SANTA MARGARITA RIVER WATERSHED

ANNUAL WATERMASTER REPORT

WATER YEAR 1993-94

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

CIVIL NO. 1247 - SD-T

JAMES S. JENKS
WATERMASTER
P.O. BOX 631
FALLBROOK, CA 92088

(619) 728-1028
FAX (619) 728-1990

JULY 1995

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SECTION 1 - SUMMARY

Section 1 - A summary of the Santa Margarita River Watershed Annual Watermaster Report for the 1993-94 Water Year.

Section 2 - This Annual Watermaster Report is prepared pursuant to Section II of 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. Thus imported waters, whether in storage in Lake Skinner or being transported through the Watershed, are outside Court jurisdiction, along with local, vagrant groundwaters which do not support the Santa Margarita River stream system.

Section 3 - Surface water flows were somewhat below normal in 1993-94, with long-term station flows ranging from 48 to 101 times the long-term average flow. Surface diversions to irrigation use totaled 835 acre feet compared with 711 acre feet in 1992-93. The total quantity of water in storage in the Watershed on September 30, 1994 was 63,473 acre feet, of which 22,542 acre feet was Santa Margarita River water and 40,931 acre feet was imported water.

Section 4 - Groundwater extractions were 46,420 acre feet compared to 42,695 acre feet in 1992-93. Water purveyors pumped 38,606 acre feet and 7,814 acre feet were pumped by other substantial users.

Section 5 - During 1993-94, 35,768 acre feet of water were imported and distributed in the Santa Margarita River Watershed by seven water purveyors. This compares with 27,755 acre feet in 1992-93 and 38,007 acre feet in 1991-92 and represents a 29 percent increase from 1992-93 and a 6 percent decrease from 1991-92. Net exports, including wastewater, were 3,078 acre feet.

Section 6 - Water rights during the 1950's and 1960's consisted primarily of riparian and overlying rights. Other rights included appropriative rights and federal reserved rights. More recently, water purveyors in the Watershed have begun exercising groundwater appropriative rights. Appropriative surface water rights on file with the State Water Resources Control Board (SWRCB) amount to 906,892 gallons per day of direct diversion rights and 44,315.5 acre feet of active storage rights.

Section 7 - Total imported supplies plus local production totaled 83,022 acre feet compared to 71,221 reported in 1992-93. Of that quantity, 47,276 acre feet were used for agriculture, 3,136 acre feet were used for commercial purposes, and 26,430 acre feet were used for domestic purposes; 467 acre feet were discharged to Murrieta Creek; 2,702 acre feet of fresh water were exported and 3,012 acre feet were defined as loss. Water loss is the result of many factors including errors in measurement, differences between periods of use and periods of production, leakage and unmeasured uses.

Section 8 - Unauthorized water uses include storage of surface water on Chihuahua Creek without an appropriative water right, and Rancho California WD use of 1,964 acre feet of water from Vail Lake for purposes and in locations not in accord with terms of Permit 7032.

Section 9 - Threats to water supply include high nitrate levels in Rainbow Creek, potential overdraft conditions and salt balance issues in the upper Watershed, and a soil treatment facility. A landfill previously proposed for Aspen Road near Rainbow Creek is on hold.

Section 10 - Water quality data collected by organizations in the Watershed for 1993-94 are presented in Appendix D.

Section 11 - Projected Watermaster tasks for the next five water years are described.

Section 12 - A total Watermaster budget of $243,700 is proposed for the 1995-96 Water Year. This budget includes $153,700 for the Watermaster Office and an estimated cost of operation for gaging stations by the U. S. Geological Survey (U.S.G.S.) is $90,000.

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 a judicial determination 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. The decision of the Appeals Court was entered on December 1, 1965, and the Modified Final Judgment and Decree was entered on April 6, 1966. Among other things, the Decree provided 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 appointed James S. Jenks as Watermaster to administer and enforce the provisions of the Modified Final Judgment and Decree and subsequent orders of the Court. The 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 which in 1993-94 was comprised of representatives from the United States, Eastern Municipal Water District, Fallbrook Public Utility District and Rancho California Water District. The purpose of the Steering Committee is to assist the Court, to facilitate litigation, and to assist the Watermaster.

2.2 Authority

Section II of the Order for the Appointment of a Watermaster requires that the Watermaster submit a written report containing his 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 others. Therefore, the Watermaster does not guarantee the completeness and accuracy of the information presented in this report. However, it is noted that most of the data presented are based on measurements by various organizations in the Watershed. Estimates by the Watermaster are so noted.

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 so that during Water Year 1993-94 the U.S.G.S. operated 12 stations and the Marine Corps Base at Camp Pendleton collected measurements from one additional station.

Monthly flows for these stations for Water Year 1993-94 are shown on Table 3.2. That table lists U.S.G.S. provisional estimates of discharges available at the time this report is published. Official U.S.G.S. estimates of discharges for 1993-94 will be published by the U.S.G.S. in its annual Water Resources Data report. Official U.S.G.S. estimates of discharge for 1991-92 changed significantly from the provisional estimates contained in the 1991-92 Annual Watermaster Report and the revised estimates were shown on Table 3.2 A in the 1992-93 Report. Table 3.2A has been further revised by deleting the zero flow for Pechanga Creek near Temecula which was incorrectly included in the 1992-93 Report.

Total flow for Water Years 1992-93 and 1993-94 at long-term stations, together with the average discharge for the station for the period of record through Water Year 1993, are listed below:

	TOTAL FLOW		AVERAGE FLOW
	1992-93 Acre Feet	1993-94 Acre Feet	Through 1993 Acre Feet
Temecula Creek Near Aguanga	40,593	5,931	5,870 (1957-93)
Murrieta Creek At Temecula	87,481	4,414	9,122 (1925-93)
Santa Margarita River Near Temecula	132,454	8,379	13,772 (1949-93) 20,390 (1923-48)
Santa Margarita River Near Ysidora	243,951	18,954	26,077 (1949-93) 31,390 (1923-48)

Comparisons of flows at stations with long records indicate that flows in 1993-94 were somewhat below normal. Annual discharge at the above long-term stations ranged from 48 to 101 percent of the long-term average flow.

TABLE 3.1

SANTA MARGARITA RIVER WATERSHED
STREAM GAGING STATIONS
1993-94

STATION NAME	STATION NO.	AREA SQ. MILES	RECORDED BY	PERIOD OF RECORD (1920–1990)
Temecula Creek Near Aguanga	11042400	131	USGS	8/57 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Wilson Creek Above Vail Lake	11042490	122	USGS	10/89 XXXXX
Temecula Creek At Vail Dam	11042520	320	USGS	2/23 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 10/77
Vail Lake at Temecula (Reservoir Storage)	11042510	320	USGS	10/60 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Pechanga Creek Near Temecula	11042631	13.8	USGS	10/87 XXXXXXX
Warm Springs Creek Near Murrieta	11042800	55.4	USGS	10/87 XXXXXXX
Santa Gertrudis Creek Near Temecula	11042900	90.1	USGS	10/87 XXXX XX
Murrieta Creek At Temecula	11043000	222	USGS	10/25 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Santa Margarita River Near Temecula	11044000	588	USGS	2/23 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Rainbow Creek Near Fallbrook	11044250	10.3	USGS	9/89 XXXXX
Sandia Creek Near Fallbrook	11044350	21.1	USGS	9/89 XXXXX
Santa Margarita River At FPUD Sump	11044300	620	USGS	10/24 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX 80 9/89 XXXXX
Santa Margarita River Tributary Near Fallbrook	11044600	0.52	USGS	10/61 XXXX 9/65
DeLuz Creek Near DeLuz	11044800	33	USGS/NRO	2/51 XXXXXXXXXXXXXXXXX 67 69 XXXXXXXXX 77 (68 77); 9/89 X XX
Santa Margarita River Near DeLuz Station	11045000	705	USGS	10/24 XX 9/26
Fallbrook Creek Near Lake O'Neill	NA	9.5	USGS/NRO	10/64 XXXXXXXXXXXX 9/76; 12/88 XXXXXX
Santa Margarita River At Ysidora	11046000	723	USGS	3/23 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
			WATER YEAR ENDING	1920 1930 1940 1950 1960 1970 1980 1990

TABLE 3.2

SANTA MARGARITA RIVER WATERSHED
MEASURED SURFACE WATER FLOW
1993-94
Quantities in Acre Feet

GAGING STATION	DRAINAGE AREA SQ. MILES	MONTH OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	1993-94 WATER YEAR TOTAL	ANNUAL AVERAGE THRU 1993	YEARS OF RECORD THRU 1993
Temecula Creek Near Aguanga	131	385	419	433	502	1,460	821	553	471	280	213	204	190	5,931	5,870	36
Wilson Creek Above Vail Lake	122	40	48	50	64	150	92	64	56	52	47	42	40	745	532	4
Pechanga Creek Near Temecula	13.8	0	0	0	0	47	12	2	0	0	0	0	0	61	1,040	6
Warm Springs Creek Near Murrieta	55.4	0	7	3	2	250	57	12	2	0	0	0	0	333	5,020	6
Santa Gertrudis Creek Near Temecula	90.1	7	7	0	1	405	217	249	11	0	0	0	0	897	3,710	6
Murrieta Creek At Temecula	222	11	105	93	177	2,600	821	341	73	8	8	72	105	4,414	9,122	69
Santa Margarita River Near Temecula	588	662	207	202	303	3,860	1,220	562	319	367	213	218	246	8,379	13,772 20,390	45 (1949-93) 26 (1923-48)
Rainbow Creek Near Fallbrook	10.3	23	41	45	59	447	209	166	65	23	11	19	14	1,122	4,480	4
Sandia Creek Near Fallbrook	21.1	140	169	180	204	704	424	359	303	134	56	25	28	2,726	10,000	4
Santa Margarita River At FPUD Sump	620	966	495	457	656	4,950	1,550	947	592	493	262	277	310	11,955	55,060	4
DeLuz Creek Near DeLuz	33	23	50	121	96	929	482	254	173	51	8	0	0	2,187	3,770 N/A	25 (1951-77) Except 1968 2 (1989-90) (1992-93)
Santa Margarita River At Ysidora	723	1,110	525	719	981	7,140	4,350	2,150	1,320	499	160	0	0	18,954	26,077 31,390	45 (1949-93) 26 (1923-48)
Fallbrook Creek Near Lake O'Neill	9.5	14	28	36	50	312	187	112	47	20	5	2	1	814	1,490 *	12 (1965-76) 5 (1989-93)

* Includes wastewater flows
N/A - Not Applicable

TABLE 3.2 A

SANTA MARGARITA RIVER WATERSHED
MEASURED SURFACE WATER FLOW
1991-92 (Revised)
Quantities in Acre Feet

GAGING STATION	DRAINAGE AREA SQ. MILES	MONTH OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	1991-92 WATER YEAR TOTAL	ANNUAL AVERAGE THRU 1991	YEARS OF RECORD THRU 1991
Temecula Creek Near Aguanga	131	20	41	136	327	1,260	727	371	160	66	33	116	12	3,269	4,930	34
Wilson Creek Above Vail Lake	122	0	0	0	1	6	0	0	0	0	0	0	0	7	N/A	2
Pechanga Creek Near Temecula	13.8	----------See Footnote 1 ----------												----	N/A	4
Warm Springs Creek Near Murrieta	55.4	0	---------- See Footnote 2 ----------								0	0	0	----	N/A	4
Santa Gertrudis Creek Near Temecula	92.8	----------See Footnote 1 ----------												----	N/A	4
Murrieta Creek At Temecula	222	151	5	225	980	6,080	3,690	42	328	92	103	137	141	11,974	7,900	67
Santa Margarita River Near Temecula	588	259	66	391	1,700	8,130	5,170	448	585	257	175	180	177	17,538	10,800 20,420	43 (1949-91) 25 (1924-48)
Rainbow Creek Near Fallbrook	10.3	22	19	60	111	335	518	141	57	35	26	30	26	1,380	N/A	2
Sandia Creek Near Fallbrook	21.4	74	80	181	325	1,070	1,280	650	485	240	183	148	77	4,793	N/A	2
Santa Margarita River At FPUD Sump	620	379	88	1,050	1,860	9,310	4,790	842	848	344	253	323	406	20,493	N/A	2
DeLuz Creek Near Fallbrook	47.5	----------See Footnote 3 ----------												----	3,915	25 (1951-77) Except 1968
Santa Margarita River At Ysidora	723	101	120	739	3,340	11,430	11,200	3,760	1,430	715	359	193	91	33,478	24,357	68
Fallbrook Creek Near Lake O'Neill	9.5	0	0	8	80	301	204	49	44	25	6	3	3	723	1,225 4/	12 (1965-76) 3 (1989-91)

* - Revision from information publisbed in 1993 report

1/ No continuous record; discharge measurements available in 1991-92

2/ Station out of operation due to channel lining from 11/5/91 to 6/10/92

3/ No continuous record was maintained in 1991-92

4/ Includes wastewater flows

N/A - Not Applicable

Average flows for the Santa Margarita River stations near Temecula and near Ysidora are shown for two periods: 1923 to 1948 before Vail Dam was constructed, and after 1948 when Vail Dam was constructed.

Monthly flows shown in Table 3.2 consist primarily of naturally occurring surface runoff except for flows downstream of Murrieta Creek. Flows at those stations include water discharged by Rancho California WD into Murrieta Creek just upstream from the gaging station. These discharges are pursuant to Section Eleventh of the 1940 Stipulated Judgment which requires maintenance of a flow of three cubic feet per second (cfs) at the Santa Margarita River near Temecula station between May 1 and October 31 of each year. Discharges at that station for the months of October, 1993 and May through September, 1994 are shown on the following tabulation:

	MONTHLY DISCHARGE		
	Acre Feet	No. Days	Average Daily cfs
October 1993	662	31	10.8
May 1994	319	31	5.2
June 1994	367	30	6.2
July 1994	213	31	3.5
August 1994	218	31	3.6
September 1994	246	30	4.1
TOTAL	2,025	184	5.6

Rancho California WD released 467 acre feet into Murrieta Creek in 1993-94 to maintain flows at the Temecula gaging station.

3.2 Surface Water Diversions

Surface diversions to surface water storage and groundwater storage during 1992-93 and 1993-94 are shown in Table 3.3. In past years diversions to surface storage at Vail Lake and Lake O'Neill have been computed to be equal to reservoir inflow. However, in 1992-93, both reservoirs spilled so diversions to surface storage were defined as being inflow less spill. In addition, 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 into Vail Lake during that period evaporates or is released. The present method of calculation and presentation shows the effects of reservoir spill and reflects more closely the provisions of Permit 7032 as determined by the SWRCB staff. Representatives of the United States do not agree with this method of calculation. Surface diversions to irrigation, estimated consumptive use, losses and returns for 1993-94 are shown in Table 3.4.

TABLE 3.3

SANTA MARGARITA RIVER WATERSHED
SURFACE WATER DIVERSIONS TO STORAGE
1993-94
Quantities in Acre Feet

Surface Water Storage

	Vail Lake		Lake O'Neill	
	1992-93	1993-94	1992-93	1993-94
Storage end of prior year	22,190	26,340	300	550
Inflow	53,931	8,594	6,309[1]	814[2]
Spill	13,409	0	4,183	0
Diversions to Surface Storage	40,429[3]	6,460[3]	2,126[4]	814[4]
Annual Evaporation	4,668	4,595	280	350
Release to GW Storage	31,704	8,469	300	0
Apparent Seepage to GW	0	0	1,296	344
Change of Storage	+ 4,150	- 4,470	+ 250	+ 120
Storage End of Year	26,340	21,870 (USGS)	550	670

Groundwater Storage

Recharge Release from Storage Facility	31,704	8,469	300	0
Direct Recharge	0	0	639	3,758

[1] 68 AF diverted from the Santa Margarita River, 6,241 AF inflow from Fallbrook Creek

[2] 0 AF diverted from the Santa Margarita River, 814 AF inflow from Fallbrook Creek

[3] Inflow less spill less Inflow (1 May to 31 Oct)

[4] Inflow less spill

TABLE 3.4

SANTA MARGARITA RIVER WATERSHED
SURFACE WATER DIVERSIONS TO IRRIGATION
1993-94
Quantities in Acre Feet

	Surface Diversions	Consumptive Use [1]	Losses [2]	Returns [3]
Prestininzi	18	13	2	3
Bluebird Ranch	27	18	3	6
Chambers	4	2.7	0.4	0.9
Cal June, Inc.	150	101	15	34
Cottle/Strange	338	228	34	76
Missionary Foundation	2	1.4	.2	.4
Agri-Empire, Inc.				
Chihuahua Creek	10 E	7	1	2
Kohler Canyon	34	23	3	8
Papac	38	26	4	8
Sage Ranch Nursery	117	79	12	26
Borel	43	29	4	10
Margarita Land and Development Co.	54	37	5	12
TOTAL	835	565.1	83.6	186.3

[1] Consumptive use equals 75% of Diversions less Losses

[2] Losses equal 10% of Diversions

[3] Returns equal 25% of Diversions less Losses

E - Estimate

3.3 Water Storage

Major water storage facilities in the Santa Margarita River Watershed are listed on Table 3.5, together with the water in storage on September 30, 1993 and September 30, 1994. Total Santa Margarita River stream system water in storage at the end of Water Year 1993-94 totaled 22,542 acre feet, compared to 26,900 acre feet at the end of the previous year. Imported water in storage in Lake Skinner operated by Metropolitan Water District of Southern California (MWD) is also shown on Table 3.5. Imported water is not under Court jurisdiction.

TABLE 3.5

SANTA MARGARITA RIVER WATERSHED
WATER IN STORAGE
1993-94
Quantities in Acre Feet

Santa Margarita River Storage	Total Capacity	Water in Storage 9/30/93	Water in Storage 9/30/94
Dunn Ranch Dam	90	0	0
Chihuahua Creek Reservoirs			
Upper	± 47	10	2 E
Middle	N/A	Destroyed	Destroyed
Lower	N/A	Destroyed	Destroyed
Vail Lake	49,370	26,340	21,870
Lake O'Neill	1,200	550	670
Subtotal	50,707	26,900	22,542
Imported Water Storage			
Lake Skinner	44,000	40,118*	40,931
TOTAL STORAGE	94,707	67,018*	63,473

E - Estimated

* - Revised

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 generally has identified two basic types of subsurface water in its interlocutory judgments. One type is vagrant, local, percolating waters which 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. Wells tapping these deposits typically have low yields. When such wells are widely spaced there may be sufficient water for domestic uses.

Other subsurface waters were found by the Court to add to, contribute to and support 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 located along streams. Older alluvium is found underneath younger alluvium and on either side of the younger alluvium and is not limited to areas along stream channels. The use of such subsurface water is under the continuing jurisdiction of the Court and is reported in this report.

4.2 Extractions

Production 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. 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 1993-94 production by purveyors totaled 38,606 acre feet, compared to 36,480 acre feet in 1992-93. Monthly quantities are shown in Appendix A and annual production for water years between 1966 and 1994 is shown in Appendix B.

Subsurface extractions by private irrigators are based on the irrigated acreage and reported in Appendix C. These groundwater extractions were 7,814 acre feet in 1993-94. Of the subsurface extractions, 75 percent is estimated to have been consumed and 25 percent to have been return flow. Surface diversions are treated similarly in Table 4.1 except that 10 percent is estimated to have been lost during delivery of the water. Return flow is that portion of the total deliveries which is not consumed.

TABLE 4.1

SANTA MARGARITA RIVER WATERSHED
SANTA MARGARITA RIVER WATER PRODUCTION BY SUBSTANTIAL USERS
Quantities in Acre Feet
1993-94

HYDROLOGIC AREA	WATER PURVEYOR PRODUCTION ACRE FEET	OTHER IRRIGATED ACRES	IRRIGATION PRODUCTION ACRE FEET	TOTAL GROUNDWATER PRODUCTION ACRE FEET	SURFACE WATER DIVERSIONS ACRE FEET	TOTAL PRODUCTION ACRE FEET	ESTIMATED CONSUMPTIVE USE ACRE FEET 1/	ESTIMATED RETURN FLOW ACRE FEET
1. Wilson Creek Above Aguanga GWA Includes Anza Valley	315 (Anza MWC, Lk Rvside) (Cahuilla)	1,931 2/	2,825	3,140	0	3,140	2,355	785
2. Temecula Creek Above Aguanga GWA	10 (Butterfield Oaks MHP)	753	1,263	1,273	82	1,355	1,010	345
3. Aguanga GWA	38 (Thousand Trails)	490	1,037	1,075	340	1,415	1,036	379
4. Upper Murrieta Creek	0	0	0	0	0	0	0	0
5. Lower Murrieta Creek	0	474	42	42	160	202	140	62
6. Temecula-Murrieta GWA	33,539 ✓ (RCWD,MCWD,EMWD) (Pechanga)	1,271	2,120	35,659	0	35,659	26,744	8,915
7. Santa Margarita River Below Gorge								
DeLuz Creek	83 (FPUD)	193	399	482	49	531	395	136
Sandia Creek	0	126	80	80	150	230	161	69
Rainbow Creek	0	0	0	0	0	0	0	0
Santa Margarita River	4,621 (USMC)	20	48	4,669	54	4,723	863	2,659
TOTAL	38,606	5,258	7,814	46,420	835	47,254	32,703	13,350

1/ Estimated consumptive use is equal to 75% of groundwater production plus 75% of surface diversions less 10% except for Camp Pendleton where net export of 1,201 acre feet is excluded and return flows include measured wastewater returns

2/ Includes lands overlying deep aquifer in Anza Valley

The foregoing percentages were applied to all users except Camp Pendleton, where consumptive use was estimated to have been 75 percent of the portion of production which is not exported or recharged as wastewater. In addition, five percent of the wastewater was estimated to have been lost as consumptive use during recharge.

4.3 Subsurface Storage

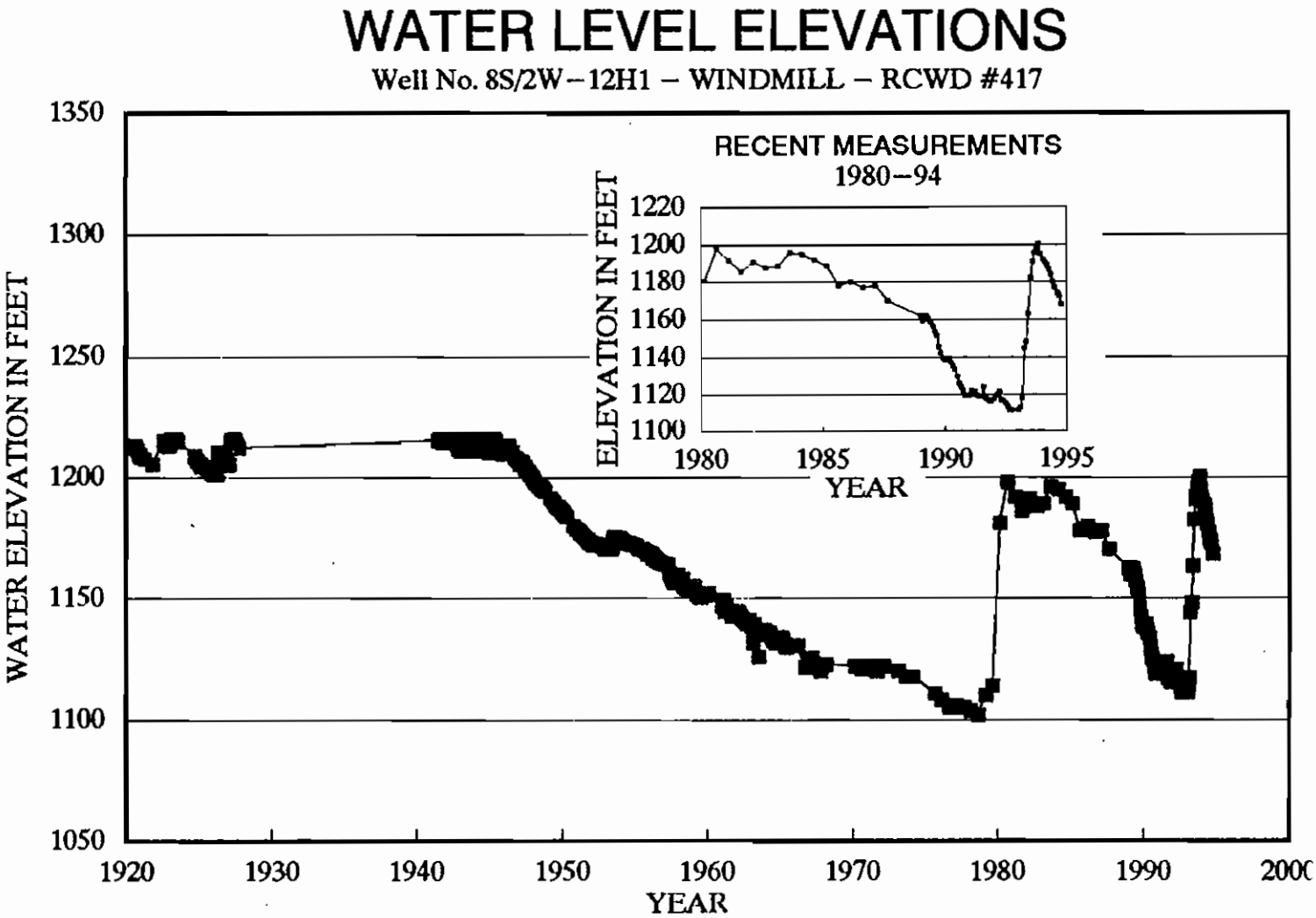
The quantities of water in storage in the various subsurface sources in the watershed have not yet been computed. However water levels in wells throughout the watershed have been collected.

Historic water levels in four wells at various locations in the Watershed are shown on Figures 4.1, 4.2, 4.3 and 4.4. 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 dry years after 1980 and in 1994. The water level in the well at the end of 1993 was 1,198.1 feet, following a major wet year. During Water Year 1994 water levels fell 29.9 feet to 1,168.2 feet. The fluctuation of water levels in this well illustrate how groundwater storage is depleted during dry years and replenished during wet years.

Figure 4.2 shows water levels at Well No. 10S/4W-7J1 at Camp Pendleton, a monitoring well located in the Upper Sub-basin. Water levels between 1950 and 1994 show no long-term trends. Fluctuations in recent years illustrate recharge during the winter months and drawdown each summer, with the water levels generally between 82 and 88 feet in elevation as shown in the inset to Figure 4.2. Water levels in Well 7J1 dropped 1.3 feet between the fall of 1993 and the fall of 1994.

Figure 4.3 shows water levels from production Well No. 7S/3W-20C9 (Holiday Well) in the Murrieta County Water District Service Area. Water levels in this well were up 8.0 feet from the fall of 1993. The Lynch Well, which had no production in 1993-94 and serves as a monitoring well, showed a decrease of 1.6 feet in 1994.

Figure 4.4 shows water levels for Well No. 7S/3E-21G1, Anza Mutual Water Company's Well No. 1 located in the Anza Valley. Water levels in this well were down 12 feet this year. Recent measurements highlighted in the inset to Figure 4.4 show annual 50 foot fluctuations in groundwater levels at this production well, in response to the operation of nearby irrigation wells.

