for Santa Margarita River near Temecula. The first primary source of Make-Up Water is raw water from MWD Aqueduct No. 5 discharged at Outlet WR-34. The second primary source of Make-Up Water is from the Rancho California WD treated water distribution system through a potable connection to the WR-34 outlet pipe. In prior years, Make-Up Water was also discharged from the treated water distribution system to Murrieta Creek from two system discharge meters collectively referred to as the System River Meter. The two discharge meters are located on opposite sides of Murrieta Creek, immediately downstream of the USGS gaging station for Murrieta Creek at Temecula, which is located approximately 2,000 feet upstream of the confluence of Temecula Creek and Murrieta Creek. The System River Meter is operable as a secondary source of Make-Up Water if needed.

Flow requirements are based on two-thirds of the median natural flow of the Santa Margarita River at the Gorge for a given hydrologic year type. During the winter period (January through April), Rancho California WD shall maintain a ten-day running average equal to 11.5 cfs, less carry-over credits, less requested foregone Make-Up Water, but not less than 3.0 cfs. Rancho California WD may earn Climatic Credits in Below Normal and Critically Dry years if it has provided Make-Up Water in excess of the Actual Flow Requirement. The Climatic Credit is equal to the Make-Up Water released, less the Actual Flow Requirement, less credits. The Actual Flow Requirement is determined on May 1 of each year and applied retroactively to the flows during the winter period. During the non-winter period (May through December), Rancho California WD shall maintain a ten-day running average equal to the flow requirements specified in the CWRMA as determined on May 1<sup>st</sup>, less any foregone Make-Up Water agreed to by Camp Pendleton and Rancho California WD. When Rancho California WD is required to provide Make-Up Water in any calendar year in excess of 4,000 acre feet, it may apply CAP Credits for such excess during the following two winter periods. At no time is Rancho California WD required to make up more than 11.5 cfs.

The measured daily flows, the ten-day running average, and the differences between the running average and the required flows are shown in Appendix E. Two listings of daily discharges are shown in the tables in Appendix E: the USGS official discharge and the USGS website discharge. The discharges shown on the website are those that dictate daily decisions regarding the quantities of Make-Up Water required and those discharges are used to compute the ten-day running average. The official discharge is a more refined estimate developed later by the USGS for publication.



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The number of days each month when the ten-day running average was less than the required flows is summarized on Table 11.1. For calendar year 2017, there were 43 days when the running average was less than the required flows under normal CWRMA operations.

During calendar year 2017, the total releases by Rancho California WD to meet CWRMA flow requirements were 5,069 acre feet as shown on Table 11.1. The releases comprised of the 5,069 acre feet of releases, of which 1.28 acre feet of potable water was used to meet the flow requirements.

Climatic Credits of 623 acre feet were used in calendar year 2017, and no Climatic Credits were earned in calendar year 2017 in accordance with CWRMA provisions. In calendar year 2017, no CAP Credits were used and 1,069 CAP Credits were accumulated for use in subsequent years to meet any required releases by Rancho California WD.

The CWRMA also provides that Camp Pendleton may acquire rights to groundwater above the Gorge by foregoing its right to Make-Up Water, or to the extent that the Actual Flow Maintenance Requirements are less than the flows in the table in Section 5 of CWRMA. The maximum cumulative balance for the Camp Pendleton groundwater account is 5,000 acre feet. During calendar year 2017, 1,944.5 acre feet were calculated as input to the groundwater account but the balance was already at the maximum balance of 5,000 acre feet and no additional water was credited to the account.

### 11.3 Water Quality

The U.S. Geological Survey continuously monitors four parameters of water quality at the Santa Margarita River near Temecula gaging station, including dissolved oxygen, pH, specific conductance, and temperature. The daily averages for each of these parameters are reported annually. Monthly highs and lows for each parameter are listed in Table 10.1 for the water year ending September 30, 2017.

### 11.4 Monitoring Programs

The CWRMA provides for the establishment of two monitoring programs: (1) Section 5(g) provides for a program to assess the impacts of operations on water supply, water quality and riparian habitat within Camp Pendleton, and; (2) Section 7(d) provides for a program to assess safe yield operations of Rancho California WD through the use of a multi-level groundwater monitoring network and periodic updates of the CWRMA Groundwater Model.

During 2007-08, Camp Pendleton initiated the Section 5(g) program named as the Lower Santa Margarita River Watershed Monitoring Program (LSMRWM Program) to evaluate whether the increased flows under CWRMA influence threatened and endangered species, riparian and wetland habitats, or water quality downstream. The LSMRWM Program will also support other water quality monitoring and watershed management activities in the Santa Margarita River Watershed. A copy of the Statement of Work for the LSMRWM Program was provided in the 2007 and 2008 Annual Watermaster Reports. The monitoring was funded for a two-year period and the final

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report, *Hydrological and Biological Support to Lower Santa Margarita River Watershed Monitoring Program Water Years 2008-2009* was published on February 21, 2010, under a cooperative program between Camp Pendleton and the United States Bureau of Reclamation.

In September 2006, the USGS under contract with Camp Pendleton and Rancho California WD constructed a multi-level monitoring well for the Murrieta-Temecula Groundwater Basin in accordance with Section 7(d) of CWRMA. The Pala Park Groundwater Monitoring Well is located near the confluence of Pechanga and Temecula creeks and was completed to a total depth of 1,499 feet. Six piezometers were installed for continuous water level recording in the saturated zone for the lower five screened intervals and for the upper-most screened interval to detect moisture in the unsaturated zone. The USGS monitoring program for the Pala Park Groundwater Monitoring Well is included in the ongoing Watermaster budget beginning in Water Year 2007-08.

In 2009, the groundwater monitoring program was expanded to include the Wolf Valley Monitoring Well that was previously constructed under a cooperative agreement between the USGS and the Pechanga Band. Two piezometers are installed at the Wolf Valley Well. The groundwater level monitoring for the Wolf Valley Monitoring Well was previously funded by the Pechanga Band, but is now included in the ongoing Watermaster budget beginning in Water Year 2009-10.

In 2013, two additional groundwater monitoring wells were constructed by the USGS under contract with Rancho California WD. The groundwater level monitoring for these additional wells is also included in the ongoing Watermaster budget. The Temecula Creek Groundwater Monitoring Well was drilled in April 2013 to a depth of 1,720 feet, and was completed with five piezometers. The VDC Recharge Basin Groundwater Monitoring Well was drilled in August 2013 to a depth of 1,033 feet, and was completed with six piezometers.

Information concerning the construction of the monitoring wells, groundwater levels, and water quality data can be found at the following website: <http://ca.water.usgs.gov/temecula/>. Information obtained from the website as well as supplemental information for the groundwater monitoring wells is provided in the Annual CWRMA Report.

In 2010, 2011, and 2012, the water quality monitoring program also included collecting data for the two sources of supply for recharge at the head of Pauba Valley: (1) imported supplies for recharge at Rancho California WD VDC Recharge Facilities, and; (2) native supplies from Temecula Creek as sampled at Vail Lake. Funding from the Watermaster budget was used to collect and analyze the data which are provided in the Annual CWRMA Report.

In 2012, the water quality monitoring program also included collecting data from selected groundwater production wells operated by Rancho California WD within Pauba Valley. These wells were selected to compliment the water quality data for the monitoring wells and the two sources of supply for recharge at the head of Pauba Valley. Previously,

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groundwater production wells operated by Rancho California WD were included in the 2004 and 2007 sampling programs for the Groundwater Ambient Monitoring and Assessment (GAMA) program implemented by the California State Water Resources Control Board. Data reported for 2013 were collected with funding from the Watermaster budget. In 2013, funding from the Watermaster budget was used to analyze archived, age-dating samples that were collected during 2012. The samples from two groundwater production wells, Wells 109 and 234, were analyzed for tritium and carbon isotopes.

#### 11.5 Groundwater Model

In 2007, Camp Pendleton and Rancho California WD initiated an effort to update the CWRMA Groundwater Model in accordance with Section 7(d). Work on updating the groundwater model was completed in 2014 and 2015 with publication of the April 25, 2014 (revised January 8, 2015) report prepared by GEOSCIENCE Support Services, Inc., entitled *Surface and Ground Water Model of the Murrieta-Temecula Ground Water Basin, California, Model Update and Refinement Report*. The model update included the following: (1) development of GSFLOW which is a coupled surface water and groundwater model that includes a Precipitation-Runoff Modeling System (PRMS) and MODFLOW, (2) refinement of the groundwater model cell size, active/inactive boundaries and locations of recharge and discharge, (3) development of a three-dimensional lithologic model based on lithologic and geophysical borehole logs from wells in the area, (4) refinement of groundwater model layer elevations based on the results from the lithologic model, and (5) update of the surface water and groundwater model with data through 2008.

In 2016 and 2017, Camp Pendleton and Rancho California WD continued efforts to update the CWRMA Groundwater Model and conduct groundwater model runs to evaluate various aspects of the management of the Murrieta-Temecula Groundwater Basin. Model updates included (1) GSFLOW model update and recalibration for the period 1988 through 2014, (2) extend the model with updated hydrogeologic data for the period 1988 through 2014, (3) update of land use and model flux terms for the period 1988 through 2014, (3) refinement of groundwater model layer elevations, and (4) re-calibrate the model. The process in which to update, refine, and re-calibrate the model is summarized in the report prepared by GEOSCIENCE Support Services, Inc., entitled *Surface and Ground Water Model of the Murrieta-Temecula Groundwater Basin Model Report Addendum: CWRMA Model Watermaster and Sustainable Yield Runs*, dated July 27, 2017. Results from the model are anticipated to be included in future CWRMA and Watermaster annual reports.

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## **SECTION 12 - FIVE YEAR PROJECTION OF WATERMASTER OFFICE ACTIVITIES**

### 12.1 General

Projected tasks over the next five years are listed below in two categories: normal tasks, which are part of the usual Watermaster office operation; and additional tasks, which are foreseen but are not part of the normal office operations.

### 12.2 Normal Tasks

Tasks that are normally part of the Watermaster Office operation are as follows:

1. Update List of Substantial Users
2. Collect Water Production, Use, Import and Availability Data
3. Collect Well Location, Construction and Water Level Data
4. Administer Water Rights
5. Collect Water Quality Data
6. Monitor Water Quality and Water Right Activities
7. Administer Lake Skinner and Diamond Valley Lake MOU's
8. Administer Steering Committee Matters
9. Prepare Court Reports/Budgets
10. Monitor Streamflow and Water Quality Measuring
11. Data Management
12. Administer Cooperative Water Resource Management Agreement

### 12.3 Additional Tasks

Tasks that have been identified but which are not part of normal operations are as follows:

1. Prepare List of All Water Users under Court Jurisdiction
2. Prepare Inventory of Ponds and Reservoirs
3. Determine Salt Balance
4. SGMA Support
5. CASGEM Monitoring Entity for Basin No. 9-6
6. Jurisdictional determination for Riverside County TMF process

WATERMASTER  
 SANTA MARGARITA RIVER WATERSHED

12.4 Projected Expenditures

Projected expenditures for the current year and over the next five years are listed as follows:

<b>Year</b>		<b>Watermaster Office</b>	<b>USGS Groundwater Monitoring</b>	<b>USGS Gaging Stations</b>	<b>Total</b>
Current Year	2017-18	\$498,035	\$55,450	\$201,600	\$755,085
Projected Years	2018-19	\$522,758	\$63,000	\$205,975	\$791,733
	2019-20	\$548,400	\$66,150	\$216,274	\$830,824
	2020-21	\$574,900	\$68,135	\$222,762	\$865,796
	2021-22	\$603,100	\$70,179	\$229,445	\$902,723
	2022-23	\$632,200	\$72,284	\$236,328	\$940,812

## **SECTION 13 - WATERMASTER OFFICE BUDGET**

The budget for the Watermaster Office is established on an annual basis and is approved by the Court upon acceptance of the Annual Watermaster Report. The budget is presently funded from equal assessments paid by the Steering Committee; however, the Court retains the right to assess other parties in the future. An audit is conducted annually by an independent auditor and the independent auditor's report is submitted for review by the parties and the Court as part of the Annual Watermaster Report.

### **13.1 Comparison of Budget and Actual Costs for 2016-17**

The Watermaster Budget for 2016-17 of \$772,100 was approved by the Court upon acceptance of the September 2016 Annual Watermaster Report for Water Year 2014-15. The Independent Auditor's Report and Report to the Steering Committee for Watermaster of the Santa Margarita River Watershed for Fiscal Year Ended September 30, 2017 is included in Appendix G. A comparison of the budget and actual costs for 2016-17 is shown on Table 13.1. The actual costs for 2016-17 were \$678,692 (total operating expenses less depreciation) compared to the budget of \$772,100, resulting in a favorable variance of \$93,408. An explanation of individual line item variances is provided in Appendix G. It should be noted, one reason for the favorable variance of the actual Watermaster Office costs as compared to the approved budget for year 2016-2017 is due to the fact that the 2015-2016 Annual Watermaster Report planned to be completed during year 2016-2017. However, the report was not completed prior to September 30, 2017 (the end of the financial year) and therefore that portion of funding associated with that work effort was preserved. The Watermaster Office utilized this portion of the funding during Water Year 2017-18 to complete the 2015-16 Annual Report.

### **13.2 Proposed Budget for 2018-19**

The proposed Watermaster Budget for 2018-19 is published in the Annual Watermaster Report for 2016-17 and is determined to be final and accepted by the Court upon noticing and completion of the 30-day period for parties to file an objection to the report. Accordingly, the budget for 2018-19 is referred to in this report as the proposed budget. The proposed Watermaster Budget for 2018-19, along with a comparison to the approved budget for 2017-18 is shown on Table 13.2. The total budget for 2018-19 is \$791,733. This budget includes \$522,758 for the Watermaster Office and \$268,975 for USGS gaging station operations and monitoring. The budgeted cost for services provided by the U.S. Geological Survey is based on the annual renewal of a cooperative agreement with the Watermaster.

WATERMASTER  
SANTA MARGARITA RIVER WATERSHED

TABLE 13.1

SANTA MARGARITA RIVER WATERSHED  
**COMPARISON OF WATERMASTER BUDGET AND ACTUAL COSTS**  
WATER YEAR 2016-17

Line Item	Water Year 2016-17			
	Approved Budget 2016-17 1/	Actual Costs 2016-17 2/	Actual Costs Minus Approved Budget 2016-17	
	\$	\$	\$	%
<b>Watermaster Office</b>				
Accounting Services	\$8,500	\$2,551	-\$5,949	-70.0%
Audit	6,600	8,780	2,180	33.0%
Clerical/Analyst	114,200	44,764	-69,436	-60.8%
Conference/Training	1,600	0	-1,600	-100.0%
Equipment and Furniture	1,000	0	-1,000	-100.0%
Human Resources Services	800	27,000	26,200	3,275.0%
Insurance	600	575	-25	-4.2%
IT System/Computer	10,000	989	-9,011	-90.1%
Legal Services	30,000	37,678	7,678	25.6%
Miscellaneous	41,050	3,179	-37,871	-92.3%
Postage	2,000	181	-1,819	-91.0%
Printing	11,500	2,434	-9,066	-78.8%
Publications	3,300	897	-2,403	-72.8%
Rent	18,000	6,000	-12,000	-66.7%
Supplies	1,900	422	-1,479	-77.8%
Telephone	3,000	1,034	-1,966	-65.5%
Travel	1,500	613	-887	-59.1%
<b>Watermaster Services</b>				
Consulting Services	242,000	279,102	37,102	15.3%
Travel Reimbursement	27,600	16,662	-10,938	-39.6%
<b>SUBTOTAL WATERMASTER OFFICE</b>	<b>\$525,150</b>	<b>\$432,861</b>	<b>-\$92,289</b>	<b>-17.6%</b>
<b>USGS</b>				
Gaging Station	\$177,800	\$176,995	-\$805	-0.5%
Surface Water Quality	15,900	\$15,828	-72	-0.5%
Groundwater Monitoring - Water Levels	53,250	\$53,009	-241	-0.5%
Groundwater Monitoring - Water Quality	0	0	0	0.0%
<b>SUBTOTAL USGS</b>	<b>\$246,950</b>	<b>\$245,831</b>	<b>-\$1,119</b>	<b>-0.5%</b>
<b>TOTAL</b>	<b>\$772,100</b>	<b>\$678,692</b>	<b>-\$93,408</b>	<b>-13.7%</b>

1/ Budget for 2016-17 approved by the Court as reported in the Annual Watermaster Report for Water Year 2014-15, published September 2016.

2/ Actual Costs from Financial Statements for period ending September 30, 2017.



WATERMASTER  
SANTA MARGARITA RIVER WATERSHED

TABLE 13.2

SANTA MARGARITA RIVER WATERSHED  
**PROPOSED WATERMASTER BUDGET FOR WATER YEAR 2018-19**

Line Item	Water Year 2018-19			
	Proposed Budget	Approved Budget	Increase Over	
	2018-19 1/	2017-18 2/	Approved Budget	2017-18
	\$	\$	\$	%
<b>Watermaster Office</b>				
Accounting Services	\$7,500	\$7,500	\$0	0.0%
Audit	7,000	7,000	0	0.0%
Insurance	N/A	600	N/A	N/A
IT System/Computer	3,000	10,000	-7,000	-70.0%
Legal Services	30,000	30,000	0	0.0%
Miscellaneous	2,500	2,500	0	0.0%
Postage	1,500	1,500	0	0.0%
Printing	7,000	7,000	0	0.0%
<b>Watermaster Services</b>				
Consulting Services	439,258	406,935	32,323	7.9%
Travel Reimbursement	25,000	25,000	0	0.0%
<b>SUBTOTAL WATERMASTER OFFICE</b>	<b>\$522,758</b>	<b>\$498,035</b>	<b>\$24,723</b>	<b>5.0%</b>
<b>USGS</b>				
Gaging Station	\$188,975	\$185,050	\$3,925	2.1%
Surface Water Quality	17,000	16,550	450	2.7%
Groundwater Monitoring - Water Levels	63,000	55,450	7,550	13.6%
Groundwater Monitoring - Water Quality	0	0	0	0.0%
<b>SUBTOTAL USGS</b>	<b>\$268,975</b>	<b>\$257,050</b>	<b>\$11,925</b>	<b>4.6%</b>
<b>TOTAL</b>	<b>\$791,733</b>	<b>\$755,085</b>	<b>\$36,648</b>	<b>4.9%</b>

1/ Proposed budget for 2018-19; final budget to be approved by the Court upon acceptance of the Annual Watermaster Report for Water Year 2016-17.

2/ Budget for 2017-18 approved by the Court as reported in the Annual Watermaster Report for Water Year 2015-16, published in January 2018.

WATERMASTER  
SANTA MARGARITA RIVER WATERSHED

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***SANTA MARGARITA RIVER WATERSHED***  
**ANNUAL WATERMASTER REPORT**  
**WATER YEAR 2016-17**

**APPENDIX A**  
**WATER PRODUCTION AND USE**  
**WATER YEAR 2016-17**

**December 2018**



TABLE A-1

SANTA MARGARITA RIVER WATERSHED  
MONTHLY WATER PRODUCTION AND USE

EASTERN MUNICIPAL WATER DISTRICT  
2016-17

Quantities in Acre Feet

MONTH	PRODUCTION			USE					RECYCLED WATER						
	WELLS	IMPORT 1/	EXPORT FROM SMRW 2/	NET IMPORT	TOTAL	AG	COMM	DOM	TOTAL	LOSS 3/	TOTAL USE	REUSE IN SMRW 4/	REUSE OUTSIDE SMRW	OTHER REUSE 5/	TOTAL
2016															
OCT	0	1,271	0	1,271	1,271	19	316	872	1,207	64	1,271	260	592	331	1,183
NOV	0	1,116	0	1,116	1,116	18	242	800	1,060	56	1,116	166	442	549	1,157
DEC	0	905	0	905	905	22	160	678	860	45	905	214	150	840	1,204
2017															
JAN	0	651	0	651	651	20	85	513	618	33	651	98	33	1,208	1,339
FEB	0	525	0	525	525	23	66	410	499	26	525	107	55	1,043	1,205
MAR	0	689	67	622	622	26	62	503	591	31	622	36	157	1,087	1,280
APR	0	1,045	0	1,045	1,045	41	186	766	993	52	1,045	210	821	174	1,205
MAY	0	1,416	271	1,145	1,145	21	255	812	1,088	57	1,145	248	713	282	1,243
JUNE	0	1,463	0	1,463	1,463	32	247	1,111	1,390	73	1,463	269	947	(37)	1,179
JULY	0	1,933	301	1,632	1,632	30	388	1,132	1,550	82	1,632	331	1,352	(474)	1,209
AUG	0	1,592	172	1,420	1,420	27	353	969	1,349	71	1,420	365	769	101	1,235
SEPT	0	1,646	0	1,646	1,646	32	420	1,112	1,564	82	1,646	327	1,108	(261)	1,174
TOTAL	0	14,252	811	13,441	13,441	311	2,780	9,678	12,769	672	13,441	2,631	7,139	4,843	14,613

1/ Does not include deliveries to Rancho California WD, Elsinore Valley MWD or Western MWD.

2/ Portion of imported supplies exported for delivery to Eastern MWD's retail customers located outside the Watershed.

3/ Loss = 5%

4/ No sewage diverted to RCWD for Water Year 2017 for treatment at Santa Rosa Water Reclamation Facility

5/ Reuse within Watershed includes 1,001 AF sold to RCWD, 353 AF sold to Pechanga Band, and 99 AF sold to Elsinore Valley MWD.

Other Reuse includes changes of storage in Winchester and Sun City storage ponds, evaporation and percolation losses.

There were no discharges to Temescal Creek in the Santa Ana Watershed in Water Year 2017.

TABLE A-2

SANTA MARGARITA RIVER WATERSHED  
MONTHLY WATER PRODUCTION AND USE

ELSINORE VALLEY MUNICIPAL WATER DISTRICT

2016-17

Quantities in Acre Feet

MONTH YEAR	PRODUCTION		USE 1/				WASTEWATER EXPORTED			RECYCLED WATER 3/				
	WELLS	IMPORT TOTAL	AG	COMM	DOM	TOTAL DELIVERED	LOSS 2/	TOTAL USE	UNTREATED WASTEWATER R	REUSE OUTSIDE SMRW	TOTAL WASTEWATER EXPORT	REUSE INSIDE SMRW	REUSE OUTSIDE SMRW	TOTAL REUSE
2016														
OCT	0	573	1	134	421	556	17	573	102	17	119	12	17	29
NOV	0	485	1	100	370	471	14	485	105	13	118	7	13	20
DEC	0	361	1	53	296	350	11	361	110	9	119	5	9	14
2017														
JAN	0	240	0	20	213	233	7	240	116	3	119	1	3	4
FEB	0	166	0	12	149	161	5	166	104	1	105	1	1	2
MAR	0	338	0	42	286	328	10	338	113	2	115	1	2	3
APR	0	454	0	93	347	440	14	454	109	10	119	7	10	17
MAY	0	555	1	123	414	538	17	555	112	17	129	10	17	27
JUNE	0	631	1	154	457	612	19	631	113	17	130	12	17	29
JULY	0	727	2	189	514	705	22	727	111	22	133	14	22	36
AUG	0	775	3	199	550	752	23	775	111	23	134	15	23	38
SEPT	0	665	2	172	471	645	20	665	105	23	128	14	23	37
TOTAL	0	5,970	12	1,291	4,488	5,791	179	5,970	1,311	157	1,468	99	157	256

1/ Water use definitions for all major water purveyors were updated and reconciled for Water Year 2014. The updated definitions are provided in Table 7.2.

2/ Loss percentage within the Santa Margarita River Watershed is determined using the calculation to determine District-wide unaccounted for water by comparing District-wide annual supply and customer deliveries, and is assumed to be constant for all months.

3/ EVMWD receives recycled water treated at the RCWD Santa Rosa Water Reclamation Facility via EMWD Palomar Pipeline through a wheeling agreement. In Water Year 2017, 832 acre feet of wastewater were delivered from EVMWD to RCWD for treatment at the Santa Rosa Water Reclamation Facility. In Water Year 2017, EVMWD received 256 acre feet of recycled water via EMWD and re-used 99 acre feet within the Watershed.

TABLE A-3

SANTA MARGARITA RIVER WATERSHED  
MONTHLY WATER PRODUCTION AND USE

FALLBROOK PUBLIC UTILITY DISTRICT

2016-17

Quantities in Acre Feet

MONTH YEAR	DISTRICT WIDE PRODUCTION				SMRW PRODUCTION			SMRW USE				WASTEWATER					
	TOTAL LAKE SKINNER DIVERSIONS 1/	LAKE SKINNER DIVERSIONS DELIVERED	TOTAL DISTRICT IMPORT 2/	TOTAL DISTRICT SUPPLY 3/	SMRW LAKE SKINNER	SMRW IMPORT	TOTAL SMRW PRODUCTION	AG	COMM	DOM	TOTAL DELIVERED IN SMRW	LOSS 4/	TOTAL USE IN SMRW	FROM SMRW	REUSE IN SMRW	FROM U.S. NWS 5/	EXPORT FROM SMRW
2016																	
OCT	0	0	922	922	0	548	548	315	23	173	511	37	548	70	1	0	69
NOV	0	0	749	749	0	481	481	268	20	160	448	33	481	70	1	0	69
DEC	0	0	418	418	0	279	279	108	15	137	260	19	279	76	0	0	76
2017																	
JAN	0	0	257	257	0	153	153	21	11	111	143	10	153	78	0	1	77
FEB	0	0	335	335	0	118	118	1	12	97	110	8	118	56	0	0	56
MAR	0	0	477	477	0	131	131	18	9	95	122	9	131	75	1	0	75
APR	0	0	890	890	0	352	352	174	16	138	328	24	352	60	2	0	58
MAY	0	0	805	805	0	408	408	206	18	156	380	28	408	68	1	0	67
JUNE	0	0	927	927	0	472	472	265	19	156	440	32	472	62	2	0	60
JULY	0	0	1,090	1,090	0	535	535	296	21	182	499	36	535	61	2	0	59
AUG	0	0	1,118	1,118	0	510	510	272	20	183	475	35	510	68	2	0	66
SEPT	0	0	971	971	0	589	589	328	25	196	549	40	589	63	2	0	61
TOTAL	0	0	8,959	8,959	0	4,576	4,576	2,272	209	1,784	4,265	311	4,576	807	15	1	791

1/ Diverted under Permit No. 11356.  
 2/ Includes 95 acre feet from Capra Well located in San Luis Rey Watershed and remaining supply from San Diego County Water Authority.  
 3/ A portion of the District is outside the Santa Margarita River Watershed.  
 4/ Loss percentage within the Santa Margarita River Watershed is determined using the calculation to determine District-wide unaccounted for water by comparing District-wide annual supply and customer deliveries, and is assumed to be constant for all months.  
 5/ United States Naval Weapons Station.

TABLE A-4

SANTA MARGARITA RIVER WATERSHED  
MONTHLY WATER PRODUCTION AND USE

METROPOLITAN WATER DISTRICT  
DELIVERIES IN DOMENIGONI VALLEY

2016-17

Quantities in Acre Feet

MONTH YEAR	PRODUCTION			USE					
	WELLS	IMPORT TO SMRW	TOTAL IN SMRW	AG	COMMI/ DOM 1/	GW RECHARGE	TOTAL DELIVERED	LOSS 2/	TOTAL USE
2016									
OCT	0	92	92	92	0	0	92	0	92
NOV	0	57	57	57	0	0	57	0	57
DEC	0	29	29	29	0	0	29	0	29
2017									
JAN	0	0	0	0	0	0	0	0	0
FEB	0	13	13	13	0	0	13	0	13
MAR	0	61	61	61	0	0	61	0	61
APR	0	106	106	106	0	0	106	0	106
MAY	0	158	158	158	0	0	158	0	158
JUNE	0	193	193	193	0	0	193	0	193
JULY	0	172	172	172	0	0	172	0	172
AUG	0	120	120	120	0	0	120	0	120
SEPT	0	127	127	127	0	0	127	0	127
TOTAL	0	1,128	1,128	1,128	0	0	1,128	0	1,128

1/ Construction water

2/ Points of delivery located at metered pumps on San Diego Canal and thus the losses in the MWD system are zero.



TABLE A-5

SANTA MARGARITA RIVER WATERSHED  
MONTHLY WATER PRODUCTION AND USE

PECHANGA INDIAN RESERVATION

2016-17

Quantities in Acre Feet

MONTH YEAR	PRODUCTION				USE 4/					
	WELLS ON RESERVATION 1/	DELIVERED GROUNDWATER FROM RCWD 2/	RECYCLED WATER FROM EMWD 3/	TOTAL	AG	COMM	DOM	TOTAL DELIVERED	LOSS 5/	TOTAL USE
2016										
OCT	57	0	33	90	0	70	8	78	13	90
NOV	53	0	20	73	0	61	7	68	5	73
DEC	48	0	6	54	0	34	8	42	12	54
2017										
JAN	42	0	3	45	0	38	5	43	2	45
FEB	40	0	3	43	0	34	4	38	5	43
MAR	49	0	16	65	0	62	6	68	(3)	65
APR	66	0	45	111	0	105	14	119	(7)	111
MAY	59	0	36	95	0	74	14	88	7	95
JUNE	68	0	54	122	0	114	10	124	(4)	122
JULY	75	0	53	128	0	113	11	124	3	128
AUG	79	0	46	125	0	117	14	131	(6)	125
SEPT	59	2	38	99	0	75	14	89	11	99
TOTAL	695	2	353	1,050	0	897	115	1,012	38	1,050

1/ Total production attributed to Eduardo, Eagle III, and Kelsey wells.

2/ Water provided from Rancho California WD Well Nos. 119, 122, and 211.

3/ Recycled water provided by Eastern MWD via Wheeling Agreement with Rancho California WD shown as a component of production for Table A-5 only to illustrate water budget for Reservation. Actual production for Watershed accounted for on Table A-1 and Table 7.1 for Eastern MWD.

4/ Water use definitions for all major water purveyors were updated and reconciled for Water Year 2014. The updated definitions are provided in Table 7.2. Based upon the revised definitions adopted by the Watermaster, Pechanga had no agricultural use in the SMR Watershed during Water Year 2017.

5/ Loss determined as Total Production less Total Delivered.

TABLE A-6

SANTA MARGARITA RIVER WATERSHED  
MONTHLY WATER PRODUCTION AND USE

RAINBOW MUNICIPAL WATER DISTRICT  
2016-17

Quantities in Acre Feet

MONTH YEAR	PRODUCTION			USE 1/					TOTAL USE
	LOCAL	IMPORT TO DISTRICT	TOTAL IN WATERSHED	AG	COMMERCIAL	DOMESTIC	TOTAL DELIVERED	LOSS 2/	
2016									
OCT	0	1,610	149	116	3	17	136	13	149
NOV	0	1,586	107	88	2	13	103	4	107
DEC	0	532	91	73	2	13	88	3	91
2017									
JAN	0	521	46	32	2	10	44	2	46
FEB	0	369	24	14	1	8	23	1	24
MAR	0	727	27	17	1	8	26	1	27
APR	0	1,720	78	65	1	10	76	2	78
MAY	0	1,380	107	91	1	12	104	3	107
JUNE	0	2,102	104	87	1	13	101	3	104
JULY	0	1,841	152	130	2	16	148	4	152
AUG	0	2,298	156	132	2	17	151	5	156
SEPT	0	1,774	145	121	2	17	140	5	145
TOTAL	0	16,460	1,186	966	20	154	1,140	46	1,186

1/ Water use definitions for all major water purveyors were updated and reconciled for Water Year 2014. The updated definitions are provided in Table 7.2.

2/ Loss percentage within the Santa Margarita River Watershed is determined using the calculation to determine District-wide unaccounted for water by comparing District-wide annual supply and customer deliveries, and is assumed to be constant for all months.

TABLE A-7

SANTA MARGARITA RIVER WATERSHED  
MONTHLY WATER PRODUCTION AND USE

RANCHO CALIFORNIA WATER DISTRICT

2016-17

Quantities in Acre Feet

MONTH YEAR	PRODUCTION					USE					VAIL RELEASE AND RECHARGE 8/	RECYCLED WATER REUSED IN SMRW 9/			
	WELLS 1/	EXPORT 2/	NET WELLS	IMPORT 3/	EXPORT 4/	NET IMPORT	TOTAL	AG	COMM	DOM			SMR RELEASE 5/	IMPORT RECHARGE TO STORAGE 6/	TOTAL USE
2016															
OCT	2,048	23	2,025	3,323	39	3,284	5,309	2,067	866	2,285	225	242	5,685	(376)	5,309
NOV	1,703	17	1,686	2,494	26	2,468	4,154	1,719	658	1,896	235	129	4,637	(483)	4,154
DEC	1,047	10	1,037	1,537	13	1,524	2,561	641	455	1,488	187	208	2,979	(418)	2,561
2017															
JAN	676	5	671	1,039	6	1,033	1,704	66	294	1,020	162	220	1,762	(58)	1,704
FEB	607	5	602	1,079	6	1,073	1,676	71	236	863	297	168	1,635	41	1,676
MAR	1,528	8	1,520	2,365	10	2,355	3,875	462	304	1,048	436	429	2,679	1,196	3,875
APR	1,834	11	1,823	3,875	27	3,848	5,672	1,398	621	1,688	492	321	4,520	1,152	5,672
MAY	2,170	17	2,153	3,919	31	3,888	6,040	1,658	862	2,182	697	356	5,755	285	6,040
JUNE	2,257	17	2,240	4,793	40	4,753	6,993	1,913	894	2,279	523	424	6,033	960	6,993
JULY	1,851	17	1,834	6,056	61	5,995	7,829	2,727	1,083	2,681	496	578	7,565	265	7,829
AUG	1,510	13	1,497	6,042	63	5,979	7,476	2,403	1,076	2,885	467	511	7,142	334	7,476
SEPT	2,029	20	2,009	4,182	48	4,134	6,144	2,404	984	2,509	437	(92)	6,242	(98)	6,144
TOTAL	19,280	163	19,097	40,704	370	40,334	59,431	17,529	8,333	22,624	4,654	3,493	56,633	2,799	59,431

1/ Wells recovered 19,050 AF from older alluvium (including stream releases) and 266 AF from Vail recharge. Does not include 54 AF pumped from Wells 102, 121, 135, 146 and 155 directly into recycled water system. For Water Year 2016-17, there was an additional 2 AF of deliveries to Pecharanga Indian Reservation and is shown on Table A-5.  
 2/ Groundwater used in San Mateo Watershed.  
 3/ Includes 22,561 AF direct use (12,524 AF to Rancho Division and 10,037 AF to Santa Rosa Division); 13,620 AF direct recharge; and 4,523 AF from MWD WR-34.  
 4/ Import used in San Mateo Watershed.  
 5/ 1 AF into Murrieta Creek from Wells 101, 102, 118, 121, and 135; 77 AF into Santa Gertrudis Creek from Wells 106 and 108; 52 AF into Temecula Creek from Wells 109 and 231; 0 AF from System River Meter; 1 AF from potable connection to WR-34 outlet pipe and 4,523 AF from MWD Outlet WR-34.  
 6/ 13,620.49 AF of direct recharge less 10,127.96 AF of import recovery, rounded.  
 7/ Loss includes un-accounted for water and is equal to total production less total use.  
 8/ Vail releases and the related Vail recharge are computed as Total Release less Inflow to be bypassed.  
 9/ Includes 54 AF pumped from Wells 102, 121, 135, 146, and 155 directly into recycled water system. Does not include 1,354 AF recycled water purchased from EMWD.

TABLE A-8

SANTA MARGARITA RIVER WATERSHED  
MONTHLY WATER PRODUCTION AND USE

U.S.M.C. - CAMP PENDLETON  
2016-17

Quantities in Acre Feet

MONTH YEAR	PRODUCTION			USE 1/			WASTEWATER 4/			EXPORTS	
	AG LOCAL	CAMP SUPPLY	TOTAL	AGRICULTURE IN 2/	CAMP SUPPLY IN 3/	TOTAL IN	RECYCLED USE IN 5/	EXPORTED TO OCEANSIDE 6/	OUTFALL BRINE 7/	TOTAL 8/	NET EXPORT
	SMRW	SMRW	SMRW	SMRW	SMRW	SMRW	SMRW	SMRW	SMRW	SMRW	WATER RETURNS 9/
2016											
OCT	0	413	413	0	194	219	2	149	0	183	106
NOV	0	355	355	0	167	188	2	153	0	176	91
DEC	0	284	284	0	133	151	2	178	0	185	73
2017											
JAN	0	301	301	0	141	160	2	204	0	207	78
FEB	0	261	261	0	123	138	2	178	0	181	67
MAR	0	346	346	0	163	183	3	184	0	205	89
APR	0	426	426	0	200	226	3	141	0	188	110
MAY	0	455	455	0	214	241	2	148	0	185	117
JUNE	0	474	474	0	211	237	2	146	26	230	115
JULY	0	514	514	0	226	254	3	133	34	215	123
AUG	0	551	551	0	235	265	3	146	51	256	128
SEPT	0	494	494	0	212	240	3	155	42	235	116
TOTAL	0	4,874	4,874	0	2,219	2,502	29	1,915	153	2,444	1,213

1/ Use equals Production less Brine byproduct from Southern Advanced Water Treatment Plant (SAWTP) beginning February 2013. Assumes no other losses.

2/ There was no agricultural irrigation in Water Year 2017.

3/ Camp Supply water use is divided with 47% used inside the SMRW and 53% used outside the SMRW.

4/ All southern wastewater treated at Southern Regional Tertiary Treatment Plant (SRTTP) beginning December 2008.

5/ Recycled use for irrigation of golf course, landscaping and park areas.

6/ Recycled water not used but rather exported to Oceanside Outfall.

7/ Brine from SAWTP exported to Oceanside Outfall.

8/ Agriculture and Camp Supply use outside the SMRW, recycled use outside the SMRW, plus Oceanside Outfall.

9/ Percent Camp Supply reclaimed estimated as (2,444 - 153) AF divided by (4,874 - 153) AF equals 48.53%. Wastewater returns estimated at 48.53% of Camp Supply use outside of SMRW.

TABLE A-9

SANTA MARGARITA RIVER WATERSHED  
MONTHLY WATER PRODUCTION AND USE

U. S. NAVAL WEAPONS STATION, FALLBROOK ANNEX  
2016-17

Quantities in Acre Feet

MONTH YEAR	PRODUCTION			USE				WASTEWATER
	LOCAL	IMPORT TO WATERSHED 1/	TOTAL	AG	COMM/ DOM	LOSS 2/	TOTAL USE	EXPORTED
2016								
OCT	0.0	3.3	3.3	0.0	3.0	0.3	3.3	0.0
NOV	0.0	6.9	6.9	0.0	6.3	0.6	6.9	0.0
DEC	0.0	12.4	12.4	0.0	11.3	1.1	12.4	0.0
2017								
JAN	0.0	1.4	1.4	0.0	1.3	0.1	1.4	1.0
FEB	0.0	1.3	1.3	0.0	1.2	0.1	1.3	0.0
MAR	0.0	2.2	2.2	0.0	2.0	0.2	2.2	0.0
APR	0.0	2.7	2.7	0.0	2.5	0.2	2.7	0.0
MAY	0.0	3.7	3.7	0.0	3.4	0.3	3.7	0.0
JUNE	0.0	3.4	3.4	0.0	3.1	0.3	3.4	0.0
JULY	0.0	6.2	6.2	0.0	5.6	0.6	6.2	0.0
AUG	0.0	14.5	14.5	0.0	13.2	1.3	14.5	0.0
SEPT	0.0	9.4	9.4	0.0	8.5	0.9	9.4	0.0
TOTAL	0.0	67.4	67.4	0.0	61.3	6.1	67.4	1.0

1/ Import via Fallbrook Public Utility District

2/ Loss = 10% of Use

TABLE A-10

SANTA MARGARITA RIVER WATERSHED  
MONTHLY WATER PRODUCTION AND USE

WESTERN MUNICIPAL WATER DISTRICT  
MURRIETA DIVISION

2016-17

Quantities in Acre Feet

MONTH YEAR	PRODUCTION			USE 1/					
	WELLS	IMPORT	TOTAL	AG	COMM	DOM	TOTAL DELIVERED	LOSS 2/	TOTAL USE
2016									
OCT	18	170	188	0	88	110	198	(10)	188
NOV	13	149	162	0	56	82	138	24	162
DEC	25	77	102	0	42	63	105	(3)	102
2017									
JAN	38	39	77	0	32	44	76	1	77
FEB	26	46	72	0	31	41	72	0	72
MAR	44	85	129	0	49	71	120	9	129
APR	35	147	182	0	67	100	167	15	182
MAY	41	163	204	0	80	121	201	3	204
JUNE	41	213	254	0	87	133	220	34	254
JULY	2	253	255	0	93	148	241	14	255
AUG	41	197	238	0	92	143	235	3	238
SEPT	38	172	210	0	83	126	209	1	210
TOTAL	362	1,711	2,073	0	800	1,182	1,982	91	2,073

1/ Water use definitions for all major water purveyors were updated and reconciled for Water Year 2014.

The updated definitions are provided in Table 7.2. Based upon the revised definitions adopted

by the Watermaster, WMWD had no agricultural use in the SMR Watershed during Water Year 2017.

2/ Loss = Total Production less Total Delivered

TABLE A-11

SANTA MARGARITA RIVER WATERSHED  
MISCELLANEOUS WATER PRODUCTION AND IMPORTS

2016-17

Quantities in Acre Feet

MONTH YEAR	IMPORT				PRODUCTION						
	WESTERN MWD IMPORTS TO IMPROVEMENT DISTRICT A	ANZA MUTUAL WATER COMPANY	RANCHO CALIFORNIA OUTDOOR RESORTS 1/	QUIET OAKS MOBILE HOME PARK 1/	LAKE RIVERSIDE ESTATES	HAWTHORN WATER SYSTEM 2/, 5/	JOJOBA HILLS SKP RESORT	COTTONWOOD ELEMENTARY 3/	HAMILTON SCHOOLS 4/		
2016											
OCT	2.40	1.72	51.12	1.30	67.16	0.50	6.73	1.25	0.39		
NOV	2.30	1.38	35.78	0.90	34.06	0.30	5.38	1.08	0.63		
DEC	1.80	1.12	6.25	0.60	25.07	0.20	4.33	0.12	1.13		
2017											
JAN	1.50	1.1	1.94	0.70	0.26	0.30	1.74	0.07	1.32		
FEB	0.90	1.09	14.38	0.90	0.48	0.30	2.17	0.07	0.97		
MAR	1.80	1.24	50.17	1.30	0.19	0.50	3.79	0.08	0.36		
APR	2.30	1.49	47.15	1.60	40.49	0.60	5.52	1.07	1.35		
MAY	2.70	2.03	50.64	1.90	49.15	0.70	6.58	0.98	0.84		
JUNE	3.30	2.62	69.72	2.10	37.11	0.70	6.75	1.80	1.24		
JULY	3.50	0.00	68.46	2.40	58.74	0.80	6.64	1.29	3.91		
AUG	3.80	6.48	63.73	2.20	49.13	0.80	5.70	1.81	1.09		
SEPT	4.00	2.09	57.83	1.80	48.33	0.70	5.51	1.43	0.97		
TOTAL	30.30	22.36	517.18	17.70	410.17	6.40	60.83	11.04	14.20		

1/ Annual production estimated based on partial-year meter readings, monthly quantities calculated assuming typical monthly distribution.

2/ Monthly quantities calculated using monthly distribution estimate based on total annual gallons produced.

3/ Cottonwood Elementary is in the Hemet Unified School District, located in Aguanga and within the Watershed Boundary.

4/ Includes both Hamilton High School and Hamilton Elementary in Anza. Both schools are in the Hemet Unified School District and are within the Watershed Boundary.

5/ Values taken from previous years use.





***SANTA MARGARITA RIVER WATERSHED***

**ANNUAL WATERMASTER REPORT**

**WATER YEAR 2016-17**

**APPENDIX B**

**WATER PRODUCTION AND USE**

**WATER YEAR 1965-66 THROUGH WATER YEAR 2016-17**

**December 2018**



TABLE B-1  
 SANTA MARGARITA RIVER WATERSHED  
 ANNUAL WATER PRODUCTION AND USE  
 EASTERN MUNICIPAL WATER DISTRICT  
 Quantities in Acre Feet

WATER YEAR	PRODUCTION				USE 2/				RECYCLED WATER								
	WELLS	IMPORT 1/	EXPORT FROM SMRW	NET IMPORT	TOTAL	AG	COMM	DOM	TOTAL	LOSS	TOTAL USE	REUSE IN SMRW 3/	REUSE OUTSIDE SMRW	OTHER REUSE 4/	RELEASE TO RIVER	RECHARGE	TOTAL
1966	0	1,604	0	1,604	1,604	1,520	0	4	1,524	80	1,604	0	0	0	0	100	100
1967	0	1,630	0	1,630	1,630	1,544	0	4	1,548	82	1,630	0	0	0	0	100	100
1968	0	1,464	0	1,464	1,464	1,386	0	5	1,391	73	1,464	0	0	0	0	100	100
1969	0	1,741	0	1,741	1,741	1,648	0	6	1,654	87	1,741	0	0	0	0	100	100
1970	0	1,417	0	1,417	1,417	1,340	0	7	1,346	71	1,417	0	0	0	0	101	101
1971	0	1,383	0	1,383	1,383	1,306	0	8	1,314	69	1,383	0	0	0	0	119	119
1972	0	1,470	0	1,470	1,470	1,388	0	8	1,396	74	1,470	0	0	0	0	242	242
1973	0	1,533	0	1,533	1,533	1,447	0	10	1,456	77	1,533	0	0	0	0	217	217
1974	0	1,601	0	1,601	1,601	1,511	0	10	1,521	80	1,601	0	0	0	0	193	193
1975	0	1,969	0	1,969	1,969	1,859	0	11	1,871	98	1,969	0	0	0	0	253	253
1976	145	2,493	0	2,493	2,638	2,356	0	150	2,506	132	2,638	134	0	0	0	155	289
1977	431	2,947	0	2,947	3,378	2,723	64	423	3,209	169	3,378	244	0	0	0	70	314
1978	375	2,551	0	2,551	2,926	2,409	0	371	2,780	146	2,926	300	0	0	0	75	375
1979	289	1,894	0	1,894	2,183	1,784	0	290	2,074	109	2,183	350	0	0	0	147	497
1980	281	1,192	0	1,192	1,473	1,116	0	283	1,399	74	1,473	375	0	0	0	220	595
1981	282	716	0	716	998	663	0	285	948	50	998	375	0	0	0	304	679
1982	321	1,112	0	1,112	1,433	1,038	0	320	1,361	72	1,433	375	0	0	0	386	761
1983	106	1,211	0	1,211	1,317	1,131	0	123	1,251	66	1,317	375	0	0	0	466	841
1984	236	699	0	699	935	644	0	244	888	47	935	400	0	0	0	525	925
1985	314	679	0	679	993	624	0	319	943	50	993	450	0	0	0	565	1,015
1986	229	760	0	760	989	700	0	239	940	49	989	600	0	0	0	509	1,109
1987	89	1,155	0	1,155	1,244	638	0	543	1,182	62	1,244	650	0	0	0	554	1,204
1988	4	2,047	0	2,047	2,051	524	0	1,424	1,948	103	2,051	650	0	0	0	650	1,300
1989	685	3,746	0	3,746	4,431	1,146	0	3,064	4,209	222	4,431	1,058	0	0	0	1,636	2,694
1990	492	8,578	2,977	5,601	6,093	978	0	4,810	5,788	305	6,093	1,567	0	0	0	2,160	3,727
1991	456	16,621	7,142	9,479	9,935	851	0	8,587	9,438	497	9,935	1,282	0	0	0	2,272	3,554
1992	527	13,486	4,893	8,593	9,120	29	0	8,635	8,664	456	9,120	1,323	0	0	0	2,385	3,953
1993	524	7,287	1,894	5,393	5,917	36	0	5,585	5,621	296	5,917	1,709	0	245	0	2,020	4,626
1994	232	10,082	2,932	7,150	7,382	16	0	7,013	7,013	369	7,382	2,687	0	0	0	0	5,846
1995	182	11,539	6,914	4,625	4,807	16	0	4,551	4,567	240	4,807	2,154	0	0	0	0	6,062
1996	299	11,730	6,770	4,960	5,259	0	0	4,926	4,996	263	5,259	2,979	0	0	0	0	5,972
1997	408	5,093	1,809	3,284	3,692	0	0	5,226	5,226	(1,534)	3,692	3,126	0	882	0	0	6,327
1998	240	6,609	1,492	5,117	5,357	0	0	5,090	5,090	267	5,357	2,949	0	2,374	0	0	7,462
1999	669	7,118	2,719	4,327	4,996	0	0	4,746	4,746	250	4,996	3,741	0	1,063	0	0	7,874
2000	630	9,179	1,923	7,256	7,886	0	0	7,493	7,493	393	7,886	4,669	0	(15)	0	0	8,318
2001	355	9,219	3,271	5,948	6,303	0	0	5,989	5,989	314	6,303	4,571	0	1,208	0	0	9,028
2002	13	12,777	4,954	8,117	8,130	0	0	7,724	7,724	406	8,130	4,843	0	462	0	0	10,168
2003	0	14,175	5,113	9,062	9,062	0	0	8,610	8,610	452	9,062	3,542	0	462	0	0	11,178
2004	0	17,381	8,243	9,138	9,138	0	0	8,960	8,960	178	9,138	3,221	0	5,427	0	0	12,336
2005	0	16,336	5,478	10,858	10,858	0	0	10,749	10,749	109	10,858	2,664	0	8,986	0	0	14,340
2006	0	21,034	6,873	14,161	14,161	0	0	13,453	13,453	708	14,161	3,108	0	7,396	0	0	14,014
2007	0	21,161	5,763	15,398	15,398	0	0	14,628	14,628	770	15,398	3,550	0	4,593	0	0	14,103
2008	0	18,714	3,762	14,952	14,952	0	0	14,204	14,204	748	14,952	1,450	0	6,864	0	0	14,239

TABLE B-1  
 SANTA MARGARITA RIVER WATERSHED  
 ANNUAL WATER PRODUCTION AND USE  
 EASTERN MUNICIPAL WATER DISTRICT  
 Quantities in Acre Feet

WATER YEAR	PRODUCTION			USE 2/					RECYCLED WATER				TOTAL		
	WELLS	IMPORT 1/	EXPORT FROM SMRW	AG	COMM	DOM	TOTAL	LOSS	TOTAL USE	REUSE IN SMRW 3/	REUSE OUTSIDE SMRW	OTHER REUSE 4/		RELEASE TO RIVER	RECHARGE
2009	0	16,919	2,447	0	0	13,748	13,748	724	14,472	2,615	6,786	5,241	0	0	14,642
2010	0	15,024	1,472	0	0	12,874	12,874	678	13,552	2,882	7,026	4,803	0	0	14,711
2011	0	14,675	283	131	2,879	10,662	13,672	720	14,392	2,561	7,241	5,140	0	0	14,942
2012	0	16,419	1,356	96	3,137	11,076	14,309	754	15,063	2,364	8,025	4,525	0	0	14,914
2013	0	16,208	457	117	3,388	11,459	14,964	787	15,751	2,937	8,316	3,459	0	0	14,712
2014	0	23,935	8,051	142	3,553	11,395	15,090	794	15,884	2,937	8,117	3,627	0	0	14,681
2015	0	15,448	1,571	144	2,982	10,057	13,183	694	13,877	2,717	7,002	4,696	0	0	14,415
2016	0	14,123	521	140	3,399	9,383	12,922	680	13,602	3,278	6,952	3,826	0	0	14,056
2017	0	14,252	811	311	2,780	9,678	12,769	672	13,441	2,631	7,139	4,843	0	0	14,613

1/ Does not include deliveries to RCWD, Elsinore Valley MWD and Western MWD.

2/ Beginning in 2011, Use reported based on metered customer demands. Prior years reporting based on supply meter data and is not complete for all categories.

3/ Reuse within Watershed includes noted amount of sewage distributed to RCWD for treatment by RCWD, recycled water sold to RCWD for delivery to RCWD customers, and beginning in 2009, recycled water sold to the Pechanga Band. Beginning in 2014, also includes recycled water delivered to Elsinore Valley MWD.

4/ Other Reuse includes changes in storage in Winchester and Sun City storage ponds, evaporation and percolation losses, and discharges to the Santa Ana Watershed.

5/ Includes 905 AF of sewage diverted to RCWD.

6/ Includes 1,159 AF of sewage diverted to RCWD.

7/ Includes 1,162 AF of sewage diverted to RCWD.

8/ Includes 1,201 AF of sewage diverted to RCWD.

9/ Includes 1,219 AF of sewage diverted to RCWD.

10/ Includes 1,056 AF of sewage diverted to RCWD.

11/ Includes 574 AF of sewage diverted to RCWD.

12/ Includes 910 AF of sewage diverted to RCWD.

13/ Includes 797 AF of sewage diverted to RCWD.

TABLE B-2

SANTA MARGARITA RIVER WATERSHED  
MONTHLY WATER PRODUCTION AND USE

ELSINORE VALLEY MUNICIPAL WATER DISTRICT

Quantities in Acre Feet

WATER YEAR	PRODUCTION		USE 1/				WASTEWATER EXPORTED			RECYCLED WATER 3/					
	WELLS	IMPORT	TOTAL	AG	COMM	DOM	TOTAL DELIVERED	LOSS 2/	TOTAL USE	UNTREATED WASTEWATER	REUSE OUTSIDE SMRW	TOTAL WASTEWATER EXPORT	REUSE INSIDE SMRW	REUSE OUTSIDE SMRW	TOTAL REUSE
1966															
1967															
1968															
1969															
1970															
1971															
1972															
1973															
1974															
1975															
1976															
1977															
1978	0	569	569				569	0	569						
1979	0	712	712				712	0	712						
1980	0	696	696				696	0	696						
1981	0	798	798				798	0	798						
1982	0	678	678				678	0	678						
1983	0	658	658				658	0	658						
1984	0	816	816				816	0	816						
1985	0	808	808				808	0	808						
1986	0	882	882				882	0	882						
1987	0	938	938				938	0	938						
1988	0	1,032	1,032				1,032	0	1,032						
1989	0	1,341	1,341				1,341	0	1,341						
1990	0	2,255	2,255				2,255	0	2,255						
1991	0	2,421	2,421				2,421	0	2,421						
1992	0	2,190	2,190				2,190	0	2,190						
1993	0	2,964	2,964	539		84	2,964	0	2,964						
1994	0	3,232	3,232	687		93	3,232	0	3,232						

TABLE B-2

SANTA MARGARITA RIVER WATERSHED  
MONTHLY WATER PRODUCTION AND USE

ELSINORE VALLEY MUNICIPAL WATER DISTRICT

Quantities in Acre Feet

WATER YEAR	PRODUCTION			USE 1/				WASTEWATER EXPORTED			RECYCLED WATER 3/				
	WELLS	IMPORT	TOTAL	AG	COMM	DOM	TOTAL DELIVERED	LOSS 2/	TOTAL USE	UNTREATED WASTEWATER	REUSE OUTSIDE SMRW	TOTAL WASTEWATER EXPORT	REUSE INSIDE SMRW	REUSE OUTSIDE SMRW	TOTAL REUSE
1995	0	3,127	3,127	520	100	2,507	3,127	0	3,127	185					
1996	0	4,197	4,197	871	109	3,217	4,197	0	4,197	213					
1997	0	4,296	4,296	848	118	3,330	4,296	0	4,296	226					
1998	0	5,100	5,100	667	1,396	3,037	5,100	0	5,100	247					
1999	0	6,133	6,133	921	1,626	3,586	6,133	0	6,133	254					
2000	0	7,174	7,174	1,089	1,971	4,114	7,174	0	7,174	279					
2001	0	6,215	6,215	925	1,815	3,475	6,215	0	6,215	310					
2002	0	7,596	7,596	1,173	1,902	4,521	7,596	0	7,596	412					
2003	0	7,091	7,091	63	2,665	4,363	7,091	0	7,091	483					
2004	0	8,438	8,438	96	3,238	5,104	8,438	0	8,438	600					
2005	0	8,215	8,215	104	3,044	5,067	8,215	0	8,215	927					
2006	0	9,819	9,819	127	4,118	5,574	9,819	0	9,819	938					
2007	0	10,811	10,811	150	4,509	6,152	10,811	0	10,811	837					
2008	0	9,951	9,951	115	4,149	5,687	9,951	0	9,951	901					
2009	0	9,075	9,075	147	2,015	6,913	9,075	0	9,075	1,069					
2010	0	7,926	7,926	133	1,718	6,075	7,926	0	7,926	1,120					
2011	0	7,425	7,425	94	1,517	5,539	7,150	275	7,425	1,130					
2012	0	7,398	7,398	27	1,723	5,426	7,176	222	7,398	1,205					
2013	0	7,158	7,158	16	1,637	5,227	6,880	278	7,158	1,245					
2014	0	7,413	7,413	16	1,693	5,601	7,310	103	7,413	1,271	36	1,307	53	36	89
2015	0	5,992	5,992	12	1,165	4,472	5,649	343	5,992	1,237	91	1,328	108	91	199
2016	0	5,889	5,889	10	1,147	4,396	5,553	336	5,889	1,270	161	1,431	109	161	270
2017	0	5,970	5,970	12	1,291	4,488	5,791	179	5,970	1,311	157	1,468	99	157	256

1/ Water use definitions for all major water purveyors were updated and reconciled for Water Year 2014. The updated definitions are provided in Table 7.2.  
 2/ For period prior to 2011, assumes no loss. For 2011 to present, loss percentage within the Santa Margarita River Watershed is determined using the calculation to determine District-wide unaccounted for water by comparing District-wide annual supply and customer deliveries, and is assumed to be constant for all months.  
 3/ EVMWD receives recycled water treated at the RCWD Santa Rosa Water Reclamation Facility via EMWD Palomar Pipeline through a wheeling agreement.

TABLE B-3.1

SANTA MARGARITA RIVER WATERSHED  
ANNUAL WATER PRODUCTION AND USE

FALLBROOK PUBLIC UTILITY DISTRICT

Quantities in Acre Feet

PRODUCTION

USE

WATER YEAR	PRODUCTION										USE				
	TOTAL LAKE SKINNER DIVERSIONS	LAKE SKINNER DIVERSIONS DELIVERED	WELLS	TOTAL DISTRICT IMPORT	DELUZ AREA IMPORT	FALLBROOK AREA IMPORT	TOTAL SMRW IMPORT	TOTAL SMRW IMPORT	TOTAL SMRW PRODUCTION	1/	AG	COMM/DOM	TOTAL IN SMRW	LOSS 2/	TOTAL USE IN SMRW
1966				176	11,169	0	11,169	3,351	3,351	3,404	2,735	328	3,063	341	3,404
1967			16	9,508	0	9,508	2,852	2,852	2,852	2,857	2,253	319	2,572	285	2,857
1968			13	11,411	0	11,411	3,423	3,423	3,423	3,427	2,554	531	3,085	342	3,427
1969			178	9,458	0	9,458	2,837	2,837	2,837	2,891	1,787	814	2,601	290	2,891
1970			305	11,794	0	11,794	3,538	3,538	3,538	3,630	2,649	617	3,266	364	3,630
1971			7	11,350	0	11,350	3,405	3,405	3,405	3,407	2,386	681	3,067	340	3,407
1972			0	13,054	0	13,054	3,916	3,916	3,916	3,916	2,749	775	3,524	392	3,916
1973			0	10,610	38	10,572	3,172	3,172	3,210	3,210	2,156	732	2,888	322	3,210
1974			0	12,911	134	12,777	3,833	3,833	3,967	3,967	2,703	868	3,571	396	3,967
1975			0	11,492	213	11,279	3,384	3,384	3,597	3,597	2,420	816	3,236	361	3,597
1976			0	13,147	431	12,716	4,196	4,196	4,627	4,627	3,200	965	4,165	462	4,627
1977			20	13,435	587	12,848	4,625	4,625	5,212	5,232	3,536	1,174	4,710	522	5,232
1978			97	12,626	651	11,975	4,551	4,551	5,202	5,299	3,504	1,265	4,769	530	5,299
1979			187	12,865	961	11,904	4,762	4,762	5,723	5,910	3,820	1,498	5,318	592	5,910
1980			192	13,602	1,191	12,411	5,213	5,213	6,404	6,596	4,258	1,678	5,936	660	6,596
1981			87	16,878	1,994	14,884	6,549	6,549	8,543	8,630	5,688	2,144	7,832	798	8,630
1982			0	13,270	1,805	11,465	5,274	5,274	7,079	7,079	4,614	1,862	6,476	603	7,079
1983			0	12,298	1,969	10,329	4,751	4,751	6,720	6,720	4,320	1,871	6,191	529	6,720
1984			0	15,429	2,609	12,820	5,897	5,897	8,506	8,506	5,814	2,077	7,891	615	8,506
1985			0	14,256	2,358	11,898	5,473	5,473	7,831	7,831	5,187	2,135	7,322	509	7,831
1986			0	15,383	2,794	12,589	5,791	5,791	8,585	8,585	5,698	2,319	8,017	568	8,585
1987			0	15,313	2,986	12,327	5,670	5,670	8,656	8,656	5,793	2,281	8,074	582	8,656
1988			28	14,460	2,559	11,901	5,474	5,474	8,033	8,061	5,181	2,348	7,529	532	8,061
1989			94	16,179	3,007	13,172	6,059	6,059	9,066	9,160	5,620	2,706	8,326	834	9,160
1990			15	17,568	3,745	13,823	6,358	6,358	10,103	10,118	6,275	2,878	9,153	965	10,118
1991			46	13,939	2,871	11,068	5,091	5,091	7,962	8,008	5,146	2,314	7,460	548	8,008
1992			45	13,698	2,950	10,748	4,943	4,943	7,893	7,938	5,285	2,201	7,486	452	7,938
1993			86	12,695	2,010	10,685	4,915	4,915	6,925	7,011	4,329	2,349	6,678	333	7,011
1994			83	13,124	2,246	10,878	5,004	5,004	7,250	7,333	4,282	2,666	6,948	385	7,333

TABLE B-3.1

SANTA MARGARITA RIVER WATERSHED  
ANNUAL WATER PRODUCTION AND USE

FALLBROOK PUBLIC UTILITY DISTRICT

Quantities in Acre Feet

WATER YEAR	PRODUCTION										USE				
	TOTAL LAKE SKINNER DIVERSIONS	LAKE SKINNER DIVERSIONS DELIVERED	WELLS	TOTAL DISTRICT IMPORT	DELUZ AREA IMPORT	FALLBROOK AREA IMPORT	TOTAL SMRW IMPORT	TOTAL SMRW IMPORT	TOTAL SMRW PRODUCTION <sup>1/</sup>	AG COMM/DOM	TOTAL IN SMRW	LOSS 2/	TOTAL USE IN SMRW		
1995				3	11,620	2,208	9,412	4,330	6,538	6,541	3,818	2,798	6,316	225	6,541
1996				0	14,168	2,733	11,435	5,260	7,993	7,993	4,411	3,247	7,658	335	7,993
1997				0	14,005	2,688	11,317	5,206	7,894	7,894	4,351	3,249	7,600	294	7,894
1998				0	11,757	1,803	9,954	4,579	6,382	6,382	3,245	2,798	6,043	339	6,382
1999				0	14,307	1,572	12,735	5,858	7,430	7,430	3,748	3,271	7,019	411	7,430
2000				0	15,983	2,705	14,478	6,660	9,365	9,365	5,138	3,903	9,041	324	9,365
2001				0	15,249	2,562	12,687	5,836	8,398	8,398	4,413	3,537	7,950	448	8,398
2002				0	17,422	2,900	14,522	6,680	9,580	9,580	5,185	4,036	9,221	359	9,580
2003				0	15,864	3,393	12,471	5,737	9,130	9,130	6,041	3,737	9,778	(648)	9,130
2004				0	19,640	5,027	14,613	6,722	11,749	11,749	7,018	4,222	11,240	509	11,749
2005	1,261			0	13,986	3,101	10,885	5,007	8,108	9,369	4,654	3,581	8,235	1,134	9,369
2006	106			0	18,297	3,994	14,303	6,579	10,573	10,679	5,958	4,019	9,977	702	10,679
2007	0			0	20,750	5,087	15,664	7,205	12,292	12,292	7,271	4,500	11,771	521	12,292
2008	31			0	15,508	3,307	12,202	5,613	8,920	8,951	4,492	3,962	8,454	497	8,951
2009	0			0	15,355	2,767	12,588	5,790	8,557	8,557	4,151	3,896	8,047	510	8,557
2010	20			0	12,752	2,438	10,314	4,754	7,183	7,203	3,576	3,195	6,771	432	7,203

1/ Total SMRW production equals SMRW Import plus 30% local (1966-1971).

2/ Loss = Total production less total use.



TABLE B-3.2

**SANTA MARGARITA RIVER WATERSHED  
ANNUAL WATER PRODUCTION AND USE**

**FALLBROOK PUBLIC UTILITY DISTRICT**

Quantities in Acre Feet

WATER YEAR	DISTRICT WIDE PRODUCTION				SMRW PRODUCTION			SMRW USE					
	TOTAL LAKE SKINNER DIVERSIONS 1/	LAKE SKINNER DIVERSIONS DELIVERED	TOTAL DISTRICT IMPORT 2/	TOTAL DISTRICT SUPPLY 3/	SMRW LAKE SKINNER	SMRW IMPORT	TOTAL SMRW PRODUCTION	AG	COMM	DOM	TOTAL DELIVERED IN SMRW	LOSS 4/	TOTAL USE IN SMRW
2011	284	284	11,264	11,548	284	6,234	6,518	3,742	327	1,990	6,059	459	6,518
2012	0	0	12,579	12,579	0	7,254	7,254	4,261	337	2,060	6,658	596	7,254
2013	0	0	12,593	12,593	0	7,357	7,357	4,541	300	2,140	6,981	376	7,357
2014	0	0	13,068	13,068	0	7,578	7,578	4,688	359	2,129	7,176	402	7,578
2015	0	0	10,639	10,639	0	5,919	5,919	3,434	304	1,826	5,564	355	5,919
2016	0	0	9,998	9,998	0	5,395	5,395	3,039	218	1,701	4,958	437	5,395
2017	0	0	8,959	8,959	0	4,576	4,576	2,272	209	1,784	4,265	311	4,576

1/ Diverted under Permit No. 11356.

2/ Includes production from Capra Well located in San Luis Rey Watershed and supply from San Diego County Water Authority.

3/ A portion of the District is outside the Santa Margarita River Watershed.

4/ Loss percentage within the Santa Margarita River Watershed is determined using the calculation to determine District-wide unaccounted for water by comparing District-wide annual supply and customer deliveries, and is assumed to be constant for all months.

TABLE B-4  
 SANTA MARGARITA RIVER WATERSHED  
 ANNUAL WASTEWATER PRODUCTION AND DISTRIBUTION

FALLBROOK PUBLIC UTILITY DISTRICT  
 Quantities in Acre Feet

WATER YEAR	TOTAL WASTEWATER PRODUCTION 1/	PERCENT WASTEWATER FROM SLR WATERSHED 2/	WASTEWATER IMPORTED FROM SLR WATERSHED	PERCENT WASTEWATER FROM SMRW	WASTEWATER FROM SMRW	WASTEWATER REUSED IN SMRW	WASTEWATER FROM U.S. NWS 3/	WASTEWATER EXPORTED FROM SMRW 4/
1966	395	19	75	81	320		0	0
1967	460	20	92	80	368		0	0
1968	524	20	105	80	419		0	0
1969	588	21	123	79	465		0	0
1970	652	22	143	78	509		0	0
1971	717	22	158	78	559		0	0
1972	782	23	180	77	602		0	0
1973	847	24	203	76	644		0	0
1974	912	25	228	75	684		0	0
1975	976	25	244	75	732		0	0
1976	1,040	26	270	74	770		0	0
1977	1,105	27	298	73	807		0	0
1978	1,170	28	328	72	842		0	0
1979	1,234	28	346	72	888		0	0
1980	1,298	29	376	71	922		0	0
1981	1,363	30	409	70	954		0	0
1982	1,428	31	443	69	985		0	0
1983	1,492	31	463	69	1,029		26 E	1,003
1984	1,556	32	498	68	1,058		26 E	1,032
1985	1,621	33	535	67	1,086		26 E	1,060
1986	1,685	34	573	66	1,112		18 P	1,094
1987	1,750	34	595	66	1,155		27	1,128
1988	1,815	35	635	65	1,180		25	1,155
1989	1,881	36	677	64	1,204		22	1,182
1990	1,952	34	664	66	1,298		27	1,271
1991	1,622	40	649	60	973		11	962
1992	1,730	37	639	63	1,090		7	1,083
1993	2,051	38	780	62	1,271		16	1,255
1994	1,834	42	761	58	1,073		5	1,068
1995	1,941	40	776	60	1,165		12	1,153
1996	1,799	42	759	58	1,040		5	1,035
1997	1,780	42	753	58	1,027		6	1,021

TABLE B-4  
 SANTA MARGARITA RIVER WATERSHED  
 ANNUAL WASTEWATER PRODUCTION AND DISTRIBUTION

FALLBROOK PUBLIC UTILITY DISTRICT  
 Quantities in Acre Feet

WATER YEAR	TOTAL WASTEWATER PRODUCTION 1/	PERCENT WASTEWATER FROM SLR WATERSHED 2/	WASTEWATER IMPORTED FROM SLR WATERSHED	PERCENT WASTEWATER FROM SMRW	WASTEWATER FROM SMRW	WASTEWATER REUSED IN SMRW	WASTEWATER FROM U.S. NWS 3/	WASTEWATER EXPORTED FROM SMRW 4/
1998	2,297	35	807	65	1,490		8	1,482
1999	2,175	36	793	64	1,382		5	1,377
2000	2,164	34	738	66	1,426		7	1,419
2001	2,191	35	767	65	1,424	24	8	1,392
2002	2,061	39	799	61	1,262	28	9	1,225
2003	2,276	39	886	61	1,390	21	10	1,359
2004	2,199	38	836	62	1,363	26	8	1,329
2005	2,505	42	1,048	58	1,457	24	16	1,417
2006	2,479	42	1,050	58	1,429	26	8	1,395
2007	1,951	52	1,019	48	932	29	12	891
2008	1,940	57	1,102	43	838	28	11	799
2009	1,900	54	1,028	46	872	31	12	829
2010	1,972	51	1,012	49	960	27	7	926
2011	2,006	54	1,076	46	930	21	8	901
2012	1,955	51	997	49	958	21	9	928
2013	1,886	51	963	49	923	20	3	900
2014	1,840	50	916	50	924	22	6	896
2015	2,006	45	899	55	1,107	19	3	1,086
2016	1,581	53	839	47	742	17	1	724
2017	1,720	53	913	47	807	15	1	791

1/ Measured quantities available for Total Wastewater in Water Year 1969 and July 1989.

All other quantities are estimated (1966-1989).

2/ San Luis Rey Watershed

3/ United States Naval Weapons Station

4/ Prior to 1983, Wastewater was discharged into Fallbrook Creek, located in the SMRW. After 1983, Wastewater was discharged into an ocean outfall located outside the SMRW.

