# *SANTA MARGARITA RIVER WATERSHED*

# ANNUAL WATERMASTER REPORT

# WATER YEAR 2014-15

***UNITED STATES OF AMERICA***
***V.***
***FALLBROOK PUBLIC UTILITY DISTRICT, ET AL.***

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

**CHARLES W. BINDER**
**WATERMASTER**
**P. O. BOX 631**
**FALLBROOK, CA 92088**
**(760) 728-1028**
**FAX (760) 728-1990**

**September 2016**

## TABLE OF CONTENTS

Page No.

SECTION 1 – SUMMARY ..... 1
SECTION 2 - INTRODUCTION ..... 5
2.1 Background ..... 5
2.2 Authority ..... 5
2.3 Scope ..... 5
SECTION 3 - SURFACE WATER AVAILABILITY AND USE ..... 7
3.1 Surface Flow ..... 7
3.2 Surface Water Diversions ..... 13
3.3 Water Storage ..... 13
SECTION 4 - SUBSURFACE WATER AVAILABILITY ..... 19
4.1 General ..... 19
4.2 Extractions ..... 19
4.3 Water Levels ..... 21
4.4 Groundwater Storage ..... 27
4.4.1 Santa Margarita Groundwater Basin ..... 27
4.4.2 Murrieta-Temecula Groundwater Basin ..... 29
4.4.3 Anza Groundwater Basin ..... 32
SECTION 5 - IMPORTS/EXPORTS ..... 33
5.1 General ..... 33
5.2 Water Year 2014-15 ..... 37
5.3 Water Years 1966 through 2015 ..... 37
5.4 Lake Skinner ..... 42
5.5 Diamond Valley Lake ..... 43
SECTION 6 - WATER RIGHTS ..... 45
6.1 General ..... 45
6.2 Appropriative Surface Water Rights ..... 47
6.3 Fallbrook PUD Changes of Point of Diversion and Place of Use for Permit No. 11356 ..... 51
6.4 Federal Reserved Water Rights for Cahuilla and Ramona Indian Reservations ..... 52
6.5 Federal Reserved Water Rights for Pechanga Indian Reservation ..... 53

6.6 California Statewide Groundwater Elevation Monitoring Program ..... 54
6.7 Sustainable Groundwater Management Act ..... 55
SECTION 7 - WATER PRODUCTION AND USE ..... 57
7.1 General ..... 57
7.2 Water Purveyors ..... 58
7.2.1 Anza Mutual Water Company ..... 58
7.2.2 Eastern Municipal Water District ..... 61
7.2.3 Elsinore Valley Municipal Water District ..... 64
7.2.4 Fallbrook Public Utility District ..... 64
7.2.5 Lake Riverside Estates ..... 65
7.2.6 Metropolitan Water District of Southern California ..... 65
7.2.7 Rainbow Municipal Water District ..... 65
7.2.8 Rancho California Water District ..... 65
Vail Appropriation ..... 66
Imported Water Return Flows ..... 68
Division of Local Water ..... 71
7.2.9 Western Municipal Water District ..... 74
Murrieta Division ..... 74
Improvement District A ..... 75
7.2.10 U. S. Marine Corps - Camp Pendleton ..... 75
7.2.11 U. S. Naval Weapons Station, Fallbrook Annex ..... 76
7.3 Indian Reservations ..... 76
7.3.1 Cahuilla Indian Reservation ..... 77
7.3.2 Pechanga Indian Reservation ..... 77
7.3.3 Ramona Indian Reservation ..... 78
7.4 Small Water Systems ..... 78
7.5 Irrigation Water Use ..... 78
SECTION 8 - UNAUTHORIZED WATER USE ..... 79
8.1 General ..... 79
8.2 Unauthorized Small Storage Ponds ..... 79
8.3 Rancho California Water District Water Use ..... 79
8.4 Exportation of Treated Wastewater Derived from Native Waters ..... 79

SECTION 9 - THREATS TO WATER SUPPLY ..... 81
9.1 General ..... 81
9.2 High Nitrate Concentrations ..... 81
9.3 Potential Overdraft Conditions ..... 82
9.4 Salt Balance ..... 83
9.5 High Arsenic Concentrations ..... 85
9.6 High Fluoride Concentrations ..... 85
9.7 High Manganese Concentrations ..... 85
9.8 Quagga Mussel ..... 86
SECTION 10 - WATER QUALITY ..... 89
10.1 Surface Water Quality ..... 89
10.2 Groundwater Quality ..... 89
SECTION 11 – COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT ..... 95
11.1 General ..... 95
11.2 Required Flows ..... 98
11.3 Water Quality ..... 99
11.4 Monitoring Programs ..... 99
SECTION 12 - FIVE YEAR PROJECTION OF WATERMASTER OFFICE TASKS, EXPENDITURES AND REQUIREMENT ..... 103
12.1 General ..... 103
12.2 Normal Tasks ..... 103
12.3 Additional Tasks ..... 103
12.4 Projected Expenditures ..... 104
SECTION 13 - WATERMASTER OFFICE BUDGET ..... 105
13.1 Comparison of Budget and Actual Costs for 2014-15 ..... 105
13.2 Proposed Budget for 2016-17 ..... 105

## LIST OF TABLES

Page No.

Table 3.1 Stream Gaging Stations ..... 8
Table 3.2 Measured Surface Water Flow 2014-15 ..... 9
Table 3.3 Surface Diversions to Storage for Vail Lake ..... 14
Table 3.4 Surface Water Diversions to Storage for Lake O'Neill ..... 15
Table 3.5 Surface Water Diversions to Use ..... 16
Table 3.6 Water in Storage ..... 17
Table 4.1 Water Production by Substantial Users ..... 20
Table 4.2 Groundwater Storage at Camp Pendleton ..... 28
Table 4.3 Changes in Groundwater Storage Murrieta-Temecula Groundwater Basin (Water Budget Method) ..... 30
Table 4.4 Changes in Groundwater Storage Murrieta-Temecula Groundwater Basin (Groundwater Level Method) ..... 31
Table 5.1 Storage in State Water Project and Colorado River Reservoirs ..... 34
Table 5.2 Imports/Exports 2014-15 ..... 38
Table 5.3 Total Dissolved Solids Concentration of Imported Water ..... 39
Table 5.4 Imports/Exports 1966 through 2015 ..... 40
Table 6.1 Appropriative Water Rights, Permits and Licenses ..... 48
Table 6.2 Pre-1914 Appropriative Water Rights ..... 50
Table 7.1 Water Production and Use ..... 59
Table 7.2 Definitions of Water Use by Municipal Water Purveyors ..... 60
Table 7.3 Water Deliveries to Temecula Valley Regional Water Reclamation Facility Service Area ..... 63
Table 7.4 Rancho California Water District, Permit 7032 Operations ..... 67
Table 7.5 Rancho California Water District, Rancho Division Return Flow Credits 2014-15 ..... 69
Table 7.6 Rancho California Water District, Santa Rosa Division Return Flow Credits 2014-15 ..... 70
Table 7.7 Percent Production from Younger Alluvium In Rancho California Water District Wells ..... 72
Table 7.8 Rancho California Water District Well Production From Younger and Older Alluvium ..... 73

Table 10.1 Ranges in Average Daily Concentration of Dissolved Oxygen, pH, Specific Conductance and Temperature at Santa Margarita River Near Temecula ..... 90

Table 11.1 Monthly Summary of Required Flows, Discharges, Credits and Accounts, Cooperative Water Resource Management Agreement 2014 calendar year ..... 96

Table 11.2 Monthly Summary of Required Flows, Discharges, Credits and Accounts, Cooperative Water Resource Management Agreement 2015 calendar year ..... 97

Table 13.1 Comparison of Watermaster Budget and Actual Costs for 2014-15 ..... 106

Table 13.2 Proposed Watermaster Budget for 2016-17 ..... 107

## LIST OF FIGURES

Page No.

1.1 Local Production 2006 through 2015 ..... 2
1.2 Imports 2006 through 2015 ..... 2
1.3 Total Production 2006 through 2015 ..... 3
3.1 Annual Streamflow for Santa Margarita River Near Temecula ..... 11
3.2 Annual Precipitation for Wildomar Gage ..... 12
4.1 Water Level Elevations Well No. 8S/2W-12H1 ..... 21
4.2 Water Level Elevations Well No. 10S/4W-7J1 ..... 22
4.3 Water Level Elevations Well No. 7S/3W-20C9 ..... 23
4.4 Water Level Elevations Well No. 7S/3E-21G1 ..... 24
4.5 Water Level Elevations Pechanga Indian Reservation Wells ..... 25
4.6 Water Level Elevations Well No. 6S/2W-9K ..... 26
5.1 Storage in State Water Project 2006 through 2015 ..... 35
5.2 Storage in Colorado River Reservoirs 2006 through 2015 ..... 35
10.1 Total Dissolved Solids Concentration RCWD Well 8S/2W-12K ..... 91
10.2 Total Dissolved Solids Concentration Camp Pendleton Well 10S/4W-7A2 ..... 92
10.3 Nitrate Concentration Camp Pendleton Well 10S/4W-7A2 ..... 93

## APPENDICES

### Appendix A - Production and Use Water Year 2014-15

Table A-1 Eastern Municipal Water District
Table A-2 Elsinore Valley Municipal Water District
Table A-3 Fallbrook Public Utility District
Table A-4 Metropolitan Water District
Table A-5 Pechanga Indian Reservation
Table A-6 Rainbow Municipal Water District
Table A-7 Rancho California Water District
Table A-8 U.S.M.C. - Camp Pendleton
Table A-9 U. S. Naval Weapons Station, Fallbrook Annex
Table A-10 Western Municipal Water District – Murrieta Division
Table A-11 Miscellaneous Water Production and Import

**Appendix B - Production and Use Water Years 1965-66 through 2014-15**

Table B-1 Eastern Municipal Water District
Table B-2 Elsinore Valley Municipal Water District
Table B-3.1 Fallbrook Public Utility District
Table B-3.2 Fallbrook Public Utility District
Table B-4 Fallbrook Public Utility District (Wastewater)
Table B-5 Metropolitan Water District
Table B-6 Pechanga Indian Reservation
Table B-7 Rainbow Municipal Water District
Table B-8 Rancho California Water District
Table B-9 U.S.M.C. - Camp Pendleton
Table B-10 U. S. Naval Weapons Station, Fallbrook Annex
Table B-11 Western Municipal Water District – Murrieta Division
Table B-12 Miscellaneous Water Production and Import

**Appendix C - Substantial Water Users 2014-15**

**Appendix D - Water Quality Data**

| | | Last Published |
|---|---|---|
| Table D-1 | Surface Streams Sampled by Camp Pendleton | 1992-93 |
| Table D-2 | Surface Streams Sampled by Rancho California Water District | 1998-99 |
| Table D-2.1 | Nutrient Sampling by Rancho California Water District | 2002-03 |
| Table D-3 | Wells in Western Municipal Water District - Murrieta Division | 2014-15 |
| Table D-4 | Wells in Rancho California Water District | 2014-15 |
| Table D-5 | Wells on Indian Reservations | 2014-15 |
| Table D-6 | Wells on Camp Pendleton | 2014-15 |
| Table D-7 | Eastern Municipal Water District | 1992-93 |
| Table D-8 | Eastern Municipal Water District | 1992-93 |
| Table D-9 | Eastern Municipal Water District | 1992-93 |
| Table D-10 | Eastern Municipal Water District | 1993-94 |
| Table D-11 | Wells in Domenigoni Valley | 1994-95 |
| Table D-12 | Surface Water Sampled by USGS on Cahuilla Creek | 2014-15 |

**Appendix E – Cooperative Water Resource Management Agreement Required Flows and Accounts – Calendar Year 2015**

**Appendix F – Annual Report Issues Subordinated During Effective Period of the Cooperative Water Resource Management Agreement**

**Appendix G – Independent Auditor's Report for Water Year 2014-15 and Report to the Steering Committee, dated December 16, 2015**

**MAP**

Major Water Purveyors — Bound at back of Report

## SECTION 1 – SUMMARY

Section 1 - A summary of the Santa Margarita River Watershed Annual Watermaster Report for the 2014-15 Water Year.

Section 2 - This Annual Watermaster Report is prepared pursuant to the U. S. District Court Order dated March 13, 1989. The Court has retained 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 2014-15. Flows for long-term stations on Murrieta Creek at Temecula, Santa Margarita River near Temecula, and Santa Margarita River at Ysidora were 35%, 53% and 21% of their long-term averages, respectively. Flows at Temecula Creek near Aguanga were 9% of the long-term average. Direct surface diversions to use totaled 613 acre feet, which reflects a decline of 82 acre feet from the prior year. The total quantity of water in storage in the Watershed on September 30, 2015, was 365,340 acre feet, of which 14,864 acre feet were Santa Margarita River water and 350,476 acre feet were imported water.

Section 4 - Groundwater extractions were 37,292 acre feet during 2014-15 as shown on Table 4.1, compared to 41,138 acre feet in 2013-14. Water purveyors pumped 32,309 acre feet, and 4,983 acre feet were pumped by other substantial users. Total local production, including groundwater extractions and surface diversions in 2014-15 was 37,905 acre feet. This compares with 41,833 acre feet in 2013-14, and represents a decline of nine percent. Total annual local production for use for the period 2006 through 2015 is shown on Figure 1.1.

Section 5 - During 2014-15, 62,677 acre feet of net imports were distributed for use within the Watershed, as shown on Table 5.2. This compares with 81,785 acre feet in 2013-14, and represents a decrease of twenty three percent. Annual imports for the period 2006 through 2015 are shown on Figure 1.2 and Table 5.4. Exports of wastewater and native water for use outside the Watershed in 2014-15 were 18,076 acre feet. This compares with 18,518 acre feet in 2013-14, and represents a decrease of two percent.

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 990,719 gallons per day. This corresponds to 1.53 cubic feet 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

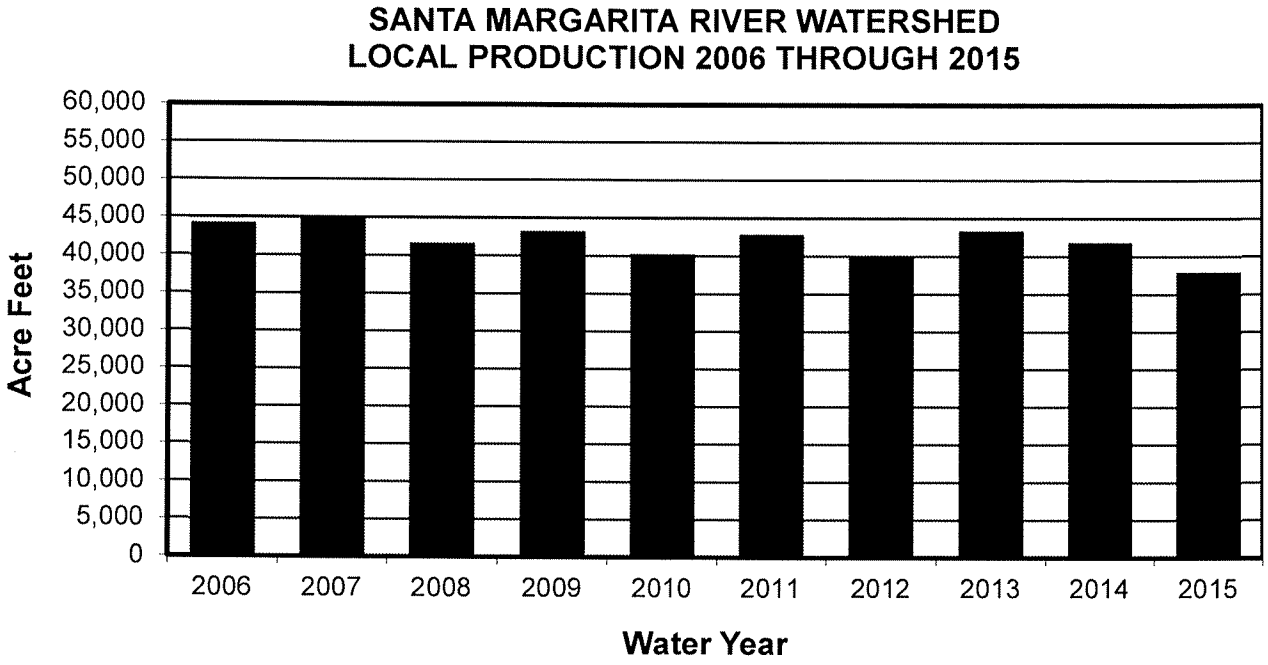
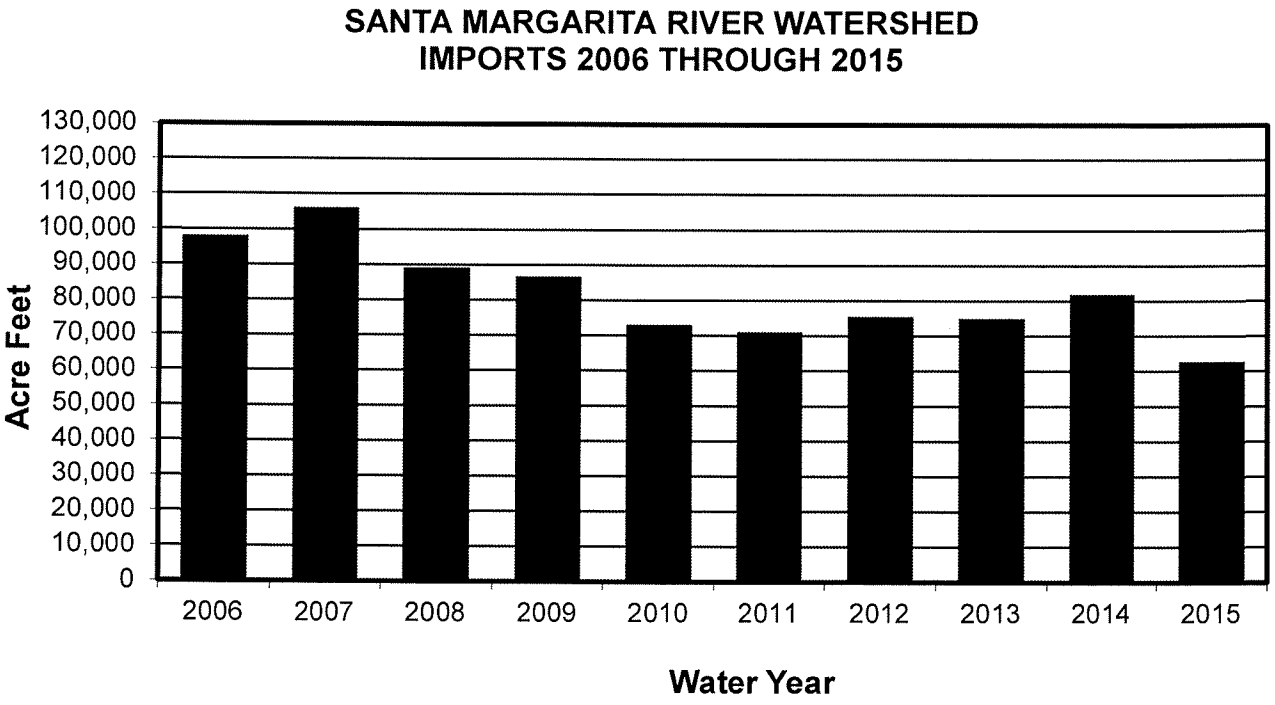



Figure 1.2

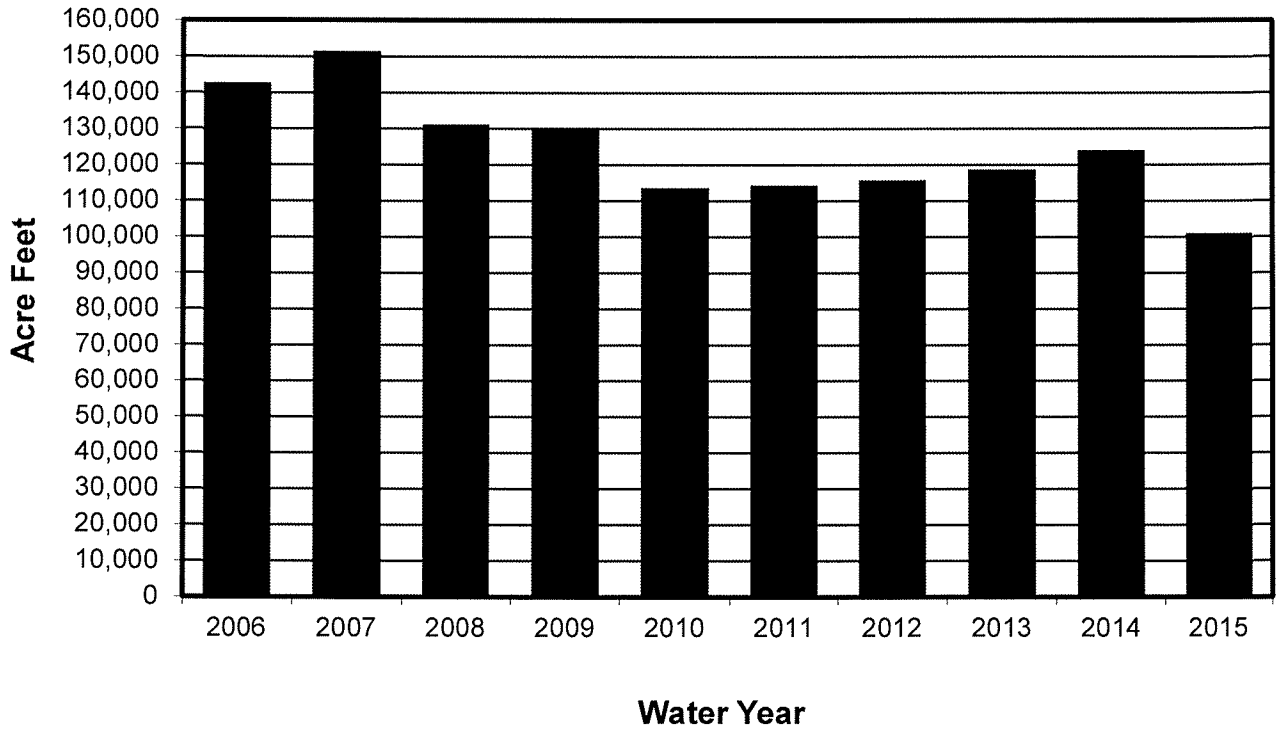


Section 7 – Total imported supplies plus local production during Water Year 2014-15 totaled 100,582 acre feet compared to 123,617 acre feet reported in 2013-14. Of that quantity, 32,103 acre feet were used for agriculture; 15,585 acre feet were used for commercial purposes; 43,700 acre feet were used for domestic purposes; 24 acre feet were discharged to Murrieta Creek; 2 acre feet were discharged to Santa Gertrudis Creek; and 2,914 acre feet were discharged by Rancho California WD from Metropolitan Water District of Southern California (MWD) Outlet WR-34 and 492 acre feet were discharged from the potable connection to the Santa Margarita River during 2014-15, pursuant to the Cooperative Water Resource Management Agreement (CWRMA). It is noted, commercial use includes 358 acre feet of recycled water and thus the commercial use of production is 15,227 acre feet. The overall system loss was 3,329 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 2006 through 2015 is shown on Figure 1.3.