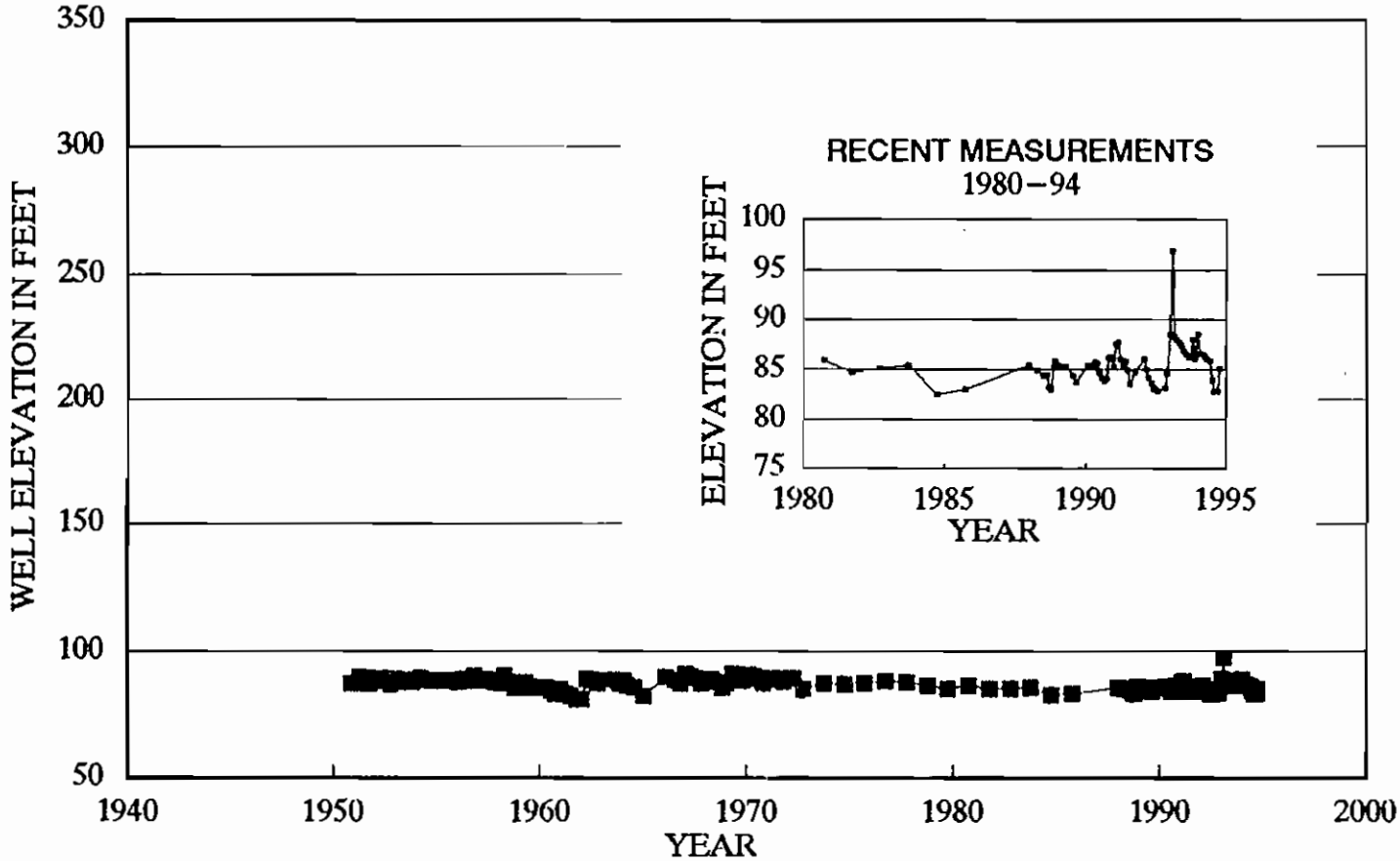


Ground El. 1216 Ft. Depth 515 Ft. Drilled in Alluvium Ref: DWR Bul 91–20 (1920–67)
RCWD Master Plan (1970–83); LH Rpt (1983–87); RCWD Reports (1989–94)

FIGURE 4.2

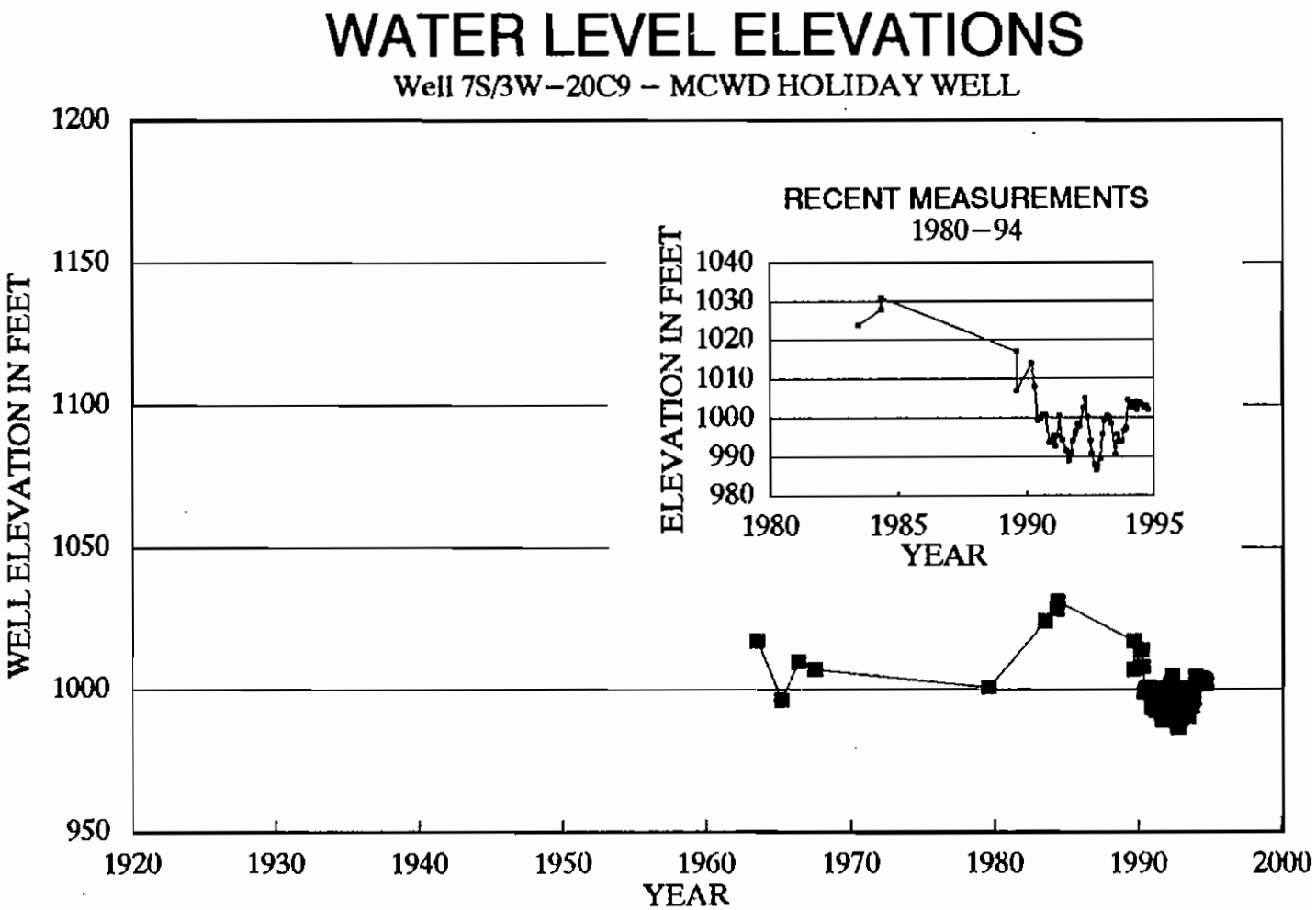
WATER LEVEL ELEVATIONS

Well No. 10S/04W–7J1 – CAMP PENDLETON



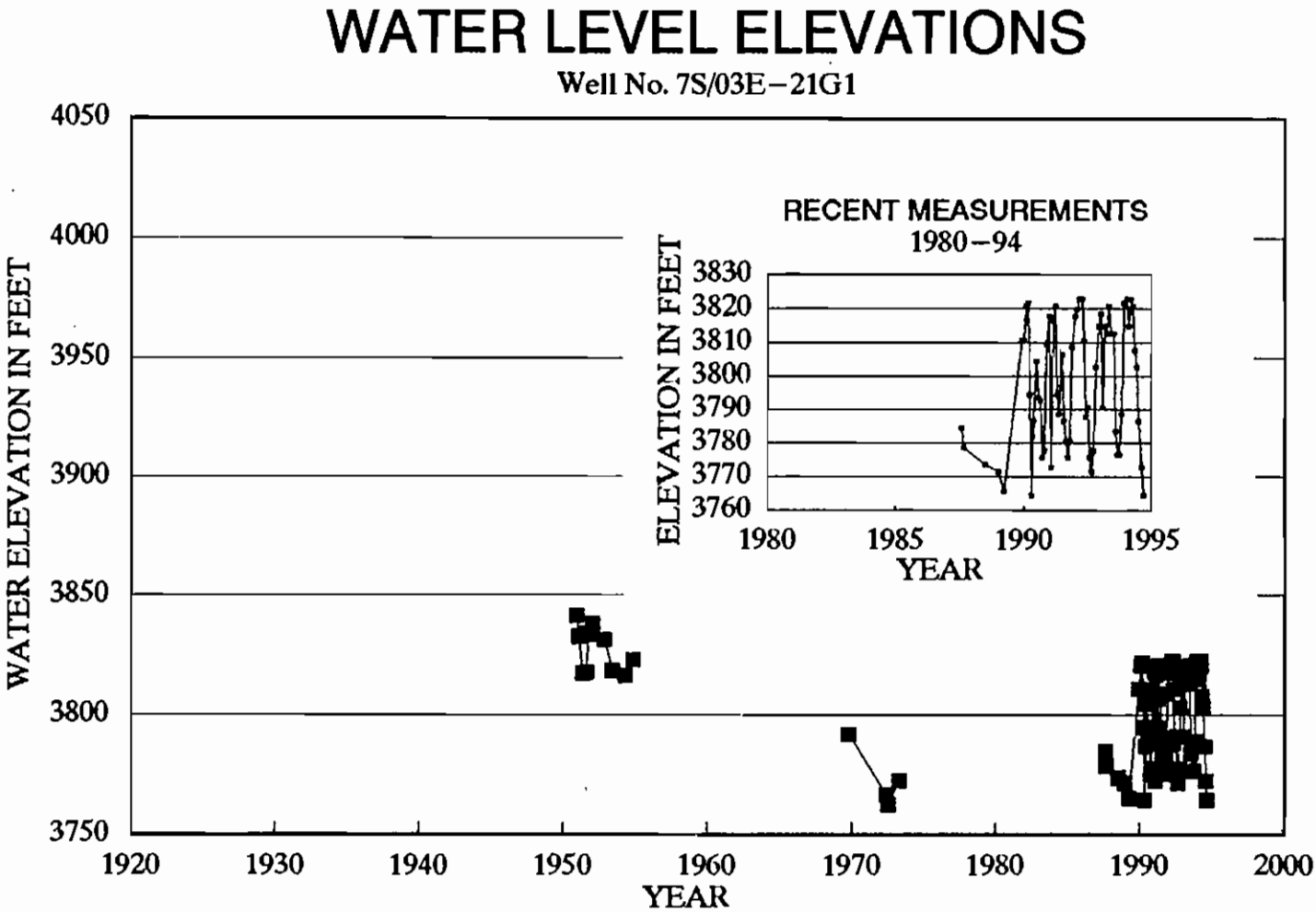
Ground El. 93 Ft Depth 138.8 Ft Perf Unknown Drilled in Alluvium
Camp Pendleton Records (1950–1972)(1988–1994) LH Study (1973–85) dates estimated

FIGURE 4.3



Ground El. 1090 Ft. Depth 307 Ft. Perf. 60 - 307 Ft.
Murrieta County Water District Records

FIGURE 4.4



Ground El. 3863 Ft Depth 260 Ft Perf 20 – 260 Ft Drilled in Old Alluvium
Anza Mutual Water Co. Well No. 1 (1987–1994) DWR Bulletin 91–22 (1950–73) dated 8/74

Changes in water levels in the above noted wells between the end of the previous water year and the end of the 1994 water year are shown below:

Well	Water Elevation 1993 Feet	Water Elevation 1994 Feet	Change in Water Level Feet
8S/2W-12H1	1198.1	1168.2	Down 29.9
10S/4W-7J1	86.4	85.1	Down 1.3
7S/3W-20C9	994.0	1002.0	Up 8.0
7S/3E-21G1	3776.6	3764.6	Down 12.0

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 by MWD for sale 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 in the major reservoirs in each system are shown on Table 5.1. It may be seen that during Water Year 1993-94 water in storage in the SWP decreased from 4.2 million acre feet on September 30, 1993, to 2.6 million acre feet on September 30, 1994. Storage on September 30, 1994, corresponds to about 50 percent of the total SWP storage capacity.

Similarly, water in storage in the Colorado River system decreased from 48.0 million acre feet on September 30, 1993, to 44.6 million acre feet on September 30, 1994. On September 30, 1994, those reservoirs contained 69 percent of their total capacity.

Projections of water availability on the SWP for the coming year (1995) are prepared by the State Department of Water Resources on a monthly basis from February through May. The February 1, 1995 report indicates that precipitation to date is 170 percent of average, and the SWP has approved 100 percent of current entitlement demand in 1995.

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. Marine Corps, Camp Pendleton
Western Municipal Water District

In addition to MWD imports, 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 pumps water from wells outside the Santa Margarita River Watershed but delivers water to a portion of its service area which is inside the Santa Margarita River Watershed.

TABLE 5.1

SANTA MARGARITA RIVER WATERSHED
STORAGE IN STATE WATER PROJECT AND COLORADO RIVER RESERVOIRS
Thousands of Acre Feet

STATE WATER PROJECT RESERVOIRS

	Total Capacity	Water in Storage 9/30/90	9/30/91	9/30/92	9/30/93	9/30/94
Oroville	3,540	1,163	1,399	1,317	2,666	1,683
San Luis (State Share)	1,060	100	385	381	944	394
Pyramid	171	163	164	159	156	160
Castaic	324	268	296	257	263	237
Silverwood	73	67	68	68	68	68
Perris	132	116	120	117	120	110
Total	5,300	1,877	2,432	2,299	4,217	2,652
Percent of Capacity		35%	46%	43%	80%	50%

MAJOR COLORADO RIVER RESERVOIRS

	Total Capacity	Water in Storage 9/30/90	9/30/91	9/30/92	9/30/93	9/30/94
Flaming Gorge	3,789	3,082	3,391	3,106	3,471	2,887
Blue Mesa	941	618	700	604	720	615
Navajo	1,709	1,361	1,586	1,579	1,625	1,400
Powell	27,000	16,252	14,699	14,085	18,825	17,772
Mead	28,537	20,144	19,233	19,416	21,379	19,930
Mohave	1,818	1,488	1,571	1,623	1,375	1,467
Havasu	648	562	556	548	579	571
Total	64,442	43,507	41,736	40,961	47,974	44,642
Percent of Capacity		68%	65%	64%	74%	69%

* Question: Does EMWD reclaimed Wastewater on Table A = 6860.8 for 1994-95?

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 which is used in the San Luis Rey River Watershed to the south or in the Las Flores Creek Watershed to the north. Some of the water exported at Camp Pendleton is returned to the Watershed as wastewater. Wastewater from the Fallbrook area and the Naval Weapons Station located on Camp Pendleton is exported by the Fallbrook Sanitary District and wastewater in the Elsinore Valley MWD is exported by that district.

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. A total of ~~634~~ 4707 acre feet of treated wastewater was exported by Eastern MWD in ~~1993-94~~ 1994-95? This corresponds to 68.6% of the reclaimed water produced in 1994-95.

No water from Well No. 7S/3E-23D in Anza Valley was exported in 1993-94.

The following paragraphs of this report describe imports during Water Year 1993-94 and during the 1966-1994 period. There is also discussion of MWD's existing Lake Skinner operations as well as proposed operations in Domenigoni Valley.

5.2 Water Year 1993-94

Water quantities imported into and exported from the Santa Margarita River Watershed for months during Water Year 1993-94 are listed on Table 5.2.

5.3 Water Years 1966-1994

Water quantities imported by districts into the Santa Margarita River Watershed during Water Years 1966-1994 are shown on Table 5.3. 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.

Exports over the 1966-1994 period are also shown on Table 5.3. These include estimated water exports on Camp Pendleton less estimated wastewater returns, as well as an estimate of exports by

TABLE 5.2

SANTA MARGARITA RIVER WATERSHED
IMPORTS/EXPORTS
1993-94
Quantities in Acre Feet

	IMPORTS								EXPORTS							
		ELSINORE			RANCHO	U.S.			CAMP PENDLETON			U.S.	ELSINORE			
YEAR	EASTERN	VALLEY	FALLBROOK	RAINBOW	CAL	NAVAL	WESTERN	TOTAL		WASTEWATER	NET	NAVAL	EASTERN	VALLEY	FALLBROOK	TOTAL
MONTH	MWD	MWD	PUD	MWD	WD	WS	MWD 1/	IMPORTS	EXPORTS	RETURNS	EXPORT	WS	MWD	MWD	SD *	EXPORTS
1993																
OCT	498	107	743	189	1,752	8	3	3,300	278	136	142	0.3	21	13	88	264
NOV	619	441	519	138	825	6	2	2,550	190	138	52	0.4	0	15	84	151
DEC	4	62	482	101	593	3	2	1,247	177	123	54	0.3	0	13	87	154
1994																
JAN	659	331	513	92	608	4	2	2,209	190	124	66	0.4	0	16	85	168
FEB	141	45	122	107	0	2	1	418	129	143	(14)	0.6	0	13	78	78
MAR	612	236	254	48	321	3	2	1,476	138	149	(11)	0.5	0	14	100	103
APR	334	44	381	102	636	3	2	1,502	228	115	113	0.5	304	14	92	523
MAY	747	352	426	89	79	4	2	1,699	198	121	77	0.4	100	15	88	281
JUNE	1,041	87	689	97	2,428	9	4	4,355	181	110	71	0.5	29	14	92	207
JULY	1,264	719	983	207	3,079	7	6	6,265	282	114	168	0.4	71	14	97	350
AUG	644	128	1,136	197	3,557	10	6	5,678	408	118	290	0.5	24	15	100	429
SEPT	587	669	1,002	284	2,508	14	4	5,068	303	110	193	0.6	85	14	78	371
TOTAL	7,150	3,221	7,250	1,651	16,386	73	37	35,768	2,702	1,501	1,201	5	634	170	1,068	3,078

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

* Estimated

TABLE 5.3

SANTA MARGARITA RIVER WATERSHED
IMPORTS/EXPORTS
1966-1994
Quantities in Acre Feet

	IMPORTS								EXPORTS							
		ELSINORE			RANCHO	U.S.			CAMP PENDLETON			U.S.	ELSINORE			
YEAR	EASTERN	VALLEY	FALLBROOK	RAINBOW	CAL	NAVAL	WESTERN	TOTAL		WASTEWATER	NET	NAVAL	EASTERN	VALLEY	FALLBROOK	TOTAL
MONTH	MWD	MWD	PUD 1/	MWD	WD	WS	MWD 2/	IMPORTS	EXPORTS	RETURNS	EXPORT	WS	MWD	MWD	SD	EXPORTS
1966	1,604	N/R	3,351	1,308	0	0	24	6,287	3,299	974	2,325	0	0	0	0	2,325
1967	1,630	N/R	2,852	1,095	0	0	20	5,597	3,231	1,243	1,988	0	0	0	0	1,988
1968	1,464	N/R	3,423	1,377	0	0	27	6,291	3,427	1,214	2,213	0	0	0	0	2,213
1969	1,741	N/R	2,837	1,253	0	115 E	25	5,971	3,414	1,170	2,244	0	0	0	0	2,244
1970	1,417	N/R	3,538	1,689	0	115 E	31	6,790	3,894	1,113	2,781	0	0	0	0	2,781
1971	1,383	N/R	3,405	1,650	0	115 E	34	6,587	3,549	1,090	2,459	0	0	0	0	2,459
1972	1,470	N/R	3,916	2,037	0	115 E	34	7,572	3,543	1,168	2,375	0	0	0	0	2,375
1973	1,533	N/R	3,210	1,616	0	115 E	30	6,504	3,544	1,187	2,357	0	0	0	0	2,357
1974	1,601	N/R	3,967	2,049	0	115 E	36	7,768	3,532	1,140	2,392	0	0	0	0	2,392
1975	1,969	N/R	3,597	1,247	0	115 E	34	6,962	3,098	1,530	1,568	0	0	0	0	1,568
1976	2,493	N/R	4,627	2,239	119	115 E	35	9,628	3,619	1,497	2,122	0	0	0	0	2,122
1977	2,947	N/R	5,212	2,343	1,845	115 E	24	12,486	3,194	1,416	1,778	0	0	0	0	1,778
1978	2,551	569	5,202	2,188	5,774	115 E	26	16,425	3,071	1,283	1,788	0	0	0	0	1,788
1979	1,894	712	5,723	2,348	7,009	115 E	24	17,824	4,756	1,427	3,329	0	0	0	0	3,329
1980	1,192	696	6,404	2,489	10,126	115 E	25	21,047	3,651	1,405	2,246	0	0	0	0	2,246
1981	716	798	8,543	3,153	15,282	115 E	34	28,642	3,892	1,249	2,643	0	0	0	0	2,643
1982	1,112	678	7,079	2,460	13,378	115 E	34	24,856	3,761	1,273	2,488	0	0	0	0	2,488
1983	1,211	658	6,720	2,190	5,752	115 E	26	16,672	3,000	1,242	1,758	26 E	0	0	1,003	2,787
1984	699	816	8,506	3,068	6,716	115 E	26	19,946	3,243	1,120	2,123	26 E	0	0	1,032	3,181
1985	679	808	7,831	3,410	7,158	102	27	20,015	3,377	1,200	2,177	26 E	0	0	1,060	3,263
1986	760	882	8,585	2,945	11,174	94	34	24,474	3,326	981	2,345	16 P	0	0	1,096	3,457
1987	1,155	938	8,656	3,390	7,564	116	36	21,855	3,444	1,799	1,645	26	0	4	1,129	2,805
1988	2,047	1,032	8,033	2,985	17,854	120	36	32,108	3,457	1,872	1,585	26	0	55	1,154	2,820
1989	3,746	1,341	9,067	3,003	22,895	128	24	40,204	3,418	1,446	1,972	23	0	74	1,181	3,250
1990	5,601	2,255	10,103	3,818	22,030	145	22	43,974	2,971	1,451	1,520	27	0	114	1,271	2,932
1991	9,479	2,421	7,962	2,904	21,238	109	20	44,133	2,168	1,219	949	13	0	134	960	2,056
1992	8,593	2,190	7,893	2,276	16,931	99	25	38,007	2,426	1,548	878	7	0	140	1,083	2,108
1993	5,393	1,914	6,925 *	1,965	11,411	117	30	27,755 *	2,329	1,926	403	16	1,072	150	1,255	2,896
1994	7,150	3,221	7,250	1,651	16,386	73	37	35,768	2,702	1,501	1,201	5	634	170	1,068	3,078

1/ Includes DeLuz Heights MWD prior to 1991
2/ Improvement District A - Rainbow Canyon Only (WR-13)

N/R - Not Reported
* Revised data

E - Estimate
P - Partial year data

the Fallbrook Sanitary District and the Naval Weapons Station after 1983, and Elsinore Valley MWD after 1986. Exports by Eastern MWD were initiated in 1992-93. Exports do not include water which naturally flows from the Santa Margarita River into the Pacific Ocean.

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.

It was recognized that the construction and operation of Lake Skinner would affect surface and subsurface flows on Tucalota Creek, so a Memorandum of Understanding and Agreement on Operation of Lake Skinner (MOU), dated November 12, 1974, was approved by the Court on January 16, 1975.

The MOU 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 which requires that MWD release water from Lake Skinner into Tucalota Creek if groundwater levels in Well AV-28 fall below a depth of 22.76 feet. During 1990-91, MWD replaced Well AV-28 with Well AV-28B which is located 40.72 feet west and 8.72 feet south of Well AV-28. The minimum groundwater level to be maintained is an elevation of 1,356.64 feet which is equivalent to the previous water level which was expressed in terms of the depth to water from a datum.

During 1993-94, water levels in Well AV-28B reached a low of 1,361.3 feet in September 1994. No water was released in 1993-94 to maintain groundwater levels.

The MOU also provides that all local surface inflow which 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 which is specified in the MOU. 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 flows 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 determine when to apply the hydrologic equation.

Since 1986, an unmeasured bypass pipeline has been used with increasing frequency in the MWD operations. Use of this pipeline reduces the accuracy of the calculated flows using the hydrologic equation. The current procedures for estimating local inflow into Lake Skinner are under review.

During 1993-94, local runoff into and releases from Lake Skinner totaled 1,010.6 acre feet. Monthly releases were as follows:

Month	Release Acre Feet
November 1993	26.1
December 1993	38.0
January 1994	28.6
February	417.2
March	296.5
April	197.1
May	11.9
June	.2
TOTAL	1,010.6

In addition to releases of water mandated by the MOU, MWD also makes releases of water for maintenance or operational purposes from time to time. In November 1993, MWD discharged 1.6 acre feet into Tucalota Creek from Pipeline No. 3. In January 1994, 17 acre feet were discharged into Tucalota Creek as part of a treatment plant shutdown.

5.5 Domenigoni Valley Reservoir Project

In 1992 MWD announced that it was proceeding with design and construction of a major new 800,000 acre foot storage facility in Domenigoni Valley which is located within the Santa Margarita River Watershed. The Court has retained jurisdiction over all surface flows in Domenigoni Valley as well as groundwater flows when groundwater elevations are higher than 1,400 feet in Township 6 South, Range 2 West, Section 9. When elevations are lower than 1,400 feet the groundwater is considered to flow into the Santa Ana Watershed located to the north of the Santa Margarita River Watershed.

The proposed storage facility would consist of three dams, one each at the east and west ends of the Valley and a saddle dam at the low point on the north rim. The east dam would divert surface and groundwater flows into the Santa Ana River Watershed from a 4.2 square mile drainage area known as Goodhart Canyon in the Santa Margarita River Watershed. The west dam effectively would intercept westward surface and groundwater flows from an additional 13.19 square mile area.

During 1993-94, MWD continued development of an MOU for the Domenigoni Valley Reservoir Project. A draft of the MOU was distributed to the Steering Committee in June 1994 and comments were provided to MWD in August 1994. Discussions continued for the rest of the water year.

SECTION 6 - WATER RIGHTS

6.1 General

Water is used in the Santa Margarita River Watershed under a variety of water rights.

In the early 1960's, the U. S. District Court in its Interlocutory Judgments described water rights in the Watershed 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 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 which 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 groundwaters 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 Ground Water 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. However, 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 now not exercising their overlying rights. Instead, Rancho California WD pumps groundwater and uses it throughout the District area under an appropriative groundwater right, with the consent of most of the overlying landowners.

A number of other water purveyors, including Murrieta CWD and Eastern MWD, also pump under groundwater appropriative rights.

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 which 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 Ground Water area. Thus a portion of the import supply delivered to the Rancho Division of Rancho California WD percolates into the underlying aquifers. The first water pumped by Rancho California WD in the ensuing year constitutes recapture of such return flows.

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 Ground Water area. Thus there is less imported water return flow from the Santa Rosa Division.

Classification of Rancho California WD supplies into various water right categories is discussed in Section 7 of this Report.

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 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 construction of the project, sets terms for the 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.

Total direct diversion rights and active 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
Cutea 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	25,820	40,000
Sandia Canyon	---	8
Sourdough Spring	55	---
Santa Margarita River	133	4,000
Nelson Creek	1,550	---
TOTAL	906,892	44,313.5

These direct diversion rights of 906,892 gallons per day correspond to 1.4 cfs or 2.78 acre feet per day.

TABLE 6.1

SANTA MARGARITA RIVER WATERSHED
APPROPRIATIVE WATER RIGHTS

PERMITS AND LICENSES

I.D. No.	Owner	Filing Date	Source Of Water	Point Of Diversion	Amount	Use	Status
6629	William H. & Sandra J. Cyrus	4/9/30	Coahuila Valley	Sec. 4, 7S, 3E	DD-720 gpd	D	License
6893	Earl C. & Mamie LaBine	2/13/31	Temecula Creek	Sec. 20, 9S, 2E	DD-820 gpd	D/I	License
7035	Nyla Lawler	8/10/31	Cutca Creek	Sec. 29, 9S, 1E	DD-5725 gpd	D/I	License
7731	Earl C. & Mamie LaBine	11/02/33	Temecula Creek	Sec. 20, 9S, 2E	DD-7200 gpd	D/I	License
9137	Goodarz Irani	10/07/37	Temecula Creek	Sec. 12, 9S, 1E	DD-400 gpd	D	License
9291	Luis Olivos	5/13/38	Nelson Creek	Sec. 23, 8S, 5W	DD-1550 gpd	D	License
10806	James R., Phyllis & Bruce Granner	4/22/44	Temecula Creek	Sec. 34, 9S, 2E	DD-2880 gpd	D	License
11161	Roy C. Pursche & J. Zink	9/26/45	Rattlesnake Canyon	Sec. 28, 9S, 2E	DD-12,000 gpd	D/I	License
11518	Rancho California Water District	8/16/46	Temecula Creek	Sec. 10, 8S, 1W	ST-40,000 AF	D/I/R	Permit
11587	U. S. Bureau of Reclamation	10/11/46	Santa Margarita River	Sec. 12, 9S, 4W	ST-10,000 AF	D/I/M	Permit
12178	U. S. Bureau of Reclamation	11/28/47	Santa Margarita River	Sec. 12, 9S, 4W	ST-10,000 AF	D/I/M	Permit
12179	U. S. Bureau of Reclamation	11/28/47	Santa Margarita River	Sec. 12, 9S, 4W	ST-10,000 AF	D/I/M	Permit
13505	David H. & Kathleen C. Lypps	12/12/49	Cottonwood Creek	Sec. 30, 8S, 4W	DD-0.75 cfs & ST-42 AF	R/S	License
17239	Ward Family Trust	8/15/56	Temecula Creek	Sec. 20, 9S, 2E	DD-120 gpd	D/E	License
20507	David H. & Kathleen C. Lypps	11/24/61	Cottonwood Creek	Sec. 19, 8S, 4W Sec. 30, 8S, 4W	ST-18 AF	I/R	License
20608	Richard F. & Rosabel L. Matthews	2/13/62	DeLuz Creek	Sec. 20, 8S, 4W	ST-100 AF	D/I/R	License
20742	U. S. Cleveland National Forest	4/24/62	Sourdough Spring	Sec. 25, 9S, 1E	DD-55 gpd	E	License
21074	U. S. Cleveland National Forest	12/07/62	Cutca Spring	Sec. 17, 9S, 1E	DD-100 gpd	S/W	License
21471A	U. S. Department of Navy	9/23/63	Santa Margarita River	Sec. 5, 10S, 4W Sec. 2, 11S, 5W	ST-4,000 AF	D/I/M/Z	License
21471B	U. S. Bureau of Reclamation	9/23/63	Santa Margarita River	Sec. 32, 9S, 4W	ST-165,000 AF	D/I/M/Z	Permit
27756	James R. Granner	5/23/83	Temecula Creek	Sec. 3, 10S, 2E	DD-14,400 gpd	I/S	Permit
28133	Charles F. Ruggles	5/14/84	Cahuilla Creek	Sec. 15, 8S, 2E	ST-5AF	E/H/I/R/S	Permit

OTHER RIGHTS

05751S/Federal	U. S. Cleveland National Forest	1/01/70	Long Canyon Spring	Sec. 16, 9S, 1E	DD-89 gpd	E/R/S/W
000024/State	Judge Dial Perkins	12/26/86	Santa Margarita River	Sec. 12, 9S, 4W	DD-133.3 gpd	D
000751/State	Lawrence Butler	5/31/67	Fern Creek	Sec. 31, 8S, 4W	DD-0.33 cfs ST-100 AF	I
011411/State	Agri Empire, Inc.	5/16/84	Kohler Canyon	Sec. 33, 9S, 2E	DD-0.245 cfs ST-40 AF	I/S
012235/State	William A. & Lois D. Cunningham	8/27/85	DeLuz Creek	Sec. 4, 9S, 4W	DD-4700 gpd	D/I
001583/Stock	George F. Yackey	12/27/77	Sandia Canyon	Sec. 25, 8S, 4W	ST-8.0 AF	S
002380/Stock	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; ST - Diversion to Storage; D - Domestic; I - Irrigation; R - Recreation; M - Municipal; E - Fire Protection; S - Stockwatering; H - Fish Culture; Z - Other

In addition to the active storage rights shown in the previous tabulation, the SWRCB also lists 195,000 acre feet in storage rights on the Santa Margarita River held by the U. S. Bureau of Reclamation for the Santa Margarita Project.