E - Estimated

P - Partial Year Data



TABLE B-5

SANTA MARGARITA RIVER WATERSHED  
ANNUAL WATER PRODUCTION AND USE

METROPOLITAN WATER DISTRICT  
DELIVERIES IN DOMENIGONI VALLEY

Quantities in Acre Feet

WATER YEAR	PRODUCTION			USE					TOTAL USE
	WELLS	IMPORT TO SMRW	TOTAL IN SMRW	AG	COMM/DOM 1/	GW RECHARGE	TOTAL DELIVERED	LOSS 2/	
1983	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	0	0	0
1989	0	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0	0
1995	0	547	547	354	193	0	547	0	547
1996	0	1,005	1,005	763	242	0	1,005	0	1,005
1997	0	3,521	3,521	591	2,891	39	3,521	0	3,521
1998	0	5,023	5,023	193	4,403	427	5,023	0	5,023
1999	0	3,781	3,781	404	2,978	399	3,781	0	3,781
2000	0	712	712	92	356	264	712	0	712

**TABLE B-5**  
**SANTA MARGARITA RIVER WATERSHED**  
**ANNUAL WATER PRODUCTION AND USE**  
**METROPOLITAN WATER DISTRICT**  
**DELIVERIES IN DOMENIGONI VALLEY**

Quantities in Acre Feet

WATER YEAR	PRODUCTION			USE					TOTAL USE
	WELLS	IMPORT TO SMRW	TOTAL IN SMRW	AG	COMM/DOM 1/	GW RECHARGE	TOTAL DELIVERED	LOSS 2/	
2001	0	689	689	505	0	184	689	0	689
2002	0	595	595	569	26	0	595	0	595
2003	0	496	495	495	0	0	495	0	495
2004	0	766	766	766	0	0	766	0	766
2005	0	556	556	556	0	0	556	0	556
2006	0	506	506	506	0	0	506	0	506
2007	0	660	660	660	0	0	660	0	660
2008	0	493	493	493	0	0	493	0	493
2009	0	465	465	465	0	0	465	0	465
2010	0	372	372	372	0	0	372	0	372
2011	0	336	336	336	0	0	336	0	336
2012	0	466	466	466	0	0	466	0	466
2013	0	892	892	892	0	0	892	0	892
2014	0	1,074	1,074	1,074	0	0	1,074	0	1,074
2015	0	1,090	1,039	1,090	0	0	1,090	0	1,090
2016	0	1,186	1,186	1,186	0	0	1,186	0	1,186
2017	0	1,128	1,128	1,128	0	0	1,128	0	1,128

1/ Construction Water

2/ Points of delivery located at metered pumps on San Diego Canal and thus the losses in the MWD system are zero.

TABLE B-6

SANTA MARGARITA RIVER WATERSHED  
ANNUAL WATER PRODUCTION AND USE

PECHANGA INDIAN RESERVATION

Quantities in Acre Feet

PRODUCTION 1/

USE 2/, 4/

WATER YEAR	PRODUCTION 1/				USE 2/, 4/							
	SURFACE DIVERSION	WELLS ON RESERVATION	DELIVERED GROUNDWATER FROM RCWD	RECYCLED WATER FROM EMWD	TOTAL	AG	COMM	DOM	TOTAL DELIVERED	LOSS 3/	TOTAL USE	
1966												
1967												
1968												
1969												
1970												
1971												
1972												
1973												
1974												
1975												
1976												
1977												
1978												
1979												
1980												
1981												
1982												
1983												
1984												
1985												
1986												
1987												
1988												
1989												
1990												
1991	0	58	0	0	58	0	0	58	N/R	N/R	58	
1992	0	66	0	0	66	0	0	66	N/R	N/R	66	
1993	0	91	0	0	91	0	0	91	N/R	N/R	91	
1994	0	70	0	0	70	0	0	70	N/R	N/R	70	
1995	0	63	0	0	63	0	4	59	N/R	N/R	63	
1996	0	145	0	0	145	0	45	100	N/R	N/R	145	
1997	4	167	0	0	171	0	25	146	N/R	N/R	171	
1998	4	175	0	0	179	0	62	117	N/R	N/R	179	
1999	4	241	0	0	245	33	84	128	N/R	N/R	245	

TABLE B-6

SANTA MARGARITA RIVER WATERSHED  
ANNUAL WATER PRODUCTION AND USE

PECHANGA INDIAN RESERVATION

Quantities in Acre Feet

WATER YEAR	PRODUCTION 1/					USE 2/, 4/					
	SURFACE DIVERSION	WELLS ON RESERVATION	DELIVERED GROUNDWATER FROM RCWD	RECYCLED WATER FROM EMWD	TOTAL	AG	COMM	DOM	TOTAL DELIVERED	LOSS 3/	TOTAL USE
2000	4	370	0	0	374	51	182	141	N/R	N/R	374
2001	4	291	0	0	295	56	85	154	N/R	N/R	295
2002	4	460	0	0	464	73	194	174	441	23	464
2003	4	600	0	0	604	78	354	148	580	24	604
2004	4	721	0	0	725	81	537	71	689	36	725
2005	0	608	0	0	608	140	401	61	602	6	608
2006	0	754	0	0	754	159	401	194	N/R	N/R	754
2007	0	919	154	0	1,073	275	517	229	1,021	52	1,073
2008	0	865	412	0	1,277	599	370	282	1,251	26	1,277
2009	0	702	250	268	1,220	548	441	195	1,184	36	1,220
2010	0	561	230	394	1,185	531	364	235	1,130	55	1,185
2011	0	632	201	326	1,159	468	418	257	1,143	16	1,159
2012	0	669	177	329	1,175	513	405	215	1,133	42	1,175
2013	0	798	77	393	1,268	611	415	219	1,245	23	1,268
2014	0	765	171	442	1,378	0	1,133	162	1,295	83	1,378
2015	0	804	11	358	1,173	0	1,017	115	1,132	41	1,173
2016	0	755	0	387	1,142	0	960	101	1,061	81	1,142
2017	0	695	2	353	1,050	0	897	115	1,012	38	1,050

1/ Records prior to 1991 not available.

2/ For period 1991 through 2006, use shown as reported to Watermaster and published in prior Watermaster reports.

3/ For 2007, loss assumed to be 5% for all use types; for prior years any losses shown as reported to Watermaster.

For 2008 to present, loss determined as Total Production less Total Delivered.

4/ Water use definitions for all major water purveyors were updated and reconciled for Water Year 2014. The updated definitions are provided in Table 7.2. Based upon the revised definitions adopted by the Watermaster, Pechanga Band had no agricultural use in the SMR Watershed beginning in Water Year 2014. An undetermined amount of agricultural use reported in prior years would be reported as commercial use under the revised definitions.

N/R--Not reported.



TABLE B-7  
 SANTA MARGARITA RIVER WATERSHED  
 ANNUAL WATER PRODUCTION AND USE

RAINBOW MUNICIPAL WATER DISTRICT

Quantities in Acre Feet

WATER YEAR	PRODUCTION			USE					
	LOCAL	IMPORT TO DISTRICT	TOTAL IN WATERSHED 1/	AG 2/	COMMERCIAL 3/, 4/	DOMESTIC 3/	TOTAL DELIVERED	LOSS 5/, 6/	TOTAL USE
1966	0	14,538	1,308	1,049		140	1,189	119	1,308
1967	0	12,167	1,095	878		117	995	100	1,095
1968	0	15,301	1,377	1,104		147	1,252	125	1,377
1969	0	13,917	1,253	1,005		134	1,139	114	1,252
1970	0	18,764	1,689	1,354		181	1,535	154	1,689
1971	0	18,338	1,650	1,324		177	1,500	150	1,650
1972	0	22,633	2,037	1,634		218	1,852	185	2,037
1973	0	17,955	1,616	1,296		173	1,469	147	1,616
1974	0	22,768	2,049	1,643		219	1,863	186	2,049
1975	0	13,856	1,247	1,000		133	1,134	113	1,247
1976	0	24,878	2,239	1,796		240	2,035	204	2,239
1977	0	26,038	2,343	1,879		251	2,130	213	2,343
1978	0	24,312	2,188	1,755		234	1,989	199	2,188
1979	0	26,084	2,348	1,883		251	2,134	213	2,347
1980	0	27,660	2,489	1,997		266	2,263	226	2,489
1981	0	35,036	3,153	2,529		337	2,866	287	3,153
1982	0	27,334	2,460	1,973		263	2,236	224	2,460
1983	0	24,957	2,190	1,735		256	1,991	199	2,190
1984	0	32,526	3,068	2,483		306	2,789	279	3,068
1985	0	28,612	3,410	2,798		302	3,100	310	3,410
1986	0	29,023	2,945	2,353		324	2,677	268	2,945
1987	0	29,449	3,390	2,765		317	3,082	308	3,390
1988	0	29,070	2,985	2,372		342	2,714	271	2,985
1989	0	32,034	3,003	2,385		345	2,730	273	3,003
1990	0	34,612	3,818	3,003		468	3,471	347	3,818
1991	0	27,754	2,904	2,276		364	2,640	264	2,904

TABLE B-7  
 SANTA MARGARITA RIVER WATERSHED  
 ANNUAL WATER PRODUCTION AND USE

RAINBOW MUNICIPAL WATER DISTRICT  
 Quantities in Acre Feet

WATER YEAR	PRODUCTION			USE					
	LOCAL	IMPORT TO DISTRICT	TOTAL IN WATERSHED 1/	AG 2/	COMMERCIAL 3/, 4/	DOMESTIC 3/	TOTAL DELIVERED	LOSS 5/, 6/	TOTAL USE
1992	0	26,056	2,277	1,877		193	2,070	207	2,277
1993	0	23,766	1,965	1,655		132	1,787	178	1,965
1994	0	22,173	1,651	1,368		133	1,501	150	1,651
1995	0	20,935	1,661	1,398		112	1,510	151	1,661
1996	0	24,835	1,815	1,487		163	1,650	165	1,815
1997	0	24,638	1,429	1,139		160	1,299	130	1,429
1998	0	19,693	1,601	1,315		141	1,456	145	1,601
1999	0	24,961	1,727	1,411		159	1,570	157	1,727
2000	0	30,446	2,217	1,861		154	2,015	202	2,217
2001	0	27,214	1,804	1,439		202	1,641	163	1,804
2002	0	32,854	1,676	1,368		156	1,524	152	1,676
2003	0	29,156	1,510	1,237		136	1,373	137	1,510
2004	0	33,686	1,888	1,567		149	1,716	172	1,888
2005	0	25,135	1,610	1,331		133	1,464	146	1,610
2006	0	29,797	1,851	1,529		154	1,683	168	1,851
2007	0	32,939	2,262	1,871		185	2,056	206	2,262
2008	0	24,390	1,790	1,461		167	1,628	162	1,790
2009	0	27,075	1,852	1,463		220	1,683	169	1,852
2010	0	20,769	1,453	1,147		174	1,321	132	1,453
2011	0	18,599	1,492	1,251		105	1,356	136	1,492
2012	0	21,152	1,892	1,602		118	1,720	172	1,892
2013	0	21,863	1,713	1,441		116	1,557	156	1,713
2014	0	22,926	1,732	1,410	0	191	1,601	131	1,732

TABLE B-7  
 SANTA MARGARITA RIVER WATERSHED  
 ANNUAL WATER PRODUCTION AND USE

RAINBOW MUNICIPAL WATER DISTRICT  
 Quantities in Acre Feet

WATER YEAR	PRODUCTION			USE					
	LOCAL	IMPORT TO DISTRICT	TOTAL IN WATERSHED 1/	AG 2/	COMMERCIAL 3/, 4/	DOMESTIC 3/	TOTAL DELIVERED	LOSS 5/, 6/	TOTAL USE
2015	0	18,358	1,333	1,111	0	168	1,279	54	1,333
2016	0	18,103	1,298	1,058	31	158	1,247	51	1,298
2017	0	16,460	1,186	966	20	154	1,140	46	1,186

1/ 1966 through 1982 estimated to be 9% of total District imports.  
 2/ 1966 through 1982 estimated to be 80.2% of total deliveries to SMRW.  
 3/ For 1966 through 2013, Commercial Use and Domestic Use reported as combined Commercial/Domestic Use; Table B-7 now shows the combined amount under the Domestic Use category. For 1966 through 1982, combined Commercial/Domestic Use estimated to be 10.7% of total deliveries to SMRW.  
 4/ There is minimal commercial use within the SMRW portion of the District service area. Beginning in 2014, an undetermined amount of Commercial Use is now reported under Agricultural Use category.  
 5/ From 1989 through 2013, Loss was calculated as 10% of total deliveries.  
 6/ Beginning in 2014, Loss percentage within the Santa Margarita River Watershed is determined using the calculation to determine District-wide unaccounted for water by comparing District-wide annual supply and customer deliveries, and is assumed to be constant for all months.

TABLE B-8  
 SANTA MARGARITA EIVER WATERSHED  
 ANNUAL WATER PRODUCTION AND USE  
 RANCHO CALIFORNIA WATER DISTRICT  
 Quantities in Acre Feet

YEAR	PRODUCTION					USE 12/					VAIL LAKE		RECYCLED WATER							
	WELLS	EXPORT 1/	NET WELLS	IMPORT	EXPORT 2/	NET IMPORT	TOTAL	AG 3/	AG/DOM 3/	COMM 4/	DOM 4/	SMR RELEASE	IMPORT RECHARGE TO STORAGE	TOTAL USE 5/	LOSS 5/	TOTAL	RELEASE AND RECHARGE 6/	IRRIGATION 6/	REUSE IN SMRW	MURRIETA CREEK DISCHARGE 7/
1966																				
1967	4,288	0	0	0	0	0	0										185	0	0	0
1968	5,100	0	0	0	0	4,288	0										1,136	0	0	0
1969	3,617	0	0	0	0	5,100	0										398	0	0	0
1970	6,721	0	0	0	0	3,617	0										697	0	0	0
1971	7,960	0	0	0	0	6,721	0										540	0	0	0
1972	8,369	0	0	0	0	7,960	0										1,541	0	0	0
1973	7,726	0	0	0	0	8,369	0										203	0	0	0
1974	10,163	0	0	0	0	7,726	0										524	0	0	0
1975	10,357	0	0	0	0	10,163	0										1,066	0	0	0
1976	11,809	119	0	0	0	10,357	0										369	0	0	0
1977	10,522	1,845	0	0	0	11,928	0										50	0	0	0
1978	8,930	5,774	0	0	0	1,845	0										0	0	0	0
1979	11,371	7,009	0	0	0	5,774	0										0	0	0	0
1980	12,621	10,126	0	0	0	7,009	0										0	0	0	0
1981	15,612	15,282	0	0	0	10,126	0										10,944	0	0	0
1982	12,631	13,378	0	0	0	15,282	0										6,802	0	0	0
1983	16,675	5,752	0	0	0	13,378	0										6,058	0	0	0
1984	25,660 8/	6,716	0	0	0	5,752	0										12,113	715	0	0
1985	24,373	7,158	0	0	0	6,716	0										1,144	0	0	0
1986	26,997	11,174	0	0	0	7,158	0										5,027	1,201	0	0
1987	33,735	17,854	0	0	0	11,174	0										8,722	1,053	0	0
1988	21,367	17,854	0	0	0	7,564	0										273	8,089	48	0
1989	26,131	22,895	0	0	0	17,854	0										4,844	0	0	0
1990	33,241	22,030	0	0	0	22,895	0										0	0	168	0
1991	26,503	21,238	0	0	0	22,030	0										0	133	0	0
1992	29,968	16,931	0	0	0	21,238	0										6,253	352	0	0
1993	31,029	11,411	0	0	0	16,931	0										2,244	374	0	0
1994	32,725	16,386	0	0	0	11,411	0										31,704	378	0	0
1995	33,111	15,108	0	0	0	16,386	0										0	1,936	0	0
1996	36,086	23,600	0	0	0	15,108	0										11,158	1,753	0	0
1997	33,980	26,992	0	0	0	23,600	0										9,427	2,264	0	0
1998	26,851	19,584	0	0	0	26,992	0										1,725	693 11/	0	0
1999	30,598	34,490	0	0	0	19,584	0										4,514	1,376 11/	0	0
2000	27,938	55,409	0	0	0	34,490	0										1,010	1,524 11/	1,654	0
2001	26,421	41,823	0	0	0	55,409	0										0	3,550 11/	1,854	0
2002	24,895	54,148	0	0	0	41,823	0										0	3,719 11/	2,015	0
2003	25,238	64	25,174	183	0	54,148	0										0	4,519 11/	2,180	0
2004	25,353	312	25,041	63,170	762	50,744	0										0	3,780 11/	104	0
2005	27,606	319	27,287	48,192	578	63,170	0										0	3,257 11/	0	0
2006	27,559	317	27,242	61,336	725	47,614	0										0	4,284 11/	0	0
						60,614	0										1,399	4,796 11/	0	0
						87,853	0										0	0	0	0

TABLE B-8  
 SANTA MARGARITA EIVER WATERSHED  
 ANNUAL WATER PRODUCTION AND USE  
 RANCHO CALIFORNIA WATER DISTRICT  
 Quantities in Acre Feet

YEAR	PRODUCTION					USE 12/					VAIL LAKE		RECYCLED WATER							
	WELLS	EXPORT 1/	NET WELLS	IMPORT	EXPORT 2/	NET IMPORT	TOTAL	AG	AG/DOM 3/	COMM 4/	DOM	SMR RELEASE	IMPORT RECHARGE TO STORAGE	TOTAL USE	LOSS 5/	TOTAL	RELEASE AND RECHARGE	IRRIGATION 6/	REUSE IN SMRW	MURRIETA CREEK DISCHARGE 7/
2007	27,645	364	27,281	64,792	974	63,818	91,099	34,810	7,049	5,063	31,820	3,859	2,247	84,848	6,251	91,099	704	0	4,730	0
2008	26,239	361	25,878	51,453	770	50,683	76,561	26,388	5,621	4,785	31,759	4,092	1,417	74,062	2,499	76,561	4,845	0	4,355	0
2009	27,820	367	27,453	50,988	718	50,270	77,723	26,811	5,986	4,306	30,159	5,302	2,357	74,921	2,802	77,723	1,236	0	4,191	0
2010	25,685	318	25,367	41,407	513	40,894	66,261	21,456	4,886	3,766	26,778	3,913	2,075	62,874	3,387	66,261	801	0	3,998	0
2011	27,725	302	27,423	39,842	431	39,411	66,834	20,954	5,010	3,847	25,747	4,399	5,239	65,196	1,638	66,834	2,470	0	3,488	0
2012	24,942	284	24,658	42,395	495	41,900	66,558	22,871	5,785	4,217	26,604	3,708	702	63,887	2,671	66,558	(5)	0	3,237	0
2013	27,445	289	27,156	41,112	541	40,571	67,727	24,111	6,331	4,401	27,594	2,530	325	65,292	2,435	67,727	2,614	0	2,929	0
2014	26,412	289	26,123	47,137	534	46,603	72,726	26,154	0	10,956	28,925	4,126	(264)	69,897	2,829	72,726	85	0	3,145	0
R 2015	24,982	251	24,731	33,922	349	33,573	58,304	21,025	0	8,742	23,910	3,432	(83)	57,026	1,278	58,304	147	0	2,994	0
R 2016	26,025	202	25,823	35,836	358	35,478	61,301	20,859	0	7,895	21,819	4,098	3,300	57,971	3,330	61,301	4,418	0	2,953	0
2017	19,260	163	19,097	40,704	370	40,334	59,431	17,529	0	8,333	22,624	4,654	3,493	56,633	2,799	59,431	266	0	2,774	0

1/ Groundwater used in San Mateo Watershed.  
 2/ Import used in San Mateo Watershed.  
 3/ Beginning in 2014, the Domestic and Agricultural portions of AG/DOM are reported in their respective categories of use.  
 4/ Beginning in 2014, Commercial use includes golf course and landscape uses, previously these uses were reported as Agricultural use.  
 5/ Loss = Total production less total use.  
 6/ Irrigation 1966 to 1976 by pumping from Vail Lake. Figures from 1966 to 1971 supplied by USGS; 1972 to present supplied by RCWD.  
 7/ Discharge from 2M/GD Demonstration project.  
 8/ Includes 98 acre feet from wells out of groundwater area.  
 9/ Import recharge was 2,294 AF but portion remaining in storage was not computed due to lack of data.  
 10/ Import recharge was 701 AF but portion remaining in storage was not computed due to lack of data.  
 11/ Does not include EIMWD recycled water production.  
 12/ Water Use definitions for all major water purveyors were updated and reconciled in Water Year 2013-14.  
 R-Revised

TABLE B-9

SANTA MARGARITA RIVER WATERSHED  
ANNUAL WATER PRODUCTION AND USE

U.S.M.C. - CAMP PENDLETON  
EXCLUDING NAVAL WEAPONS STATION SHOWN ON TABLE B-10  
Quantities in Acre Feet

WATER YEAR	AG LOCAL SUPPLY		CAMP SUPPLY		AGRICULTURE		CAMP SUPPLY		TOTAL EXPORT		TOTAL IN SMRW		WASTEWATER 4/				NET EXPORT 9/
	AG LOCAL SUPPLY	TOTAL	IN SMRW	OUT SMRW	IN SMRW	OUT SMRW	IN SMRW	OUT SMRW	TOTAL EXPORT	TOTAL IN SMRW	RECYCLED USE IN SMRW 5/, 6/	OUT SMRW 6/	EXPORTED TO OCEANSIDE 7/	OUTFALL BRINE 8/	TOTAL		
1966	1,101	4,605	429	672	2,026	2,579	3,251	2,455	3,251	2,455	1,893				1,893		
1967	796	4,811	310	486	2,117	2,694	3,180	2,427	3,180	2,427	2,156				2,156		
1968	986	4,939	385	601	2,172	2,767	3,368	2,557	3,368	2,557	2,080				2,080		
1969	940	4,821	367	573	2,058	2,763	3,276	2,485	3,276	2,485	2,189				2,189		
1970	1,106	5,481	431	675	2,347	3,134	3,809	2,778	3,809	2,778	2,145				2,145		
1971	819	5,291	319	500	2,264	3,028	3,527	2,583	3,527	2,583	2,011				2,011		
1972	817	5,323	319	498	2,278	3,045	3,543	2,597	3,543	2,597	2,068				2,068		
1973	1,003	5,121	391	612	2,189	2,932	3,544	2,580	3,544	2,580	2,137				2,137		
1974	909	5,202	355	554	2,224	2,978	3,532	2,579	3,532	2,579	2,055				2,055		
1975	757	4,593	295	462	1,957	2,636	3,098	2,252	3,098	2,252	2,519				2,519		
1976	885	5,384	345	540	2,305	3,079	3,619	2,650	3,619	2,650	2,447				2,447		
1977	984	4,506	388	606	1,918	2,588	3,194	2,306	3,194	2,306	2,358				2,358		
1978	1,176	5,177	69	107	2,213	2,964	3,071	2,282	3,071	2,282	2,446				2,446		
1979	1,070	7,213	417	653	3,109	4,104	4,756	3,527	4,756	3,527	2,493				2,493		
1980	835	5,495	326	509	2,353	3,142	3,651	2,679	3,651	2,679	2,506				2,506		
1981	1,464	5,240	571	893	2,241	2,999	3,892	2,812	3,892	2,812	2,368				2,368		
1982	1,447	5,024	564	883	2,146	2,878	3,761	2,710	3,761	2,710	2,254				2,254		
1983	942	4,215	367	575	1,790	2,425	3,000	2,157	3,000	2,157	2,494				2,494		
1984	1,078	4,501	420	658	1,916	2,585	3,243	2,336	3,243	2,336	2,443				2,443		
1985	1,069	4,764	417	652	2,039	2,725	3,377	2,456	3,377	2,456	2,619				2,619		
1986	953	4,807	372	581	2,062	2,745	3,326	2,434	3,326	2,434	2,240				2,240		
1987	1,098	4,838	428	670	2,064	2,774	3,444	2,492	3,444	2,492	3,166				3,166		
1988	1,223	4,721	477	746	2,010	2,711	3,457	2,487	3,457	2,487	3,396				3,396		
1989	856	5,044	334	522	2,148	2,896	3,418	2,482	3,418	2,482	2,747				2,747		
1990	855	4,228	333	522	1,779	2,449	2,971	2,112	2,971	2,112	2,728				2,728		
1991	584	3,159	216	338	1,329	1,830	2,168	1,545	2,168	1,545	2,289				2,289		
1992	898	3,254	350	548	1,376	1,878	2,426	1,726	2,426	1,726	2,481	362			2,799		
1993	1,067	2,879	416	651	1,201	1,678	2,329	1,617	2,329	1,617	2,975	205			3,180		
1994	1,471	3,150	574	897	1,345	1,805	2,702	1,919	2,702	1,919	2,535	279			2,814		
1995	985	3,768	384	601	1,588	2,180	2,781	1,972	2,781	1,972	2,453	280			2,733		
1996	1,000	5,199	390	610	2,232	2,967	3,577	2,622	3,577	2,622	2,444	330			2,774		
1997	1,066	5,238	416	650	2,244	2,994	3,644	2,660	3,644	2,660	2,920	509			3,429		
1998	1,026	5,468	400	626	2,352	3,116	3,742	2,752	3,742	2,752	3,008	222			3,230		
1999	1,064	5,054	415	649	2,145	2,909	3,558	2,560	3,558	2,560	3,023	205			3,228		
2000	1,296	5,765	506	790	2,483	3,282	4,072	2,989	4,072	2,989	3,152	411			3,563		
2001	1,025	5,341	399	626	2,314	3,027	3,653	2,713	3,653	2,713	3,140	454			3,594		
2002	1,184	5,269	462	722	2,290	2,979	3,701	2,752	3,701	2,752	2,900	469			3,369		

**TABLE B-9**  
**SANTA MARGARITA RIVER WATERSHED**  
**ANNUAL WATER PRODUCTION AND USE**  
**U.S.M.C. - CAMP PENDLETON**  
**EXCLUDING NAVAL WEAPONS STATION SHOWN ON TABLE B-10**  
 Quantities in Acre Feet

WATER YEAR	PRODUCTION		USE 1/				WASTEWATER 4/			NET EXPORT 9/	
	AG LOCAL	CAMP SUPPLY	AGRICULTURE IN SMRW 2/	CAMP SUPPLY IN SMRW 3/	RECYCLED USE IN SMRW 5/, 6/	EXPORTED TO OCEANSIDE RECYCLED 7/	EXPORTED TO OCEANSIDE OUTFALL BRINE 8/	TOTAL			
2003	1,270	5,210	495	2,218	2,992	3,767	2,713	2,687	415	3,102	
2004	1,227	5,538	479	2,396	3,142	3,890	2,875	0	444	2,988	
2005	1,317	4,902	514	2,134	2,768	3,571	2,648	0	489	3,015	
2006	1,530	5,311	597	2,301	3,010	3,943	2,898	0	449	2,747	
2007	1,385	5,850	540	2,535	3,315	4,160	3,075	0	416	2,725	
2008	1,606	5,315	579	2,603	2,712	3,739	3,182	0	357	2,787	
2009	882	5,516	273	2,593	2,923	3,532	2,866	49	488	2,503	
2010	645	5,137	202	2,672	2,465	2,908	2,874	6	396	2,241	
2011	76	5,165	24	2,583	2,582	2,634	2,607	0	320	2,882	
2012	0	4,676	0	1,869	2,807	2,807	1,869	29	393	2,241	
2013	0	5,744	0	2,690	2,690	2,690	2,690	0	403	2,723	
2014	0	5,814	0	2,523	2,733	2,733	2,523	29	484	2,671	
2015	0	4,690	0	1,816	2,311	2,311	1,816	49	401	2,575	
2016	0	4,228	0	1,789	2,277	2,277	1,789	41	423	2,266	
2017	0	4,874	0	2,219	2,502	2,502	2,219	29	347	2,444	

1/ Use equals Production less Brine byproduct from Southern Advanced Water Treatment Plant (SAWTP) beginning February 2013. Assumes no other losses.  
 2/ For years 1966 through 2007, agricultural water use is divided with 39% used inside SMRW and 61% used outside SMRW, thereafter proportions provided by Camp Pendleton.  
 3/ Prior to 1969, 44% used inside the SMRW and 56% used outside the SMRW. For years 1969 through 2007, Camp Supply water use inside SMRW equals 44% of sum of Camp Supply production plus Naval Weapons Station Import, less the NWS Import. Annual proportions provided by Camp Pendleton beginning 2008.  
 4/ All southern wastewater treated at Southern Regional Tertiary Treatment Plant (SRTTP) beginning December 2008.  
 5/ For years 1966 through 2003, recycled use inside SMRW reported as recharged wastewater from ponds and recharge areas. See prior reports from 2008 and earlier for additional information.  
 6/ Recycled use for irrigation of golf course, landscaping and park areas.  
 7/ Recycled water not used but rather exported to Oceanside Outfall.  
 8/ Brine from SAWTP exported to Oceanside Outfall.  
 9/ Net Export equals the sum of Agriculture Out, Camp Supply Out, Recycled Out and Export to Oceanside Outfall, minus Wastewater Return, as shown on Table A-8.

TABLE B-10

SANTA MARGARITA RIVER WATERSHED  
ANNUAL WATER PRODUCTION AND USE

U. S. NAVAL WEAPONS STATION, FALLBROOK ANNEX

Quantities in Acre Feet

WATER YEAR	PRODUCTION		USE			WASTEWATER EXPORTED		
	LOCAL	IMPORT TO WATERSHED <sup>1/</sup>	TOTAL	AG	COMM/DOM		LOSS <sup>2/</sup>	TOTAL USE
1966	87	0	87	0	79	9	87	0
1967	92	0	92	0	83	9	92	0
1968	108	0	108	0	97	11	108	0
1969	138	0	138	0	113	25	138	0
1970	152	0	152	0	125	27	152	0
1971	39	76	115	0	100	15	115	0
1972	0	115	115	0	105	10	115	0
1973	0	115	115	0	105	10	115	0
1974	0	115	115	0	105	10	115	0
1975	0	115	115	0	105	10	115	0
1976	0	115	115	0	105	10	115	0
1977	0	115	115	0	105	10	115	0
1978	0	115	115	0	105	10	115	0
1979	0	115	115	0	105	10	115	0
1980	0	115	115	0	105	10	115	0
1981	0	115	115	0	105	10	115	0
1982	0	115	115	0	105	10	115	0
1983	0	115	115	0	105	10	115	26
1984	0	115	115	0	105	10	115	26
1985	0	102	102	0	93	9	102	26



TABLE B-10

**SANTA MARGARITA RIVER WATERSHED  
ANNUAL WATER PRODUCTION AND USE**

**U. S. NAVAL WEAPONS STATION, FALLBROOK ANNEX**

Quantities in Acre Feet

WATER YEAR	PRODUCTION		USE				WASTEWATER EXPORTED	
	LOCAL	IMPORT TO WATERSHED <sup>1/</sup>	TOTAL	AG	COMM/DOM	LOSS <sup>2/</sup>		TOTAL USE
1986	0	94	94	0	85	9	94	18
1987	0	116	116	0	105	11	116	27
1988	0	120	120	0	109	11	120	25
1989	0	128	128	0	116	12	128	22
1990	0	145	145	0	132	13	145	27
1991	0	109	109	0	99	10	109	11
1992	0	99	99	0	90	9	99	7
1993	0	117	117	0	106	11	117	16
1994	0	73	73	0	66	7	73	5
1995	0	125	125	0	114	11	125	12
1996	0	100	100	0	91	9	100	5
1997	0	109	109	0	99	10	109	6
1998	0	97	97	0	88	9	97	8
1999	0	111	111	0	101	10	111	5
2000	0	104	104	0	95	9	104	7
2001	0	73	73	0	66	7	73	8
2002	0	97	97	0	88	9	97	9
2003	0	88	88	0	80	8	88	10
2004	0	73	73	0	66	7	73	8
2005	0	40	40	0	36	4	40	16

TABLE B-10  
 SANTA MARGARITA RIVER WATERSHED  
 ANNUAL WATER PRODUCTION AND USE  
 U. S. NAVAL WEAPONS STATION, FALLBROOK ANNEX  
 Quantities in Acre Feet

WATER YEAR	PRODUCTION		USE				WASTEWATER EXPORTED	
	LOCAL	IMPORT TO WATERSHED <sup>1/</sup>	TOTAL	AG	COMM/DOM	LOSS <sup>2/</sup>		TOTAL USE
2006	0	64	64	0	58	6	64	8
2007	0	70	70	0	64	6	70	12
2008	0	82	82	0	75	7	82	11
2009	0	74	74	0	67	7	74	12
2010	0	69	69	0	63	6	69	7
2011	0	45	45	0	41	4	45	8
2012	0	48	48	0	44	4	48	9
2013	0	47	47	0	43	4	47	3
2014	0	58	58	0	53	5	58	6
2015	0	44	44	0	40	4	44	3
2016	0	62	62	0	57	6	62	1
2017	0	67	67	0	61	6	67	1

1/ Estimate 1969 through 1984 - Records not available

2/ Loss = 10% of Use

TABLE B-11

**SANTA MARGARITA RIVER WATERSHED  
ANNUAL WATER PRODUCTION AND USE**

**WESTERN MUNICIPAL WATER DISTRICT  
MURRIETA DIVISION**

Quantities in Acre Feet

WATER YEAR	PRODUCTION			USE 1/					
	WELLS	IMPORT	TOTAL	AG	COMM	DOM	TOTAL DELIVERED	LOSS 2/	TOTAL USE
1966	41	0	41	0	0	37	37	4	41
1967	45	0	45	0	0	41	41	4	45
1968	54	0	54	0	0	49	49	5	54
1969	54	0	54	0	0	49	49	5	54
1970	73	0	73	0	0	66	66	7	73
1971	83	0	83	3	0	72	75	8	83
1972	111	0	111	10	0	91	101	10	111
1973	92	0	92	11	0	72	84	8	92
1974	132	0	132	14	0	107	120	12	132
1975	153	0	153	18	0	121	139	14	153
1976	117	0	117	22	0	84	106	11	117
1977	170	0	170	21	0	134	155	15	170
1978	169	0	169	19	0	135	154	15	169
1979	197	0	197	19	0	160	179	18	197
1980	218	0	218	20	0	178	198	20	218

TABLE B-11

**SANTA MARGARITA RIVER WATERSHED  
ANNUAL WATER PRODUCTION AND USE**

**WESTERN MUNICIPAL WATER DISTRICT  
MURRIETA DIVISION**

Quantities in Acre Feet

WATER YEAR	PRODUCTION			USE 1/					
	WELLS	IMPORT	TOTAL	AG	COMM	DOM	TOTAL DELIVERED	LOSS 2/	TOTAL USE
1981	265	0	265	30	0	211	241	24	265
1982	230	0	230	21	0	188	209	21	230
1983	216	0	216	14	0	182	196	20	216
1984	304	0	304	26	0	250	276	28	304
1985	308	0	308	19	0	261	280	28	308
1986	305	0	305	22	0	255	277	28	305
1987	326	0	326	23	0	273	296	30	326
1988	303	0	303	13	35	262	275	28	303
1989	286	0	286	11	72	262	344	(4)	286
1990	465	0	465	13	76	266	355	110	465
1991	459	0	459	15	88	250	353	106	459
1992	492	0	492	6	122	302	430	62	492
1993	508	0	508	4	105	323	432	76	508
1994	512	0	512	10	103	324	437	75	512
1995	521	0	521	12	99	321	432	89	521

TABLE B-11

**SANTA MARGARITA RIVER WATERSHED  
ANNUAL WATER PRODUCTION AND USE**

**WESTERN MUNICIPAL WATER DISTRICT  
MURRIETA DIVISION**

Quantities in Acre Feet

WATER YEAR	PRODUCTION			USE 1/				TOTAL USE	
	WELLS	IMPORT	TOTAL	AG	COMM	DOM	TOTAL DELIVERED		LOSS 2/
1996	629	0	629	88	113	384	585	44	629
1997	638	0	638	76	99	392	567	71	638
1998	603	0	603	79	90	362	531	72	603
1999	827	0	827	79	125	548	752	75	827
2000	1,123	0	1,123	199	365	519	1,083	40	1,123
2001	1,389	0	1,389	163	414	740	1,317	72	1,389
2002	1,679	0	1,679	230	348	1,115	1,693	(14)	1,679
2003	1,748	102	1,850	272	275	1,340	1,887	(37)	1,850
2004	1,979	330	2,309	282	407	1,479	2,168	141	2,309
2005	2,098	75	2,173	262	274	1,539	2,075	98	2,173
2006	2,233	316	2,549	338	396	1,696	2,430	119	2,549
2007	1,978	723	2,701	467	276	1,980	2,723	(22)	2,701
2008	210	2,180	2,390	408	251	1,827	2,486	(96)	2,390
2009	861	1,654	2,515	396	219	1,723	2,338	177	2,515
2010	753	1,462	2,215	264	140	1,642	2,046	169	2,215

**TABLE B-11**  
**SANTA MARGARITA RIVER WATERSHED**  
**ANNUAL WATER PRODUCTION AND USE**

**WESTERN MUNICIPAL WATER DISTRICT**  
**MURRIETA DIVISION**  
 Quantities in Acre Feet

WATER YEAR	PRODUCTION			USE 1/					
	WELLS	IMPORT	TOTAL	AG	COMM	DOM	TOTAL DELIVERED	LOSS 2/	TOTAL USE
2011	559	1,642	2,201	324	239	1,497	2,060	141	2,201
2012	750	1,371	2,121	250	340	1,418	2,008	113	2,121
2013	1,014	1,365	2,379	431	166	1,653	2,250	129	2,379
2014	951	1,407	2,358	0	657	1,640	2,297	61	2,358
2015	1,041	820	1,861	0	546	1,274	1,820	41	1,861
2016	642	1,290	1,932	0	723	1,168	1,891	41	1,932
2017	362	1,711	2,073	0	800	1,182	1,982	91	2,073

1/ Water use definitions for all major water purveyors were updated and reconciled for Water Year 2014. The updated definitions are provided in Table 7.2. Based upon the revised definitions adopted by the Watermaster, WMWD had no agricultural use in the SMR Watershed during Water Year 2015. An undetermined amount of agricultural use reported in prior years would be reported as commercial use under the revised definitions.

2/ Loss = Total Production less Total Delivered

TABLE B-12  
 SANTA MARGARITA RIVER WATERSHED  
 MISCELLANEOUS WATER PRODUCTION AND IMPORTS

Quantities in Acre Feet

WATER YEAR	IMPORT		PRODUCTION						
	WESTERN MWD IMPORTS TO IMPROVEMENT DISTRICT A	ANZA MUTUAL WATER COMPANY	OUTDOOR RESORTS RANCHO CALIFORNIA	QUIET OAKS MOBILE HOME PARK	LAKE RIVERSIDE ESTATES	HAWTHORN WATER SYSTEM	JOJOBA HILLS SKP RESORT	COTTONWOOD ELEMENTARY	HAMILTON SCHOOLS
1966	23.50								
1967	20.40								
1968	27.00								
1969	24.60								
1970	30.60								
1971	34.40								
1972	34.10								
1973	30.20								
1974	36.40								
1975	34.20								
1976	35.00								
1977	24.20								
1978	26.00								
1979	24.00								
1980	24.70								
1981	34.30								
1982	34.20								
1983	26.00								
1984	26.00								
1985	27.00								
1986	34.40								
1987	35.50								
1988	35.70								
1989	22.80								
1990	21.90	33.00	42.00	23.50	249.52				
1991	20.70	37.00	50.69	23.50	247.42				
1992	24.60	35.06	50.59	12.21	339.77				
1993	31.40	31.21	42.86	12.24	279.04				
1994	36.60	32.16	42.44	12.20	192.09				
1995	29.10	37.32	38.04	23.82	262.69				
		45.69	69.54	22.60	130.06				

TABLE B-12  
 SANTA MARGARITA RIVER WATERSHED  
 MISCELLANEOUS WATER PRODUCTION AND IMPORTS

Quantities in Acre Feet

WATER YEAR	IMPORT		PRODUCTION												
	WESTERN MWD IMPORTS TO IMPROVEMENT DISTRICT A	ANZA MUTUAL WATER COMPANY	OUTDOOR RESORTS RANCHO CALIFORNIA	QUIET OAKS MOBILE HOME PARK	LAKE RIVERSIDE ESTATES	HAWTHORN WATER SYSTEM	JOJOBA HILLS SKP RESORT	COTTONWOOD ELEMENTARY	HAMILTON SCHOOLS						
1996	35.10	45.53	58.59	21.96	219.73										
1997	30.40	43.87	83.42	30.25	233.56										
1998	31.00	39.54	87.42	24.41	134.96										
1999	40.70	33.30	70.74	25.70	209.55										
2000	41.90	44.67	90.10	24.58	316.57					53.28					
2001	58.70	45.00	208.64	23.21	274.25					74.87					
2002	64.40	41.10	216.13	24.43	323.65					82.87					
2003	42.40	44.04	201.63	34.56	255.93					81.61					
2004	50.30	40.44	216.77	32.20	350.80					94.19					
2005	62.20	38.26	187.06	18.09	208.08					55.87					
2006	65.80	51.36	198.92	27.30	268.60					40.25					
2007	45.30	39.33	480.70	19.80	421.56					37.22					
2008	53.90	34.13	483.69	23.30	334.31					21.56					18.68
2009	50.90	34.13	492.26	23.30	347.51					25.36					N/R
2010	62.30	36.97	510.42	23.30	255.19					24.01					N/R
2011	52.10	27.17	494.40	23.30	270.44					19.27					N/R
2012	48.50	26.22	506.40	23.30	310.31					26.37					N/R
2013	34.84	28.30	655.20	34.30	341.29					16.76					15.09
2014	35.40	29.28	560.30	27.30	378.96					8.91					15.60
2015	29.20	24.80	454.55	23.20	368.06					6.40				14.17	10.86
2016	42.38	23.69	312.90	17.70	379.04					6.40				14.27	12.04
2017	30.30	22.36	517.18	17.70	410.17					6.40				11.04	14.20

N/R -- Not reported.



***SANTA MARGARITA RIVER WATERSHED***  
**ANNUAL WATERMASTER REPORT**  
**WATER YEAR 2016-17**

**APPENDIX C**  
**SUBSTANTIAL USERS OUTSIDE**  
**ORGANIZED WATER SERVICE AREAS**

**December 2018**



APPENDIX C

SANTA MARGARITA RIVER WATERSHED  
**SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS**

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 2016-17	IRRIGATED CROP 2016-17	WELL/ DIVERSION LOCATION TWP/RNG/SEC	WELL PRODUCTION AC. FT	SURFACE DIVERSION AC. FT
<b>AGUANGA GROUNDWATER AREA</b>								
1/ Vail Custodial Services and Vail Lake Rancho California	43425 Sage Road	917-050-007	82.19	Total				
	44175 Sage Road	917-050-009	309.74					
	Aguanga, CA 92536	581-070-011	85.99					
		581-070-013	43.10					
		581-070-015	2.73					
		581-070-016	157.21	of				
		581-150-013	120.56					
		581-150-014	79.82					
		581-150-016	25.37	20.00		Alfalfa	8S/1E-7N(1) 8S/1E-7N(2) 8S/1E-7Q(1) 8S/1E-7Q(2)	Total of   5.90
Val Verde Partners	43023 Hwy 79	583-040-022	93.78	Total		8S/1E-19Q(1)	0.00	
	Aguanga, CA 92536	583-040-021	13.45			8S/1E-19Q(2)	0.00	
	m/t 393 Requeza Street Encinitas, CA 92024	583-130-055	40.00	of	Pasture			
		583-120-092	160.00					
		583-060-003	41.60	13.45				
					8S/1E-29L - Diversion	10.00		
Zen-Kamata, LLC	42551 Hwy 79	583-020-006	9.54	0.00				
	Aguanga, CA 92536	583-020-010	9.00	0.00				
	m/t 2635 N. First St., Ste. 213 San Jose, CA 95134	583-030-005	3.72	0.00				
		583-040-002	1.04	0.00				
		583-040-024	23.48	0.00				
		583-040-025	23.12	0.00				
		583-040-026	23.16	0.00				
		583-040-027	22.64	0.00				
		583-040-028	25.52	0.00				
		583-040-029	19.89	0.00		8S/1E-19K 8S/1E-19G4	0.00 0.00	
						8S/1E-29L - Diversion	0.00	
1/ Lee, Chong Suk and Juyeon P.	43900 Highway 79	583-130-029	10.09	16.61	Row Crops,	8S/1E-29	53.50	
	Aguanga, CA 92536	583-130-030	11.64	Total	Grapes & Fruit			
	m/t 7720 Stenton Ave Ste. 310 Philadelphia, PA 19118							
Aguanga Properties, LLC (Twin Creek Ranch)	44375 Hwy 79	583-120-083	68.09	Total	Row Crops	8S/1E-28N1	Total	
	Aguanga, CA 92536					8S/1E-28N2		
	m/t 444 W Oceanside Blvd Ste. 1508 Long Beach, CA 90802	583-120-090	132.82			Row Crops	8S/1E-29H	
		583-120-091	39.57			Row Crops		
							of	
		583-140-014	48.03			Row Crops	8S/1E-33F	
		583-140-015	40.00	of		Row Crops	8S/1E-33G1	
		583-140-016	40.00			Row Crops	8S/1E-33B	0.00
		583-140-018	10.09					
		583-140-019	10.12					
		583-140-020	10.15					
	583-150-001	80.00	0.00	Row Crops				

Well No. in parentheses designated by Watermaster.

1/ Water Use Report Form not recieved for WY 2016-17, indicated value for irrigated acreage, production, and surface diversion assumed to be the same as last year reported.

APPENDIX C

SANTA MARGARITA RIVER WATERSHED  
**SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS**

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 2016-17	IRRIGATED CROP 2016-17	WELL/ DIVERSION LOCATION TWP/RNG/SEC	WELL PRODUCTION AC. FT	SURFACE DIVERSION AC. FT
<b>AGUANGA GROUNDWATER AREA (Cont.)</b>								
Twin Legacy, LLC Yanik, Robert	41750 Highway 79 Aguanga, CA 92536	917-050-006	233.57	70.00	Row Crops	8S/1W-13Q1	Total   of   689.60	
		917-170-003	80.81	38.00	Row Crops	8S/1W-13Q2		
		917-290-001	126.26	38.00	Row Crops			
		917-290-002	82.25	16.00	Compost			
The Harris Revocable Trust of 1988, Leslie K. Harris-Trustee	m/t 44700 Sage Rd-H Aguanga, CA 92536	581-160-025	18.10	17.00	Citrus & Grass	8S/1E-18J(1) 8S/1E-18J(2)	0.00 0.00	
		581-150-009	7.00	10.00	Fruit			
		581-160-015	7.42	6.00	Fruit			
		581-180-004	20.00	0.00				
		581-180-020	20.00	0.00		8S/1E-17M	19.67	
		581-180-021	2.15	0.00		8S/1E-17E	44.28	
Valley Wide Recreation & Parks Dist.	m/t 901 W Esplanade Ave San Jacinto, CA 92582	581-170-009	7.82	7.82	Grass	8S/1E-18H(1) 8S/1E-18H(2)	0.00 0.00	
1/ Wilson Creek Farms	44200 Sage Road Aguanga, CA 92536 m/t P. O. Box 347 Aguanga, CA 92536	581-170-012	190.40	40.00	Row Crops**	8S/1E-17B	380.00	
		581-170-013	99.63	50.00	Alfalfa	8S/1E-17H	5.50	
		581-180-005	2.76					
		581-180-009	120.00	20.00	Row Crops			
		581-190-013	280.00	20.00	Row Crops			
1/ Wilson Creek Development, LLC	44200 Sage Road Aguanga, CA 92536 m/t P. O. Box 2921 Hemet, CA 92546	581-190-014	40.00					
		581-070-002	160.00					
		581-070-005	640.00			8S/1E-9Q - Diversion		375.00
		581-100-013	80.00			8S/1E-10		
		581-100-019	30.00					
		581-100-020	10.00					
		581-100-022	20.00					
		581-100-038	9.53					
		581-100-039	9.23					
		581-100-040	8.91					
				** Plus riparian restoration.				
Zhang, Aiguo	m/t 39171 Trail Creek Lane Temecula, CA 92591	581-120-006	200.00	5.00	Vineyard	8S/1E-8K2	5.50	
<b>TOTAL AGUANGA GROUNDWATER AREA</b>				<b>387.88</b>			<b>1,203.95</b>	<b>385.00</b>

Well No. in parentheses designated by Watermaster.

1/ Water Use Report Form not recieved for WY 2016-17, indicated value for irrigated acreage, production, and surface diversion assumed to be the same as last year reported.

APPENDIX C

SANTA MARGARITA RIVER WATERSHED  
**SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS**

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 2016-17	IRRIGATED CROP 2016-17	WELL/ DIVERSION LOCATION TWP/RNG/SEC	WELL PRODUCTION AC. FT	SURFACE DIVERSION AC. FT
<b>TEMECULA CREEK ABOVE AGUANGA GROUNDWATER AREA</b>								
Agri-Empire, Inc.	m/t P. O. Box 490 San Jacinto, CA 92383							
CHIHUAHUA VALLEY		113-090-01*	377.07	0.00				
		113-090-03*	21.46	0.00				
		113-090-04*	43.96	0.00				
		113-090-05*	541.26	0.00				
		113-100-01*	389.81	0.00		9S/2E-11B - Diversion		0.00
		113-130-01*	150.09	0.00		9S/2E-17D - Spring		0.00
		113-140-01 **	358.62	0.00		9S/2E-16B(1)	0.00	
						9S/2E-16B(2)	0.00	
						9S/2E-16G	0.00	
		113-140-02 **	38.75	0.00				
		113-140-03	196.54	0.00		9S/2E-16N2	58.00	
		113-140-04*	503.24	0.00		9S/2E-16M	119.00	
		113-140-05*	45.09	0.00		9S/2E-16F1	27.00	
		113-140-06*	93.44	0.00		9S/2E-16N1	10.00	
						9S/2E-16F2	0.00	
						9S/2E-16K - Diversion		0.00
DODGE VALLEY		114-020-09	37.16	0.00				
		114-020-10*	20.30	0.00				
		114-020-11***	38.92	0.00				
		114-020-12**	108.78	0.00				
		114-030-07	93.38	0.00				
		114-030-33*	194.29	0.00		9S/2E-22	0.00	
		114-030-34	137.50	0.00				
		114-030-35*	13.32	0.00				
		114-030-36	29.55	0.00				
* Land leased from the State of California								
* *Land leased from Arlie W. and Coral R. Bergman 37126 Hwy 79 Warner Springs, CA 92086								
*** Land leased from Choi Family Trust 11-05-02 2736 Rainbow Valley Blvd Fallbrook, CA 92027								
Hill Springs Farm, LLC	38642 Highway 79 Warner Springs, CA 92086 m/t P.O. Box 1946 Duarte, CA 91009	112-030-38 112-030-67 112-030-72 112-030-74 113-060-012	40.00 67.41 129.90 70.50 63.21	Total     of   65.00		9S/1E-12A   9S/1E-1M - Diversion 9S/1E-1Q(1) 9S/1E-1Q(2) 9S/2E-7D 9S/2E-7E - Diversion	Domestic     0.00 71.50 9.00	0.00         0.00
1/ Bergman, Arlie and Coral	Highway 79 Warner Springs, CA 92086 m/t 37126 Highway 79 Warner Springs, CA 92086	113-130-03 113-130-04 114-130-10	115.75 39.65 41.51		Data Not Provided			
Lovingier Family Trust	35490 Highway 79 Warner Springs, CA 92086	114-070-07 114-070-27 114-070-28 114-070-34 114-080-14 114-080-13 114-120-042 114-120-24 114-091-03	76.42 19.15 19.15 167.94 42.51 21.30 78.41 20.00 42.80	Total   of           169.95	Pasture	9S/2E-27R1 9S/2E-27R2 9S/2E-27J       9S/2E-35D2 9S/2E-35D2	Total     of       645.81	
<b>ABOVE AGUANGA GROUNDWATER AREA</b>				<b>234.95</b>			<b>940.31</b>	<b>0.00</b>

Well No. in parentheses designated by Watermaster.

1/ Water Use Report Form not recieved for WY 2016-17, indicated value for irrigated acreage, production, and surface diversion assumed to be the same as last year reported.

APPENDIX C

SANTA MARGARITA RIVER WATERSHED  
**SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS**

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 2016-17	IRRIGATED CROP 2016-17	WELL/ DIVERSION LOCATION TWP/RNG/SEC	WELL PRODUCTION AC. FT	SURFACE DIVERSION AC. FT
<b>WILSON CREEK ABOVE AGUANGA GROUNDWATER AREA</b>								
<b>ANZA VALLEY</b>								
Greenwald Trust	55255 Mitchell Road Anza, CA 92539 m/t 640 S San Vicente Blvd Ste. 475 Los Angeles, CA 90048	573-180-001	156.38	0.00		7S/3E-17E	0.00	
Miller, Frank C. Grabowski-Miller, Jan	55520 Hwy 371 Anza, CA 92539  m/t 702 Sundance Drive Verona, WI 53593	573-200-007 573-200-008 573-200-009	18.88 18.31 36.40	18.00 0.00 12.00	Row Crops Vetch/grain Grapes/Row Crops	7S/3E-17(M) 7S/3E-17(N) 7S/3E-17(P) 7S/3E-17(1)	8.00 0.00 66.00 1.00	
Anza Development Corp	m/t 1907 James Gaynor St Fallbrook, CA 92028	573-200-004 573-200-005 573-200-006 573-200-010	18.24 18.50 18.89 18.68	0.00 0.00 0.00 0.00				
Agri-Empire, Inc.	P.O. Box 490 San Jacinto, CA 92383							
	Section 10	575-050-044	14.36	0.00				
	Section 11	575-060-002	133.93	0.00		7S/3E-11N4 7S/3E-11P3	146.00 208.00	
	Section 13	575-100-009 575-100-032 575-100-033 575-100-034 575-100-035 575-100-036 575-100-037 575-100-039 575-100-040 575-100-041 575-100-042	19.94 89.02 89.08 37.63 157.20 27.91 57.80 7.91 0.88 19.93 0.60	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00				
	Section 14	575-110-021 575-110-027 575-110-030 575-310-002 575-310-011 575-310-012 575-310-013 575-310-014 575-310-027 575-310-028	143.75 54.45 74.86 39.09 80.00 80.00 17.46 0.75 17.46 0.92	143.75 0.00 0.00 39.09 0.00 0.00 0.00 0.00 0.00 0.00		7S/3E-14D1  7S/3E-14C2	132.00  17.00	
	Section 15	575-080-010 575-080-014 575-080-015 575-080-017 575-080-018 575-080-019 575-080-021 575-080-022 575-080-024 575-080-027 575-090-010	4.77 9.92 4.35 9.75 10.13 31.29 20.00 20.00 20.00 20.00 38.80	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00				

Well No. in parentheses designated by Watermaster.

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APPENDIX C

SANTA MARGARITA RIVER WATERSHED  
**SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS**

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 2016-17	IRRIGATED CROP 2016-17	WELL/ DIVERSION LOCATION TWP/RNG/SEC	WELL PRODUCTION AC. FT	SURFACE DIVERSION AC. FT
<b>WILSON CREEK ABOVE AGUANGA GROUNDWATER AREA</b>								
<b>ANZA VALLEY (Cont.)</b>								
Agri-Empire, Inc. (Cont)	Section 17	573-180-011	39.74	0.00				
	Section 20	576-060-009	8.26	Total				
		576-060-031	16.09					
		576-060-033	79.45					
		576-060-038	5.41	of				
		576-070-003	80.00					
		576-070-005	116.57	0.00				
	Section 21	576-100-061	37.71	0.00				
		576-110-001	160.00	32.00		7S/3E-21P(1) 7S/3E-21P(2)	212.00 146.00	
		576-110-002	28.00	0.00				
		576-110-003	2.00	0.00				
		576-110-004	50.00	0.00				
		576-110-006	19.29	19.29				
		576-110-007	17.82	2.71				
		576-110-008	17.00	17.00		7S/3E-21R3 7S/3E-21R(4)	582.00 188.00	0.00
		576-110-009	18.41	0.00				
	Section 22	575-130-003	19.55	0.00				
		575-130-006	40.89	0.00				
		575-130-008	18.56	Total				
		575-130-009	20.06					
		575-130-010	20.07					
		575-130-011	19.19	of				
		575-130-012	18.18					
		575-130-013	19.02					
		575-130-014	19.00					
		575-130-015	17.58	0.00				
		575-120-012	88.03	0.00				
		575-120-018	20.45	0.00				
		575-120-019	20.45	0.00				
		575-120-032	4.69	0.00				
		575-120-033	4.69	0.00				
		575-120-034	4.68	0.00				
		575-120-035	4.28	0.00				
	Section 23	575-140-006	9.90	0.00				
		575-140-020	90.48	0.00				

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APPENDIX C

SANTA MARGARITA RIVER WATERSHED  
**SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS**

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 2016-17	IRRIGATED CROP 2016-17	WELL/ DIVERSION LOCATION TWP/RNG/SEC	WELL PRODUCTION AC. FT	SURFACE DIVERSION AC. FT
<b>MURRIETA-TEMECULA GROUNDWATER AREA</b>								
Louidar	32320 La Serena Way Temecula, CA 92591	943-040-011 943-060-010 943-060-011	19.22 90.76 26.47	0.00 0.00 0.00	Citrus N/A Citrus	7S/2W-28L*	0.00	
	33820 Rancho California Rd. Temecula, CA 92591	943-110-009 943-120-014 943-120-024	4.31 17.71 32.08	3.00 15.00 25.00	Grapes Grapes Grapes			
	m/t PO Box 891510 Temecula, CA 92591	943-120-025 943-120-026 943-120-027 943-120-028 943-120-029 943-120-030 943-120-031 943-120-032 943-120-033	83.98 30.02 0.49 0.19 0.08 0.09 2.40 0.41 4.59	12.00	Grapes			
*Well is no longer in use								
Cavaletto, Selina J Et Al Lassalette Enterprise	c/o McMillan Farm Mgt. 29379 Rancho Cal. Rd, #201 Temecula, CA 92390	942-180-002 942-240-003 942-240-004 942-240-006	40.28 40.83 40.83 39.31	40.00 40.00 40.00 35.00	Citrus Citrus Citrus Citrus	7S/2W-26B1(1) 7S/2W-26B2(2)	147.00 147.00	
Baida Birdie Trust (Mendoza, Bertha)	m/t 35853 Calle Nopal Temecula, CA 92592	917-240-019	54.13	0.00				
Giddings, Richard	38055 Highway 79 South Aguanga, CA	917-150-002	117.76	0.00				
Dynamic Financial Corporation	38695 Highway 79 South Aguanga, CA m/t 853 E. Valley Boulevard, Suite 200 San Gabriel, CA 91776	917-240-015 917-150-006	20.00 120.00	0.00 110.00	Citrus	8S/1W-21K(1) 8S/1W-21K(2) 8S/1W-21P(1) 8S/1W-21P(2)	21.30 41.50 45.20 0.00	
Carter, James A 109 Acres Wild Horse Peak Vineyard Mountain Inc.	Highway 79 South Temecula, CA m/t 3719 South Plaza Drive Santa Ana, CA 92704	942-120-007 943-230-007 943-230-008 917-250-004 917-250-005 917-250-007	26.14 5.65 107.03 80.00 80.00 240.00	26.00 0.00 60.00 Total of   220.00	Grapes Grapes Grapes	7S/2W-26L 8S/1W-25Q(1) 8S/1W-25P(1) 8S/1W-25N(1) - Spring 3 8S/1W-36K - Spring 4 8S/1W-36H - Spring 6 8S/1W-36K(1) 8S/1W-36K(2) 8S/1W-36K(3) 8S/1W-36L - Stream Diversion	0.00 0.00 26.50 0.00 0.00 0.00 26.00 26.00 75.00 52.00	0.00 0.00 0.00
Regency Properties Temecula Creek Golf	44501 Rainbow Cyn Rd. Temecula, CA 92592 m/t 533 Coast Blvd S. La Jolla, CA 92037	922-220-002 922-220-003 922-220-008 922-220-031 922-230-002 922-230-007 922-230-008	86.11 5.75 4.26 67.28 59.29 25.00 16.11	Total     of     		8S/2W-19(D)	118.88	
Regency La Jolla		922-230-003 922-230-004	1.00 40.00	47.00	Grass			
* Portion of water purchased from RCWD for Water Year 2016-17.								
Carson, Carol J. Murrieta Six Cs LLC	25471 Hayes Ave Murrieta, CA 92562 m/t 42882 Ivy St. Murrieta, CA 92562	909-260-036 909-260-042	8.87 4.31	7.00 3.50	Pasture Pasture	7S/3W-29G	39.90	
<b>TOTAL MURRIETA-TEMECULA GROUNDWATER AREA</b>				<b>683.50</b>			<b>714.28</b>	<b>52.00</b>

Well No. in parentheses designated by Watermaster.

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APPENDIX C

**SANTA MARGARITA RIVER WATERSHED  
SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS**

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 2016-17	IRRIGATED CROP 2016-17	WELL/ DIVERSION LOCATION TWP/RNG/SEC	WELL PRODUCTION AC. FT	SURFACE DIVERSION AC. FT
<b>SANTA MARGARITA RIVER BELOW GORGE DE LUZ CREEK</b>								
Stehly Family Holdings, LLC	40922 DeLuz Road Fallbrook, CA 92028 m/t 13268 McNally Road Valley Center, CA 92082	101-271-28	45.01	10.00	Avocados and Citrus	8S/4W-29D(1) 8S/4W-29D(2)	1.00 16.00	
Prestininzi, Pete and Dorothy N.	2525 E. Mission Road Fallbrook, CA 92028 m/t 22460 Bundy Canyon Road Wildomar, CA 92595	101-220-12 101-210-53	31.63 50.44	6.00 12.00	Pasture & Flowers Avocados and Citrus	8S/4W-20A(1) 8S/4W-20H(1) 8S/4W-20H(2) 8S/4W-20A - Diversion	16.00 16.00 14.00	0.00
Alfred Varela Sr. Family Living Trust Varela, Alfred	41125 DeLuz Road Fallbrook, CA 92028	101-210-11	15.23	8.50 0.50	Avocados Citrus	8S/4W-20Q(1) 8S/4W-20Q(2)	Total of 21.60	
1/ Lake Forest, LLC	41257 DeLuz Road Fallbrook, CA 92028 m/t 26051 Glen Canyon Dr. Laguna Hills, CA 92653	101-210-12	30.28	9.00 15.00 1.00	Avocados Citrus Row crops	8S/4W-20Q(1) 8S/4W-20Q(2) 8S/4W-20Q(3)	Total of 50.00	
Bryant, Warren and Lori	40724 De Luz Road Fallbrook, CA 92028	101-271-19 101-271-20 101-271-21 101-271-22	19.08 5.02 11.86 6.41			8S/4W-29E (1) 8S/4W-29E (2)		0.00 0.00
1/ Shirley Bobbie 2007 Trust	39948 De Luz Road Fallbrook, CA 92028	101-561-04 101-561-06	5.40 18.43		No Data Provided			
1/ Garnsey Family Trust 2003	40635 De Luz Road Fallbrook, CA 92028	101-271-29	73.11		No Data Provided			
Wagner Family Trust	41128 DeLuz Road Fallbrook, CA 92028	101-210-23 101-210-22	17.19 4.55	15.00 3.00	Avocados Persimmons	8S/4W-20P(1) 8S/4W-20P(2) 8S/4W-20P(3) 8S/4W-20P(4)	0.00 0.00 0.00 39.30	
1/ Lee, Charles and Catherine	44952 Vista Del Mar Temecula, CA 92590	933-120-016 933-120-017 933-120-018 933-120-019 933-120-042	9.39 9.48 8.47 9.63 20.00	30.00 6.00 0.00 0.00 12.50	Avocados, Citrus and Macadamia Nuts Avocados	8S/4W-15L	0.00 **	
Chambers Family, LLC	40888 DeLuz-Murrieta Road 38664 DeLuz Road Fallbrook, CA 92028 m/t Thomas Montllor 910 N. Pacific St., Apt. 38 Oceanside, CA 92054	101-571-03 102-130-42	41.72 54.37	25.00 30.00	Flowers Flowers/Fruit Trees	8S/4W-28A 9S/4W-9B(1) 9S/4W-9B(2) 9S/4W-9B(3) 8S/4W-28A - Diversion	25.00 * 30.00 1.00 30.00	8.00
* Portion of water purchased from FPUD for Water Year 2016-17								
Welburn Family Trust Welburn, Douglas and Sue	40787 DeLuz-Murrieta Rd. Fallbrook, CA 92028	101-571-19 101-571-20 101-571-21	4.01 4.00 14.28	2.00 4.00 5.50	Gourds Gourds Fruit Trees, Gourds and Avocados	8S/4W-28G1	36.00	

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SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS**

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 2016-17	IRRIGATED CROP 2016-17	WELL/ DIVERSION LOCATION TWP/RNG/SEC	WELL PRODUCTION AC. FT	SURFACE DIVERSION AC. FT
<b>SANTA MARGARITA RIVER BELOW GORGE DE LUZ CREEK (Cont.)</b>								
Poladian, Jacqueline	2193 Calle Rociada	101-312-01	82.29	42.00	Flowers	8S/4W-31L	Total	31.48
Poladian, Abraham	Fallbrook, CA					8S/4W-31L - Dive		
Bluebird Ranch	m/t P. O. Box 1089	101-312-02	58.17	45.00	Flowers	8S/4W-31K(1)	of	
	Fallbrook, CA 92088			5.00	Avocados	8S/4W-31K(2) 8S/4W-31K(3)	 	
							162.18	
1/ Norman and Deborah Vanginkel Trust	39452 DeLuz Road Fallbrook, CA 92028 m/t 21136 Trailside Drive Yorba Linda, CA 92887	101-312-03	80.00	8.00	Nursery Stock	8S/4W-31J(2) 8S/4W-31J(3) 8S/4W-31J(4) 8S/4W-31J(5)	11.00 0.00 38.00 0.00	
		102-052-04 102-731-02	22.04 4.26	17.00	Avocados			
Ross Lake, LLC	39985 Daily Road	101-430-30	16.39	Total				
Rose, William	Fallbrook, CA 92028	101-480-14	13.20	of		8S/4W-34- Lake Diversion		** 0.00
and Joanne		101-500-01	16.62	7.00	Limes			
** All water purchased from FPUd for Water Year 2016-17								
<b>SUBTOTAL DELUZ CREEK</b>				<b>319.00</b>			<b>507.08</b>	<b>39.48</b>
<b>SANTA MARGARITA RIVER BELOW GORGE (Cont.) SANDIA CREEK</b>								
Serafina Holdings, LLC	40376 Sandia Creek Fallbrook, CA 92028	101-360-40	126.32	25.00 11.00 35.00	Avocados Grapes Olives	8S/4W-25P(1) 8S/4W-25P(2) 8S/4W-25P(3)	37.40 26.80 48.50	
							8S/4W-25P - Diversion	0.00
<b>SUBTOTAL SANDIA CREEK</b>				<b>71.00</b>			<b>112.70</b>	<b>0.00</b>
<b>SANTA MARGARITA RIVER</b>								
San Diego State University Foundation	47981 Willow Glen Rd. Temecula, CA 92592 SDSU Foundation 5200 Campanile Dr. San Diego, CA 92182-4614	918-040-011 918-060-017	120.00 40.00	5.00 15.00	Citrus Avocados	8S/3W-33Q1 8S/3W-33Q(2) 8S/3W-33Q - Diversion	4.31 0.00	41.30
Carabello, Victor	47585 Via Vaquero Road Temecula, CA 92590 m/t 1849 Calle Suenos Glendale, CA 91208	938-150-004	21.47		No Data Provided			
<b>SUBTOTAL SANTA MARGARITA RIVER</b>				<b>20.00</b>			<b>4.31</b>	<b>41.30</b>
<b>TOTAL SANTA MARGARITA RIVER BELOW GORGE</b>				<b>410.00</b>			<b>624.09</b>	<b>80.78</b>

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APPENDIX C

**SANTA MARGARITA RIVER WATERSHED  
SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS**

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 2016-17	IRRIGATED CROP 2016-17	WELL/ DIVERSION LOCATION TWP/RNG/SEC	WELL PRODUCTION AC. FT	SURFACE DIVERSION AC. FT
<b>LOWER MURRIETA</b>								
Ronnenberg Family Trust (Sage Ranch Nursery)	42522 E. Benton Rd. Aguanga, CA 92536 m/t c/o Cliff Ronnenberg 11292 Western Avenue Stanton, CA 90680	571-020-046 571-020-047 571-020-048 571-020-049 571-520-004 571-520-007 571-520-008 571-520-009 571-520-012 915-140-069 915-140-070 470-210-007 470-220-004	81.09 40.80 36.75 148.86 1.50 109.50 99.43 80.23 77.54 91.56 21.39 53.62 109.23	Total           of             300.00				
					Olive trees	7S/1E-7D            7S/1E-7E - Diversion	5.50	100.00
EG High Desert Properties, LLC	39800 E. Benton Rd. Temecula, CA 92390 m/t 12881 Bradley Avenue Sylmar, CA 91342	915-120-045	37.45	10.00	Pasture	7S/1W-10R(1) 7S/1W-10R(2) 7S/1W-10R(3) 7S/1W-10R(4) 7S/1W-10R(5) 7S/1W-10R(6) 7S/1W-10R(7)	Total of   38.00 Domestic 0.00 0.00	
<b>TOTAL LOWER MURRIETA</b>				<b>310.00</b>			<b>43.50</b>	<b>100.00</b>
<b>GRAND TOTAL</b>				<b>2,396.17</b>			<b>5,372.93</b>	<b>635.78</b>
<b>GRAND TOTAL</b>				<b>2,396.17</b>		Not including Cahuilla Indian Reservation	<b>5,284.13</b>	<b>617.78</b>

Well No. in parentheses designated by Watermaster.