Figure 1.3

**SANTA MARGARITA RIVER WATERSHED**
**TOTAL PRODUCTION 2006 THROUGH 2015**



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, 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, and the Pechanga Band during 2014-15. 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 all ten of the wells sampled at Camp Pendleton. Two wells sampled by Rancho California WD showed 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 2015 calendar year, Rancho California WD discharged 3,736 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 2014-15 were $658,095 compared to the Court approved budget of $679,700, resulting in a favorable variance of $21,605. A total Watermaster budget for Water Year 2016-17 is proposed to be $772,100. This budget includes $525,150 for the Watermaster Office and $246,950 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 2014-15 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.

Page Intentionally Blank

## 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 2014-15, the USGS operated 13 stations under an agreement with the Watermaster. These include three stations where Riverside County Flood Control and Water Conservation District shares 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 2014-15 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 2014-15 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.

TABLE 3.1

*SANTA MARGARITA RIVER WATERSHED*
**STREAM GAGING STATIONS THROUGH WATER YEAR 2014-15**

| Station Name | Station No. | Area Sq. Miles | Entity | Period Of Record |
|---|---|---|---|---|
| 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<br>October 1989 to September 1990<br>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.

TABLE 3.2

*SANTA MARGARITA RIVER WATERSHED*

**MEASURED SURFACE WATER FLOW**

2014-15

Quantities in Acre Feet

| GAGING STATION | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | WATER YEAR TOTAL | ANNUAL AVERAGE THROUGH 2014 | YEARS OF RECORD THROUGH 2014 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Temecula Creek Near Aguanga (11042400) | 1 | 9 | 76 | 122 | 105 | 84 | 19 | 32 | 7 | 1 | 0 | 4 | 460 | 5,350 | 57 |
| Pechanga Creek Near Temecula 1/ (11042631) | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 427 | 27 |
| Warm Springs Creek Near Murrieta (11042800) | 0 | 0 | 779 | 74 | 26 | 58 | 0 | 70 | 0 | 19 | 0 | 2 | 1,028 | 2,980 | 27 |
| Murrieta Creek Near Murrieta 2/, 3/ (11042700) | 0 | 0 | 211 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 214 | 2,746<br>4,430 | 7 (2008-2014)<br>8 (1998-2005) |
| Santa Gertrudis Creek Near Temecula (11042900) | 0 | 0 | 528 | 2 | 5 | 17 | 0 | 88 | 0 | 21 | 0 | 2 | 663 | 2,600 | 27 |
| Murrieta Creek At Temecula (11043000) | 0 | 8 | 2,805 | 233 | 45 | 106 | 6 | 273 | 9 | 65 | 8 | 11 | 3,569 | 10,125 | 90 |
| Santa Margarita River Near Temecula (11044000) | 235 | 176 | 3,509 | 620 | 488 | 636 | 494 | 669 | 315 | 328 | 270 | 250 | 7,990 | 15,192<br>20,390 | 66 (1949-2014)<br>26 (1923-48) |
| Rainbow Creek Near Fallbrook (11044250) | 1 | 10 | 162 | 17 | 30 | 22 | 1 | 14 | 2 | 6 | 0 | 20 | 285 | 2,480 | 25 |
| Santa Margarita River At FPUD Sump (11044300) | 334 | 397 | 3,923 | 1,335 | 660 | 839 | 482 | 742 | 263 | 273 | 177 | 199 | 9,624 | 28,760 | 25 |
| Sandia Creek Near Fallbrook (11044350) | 70 | 109 | 524 | 397 | 261 | 225 | 128 | 226 | 93 | 94 | 45 | 62 | 2,234 | 6,470 | 25 |
| DeLuz Creek Near DeLuz (11044800) | 0 | 0 | 117 | 42 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 159 | 7,720 | 21 |
| Fallbrook Creek Near Fallbrook (11045300) | 0 | 1 | 105 | 43 | 19 | 28 | 4 | 1 | 1 | 1 | 0 | 1 | 204 | 1,106<br>1,462 5/ | 26 (1989-2014)<br>12 (1965-76) |
| Santa Margarita River At Ysidora (11046000) | 0 | 0 | 3,054 | 795 | 674 | 650 | 452 | 649 | 199 | 3 | 0 | 294 | 6,770 | 31,511 4/<br>31,390 | 66 (1949-2014)<br>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.

Total flows at four long-term stations, for Water Years 2013-14 and 2014-15, 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 2014).

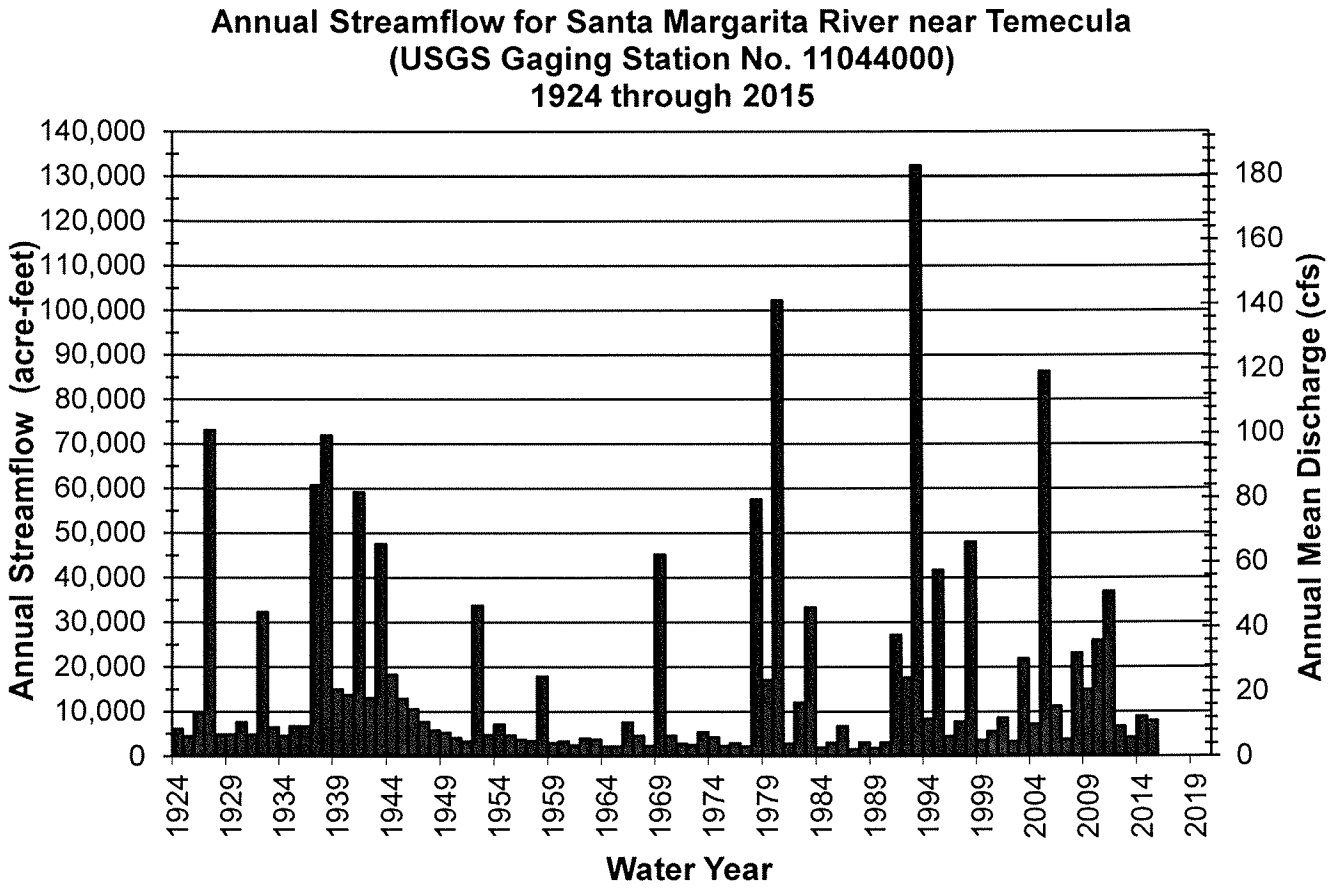
| | TOTAL FLOW | | AVERAGE FLOW | |
|---|---|---|---|---|
| | 2013-14 Acre Feet | 2014-15 Acre Feet | Through 2014 Acre Feet | |
| Temecula Creek Near Aguanga | 469 | 460 | 5,350 | (1957-2014) |
| Murrieta Creek At Temecula | 4,059 | 3,569 | 10,125 | (1925-2014) |
| Santa Margarita River Near Temecula | 8,959 | 7,990 | 15,192<br>20,390 | (1949-2014)<br>(1923-1948) |
| Santa Margarita River At Ysidora* | 6,363 | 6,770 | 31,511<br>31,390 | (1949-2014)<br>(1923-1948) |

* At various locations

The foregoing tabulation indicates the flows for Water Year 2014-15 were below 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 9%, 35%, 53% and 21% 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 2014-15 flows were in the third quartile and 89% of the flows for the prior year.

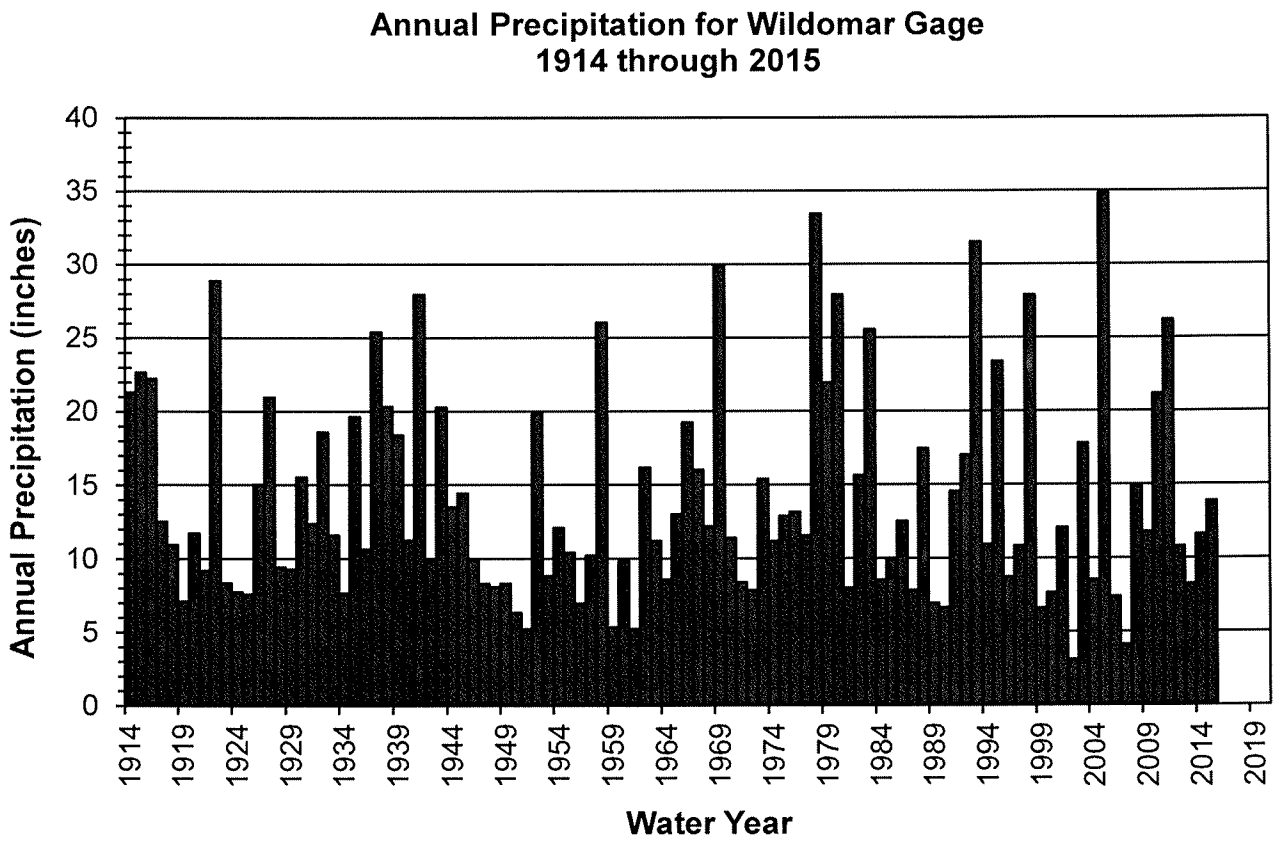
Figure 3.1




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 2015 is 14.02 inches. The reported precipitation for Water Year 2014-15 is 13.86 inches, which is in the third quartile for the period of record.

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 Murrieta Creek. Most of the Rancho California WD discharges are pursuant to the CWRMA. During Water Year 2014-15, the total discharges from MWD Meter WR-34 into the Santa Margarita River equaled 2,914 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 2014-15, 492 acre feet were discharged 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 2014-15, Rancho California WD also released 24 acre feet from wells into Murrieta Creek, and 2 acre feet from wells into Santa Gertrudis Creek.

## 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 2014-15 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, 2014 and September 30, 2015. Total Santa Margarita River stream system water in storage at the end of Water Year 2014-15 totaled 14,864 acre feet, compared to 17,884 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.

TABLE 3.3

*SANTA MARGARITA RIVER WATERSHED*
**SURFACE WATER DIVERSIONS TO STORAGE FOR VAIL LAKE**
**2014-15**
Quantities in Acre Feet

| | Surface Water Storage | | |
|---|---|---|---|
| | **2012-13** | **2013-14** | **2014-15** |
| Storage End of Prior Year | 26,560 | 20,780 | 17,470 |
| Inflow - Total | 1,947 | 1,662 | 1,091 |
| Inflow to be Bypassed [1/] | 645 | 726 | 626 |
| Spill | 0 | 0 | 0 |
| Diversions to Surface Storage [2/] | 1,302 | 936 | 465 |
| Annual Evaporation | 4,468 | 4,161 | 3,348 |
| Releases - Total | 3,259 | 811 | 773 |
| Release to GW Storage [3/ 4/] | 2,614 | 85 | 147 |
| Change of Storage | (5,780) | (3,310) | (3,030) |
| Storage End of Year | 20,780 | 17,470 | 14,440 |
| | **Groundwater Storage** | | |
| Recharge Release from Vail Lake | 2,614 | 85 | 147 |
| Recovered Vail Lake Recharge Water from GW Storage [5/] | 2,614 | 85 | 147 |

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 Watermater 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 147 acre feet for Release to GW Storage is correct but misleading because the bypass season continues into October 2015. Inspection of Rancho California WD records for May through October 2015 shows total Inflow to be Bypassed in the amount of 723 acre feet with total Releases of 854 acre feet, resulting in 131 acre feet of excess releases during the Permit bypass season of May through October 2015.

5/ See Table 7.4.

TABLE 3.4

*SANTA MARGARITA RIVER WATERSHED*

**SURFACE WATER DIVERSIONS TO STORAGE FOR LAKE O'NEILL**

**2014-15**

Quantities in Acre Feet

| | Surface Water Storage | | |
|---|---|---|---|
| | **2012-13** 7/ | **2013-14** | **2014-15** |
| Storage End of Prior Year | 646 | 444 | 414 |
| Inflow - Total | 1,832 1/ | 1,669 2/ | 1,822 3/ |
| Spill | 0 | 0 | 0 |
| Diversions to Surface Storage | 1,832 4/ | 1,669 4/ | 1,822 4/ |
| Annual Evaporation | 379 | 405 | 376 |
| Releases - Total | 792 | 825 | 1,204 |
| Release to GW Storage | 792 | 825 | 1,204 |
| Apparent Seepage to GW | 863 5/ | 469 5/ | 232 5/ |
| Change of Storage | (202) | (30) | 10 |
| Storage End of Year | 444 | 414 | 424 |
| | **Groundwater Storage** | | |
| Recharge Release from Lake O'Neill | 1,655 6/ | 1,294 6/ | 1,436 6/ |
| Deliveries to Recharge Ponds | 420 | 156 | 932 |
| Indirect Recharge from Ditch System | 1,170 | 1,236 | 894 |
| **TOTAL** | 3,245 | 2,686 | 3,262 |

1/ 1,505 AF diverted from the Santa Margarita River, 159 AF estimated inflow from Fallbrook Creek, 77 AF from local runoff, and 91 AF from rainfall on lake surface.
2/ 1,449 AF diverted from the Santa Margarita River, 113 AF estimated inflow from Fallbrook Creek, 36 AF from local runoff, and 71 AF from rainfall on lake surface.
3/ 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.
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/ Dredging operations for Lake O'Neill occurred during Water Year 2012. The preparation for and the actual dredging operation affected various operations for Lake O'Neill during Water Years 2011, 2012, and 2013 to varying levels within each particular year, including timing and amount of diversions from Santa Margarita River for both deliveries to Lake O'Neill and the recharge ponds, and Recharge Release from Lake O'Neill.

TABLE 3.5

*SANTA MARGARITA RIVER WATERSHED*
**SURFACE WATER DIVERSIONS TO USE**
**2014-15**
Quantities in Acre Feet

| DIVERTER | Surface Diversions | Consumptive Use 1/ | Loss 2/ | Return 3/ |
|---|---|---|---|---|
| Blue Bird Ranch | 31.5 | 21.2 | 3.2 | 7.1 |
| James Carter | 0.0 | 0.0 | 0.0 | 0.0 |
| Chambers Family, LLC | 8.0 | 5.4 | 0.8 | 1.8 |
| Serafina Holdings, LLC | 0.0 | 0.0 | 0.0 | 0.0 |
| Sage Ranch Nursery | 100.0 | 67.5 | 10.0 | 22.5 |
| Ross Lake, LLC | 0.0 | 0.0 | 0.0 | 0.0 |
| Val Verde Partners | 52.0 | 35.1 | 5.2 | 11.7 |
| Wilson Creek Development, LLC | 375.0 | 253.1 | 37.5 | 84.4 |
| Cahuilla Indian Reservation | 5.6 | 3.8 | 0.6 | 1.2 |
| San Diego State University | 41.3 | 27.9 | 4.1 | 9.3 |
| **TOTAL** | 613.4 | 414.0 | 61.4 | 138.0 |

1/ Consumptive Use equals 75% of Diversions less Losses.
2/ Losses equal 10% of Diversions.
3/ Returns equal 25% of Diversions less Losses.

TABLE 3.6

*SANTA MARGARITA RIVER WATERSHED*
**WATER IN STORAGE**
2014-15
Quantities in Acre Feet

| Santa Margarita River Storage | Total Capacity 1/ | Water in Storage 9/30/2014 | Water in Storage 9/30/2015 |
|---|---|---|---|
| Dunn Ranch Dam | 90 | 0 | 0 |
| Upper Chihuahua Creek Reservoir | 47 | 0 | 0 |
| Vail Lake | 49,370 | 17,470 | 14,440 |
| Lake O'Neill | 1,670 | 414 | 424 |
| **SUBTOTAL** | **51,177** | **17,884** | **14,864** |
| **Imported Water Storage** | | | |
| Lake Skinner | 44,000 | 33,547 | 31,447 |
| Diamond Valley Lake | 810,000 | 404,415 R | 319,029 |
| **SUBTOTAL** | **854,000** | **437,962** R | **350,476** |
| **TOTAL STORAGE** | **905,177** | **455,846** R | **365,340** |

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

Page Intentionally Blank

## 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 2014-15, production by water purveyors totaled 32,309 acre feet, compared to 35,457 acre feet in 2013-14. Monthly quantities are shown in Appendix A and annual production for the period 1966 through 2015 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 4,983 acre feet in 2014-15. Of the subsurface extractions, 75 percent is estimated to have been consumptively used and 25 percent to have been return flow. Return flow is that portion of the total deliveries that is not consumed. Although return flows average about 25 percent, 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.

TABLE 4.1

*SANTA MARGARITA RIVER WATERSHED*

**SANTA MARGARITA RIVER WATER PRODUCTION BY SUBSTANTIAL USERS**

2014-15

| 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/ |
|---|---|---|---|---|---|---|---|---|
| **Wilson Creek** | 459 | 449 3/ | 1,317 | 1,776 | 6 | 1,782 | 1,336 | 446 |
| **Above Aguanga GWA** Includes Anza Valley | *(Lake Riverside, Anza MWC, (Cahuilla, Ramona, Hamilton Schools)* | | | | | | | |
| **Temecula Creek** | 23 | 235 | 936 | 959 | 0 | 959 | 719 | 240 |
| **Above Aguanga GWA** | *(Quiet Oaks MHP)* | | | | | | | |
| **Aguanga GWA** | 541 | 393 | 1,287 | 1,828 | 427 | 2,255 | 1,659 | 596 |
| | *(Outdoor Resorts, Jojoba Hills Cottonwood Elementary)* | | | | | | | |
| **Upper Murrieta Creek** (Warm Springs Creek above 7S/3W-14) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Lower Murrieta Creek** (Santa Gertrudis/Tucalota Creek above 7S/2W-18 -- Includes FPUD Diversion from Lake Skinner) | 0 | 310 | 44 | 44 | 100 | 144 | 100 | 44 |
| **Murrieta-Temecula GWA** | 26,596 | 736 | 809 | 27,405 | 0 | 27,405 | 20,554 | 6,851 |
| | *(RCWD**, WMWD (Murrieta Division), EMWD, Pechanga and Hawthorn)* | | | | | | | |
| **Santa Margarita River Below the Gorge** | | | | | | | | |
| DeLuz Creek | 0 | 325 | 457 | 457 | 39 | 496 | 369 | 127 |
| Sandia Creek | 0 | 66 | 129 | 129 | 0 | 129 | 97 | 32 |
| Rainbow Creek | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Santa Margarita River | 4,690 | 20 | 4 | 4,694 | 41 | 4,735 | 1,393 | 468 |
| | *(USMC)* | | | | | | | |
| **TOTAL** | **32,309** | **2,534** | **4,983** | **37,292** | **613** 4/ | **37,905** | **26,227** | **8,804** |

1/ Estimated consumptive use is equal to 75% of Total Groundwater Production plus 75% of Surface Diversions less 10% (CU = .75{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 2014-15 equals 1,816 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 251 AF that was exported to the San Mateo Watershed and an additional 207 AF pumped directly into recycled water system.