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 individuals. Three of these statements represent riparian or pre-1914 appropriative diversions from DeLuz Creek, Fern Creek and Santa Margarita River which 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 nonstatutory appropriative rights which 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.

In 1990-91, in Order No. 91-07, the SWRCB revised its Order No. 89-25 entitled, "Order Adopting Declaration of Fully Appropriated Stream Systems and Specifying Conditions for Acceptance of Applications and Registrations." These Orders list the Santa Margarita River stream system as fully appropriated "from the confluence of the Santa Margarita River and the Pacific Ocean upstream including all tributaries where hydraulic continuity exists."

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.

TABLE 6.2

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

LISTED OWNER	CURRENT OWNER	DATE OF APPROPRIATION	SOURCE OF WATER	POINT OF DIVERSION	AMOUNT
Anderson, Nina B.	Nezami, Mohammed	April 11, 1892	Fern Creek	NW 1/4 Of SE 1/4 Sec 31, T8S, R4W	32 gpm
Butler, Lawrence W. and Mary C.	Butler Family Trust of 1985 Fuller, Daniel W.	Sept. 23, 1896	Fern Creek	NW 1/4 Of SE 1/4 Sec 31, T8S, R4W	Capacity of 8 inch pipe
Wilson, Samuel M. and Hazel A.	Kim, Andrew C. Young, Un C. Crider, Margery, et al	Aug. 3, 1911	DeLuz Creek	NW 1/4 Of SW 1/4 Sec 32, T8S, R4W	50 miner's inches 65 AF/Yr
United States	United States	1883	Santa Margarita River	Sec 5, T10S, R4W	20 cfs 1200 AF/Yr

2. Initiation of a water right pursuant to the Water Rights Permitting Reform Act of 1988 (Water code Section 1228 et seq.)--that is, by registering small use domestic appropriations--is precluded, except where the proposed appropriation is consistent with conditions contained in the Declaration.

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.

SECTION 7 - WATER PRODUCTION AND USE

7.1 General

Among other things the Court requires an annual report on the use of water by each substantial user within the Santa Margarita River Watershed. Substantial water users are those who irrigate eight or more acres or who produce or use an equivalent quantity of water.

Water production and use data were obtained from several types of substantial users including water purveyors, Indian Reservations, mobile home parks and individual irrigation users.

Major water purveyors who reported production and use data in 1993-94 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
Murrieta County Water District
Rainbow Municipal Water District
Rancho California Water District
U. S. Marine Corps, Camp Pendleton including U.S. Naval Weapons Station, Fallbrook Annex
Western Municipal Water District

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

In addition to the major purveyors, there are a number of smaller water systems in the Watershed. Of these, Butterfield Oaks Mobile Home Park, and Thousand Trails Resorts are substantial users.

There are three Indian Reservations in the Watershed, however estimates of water use are prepared for only the Cahuilla and Pechanga Indian Reservations. The Ramona Reservation has no reported resident population or water use.

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

The water use data collected for the 1993-94 Water Year are summarized on Table 7.1. 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 what constitutes agricultural, commercial and domestic use varies for the different purveyors in the Watershed. Accordingly definitions of these uses for major water purveyors are shown on Table 7.2. It is noted also that much of the non-agricultural water use in the Watershed can also be considered municipal use, which includes both the domestic and commercial uses shown in tables in this report. Similar data for Water Years 1966-1994 are summarized in tables presented in Appendix B. Appendix C presents information on substantial users outside of purveyor service areas.

The status of data availability from each of the water users is summarized in the following sections.

7.2 Water Purveyors

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 which is perforated in the bottom 130 feet. Production for 1993-94 was 17 acre feet from Well No. 1 and 20 acre feet from Well No. 2 for a total production of 37 acre feet. The depth of water in Well No. 1 ranged from 40 feet to 98 feet.

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, SBBM. 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.

TABLE 7.1

SANTA MARGARITA RIVER WATERSHED
WATER PRODUCTION AND USE
Quantities in Acre Feet
1993-94

	PRODUCTION			USE					
	LOCAL	IMPORT	TOTAL	AG	COMM	DOM	LOSS	TOTAL	WATER RIGHT
WATER PURVEYORS									
Anza Mutual Water Company	37	0	37	0	0	34	3 1/	37	Appropriative
Eastern MWD	232	7,150	7,382	0	0	7,013	369	7,382	Appropriative
Elsinore Valley MWD	0	3,221	3,221	0	0	2,899	322 1/	3,221	----
Fallbrook PUD	83	7,250	7,333	4,282	414	2,252	385	7,333	Appropriative
Lake Riverside Estates	263	0	263	0	263	0	0	263	Appropriative
Murrieta CWD	512	0	512	10	103	324	75	512	Appropriative
Rainbow MWD	0	1,651	1,651	1,368	0	133	150	1,651	----
Rancho California WD	32,725	16,386	49,111	32,534	2,322	12,370	1,885 3/	49,111	Various
U.S.M.C. - Camp Pendleton	4,621	0	4,621	517	----- 4/	1,211	2,894 1/ 5/	4,621	Appropriative/ Riparian
U.S. Naval Weapons Station	0	73	73	0	----- 4/	66	7 1/	73	----
Western MWD	0	37	37	0	34	0	3 1/	37	----
INDIAN RESERVATIONS									
Cahuilla	357	0	357	342	0	15	0	357	Overlying/ Reserved
Pechanga	70	0	70	0	0	70	0	70	Overlying/ Reserved
MOBILE HOME PARKS/CAMPGROUNDS									
Butterfield Oaks Mobile Home Park	10	0	10	0	0	9	1 1/	10	Riparian/ Overlying
Thousand Trails Resorts	38	0	38	0	0	34	4 1/	38	Overlying
SUBSTANTIAL USERS	8,306 6/	0	8,306	8,223	0	0	83 7/	8,306	
TOTAL	47,254	35,768	83,022	47,276	3,136	26,430	6,181	83,022	

1/ Assumes 10% loss
2/ Recreation Use
3/ Includes 467 acre feet released into Murrieta Creek
4/ Listed with Domestic uses
5/ Includes exports of 2,702 acre feet
6/ 835 acre feet for surface diversion plus 7,898 acre feet from groundwater as shown in Appendix C minus 357 acre feet on the Cahuilla Reservation and minus 70 acre feet on the Pechanga Reservation
7/ 10% of surface diversions

TABLE 7.2

SANTA MARGARITA RIVER WATERSHED
DEFINITIONS OF WATER USE
BY MUNICIPAL WATER PURVEYORS
1993-94

	AGRICULTURAL	DOMESTIC	COMMERCIAL
EASTERN MWD	A commercial enterprise producing a crop/livestock on at least 5 acres and able to accept a delivery of at least 24 consecutive hours	Single family, multiple units and agricultural uses of less than 5 acres	Not Reported
FALLBROOK PUD	AG - A commercial enterprise producing a crop/livestock/ fowl on at least 1 acre fully used for ag purposes; can include incidental domestic use related to residency AG/DOM - Water used for both ag and domestic purposes	Single family, multi-unit and large domestic residences and the first 20,000 gallons used by an ag/domestic meter	Offices, business, schools and hydrants
RAINBOW MWD	AG - 1 acre or more of plantable, resalable products DOM/AG - Same as Ag with a house on the parcel	DOMESTIC - Homes	Generally no commercial use in district
RANCHO CALIFORNIA WD	AG - 1 acre or more of plantable, resalable products GOLF - Outside water use at golf courses VINEYARDS - Outside irrigation for vineyards LANDSCAPE - Landscaping around freeways, parking lots, office buildings, median strips, etc.	DOMESTIC - Homes MULTIPLE - Apartments and Condominiums	COMMERCIAL - Office buildings, industrial users other than agri-businesses FLOATING - Fire hydrants used during construction CONSTRUCTION - Other fire hydrants used for grading UNMETERED - Construction accounts used for finish construction work MISCELLANEOUS - Schools, fire departments, parks, government agencies DETECTOR CK. METERS - Only used when there is a fire
MURRIETA CO. WD	Agricultural uses and irrigation for crops	Homes and multiple units	Businesses, public agencies schools and construction
USMC, CAMP PENDLETON	IRRIGATION - Water used for ag purposes, not landscaping, golf courses or parks	CAMP SUPPLY - Includes landscaping, golf courses parks and commercial use	Reported under Camp Supply

Thus, 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.

Eastern Municipal Water District

Eastern MWD is a member agency of MWD and its service area includes a portion of the Rancho California WD. Within the Watershed, the District wholesales water to Rancho California WD and also sells water directly to consumers. Water sold to Rancho California WD is listed in this report as imported water to the Rancho California WD Service Area.

Eastern MWD's service area outside of Rancho California WD is located in the northern part of the Watershed as shown on the map bound at the end of this Report. Water for their service area is imported or produced locally from Well 7S/3W-15N which is 345 feet deep.

Groundwater production for the 1993-94 Water Year in the Santa Margarita River Watershed totaled 232 acre feet from one well and imports totaled 10,082 acre feet. A portion of that import amounting to 2,932 acre feet was exported from the Santa Margarita River Watershed resulting in net import of 7,150 acre feet. These data are shown in Appendix A.

Recent static water levels in Eastern MWD's well have varied from a depth of 129 feet in July, 1989, to as low as 175 feet in September, 1994. The well is generally perforated between the depths of 106 and 333 feet. The well is located within the Murrieta-Temecula Ground Water Area where the older alluvium is at ground surface. Thus the well produces water from the older alluvium and pumping is under groundwater appropriative rights.

In addition during 1993-94, Eastern MWD reclaimed 4,560 acre feet of wastewater, of which 3,926 acre feet were reused, and 634 acre feet were exported. Thus exports were approximately 14 percent of the wastewater in 1993-94.

It has previously been concluded that about one-third of the supply to the plant originates as groundwater in the Santa Margarita River Watershed. The other two-thirds originates as imported water. Thus, export of less than two-thirds of the wastewater production would mean that on a proportional basis no native water would be exported from the Watershed.

Estimates of water production and use for the period 1966-1994 are shown in Appendix B.

Elsinore Valley Municipal Water District

Elsinore Valley MWD 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 Santa Margarita River Watershed, and also imports MWD water through Western MWD.

The District reports that 3,221 acre feet were imported into the portion of their service area which is inside the Santa Margarita River Watershed in 1993-94. Also during 1993-94, approximately 170 acre feet of wastewater were exported from that same area.

Fallbrook Public Utility District

In 1993-94, Fallbrook PUD imported 13,124 acre feet through its contract with the San Diego County Water Authority as shown in Appendix A. Of this quantity, 2,246 acre feet were delivered to the former DeLuz area which is entirely within the Santa Margarita River Watershed. Of the remaining importations it is estimated that 46 percent, or 5,004 acre feet, were delivered to lands inside the Santa Margarita River Watershed. The remainder was delivered to lands in the adjacent San Luis Rey River Watershed. Thus, imports to the Watershed totaled 7,250 acre feet in 1993-94.

In addition to importations, the District has three wells which have supplied water since 1977. In 1993-94 these wells produced 83 acre feet.

All three of these wells are located along the East Fork of DeLuz Creek in an area which has younger alluvium at the ground surface. Interlocutory Judgment No. 32 indicates that this stringer of alluvium varies in width from 100 feet to one-fourth mile and at no place is greater than 50 feet in depth. The well logs for these wells indicate depths of alluvium of 32 feet, 31 feet and 32 feet respectively. Below these depths the wells penetrate fractured granite which composes the basement complex. These wells are cased and sealed with cement grout to depths of 50, 51 and 51.5 feet respectively. Thus it may be concluded that all of the water from these wells originates in the granite fractures. Interlocutory Judgment No. 32 declares that waters found in the basement complex (fractured granite) are vagrant, local, percolating waters not part of the Santa Margarita River stream system and outside the Court's jurisdiction.

Production during the period 1966 to 1994 included direct diversions from the Santa Margarita River for water years before 1972 as well as imported water and well production as shown in Appendix B.

Lake Riverside Estates

Lake Riverside Estates pumps water from Well No. 7S/2E-32C1, into Lake Riverside to make up evaporation losses. Production for 1993-94 was 263 acre feet. The production well was drilled in 1962 and is located in an area of younger alluvium in the Cahuilla Ground Water Basin. The driller's log shows sand and clay for the entire well depth of 338 feet.

Interlocutory Judgment No. 33 indicates that the owners of lands in the Cahuilla Ground Water Basin have correlative overlying rights to the use of the groundwater which is the basis for this production.

Murrieta County Water District

Murrieta CWD serves the area in the vicinity of the town of Murrieta in Riverside County. In Water Year 1993-94, Murrieta CWD produced 512 acre feet of water as shown in the following tabulation and in Appendix A.

Well Designation	Well Name	1993-94 Production Acre Feet	Casing Depth Feet	Water Depth Feet	Well Depth Feet	Perforated Interval Feet
7S/3W-20C9	Holiday	149	25	86 - 94	307	60 - 307
7S/3W-20G5	House	60	50	110 - 122	298	120 - 252
7S/3W-17R2	Lynch	0	26	52 - 57	212	172 - 212
7S/3W-18J2	North	62	50	140 - 151	650	240 - 260
						500 - 640
7S/3W-20D	South	241	50	116 - 127	446	120 - 446

All of these wells are located in the Murrieta-Temecula Ground Water Area. Interlocutory Judgment No. 30 indicates that in Murrieta Valley the younger alluvium deposits extend in various depths to a maximum of approximately 30 feet from the ground surface. The finding of the maximum depth of the younger alluvium was based, in part, on U. S. Exhibit 16. That exhibit includes a geologic cross section along the length of Murrieta Valley. This geologic section defines the depth of the younger alluvium based

on geologic logs from six wells. These wells are listed below together with the depth of the younger alluvium and the characteristic of the well log that defines the depth of the younger alluvium.

Murrieta Valley Wells Shown on U. S. Exhibit 16	Depth of Younger Alluvium	Log * Characteristic
6S/4W 35P2	64 Feet	Top of 17 feet of light gray clay
7S/4W 12B1	28 Feet	Top of 6 feet of brown sediment
7S/3W 18A3 (Projected)	12 Feet	Top of 52 feet of clay
7S/3W 27N2	18 Feet	Top of 28 feet of sandy soft clay
7S/3W 35P1 (Projected)	26 Feet	Top of 3 feet of clay
8S/3W 13R1	0 Feet	16 feet adobe at top of log

* Logs shown in State of California Department of Water Resources Bulletin 91-20 entitled "Water Wells and Springs in the Western Part of Upper Santa Margarita River Watershed" dated August 1971.

It may be noted that the depth of the younger alluvium is less than 30 feet for all wells in the previous tabulation except 6S/4W 35P2 which lists 64 feet to the first major clay layer, and shows 64 feet to younger alluvium on Exhibit 16.

The reason for not recognizing well 35P2 in determining a maximum depth for younger alluvium is not clear. However it may be noted that the well is near the boundary of the Watershed and perhaps it was believed that it was not representative of the Murrieta Valley. Another point worth noting is that U. S. Exhibit 15L, which is the geologic map of the Murrieta-Temecula area, shows many wells in the Murrieta Valley within the area mapped as younger alluvium in addition to the six noted on U. S. Exhibit 16. Well logs for many of these wells are listed in State of California Department of Water Resources Bulletin 91-20 dated August 1971.

Bulletin 91-20 lists geologic logs for 21 wells in 7S/3W Section 17 which is located in Murrieta Valley. Review of these logs reveals depths of younger alluvium less than 30 feet being clearly shown in all but two wells. One well showed sand to 35 feet (7S/3W 17E2) and another indicated fine sand to 55 feet (7S/3W 17F4).

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, it did decide that subsequent findings could be made, if needed, because the Court would retain continuing jurisdiction. Older alluvial deposits are found below the younger alluvium.

Four of the five Murrieta CWD wells are perforated at depths of 120 feet or more. One of the Murrieta CWD wells has perforations beginning at a depth of 60 feet. This depth is well below the maximum depth of younger alluvium found by the Court in 1962. In addition, water depths in the well with perforations below 60 feet ranged from 85.5 to 93.5 feet in 1993-94. Accordingly all of Murrieta CWD well production is from the older alluvium under a groundwater appropriative right.

Production for the period between 1966 and 1994 is shown in Appendix B.

Rainbow Municipal Water District

Rainbow MWD is located in San Diego County in the south-central part of the Watershed. In recent years about ten percent of the District's imported supply is delivered to the portion of the District's service area inside the Watershed. Most of the District is in the San Luis Rey River Watershed. As shown in Appendix A, total deliveries of imported water in the Watershed in 1993-94 amounted to 1,651 acre feet.

Total imports to the District, for years between 1966 and 1994, as well as the estimated portion served inside the Santa Margarita River Watershed, are shown in Appendix B.

Rancho California Water District

Rancho California WD serves water to a 99,600 acre service area in the central portion of the Watershed. The District produced water from 46 wells in 1993-94 and also imported water, as shown in Appendix A. Use is also shown in Appendix A under the categories of agriculture, commercial and domestic. In Water Year 1993-94, 32,725 acre feet of local supplies were pumped from the Murrieta-Temecula Ground Water Area and 16,386 acre feet were

imported for total production of 49,111 acre feet not including 8,469 acre feet of water released from Vail Dam for recharge. During 1993-94, 467 acre feet were released into the Santa Margarita River system to meet the 3 cfs requirement: 275 acre feet into Murrieta Creek and 192 acre feet into Temecula Creek.

The District reclaimed 1,936 acre feet of wastewater during the year which were all reused within the Watershed.

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 recharged imported water
3. Groundwater appropriative rights

Vail Appropriation

Rancho California WD's Vail Dam appropriative rights are described in Application No. 11518 as amended on June 17, 1947, and Permit 7032. That right provides that the District may store up to 40,000 acre feet in Vail Reservoir each year between November 1 and April 30, subject to applicable limitations, and that the water so stored may be used for irrigation and domestic uses incidental to farming operations on 3,797 acres of land between May 1 and October 31. Such use may be by direct diversion from Vail Lake or by recovery with wells of water released from Vail and spread downstream in Pauba Valley.

The place of use for irrigation and domestic use is described as follows:

Sections 5, 6, 7 and 18; T8S, R1W
Sections 1, 10 through 21, 28 and 29; T8S, R2W
Sections 13 and 24; T8S, R3W.

In 1971, the Permit was amended to add recreational use at Vail Reservoir within Section 10, T8S, R1W.

As previously mentioned, 8,469 acre feet were released from Vail during 1993-94. Releases from Vail for groundwater recharge for the period 1980 to 1994 are shown on Table B-6.

Water use in the Permit 7032 service area is shown on Table 7.3. This use will be compared with well production from the younger alluvium in a later section of this report.

TABLE 7.3

SANTA MARGARITA RIVER WATERSHED
RANCHO CALIFORNIA WATER DISTRICT

PERMIT 7032 AREA WATER USE
1993-94
Quantities in Acre Feet

MONTH YEAR	AG	COMM	DOM	TOTAL
1993				
OCT	115	5	67	187
NOV	108	6	64	178
DEC	51	4	42	97
1994				
JAN	16	4	29	49
FEB	30	3	34	67
MAR	10	3	27	40
APR	11	3	24	38
MAY	40	4	46	90
JUNE	48	5	41	94
JULY	98	4	64	166
AUG	154	5	104	263
SEPT	183	5	104	292
TOTAL	864	51	646	1,561

United States' representatives have indicated that storage of water in Vail Lake, and the related recharge and rediversion operations may exceed Rancho California WD's share of the Santa Margarita River flow as allocated under the 1940 Stipulated Judgment.

Imported Water Return Flows

During 1993-94, Rancho California WD imported 16,386 acre feet of water compared to 11,411 acre feet in 1992-93. Quantities of imported water delivered to the Rancho Division and the Santa Rosa Division are shown below for Water Years 1992-93 and 1993-94.

Month	Imported Deliveries Rancho Div.		Imported Deliveries Santa Rosa Div.		Total Imported Deliveries	
	1993	1994	1993	1994	1993	1994
October	168	633	1,623	1,119	1,791	1,752
November	20	170	881	655	901	825
December	0	56	86	537	86	593
January	0	51	0	557	0	608
February	0	0	0	0	0	0
March	0	35	0	286	0	321
April	40	283	351	353	391	636
May	449	35	693	44	1,142	79
June	552	745	984	1,683	1,536	2,428
July	721	1,028	1,141	2,051	1,862	3,079
August	577	1,092	1,233	2,465	1,810	3,557
September	655	630	1,237	1,878	1,892	2,508
Total	3,182	4,758	8,229	11,628	11,411	16,386

Return flows for 1993-94 based on imported water use in the Rancho Division are computed as shown on Table 7.4 and on Table 7.5 for the Santa Rosa Division.

In those tables, imported water is allocated to agricultural, commercial and domestic uses in each of eight hydrogeologic areas in the Rancho Division service area. This allocation is the proportion of the total deliveries to each use that is made up of imported water. In 1993-94, 18.75 percent of the supply to the Rancho Division was imported and 48.98 percent of the supply to the Santa Rosa Division was imported.

TABLE 7.4

SANTA MARGARITA RIVER WATERSHED
RANCHO CALIFORNIA WATER DISTRICT
RETURN FLOW CREDIT
1993-1994
RANCHO DIVISION
Quantities in Acre Feet

	HYDROGEOLOGIC AREAS								
AQUIFER	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	1,972.70	901.09	252.84	1,707.73	1,205.95	1,469.21	1,912.58	1,580.08	11,002.18
% Import	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75
Import Use	369.94	168.98	47.41	320.25	226.15	275.52	358.67	296.31	2,063.23
% Credit	33.00	33.00	33.00	33.00	33.00	33.00	33.00	33.00	33.00
Credit	122.08	55.76	15.65	105.68	74.63	90.92	118.36	97.78	680.87
COMMERCIAL									
Total Use	7.82	812.96	362.08	832.68	14.06	(44.07)	24.47	0.14	2,010.15
% Import	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75
Import Use	1.47	152.45	67.90	156.15	2.64	(8.26)	4.59	0.03	376.96
% Credit	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
Credit	0.15	15.25	6.79	15.62	0.26	(0.83)	0.46	0.00	37.70
DOMESTIC									
Total Use	496.44	1,560.49	362.16	6,041.81	170.18	756.16	553.43	221.04	10,161.70
% Import	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75
Import Use	93.10	292.64	67.91	1,133.02	31.91	141.80	103.78	41.45	1,905.62
% Credit	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00	25.00
Credit	23.27	73.16	16.98	283.25	7.98	35.45	25.95	10.36	476.40
TOTAL USE	2,476.95	3,274.54	977.07	8,582.22	1,390.19	2,181.31	2,490.48	1,801.26	23,174.03
TOTAL									
Total Import Use	464.50	614.07	183.23	1,609.42	260.70	409.06	467.04	337.79	4,345.82
Total Credit	145.50 **	144.17	39.42	404.55	82.87	125.55	144.76	108.15	1,194.97
Total Credit Qyal		72.08	39.42		82.87				194.37
Total Credit Qtoal		72.08		404.55		125.55	144.76	108.15	855.10

* Includes golf course and landscape irrigation
** This credit not applied to either Qyal or Qtoal

TABLE 7.5

SANTA MARGARITA RIVER WATERSHED
RANCHO CALIFORNIA WATER DISTRICT
RETURN FLOW CREDIT
1993-1994
SANTA ROSA DIVISION
Quantities in Acre Feet

	HYDROGEOLOGIC AREAS			
AQUIFER	1 MURRIETA WOLF 1/2 QYAL 1/2 QTOAL	3 LOWER MESA QTOAL	8 RTS 279, 280 & 285 1/4 QYAL 3/4 QTOAL	TOTAL
AGRICULTURAL *				
Total Use	24.37	0	1,239.77	1,264.14
% Import	48.98	48.98	48.98	
Import Use	11.94	0.00	607.27	619.21
% Credit	33.00	33.00	33.00	
Credit	3.94	0	200.40	204.34
COMMERCIAL				
Total Use	18.98	0.43	204.68	224.09
% Import	48.98	48.98	48.98	
Import Use	9.30	0.21	100.26	109.76
% Credit	10.00	10.00	10.00	
Credit	0.93	0.02	10.03	10.98
DOMESTIC				
Total Use	0.09	0	1,011.79	1,011.88
% Import	48.98	48.98	48.98	
Import Use	0.04	0.00	495.60	495.65
% Credit	25.00	25.00	25.00	
Credit	0.01	0	123.90	123.91
TOTAL USE	43.44	0.43	2,456.24	2,500.11
TOTAL				
Total Import Use	21.28	0.21	1,203.13	1,224.62
Total Credit	4.88	0.02	334.33	339.23
Total Credit Qyal	2.44		83.58	86.02
Total Credit Qtoal	2.44	0.02	250.74	253.21

* Includes golf course and landscape irrigation

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 which 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 percent of imported water which becomes return flow varies according to the use as follows:

Agricultural Use	33%
Commercial Use	10%
Domestic Use	25%

Based on the foregoing factors, the return flow credit for 1993-94 is computed to be 1,194.97 acre feet for the Rancho Division and 339.23 acre feet for the Santa Rosa Division, as shown on Tables 7.4 and 7.5 respectively.

Some of the hydrologic areas overlie older alluvium and some overlie younger alluvium. Comparison of exposures of younger alluvium with maps of the District's hydrogeologic areas indicates that the Santa Gertrudis, Pauba and half of the Murrieta-Wolf areas overlie younger alluvium. The area of the Santa Rosa Division that overlies the groundwater area is one-fourth in the younger alluvium and three-fourths in the older alluvium. Import return flows in these areas can be credited against pumping from the younger alluvium. These credits for 1993-94 for the Rancho Division are 194.37 acre feet and 86.02 acre feet for the Santa Rosa Division, as shown on Tables 7.4 and 7.5 respectively.

There was no recharge of imported water in 1993-94.

Division of Local Water

During 1993-94, Rancho California WD pumped 32,725 acre feet of groundwater. Some of this water was pumped from the younger alluvium and some from the older alluvium. Production from the younger alluvium is supported by various quantities of import return flows, import recharge and Vail recharge.

Interlocutory Judgment No. 30 describes the Court's findings with respect to the Murrieta-Temecula Ground Water Area. The Murrieta-Temecula Ground Water Area is depicted on maps presented as exhibits during the litigation. The exhibits show that the groundwater area is generally underlain by younger and older alluvial deposits.

The younger alluvial deposits were determined by the Court to be those deposits laid down by stream action after the course of the Santa Margarita River shifted to its present westerly flow through the Temecula Gorge to the Pacific Ocean. The areal extent of the younger alluvium is shown on maps developed in the 1960's during the litigation. The depth of the younger alluvial deposits throughout the Murrieta Valley could not be determined by the Court with exactness. However the Court did indicate that based on evidence available to the Court in 1962, the maximum depth of the younger alluvium in the Murrieta Valley was approximately 30 feet. The bases for this 30-foot determination have already been discussed in this report in connection with Murrieta CWD production. Similarly in Pauba Valley, the Court stated that the evidence indicated a maximum depth of 130 feet. The Court also noted that it would retain continuing jurisdiction in the case so that subsequent findings could be made if required.

Subsequent to the Court's findings in the early 1960's, additional wells have been constructed by Rancho California WD and additional geologic studies have been conducted. These data and studies indicate a maximum depth of younger alluvium of approximately 200 feet in the Pauba Valley. The basis for the original 130 feet was determined by checking the transcripts of the court case. The transcripts indicate that the 130 feet maximum was based on the depth of younger alluvium at the Windmill Well (8S/2W-12H1) as determined by Mr. Fred Kunkel, a geologist with the U.S.G.S. He also testified that the depth of the younger alluvium progressively thinned to the west from the Windmill Well, so that the deepest younger alluvium was found in the easterly portion of the Pauba Valley. At that time the Windmill Well was the easternmost well in Pauba Valley. It was speculated that the younger alluvium might thin to the east of the Windmill Well as well as to the west but at that time no wells were located east of the Windmill Well. The depths of the younger alluvium in Pauba Valley are shown on U.S. Exhibit 16.

U. S. Exhibit 16 is a geologic cross section of Pauba Valley which shows the depth of younger alluvium. It was based on well logs which were shown graphically on Exhibit 16. Well logs for each of those wells were reviewed and the basis for establishing the depth of the younger alluvium was determined as shown in the following tabulation.

DEPTH OF YOUNGER ALLUVIUM FROM LOGS OF WELLS IN PAUBA VALLEY USED TO PREPARE U. S. EXHIBIT 16

Wells Shown on U.S. Exhibit 16	Depth of Younger Alluvium Per U.S. Exhibit 16	Log* Characteristic
8S/2W-12H1	130 Feet	Top of 87 feet yellow clay
8S/2W-12K1	140 Feet	Top of 2 feet yellow clay
8S/2W-12F1	115 Feet	Top of 6 feet clay
8S/2W-11J4	137 Feet	Top of 7 feet sandy clay Note: interbedded clays at depths of 54, 80, 82 & 137 feet
8S/2W-11L1	112 Feet	Top of 24 feet of clay
8S/2W-11P1	Deeper than 78 Feet	Depth of well is 78 feet Note: 5 feet clay at depths of 55 feet
8S/2W-15C1	89 Feet	Top of 201 feet of clay and hardpan
8S/2W-16A1	75 Feet	Top of 205 feet of red clay
8S/2W-17Q1	62 Feet	Top of 8 feet brown shaley clay; Note 22 feet black clay with roots at a depth of 29 feet
8S/2W-17M1	55 Feet	Clay streaks 43 - 73 feet
8S/2W-18R1	44 Feet	Depth of well
8S/3W-13R1	Not Applicable	85 feet - stopped in granite

* Logs shown in State of California Department of Water Resources Bulletin 91-20 entitled "Water Wells and Springs in the Western Part of Upper Santa Margarita River Watershed" dated August, 1971.