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***SANTA MARGARITA RIVER WATERSHED***

**ANNUAL WATERMASTER REPORT**

**WATER YEAR 2016-17**

**APPENDIX D**

**WATER QUALITY DATA**

**December 2018**















TABLE D-3

*SANTA MARGARITA RIVER WATERSHED*  
**WATER QUALITY DATA**

**WELLS SAMPLED BY WESTERN MUNICIPAL WATER DISTRICT  
MURRIETA DIVISION**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
North Well 7S/3W-18J02 (cont.)	01/24/08	---	---	---	---	---	---	---	---	---	1.8
	03/26/08	---	---	---	---	---	---	---	---	---	2.5
	04/23/08	---	---	---	---	---	---	---	---	---	2.0
	05/19/08	---	---	---	---	---	---	---	---	---	2.2
	06/16/08	---	---	---	---	---	---	---	---	---	2.1
	07/21/08	---	---	---	---	---	---	---	---	---	<2
	09/15/08	---	---	---	---	---	---	---	---	---	2.0
	01/19/09	---	---	---	---	---	---	---	---	---	1
	02/23/09	---	---	---	---	---	---	---	---	---	<2
	03/16/09	---	---	---	---	---	---	---	---	---	<2
	04/20/09	---	---	---	---	---	---	---	---	---	<2
	05/18/09	---	---	---	---	---	---	---	---	---	<2
	06/02/09	830	470	54.0	11.0	92.0	1.6	100.0	54.0	230.0	<2
	06/08/09	830	410	57.0	10.0	89.0	1.6	110.0	54.0	230.0	<2
	06/15/09	---	---	---	---	---	---	---	---	---	<1
	07/07/09	870	490	51.0	9.8	87.0	1.5	110.0	56.0	220.0	---
	07/20/09	830	460	54.0	10.0	90.0	1.7	110.0	52.0	220.0	<2
	08/03/09	820	480	49.0	9.4	82.0	1.4	120.0	49.0	220.0	<2
	08/25/09	---	---	---	---	---	---	---	---	---	1.2
	09/08/09	800	460	55.0	11.0	97.0	1.7	120.0	52.0	220.0	<2
	09/21/09	---	---	---	---	---	---	---	---	---	1.1
	10/05/09	780	470	55.0	11.0	97.0	1.8	110.0	53.0	220.0	<2
	10/19/09	---	---	---	---	---	---	---	---	---	<2
	11/02/09	790	470	55.0	11.0	91.0	1.7	110.0	53.0	220.0	<2
	11/16/09	---	---	---	---	---	---	---	---	---	<2
	12/07/09	810	480	56.0	11.0	94.0	1.8	110.0	52.0	220.0	<1
	12/21/09	---	---	---	---	---	---	---	---	---	<2
	01/04/10	810	470	57.0	11.0	91.0	1.7	110.0	52.0	220.0	<2
	01/18/10	---	---	---	---	---	---	---	---	---	<2
	02/01/10	860	460	59.0	13.0	87.0	1.7	110.0	54.0	240.0	1.2
	02/17/10	---	---	---	---	---	---	---	---	---	1.1
	03/01/10	810	460	56.0	11.0	88.0	1.7	110.0	55.0	220.0	<2
	03/15/10	---	---	---	---	---	---	---	---	---	<2
04/07/10	820	450	56.0	11.0	92.0	1.5	110.0	52.0	220.0	<2	
04/19/10	---	---	---	---	---	---	---	---	---	<2	
05/03/10	810	450	57.0	11.0	92.0	1.5	110.0	52.0	220.0	<2	
05/17/10	---	---	---	---	---	---	---	---	---	1.1	
06/01/10	820	520	52.0	11.0	90.0	1.9	100.0	50.0	220.0	<2	
06/21/10	---	---	---	---	---	---	---	---	---	<2	
07/19/10	---	---	---	---	---	---	---	---	---	<2	
08/02/10	830	470	52.0	10.0	88.0	1.7	100.0	47.0	220.0	<2	
08/16/10	---	---	---	---	---	---	---	---	---	<2	
11/17/10	830	510	51.0	20.0	78.0	3.6	94.0	160.0	120.0	<2	
02/01/11	860	480	59.0	12.0	95.0	1.7	110.0	54.0	220.0	<2	



TABLE D-3

*SANTA MARGARITA RIVER WATERSHED*  
**WATER QUALITY DATA**

**WELLS SAMPLED BY WESTERN MUNICIPAL WATER DISTRICT  
MURRIETA DIVISION**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
North Well 7S/3W-18J02 (cont.)	03/04/13	850	520	63.0	12.0	96.0	1.6	120.0	61.0	230.0	<1.0
	03/18/13	---	---	---	---	---	---	---	---	---	<1.0
	04/16/13	---	---	---	---	---	---	---	---	---	<1.0
	05/06/13	870	470	61.0	13.0	90.0	1.6	120.0	60.0	230.0	<1.0
	05/20/13	---	---	---	---	---	---	---	---	---	<1.0
	06/04/13	990	470	63.0	12.0	98.0	1.8	120.0	61.0	230.0	<1.0
	06/17/13	---	---	---	---	---	---	---	---	---	<1.0
	07/01/13	870	470	64.0	13.0	98.0	1.7	110.0	58.0	230.0	<1.0
	07/15/13	---	---	---	---	---	---	---	---	---	<1.0
	08/01/13	880	510	61.0	12.0	98.0	1.6	120.0	62.0	230.0	1.0
	08/19/13	---	---	---	---	---	---	---	---	---	<1.0
	09/04/13	850	480	61.0	12.0	94.0	1.4	120.0	58.0	230.0	<1.0
	09/16/13	---	---	---	---	---	---	---	---	---	<1.0
	10/01/13	860	470	60.0	12.0	94.0	1.6	110.0	59.0	220.0	<1.0
	10/14/13	---	---	---	---	---	---	---	---	---	<1.0
	11/04/13	860	480	58.0	11.0	95.0	1.7	130.0	61.0	230.0	<1.0
	11/18/13	---	---	---	---	---	---	---	---	---	1.1
	12/02/13	880	490	65.0	13.0	99.0	1.8	120.0	60.0	230.0	1.4
	12/16/13	---	---	---	---	---	---	---	---	---	<1.0
	01/07/14	860	450	62.0	12.0	98.0	1.7	110.0	55.0	220.0	<1.0
	01/21/14	---	---	---	---	---	---	---	---	---	<1.0
	02/10/14	800	470	65.0	13.0	100.0	1.7	120.0	62.0	230.0	1.1
	02/18/14	---	---	---	---	---	---	---	---	---	1.2
	03/17/14	---	---	---	---	---	---	---	---	---	1.0
	04/01/14	820	480	59.0	11.0	99.0	1.6	120.0	64.0	230.0	<1.0
	04/14/14	---	---	---	---	---	---	---	---	---	<1.0
	06/09/14	---	---	---	---	---	---	---	---	---	<1.0
	06/16/14	880	490	65.0	13.0	100.0	1.7	120.0	60.0	240.0	1.2
	07/07/14	860	500	64.0	13.0	98.0	1.6	120.0	59.0	230.0	1.2
	07/14/14	---	---	---	---	---	---	---	---	---	<1.0
	08/04/14	890	---	64.0	13.0	100.0	1.7	120.0	61.0	230.0	1.3
	08/18/14	---	---	---	---	---	---	---	---	---	1.6
	11/03/14	---	---	---	---	---	---	---	---	---	<2.0
11/10/14	---	---	---	---	---	---	---	---	---	<1.0	
03/03/15	960	520	67.0	13.0	100.0	1.9	120.0	63.0	230.0	<1.0	
03/03/15	---	480	---	---	---	---	---	---	---	---	
03/10/15	---	---	---	---	---	---	---	---	---	<2.0	
04/14/15	---	---	---	---	---	---	---	---	---	<2.0	
07/13/15	---	---	---	---	---	---	---	---	---	<2.0	
07/20/15	---	---	---	---	---	---	---	---	---	<2.0	
08/10/15	880	540	63.0	13.0	94.0	1.6	130.0	64.0	240.0	<2.0	
07/20/15	---	---	---	---	---	---	---	---	---	<2.0	
10/13/15	880	440	---	---	---	---	---	120.0	62.0	230.0	ND
11/10/15	890	520	69.0	14.0	100.0	1.7	130.0	68.0	230.0	<2.0	

TABLE D-3

*SANTA MARGARITA RIVER WATERSHED*  
**WATER QUALITY DATA**

**WELLS SAMPLED BY WESTERN MUNICIPAL WATER DISTRICT  
MURRIETA DIVISION**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l								
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3	
North Well 7S/3W-18J02 (cont.)	12/08/15	880	500	64.0	13.0	95.0	1.6	120.0	60.0	240.0	ND	
	01/21/16	900	490	66.0	13.0	95.0	1.7	120.0	62.0	230.0	0.22 as N	
	04/12/16	930	520	65.0	13.0	99.0	1.5	130.0	64.0	230.0	ND	
	05/10/16	870	530	65.0	13.0	100.0	1.5	130.0	66.0	230.0	0.24 as N	
	08/08/16	940	510	67.0	13.0	98.0	1.6	120.0	63.0	230.0	0.20 as N	
New Clay Well 7S/3W-20	03/09/04	480	340	23.0	1.0	87.0	1.0	79.0	64.0	98.0	<2	
	01/26/06	590	310	20.0	1.2	93.0	1.2	85.0	57.0	---	<1	
	01/31/06	---	---	---	---	---	---	---	---	---	7.2	
	01/31/06	---	---	---	---	---	---	---	---	---	6.9	
	04/04/06	---	---	---	---	---	---	---	---	---	<1	
	04/12/06	---	---	---	---	---	---	---	---	---	<1	
	05/10/06	---	---	---	---	---	---	---	---	---	<1	
	06/07/06	---	---	---	---	---	---	---	---	---	<1	
	07/05/06	---	---	---	---	---	---	---	---	---	<1	
	08/02/06	---	---	---	---	---	---	---	---	---	<1	
	09/06/06	---	---	---	---	---	---	---	---	---	<1	
	10/04/06	---	---	---	---	---	---	---	---	---	<1	
	11/01/06	---	---	---	---	---	---	---	---	---	<1	
	12/06/06	---	---	---	---	---	---	---	---	---	<1	
	01/04/07	---	---	---	---	---	---	---	---	---	<1	
	02/07/07	---	---	---	---	---	---	---	---	---	<1	
	03/07/07	---	---	---	---	---	---	---	---	---	<2	
	04/04/07	---	---	---	---	---	---	---	---	---	<2	
	05/02/07	---	---	---	---	---	---	---	---	---	<2	
	06/06/07	---	---	---	---	---	---	---	---	---	<2	
	07/05/07	---	---	---	---	---	---	---	---	---	<2	
	08/01/07	---	---	---	---	---	---	---	---	---	<2	
	08/15/07	510	270	13.0	<1	91.0	1.0	65.0	50.0	83.0	<2	
	09/05/07	---	---	---	---	---	---	---	---	---	---	<2
	12/04/07	---	---	---	---	---	---	---	---	---	---	<2
	03/26/08	---	---	---	---	---	---	---	---	---	---	<1
	04/23/08	---	---	---	---	---	---	---	---	---	---	<1
	05/05/08	---	---	---	---	---	---	---	---	---	---	<1
	06/02/08	---	---	---	---	---	---	---	---	---	---	<1
	07/07/08	---	---	---	---	---	---	---	---	---	---	<1
	09/02/08	---	---	---	---	---	---	---	---	---	---	<2
	01/19/09	---	---	---	---	---	---	---	---	---	---	<2
11/13/09	630	350	25.0	4.7	97.0	1.5	84.0	76.0	110.0	---		
11/17/09	---	---	---	---	---	---	---	---	---	---	<2	
08/25/11	700	380	30.0	2.7	110.0	1.8	97.0	62.0	150.0	<1.0		
05/21/12	---	---	---	---	---	---	---	---	---	---	<0.20	
06/01/12	590	340	19.0	<1.0	93.0	1.4	83.0	56.0	110.0	<1.0		







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TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 101	06/01/88	810	495	76.0	15.0	79.0	8.0	116.0	16.0	314.0	---
7S/3W-34G1	08/05/88	---	---	---	---	---	---	---	---	---	<1
	05/23/90	630	365	30.0	6.0	91.0	2.0	101.0	35.0	107.0	3.0
	08/04/93	860	465	76.0	14.0	78.0	2.0	120.0	22.0	275.0	<1
	08/09/96	820	480	69.0	14.0	83.0	2.0	110.0	15.0	310.0	<2
	10/16/97	---	---	---	---	---	---	---	---	---	<2
	08/11/99	840	510	70.0	14.0	85.0	2.0	110.0	17.0	300.0	<2
	06/25/02	---	---	---	---	---	---	---	---	---	<2
	08/14/02	870	500	66.0	14.0	85.0	2.5	120.0	15.0	250.0	<2
	06/11/03	---	---	---	---	---	---	---	---	---	<2
	06/15/04	---	---	---	---	---	---	---	---	---	<2
	06/14/05	---	---	---	---	---	---	---	---	---	<1
	08/09/05	880	440	75.0	15.0	87.0	2.5	140.0	22.0	300.0	<1
	06/07/06	---	---	---	---	---	---	---	---	---	<1
	06/01/07	---	---	---	---	---	---	---	---	---	<2
	06/03/08	---	620	---	---	---	---	---	---	---	<2
	08/11/08	1000	550	91.0	18.0	110.0	2.9	150.0	36.0	300.0	<2
	09/09/08	---	620	---	---	---	---	---	---	---	---
	01/08/09	---	840	---	---	---	---	---	---	---	---
	06/25/09	---	810	---	---	---	---	---	---	---	<2
	03/24/10	---	620	---	---	---	---	---	---	---	---
	06/02/10	---	670	---	---	---	---	---	---	---	<2
	09/01/11	---	620	---	---	---	---	---	---	---	---
	12/09/11	---	610	---	---	---	---	---	---	---	---
	03/07/12	---	650	---	---	---	---	---	---	---	---
	06/12/12	---	650	---	---	---	---	---	---	---	<1
	09/13/12	---	650	---	---	---	---	---	---	---	---
	12/07/12	---	690	---	---	---	---	---	---	---	---
	03/06/13	---	640	---	---	---	---	---	---	---	---
	06/07/13	---	640	---	---	---	---	---	---	---	<1.0
	09/11/13	1100	700	95.0	19.0	110.0	2.8	180.0	43.0	310.0	<1.0
	12/12/13	---	690	---	---	---	---	---	---	---	---
	03/14/14	---	660	---	---	---	---	---	---	---	---
	06/10/14	1300	710	93.0	18.0	120.0	3.0	200.0	49.0	320.0	---
	06/19/14	---	---	---	---	---	---	---	---	---	<1.0
	09/17/14	---	680	---	---	---	---	---	---	---	---
No. 102	01/04/89	695	370	9.0	2.0	134.0	1.0	101.0	25.0	195.0	<1
8S/3W-2Q1	01/15/92	930	615	38.0	4.0	160.0	3.0	160.0	55.0	250.0	<1

ND-Not Detected

TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 102	05/17/95	850	475	21.0	1.0	144.0	1.0	120.0	130.0	98.0	<1
8S/3W-2Q1	06/20/95	1190	700	26.0	2.0	207.0	2.0	150.0	220.0	131.0	<1
(cont.)	06/09/97	---	---	---	---	---	---	---	---	---	<2
No. 105	07/06/89	500	280	30.0	6.0	66.0	2.0	71.0	22.0	134.0	14.0
7S/3W-25M1	03/17/93	480	310	17.0	2.0	80.0	2.0	67.0	22.0	110.0	14.0
No. 106	06/29/88	920	485	38.0	5.0	143.0	3.0	182.0	66.0	70.0	16.0
7S/3W-26R1	05/13/92	880	515	35.0	4.0	142.0	2.0	180.0	72.0	110.0	17.0
	05/16/95	870	495	32.0	3.0	138.0	2.0	160.0	57.0	116.0	14.0
	07/07/97	---	---	---	---	---	---	---	---	---	8.0
	07/20/98	---	---	---	---	---	---	---	---	---	9.0
	07/20/99	---	---	---	---	---	---	---	---	---	9.0
	07/06/00	---	---	---	---	---	---	---	---	---	8.0
	05/01/01	490	300	7.0	<1	96.0	<1	70.0	23.0	100.0	8.0
	07/10/01	---	---	---	---	---	---	---	---	---	12.0
	07/03/02	---	---	---	---	---	---	---	---	---	8.0
	07/07/03	---	---	---	---	---	---	---	---	---	6.8
	05/11/04	530	310	9.0	<1	93.0	1.0	80.0	25.0	88.0	8.0
	07/13/04	---	---	---	---	---	---	---	---	---	8.0
	07/07/05	---	---	---	---	---	---	---	---	---	6.5
	07/19/06	---	---	---	---	---	---	---	---	---	6.1
	05/02/07	550	290	8.8	<1	91.0	<1	84.0	26.0	85.0	3.7
	07/03/07	---	---	---	---	---	---	---	---	---	6.0
	07/07/08	---	370	---	---	---	---	---	---	---	12.0
	01/13/09	---	440	---	---	---	---	---	---	---	---
	04/16/09	---	310	---	---	---	---	---	---	---	---
	07/01/09	---	340	---	---	---	---	---	---	---	6.8
	03/18/10	---	440	---	---	---	---	---	---	---	---
	05/06/10	720	410	23.0	1.6	120.0	1.5	130.0	57.0	100.0	12.0
	06/02/10	---	390	---	---	---	---	---	---	---	---
	07/13/10	---	---	---	---	---	---	---	---	---	2.0
	09/01/10	---	340	---	---	---	---	---	---	---	---
	12/09/10	---	410	---	---	---	---	---	---	---	---
	04/15/11	---	400	---	---	---	---	---	---	---	---

ND-Not Detected

TABLE D-4

*SANTA MARGARITA RIVER WATERSHED*  
**WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 106	07/06/11	---	300	---	---	---	---	---	---	---	6.0
7S/3W-26R1	10/04/11	---	320	---	---	---	---	---	---	---	---
(cont.)	01/31/12	---	430	---	---	---	---	---	---	---	---
	04/09/12	---	430	---	---	---	---	---	---	---	---
	10/02/12	---	380	---	---	---	---	---	---	---	---
	01/17/13	---	440	---	---	---	---	---	---	---	---
	04/04/13	---	360	---	---	---	---	---	---	---	---
	05/01/13	730	420	22.0	1.4	120.0	1.4	120.0	56.0	100.0	9.8
	07/18/13	---	400	---	---	---	---	---	---	---	11.0
	10/01/13	---	380	---	---	---	---	---	---	---	---
	01/07/14	---	360	---	---	---	---	---	---	---	---
	04/07/14	---	400	---	---	---	---	---	---	---	---
	07/02/14	---	320	---	---	---	---	---	---	---	5.9
	10/01/14	---	310	---	---	---	---	---	---	---	---
	01/21/15	---	640	---	---	---	---	---	---	---	---
	04/22/15	---	410	---	---	---	---	---	---	---	---
	07/28/15	---	390	---	---	---	---	---	---	---	10.0
	10/12/15	---	420	---	---	---	---	---	---	---	---
	07/21/16	---	440	---	---	---	---	---	---	---	2.4 as N
	07/25/16	760	410	25.0	<1.7	120.0	1.6	120.0	61.0	100.0	2.4 as N
	10/11/16	---	430	---	---	---	---	---	---	---	---
	01/04/17	---	400	---	---	---	---	---	---	---	---
	04/03/17	---	430	---	---	---	---	---	---	---	---
No. 107	04/11/88	490	365	19.0	4.0	73.0	2.0	69.0	22.0	116.0	15.0
7S/3W-26J1	05/29/91	950	535	63.0	15.0	104.0	3.0	130.0	120.0	171.0	11.0
No. 108	05/25/88	780	455	51.0	11.0	96.0	2.0	120.0	68.0	153.0	14.0
7S/3W-25E1	05/29/91	930	500	59.0	14.0	104.0	3.0	130.0	110.0	153.0	10.0
	05/13/94	640	395	23.0	5.0	100.0	2.0	120.0	51.0	104.0	7.0
	05/16/95	---	---	---	---	---	---	---	---	---	5.0
	05/13/97	540	300	7.0	<1	110.0	<1	110.0	15.0	85.0	4.0
	05/05/99	---	---	---	---	---	---	---	---	---	8.0
	05/16/00	630	350	7.0	<1	110.0	<1	130.0	12.0	65.0	3.0
	05/02/01	---	---	---	---	---	---	---	---	---	2.0
	11/19/02	---	---	---	---	---	---	---	---	---	2.0
	04/14/05	---	---	---	---	---	---	---	---	---	2.0
	04/18/06	---	---	---	---	---	---	---	---	---	1.0
	05/12/06	750	360	8.2	<1	140.0	<1	190.0	7.9	50.0	1.1

ND-Not Detected

TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l								
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3	
No. 108	02/13/08	---	---	---	---	---	---	---	---	---	---	1.4
7S/3W-25E1	08/06/08	---	400	---	---	---	---	---	---	---	---	---
(cont.)	02/05/09	---	340	---	---	---	---	---	---	---	---	2.2
	05/08/09	730	380	7.2	<1	130.0	<1	170.0	9.4	60.0	---	<2.0
	08/05/09	---	370	---	---	---	---	---	---	---	---	---
	02/03/10	---	---	---	---	---	---	---	---	---	---	3.0
	05/06/10	---	380	---	---	---	---	---	---	---	---	---
	08/13/10	---	350	---	---	---	---	---	---	---	---	---
	11/03/10	---	380	---	---	---	---	---	---	---	---	---
	02/02/11	---	350	---	---	---	---	---	---	---	---	2.0
	05/05/11	---	380	---	---	---	---	---	---	---	---	---
	08/02/11	---	400	---	---	---	---	---	---	---	---	---
	11/01/11	---	350	---	---	---	---	---	---	---	---	---
	02/08/12	---	350	---	---	---	---	---	---	---	---	<2.0
	05/02/12	700	380	7.2	<1	130.0	1.2	180.0	10.0	63.0	---	2.3
	11/06/12	---	350	---	---	---	---	---	---	---	---	---
	02/07/13	---	380	---	---	---	---	---	---	---	---	2.1
	05/01/13	---	350	---	---	---	---	---	---	---	---	---
	08/13/13	---	400	---	---	---	---	---	---	---	---	---
	10/23/13	---	390	---	---	---	---	---	---	---	---	---
	10/31/13	---	440	---	---	---	---	---	---	---	---	---
	11/12/13	---	340	---	---	---	---	---	---	---	---	---
	02/04/14	---	360	---	---	---	---	---	---	---	---	2.1
	05/01/14	---	480	---	---	---	---	---	---	---	---	---
	08/05/14	---	380	---	---	---	---	---	---	---	---	---
	11/05/14	---	400	---	---	---	---	---	---	---	---	---
	02/06/15	---	460	---	---	---	---	---	---	---	---	2.2
	05/14/15	760	400	7.7	<0.50	140.0	1.0	180.0	10.0	71.0	---	1.9
	05/14/15	---	410	---	---	---	---	---	---	---	---	---
	08/05/15	---	390	---	---	---	---	---	---	---	---	---
	11/05/15	---	360	---	---	---	---	---	---	---	---	---
	02/05/16	---	400	---	---	---	---	---	---	---	---	0.45 as N
	05/12/16	---	390	---	---	---	---	---	---	---	---	---
	08/02/16	---	420	---	---	---	---	---	---	---	---	---
	11/08/16	---	410	---	---	---	---	---	---	---	---	---
	02/03/17	---	410	---	---	---	---	---	---	---	---	0.42 as N
	05/03/17	---	420	---	---	---	---	---	---	---	---	---
	08/09/17	---	400	---	---	---	---	---	---	---	---	---

ND-Not Detected

TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 109	06/01/88	1400	920	136.0	35.0	120.0	4.0	100.0	300.0	296.0	---
8S/2W-17J1	08/05/88	---	---	---	---	---	---	---	---	---	10.0
	06/12/91	1330	800	110.0	26.0	120.0	5.0	120.0	270.0	275.0	9.0
	06/22/94	1370	1010	138.0	32.0	124.0	5.0	140.0	320.0	287.0	7.0
	06/06/95	---	---	---	---	---	---	---	---	---	8.0
	06/13/97	1440	1010	130.0	31.0	140.0	4.0	140.0	330.0	280.0	10.0
	07/16/97	---	---	---	---	---	---	---	---	---	2.2 as N
	04/14/99	---	---	---	---	---	---	---	---	---	12.0
	04/11/00	---	---	---	---	---	---	---	---	---	13.0
	06/21/00	1330	870	120.0	28.0	130.0	4.0	120.0	280.0	270.0	3.2
	04/10/01	---	---	---	---	---	---	---	---	---	13.0
	06/11/03	1400	970	140.0	32.0	130.0	4.0	130.0	340.0	290.0	12.0
	06/19/03	1400	970	150.0	32.0	120.0	4.2	130.0	340.0	290.0	12.0
	01/07/04	---	---	---	---	---	---	---	---	---	13.0
	01/11/05	---	---	---	---	---	---	---	---	---	13.0
	01/04/06	---	---	---	---	---	---	---	---	---	12.0
	07/12/06	1300	930	130.0	30.0	130.0	4.8	130.0	280.0	280.0	12.0
	01/10/07	---	---	---	---	---	---	---	---	---	13.0
	01/04/08	---	---	---	---	---	---	---	---	---	13.0
	07/07/08	---	810	---	---	---	---	---	---	---	---
	01/13/09	---	860	---	---	---	---	---	---	---	16.0
	04/02/09	---	810	---	---	---	---	---	---	---	---
	07/06/09	---	770	---	---	---	---	---	---	---	---
	01/05/10	---	---	---	---	---	---	---	---	---	14.0
	04/07/10	---	930	---	---	---	---	---	---	---	---
	07/01/10	---	1000	---	---	---	---	---	---	---	---
	10/06/10	---	830	---	---	---	---	---	---	---	---
	01/12/11	---	920	---	---	---	---	---	---	---	14.0
	01/25/12	---	880	---	---	---	---	---	---	---	12.0
	04/03/12	---	910	---	---	---	---	---	---	---	---
	10/02/12	---	880	---	---	---	---	---	---	---	---
	01/17/13	---	950	---	---	---	---	---	---	---	12.0
	04/03/13	---	830	---	---	---	---	---	---	---	---
	07/02/13	---	910	---	---	---	---	---	---	---	---
	10/03/13	---	770	---	---	---	---	---	---	---	---
	01/09/14	---	710	---	---	---	---	---	---	---	14.0
	04/09/14	---	800	---	---	---	---	---	---	---	---
	07/09/14	---	770	---	---	---	---	---	---	---	---
	10/01/14	---	750	---	---	---	---	---	---	---	---

TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l								
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3	
No. 109	01/08/15	---	900	---	---	---	---	---	---	---	13.0	
8S/2W-17J1 (cont.)	04/08/15	---	740	---	---	---	---	---	---	---	---	
	07/02/15	---	740	---	---	---	---	---	---	---	---	
	07/07/15	1100	670	110.0	23.0	110.0	3.6	110.0	180.0	270.0	14.0	
	10/06/15	---	770	---	---	---	---	---	---	---	---	
	01/12/16	---	910	---	---	---	---	---	---	---	2.8 as N	
	04/05/16	---	780	---	---	---	---	---	---	---	---	
	07/13/16	---	800	---	---	---	---	---	---	---	---	
	10/04/16	---	750	---	---	---	---	---	---	---	---	
	10/11/16	1400	890	130.0	31.0	130.0	4.3	130.0	240.0	310.0	2.7 as N	
	01/04/17	---	710	---	---	---	---	---	---	---	3.8 as N	
	04/11/17	---	830	---	---	---	---	---	---	---	---	
	07/05/17	---	710	---	---	---	---	---	---	---	---	
	No. 110 8S/1W-06K1 (Replaced by Well No. 164)	03/31/88	1100	630	70.0	23.0	132.0	6.0	115.0	163.0	268.0	3.0
		03/11/93	1010	610	60.0	21.0	124.0	5.0	110.0	200.0	201.0	3.0
04/27/95		---	---	---	---	---	---	---	---	---	1.0	
07/20/99		---	---	---	---	---	---	---	---	---	<2	
07/06/00		---	---	---	---	---	---	---	---	---	2.0	
07/10/01		---	---	---	---	---	---	---	---	---	2.0	
03/11/02		850	500	58.0	20.0	81.0	5.0	74.0	190.0	160.0	<2	
07/03/02		---	---	---	---	---	---	---	---	---	<2	
09/16/03		---	---	---	---	---	---	---	---	---	2.0	
09/01/04		---	---	---	---	---	---	---	---	---	2.0	
03/02/05		810	510	56.0	21.0	79.0	4.9	76.0	170.0	150.0	<2	
09/07/05		---	---	---	---	---	---	---	---	---	1.8	
09/06/07		---	---	---	---	---	---	---	---	---	2.0	
03/04/08		980	560	59.0	21.0	95.0	4.6	110.0	160.0	190.0	2.5	
01/20/09		---	610	---	---	---	---	---	---	---	---	
04/02/09		---	550	---	---	---	---	---	---	---	---	
07/09/09		---	560	---	---	---	---	---	---	---	---	
01/06/10		---	560	---	---	---	---	---	---	---	---	
04/07/10		---	630	---	---	---	---	---	---	---	---	
07/01/10		---	730	---	---	---	---	---	---	---	---	
09/01/10		---	---	---	---	---	---	---	---	---	<2	
10/07/10	---	600	---	---	---	---	---	---	---	---		
01/12/11	---	520	---	---	---	---	---	---	---	---		
04/05/11	---	560	---	---	---	---	---	---	---	---		
07/06/11	---	530	---	---	---	---	---	---	---	---		

ND-Not Detected



TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 110	09/02/11	---	---	---	---	---	---	---	---	---	3.8
8S/1W-06K1	10/13/11	---	470	---	---	---	---	---	---	---	---
(Replaced by	02/16/12	---	440	---	---	---	---	---	---	---	---
Well No. 164)	04/04/12	---	400	---	---	---	---	---	---	---	---
(cont.)	09/05/12	---	---	---	---	---	---	---	---	---	1.5
	10/09/12	---	380	---	---	---	---	---	---	---	---
	01/09/13	---	420	---	---	---	---	---	---	---	---
	04/08/13	---	420	---	---	---	---	---	---	---	---
	07/09/13	---	450	---	---	---	---	---	---	---	---
No. 164	10/14/15	970	600	70.0	26.0	89.0	4.6	91.0	210.0	160.0	<0.47
8S/1W	10/14/15	---	610	---	---	---	---	---	---	---	<0.47
	01/20/16	1300	810	100.0	36.0	120.0	6.5	180.0	200.0	280.0	0.49 as N
	01/20/16	---	780	---	---	---	---	---	---	---	0.50 as N
	04/14/16	1200	710	74.0	26.0	140.0	5.0	130.0	210.0	230.0	0.43 as N
	04/14/16	---	690	---	---	---	---	---	---	---	0.44 as N
	07/27/16	1100	690	64.0	24.0	120.0	4.8	99.0	230.0	180.0	0.25 as N
	07/27/16	---	660	---	---	---	---	---	---	---	0.26 as N
	03/23/17	1000	620	75.0	25.0	97.0	5.0	96.0	210.0	160.0	0.25 as N
	04/12/17	960	610	73.0	25.0	98.0	5.1	98.0	220.0	140.0	0.24 as N
	07/13/17	590	340	37.0	12.0	65.0	3.3	56.0	97.0	120.0	<0.055 as N
No. 113	03/28/88	700	400	41.0	12.0	87.0	2.0	11.0	20.0	192.0	18.0
7S/2W-25H01	03/21/91	570	290	21.0	5.0	79.0	2.0	88.0	17.0	119.0	11.0
	03/03/94	700	410	46.0	13.0	86.0	2.0	120.0	25.0	189.0	19.0
	04/27/95	---	---	---	---	---	---	---	---	---	24.0
	03/20/97	880	500	53.0	15.0	96.0	2.0	140.0	33.0	200.0	22.0
	07/20/98	---	---	---	---	---	---	---	---	---	23.0
	09/16/98	---	---	---	---	---	---	---	---	---	22.0
	02/25/99	---	---	---	---	---	---	---	---	---	19.0
	04/14/99	---	---	---	---	---	---	---	---	---	17.0
	06/03/99	---	---	---	---	---	---	---	---	---	21.0
	09/14/99	---	---	---	---	---	---	---	---	---	22.0
	10/21/99	---	---	---	---	---	---	---	---	---	25.0
	11/02/99	---	---	---	---	---	---	---	---	---	22.0
	12/14/99	---	---	---	---	---	---	---	---	---	23.0
	01/11/00	---	---	---	---	---	---	---	---	---	18.0
	03/07/00	810	470	75.0	16.0	59.0	2.0	70.0	94.0	200.0	11.0
	04/11/00	---	---	---	---	---	---	---	---	---	23.0
	05/03/00	---	---	---	---	---	---	---	---	---	24.0

ND-Not Detected

TABLE D-4

*SANTA MARGARITA RIVER WATERSHED*  
**WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 113	06/21/00	---	---	---	---	---	---	---	---	---	23.0
7S/2W-25H01	09/13/00	---	---	---	---	---	---	---	---	---	23.0
(cont.)	10/06/00	---	---	---	---	---	---	---	---	---	21.0
	02/14/01	---	---	---	---	---	---	---	---	---	16.0
	05/30/01	---	---	---	---	---	---	---	---	---	23.0
	06/12/01	---	---	---	---	---	---	---	---	---	22.0
	08/01/01	---	---	---	---	---	---	---	---	---	22.0
	11/13/01	---	---	---	---	---	---	---	---	---	22.0
	05/01/02	---	---	---	---	---	---	---	---	---	19.0
	08/06/02	---	---	---	---	---	---	---	---	---	20.0
	11/05/02	---	---	---	---	---	---	---	---	---	21.0
	02/07/03	---	---	---	---	---	---	---	---	---	22.0
	03/05/03	1000	610	65.0	19.0	110.0	2.5	160.0	41.0	260.0	26.0
	08/05/03	---	---	---	---	---	---	---	---	---	21.0
	11/13/03	---	---	---	---	---	---	---	---	---	24.0
	02/10/04	---	---	---	---	---	---	---	---	---	24.0
	05/04/04	---	---	---	---	---	---	---	---	---	23.0
	08/10/04	---	---	---	---	---	---	---	---	---	24.0
	11/17/04	---	---	---	---	---	---	---	---	---	25.0
	02/09/05	---	---	---	---	---	---	---	---	---	25.0
	05/12/05	---	---	---	---	---	---	---	---	---	23.0
	11/02/05	---	---	---	---	---	---	---	---	---	25.0
	02/14/06	---	---	---	---	---	---	---	---	---	24.0
	03/08/06	880	540	54.0	15.0	100.0	2.3	140.0	31.0	210.0	24.0
	05/11/06	---	---	---	---	---	---	---	---	---	24.0
	08/03/06	---	---	---	---	---	---	---	---	---	21.0
	11/08/06	---	---	---	---	---	---	---	---	---	23.0
	02/07/07	---	---	---	---	---	---	---	---	---	24.0
	05/01/07	---	---	---	---	---	---	---	---	---	23.0
	08/07/07	---	---	---	---	---	---	---	---	---	23.0
	02/12/08	---	---	---	---	---	---	---	---	---	22.0
	05/06/08	---	540	---	---	---	---	---	---	---	21.0
	08/11/08	---	530	---	---	---	---	---	---	---	21.0
	11/06/08	---	570	---	---	---	---	---	---	---	24.0
	02/05/09	---	530	---	---	---	---	---	---	---	21.0
	03/03/09	930	520	56.0	15.0	97.0	2.1	150.0	41.0	210.0	22.0
	05/11/09	---	---	---	---	---	---	---	---	---	19.0
	08/04/09	---	520	---	---	---	---	---	---	---	20.0
	02/02/10	---	510	---	---	---	---	---	---	---	22.0

ND-Not Detected

TABLE D-4

*SANTA MARGARITA RIVER WATERSHED*  
**WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 113	05/07/10	---	600	---	---	---	---	---	---	---	22.0
7S/2W-25H01	08/10/10	---	540	---	---	---	---	---	---	---	22.0
(cont.)	11/03/10	---	520	---	---	---	---	---	---	---	21.0
	02/15/11	---	550	---	---	---	---	---	---	---	20.0
	05/04/11	---	550	---	---	---	---	---	---	---	20.0
	08/03/11	---	540	---	---	---	---	---	---	---	20.0
	11/02/11	---	540	---	---	---	---	---	---	---	21.0
	02/02/12	---	580	---	---	---	---	---	---	---	21.0
	05/03/12	---	570	---	---	---	---	---	---	---	20.0
	08/09/12	---	---	---	---	---	---	---	---	---	20.0
	11/02/12	---	600	---	---	---	---	---	---	---	21.0
	02/12/13	---	550	---	---	---	---	---	---	---	22.0
	05/14/13	---	570	---	---	---	---	---	---	---	20.0
	08/14/13	---	540	---	---	---	---	---	---	---	20.0
	11/06/13	---	520	---	---	---	---	---	---	---	21.0
	02/07/14	---	480	---	---	---	---	---	---	---	20.0
	04/21/15	---	550	---	---	---	---	---	---	---	---
	04/21/15	990	510	61.0	17.0	110.0	2.5	150.0	47.0	200.0	21.0
	05/19/15	---	580	---	---	---	---	---	---	---	22.0
	08/04/15	---	550	---	---	---	---	---	---	---	21.0
	11/10/15	---	560	---	---	---	---	---	---	---	21.0
	02/17/16	---	530	---	---	---	---	---	---	---	4.7 as N
	05/15/16	---	540	---	---	---	---	---	---	---	4.5 as N
	08/02/16	---	550	---	---	---	---	---	---	---	4.4 as N
	11/02/16	---	560	---	---	---	---	---	---	---	4.9 as N
	02/14/17	---	530	---	---	---	---	---	---	---	4.1 as N
	05/10/17	---	560	---	---	---	---	---	---	---	5.0 as N
	08/16/17	---	540	---	---	---	---	---	---	---	5.2 as N
No. 118	08/08/90	715	480	14.0	1.0	162.0	1.0	120.0	79.0	101.0	1.0
8S/3W-11B	09/26/90	---	---	---	---	---	---	---	---	---	1.0
	09/10/93	860	525	19.0	1.0	178.0	1.0	130.0	94.0	198.0	<1
	06/20/95	---	---	---	---	---	---	---	---	---	<1
	09/16/96	970	560	33.0	2.0	180.0	2.0	120.0	120.0	230.0	<2
	07/23/97	---	---	---	---	---	---	---	---	---	0.2 as N
	09/16/98	---	---	---	---	---	---	---	---	---	2.0
	11/02/99	1040	580	46.0	4.0	170.0	2.0	130.0	100.0	240.0	<2
	09/20/00	---	---	---	---	---	---	---	---	---	<2
	08/18/02	---	---	---	---	---	---	---	---	---	<2

ND-Not Detected

TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 118	11/08/02	1100	590	46.0	4.5	160.0	1.3	140.0	94.0	240.0	<2
8S/3W-11B	09/23/03	---	---	---	---	---	---	---	---	---	<2
(cont.)	12/30/04	---	---	---	---	---	---	---	---	---	<2
	01/25/05	---	---	---	---	---	---	---	---	---	<2
	09/07/05	---	---	---	---	---	---	---	---	---	<1
	11/03/05	980	590	55.0	5.1	150.0	1.7	140.0	110.0	240.0	<1
	09/05/07	---	---	---	---	---	---	---	---	---	1.1
	09/08/08	---	670	---	---	---	---	---	---	---	<2
	11/06/08	1100	640	71.0	150.0	150.0	1.9	150.0	140.0	250.0	ND
	12/05/08	---	660	---	---	---	---	---	---	---	---
	03/03/09	---	620	---	---	---	---	---	---	---	---
	06/04/09	---	610	---	---	---	---	---	---	---	---
	03/03/10	---	640	---	---	---	---	---	---	---	---
	06/02/10	---	630	---	---	---	---	---	---	---	---
	09/02/10	---	640	---	---	---	---	---	---	---	2.2
	12/08/10	---	640	---	---	---	---	---	---	---	---
	03/02/11	---	650	---	---	---	---	---	---	---	---
	06/08/11	---	640	---	---	---	---	---	---	---	---
	09/02/11	---	620	---	---	---	---	---	---	---	2.0
	12/06/11	---	610	---	---	---	---	---	---	---	---
	06/12/12	---	640	---	---	---	---	---	---	---	---
	11/14/12	1100	680	70.0	7.2	150.0	2.0	140.0	130.0	250.0	1.1
	12/05/12	---	610	---	---	---	---	---	---	---	---
	03/06/13	---	610	---	---	---	---	---	---	---	---
	09/17/13	---	600	---	---	---	---	---	---	---	<1.0
	12/10/13	---	640	---	---	---	---	---	---	---	---
	03/12/14	---	600	---	---	---	---	---	---	---	---
	06/05/14	---	630	---	---	---	---	---	---	---	---
	09/03/14	---	620	---	---	---	---	---	---	---	<1.0
No. 119	07/16/96	450	280	44.0	9.0	35.0	<1	39.0	18.0	180.0	15.0
8S/2W-19J	08/14/97	---	---	---	---	---	---	---	---	---	12.0
	12/24/97	---	320	---	---	---	---	---	---	---	3.1 as N
	03/04/98	---	380	---	---	---	---	---	---	---	3.3 as N
	06/04/98	---	---	---	---	---	---	---	---	---	3.8 as N
	06/12/98	---	400	---	---	---	---	---	---	---	---
	09/16/98	---	---	---	---	---	---	---	---	---	3.7 as N
	01/08/99	---	430	---	---	---	---	---	---	---	---
	04/13/99	---	---	---	---	---	---	---	---	---	28.0

ND-Not Detected

TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 119	06/02/99	---	560	---	---	---	---	---	---	---	4.8 as N
8S/2W-19J	07/27/99	940	640	103.0	21.0	58.0	1.0	70.0	150.0	264.0	30.0
(cont.)	09/14/99	---	---	---	---	---	---	---	---	---	22.0
	09/14/99	---	---	---	---	---	---	---	---	---	4.8 as N
	10/26/99	---	---	---	---	---	---	---	---	---	24.0
	11/02/99	---	---	---	---	---	---	---	---	---	22.0
	12/14/99	---	560	---	---	---	---	---	---	---	22.0
	04/04/00	---	---	---	---	---	---	---	---	---	20.0
	12/14/00	---	---	---	---	---	---	---	---	---	4.6 as N
	03/29/01	---	---	---	---	---	---	---	---	---	20.0
	06/20/01	---	---	---	---	---	---	---	---	---	4.2 as N
	09/14/01	---	---	---	---	---	---	---	---	---	4.2 as N
	09/28/01	---	---	---	---	---	---	---	---	---	18.0
	11/16/01	---	---	---	---	---	---	---	---	---	16.0
	05/23/02	---	480	---	---	---	---	---	---	---	18.0
	07/24/02	770	490	81.0	15.0	49.0	1.1	51.0	90.0	240.0	19.0
	11/08/02	---	---	---	---	---	---	---	---	---	15.0
	02/19/03	---	---	---	---	---	---	---	---	---	17.0
	02/10/04	---	---	---	---	---	---	---	---	---	15.0
	02/28/05	---	---	---	---	---	---	---	---	---	10.0
	07/06/05	820	600	95.0	20.0	63.0	1.4	64.0	140.0	260.0	13.0
	02/07/06	---	---	---	---	---	---	---	---	---	15.0
	02/07/07	---	---	---	---	---	---	---	---	---	15.0
	02/12/08	---	---	---	---	---	---	---	---	---	15.0
	05/14/08	---	520	---	---	---	---	---	---	---	13.0
	07/08/08	810	520	88.0	17.0	57.0	1.4	66.0	120.0	250.0	14.0
	08/11/08	---	480	---	---	---	---	---	---	---	13.0
	11/17/08	---	520	---	---	---	---	---	---	---	16.0
	02/05/09	---	460	---	---	---	---	---	---	---	13.0
	05/11/09	---	560	---	---	---	---	---	---	---	12.0
	08/04/09	---	540	---	---	---	---	---	---	---	14.0
	01/12/10	---	580	---	---	---	---	---	---	---	15.0
	04/09/10	---	560	---	---	---	---	---	---	---	13.0
	07/01/10	---	620	---	---	---	---	---	---	---	14.0
	10/07/10	---	610	---	---	---	---	---	---	---	14.0
	01/12/11	---	480	---	---	---	---	---	---	---	13.0
	04/12/11	---	560	---	---	---	---	---	---	---	12.0
	07/07/11	840	560	85.0	18.0	60.0	1.9	84.0	120.0	250.0	16.0
	10/13/11	---	610	---	---	---	---	---	---	---	15.0

ND-Not Detected

TABLE D-4

*SANTA MARGARITA RIVER WATERSHED*  
**WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 119	01/10/12	---	520	---	---	---	---	---	---	---	14.0
8S/2W-19J	04/03/12	---	550	---	---	---	---	---	---	---	---
(cont.)	10/04/12	---	550	---	---	---	---	---	---	---	15.0
	01/16/13	---	530	---	---	---	---	---	---	---	17.0
	04/12/13	---	540	---	---	---	---	---	---	---	18.0
	07/03/13	---	540	---	---	---	---	---	---	---	16.0
	10/03/13	---	500	---	---	---	---	---	---	---	17.0
	01/28/14	---	600	---	---	---	---	---	---	---	21.0
	04/16/14	---	540	---	---	---	---	---	---	---	21.0
	07/10/14	860	560	90.0	18.0	60.0	1.2	73.0	110.0	260.0	18.0
	07/10/14	---	500	---	---	---	---	---	---	---	---
	10/02/14	---	600	---	---	---	---	---	---	---	18.0
	01/20/15	---	540	---	---	---	---	---	---	---	19.0
	04/14/15	---	710	---	---	---	---	---	---	---	17.0
	07/07/15	---	600	---	---	---	---	---	---	---	17.0
	10/08/15	---	550	---	---	---	---	---	---	---	20.0
	01/12/16	---	610	---	---	---	---	---	---	---	4.9 as N
	04/21/16	---	620	---	---	---	---	---	---	---	5.1 as N
	07/13/16	---	610	---	---	---	---	---	---	---	4.2 as N
	10/05/16	---	590	---	---	---	---	---	---	---	4.2 as N
	01/26/17	---	590	---	---	---	---	---	---	---	4.3 as N
	04/11/17	---	620	---	---	---	---	---	---	---	4.9 as N
	07/11/17	970	650	110.0	21.0	64.0	1.5	82.0	130.0	230.0	5.3 as N
No. 120	06/20/90	570	330	6.0	1.0	116.0	1.0	82.0	31.0	113.0	11.0
8S/2W-17G	06/10/93	590	340	6.0	<1	122.0	1.0	85.0	35.0	104.0	12.0
	07/19/96	630	360	6.0	<1	120.0	1.0	88.0	42.0	120.0	14.0
	06/16/97	---	---	---	---	---	---	---	---	---	10.0
	08/14/97	---	---	---	---	---	---	---	---	---	9.0
	06/02/99	620	360	6.0	<1	122.0	<1	84.0	45.0	120.0	10.0
	06/06/00	---	---	---	---	---	---	---	---	---	11.0
	06/13/01	---	---	---	---	---	---	---	---	---	12.0
	06/01/02	670	370	8.1	<1	130.0	1.0	86.0	46.0	130.0	11.0
	06/11/03	---	---	---	---	---	---	---	---	---	12.0
	06/22/04	---	---	---	---	---	---	---	---	---	15.0
	06/15/05	720	410	11.0	<1	140.0	1.3	90.0	62.0	140.0	12.0
	06/07/06	---	---	---	---	---	---	---	---	---	11.0
	06/01/07	---	---	---	---	---	---	---	---	---	10.0
	06/05/08	690	400	11.0	<1	140.0	104.0	89.0	66.0	140.0	10.0

ND-Not Detected

TABLE D-4

*SANTA MARGARITA RIVER WATERSHED*  
**WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 120	06/05/08	---	400	---	---	---	---	---	---	---	10.0
8S/2W-17G	09/15/08	---	350	---	---	---	---	---	---	---	---
(cont.)	08/21/09	---	500	---	---	---	---	---	---	---	11.0
	02/02/10	---	440	---	---	---	---	---	---	---	---
	05/05/10	---	440	---	---	---	---	---	---	---	---
	08/09/10	---	430	---	---	---	---	---	---	---	11.0
	11/03/10	---	400	---	---	---	---	---	---	---	---
	02/02/11	---	440	---	---	---	---	---	---	---	---
	05/04/11	---	450	---	---	---	---	---	---	---	---
	08/02/11	---	420	---	---	---	---	---	---	---	10.0
	11/03/11	---	380	---	---	---	---	---	---	---	---
	02/07/12	---	430	---	---	---	---	---	---	---	---
	05/03/12	---	410	---	---	---	---	---	---	---	---
	08/09/12	---	400	---	---	---	---	---	---	---	10.0
	11/01/12	---	440	---	---	---	---	---	---	---	---
	02/07/13	---	810	---	---	---	---	---	---	---	---
	05/02/13	---	410	---	---	---	---	---	---	---	---
	08/19/13	---	460	---	---	---	---	---	---	---	12.0
	11/07/13	---	450	---	---	---	---	---	---	---	---
	02/04/14	---	430	---	---	---	---	---	---	---	---
	05/06/14	---	420	---	---	---	---	---	---	---	---
	06/03/14	820	600	22.0	1.6	150.0	1.7	98.0	100.0	150.0	16.0
	08/08/14	---	410	---	---	---	---	---	---	---	13.0
	11/05/14	---	460	---	---	---	---	---	---	---	---
	02/04/15	---	350	---	---	---	---	---	---	---	---
	05/07/15	---	480	---	---	---	---	---	---	---	---
	08/06/15	---	450	---	---	---	---	---	---	---	12.0
	11/10/16	---	440	---	---	---	---	---	---	---	---
	02/10/16	---	520	---	---	---	---	---	---	---	---
	05/10/16	---	450	---	---	---	---	---	---	---	---
	08/03/16	---	540	---	---	---	---	---	---	---	2.8 as N
	11/08/16	---	460	---	---	---	---	---	---	---	---
	02/02/17	---	420	---	---	---	---	---	---	---	---
	05/02/17	---	430	---	---	---	---	---	---	---	---
	06/07/17	750	400	18.0	1.2	130.0	1.6	92.0	80.0	110.0	2.6 as N
	08/04/17	---	440	---	---	---	---	---	---	---	2.7 as N
No. 121	10/27/89	900	475	63.0	14.0	99.0	2.0	109.0	28.0	290.0	<1
7S/3W-34J	05/19/92	1000	560	72.0	17.0	120.0	3.0	170.0	56.0	270.0	<1

ND-Not Detected

TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l								
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3	
No. 121	07/18/97	---	---	---	---	---	---	---	---	---	---	ND
7S/3W-34J	07/24/97	---	640	---	---	---	---	---	---	---	---	ND
(cont.)	08/20/97	---	---	---	---	---	---	---	---	---	---	ND
	09/03/97	---	---	---	---	---	---	---	---	---	---	ND
	06/19/02	---	---	---	---	---	---	---	---	---	---	ND
No. 122	06/23/97	---	---	---	---	---	---	---	---	---	---	6.0
8S/2W-20P1	07/25/97	660	460	64.0	13.0	44.0	1.0	61.0	65.0	190.0	---	8.0
	10/10/97	---	---	---	---	---	---	---	---	---	---	9.0
	12/23/97	---	400	---	---	---	---	---	---	---	---	1.8 as N
	03/25/98	---	450	---	---	---	---	---	---	---	---	2.2 as N
	06/03/98	---	---	---	---	---	---	---	---	---	---	2.4 as N
	06/05/98	---	460	---	---	---	---	---	---	---	---	---
	09/17/98	---	---	---	---	---	---	---	---	---	---	2.2 as N
	01/08/99	---	450	---	---	---	---	---	---	---	---	---
	06/03/99	---	470	---	---	---	---	---	---	---	---	2.1 as N
	04/13/99	---	---	---	---	---	---	---	---	---	---	9.0
	09/21/99	---	---	---	---	---	---	---	---	---	---	2.1 as N
	03/07/00	---	---	---	---	---	---	---	---	---	---	16.0
	04/04/00	---	---	---	---	---	---	---	---	---	---	9.0
	06/28/00	780	470	79.0	16.0	62.0	1.0	73.0	100.0	210.0	---	11.0
	12/13/00	---	---	---	---	---	---	---	---	---	---	2.5 as N
	03/27/01	---	---	---	---	---	---	---	---	---	---	2.5 as N
	04/18/01	---	---	---	---	---	---	---	---	---	---	10.0
	06/20/01	---	---	---	---	---	---	---	---	---	---	2.4 as N
	09/13/01	---	---	---	---	---	---	---	---	---	---	2.7 as N
	12/13/01	---	550	---	---	---	---	---	---	---	---	---
	05/14/02	---	570	---	---	---	---	---	---	---	---	9.0
	03/05/03	---	---	---	---	---	---	---	---	---	---	10.0
	03/16/04	---	---	---	---	---	---	---	---	---	---	12.0
	03/17/05	---	---	---	---	---	---	---	---	---	---	9.0
	03/21/06	---	---	---	---	---	---	---	---	---	---	9.4
	03/06/07	---	---	---	---	---	---	---	---	---	---	9.7
	03/03/08	---	---	---	---	---	---	---	---	---	---	8.5
	03/07/08	---	620	---	---	---	---	---	---	---	---	---
	10/08/08	---	620	---	---	---	---	---	---	---	---	---
	01/20/09	---	680	---	---	---	---	---	---	---	---	---
	03/10/09	---	---	---	---	---	---	---	---	---	---	8.9
	04/16/09	---	660	---	---	---	---	---	---	---	---	---

ND-Not Detected



TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 122	07/14/09	---	670	---	---	---	---	---	---	---	---
8S/2W-20P1	03/15/10	---	640	---	---	---	---	---	---	---	10.0
(cont.)	03/10/11	---	---	---	---	---	---	---	---	---	9.6
	05/25/11	---	670	---	---	---	---	---	---	---	---
	08/04/11	---	680	---	---	---	---	---	---	---	---
	01/10/12	---	680	---	---	---	---	---	---	---	---
	03/06/12	---	---	---	---	---	---	---	---	---	9.1
	04/03/12	---	730	---	---	---	---	---	---	---	---
	08/07/12	1100	710	110.0	20.0	87.0	1.9	84.0	190.0	260.0	8.0
	10/04/12	---	680	---	---	---	---	---	---	---	---
	01/17/13	---	720	---	---	---	---	---	---	---	---
	03/07/13	---	---	---	---	---	---	---	---	---	8.4
	04/17/13	---	700	---	---	---	---	---	---	---	---
	07/03/13	---	740	---	---	---	---	---	---	---	---
	10/03/13	---	700	---	---	---	---	---	---	---	---
	01/28/14	---	730	---	---	---	---	---	---	---	---
	03/13/14	---	---	---	---	---	---	---	---	---	9.5
	04/16/14	---	680	---	---	---	---	---	---	---	---
	07/10/14	---	620	---	---	---	---	---	---	---	---
	10/02/14	---	730	---	---	---	---	---	---	---	---
	01/13/15	---	710	---	---	---	---	---	---	---	---
	03/10/15	---	---	---	---	---	---	---	---	---	8.9
	04/14/15	---	770	---	---	---	---	---	---	---	---
	07/07/15	---	690	---	---	---	---	---	---	---	---
	08/07/15	1000	710	110.0	20.0	85.0	1.9	92.0	200.0	260.0	9.0
	10/08/15	---	720	---	---	---	---	---	---	---	---
	01/12/16	---	710	---	---	---	---	---	---	---	---
	04/05/16	---	700	---	---	---	---	---	---	---	---
	04/21/16	---	---	---	---	---	---	---	---	---	1.9 as N
	07/13/16	---	750	---	---	---	---	---	---	---	---
	10/05/16	---	690	---	---	---	---	---	---	---	---
	05/14/17	---	700	---	---	---	---	---	---	---	2.2 as N
	07/11/17	---	690	---	---	---	---	---	---	---	---
No. 123	06/06/90	1100	690	69.0	27.0	132.0	6.0	130.0	170.0	281.0	4.0
8S/1W-7B	06/10/93	1120	690	74.0	25.0	136.0	6.0	120.0	190.0	250.0	5.0
	02/05/97	930	550	55.0	18.0	110.0	5.0	83.0	130.0	250.0	1.3
	04/27/99	---	---	---	---	---	---	---	---	---	3.0
	06/02/99	---	---	---	---	---	---	---	---	---	3.0

ND-Not Detected

TABLE D-4

*SANTA MARGARITA RIVER WATERSHED*  
**WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 123	07/20/99	---	---	---	---	---	---	---	---	---	2.0
8S/1W-7B	08/11/99	---	---	---	---	---	---	---	---	---	2.0
(cont.)	09/14/99	---	---	---	---	---	---	---	---	---	2.0
	10/21/99	---	---	---	---	---	---	---	---	---	2.0
	11/02/99	---	---	---	---	---	---	---	---	---	2.0
	02/09/00	1150	610	59.0	20.0	100.0	5.0	83.0	150.0	240.0	3.0
	02/09/01	---	---	---	---	---	---	---	---	---	3.0
	03/10/03	880	550	59.0	20.0	87.0	4.5	80.0	180.0	170.0	<2
	02/03/04	---	---	---	---	---	---	---	---	---	2.0
	02/14/05	---	---	---	---	---	---	---	---	---	2.0
	02/14/06	---	---	---	---	---	---	---	---	---	3.6
	03/14/06	890	530	65.0	22.0	88.0	5.0	91.0	180.0	180.0	2.3
	04/24/07	---	---	---	---	---	---	---	---	---	1.4
	05/01/07	---	---	---	---	---	---	---	---	---	2.7
	06/05/07	---	---	---	---	---	---	---	---	---	2.2
	07/05/07	---	---	---	---	---	---	---	---	---	2.5
	08/07/07	---	---	---	---	---	---	---	---	---	2.2
	09/05/07	---	---	---	---	---	---	---	---	---	2.1
	09/06/07	---	---	---	---	---	---	---	---	---	2.0
	10/03/07	---	---	---	---	---	---	---	---	---	2.0
	12/13/07	---	---	---	---	---	---	---	---	---	1.9
	01/10/08	---	---	---	---	---	---	---	---	---	1.4
	02/13/08	---	---	---	---	---	---	---	---	---	1.1
	03/03/08	---	---	---	---	---	---	---	---	---	1.3
	03/07/08	---	540	---	---	---	---	---	---	---	---
	04/08/08	---	---	---	---	---	---	---	---	---	2.2
	05/12/08	---	---	---	---	---	---	---	---	---	2.4
	06/23/08	---	---	---	---	---	---	---	---	---	2.7
	07/08/08	---	---	---	---	---	---	---	---	---	2.9
	08/12/08	---	---	---	---	---	---	---	---	---	2.6
	09/15/08	---	---	---	---	---	---	---	---	---	2.7
	11/06/08	---	---	---	---	---	---	---	---	---	2.6
	12/05/08	---	---	---	---	---	---	---	---	---	2.0
	01/07/09	---	640	---	---	---	---	---	---	---	ND
	02/04/09	---	---	---	---	---	---	---	---	---	1.6
	03/09/09	980	610	62.0	21.0	97.0	4.8	98.0	180.0	110.0	<2.0
	04/02/09	---	600	---	---	---	---	---	---	---	<2.0
	05/07/09	---	---	---	---	---	---	---	---	---	<2.0
	06/01/09	---	---	---	---	---	---	---	---	---	<2.0

ND-Not Detected

TABLE D-4

*SANTA MARGARITA RIVER WATERSHED*  
**WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 123	07/09/09	---	590	---	---	---	---	---	---	---	<2.0
8S/1W-7B	08/05/09	---	---	---	---	---	---	---	---	---	<2.0
(cont.)	01/06/10	---	590	---	---	---	---	---	---	---	1.4
	02/02/10	---	---	---	---	---	---	---	---	---	1.1
	03/03/10	---	---	---	---	---	---	---	---	---	1.2
	04/08/10	---	600	---	---	---	---	---	---	---	1.2
	05/06/10	---	---	---	---	---	---	---	---	---	1.5
	06/02/10	---	---	---	---	---	---	---	---	---	<2
	07/01/10	---	750	---	---	---	---	---	---	---	<2
	08/10/10	---	---	---	---	---	---	---	---	---	2.4
	09/01/10	---	---	---	---	---	---	---	---	---	2.1
	10/07/10	---	630	---	---	---	---	---	---	---	<2
	11/01/10	---	---	---	---	---	---	---	---	---	<2
	12/02/10	---	---	---	---	---	---	---	---	---	<2
	01/12/11	---	570	---	---	---	---	---	---	---	2.0
	02/15/11	---	---	---	---	---	---	---	---	---	2.0
	03/09/11	---	---	---	---	---	---	---	---	---	2.0
	04/05/11	---	580	---	---	---	---	---	---	---	2.0
	05/05/11	---	---	---	---	---	---	---	---	---	2.0
	06/07/11	---	---	---	---	---	---	---	---	---	2.0
	07/06/11	---	600	---	---	---	---	---	---	---	2.0
	08/03/11	---	---	---	---	---	---	---	---	---	2.0
	09/02/11	---	---	---	---	---	---	---	---	---	2.3
	10/13/11	---	550	---	---	---	---	---	---	---	2.2
	11/10/11	---	---	---	---	---	---	---	---	---	<2
	12/07/11	---	---	---	---	---	---	---	---	---	<2
	01/06/12	---	540	---	---	---	---	---	---	---	<2.0
	09/05/12	---	---	---	---	---	---	---	---	---	1.4
	10/10/12	---	360	---	---	---	---	---	---	---	1.2
	11/01/12	---	---	---	---	---	---	---	---	---	1.6
	11/28/12	710	450	46.0	16.0	69.0	4.3	69.0	110.0	150.0	1.7
	12/05/12	---	---	---	---	---	---	---	---	---	1.9
	01/09/13	---	440	---	---	---	---	---	---	---	1.3
	02/12/13	---	---	---	---	---	---	---	---	---	1.4
	03/06/13	---	---	---	---	---	---	---	---	---	1.6
	04/08/13	---	430	---	---	---	---	---	---	---	1.8
	05/07/13	---	---	---	---	---	---	---	---	---	1.9
	06/05/13	---	---	---	---	---	---	---	---	---	1.7
	07/09/13	---	470	---	---	---	---	---	---	---	2.2

TABLE D-4

*SANTA MARGARITA RIVER WATERSHED*  
**WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l								
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3	
No. 123	08/15/13	---	---	---	---	---	---	---	---	---	---	1.8
8S/1W-7B	09/05/13	---	---	---	---	---	---	---	---	---	---	1.6
(cont.)	10/08/13	---	490	---	---	---	---	---	---	---	---	1.7
	11/06/13	---	---	---	---	---	---	---	---	---	---	1.7
	12/11/13	---	---	---	---	---	---	---	---	---	---	1.9
	01/14/14	---	530	---	---	---	---	---	---	---	---	1.5
	02/06/14	---	---	---	---	---	---	---	---	---	---	2.0
	03/05/14	---	---	---	---	---	---	---	---	---	---	1.3
	04/09/14	---	550	---	---	---	---	---	---	---	---	1.8
	05/08/14	---	---	---	---	---	---	---	---	---	---	1.8
	06/03/14	---	---	---	---	---	---	---	---	---	---	2.1
	07/03/14	---	540	---	---	---	---	---	---	---	---	2.1
	08/07/14	---	---	---	---	---	---	---	---	---	---	2.1
	09/03/14	---	---	---	---	---	---	---	---	---	---	1.2
	10/02/14	---	550	---	---	---	---	---	---	---	---	1.3
	11/06/14	---	---	---	---	---	---	---	---	---	---	1.7
	12/04/14	---	---	---	---	---	---	---	---	---	---	2.0
	01/21/15	---	730	---	---	---	---	---	---	---	---	1.8
	02/05/15	---	---	---	---	---	---	---	---	---	---	2.0
	03/05/15	920	570	61.0	21.0	89.0	5.1	82.0	160.0	160.0	---	2.1
	04/15/15	---	550	---	---	---	---	---	---	---	---	2.2
	05/06/15	---	---	---	---	---	---	---	---	---	---	2.3
	06/02/15	---	---	---	---	---	---	---	---	---	---	2.4
	07/14/15	---	660	---	---	---	---	---	---	---	---	2.4
	08/04/15	---	---	---	---	---	---	---	---	---	---	2.5
	09/09/15	---	---	---	---	---	---	---	---	---	---	2.5
	10/14/15	---	540	---	---	---	---	---	---	---	---	2.5
	11/04/15	---	---	---	---	---	---	---	---	---	---	2.7
	12/02/15	---	---	---	---	---	---	---	---	---	---	2.1
No. 124	06/20/90	660	380	38.0	4.0	92.0	3.0	97.0	48.0	153.0	---	13.0
8S/2W-11R1	07/22/93	690	430	42.0	5.0	89.0	3.0	90.0	57.0	159.0	---	17.0
	07/18/95	---	---	---	---	---	---	---	---	---	---	11.0
	10/26/99	700	420	45.0	4.0	94.0	3.0	97.0	61.0	160.0	---	16.0
	07/06/00	---	---	---	---	---	---	---	---	---	---	17.0
	07/10/01	---	---	---	---	---	---	---	---	---	---	16.0
	07/03/02	---	---	---	---	---	---	---	---	---	---	10.0
	10/02/02	600	330	24.0	2.4	92.0	1.9	75.0	38.0	150.0	---	10.0
	01/08/03	---	---	---	---	---	---	---	---	---	---	2.3 as N

ND-Not Detected

TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l								
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3	
No. 124	07/01/03	---	---	---	---	---	---	---	---	---	---	8.3
8S/2W-11R1	07/07/04	---	---	---	---	---	---	---	---	---	---	9.4
(cont.)	07/06/05	---	---	---	---	---	---	---	---	---	---	8.4
	10/05/05	580	360	19.0	2.4	96.0	1.6	74.0	35.0	140.0	---	7.8
	09/26/06	---	---	---	---	---	---	---	---	---	---	17.0
	09/05/07	---	---	---	---	---	---	---	---	---	---	8.2
	10/28/08	780	490	52.0	6.5	84.0	3.1	91.0	84.0	150.0	---	1.8
	01/13/09	---	390	---	---	---	---	---	---	---	---	---
	04/07/09	---	330	---	---	---	---	---	---	---	---	---
	07/09/09	---	320	---	---	---	---	---	---	---	---	---
	01/06/10	---	390	---	---	---	---	---	---	---	---	---
	04/08/10	---	360	---	---	---	---	---	---	---	---	---
	07/01/10	---	390	---	---	---	---	---	---	---	---	---
	10/06/10	---	320	---	---	---	---	---	---	---	---	10.0
	01/04/11	---	390	---	---	---	---	---	---	---	---	---
	04/05/11	---	390	---	---	---	---	---	---	---	---	---
	07/06/11	---	350	---	---	---	---	---	---	---	---	---
	10/12/11	610	390	23.0	2.5	95.0	2.2	80.0	44.0	150.0	---	9.8
	10/12/11	---	320	---	---	---	---	---	---	---	---	10.0
	01/10/12	---	330	---	---	---	---	---	---	---	---	---
	04/04/12	---	410	---	---	---	---	---	---	---	---	---
	10/09/12	---	360	---	---	---	---	---	---	---	---	9.3
	03/20/13	---	480	---	---	---	---	---	---	---	---	---
	04/08/13	---	410	---	---	---	---	---	---	---	---	---
	07/19/13	---	360	---	---	---	---	---	---	---	---	---
	10/08/13	---	360	---	---	---	---	---	---	---	---	11.0
	01/14/14	---	350	---	---	---	---	---	---	---	---	---
	04/09/14	---	400	---	---	---	---	---	---	---	---	---
	07/24/14	---	460	---	---	---	---	---	---	---	---	---
	10/02/14	600	350	22.0	2.3	100.0	1.7	78.0	45.0	150.0	---	9.6
	10/02/14	---	370	---	---	---	---	---	---	---	---	---
	01/07/15	---	390	---	---	---	---	---	---	---	---	---
	04/23/15	---	490	---	---	---	---	---	---	---	---	---
	07/16/15	---	360	---	---	---	---	---	---	---	---	---
	10/09/15	---	310	---	---	---	---	---	---	---	---	9.7
	04/13/16	---	410	---	---	---	---	---	---	---	---	---
	07/13/16	---	340	---	---	---	---	---	---	---	---	---
	10/06/16	---	320	---	---	---	---	---	---	---	---	1.9 as N
	05/14/17	---	440	---	---	---	---	---	---	---	---	---
	07/11/17	---	340	---	---	---	---	---	---	---	---	---

ND-Not Detected

TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 125	06/20/90	740	425	17.0	5.0	132.0	3.0	99.0	54.0	186.0	4.0
8S/2W-12H	06/10/93	770	450	18.0	5.0	140.0	3.0	150.0	60.0	131.0	3.0
	06/20/95	---	---	---	---	---	---	---	---	---	2.0
	06/09/97	---	---	---	---	---	---	---	---	---	2.0
	09/17/98	---	---	---	---	---	---	---	---	---	3.0
	06/03/99	720	440	10.0	3.0	135.0	2.0	89.0	76.0	170.0	<2
	11/02/99	---	---	---	---	---	---	---	---	---	3.0
	11/15/00	---	---	---	---	---	---	---	---	---	2.0
	07/24/01	---	---	---	---	---	---	---	---	---	4.0
	06/19/02	700	400	8.8	2.3	130.0	1.8	87.0	54.0	170.0	<2
	07/03/02	---	---	---	---	---	---	---	---	---	2.0
	01/13/03	---	---	---	---	---	---	---	---	---	.38 as N
	07/01/03	---	---	---	---	---	---	---	---	---	<2
	06/09/04	---	---	---	---	---	---	---	---	---	<2
	06/14/05	650	350	8.3	2.1	130.0	1.6	82.0	52.0	180.0	1.8
	06/13/06	---	---	---	---	---	---	---	---	---	2.8
	06/05/07	---	---	---	---	---	---	---	---	---	1.6
	06/10/08	770	460	17.0	4.6	150.0	2.4	93.0	64.0	190.0	2.7
	09/15/08	---	370	---	---	---	---	---	---	---	---
	12/05/08	---	450	---	---	---	---	---	---	---	---
	03/04/09	---	440	---	---	---	---	---	---	---	---
	06/01/09	---	560	---	---	---	---	---	---	---	<2.0
	07/27/10	---	480	---	---	---	---	---	---	---	3.7
	10/06/10	---	430	---	---	---	---	---	---	---	---
01/14/11	---	420	---	---	---	---	---	---	---	---	
04/05/11	---	390	---	---	---	---	---	---	---	---	
No. 126 8S/2W-15H	05/04/88	480	290	4.0	<1	106.0	<1	53.0	14.0	64.0	<1
	07/06/89	500	270	2.0	1.0	108.0	<1	55.0	11.0	98.0	<1
	07/18/95	540	315	1.0	<1	122.0	<1	72.0	11.0	122.0	<1
	07/07/97	---	---	---	---	---	---	---	---	---	<2
	07/16/97	---	---	---	---	---	---	---	---	---	0.2 as N
	07/23/97	---	---	---	---	---	---	---	---	---	0.2 as N
	08/20/97	---	---	---	---	---	---	---	---	---	0.4 as N
	09/03/97	---	---	---	---	---	---	---	---	---	0.2 as N
	09/17/97	---	---	---	---	---	---	---	---	---	0.2 as N
	07/20/98	520	330	2.0	<1	120.0	<1	56.0	11.0	130.0	<2
	09/16/98	---	300	---	---	---	---	---	---	---	0.4 as N
	04/14/99	---	---	---	---	---	---	---	---	---	2.0

ND-Not Detected

TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 126	04/11/00	---	---	---	---	---	---	---	---	---	<2
8S/2W-15H	04/11/01	---	---	---	---	---	---	---	---	---	2.0
(cont.)	07/12/01	530	300	2.0	<1	100.0	<1	53.0	12.0	140.0	<2
	06/20/02	---	---	---	---	---	---	---	---	---	<2
	08/06/02	---	---	---	---	---	---	---	---	---	<2
	01/08/03	---	---	---	---	---	---	---	---	---	0.25 as N
	11/04/03	---	---	---	---	---	---	---	---	---	<2
	07/22/04	520	310	1.5	ND	110.0	ND	59.0	10.0	120.0	0.27 as N
	11/03/04	---	---	---	---	---	---	---	---	---	<2
	11/02/05	---	---	---	---	---	---	---	---	---	<1
	11/08/06	---	---	---	---	---	---	---	---	---	<1
	07/03/07	530	330	1.4	<1	110.0	<1	62.0	10.0	140.0	<2
	11/14/07	---	---	---	---	---	---	---	---	---	1.9
	08/07/08	---	280	---	---	---	---	---	---	---	---
	02/04/09	---	280	---	---	---	---	---	---	---	---
	05/06/09	---	280	---	---	---	---	---	---	---	---
	08/04/09	---	270	---	---	---	---	---	---	---	---
	02/03/10	---	290	---	---	---	---	---	---	---	---
	05/06/10	---	390	---	---	---	---	---	---	---	---
	07/13/10	530	300	1.6	<1	110.0	<1	58.0	11.0	130.0	<2
	08/24/10	---	330	---	---	---	---	---	---	---	---
	11/03/10	---	300	---	---	---	---	---	---	---	1.5
	02/04/11	---	280	---	---	---	---	---	---	---	---
	05/03/11	---	300	---	---	---	---	---	---	---	---
	08/02/11	---	280	---	---	---	---	---	---	---	---
	11/01/11	---	270	---	---	---	---	---	---	---	<2
	02/06/12	---	350	---	---	---	---	---	---	---	---
	05/02/12	---	330	---	---	---	---	---	---	---	---
	08/06/12	---	290	---	---	---	---	---	---	---	---
	11/05/12	---	320	---	---	---	---	---	---	---	1.9
	02/05/13	---	290	---	---	---	---	---	---	---	---
	05/01/13	---	280	---	---	---	---	---	---	---	---
	08/01/13	---	290	---	---	---	---	---	---	---	---
	08/01/13	640	310	2.4	<1.0	120.0	<1.0	81.0	13.0	140.0	2.3
	11/04/13	---	280	---	---	---	---	---	---	---	<1.0
	02/04/14	---	270	---	---	---	---	---	---	---	---
	08/04/14	---	270	---	---	---	---	---	---	---	---
	11/12/14	---	280	---	---	---	---	---	---	---	2.5
	02/04/15	---	260	---	---	---	---	---	---	---	---