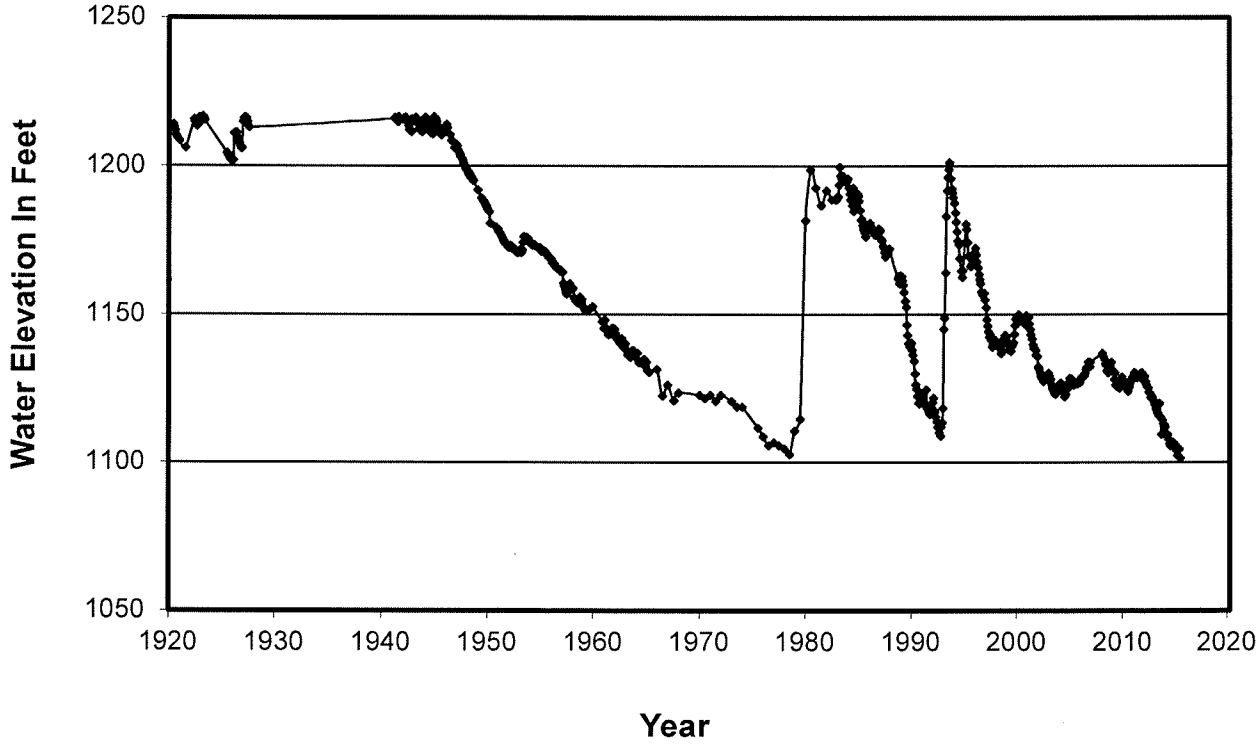
## 4.3 Water Levels

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

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 declined by 4.9 feet between September 30, 2014 and September 30, 2015. 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 2014-15, 12,248 acre feet of imported water were recharged in the VDC of which 100 percent was recovered in the same year. As shown on Appendix Table A-7, an additional 83 acre feet of previously recharged import water was recovered from groundwater storage in Water Year 2014-15.

Figure 4.1

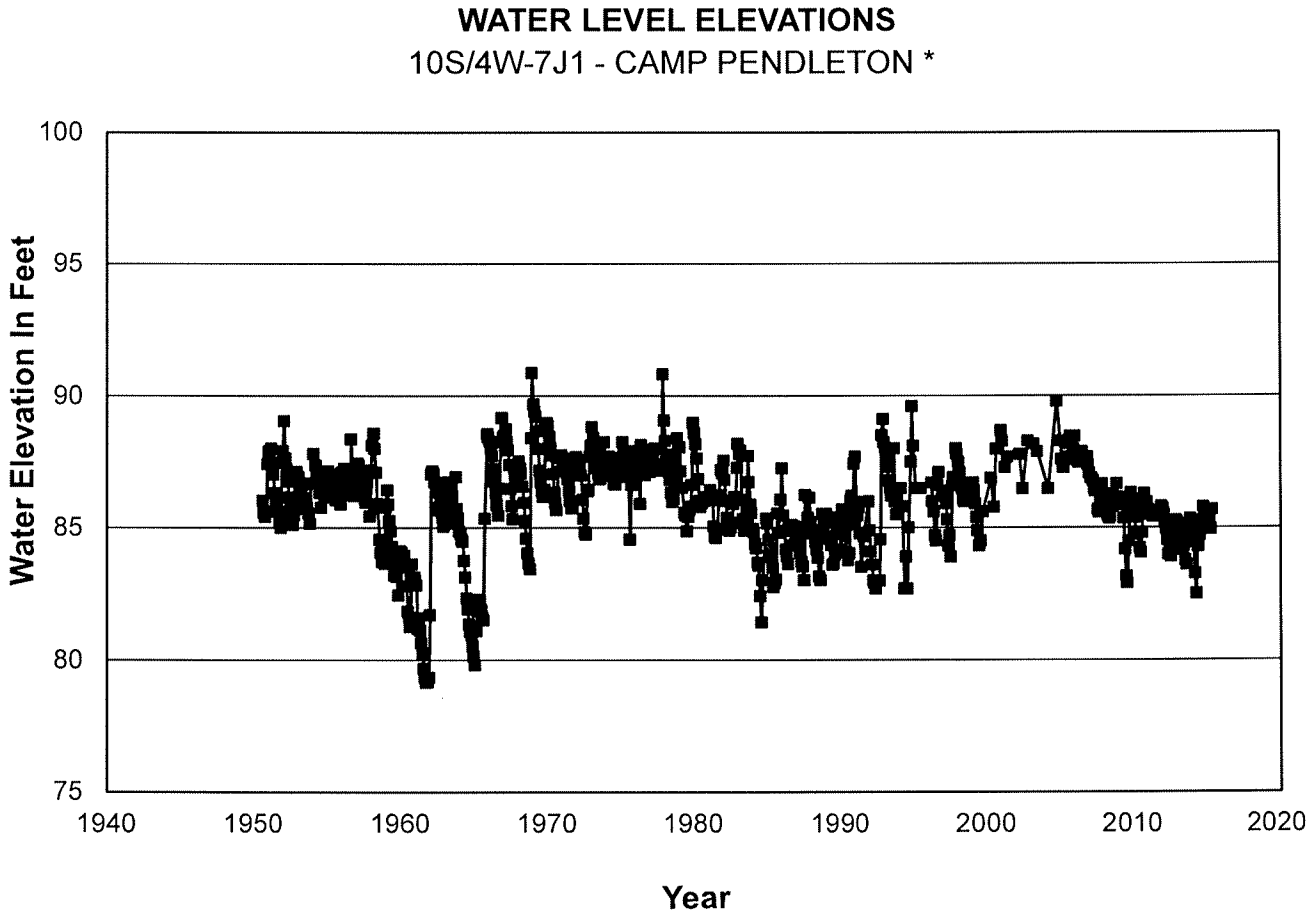
**WATER LEVEL ELEVATIONS**
8S/2W-12H1 - RCWD WINDMILL WELL NO. 417




Collar El. 1216.7 Feet; Depth 515 Feet; Drilled in Alluvium
Ref: RCWD reports (1920-2015)

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 rose 1.4 feet in the period between September 2014 and September 2015.

Figure 4.2



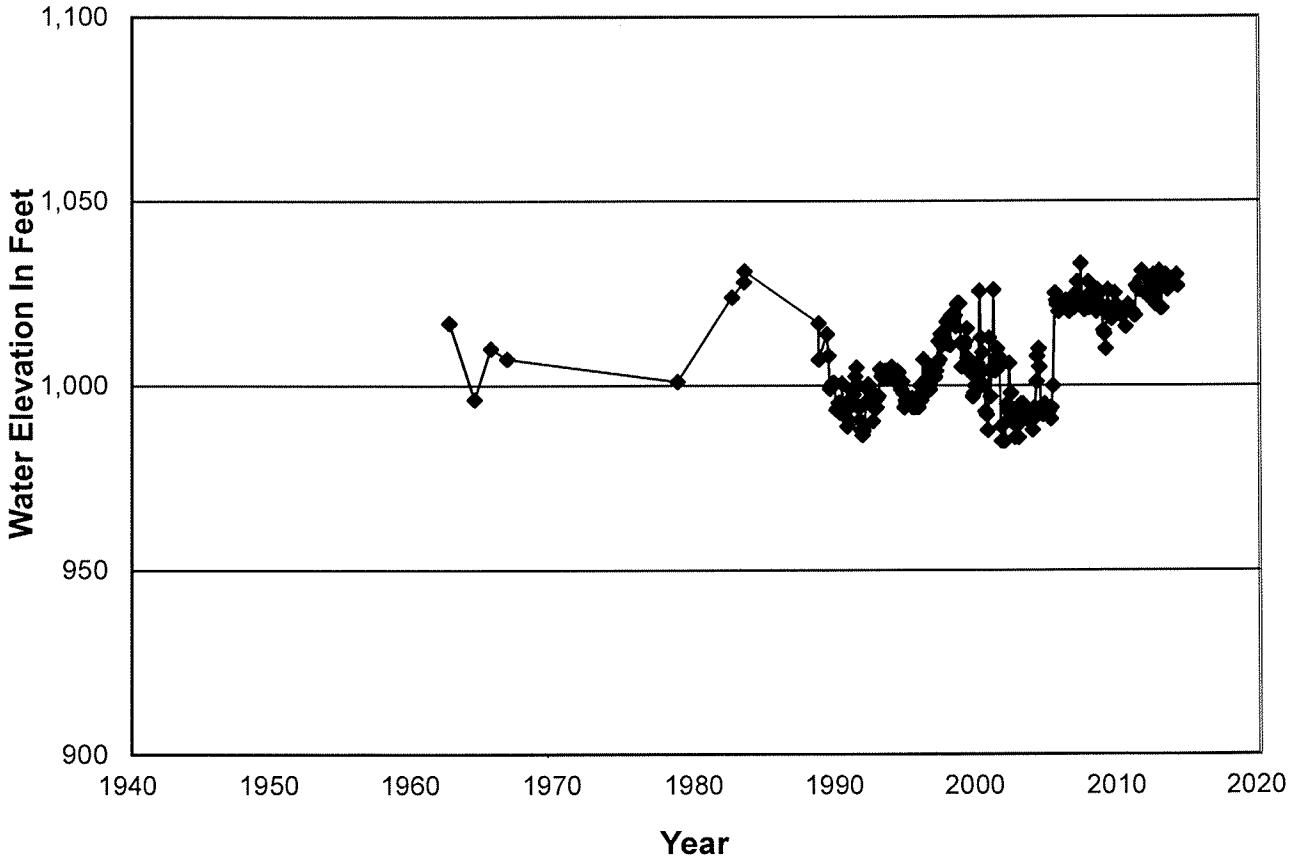

Ground El. 91.4 Feet; Depth 141 Feet; Perf. Unknown; Drilled in Alluvium
Camp Pendleton Records
* Data shown for Well No. 10S/4W-7J1 except for period October 1999 through September 2007 data shown for Well No. 10S/4W-7J4.

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 declined by two feet between September 30, 2014 and February 28, 2015. It is noted for Water Year 2015, water level measurements for Holiday Well were only taken in January and February 2015.

Figure 4.3

**WATER LEVEL ELEVATIONS**

7S/3W-20C9 - WMWD HOLIDAY WELL[1/]

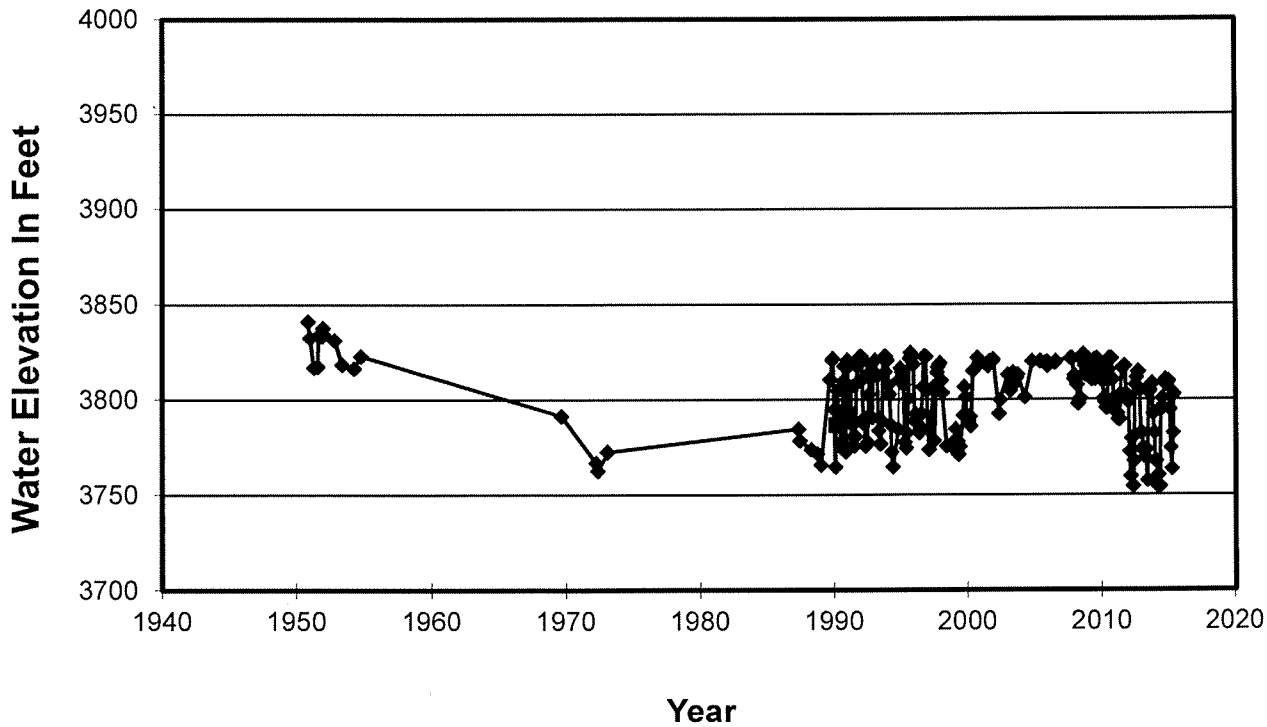



Ground El. 1090 Feet; Depth 307 Feet; Perf. 60 - 307 Feet
Western Municipal Water District
1/ Water level measurements were taken only in January and February 2015.

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 rose by seven feet between September 30, 2014 and September 30, 2015. 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

**WATER LEVEL ELEVATIONS** [1]
7S/3E-21G1 - ANZA MUTUAL WATER COMPANY WELL NO. 1

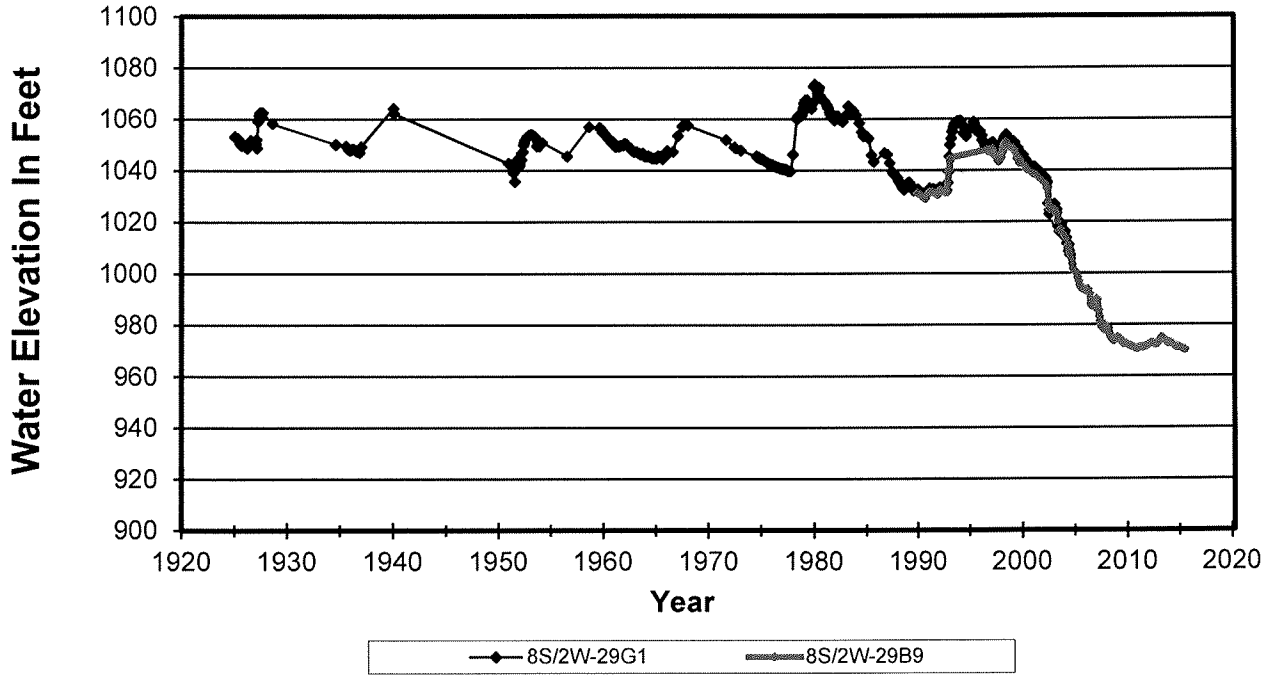



[1] Static water levels plotted after April 1999
Ground El. 3862.6 Feet; Depth 260 Feet; Perf. 20 - 260 Feet; Drilled in Alluvium
Anza Mutual Water Co. Well No. 1 (1987-2015); DWR Bulletin 91-22 (1950-73)

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 declined by 1.2 feet in 2014-15.

Figure 4.5

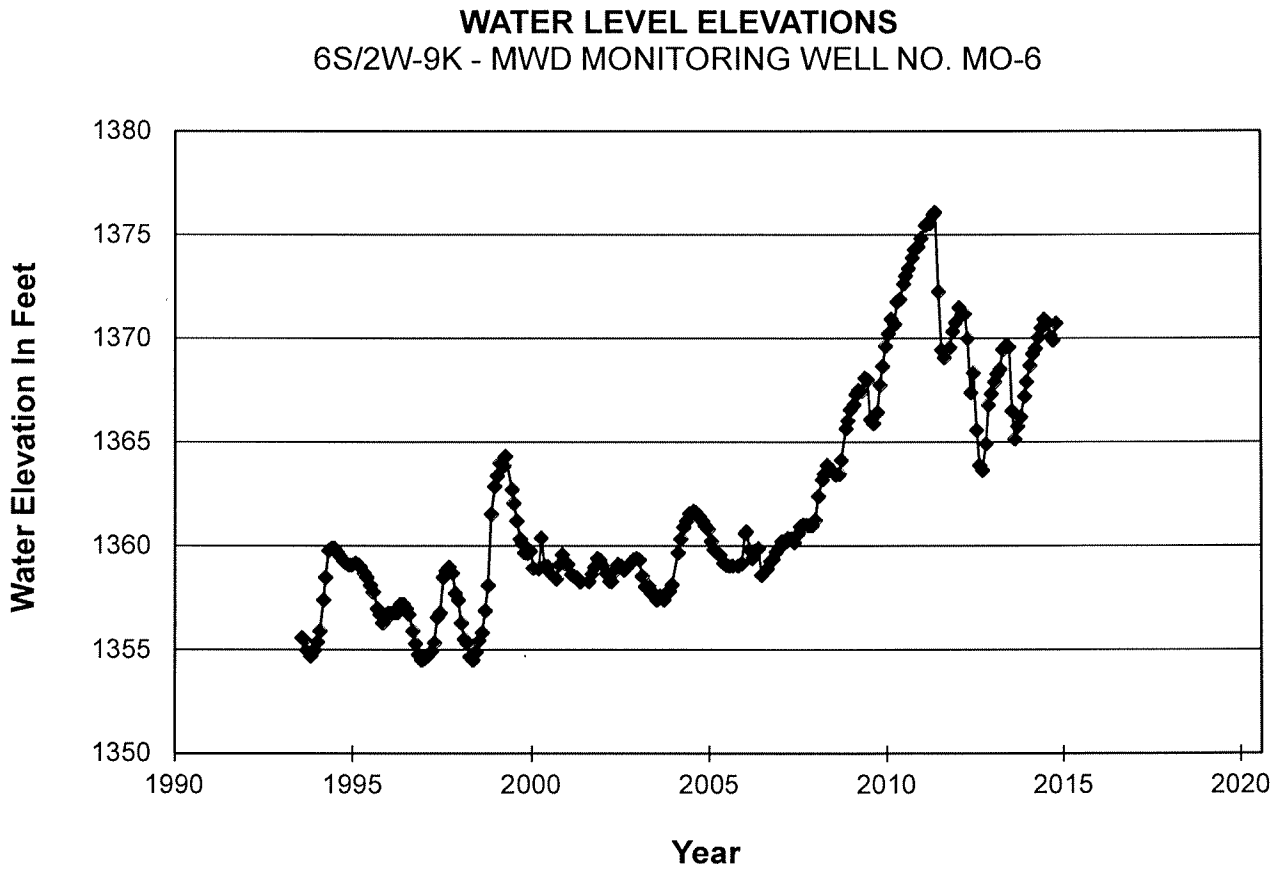
**WATER LEVEL ELEVATIONS**
PECHANGA INDIAN RESERVATION WELLS




8S/2W-29G1: Ground El. 1091.1 Feet; Depth 159.1 Feet
8S/2W-29B9: Ground El. 1075.93 Feet; Depth 113.0 Feet
U.S. Geological Survey Records

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 4.5 feet between September 30, 2014 and September 30, 2015.