It is noteworthy that based on the well logs, the depth of younger alluvium in two of the wells, 12K1 and 11J4, is deeper than 130 feet.

From the foregoing it is clear that the depth of the younger alluvium varies from well to well and must be established separately for each well constructed in areas where the younger alluvium is located.

Rancho California WD has made available records of water production for 72 wells for the period between 1966 and 1994.

These wells were located on U.S. Exhibit 15L to determine the aquifer at the ground surface at the well location. Of the 72 wells, 11 were determined to be located in areas where older alluvium is at the ground surface and three were determined to be outside the Murrieta-Temecula Ground Water area.

Wells which were located in areas where younger alluvium is at the surface were checked to determine the depths of perforations. Twenty-six of the remaining wells were determined to have no perforations above 200 feet in depth.

Thus of the 72 listed wells, 40 are either outside the groundwater area or pump 100% from the older alluvium aquifer. The remaining 32 wells are listed in Table 7.6 along with their locations, depth of seals and perforated intervals. The depth of the younger alluvium at each well location has been determined from well logs of the individual wells or nearby well logs or cross sections, using the same criteria as was used in Court exhibits.

The younger alluvium was considered to be very shallow in wells located close to the surface contact between the younger alluvium and the older alluvium.

There are a number of factors which can be considered in allocating total well production between the younger alluvium and older alluvium. These factors include relative permeability of the younger and older alluvium, water levels, perforated intervals and the presence of clay layers.

Although the Court has found that the younger alluvium is more permeable than the older alluvium, no data are available to indicate the magnitude of such differences. Even if tests had been conducted at one well, there could be significant variations at other locations in the groundwater area.

TABLE 7.6

SANTA MARGARITA RIVER WATERSHED
DEPTH OF YOUNGER ALLUVIUM IN
RANCHO CALIFORNIA WATER DISTRICT WELLS

RCWD WELL NO.	LOCATION TWN/RGE/SEC	SEAL DEPTH FEET	PERFORATED INTERVAL FEET	DATE DRILLER'S LOG	DEPTH YOUNGER ALLUVIUM FEET	PERCENT YOUNGER ALLUVIUM %		REMARKS
106	7S/3W-26R1	55	130-980	12/14/82	0	0.0%	Murrieta	No. 108 Winchester, clay 0-40
107	7S/3W-26J1	55	60-590	12/14/82	70	2.9%	Murrieta	No. 110 Winchester, gravel-clay-sand 70'-85'
108	7S/3W-25B1	55	60-590	12/14/82	55	0.0%	Murrieta	No. 109 Franklin Ave, gravel/sandy clay at 55'-70'
109	8S/2W-17J1	52	70-210	07/14/80	75	5.6%		Brown clay and gravel at 75' to 105'
110	8S/1W-6K1	54	70-460	10/14/82	165	46.3%		Clay 165'-190'
113	7S/2W-25H1	52	96-542	01/15/83	Shallow	0.0%		
115	8S/1W-6H	Unknown	60-326	Not Available	165	45.9%		See #110
116	8S/1W-6J	Unknown	60-390	Not Available	165	37.8%		See #110
119	8S/2W-19J	55	170-470	12/23/86		0	Wolf Valley	
123	8S/1W-7B	55	100-500	05/12/86	135	18.9%		Brown Sand Clay 135'-210'
129	7S/2W-20L	Unknown	180-600	10/26/86	Shallow	0.0%	Santa Gertrudis Creek	Qyal very shallow along Santa Gertrudis Creek
132	8S/1W-7D	55	70-500	02/25/87	175	41.2%		Brown Clay 175'-185'
135	7S/3W-27M10	55	70-170	05/27/87	11	0.0%	Murrieta Valley	Silty clay 11'-22' and 50'-69'
141	8S/2W-11P	55	120-510	10/26/87	104	0.0%		Silt & sand 104'-185'; Well 11L1 is 112'
144	7S/3W-27D	55	983-1743	08/18/88	25	0.0%	Murrieta Valley	Sand with silty clay 25'-45'
205	7S/3W-35A	96	150-1000	12/23/65	10	0.0%	Santa Gertrudis/ Murrieta Valley	Sandy clay 10'-20'
210	8S/2W-12K	None	48-228	05/17/57	160	93.3%		Clay cobblestones 160'-167', 175'-227'
218	8S/2W-20B5	27	48-289	01/10/54	40	0.0%		Old 28; clay with sand layer 40'-60', No production since 1984, now monitoring wells 427, 428 and 429
466	8S/3W-1P2	Unknown	106-822	01/29/52	49	0.0%	Long Canyon	Old 219, Cantarini, hard clay 49'-60'
220	7S/3W-26Q1	34	114-450	11/05/62		0.0%		Clay 58' - 73'
467	8S/2W-12K1	Unknown	50-140	1929	140	100.0%		Old 221, JK, Exb. 16, Monitoring well since 1983
223	8S/2W-20C1	Unknown	48-250	04/17/53	60	7.5%		CAT Well; nearby Exh 16 wells 17Q @62', 17M @55', RCWD wells 218 @40', 231 @35'
224	8S/2W-15D	Unknown	48-250	03/17/53	106	37.4%		Old Well 50, clay 106'-138'
230	8S/2W-11J1	Unknown	24-113	05/31/19	>119	100.0%		Old Well 30, depth of well is 119'
231	8S/2W-20B6	55	80-270	06/13/80	35	0.0%		Old 104, P-34, Clay 20'-23'; 35'-41'
232	8S/2W-11J3	51	95-295	06/04/80	135	28.6%		Old 111, 105, P-31; coarse sand & clay 135' - 155'
233	8S/2W-12K2	51	95-295	06/04/80	145	28.6%		Old 112, P32 Sand & clay 145'-220'
234	8S/2W-11P1	52	80-400	11/12/82	125	15.6%		Brown Clay at 125'; sand & clay at 125'-140'
235	8S/3W-1P4	55	Unknown	06/15/87	Shallow	0.0%	Long Canyon	
236	No data				Unknown	Unknown		No Production
240	8S/2W-11L1	Unknown	48-298	01/15/53	112	27.8%		Old Well No. 40; clay 112'-136'
301	7S/3W-18Q1	93	140-640	09/13/79	26	0.0%	Murrieta	Old JR1; blue clay 26'-32'

The allocation of production could be based on the saturated thickness of the younger alluvium relative to the saturated thickness in the older alluvium. This approach would tend to reduce the quantities estimated from the younger alluvium if water levels lower. Water levels vary throughout the year so monthly computations would be necessary. In addition the measured water levels are influenced by the rate of well production and the time between well shut off and the time of measurement.

Thus use of saturated thickness would complicate the computation and require use of water level data which may have errors of measurement.

In this report the production from the younger alluvium is computed using the ratio of the net perforated interval in younger alluvium to the total net perforated interval in the well. Net perforated intervals were computed by subtracting the thickness of clay layers located within the perforated interval. In this way a percentage can be computed for each well and there are no monthly changes. The influences of permeability and water levels are considered to be generally offsetting.

Production from the younger alluvium and older alluvium for 1993-94 using the percentages noted in Table 7.6 is presented in Table 7.7 which lists all RCWD production wells. It may be noted that 3,109 acre feet were pumped from the younger alluvium and 29,616 were pumped from the older alluvium in 1993-94.

Two wells were deleted from Table 7.7 in 1993-94. Well Nos. 115 and 116 were deleted because there had been no production for more than five years.

Representatives of Camp Pendleton dispute the foregoing presentation of the depth of and production from the younger alluvium in both the Pauba and Murrieta Valleys.

This production of 3,109 acre feet from the younger alluvium as shown on Table 7.7 may be compared with import return flows shown on Tables 7.4 and 7.5 with recharge from Vail into the younger alluvium, and with deliveries to the service area permitted under Permit 7032.

In 1993-94 there were total return flow credits of 280.39 acre feet. Deducting this from the younger alluvium pumpage leaves 2,828 acre feet of production under the Vail appropriation right. In 1993-94, 8,469 acre feet were recharged. That recharge plus the unrecovered portions of recharge in prior years means there was ample water in the Vail account to support the withdrawals. As shown on Table 7.3, 864 acre feet were used for agricultural purposes within the service area designated in Permit 7032.

TABLE 7.7
SANTA MARGARITA RIVER WATERSHED

RANCHO CALIFORNIA WATER DISTRICT
WELL PRODUCTION FROM YOUNGER AND OLDER ALLUVIUM
1993-94
Quantities in Acre Feet

WELL NO.	QYAL	QTOAL	TOTAL
101	0.00	259.00	259.00
102	0.00	85.00	85.00
105	0.00	179.00	179.00
106	0.00	0.00	0.00
108	0.00	455.00	455.00
109	24.75	417.25	442.00
110	605.60	702.40	1,308.00
113	0.00	613.00	613.00
117	0.00	0.00	0.00
118	0.00	687.00	687.00
119	0.00	0.00	0.00
120	0.00	1,935.00	1,935.00
121	0.00	0.00	0.00
122	0.00	0.00	0.00
123	0.00	0.00	0.00
124	0.00	562.00	562.00
125	0.00	1,150.00	1,150.00
126	0.00	935.00	935.00
128	0.00	743.00	743.00
129	0.00	20.00	20.00
130	0.00	757.00	757.00
131	0.00	934.00	934.00
132	500.17	713.83	1,214.00
133	0.00	728.00	728.00
135	0.00	179.00	179.00
138	0.00	1,583.00	1,583.00
139	0.00	124.00	124.00
140	0.00	1,474.00	1,474.00
141	0.00	521.00	521.00
143	0.00	446.00	446.00
144	0.00	644.00	644.00
145	0.00	999.00	999.00
149	0.00	0.00	0.00
151	0.00	194.00	194.00
201	0.00	124.00	124.00
203	0.00	271.00	271.00
204	0.00	0.00	0.00
205	0.00	856.00	856.00
207	0.00	152.00	152.00
208	0.00	123.00	123.00
209	0.00	66.00	66.00
210	761.33	54.67	816.00
211	0.00	97.00	97.00
212	0.00	25.00	25.00
215	0.00	161.00	161.00
216	0.00	26.00	26.00
217	0.00	1,033.00	1,033.00
231	0.00	387.00	387.00
232	666.95	1,665.05	2,332.00
233	549.98	1,373.02	1,923.00
234	0.00	0.00	0.00
235	0.00	1,811.00	1,811.00
301	0.00	48.00	48.00
302	0.00	368.00	368.00
309	0.00	2,936.00	2,936.00
TOTAL	3,108.78	29,616.22	32,725.00

The remaining production of 1,964 acre feet may be considered to have been used outside the designated service area for irrigation purposes or partly used within the designated service area for domestic use. In either event, 1,964 acre feet were used outside the place of use and/or used for a purpose not specified in Permit 7032. Rancho California WD has recognized the situation and has petitioned the SWRCB for a change in the place and type of use under Permit 7032.

Western Municipal Water District

Western MWD wholesales imported water to Rancho California WD and also serves water to its Improvement District A near the southern boundary of Riverside County along I-15 freeway. Deliveries to Rancho California WD are included under Rancho California WD.

In Water Year 1993-94, imports to Improvement District A amounted to approximately 37 acre feet.

Deliveries to Improvement District A through turnout WR-13 for the period 1966 to 1994 are shown in Table 5.3.

U. S. Marine Corps - Camp Pendleton

Camp Pendleton is located on the coastal side of the Santa Margarita River Watershed. Water is provided by 14 wells which produced 4,621 acre feet in Water Year 1993-94. This production is from the younger alluvium and is based on riparian and appropriative rights. Of this quantity, 2,702 acre feet were exported out of the Watershed as shown in Appendix A.

A portion of the exported water amounting to 1,501 acre feet was returned to the Santa Margarita River Watershed as wastewater.

Production and estimated use inside and outside the Watershed, as well as wastewater returns, are shown in Appendix B for the period 1966-1994.

In addition to the operations at Camp Pendleton involving diversions from the Santa Margarita River, water is also imported by the Naval Weapons Station (NWS). The NWS occupies about 9,148 acres in the north eastern part of Camp Pendleton. Since 1969 the NWS has relied on imported water delivered via the Fallbrook PUD for its supply. Wastewater is exported from the NWS and the Watershed via an outfall line also used by the Fallbrook Sanitary District. In 1993-94, 73 acre feet were imported of which 5 acre feet of wastewater were exported, as shown in Appendix A. Imports and use between 1969 and 1994 are shown in Appendix B.

7.3 Indian Reservations

Water use information about the three Indian Reservations in the Watershed is described in the following sections:

Cahuilla Indian Reservation

In general, water use on the Cahuilla Indian Reservation is not measured, however Reservation representatives report that 105 people reside on the Reservation. These residents use water primarily for domestic purposes as well as for livestock watering and grazing. Annual domestic water use, based on 125 gallons per capita per day, amounts to a total annual use of about 15 acre feet from wells listed in Appendix C.

The foregoing estimate is for total domestic water use on the Reservation. A portion of this use may not be under Court jurisdiction, but the estimate will be used until individual well production quantities are available to allow determination of the portion under Court jurisdiction. The estimated domestic use is included on Table 4.1 under water purveyor production.

In 1993-94, 160 acres were leased for irrigation use. Crops included 80 acres of potatoes and 80 acres of oats. Water was supplied from the Agri-Empire, Inc. water system which includes six wells at various locations in the Anza Valley based on overlying and reserved rights. One of the wells in the Agri-Empire water system (7S/3E-27D1) is located on the Reservation.

Pechanga Indian Reservation

Reservation representatives report that about 500 people reside on the Reservation. Based on use of 125 gallons per capita per day, annual use from wells listed in Appendix C amounts to approximately 70 acre feet per year for domestic purposes. There is no reported irrigation use.

The foregoing estimate is for total domestic water use on the Reservation. A portion of this use may not be under Court jurisdiction, but the estimate will be used until individual well production quantities are available to allow determination of the portion under Court jurisdiction. The estimated domestic use is included on Table 4.1 under water purveyor production.

Ramona Indian Reservation

The Ramona Indian Reservation occupies 560 acres of land of which 321 acres are inside the Watershed. The Ramona Reservation has no reported resident population or water use.

7.4 Mobile Homes/Campgrounds

There are a number of mobile home parks in the Watershed. These range from relatively permanent structures, to those catering to recreational vehicles and campgrounds. Water production from wells is shown on Table 7.1 for Butterfield Oaks Mobile Home Park, and Thousand Trails Resorts.

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 8,306 acre feet. This estimate was based on reported irrigated acreage and includes 835 acre feet of surface diversions 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 when they are brought to the attention of the Watermaster. The status of the current list of unauthorized uses is described as follows:

8.2 Dams on Chihuahua Creek

In 1986, Agri-Empire, Inc. filed Application No. 28930 with the SWRCB for water rights to store water at three dams previously built on Chihuahua Creek. The application was protested by downstream interests.

Subsequently, the SWRCB advised Agri-Empire that in Orders 89-25 and 91-07 the Board declared the Santa Margarita River System to be fully appropriated and that the Board was unable to process the application.

During the January 1993 storms the two lower dams were destroyed and the downstream embankment of the upper dam was severely eroded. Following the storm the embankment was repaired and a new spillway was constructed on the north side of the dam.

Since there is no right to store water in the upper reservoir, Agri-Empire advised the SWRCB that henceforth the reservoir would be used for storage of water for less than 30 days. They further advised the SWRCB that the Watermaster would oversee their operations to confirm that the reservoir is only used for regulatory storage (30 days or less).

A draft Memorandum of Understanding (MOU) has been developed which would provide requirements for reporting data to the Watermaster. However finalization of the MOU is awaiting modification of the new spillway necessary to reduce the reservoir's capacity to less than 50 acre feet.

8.3 Unauthorized Small Storage Ponds

In addition to the dams on Chihuahua Creek, many other 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

ponds less than 10 acre feet in capacity and used for stock watering are 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.

8.4 Rancho California Water District Water Use

A number of unauthorized water use issues have been raised by the United States. These issues and action to investigate and/or correct the issues are as follows:

1. Violation of the 1940 Stipulated Judgment - United States' representatives have indicated their belief that the provisions of the 1940 Stipulated Judgment have been violated in two respects by Rancho California WD:

   A. Storage of water in Vail Lake and the related recharge and rediversion operations exceed the portion of the Santa Margarita River flow allocated to Rancho California WD by the Stipulated Judgment.

   B. Production of water by Rancho California WD from the older alluvium should be included with surface water in determining whether water use by Rancho California WD exceeds that portion allocated to Rancho California WD by the Stipulated Judgment.

   Rancho California WD disagrees with each of these contentions.

   During 1993-94 representatives of Rancho California WD and the United States initiated a series of meetings which have led to the formation of an Attorneys' Group and a Technical Committee. The purpose of the Attorneys' Group is to develop solutions to the water right issues that have divided the two parties. The Technical Group is to agree on technical facts that can assist the Attorney' Group in resolving issues related to the 1940 Stipulated Judgment, as well as Permit 7032 issues described in the following section.

2. Rediversion and Use Not in Accord with Terms of Permit 7032 - As noted in Section 7 of this report, the place of use, rediversion facilities and the type of use of water appropriated under Rancho California WD's Application No. 11518 and Permit 7032 have changed since the Application was filed in 1947.

   Use of water under Permit 7032 is limited to irrigation, domestic use incidental to farming operations and recreation. Such use for municipal and industrial purposes represents an unauthorized use.

   During 1993-94, after import return flow credits were considered, 2,828 acre feet were produced from the younger alluvium by Rancho California WD under Permit 7032. Table 7.3 indicates that 864 acre feet were used within the 7032 Service Area for agricultural purposes. The remaining 1,964 acre feet were either used outside the designated place of use or partially used within the designated Service Area for commercial and/or domestic use, neither of which is authorized under Permit 7032.

   Rancho California WD initiated the process of changing Permit 7032 on September 1, 1992 by filing a Notice of Intent to Adopt a Negative Declaration for a Petition for Change to the SWRCB, Division of Water Rights, relative to Appropriations Water Permit 7032.

   Subsequently, on January 13, 1993, the District filed a Petition for Change in the points of rediversion, the place of use and the purpose of use with the SWRCB. The Petition for Change was protested by Camp Pendleton, U. S. Fish and Wildlife Service, the U. S. Bureau of Indian Affairs, and the California Sportfishing Alliance. On January 15, 1993, the United States alleged that the District had violated the California Environmental Quality Act (CEQA) in a petition filed with the Superior Court of the State of California for Riverside County. On April 12, 1994, the Court denied the United States' petition and declared that Rancho California WD had complied with CEQA by adopting the Negative Declaration. The Superior Court decision was appealed by the United States on August 5, 1994. Subsequently on August 11, 1994, the parties jointly requested an extension of time for the appellate process pending current settlement negotiations. The appellate Court granted an extension of the process to August 15, 1995.

In March, 1993, Camp Pendleton filed a Complaint with the SWRCB that Rancho California WD was violating the terms of Permit 7032 regarding place, season and purpose of use. On May 25, 1993, the SWRCB advised that it would process the Complaint prior to acting on the District's Petition for Change.

A representative from the SWRCB visited the area in July 1993 and preparation of the staff Report of Investigation is pending the receipt of requested additional information from the parties.

The parties have suspended the filing of additional information with the SWRCB and are hoping to resolve the issues between them as described in the foregoing section.

8.5 Other Potential Unauthorized Uses

United States' representatives also contend that water is being pumped from the younger alluvium without permit outside Pauba Valley and that there is pumping in violation of Court adjudications from the older alluvium.

SECTION 9 - THREATS TO WATER SUPPLY

9.1 General

General threats to the long-term water supply in the Santa Margarita River Watershed were previously mentioned in Watermaster Reports. These included:

1. High nitrate concentrations in Rainbow Creek and in Anza Valley.

2. Potential overdraft conditions at various locations in the Santa Margarita River Watershed.

3. Potentially adverse salt balance conditions in the upper Santa Margarita River area.

4. Construction of a soil treatment facility on the Cahuilla Indian Reservation.

In addition, a landfill proposed to be located on Aspen Road along Rainbow Creek is now on hold, awaiting decisions by a newly formed San Diego Solid Waste Authority.

9.2 High Nitrate Concentrations

In recent years high concentrations of nitrate have been measured on Rainbow Creek and in Anza Valley. During 1993-94 Eastern MWD collected nine water samples each from Rainbow Creek at Willow Glen Road and from the Santa Margarita River upstream near Temecula and downstream at the FPUD Sump as part of their surface water quality monitoring for Discharge Order No. 88-94. Nitrate concentrations in these samples in 1993-94 are shown in the tabulation below. It might be noted that the monitoring program ended in June 1994.

	Range in Nitrate Concentration mg/l as NO_3
Santa Margarita River near Temecula	<1.0 - 5.8
Rainbow Creek at Willow Glen	6 - 38
Santa Margarita River at FPUD Sump	4 - 29

The measured nitrate concentrations in all of the above measurements are less than the drinking water limit of 45 mg/l as Nitrate.

In August, 1992 a grant to the Mission Resource Conservation District for the "Rainbow Creek Non-Point Source Nitrate Reduction Project" was approved by the SWRCB. After delays the project contract was received by the District in 1994. The project provides for installation of a stream gaging station on Rainbow Creek, now scheduled for May 1995. In addition nitrate and phosphate concentration data will be collected from five sampling sites. The project also includes distribution of educational literature and a public information program.

In 1986 the U.S.G.S. reported in Water-Resources Investigation Report 88-4029 that the EPA drinking water limit of 10 mg/l of Nitrogen was exceeded in 8 of 30 wells sampled in Anza Valley. The U.S.G.S. attributed the high concentrations to animal wastes and septic systems which affected wells perforated in weathered consolidated rocks. Except for one sample, wells in the main agricultural areas of Anza Valley showed concentrations below the EPA drinking water limit for nitrate.

More recently, the U.S.G.S. collected water samples from four wells on the Cahuilla Indian Reservation in 1989, 1990 and 1991 as shown in Appendix D. None of the four were among the wells which exceeded the drinking water standard in 1986. Samples collected from the wells noted nitrate concentrations below the drinking water standard of 10 mg/l as Nitrogen.

9.3 Potential Overdraft Conditions

Previous Watermaster reports have noted concerns about overdraft conditions in Anza Valley and in the Temecula-Murrieta area.

The 1989-90 Report indicated that a water supply study, conducted by a consultant to Riverside County, concluded that water use in 1986 was approximately equal to the perennial yield in the Anza Valley and that as of 1986 useable groundwater in storage approximated 56,000 acre feet.

No further groundwater studies have been conducted.

Groundwater levels for Anza Mutual Water Company's Well No. 1 (7S/3E-21G1) dropped 12 feet between October 1993 and September 1994. A graph showing water levels in this well is included as Figure 4.4, and it can be noted that the water levels this year are within the general range observed since 1989.

No published studies of safe yield are available for the Temecula-Murrieta area. Groundwater resources in much of the area are being managed by Rancho California WD. The District has indicated that it operates the basin so as to develop its maximum perennial yield.

Groundwater levels throughout the basin area are being monitored by the District and the Watermaster Office. The District uses the record of well production and the related water levels to prepare and implement its annual groundwater production program so as to avoid continual declines in groundwater levels. Water level data collected each year are plotted on graphs in the Watermaster's office. In this way long-term trends in groundwater levels can be monitored. If there is no continual decline in water levels or other adverse impact, then overdraft conditions do not exist.

Data reported in Section Four of this Report indicate that the Windmill Well (8S/2W-12H1) located at the eastern part of Pauba Valley fell 29.9 feet in 1993-94. Well 7S/3W-20C9 in the Murrieta CWD area rose 8 feet.

9.4 Salt Balance

A key issue in management of a groundwater basin is potential build up of salts which decreases the usability of waters in the basin. Thus consideration must be given to measures which allow export of salt from the basin to balance the salt in water entering the groundwater basin.

During 1991-92 the Regional Water Quality Control Board (RWQCB) adopted Resolutions 92-03 and 92-09 issuing National Pollutant Discharge Elimination System (NPDES) permits to Eastern MWD and Rancho California WD. These permits would allow Live Stream Discharge of treated wastewater into the Santa Margarita River stream system. The U. S. Environmental Protection Agency (EPA) objected to some of the terms of the permits and assumed responsibility for the permits. Negotiations are continuing among EPA and the project proponents over the terms of the permits.

If approved, this project would provide a cost-effective solution to the disposal of wastewater in the upper Santa Margarita River area, as well as provide the potential for controlling salt balance in the Watershed.

In September 1994, the RWQCB adopted a Basin Plan Update which contains a section dealing with salt balance. Seven strategies are described for dealing with salinity issues as follows:

1. Limit pumping to perennial yield
2. Increase irrigation efficiency
3. Reduce fertilizer application
4. Improve quality of imported waters
5. Increase recharge of storm waters
6. Demineralize poor quality groundwater when feasible
7. Prevent and reverse sea water intrusion.

9.5 Soil Treatment Facility

In 1991 a soil treatment facility was constructed on lands in the Cahuilla Indian Reservation. This facility receives and treats regulated wastes which include soils which contain petroleum hydrocarbons (Non-RCRA hazardous waste).

The site is within the Watershed tributary to Cahuilla Creek and surface flows of Cahuilla Creek are subject to the continuing jurisdiction of the Court. The operator has installed a temporary berm around the perimeter of the site and has constructed a holding pond to collect runoff that falls within the treatment facility. The operator reported that no spill from the temporary drainage control system occurred during the January 1993 storms.

In July 1993 the operator submitted a drainage control plan for containment of runoff under 100-year rainfall conditions. The plan is being revised responsive to Watermaster comments and expansion of the facility.

SECTION 10 - WATER QUALITY

10.1 Surface Water Quality

Water quality data for surface streams sampled by Rancho California WD are shown in Appendix Table D-2. In the summer of 1993-94 13 samples were collected at the Temecula gaging station and analyzed for nitrate. The maximum concentration noted was 0.7 mg/l as N compared to a drinking water standard of 10 mg/l as N.

In 1993-94 Camp Pendleton ended its off-base water quality sampling program. Water quality data collected in prior years are shown on Appendix Table D-1 of the 1992-93 Report.

In addition, July 1993 marked the termination of Eastern MWD's Santa Margarita River Monitoring Program. Under the program samples were collected from eight sites along the Santa Margarita River stream system from Temecula Creek near I-15 to the estuary near I-5. Data collected under that program included temperature, velocity and flow data and are shown in Appendix Table D-8 of the 1992-93 report.

In 1993-94 Eastern MWD did collect samples pursuant to Discharge Order No. 88-94. These data, including total dissolved solids, nitrate, phosphate and total phosphorous, were collected at five sites between 1991 and June 1994 as shown on Appendix Table D-10. Nitrate concentrates in samples taken on Rainbow Creek ranged from 6 to 38 mg/l as NO_3 compared to a drinking water standard of 45 mg/l as NO_3.

10.2 Groundwater Quality

During 1993-94 water quality data were collected from wells by Murrieta County WD, Rancho California WD, the U.S.G.S. for wells on Indian Reservations, and the U.S.M.C. at Camp Pendleton.

Water quality samples were collected from four wells in Murrieta County Water District as shown in Appendix Table D-3. All samples collected from the Holiday, House and North wells were tested for nitrates with only the Holiday well showing relatively high concentrations.

Water quality data for Rancho California WD wells are shown in Appendix Table D-4. New data were collected from 25 wells during 1993-94.

TDS concentrations increased in 14 of the 25 wells, decreased in seven wells and had no change or no comparative report for the other four wells. Wells that increased included Well No. 203 which increased from 415 mg/l in 1991 to 645 mg/l in 1994, and Well No. 302 which increased from 270 in 1992 to 530 in 1994.

Appendix Table D-5 shows water quality data collected by the U.S.G.S. from wells on Indian Reservations. In 1993-94 samples were collected from four wells on the Pechanga Indian Reservation. Values were consistent with historical results.

During 1993-94 samples of groundwater were collected from nine wells at Camp Pendleton as shown on Appendix Table D-6. Water quality showed little change from prior years except for Wells 10S/5W-26C1 and 10S/4W-18M4. For Well 10S/5W-26C1 sodium concentration dropped from the 133 to 152 mg/l range in 1991-93 to the 96.1 to 100 mg/l range in 1994. Conversely, for Well 10S/4W-18M4 the concentration of sodium increased from the 101 to 117 mg/l range in 1990 to 178 mg/l in the March 1994 period. These changes should be checked next year to see if the changes persist. The sampling data for sodium also shows that concentrations in all wells were significantly lower in 1989 than in succeeding years, which suggests a difference in analytical techniques between 1989 and subsequent years.

SECTION 11 - FIVE YEAR PROJECTION OF WATERMASTER OFFICE TASKS, EXPENDITURES AND REQUIREMENTS

11.1 General

Projected tasks over the next five years are listed below in two categories, tasks which are part of the regular Watermaster office operation and additional tasks which are not standard operations.

11.2 Regular Tasks

Tasks which are normally part of the Watermaster Office operation are briefly described as follows:

1. Update List of Substantial Users - A basic list of substantial water users is shown in Appendix C. Activities include adding new users to the list and monitoring the users on the current list.

2. Collect Water Production, Use, Import and Availability Data - This task includes collection of the quantities of water diverted, extracted, impounded, exported, imported, used or reclaimed by water districts and by other substantial users. As shown in Appendices A and B, water use is categorized among agricultural, domestic and commercial uses. This task also includes collection of data on surface diversions, and related consumptive use, return flows and losses.

3. Collect Well Location, Construction and Water Level Data Determination of the water in subsurface storage, changes in groundwater storage and trends in water levels requires collection of information on water levels and well construction data.

4. Administer Water Rights - Water users in the Watershed employ a wide variety of water rights. Activities in this task include researching the bases of existing water rights and comparing water rights with water use.

5. Monitor Water Quality and Water Right Activities - This task provides for investigating unauthorized water appropriations and water quality violations in the Watershed.

6. Collect Water Quality Data - Determination of basin water quality trends and salt balance requires collection of water quality data. Such data are needed for historic surface water supplies, historic outflows and exports as well as groundwater in storage.