ND-Not Detected

TABLE D-4

*SANTA MARGARITA RIVER WATERSHED*  
**WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 126	05/05/15	---	270	---	---	---	---	---	---	---	---
8S/2W-15H	08/04/15	---	250	---	---	---	---	---	---	---	---
(cont.)	11/03/15	---	250	---	---	---	---	---	---	---	1.0
	02/11/16	---	340	---	---	---	---	---	---	---	---
	05/03/16	---	270	---	---	---	---	---	---	---	---
	07/06/16	570	290	1.6	<0.50	110.0	<0.50	60.0	10.0	130.0	0.28 as N
	08/02/16	---	290	---	---	---	---	---	---	---	---
	11/03/16	---	310	---	---	---	---	---	---	---	0.61 as N
	02/02/17	---	310	---	---	---	---	---	---	---	---
	05/02/17	---	300	---	---	---	---	---	---	---	---
	08/07/17	---	310	---	---	---	---	---	---	---	---
No. 128	07/06/89	400	230	27.0	3.0	54.0	2.0	59.0	7.0	101.0	25.0
7S/3W-36M	07/08/92	390	230	21.0	2.0	59.0	2.0	55.0	1	110.0	24.0
	07/20/95	380	275	16.0	2.0	66.0	1.0	65.0	10.0	101.0	19.0
	07/07/97	---	---	---	---	---	---	---	---	---	15.0
	07/20/98	370	260	12.0	<1	71.0	1.0	48.0	11.0	110.0	14.0
	06/02/99	---	---	---	---	---	---	---	---	---	13.0
	06/08/01	---	---	---	---	---	---	---	---	---	14.0
	07/10/01	400	230	10.0	<1	68.0	<1	44.0	12.0	100.0	12.0
	06/20/02	---	---	---	---	---	---	---	---	---	12.0
No. 128	01/08/03	---	---	---	---	---	---	---	---	---	12.0
7S/3W-36M	01/14/04	---	---	---	---	---	---	---	---	---	10.0
(cont.)	07/14/04	390	240	8.3	1.0	67.0	1.0	48.0	11.0	92.0	13.0
	01/11/05	---	---	---	---	---	---	---	---	---	6.0
	01/10/06	---	---	---	---	---	---	---	---	---	7.9
No. 129	11/29/89	430	260	16.0	3.0	66.0	2.0	71.0	16.0	92.0	9.0
7S/2W-20L	08/08/90	440	280	20.0	5.0	64.0	2.0	72.0	14.0	119.0	10.0
	04/01/92	---	---	---	---	---	---	---	---	---	12.0
	09/10/93	470	275	24.0	6.0	60.0	2.0	74.0	16.0	110.0	13.0
	08/09/96	460	270	19.0	3.0	67.0	2.0	70.0	15.0	100.0	11.0
	02/04/97	---	---	---	---	---	---	---	---	---	53.0
	12/20/00	550	330	44.0	13.0	47.0	2.0	81.0	14.0	130.0	20.0
	03/22/01	---	---	---	---	---	---	---	---	---	20.0
	04/17/01	---	---	---	---	---	---	---	---	---	20.0
	05/02/01	---	---	---	---	---	---	---	---	---	18.0

ND-Not Detected



TABLE D-4

*SANTA MARGARITA RIVER WATERSHED*  
**WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l								
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3	
No. 129	06/08/01	---	---	---	---	---	---	---	---	---	---	20.0
7S/2W-20L	10/16/01	---	---	---	---	---	---	---	---	---	---	19.0
(cont.)	11/13/01	---	---	---	---	---	---	---	---	---	---	18.0
	02/26/02	---	---	---	---	---	---	---	---	---	---	16.0
	05/23/02	---	---	---	---	---	---	---	---	---	---	14.0
	09/18/02	---	---	---	---	---	---	---	---	---	---	15.0
No. 130	02/17/88	650	365	16.0	1.0	132.0	1.0	69.0	64.0	0.0	---	4.0
8S/2W-11R	02/14/91	640	365	4.0	<1	132.0	1.0	68.0	56.0	122.0	---	---
	04/24/91	---	---	---	---	---	---	---	---	---	---	3.0
	02/09/94	650	410	3.0	<1	148.0	1.0	81.0	72.0	146.0	---	4.0
	05/16/95	---	---	---	---	---	---	---	---	---	---	4.0
	02/05/97	780	450	4.0	<1	170.0	<1	78.0	82.0	150.0	---	5.0
	05/14/97	---	---	---	---	---	---	---	---	---	---	4.0
	04/14/99	---	---	---	---	---	---	---	---	---	---	5.0
	02/10/00	750	440	4.0	<1	170.0	<1	76.0	77.0	170.0	---	5.0
	04/12/00	---	---	---	---	---	---	---	---	---	---	5.0
	05/25/00	---	---	---	---	---	---	---	---	---	---	6.0
	05/24/01	---	---	---	---	---	---	---	---	---	---	6.0
	05/24/02	---	---	---	---	---	---	---	---	---	---	5.0
	02/19/03	820	460	4.1	<1	170.0	<1	87.0	96.0	180.0	---	5.0
	05/04/04	---	---	---	---	---	---	---	---	---	---	5.1
	05/12/05	---	---	---	---	---	---	---	---	---	---	5.0
	02/14/06	800	450	4.1	<1	170.0	<1	83.0	91.0	200.0	---	5.1
	05/12/06	---	---	---	---	---	---	---	---	---	---	4.5
	05/01/07	---	---	---	---	---	---	---	---	---	---	4.5
	05/07/08	---	440	---	---	---	---	---	---	---	---	4.1
	08/12/08	---	470	---	---	---	---	---	---	---	---	---
	11/09/08	---	560	---	---	---	---	---	---	---	---	---
	02/11/09	840	440	4.6	<1	170.0	<1	91.0	110.0	150.0	---	4.8
	05/11/09	---	480	---	---	---	---	---	---	---	---	3.5
	08/31/09	---	470	---	---	---	---	---	---	---	---	---
	02/04/10	---	480	---	---	---	---	---	---	---	---	---
	05/06/10	---	410	---	---	---	---	---	---	---	---	4.5
	08/11/10	---	460	---	---	---	---	---	---	---	---	---
	11/01/10	---	480	---	---	---	---	---	---	---	---	---
	12/02/10	---	400	---	---	---	---	---	---	---	---	---
	07/15/11	---	480	---	---	---	---	---	---	---	---	---
	08/04/11	---	---	---	---	---	---	---	---	---	---	4.7

ND-Not Detected

TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l								
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3	
No. 130	10/13/11	---	490	---	---	---	---	---	---	---	---	---
8S/2W-11R	01/10/12	---	460	---	---	---	---	---	---	---	---	---
(cont.)	02/09/12	810	480	4.4	<1.0	160.0	1.2	80.0	100.0	180.0	4.0	---
	08/08/12	---	---	---	---	---	---	---	---	---	---	4.2
	10/09/12	---	480	---	---	---	---	---	---	---	---	---
	01/03/13	---	500	---	---	---	---	---	---	---	---	---
	04/08/13	---	490	---	---	---	---	---	---	---	---	---
	07/09/13	---	460	---	---	---	---	---	---	---	---	---
	08/15/13	---	---	---	---	---	---	---	---	---	---	4.2
	10/08/13	---	470	---	---	---	---	---	---	---	---	---
	01/14/14	---	470	---	---	---	---	---	---	---	---	---
	04/09/14	---	500	---	---	---	---	---	---	---	---	---
	07/08/14	---	480	---	---	---	---	---	---	---	---	---
	08/07/14	---	---	---	---	---	---	---	---	---	---	4.7
	10/02/14	---	520	---	---	---	---	---	---	---	---	---
	02/20/15	880	480	5.1	<0.50	170.0	<0.50	81.0	110.0	180.0	4.1	---
	04/15/15	---	470	---	---	---	---	---	---	---	---	---
	07/14/15	---	510	---	---	---	---	---	---	---	---	---
	08/04/15	---	---	---	---	---	---	---	---	---	---	4.4
	10/13/15	---	470	---	---	---	---	---	---	---	---	---
	01/13/16	---	470	---	---	---	---	---	---	---	---	---
	04/13/16	---	550	---	---	---	---	---	---	---	---	---
	07/19/16	---	490	---	---	---	---	---	---	---	---	---
	08/03/16	---	---	---	---	---	---	---	---	---	---	0.89 as N
	10/11/16	---	490	---	---	---	---	---	---	---	---	---
	01/17/17	---	500	---	---	---	---	---	---	---	---	---
	04/06/17	---	490	---	---	---	---	---	---	---	---	---
	07/06/17	---	480	---	---	---	---	---	---	---	---	---
	08/15/17	---	---	---	---	---	---	---	---	---	---	0.95 as N
No. 131	03/10/88	530	270	4.0	<1	108.0	1.0	57.0	52.0	31.0	1.0	---
8S/1W-12J	03/21/91	630	335	7.0	<1	120.0	1.0	74.0	65.0	98.0	3.0	---
	03/03/94	660	345	9.0	<1	124.0	2.0	86.0	73.0	119.0	2.0	---
	03/30/95	---	---	---	---	---	---	---	---	---	---	2.0
	03/20/97	660	370	6.0	<1	125.0	1.0	81.0	73.0	100.0	2.0	---
	07/07/97	---	---	---	---	---	---	---	---	---	---	<2
	07/27/98	---	---	---	---	---	---	---	---	---	---	2.0
	06/03/99	---	---	---	---	---	---	---	---	---	---	<2
	03/07/00	720	380	9.0	<1	140.0	2.0	81.0	80.0	130.0	3.0	---

ND-Not Detected

TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 131	06/21/00	---	---	---	---	---	---	---	---	---	2.0
8S/1W-12J	06/27/01	---	---	---	---	---	---	---	---	---	2.0
(cont.)	06/05/02	---	---	---	---	---	---	---	---	---	<2
	03/13/03	700	390	8.0	<1	130.0	1.4	88.0	88.0	130.0	3.0
	06/11/03	---	---	---	---	---	---	---	---	---	<2
	06/09/04	---	---	---	---	---	---	---	---	---	<2
	06/15/05	---	---	---	---	---	---	---	---	---	2.0
	03/07/06	710	420	9.1	<1	140.0	1.5	93.0	93.0	130.0	3.0
	06/07/06	---	---	---	---	---	---	---	---	---	1.7
	06/26/07	---	---	---	---	---	---	---	---	---	2.4
	06/04/08	---	390	---	---	---	---	---	---	---	1.5
	09/15/08	---	330	---	---	---	---	---	---	---	---
	12/03/08	---	430	---	---	---	---	---	---	---	---
	03/04/09	640	370	6.0	<1	130.0	1.2	71.0	77.0	130.0	<2.0
	03/04/09	---	380	---	---	---	---	---	---	---	---
	06/02/09	---	360	---	---	---	---	---	---	---	<2.0
	03/03/10	---	380	---	---	---	---	---	---	---	---
	06/02/10	---	360	---	---	---	---	---	---	---	2.0
	09/01/10	---	360	---	---	---	---	---	---	---	---
	03/02/11	---	430	---	---	---	---	---	---	---	---
	06/07/11	---	360	---	---	---	---	---	---	---	2.0
	09/02/11	---	330	---	---	---	---	---	---	---	---
	12/07/11	---	420	---	---	---	---	---	---	---	---
	03/02/12	---	410	---	---	---	---	---	---	---	---
	06/05/12	---	350	---	---	---	---	---	---	---	1.5
	09/05/12	---	370	---	---	---	---	---	---	---	---
	12/04/12	---	370	---	---	---	---	---	---	---	---
	03/06/13	---	350	---	---	---	---	---	---	---	---
	06/05/13	---	360	---	---	---	---	---	---	---	1.8
	09/04/13	---	370	---	---	---	---	---	---	---	---
	12/04/13	---	370	---	---	---	---	---	---	---	---
	03/11/14	---	440	---	---	---	---	---	---	---	---
	06/03/14	---	460	---	---	---	---	---	---	---	3.4
	09/03/14	---	380	---	---	---	---	---	---	---	---
	06/03/15	---	370	---	---	---	---	---	---	---	2.2
	09/09/15	---	380	---	---	---	---	---	---	---	---
	11/04/15	660	360	6.8	<0.5	130.0	1.0	72.0	78.0	140.0	2.2
	12/02/15	---	300	---	---	---	---	---	---	---	---
	03/03/16	---	330	---	---	---	---	---	---	---	---

ND-Not Detected

TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 131	06/07/16	---	370	---	---	---	---	---	---	---	0.47 as N
8S/1W-12J	09/07/16	---	370	---	---	---	---	---	---	---	---
(cont.)	12/10/16	---	410	---	---	---	---	---	---	---	---
	03/08/17	---	410	---	---	---	---	---	---	---	---
	06/08/17	---	380	---	---	---	---	---	---	---	0.53 as N
	09/13/17	---	390	---	---	---	---	---	---	---	---
No. 132	04/18/88	1000	620	94.0	13.0	103.0	6.0	109.0	153.0	235.0	2.0
8S/1W-07D	05/08/91	920	590	64.0	19.0	110.0	5.0	100.0	160.0	201.0	<1
	05/13/94	730	460	50.0	15.0	78.0	5.0	73.0	110.0	195.0	1.0
	05/16/95	---	---	---	---	---	---	---	---	---	<1
	07/18/95	860	520	59.0	17.0	100.0	4.0	90.0	130.0	223.0	1.0
	07/20/98	900	590	69.0	20.0	110.0	5.0	89.0	150.0	230.0	2.0
	01/06/99	---	---	---	---	---	---	---	---	---	2.0
	02/03/99	---	---	---	---	---	---	---	---	---	2.0
	04/14/99	---	---	---	---	---	---	---	---	---	3.0
	06/03/99	---	---	---	---	---	---	---	---	---	3.0
	07/27/99	---	---	---	---	---	---	---	---	---	5.0
	08/11/99	---	---	---	---	---	---	---	---	---	4.0
	09/15/99	---	---	---	---	---	---	---	---	---	4.0
	10/21/99	---	---	---	---	---	---	---	---	---	4.0
	11/02/99	---	---	---	---	---	---	---	---	---	3.0
	12/15/99	---	---	---	---	---	---	---	---	---	3.0
	05/03/00	---	---	---	---	---	---	---	---	---	2.0
	05/16/01	800	500	57.0	17.0	74.0	5.0	63.0	180.0	150.0	3.0
	05/01/02	---	---	---	---	---	---	---	---	---	2.0
	05/03/05	---	---	---	---	---	---	---	---	---	<2
	05/12/06	---	---	---	---	---	---	---	---	---	3.2
	05/01/07	---	---	---	---	---	---	---	---	---	4.7
	05/03/07	820	500	53.0	16.0	64.0	4.4	72.0	150.0	160.0	3.2
	05/06/08	---	670	---	---	---	---	---	---	---	3.6
	08/12/08	---	690	---	---	---	---	---	---	---	---
	11/06/08	---	650	---	---	---	---	---	---	---	---
	02/05/09	---	570	---	---	---	---	---	---	---	---
	05/11/09	---	590	---	---	---	---	---	---	---	<2.0
	08/05/09	---	600	---	---	---	---	---	---	---	---
	02/03/10	---	580	---	---	---	---	---	---	---	---
	05/06/10	960	600	67.0	22.0	88.0	5.6	96.0	220.0	170.0	1.2
	08/10/10	---	570	---	---	---	---	---	---	---	---

ND-Not Detected

TABLE D-4

*SANTA MARGARITA RIVER WATERSHED*  
**WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 132	11/01/10	---	610	---	---	---	---	---	---	---	---
8S/1W-07D	02/15/11	---	580	---	---	---	---	---	---	---	---
(cont.)	05/04/11	---	590	---	---	---	---	---	---	---	2.0
	08/03/11	---	580	---	---	---	---	---	---	---	---
	11/02/11	---	510	---	---	---	---	---	---	---	---
	02/08/12	---	450	---	---	---	---	---	---	---	---
	05/02/12	---	420	---	---	---	---	---	---	---	3.3
	08/08/12	---	360	---	---	---	---	---	---	---	---
	11/01/12	---	370	---	---	---	---	---	---	---	---
	01/29/14	---	520	---	---	---	---	---	---	---	---
	02/06/14	---	460	---	---	---	---	---	---	---	---
	05/15/14	---	510	---	---	---	---	---	---	---	1.5
	08/06/14	---	500	---	---	---	---	---	---	---	---
	11/06/14	---	540	---	---	---	---	---	---	---	---
	02/05/15	---	530	---	---	---	---	---	---	---	---
	05/07/15	---	520	---	---	---	---	---	---	---	1.2
	08/07/15	---	570	---	---	---	---	---	---	---	---
	11/10/15	---	620	---	---	---	---	---	---	---	---
	02/10/16	---	660	---	---	---	---	---	---	---	---
	05/11/16	1300	760	94.0	33.0	100.0	6.1	140.0	200.0	220.0	0.44 as N
	05/11/16	---	740	---	---	---	---	---	---	---	0.43 as N
	08/03/16	---	820	---	---	---	---	---	---	---	---
	11/02/16	---	680	---	---	---	---	---	---	---	---
	02/02/17	---	640	---	---	---	---	---	---	---	---
	05/03/17	---	620	---	---	---	---	---	---	---	0.29 as N
	08/10/17	---	610	---	---	---	---	---	---	---	---
No. 133	03/28/90	970	605	50.0	20.0	112.0	5.0	120.0	131.0	235.0	3.0
8S/1W-7C	03/11/93	970	580	48.0	19.0	120.0	4.0	110.0	140.0	204.0	3.0
	06/06/95	---	---	---	---	---	---	---	---	---	2.0
	07/18/95	850	680	26.0	10.0	142.0	2.0	120.0	100.0	174.0	2.0
	06/23/97	---	---	---	---	---	---	---	---	---	3.0
	07/20/98	790	500	24.0	9.0	140.0	2.0	96.0	93.0	170.0	2.0
	08/02/00	---	---	---	---	---	---	---	---	---	3.0
	03/28/01	800	460	22.0	10.0	130.0	2.0	98.0	100.0	170.0	<2
	08/02/01	---	---	---	---	---	---	---	---	---	<2
	09/18/02	---	---	---	---	---	---	---	---	---	2.0
	09/16/03	---	---	---	---	---	---	---	---	---	2.0
	03/12/04	810	500	25.0	10.0	130.0	2.4	95.0	99.0	180.0	2.0

ND-Not Detected

TABLE D-4

*SANTA MARGARITA RIVER WATERSHED*  
**WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 133	03/07/07	820	500	26.0	9.7	140.0	2.4	94.0	98.0	160.0	2.3
8S/1W-7C	03/03/08	---	---	---	---	---	---	---	---	---	2.1
(cont.)	03/07/08	---	480	---	---	---	---	---	---	---	---
	07/08/08	---	470	---	---	---	---	---	---	---	---
	01/07/09	---	540	---	---	---	---	---	---	---	---
	03/04/09	---	---	---	---	---	---	---	---	---	2.6
	04/02/09	---	460	---	---	---	---	---	---	---	---
	07/09/09	---	450	---	---	---	---	---	---	---	---
	01/06/10	---	490	---	---	---	---	---	---	---	---
	03/03/10	860	460	37.0	16.0	110.0	3.1	110.0	110.0	200.0	3.0
	04/08/10	---	490	---	---	---	---	---	---	---	---
	07/08/10	---	470	---	---	---	---	---	---	---	---
	10/06/10	---	460	---	---	---	---	---	---	---	---
	01/12/11	---	490	---	---	---	---	---	---	---	---
	03/09/11	---	---	---	---	---	---	---	---	---	2.9
	04/05/11	---	460	---	---	---	---	---	---	---	---
	07/06/11	---	440	---	---	---	---	---	---	---	---
	10/13/11	---	470	---	---	---	---	---	---	---	---
	10/09/12	---	490	---	---	---	---	---	---	---	---
	12/12/12	---	---	---	---	---	---	---	---	---	2.8
	01/15/13	---	470	---	---	---	---	---	---	---	---
	03/07/13	840	510	36.0	15.0	110.0	3.0	100.0	100.0	200.0	3.0
	04/08/13	---	470	---	---	---	---	---	---	---	---
	07/09/13	---	470	---	---	---	---	---	---	---	---
	10/08/13	---	500	---	---	---	---	---	---	---	---
	01/14/14	---	490	---	---	---	---	---	---	---	---
	03/11/14	---	---	---	---	---	---	---	---	---	3.7
	04/09/14	---	530	---	---	---	---	---	---	---	---
	07/08/14	---	540	---	---	---	---	---	---	---	---
	10/02/14	---	500	---	---	---	---	---	---	---	---
	01/15/15	---	460	---	---	---	---	---	---	---	---
	03/04/15	---	---	---	---	---	---	---	---	---	2.8
	04/15/15	---	490	---	---	---	---	---	---	---	---
	07/15/15	---	500	---	---	---	---	---	---	---	---
	10/13/15	---	400	---	---	---	---	---	---	---	---
	01/20/16	---	430	---	---	---	---	---	---	---	---
	03/03/16	---	---	---	---	---	---	---	---	---	0.51 as N
	03/15/16	930	510	36.0	14.0	120.0	2.8	99.0	110.0	190.0	0.76 as N
	04/13/16	---	550	---	---	---	---	---	---	---	---

ND-Not Detected

TABLE D-4

*SANTA MARGARITA RIVER WATERSHED*  
**WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 133	07/19/16	---	480	---	---	---	---	---	---	---	---
8S/1W-7C	10/11/16	---	510	---	---	---	---	---	---	---	---
(cont.)	01/17/17	---	520	---	---	---	---	---	---	---	---
	03/08/17	---	---	---	---	---	---	---	---	---	0.69 as N
	04/06/17	---	480	---	---	---	---	---	---	---	---
	07/11/17	---	490	---	---	---	---	---	---	---	---
No. 135	05/24/89	2450	1390	122.0	65.0	300.0	2.0	410.0	225.0	464.0	33.0
7S/3W-27M	06/06/90	1540	945	73.0	36.0	215.0	1.0	250.0	150.0	323.0	13.0
	12/11/90	4400	2670	270.0	109.0	480.0	4.0	1030.0	380.0	314.0	<1
	08/06/92	1800	810	63.0	33.0	170.0	1.0	200.0	160.0	281.0	---
	01/16/97	---	---	---	---	---	---	---	---	---	3.7 as N
	02/04/97	---	---	---	---	---	---	---	---	---	3.5 as N
	02/12/97	---	---	---	---	---	---	---	---	---	4.0 as N
	02/20/97	---	---	---	---	---	---	---	---	---	3.4 as N
	02/25/97	---	---	---	---	---	---	---	---	---	3.4 as N
	03/04/97	---	---	---	---	---	---	---	---	---	3.7 as N
	03/18/97	---	---	---	---	---	---	---	---	---	3.3 as N
	03/25/97	---	---	---	---	---	---	---	---	---	3.5 as N
	04/08/97	---	---	---	---	---	---	---	---	---	3.4 as N
	04/15/97	---	---	---	---	---	---	---	---	---	3.4 as N
	04/22/97	---	---	---	---	---	---	---	---	---	3.5 as N
	05/06/97	1930	1050	97.0	48.0	220.0	2.0	340.0	190.0	360.0	3.3 as N
	05/14/97	---	---	---	---	---	---	---	---	---	3.4 as N
	05/21/97	---	---	---	---	---	---	---	---	---	3.3 as N
	06/04/97	---	---	---	---	---	---	---	---	---	3.3 as N
	06/11/97	---	---	---	---	---	---	---	---	---	3.3 as N
	06/18/97	---	---	---	---	---	---	---	---	---	3.3 as N
	06/25/97	---	---	---	---	---	---	---	---	---	3.3 as N
	07/02/97	---	---	---	---	---	---	---	---	---	3.3 as N
	09/17/97	1960	1260	---	---	---	---	430.0	220.0	---	13.0
No. 138	10/30/90	460	240	19.0	2.0	74.0	2.0	71.0	13.0	113.0	18.0
8S/2W-6F	10/06/93	420	240	11.0	<1	70.0	1.0	56.0	10.0	92.0	14.0
	10/11/96	430	270	9.0	<1	78.0	1.0	55.0	8.9	100.0	15.0
	04/14/99	---	---	---	---	---	---	---	---	---	5.0
	06/03/99	---	---	---	---	---	---	---	---	---	3.0
	10/26/99	430	240	10.0	<1	76.0	1.0	60.0	11.0	100.0	19.0
	03/13/00	---	---	---	---	---	---	---	---	---	5.0

ND-Not Detected

TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l								
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3	
No. 138	03/22/01	---	---	---	---	---	---	---	---	---	---	17.0
8S/2W-6F	03/13/02	---	---	---	---	---	---	---	---	---	---	21.0
(cont.)	06/20/02	---	---	---	---	---	---	---	---	---	---	16.0
	10/02/02	440	220	10.0	<1	75.0	1.2	58.0	7.8	96.0	---	17.0
	06/12/03	---	---	---	---	---	---	---	---	---	---	16.0
	12/30/04	---	---	---	---	---	---	---	---	---	---	5.0
	01/27/05	---	---	---	---	---	---	---	---	---	---	12.0
	10/18/05	430	280	11.0	<1	72.0	1.3	65.0	8.3	110.0	---	18.0
	01/06/06	---	---	---	---	---	---	---	---	---	---	17.0
	01/10/07	---	---	---	---	---	---	---	---	---	---	16.0
	01/08/08	---	---	---	---	---	---	---	---	---	---	16.0
	10/08/08	430	220	12.0	59.0	82.0	1.1	59.0	11.0	32.0	---	18.0
	01/08/09	---	---	---	---	---	---	---	---	---	---	18.0
	01/12/09	---	280	---	---	---	---	---	---	---	---	---
	04/08/09	---	250	---	---	---	---	---	---	---	---	---
	07/06/09	---	240	---	---	---	---	---	---	---	---	---
	01/06/10	---	250	---	---	---	---	---	---	---	---	16.0
	04/08/10	---	270	---	---	---	---	---	---	---	---	---
	07/14/10	---	260	---	---	---	---	---	---	---	---	---
	10/05/10	---	230	---	---	---	---	---	---	---	---	---
	01/12/11	---	190	---	---	---	---	---	---	---	---	17.0
	04/06/11	---	290	---	---	---	---	---	---	---	---	---
	07/07/11	---	250	---	---	---	---	---	---	---	---	---
	10/04/11	440	240	10.0	1.0	78.0	1.9	62.0	10.0	110.0	---	17.0
	10/04/11	---	200	---	---	---	---	---	---	---	---	---
	01/17/12	---	260	---	---	---	---	---	---	---	---	16.0
	04/03/12	---	280	---	---	---	---	---	---	---	---	---
	10/02/12	---	290	---	---	---	---	---	---	---	---	---
	01/03/13	---	240	---	---	---	---	---	---	---	---	14.0
	04/03/13	---	230	---	---	---	---	---	---	---	---	---
	07/02/13	---	220	---	---	---	---	---	---	---	---	---
	10/10/13	---	230	---	---	---	---	---	---	---	---	---
	01/07/14	---	220	---	---	---	---	---	---	---	---	16.0
	04/22/14	---	220	---	---	---	---	---	---	---	---	---
	07/09/14	---	260	---	---	---	---	---	---	---	---	---
	10/02/14	430	260	10.0	ND	81.0	1.2	67.0	11.0	110.0	---	16.0
	01/14/15	---	210	---	---	---	---	---	---	---	---	17.0
	04/09/15	---	260	---	---	---	---	---	---	---	---	---
	07/02/15	---	240	---	---	---	---	---	---	---	---	---

ND-Not Detected



TABLE D-4

*SANTA MARGARITA RIVER WATERSHED*  
**WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l								
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3	
No. 138	10/08/15	---	250	---	---	---	---	---	---	---	---	---
8S/2W-6F	01/12/16	---	260	---	---	---	---	---	---	---	---	2.9 as N
(cont.)	04/05/16	---	290	---	---	---	---	---	---	---	---	---
	07/12/16	---	280	---	---	---	---	---	---	---	---	---
	10/04/16	---	260	---	---	---	---	---	---	---	---	---
	01/04/17	---	220	---	---	---	---	---	---	---	---	3.8 as N
	04/11/17	---	260	---	---	---	---	---	---	---	---	---
	07/06/17	---	250	---	---	---	---	---	---	---	---	---
No. 139	12/29/87	460	295	24.0	7.0	65.0	1.0	60.0	11.0	104.0	7.0	
7S/2W-32G	11/23/92	450	275	32.0	9.0	46.0	2.0	60.0	13.0	134.0	20.0	
	12/19/95	500	298	36.0	12.0	50.0	2.0	72.0	12.0	156.0	2.8	
	03/25/97	---	---	---	---	---	---	---	---	---	---	10.0
	03/13/00	---	---	---	---	---	---	---	---	---	---	9.0
	03/28/01	---	---	---	---	---	---	---	---	---	---	8.0
	03/11/02	530	280	29.0	10.0	57.0	2.0	73.0	13.0	140.0	9.0	
	03/09/04	---	---	---	---	---	---	---	---	---	---	8.0
	03/09/05	520	310	21.0	7.7	72.0	1.3	78.0	13.0	150.0	6.0	
	03/09/06	---	---	---	---	---	---	---	---	---	---	9.9
	03/07/07	---	---	---	---	---	---	---	---	---	---	6.9
	04/15/08	550	340	40.0	14.0	43.0	1.9	80.0	10.0	150.0	14.0	
	07/17/08	---	330	---	---	---	---	---	---	---	---	---
	10/08/08	---	320	---	---	---	---	---	---	---	---	---
	01/13/09	---	390	---	---	---	---	---	---	---	---	---
	07/06/09	---	290	---	---	---	---	---	---	---	---	---
	04/08/09	---	310	---	---	---	---	---	---	---	---	5.8
	05/17/10	---	320	---	---	---	---	---	---	---	---	---
	08/09/10	---	340	---	---	---	---	---	---	---	---	---
	10/21/10	---	---	---	---	---	---	---	---	---	---	8.9
	11/03/10	---	290	---	---	---	---	---	---	---	---	---
	02/09/11	---	340	---	---	---	---	---	---	---	---	---
	04/21/11	570	340	39.0	15.0	45.0	2.3	97.0	16.0	140.0	12.0	
	05/04/11	---	340	---	---	---	---	---	---	---	---	---
	07/07/11	---	350	---	---	---	---	---	---	---	---	---
	08/04/11	---	320	---	---	---	---	---	---	---	---	---
	10/05/11	---	---	---	---	---	---	---	---	---	---	6.1
	11/02/11	---	310	---	---	---	---	---	---	---	---	---
	02/09/12	---	330	---	---	---	---	---	---	---	---	---
	05/02/12	---	320	---	---	---	---	---	---	---	---	---

ND-Not Detected

TABLE D-4

*SANTA MARGARITA RIVER WATERSHED*  
**WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l								
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3	
No. 139	08/09/12	---	310	---	---	---	---	---	---	---	---	---
7S/2W-32G	10/02/12	---	---	---	---	---	---	---	---	---	---	5.4
(cont.)	11/02/12	---	360	---	---	---	---	---	---	---	---	---
	02/07/13	---	320	---	---	---	---	---	---	---	---	---
	05/02/13	---	300	---	---	---	---	---	---	---	---	---
	08/13/13	---	330	---	---	---	---	---	---	---	---	---
	10/10/13	---	---	---	---	---	---	---	---	---	---	4.9
	11/07/13	---	340	---	---	---	---	---	---	---	---	---
	02/05/14	---	310	---	---	---	---	---	---	---	---	---
	04/09/14	560	370	32.0	13.0	64.0	1.8	92.0	13.0	150.0	---	5.2
	05/20/14	---	300	---	---	---	---	---	---	---	---	---
	08/07/14	---	370	---	---	---	---	---	---	---	---	---
	10/01/14	---	---	---	---	---	---	---	---	---	---	3.4
	11/06/14	---	310	---	---	---	---	---	---	---	---	---
	02/05/15	---	320	---	---	---	---	---	---	---	---	---
	05/14/15	---	320	---	---	---	---	---	---	---	---	---
	08/07/15	---	320	---	---	---	---	---	---	---	---	---
	10/08/15	---	---	---	---	---	---	---	---	---	---	6.4
	11/17/15	---	360	---	---	---	---	---	---	---	---	---
	02/05/16	---	350	---	---	---	---	---	---	---	---	---
	05/13/16	---	330	---	---	---	---	---	---	---	---	---
	08/03/16	---	330	---	---	---	---	---	---	---	---	---
	11/10/16	---	330	---	---	---	---	---	---	---	---	---
	02/03/17	---	330	---	---	---	---	---	---	---	---	1.6 as N
	04/11/17	580	340	34.0	14.0	59.0	2.0	94.0	14.0	120.0	---	1.3 as N
	05/10/17	---	360	---	---	---	---	---	---	---	---	---
	08/15/17	---	300	---	---	---	---	---	---	---	---	---
No. 140	02/18/88	560	325	33.0	10.0	65.0	2.0	77.0	14.0	153.0	---	13.0
7S/2W-33F	01/15/92	450	235	11.0	2.0	88.0	1.0	68.0	18.0	107.0	---	2.0
	02/28/95	560	325	36.0	11.0	58.0	2.0	94.0	14.0	140.0	---	12.0
	03/25/97	---	---	---	---	---	---	---	---	---	---	8.0
	02/27/98	650	360	31.0	11.0	76.0	2.0	95.0	16.0	130.0	---	5.0
	09/17/98	---	---	---	---	---	---	---	---	---	---	8.0
	05/16/01	---	---	---	---	---	---	---	---	---	---	11.0
	02/01/01	650	370	31.0	12.0	72.0	2.0	110.0	21.0	150.0	---	4.0
	05/24/02	---	---	---	---	---	---	---	---	---	---	7.0
	04/05/05	680	390	37.0	16.0	69.0	2.3	140.0	18.0	150.0	---	4.0
	04/06/06	---	---	---	---	---	---	---	---	---	---	4.4

ND-Not Detected

TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l								
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3	
No. 140	04/24/07	---	---	---	---	---	---	---	---	---	---	3.0
7S/2W-33F	04/08/08	630	340	26.0	9.5	79.0	1.9	110.0	21.0	140.0		2.7
(cont.)	04/08/08	---	350	---	---	---	---	---	---	---		2.7
	07/07/08	---	360	---	---	---	---	---	---	---		---
	01/07/09	---	400	---	---	---	---	---	---	---		---
	04/15/09	---	380	---	---	---	---	---	---	---		4.6
	07/06/09	---	360	---	---	---	---	---	---	---		---
	01/06/10	---	350	---	---	---	---	---	---	---		---
	04/08/10	---	350	---	---	---	---	---	---	---		2.1
	07/14/10	---	360	---	---	---	---	---	---	---		---
	10/05/10	---	350	---	---	---	---	---	---	---		---
	01/12/11	---	280	---	---	---	---	---	---	---		---
	04/05/11	640	360	26.0	9.4	82.0	1.9	100.0	19.0	130.0		2.4
	04/05/11	---	340	---	---	---	---	---	---	---		2.7
	10/05/11	---	360	---	---	---	---	---	---	---		---
	01/17/12	---	380	---	---	---	---	---	---	---		---
	04/03/12	---	390	---	---	---	---	---	---	---		---
	10/02/12	---	370	---	---	---	---	---	---	---		---
	01/21/14	---	380	---	---	---	---	---	---	---		---
	03/12/14	---	---	---	---	---	---	---	---	---		2.8
	04/03/14	660	330	32.0	12.0	84.0	2.1	120.0	23.0	140.0		3.2
	04/03/14	---	330	---	---	---	---	---	---	---		3.3
	07/08/14	---	380	---	---	---	---	---	---	---		---
	10/01/14	---	370	---	---	---	---	---	---	---		---
	01/20/15	---	340	---	---	---	---	---	---	---		---
	04/09/15	---	350	---	---	---	---	---	---	---		2.1
	07/02/15	---	360	---	---	---	---	---	---	---		---
	10/08/15	---	330	---	---	---	---	---	---	---		---
	01/12/16	---	330	---	---	---	---	---	---	---		---
	04/21/16	---	330	---	---	---	---	---	---	---		0.42 as N
	07/12/16	---	400	---	---	---	---	---	---	---		---
	08/04/16	---	---	---	---	---	---	---	---	---		0.45 as N
	10/04/16	---	350	---	---	---	---	---	---	---		---
	04/11/17	620	340	23.0	7.9	89.0	1.6	110.0	22.0	110.0		0.32 as N
	07/14/17	---	310	---	---	---	---	---	---	---		---
No. 141	01/06/88	780	440	64.0	11.0	82.0	3.0	65.0	91.0	217.0		13.0
8S/2W-11P	01/30/92	820	500	63.0	13.0	95.0	3.0	79.0	110.0	238.0		19.0
	03/30/95	840	490	58.0	11.0	100.0	3.0	70.0	97.0	241.0		14.0

ND-Not Detected

TABLE D-4

*SANTA MARGARITA RIVER WATERSHED*  
**WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l								
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3	
No. 141	03/25/97	---	---	---	---	---	---	---	---	---	---	15.0
8S/2W-11P	03/26/98	760	480	62.0	12.0	90.0	3.0	69.0	86.0	230.0	---	16.0
(cont.)	01/04/99	---	---	---	---	---	---	---	---	---	---	14.0
	02/12/99	---	---	---	---	---	---	---	---	---	---	19.0
	10/21/99	---	---	---	---	---	---	---	---	---	---	17.0
	11/03/99	---	---	---	---	---	---	---	---	---	---	14.0
	12/14/99	---	---	---	---	---	---	---	---	---	---	14.0
	06/20/00	---	---	---	---	---	---	---	---	---	---	15.0
	01/04/01	700	450	52.0	6.0	84.0	3.0	75.0	70.0	190.0	---	15.0
	09/28/01	---	---	---	---	---	---	---	---	---	---	18.0
	11/08/02	---	---	---	---	---	---	---	---	---	---	15.0
	09/16/03	---	---	---	---	---	---	---	---	---	---	19.0
	01/13/04	760	490	65.0	11.0	84.0	3.1	70.0	90.0	220.0	---	21.0
	01/06/05	---	---	---	---	---	---	---	---	---	---	18.0
	01/06/06	---	---	---	---	---	---	---	---	---	---	16.0
	06/04/08	---	410	---	---	---	---	---	---	---	---	11.0
	12/05/08	---	480	---	---	---	---	---	---	---	---	---
	03/04/09	---	440	---	---	---	---	---	---	---	---	---
	06/02/09	---	390	---	---	---	---	---	---	---	---	10.0
	01/05/10	760	450	62.0	8.1	84.0	3.5	77.0	68.0	200.0	---	16.0
	03/03/10	---	480	---	---	---	---	---	---	---	---	---
	06/02/10	---	400	---	---	---	---	---	---	---	---	13.0
	09/01/10	---	370	---	---	---	---	---	---	---	---	---
	01/12/11	---	460	---	---	---	---	---	---	---	---	---
	04/05/11	---	420	---	---	---	---	---	---	---	---	---
	06/07/11	---	---	---	---	---	---	---	---	---	---	12.0
	07/06/11	---	360	---	---	---	---	---	---	---	---	---
	10/11/11	---	420	---	---	---	---	---	---	---	---	---
	01/10/12	---	400	---	---	---	---	---	---	---	---	---
	04/03/12	---	510	---	---	---	---	---	---	---	---	---
	06/05/12	---	---	---	---	---	---	---	---	---	---	12.0
	10/09/12	---	400	---	---	---	---	---	---	---	---	---
	01/03/13	---	490	---	---	---	---	---	---	---	---	---
	01/03/13	830	490	70.0	10.0	89.0	3.6	80.0	81.0	220.0	---	17.0
	04/17/13	---	460	---	---	---	---	---	---	---	---	---
	06/06/13	---	---	---	---	---	---	---	---	---	---	13.0
	07/09/13	---	450	---	---	---	---	---	---	---	---	---
	10/08/13	---	390	---	---	---	---	---	---	---	---	---
	01/28/14	---	520	---	---	---	---	---	---	---	---	---

ND-Not Detected

TABLE D-4

*SANTA MARGARITA RIVER WATERSHED*  
**WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 141	04/09/14	---	420	---	---	---	---	---	---	---	---
8S/2W-11P	06/03/14	---	---	---	---	---	---	---	---	---	16.0
(cont)	07/09/14	---	400	---	---	---	---	---	---	---	---
	10/02/14	---	410	---	---	---	---	---	---	---	---
	01/21/15	---	600	---	---	---	---	---	---	---	---
	04/08/15	---	400	---	---	---	---	---	---	---	---
	06/03/15	---	---	---	---	---	---	---	---	---	13.0
	07/07/15	---	420	---	---	---	---	---	---	---	---
	10/22/15	---	500	---	---	---	---	---	---	---	---
	01/13/16	---	480	---	---	---	---	---	---	---	---
	01/13/16	810	480	66.0	8.1	87.0	3.4	81.0	89.0	210.0	4.1 as N
	04/13/16	---	490	---	---	---	---	---	---	---	---
	06/07/16	---	---	---	---	---	---	---	---	---	---
	07/13/16	---	400	---	---	---	---	---	---	---	---
	10/06/16	---	390	---	---	---	---	---	---	---	---
	01/17/17	---	550	---	---	---	---	---	---	---	---
	04/06/17	---	410	---	---	---	---	---	---	---	---
	06/08/17	---	---	---	---	---	---	---	---	---	3.1 as N
	07/05/17	---	390	---	---	---	---	---	---	---	---
No. 143	01/15/88	670	345	8.0	2.0	134.0	1.0	91.0	57.0	95.0	11.0
8S/2W-17J	10/17/90	660	345	25.0	4.0	112.0	2.0	89.0	62.0	140.0	12.0
	03/03/94	690	370	24.0	3.0	114.0	2.0	93.0	68.0	131.0	11.0
	03/30/95	---	---	---	---	---	---	---	---	---	11.0
	03/25/97	600	330	15.0	2.0	110.0	1.0	87.0	44.0	89.0	9.0
	07/18/97	---	---	---	---	---	---	---	---	---	2.0 as N
	07/23/97	---	---	---	---	---	---	---	---	---	2.0 as N
	08/20/97	---	---	---	---	---	---	---	---	---	2.3 as N
	09/03/97	---	---	---	---	---	---	---	---	---	2.2 as N
	09/17/97	---	---	---	---	---	---	---	---	---	2.0 as N
	09/17/98	---	350	---	---	---	---	---	---	---	2.3 as N
	10/21/99	---	---	---	---	---	---	---	---	---	13.0
	03/07/00	730	400	21.0	3.0	120.0	2.0	84.0	68.0	140.0	12.0
	10/13/00	---	---	---	---	---	---	---	---	---	8.0
	10/10/01	---	---	---	---	---	---	---	---	---	8.0
	11/19/02	---	---	---	---	---	---	---	---	---	10.0
	01/13/03	---	---	---	---	---	---	---	---	---	2.1 as N
	03/10/03	650	370	14.0	1.9	110.0	1.0	92.0	52.0	130.0	10.0
	01/07/04	---	---	---	---	---	---	---	---	---	12.0

ND-Not Detected

TABLE D-4

*SANTA MARGARITA RIVER WATERSHED*  
**WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l								
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3	
No. 143	01/18/05	---	---	---	---	---	---	---	---	---	---	10.0
8S/2W-17J	01/06/06	---	---	---	---	---	---	---	---	---	---	8.7
(cont.)	06/08/06	560	270	9.5	1.3	100.0	1.0	86.0	<0.5	100.0	---	7.2
	01/10/07	---	---	---	---	---	---	---	---	---	---	7.3
	01/04/08	---	---	---	---	---	---	---	---	---	---	7.1
	01/08/09	---	---	---	---	---	---	---	---	---	---	9.0
	02/04/09	---	300	---	---	---	---	---	---	---	---	---
	05/11/09	---	290	---	---	---	---	---	---	---	---	---
	08/05/09	---	300	---	---	---	---	---	---	---	---	---
	01/05/10	---	---	---	---	---	---	---	---	---	---	6.5
	02/04/10	---	320	---	---	---	---	---	---	---	---	---
	05/06/10	---	330	---	---	---	---	---	---	---	---	---
	08/13/10	---	280	---	---	---	---	---	---	---	---	---
	11/01/10	---	350	---	---	---	---	---	---	---	---	---
	01/13/11	---	---	---	---	---	---	---	---	---	---	9.1
	02/09/11	---	320	---	---	---	---	---	---	---	---	---
	05/04/11	---	300	---	---	---	---	---	---	---	---	---
	08/03/11	---	320	---	---	---	---	---	---	---	---	---
	11/02/11	---	370	---	---	---	---	---	---	---	---	---
	01/06/12	---	---	---	---	---	---	---	---	---	---	7.2
	02/09/12	---	300	---	---	---	---	---	---	---	---	---
	05/10/12	---	300	---	---	---	---	---	---	---	---	---
	06/05/12	540	320	7.3	1.1	100.0	1.0	73.0	21.0	100.0	---	5.9
	08/07/12	---	310	---	---	---	---	---	---	---	---	---
	11/01/12	---	290	---	---	---	---	---	---	---	---	---
	01/03/13	---	---	---	---	---	---	---	---	---	---	8.5
	02/10/13	---	360	---	---	---	---	---	---	---	---	---
	05/02/13	---	290	---	---	---	---	---	---	---	---	---
	08/19/13	---	330	---	---	---	---	---	---	---	---	---
	11/07/13	---	290	---	---	---	---	---	---	---	---	---
	01/09/14	---	---	---	---	---	---	---	---	---	---	6.4
	02/05/14	---	280	---	---	---	---	---	---	---	---	---
	05/06/14	---	270	---	---	---	---	---	---	---	---	---
	08/08/14	---	260	---	---	---	---	---	---	---	---	---
	11/06/14	---	320	---	---	---	---	---	---	---	---	---
	01/08/15	---	---	---	---	---	---	---	---	---	---	11.0
	02/04/15	---	240	---	---	---	---	---	---	---	---	---
	05/07/15	---	300	---	---	---	---	---	---	---	---	---
	06/02/15	590	300	6.4	<0.50	100.0	<0.50	79.0	25.0	120.0	---	6.3

ND-Not Detected

TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 143	08/07/15	---	270	---	---	---	---	---	---	---	---
8S/2W-17J	11/10/15	---	330	---	---	---	---	---	---	---	---
(cont.)	01/12/16	---	---	---	---	---	---	---	---	---	2.3 as N
	02/09/16	---	350	---	---	---	---	---	---	---	---
	05/10/16	---	290	---	---	---	---	---	---	---	---
	11/08/16	---	310	---	---	---	---	---	---	---	---
	07/26/17	---	370	---	---	---	---	---	---	---	---
	08/04/17	---	390	---	---	---	---	---	---	---	---
No. 144	09/14/88	610	335	8.0	<1	114.0	1.0	95.0	33.0	92.0	<1
7S/3W-27D3	12/19/95	730	420	34.0	1.0	124.0	1.0	120.0	33.0	186.0	<1
	12/20/00	690	400	28.0	1.0	120.0	<1	120.0	35.0	170.0	<2
	05/22/01	---	---	---	---	---	---	---	---	---	<2
	08/20/02	---	---	---	---	---	---	---	---	---	<2
	08/27/03	---	---	---	---	---	---	---	---	---	<2
	12/16/03	630	420	33.0	1.8	110.0	1.0	110.0	28.0	170.0	<2
	08/12/04	---	---	---	---	---	---	---	---	---	<2
	10/11/05	---	---	---	---	---	---	---	---	---	2.0
	12/07/06	670	370	21.0	1.0	98.0	1.2	110.0	27.0	150.0	<1
	08/07/07	---	---	---	---	---	---	---	---	---	<2
	08/11/08	---	320	---	---	---	---	---	---	---	<2
	02/09/09	---	340	---	---	---	---	---	---	---	---
	05/08/09	---	360	---	---	---	---	---	---	---	---
	08/05/09	---	370	---	---	---	---	---	---	---	<2
	02/04/10	---	380	---	---	---	---	---	---	---	---
	05/06/10	---	410	---	---	---	---	---	---	---	---
	08/10/10	---	370	---	---	---	---	---	---	---	<2
	11/10/10	---	400	---	---	---	---	---	---	---	---
	02/02/11	---	340	---	---	---	---	---	---	---	---
	05/04/11	---	350	---	---	---	---	---	---	---	---
	08/09/11	---	340	---	---	---	---	---	---	---	<2
	11/02/11	---	320	---	---	---	---	---	---	---	---
	02/08/12	---	320	---	---	---	---	---	---	---	---
	05/03/12	---	340	---	---	---	---	---	---	---	---
	08/09/12	---	330	---	---	---	---	---	---	---	<1.0
	11/02/12	---	370	---	---	---	---	---	---	---	---
	12/04/12	660	350	23.0	1.2	110.0	<1.0	100.0	26.0	150.0	<1.0
	02/06/13	---	350	---	---	---	---	---	---	---	---
	05/03/13	---	360	---	---	---	---	---	---	---	---

ND-Not Detected

TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 144	08/14/13	---	340	---	---	---	---	---	---	---	<1.0
7S/3W-27D3	11/07/13	---	350	---	---	---	---	---	---	---	---
(cont.)	02/05/14	---	340	---	---	---	---	---	---	---	---
	05/14/14	---	340	---	---	---	---	---	---	---	---
	08/07/14	---	340	---	---	---	---	---	---	---	<1.0
	11/05/14	---	370	---	---	---	---	---	---	---	---
	02/18/15	---	380	---	---	---	---	---	---	---	---
	05/14/15	---	310	---	---	---	---	---	---	---	---
	08/19/15	---	380	---	---	---	---	---	---	---	<0.47
	11/18/15	---	330	---	---	---	---	---	---	---	---
	12/09/15	620	340	20.0	1.1	110.0	<0.50	110.0	30.0	130.0	<0.11 as N
	02/10/16	---	460	---	---	---	---	---	---	---	---
	05/05/16	---	350	---	---	---	---	---	---	---	---
	08/02/16	---	350	---	---	---	---	---	---	---	<0.11 as N
	11/08/16	---	350	---	---	---	---	---	---	---	---
	02/02/17	---	360	---	---	---	---	---	---	---	---
	05/03/17	---	340	---	---	---	---	---	---	---	---
	08/09/17	---	340	---	---	---	---	---	---	---	<0.055 as N
No. 145	10/04/90	800	490	43.0	8.0	110.0	2.0	110.0	78.0	171.0	<1
7S/3W-28C	10/06/93	650	375	23.0	3.0	106.0	1.0	85.0	58.0	146.0	<1
	11/27/96	650	340	26.0	2.0	110.0	1.0	87.0	48.0	150.0	<2
	02/04/97	670	370	24.0	2.0	110.0	1.0	87.0	55.0	160.0	<2
	01/28/98	---	---	---	---	---	---	---	---	---	<2
	01/04/99	---	---	---	---	---	---	---	---	---	<2
	10/26/99	690	400	29.0	3.0	110.0	1.0	96.0	61.0	170.0	<2
	01/06/00	---	---	---	---	---	---	---	---	---	<2
	01/25/01	---	---	---	---	---	---	---	---	---	<2
	01/18/02	---	---	---	---	---	---	---	---	---	<2
	10/09/02	690	390	26.0	2.3	110.0	1.2	94.0	52.0	160.0	<2
	01/15/03	---	---	---	---	---	---	---	---	---	<2
	01/07/04	---	---	---	---	---	---	---	---	---	<2
	01/13/05	---	---	---	---	---	---	---	---	---	<2
	10/11/05	680	430	33.0	2.7	120.0	1.4	100.0	54.0	180.0	<1
	10/18/05	700	440	34.0	2.8	120.0	1.5	100.0	59.0	180.0	<1
	04/13/06	---	---	---	---	---	---	---	---	---	<1
	01/19/07	---	---	---	---	---	---	---	---	---	<1
	01/04/08	---	---	---	---	---	---	---	---	---	<2
	08/11/08	---	360	---	---	---	---	---	---	---	---

ND-Not Detected



TABLE D-4

*SANTA MARGARITA RIVER WATERSHED*  
**WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 145	10/08/08	720	400	37.0	3.2	100.0	1.3	95.0	56.0	150.0	ND
7S/3W-28C	01/06/09	---	---	---	---	---	---	---	---	---	ND
(cont.)	02/03/09	---	390	---	---	---	---	---	---	---	---
	05/08/09	---	410	---	---	---	---	---	---	---	---
	08/05/09	---	400	---	---	---	---	---	---	---	---
	01/07/10	---	---	---	---	---	---	---	---	---	<2
	02/04/10	---	400	---	---	---	---	---	---	---	---
	05/07/10	---	470	---	---	---	---	---	---	---	---
	08/10/10	---	390	---	---	---	---	---	---	---	---
	11/10/10	---	410	---	---	---	---	---	---	---	---
	01/12/11	---	---	---	---	---	---	---	---	---	<2
	02/09/11	---	390	---	---	---	---	---	---	---	---
	05/05/11	---	380	---	---	---	---	---	---	---	---
	08/04/11	---	360	---	---	---	---	---	---	---	---
	10/05/11	670	380	28.0	2.6	110.0	1.6	100.0	49.0	160.0	<2
	11/10/11	---	400	---	---	---	---	---	---	---	---
	01/12/12	---	---	---	---	---	---	---	---	---	<1.0
	02/08/12	---	510	---	---	---	---	---	---	---	---
	05/17/12	---	440	---	---	---	---	---	---	---	---
	08/09/12	---	410	---	---	---	---	---	---	---	---
	11/06/12	---	600	---	---	---	---	---	---	---	---
	01/16/13	---	---	---	---	---	---	---	---	---	<1.0
	02/07/13	---	400	---	---	---	---	---	---	---	---
	05/03/13	---	390	---	---	---	---	---	---	---	---
	08/14/13	---	370	---	---	---	---	---	---	---	---
	11/07/13	---	390	---	---	---	---	---	---	---	---
	01/28/14	---	---	---	---	---	---	---	---	---	<1.0
	02/11/14	---	350	---	---	---	---	---	---	---	---
	05/21/14	---	440	---	---	---	---	---	---	---	---
	08/19/14	---	370	---	---	---	---	---	---	---	---
	10/09/14	690	400	42.0	0.0	110.0	1.4	100.0	55.0	180.0	<1.0
	11/14/14	---	440	---	---	---	---	---	---	---	---
	01/27/15	---	---	---	---	---	---	---	---	---	<0.47
	02/18/15	---	420	---	---	---	---	---	---	---	---
	05/19/15	---	460	---	---	---	---	---	---	---	---
	08/06/15	---	390	---	---	---	---	---	---	---	---
	11/18/15	---	390	---	---	---	---	---	---	---	---
	04/19/16	---	430	---	---	---	---	---	---	---	---
	05/13/16	---	400	---	---	---	---	---	---	---	---

ND-Not Detected

TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 145	08/03/16	---	410	---	---	---	---	---	---	---	---
7S/3W-28C	11/09/16	---	400	---	---	---	---	---	---	---	<0.055 as N
(cont.)	01/25/17	---	---	---	---	---	---	---	---	---	<0.055 as N
	02/09/17	---	430	---	---	---	---	---	---	---	---
	05/03/17	---	420	---	---	---	---	---	---	---	---
No. 146	12/10/96	900	500	57.0	23.0	98.0	<1	100.0	64.0	280.0	15.0
7S/3W-28	03/02/00	---	---	---	---	---	---	---	---	---	4.0
No. 149	06/15/93	---	---	---	---	---	---	---	---	---	5.0
8S/1W-2C	10/10/01	---	---	---	---	---	---	---	---	---	4.0
	03/11/02	1040	610	61.0	23.0	120.0	4.0	100.0	170.0	250.0	4.0
	12/11/02	---	---	---	---	---	---	---	---	---	3.2
	01/23/03	---	---	---	---	---	---	---	---	---	4.0
	03/12/03	1000	600	59.0	22.0	120.0	3.7	100.0	170.0	230.0	3.0
	01/13/04	---	---	---	---	---	---	---	---	---	4.0
	01/11/06	---	---	---	---	---	---	---	---	---	2.5
	03/09/06	940	580	56.0	21.0	110.0	3.8	87.0	160.0	220.0	2.7
	01/24/07	---	---	---	---	---	---	---	---	---	2.4
	03/11/08	---	550	---	---	---	---	---	---	---	---
	07/08/08	---	590	---	---	---	---	---	---	---	---
	01/08/09	---	590	---	---	---	---	---	---	---	2.6
	03/04/09	900	590	52.0	20.0	100.0	3.6	93.0	170.0	210.0	2.5
	04/02/09	---	570	---	---	---	---	---	---	---	---
	07/13/09	---	560	---	---	---	---	---	---	---	---
	01/07/10	---	570	---	---	---	---	---	---	---	2.6
	04/08/10	---	570	---	---	---	---	---	---	---	---
	05/12/11	---	570	---	---	---	---	---	---	---	2.0
	08/03/11	---	600	---	---	---	---	---	---	---	---
	11/09/11	---	620	---	---	---	---	---	---	---	---
	02/09/12	---	580	---	---	---	---	---	---	---	---
	03/02/12	970	600	59.0	20.0	99.0	4.4	95.0	180.0	190.0	2.3
	05/03/12	---	600	---	---	---	---	---	---	---	2.0
	08/08/12	---	610	---	---	---	---	---	---	---	---
	11/01/12	---	620	---	---	---	---	---	---	---	---
	02/10/13	---	600	---	---	---	---	---	---	---	---
	05/14/13	---	610	---	---	---	---	---	---	---	1.8
	08/15/13	---	580	---	---	---	---	---	---	---	---
	11/06/13	---	560	---	---	---	---	---	---	---	---

ND-Not Detected

TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l								
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3	
No. 149	02/06/14	---	580	---	---	---	---	---	---	---	---	---
8S/1W-2C	05/08/14	---	620	---	---	---	---	---	---	---	---	4.8
(cont.)	08/07/14	---	560	---	---	---	---	---	---	---	---	---
	11/06/14	---	550	---	---	---	---	---	---	---	---	---
	02/05/15	---	570	---	---	---	---	---	---	---	---	---
	03/11/15	910	580	55.0	22.0	110.0	3.8	90.0	160.0	190.0	2.1	---
	05/15/15	---	630	---	---	---	---	---	---	---	---	2.0
	08/04/15	---	560	---	---	---	---	---	---	---	---	---
	11/17/15	---	590	---	---	---	---	---	---	---	---	---
	02/05/16	---	570	---	---	---	---	---	---	---	---	---
	11/22/16	---	550	---	---	---	---	---	---	---	---	0.45 as N
	02/09/17	---	580	---	---	---	---	---	---	---	---	---
	06/15/17	---	540	---	---	---	---	---	---	---	---	0.39 as N
	08/16/17	---	560	---	---	---	---	---	---	---	---	---
No. 149A	08/26/88	950	540	71.0	211.0	96.0	1.0	115.0	47.0	302.0	18.0	---
7S/3W-28A	10/31/91	800	480	36.0	13.0	122.0	3.0	93.0	110.0	195.0	---	---
No. 150	09/29/88	1950	1235	134.0	29.0	225.0	2.0	290.0	220.0	390.0	15.0	---
7S/3W-27P	12/21/91	1000	590	74.0	17.0	108.0	4.0	130.0	110.0	207.0	---	---
No. 151	07/25/91	860	485	53.0	16.0	103.0	4.0	90.0	130.0	183.0	---	---
8S/2W-2G	07/28/91	730	400	39.0	12.0	100.0	3.0	91.0	58.0	177.0	---	---
	07/29/91	600	340	9.0	2.0	122.0	5.0	63.0	34.0	204.0	---	---
	10/17/91	510	295	3.0	<1	118.0	1.0	45.0	10.0	137.0	---	---
	08/10/94	550	340	3.0	<1	110.0	1.0	59.0	22.0	119.0	<1	---
	06/16/97	---	---	---	---	---	---	---	---	---	<2	---
	08/14/97	540	300	2.0	<1	110.0	<1	44.0	10.0	160.0	<2	---
	09/16/98	---	---	---	---	---	---	---	---	---	<2	---
	01/06/00	510	300	1.0	<1	110.0	<1	33.0	4.6	180.0	<2	---
	01/06/05	---	---	---	---	---	---	---	---	---	<2	---
	05/12/09	530	380	1.4	1.0	110.0	<1	36.0	7.7	140.0	<2.0	---
	05/05/10	---	---	---	---	---	---	---	---	---	<2	---
	10/28/10	---	290	---	---	---	---	---	---	---	---	---
	12/01/10	---	290	---	---	---	---	---	---	---	---	---
	03/09/11	---	310	---	---	---	---	---	---	---	---	---
	05/03/11	---	---	---	---	---	---	---	---	---	<2	---
	06/02/11	---	280	---	---	---	---	---	---	---	---	---
	09/06/11	---	310	---	---	---	---	---	---	---	---	---

ND-Not Detected

TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 151	12/06/11	---	300	---	---	---	---	---	---	---	---
8S/2W-2G	03/05/12	---	290	---	---	---	---	---	---	---	---
(cont.)	05/02/12	490	300	1.3	<1	110.0	<1	38.0	4.2	180.0	<1
	06/05/12	---	240	---	---	---	---	---	---	---	---
	09/04/12	---	300	---	---	---	---	---	---	---	---
	12/03/12	---	290	---	---	---	---	---	---	---	---
	03/06/13	---	260	---	---	---	---	---	---	---	---
	05/01/13	---	---	---	---	---	---	---	---	---	<1.0
	06/05/13	---	260	---	---	---	---	---	---	---	---
	09/03/13	---	280	---	---	---	---	---	---	---	---
	01/29/14	---	340	---	---	---	---	---	---	---	---
	03/13/14	---	280	---	---	---	---	---	---	---	---
	05/01/14	---	---	---	---	---	---	---	---	---	<1.0
	06/02/14	---	290	---	---	---	---	---	---	---	---
	09/03/14	---	280	---	---	---	---	---	---	---	---
	12/01/14	---	250	---	---	---	---	---	---	---	---
	03/03/15	---	340	---	---	---	---	---	---	---	---
	05/05/15	500	280	1.3	<0.50	110.0	<0.50	38.0	3.8	170.0	<0.47
	05/05/15	---	---	---	---	---	---	---	---	---	<0.47
	06/01/15	---	290	---	---	---	---	---	---	---	---
	09/02/15	---	290	---	---	---	---	---	---	---	---
	12/01/15	---	260	---	---	---	---	---	---	---	---
	03/01/16	---	290	---	---	---	---	---	---	---	---
	06/21/16	---	270	---	---	---	---	---	---	---	<0.11 as N
No. 151	11/22/16	---	---	---	---	---	---	---	---	---	<0.055 as N
8S/2W-2G	12/05/16	---	280	---	---	---	---	---	---	---	---
	03/03/17	---	270	---	---	---	---	---	---	---	---
	05/02/17	---	---	---	---	---	---	---	---	---	<0.055 as N
	06/07/17	---	290	---	---	---	---	---	---	---	---
	09/05/17	---	270	---	---	---	---	---	---	---	---
No. 151	09/20/88	5780	3410	280.0	114.0	840.0	5.0	1660.0	670.0	369.0	<1
7S/3W-34B	Abandoned										
No. 152	01/11/02	860	550	64.0	20.0	77.0	6.0	75.0	190.0	160.0	<2
8S/1W-5K2	01/08/03	---	---	---	---	---	---	---	---	---	<2

ND-Not Detected

TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 152	01/07/04	---	---	---	---	---	---	---	---	---	<2
8S/1W-5K2	01/24/05	850	510	71.0	25.0	77.0	4.6	85.0	190.0	160.0	<2
(cont.)	01/04/06	---	---	---	---	---	---	---	---	---	1.1
	01/10/07	---	---	---	---	---	---	---	---	---	<1
	04/08/08	---	510	---	---	---	---	---	---	---	---
	01/02/09	---	580	---	---	---	---	---	---	---	ND
	04/06/09	---	620	---	---	---	---	---	---	---	---
	07/13/09	---	610	---	---	---	---	---	---	---	---
	01/06/10	---	740	---	---	---	---	---	---	---	1.7
	04/19/10	---	670	---	---	---	---	---	---	---	---
	07/08/10	---	620	---	---	---	---	---	---	---	---
	10/07/10	---	580	---	---	---	---	---	---	---	---
	01/11/11	---	710	---	---	---	---	---	---	---	3.8
	04/13/11	---	490	---	---	---	---	---	---	---	---
	07/12/11	---	460	---	---	---	---	---	---	---	---
	10/06/11	---	420	---	---	---	---	---	---	---	---
	01/11/12	---	270	---	---	---	---	---	---	---	<1.1
	04/12/12	---	330	---	---	---	---	---	---	---	---
	10/10/12	---	420	---	---	---	---	---	---	---	---
	11/28/12	760	590	54.0	20.0	70.0	5.2	80.0	110.0	170.0	1.4
	01/09/13	---	530	---	---	---	---	---	---	---	1.8
	04/11/13	---	380	---	---	---	---	---	---	---	---
	07/10/13	---	530	---	---	---	---	---	---	---	---
	10/16/13	---	540	---	---	---	---	---	---	---	---
	01/16/14	850	510	65.0	24.0	77.0	4.7	74.0	180.0	140.0	<1.0
	01/16/14	---	540	---	---	---	---	---	---	---	<1.0
	04/02/14	---	510	---	---	---	---	---	---	---	---
	07/03/14	---	550	---	---	---	---	---	---	---	---
	10/09/14	---	520	---	---	---	---	---	---	---	---
	01/13/15	---	620	---	---	---	---	---	---	---	1.2
	04/21/15	---	620	---	---	---	---	---	---	---	---
	07/15/15	---	580	---	---	---	---	---	---	---	---
	10/21/15	---	650	---	---	---	---	---	---	---	---
	01/14/16	---	960	---	---	---	---	---	---	---	0.50 as N
	04/20/16	---	570	---	---	---	---	---	---	---	---
	07/19/16	---	660	---	---	---	---	---	---	---	---
	10/26/16	---	620	---	---	---	---	---	---	---	---
	01/18/17	1100	640	73.0	27.0	100.0	5.2	99	220.0	170.0	0.27 as N
	04/11/17	---	480	---	---	---	---	---	---	---	---
	07/06/17	---	260	---	---	---	---	---	---	---	---

ND-Not Detected

TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 153	12/29/93	804	485	53.0	18.0	92.0	5.0	86.0	120.0	214.0	<1
8S/1W-5K3	04/13/99	880	540	63.0	23.0	79.0	5.0	68.0	220.0	150.0	<2
	04/11/00	---	---	---	---	---	---	---	---	---	2.0
	06/14/01	---	---	---	---	---	---	---	---	---	<2
	04/02/02	820	500	63.0	22.0	75.0	4.2	80.0	190.0	140.0	<2
	04/14/05	700	410	44.0	17.0	65.0	3.0	76.0	110.0	140.0	3.0
	04/04/06	---	---	---	---	---	---	---	---	---	2.3
	04/04/07	---	---	---	---	---	---	---	---	---	<2
	04/08/08	920	560	62.0	23.0	79.0	4.3	100.0	170.0	170.0	1.9
	01/02/09	---	570	---	---	---	---	---	---	---	---
	04/06/09	---	610	---	---	---	---	---	---	---	<2.0
	07/13/09	---	590	---	---	---	---	---	---	---	---
	01/06/10	---	560	---	---	---	---	---	---	---	---
	04/08/10	---	610	---	---	---	---	---	---	---	1.0
	07/08/10	---	590	---	---	---	---	---	---	---	---
	10/07/10	---	540	---	---	---	---	---	---	---	---
	01/11/11	---	640	---	---	---	---	---	---	---	---
	04/13/11	850	520	45.0	17.0	93.0	3.8	92.0	130.0	170.0	2.0
	04/13/11	---	490	---	---	---	---	---	---	---	2.0
	07/12/11	---	450	---	---	---	---	---	---	---	---
	10/06/11	---	380	---	---	---	---	---	---	---	---
	01/11/12	---	280	---	---	---	---	---	---	---	---
	04/12/12	---	300	---	---	---	---	---	---	---	<1.0
	10/10/12	---	390	---	---	---	---	---	---	---	---
	01/09/13	---	420	---	---	---	---	---	---	---	---
	04/11/13	---	390	---	---	---	---	---	---	---	<1.0
	07/10/13	---	470	---	---	---	---	---	---	---	---
	10/16/13	---	540	---	---	---	---	---	---	---	---
	01/15/14	---	550	---	---	---	---	---	---	---	---
	04/02/14	880	560	62.0	23.0	80.0	4.2	78.0	180.0	150.0	<1.0
	04/02/14	---	540	---	---	---	---	---	---	---	---
07/03/14	---	550	---	---	---	---	---	---	---	---	
10/09/14	---	520	---	---	---	---	---	---	---	---	
01/13/15	---	600	---	---	---	---	---	---	---	---	
04/21/15	---	580	---	---	---	---	---	---	---	1.3	
07/15/15	---	600	---	---	---	---	---	---	---	---	
10/21/15	---	680	---	---	---	---	---	---	---	---	
01/14/16	---	890	---	---	---	---	---	---	---	---	
04/20/16	---	720	---	---	---	---	---	---	---	0.64 as N	

ND-Not Detected

TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 153	07/19/16	---	680	---	---	---	---	---	---	---	---
8S/1W-5K3	10/26/16	---	620	---	---	---	---	---	---	---	---
(cont.)	04/11/17	960	600	63.0	23.0	100.0	4.5	93.0	200.0	140.0	0.29 as N
	07/06/17	---	410	---	---	---	---	---	---	---	---
No. 154	01/28/94	930	530	46.0	20.0	106.0	6.0	89.0	130.0	214.0	3.0
8S/1W-5L2	11/03/15	---	760	---	---	---	---	---	---	---	<0.47
	11/04/15	1000	600	75.0	26.0	---	5.6	95.0	---	160.0	1.1
	11/04/15	---	---	---	---	---	---	---	---	---	<0.017 as N
	02/04/16	---	850	---	---	---	---	---	---	---	---
	05/05/16	---	670	---	---	---	---	---	---	---	---
	08/04/16	---	620	---	---	---	---	---	---	---	---
	11/09/16	---	600	---	---	---	---	---	---	---	<0.055 as N
	02/02/17	---	620	---	---	---	---	---	---	---	---
	05/04/17	---	420	---	---	---	---	---	---	---	---
	08/10/17	---	250	---	---	---	---	---	---	---	---
No. 155	09/16/93	680	355	22.0	2.0	108.0	1.0	90.0	64.0	104.0	<1
7S/3W-28C	02/23/95	760	445	30.0	3.0	126.0	1.0	120.0	82.0	140.0	4.0
	06/06/95	---	---	---	---	---	---	---	---	---	5.0
	08/14/97	---	---	---	---	---	---	---	---	---	4.0
	02/25/98	880	540	43.0	5.0	130.0	1.0	100.0	100.0	190.0	5.0
	07/27/98	---	---	---	---	---	---	---	---	---	3.0
	02/09/00	---	---	---	---	---	---	---	---	---	2.0
	09/13/00	690	410	23.0	2.0	120.0	<1	100.0	72.0	130.0	2.0
	02/14/01	---	---	---	---	---	---	---	---	---	5.0
	02/21/02	---	---	---	---	---	---	---	---	---	2.0
	02/28/03	---	---	---	---	---	---	---	---	---	<2
	01/07/04	600	360	10.0	<1	120.0	<1	100.0	60.0	100.0	<2
	02/23/04	---	---	---	---	---	---	---	---	---	6.0
	10/11/05	---	---	---	---	---	---	---	---	---	2.0
	02/16/05	---	---	---	---	---	---	---	---	---	5.0
	02/07/06	---	---	---	---	---	---	---	---	---	4.9
	02/07/07	---	---	---	---	---	---	---	---	---	2.5
No. 156	08/11/08	670	350	48.0	13.0	78.0	2.2	70.0	62.0	190.0	1.9
7S/3W-18	08/11/08	---	370	---	---	---	---	---	---	---	1.7
	05/08/09	---	400	---	---	---	---	---	---	---	---
	08/05/09	---	410	---	---	---	---	---	---	---	1.5