Figure 4.6




Ground El. 1445.8 Feet; Depth 115 Feet; Perf. 30.5 - 110 Feet; Drilled in Alluvium
Metropolitan Water District of Southern California

Changes in water levels in the above noted wells between the end of the previous water year and the end of the 2014-15 Water Year are shown below:

| Well | Water Elevation 2014 Feet | Water Elevation 2015 Feet | Change in Water Level Feet | |
|---|---|---|---|---|
| RCWD 8S/2W-12H1 | 1,106.3 | 1,101.4 | Down | 4.9 |
| USMC 10S/4W-7J1 | *84.3 | 85.7 | Up | 1.4 |
| WMWD 7S/3W-20C9 | 1,029.0 | **1,027.0 | Down | 2.0 |
| Anza MWC 7S/3E-21G1 | 3,795.6 | 3,802.6 | Up | 7.0 |
| Pechanga IR 8S/2W-29B9 | 971.4 | 970.2 | Down | 1.2 |
| MWD 6S/2W-9K | 1,366.2 | 1,370.7 | Up | 4.5 |

* Revised
** Water level measurements only taken in January and February 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 is summarized on Table 4.2. 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. In 2014-15, useable groundwater storage in place was computed for all three sub-basins to be 26,257 acre feet. The useable storage in place for the three sub-basins amounted to 24,911 acre feet in 2013-14. Thus, there was an increase in groundwater storage in place of 1,346 acre feet for the water year. It may be noted that classification of storage as useable is made without allowances for maintenance of riparian habitat.

TABLE 4.2

*SANTA MARGARITA RIVER WATERSHED*
**GROUNDWATER STORAGE AT CAMP PENDLETON**
2014-15
Quantities in Acre Feet

| | Sub-basin | | | |
|---|---|---|---|---|
| I. Available Storage | Upper | Chappo | Ysidora | Total |
| A. Total Storage [1/] | 12,500 | 27,000 | 8,600 | 48,100 |
| B. Useable Storage | 12,500 | 15,000 [2/] | 1,200 [3/] | 28,700 |
| II. Unused Storage | | | | |
| A. Wells used for Depth | 10S/4W-7J1 | 10S/4W-18L1 [4/] | 11S/5W-11D4 | |
| B. Land Surface Elevation - Feet [5/] | 91.4 R | 75.9 | 18.8 | ---- |
| C. Depth to Water - Feet [6/] | 5.7 | 10.6 | 10.2 | ---- |
| D. Depth below 5 Feet | 0.7 | 5.6 | 5.2 | ---- |
| E. Average Area - Acres [7/] | 840 | 2,500 | 1,060 | ---- |
| F. Specific Yield [8/] | 0.216 | 0.130 | 0.090 | ---- |
| G. Unused Storage below 5 Feet | 127 | 1,820 | 496 | 2,443 |
| III. Useable Storage in Place [9/] | 12,373 | 13,180 | 704 | 26,257 |
| IV. Useable Storage in Place 2013-14 | 12,119 | 12,117 | 675 | 24,911 |
| V. Change in Storage 2014-15 | 254 | 1,063 | 29 | 1,346 |

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.

### 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 4.3 shows the changes for Water Years 2011 through 2015. The change in groundwater storage for Water Year 2014-15, using the water budget method, is calculated as a decline of 13,400 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 4.3.

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 2011 through 2015 are shown on Table 4.4. The change in groundwater storage for Water Year 2014-15, using the groundwater level method, is calculated as a decline of 4,412 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 2015. 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.

TABLE 4.3

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

| Elements of Inflow | Water Year Ending 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|
| Releases from Vail [1/] | 3,732 | 901 | 3,259 | 811 | 773 |
| Releases from Lake Skinner [2/] | 471 | 0 | 51 | 61 | 100 |
| Freshwater Releases to Stream [3/] | 4,399 | 3,708 | 2,530 | 4,126 | 3,432 |
| Reclaimed Water Released to Stream [4/] | 0 | 0 | 0 | 0 | 0 |
| Recharged Imported Water [5/] | 13,873 | 14,643 | 11,395 | 12,069 | 12,248 |
| Return Flow from RCWD Groundwater Production [6/] | 8,359 R | 8,847 R | 8,785 R | 8,551 R | 8,579 |
| Return Flow from Import Direct Use [7/] | 2,668 | 3,015 | 3,457 | 3,920 | 2,268 |
| Return Flow from Applied Wastewater [8/] | 1,391 | 1,288 | 1,349 | 1,399 | 1,314 |
| Underflow and Tributary Inflow [9/] | 47,957 | 4,119 | 2,149 | 6,777 | 5,959 |
| Subtotal | 82,850 R | 36,521 R | 32,975 R | 37,714 R | 34,673 |
| **Elements of Outflow** | | | | | |
| Riparian Evapotranspiration and Underflow [10/] | 508 | 508 | 508 | 508 | 508 |
| Total RCWD Groundwater Production [11/] | 36,560 | 39,060 | 38,763 | 39,413 | 37,531 |
| Net Pumping by Others [12/] | 2,002 | 2,138 | 2,277 | 2,226 | 2,044 |
| Surface Outflow [13/] | 36,922 | 6,737 | 4,220 | 8,959 | 7,990 |
| Subtotal | 75,992 | 48,443 | 45,768 | 51,106 | 48,073 |
| **Change in Groundwater Storage** | 6,858 R | (11,922) R | (12,793) R | (13,392) R | (13,400) |

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 0.23.
7/ Rancho Division Direct Use Imports, Table A-7 Footnote 3, multiplied by 0.23.
8/ The sum of: (Reclaimed Wastewater Table A-7, Reuse in SMRW) plus (Table A-1, Reuse in SMRW), multiplied by 0.23.
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 0.77.
13/ Table 3.2 Santa Margarita River near Temecula.
R - Revised.

TABLE 4.4

*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 Feet 2011 | 2012 | 2013 | 2014 | 2015 | Change in Depth Feet 2011 | 2012 | 2013 | 2014 | 2015 | Change in Storage in Water Year Acre Feet 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Temecula | 0.0036 | 510 | 5/ | 1371 | 211.71 | 215.40 | 225.00 | 233.50 | 235.20 | (12.11) | (3.69) | (9.60) | (8.50) | (1.70) | (60) | (18) | (47) | (42) | (8) |
| 2 | Pauba | 0.0398 | 439 | | 479 | 26.00 | 30.75 | 37.40 | 42.40 | 40.99 | 2.67 | (4.75) | (6.65) | (5.00) | 1.41 | 51 | (91) | (127) | (95) | 27 |
| 3 | Pauba | 0.0309 | 146 | | 802 | 26.22 | 29.61 | 33.52 | 39.44 | 37.12 | 2.40 | (3.39) | (3.91) | (5.92) | 2.32 | 59 | (84) | (97) | (147) | 57 |
| 4 | Pauba | 0.0350 | 101 | 2/ | 694 | 161.11 | 175.15 | 175.32 | 155.87 | 172.06 | (82.07) | (14.04) | (0.17) | 19.45 | (16.19) | (1,993) | (341) | (4) | 472 | (393) |
| 5 | Pauba | 0.0319 | 102 | 3/ | 1322 | 84.98 | 62.05 | 79.20 | 128.18 | 103.20 | 34.54 | 22.93 | (17.15) | (48.98) | 24.98 | 1457 | 967 | (723) | (2,066) | 1,053 |
| 6 | Pauba | 0.0698 | 495 | | 1562 | 89.12 | 78.76 | 70.80 | 64.80 | 63.54 | 7.43 | 10.36 | 7.96 | 6.00 | 1.26 | 810 | 1130 | 868 | 654 | 137 |
| 7 | Pauba | 0.0012 | 211 | | 719 | 118.00 | 108.66 | 101.00 | 118.00 | 121.00 | 35.00 | 9.34 | 7.66 | (17.00) | (3.00) | 30 | 8 | 7 | (15) | (3) |
| 8 | Qyal | 0.20 | 492 | | 339 | 28.60 | 27.79 | 28.03 | 28.85 | 28.44 | (0.13) | 0.81 | (0.24) | (0.82) | 0.41 | (9) | 55 | (16) | (56) | 28 |
| | Pauba | 0.0891 | 492 | | 496 | 28.60 | 27.79 | 28.03 | 28.85 | 28.44 | (0.13) | 0.81 | (0.24) | (0.82) | 0.41 | (6) | 36 | (11) | (36) | 18 |
| 9 | Temecula | 0.0036 | 410 | | 2066 | 338.00 | 318.00 | 321.08 | 336.80 | 331.40 | (4.04) | 20.00 | (3.08) | (15.72) | 5.40 | (30) | 149 | (23) | (117) | 40 |
| 10 | Qyal | 0.20 | 426 | | 1438 | 33.04 | 40.05 | 39.60 | 38.70 | 39.31 | 5.25 | (7.01) | 0.45 | 0.90 | (0.61) | 1510 | (2,016) | 129 | 259 | (175) |
| | Pauba | 0.0746 | 426 | | 1165 | 33.04 | 40.05 | 39.60 | 38.70 | 39.31 | 5.25 | (7.01) | 0.45 | 0.90 | (0.61) | 456 | (609) | 39 | 78 | (53) |
| 11 | Qyal | 0.20 | 422 | | 1405 | 62.60 | 65.00 | 67.20 | 71.19 | 73.32 | 0.79 | (2.40) | (2.20) | (3.99) | (2.13) | 222 | (674) | (618) | (1,121) | (599) |
| | Pauba | 0.0634 | 422 | | 1413 | 62.60 | 65.00 | 67.20 | 71.19 | 73.32 | 0.79 | (2.40) | (2.20) | (3.99) | (2.13) | 71 | (215) | (197) | (357) | (191) |
| 12 | Qyal | 0.20 | 417 | | 1769 | 87.66 | 93.00 | 96.74 | 111.15 | 115.33 | 4.99 | (5.34) | (3.74) | (14.41) | (4.18) | 1765 | (1,889) | (1,323) | (5,098) | (1,479) |
| | Pauba | 0.0422 | 417 | | 752 | 87.66 | 93.00 | 96.74 | 111.15 | 115.33 | 4.99 | (5.34) | (3.74) | (14.41) | (4.18) | 158 | (169) | (119) | (457) | (133) |
| 13 | Qyal | 0.20 | 484 | 4/ | 898 | 27.48 | 55.25 | 77.16 | 74.12 | 78.73 | 23.10 | (27.77) | (21.91) | 3.04 | (4.61) | 4149 | (4,987) | (3,935) | 546 | (828) |
| | Pauba | 0.0198 | 484 | 4/ | 398 | 27.48 | 55.25 | 77.16 | 74.12 | 78.73 | 23.10 | (27.77) | (21.91) | 3.04 | (4.61) | 182 | (219) | (173) | 24 | (36) |
| 14 | Temecula | 0.0036 | 462 | | 2084 | 408.50 | 409.80 | 421.20 | 364.57 | 543.30 | 8.30 | (1.30) | (11.40) | 56.63 | (178.73) | 62 | (10) | (86) | 425 | (1,341) |
| 15 | Temecula | 0.0036 | 464 | | 1347 | 328.50 | 329.60 | 330.20 | 332.40 | 332.20 | (2.50) | (1.10) | (0.60) | (2.20) | 0.20 | (12) | (5) | (3) | (11) | 1 |
| 16 | Temecula | 0.0036 | 509 | 6/ | 1967 | 521.60 | 527.30 | 532.20 | 543.70 | 548.90 | (9.90) | (5.70) | (4.90) | (11.50) | (5.20) | (70) | (40) | (35) | (81) | (37) |
| 17 | Temecula | 0.0036 | 139 | | 2008 | 530.39 | 536.90 | 547.74 | 570.91 | 568.90 | (17.65) | (6.51) | (10.84) | (23.17) | 2.01 | (128) | (47) | (78) | (167) | 15 |
| 18 | Pauba | 0.0967 | 129 | | 1546 | 225.96 | 230.25 | 234.11 | 240.48 | 245.51 | (4.52) | (4.29) | (3.86) | (6.37) | (5.03) | (676) | (641) | (577) | (952) | (752) |
| 19 | Temecula | 0.0036 | 466 | | 1562 | 325.22 | 336.22 | 325.26 | 340.81 | 352.93 | (11.22) | (11.00) | 10.96 | (15.55) | (12.12) | (63) | (62) | 62 | (87) | (68) |
| 20 | Pauba | 0.0738 | 493 | | 3231 | 275.51 | 279.64 | 279.49 | 286.12 | 281.33 | (0.73) | (4.13) | 0.15 | (6.63) | 4.79 | (174) | (985) | 36 | (1,581) | 1,142 |
| 21 | Pauba | 0.1392 | 463 | | 2303 | 53.80 | 54.40 | 56.00 | 57.40 | 60.00 | 1.00 | (0.60) | (1.60) | (1.40) | (2.60) | 321 | (192) | (513) | (449) | (834) |
| * | Pauba | 0.0325 | Lynch | 1/ | 1008 | 72.00 | 77.00 | ** | ** | 30.00 | (1.00) | (5.00) | --- | --- | --- | (33) | (164) | --- | --- | --- |
| **TOTAL** | | | | | | | | | | | | | | | | **8,049** | **(11,113)** | **(7,564)** | **(10,477)** | **(4,412)** |

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.

### 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"

## 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 2014-15, water in storage in the SWP increased from 1.69 million acre feet on September 30, 2014, to 1.78 million acre feet on September 30, 2015. Storage on September 30, 2015 corresponds to about 34 percent of the total SWP storage capacity.

Water in storage in the Colorado River system increased slightly from 29.6 million acre feet on September 30, 2014 to 29.9 million acre feet on September 30, 2015. On September 30, 2015, those reservoirs contained 46 percent of their total combined capacity.

The California Department of Water Resources prepares projections of water availability in the SWP for the coming year (2016) on a monthly basis from February through May. The report DWR Bulletin 120-4-16 dated May 1, 2016, indicated that statewide precipitation October 1 through April 30, 2016 was 110 percent of average compared to 70 percent last year. As of May 1, 2016, the SWP allocation for 2016 will meet sixty percent 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

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**

| Reservoir | Total Capacity | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oroville | 3,540 | 2,833 | 1,568 | 1,097 | 1,337 | 1,755 | 3,045 | 1,977 | 1,633 | 1,076 | 1,057 |
| San Luis (State Share) | 1,060 | 911 | 445 | 200 | 224 | 415 | 874 | 389 | 283 | 214 | 324 |
| Pyramid | 171 | 163 | 166 | 163 | 166 | 164 | 164 | 169 | 167 | 168 | 168 |
| Castaic | 324 | 266 | 313 | 268 | 200 | 260 | 284 | 264 | 285 | 108 | 114 |
| Silverwood | 73 | 72 | 73 | 71 | 70 | 70 | 71 | 71 | 72 | 71 | 68 |
| Perris | 132 | 72 | 66 | 69 | 62 | 61 | 66 | 72 | 73 | 55 | 47 |
| Total | 5,300 | 4,317 | 2,631 | 1,868 | 2,059 | 2,725 | 4,504 | 2,942 | 2,513 | 1,692 | 1,778 |
| Percent of Capacity | | 81% | 50% | 35% | 39% | 51% | 85% | 56% | 47% | 32% | 34% |

**MAJOR COLORADO RIVER RESERVOIRS**

| Reservoir | Total Capacity | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Flaming Gorge | 3,789 | 3,130 | 3,063 | 3,024 | 3,394 | 3,154 | 3,467 | 3,030 | 2,818 | 3,284 | 3,450 |
| Blue Mesa | 941 | 667 | 687 | 650 | 651 | 609 | 699 | 340 | 348 | 599 | 726 |
| Navajo | 1,709 | 1,420 | 1,510 | 1,319 | 1,314 | 1,412 | 1,327 | 1,035 | 933 | 1,081 | 1,392 |
| Powell | 27,000 | 11,917 | 11,929 | 14,509 | 15,463 | 15,267 | 17,593 | 13,929 | 10,934 | 12,286 | 12,333 |
| Mead | 28,537 | 13,887 | 12,505 | 12,013 | 10,933 | 10,092 | 12,977 | 13,135 | 12,362 | 10,121 | 9,854 |
| Mohave | 1,818 | 1,584 | 1,545 | 1,586 | 1,501 | 1,575 | 1,610 | 1,606 | 1,624 | 1,645 | 1,606 |
| Havasu | 648 | 555 | 576 | 584 | 564 | 560 | 585 | 561 | 560 | 583 | 581 |
| Total | 64,442 | 33,160 | 31,815 | 33,685 | 33,820 | 32,669 | 38,258 | 33,636 | 29,579 | 29,599 | 29,942 |
| Percent of Capacity | | 51% | 49% | 52% | 52% | 51% | 59% | 52% | 46% | 46% | 46% |

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

Figure 5.1

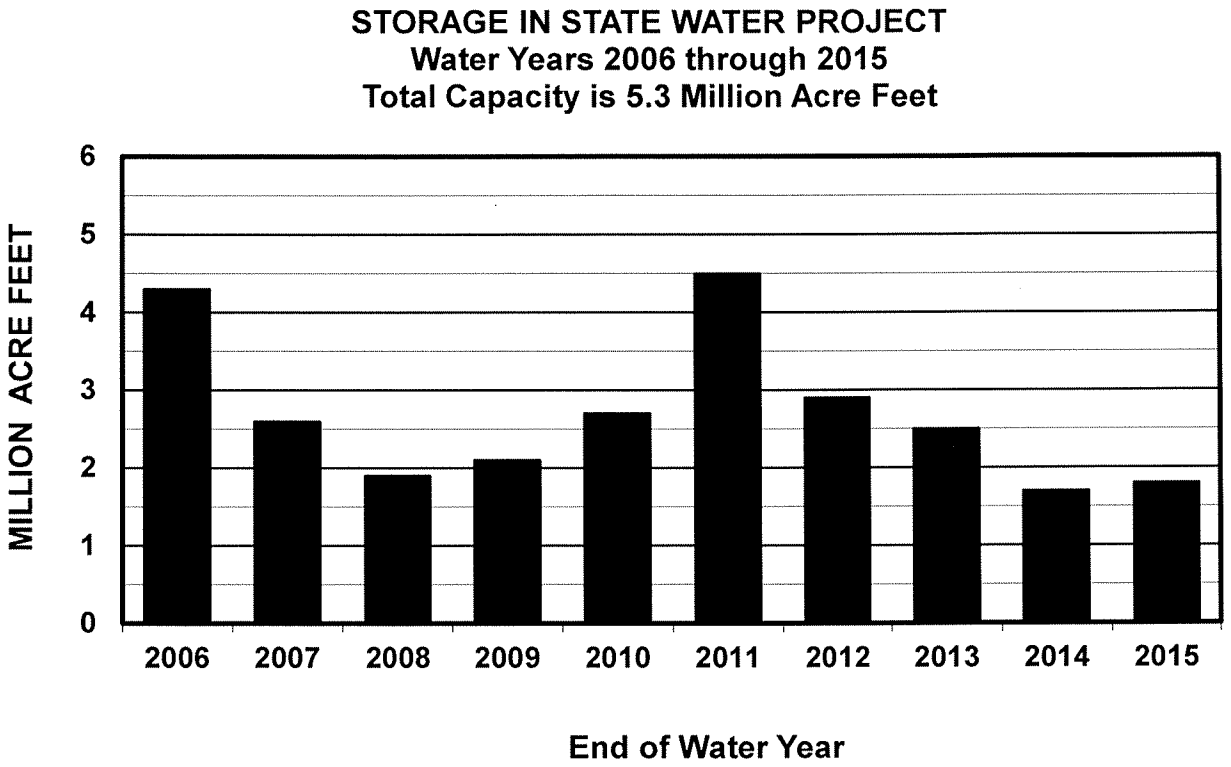
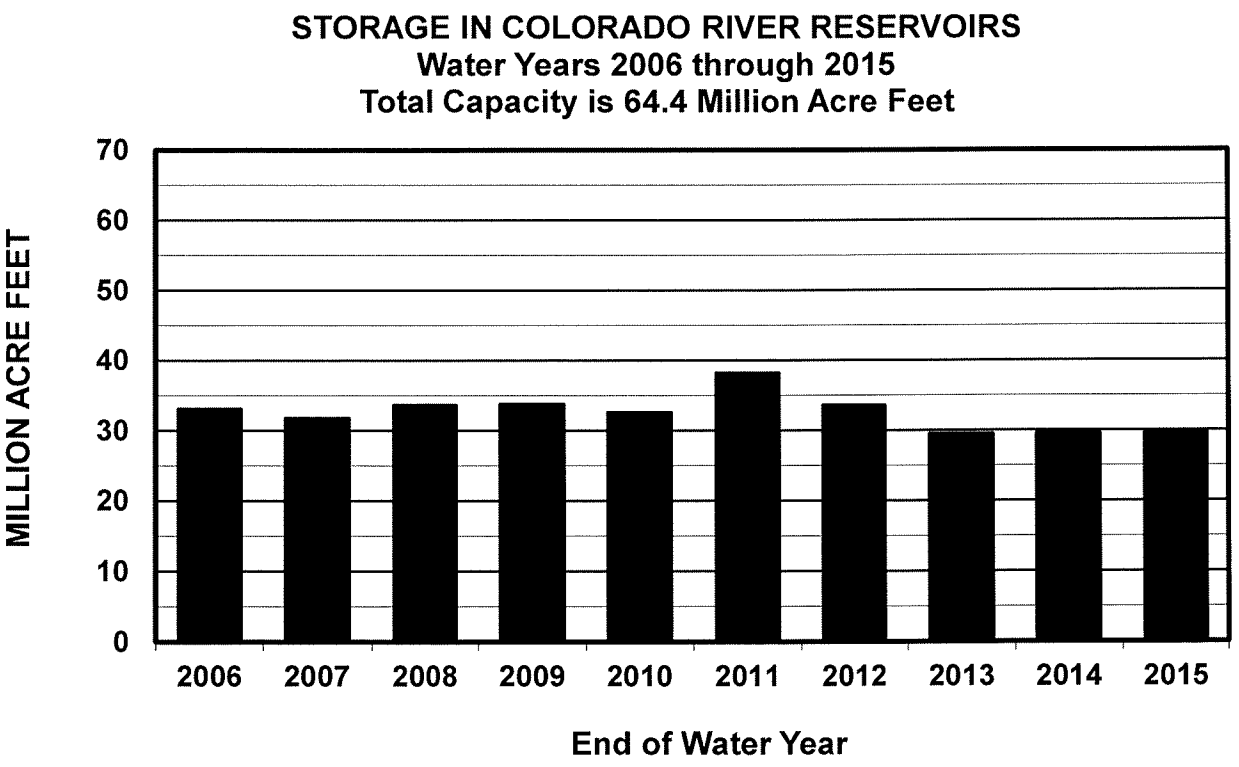



Figure 5.2



In addition to net deliveries through member agencies, MWD, pursuant to a Court Order, imported 1,090 acre feet of water into the Santa Margarita River Watershed for irrigation of lands in Domenigoni Valley during 2014-15.