7. Administer Lake Skinner and Domenigoni Valley Reservoir MOU's - This task provides for monitoring the operation of Lake Skinner and the Domenigoni Valley Reservoir to ensure that MWD is in compliance with the provisions of the Memorandum of Understanding on the Operation of Lake Skinner and the Memorandum of Understanding and Agreement on Operation of Domenigoni Valley Reservoir which have been adopted by the Court.

8. Administer Steering Committee Matters - This task involves administration of quarterly Steering Committee meetings, including distribution of notices and agendas, preparation of minutes, attendance at meetings, and dealing with various Steering Committee matters.

9. Prepare Court Reports/Budgets - Each year an annual report, which includes a budget and projected tasks, is required to be forwarded to the Court.

10. Monitor Streamflow and Water Quality Measuring Stations Stream gaging stations are operated and maintained by the U.S.G.S. under contract with the Watermaster Office. Water quality monitoring stations are operated and maintained by others. Data collected at these stations are reported to the Watermaster and included in the annual Watermaster report.

11. Data Management - This task provides for maintaining a data base for reports, correspondence and use by others.

11.3 Additional Tasks

Tasks which the Watermaster has identified but which are not part of normal operations are briefly described as follows:

1. Assist with RCWD/Camp Pendleton Technical Committee -This task includes participation on a Technical Committee formed to assist in resolving water rights issues between the United States and Rancho California Water District.

2. Determine Changes in Subsurface Storage - In this task well construction and water level data will be used to determine trends in levels, as well as quantities in storage in various hydrologic subunits. This determination will include estimates of quantities of water in storage and the source and quantity of recharge.

3. Determine Salt Balance - Following collection of water quality data and understanding of subsurface recharge the salt balances for various hydrologic subunits will be determined. This work follows the water level and storage change analysis.

4. Prepare List of All Water Users Under Court Jurisdiction This major task involves preparing a list of all private water users within certain areas in the Watershed. It can best be prepared using the assessor rolls as a starting point and then determining if there is any water use on the property. This list will also include a description of vested rights and appropriative priority dates if required.

5. Prepare Inventory of Ponds and Reservoirs - In recent years numerous small ponds and reservoirs have been constructed along streams in the Watershed. Some of these store water appropriated using SWRCB procedures. Other impoundments may constitute unauthorized water appropriations. In this task an inventory of ponds would be developed as a first step in determining which are authorized and which are not. Completion of this task provides an opportunity to check surface water diversions and substantial users.

11.4 Projected Expenditures

Projected expenditures over the next five years are listed as follows:

		Projected Expenditures		
		Watermaster Office	Gaging Station	Total
Current Year	1994/95	$153,300	$110,000	$263,300
Projected Years	1995/96	$153,700	$ 90,000	$243,700
	1996/97	$161,000	$ 95,000	$256,000
	1997/98	$169,000	$ 99,000	$268,000
	1998/99	$178,000	$104,000	$282,000
	1999/2000	$187,000	$109,000	$296,000

SECTION 12 - WATERMASTER OFFICE BUDGET 1995-96

A proposed total Watermaster Budget of $243,700 for the Water Year ending September 30, 1996, is included in this report as Table 12.1.

This budget includes $153,700 for the Watermaster Office and $90,000 for U.S.G.S. gaging station operations. The estimated cost for gaging station operation is based on the annual renewal of an existing agreement between the Watermaster and the U.S. Geological Survey.

TABLE 12.1

SANTA MARGARITA RIVER WATERSHED
PROPOSED WATERMASTER OFFICE BUDGET
Water Year Ending September 30, 1996

	APPROVED BUDGET CURRENT YEAR 1994-1995	PROPOSED BUDGET 1995-1996
	Total	Total
Watermaster Office	$	$
Rent	2,400	7,000
Accounting Services	4,000	4,000
Supplies	1,500	700
Insurance		
General Liability & Professional	4,000	4,000
Printing	1,500	1,100
Audit	2,100	2,400
Publications	1,500	500
Clerical/Data Management	40,000	41,000
Engineering Assistance	2,000	0
Utilities		
Telephone	2,000	1,500
Sanitation	1,200	0
Electric	900	0
Miscellaneous Operating/Maintenance	2,000	2,000
Mileage/Travel	1,500	1,000
Watermaster		
Consulting Services	75,000	75,000
Automobile Expense	3,000	3,000
Travel Reimbursements	5,500	7,500
Equipment		
Computer/Software	2,000	1,500
Equipment Maintenance	1,200	1,500
Copy Machine	---	0
SUBTOTAL WATERMASTER OFFICE	$153,300	$153,700
Estimated Cost of USGS Gaging Station Operation	110,000	90,000
TOTAL	$263,300	$243,700

WATERMASTER
SANTA MARGARITA RIVER WATERSHED

SANTA MARGARITA RIVER WATERSHED
ANNUAL WATERMASTER REPORT
WATER YEAR 1993-94

APPENDIX A
WATER PRODUCTION AND USE
WATER YEAR 1993-94

JULY 1995

TABLE A-1

SANTA MARGARITA RIVER WATERSHED
MONTHLY WATER PRODUCTION AND USE

EASTERN MUNICIPAL WATER DISTRICT
1993-94
Quantities in Acre Feet

	PRODUCTION					USE						RECLAIMED WASTE WATER				
MONTH YEAR	WELLS	IMPORTED 1/	EXPORTED FROM SMRW	NET IMPORT	TOTAL	AG	COMM	DOM 2/	TOTAL	LOSS	TOTAL USE+LOSS	REUSE IN SMRW	EXPORT	DISCHARGED TO RIVER	RECHARGED	TOTAL
1993																
OCT	41	591	93	498	539	0	0	512	512	27	539	485	21	0	0	506
NOV	26	713	94	619	645	0	0	613	613	32	645	229	0	0	0	229
DEC	0	213	209	4	4	0	0	4	4	0	4	89	0	0	0	89
1994																
JAN	63	805	146	659	722	0	0	686	686	36	722	127	0	0	0	127
FEB	21	386	245	141	162	0	0	154	154	8	162	56	0	0	0	56
MAR	27	747	135	612	639	0	0	607	607	32	639	130	0	0	0	130
APR	40	702	368	334	374	0	0	355	355	19	374	226	304	0	0	530
MAY	0	776	29	747	747	0	0	709	709	38	747	252	100	0	0	352
JUNE	0	1,109	68	1,041	1,041	0	0	989	989	52	1,041	456	29	0	0	485
JULY	0	1,786	522	1,264	1,264	0	0	1201	1,201	63	1,264	725	71	0	0	796
AUG	1	1,183	539	644	645	0	0	613	613	32	645	559	24	0	0	583
SEPT	13	1,071	484	587	600	0	0	570	570	30	600	592	85	0	0	677
TOTAL	232	10,082	2,932	7,150	7,382	0	0	7,013	7,013	369	7,382	3,926	634	0	0	4,560

1/ Does not include deliveries to Rancho California Water District or Elsinore Valley Municipal Water District

2/ Figures are 95% of water pumped and imported to allow for 5% loss

TABLE A-2

SANTA MARGARITA RIVER WATERSHED
MONTHLY WATER PRODUCTION AND USE

FALLBROOK PUBLIC UTILITY DISTRICT
1993-94
Quantities in Acre Feet

		PRODUCTION						USE					
MONTH YEAR	WELLS	TOTAL DISTRICT IMPORT	DELUZ AREA IMPORT	FALLBROOK AREA IMPORT	SMRW IMPORT 1/	TOTAL SMRW IMPORT	TOTAL PRODUCTION	AG	COMM	DOM	TOTAL IN SMRW	LOSS*	TOTAL USE IN SMRW
1993													
OCT	8	1,326	245	1,081	498	743	751	505	28	242	775	(24)	751
NOV	8	930	168	762	351	519	527	384	25	179	588	(61)	527
DEC	9	897	129	768	353	482	491	254	19	169	442	49	491
1994													
JAN	9	861	217	643	296	513	522	366	20	133	519	3	522
FEB	8	311	(38)	349	160	122	130	65	16	140	221	(91)	130
MAR	7	478	63	416	191	254	261	103	14	97	214	47	261
APR	9	691	117	574	264	381	390	196	18	128	342	48	390
MAY	8	813	97	716	329	426	434	193	20	117	330	104	434
JUNE	9	1,488	8	1,480	681	689	698	298	24	195	517	181	698
JULY	8	1,652	413	1,240	570	983	991	642	66	237	945	46	991
AUG	0	1,990	409	1,581	727	1,136	1,136	618	84	328	1,030	106	1,136
SEPT	0	1,687	418	1,268	584	1,002	1,002	658	80	287	1,025	(23)	1,002
TOTAL	83	13,124	2,246	10,878	5,004	7,250	7,333	4,282	414	2,252	6,948	385	7,333

1/ Approximately 46% of the Fallbrook area is within the Santa Margarita River Watershed

*Loss = Total production less total use

TABLE A-3

SANTA MARGARITA RIVER WATERSHED
MONTHLY WATER PRODUCTION AND USE

MURRIETA COUNTY WATER DISTRICT
1993-94
Quantities in Acre Feet

	PRODUCTION	USE					
MONTH YEAR	WELLS	AG *	COMM	DOM	TOTAL DELIVERED	LOSS **	TOTAL USE
1993							
OCT	50	1	10	32	43	7	50
NOV	34	0	12	27	39	-5	34
DEC	28	0	6	21	27	1	28
1994							
JAN	30	0	6	19	25	5	30
FEB	19	1	1	5	7	12	19
MAR	26	0	4	15	19	7	26
APR	32	1	6	20	27	5	32
MAY	38	1	7	26	34	4	38
JUNE	62	1	11	35	47	15	62
JULY	67	1	12	38	51	16	67
AUG	69	2	17	48	67	2	69
SEPT	57	2	11	38	51	6	57
TOTAL	512	10	103	324	437	75	512

* Rounded to nearest acre foot

** Loss = Total production less total delivered

TABLE A-4

SANTA MARGARITA RIVER WATERSHED
MONTHLY WATER PRODUCTION AND USE

RAINBOW MUNICIPAL WATER DISTRICT
1993-94
Quantities in Acre Feet

	PRODUCTION			USE				
MONTH YEAR	LOCAL	IMPORT TO WATERSHED	TOTAL IN WATERSHED	AG	COMMERCIAL/ DOMESTIC	TOTAL DELIVERIES	LOSS*	TOTAL USE
1993								
OCT	0	189	189	158	14	172	17	189
NOV	0	138	138	115	10	125	13	138
DEC	0	101	101	83	9	92	9	101
1994								
JAN	0	92	92	75	9	84	8	92
FEB	0	107	107	88	9	97	10	107
MAR	0	48	48	38	6	44	4	48
APR	0	102	102	86	7	93	9	102
MAY	0	89	89	70	11	81	8	89
JUNE	0	97	97	78	10	88	9	97
JULY	0	207	207	173	15	188	19	207
AUG	0	197	197	166	13	179	18	197
SEPT	0	284	284	238	20	258	26	284
TOTAL	0	1,651	1,651	1,368	133	1,501	150	1,651

*Loss = 10% of use

TABLE A-5

SANTA MARGARITA RIVER WATERSHED
MONTHLY WATER PRODUCTION AND USE

RANCHO CALIFORNIA WATER DISTRICT
1993-94
Quantities in Acre Feet

	PRODUCTION					USE									RECLAIMED WASTE WATER		
	LOCAL			IMPORT	TOTAL	AG	COMM	DOM	SMR RELEASE	VAIL RECHARGE	IMPORT RECHARGE	TOTAL USE	LOSS*	TOTAL	REUSE IN SMRW	EXPORT	RECHARGED
MONTH YEAR	WELLS IN GWA	WELLS OUT GWA	VAIL RELEASE														
1993																	
OCT	2,815	0	3,566	1,752	8,133	3,599	253	1,325	0	3,566	0	8,743	(610)	8,133	201	0	0
NOV	2,274	0	735	825	3,834	3,826	99	1,225	0	735	0	5,885	(2,051)	3,834	153	0	0
DEC	2,162	0	704	593	3,459	2,236	194	884	0	704	0	4,018	(559)	3,459	53	0	0
1994																	
JAN	1,967	0	565	608	3,140	1,395	160	641	0	565	0	2,761	379	3,140	62	0	0
FEB	1,159	0	475	0	1,634	2,156	166	732	0	475	0	3,529	(1,895)	1,634	57	0	0
MAR	1,646	0	616	321	2,583	476	119	522	0	616	0	1,733	850	2,583	93	0	0
APR	2,655	0	594	636	3,885	975	119	519	0	594	0	2,207	1,678	3,885	125	0	0
MAY	3,237	0	619	79	3,935	2,094	181	847	0	619	0	3,741	194	3,935	136	0	0
JUNE	3,741	0	405	2,428	6,574	2,053	192	916	80	405	0	3,646	2,928	6,574	240	0	0
JULY	3,821	0	190	3,079	7,090	3,993	221	1,283	58	190	0	5,745	1,345	7,090	302	0	0
AUG	3,662	0	0	3,557	7,219	4,619	313	1,740	168	0	0	6,840	379	7,219	248	0	0
SEPT	3,586	0	0	2,508	6,094	5,112	305	1,736	161	0	0	7,314	(1,220)	6,094	266	0	0
TOTAL	32,725	0	8,469	16,386	57,580	32,534	2,322	12,370	467	8,469	0	56,162	1,418	57,580	1,936	0	0

* Loss = Total production less total use

TABLE A-6

SANTA MARGARITA RIVER WATERSHED
MONTHLY WATER PRODUCTION AND USE

U.S.M.C. - CAMP PENDLETON
1993-94
Quantities in Acre Feet

	PRODUCTION			USE						RECLAIMED WASTE WATER		
				AGRICULTURE 1/		CAMP SUPPLY 2/		TOTAL	TOTAL*		IMPORT 4/	TOTAL
MONTH YEAR	AG LOCAL	CAMP SUPPLY	TOTAL	IN-SMRW	OUT-SMRW	IN-SMRW	OUT-SMRW	EXPORT	IN-SMRW	RECHARGED IN-SMR 3/	RECHARGED IN SMRW	RECHARGED IN SMRW
1993												
OCT	164	309	473	64	100	131	178	278	195	87	136	223
NOV	65	262	327	25	40	112	150	190	137	83	138	221
DEC	38	272	310	15	23	118	154	177	133	90	123	213
1994												
JAN	50	283	333	20	30	123	160	190	143	103	124	227
FEB	39	186	225	15	24	81	105	129	96	89	143	232
MAR	68	169	237	26	42	73	96	138	99	95	149	244
APR	164	226	390	64	100	98	128	228	162	90	115	205
MAY	122	215	337	47	75	92	123	198	139	88	121	209
JUNE	65	244	309	26	39	102	142	181	128	84	110	194
JULY	149	333	482	58	91	142	191	282	200	83	114	197
AUG	299	393	692	117	182	167	226	408	284	81	118	199
SEPT	248	258	506	97	151	106	152	303	203	61	110	171
TOTAL	1,471	3,150	4,621	574	897	1,345	1,805	2,702	1,919	1,034	1,501	2,535

* Assumes no losses

1/ Agricultural water use is divided with 39% used inside the SMRW and 61% used outside

2/ Camp Supply water use inside the SMRW equals 44% of sum of Camp Supply production plus Naval Weapons Station Import, minus the NWS Import (SMRW CS = .44 (CS+NWS Imp) - NWS Imp.)

3/ Discharge from Plant Nos. 3 plus 8 plus 29.17 acre feet per month from Plant No. 13

4/ Discharge from Plant No. 1 plus excess of Plant No. 13 over 29.17 acre feet per month

TABLE A-7

SANTA MARGARITA RIVER WATERSHED
MONTHLY WATER PRODUCTION AND USE

U. S. NAVAL WEAPONS STATION, FALLBROOK ANNEX
1993-94
Quantities in Acre Feet

	PRODUCTION			USE				WASTE WATER
MONTH YEAR	LOCAL	IMPORT TO WATERSHED 1/	TOTAL	AG	COMMERCIAL/ DOMESTIC	LOSS 2/	TOTAL USE	EXPORTED
1993								
OCT	0.0	7.8	7.8	0.0	7.1	0.7	7.8	0.3
NOV	0.0	6.4	6.4	0.0	5.8	0.6	6.4	0.4
DEC	0.0	2.8	2.8	0.0	2.5	0.3	2.8	0.3
1994								
JAN	0.0	3.7	3.7	0.0	3.4	0.3	3.7	0.4
FEB	0.0	2.2	2.2	0.0	2.0	0.2	2.2	0.6
MAR	0.0	2.6	2.6	0.0	2.4	0.2	2.6	0.5
APR	0.0	3.3	3.3	0.0	3.0	0.3	3.3	0.5
MAY	0.0	3.7	3.7	0.0	3.4	0.3	3.7	0.4
JUNE	0.0	8.8	8.8	0.0	8.0	0.8	8.8	0.5
JULY	0.0	7.5	7.5	0.0	6.8	0.7	7.5	0.4
AUG	0.0	10.2	10.2	0.0	9.3	0.9	10.2	0.5
SEPT	0.0	13.8	13.8	0.0	12.5	1.3	13.8	0.6
TOTAL	0.0	72.8	72.8	0.0	66.2	6.6	72.8	5.4

1/ - Import via Fallbrook Public Utility District

2/ - Loss = 10% of Use

TABLE A-8

SANTA MARGARITA RIVER WATERSHED
MISCELLANEOUS WATER PRODUCTION AND IMPORTS
Quantities in Acre Feet

1993-1994

MONTH YEAR	WESTERN MWD IMPORTS TO IMPROVEMENT DISTRICT A	PRODUCTION			
		ANZA MUTUAL WATER CO.	THOUSAND TRAILS	BUTTERFIELD OAKS MOBILE HOME PARK	LAKE RIVERSIDE ESTATES
1993					
OCT	2.90	3.33	3.69	0.01	29.74
NOV	2.30	2.50	1.36	0.01	30.83
DEC	2.00	1.37	2.79	0.01	9.36
1994					
JAN	2.10	2.29	2.13	0.02	8.43
FEB	1.20	1.84	1.00	0.01	6.41
MAR	1.60	1.04	1.39	0.93	4.86
APR	2.10	1.78	2.19	0.14	6.85
MAY	2.40	1.74	2.90	0.18	4.80
JUNE	3.60	5.46	4.61	0.18	16.58
JULY	5.80	7.70	5.65	0.28	69.89
AUG	6.30	4.56	5.00	0.25	32.53
SEPT	4.30	3.71 E	5.33	0.16	42.41
SUBTOTAL				2.18 7.50 *	
TOTAL	36.60	37.32	38.04	9.68	262.69

* Estimated non-metered lawn watering

E indicates an estimate

WATERMASTER
SANTA MARGARITA RIVER WATERSHED

SANTA MARGARITA RIVER WATERSHED
ANNUAL WATERMASTER REPORT
WATER YEAR 1993-94

APPENDIX B
WATER PRODUCTION AND USE
WATER YEAR 1965-66 TO WATER YEAR 1993-94

JULY 1995

TABLE B-1

SANTA MARGARITA RIVER WATERSHED
MONTHLY WATER PRODUCTION AND USE

EASTERN MUNICIPAL WATER DISTRICT
Quantities in Acre Feet

	PRODUCTION					USE						RECLAIMED WASTE WATER				
WATER YEAR	WELLS	IMPORTED 1/	EXPORTED FROM SMRW	NET IMPORT	TOTAL	AG 2/	COMM	DOM 3/	TOTAL	LOSS	TOTAL USE+LOSS	REUSE IN SMRW	EXPORT	DISCHARGED TO RIVER	RECHARGED	TOTAL
1966	0	1,604	0	1,604	1,604	1,520	0	4	1,524	80	1,604	0	0	0	100	100
1967	0	1,630	0	1,630	1,630	1,544	0	4	1,548	82	1,630	0	0	0	100	100
1968	0	1,464	0	1,464	1,464	1,386	0	5	1,391	73	1,464	0	0	0	100	100
1969	0	1,741	0	1,741	1,741	1,648	0	6	1,654	87	1,741	0	0	0	100	100
1970	0	1,417	0	1,417	1,417	1,340	0	7	1,346	71	1,417	0	0	0	101	101
1971	0	1,383	0	1,383	1,383	1,306	0	8	1,314	69	1,383	0	0	0	119	119
1972	0	1,470	0	1,470	1,470	1,388	0	8	1,396	74	1,470	0	0	0	242	242
1973	0	1,533	0	1,533	1,533	1,447	0	10	1,456	77	1,533	0	0	0	217	217
1974	0	1,601	0	1,601	1,601	1,511	0	10	1,521	80	1,601	0	0	0	193	193
1975	0	1,969	0	1,969	1,969	1,859	0	11	1,871	98	1,969	0	0	0	253	253
1976	145	2,493	0	2,493	2,638	2,356	0	150	2,506	132	2,638	134	0	0	155	289
1977	431	2,947	0	2,947	3,378	2,723	64	423	3,209	169	3,378	244	0	0	70	314
1978	375	2,551	0	2,551	2,926	2,409	0	371	2,780	146	2,926	300	0	0	75	375
1979	289	1,894	0	1,894	2,183	1,784	0	290	2,074	109	2,183	350	0	0	147	497
1980	281	1,192	0	1,192	1,473	1,116	0	283	1,399	74	1,473	375	0	0	220	595
1981	282	716	0	716	998	663	0	285	948	50	998	375	0	0	304	679
1982	321	1,112	0	1,112	1,433	1,038	0	323	1,361	72	1,433	375	0	0	386	761
1983	106	1,211	0	1,211	1,317	1,131	0	120	1,251	66	1,317	375	0	0	466	841
1984	236	699	0	699	935	644	0	244	888	47	935	400	0	0	525	925
1985	314	679	0	679	993	624	0	319	943	50	993	450	0	0	565	1,015
1986	229	760	0	760	989	700	0	239	940	49	989	600	0	0	509	1,109
1987	89	1,155	0	1,155	1,244	638	0	543	1,182	62	1,244	650	0	0	554	1,204
1988	4	2,047	0	2,047	2,051	524	0	1,424	1,948	103	2,051	650	0	0	650	1,300
1989	685	3,746	0	3,746	4,431	1,146	0	3,064	4,209	222	4,431	1,058	0	0	1,636	2,694
1990	492	8,578	2,977	5,601	6,093	978	0	4,810	5,788	305	6,093	1,567	0	0	2,160	3,727
1991	456	16,621	7,142	9,479	9,935	851	0	8,587	9,438	497	9,935	1,282	0	0	2,272	3,554
1992	527	13,486	4,893	8,593	9,120	29	0	8,635	8,664	456	9,120	1,323	0	245	2,385	3,953
1993	524	7,287	1,894	5,393	5,917	36	0	5,585	5,621	296	5,917	1,696	1,072	192	653	3,613
1994	232	10,082	2,932	7,150	7,382	0	0	7,013	7,013	369	7,382	3,926	634	0	0	4,560

1/ Does not include deliveries to Rancho California Water District or Elsinore Valley Municipal Water District

2/ Figures are 95% of water pumped and imported to allow for 5% loss

3/ Figures are 95% of water pumped and imported to allow for 5% loss

TABLE B-2

SANTA MARGARITA RIVER WATERSHED
ANNUAL WATER PRODUCTION AND USE

FALLBROOK PUBLIC UTILITY DISTRICT
Quantities in Acre Feet

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

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

/2 Loss = Total production less total use
(Neglects change in Storage at Red Mtn After 1985)

* - Revised Data

TABLE B-3

SANTA MARGARITA RIVER WATERSHED
ANNUAL WASTEWATER PRODUCTION AND DISPOSITION

FALLBROOK SANITARY DISTRICT
Quantities in Acre Feet

WATER YEAR	TOTAL WASTEWATER PRODUCTION	% WASTEWATER FROM SMRW	WASTEWATER FROM SMRW	WASTEWATER FROM U.S.M.W.S.	WASTEWATER EXPORTED BY FSD FROM SMRW	% WASTEWATER FROM SLR WATERSHED 1/	WASTEWATER IMPORTED FROM SLR WATERSHED
1966	395	81	320	0	0	19	75
1967	460	80	368	0	0	20	92
1968	524	80	419	0	0	20	105
1969	588	79	465	0	0	21	123
1970	652	78	509	0	0	22	143
1971	717	78	559	0	0	22	158
1972	782	77	602	0	0	23	180
1973	847	76	644	0	0	24	203
1974	912	75	684	0	0	25	228
1975	976	75	732	0	0	25	244
1976	1,040	74	770	0	0	26	270
1977	1,105	73	807	0	0	27	298
1978	1,170	72	842	0	0	28	328
1979	1,234	72	888	0	0	28	346
1980	1,298	71	922	0	0	29	376
1981	1,363	70	954	0	0	30	409
1982	1,428	69	985	0	0	31	443
1983	1,492	69	1,029	26 E	1,003	0	0
1984	1,556	68	1,058	26 E	1,032	0	0
1985	1,621	67	1,086	26 E	1,060	0	0
1986	1,685	66	1,112	18 P *	1,094 *	0	0
1987	1,750	66	1,155	27 *	1,128 *	0	0
1988	1,815	65	1,180	25 *	1,155 *	0	0
1989	1,881	64	1,204	22 *	1,182 *	0	0
1990	1,952	66	1,298	27	1,271	0	0
1991	1,622	60	973	11 *	962 *	0	0
1992	1,730	63	1,090	7	1,083	0	0
1993	2,051	62	1,271	16	1,255	0	0
1994	1,834	58	1,073	5	1,068	0	0

NOTE: Measured quantities available for Total Wastewater in Water Year 1969 and July 1989
All other quantities are estimated.
Prior to 1983, Wastewater was discharged into Fallbrook Creek.
After 1983, Wastewater is discharged into an ocean outfall

1/ - San Luis Rey Watershed
E - Estimated
P - Partial Year Data
* - Revised Data for these years

TABLE B-4

SANTA MARGARITA RIVER WATERSHED
ANNUAL WATER PRODUCTION AND USE

MURRIETA COUNTY WATER DISTRICT
Quantities in Acre Feet

	PRODUCTION	USE					
WATER YEAR	WELLS	AG	COMM	DOM	TOTAL DELIVERED	LOSS*	TOTAL USE
1966	41	0	0	37	37	4	41
1967	45	0	0	41	41	4	45
1968	54	0	0	49	49	5	54
1969	54	0	0	49	49	5	54
1970	73	0	0	66	66	7	73
1971	83	3	0	72	75	8	83
1972	111	10	0	91	101	10	111
1973	92	11	0	72	84	8	92
1974	132	14	0	107	120	12	132
1975	153	18	0	121	139	14	153
1976	117	22	0	84	106	11	117
1977	170	21	0	134	155	15	170
1978	169	19	0	135	154	15	169
1979	197	19	0	160	179	18	197
1980	218	20	0	178	198	20	218
1981	265	30	0	211	241	24	265
1982	230	21	0	188	209	21	230
1983	216	14	0	182	196	20	216
1984	304	26	0	250	276	28	304
1985	308	19	0	261	280	28	308
1986	305	22	0	255	277	28	305
1987	326	23	0	273	296	30	326
1988	303	13	35	262	275	28	303
1989	286	11	72	262	344	-4	340
1990	465	13	76	266	355	110	465
1991	459	15	88	250	353	106	459
1992	492	6	122	302	430	62	492
1993	508	4	105	323	432	76	508
1994	512	10	103	324	437	75	512

* Losses assumed to be 10% of use (1966 - 1988)

TABLE B-5

SANTA MARGARITA RIVER WATERSHED
ANNUAL WATER PRODUCTION AND USE

RAINBOW MUNICIPAL WATER DISTRICT
Quantities in Acre Feet

	PRODUCTION			USE				
WATER YEAR	LOCAL	IMPORT TO DISTRICT	TOTAL IN WATERSHED 1/	AG 2/	COMMERCIAL/ DOMESTIC 3/	TOTAL DELIVERIES	LOSS 4/	TOTAL USE
1966	0	14,538	1,308	1,049	140	1,189	119	1,308
1967	0	12,167	1,095	878	117	995	100	1,095
1968	0	15,301	1,377	1,104	147	1,252	125	1,377
1969	0	13,917	1,253	1,005	134	1,139	114	1,252
1970	0	18,764	1,689	1,354	181	1,535	154	1,689
1971	0	18,338	1,650	1,324	177	1,500	150	1,650
1972	0	22,633	2,037	1,634	218	1,852	185	2,037
1973	0	17,955	1,616	1,296	173	1,469	147	1,616
1974	0	22,768	2,049	1,643	219	1,863	186	2,049
1975	0	13,856	1,247	1,000	133	1,134	113	1,247
1976	0	24,878	2,239	1,796	240	2,035	204	2,239
1977	0	26,038	2,343	1,879	251	2,130	213	2,343
1978	0	24,312	2,188	1,755	234	1,989	199	2,188
1979	0	26,084	2,348	1,883	251	2,134	213	2,347
1980	0	27,660	2,489	1,997	266	2,263	226	2,489
1981	0	35,036	3,153	2,529	337	2,866	287	3,153
1982	0	27,334	2,460	1,973	263	2,236	224	2,460
1983	0	24,957	2,190	1,735	256	1,991	199	2,190
1984	0	32,526	3,068	2,483	306	2,789	279	3,068
1985	0	28,612	3,410	2,798	302	3,100	310	3,410
1986	0	29,023	2,945	2,353	324	2,677	268	2,945
1987	0	29,449	3,390	2,765	317	3,082	308	3,390
1988	0	29,070	2,985	2,372	342	2,714	271	2,985
1989	0	32,034	3,003	2,385	345	2,730	273	3,003
1990	0	34,612	3,818	3,003	468	3,471	347	3,818
1991	0	27,754	2,904	2,276	364	2,640	264	2,904
1992	0	26,056	2,277	1,877	193	2,070	207	2,277
1993	0	23,766	1,965	1,655	132	1,787	178	1,965
1994	0	22,173	1,651	1,368	133	1,501	150	1,651