ND-Not Detected

TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 156	02/03/10	---	370	---	---	---	---	---	---	---	---
7S/3W-18	05/07/10	---	470	---	---	---	---	---	---	---	---
(cont.)	08/10/10	---	390	---	---	---	---	---	---	---	<2
	11/10/10	---	410	---	---	---	---	---	---	---	---
	02/09/11	---	410	---	---	---	---	---	---	---	---
	05/04/11	---	400	---	---	---	---	---	---	---	---
	08/04/11	660	380	44.0	11.0	72.0	1.8	75.0	53.0	180.0	2.0
	08/04/11	---	380	---	---	---	---	---	---	---	1.4
	11/10/11	---	390	---	---	---	---	---	---	---	---
	02/08/12	---	340	---	---	---	---	---	---	---	---
	05/03/12	---	360	---	---	---	---	---	---	---	---
	08/09/12	---	360	---	---	---	---	---	---	---	1.3
	11/02/12	---	420	---	---	---	---	---	---	---	---
	02/06/13	---	390	---	---	---	---	---	---	---	---
	05/02/13	---	370	---	---	---	---	---	---	---	---
	08/14/13	---	370	---	---	---	---	---	---	---	1.2
	11/07/13	---	390	---	---	---	---	---	---	---	---
	02/05/14	---	390	---	---	---	---	---	---	---	---
	05/23/14	---	400	---	---	---	---	---	---	---	---
	08/07/14	650	380	42.0	11.0	78.0	1.8	86.0	62.0	170.0	1.5
	11/05/14	---	400	---	---	---	---	---	---	---	---
	02/10/15	---	510	---	---	---	---	---	---	---	---
	05/14/15	---	380	---	---	---	---	---	---	---	---
	08/06/15	---	400	---	---	---	---	---	---	---	1.3
	03/03/16	---	380	---	---	---	---	---	---	---	---
	05/05/16	---	400	---	---	---	---	---	---	---	---
	08/02/16	---	400	---	---	---	---	---	---	---	0.21 as N
	11/08/16	---	390	---	---	---	---	---	---	---	---
	02/03/17	---	420	---	---	---	---	---	---	---	---
	05/04/17	---	400	---	---	---	---	---	---	---	---
	08/09/17	680	400	41.0	10.0	75.0	1.7	84.0	61.0	140.0	0.24 as N
No. 157	04/13/99	930	600	59.0	21.0	110.0	7.0	95.0	150.0	240.0	<2
8S/1W-5L	04/11/00	---	---	---	---	---	---	---	---	---	2.0
	06/14/01	---	---	---	---	---	---	---	---	---	<2
	04/02/02	830	520	60.0	22.0	78.0	4.1	78.0	190.0	150.0	<2
	04/14/05	720	420	47.0	18.0	69.0	3.2	74.0	120.0	150.0	2.0
	04/04/07	---	---	---	---	---	---	---	---	---	<2
	04/08/08	1100	640	68.0	24.0	110.0	4.3	130.0	170.0	230.0	2.6

ND-Not Detected



TABLE D-4

*SANTA MARGARITA RIVER WATERSHED*  
**WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l								
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3	
No. 157	07/08/08	---	580	---	---	---	---	---	---	---	---	---
8S/1W-5L	01/02/09	---	560	---	---	---	---	---	---	---	---	---
(cont.)	04/06/09	---	640	---	---	---	---	---	---	---	---	<2.0
	07/13/09	---	590	---	---	---	---	---	---	---	---	---
	01/07/10	---	660	---	---	---	---	---	---	---	---	---
	04/08/10	---	620	---	---	---	---	---	---	---	---	<2
	07/08/10	---	610	---	---	---	---	---	---	---	---	---
	10/07/10	---	540	---	---	---	---	---	---	---	---	---
	01/11/11	---	590	---	---	---	---	---	---	---	---	---
	04/13/11	830	520	49.0	17.0	84.0	3.4	89.0	120.0	180.0	---	<2
	04/13/11	---	490	---	---	---	---	---	---	---	---	<2
	07/12/11	---	460	---	---	---	---	---	---	---	---	---
	10/06/11	---	370	---	---	---	---	---	---	---	---	---
	01/11/12	---	260	---	---	---	---	---	---	---	---	---
	04/12/12	---	330	---	---	---	---	---	---	---	---	<1.0
	10/10/12	---	360	---	---	---	---	---	---	---	---	---
	11/28/12	930	530	68.0	25.0	82.0	5.1	110.0	110.0	230.0	---	1.1
	01/09/13	---	470	---	---	---	---	---	---	---	---	---
	04/11/13	---	370	---	---	---	---	---	---	---	---	1.1
	07/10/13	---	480	---	---	---	---	---	---	---	---	---
	10/16/13	---	510	---	---	---	---	---	---	---	---	---
	01/16/14	---	510	---	---	---	---	---	---	---	---	---
	04/02/14	960	540	66.0	24.0	79.0	4.1	81.0	190.0	160.0	---	1.2
	04/02/14	---	560	---	---	---	---	---	---	---	---	---
	07/03/14	---	560	---	---	---	---	---	---	---	---	---
	10/09/14	---	520	---	---	---	---	---	---	---	---	---
	01/13/15	---	630	---	---	---	---	---	---	---	---	---
	04/21/15	---	590	---	---	---	---	---	---	---	---	1.0
	07/15/15	---	630	---	---	---	---	---	---	---	---	---
	10/21/15	---	670	---	---	---	---	---	---	---	---	---
	01/14/16	---	960	---	---	---	---	---	---	---	---	---
	06/30/16	---	650	---	---	---	---	---	---	---	---	0.57 as N
	07/19/16	---	660	---	---	---	---	---	---	---	---	---
	10/26/16	---	590	---	---	---	---	---	---	---	---	---
	04/11/17	810	490	52.0	22.0	80.0	4.8	83.0	150.0	120.0	---	0.28 as N
	07/06/17	---	260	---	---	---	---	---	---	---	---	---
No. 158	06/21/94	1090	620	67.0	23.0	124.0	7.0	120.0	170.0	259.0	---	---
8S/1W-5K	04/14/99	1050	660	63.0	24.0	120.0	7.0	110.0	160.0	270.0	---	<2

ND-Not Detected

TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l								
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3	
No. 158	04/11/00	---	---	---	---	---	---	---	---	---	---	2.0
8S/1W-5K	06/14/01	---	---	---	---	---	---	---	---	---	---	2.0
(cont.)	04/02/02	900	550	61.0	22.0	92.0	5.7	93.0	190.0	180.0	---	<2
	04/14/05	800	450	51.0	19.0	79.0	4.6	83.0	150.0	160.0	---	2.0
	04/04/06	---	---	---	---	---	---	---	---	---	---	3.9
	04/04/07	---	---	---	---	---	---	---	---	---	---	4.6
	04/08/08	1300	760	77.0	25.0	140.0	6.4	150.0	180.0	280.0	---	3.5
	07/08/08	---	750	---	---	---	---	---	---	---	---	---
	01/02/09	---	640	---	---	---	---	---	---	---	---	---
	04/06/09	---	650	---	---	---	---	---	---	---	---	<2.0
	07/13/09	---	670	---	---	---	---	---	---	---	---	---
	01/06/10	---	810	---	---	---	---	---	---	---	---	---
	04/08/10	---	800	---	---	---	---	---	---	---	---	1.5
	07/08/10	---	680	---	---	---	---	---	---	---	---	---
	10/07/10	---	750	---	---	---	---	---	---	---	---	---
	01/11/11	---	710	---	---	---	---	---	---	---	---	---
	04/13/11	870	510	43.0	16.0	100.0	4.8	97.0	130.0	180.0	---	2.0
	04/13/11	---	530	---	---	---	---	---	---	---	---	2.0
	07/12/11	---	610	---	---	---	---	---	---	---	---	---
	10/06/11	---	570	---	---	---	---	---	---	---	---	---
	02/09/12	---	520	---	---	---	---	---	---	---	---	---
	04/12/12	---	---	---	---	---	---	---	---	---	---	<1.0
	05/02/12	---	460	---	---	---	---	---	---	---	---	---
	08/08/12	---	550	---	---	---	---	---	---	---	---	---
	11/01/12	---	740	---	---	---	---	---	---	---	---	---
	02/12/13	---	470	---	---	---	---	---	---	---	---	---
	04/11/13	---	---	---	---	---	---	---	---	---	---	1.3
	05/14/13	---	620	---	---	---	---	---	---	---	---	---
	08/14/13	---	710	---	---	---	---	---	---	---	---	---
	11/06/13	---	720	---	---	---	---	---	---	---	---	---
	02/06/14	---	710	---	---	---	---	---	---	---	---	---
	04/02/14	1200	700	70.0	25.0	120.0	6.2	120.0	170.0	250.0	---	1.7
	05/08/14	---	660	---	---	---	---	---	---	---	---	---
	08/06/14	---	480	---	---	---	---	---	---	---	---	---
	11/13/14	---	700	---	---	---	---	---	---	---	---	---
	02/05/15	---	670	---	---	---	---	---	---	---	---	---
	04/21/15	---	---	---	---	---	---	---	---	---	---	1.2
	05/06/15	---	680	---	---	---	---	---	---	---	---	---
	08/05/15	---	660	---	---	---	---	---	---	---	---	---

ND-Not Detected

TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l								
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3	
No. 158	11/03/15	---	850	---	---	---	---	---	---	---	---	---
8S/1W-5K	02/04/16	---	840	---	---	---	---	---	---	---	---	---
(Cont)	04/20/16	---	---	---	---	---	---	---	---	---	---	0.26 as N
	05/05/16	---	820	---	---	---	---	---	---	---	---	---
	08/04/16	---	790	---	---	---	---	---	---	---	---	---
	11/09/16	---	830	---	---	---	---	---	---	---	---	---
	02/02/17	---	890	---	---	---	---	---	---	---	---	---
	04/27/17	770	460	44.0	15.0	95.0	4.3	90.0	100.0	140.0	0.27 as N	---
	05/14/17	---	330	---	---	---	---	---	---	---	---	---
	09/12/17	---	670	---	---	---	---	---	---	---	---	---
No. 161	02/25/16	1100	690	70.0	27.0	120.0	4.8	100.0	220.0	170.0	<0.11 as N	---
8S/1W-5	05/04/16	1200	710	77.0	32.0	100.0	5.8	120.0	200.0	210.0	0.56 as N	---
	05/04/16	---	700	---	---	---	---	---	---	---	0.42 as N	---
	08/04/16	930	580	59.0	26.0	91.0	6.2	96.0	200.0	150.0	0.28 as N	---
	08/04/16	---	570	---	---	---	---	---	---	---	0.27 as N	---
	11/09/16	990	670	67.0	24.0	97.0	5.1	95.0	210.0	160.0	0.28 as N	---
	02/02/17	---	610	---	---	---	---	---	---	---	0.23 as N	---
	02/03/17	990	590	73.0	27.0	99.0	4.0	94.0	230.0	150.0	<0.055 as N	---
	05/04/17	550	310	32.0	12.0	58.0	2.8	49.0	76.0	94.0	0.28 as N	---
	08/10/17	640	370	41.0	14.0	62.0	3.7	53.0	81.0	140.0	0.39 as N	---
No. 201	03/28/91	530	315	19.0	6.0	83.0	2.0	83.0	16.0	110.0	2.0	---
7S/2W-27J	03/11/93	460	300	8.0	2.0	87.0	1.0	51.0	20.0	146.0	<1	---
No. 202	12/11/88	740	440	47.0	18.0	84.0	3.0	97.0	48.0	223.0	17.0	---
7S/2W-36J1												
No. 203	05/18/88	960	580	50.0	39.0	110.0	4.0	96.0	115.0	275.0	---	---
8S/1W-6P1	06/29/88	970	530	44.0	36.0	112.0	4.0	120.0	123.0	250.0	5.0	---
	06/12/91	800	415	21.0	17.0	108.0	3.0	91.0	90.0	174.0	2.0	---
	06/22/94	980	645	59.0	38.0	99.0	4.0	130.0	130.0	256.0	4.0	---
	06/07/95	---	---	---	---	---	---	---	---	---	5.0	---
	06/23/97	880	530	31.0	26.0	120.0	3.0	100.0	110.0	230.0	4.0	---
	08/14/97	---	---	---	---	---	---	---	---	---	3.0	---
	11/02/99	---	---	---	---	---	---	---	---	---	5.0	---
	06/22/00	820	580	94.0	18.0	58.0	<1	63.0	110.0	250.0	22.0	---

ND-Not Detected

TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 203	07/12/00	880	570	43.0	33.0	120.0	3.0	100.0	130.0	240.0	7.0
8S/1W-6P1	08/08/00	---	---	---	---	---	---	---	---	---	6.0
(cont.)	11/22/00	---	---	---	---	---	---	---	---	---	5.0
	11/20/01	---	---	---	---	---	---	---	---	---	5.0
	11/08/02	---	---	---	---	---	---	---	---	---	4.0
	01/08/03	---	---	---	---	---	---	---	---	---	.90 as N
	06/10/03	850	460	31.0	23.0	100.0	2.2	92.0	100.0	220.0	5.0
	11/04/03	---	---	---	---	---	---	---	---	---	5.0
	11/18/04	---	---	---	---	---	---	---	---	---	7.0
	06/08/06	940	540	39.0	32.0	110.0	3.0	100.0	130.0	220.0	5.5
	06/01/07	---	---	---	---	---	---	---	---	---	5.1
	06/04/08	---	520	---	---	---	---	---	---	---	4.3
	09/16/08	---	450	---	---	---	---	---	---	---	---
	12/02/08	---	500	---	---	---	---	---	---	---	---
	03/04/09	---	470	---	---	---	---	---	---	---	---
	06/01/09	---	440	---	---	---	---	---	---	---	2.7
	03/03/10	---	460	---	---	---	---	---	---	---	---
	06/02/10	---	490	---	---	---	---	---	---	---	3.3
	09/01/10	---	440	---	---	---	---	---	---	---	---
	12/08/10	---	450	---	---	---	---	---	---	---	---
	03/31/11	---	490	---	---	---	---	---	---	---	---
	06/02/11	---	430	---	---	---	---	---	---	---	3.2
	09/02/11	---	420	---	---	---	---	---	---	---	---
	12/07/11	---	450	---	---	---	---	---	---	---	---
	06/05/12	740	430	19.0	15.0	110.0	2.3	72.0	94.0	180.0	3.2
	09/05/12	---	440	---	---	---	---	---	---	---	---
	12/05/12	---	410	---	---	---	---	---	---	---	---
	03/06/13	---	420	---	---	---	---	---	---	---	---
	06/05/13	---	400	---	---	---	---	---	---	---	2.7
	09/05/13	---	430	---	---	---	---	---	---	---	---
	12/05/13	---	440	---	---	---	---	---	---	---	---
	03/11/14	---	430	---	---	---	---	---	---	---	---
	06/03/14	---	480	---	---	---	---	---	---	---	4.4
	09/04/14	---	440	---	---	---	---	---	---	---	---
	03/11/15	---	410	---	---	---	---	---	---	---	---
	06/02/15	780	420	17.0	13.0	110.0	1.8	76.0	93.0	170.0	2.8
	06/02/15	---	400	---	---	---	---	---	---	---	2.6
	09/24/15	---	480	---	---	---	---	---	---	---	---
	12/02/15	---	420	---	---	---	---	---	---	---	---

ND-Not Detected

TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l								
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3	
No. 203	03/15/16	---	530	---	---	---	---	---	---	---	---	---
8S/1W-6P1	06/07/16	---	420	---	---	---	---	---	---	---	---	0.63 as N
(Cont)	09/08/16	---	420	---	---	---	---	---	---	---	---	---
	12/06/16	---	430	---	---	---	---	---	---	---	---	---
	03/09/17	---	430	---	---	---	---	---	---	---	---	---
	06/14/17	---	430	---	---	---	---	---	---	---	---	0.6 as N
	09/14/17	---	420	---	---	---	---	---	---	---	---	---
No. 204	05/22/91	740	425	50.0	12.0	85.0	3.0	120.0	18.0	198.0	19.0	19.0
7S/2W-26G	05/13/94	690	375	37.0	7.0	85.0	3.0	130.0	19.0	125.0	19.0	19.0
No. 205	03/28/88	500	290	23.0	3.0	81.0	2.0	83.0	27.0	107.0	21.0	21.0
7S/3W-35A	03/13/91	490	275	22.0	3.0	75.0	2.0	62.0	23.0	113.0	21.0	21.0
	03/03/94	510	275	20.0	2.0	72.0	2.0	72.0	24.0	104.0	20.0	20.0
	04/26/95	---	---	---	---	---	---	---	---	---	---	22.0
	03/25/97	480	270	20.0	2.0	75.0	2.0	66.0	18.0	110.0	21.0	21.0
	05/09/01	410	270	21.0	3.0	67.0	1.0	60.0	17.0	120.0	23.0	23.0
	11/13/01	---	---	---	---	---	---	---	---	---	---	21.0
	02/19/02	---	---	---	---	---	---	---	---	---	---	20.0
	05/14/02	---	---	---	---	---	---	---	---	---	---	18.0
	08/27/02	---	---	---	---	---	---	---	---	---	---	20.0
	11/20/02	---	---	---	---	---	---	---	---	---	---	18.0
	01/08/03	---	---	---	---	---	---	---	---	---	---	4.5 as N
	03/31/03	---	---	---	---	---	---	---	---	---	---	18.0
	06/11/03	---	---	---	---	---	---	---	---	---	---	18.0
	09/16/03	---	---	---	---	---	---	---	---	---	---	21.0
	12/04/03	---	---	---	---	---	---	---	---	---	---	20.0
	03/09/04	---	---	---	---	---	---	---	---	---	---	18.0
	06/09/04	---	---	---	---	---	---	---	---	---	---	18.0
	09/01/04	---	---	---	---	---	---	---	---	---	---	19.0
	12/07/04	---	---	---	---	---	---	---	---	---	---	20.0
	03/08/05	---	---	---	---	---	---	---	---	---	---	21.0
	06/07/05	---	---	---	---	---	---	---	---	---	---	17.0
	09/13/05	---	---	---	---	---	---	---	---	---	---	16.0
	12/05/05	---	---	---	---	---	---	---	---	---	---	15.0
	03/09/06	---	---	---	---	---	---	---	---	---	---	17.0
	06/07/06	---	---	---	---	---	---	---	---	---	---	17.0
	04/15/09	500	290	19.0	2.0	71.0	1.4	68.0	18.0	120.0	20.0	20.0
	07/14/09	---	270	---	---	---	---	---	---	---	---	20.0

ND-Not Detected

TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 205	01/06/10	---	280	---	---	---	---	---	---	---	17.0
7S/3W-35A	04/08/10	---	---	---	---	---	---	---	---	---	14.0
(cont.)	04/20/10	---	290	---	---	---	---	---	---	---	---
	07/20/10	---	260	---	---	---	---	---	---	---	16.0
	10/05/10	---	240	---	---	---	---	---	---	---	15.0
	01/04/11	---	210	---	---	---	---	---	---	---	19.0
	04/12/11	---	280	---	---	---	---	---	---	---	15.0
	07/08/11	---	260	---	---	---	---	---	---	---	14.0
	10/04/11	---	260	---	---	---	---	---	---	---	16.0
	01/12/12	---	250	---	---	---	---	---	---	---	16.0
	04/03/12	---	300	---	---	---	---	---	---	---	18.0
	04/24/12	470	260	16.0	1.4	73.0	1.6	70.0	18.0	98.0	16.0
	10/02/12	---	240	---	---	---	---	---	---	---	15.0
	01/03/13	---	270	---	---	---	---	---	---	---	15.0
	04/03/13	---	250	---	---	---	---	---	---	---	14.0
	07/02/13	---	270	---	---	---	---	---	---	---	18.0
	10/02/13	---	280	---	---	---	---	---	---	---	16.0
	01/07/14	---	280	---	---	---	---	---	---	---	14.0
	04/15/14	---	280	---	---	---	---	---	---	---	15.0
	07/03/14	---	280	---	---	---	---	---	---	---	14.0
	10/09/14	---	290	---	---	---	---	---	---	---	15.0
	01/07/15	---	340	---	---	---	---	---	---	---	18.0
	04/22/15	490	260	19.0	1.6	80.0	1.7	76.0	22.0	100.0	14.0
	04/22/15	---	310	---	---	---	---	---	---	---	---
	07/16/15	---	330	---	---	---	---	---	---	---	---
	10/22/15	---	300	---	---	---	---	---	---	---	15.0
	01/20/16	---	220	---	---	---	---	---	---	---	3.2 as N
	04/05/16	---	310	---	---	---	---	---	---	---	3.2 as N
	07/12/16	---	290	---	---	---	---	---	---	---	3.0 as N
	10/19/16	---	280	---	---	---	---	---	---	---	4.7 as N
	04/20/17	---	280	---	---	---	---	---	---	---	3.9 as N
	07/13/17	---	310	---	---	---	---	---	---	---	3.5 as N
No. 207	09/01/88	510	245	1.0	<1	108.0	<1	54.0	26.0	82.0	<1
8S/2W-14B	09/14/88	480	305	3.0	<1	106.0	<1	58.0	23.0	24.0	1.0
	08/14/91	480	245	1.0	<1	100.0	<1	52.0	28.0	55.0	<1
	08/10/94	440	285	2.0	<1	91.0	1.0	56.0	29.0	76.0	2.0
	08/15/97	510	280	2.0	<1	97.0	<1	52.0	25.0	98.0	<2
	07/27/98	---	---	---	---	---	---	---	---	---	2.0
	12/27/00	480	280	2.0	<1	100.0	<1	53.0	30.0	120.0	2.0

ND-Not Detected

TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 208 7S/2W-35M	09/01/88	680	415	44.0	15.0	77.0	3.0	119.0	14.0	186.0	18.0
	09/14/88	690	440	44.0	14.0	77.0	3.0	129.0	14.0	183.0	16.0
	08/14/91	600	340	23.0	7.0	89.0	2.0	85.0	18.0	162.0	4.0
	08/10/94	560	370	22.0	6.0	89.0	2.0	93.0	20.0	156.0	5.0
	06/06/95	---	---	---	---	---	---	---	---	---	4.0
	08/12/96	---	---	---	---	---	---	---	---	---	2.0
	07/27/99	---	---	---	---	---	---	---	---	---	15.0
	08/18/99	---	---	---	---	---	---	---	---	---	20.0
No. 209 7S/2W-28J	05/22/91	790	435	40.0	14.0	105.0	2.0	150.0	35.0	162.0	8.0
	05/13/94	760	525	64.0	22.0	48.0	3.0	150.0	15.0	153.0	25.0
	06/20/95	---	---	---	---	---	---	---	---	---	5.0
	05/15/97	690	390	10.0	3.0	130.0	<1	110.0	56.0	130.0	1.3
No. 210 8S/2W-12K	04/15/59	1366	---	101.0	23.0	150.0	10.0	149.0	200.0	275.0	3.0
	01/18/63	400	926	99.0	30.0	17.5	4.5	145.0	255.0	329.0	4.0
	11/30/67	1415	890	136.0	5.0	152.0	10.0	146.0	230.0	305.0	3.0
	07/26/68	1250	825	96.0	22.0	144.0	8.0	130.0	190.0	290.0	5.0
	09/06/68	1310	840	82.0	26.0	132.0	5.0	142.0	222.0	276.0	12.0
	07/19/73	1200	579	84.0	21.4	149.0	6.8	121.9	237.0	301.1	19.7
	08/08/75	1140	695	84.0	14.0	150.0	6.0	101.0	190.0	287.0	15.0
	06/22/76	1240	675	76.0	26.0	142.0	7.0	101.0	205.0	278.0	36.0
	10/13/76	1120	640	92.0	22.0	100.0	6.0	110.0	170.0	262.0	5.0
	06/16/77	1130	610	84.0	18.0	114.0	6.0	110.0	170.0	259.0	11.0
	05/20/80	580	340	30.0	8.0	75.0	4.0	51.0	67.0	152.0	9.0
	04/03/86	800	540	65.0	17.0	86.0	4.5	75.0	112.0	235.0	3.5
	07/15/86	830	560	72.0	19.0	86.0	4.0	87.0	118.0	250.0	4.0
	03/28/88	1030	575	76.0	22.0	93.0	5.0	99.0	143.0	247.0	4.0
	09/25/91	1040	600	74.0	20.0	120.0	5.0	120.0	160.0	238.0	5.0
	09/19/94	645	460	52.0	14.0	79.0	4.0	70.0	100.0	198.0	2.0
	09/16/96	---	---	---	---	---	---	---	---	---	3.0
	09/16/98	---	---	---	---	---	---	---	---	---	3.0
	12/15/98	---	---	---	---	---	---	---	---	---	2.0
	01/04/99	---	---	---	---	---	---	---	---	---	2.0
02/03/99	---	---	---	---	---	---	---	---	---	2.0	
04/08/99	---	---	---	---	---	---	---	---	---	3.0	
06/02/99	---	---	---	---	---	---	---	---	---	3.0	
09/07/99	---	---	---	---	---	---	---	---	---	4.0	
10/21/99	---	---	---	---	---	---	---	---	---	5.0	

ND-Not Detected

TABLE D-4

*SANTA MARGARITA RIVER WATERSHED*  
**WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l								
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3	
No. 210	12/15/99	---	---	---	---	---	---	---	---	---	---	5.0
8S/2W-12K	05/03/00	---	---	---	---	---	---	---	---	---	---	5.0
(cont.)	09/13/00	830	560	64.0	17.0	100.0	4.0	74.0	190.0	180.0	---	4.0
	05/08/01	---	---	---	---	---	---	---	---	---	---	4.0
	05/13/02	---	---	---	---	---	---	---	---	---	---	3.0
	01/08/03	---	---	---	---	---	---	---	---	---	---	.52 as N
	08/20/03	---	---	---	---	---	---	---	---	---	---	2.2
	09/16/03	830	560	65.0	18.0	78.0	4.5	76.0	180.0	160.0	---	2.0
	08/10/04	---	---	---	---	---	---	---	---	---	---	3.2
	08/02/05	---	---	---	---	---	---	---	---	---	---	5.4
	08/15/06	---	---	---	---	---	---	---	---	---	---	6.7
	08/14/07	---	---	---	---	---	---	---	---	---	---	12.0
	08/12/08	---	590	---	---	---	---	---	---	---	---	7.6
	03/05/09	---	520	---	---	---	---	---	---	---	---	---
	06/02/09	---	570	---	---	---	---	---	---	---	---	---
	08/05/09	---	---	---	---	---	---	---	---	---	---	4.9
	03/03/10	---	600	---	---	---	---	---	---	---	---	---
	06/02/10	---	600	---	---	---	---	---	---	---	---	---
	08/11/10	---	---	---	---	---	---	---	---	---	---	3.6
	09/08/10	---	600	---	---	---	---	---	---	---	---	---
	12/08/10	---	590	---	---	---	---	---	---	---	---	---
	03/09/11	---	620	---	---	---	---	---	---	---	---	---
	06/08/11	---	600	---	---	---	---	---	---	---	---	---
	11/10/11	---	600	---	---	---	---	---	---	---	---	3.8
	02/09/12	---	560	---	---	---	---	---	---	---	---	---
	05/02/12	---	540	---	---	---	---	---	---	---	---	---
	08/09/12	---	490	---	---	---	---	---	---	---	---	---
	09/05/12	840	530	60.0	19.0	84.0	5.6	86.0	150.0	180.0	---	12.0
	11/01/12	---	500	---	---	---	---	---	---	---	---	2.8
	02/12/13	---	460	---	---	---	---	---	---	---	---	---
	05/03/13	---	420	---	---	---	---	---	---	---	---	---
	08/15/13	---	420	---	---	---	---	---	---	---	---	---
	11/14/13	---	440	---	---	---	---	---	---	---	---	2.4
	02/05/14	---	430	---	---	---	---	---	---	---	---	---
	05/15/14	---	480	---	---	---	---	---	---	---	---	---
	08/06/14	---	440	---	---	---	---	---	---	---	---	---
	11/06/14	---	520	---	---	---	---	---	---	---	---	2.1
	02/05/15	---	520	---	---	---	---	---	---	---	---	---
	05/07/15	---	530	---	---	---	---	---	---	---	---	---

ND-Not Detected



TABLE D-4

*SANTA MARGARITA RIVER WATERSHED*  
**WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l								
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3	
No. 210	08/07/15	---	510	---	---	---	---	---	---	---	---	---
8S/2W-12K (cont.)	09/09/15	840	510	60.0	19.0	79.0	5.0	81.0	160.0	160.0	2.0	
No. 211	04/08/97	720	400	67.0	14.0	54.0	1.0	59.0	65.0	220.0	13.0	
8S/2W-20R1	12/23/97	---	410	---	---	---	---	---	---	---	3.1 as N	
	03/25/98	---	620	---	---	---	---	---	---	---	3.6 as N	
	06/03/98	---	---	---	---	---	---	---	---	---	3.4 as N	
	06/05/98	---	480	---	---	---	---	---	---	---	---	
	09/17/98	---	---	---	---	---	---	---	---	---	3.3 as N	
	12/17/98	---	430	---	---	---	---	56.0	66.0	---	16.0	
	06/03/99	---	430	---	---	---	---	---	---	---	3.4 as N	
	12/14/99	---	310	---	---	---	---	---	---	---	10.0	
	04/04/00	700	430	71.0	14.0	52.0	1.0	57.0	66.0	220.0	17.0	
	06/22/00	---	400	---	---	---	---	---	---	---	15.0	
	12/13/00	---	---	---	---	---	---	---	---	---	4.5 as N	
	03/27/01	---	---	---	---	---	---	---	---	---	4.5 as N	
	06/20/01	---	---	---	---	---	---	---	---	---	2.7 as N	
	09/13/01	---	---	---	---	---	---	---	---	---	4.7 as N	
	11/13/01	---	450	---	---	---	---	---	---	---	---	
	05/14/02	---	370	---	---	---	---	---	---	---	12.0	
	07/15/03	630	370	61.0	11.0	46.0	1.2	46.0	51.0	220.0	11.0	
	12/09/08	---	480	---	---	---	---	---	---	---	22.0	
	03/09/09	---	560	---	---	---	---	---	---	---	17.0	
	06/02/09	---	480	---	---	---	---	---	---	---	14.0	
	01/12/10	---	360	---	---	---	---	---	---	---	6.3	
	04/15/10	---	500	---	---	---	---	---	---	---	16.0	
	07/21/10	---	510	---	---	---	---	---	---	---	15.0	
	10/07/10	---	540	---	---	---	---	---	---	---	14.0	
	01/18/11	---	550	---	---	---	---	---	---	---	15.0	
	04/06/11	---	560	---	---	---	---	---	---	---	16.0	
	07/07/11	---	520	---	---	---	---	---	---	---	13.0	
	09/01/11	840	460	86.0	16.0	56.0	1.2	66.0	100.0	260.0	13.0	
	10/12/11	---	420	---	---	---	---	---	---	---	14.0	
	01/10/12	---	520	---	---	---	---	---	---	---	14.0	
	04/18/12	---	510	---	---	---	---	---	---	---	14.0	
	10/02/12	---	520	---	---	---	---	---	---	---	13.0	
	01/10/13	---	520	---	---	---	---	---	---	---	13.0	

TABLE D-4

*SANTA MARGARITA RIVER WATERSHED*  
**WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 211	04/17/13	---	510	---	---	---	---	---	---	---	12.0
8S/2W-20R1	07/03/13	---	540	---	---	---	---	---	---	---	14.0
(cont.)	10/03/13	---	550	---	---	---	---	---	---	---	14.0
	01/28/14	---	560	---	---	---	---	---	---	---	15.0
	04/16/14	---	430	---	---	---	---	---	---	---	11.0
	07/10/14	---	590	---	---	---	---	---	---	---	14.0
	09/04/14	840	590	92.0	17.0	60.0	1.3	67.0	100.0	260.0	13.0
	10/02/14	---	630	---	---	---	---	---	---	---	13.0
	11/13/14	880	610	93.0	18.0	63.0	1.3	71.0	120.0	260.0	13.0
	01/13/15	---	370	---	---	---	---	---	---	---	12.0
	04/14/15	---	650	---	---	---	---	---	---	---	12.0
	07/07/15	---	550	---	---	---	---	---	---	---	12.0
	10/08/15	---	720	---	---	---	---	---	---	---	12.0
	01/12/16	---	400	---	---	---	---	---	---	---	2.4 as N
	04/21/16	---	550	---	---	---	---	---	---	---	2.8 as N
	07/13/16	---	600	---	---	---	---	---	---	---	2.6 as N
	10/05/16	---	560	---	---	---	---	---	---	---	2.5 as N
	01/26/17	---	460	---	---	---	---	---	---	---	2.4 as N
	04/19/17	---	600	---	---	---	---	---	---	---	2.9 as N
	07/11/17	---	580	---	---	---	---	---	---	---	3.0 as N
	09/28/17	920	580	100.0	19.0	67.0	1.5	81.0	130.0	230.0	2.9 as N
No. 212	03/28/88	640	330	42.0	2.0	74.0	3.0	81.0	33.0	146.0	14.0
8S/2W-11N	09/25/91	600	320	41.0	2.0	82.0	4.0	86.0	35.0	146.0	14.0
No. 215	08/15/90	650	380	40.0	13.0	71.0	3.0	100.0	14.0	162.0	11.0
7S/2W-34M	09/26/90	---	---	---	---	---	---	---	---	---	13.0
	06/22/94	630	400	41.0	13.0	67.0	2.0	110.0	16.0	159.0	11.0
	06/16/97	630	370	29.0	9.0	81.0	2.0	110.0	16.0	160.0	6.0
	08/15/97	---	---	---	---	---	---	---	---	---	7.0
	08/11/04	630	380	35.0	12.0	76.0	2.6	100.0	14.0	150.0	<2
	09/09/04	---	---	---	---	---	---	---	---	---	9.0
	06/26/06	---	---	---	---	---	---	---	---	---	6.6
	06/05/07	---	---	---	---	---	---	---	---	---	2.4
	08/14/07	590	320	22.0	7.3	85.0	2.2	88.0	16.0	150.0	2.2
	12/02/08	---	370	---	---	---	---	---	---	---	---
	03/09/09	---	380	---	---	---	---	---	---	---	---
	06/04/09	---	300	---	---	---	---	---	---	---	---
	03/04/10	---	340	---	---	---	---	---	---	---	---

ND-Not Detected

TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 215	06/18/10	---	340	---	---	---	---	---	---	---	---
7S/2W-34M	08/18/10	580	330	20.0	6.5	79.0	1.9	82.0	16.0	150.0	2.5
(Cont.)	09/03/10	---	330	---	---	---	---	---	---	---	2.2
	12/17/10	---	350	---	---	---	---	---	---	---	---
	03/15/11	---	250	---	---	---	---	---	---	---	---
	06/07/11	---	320	---	---	---	---	---	---	---	---
	12/06/11	---	320	---	---	---	---	---	---	---	---
No. 216	06/01/88	480	280	25.0	4.0	65.0	2.0	71.0	11.0	134.0	---
8S/2W-7W	06/29/88	480	275	29.0	5.0	59.0	3.0	81.0	7.0	110.0	26.0
	06/12/91	500	285	30.0	5.0	59.0	2.0	76.0	9.0	113.0	23.0
	05/27/92	470	285	33.0	6.0	53.0	2.0	72.0	10.0	119.0	20.0
	04/25/01	490	300	28.0	4.0	55.0	2.0	74.0	13.0	120.0	12.0
	09/21/04	540	320	31.0	5.6	53.0	2.1	74.0	10.0	130.0	14.0
	10/26/04	---	---	---	---	---	---	---	---	---	15.0
	11/02/04	---	---	---	---	---	---	---	---	---	15.0
	11/10/04	---	---	---	---	---	---	---	---	---	16.0
	10/18/05	---	---	---	---	---	---	---	---	---	19.0
	10/12/06	---	---	---	---	---	---	---	---	---	19.0
	09/07/07	510	300	28.0	4.7	57.0	3.5	82.0	12.0	110.0	18.0
	10/03/07	---	---	---	---	---	---	---	---	---	17.0
	04/23/09	---	---	---	---	---	---	---	---	---	14.0
	03/18/10	---	370	---	---	---	---	---	---	---	---
	04/08/10	---	---	---	---	---	---	---	---	---	12.0
	06/10/10	---	380	---	---	---	---	---	---	---	---
	09/01/10	---	340	---	---	---	---	---	---	---	---
	09/01/10	570	320	41.0	6.9	58.0	2.3	86.0	16.0	130.0	16.0
	12/08/10	---	360	---	---	---	---	---	---	---	---
	12/14/10	---	390	---	---	---	---	---	---	---	---
	06/08/11	---	390	---	---	---	---	---	---	---	---
	08/10/11	---	---	---	---	---	---	---	---	---	15.0
	12/08/11	---	400	---	---	---	---	---	---	---	---
	06/08/12	---	420	---	---	---	---	---	---	---	---
No. 217	03/28/88	580	285	8.0	1.0	108.0	1.0	81.0	20.0	113.0	15.0
8S/2W-17M1	08/10/88	570	280	8.0	1.0	105.0	1.0	82.0	20.0	55.0	13.0
	08/14/91	570	305	17.0	2.0	99.0	2.0	74.0	28.0	134.0	16.0
	08/10/94	610	365	20.0	3.0	97.0	2.0	82.0	38.0	134.0	16.0
	08/15/97	660	370	20.0	3.0	107.0	1.0	80.0	41.0	130.0	13.0

ND-Not Detected

TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l								
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3	
No. 217	05/09/00	---	---	---	---	---	---	---	---	---	---	15.0
8S/2W-17M1	10/12/00	650	380	19.0	2.0	110.0	1.0	81.0	49.0	150.0	---	16.0
(cont.)	05/14/01	---	---	---	---	---	---	---	---	---	---	17.0
	05/14/02	---	---	---	---	---	---	---	---	---	---	12.0
	10/15/03	690	400	25.0	3.3	110.0	1.6	84.0	58.0	150.0	---	16.0
	05/06/04	---	---	---	---	---	---	---	---	---	---	17.0
	05/11/06	---	---	---	---	---	---	---	---	---	---	15.0
	05/15/07	---	---	---	---	---	---	---	---	---	---	16.0
	05/06/08	---	400	---	---	---	---	---	---	---	---	14.0
	08/12/08	---	430	---	---	---	---	---	---	---	---	---
	05/11/09	---	400	---	---	---	---	---	---	---	---	13.0
	08/05/09	---	400	---	---	---	---	---	---	---	---	---
	02/02/10	---	390	---	---	---	---	---	---	---	---	---
	05/06/10	---	480	---	---	---	---	---	---	---	---	17.0
	08/09/10	---	470	---	---	---	---	---	---	---	---	---
	11/16/10	---	420	---	---	---	---	---	---	---	---	---
	02/02/11	---	410	---	---	---	---	---	---	---	---	---
	05/04/11	---	440	---	---	---	---	---	---	---	---	15.0
	08/02/11	---	440	---	---	---	---	---	---	---	---	---
	11/03/11	---	400	---	---	---	---	---	---	---	---	---
	02/07/12	---	420	---	---	---	---	---	---	---	---	---
	05/02/12	---	440	---	---	---	---	---	---	---	---	16.0
	08/07/12	---	450	---	---	---	---	---	---	---	---	---
	10/02/12	790	440	31.0	4.0	120.0	1.7	89.0	79.0	170.0	---	16.0
	11/01/12	---	440	---	---	---	---	---	---	---	---	---
	02/06/13	---	440	---	---	---	---	---	---	---	---	---
	05/02/13	---	440	---	---	---	---	---	---	---	---	17.0
	08/19/13	---	470	---	---	---	---	---	---	---	---	---
	11/05/13	---	450	---	---	---	---	---	---	---	---	---
	02/05/14	---	420	---	---	---	---	---	---	---	---	---
	08/08/14	---	470	---	---	---	---	---	---	---	---	---
	11/05/14	---	460	---	---	---	---	---	---	---	---	---
	12/18/14	---	---	---	---	---	---	---	---	---	---	19.0
	02/04/15	---	380	---	---	---	---	---	---	---	---	---
	05/07/15	---	450	---	---	---	---	---	---	---	---	15.0
	08/06/15	---	470	---	---	---	---	---	---	---	---	---
	10/06/15	820	480	35.0	4.7	120.0	1.7	88.0	82.0	170.0	---	16.0
	11/17/15	---	470	---	---	---	---	---	---	---	---	---
	02/10/16	---	490	---	---	---	---	---	---	---	---	---

ND-Not Detected

TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l								
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3	
No. 217	05/10/16	---	460	---	---	---	---	---	---	---	---	3.9 as N
8S/2W-17M1 (cont.)	08/03/16	---	450	---	---	---	---	---	---	---	---	---
	11/08/16	---	460	---	---	---	---	---	---	---	---	---
	02/02/17	---	440	---	---	---	---	---	---	---	---	---
	05/02/17	---	460	---	---	---	---	---	---	---	---	4.0 as N
	08/04/17	---	410	---	---	---	---	---	---	---	---	---
	No. 231	08/15/90	1280	805	126.0	18.0	120.0	5.0	100.0	310.0	244.0	9.0
8S/2W-20B6	09/26/90	---	---	---	---	---	---	---	---	---	---	6.0
	03/04/92	1700	1270	180.0	51.0	160.0	6.0	140.0	510.0	332.0	5.0	
	06/20/95	1640	1300	171.0	44.0	124.0	6.0	75.0	520.0	287.0	5.3	
	02/27/98	---	---	---	---	---	---	---	---	---	---	3.0
	05/16/00	---	---	---	---	---	---	---	---	---	---	5.0
	05/24/01	1490	1080	140.0	35.0	120.0	5.0	120.0	340.0	330.0	3.0	
	05/13/02	---	---	---	---	---	---	---	---	---	---	2.0
	07/12/05	---	---	---	---	---	---	---	---	---	---	2.2
	07/20/06	---	---	---	---	---	---	---	---	---	---	3.7
	05/02/07	1400	830	120.0	27.0	110.0	4.0	130.0	250.0	300.0	2.1	
	03/07/08	---	900	---	---	---	---	---	---	---	---	2.4
	No. 232	08/15/90	960	590	71.0	19.0	110.0	5.0	98.0	130.0	235.0	30.0
	8S/2W-11J3	09/26/90	---	---	---	---	---	---	---	---	---	---
09/25/91		980	565	74.0	19.0	106.0	5.0	98.0	120.0	244.0	37.0	
09/19/94		805	495	54.0	14.0	92.0	4.0	80.0	110.0	207.0	15.0	
09/13/96		---	---	---	---	---	---	---	---	---	---	22.0
11/04/97		1000	660	76.0	20.0	110.0	4.0	97.0	130.0	230.0	29.0	
07/27/98		---	---	---	---	---	---	---	---	---	---	38.0
12/10/98		---	---	---	---	---	---	---	---	---	---	22.0
01/06/98		---	---	---	---	---	---	---	---	---	---	30.0
01/29/99		---	---	---	---	---	---	---	---	---	---	10.0
02/03/99		---	---	---	---	---	---	---	---	---	---	26.0
02/24/99		---	---	---	---	---	---	---	---	---	---	37.0
04/08/99		---	---	---	---	---	---	---	---	---	---	33.0
04/21/99		---	---	---	---	---	---	---	---	---	---	34.0
06/23/99		---	---	---	---	---	---	---	---	---	---	33.0
07/08/99		---	---	---	---	---	---	---	---	---	---	36.0
08/25/99		---	---	---	---	---	---	---	---	---	---	33.0
09/21/99		---	---	---	---	---	---	---	---	---	---	31.0
10/06/99		---	---	---	---	---	---	---	---	---	---	30.0

ND-Not Detected

TABLE D-4

*SANTA MARGARITA RIVER WATERSHED*  
**WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l								
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3	
No. 232	11/17/99	---	---	---	---	---	---	---	---	---	---	32.0
8S/2W-11J3	12/14/99	---	---	---	---	---	---	---	---	---	---	32.0
(cont.)	01/18/00	---	---	---	---	---	---	---	---	---	---	31.0
	02/29/00	---	---	---	---	---	---	---	---	---	---	10.0
	03/21/00	---	---	---	---	---	---	---	---	---	---	25.0
	04/11/00	---	---	---	---	---	---	---	---	---	---	29.0
	05/25/00	---	---	---	---	---	---	---	---	---	---	26.0
	06/21/00	---	---	---	---	---	---	---	---	---	---	26.0
	07/11/00	---	---	---	---	---	---	---	---	---	---	25.0
	09/13/00	920	590	65.0	17.0	105.0	4.0	91.0	150.0	210.0	---	21.0
	10/06/00	---	---	---	---	---	---	---	---	---	---	18.0
	11/08/00	---	---	---	---	---	---	---	---	---	---	17.0
	12/13/00	---	---	---	---	---	---	---	---	---	---	20.0
	01/04/01	---	---	---	---	---	---	---	---	---	---	19.0
	02/28/01	---	---	---	---	---	---	---	---	---	---	10.0
	04/10/01	---	---	---	---	---	---	---	---	---	---	20.0
	10/10/01	---	---	---	---	---	---	---	---	---	---	26.0
	05/14/02	---	---	---	---	---	---	---	---	---	---	22.0
	08/06/02	---	---	---	---	---	---	---	---	---	---	4*
	01/08/03	---	---	---	---	---	---	---	---	---	---	6.0 as N
	03/31/03	---	---	---	---	---	---	---	---	---	---	11.0
	06/10/03	---	---	---	---	---	---	---	---	---	---	31.0
	07/08/03	---	---	---	---	---	---	---	---	---	---	30.0
	08/20/03	---	---	---	---	---	---	---	---	---	---	28.0
	09/16/03	1100	680	67.0	18.0	110.0	4.3	100.0	150.0	240.0	---	33.0
	10/14/03	---	---	---	---	---	---	---	---	---	---	31.0
	01/14/04	---	---	---	---	---	---	---	---	---	---	23.0
	02/10/04	---	---	---	---	---	---	---	---	---	---	21.0
	04/14/04	---	---	---	---	---	---	---	---	---	---	25.0
	05/06/04	---	---	---	---	---	---	---	---	---	---	26.0
	06/22/04	---	---	---	---	---	---	---	---	---	---	25.0
	07/14/04	---	---	---	---	---	---	---	---	---	---	25.0
	08/10/04	---	---	---	---	---	---	---	---	---	---	31.0
	09/08/04	---	---	---	---	---	---	---	---	---	---	26.0
	10/26/04	---	---	---	---	---	---	---	---	---	---	15.0
	11/18/04	---	---	---	---	---	---	---	---	---	---	26.0
	12/07/04	---	---	---	---	---	---	---	---	---	---	16.0
	01/10/05	---	---	---	---	---	---	---	---	---	---	20.0
	02/14/05	---	---	---	---	---	---	---	---	---	---	14.0

\* Sample may have been switched with Well 233

ND-Not Detected

TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 232	03/11/05	---	---	---	---	---	---	---	---	---	11.0
8S/2W-11J3	04/13/05	---	---	---	---	---	---	---	---	---	25.0
(cont.)	06/08/05	---	---	---	---	---	---	---	---	---	24.0
	07/12/05	---	---	---	---	---	---	---	---	---	22.0
	08/02/05	---	---	---	---	---	---	---	---	---	18.0
	09/20/05	---	---	---	---	---	---	---	---	---	19.0
	10/18/05	---	---	---	---	---	---	---	---	---	18.0
	11/08/05	---	---	---	---	---	---	---	---	---	18.0
	12/06/05	---	---	---	---	---	---	---	---	---	19.0
	01/04/06	---	---	---	---	---	---	---	---	---	15.0
	02/14/06	---	---	---	---	---	---	---	---	---	18.0
	03/13/06	---	---	---	---	---	---	---	---	---	8.3
	04/18/06	---	---	---	---	---	---	---	---	---	12.0
	05/12/06	---	---	---	---	---	---	---	---	---	15.0
	06/22/06	---	---	---	---	---	---	---	---	---	11.0
	07/19/06	---	---	---	---	---	---	---	---	---	13.0
	08/15/06	---	---	---	---	---	---	---	---	---	14.0
	11/02/06	---	---	---	---	---	---	---	---	---	15.0
	01/10/07	---	---	---	---	---	---	---	---	---	13.0
	02/07/07	---	---	---	---	---	---	---	---	---	15.0
	03/14/07	---	---	---	---	---	---	---	---	---	15.0
	04/17/07	---	---	---	---	---	---	---	---	---	14.0
	05/01/07	---	---	---	---	---	---	---	---	---	13.0
	06/01/07	---	---	---	---	---	---	---	---	---	11.0
	07/05/07	---	---	---	---	---	---	---	---	---	12.0
	08/14/07	---	---	---	---	---	---	---	---	---	14.0
	10/03/07	---	---	---	---	---	---	---	---	---	13.0
	12/05/07	---	---	---	---	---	---	---	---	---	12.0
	01/08/08	---	---	---	---	---	---	---	---	---	11.0
	02/13/08	---	---	---	---	---	---	---	---	---	6.9
	03/04/08	---	---	---	---	---	---	---	---	---	9.7
	03/07/08	---	610	---	---	---	---	---	---	---	---
	04/08/08	---	---	---	---	---	---	---	---	---	13.0
	05/07/08	---	---	---	---	---	---	---	---	---	12.0
	07/10/08	---	580	---	---	---	---	---	---	---	---
	07/28/08	---	---	---	---	---	---	---	---	---	12.0
	08/12/08	---	---	---	---	---	---	---	---	---	13.0
	12/03/08	---	---	---	---	---	---	---	---	---	14.0
	01/13/09	---	660	---	---	---	---	---	---	---	14.0

ND-Not Detected

TABLE D-4

*SANTA MARGARITA RIVER WATERSHED*  
**WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l								
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3	
No. 232	02/05/09	---	---	---	---	---	---	---	---	---	---	13.0
8S/2W-11J3	03/04/09	---	---	---	---	---	---	---	---	---	---	12.0
(cont.)	04/02/09	---	580	---	---	---	---	---	---	---	---	13.0
	05/11/09	---	---	---	---	---	---	---	---	---	---	11.0
	06/02/09	---	---	---	---	---	---	---	---	---	---	11.0
	07/13/09	---	580	---	---	---	---	---	---	---	---	12.0
	08/05/09	---	---	---	---	---	---	---	---	---	---	12.0
	01/06/10	---	590	---	---	---	---	---	---	---	---	12.0
	02/03/10	---	---	---	---	---	---	---	---	---	---	10.0
	03/10/10	---	---	---	---	---	---	---	---	---	---	8.5
	04/08/10	---	570	---	---	---	---	---	---	---	---	12.0
	05/07/10	---	---	---	---	---	---	---	---	---	---	13.0
	06/03/10	---	---	---	---	---	---	---	---	---	---	13.0
	07/08/10	---	570	---	---	---	---	---	---	---	---	13.0
	08/10/10	---	---	---	---	---	---	---	---	---	---	14.0
	09/02/10	---	---	---	---	---	---	---	---	---	---	3.6
	10/06/10	---	590	---	---	---	---	---	---	---	---	15.0
	11/16/10	---	---	---	---	---	---	---	---	---	---	13.0
	12/01/10	---	---	---	---	---	---	---	---	---	---	14.0
	01/04/11	---	490	---	---	---	---	---	---	---	---	7.9
	03/09/11	---	---	---	---	---	---	---	---	---	---	8.4
	04/05/11	---	560	---	---	---	---	---	---	---	---	13.0
	05/03/11	---	---	---	---	---	---	---	---	---	---	11.0
	06/08/11	---	---	---	---	---	---	---	---	---	---	11.0
	07/06/11	---	590	---	---	---	---	---	---	---	---	10.0
	08/03/11	---	---	---	---	---	---	---	---	---	---	10.0
	09/02/11	---	---	---	---	---	---	---	---	---	---	10.0
	10/14/11	---	610	---	---	---	---	---	---	---	---	11.0
	11/02/11	---	---	---	---	---	---	---	---	---	---	11.0
	12/07/11	---	---	---	---	---	---	---	---	---	---	11.0
	01/11/12	---	590	---	---	---	---	---	---	---	---	9.9
	02/02/12	---	---	---	---	---	---	---	---	---	---	9.4
	03/07/12	---	---	---	---	---	---	---	---	---	---	9.7
	04/04/12	---	580	---	---	---	---	---	---	---	---	8.4
	05/02/12	---	---	---	---	---	---	---	---	---	---	9.4
	06/05/12	---	---	---	---	---	---	---	---	---	---	9.6
	08/08/12	---	---	---	---	---	---	---	---	---	---	10.0
	09/05/12	950	610	69.0	19.0	100.0	4.5	99.0	200.0	190.0	---	11.0
	10/17/12	---	620	---	---	---	---	---	---	---	---	10.0

ND-Not Detected



TABLE D-4

*SANTA MARGARITA RIVER WATERSHED*  
**WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l								
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3	
No. 232	11/01/12	---	---	---	---	---	---	---	---	---	---	11.0
8S/2W-11J3	12/04/12	---	---	---	---	---	---	---	---	---	---	10.0
(cont.)	01/09/13	---	610	---	---	---	---	---	---	---	---	9.9
	02/12/13	---	---	---	---	---	---	---	---	---	---	11.0
	03/12/13	---	---	---	---	---	---	---	---	---	---	10.0
	04/11/13	---	600	---	---	---	---	---	---	---	---	12.0
	05/02/13	---	---	---	---	---	---	---	---	---	---	13.0
	06/05/13	---	---	---	---	---	---	---	---	---	---	11.0
	07/10/13	---	580	---	---	---	---	---	---	---	---	12.0
	08/14/13	---	---	---	---	---	---	---	---	---	---	12.0
	09/05/13	---	---	---	---	---	---	---	---	---	---	13.0
	10/15/13	---	630	---	---	---	---	---	---	---	---	14.0
	11/06/13	---	---	---	---	---	---	---	---	---	---	14.0
	12/05/13	---	---	---	---	---	---	---	---	---	---	14.0
	01/15/14	---	620	---	---	---	---	---	---	---	---	16.0
	02/05/14	---	---	---	---	---	---	---	---	---	---	15.0
	03/12/14	---	---	---	---	---	---	---	---	---	---	11.0
	04/03/14	---	560	---	---	---	---	---	---	---	---	11.0
	05/27/14	---	---	---	---	---	---	---	---	---	---	8.7
	06/04/14	---	---	---	---	---	---	---	---	---	---	14.0
	07/16/14	---	610	---	---	---	---	---	---	---	---	14.0
	08/06/14	---	---	---	---	---	---	---	---	---	---	16.0
	09/03/14	---	---	---	---	---	---	---	---	---	---	16.0
	10/08/14	---	610	---	---	---	---	---	---	---	---	15.0
	11/06/14	---	---	---	---	---	---	---	---	---	---	17.0
	12/09/14	---	---	---	---	---	---	---	---	---	---	15.0
	01/07/15	---	690	---	---	---	---	---	---	---	---	13.0
	02/05/15	---	---	---	---	---	---	---	---	---	---	17.0
	03/05/15	---	---	---	---	---	---	---	---	---	---	8.8
	04/16/15	---	600	---	---	---	---	---	---	---	---	16.0
	06/04/15	---	---	---	---	---	---	---	---	---	---	9.0
	07/14/15	---	580	---	---	---	---	---	---	---	---	18.0
	08/04/15	---	---	---	---	---	---	---	---	---	---	19.0
	09/10/15	900	530	64.0	17.0	97.0	3.8	89.0	150.0	200.0	---	11.0
	10/22/15	---	590	---	---	---	---	---	---	---	---	19.0
	11/10/15	---	---	---	---	---	---	---	---	---	---	19.0
	12/03/15	---	---	---	---	---	---	---	---	---	---	4.3 as N
	01/20/16	---	480	---	---	---	---	---	---	---	---	3.7 as N
	02/03/16	---	---	---	---	---	---	---	---	---	---	3.5 as N

ND-Not Detected

TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 232	03/02/16	---	---	---	---	---	---	---	---	---	3.8 as N
8S/2W-11J3	04/22/16	---	590	---	---	---	---	---	---	---	4.1 as N
(cont.)	05/04/16	---	---	---	---	---	---	---	---	---	3.9 as N
	06/07/16	---	---	---	---	---	---	---	---	---	4.2 as N
	07/20/16	---	490	---	---	---	---	---	---	---	3.9 as N
	08/04/16	---	---	---	---	---	---	---	---	---	4.1 as N
	09/08/16	---	---	---	---	---	---	---	---	---	3.8 as N
	10/18/16	---	600	---	---	---	---	---	---	---	3.8 as N
	11/02/16	---	---	---	---	---	---	---	---	---	3.9 as N
	12/06/16	---	---	---	---	---	---	---	---	---	3.8 as N
	01/17/17	---	560	---	---	---	---	---	---	---	3.6 as N
	02/02/17	---	---	---	---	---	---	---	---	---	3.6 as N
	03/09/17	---	---	---	---	---	---	---	---	---	3.4 as N
	04/06/17	---	540	---	---	---	---	---	---	---	3.5 as N
	05/03/17	---	---	---	---	---	---	---	---	---	3.6 as N
	06/08/17	---	---	---	---	---	---	---	---	---	3.4 as N
	07/11/17	---	540	---	---	---	---	---	---	---	3.6 as N
	08/04/17	---	---	---	---	---	---	---	---	---	3.3 as N
	09/13/17	---	---	---	---	---	---	---	---	---	3.3 as N
No. 233 (Old 112)	06/15/88	900	535	71.0	21.0	100.0	5.0	96.0	136.0	247.0	4.0
8S/2W-12K2	03/27/91	1020	580	66.0	19.0	114.0	5.0	95.0	140.0	247.0	12.0
	03/03/94	740	425	50.0	14.0	75.0	4.0	71.0	100.0	186.0	2.0
	04/27/95	---	---	---	---	---	---	---	---	---	6.0
	03/27/97	880	510	57.0	15.0	100.0	4.0	81.0	120.0	220.0	4.0
	01/04/99	---	---	---	---	---	---	---	---	---	5.0
	02/03/99	---	---	---	---	---	---	---	---	---	4.0
	04/08/99	---	---	---	---	---	---	---	---	---	4.0
	06/03/99	---	---	---	---	---	---	---	---	---	4.0
	07/20/99	---	---	---	---	---	---	---	---	---	5.0
	08/11/99	---	---	---	---	---	---	---	---	---	4.0
	09/07/99	---	---	---	---	---	---	---	---	---	4.0
	10/21/99	---	---	---	---	---	---	---	---	---	5.0
	11/03/99	---	---	---	---	---	---	---	---	---	4.0
	04/11/00	970	570	64.0	18.0	110.0	4.0	85.0	150.0	230.0	4.0
	10/06/00	---	---	---	---	---	---	---	---	---	3.0
	10/10/01	---	---	---	---	---	---	---	---	---	4.0
	08/06/02	---	---	---	---	---	---	---	---	---	26*
	01/13/03	---	---	---	---	---	---	---	---	---	1 as N

\* Sample might have been switched with Well 232

ND-Not Detected

TABLE D-4

*SANTA MARGARITA RIVER WATERSHED*  
**WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l								
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3	
No. 233 (Old 112)	07/07/03	---	---	---	---	---	---	---	---	---	---	2.7
8S/2W-12K2	07/13/04	---	---	---	---	---	---	---	---	---	---	3.0
(cont.)	07/12/05	---	---	---	---	---	---	---	---	---	---	2.8
	04/04/06	960	600	75.0	20.0	87.0	4.5	93.0	180.0	180.0	---	7.3
	08/04/06	---	---	---	---	---	---	---	---	---	---	11.0
	08/14/07	---	---	---	---	---	---	---	---	---	---	8.1
	08/13/08	---	530	---	---	---	---	---	---	---	---	6.1
	02/05/09	---	570	---	---	---	---	---	---	---	---	---
	04/02/09	960	580	70.0	20.0	88.0	4.7	100.0	160.0	200.0	---	6.8
	05/11/09	---	610	---	---	---	---	---	---	---	---	---
	08/04/09	---	570	---	---	---	---	---	---	---	---	5.0
	02/02/10	---	560	---	---	---	---	---	---	---	---	---
	05/06/10	---	660	---	---	---	---	---	---	---	---	---
	08/10/10	---	580	---	---	---	---	---	---	---	---	5.1
	07/02/11	---	630	---	---	---	---	---	---	---	---	---
	08/03/11	---	---	---	---	---	---	---	---	---	---	4.2
	10/14/11	---	620	---	---	---	---	---	---	---	---	---
	01/10/12	---	580	---	---	---	---	---	---	---	---	---
	04/12/12	930	560	67.0	20.0	93.0	5.5	91.0	190.0	180.0	---	4.7
	04/12/12	---	570	---	---	---	---	---	---	---	---	---
	08/08/12	---	---	---	---	---	---	---	---	---	---	5.3
	10/17/12	---	540	---	---	---	---	---	---	---	---	---
	01/09/13	---	520	---	---	---	---	---	---	---	---	---
	04/11/13	---	500	---	---	---	---	---	---	---	---	---
	07/10/13	---	440	---	---	---	---	---	---	---	---	---
	08/15/13	---	---	---	---	---	---	---	---	---	---	4.1
	10/15/13	---	490	---	---	---	---	---	---	---	---	---
	01/15/14	---	480	---	---	---	---	---	---	---	---	---
	04/17/14	---	550	---	---	---	---	---	---	---	---	---
	07/16/14	---	450	---	---	---	---	---	---	---	---	---
	08/06/14	---	---	---	---	---	---	---	---	---	---	2.8
	10/08/14	---	480	---	---	---	---	---	---	---	---	---
	01/14/15	---	490	---	---	---	---	---	---	---	---	---
	04/16/15	800	510	57.0	18.0	82.0	5.0	78.0	130.0	160.0	---	2.4
	04/16/15	---	510	---	---	---	---	---	---	---	---	---
	07/14/15	---	510	---	---	---	---	---	---	---	---	---
	08/06/15	---	---	---	---	---	---	---	---	---	---	2.3
	10/22/15	---	560	---	---	---	---	---	---	---	---	---
	01/04/16	---	510	---	---	---	---	---	---	---	---	---

ND-Not Detected

TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l								
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3	
No. 233 (Old 112)	04/05/16	---	570	---	---	---	---	---	---	---	---	---
8S/2W-12K2	07/20/16	---	580	---	---	---	---	---	---	---	---	---
(cont.)	10/18/16	---	640	---	---	---	---	---	---	---	---	---
	01/17/17	---	760	---	---	---	---	---	---	---	---	---
	04/06/17	---	720	---	---	---	---	---	---	---	---	---
	07/11/17	---	680	---	---	---	---	---	---	---	---	---
	08/10/17	---	---	---	---	---	---	---	---	---	---	0.59 as N
No. 234 (Old 114)	03/31/88	840	480	54.0	15.0	100.0	4.0	61.0	109.0	241.0	18.0	
8S/2W-11P	03/27/91	1020	605	69.0	19.0	114.0	5.0	77.0	138.0	256.0	37.0	
	06/20/95	---	---	---	---	---	---	---	---	---	---	11.0
	09/26/96	---	---	---	---	---	---	---	---	---	---	9.0
	02/04/97	---	---	---	---	---	---	---	---	---	---	12.0
	04/25/97	840	500	56.0	15.0	95.0	4.0	77.0	120.0	230.0	8.0	
	01/19/99	---	---	---	---	---	---	---	---	---	---	12.0
	02/12/99	---	---	---	---	---	---	---	---	---	---	16.0
	04/21/99	---	---	---	---	---	---	---	---	---	---	15.0
	06/03/99	---	---	---	---	---	---	---	---	---	---	16.0
	07/27/99	---	---	---	---	---	---	---	---	---	---	18.0
	08/19/99	---	---	---	---	---	---	---	---	---	---	17.0
	09/21/99	---	---	---	---	---	---	---	---	---	---	16.0
	10/26/99	---	---	---	---	---	---	---	---	---	---	13.0
	04/13/00	900	550	64.0	18.0	10.0	4.0	70.0	150.0	220.0	13.0	
	07/06/00	---	---	---	---	---	---	---	---	---	---	12.0
	07/12/01	---	---	---	---	---	---	---	---	---	---	7.0
	08/02/01	---	---	---	---	---	---	---	---	---	---	<2
	11/20/02	---	---	---	---	---	---	---	---	---	---	3.0
	12/11/02	850	520	62.0	17.0	80.0	3.7	74.0	170.0	170.0	4.0	
	11/04/03	---	---	---	---	---	---	---	---	---	---	10.0
	11/05/04	---	---	---	---	---	---	---	---	---	---	10.0
	11/03/05	---	---	---	---	---	---	---	---	---	---	12.0
	12/06/05	890	620	70.0	19.0	89.0	4.1	85.0	180.0	200.0	12.0	
	11/08/06	---	---	---	---	---	---	---	---	---	---	14.0
	11/16/07	---	---	---	---	---	---	---	---	---	---	16.0
	08/12/08	---	610	---	---	---	---	---	---	---	---	---
	11/06/08	---	570	---	---	---	---	---	---	---	---	20.0
	12/03/08	960	660	83.0	21.0	89.0	4.9	87.0	160.0	230.0	20.0	
	02/05/09	---	590	---	---	---	---	---	---	---	---	---
	05/07/09	---	620	---	---	---	---	---	---	---	---	---

ND-Not Detected

TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 234 (Old 114)	08/04/09	---	590	---	---	---	---	---	---	---	---
8S/2W-11P	02/03/10	---	610	---	---	---	---	---	---	---	---
(cont.)	05/06/10	---	680	---	---	---	---	---	---	---	---
	08/10/10	---	610	---	---	---	---	---	---	---	---
	08/11/10	---	610	---	---	---	---	---	---	---	---
	11/01/10	---	610	---	---	---	---	---	---	---	21.0
	02/09/11	---	620	---	---	---	---	---	---	---	---
	05/03/11	---	620	---	---	---	---	---	---	---	---
	08/03/11	---	570	---	---	---	---	---	---	---	---
	11/02/11	---	560	---	---	---	---	---	---	---	20.0
	12/06/11	990	660	71.0	20.0	99.0	4.2	91.0	160.0	240.0	21.0
	05/03/12	---	620	---	---	---	---	---	---	---	---
	08/08/12	---	620	---	---	---	---	---	---	---	---
	11/01/12	---	620	---	---	---	---	---	---	---	22.0
	02/07/13	---	580	---	---	---	---	---	---	---	---
	05/02/13	---	610	---	---	---	---	---	---	---	---
	08/15/13	---	620	---	---	---	---	---	---	---	---
	11/07/13	---	620	---	---	---	---	---	---	---	21.0
	02/05/14	---	640	---	---	---	---	---	---	---	---
	05/15/14	---	630	---	---	---	---	---	---	---	---
	08/13/14	---	610	---	---	---	---	---	---	---	---
	11/06/14	---	620	---	---	---	---	---	---	---	25.0
	11/19/14	---	---	---	---	---	---	---	---	---	23.0
	12/09/14	780	630	73.0	21.0	110.0	4.5	97.0	160.0	230.0	26.0
	02/06/15	---	670	---	---	---	---	---	---	---	25.0
	05/07/15	---	620	---	---	---	---	---	---	---	23.0
	08/06/15	---	590	---	---	---	---	---	---	---	23.0
	11/17/15	---	620	---	---	---	---	---	---	---	22.0
	03/29/17	---	590	---	---	---	---	---	---	---	6.5 as N
	05/03/17	---	590	---	---	---	---	---	---	---	6.3 as N
	08/10/17	---	590	---	---	---	---	---	---	---	6.5 as N
No. 235 (Old 137)	06/24/88	460	310	40.0	10.0	41.0	2.0	58.0	10.0	140.0	15.0
8S/3W-1Q1	06/20/90	420	230	22.0	4.0	56.0	2.0	50.0	6.0	128.0	18.0
	06/10/93	370	235	15.0	2.0	65.0	2.0	51.0	9.0	113.0	17.0
	07/16/96	410	230	16.0	2.0	60.0	1.0	48.0	8.9	110.0	20.0
	06/09/97	---	---	---	---	---	---	---	---	---	17.0
	06/03/99	390	240	13.0	1.0	63.0	1.0	46.0	6.7	98.0	17.0
	11/03/99	---	---	---	---	---	---	---	---	---	16.0

ND-Not Detected

TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 235 (Old 137)	11/09/00	---	---	---	---	---	---	---	---	---	15.0
8S/3W-1Q1	11/20/01	---	---	---	---	---	---	---	---	---	13.0
(cont.)	06/11/02	380	210	10.0	<1	62.0	1.2	48.0	7.2	100.0	16.0
	11/05/02	---	---	---	---	---	---	---	---	---	17.0
	11/18/03	---	---	---	---	---	---	---	---	---	11.0
	11/18/05	---	---	---	---	---	---	---	---	---	18.0
	06/22/05	380	230	9.4	<1	68.0	1.1	49.0	7.3	96.0	16.0
	11/08/05	---	---	---	---	---	---	---	---	---	17.0
	11/14/06	---	---	---	---	---	---	---	---	---	16.0
	06/11/08	400	210	11.0	1.0	72.0	1.4	48.0	8.4	100.0	15.0
	07/07/08	---	200	---	---	---	---	---	---	---	---
	01/13/09	---	260	---	---	---	---	---	---	---	---
	04/07/09	---	210	---	---	---	---	---	---	---	---
	07/13/09	---	200	---	---	---	---	---	---	---	---
	01/06/10	---	230	---	---	---	---	---	---	---	---
	04/08/10	---	220	---	---	---	---	---	---	---	---
	07/14/10	---	220	---	---	---	---	---	---	---	---
	10/05/10	---	180	---	---	---	---	---	---	---	---
	11/16/10	---	---	---	---	---	---	---	---	---	15.0
	01/12/11	---	170	---	---	---	---	---	---	---	---
	08/17/11	380	210	13.0	1.2	65.0	1.7	48.0	8.4	100.0	16.0
	08/17/11	---	230	---	---	---	---	---	---	---	---
	11/02/11	---	200	---	---	---	---	---	---	---	15.0
	02/09/12	---	200	---	---	---	---	---	---	---	---
	05/03/12	---	220	---	---	---	---	---	---	---	---
	08/09/12	---	200	---	---	---	---	---	---	---	---
	11/02/12	---	220	---	---	---	---	---	---	---	14.0
	02/10/13	---	230	---	---	---	---	---	---	---	---
	05/02/13	---	200	---	---	---	---	---	---	---	---
	09/10/13	---	220	---	---	---	---	---	---	---	---
	11/07/13	---	250	---	---	---	---	---	---	---	14.0
	02/05/14	---	200	---	---	---	---	---	---	---	---
	05/20/14	---	180	---	---	---	---	---	---	---	---
	08/07/14	370	190	9.4	<1.0	68.0	1.2	51.0	8.9	110.0	15.0
	11/05/14	---	230	---	---	---	---	---	---	---	15.0
	02/04/15	---	110	---	---	---	---	---	---	---	---
	05/14/15	---	230	---	---	---	---	---	---	---	---
	08/07/15	---	190	---	---	---	---	---	---	---	---
	11/17/15	---	240	---	---	---	---	---	---	---	13.0

ND-Not Detected

TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l								
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3	
No. 235 (Old 137)	02/10/16	---	240	---	---	---	---	---	---	---	---	---
8S/3W-1Q1	05/11/16	---	210	---	---	---	---	---	---	---	---	---
(cont.)	08/02/16	---	230	---	---	---	---	---	---	---	---	---
	11/02/16	---	210	---	---	---	---	---	---	---	---	3.1 as N
	02/03/17	---	230	---	---	---	---	---	---	---	---	---
	05/02/17	---	220	---	---	---	---	---	---	---	---	---
	08/04/17	380	220	10.0	<0.35	67.0	1.3	48.0	8.6	78.0	---	3.1 as N
No. 236	09/01/17	1000	670	74.0	24.0	100.0	6.1	110.0	230.0	160.0	---	0.44 as N
8S/2W-12K												
No. 301	07/29/92	500	290	20.0	6.0	80.0	1.0	45.0	56.0	143.0	---	<1
7S/3W-18Q1	02/27/97	580	350	45.0	16.0	48.0	2.0	49.0	54.0	200.0	---	4.0
	08/15/97	---	---	---	---	---	---	---	---	---	---	6.0
	12/27/00	570	360	49.0	15.0	53.0	2.0	55.0	57.0	180.0	---	7.0
	02/22/02	---	---	---	---	---	---	---	---	---	---	<2
	05/14/02	550	340	---	---	---	---	57.0	50.0	---	---	3.0
	12/11/02	580	350	---	---	---	---	---	---	---	---	2.5
No. 302	04/11/88	690	360	36.0	6.0	100.0	1.0	77.0	65.0	192.0	---	<1
7S/3W-18H	05/15/91	760	425	58.0	9.0	87.0	2.0	83.0	72.0	220.0	---	<1
	05/14/92	---	270	12.0	2.0	90.0	<1	48.0	48.0	---	---	---
	05/05/94	870	530	69.0	16.0	84.0	2.0	110.0	88.0	238.0	---	<1
	05/16/95	---	---	---	---	---	---	---	---	---	---	<1
	07/16/96	530	320	---	---	---	---	60.0	54.0	---	---	2.0
	05/13/97	560	500	73.0	14.0	94.0	2.0	110.0	86.0	240.0	---	<2
	07/27/99	---	---	---	---	---	---	---	---	---	---	<2
	05/17/00	520	320	11.0	1.0	99.0	<1	51.0	50.0	130.0	---	<2
	06/13/00	520	310	---	---	---	---	---	---	---	---	<2
	07/11/00	---	---	---	---	---	---	---	---	---	---	<2
	12/20/01	790	500	---	---	---	---	110.0	140.0	---	---	<2
	12/11/02	870	510	---	---	---	---	---	---	---	---	ND
	06/19/03	620	370	22.0	3.8	95.0	<1	77.0	63.0	140.0	---	<2
	03/17/04	830	510	---	---	---	---	110.0	85.0	---	---	<2
	06/22/04	---	---	---	---	---	---	---	---	---	---	<2
	09/21/04	900	550	---	---	---	---	110.0	82.0	---	---	<2
No. 309	08/15/90	690	370	19.0	3.0	119.0	2.0	140.0	25.0	73.0	---	5.0
7S/3W-27H	04/11/91	---	---	---	---	---	---	---	---	---	---	<.001
	09/25/91	730	365	19.0	2.0	122.0	2.0	150.0	27.0	82.0	---	5.0