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 2014-15, Eastern MWD did not export wastewater for discharge to Temescal Creek. During 2014-15, 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 2014-15 and during the period 1966 through 2015. A discussion of MWD's Lake Skinner and Diamond Valley Lake operations is also provided.

## 5.2 Water Year 2014-15

During Water Year 2014-15, a total of 62,677 acre feet of net imported supplies were distributed for use in the Watershed. This compares with 81,785 acre feet in 2013-14 and represents a decrease of approximately twenty three percent. 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 2014-15.

The water exported from the Watershed for 2014-15 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 2014-15 were 18,076 acre feet as shown on Table 5.2. This compares to 18,518 acre feet in 2013-14 and represents a decrease of about two percent.

The quality of the water supplies imported through the MWD system in 2014-15 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 2015

Water quantities imported by districts into the Santa Margarita River Watershed during Water Years 1966 through 2015 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. In 2015, deliveries of imported water were reduced due to the extended drought conditions and State of California mandated conservation measures. As a result, imports in Water Year 2014-15 were at their lowest since Water Year 2001.

Exports over the period 1966 through 2015 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**

2014-15

Quantities in Acre Feet

| | NET IMPORTS | | | | | | | | | | EXPORTS 3/ | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | CAMP PENDLETON | | | | | | | | |
| YEAR MONTH | EASTERN MWD | ELSINORE VALLEY MWD | FALLBROOK PUD | MWD 1/ | MURRIETA DIVISION WESTERN MWD | RAINBOW MWD | RANCHO CAL WD | U. S. NAVAL WS | WESTERN MWD 2/ | TOTAL NET IMPORTS | EXPORTS 4/ | WASTEWATER RETURNS 5/ | NET EXPORT | U.S. NAVAL WS | EASTERN MWD 6/ | ELSINORE VALLEY MWD | FALLBROOK PUD | RANCHO CAL WD 7/ | TOTAL EXPORTS |
| 2014 | | | | | | | | | | | | | | | | | | | |
| OCT | 1,693 | 696 | 765 | 108 | 97 | 155 | 4,245 | 4 | 3 | 7,766 | 477 | 124 | 353 | 1 | 969 | 113 | 69 | 26 | 1,531 |
| NOV | 1,052 | 540 | 702 | 74 | 59 | 139 | 2,712 | 4 | 2 | 5,284 | 426 | 103 | 323 | 0 | 990 | 107 | 103 | 30 | 1,553 |
| DEC | 957 | 382 | 376 | 3 | 70 | 94 | 819 | 3 | 1 | 2,705 | 349 | 74 | 275 | 1 | 1,153 | 113 | 109 | 16 | 1,667 |
| 2015 | | | | | | | | | | | | | | | | | | | |
| JAN | 769 | 273 | 208 | 16 | 61 | 48 | 1,638 | 3 | 2 | 3,018 | 368 | 76 | 292 | 0 | 1,163 | 112 | 126 | 12 | 1,705 |
| FEB | 842 | 355 | 380 | 36 | 50 | 57 | 1,649 | 3 | 2 | 3,374 | 370 | 86 | 284 | 0 | 1,049 | 104 | 85 | 13 | 1,535 |
| MAR | 824 | 386 | 331 | 80 | 48 | 78 | 2,819 | 3 | 3 | 4,572 | 449 | 105 | 344 | 1 | 1,066 | 112 | 89 | 13 | 1,625 |
| APR | 1,299 | 575 | 546 | 134 | 71 | 116 | 3,462 | 4 | 2 | 6,209 | 441 | 108 | 333 | 0 | 878 | 107 | 71 | 20 | 1,409 |
| MAY | 1,285 | 542 | 515 | 90 | 52 | 144 | 2,372 | 3 | 2 | 5,005 | 392 | 87 | 305 | 0 | 996 | 114 | 114 | 27 | 1,556 |
| JUNE | 1,126 | 491 | 457 | 153 | 86 | 78 | 3,617 | 4 | 3 | 6,015 | 369 | 83 | 286 | 0 | 939 | 107 | 84 | 19 | 1,435 |
| JULY | 1,396 | 607 | 533 | 137 | 61 | 143 | 2,877 | 4 | 3 | 5,761 | 400 | 97 | 303 | 0 | 876 | 114 | 92 | 30 | 1,415 |
| AUG | 1,357 | 525 | 522 | 147 | 98 | 134 | 4,011 | 4 | 3 | 6,801 | 416 | 100 | 316 | 0 | 813 | 103 | 82 | 23 | 1,337 |
| SEPT | 1,277 | 620 | 584 | 112 | 67 | 147 | 3,352 | 5 | 3 | 6,167 | 380 | 84 | 296 | 0 | 806 | 122 | 62 | 22 | 1,308 |
| TOTAL | 13,877 | 5,992 | 5,919 | 1,090 | 820 | 1,333 | 33,573 | 44 | 29 | 62,677 | 4,837 | 1,127 | 3,710 | 3 | 11,698 | 1,328 | 1,086 | 251 | 18,076 |

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 2014-15 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/ | |
|---|---|---|---|---|
| | 2013-14 | 2014-15 | 2013-14 | 2014-15 |
| OCT | 513 | 549 | 18 | 17 |
| NOV | 520 | 608 | 15 | 5 |
| DEC | 526 | 624 | 12 | 0 |
| JAN | 560 | 628 | 10 | 0 |
| FEB | 576 | 639 | 0 | 0 |
| MAR | 538 | 605 | 15 | 0 |
| APR | 574 | 629 | 6 | 6 |
| MAY | 574 | 590 | 8 | 17 |
| JUNE | 493 | 507 | 32 | 40 |
| JULY | 411 | 561 | 55 | 25 |
| AUG | 451 | 648 | 46 | 6 |
| SEPT | 551 | 662 | 25 | 0 |

1/ As measured in the Skinner Treatment Effluent line.

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

TABLE 5.4

*SANTA MARGARITA RIVER WATERSHED*

**IMPORTS/EXPORTS**

Quantities in Acre Feet

| | NET IMPORTS | | | | | | | | | | EXPORTS 5/ | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | -------- CAMP PENDLETON -------- | | | | | | | | |
| WATER YEAR | EASTERN MWD | ELSINORE VALLEY MWD | FALLBROOK PUD 1/ | MWD 2/ | MURRIETA DIVISION WESTERN MWD | RAINBOW MWD | RANCHO CAL WD 3/ | U.S. NAVAL WS | WESTERN MWD 4/ | TOTAL IMPORTS | EXPORTS | WASTEWATER RETURNS | NET EXPORT | U. S. NAVAL WS | EASTERN MWD | ELSINORE VALLEY MWD | FALLBROOK PUD | RANCHO CAL WD 7/ | TOTAL EXPORTS |
| 1966 | 1,604 | N/R | 3,351 | 0 | 0 | 1,308 | 0 | 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 | 0 | 1,095 | 0 | 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 | 0 | 1,377 | 0 | 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 | 0 | 1,253 | 0 | 0 E | 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 | 0 | 1,689 | 0 | 0 E | 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 | 0 | 1,650 | 0 | 76 E | 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 | 0 | 2,037 | 0 | 115 E | 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 | 0 | 1,616 | 0 | 115 E | 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 | 0 | 2,049 | 0 | 115 E | 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 | 0 | 1,247 | 0 | 115 E | 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 | 0 | 2,239 | 119 | 115 E | 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 | 0 | 2,343 | 1,845 | 115 E | 24 | 12,486 | 3,194 | 1,416 | 1,778 | 0 | 0 | 0 | 0 | N/R | 1,778 |
| 1978 | 2,551 | 569 | 5,202 | 0 | 0 | 2,188 | 5,774 | 115 E | 26 | 16,425 | 3,071 | 1,283 | 1,788 | 0 | 0 | 0 | 0 | N/R | 1,788 |
| 1979 | 1,894 | 712 | 5,723 | 0 | 0 | 2,348 | 7,009 | 115 E | 24 | 17,824 | 4,756 | 1,427 | 3,329 | 0 | 0 | 0 | 0 | N/R | 3,329 |
| 1980 | 1,192 | 696 | 6,404 | 0 | 0 | 2,489 | 10,126 | 115 E | 25 | 21,047 | 3,651 | 1,405 | 2,246 | 0 | 0 | 0 | 0 | N/R | 2,246 |
| 1981 | 716 | 798 | 8,543 | 0 | 0 | 3,153 | 15,282 | 115 E | 34 | 28,642 | 3,892 | 1,249 | 2,643 | 0 | 0 | 0 | 0 | N/R | 2,643 |
| 1982 | 1,112 | 678 | 7,079 | 0 | 0 | 2,460 | 13,378 | 115 E | 34 | 24,856 | 3,761 | 1,273 | 2,488 | 0 | 0 | 0 | 0 | N/R | 2,488 |
| 1983 | 1,211 | 658 | 6,720 | 0 | 0 | 2,190 | 5,752 | 115 E | 26 | 16,672 | 3,000 | 1,242 | 1,758 | 26 E | 0 | 0 | 1,003 | N/R | 2,787 |
| 1984 | 699 | 816 | 8,506 | 0 | 0 | 3,068 | 6,716 | 115 E | 26 | 19,946 | 3,243 | 1,120 | 2,123 | 26 E | 0 | 0 | 1,032 | N/R | 3,181 |
| 1985 | 679 | 808 | 7,831 | 0 | 0 | 3,410 | 7,158 | 102 | 27 | 20,015 | 3,377 | 1,200 | 2,177 | 26 E | 0 | 0 | 1,060 | N/R | 3,263 |
| 1986 | 760 | 882 | 8,585 | 0 | 0 | 2,945 | 11,174 | 94 | 34 | 24,474 | 3,326 | 981 | 2,345 | 16 P | 0 | 0 | 1,096 | N/R | 3,457 |
| 1987 | 1,155 | 938 | 8,656 | 0 | 0 | 3,390 | 7,564 | 116 | 36 | 21,855 | 3,444 | 1,799 | 1,645 | 26 | 0 | 4 | 1,129 | N/R | 2,805 |
| 1988 | 2,047 | 1,032 | 8,033 | 0 | 0 | 2,985 | 17,854 | 120 | 36 | 32,108 | 3,457 | 1,872 | 1,585 | 26 | 0 | 55 | 1,154 | N/R | 2,820 |
| 1989 | 3,746 | 1,341 | 9,066 | 0 | 0 | 3,003 | 22,895 | 128 | 23 | 40,202 | 3,418 | 1,446 | 1,972 | 23 | 0 | 74 | 1,181 | N/R | 3,250 |
| 1990 | 5,601 | 2,255 | 10,103 | 0 | 0 | 3,818 | 22,030 | 145 | 22 | 43,974 | 2,971 | 1,451 | 1,520 | 27 | 0 | 114 | 1,271 | N/R | 2,932 |
| 1991 | 9,479 | 2,421 | 7,962 | 0 | 0 | 2,904 | 21,238 | 109 | 21 | 44,134 | 2,168 | 1,219 | 949 | 13 | 0 | 134 | 960 | N/R | 2,056 |
| 1992 | 8,593 | 2,190 | 7,893 | 0 | 0 | 2,277 | 16,931 | 99 | 25 | 38,008 | 2,426 | 1,548 | 878 | 7 | 0 | 140 | 1,083 | N/R | 2,108 |
| 1993 | 5,393 | 2,964 R | 6,925 | 0 | 0 | 1,965 | 11,411 | 117 | 31 | 28,806 | 2,329 | 1,926 | 403 | 16 | 705 | 150 | 1,255 | N/R | 2,529 |
| 1994 | 7,150 | 3,232 R | 7,250 | 0 | 0 | 1,651 | 16,386 | 73 | 37 | 35,779 | 2,702 | 1,501 | 1,201 | 5 | 3,159 | 170 | 1,068 | N/R | 5,603 |
| 1995 | 4,625 | 3,127 R | 6,538 | 547 | 0 | 1,661 | 15,108 | 125 | 29 | 31,760 | 2,781 | 1,611 | 1,170 | 12 | 3,908 | 185 | 1,153 | N/R | 6,428 |
| 1996 | 4,960 | 4,197 R | 7,993 | 1,005 | 0 | 1,815 | 23,600 | 100 | 35 | 43,705 | 3,577 | 1,493 | 2,084 | 5 | 2,993 | 213 | 1,035 | N/R | 6,330 |
| 1997 | 3,284 | 4,296 R | 7,894 | 3,521 | 0 | 1,429 | 26,992 | 109 | 30 | 47,555 | 3,643 | 1,932 | 1,711 | 6 | 3,201 | 226 | 1,021 | N/R | 6,165 |
| 1998 | 5,117 | 5,100 | 6,382 | 5,023 | 0 | 1,601 | 19,584 | 97 | 31 | 42,935 | 3,742 | 2,073 | 1,669 | 8 | 4,513 | 247 | 1,482 | N/R | 7,919 |
| 1999 | 4,327 | 6,133 R | 7,430 | 3,781 | 0 | 1,727 | 34,490 | 111 | 41 | 58,040 | 3,558 | 2,130 | 1,428 | 5 | 4,133 | 254 | 1,377 | N/R | 7,197 |
| 2000 | 7,256 | 7,174 R | 9,365 | 712 | 0 | 2,217 | 55,409 | 104 | 42 | 82,279 | 4,072 | 2,115 | 1,957 | 7 | 3,649 | 279 | 1,419 | N/R | 7,311 |
| 2001 | 5,948 | 6,215 R | 8,398 | 689 | 0 | 1,804 | 41,823 | 73 | 59 | 65,009 | 3,653 | 2,075 | 1,578 | 8 | 4,457 | 310 | 1,392 | N/R | 7,745 |
| 2002 | 8,117 | 7,596 | 9,580 | 595 | 0 | 1,676 | 54,148 | 97 | 64 | 81,873 | 3,701 | 1,950 | 1,751 | 9 | 5,325 | 412 | 1,225 | N/R | 8,722 |
| 2003 | 9,062 | 7,091 | 9,130 | 495 | 102 | 1,510 | 50,744 | 88 | 42 | 78,264 | 3,767 | 1,688 | 2,079 | 10 | 7,636 | 483 | 1,359 | 64 | 11,631 |
| 2004 | 9,138 | 8,438 | 11,749 | 766 | 330 | 1,888 | 62,408 | 73 | 50 | 94,840 | 4,951 6/ | 0 | 4,951 | 8 | 9,115 | 600 | 1,329 | 312 | 16,315 |
| 2005 | 10,858 | 8,215 | 8,108 | 556 | 75 | 1,610 | 47,614 | 40 | 62 | 77,138 | 4,625 6/ | 0 | 4,625 | 16 | 11,676 | 927 | 1,417 | 1,574 | 20,235 |
| 2006 | 14,161 | 9,819 | 10,573 | 506 | 316 | 1,851 | 60,611 | 64 | 66 | 97,967 | 4,912 6/ | 0 | 4,912 | 8 | 10,906 | 938 | 1,395 | 1,379 | 19,538 |
| 2007 | 15,398 | 10,811 | 12,292 | 660 | 723 | 2,262 | 63,818 | 70 | 45 | 106,079 | 5,152 6/ | 0 | 5,152 | 12 | 10,553 | 837 | 891 | 364 | 17,809 |

TABLE 5.4

*SANTA MARGARITA RIVER WATERSHED*

**IMPORTS/EXPORTS**

Quantities in Acre Feet

| | NET IMPORTS | | | | | | | | | | EXPORTS 5/ | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | CAMP PENDLETON | | | | | | | | |
| WATER YEAR | EASTERN MWD | ELSINORE VALLEY MWD | FALLBROOK PUD 1/ | MWD 2/ | MURRIETA DIVISION WESTERN MWD | RAINBOW MWD | RANCHO CAL WD 3/ | U.S. NAVAL WS | WESTERN MWD 4/ | TOTAL IMPORTS | EXPORTS | WASTEWATER RETURNS | NET EXPORT | U. S. NAVAL WS | EASTERN MWD | ELSINORE VALLEY MWD | FALLBROOK PUD | RANCHO CAL WD 7/ | TOTAL EXPORTS |
| 2008 | 14,952 | 9,951 | 8,920 | 493 | 2,180 | 1,790 | 50,683 | 82 | 54 | 89,105 | 4,774 6/ | 0 | 4,774 | 11 | 12,789 | 901 | 799 | 361 | 19,635 |
| 2009 | 14,472 | 9,075 | 8,557 | 607 | 1,654 | 1,852 | 50,270 | 74 | 51 | 86,612 | 5,362 8/ | 1,119 | 4,243 | 12 | 12,027 | 1,069 | 829 | 367 | 18,547 |
| 2010 | 13,552 | 7,926 | 7,183 | 385 | 1,462 | 1,453 | 40,894 | 69 | 62 | 72,986 | 5,143 8/ | 1,075 | 4,068 | 7 | 11,829 | 1,120 | 926 | 318 | 18,268 |
| 2011 | 14,392 | 7,425 | 6,234 | 336 | 1,642 | 1,492 | 39,411 | 45 | 52 | 71,029 | 5,516 8/ | 1,441 | 4,075 | 8 | 12,381 | 1,130 | 901 | 302 | 18,797 |
| 2012 | 15,063 | 7,398 | 7,254 | 466 | 1,371 | 1,892 | 41,900 | 48 | 48 | 75,440 | 5,595 8/ | 1,672 | 3,923 | 9 | 12,550 | 1,205 | 928 | 284 | 18,898 |
| 2013 | 15,751 | 7,158 | 7,357 | 892 | 1,365 | 1,713 | 40,571 | 47 | 35 | 74,889 | 5,367 8/ | 1,254 | 4,113 | 3 | 11,775 | 1,245 | 900 | 289 | 18,325 |
| 2014 | 15,884 | 7,413 | 7,578 | 1,074 | 1,407 | 1,732 | 46,603 | 58 | 35 | 81,785 | 5,375 8/ | 1,099 | 4,276 | 6 | 11,744 | 1,307 | 896 | 289 | 18,518 |
| 2015 | 13,877 | 5,992 | 5,919 | 1,090 | 820 | 1,333 | 33,573 | 44 | 29 | 62,677 | 4,837 8/ | 1,127 | 3,710 | 3 | 11,698 | 1,328 | 1,086 | 251 | 18,076 |

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

## 5.4 Lake Skinner

Lake Skinner is a 44,000 acre foot reservoir constructed by MWD on Tucalota 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 Tucalota Creek if groundwater levels in Well AV-28B fall below an elevation of 1356.64 feet. During Water Year 2014-15, MWD released 41 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. For comparison purposes, the groundwater elevation was 1,356.70 feet on September 25, 2015, an increase of 0.75 feet compared to 1,357.45 feet on September 26, 2014.

In addition, operations at Lake Skinner periodically require miscellaneous maintenance releases from Lake Skinner into Tucalota Creek that also replenish groundwater levels. In 2014-15, MWD released an additional 58.50 acre feet of maintenance releases from Lake Skinner into Tucalota Creek. Also MWD periodically makes maintenance releases from various points throughout the MWD distribution system. In 2014-15, MWD discharged 143.35 acre feet of maintenance releases from the distribution system.

The MOU also provides that all local surface inflow that enters Lake Skinner will be released into Tucalota 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 Tucalota 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 2014-15, MWD records show no local inflow to Lake Skinner and subsequently there were no required releases in accordance with the MOU. In 2014-15, no water was accumulated in Lake Skinner for diversion to Fallbrook PUD.

## 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 2014-15 were 1.543 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 1400 feet. During 2014-15, groundwater elevations in Well MO-6, which is located along the south line of Section 9, rose 4.5 feet from 1,366.2 feet at the beginning of the water year to 1,370.7 feet on October 2, 2015.

During 2014-15, 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 1,090 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 1400 feet.

Page Intentionally Blank

## 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, when this case was under active litigation, 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. 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 percent to 35.7 percent of the 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.

## 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:

| | Direct Diversions Gallons Per Day | Storage Acre Feet |
|---|---|---|
| Cahuilla Valley | 720 | 5 |
| Cottonwood Creek | 485,000 | 60 |
| Cutca Creek | 5,825 | --- |
| DeLuz Creek | 4,700 | 100 |
| Fern Creek | 213,000 | 100 |
| Kohler Canyon | 158,000 | 40 |
| Long Canyon Spring | 89 | --- |
| Rainbow Creek | --- | 0.5 |
| Rattlesnake Canyon | 12,000 | --- |
| Temecula Creek | 13,050 | 40,000 |
| Tucalota Creek | --- | 10,000 |
| Sandia Canyon | --- | 8 |
| Sourdough Spring | 55 | --- |
| Santa Margarita River | 96,730 | 4,000 |
| Nelson Creek | 1,550 | --- |
| TOTAL | 990,719 | 54,313.5 |

These direct diversion rights of 990,719 gallons per day correspond to 1.53 cfs or 3.04 acre feet per day.