1/ 1966 through 1982 estimated to be 9% of total district imports

2/ 1966 through 1982 estimated to be 80.2% of total deliveries to watersbed

3/ 1966 through 1982 estimated to be 10.7% of total deliveries to watershed

4/ Loss = 10% of use

TABLE B-6

SANTA MARGARITA RIVER WATERSHED
ANNUAL WATER PRODUCTION AND USE

RANCHO CALIFORNIA WATER DISTRICT
Quantities in Acre Feet

	PRODUCTION						USE								RECLAIMED WASTE WATER		
	LOCAL				IMPORT	TOTAL 2/	AG	COMM	DOM	SMR RELEASE	VAIL RECHARGE	IMPORT RECHARGE	TOTAL USE	LOSS 3/	TOTAL	REUSE IN SMRW	EXPORT	RECHARGE
WATER YEAR	WELLS IN GWA	WELLS OUT GWA	VAIL RELEASE	VAIL 1/ IRRIGATION														
1966		0	0	185 *	0						0	0						
1967	4,288	0	0	1,136 *	0	5,424					0	0			5,424	0	0	0
1968	5,100	0	0	398 *	0	5,498					0	0			5,498	0	0	0
1969	3,617	0	0	697 *	0	4,314					0	0			4,314	0	0	0
1970	6,721	0	0	840 *	0	7,561					0	0			7,561	0	0	0
1971	7,960	0	0	203 *	0	8,163					0	0			8,163	0	0	0
1972	8,369	0	0	1,541 *	0	9,910					0	0			9,910	0	0	0
1973	7,726	0	0	524 *	0	8,250					0	0			8,250	0	0	0
1974	10,163	0	0	1,066 *	0	11,229					0	0			11,229	0	0	0
1975	10,357	0	0	369 *	0	10,726					0	0			10,726	0	0	0
1976	11,809	0	0	50 *	119	11,978					0	0			11,978	0	0	0
1977	10,522	0	0	0	1,845	12,367					0	0			12,367	0	0	0
1978	8,930	0	0	0	5,774	14,704					0	0			14,704	0	0	0
1979	11,371	0	0	0	7,009	18,380					0	0			18,380	0	0	0
1980	12,621	0	10,944	0	10,126	33,691					10,944	0			33,691	0	0	0
1981	15,612	0	6,802	0	15,282	37,696					6,802	0			37,696	0	0	0
1982	12,631	0	6,058	0	13,378	32,067					6,058	0			32,067	0	0	0
1983	16,577	98	12,113	715	5,752	35,255					12,113	0			35,255	0	0	0
1984	25,660	4	6,612	1,144	6,716	40,136					6,612	0			40,136	0	0	0
1985	24,373	0	5,027	1,201	7,158	37,759					5,027	0			37,759	0	0	0
1986	26,997	0	8,722	1,053	11,174	47,946					8,722	0			47,946	0	0	0
1987	33,735	0	8,089	273	7,564	49,661					8,089	0			49,661	48	0	0
1988	21,367	0	4,844	0	17,854	44,065					4,844	0			44,065	82	0	0
1989	26,131	0	0	0	22,895	49,026	25,533	3,316	13,198	852	0	2,294	45,193	3,833	49,026	168	0	0
1990	33,241	0	0	0	22,030	55,271	27,643	3,940	14,916	902	0	0	47,401	7,870	55,271	133	0	0
1991	26,503	0	6,253	0	21,238	53,994	32,924	2,941	10,603	785	6,253	701	54,207	(213)	53,994	352	0	0
1992	29,968	0	2,244	0	16,931	49,143	30,651	2,406	9,672	683	2,244	0	45,656	3,487	49,143	374	0	0
1993	31,029	0	31,704	0	11,411	74,144	29,265	2,141	10,618	519	31,704	0	74,247	(103)	74,144	378	0	0
1994	32,725	0	8,469	0	16,386	57,580	32,534	2,322	12,370	467	8,469	0	56,162	1,418	57,580	1,936	0	0

1/ Figures from 1966 to 1972 supplied by USGS; 1972 to 1994 supplied by RCWD

2/ Total production = Wells, Total Diversions and Import

3/ Loss = Total production less total use

* - Irrigation 1966 to 1976 by pumping from Vail Lake

TABLE B-7

SANTA MARGARITA RIVER WATERSHED
ANNUAL WATER PRODUCTION AND USE

U.S.M.C. - CAMP PENDLETON
EXCLUDING NAVAL WEAPONS STATION SHOWN ON B-8
Quantities in Acre Feet

	PRODUCTION			USE						RECLAIMED WASTE WATER		
WATER YEAR	AG LOCAL	CAMP SUPPLY	TOTAL	AGRICULTURE 1/ IN-SMRW	AGRICULTURE 1/ OUT-SMRW	CAMP SUPPLY 2/ IN-SMRW	CAMP SUPPLY 2/ OUT-SMRW	TOTAL EXPORT	TOTAL 3/ IN-SMRW	RECHARGED IN-SMR 4/	IMPORT 5/ RECHARGED IN SMRW	TOTAL RECHARGED IN SMRW
1966	1,101	4,692	5,793	429	672	2,064	2,628	3,299	2,494	919	974	1,893
1967	796	4,903	5,699	310	486	2,157	2,746	3,231	2,468	914	1,243	2,156
1968	986	5,046	6,032	385	601	2,220	2,826	3,427	2,605	866	1,214	2,080
1969	940	4,959	5,899	367	573	2,118	2,841	3,414	2,485	1,019	1,170	2,189
1970	1,106	5,633	6,739	431	675	2,414	3,219	3,894	2,845	1,032	1,113	2,145
1971	819	5,330	6,149	319	500	2,281	3,049	3,549	2,600	921	1,090	2,011
1972	817	5,323	6,140	319	498	2,278	3,045	3,543	2,597	900	1,168	2,068
1973	1,003	5,121	6,124	391	612	2,189	2,932	3,544	2,580	949	1,187	2,137
1974	909	5,202	6,111	355	554	2,224	2,978	3,532	2,579	915	1,140	2,055
1975	757	4,593	5,350	295	462	1,957	2,636	3,098	2,252	989	1,530	2,519
1976	885	5,384	6,269	345	540	2,305	3,079	3,619	2,650	949	1,497	2,447
1977	994	4,506	5,500	388	606	1,918	2,588	3,194	2,306	942	1,416	2,358
1978	176	5,177	5,353	69	107	2,213	2,964	3,071	2,282	1,164	1,283	2,446
1979	1,070	7,213	8,283	417	653	3,109	4,104	4,756	3,527	1,065	1,427	2,493
1980	835	5,495	6,330	326	509	2,353	3,142	3,651	2,679	1,101	1,405	2,506
1981	1,464	5,240	6,704	571	893	2,241	2,999	3,892	2,812	1,119	1,249	2,368
1982	1,447	5,024	6,471	564	883	2,146	2,878	3,761	2,710	982	1,273	2,254
1983	942	4,215	5,157	367	575	1,790	2,425	3,000	2,157	1,252	1,242	2,494
1984	1,078	4,501	5,579	420	658	1,916	2,585	3,243	2,336	1,323	1,120	2,443
1985	1,069	4,764	5,833	417	652	2,039	2,725	3,377	2,456	1,419	1,200	2,619
1986	953	4,807	5,760	372	581	2,062	2,745	3,326	2,434	1,259	981	2,240
1987	1,098	4,838	5,936	428	670	2,064	2,774	3,444	2,492	1,367	1,799	3,166
1988	1,223	4,721	5,944	477	746	2,010	2,711	3,457	2,487	1,523	1,872	3,396
1989	856	5,044	5,900	334	522	2,148	2,896	3,418	2,482	1,301	1,446	2,747
1990	855	4,228	5,083	333	522	1,779	2,449	2,971	2,112	1,277	1,451	2,728
1991	554	3,159	3,713	216	338	1,329	1,830	2,168	1,545	1,070	1,219	2,289
1992	898	3,254	4,152	350	548	1,376	1,878	2,426	1,726	933	1,548	2,481
1993	1,067	2,879	3,946	416	651	1,201	1,678	2,329	1,617	1,049	1,926	2,975
1994	1,471	3,150	4,621	574	897	1,345	1,805	2,702	1,919	1,034	1,501	2,535

1/ Agricultural water use is divided with 39% used inside the SMRW and 61% used outside.

2/ Camp Supply water use inside the SMRW equals 44% of sum of Camp Supply production plus Naval Weapons Station Import, less the NWS Import for years beginning 1969. Prior to 1969 44% was used inside the SMRW and 56% was used outside.

3/ Assumes No Losses

4/ Wastewater Recharged in SMR equals effluent from Plants 3, 8 and 13 (partial).

5/ Wastewater Import Recharged in SMRW equals effluent from Plant 1 plus the portion of the effluent from Plant 2. returned to the SMRW via Pond 2 plus the portion of the effluent from Plant 13 not included in 4/.
No record available for effluent from Plant 2 returned to SMRW for 1966-1974 and 1982 - June 1990.
Calculation of import recharged in Santa Margarita River from Plant 2 is based on zero when no record is available.

TABLE B-8

SANTA MARGARITA RIVER WATERSHED
ANNUAL WATER PRODUCTION AND USE

U. S. NAVAL WEAPONS STATION, FALLBROOK ANNEX
Quantities in Acre Feet

	PRODUCTION			USE				WASTE WATER
WATER YEAR	LOCAL	IMPORT TO WATERSHED 1/	TOTAL	AG	COMMERCIAL/ DOMESTIC	LOSS 2/	TOTAL USE	EXPORTED
1966	Included	0		0	Included			0
1967	in USMC	0		0	in USMC			0
1968	Camp Supply	0		0	Camp Supply			0
1969	0	115 E	115	0	105	10	115	0
1970	0	115 E	115	0	105	10	115	0
1971	0	115 E	115	0	105	10	115	0
1972	0	115 E	115	0	105	10	115	0
1973	0	115 E	115	0	105	10	115	0
1974	0	115 E	115	0	105	10	115	0
1975	0	115 E	115	0	105	10	115	0
1976	0	115 E	115	0	105	10	115	0
1977	0	115 E	115	0	105	10	115	0
1978	0	115 E	115	0	105	10	115	0
1979	0	115 E	115	0	105	10	115	0
1980	0	115 E	115	0	105	10	115	0
1981	0	115 E	115	0	105	10	115	0
1982	0	115 E	115	0	105	10	115	0
1983	0	115 E	115	0	105	10	115	26 E
1984	0	115 E	115	0	105	10	115	26 E
1985	0	102	102	0	93	9	102	26 E
1986	0	94	94	0	85	9	94	18 P *
1987	0	116	116	0	105	11	116	27 *
1988	0	120	120	0	109	11	120	25 *
1989	0	128	128	0	116	12	128	22 *
1990	0	145	145	0	132	13	145	27
1991	0	109	109	0	99	10	109	11 *
1992	0	99	99	0	90	9	99	7
1993	0	117	117	0	106	11	117	16
1994	0	73	73	0	66	7	73	5

1/ - Estimate 1969-1984 - Records not available
2/ - Loss = 10% of Use
E - Estimate
P - Partial year data
* - Revised data

WATERMASTER
SANTA MARGARITA RIVER WATERSHED

SANTA MARGARITA RIVER WATERSHED
ANNUAL WATERMASTER REPORT
WATER YEAR 1993-94

APPENDIX C
SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS

JULY 1995

APPENDIX C

SANTA MARGARITA RIVER WATERSHED
SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 93-94	IRRIGATED CROP 93-94	WELL/DIVERSION LOCATION TWP/RNG/SEC	WELL PRODUCTION AC. FT	SURFACE DIVERSION AC. FT
AGUANGA GROUNDWATER AREA								
Clawson, Gary A.	43425 Sage Road	917-050-009	309.74	Total				
	Aguanga, Ca. 92536	917-050-007	82.19	|				
		581-070-013	43.10	of				
		581-150-013	120.56	|				
		581-150-016	25.37	|				
		581-070-014	158.08	30.00	Alfalfa	8S/1E-7N(1)	Total	
						8S/1E-7N(2)	of	
						8S/1E-7Q(1)		
						8S/1E-7Q(2)	90.00	
Cottle, Thomas C.	42551 Hwy 79	583-040-028	25.52	Total				
	Aguanga, Ca. 92536	583-040-029	19.89	|		8S/1E-19K	79.40	
				of		8S/1E-19G4		
		583-040-024	23.48	|				
		583-040-025	23.12	46.00	Oats			
		583-040-026	23.16	and				
		583-040-027	22.64	20.00	Pasture			
						8S/1E-29L		88.00
Strange, Owen W.	m/t P.O. Box 1974	583-040-022	97.78	Total of		8S/1E-19Q(1)	150.00	
and Elizabeth G.	Rancho Santa Fe, Ca.	583-040-021	13.45	80.00	Oats & Barley		Domestic	
Trustees, Strange	92067	583-130-001-3	80.00	|				
Living Trust of 4-15-88	43023 Hwy 79	583-120-001-2	120.00	40.00	Alfalfa and			
	Aguanga, Ca. 92536	583-060-003-9	41.60		Permanent pasture			
						8S/1E-29L		250.00
Twin Creek Ranch/	c/o Jim Holden	583-120-081	17.29	0.00				
Chester M. Mason	P. O. Box 519	583-120-083	68.09	12.00	Row Crops	8S/1E-28N1	Total	
Family Trust	Corona, Ca. 91718					8S/1E-28N(2)	|	
	44201 Hwy 79 Aguanga						|	
	44735 Hwy 79 Aguanga	583-120-084	179.39	30.00	Row Crops	8S/1E-29H	of	
		583-150-001	80.00	36.00	Row Crops		|	
		583-140-014	48.03	30.00	Row Crops	8S/1E-33F	|	
		583-140-015	40.00	25.00	Row Crops	8S/1E-33G1	|	
		583-140-016	40.00	12.00	Row Crops	8S/1E-33B	580.00	
		583-140-018	10.09	0.00				
		583-140-020	10.15	0.00				

 Well number in parentheses designated by Watermaster

APPENDIX C

SANTA MARGARITA RIVER WATERSHED
SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 93-94	IRRIGATED CROP 93-94	WELL/DIVERSION LOCATION TWP/RNG/SEC	WELL PRODUCTION AC. FT	SURFACE DIVERSION AC. FT
AGUANGA GROUNDWATER AREA (Cont)								
Vrieling, Gerrit J. and Betty J.	m/t 15015 Cheshire La Mirada, Ca. 90638 45203 Hwy 371 Aguanga	583-240-022	10.00	9.00	Pistachios	8S/1E-23N	9.90	
Harris, Homer N. and Dolores G.	44444 Sage Road Aguanga, Ca. 92536	581-160-014	17.73	10.00	Citrus	8S/1E-18J(2)	Total	
						8S/1E-18J(1)	|	
		581-160-015	7.42	10.00	Walnuts		|	
		581-150-009	7.00	Total		8S/1E-18H(1)	of	
						8S/1E-18H(2)	|	
		581-180-002	20.00	0.00			|	
		581-180-004	20.00	0.00			|	
		581-180-014	21.40	0.00		8S/1E-17M	30.00	
						8S/1E-17E		
Missionary Foundation, Inc.	m/t 1625 Tonia Ct. Riverside, CA 92506-5346	581-170-006	310.00	Total		8S/1E-17B		
				|		8S/1E-17H		
	44200 Sage Rd	581-180-009	120.00	|				
	Aguanga, Ca. 92536	581-190-001	320.00	of				
		581-120-006	200.00	|		8S/1E-8K2	98.00	
				|				
				100.00	Row Crops			
		581-070-005	640.00	0.00		8S/1E-9Q - Diversion		2.00
TOTAL				490.00			1037.30	340.00

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APPENDIX C

SANTA MARGARITA RIVER WATERSHED
SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 93-94	IRRIGATED CROP 93-94	WELL/DIVERSION LOCATION TWP/RNG/SEC	WELL PRODUCTION AC. FT	SURFACE DIVERSION AC. FT
TEMECULA CREEK ABOVE AGUANGA GROUNDWATER AREA								
Agri-Empire, Inc.	m/t P. O. Box 490	113-090-01	377.07	Total				
	San Jacinto, Ca. 92383	113-090-03	21.46	|				
		113-090-05	541.22	|				
		113-100-01	389.81	|		9S/2E-11B - Diversion (E)		10.00
		113-130-01	150.09	|		9S/2E-17		
E - Estimated		113-140-03	196.54	of		9S/2E-16N2	229.00	
				|		9S/2E-16M	89.00	
				|		9S/2E-16F1	5.00	
				|		9S/2E-16N1	0.00	
				|		9S/2E-16F2	53.00	
				|		9S/2E-16K - Diversion		34.00
		113-140-04	503.24	|				
		113-140-05	45.09	|				
		113-140-06	93.94	|				
		114-020-09	37.16	245.00	Potatoes			
		114-030-08	331.79	|	and	9S/2E-22	164.00	
		114-030-26	42.87	245.00	Oats			
Bergman, Arlie W.	37126 Hwy 79	113-140-01 *	358.62	Total		9S/2E-16B(1)	Total	
and Coral R.	Warner Springs, Ca. 92086			of		9S/2E-16B(2)	of	
				|		9S/2E-16G	200.00	
* Land leased to		113-140-02 *	38.75	80.00	Potatoes			
Agri-Empire, Inc.		114-020-12	108.78	0.00				
		114-030-10	41.51	0.00				
		113-130-03	115.75	0.00				
		113-130-04	39.65	0.00				
Ward, Alvis A	m/t 2 Rue Biarritz	112-030-58	69.83	20.00	Pasture	9S/1E-1Q(1)	315.40	
	Newport Beach, Ca. 92660			33.00	Grain/Grass	9S/1E-1Q(2)	Domestic	
	38790 Highway 79	112-030-22	24.77	10.00	Pasture			
	Warner Springs, Ca. 92086	112-030-38	40.00	10.00	Pasture	9S/1E-12A	Domestic	
Ward, Donald F.	38790 Highway 79	112-030-67	67.41	10.00	Oats/Sudan	Used 9S/1E-1Q(1) on Alvis Ward's Property		
	Warner Springs, CA 92086	112-030-59	160.00	0.00	Pasture	9S/1E-1M - Diversion		0.00

 Well number in parentheses designated by Watermaster

APPENDIX C

SANTA MARGARITA RIVER WATERSHED
SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 93-94	IRRIGATED CROP 93-94	WELL/DIVERSION LOCATION TWP/RNG/SEC	WELL PRODUCTION AC. FT	SURFACE DIVERSION AC. FT
TEMECULA CREEK ABOVE AGUANGA GROUNDWATER AREA (Cont)								
Papac, Andrew and Olga	m/t 2030 Santa Anita Ave South El Monte, CA 91733 38642 Highway 79 Warner Springs, CA 92086	113-060-012	63.21	20.00	Bermuda Grass	9S/2E-7D 9S/2E-7E - Diversion		38.00
Templeton, Robert D. and Linda K. * Land leased to Agri-Empire, Inc.	35490 Highway 79 Warner Springs, Ca. 92086	114-120-042 *	78.41	0.00		9S/2E-35D1 9S/2E-35D1		
		114-070-007 *	76.42	23.00	Potatoes & Oats	9S/2E-27R1 9S/2E-27R2 9S/2E-27J	Total of 208.00	
		114-080-014 *	42.51	42.00	Potatoes & Oats			
		114-080-013 *	21.30	15.00	Potatoes & Oats			
TOTAL				753.00			1263.40	82.00

 Well number in parentheses designated by Watermaster

APPENDIX C

SANTA MARGARITA RIVER WATERSHED
SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 93-94	IRRIGATED CROP 93-94	WELL/DIVERSION LOCATION TWP/RNG/SEC	WELL PRODUCTION AC. FT	SURFACE DIVERSION AC. FT
WILSON CREEK ABOVE AGUANGA GROUNDWATER AREA ANZA VALLEY								
Greenwald, Alvin G.	6010 Wilshire Blvd #500	573-180-001	156.38	156.38	Pasture	7S/3E-17E	625.52	
	Los Angeles, Ca. 90036	576-070-001	70.00	70.00	Pasture	7S/3E-20R	266.00	
Agri-Empire, Inc.	P.O. Box 490 San Jacinto, Ca. 92383							
	Section 8	573-090-005	45.17	Total of				
		573-100-002	27.79	70.00	Oats			
* Land leased from Stewart C. Sale 2242 Poplar Court Murrieta, CA 92362		573-091-012 *	30.29	Total				
		573-091-013 *	18.98	Grown				
		573-091-014 *	17.54	Sale				
		573-091-015 *	17.92	Lease				
		573-091-016 *	18.50	Is				
		573-091-017 *	18.83	130.00	Potatoes			
	Section 10	575-050-044	14.36	0.00				
		575-050-405	14.36	0.00				
		575-060-002	113.49	0.00		7S/3E-11N4	247.00	
						7S/3E-11P3	407.00	
	Section 13	575-100-037	57.80	0.00				
	Section 14	575-110-021	143.75	Total of		7S/3E-14D1	263.00	
		575-110-027	54.45	100.00	Oats			
		575-310-002	39.09	0.00		7S/3E-14C2	277.00	
		575-310-011	80.00	0.00				
		575-310-012	80.00	0.00				
		575-310-013	17.46	0.00				
		575-310-027	17.46	0.00				
	Section 15	575-080-014	9.92	Total				
		575-080-015	4.35	|				
		575-080-017	9.75	|				
		575-080-018	10.13	|				
		575-080-019	31.29	|				
		575-080-021	20.00	|				
		575-080-022	20.00	|				
		575-080-024	20.00	|				
		575-080-027	20.00	|				
		575-090-010	38.80	170.00	Oats			
	Section 17	573-180-011	39.74	30.00	Potatoes			

 Well number in parentheses designated by Watermaster

APPENDIX C

SANTA MARGARITA RIVER WATERSHED
SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 93-94	IRRIGATED CROP 93-94	WELL/DIVERSION LOCATION TWP/RNG/SEC	WELL PRODUCTION AC. FT	SURFACE DIVERSION AC. FT
WILSON CREEK ABOVE AGUANGA GROUNDWATER AREA								
ANZA VALLEY (Cont)								
Agri-Empire, Inc. (Cont)								
* Land leased from		573-200-004 *	18.24	Total				
Linus W. & Helen M. Miller		573-200-005 *	18.50	Grown				
P. O. Box 602		573-200-006 *	18.89	On				
Anza, Ca. 92306		573-200-007 *	18.88	Miller				
		573-200-008 *	18.31	Lease				
		573-200-009 *	36.40	Is				
		573-200-010 *	18.68	125.00	Oats			
	Section 20	576-060-009	8.26	Total				
		576-060-031	16.09	of				
		576-060-033	79.45	160.00	Potatoes			
		576-060-037	41.41	|				
		576-070-003	80.00	and				
		576-070-005	116.57	65.00	Oats			
				and				
	Section 21	576-080-003	133.72	150.00	Oats			
		576-100-029	40.00	40.00	Oats			
* Land leased from		576-110-001 *	160.00	40.00	Oats			
Louise Phebe Hamilton Tr				40.00	Potatoes			
P. O. Box 102, Anza, Ca. 92306								
		576-110-002	28.00	Total				
		576-110-004	50.00	|				
		576-110-006	19.29	|		7S/3E-21R3	342.00	
		576-110-007	17.82	of				
		576-110-008	17.00	|				
		576-110-009	18.41	80.00	Potatoes			
	Section 22	575-120-012	88.03	Total				
		575-130-003	19.55	of				
		575-130-006	40.89	90.00	Oats			
		575-130-008	18.56	Total				
		575-130-009	20.06	|				
		575-130-010	20.07	of				
		575-130-011	19.19	|				
		575-130-012	18.18	35.00	Oats			
		575-130-013	19.02	and				
		575-130-014	19.00	|				
		575-130-015	17.56	80.00	Potatoes			
	Section 23	575-140-019	105.04	90.00	Potatoes			

 Well number in parentheses designated by Watermaster

APPENDIX C

SANTA MARGARITA RIVER WATERSHED
SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 93-94	IRRIGATED CROP 93-94	WELL/DIVERSION LOCATION TWP/RNG/SEC	WELL PRODUCTION AC. FT	SURFACE DIVERSION AC. FT
WILSON CREEK ABOVE AGUANGA GROUNDWATER AREA								
ANZA VALLEY (Cont)								
Agri Empire, Inc. (Cont)								
Cahuilla Indian Reservation	Section 26	576-130-002	640.00	80.00	Oats and			
* Land leased to Agri-Empire, Inc.	Section 27	576-130-001 *	640.00	80.00	Potatoes	7S/3E-27D1	342.00	
	Domestic Wells Reported by Bureau of Indian Affairs						Total	
	Wells in Basement Complex	Wells out of SMR Watershed	Wells with QYAL and/or QTOAL					
	7S/2E-26B2	8S/3E-2A1	7S/2E-14M1					
	7S/2E-34E1	8S/3E-2D1	7S/2E-14M2					
	7S/2E-36A1	8S/3E-2E1	7S/2E-23G1					
	7S/2E-36J1	8S/3E-2K1	7S/2E-23H1					
	7S/3E-26A1		7S/2E-23K1					
	7S/3E-29Q1		7S/2E-23Q1				of	
	7S/3E-31M1		7S/2E-25F1					
	8S/3E-6B1		7S/2E-28Q1					
			7S/3E-30P1					
			7S/3E-31L2					
			7S/3E-34E1					
			8S/2E-4P1					
			8S/3E-6J1					
							14.70	
SUBTOTAL ANZA VALLEY				1,881.38			2,784.22	0.00
WILSON CREEK ABOVE AGUANGA GROUNDWATER AREA								
LEWIS VALLEY								
Green Shell Company	39850 Sage Road Hemet, Ca. 92343	571-080-012	80.00	50.00	Olive Trees	7S/1E-20Q	55.00	
SUBTOTAL LEWIS VALLEY				50.00			55.00	0.00
TOTAL WILSON CREEK ABOVE AGUANGA GROUNDWATER AREA				1,931.38			2,839.22	0.00

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APPENDIX C

SANTA MARGARITA RIVER WATERSHED
SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 93-94	IRRIGATED CROP 93-94	WELL/DIVERSION LOCATION TWP/RNG/SEC	WELL PRODUCTION AC. FT	SURFACE DIVERSION AC. FT
MURRIETA-TEMECULA GROUNDWATER AREA								
Poyorena, Thomas J.	m/t 22145 Grand Ave Wildomar, Ca. 92395 21853 Palomar St.	369-510-022	18.79	14.00	Pasture	6S/4W-35P	53.20	
Mitchell Stock Farm, Inc.	m/t 42125 Elm St Murrieta, Ca. 92362 25849 Washington Ave Murrieta, Ca. 92362	909-100-007	40.00	5.00	Bermuda Grass	7S/3W-28R	19.00	
International Immunology	m/t 25549 Adams Ave Murrieta, Ca. 92362	909-060-020	9.33					
		909-170-010	9.55					
		909-170-011	27.77	25.00	Pasture	7S/3W-21K	22.40	
Temecula Ranchos	m/t 2100 Tulare St #405	952-240-001	429.43	378.46	Citrus	8S/2W-14P1	265.00	
c/o Chester Rowell	Fresno, CA 93271	952-230-002	48.92	41.20	Citrus	8S/2W-14P	200.00	
and Roger Rowell	45055 Rio Linda Road	943-230-001	109.34	107.00	Citrus	7S/2W-26L	240.00	
	Rancho California Road	943-230-003	14.17	13.00	Citrus			
	La Serena Way	942-230-003	37.83	37.00	Citrus			
	Temecula, Ca. 92390	943-040-006	20.00	18.00	Citrus	7S/2W-28L	200.00	
		943-060-001	94.49	89.00	Citrus			
		943-060-002	26.50	29.00	Citrus			
Anza Grove	c/o McMillan Farm Mgt.	942-1B0-002	40.28	Total of				
	29379 Rancho Cal. Rd	942-240-003	40.83	155.00	Citrus			
	#201	942-240-004	40.83	and				
	Temecula, Ca. 92390	942-240-005	39.31	6.00	Grapes	7S/2W-26B1	282.00	
Bear Valley	c/o McMillan Farm Mgt.	904-050-080	17.51	0.00				
Vineyard Co., Ltd.	29379 Rancho Cal. Rd	904-030-021	90.12	90.00	Wine Grapes	7S/3W-18Q	192.00	
AND	#201	904-030-020	2.38	0.00				
Manley Bear Valley	Temecula, Ca. 92390	904-060-009	129.46	0.00				
Partners		904-060-008	48.00	36.00	Wine Grapes			
		904-060-010	153.47	0.00				
DiBernardo, Louis J.	m/t 35925 Rancho Cal. Rd	917-240-015-7	20.00	Total				
	Temecula, CA 92591	917-240-014-6	60.00	of				
	38695 Highway 79	917-150-006-1	120.00	105.00	Citrus	8S/1W-21K(1)	Total	
	Warner Springs, Ca. 92086					8S/1W-21K(2)	of	
						8S/1W-21P(1)	|	
						8S/1W-21P(2)	199.50	

 Well number in parentheses designated by Watermaster

APPENDIX C

SANTA MARGARITA RIVER WATERSHED
SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 93-94	IRRIGATED CROP 93-94	WELL/DIVERSION LOCATION TWP/RNG/SEC	WELL PRODUCTION AC. FT	SURFACE DIVERSION AC. FT
MURRIETA-TEMECULA GROUNDWATER AREA (Cont)								
Nevada Beverage Co.	m/t P. O. Box 93538	906-020-041	18.66	16.00	Pasture	7S/3W-7R	50.80	
	Las Vegas, Nv 89193	906-020-042	38.20	26.00	Pasture	7S/3W-18B	82.50	
	41621 Magnolia Avenue							
Boots, Clydene	P. O. Box 321	909-090-019	16.66	14.00	Pasture			
	Murrieta, CA 92362	909-100-017				7S/3W-21P	53.20	
	25555 Washington Ave							
	Murrieta, Ca. 92564							
Rancho California	3146 Quiet Hills	906-240-007	53.66	56.00	Pasture and	7S/3W-19R	220.00	
Association No. 2	Escondido, Ca. 92025	904-040-071-5	3.02		Total Olive Trees			
	42835 Ivy St., Murrieta							
Carson, David M.	25471 Hayes Ave	909-260-036	8.87	7.00	Pasture	7S/3W-29G	39.90	
and Carol J.	Murrieta, Ca. 92362	909-260-042	4.31	3.50	Pasture			
Pechanga Indian Reservation								
	Domestic Wells Reported by Bureau of Indian Affairs						Total	
	Wells in Basement Complex	Wells out of SMR Watershed	Wells with QYAL and/or QTOAL					
		8S/2W-34N1	8S/2W-26K1	8S/2W-29J1				
			8S/2W-26N1	8S/2W-34E1			of	
			8S/2W-27E1	8S/2W-34F1				
			8S/2W-28Q1	8S/2W-34F2				
			8S/2W-29B1	8S/2W-34F3				
			8S/2W-29F1	8S/2W-34M1				
			8S/2W-29G1	8S/2W-35C1				
				8S/2W-35C2				
							69.98	
TOTAL MURRIETA-TEMECULA GROUNDWATER AREA				1271.16			2189.48	0.00