ND-Not Detected

TABLE D-4

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 309	08/11/94	730	430	20.0	2.0	120.0	2.0	160.0	30.0	73.0	5.0
7S/3W-27H	02/16/95	---	---	---	---	---	---	---	---	---	18.0
(cont.)	07/16/97	---	---	---	---	---	---	---	---	---	1.1 as N
	07/23/97	---	---	---	---	---	---	---	---	---	1.2 as N
	08/20/97	---	---	---	---	---	---	---	---	---	1.1 as N
	09/03/97	---	---	---	---	---	---	---	---	---	1.1 as N
	09/18/97	---	---	---	---	---	---	---	---	---	1.1 as N
	10/03/97	790	520	21.0	2.0	130.0	2.0	170.0	33.0	85.0	6.0
	08/06/98	---	---	---	---	---	---	---	---	---	6.0
	09/16/98	---	460	---	---	---	---	---	---	---	1.4 as N
	07/20/99	---	---	---	---	---	---	---	---	---	6.0
	05/10/00	---	450	20.0	2.0	130.0	<1	---	---	85.0	---
	07/06/00	---	---	---	---	---	---	---	---	---	6.0
	08/02/00	740	450	21.0	2.0	140.0	1.0	180.0	38.0	87.0	7.0
	07/19/01	---	---	---	---	---	---	---	---	---	7.0
	11/19/02	---	---	---	---	---	---	---	---	---	5.0
	01/13/03	---	---	---	---	---	---	---	---	---	1.1 as N
	08/20/03	880	490	21.0	2.1	140.0	1.5	190.0	33.0	83.0	5.0
	01/07/04	---	---	---	---	---	---	---	---	---	6.0
	11/11/05	---	---	---	---	---	---	---	---	---	6.0
	01/04/06	---	---	---	---	---	---	---	---	---	5.4
	12/07/06	870	470	21.0	1.9	140.0	2.0	190.0	36.0	84.0	5.4
	01/10/07	---	---	---	---	---	---	---	---	---	5.3
	01/08/08	---	---	---	---	---	---	---	---	---	5.4
	08/12/08	---	470	---	---	---	---	---	---	---	---
	01/06/09	---	---	---	---	---	---	---	---	---	6.7
	02/03/09	---	450	---	---	---	---	---	---	---	---
	04/01/09	---	---	25.0	2.9	---	---	---	---	---	---
	05/11/09	---	460	---	---	---	---	---	---	---	---
	08/04/09	---	450	---	---	---	---	---	---	---	---
	01/07/10	---	---	---	---	---	---	---	---	---	5.7
	02/02/10	---	480	---	---	---	---	---	---	---	---
	05/06/10	---	500	---	---	---	---	---	---	---	---
	08/09/10	---	490	---	---	---	---	---	---	---	---
	11/10/10	---	460	---	---	---	---	---	---	---	---
	01/04/11	---	---	---	---	---	---	---	---	---	5.8
	02/02/11	---	480	---	---	---	---	---	---	---	---
	05/04/11	---	470	---	---	---	---	---	---	---	---
	08/04/11	---	480	---	---	---	---	---	---	---	---



TABLE D-4

*SANTA MARGARITA RIVER WATERSHED*  
**WATER QUALITY DATA**

**WELLS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l								
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3	
No. 309	11/02/11	---	460	---	---	---	---	---	---	---	---	---
7S/3W-27H	01/17/12	---	---	---	---	---	---	---	---	---	---	5.5
(cont.)	02/08/12	---	480	---	---	---	---	---	---	---	---	---
	05/03/12	---	490	---	---	---	---	---	---	---	---	---
	08/09/12	---	440	---	---	---	---	---	---	---	---	---
	11/02/12	---	500	---	---	---	---	---	---	---	---	---
	12/04/12	950	500	24.0	2.5	150.0	1.7	190.0	45.0	92.0	---	5.8
	01/10/13	---	---	---	---	---	---	---	---	---	---	5.5
	02/05/13	---	490	---	---	---	---	---	---	---	---	---
	05/02/13	---	470	---	---	---	---	---	---	---	---	---
	08/14/13	---	460	---	---	---	---	---	---	---	---	---
	11/05/13	---	460	---	---	---	---	---	---	---	---	---
	01/21/14	---	---	---	---	---	---	---	---	---	---	5.9
	02/05/14	---	480	---	---	---	---	---	---	---	---	---
	05/23/14	---	560	---	---	---	---	---	---	---	---	---
	06/26/14	---	480	---	---	---	---	200.0	---	---	---	---
	06/26/14	---	510	---	---	---	---	220.0	---	---	---	---
	06/26/14	---	510	---	---	---	---	200.0	---	---	---	---
	06/26/14	---	530	---	---	---	---	240.0	---	---	---	---
	06/26/14	---	510	---	---	---	---	240.0	---	---	---	---
	06/26/14	---	430	---	---	---	---	210.0	---	---	---	---
	06/26/14	---	480	---	---	---	---	200.0	---	---	---	---
	06/26/14	---	410	---	---	---	---	180.0	---	---	---	---
	08/07/14	---	480	---	---	---	---	---	---	---	---	---
	11/05/14	---	520	---	---	---	---	---	---	---	---	---
	01/08/15	---	---	---	---	---	---	---	---	---	---	6.5
	02/06/15	---	590	---	---	---	---	---	---	---	---	---
	05/14/15	---	490	---	---	---	---	---	---	---	---	---
	08/06/15	---	510	---	---	---	---	---	---	---	---	---
	11/18/15	---	490	---	---	---	---	---	---	---	---	---
	12/09/15	910	480	25.0	2.6	150.0	1.5	200.0	51.0	94.0	---	1.4 as N
	01/12/16	---	---	---	---	---	---	---	---	---	---	1.5 as N
	02/10/16	---	540	---	---	---	---	---	---	---	---	---
	05/05/16	---	520	---	---	---	---	---	---	---	---	---
	08/02/16	---	510	---	---	---	---	---	---	---	---	---
	11/08/16	---	520	---	---	---	---	---	---	---	---	---
	01/17/17	---	---	---	---	---	---	---	---	---	---	1.3 as N
	02/03/17	---	500	---	---	---	---	---	---	---	---	---
	05/03/17	---	510	---	---	---	---	---	---	---	---	---
	08/09/17	---	510	---	---	---	---	---	---	---	---	---

ND-Not Detected

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TABLE D-5

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED ON INDIAN RESERVATIONS**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
Pechanga Indian Reservation											
8S/2W-28M03	08/26/99	562	319	38.0	13.0	52.0	0.8	68.0	15.0	---	2.59 as N
	08/12/03	534	344	40.7	14.7	53.5	0.9	58.9	14.1	---	4.21 as N
	08/19/04	708	440	61.4	22.5	51.0	0.9	87.6	52.0	---	6.16 as N
	08/02/05	746	459	69.7	26.9	44.3	1.0	87.8	61.8	---	5.09 as N
	08/02/06	678	413	55.9	21.0	42.6	0.9	74.9	43.1	153.0	8.25 as N
	09/04/07	663	392	53.7	19.5	51.1	0.9	70.1	32.1	158.0	8.32 as N
8S/2W-28M05	09/01/09	457	253	10.7	0.5	77.7	0.5	65.6	17.4	91.0	0.08 as N
	07/26/10	---	261	11.0	0.9	83.3	0.5	78.3	17.1	---	E 0.048
	08/31/11	482	272	10.7	1.0	86.0	0.5	77.8	16.9	88.0	0.1
	08/13/13	475	281	12.3	1.1	81.9	0.5	77.6	15.8	87.9	<.177
	09/17/14	475	256	10.9	1.0	83.9	0.5	74.2	15.1	85.9	0.2
	07/29/15	459	255	10.0	1.0	79.8	0.4	72.9	15.8	85.0	<0.177
	08/10/16	487.41	271	13.3	1.3	91.6	0.4	76.5	15.4	105.0	<0.04
	07/19/17	465	262	11.2	0.944	85.4	0.53	73.2	15.4	96.5	<0.177
8S/2W-28Q02	10/05/89	629	378	48.0	19.0	49.0	0.7	76.0	14.0	169.0	4.2 as N
	07/26/90	613	383	48.0	18.0	47.0	0.6	75.0	12.0	171.0	3.9 as N
	07/18/91	618	379	49.0	18.0	49.0	0.7	83.0	14.0	172.0	3.0 as N
	07/28/93	620	400	51.0	20.0	47.0	0.7	63.0	15.0	174.0	9.6 as N
	08/17/94	641	396	51.0	21.0	50.0	0.8	60.0	17.0	179.0	11.0 as N
	08/31/95	653	396	53.0	21.0	48.0	0.7	60.0	19.0	184.0	12.0 as N
	08/28/96	---	---	---	---	---	---	---	---	---	11.0 as N
	08/12/97	614	411	47.0	19.0	47.0	0.7	63.0	15.0	176.0	8.9 as N
	08/19/98	625	402	47.0	20.0	47.0	0.7	60.0	14.0	---	9.85 as N
	08/21/02	598	394	47.0	19.0	46.0	0.7	64.0	15.0	---	8.5 as N
	08/12/03	604	405	48.8	19.8	47.8	0.7	69.1	14.0	---	7.1 as N
	08/18/04	615	386	51.6	20.2	45.6	0.9	78.8	16.5	---	4.03 as N
	08/02/05	822	514	76.8	30.2	54.0	0.8	93.7	30.9	---	14.7 as N
	8S/2W-28R01	08/03/89	495	286	41.0	4.0	60.0	0.9	37.0	13.0	177.0
07/26/90		525	296	48.0	4.8	54.0	1.0	45.0	14.0	191.0	1.5 as N
07/17/91		462	261	31.0	3.2	66.0	0.8	44.0	12.0	155.0	.8 as N
07/27/93		445	269	44.0	4.4	43.0	0.5	28.0	14.0	170.0	1.9 as N
08/15/94		421	232	32.0	3.3	55.0	0.9	28.0	11.0	156.0	1.5 as N
08/30/95		375	200	21.0	2.2	55.0	0.6	31.0	11.0	129.0	.7 as N

\* - Alkalinity as CaCO3

E - Estimated

TABLE D-5

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED ON INDIAN RESERVATIONS**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
Pechanga Indian Reservation (Continued)											
8S/2W-28R01 (cont.)	08/27/96	---	---	---	---	---	---	---	---	---	1.5 as N
	08/13/97	398.0	241.0	20.0	2.1	59.0	0.6	37.0	11.0	130.0	.572 as N
	08/20/98	481.0	282.0	36.0	3.9	60.0	0.9	38.0	14.0	167.0	1.1 as N
	08/25/99	446.0	252.0	28.0	3.1	59.0	0.7	41.0	12.0	---	.758 as N
	08/22/00	456.0	265.0	29.0	3.3	61.0	0.7	39.0	14.0	---	.759 as N
	08/21/01	522.0	320.0	51.0	5.9	48.0	1.0	42.0	16.0	---	1.73 as N
	08/21/02	457	284	33.0	3.7	61.0	0.9	41.0	13.0	---	1.09 as N
	08/12/03	518	330	55.0	6.5	50.4	1.1	39.7	14.3	---	1.94 as N
	08/18/04	516	317	56.8	6.2	47.9	1.4	42.6	14.2	---	1.64 as N
	08/03/05	541	333	60.5	6.5	45.3	1.2	40.2	14.1	---	2.23 as N
	09/10/08	480	278	37.2	4.7	62.4	1.1	41.2	11.4	160.0	---
	08/04/09	543	329	50.0	5.5	55.5	1.1	38.7	18.4	194.0	1.78 as N
	07/26/10	564	335	58.3	6.6	49.9	1.1	41.9	18.7	203.0	9.9
	08/22/11	548	357	55.0	6.8	52.9	1.1	41.3	18.8	187.0	10.5
	08/21/12	507	287	44.7	5.2	60.5	1.0	39.2	17.4	178.0	8.3
	07/24/13	498	302	43.9	4.9	60.6	0.9	39.8	17.6	178.0	7.6
	09/17/14	592	339	59.3	7.2	54.7	1.2	43.4	20.8	206.0	10.0
	07/29/15	589	364	64.5	7.8	55.9	1.2	44.9	20.6	212.0	10.5
	08/10/16	587	356	62.6	7.5	54.0	1.1	44.9	19.8	257.7	2.6
	07/19/17	546	324	54.1	6.33	53.9	1.07	47.8	15.9	230	5.76
8S/2W-29A01	08/02/89	346	207	31.0	11.0	24.0	0.4	18.0	7.0	131.0	2.0 as N
	07/24/90	354	193	32.0	11.0	25.0	0.4	24.0	6.7	133.0	2.0 as N
	07/18/91	361	194	32.0	10.0	26.0	0.4	25.0	6.0	134.0	1.8 as N
	08/15/94	363	216	33.0	12.0	25.0	0.5	24.0	7.7	132.0	2.6 as N
	08/31/95	363	208	32.0	11.0	23.0	0.4	21.0	8.1	137.0	2.6 as N
	08/28/96	---	---	---	---	---	---	---	---	---	2.9 as N
	08/12/97	368	238	32.0	12.0	24.0	0.4	22.0	7.4	138.0	3.05 as N
	08/19/98	411	246	36.0	11.0	31.0	0.5	25.0	8.2	153.0	2.94 as N
	08/25/99	375	222	33.0	12.0	23.0	0.4	20.0	6.7	---	3.81 as N
	08/22/00	374	237	33.0	12.0	24.0	0.4	18.0	7.3	---	3.48 as N
	08/21/01	374	236	34.0	12.0	24.0	0.5	20.0	7.3	---	3.56 as N
	08/02/05	382	243	38.7	11.6	27.1	0.5	27.6	7.7	---	2.79 as N
8S/2W-29A02	08/02/06	392	242	36.2	10.9	26.6	0.4	29.4	7.9	139.0	2.64 as N
	08/04/09	394	245	29.8	11.3	32.2	0.6	34.5	7.4	133.0	0.81 as N

\* - Alkalinity as CaCO3

E - Estimated

TABLE D-5

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED ON INDIAN RESERVATIONS**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
Pechanga Indian Reservation (Continued)											
8S/2W-29A02 (cont.)	07/26/10	---	268	37.5	11.9	32.5	0.6	38.5	12.9	---	E 10.8
	08/22/11	434	299	35.9	12.0	35.7	0.6	41.9	12.7	132.0	9.3
	08/21/12	465	298	42.0	13.2	38.1	0.6	42.4	15.8	148.0	11.8
	07/24/13	464	297	39.7	13.6	37.0	0.6	45.6	16.3	147.0	11.3
	09/17/14	481	284	38.7	13.2	36.4	0.6	46.0	16.3	145.0	11.2
	07/29/15	485	298	41.3	14.4	38.5	0.6	47.9	18.6	146.0	12.1
	08/10/16	521.53	317.12	47.4	14.4	42.0	0.4	52.0	22.9	179.8	3.8
	07/19/17	505	311	44.6	13.9	38.2	0.65	49.7	20.9	175	14.9
8S/2W-29B02	03/01/90	456	257	5.5	0.1	89.0	0.8	66.0	22.0	100.0	---
	03/06/90	456	256	5.9	0.1	90.0	0.7	66.0	20.0	99.0	<0.1 as N
8S/2W-29B03	03/06/90	478	275	14.0	1.9	84.0	0.8	65.0	16.0	123.0	<0.1 as N
8S/2W-29B05	03/02/90	397	229	29.0	9.5	43.0	1.2	35.0	4.9	141.0	1.8 as N
8S/2W-29B06	03/02/90	406	259	34.0	11.0	38.0	0.8	38.0	10.0	143.0	---
	03/06/90	427	240	32.0	11.0	40.0	1.0	40.0	8.1	148.0	1.2 as N
8S/2W-29B07	03/07/90	396	230	8.6	2.5	71.0	0.9	51.0	11.0	102.0	<0.1 as N
	08/16/90	371	199	8.4	1.8	69.0	0.8	50.0	14.0	106.0	<0.1 as N
8S/2W-29B08	03/07/90	464	272	31.0	9.4	52.0	1.2	58.0	12.0	134.0	0.45 as N
	08/16/90	458	261	34.0	9.1	48.0	1.1	59.0	17.0	135.0	0.4 as N
8S/2W-29B09	03/07/90	343	210	21.0	9.2	39.0	1.0	24.0	6.7	131.0	1.3 as N
	08/17/90	317	197	26.0	10.0	26.0	1.1	22.0	3.4	130.0	1.6 as N
8S/2W-29B10	08/19/98	367	223	12.0	0.6	75.0	0.6	50.0	10.0	121.0	<.05 as N
	08/26/99	393	219	12.0	0.7	68.0	0.6	46.0	11.0	---	<.05 as N

\* - Alkalinity as CaCO3

E - Estimated

TABLE D-5

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED ON INDIAN RESERVATIONS**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
Pechanga Indian Reservation (Continued)											
8S/2W-29B10 (cont.)	08/22/00	393	228	12.0	0.8	69.0	0.6	43.0	11.0	---	<.05 as N
	08/21/01	398	231	11.0	0.6	72.0	0.6	49.0	15.0	---	.04 as N
	08/12/03	387	239	11.3	0.6	75.1	0.6	47.2	18.4	---	2.41 as N
	08/18/04	390	232	11.2	0.6	72.6	0.6	48.0	20.8	---	<.06 as N
	08/02/05	404	242	12.5	0.7	69.9	0.7	47.2	23.2	---	<.06 as N
	08/03/06	381	222	12.3	0.8	62.8	0.5	40.3	17.3	110.0	<.06 as N
	09/04/07	430	237	12.1	0.7	78.3	0.7	47.2	27.5	107.0	<.06 as N
	09/15/08	420	242	11.2	0.7	77.3	0.6	45.3	29.6	106.0	E .03 as N
	08/04/09	381	217	12.1	0.8	66.0	0.6	39.9	23.7	108.0	E .03 as N
	07/26/10	394	220	11.4	0.7	71.6	0.6	42.2	26.0	107.0	E 0.079
	08/22/11	421	265	11.5	0.7	75.5	0.6	45.5	31.0	99.0	0.1
	08/21/12	432	245	12.8	0.7	82.4	0.6	47.1	34.9	106.0	<.177
	07/24/13	451	264	13.6	0.8	83.6	0.6	49.2	43.1	107.0	<.177
	09/17/14	490	274	14.8	0.9	84.8	0.7	51.1	52.0	105.0	0.2
	07/29/15	498	289	16.2	1.0	91.7	0.8	52.9	56.5	107.0	<0.177
	08/10/16	535	315	18.2	1.0	92.5	0.6	55.3	65.8	121.0	<0.04
	07/19/17	544	324	20.3	1.13	93.4	0.80	56.2	69.1	123	<0.168
8S/2W-29B11	08/02/06	483	285	30.1	7.8	51.5	0.9	57.1	11.8	138.0	1.44 as N
	08/04/09	497	281	33.0	8.5	51.0	1.0	52.6	16.6	140.0	2.33 as N
	07/26/10	---	287	34.7	9.1	53.4	1.1	56.8	15.3	---	E 10.3
	08/22/11	482	308	32.7	9.5	53.0	1.0	54.2	16.0	131.0	10.9
	08/21/12	492	300	35.9	10.0	55.9	1.0	54.3	17.9	142.0	11.9
	07/24/13	505	300	36.2	10.1	57.2	1.1	54.5	20.4	144.0	12.3
	09/17/14	542	315	37.1	10.4	55.3	1.1	56.2	23.9	145.0	13.8
	07/29/15	530	315	39.9	11.3	56.4	1.2	56.5	24.8	146.0	12.5
	08/10/16	530.3	313.41	40.4	10.9	58.0	1.0	57.5	24.6	173.5	3.0
07/19/17	536	314	39.9	10.6	55.1	1.21	58.5	24.5	174	12.8	
8S/2W-29F3	08/03/06	378	251	21.9	7.7	38.9	1.9	47.2	10.4	104.0	0.46 as N
8S/2W-29J02	08/26/99	565	329	39.0	15.0	47.0	1.6	66.0	14.0	---	2.67 as N
	08/22/00	562	337	39.0	15.0	47.0	1.5	65.0	14.0	---	2.70 as N
	08/21/01	574	351	40.0	15.0	50.0	1.6	70.0	15.0	---	2.63 as N
	08/21/02	554	345	41.0	16.0	50.0	1.8	68.0	14.0	---	2.93 as N
	08/12/03	592	372	45.4	16.6	54.2	1.7	78.2	15.4	---	2.41 as N
	08/19/04	598	362	48.8	16.9	---	1.9	80.0	17.0	---	3.06 as N

\* - Alkalinity as CaCO3

E - Estimated

TABLE D-5

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED ON INDIAN RESERVATIONS**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
Pechanga Indian Reservation (Continued)											
8S/2W-29J03	08/02/06	532	337	40.3	13.2	43.1	1.3	44.8	17.5	152.0	8.48 as N
8S/2W-34B04	10/05/89	617	371	51.0	8.2	67.0	1.0	58.0	30.0	192.0	.47 as N
	07/26/90	605	341	50.0	8.0	65.0	1.0	61.0	31.0	194.0	.50 as N
	07/18/91	564	339	46.0	7.4	67.0	1.0	53.0	27.0	185.0	.87 as N
	07/27/93	267	170	18.0	2.8	34.0	0.5	14.0	9.7	96.0	1.10 as N
8S/2W-35D01	08/03/89	660	358	43.0	5.5	87.0	1.2	78.0	35.0	169.0	.35 as N
	07/26/90	669	384	41.0	4.9	92.0	1.5	82.0	36.0	176.0	.40 as N
	07/17/91	641	371	40.0	4.4	98.0	1.7	81.0	36.0	175.0	.39 as N
	07/27/93	638	374	49.0	5.9	79.0	1.8	71.0	27.0	199.0	.34 as N
	08/16/94	601	334	30.0	3.2	95.0	1.5	71.0	29.0	163.0	.16 as N
	08/30/95	587	322	33.0	4.0	81.0	1.5	68.0	25.0	178.0	.11 as N
	08/27/96	596	352	28.0	3.3	92.0	1.4	72.0	29.0	167.0	.10 as N

\* - Alkalinity as CaCO3

E - Estimated

TABLE D-5

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED ON INDIAN RESERVATIONS**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
Cahuilla Indian Reservation											
7S/2E14M01	12/14/83	1220	708	130.0	40.0	45.0	11.0	53.0	390.0	98.0	0.04 as N
7S/2E-23H01	05/18/06	428	288	39.6	5.7	33.7	3.1	31.0	14.0	---	8.26 as N
7S/2E-23Q01	05/18/06	245	160	15.6	2.6	26.6	2.5	29.5	5.4	---	1.07 as N
7S/2E-26B03	07/11/07	296	197.0	23.7	3.0	31.0	2.9	33.9	7.6	76.0	1.79 as N
7S/2E-33N1	08/02/89	355	206	16.0	2.1	53.0	3.5	48.0	15.0	78.0	.73 as N
7S/2E-36J01	02/03/84	---	252	43.0	4.4	36.0	4.8	32.0	5.4	---	3.40 as N
7S-3E-14P03	08/10/05	1080	741	113.0	42.4	70.0	9.7	66.8	296.0	---	.15 as N
7S-3E-20J05	08/23/07	753	466	49.4	7.1	89.2	3.2	87.9	83.6	110.0	6.88 as N
7S/3E-21L01	05/27/53	750	---	66.0	20.0	70.0	---	67.0	76.0	---	---
	08/02/89	1050	675	90.0	19.0	100.0	3.5	84.0	190.0	216.0	3.1 as N
	08/01/90	1020	610	87.0	18.0	100.0	3.4	85.0	180.0	217.0	3.0 as N
	07/17/91	995	636	93.0	18.0	100.0	3.7	95.0	180.0	206.0	2.5 as N
	08/23/07	1040	677	96.1	20.2	90.9	3.7	96.2	169.0	190.0	3.42 as N
7S/3E-31L02	02/03/84	---	184	23.0	4.8	24.0	2.9	24.0	0.0	---	2.0 as N
7S/3E-31N01	07/27/84	684	412	69.0	12.0	37.0	---	75.0	12.0	---	---
7S/3E-34E01	07/07/76	---	---	25.0	4.6	21.0	4.2	26.0	7.3	---	4.0 as N
	09/22/77	---	---	25.0	4.9	23.0	4.4	25.0	6.9	---	---
	07/19/78	---	---	26.0	5.1	22.0	4.5	24.0	6.5	---	3.7 as N
	06/28/79	---	190	26.0	5.0	22.0	4.3	24.0	6.0	---	---
	07/02/80	---	---	26.0	4.9	23.0	4.7	28.0	6.9	---	3.7 as N
	07/08/81	309	---	27.0	5.0	23.0	4.7	26.0	7.7	81.0	4.1 as N
	06/29/82	311	---	27.0	5.3	27.0	4.9	27.0	10.0	88.0	4.0 as N
	08/10/83	306	---	27.0	5.0	23.0	4.8	29.0	7.7	90.0	3.8 as N
	08/21/84	319	---	30.0	5.3	24.0	4.3	29.0	7.2	92.0	3.7 as N
	08/01/85	321	---	28.0	5.2	24.0	4.6	29.0	7.0	86.0	3.5 as N

\* - Alkalinity as CaCO3

E - Estimated



TABLE D-5

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED ON INDIAN RESERVATIONS**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
Cahuilla Indian Reservation (Continued)											
7S/3E-34E01 (cont.)	08/14/87	332.0	207	29.0	5.6	25.0	4.8	28.0	8.0	96.0	3.5 as N
	07/20/89	338.0	204	30.0	5.6	26.0	5.0	29.0	7.0	98.0	3.3 as N
	07/31/91	337.0	109	31.0	5.5	25.0	4.5	31.0	6.3	99.0	3.5 as N
	07/16/91	335.0	209	31.0	5.9	26.0	4.7	32.0	6.3	99.0	3.5 as N
8S/2E-4P01	01/21/86	1870	---	190.0	54.0	64.0	7.9	480.0	13.0	136.0	4.0 as N
	05/18/06	794	441	59.8	19.3	44.1	4.4	101.0	10.4	---	5.45 as N
8S/3E-2A01	02/05/86	591	---	54.0	11.0	43.0	3.2	93.0	21.0	103.0	3.4 as N
8S/3E-2D01	07/08/81	293	---	17.0	2.2	39.0	1.7	30.0	8.8	68.0	2.5 as N
	07/24/85	279	---	11.0	1.2	42.0	1.5	28.0	8.0	71.0	2.1 as N
8S/3E-2E01	12/07/50	---	---	30.0	10.0	53.0	---	50.0	14.0	---	---
	11/15/51	---	---	38.0	8.0	43.0	---	50.0	6.0	---	---
	05/27/76	---	---	39.0	9.4	32.0	2.2	49.0	12.0	---	4.9 as N
	09/22/77	---	280	39.0	9.6	33.0	2.6	42.0	8.4	---	---
	07/19/78	---	---	42.0	10.0	36.0	2.4	57.0	13.0	---	5.7 as N
	06/28/79	---	284	40.0	9.0	32.0	2.8	42.0	9.0	---	---
	07/02/80	---	---	34.0	6.5	22.0	2.4	27.0	7.4	---	0.0
	07/08/81	296	---	33.0	4.8	19.0	1.9	36.0	1.0	61.0	2.0 as N
	06/29/82	494	---	43.0	9.7	41.0	3.0	54.0	14.0	127.0	5.7 as N
	07/26/83	427	---	40.0	9.6	32.0	3.0	42.0	9.7	131.0	4.8 as N
	08/21/84	428	---	42.0	9.3	32.0	2.9	39.0	9.6	129.0	4.7 as N
	08/13/87	428	---	42.0	9.3	32.0	2.9	39.0	9.6	129.0	4.6 as N
	08/10/05	424	---	276	39.0	9.4	32.0	3.2	37.0	9.6	129.0
8S/3E-2K01	08/10/05	424	283	42.4	10.2	33.6	3.4	39.9	9.1	---	4.88 as N
	09/22/77	---	---	43.0	10.0	48.0	3.2	65.0	18.0	---	---
	07/19/78	---	---	42.0	9.8	48.0	3.4	68.0	17.0	---	3.7 as N
	06/28/79	---	342	46.0	10.0	46.0	3.1	69.0	19.0	---	---
	07/02/80	---	---	64.0	12.0	92.0	2.7	140.0	48.0	---	4.1 as N
	06/29/82	454	---	41.0	10.0	38.0	3.7	46.0	13.0	129.0	3.6 as N
	08/10/83	435	---	39.0	9.5	32.0	3.6	43.0	13.0	133.0	3.6 as N
	08/21/84	561	---	50.0	11.0	48.0	3.1	68.0	27.0	139.0	4.0 as N
	08/01/85	472	---	41.0	9.7	34.0	3.4	48.0	15.0	125.0	3.7 as N
	08/13/87	451	---	282	40.0	9.9	31.0	3.4	41.0	16.0	133.0
07/20/89	531	---	323	46.0	11.0	41.0	3.4	60.0	22.0	136.0	3.6 as N

\* - Alkalinity as CaCO3

E - Estimated

TABLE D-5

*SANTA MARGARITA RIVER WATERSHED*  
**WATER QUALITY DATA**

**WELLS SAMPLED ON INDIAN RESERVATIONS**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
Cahuilla Indian Reservation (Continued)											
8S/3E-2K01	08/01/90	508	310	46.0	11.0	38.0	3.3	60.0	19.0	134.0	3.8 as N
(cont.)	07/16/91	522	306	50.0	10.0	39.0	3.3	61.0	21.0	139.0	3.7 as N

\* - Alkalinity as CaCO3  
E - Estimated

TABLE D-6

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED ON CAMP PENDLETON**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
10S/5W-26C1 (Bldg 2201)	10/1/60	1060	639	66.5	24	116	4.5	160	110	264	trace
	6/1/62	1190	718	60	33.2	123	3.8	190	124	232	1.4
	7/1/64	1217	734	79.2	27.8	144.0	1.6	180.0	150.0	248.9	---
	5/1/65	1485	896	75.2	30.3	158.0	2.4	180.0	120.0	253.8	0.0
	1/1/66	---	808	76.8	33.2	157.0	3.4	170.0	180.0	292.8	0.6
	6/1/66	---	684	75.2	26.8	112.0	2.4	128.0	148.0	263.5	3.9
	1/1/67	---	856	81.6	26.3	138.0	3.5	162.0	140.0	310.0	3.0
	8/1/67	---	880	99.2	38.1	156.0	3.6	160.0	230.0	322.1	5.3
	2/1/68	---	768	65.6	25.4	156.0	3.4	160.0	164.0	236.7	0.0
	4/1/69	---	852	66.0	32.0	162.0	3.2	166.0	210.0	249.0	0.0
	11/1/69	---	844	87.0	31.0	140.0	3.6	164.0	180.0	262.0	0.0
	7/1/70	---	672	99.0	32.0	139.0	3.0	158.0	205.0	259.0	2.7
	12/1/70	1180	712	83.0	28.0	138.0	3.0	166.0	170.0	266.0	0.0
	9/1/71	1062	640	83.0	27.0	128.0	2.8	136.0	175.0	278.0	0.4
	5/1/72	1130	681	56.0	24.0	140.0	2.8	136.0	165.0	220.0	0.0
	10/1/72	1165	703	64.0	27.0	159.0	3.6	132.0	180.0	293.0	1.8
	10/1/73	1140	688	72.0	27.0	131.0	3.8	144.0	190.0	200.0	0.3 as N
	2/1/76	1140	688	70.4	28.3	143.0	3.1	132.0	182.0	273.3	1.8 as N
	9/1/76	1100	663	67.0	25.0	152.0	2.5	152.0	131.0	327.0	2.8 as N
	3/1/77	1080	651	67.0	28.0	173.0	3.1	128.0	160.0	254.0	4.4 as N
	10/1/78	1150	694	70.0	25.0	120.0	3.5	139.0	145.0	253.8	<1 as N
	6/1/79	1100	663	72.0	27.3	125.0	3.0	134.0	142.0	258.6	<1 as N
	10/1/80	1200	693	78.8	23.7	136.0	3.3	172.0	136.0	273.3	0.2 as N
	4/1/81	1160	737	82.4	22.4	126.0	3.6	140.0	134.0	268.4	<0.5 as N
	11/1/81	1300	863	97.6	31.5	169.0	2.2	204.0	209.0	248.9	0.8 as N
	11/1/81	950	573	74.0	18.3	120.0	2.1	144.0	130.0	224.5	0.3 as N
	5/1/82	1100	663	80.8	26.6	140.0	1.5	181.0	138.0	268.4	<0.5 as N
	3/1/83	1000	603	84.0	20.5	144.0	3.2	152.0	143.0	273.3	<0.5 as N
5/1/84	1150	694	80.0	27.6	126.0	3.1	133.0	150.0	283.0	0.2 as N	
6/1/85	1100	680	89.0	26.0	140.0	3.0	150.0	64.0	440.0	<0.4	
9/1/85	1242	724	78.0	28.0	122.0	6.0	154.0	149.1	244.4	<0.4	
5/1/86	1387	750	85.2	29.1	130.7	4.3	166.0	130.8	242.6	<1	
06/89	1302	734	78.1	23.0	85.9	---	136.0	145.0	212.0	<0.4	
01/91	1271	---	81.0	36.1	152.0	---	166.0	---	---	<0.04	
06/91	1290	752	99.0	32.4	133.0	---	167.0	136.0	237.0	<0.4	
03/92	1210	792	91.0	29.8	146.0	---	159.0	135.0	279.0	<0.4	
06/93	1290	764	68.3	27.5	149.0	---	168.0	130.0	265.0	<0.4	

ND - Not Detected

TABLE D-6

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED ON CAMP PENDLETON**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
10S/5W-26C1 (Bldg 2201) (cont.)	03/94	1210	783	100.0	37.1	100.0	---	145.0	167.0	---	2.2
	08/94	1160	741	87.5	35.5	96.1	---	141.0	187.0	---	4.2
	6/29/95	1330	806	97.7	37.4	142.0	---	207.0	166.0	---	<0.04
	1/1/96	1300.0	764.0	91.0	33.0	140.0	---	177.0	142.0	363.0	---
	6/1/96	1300	751	93.0	30.0	130.0	---	164.0	156.0	252.0	---
	6/1/97	1215	758	88.0	29.0	130.0	<2.0	151.0	148.0	292.0	<2 as N
	12/29/97	1200	690	81.0	29.0	140.0	3.0	155.0	150.0	250.0	ND
	4/16/98	1200	790	83.0	31.0	101.0	3.0	165.0	156.0	240.0	ND
	6/10/98	1230	714	85.0	30.0	136.0	3.0	163.0	158.0	293.0	ND
	2/1/99	1250	731	84.0	29.0	127.0	3.0	160.0	140.0	281.0	ND
	4/28/99	1220	769	88.0	30.0	127.0	3.0	168.0	160.0	317.0	ND
5/21/01	1300	794	98.0	36.0	130.0	3.0	173.0	179.0	317.0	ND	
10S/5W-18M5 (Bldg 23073) (Previously reported as 10S/4W-18M4)	06/89	1156	688	74.6	24.4	67.9	---	130.0	138.0	197.0	8.9
	01/90	1120	630	86.4	32.3	101.0	---	156.0	166.0	210.0	<0.05
	04/90	1160	720	98.8	34.8	107.0	---	152.0	146.0	218.0	1.4
	01/91	1202	---	84.1	40.5	117.0	---	162.0	153.0	---	<0.04
	06/91	1180	736	102.0	37.1	106.0	---	163.0	138.0	197.0	<0.4
	03/94	1020	658	69.6	27.8	104.0	---	135.0	140.0	---	0.9
	08/94	1110	684	81.4	32.2	178.0	---	144.0	157.0	---	<0.44
	6/29/95	1170	679	95.3	35.2	113.0	---	145.0	116.0	---	13.8
	6/1/96	1100	682	86.0	32.0	95.0	---	155.0	261.0	210.0	<0.0
	2/1/97	1180	640	79.0	32.0	110.0	---	142.0	162.0	190.0	<2 as N
	6/1/97	1117	709	85.0	33.0	110.0	<5.0	150.0	164.0	223.0	<2 as N
	12/12/97	1100	700	82.0	33.0	110.0	3.0	141.0	157.0	220.0	ND
	3/15/98	1100	710	83.0	33.0	100.0	3.0	182.0	158.0	150.0	ND
	6/4/98	1200	720	85.0	34.0	119.0	4.0	159.0	154.0	281.0	ND
	2/1/99	1020	613	70.0	30.0	85.0	4.0	130.0	85.0	179.0	8.0
	5/11/00	1020	709	81.0	33.0	94.0	4.0	146.0	149.0	220.0	ND
	8/17/00	1160	728	83.0	33.0	89.0	4.0	161.0	178.0	232.0	ND
	2/22/01	1200	736	85.0	35.0	116.0	4.0	164.0	180.0	244.0	0.7
	4/18/01	1200	606	85.0	34.0	112.0	4.0	154.0	177.0	232.0	ND
9/19/01	1250	761	90.0	37.0	115.0	4.0	166.0	188.0	232.0	ND	
11/8/01	1290	737	91.0	37.0	118.0	3.0	181.0	207.0	256.0	0.0	
2/14/02	1260	781	89.0	36.0	123.0	4.6	170.0	189.0	255.0	1.3	
4/17/02	1250	755	90.0	37.0	116.0	4.1	175.0	195.0	200.0	1.0	
5/20/02	1290	750	92.0	38.0	110.0	4.0	157.0	194.0	180.0	0.6	

ND - Not Detected

TABLE D-6

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED ON CAMP PENDLETON**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
10S/5W-18M5	7/22/02	1260.0	753.0	90.0	37.0	114.0	4.0	171.0	196.0	200.0	0.0
(Bldg 23073)	1/1/03	1350	816	96.0	40.0	131.0	4.6	160.0	201.0	193.0	0.0
(Previously	4/4/03	1210	738	95.0	27.0	118.0	3.9	175.0	210.0	192.0	0.0
reported as	10/1/03	1290	752	91.0	37.0	134.0	5.0	167.0	193.0	199.0	0.0
10S/4W-18M4)	1/4/04	1230	717	93.0	38.0	111.0	6.0	159.0	194.0	173.0	0.0
(cont.)	4/4/04	1280	722	82.0	36.0	112.0	6.0	168.0	213.0	180.0	2.2
	7/1/04	1080	739	88.0	37.0	92.0	7.0	156.0	198.0	190.0	0.0
	11/1/04	1230	563	91.0	38.0	124.0	4.8	172.0	215.0	175.0	0.0
	1/1/05	1240	687	96.0	39.0	124.0	4.0	172.0	215.0	190.0	0.0
	4/1/07	1240	770	98.0	40.0	100.0	3.8	160.0	220.0	240.0	0.0
	4/10/08	1370	908	100.0	42.0	110.0	3.7	180.0	240.0	234.0	<2
	4/16/09	1300	800	97.0	39.0	120.0	3.7	140.0	200.0	220.0	8.7
	8/11/10	1300	780	97.0	39.0	110.0	3.6	180.0	220.0	220.0	<2
	4/22/11	1300	810	90.0	37.0	110.0	3.6	170.0	230.0	220.0	<2
	4/20/12	1200	810	94.0	38.0	120.0	3.8	160.0	220.0	240.0	2.0
	4/18/13	1200	780	88.0	37.0	100.0	3.9	160.0	200.0	210.0	<2
	3/18/15	1400	890	100.0	42.0	130.0	3.7	170.0	240.0	240.0	<2
	4/27/16	1350	912	95.0	40.7	120.0	3.8	180.0	267.0	212.0	0.3
	3/17/17	1400	870	100.0	43.0	120.0	3.8	190.0	260.0	240.0	<0.4 as N
10S/5W-23J1	5/1/56	1090	685	61.5	24.3	142.0	---	142.0	110.0	293.0	0.1
(Bldg 2301)	12/1/56	1060	666	67.0	27.0	96.0	---	124.0	85.0	274.0	---
(Replaced by Well	12/1/57	---	780	66.3	23.9	159.0	---	138.0	155.0	308.0	10.6
10S/5W-23J8	5/1/59	1100	691	75.2	25.3	112.0	---	136.0	152.0	297.7	---
(Bldg 23001))	1/1/60	1120	704	72.7	27.3	116.5	---	112.0	144.0	291.0	---
	10/1/60	1045	657	63.2	21.4	99.0	3.6	140.0	112.0	242.0	0.0
	5/1/61	1280	770	76.0	36.5	136.0	3.0	124.0	195.0	299.6	0.0
	5/1/62	1133	712	68.8	30.3	136.0	2.0	128.0	175.0	275.7	---
	1/1/63	1111	698	72.0	35.1	127.0	2.8	128.0	199.0	268.4	---
	6/1/63	1108	696	78.4	25.4	118.0	2.9	148.0	130.0	258.6	0 as N
	7/1/64	1165	732	74.4	27.8	128.0	1.2	139.0	160.0	268.4	---
	5/1/65	1130	710	80.0	26.4	145.0	2.1	148.0	120.0	268.4	0.1
	1/1/66	---	736	88.0	18.1	142.0	2.8	124.0	155.0	263.5	1.8
	6/1/66	---	736	75.2	29.3	138.0	2.7	145.0	175.0	295.2	4.8
	1/1/67	---	744	76.8	25.9	118.0	3.0	136.0	125.0	287.9	2.2
	8/1/67	---	680	70.4	28.3	128.0	2.3	140.0	100.0	292.8	8.4
	2/1/68	---	660	48.0	19.5	130.0	2.8	124.0	119.0	234.0	6.1

ND - Not Detected

TABLE D-6

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED ON CAMP PENDLETON**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
10S/5W-23J1	4/1/69	---	708	70.0	28.0	126.0	2.5	128.0	170.0	278.0	0.0
(Bldg 2301)	11/1/69	---	684	73.0	28.0	126.0	2.8	138.0	165.0	273.0	0.0
(Replaced by Well	5/1/70	---	716	74.0	25.0	122.0	0.1	134.0	170.0	210.0	4.4
10S/5W-23J8	12/1/70	1090	385	78.0	25.0	126.0	2.6	142.0	170.0	250.0	3.1
(Bldg 23001))	9/1/71	1025	644	75.0	38.0	120.0	2.7	124.0	190.0	229.0	0.9
(cont.)	5/1/72	1050	660	75.0	21.0	124.0	2.3	124.0	155.0	244.0	2.2
	10/1/73	1140	716	74.0	22.0	128.0	2.8	136.0	160.0	220.0	0.5 as N
	6/1/74	1060	680	74.0	13.0	131.0	2.9	158.0	138.0	220.0	0.01 as N
	2/1/76	1050	660	73.6	25.4	136.0	2.9	119.0	170.0	248.9	2.0 as N
	9/1/76	1100	691	58.0	32.0	146.0	2.6	140.0	148.0	321.8	2.6 as N
	3/1/77	1080	679	69.0	29.0	110.0	3.0	128.0	155.0	259.0	4.3 as N
	1/1/78	1100	691	70.0	23.0	147.0	3.0	140.0	135.0	259.0	4.4 as N
	10/1/78	1150	723	74.0	22.0	120.0	2.9	134.0	149.0	248.9	<1 as N
	4/1/79	1000	628	70.4	22.4	118.0	2.6	122.0	138.0	239.1	<1 as N
	10/1/80	1150	745	74.0	22.5	128.0	3.0	152.0	138.0	239.1	0.2 as N
	5/1/81	1020	580	67.2	17.3	116	3.1	132	111	205	<0.5 as N
	3/1/83	900	599	65.6	19.5	129.0	2.8	136.0	129.0	234.2	<0.5 as N
	12/1/83	1000	628	72.4	22.4	127.0	2.6	140.0	150.0	249.0	<0.1 as N
	5/1/84	1100	691	78.8	25.9	120.0	2.8	130.0	150.0	254.0	0.2 as N
	6/1/85	1100	691	59.0	26.0	130.0	3.0	140.0	70.0	440.0	3.5
	9/1/85	1203	705	66.0	26.0	110.0	6.0	150.0	144.0	226.6	<0.4
	06/89	1139	662	71.5	21.7	80.8	---	117.0	128.0	209.0	<0.4
	01/90	1150	632	90.6	32.4	102.0	---	160.0	170.0	214.0	<0.5
	01/91	1112	---	73.7	32.0	128.0	---	136.0	136.0	---	<0.04
	06/91	1090	662	87.4	29.7	117.0	---	140.0	121.0	204.0	<0.4
	03/92	1080	644	74.2	25.8	133.0	---	127.0	118.0	282.0	1.3
	03/93	1210	674	72.8	24.5	117.0	---	127.0	124.0	261.0	<0.4
	06/93	1090	670	63.9	25.7	119.0	---	117.0	128.0	237.0	<0.4
	03/94	1120	683	73.9	27.0	121.0	---	141.0	130.0	---	<0.4
	08/94	1160	707	78.9	28.2	129.0	---	139.0	153.0	---	<0.44
	6/29/95	1160	742	88.2	28.8	131.0	---	165.0	147.0	---	<0.04
	1/1/96	1300	690	79.0	29.0	140.0	---	147.0	131.0	292.0	---
	6/1/96	1020	674	82.0	29.0	120.0	---	134.0	129.0	204.0	---
	2/1/97	1100	650	74.0	27.0	150.0	---	126.0	172.0	245.0	<2 as N
	3/1/97	1073	630	77.0	28.0	130.0	---	142.0	134.0	254.0	<2 as N
	2/1/99	1180	647	75.0	27.0	125.0	3.0	150.0	130.0	272.0	ND
	4/28/99	1240	722	81.0	30.0	124.0	3.0	157.0	150.0	293.0	ND

ND - Not Detected

TABLE D-6

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED ON CAMP PENDLETON**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
10S/5W-23J1	8/18/99	1180	735	79.0	29.0	120.0	3.0	190.0	183.0	281.0	ND
(Bldg 2301)	12/8/99	1190	699	83.0	30.0	118.0	3.0	100.0	158.0	278.0	ND
(Replaced by Well	2/3/00	1110	723	81.0	30.0	116.0	3.0	90.0	163.0	293.0	ND
10S/5W-23J8	5/10/00	1070	714	81.0	29.0	115.0	3.0	170.0	152.0	273.0	ND
(Bldg 23001))	8/17/00	1200	735	80.0	29.0	117.0	3.0	150.0	118.0	275.0	ND
(cont.)	2/21/01	1230	730	84.0	31.0	132.0	---	158.0	158.0	293.0	ND
	4/18/01	1190	636	81.0	30.0	123.0	3.0	146.0	148.0	287.0	ND
	9/5/01	1300	751	88.0	32.0	132.0	3.0	155.0	160.0	293.0	ND
	10/25/01	1380	757	88.0	33.0	133.0	3.0	152.0	159.0	311.0	ND
	2/6/02	1220	724	86.0	31.0	124.0	2.6	146.0	156.0	293.0	ND
	4/10/02	1210	726	89.0	32.0	124.0	2.8	151.0	162.0	240.0	---
	7/18/02	1280	735	85.0	31.0	129.0	3.1	155.0	165.0	236.0	ND
	10/1/02	1300	701	87.0	31.0	141.0	2.9	157.0	170.0	257.0	ND
	1/1/03	1260	760	88.0	32.0	139.0	3.5	146.0	162.0	239.0	ND
	2/3/03	---	---	68.0	32.0	139.0	3.5	---	---	---	---
	4/3/03	1200	708	87.0	32.0	127.0	2.8	158.0	175.0	245.0	ND
	10/1/03	1210	696	82.0	30.0	144.0	3.0	167.0	177.0	232.0	0 as N
	1/4/04	1170	678	87.0	31.0	121.0	4.0	151.0	175.0	227.0	0 as N
	4/4/04	1270	697	82.0	31.0	120.0	4.0	155.0	171.0	250.0	0 as N
	7/1/04	1030	702	87	31	98	5	138	151	245	0 as N
	10/1/04	1230	879	89	31	102	5	158	176	---	0 as N
	2/1/05	1170	704	88.0	31.0	134.0	3.1	157.0	171.0	235.0	0 as N
	4/1/05	1220	755	88.0	30.0	121.0	2.7	132.0	167.0	213.0	0 as N
	7/1/05	1190	725	83.0	29.0	117.0	2.8	153.0	---	206.0	0 as N
	4/1/07	1200	708	89.0	32.0	120.0	2.6	150.0	170.0	270.0	0.0
	4/10/08	1210	718	90.0	32.0	100.0	2.5	150.0	170.0	274.0	<2
	4/16/09	1200	720	90.0	32.0	110.0	2.6	130.0	160.0	250.0	<2
	4/14/10	1200	740	92.0	33.0	120.0	2.6	150.0	180.0	260.0	<2
	4/22/11	1200	770	90.0	32.0	110.0	2.6	160.0	190.0	260.0	<2
	4/20/12	1200	790	96.0	34.0	120.0	2.9	160.0	190.0	250.0	<2
	5/2/13	1200	790	93.0	34.0	120.0	2.8	160.0	190.0	240.0	<2
	6/11/14	1300	810	100.0	35.0	120.0	2.7	160.0	200.0	250.0	<2
	3/13/15	1200	820	98.0	36.0	120.0	2.9	160.0	210.0	250.0	<2
	4/28/16	1260	828.0	90.3	32.3	109.0	2.7	164.0	210.0	240.0	ND
	3/30/17	1300	780	100.0	37.0	130.0	3.0	170.0	200.0	250.0	<0.4 as N

ND - Not Detected

TABLE D-6

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED ON CAMP PENDLETON**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
10S/4W-18E3 (Bldg 23093)	06/89	1166	758	80.5	28.1	67.4	---	132.0	157.0	198.0	9.5
	01/90	1230	748	97.4	39.7	106.0	---	178.0	179.0	226.0	<0.05
	04/90	1190	733	99.6	37.5	112.0	---	159.0	156.0	207.0	2.5
	06/91	1130	680	97.6	37.6	100.0	---	139.0	142.0	166.0	2.7
	02/94	1180	731	83.3	35.5	104.0	---	142.0	159.0	---	11.1
	08/94	1150	725	84.3	35.2	102.0	---	147.0	164.0	---	1.0
	6/29/95	932	636	75.4	29.1	86.6	---	102.0	140.0	---	14.0
	6/27/96	1117	710	92.0	36.0	93.0	---	180.0	297.0	206.0	---
	2/1/97	1100	686	89.0	38.0	110.0	---	157.0	166.0	220.0	<2 as N
	3/1/97	1116	673	87.0	36.0	110.0	---	147.0	113.0	213.0	<2 as N
	6/1/97	1131	779	90.0	37.0	99.0	<5.0	151.0	177.0	199.0	<2 as N
	9/17/98	1160	727	83.0	36.0	90.0	3.0	160.0	181.0	232.0	ND
	10/25/99	1200	325	88.0	39.0	117.0	4.0	130.0	180.0	268.0	ND
	2/3/00	1100	739	84.0	37.0	100.0	4.0	130.0	180.0	281.0	ND
	5/10/00	1030	717	80.0	35.0	96.0	4.0	168.0	183.0	229.0	2.0
	2/13/01	1360	798	97.0	44.0	111.0	4.0	184.0	212.0	244.0	ND
	4/18/01	1310	728	94.0	42.0	114.0	4.0	168.0	208.0	232.0	ND
	9/19/01	1330	791	96.0	42.0	115.0	4.0	173.0	209.0	224.0	1.0
	3/13/02	1320	778	102.0	44.0	123.0	4.4	196.0	229.0	242.0	1.0
	4/17/02	1300	808	101.0	44.0	117.0	4.0	183.0	220.0	200.0	1.1
	7/17/02	1390	778	96.0	42.0	114.0	3.7	180.0	214.0	209.0	ND
	10/1/02	1360	763	97.0	41.0	126.0	4.0	180.0	207.0	214.0	ND
	1/1/03	1290	749	96.0	40.0	116.0	3.7	172.0	200.0	200.0	ND
	4/1/03	1210	783	99.0	42.0	129.0	3.9	176.0	229.0	191.0	1.3
	10/1/03	1320	775	97.0	41.0	126.0	5.0	168.0	231.0	174.0	0.0
	1/4/04	1270	763	101.0	42.0	106.0	6.0	162.0	220.0	180.0	0.0
	4/4/04	1320.0	781	96.0	43.0	105.0	6.0	179.0	250.0	195.0	0.0
	7/1/04	1370.0	784	100.0	43.0	89.0	6.0	169.0	219.0	203.0	0.0
10/1/04	1300.0	857	99.0	42.0	88.0	6.0	188.0	245.0	210.0	0.0	
1/1/05	1270.0	760	99.0	42.0	115.0	4.3	170.0	234.0	185.0	2.7	
7/1/05	1120.0	724	89.0	36.0	91.0	3.5	133.0	---	203.0	0 as N	
11/1/05	1230.0	815	101.0	40.0	113.0	4.1	153.0	213.0	174.0	0 as N	
4/1/06	1350.0	832	110.0	44.0	120.0	3.8	180.0	250.0	220.0	0 as N	
4/1/07	1298	806	100.0	45.0	110.0	3.7	180.0	247.0	230.0	0.0	
4/10/08	1270	816	92.0	40.0	100.0	3.4	150.0	220.0	202.0	4.7	
4/16/09	1300	840	100.0	43.0	120.0	3.8	150.0	220.0	230.0	<2	
4/28/10	1200	700	83.0	36.0	99.0	3.4	140.0	200.0	190.0	2.8	

ND - Not Detected



TABLE D-6

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED ON CAMP PENDLETON**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
10S/4W-18E3 (Bldg 23093) (cont.)	7/27/11	1200	810	88.0	39.0	98.0	3.4	160.0	230.0	190.0	4.3
	4/25/12	1200	830	95.0	42.0	100.0	4.0	170.0	240.0	190.0	<2
	5/8/13	1300	800	88.0	37.0	120.0	3.6	170.0	220.0	190.0	<2
	6/24/14	1300	820	95.0	41.0	120.0	3.5	170.0	240.0	190.0	<2
	3/16/15	1300	810	86.0	38.0	120.0	3.9	170.0	240.0	200.0	<2
	4/26/16	1400	916	99.0	43.5	122.0	4.2	192.0	275.0	223.0	0.2
	3/17/17	1300	810	85.0	36.0	120.0	3.6	180.0	240.0	210.0	<0.4 as N
10S/4W-7R2 (Bldg 2603)	06/89	1281	765	76.5	25.1	82.4	---	149.0	153.0	209.0	10.3
	04/89	1270	788	104.0	36.5	126.0	---	173.0	161.0	215.0	2.6
	06/91	1400	836	111.0	41.1	130.0	---	195.0	155.0	215.0	0.0
	02/94	1260	738	83.3	32.0	131.0	---	169.0	155.0	---	<0.04
	08/94	1260	738	84.3	33.7	129.0	---	166.0	149.0	---	<0.44
	6/29/95	1290	897	93.6	35.2	129.0	---	202.0	164.0	---	0.7
	2/1/97	1200	720	84.0	36.0	130.0	---	150.0	152.0	240.0	<1 as N
	3/1/97	1143	708	83.0	35.0	130.0	---	152.0	137.0	240.0	<2 as N
	6/1/97	1227	831	94.0	34.0	120.0	<5.0	185.0	147.0	247.0	<2 as N
	12/19/97	1200	700	84.0	36.0	120.0	3.0	150.0	173.0	240.0	ND
	12/19/97	1200	700	84.0	36.0	120.0	3.0	150.0	173.0	240.0	ND
	3/15/98	1200	780	85.0	36.0	110.0	3.0	187.0	162.0	180.0	ND
	6/15/98	1190	734	83.0	35.0	110.0	3.0	160.0	167.0	275.0	ND
	2/1/99	1160	663	76.0	32.0	102.0	3.0	150.0	150.0	214.0	ND
	8/30/99	1120	727	76.0	33.0	99.0	3.0	156.0	230.0	281.0	ND
	10/25/99	1130	660	78.0	33.0	120.0	3.0	110.0	160.0	262.0	ND
	2/9/00	1030	592	79.0	35.0	95.9	3.0	120.0	160.0	244.0	ND
	5/11/00	1010	699	76.0	33.0	96.0	3.0	129.0	127.0	229.0	ND
	8/24/00	1140	720	77.0	33.0	87.0	3.0	---	157.0	232.0	ND
	12/2/02	1120	617	73.0	32.0	102.0	3.6	132.0	164.0	174.0	0.4
1/1/03	1150	689	76.0	34.0	113.0	3.6	135.0	165.0	185.0	ND	
4/4/03	1190	717	82.0	37.0	122.0	4.0	164.0	182.0	209.0	ND	
5/5/03	1190	---	---	---	---	---	156.0	182.0	---	---	
10/1/03	1250	737	81.0	37.0	130.0	5.0	163.0	201.0	192.0	0.0	
1/4/04	1240	694	86.0	39.0	107.0	6.0	153.0	182.0	185.0	0.0	
4/4/04	1320	750	84.0	40.0	108.0	6.0	170.0	210.0	220.0	0.0	
7/1/04	1100	761	92.0	41.0	88.0	7.0	172.0	204.0	205.0	0.0	
10/1/04	1280	893	93.0	41.0	88.0	6.0	179.0	222.0	---	0.0	
2/1/05	1270	839	99.0	44.0	121.0	5.2	180.0	215.0	198.0	0.0	

ND - Not Detected

TABLE D-6

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED ON CAMP PENDLETON**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
10S/4W-7R2 (Bldg 2603) (cont.)	4/1/05	1300	880	98.0	41.0	109.0	3.8	158.0	216.0	183.0	0 as N
	7/1/05	1380	870	101.0	43.0	109.0	4.0	430.0	540.0	176.0	0 as N
	11/1/05	1310	865	104.0	43.0	115.0	3.8	164.0	221.0	181.0	0 as N
	4/1/06	1220	810	100.0	43.0	110.0	3.8	170.0	240.0	206.0	0 as N
	4/1/07	1400	856	99.0	44.0	110.0	3.6	170.0	250.0	210.0	0.0
	4/1/08	1290	888	91.0	39.0	100.0	3.4	160.0	230.0	207.0	2.6
10S/4W-7H2 (Bldg 26071)	8/1/56	1060	882	78.0	30.0	112.0	---	150.0	82.0	326.0	---
	1/1/60	820	500	55.2	14.7	85.0	---	76.0	98.0	224.0	---
	10/1/60	1300	793	74.5	20.5	126.0	4.3	182.0	116.0	320.0	---
	5/1/61	1390	840	100.0	29.2	170.0	3.3	170.0	135.0	362.0	---
	5/1/62	1220	744	70.4	39.0	142.0	2.4	184.0	86.0	312.3	---
	1/1/63	1300	740	65.6	26.4	162.0	2.4	166.0	153.0	259.0	0.7
	7/1/63	1100	671	64.0	25.4	118.0	2.7	148.0	97.0	280.6	0.0 as N
	1/1/64	1020	622	70.4	33.2	117.0	2.7	172.0	98.0	302.6	3.3
	7/1/64	1400	854	83.2	27.3	134.0	1.4	164.0	98.0	322.1	---
	4/1/65	1490	909	97.6	23.4	152.0	4.7	196.0	110.0	346.5	0.9
	1/1/66	---	832	102.0	28.0	166.0	3.1	194.0	88.0	414.8	6.6
	6/1/66	---	768	86.4	26.3	150.0	3.1	184.0	110.0	331.8	6.9
	1/1/67	---	768	72.0	29.3	128.0	3.1	174.0	72.0	324.5	6.9
	8/1/67	---	608	57.6	24.4	116.0	2.4	132.0	70.0	251.3	10.2
	2/1/68	---	572	67.2	17.6	105.0	2.4	118.0	94.0	251.0	0.0
	9/1/68	---	636	74.0	19.0	112.0	3.0	144.0	96.0	268.0	0.4
	4/1/69	---	820	72.0	33.0	138.0	2.8	180.0	140.0	285.0	0.9
	11/1/69	---	604	66.0	24.0	116.0	2.8	140.0	110.0	259.0	1.8
	5/1/70	---	640	65.0	26.0	115.0	2.4	142.0	120.0	183.0	3.1
	9/1/71	1075	656	77.0	24.0	120.0	2.8	144.0	125.0	273.0	1.3
5/1/72	1000	610	46.0	24.0	117.0	2.4	140.0	130.0	141.0	0.0	
10/1/72	1110	677	88.0	26.0	105.0	3.6	144.0	126.0	283.0	3.5	
10/1/73	1120	683	75.0	23.0	118.0	2.7	132.0	130.0	200.0	0.6 as N	
6/1/74	1210	712	72.0	19.0	150.0	3.1	208.0	112.0	195.0	0.01 as N	
1/1/75	850	519	61.0	21.0	93.0	2.4	102.0	95.0	212.0	2.3 as N	
2/1/76	1200	732	91.2	20.5	126.0	3.2	176.0	130.0	244.0	2.6 as N	
9/1/76	1200	732	48.0	29.0	180.0	2.4	192.0	123.0	336.7	4.2 as N	
3/1/77	1400	854	94.0	33.0	158.0	2.8	216.0	140.0	342.0	2.8 as N	
1/1/78	1000	610	66.0	23.0	100.0	2.7	128.0	123.0	205.0	4.4 as N	
10/1/78	1300	793	82.0	31.0	134.0	2.7	160.0	157.0	258.6	<1 as N	

ND - Not Detected

TABLE D-6

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED ON CAMP PENDLETON**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
10S/4W-7H2 (Bldg 26071) (cont.)	4/1/79	1200	732	84.8	28.3	144.0	3.1	164.0	116.0	312.3	<1 as N
	1/1/80	1450	885	93.0	30.0	163.0	3.0	196.0	200.0	273.0	<1 as N
	10/1/80	1050	591	70.4	21.7	104.0	3.7	140.0	125.0	219.6	2.0 as N
	5/1/81	1000	645	72.4	21.7	105.0	3.5	128.0	123.0	209.8	<0.5 as N
	5/1/82	1330	811	100.8	35.9	176.0	1.6	269.0	198.0	263.5	<0.5 as N
	3/1/83	890	669	77.2	23.7	95.0	3.4	132.0	136.0	209.8	0.65 as N
	12/1/83	1000	610	70.4	23.7	123.0	2.6	136.0	150.0	224.0	0.5 as N
	5/1/84	1100	671	77.2	24.6	116.0	2.7	133.0	155.0	244.0	0.2 as N
	9/1/84	1300	650	6.6	29.0	120.0	2.6	200.0	170.0	250.0	12.0
	11/1/84	1100	671	81.6	23.4	124.0	2.7	149.0	175.0	249.0	1.2 as N
	5/1/86	1592	994	104.7	39.7	167.3	4.4	232.0	167.0	301.8	<1 as N
	6/1/89	1137	826	79.1	28.5	85.5	---	157.0	158.0	246.0	12.6
	1/1/90	1290	772	96.3	38.6	116.0	---	184.0	179.0	252.0	0.9/1.2
	4/1/90	1320	817	109.0	42.1	128.0	---	177.0	167.0	249.0	5.4
	1/1/91	401	---	87.3	44.4	103.1	---	205.0	179.0	---	1.1
	3/1/93	1500	824	92.6	33.1	136.0	---	194.0	154.0	277.0	1.8
	3/1/94	1370	827	103.0	36.4	135.0	---	163.0	145.0	---	0.9
	8/1/94	1270	762	91.1	35.5	129.0	---	162.0	172.0	---	5.6
	6/29/95	1260	771	100.0	35.8	127.0	---	197.0	178.0	---	2.8
	6/24/96	1300	751	96.0	36.0	120.0	---	162.0	174.0	247.0	1.1
	2/1/97	1300	830	100.0	41.0	150.0	---	186.0	161.0	186.0	<2 as N
	6/1/97	1323	831	94.0	36.0	140.0	<5.0	158.0	149.0	271.0	2 as N
	12/3/97	1200	670	91.0	36.0	120.0	3.0	150.0	169.0	220.0	ND
	12/19/97	1200	710	87.0	35.0	120.0	2.0	152.0	182.0	220.0	1.5
	3/15/98	1200	810	89.0	36.0	120.0	3.0	201.0	168.0	240.0	ND
	6/16/98	1390	830	91.0	36.0	140.0	2.0	185.0	150.0	366.0	ND
	2/1/99	1130	663	75.0	31.0	106.0	3.0	150.0	150.0	238.0	5.0
	5/5/99	1170	711	75.0	32.0	85.0	4.0	---	180.0	268.0	ND
8/18/99	1040	692	74.0	30.0	94.0	2.0	100.0	400.0	207.0	ND	
10/28/99	1210	757	86.0	35.0	120.0	3.0	154.0	100.0	295.0	3.0	
8/24/00	1290	766	83.0	33.0	89.0	2.0	184.0	150.0	323.0	ND	
2/21/01	1140	707	85.0	35.0	107.0	2.0	152.0	179.0	232.0	4.9	
4/25/01	1190	718	88.0	37.0	112.0	3.0	153.0	193.0	218.0	5.0	
9/20/01	1200	729	89.0	38.0	106.0	3.0	158.0	192.0	201.0	4.6	
11/8/01	1210	693	90.0	38.0	106.0	3.0	169.0	209.0	214.0	5.4	
2/11/02	1190	726	94.0	39.0	106.0	2.7	147.0	184.0	218.0	5.9	
4/4/02	1190	724	91.0	38.0	107.0	2.9	153.0	204.0	173.0	6.6	

ND - Not Detected

TABLE D-6

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED ON CAMP PENDLETON**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
10S/4W-7H2 (Bldg 26071) (cont.)	7/11/02	1200	755	88.0	37.0	107.0	3.1	162.0	201.0	180.0	6.0
	10/1/02	1250	722	91.0	38.0	99.0	2.6	150.0	197.0	177.0	6.2
	1/1/03	1260	781	95.0	39.0	119.0	3.2	144.0	204.0	169.0	4.5
	4/4/03	1310	776	93.0	38.0	125.0	3.0	178.0	217.0	185.0	4.1
	4/1/04	1660	890	112.0	47.0	143.0	4.0	208.0	162.0	370.0	ND
	7/1/04	1460	785	98.0	38.0	109.0	4.0	186.0	191.0	275.0	3.4
	5/1/06	1380	870	100.0	41.0	110.0	2.3	180.0	240.0	210.0	3.0
	4/1/07	1300	812	99.0	41.0	110.0	2.5	160.0	230.0	220.0	5.2
	4/15/09	1300	830	100.0	43.0	110.0	2.9	170.0	260.0	190.0	4.7
	4/22/10	1300	790	100.0	42.0	110.0	2.7	170.0	230.0	210.0	4.2
	4/20/11	1400	860	97.0	42.0	110.0	3.2	180.0	250.0	210.0	2.4
	4/20/12	1200	840	93.0	40.0	110.0	3.3	160.0	220.0	200.0	5.1
	4/14/13	1300	830	88.0	40.0	100.0	3.6	160.0	220.0	230.0	12.0
	4/28/14	1400	860	93.0	42.0	110.0	3.1	170.0	220.0	230.0	3.7
	8/13/15	1300	910	100.0	46.0	120.0	3.3	180.0	260.0	220.0	3.0
	4/21/16	1340	886	107.0	46.8	119.0	3.5	172.0	270.0	204.0	3.2
	3/9/17	1400	920	100.0	46.0	120.0	3.3	180.0	260.0	230.0	0.45 as N
10S/4W-7A2 (Bldg 2673) (Replaced by Well 26073)	5/1/56	920	651	59.0	22.0	100.0	---	104.0	94.0	213.0	---
	5/1/59	---	745	52.8	16.5	60.3	---	84.0	41.0	207.4	---
	1/1/60	---	840	51.2	17.6	95.0	---	98.0	92.0	210.0	---
	10/1/60	870	566	62.0	23.0	80.0	4.2	110.0	104.0	234.0	0.0
	5/1/61	1180	710	72.0	34.0	114.0	3.3	104.0	150.0	227.0	---
	5/1/62	797	518	63.2	23.4	75.0	2.0	100.0	96.0	214.7	---
	1/1/63	1195	730	64.0	24.9	157.0	3.1	162.0	183.0	220.0	0.0
	7/1/63	574	610	57.6	19.5	85.0	2.7	102.0	100.0	244.0	0.3 as N
	1/1/64	760	494	59.2	19.3	82.0	3.3	100.0	85.0	253.7	0.5 as N
	7/1/64	980	637	64.0	21.5	94.0	1.4	100.0	95.0	241.6	---
	4/1/65	1230	800	73.3	22.5	106.0	4.5	120.0	110.0	248.9	1.3
	1/1/66	---	448	---	---	86.0	2.5	82.0	75.0	190.3	9.7
	6/1/66	---	540	60.8	21.0	81.0	2.5	102.0	95.0	222.0	9.1
	1/1/67	---	544	60.8	19.5	88.0	2.9	106.0	69.0	229.4	6.9
	8/1/67	---	504	54.4	20.0	79.0	2.1	96.0	58.0	214.7	8.0
	2/1/68	---	456	60.8	17.6	86.0	2.7	94.0	78.0	222.0	0.0
	9/1/68	---	600	67.0	18.0	90.0	3.0	110.0	96.0	232.0	0.0
4/1/69	---	428	46.0	18.0	73.0	---	76.0	90.0	183.0	3.1	
11/1/69	---	476	59.0	18.0	88.0	2.7	98.0	110.0	198.0	0.9	