TABLE 6.1

*SANTA MARGARITA RIVER WATERSHED*

**APPROPRIATIVE WATER RIGHTS**

**PERMITS AND LICENSES**

| APPLICATION I.D. | OWNER | FILING DATE | SOURCE OF WATER | POINT OF DIVERSION | AMOUNT | USE | STATUS |
|---|---|---|---|---|---|---|---|
| A006629 | William H. & Sandra J. Cyrus | 4/9/30 | Coahuila Valley | Sec. 4, 7S, 3E | DD-720 gpd | D | License |
| A007035 | Nyla Lawler Trust | 8/10/31 | Cutca Creek | Sec. 29, 9S, 1E | DD-5725 gpd | D/I | License |
| A009137 | Hill Springs Farms, LLC | 10/07/37 | Temecula Creek | Sec. 12, 9S, 1E | DD-400 gpd | D | License |
| A009291 | Richard W. Long | 5/13/38 | Nelson Creek | Sec. 23, 8S, 5W | DD-1550 gpd | D | License |
| A010806 | James R., Phyllis & Bruce Grammer | 4/22/44 | Temecula Creek | Sec. 34, 9S, 2E | DD-2880 gpd | D | License |
| A011161 | Roy C. Pursche & Barbara Booth | 9/26/45 | Rattlesnake Canyon | Sec. 28, 9S, 2E | DD-12,000 gpd | D/I | License |
| A011518 | Rancho California Water District | 8/16/46 | Temecula Creek | Sec. 10, 8S, 1W | ST-40,000 AF | D/I/IN/M/R | Permit |
| A011587 1/ | U. S. Bureau of Reclamation | 10/11/46 | Santa Margarita River | Sec. 12, 9S, 4W | ST-10,000 AF | D/I/M | Permit |
| A012178 | Fallbrook Public Utility District | 11/28/47 | Tucalota Creek | Sec. 3, 7S, 2W | ST-10,000 AF | D/I/M | Permit |
| A012179 1/ | U. S. Bureau of Reclamation | 11/28/47 | Santa Margarita River | Sec. 12, 9S, 4W | ST-10,000 AF | D/I/M | Permit |
| A013505 | Robert R. Baum | 12/12/49 | Cottonwood Creek | Sec. 30, 8S, 4W | DD-0.75 cfs & ST-42 AF | R/S | License |
| A017239 | Nancy A. Wiley | 8/15/56 | Temecula Creek | Sec. 20, 9S, 2E | DD-120 gpd | D/E | License |
| A020507 | Robert R. Baum | 11/24/61 | Cottonwood Creek | Sec. 19, 8S, 4W<br>Sec. 30, 8S, 4W | ST-18 AF | I/R | License |
| A020608 | Pete and Dorothy Prestininzi | 2/13/62 | DeLuz Creek | Sec. 20, 8S, 4W | ST-100 AF | D/I/R | License |
| A020742 | U. S. Cleveland National Forest | 4/24/62 | Sourdough Spring | Sec. 25, 9S, 1E | DD-55 gpd | E | License |
| A021074 | U. S. Cleveland National Forest | 12/07/62 | Cutca Spring | Sec. 17, 9S, 1E | DD-100 gpd | S/W | License |
| A021471A | U. S. Department of Navy | 9/23/63 | Santa Margarita River | Sec. 5, 10S, 4W<br>Sec. 2, 11S, 5W | ST-4,000 AF | D/I/M/Z | License |
| A021471B 1/ | U. S. Bureau of Reclamation | 9/23/63 | Santa Margarita River | Sec. 32, 9S, 4W | ST-165,000 AF | D/I/M/Z | Permit |
| A027756 | James R. Grammer | 5/23/83 | Temecula Creek | Sec. 3, 10S, 2E | DD-9,650 gpd | I/W | License |
| A028133 | B&E Inv., Inc. | 5/14/84 | Cahuilla Creek | Sec. 15, 8S, 2E | ST-5AF | E/H/I/R/S | Permit |

**OTHER RIGHTS**

| | | | | | | |
|---|---|---|---|---|---|---|
| F005751S* | U. S. Cleveland National Forest | 1/01/70 | Long Canyon Spring | Sec. 16, 9S, 1E | DD-89 gpd | E/R/S/W |
| S000024** | Judge Dial Perkins | 12/26/86 | Santa Margarita River | Sec. 12, 9S, 4W | DD-133.3 gpd | D |
| S000751** | Lawrence Butler | 5/31/67 | Fern Creek | Sec. 31, 8S, 4W | DD-0.33 cfs<br>ST-100 AF | I |
| S011411** | Agri Empire, Inc. | 5/16/84 | Kohler Canyon | Sec. 33, 9S, 2E | DD-0.245 cfs<br>ST-40 AF | I/S |
| S012235** | Lenny F. Kuszmaul | 8/27/85 | DeLuz Creek | Sec. 4, 9S, 4W | DD-4700 gpd | D/I |
| S014009** | San Diego State University | 6/7/93 | Santa Margarita River | Sec. 27, 8S, 3W | DD-0.15 cfs | D/I/Z |
| 001583*** | George F. Yackey | 12/27/77 | Sandia Canyon | Sec. 25, 8S, 4W | ST-8.0 AF | S |
| 002380*** | Chris R. & Jeanette L. Duarte | 12/16/77 | Rainbow Creek | Sec. 12, 9S, 3W | ST-0.5 AF | S |

*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*

*1/ 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 the Department of the Navy Marine Corps Base Camp Pendleton.*

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. Bureau of Reclamation 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. The deadline for exercising these rights is currently 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 being developed jointly by the U. S. Bureau of Reclamation, Department of the Navy Marine Corps Base, Camp Pendleton, and Fallbrook Public Utility District. 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."

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 |

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 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 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 is 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. The parties continue the process to reach agreement and enactment of the ratifying legislation. Upon completion of that process, the parties will proceed with obtaining Court approval.

## 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, Camp Pendleton Marines Corp Base 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/.

## 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. 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).

Page Intentionally Blank

## 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 2014-15 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, Jojoba 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.

The water use data collected for Water Year 2014-15 is summarized on Table 7.1. Total imported supplies plus local production totaled 100,582 acre feet compared to 123,617 acre feet reported in 2013-14. Of that quantity, 32,103 acre feet were used for agriculture; 15,585 acre feet were used for commercial purposes; 43,700 acre feet were used for domestic purposes; 24 acre feet were discharged to Murrieta Creek; 2 acre feet were discharged to Santa Gertrudis Creek; and 2,914 acre feet were discharged by Rancho California WD during 2014-15, pursuant to the CWRMA and 492 acre feet were released from the potable connection into the Santa Margarita River. It is noted, the commercial use for Pechanga includes 358 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 15,227 acre feet, reflecting the reduction of 358 acre feet of recycled water used by Pechanga. In order for the totals to balance on Table 7.1, the 358 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 3,329 acre feet, or 3.3% 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 2015 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 2014-15. 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 2014-15 was approximately 25 acre feet from Well No. 1 as shown on Appendix Table A-11. Well No. 2 was not in use for 2014-15. Water levels in Well No. 1 rose 7 feet from last year.

TABLE 7.1

*SANTA MARGARITA RIVER WATERSHED*

**WATER PRODUCTION AND USE**

2014-15

Quantities in Acre Feet

| | PRODUCTION | | | USE 1/ | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | WELL/ SURFACE | IMPORT | TOTAL | AG | COMM | DOM | LOSS | TOTAL | WATER RIGHT |
| **WATER PURVEYORS** | | | | | | | | | |
| Anza Mutual Water Company | 25 | 0 | 25 | 0 | 0 | 23 | 2 2/ | 25 | Appropriative |
| Eastern MWD | 0 | 13,877 | 13,877 | 144 | 2,982 | 10,057 | 694 | 13,877 | Appropriative |
| Elsinore Valley MWD | 0 | 5,992 | 5,992 | 12 | 1,165 | 4,472 | 343 | 5,992 | --------- |
| Fallbrook PUD | 0 | 5,919 | 5,919 | 3,434 | 304 | 1,826 | 355 | 5,919 | Appropriative |
| Lake Riverside Estates | 368 | 0 | 368 | 0 | 368 3/ | 0 | 0 | 368 | Appropriative |
| Metropolitan Water District | 0 | 1,090 15/ | 1,090 | 1,090 | 0 4/ | 0 | 0 | 1,090 | --------- |
| Murrieta Division of Western MW | 1,041 | 820 | 1,861 | 0 | 546 | 1,274 | 41 | 1,861 | Appropriative |
| Rainbow MWD | 0 | 1,333 | 1,333 | 1,111 | ------ 8/ | 168 | 54 | 1,333 | --------- |
| Rancho California WD | 24,731 5/ | 33,573 6/ | 58,304 | 20,776 | 8,736 | 23,910 | 4,882 7/ | 58,304 | Various |
| U.S.M.C. - Camp Pendleton | 4,690 | 0 | 4,690 | 0 | ------ 9/ | 1,634 | 3,056 2/ 10/ | 4,690 | Appropriative/ Riparian |
| U.S. Naval Weapons Station | 0 | 44 | 44 | 0 | ------ 9/ | 40 | 4 2/ | 44 | --------- |
| Western MWD Improvement Dist Through Rancho California WD | 0 | 29 | 29 | 0 | 26 | 0 | 3 2/ | 29 | --------- |
| **INDIAN RESERVATIONS** | | | | | | | | | |
| Cahuilla | 61 | 0 | 61 | 6 16/ | 5 | 50 | 0 | 61 | Overlying/Reserved |
| Pechanga | 815 | 0 | 815 | 0 | 1,017 | 115 | (317) 13/ | 815 | Overlying/Reserved |
| Ramona | 2 | 0 | 2 | 0 | 0 | 2 | 0 | 2 | Overlying/Reserved |
| **SMALL WATER SYSTEMS** | | | | | | | | | |
| Quiet Oaks Mobile Home Park | 23 | 0 | 23 | 0 | 3 | 18 | 2 2/ | 23 | Riparian/Overlying |
| Outdoor Resorts | 455 | 0 | 455 | 0 | 410 | 41 | 4 2/ | 455 | Overlying |
| Jojoba Hills SKP Resort | 72 | 0 | 72 | 0 | 0 | 65 | 7 2/ | 72 | Overlying |
| Hawthorn Water System | 6 | 0 | 6 | 0 | 0 | 5 | 1 2/ | 6 | Appropriative |
| Cottonwood Elementary | 14 | 0 | 14 | 0 | 13 | 0 | 1 2/ | 14 | Overlying |
| Hamilton Schools | 11 | 0 | 11 | 0 | 10 | 0 | 1 2/ | 11 | Overlying |
| **OTHER SUBSTANTIAL USERS** | 5,591 11/ | 0 | 5,591 | 5,530 | 0 | 0 | 61 12/ | 5,591 | |
| **TOTAL** | **37,905** | **62,677** | **100,582** | **32,103** | **15,585** | **43,700** | **9,194 14/** | **100,582** | |

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 25,053 AF production from Older Alluvium plus 147 AF of Vail Recovery minus 251 AF exported to the San Mateo Watershed minus 207 AF pumped into recycled water system minus 11 AF delivered to Pechanga Band.
6/ Includes 18,760 AF direct use; 12,248 AF direct recharge; 2,914 AF from MWD WR-34; and minus 349 AF export.
7/ Includes 24 AF discharged into Murrieta Creek; 2 AF discharged into Santa Gertrudis Creek; 2,914 AF discharged into Santa Margarita River from MWD WR-34; 0 AF from System River Meter; 492 AF from potable connection to WR-34 outlet pipe; (83) AF of import remaining in storage; and a system loss of 1,533 AF.
8/ Listed with Agricultural use.
9/ Listed with Domestic use.
10/ Includes exports of 2,311 AF, brine production of 563 AF and a system loss of 182 AF.
11/ Includes 613 AF for surface diversion plus 5,039 AF from groundwater as shown in Appendix C, minus 61 AF on the Cahuilla Reservation.
12/ Loss is equal to 10% of surface diversions.
13/ Includes a system loss of 41 AF, minus 358 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 3,329 AF. Overall system loss is calculated by estimating the traditional system loss of comparing total production versus total use for each water purveyor.
15/ An additional 100 AF were released by MWD from Lake Skinner into Tucalota Creek for maintenance purposes and groundwater replenishment.
16/ Stock watering.

TABLE 7.2

*SANTA MARGARITA RIVER WATERSHED*
**DEFINITIONS OF WATER USE**
**BY MUNICIPAL WATER PURVEYORS**
2014-15

| DISTRICT | AGRICULTURAL | DOMESTIC | COMMERCIAL |
|---|---|---|---|
| **EASTERN MUNICIPAL WATER DISTRICT** | 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 |
| **ELSINORE VALLEY MUNICIPAL WATER DISTRICT** | Same as EMWD | Same as EMWD | Same as EMWD |
| **FALLBROOK PUBLIC UTILITY DISTRICT** | Same as EMWD | Single family and multi-family residential connections, including first 20,000 gallons for agricultural/domestic meters | Same as EMWD |
| **PECHANGA INDIAN RESERVATION** | 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 |
| **RAINBOW MUNICIPAL WATER DISTRICT** | Same as EMWD | Single family and multi-family residential connections, including first 20,000 gallons for agricultural/domestic meters | Same as EMWD |
| **RANCHO CALIFORNIA WATER DISTRICT** | Same as EMWD | Single family and multi-family residential connections, including first 1,600 cubic feet for agricultural/domestic meters | Same as EMWD |
| **MURRIETA DIVISION OF WESTERN MUNICIPAL WATER DISTRICT** | Same as EMWD | Same as EMWD | Same as EMWD |
| **USMC, CAMP PENDLETON** | Same as EMWD | Camp Supply - All usage except agricultural | Reported under Camp Supply |

Interlocutory Judgment No. 33 divides aquifers in Anza Valley at this location 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 2015 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 2014-15.

Imports, not including water wholesaled to Rancho California WD or the Murrieta Division of Western MWD, or delivered to Elsinore Valley MWD, totaled 15,448 acre feet. A portion of that import, amounting to 1,571 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 13,877 acre feet. These data are shown on Appendix Table A-1.

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 2013-14 and 2014-15 is shown below:

| | 2013-14 | | 2014-15 | |
|---|---|---|---|---|
| Use | Quantity | Percent | Quantity | Percent |
| | AF | % | AF | % |
| Reuse in Santa Margarita | 2,937 | 20 | 2,717 | 19 |
| Reuse outside Santa Margarita | 8,117 | 55 | 7,002 | 48 |
| Subtotal | 11,054 | 75 | 9,719 | 67 |
| Discharge to Dissipater at Temescal Creek | 0 | 0 | 0 | 0 |
| Other | 3,627 | 25 | 4,696 | 33 |
| TOTAL | 14,681 | 100 | 14,415 | 100 |

It can be noted that the quantities of recycled water used within the Santa Margarita River Watershed decreased from 2,937 acre feet in Water Year 2013-14 to 2,717 acre feet in Water Year 2014-15. During the same period, reuse outside the Santa Margarita River Watershed decreased from 8,117 acre feet to 7,002 acre feet. In 2014-15, it may be concluded that 19 percent of the recycled water was used in the Watershed and 48 percent was used outside the Watershed. No wastewater was discharged to the dissipater at Temescal Creek during Water Year 2014-15. The Other use increased from 3,627 acre feet to 4,696 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 2014-15, 26 percent 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, 2012, 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 2015 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**

| | 2011 | | 2012 | | 2013 | | 2014 | | 2015 | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Eastern MWD** | AF | % | AF | % | AF | % | AF | % | AF | % |
| TVRWRF Service Area | | | | | | | | | | |
| 1. Groundwater | 0 | | 0 | | 0 | | 0 | | 0 | |
| 2. Import | 14,392 | | 15,063 | | 15,751 | | 15,884 | | 13,877 | |
| 3. Total | 14,392 | | 15,063 | | 15,751 | | 15,884 | | 13,877 | |
| **Rancho California WD** | | | | | | | | | | |
| TVRWRF Service Area | | | | | | | | | | |
| 1. Groundwater 1/ | 9,774 | | 7,902 | | 8,802 | | 7,789 | | 8,201 | |
| 2. Import 2/ | 8,770 | | 11,462 | | 10,563 | | 11,577 | | 9,232 | |
| 3. Total 3/ | 18,544 | | 19,364 | | 19,365 | | 19,366 | | 17,433 | |
| **Total Deliveries to TVRWRF Service Area** | | | | | | | | | | |
| 1. Groundwater | 9,774 | 29.7% | 7,902 | 23.0% | 8,802 | 25.1% | 7,789 | 22.1% | 8,201 | 26.2% |
| 2. Import | 23,162 | 70.3% | 26,525 | 77.0% | 26,314 | 74.9% | 27,461 | 77.9% | 23,109 | 73.8% |
| 3. Total | 32,936 | 100.0% | 34,427 | 100.0% | 35,116 | 100.0% | 35,250 | 100.0% | 31,310 | 100.0% |

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 TVRWRF Service Area.

### 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 2014-15 that 5,992 acre feet were imported into the portion of its service area that is inside the Watershed, and 1,328 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 2014-15, a total of 199 acre feet of recycled water were received via Eastern MWD and 108 acre feet were used within the Watershed.

Production and use for Elsinore Valley MWD for the period 1966 through 2015 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 2014-15, Fallbrook PUD imported a total of 10,639 acre feet, as shown on Appendix Table A-3. Fallbrook PUD has three wells within the Santa Margarita River Watershed; however, in 2014-15, there was no production from these wells. Additionally, in 2014-15, Fallbrook PUD reported no diversions from Lake Skinner, under Permit No. 11356, resulting in a total district-wide production of 10,639 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 5,919 acre feet, or about 56 percent of the total district wide production.

In 2014-15, Fallbrook PUD treated 1,107 acre feet of wastewater from areas served within the Watershed, of which 19 acre feet were reused in the Watershed, and the remainder was exported. The wastewater production and distribution for 2014-15 is shown on Appendix Table A-3.

Production during the period 1966 through 2015 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 2015 are shown on Appendix Table B-4.

### 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 2014-15 was approximately 368 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 2015 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 1,090 acre feet of water into the Santa Margarita River Watershed for irrigation of lands in Domenigoni Valley in Water Year 2014-15. 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 1400 feet. This production is shown on Appendix Table A-4, and production for the period 1966 through 2015 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 2014-15, the District imported a total of 18,358 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 seven percent 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 2014-15 amounted to 1,333 acre feet.

Rainbow Municipal Water District import production for the period 1966 through 2015 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 2014-15, 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 2014-15, well production of native water included 24,982 acre feet from the Murrieta-Temecula Groundwater Area. A portion of the groundwater amounting to 251 acre feet was exported for use in the San Mateo Watershed, resulting in a net well production of 24,731 acre feet.

Import supplies totaled 33,922 acre feet of which 18,760 acre feet were used for direct use; 12,248 acre feet were recharged; and 2,914 acre feet were discharged by the

District to the Santa Margarita River from MWD Outlet WR-34 during 2014-15, pursuant to the CWRMA. A portion of that import amounting to 349 acre feet was exported from the Santa Margarita River Watershed to the San Mateo Watershed, resulting in net import to the Watershed of 33,573 acre feet.

During 2014-15, Rancho California WD use totaled 58,304 acre feet including 20,776 acre feet for agriculture; 8,736 acre feet for commercial; 23,910 acre feet for domestic; 3,432 acre feet were released into Murrieta Creek, Santa Gertrudis Creek and the Santa Margarita River; and 1,533 acre feet were system loss. In 2014-15, a net amount of 83 acre feet of import water was extracted from groundwater storage derived from import recharge in prior years.

In 2014-15, 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 Well Nos. 109, 110, 123, 132, 152, 153, 157, 158, 210, 232, 233, and 234.

As shown on Table 3.3, there were 147 acre feet of releases from Vail Lake during 2014-15 for groundwater recharge. Releases from Vail Lake for groundwater recharge for the period 1980 through 2015 are shown on Appendix Table B-8.

Permit 7032 operations for 2014-15 are summarized on Table 7.4. The recovery from groundwater recharge for 2014-15 was 147 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**
2014-15
Quantities in Acre Feet

| | | |
|---|---|---|
| Diversion to Storage in Vail Lake 1/ | | 465 |
| Release to Groundwater Storage 1/ | | 147 |
| Recovery from Groundwater Storage 2/ 3/ | | |
| Younger Alluvium | 147 | |
| Older Alluvium | 0 | |
| Total | | 147 |
| Vail Recharge Account Balance from 2013-14 | | 54,292 |
| Release minus Recovery | | 0 |
| Vail Recharge Account Balance for 2014-15 | | 54,292 |

1/ See Table 3.3.
2/ Permitted Points of Re-Diversion RCWD Well Nos. 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.

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 2014-15, 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 2014-15, 52.39 percent of the supply to the Rancho Division was imported and 57.36 percent 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 | 25% |
| Commercial Use | 10% |
| Domestic Use | 25% |

Based on the foregoing factors, the total return flow credit for 2014-15 is computed to be 3,522.04 acre feet for the Rancho Division and 222.45 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 2014-15 are 714.80 acre feet for the Rancho Division and 55.61 acre feet for the Santa Rosa Division, as shown on Tables 7.5 and 7.6, respectively. The total return flow credit for 2014-15 to offset younger alluvium production in future years is 770.41 acre feet.

TABLE 7.5

*SANTA MARGARITA RIVER WATERSHED*

**RANCHO CALIFORNIA WATER DISTRICT**

**RETURN FLOW CREDIT**

2014-15

**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 |
|---|---|---|---|---|---|---|---|---|---|
| AGRICULTURAL | | | | | | | | | |
| Total Use | 1,261.97 | 10.01 | 0.00 | 31.30 | 530.75 | 77.12 | 1,120.01 | 972.31 | 4,003.47 |
| % Import | 52.39 | 52.39 | 52.39 | 52.39 | 52.39 | 52.39 | 52.39 | 52.39 | |
| Import Use | 661.17 | 5.25 | 0.00 | 16.40 | 278.07 | 40.41 | 586.80 | 509.41 | 2,097.49 |
| % Credit | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | |
| Credit | 165.29 | 1.31 | 0.00 | 4.10 | 69.52 | 10.10 | 146.70 | 127.35 | 524.37 |
| COMMERCIAL | | | | | | | | | |
| Total Use | 262.28 | 1,827.88 | 1,315.29 | 2,645.84 | 389.83 | 562.22 | 132.35 | 42.78 | 7,178.48 |
| % Import | 52.39 | 52.39 | 52.39 | 52.39 | 52.39 | 52.39 | 52.39 | 52.39 | |
| Import Use | 137.41 | 957.66 | 689.10 | 1,386.21 | 204.24 | 294.56 | 69.34 | 22.42 | 3,760.94 |
| % Credit | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | |
| Credit | 13.74 | 95.77 | 68.91 | 138.62 | 20.42 | 29.46 | 6.93 | 2.24 | 376.09 |
| DOMESTIC | | | | | | | | | |
| Total Use | 1,066.35 | 2,244.33 | 2,135.31 | 8,967.21 | 616.50 | 3,212.29 | 1,353.66 | 419.52 | 20,015.16 |
| % Import | 52.39 | 52.39 | 52.39 | 52.39 | 52.39 | 52.39 | 52.39 | 52.39 | |
| Import Use | 558.68 | 1,175.84 | 1,118.73 | 4,698.09 | 322.99 | 1,682.98 | 709.21 | 219.79 | 10,486.33 |
| % Credit | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | |
| Credit | 139.67 | 293.96 | 279.68 | 1,174.52 | 80.75 | 420.75 | 177.30 | 54.95 | 2,621.58 |
| TOTAL USE | 2,590.60 | 4,082.21 | 3,450.60 | 11,644.35 | 1,537.08 | 3,851.63 | 2,606.02 | 1,434.61 | 31,197.11 |
| TOTAL | | | | | | | | | |
| Total Import Use | 1,357.26 | 2,138.75 | 1,807.83 | 6,100.70 | 805.30 | 2,017.95 | 1,365.35 | 751.62 | 16,344.76 |
| Total Credit | 318.70 * | 391.04 | 348.59 | 1,317.24 | 170.69 | 460.30 | 330.93 | 184.54 | 3,522.04 |
| Total Credit Qyal | | 195.52 | 348.59 | | 170.69 | | | | 714.80 |
| Total Credit Qtoal | | 195.52 | | 1,317.24 | | 460.30 | 330.93 | 184.54 | 2,488.54 |

* This credit not applied to either Qyal or Qtoal

TABLE 7.6

*SANTA MARGARITA RIVER WATERSHED*
**RANCHO CALIFORNIA WATER DISTRICT**
**RETURN FLOW CREDIT**
2014-15
**SANTA ROSA DIVISION**
Quantities in Acre Feet

| | HYDROGEOLOGIC AREAS | | | |
|---|---|---|---|---|
| | 1<br>MURRIETA<br>WOLF<br>1/2 QYAL<br>1/2 QTOAL | 2<br>SANTA<br>GERTRUDIS<br>2/3 QYAL<br>1/3 QTOAL | 8<br>NORTH<br>MURRIETA<br>1/4 QYAL<br>3/4 QTOAL | TOTAL |
| AGRICULTURAL | | | | |
| Total Use | 0.00 | 0.00 | 15.46 | 15.46 |
| % Import | 57.36 | 57.36 | 57.36 | |
| Import Use | 0.00 | 0.00 | 8.87 | 8.87 |
| % Credit | 25.00 | 25.00 | 25.00 | |
| Credit | 0.00 | 0.00 | 2.22 | 2.22 |
| COMMERCIAL | | | | |
| Total Use | 0.00 | 0.02 | 966.12 | 966.14 |
| % Import | 57.36 | 57.36 | 57.36 | |
| Import Use | 0.00 | 0.01 | 554.14 | 554.15 |
| % Credit | 10.00 | 10.00 | 10.00 | |
| Credit | 0.00 | 0.00 | 55.41 | 55.41 |
| DOMESTIC | | | | |
| Total Use | 0.00 | 0.00 | 1,149.39 | 1,149.39 |
| % Import | 57.36 | 57.36 | 57.36 | |
| Import Use | 0.00 | 0.00 | 659.26 | 659.26 |
| % Credit | 25.00 | 25.00 | 25.00 | |
| Credit | 0.00 | 0.00 | 164.82 | 164.82 |
| TOTAL USE | 0.00 | 0.02 | 2,130.96 | 2,130.99 |
| TOTAL | | | | |
| Total Import Use | 0.00 | 0.01 | 1,222.27 | 1,222.28 |
| Total Credit | 0.00 | 0.00 | 222.45 | 222.45 |
| Total Credit Qyal | 0.00 | 0.00 | 55.61 | 55.61 |
| Total Credit Qtoal | 0.00 | 0.00 | 166.84 | 166.84 |

Rancho California WD imported an additional 12,248 acre feet of water for direct groundwater recharge in 2014-15. The total amount of imported recharge water that was recovered in 2014-15 was 12,331 acre feet. Thus, 83 acre feet of recovered water were derived from groundwater storage.