 Well number in parentheses designated by Watermaster

APPENDIX C

SANTA MARGARITA RIVER WATERSHED
SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 93-94	IRRIGATED CROP 93-94	WELL/DIVERSION LOCATION TWP/RNG/SEC	WELL PRODUCTION AC. FT	SURFACE DIVERSION AC. FT
SANTA MARGARITA RIVER BELOW GORGE								
DE LUZ CREEK								
Ezor, Albert E. and Sylvia L.	m/t 31421 Cavendish Dr. Los Angeles, Ca. 90064	101-271-17	47.79	8.00 2.00	Avocados Kiwi	8S/4W-29D(1) 8S/4W-29D(2)	23.00 Total	
Bryant, Warren and Lori	40724 DeLuz Rd Fallbrook, Ca. 92028	101-271-19 101-271-20 101-271-21 101-271-22	19.08 5.02 11.86 6.41	Total of 8.00	Pasture	8S/4W-29E(1) 8S/4W-29E(2)	30.40 Total	
Prestininzi, Pete and Dorothy M.	2525 E. Mission Road Fallbrook, Ca. 92028 Richmond Truck Trail and DeLuz Murrieta Road	101-220-12 101-210-53	31.63 50.44	12.00	Avocados and Citrus	8S/4W-20A(1) 8S/4W-20H(1) 8S/4W-20H(2) 8S/4W-20A(2) 8S/4W-20H(3) 8S/4W-20A - Diversion	6.00 6.00 6.00	18.00
Raley, Harold R and Mary E.	41125 DeLuz Rd Fallbrook, Ca. 92028	101-210-11	15.23	8.50 0.50	Avocados Citrus	8S/4W-20Q(1) 8S/4W-20Q(2)	21.35 Total	
Herbel, John & Jeraldine	41257 DeLuz Rd Fallbrook, Ca. 92028	101-210-12	30.28	10.00 18.00 2.00	Avocados Citrus Row crops	8S/4W-20Q(1) 8S/4W-20Q(2) 8S/4W-20Q(3)	Total of 66.20	
Wagner, Wilbur A. and Shirley A.	m/t 14539 San Dieguito La Mirada, Ca. 90638 DeLuz Road, Fallbrook	101-210-23 101-210-22	17.19 4.55	11.00 0.50 3.00 3.00	Avocados Citrus Persimmons Persimmons	8S/4W-20P(1) 8S/4W-20P(2) 8S/4W-20P(3)	0.00 0.00 33.50	
Chambers, Robert R. and Clytia M.	m/t 11439 Laurelcrest Dr. Studio City, Ca. 91604 40888 DeLuz-Murrieta Rd.	101-571-03	41.72	18.00	Flowers	8S/4W-28A 8S/4W-28A - Diversion	40.00	4.00

 Well number in parentheses designated by Watermaster

APPENDIX C

SANTA MARGARITA RIVER WATERSHED
SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 93-94	IRRIGATED CROP 93-94	WELL/DIVERSION LOCATION TWP/RNG/SEC	WELL PRODUCTION AC. FT	SURFACE DIVERSION AC. FT
SANTA MARGARITA RIVER BELOW GORGE DE LUZ CREEK (Cont)								
Welburn, Douglas J. and Sue	40787 DeLuz Murrieta Rd. Fallbrook, Ca. 92028 40751 DeLuz Murrieta Rd	101-571-08	26.98	6.00	Row Crops	8S/4W-28G1	25.00	
Nezami, Mohammed Bluebird Ranch	2193 Calle Rociada Fallbrook, Ca. 92028	101-312-02	58.17	45.00 7.00	Flowers Avocados	8S/4W-31K(1) 8S/4W-31K(2) 8S/4W-31K(3)	Total of |	
		101-312-01	82.29	30.00	Flowers	8S/4W-31L	141.78	
						8S/4W-31L - Diversion		27.52
SUBTOTAL DELUZ CREEK				192.50			399.23	49.52
SANDIA CREEK								
Cal June, Inc.	P. O. Box 9551 No. Hollywood, CA 91609 40376 Sandia Creek Fallbrook, Ca. 92028	101-360-40	126.32	50.00 75.00 1.00	Avocados Fruit Citrus	8S/4W-25P(1) 8S/4W-25P(2) 8S/4W-25P(3) 8S/4W-25P(4) 8S/4W-25P(5)	Total Well Production of 80.00	
						8S/4W-25P - Diversion		150.00
SUBTOTAL SANDIA CREEK				126.00			80.00	150.00

 Well number in parentheses designated by Watermaster

APPENDIX C

SANTA MARGARITA RIVER WATERSHED
SUBSTANTIAL USERS OUTSIDE ORGANIZED WATER SERVICE AREAS

CURRENT OWNER	ADDRESS	ASSESSOR PARCEL NO.	PARCEL ACREAGE	ACRES IRRIGATED 93-94	IRRIGATED CROP 93-94	WELL/DIVERSION LOCATION TWP/RNG/SEC	WELL PRODUCTION AC. FT	SURFACE DIVERSION AC. FT
SANTA MARGARITA RIVER								
Henderson, Leland	m/t Margarita Land & Development PO Box 584 Fallbrook, Ca. 92088 47981 & 47991 Willow Glen Rd Temecula, Ca. 92390	918-040-10 918-060-17	120.00 40.00	20.00 Total	Citrus and Avocados	8S/3W-33Q1 8S/3W-33Q(2) 8S/3W-33Q - Diversion	43.37 4.20	53.56
SUBTOTAL SANTA MARGARITA RIVER				20.00			47.57	53.56
TOTAL SANTA MARGARITA RIVER BELOW GORGE				338.50			526.80	253.08
LOWER MURRIETA								
Robertson, Richard and Janice (Sage Ranch Nursery)	m/t P. O. Box 7060 Hemet, CA 92545 42525 E. Benton Rd.	571-020-046 571-020-047 571-020-048 571-020-049 571-520-007 571-520-008 571-520-009 571-520-010 470-210-007 470-220-004	81.09 40.80 36.75 148.86 109.50 99.43 80.23 78.20 53.62 121.00	0.00 0.00 0.00 Total of 40.00 400.00	Row Crops and Olive trees	7S/3E-7D 7S/3E-7E - Diversion	4.00	117.00
Zamora, John and Linda	39800 E. Benton Rd. Temecula, Ca. 92390	915-120-18	37.74	10.00	Pasture	7S/1W-10R(1) 7S/1W-10R(2) 7S/1W-10R(3) 7S/1W-10R(4) 7S/1W-10R(5) 7S/1W-10R(6)	Total of 38.00 Domestic	
Ann Borel and A. Ray Borel	m/t 37623 Leon Road Murrieta, CA 92363 30195 Auld Road	914-770-003	109.30	24.00	Oats	7S/2W-8P - Diversion		43.20
TOTAL LOWER MURRIETA				474.00			42.00	160.20
GRAND TOTAL				5,258.04			7,898.20	835.28
GRAND TOTAL (Not including Indian Reservation Domestic Use)				4,864.91			7,813.52	835.28

 Well number in parentheses designated by Watermaster

SANTA MARGARITA RIVER WATERSHED
ANNUAL WATERMASTER REPORT
WATER YEAR 1993-94

APPENDIX D
WATER QUALITY DATA

JULY 1995

TABLE D-2

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

SURFACE STREAMS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
Temecula Creek	03/13/87	890	575	---	---	76	---	68	---	---	<.1 @N
At Hwy 79	05/08/87	1180	750	---	---	115	---	78	---	---	<.1 @N
	09/04/87	1350	895	---	---	134	---	110	---	---	.2 @N
	01/20/88	660	370	---	---	55	---	43	---	---	.2 @N
DeLuz Creek	08/21/86	1220	760	*94	44	92	2	193	165	204	17
At Dios Rio Road	11/25/86	1200	740	92	42	92	4	175	195	146	39
	03/13/87	1090	670	---	---	85	---	165	---	---	4 @N
	05/08/87	1130	700	---	---	94	---	200	---	---	9 @N
	09/04/87	1110	755	---	---	92	---	95	---	---	3.4 @N
	01/20/88	1250	775	---	---	100	---	142	---	---	11.7 @N
Sandia Creek at	08/21/86	1070	680	88	42	78	2	174	140	198	15
Buenos Campos Road	11/25/86	1130	685	92	44	73	2	165	150	207	16
	03/13/87	1130	660	---	---	73	---	160	---	---	2.7 @N
	05/08/87	1130	725	---	---	80	---	182	---	---	14 @N
	09/04/87	1110	690	---	---	75	---	90	---	---	3.4 @N
	01/20/88	1160	720	---	---	99	---	132	---	---	5.6 @N
Murrieta Creek	08/21/86	850	510	66	15	96	4	96	135	372	10
At Gaging Station	11/25/86	890	520	62	18	103	3	109	81	259	3
	04/02/87	870	515	---	---	99	---	104	---	---	.2 @N
	05/08/87	850	790	---	---	102	---	9	---	---	.2 @N
	09/04/87	730	445	---	---	84	---	45	---	---	.7 @N
	01/20/88	830	525	---	---	85	---	109	---	---	.7 @N

* - Laboratory reported as 940

TABLE D-2 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

SURFACE STREAMS SAMPLED BY RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
Santa Margarita River at Gaging Station	08/21/86	880	540	70	15	96	2	110	115	198	5
	11/25/86	1050	600	110	24	85	3	103	105	311	4
	04/02/87	1050	660	---	---	87	---	107	---	---	.7 @N
	05/08/87	1050	630	---	---	93	---	98	---	---	1.1 @N
	09/04/87	1000	640	---	---	88	---	100	---	---	<1 @N
	01/20/88	790	400	---	---	84	---	89	---	---	.7 @N
	06/29/94	---	---	---	---	---	---	---	---	---	0.3 @N
	07/06/94	---	---	---	---	---	---	---	---	---	0.3 @N
	07/13/94	---	---	---	---	---	---	---	---	---	<0.1 @N
	07/20/94	---	---	---	---	---	---	---	---	---	0.3 @N
	07/27/94	---	---	---	---	---	---	---	---	---	0.1 @N
	08/03/94	---	---	---	---	---	---	---	---	---	0.2 @N
	08/16/94	---	---	---	---	---	---	---	---	---	<0.1 @N
	08/24/94	---	---	---	---	---	---	---	---	---	0.6 @N
	08/31/94	---	---	---	---	---	---	---	---	---	0.4 @N
	09/07/94	---	---	---	---	---	---	---	---	---	0.3 @N
	09/14/94	---	---	---	---	---	---	---	---	---	0.9 @N
	09/21/94	---	---	---	---	---	---	---	---	---	0.7 @N
	09/27/94	---	---	---	---	---	---	---	---	---	0.4 @N

TABLE D-3

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS IN MURRIETA COUNTY WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
Holiday Well	06/16/89	1300	775	122	39	100	2	178	66	372	40
7S/3W-20C09	10/18/91	---	---	---	---	---	---	---	---	---	25
	11/15/91	---	---	---	---	---	---	---	---	---	26
	12/13/91	---	---	---	---	---	---	---	---	---	28
	01/10/92	---	---	---	---	---	---	---	---	---	27
	02/07/92	---	---	---	---	---	---	---	---	---	27
	05/01/92	---	---	---	---	---	---	---	---	---	32
	05/29/92	---	---	---	---	---	---	---	---	---	28
	08/21/92	---	---	---	---	---	---	---	---	---	27
	01/22/93	960	605	83	29	83	2	130	84	278	33
	10/15/93	---	---	---	---	---	---	---	---	---	32
	03/30/94	---	---	---	---	---	---	---	---	---	44
	06/22/94	---	---	---	---	---	---	---	---	---	35
	09/14/94	---	---	---	---	---	---	---	---	---	31
House Well	06/16/89	660	345	34	3	95	2	87	60	153	<1
7S/3W-20G06	02/27/91	770	---	---	---	---	---	110	65	168	<1
	03/01/91	730	---	---	---	---	---	110	---	---	<1
	03/08/91	680	420	42	5	90	2	110	68	122	<1
	05/10/91	750	---	---	---	---	---	---	---	---	<1
	10/11/91	---	---	---	---	---	---	---	---	---	<1
	11/08/91	---	---	---	---	---	---	---	---	---	<1
	05/22/92	---	---	---	---	---	---	---	---	---	<1
	08/14/92	---	---	---	---	---	---	---	---	---	<1
	01/22/93	720	415	40	5	106	2	100	68	168	<1
	09/07/94	---	---	---	---	---	---	---	---	---	<1
Lynch Well	06/16/89	760	410	70	17	55	1	86	30	262	8
7S/3W-17R02											

TABLE D-3 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS IN MURRIETA COUNTY WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
North Well	06/16/89	730	390	40	7	98	2	98	45	201	<1
7S/3W-18J02	10/25/91	---	---	---	---	---	---	---	---	---	<1
	11/22/91	---	---	---	---	---	---	---	---	---	<1
	05/08/92	---	---	---	---	---	---	---	---	---	<1
	08/28/92	---	---	---	---	---	---	---	---	---	<1
	01/22/93	680	405	39	8	99	2	100	51	183	<1
	10/22/93	---	---	---	---	---	---	---	---	---	<1
	07/08/94	810	520	---	---	87	---	130	53	---	<1
	09/21/94	---	---	---	---	---	---	---	---	---	<1
South Well	09/07/90	690	405	62	17	68	2	83	56	229	4
7S/3W-20D	10/04/91	---	---	---	---	---	---	---	---	---	2
	11/01/91	---	---	---	---	---	---	---	---	---	3
	11/26/91	---	---	---	---	---	---	---	---	---	2
	05/15/92	---	---	---	---	---	---	---	---	---	<1
	10/01/93	---	---	---	---	---	---	---	---	---	2
	09/28/94	---	---	---	---	---	---	---	---	---	1
Alson Well	06/06/90	1520	915	138	46	110	1	250	81	433	31
7S/3W-7M											
Morris Well	09/07/90	530	280	38	7	68	3	50	49	168	3
7S/3W-19R											

TABLE D-4

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS IN RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 101	06/01/88	810	495	76	15	79	8	116	16	314	---
7S/3W-34G1	08/05/88	---	---	---	---	---	---	---	---	---	<1
	05/23/90	630	365	30	6	91	2	101	35	107	3
	08/04/93	860	465	76	14	78	2	120	22	275	<1
No. 102	01/04/89	695	370	9	2	134	1	101	25	195	<1
8S/3W-2Q1	01/15/92	930	615	38	4	160	3	160	55	250	<1
No. 105	07/06/89	500	280	30	6	66	2	71	22	134	14
7S/3W-25M1	03/17/93	480	310	17	2	80	2	67	22	110	14
No. 106	06/29/88	920	485	38	5	143	3	182	66	70	16
7S/3W-26R1	05/13/92	880	515	35	4	142	2	180	72	110	17
No. 107	04/11/88	490	365	19	4	73	2	69	22	116	15
7S/3W-26J1	05/29/91	950	535	63	15	104	3	130	120	171	11
No. 108	05/25/88	780	455	51	11	96	2	120	68	153	14
7S/3W-25E1	05/29/91	930	500	59	14	104	3	130	110	153	10
	05/13/94	640	395	23	5	100	2	120	51	104	7
No. 109	06/01/88	1400	920	136	35	120	4	100	300	296	---
8S/2W-17J1	08/05/88	---	---	---	---	---	---	---	---	---	10
	06/12/91	1330	800	110	26	120	5	120	270	275	9
	06/22/94	1370	1010	138	32	124	5	140	320	287	7
No. 110	03/31/88	1100	630	70	23	132	6	115	163	268	3
8S/1W-06K1	03/11/93	1010	610	60	21	124	5	110	200	201	3
No. 113	03/28/88	700	400	41	12	87	2	11	20	192	18
7S/2W-25H01	03/21/91	570	290	21	5	79	2	88	17	119	11
	03/03/94	700	410	46	13	86	2	120	25	189	19

TABLE D-4 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS IN RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 118	08/08/90	715	480	14	1	162	1	120	79	101	1
8S/3W-11B	09/26/90	---	---	---	---	---	---	---	---	---	1
	09/10/93	860	525	19	1	178	1	130	94	198	<1
No. 120	06/20/90	570	330	6	1	116	1	82	31	113	11
8S/2W-17G	06/10/93	590	340	6	<1	122	1	85	35	104	12
No. 121	10/27/89	900	475	63	14	99	2	109	28	290	<1
7S/3W-34J	05/19/92	1000	560	72	17	120	3	170	56	270	<1
No. 123	06/06/90	1100	690	69	27	132	6	130	170	281	4
8S/1W-7B	06/10/93	1120	690	74	25	136	6	120	190	250	5
No. 124	06/20/90	660	380	38	4	92	3	97	48	153	13
8S/2W-11R1	07/22/93	690	430	42	5	89	3	90	57	159	17
No. 125	06/20/90	740	425	17	5	132	3	99	54	186	4
8S/2W-12H	06/10/93	770	450	18	5	140	3	150	60	131	3
No. 126	05/04/88	480	290	4	<1	106	<1	53	14	64	<1
8S/2W-15H	07/06/89	500	270	2	1	108	<1	55	11	98	<1
No. 128	07/06/89	400	230	27	3	54	2	59	7	101	25
7/3W-36M	07/08/92	390	230	21	2	59	2	55	1	110	24
No. 129	11/29/89	430	260	16	3	66	2	71	16	92	9
7S/2W-20L	08/08/90	440	280	20	5	64	2	72	14	119	10
	04/01/92	---	---	---	---	---	---	---	---	---	12
	09/10/93	470	275	24	6	60	2	74	16	110	13

TABLE D-4 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS IN RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 130	02/17/88	650	365	16	1	132	1	69	64	0	4
8S/2W-11R	02/14/91	640	365	4	<1	132	1	68	56	122	---
	04/24/91	---	---	---	---	---	---	---	---	---	3
	02/09/94	650	410	3	<1	148	1	81	72	146	4
No. 131	03/10/88	530	270	4	<1	108	1	57	52	31	1
8S/1W-12J	03/21/91	630	335	7	<1	120	1	74	65	98	3
	03/03/94	660	345	9	<1	124	2	86	73	119	2
No. 132	04/18/88	1000	620	94	13	103	6	109	153	235	2
8S/1W-07D	05/08/91	920	590	64	19	110	5	100	160	201	<1
	05/13/94	730	460	50	15	78	5	73	110	195	1
No. 133	03/28/90	970	605	50	20	112	5	120	131	235	3
8S/1W-7C	03/11/93	970	580	48	19	120	4	110	140	204	3
No. 135	05/24/89	2450	1390	122	65	300	2	410	225	464	33
7S/3W-27M	06/06/90	1540	945	73	36	215	1	250	150	323	13
	12/11/90	4400	2670	270	109	480	4	1030	380	314	<1
No. 138	10/30/90	460	240	19	2	74	2	71	13	113	18
8S/2W-6F	10/06/93	420	240	11	<1	70	1	56	10	92	14
No. 139	12/29/87	460	295	24	7	65	1	60	11	104	7
7S/2W-32G	11/23/92	450	275	32	9	46	2	60	13	134	20

TABLE D-4 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS IN RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 140	02/18/88	560	325	33	10	65	2	77	14	153	13
7S/2W-33P	01/15/92	450	235	11	2	88	1	68	18	107	2
No. 141	01/06/88	780	440	64	11	82	3	65	91	217	13
8S/2W-11P	01/30/92	820	500	63	13	95	3	79	110	238	19
No. 143	01/15/88	670	345	8	2	134	1	91	57	95	11
8S/2W-17J	10/17/90	660	345	25	4	112	2	89	62	140	12
	03/03/94	690	370	24	3	114	2	93	68	131	11
No. 144	09/14/88	610	335	8	<1	114	1	95	33	92	<1
7S/3W-27D3											
No. 145	10/04/90	800	490	43	8	110	2	110	78	171	<1
7S/3W-28C	10/06/93	650	375	23	3	106	1	85	58	146	<1
No. 149	06/15/93	---	---	---	---	---	---	---	---	---	5
8S/1W-2C											
No. 149A	08/26/88	950	540	71	211	96	1	115	47	302	18
7S/3W-28A	10/31/91	800	480	36	13	122	3	93	110	195	---
No. 150	09/29/88	1950	1235	134	29	225	2	290	220	390	15
7S/3W-27P	12/21/91	1000	590	74	17	108	4	130	110	207	---
No. 151	09/20/88	5780	3410	280	114	840	5	1660	670	369	<1
7S/3W-34B											
Abandoned											
No. 151	07/25/91	860	485	53	16	103	4	90	130	183	---
8S/2W-2G	07/28/91	730	400	39	12	100	3	91	58	177	---
	07/29/91	600	340	9	2	122	5	63	34	204	---
	10/17/91	510	295	3	<1	118	1	45	10	137	---
	08/10/94	550	340	3	<1	110	1	59	22	119	<1

TABLE D-4 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS IN RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 153 8S/1W-5K3	12/29/93	804	485	53	18	92	5	86	120	214	<1
No. 154 8S/1W-5L2	01/28/94	930	530	46	20	106	6	89	130	214	3
No. 155 7S/3W-28C	09/16/93	680	355	22	2	108	1	90	64	104	<1
No. 158	06/21/94	1090	620	67	23	124	7	120	170	259	---
No. 201	03/28/91	530	315	19	6	83	2	83	16	110	2
7S/2W-27J	03/11/93	460	300	8	2	87	1	51	20	146	<1
No. 202 7S/2W-36J1	12/11/88	740	440	47	18	84	3	97	48	223	17
No. 203	05/18/88	960	580	50	39	110	4	96	115	275	---
8S/1W-6P1	06/29/88	970	530	44	36	112	4	120	123	250	5
	06/12/91	800	415	21	17	108	3	91	90	174	2
	06/22/94	980	645	59	38	99	4	130	130	256	4
No. 204	05/22/91	740	425	50	12	85	3	120	18	198	19
7S/2W-26G	05/13/94	690	375	37	7	85	3	130	19	125	19
No. 205	03/28/88	500	290	23	3	81	2	83	27	107	21
7S/3W-35A	03/13/91	490	275	22	3	75	2	62	23	113	21
	03/03/94	510	275	20	2	72	2	72	24	104	20

TABLE D-4 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS IN RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 207	09/01/88	510	245	1	<1	108	<1	54	26	82	<1
8S/2W-14B	09/14/88	480	305	3	<1	106	<1	58	23	24	1
	08/14/91	480	245	1	<1	100	<1	52	28	55	<1
	08/10/94	440	285	2	<1	91	1	56	29	76	2
No. 208	09/01/88	680	415	44	15	77	3	119	14	186	18
7S/2W-35M	09/14/88	690	440	44	14	77	3	129	14	183	16
	08/14/91	600	340	23	7	89	2	85	18	162	4
	08/10/94	560	370	22	6	89	2	93	20	156	5
No. 209	05/22/91	790	435	40	14	105	2	150	35	162	8
7S/2W-28J	05/13/94	760	525	64	22	48	3	150	15	153	25
No. 210	03/28/88	1030	575	76	22	93	5	99	143	247	4
8S/2W-12K	09/25/91	1040	600	74	20	120	5	120	160	238	5
	09/19/94	645	460	52	14	79	4	70	100	198	2
No. 212	03/28/88	640	330	42	2	74	3	81	33	146	14
8S/2W-11R	09/25/91	600	320	41	2	82	4	86	35	146	14
No. 215	08/15/90	650	380	40	13	71	3	100	14	162	11
7S/2W-34M	09/26/90	---	---	---	---	---	---	---	---	---	13
	06/22/94	630	400	41	13	67	2	110	16	159	11
No. 216	06/01/88	480	280	25	4	65	2	71	11	134	---
8S/2W-7W	06/29/88	480	275	29	5	59	3	81	7	110	26
	06/12/91	500	285	30	5	59	2	76	9	113	23
	05/27/92	470	285	33	6	53	2	72	10	119	20
No. 217	03/28/88	580	285	8	1	108	1	81	20	113	15
8S/2W-17M1	08/10/88	570	280	8	1	105	1	82	20	55	13
	08/14/91	570	305	17	2	99	2	74	28	134	16
	08/10/94	610	365	20	3	97	2	82	38	134	16

TABLE D-4 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS IN RANCHO CALIFORNIA WATER DISTRICT

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
No. 231	08/15/90	1280	805	126	18	120	5	100	310	244	9
8S/2W-20B6	09/26/90	---	---	---	---	---	---	---	---	---	6
	03/04/92	1700	1270	180	51	160	6	140	510	332	5
No. 232	08/15/90	960	590	71	19	110	5	98	130	235	30
8S/2W-11J3	09/26/90	---	---	---	---	---	---	---	---	---	35
	09/25/91	980	565	74	19	106	5	98	120	244	37
	09/19/94	805	495	54	14	92	4	80	110	207	15
No. 233 (Old 112)	06/15/88	900	535	71	21	100	5	96	136	247	4
8S/2W-12K2	03/27/91	1020	580	66	19	114	5	95	140	247	12
	03/03/94	740	425	50	14	75	4	71	100	186	2
No. 234 (Old 114)	03/31/88	840	480	54	15	100	4	61	109	241	18
8S/2W-11P	03/27/91	1020	605	69	19	114	5	77	138	256	37
No. 235 (Old 137)	06/24/88	460	310	40	10	41	2	58	10	140	15
8S/3W-1P4	06/20/90	420	230	22	4	56	2	50	6	128	18
	06/10/93	370	235	15	2	65	2	51	9	113	17
No. 301	07/29/92	500	290	20	6	80	1	45	56	143	<1
7S/3W-18Q1											
No. 302	04/11/88	690	360	36	6	100	1	77	65	192	<1
7S/3W-18H	05/15/91	760	425	58	9	87	2	83	72	220	<1
	05/14/92	---	270	12	2	90	<1	48	48	---	---
	05/05/94	870	530	69	16	84	2	110	88	238	<1
No. 309	08/15/90	690	370	19	3	119	2	140	25	73	5
7S/3W-27H	04/11/91	---	---	---	---	---	---	---	---	---	<.001
	09/25/91	730	365	19	2	122	2	150	27	82	5
	08/11/94	730	430	20	2	120	2	160	30	73	5

TABLE D-5

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS ON INDIAN RESERVATIONS

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3*	NO3
Pechanga Indian Reservation											
8S/2W-28R01	08/03/89	495	286	41	4.0	60	0.9	37	13	177	1.1 @N
	07/26/90	525	296	48	4.8	54	1.0	45	14	191	1.5 @N
	07/17/91	462	261	31	3.2	66	0.8	44	12	155	.8 @N
	07/27/93	445	269	44	4.4	43	0.5	28	14	170	1.9 @N
	08/15/94	421	232	32	3.3	55	0.9	28	11	156	1.5 @N
8S/2W-35D01	08/03/89	660	347	43	5.5	87	1.2	78	35	169	.35 @N
	07/17/91	641	371	40	4.4	98	1.7	81	36	175	.39 @N
	07/27/93	638	374	49	5.9	79	1.8	71	27	199	.34 @N
	08/16/94	601	334	30	3.2	95	1.5	71	29	163	.16 @N
8S/2W-29A01	08/02/89	346	207	31	11	24	0.4	18	7.0	131	2.0 @N
	07/24/90	354	193	32	11	25	0.4	24	6.7	133	2.0 @N
	07/18/91	361	194	32	10	26	0.4	25	6.0	134	1.8 @N
	08/15/94	363	216	33	12	25	0.5	24	7.1	132	2.6 @N
8S/2W-34B04	10/05/89	600	---	---	---	---	---	---	---	198	.47 @N
	07/18/91	564	339	46	7.4	67	1	53	27	185	.87 @N
	07/27/93	267	170	18	2.8	34	0.5	14	9.7	96	1.10 @N
8S/2W-28Q02	10/05/89	629	378	48	19	49	0.6	76	14	169	4.2 @N
	07/26/90	613	383	48	18	47	0.7	75	12	171	3.9 @N
	07/18/91	618	379	49	18	49	0.6	83	14	172	3.0 @N
	07/28/93	620	400	51	20	47	0.7	63	15	174	9.6 @N
	08/17/94	641	396	51	21	50	0.8	60	17	179	11.0 @N
8S/2W-28Q06	09/17/93	312	200	19	2.9	43	1	16	2.8	126	1.0 @N
8S/2W-20J01	08/15/90	1130	596	100	22	110	2.3	110	200	236	1.3 @N
	12/20/93	868	---	80	16	76	1.4	86	110	---	3.6 @N
8S/2W-20J02	08/15/90	404	216	42	6.3	38	0.8	27	12	159	1.2 @N
	12/20/93	408	---	42	6.0	35	0.8	29	12	---	1.2 @N

* - Alkalinity as CAC03

TABLE D-5 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS ON INDIAN RESERVATIONS