ND - Not Detected

TABLE D-6

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED ON CAMP PENDLETON**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
10S/4W-7A2	5/1/70	---	416	54.0	18.0	79.0	2.6	92.0	90.0	151.0	2.9
(Bldg 2673)	12/1/70	780	507	64.0	16.0	89.0	2.7	100.0	90.0	222.0	10.1
(Replaced by	5/1/72	990	644	77.0	24.0	86.0	2.8	116.0	135.0	207.0	0.0
Well 26073)	10/1/72	965	627	77.0	27.0	94.0	2.9	104.0	145.0	239.0	5.3
(cont.)	10/1/73	960	624	72.0	19.0	105.0	2.8	112.0	140.0	195.0	0.9 as N
	6/1/74	950	548	68.0	19.0	101.0	3.1	138.0	102.0	207.0	0.35 as N
	1/1/75	840	546	58.0	22.0	87.0	2.7	98.0	95.0	217.0	2.2 as N
	2/1/76	820	533	68.8	20.5	76.0	3.0	106.0	88.0	214.7	2.2 as N
	9/1/76	900	585	48.0	45.0	98.0	2.3	116.0	112.0	258.6	3.0 as N
	3/1/77	900	585	70.0	23.0	76.0	2.8	123.0	113.0	195.0	2.6 as N
	1/1/78	950	618	64.0	24.0	100.0	2.7	124.0	108.0	200.0	4.3 as N
	10/1/78	1050	683	74.0	20.0	80.0	3.0	113.0	128.0	205.0	<1 as N
	4/1/79	950	618	65.6	19.5	98.0	3.1	109.0	118.0	190.3	<1 as N
	1/1/80	1000	650	67.0	23.0	99.0	3.1	128.0	111.0	187.0	<1 as N
	10/1/80	900	546	67.2	20.5	86.0	3.4	108.0	86.0	205.0	2.3 as N
	5/1/81	810	585	57.2	14.4	83.0	3.4	92.0	84.0	180.6	0.7 as N
	11/1/81	800	451	57.2	16.3	85.0	2.0	92.0	110.0	185.4	0.5 as N
	5/1/82	930	605	68.8	21.5	97.0	1.6	115.0	96.0	205.0	<0.5 as N
	3/1/83	900	663	78.8	23.7	95.0	3.4	132.0	135.0	209.8	0.7 as N
	9/1/84	1000	530	51.0	23.0	80.0	2.9	110.0	110.0	200.0	4.2
	11/1/84	850	553	67.2	28.3	73.0	2.9	111.0	137.0	190.0	1.7 as N
	9/1/85	1007	593	66.0	26.0	64.0	5.8	124.0	139.0	180.6	6.0
	5/1/86	1051	623	72.6	26.5	79.5	3.5	131.0	124.0	153.6	8.8
	06/89	1073	688	72.1	23.9	59.6	---	120.0	140.0	184.0	15.9
	01/89	1080	572	91.2	34.2	80.2	---	151.0	178.0	174.0	1.4
	04/90	1130	718	111.0	42.1	91.0	---	148.0	167.0	175.0	9.1
	06/91	1190	718	113.0	40.3	93.8	---	173.0	180.0	160.0	7.5
	03/93	1370	708	86.9	32.8	93.3	---	147.0	93.3	200.0	4.9
	03/94	1210	783	100.0	37.1	100.0	---	145.0	167.0	---	2.2
	08/94	1160	741	87.5	35.5	96.1	---	141.0	184.0	---	4.2
	6/1/95	1200	788	99.4	37.5	101.0	---	173.0	200.0	---	2.9
	6/27/96	1129	739	91.0	37.0	90.0	---	188.0	312.0	206.0	---
	2/1/97	1100	690	82.0	35.0	140.0	---	127.0	131.0	180.0	<2 as N
	3/1/97	1109	695	91.0	39.0	93.0	---	137.0	191.0	166.0	2.2 as N
	6/1/97	1096	749	89.0	36.0	90.0	<5.0	138.0	178.0	187.0	2 as N
	12/29/97	1100	690	84.0	36.0	83.0	4.0	140.0	181.0	160.0	<2 as N
	5/5/99	1050	648	78.0	32.0	111.0	3.0	171.0	---	207.0	ND

ND - Not Detected

TABLE D-6

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED ON CAMP PENDLETON**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
10S/4W-7A2	8/18/99	1040	696	78.0	33.0	84.0	4.0	120.0	390.0	146.0	ND
(Bldg 2673)	10/28/99	1070	663	78.0	34.0	90.0	4.0	132.0	120.0	195.0	6 as N
(Replaced by	2/9/00	1010	559	83.0	36.0	82.0	4.0	140.0	190.0	220.0	4 as N
Well 26073)	5/11/00	972	688	80.0	34.0	79.0	4.0	144.0	167.0	190.0	4 as N
(cont.)	2/21/01	1200	753	92.0	40.0	100.0	3.0	164.0	212.0	195.0	ND
	4/25/01	1210	736	91.0	40.0	103.0	5.0	159.0	217.0	183.0	4.2
	9/20/01	1200	741	93.0	41.0	98.0	4.0	153.0	202.0	183.0	7.6
	11/7/01	1220	750	92.0	41.0	106.0	4.0	170.0	228.0	189.0	8.0
	2/11/02	1230	769	99.0	43.0	101.0	4.2	173.0	218.0	195.0	7.9
	4/10/02	1260	793	101.0	45.0	102.0	4.5	170.0	229.0	160.0	8.5
	7/17/02	1350	784	98.0	43.0	103.0	4.3	183.0	239.0	159.0	4.8
	10/1/02	1370	788	102.0	45.0	104.0	4.3	175.0	241.0	167.0	3.4
	1/1/03	1330	825	108.0	45.0	121.0	5.4	180.0	231.0	168.0	2.4
	4/4/03	1260	721	90.0	40.0	102.0	4.3	170.0	228.0	153.0	9.9
	10/1/03	1340	791	94.0	41.0	121.0	6.0	180.0	268.0	144.0	3.0
	1/4/04	1390	800	99.0	46.0	105.0	7.0	173.0	264.0	136.0	4.1
	4/4/04	1270	739	86.0	42.0	98.0	6.0	160.0	252.0	160.0	5.1
	7/1/04	1390	764	97.0	45.0	87.0	7.0	176.0	262.0	163.0	3.7
	10/1/04	1290	943	95.0	44.0	84.0	7.0	178.0	267.0	---	3.6
	1/1/05	1030	610	76.0	35.0	93.0	3.8	136.0	194.0	155.0	6.9
	4/1/05	1060	630	77.0	34.0	82.0	3.2	125.0	174.0	139.0	2.7
	7/1/05	1120	750	81.0	35.0	84.0	3.4	129.0	---	129.0	0 as N
	11/1/05	1170	790	94.7	41.2	97.9	3.7	138.0	199.0	156.0	7.5
	4/1/06	1140	704	91.0	39.0	98.0	4.5	150.0	220.0	180.0	7.3
	4/1/07	1200	716	97.0	44.0	97.0	3.7	160.0	240.0	190.0	4.2
	4/8/08	1270	900	98.0	45.0	97.0	3.8	180.0	260.0	170.0	14.0
	4/16/09	1200	780	94.0	42.0	100.0	3.7	130.0	230.0	180.0	22.0
	4/13/10	1300	770	93.0	42.0	100.0	3.8	160.0	240.0	180.0	8.7
	4/13/11	1200	780	83.0	38.0	93.0	3.5	150.0	220.0	170.0	3.9
	4/19/12	1300	790	92.0	42.0	94.0	3.8	160.0	240.0	260.0	6.2
	4/17/13	1200	780	85.0	40.0	94.0	4.3	160.0	230.0	190.0	2.1
	4/23/14	1200	770	84.0	40.0	93.0	3.7	150.0	220.0	170.0	2.8
	8/24/15	1300	860	90.0	43.0	97.0	3.6	170.0	240.0	200.0	2.3
	5/5/16	1320	880	101.0	47.8	109.0	4.1	172.0	267.0	199.0	1.3
	3/9/17	1300	870	100.0	46.0	110.0	4.1	170.0	260.0	210.0	<0.4 as N

ND - Not Detected

TABLE D-6

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED ON CAMP PENDLETON**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
10S/4W-7R3 (Bldg 2602)	4/15/09	1300	830	100.0	45.0	110.0	4.5	170.0	240.0	220.0	<2
	4/13/10	1300	800	100.0	43.0	100.0	3.6	160.0	240.0	200.0	<2
	4/13/11	1300	870	96.0	42.0	98.0	3.7	160.0	240.0	200.0	<2
	4/25/12	1300	860	100.0	44.0	110.0	3.6	170.0	260.0	200.0	<2
	4/18/13	1300	840	96.0	41.0	100.0	4.0	180.0	240.0	220.0	<2
	4/23/14	1300	830	94.0	41.0	110.0	3.9	170.0	220.0	200.0	<2
	3/18/15	1300	850	100.0	42.0	120.0	3.9	160.0	240.0	220.0	<2
	4/21/16	1300	834	101.0	42.2	122.0	4.1	170.0	238.0	215.0	1.7
	3/17/17	1300	800	100.0	43.0	110.0	3.6	170.0	240.0	210.0	<0.4 as N
10S/5W-23G3 (Bldg 33926)	06/91	1160	684	83.4	28.3	125.0	---	145.0	124.0	223.0	<0.04
	03/92	1060	674	75.9	24.1	127.0	---	139.0	111.0	269.0	<0.4
	03/93	1182	584	67.8	21.1	110.0	---	135.0	101.0	274.0	<0.4
	06/93	1020	623	60.5	22.4	116.0	---	125.0	107.0	225.0	<0.4
	03/94	1120	665	80.0	25.0	122.0	---	129.0	117.0	---	1.8
	08/94	1150	699	78.7	26.4	125.0	---	141.0	118.0	---	<0.44
	6/29/95	1060	673	75.9	23.1	118.0	---	158.0	114.0	---	<0.04
	1/2/96	1200	619	71.0	24.0	120.0	---	139.0	107.0	262.0	---
7/10/96	---	---	---	---	---	---	---	---	---	---	
10S/5W-23K2 (Bldg 33924) (Replaced by Well 330924 10S/5W-23G9)	06/89	1207	698	75.6	22.8	84.0	---	138.0	137.0	231.0	<0.4
	04/89	1240	728	100.0	32.9	129.0	---	158.0	148.0	245.0	1.3
	01/91	1193	---	80.6	35.2	131.0	---	21.3	146.0	---	<0.04
	06/91	1160	676	88.1	29.6	118.0	---	141.0	129.0	224.0	<0.04
	03/92	1130	705	76.7	26.0	126.0	---	149.0	125.0	279.0	<0.4
	06/92	1130	717	66.8	26.7	124.0	---	146.0	140.0	232.0	<0.4
	03/93	1285	331	72.1	23.8	115.0	---	131.0	122.0	273.0	<0.4
	2/1/97	1200	780	89.0	32.0	130.0	---	166.0	165.0	250.0	<2 as N
	3/1/97	1230	700	94.0	34.0	140.0	---	187.0	162.0	264.0	<2 as N
	6/1/97	1231	778	91.0	31.0	130.0	<2.0	171.0	165.0	264.0	<2 as N
	12/29/97	1200	710	82.0	30.0	130.0	2.0	156.0	162.0	230.0	ND
	3/15/98	1200	710	82.0	30.0	110.0	2.0	191.0	146.0	240.0	ND
	6/10/98	1170	658	79.0	28.0	123.0	2.0	157.0	151.0	293.0	ND
	2/1/99	1170	698	75.0	27.0	123.0	3.0	160.0	130.0	259.0	ND
	4/28/99	1210	667	76.0	27.0	118.0	3.0	148.0	140.0	268.0	ND
8/18/99	1140	714	79.0	27.0	116.0	3.0	180.0	165.0	268.0	ND	
10/25/99	1150	721	80.0	28.0	131.0	3.0	110.0	150.0	281.0	ND	

ND - Not Detected

TABLE D-6

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED ON CAMP PENDLETON**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
10S/5W-23K2	2/9/00	1050	619	82.0	28.0	108.0	3.0	100.0	140.0	293.0	ND
(Bldg 33924)	5/10/00	1060	716	80.0	29.0	112.0	3.0	173.0	141.0	268.0	ND
(Replaced by	8/21/00	1210	722	82.0	29.0	105.0	3.0	162.0	156.0	268.0	ND
Well 330924	4/18/01	1210	705	85.0	30.0	130.0	3.0	163.0	157.0	281.0	ND
10S/5W-23G9)	9/20/01	1190	672	81.0	30.0	125.0	3.0	152.0	149.0	275.0	ND
(cont.)	10/31/01	1200	680	81.0	29.0	143.0	3.0	162.0	159.0	281.0	ND
	2/13/02	1160	675	80.0	29.0	129.0	3.5	143.0	152.0	268.0	ND
	4/10/02	1180	682	84.0	31.0	124.0	2.9	151.0	155.0	230.0	ND
	7/24/02	1210	706	80.0	29.0	127.0	2.9	156.0	156.0	221.0	ND
	10/1/02	1210	669	83.0	30.0	122.0	2.9	151.0	162.0	206.0	8.0
	1/1/03	1320	801	97.0	34.0	140.0	2.8	154.0	180.0	245.0	ND
	4/4/03	1330	743	89	32	133	2.8	165	183	234	ND
	10/1/03	1210	712	87.0	31.0	135.0	4.0	155.0	177.0	204.0	ND
	4/1/04	1320	713	85.0	32.0	121.0	5.0	165.0	167.0	228.0	ND
	7/1/04	1070	703	89.0	32.0	101.0	5.0	147.0	173.0	230.0	ND
	10/1/04	1230	806	91.0	33.0	102.0	5.0	166.0	183.0	---	ND
	2/1/05	1310	837	104.0	37.0	136.0	4.2	175.0	191.0	253.0	0 as N
	7/1/05	1170	750	83.0	29.0	114.0	2.7	139.0	---	210.0	ND
	11/1/05	1260	750	91.9	29.6	119.0	3.1	144.0	171.0	225.0	ND
	4/1/06	1220	774	92.0	32.0	120.0	2.8	160.0	180.0	284.0	ND
	4/1/07	1010	706	86.0	29.0	120.0	2.7	150.0	170.0	260.0	0.0
	4/1/08	1270	792	91.0	30.0	110.0	2.6	160.0	190.0	175.0	<2
	4/15/09	1300	800	100.0	34.0	120.0	2.7	160.0	200.0	260.0	<2
	4/15/10	1200	740	95.0	34.0	120.0	2.8	150.0	180.0	260.0	<2
	4/27/11	1200	740	87.0	29.0	110.0	2.7	160.0	170.0	230.0	<2
	4/30/12	1200	800	92.0	32.0	110.0	2.6	170.0	190.0	220.0	<2
	5/16/13	1200	740	92.0	32.0	120.0	3.0	160.0	190.0	220.0	<2
	6/12/14	1200	780	90.0	30.0	120.0	2.4	160.0	190.0	210.0	<2
	3/13/15	1200	780	94.0	34.0	120.0	2.2	160.0	200.0	240.0	<2
	7/28/16	1200	758	85.3	29.4	105.0	2.0	161.0	203.0	216.0	ND
	3/30/17	1200	720	98.0	34.0	130.0	2.4	160.0	190.0	230.0	<0.4 as N
10S/5W-13R2	01/90	1030	540	96.0	26.6	94.8	---	141.0	130.0	200.0	0.7
(Bldg 23063)	06/91	1150	702	98.7	32.0	109.0	---	149.0	125.0	288.0	1.3
	06/93	1130	705	72.0	28.4	107.0	---	140.0	139.0	262.0	0.9
	03/94	1020	658	69.6	27.8	104.0	---	135.0	140.0	---	0.9
	6/29/95	1140	636	92.5	30.7	115.0	---	149.0	151.0	---	14.2

ND - Not Detected



TABLE D-6

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED ON CAMP PENDLETON**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
10S/5W-13R2 (Bldg 23063) (cont.)	6/27/96	1103	680	91.0	31.0	100.0	---	148.0	251.0	233.0	---
	6/1/97	1082	708	85	29	110	<5.0	135	145	244	<2 as N
	12/12/97	1000	640	81.0	28.0	100.0	2.0	119.0	128.0	250.0	ND
	3/22/98	1100	620	85.0	31.0	110.0	2.0	161.0	144.0	220.0	ND
	6/4/98	1100	680	83.0	30.0	109.0	3.0	137.0	140.0	275.0	0.7
	9/24/98	1160	662	81.0	28.0	90.0	3.0	144.0	90.0	256.0	ND
	4/18/01	1100	612	83.0	29.0	106.0	3.0	131.0	146.0	238.0	3.5
	9/19/01	1150	679	89.0	31.0	103.0	2.0	142.0	156.0	241.0	3.2
	11/8/01	1130	658	87.0	30.0	104.0	2.0	148.0	169.0	262.0	3.4
	2/14/02	1120	674	85.0	30.0	112.0	3.2	140.0	160.0	257.0	3.1
	4/17/02	1120	682	89.0	32.0	106.0	2.7	142.0	167.0	205.0	2.8
	7/22/02	1150	676	83.0	30.0	111.0	2.7	145.0	64.0	205.0	2.3
	10/1/02	1220	711	87.0	31.0	110.0	2.7	149.0	175.0	203.0	ND
	1/1/03	1210	713	91.0	33.0	106.0	2.7	138.0	165.0	197.0	2.0
	5/5/03	1230	728	93.0	33.0	112.0	2.9	155.0	183.0	181.0	2.2
	10/1/03	1190	741	93.0	33.0	123.0	3.0	188.0	212.0	179.0	0 as N
	4/1/04	1270	701	87.0	32.0	103.0	4.0	163.0	186.0	220.0	ND
	7/1/04	1270	701	220.0	32.0	103.0	4.0	163.0	186.0	220.0	0 as N
	4/25/12	1200	790	100.0	37.0	120.0	2.8	160.0	220.0	220.0	<2
3/19/15	1200	780	93.0	34.0	100.0	2.6	150.0	220.0	210.0	2.1	
10S/4W-7D1 (Previously reported as 10S/4W-7A3 (Bldg 26072)	3/10/99	1280	765	91.0	34.0	127.0	2.0	190.0	160.0	272.0	ND
	6/9/99	1080	706	76.0	31.0	88.0	2.2	163.0	118.0	220.0	ND
	8/18/99	1080	690	76.0	32.0	93.0	3.0	160.0	191.0	244.0	ND
	10/28/99	1070	660	76.0	32.0	100.0	3.0	131.0	120.0	232.0	4.0
	5/10/00	1010	702	79.0	34.0	94.0	3.0	177.0	164.0	254.0	ND
	8/21/00	1170	732	84.0	36.0	89.0	3.0	155.0	188.0	201.0	5.0
	2/21/01	1230	753	89.0	39.0	113.0	2.0	170.0	198.0	220.0	2.7
	4/25/01	1230	726	89.0	39.0	115.0	4.0	160.0	191.0	243.0	2.9
	9/20/01	1210	735	89.0	39.0	107.0	4.0	153.0	185.0	217.0	5.3
	11/7/01	1240	725	89.0	39.0	117.0	3.0	168.0	205.0	220.0	5.6
	2/11/02	1250	765	97.0	43.0	109.0	3.4	155.0	198.0	234.0	4.7
	4/4/02	1290	790	98.0	44.0	109.0	3.4	158.0	208.0	200.0	3.9
	7/11/02	1320	809	96.0	43.0	117.0	3.7	182.0	217.0	200.0	ND
	10/1/02	1380	787	99.0	43.0	113.0	3.7	170.0	216.0	203.0	2.8
1/1/03	1370	810	101.0	44.0	134.0	4.0	155.0	194.0	217.0	ND	
4/4/03	1440	789	93.0	40.0	125.0	3.6	177.0	205.0	216.0	2.1	

ND - Not Detected

TABLE D-6

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED ON CAMP PENDLETON**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
10S/4W-7D1	10/1/03	1370	820	91.0	40.0	130.0	4.0	175.0	235.0	180.0	4.3
(Previously	1/1/04	1350	747	97.0	42.0	114.0	6.0	168.0	226.0	184.0	2.1
reported as	4/1/04	1400	766	92.0	42.0	112.0	6.0	162.0	228.0	198.0	2.0
10S/4W-7A3	7/1/04	1410	784	98.0	43.0	92.0	6.0	171.0	231.0	200.0	3.8
(Bldg 26072)	11/1/04	1290	831	100.0	43.0	134.0	4.2	176.0	224.0	203.0	ND
(cont.)	1/1/05	1310	804	102.0	44.0	125.0	3.7	184.0	241.0	200.0	2.7
	4/1/05	1100	690	78.0	34.0	84.0	3.2	128.0	177.0	162.0	2.6
	7/1/05	1160	716	84.0	35.0	96.0	3.0	136.0	---	166.0	0 as N
	11/1/05	1180	785	92.5	40.4	97.1	3.8	138.0	202.0	174.0	5.93 as N
	4/1/06	1280	786	98.0	43.0	110.0	3.3	160.0	220.0	233.0	7.1
	4/1/07	1400	784	98.0	43.0	110.0	3.4	165.0	230.0	230.0	5.0
	4/9/08	1230	840	88.0	40.0	98.0	3.4	160.0	250.0	169.0	7.1
	11/24/09	---	---	---	---	---	---	---	---	---	<2
	4/13/10	1300	820	96.0	42.0	120.0	3.5	170.0	240.0	220.0	4.5
	7/27/11	1200	800	89.0	39.0	110.0	3.2	150.0	200.0	220.0	5.0
	4/19/12	1200	860	97.0	42.0	120.0	3.8	180.0	210.0	160.0	<2
	4/18/13	1500	960	120.0	45.0	150.0	4.0	200.0	210.0	370.0	<2
	3/16/15	1300	860	100.0	43.0	110.0	2.4	170.0	270.0	220.0	2.1
	5/12/16	1400	870	100.0	50.0	120.0	3.2	180.0	240.0	260.0	ND
	3/9/17	1400	980	110.0	47.0	120.0	3.3	180.0	260.0	250.0	<0.4 as N
10S/5W-23G4	6/9/99	1070	668	69.0	23.0	106.0	1.7	163.0	144.0	305.0	ND
(Bldg 330925)	8/18/99	1090	657	72.0	25.0	115.0	2.0	180.0	153.0	317.0	ND
	10/25/99	1150	716	79.0	27.0	140.0	2.0	120.0	140.0	305.0	ND
	2/9/00	956	522	67.0	23.0	117.0	2.0	90.0	120.0	268.0	ND
	5/10/00	1040	686	77.0	27.0	116.0	2.0	181.0	141.0	307.0	ND
	8/21/00	1180	722	80.0	28.0	105.0	2.0	155.0	143.0	232.0	ND
	2/22/01	1100	706	73.0	25.0	125.0	2.0	149.0	164.0	268.0	ND
	4/16/01	1170	701	81.0	29.0	128.0	2.0	154.0	149.0	282.0	ND
	9/26/01	1180	671	80.0	28.0	126.0	2.0	149.0	142.0	271.0	ND
	10/31/01	1180	678	81.0	28.0	132.0	2.0	161.0	156.0	281.0	ND
	2/13/02	1170	685	80.0	28.0	134.0	2.8	143.0	144.0	279.0	ND
	4/4/02	1200	711	87.0	31.0	127.0	2.3	150.0	204.0	235.0	ND
	7/11/02	1180	730	83.0	29.0	130.0	2.5	158.0	151.0	230.0	ND
	10/1/02	1180	649	78.0	27.0	115.0	2.1	135.0	138.0	217.0	ND
	1/1/03	1210	740	87.0	30.0	129.0	2.2	145.0	154.0	225.0	ND
	4/4/03	1200	681	79.0	27.0	128.0	2.5	150.0	152.0	215.0	ND

ND - Not Detected

TABLE D-6

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED ON CAMP PENDLETON**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
10S/5W-23G4 (Bldg 330925) (cont.)	10/1/03	1160	647	80.0	27.0	136.0	3.0	152.0	155.0	216.0	ND
	4/1/04	1140	604	66.0	24.0	117.0	3.0	147.0	133.0	215.0	ND
	8/1/04	1180	657	68.0	24.0	99.0	4.0	140.0	114.0	245.0	ND
	10/1/04	1170	712	85.0	29.0	97.0	5.0	160.0	172.0	---	ND
	2/1/05	1070	661	84.0	29.0	125.0	3.3	154.0	148.0	185.0	ND
	7/1/05	1050	655	72.0	23.0	118.0	2.0	127.0	---	202.0	ND
	11/1/05	1080	665	75.9	23.2	121.0	2.0	135.0	125.0	227.0	ND
	5/1/06	1110	650	71.0	24.0	120.0	1.9	140.0	130.0	217.0	ND
	4/1/07	950	632	72.0	25.0	120.0	1.9	140.0	130.0	260.0	0.0
	4/3/08	1150	672	73.0	25.0	120.0	1.8	150.0	130.0	250.0	<2
	4/14/09	1100	670	76.0	26.0	120.0	2.1	150.0	140.0	250.0	<2
	4/22/10	1100	660	71.0	24.0	120.0	1.8	140.0	120.0	250.0	<2
	4/20/11	1200	720	83.0	29.0	110.0	2.1	150.0	170.0	240.0	<2
	4/30/12	1100	720	83.0	29.0	120.0	2.0	150.0	160.0	230.0	<2
	4/17/13	1200	750	82.0	29.0	110.0	2.4	160.0	170.0	230.0	<2
	4/24/14	1300	770	88.0	31.0	120.0	2.3	160.0	180.0	220.0	<2
	3/24/15	1200	780	91.0	32.0	120.0	2.3	160.0	190.0	250.0	<2
	4/26/16	1260	802	90.0	30.8	116.0	2.2	171.0	195.0	251.0	ND
3/23/17	1300	840	100.0	35.0	130.0	2.2	170.0	200.0	260.0	<0.4 as N	
10S/5W-23K3 (Bldg 330923)	6/9/99	1150	700	75.0	27.0	106.0	2.2	163.0	155.0	317.0	ND
	8/18/99	1170	722	79.0	28.0	114.0	3.0	330.0	161.0	342.0	ND
	10/25/99	1170	723	78.0	28.0	140.0	3.0	120.0	140.0	293.0	ND
	2/3/00	1120	712	83.0	30.0	117.0	3.0	120.0	157.0	293.0	ND
	2/22/01	1240	758	85.0	31.0	136.0	3.0	167.0	152.0	305.0	ND
	4/25/01	1220	735	85.0	31.0	135.0	3.0	162.0	154.0	293.0	ND
	9/26/01	1240	682	81.0	29.0	132.0	3.0	162.0	144.0	281.0	ND
	10/25/01	1330	746	87.0	32.0	134.0	3.0	166.0	156.0	293.0	ND
	2/13/02	1190	720	83.0	29.0	140.0	3.5	150.0	155.0	281.0	ND
	4/18/02	1210	691	82.0	29.0	127.0	2.7	145.0	142.0	231.0	ND
	7/11/02	1230	738	81.0	29.0	134.0	3.1	167.0	151.0	240.0	ND
	10/1/02	1270	716	85.0	30.0	137.0	2.9	150.0	162.0	221.0	ND
	1/1/03	1340	826	100.0	35.0	141.0	2.6	156.0	185.0	252.0	0.4
	4/4/03	1350	733	85.0	30.0	129.0	2.6	162.0	171.0	235.0	ND
	10/1/03	887	800	84.0	30.0	141.0	3.0	160.0	173.0	224.0	ND
2/1/04	1250	698	83.0	29.0	120.0	4.0	154.0	172.0	233.0	ND	
4/1/04	1240	706	78.0	28.0	121.0	4.0	163.0	170.0	220.0	ND	

ND - Not Detected

TABLE D-6

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED ON CAMP PENDLETON**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
10S/5W-23K3 (Bldg 330923) (cont.)	7/1/04	1040	729	84.0	30.0	99.0	5.0	158.0	169.0	240.0	ND
	10/1/04	1180	857	86.0	30.0	97.0	5.0	159.0	172.0	235.0	ND
	2/1/05	1160	685	87.0	31.0	125.0	3.7	159.0	168.0	210.0	ND
	4/1/05	1230	760	91.0	30.0	122.0	2.6	149.0	148.0	213.0	ND
	7/5/05	1170	755	83.0	29.0	115.0	2.6	135.0	---	210.0	ND
	11/1/05	1230	735	92.8	29.5	123.0	3.0	141.0	165.0	332.0	ND
	4/1/06	1190	720	89.0	31.0	120.0	2.7	160.0	170.0	233.0	ND
	4/1/07	1010	718	87.0	30.0	120.0	2.6	160.0	170.0	250.0	0.0
	4/1/08	1250	754	91.0	32.0	110.0	2.5	160.0	180.0	184.0	ND
	4/15/09	1200	760	92.0	33.0	120.0	2.7	160.0	180.0	250.0	<2
	4/15/10	1200	760	98.0	34.0	120.0	2.6	160.0	180.0	240.0	<2
	4/13/11	1300	760	88.0	30.0	110.0	2.6	160.0	180.0	240.0	<2
	4/16/12	1200	760	98.0	34.0	120.0	2.9	170.0	190.0	230.0	<2
	4/10/13	1300	780	95.0	33.0	130.0	3.3	160.0	190.0	240.0	<2
	5/12/16	1260	752	92.4	32.1	126.0	2.8	176.0	182.0	244.0	ND
3/23/17	1300	790	96.0	34.0	120.0	2.9	170.0	190.0	250.0	<0.4 as N	
10S/5W-26C3 (Bldg 2202)	9/10/01	1410	819	101.0	38.0	138.0	3.0	173.0	175.0	296.0	ND
	10/29/01	1370	814	104.0	38.0	131.0	3.0	199.0	198.0	317.0	ND
	2/21/02	1380	834	99.0	36.0	128.0	3.0	172.0	183.0	318.0	ND
	4/18/02	1370	808	104.0	39.0	124.0	3.2	180.0	184.0	258.0	ND
	7/18/02	1450	829	101.0	37.0	137.0	3.3	187.0	193.0	260.0	ND
	10/1/02	1400	793	98.0	35.0	143.0	3.4	179.0	195.0	248.0	ND
	1/1/03	1300	806	94.0	33.0	144.0	2.0	163.0	180.0	235.0	ND
	4/2/03	1290	759	94.0	33.0	137.0	3.1	182.0	198.0	230.0	ND
	4/4/03	1290	759	94.0	32.0	137.0	3.1	182.0	198.0	230.0	ND
	10/1/03	1340	761	90.0	31.0	146.0	4.0	162.0	188.0	210.0	ND
	1/4/04	1320	743	94.0	32.0	124.0	5.0	182.0	212.0	203.0	ND
	4/4/04	1350	731	90.0	32.0	127.0	5.0	184.0	197.0	235.0	ND
	7/1/04	1100	773	91.0	32.0	98.0	5.0	167.0	197.0	215.0	ND
	10/1/04	1290	826	93.0	32.0	106.0	5.0	187.0	185.0	---	ND
	2/1/05	1260	735	101.0	35.0	127.0	3.7	175.0	188.0	215.0	ND
	4/1/05	1300	760	98.0	33.0	122.0	2.8	160.0	184.0	200.0	ND
	7/1/05	1450	1260	97.0	33.0	119.0	2.9	154.0	---	200.0	ND
11/1/05	1240	795	99.0	32.0	122.0	2.9	159.0	169.0	202.0	ND	
6/1/06	1300	796	95.0	34.0	140.0	2.9	180.0	170.0	250.0	ND	
4/1/07	1080	764	91.0	31.0	130.0	2.9	190.0	190.0	250.0	0.0	
4/1/08	1260	694	80.0	29.0	140.0	2.7	180.0	150.0	286.0	<2	

ND - Not Detected

TABLE D-6

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**WELLS SAMPLED ON CAMP PENDLETON**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
10S/5W-18B1 (Bldg 26018)	4/1/10	1400	840	100.0	42.0	110.0	3.6	170.0	230.0	240.0	<2
	4/20/11	1400	880	100.0	41.0	100.0	3.4	180.0	250.0	220.0	<2
	4/25/12	1300	910	100.0	44.0	120.0	3.8	180.0	---	230.0	<2
	4/18/13	1300	880	98.0	42.0	120.0	4.2	180.0	240.0	220.0	<2
	5/9/16	1370	868	104.0	44.2	122.0	3.9	189.0	216.0	262.0	ND
	3/30/17	1400	850	110.0	45.0	140.0	4.4	190.0	210.0	280.0	<0.4 as N

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TABLE D-12

*SANTA MARGARITA RIVER WATERSHED*  
**WATER QUALITY DATA**

**SURFACE STREAMS SAMPLED BY USGS ON CAHUILLA CREEK**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
Cahuilla Creek	2/28/05	644	446	41.9	11.2	76.9	10.1	---	---	---	.23 @N
Cahuilla Creek Below Highway 371	2/28/05	476	337	34.2	10.1	51.9	3.7	36.9	---	---	.64 @N
Unnamed Tributary to Cahuilla Creek	2/14/05	783	529	64.0	17.5	80.7	8.9	35.2	---	---	3.05 @N

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TABLE D-13

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**ANZA AREA WATER QUALITY FROM ALLUVIUM AS REPORTED BY RIVERSIDE COUNTY**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
Hamilton School Dist											
7S/3E-10 Well #1	7/24/12	---	---	---	---	---	---	---	---	---	ND
	3/5/13	---	---	---	---	---	---	---	---	---	2.1
	2/25/14	---	---	---	---	---	---	---	---	---	3.0
	7/7/15	---	---	---	---	---	---	---	---	---	ND
	12/13/16	---	---	---	---	---	---	---	---	---	0.31 as N
7S/3E-10 Well #2											
	7/24/12	---	---	---	---	---	---	---	---	---	4.1
	3/5/13	---	---	---	---	---	---	---	---	---	2.1
	2/25/14	---	---	---	---	---	---	---	---	---	14.0
	7/7/15	---	---	---	---	---	---	---	---	---	7.4
	12/1/15	---	---	---	---	---	---	---	---	---	14.0
	12/13/16	---	---	---	---	---	---	---	---	---	0.71 as N
Marchant, Cynthia Jean (Valley Auto Center)											
7S/3E-14 Well #1	3/15/12	---	---	---	---	---	---	---	---	---	43.0
	6/20/12	---	---	---	---	---	---	---	---	---	35.0
	9/12/12	---	---	---	---	---	---	---	---	---	43.0
	12/13/12	---	---	---	---	---	---	---	---	---	46.0
	3/13/13	---	---	---	---	---	---	---	---	---	40.0
	6/13/13	---	---	---	---	---	---	---	---	---	43.0
	9/11/13	---	---	---	---	---	---	---	---	---	54.0
	12/11/13	---	---	---	---	---	---	---	---	---	43.0
	3/12/14	---	---	---	---	---	---	---	---	---	49.0
	5/7/14	---	---	---	---	---	---	---	---	---	14.0
	6/11/14	---	---	---	---	---	---	---	---	---	43.0
	9/10/14	---	---	---	---	---	---	---	---	---	47.0
	1/5/15	---	---	---	---	---	---	---	---	---	15.0
	3/4/15	---	---	---	---	---	---	---	---	---	47.0
	6/10/15	---	---	---	---	---	---	---	---	---	46.0
	9/8/15	---	---	---	---	---	---	---	---	---	52.0
	11/10/15	---	---	---	---	---	---	---	---	---	20.0
	12/9/15	---	---	---	---	---	---	---	---	---	48.0
	6/7/16	---	---	---	---	---	---	---	---	---	11.0 as N
	7/12/16	---	---	---	---	---	---	---	---	---	3.0 as N
	9/13/16	---	---	---	---	---	---	---	---	---	10.0 as N
	12/13/16	---	---	---	---	---	---	---	---	---	10.0 as N
	3/14/17	---	---	---	---	---	---	---	---	---	11.0 as N
	8/9/17	---	---	---	---	---	---	---	---	---	11.0 as N
	9/14/17	---	---	---	---	---	---	---	---	---	9.9 as N

ND - Not Detected

TABLE D-13

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**ANZA AREA WATER QUALITY FROM ALLUVIUM AS REPORTED BY RIVERSIDE COUNTY**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
Jakobs, Terry and Brenda (La Cocina)											
7S/3E-16 Well #1	12/3/12	---	---	---	---	---	---	---	---	---	17.0
	12/17/13	---	---	---	---	---	---	---	---	---	17.0
	12/29/14	---	---	---	---	---	---	---	---	---	16.0
	12/16/15	---	---	---	---	---	---	---	---	---	17.0
	12/14/16	---	---	---	---	---	---	---	---	---	3.7 as N
Agostino, Kathleen D (Anza Valley Business Center)											
7S/3E-16 Well #1	6/11/16	---	---	---	---	---	---	---	---	---	15.0 as N
Griffin, Robert and Bertrand (Country Corners)											
7S/3E-16 Well #1	12/28/11	---	---	---	---	---	---	---	---	---	18.0
	8/16/12	---	---	---	---	---	---	---	---	---	17.0
	10/8/13	---	---	---	---	---	---	---	---	---	20.0
	11/18/14	---	---	---	---	---	---	---	---	---	20.0
	12/23/15	---	---	---	---	---	---	---	---	---	21.3
	1/18/17	---	---	---	---	---	---	---	---	---	4.84 as N
Kathawa, George and Bernadette (Jilberto's Restaurant)											
7S/3E-20 Well #1	5/9/12	---	---	---	---	---	---	---	---	---	21.0
	8/8/12	---	---	---	---	---	---	---	---	---	15.0
	11/8/12	---	---	---	---	---	---	---	---	---	22.0
	2/13/13	---	---	---	---	---	---	---	---	---	20.0
	5/15/13	---	---	---	---	---	---	---	---	---	21.0
	7/17/13	---	---	---	---	---	---	---	---	---	22.0
	11/14/13	---	---	---	---	---	---	---	---	---	21.0
	2/13/14	---	---	---	---	---	---	---	---	---	26.0
	5/8/14	---	---	---	---	---	---	---	---	---	19.0
	8/14/14	---	---	---	---	---	---	---	---	---	21.0
	11/13/14	---	---	---	---	---	---	---	---	---	23.0
	2/18/15	---	---	---	---	---	---	---	---	---	23.0
	5/6/15	---	---	---	---	---	---	---	---	---	22.0
	7/1/15	---	---	---	---	---	---	---	---	---	20.0
	11/4/15	---	---	---	---	---	---	---	---	---	23.0
	2/3/16	---	---	---	---	---	---	---	---	---	4.5 as N
	5/4/16	---	---	---	---	---	---	---	---	---	4.5 as N

ND - Not Detected

TABLE D-13

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**ANZA AREA WATER QUALITY FROM ALLUVIUM AS REPORTED BY RIVERSIDE COUNTY**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
Kathawa, George and Bernadette (Jilberto's Restaurant)											
7S/3E-20 Well #1	8/3/16	---	---	---	---	---	---	---	---	---	4.7 as N
(cont.)	11/3/16	---	---	---	---	---	---	---	---	---	4.6 as N
	2/1/17	---	---	---	---	---	---	---	---	---	5.5 as N
	5/3/17	---	---	---	---	---	---	---	---	---	4.7 as N
	8/1/17	---	---	---	---	---	---	---	---	---	4.7 as N
Anza Mutual Water Company											
7S/3E-21 Well #1	4/23/08	---	---	---	---	---	---	---	---	---	31.0
	7/3/08	640	390	27.0	15.0	71.0	4.5	80.0	72.0	130.0	ND
	12/17/09	---	---	---	---	---	---	---	---	---	33.0
	3/15/10	---	---	---	---	---	---	---	---	---	35.0
	8/19/10	---	---	---	---	---	---	---	---	---	ND
	11/18/10	---	---	---	---	---	---	---	---	---	31.0
	2/17/10	---	---	---	---	---	---	---	---	---	30.0
	5/19/11	---	---	---	---	---	---	---	---	---	35.0
	9/15/11	850	500	70.0	21.0	76.0	4.6	77.0	100.0	190.0	32.0
	11/17/11	---	---	---	---	---	---	---	---	---	31.0
	2/9/12	---	---	---	---	---	---	---	---	---	36.0
	5/9/12	---	---	---	---	---	---	---	---	---	32.0
	8/8/12	---	---	---	---	---	---	---	---	---	30.0
	11/8/12	---	---	---	---	---	---	---	---	---	33.0
	2/13/13	---	---	---	---	---	---	---	---	---	28.0
	5/15/13	---	---	---	---	---	---	---	---	---	33.0
	7/11/13	---	---	---	---	---	---	---	---	---	32.0
	11/14/13	---	---	---	---	---	---	---	---	---	31.0
	2/13/14	---	---	---	---	---	---	---	---	---	32.0
	5/8/14	---	---	---	---	---	---	---	---	---	36.0
	8/14/14	---	---	---	---	---	---	---	---	---	33.0
	11/13/14	---	---	---	---	---	---	---	---	---	32.0
	3/18/15	---	---	---	---	---	---	---	---	---	33.0
	5/6/15	---	---	---	---	---	---	---	---	---	32.0
	7/1/15	---	---	---	---	---	---	---	---	---	34.0
	8/26/15	---	---	---	---	---	---	---	---	---	35.0
	11/4/15	---	---	---	---	---	---	---	---	---	32.0
	2/3/16	---	---	---	---	---	---	---	---	---	7.3 as N
	5/4/16	---	---	---	---	---	---	---	---	---	7.3 as N
	8/3/16	---	---	---	---	---	---	---	---	---	8.0 as N
	11/1/16	---	---	---	---	---	---	---	---	---	7.1 as N

TABLE D-13

SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA

ANZA AREA WATER QUALITY FROM ALLUVIUM AS REPORTED BY RIVERSIDE COUNTY

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
Anza Mutual Water Company											
7S/3E-21 Well #1	2/1/17	---	---	---	---	---	---	---	---	---	8.1 as N
	5/3/17	---	---	---	---	---	---	---	---	---	7.7 as N
	8/1/17	---	---	---	---	---	---	---	---	---	8.1 as N
Anza Mutual Water Company											
7S/3E-21 Well #2	5/19/11	---	---	---	---	---	---	---	---	---	35.0
	9/15/11	900	540	70.0	15.0	97.0	4.2	100.0	87.0	190.0	41.0
	11/16/11	730	440	66.0	13.0	61.0	3.8	63.0	86.0	170.0	36.0
	11/17/11	---	---	---	---	---	---	---	---	---	37.0
	5/9/12	---	---	---	---	---	---	---	---	---	37.0
	8/8/12	---	---	---	---	---	---	---	---	---	31.0
	11/8/12	---	---	---	---	---	---	---	---	---	37
	2/13/13	---	---	---	---	---	---	---	---	---	29.0
	5/15/13	---	---	---	---	---	---	---	---	---	35.0
	7/11/13	---	---	---	---	---	---	---	---	---	38.0
	11/14/13	---	---	---	---	---	---	---	---	---	31.0
	2/13/14	---	---	---	---	---	---	---	---	---	33.0
	5/8/14	---	---	---	---	---	---	---	---	---	42.0
	6/12/14	---	---	---	---	---	---	---	---	---	40.0
	7/10/14	---	---	---	---	---	---	---	---	---	40.0
	8/14/14	---	---	---	---	---	---	---	---	---	40.0
	9/11/14	---	---	---	---	---	---	---	---	---	41.0
	10/9/14	---	---	---	---	---	---	---	---	---	39.0
	11/13/14	---	---	---	---	---	---	---	---	---	35.0
	12/10/14	---	---	---	---	---	---	---	---	---	32.0
	1/8/15	---	---	---	---	---	---	---	---	---	30.0
	3/18/15	---	---	---	---	---	---	---	---	---	37.0
	5/6/15	---	---	---	---	---	---	---	---	---	38.0
	7/1/15	---	---	---	---	---	---	---	---	---	40.0
	8/26/15	740	490	71.0	15.0	61.0	3.5	59.0	92.0	200.0	41.0
	11/4/15	---	---	---	---	---	---	---	---	---	36.0
	2/3/16	---	---	---	---	---	---	---	---	---	7.4 as N
	5/4/16	---	---	---	---	---	---	---	---	---	8.2 as N
	8/3/16	---	---	---	---	---	---	---	---	---	8.8 as N
	11/1/16	---	---	---	---	---	---	---	---	---	8.0 as N
	2/1/17	---	---	---	---	---	---	---	---	---	8.2 as N
	5/3/17	---	---	---	---	---	---	---	---	---	8.7 as N
	8/1/17	---	---	---	---	---	---	---	---	---	9.4 as N

ND - Not Detected

TABLE D-13

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**ANZA AREA WATER QUALITY FROM ALLUVIUM AS REPORTED BY RIVERSIDE COUNTY**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
R J Mission Plaza (Anza Petroleum)											
7S/3E-21 Well #1	2/8/12	---	---	---	---	---	---	---	---	---	29.0
	5/9/12	---	---	---	---	---	---	---	---	---	29.0
	8/8/12	---	---	---	---	---	---	---	---	---	27.0
	11/8/12	---	---	---	---	---	---	---	---	---	31.0
	2/13/13	---	---	---	---	---	---	---	---	---	27.0
	5/15/13	---	---	---	---	---	---	---	---	---	27.0
	7/11/13	---	---	---	---	---	---	---	---	---	30.0
	11/14/13	---	---	---	---	---	---	---	---	---	29.0
	2/13/14	---	---	---	---	---	---	---	---	---	28.0
	5/8/14	---	---	---	---	---	---	---	---	---	29.0
	8/14/14	---	---	---	---	---	---	---	---	---	28.0
	11/13/14	---	---	---	---	---	---	---	---	---	29.0
R J Mission Plaza (Anza Petroleum)											
7S/3E-21 Well #1	2/25/15	---	---	---	---	---	---	---	---	---	28.0
	5/6/15	---	---	---	---	---	---	---	---	---	29.0
	7/1/15	---	---	---	---	---	---	---	---	---	29.0
	11/4/15	---	---	---	---	---	---	---	---	---	30.0
	12/9/15	---	---	---	---	---	---	---	---	---	30.0
	5/4/16	---	---	---	---	---	---	---	---	---	7.2 as N
	11/2/16	---	---	---	---	---	---	---	---	---	6.9 as N
	11/14/16	---	---	---	---	---	---	---	---	---	6.9 as N
	2/1/17	---	---	---	---	---	---	---	---	---	7.4 as N
	5/3/17	---	---	---	---	---	---	---	---	---	7.2 as N
	8/1/17	---	---	---	---	---	---	---	---	---	7.2 as N
La Plata Enterprises Inc											
7S/3E-21 Well #1	3/15/12	---	---	---	---	---	---	---	---	---	ND
	1/18/15	---	---	---	---	---	---	---	---	---	ND
	1/12/16	---	---	---	---	---	---	---	---	---	2.9
	1/12/16	---	---	---	---	---	---	---	---	---	0.66 as N
	9/13/16	---	---	---	---	---	---	---	---	---	1.5 as N
Georges, John (Diner 371)											
7S/3E-22 Well #1	2/13/13	---	---	---	---	---	---	---	---	---	ND
	2/13/14	---	---	---	---	---	---	---	---	---	ND
	2/10/16	---	---	---	---	---	---	---	---	---	ND

ND - Not Detected

TABLE D-13

*SANTA MARGARITA RIVER WATERSHED*  
**WATER QUALITY DATA**

**ANZA AREA WATER QUALITY FROM ALLUVIUM AS REPORTED BY RIVERSIDE COUNTY**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
Anza First Southern Baptist Church											
7S/3E-23 Well #1	4/18/12	---	---	---	---	---	---	---	---	---	79.0
	10/17/12	---	---	---	---	---	---	---	---	---	78.0
	4/17/13	---	---	---	---	---	---	---	---	---	85.0
	10/16/13	---	---	---	---	---	---	---	---	---	71.0
	1/15/14	---	---	---	---	---	---	---	---	---	70.0
	6/18/14	---	---	---	---	---	---	---	---	---	74.0
	7/20/14	---	---	---	---	---	---	---	---	---	86.0
	10/9/14	---	---	---	---	---	---	---	---	---	79.0
	1/5/15	---	---	---	---	---	---	---	---	---	83.0
	4/7/15	---	---	---	---	---	---	---	---	---	85.0
	7/7/15	---	---	---	---	---	---	---	---	---	80.0
	10/20/15	---	---	---	---	---	---	---	---	---	85.0
	4/12/16	---	---	---	---	---	---	---	---	---	22.0 as N
	7/13/16	---	---	---	---	---	---	---	---	---	22.0 as N
	10/11/16	---	---	---	---	---	---	---	---	---	19.0 as N
	1/17/17	---	---	---	---	---	---	---	---	---	16.0 as N
	4/11/17	---	---	---	---	---	---	---	---	---	22.0 as N
	7/11/17	---	---	---	---	---	---	---	---	---	21.0 as N
Ramona Water Company											
Patterson Well	12/20/12	---	---	---	---	---	---	---	---	---	20.0
	2/13/13	---	---	---	---	---	---	---	---	---	18.0
	2/13/14	---	---	---	---	---	---	---	---	---	18.0
	12/11/14	---	---	---	---	---	---	---	---	---	19.0
	3/7/17	380	270	35.0	7.1	22.0	11.0	30.0	4.9	150.0	4.5 as N
Well #1 Ranch (inactive)											
	12/13/16	---	---	---	---	---	---	---	---	---	4.3 as N
	5/30/17	---	---	---	---	---	---	---	---	---	0.47 as N
Well #2-Red Shank											
	3/30/09	---	---	---	---	---	---	---	---	---	38.0
	6/22/09	---	---	---	---	---	---	---	---	---	37.0
	9/28/09	---	---	---	---	---	---	---	---	---	41.0
	11/19/09	---	---	---	---	---	---	---	---	---	38.0
	12/14/09	---	---	---	---	---	---	---	---	---	38.0
	6/17/10	---	---	---	---	---	---	---	---	---	36.0
	8/19/10	---	---	---	---	---	---	---	---	---	44.0
	9/20/10	---	---	---	---	---	---	---	---	---	47.0
	9/23/10	---	---	---	---	---	---	---	---	---	38.0

ND - Not Detected

TABLE D-13

**SANTA MARGARITA RIVER WATERSHED  
WATER QUALITY DATA**

**ANZA AREA WATER QUALITY FROM ALLUVIUM AS REPORTED BY RIVERSIDE COUNTY**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l								
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3	
Ramona Water Company												
Well #2-Red Shank	2/17/11	---	---	---	---	---	---	---	---	---	---	41.0
(cont.)	5/18/11	580	---	57.0	13.0	42.0	8.2	48.0	11.0	210.0		41.0
	6/28/11	---	---	---	---	---	---	---	---	---		43.0
	11/17/11	---	---	---	---	---	---	---	---	---		41.0
	2/8/12	---	---	---	---	---	---	---	---	---		44.0
	4/11/12	---	---	---	---	---	---	---	---	---		42.0
	8/8/12	---	---	---	---	---	---	---	---	---		47.0
	11/8/12	---	---	---	---	---	---	---	---	---		52.0
	2/13/13	---	---	---	---	---	---	---	---	---		49.0
	5/15/13	---	---	---	---	---	---	---	---	---		48.0
	9/6/13	---	---	---	---	---	---	---	---	---		49.0
	11/14/13	---	---	---	---	---	---	---	---	---		51.0
	2/13/14	---	---	---	---	---	---	---	---	---		49.0
	5/8/14	---	---	---	---	---	---	---	---	---		53.0
	6/12/14	---	---	---	---	---	---	---	---	---		50.0
	8/14/14	---	---	---	---	---	---	---	---	---		49.0
	12/11/14	---	---	---	---	---	---	---	---	---		48.0
	4/8/15	---	---	---	---	---	---	---	---	---		42.0
	6/24/15	---	---	---	---	---	---	---	---	---		48.0
	1/12/16	---	---	---	---	---	---	---	---	---		10.0 as N
	2/9/16	---	---	---	---	---	---	---	---	---		12.0 as N
	12/13/16	---	---	---	---	---	---	---	---	---		12.0 as N
	4/12/17	---	---	---	---	---	---	---	---	---		11.0 as N
Well #3-Burnt Valley	3/30/09	---	---	---	---	---	---	---	---	---		6.5
	12/14/09	---	---	---	---	---	---	---	---	---		4.9
	2/17/11	---	---	---	---	---	---	---	---	---		7.5
	5/18/11	600	---	57.0	17.0	35.0	11.0	61.0	12.0	240.0		5.7
	4/11/12	---	---	---	---	---	---	---	---	---		8.1
	10/20/15	---	---	---	---	---	---	---	---	---		6.8
	2/8/17	590	330	50.0	19.0	38.0	11.0	57.0	10.0	240.0		1.8 as N
Well #4-Reynolds	3/30/09	---	---	---	---	---	---	---	---	---		20.0
	6/22/09	---	---	---	---	---	---	---	---	---		37.0
	9/28/09	---	---	---	---	---	---	---	---	---		24.0
	11/19/09	---	---	---	---	---	---	---	---	---		22.0
	12/14/09	---	---	---	---	---	---	---	---	---		21.0
	7/15/10	---	---	---	---	---	---	---	---	---		29.0

ND - Not Detected

TABLE D-13

*SANTA MARGARITA RIVER WATERSHED*  
**WATER QUALITY DATA**

**ANZA AREA WATER QUALITY FROM ALLUVIUM AS REPORTED BY RIVERSIDE COUNTY**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l								
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3	
Ramona Water Company												
Well #4-Reynolds	8/19/10	---	---	---	---	---	---	---	---	---	---	24.0
(cont.)	5/18/11	510	---	47.0	11.0	39.0	10.0	39.0	9.4	200.0	---	32.0
	6/28/11	---	---	---	---	---	---	---	---	---	---	27.0
	11/17/11	---	---	---	---	---	---	---	---	---	---	27.0
	2/8/12	---	---	---	---	---	---	---	---	---	---	33.0
	4/11/12	---	---	---	---	---	---	---	---	---	---	25.0
	8/8/12	---	---	---	---	---	---	---	---	---	---	26.0
	11/8/12	---	---	---	---	---	---	---	---	---	---	30.0
	2/13/13	---	---	---	---	---	---	---	---	---	---	27.0
	5/15/13	---	---	---	---	---	---	---	---	---	---	32.0
	9/6/13	---	---	---	---	---	---	---	---	---	---	28.0
	11/14/13	---	---	---	---	---	---	---	---	---	---	42.0
	9/11/14	---	---	---	---	---	---	---	---	---	---	45.0
	9/17/14	---	---	---	---	---	---	---	---	---	---	42.0
	12/11/14	---	---	---	---	---	---	---	---	---	---	31.0
	4/8/15	---	---	---	---	---	---	---	---	---	---	40.0
	12/13/16	---	---	---	---	---	---	---	---	---	---	9.1 as N
	2/8/17	570	350	47.0	12.0	42.0	11.0	36.0	11.0	220.0	---	10.0 as N
Well #5-Everett	3/30/09	---	---	---	---	---	---	---	---	---	---	62.0
	9/28/09	---	---	---	---	---	---	---	---	---	---	49.0
	11/19/09	---	---	---	---	---	---	---	---	---	---	57.0
	12/14/09	---	---	---	---	---	---	---	---	---	---	56.0
	3/15/10	---	---	---	---	---	---	---	---	---	---	60.0
	6/17/10	---	---	---	---	---	---	---	---	---	---	55.0
	8/27/10	---	---	---	---	---	---	---	---	---	---	56.0
	2/17/11	---	---	---	---	---	---	---	---	---	---	58.0
	2/18/11	---	---	---	---	---	---	---	---	---	---	59.0
	5/18/11	660	---	64.0	12.0	52.0	8.2	48.0	12.0	260.0	---	50.0
	6/28/11	---	---	---	---	---	---	---	---	---	---	58.0
	11/17/11	---	---	---	---	---	---	---	---	---	---	59.0
	2/8/12	---	---	---	---	---	---	---	---	---	---	56.0
	4/11/12	---	---	---	---	---	---	---	---	---	---	54.0
	8/8/12	---	---	---	---	---	---	---	---	---	---	57.0
	11/8/12	---	---	---	---	---	---	---	---	---	---	66.0
	2/13/13	---	---	---	---	---	---	---	---	---	---	56.0
	5/15/13	---	---	---	---	---	---	---	---	---	---	50.0
	9/6/13	---	---	---	---	---	---	---	---	---	---	35.0



TABLE D-13

*SANTA MARGARITA RIVER WATERSHED*  
**WATER QUALITY DATA**

**ANZA AREA WATER QUALITY FROM ALLUVIUM AS REPORTED BY RIVERSIDE COUNTY**

Site Location	Date Sampled	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
-----											
Ramona Water Company											
Well #5-Everett	11/14/13	---	---	---	---	---	---	---	---	---	38.0
(cont.)	2/13/14	---	---	---	---	---	---	---	---	---	38.0
	5/8/14	---	---	---	---	---	---	---	---	---	34.0
	7/10/14	---	---	---	---	---	---	---	---	---	29.0
	8/14/14	---	---	---	---	---	---	---	---	---	30.0
	12/11/14	---	---	---	---	---	---	---	---	---	30.0
	7/22/15	---	---	---	---	---	---	---	---	---	42.0
	4/12/17	---	---	---	---	---	---	---	---	---	12.0 as N
Well #6-End Everett Road	3/30/09	---	---	---	---	---	---	---	---	---	23.0
	12/14/09	---	---	---	---	---	---	---	---	---	16.0
	2/17/11	---	---	---	---	---	---	---	---	---	19.0
	5/18/11	390	---	42.0	9.0	22.0	10.0	29.0	5.6	160.0	19.0
	4/11/12	---	---	---	---	---	---	---	---	---	18.0
	1/12/16	---	---	---	---	---	---	---	---	---	12.0
Well #7-Anzanita	3/30/09	---	---	---	---	---	---	---	---	---	16.0
	11/19/09	---	---	---	---	---	---	---	---	---	15.0
	8/27/10	---	---	---	---	---	---	---	---	---	30.0
	2/16/11	---	---	---	---	---	---	---	---	---	21.0
	5/18/11	550	---	50.0	9.2	50.0	8.8	39.0	9.2	240.0	24.0
	7/6/11	---	---	---	---	---	---	---	---	---	32.0
	11/18/11	---	---	---	---	---	---	---	---	---	27.0
	2/8/12	---	---	---	---	---	---	---	---	---	24.0
	4/13/12	---	---	---	---	---	---	---	---	---	26.0
	8/8/12	---	---	---	---	---	---	---	---	---	33.0
	9/30/12	---	---	---	---	---	---	---	---	---	30.0
	11/8/12	---	---	---	---	---	---	---	---	---	39.0
	2/13/13	---	---	---	---	---	---	---	---	---	14.0
	5/15/13	---	---	---	---	---	---	---	---	---	28.0
	9/6/13	---	---	---	---	---	---	---	---	---	41.0
	11/14/13	---	---	---	---	---	---	---	---	---	26.0
	2/13/14	---	---	---	---	---	---	---	---	---	24.0
	5/8/14	---	---	---	---	---	---	---	---	---	25.0
	8/14/14	---	---	---	---	---	---	---	---	---	26.0

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***SANTA MARGARITA RIVER WATERSHED***

**ANNUAL WATERMASTER REPORT**

**WATER YEAR 2016-17**

**APPENDIX D**

**WATER QUALITY DATA**

**December 2018**



APPENDIX E

SANTA MARGARITA RIVER WATERSHED  
 COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT REQUIRED FLOWS AND ACCOUNTS  
 SANTA MARGARITA RIVER NEAR TEMECULA

JANUARY 2017 - ABOVE NORMAL YEAR

Day	Minimum Flow										CAMP PENDLETON GROUNDWATER BANK			
	USGS Official Discharge	USGS Daily Website Discharge	10-Day Running Average of Website Discharge	Maintenance Requirement /1	Running Average Less Required Flow	WR-34 Make-Up Discharge	Climatic Credit Earned		Input /2	Input	Output	Output	Cumulative Balance	
	cfs	cfs	cfs	cfs	cfs	cfs	AF	cfs	AF	cfs	AF	AF	AF	
1	39.9	41.0				0.0	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0	
2	13.1	14.0				0.0	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0	
3	8.57	8.9				5.3	10.5	0.0	6.3	12.5	0.0	0.0	5,000.0	
4	8.66	9.0				7.4	14.7	0.0	6.3	12.5	0.0	0.0	5,000.0	
5	9.17	9.5				6.4	12.6	0.0	6.3	12.5	0.0	0.0	5,000.0	
6	8.86	8.9				4.6	9.1	0.0	6.3	12.5	0.0	0.0	5,000.0	
7	8.93	8.9				7.9	15.7	0.0	6.3	12.5	0.0	0.0	5,000.0	
8	8.91	8.9				8.3	16.5	0.0	6.3	12.5	0.0	0.0	5,000.0	
9	33.3	33.0				3.3	6.5	0.0	6.3	12.5	0.0	0.0	5,000.0	
10	11.7	12.0				0.8	1.5	0.0	6.3	12.5	0.0	0.0	5,000.0	
11	18.0	18.0	13.1	8.9	4.2	1.5	3.0	0.0	6.3	12.5	0.0	0.0	5,000.0	
12	107.	107.0	22.4	8.9	13.5	0.4	0.8	0.0	6.3	12.5	0.0	0.0	5,000.0	
13	216.	216.0	43.1	8.9	34.2	0.0	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0	
14	33.8	34.0	45.6	8.9	36.7	0.0	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0	
15	10.0	10.0	45.7	8.9	36.8	1.1	2.2	0.0	6.3	12.5	0.0	0.0	5,000.0	
16	8.90	8.9	45.7	8.9	36.8	5.7	11.3	0.0	6.3	12.5	0.0	0.0	5,000.0	
17	8.86	8.9	45.7	8.9	36.8	7.4	14.6	0.0	6.3	12.5	0.0	0.0	5,000.0	
18	8.73	8.7	45.7	8.9	36.8	7.9	15.6	0.0	6.3	12.5	0.0	0.0	5,000.0	
19	136.	136.0	56.0	8.9	47.1	2.6	5.2	0.0	6.3	12.5	0.0	0.0	5,000.0	
20	1,200.	1,190.0	173.8	8.9	164.9	0.0	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0	
21	346.	346.0	206.6	8.9	197.7	0.0	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0	
22	2,690.	2,690.0	464.9	8.9	456.0	0.0	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0	
23	1,630.	1,510.0	594.3	8.9	585.4	0.0	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0	
24	242.	192.0	610.1	8.9	601.2	0.0	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0	
25	79.9	65.0	615.6	8.9	606.7	0.0	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0	
26	35.3	30.0	617.7	8.9	608.8	0.0	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0	
27	19.0	17.0	618.5	8.9	609.6	0.0	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0	
28	11.3	10.0	618.6	8.9	609.7	0.2	0.3	0.0	6.3	12.5	0.0	0.0	5,000.0	
29	9.48	8.4	605.8	8.9	596.9	2.0	3.9	0.0	6.3	12.5	0.0	0.0	5,000.0	
30	9.62	8.5	487.7	8.9	478.8	3.7	7.3	0.0	6.3	12.5	0.0	0.0	5,000.0	
31	10.1	9.0	454.0	8.9	445.1	3.3	6.6	0.0	6.3	12.5	0.0	0.0	5,000.0	
<b>TOTAL SFD</b>	6,981.1	6,777.5	6,430.6	186.9	6,243.7	79.8	157.9	0.0	195.3	387.5	0.0	0.0	5,000.0	
<b>TOTAL AF</b>	13,846.8	13,443.0	12,754.9	370.7	12,384.2									

1 - Required flows for January through April are equal to 11.5 cfs less 2.6 cfs of credits (623 AF of Climatic Credit earned in 2016).

2 - Art. 17 - Camp Pendleton rights to groundwater equal the flow indicated in Section 5 of the CWRMA minus the Actual Flow Maintenance Requirement which cannot be less than 3.0 cfs. Input to Groundwater Bank shown but cumulative balance did not increase due to account balance maximum of 5,000 AF.

**APPENDIX E**

**SANTA MARGARITA RIVER WATERSHED  
COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT REQUIRED FLOWS AND ACCOUNTS  
SANTA MARGARITA RIVER NEAR TEMECULA**

**FEBRUARY 2017 - ABOVE NORMAL YEAR**

Day	Minimum Flow										CAMP PENDLETON GROUNDWATER BANK			
	USGS Official Discharge cfs	USGS Daily Website Discharge cfs	10-Day Running Average of Website Discharge cfs	Maintenance Requirement /1 cfs	Running Average Less Required Flow cfs	WR-34 Make-Up Discharge cfs	Climatic Credit Earned cfs	AF	Input /2 cfs	Input AF	Output cfs	Output AF	Cumulative Balance AF	
1	9.70	8.6	185.9	8.9	177.0	6.7	13.2	0.0	6.3	12.5	0.0	0.0	5,000.0	
2	11.3	10.0	35.9	8.9	27.0	8.5	16.8	0.0	6.3	12.5	0.0	0.0	5,000.0	
3	11.9	11.0	17.8	8.9	8.9	9.6	19.1	0.0	6.3	12.5	0.0	0.0	5,000.0	
4	9.96	8.8	12.1	8.9	3.2	8.2	16.3	0.0	6.3	12.5	0.0	0.0	5,000.0	
5	7.42	6.5	9.8	8.9	0.9	6.0	11.9	0.0	6.3	12.5	0.0	0.0	5,000.0	
6	8.80	7.8	8.9	8.9	0.0	7.1	14.1	0.0	6.3	12.5	0.0	0.0	5,000.0	
7	19.7	18.0	9.7	8.9	0.8	2.1	4.2	0.0	6.3	12.5	0.0	0.0	5,000.0	
8	10.1	10.0	9.8	8.9	0.9	0.7	1.3	0.0	6.3	12.5	0.0	0.0	5,000.0	
9	8.77	8.8	9.9	8.9	1.0	3.2	6.3	0.0	6.3	12.5	0.0	0.0	5,000.0	
10	8.87	10.0	10.0	8.9	1.1	7.6	15.0	0.0	6.3	12.5	0.0	0.0	5,000.0	
11	8.22	9.7	10.1	8.9	1.2	7.6	15.1	0.0	6.3	12.5	0.0	0.0	5,000.0	
12	7.87	8.9	10.0	8.9	1.1	7.2	14.2	0.0	6.3	12.5	0.0	0.0	5,000.0	
13	7.85	8.9	9.7	8.9	0.8	7.3	14.5	0.0	6.3	12.5	0.0	0.0	5,000.0	
14	7.85	8.9	9.8	8.9	0.9	7.4	14.7	0.0	6.3	12.5	0.0	0.0	5,000.0	
15	7.86	8.9	10.0	8.9	1.1	7.5	14.8	0.0	6.3	12.5	0.0	0.0	5,000.0	
16	7.89	8.9	10.1	8.9	1.2	7.5	14.8	0.0	6.3	12.5	0.0	0.0	5,000.0	
17	106.	106.0	18.9	8.9	10.0	5.9	11.8	0.0	6.3	12.5	0.0	0.0	5,000.0	
18	431.	430.0	60.9	8.9	52.0	0.0	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0	
19	46.6	47.0	64.7	8.9	55.8	0.0	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0	
20	14.5	14.0	65.1	8.9	56.2	0.0	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0	
21	10.9	11.0	65.3	8.9	56.4	1.2	2.3	0.0	6.3	12.5	0.0	0.0	5,000.0	
22	9.24	9.2	65.3	8.9	56.4	5.0	10.0	0.0	6.3	12.5	0.0	0.0	5,000.0	
23	8.87	8.9	65.3	8.9	56.4	6.6	13.1	0.0	6.3	12.5	0.0	0.0	5,000.0	
24	8.89	8.9	65.3	8.9	56.4	7.6	15.0	0.0	6.3	12.5	0.0	0.0	5,000.0	
25	8.89	8.9	65.3	8.9	56.4	8.0	15.8	0.0	6.3	12.5	0.0	0.0	5,000.0	
26	8.91	8.9	65.3	8.9	56.4	7.9	15.7	0.0	6.3	12.5	0.0	0.0	5,000.0	
27	872.	872.0	141.9	8.9	133.0	2.1	4.1	0.0	6.3	12.5	0.0	0.0	5,000.0	
28	437.	437.0	142.6	8.9	133.7	0.0	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0	
<b>TOTAL SFD</b>	2,116.9	2,115.5	1,255.4	249.2	1,006.2	148.5	294.1	0.0	176.4	350.0	0.0	0.0	5,000.0	
<b>TOTAL AF</b>	4,198.7	4,196.0	2,490.0	494.3	1,995.8									

1 - Required flows for January through April are equal to 11.5 cfs less 2.6 cfs of credits (623 AF of Climatic Credit earned in 2016).

2 - Art. 17 - Camp Pendleton rights to groundwater equal the flow indicated in Section 5 of the CWRMA minus the Actual Flow Maintenance Requirement which cannot be less than 3.0 cfs. Input to Groundwater Bank shown but cumulative balance did not increase due to account balance maximum of 5,000 AF.

APPENDIX E

SANTA MARGARITA RIVER WATERSHED  
 COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT REQUIRED FLOWS AND ACCOUNTS  
 SANTA MARGARITA RIVER NEAR TEMECULA

MARCH 2017 - ABOVE NORMAL YEAR

Day	Minimum Flow										CAMP PENDLETON GROUNDWATER BANK			
	USGS Official Discharge cfs	USGS Daily Website Discharge cfs	10-Day Running Average of Website Discharge cfs	Maintenance Requirement /1 cfs	Running Average Less Required Flow cfs	WR-34 Make-Up Discharge cfs	Climatic Credit Earned cfs	AF	Input /2 cfs	Input AF	Output cfs	Output AF	Cumulative Balance AF	
1	53.2	53.0	143.2	8.9	134.3	0.0	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0	
2	23.8	24.0	144.2	8.9	135.3	0.0	0.0	0.0	6.3	12.5	0.0	0.0	5,000.0	
3	13.2	13.0	144.4	8.9	135.5	0.1	0.2	0.0	6.3	12.5	0.0	0.0	5,000.0	
4	9.41	9.4	144.4	8.9	135.5	1.4	2.8	0.0	6.3	12.5	0.0	0.0	5,000.0	
5	8.93	8.9	144.4	8.9	135.5	4.7	9.4	0.0	6.3	12.5	0.0	0.0	5,000.0	
6	8.84	8.8	144.4	8.9	135.5	5.6	11.2	0.0	6.3	12.5	0.0	0.0	5,000.0	
7	8.88	8.9	144.4	8.9	135.5	6.6	13.1	0.0	6.3	12.5	0.0	0.0	5,000.0	
8	8.94	12.1	144.7	8.9	135.8	4.5	8.9	0.0	6.3	12.5	0.0	0.0	5,000.0	
9	8.87	8.9	58.4	8.9	49.5	7.0	13.8	0.0	6.3	12.5	0.0	0.0	5,000.0	
10	8.85	8.8	15.6	8.9	6.7	7.5	14.8	0.0	6.3	12.5	0.0	0.0	5,000.0	
11	8.89	8.9	11.2	8.9	2.3	7.7	15.3	0.0	6.3	12.5	0.0	0.0	5,000.0	
12	8.89	8.9	9.7	8.9	0.8	7.9	15.7	0.0	6.3	12.5	0.0	0.0	5,000.0	
13	8.89	8.9	9.3	8.9	0.4	8.0	15.8	0.0	6.3	12.5	0.0	0.0	5,000.0	
14	8.13	8.2	9.1	8.9	0.2	9.5	18.9	0.0	6.3	12.5	0.0	0.0	5,000.0	
15	6.90	6.9	8.9	8.9	0.0	9.5	18.8	0.0	6.3	12.5	0.0	0.0	5,000.0	
16	11.4	11.0	9.2	8.9	0.3	10.4	20.7	0.0	6.3	12.5	0.0	0.0	5,000.0	
17	12.5	13.0	9.6	8.9	0.7	11.5	22.8	0.0	6.3	12.5	0.0	0.0	5,000.0	
18	10.1	10.0	9.4	8.9	0.5	9.2	18.3	0.0	6.3	12.5	0.0	0.0	5,000.0	
19	8.91	8.9	9.4	8.9	0.5	8.2	16.2	0.0	6.3	12.5	0.0	0.0	5,000.0	
20	8.90	8.9	9.4	8.9	0.5	8.2	16.2	0.0	6.3	12.5	0.0	0.0	5,000.0	
21	8.86	8.9	9.4	8.9	0.5	8.0	15.9	0.0	6.3	12.5	0.0	0.0	5,000.0	
22	8.87	8.9	9.4	8.9	0.5	8.0	15.8	0.0	6.3	12.5	0.0	0.0	5,000.0	
23	8.89	8.9	9.4	8.9	0.5	8.1	16.0	0.0	6.3	12.5	0.0	0.0	5,000.0	
24	8.87	8.9	9.4	8.9	0.5	8.2	16.2	0.0	6.3	12.5	0.0	0.0	5,000.0	
25	8.91	8.9	9.6	8.9	0.7	8.2	16.2	0.0	6.3	12.5	0.0	0.0	5,000.0	
26	8.91	8.9	9.4	8.9	0.5	8.2	16.2	0.0	6.3	12.5	0.0	0.0	5,000.0	
27	8.87	8.9	9.0	8.9	0.1	8.1	16.1	0.0	6.3	12.5	0.0	0.0	5,000.0	
28	8.89	8.9	8.9	8.9	0.0	8.1	16.0	0.0	6.3	12.5	0.0	0.0	5,000.0	
29	8.92	8.9	8.9	8.9	0.0	8.2	16.3	0.0	6.3	12.5	0.0	0.0	5,000.0	
30	8.92	8.9	8.9	8.9	0.0	8.1	16.1	0.0	6.3	12.5	0.0	0.0	5,000.0	
31	8.87	8.9	8.9	8.9	0.0	7.8	15.5	0.0	6.3	12.5	0.0	0.0	5,000.0	
<b>TOTAL SFD</b>	344.2	347.3	1,424.5	275.9	1,148.6	216.5	429.2	0.0	195.3	387.5	0.0	0.0	5,000.0	
<b>TOTAL AF</b>	682.7	688.9	2,825.5	547.2	2,278.2									

1 - Required flows for January through April are equal to 11.5 cfs less 2.6 cfs of credits (623 AF of Climatic Credit earned in 2016).