*Division of Local Water*

During 2014-15, Rancho California WD pumped 37,531 acre feet of groundwater, comprised of 25,117 acre feet of local water and 12,331 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 25,117 acre feet of local water, 11 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 2014-15, using the percentages noted on Table 7.7 is presented on Table 7.8. In 2014-15, 12,478 acre feet were pumped from the younger alluvium and 25,053 acre feet were pumped from the older alluvium. The production of 12,478 acre feet from the younger alluvium, as shown on Table 7.8 is the recovery of 12,331 acre feet of direct import recharge and the recovery of 147 acre feet of Vail Lake recharge.

Imported water carryover to 2015-16 includes the following:

| | | AF |
|---|---|---|
| 1. | Carryover from 2013-14 | 63,316 |
| 2. | Direct recharge of imported water in 2014-15 | 12,248 |
| 3. | Imported recharge water recovered in 2014-15 | (12,331) |
| 4. | Import return flow credit for 2014-15 | 770 |
| 5. | Total carryover to 2015-16 | 64,003 |

Thus, the Imported Water Carryover Account balance of 64,003 acre feet remains available to offset younger alluvium production in future years.

TABLE 7.7

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

| RCWD WELL NO. | LOCATION TOWNSHIP/ RANGE/ SECTION | PERFORATED INTERVAL FEET | YOUNGER ALLUVIUM FEET | PERCENT YOUNGER ALLUVIUM % | REMARKS |
|---|---|---|---|---|---|
| 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 |
| 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% | |
| 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.

TABLE 7.8

*SANTA MARGARITA RIVER WATERSHED*
**RANCHO CALIFORNIA WATER DISTRICT**
**WELL PRODUCTION FROM YOUNGER AND OLDER ALLUVIUM**
2014-15
Quantities in Acre Feet

| WELL NO. | | QYAL | QTOAL | TOTAL |
|---|---|---|---|---|
| 101 | 2/ | 0.00 | 543.00 | 543.00 |
| 102 | 2/, 3/ | 0.00 | 125.00 | 125.00 |
| 106 | 2/ | 0.00 | 102.00 | 102.00 |
| 108 | 2/ | 0.00 | 615.00 | 615.00 |
| 109 | 4/ | 372.96 | 71.04 | 444.00 |
| 110 | 4/ | 1,186.31 | 36.69 | 1,223.00 |
| 113 | | 0.00 | 322.00 | 322.00 |
| 118 | 2/ | 0.00 | 688.00 | 688.00 |
| 119 | 1/ | 0.00 | 527.00 | 527.00 |
| 120 | | 0.00 | 1,401.00 | 1,401.00 |
| 121 | | 0.00 | 0.00 | 0.00 |
| 122 | 1/ | 0.00 | 473.00 | 473.00 |
| 123 | 4/ | 95.55 | 51.45 | 147.00 |
| 124 | | 0.00 | 428.00 | 428.00 |
| 125 | | 0.00 | 0.00 | 0.00 |
| 126 | | 0.00 | 881.00 | 881.00 |
| 128 | | 0.00 | 0.00 | 0.00 |
| 129 | | 0.00 | 0.00 | 0.00 |
| 130 | | 0.00 | 934.00 | 934.00 |
| 131 | | 0.00 | 684.00 | 684.00 |
| 132 | 4/ | 470.68 | 103.32 | 574.00 |
| 133 | | 0.00 | 771.00 | 771.00 |
| 135 | 3/ | 0.00 | 57.00 | 57.00 |
| 138 | | 0.00 | 2,418.00 | 2,418.00 |
| 139 | | 0.00 | 919.00 | 919.00 |
| 140 | | 0.00 | 1,365.00 | 1,365.00 |
| 141 | | 0.00 | 475.00 | 475.00 |
| 143 | | 0.00 | 684.00 | 684.00 |
| 144 | | 0.00 | 447.00 | 447.00 |
| 145 | | 0.00 | 172.00 | 172.00 |
| 146 | 3/ | 0.00 | 16.00 | 16.00 |
| 149 | | 0.00 | 248.00 | 248.00 |
| 151 | | 0.00 | 780.00 | 780.00 |
| 152 | 4/ | 2,220.06 | 224.94 | 2,445.00 |
| 153 | 4/ | 1,972.08 | 19.92 | 1,992.00 |
| 154 | | 606.87 | 6.13 | 613.00 |
| 155 | 3/ | 0.00 | 10.00 | 10.00 |
| 156 | | 0.00 | 783.00 | 783.00 |
| 157 | 4/ | 1,398.76 | 46.24 | 1,445.00 |
| 158 | 4/ | 1,995.62 | 72.38 | 2,068.00 |
| 201 | | 0.00 | 0.00 | 0.00 |
| 203 | | 0.00 | 612.00 | 612.00 |
| 205 | | 0.00 | 1,664.00 | 1,664.00 |
| 207 | | 0.00 | 0.00 | 0.00 |
| 208 | | 0.00 | 0.00 | 0.00 |
| 209 | | 0.00 | 0.00 | 0.00 |
| 210 | 4/ | 626.98 | 40.02 | 667.00 |
| 211 | 1/ | 0.00 | 482.00 | 482.00 |
| 215 | | 0.00 | 0.00 | 0.00 |
| 216 | | 0.00 | 0.00 | 0.00 |
| 217 | | 0.00 | 860.00 | 860.00 |
| 231 | | 0.00 | 0.00 | 0.00 |
| 232 | 4/ | 718.52 | 62.48 | 781.00 |
| 233 | 4/ | 704.00 | 96.00 | 800.00 |
| 234 | 4/ | 109.52 | 38.48 | 148.00 |
| 235 | | 0.00 | 1,494.00 | 1,494.00 |
| 301 | | 0.00 | 0.00 | 0.00 |
| 302 | | 0.00 | 0.00 | 0.00 |
| 309 | | 0.00 | 2,204.00 | 2,204.00 |
| | | **12,477.91** | **25,053.09** | **37,531.00** |

1/ A portion of 1,482 acre feet from Well Nos. 119, 122 and 211 was delivered to Pechanga Indian Reservation for their use.
2/ Includes 26 acre feet of releases to streams from Well Nos. 101, 102, 108 and 118.
3/ Includes 207 acre feet pumped directly to the recycled water system from Well Nos. 102, 135, 146 and 155.
4/ Permitted point of re-diversion pursuant to Permit 7032.

### 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 2014-15, the Murrieta Division of Western MWD produced 642 acre feet of water from the North Well and 399 acre feet from the New Clay Well for a total well production of 1,041 acre feet. Western MWD imported 820 acre feet in 2014-15 as shown on Appendix Table A-10.

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

| Well Designation 7S/3W | Well Name | 2014-15 Production Acre Feet | End of Water Year Depth to Groundwater in Feet 2014 | 2015 | Well Depth Feet | Perforated Interval Feet |
|---|---|---|---|---|---|---|
| 20 | New Clay | 399 | 311 | 360*** | 940 | 300 – 350<br>370 – 470<br>680 – 790<br>830 – 900 |
| 20C9 | Holiday | 0 | 61 | 63** | 307 | 60 – 307 |
| 20G5 | House | 0 | * | * | 252 | 120 – 252 |
| 17R2 | Lynch | 0 | 30 | 30 | 212 | 172 – 212 |
| 18J2 | North | 642 | 275 | 286*** | 650 | 240 – 460<br>500 – 640 |
| 20D | South | 0 | 173 | 173 | 446 | 120 – 446 |
| 7M | Alson | 0 | * | * | 416 | 106 – 416 |
| TOTAL | | 1,041 | | | | |

* Not reported.
** February 2015 measurement.
*** Pumping level.

Western MWD's Murrieta Division production for the period 1966 through 2015 is shown on Appendix Table B-11.

*Improvement District A*

In Water Year 2014-15, imports to Improvement District A amounted to approximately 29 acre feet as shown on Appendix Table A-11. Deliveries to Improvement District A through turnout WR-13 for the period 1966 through 2015 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 ten wells that produced 4,690 acre feet in Water Year 2014-15. This production is from the younger alluvium and is based on riparian and appropriative rights. In 2014-15, there was no agricultural use and 4,690 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. A total of 1,816 acre feet were used inside the Watershed and 2,311 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.

Beginning in December 2008, all wastewater for Camp Pendleton is treated at the Southern Region Tertiary Treatment Plant replacing the regional treatment Plant Nos. 1, 2, 3, and 13. 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 2014-15, the total amount of recycled water for Camp Pendleton was 2,012 acre feet as shown on Appendix Table A-8. Of the total amount of recycled water, 49 acre feet were used inside the Watershed; 401 acre feet were used outside the Watershed; and 1,562 acre feet were exported to the Oceanside Outfall. An additional 563 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 2014-15 was 2,125 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 2015. 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 2014-15, 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 2014-15, 44 acre feet were imported of which three acre feet of wastewater were exported, as shown on Appendix Table A-9. Imports and use for the period 1966 through 2015 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:

### 7.3.1 Cahuilla Indian Reservation

In general, domestic water use on the Cahuilla Indian Reservation is not measured; however reports for 2014-15 indicate that 355 people reside on the Reservation. These residents use water primarily for domestic purposes. Annual domestic water use, based on 125 gallons per capita per day, amounts to a total annual use of about 50 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 10 gallons per head per day, the annual use is estimated to be about six acre feet. An additional five acre feet pumped from well 7S/2E-26B3 were put to commercial use 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 2014-15, Pechanga received 11 acre feet of delivered groundwater from Rancho California WD. In addition, the Pechanga Water System produced 804 acre feet from wells, and received 358 acre feet of recycled water from Eastern MWD, resulting in a total production for Pechanga of 1,173 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 8S/2W | Well Name | End of Water Year Depth to Groundwater in Feet 2014 | 2015 | Well Depth Feet | Perforated Interval Feet |
|---|---|---|---|---|---|
| 29A2 | Kelsey | 154 | 152 | 425 | 105 - 415 |
| 29B10 | Eduardo | 142 | 166 | 697 | 437 - 687 |
| 29B11 | Eagle III | 183 | 181 | 645 | 275 - 635 |
| 29J3 | South Boundary | 147 | 165 | 350 | 150 - 340 |
| 28M5 | Cell Tower | N/A | N/A | 518 | 372 - 432<br>468 - 508 |
| 28R1 | Ballpark Well | 121 | 98 | 1,000 | 126 - 996 |
| 19Q1 | Zone V Rock 1 | 48 | 46 | 451 | 210 - 430 |

The total groundwater pumping for the Pechanga Water System wells increased from 765 acre feet in Water Year 2013-14, to 804 acre feet in Water Year 2014-15. The total pumping in Wolf Valley by Rancho California WD Well Nos. 119, 122 and 211, for both the District's use and for delivery to Pechanga, increased from 1,313 acre feet in 2013-14 to 1,482 acre feet in 2014-15. Therefore, the total pumping in Wolf Valley for 2014-15 increased by 208 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 2015 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 2014-15 is reported as 2.19 acre feet, or approximately two 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 5,591 acre feet. This quantity includes 4,983 acre feet of well production and 608 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, 2013, 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.

Page Intentionally Blank

## 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.

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.*

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 Maximum Contaminant Level (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 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 rose by seven feet between September 30, 2014 and September 30, 2015.

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. 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 declined by 4.9 feet in 2014-15. Water levels in Well 7S/3W-20C9 in the Murrieta Division of Western MWD area declined by two feet in 2014-15.

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 declined 1.2 feet in 2014-15.

## 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 2014-15, the reported TDS concentrations ranged from 507 to 662 mg/l as compared to concentrations for 2013-14 ranging from 411 to 576 mg/l. The increased levels for TDS in 2014-15 are attributed to a greater percentage of the imported supplies derived from the Colorado River compared to supplies from the State Water Project.

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 2014-15 were 42,800 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 the monthly TDS concentrations from Table 5.3 to the monthly net imports for these major purveyors results in an estimated total annual salt import for Water Year 2014-15 of 34,900 tons compared to the estimated salt import of 37,700 tons for 2013-14 and 32,200 tons for 2012-13.

The salt balance for the Murrieta-Temecula Groundwater Area is affected by the export of wastewater from the Watershed. In 2014-15, Elsinore Valley MWD exported 1,328 acre feet of wastewater for treatment outside the Watershed. During 2014-15, Eastern MWD exported 7,002 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 2014-15, approximately 7,400 tons of salt were exported by Elsinore Valley MWD and Eastern MWD through the export of 8,330 acre feet of wastewater. For comparison in 2013-14, approximately 8,300 tons of salt were exported with the export of 9,424 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 2014-15 was 5,819 acre feet compared to 6,135 acre feet in 2013-14, and compared to 690 acre feet in 1986-87. Assuming an average TDS concentration of wastewater of 650 mg/l, the salt loading for 5,819 acre feet of recycled water is approximately 5,100 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 2014-15, wells discharged 26 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 |
|---|---|---|---|
| 101 | 12 | 680 | 9/17/14 |
| 102 | 1 | 700 | 6/20/95 |
| 106 | 0 | 390 | 7/28/15 |
| 108 | 2 | 390 | 8/05/15 |
| 118 | 11 | 620 | 9/03/14 |
| Total | 26 | | |

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 2014-15, the discharge of imported supplies to the Santa Margarita River as

make-up flows from outlet WR-34 was 2,914 acre feet. During Water Year 2014-15, 492 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.

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 2014-15, four other wells showed levels exceeding the MCL with the wells still in operation. Three of the wells are operating under approved blending plans and the fourth well is being operated under increased monitoring with preparation of a tentative 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 2014-15, two wells 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 2014-15, two Rancho California WD wells were in operation under approved manganese sequestering plans. In 2014-15, 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 Tucalota 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.

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 Tucalota 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 percent mortality of mussels passing through the system for delivery of imported supplies to Vail Lake.

Page Intentionally Blank

## 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 2014-15. 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 2014-15.

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 2014-15.

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 2014-15, water quality data was collected from wells at Western MWD – Murrieta Division, Rancho California WD, Pechanga Indian Reservation, and Camp Pendleton.

Western MWD – Murrieta Division sampled two wells in 2014-15 as shown in Appendix Table D-3. Both wells were subjected to standard chemical analysis in addition to samplings for nitrates only. The North Well was sampled 9 times and included three samples subjected to standard chemical analysis and one sample subjected to TDS only. The New Clay Well was sampled ten times and included one sample subjected to standard chemical analysis and nine samples analyzed for nitrates only. Concentrations of nitrates were below the Maximum Contaminant Level (MCL) of 45 mg/l 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 38 wells during 2014-15. Of the 38 wells, 26 wells were analyzed for both nitrates and TDS only. Nitrate concentrations ranged up to 26 mg/l as nitrate, with the MCL being 45 mg/l as nitrate. Nineteen of the remaining wells were subjected to standard chemical analysis, 33 wells were sampled for TDS only, and 15 wells were sampled for nitrates only. Samples from two wells (Well 109 and Well 122) showed TDS concentrations exceeding 750 mg/l, the Basin Plan objective. Wells 120 and 158, which showed TDS concentrations exceeding 750 mg/l in prior years, showed reduced TDS concentrations for 2014-15, ranging from 350 to 480 mg/l and 660 to 700 mg/l, respectively. During 2014-15, 22 wells showed TDS concentrations ranging from 500 to 750 mg/l. Wells 119 and 123 showed increased levels from prior years with TDS concentrations ranging from 540 to 710 mg/l and 550 to 730 mg/l, respectively.

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**

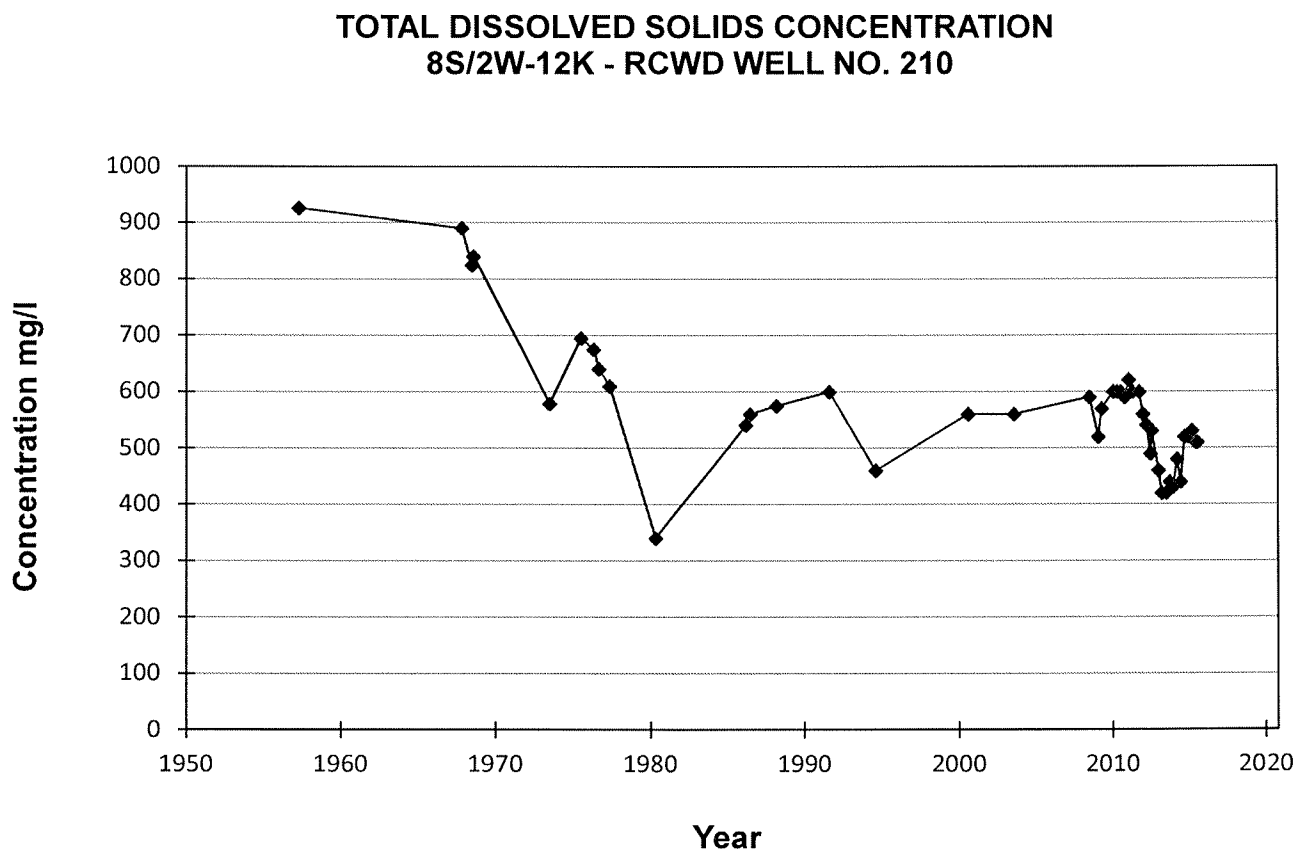
Water Year 2014-15

| COLLECTION MONTH/YEAR | DISSOLVED OXYGEN mg/l | | pH | | SPECIFIC CONDUCTANCE microsiemens/cm | | TEMPERATURE Degrees Celsius | |
|---|---|---|---|---|---|---|---|---|
| | High | Low | High | Low | High | Low | High | Low |
| 2014 | | | | | | | | |
| October | 8.4 | 7.4 | 8.2 | 7.7 | 1,030 | 841 | 24.9 | 21.7 |
| November | 9.5 | 7.3 | 8.2 | 7.7 | 1,480 | 933 | 21.9 | 16.3 |
| December | 12.7 | 6.0 | 8.2 | 6.8 | 1,740 | 198 | 17.9 | 2.4 |
| 2015 | | | | | | | | |
| January | 12.1 | 9.9 | 7.8 | 6.9 | 1,100 | 442 | 13.6 | 3.6 |
| February | 10.4 | 7.3 | 8.2 | 7.3 | 1,280 | 442 | 21.4 | 12.4 |
| March ** | 10.7 | 8.1 | 8.2 | 7.4 | 1,130 | 277 | 20.6 | 11.1 |
| April | 9.9 | 8.3 | 8.2 | 7.8 | 1,040 | 882 | 20.4 | 17.8 |
| May | 10.1 | 6.1 | 8.3 | 7.2 | 1,360 | 167 | 20.8 | 14.1 |
| June | 9.2 | 6.2 | 8.1 | 7.5 | 1,800 | 465 | 24.6 | 20.5 |
| July ** | 7.9 | 3.1 | 8.2 | 7.1 | 1,280 | 405 | 28.7 | 23.2 |
| August | 7.8 | 7.1 | 8.3 | 8.0 | 1,070 | 973 | 28.5 | 26.7 |
| September | 7.8 | 1.6 | 8.1 | 7.2 | 1,490 | 455 | 28.0 | 24.0 |