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3*	NO3
Pechanga Indian Reservation (Continued)											
8S/2W-29B01	07/28/93	421	241	13	0.68	73	0.7	55	16	109	.08 @N
8S/2W-29B02	03/01/90	456	257	5.5	0.14	89	0.8	66	22	100	---
	03/06/90	456	256	5.9	0.13	90	0.7	66	20	99	<0.1 @N
8S/2W-29B03	03/06/90	478	275	14	1.9	84	0.8	65	16	123	<0.1 @N
8S/2W-29B05	03/02/90	397	229	29	9.5	43	1.2	35	4.9	141	1.8 @N
8S/2W-29B06	03/02/90	406	259	34	11	38	0.8	38	10	143	---
	03/06/90	427	240	32	11	40	1.0	40	8.1	148	1.2 @N
8S/2W-29B07	03/07/90	396	230	8.6	2.5	71	0.9	51	11	102	<0.1 @N
	08/16/90	371	199	8.4	1.8	69	0.8	50	14	106	<0.1 @N
8S/2W-29B08	03/07/90	464	272	31	9.4	52	1.2	58	12	134	0.45 @N
	08/16/90	458	261	34	9.1	48	1.1	59	17	135	0.4 @N
8S/2W-29B09	03/07/90	343	210	21	9.2	39	1.0	24	6.7	131	1.3 @N
	08/17/90	317	197	26	10	26	1.1	22	3.4	130	1.6 @N
Cahuilla Indian Reservation											
8S/3E-2K01	07/20/89	531	323	46	11	41	3.4	60	22	136	3.6 @N
	08/01/90	508	310	46	11	38	3.3	60	19	134	3.8 @N
	07/16/91	522	306	50	10	39	3.3	61	21	139	3.7 @N
7S/3E-21L01	08/02/89	1050	675	90	19	100	3.5	84	190	216	3.1 @N
	08/01/90	1020	610	87	18	100	3.4	85	180	217	3.0 @N
	07/17/91	995	636	93	18	100	3.7	95	180	206	2.5 @N
7S/2E-33N	08/02/89	355	206	16	2.1	53	3.5	48	15	78	.73 @N
7S/3E-34E01	07/20/89	338	204	30	5.6	26	5.0	29	7.0	98	3.3 @N
	07/31/91	337	109	31	5.5	25	4.5	31	6.3	99	3.5 @N
	07/16/91	335	209	31	5.9	26	4.7	32	6.3	99	3.5 @N

* - Alkalinity as CAC03

TABLE D-6

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS ON CAMP PENDLETON

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
10S/5W-26C1	06/89	1302	734	78.1	23.0	85.9	---	136	145	212	<0.4
(Bldg 2201)	01/91	1271	---	81	36.1	152	---	166	---	---	<0.04
	06/91	1290	752	99	32.4	133	---	167	136	237	<0.4
	03/92	1210	792	91	29.8	146	---	159	135	279	<0.4
	06/93	1290	764	68.3	27.5	149	---	168	130	265	<0.4
	03/94	1210	783	100	37.1	100	---	145	167	---	2.2
	08/94	1160	741	87.5	35.5	96.1	---	141	187	---	4.23
10S/5W-23J1	06/89	1139	662	71.5	21.7	80.8	---	117	128	209	<0.4
(Bldg 2301)	01/90	1150	632	90.6	32.4	102	---	160	170	214	<0.5
	01/91	1112	---	73.7	32	128	---	136	136	---	<0.04
	06/91	1090	662	87.4	29.7	117	---	140	121	204	<0.4
	03/92	1080	644	74.2	25.8	133	---	127	118	282	1.3
	03/93	1210	674	72.8	24.5	117	---	127	124	261	<0.4
	06/93	1090	670	63.9	25.7	119	---	117	128	237	<0.4
	03/94	1120	683	73.9	27	121	---	141	130	---	<0.4
	08/94	1160	707	78.9	28.2	129	---	139	153	---	<0.44
10S/4W-18M4	06/89	1156	688	74.6	24.4	67.9	---	130	138	197	8.9
(Bldg 2373)	01/90	1120	630	86.4	32.3	101	---	156	166	210	<0.05
	04/90	1160	720	98.8	34.8	107	---	152	146	218	1.4
	01/91	1202	---	84.1	40.5	117	---	162	153	---	<0.04
	06/91	1180	736	102	37.1	106	---	163	138	197	<0.4
	03/94	1020	658	69.6	27.8	104	---	135	140	---	0.89
	08/94	1110	684	81.4	32.2	178	---	144	157	---	<0.44
10S/4W-18E3	06/89	1166	758	80.5	28.1	67.4	---	132	157	198	9.5
(Bldg 2393)	01/90	1230	748	97.4	39.7	106	---	178	179	226	<0.05
	04/90	1190	733	99.6	37.5	112	---	159	156	207	2.5
	06/91	1130	680	97.6	37.6	100	---	139	142	166	2.7
	02/94	1180	731	83.3	35.5	104	---	142	159	---	11.1
	08/94	1150	725	84.3	35.2	102	---	147	164	---	1
10S/4W-7R2	06/89	1281	765	76.5	25.1	82.4	---	149	153	209	10.3
(Bldg 2603)	04/89	1270	788	104	36.5	126	---	173	161	215	2.6
	06/91	1400	836	111	41.1	130	---	195	155	215	0.04
	02/94	1260	738	83.3	32	131	---	169	155	---	<0.04
	08/94	1260	738	84.3	33.7	129	---	166	149	---	<0.44

TABLE D-6 (cont'd)

SANTA MARGARITA RIVER WATERSHED
WATER QUALITY DATA

WELLS ON CAMP PENDLETON

Site Location	Date Tested	Specific Conductance umhos	Total Dissolved Solids (mg/l)	Chemical Constituents - mg/l							
				Ca	Mg	Na	K	Cl	SO4	HCO3	NO3
10S/4W-7H2	06/89	1137	826	79.1	28.5	85.5	---	157	158	246	12.6
(Bldg 2671]	01/90	1290	772	96.3	38.6	116	---	184	179	252	0.9/1.2
	04/90	1320	817	109	42.1	128	---	177	167	249	5.4
	01/91	401	---	87.3	44.4	103.1	---	20.5	179	---	1.07
	03/93	1500	824	92.6	33.1	136	---	194	154	277	1.8
	03/94	1370	827	103	36.4	135	---	163	145	---	0.9
	08/94	1270	762	91.1	35.5	129	---	162	172	---	5.64
10S/4W-7A2	06/89	1073	688	72.1	23.9	59.6	---	120	140	184	15.9
(Bldg 2673]	01/89	1080	572	91.2	34.2	80.2	---	151	178	174	1.4
	04/90	1130	718	111	42.1	91	---	148	167	175	9.1
	06/91	1190	718	113	40.3	93.8	---	173	180	160	7.5
	03/93	1370	708	86.9	32.8	93.3	---	147	93.3	200	4.9
	03/94	1210	783	100	37.1	100	---	145	167	---	2.2
	08/94	1160	741	87.5	35.5	96.1	---	141	184	---	4.23
10S/5W-23K2	06/89	1207	698	75.6	22.8	84	---	138	137	231	<0.4
(Bldg 33924)	04/89	1240	728	100	32.9	129	---	158	148	245	1.3
	01/91	1193	---	80.6	35.2	131	---	21.3	146	---	<0.04
	06/91	1160	676	88.1	29.6	118	---	141	129	224	<0.04
	03/92	1130	705	76.7	26	126	---	149	125	279	<0.4
	06/92	1130	717	66.8	26.7	124	---	146	140	232	<0.4
	03/93	1285	331	72.1	23.8	115	---	131	122	273	<0.4
10S/5W-13R2	01/90	1030	540	*96	26.6	94.8	---	141	130	200	0.7
(Bldg 2363]	06/91	1150	702	98.7	32	109	---	149	125	288	1.3
	06/93	1130	705	72	28.4	107	---	140	139	262	0.9
	03/94	1020	658	69.6	27.8	104	---	135	140	---	0.89
10S/5W-23G3	06/91	1160	684	83.4	28.3	125	---	145	124	223	<0.04
(Bldg 33926)	03/92	1060	674	75.9	24.1	127	---	139	111	269	<0.4
	03/93	1182	584	67.8	21.1	110	---	135	101	274	<0.4
	06/93	1020	623	60.5	22.4	116	---	125	107	225	<0.4
	03/94	1120	665	80	25	122	---	129	117	---	1.8
	08/94	1150	699	78.7	26.4	125	---	141	118	---	<0.44

* - Reported as .96

TABLE D-10

SANTA MARGARITA RIVER WATERSHED
INORGANIC WATER QUALITY DATA

EASTERN MUNICIPAL WATER DISTRICT
MONITORING FOR DISCHARGE ORDER

Site Location	Date Tested	TDS mg/l	Nitrate @ NO3 mg/l	Nitrate @ N mg/l	Phosphate mg/l	Phosphate @P mg/l	Total Phosphorous mg/l	Flow cfs
Santa Margarita River	01/24/91	900	22.6	5.1 *	2.09	0.68	---	3
at FPUD Sump	02/13/91	965	30	6.8 *	2.1	0.7	---	3
USGS Station # 11044300	03/13/91	720	0.9	0.2 *	0.2	0.1	---	e 20
	04/08/91	1005	37	8.4 *	4.3	1.4	---	e 23
	05/06/91	1150	18	4.1 *	1.4	0.5	---	e 6
	06/10/91	955	2	0.5 *	0.9	0.3	---	e 6.8
	07/08/91	935	11	2.5 *	1.4	0.5	---	e 3.4
	08/12/91	840	2	0.5 *	0.7	0.2	---	e 5.2
	09/09/91	785	1	0.2 *	0.2	0.1	---	e 6.8
	10/14/91	690	9.3	2.1 *	0.8	0.3	---	2.9
	11/12/91	900	8.7	2 *	1.4	0.5	---	1.4
	12/09/91	945	7.5	1.7 *	0.7	0.2	---	1.8
	01/13/92	890	8	1.8 *	1.5	0.5	---	8.1
	02/09/92	575	8.4	1.9 *	4.9	1.6	---	6.4
	03/16/92	905	7.1	1.6 *	0.6	0.2	---	7.9
	04/13/92	940	13	2.9 *	3.4	1.1	---	13
	05/11/92	970	11	2.5 *	1.2	0.4	---	12
	06/08/92	945	7.5	1.7 *	0.9	0.3	---	5.9
	07/13/92	835	12	2.7 *	0.47	0.15	---	3.4
	08/17/92	830	6.3	1.4 *	0.8	0.3	---	e 5.5
	09/14/92	850	1.1	0.2 *	0.3	0.1	---	9.6
	10/13/92	830	7.1	1.6	0.3	0.1	---	2.5
	11/09/92	915	11.9	2.7	0.7	0.2	---	3.2
	12/14/92	830	7.1	1.6	0.3	0.1	---	4.6
	02/26/93	535	14	3.1	---	---	0.3	e 300
	03/11/93	645	12	2.8	---	---	0.3	e 112
	04/14/93	715	2.2 *	0.5 *	1.8 *	0.6	---	e 70
	05/12/93	712	3.1	0.7	---	---	0.5	62
	06/25/93	845	8	1.8	---	---	0.1	9.2
	07/22/93	830	8.8	2 *	0.1	0.03	---	11
	08/10/93	810	8.8	2 *	0.4	0.1	---	9.6
	09/21/93	630	5.6	1.3 *	3	1	---	16
	10/21/93	715	4.4	1	0.6	0.2	---	16
	11/23/93	925	9.3	2.1	0.3	0.1	---	8.2
	12/09/93	845	8.8	2	0.3	0.1	---	5.8
	01/11/94	855	29.2	6.6	---	---	<0.05	6.3
	02/11/94	835	8	1.8	---	---	0.35	40
	03/09/94	595	15	3.4	---	---	0.45	14
	04/19/94	935	11	2.5	---	---	0.1	12
	05/10/94	1000	10	2.3	---	---	0.1	8.6
	06/07/94	950	4	0.9	---	---	<0.05	8.8

e - estimate
* - Revised

TABLE D-10 (cont'd)

SANTA MARGARITA RIVER WATERSHED
INORGANIC WATER QUALITY DATA

EASTERN MUNICIPAL WATER DISTRICT
MONITORING FOR DISCHARGE ORDER

Site Location	Date Tested	TDS mg/l	Nitrate @ NO3 mg/l	Nitrate @ N mg/l	Phosphate mg/l	Phosphate @P mg/l	Total Phosphorous mg/l	Flow cfs
Rainbow Creek	01/24/91	1170	120	27.1 *	9.21	3	---	0.39
near Fallbrook	02/13/91	1165	151	34.1 *	12	3.9	---	0.58
USGS Station # 11044250	03/13/91	1340	115	26 *	2.7	0.9	---	3.5
	04/08/91	1075	1.3	0.3 *	6.4	2.1	---	3.4
	05/06/91	1325	94	21.2 *	7.2	2.3	---	1.1
	06/10/91	1415	17	3.8 *	4.3	1.4	---	0.58
	07/08/91	1325	82	18.5 *	6.8	2.2	---	0.48
	08/12/91	1270	17	3.8 *	3.5	1.1	---	0.69
	09/09/91	1275	11	2.5 *	2.2	0.7	---	0.59
	10/14/91	130	41	9.3 *	4.8	1.6	---	0.11
	11/12/91	1320	43	9.7 *	6	2	---	0.31
	12/09/91	1290	45	10.2 *	3.5	1.1	---	0.46
	01/13/92	1330	44	9.9 *	3.7	1.2	---	0.68
	02/09/92	795	35	7.9 *	5.8	1.9	---	1.4
	03/16/92	1200	36	8.1 *	3.7	1.2	---	1.6
	04/13/92	1090	53	12 *	3.4	1.1	---	2.4
	05/11/92	1255	42	9.5 *	3.4	1.1	---	1.1
	06/08/92	1260	38	8.6 *	4.3	1.4	---	0.45
	07/13/92	1350	31	7 *	0.36	0.1	---	0.49
	08/17/92	1395	26	5.9 *	5	1.6	---	0.29
	09/14/92	1440	7	1.6 *	1.8	0.6	---	0.54
	10/13/92	1425	31	7	1.8	0.6	---	0.46
	11/09/92	1410	35.4	8	2.5	0.8	---	0.42
	12/14/92	1290	33	7.5	1.9	0.6	---	0.48
	01/26/93	490	16 *	3.5	---	---	0.2	e 22
	02/26/93	400	17	3.9	---	---	0.1	e 54
	03/11/93	555	22	5	---	---	1.2	e 12
	04/14/93	785	2.2	0.5 *	1.8	0.6	---	e 3.4
	05/12/93	942	22	4.9	---	---	2.4	e 1.6
	06/25/93	895	14	3.2	---	---	0.6	e .54
	07/22/93	840	13	2.9 *	0.5	0.2	---	e .34
	08/10/93	795	9.7	2.2 *	0.4	0.1	---	0.32
	09/21/93	750	11	2.5 *	0.6	0.2	---	0.41
	10/21/93	795	12	2.7	1.5	0.5	---	0.35
	11/23/93	1070	22	5	4.9	1.6	---	1.5
	12/09/93	890	12	2.7	1.2	0.4	---	0.41
	01/11/94	850	16	3.6	---	---	0.3	e .52
	02/11/94	950	38	8.6	---	---	0.5	2.8
	03/09/94	815	34	7.7	---	---	0.55	2
	04/19/94	1050	30	6.8	---	---	0.5	1.2
	05/10/94	1040	18	4.1	---	---	0.5	1.1
	06/07/94	1030	6	1.4	---	---	0.4	0.34

e - estimate
* - Revised

TABLE D-10 (cont'd)

SANTA MARGARITA RIVER WATERSHED
INORGANIC WATER QUALITY DATA

EASTERN MUNICIPAL WATER DISTRICT
MONITORING FOR DISCHARGE ORDER

Site Location	Date Tested	TDS mg/l	Nitrate @ NO3 mg/l	Nitrate @ N mg/l	Phosphate mg/l	Phosphate @P mg/l	Total Phosphorous mg/l		Flow cfs
Murrieta Creek	01/24/91	570	4	0.9 *	0.95	0.3	---		0.09
at Temecula	02/13/91	475	4	0.9 *	0.4	0.1	---		0.03
USGS Station # 11043000	03/13/91	750	<0.4	<0.4 *	0.2	0.1	---		18
	04/08/91	750	21	4.7 *	0.6	0.2	---		1.6
	05/06/91	535	4.4	1 *	0.4	0.1	---		0.29
	06/10/91	345	2	0.5 *	0.1	0.03	---		1.1
	07/08/91	450	6.1	1.4 *	0.3	0.1	---		0.38
	08/12/91	360	2.8	0.6 *	0.1	0.03	---		1.5
	09/09/91	640	2.4	0.5 *	<0.1	<0.1	---		3.8
	10/14/91	525	2.2	0.5 *	0.2	0.1	---		2.5
	11/12/91	460	2.8	0.6 *	0.4	0.1	---		0.06
	12/09/91	450	3.5	0.8 *	0.4	0.1	---		0.05
	01/13/92	520	4	0.9 *	0.3	0.1	---		0
	02/09/92	175	4.9	1.1 *	3.4	1.1	---		0.36
	03/16/92	510	2.7	0.6 *	0.6	0.2	---		0
	04/13/92	560	5.3	1.2 *	0.6	0.2	---		0.09
	05/11/92	545	3.5	0.8 *	0.6	0.2	---		0
	06/08/92	630	10.6	2.4 *	0.3	0.1	---		1.8
	07/13/92	585	10	2.3 *	0.1	0.03	---		2.3
	08/17/92	510	12	2.7 *	0.1	0.03	---		2.5
	09/14/92	460	2.8	0.6 *	0.1	0.03	---		2.7
	10/13/92	405	7.1	1.6	0.1	0.03	---		2.2
	11/09/92	570	0.4	0.1	0.8	0.3	---		0.05
	12/14/92	545	3.5	0.8	0.3	0.1	---		0.05
	01/26/93	640	14	3.1	---	---	0.2	e	56
	02/26/93	565	12	2.6	---	---	0.4		165
	03/11/93	630	5.7	1.3	---	---	0.4		59
	04/14/93	635	0.4	0.1 *	0.3	0.1	---		41
	05/12/93	745	0.9	0.2	---	---	0.5		33
	06/25/93	755	3.5	0.8	---	---	0.2		0.37
	07/22/93	635	1.8	0.4 *	<0.1	<0.1	---	e	0.32
	08/10/93	605	2.6	0.6 *	0.8	0.3	---		0.31
	09/21/93	500	2.6	0.6 *	<0.1	<0.1	---		0.43
	10/21/93	530	5.8	1.3	0.6	0.2	---		0.06
	11/23/93	692	4.4	1.0	2.1	0.7	---		6.5
	12/09/93	850	3.1	0.7	0.3	0.1	---		0.42
	01/11/94	535	4.9	1.1	---	---	<0.05		0.33
	02/11/94	865	<1.0	<1.0	---	---	0.4		21
	03/09/94	570	5	1.1	---	---	0.3		0.96
	04/19/94	555	3	0.7	---	---	0.1		1.5
	05/10/94	580	4	0.9	---	---	0.1		0.43
	06/07/94	505	2	0.5	---	---	0.05		0.14

e - estimate
* - Revised

TABLE D-10 (cont'd)

SANTA MARGARITA RIVER WATERSHED
INORGANIC WATER QUALITY DATA

EASTERN MUNICIPAL WATER DISTRICT
MONITORING FOR DISCHARGE ORDER

Site Location	Date Tested	TDS mg/l	Nitrate @ NO3 mg/l	Nitrate @ N mg/l	Phosphate mg/l	Phosphate @P mg/l	Total Phosphorous mg/l	Flow cfs
Santa Margarita River	01/24/91	800	2.2	0.5 *	0.4	0.1	---	1.1
near Temecula	02/13/91	780	2.2	0.5 *	0.6	0.2	---	0.81
USGS Station # 11044000	03/13/91	830	13	2.9 *	0.4	0.1	---	15
	04/08/91	790	9.7	2.2 *	40.0	13	---	8.3
	05/06/91	750	3.5	0.8 *	0.4	0.1	---	2
	06/10/91	570	1.3	0.3 *	0.1	0.03	---	2.8
	07/08/91	565	4.4	1 *	0.3	0.1	---	5.1
	08/12/91	540	1.9	0.4 *	0.1	0.03	---	2.7
	09/09/91	680	1.5	0.3 *	<0.1	<.01	---	4.3
	10/14/91	475	15	3.4 *	0.3	0.1	---	4
	11/12/91	705	3.5	0.8 *	0.3	0.1	---	1.1
	12/09/91	700	3.5	0.8 *	0.4	0.1	---	1.2
	01/13/92	770	6.2	1.4 *	6.0	2	---	6
	02/09/92	245	2.7	0.6 *	2.8	0.9	---	2.6
	03/16/92	760	3.1	0.7 *	6.1	2	---	2.8
	04/13/92	800	12	2.7 *	8.9	2.9	---	6.3
	05/11/92	790	25	5.6 *	1.2	0.4	---	4.7
	06/08/92	650	5.8	1.3 *	0.3	0.1	---	7.2
	07/13/92	550	7	1.6 *	0.1	0.03	---	3.3
	08/17/92	570	6.7	1.5 *	<0.1	<0.1	---	2.8
	09/14/92	555	1.2	0.3 *	0.1	0.03	---	3.1
	10/13/92	495	6.2	1.4	0.1	0.03	---	3.1
	11/09/92	720	1.8	0.4	1.2	0.4	---	1.5
	12/14/92	650	10	2.3	0.2	0.1	---	1.6
	01/26/93	665	14	3.2	---	---	0.4	e 65.0
	02/26/93	540	11.5	2.6	---	---	0.4	e 220.0
	03/11/93	645	5.3	1.2	---	---	0.2	72
	04/14/93	685	0.4	0.1 *	0.3	0.1	---	50
	05/12/93	763	1.3	0.3	---	---	0.4	59
	06/25/93	825	4	0.9	---	---	0.2	2
	07/22/93	830	4	0.9 *	0.1	0.03	---	2.2
	08/10/93	615	1.8	0.4 *	0.2	0.1	---	4.4
	09/21/93	530	1.3	0.3 *	0.3	0.1	---	11
	10/21/93	640	1.3	0.3	0.3	0.1	---	13
	11/23/93	555	4.4	1	1.8	0.6	---	5.3
	12/09/93	580	4	0.9	0.3	0.1	---	2.2
	01/11/94	840	3.1	0.7	---	---	<0.05	e 2.4
	02/11/94	830	2	0.5	---	---	0.5	29
	03/09/94	845	5	1.1	---	---	0.15	5.7
	04/19/94	990	4	0.9	---	---	0.1	3.4
	05/10/94	955	4	0.9	---	---	0.5	3.9
	06/07/94	1080	3	0.7	---	---	0.1	e 6.2

e - estimate
* - Revised

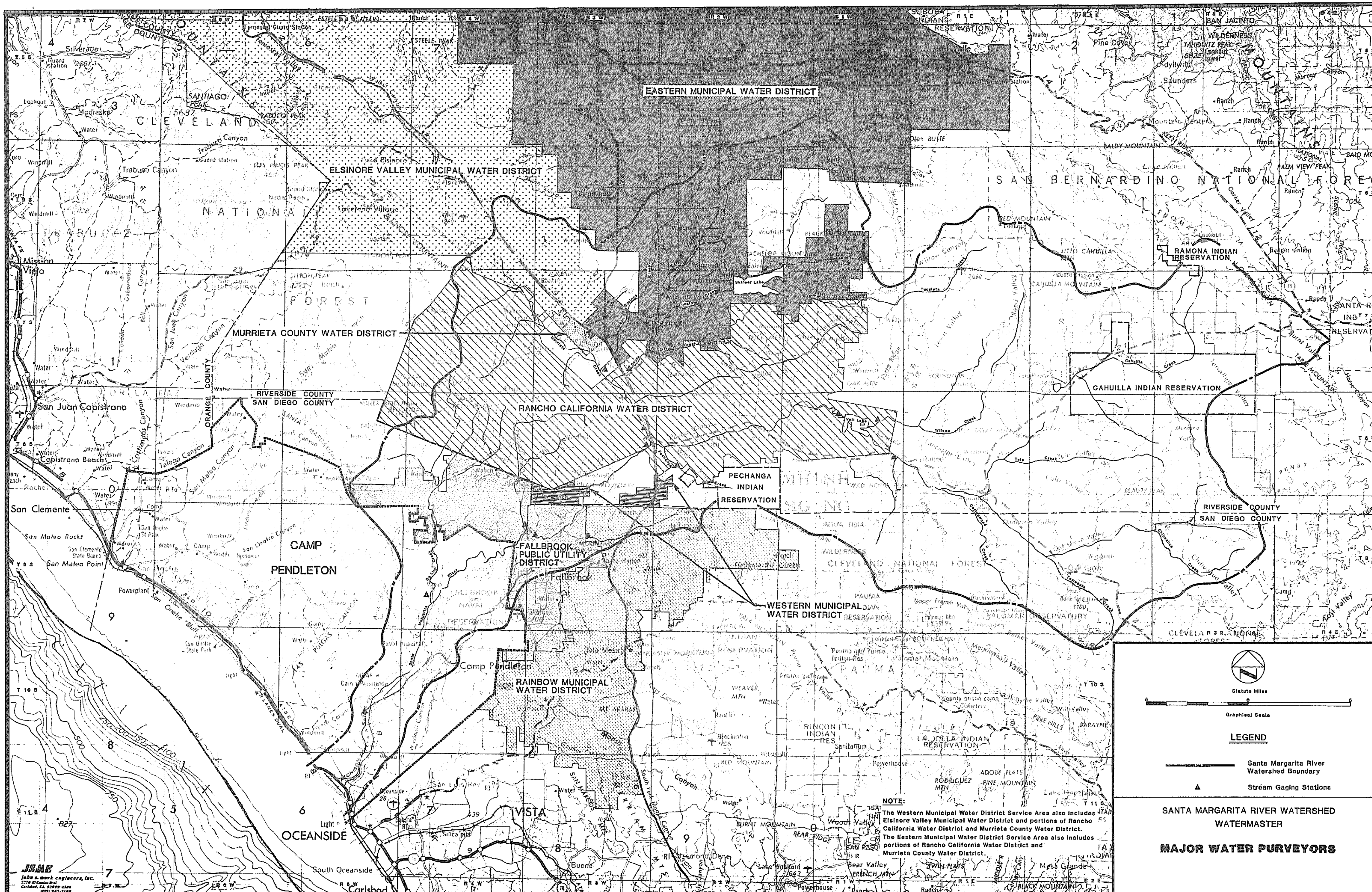
TABLE D-10 (cont'd)

SANTA MARGARITA RIVER WATERSHED
INORGANIC WATER QUALITY DATA

EASTERN MUNICIPAL WATER DISTRICT
MONITORING FOR DISCHARGE ORDER

Site Location	Date Tested	TDS mg/l	Nitrate @ NO3 mg/l	Nitrate @ N mg/l	Phosphate mg/l	Phosphate @P mg/l	Total Phosphorous mg/l	Flow cfs
Pechanga Creek	01/24/91	DRY						0
near Temecula	02/13/91	DRY						0
USGS Station # 11042631	03/13/91	DRY						e .25
	04/08/91	DRY						0
	05/06/91	DRY						0
	06/10/91	DRY						0
	07/08/91	DRY						0
	08/12/91	DRY						0
	09/09/91	DRY						0
	10/14/91	DRY						N/A
	11/12/91	DRY						N/A
	12/09/91	DRY						N/A
	01/13/92	DRY						N/A
	02/09/92	245	2.7	0.6 *	3.7	1.2	---	N/A
	03/16/92	DRY						N/A
	04/13/92	DRY						N/A
	05/11/92	DRY						N/A
	06/08/92	DRY						N/A
	07/13/92	DRY						N/A
	08/17/92	DRY						N/A
	09/14/92	DRY						N/A
	10/13/92	DRY						0
	11/09/92	DRY						0
	12/14/92	DRY						0
	01/26/93	275	50	11.4	---	---	0.1	e 0 .80
	02/26/93	320	14	3.1	---	---	0.4	29
	03/11/93	345	16 *	3.5	---	---	0.2	8.3
	04/14/93	780	18	4.1 *	0.6	0.2	---	0.58
	05/12/93	355	2.6	0.6	---	---	0.8	0.76
	06/25/93	405	2.6	0.6	---	---	0.2	0.36
	07/22/93	365	2.7	0.6 *	0.2	---	---	e 0.20
	08/10/93	250	3.1	0.7 *	0.2	0.1	---	e 0.20
	09/21/93	---	---	---	---	0.1	---	0.03
	10/21/93	---	---	---	---	---	---	0
	11/23/93	---	---	---	---	---	---	0
	12/09/93	---	---	---	---	---	---	0
	01/11/94	---	---	---	---	---	---	0
	02/11/94	---	---	---	---	---	---	0
	03/09/94	415	1	<1.0	---	---	0.2	0
	04/19/94	---	---	---	---	---	---	0
	05/10/94	---	---	---	---	---	---	0
	06/07/94	---	---	---	---	---	---	0

e - estimate
* - Revised


EASTERN MUNICIPAL WATER DISTRICT
ELSINORE VALLEY MUNICIPAL WATER DISTRICT
MURRIETA COUNTY WATER DISTRICT
RANCHO CALIFORNIA WATER DISTRICT
PECHANGA INDIAN RESERVATION
FALLBROOK PUBLIC UTILITY DISTRICT
WESTERN MUNICIPAL WATER DISTRICT
RAINBOW MUNICIPAL WATER DISTRICT
CAMP PENDLETON
CAHUILLA INDIAN RESERVATION
RAMONA INDIAN RESERVATION
RIVERSIDE COUNTY
SAN DIEGO COUNTY
ORANGE COUNTY
CLEVELAND NATIONAL FOREST
SAN BERNARDINO NATIONAL FOREST
San Clemente
San Juan Capistrano
OCEANSIDE
VISTA
Carlsbad
Statute Miles
Graphical Scale
LEGEND
Santa Margarita River Watershed Boundary
Stream Gaging Stations
NOTE:
The Western Municipal Water District Service Area also includes Elsinore Valley Municipal Water District and portions of Rancho California Water District and Murrieta County Water District.
The Eastern Municipal Water District Service Area also includes portions of Rancho California Water District and Murrieta County Water District.
SANTA MARGARITA RIVER WATERSHED
WATERMASTER
MAJOR WATER PURVEYORS
JSME
John S. Murk Engineers, Inc.