2 - Art. 17 - Camp Pendleton rights to groundwater equal the flow indicated in Section 5 of the CWRMA minus the Actual Flow Maintenance Requirement which cannot be less than 3.0 cfs. Input to Groundwater Bank shown but cumulative balance did not increase due to account balance maximum of 5,000 AF.

APPENDIX E

SANTA MARGARITA RIVER WATERSHED  
 COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT REQUIRED FLOWS AND ACCOUNTS  
 SANTA MARGARITA RIVER NEAR TEMECULA

APRIL 2017 - ABOVE NORMAL YEAR

CAMP PENDLETON  
 GROUNDWATER BANK

Day	USGS Official	USGS Daily	10-Day Running	Minimum Flow	Running Average	WR-34 Make-Up	Climatic Credit Earned	Input /2	Input	Output	Output	Cumulative
	Discharge	Website	Average of	Maintenance	Less Required	Discharge	cfs	cfs	AF	cfs	AF	Balance
	cfs	cfs	Website	Requirement /1	Flow	cfs	AF		AF		AF	AF
1	8.90	8.9	8.9	8.9	0.0	7.6	15.1	6.3	12.5	0.0	0.0	5,000.0
2	8.84	8.8	8.9	8.9	0.0	7.7	15.2	6.3	12.5	0.0	0.0	5,000.0
3	8.88	8.9	8.9	8.9	0.0	8.3	16.4	6.3	12.5	0.0	0.0	5,000.0
4	8.87	8.9	8.9	8.9	0.0	8.3	16.4	6.3	12.5	0.0	0.0	5,000.0
5	8.94	8.9	8.9	8.9	0.0	8.2	16.3	6.3	12.5	0.0	0.0	5,000.0
6	8.89	8.9	8.9	8.9	0.0	7.9	15.7	6.3	12.5	0.0	0.0	5,000.0
7	8.90	8.9	8.9	8.9	0.0	8.3	16.5	6.3	12.5	0.0	0.0	5,000.0
8	8.92	8.9	8.9	8.9	0.0	8.3	16.5	6.3	12.5	0.0	0.0	5,000.0
9	8.90	8.9	8.9	8.9	0.0	8.3	16.4	6.3	12.5	0.0	0.0	5,000.0
10	8.90	8.9	8.9	8.9	0.0	8.3	16.4	6.3	12.5	0.0	0.0	5,000.0
11	8.89	8.9	8.9	8.9	0.0	8.4	16.7	6.3	12.5	0.0	0.0	5,000.0
12	8.89	8.9	8.9	8.9	0.0	8.4	16.7	6.3	12.5	0.0	0.0	5,000.0
13	8.94	8.9	8.9	8.9	0.0	8.6	17.1	6.3	12.5	0.0	0.0	5,000.0
14	8.91	8.9	8.9	8.9	0.0	8.5	16.8	6.3	12.5	0.0	0.0	5,000.0
15	8.94	8.9	8.9	8.9	0.0	8.4	16.6	6.3	12.5	0.0	0.0	5,000.0
16	8.92	8.9	8.9	8.9	0.0	8.5	16.8	6.3	12.5	0.0	0.0	5,000.0
17	8.90	8.9	8.9	8.9	0.0	8.5	16.8	6.3	12.5	0.0	0.0	5,000.0
18	8.88	8.9	8.9	8.9	0.0	8.4	16.6	6.3	12.5	0.0	0.0	5,000.0
19	8.90	8.9	8.9	8.9	0.0	8.2	16.3	6.3	12.5	0.0	0.0	5,000.0
20	8.90	8.9	8.9	8.9	0.0	8.2	16.3	6.3	12.5	0.0	0.0	5,000.0
21	8.90	8.9	8.9	8.9	0.0	8.1	16.1	6.3	12.5	0.0	0.0	5,000.0
22	8.89	8.9	8.9	8.9	0.0	8.1	16.1	6.3	12.5	0.0	0.0	5,000.0
23	8.92	8.9	8.9	8.9	0.0	8.3	16.4	6.3	12.5	0.0	0.0	5,000.0
24	8.88	8.9	8.9	8.9	0.0	8.2	16.2	6.3	12.5	0.0	0.0	5,000.0
25	8.88	8.8	8.9	8.9	0.0	8.2	16.3	6.3	12.5	0.0	0.0	5,000.0
26	8.86	8.9	8.9	8.9	0.0	8.2	16.2	6.3	12.5	0.0	0.0	5,000.0
27	8.90	8.9	8.9	8.9	0.0	8.0	15.8	6.3	12.5	0.0	0.0	5,000.0
28	8.89	8.9	8.9	8.9	0.0	7.8	15.4	6.3	12.5	0.0	0.0	5,000.0
29	8.90	8.9	8.9	8.9	0.0	8.1	16.0	6.3	12.5	0.0	0.0	5,000.0
30	8.84	8.8	8.9	8.9	0.0	8.1	16.0	6.3	12.5	0.0	0.0	5,000.0
<b>TOTAL SFD</b>	266.9	266.7	267.0	267.0	0.0	246.4	488.0	189.0	375.0	0.0	0.0	5,000.0
<b>TOTAL AF</b>	529.3	529.0	529.6	529.6	0.0							

1 - Required flows for January through April are equal to 11.5 cfs less 2.6 cfs of credits (623 AF of Climatic Credit earned in 2016).

2 - Art. 17 - Camp Pendleton rights to groundwater equal the flow indicated in Section 5 of the CWRMA minus the Actual Flow Maintenance Requirement which cannot be less than 3.0 cfs. Input to Groundwater Bank shown but cumulative balance did not increase due to account balance maximum of 5,000 AF.



APPENDIX E

SANTA MARGARITA RIVER WATERSHED  
 COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT REQUIRED FLOWS AND ACCOUNTS  
 SANTA MARGARITA RIVER NEAR TEMECULA

MAY 2017 - ABOVE NORMAL YEAR

Day	CAMP PENDLETON GROUNDWATER BANK											
	USGS Official Discharge cfs	USGS Daily Website Discharge cfs	10-Day Running Average of Website Discharge cfs	Minimum Flow Maintenance Requirement/1 cfs	Running Average Less Required Flow cfs	WR-34 Make-Up Discharge cfs	Climatic Credit Earned AF	Input /2 cfs	Input AF	Output cfs	Output AF	Cumulative Balance AF
1	8.78	8.8				7.8	0.0	0.2	0.4	0.0	0.0	5,000.0
2	11.5	11.5				10.4	0.0	0.2	0.4	0.0	0.0	5,000.0
3	11.5	11.5				10.3	0.0	0.2	0.4	0.0	0.0	5,000.0
4	11.5	11.5				10.2	0.0	0.2	0.4	0.0	0.0	5,000.0
5	11.5	11.5				10.2	0.0	0.2	0.4	0.0	0.0	5,000.0
6	11.5	11.5				10.1	0.0	0.2	0.4	0.0	0.0	5,000.0
7	17.5	17.5				4.3	0.0	0.2	0.4	0.0	0.0	5,000.0
8	11.6	11.6				9.8	0.0	0.2	0.4	0.0	0.0	5,000.0
9	11.5	11.5				10.3	0.0	0.2	0.4	0.0	0.0	5,000.0
10	11.5	11.5				10.5	0.0	0.2	0.4	0.0	0.0	5,000.0
11	11.5	11.5	12.1	11.5	0.6	10.9	0.0	0.2	0.4	0.0	0.0	5,000.0
12	11.5	11.5	12.1	11.5	0.6	11.0	0.0	0.2	0.4	0.0	0.0	5,000.0
13	11.5	11.5	12.1	11.5	0.6	11.0	0.0	0.2	0.4	0.0	0.0	5,000.0
14	11.5	11.5	12.1	11.5	0.6	11.0	0.0	0.2	0.4	0.0	0.0	5,000.0
15	11.5	11.5	12.1	11.5	0.6	15.8	0.0	0.2	0.4	0.0	0.0	5,000.0
16	11.5	11.5	12.1	11.5	0.6	11.0	0.0	0.2	0.4	0.0	0.0	5,000.0
17	11.5	11.5	11.5	11.5	0.0	10.9	0.0	0.2	0.4	0.0	0.0	5,000.0
18	11.5	11.5	11.5	11.5	0.0	10.9	0.0	0.2	0.4	0.0	0.0	5,000.0
19	11.5	11.5	11.5	11.5	0.0	11.0	0.0	0.2	0.4	0.0	0.0	5,000.0
20	11.5	11.5	11.5	11.5	0.0	11.1	0.0	0.2	0.4	0.0	0.0	5,000.0
21	11.5	11.5	11.5	11.5	0.0	11.2	0.0	0.2	0.4	0.0	0.0	5,000.0
22	11.5	11.5	11.5	11.5	0.0	11.4	0.0	0.2	0.4	0.0	0.0	5,000.0
23	11.5	11.5	11.5	11.5	0.0	11.0	0.0	0.2	0.4	0.0	0.0	5,000.0
24	11.5	11.5	11.5	11.5	0.0	11.0	0.0	0.2	0.4	0.0	0.0	5,000.0
25	11.5	11.5	11.5	11.5	0.0	10.9	0.0	0.2	0.4	0.0	0.0	5,000.0
26	10.8	10.8	11.4	11.5	-0.1	9.3	0.0	0.2	0.4	0.0	0.0	5,000.0
27	11.5	11.5	11.4	11.5	-0.1	10.9	0.0	0.2	0.4	0.0	0.0	5,000.0
28	11.5	11.5	11.4	11.5	-0.1	10.9	0.0	0.2	0.4	0.0	0.0	5,000.0
29	11.5	11.5	11.4	11.5	-0.1	10.9	0.0	0.2	0.4	0.0	0.0	5,000.0
30	11.5	11.5	11.4	11.5	-0.1	10.8	0.0	0.2	0.4	0.0	0.0	5,000.0
31	11.5	11.5	11.4	11.5	-0.1	10.8	0.0	0.2	0.4	0.0	0.0	5,000.0
<b>TOTAL SFD</b>	359.2	359.2	244.5	241.5	3.0	327.6	0.0	6.2	12.4	0.0	0.0	5,000.0
<b>TOTAL AF</b>	712.4	712.5	485.0	479.0	6.0	650.1	0.0					

1 - Minimum Flow Maintenance Requirement equals the Section 5 flow for an Above Normal year.  
 2 - Art. 17 - Camp Pendleton rights to groundwater equal the flow indicated in Section 5 of the CWRMA minus the Actual Flow Maintenance Requirement which cannot be less than 3.0 cfs. Input to Groundwater Bank shown but cumulative balance did not increase due to account balance maximum of 5,000 AF.

APPENDIX E

SANTA MARGARITA RIVER WATERSHED  
 COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT REQUIRED FLOWS AND ACCOUNTS  
 SANTA MARGARITA RIVER NEAR TEMECULA

JUNE 2017 - ABOVE NORMAL YEAR

CAMP PENDLETON  
 GROUNDWATER BANK

Day	USGS Official	USGS Daily	10-Day Running	Minimum Flow	Running Average	WR-34 Make-Up	Climatic Credit Earned	Input	Output	Output	Output	Cumulative
	Discharge	Website	Average of	Maintenance	Less Required	Discharge	cfs	cfs	cfs	cfs	AF	Balance
	cfs	cfs	Website	Requirement/1	Flow	cfs	AF				AF	AF
1	9.85	9.5				8.9	17.6	0.0	0.0	0.0	0.0	5,000.0
2	9.77	9.4				8.8	17.4	0.0	0.0	0.0	0.0	5,000.0
3	9.83	9.5				8.8	17.5	0.0	0.0	0.0	0.0	5,000.0
4	9.83	9.5				8.9	17.6	0.0	0.0	0.0	0.0	5,000.0
5	9.82	9.4				9.0	17.8	0.0	0.0	0.0	0.0	5,000.0
6	9.80	9.4				9.1	18.1	0.0	0.0	0.0	0.0	5,000.0
7	9.82	9.8				8.9	17.6	0.0	0.0	0.0	0.0	5,000.0
8	9.52	9.5				8.6	17.1	0.0	0.0	0.0	0.0	5,000.0
9	9.43	9.4				8.9	17.6	0.0	0.0	0.0	0.0	5,000.0
10	9.44	9.4				8.8	17.5	0.0	0.0	0.0	0.0	5,000.0
11	9.42	9.4		9.4	0.1	8.6	17.1	0.0	0.0	0.0	0.0	5,000.0
12	9.42	9.4		9.4	0.1	8.6	17.0	0.0	0.0	0.0	0.0	5,000.0
13	9.42	9.4		9.4	0.1	8.9	17.7	0.0	0.0	0.0	0.0	5,000.0
14	9.43	9.4		9.4	0.1	8.9	17.7	0.0	0.0	0.0	0.0	5,000.0
15	9.42	9.4		9.4	0.1	8.8	17.4	0.0	0.0	0.0	0.0	5,000.0
16	9.41	9.4		9.4	0.1	8.6	17.0	0.0	0.0	0.0	0.0	5,000.0
17	9.36	9.3		9.4	0.0	8.5	16.9	0.0	0.0	0.0	0.0	5,000.0
18	9.40	9.4		9.4	0.0	8.8	17.4	0.0	0.0	0.0	0.0	5,000.0
19	9.42	9.4		9.4	0.0	8.8	17.4	0.0	0.0	0.0	0.0	5,000.0
20	9.40	9.4		9.4	0.0	8.8	17.5	0.0	0.0	0.0	0.0	5,000.0
21	9.42	9.4		9.4	0.0	8.9	17.7	0.0	0.0	0.0	0.0	5,000.0
22	9.39	9.4		9.4	0.0	8.6	17.0	0.0	0.0	0.0	0.0	5,000.0
23	9.46	9.5		9.4	0.0	8.7	17.2	0.0	0.0	0.0	0.0	5,000.0
24	9.43	9.4		9.4	0.0	8.4	16.7	0.0	0.0	0.0	0.0	5,000.0
25	9.44	9.4		9.4	0.0	8.8	17.4	0.0	0.0	0.0	0.0	5,000.0
26	9.40	9.4		9.4	0.0	8.8	17.5	0.0	0.0	0.0	0.0	5,000.0
27	8.91	8.9		9.4	0.0	8.6	17.0	0.0	0.0	0.0	0.0	5,000.0
28	9.18	9.2		9.4	-0.1	8.7	17.3	0.0	0.0	0.0	0.0	5,000.0
29	9.41	9.4		9.4	-0.1	8.8	17.5	0.0	0.0	0.0	0.0	5,000.0
30	9.37	9.4		9.4	-0.1	8.8	17.4	0.0	0.0	0.0	0.0	5,000.0
<b>TOTAL SFD</b>	284.6	282.1	188.3	188.0	0.3	263.1	521.6	0.0	0.0	0.0	0.0	5,000.0
<b>TOTAL AF</b>	564.5	559.5	373.5	372.9	0.6							

1 - Minimum Flow Maintenance Requirement equals the Section 5 flow for an Above Normal year.

APPENDIX E

SANTA MARGARITA RIVER WATERSHED  
 COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT REQUIRED FLOWS AND ACCOUNTS  
 SANTA MARGARITA RIVER NEAR TEMECULA

JULY 2017 - ABOVE NORMAL YEAR

Day	CAMP PENDLETON GROUNDWATER BANK											
	USGS Official Discharge cfs	USGS Daily Website Discharge cfs	10-Day Running Average of Website Discharge cfs	Minimum Flow Maintenance Requirement/1 cfs	Running Average Less Required Flow cfs	WR-34 Make-Up Discharge cfs	Climatic Credit Earned cfs	AF	Input cfs	Output cfs	Output AF	Cumulative Balance AF
1	7.81	7.8				7.3	0.0	0.0	0.0	0.0	0.0	5,000.0
2	7.80	7.8				7.3	0.0	0.0	0.0	0.0	0.0	5,000.0
3	7.79	7.8				7.4	0.0	0.0	0.0	0.0	0.0	5,000.0
4	7.77	7.8				7.5	0.0	0.0	0.0	0.0	0.0	5,000.0
5	7.80	7.8				7.6	0.0	0.0	0.0	0.0	0.0	5,000.0
6	7.81	7.8				7.5	0.0	0.0	0.0	0.0	0.0	5,000.0
7	7.80	7.8				7.7	0.0	0.0	0.0	0.0	0.0	5,000.0
8	7.79	7.8				7.6	0.0	0.0	0.0	0.0	0.0	5,000.0
9	7.84	7.8				7.6	0.0	0.0	0.0	0.0	0.0	5,000.0
10	7.81	7.8				7.7	0.0	0.0	0.0	0.0	0.0	5,000.0
11	7.83	7.8		7.8	0.0	7.7	0.0	0.0	0.0	0.0	0.0	5,000.0
12	7.81	7.8		7.8	0.0	7.6	0.0	0.0	0.0	0.0	0.0	5,000.0
13	7.80	7.8		7.8	0.0	7.6	0.0	0.0	0.0	0.0	0.0	5,000.0
14	7.81	7.8		7.8	0.0	7.6	0.0	0.0	0.0	0.0	0.0	5,000.0
15	7.80	7.8		7.8	0.0	7.6	0.0	0.0	0.0	0.0	0.0	5,000.0
16	7.79	7.8		7.8	0.0	7.6	0.0	0.0	0.0	0.0	0.0	5,000.0
17	7.81	7.8		7.8	0.0	7.6	0.0	0.0	0.0	0.0	0.0	5,000.0
18	7.80	7.8		7.8	0.0	7.6	0.0	0.0	0.0	0.0	0.0	5,000.0
19	7.82	7.8		7.8	0.0	7.5	0.0	0.0	0.0	0.0	0.0	5,000.0
20	7.66	7.7		7.8	0.0	7.5	0.0	0.0	0.0	0.0	0.0	5,000.0
21	7.80	7.8		7.8	0.0	7.7	0.0	0.0	0.0	0.0	0.0	5,000.0
22	7.83	7.8		7.8	0.0	7.7	0.0	0.0	0.0	0.0	0.0	5,000.0
23	7.81	7.8		7.8	0.0	7.7	0.0	0.0	0.0	0.0	0.0	5,000.0
24	7.81	7.8		7.8	0.0	7.6	0.0	0.0	0.0	0.0	0.0	5,000.0
25	7.81	7.8		7.8	0.0	7.6	0.0	0.0	0.0	0.0	0.0	5,000.0
26	7.82	7.8		7.8	0.0	7.7	0.0	0.0	0.0	0.0	0.0	5,000.0
27	7.80	7.8		7.8	0.0	7.6	0.0	0.0	0.0	0.0	0.0	5,000.0
28	7.79	7.8		7.8	0.0	7.6	0.0	0.0	0.0	0.0	0.0	5,000.0
29	7.80	7.8		7.8	0.0	7.5	0.0	0.0	0.0	0.0	0.0	5,000.0
30	7.81	7.8		7.8	0.0	7.5	0.0	0.0	0.0	0.0	0.0	5,000.0
31	7.81	7.8		7.8	0.0	7.5	0.0	0.0	0.0	0.0	0.0	5,000.0
<b>TOTAL SFD</b>	241.8	241.7	163.8	163.8	0.0	234.8	0.0	0.0	0.0	0.0	0.0	5,000.0
<b>TOTAL AF</b>	479.7	479.4	324.9	324.9	0.0	464.8	0.0	0.0	0.0	0.0	0.0	5,000.0

1 - Minimum Flow Maintenance Requirement equals the Section 5 flow for an Above Normal year.

APPENDIX E

SANTA MARGARITA RIVER WATERSHED  
 COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT REQUIRED FLOWS AND ACCOUNTS  
 SANTA MARGARITA RIVER NEAR TEMECULA

AUGUST 2017 - ABOVE NORMAL YEAR

CAMP PENDLETON  
 GROUNDWATER BANK

Day	USGS Official	USGS Daily	10-Day Running	Minimum Flow	Running Average	WR-34 Make-Up	Climatic Credit Earned	Input	Output	Output	Output	Cumulative
	Discharge	Website	Average of	Maintenance	Less Required	Discharge	cfs	cfs	cfs	cfs	AF	Balance
	cfs	cfs	Website	Requirement/1	Flow	cfs	AF				AF	AF
1	11.6	11.6				7.3	14.4	0.0	0.0	0.0	0.0	5,000.0
2	7.79	7.8				7.1	14.1	0.0	0.0	0.0	0.0	5,000.0
3	7.61	7.6				7.4	14.6	0.0	0.0	0.0	0.0	5,000.0
4	7.64	7.6				7.4	14.6	0.0	0.0	0.0	0.0	5,000.0
5	7.60	7.6				7.4	14.6	0.0	0.0	0.0	0.0	5,000.0
6	7.63	7.6				7.4	14.7	0.0	0.0	0.0	0.0	5,000.0
7	7.63	7.6				7.4	14.7	0.0	0.0	0.0	0.0	5,000.0
8	7.65	7.7				7.4	14.6	0.0	0.0	0.0	0.0	5,000.0
9	7.62	7.6				7.1	14.1	0.0	0.0	0.0	0.0	5,000.0
10	7.58	7.6				7.3	14.5	0.0	0.0	0.0	0.0	5,000.0
11	7.61	7.6		7.6	0.0	7.3	14.4	0.0	0.0	0.0	0.0	5,000.0
12	7.62	7.6		7.6	0.0	7.2	14.3	0.0	0.0	0.0	0.0	5,000.0
13	7.60	7.6		7.6	0.0	7.3	14.4	0.0	0.0	0.0	0.0	5,000.0
14	7.63	7.6		7.6	0.0	7.3	14.3	0.0	0.0	0.0	0.0	5,000.0
15	7.60	7.6		7.6	0.0	7.2	14.3	0.0	0.0	0.0	0.0	5,000.0
16	7.61	7.6		7.6	0.0	7.3	14.5	0.0	0.0	0.0	0.0	5,000.0
17	7.63	7.6		7.6	0.0	7.3	14.4	0.0	0.0	0.0	0.0	5,000.0
18	7.62	7.6		7.6	0.0	7.4	14.6	0.0	0.0	0.0	0.0	5,000.0
19	7.63	7.6		7.6	0.0	7.4	14.6	0.0	0.0	0.0	0.0	5,000.0
20	7.61	7.6		7.6	0.0	7.4	14.6	0.0	0.0	0.0	0.0	5,000.0
21	7.65	7.6		7.6	0.0	7.4	14.7	0.0	0.0	0.0	0.0	5,000.0
22	7.59	7.6		7.6	0.0	7.3	14.5	0.0	0.0	0.0	0.0	5,000.0
23	7.59	7.6		7.6	0.0	7.3	14.5	0.0	0.0	0.0	0.0	5,000.0
24	7.58	7.6		7.6	0.0	7.3	14.5	0.0	0.0	0.0	0.0	5,000.0
25	7.61	7.6		7.6	0.0	7.3	14.4	0.0	0.0	0.0	0.0	5,000.0
26	7.57	7.6		7.6	0.0	7.4	14.6	0.0	0.0	0.0	0.0	5,000.0
27	7.60	7.6		7.6	0.0	7.5	14.8	0.0	0.0	0.0	0.0	5,000.0
28	7.60	7.6		7.6	0.0	7.5	14.8	0.0	0.0	0.0	0.0	5,000.0
29	7.58	7.6		7.6	0.0	7.5	14.9	0.0	0.0	0.0	0.0	5,000.0
30	7.63	7.6		7.6	0.0	7.6	15.0	0.0	0.0	0.0	0.0	5,000.0
31	7.61	7.6		7.6	0.0	7.6	15.1	0.0	0.0	0.0	0.0	5,000.0
<b>TOTAL SFD</b>	240.1	239.9		159.6	0.0	228.0	451.3	0.0	0.0	0.0	0.0	5,000.0
<b>TOTAL AF</b>	476.3	475.8		316.6	0.0							

1 - Minimum Flow Maintenance Requirement equals the Section 5 flow for an Above Normal year.

APPENDIX E

SANTA MARGARITA RIVER WATERSHED  
 COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT REQUIRED FLOWS AND ACCOUNTS  
 SANTA MARGARITA RIVER NEAR TEMECULA

SEPTEMBER 2017 - ABOVE NORMAL YEAR

CAMP PENDLETON  
 GROUNDWATER BANK

Day	USGS Official	USGS Daily	10-Day Running	Minimum Flow	Running Average	WR-34 Make-Up	Climatic Credit Earned	Input	Output	Output	Output	Cumulative
	Discharge	Website	Average of	Maintenance	Less Required	Discharge	cfs	cfs	cfs	cfs	AF	Balance
	cfs	Discharge	Website	Requirement/1	Flow	cfs	AF				AF	AF
1	7.41	7.4	7.4			7.5	14.8	0.0	0.0	0.0	0.0	5,000.0
2	7.39	7.4	7.4			7.5	14.8	0.0	0.0	0.0	0.0	5,000.0
3	7.41	7.4	7.4			7.5	14.9	0.0	0.0	0.0	0.0	5,000.0
4	7.43	7.4	7.4			7.3	14.5	0.0	0.0	0.0	0.0	5,000.0
5	7.44	7.4	7.4			7.3	14.4	0.0	0.0	0.0	0.0	5,000.0
6	7.40	7.4	7.4			7.3	14.4	0.0	0.0	0.0	0.0	5,000.0
7	7.42	7.4	7.4			7.2	14.3	0.0	0.0	0.0	0.0	5,000.0
8	7.42	7.4	7.4			7.2	14.3	0.0	0.0	0.0	0.0	5,000.0
9	7.41	7.4	7.4			7.2	14.2	0.0	0.0	0.0	0.0	5,000.0
10	7.42	7.4	7.4			7.2	14.3	0.0	0.0	0.0	0.0	5,000.0
11	7.42	7.4	7.4	7.4	0.0	7.3	14.4	0.0	0.0	0.0	0.0	5,000.0
12	7.40	7.4	7.4	7.4	0.0	7.3	14.4	0.0	0.0	0.0	0.0	5,000.0
13	7.41	7.4	7.4	7.4	0.0	7.1	14.0	0.0	0.0	0.0	0.0	5,000.0
14	7.43	7.4	7.4	7.4	0.0	7.1	14.1	0.0	0.0	0.0	0.0	5,000.0
15	7.41	7.4	7.4	7.4	0.0	7.2	14.3	0.0	0.0	0.0	0.0	5,000.0
16	7.42	7.4	7.4	7.4	0.0	7.2	14.3	0.0	0.0	0.0	0.0	5,000.0
17	7.42	7.4	7.4	7.4	0.0	7.2	14.3	0.0	0.0	0.0	0.0	5,000.0
18	7.44	7.4	7.4	7.4	0.0	7.2	14.3	0.0	0.0	0.0	0.0	5,000.0
19	7.39	7.4	7.4	7.4	0.0	7.2	14.3	0.0	0.0	0.0	0.0	5,000.0
20	7.43	7.4	7.4	7.4	0.0	7.2	14.3	0.0	0.0	0.0	0.0	5,000.0
21	7.38	7.4	7.4	7.4	0.0	7.2	14.2	0.0	0.0	0.0	0.0	5,000.0
22	7.41	7.4	7.4	7.4	0.0	7.2	14.2	0.0	0.0	0.0	0.0	5,000.0
23	7.41	7.4	7.4	7.4	0.0	7.2	14.3	0.0	0.0	0.0	0.0	5,000.0
24	7.41	7.4	7.4	7.4	0.0	7.3	14.5	0.0	0.0	0.0	0.0	5,000.0
25	7.41	7.4	7.4	7.4	0.0	7.4	14.6	0.0	0.0	0.0	0.0	5,000.0
26	7.42	7.4	7.4	7.4	0.0	7.4	14.7	0.0	0.0	0.0	0.0	5,000.0
27	7.40	7.4	7.4	7.4	0.0	7.5	14.8	0.0	0.0	0.0	0.0	5,000.0
28	7.42	7.4	7.4	7.4	0.0	7.5	14.9	0.0	0.0	0.0	0.0	5,000.0
29	7.44	7.4	7.4	7.4	0.0	7.5	14.9	0.0	0.0	0.0	0.0	5,000.0
30	7.43	7.4	7.4	7.4	0.0	7.5	14.9	0.0	0.0	0.0	0.0	5,000.0
<b>TOTAL SFD</b>	222.5	222.0	148.0	148.0	0.0	218.9	433.6	0.0	0.0	0.0	0.0	5,000.0
<b>TOTAL AF</b>	441.2	440.3	293.6	293.6	0.0							

1 - Minimum Flow Maintenance Requirement equals the Section 5 flow for an Above Normal year.

APPENDIX E

SANTA MARGARITA RIVER WATERSHED  
 COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT REQUIRED FLOWS AND ACCOUNTS  
 SANTA MARGARITA RIVER NEAR TEMECULA

OCTOBER 2017 - ABOVE NORMAL YEAR

CAMP PENDLETON  
 GROUNDWATER BANK

Day	USGS Official	USGS Daily	10-Day Running	Minimum Flow	Running Average	WR-34 Make-Up	Climatic Credit Earned	Input	Output	Output	Output	Cumulative
	Discharge	Website	Average of	Maintenance	Less Required	Discharge	cfs	cfs	cfs	cfs	AF	Balance
	cfs	Discharge	Website	Requirement/1	Flow	cfs	AF	cfs	AF	cfs	AF	AF
1	7.71	7.7				7.7	15.2	0.0	0.0	0.0	0.0	5,000.0
2	7.74	7.7				7.7	15.2	0.0	0.0	0.0	0.0	5,000.0
3	7.67	7.6				7.6	15.0	0.0	0.0	0.0	0.0	5,000.0
4	7.73	7.7				7.6	15.0	0.0	0.0	0.0	0.0	5,000.0
5	7.72	7.7				7.6	15.0	0.0	0.0	0.0	0.0	5,000.0
6	7.74	7.7				7.6	15.0	0.0	0.0	0.0	0.0	5,000.0
7	7.72	7.7				7.7	15.3	0.0	0.0	0.0	0.0	5,000.0
8	7.72	7.2				7.7	15.3	0.0	0.0	0.0	0.0	5,000.0
9	7.73	7.3				7.7	15.3	0.0	0.0	0.0	0.0	5,000.0
10	7.74	7.4				7.6	15.0	0.0	0.0	0.0	0.0	5,000.0
11	7.71	7.1		7.7	-0.2	7.5	14.8	0.0	0.0	0.0	0.0	5,000.0
12	7.71	7.7		7.7	-0.2	7.5	15.1	0.0	0.0	0.0	0.0	5,000.0
13	7.72	7.7		7.7	-0.2	7.7	15.2	0.0	0.0	0.0	0.0	5,000.0
14	7.73	7.7		7.7	-0.2	7.7	15.3	0.0	0.0	0.0	0.0	5,000.0
15	7.72	7.7		7.7	-0.2	7.8	15.5	0.0	0.0	0.0	0.0	5,000.0
16	7.75	7.8		7.7	-0.2	7.9	15.6	0.0	0.0	0.0	0.0	5,000.0
17	7.73	7.7		7.7	-0.2	7.9	15.6	0.0	0.0	0.0	0.0	5,000.0
18	7.74	7.7		7.7	-0.1	7.9	15.6	0.0	0.0	0.0	0.0	5,000.0
19	7.73	7.7		7.7	-0.1	7.7	15.3	0.0	0.0	0.0	0.0	5,000.0
20	7.72	7.7		7.7	0.0	7.7	15.2	0.0	0.0	0.0	0.0	5,000.0
21	7.72	7.7		7.7	0.0	7.7	15.3	0.0	0.0	0.0	0.0	5,000.0
22	7.70	7.7		7.7	0.0	7.8	15.4	0.0	0.0	0.0	0.0	5,000.0
23	7.73	7.7		7.7	0.0	7.8	15.5	0.0	0.0	0.0	0.0	5,000.0
24	7.73	7.7		7.7	0.0	7.9	15.6	0.0	0.0	0.0	0.0	5,000.0
25	7.71	7.7		7.7	0.0	7.9	15.7	0.0	0.0	0.0	0.0	5,000.0
26	7.73	7.7		7.7	0.0	7.9	15.7	0.0	0.0	0.0	0.0	5,000.0
27	7.72	7.7		7.7	0.0	7.9	15.7	0.0	0.0	0.0	0.0	5,000.0
28	7.74	7.7		7.7	0.0	7.9	15.7	0.0	0.0	0.0	0.0	5,000.0
29	7.72	7.7		7.7	0.0	7.7	15.2	0.0	0.0	0.0	0.0	5,000.0
30	7.74	7.7		7.7	0.0	7.7	15.2	0.0	0.0	0.0	0.0	5,000.0
31	7.75	8.8		7.7	0.1	8.7	17.2	0.0	0.0	0.0	0.0	5,000.0
<b>TOTAL SFD</b>	239.5	238.0		161.7	-1.5	240.8	476.7	0.0	0.0	0.0	0.0	5,000.0
<b>TOTAL AF</b>	475.0	472.1		320.7	-3.0							

1 - Minimum Flow Maintenance Requirement equals the Section 5 flow for an Above Normal year.

APPENDIX E

SANTA MARGARITA RIVER WATERSHED  
 COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT REQUIRED FLOWS AND ACCOUNTS  
 SANTA MARGARITA RIVER NEAR TEMECULA

NOVEMBER 2017 - ABOVE NORMAL YEAR

CAMP PENDLETON  
 GROUNDWATER BANK

Day	USGS Official	USGS Daily	10-Day Running	Minimum Flow	Running Average	WR-34 Make-Up	Climatic Credit Earned	Input /2	Output	Output	Output	Cumulative
	Discharge	Website	Average of	Maintenance	Less Required	Discharge	cfs	cfs	cfs	cfs	AF	Balance
	cfs	cfs	Website	Requirement /1	Flow	cfs	AF				AF	AF
1	8.80	8.8				8.6	17.1	0.0	0.0	0.0	0.0	5,000.0
2	8.81	8.8				8.6	17.1	0.0	0.0	0.0	0.0	5,000.0
3	8.81	8.8				8.4	16.7	0.0	0.0	0.0	0.0	5,000.0
4	8.83	8.8				8.4	16.7	0.0	0.0	0.0	0.0	5,000.0
5	8.81	8.8				8.4	16.7	0.0	0.0	0.0	0.0	5,000.0
6	8.80	8.8				8.4	16.6	0.0	0.0	0.0	0.0	5,000.0
7	8.78	8.8				8.3	16.5	0.0	0.0	0.0	0.0	5,000.0
8	8.80	8.8				8.4	16.6	0.0	0.0	0.0	0.0	5,000.0
9	8.78	8.8				8.4	16.7	0.0	0.0	0.0	0.0	5,000.0
10	8.82	8.8				8.7	17.2	0.0	0.0	0.0	0.0	5,000.0
11	8.80	8.8		8.8	0.0	8.6	17.1	0.0	0.0	0.0	0.0	5,000.0
12	8.81	8.8		8.8	0.0	8.6	17.0	0.0	0.0	0.0	0.0	5,000.0
13	8.79	8.8		8.8	0.0	8.6	17.0	0.0	0.0	0.0	0.0	5,000.0
14	8.79	8.8		8.8	0.0	8.6	17.1	0.0	0.0	0.0	0.0	5,000.0
15	8.80	8.8		8.8	0.0	8.6	17.1	0.0	0.0	0.0	0.0	5,000.0
16	7.68	7.7		8.8	-0.1	7.6	15.0	0.0	0.0	0.0	0.0	5,000.0
17	4.41	4.4		4.5	3.7	4.5	8.9	0.0	4.3	8.5	0.0	5,000.0
18	4.40	4.4		4.5	3.3	4.5	8.9	0.0	4.3	8.5	0.0	5,000.0
19	4.38	4.4		4.5	2.9	4.5	9.0	0.0	4.3	8.5	0.0	5,000.0
20	4.39	4.4		4.5	2.4	4.5	8.9	0.0	4.3	8.5	0.0	5,000.0
21	4.40	4.4		4.5	2.0	4.5	8.9	0.0	4.3	8.5	0.0	5,000.0
22	4.37	4.4		4.5	1.5	4.5	8.9	0.0	4.3	8.5	0.0	5,000.0
23	4.36	4.4		4.5	1.1	4.5	8.9	0.0	4.3	8.5	0.0	5,000.0
24	4.35	4.4		4.5	0.7	4.5	9.0	0.0	4.3	8.5	0.0	5,000.0
25	4.32	4.3		4.5	0.2	4.5	8.9	0.0	4.3	8.5	0.0	5,000.0
26	4.33	4.3		4.5	-0.1	4.5	8.9	0.0	4.3	8.5	0.0	5,000.0
27	4.41	4.4		4.5	-0.1	4.5	8.9	0.0	4.3	8.5	0.0	5,000.0
28	4.40	4.4		4.5	-0.1	4.5	8.9	0.0	4.3	8.5	0.0	5,000.0
29	4.41	4.4		4.5	-0.1	4.5	8.9	0.0	4.3	8.5	0.0	5,000.0
30	4.39	4.4		4.5	-0.1	4.5	8.9	0.0	4.3	8.5	0.0	5,000.0
<b>TOTAL SFD</b>	201.0	201.1	133.0	115.8	17.2	198.2	393.0	0.0	60.2	119.0	0.0	5,000.0
<b>TOTAL AF</b>	398.7	398.9	263.8	229.7	34.1							

1 - Minimum Flow Maintenance Requirement equals the Section 5 flow for an Above Normal year.

2 - Foregone make-up water credited to groundwater account but cumulative balance did not increase due to account balance maximum of 5,000 AF.

APPENDIX E

SANTA MARGARITA RIVER WATERSHED  
 COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT REQUIRED FLOWS AND ACCOUNTS  
 SANTA MARGARITA RIVER NEAR TEMECULA

DECEMBER 2017 - ABOVE NORMAL YEAR

CAMP PENDLETON  
 GROUNDWATER BANK

Day	USGS Official	USGS Daily	10-Day Running	Minimum Flow	Running Average	WR-34 Make-Up	Climatic Credit Earned	Input /2	Input	Output	Output	Cumulative
	Discharge	Website	Average of	Maintenance	Less Required	Discharge	cfs	cfs	AF	cfs	AF	Balance
	cfs	cfs	Website	Requirement /1	Flow	cfs	AF		AF		AF	AF
1	4.40	4.4				4.5	8.9	5.1	10.1	0.0	0.0	5,000.0
2	4.40	4.4				4.5	8.9	5.1	10.1	0.0	0.0	5,000.0
3	4.46	4.4				4.5	8.9	5.1	10.1	0.0	0.0	5,000.0
4	4.38	4.4				4.5	8.9	5.1	10.1	0.0	0.0	5,000.0
5	4.36	4.4				4.5	9.0	5.1	10.1	0.0	0.0	5,000.0
6	4.32	4.3				4.5	8.9	5.1	10.1	0.0	0.0	5,000.0
7	4.28	4.3				4.5	8.9	5.1	10.1	0.0	0.0	5,000.0
8	4.25	4.3				4.5	8.9	5.1	10.1	0.0	0.0	5,000.0
9	4.26	4.3				4.5	8.9	5.1	10.1	0.0	0.0	5,000.0
10	4.29	4.3				4.5	8.9	5.1	10.1	0.0	0.0	5,000.0
11	4.60	4.6			-0.9	4.8	9.6	5.1	10.1	0.0	0.0	5,000.0
12	5.11	5.1		5.3	-0.9	5.3	10.5	5.1	10.1	0.0	0.0	5,000.0
13	5.09	5.1		5.3	-0.8	5.3	10.5	5.1	10.1	0.0	0.0	5,000.0
14	5.13	5.1		5.3	-0.7	5.3	10.5	5.1	10.1	0.0	0.0	5,000.0
15	5.12	5.1		5.3	-0.7	5.3	10.5	5.1	10.1	0.0	0.0	5,000.0
16	5.14	5.1		5.3	-0.6	5.3	10.5	5.1	10.1	0.0	0.0	5,000.0
17	5.15	5.2		5.3	-0.5	5.3	10.5	5.1	10.1	0.0	0.0	5,000.0
18	5.14	5.1		5.3	-0.4	5.3	10.5	5.1	10.1	0.0	0.0	5,000.0
19	5.15	5.2		5.3	-0.3	5.3	10.5	5.1	10.1	0.0	0.0	5,000.0
20	5.18	5.2		5.3	-0.2	5.3	10.5	5.1	10.1	0.0	0.0	5,000.0
21	5.17	5.2		5.3	-0.2	5.3	10.5	5.1	10.1	0.0	0.0	5,000.0
22	5.17	5.2		5.3	-0.2	5.3	10.5	5.1	10.1	0.0	0.0	5,000.0
23	5.22	5.2		5.3	-0.2	5.3	10.5	5.1	10.1	0.0	0.0	5,000.0
24	5.27	5.3		5.3	-0.1	5.3	10.6	5.1	10.1	0.0	0.0	5,000.0
25	5.31	5.3		5.3	-0.1	5.3	10.6	5.1	10.1	0.0	0.0	5,000.0
26	5.26	5.3		5.3	-0.1	5.3	10.5	5.1	10.1	0.0	0.0	5,000.0
27	5.27	5.3		5.3	-0.1	5.3	10.5	5.1	10.1	0.0	0.0	5,000.0
28	5.35	5.4		5.3	-0.1	5.3	10.5	5.1	10.1	0.0	0.0	5,000.0
29	5.28	5.3		5.3	-0.1	5.3	10.5	5.1	10.1	0.0	0.0	5,000.0
30	5.24	5.2		5.3	0.0	5.3	10.5	5.1	10.1	0.0	0.0	5,000.0
31	5.23	5.2		5.3	0.0	5.3	10.6	5.1	10.1	0.0	0.0	5,000.0
<b>TOTAL SFD</b>	152.0	152.2	104.1	111.3	-7.2	155.8	309.0	158.1	313.1	0.0	0.0	5,000.0
<b>TOTAL AF</b>	301.4	301.9	206.5	220.8	-14.3							

1 - Minimum Flow Maintenance Requirement equals the Section 5 flow for an Above Normal year.

2 - Foregone make-up water credited to groundwater account but cumulative balance did not increase due to account balance maximum of 5,000 AF.



***SANTA MARGARITA RIVER WATERSHED***

**ANNUAL WATERMASTER REPORT**

**WATER YEAR 2016-17**

**APPENDIX E**

**COOPERATIVE WATER RESOURCE  
MANAGEMENT AGREEMENT  
REQUIRED FLOWS AND ACCOUNTS  
CALENDAR YEAR 2017**

**December 2018**



## APPENDIX F

### *SANTA MARGARITA RIVER WATERSHED*

#### **ANNUAL REPORT ISSUES SUBORDINATED DURING EFFECTIVE PERIOD OF THE COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT**

##### Introduction

Prior to implementation of the Cooperative Water Resource Management Agreement (CWRMA) entered into by Rancho California Water District (RCWD) and the United States on behalf of Camp Pendleton, there were contentions raised by Camp Pendleton each year, with respect to various aspects of the Annual Watermaster Report. These contentions are settled so long as CWRMA is in effect. Accordingly, there is no need to raise those particular issues or publish them in the main text of the annual report or in related correspondence.

However, the respective positions on these issues need to be preserved and protected from any finding of waiver, and there is a need to continue to collect related data in the event of need in the future.

Therefore, the applicable textual material in the previous annual reports and related comments and responses have been gathered here for preservation and maintenance of rights, with the understanding that the previous annual exchange of applicable contentions in the process of preparing the annual report is no longer necessary.

##### Issues Reserved

Section 3, Surface Water Availability and Use: In the absence of CWRMA implementation, Camp Pendleton disputes the method of calculation used in the annual report in Subsection 3.2 (Surface Water Diversions) and Table 3.3 (Surface Water Diversions to Storage for Vail Lake) for presentation of the information regarding Vail Lake and further asserts its belief that the Vail Dam impoundment fails to comply with the 1940 Stipulated Judgment.

Section 4, Subsurface Water Availability and Use: In the absence of CWRMA implementation, and with respect to Figure 4.1 (Water Level Elevations – Windmill Well) and to Subsections 4.3 (Water Levels) and 4.4 (Groundwater Storage), Camp Pendleton is concerned about the apparent excessive pumping in the Upper Basin, and further asserts its belief that the lengthy and significant drawdown and concomitant loss in storage adversely affect the water supply for adjacent and downstream users holding senior water rights.

Section 7, Water Production and Use: First, in the absence of CWRMA implementation, and with regard to the local production figures shown in Table 7.1 (Water Production and Use), Camp Pendleton is concerned about the high level of groundwater production from the Upper Basin, a level that Camp Pendleton believes to be substantially greater than the safe yield.

Second, in the absence of CWRMA implementation, and with regard to Footnote 5 of Table 7.1 (distinction between RCWD pumping of older alluvium water and of Vail recovery water), Camp Pendleton has serious reservations as to the accounting system that is being used as well as the legal and technical bases upon which such system has been formulated.

Third, in the absence of CWRMA implementation, and as to the RCWD part of Subsection 7.2.8 (Water Purveyors – Rancho California Water District), Camp Pendleton has serious reservations as to the accounting system that is being used as well as the legal and technical bases upon which such system has been formulated. These reservations include the following:

1. As to the “Vail Appropriation” part: *Representatives of the United States contend that under the 1940 Stipulated Judgment storage of water in Vail Lake is limited to Rancho California Water District’s share of the flood waters of the Santa Margarita River system. However, to date, the parties have not agreed on a definition of “flood waters.”*
2. As to the “Division of Local Water” part: *In 1995 well logs and geophysical logs of all Rancho California WD wells were reviewed by representatives of the United States and Rancho California WD to determine the depths of the younger alluvium. There was general agreement between the parties about the depth of the younger alluvium in production wells, except for ten wells shown on Table 7.7 of the 1994-95 report. In 2015, Watermaster, Rancho California WD and Camp Pendleton reviewed available geologic reports, geologic cross sections, well completion reports, driller logs, and geophysical logs to develop new geologic cross sections to delineate the depth of younger alluvium. The parties reached consensus on the depth of younger alluvium for wells previously in dispute as indicated in Table 7.7.*

Section 8, Unauthorized Water Use: In the absence of CWRMA implementation, and with respect to water use by RCWD, Camp Pendleton asserts the following:

1. Such use is in violation of the 1940 Stipulated Judgment by reason of, among other things, Vail Lake operations in excess of entitlement and pumping from both younger and older alluvium in excess of entitlement, which contentions RCWD disputes;
2. Rediversion and use of water impounded by Vail Dam are not in accord with terms of Permit 7032;
3. Unauthorized pumping is being done, including pumping from the younger alluvium outside of Pauba Valley without a permit and pumping from the older alluvium in violation of Court adjudications.

Section 9, Threats to Water Supply: In the absence of CWRMA implementation, and with respect to Subsection 9.3 (Potential Overdraft Conditions) and as noted in the foregoing comments to Sections 4 and 7, Camp Pendleton is seriously concerned regarding the apparent excessive pumping in the Upper Basin.



***SANTA MARGARITA RIVER WATERSHED***  
**ANNUAL WATERMASTER REPORT**  
**WATER YEAR 2016-17**

**APPENDIX G**  
**INDEPENDENT AUDITOR'S REPORT**  
**WATER YEAR 2016-17**

**December 2018**





**Watermaster of the Santa  
Margarita River Watershed  
Financial Report  
September 30, 2017**

## INDEX TO FINANCIAL STATEMENTS

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# VAUGHN JOHNSON, CPA

## INDEPENDENT AUDITOR'S REPORT

To the Steering Committee  
Watermaster of the Santa Margarita River Watershed

I have audited the accompanying financial statements of Watermaster of the Santa Margarita River Watershed, as of and for the year ended September 30, 2017, and the related notes to financial statements, as listed in the index.

### Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

### Auditor's Responsibility

My responsibility is to express opinions on these financial statements based on my audit. I conducted my audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that I plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, I express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my audit opinions.

### Opinions

In my opinion, the financial statements referred to above present fairly, in all material respects, the respective financial position of Watermaster of the Santa Margarita River Watershed as of September 30, 2017, and the respective changes in financial position and cash flows for the year then ended in accordance with accounting principles generally accepted in the United States of America, as well as the accounting systems prescribed by the State Controller's Office and state regulations governing special districts.

## **Other Matters**

### *Required Supplementary Information*

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis and budgetary comparison information on pages 3-5 and page 13 be presented to supplement the financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, who considers it to be an essential part of financial reporting for placing the financial statements in an appropriate operational, economic, or historical context. I have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to my inquiries, the basic financial statements, and other knowledge I obtained during my audit of the basic financial statements. I do not express an opinion or provide any assurance on the information because the limited procedures do not provide me with sufficient evidence to express an opinion or provide any assurance.

*Vaughn Johnson*  
Vaughn Johnson, CPA  
Cameron Park, CA  
August 31, 2018

**WATERMASTER OF THE SANTA MARGARITA RIVER WATERSHED  
MANAGEMENT'S DISCUSSION AND ANALYSIS  
September 30, 2017**

This discussion and analysis of Watermaster of the Santa Margarita River Watershed (the Watermaster) financial performance provides an overview of the Watermaster's financial activities for the fiscal year ended September 30, 2017. Please read it in conjunction with the Watermaster's financial statements, which immediately follows this section.

**FINANCIAL HIGHLIGHTS**

Operating revenue for the Watermaster comes from municipal agencies based on an administrative assessment.

- The Watermaster ended the year with a net position of \$470,806.
- Operation revenues were \$772,100, while operating expenses were \$679,559.

**OVERVIEW OF THE FINANCIAL STATEMENTS**

This annual report consists of two parts- management's discussion and analysis (this section) and the basic financial statements. The financial statements that accompany this report include a statement of net position, statement of revenues, expenses, and changes in net position, and statement of cash flows. These statements provide information about the activities and performance of the Watermaster using accounting methods similar to those used by private sector companies. The Statement of Net Position includes all of the Watermaster's investments in resources (assets) and the obligations to creditor (liabilities). It also provides the basis for computing a rate of return, evaluating the capital structure of the Watermaster and assessing the liquidity and financial flexibility of the Watermaster. All of the current year's revenue and expenses are accounted for in the Statement of Revenues, Expenses and Changes in Net Position. This statement measures the success of the Watermaster's operations over the past year and can be used to determine if the Watermaster has successfully recovered all of its costs through its rates and other charges. This statement can also be used to evaluate profitability and credit worthiness. The final required financial statement is the Statement of Cash Flows, which provides information about the Watermaster's cash receipts and the cash payments during the reporting period. The Statement of Cash Flows reports cash receipts, cash payments and net change in cash resulting from operations, investing, non-capital financing, and capital and related financing activities and provides answers to such questions as where did cash come from, what was cash used for, and what was the change in cash balance during the reporting period.

**WATERMASTER OF THE SANTA MARGARITA RIVER WATERSHED  
MANAGEMENT'S DISCUSSION AND ANALYSIS  
September 30, 2017**

**FINANCIAL ANALYSIS OF THE WATERMASTER**

One of the most important questions asked about the Watermaster's finances is, "Is the Watermaster better off or worse off as a result of this year's activities?" The Statement of Net Position and the Statement of Revenues, Expenses and Changes in Net Position report information about the Watermaster in a way that helps answer this question. These statements include all assets and liabilities using the accrual basis of accounting, which is similar to the accounting method used by most private sector companies. All of the current year's revenues and expenses are taken into account regardless of when the cash is received or paid. These two statements report the Watermaster's net position and changes in net position. You can think of the Watermaster's net position . the difference between assets and liabilities . as one way to measure the Watermaster's financial health, or financial position. Over time, increases or decreases in the Watermaster's net position are one indicator of whether its financial health is improving or deteriorating.

**NOTES TO THE BASIC FINANCIAL STATEMENTS**

The notes provide additional information that is essential to a full understanding of the data provided in the basic financial statements.

**BASIC FINANCIAL STATEMENT – COMPARATIVE ANALYSIS**

***Statement of Net Position***

	2017	2016	Change
<b>ASSETS</b>			
Current assets	\$ 500,698	\$ 539,913	\$ (39,215)
Non current assets	2,517	3,384	(867)
Total assets	<u>\$ 503,215</u>	<u>\$ 543,297</u>	<u>\$ (40,082)</u>
<b>LIABILITIES</b>			
Current liabilities	\$ 32,409	\$ 165,532	\$ (133,123)
Total liabilities	32,409	165,532	(133,123)
<b>NET POSITION</b>			
Unrestricted	470,806	377,765	93,041
Total net position	<u>\$ 470,806</u>	<u>\$ 377,765</u>	<u>\$ 93,041</u>

**WATERMASTER OF THE SANTA MARGARITA RIVER WATERSHED  
MANAGEMENT'S DISCUSSION AND ANALYSIS  
September 30, 2017**

**BASIC FINANCIAL STATEMENT – COMPARATIVE ANALYSIS** (continued)

**Statement of Net Position** (continued)

As noted earlier, net position may serve over time as a useful indicator of an entity's financial position. In the case of the Watermaster, assets of the Watermaster exceeded liabilities by \$470,806 as of September 30, 2017, an increase in net position of \$93,041 compared to 2016.

**Statement of Revenues, Expenses, and Changes in Net Position**

	2017	2016	Change
<b>REVENUES</b>			
Operating revenues	\$ 772,100	\$ 716,100	\$ 56,000
Non operating revenues - interest	500	561	(61)
Total revenues	772,600	716,661	55,939
<b>EXPENSES</b>			
Operating expenses	679,559	735,327	(55,768)
Change in net position	93,041	(18,666)	111,707
Net position - beginning of year	377,765	396,431	(18,666)
Net position - end of year	<u>\$ 470,806</u>	<u>\$ 377,765</u>	<u>\$ 93,041</u>

The statement of revenues, expenses and changes of net position shows how the Watermaster's net position changed during the fiscal year. In the case of the Watermaster, net position increased by \$93,041 for the year ended September 30, 2017, as compared to a decrease of \$18,666 in 2016. This was primarily due to decreases in operating expenses.

**CONDITIONS AFFECTING CURRENT FINANCIAL POSITION**

Management is unaware of any conditions, which could have a significant impact on the Watermaster's current financial position, net position or operating results based on past, present and future events.

**CONTACTING THE WATERMASTER'S FINANCIAL MANAGEMENT**

This financial report is designed to provide a general overview of the Watermaster's finances and to demonstrate the Watermaster's accountability for the money it receives. If you have any questions about this report or need additional financial information, please contact the Watermaster of the Santa Margarita River Watershed at 169 Parkshore Drive, Suite 110, Folsom, CA 95630.

**WATERMASTER OF THE SANTA MARGARITA RIVER WATERSHED**  
**STATEMENT OF NET POSITION**  
**September 30, 2017**

**ASSETS**

Current asset:		
Cash and investments	\$	390,198
Accounts receivable		110,300
Prepaid expenses		200
Total current assets		<u>500,698</u>
Fixed assets, net of depreciation		2,517
Total assets	\$	<u><u>503,215</u></u>

**LIABILITIES AND NET ASSETS**

Current liabilities:		
Accounts Payable	\$	32,409
Total current liabilities		<u>32,409</u>

**NET POSITION**

Unrestricted		470,806
Total net position		<u>470,806</u>
Total liabilities and net position	\$	<u><u>503,215</u></u>



**WATERMASTER OF THE SANTA MARGARITA RIVER WATERSHED**  
**STATEMENT OF REVENUES, EXPENSES, AND CHANGES IN NET POSITION**  
**For the Year Ended September 30, 2017**

Operating revenues		
Assessments	\$	<u>772,100</u>
Operating expenses		
Watermaster fees:		
Consulting services		279,102
Travel reimbursements		16,662
Other expenses:		
Gauging station operation		245,831
Human resource services		27,000
Rent		6,000
Accounting services		2,551
Supplies		422
Insurance		575
Printing		2,434
Audit		8,780
Legal services		37,678
Publications		897
Clerical/analyst		44,764
Telephone/internet		1,034
Travel		613
Postage		181
Maintenance		47
IT system/computer		989
Depreciation expense		867
Miscellaneous		<u>3,132</u>
Total operating expenses		<u>679,559</u>
Income from operations		92,541
Non operating revenues (expenses)		
Interest		<u>500</u>
Change in net position		93,041
Net position - beginning of year		<u>377,765</u>
Net position - end of year	\$	<u><u>470,806</u></u>

**WATERMASTER OF THE SANTA MARGARITA RIVER WATERSHED**  
**STATEMENT OF CASH FLOWS**  
**For the Year Ended September 30, 2017**

**CASH FLOWS FORM OPERATING ACTIVITIES:**

Receipts from customers	\$	496,350
Payments to suppliers and vendors		<u>(646,365)</u>
Net cash provided by operating activities		<u>(150,015)</u>

**CASH FLOWS FROM INVESTING ACTIVITIES**

Interest received		500
Purchases of Certificates of Deposit		<u>500</u>
Net cash provided by investing activities		<u>500</u>
Change in cash and cash equivalents		(149,515)
Cash and cash equivalents - beginning of year		<u>539,713</u>
Cash and cash equivalents - end of year	\$	<u><u>390,198</u></u>

**RECONCILIATION OF OPERATING REVENUES TO NET CASH PROVIDED BY OPERATING ACTIVITIES**

Income from operations	\$	92,541
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**ADJUSTMENT OT RECONCILE NET INCOME TO NET CASH PROVIDED BY OPERATING ACTIVITIES**

Depreciation		867
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**(INCREASE) DECREASE IN:**

Accounts receivable		(110,300)
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**INCREASE (DECREASE) IN:**

Accounts payable		32,327
Unearned assessments		<u>(165,450)</u>

Net cash provided by operating activities	\$	<u><u>(150,015)</u></u>
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**WATERMASTER OF THE SANTA MARGARITA RIVER WATERSHED**  
**NOTES TO FINANCIAL STATEMENTS**  
**September 30, 2017**

**1. ORGANIZATION**

***Nature of Operations***

Watermaster of the Santa Margarita River Watershed (Watermaster) was created by order of the United States District court, Southern District of California (Court). The Court, as part of its continuing jurisdiction in the case of United States vs. Fallbrook Public Utility District et. al., has authority to make judicial determination of all water rights within the Santa Margarita River Watershed. The Watermaster is empowered by the Court to administer and enforce the provision of a Modified Final Judgment and Decree entered April 6, 1966, and subsequent instructions and orders of the Court. On November 30, 2016, the Court issued an Order appointing Michael Preszler to serve as Watermaster.

A Steering Committee was appointed by the Court to assist the Watermaster and the Court. The Steering Committee is comprised of representatives from the United States (Camp Pendleton Marine Corps Base), Rancho California Water District, Fallbrook Public Utility District (FPUD), Eastern Municipal Water District, Metropolitan Water District of Southern California, the Pechanga Band of Luiseno Mission Indians, and Western Municipal Water District.

The fees and expenses of the Watermaster during the water year ended September 30, 2017, were, per court order, paid from equal assessments against the Steering committee members. The Court retains the right to assess other parties in the watershed in future years. Pursuant to an agreements between the Watermaster and the United States Geological Survey (USGS), the USGS provides operations and maintenance services for stream gauging stations and groundwater monitoring wells in the watershed.

**2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES**

***Basis of Accounting and Measurement Focus***

The Watermaster reports its activities as an enterprise fund, which is used to account for operations that are financed and operated in a manner similar to a private business enterprise. Revenues and expenses are recognized on the full accrual basis of accounting. Revenues are recognized in the accounting period in which they are earned and expenses are recognized in the period incurred, regardless of when the related cash flows take place.

Operating revenues and expenses, such as Watermaster assessments result from exchange transactions associated with the principal activity of the Watermaster. Exchange transactions are those in which each party receives and gives up essentially equal values. The principal operating revenues of the Watermaster are regulatory assessments to Steering Committee Members. Management, administration and depreciation expenses are also considered operating expenses. Other revenues and expenses are not included in the above categories are reported as non-operating revenues and expenses.

**WATERMASTER OF THE SANTA MARGARITA RIVER WATERSHED**  
**NOTES TO FINANCIAL STATEMENTS**  
**September 30, 2017**

**1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES** (continued)

***Governmental Accounting Standard Implementation in Current Year***

***Cash and cash Equivalents***

Cash and cash equivalents are composed of cash in banks and liquid investments with original maturities of three months or less.

***Investments***

Investments in marketable securities with readily determinable fair values and all investments in debt securities are reported at their fair values in the Statement of Net Assets. The fair values of these investments are subject to change based on the fluctuations of market values. Unrealized gains and losses are included in the change in net assets. Investment income and gains restricted by a donor or by the Watermaster are reported as increases in unrestricted net assets if the restrictions are met (either by the passage of time or by use) in the reporting period in which the income and gains are recognized.

***Fair Value Measurements***

Certain assets and liabilities are required to be reported at fair value. The fair value framework provides a hierarchy that prioritizes the inputs to valuation techniques used to measure fair value. The hierarchy gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1 measurements) and the lowest priority to unobservable inputs (Level 3 measurements). The three levels of fair value hierarchy are described as follows:

Level 1 . Inputs to the valuation methodology are unadjusted quoted prices for identical assets or liabilities in active markets.

Level 2 . Inputs other than quoted prices included within Level 1 that observable for the asset or liability, either directly or indirectly and fair value is determined through the use of models or other valuation methodologies including:

- Quoted prices for similar assets or liabilities in active markets;
- Quoted prices for identical or similar assets or liabilities in markets that are inactive;
- Inputs other than quoted prices that are observable for the asset or liability;
- Inputs that are derived principally from or corroborated by observable market data by correlation or other means.

Level 3 . Inputs to the valuation methodology are unobservable and significant to the fair value measurement. These unobservable input reflect the District's own assumptions about the inputs market participants would use in pricing the asset or liability (including assumptions about risk). These unobservable inputs are developed based on the best information available in the circumstances and may include the District's own data.

***Accounts Receivable***

Watermaster considers accounts receivable to be fully collectible; accordingly, no allowances for doubtful accounts is required.

**WATERMASTER OF THE SANTA MARGARITA RIVER WATERSHED**  
**NOTES TO FINANCIAL STATEMENTS**  
**September 30, 2017**

**2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES** (continued)

***Fixed Assets***

Fixed assets are recorded at cost and depreciated under the straight-line method over their estimated useful lives of 3 to 10 years. Repair and maintenance costs, which do not extend the useful lives of the asset, are charge to expense. The cost of assets, sold or retired, and related amounts of accumulated depreciation are eliminated from the accounts in the year of disposal, and any resulting gain or loss is included in the earnings. Management has elected to capitalize and depreciate all assets costing \$2,000 or more; all other assets are charged to expense in the year incurred.

***Unearned Assessments***

Advanced assessments represent amounts levied or collected in the current year that apply to the next fiscal year.

***Use of Estimates***

The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect certain reported amounts and disclosures. Accordingly, actual results could differ from those estimates.

**3. CASH AND INVESTMENTS**

Cash and investments at September 30, 2017, consisted of the following:

Cash in bank	\$ 1,353
Money market	148,644
Certificates of deposit	<u>240,201</u>
Total cash and investments	\$ <u>390,198</u>

Custodial credit risk is the risk that in the event of a bank failure, the Watermaster's deposits may not be returned. Cash balances held in banks are insured up to \$250,000 by the Federal Deposit Insurance Corporation (FDIC). In addition, the California Government Code requires that a financial institution secure deposits made by state or local governmental units by pledging securities in an undivided collateral pool held by a depository regulated under state law (unless so waived by the governmental unit). The market value of the pledge securities in the collateral pool must equal at least 110 percent of the total amount deposited by the public agency. California law also allows financial institutions to secure public deposits by pledging first trust deed mortgage notes having a value of 150 percent of the secured public deposits and letters of credit issued by the Federal Home Loan Bank of San Francisco having a value of 105 percent of the secured deposits. At December 31, the amount over the insured amount was \$140,198.

Custodial credit risk for investments is the risk that an issuer of an investment will not fulfill its obligation to the holder of the investment. This is measured by assigning a minimum credit rating by a national credit rating agency. This does not apply to money market funds or certificates of deposit. The investment policy of the Watermaster contains no limitations on the amount that can be invested in any one issuer beyond that stipulated by the California Government Code. The Watermaster's funds are held by one institution, Pacific Western Bank. Fair value level reporting and interest rate risk do not apply to money market funds or certificates of deposit.

**WATERMASTER OF THE SANTA MARGARITA RIVER WATERSHED**  
**NOTES TO FINANCIAL STATEMENTS**  
**September 30, 2017**

**4. FIXED ASSETS**

Fixed assets at September 30, 2017, consisted of the following:

Computer equipment	\$ 10,862
Office furniture and equipment	19,461
Less: accumulated depreciation	<u>(27,806)</u>
Total fixed assets, net of depreciation	\$ <u>2,517</u>

**5. RELATED PARTY TRANSACTIONS**

The Watermaster has entered into an agreement with Fallbrook Public Utility District (FPUD), which is a member of the Watermaster Steering Committee, whereby FPUD provides office space and accounting services. Rent of the office space and accounting services for the fiscal year ended September 30, 2017 was \$6,000.

Data management and clerical support services are performed at the Watermaster office by an FPUD employee under contract. Watermaster reimburses FPUD for the actual cost of wages and fringe benefits. For the fiscal year ended September 30, 2017, these reimbursements totaled \$44,764.

**6. SUBSEQUENT EVENTS**

Management evaluated all the activities have been evaluated of the Watermaster through August 31, 2018, the date the financial statements were available to be issued.

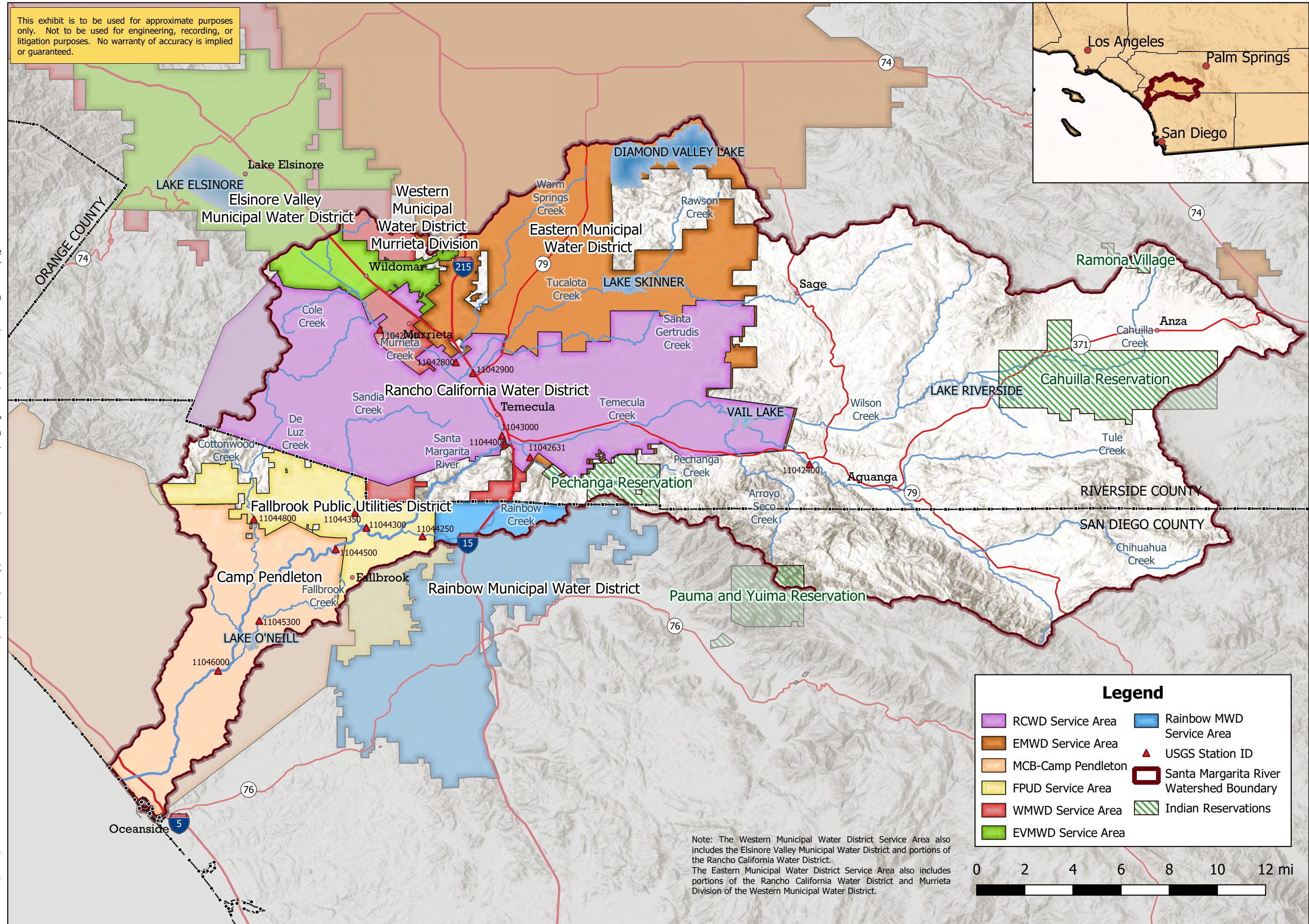
## **SUPPLEMENTARY INFORMATION**

**WATERMASTER OF THE SANTA MARGARITA RIVER WATERSHED**  
**SCHEDULE OF REVENUES AND EXPENSES--BUDGET AND ACTUAL**  
**For the Year Ended September 30, 2017**

	<u>Original/ Final Budget</u>	<u>Actual</u>	<u>Variance Favorable (Unfavorable)</u>
Revenues			
Assessments	\$ 772,100	\$ 772,100	\$ -
Interest		500	500
Total revenues	<u>772,100</u>	<u>772,600</u>	<u>500</u>
Expenses			
Watermaster fees:			
Consulting services	242,000	279,102	(37,102)
Travel reimbursements	27,600	16,662	10,938
Other expenses:			
Gauging station operation	246,950	245,831	1,119
Human resource services	800	27,000	(26,200)
Rent	18,000	6,000	12,000
Accounting services	8,500	2,551	5,949
Supplies	1,900	422	1,478
Insurance	600	575	25
Printing	11,500	2,434	9,066
Audit	6,600	8,780	(2,180)
Legal services	30,000	37,678	(7,678)
Publications	3,300	897	2,403
Clerical/analyst	114,200	44,764	69,436
Telephone/internet	3,000	1,034	1,966
Travel	1,500	613	887
Postage	2,000	181	1,819
Conference/training	1,600		1,600
Office equipment and furniture	1,000		1,000
IT system/computer	10,000	989	9,011
Depreciation		867	(867)
Miscellaneous	41,050	3,179	37,871
Total expenses	<u>772,100</u>	<u>679,559</u>	<u>92,541</u>



This exhibit is to be used for approximate purposes only. Not to be used for engineering, recording, or litigation purposes. No warranty of accuracy is implied or guaranteed.

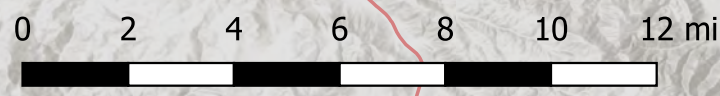


Prepared by: Robert Heather Date: 2018-09-14 Document Path: C:\Users\Robert\Desktop\Robert Heather\Watermaster Office\GIS\PROJECTS\20180907\_SMRW\_Map.aprx

**Legend**

RCWD Service Area	Rainbow MWD Service Area
EMWD Service Area	USGS Station ID
MCB-Camp Pendleton	Santa Margarita River Watershed Boundary
FPUD Service Area	Indian Reservations
WMWD Service Area	
EVMWD Service Area	

Note: The Western Municipal Water District Service Area also includes the Elsinore Valley Municipal Water District and portions of the Rancho California Water District. The Eastern Municipal Water District Service Area also includes portions of the Rancho California Water District and Murrieta Division of the Western Municipal Water District.



# Santa Margarita River Watershed Major Water Purveyors