**- 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* searching by site number 11044000.

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. 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. 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



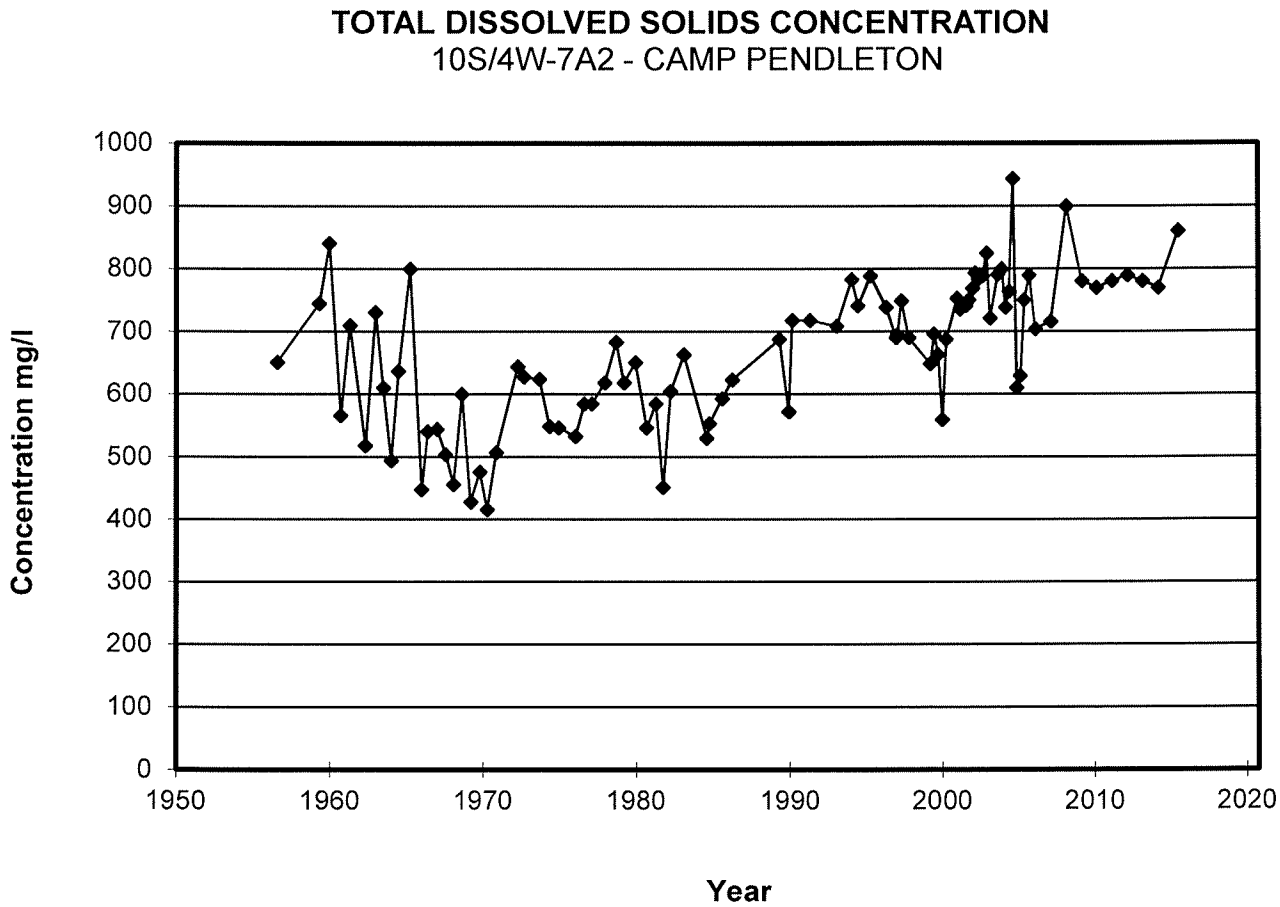

Appendix Table D-5 shows water quality data collected by the USGS from wells on Indian Reservations. In 2014-15, samples were collected from five wells on the Pechanga Indian Reservation. For the Pechanga wells, TDS concentrations ranged from 255 to 364 mg/l.

In 2014-15, no samples were collected from wells on the Cahuilla Indian Reservation.

During 2014-15, groundwater samples were collected from ten wells at Camp Pendleton as shown on Appendix Table D-6. All ten wells were subjected to standard chemical analysis. During 2014-15, samples show all ten wells with TDS concentrations exceeding the Basin Plan Objective of 750 mg/l. Six of the ten wells showed TDS concentrations that exceeded those in prior years, one well remained at the same TDS concentration and three wells showed a decline of TDS concentrations compared to the previous year.

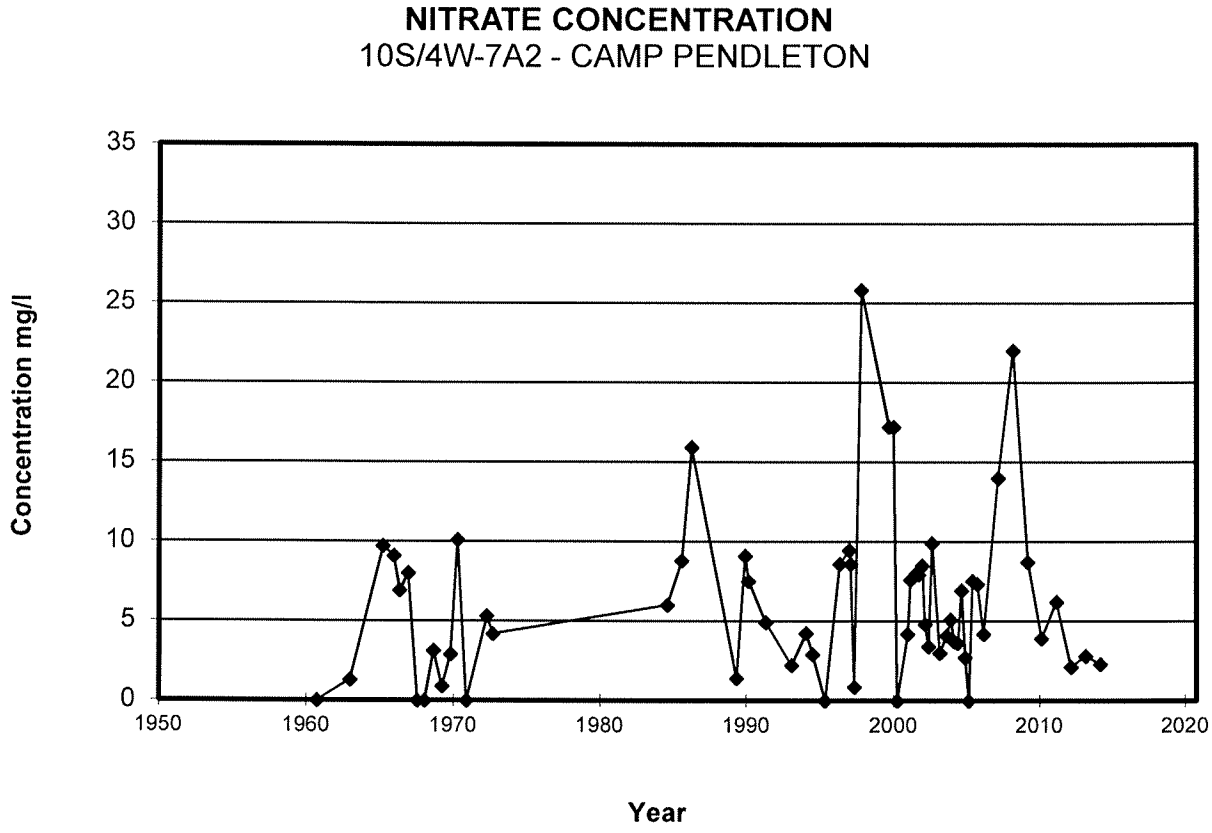
Historical TDS concentrations for Camp Pendleton Well 7A2 are shown on Figure 10.2 for samples collected since mid-1950. The figure shows a decline between mid-1950 and 1970, then a period of increasing concentrations to levels in the 550-950 mg/l range. Analysis of the sample collected in 2014-15 indicated TDS concentrations of 860 mg/l, an increase of 90 mg/l compared to the sample collected in 2013-14.

Figure 10.2



Historical nitrate concentrations for the same well (7A2) are shown on Figure 10.3. The one sample collected in Water Year 2014-15 showed a nitrate concentration of 2.3 mg/l, a decrease from the prior year.

Figure 10.3



Page Intentionally Blank

## 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 2015, the hydrologic index was determined and the year classified as a "Below 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 2015, a "Below 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 2014 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 2014 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

### 2015 CALENDAR YEAR - BELOW 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 | Camp Pendleton Groundwater Bank 5/ Cumulative Balance AF |
|---|---|---|---|---|---|---|---|---|---|
| Jan | 620.4 | 639.5 | 8.3 | 8.0 | 0 | 439.0 | 161.5 | 195.3 | 5,000.0 |
| Feb | 488.3 | 492.1 | 8.3 | 8.0 | 0 | 370.4 | 105.8 | 176.4 | 5,000.0 |
| Mar | 636.1 | 619.2 | 8.3 | 8.0 | 0 | 437.6 | 169.1 | 195.3 | 5,000.0 |
| Apr | 493.9 | 494.1 | 8.3 | 8.0 | 0 | 414.3 | 126.3 | 189.0 | 5,000.0 |
| May | 669.2 | 668.8 | 5.7 | 5.7 | 0 | 286.0 | 0.0 | 0.0 | 5,000.0 |
| Jun | 314.8 | 300.3 | 4.9 | 4.9 | 0 | 282.5 | 0.0 | 0.0 | 5,000.0 |
| Jul | 328.3 | 320.7 | 4.3 | 4.3 | 0 | 215.8 | 0.0 | 0.0 | 5,000.0 |
| Aug | 269.8 | 270.7 | 4.4 | 4.4 | 0 | 252.3 | 0.0 | 0.0 | 5,000.0 |
| Sep | 249.7 | 249.7 | 4.1 | 4.1 | 0 | 217.6 | 0.0 | 0.0 | 5,000.0 |
| Oct | 246.3 | 248.3 | 3.9 | 3.9 | 0 | 233.0 | 0.0 | 0.0 | 5,000.0 |
| Nov | 268.0 | 268.0 | 4.5 | 4.5 | 0 | 257.3 | 0.0 | 0.0 | 5,000.0 |
| Dec | 324.7 | 325.7 | 5.3 | 5.3 | 0 | 330.6 | 0.0 | 0.0 | 5,000.0 |
| **CALENDAR YEAR TOTAL** | **4,909.5** | **4,897.1** | | | **0** | **3,736.4** | **562.7** | **756.0** | **FULL** |

1 - Required flows for January through April are equal to 11.5 cfs less 3.2 cfs of credits (749 AF of Climatic Credit earned in 2014 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 2015.
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.

## TABLE 11.2

*SANTA MARGARITA RIVER WATERSHED*

### MONTHLY SUMMARY OF REQUIRED FLOWS, DISCHARGES, CREDITS AND ACCOUNTS COOPERATIVE WATER RESOURCE MANAGEMENT AGREEMENT

### 2014 CALENDAR YEAR - BELOW 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 | Camp Pendleton Groundwater Bank 5/ Cumulative Balance AF |
|---|---|---|---|---|---|---|---|---|---|
| Jan | 605.8 | 605.8 | 9.8 | 8.0 | 0 | 599.5 | 212.0 | 105.4 | 5,000.0 |
| Feb | 1,995.8 | 1,995.8 | 9.8 | 8.0 | 0 | 506.7 | 168.9 | 95.2 | 5,000.0 |
| Mar | 3,822.5 | 3,813.6 | 9.8 | 8.0 | 0 | 502.4 | 165.5 | 105.4 | 5,000.0 |
| Apr | 589.1 | 583.5 | 9.8 | 8.0 | 0 | 577.8 | 202.8 | 102.0 | 5,000.0 |
| May | 326.5 | 350.9 | 5.7 | 5.7 | 0 | 336.0 | 0.0 | 0.0 | 5,000.0 |
| Jun | 274.1 | 291.6 | 4.9 | 4.9 | 0 | 270.7 | 0.0 | 0.0 | 5,000.0 |
| Jul | 264.4 | 264.6 | 4.3 | 4.3 | 0 | 248.1 | 0.0 | 0.0 | 5,000.0 |
| Aug | 272.1 | 272.1 | 4.4 | 4.4 | 0 | 252.3 | 0.0 | 0.0 | 5,000.0 |
| Sep | 243.6 | 243.6 | 4.1 | 4.1 | 0 | 224.9 | 0.0 | 0.0 | 5,000.0 |
| Oct | 235.0 | 239.8 | 3.9 | 3.9 | 0 | 216.5 | 0.0 | 0.0 | 5,000.0 |
| Nov | 176.1 | 178.5 | 3.0 | 4.5 | 0 | 164.4 | 0.0 | 90.0 | 5,000.0 |
| Dec | 3,508.6 | 3,508.6 | 3.3 | 5.3 | 0 | 109.5 | 0.0 | 124.0 | 5,000.0 |
| **CALENDAR YEAR TOTAL** | **12,313.6** | **12,348.3** | | | **0** | **4,008.8** | **749.2** | **622.0** | **FULL** |

1/ Required flows for January through April are equal to 11.5 cfs less 1.7 cfs of credits (406 AF of Climatic Credit earned in 2013).
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. Credits earned in 2014 equal to 8.8 AF.
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 1st, 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.

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 2015, there were no days when the running average was less than the required flows under normal CWRMA operations.

During calendar year 2015, the total releases by Rancho California WD to meet CWRMA flow requirements were 3,736 acre feet as shown on Table 11.1. The releases were comprised of 3,244 acre feet of raw water from Outlet WR-34 and 492 acre feet from the potable connection at Outlet WR-34 during a MWD raw water shut down in February and March 2015.

Climatic Credits of 749 acre feet were used in calendar year 2015, and Climatic Credits of 563 acre feet were earned in calendar year 2015 in accordance with CWRMA provisions. In calendar year 2015, 4.5 acre feet of CAP Credits were used and no 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 2015, 756 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, 2015.

## 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 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, 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, Well Nos. 109 and 234, were analyzed for tritium and carbon isotopes.

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, 2015 (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.

Page Intentionally Blank

## SECTION 12 - FIVE YEAR PROJECTION OF WATERMASTER OFFICE TASKS, EXPENDITURES AND REQUIREMENTS

### 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

## 12.4 Projected Expenditures

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

| Year | | Watermaster Office | USGS Groundwater Monitoring | USGS Gaging Stations | Total |
|---|---|---|---|---|---|
| Current Year | 2015-16 | $473,625 | $45,500 | $196,975 | $716,100 |
| Projected Years | 2016-17 | $525,150 | $53,250 | $193,700 | $772,100 |
| | 2017-18 | $520,600 | $54,800 | $199,500 | $774,900 |
| | 2018-19 | $556,200 | $56,400 | $205,500 | $818,100 |
| | 2019-20 | $592,900 | $58,100 | $211,700 | $862,700 |
| | 2020-21 | $610,700 | $59,800 | $218,000 | $888,500 |

## 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 2014-15

The Watermaster Budget for 2014-15 of $679,700 was approved by the Court upon acceptance of the July 2014 Annual Watermaster Report for Water Year 2012-13. 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, 2015, dated December 16, 2015, are included in Appendix G. A comparison of the budget and actual costs for 2014-15 is shown on Table 13.1. The actual costs for 2014-15 were $658,095 compared to the budget of $679,700, resulting in a favorable variance of $21,605. An explanation of individual line item variances is provided in Appendix G.

### 13.2 Proposed Budget for 2016-17

The proposed Watermaster Budget for 2016-17 is published in the Annual Watermaster Report for 2014-15 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 2016-17 is referred to in this report as the proposed budget. The proposed Watermaster Budget for 2016-17, along with a comparison to the approved budget for 2015-16 is shown on Table 13.2. The total budget for 2016-17 is $772,100. This budget includes $525,150 for the Watermaster Office and $246,950 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.

TABLE 13.1

*SANTA MARGARITA RIVER WATERSHED*
**COMPARISON OF WATERMASTER BUDGET AND ACTUAL COSTS**
WATER YEAR 2014-15

| Line Item | Approved Budget 2014-15 1/ | Actual Costs 2014-15 2/ | Actual Costs Minus Approved Budget 2014-15 | |
|---|---|---|---|---|
| | Water Year 2014-15 | | | |
| ***Watermaster Office*** | $ | $ | $ | % |
| Accounting Services | $8,600 | $6,652 | -$1,948 | -22.7% |
| Audit | 6,600 | 6,585 | -15 | -0.2% |
| Clerical/Analyst | 109,300 | 104,437 | -4,863 | -4.4% |
| Conference/Training | 1,200 | 1,116 | -84 | -7.0% |
| Equipment and Furniture | 1,000 | 0 | -1,000 | -100.0% |
| Human Resources Services | 1,000 | 0 | -1,000 | -100.0% |
| Insurance | 600 | 575 | -25 | -4.2% |
| IT System/Computer | 10,000 | 2,231 | -7,769 | -77.7% |
| Legal Services | 20,000 | 21,235 | 1,235 | 6.2% |
| Miscellaneous | 2,250 | 130 | -2,120 | -94.2% |
| Postage | 1,900 | 1,400 | -500 | -26.3% |
| Printing | 9,000 | 10,722 | 1,722 | 19.1% |
| Publications | 3,200 | 3,140 | -60 | -1.9% |
| Rent | 18,000 | 18,000 | 0 | 0.0% |
| Supplies | 1,800 | 1,121 | -679 | -37.7% |
| Telephone | 3,000 | 2,895 | -105 | -3.5% |
| Travel | 900 | 1,049 | 149 | 16.6% |
| ***Watermaster Services*** | | | | |
| Consulting Services | 222,000 | 217,266 | -4,734 | -2.1% |
| Travel Reimbursement | 26,400 | 25,047 | -1,353 | -5.1% |
| **SUBTOTAL WATERMASTER OFFICE** | **$446,750** | **$423,601** | **-$23,149** | **-5.5%** |
| **USGS** | | | | |
| Gaging Station | $165,450 | $166,547 | $1,097 | 0.7% |
| Surface Water Quality | 23,800 | 23,958 | 158 | 0.7% |
| Groundwater Monitoring - Water Levels | 43,700 | 43,989 | 289 | 0.7% |
| Groundwater Monitoring - Water Quality | 0 | 0 | 0 | 0.0% |
| **SUBTOTAL USGS** | **$232,950** | **$234,494** | **$1,544** | **0.7%** |
| **TOTAL** | **$679,700** | **$658,095** | **-$21,605** | **-3.3%** |

1/ Budget for 2014-15 approved by the Court as reported in the Annual Watermaster Report for Water Year 2012-13, published July 2014.
2/ Actual Costs from Financial Statements for period ending September 30, 2015.

TABLE 13.2

*SANTA MARGARITA RIVER WATERSHED*
**PROPOSED WATERMASTER BUDGET FOR WATER YEAR 2016-17**

| Line Item | Water Year 2016-17 Proposed Budget 2016-17 1/ | Approved Budget 2015-16 2/ | Increase Over Approved Budget 2015-16 | |
|---|---|---|---|---|
| ***Watermaster Office*** | $ | $ | $ | % |
| Accounting Services | $8,500 | $8,400 | $100 | 1.2% |
| Audit | 6,600 | 6,600 | 0 | 0.0% |
| Clerical/Analyst | 114,200 | 115,700 | -1,500 | -1.3% |
| Conference/Training | 1,600 | 1,400 | 200 | 14.3% |
| Equipment and Furniture | 1,000 | 1,000 | 0 | 0.0% |
| Human Resources Services | 800 | 800 | 0 | 0.0% |
| Insurance | 600 | 600 | 0 | 0.0% |
| IT System/Computer | 10,000 | 10,000 | 0 | 0.0% |
| Legal Services | 30,000 | 20,000 | 10,000 | 50.0% |
| Miscellaneous | 41,050 | 1,325 | 39,725 | 2,998.1% |
| Postage | 2,000 | 2,000 | 0 | 0.0% |
| Printing | 11,500 | 10,000 | 1,500 | 15.0% |
| Publications | 3,300 | 3,300 | 0 | 0.0% |
| Rent | 18,000 | 18,000 | 0 | 0.0% |
| Supplies | 1,900 | 1,900 | 0 | 0.0% |
| Telephone | 3,000 | 3,000 | 0 | 0.0% |
| Travel | 1,500 | 1,000 | 500 | 50.0% |
| ***Watermaster Services*** | | | | |
| Consulting Services | 242,000 | 241,000 | 1,000 | 0.4% |
| Travel Reimbursement | 27,600 | 27,600 | 0 | 0.0% |
| **SUBTOTAL WATERMASTER OFFICE** | $525,150 | $473,625 | $51,525 | 10.9% |
| **USGS** | | | | |
| Gaging Station | $177,800 | $172,175 | $5,625 | 3.3% |
| Surface Water Quality | 15,900 | 24,800 | -8,900 | -35.9% |
| Groundwater Monitoring - Water Levels | 53,250 | 45,500 | 7,750 | 17.0% |
| Groundwater Monitoring - Water Quality | 0 | 0 | 0 | 0.0% |
| **SUBTOTAL USGS** | $246,950 | $242,475 | $4,475 | 1.8% |
| **TOTAL** | $772,100 | $716,100 | $56,000 | 7.8% |

1/ Proposed budget for 2016-17; final budget to be approved by the Court upon acceptance of the Annual Watermaster Report for Water Year 2014-15.

2/ Budget for 2015-16 approved by the Court as reported in the Annual Watermaster Report for Water Year 2013-14, published in August 2015.